

# **Strategic Market Assessments for New Technologies**

**Fall Semester 2005  
GEB 6930-003/EIN 6934-004**

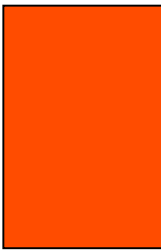



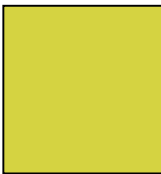


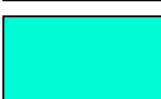






## **“Phone Leash”**

**A Cell Phone Safety Cord/Antenna**

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## **I. Executive Summary**

### ***A. Background***

Mr. Frank Bates is the inventor of the cell phone safety cord/antenna nick-named the Phone Leash. He is currently the owner of Bates RV Exchange, a private company specializing in sales and rentals of recreational vehicles.

### ***B. Opportunity***

The current embodiment of the invention seeks to both safeguard cell phones against damage due to falls and improve their reception by increasing antenna length. The combination of the two in this invention makes it unique in the marketplace.

### ***C. Product***

The Phone Leash is comprised of a coiled cord containing a metal antenna wire. The cord is attached, on one side to a loop or clasp that can be attached to a belt, pant belt loop or a cell phone holster, and on the other side to the cell phone. The cell phone attachment currently will use the lanyard loop present in most cell phones. The wire present in the cord will be attached to the existing cell phone antenna using a loop or clasp.

### ***D. Market***

Global cell phone sales totaled 180.6 million units in the first three months of 2005, compared with 153.7 million units in the same period last year. This represented an annual growth rate of 13% over 2004. This represents a growing global market for this invention that can only increase.



### ***E. Situational Analysis***

The main strength of the Phone Leash includes the knowledge and contacts that Mr. Bates has in marketing his product. Even though the technology and marketing assessments advised to abandon or out license the product, these do not take into account that Mr. Bates already knows how and where to market his product efficiently. Another main strength includes the lack of any competitor in the marketplace. If Mr. Bates can get his product to market as soon as possible, he can get a foothold on a market that does not exist. Although these strengths should carry the product through its development, there are also weaknesses present that have to be overcome. These weaknesses are led by the absence of a working prototype (as of this writing). Without a prototype that can be used in marketing of the product, no progress can be made to get the product sold, making all of the other weaknesses irrelevant.

The opportunities for this product can only grow larger since the market for cell phones keeps increasing throughout the world. In addition, since this product can be marketed to a broad range of users, the possible growth of this product could be exponential. If a strong foothold can be established here in the U.S., then it would be a natural progression to begin marketing in other parts of the world. Threats to the success of this product include competition from possible “knockoffs” due to outsourcing manufacturing to China and possible decrease in cell phone usage due to dangers discovered from cell phone radiation.

### ***F. Conclusions and Recommendations***

The main issue that has to be resolved before anything else can progress is finishing a working prototype. Once this is accomplished, The prototype can be used for marketing and mass production. Another issue that is present is the filing of a patent to protect the



intellectual property. Although progress can be made without this, it gives the inventor a sense of security that he will not be sued due to patent infringement.

Other recommendations include:

- Creation of a company
- Setting up an infomercial



## **II. Background**

Mr. Frank Bates is the inventor of the Phone Leash. He is currently the owner of Bates RV Exchange, a private company specializing in sales and rentals of recreational vehicles. Mr. Bates got the idea for his invention from the personal experience of dropping his phone both on the ground and in the water. He also heard from friends' and customers' experiences that mirrored his own, as well as other mishaps that his invention would prevent from happening.

Cell phones have become a part of everyday life. People have become increasingly more dependent on their cell phones to keep in touch with everyone from loved ones to business associates. As well as keeping oneself connected to the outside world, cell phones have given us a sense of freedom and enjoyment (with such abilities as capturing photos and video, playing games and most recently, listening to music) that would have been hard to imagine just a few years ago. With all of these features being added to cell phones, their price tags can make even Bill Gates take a step back. For this reason, there has to be a way of safeguarding the cell phone against loss, theft or damage. Increasing the range of reception to stay in touch with the world is also important. Even though insurance exists to cover cell phone misfortunes, the data that is lost may never be replaced. The current embodiment of a cell phone belt attachment with a built in antenna booster seeks to address all of these problems. With the ability to safe guard a cell phone by attaching it to one's belt loop, as well as increasing the efficiency of the antenna by literally extending it, makes this an essential product for the everyday cell phone user.

The current device consists of a looped cord that has an antenna embedded in it. The antenna is connected to the cell phone by way of a physical attachment using the accessory



antenna port that many cell phones now have, or by way of a ring that is placed over the antenna. When the cell phone is stretched to the ear to use, the antenna is also stretched, thus improving antenna gain, as well as decreasing the possible harmful effects of cell phone radiation by spreading it out over a broader area (away from the head).



### **III. Opportunity**

There are significant opportunities for this product in various markets of the wireless telephone industry. The strongest of these areas are:

*Recreational boating:* The safety cord feature will prevent phones from falling into the water. Typical users will always try to avoid dropping their phone, but it often happens anyway. One would hope it lands in the grass or bounces off their foot instead of hitting the hard concrete. However, while boating the dropped phone will often bounce or slide off the deck into the water. Or simply land in the water on the boat. Needless to say the probability of losing a phone that is dropped while boating is far greater than any other time the phone might be dropped. The Phone Leash prevents this.

The antenna feature also becomes very useful while boating. The Phone Leash may increase phone reception while offshore where baseline reception is poor. This additional feature makes boaters a prime target market for the Phone Leash.

*Travel:* The safety cord feature will prevent phones from being lost. During travel overseas on a plane, boat, bus, train, or a boat or even while driving in a car, people are often sitting for extended periods of time. Whether their cell phone is in a pocket or clipped onto their belt, it will often come out and fall on the seat. During extended travel when people might sleep or move around in their seats there is a greater chance of the phone getting loose and disappearing. This often occurs on short car trips as well, like in a taxi cab. The Phone Leash will prevent this.

“In the last six months alone, the nine-nation survey of leading taxi companies in Australia, Denmark, Finland, France, Germany, Norway, Sweden, Great Britain, and the U.S. indicated tens of thousands of digital devices were left behind inadvertently. The U.S. Company polled in the survey, a major Chicago cab company, reported the highest number of losses per taxi of all firms



studied, both in mobile phones (3.42 per cab) and PDAs/Pocket PCs (0.86 per cab).<sup>1</sup> The Chicago company fleet statistics indicate a staggering 85,619 mobile phones... left in the firm's licensed cabs during the six months covered in the study.”

The antenna feature of the Phone Leash may increase reception in remote locations where baseline reception is poor. This provides an added benefit for bringing Phone Leash on your next trip.

*On the Job Site:* Professions such as construction, those that take place on or near water, those that involve a great deal of physical activity, and other outdoor occupations that involve harsh environments often have a need for wireless communication. These working conditions require a way to keep cell phones from being lost or destroyed during the job, but also must make sure phones are easily accessible. The Phone Leash will solve these problems.

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<sup>1</sup> “Taxis Hailed as 'Black Hole' for lost Cell Phones and PDAS, as Confidential Data gets Taken for a Ride” *Pointsec Mobile Technologies* CHICAGO, IL - January 24, 2005  
[http://www.pointsec.com/news/news\\_pressrelease.asp?PressID=2005\\_January\\_24](http://www.pointsec.com/news/news_pressrelease.asp?PressID=2005_January_24)



#### IV. Product

The Phone Leash is a consumer accessory for cellular telephones. The bungee cord device allows for attachment of a cell phone to one's self. It features a safety clip that easily connects onto a belt, purse or other article a person might be carrying or wearing. It is long enough to allow users to use the phone quickly and easily as normally accustomed. It then compresses to a length short enough for the owner to easily place his phone in his pocket or onto a belt clip.

When the phone is dropped, the bungee cord stretches out and springs the phone back to the individual to prevent loss and/or damage to the phone. The cord itself can be colored or be covered in special materials for aesthetic fashions and coordination. Each phone model will need a specific attachment designed to ensure security. Different phone models have different points of attachment and may allow for easier connection of the Phone Leash.

An added benefit is that the bungee cord also has an antenna wire for the spring which may significantly increase the reception of the phone. Different materials and configuration are currently being tested. Each cell phone manufacturing company has different antenna configuration and some have antenna plugs while others do not. This requires different models of the Phone Leash.

A universal model of the Phone Leash has the bungee cord attached by a stick plate to any portable electronic device without an antenna. This model provides only the safety features of the Phone Leash.





## V. Market and Segments

### A. Market Size

In 2003 there were more than 1.137 billion cell phone connections worldwide<sup>2</sup>. In 2000 the number of cell phone shipments was close to 400 million and expected to increase steadily to nearly 900 million in 2005.<sup>3</sup> China has the most cell phone usage, with 334 million cell phones in 2004. Penetration of mobile phones in the U.S. was the next highest at 180 million.

#### **Mobile Phone, Internet, and Personal Computer Penetration in Major Economies in 2004<sup>4</sup>** (Numbers in Millions)

<b>Country</b>	<b>Mobile Phones</b>	<b>Internet Users</b>	<b>Mobile-to-Net Ratio</b>	<b>Installed PCs</b>
China	334	94	3.6:1	42
US	180	201	0.9:1	204
Japan	94	68	1.4:1	54
Germany	68	42	1.6:1	40
UK	54	30	1.8:1	26
Italy	54	26	2.1:1	15
S. Korea	34	30	1.1:1	27

Although the United States comes in second for the most cell phone usage, the number of installed PCs in the U.S. is much higher than other major economies. This suggests that there is plenty of room for computer growth in other countries, room for cell phone growth in the U.S., or both.<sup>5</sup> In the United States, sales for the cell phone market exceeded \$124 billion in 2004. The 180 million cell phone subscribers in the U.S. make up only 61% of the country's population.<sup>6</sup>

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<sup>2</sup> "Riding the big wireless wave: can anything stop the endless summer of profits from Qualcomm's cell phone innovation?" *Electronic Business*, 29 (10): 54, July 01, 2003.

<sup>3</sup> "Faster, better, smaller." *Electronic Business*, 27 (12): s22, December 2001.

<sup>4</sup> "It's a mobile world for broadband, too." *Online Reporter*: 18, June 18, 2005.

<sup>5</sup> "It's a mobile world for broadband, too." *Online Reporter*: 18, June 18, 2005.

<sup>6</sup> "Entertainment options flourish at CTIA." *TWICE*, 20 (6): 1, March 07, 2005.

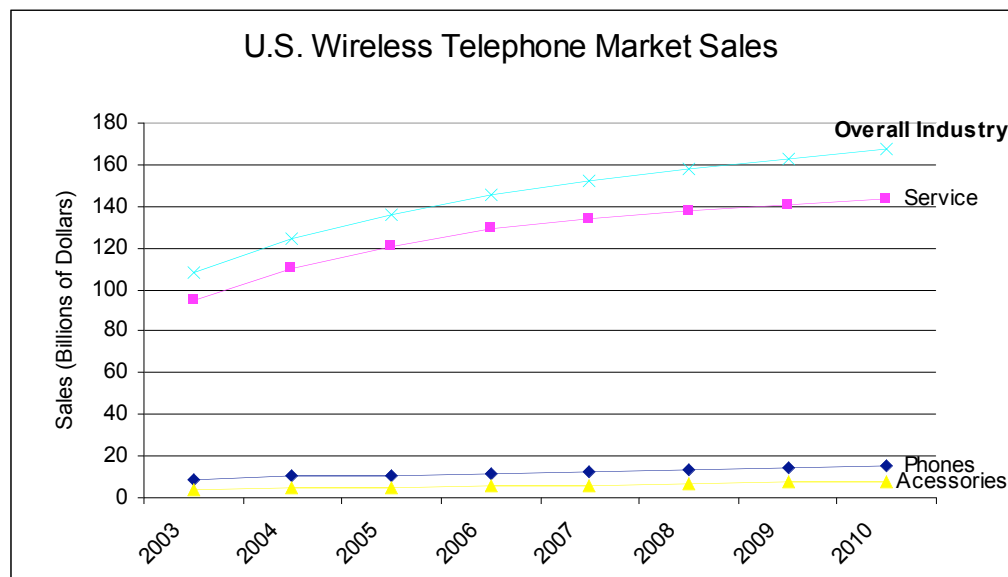


## B. Market Growth

The wireless telephone market has grown steadily since the 1980s and is expected to continue to grow as more and more people become cell phone users and new technologies and features are introduced.

While the average cell phone service bill decreased until 1998<sup>7</sup>, the number of people subscribing to cell phone carriers – and buying cell phones and accessories – steadily increased. This number is still increasing, but now people are also paying more for service. New features such as text messaging, pictures, and ring tones are being used more and more, bringing in additional sales to cellular carriers.

Sales for the wireless market for 2003 and 2004 and estimates for 2005-2010 are shown below.



<sup>7</sup> Trigaux, Robert. "FCC vote ends cell phone industry's adolescence." *St. Petersburg Times*, November 14, 2001.



Sales for the cell phone market could grow almost 35% in six years to reach \$170 billion in 2010. Cellular service makes up a majority of sales, but phones and accessories are expected to have a large percentage growth in this time period. Percentage growth for cell phone service providers, phones, and accessories, and U.S. sales for each segment are shown below.

#### **Expected Percentage Growth from 2004-2010**

<b><u>Segment</u></b>	<b><u>% Growth</u></b>
<b>Phones</b>	49.86%
<b>Service</b>	31.20%
<b>Accessories</b>	77.18%
<b>Overall Industry</b>	34.40%

Growth rates for the industry are expected to be between 6% and 15% in the U.S. in the next year. By 2010, growth for cellular service will slow down as a greater percentage of the population will have a service plan already. Phones and accessories, however, will have more room to grow, especially with the increase in the number of younger cell phone users. As the market becomes saturated in the United States, companies will begin to focus more on foreign markets where fewer people are using cell phones, but the number of users is climbing.

An obvious trend driving growth is the convenience of cell phones. Having easy access to a phone makes many lives easier, especially in the increasingly fast-paced society in which we live. They are desirable in the case of an emergency, even more so now that pay phones are becoming harder and harder to find (mostly because so many people have cell phones).

The industry is growing as technology becomes more advanced. Cell phones can do more, so more people want them. People are getting to be more comfortable with new technologies including cell phones. Children are growing up not knowing a time when cell phones did not exist, and they are the up and coming market for the industry.



Young people, including children as young as 8, are beginning to use cell phones more and more. This also opens the door for greater sales in the personalization market (including accessories), as kids like things to be unique, colorful, and fun.

Advancement of technology also makes devices smaller, which means they are easier for users to wear. For example, they can more easily be carried in a cell phone holder attached to an article of clothing. This trend could increase the amount of accessories sold and also the amount of talk time. Cell phone users will have easier access to their phones, making more calls and using additional features more often.

### ***C. Market Segmentation***

The wireless market encompasses three main segments: wireless service, handsets, and cell phone accessories. When it comes to sales, the service segment makes up the largest part of the wireless market. This is in part due to the fact that service sales continue on a regular basis, unlike one-time or occasional purchases of handsets or accessories. Revenues drop only when cell phone users discontinue service (which is not widespread at this time) or when rates decrease.

Handsets are purchased less often, but continuing technology improvements allow for newer models to replace old ones, maintaining handset sales. Handset sales also increase as more people become first time cell phone users.

Accessories account for the smallest part of the market, but will most likely see the highest percentage growth as the wireless market matures. The cell phone accessories market



currently generates about \$5 billion a year and is expected to grow 10 to 15% per year. Profit margins for accessories range from 60 to 80%.<sup>8</sup>

#### ***D. Market Expansion***

As the percentage of cell phone users in industrialized countries approaches the maximum possible, expansion of the wireless telephone market will increasingly take place in countries with lower penetration rates. In the U.S. and other countries with high cell phone usage such as China, new technologies that can be integrated into cell phones will become a greater part of the market. Expansion will also take place in the accessories market, where people can make their cell phone use more convenient or personalized.

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<sup>8</sup> Noguchi, Yuki. "Portable Gadgets Adding a Little Chic to Geek," *The Washington Post*, October 18, 2005.



## **VI. Situational Analysis**

### ***A. SWOT Analysis***

#### **Strengths**

- Dual purpose product (safety cord and antenna) has greater perceived value
- No similar product on market yet
- Can be manufactured inexpensively/ high margin possible
- PI has knowledge of channels to sell product
- No up-front inventory or cost needed for infomercial sales
- Financial support for product
- Enthusiasm and experience of PI

#### **Weaknesses**

- No current brand name established (“Phone Leash” a possibility)
- New player in large accessories market
- No final prototype yet
- Product is not very attractive at current stage of development
- No patent filed/assigned
- There are alternative accessories (separate cord or antenna booster)



## **Opportunities**

- Growing youth and teen market
- Increasing cell phone use
- Increase in purchase of accessories
- Increase in outdoor, marine, RV/travel, remote location driving activities
- Wireless phone users demand better reception even in more remote locations
- Professions such as construction, those that take place on or near water, those that involve a great deal of physical activity, and other outdoor occupations that involve harsh environments rely on cell phones in the work place more

## **Threats**

- Copies of product made in foreign countries such as China are sold at a lower price
- Cell phone users see alternative accessories as better fitting their needs/more useful
- Bigger competitors such as Bell South can get similar products to the market
- Cell phone carriers improve reception (for example, by increasing the number of towers)
- Cell phone manufacturers increase the quality of handsets and built-in antennas, increasing reception quality
- Consumers' fear of cell phone dangers increase/ research shows that cell phone or antennas cause harm



## ***B. Issue Analysis***

1. How can a memorable brand image be created for the product that will set it apart from the many accessories, brands, and companies?

Many memorable brand images have been created from simple safety products. The Gear Keeper<sup>9</sup> is a similar product brand targeted to the professional fire and police industry. These professionals have radios, flashlights and other equipment they carry and need to easily grab and use. They have become accustomed to the Gear Keeper that hooks the device to their clothing for simple use at any time. The Gear Keeper's logo and features are specifically designed for this market. They've further added new specially designed products for the scuba and outdoor hunter/adventurer markets to add to the branded image.

The Phone Leash can equally be branded and targeted. However, instead of competing with the Gear Keeper, the Phone Leash could easily exploit a unique brand image of the fashionable accessories market for teens.

2. Will the fastest growing markets be interested in and buy the product?

The Phone Leash, branded and targeted as a necessary safety device to the fashionable accessories market for teens, would exploit this large growing market. Different brand accessories already on the market could supplement the style and benefits of this new product. For instance, the motorcycle market has already created an image of chains hanging from the belt to hold big leather wallets. This accessory has been expanded to include knives and keys attached to the chains as well. Younger people

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<sup>9</sup> Gear Keeper Retractors <http://www.gearkeeper.com/>



could accessorize similarly with their cell phones. Most youths have no need for the big wallet and ring for keys, but a growing majority of youths are carrying cell phones.

3. Will a patent protect the product from knock-offs made abroad? How will this affect sales?

Knock-offs are inevitable. The initial market splash planned with infomercials will bring the best benefits. If the Phone Leash can be brand imaged immediately, like the Gear Keeper, the strong splash in sales could level off to a strong ongoing residual income. Website development and link posting with infomercials will help create strong association with the brand.

4. Is the perceived value of the product actually greater than that of two accessories that, when used together can serve the same purpose of the product?

The Phone Leash provides a strong safety feature. Other products which can be used to secure the phone are designed as a mechanical function only accessory. Most products are black plastic, inexpensive and unobtrusive. The Phone Leash sold as a fashion accessory, which has added security and reception benefits, provides for a completely different brand. The antenna booster is a device hidden from view, while the Phone Leash could be marketed as the new fashion accessory of the 21st century. Youth can control and leash their phones to keep in touch with family and friends, but also send messages, snap spontaneous pictures or listen to the newest music.



5. How quickly must the product arrive in the market?

The quick infomercial technique for creating a strong fashionable brand is an opportunity that anyone can exploit now. The Phone Leash needs to be completed, tested and marketed as quickly as possible.

6. How can this product succeed over bigger players if/when they develop and market competing products?

Creating a unique brand with targeted marketing could circumvent the large player strategies. When the products are mass marketed the strong start with quick drop-ship delivery will provide a likable economical brand which will take competitors time to catch up with. If the infomercials create a strong splash with the youth market, bigger players will only be offering knock-offs that resemble the original.

7. How can the new product become well-known in the large accessories market?

With the sudden splash of infomercials and a quick delivery of aesthetic and functional Phone Leashes, the fast growing teen market might make it a well-known product by itself. With the high cost of cell phones whenever a teen loses, or drops a phone, it can mean a big expense. The teen market will be the first to respond to the “accessories feel” of the Phone Leash but also might be the best to benefit from the safety features as well.



8. How will reception improvements by cell phone carriers and handset manufacturers affect sales of the product?

Whether other market forces increase the reception and quality of calls or not, the Phone Leash antenna feature will still be valuable. People will always lose calls when in buildings or driving under bridges. Improved reception will always be necessary. It might not be a critical feature for this product, but more of an added benefit to make the Phone Leash more unique. There will always be times when phone reception is affected, making the antenna feature that much more beneficial.



## **VII. Competitive Analysis**

### ***A. Competitors***

There are no direct competitors to this device, but the closest thing available on the market would include the combination of a cell phone tether and a cell phone antenna booster. The market price for cell phone tethers ranges from \$15.99 to \$24.99. What is available at these prices ranges from a simple spring cord attachment to a retractable tether with proprietary cell phone attachment. The market for antenna boosters ranges from \$1.99 to \$19.95. What is available at these prices range from a simple circuit board type sticker to an add-on mini-antenna.

### ***B. Summary of Competitive Analysis***

Since there is no direct competitor on the market, it is very difficulty to perform a direct competitive analysis. Using the separate cell phone attachments and boosters, this product should be competitive, as long as it is both marketed and priced appropriately. The price of the device will be set at \$15.95, which is according to the average market pricing of selected cell phone tethers and boosters.



## **VIII. External Market Influences**

### ***A. Economic/Market Environment***

#### **Overall Economy**

The economy could affect the sales somewhat. If the economy is doing well, people will spend more money on extras such as more talk time, the use of more per-use charged features, and purchase of newer phones and accessories. The opposite is true if the economy is not doing so well.

#### **Technology**

Advancements in technology keep people wanting more. When there is always something new being offered, there are always people who have to have it. This has occurred in the cell phone industry with smaller phones, color phones, picture phones, and phones that play music. Development of new useful and fun accessories such as hats, sunglasses and clothing with built-in cellular microphones also fall into this category.

#### **Safety**

Safety concerns about cell phones could negatively affect the industry. Such concerns have been raised in the past, but they did not seem to have a large effect. Recently the Supreme Court rejected an appeal by the cell phone industry that would have stopped class-action lawsuits over potentially dangerous radiation emissions. Events such as these could both harm and help the industry. If technologies evolve that make cell phone use safer, these devices could greatly increase sales.



## **Seasonality**

Holiday months may have a slight impact on the industry if cell phones and related products are given as gifts. Some accessories and devices may be used and purchased more in warmer months, such as accessories that increase reception when in remote locations (for boating, camping, etc.)

### ***B. Risks and Challenges***

Creating a unique brand with targeted marketing could circumvent the large player strategies. When the products are mass marketed, the strong start with quick drop-ship delivery will provide a likable economical brand which will take competitors time to catch up with. If the infomercials create a strong splash with the youth market, bigger players will only be offering knock-offs which resemble the original.

The riskiest event that may occur will be the availability of competitors to this device. There is currently a patent for a cell phone lanyard/antenna owned by Bell South. If and when this device is introduced to the market, it will have a negative effect on our device by either improving on it, or by taking away market share. In addition, Bell South may want to bring litigation against our device for infringement of their patent. For this reason, our device should be placed in the market as soon as is feasible, as well as begin seeking patent protection to cover any possible litigation scenarios.

Another challenge is going to be getting the device to market in both a cheap and timely manner. According to the inventor, the device is going to be marketed using infomercials. The stipulation is going to be placed in the infomercial to await delivery of the device in 4 to 6



weeks. This time period would allow manufacturing in China and shipment either directly to the customer or to a central dispatch location here in the U.S. A possible drawback to this scenario is the reliance of delivery on timely manufacturing. A reliable manufacturer has to be contracted for production, as well as a dependable shipping carrier here in the U.S. Without these, the device may garner negative publicity which would deter future purchases.

Finally, the touting of the antenna as a “booster” still has to be proven to allow effective marketing of the device. Without this, any sales will have to be done on a conditional “may improve reception” basis. Several risks have surfaced through the development of the Phone Leash. This includes:

- The unique brand that is immediately copied and the market is saturated with knock-offs.
- Patent is not strong or unique enough and large competitors file a patent infringement suit.
- Phone Leash antenna reception qualities come into question, where FCC or others require additional testing.



## **IX. Resources Required/Available**

### ***A. Personnel***

The Phone Leash was developed by Mr. Frank Bates. He contacted USF's Entrepreneur Center in Tampa where he spoke to Dr. Fountain about his interest in developing a patent on this new product. Dr. Fountain signed a disclosure for USF and invited Mr. Bates to present his invention to the Strategic Market Assessment class of Fall 2005. Mr. Bates invention was assigned to our team.

Our team has brought in several other professional consultants to assist in the product development. This included Herb, a Patent Attorney with over 30 years experience; Sam, a metal shop crafter with over 25 years experience; and Anthony, a manufacturing specialist selling over \$12 million last year through website advertisement of the drop-shipped imported products from China.

### ***B. Facilities/Equipment***

All personal are using there own resources and equipment. Consultants are billing Mr. Bates directly for their time and expenses. Mr. Bates has the option of renting space from Anthony to store the next shipping container of product from China or finding another location for storage. Anthony has several product distribution companies operational already and has provided Mr. Bates with another contracting option for drop shipping the Phone Leash to consumers. In addition to the storing and drop-shipping, Anthony may provide a website with ordering options for a continued revenue stream long after all Infomercials have been aired.

Sam at the shop has completed the first prototype for testing and is working on a finished commercial product for the infomercials. The original design specifications were for a spring



made of beryllium copper as listed in other patents for better antenna reception. Beryllium Copper costs far exceeded the expected sales price for the finished product, so other materials were found for the spring. Additionally design specifications identified Antenna Adapter Cable Item No. 354002 from Wilson Cellular Solutions to connect the spring antenna to the phone. However, the Motorola i710 phone provided by Mr. Bates for construction of the prototype utilizes item No. 340007 from Wilson to connect antennas. To install this item, the existing antenna is unscrewed and discarded. After consulting with Mr. Bates, Sam used the discarded antenna to create a suitable connection to the new spring antenna prototype. The finished product is now being tested by the USF Cellular Electronics Lab.

### ***C. Funding***

Mr. Bates has fully funded all operations:

• Prototype development & constructions	\$500
• Patent Development	\$5000
• Infomercials	\$23,500
• China trip and contracting	\$5,000 + 10%
• Initial container of product delivered	\$12,650

### ***D. Intellectual Property (IP)***

#### **1. Patents**

Patent development completed by Herb is nearing completion. Mr. Bates contacted Herb to pursue patent development immediately. The patent drawings are half finished as contracted out to a professional plate artist. The patent search has been completed which added another few similar patents to the four the team already found (see Appendix - Patents). The other US Utility Patent documents are currently being prepared and are due to be filed before Christmas.



## **2. Other**

Product copyrights for creating a brand images are underway. A new product company was started to match the sales website, brochure and additional products. Team member are also considering beginning a patent development company to utilize resources in future developments.



## X. Projected Sales

### Historical and Projected Sales for Wireless Telephone and Cell Phone Accessories Markets Sales in \$Millions

	<u>Historical</u>			<u>Projected</u>				
	Year T-3	Year T-2	Year T-1	Year 1	Year 2	Year 3	Year 4	Year 5
	2003	2004	2005	2006	2007	2008	2009	2010
<b>Overall Industry</b> (Wireless Telephone Market)	108,285	124,360	136,413	145,966	152,628	158,233	162,596	167,146
<b>Specific Market</b> (Cell Phone Accessories)	4,132	4,545	5,000	5,500	6,050	6,655	7,321	8,053
<b>% of Overall</b>	3.82%	3.65%	3.67%	3.77%	3.96%	4.21%	4.50%	4.82%
<b>Product</b>								
<b>Best Case</b>				100	110.00	121.00	133.11	146.42
<b>Worst Case</b>				5.00	4.50	4.05	3.64	3.28
<b>Most Likely</b>				30.00	33.00	36.30	39.93	43.93
<b>% of Overall</b>				0.02%	0.02%	0.02%	0.02%	0.02%
<b>% of Specific</b>				0.55%	0.55%	0.55%	0.55%	0.55%

Sales of the overall industry (wireless telephones) were found by adding the sales of cellular phones, service, and accessories. The table below outlines sales for the segments of the wireless telephone market.

### Historical and Projected Sales for Wireless Telephone Market Sales in \$Millions

	<u>Historical</u>			<u>Projected</u>				
	Year T-3	Year T-2	Year T-1	Year 1	Year 2	Year 3	Year 4	Year 5
	2003	2004	2005	2006	2007	2008	2009	2010
<b>Phones</b>	9,091	10,171	10,783	11,391	12,340	13,313	14,245	15,242
<b>Service</b>	95,062	109,644	120,630	129,075	134,238	138,265	141,030	143,851
<b>Accessories</b>	4,132	4,545	5,000	5,500	6,050	6,655	7,321	8,053
<b>Overall Industry</b>	108,285	124,360	136,413	145,966	152,628	158,233	162,596	167,146



Cell phone (handset) sales for 2003 and 2004 and forecasted sales for 2005-2008 were taken from Consumer Electronics Association data.<sup>10</sup> Since growth was fairly steady for these years and growth in related segments is expected to continue, we used the average growth from 2005-2008 (which was 7%) to predict sales for 2009 and 2010.

Service sales for 2003 and 2004 were found by multiplying the total number of subscribers by the average monthly service plan bill<sup>11</sup> and then multiplying that value by 12 to get annual revenue. To determine projected cellular service sales, we used the percentage growth in subscriber base<sup>12</sup> for corresponding years.

Sales in 2005 for the specific market (cell phone accessories) were \$5 billion and are predicted to grow 10-15% each year.<sup>13</sup> The projected sales for 2006 to 2010 increase by 10% (the most conservative estimate) and sales for 2003 to 2004 are decreased by 10%.

Projected sales for the product were estimated based on sales of competitors of various sizes. Sales of large companies like Motorola are much higher than would be obtainable by a relatively unknown player in the market selling a new product. Sales will probably also be lower than that of smaller companies, but if successful, the product could generate significant revenue.

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<sup>10</sup> "The pulse of our industry." *Electronic Design*, 53 (14): 27, June 30, 2005.

<sup>11</sup> "CTIA: '04 subscriber gains are second-best in history." *TWICE*, 20 (8): 16, April 04, 2005.

<sup>12</sup> "Entertainment options flourish at CTIA." *TWICE*, 20 (6): 1, March 07, 2005.

<sup>13</sup> Noguchi, Yuki. "Portable Gadgets Adding a Little Chic to Geek," *The Washington Post*, October 18, 2005.



## **XI. Options**

Final options we have considered in the development of the Phone Leash cellular accessory include the incorporation of a patent development group to continue utilizing the professional contractors brought together for this project. Mr. Bates knows several other patent developers who will easily benefit from the operations exemplified by our team. Additionally, bringing the staff together for developing an infomercial and the proper marketing methods allows for patent holders to get their products earning income before incurring any significant expenses.

Our team was able to take the original idea through a prototype, testing and market brand targeting within the time frame of a short 16-week class semester at USF. Each of these steps significantly increased the opportunity for success of the Phone Leash.



## **XII. Conclusions and Recommendations**

Several things remain to be worked out with our device. These include:

- Creating a corporation to shield personal assets
- Manufacturing a prototype that is both functional and visually appealing
- Getting the manufacturing infrastructure in place
- Setting up the infomercial to market our device including: script, on air persona, filming and distribution
- Setting up a location for distribution of the product as orders come in

Once these points are addressed, further work can be performed on research and development of future products.

Our recommendations include the following:

- Patent protection should be addressed as soon as possible
- Manufacturing costs should be calculated according to Chinese manufacturing
- Shipping costs should be calculated according to weight range of device and using standard ground method
- If possible, get a celebrity to help market device
- Lease a warehouse here in Tampa as a central processing location
- Members of SMA team will continue on as consultants to see progression of device from idea to product



### **XIII. Implementation Program**

The following is a timeline of events that need to be accomplished to get the product on the market:

- a. A provisional patent needs to be filed as soon as possible to protect the individuality of the device in the market place. This will also allow us to place a “patent pending” descriptor in all marketing information, adding a little more legitimacy to the device.
- b. Prototype needs to be finished and perfected as soon as possible. Included in this is finalizing the materials of construction and any specifics not handled during creation of the prototype. This prototype will be used as a template for future production runs, as well as being used in marketing of the device.
- c. A manufacturing company has to be contracted to build full product. A possible company is already being looked at, with costs and logistics associated with manufacturing of the device as major concerns.
- d. A company needs to be contracted to produce both a 30 second and a 30 minute infomercial. Included in this process is deciding who will be the spokesperson for the device (celebrity, Mr. Bates, etc...), what the theme will be for the infomercial, finalizing a script and deciding where and when they will be broadcast.
- e. A decision has to be made on what the final price of the device will be. This will be determined by a marketing assessment of current devices available on the market which most closely resemble our device.
- f. A company needs to be created to handle all the business aspects associated with this device. This will also shield all parties involved from possible litigation involved with using device.



- g. A decision has to be made whether to use a warehouse or a personal house (Mr. Bates's) to store inventory and use it as a central receiving and shipping facility.
- h. A carrier needs to be contracted to take care of all shipping needs. This will determine costs and timelines associated with shipping the device to the customer.
- i. A plan of action needs to be created to give guidelines in the creation and running of the company. These include the following:
  - i. All job positions available and their responsibilities.
  - ii. Marketing background for the device and all financial aspects associated with the device (costs associated with the device, including front and back end).
  - iii. Having an accounting system to keep track of costs and inventory.
  - iv. Having contingency plans if one of steps in the process fails (i.e. have secondary plans for manufacturing site, shipping carrier, etc...)
- j. Research has to be started on the benefits of the extendable antenna. This includes contracting USF to do the research.







## **XIV. Appendix**

### **1. Patents**

### **2. Competitive Products**

### **3. Important Documents**

### **4. Marketing Information**

### **5. Marketing Assessments**



# **Patents**

- 1. Tethering System for Personal Electronic Devices**
- 2. Retracting Tether for Cell Phones, Pagers & PDA's**
- 3. Cellular Phone Leash**
- 4. Retractable Holder**
- 5. Retractable Cord for a Mobile Phone or Other Wireless Device**
- 6. Holder for an Electronic Device**
- 7. Retractable Tether System for Cellular Phone**
- 8. Combination Lanyard and External Antenna for Wireless Communication Device**
- 9. Multi-strap Holder**
- 10. Connector with Strain Relief**





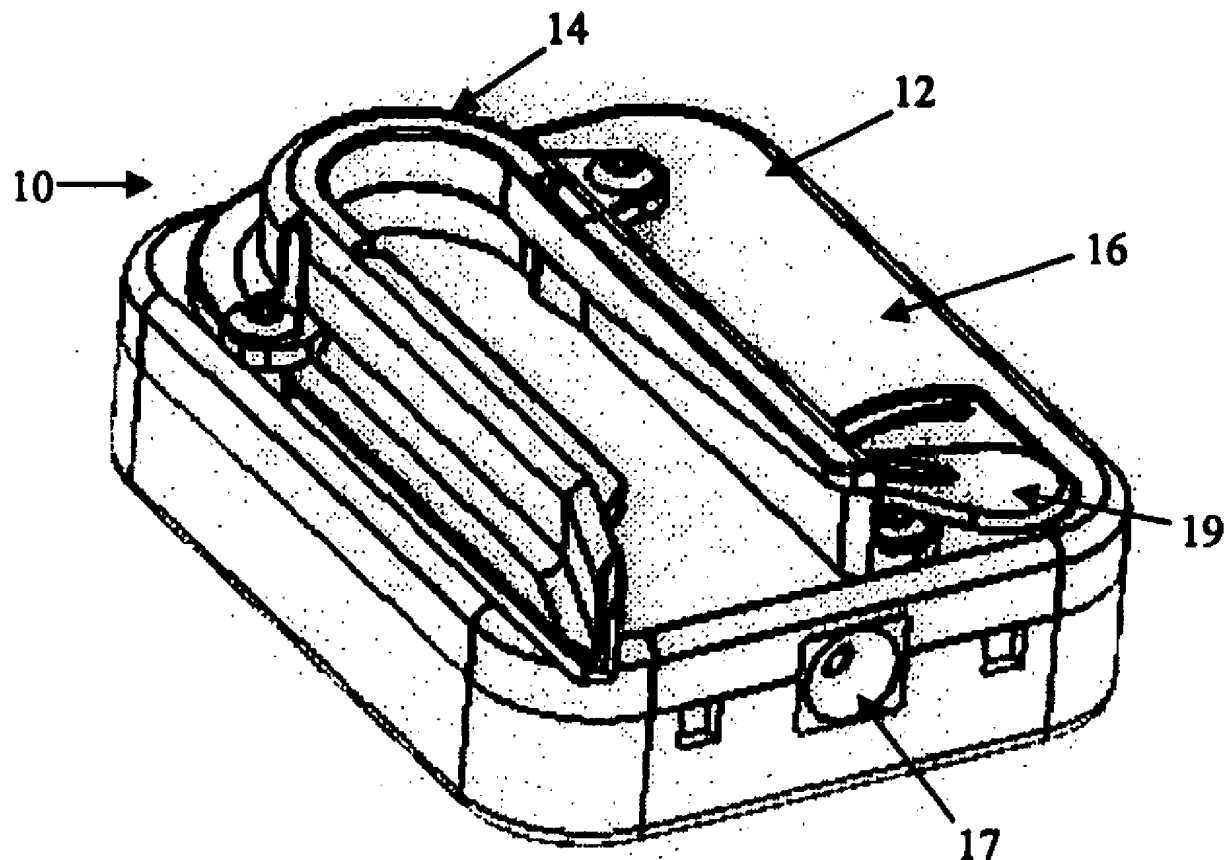
US 20050011982A1

(19) **United States**(12) **Patent Application Publication**  
**Salentine et al.**(10) **Pub. No.: US 2005/0011982 A1**(43) **Pub. Date: Jan. 20, 2005**(54) **TETHERING SYSTEM FOR PERSONAL  
ELECTRONIC DEVICES****Publication Classification**(51) **Int. Cl.<sup>7</sup>** ..... **B65H 75/48**(52) **U.S. Cl.** ..... **242/379.2**(75) Inventors: **John A. Salentine**, Santa Barbara, CA  
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**THOUSAND OAKS, CA 91360 (US)**(73) Assignee: **HAMMERHEAD INDUSTRIES, INC.**(21) Appl. No.: **10/816,036**(22) Filed: **Mar. 31, 2004****Related U.S. Application Data**(60) Provisional application No. 60/459,777, filed on Apr.  
1, 2003.(57) **ABSTRACT**

A tethering system according to the present invention comprises a housing having front and back surfaces and a tether internal to the housing. A spring is also internal to the housing and arranged to allow the tether to be extended from the tether housing against the force of the spring, with the spring urging the tether to retract into the housing. A mounting apparatus is included on the back surface of the tether housing and is arranged to mount the tether housing to a person. A holstering system is included on the front surface of the tether housing and arranged to allow a personal device to be mounted to the tether housing with the tether attached to the personal device. The tether is extendable to allow use of the personal device by the person. The spring and tether also preventing the personal device from falling to the ground.





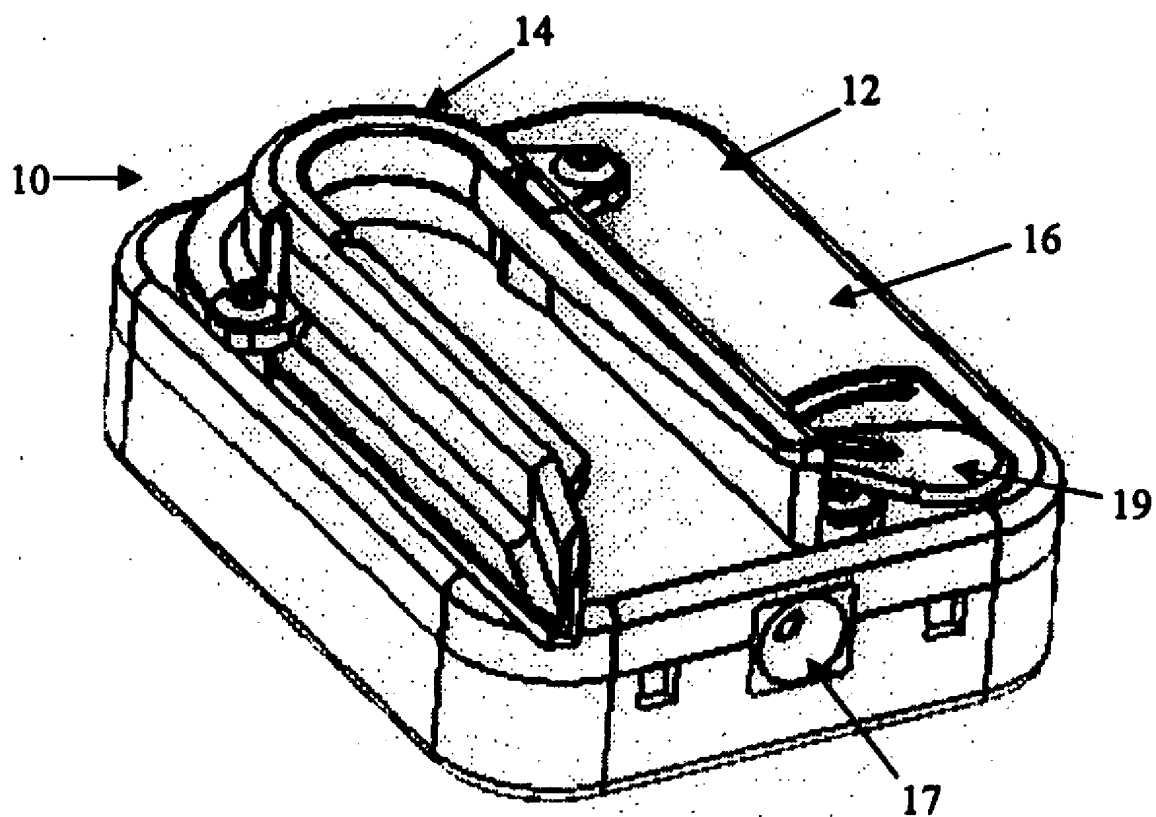


Figure 1



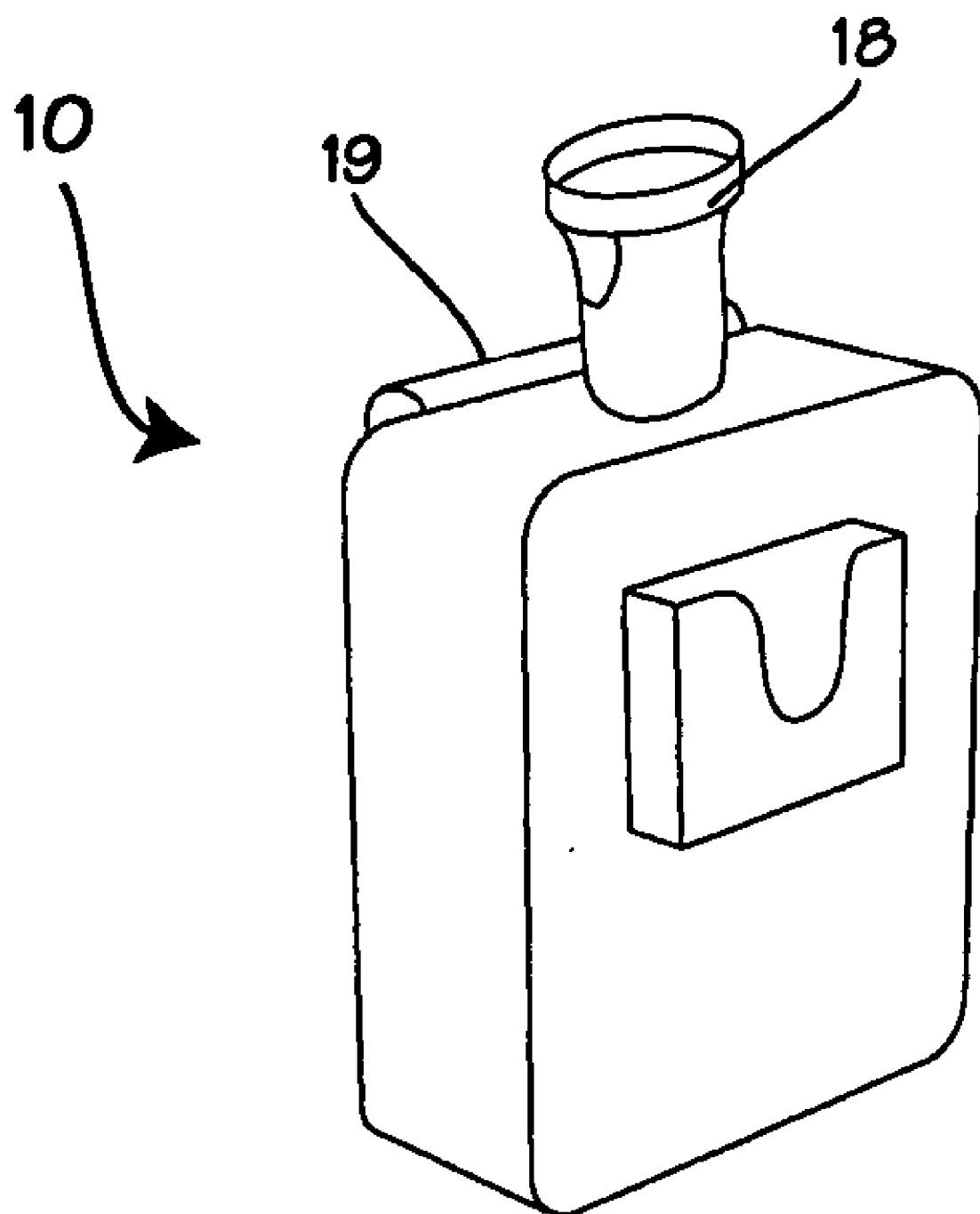
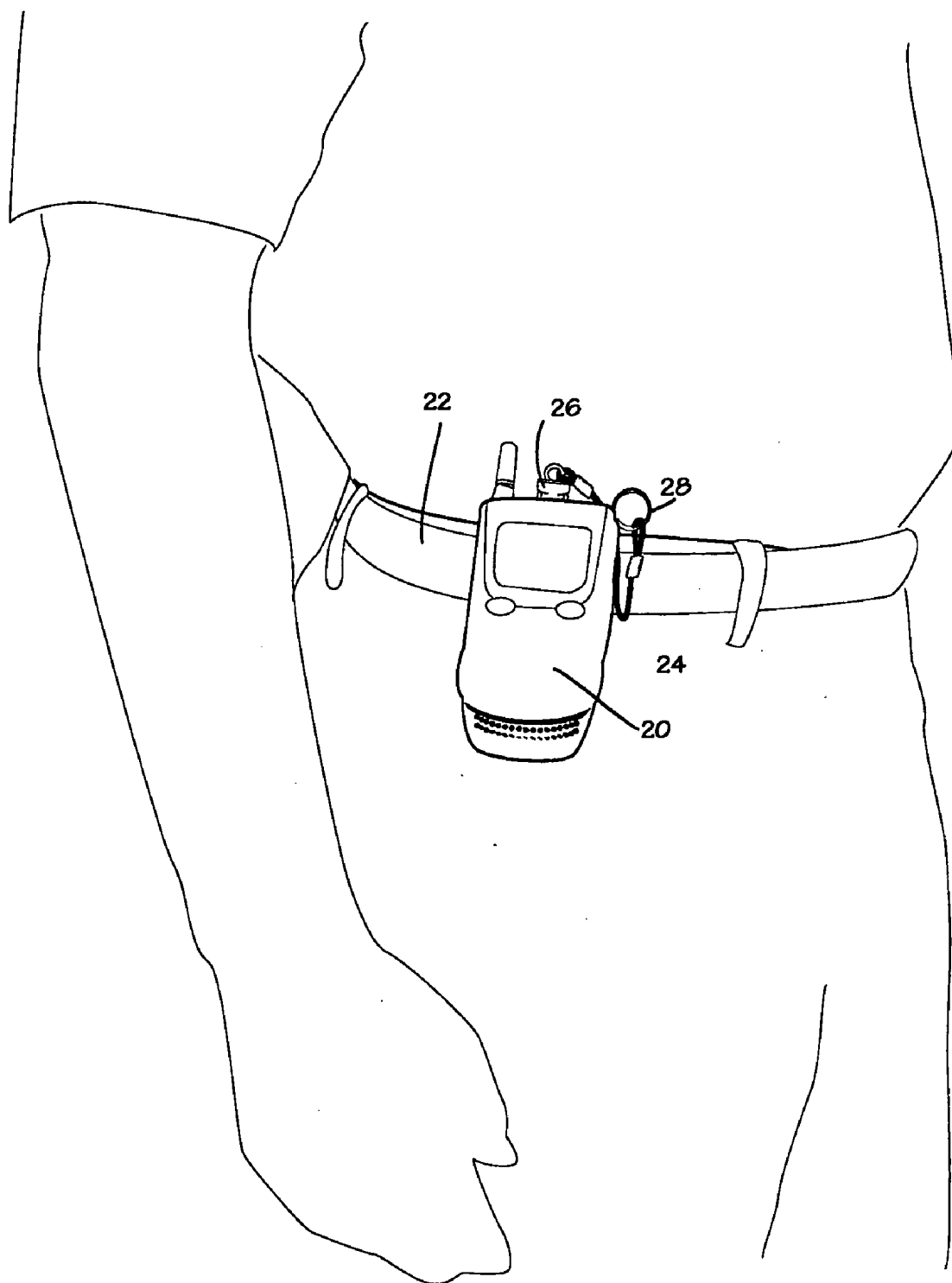


Figure 2



Figure 3





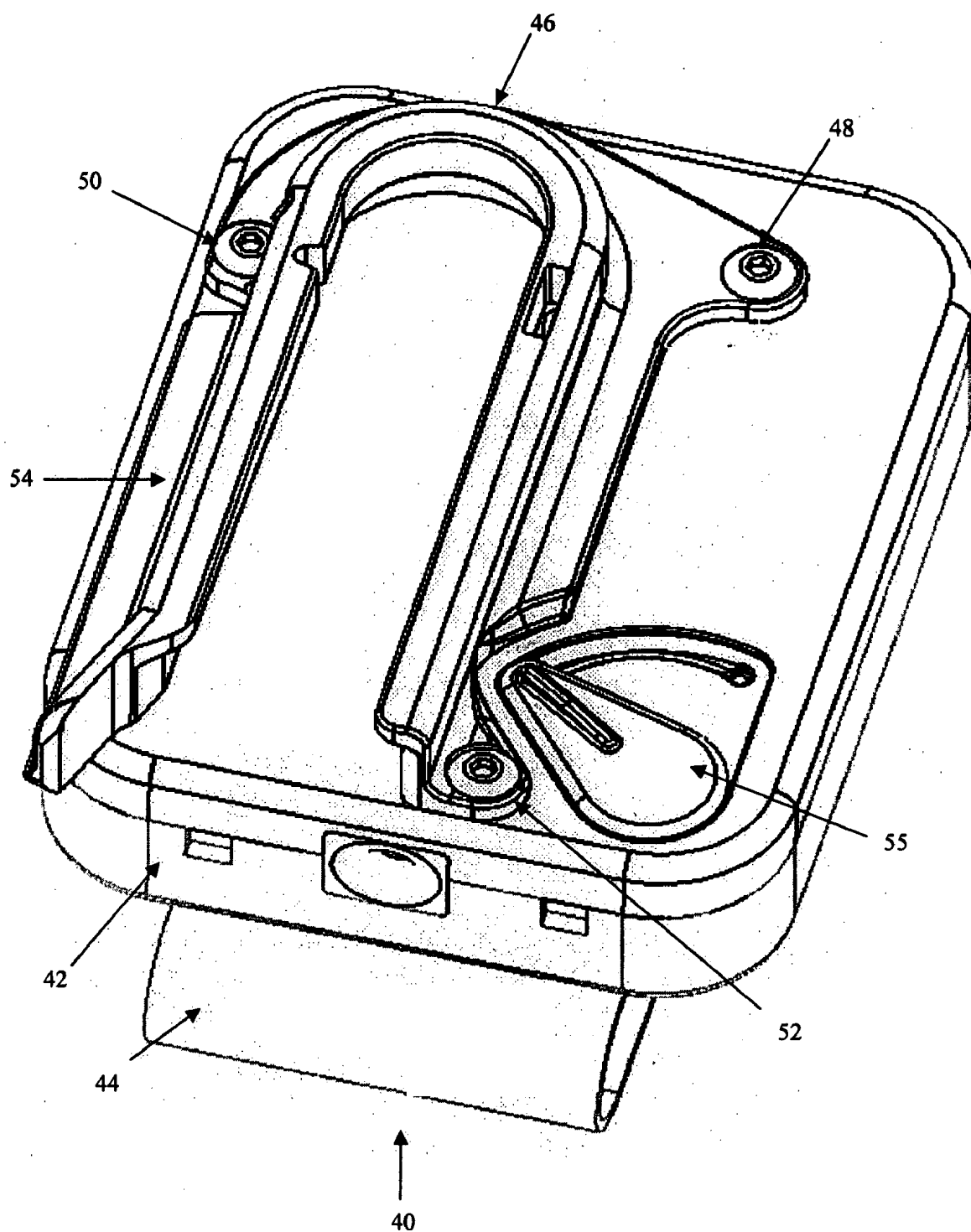
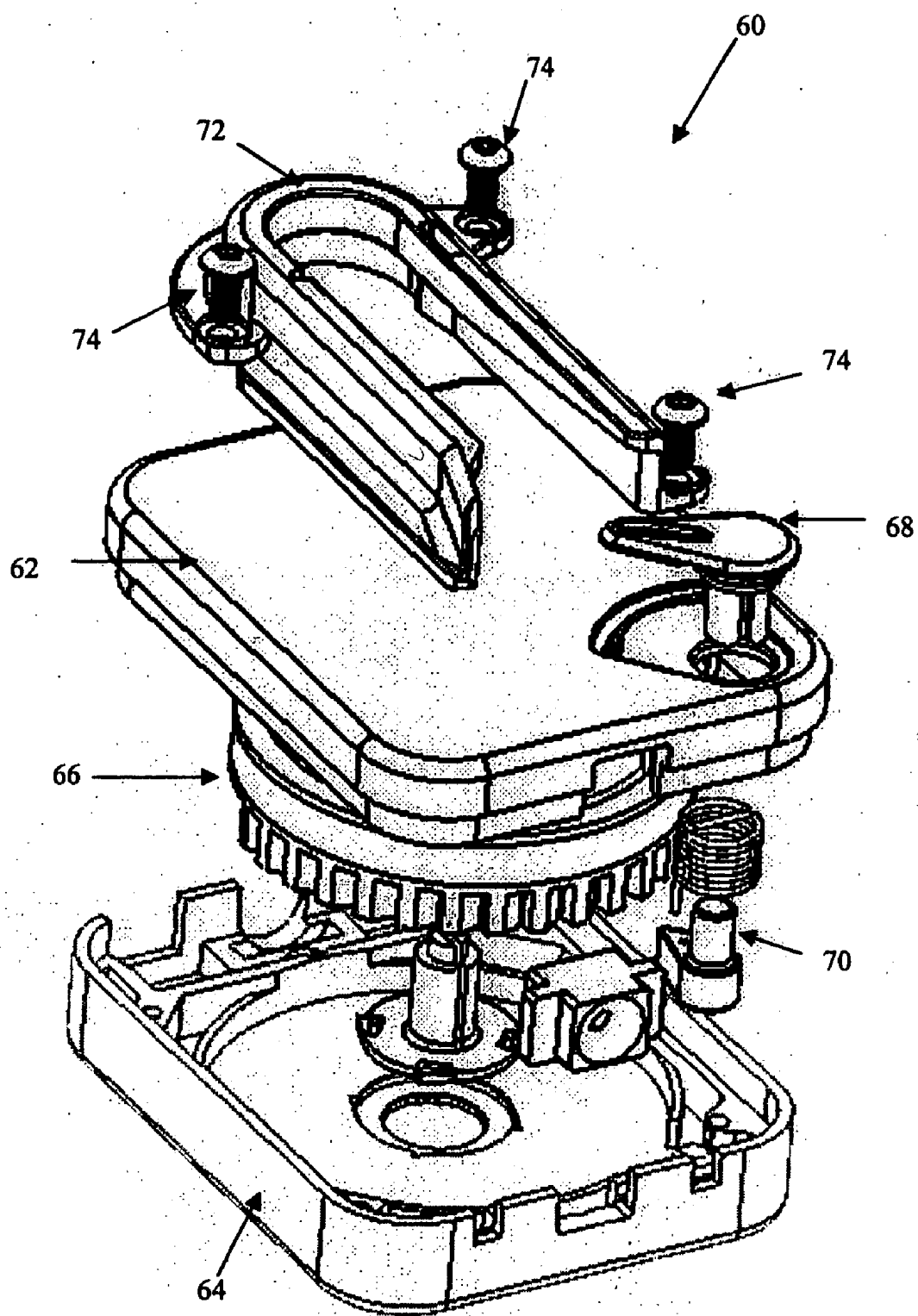


Figure 4





**Figure 5**



## TETHERING SYSTEM FOR PERSONAL ELECTRONIC DEVICES

[0001] This application claims the benefit of provisional application No. 60/459,777 to Salentine et al., which was filed on Apr. 1, 2003.

### BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to securing hand held personal articles and more particularly for tethering personal electronic devices such as cell phones, pagers and PDA'S.

[0004] 2. Description of the Related Art

[0005] Personal hand held electronic devices such as cell phones, pagers, and PDA's have become very popular in recent years. These devices are designed to be highly portable and capable of being carried by their owners throughout the day. When not in use, it is desirable to keep these devices conveniently within arms reach while at the same time not having to hold the devices. They can be held on the owner's body by a clip mount, holster or storage pocket. For example, cell phones made by Nokia can come with a clip mount that attaches to the user's belt or waste band and has a notch that mates with a pivoting ball on the back of the phone. The ball is inserted within the notch and the ball and notch combination holds the phone to the clip mount.

[0006] One disadvantage of most conventional clip mounts, holsters and storage pockets, is that the electronic device that they are holding can be jarred loose and fall to the ground where it can be lost or damaged. Also, when the electronic devices are removed from their clip mount, holster or storage pocket for use, they can be dropped. This can also result in the devices being lost or damaged.

[0007] Retractable tether apparatuses are available that have a line/tether that can be pulled from the apparatus' housing and when released, the line/tether automatically retracts into the housing. These apparatuses can be used with hand held electronic devices to prevent them from falling to the ground if they are dropped or jarred loose. One such device is disclosed in U.S. Pat. No. 5,938,137 to Poulson and comprises a leash attached to the cell phone case and a spring retractable leash cord in a housing pivotally attached to the user's belt. This arrangement helps prevent dropping and damage to a cell phone in a case clipped to the belt. The leash housing is pivotally attached to a locking belt hook that cannot easily be accidentally removed.

[0008] One disadvantage of these apparatuses is that they comprise a separate device that is usually mounted to user adjacent to the mounting point for the electronic device. This results in an additional device that is mounted to the body, that is then attached to the electronic device that is also mounted to the body by a separate clip mount, holster or storage pocket. This arrangement can be bulky and difficult to use.

[0009] U.S. Pat. No. 6,206,257 discloses a swivel belt clip with bi-directional action, comprising a releasable holder for a portable communication device that includes a base clip adapted to secure to a belt in a horizontal orientation. An article clip is secure to a portable communication device. The base clip includes a channel and a locking tab extends

into an opening in the channel bottom. Two user engageable release tabs adjacent the channel opposite ends are adapted to move the locking tab in response to movement of one release tab toward the other. The article clip includes a locking head adapted to slide in the channel, with the locking head adapted to receive the locking tab when the two are aligned to hold the article in the clip. Movement of the release tabs disengage the locking tab from the locking head so that the article can be removed from the clip.

### SUMMARY OF THE INVENTION

[0010] One embodiment of a tethering system according to the present invention comprises a tether housing having an internal tether that is extendable from the tether housing under a pulling force and retracts into said tether housing when the pulling force is removed. A mounting apparatus is included that is integral to the tether housing and arranged to mount the tether housing. A holstering system is included and is integral to the tether housing and arranged to allow a personal device to be mounted to the tether housing with the tether attached to the personal device. The tether is extendable to allow use of the personal device while also preventing the personal device from falling to the ground when the tether housing is mounted.

[0011] Another embodiment of a tethering system according to the present invention comprises a housing having front and back surfaces and a tether internal to the housing. A spring is also internal to the housing and arranged to allow the tether to be extended from the tether housing against the force of the spring, with the spring urging the tether to retract into the housing. A mounting apparatus is included on the back surface of the tether housing and is arranged to mount the tether housing to a person. A holstering system is included on the front surface of the tether housing and arranged to allow a personal device to be mounted to the tether housing with the tether attached to the personal device. The tether is extendable to allow use of the personal device by the person. The spring and tether also prevents the personal device from falling to the ground.

[0012] These and other further features and advantages of the invention will be apparent to those skilled in the art from the following detailed description, taken together with the accompanying drawings, in which:

### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a perspective view of one embodiment of a security tethering system according to the present invention;

[0014] FIG. 2 is another perspective view of the security tethering system in FIG. 1; and

[0015] FIG. 3 is a perspective view of another embodiment of a security tethering system according to the present invention;

[0016] FIG. 4 is a perspective view of the internal components of one embodiment of a security tethering system according to the present invention; and

[0017] FIG. 5 shows the internal components of one embodiment of a retractable tether apparatus according to the present invention.



## DESCRIPTION OF THE INVENTION

[0018] The present invention provides an improved security-tethering system that can be used in many different applications, but is particularly adapted for use with hand held personal electronic devices. FIGS. 1 and 2 show one embodiment of a new security tethering system 10 according to the present invention that generally comprises a retractable tether apparatus 12 that is integral with a hand-held electronic device holstering system 14. The system also has an integral belt or waste band attachment element, to mount the system 10 to a belt or waste band, with the preferred attachment element being a belt clip.

[0019] In the tethering system 10, the holstering attachment 14 can be arranged in many different ways and as shown in FIGS. 1 and 2, generally comprises an elevated slot sized to hold a pivoting ball within the slot. This type of arrangement is similar to the holstering attachment in Nokia type mounting systems that are known in the art. The holstering attachment is compatible with the pivoting ball that is typically attached on the back of Nokia phones as part of the phone's holstering system. It should be understood that many different holstering attachments could also be used with different security tethering systems in accordance with the present invention.

[0020] The system's retractable tether apparatus 12 has a housing 16 that houses the line/tether ("tether") that protrudes from the housing through opening 17. The housing 16 also includes an internal spring that biases the tether to retract back into the housing 16. A lanyard attachment 18 (shown in FIG. 2) is attached to the end of the tether to prevent the tether from fully retracting into the housing 16. The tether can be pulled and extended from the housing 16 against the bias of the internal spring, and automatically retracts into the housing 16 when the pulling force is released.

[0021] As shown in the embodiment of FIG. 2, the lanyard attachment 18 can retract with the tether until it abuts against the housing 16. The side of the housing 16 opposite the holstering system 14 comprises a clip 19 for mounting the tethering system 10 to a user, such as to the user's belt, top of the user's pants or to one of the user's pockets. It should be understood, however, that many different mounting mechanisms can be used to mount the tethering system to many different locations on a user.

[0022] It can be appreciated that tethering systems according to the present invention incorporate a retractable tether apparatus 12 and electronic device holstering system 14 in one assembly, with the holstering system 14 being integral with one of the surfaces of the retractable tether's housing 16. The tethering system 10 can be mounted on the user's belt or waste band and an electronic device can be mounted to the holstering system 14 so that the electronic device is securely mounted to the tethering system 10. The tether from the retractable tether apparatus 12 is attached to the electronic device and retracts from the tether housing 16 when the electronic device is in use. If the electronic device is dropped during use or is jarred from the holstering system 14, the tether does not retract from the tether apparatus 12 under the weight of the electronic device. This prevents the electronic device from falling to the ground. By incorporating the holstering system and tether into one device, a tethering system is provided that is less bulky and easier to use.

[0023] FIG. 3 shows a personal electronic device 20 mounted to a tethering system according to the present invention, with the tethering system mounted to a user's belt 22. The tethering system is hidden between the electronic device 22 and the user with a lanyard loop 24 running from the lanyard attachment 26 to the electronic device 20. In other embodiments according to the present invention, the electronic device 22 can connect directly to the lanyard attachment 18. The lanyard loop 24 can be a string, rope or other length of flexible and durable material that is attached at one end to the lanyard attachment 18 and at the other end to the electronic device 20, which in this case is a cell phone. An attachment ring 28 can be included on the electronic device 20 as the attachment point for the lanyard loop 24.

[0024] The lanyard loop 24 provides for a section of line between the electronic device 20 and lanyard attachment 18 so that the tether can be in its fully retracted position when the electronic device 20 is mounted to the system 10, while at the same time not placing tension on lanyard loop 24. This allows the electronic device 20 to be mounted to the tethering system without placing stress on the tether or lanyard attachment 18 and not pulling the electronic device 20 from the holstering system on the tethering system housing. This makes the system 10 easier and more convenient to use and extends the life of the system components.

[0025] The lanyard loop 24 can be attached to the electronic device in different ways such as to a ring on the device's protective case, or directly to the pivoting ball connector type mount. In electronic devices that do not have these attachment features, the lanyard loop 24 can be attached in other ways according to the present invention.

[0026] Referring again to FIGS. 1 and 2, tethering systems according to the present invention allow personal electronic devices to be easily and conveniently used, while at the same time providing an arrangement that securely attaches the phone to a user when it is not in use. For example, the tethering system can be mounted to the user's belt clip 19 with holstering attachment 14 on the outside surface of the housing 16. The personal electronic device, such as a cell phone, can include a pivoting ball on its back surface that is compatible with the holstering attachment 14. The electronic device is then mounted to the system 10 by mating the pivoting ball with the holstering attachment 14. The cell phone is held out of the way while still being within arms reach. If the cell phone is jarred from the holstering attachment 14, the weight of the cell phone will not retract the tether and the cell phone hangs from the system 10 by the lanyard loop 20. This arrangement prevents the device from falling to the ground.

[0027] The holstering system 14 can also include a holds pin, which is known in the art and is arranged to hold the pivoting ball within the holstering system 14. To remove the cell phone from the holstering system 14 for use, a lever on the attachment 14 is activated to retract the pin and release the pivoting ball. The phone can then be removed from the holstering system 14 and pulled to the user's ear. The tether is pulled from the retractor housing 16 under the pulling force, but the tension required to extend the tether is not so great that it interferes with the use of the phone. If the phone is dropped at any point during use, the tether prevents it from falling to the ground. When the phone is done being used it is moved back to the tethering system 10 where it can



be remounted in the holstering system 14. The tether automatically retracts into the housing. When not in use, the device is securely mounted to the front of the tethering system.

[0028] During use of the tethering system 10 the lanyard attachment 18 and tether extend upward from the housing, which is particularly convenient for devices that are used above the mounting point of the system 10, such as with cell phones. In other embodiments, the line/tether can protrude outward from the housing and away from the user, which is particularly convenient for devices used at approximately the same height as the mounting point for the tethering system 10. For example, when a PDA is used it is held in front of the user, which can be more compatible with an outward protruding tether. The tethering system 10 can also include a disconnect means so that the electronic device 22 can be detached from the lanyard attachment 18. In another embodiment, the tethering system 10 is arranged so that it can also rotate about the user's belt or waste band by the clip 19.

[0029] FIG. 4 shows another embodiment of a tethering system 40 according to the present invention that is similar to the system 10 and has a housing 42, belt or waste band attachment element 44, tether and lanyard attachment (not shown). The pin used for retaining the pivoting ball in the Nokia type holstering attachment 14 shown in FIGS. 1 and 2 can be damaged if the cell phone is jarred when it is mounted to the system 10. To address this problem, the tethering system 40 includes a holstering system 46 that is different from the Nokia type holstering attachment 14.

[0030] The holstering system 46 is U-shaped and sized to fit the same pivoting ball used for the Nokia type holstering attachments. It is, however, longer than the Nokia type attachments and does not have a retaining pin. The holstering system 46 has three mounting points to the housing 42 with the first and second mounting points 48, 50 near the base of holstering system 46, and the third attachment point 52 being at one of the legs of the holstering system 46. The other leg 54 is not attached to the housing 42, but instead serves as a "living hinge" to hold the pivoting ball in the holstering system 46. As the pivoting ball passes into the attachment 46 the pivoting ball forces the leg 54 to flex out, increasing the size of the opening in the holstering system 46. As the pivoting ball passes through the opening, the leg 54 flexes back in, reducing the size of the opening. This reduction in the size of the opening helps hold the cell phone in the holstering system 46 when the cell phone is not in use. If the jarring force is great enough to force the pivoting ball past the leg 54, the holstering system 46 will not be damaged and the tether prevents the phone from falling to the ground.

[0031] Tethering system 10 and 40 also include a ratchet lock system that allows the tether to be retracted and held at its retracted length with no retracting bias on the tether. To release the tether so that it retracts, it is pulled, which releases the ratchet lock. The housings 16 and 42 each include a ratchet lock on/off lever 19, 55 that allows for the user to disable the ratchet locking system. When the system is disabled, the bias remains on the tether when the phone is in use.

[0032] FIG. 5 shows the internal components of one embodiment retractable tether system 60 according to the present invention that is similar to tether system 10

shown in FIGS. 1 and 2. It generally comprises first and second housing halves 62, 64 that are mounted together to form the tether housing. A reel 66 is included in the housing upon which the tether winds under the bias and internal spring. The system 60 also includes a ratchet locking lever 68 arranged to operate a ratchet locking system 70. A holstering attachment 72 is mounted to the first housing half 62 by mounting screws 74.

[0033] Although the present invention has been described in considerable detail with reference to certain preferred configurations thereof, other versions are possible. As described above, different holstering attachments can be used with different electronic devices. Also, different retractable tether apparatus can be used in accordance with the present invention. Therefore, the spirit and scope of the invention should not be limited to the preferred versions in the specification.

We claim:

1. A tethering system according to the present invention, comprising:

a tether housing having an internal tether that is extendable from said tether housing under a pulling force, said tether retracting into said tether housing when said pulling force is removed;

a mounting apparatus integral to said tether housing and arranged to mount said tether housing;

a holstering system integral to said tether housing and arranged to allow a personal device to be mounted to said tether housing with said extendable/retractable tether attached to said personal device, said tether being extendable to allow use of said personal device while also preventing said personal device from falling to the ground when said tether housing is mounted.

2. The tethering system of claim 1, further comprising a lanyard loop between said tether housing and said personal device, said lanyard loop allowing said personal device to be mounted to said housing without tension on said tether.

3. The tethering system of claim 1, further comprising a lanyard attachment to prevent said tether from fully retracting into said tether housing.

4. The tether system of claim 1, wherein said holstering system comprises an elevated slot arranged to receive a pivoting ball on said personal device.

5. The tethering system of claim 4, wherein said elevated slot comprises a retractable locking pin to hold said pivoting ball in said slot.

6. The tethering system of claim 4, wherein said elevated slot is U-shaped and one of the legs of said U-shape elevated slot comprising a hinge to hold said pivoting ball in said slot.

7. The tethering system of claim 1, further comprising a ratchet lock to hold said tether at a desired extended length.

8. The tethering system of claim 1, wherein said tether extends from said housing through a top surface of said housing.

9. The tethering system of claim 1, wherein said tether extends from said housing, through a front surface.

10. The tethering system of claim 1, wherein said mounting apparatus comprises a mounting clip.

11. A tethering system according to the present invention, comprising:



a tether housing having front and back surfaces;  
a tether internal to said housing;  
a spring internal to said housing and arranged to allow said tether to be extended from said tether housing against the force of said spring and said spring urging said tether to retract into said housing;  
a mounting apparatus on the back surface of said tether housing, said mounting apparatus arranged to mount said tether housing to a person;  
a holstering system on the front surface of said tether housing and arranged to allow a personal device to be mounted to said tether housing with said extendable/retractable tether attached to said personal device, said tether being extendable to allow use of said personal device by said person, said spring and tether also preventing said personal device from falling to the ground.

**12.** The tethering system of claim 11, further comprising a lanyard loop between said tether housing and said personal

device, said lanyard loop allowing said personal device to be mounted to said housing without tension on said tether.

**13.** The tethering system of claim 11, further comprising a lanyard attachment to prevent said tether from fully retracting into said tether housing.

**14.** The tether system of claim 11, wherein said holstering system comprises an elevated slot arranged to receive a pivoting ball on said personal device.

**15.** The tethering system of claim 14, wherein said elevated slot comprises a retractable locking pin to hold said pivoting ball in said slot.

**16.** The tethering system of claim 14, wherein said elevated slot is U-shaped and one of the legs of said U-shape elevated slot comprising a hinge to hold said pivoting ball in said slot.

**17.** The tethering system of claim 11, further comprising a ratchet lock to hold said tether at a desired extended length.

**18.** The tethering system of claim 11, wherein said mounting apparatus comprises a mounting clip.

\* \* \* \* \*





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## United States Patent Application

**20030042348**

### Kind Code

**A1**

**Salentine, John A.; et al.**

**March 6, 2003**

Retracting tether for cell phones, pagers & PDA's

### Abstract

A retractable tether is disclosed which may be used in conjunction with personal communication devices (such as a Cell Phone, Pager or PDA) mounting system for the prevention of loss or damage. The retracting tether may be clipped to a belt, pants or purse next to the location in which the device is being held or stored. The retractable tether allows the device to be easily used while connected to the retracting tether. Should the device be dropped or dislodged from it's clip mount, holster or storage pocket, the retracting tether prevents the device from hitting the ground thereby preventing loss or damage to the device. A separation mechanism is also incorporated to allow the device to be easily removed from the retractable tether.

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### Claims

We claim:

1. A tethering system for a personal article, comprising: a personal article mounted on a user's body; a retractable tether having a housing with a cable and spring within said housing, said cable extendable from and retractable into said tether housing under the tension of said spring, said cable having a stop to prevent it from fully retracting into said housing; a mounting mechanism for mounting said tether to the user's body; and a lanyard connected between said cable stop and said personal article, said cable not extendible from said housing under the weight of said personal article.
2. The tethering system of claim 1, arranged to prevent said personal article from falling to the ground when said cable is retracted.
3. The tethering system of claim 1, wherein said lanyard comprises a rope or string.
4. The tethering system of claim 1, wherein said mounting mechanism is arranged to mount said retractable tether to a belt.
5. The tethering system of claim 4, wherein said mounting mechanism comprises a tension blade connected on a first end to said tether housing, with the second end opposite said first end and directed down adjacent to said housing, part of said blade urged against said housing and arranged so that a belt is capable of being held between said blade and said housing.
6. The tethering system of claim 5, further comprising a blade tab at its second end that is positioned that extends between said blade and said housing to provide a stop to prevent the retractable tether from sliding off a belt after said retractable tether is mounted on the belt.
7. The tethering system of claim 1, wherein said personal article is a device from the group consisting of a cell phone, pager, PDA, Global Positioning System, radio, calculator, or bull horn.
8. The tethering system of claim 1, wherein said personal article is a cell phone or pager, said system further comprising a holster device to mount said cell phone or pager to a belt.
9. The tethering system of claim 7, wherein said retractable tether is mounted adjacent to said personal article, within a distance less than the length of said tether so that said cable is not retracted from said housing when said personal article is in its mounted position.
10. The tethering system of claim 8, wherein said personal article is mounted in its holster adjacent to said retractable tether within a distance less than the length of said tether so



that said cable is not retracted from said housing when said personal article is in its holster, so that there is no spring tension between said personal article and said retractable tether.

11. The tethering system of claim 8, wherein said retractable tether is arranged so that said cable extends from said housing upward for use of said cell phone or pager without substantially bending said cable.

12. The tethering system of claim 7, wherein said retractable tether is arranged so that said cable extends from said housing in a direction which allows use of said personal article without substantially bending said cable.

13. The tethering system of claim 1, further comprising a separating mechanism to allow for said personal article to be separated from said retracting tether.

14. The tethering system of claim 1, wherein tether housing is rotatable about said mounting mechanism.

15. A retractable tether, comprising: a tether housing; a cable within said tether housing, said housing having a hole from which said cable extends, said cable having a stop on its end that extends from said housing hole, said stop being larger than said housing hole to prevent said cable from fully retracting into said housing; a spring within said tether housing which urges retraction of said cable; a lanyard attached to said stop; and a mounting mechanism on said tether housing.

16. The tether of claim 15, wherein said lanyard is attached to an object, said spring having sufficient tension to prevent said cable from extending from said housing under the weight of said object.

17. The tether of claim 15, wherein said lanyard is attached to an object, said mounting mechanism mounting said tether housing with said housing hole directed up, said cable prevented from extending from said housing under the weight of said object.

18. The tether of claim 15, wherein said lanyard comprises a rope or string.

19. The tether of claim 15, wherein said mounting mechanism is arranged to mount said retractable tether to a belt.

20. The tether of claim 15, wherein said mounting mechanism comprises a tension blade having a first and second end, said first end connected to said tether housing, with the second end opposite said first end and adjacent to said housing, at least part of said blade urged against said housing and arranged so that a belt is capable of being held between said blade and said housing.

21. The tether of claim 15, further comprising a blade tab at its second end that is positioned such that it extends between said blade and said housing to provide a stop to prevent the retractable tether from sliding off a belt after said retractable tether is mounted on the belt.

22. The tether of claim 15, wherein said object is a cell phone or pager mounted to a belt and said retractable tether is mounted adjacent to said object on a belt.

23. The tether of claim 22, wherein said retractable tether is mounted adjacent to said object within a distance less than the length of said tether so that said cable is not retracted from said housing when said object and retractable tether are in their mounted position.

24. The tether of claim 23, wherein said retractable tether is arranged so that said cable extends from said housing in an upward direction for use of said cell phone or pager without substantially bending said cable.

25. The tether of claim 16, further comprising separating mechanism to allow for said object to be separated from said retracting tether.

26. The tethering of claim 15, wherein tether housing is rotatable about said mounting mechanism.

27. A retractable tether, comprising: a tether housing; a cable within said tether housing, said housing having a hole from which said cable extends, said cable having a stop on its end that extends from said housing hole, said stop being larger than said housing hole to prevent said cable from fully retracting into said housing; a spring within said tether housing which urges retraction of said cable; a rotatable mounting mechanism on said tether housing for mounting said retractable tether, said tether housing being rotatable about said mounting mechanism, said cable being extendible from said tether housing at different angles depending on the orientation of said tether housing.

28. The tether of claim 27, further comprising a lanyard attached to said stop at one end and attached to an object at its other end, said spring having sufficient tension to prevent said cable from extending from said housing under the weight of said object.

29. The tether of claim 28, wherein said retractable tether is mounted adjacent to said object within a distance less than the length of said tether so that said cable is not retracted from said housing when said object and retractable tether are in their mounted position.

30. The tether of claim 27, wherein said retractable tether is arranged so that said cable extends without substantially bending said cable.

31. The tether of claim 28, further comprising separating mechanism to allow for said object to be separated from said retracting tether.

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### *Description*

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[0001] This application claims the benefit of provisional application No. 60/311,526 to Salentine et al., which was filed on Aug. 10, 2001, and provisional application No. 60/388,462 to Salentine et al., which was filed on Jun. 13, 2002.

#### BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention is directed to devices for tethering gear and personal articles and more particularly for tethering personal communication devices such as cell phones, pagers and PDA's.

[0004] 2. Description of the Related Art



[0005] Tethering devices have been developed that have extendable and retractable cables or lines ("cables"), with many of the cables being automatically retracted under the bias of an internal spring arrangement. Some of the applications for these tethers include ski ropes, surf board leashes, boat moorings and scuba equipment. [See U.S. Pat. No. 4,969,610 to Taylor et al., U.S. Pat. No. 4,407,460 to Khudaverdian, U.S. Pat. No. 5,490,805 to Bredesen, and U.S. Pat. No. 5,697,572 to Salentine].

[0006] Retracting devices have also been developed for housing cables and cords such as those used for telephones, hose reels and cellular phone earpieces. [See U.S. Pat. No. 5,094,396 to Burke, U.S. Pat. No. 5,507,446 to Ditzig and U.S. Pat. No. 4,946,010 to DiBono]. Retracting devices have also been developed having a means for removing the tethered article from the tethering device such as in the case of keys, SCUBA gear and microphones.

[0007] Personal communication devices such as pagers and cell phones can be attached or mounted to a person using different devices. In the case of cell phones some of these mounting devices include leather cases with belt clips for attaching to a belt, or a plastic holster which attaches to a belt or purse. One of the more popular cell phone mounts includes a pivoting ball type mount, which is attached to the phone and clips into a belt clip that has a slot to mate with the ball.

[0008] One of the advantages of these holstering devices is that they allow for easy access and retrieval of a cell phone, pager or PDA ("personal device"). However, this advantage also results in one of their primary disadvantages. The ease of access typically prevents these mounting devices from properly securing the personal devices, which can result in their falling out under many circumstances, such as when getting in and out of a vehicle or when they are bumped. Furthermore, when the personal device is removed from these holstering devices there is no mechanism for preventing the phone from falling to the ground if jarred or dropped from the user's hand.

[0009] A wrist lanyard has been developed which helps prevent cell phones from falling to the ground when being used. The lanyard typically comprises a rope or string that is tied or otherwise attached to the cell phone and has a loop that is large enough for a user's hand to pass through. To secure the cell phone, the user must pass a hand through the loop when the cell phone is in the user's hand. When the cell phone is not in use, the lanyard can be tied to a belt loop. One disadvantage of this device is that when the phone is tied to a belt loop, untying the lanyard from the loop to use the phone can be awkward and inconvenient. It can also be awkward passing a hand through the loop every time the cell phone is used.

[0010] An alternate tethering device uses a spiral or coiled type lanyard, similar to the cord that is used between the receiver and telephone in older styled telephones. For cell phones the coiled lanyard can be attached to the user at one end and attached to the phone at the other. When the phone is in use, the length of the tether can be extended and when the phone is not in use its effective length is reduced. One disadvantage of this type of tether is that to make it long so it can be conveniently used with a cell phone, the tether becomes quite long and obtrusive when the cell phone is in the holstered position. The tether dangles when the phone is not in use, which can cause entanglement.

[0011] Existing retractable tethers are used for personal articles such as keys but do not provide a means for attaching to phones or pagers. Furthermore, they are bulky and do not efficiently and securely attach to the user in a way that would allow for the cell phone to be easily used. They also do not provide a means for working in conjunction with a cell phone's holster or mounting system.

#### SUMMARY OF THE INVENTION

[0012] The present invention provides a retracting tether and tethering system which is particularly adapted for use for securing personal devices, including but not limited to cell phones, pagers, PDAs, calculators, flashlights, etc. Personal devices are also referred to as personal articles or objects.

[0013] These personal devices have the common characteristic that they can be attached to a user in many locations such as a belt, belt loop or purse. They are often attached by a loop, leather case, or pivoting ball connector type mount or are simply placed in one of the user's pockets. They can easily be knocked to the ground from their mounting points or can be dropped to the ground when in use. The present invention provides a connection point between the user and the personal device that is designed to work with previously available device mounting mechanisms so that if a device is knocked from the mounting mechanism or dropped, it will not fall to the ground where it can be lost or damaged.

[0014] A tethering system according to the present invention includes a personal article mounted on a user's body. A retractable tether is included having a housing with a cable and spring within the housing. The cable is capable of extending from and retracting into the tether housing with the spring urging the cable to retract into the housing. The cable has a stop to prevent it from fully retracting into the housing. A mounting mechanism is included for mounting the tether to the user's body and a lanyard is connected between the cable stop and the personal article, with the spring providing sufficient tension to prevent the cable from extending from the housing under the weight of the personal article.

[0015] A retractable tether according to the present invention includes a tether housing and a cable within the tether housing. The housing has a hole from which the cable extends and retracts, said cable having a stop on the cable's end that extends from said housing hole. The stop is larger than the housing hole to prevent the cable from fully retracting into the housing. A spring is included within the tether housing which urges retraction of the cable into the housing. A lanyard is attached to the stop and a mounting mechanism is included on the tether housing.

[0016] The retractable tether can either have a fixed mounting mechanism so that the cable extends in one direction from the housing or it can have a rotating mounting mechanism that allows the cable to extend at different angles. The tether can also have a disconnect mechanism so that the attached device can be detached from the tether.

[0017] The new retractable tethering can be continuously attached to the device whether the personal device is holstered or in use. If the device is dropped or dislodged from the holster the retractable tether prevents the loss of and/or damage to the device. In one embodiment the new retractable tether is mounted to a belt, pants or purse next to the device and the device is in its holster. The tether cable is preferably pointed upward for convenient use, and do reduce wear and tear on the cable to increase its longevity.

[0018] The new retractable tether is streamlined and unobtrusive such that it does not interfere with regular activities. The attached device can be easily disconnected from the retracting tether without the removal of the retracting tether from its mount on a belt, pants or purse.

[0019] These and other further features and advantages of the invention will be apparent to those in skilled in the art from the following detailed description, taken together with the accompanying drawings, in which:

#### BRIEF DESCRIPTION OF DRAWINGS

[0020] FIG. 1 is a perspective view of one embodiment of a retractable tether according to the present invention attached to a phone that is held in a holster;

[0021] FIG. 2 is a perspective view of the retractable tether in FIG. 1, when the phone is in use;

[0022] FIG. 3 is a perspective view of the retractable tether in FIG. 1, suspending the phone that has been dislodged from the holder or is dropped;

[0023] FIG. 4 is a perspective view of the retractable tether in FIG. 1, showing the phones disconnect point with the lanyard;



[0024] FIG. 5 is a perspective view of the retractable tether in FIG. 4, showing a disconnect point separated;

[0025] FIG. 6 perspective view of the retractable device in FIG. 1, showing the retractable tether's clip type mounting system;

[0026] FIG. 7 is an exploded view of the retractable tether shown in FIG. 1;

[0027] FIG. 8 is a perspective view of a rotating attachment mechanism for a retractable tether according to the present invention; and

[0028] FIG. 9 is an exploded view of the attachment mechanism shown in FIG. 8.

#### DETAILED DESCRIPTION OF THE INVENTION

[0029] FIG. 1 shows one embodiment of a new retractable tether 10 constructed in accordance with the present invention. In the embodiment shown the tether 10 is mounted to a user's belt 12 by its mounting system (described below), but other retractable tethers according to the invention can be mounted to other locations on the user. A phone 14 is shown mounted in its holster 16, which is also mounted to the belt 12 adjacent to the retracting tether 10. The tether 10 can also be used with other devices that are mounted to a user such as pagers, PDAs, Global Positioning Systems, radios, calculators, bull horns, etc.

[0030] The retracting tether 10 has a cable that is fully retracted into the retractor tether housing 18. When the phone is in use, the cable extends under a pulling force on the phone. When the force is removed, the cable retracts in to the housing 18 under a bias from an internal spring. The mechanism for extending and retracting the cable from the tether housing 18 is known in the art and involves a coil spring and reel arrangement as described below and as generally described in U.S. Pat. No. 5,697,572 to Salentine and Collin, assigned to the same assignee as the present application.

[0031] The tether 10 is relatively thin and has a low profile so it is not bulky or uncomfortable for the user. An attachment lanyard 20 is connected between the tether 10 and the phone 14. As shown, the tether 10 is facing upward with the cable and exiting through the top of the housing 18. This arrangement is particularly convenient for use with phones because it allows the user to pull the phone from the holster up to the ear as the cable extends from the housing 18. By having the tether facing upward the cable can exit straight from the tether housing. This reduces the number of bends experienced by the cable from repeated use, thereby reducing the wear and tear on the cable and extending its life. This arrangement also allows for the cable to be more easily pulled from the housing 18.

[0032] Different tethers can be arranged at different angles depending on the type of device attached to the tether 10 and how the device is used. For instance, if a flashlight were attached to a tether 10, the cable could be arranged to extend toward the front of the cable user.

[0033] Loops 20a and 20b are formed at the ends of the lanyard 20 by known methods, with the loops used for connecting the lanyard between the phone 14 and retractable tether 10. A ring 23 is attached to the phone 14 and the loop 20a mates with the ring 23 such that the ring 23 passes through the loop 20a. At the other end of the lanyard 20 the loop 20b mates with a ring 25 in a disconnect mechanism 22, such that the ring 25 passes through the loop 20b. The lanyard provides a section of flexible line between phone 14 and the tether 10 so that the phone 14 can be mounted in its holster without cable tension between the phone 14 and tether 10. This allows the phone 14 or other device, to rest in its holstering or mounting system without pulling on the tether cable (shown in FIG. 2). This reduces stress on the tether cable or results in the the phone 14 not being pulled from its holster.

[0034] The disconnect mechanism 22 allows for the phone 14 to be easily disconnected from the tether 10. Different disconnect mechanisms can be used the mechanism 22 being a clip type. Other disconnect mechanisms can be used including, but not limited to, snaps, screws, ties, or Velcro.

[0035] FIG. 2 shows the phone 14 removed from its holster 16 by the user. The phone 14 is attached to the attachment lanyard 20, and when the phone 14 is removed from its holster 16 and pulled away from the retractable tether housing 18, the tether cable 26 is pulled from inside the tether housing 18. The lanyard 20 is attached to the cable 26 by the disconnect mechanism 22, which also functions as a stop to prevent the cable from retracting completely into the housing 18. The cable 26 exits the tether housing 18 in an upward/outward direction with minimal tension or friction between the cable and the housing 18.

[0036] FIG. 3 shows the phone 14 after it has been dislodged from its holster 16 or after it has been dropped. The tension in the tether's coil spring and the friction between the cable 26 and the tether housing 18 are such that the weight of the phone 14 does not pull the cable 26 from the tether housing 18. The phone 14 is suspended from the tether housing 18 by the lanyard 20 so that the phone 14 does not fall to the ground where it could be lost or damaged.

[0037] FIG. 4 shows the phone 14 attached to end 20a of the lanyard 20. End 20b of the lanyard 20 is connected to the disconnect mechanism 22, and the tether cable 26 is partially extended from the tether housing 18. FIG. 5 shows the same components of the tether 10 connected to a phone 14, as shown in FIG. 4. However, the disconnect mechanism is shown separated into a male clip 28 and a female receiver 30 as would be done to remove the phone 14 from the tether 10. The male clip has two tabs 29a and 29b that mate with a slot in the receiver 30. To reattach the phone 14, the male clip 28 is inserted into the receiver 30 and as the clip 28 moves into the receiver 30 the tabs 29a and 29b are compressed until they pass a receiver lip. The tabs 29a and 29b then expand out and the clip 28 is held in the receiver 30 by the ledge in the tabs 29a and 29b butting against the receiver lip. The clip 28 can be removed from the receiver 30 by compressing the tabs 29a and 29b so they can slide by the receiver lip. When the clip 28 and receiver 30 are separated, the device 14 is disconnected from the retractable tether 10.

[0038] FIG. 6 shows one attachment mechanism 32 for attaching the tether 10 to a user, with the mechanism 32 being particularly adapted to attaching to a user's belt. The mechanism 32 comprises a tension blade 34 and a retaining tab 36. To allow for the tether 10 to be mounted with the cable 26 extending up, the tension blade 34 is connected to a first edge 35 of the tether housing 18 adjacent to the disconnect mechanism 22. The blade 34 is directed down toward a second edge 37 of the housing 18 that is opposite the disconnect end 22. The blade 34 is shaped such that it is urged against the housing with the blade's lower portion resting against the back surface 39 of the housing 18. When the tether 10 is mounted to a user's belt, the belt is held between the blade 34 and the housing 18. The blade has a tab 36 at its lower end that is positioned such that overlaps the second edge 37 of the user's belt. The tab 36 extends between the blade 34 and the second edge 37 to provide a stop that prevents the tether from sliding off the user's belt.

[0039] FIG. 7, shows the internal components of a retractable tether 10 according to the present invention, although many other tethers can be used which can have different internal components. The tether body 18 comprises a clam-shell type housing having a bottom half 42 and a top half 43 which halves matingly engage with each other to enclose an interior space. The cable 26 has a free end 26a and a fixed end 26b, which is securely fastened to the outer perimeter of a reel 45. The reel 45 is ring shaped and has an annular outer surface 45a upon which surface the cable 26 is wound, and an annular inner surface 45b. The reel's inner surface 45b has a slot, which receives the outer end 47a of a coil spring 47. The coil spring 47 has a fixed inner end 47b non-releasably mounted in a slot in a central pin 50, which is affixed to the bottom half 42 of the case.

[0040] When the upper half 43 and lower half 42 are joined together to form the housing, the pin 50 forms a central axis of rotation for the reel 45 which rolls the cable 26 upon the reel outer surface 45a. The upper half 43 of the housing contains hollow pillars (not shown) which support the lower half 42 of the case. The lower half 42 of the case has holes receiving screws for attaching the lower half 42 of the housing to the upper half 43.



[0041] Each half of the housing has a semicircular groove 52 therein. When the case is assembled, the semicircular grooves 52 in the respective halves form a circular guide hole having a smooth surface for the cable 26 to slide through.

[0042] Each half 42 and 43 has a raised annular bearing surface 54 thereon which supports and stabilizes the reel 45, providing a low-friction close fitting surface for the reel 45 to rotate against permitting low friction rotation of the reel 45. A cavity wall 56 forms a physical barrier around the reel 45 and coil spring 47.

[0043] FIGS. 8 and 9 show a second embodiment of an attachment mechanism 80 according to the present invention for attaching the retractable tether 10 to a belt, purse or pocket. This embodiment has the additional feature of allowing the tether 10 to rotate 360 degrees about the attachment mechanism. This type of attachment is particularly adapted for use with cell phones or pagers that may be stored in different locations, such as in a holster on one occasion and in a pocket on another. It also allows for the tether's cable to be extended at different angles to compensate for different body types. For instance, it may be difficult for heavier user's to extend the cable directly up and when the cable is extended directly it can experience additional wear and tear by bending over a user's midsection. The rotation of the mechanism 80 can make the tether 10 more comfortable and convenient to use while minimizing wear and tear.

[0044] The mechanism 80 generally includes a base 82, a belt tension blade 84 and a retaining section 86. The blade 84 is disposed such that half of it is sandwiched between the retaining section 86 and the base 82 and the other half serves to retain the belt between the blade 82 and retaining section 86. The retaining section is rotatably attached to the base 82 and the base 82 is mounted to a retracting tether 87 at mounting holes 88. The belt clip 82 is particularly adapted to fitting over a belt, but can also be mounted to other location such as a purse or pocket. When mounted to a belt, a portion of the belt is held between the blade 84 and the retaining section 86. The retaining section 86 has a retaining tab 90 that mates with a first lower slot 92 in the blade 84. After the belt is disposed between the blade 84 and the retaining section 86, the tab 90 can be inserted into the first slot 92 and the tab 90 can be locked in the first slot 92 by the tab lip 94 overlapping the edge of the slot 92.

[0045] To remove the mounting mechanism 80 from the belt, the tab 90 is pushed up toward the bend in the blade 84 until the tab lip disengages from the slot edge. The tab 90 can then pass from the slot 92 to provide an opening through which the belt can pass.

[0046] Referring now to FIG. 9, the base 82 has a locking post 96 that is inserted into the retaining section's central hole 98. The post 96 has circumferential tabs 100 that compress as the post 96 is inserted into the hole 98 and expand as the retaining section 86 reaches its operational position. The tab lips 102 hold the post 96 within the hole 98 while allowing the retaining section 86 to rotate around the post 86. The retaining section 86 primarily contacts the base 82 at the circular bearing surface 104 around the post 96. This allows the retaining section 96 to more smoothly rotate around the base 92.

[0047] The retaining section 86 also has a planar tab 108 that is arranged to mate with a second slot 110 in the blade 84. When the mechanism is assembled, the retaining section 86 is mounted within the U-shape of the blade 84. The post 96 first passes through the clip hole 111 before passing into the central hole 98. As the pieces of the mounting mechanism or brought together, the planar tab 98 mates with the second slot 100 to hold the blade 84 in proper orientation with the retaining section 86. When the mounting mechanism 80 is assembled, the portion of the clip with hole 111 and slot 110 is held between the retaining section 86 and the base 82.

[0048] When a retractable tether 10 with a rotating mounting mechanism 80 is used with a personal article, the tether 10 is free to rotate around the rotating mechanism so that the article can be used or stored at many different angles. The tethering system could still include a lanyard to reduce tension on the tether cable. If the article is dropped or jarred from its mount or holster, the tether will rotate to the article's direction of fall. As a result, the rotating tether would not have the braking that is associated with a tether with a fixed mount in the upward direction. However, to assist in preventing the article from falling to the ground, the rotating tether could have a spring with greater tension or could be used with lighter articles.

[0049] Although the present invention has been described in considerable detail with reference to certain preferred configurations thereof, other versions are possible. Therefore, the spirit and scope of the invention should not be limited to the embodiments described above.

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US005938137A

**United States Patent** [19]  
**Poulson**

[11] **Patent Number:** **5,938,137**  
[45] **Date of Patent:** **Aug. 17, 1999**

[54] **CELLULAR PHONE LEASH**

[76] Inventor: **Harold T. Poulson**, 36487 Colbert St.,  
Newark, Calif. 94560

[21] Appl. No.: **09/100,999**

[22] Filed: **Jun. 22, 1998**

[51] **Int. Cl.<sup>6</sup>** ..... **B65H 75/48**

[52] **U.S. Cl.** ..... **242/379.2; 242/404.3**

[58] **Field of Search** ..... 242/379.2, 385.4,  
242/384.7, 381.6, 404.3, 404.1; 119/796;  
70/456 R; 248/330.1; 224/162, 268, 269;  
379/441, 457

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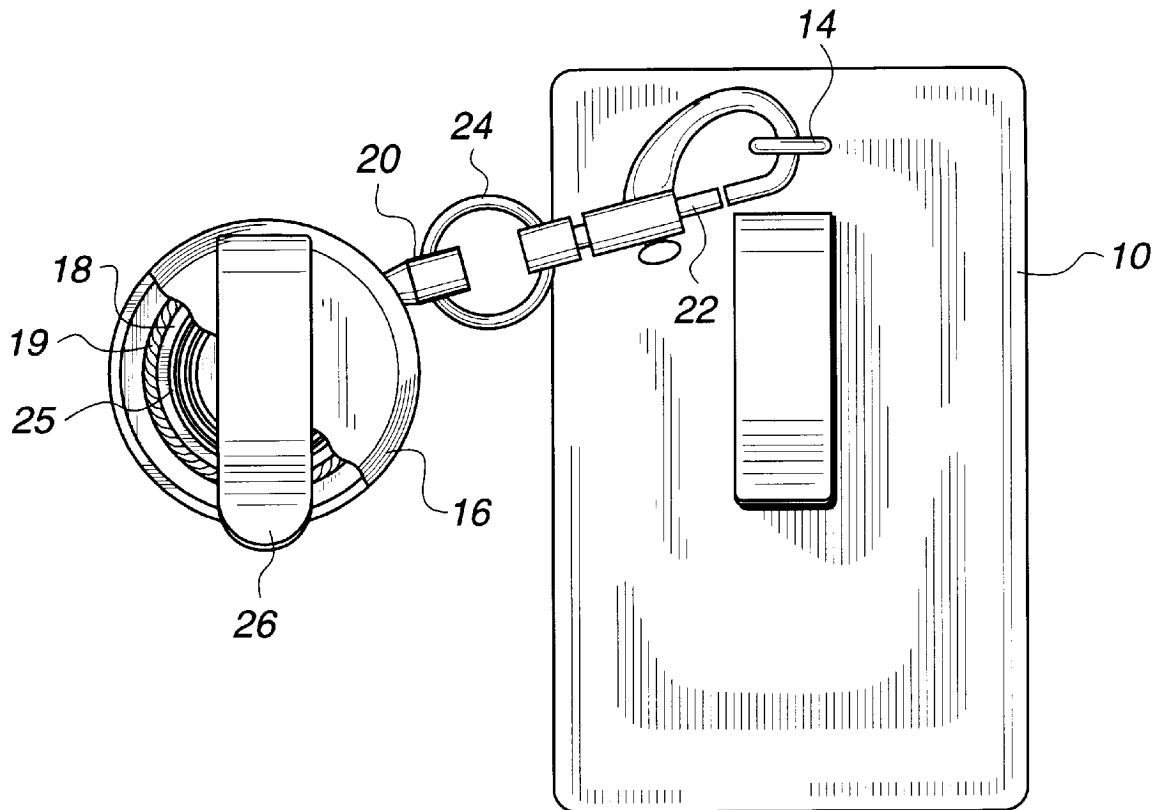
*Primary Examiner*—John M. Jillions

*Attorney, Agent, or Firm*—Linval B. Castle

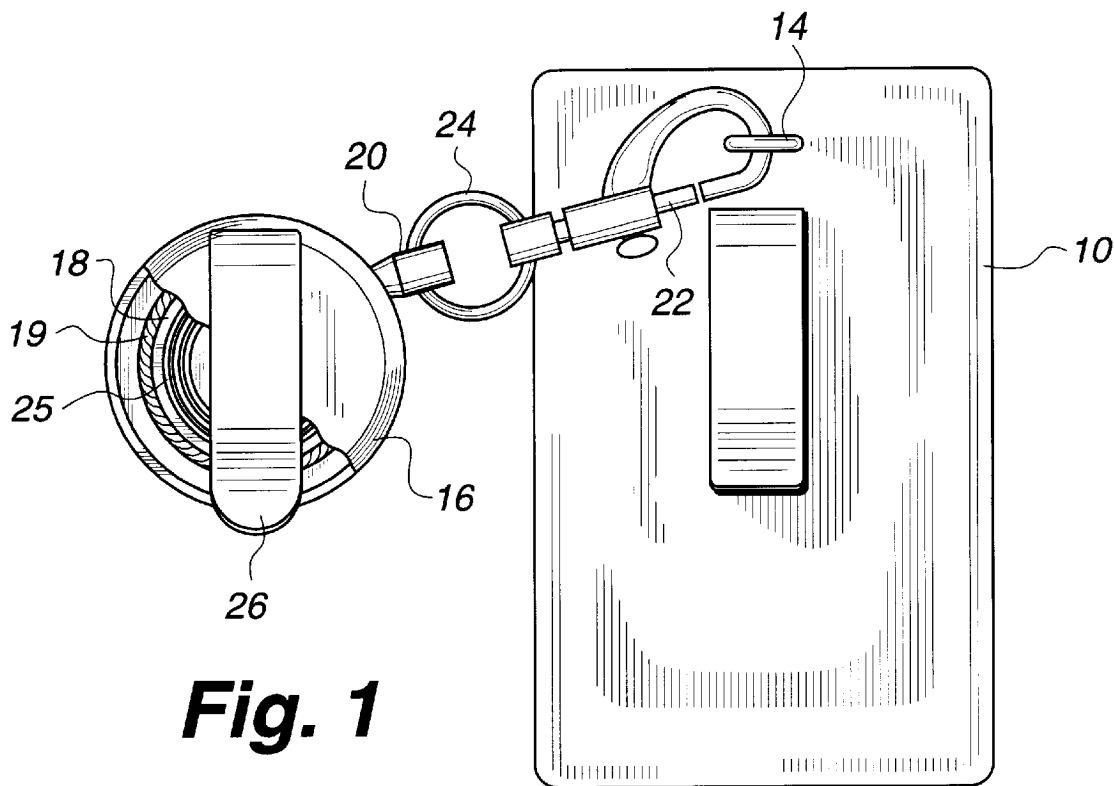
[57] **ABSTRACT**

A leash attached to the cell phone case and including a spring retractable leash cord in a housing pivotally attached to the belt will prevent dropping and damage to a cell phone in a case clipped to the belt. The leash housing is pivotally attached to a locking belt hook that cannot easily be accidentally removed.

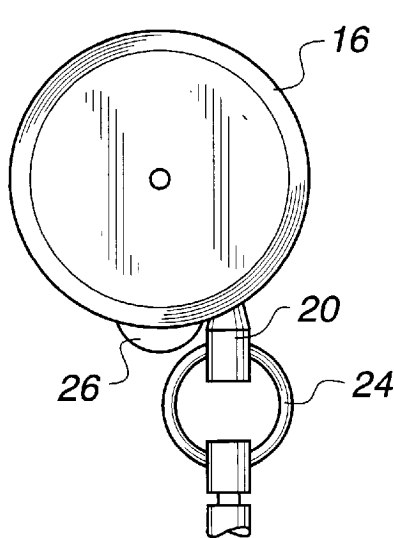
**4 Claims, 1 Drawing Sheet**



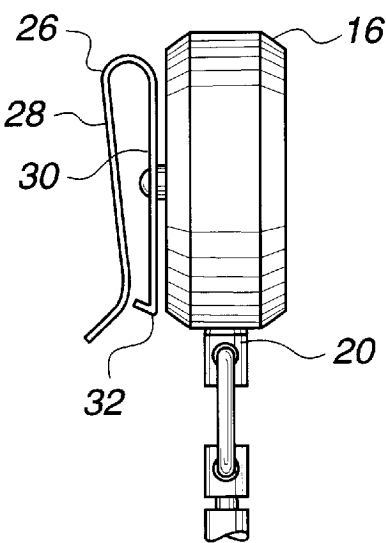




**Fig. 1**



**Fig. 2**



**Fig. 3**



## 1

## CELLULAR PHONE LEASH

This invention relates to safety tethers and particularly to a retractable cellular phone cord on a spring biased spool in a housing that is pivotally mounted to a novel belt hook.

## BRIEF SUMMARY OF THE INVENTION

The number of cellular telephone users has increased at an astonishing rate over the last few years in all parts of the modern world. Most of the urban population own or plant to own a cellular telephone and, at this time, the cells often reach into rural areas where one may see a farm worker in the field conversing over a cellular telephone.

The trend in cellular telephone design is to minimize the size. The earlier cellular phones were large and bulky and difficult to handle compared with the small, modern cellular phones. These modern phones are often carried by women in their purses and, by men, in a coat pocket, brief case or, usually, in a protective carrying case with a belt clip for attachment to their belt. This belt mounting provides a convenient storage and an easy and quick access to the cellular phone when it rings; however, many phones have been damaged or lost when they have been accidentally dropped while removing or reattaching the phone to the belt.

This invention is for an extendible leash that is attached to the belt and is clipped to the rear surface of the cellular telephone case to prevent the phone from falling in the event it is accidentally dropped. The leash includes a housing that swivels on its belt connection so that the phone user may easily and conveniently use the phone with the leash attached.

Briefly described, the leash includes a strong cord wound on a spring biased spool within a housing which is pivotally connected to a spring steel belt clip. The belt clip may easily be snapped onto the belt but its design prevents it from accidental release.

## BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings which illustrate a preferred embodiment of the invention.

FIG. 1 is a rear elevational view of a cellular telephone with an attached leash partially shown in section;

FIG. 2 is a front elevational view of the cellular telephone leash; and

FIG. 3 is a side view showing the leash pivotally attached to a belt clip.

## DETAILED DESCRIPTION

A cellular telephone case is generally of a soft leather or plastic and covers all sides of the telephone except the front face including the selection buttons, the microphone and the speaker. As illustrated in FIG. 1, the rear surface of the case 10 includes a belt hook 12 and a small eye 14 for attachment of a wrist strap. The leash of this invention is coupled to this eye 14.

As shown in FIG. 1, the leash includes a hollow circular housing 16 containing a concentric circular rotatable spool 18 around the periphery of which is wound a leash cord 19 about thirty inches in length. One end of the leash cord is

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connected to the spool periphery, the other end is brought out through a ferrule in the edge of the housing and is terminated in the end fixture 20 which is coupled to the snap hook 22 through a ring 24. A spiral spring 25 lies within the spool 18 with an end connected to the center post of the spool to enable the leash cord 19 to be extended and then automatically retracted. A spring steel belt hook 26 is attached to the housing 16 for mounting the cellular telephone leash on a belt adjacent the phone.

FIG. 2 illustrates the front face of the cellular telephone leash housing 16. Notice that the cord end fixture now is hanging free from the housing 16 whereas in FIG. 1 it was in a high position. This is caused by the swiveling of the housing 16.

FIG. 3 is a side elevational view of FIG. 2. The belt hook 26 is shown connected to the central shaft through the housing 16. In a preferred embodiment this central shaft is a flat headed screw journaled within a bushing sleeve spanning the side walls within the housing so that the housing 16 may spin freely around its axis.

The belt hook 26 is of spring steel and is formed to be easily attached to and removed from the belt but extremely difficult to accidentally dislodge from the belt. The belt hook is formed from a single piece bent near its center to form two spaced parallel legs 28, 30. The outer leg 28 is bent slightly outward near its end so that it may easily attach over a belt. The inner leg 30 which is attached near its center to the swiveling housing 16 is first squared at the end and then abruptly bent outward near its end to contact the outer leg 28 so that the bent portion 32 forms an angle with the straight portion of the leg 30 of preferably less than 85 degrees. This acute angle locks a belt into the belt hook. It can be removed easily by lifting the end of the outer leg 28.

I claim:

1. A leash for a cellular telephone case that is normally suspended by a clip on the user's belt and has an eye for attachment of a wrist strap, said leash comprising:

a hollow circular housing containing a spool of leash cord, said leash cord having one end passing through the edge of said housing and being removable attached to the eye on the cellular telephone case, said circular housing having an axis;

a spiral spring within said housing and attached to said axis and said spool for automatically winding said leash cord;

a belt hook pivotally attached to said housing; and means in said belt hook for preventing accidental disengagement from a belt.

2. The leash for a cellular telephone case claimed in claim 1 wherein said belt hook is pivotally connected on said axis on an external surface of said housing.

3. The leash for a cellular telephone case claimed in claim 1 wherein said means for preventing accidental disengagement comprises a spring steel belt clip formed with parallel outer and inner legs with the end of the inner leg being bent into an acute angle to contact the outer leg.

4. A leash adapted to be attached to a cellular telephone case, said leash comprising:

a hollow circular housing containing a rotatable spool with a leash cord wound thereon, said leash cord having one end attached to said spool and one end passing



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through a hole in the edge of said housing and terminating in a snap hook, said rotatable spool being rotatable around a central axis of said housing;  
spring means within said housing and attached to said axis 5  
and said spool for applying a leash cord rewinding bias to said spool; and

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a belt hook pivotally attached to said housing at said axis, said belt hook being of a resilient metal with front and rear portions adapted to surround a belt, said rear portion being bent up against said front portion to form a lock which prevents accidental removal of said hook from a belt.

\* \* \* \* \*





US005697572A

**United States Patent** [19]

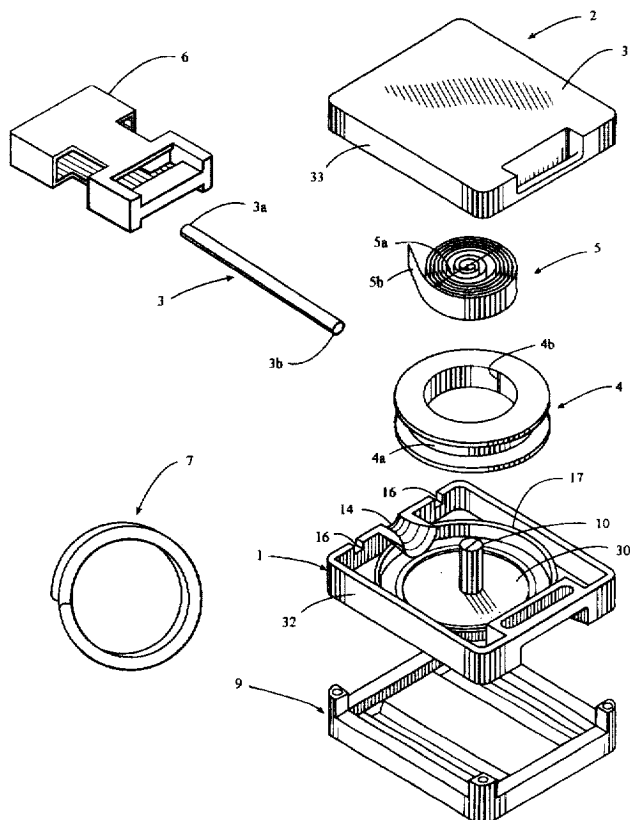
Salentine et al.

[11] Patent Number: **5,697,572**[45] Date of Patent: **Dec. 16, 1997**[54] **RETRACTABLE HOLDER**[75] Inventors: **John Salentine; Kenneth Collin**, both of Foster City, Calif.[73] Assignee: **Hammerhead Industries, Inc.**, Foster City, Calif.[21] Appl. No.: **512,816**[22] Filed: **Aug. 9, 1995**[51] Int. Cl.<sup>6</sup> ..... **B65H 75/48**[52] U.S. Cl. .... **242/379**[58] Field of Search ..... 242/379, 379.2,  
242/398, 908, 404, 404.1, 404.2, 404.3,  
406, 378.2[56] **References Cited****U.S. PATENT DOCUMENTS**

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*Primary Examiner*—John M. Jillions*Attorney, Agent, or Firm*—Michael G. Petit[57] **ABSTRACT**

A tethering device for securely holding and extendably presenting an article, particularly an article such as scuba diving equipment and the like required for activities performed in extreme environments. The device includes a durable body-mountable plastic case housing a cord-retracting mechanism. One end of a tethering cord is attached to the cord-retracting mechanism. The other end of the cord extends through a guide hole in the case and has means thereon for attachment to an article such as a tool thereby tethering the article to the case. The tethered article may be extended for use at arms length then automatically retracted toward the case by the coil spring retracting mechanism. The case housing the retracting mechanism and cord also includes means for attaching the device to a user. In one embodiment the back of the case contains a removable mounting plate. A strap or belt may be sandwiched between the case and mounting plate to securely attach the device to the belt. The wall of the case has two flushing holes extending therethrough positioned to permit removal of water and debris from the internal winding mechanism without disassembly. The flushing holes also provide a means for cleaning the device and allowing the cord retracting spring mechanism enclosed within the case to dry. The device is particularly adapted for use as a retractable tether for tools used in extreme environments such as underwater diving equipment.

**12 Claims, 3 Drawing Sheets**



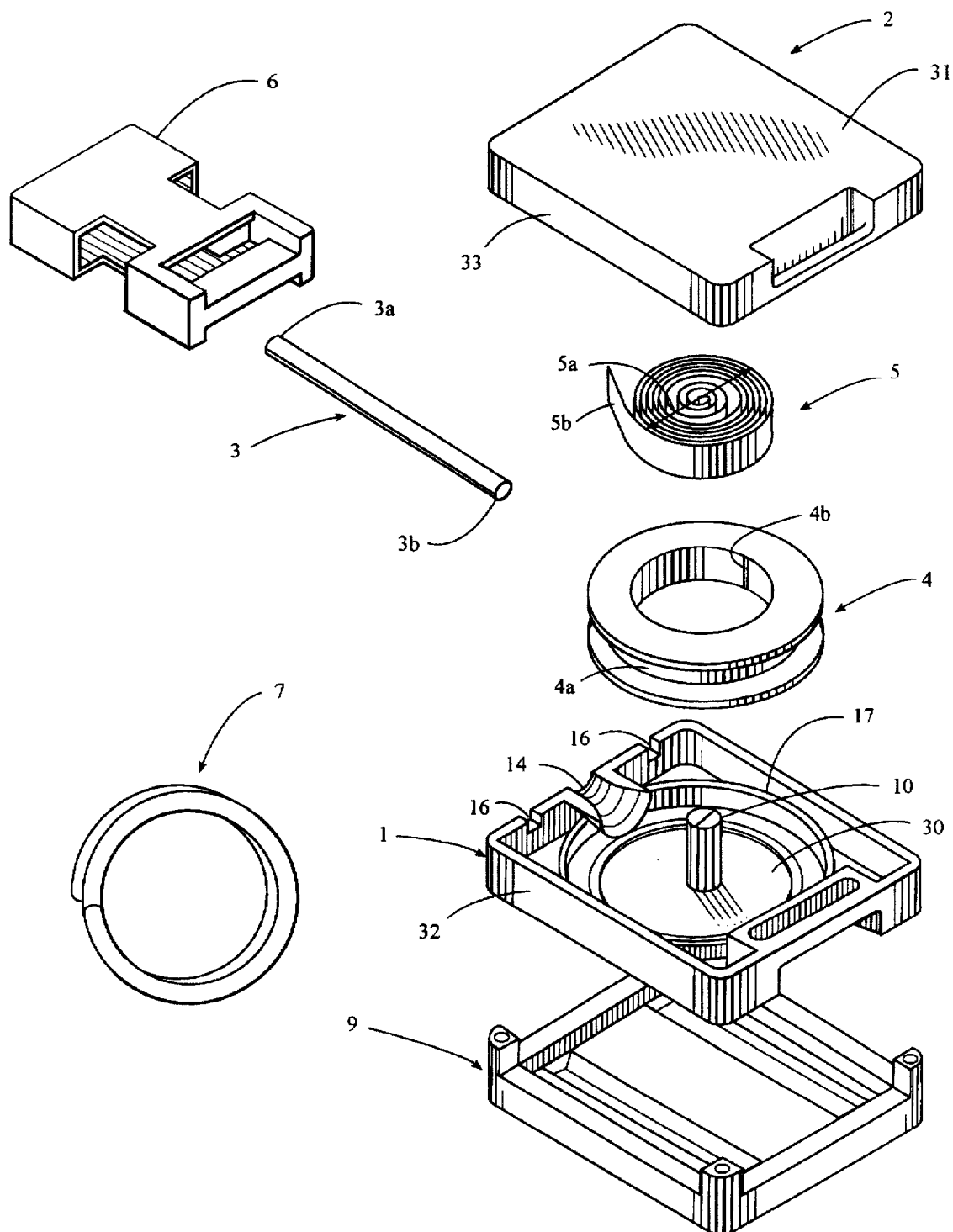


Figure 1



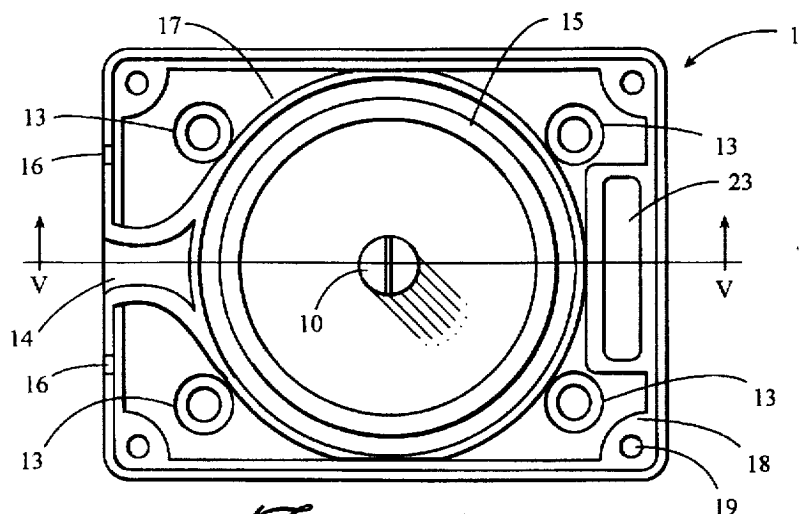


Figure 2

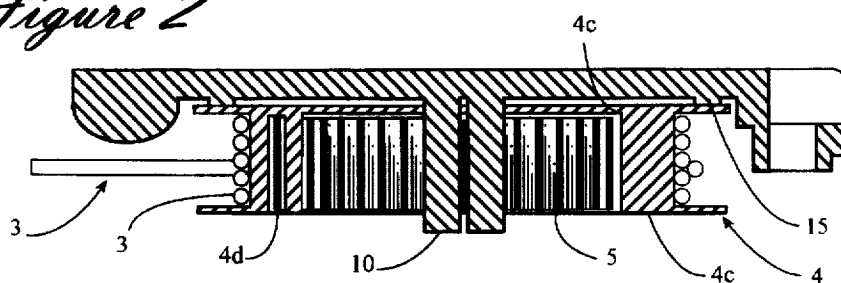


Figure 3

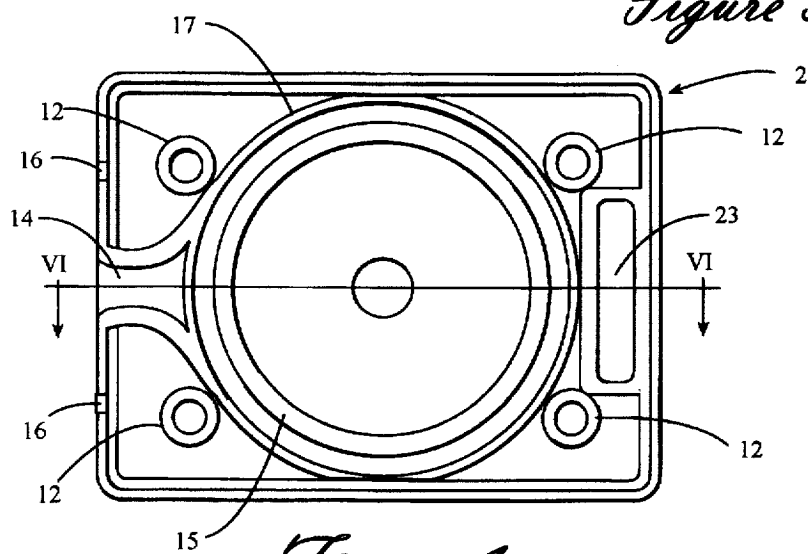


Figure 4

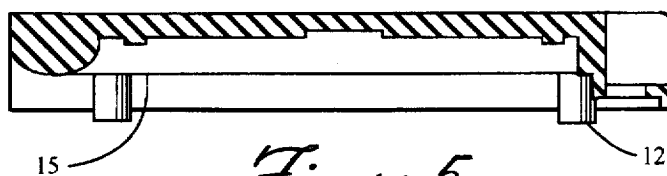


Figure 5



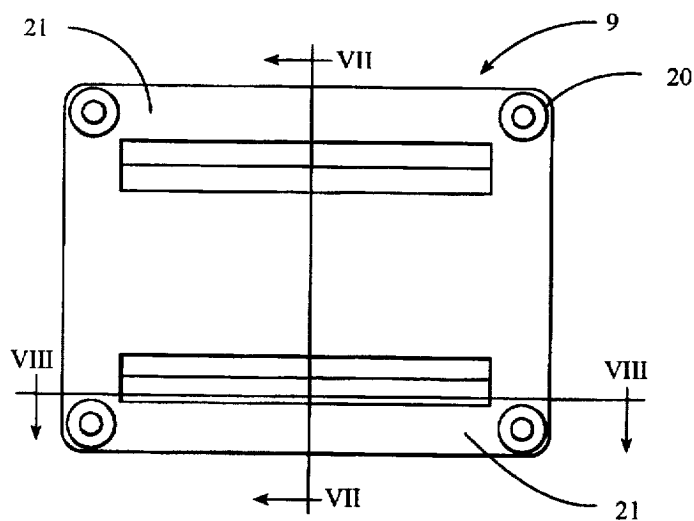


Figure 6

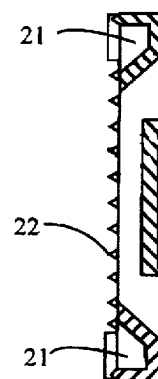


Figure 7

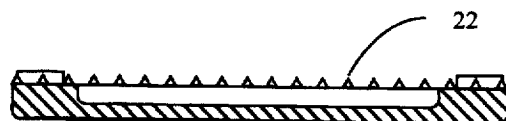


Figure 8

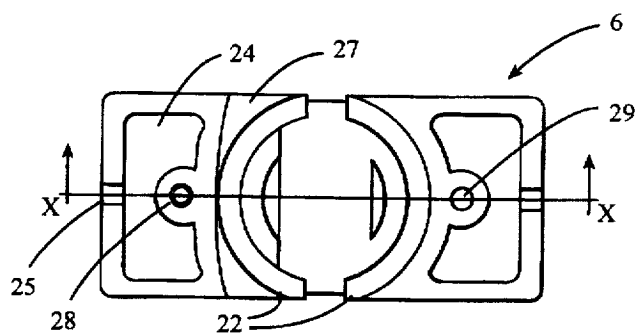


Figure 9

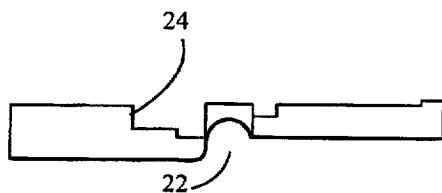


Figure 10



**RETRACTABLE HOLDER****BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates to an apparatus for storing and presenting a retractable cord and more particularly to a retractable tether adapted for holding tools used in aqueous environments.

**2. Prior Art**

In equipment-intensive activities, where the loss of equipment is both common and dangerous such as scuba diving or performing tasks at high elevations or in deep snow, a reliable means for securing essential tools or equipment to ones body is desirable. If the tool or equipment is not attached or tethered to the user in some manner, it may be lost. Tools and equipment used in sports such as scuba diving and fishing are commonly attached to ones body or gear by tethering means consisting of fixed-length strings or cords referred to as lanyards. Tools and similar equipment, collectively referred to herein as "articles", are attached to such a lanyard and then looped, cinched, or tied to an extremity or clipped to ones equipment or clothing. In order to use such a tethered article at arms length without detaching the article from the tether, such lanyards must either be long or attached to an extremity such as the wrist to allow use of the tool equipment. Thus, the use of fixed-length lanyards to tether articles may cause tanglement if the tether is long enough to present the article for arms length use and or inconvenient and cumbersome if affixed to the wrist.

In response to the entanglement problem encountered with fixed length lanyards, spiral or coil-type lanyards have been developed to shorten the effective length of the lanyard when the tethered article is not in use. This type of lanyard reduces entanglement by reducing the effective length of the lanyard. However, the tethered tool or equipment will dangle when not in use causing at least partial extension of the tethering cord resulting in possible tanglement.

Automatic winding mechanisms such as seat belt retractors, electrical cord retractors, and key ring retractors are commonly employed to overcome some of the problems encountered with lanyard-type article tethers such as entanglement. The retracting mechanism of such retractable tethering devices employ coiled springs which are well known in the art. These devices do not generally provide means for reducing or eliminating mechanism failure due to exposure to particulate contaminants commonly encountered in extreme environments. Key-chain retractors, used for securely and extensively tethering keys to a persons body, generally do not have the restoring force necessary for retracting heavier tools such as a flashlight or an abalone iron. Moreover, the retracting mechanism of such prior art retractable tethering devices is easily jammed by invasive environmental particle contaminants such as sand.

Retracting devices adapted for water-type applications such as water-ski tow ropes (see, for example U.S. Pat. 4,407,460 4,969,610) are known in the art. These devices provide means for removing certain debris and water from the retracting line before such debris enters the internal winding mechanism. One such device (U.S. Pat. 4,407,460) incorporates a drain hole in the bottom of the case to allow water to drain from the case housing the retracting mechanism. These devices, while useful for preventing certain contaminants from entering the case and permit the (passive) draining of water from the interior of the case, do not provide means for the active removal of contaminants which do enter the case during use such as sand, mud, and water.

None of prior art devices provide a jam-proof, flushable, retractable tethering device operable for securely holding and retractably presenting articles and adapted for use in harsh environments. None of the above devices present a retractable tethering device which provides mean for internal flushing of particulates from the case without disassembly of the case.

**SUMMARY OF THE INVENTION**

The body or equipment-mountable retractable tethering device of the present invention consists of a portable body-mountable case defining an enclosed interior space and having a guide hole in the wall thereof through which guide hole the free end of a retractable cord projects. The case encloses a cord retracting mechanism comprising a ring-shaped reel affixed to a coil-type non-corrosive spring. The fixed end of the cord (or "tether") opposite the free end is attached to the outer perimeter of the reel. The free end of the cord projects through the guide hole in the case. The reel cord-retracting mechanism enables the coil spring to be wound or tensioned by is forcefully extending the free end of the cord from the case. The tension in the wound spring applies a tangential restoring force to the reel causing the reel to rotate thereby retracting the cord into the case thereafter to be wound onto the outer perimeter of the reel to which the fixed end of the cord is attached. The interior wall of the case includes a pair of opposed smooth raised circular bearing surfaces between which the reel rotates and which minimizes friction permitting continuous operation of the spring cord-retracting mechanism even when the case interior is exposed to debris. The coil spring is disposed within the inner circumference of the annular cord-winding reel. One end (the outer end) of the coil spring is attached to the reel and the other end attached to an axially mounted arbor post affixed to the case. A clip operable for releasably attaching a tool is attached to the free end of the cord (the end of the cord extending through the guide hole in the case). The clip may comprise a split ring, side release type clip, a carabiner or some other attachment means operable for releasably and securely attaching to an article.

A slot or similar means in the wall of the case provides an attachment for a belt or a strap; which belt, in turn, can be securely attached to ones body or body-mounted equipment. In one embodiment, the case includes a mounting bracket which can be securely attached to a body-mountable belt either by sandwiching a portion of the belt between the mounting bracket and the case of the device or by looping a strap through slots in the mounting bracket once the bracket is attached to the case of the device. The case contains two flushing holes positioned on the same side of the case as the cord hole which allow water and debris to be flushed from the internal mechanism by the movement of the reel. In addition, an embodiment of the device of the present invention may include a lock mechanism which enables the user to lock the extended tethering cord at a preferred length to position a article (affixed to the free end of the tether) at a convenient working distance from the case.

In summary, the invention provides a retractable article-tethering device which will operate reliably even when exposed to ice or snow or to water-dispersed contaminants such as suspended sand, mud and salt chlorine water during submersion. In addition, the device can be securely attached to a person's body or equipment by including versatile mounting means on the case. The provision of versatile means for attaching various articles to the free end of the tethering cord is also desirable. The attachment means are chosen to avoid inadvertent loss of the device and or articles



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attached thereto. The present device provides the user with compact body-mountable means for carrying an article such as a tool, while providing means operable for extending the article for use without the concern for loss. When the user is finished using the article, the article will automatically retract toward the case due to the restoring force applied by the coil spring. The tethering cord retracts into the case, thereafter to remain wound upon a reel and available for use at a later time. The device reduces or prevents tether cord entanglement by keeping the tethering cord wound upon a reel within the case when the article is not in use.

In accordance with the foregoing summary of the invention it is a primary object of the invention to provide a body mountable retractable article tethering device adapted for reliable operation in extreme environments.

It is another object of the invention to provide a retractable body mountable article-tethering device having means for flushing particulate contaminants from the case without disassembly.

The features of the invention believed to be novel are set forth with particularity in the appended claims. However, the invention itself, both as to organization and method of operation, together with further objects and advantages thereof may best be understood by reference to the following description taken in conjunction with the accompanying drawings in which:

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view showing the elements of a preferred embodiment of the invention.

FIG. 2 is a top plan view of the bottom half of the case.

FIG. 3 is a transverse sectional view of the bottom half-shell case taken along section line V—V of FIG. 2.

FIG. 4 is a top plan view of the top half of the case.

FIG. 5 is a transverse sectional view of the top half-shell case taken along line VI—VI of FIG. 4.

FIG. 6 is a plan view of an embodiment of the body-mounting bracket.

FIG. 7 is a transverse sectional view of the body-mounting bracket taken along section line VII—VII of FIG. 6.

FIG. 8 is a transverse sectional view of the mounting bracket taken along section line VIII—VIII of FIG. 6.

FIG. 9 is a plan view of the clip.

FIG. 10 is a transverse sectional view of the clip taken along the IX—IX of FIG. 9.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference now to FIG. 1, top case half the device, broken apart to show the organization of the component thereof, comprises a clam-shell type case having a bottom half 1 and a top half 2 which halves matingly engage with each other to enclose an interior space. The bottom half 1 and top half 2 comprise exterior planar end portions 30 and 31, respectively, each surrounded by perimeter walls 32 and 33, respectively, which extend upwardly from the perimeters of the planar end portions 30 and 31 and which seat together to form the clam-shell type case. A portion of one or both of the case halves, and 2 is preferably transparent to permit viewing of the interior space (the inside of the case when the case halves 1 and 2 are joined together) and inspect the inner components for contaminants without disassembling the case. A tethering line 3 (also referred to herein as a "cord"

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or a "tether") has a free end 3a and a fixed end 3b which is securely fastened to the outer perimeter of a reel 4. The reel 4 is a ring shaped member, the outer perimeter comprising an annular outer surface 4a upon which surface the cord 3 is wound, and an annular inner surface 4b. A portion of the inner surface 4b of the reel 4 is slatted to receive the outer end 5b of a coil spring 5. The coil spring 5 has a fixed inner end 5a non-releasably attached to a slotted stationary arbor 10 affixed to the bottom half 1 of the case. The free end 3a of the line 3 is affixed to a clip 6 (see FIG. 9) adapted to securely attach to a split ring 7 or a side release clip 6. A body-mounting bracket 9, adapted to provide a slot for permit the attachment of the case to a user belt (not shown) or similar accessory may be fastened to the bottom half 1 of the case.

When the top half 2 and bottom half 1 halves are joined together to form the case, the slotted arbor 10 forms a central axis of rotation for the reel 4 which rotation is operable for rolling the line 3 upon the reel outer surface 4a. The arbor 10 is slotted to receive and securely hold the inner fixed end of the power coil spring 5 which is disposed within the inner perimeter of the annular reel 4. The inner surface 4b of the reel 4 has a slot 4c therein dimensioned to receive and hold the outer end 5b of the coil spring 5.

The upper half 2 of the case shown in detail in FIGS. 4 and 5, contains hollow pillars 12 thereon which support the lower half 1 of the case. The lower half 1 of the case (see FIGS. 2 and 3) has holes 13 drilled therethrough for receiving case-half connecting means, such as screws, for attaching the lower half 1 of the case to the upper half 2.

Each half of the case has a semicircular groove 14 therein. When the case is assembled, the semicircular grooves 14 in the respective halves of the case juxtapose to form a circular guide hole (not shown) having a smooth surface for the line 3 to slide through.

With reference now to FIGS. 2, 3, 4, and 5, each case half 1 and 2 has a raised annular bearing surface 15 thereon which supports and stabilizes the reel 4, providing a low-friction close fitting surface for the rim wall 4c of the reel 4 to rotate against permitting rotation of the reel 4 even in the presence of contaminating particles and other debris.

Each case half has rectangular slots 16 which, when the case is assembled, are juxtaposed to form flush holes through the case. The rectangular slots 17 are formed in the perimeter walls 32 and 33. The flush holes 16 facilitate the flushing of debris from the mechanism. In addition, each case half provides an open flow channel between holes 16 and the outer surface 4a of the reel 4, allowing water and debris to be flushed from the (assembled) case interior by the rotary motion of the reel. A cavity wall 17 (FIG. 2) forms a physical barrier around the reel 4 and coil spring 5. The cavity wall 17 is instrumental for reducing the flow of debris around the reel and spring and for preventing sand from entering the interface between the reel 4 and the annular bearing surface 15.

The lower half 1 of the case, shown in FIG. 2, has reinforced portions 18 having holes 19 (FIG. 2) therein. The body-mounting bracket 9 (FIG. 6) has holes 20 therethrough which provide a means for inserting screws (not shown) into mating screw receiving holes 19 in the bottom half 1 of the case. Slots 21 in the body-mounting bracket 9 (FIG. 6) are angled, as shown in FIGS. 6 and 7, to allow passage of a strap (not shown) therethrough when the body-mounting bracket 9 is secured to the lower half 1 of the case. Gripping means 22 such as a rough surface or multiple pointed members protrude from the rear face of the mounting



bracket to present a gripping, non-slip surface when a strap or belt (not shown) is inserted between the lower half 1 of the case and the body-mounting bracket 9.

A portion of the contacting edge of each half of the case has half of a slot 23 (FIGS. 2 and 4) therein which, when in the case is assembled, form a slot in the case operable for receiving nylon-type webbing or means for securing the case to a clip type mechanism.

The clip 6 (FIG. 9), which attaches to the free end 3a of the cord 3, has a cavity 24 dimensioned to receive and house a knot (not shown) formed at the free end of the cord 3 which enters the clip through an opening 25 in the cavity 24. Clip 6 has a split ring groove 22 and a side release groove 27 operable for receiving and housing a split ring 7 or a side release clip (not shown). Clip 6 contains an integrated hollow post 28 and hole 29 which, when the clip 6 is folded in half, provides means for screwing the opposing halves of the clip together. Folding clip 6 in half seals the cavity 24 and forms a secure opening 25 through which the line 3 passes. Folding clip 6 in half also sandwiches a split ring 7 or side release clip (not shown) in grooves 25 or 26 respectively, thereby securing the split ring or side release clips to the line.

While the foregoing referred embodiments of the invention have been described and shown, it is understood that alternatives and modifications such as those suggested and other, may be made thereto and fall within the scope of the invention. For example, the flushing holes in the case may be provided with means for closing to reduce ingress of contaminants during use. The flushing holes may be opened for flushing when particulate contaminants are present inside the case then closed or left open to air dry the case interior. There may be one or more windows enabling noninvasive inspection of the winding mechanism. The entire case may be transparent. It is, therefore, intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

What we claim:

1. In a retractable tethering device comprising: (a) an outer case having planar end walls and perimeter side walls; (b) a retracting mechanism enclosed within the outer case, and (c) a tethering cord having a fixed end attached to said retracting mechanism and a free end projecting through a guide hole in said wall of said outer case, the device being operable for presenting a length of tethering cord in response to tension applied to said free end of said tethering cord and for retracting the length of tethering cord into said outer case when the tension applied to said free end of the tethering cord is relaxed, the improvement comprising a cavity wall comprising a substantially annular member encircling a perimeter of said retracting mechanism and flushing means operable for removing a contaminant from inside said outer case, said flushing means comprising two flushing holes formed through the perimeter side walls of said outer case.

2. The retractable tethering device of claim 1 wherein said flushing means comprises first and second holes in said wall of said outer case, wherein said first hole is operable for receiving and conducting an externally introduced flushing fluid into said outer case and wherein said second hole is operable for draining the externally introduced flushing fluid from within said outer case.

3. The improved retractable tethering device of claim 1 wherein at least a portion of said outer case is transparent.

4. The retractable tethering device of claim 2 wherein at least a portion of said outer case is transparent.

5. The retractable tethering device of claim 1 wherein said guide hole is an opening in said cavity wall.

6. The retractable tethering device of claim 1 wherein said guide hole is an opening in said cavity wall.

7. In a retractable tethering device comprising: (a) an outer case having planar end walls and perimeter side walls; (b) a retracting mechanism enclosed within the outer case, and (c) a tethering cord having a fixed end attached to said retracting mechanism and a free end through a guide hole in said wall of said outer case, the device being operable for presenting a length of tethering cord in response to tension applied to said free end of said tethering cord and for retracting the length of tethering cord into said outer when the tension applied to said free end of the tethering cord is relaxed, the improvement comprising: (a) flushing means on said device operable for removing a particulate contaminant from inside said outer case, said flushing means comprising a pair of holes formed through the perimeter side walls of the outer case; and (b) a cavity wall affixed to outer case and positioned thereon to form a barrier around said retracting mechanism, and wherein said cavity wall comprises a substantially annular member encircling the perimeter of the retracting mechanism and wherein said guide hole is an opening in said cavity wall.

8. The retractable tethering device of claim 7 wherein said flushing means comprises first and second holes in said wall of said outer case, wherein said first hole is operable for receiving and conducting an externally introduced flushing fluid into the outer case and wherein said second hole is operable for draining the externally introduced flushing fluid from within the said outer case.

9. The improved retractable tethering device of claim 7 wherein at least a portion of said case is transparent.

10. The retractable tethering device of claim 8 wherein at least a portion of said outer case is transparent.

11. A retractable tethering device comprising:

an outer case having planar end walls and perimeter side walls with a guide hole formed therethrough, flushing means holes formed therethrough operable for removing a contaminant from inside said outer case, said flushing means comprising first and second holes formed in the perimeter side walls of the outer case, wherein the first hole is operable for receiving and conducting and externally introduced flushing fluid into the outer case and wherein the second hole is operable for draining the externally introduced flushing fluid from within the outer case, and internally positioned raised annular surfaces;

a tethering cord having a fixed end and a free end; and a retracting mechanism enclosed within said outer case, said retracting mechanism comprising a ring-shaped reel having an inner opening into which a spring means fits, an outer perimeter onto which said tethering cord is adapted to wrap, and rim walls adapted to ride adjacent said internally positioned raised annular surfaces of said outer case;

wherein said fixed end of said tethering cord is attached to said retracting mechanism and said free end projects through said guide hole, the device being operable for presenting a length of tethering cord in response to tension applied to said free end of said tethering cord and for retracting the length of tethering cord into said outer case when the tension applied to said free end of the tethering cord is relaxed.

12. In a retractable tethering device comprising: (a) an outer case having planar end walls and perimeter side walls; (b) a retracting mechanism enclosed within the outer case, and (c) a tethering cord having a fixed end attached to said retracting mechanism and a free end projecting through a



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guide hole in said wall of said outer case, the device being operable for presenting a length of tethering cord in response to tension applied to said free end of said tethering cord and for retracting the length of tethering cord into said outer case when the tension applied to said free end of the tethering cord is relaxed, the improvement comprising a cavity wall comprising a substantially annular member encircling a perimeter of said retracting mechanism and flushing means operable for removing a contaminant from inside said outer

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case, said flushing means comprising first and second holes formed through the perimeter side walls of the outer case, wherein the first hole is operable for receiving and conducting an externally introduced flushing fluid into the outer case and wherein the second hole is operable for draining the externally introduced flushing fluid from within the outer case.

\* \* \* \* \*





US006731956B2

(12) **United States Patent**  
**Hanna et al.**

(10) **Patent No.:** **US 6,731,956 B2**  
(45) **Date of Patent:** **May 4, 2004**

(54) **RETRACTABLE CORD FOR A MOBILE PHONE OR OTHER WIRELESS DEVICE**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 231 days.

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(22) Filed: **Mar. 26, 2001**

(65) **Prior Publication Data**

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(52) **U.S. Cl.** ..... **455/569.1**; 455/575.2; 379/420.02; 379/420.04; 379/433.02

(58) **Field of Search** ..... 455/90, 575, 569, 455/346, 347, 348, 350; 379/420.02, 420.03, 420.04, 433.02, 433.03, 433.05, 388.02; 381/370, 384

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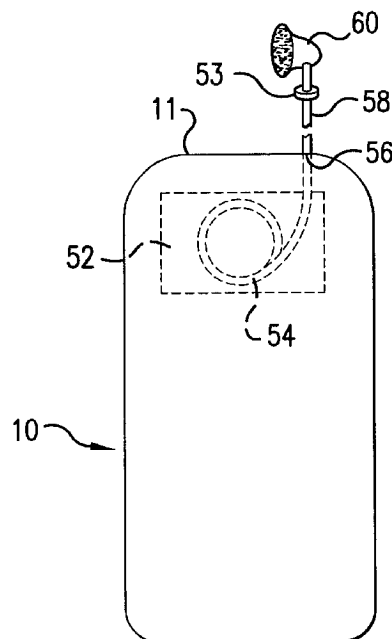
*Primary Examiner*—Duc M. Nguyen

(74) *Attorney, Agent, or Firm*—Snell & Wilmer LLP

(57) **ABSTRACT**

A retractable cord for mobile phones or other wireless devices. The cord includes an ear piece having a speaker for delivering sound to a user and possibly having a microphone. The retractable cord can be contained within a separate unit with a connector for attachment to a connector on the mobile phone or other wireless device, such as a jack or other receptacle, or it can be contained internally within those devices. The cord can retract onto a spring-loaded spool, or via other retractable mechanisms, and be held at various extended positions with a stop mechanism that prevents retraction of the cord.

**14 Claims, 5 Drawing Sheets**





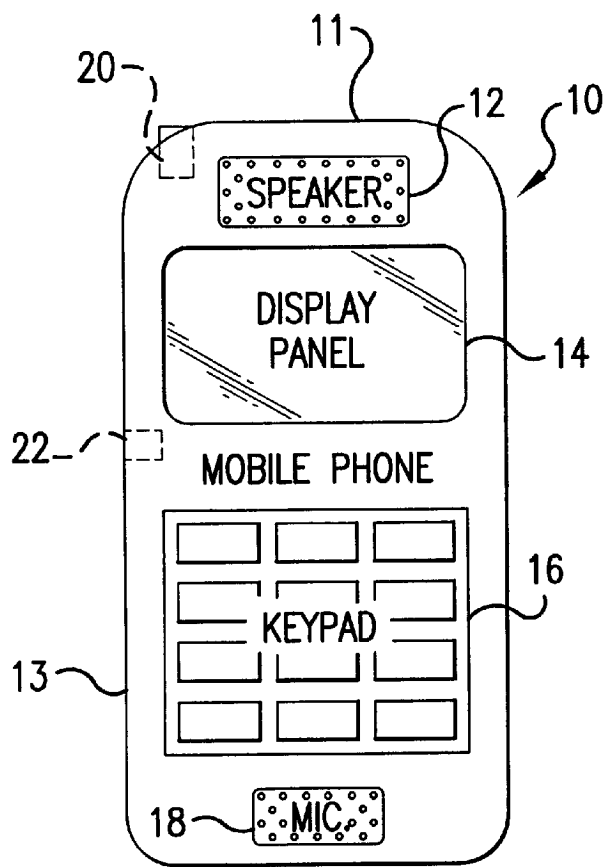


FIG. 1

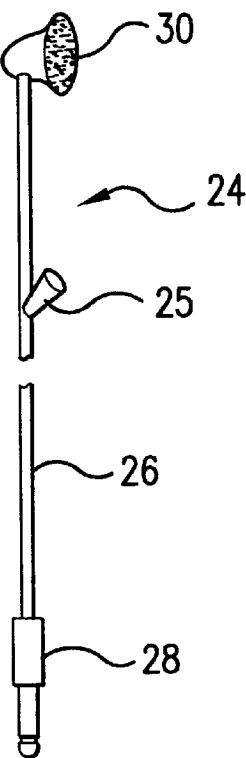


FIG. 2



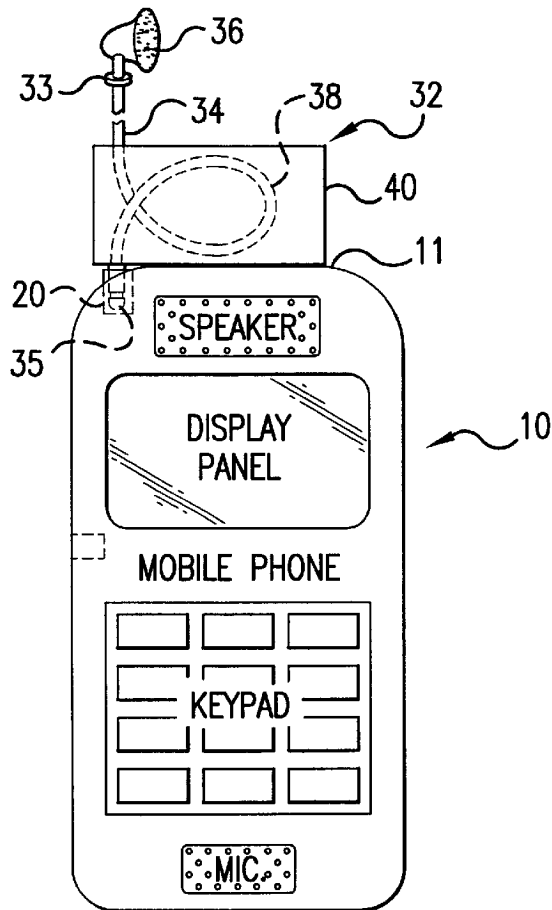


FIG. 3

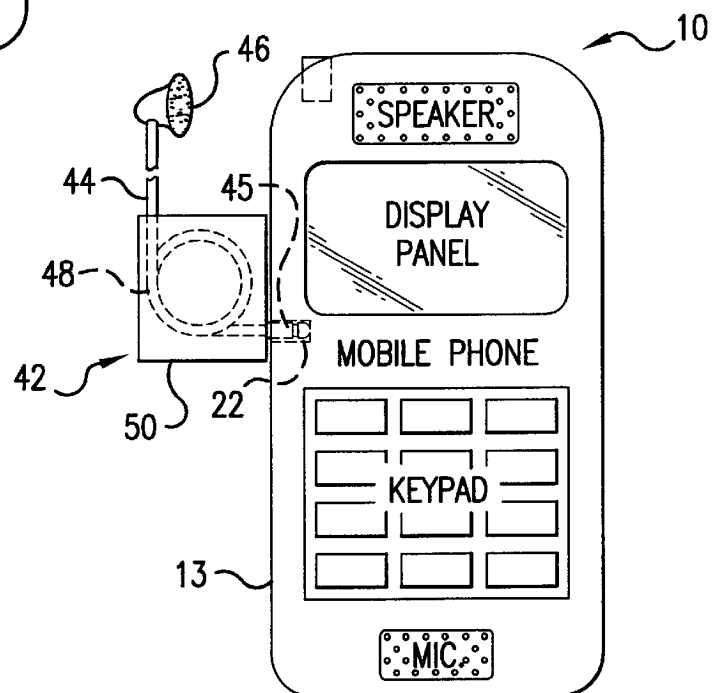


FIG. 4



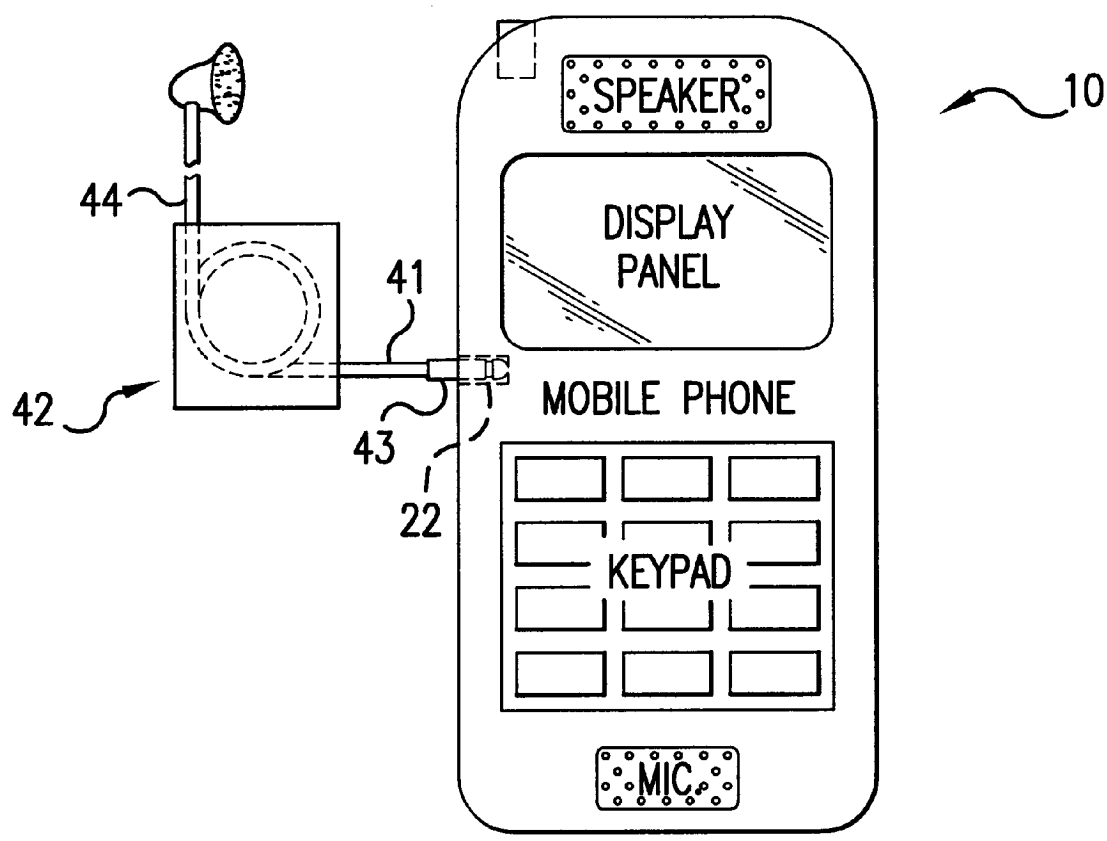


FIG.5



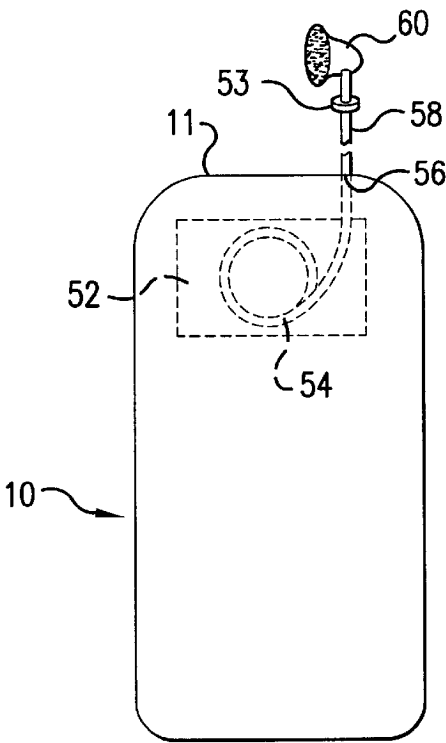


FIG. 6

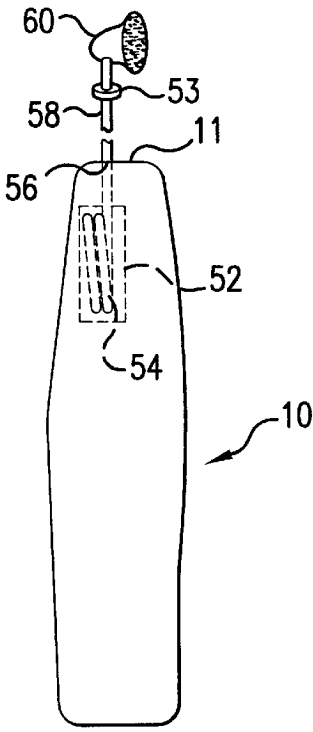


FIG. 7

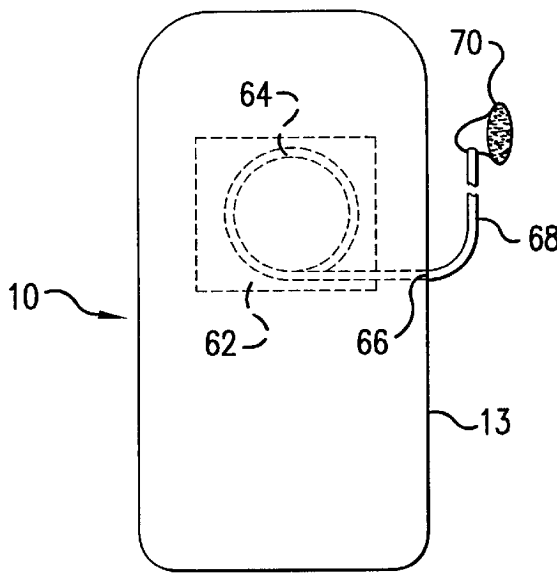


FIG. 8

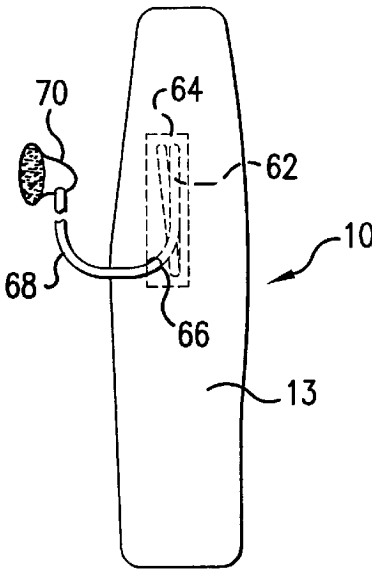


FIG. 9



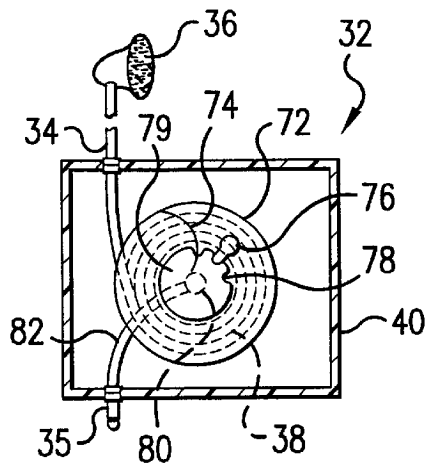


FIG. 10

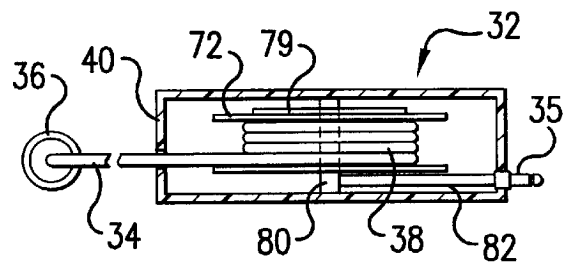


FIG. 11

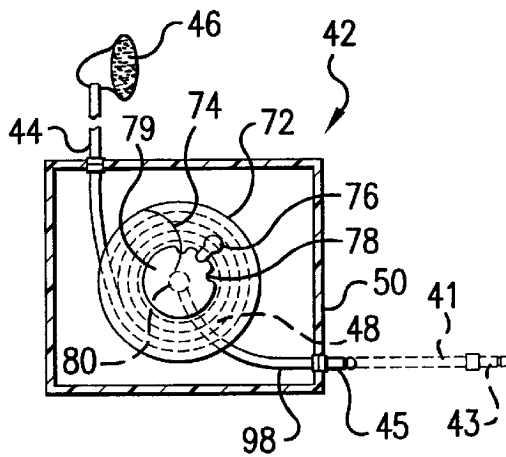


FIG. 12

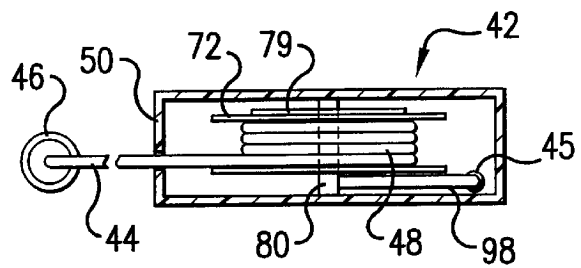


FIG. 13



RETRACTABLE CORD FOR A MOBILE  
PHONE OR OTHER WIRELESS DEVICE

FIELD OF THE INVENTION

The present invention relates to a retractable cord for a mobile phone or other wireless device.

BACKGROUND OF THE INVENTION

FIG. 1 is a diagram of a conventional mobile phone 10 having a microphone 18 for converting a user's voice into electrical signals and a speaker 12 for converting electrical signals into sound for the user to hear. The user can enter phone numbers or other information using a key pad 16 and view information on a display panel 14. Conventional mobile phone 10 also has circuitry (not shown) to receive, transmit, and process electrical signals for wireless mobile phone communication. Mobile phones, commonly referred to as "cell phones," and their operation are well known in the art.

FIG. 2 is a diagram of a conventional cord 24 for mobile phone 10. Cord 24 has a connector 28, such as a phone-type plug, to be inserted into a corresponding connector, such as a jack or other receptacle, on mobile phone 10. Many mobile phones have such a connector as illustrated by a device connector 20 on a top 11 and a device connector 22 on a side 13 of mobile phone 10. Usually, a mobile phone has only one connector, and device connectors 20 and 22 are both shown to illustrate typical locations for the connectors.

When plugged into mobile phone 10, cord 24 permits a user to hear sound through a speaker in an ear piece 30 to be inserted into the user's ear in this example. A section 26 of the cord electrically connects speaker 30 with connector 28 and can include, for example, wires within a protective coating. Conventional cord 24 also typically includes a microphone in ear piece 30 for converting a user's voice into an electrical signal. Certain conventional cords 24 have the microphone separately attached to section 26, as represented by a microphone 25. The separate microphone 25 is located, for example, approximately twelve inches from ear piece 30 so that it is close to a user's mouth when ear piece 30 is inserted into the user's ear. Other types of separate microphones include boom microphones, and other types of ear pieces include headsets having a speaker for placement against or proximate a user's ear.

The insertion of cord 24 into device connectors 20 or 22 de-activates speaker 12 and microphone 18 and permits hands-free use of mobile phone 10. It also permits the user to locate mobile phone 10 away from his or her head and thus avoid or minimize potential adverse effects of electromagnetic energy from the phone's antenna.

Mobile phone 10, however, provides no convenient way to store cord 24. For example, a user may wrap cord 24 around mobile phone 10 when not in use, or the user may simply bunch up the cord apart from the mobile phone and place it in the user's pocket, purse, or briefcase. When stored in any of those ways, cord 24 can become tangled, making it difficult to quickly insert ear piece 30 into the user's ear in order to answer an incoming telephone call or to make an outgoing call. When stored apart from the mobile phone, cord 24 can become lost or not easily located for attachment to mobile phone 10 to answer or make a telephone call.

Accordingly, a need exists for a more convenient way to store and attach a cord for a mobile phone or other wireless device.

SUMMARY OF THE INVENTION

A mobile phone or other wireless device consistent with the present invention includes a retractable cord having an ear piece. A retractable mechanism in the mobile phone or other wireless device operates to permit extension of the cord from the mobile phone or other wireless device through an aperture and retract at least a portion of the cord into the mobile phone or other wireless device through the aperture.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings are incorporated in and constitute a part of this specification and, together with the description, explain the advantages and principles of the invention. In the drawings,

FIG. 1 is a diagram of a conventional mobile phone;

FIG. 2 is a diagram of a conventional cord for the mobile phone;

FIG. 3 is a diagram illustrating a separate retractable cord unit for a mobile phone in a first configuration;

FIG. 4 is a diagram illustrating a separate retractable cord unit for a mobile phone in a second configuration;

FIG. 5 is a diagram illustrating a separate retractable cord unit for a mobile phone and further illustrating an alternative way to connect the cord unit to the mobile phone;

FIG. 6 is a diagram illustrating, in a rear view, an internal retractable cord for a mobile phone in a first configuration;

FIG. 7 is a diagram illustrating, in a side view, an internal retractable cord for the mobile phone shown in FIG. 6;

FIG. 8 is a diagram illustrating, in a rear view, an internal retractable cord for a mobile phone in a second configuration;

FIG. 9 is a diagram illustrating, in a side view, an internal retractable cord for the mobile phone shown in FIG. 8;

FIG. 10 is a top sectional view of a retractable mobile phone cord unit in a first configuration;

FIG. 11 is a side sectional view of a retractable mobile phone cord unit for the first configuration shown in FIG. 10;

FIG. 12 is a top sectional view of a retractable mobile phone cord unit in a second configuration; and

FIG. 13 is a side sectional view of a retractable mobile phone cord unit for the second configuration shown in FIG. 12.

DETAILED DESCRIPTION

A cord consistent with the present invention is retractable, either in a separate unit or internally within a mobile phone or other wireless device. A user can easily extend the cord in order, for example, to insert an ear piece of the cord into the user's ear or place an ear piece against or proximate the user's ear for answering an incoming telephone call or making an outgoing call, or listening to music. After the call, the user can retract the cord in order to conveniently store it in the device or separate unit.

Retractable Cord Unit

FIG. 3 is a diagram illustrating a separate retractable cord unit 32 for mobile phone 10 in a first configuration. Unit 32 includes a housing 40 for containing a retractable mechanism to retract a cord 34, in this example a spring-loaded spool as represented by coil 38 and further explained below. The term "retractable mechanism" includes any mechanism for retracting a cord and permitting extension of at least part of it.



An ear piece **36** is attached to cord **34** that can be extended from and retracted into housing **40**. Cord **34**, and other cords identified below, can be of any length. For example, it may be long enough to permit the user to clip the mobile phone to a belt while using the ear piece. The cords can be made of varying lengths for different devices.

Ear piece **36** contains a speaker and possibly a microphone. An example of an ear piece having both a speaker and a microphone is described in U.S. Pat. No. 5,363,444, which is incorporated herein by reference. The ear piece need not contain a microphone since an external microphone may be used such as a separate microphone attached to the cord. Also, certain wireless devices, such as an MP3 player or a personal stereo, may only generate sound and thus have no requirement or capability for receiving sound. Ear pieces can include both devices to be inserted into a user's ear, such as an ear plug with a speaker, or devices to be placed against or proximate a user's ear, such as headsets or similar devices. Also, an ear piece can be either directly connected to the cord or attached to it through a detachable clip that permits a user to connect different types of ear pieces to the cord.

A cord connector **35**, such as a phone-type plug, is attached to housing **40**, or a length of cord, and is electrically connected to cord **34**, for example, within the housing. Cord connector **35** can be inserted into device connector **20** on mobile phone **10**. The type of cord connector may depend upon the type of phone or device connector within the mobile phone or other wireless device. Although a phone-type plug is shown for connecting with a connector for illustrative purposes, other connectors can be used. The term "cord connector" includes any type of removable connector for providing electrical communication. The term "device connector" includes any type of connector for receiving a cord connector for providing electrical communication.

When in use, cord connector **35** is inserted into device connector **20**, and housing **40** can rest against the top **11** of mobile phone **10** in this exemplary embodiment. A user can extend cord **34** by grasping ear piece **36**, or a section of the cord, and pulling it out of housing **40**. A stop mechanism in housing **40** can hold the cord at particular extended positions so that it is not under tension from the spring-loaded spool or other retractable mechanism. Once held in position, the user can extend cord **34** slightly by pulling on it in order to release the stop mechanism, in one exemplary implementation, and permit the spring-loaded spool or other retractable mechanism to retract cord **34** into housing **40**.

The term "stop mechanism" includes any mechanism for releasably holding a cord at least at one particular extended position. Examples of stop mechanisms include mechanisms that hold and release the cord through force applied to the cord itself or through other devices such as a release button external to the housing and attached to a mechanism internal to the housing to hold the cord in place. Manipulation of the release button, in that example, activates and releases the stop mechanism.

An aperture in housing **40** can be large enough to permit passage of cord **34** and small enough to not permit passage of ear piece **36**. Therefore, when retracted, ear piece **36** rests against housing **40**. Alternatively, cord **34** can include a stopper **33**, such as a rubber or plastic washer, on cord **34** and proximate ear piece **36** in order to extend ear piece **36** a certain amount when the cord is fully retracted. Stopper **33** may make it easier for a user to grasp and extend the cord by holding the stopper and may also help protect the ear piece by allowing the user to extend the cord without

grasping the ear piece. Stopper **33**, and others identified below, can be located at any particular distance from the ear piece on the cord and can possibly be adjustable by permitting a user to slide the stopper along the cord.

FIG. **4** is a diagram illustrating a separate retractable cord unit **42** for mobile phone **10** in a second configuration for use with cord connector **45** on the side **13** in this exemplary embodiment. Unit **42** includes a housing **50** containing a retractable mechanism, in this example a spring-loaded spool as represented by coil **48**. It can also contain a stop mechanism. A cord **44** is attached to an ear piece **46** and can extend from and retract into housing **50**. Unit **42** otherwise can have the same configuration and operation as unit **32** described above.

Alternatively, one retractable cord unit can have multiple connectors such as both connectors **35** and **45** for use with mobile phones or other wireless devices having connectors in different locations.

As another alternative, FIG. **5** is a diagram illustrating unit **42** for mobile phone **10** and further illustrating an alternative way to connect unit **42** to device connector **22**. In particular, unit **42** can include a section of cord **41** attached to both unit **42** and a cord connector **43** for use providing electrical communication with connector **22**. Instead of attaching to unit **42**, section of cord **41** can include a retractable cord connected to the retractable mechanism and thus also attached to cord **44**. Therefore, the cord can be retractable on both ends, the end with the ear piece and the end for connection with the mobile phone. Use of a section of cord or retractable cord for the cord connector can involve attachment to any side of the housing, and the alternative is shown with respect to one particular side in FIG. **5** for exemplary purposes only.

Accordingly, attachment of a cord connector to the housing for the separate retractable unit can include, for example, attaching the cord connector to housing, attaching it to the housing via a section of cord, or attaching it to the housing via a retractable cord.

#### Internal Retractable Cord

FIGS. **6** and **7** are diagrams illustrating, in a rear and side views, an internal retractable cord for mobile phone **10** in a first configuration. Instead of containing the retractable cord in a separate housing, as explained above, it can be contained within the mobile phone. Conventional mobile phone **10** can be modified to include such a retractable cord.

As shown in FIGS. **6** and **7**, mobile phone **10** includes for this modification a compartment **52** containing a retractable mechanism, in this example a spring-loaded spool as represented by coil **54**. Compartment **52** can also contain a stop mechanism. A cord **58** is attached to an ear piece **60** for extending from and retracting into mobile phone **10** through an aperture **56**. Aperture **56** is preferably large enough to permit passage of cord **58** and small enough to prevent passage of ear piece **60**. When retracted and not in use, ear piece **60** rests, for example, against the top **11** of mobile phone **10** or can rest in a prefabricated cradle built into mobile phone **10**. The cradle can include a shape configured, for example, to mate with at least a portion of the ear piece such that the mated portion of the ear piece lies substantially flush with the mobile phone. Alternatively, cord **58** can include a stopper **53**, such as a rubber or plastic washer, on cord **58** and proximate ear piece **60** in order to extend ear piece **60** a certain amount when the cord is fully retracted, which may provide the advantages identified above with respect to stopper **33**.



FIGS. 8 and 9 illustrate in rear and side views a modification of mobile phone 10 for locating the cord on the side 13. For this modification, mobile phone 10 includes a compartment 62 containing a retractable mechanism, in this example a spring-loaded spool as represented by coil 64. Compartment 62 can also contain a stop mechanism. A cord 68 is attached to an ear piece 70 for extending from and retracting into mobile phone 10 through an aperture 66. Aperture 66 is preferably large enough to permit passage of cord 68 and small enough to prevent passage of ear piece 70. When retracted and not in use, ear piece 70 rests, for example, against the top 13 of mobile phone 10 or can rest in a cradle built into the phone. This configuration can alternatively include a stopper on cord 68 similar to stopper 53.

Any of the embodiments shown in FIGS. 6-9 can include any of the exemplary ear pieces identified above. They can also include a clip on the cord to attach different types of ear pieces for use with the mobile phone.

Retractable Mechanism and Stop Mechanism

FIGS. 10 and 11 are top and side sectional views of a retractable cord unit 32 shown in FIG. 3 illustrating the operation of an exemplary retractable mechanism and a stop mechanism. Housing 40 contains a spool 72 mounted on a pin 80 for rotation. A coil spring 74 applies tension to spool 72 for retracting and winding cord 34 onto spool 72, as shown by coil 38 for this example. A section 82 of the cord is attached to cord connector 35 and internally attached to coil 38 for providing an electrical connection between cord connector 35 and cord 34.

The stop mechanism in this example includes a pivotally mounted pawl 76 cooperating with a plate 79 rotationally connected with spool 72 on pin 80. Pawl 76 can stop rotation of spool 72 by contacting a dimple such as dimple 78 on plate 79, thus holding a extended position of cord 34. Slightly extending cord 34 when held by the stop mechanism releases pawl 76, permitting spool 72 to retract cord 34. Stop mechanisms can also include, for example, an external release button as described above.

FIGS. 12 and 13 are top and side sectional views of a retractable cord unit 42 shown in FIG. 4 illustrating the operation of an exemplary retractable mechanism and stop mechanism for this embodiment. As shown, housing 50 can include the same internal components as housing 40 except that it has a section 98 of cord 44 attached to cord connector 45 and to coil 48 for providing electrical connection between cord connector 45 and cord 44. In this embodiment, the cord connector is contained on a side perpendicular to a side from which the cord extends, rather than on an opposite side for unit 32. Otherwise, unit 42 can internally function the same as unit 32. FIG. 12 also illustrates the alternative use of a section of cord 41, possibly retractable, for attaching cord connector 43 to housing 50.

The embodiments for a retractable cord internal to mobile phone 10, as shown in FIGS. 6-9, or other wireless device can use the same retractable mechanism and stop mechanism as shown within housings 40 and 50 except that those components are mounted within the mobile phone or other wireless device. Also, since the cord is within the mobile phone in those embodiments, the cord can be internally connected directly to the mobile phone circuitry. The internal components can include a switch connected to the spring-loaded spool or other retractable mechanism. Extending the cord can engage or trigger the switch in order to de-activate the conventional speaker and microphone in

mobile phone 10 and activate the ear piece and possibly a microphone on the cord. Alternatively, mobile phone 10 can have programming such that a user-entered command via key pad 16 activates and deactivates use of the cord and the conventional device speaker and microphone.

The retractable mechanism and stop mechanism in the embodiments described above can be implemented, for example, with mechanisms known in the art. Examples of retractable cords and stop mechanisms are described in the following patents, all of which are incorporated herein by reference: U.S. Pat. Nos. 6,088,021; 6,065,080; 6,019,304; and 5,094,396. Furthermore, as illustrated in, for example, U.S. Pat. Nos. 6,088,021 and 6,065,080, retractable mechanisms with stop mechanisms can have a small form factor and thus need not significantly increase the size of the mobile phone or other wireless device and, likewise, can be implemented in a small separate housing. It can be implemented of any particular size; however, using a small form factor may provide that advantage and, when implemented in a separate housing, may be more easily carried and stored in containers such as a purse or briefcase.

In addition to mobile phones, the retractable cord can be implemented within a housing for use with other wireless devices or actually within other wireless devices. Examples of other wireless devices, in addition to mobile phones, include the following: personal digital assistants (PDAs); Internet appliances; MP3 players; and personal stereos such as Walkman products. The separate retractable cord unit, or internal retractable cord, can be configured and operate the same as those embodiments described above.

For any of the embodiments implemented with as a separate unit, the housing for the unit can have any shape. A square shape is shown for illustrative purposed only. It can also be implemented with, for example, a shape having a combination of curved surfaces, a shape having a combination of planar surfaces, a shape having a combination of curved and planar surfaces, or an irregular shape. Also, the shape may depend upon, for example, the shape or configuration of the mobile phone or other wireless device for its intended use. In particular, the housing can be made of various shapes in order to mate with various types of mobile phones or other wireless devices.

In addition, the exterior of the housing can have various colors, logos, patterns, monograms, or text. For example, it can have advertisements, or it can be personalized to include a user's name or initials. It can be made of any type of material such as, for example, a molded plastic or a metal material.

While the present invention has been described in connection with an exemplary embodiment, it will be understood that many modifications will be readily apparent to those skilled in the art, and this application is intended to cover any adaptations or variations thereof. For example, various shapes and configurations for the separate retractable cord unit, and various types of retractable and stop mechanisms, may be used without departing from the scope of the invention. This invention should be limited only by the claims and equivalents thereof.

What is claimed is:

- 1. A mobile phone having a retractable cord, comprising:
  - a mobile phone contained within a housing, the mobile phone having an internal microphone contained within the housing and an internal speaker contained within the housing;
  - a retractable mechanism in the mobile phone and containing a cord capable of transmitting an electrical



signal, the retractable mechanism operating to permit extension of the cord from the mobile phone through an aperture and retract at least a portion of the cord into the mobile phone through the aperture, wherein the cord is operable independent from an antenna in the mobile phone, and wherein the retractable mechanism is contained within the housing and not within a separate housing detachable from the housing; and

an ear piece attached to the cord extending from the aperture, wherein the ear piece is electrically connected with the mobile phone via the cord, the ear piece including a speaker and having an associated external microphone,

wherein a user can selectively receive an output of the mobile phone from the internal speaker and from the ear piece, and wherein the user can selectively provide an input to the mobile phone via the internal microphone and via the microphone associated with the ear piece.

2. The mobile phone of claim 1, wherein the retractable mechanism includes a spring-loaded spool.

3. The mobile phone of claim 1, further including a stop mechanism in the mobile phone and operatively connected to the retractable mechanism for holding the cord when extracted from the housing at selected positions.

4. The mobile phone of claim 1, wherein the ear piece includes at least one of the following: an ear plug to be inserted into a user's ear or a headset to placed against or proximate the users ear.

5. The mobile phone of claim 1, further including a stopper on the cord to prevent retraction of a portion of the cord through the aperture.

6. The mobile phone of claim 1 wherein the cord is retractable through the aperture in a top of the mobile phone.

7. The mobile phone of claim 1 wherein the cord is retractable through the aperture in a side of the mobile phone.

8. A wireless device having a retractable cord, comprising:

a wireless device contained within a housing and capable of receiving and processing wireless signals to provide

an output, the wireless device having an internal speaker contained within the housing;

a retractable mechanism in the wireless device and containing a cord capable of transmitting an electrical signal, to retractable mechanism operating to permit extension of the cord from the wireless device through an aperture and retract at least a portion of the cord into the wireless device through the aperture, wherein the cord is operable independent from an antenna in the wireless device, and wherein the retractable mechanism is contained within the housing and not within a separate housing detachable from the housing; and

an ear piece attached to the cord extending from the aperture, wherein the ear piece includes a speaker capable of providing the output and is electrically connected with the wireless device via the cord,

wherein a user can selectively receive the output of the wireless device from the internal speaker and from the ear piece.

9. The wireless device of claim 8 wherein the retractable mechanism includes a spring-loaded spool.

10. The wireless device of claim 8, further including a stop mechanism in the wireless device and operatively connected to the retractable mechanism for holding the cord when extracted from the housing at selected positions.

11. The wireless device of claim 8 wherein the ear piece includes at least one of the following: an ear plug to be inserted into a user's ear; or a headset to placed against or proximate the user's ear.

12. The wireless device of claim 8 wherein the ear piece includes a speaker and a microphone.

13. The wireless device of claim 8, further including a stopper on the cord to prevent retraction of a portion of the cord through the aperture.

14. The wireless device of claim 8 wherein the wireless device comprises one of the following: a personal digital assistant; an Internet appliance; an MP3 player; or a personal stereo.

\* \* \* \* \*





US006932309B1

(12) **United States Patent**  
**Corey et al.**

(10) **Patent No.:** **US 6,932,309 B1**  
(45) **Date of Patent:** **Aug. 23, 2005**

(54) **HOLDER FOR AN ELECTRONIC DEVICE**

6,185,302 B1 2/2001 Rytkenen

(76) Inventors: **Donald Charles Corey**, 919 Brookside Dr., Raleigh, NC (US) 27604; **Vanese Lynn Clough**, 919 Brookside Dr., Raleigh, NC (US) 27604

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*Primary Examiner*—Korie Chan

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 33 days.

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(51) **Int. Cl.**<sup>7</sup> ..... **A47F 5/08**

(52) **U.S. Cl.** ..... **248/231.9**; 248/505; 248/693; 248/912; 224/483; 224/572; 224/929; 379/454; 379/455; 24/18; 24/130

(58) **Field of Search** ..... 248/690, 693, 248/912, 505, 231.9, 328, 680; 379/446, 379/449, 454, 455; 224/483–485, 563, 568, 224/572, 929, 930; 24/17 AP, 18, 16 R, 129 A, 24/129 B, 129 R, 130, 128

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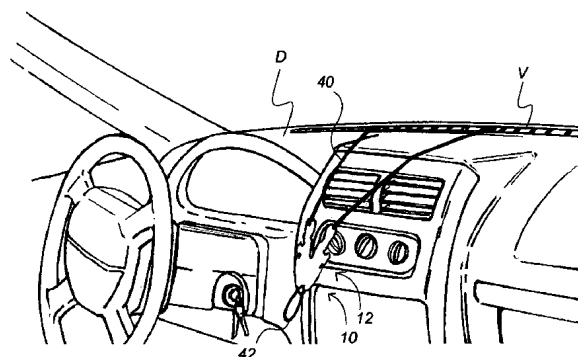
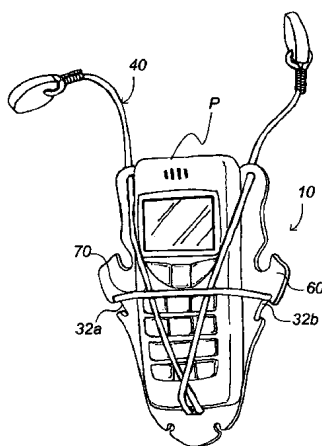
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(57) **ABSTRACT**

An apparatus and method for holding a portable electronic device, comprising a base formed of thin, flat, rigid, material, and having, in a lower portion a first, substantially unbroken, flat surface, against which the inner lower surface of the device can be mounted; in any upper bifurcated portion a central slot with a relatively wide open upper end and a relatively narrow closed lower end adjoining the lower portion, and on the sides of the slot open upper end a pair of upwardly-extending, laterally-spaced, second and third mounting surfaces, against which spaced-apart inner upper surfaces of the device can be mounted; a first pair of holes formed in the outer ends of the second and third mounting surfaces; a second hole formed in a lower end of the lower portion; a plurality of inwardly-extending notches formed in the outer edge surfaces of the lower and upper portions; a cord having each of two end portions threaded through the first pair of holes; a middle portion formed as a loop and threaded through the second hole; on each end of the cord a resilient wedge; wherein the device, when equipped with a mounting clip or button, is adapted to be detachably secured to the base by being mounted on the closed lower end of the slot, and if not so equipped is adapted to be strapped to the base by use of the cord and by use of the wedge members is adapted to be suspended from a structure formed so as to receive, squeeze, and detachably hold the wedge members and thereby suspend the base.

**13 Claims, 3 Drawing Sheets**





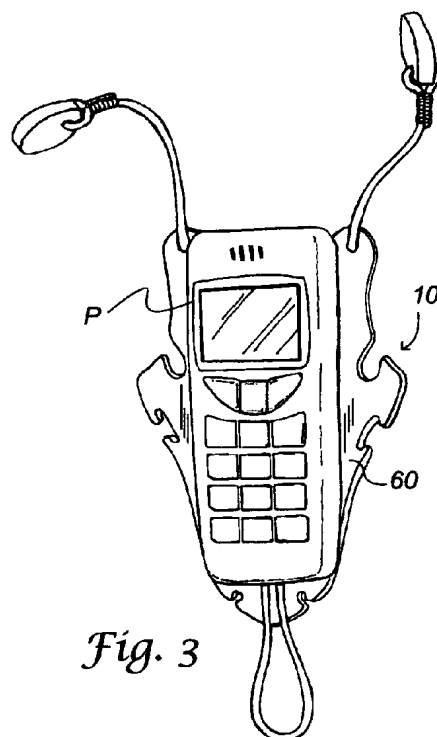
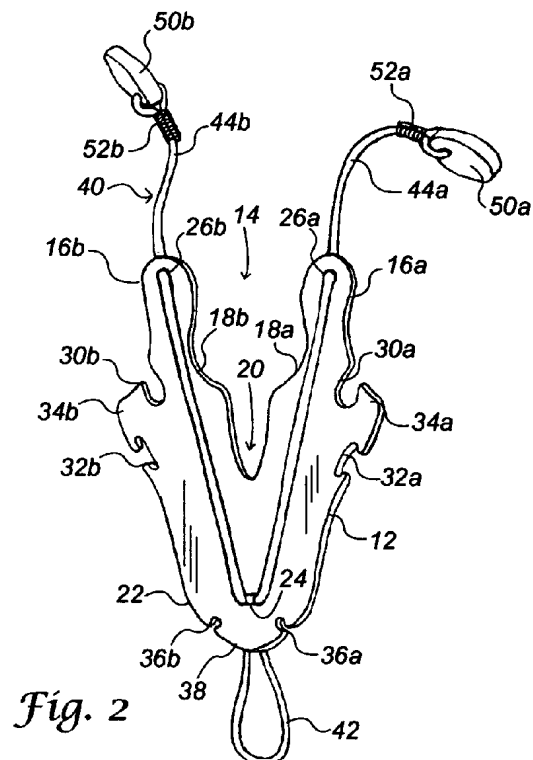
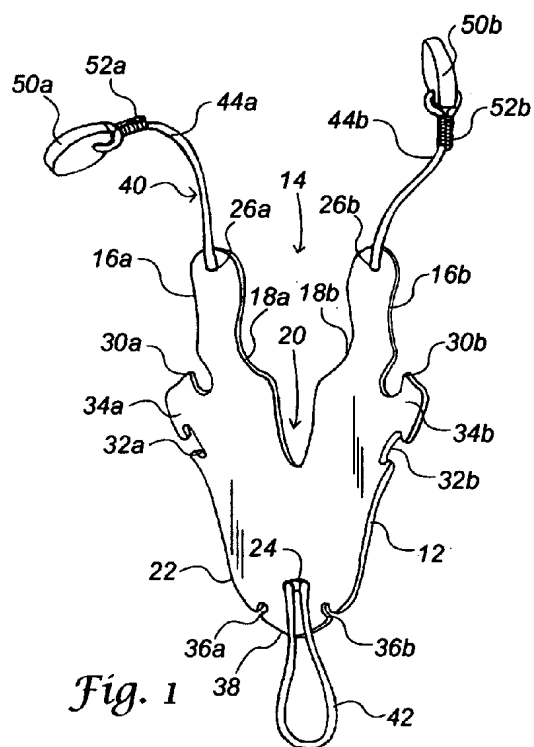
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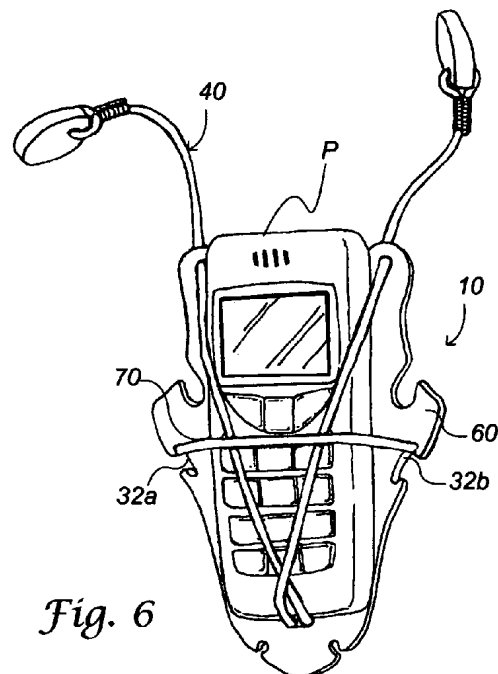
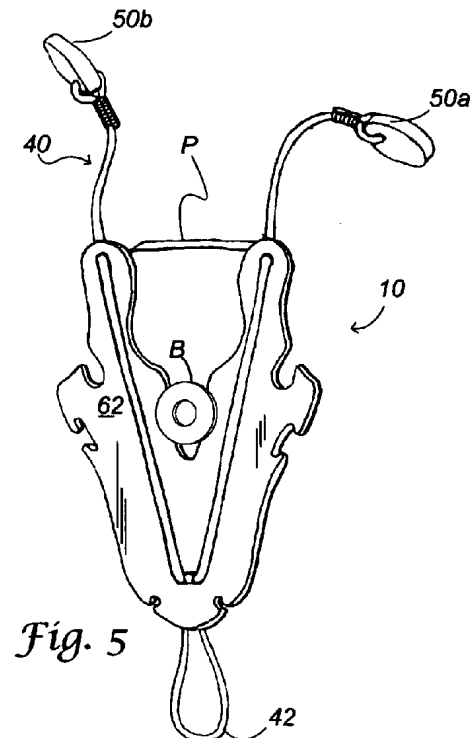
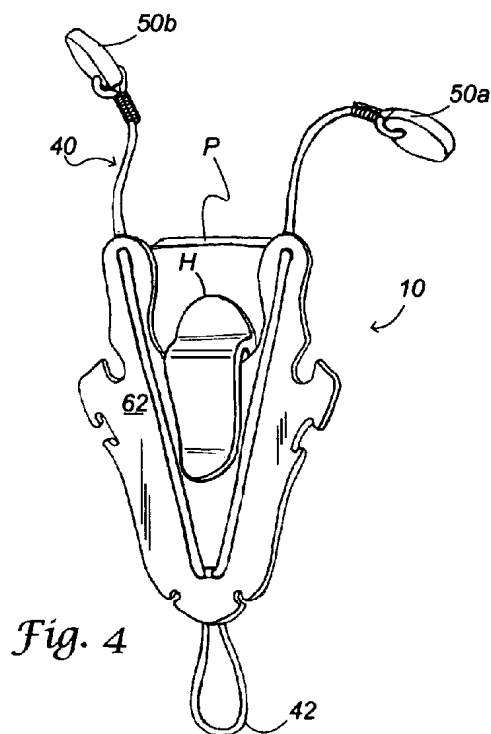
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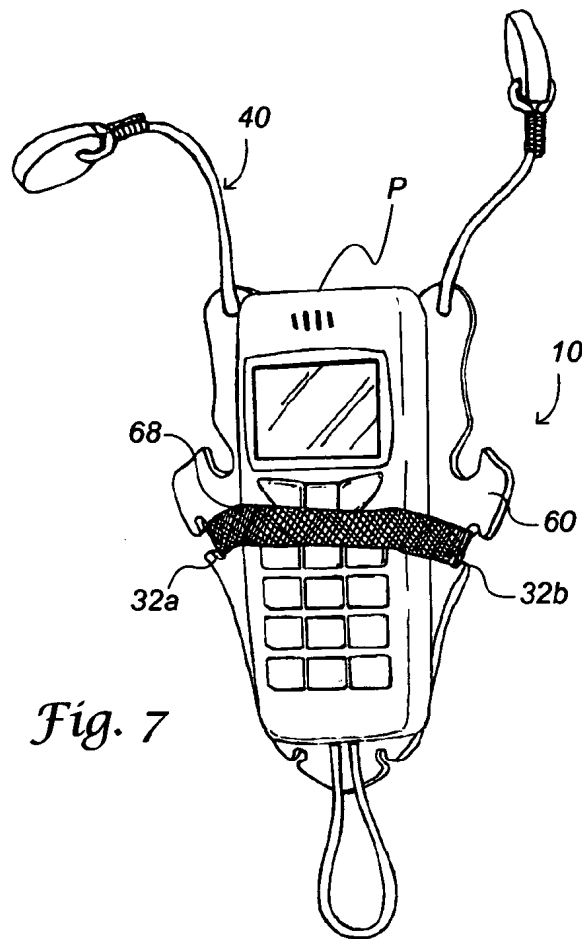


Fig. 7

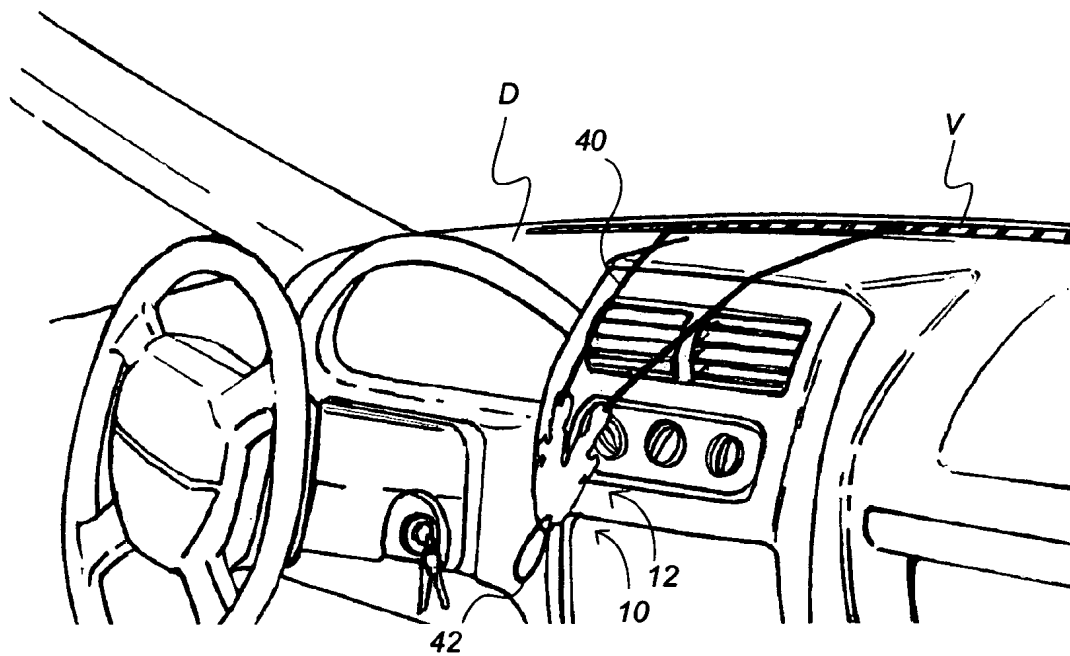


Fig. 8



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**HOLDER FOR AN ELECTRONIC DEVICE****CROSS REFERENCE TO RELATED APPLICATIONS**

None Applicable

**FIELD OF THE INVENTION**

The present invention relates to a holder for portable electronic devices. In particular, the present invention relates to an adjustable holder that can be mounted in the interior of a vehicle, and that can securely hold a portable telephone, wireless internet device, MP3 player, PDA, or walkie-talkie in position.

**BACKGROUND-DESCRIPTION OF THE PRIOR ART**

Portable communications devices and data storage devices—cellular telephones or “cell phones”, walkie-talkies, wireless internet devices, such as the Blackberry™, portable music players and storage devices such as the MP3 player and the Apple® iPod™, portable digital assistants (PDAs), and so forth—are becoming increasingly popular. Consumer acceptance and demand for these devices is driven by their convenience, versatility, and increasingly small size and light weight. In many remote areas, the only way to obtain reliable telephone service—or any telephone service at all—is via cellular telephone.

Because these devices are portable, their owners take them and use them everywhere, including in motor vehicles (cars, boats, airplanes, tractors, etc.). A cell phone or other portable communications device can usually be stored in a handbag, briefcase, or pocket when not in use. However, it is frequently necessary to use the device while in a vehicle, and few vehicles are equipped with suitable holders for these types of devices.

Holders for cell phones and other devices are available; some of these are adjustable for use with telephones of different sizes. However many of these holders will work only for a particular type of cell phone and many cannot be used with other electronic devices.

U.S. Pat. No. 5,285,938 to Fauchald shows a device where the portable phone slides into a “U” shaped cavity where a snap device presses on the side of the phone to give it a friction fit in the holder. This invention will work well for portable phones of a specific width or depth but will not work for electronic devices where there is a significant variation in the width or depth of the device. Portable phones, PDAs, MP3s and portable music players come in all different widths and depths and will not all fit in the device. The device also precludes the attachment of charging cords or other electronic attachments such as ear phones or computer cables from certain areas of the holder where the holder interferes with access to charging, earphone or data ports. Another invention that will fit a very limited range of portable electronic devices due to the depth or width of the holders is U.S. Pat. No. D392,646 to Tetsufumi. The Tetsufumi invention details a holder that will fit only a specific size of portable electronic device. It closes off access to the sides and bottom of the device and limits the number and type of attachments that may be used with the device while carried in the holder.

U.S. Pat. No. 6,185,302 to Rytken, U.S. Pat. No. 6,085,113 to Fan, U.S. Pat. No. 5,697,071 to Fan and U.S. Pat. No. 5,187,744 to Richter all show portable phone holders that

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have adjustable and/or spring loaded sides that hold the phone by pressing on each side with some type of clamping or friction surface. All of these inventions cover much of the side of the phones and may interfere with the attachment of earphones, chargers or other data access cables. These types of inventions make it difficult to operate some types of phones where operation buttons are on the side of the phone and not just on the front keypad. These inventions all require some type of permanent mounting in the vehicle and are not easily transportable between vehicles without installing a new attachment bracket.

Many presently-available holders can only be used with a specific size or even a specific model of device. Others require complicated adjustments, or are inconvenient for users who frequently move their cell phones (or other devices) to different locations. Some require use of spaces or devices within the motor vehicle that might be otherwise useful, for example, a molded-in cupholder or the DC voltage plug-in. Yet others restrict access to regions of the communication device that are imperative to its use, especially in a motor vehicle, such as the power port or hands free port.

There is a need for a simple, versatile holder that can be mounted in the interior of a vehicle, and that can be adjusted to securely yet removably hold portable communications devices of different sizes and configurations.

**SUMMARY OF THE INVENTION**

According to its major aspects, and broadly stated, the present apparatus and method for use is a holder for portable communications devices and data storage devices, such as cellular telephones (often referred to as “cell phones”), wireless internet devices such as the Blackberry™, walkie-talkies, portable digital assistants (PDAs), MP3 players, and other portable devices for storing and playing music. The holder of the invention generally comprises a flat base, a length of flexible cord, and a pair of mounting wedges attached to the ends of the cord.

**OBJECTS AND ADVANTAGES**

Other features and advantages of the present invention will become apparent to those skilled in the art from the Detailed Description presented below and the drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings,

FIG. 1 is a front view of a holder made according to the invention.

FIG. 2 is a rear view of the holder of FIG. 1.

FIG. 3 is a front view, showing a detachably mounted cell phone mounted by means of a hook on the holder of FIG. 1.

FIG. 4 is a rear view of FIG. 3, showing the cell phone with its hook attachment mounted on the holder of FIG. 1.

FIG. 5 is a rear view, similar to that of FIG. 4, but illustrating a cell phone detachably mounted by means of a button attachment on the holder of FIG. 1.

FIG. 6 is a front view of the holder of FIG. 1, showing the cord used as a cradle to secure a cell phone.

FIG. 7 is a front view of the holder of FIG. 1, showing a resilient band used to secure a cell phone.

FIG. 8 is a perspective view, showing the holder of FIG. 1 with ends of its cord release-ably attached to the dashboard of an automobile and in position for mounting a cell phone or other device.



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DETAILED DESCRIPTION OF THE  
PREFERRED EMBODIMENTS

In the following detailed description of the invention, reference numerals are used to identify structural elements, portions of elements, surfaces, or areas in the drawings, as such elements, portions, surfaces, or areas may be further described or explained by the entire written specification. For consistency, whenever the same numeral is used in different drawings, it indicates the same element, portion, surface, or area as when first used. Unless otherwise indicated, the drawings are intended to be read together with the specification and are to be considered a portion of the entire written description of the invention. As used herein, the terms "horizontal," "vertical," "left," "right," "up," and "down," as well as adjectival and adverbial derivatives thereof, refer to the relative orientation of the illustrated structure as the particular drawing figure faces the reader.

Referring now to FIGS. 1-8, there is shown a front view of a holder **10** for a cell phone, or other portable electronic device, according to an embodiment of the present invention. As used herein, the term "portable electronic device" includes cell phones (also termed "cellular telephones" or "portable telephones"), walkie-talkies, wireless internet devices, such as the Blackberry®, portable music players such as the MP3 player and the Apple® ipod™, portable digital assistants (PDAs), with or without communications capability, handheld amateur radio transceivers (particularly 2-meter transceivers), and other portable electronics. Holder **10** is shown in use with a cell phone P; however, it should be understood that the holder **10** can readily be used with other portable communications devices.

Holder **10** includes a generally flat base **12** with a central opening **14** defining a pair of extensions **16a**, **16b** at its upper end. Opening **14** is shaped by a pair of surrounding shoulder portions **18a**, **18b** located above a slot **20**. A lower end **22** of base **12** is formed with a hole **24** and adjoins upper extensions **16a**, **16b**, through which holes **26a**, **26b** are formed. Two oppositely-located pairs of notches **30a**, **32a**, **30b**, **32b**, are formed in opposing sides of base **12** and define projections **34a** and **34b**, respectively. A similar pair of notches **36a**, **36b** formed at the lower end **22** define a projection **38**.

A cord **40** is installed in base **12** generally, as shown in FIGS. 1 and 2, with a loop **42** drawn through hole **24** and ends **44a**, **44b** drawn through holes **26a**, **26b** respectively. A pair of resilient plastic foam wedges **50a**, **50b** are attached to ends **44a**, **44b** via cord couplers **52a**, **52b**, other convenient fasteners, suitable adhesive, or molding technique. In one embodiment, the wedges **50a**, **50b** were made of a 7/16" thick, 1" diameter segment of plastic foam material, through which the cord **40** was passed. It is contemplated that the resilient foam wedges **50a**, **50b** may be made of materials other than plastic, such as, for example, soft rubber or any other material that would, in the context of the invention, i.e., be flexible, shapeable, and resilient.

Base **12** is preferably made of plastic, but may also be formed of wood, metal, a composite, or other material suited to being shaped into the configuration described. Cord **40** is made of a flexible material, and preferably of a material that is somewhat elastic, such as a so-called "bungee" cord.

FIG. 3 shows a call phone P detachably attached to holder **10** and in engagement with a front face **60** of the holder. Cell phone P may be the type of device that is equipped with a hook or a button for attachment to a belt, clip, or the like, both of which are readily accommodated by holder **10**. A hook H of cell phone P, for example, clips onto shoulders **18a**, **18b** (FIG. 4), whereas a button B, as a further example,

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is slidable into slot **20** (FIG. 5). As will be evident, the dimensions of opening **14**, shoulders **18a**, **18b**, and slot **20** are such as will receive typical cell phones (or other devices) with hook or button attachments. In addition, it is recognized that a Velcro® patch (not shown) could be attached to the face of base **12** to receive a counterpart patch attached to phone P.

Not all cell phones have suitable hooks or other devices that can be installed in shoulders **18a**, **18b** or slot **20** of holder **10**. These types of cell phones may, however, be secured to holder **10** by cord **40**, as shown in FIG. 6. Here cord **40** is looped around and across cell phone P, with at least one loop (such as loop **70**) engaged in a pair of notches (such as notches **32a**, **32b**). Any combination of notches **30a-30b**, **32a-32b**, **36a-36b** may be used to secure cell phone P to holder **10**; the choice depends on the relative sizes of the cell phone and the holder, the configuration of the cell phone, and the individual user's preferences. Another option to secure cell phone P to holder **10** is by resilient band **68** that engages notches **32a-32b** as shown in FIG. 7.

FIG. 8 shows holder **10** mounted in the interior of a typical automobile. Foam wedges **50a**, **50b** are inserted into two openings in the defroster or other air vent V of dashboard D. The position of base **12** depends from a length of cord **40**, which can be adjusted to suit the individual user by adjusting the length of loop **42**. When attached to base **12**, as described above, a cell phone is suitably mounted to the automobile, yet readily available for use when needed.

A holder **10**, according to the present apparatus and method for use, can be used in all vehicles that have any openings suitable for receiving foam wedges **50a**, **50b**, including, but not limited to, automobiles, boats, aircraft, tractors, and recreational vehicles (snowmobiles and the like). Because of the flexible configuration of base **12**, the adjustability of cord **40**, holder **10** can be used with a wide variety of cell phones and other communications devices.

It is recognized that a cushion pad (not shown) can be added to the face of base **12**, to absorb shock between base **12** and phone P. Holder **10** can be moved left or right relative to the dashboard D by changing the length of cord sections **44a** and **44b** independently and taking up slack in loop **42**. Notches **30a** or **30b** can be used to hold an ear bud of a hands free device for phone P or ear bud of a headset for a music player.

With respect to the above description of the invention, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly, and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention. In short, it is the applicant's intention that that scope of the patent issuing herefrom will be limited only by the scope of the appended claims.

Therefore, the forgoing description is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention. Thus, it will be apparent to those skilled in the art that many changes and substitutions can be made to the



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embodiments herein described without departing from the spirit and scope of the present invention, as defined by the appended claims.

We claim:

1. An apparatus for holding a portable electronic device, 5 comprising:

- a) a base member formed of thin, flat, rigid material, and having
  - i) a lower portion with a first substantially flat surface against which an inner lower surface of the device 10 can be mounted;
  - ii) an upper bifurcated portion defining a central slot with a relatively wide open upper end and a relatively narrow closed lower end adjoining said lower portion, and on the sides of said slot open upper end 15 a pair of upwardly-extending, laterally-spaced, second and third mounting surfaces, against which spaced-apart inner upper surfaces of the device can be mounted;
  - iii) a first pair of holes formed in the outer ends of said second and third mounting surfaces; 20
  - iv) a second hole formed in a lower end of said lower portion;
  - v) a plurality of inwardly-extending notches formed in the outer edge surfaces of said lower and upper 25 portions;
- b) a cord having
  - i) each of two end portions threaded through said first pair of holes;
  - ii) a middle portion formed as a loop and threaded 30 through said second hole; and
  - iii) a resilient wedge member is on each end of said cord; and
- c) wherein said device, when equipped with a mounting clip or button, is adapted to be detachably secured to 35 said base member by being mounted on said closed lower end of said slot, and if not so equipped is adapted to be strapped to said base member by use of said cord, and by use of said wedge members said apparatus is adapted to be suspended from a structure formed so as 40 to receive, squeeze, and detachably hold said wedge members and thereby suspend said base member.

2. The apparatus as recited in claim 1, wherein said cord is at least somewhat elastic.

3. The apparatus as recited in claim 1, further comprising 45 means for securing a portable electronic device to said base.

4. The apparatus as recited in claim 1, wherein said base member comprises plastic.

5. The apparatus as recited in claim 1, wherein said wedge member comprises foam.

6. The apparatus as recited in claim 1, wherein said base member comprises a material selected from the group consisting of plastic, wood and metal.

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7. The apparatus as recited in claim 1, wherein said wedge member comprises a material selected from the group consisting of foam and rubber.

8. An apparatus for holding a portable electronic device, comprising:

- a) a base member formed of thin, flat, rigid material, and having
  - i) a lower portion with a first substantially flat surface against which an inner lower surface of the device can be mounted;
  - ii) an upper bifurcated portion defining a central slot with a relatively wide open upper end and a relatively narrow closed lower end adjoining said lower portion, and on the sides of said slot open upper end 15 a pair of upwardly-extending, laterally-spaced, second and third mounting surfaces, against which spaced-apart inner upper surfaces of the device can be mounted;
  - iii) a first pair of holes formed in the outer ends of said second and third mounting surfaces;
  - iv) a second hole formed in a lower end of said lower portion;
- b) a cord having
  - i) each of two end portions threaded through said first pair of holes;
  - ii) a middle portion formed as a loop and threaded 20 through said second hole; and
  - iii) a resilient wedge member is on each end of said cord; and
- c) wherein said device, when equipped with a mounting clip or button, is adapted to be detachably secured to said base member by being mounted on said closed lower end of said slot, and by use of said wedge members said apparatus is adapted to be suspended 25 from a structure formed so as to receive, squeeze, and detachably hold said wedge members and thereby suspend said base member.

9. The apparatus as recited in claim 8, wherein said cord is elastic.

10. The apparatus as recited in claim 8, wherein said base member comprises plastic.

11. The apparatus as recited in claim 8, wherein said wedge member comprises foam.

12. The apparatus as recited in claim 8, wherein said base member comprises a material selected from the group consisting of plastic, wood and metal.

13. The apparatus as recited in claim 8, wherein said wedge member comprises a material selected from the group consisting of foam and rubber.

\* \* \* \* \*





US 20050072819A1

(19) **United States**(12) **Patent Application Publication**  
**Maldonado et al.**(10) **Pub. No.: US 2005/0072819 A1**(43) **Pub. Date: Apr. 7, 2005**(54) **RETRACTABLE TETHER SYSTEM FOR  
CELLULAR PHONE****Publication Classification**(76) Inventors: **Wilfredo Maldonado**, New York, NY  
(US); **Sandra Bracero**, Bronx, NY  
(US)(51) **Int. Cl.<sup>7</sup>** ..... **H04B 1/40**; B65H 75/40;  
A45F 5/00(52) **U.S. Cl.** ..... **224/162**; 224/269; 224/930

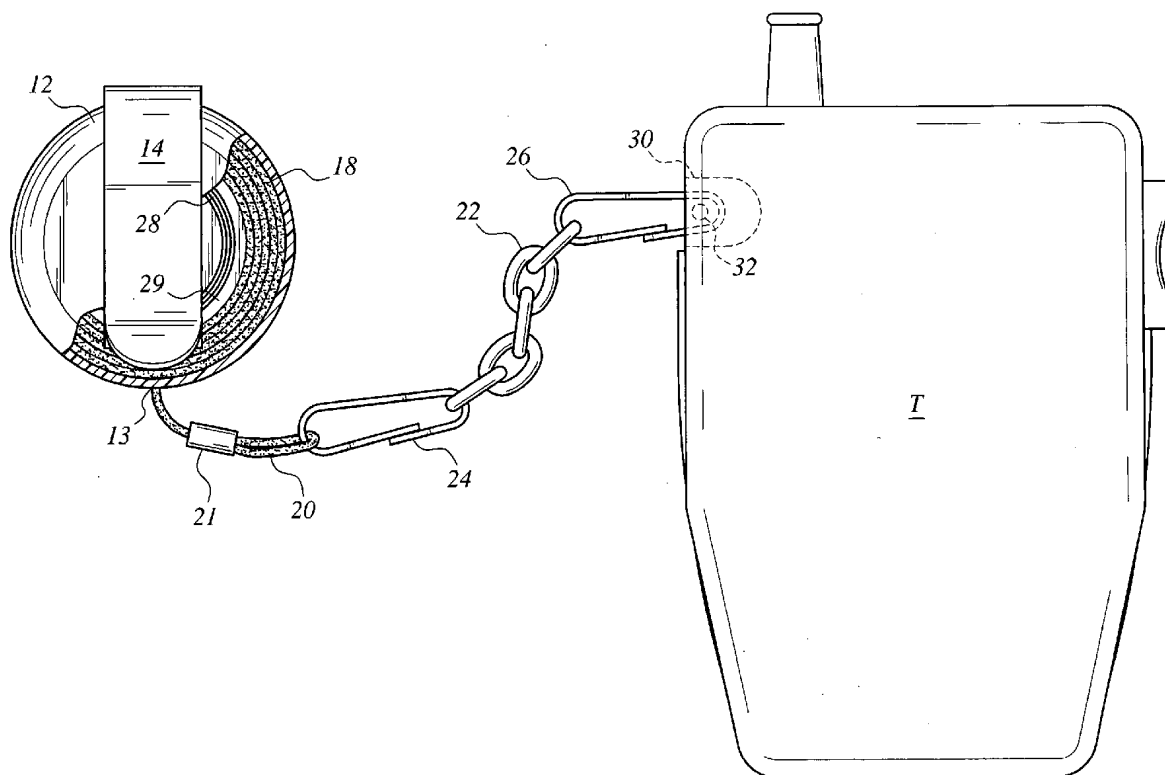
Correspondence Address:

**Richard C. Litman**  
**LITMAN LAW OFFICES, LTD.**  
**P.O. Box 15035**  
**Arlington, VA 22215 (US)**(57) **ABSTRACT**

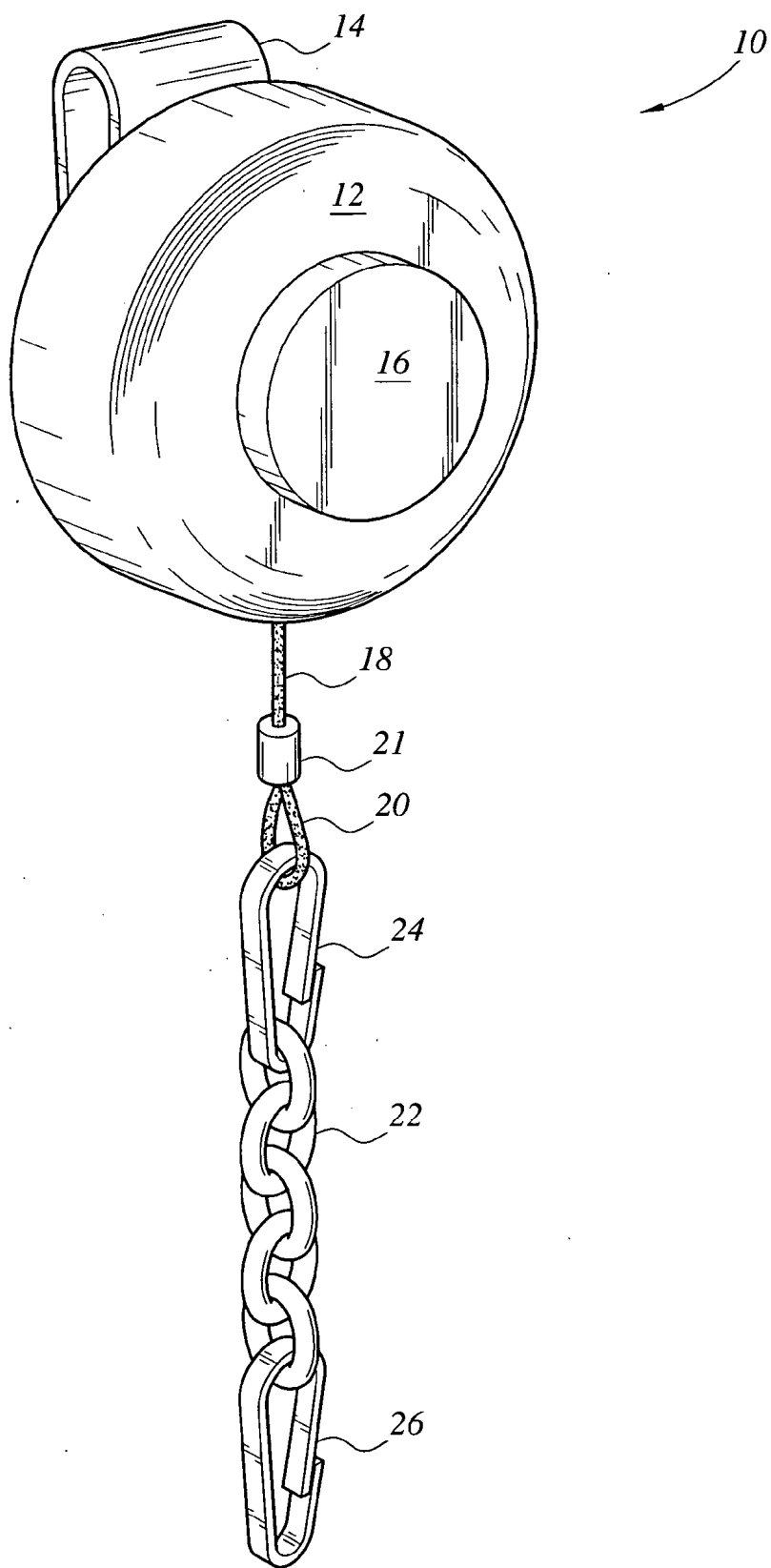
The retractable tether for a cellular phone includes a Nylon cord attached at one end by a clip to a chain which, in turn, is 30 inches in length and is held in a push button release, spring-activated retracting reel within a case which has a clip for attachment to the user's belt or other article of clothing. The release mechanism on the case allows the user to pull the cord to the desired length during use by pushing a release button. The release mechanism has a brake for holding the phone at a desired length for use, for example, on a table for use of the telephone with the user's hands free without retraction of the tether. The tether may then be retracted, along with the telephone, by pushing a button on the release mechanism.

(21) Appl. No.: **10/941,989**(22) Filed: **Sep. 16, 2004****Related U.S. Application Data**

(60) Provisional application No. 60/502,978, filed on Sep. 16, 2003.







*FIG. 1*



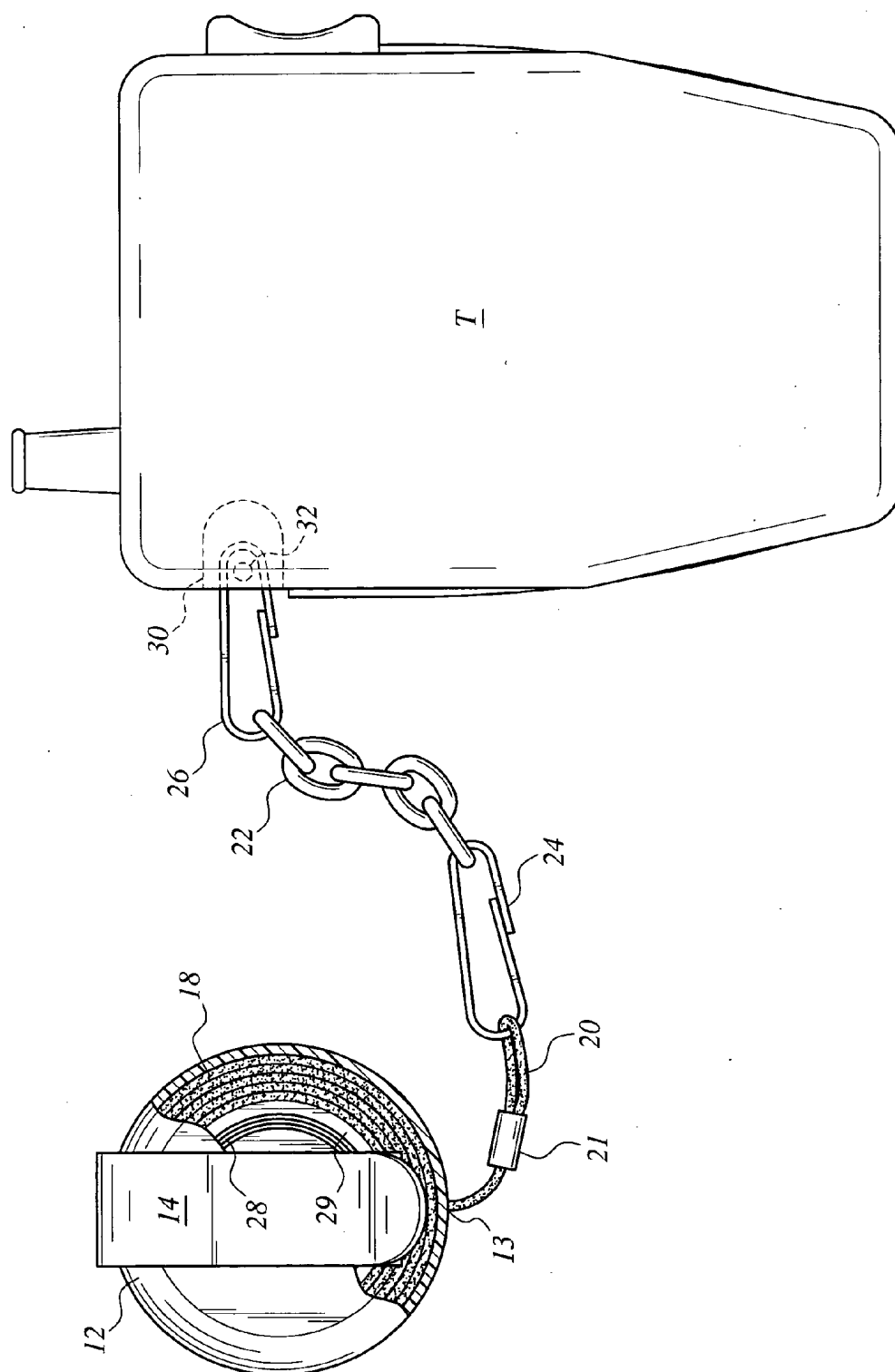
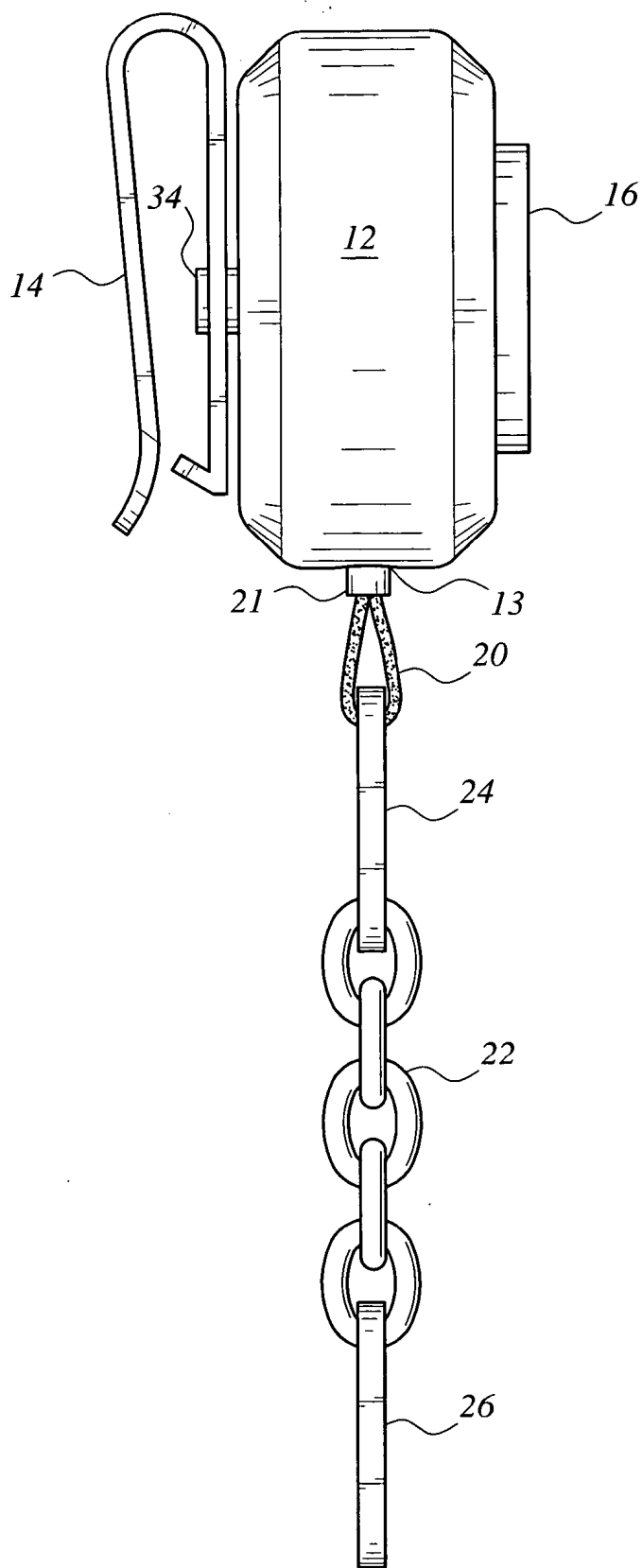


FIG. 2





*FIG. 3*



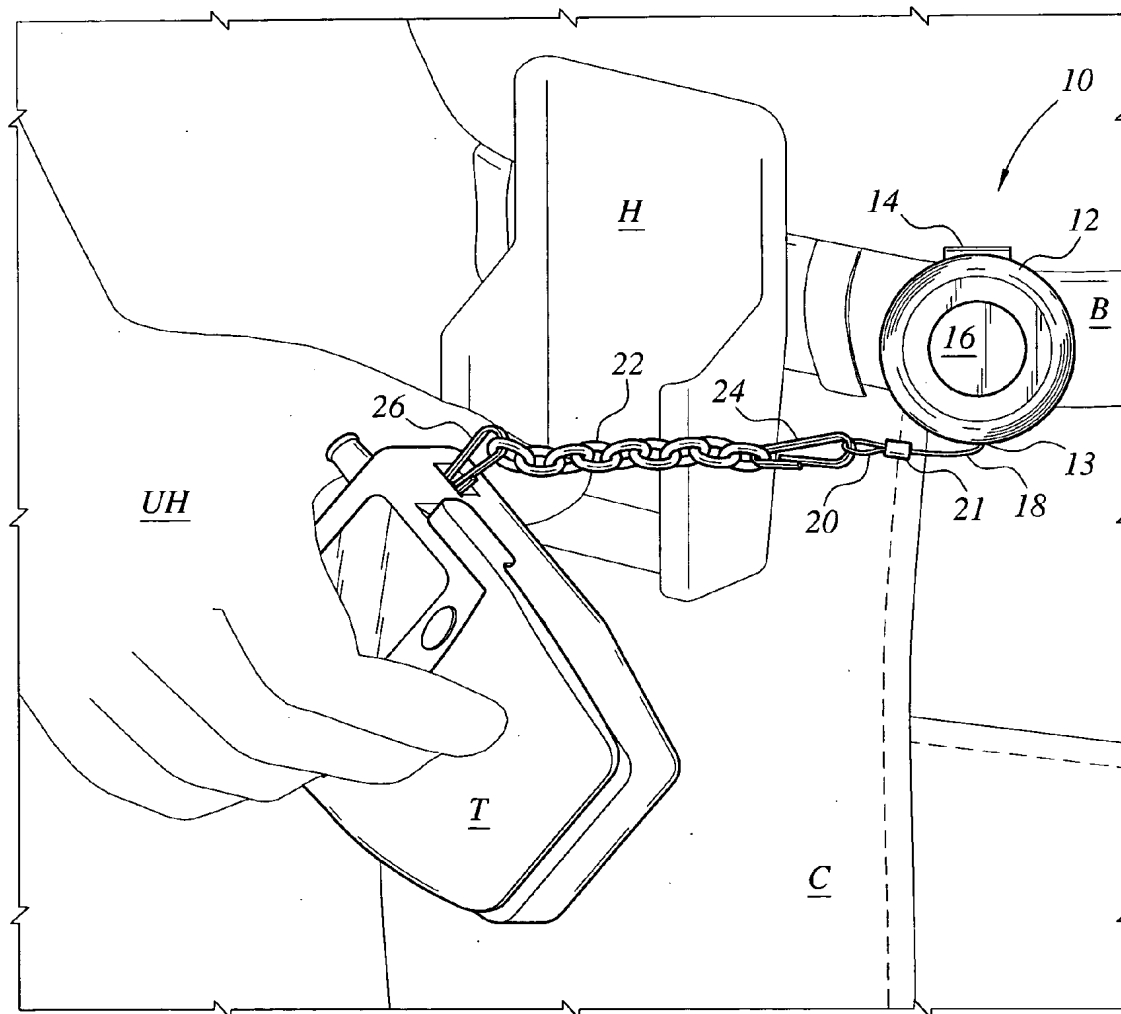


FIG. 4



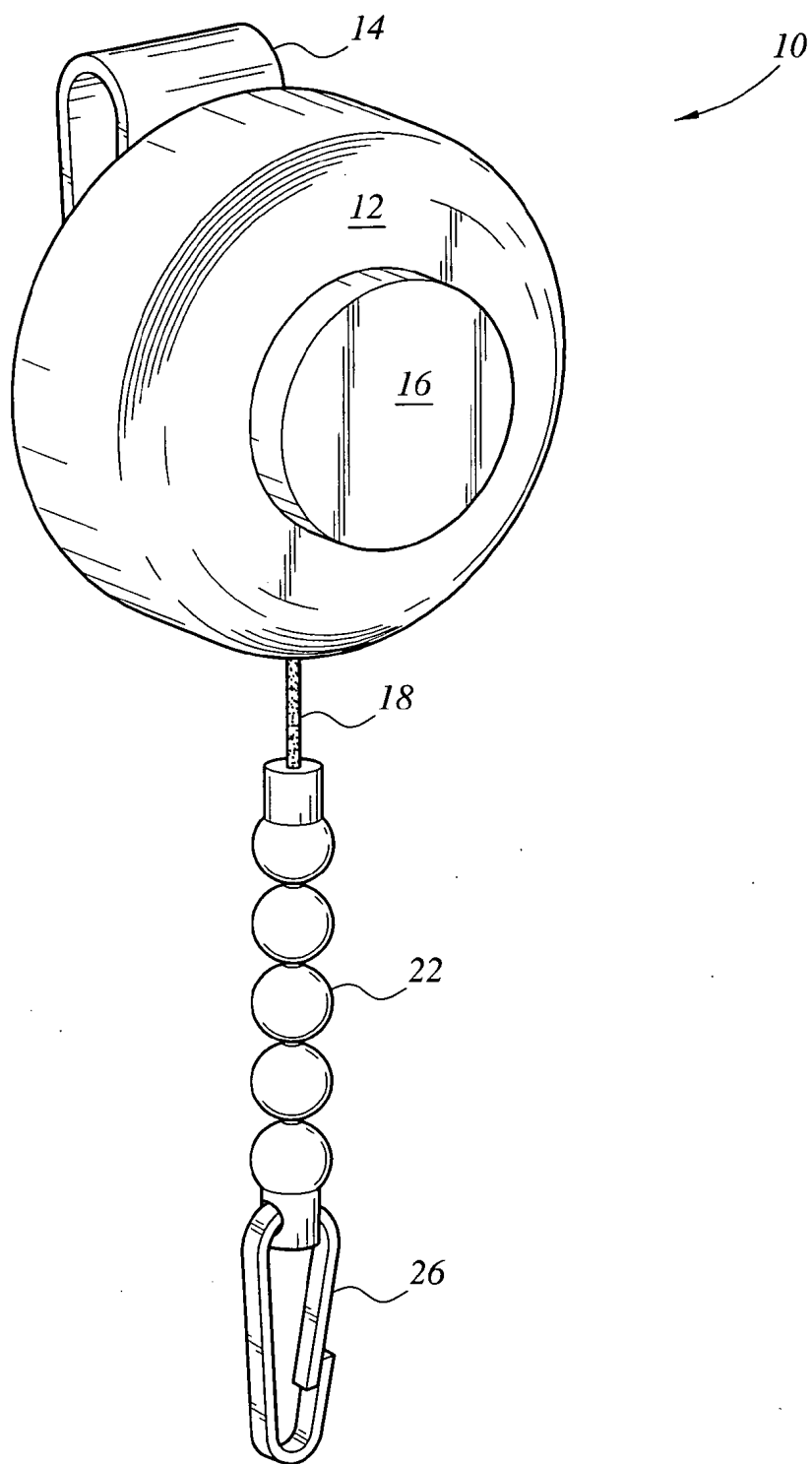


FIG. 5



## RETRACTABLE TETHER SYSTEM FOR CELLULAR PHONE

### CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 60/502,978, filed Sep. 16, 2003.

### BACKGROUND OF THE INVENTION

#### [0002] 1. Field of the Invention

[0003] The present invention relates to retractable reel systems. More particularly, the present invention relates to a retractable reel mounted on an article of clothing as a tether for a cellular telephone.

#### [0004] 2. Description of the Related Art

[0005] The use of retractable reels for tethering an object or pet is well known. These reels are generally spring-loaded so as to allow the tethered object to travel or be pulled away from the reel for up to a maximum distance, while providing a retracting rewinding force on the tether such that the tether will rewind on the reel when outward pulling force on the tether is released. It is also known to provide spring-loaded tape measure reels which are retractable and which have a braking and release mechanism to allow extension of the tape measure from a reel to a selected extended position upon pushing a release button and pulling the end of the tape from the spring-loaded reel in the casing, maintaining the tape measure at that position by releasing the button, and retrieving the tape by pushing the release button and allowing the spring-loaded reel to retract the tape measure into the casing. The tape measure is maintained at a desired position by a brake acting on the reel within the case. The brake is released by pushing the release button which allows the extension or rewind of the tape. Chalk string retractable reels having brakes are also known.

[0006] The use of cellular telephones is widespread. The telephone is typically held in carrying case or holster mounted on the users belt when not in use. A cellular telephone may easily fall from the case when the user is bending over. The cellular telephone may also be dropped by the hand of the user when in use. Dropping the telephone may result in loss or damage to the telephone, particularly when the telephone is dropped into water.

[0007] Clothing-mounted cellular telephone retractable tethers are known, but suffer from the drawback that retracting tension is continually applied to the telephone during use. This precludes the telephone from being pulled away from the retractable reel and placed on a table or other support during use, freeing the user's hands for other activities. It would be desirable to provide a clothing-mounted retractable cellular telephone tether system which has a push button brake release system which allows the telephone to be removed from the vicinity of the retractable reel and held at a desired length, such as for placement on a table for hands-free use, and then retracted to the stored length for placement in the holster.

[0008] Thus a cord attachment to clothing for cell phone solving the aforementioned problems is desired.

### SUMMARY OF THE INVENTION

[0009] The retractable tether for a cellular phone of the present invention includes a Nylon cord attached at one end by a clip to a chain which, in turn, is attached by a clip to a cellular phone. The Nylon cord is about 30 inches in length and is held in a push button release, spring-activated retracting reel within a case which has a clip for attachment to the user's belt or other article of clothing. The release mechanism on the case allows the user to pull the cord to the desired length during use by pushing a release button. The release mechanism has a brake for holding the phone at a desired length for use, for example, on a table for use of the telephone with the user's hands free without retraction of the tether.

[0010] The tether may then be retracted, along with the telephone, by pushing a button the release mechanism on the case to release the brake and allow retraction of the cord. The tether chain is of such a length that the phone may reach from the case of the retractable reel to the phone when the phone is carried in a holster mounted, for example, on the user's belt. The effective length of the tether chain may be adjusted by removing the clip and placing it in another link in the chain. A bead-type chain such as a key chain may also be used as a tether chain. The tether system keeps the telephone from falling to the ground or into water from the carrying holster, or from the hand during use, avoiding damage to the telephone.

[0011] It is an aspect of the invention to provide improved elements and arrangements thereof for the purposes described which is inexpensive, dependable and fully effective in accomplishing its intended purposes.

[0012] These and other aspects of the present invention will become readily apparent upon further review of the following specification and drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] **FIG. 1** is a perspective view of a retractable tether system for a cellular telephone according to the present invention.

[0014] **FIG. 2** is a rear breakaway view of the casing and retractable reel of the tether system of the present invention as attached to a cellular telephone.

[0015] **FIG. 3** is a side view of the retractable tether system of **FIG. 1**.

[0016] **FIG. 4** is an environmental perspective view of the retractable tether system of **FIG. 1** within the reel casing clipped to a belt and the cellular telephone held in hand near the holster.

[0017] **FIG. 5** is a perspective view of the present invention similar to that of **FIG. 1** where a ball or "key chain" type chain is employed.

[0018] Similar reference characters denote corresponding features consistently throughout the attached drawings.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0019] The present invention a clothing-mounted retractable cellular telephone tether system which has a push button brake release system which allows the telephone to



be removed from the vicinity of the retractable reel and held at a desired length, such as for placement on a table for hands-free use, and then retracted to the stored length for placement in the holster. The tether system includes a retractable Nylon cord and a tether chain having an adjustable snap for linking the retracted tether cord to the storage holster when not in use.

[0020] Referring to the Figures, there is shown a retractable tether system for a cellular telephone generally referred to as reference number 10. Tether system 10 has a cylindrical reel casing 12 having a back mounted casing clip 14, a central tether release button 16. Cylindrical reel casing 12 also defines a peripheral port 13 (see FIG. 2) located along its periphery for the release and retraction of the tether. Retractable tether cord 18 has a cord end loop 20 formed at its free end by securing grommet 21. Tether chain 22 is releasably connected at one end to cord end loop 20 by cord clip 24. Tether chain 22 has a telephone clip 26 at its free end for attachment to cellular telephone T.

[0021] As best seen in FIG. 2, reel casing 12 has a retraction coil spring 28 acting on reel 29 holding tether cord 18. Retraction coil spring 28 is coaxial with and attached within reel 29 in a conventional manner. A brake (not shown) is applied to the reel to maintain the reel at a given position. Upon pushing release button 16 (see FIG. 1), the brake is released, allowing reel 29 to turn. Tether cord 18 is attached to the reel 29 within reel casing 12 and has a free end extending out of the peripheral port 13 of reel casing 12. If outward pulling force is applied to the tether cord 18 at its free end, the reel may be unwound while coil spring 28 is wound.

[0022] If the tether cord 18 is released from the unwound position, the wound coil spring acts to turn the reel to retract the cord. This type of mechanism is well known as described, for example in U.S. Pat. No. 4,068,383 to Krebs, the disclosure of which is hereby incorporated by reference. A ratcheting type retracting reel may also be employed in which the tape or cord is freely pulled from the reel without pushing a release button, but, upon pushing a button, the tape or cord is retracted onto the reel by action of a coiled spring. This type of mechanism is also well known as described, for example, in U.S. Patent Publication No. US 2002/0040945 A1 of Stepanchich et al., the disclosure of which is hereby incorporated by reference.

[0023] As illustrated, telephone T has a telephone clip receiver cavity 30 having a clip retaining post 32 to which telephone clip 26 attaches for removable attachment of tether chain 22. An alternative attachment point may be made by installing an eyelet connector in the telephone case in a known manner.

[0024] As best seen in FIG. 3, casing clip 14 is mounted on the rear of case 12 by casing clip support 34. In this view the tether cord is fully retracted into case 12 at its peripheral port 13 up to grommet 21.

[0025] Referring to FIG. 4, reel casing 12 is attached to belt B of clothing C of the user by clip 14 at a point spaced from storage holster H, also clipped or other wise attached to the belt B. The reel casing 12 is located within the length of chain 22 such that the telephone T may be stored in holster H without cord 18 being withdrawn from the casing 12. Chain 22 may be of any chosen length desired, depend-

ing on where the user wishes to clip the reel casing 12 on clothing C. As illustrated, the user is holding the telephone T in one hand, and is in the process of withdrawing the telephone for use or returning the telephone to holster H, while the thumb of the other hand (shown in ghost lines) is pressed against the release button 16 of the tether system 10, the tether cord 18 extending from casing 12. The tether cord is preferably about 30 inches long for convenient use when holding near the ear or placing on a nearby table. The clip 24 also allows for easy disconnection of the telephone from the tether cord 18 for use where it is inconvenient to use both hands.

[0026] Referring to FIG. 5, a bead or "key chain" type chain is substituted for the link type of chain 22 in the tether system 10. Also, the chain 22 is shown connected directly to the free end of tether cord 18. Any type of chain configuration may be employed as chain 22 of the present invention.

[0027] In operation, the user removes the telephone T from holster H by grasping with hand H. The telephone T is then pulled to the point of use while the user's thumb or finger presses against button 16, allowing tether cord 18 to unwind from reel 29 and out casing 12 through peripheral port 13. When the telephone is at the point of use, the thumb or finger is removed from release button 16 braking the reel 29 and removing any retraction tension exerted by spring 28 from the tether cord. Once the user is ready to return the telephone to the holster, he once again presses the button 16, releasing the brake and allowing the coil spring 28 to turn reel 29, thus retracting the cord 18 onto the reel for storage in casing 12. The telephone is then placed in the holster for storage.

[0028] It is to be understood that the present invention is not limited to the embodiment described above, but encompasses any and all embodiments within the scope of the following claims.

We claim:

1. A retractable tether system for a cellular telephone comprising:

a generally cylindrical reel casing having a circumferential tether port;

a clip for attaching said reel casing to an article of clothing;

said reel casing having a reel having a central axis, a coil spring attached to said reel casing and said reel and located within and coaxial with said reel, a releasable tether brake acting on said reel, and a tether brake release button located on said casing;

a retractable tether cord mounted on said reel and having a free end so as to wind and unwind from said reel and through said tether port; and

a clip attached to said free end of said tether cord for engaging a cellular telephone.

2. The retractable tether system of claim 1, further comprising a chain attached to said free end of said tether cord, said clip being attached to the free end of said chain, said chain being of sufficient length to extend between said cellular telephone when mounted in a carrying holster and said reel casing when mounted on the article of clothing.



3. The retractable tether system of claim 2, said free end of said tether cord forming an end loop secured by a securing grommet.

4. The retractable tether system of claim 2, said reel casing having a back mounted clip for attachment to an article of clothing.

5. The retractable tether system of claim 4, wherein said clip is a belt clip for attachment to a user's belt.

6. A retractable tether system in combination with a cellular telephone comprising:

a generally cylindrical reel casing having a circumferential tether port;

a clip for attaching said reel casing to an article of clothing;

said reel casing having a reel having a central axis, a coil spring attached to said reel casing and said reel and located within and coaxial with said reel, a releasable tether brake acting on said reel, and a tether brake release button located on said casing;

a retractable tether cord mounted on said reel and having a free end so as to wind and unwind from said reel and through said tether port; and

a clip attached to said free end of said tether cord for engaging said cellular telephone.

7. The retractable tether system and cellular telephone of claim 6, further comprising a chain attached to said free end of said tether cord, said clip being attached to the free end of said chain, said chain being of sufficient length to extend between said cellular telephone when mounted in a carrying holster and said reel casing when mounted on the article of clothing.

8. The retractable tether system and cellular telephone of claim 6, said cellular telephone defining a clip receiver cavity having a clip retaining post for receiving said clip attached to said free end of said tether cord.

9. The retractable tether system and cellular telephone of claim 7, said cellular telephone defining a clip receiver cavity having a clip retaining post for receiving said clip attached to said free end of said chain.

10. The retractable tether system of claim 9, said reel casing having a back mounted clip for attachment to an article of clothing.

11. The retractable tether system of claim 10, wherein said clip is a belt clip for attachment to a user's belt.

12. A retractable tether system for a cellular telephone comprising:

a generally cylindrical reel casing having a circumferential tether port;

a clip for attaching said reel casing to an article of clothing;

said reel casing having a reel having a central axis, a coil spring attached to said reel casing and said reel and located within and coaxial with said reel, a releasable tether brake acting on said reel, and a tether brake release button located on said casing;

a retractable tether cord mounted on said reel and having a free end so as to wind and unwind from said reel and through said tether port;

a clip attached to said free end of said tether cord for engaging a cellular telephone; and

a chain attached to said free end of said tether cord, said clip being attached to the free end of said chain, said chain being of sufficient length to extend between said cellular telephone when mounted in a carrying holster and said reel casing when mounted on the article of clothing;

said reel casing having a back mounted clip for attachment to an article of clothing.

\* \* \* \* \*





US006810237B1

(12) **United States Patent**  
**McEowen**

(10) **Patent No.:** **US 6,810,237 B1**  
(45) **Date of Patent:** **Oct. 26, 2004**

(54) **COMBINATION LANYARD AND EXTERNAL ANTENNA FOR WIRELESS COMMUNICATION DEVICE**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 546 days.

(21) Appl. No.: **09/752,148**

(22) Filed: **Dec. 29, 2000**

#### Related U.S. Application Data

(60) Provisional application No. 60/177,401, filed on Jan. 21, 2000.

(51) Int. Cl.<sup>7</sup> ..... **H04Q 7/20**

(52) U.S. Cl. .... **455/83**; 455/575.6; 455/575.7

(58) Field of Search ..... 455/82-83, 274, 455/344, 346, 351, 575.1, 575.6, 575.7, 90.3; 379/142

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Primary Examiner—William Trost

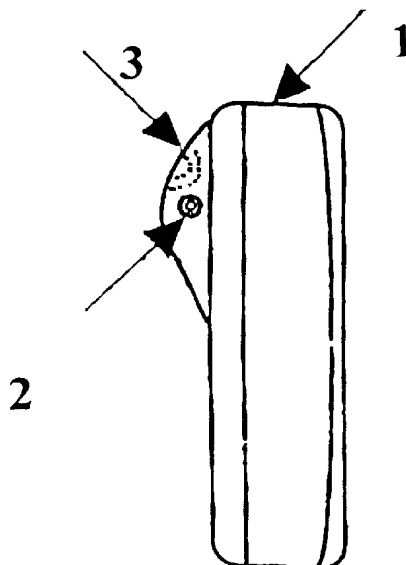
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#### (57) ABSTRACT

A combination lanyard and external antenna for use with wireless communication devices such as interactive pagers or telephones. The lanyard antenna is connected to wireless communication devices to improve radio frequency transmission and reception performance for wireless communication devices. The device increases the gain and maximizes radiation efficiency. An antenna conductive element is embedded within, runs alongside, or is woven into a flexible strength member to form the lanyard antenna. The antenna conductive element is formed from a wire, wire braid, or wire mesh produced from a flexible, conductive material, while the flexible strength member is non-binding, non-twisting, and produced from nonconductive material.

29 Claims, 1 Drawing Sheet





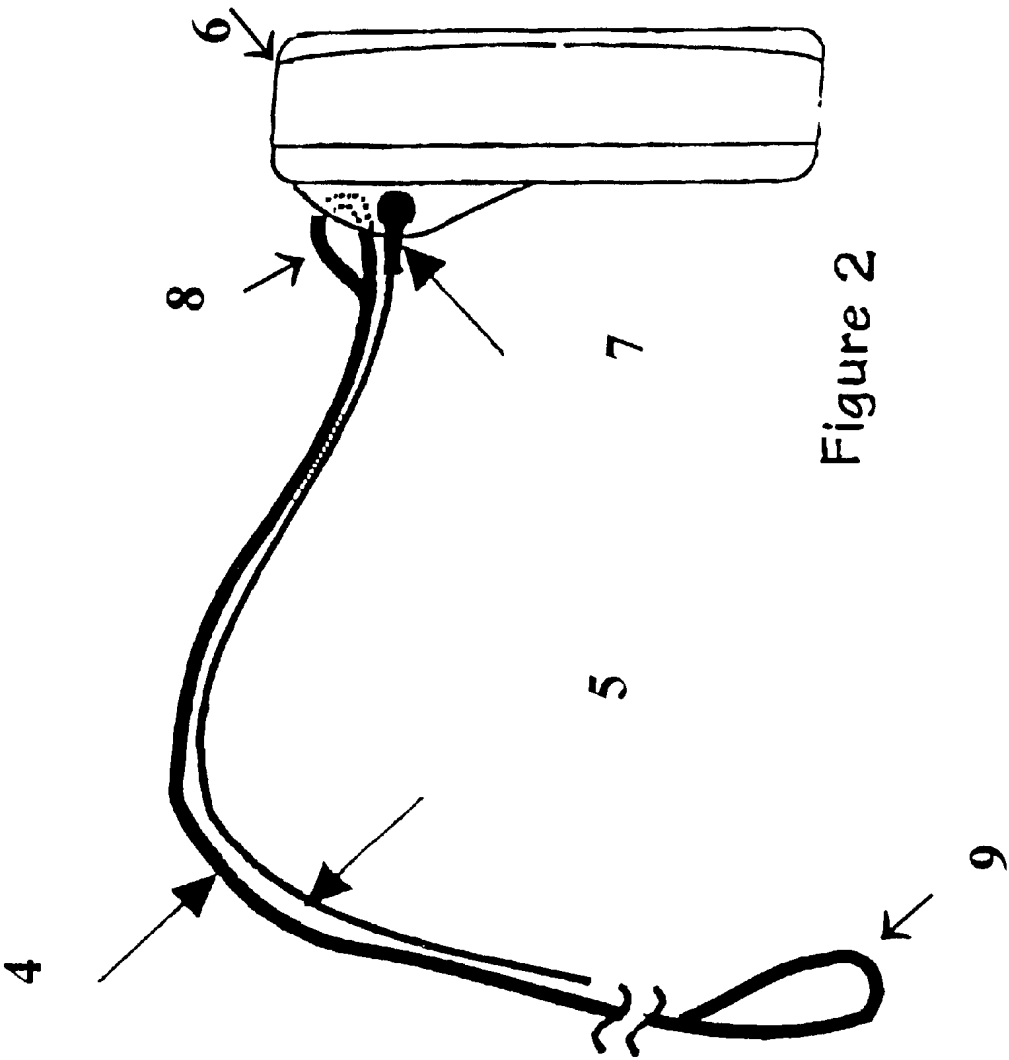


Figure 2

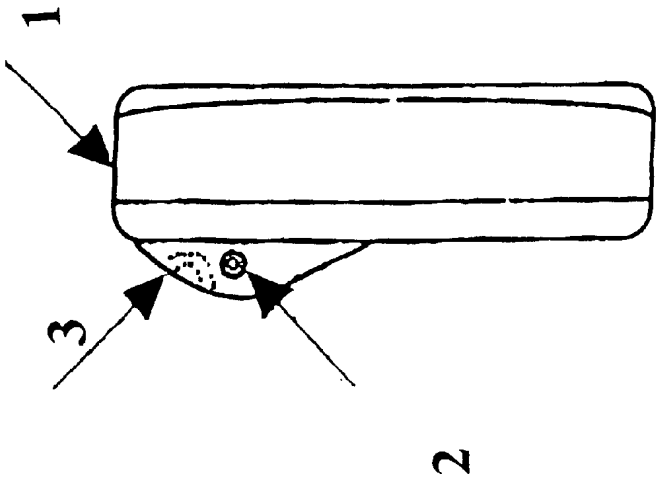


Figure 1



# COMBINATION LANYARD AND EXTERNAL ANTENNA FOR WIRELESS COMMUNICATION DEVICE

This application claims the benefit of U.S. Provisional 5  
Application No. 60/177,401, filed Jan. 21, 2000.

## FIELD OF THE INVENTION

This invention relates to an antenna for wireless commu- 10  
nication devices. An embodiment of the invention includes a flexible lanyard antenna that is well suited for use with pagers such as interactive messaging pagers or cellular or mobile telephones.

## BACKGROUND OF THE INVENTION

In general, communication devices may be divided into two categories - wireline and wireless. Conventional wire- 15  
less communication devices utilize the radio frequency (RF) spectrum; however, other medium can be used including, but not limited to, the infrared spectrum and microwave technology. Examples of wireless communication devices include pagers, interactive messaging pagers, telephones, personal digital assistants (PDAs), and the like.

Antennas for wireless communication devices are designed according to ideal physical dimensions that typi- 25  
cally correspond to half of a wave length or dipole. For many types of wireless communication devices, however, it may be difficult to achieve these ideal dimensions due to the size of the device or due to the manner in which the device is designed to be utilized. For example, pagers are generally designed to be worn on the belt, or near the waist, of a user and have a display that is designed to be viewed at close to arm's length, generally from above.

One type of pager that is becoming more common is an interactive messaging pager. Interactive messaging pagers are generally disclosed, for example, in U.S. Pat. Nos. 30  
5,619,531; 5,727,020; 5,764,693; and 5,917,854, the disclosures of which are hereby incorporated herein by reference.

Whereas traditional pagers utilize a receiver and an antenna that permit the pager to receive signals, interactive messaging pagers utilize a transceiver and an antenna and/or antennas that permit the pager both to receive and to transmit. A problem with many interactive messaging pagers is that their antennas are internal and, therefore, are unable 40  
to achieve an effective length corresponding to an ideal dipole and/or are unable to avoid being shielded by other device components or by the body of the wearer. Furthermore, these generally small antennas have limited energy transfer capabilities due to the constraints of the physical size of the paging instrument. Another limitation of these small antennas is that the greatest power transfer to a circuit requires impedance matching with a resonant tuned antenna circuit. The theory of small antennas is further set forth in *Small Antennas* by Harold A. Wheeler published in 45  
IEEE Transactions on Antennas and Propagation, volume AP-23, No. 4, July 1975 and also in *Antenna Engineering Handbook*, Second Edition, published by McGraw Hill, 1984.

A major design problem for paging instrument antennas has always been how to maximize the antenna sensitivity while minimizing the design complexity and minimizing the interconnection between the antenna(s) and the receiver and/or the transceiver. What is needed is an antenna design which can be utilized to maximize the antenna sensitivity 50  
when utilized with the paging device. What is also needed is an antenna design which can be easily changed to provide

additional antenna sensitivity when needed. Likewise, an antenna design which can address similar problems associ-  
ated with the use of cellular telephones is also needed.

## SUMMARY OF THE INVENTION

The present invention provides unobtrusive and conven-  
ient antennas for a wireless communications device that (1) operate as a lanyard, (2) maximize reception, (3) maximize transmission, (4) utilize reasonably broad bandwidths, (5) exhibit good directional characteristics, (6) exhibit the abil- 10  
ity to adapt to antenna sensitivity, and (7) conform to the physical constraints of the paging instrument (i.e., the antenna is an appropriate size for the device).

In a first aspect, an antenna of the present invention 15  
comprises a lanyard antenna. As utilized herein, the term lanyard generally refers to a flexible cord-like structure of the type generally utilized to secure physical items to an individual.

The lanyard antenna may be attached to a person's clothing and to the portable communication device where the lanyard will provide an improved antenna and also provide additional security against the portable communi- 20  
cations device being dropped. The lanyard antenna need not be disconnected from the person's clothing for use. Rather, the extension of the lanyard during use of the portable communications device will enhance the receptivity of the antenna, as much of the length of the antenna is situated some distance away from both the person's body and the communication device.

A lanyard antenna of the present invention is particularly well suited for use with pagers and in particular with interactive messaging pagers. The antenna increases trans- 25  
mission and reception performance and, thereby, increases the operating range of the pagers. The antenna may be a dipole of  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ , or any wavelength. The antenna further may be center-loaded or end-loaded. It could also take the form of a loop antenna in which both ends are coupled to transmitter circuitry, receiver circuitry, or both.

According to a first embodiment of the present invention 30  
a lanyard antenna comprises at least one continuous antenna conductive element that is embedded within a flexible strength member. The total length of the flexible strength member may be longer than the total length of the antenna conductive element.

The flexible strength member is preferably non-binding, non-twisting, and produced from nonconductive material, such as, natural and/or synthetic compositions. The antenna conductive element is preferably formed from at least one 35  
distinct wire, wire braid, or wire mesh that is produced from a flexible conductive material, such as beryllium copper, copper, aluminum, iron alloys, or phosphor bronze.

According to a second embodiment of the present inven- 40  
tion a lanyard antenna comprises at least one antenna conductive element. The antenna conductive element is preferably formed from at least one distinct wire, wire braid, or wire mesh that is fashionably designed and is produced from a flexible conductive material, such as beryllium copper, copper, aluminum, iron alloys, or phosphor bronze.

In another aspect the present invention comprises a wire- 45  
less communications device with a lanyard antenna of the present invention. The wireless communications device may comprise a pager, an interactive messaging pager, a telephone (portable, cellular, mobile, satellite, etc.), a PDA, or other wireless communications device.

The objects, features, and advantages of the present invention are described in more detail below with reference



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to the embodiment depicted in the attached drawings. Further objects, features, and advantages of the present invention will be apparent from the description provided.

### BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention will be more clearly understood by reference to the following description taken in connection with the accompanying drawings, in which:

FIG. 1 depicts an embodiment of the present invention having a wireless telephony device with an antenna connection and a lanyard channel for a lanyard antenna.

FIG. 2 depicts an embodiment of the present invention having a lanyard with an embedded antenna and illustrating how a lanyard antenna attaches to a wireless telephony device.

### DETAILED DESCRIPTION

As set forth above, the present invention provides unobtrusive and convenient antennas for a wireless communications device that (1) operate as a lanyard, (2) maximize reception, (3) maximize transmission, (4) utilize reasonably broad bandwidths, (5) exhibit good directional characteristics, (6) exhibit the ability to adapt to antenna sensitivity, and (7) conform to the physical constraints of the paging instrument (i.e., the antenna is an appropriate size for the device). According to an embodiment of the present invention, a lanyard antenna comprises at least one continuous antenna conductive element that is embedded within a flexible strength member. The total length of the flexible strength member may be longer than the total length of the antenna conductive element.

The flexible strength member is preferably non-binding, non-twisting, and preferably produced from non-conductive material which insulates the antenna. Suitable nonconductive materials include, but are not limited to: natural or synthetic polymers; nylon; cotton; wool; and mixtures thereof. The nonconductive material may comprise a knitted sleeve produced, for example, by circular knitting techniques, or a woven sleeve. The sleeve may be produced from synthetic and/or natural yarns.

The antenna conductive element may be woven into the flexible strength member, encircled by the flexible strength member, coupled side-by-side to the flexible strength member or otherwise incorporated within the flexible strength member. The antenna conductive element is preferably formed from at least one distinct wire, wire braid, or wire mesh which extends along the length of the lanyard. The antenna conductive element may be produced from a flexible conductive material, such as beryllium copper, copper, aluminum, iron alloys, or phosphor bronze.

One end of the lanyard antenna may be divided into two branches. One branch is the signal lead and is inserted into the interior of the wireless telephony device, where it attaches to the antenna output and input of the radio device. The invention is applicable as an antenna for a radio device, and, therefore, the phrase "radio device" used herein means radio receiver, radio transmitter, and radio transceiver. The other branch is the lanyard channel to secure the lanyard antenna to the wireless telephony device. The other end of the lanyard antenna is designed to secure the wireless telephony device to a person, such as, looping the lanyard around a person's belt, or affixing it with a clip. Alternatively, the lanyard antenna could be designed such that connecting the signal lead to the wireless telephony

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device also serves to attach it mechanically to the device in a secure manner.

As will be realized by those of ordinary skill in the art from the foregoing description, the present invention presents a device that combines a lanyard with an antenna or antennas to improve radio frequency transmission and reception performance for wireless communications devices. Basically, it increases the gain and maximizes radiation efficiency. As a consequence, it increases transmitter radiated power output (called "effective radiated power" or ERP) and increases effective received sensitivity.

The antenna conductor or conductive element may be a dipole of full,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$  or any other desired wavelength. A dipole antenna may be end-or center-loaded via coupling to the transmitter circuitry, receiver circuitry or both. It may be coupled to such circuitry with matching circuitry such as inductive, capacitive or both types of components. The antenna could also be a non-harmonically-cut length of conductive material coupled to the circuitry via matching circuitry. It could also take the form of a loop antenna in which both ends are coupled to transmitter circuitry, receiver circuitry, or both. In fact, the antenna element could take the form and perform the function and achieve the results of any sort of antenna element that is desired for the application, taking into account gain and other performance characteristics, durability, cost, strength and appearance parameters. The antenna conductive element is preferably accompanied by a flexible strength member such as a lanyard or cord which absorbs the tensile strength imposed by handling the device from the belt or other article of clothing. The conductive element and strength member may form part of the same structure that both acts as an antenna and absorbs the strength; alternatively, they may be the same structural member. For example, the conductive element could be a metallic element located substantially coaxially inside a length of cord or plastic tubing; alternatively, it could be located alongside a cord or lanyard; still further, the metallic element could be the flexible element that also acts as the strength member.

Referring now to FIG. 1 of the drawing, the wireless telephony device 1 is shown from the side view with an antenna connector 2 and with a lanyard channel 3. By way of example, and not intended to be limiting in the invention claimed, the present application contemplates an interactive messaging pager operating at a frequency of approximately 900 MHz and transmitting a coded signal by modulating the carrier wave with frequency shift keying, in accordance with a prescribed protocol, in order to transmit and receive wireless communications.

FIG. 2 of the drawing illustrates the component parts of a preferred form of the invention. Shown generally is a flexible strength member 4 having an embedded antenna conductive element 5 for sending and/or transmitting radio frequency signals to and from the wireless telephony device 6. In accordance with the preferred embodiment at 900 MHz, the length of the lanyard antenna would be one-half wave length at 900 MHz, or approximately six and one-half inches. Calculating antenna length of a  $\frac{1}{2}$  wave dipole for optimum performance is conventional. The length (in inches) equals 5904 divided by the frequency (in MHz) multiplied by a conventional computational factor related to conductor diameter. Cellular mobile radiotelephone networks operate in the frequency range of 825–890 MHz. Thus, a  $\frac{1}{2}$  wave dipole for use with a cellular telephone would be approximately seven inches. The invention is also applicable to lanyard antennas suitable for use at other frequencies in the VHF and UHF bands ranging from 30



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MHz to 3 GHz, with respective lanyard antenna lengths. Loading coils can be incorporated into the lanyard antenna structure to alter the effective length or “electrical length” of the antenna. Furthermore, the flexible strength member or antenna conductive element could contain separate antenna conductors (which might be of different lengths) for transmission and reception.

The flexible strength member 4 may be of continuous length with the antenna conductive element 5. The ends of the antenna conductive element 5 may terminate at the respective ends of the flexible strength member 4. The ends are arranged within the strength member so that when the lanyard antenna is stretched, they will flex and allow the lanyard antenna to become longer to permit the wireless telephony device to be arranged away from the body without damaging or breaking the flexible strength member or the embedded antenna conductive element.

One end of the lanyard antenna is divided into two branches. One branch is the signal lead 7 and is inserted into the antenna connector 2 of the wireless telephony device 6; the other branch 8 secures the lanyard antenna and attaches to the lanyard channel 3 of the wireless telephony device 6. The other end of the lanyard antenna is attached to a lanyard handle member 9 and is designed to secure the wireless telephony device to a person, such as looping the end of the lanyard antenna around a person’s belt.

It should be clearly understood that the forms of the present invention herein described are illustrative only and are not intended to limit the scope of the invention. Further, applications and modifications that may be devised by those skilled in the art, such as, for example, one use of loading coils to vary the “electrical” length of the antenna, the use of two separate antennas for transmission and reception, and the use of an external lanyard antenna in combination with an internal antenna to provide a “diversity” antenna arrangement, are included within the scope of the present invention.

What is claimed is:

1. An apparatus comprising:
  - a wireless telephony device;
  - a lanyard antenna including at least one antenna conductive element and a flexible strength member,
    - wherein the at least one antenna conductive element is embedded in the flexible strength member and coupled to at least one of a transmitter and a receiver of the wireless telephony device, and the at least one antenna conductive element has a length that is a function of at least a frequency range operation of the wireless telephony device and a desired gain; and
    - wherein the flexible strength member is substantially non-twisting and includes one end coupled to the wireless telephony device and the other end adapted to be connected to an article of clothing of a user in a manner that allows the flexible strength member at least partially to suspend the wireless telephony device from said clothing, said flexible strength member being a single, continuous member and said antenna conductive element being a single, continuous element, said other end being unsecured to said one end to be connected to said article of clothing independent of said one end.
2. The apparatus of claim 1, wherein the at least one antenna conductive element is a dipole.
3. The apparatus of claim 1, wherein the at least one antenna conductive element is a half-wave dipole.
4. The apparatus of claim 1, wherein the at least one antenna conductive element is coupled to the at least one of

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a transmitter and a receiver of the wireless telephony device with a matching circuitry that includes components selected from a group consisting of an inductive component, a capacitive component, or both.

5. The apparatus of claim 1, wherein the at least one antenna conductive element is end-loaded.

6. The apparatus of claim 1, wherein the wireless telephony device is an interactive messaging pager.

7. The apparatus of claim 6, wherein the at least one antenna conductive element is substantially six and one-half inches in length.

8. The apparatus of claim 1, wherein the wireless telephony device is a cellular telephone.

9. The apparatus of claim 1, wherein the at least one conductive element and the flexible strength member are the same structural member.

10. The apparatus of claim 1, wherein the at least one conductive element is located alongside the flexible strength member.

11. The apparatus of claim 1, wherein the at least one antenna conductive element is a random length wire antenna.

12. The apparatus of claim 1, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a loop.

13. The apparatus of claim 1, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a clip.

14. An apparatus comprising:

a wireless telephony device;

a lanyard antenna including at least one antenna conductive element and a flexible strength member,

wherein the at least one antenna conductive element is embedded in the flexible strength member and coupled to at least one of a transmitter and a receiver of the wireless telephony device, and the at least one antenna conductive element includes a half-wave dipole; and

wherein the flexible strength member is substantially non-twisting and includes one coupled to the wireless telephony device and the other end adapted to be connected to an article of clothing of a user in a manner that allows the flexible strength member at least partially to suspend the wireless telephony device from said clothing, said flexible strength member being a single, continuous member and said antenna conductive element being a single, continuous element, said other end being secured to said one end to be connected to said article of clothing independent of said one end.

15. The apparatus of claim 14, wherein the at least one antenna conductive element is coupled to the at least one of a transmitter and a receiver of the wireless telephony device with a matching circuitry that includes components selected from a group consisting of an inductive component, a capacitive component, or both.

16. The apparatus of claim 14, wherein the at least one antenna conductive element is end-loaded.

17. The apparatus of claim 14, wherein the wireless telephony device is an interactive messaging pager.

18. The apparatus of claim 17, wherein the least one antenna conductive element is substantially six and one-half inches in length.

19. The apparatus of claim 14, wherein the wireless telephony device is a cellular telephone.

20. The apparatus of claim 14, wherein the at least one conductive element and the flexible strength member are the same structural member.



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21. The apparatus of claim 14, wherein the at least one conductive element is located alongside the flexible strength member.

22. The apparatus of claim 14, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a loop. 5

23. The apparatus of claim 14, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a clip.

24. An apparatus comprising:

an interactive messaging pager;

a lanyard antenna including at least one antenna conductive element and a flexible strength member

wherein the at least one antenna conductive element is embedded in the flexible strength transmitter and coupled to at least one of a transmitter and a receiver of the interactive messaging pager with a matching circuitry that includes components selected from a group consisting of an inductive component, a capacitive component, or both, the at least one antenna conductive element comprising a half-wave dipole; and

wherein the flexible strength member is substantially non-twisting and includes one end coupled to the interactive messaging pager and the other end adapted to be connected to an article of clothing of 5 10 15 20 25

8

a user in a manner that allows the flexible strength member at least partially to suspend the interactive messaging pager from said clothing, said flexible strength member being a single, continuous member and said antenna conductive element being a single, continuous element, said other end being unsecured to said one end to be connected to said article of clothing independent of said one end.

25. The apparatus of claim 24, wherein the at least one antenna conductive element is substantially six and one-half inches in length. 10

26. The apparatus of claim 24, wherein the at least one conductive element and the flexible strength member are the same structural member. 15

27. The apparatus of claim 24, wherein the at least one conductive element is located alongside the flexible strength member.

28. The apparatus of claim 24, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a loop. 20

29. The apparatus of claim 24, wherein the other end of the flexible strength member is adapted to be connected to the article of clothing by a clip. 25

\* \* \* \* \*





US005941434A

**United States Patent** [19]  
**Green**

[11] **Patent Number:** **5,941,434**  
[45] **Date of Patent:** **Aug. 24, 1999**

[54] **MULTI-STRAP HOLDER**

[76] Inventor: **Mark R. Green**, 3503 Greenwich Dr.,  
North Las Vegas, Nev. 89030

[21] Appl. No.: **08/946,809**

[22] Filed: **Oct. 8, 1997**

**Related U.S. Application Data**

[60] Provisional application No. 60/028,534, Oct. 11, 1996.

[51] **Int. Cl.<sup>6</sup>** ..... **A45F 3/14**

[52] **U.S. Cl.** ..... **224/250; 224/195; 224/269**

[58] **Field of Search** ..... 224/195, 222,  
224/269, 271, 250, 901, 904, 907, 929,  
930, 425, 427, 275, 276; 248/206.3, 205.2,  
205.6, 311.2; 294/150, 151, 149, 157

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*Primary Examiner*—Henry J. Recla

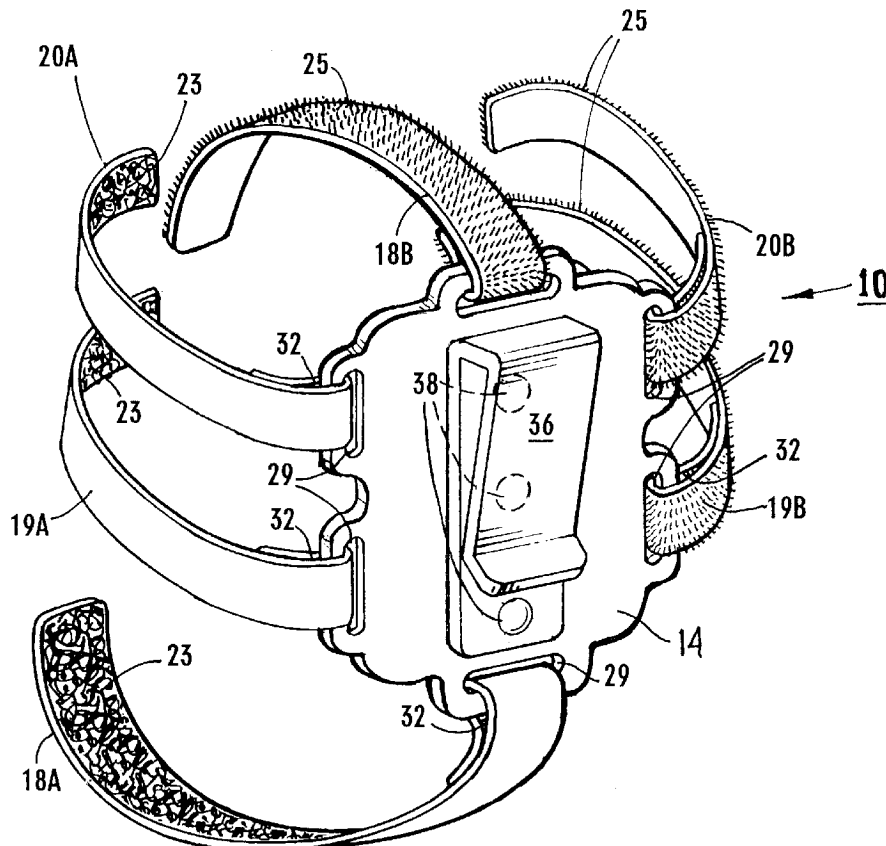
*Assistant Examiner*—Timothy L. Maust

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John C. Lambersen

[57] **ABSTRACT**

A holder/carrier temporarily attaches to and supports small items of multiple configurations. Using multiple, flexible straps that are each attached to a support base, the item is enveloped and retained against the support base. An attachment mechanism, such as a retaining clip, is affixed to the support base, and is utilized to selectively attach the support base, along with the carried, enveloped item, to a separate supporting structure, such as a waistband, belt or other, suitably-shaped, receiving structures. Additionally, by securing an attachment device that is cooperative with the support base attachment mechanism to another support surface, whether on a permanent or temporary basis, the attachment mechanism may be attached to support surfaces that would not otherwise be suitable.

**4 Claims, 2 Drawing Sheets**





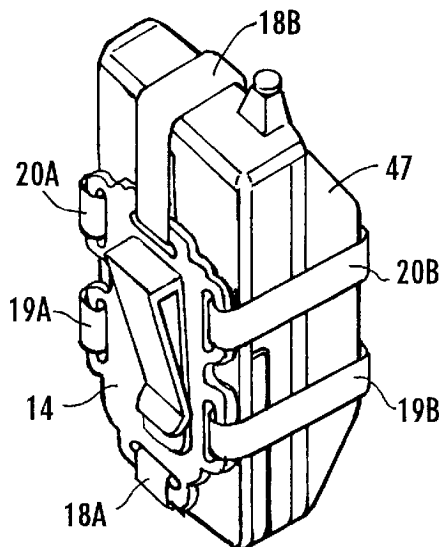
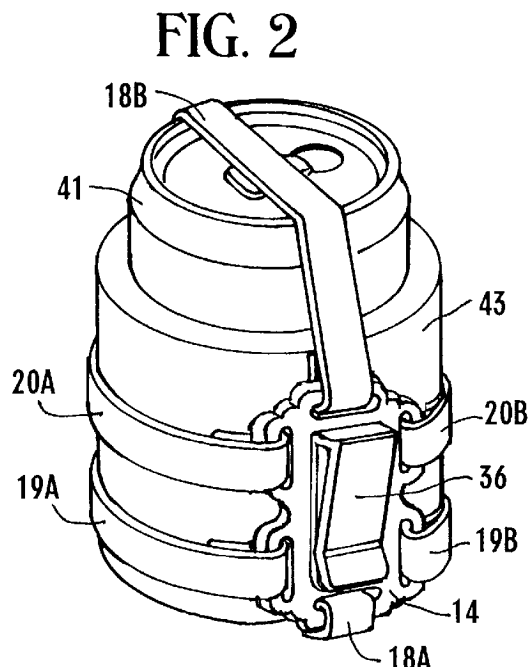
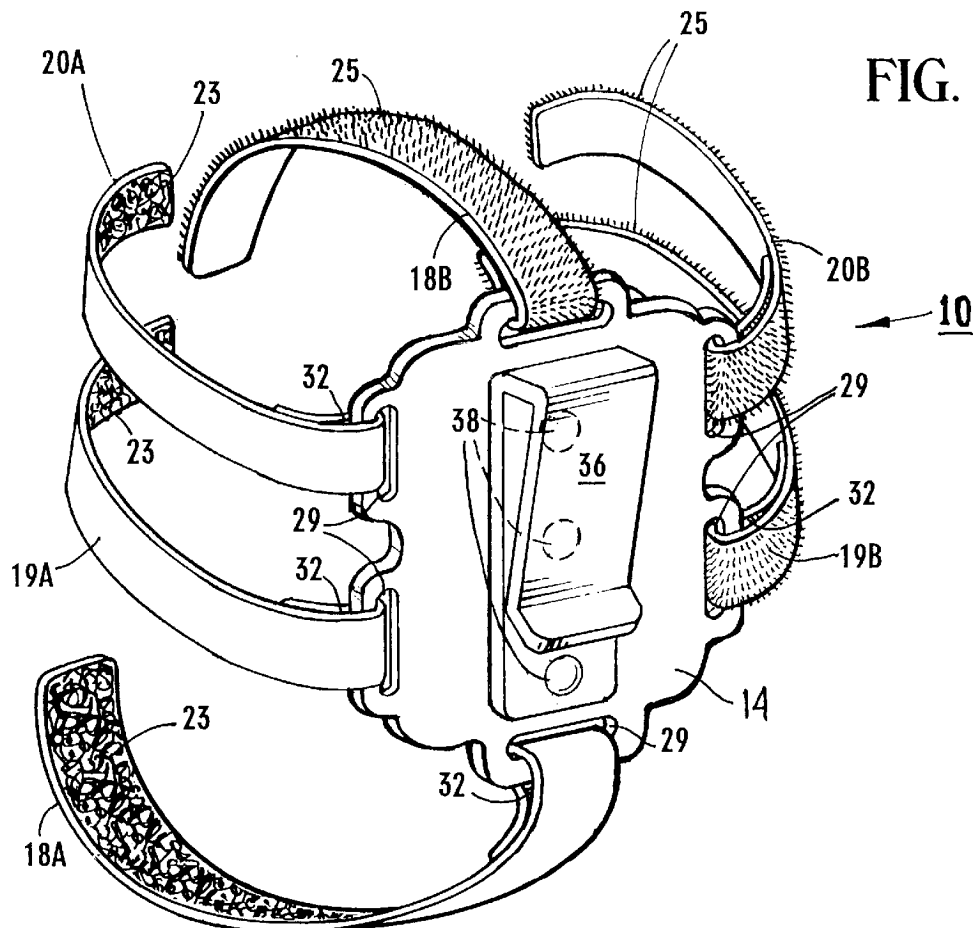


FIG. 3



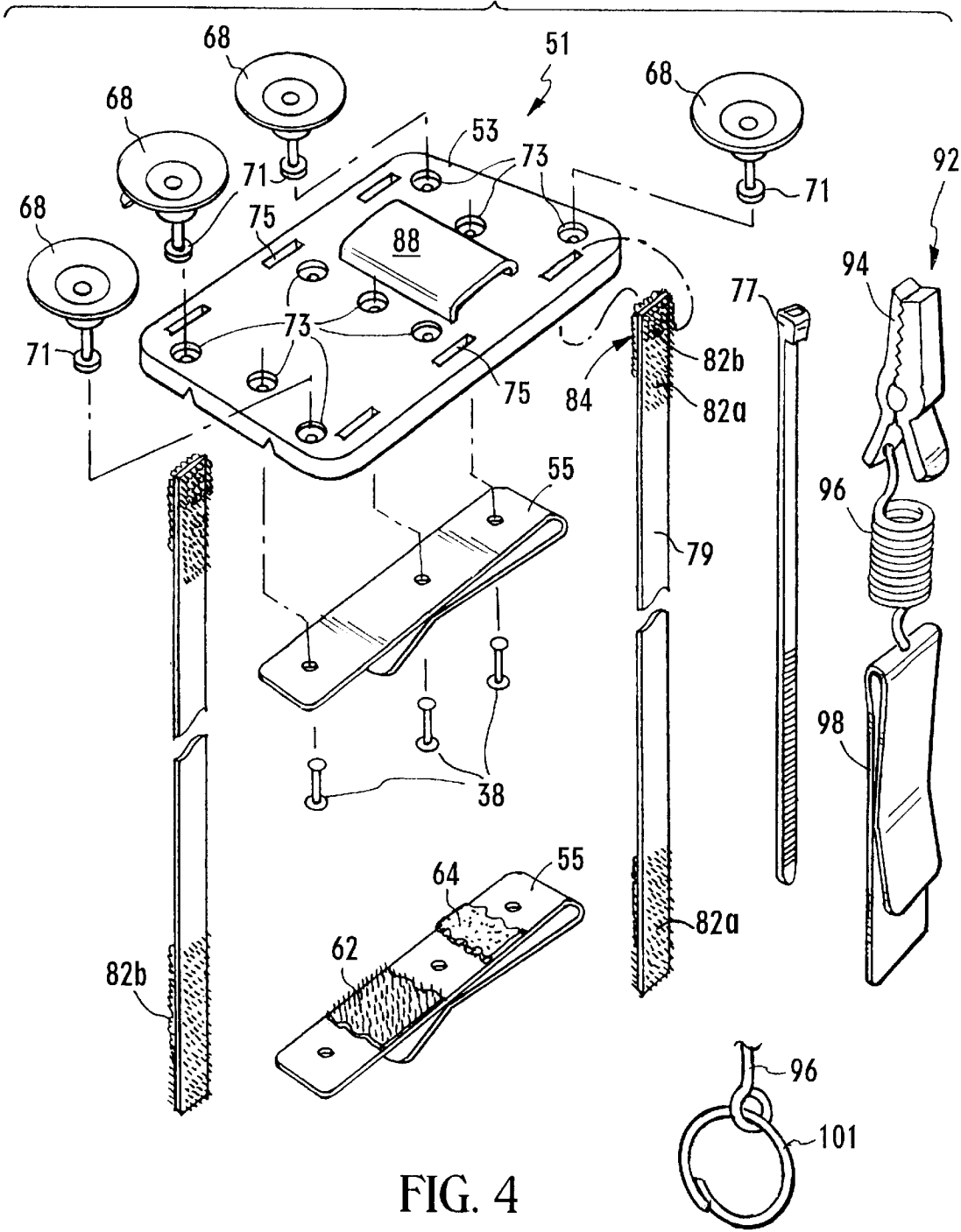


FIG. 4



**MULTI-STRAP HOLDER****Cross-Reference to Related Application**

This application claims the benefit of U.S. Provisional Application No. 60/028,534, filed Oct. 11, 1996.

**BACKGROUND OF THE INVENTION****1. Field of the Invention**

The present invention relates to holders/carriers and, more particularly, to such devices as can be selectively attached to various supporting structures. More specifically, the present invention relates to a holder that includes a rigid or semi-rigid base support, several non-elastic securement straps, and a support attachment mechanism.

**2. Description of the Prior Art**

A variety of devices are disclosed in the prior art for carrying various types of articles suspended from "the person", such as a belt or waistband, or attached to an object within the user's immediate environment, such as the passenger compartment in cars and trucks. While tool belts have been used for years, the recent cultural popularity of carrying water bottles during the completion of one's daily tasks, and the development of cellular telephones has changed the traditional areas of product focus for these hands-free carriers.

With cellular telephone technology becoming a ubiquitous intrusion on both business and personal life, increasing numbers of users feel compelled to carry a cellular phone throughout their day. With many day-to-day tasks requiring the use of both hands, this requirement for immediate (and continual) access to a cellular phone can produce awkward balancing acts and other inconveniences.

It then becomes only a matter of time before the phone is accidentally dropped, damaging its sensitive electronics and fragile plastic parts. As a result, many times cellular telephone users will purchase a leather or vinyl carrying case, most of which include a rigid clip that can be used to attach the case and phone to a waistband or belt.

In addition to cellular phones, during the warmer months in many areas of the country it is common for people to carry along chilled beverages while traveling about during the day. To facilitate their transport, a number of different types of container designs have been made available to hold the beverage cans or drinking cups. Some of these holders are designed primarily to provide thermal insulation. Others include structures that permit the cup or beverage can to be suspended from a variety of different support platforms. For example, some beverage holders permit the beverage container to be suspended from a person's belt while others have specialized support structures that permit their engagement with, and suspension from, various structural features commonly found in the passenger compartments of most automobiles. Previous such containers include the plastic bottle carriers of Heather, U.S. Pat. No. 5,147,079, and Marsh, Jr., U.S. Pat. No. 5,407,110.

While such beverage and cellular phone holders are more or less adequate for the particular purpose for which they have been designed, there are certain deficiencies inherent in such custom holders. Such holders are generally designed to receive an object having a specific dimensional configuration. Many such holders can only be utilized for retaining an object of certain, specific dimensions—and for no other objects. Seldom are holders suitable for more than one cellular phone model.

In an attempt to address this deficiency, the use of flexible straps with hook/loop fasteners is suggested by both

Ventura, U.S. Pat. No. 4,771,927, and Moore, IV, et al., U.S. Pat. No. 5,174,483, for use with telephones and radios. In the context of beverage containers, they too come in a variety of different shapes, and an entirely separate family of holders is required for each of the various different beverage containers. In a manner similar to the previously-described multi-cellular holders, Williams, U.S. Pat. No. 5,325,991, suggests a strategy of providing a flexible insulated blanket to be used to wrap around and hold beverages containers. A separate rigid vertical support is provided to attach and suspend the beverage holder from a separate supporting structure.

Ideally, it would be desirable to provide a holder that is sufficiently adaptable as to be able to carry any number of different, multi-shaped objects, rather than require specialized carrying devices specific to either drinking containers, cellular phones or tools, for example.

**SUMMARY OF THE INVENTION**

It is an object of the present invention to provide a holder or carrier for small objects of a variety of different shapes, such as binoculars, cameras, cellular phones, water bottles, flashlights, calculators, hand tools, wallets, and the like. A rigid or semi-rigid support base is provided, with multiple flexible straps attached. Each of the straps is provided with hook and loop fastener material, such that any one of the straps can attach to or be attached by another of the straps. In this manner, the straps can be "wrapped" about an object of virtually any shape, forming a supportive carrier about that object.

A support attachment mechanism, such as a clip or an array of suction disks, by way of example and not limitation, is attached to the rigid or semi-rigid base, and enables the selectable attachment of the holder/carrier to a variety of support structures. The more common include waistbands and belts; however, when mating clips are attached to the support structures as well, the holder/carrier is able to form a secure connection to a variety of supporting structures that would not otherwise be suitable for attachment of the holder.

Some further objects and advantages of the present invention shall become apparent from the ensuing description and as illustrated in the accompanying drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view, with portions in phantom, showing a multi-strap holder in accordance with the present invention;

FIG. 2 is a perspective view, similar to FIG. 1, showing a multi-strap holder in releasable engagement with an insulated beverage container;

FIG. 3 is a perspective view, similar to FIGS. 1 and 2, showing a multi-strap holder releasably engaged with a cellular telephone in accordance with the present invention; and

FIG. 4 is a partial perspective view showing a backplate and various possible mounting hardware permitting the attachment of a multi-strap holder to an increased number of possible support surfaces in accordance with the present invention.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Reference is now made to the drawings wherein like numerals refer to like parts throughout. Referring to FIG. 1, a multi-strap holder 10 includes a central support backing



14, from which extends a plurality of support straps, preferably in the form of a plurality of support strap pairs **18A**, **18B**, **19A**, **19B**, **20A**, **20B**.

Each of the support strap pairs **18A–20B** includes a fastening mechanism that enables the releasable attachment to one another of the respective support straps of each support strap pair. In a preferred embodiment hook and loop fasteners are provided. One strap of each of the support strap pairs **18A**, **19A**, **20A** is provided with a loop section **23** and the corresponding support straps **18B**, **19B**, **20B** of the support strap pairs are each provided with a hook section **25**.

The selection as to which portion, hook or loop, is on which support strap is not critical. It is to be understood and appreciated that the arrangement of the hook and loop areas shown in FIG. 1 is provided by way of example and not of limitation.

The support strap pairs **18A–20B**, which are preferably constructed out of hook and loop fabric straps, may be attached to the central support backing **14** in a variety of ways known to the art. For example, when the central support backing **14** is a plastic material formed by injection molding, the support strap pairs **18A–20B** are placed in the mold prior to the injection formation of the central support backing **14**.

In the preferred embodiment shown in FIG. 1, a plurality of strap retaining apertures **29** are formed about a periphery of the central support backing **14**. A fastening loop section **32** is formed on each of the support straps, and is appropriately dimensioned to permit reception of each support strap on a respective retaining aperture **29**.

The central support backing **14** is also preferably provided with a fastening clip **36** that is attached to the support backing **14** using a plurality of rivets **38**. It would also be possible to attach the fastening clip **36** by molding it into the support backing **14** during the formation thereof. In a conventional manner, the fastening clip **36** is provided to permit the releasable attachment of the multi-strap holder **10** to any of a variety of supporting structures and/or support mounts (not shown in the Figures).

Turning now to FIG. 2, a beverage container **41** is shown securely received within a gripping web formed by the attached support strap pairs **18A–20B**. The beverage container **41** in FIG. 2 is shown received within an insulating cup **43**; however, removal of the insulating cup **43** would not impair the ability of the support strap pairs **18A–20B** to form a gripping web of reduced size to retain the beverage container **41**.

The length of the loop sections **23** and hook sections **25** formed on the support strap pairs **18A–20B** is preferably the entire length of the strap, which provides a great deal of adaptability to the holder regarding the shapes of the articles to be held. A great degree of adjustability of the support strap pairs is thereby obtained, which in turn permits a wide variance in the dimensions of the object received within the gripping web.

The adaptability of the support strap pairs **18A–20B** to form gripping webs of various dimensions is further illustrated by reference to FIG. 3. A cellular phone **47** is shown received within the gripping web formed by the support strap pairs **18A–20B**. While most cellular phones are substantially rectangular in overall shape, they each have their design peculiarities. In the cellular phone **47** shown in FIG. 3, there are variations in thickness over the overall length of the phone, making the gripping web particularly useful in retaining the phone against the central support backing **14**.

The central support backing **14** can be fabricated out of a number of materials, including metal, leather, wood and

plastic, with a semi-flexible PVC plastic as the preferred material. Similarly a number of materials can be used to fabricate the support straps, including leather, nylon and polypropylene. A preferred material for the support straps is the widely available hook and loop fabric strips.

Additionally, as mentioned previously, a number of different fastening systems may be used with the support straps; however, the hook and loop fastening system as previously described is preferred. Finally, while a number of materials are appropriate for fabricating the fastening clip **36**, a spring steel clip cast into a plastic backing is preferred as minimizing the cost of fabrication while optimizing durability of the clip.

It is oftentimes desirable to be able to attach the multi-strap holder **10** to support surfaces that do not provide a secure attachment location for the fastening clip **36**. In such instances a support base **51**, such as is shown in FIG. 4, can prove exceedingly useful. A backplate **53** provides a platform upon which various mounting hardware can be attached.

The interconnection with the multi-strap holder **10**, is preferably formed using a retaining clip **55**. When so provided, the fastening clip **36**, readily engages therewith to form a strong and secure detachable connection between the multi-strap holder **10** (not shown in FIG. 4) and the support base **51**. A preferred fastener for attachment of the retaining clip **55** to the backplate **53** are the plurality of rivets **38** illustrated in FIG. 4.

Where a less expensive alternative is desired, the retaining clip **55** can be used alone, without the support base **51**, and be attached to support surfaces using other fasteners. A less complex fastening system might preferably consist of a strip of cooperating hook and loop fastening material **62** attached to the retaining clip **55** as well as on/to a desired support surface location such as a wall (not shown). Alternatively, a double-sided adhesive layer **64** might also be used in a similar manner to attach the retaining clip **55** to a suitable support surface.

Returning again to the support base **51**, its attachment to any of a variety of support surfaces (not shown) can utilize a number of attachment devices, with the nature of the particular support surface determining that attachment device likely to be the most effective. For example, on smooth surfaces, a plurality of suction cups **68** is likely to be effective. An attachment head **71** of the suction cup **68** is used to firmly secure the suction cup **68** to the backplate **53**. A plurality of securement apertures **73** are preferably formed in the backplate **53** and of a dimension suitable for receiving the attachment head **71** and securing same therein, whether by a rivet or a screw (not shown). The securement apertures **73** are also suitable for receiving the rivets **38** when they are used to secure the retaining clip **55** to the backplate **53**.

For support surfaces not amenable to forming a secure attachment using the plurality of suction cups **68**, a plurality of securement slots **75** are formed about the periphery of the backplate **53** and are suitable for receiving securement devices such as a plastic tie **77**. When a less permanent connection is desired, securement straps **79** making use of cooperating hook and loop fastening material **82a**, **82b** can also utilize the securement slots **75** to anchor the support base **51** to a suitable support surface for the multi-strap holder **10**.

The attachment of the securement straps **79** to the backplate **53** is preferably accomplished by utilizing the hook and loop fastening material **82a**, **82b** placed adjacent one another at an attachment end **84** of the securement strap **79**.





US006591461B2

(12) **United States Patent**  
**Salentine et al.**

(10) **Patent No.:** **US 6,591,461 B2**  
(45) **Date of Patent:** **Jul. 15, 2003**

(54) **CONNECTOR WITH STRAIN RELIEF**

(76) Inventors: **John A. Salentine**, 105 Campo Vista Dr., Santa Barbara, CA (US) 93111;  
**Ken Collin, Jr.**, 1501 Goodyear Ave., Suite B, Ventura, CA (US) 93003

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/835,228**

(22) Filed: **Apr. 13, 2001**

(65) **Prior Publication Data**

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(51) **Int. Cl.<sup>7</sup>** ..... **A44B 21/00**

(52) **U.S. Cl.** ..... **24/115 F; 24/115 R; 24/575; 24/265 H; 403/220**

(58) **Field of Search** ..... 24/115 F, 114.5, 24/115 R, 115 H, 129 R, 602, 265 H, 575; 403/208, 209, 210, 220, 353

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*Primary Examiner*—Robert J. Sandy

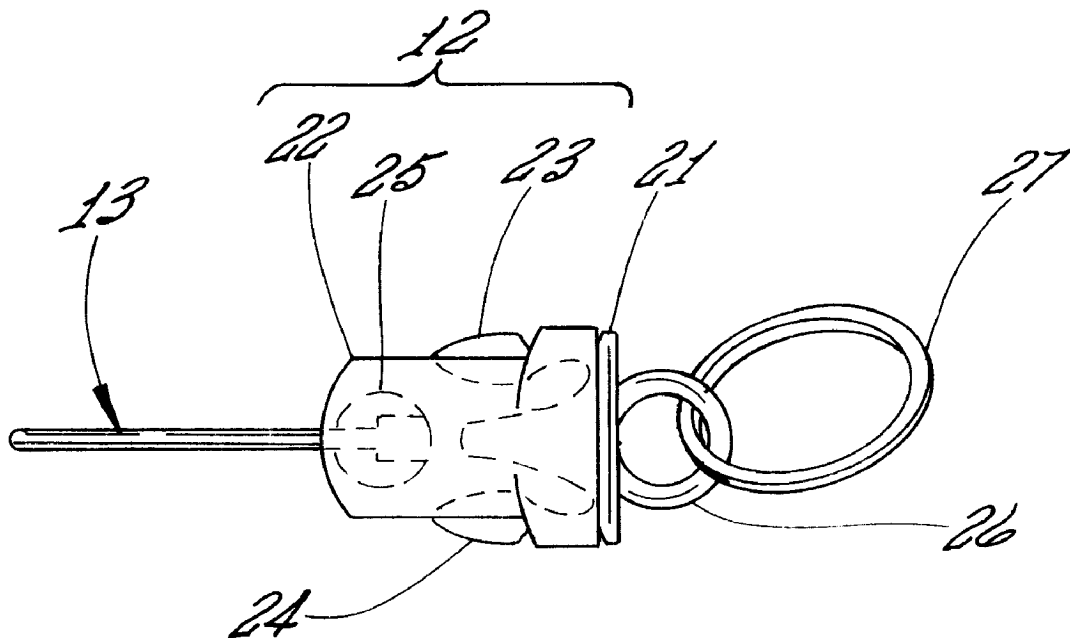
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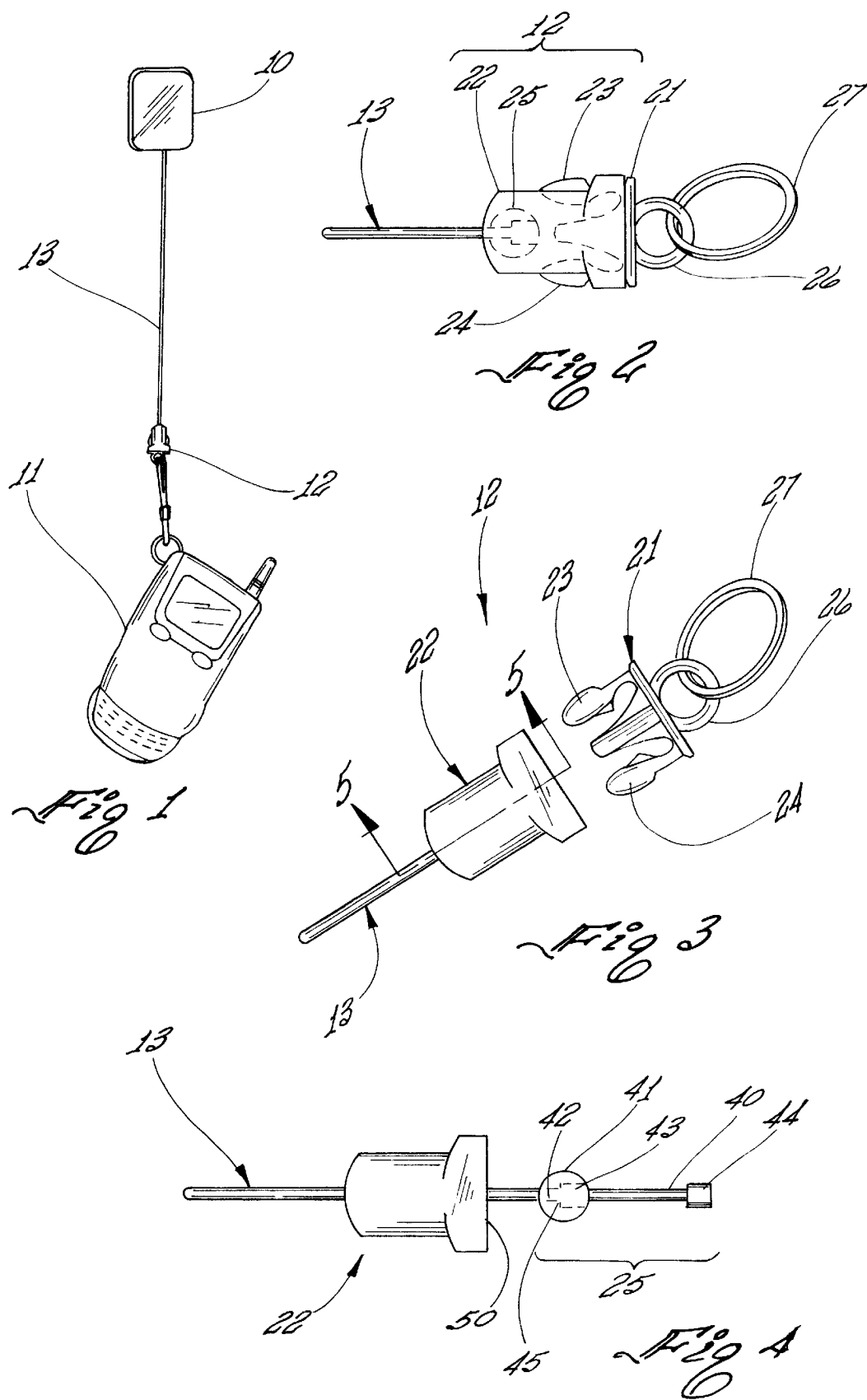
(57) **ABSTRACT**

A connector to attach cable or line to an article of gear whereby the cable or line is protected from fatigue through the use of a strain relief system and incorporates the ability to easily connect or disconnect the gear from the cable. The cable/line is permanently attached to the cable connection device with a knot or cable crimp. A strain relief for the cable/line is provided by a spring wrapped around the cable/line to prevent bending at the connection point, a heavy material coating around the cable/line again to prevent bending at the connection point, or a pivoting ball connection to allow the cable/line to move without bending the cable/line at the joint. A disconnect method is provided by a clipping system that allows the cable connection device to be connected or disconnected from the gear.

**2 Claims, 2 Drawing Sheets**









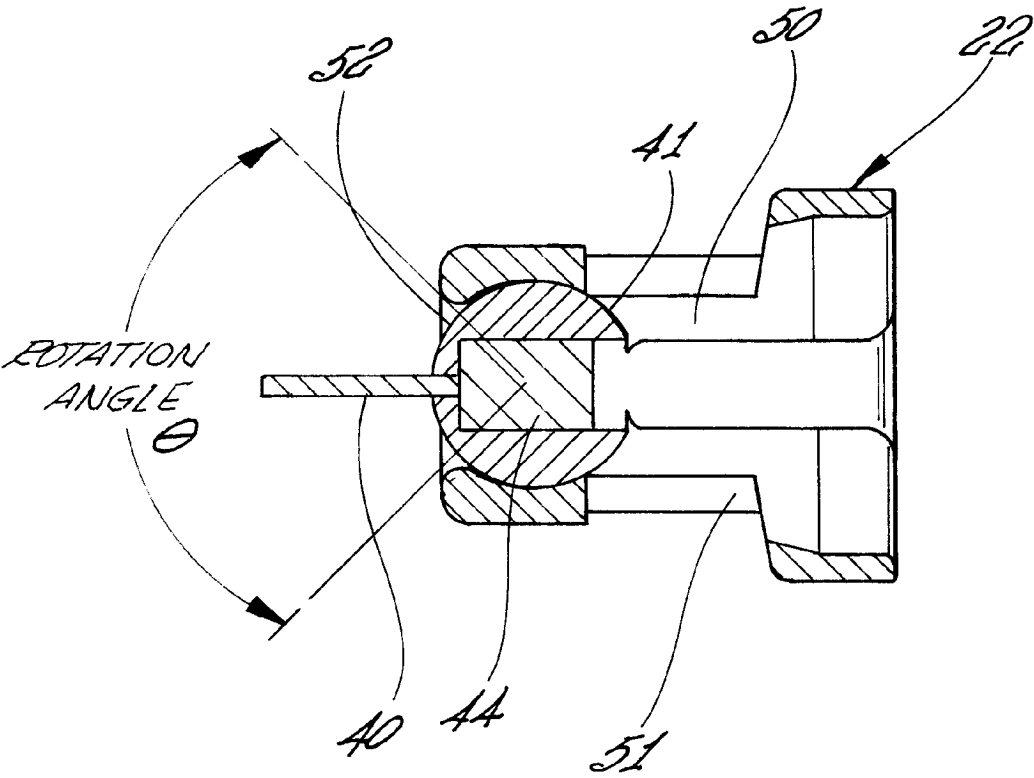


Fig 5

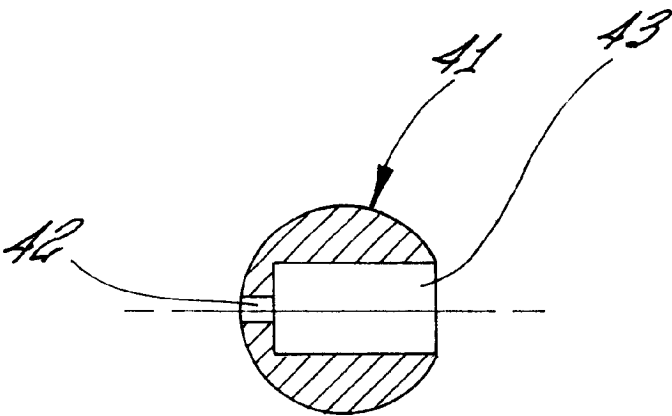


Fig 6



## CONNECTOR WITH STRAIN RELIEF

## BACKGROUND OF THE INVENTION

## 1. Technical Field

The present invention is directed toward quick release buckles of the type used for tethering a tool to an object or the body of a person and more particularly to a strain relief for a quick release buckle.

## 2. Background Art

Many tools are either carried on a person, stored in a holster, pouch or pocket, or attached to a permanent fixture. The use of lanyard tethering devices for protecting such tools against loss or damage while making the tools readily available for easy use is well known in the art. This is achieved through a number of tethering or mounting devices which include neck-type lanyards, wrist-type lanyards and automatic retracting devices utilizing string or cable for the connection media or hard mounted clipping devices. A common feature of such quick release buckles is the ability to connect and disconnect a tool easily from the lanyard tethering device. This function is provided by a number of prior art clipping systems on the market which range from snap clips and split rings to more sophisticated devices such as side release type

Bakker et al., in U.S. Pat. No. 4,171,555, disclose a plastic buckle adapted to adjustably secure extremities of a web-like material. The buckle includes a frame-like body portion, fastening means at one end of the body portion for fixedly securing the buckle to one extremity of said web-like material and means for adjusting the opposite extremity of the web-like material including two transverse parallel bars positioned adjacent the opposite end of the body portion.

Another buckle of the quick release type is disclosed by Tracy in U.S. Pat. No. 4,150,464. The Tracy buckle includes separable cooperating receptacle and clasp members. The receptacle member includes a pair of locking slots formed in opposing sides thereof. The clasp member includes a pair of resilient arms having locking tabs thereon for releasably engaging the locking slots of the receptacle member. The receptacle member also includes a pair of grooves for slidably engaging cooperating raised ridges formed on a central arm of the clasp member for guiding said clasp member during insertion into and removal from the receptacle member. The central arm of the clasp member also includes a pair of laterally extending edges for defining a limit to the inward bending of the resilient arms. The receptacle also includes a belt end termination member including a slide member for adjusting the length of a belt looped around said slide member. The clasp member also includes a base member joining the three arms thereof and including a through slot for terminating a belt end or the like.

Prior art quick release buckles lack a feature which can improve the life expectancy of the cable or line of the tethering device such as a self-retracting mechanism such as a strain relief type system at the connection joints. Without such a strain relief system the life expectancy of the cable is, in some cases, extremely low. The term "strain relief" as used herein, refers to means for protecting the cable from fatigue due to continuous bending at the termination point. The need for improved life expectancy of the cable or line is very important for a device that is intended to protect the gear or tool from loss or damage. Furthermore the capability for being able to connect and disconnect gear may not only be a convenience but also a safety issue. The present invention is directed toward overcoming both of these problems inherent in prior art quick release buckles.

## SUMMARY OF THE INVENTION

The attachment of the cable/line to the connector and strain relief system is achieved by passing the cable or line into the female component of the connector, through a pivoting ball and terminating the cable with a cable stop or a knot in a line. The Pivoting ball rests in the bottom of the female connector as its securing point. Furthermore, the pivoting ball can rotate thereby providing a strain relief to the cable by allowing the cable a pivot point instead of bending at the termination. In a preferred embodiment, the pivoting ball may have a slot to allow the cable to be attached to the ball after the cable stop has been attached to the cable or a knot has been tied in the line.

Alternatively, the strain relief may be provided through the use of an overmolded housing to prevent the cable/line from bending at the joint as opposed to a strain relief type system that prevents pull on the joint (as cited in U.S. Pat. No. 5,581,821, item 21 & 22, or in U.S. Pat. No. 6,179,104, item 45). Another type of strain relief may be provided through the use of spring system to prevent the cable/line from bending at the joint. The disconnection system has been designed to provide significant holding force while allowing the gear or tool to be connected to or disconnected from the female connector easily and without degradation to the part. A commonly used side release system has been incorporated into the present invention. Alternately, any number of connect/disconnect systems may be used in accordance with the buckle strain relief mechanism of the present invention to achieve similar results.

The features of the invention believed to be novel are set forth with particularity in the appended claims. However the invention itself, both as to organization and method of operation, together with further objects and advantages thereof may be best understood by reference to the following description taken in conjunction with the accompanying drawings in which:

## BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view showing a buckle with a strain relief mechanism in accordance with the present invention employed to tether a cell phone to a retractor device.

FIG. 2 is a top view showing an engaged quick-connect/release buckle system having a strain relief in accordance with the present invention.

FIG. 3 is a top view of the buckle of FIG. 2 showing the connection/disconnection system in a disengaged configuration.

FIG. 4 Side perspective diagrammatic view showing the detailed cable attachment system with pivoting ball type strain relief with the ball extending from the connector prior to assembly.

FIG. 5 is a cross-section view taken along section line 5—5 of FIG. 3 showing the pivot ball with a cable attached thereto and the strain-free range of angular motion of the cable with respect to the buckle.

FIG. 6 is a lateral cross-sectional view of a ball for attachment to a cable in accordance with the present invention

## DESCRIPTION OF PREFERRED EMBODIMENT

FIG. 1 is an example of an application of a quick-release buckle connector employed to couple a retracting type of



tethering device 10 to a tool such as a cell phone 11 or similar gear or instrumentation in order to prevent the loss of and/or damage to the gear. The quick-release connector 12 couples a cable 13 housed within and dispensed from the retractor device 10 to the tool 11 gear/device to the tethering device while incorporating a strain relief to prevent cable/line fatigue during the use of the gear/device. The tethering device 10 is usually adapted to include means for attaching the retractor device 10 to a person or other fixed supporting object. The cable 13 is attached to tethering device 10 and to the buckle connector 12, which in turn is attached to the particular gear or tool 11.

A quick-release buckle connector 12 in accordance with the present invention is shown in FIG. 2. The connector 12 comprises a male portion 21 and a female portion 22 (the connector is shown in an engaged configuration in FIG. 2). The operation of the quick-release connector 12 is well known in the art. Briefly, the male portion 21 has a pair of elastically deformable legs 23 and 24 attached thereto and integral therewith. When the legs 23 and 24 are squeezed together, the male portion 21 may be inserted into a recess 50 (shown in FIG. 5) within the female portion 22 as shown. When the pressure on the legs is relaxed, the legs lockingly engage a slot 51 or similar detent within the female portion to prevent removal therefrom. The male portion 21 of the connector preferably includes tool attachment means 26 and 27 operable for attaching a tool to the male portion of the connector. FIG. 3. shows the female portion 22 of the connector 12 disconnected from the male portion 21 of the connector. The cable 13 is connected to a pivoting ball strain relief system shown in phantom at numeral 25.

FIG. 4 is an exploded view showing the distal end 40 of the cable 13 fed through the recess 50 in the female portion 22 of the connector and a pivoting ball 41 containing slot 42 and a cable stop recess 43. Cable stop 44 is crimped to the distal end 40 of the cable or a knot is tied to prevent the distal end of the cable from separating from a cable stop 44. When the cable stop 44 is pulled into the cable stop recess area 43, the shoulder 45 of the recess prevents the cable stop 44 and the distal end 40 of the cable 13 from being pulled through the female portion 22 of the connector.

Turning now to FIG. 5, the female portion 22 of a quick-release connector in accordance with the present invention is illustrated in lateral cross-sectional view taken along section line 5—5 of FIG. 3. The pivoting ball 41 is housed within a recess in the female portion having a spherical inner surface 52. The pivoting ball 41 rotates through a solid angle  $\theta$  within the recess 52 to prevent friction between the distal end 40 of the cable and the surrounding structure of the female portion of the connector. Such a construction reduces fatigue on the material comprising the cable and prolongs maintenance of its structural integrity. The pivoting ball is shown in lateral cross-sectional view in FIG. 6.

The quick-release connector of the present invention is particularly adapted for attaching a tool to a retractable cable that serves to tether the tool or similar equipment to a person or surface. Such a retractor device is disclosed, for example, in U.S. Pat. No. 5,697,572 to the present inventors. The '572 patent discloses a tethering device for securely holding and extendably presenting an article, particularly an article such as scuba diving equipment and the like required for activities

performed in extreme environments. The device includes a durable body-mountable plastic case housing a cord-retracting mechanism. One end of a tethering cord is attached to the cord-retracting mechanism. The other end of the cord extends through a guide hole in the case and has means thereon for attachment to an article such as a quick-release connector in accordance with the present invention. The retractor device is particularly adapted for use as a retractable tether for tools used in extreme environments such as underwater diving equipment.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. There are many applications wherein a tool can be advantageously attached to a retractor device using the quick-release connector of the present invention. Exemplary of such applications are hand tools, Gear (Rescue, Fire, Police, Military, Industrial Safety, Fishing, Hunting, Camping, Space, Survival), Instrumentation, Gauges, Duck Calls, Flashlights, Compasses, Safety Whistles, Knives/Saws, Pliers, Multi-Tools (i.e. Leatherman tools), Scissors/nippers/forceps/hook extractors, Binoculars and Binocular Stabilizers, Keys, Badges, Containers and Boxes, Writing Instruments, Pull Lines (for gear or boats & Personal Water Craft), Insulin pumps, Nets, Boga Grips, Wading Staffs, Fly Boxes, Fly Fishing Tools, Lapel Mics, CB /2-Way Radio/Marine Mics, Cell Phones, Pagers, Palm Pilots / PDA's, FRS Radios, 2-Way Radios, Dog Training Transmitters, GPS units, Remote Controls, Cameras, Photo Light Meters, Bar Code Scanners, Gas Detection, Meters, Instrumentation, Electrical Testers, SCUBA equipment including Gauges, Consoles, Computers, Compasses, Writing slates, Lobster gauges/tools, Abalone Irons, Goodie Bags, Fish Stringers, Spare Air, Octopus, other breathing apparatus, Goggles/Mask, Fire Arms, Mace and pepper spray, Tensioners for: Seat Belts Safety Lines and Fall Protection Lines and Anchor Lines. It is therefore intended to cover in the appended claims all such changes, applications and modifications that are within the scope of this invention.

What we claim is:

1. A quick-release connector comprising a male portion, a female portion and a tether having a free end and a fixed end, said fixed end of said tether provided with a stop, said female portion having a leading end with a circular opening therein, a trailing end and a body portion therebetween, said male portion adapted to be insertable into said trailing end of said female portion, thereafter the male portion lockingly and releasably engaging the female portion, said body portion of said female portion of said connector having a recess therein with a substantially spherical ball rotationally and housed within said recess, said ball being attached to said fixed end of said tether, said free end of said tether said ball including a means for preventing detachment of said stop from said recess of said female portion when a pulling force is applied to said free end of said tether, extending forwardly through said circular opening in said leading end of said female portion.

2. The quick-release connector of claim 1 wherein said free end of said tether is affixed to a retractor device.

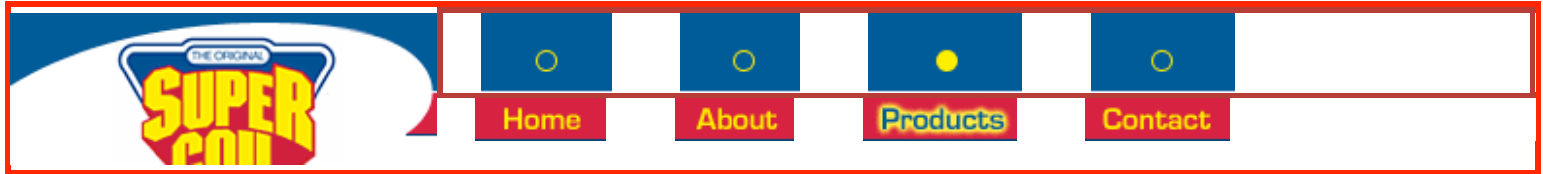
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# **Competitive Products**

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- 4. Cell Phone Security Tether**
- 5. Internal Cell Phone Antenna Booster**
- 6. Fiber Chain Antenna**
- 7. Colorful Cell Phone Strap with Clip**
- 8. Retractable Phone Tether**
- 9. Two-Way Radio/Cell Phone/Pager/Family Radio Security Tether**
- 10. Coil Cell Phone Strap**





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**Notice the Generation 1 on left and Generation 2 on right.**

**The Generation 2 contacts are much more enhanced and provides 1 capabilities.**



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**Buy before we sell out!**

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The **The Cell Phone Signal Antenna Booster** is a passive device design





enhance a cell phone service providers signal. This antenna is **easy to ins** slip it underneath the phone's battery, and enjoy clear, enhanced, static-fr reception. **The Cell Phone Signal Antenna Booster's** revolutionary desig improve cell phone performance by **80% or more**.

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**The Cell Phone Signal Antenna Booster's** simple stick-on attachment turns the cell phones antenna into a high performance antenna that will significantly lower dropped calls, increase call quality and extend reception range.

### Easy Installation

Slips Right Underneath The Phones Battery

### Works on any cell phone

Nokia, Motorola, Ericsson, Samsung, Sprint, Bosch, Philips, Kyocera, Qualcomm, Sony, **or any other wireless phone!**

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### Money Back Guarantee

We are so confident that you'll be satisfied with your Cell Phone Signal Booster purchase, that we are offering a 30-day, money-back guarantee. If you are not completely satisfied with the product, just drop us an e-mail [cellbooster@gmail.com](mailto:cellbooster@gmail.com) explaining why you are unhappy with the product and we will refund your money back!

#### Real Installation Tests



#### Real Customer Testimonials

##### **Nicole W, Orlando FL**

Finally a product that gives me better cell phone service. From moment I installed it I got 3 extra bars of service. This amazing is a **must have** for anyone who owns a call phone!

I am a real person and this is a real testimonial you can [contact me to verify](#)

##### **Greg C, Springfield PA**

I never used to get good service in my bed room so I decided the booster. As soon as I installed it I immediately got 2 more signal than I had before! Thank You

I am a real person and this is a real testimonial you can [contact me to verify](#)



### Installation Instructions

#### **The Booster Works Watch Our Installation!**

See The Service Results & Learn How To Install Your Booster



**Step 1: Check Service**



**Step 2: Open  
& Remove Battery**



**Step 3: Install  
Stick-On Booster**



**Step 4: Booster  
Installation Done**



**Step 5: Close  
& Return Battery**

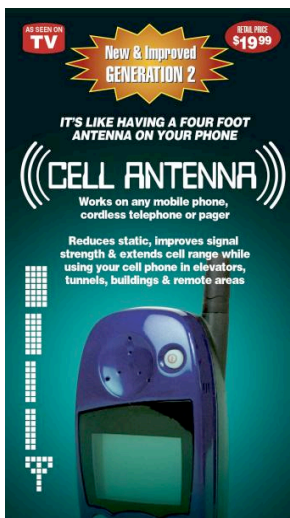


**Step 6: Turn On  
Cell Phone**

**In our install we got 2 bars extra service!**

**The Cell Phone Signal Antenna Booster is redefining how a cell phone works.** The Cell Phone Antenna Booster provides advanced send and receive capabilities, thanks to the superior antenna propagation patterns and the electrical efficiency of its design. **Major carriers and independent test labs** have proven the booster.

- **Reduces dropped calls** by up to 80%
- **Lower bit error rates** providing superior call quality
- **Increases transmission range** by 10% to 100% or more



Retail \$19.95 Each

### **Our Special Online Pricing :**

Package	Quantity	Price	Order Now!
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**NOTE: These are the same boosters sold on other websites for \$19.99 and \$9.99. No difference except our overhead is cheaper which we pass on in our low pricing! We urge you to shop around to find better pricing and service!**

**Order Today December 1, 2005: 20% Off (reflected above)& FREE SHIPPING!**

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**Cell phone antenna booster, Cellular wireless PCS phone signal boosters**

502-99-01-02 MSRP: US \$29.95 **Sale: US \$19.95** Quantity:



**CHECK AVAILABILITY + ADD TO CART**

Cell phone antenna booster, Cellular wireless PCS phone signal boosters for mobile phones - For PCS 1900 Mhz wireless phones only! For remaining cell phones, view our [EXTERNAL ANTENNA BOOSTER](#) to boost reception for your cellphone.

**Antenna booster for cellphones (1900 Mhz PCS phones) is a Long Range PCS Wireless Phone Antenna Booster that is Guaranteed by its manufacturer, "Rangestar" - To boost your 1900Mhz band cellphone signal for better reception in large buildings, tunnels, elevators, and many other places where the signal may get weak causing static, missed calls, dropped calls, etc. on cellphones. More importantly, in addition to boosting your wireless phone reception, this cell-phone antenna booster for cellular phones (1900 Mhz PCS phones) diverts electromagnetic waves away from the head reducing a potential health hazard. Made in the USA.**

Although not scientifically proven as yet, it appears from the user feedback that these cell phone antenna boosters reduce headaches, and other symptoms of exposure to excessive electromagnetic radiation. The revolutionary design of this antenna enhancer diverts electromagnetic waves away from the head and towards the open air for propagation to the nearest cell site. One of the biggest obstructions to a strong signal is our head. Sometimes putting on a longer antenna (such as a 3" rubber duckie) will help by moving the signal away from the head. In independent tests conducted by wireless industry carriers, this PCS antenna booster has proven to redirect more than 60% of the microwave transmission signals, which are normally absorbed by the head, directly to the cell sites. Therefore, this simple clip-on attachment acts as an antenna signal enhancer that turns the PCS phone's built-in antenna into a high performance antenna that will significantly lower dropped calls, provide superior call quality, and extend transmission range.

In addition to the presumed health advantage and the improved reception, this "PCS" cell-phone booster increases battery life as the wireless phone searches less and less often for the available signal. This revolutionary antenna redirects 50% to 80% (depending on handset model) of potentially harmful radio waves away from the user when used with a digital PCS phone operating at 1900 Megahertz. RF signals get lost or absorbed by the head. The PCS antenna redirects the RF signal away from the head and makes the signals available to the cell sites, hence it increases the battery life.

Buy this incredible "PCS" cellphone antenna booster that extends wireless phone reception range and works on Nokia, Motorola, Ericsson, Samsung, Sprint, Ericson, Bosch, Philips, Kyocera, Qualcomm, Sony, or Siemens 1900 Mega Hertz PCS wireless phones or any other wireless phone that operates on 1900Megahertz frequency band and has a sturdy round antenna base for the easy clip-on installation of these stylish and effective cell-phone antenna boosters. The "PCS" cell phone booster purchase includes different sized clip-on attachments to fit most PCS phones with a round antenna base. IT WILL NOT FIT PHONES WITH INTERNAL ANTENNA OR PHONES THAT DON'T HAVE A STUB ON WHICH THIS BOOSTER CAN CLIP-ON TO (for example, the Motorola StarTAC).

Features of "PCS" cell phone signal booster: Eliminate feedback or reduce feedback and improve reception. Wireless booster provides up to 80% fewer dropped calls. Feedback eliminator or feedback reducer and reception improver! Wireless signal booster enables superior call quality. "PCS" cellular phone booster is attributed to 100% or more range increase. The feedback eliminated or feedback reduced and reception is improved. Perhaps, most importantly, this antenna booster diverts electromagnetic waves away from the head (see image) reducing a potential health hazard - Reduces 50% or more signal loss to the head (Redirects 50% or more signal away from your head). Extends battery life - yields up to 40% more talktime. Noticeable Range Increase in Fringe Areas. Lowest Bit Error, For Data Transmission or Video Streaming. Extended battery life yields 40% more talk time. Works World Wide on 1.8 & 1.9 Mhz. CDMA, GSM and TDMA IS136. PCS Antenna Booster fits all major

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PCS phones that have a stubby antenna. Made in USA.

Please note that if your phone also operates on 800 Mhz in some areas, then the improved performance will only occur while the phone is operating in the 1900Mega Hertz band. If your wireless cell phone operates on 800 Megahertz band only or operates on 800 Mega Hertz as well as 1900MHZ, then you must try the dual band tri-mode antenna booster like our "Dashmate Antenna Booster". If your phone operates only on 1900 Mhz, then this PCS antenna booster is for you! Please call the manufacturer of your phone or your phone Carrier if you do not know whether your phone operates on 1900 MHZ or 800 MHZ or both.

This PCS Antenna Booster is redefining how a cellphone works. This is not an exaggeration: The PCS Antenna Booster provides advanced send and receive capabilities, thanks to the superior antenna propagation patterns and the electrical efficiency of its design. Major carriers and independent test labs have proven that compared to conventional antenna boosters, this PCS Antenna Booster: A) Reduces dropped calls by up to 80% due to their ability to handle multipathing. B) Lower bit error rates provide superior call quality. C) Increases and extends transmission range by 100% or more. D) Yields longer battery life resulting in more talktime.

The PCS Antenna Booster is best described in three words: performance, performance, performance. By comparison, no other antenna accessory matches the performance, convenience, and ease of use of this PCS Antenna Booster. Customers ask, "Where can I get an extended range antenna for my phone?" This is not an antenna in itself but it sure does boost reception of your existing antenna. This antenna booster has been recommended by AT&T, Verizon, VoiceStream, Cingular, and Sprint customer service representatives for customers experiencing dropped calls and bad service. Try it and see the difference!

Satisfaction guaranteed by the manufacturer - will replace Antenna Booster within 3 years if not fully satisfied. Please send postage prepaid, together with manufacturers name and the PCS phone model number for your phone, as well as your name and address to: Consumer Relations Dept., Rangestar Int'l., 4030 Moorpark Ave., Suite 220, San Jose, CA 95117. A replacement antenna will be sent to you at no cost. If returning within 15 days, return for a full refund of the cost of the product by following simple return instructions posted under "Returns" at this website.

U.S. Patents: 5,507,012; 5,577,586; 5,666,125. Other U.S. and foreign patents pending.



**CELLPHONE ANTENNA RECEPTION BOOSTING PRODUCTS TO BOOST SIGNAL LIKE HANDSET ADD-ON BOOSTER AND 3 WATT BOOSTERS FOR CELL PHONES - Aftermarket Cell Phone Accessory/ Part (Generic Replacement Cellular Accessories/ Parts for Cellphones)**



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**REPLACEMENT CELLPHONE HANDSET STUBBY, FLASHING, OR RETRACTABLE ANTENNAS FOR CELLPHONES - Aftermarket Cell Phone Accessory/ Part (Generic Replacement Cellular Accessories/ Parts for Mobile Wireless Phones)**



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**Found Lower Price Elsewhere?** Email and/or fax, **LOWEST PRICE GUARANTEE** form if you find wireless accessories for less and await our response during business hours with a new lower price of upto \$10 less on already cheap cell phone accessories. Competing cellular accessory retail or online store must be located in US or Canada. See guarantee form for details.

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### Cell Phone Security Tether

**Stop loosing or breaking your cell phone**



This Safety Tether allows full use of your cell phone while securely attached to your belt, pants or purse, preventing loss and damage. Ideal for Contractors, Industrial workers, very active people or those who spend time around water. The low force tether can easily be detached from the Gear Keeper for extended talk times or when it's not needed.

**RT2-5450 Phone Keeper(TM) Security Tether**  
Belt Mount - \$21.99



Nokia®-Style  
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#### Specifications

- Nylon Coated Stainless Steel Cable
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- 60 lbs. Breaking Strength

#### Mounting System

##### Rotating Belt Clip Mount

Stainless steel belt clip securely attaches to belts (up to 2"), pants or purse.

The Low Force Mini Gear Keeper® is not intended to retract phone, but prevents it from hitting ground, becoming lost or damaged. Works in conjunction with each cell phone's mounting system.

#### Retracting End Type

Quick Connect C/C



- Easily and securely attaches to belt, pants or purse
- Prevents loss or damage from phone being dropped
- Cell phone is easily disconnected from Gear Keeper





### Quick Connect Q/C

- Quickly and easily disconnect phone from Gear Keeper retractor.
- **Included Accessories:**  
Q/C Lanyard with 3/8" Split Ring ACO-0903  
Nokia®-style adapter, Adhesive Pad Attachment
- [See Other Available Accessories](#)



### Phone Attachment Instructions

#### Option 1: Phone with Integrated Lanyard Loop

Attach Split Ring to Lanyard Loop of phone

- Fits most Lanyard Loops
- Needle-nose pliers may be helpful for opening Split Ring



#### Option 2: Phone with Leather Case

##### Leather Cases With Ring

- Attach Split Ring to leather case Ring
- Needle-nose pliers may be helpful for opening Split Ring



##### Leather Cases Without Ring

- The Split Ring can be inserted through the case at a seam (for added strength) by making a small puncture in the case.



**Option 3: Phone with Nokia-style Pivot Ball Mount**

1. Spread slot of Pivot Ball Connector.
2. Slip Pivot Ball Connector over Pivot Ball .
3. Slide firmly into place.
4. Attach Split Ring of lanyard to small hole in Pivot Ball Connector.

- Works with Nokia Pivot Ball Mount and most after-market versions. Still allows use of rotating belt clips. Does not work with Motorola-style Mount.

**Option 4: Phone with no connection point-  
-use Adhesive Pad Eye**

1. Remove backing from one side of Adhesive Patch.
  2. Apply Adhesive Patch to back of Pad Eye. (keep surface of Pad Eye clean and oil-free)
  3. Determine location on back of phone for attaching Pad Eye. Be sure to select an attachment point that does not interfere with its holstering system. (If Pad Eye is too large, it may be cut at one or both indentations with scissors)
  4. For best results, clean area on phone surface with alcohol.
  5. Remove backing and apply Pad Eye to cleaned area and press firmly. (Allow 2 hours for adhesive to cure before using)
  6. Attach Split Ring of lanyard to Pad Eye.
- (Needle-nose pliers may be helpful for opening Split Ring)







Our Guarantee



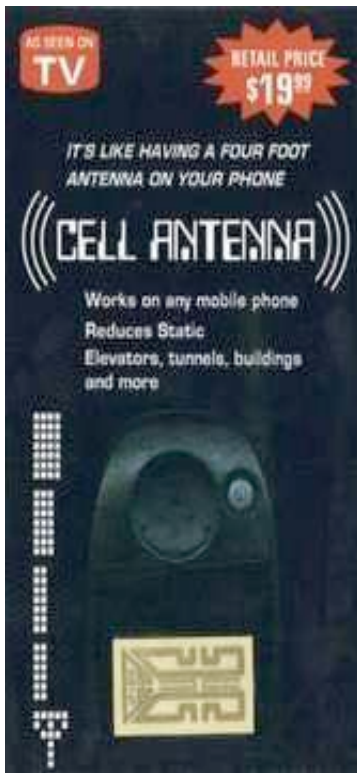
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**The Universal Signal Antenna Booster Chip For All Cell PHONES...  
A Revolution in Cell Phone Reception and Clarity...As Seen On TV.**

# **Internal Cell Phone Antenna Booster**

**"It's like having the power of a 4 foot antenna on your cell phone."**



Works in elevators, cars, boats, mountains, tunnels, buildings...or anywhere your signal may be weak! Installs in a second! Just think no more static or dropped calls! **AS SEEN ON TV!**

**Boost reception on all cell phones with this internal antenna!!**



**Fed-Up With Static and Dropped Calls Interrupting Your Important Conversations?** Finally, there is a low-cost, highly effective solution to the nations' cell phone reception problems. This fantastic product is one of the hottest selling new items on TV. The Internal Antenna Cell Phone Booster, is a new, ultra-thin antenna booster that dramatically reduces static and increases reception by up to 50% on ANY KIND of cell phone, cordless phones, pager or two-way radio. Just put it on and instantly see your phone's signal bars shoot straight up.

**This incredible internal antenna booster works** on any Nokia, Motorola, Ericsson, Audiovox, Samsung, Siemens, Panasonic, LGIC, Nextel, Sprint, Neopoint, Hyundai, or any other brand digital or analog cellphone or PCS wireless phone (As per the manufacturer of this Internal Antenna Booster). Please note that it will not provide signal where there is none. It can only show improvement where there is already a weak signal.

**It's so small, it hides behind your battery...**

**How does it work?** Enhance your cellular phones sending and receiving signal, eliminate static interference and stop dropped calls with the Internal Antenna. Works on analog, digital and tri-band phones. This Internal Antenna booster fits all cell phones, including all Nextel and Startac cell phones with small battery compartments. The Internal Antenna is a passive device designed to capture stray radiation within the phone and re-radiate the signal to improve the phone's performance. This antenna is easy to install. Just slip it underneath the phone's battery, and enjoy clear, enhanced, static-free reception. Works on any cell phone, pager, or two way radio! Boost your digital or analog cellular, PCS, or cordless phone signal as well as your pager or two way radio signal for better reception in large buildings, tunnels, elevators, and many other places where the signal may get weak causing static, missed calls, dropped calls, etc.

## **How To Install This Amazingly Tiny Antenna:**

Instructions are included with the package. Remove the battery from the phone. Clean any fingerprints or dust from the battery compartment. Remove backing from the internal antenna. Place the internal antenna in the battery compartment, towards the side the fixed antenna enters the body of the phone. Replace the battery and your done. Takes less than 1



minute.

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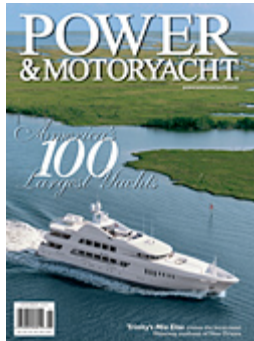
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Can you hear me now?

Dropping your cellphone on land is usually no great shakes, but drop your phone off the side of your boat or into a full baitwell, and it's goodbye Charlie. Just ask my buddy here at PMY, Capt. Patrick Sciacca, who after a weekend of fishing told me, "All I heard was 'plop,' and I knew it was gone."

Now with Gear Keeper's retractable tether, you needn't worry about accidentally deep-sixing your cellphone ever again. This handy gadget clips onto your belt, pants, or pack strap, while the 25-inch Nylon-coated, stainless steel extension cord (with 60 pounds of breaking strength and a nine-ounce retraction force) attaches to your phone. I use mine whenever I'm aboard, whether on an assignment or not.



The retractable cellphone tether has a MSRP of \$21.99. —K.K.

**Hammerhead Industries** Phone: (888) 588-9981. [www.gearkeeper.com](http://www.gearkeeper.com).

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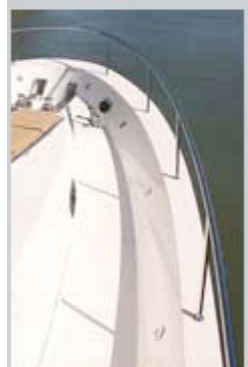
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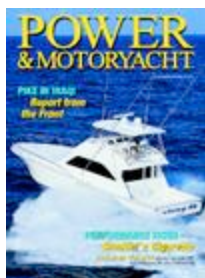



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## Two-Way Radio Security Tether

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Gear Keeper Conveniently Mounts to your Tool Belt next to the Radio. Allows easy use of 2-Way Radio while preventing loss. Side Release System allows Radio to be easily disconnected from Gear Keeper.

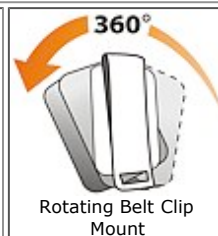


#### Specifications

- Nylon Line w/ Kevlar Core
- Stainless Steel Spring and Hardware
- 32" Extension
- 18 oz. Retraction Force
- 80 lbs. Breaking Strength
- Side Release System with Accessories



Snap Clip Attaches to any D-Ring or Belt Loop.



Kits contain mounting, attaching and quick disconnect hardware as shown.

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Rotating Belt Clip

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Low Force Security Tether is not intended to retract phone, it prevents the phone from being lost or damaged if dropped or knocked off of its mount.

Gear Keeper securely mounts next to phone on belt, pants or purse.







Belt Clip



Velcro Strap

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Low Profile Gear Keeper is unobtrusive.

#### Specifications

- Nylon Coated Stainless Steel Cable
- Stainless Steel Spring and Hardware
- 28" Extension
- 3 oz. Retraction Force
- 60 lbs. Breaking Strength
- 5" Lanyard with Quick Connect System

The belt clip is the most popular and is very secure. Mount the Gear Keeper to your pants or purse next to where you are clipping your phone. (Note: the Cell Phone Security Tether is designed to work in conjunction with the phones current clipping system - it is not intended for hanging the phone).

**Price: \$24.99**

Select Mounting Option

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Snap Clip



Belt Clip

## Family Radio Service Radio Security Tether

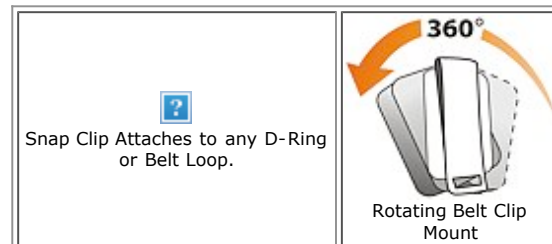
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Radio can be suspended directly from Gear Keeper, Clipped to a Belt next to Gear Keeper, or stored in a pocket while connected to Gear Keeper. Prevents loss or damage to your FRS while doing outdoor or family activities. Quick Connect System allows Radio to be easily disconnected from Gear Keeper.

#### Specifications

- Nylon Coated Stainless Steel Cable
- Stainless Steel Spring and Hardware
- 25" Extension
- 9 oz. Retraction Force
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- 5" Lanyard with Quick Connect System



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# **Important Documents**

## **1. Confidential Disclosure Agreement**



## Confidential Disclosure Agreement

This Agreement is entered into this \_\_\_\_ day of \_\_\_\_\_, 20\_\_ by and between \_\_\_\_\_, with address at \_\_\_\_\_ (hereinafter "**Recipient**") and \_\_\_\_\_, with address at \_\_\_\_\_ (hereinafter "**Discloser**").

WHEREAS **Discloser** possesses certain ideas and information relating to \_\_\_\_\_ that is confidential and proprietary to **Discloser** (hereinafter "Confidential Information"); and

WHEREAS the **Recipient** is willing to receive disclosure of the Confidential Information pursuant to the terms of this Agreement for the purpose of \_\_\_\_\_;

NOW THEREFORE, in consideration for the mutual undertakings of the **Discloser** and the **Recipient** under this Agreement, the parties agree as follows:

1. **Disclosure.** **Discloser** agrees to disclose, and **Receiver** agrees to receive the Confidential Information.
2. **Confidentiality.**
  - 2.1 **No Use.** **Recipient** agrees not to use the Confidential Information in any way, or to manufacture or test any product embodying Confidential Information, except for the purpose set forth above.
  - 2.2 **No Disclosure.** **Recipient** agrees to use its best efforts to prevent and protect the Confidential Information, or any part thereof, from disclosure to any person other than **Recipient's** employees having a need for disclosure in connection with **Recipient's** authorized use of the Confidential Information.
  - 2.3 **Protection of Secrecy.** **Recipient** agrees to take all steps reasonably necessary to protect the secrecy of the Confidential Information, and to prevent the Confidential Information from falling into the public domain or into the possession of unauthorized persons.
3. **Limits on Confidential Information.** Confidential Information shall not be deemed proprietary and the **Recipient** shall have no obligation with respect to such information where the information:
  - (a) was known to **Recipient** prior to receiving any of the Confidential Information from **Discloser**;
  - (b) has become publicly known through no wrongful act of **Recipient**;
  - (c) was received by **Recipient** without breach of this Agreement from a third party without restriction as to the use and disclosure of the information;
  - (d) was independently developed by **Recipient** without use of the Confidential Information; or
  - (e) was ordered to be publicly released by the requirement of a government agency.
4. **Ownership of Confidential Information.** **Recipient** agrees that all Confidential Information shall remain the property of **Discloser**, and that **Discloser** may use such Confidential Information for any purpose without obligation to **Recipient**. Nothing contained herein shall be construed as granting or implying any transfer of rights to **Recipient** in the Confidential Information, or any patents or other intellectual property protecting or relating to the Confidential Information.
5. **Term and Termination.** The obligations of this Agreement shall be continuing until the Confidential Information disclosed to **Recipient** is no longer confidential.
6. **Survival of Rights and Obligations.** This Agreement shall be binding upon, inure to the benefit of, and be enforceable by (a) **Discloser**, its successors, and assigns; and (b) **Recipient**, its successors and assigns.

IN WITNESS WHEREOF, the parties have executed this agreement effective as of the date first written above.

DISCLOSER ( \_\_\_\_\_ )      RECIPIENT ( \_\_\_\_\_ )

Signed: \_\_\_\_\_      Signed: \_\_\_\_\_

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- 4. FTS Announces Plans to Enter the Multi-Billion Dollar Wireless Accessories Market with Formation of New Division**
- 5. Mobile Phone Sales Rose 17 Percent in Q1 2005**
- 6. Cell Phone Sales Set Record**
- 7. Telecommunications: Wireless**
- 8. Nokia, Motorola Gain 2Q Handset Market Share – Gartner**
- 9. Estimating Costs for Direct Response TV Test to Rollout Campaign**
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- 11. The North America Telecommunications Sector – Mergent**
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- 13. Global Forecast Number of Cell Phone Connections, Broken Down by Protocols, for 2003 to 2008**
- 14. Global Wireless Handset Shipments by Volume in Units for 2000 and Forecast from 2001 Through 2005**
- 15. Portable Gadgets Adding a Little Chic to Geek**
- 16. United States Annual Sales of Wireless Telephones, Personal Digital Assistants, and Pagers in Dollars for 1999 to 2004, and Forecast for 2005 to 2008**
- 17. United States Annual Wireless Telephone Market Size by Subscribers, Sales, Prices, and Market Penetration in Units, Dollars, and Percent Change for 2003 to 2004, and Forecast for 2005 to 2010**
- 18. United States Annual Wireless Telephone Service Subscribers by Total and New Subscribers in Units and Percent Change for 2000 to 2004**
- 19. FCC Vote Ends Cell Phone Industry's Adolescence**
- 20. China, United States, Japan, Germany, United Kingdom, Italy, and South Korea Mobile Communications Market by Product/Service Type in Number of Users and Mobile-to-net Ratios for 2004**





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# Cell phone sales keep booming

By [Jo Best](#)

Special to CNET News.com

Published: September 2, 2004, 10:45 AM PDT

**Despite a practically saturated Western European market, cell phone sales are still booming worldwide, driven by longtime owners clamoring to update their phones and new buyers wanting to get on the phone-owning ladder, according to a new report.**

Global mobile sales for the second quarter of this year rose by 35 per cent, compared with the same period last year, research firm Gartner said in its quarterly review of phone sales.

In Europe, the natural replacement cycle for people who got their first phones in 2000 or 2001 means that it's now time for them to switch to [color screen camera phones](#), Gartner said.

Further afield, the nascent market in Latin America is driving sales, with Brazil and Mexico leading the way. Argentina is beginning to see some green shoots of economic recovery, which is favoring some of the mobile players.

[Nokia](#) keeps the slot at the top of the vendor tree, having sold more than 46 million handsets in the second quarter--almost double the amount of its nearest rival. However, its quarter-on-quarter market share has fallen from nearly 36 percent in 2003 to almost 30 percent this year.

[Motorola](#) took the No. 2 slot with a market share of 14.5 percent, and Samsung followed behind with just more than 10 percent.

That leadership board could significantly change before the end of the year. Gartner analyst [Ben Wood](#) said the research firm was expecting Samsung to pose a serious challenge for second place during the rest of 2004.

*Jo Best of [Silicon.com](#) reported from London.*

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Attorney Eric J. Sinrod explains why legal woes are mounting for the record label over its CD fiasco.


Mozilla takes wraps off Firefox 1.5

Open-source browser gets first big makeover since its debut a year ago, promising speedier browsing, swifter updates and better pop-up blocking.

Photos: Bots bring in the Fahrvergnugen

Peek inside Volkswagen's German manufacturing hub, where bots build new VWs and big profits.

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**roundup** The license covering Linux faces revisions, while the Firefox browser gets a makeover.

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### **Pre teen mobile personalisation worth £40m by 2004 in UK**

'Preteen' includes children from the age of 5 to 14. Network operators, handset vendors and content providers have often found it difficult to market directly to this age group for a number of reasons. These include the contentious issue of the ethics of selling mobiles to children; regulatory issues with Government legislation preventing marketing of mobiles to children and finally Health and Safety issues, a highly sensitive area when dealing with a market that includes mobile users aged five.

But as the wireless market is getting increasingly saturated and as the industry evolves, the mobile industry needs to find further lucrative markets and new market segments. The pre teen market has potential for growth for those companies focussing on supplying mobile services to preteens, and has not yet been fully exploited by many of the companies who stand to gain most from it.

One of the key areas for the pre teen mobile market is personalisation. The provision of personalised wireless content to preteens looks extremely promising, theoretically. However there are currently a number of barriers which may stifle the market until 2008 when 3G services begin to enjoy mass uptake.

Many children may rely on older phones that are not capable of receiving rich content. Current content systems are a very one-sided arrangement for both developers and users. Users are charged for multiple set-up fees, including enabling GPRS, enabling MMS (picture messaging), plus download fees. 'Pricing is still a major issue for the pre teen market, with some personalisation packages costing up to €10,' says visiongain analyst Simon Burnett.

Content providers must make key business choices as to where is best to invest. The business winners will rely on the few highly desirable personalisation offerings - the hottest logos, and animations of the most popular children's characters. Without these, content providers will struggle to generate significant revenue.

However, children's fads can be generated unexpectedly, so content providers hoping to target the preteen market would do well to keep abreast of children's media if they want to know what will be the next big thing. visiongain predicts that the preteen personalisation market (including accessories but excluding ringtones) in the UK will be worth £40 million in 2004. As 3G services become available, and more children acquire colour phones, this figure will increase. visiongain anticipate that the figure will more than triple to £125 million by 2009. Western European territories will see similar growth as more children acquire handsets. Chief market drivers will be accessories such as fascias and downloadable wallpaper and screensavers.

The mobile accessories market will continue to grow in South East Asian countries such as the Philippines, Thailand and Indonesia, as more children become mobile phone owners. China will also be a principal market for accessories and downloadable wallpaper. Another favourable factor is the high proportion of young people in China where 25% of the population is aged 14 or under. This represents 300m preteens who will potentially become mobile consumers of the future. visiongain anticipates that the market for preteen mobile personalisation products.

'However, in many Asian markets, copyright and authenticity are less strictly controlled than in the US or Europe meaning that profits may be split between a multitude of market entrants ' says Burnett. International businesses hoping to profit from the South East Asian market should proceed with caution. Local providers will have important market knowledge and be poised to react to market trends and thus



may fare better than new entrants.

visiongain has recently released its report "Targeting the Pre Teen Mobile Market - Analysis and forecasts 2004-2009" - an essential read for those working within the pre-teen wireless arena.

For further information on this report please contact [sara.peerun@visiongain.com](mailto:sara.peerun@visiongain.com)

Note for the editor:

One of the fastest growing and most innovative independent media companies in the world today, visiongain produce a host of business to business newsletters, management reports and industry events within the telecoms, pharmaceuticals, defence and the financial markets respectively.

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Global Mobile Users	<b>1.52 billion</b>
Analogue Users	<b>34m</b>
US Mobile users	<b>140m</b>
Global GSM users	<b>1.25 billion</b>
Global CDMA Users	<b>202m</b>
Global TDMA users	<b>120m</b>
Total European users	342.43
Total African users	<b>53m</b>
Total 3G users	<b>130m</b>
Total South African users	<b>19m</b>
#1 Mobile Country	<b>China (300m)</b>
#1 GSM Country	<b>China (282m)</b>
#1 in Handsets 2Q04	<b>Nokia(35.5%)</b>
#1 Network In Africa	<b>Vodacom(11m)</b>
#1 Network In Asia	<b>Unicom (153m)</b>
#1 Network In Japan	<b>DoCoMo</b>
#1 Network In Europe	<b>T-Mobile (28m)</b>
#1 In Infrastructure	<b>Ericsson</b>
Global monthly SMS	<b>36/user</b>
SMS Sent Global 1Q04	<b>135 billion</b>
SMS sent in UK 3/2004	<b>2.1 billion</b>

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## General Overview

### 2004

CDMA 1xEV-DO deployments grow  
 Russian mobile revenues to exceed USD 9 billion in 2004  
 Bahrain Telecom Registration fees slashed  
 WWIS group proposes 540 Mbps Wideband  
 3G early adopters lack brand loyalty - report  
 i-mode users surge upwards  
 More than 100 Operators Worldwide Ready for EDGE  
 Turk Telecom buys 70,000 card payphones from Siemens  
 Turkcell's Subscriber Base Grows to 20.9 Million in Q2 2004  
 LG set for over 40pc sales surge in Mideast  
 Verizon Wireless 3G Network In Las Vegas  
 iPass Provides Hyatt International Corp  
 109 EDGE networks launched or under construction  
 Turkcell's Subscriber Base Grows to 20.9 Million in Q2 2004  
 China Mobile Posts Gains for 2004  
 Chinese handset exports double  
 Mobile subscriber growth drops in China in 2004  
 LG set for over 40pc sales surge in Mideast  
 Gartner says mobile phone sales overall are up worldwide  
 WAP grows in UK  
 GSM Leads CDMA in Latin America

### :: 1Q 2004 global cellphone market shares

Alcatel Continues to Lead the Mobile Market in North Africa  
 Mobile sales top 40 million handsets in the Middle East and Africa  
 Africa growth accelerating - report  
 Sony Ericsson reports continued growth in shipments, sales and profits  
 LG Mobile Phones Grabs Top Spot in the U.S. CDMA Handset Market in 1Q04  
 Proprietary operating systems dominate mobiles  
 Conquering the Mobile Data Pricing Challenge  
 Mobile content shows revenue promise says Nokia report  
 Symbian to dominate mobile phone OS market  
 Handheld shipments down in first quarter 2004  
 Sprint reaches 100 million MMS sent  
 UK SMS traffic continues to rise  
 NTT DoCoMo secures 3 million 3G users  
 Five million European 3G users by end of 2004, says report  
 Mobile internet usage to surge  
 Hard drives in phones not soon, says IDC  
 Record sign-ups lift China Mobile income  
 Five million European 3G users by end of 2004, says report  
 3 UK 3G Network misses subscriber target by half  
 Payphones suffer from cellphone growth



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Mobile Phone vendors anticipate record year  
 Cellphone ownership rate highest with Americans  
**NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES**  
 Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 Landline Displacement to Increase as More Wireless Subscribers Cut the Cord  
 GSM's social impact - a free report  
 Mobile data revenue to drive European mobile market  
 T-Mobile USA overtakes Nextel customer base  
 Global telecom services spending to surpass \$1 trillion in 2004  
 W-CDMA Global Footprint Grows  
 GSM grows by nearly 200 million in 2003 to 990 million  
 China drives global mobile user increase to 1.354 billion  
 Indian Mobile Operators Flunk Customer Satisfaction Test  
 Two Ringtones Market Reports Contradict Each Other  
 Prepaid cards set to dominate WiFi hotspot market in France  
 Report on Vodafone: Global Cellular Architect or Market Opportunist?  
 Consumers accepting mobile technology - IDC  
 1 billion GSM Users for 2004  
 11.5 mln Europeans aged 55 and over use Internet  
 Cellphones bridge global digital divide - new stats  
 Wireless MAN worth billions  
 Global mobile games market valued at EUR 1.65 bln in 2006  
 470 million mobile phones to be sold in 2003  
 1 mln subscribers for Virgin Mobile USA  
 US Young people prefer mobile phones  
 GSM gaining ground in North America  
 Telenor and NetCom see decline in MMS use

## 2003

:: GSM Tops Americas Growth Charts in 2003  
 :: GSM Data Takes Off  
 :: Wireless e-mail increases productivity  
 :: Mobile gaming grows to EUR 6 billion in 2006  
 :: Web browsers in cellphones lead to higher data usage  
 :: Location services need low cost enablers - report  
 :: CDMA2000 Reaches Over 60 Million Subscribers  
 :: 40 million 3G users by 2005?  
 :: Mobile gaming grows to EUR 6 billion in 2006  
 :: Indian subscriber base continues strong growth  
 :: 3G service market to reach 69 million subscribers by 2007  
 :: GSM Data Takes Off  
 :: WAP makes a comeback  
 :: 3G service market to reach 69 million subscribers by 2007  
 :: WAP makes a comeback  
 :: Sony Ericsson sales growing  
 :: LG snags US third Handset spot  
 :: MmO2 boosts subscribers and ARPU  
 :: Little Demand For Smartphones In US says Jupiter  
 :: email on a phone to drive European data revenues says Analysys  
 :: WAP makes a comeback  
 :: Brazilian Mobile Operators Growth Forecasts  
 :: Symbian issues 2.6 million OS licenses  
 :: European Statistics (Top 10 etc)  
 :: North American Statistics  
 :: African Mobile Statistics  
 :: Asian Mobile Statistics  
 :: Breakdown by cellular standards  
 :: South African Mobile Statistics

## Handsets and components

### 2004

:: [2Q 2004 global cellphone market shares](#)  
 :: [1Q 2004 global cellphone market shares](#)

### 4Q04

Clamshell handsets growing in popularity  
 Japan July Mobile Phone Shipments Up On Month  
 Mobile phone sales to beat fixed lines in 2004 says ITU  
 Japan Mobile phone sales down  
 Nokia in lead in EMEA mobile shipments for 3Q 2004  
 Music enabled handsets 54% of sales by 2009  
 China exported 111m handsets January to October  
 Korea's Mobile Phone Exports Soar In Jan  
 LG Retains Number One Spot For US CDMA Handset Sales  
 Russians Buy More Mobile Phones  
 Korea's Mobile Phone Exports Soar In Jan

### 3Q04

Turk Telecom buys 70,000 card payphones from Siemens  
 Turkcell's Subscriber Base Grows to 20.9 Million in Q2 2004  
 LG set for over 40pc sales surge in Mideast  
 Gartner says mobile phone sales overall are up worldwide  
 1Q2004 Cellphone shipments on the rise - IDC  
 Alcatel Continues to Lead the Mobile Market in North Africa  
 Mobile sales top 40 million handsets in the Middle East and Africa  
 Sony Ericsson reports continued growth in shipments, sales and profits  
 LG Mobile Phones Grabs Top Spot in the U.S. CDMA Handset Market in 1Q04  
 Worldwide Mobile Phone Sales Increased 21% in 2003  
 Smartphone market statistics up 115%  
 Soaring use of MMS as consumers upgrade to camera phones  
 Proprietary operating systems dominate mobiles  
 Symbian to dominate mobile phone OS market  
 Handheld shipments down in first quarter 2004  
 Hard drives in phones not soon, says IDC  
 Payphones suffer from cellphone growth  
 Mobile Phone vendors anticipate record year  
 Cellphone ownership rate highest with Americans



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Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 Iranians Buy over 5million SIMs in 3 weeks  
 Cellphone ownership rate highest with Americans  
 Global mobile handset shipments increase 23.3% to 533.4 for Q4 2003  
 Manufacturers Must Meet Needs of Wireless Handset Segments  
 Nokia loses market share to Korean rivals in India  
 Motorola aims to double Asian mobile phone market share  
 Nokia loses market share to Siemens and Sony Ericsson  
 Nokia loses market share to Korean rivals in India  
 NTT Docomo reports 40 million i-mode customers in Japan  
 Motorola aims to double Asian mobile phone market share  
 LG Electronics captures global CDMA market leadership  
 470 million mobile phones to be sold in 2003  
 Sony Ericsson seeks 7%-10% market share in 2004  
 Cellphones bridge global digital divide - new stats

**2003**

:: Nokia Still Has Number 1 spot in Taiwan Handset Market  
 :: 23% annual increase in mobile handset sales in in Q3 2003  
 :: **4Q 2003 Mobile Sales**  
 :: **3Q 2003 Mobile phone sales steady**  
 :: **2Q Handset Stats 2003**  
 :: **1Q 2003 Phone Sales Figures - IDC**  
 :: Worldwide market sales for mobile phones grows 2Q 2003  
 :: Sony Ericsson Sales Up in 3Q2003  
 :: GSM Tops Americas Growth Charts in 2003  
 :: Sony Ericsson sales growing  
 :: Report on Chinas top 5 handset manufacturers  
 :: China's Handset Boom Tapering Off  
 :: 2003 Is Bumper year for mobile sales - Gartner  
 :: Global phone shipments reach 134 million  
 :: Global Handset Sales Forecasts, 2003-2008  
 :: Cell phone sales rose 6% in 2002  
 :: Symbian handset shipments to reach 100 million  
 :: Symbian issues 2.6 million OS licenses  
 :: Global phone shipments reach 134 million  
 :: Global Handset Sales Forecasts, 2003-2008  
 :: DoCoMo sells over 10 million camera phones in 11 month

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**Europe 2004**

Half UK Mobile Users can access WAP  
 MDA forecasts 30bill text messages for 2004  
 UK Mobile WAP usage up for 2004  
 UK Text Message Volume Up  
 109 EDGE networks launched or under construction  
 WAP grows in UK  
 GSM Leads CDMA in Latin America  
 Vodafone Euro2004 soccer roamers  
 Mobile transactions offer steep growth potential says report  
 Mobile content shows revenue promise says Nokia report  
 Symbian to dominate mobile phone OS market  
 Sprint reaches 100 million MMS sent  
 UK SMS traffic continues to rise  
 T-Mobile Austria increases 3G spectrum ownership  
 Five million European 3G users by end of 2004, says report  
 Mobile internet usage to surge  
 T-Mobile Austria increases 3G spectrum ownership  
 Five million European 3G users by end of 2004, says report  
 French mobile networks hit by increased GSM license charges  
 3 UK 3G Network misses subscriber target by half  
 Payphones suffer from cellphone growth  
 NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES  
 Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 2 million i-mode users outside Japan  
 European mobile operators to cannibalize landline revenues - report  
 Mobile data revenue to drive European mobile market  
 European telecoms market set for 4% growth in 2004  
 Wireless infrastructure spending to jump on the next few years  
 E-Plus has 440,000 i-mode customers  
 PTC Poland has 6.2 million GSM customers  
 Western Europe mobile subscribers reach 332.19 million|  
 Converse Messages Serbia with MMS & WAP platform  
**Malta Mobile & Internet Data for Third Quarter 2003 released**  
 WiFi Tariffs in Europe Report  
 Prepaid cards set to dominate WiFi hotspot market in France  
 Report on Vodafone: Global Cellular Architect or Market Opportunist?  
 Nokia loses market share to Siemens and Sony Ericsson  
 1 billion GSM Users for 2004  
 11.5 mln Europeans aged 55 and over use Internet k  
 4.9 million t-zones users worldwide for Q42003  
 Cellphones bridge global digital divide - new stats  
 111 million SMSs on New Year's Day in UK  
 Telefonica passes 50 million subscriber mark  
 470 million mobile phones to be sold in 2003  
 Telenor and NetCom see decline in MMS use  
 Cellphones bridge global digital divide - new stats

**Europe 2003**

:: O2 Active shows growth of mobile data services  
 :: UK GSM Text Messaging Numbers Boom  
 :: GSM Smartphones damper PDA shipments  
 :: Mobile data to boom in Germany

**Art Theft Investigation Goes Mobile**

Investigators now simply take a picture with a PDA and its built-in camera and within seconds get theft info

**Ericsson/Sharp extend license agreement**

Sharp has selected Ericsson Mobile Platforms to supply GSM/GPRS mobile platforms

**Chinese SMS numbers at record high for 2004**

China's mobile phone users sent 195.89 billion short messages in the first 11 months this year

**Tecore Deploys GSM Network For Somafone Somalia**

TECORE Wireless Systems has deployed a GSM wireless network for Somafone, a new operator in Somalia.

**MuLiMob Formed for Multiple Languages on Phones**

Funded by the EU, MuLiMob's vision and ambition is to use Europe's linguistic and cultural diversity as hallmark to bolster the mobile market

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Entriq Technology Allows SuperSport to Easily Manage, Monetize, Protect and Deliver Sports Content to Mobiles

**UK GPRS And MMS Usage UP Again**

From a total active customer base of over 53 million, GPRS active devices topped 26 million, an increase of 10%

**3G operator 3 UK may sue over rollout targets says report**

Mobile phone service provider 3 UK may take legal action against the British government

**Ericsson signs frame agreement with Polkomtel for GSM**

Ericsson has signed a frame agreement with the Polish operator Polkomtel to supply GSM, EDGE and WCDMA kit

**Linktone penalized by China Mobile for Incorrect billing**

Wireless service provider Linktone Ltd said it has been penalized by China Mobile for billing clients for free services

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 :: Data services in the UK grow 75%  
 :: Business market dominates \$86b European cellular market  
 :: Romanian CDMA network reaches subs landmark  
 :: Hutchison signs up 60,000 3G subs  
 :: Latest Portuguese mobile user stats 2003  
 :: 3G service market to reach 69 million subscribers by 2007  
 :: email on a phone to drive European data revenues - Analysys  
 :: UK SMS Usage Soars  
 :: GSM Now First Choice For Most - EMC  
 :: UK Daily SMS traffic reaches 55 million  
 :: UK/Irish GSM Networks  
 :: Top 10 Networks in Europe  
 :: Networks in UK with over 2million users  
 :: UK use of mobile internet trebles in 12 months  
 :: UK mobile market is competitive  
 :: Mobile penetration at 74.1% in Spain in Q2-2003

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## Asia

### 4Q04

Philippine PLDT's Cellular Subs Exceeds 17M  
 Russians Buy More Mobile Phones  
 Japan Mobile phone sales down  
 Korea's Mobile Phone Exports Soar In Jan  
 MTNL to roll out 4 million GSM lines for Dolphin India  
 Indian Mobile and Telecom user base crosses 80m  
 Xinhua Far East Announces Review on China  
 Philippine PLDT's Cellular Subs Exceeds 17M  
 Korea's Mobile Phone Exports Soar In Jan  
 Japan July Mobile Phone Shipments Up On Month  
 Mobile Banking Takes Off in Korea

### 3Q04

109 EDGE networks launched or under construction  
 Turk Telecom buys 70,000 card payphones from Siemens  
 Turkcell's Subscriber Base Grows to 20.9 Million in Q2 2004  
 MTC Lebanon pioneers high speed networks  
 Wireless Phones shipped to Pakistan  
 China Mobile Posts Gains for 2004  
 Chinese handset exports double  
 Mobile subscriber growth drops in China in 2004

### 2Q2004

i-mode users surge upwards  
 EDGE Around the World -- More than 100 Operators Worldwide Ready for EDGE  
 China Reaches 50 Million PAS Subscribers  
 iPass Marks Wi-Fi Industry Milestone: First Network with Over 10,000 Active Hotspots  
 Analysts said China 3G subscribers to hit 118 million by 2008  
 Cell phone use surges in China as more sign up for mobile service  
 The Russia Mobile Market Boom  
 NTT DoCoMo secures 3 million 3G users  
 China 3G licensing - short term delay or shelved indefinitely?

### 1Q2004

Hutch tops in Indian GSM Network customer satisfaction  
 1.6 mn new Indian mobile subscribers in Feb 2004  
 Payphones suffer from cellphone growth  
 China Mobile FY Net Up 9%; Sees Higher Spending  
 China mobile subscribers outstrip landlines  
 Iranians Buy over 5million SIMs in 3 weeks  
 NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES  
 China Mobile adds 2.48m subscribers  
 China drives global mobile user increase to 1.354 billion  
 100,00 3G users in Australia  
 One million mobile calls tapped in Korea  
 38.2 million mobile subscribers in Russia  
 Indian Mobile Operators Flunk Customer Satisfaction Test  
 VMS Vietnam to spend \$100m on Mobiphone GSM upgrade  
 New Mobile Tariffs For India  
 NTT Docomo reports 40 million i-mode customers in Japan  
 Nokia loses market share to Korean rivals in India  
 Motorola aims to double Asian mobile phone market share  
 370 million GSM users in Asia, or 41% of the global total.  
 Two Indian GSM mobile companies cross 1-million subscriber mark in Delhi  
 Nokia loses market share to Korean rivals in India  
 NTT Docomo reports 40 million i-mode customers in Japan  
 Motorola aims to double Asian mobile phone market share  
 LG Electronics captures global CDMA market leadership  
 1 billion GSM Users for 2004  
 Cellphones bridge global digital divide - new stats  
 Indian Mobile subscribers up 17.5m in 2003  
 Australians Sends Masses of New Years SMSs  
 Sony Ericsson seeks 7%-10% market share in 2004  
 IDEA India sees a surge in pre-paid subscriber base  
 Cellphones bridge global digital divide - new stats

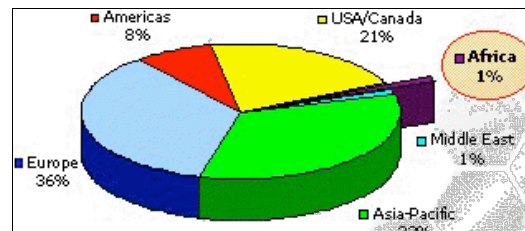
### 2003

:: Chinese GSM and CDMA market to boom  
 :: Report on Chinas top 5 handset manufacturers  
 :: China's Handset Boom Tapering Off  
 :: Indian subscriber base continues strong growth  
 :: DoCoMo sells over 10 million camera ph  
 :: India's mobile industry grows 75% in January **NEW**

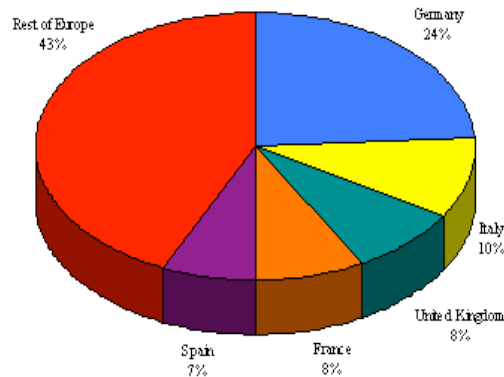


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Projected Distribution of Base Station Deployment, 2005



Source: The Strategic Group, Inc.

See:  
[Cellular Infrastructure Manufacturers to Face Tough Time](#)

## Global Mobile Statistics (12/2003)

- **786** million GSM customers around the world.
- **120** GPRS networks live
- GSM now accounts for **74%** of the world's total cellular market.
- **40%** of GSM users are outside Europe
- **10m** GSM 1900 users In North America (1/03)
- **127m** CDMA users worldwide in 2Q02
- CDMA has bulk share of US Market in 2Q2002
- **China** is the largest GSM country, with **120m** users
- **14m** GSM 900 customers in South Africa (70% PrePaid)
- **551** GSM MoU Association members from **171** countries
- **359** GSM networks on-air in **171** countries
- **61m** TDMA users, 28m in Latin America



[...more on Asian & Australasian Stats](#)

## Americas

### 2004

109 EDGE networks launched or under construction  
 GSM Leads CDMA in Latin America  
 EDGE Around the World -- More than 100 Operators Worldwide Ready for EDGE  
 Majority of New Customers in the Americas Choose GSM  
 CDMA450 proven more popular  
 iPass Marks Wi-Fi Industry Milestone: First Network with Over 10,000 Active Hotspots  
 Sprint reaches 100 million MMS sent  
 Payphones suffer from cellphone growth  
 Cellphone ownership rate highest with Americans  
 NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES  
 Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 T-Mobile USA overtakes Nextel customer base  
 More Americans going completely wireless  
 Over 5 million Brazilians now connect to GSM  
 1 mln subscribers for Virgin Mobile USA  
 1 billion GSM Users for 2004  
 US Young people prefer mobile phones  
 GSM gaining ground in North America  
 Cellphones bridge global digital divide - new stats

### 2003

:: Brazilian Mobile Operators Growth Forecasts  
 :: Latin American GSM subscriber base more than doubles in a year  
 :: GSM Now First Choice For Most - EMC  
 :: 90% gain for GSM in 2002 in Latin America  
 :: Adoption of SMS doubled among college-age users in US  
 :: Half Of US Urbanites Now Have Mobile Phone  
 :: Women Embracing SMS - Study  
 :: Study finds third of US users plan to upgrade  
 :: North American Mobile sales to grow 16% in 2002 **NEW**  
 :: North American Statistics  
 :: Mexico Wireless Phones Outnumber Fixed Lines  
 :: Most in US Have a Mobile Phone  
 :: US Telecom industry grows 9%, study says

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## Middle East/Africa

### 2004

109 EDGE networks launched or under construction  
 Turk Telecom buys 70,000 card payphones from Siemens  
 Turkcell's Subscriber Base Grows to 20.9 Million in Q2 2004  
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 Alcatel Continues to Lead the Mobile Market in North Africa  
 Mobile sales top 40 million handsets in the Middle East and Africa  
 Vodacom South Africa Boosts Profits  
 Vodacom SA reaches 10m users  
 Nigerian Operator Glo Mobile Wins City Peoples' Award  
 Mtel Nigeria slashes international mobile tariffs by 54.5 %  
 Safaricom Kenya GSM coverage improves  
 :: Iranians Buy over 5million SIMs in 3 weeks  
 :: Cell C South Africa signs up 3 million GSM subscribers  
 :: [New IDC report into Israeli mobile market](#)  
 :: South African SMS & Voice Traffic Jumps Over festive Season  
 :: Vodacom South Africa in record December 2003 signups  
 :: Cellphones bridge global digital divide - new stats  
 :: Starcomms Nigeria CDMA Stats

### 2003

:: Benin GSM Network has 41,000 Subscribers  
 :: MTN Nigerian network working to improve service  
 :: New SA Cellphone Tariffs  
 :: GSM coverage in Ghana expands  
 :: GSM Now First Choice For Most - EMC

[.... more on Mobile Stats in the Middle East/Africa](#)

## SMS & MMS

### 2004

Half UK Mobile Users can access WAP  
 MDA forecasts 30bill text messages for 2004  
 UK Mobile WAP usage up for 2004  
 UK Text Message Volume Up  
 Soaring use of MMS as consumers upgrade to camera phones  
 Proprietary operating systems dominate mobiles  
 Mobile transactions offer steep growth potential says report  
 Mobile content shows revenue promise says Nokia report  
 Symbian to dominate mobile phone OS market  
 Sprint reaches 100 million MMS sent  
 UK SMS traffic continues to rise  
 Mobile internet usage to surge  
 NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES  
 Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 3 UK 3G Network misses subscriber target by half  
[Landline Displacement to Increase as More Wireless Subscribers Cut the Cord](#)

- **366 billion 'G-Mail'** (GSM text messages) were over the airwaves by global GSM mobile phone operators during 2002
- **China** has the largest number of GSM users (120 million)
- **Nokia** has the **largest share** of the GSM handset market followed by Motorola, then Ericsson.
- **Ericsson** has the largest share of the infrastructure market followed by Nortel and Nokia.



South African SMS Traffic Jumps Over festive Season  
 Gambling & Adult can generate \$6.5bn by 2006  
 MMS can generate US\$8.3bn by 2004  
 4.9 million t-zones users worldwide for Q42003  
 Cellphones bridge global digital divide - new stats  
 111 million SMSs on New Year's Day in UK  
 Australians Sends Masses of New Years SMSs  
 US Young people prefer mobile phones  
 Telenor and NetCom see decline in MMS use  
 IDEA India sees a surge in pre-paid subscriber base

### 2003

:: UK GSM Text Messaging Numbers Boom  
 :: GSM Smartphones dampen PDA shipments  
 :: Adoption of SMS doubled among college-age users in US  
 :: Women Embracing SMS - Study  
 :: Mobile Youth Spearhead 156% SMS Growth  
 :: China SMS Use Soars  
 :: FixedLine SMS Markets Analysis

[...more on SMS & MMS Stats](#)

### WAP, M-commerce & Mobile Data Stats

Half UK Mobile Users can access WAP  
 MDA forecasts 30bill text messages for 2004  
 UK Mobile WAP usage up for 2004  
 UK Text Message Volume UpMCommerce Market to grow  
 Mobile Banking Takes Off in Korea  
 \$78 Billion in Revenues by 2007 for Mobile Content  
 MCommerce Solutions Stalling Consumer Market in Europe  
 Ringback tones an opportunity for operators  
 Half UK Mobile Users can access WAP  
 UK Mobile WAP usage up for 2004  
 WAP grows in UK  
 Mobile operators can take 50% of voice traffic by 2009 through fixed-mobile substitution  
 i-mode users surge upwards  
 China Reaches 50 Million PAS Subscribers  
 iPass Marks Wi-Fi Industry Milestone: First Network with Over 10,000 Active Hotspots  
 Conquering the Mobile Data Pricing Challenge  
 Proprietary operating systems dominate mobiles  
 Mobile transactions offer steep growth potential says report  
 Mobile content shows revenue promise says Nokia report  
 Symbian to dominate mobile phone OS market  
 Five million European 3G users by end of 2004, says report  
 Mobile internet usage to surge  
 Hard drives in phones not soon, says IDC  
 :: NEW REPORT PREDICTS EXPONENTIAL GROWTH IN GSM MOBILE MULTIMEDIA SERVICES  
 :: Deloitte Research's Mobile and Wireless Predictions 2004 Report  
 :: Global telecom services spending to surpass \$1 trillion in 2004  
 :: Wireless infrastructure spending to increase to US\$763m by 2008  
 :: Global WLAN hardware revenue increases 56% to EUR 2 billion  
 :: O2 Active shows growth of mobile data services  
 :: Mobile data to boom in Germany  
 :: MmO2 boosts subscribers and ARPU  
 :: Data services in the UK grow 75%  
 :: Business market dominates \$86b European cellular market  
 :: UK use of mobile internet trebles in 12 months  
 :: email on a phone to drive European data revenues says Analysys  
 :: 400 million WAP browser sales says Openwave  
 :: WAP makes a comeback  
 :: GSM Data Takes Off  
 :: 170 Million Prepaid Customers Crucial to Success of Mobile Data  
 :: Little Demand For Smartphones In US says Jupiter  
 :: MmO2 boosts subscribers and ARPU  
 :: Symbian issues 2.6 million OS licenses  
 :: UK SMS Usage Sours

[.... more on WAP & Mobile Data Stats](#)

### Ringtones, Games Stats

#### 2004

MCommerce Market to grow  
 Porkers spend the most on mobile ringtones  
 Two new Ringtones Market Reports Contradict Each Other - See both  
 - See the Juniper Report [HERE](#)  
 - See the ARC Report [HERE](#)  
[Global mobile games market valued at EUR 1.65 bln in 2006](#)  
 NTT Docomo reports 40 million i-mode customers in Japan  
 11.5 mln Europeans aged 55 and over use Internet k  
 4.9 million t-zones users worldwide for Q42003  
 Cellphones bridge global digital divide - new stats  
 111 million SMSs on New Year's Day in UK  
 US Young people prefer mobile phones  
 Cellphones bridge global digital divide - new stats



### 2003

:: Mobile Music Downloads Might Be Flat  
 Consolidation in the mobile games market  
 US Mobile Game revenues surge  
 Mobile Java Game revenues surging ahead  
 3D mobile java gaming standards ratified  
 Wireless Gambling & Adult Content to Generate \$6.5bn  
 Youth to drive mobile messaging  
 Mobile gaming grows to EUR 6 billion in 2006



....[more on Ringtones, Games Stats](#)

## WiFi,WLAN,MAN, UWB, Zigbee

Sagem to deliver SG321i for iMode

WAP grows in UK

Ultra Wideband spec proposed

- :: iPass Marks Wi-Fi Industry Milestone: First Network with Over 10,000 Active Hotspots
- :: Is Surveillance a WiMAX Killer App?
- :: Unstrung Insider Analyzes the WiMax Equipment Market
- :: WiMAX poised to dominate broadband wireless access
- :: More members for camera phone printing group
- :: Wireless infrastructure spending to increase to US\$763m by 2008
- :: Global WLAN hardware revenue increases 56% to EUR 2 billion
- :: Prepaid cards set to dominate WiFi hotspot market in France
- :: WiFi Wireless hardware market achieving staggering growth
- :: iPass and Swisscom Eurospot sign Wi-Fi roaming deal
- :: WiFi service providers must find more revenue-streams - Jupiter
- :: AREScom and Boingo Ink WiFi Network Roaming Agreement
- :: 4.9 million t-zones users worldwide for Q42003
- :: Cellphones bridge global digital divide - new stats
- :: Wireless MAN worth billions
- :: Wireless LAN Market to Grow at a Compound Rate of 30% Annually
- :: iPass Passes 1000 Hotspots

....[more Wifi, MAN, Zigbee, UWB Stats](#)

## Technologies

[See Comparative Stats on various technologies 1992-1999](#)

### PAS:

China Reaches 50 Million PAS Subscribers

### TDMA

:: TDMA Subscribers Reach 82 Million Worldwide

### CDMA

- :: CDMA 1xEV-DO deployments grow
- :: Mobile operators can take 50% of voice traffic by 2009 through fixed-mobile substitution
- :: CDMA450 proven more popular
- :: Global telecom services spending to surpass \$1 trillion in 2004
- :: W-CDMA Global Footprint Grows
- :: LG Electronics captures global CDMA market leadership
- :: Starcomms Nigeria CDMA Stats
- :: 3G service market to reach 69 million subscribers by 2007
- :: Romanian CDMA network reaches subs landmark
- :: CDMA2000 Reaches Over 60 Million Subscribers
- :: CDMA2000 Reaches 30 Million Subscriber Mark
- :: Global CDMA Statistics

### GSM

- :: 109 EDGE networks launched or under construction
- :: GSM Leads CDMA in Latin America
- :: GSM grows by nearly 200 million in 2003 to 990 million
- :: 1 billion GSM Users for 2004
- :: 4.9 million t-zones users worldwide for Q42003
- :: Cellphones bridge global digital divide - new stats
- :: GSM to pass one billion mark within the year
- :: GSM shows impressive growth in the Americas
- :: 90% gain for GSM in 2002 in Latin America
- :: 95% of countries use GSM
- :: 2.5G Still a Wildcard for Brazilian Mobile Operators
- :: Sprint reaches 100 million MMS sent

### WAP

- :: Half UK Mobile Users can access WAP
- :: [MDA forecasts 30bill text messages for 2004](#)
- :: UK Mobile WAP usage up for 2004
- :: UK Text Message Volume Up
- :: WAP grows in UK
- :: WAP makes a comeback
- :: Symbian issues 2.6 million OS licenses
- :: 400 million WAP browser sales says Openwave

### 3G/UMTS

- 3G early adoptors lack brand loyalty - report
- T-Mobile Austria increases 3G spectrum ownership
- NTT DoCoMo secures 3 million 3G users
- Five million European 3G users by end of 2004, says report
- Mobile internet usage to surge
- Five million European 3G users by end of 2004, says report
- :: 3 UK 3G Network misses subscriber target by half
- :: Hutchison 3G Builds 5000 masts
- :: LG Electronics captures global CDMA market leadership
- :: 1 billion GSM Users for 2004
- :: Cellphones bridge global digital divide - new stats
- :: Japanese 3G subscribers top four million says KKDI
- :: 40 million 3G users by 2005?
- :: GSM Tops Americas Growth Charts in 2003
- :: CDMA2000 Reaches Over 60 Million Subscribers

### GPRS/EDGE



109 EDGE networks launched or under construction

:: EDGE Around the World -- More than 100 Operators Worldwide Ready for EDGE

:: 4.9 million t-zones users worldwide for Q42003

:: Data services in the UK grow 75%

:: UK use of mobile internet trebles in 12 months

:: Wireless revenues to overtake land lines in Europe - report

:: GSM Data Takes Off

:: WAP makes a comeback

#### Bluetooth

:: Bluetooth shipment units 3m a week

#### iMode

:: i-mode users surge upwards

:: NTT Docomo reports 40 million i-mode customers in Japan

:: J-PHONE Movie Sha-mail Users Top 1 Million

#### Symbian OS

:: Proprietary operating systems dominate mobiles

:: Symbian to dominate mobile phone OS market

:: Handheld shipments down in first quarter 2004

:: Symbian handset shipments to reach 100 million

:: 20% of Mobile Data Users Worldwide will use MMS by 2007

:: Symbian issues 2.6 million OS licenses

:: 400 million WAP browser sales says Openwave

#### Prepaid/Postpaid

:: IDEA India sees a surge in pre-paid subscriber base

:: Canadian Prepaid Wireless Penetration To Grow to 33% by 2006

:: 170 Million Prepaid Customers Crucial to Success of Mobile Data

:: Global Mobile Forecasts to 2010

:: Germany and UK are top Euro markets for MVNOs - report

#### WiFi

iPass Marks Wi-Fi Industry Milestone: First Network with Over 10,000 Active Hotspots

Is Surveillance a WiMAX Killer App?

Unstrung Insider Analyzes the WiMax Equipment Market

#### Fixed-Line SMS

:: FixedLine SMS Markets Analysis

#### Camera Phones

More members for camera phone printing group

:: Camera Phone Sales To Double In 2003

#### [Comparative Stats on various technologies 1992-1999](#)

....[more Technology Stats](#)

:: [Go To our Main Mobile Stats Page](#)

:: [Go To Analysts Reports](#)

#### [Stats Archive - 1992-2002](#)

Number of CDMA Subscribers (3/2004)

	Asian-Pacific	North America	Caribbean & Latin America	Europe, Middle East & Africa	Total
<a href="#">Mar-01</a>	39,617,000	33,843,000	15,900,000	1,043,000	90,403,000
<a href="#">Jun-01</a>	39,906,000	37,952,000	17,230,000	1,225,000	96,313,000
<a href="#">Sep-01</a>	40,200,000	43,404,000	18,205,000	1,375,000	103,184,000
<a href="#">Dec-01</a>	41,380,000	48,421,000	19,900,000	1,650,000	111,351,000
<a href="#">Mar-02</a>	43,480,000	52,890,000	22,023,000	1,825,000	120,218,000
<a href="#">Jun-02</a>	45,250,000	55,600,000	24,100,000	2,200,000	127,150,000
<a href="#">Sep-02</a>	48,700,000	58,400,000	25,500,000	2,300,000	134,900,000
<a href="#">Dec-02</a>	54,600,000	62,500,000	27,200,000	2,400,000	146,700,000
<a href="#">Mar-03</a>	58,701,000	64,450,000	28,620,000	2,450,000	154,221,000
<a href="#">Jun-03</a>	63,090,000	68,875,000	29,550,000	2,580,000	164,095,000
<a href="#">Sep-03</a>	69,300,000	71,400,000	30,400,000	2,950,000	174,050,000
<a href="#">Dec-03</a>	78,300,000	75,200,000	32,000,000	3,100,000	188,600,000
<a href="#">Mar-04</a>	84,400,000	81,400,000	33,000,000	3,250,000	202,050,000

#### GSM Growth 1992 to 8/2002

	Members	Countries & Areas	Networks on Air	Countries & Areas on Air	Customers
<b>92</b>	54	31	13	7	0.25m
<b>93</b>	78	48	34	19	1.4m
<b>94</b>	102	60	65	41	4.5m
<b>95</b>	156	86	113	67	12.5m
<b>96</b>	208	105	189	97	30m
<b>97</b>	256	110	233	105	70.3m
<b>98</b>	328	122	296	119	120m
<b>99</b>	347	129	339	133	200m
<b>00</b>	360	130	421	135	250m



<b>01</b>	<b>514</b>	<b>171</b>	<b>500</b>	<b>171</b>	<b>553m</b>
<b>02</b>	<b>560</b>	<b>172</b>	<b>520</b>	<b>172</b>	<b>666m</b>

\* See also [History of GSM](#)

#### Biggest GSM Markets in Europe (5/2004)

1. TIM (Italy)
2. Mannesmann Mobilfunk (Germany)
3. Omnitel (Italy)
4. France Telecom Itineris (France)
5. DeTeMobil D1 (Germany)
6. Telefónica Movistar (Spain)
7. Cegetel SFR (France)
8. Orange (UK)
9. Vodafone (UK)
10. Airtel (Spain)

**See more details of European Networks**

#### Biggest GSM Markets in Asia

ASIA - Countries with 4 million+ subs (2/ 2002)

**China 64,000,000**

**Taiwan 20,000,000**

**Australia 9,870,000**

**India 5,725,000**

**Philippines 5,100,000**

**Malaysia 4,500,000**

#### [More Info on Asian GSM Statistics](#)

#### Biggest GSM Markets in Africa

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COUNTRY	Dec-98	Mar-99	Jun-99	Jun-00	Sep-00	Mar-01	Aug-01	Jun02	%
<b>Other</b>	612,250	722,510	916,430	1,900,000					14.2
Ghana		22240	26694	110,900	132,000				1.5
Botswana			15,000	98,000	140,000				1.5
Reunion			75,000	180,000	197,000				1.8
Zimbabwe			63,494	248,485	256,000				2
Côted'Ivoire	91,210	134,560	163,310	240,649	342,000				3
Egypt	197,000	326,000	444,000	940,000	1,401,000				14
Morocco	116,080	121,500	150,000	884,000	1,530,000	2,1m	2,5m	<b>5m</b>	16
SouthAfrica	2,55m	3,21m	3,8m	6,1m	6,7m	8,3m	9,6m	<b>13m</b>	46

#### [More Info on African Mobile Statistics](#)





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Ireland calls £1/min Australia calls A\$3.85/min ; UK calls £1.50/min.  
Consult Bill Payer. Calls from payphones/mobile might be higher.*



## News Releases

### **FTS Announces Plans to Enter the Multi-Billion Dollar Wireless Accessories Market with Formation of New Division**

TAMPA, Mar 9, 2005 (PRIMEZONE via COMTEX) -- FTS Wireless, Inc., a subsidiary of FTS Group, Inc. ([FLIP](#)) , an operator of retail wireless locations that market and sell next-generation wireless products and services, today announced plans to form a new wireless accessories division. The new division plans to leverage the FTS call center and new wireless portal [www.CellChannel.com](#) to build a national distribution network. FTS CEO Scott Gallagher commented, "FTS has been planning to enter the accessory side of the business in a big way for over a year now. We've developed a very unique distribution model for wireless accessories, prepaid phones, wireless content and more utilizing our call center and new wireless portal [www.CellChannel.com](#)." Gallagher went on to say, "The new division should help enhance our revenue and earnings base while generating significant cross-selling opportunities, allowing FTS to continue to drive revenue growth into 2005." About FTS Wireless, Inc. FTS Wireless Inc., a wholly owned subsidiary of FTS Group, Inc. ([FLIP](#)) , is an emerging regional operator of retail wireless locations that market and sell next-generation wireless products and services and operates Wi-Fi HotSpots. FTS Wireless currently operates a chain of retail wireless locations in the Florida Gulf Coast region and the Philadelphia suburban market. The company markets and sells products worldwide through its e-commerce sites [http://www.CellularDeals.com](#) and [www.CellChannel.com](#). For additional information about FTS Group, Inc. or its subsidiary, please visit our web site at [http://www.FTSWireless.com](#) or review our periodic filings with the Securities and Exchange Commission at [http://www.sec.gov](#). Forward-Looking Statements Included in this release are certain "forward-looking" statements, involving risks and uncertainties, which are covered by the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including statements regarding the Company's financial performance. Such statements are based on management's current expectations and are subject to certain factors, risks and uncertainties that may cause actual results, events and performance to differ materially from those referred to or implied by such statements. In addition, actual future results may differ materially from those anticipated, depending on a variety of factors, sales and earnings growth, ability to attract and retain key personnel, and general economic conditions affecting consumer spending, including uncertainties relating to global political conditions, such as terrorism. Information with respect to important factors that should be considered is contained in the Company's Annual Report on Form 10-K as filed with the Securities and Exchange Commission. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof. The Company does not intend to update any of the forward-looking statements after the date of this release to conform these statements to actual results or to changes in its expectations, except as may be required by law. SOURCE: FTS Wireless, Inc.

FTS Wireless, Inc.  
Scott Gallagher, CEO  
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<http://www.ftswireless.com/030905.htm>



# Mobile Phone Sales Rose 17 Percent in Q1 2005

Gartner raises forecast for 2005 Worldwide Sales as Q1 results set record

Softpedia 25may2005

The mobile phone industry had a record first quarter with worldwide sales totaling 180.6 million units, a 17 percent increase from the first quarter of 2004, according to Gartner, Inc. The previous high for mobile phone sales was 153.7 million units in the first quarter of 2004. Gartner analysts said mobile phone sales grew in all regions.

“In the mature markets of Western Europe and North America replacement sales ensured a buoyant performance,” said Ben Wood, research vice president for mobile terminals research at Gartner.

“The Asia/Pacific region reflected seasonal trends by virtue of strong sales associated with Chinese New Year and other festivals.” In addition, rapid growth in emerging markets, notably Eastern Europe, Middle East and Africa and Latin America, further bolstered global sales, he said.

Nokia’s market share grew (see Table) despite poor performance in North America. “The company did particularly well in Asia/Pacific, especially in mainland China where aggressive pricing, significant investments in marketing and its distribution network delivered sales of more than 5.6 million units,” said Ann Liang, principal analyst for mobile terminals in Asia Pacific at Gartner.

Motorola continued its strong performance with global mobile phone sales of 30.3 million units. Gartner analysts said the company’s success was based on a strengthening brand (built largely on the success of its RAZR V3 phone) and improved relationships with network operators.

“Motorola must now work hard in 2005 to grow its market share further without sacrificing margins too dramatically, particularly given its commitment to supply ultra low-tier products,” Mr. Wood said.

Samsung increased its sales, doing especially well in Western Europe. Samsung also recorded strong sales in Russia, while price reductions helped it elsewhere in the region. Rival LG did well in North America thanks to sales of its code division multiple access (CDMA) phones.

**Table 1**

**Worldwide Mobile Terminal Sales to End-Users in 1Q05 (thousands of units)**

Company	1Q05 Sales	1Q05 Market Share (%)	1Q04 Sales	1Q04 Market Share (%)
Nokia	54.943.1	30.4	44,259.1	28.8



Motorola	30,293.6	16.8	25,111.0	16.3
Samsung	24,099.0	13.3	19,362.5	12.6
LG	11,138.6	6.2	8,210.0	5.3
Siemens	9,942.7	5.5	12,285.8	8.0
Sony Ericsson	9,900.0	5.5	8,638.6	5.6
Others	40,293.0	22.3	35,879.9	23.4
Total	180,610.0	100.0	153,746.9	100.0

**Note\*** This table excludes ODM to OEM shipments.

source: Gartner Dataset (May 2005)

Siemens had a difficult quarter, as its market share slipped to its lowest level since 1999. “The uncertainty about the future of Siemens’ business has hurt it as network operators and key channels lose confidence in the company and its products,” Mr. Wood said.

Based on the first quarter results, Gartner has increased its estimates for worldwide sales. Gartner now projects worldwide mobile phone sales in 2005 will approach 750 million units, a 13 percent increase from 2004. Gartner had previously forecast sales of 720 million units.

“More phones are being sold, but profit margins are shrinking,” Mr. Wood said. “This is because consumers in emerging markets want cheap handsets, and competition in more-developed markets keeps prices low. Smaller manufacturers will feel the pressure, and many of them are already struggling to stay profitable. We expect some of them to be bought out, and a few will choose to leave the mobile phone market completely.”

source: <http://news.softpedia.com/news/Gartner-Says-Mobile-Phone-Sales-Rose-17-Percent-in-Q1-2005-2276.shtml> 5jun2005

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## Mobile Phone Sales on a Roll?

SEAN MICHAEL KERNER / Internet.com 25may2005

Sales of mobile phones broke records in the first quarter of 2005, with the likes of Motorola and Nokia enjoying the ride. But the period also put a strain on some of the smaller manufacturers.

According to the latest statistics from Gartner, sales grew by 17 percent to a record total of 180.6 million units on a year-over-year basis. The previous high came during the first quarter of 2004 when sales hit 153.7 million units.

As a result of the 2005 first-quarter total, Gartner has upped its forecast estimates for total 2005 sales from 720 million to 750 million units. The revised total represents a 13 percent increase over the 2004 total.

The big winners are Nokia, Motorola, Samsung and LG, all of which grew their respective shares



of the market.

Nokia remains the global leader, with 30.4 percent market share in the first quarter this year, up from 28.8 percent the year before. Gartner noted that Nokia's share grew despite its poor performance in North America.

"More phones are being sold, but profit margins are shrinking," Ben Wood, research vice president for mobile terminals research at Gartner, said in a statement. "This is because consumers in emerging markets want cheap handsets, and competition in more developed markets keeps prices low.

Motorola increased its share from 16.3 percent a year ago to 16.8 percent; Samsung grew to 13.3 percent from 12.6 percent; and LG hit 6.2 percent up from 5.3 percent a year ago.

The picture wasn't rosy for everyone, though, with Siemens and Sony Ericsson losing market share. According to Gartner, Siemens' first-quarter 2005 result of 5.5 percent market share, down from 8 percent, was the lowest level reported for Siemens since 1999.

"Smaller manufacturers will feel the pressure, and many of them are already struggling to stay profitable," said Wood. "We expect some of them to be bought out, and a few will choose to leave the mobile phone market completely."

source: <http://www.internetnews.com/stats/article.php/3507711> 5jun2005

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## **Sales of Cell Phones Totally Off The Hook**

**180.6 million units sold worldwide during first quarter**

**RYAN KIM / San Francisco Chronicle 28may2005**

Mobile-phone sales continued at a torrid pace in the first quarter as consumers worldwide latched on to camera phones and cheap deals, according to a new report.

The industry reported that 180.6 million units were sold in the first quarter of this year, a 17 percent increase from the same period a year ago. That continued a buying boom that began two years ago and really took hold last year, according to market research firm Gartner Inc. The new figures prompted Gartner to revise its mobile-phone sales estimates up to 750 million units from 720 million for 2005.

Still, industry analysts predict a cooling-off trend as some of the emerging markets in China and elsewhere stabilize while existing mature markets in North America and Europe slow down after a recent frenzy in phone replacement sales.



"We saw a big upgrade cycle in 2004 and now a lot of people have the latest and greatest phone, so it will take some real new features to stimulate demand again," said Chris Sessing, an analyst with Crowell, Weedon & Co. "It's not going to happen over night, but we really will have slower growth by the end of this year."

As the pace of growth slows, profit margins are also shrinking, said Ben Wood, Gartner's vice president for mobile gear, in a statement. He said emerging markets are demanding cheaper phones while competition in existing markets are keeping prices low.

The lower profit margins will affect smaller players the most and have little impact on large cell phone manufacturers.

Finland's Nokia remains the world's largest manufacturer with an estimated 30.4 percent of the market in the first quarter. Motorola was second with 16.8 percent, Samsung third at 13.3 percent and LG fourth at 6.2 percent. Fifth-place Siemens, which has been losing market share, captured just 5.5 percent of the market.

Most companies enjoyed a banner year in 2004, in which 674 million units were sold, a surge of 30 percent over the previous year. Industry watchers attributed the spike to a host of factors.

Analysts said phone operators were eager to cut deals to get customers on to their newly expanded networks. Additional phone features like cameras and color screens became must-haves for users, prompting many to upgrade their aging phones. And increased demand in emerging markets from Russia, Latin America and Asia helped spur on an unprecedented period of growth.

"Last year was just remarkable," said John Jackson, an analyst with the Yankee Group. "Virtually every industry watcher had their expectations and the market proved us conservative."

Jackson agrees the industry will not be able to keep up the pace it set recently. Cell phone companies will be looking to increase profitability and perhaps roll back phone subsidies after years of practically giving away phones to establish market share. And some markets like the large cities in China are nearly saturated and are quickly becoming markets for replacement phones.

"We expect this to continue to slow down through the end of 2005," said Sessing. "You will still have emerging markets growing rapidly, but it's still relatively small numbers compared to the larger markets."

#### Cell phone sales

Year	2001	2002	2003	2004	2005
Units sold in millions	400	423	520	674	750*
% change from previous year	-3.2	6	20.5	30	13*.
*estimated					

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March 10, 2004 (12:32 PM EST)

## Cellphone Sales Set Record

### Cellphone Sales Set Record

By [Antone Gonsalves](#), TechWeb.com

A record number of cellular phones were sold last year by manufacturers, primarily due to people replacing their handsets with newer models and increased sales in emerging markets, a market research firm said.

Worldwide shipments totaled 520 million units in 2003, a 20.5 percent increase over 2002 sales, Gartner Inc. said. Sales were so good, manufacturers struggled to meet demand.

Within mature markets, such as North America and Europe, consumers tossed their older phones for new ones with digital cameras and color screens, Gartner analyst Carolina Milanesi said. In the U.S., many consumers looking for better rates bought phones when switching carriers under new federal regulations that required service providers to let people keep their numbers.

Sales increases in emerging markets, such as Nigeria, Russia, India, Brazil and China, were due, in part, to cellular phone prices dropping to as low as \$40, making them affordable to people in low-wage countries, Milanesi said. Increased competition among carriers in these markets has helped drive down prices.

"Operators realize there are only so many phones that they can sell in mature markets, so they have been focusing on opening new markets," said Milanesi, who estimates that developing countries could potentially add a billion new subscribers.

Also, consumers in emerging markets find it's easier and cheaper to get a cellular phone than a landline phone, which is often supplied by a government-sanctioned monopoly, the analyst said.

Nokia continued to hold the lead in shipments worldwide, and took the No. 1 spot from Motorola in North America, the research firm said. Nevertheless, Nokia's global market share dropped to 34.7 percent in 2003 from 35.1 percent the prior year.

"Sustained competition and aggressive pricing from existing players, loss of share in Western Europe and an increasing number of small players, particularly in Asia/Pacific, presented challenges to Nokia," Wood said.

No. 2 Motorola also lost market share worldwide, declining to 14.5 percent from 16.9 percent. The company paid a heavy price for failing to deliver some products on time throughout 2003, giving up market share to Nokia

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and LG Electronics, Gartner said.

"(However,) Motorola has started off this year well, and its outlook for 2004 is increasingly positive," Wood said.

Samsung held on to the No. 3 spot in unit shipments by focusing on higher-tier products, rather than selling lower-tier, low-margin handsets that were in a more intensely competitive market. As a result, Samsung had high average selling prices and double-digit margins.

No. 4 Siemens, on the other hand, recorded very strong growth in the second half of 2003 with low-cost, low-margin products that were ideally suited for emerging Eastern European markets, especially Russia, Gartner analyst Carolina Milanesi said. In addition, Siemens was able to pick up the slack when competitors were unable to meet market demand.

Sony-Ericsson was fifth in market share with 5.1 percent, followed by LG Electronics. The latter's strength in the Indian market contributed to it increasing market share to 5 percent from 3.2 percent in 2002.

In general, the Asia-Pacific market remained strong in the fourth quarter, reflecting a full recovery from the impact of the SARS epidemic earlier in the year, Gartner analyst Ann Liang said. Vendor competition remained fierce in China throughout the year, as local vendors fought for market share.

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# Telecommunications: Wireless

May 26, 2005

Kenneth Leon, CFA, *Wireless Telecommunications Analyst*  
Nelson Wang, *Financial Writer*

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## CURRENT ENVIRONMENT

### *Mergers and acquisitions continue apace*

The US wireless industry has undergone considerable consolidation since the beginning of 2004, with the number of national carriers likely shrinking from six to four, and with deals being made for regional carriers as well. Following Sprint Corp.'s proposed merger with Nextel Communications Inc., there will be no remaining national pure-play wireless companies left in the United States – all of them will be affiliated with a wireline carrier in the United States or abroad.

Once these deals are completed, the top four national carriers will represent close to 85% of the US industry's total subscribers. Assuming Sprint's merger with Nextel is approved, the four nationwide carriers will be Sprint Nextel; Cingular Wireless LLC (a joint venture between SBC Communications Inc. and BellSouth Corp.), which acquired AT&T Wireless Services Inc. in October 2004; Verizon Wireless (a joint venture between Verizon Communications Inc., which owns 55%, and Vodafone Group, which owns 45%); and T-Mobile USA Inc. (a subsidiary of Deutsche Telecom's T-Mobile International).

As of mid-2005, Standard & Poor's sees growing competition as the remaining national carriers fight for market share. Increased competition is evident from wireless carriers' service increases – higher handset subsidies and more minutes of use on monthly plans – to renew existing customers or acquire new subscribers. Another key indicator of the industry's outlook is evidence of aggressive pricing related to increased minutes of use or monthly charges.

Wireless companies aspire to offer strong national brands and a broad footprint for service coverage; economies of scale allow them to aggressively bundle more monthly voice minutes of use and enhanced data services. Their services help business customers improve productivity and allow individual consumers to communicate and enjoy various entertainment features. Better service quality and greater affordability have boosted the market penetration of wireless service, with more than 60% of the US population now subscribing.



However, greater penetration means that it's harder to find new customers. Subscriber growth rates have slowed in the last few years, compared with the 1990s. According to data from the Cellular Telecommunications & Internet Association (CTIA), a trade group, the number of wireless subscribers in the United States more than tripled between 1995 and 2000, but rose only 9.7% in 2002 and 12.8% in 2003. In 2004, however, subscriber growth increased to 13.7%, which Standard & Poor's attributes to a stronger US economy, new handsets with advanced features (such as cameras), and other enhanced services available to wireless subscribers.

With wireless penetration of the US market above 60%, wireless carriers are strengthening their customer retention strategies. They are also shifting their attention to untapped market segments, such as prepaid services and the youth market, and to wholesale customers, including resellers such as Qwest Communications International Inc., Virgin Mobile Telecoms Ltd., and a growing number of other companies. In the quarter ended December 2004, Sprint posted 1.58 million net subscriber additions, of which 923,000 were from the company's wholesale partners, such as Virgin Mobile.

There is still plenty of opportunity for growth in wireless usage. Measured in terms of minutes used, wireless use increased 15%, year over year, in 2004 and 19% in 2003. The use of short messaging service (SMS) and other handset-based leisure and entertainment applications increased during 2004. As wireless carriers offer more minutes of use in their service plans and introduce enhanced data services, we expect to see growth in traffic volume. The cost of service, however, may not continue to decline at the same pace as it has recently.

In 2004, the top 10 carriers spent \$20.5 billion on network expansion to meet traffic volume usage, and most had completed their upgrades to intermediate second-generation (or 2.5G) technology, which supports Internet and other data-related offerings. A few carriers — such as Alltel Corp., Sprint, and Verizon Wireless — began the initial upgrades to third-generation (3G) network platforms using code division multiple access (CDMA) 1x-EV-DO. Verizon Wireless expects to be able to offer 3G to half the US population by the end of 2005, while Sprint had plans to roll out 3G in 39 metropolitan areas by June 2005.

## THE INDUSTRY CONSOLIDATES

Together with Cingular's acquisition of AT&T Wireless in October 2004, Sprint's proposed merger with Nextel represents a major consolidation of the wireless industry. Companies are coming together in order to combine their marketing muscle and distribution channels, as well as to share the costs of network upgrades and realize cost savings. In addition, regional wireless providers are proving to be attractive takeover targets. Standard & Poor's believes that the wireless industry will increasingly look like its wireline cousin, with a few huge operators dominating the market.



**NEW SUBSCRIBERS OF MAJOR WIRELESS COMPANIES***(Number of new subscribers)*

CARRIER	4TH QTR. 2003 NET ADDS	CARRIER	4TH QTR. 2004 NET ADDS
Verizon Wireless	1,496,000	Cingular	1,713,000
Sprint PCS	1,030,000	Verizon	1,700,000
T-Mobile	1,015,000	Sprint PCS	1,580,000
Cingular	642,000	T-Mobile	1,019,000
Nextel	553,000	Nextel	955,000
United States Cellular	141,000	Alltel	231,760
AT&T Wireless	128,000	United States Cellular	150,000
Alltel	95,000	Nextel Partners	94,900
Nextel Partners	89,100	Western Wireless	36,600
Western Wireless	44,000	Dobson Communications	(25,600)
Dobson Communications	14,400		
Total	5,247,500	Total	7,454,660

Source: Company reports.

**Sprint proposes merger with Nextel**

On December 15, 2004, Sprint, the third largest US wireless carrier, announced plans to merge with Nextel, the fifth largest carrier, in a deal valued at \$36 billion. Although the companies described the deal as a “merger of equals,” it technically represents an acquisition of Nextel by Sprint, with Sprint paying a 9% premium for Nextel’s shares. The deal should close by the second half of 2005, after which the companies plan to spin off Sprint’s local wireline business.

The deal will add Nextel’s 16.3 million customers to Sprint’s 24.8 million. With a combined subscriber base of more than 41 million users, the new company, which will be called Sprint Nextel, will be within striking distance of market leaders Cingular and Verizon Wireless. This size will be useful for funding all-important capital investments, as well as sales and marketing efforts to attract new subscribers.

In addition to providing scale, the deal gives Nextel a way to upgrade its network to next generation systems, capable of delivering high-speed data, by using Sprint’s planned CDMA 1xEV-DO 3G network. Nextel currently uses a proprietary technology known as iDEN (integrated dispatch enhanced network) that allows for push-to-talk, walkie-talkie type communication. This technology has proven especially popular with blue-collar workers and has led to Nextel having the industry’s highest monthly average revenue per user (ARPU) at \$68, versus an industrywide average of around \$53. The companies say that Nextel’s iDEN network will be migrated to Sprint’s 3G network in 2007. In the meantime, Sprint Nextel plans to have Motorola design dual-



mode phones that can operate on both networks.

Other wireless companies have tried to replicate Nextel's push-to-talk service, but generally have not been able to do so. Nextel's service normally has less than a one-second delay for communicating via push-to-talk, while other services have delays of longer than one second. In the last two years, Nextel has expanded its push-to-talk service into Mexico and parts of Argentina, Brazil, and Canada.

Standard & Poor's believes the combined company will have significant growth potential based on the large overall customer base, the high percentage of business users, and an accelerated shift of the company's business mix away from weak long-distance operations and toward higher-growth wireless operations. (The combined company will derive about 80% of its revenue from wireless services.) The combination also represents an opportunity to bundle multiple services for the business and government sectors. In the short term, however, Sprint's and Nextel's competitors may gain market share as the two companies focus on merging their operations and establishing their brand identity.

### **Alltel purchases Western Wireless**

In January 2005, Alltel Corp. reached an agreement to purchase regional operator Western Wireless Corp. in a stock and cash transaction valued at \$6 billion. Alltel, which operates in 24 states (primarily in the Southeast and the West), will gain Western Wireless's 1.4 million wireless customers in the US West and Midwest, giving it approximately 10 million customers overall and making it the fifth largest US wireless carrier. Alltel will also pick up Western Wireless's 1.6 million international customers in six countries, including Austria and Ireland. Once the deal is completed (expected in mid-2005), about 70% of Alltel's revenues will be derived from higher-growth wireless operations and the rest from local exchange operations.

In our view, the combination will create some networking and marketing synergies, though the deal is not as beneficial to Alltel as it could have been, given that Western Wireless's growth potential is in its international business. Alltel may be a potential takeover target itself as its deal for Western Wireless makes it bigger and more attractive to the major national carriers.

The acquisition of Western Wireless also has spurred speculation about potential deals involving other regional wireless operators, including United States Cellular Corp., Rural Cellular Corp., Dobson Communications Corp., and Centennial Communications Corp.

### **Cingular digests AT&T Wireless**

Cingular Wireless closed its acquisition of AT&T Wireless on October 26, 2004, and reported its first quarter of combined results in December. The deal, which was announced in February 2004, added AT&T Wireless's 21.7 million subscribers to Cingular's subscriber base, making Cingular the largest wireless carrier in the United States with more than 49 million subscribers.

The initial combined results were encouraging, although Standard & Poor's believes it will take



most of 2005 for Cingular to integrate and streamline the two companies' network operations, fine-tune their retail outlets, and sort out all of their direct and indirect distribution channels.

In the fourth quarter of 2004, Cingular posted a loss of \$497 million, mostly due to costs and adjustments associated with the acquisition. In the transition following the announcement of the acquisition, AT&T Wireless initially lost subscribers to its rivals, but, in the fourth quarter of 2004, the combined company added a net 1.7 million subscribers. The number was a record for the two companies, up from combined net subscriber additions of 808,000 in the third quarter of 2004. Cingular attributed the performance to the relaunch of Cingular's brand, new rate plans, and the larger distribution network of the combined companies.

In addition, customer churn (the percentage of subscribers who terminate wireless service in a given time period) declined significantly in the fourth quarter to 2.6%, from 3.2% for the combined companies in the quarter before the merger.

## WIRELESS SUSTAINS PROFITABLE GROWTH

The 10 largest US wireless carriers, tracked by Standard & Poor's, had 169 million subscribers as of December 31, 2004, or just under 95% of the industry's subscriber base. This group saw aggregate year-over-year subscriber growth of about 16%. (Data on this group appear in the table entitled "Profile of leading US wireless carriers" in the "Industry Profile" section of this *Survey*.)

In the quarter ended December 2004, Cingular Wireless had the highest number of net subscriber additions, expanding its customer base by 1.71 million net subscribers, or 23% of the group's total net additions. Following customer losses just after the acquisition of AT&T Wireless was announced, the combined company seems to be on track after a rebranding effort.

Just behind Cingular in net additions was Verizon Wireless, which added 1.70 million subscribers. Verizon Wireless has been among the most profitable carriers, with above-average EBITDA margins (earnings before interest, taxes, depreciation, and amortization) and below-average customer churn. Verizon Wireless had 43.8 million customers at the end of 2004, versus 49.1 million for Cingular.

Sprint was third in net additions in the quarter ended December 2004, with 1.6 million new subscribers, but Sprint has a below-average EBITDA margin. The company also had the highest percentage of net additions from resellers, such as Virgin Mobile and Qwest, as well as the group's highest churn rate at 2.70%. T-Mobile USA (formerly called VoiceStream and owned by Deutsche Telekom AG) had the fourth highest number of net additions in the December quarter, with just over one million new subscribers. Like Sprint, though, T-Mobile has a below-average EBITDA margin and a high monthly churn rate with a focus on customers.

Verizon Wireless had one of the best EBITDA margins in the industry at 42% in the fourth quarter of 2004, and it may retain its leadership in this category. Apart from Verizon Wireless, only Nextel, Nextel Partners, and United States Cellular were able to post above 40% EBITDA



service margins in the quarter ended December 2004. Compared with the group average of 34.7%, Cingular Wireless (19.3%), Sprint (31.0%), and T-Mobile USA (18.7%) all showed below-average margins in the December quarter.

### Challenges to boost profitability

With slower net subscriber growth expected for the industry in future years, Standard & Poor's believes that the wireless carriers need to find ways to stimulate higher usage of the network from voice and data applications. Although market penetration rates now exceed 60% of the US population, wireless carriers need to find new ways to boost ARPU and total service revenues. For the top 10 carriers, ARPU, which includes roaming and long-distance revenues, dipped to slightly above \$53 per month in the quarter ended December 2004, versus \$55 in the comparable year-earlier quarter. While voice revenues have declined as a result of expanded minute plans as carriers compete for customers, we believe new enhanced data services contributed between \$4 and \$5 per month in revenues.

Wireless services remain highly competitive, despite the exit of smaller carriers, as narrow-margin resellers remain aggressive in the prepaid market, which serves 18- to 30-year-olds and individuals with credit problems. Today, it is unusual to find carriers competing aggressively solely on price. Instead, we have observed carriers trying to retain their best customers under extended two-year contract renewals. For example, Verizon Wireless offers its customers a \$100 credit on the purchase of a new handset when they renew a two-year contract.

When Sprint completes its acquisition of Nextel, four nationwide operators will be left trying to grow profitably by operating digital networks throughout the United States. To increase their customer base, they are using state-of-the-art technology, leveraging their national brands to gain consumer loyalty, and using multiple distribution channels.

### ESTIMATED US WIRELESS SUBSCRIBERS & REVENUES

YEAR	SUBSCRIBERS (THOUSANDS)	REVENUES (MIL. \$)
2004	180,464	102,121
2003	158,722	87,624
2002	140,767	76,508
2001	128,375	65,316
2000	109,478	52,466
1995	33,786	19,081
1990	5,283	4,549
1985	340	482

Source: Cellular Telecommunications & Internet Association.



## Carriers upgrade to 3G

Several carriers made significant progress in their upgrades to 3G wireless networks in 2004 and early 2005. These new networks greatly expand capacity and allow for high-speed data transfer for applications such as on-demand video, music, and Internet access. 3G networks allow for data transfer rates of at least 144 kilobits per second (Kbps) and potentially much faster, compared to speeds from 9.6 Kbps to 14.4 Kbps for 2G networks, and between 30 Kbps and 100 Kbps for enhancements to 2G networks known as 2.5G.

Verizon Wireless has been one of the early leaders in the transition to 3G, launching its CDMA2000 1xEV-DO network in October 2003 with service in San Diego and Washington, D.C. (CDMA2000 1xEV-DO is the 3G upgrade path for cellular networks based on CDMA, or code division multiple access.) In January 2004, Verizon launched the network in 30 additional cities; it plans to cover areas reaching about half the country's population by the end of 2005 and the rest of the country by the end of 2006. Verizon is also planning to launch trials in 2006 of an enhancement to 1xEV-DO known as Revision A, or Rev A. Rev A will support even faster transfer speeds than 1xEV-DO, allowing for such applications as Voice over Internet Protocol (VoIP) and advanced multimedia services such as video telephony and interactive 3D gaming.

In February 2005, Verizon became the first carrier to offer a 3G consumer broadband service with the launch of VCast. Up to this point, most 3G users have been business customers looking to get high-speed wireless Internet access on their laptop computers. VCast, on the other hand, is designed to be accessed by 3G-enabled phones and offers on-demand video, 3D gaming, and music for an extra \$15 a month, with certain premium services costing extra. Subscribers get access to more than 300 video clips a day from channels and shows such as CNN, NBC, ESPN, and Sesame Street. Verizon is hoping VCast will spur adoption of 3G and the purchase of 3G-enabled phones.

Sprint is launching its own CDMA2000 1xEV-DO network in 39 metro areas in the first half of 2005, spending between \$2.7 billion to \$2.9 billion in 2005 on the network upgrade. The company also expects to migrate Nextel's iDEN network to this network by 2007. Meanwhile, Alltel launched its EV-DO service in three markets in March 2005, charging \$70 for unlimited monthly access compared to Verizon Wireless's \$80 per month fee for its high-speed data service.

Cingular and T-Mobile both operate networks based on the GSM (global system for mobile communication) standard; the 3G upgrade path is to a standard known as Wideband CDMA or WCDMA, which in Europe is referred to as universal mobile telecommunications system (UMTS). Cingular now offers WCDMA in six cities as a result of its acquisition of AT&T Wireless, and the company plans to launch 3G services in an additional 15 to 20 markets by the end of 2005. Cingular also will be rolling out an enhancement to WCDMA known as HSDPA (high-speed downlink packet access) that will enable data transfer speeds of at least 400 Kbps to 700 Kbps and potentially much faster. Cingular expects to have close to nationwide availability of 3G by the end of 2006.



T-Mobile is the laggard of the national carriers and does not expect to launch its WCDMA 3G service until 2007. Part of its problem is that it does not have enough wireless spectrum yet to offer 3G nationwide. Once it does, however, it will likely jump straight to the HSPDA-enhanced version of WCDMA rather than wait to add it on later.

In the meantime, T-Mobile will be building out its 2.5G EDGE network, which will offer higher data transfer speeds than its existing 2G GSM network. (For more information on the transition to 3G, see the “Industry Trends” and “How the Industry Operates” sections of this *Survey*.)

## WIMAX GAINS MOMENTUM

WiMAX, a new standard for wireless broadband access, picked up steam in late 2004 and early 2005 as Intel began shipping sample chips based on the standard to its key customers. Short for worldwide interoperability for microwave access and based on the 802.16 networking standard, WiMAX has a range of almost 50 km, with peak shared data rates of 70 megabits per second. Intel plans to begin shipping its new chip, known as Rosedale, to customers in 2005; in March 2004, Intel entered into an alliance with Alcatel, the market leader in broadband access, to deliver WiMAX equipment by the second half of 2005. Trials of WiMAX by telecommunications carriers around the world already are underway, with more than 75 expected before the end of 2005.

WiMAX is positioned as a wireless, last-mile solution, and we believe it has the potential to cover areas where digital subscriber line (DSL) and cable may not be available or may be difficult to implement. As a result, some parties are considering WiMAX a direct competitor to DSL and cable.

WiMAX is not being seen as much of a threat to high-speed 3G wireless services because it is not yet capable of delivering broadband to users on the move and probably will not be able to do so until 2007. Nextel considered using WiMAX as a means for it to offer broadband access to its users, but decided against it in December 2004 because of concerns about mobility and also because Nextel did not have access to the necessary spectrum for WiMAX.

WiMAX can expand network capacity by adding channels or cells, like cellular equipment. It already has the 802.11 series standards ensuring security, higher data rates, and better utilization of the spectrum. One of the compelling aspects of WiMAX is its ability to deploy a small number of base stations on buildings or poles to create high-capacity wireless access systems.

In addition to Intel, Japanese chipmaker Fujitsu announced in early 2005 that it had begun developing a chip similar to Rosedale that it hoped to launch in 2006. Other major chip and wireless equipment suppliers also are getting behind WiMAX. Members of the WiMAX alliance — including Airspan Networks Inc., Alvarion, Aperto Networks, Ensemble Communications, Nokia Corp., Proxim Corp., and Wi-LAN Inc. — plan to start shipping product in the second half of 2005. Aperto Networks expects equipment pricing to be \$300 for customer premise equipment once the 802.16 chips and cards hit the market, eventually dropping to around the \$30 charged



for today's local area network (LAN) Wi-Fi cards. The customer premises equipment (CPE) may be self-install window-mount antennas, as well as rooftop equipment.

## REGULATORY ISSUES

The key regulatory issues facing the wireless industry include the auction of additional wireless spectrum and the impact of wireless local number portability on customer retention.

### **Important wireless auctions held**

In January and February 2005, the Federal Communications Commission (FCC) auctioned off the largest block of wireless spectrum in several years. Much of the spectrum was returned to the FCC from Next Wave Telecom, a wireless company that went bankrupt in 1998. In all, the FCC wound up selling 242 licenses, mostly in small to mid-size markets around the country, for \$2.2 billion.

Verizon Wireless and a partner wound up buying up most of the spectrum, paying \$697 million for 63 licenses. T-Mobile bought 36 licenses for \$256 million, Sprint paid \$194 million to get 16 licenses, and Cingular picked up 21 licenses for \$184 million. The additional spectrum will help these carriers expand their coverage in existing markets, and also help to improve the quality and reliability of voice calls and data services.

During 2005 and 2006, the FCC will more than double the amount of spectrum available to wireless carriers, selling licenses that had been returned from other wireless operators as well as from government agencies and TV broadcasters. These new licenses will enable carriers to offer high-speed wireless data services capable of carrying voice, music, and video.

In November 2004, Verizon Wireless paid \$3 billion in cash directly to NextWave Telecom for its licenses in 23 key markets, including New York, Boston, Washington, and Los Angeles. The licenses will give Verizon Wireless expanded spectrum capacity in those markets and the ability to better compete against Cingular and others.

## WIRELESS NUMBER PORTABILITY A NON-EVENT

An FCC ruling requiring wireless carriers to allow subscribers to transfer their phone number to a new carrier went into effect across the United States as of May 2004. (Portability in the top 100 US markets went into effect in November 2003.)

Carriers and industry observers expected the requirement to increase customer churn by making it easier for customers to switch wireless providers, but so far the impact has been limited. Among the top 10 US carriers, churn remained constant (around 2.1% to 2.2%) in the second and third quarters of 2004, and even decreased slightly to 2.0% in the fourth quarter. According to the FCC, about 10 million customers moved their phone numbers to new carriers by March 2005, which represented just 5.6% of all wireless subscribers in the United States.



Carriers seem to have been able to offset the impact of number portability by such tactics as promoting larger discounts on handsets for subscribers who sign up for two-year contract renewals and extending weekend calling rates to Friday. Business customers with many users may have been more reluctant to switch, as well, since doing so would disrupt billing arrangements and require changing the handsets given to employees.

## **SPRINT EXPANDS ITS WHOLESALE BUSINESS**

Of the major national carriers, Sprint has been the most active in selling service on its network to third-party companies who then package and resell the service to their customers. Several years ago when Sprint was falling behind its competitors in net subscriber additions, the company opted to invest in increasing network capacity in order to take on wholesale partners. These companies, to which Sprint sells wholesale services, sometimes are known as mobile virtual network operators (MVNOs). The two most prominent examples are Virgin Mobile, which primarily sells prepaid service to younger customers, and Qwest Communications, a regional Bell operating company (RBOC) that has discontinued operations of its own wireless network.

Of Sprint's 24.7 million subscribers at the end of 2004, 15% or 3.7 million were wholesale subscribers. Standard and Poor's estimates that Sprint receives 80% to 85% of the service revenue generated by a wholesale customer, with the rest going to the reseller. According to Sprint, its wholesale business generated more than \$400 million in 2004.

In December 2004, Sprint announced that it had agreed to sell wholesale service to sports network ESPN, which will package sports-related content in a service known as ESPN Mobile. The arrangement is unique in that ESPN Mobile would be one of the first mobile services to focus on entertainment content rather than on voice service. Subscribers will have access to sports scores and news, and possibly video clips as well, on ESPN-branded phones. The service is scheduled to launch sometime in 2005. If successful, the deal could add significantly to the number of Sprint's wholesale customers.

Long-distance service provider AT&T also was planning to use Sprint to offer wireless service to its large business customers, but following the planned acquisition of AT&T by SBC, that deal is likely to fall through, since SBC is the majority controlling partner of Sprint's wireless rival, Cingular.

The next major wholesale customers of Sprint are likely to be the large cable companies, which are looking to expand their bundled service offerings in competition with the RBOCs. Adding wireless service would enable them to offer a "quadruple play" of video, high-speed Internet access, and wireline and wireless phone service. Time Warner Cable is already in discussions with Sprint about reselling wireless services, and it is likely that one or more of the other big cable companies — including Comcast Corp., Cox Communications Inc., Charter Communications, and Cablevision — will make arrangements with Sprint to resell wireless services in 2005.



## OUTLOOK NEUTRAL

The wireless telecom industry is likely to face a more challenging environment in 2005, given increased competition and a market experiencing slower subscriber growth rates than in the past. To date, we see no signs of price cutting of monthly service rates, but believe this remains a key indicator to gauge the industry's health.

The number of subscribers is likely to grow between 6% and 8%, to around 190 million to 195 million users in 2005. In terms of revenue, we see growth in the low teens for the group in the next 12 months. This would represent slower growth than in the past year because of fewer net subscriber additions, but this will be partially offset by higher ARPU from new data services. We believe higher monthly customer churn due to increased competition may also contribute to lower net service revenue growth in 2005.

We also see EBITDA margins leveling off and even narrowing for some companies, as their marketing costs increase in their attempts to gain or hold market share. We see the 2005-06 upgrade to enhanced data networks and to 3G handsets with Web-based capability potentially boosting growth, but we believe the increased activation of prepaid subscribers with lower ARPU may hurt profit margins.

As of April 30, 2005, the S&P Wireless Telecommunications Services Index was down 4.0%, year to date, versus a loss of 2.4% for the broader S&P 1500 Super Composite Index. This follows the subindustry's strong performance in 2004: a 53.9% rise, versus a gain of 10.0% for the S&P 1500. (Index data exclude Cingular Wireless and Verizon Wireless, both of which are joint ventures, and T-Mobile; their results are included with those of their parent wireline companies.)

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[Advertise on this site](#)[NEWS](#)[PHONES DATABASE](#)[JOBS & CAREERS](#)[RESOURCES](#)[INFORMATION](#)[SHOP](#)[CONFERENCES](#)Search the site: [Advanced Search](#)**Nokia, Motorola Gain 2Q Handset Market Share -Gartner**

Nokia Corp. (NOK) and Motorola Inc. (MOT) gained share of the global mobile-phone handset market in the second quarter at the expense of smaller rivals including Siemens AG (SI), research firm Gartner Inc. said Thursday.

Finland's Nokia saw its market share rise to 31.9% in the second quarter, from 29.6% a year earlier, while the U.S.' Motorola's share advanced to 17.9% from 15.7%, Gartner said.

During the second quarter, Nokia regained its top position in Latin America and became the No. 3 player in North America, Gartner analyst Hugues de la Vergne said in a statement. The company recently unveiled several phones specifically aimed at addressing weakness in the U.S.

Motorola improved its position in western Europe in the second quarter, becoming the second best-selling vendor in this region, up from the fifth spot a year earlier. The company has enjoyed success with its sleek V3 Razr phone.

In North America, Motorola was the market leader, with its share reaching 33.5%, and it was the No. 2 vendor in Latin America, with 31.9% of that market.

The world's largest cellphone manufacturers have profited from weakness at smaller rival Siemens, which is selling its unprofitable handset business to Taiwan's Benq Corp. (2352.TW). German firm Siemens' market share slipped to 4.7% in the period from 6.9%, Gartner said.

Sony Ericsson, a joint venture of Sony Corp. (SNE) and Telefon AB LM Ericsson (ERICY), also lost share in the period, slipping to 6.2% from 6.6%. It has since strengthened its product portfolio with the mid-range K750i camera phone.

Industrywide handset sales gained 22% to a total 190.5 million units in the second quarter, Gartner said. All regions showed growth, except Japan, which suffered a "small decline" in demand, analyst Carolina Milanese said.

In western Europe, sales rose 9.9% to 37.4 million. While vendors did well in selling replacement phones, the transition to third-generation phones was slow, with users displaying a "lack of interest in 3G services, such as video calling," Milanese said.

North American handset sales advanced 9.4% to 35.5 million, while Latin America generated 50% growth to 25.6 million, fueled by strong sales in Brazil and Mexico.

The Asia-Pacific region, excluding Japan, posted a 27.5% increase to 48.3 million units, buoyed by demand in China, India, Bangladesh and Vietnam. By contrast, replacement-phone sales in South Korea slowed.

Following is a table of the handset figures from Gartner:

Units (thousands)		
Company	2Q 2005	2Q 2004
Nokia	60,794	46,368
Motorola	34,018	24,626
Samsung	24,479	18,981
LG	12,374	9,495
Sony Ericsson	11,843	10,354
Siemens	8,895	10,823
Others	38,096	35,997
Total Market	190,499	156,643
Market Share		
Company	2Q 2005	2Q 2004
Nokia	31.9%	29.6%
Motorola	17.9%	15.7%
Samsung	12.8%	12.1%
LG	6.5%	6.1%
Sony Ericsson	6.2%	6.6%
Siemens	4.7%	6.9%
Others	20.0%	23.0%

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## Estimating Costs for Direct Response TV Test to Rollout Campaign



### Long Form D.R. TV

#### Testing

#### Hiatus

#### Rollout

#### Creative

### Testing

Long Form tests average \$20,000-\$30,000. These tests normally include some network cable and local market broadcast.

- ☐ The average price for an airing is approximately \$1000-\$1500.
- ☐ Expect about 20 airings that include a variety of dayparts and geography.
- ☐ Long form tests usually air over a 4 day time period.

### Hiatus

- ☐ The week following a test is usually a hiatus used for analysis and recommendations.
- ☐ Often this period is planned to allow for creative edits and re-testing based on results.

### Rollout

Rollout can begin two weeks after the test.

- ☐ Estimate the first week's budget to a minimum of \$30,000 to \$50,000.
- ☐ Estimate the second week to increase to approximately \$75,000.
- ☐ Estimate remainder of the bookings to be a minimum of \$100,000.

Rollout speed depends upon the show's profitability during each successive week.

Offers can reach expenditures of over \$500,000 per week that are extremely successful and maintain profitability.

Offers driving retail, may spend more in an effort to drive retail during specific flight dates and may show mixed results regarding cost-per-lead or cost-per-order.

Rollout budgets continue to escalate while maintaining goals each week. As offer begins to age or go into retail or battles competitive offers, budgets begin to decline as profitability declines.

### Creative

The average range for production of a 28:30 infomercial is between \$150,000 and \$250,000. The fewer elements required, the lower the cost.



Infomercials can cost up to \$500,000 due to:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Film over video       | <input type="checkbox"/> Several shooting locations | <input type="checkbox"/> Special effects  |
| <input type="checkbox"/> Celebrity talent fees | <input type="checkbox"/> Original music             | <input type="checkbox"/> Multiple changes |

## Short Form D.R. TV

### Testing

### Hiatus

### Rollout

### Creative

## Testing

Short Form tests average \$20,000 and air over a 1-2 week period. These tests normally include network cable and local market broadcast.

A test should have a variety of geography and dayparts as well as spots of various lengths (:60 is recommended for network cable; :120 for local market broadcast.)

Spots vary in price from \$5 for local market overnights to an average network cable price of about \$250. Cable network and local market media selection should be based on time period paying out at the price.

## Hiatus

The week following a test is usually a hiatus used for analysis and recommendations and subsequent rollout booking.

## Rollout

In rollout, you should expect to have approximately \$20,000 to \$50,000 booked for your first week. In subsequent weeks, you can add approximately \$50,000 per week, again, as profitability or other goals are being met.

The speed for rollout may be limited by these conditions:

- ☐ Number of tapes that can be customized, dubbed and shipped to stations.
- ☐ Networks require 1 week to view tapes prior to airing.
- ☐ Media inventory pressure can also affect when spots begin to air as traffic departments find time available.

A very strong campaign can spend over \$500,000 per week. Week-by-week monitoring is critical to ensure goals are met weekly before escalating further.

## Creative

Expect to be able to get good quality production on both a :60 and :120 commercial for approximately \$35,000.




Spots can be produced for less, but may not require more than a studio shoot and the quality may not have the lasting power of better production.

Spots that cost more generally include one or more of the following:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Film over video       | <input type="checkbox"/> Location shooting | <input type="checkbox"/> Special effects  |
| <input type="checkbox"/> Celebrity talent fees | <input type="checkbox"/> Original music    | <input type="checkbox"/> Multiple changes |

Recommended lengths:



-  :60 spots for network cable
-  :120 spots can be used on some 1500 local market broadcast stations
-  :30 spots are best only as lead generators for easily recalled phone numbers





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## Portable Gadgets Adding a Little Chic to Geek

By Yuki Noguchi

Washington Post Staff Writer

Tuesday, October 18, 2005; A01

This summer, chic European women swooned over the fashion-forward look of the pink cell phone earpiece. In time for the fall season, a U.S. designer released a black patent-leather thigh holster that stows a phone. *Ooo, la la* ! And for the men: a new collection including Oakley sunglasses with a Bluetooth wireless microphone attachment.

Companies are trying to take the geek out of gadgetry, rendering the old cell-phone-on-a-belt look permanently passe. The aim is to drive up sales in the phone accessory market, which already generates \$5 billion annually in the United States.

Techno-fashionistas say that it is the culmination of years of experimental design and that companies are finally finding a comfortable middle ground between form and function, mostly by exploiting ways to make devices smaller and therefore more wearable -- much like Apple Computer Inc.'s iPod Shuffle or Nano. Those trends, in turn, are creating a new category of accessories that make it even easier for consumers to keep their digital goods close to, or on, their person.

High-end designers are already covering that ground. Louis Vuitton sells a \$305 "international telephone case." Dior sells a \$315 case for iPod Minis, as well as a \$295 travel case for all of iPod's accessories.

"As things get sleeker, it's going to be something that's more and more important" for mainstream fashion, said Robin Sackin, chairman of the fashion merchandising management department at the Fashion Institute of Technology in New York. But it takes time for things to gain enough acceptance to become a mainstream wearable item, Sackin said.

Indeed, beauty remains in the eye of the beholder.

Ken Eisner thought his wearable Razrwire was cool, for example, but it recently brought him face to face with the fashion police.

A guard at Reagan National Airport did not like the look of Eisner talking to himself and wearing sunglasses indoors with a suspicious attachment dangling near his sideburns. The attachment was the latest version of wireless Bluetooth technology that enabled him to use his cell phone without hanging a black cord from his ear.

"Though considered geek wear by some, it's considered fashion-forward by others," Eisner said in his own defense. The guard's "concern was that I was a complete weirdo," said Eisner, who is an executive at Simply Wireless Inc., a cell phone retail chain.



In the industry, the Razrwire qualifies as runway fashion. CTIA, the cellular trade association, has featured fashion shows at its annual trade show in recent years, with lanky models wearing bowling-ball-sized helmets trotting down catwalks. To showcase its new line of hats, helmets and jackets with built-in cellular microphones, Motorola Inc. hired snowboarders to slide down a 60-foot ski jump outside the Consumer Electronics Show in Las Vegas earlier this year.

"In 2002, we produced a wearable technology fashion show to try to find out what the potential was," said Pablos Holman, designer of the cell phone thigh holster for Tsaya, the Seattle-based company that started selling the product online in August. "They were all totally impractical and totally dorky," he said, and only now is the sub-industry making great strides.

The thigh holster, Holman said, "turned out to be really practical and really sexy," but that's not a status easily achieved by most wearable devices. "It really has to be thought about deeply."

Cell phone maker Nokia Corp. flirted with purely decorative accessories such as the Medallion I, a necklace-type accessory with a small screen displaying images downloaded from a mobile phone. The company's Web site advised wearers to "go bohemian with an abstract close-up from a favorite painting, your garden, or your body."

Now, said Nokia product manager Marika Patto, the company is no longer focused on devices that just "show off" but ones that serve a function, like the new Nokia Wireless Image Headset, which includes a small screen that hangs around the neck and displays call information or images.

Wearable technology is big business for companies because accessories generate retail profit margins ranging from 60 to 80 percent.

The accessories market could grow 10 to 15 percent every year, according to Roger Entner, an analyst with Ovum, a research firm. At Simply Wireless, the number of accessories in the chain's 50 Washington area stores tripled in the past two years, now including items such as leather cases and animal-print bags for cell phones.

For cell phone carriers, the benefit is also additional talk time. Making the phone inseparable from its wearer makes it possible to make more calls from the ski slope, the convertible and other places that have not been hospitable to talking.

Timothy Towster, for example, dons a Bluetooth headset while mowing the lawn and listens to music streamed from a cell phone inside the house.

The number of cell phones that come with Bluetooth capability is in the 55 percent range, and by the end of the year, most phones will have it built in -- which, in turn, means a bigger market for wearable stuff, said Towster, Cingular's senior director of devices and accessories. "There's talk, discussion and development around [clothing] products as



well," he said. "It's easier to use when integrated with everyday items that people already use."

To that end, Motorola plans to sell its Burton Snowboards ski wear line early next year.

"We showed an ad with a guy mountain biking and holding a conference call," said Scott Martin, global marketing director for Motorola's accessories business. And this summer, the company partnered with fashion designer Frostfrench for a promotional giveaway of the designer's scarves that matched the pink Bluetooth headsets. The items sold out ahead of schedule in stores across Europe. "The goal is to make it look cool and stylish and all that."

Such devices will gain even more acceptance as prices come down and more people buy them, analysts and retailers said. Ovum's Entner, however, is a skeptic of Bluetooth couture: "You look like a half-assimilated borg."

Garments and technology just do not make a good combination, he said. If you leave the device in, "you wash your sweater and it's toast. Or you have to charge your sweater or jacket. It's kind of silly."

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# The North America Telecommunications Sectors

May 2005

## *A Company and Industry Analysis*

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### Current Environment — Key Points

- The traditional service boundaries between telecom companies and cable companies became even more blurred in the US in the latter part of 2004.
- In contrast to the slowdown in the fixed voice market, wireless services continued to grow as carriers introduced more data services such as high-speed (3G) wireless services, online video games, Wi-Fi technology and WiMAX.
- At the end of March, the strong growth momentum in US telecommunications stocks stalled amid inflation fears, prompted by higher oil prices and a growing economy.
- Technology substitution such as Voice over Internet Protocol (VoIP) continued to reduce barriers to entry in the Canadian telecommunications industry.
- In the six months up to April 7, 2005, the three leading Canadian telecommunications companies' stocks performed extremely well.

### Industry Profile — Key Points

- The jump in wireless communications spending in the US was driven by growth in handset revenue from new models, increased revenue from Wi-Fi equipment and a rebound in support services.
- The US has failed to keep up with the rest of the world in economically exploiting information and communication technologies (ICT).
- US companies such as Motorola (NYSE: MOT) are outsourcing some of their research and development (R&D) abroad to cut costs and get new products to the market faster.
- According to Statistics Canada, operating revenues in the Canadian wireless industry reached more than C\$2.5 billion (US\$2 billion) between July and September last year, up 17.8% from the same three months in 2003.
- Canada's wireless carriers invest more than C\$1 billion (US\$806 million) in mobile phone communications infrastructure each year, according to Canadian Wireless Telecommunications Association (CWTA).

### Market Trends and Outlook — Key Points

- Voice over Internet Protocol (VoIP) is showing its potential in the US consumer market with plans to take it mainstream over the next two years. The growing use of broadband by US households is a key driver.
- One of the latest radio wave innovations in the US is the hot field of radio frequency identification (RFID), a method of remotely storing and retrieving data using RFID tags/transponders.
- High-profile mergers are changing the face of the US telecommunications industry.
- The performance of the Canadian ICT sector has been impressive; growing by 86% at the end of 2004, almost three times as fast as the Canadian economy since the first quarter of 1997.
- Cable modem services in Canada are becoming more attractive with low-cost triple play and video-on-demand gaining appeal among mainstream users.
- The next generation of mobile phones that can be used for entertainment as well as communication is rapidly gaining market share all over the world, including Canada.



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# Current Environment

## - United States

### Sector Overview

In the US, the competition between telecom companies and cable providers is intensifying. As cable companies roll-out voice services, telcos are seeing their traditional voice business erode. The traditional service boundaries between telcos and cable companies are becoming increasingly blurred. For instance, SBC Communications Inc (NYSE: SBC), one of the world's largest phone companies, is planning to launch a TV service in November this year. The US phone giant's quest to break into the television business is a clear sign of the rapid changes that are sweeping the entire US telecommunications industry.

While telcos are busy preparing for their TV service roll-out, cable operators and other independent companies are invading phone companies' territory by offering inexpensive internet-based phone services. As a result, since the beginning of 2002, SBC alone has lost four million lines to competitors, or 7% of its total. Hence, telephone companies argue that cable companies should be regulated and subject to the same fees that are paid by traditional telecom companies, but the Federal Communications Commission (FCC) and Congress say that less regulation for cable will help drive competition and broadband growth.

The US Supreme Court is set to consider a matter that brings to a head the debate on how to govern the converging telecommunications and information services that may open cable company lines to competing internet service providers (ISPs). Cable modem-based internet service providers will present their case about sharing cable modem capable networks with competitors. The point of contention rises from an FCC ruling which classifies cable modem internet service as an unregulated information service. Reversal of the FCC's decision would allow customers to have more choice when it comes to cable modem internet service, while driving down service prices.

### Fixed Voice Market

In the US, fixed voice or landline services revenues continued to decline as wireless services revenues flourished. US landline toll service spending fell 4.2% to \$72.8 billion in 2004, according to the Telecommunications

Industry Association (TIA), the fourth consecutive annual decrease, as the shift from fixed voice to wireless in long-distance traffic continued. In contrast, wireless services continued to grow as carriers introduced more data services such as high-speed (3G) wireless services, online video games, Wi-Fi technology and WiMAX. TIA expects wireless services revenue to increase at 10.4% compound annual growth rate (CAGR) to total \$151.1 billion by 2008.

### Mobile Communications Market

In recent years, there has been a dramatic increase in the use of mobile communications in the US. The wireless association, Cellular Telecommunications Industry Association (CTIA), released its semi-annual industry survey in March that showed the estimated number of wireless subscribers had grown by 13.7% in 2004. The total number of wireless subscribers in the US now exceeds 180 million, a penetration rate of more than 60%. According to CTIA, 2004 was the first year that Americans used more than one trillion wireless minutes, an increase of almost 33% over 2003. However, average local monthly bills grew by only 1.5% to \$50.64 in 2004 and the FCC reported that the real price of a wireless minute had fallen by 81% in the ten-year period ending in 2004. The CTIA report also reflected the US wireless industry's continued commitment to network expansion and upgrade. Total capital investment in 2004 reached almost \$28 billion, which was more than the first ten years of wireless investment combined.

Table 1: Wireless Subscribers in the US (2004)

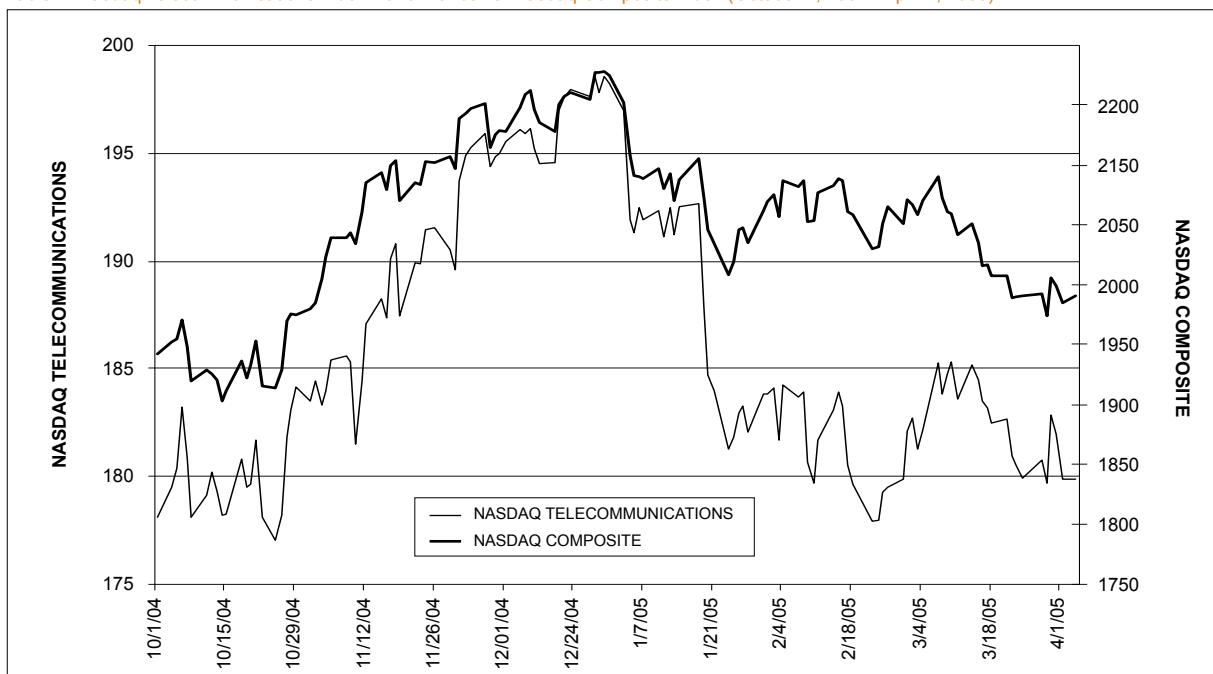
Estimated Subscribers	180,464,003	Up 13.7%
Cumulative Capital Investment	\$173,793,507	Up 33%
Average Local Monthly Bill	\$50.64	Up 1.5%
Cell Sites	175,725	Up 7.8%
Direct Carrier Employment	226,016	Up 9.96%
Total Six Month Revenue	\$52,845,539	Up 14.3%

Source: Cellular Telecommunications Industry Association



# Current Environment - United States

Table 2: Nasdaq Telecommunications Index Performance vs. Nasdaq Composite Index (October 1, 2004 - April 1, 2005)



Source: NASDAQ Historical Data

According to TIA's newly released 2005 Telecommunications Market Review and Forecast, total US spending on wireless communications is expected to grow by 9.3% in 2005 to \$158.6 billion. The report predicts that the wireless market will reach \$212.5 billion by 2008, with a 10% compound annual growth rate (CAGR) from 2005 to 2008. The jump in wireless communications spending is driven by faster growth in handset revenue from new models, increased revenue from Wi-Fi equipment and a rebound in support services.

## Broadband Market

In the US, internet access revenue rose 12.5% in 2004, fueled by rising broadband penetration. The number of broadband subscribers increased from five million in 2001 to more than 32 million in 2004. With the rise in broadband subscribers, TIA expects broadband to surpass dial-up in 2005, reaching almost 57 million subscribers by 2008. The overall internet spending in the US is projected to increase at a 6.8% CAGR to an estimated \$35.3 billion by 2008. Today, countries around the world such as those in Asia and Europe are racing to provide broadband access services but the US has been criticized for falling behind in terms of its broadband penetration rates, slipping from 13<sup>th</sup>

to 16<sup>th</sup> place in a recent International Telecommunications Union report.

The US has long had the most subscribers but now it looks as though China will soon take the top spot for broadband. With a population of more than one billion people, China is expected to have 34 million subscribers at the end of 2005, compared with 39 million in the US, according to new data from market research firm iSuppli. The US Government is in a rush to come up with a national broadband policy and President George Bush has already talked about having broadband universally available by the end of 2007. This may be possible with the help of wireless broadband or WiMAX. In the future, broadband will be the centerpiece of economic development all over the world. To boost its broadband penetration, the US should have a private-public partnership that would help rapid broadband uptake in areas where incumbent providers refuse to provide service just because it is not economically feasible for them.

## Sector Performance

At the end of March, the strong growth in US telecommunications stocks stalled amid inflation fears, prompted by higher oil prices and a growing economy.



# Current Environment - United States

A sharp jump in oil prices at the end of March weakened investors' confidence. Since the beginning of 2005, the NASDAQ Telecommunications Index has declined compared with the NASDAQ Composite Index.

## Key Players

Leading companies in the sector ended 2004 in full stride, delivering solid performances which were reflected in increases in fourth quarter 2004 revenues. The latest results from telecom companies highlight that growth is deriving mainly from newer services such as wireless, broadband and the inclusion of long distance into the service bundle for the local carriers. Among the challenges that telecom companies face is the looming threat from cable companies and the internet telephony or VoIP providers.

### *Verizon Communications (NYSE: VZ)*

With more than \$71 billion in annual revenues, Verizon Communications Inc is one of the world's leading providers of communications services. In fourth quarter 2004, Verizon reported strong financial results driven by a tenth consecutive quarter of double-digit, year-over-year revenue increases for wireless services. Revenues increased 6.2% to a record \$18.3 billion from \$17.2 billion in the fourth quarter of 2003. Its wireless segment (Verizon Wireless) contributed \$27.7 billion to the company's \$71.3 billion in total revenues in 2004 and more than 40% of Verizon's total revenues in the fourth quarter of 2004. Its wireless segment recorded 1.7 million net customer additions, up 13.5% from the corresponding quarter in the previous year and the third consecutive highest quarterly increase.

Throughout 2004, the company recorded 6.3 million total net customer additions in the wireless segment, up 25.1% from 2003. Its other segment, wireline, recorded 306,000 net additions of broadband DSL (digital subscriber lines)

in the fourth quarter with total data revenues up 9.2% from the prior year quarter. The company reported an increase in its capital expenditure in 2004 to \$13.3 billion, compared with \$11.9 billion in the previous year. The strong results were due to the company divesting its non-strategic assets, extending its leadership in wireless and gaining momentum in broadband, long distance and enterprise markets.

### *SBC Communications Inc (NYSE: SBC)*

SBC Communications Inc is a Fortune 50 company, with subsidiaries providing a full range of voice, data, networking, e-business, directory publishing and advertising, and related services to businesses, consumers and other telecommunications providers. SBC reported strong fourth quarter results with operating revenues up 3.1% from the fourth quarter 2003 to \$10.3 billion. SBC reported earnings from continuing operations of \$754 million compared with \$888 million in the fourth quarter of 2003. The encouraging results reflected strong growth in its wireline and wireless businesses. Wireline results were driven by 10.5% growth in data revenues and increased penetration of bundled services such as DSL and long distance. In its wireless segment, Cingular Wireless, which is 60% owned by SBC, achieved a net subscriber gain of 1.8 million on a pro forma basis, more than double the pro forma net subscribers added in the previous quarter. Meanwhile, in the high-speed broadband internet access segment, SBC added 425,000 DSL lines in the quarter and ended the year with 5.1 million DSL lines in service, making it No. 1 among US telecommunications providers. SBC's fourth quarter operating expenses and capital expenditure totaled \$9 billion, compared with \$8.8 billion in the fourth quarter of 2003.

### *Motorola (NYSE: MOT)*

Motorola Inc is a Fortune 100 global communications leader that provides seamless mobility products and

Table 3: Leading Companies in the US Telecommunications Sectors

Company	Revenues in Fourth Quarter of 2004	Revenues in Fourth Quarter of 2003	Changes in Revenues
Verizon Communications	\$18.3 billion	\$17.2 billion	Up 6.4%
SBC Communications	\$10.3 billion	\$10.1 billion	Up 2%
Motorola	\$8.84 billion	\$6.94 billion	Up 27.4%
Sprint	\$6.93 billion	\$6.68 billion	Up 3.7%

Source: Mergent Analysis, 2005



# | Current Environment - United States

solutions across broadband, embedded systems and wireless networks. In the fourth quarter of 2004, Motorola reported record sales, on a continuing basis, of \$8.84 billion, an increase of \$1.9 billion, or 27%, on fourth quarter 2003. For the full year 2004 on a continuing operations basis, the company reported sales of \$31.3 billion, an increase of \$8.2 billion, or 35%, from the prior year. The strong results reflected the company's commitment to quality, customer satisfaction and the ability to provide world-class products such as its popular handset, the RAZR, which greatly exceeded its sales expectations. The company forecast sales for the first quarter of 2005 at between \$7.5 billion and \$7.9 billion, compared with \$7.4 billion in the first quarter of 2004.

## *Sprint (NYSE: FON)*

Sprint is a Fortune 100 company with more than \$27 billion in annual revenues in 2004 and is recognized for developing, engineering and deploying state-of-the-art network technologies. Sprint finished 2004 with record wireless and DSL subscriber gains, substantial bottom-line improvement and increased financial strength. In the fourth quarter, it continued to achieve strong gains in strategic industry growth areas. The 1.58 million net wireless additions in the fourth quarter included 526,000 from direct, 923,000 from wholesale and 133,000 through affiliate partners, making it a record quarter for the company. At the end of 2004, Sprint had more than 17.8 million total direct customers, reflecting a full-year increase of just under two million. Consolidated fourth quarter 2004 net operating revenues were \$6.9 billion, compared with \$6.7 billion in the corresponding quarter of the previous year. Consolidated net income was \$437 million, up from \$110 million a year ago. Its full-year 2004 capital expenditure totaled \$3.98 billion, compared with \$3.80 billion in 2003, an increase of 4.7%.

## **Merger and Acquisition Activity**

Merger and acquisition mania has swept the US telecommunications industry this year, as highlighted by several big deals in progress, including SBC's pending \$16 billion purchase of AT&T and an intense tug-of-war between Qwest and Verizon to purchase MCI. On May 2, 2005, the battle was finally won by Verizon when Qwest withdrew its \$9.9 billion bid for MCI. MCI accepted Verizon's \$8.5 billion offer, even though the offer was smaller. It thinks the offer was superior as the company is the largest US telecommunications company and its

large business customers preferred a deal with Verizon over Qwest. According to MCI's board, Verizon's final bid offers shareholders better long-term prospects, and also the possibility of a short-term boost from any rise in Verizon's stock price. In addition, it was believed that by accepting Qwest's bid, it could damage MCI because many customers favored Verizon's bid. A number had asked for the right to cancel their contracts if Qwest had won.

Even though consolidation itself posed no inherent harm to consumers, US Congress and regulators should monitor network operators to make sure they don't use their power to discriminate against potential rivals or shut them down. Smaller providers are concerned about getting access to the larger companies' internet and phone networks and getting a good connection over those lines if bigger companies are not friendly. The long-term effects are still unclear. The industry consolidation could lead to higher prices and less competition or, on the brighter side, big companies will be able to invest in new technology that could help small and medium-sized businesses.



# Current Environment

## - Canada

### Sector Overview

Technology substitution such as VoIP has reduced barriers to entry in the Canadian telecommunications industry. This has allowed competitors with far lower investments in financial, marketing, personnel and technological resources to launch products and services and to gain market share. The trend is expected to continue and could negatively affect the telecommunications providers' financial performances. The Canadian wireless telecommunications industry is highly competitive. Most providers have aggressive product and service introductions, pricing and marketing and they compete directly with wireline service providers. In addition, competition is expected to intensify as new technologies, products and services (such as VoIP) are developed. The acquisition of Microcell Telecommunications Inc by Rogers Wireless Inc last year may lead to stronger competition for other telecommunications providers. The success of these providers will depend on how well they can anticipate and respond to changes in industry standards and client needs, and how quickly and efficiently they can introduce new products, services and technologies and upgrade existing ones.

### Sector Performance

In the six months to April 7, 2005, the three leading Canadian telecommunications companies' stocks

performed extremely well. TELUS had the highest growth, followed by Rogers Communications and BCE Inc. This indicates that the sector is performing well. However, certain factors such as new regulatory policy and oil price rises may cause some volatility in the price movements of these stocks.

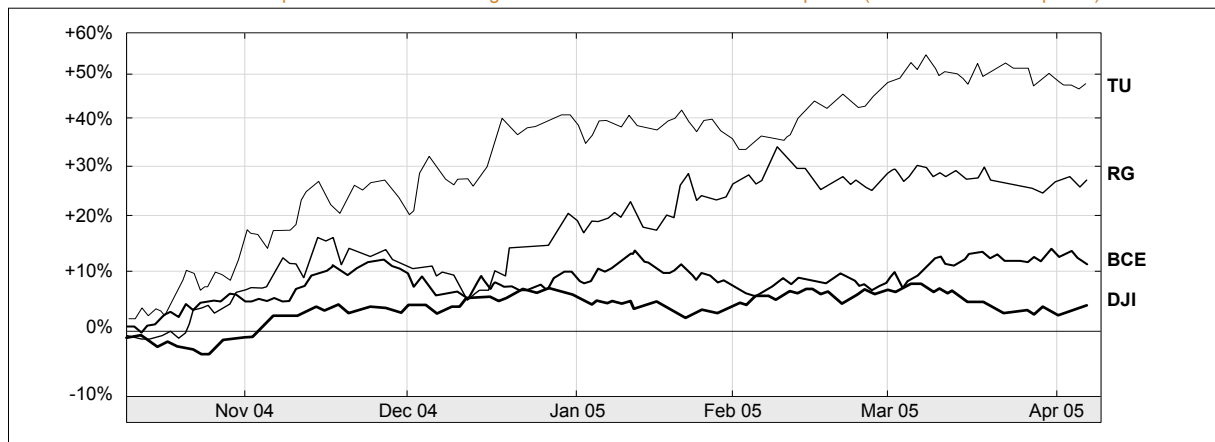
### Key Players

The year 2005 is expected to be a solid year for telecommunications companies in Canada. Their revenue performances at the end of last year continued to improve, reflecting progress on many fronts across the business. The top three leading telecommunications companies in Canada achieved solid revenue and operating income growth at the end of 2004, primarily due to the stronger wireless and internet access market. While most companies are optimistic about their growth prospects there a number of factors that could hamper growth moving forward, including the weak US dollar and the rise in the price of oil.

#### BCE Inc (TSX: BCE)

BCE Inc is Canada's largest communications company. Through its 27 million customer connections, BCE provides the most comprehensive and innovative suite

Table 4: Stock Performance Comparisons between Leading Canadian Telecommunications Companies (In the last six-month period)



Source: Toronto Stock Exchange, NYSE (As of April 7, 2005)  
Notes: TU (TELUS Corp), RG (Rogers Communications Inc), BCE (BCE Inc), DJI (Dow Jones Industry Index)



# Current Environment - Canada

Table 5: Financial Performance for the Top Three Leading Telecommunications Companies in Canada

Company	Revenues for the three months ended December 31		% Change
	2004 (In Millions)	2003 (In Millions)	
BCE Inc	C\$4,989.0	C\$4,818.0	Up 3.5%
TELUS Corporation	C\$1,964.9	C\$1,825.6	Up 7.6%
Rogers Communications Inc	C\$1,566.3	C\$1,291.7	Up 21.3%

Source: Mergent Analysis, 2005

of communication services to residential and business customers in Canada. For the full year 2004, BCE's revenues rose by 2.4% to C\$19.2 billion (US\$15.5 billion), up from C\$18.7 billion (US\$15.1 billion) in the previous year. For the fourth quarter of 2004, the company reported revenue of C\$5 billion (US\$4 billion), up 3.5% from the prior year's same quarter. Its digital subscriber line (DSL) high-speed internet business had a 24% increase in customers to 1.8 million. Its revenue growth reflects stronger wireless, internet access and video services, along with higher IP-connectivity and value-added solutions (VAS) revenues in the business segment.

## TELUS Corporation (TSX: T and T.NV)

TELUS Corporation is the largest telecommunications company in Western Canada and the second largest in the country, with C\$7.6 billion (US\$6.1 billion) in annual revenue, 4.8 million network access lines and 3.9 million wireless subscribers. TELUS' financial results for the fourth quarter of 2004 reflected outstanding performance at TELUS Mobility, improved revenue growth at TELUS Communications and a significant increase in profitability and free cash flow in the quarter. Its consolidated operating revenues of C\$1,964.9 million (US\$1,583.5 million) increased 8% from C\$1,825.6 million (US\$1,471.3) a year ago and operating earnings were up 12%.

## Rogers Communications Inc (TSX: RCI)

The Rogers Group of Companies consists of a unique and valuable collection of wireless, cable and media assets. The acquisition of Microcell Telecommunications Inc on November 9, 2004 created Canada's largest wireless carrier and the country's only provider operating on the global standard GSM technology platform.

Rogers' consolidated revenue for the three months ended December 31, 2004 was C\$1,566.3 million (US\$1,262.3 million), an increase of 21.3% from C\$1,291.7 million (US\$1,041 million) in the corresponding period of 2003. Of the total, wireless contributed C\$224.0 million (US\$180.5 million), cable C\$33.3 million (US\$26.8 million), media C\$2.5 million (US\$2 million) and Toronto Blue Jays C\$19.8 million (US\$15.96 million). (Rogers bought the Toronto Blue Jays Baseball Club in 2000).

On a pro forma basis, its consolidated quarterly operating revenue increased 13.9% and 20.3% for the wireless division. Consolidated operating profit was C\$450.5 million (US\$363.1 million), an increase of C\$81.2 million (US\$65.4 million), or 22%, from C\$369.3 million (US\$297.6 million) in the corresponding period in 2003. Of this, wireless contributed C\$47.2 million (US\$38.1 million), cable C\$14.3 million (US\$11.5 million), media C\$9.6 million (US\$7.7 million) and the Blue Jays C\$2.9 million (US\$2.3 million). The company had strong growth in its consolidated quarterly operating profit, which increased 25.1%, and 35.4% at the wireless division. Consolidated quarterly operating profit as a percentage of revenue increased modestly to 28.8% from 28.6% in 2003. The strong results were due to the continued robustness in the Canadian markets for wireless, cable and high-speed internet services.

## Research in Motion (TSX: RIM)

Research in Motion is a leading designer, manufacturer and marketer of innovative wireless solutions for the worldwide mobile communications market. Its portfolio of award-winning products, services and embedded technologies is used by thousands of organizations around the world and includes the BlackBerry wireless



# | Current Environment - Canada

platform, the RIM wireless handheld product line, software development tools, radio-modems and software/hardware licensing agreements. For the fourth quarter ended February 26, 2005, the company reported strong revenue growth because of huge increase in its BlackBerry subscriber base to a total of 2.51 million. This represents growth of 135% over the 1.07 million subscribers at the end of the previous year. Its revenue for the quarter was C\$502.3 million (US\$404.8 million), up 11% from C\$454 million (US\$365.9 million) in the previous quarter and up 92% from C\$261.3 million (US\$210.6 million) in the corresponding quarter of last year.

## **Merger and Acquisition Activity**

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One of the most recent mergers of note in the Canadian telecommunications industry was the C\$67 million (US\$54 million) purchase of Nexxlink Technologies Inc (TSX: NTI) by Bell Canada, the primary subsidiary of BCE Inc, in April. The newly acquired company will be combined with other acquisitions to create an information-technology division called Bell Business Solutions Inc. Another Bell acquisition was Charon Systems Inc, which it acquired in May 2004. The integration of these two leading IT organizations into a single and focused entity will reinforce Bell's capability to act as a technology advisor to small and medium businesses in Canada.

However, with the increase in consolidation in the industry, there is likely to be an overall decline in infrastructure investment. The merger of Canada's Rogers Communications Inc and Microcell Telecommunications late last year, for example, will result in a C\$211 million (US\$170 million) fall in equipment investment. Nevertheless, while consolidation could restrict infrastructure investment levels, there could be corresponding opportunities for vendors to increase revenues by providing network management and optimization services — especially as operators integrate networks and redeploy infrastructure within and outside their current network coverage. As an example, the media and telecommunications giant, Rogers Communications, which completed its C\$1.4 billion (US\$1.1 billion) purchase of Microcell last year recorded C\$14 million (US\$11.3 million) in its first quarter integration costs at the end of March this year, much of that in combining the two wireless networks together.



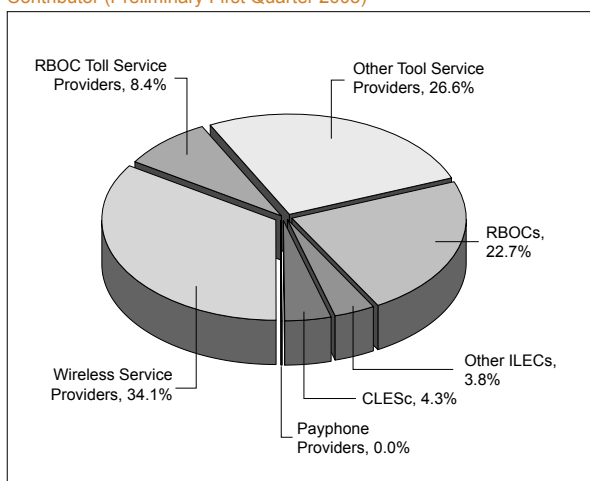
# Industry Profile

## - United States

### Industry Size and Value

The US wireless market consists of communications services, handsets, communications equipment including Wi-Fi and the emerging market for broadband access equipment, and professional services in support of wireless infrastructure. According to TIA's 2005 Telecommunications Market Review and Forecast, revenues in 2004 totaled \$145.1 billion, up 11.6% from 2003. The increase marked a return to double-digit growth following a fall to mid-single digits in 2003. The jump in wireless communications spending was driven by faster growth in handset revenue from new models, increased revenue from Wi-Fi equipment and a rebound in support services.

Table 6: Share of Universal Service Contributions by Principal Type of Contributor (Preliminary First Quarter 2005)



Source: Telecommunications Industry Revenues, Federal Communications Commission, March 1, 2005

Notes:  
RBOC (Regional Bell Operating Company)  
Big Four RBOCs (Verizon, SBC, Qwest, and Bell South)

In 2004, there were 173.7 million wireless subscribers in the US, up 9% from 2003. Between 1999 and 2004, the number of wireless subscribers more than doubled. The key factor of this rapid growth was the introduction of one-rate pricing plans in 1999. With the introduction of one-rate plans, wireless became less expensive than traditional telephony for many people, resulting in an increase in wireless subscribership. However, with most of the US population in possession of a mobile phone,

growth in the wireless market is expected to slow and drop to single-digit increases beginning this year. Growth is expected to average 5.2% on a CAGR basis through to 2008 to roughly 200 million wireless communications subscribers, according to the TIA. As the US wireless subscriber market reaches maturity and subscriber growth slows, the shift to revenues based on new wireless services — such as wireless internet access, instant messaging, ring tones, wireless games, multimedia messaging services and Wi-Fi technologies — is expected to drive the wireless market into the future.

According to FCC's telephone penetration by income report, released on March 1, penetration among low-income households was 88% in March 2004. Meanwhile, the overall nationwide penetration rate was 94.2%. Penetration rates among low-income households in the US ranged from a high of 94.6% in Connecticut to a low of 79.9% in Arkansas in March 2004.

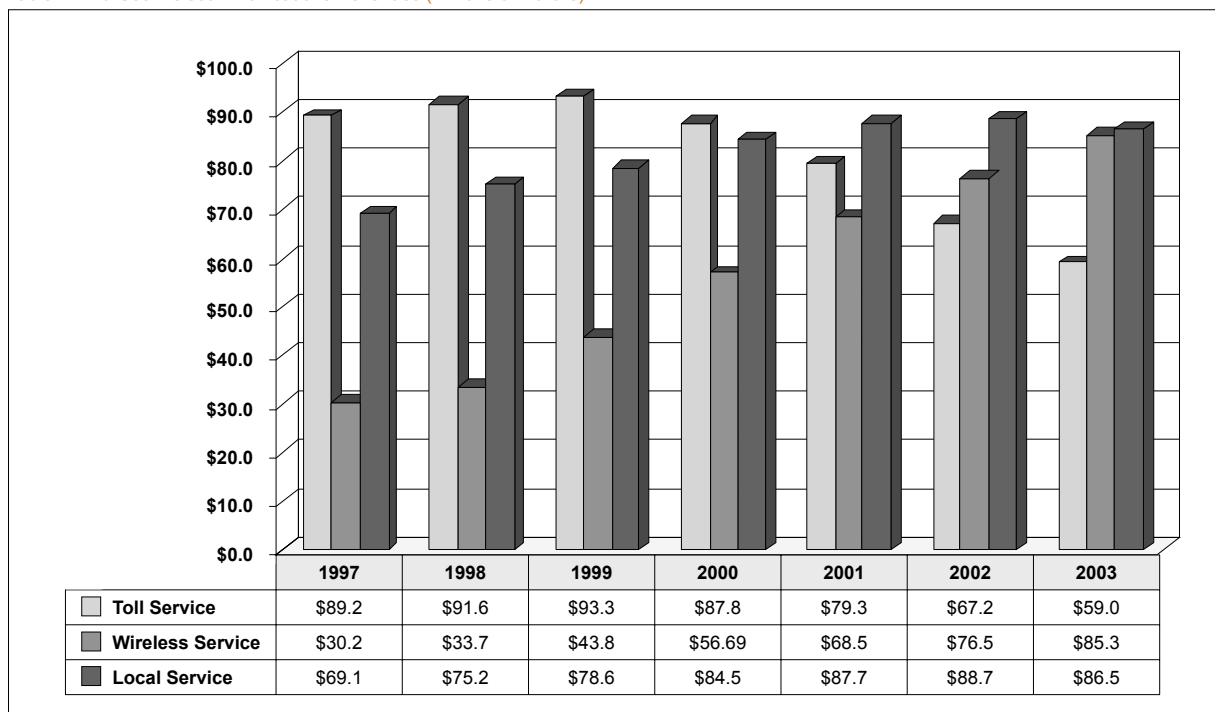
### Tech Usage in the US

US broadband penetration has become a growing concern among regulators and technology advocates, who say the nation is losing a competitive edge. While the US has more broadband lines than any other country, according to the International Telecommunications Union (ITU), it ranked 16th for high-speed internet lines per 100 people as of January 1. All over the world, information and communication technologies (ICT) will continue to play a growing role in boosting the efficiency of the increasingly integrated global economy, enabling countries to improve resource allocation and boost growth prospects. Although the US is a rich industrial country, it has failed to keep up with the rest of the world in economically exploiting ICT technology, according to the World Economic Forum's Global Information Technology Report, issued in March. The US fell from first to fifth place, behind Singapore, Iceland, Finland and Denmark in the Network Readiness Index ranking, following three years at the number one slot. The new leader in ICT, Singapore, is a small country that was rated first in quality of math and science education, affordability of telephone connection charges and government prioritization and procurement of ICT. However, the US maintained its leadership in quality of



# Industry Profile - United States

Table 7: End-User Telecommunications Revenues (Millions of Dollars)



Source: Telecommunications Industry Revenues, Federal Communications Commission, March 1, 2005

Table 8: US Telecom Statistics

Residential & Small Business Access Lines (June 2004)	
• ILECs	114.6 million
• CLECs	20.8 million
Average Number of Employees in the Telephone Industry (Feb. 2004)	
	1.05 million

Source: Federal Communications Commission

scientific research institutions and business schools, the availability of training opportunities for the workforce and in venture capital funding. The Global Information Technology Report measures how 104 different economies put information and communications technology to use to create economic growth and better quality of living.

## High-Speed Broadband Access

In the first quarter of this year, the top US telephone and cable companies added a record 2.6 million high-speed internet lines, a 7% increase spurred by price cuts by telephone companies. Over the past few years, telephone companies in the US have lagged behind cable companies in offering broadband services, and cable companies still hold 59% of the market. But as broadband lines have

become a key to keeping customers, telephone companies have put a harder sell on high-speed internet, offering start-up discounts and tiers of service with lower prices for lower download speeds. On average, DSL service in the US runs anywhere from \$20 to \$30 per month before discounts, while cable broadband typically starts at \$30 per month. Most cable companies have been reluctant to lower their prices in response, preferring to fight increased competition with download speed upgrades.

According to the latest available data on high-speed internet access services in the US released by FCC in December last year, the number of high-speed lines that exceed 200 kilobits per second (kbps) increased by 15% during the first half of 2004, from 28.2 million to 32.5 million lines. This compares with a 20% increase during the second half of



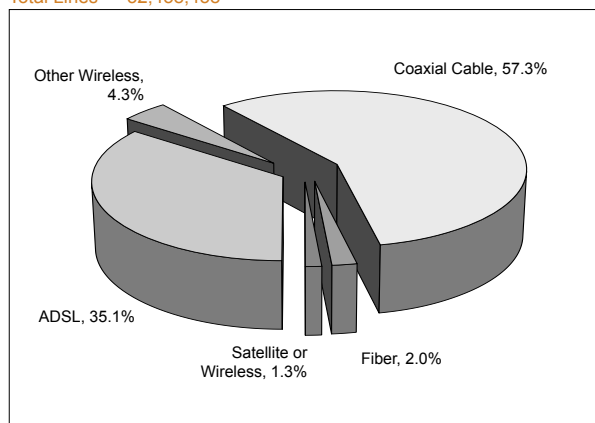
# Industry Profile - United States

2003. For the full 12-month period ending June 30, 2004, the number of high-speed lines increased 38%. Of the 32.5 million high-speed lines in service, 30.1 million served residential and small business subscribers, a 16% increase from the 26 million reported six months earlier. For the full-year ending June 30, 2004, the number of high-speed lines for residential and small business subscribers grew by 46%.

For the next-generation broadband infrastructure — fiber-to-the-home (FTTH) — installations in the US have grown 83% since October, 2004, until May this year and currently reach 398 communities in 43 states. Among the factors contributing to FTTH growth in the US are the positive FTTH regulatory environment by the FCC, as well as the demand for more robust networks by communications companies, real estate developers, and municipalities. New applications are occurring in FTTH communities all across the nation, such as remote viewing of 3D medical images. More and more people are turning to the internet to improve their daily lives and there is great potential for high speed access, whether it is finding affordable prescription drugs, maintaining business inventory, or enhancing telemedicine.

By the end of this year, Verizon is on track to pass three million homes with fiber, offering customers internet service at up to 30 megabits per second. The company plans to offer video service later this year with multimedia and interactive capabilities such as sharing family videos, video on demand, 3D gaming and a variety of camera angles for sporting events.

Table 9: High-Speed Lines by Technology (June 2004),  
Total Lines — 32,458,458



Source: Federal Communications Commission, December 2004

## Research and Development

US companies such as Motorola are outsourcing some of their research and development (R&D) abroad to cut costs and get new products to the market faster. In March, Motorola was in discussion with the Finance Ministry of India about setting up a manufacturing facility. The company is planning to set up the Motorola Lab, an R&D center, in Bangalore and increase its investment in the country.

In the 1980s and 90s, US corporations began selling their factories and outsourcing their manufacturing abroad to boost efficiency, but kept research and development in-house. However, R&D is also being outsourced to better serve markets, such as in Asia, with different tastes and needs for the same type of product. Contract manufacturers in Asia and independent design houses have become forces in almost every tech device, from laptops and high-definition TVs to MP3 music players and digital cameras. Most of the leading high-tech companies in the US are adopting a new business model, one that employs global networks of partners. These can include chipmakers such as Intel, Taiwanese engineers, Chinese factories and Indian software developers.

However, R&D outsourcing has a downside. For instance, Motorola hired Taiwan's BenQ Corp (TAIWAN: 2352) to design and manufacture millions of mobile phones. However, last year BenQ began selling phones in the lucrative China market under its own brand, prompting Motorola to tear up its contract. Another risk is that brand-name companies will lose the incentive to keep investing in new technology. However, not all leading innovations come from abroad. Motorola, for example, buys complete designs for its cheapest phones from foreign companies but controls all of the development of high-end handsets such as its hot-selling Razr. Nevertheless, countries such as China and India, where wages remain low and new engineering graduates are plentiful, will continue to be the biggest gainers in tech employment and become vital suppliers of intellectual property in the global high-tech sectors.

## Policy and Regulatory Environment

The US federal policy on telecommunications services sometimes conflicts with state rules, as there is no uniformity in federal and state policies. Early in April, BellSouth was on a collision course with state regulators



# | Industry Profile - United States

in Florida, Kentucky, Louisiana and Georgia because of its policy not to sell DSL to end customers that purchase voice services over the same local loop that carries a competitor's voice service. All four states have rules requiring BellSouth to sell DSL unbundled from voice services. Such services, known as "naked" DSL, are popular with subscribers that use VoIP or a cell phone as their primary line. However, these rules conflict with the interests of BellSouth, which argues that they could hamper the deployment of its DSL services throughout the country. FCC has ruled that BellSouth can mandate that its DSL subscribers also use its phone services. According to BellSouth, only 8,000 of its 1.9 million DSL customers subscribe to unbundled DSL. FCC considered its decision critical to sustain the growth of broadband in the country.

Originally declared a regulation free area, VoIP is undergoing a new look. The FCC has decided to move forward with its original plan to require VoIP providers to provide an enhanced 911 service. One of the leading VoIP service providers in the US, Vonage, is currently facing lawsuits in several states stemming from complaints that its 911 service failed. Recently, a mother lost her 3½-month-old daughter when she was not able to contact the 911 emergency service through her broadband service provider, Vonage. With a high cost of traditional phone service in the US, many people are turning to lower-cost internet phone services such as Vonage. The company provides services for more than 500,000 customers. Before the end of the year, Vonage expects to have a solution in place that allows people to call 911 and get their phone number and their location displayed on the dispatcher's screen. It is not yet clear how the FCC will ensure VoIP providers have access to the equipment they need to route the calls to primary 911 call center lines or how the agency will enforce its requirements.



# Industry Profile

## - Canada

### Industry Size and Value

The voracious appetite of Canadians for wireless telecommunications continued to drive growth in the wireless services industry between July and September last year. As a result, revenues in the wireless industry have boomed. According to Statistics Canada, operating revenues in the wireless industry reached more than C\$2.5 billion (US\$2 billion) between July and September last year, up 17.8% from the same three months in 2003. Statistics Canada reported that due to the growing use of wireless communications devices, the number of subscribers to wireless services surpassed 14 million at the end of third quarter 2004, a jump of 12.2% from third quarter 2003. The industry's average revenue per subscriber rose 5% to C\$176.20 (US\$142) in the third quarter compared with the prior year's quarter.

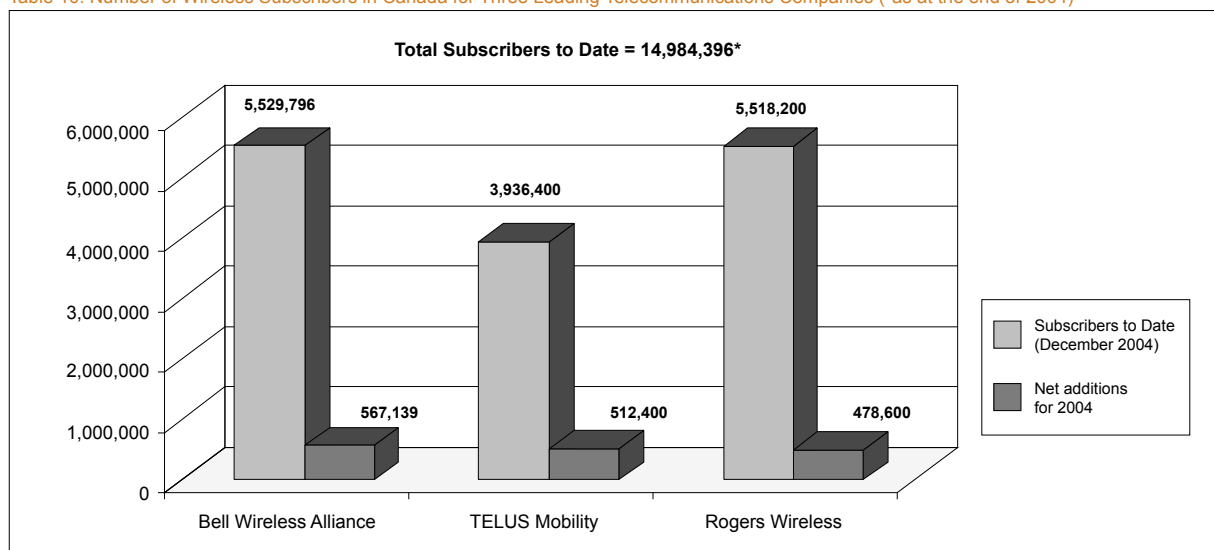
However, in the wireline industry, phone companies have seen a steady decline in their traditional customer base due to the strong competition from the wireless industry. The decline showed in the third quarter 2004 statistics, with about 19.7 million residential and business lines connected to the network, or 1.2% fewer than at the end of the third quarter of 2003. Because of the dwindling customer base in traditional telephony markets, there

was sluggish revenue growth for the wireline industry. Operating revenues for the first nine months of 2004 were down 1.1% from the first nine months of 2003. With the erosion in the traditional telephony market, high-speed internet access services are helping the wireline industry cope with its dwindling revenues. The major incumbent wireline companies had 2.6 million subscribers to their high-speed internet services at the end of the third quarter of 2004, 27.8% more than a year earlier.

Investments in the first nine months of 2004 outpaced those in the same period the year before in both sectors. In the wireless industry investments totaled C\$1 billion (US\$806 million) and in the wireline industry they totaled C\$2.9 billion (US\$2.3 billion), a significant increase of 26.3% and 21.6% respectively.

Canada's wireless carriers invest more than C\$1 billion (US\$806 million) in mobile phone communications infrastructure each year, according to CWTA. Despite the unusual distribution of Canada's relatively small population across its vast landmass — or perhaps because of it — Canada is a world leader in communications networks and technology. For an industry that is just two

Table 10: Number of Wireless Subscribers in Canada for Three Leading Telecommunications Companies (\*as at the end of 2004)

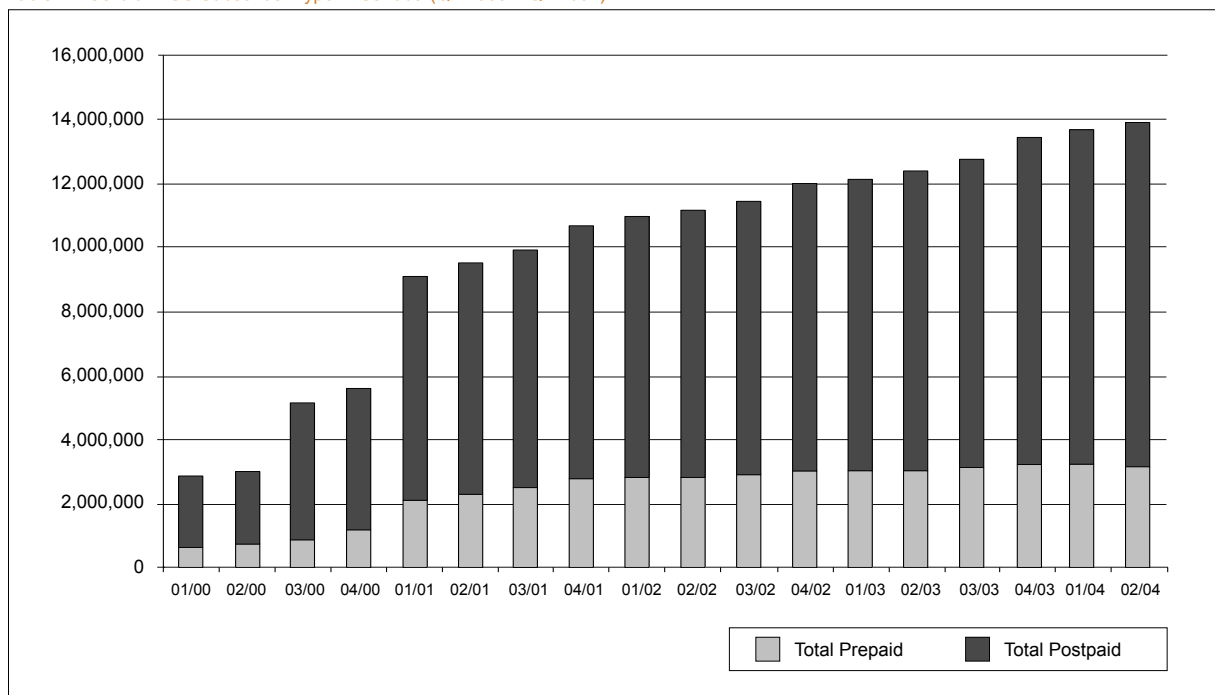


Source: Canadian Wireless Telecommunications Association



# Industry Profile - Canada

Table 11: Cellular/PCS Subscriber Type in Canada (Q1 2000 – Q2 2004)



Source: Statistics Canada

decades old Canada's wireless phone industry has made remarkable progress. The country's wireless carriers now offer coverage to more than 95% of the population. Its wireless industry employs about 25,000 Canadians, most of them highly skilled and who earn 30% more than the average Canadian worker. Thousands more jobs are indirectly supported by the industry.

More Canadians than ever have a mobile telecommunications device and are spending more for mobile services. Due to the increasing number of mobile devices, text messaging is very popular in Canada. Canadians sent more than 710 million person-to-person text messages from their mobile phones in 2004, up from 352 million in the previous year and 300% more than in 2002. CWTA announced in March that text-messaging volumes reached 95.5 million, or more than 3.4 million per day, for the month of February 2005.

As many new models of camera and videophones have entered the market in the past couple of years, Canadians are beginning to embrace multimedia-messaging services (MMS) with the same enthusiasm they have for text messaging. MMS, which extends SMS text messaging

to include photos, graphics, audio clips, video clips or combinations of these, allows users to send their multimedia messages to other MMS-capable phones or e-mail accounts. In the future, Canada's wireless carriers should be able to introduce full inter-carrier MMS, according to CWTA.

## Digital Phones Over Cable Networks

The latest offering from cable companies is digital phone over cable networks. In Canada, Halifax-based EastLink has offered cable telephony since 1999, using traditional circuit-switched technology over coaxial cable. Canadian cable companies are looking to internet protocol or IP technology to deliver voice services. The Canadian cable companies have extensive networks of local coaxial cable and backbone fiber facilities that can carry voice conversations as IP-data packets, similar to the way that internet traffic is transported. Almost 2.4 million Canadians subscribe to cable high-speed internet services and more than ten million homes are connected to internet-ready cable networks. Over the next couple of years, cable companies will invest hundreds of millions of dollars to enable IP-based voice services over their cable networks.



# Industry Profile - Canada

Table 12: Comparison of Total R&D (Million) (1997 and 2000)

	Canada (C\$)			United States (US\$)		
	1997	2000	% Change	1997	2000	% Change
<b>Total R&amp;D</b>	8,744	11,449	30.9%	133,611	180,421	35.0%

Source: Industry Canada

## Research and Development

In a knowledge-based economy such as Canada's, research and development (R&D) is a key ingredient for competitiveness. An increasing number of firms contract out to specialized R&D firms and seek partnerships with the Canadian Government. The Government is committed to developing initiatives that will position Canada among the most innovative economies in the world. The federal budget of February 18, 2003, continued the Government's pattern of investing in science and technology (S&T), with more than C\$13 billion (US\$10.5 billion) invested in research and innovation since 1997. In 2003, more than C\$1.7 billion (US\$1.4 billion) in new funding over three years was announced. The investments should enable new ideas and technologies to be developed, such as heart pacemakers and telecommunications satellites.

The National Research Council Canada (NRC), through activity in S&T, is a leader in the development of an innovative, knowledge-based economy for Canada. The NRC plays a leadership role in e-business and wireless technologies. It has moved aggressively to ensure the efficient transfer of its knowledge and technology to the marketplace, through the engagement of partners and stakeholders. During 2002-03, the NRC created three spin-off companies, bringing its total to 55 since 1995. NRC spin-off companies have created more than 500 jobs and attracted C\$252 million (US\$203 million) in private investments. The NRC has more than 1,450 private and public sector collaborations in Canada and internationally, with a total value of C\$425 million (US\$343 million) over the lifetime of its agreements with various partners. It received 65 new patents, bringing its total to more than 650, signed 48 new technology licenses with Canadian industry and earned C\$7.3 million (US\$5.9 million) in licensing revenue during 2002-2003. The NRC invested C\$74.7 million (US\$60.2 million) in major new equipment and facilities to ensure it has the necessary capacity to continue developing world class S&T.

## Policy and Regulatory Environment

In Canada, the Canadian Radio and Television Commission, the CRTC, is the government agency equivalent to the FCC in the US. Early in April, CRTC ruled that companies that offer internet phone services to the public must provide at least basic emergency 911 services to their customers within 90 days. The ruling is more restrictive than a preliminary policy issued a year ago. Because of the technology, VoIP phones are relatively easy to move from location-to-location and it is possible to have, for example, a Toronto phone number even if the phone is in Vancouver. The danger is that 911 emergency calls will be routed to the wrong emergency response center.

The Commission distinguished between three types of VoIP service that will be required to offer emergency services. These include fixed VoIP service, where users can only place a telephone call from the location where their service is being provided; nomadic VoIP, where calls can be made from any location that offers internet access; and foreign exchange VoIP service, which allows users in one exchange to receive telephone calls dialed as local calls in another exchange (for example, a customer located in Ottawa with a Halifax local telephone number).



# Market Trends & Outlook

## - United States

### Speedier 3G – HSDPA

An enhancement to 3G, HSDPA, or high-speed downlink packet access, would make data downloads about four times faster than regular 3G. The speeds promised by HSDPA would allow mobile users to view DVD-quality video or play high-resolution interactive games on their mobile phones. The faster download makes it likely that customers will use HSDPA as demand for data services grows rapidly. However, due to the late arrival of enabled handsets outside of the US, HSDPA will only become a reality in the mass market in 2006.

HSDPA technology also allows users to have real-time streaming images of the person they are talking to — for true wireless videoconferencing. Even though HSDPA accelerates the downloading of data to a cell-phone or computer, it does little to improve the speed of sending data the other way, the so-called uplink. This will become an important issue as people send more photos, videos and other applications to each other. At the recent 2005 Cellular Telecommunications & Internet Association (CTIA) trade show in the US, Korea's Samsung was the only company to showcase HSDPA as it is the world's first manufacturer to develop a commercial-ready HSDPA handset. In the US, Cingular Wireless, one of the nation's largest wireless carriers, plans to install HSDPA, an upgrade to UMTS that offers speeds of up to 1.8 Mbits/sec to individual handsets. Cingular ran its first HSDPA tests in January this year and plans to have the network in 15 to 20 cities by the end of the year. The US is expected to see earlier HSDPA because the mobile data market already has good coverage from CDMA 2000 and EV-DO standards, and Cingular is set to become the first major operator to launch HSDPA on its network in late 2005.

### US Cities Becoming Giant Wireless Hotspots

Today, solid telecommunications infrastructure is becoming a critical joint in the backbone for global connectivity for companies in all sectors. More than 50 US cities have set up or plan to install wireless broadband networks. Municipal wireless supporters are seeking to spread wireless access far and wide across the US, but telecommunications companies are not welcoming the competition to their existing billion-dollar networks. As the line between wired and wireless internet services continue to blur, Wi-

Fi will become more important as a key selection criteria for industrial companies. The integration of cell phone services with Wi-Fi networks that beam wireless data over short distances is expected to heighten Wi-Fi's appeal to these companies in the near future. However, there are pros and cons to the municipal wireless.

Some experts warn that Wi-Fi is not intended for use in a citywide system. The theory is that these systems would interfere with other Wi-Fi networks in individual homes or businesses or even disrupt household appliances like microwaves and cordless phones. In addition, the costs and financial risks are too great to cities that plan to build their own broadband networks using taxpayers' money. Despite these concerns, cities like Corpus Christi and Austin, Texas, Philadelphia, Atlanta, Hermosa Beach California, and Chaska, Minnesota are experimenting with major Wi-Fi broadband implementations. The good side of these Wi-Fi roll-outs is that it draws a solid, public connection between the life and health of the city and access to the internet. Recently, the Bush Administration announced it wanted to see ubiquitous broadband roll-out by 2007. With such a roll-out, telecommunications will become a greater catalyst to the US economic development than ever.

### VoIP Subscriber Numbers Grow

Over the next two years, VoIP is expected to move from its early adopter phase into the mainstream, with the growing use of broadband by US households a key driver. VoIP is finally beginning to show its potential in the US consumer market, and services are projected to grow from three million this year to 27 million by the end of 2009, according to high-tech market research firm IDC. TIA's 2005 Telecommunications Market Review and Forecast says that the number of VoIP access lines in the US jumped to 6.5 million in 2004 from 3.8 million in 2003 and are expected to expand to an estimated 26 million by 2008. The growth of VoIP services is due partly to consumers looking to add value to their telephony service. In addition, the recent success in the US market is because the price is lower than conventional telephony. America Online (AOL) (NYSE: AOL) is expected to unveil an internet-based phone service soon and plans to roll-out the service more widely after testing this year. AOL has been in



# Market Trends & Outlook - United States

discussions with cable companies, including Time Warner. The company will use VoIP technology from Level 3 Communications (NASDAQ: LVL) and Sonus Networks (NASDAQ: SONS). Focusing on ease of use of its new service and brand popularity, AOL is expected to be in a good position to rival VoIP giant Vonage. According to AOL, the company will offer stripped-down technology that can be installed by anyone, unlike some services that have several components. As with VoIP services already in place, a customer will use a high-speed internet link to send and receive phone calls.

## **The Expansion of Video Networks**

Watching TV or video on the move has become part of daily life for cell phone users across the US. The three giant wireless companies in the US — Verizon, Sprint and Nextel — have rolled out competing video support services, networks and cell phones to receive video reports on news, entertainment and sports. Verizon wireless has been investing heavily in broadband infrastructure improvements to expand the geographic reach of its cell phone network. In fiscal 2004, \$1.5 billion was spent for the broadband access for its network components. Verizon's "Vcast" service (which stands for Verizon broadcast) provides a daily selection of 300 video clips for downloading in the categories of news, entertainment, sports and weather.

According to the company, entertainment has the largest number of clips, followed by sports and then news. Another competitor, Sprint PCS entered the video market in November 2003 when it introduced "MobiTV". In August last year, it launched a new multimedia service with streaming audio and video. The company is expected to announce an improved EV-DO (Evolution Data Optimized) network in fall 2005 that will cover 25 major American cities. By the end of 2006, the company plans to expand the video network to cover 85% of the current cell phone territory with the video-capable service. Meanwhile, Nextel cell phone has been providing video downloads of sports news since February this year. With smart-phones becoming increasingly cheaper and mobile data service become more affordable, consumer uptake for mobile TV services is expected to quickly follow.

## **Mobile Entertainment Poised to Take-Off**

As the wireless market matures and voice services become widely available, the dynamics of competition among US

wireless carriers will evolve further. In the fourth quarter of 2004, IDC research found that total revenues from paid downloads in the US by wireless subscribers was around \$250 million. From a download revenue standpoint, ringtones and games led the way, with graphics, consumer and business applications comprising the remainder. One US company that stands to benefit from this business is JAMDAT Mobile Inc (NASDAQ: JMDT), a global publisher of wireless entertainment applications, including games, ringtones, images and other content. The company reported revenue of \$15.1 million in the first quarter of this year, a 31% increase over the \$11.6 million reported in the fourth quarter of last year. While the gaming business is still in its infancy, there are a number of companies focused on this business. Among them are private companies such as Airborne Entertainment, Blue Lava, Digital Chocolate and Gameloft (Euronext Paris: GFT) which is traded on the Paris Bourse.

## **Radio Frequency Identification Gains Popularity**

One of the latest radio wave innovations is in the hot field of radio frequency identification (RFID), a method of remotely storing and retrieving data using RFID tags/transponders. An RFID tag is a small object, such as an adhesive sticker, that can be attached to or incorporated into a product. RFID tags contain antennas to enable them to receive and respond to radio-frequency queries from an RFID transceiver. Today, RFID is used in automating manufacturing and materials handling by moving beyond barcodes to provide tracking capabilities from manufacturer to retail shelves.

US government spending on radio frequency identification (RFID) technology is expected to rocket by 120% by 2009, according to public sector analyst firm Input. The US State Department plans to begin issuing new passports to diplomats using the technology in August this year. The department claims that the RFID data will be secure and readable only at a distance of about four inches. Process improvements and cost savings through the use of RFID in a limited number of existing programs in the US Government is expected to encourage greater acceptance within US civilian agencies in the future.

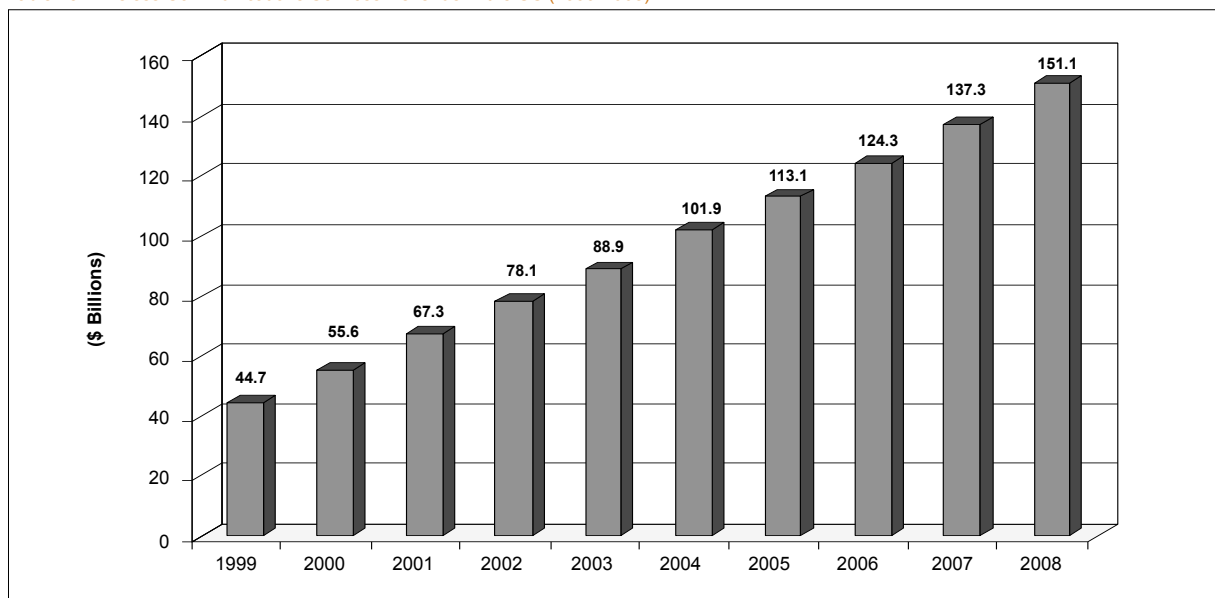
## **Wireless Phone Market Booms**

The rapid growth of the US wireless phone market has been driven by continued subscriber growth and upgrades to more sophisticated handsets. After slowing in 2001 and



# Market Trends & Outlook - United States

Table 13: Wireless Communications Services Revenue in the US (1999-2008)



Source: Telecommunications Market Review and Forecast, Telecommunications Industry Association, 2005

2002, the number of wireless communications handsets rose at double-digit rates in 2003 and 2004, reaching 10.1 billion and 11 billion respectively. Spending on wireless communications handsets is expected to grow from an estimated \$11.5 billion in 2005 to \$13.8 billion in 2008, a 6% CAGR, according to the TIA's 2005 Telecommunications Market Review and Forecast. The double-digit growth rates in wireless communications handsets indicate it is an important driver for growth in the US communications industry. As a result of higher growth in the wireless handset market, spending on wireless communications services in the US is expected to rise by 11.1% in 2005 to \$113.1 billion and to expand at a 10.4% CAGR, reaching an estimated \$151.1 billion in 2008.

## Wireless Security at Risk

Millions of businesses and computer users are at risk from hackers and malware (malicious software) writers targeting wireless internet systems and mobile telephone devices, according to the UK-based security firm mi2g Intelligence Unit. Mobile phone devices are susceptible to malware because they use operating systems that have turned them into mini computers. Virus and worm attacks are increasingly infecting mobile phones. In early January, Trojan horse programs — believed to have originated in Russia — attacked Symbian-based mobile phones stopping

them from being able to make calls. Another danger is the Gavno virus, masquerading as patch files and other camouflaged files designed to trick users into downloading them. The virus can infect popular phones such as Nokia's 6600 and 7610 models using Symbian's operating system Version 7.

The consequences of mobile phone malware proliferation and wireless network hacking include data and identity theft, expensive phone calls and on-demand services' bills, as well as crippled handsets and disconnected computers, according to mi2g. In the 3G segment, security is a top priority for wireless operators to protect networks and sensitive data against threats such as fraud and privacy violations. The 3rd Generation Partnership Project (3GPP) mandates the use of IPSec and IKEv2 in 3G networks to provide maximum data integrity and security. In early April, a variant of the Cabir mobile virus, called Mabir, was targeting mobile phones using the Symbian Series 60 operating system. Mabir is capable of spreading via Bluetooth or by a phone's messaging service.

## Broadband and Wireless Spark US Telecom Growth

For the US telecommunications industry, 2004 was a turnaround year, marking the first time in four years that telecommunications equipment sales rose in the country.



# Market Trends & Outlook - United States

Enterprise equipment spending grew 5.9% last year to \$99 billion, which is more than the combined gain of the previous three years. Enterprise spending is expected to rise 6.8% to \$105.6 billion this year, as large companies continue to replace legacy equipment with IP and convergent systems, according to TIA's report. Internet access revenue increased 12.5% last year, thanks to growing broadband penetration. The number of broadband subscribers in the US grew by 32 million last year and the expectation is that broadband will surpass dial-up this year and grow to almost 57 million subscribers by 2008. TIA predicts internet access services spending to increase at 6.8% CAGR to \$35.3 billion by 2008. Spending on wireless services jumped 14.6% to \$101.9 billion in 2004, thanks largely to carriers' introduction of new services such as 3G, online gaming, Wi-Fi and WiMAX. TIA expects wireless services revenue in the US to grow at a 10.4% CAGR through 2008.

## **Market Outlook**

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High-profile mergers are changing the face of the US telecommunications industry. Sprint and Nextel kicked off the merger rush in December last year when they announced they were combining in a \$35 billion deal. A month later, SBC said it was acquiring AT&T in a \$16 billion deal. Verizon followed in February with an offer to acquire MCI for \$6.7 billion, although Qwest has countered with an \$8 billion proposal for MCI. Both of them are still wrestling with better offers. The high-profile mergers are the beginning of a new era of competition in an expanding and converging communications world. New global players from China and India, industry consolidation and next wave technologies, such as VoIP, 3G, digital media and Wi-Fi/WiMAX, are driving big moves in the market.

The mergers are a necessary tune-up for the telecommunications industry, ensuring that the country's economic engine is geared to compete globally. For instance, acquiring AT&T will give SBC a better opportunity to compete in large enterprise markets and provides it with VoIP options. SBC does not have a consumer VoIP service but AT&T does, and SBC can use it to compete domestically and internationally. This year, US wireline and wireless telecom carriers are expected to continue to shift their spending focus toward higher growth segments. Wireless carriers are expected to focus their spending primarily on 3G network roll-outs, while the wireline carriers are likely to focus on spending on next-generation broadband access, soft-switching and IP routers.



# Market Trends & Outlook

## - Canada

### Canada's ICT Sector Surges Along

Canada is a significant player in the global ICT industry. According to the global research and advisory Economist Intelligence Unit (EIU), Canada should be the best country in the world in which to do business between now and 2008. EIU considers Canada the best place to invest in the dynamic information and communications technologies (ICT) sector. In the fourth quarter of 2004, Canada's ICT sector output grew by 1.1%, outpacing the general Canadian economy, which expanded by 0.6%. Economic activity in the ICT sector has had continuous growth dating back to the first quarter of 2002. The sector's output was 12% higher in 2004's fourth quarter than it was at the end of 2001, compared with a 9.7% increase for the entire Canadian economy. Overall, the performance of the ICT sector has been impressive. It has grown by 86%, almost three times as fast as the Canadian economy (+32%) since the first quarter of 1997.

The telecommunications industry grew 1.1% in the fourth quarter compared with the previous quarter, marking its fourth-consecutive quarter of growth. Since 1997, output in the telecommunications services industry has grown by 75%, while that of the software and computer services industries has almost tripled.

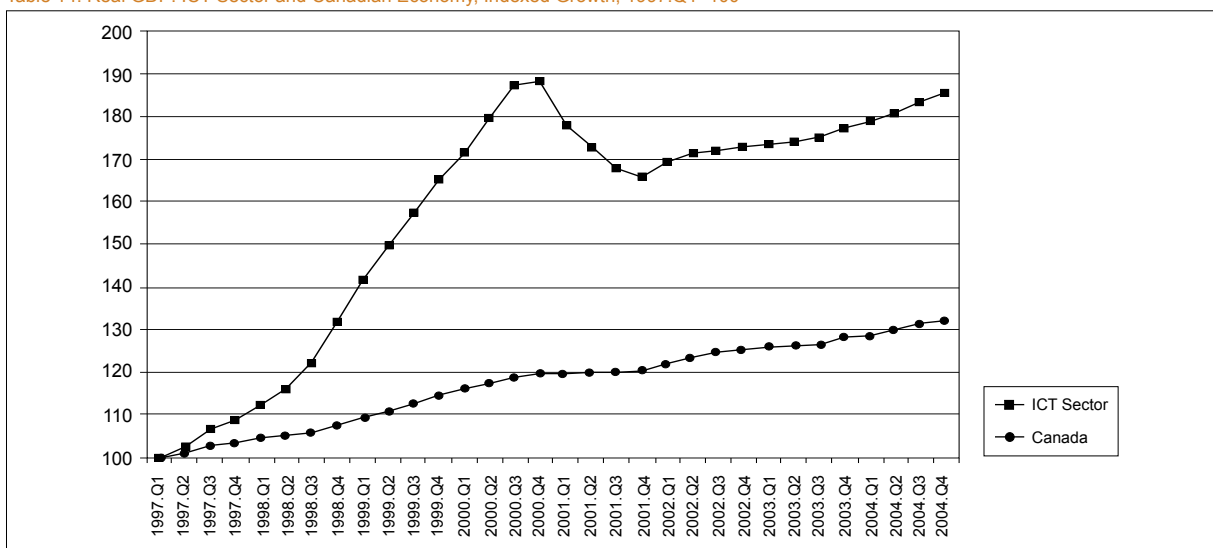
### Broadband Deployment Expands

The most popular Canadian broadband services are based on cable technology, due to a great price/connection speed ratio. Canada made an early start with broadband and has been at the forefront of the technology since its beginning.

According to ITU, 53% of connections in Canada were cable modem in 2004. In North America, the gaps between growth rates are smaller for Canada and the US, where digital subscriber lines (DSL) still face tough competition from cable operators. Cable modem services are becoming more attractive with low-cost triple play and video-on-demand gaining appeal among mainstream users. The Canadian cable industry provided television services to 7.2 million subscribers and cable high-speed internet access to 2.3 million Canadians at the end of 2004, according to the Canadian Cable Telecommunications Association (CCTA). Broadband services are being driven by a government regulator keen to establish Canada as a leading information economy and an attractive country for investment.

The latest initiative to boost broadband internet services by the Canadian Government is the creation of Alberta SuperNet, a real broadband network linking about 4,200 government, health, library and education facilities in

Table 14: Real GDP: ICT Sector and Canadian Economy, Indexed Growth, 1997.Q1=100

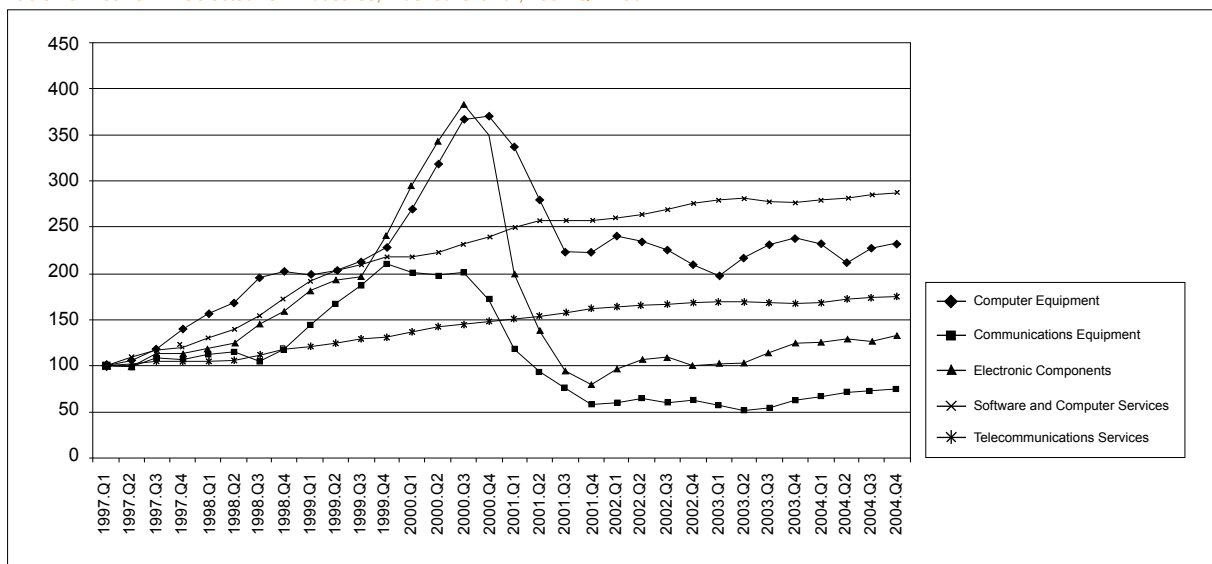


Source: Industry Canada



# Market Trends & Outlook - Canada

Table 15: Real GDP: Selected ICT Industries, Indexed Growth, 1997.Q1=100



Source: Industry Canada

429 communities in the province of Alberta. The Alberta SuperNet creates a competitive market for the delivery of broadband services by private internet service providers throughout the province to rural retail customers. The network comprises a Base Area, which links the province's 27 largest communities and an Extended Area, which includes more than 400 smaller communities across the province.

All the rural communities in the Extended Area Network will be connected by April 30, 2005, which will enable local service providers to buy bandwidth on Alberta SuperNet and offer high-speed commercial services, including internet access, to rural retail customers. Additionally, the vast majority of the government, health, library and education facilities in the Base Area Network and Extended Area Network will be connected by June 30, with the total network being completed by September 30.

## Employment Prospects

Information and Communications Technology (ICT) sector employment in the US increased by 0.9% in the final quarter of 2004, according to Statistics Canada. This marked the second consecutive quarter of growth for ICT employment and the number of employees in the whole Canadian economy increased by 0.4% in that quarter. Since the first quarter of 1997, employment in the ICT sector

has increased by almost 32% compared with 18% in the Canadian economy as a whole. In the ICT manufacturing industries, communications was one of the only industries to grow in the quarter, with an increase of 1.8%. However, employment in the electronic components (-5.5%) and computer equipment (-3.1%) industries both fell for the second straight quarter. When compared with the first quarter of 1997, employment in the communications equipment industry was 3% greater, while that in the electronic components and computer equipment industries was much lower.

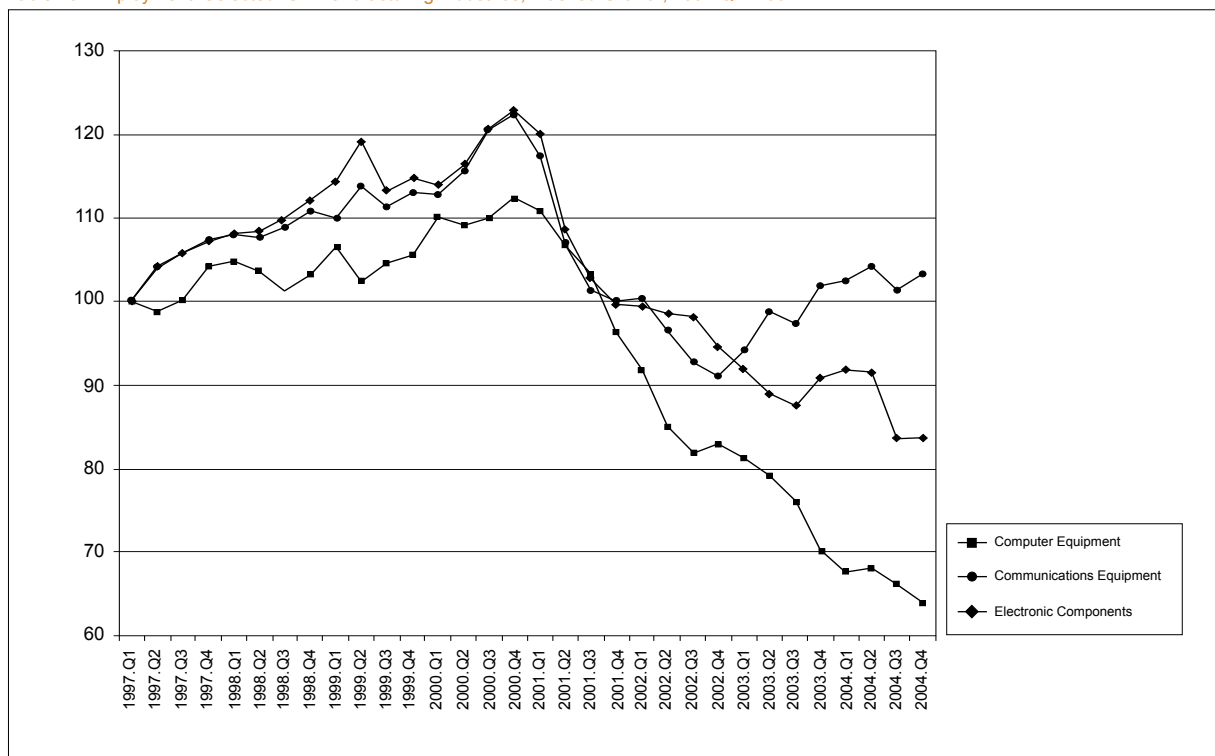
## Market Outlook

Since the first wireless message beamed across the Atlantic Ocean to Canada in 1901, the country has developed a vast communications and IT infrastructure, giving rise to global leaders such as Research in Motion, Nortel (TSX: NT) and Sierra Wireless (TSX: SW). Entertainments such as video games and music downloads are expected to grow rapidly over the next five years as new technologies rejuvenate maturing segments. The next generation of mobile phones that can be used for entertainment as well as communication is rapidly gaining market share all over the world, including Canada. This trend, and increased broadband penetration, will spur growth in online and wireless video games as well as music downloading in Canada. The high penetration of broadband is also fueling



# Market Trends & Outlook - Canada

Table 16: Employment: Selected ICT Manufacturing Industries, Indexed Growth, 1997.Q1=100



Source: Industry Canada

growth in other industries in Canada, such as interactive and digital TV services and e-commerce. The opportunity for IP-VPN services has also increased as the proliferation of broadband access has made mobile-working more of an option for workers. With the introduction of new technology such as WiMAX and super 3G in the near future, Canada's telecommunications industry is expected to become more competitive.



# Currency Conversion Table

Currency Exchange Rates as of April 12, 2005

Currency Unit	USD per Unit	Units per USD
United States Dollars	1	1
Canadian Dollars (CAD\$)	0.8059	1.2408

Source: Federal Reserve Bank of New York  
Note: Base currency is United States Dollars



## | The Scope Of This Report

This report examines the telecommunications industries in the United States and Canada. The industry can be broadly broken into two categories: services and manufacturing. However, the communications media has diversified and a number of companies that include voice and data, wireless service providers and equipment makers have broadened the industry. The report also examines the current environment for the sector, profiles the industry and discusses market trends and outlook. Key financial results for leading companies are presented in the comparative data tables on proceeding pages.

Research analysts draw on a range of credible industry and company data sources as well as news and information services to research and analyze the current trading environment, industry landscape and market trends and outlook for a particular sector. Primary sources are used, unless otherwise indicated, which include company data, e.g. annual reports and company financial results; macroeconomic and trade data; data and information from global and country regulatory, industry and trade bodies; government data; and reports from industry organizations and private research organizations.

Industries covered by the industry reports are defined by standard industry classification systems and leading companies are identified on this basis. The following SIC codes are relevant to the industry: 3661 (Telephone and Telegraph Apparatus), 3663 (Radio and TV Communications Equipment), and 3669 (Communications Equipment) for the manufacturing segment and 4812 (Radiotelephone Communications), 4813 (Telephone Communications), 4822 (Telegraph and Other Communications), 4899 (Communications Services) and 7375 (Information Retrieval Services) for the services side.



# | Key References

## Global

### **International Telecommunication Union (ITU)**

The ITU is a civil international organization established to promote standardized telecommunications on a worldwide basis.

<http://www.itu.int>

## United States

### **Federal Communications Commission (FCC)**

The FCC is the US Government's telecommunications regulatory authority.

<http://www.fcc.gov>

### **Alliance for Telecommunications Industry Solutions (ATIS)**

ATIS is a US-based body committed to rapidly developing and promoting technical and operations standards for the communications and related information technologies industry worldwide.

<http://www.service-architecture.com>

### **Telecommunications Industry Association (TIA)**

The TIA represents providers of communications and information technology products and services through standards development and domestic and international advocacy. The TIA strives to further members' business opportunities through the development of a competitive and innovative market and trade promotion programs.

<http://www.tiaonline.org>

### **United States Telecom Associations (USTA)**

The USTA represents the local exchange carrier industry.

<http://www.usta.org>

### **National Telecommunications and Information Administration**

The NTIA is the President's principal advisory body on telecommunications and information policy.

<http://www.ntia.doc.org>

### **Association for Local Telecommunications Services**

The ALTS is the trade association that represents the builders of high-speed local communications.

<http://www.alts.org>

### **US Census Bureau**

The Census Bureau is a government agency that produces US demographics data at the national, state and county level.

<http://www.census.gov>



## **Canada**

### **Canadian Radio-Television and Telecommunications Commission**

The CRTC is an independent agency responsible for regulating Canada's broadcasting and telecommunications systems.

<http://www.crtc.gc.ca>

### **Statistics Canada**

Statistics Canada is the national statistics agency that is the official source for Canadian social and economic statistics and products.

<http://www.statcan.ca>

### **Canadian Wireless Telecommunications Association (CWTA)**

The CWTA is the authority on wireless issues, developments and trends in Canada.

<http://cwta.ca>

### **The Canadian Telecommunications Consultants Association (CTCA)**

The CTCA is Canada's only professional association of independent telecommunications consultants.

<http://www.ctca.ca>



Company Name	Ticker	Exchange	Primary SIC	Other SICs				
Verizon Communications Inc	VZ	NYSE	4813	4812	7378	6159	2741	
SBC Communications Inc	SBC	NYSE	4813	6719	4812	5065	2741	3663
AT&T Corp	T	NYSE	4813	3661	3357	3571	3577	3674
MCI Inc	MCIP	NASDAQ	4813	3661				
Motorola Inc	MOT	NYSE	3663	3674	3571	3812	3661	3694
Sprint Corp	FON	NYSE	4813	4822	3577	2741	6719	
BellSouth Corp	BLS	NYSE	4813	4812	5065	6719		
Qwest Communications International Inc	Q	NYSE	4813	7379				
Nextel Communications Inc	NXTL	NASDAQ	4812					
Lucent Technologies Inc	LU	NYSE	4813	3661				

Company Name	Total Revenue - FYE - 1	Total Revenue - FYE - 2	Total Revenue - FYE - 3	EBITDA - FYE - 1	EBITDA - FYE - 2	EBITDA - FYE - 3
Verizon Communications Inc	\$67,752,000,000	\$67,625,000,000	\$67,190,000,000	\$23,908,000,000	\$31,657,000,000	\$67,190,000,000
SBC Communications Inc	\$40,843,000,000	\$11,746,477,400	\$45,908,000,000	\$15,556,000,000	\$18,553,000,000	\$21,140,000,000
AT&T Corp	\$34,529,000,000	\$37,827,000,000	\$42,197,000,000	\$9,685,000,000	\$10,697,000,000	\$16,334,000,000
MCI Inc	\$27,315,000,000	\$32,189,000,000	\$37,608,000,000	\$3,745,000,000	\$495,000,000	(\$3,185,000,000)
Motorola Inc	\$27,058,000,000	\$26,679,000,000	\$30,004,000,000	\$27,058,000,000	\$963,000,000	(\$2,465,000,000)
Sprint Corp	\$26,197,000,000	\$26,634,000,000	\$26,071,000,000	\$7,240,000,000	\$8,418,000,000	\$5,118,000,000
BellSouth Corp	\$22,635,000,000	\$28,448,000,000	\$24,130,000,000	\$22,635,000,000	\$10,577,000,000	\$12,235,000,000
Qwest Communications International Inc	\$14,288,000,000	\$15,385,000,000	\$16,530,000,000	\$4,670,000,000	(\$13,261,000,000)	\$4,449,000,000
Nextel Communications Inc	\$10,820,000,000	\$8,721,000,000	\$7,689,000,000	\$5,001,000,000	\$4,495,000,000	\$1,938,000,000
Lucent Technologies Inc	\$9,045,000,000	\$8,470,000,000	\$12,321,000,000	\$9,045,000,000	\$8,470,000,000	(\$5,127,000,000)

Company Name	Net Income - FYE - 1	Net Income - FYE - 2	Net Income - FYE - 3	EPS - FYE - 1	EPS - FYE - 2	EPS - FYE - 3
Verizon Communications Inc	\$3,077,000,000	\$4,079,000,000	\$389,000,000.00	\$1.12	\$1.49	\$0.14
SBC Communications Inc	\$8,505,000,000	\$5,653,000,000	\$7,008,000,000.00	\$2.56	\$0.46	\$2.15
AT&T Corp	\$1,865,000,000	(\$13,082,000,000)	\$9,149,000,000.00	\$2.37	(\$17.53)	\$12.50
MCI Inc	\$22,211,000,000	(\$9,173,000,000)	(\$15,597,000,000.00)	N/A	N/A	N/A
Motorola Inc	\$893,000,000	(\$2,485,000,000)	(\$3,937,000,000.00)	\$0.38	(\$1.09)	(\$1.78)
Sprint Corp	\$1,215,000,000	\$630,000,000	(\$1,401,000,000.00)	\$2.09	\$0.78	(\$1.44)
BellSouth Corp	\$3,904,000,000	\$3,918,000,000	\$2,447,000,000.00	\$2.11	\$0.71	\$1.31
Qwest Communications International Inc	\$1,512,000,000	(\$38,468,000,000)	(\$4,023,000,000.00)	\$0.87	(\$22.87)	(\$3.37)
Nextel Communications Inc	\$1,537,000,000	\$1,386,000,000	(\$2,625,000,000.00)	\$1.41	\$1.88	(\$3.67)
Lucent Technologies Inc	\$1,141,000,000	(\$770,000,000)	(\$11,753,000,000.00)	\$0.27	(\$0.29)	(\$3.49)

Company Name	Total Current Assets - FYE - 1	Total Current Assets - FYE - 2	Total Current Assets - FYE - 3	Long-Term Debt - FYE - 1	Long-Term Debt - FYE - 2	Long-Term Debt - FYE - 3
Verizon Communications Inc	\$18,293,000,000	\$20,921,000,000	\$23,187,000,000	\$39,413,000,000	\$44,003,000,000	\$44,873,000,000
SBC Communications Inc	\$13,968,000,000	\$14,089,000,000	\$12,580,000,000	\$16,060,000,000	\$18,536,000,000	\$17,133,000,000
AT&T Corp	\$9,848,000,000	\$15,903,000,000	\$22,727,000,000	\$13,066,000,000	\$18,812,000,000	\$24,025,000,000
MCI Inc	\$12,153,000,000	\$9,649,000,000	N/A	\$7,117,000,000	\$1,046,000,000	N/A
Motorola Inc	\$17,907,000,000	\$17,134,000,000	\$17,149,000,000	\$6,675,000,000	\$7,189,000,000	\$8,372,000,000
Sprint Corp	\$6,611,000,000	\$6,078,000,000	\$5,562,000,000	\$16,841,000,000	\$18,405,000,000	\$16,501,000,000
BellSouth Corp	\$8,849,000,000	\$7,862,000,000	\$6,855,000,000	\$11,489,000,000	\$12,283,000,000	\$15,014,000,000
Qwest Communications International Inc	\$4,419,000,000	\$4,416,000,000	(\$5,133,000,000)	\$15,639,000,000	\$19,754,000,000	\$20,197,000,000
Nextel Communications Inc	\$3,688,000,000	\$4,650,000,000	\$5,723,000,000	\$9,725,000,000	\$12,299,000,000	\$14,720,000,000
Lucent Technologies Inc	\$8,231,000,000	\$7,833,000,000	\$9,155,000,000	\$4,837,000,000	\$4,439,000,000	\$3,236,000,000

Company Name	Return on Equity (Most Recent Yr)	Profit Margin (Most Recent Yr)	Date FYE - 1	Date FYE - 2	Date FYE - 3
Verizon Communications Inc	202.45	4.75	31-Dec-03	31-Dec-02	31-Dec-01
SBC Communications Inc	106.78	106.20	31-Dec-03	31-Dec-02	31-Dec-01
AT&T Corp	13.35	5.40	31-Dec-03	31-Dec-02	31-Dec-01
MCI Inc	264.92	81.31	31-Dec-03	31-Dec-02	31-Dec-01
Motorola Inc	7.04	3.30	31-Dec-03	31-Dec-02	31-Dec-01
Sprint Corp	-2.78	4.64	31-Dec-03	31-Dec-02	31-Dec-01
BellSouth Corp	18.21	101.39	31-Dec-03	31-Dec-02	31-Dec-01
Qwest Communications International Inc	129.23	10.58	31-Dec-03	31-Dec-02	31-Dec-01
Nextel Communications Inc	26.34	14.21	31-Dec-03	31-Dec-02	31-Dec-01
Lucent Technologies Inc	-145.18	22.13	30-Sep-04	30-Sep-03	30-Sep-02

## Notes to Comparative Data

- All figures are in United States dollars.
- All figures are as reported by the company.

- N/A = Data Not Available.
- Companies ranked by total revenue for the full year most recently reported.

## Definitions

- Total Revenue = All revenues, including net sales, operating revenues, interest income, royalties, excise taxes etc.
- EBITDA = Earnings before interest, taxes, depreciation and amortization.
- EPS Cont Operations = Earnings Per Share as reported by company excluding extraordinary items.
- Total Current Assets = All assets expected to be realized within the next year, includes cash, accounts receivable and inventories.
- Long Term Debt = Debt due to be paid at a date more than one year in the future.
- Return on Equity = The company's earnings divided by its equity (book value).
- Profit Margin = The company's net income as a percent of revenues.



Company Name	Ticker	Exchange	Primary SIC	Other SICs				
BCE Inc	BCE.PR.R	TSX	4813	4899	3663	3669	6719	
Bell Canada	BC.PR.A	TSX	4813	4899				
Nortel Networks Corp	NT	TSX	3661	3669				
TELUS Corp	T.DB	TSX	4813					
Rogers Wireless Communications Inc	RCM.B	TSX	4813	4812	4899			
Aliant Inc	AIT.PR.A	TSX	4899	3669	4813	7372	8999	6719
Telesystem International Wireless Inc	TIW.DB.A	TSX	4812	3663				
Manitoba Telecom Services Inc	MBT	TSX	4899	4813				
Call-Net Enterprises Inc	Fon.B	TSX	4813	6719				
Research in Motion Ltd	RIM	TSX	4899	3669				

Company Name	Total Revenue - FYE - 1	Total Revenue - FYE - 2	Total Revenue - FYE - 3	EBITDA - FYE - 1	EBITDA - FYE - 2	EBITDA - FYE - 3
BCE Inc	\$14,581,651,200	\$12,592,216,000	\$12,168,728,000	N/A	N/A	N/A
Bell Canada	\$12,777,309,600	\$9,174,711,000	\$8,975,538,000	N/A	N/A	N/A
Nortel Networks Corp	\$9,807,000,000	\$10,560,000,000	\$17,511,000,000	N/A	N/A	N/A
TELUS Corp	\$5,468,119,200	\$4,463,267,900	\$4,455,050,600	N/A	N/A	N/A
Rogers Wireless Communications Inc	\$1,746,341,736	\$1,252,295,499	\$1,086,949,900	N/A	N/A	N/A
Aliant Inc	\$1,583,496,463	\$1,303,603,938	\$1,636,905,327	N/A	N/A	N/A
Telesystem International Wireless Inc	\$967,085,000	\$694,454,000	\$526,225,000	N/A	N/A	N/A
Manitoba Telecom Services Inc	\$646,364,440	\$590,690,100	\$621,856,280	N/A	N/A	N/A
Call-Net Enterprises Inc	\$616,215,560	\$381,499,300	\$126,468,060	N/A	N/A	N/A
Research in Motion Ltd	\$594,616,000	\$306,732,000	\$294,053,000	N/A	N/A	N/A

Company Name	Net Income - FYE - 1	Net Income - FYE - 2	Net Income - FYE - 3	EPS - FYE - 1	EPS - FYE - 2	EPS - FYE - 3
BCE Inc	\$2,669,017,600	\$3,077,984,000	\$566,280,000	\$1.48	\$1.75	\$0.35
Bell Canada	\$3,434,217,600	\$1,768,312,000	\$1,754,600,000	N/A	N/A	N/A
Nortel Networks Corp	\$732,000,000	(\$3,585,000,000)	(\$27,302,000,000)	\$0.17	(\$0.93)	(\$8.56)
TELUS Corp	\$253,663,800	(\$145,873,000)	\$281,170,000	\$0.70	(\$0.48)	\$0.95
Rogers Wireless Communications Inc	\$105,475,933	(\$57,779,085)	(\$123,362,020)	\$0.74	(\$0.41)	(\$0.91)
Aliant Inc	\$234,312,657	\$113,115,912	\$74,975,360	\$1.65	\$0.77	\$0.57
Telesystem International Wireless Inc	\$11,885,000	(\$127,174,000)	(\$253,714,000)	\$0.12	(\$1.45)	(\$81.45)
Manitoba Telecom Services Inc	\$65,654,160	\$103,512,500	\$45,684,700	\$1.03	\$1.61	\$0.71
Call-Net Enterprises Inc	(\$27,011,560)	(\$36,754,900)	(\$57,531,060)	(\$0.98)	(\$1.54)	(\$12.70)
Research in Motion Ltd	\$51,829,000	(\$148,664,000)	(\$28,479,000)	\$0.30	(\$0.96)	(\$0.18)

Company Name	Total Current Assets - FYE - 1	Total Current Assets - FYE - 2	Total Current Assets - FYE - 3	Long-Term Debt - FYE - 1	Long-Term Debt - FYE - 2	Long-Term Debt - FYE - 3
BCE Inc	\$2,740,181,200	\$2,270,905,000	\$3,658,000,000	\$9,483,123,600	\$8,532,615,000	\$9,350,541,200
Bell Canada	\$2,339,981,600	\$2,561,377,000	\$1,698,800,000	\$7,670,364,800	\$6,689,137,000	\$5,605,420,000
Nortel Networks Corp	\$8,529,000,000	\$8,476,000,000	\$11,762,000,000	\$3,891,000,000	\$3,719,000,000	\$4,094,000,000
TELUS Corp	\$1,161,037,960	\$747,328,400	\$894,412,000	\$4,950,384,880	\$5,221,743,800	\$5,363,868,000
Rogers Wireless Communications Inc	\$248,850,692	\$191,084,075	\$160,141,660	\$1,690,788,216	\$1,503,367,775	\$1,429,523,460
Aliant Inc	\$575,203,901	\$487,181,422	\$435,553,100	\$679,898,565	\$634,227,776	\$919,098,237
Telesystem International Wireless Inc	\$358,617,000	\$153,590,000	\$365,973,000	\$1,059,734,000	\$739,313,000	\$784,183,000
Manitoba Telecom Services Inc	\$1,289,285,480	\$72,936,500	\$150,708,980	\$295,596,760	\$293,848,100	\$196,112,820
Call-Net Enterprises Inc	\$184,948,840	\$139,311,900	N/A	N/A	N/A	N/A
Research in Motion Ltd	\$1,355,405,000	\$424,937,000	\$737,318,000	\$6,240,000	\$5,776,000	\$11,874,000

Company Name	Return on Equity (Most Recent Yr)	Profit Margin (Most Recent Yr)	Date FYE - 1	Date FYE - 2	Date FYE - 3
BCE Inc	N/A	N/A	31-Dec-03	31-Dec-02	31-Dec-01
Bell Canada	N/A	N/A	31-Dec-03	31-Dec-02	31-Dec-01
Nortel Networks Corp	N/A	N/A	31-Dec-03	31-Dec-02	31-Dec-01
TELUS Corp	N/A	3.55	31-Dec-03	31-Dec-02	31-Dec-01
Rogers Wireless Communications Inc	23.81	12.82	31-Dec-03	31-Dec-02	31-Dec-01
Aliant Inc	14.43	18.71	31-Dec-03	31-Dec-02	31-Dec-01
Telesystem International Wireless Inc	12.95	42.13	31-Dec-03	31-Dec-02	31-Dec-01
Manitoba Telecom Services Inc	N/A	N/A	31-Dec-03	31-Dec-02	31-Dec-01
Call-Net Enterprises Inc	-10.62	35.59	31-Dec-03	31-Dec-02	31-Mar-02
Research in Motion Ltd	N/A	8.72	28-Feb-04	01-Mar-03	02-Mar-02

## Notes to Comparative Data

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## Definitions

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- Long Term Debt = Debt due to be paid at a date more than one year in the future.
- Return on Equity = The company's earnings divided by its equity (book value).
- Profit Margin = The company's net income as a percent of revenues.





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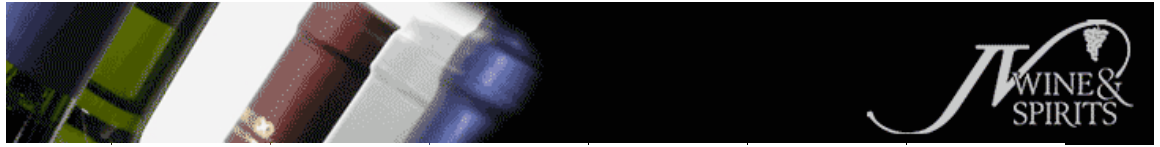
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## Top Selling Handsets in September 2005

The Swedish manufacturer of carrying cases for portable electronics, Krusell, has released their "Top 10"-list for September 2005. The list is based upon the number of pieces of model specific mobile phone cases that has been ordered from Krusell during September 2005. Krusell's list is unique due to the fact that it reflects the sales of mobile phones on six continents and in more than 50 countries around the globe.

1. (1) Sony Ericsson K750i/K750c/W800
2. (3) Motorola Razr V3
3. (2) Nokia 6230/6230i
4. (4) Nokia 6680/6681/6682
5. (5) PalmOne Treo 600/650
6. (7) Qtek S100/I-mate JAM
7. (6) Sony Ericsson V600i/K600i/K608i
8. (10) Nokia 5140
9. (9) Nokia 6020/6021
10. (8) Sony Ericsson K700i

( ) = last month's position.

No changes at the top of this month's list. Sony Ericsson K750i/W800 is keeping its number one position. "Awaiting the launch of new units for Christmas, established models like Motorola Razr V3 and Nokia 6230 could keep their strong positions on this month's list," comments Ulf Sandberg. " In November, however, watch out for Sony Ericsson's new Walkman mobile phone W550/V600".

The same report for smartphones/pdas:

1. (1) PalmOne Treo600/650
2. (3) Qtek S110/I-mate JAM
3. (2) Hp Ipaq hx2100/2400/2700
4. (4) HP iPAQ HW6500
5. (5) Hp IPAQ hx4700
6. (8) Mio Mitac 168/Yakumo 300 GPS/Navman PiN
7. (6) Qtek 9090/02 XDA III
8. (-) PalmOne Tungsten T5
9. (-) Palm Zire 72
10. (-) Samsung SCH-i730/SPH 4300

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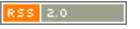


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## Global forecast number of cell phone connections, broken down by protocols, for 2003 to 2008

105771242

Title: Riding the big wireless wave: can anything stop the endless summer of profits from Qualcomm's cell phone innovation? (Profile).

Source: Electronic Business, 29 (10): 54, July 01, 2003. ISSN: 1097-4881

Publisher: Reed Business Information

Document Type: Journal

Record Type: Fulltext Word Count: 3531

Publication Country: United States, Language: English

Table:

### CELL PHONE PROTOCOLS ON THE LINE (Worldwide, estimated)

	2003	2004	2005	2006
Total connections (in thousands)	1,137,056	1,307,808	1,475,585	1,633,663
Analog	32,944	20,001	11,080	5,363
GSM, including GPRS	786,347	919,222	1,050,033	1,178,792
CDMA, including CDMA200	143,185	178,385	214,509	250,913
WCDMA	175	5,033	21,161	46,719
TDMA	114,373	124,383	116,819	88,143
Other	60,032	60,784	61,983	63,733
	2007	2008		
Total connections (in thousands)	1,778,719	1,909,808		
Analog	2,531	960		
GSM, including GPRS	1,275,187	1,336,043		
CDMA, including CDMA200	282,756	312,867		
WCDMA	88,356	151,551		
TDMA	64,620	41,790		
Other	65,269	66,597		

SOURCE: OVUM LTD.

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Concept Terms: All market information; Industry forecasts; Users

Geographic Area: World (WOR)

Industry Names: Mobile communications; Telecom equipment; Telecommunications

Product Names: Cellular phones (366301); Radio communications systems (366308)

Special Features: Table



## **Global wireless handset shipments by volume in units for 2000 and forecast from 2001 through 2005**

25069369

Title: Faster, better, smaller

Source: Electronic Business, 27 (12): s22, December 2001. ISSN: 1097-4881

Publisher: Reed Business Information

Document Type: Journal; Time Series

Record Type: Fulltext Word Count: 677

Publication Country: United States, Language: English

Table:

### **WIRELESS HANDSET FORECAST**

Worldwide, in millions of units [\*] Estimate.

2000[*]	402.0
2001	417.0
2002	503.6
2003	652.1
2004	789.4
2005	897.7

Despite a large installed base, cell phone shipments should pick up next year and increase steadily through 2005.

Note: Table made from a bar graph.

SOURCE: CAHNERS IN-STAT GROUP

Source: xCahners In-Stat Group

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Concept Terms: All market information; Industry forecasts; Shipments

Data Type: Business

Geographic Area: World (WOR)

Industry Names: Mobile communications; Telecom equipment; Telecommunications

Product Names: Cellular phones (366308)

Special Features: Table



## Portable Gadgets Adding a Little Chic to Geek

By Yuki Noguchi

Washington Post Staff Writer

Tuesday, October 18, 2005; A01

This summer, chic European women swooned over the fashion-forward look of the pink cell phone earpiece. In time for the fall season, a U.S. designer released a black patent-leather thigh holster that stows a phone. *Ooo, la la !* And for the men: a new collection including Oakley sunglasses with a Bluetooth wireless microphone attachment.

Companies are trying to take the geek out of gadgetry, rendering the old cell-phone-on-a-belt look permanently passe. The aim is to drive up sales in the phone accessory market, which already generates \$5 billion annually in the United States.

Techno-fashionistas say that it is the culmination of years of experimental design and that companies are finally finding a comfortable middle ground between form and function, mostly by exploiting ways to make devices smaller and therefore more wearable -- much like Apple Computer Inc.'s iPod Shuffle or Nano. Those trends, in turn, are creating a new category of accessories that make it even easier for consumers to keep their digital goods close to, or on, their person.

High-end designers are already covering that ground. Louis Vuitton sells a \$305 "international telephone case." Dior sells a \$315 case for iPod Minis, as well as a \$295 travel case for all of iPod's accessories.

"As things get sleeker, it's going to be something that's more and more important" for mainstream fashion, said Robin Sackin, chairman of the fashion merchandising management department at the Fashion Institute of Technology in New York. But it takes time for things to gain enough acceptance to become a mainstream wearable item, Sackin said.

Indeed, beauty remains in the eye of the beholder.

Ken Eisner thought his wearable Razrwire was cool, for example, but it recently brought him face to face with the fashion police.

A guard at Reagan National Airport did not like the look of Eisner talking to himself and wearing sunglasses indoors with a suspicious attachment dangling near his sideburns. The attachment was the latest version of wireless Bluetooth technology that enabled him to use his cell phone without hanging a black cord from his ear.

"Though considered geek wear by some, it's considered fashion-forward by others," Eisner said in his own defense. The guard's "concern was that I was a complete weirdo," said Eisner, who is an executive at Simply Wireless Inc., a cell phone retail chain.

In the industry, the Razrwire qualifies as runway fashion. CTIA, the cellular trade association, has featured fashion shows at its annual trade show in recent years, with lanky models wearing bowling-ball-sized helmets trotting down catwalks. To showcase its new line of hats, helmets and jackets with built-in cellular microphones, Motorola Inc. hired snowboarders to slide down a 60-foot ski jump outside the Consumer Electronics Show in Las Vegas earlier this year.

"In 2002, we produced a wearable technology fashion show to try to find out what the potential was," said Pablos Holman, designer of the cell phone thigh holster for Tsaya, the Seattle-based company that started selling the product online in August. "They were all totally impractical and totally dorky," he said, and only now is the sub-industry making great strides.



The thigh holster, Holman said, "turned out to be really practical and really sexy," but that's not a status easily achieved by most wearable devices. "It really has to be thought about deeply." Cell phone maker Nokia Corp. flirted with purely decorative accessories such as the Medallion I, a necklace-type accessory with a small screen displaying images downloaded from a mobile phone. The company's Web site advised wearers to "go bohemian with an abstract close-up from a favorite painting, your garden, or your body."

Now, said Nokia product manager Marika Patto, the company is no longer focused on devices that just "show off" but ones that serve a function, like the new Nokia Wireless Image Headset, which includes a small screen that hangs around the neck and displays call information or images.

Wearable technology is big business for companies because accessories generate retail profit margins ranging from 60 to 80 percent.

The accessories market could grow 10 to 15 percent every year, according to Roger Entner, an analyst with Ovum, a research firm. At Simply Wireless, the number of accessories in the chain's 50 Washington area stores tripled in the past two years, now including items such as leather cases and animal-print bags for cell phones.

For cell phone carriers, the benefit is also additional talk time. Making the phone inseparable from its wearer makes it possible to make more calls from the ski slope, the convertible and other places that have not been hospitable to talking.

Timothy Towster, for example, dons a Bluetooth headset while mowing the lawn and listens to music streamed from a cell phone inside the house.

The number of cell phones that come with Bluetooth capability is in the 55 percent range, and by the end of the year, most phones will have it built in -- which, in turn, means a bigger market for wearable stuff, said Towster, Cingular's senior director of devices and accessories. "There's talk, discussion and development around [clothing] products as well," he said. "It's easier to use when integrated with everyday items that people already use."

To that end, Motorola plans to sell its Burton Snowboards ski wear line early next year.

"We showed an ad with a guy mountain biking and holding a conference call," said Scott Martin, global marketing director for Motorola's accessories business. And this summer, the company partnered with fashion designer Frostfrench for a promotional giveaway of the designer's scarves that matched the pink Bluetooth headsets. The items sold out ahead of schedule in stores across Europe. "The goal is to make it look cool and stylish and all that."

Such devices will gain even more acceptance as prices come down and more people buy them, analysts and retailers said. Ovum's Entner, however, is a skeptic of Bluetooth couture: "You look like a half-assimilated borg."

Garments and technology just do not make a good combination, he said. If you leave the device in, "you wash your sweater and it's toast. Or you have to charge your sweater or jacket. It's kind of silly."

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<http://www.washingtonpost.com/wp-dyn/content/article/2005/10/17/AR2005101701869.html>



## **United States annual sales of wireless telephones, personal digital assistants, and pagers in dollars for 1999 to 2004, and forecast for 2005 to 2008**

135005306

Title: The pulse of our industry.

Source: Electronic Design, 53 (14): 27, June 30, 2005. ISSN: 0013-4872

Publisher: Penton Publishing, Inc.

Document Type: Journal

Record Type: Fulltext Word Count: 2129

Publication Country: United States, Language: English

Text:

Virtually every key sector within our industry seems to be running strong and true. And forecasts indicate those bubbling-hot markets won't cool off any time soon.

One of the strongest industries in terms of actual growth and the ability to continually create new, innovative products is consumer electronics. Sales this year should top \$125 billion.

"We are hot," says Gary Shapiro, president and CEO of the Consumer Electronics Association (CEA). "Our industry may be dramatically changing the way consumers receive information and entertainment."

Home networking is one example. Digital radio represents another arena with popular new products and applications. For example, carmakers are teaming with Apple Computer so drivers can play iPods through their car stereo. Even more exciting, perhaps, is that each new product generation introduces new forms and styles.

There's no shortage of highly innovative products hitting the market. Wireless phones now operate as content command centers. Also, multisystem HDTV-capable media servers and DVRs are becoming mainstream. Nearly half of all consumers plan to make their next TV purchase a high-definition (HD) set, according to a new consumer survey by the CEA. Voice-over-Internet-Protocol, HD, satellite radio, vehicle navigation, and next-generation gaming also seem to be on a meteoric ascent.

But Shapiro and the industry he represents also are mindful of potential legislation that could put a huge crimp in the CE companies' efforts to continue to offer innovative products. Immediate concerns include proposals for new recycling fees on products, as well as requirements that video products be sold with digital TV tuners. Another major issue under current debate in the consumer electronics industry is IP and how it's affecting new product designs and content protection.

### **RACING TO BE MORE HIGH-TECH**

Cars can do just about everything but drive themselves ... for now. But automobile manufacturers are just warming up to new high-tech features that help differentiate their vehicles, ultimately giving them a more competitive edge.

"The automotive electronics market is tough to compete in due to stringent automotive performance specs and pricing pressures," says Chris Webber, an industry analyst and vice president of automotive practice with Strategy Analytics. "However, the attraction of automotive electronics to electronic module, semiconductor, and sensor vendors is clear when you look at the growth of electronic content in cars and light trucks. There are no boom and bust cycles like in telecom or PCs."

Automakers are feeling the technology-investment pressures as electronic content expands in cars. Current and emerging applications include in-vehicle entertainment and wireless systems (e.g., satellite radio and Bluetooth), navigation and position-location services, displays, keyless



ignitions, cameras, biometrics, text-to-speech voice recognition, radar, fuel economy control, tire pressure, and other driver safety and assistance devices. Some luxury cars now come with as many as 18 antennas.

One recent concern revolves around event data recorders (EDRs), which resemble the "black boxes" of the airline industry. These devices now reside in millions of American cars to record speed, seat-belt use, and other driving data. Privacy advocates have been trying to put the brakes on EDRs.

The main fear among auto manufacturers is that states, rather than the federal government, will begin passing legislation covering EDRs. If these bills get through, then there's the potential that carmakers would have to build different systems for different states.

#### PCs ARE BACK

Demand for computer hardware is on the upswing after about five years of rapidly dropping or flat sales, with IT departments at many large companies beginning system upgrades. Consumers also seem primed for a new PC upgrade cycle, moving to more powerful models with flat-screen monitors and color printers. Popular features include security and antivirus software. Of course, Internet connectivity is critical, especially if it's wireless.

Notebook computers reign as the hottest items within the PC market. IDC says shipments of portable PCs will jump 26% this year, while overall PC unit sales will be up 11.4% to 169.9 million. But most industry analysts, as well as the CEA, expect PC total sales in dollars and average selling price will decline in 2005.

No surprise here: Telecommunications is on fire. Revenue totaled \$2.1 trillion in 2004, up 9.4% from 2003. The U.S. market accounted for \$785 billion, with equipment revenue registering its first gain after three consecutive years of decline, according to the Telecommunications Industry Association (TIA).

The wireless segment continues to present one of the best opportunities as a market and for technical innovation despite its occasional volatility. For example, "smart" cell phones have punished PDA sales, since they integrate many PDA functions.

The U.S. wireless market, including carrier services, handsets, capital expenditures, and infrastructure equipment, along with several fast-growing markets like Wi-Fi and broadband access, totaled \$145.1 billion in 2004, according to the TIA. That's up 11.6% over 2003.

Additional growth is anticipated from new cell-phone models and emerging services like WiMAX, a last-mile broadband wireless Internet access solution, and mobile communication satellites.

The TIA's 2005 Market Review and Forecast indicates that it's waiting to see how WiMAX develops. Despite the caution, it projects spending for WiMAX-based products and services to reach \$115 million in 2005, with a jump to \$290 million by 2008 (a 109.7% compound annual increase).

#### MEDICAL GETS A SHOT IN THE ARM

The rapid advances in medical electronics can be seen on several fronts. Doctors now can view their patients' x-rays, MRIs, and CT scans from any computer. They also have instant access to patients' medical records. Robotic pharmacies automatically read and fill prescriptions. And many new, more advanced medical devices seek to improve patient care.

Aging demographic patterns plus advancing wireless and sensor technologies will push U.S. demand for patient monitoring systems, with an anticipated 6.7% annual increase to \$8.2 billion in 2008, according to market research by the Freedonia Group. Freedonia also projects the U.S. market for medical imaging equipment to climb 7.6% a year through 2008 to \$9.5 billion, partly



as a result of an aging population, but also as a reflection of advances in non-invasive imaging technology.

Big things are expected from medical sensors, with a steady stream of breakthroughs providing greater medical-instrumentation and -system performance. Forecasts show the sensor market doubling from \$600 million in 2003 to \$1.2 billion in 2013.

With several pockets of growth on the horizon, industrial electronics holds great promise. Look to robotics and radio-frequency identification (RFID) in particular.

North American manufacturing companies purchased 14,838 robots valued at nearly \$1 billion in 2004. That's a 20% rise in unit sales over 2003 and the second best unit total ever, according to the Robotic Industries Association (RIA). As expected, most of the orders (64%) came from North American automotive manufacturers. That's down from 68% in 2003, though, an indication that robotics is gaining traction in other industries. In fact, North American orders for packaging and palleting robots grew 50% in 2004. But the RIA warns that market growth over the past two years was probably part of pent-up demand from 2001 and 2002.

"Whether or not growth continues in 2005 depends upon many economic factors," says Donald A. Vincent, the RIA's executive vice president. "However, the long-term prospects for the robotics industry remain outstanding."

While RFID is on the fast track for growth, it has run into a few snags over the past several months. Many critics believe that RFID technology will threaten privacy. Also, a series of patent infringement lawsuits has slowed adoption. Indeed, not one leading components distributor has yet to implement RFID tags as a supply-chain tool.

No one denies that RFID is great for finding things, like lost luggage. Commercial airlines, some of them already facing bankruptcy, essentially agree that RFID might be a good idea. But they don't want to spend tens of millions of dollars to adopt RFID luggage tracking, despite the fact that RFID vendors and some analysts believe this investment could be recouped fairly quickly. Still, the opportunities for RFID are vast, ranging from retailing to contactless commerce and pharmaceutical distribution applications.

Intel and SAP AG teamed up so companies could integrate RFID data directly into backend systems. This should make RFID easier to use and help companies overcome hurdles in creating viable business cases when implementing the technology (e.g., integrating proprietary and non-proprietary technologies and adopting to emerging standards).

Texas Instruments, in the RFID business for years, believes the market is poised to surge from millions to tens of billions of tags over the next five years. TI also expects a critical mass of the technology to spur innovation and new applications across the enterprise value chain.

"Wireless RFID data acquisition, value-chain applications, and storage networks will create new business models, much like the cell phone has shifted the market from voice-only to a range of messaging, data, and transaction services," says Julie England, vice president of TI and general manager of TI's RFID business. "At the edge of wireless and wireless sensor networks, RFID is converging with Electronic Product Code and sensor technology to unlock new applications that go beyond identification to include everything from authentication to temperature, time expiration, pressure, and condition monitoring."

#### SHOOT TO KILL (MILITARY PROGRAMS)

Lots of uncertainty swirls around defense spending over the near and long term, with anticipated cutbacks in some major weapons programs. The Government Electronics and Information Technology Association (GEIA), which updates its 10-year forecast of defense electronics



spending annually, describes a range of scenarios in its latest report called "alternative futures." The GEIA also talks about "setting bounds of uncertainty."

In the war on terrorism, growing regional conflicts could add significantly to the Department of Defense's budget. But what does this mean for technology spending? To a large extent, that depends on Congress.

Part of the answer might be found in a new Government Accountability Office (GAO) report that warns of soaring DoD weapons-system costs over the next decade, costs it suggests must be brought under control. The Pentagon plans to build 70 major weapons systems at a cost of \$1.3 trillion. But the GAO says that doesn't cover cost overruns, which historically add 20% to 50% in expenditures to new programs.

The GAO report notes other examples, including a five-satellite surveillance program called Space-Based Infrared System-High. Originally planned as a \$9.9 billion program eight years ago, the GAO expects an increase of \$1.2 billion a satellite by actual launch time.

The GEIA thinks that killing programs may become acceptable. Already, two major Army technology programs and four in the other services have been terminated or dramatically revised. And more than 40 smaller programs got the axe since 2001. Several more could be on the chopping block.

Another way to cut military spending, the GEIA believes, is to incorporate new technologies into legacy systems. Also being considered is a shift to joint procurements, which means potential for political battles between the military services. A further solution is to take everything upstairs.

"Over the next decade," says the GEIA, whose study is based on hundreds of interviews with DoD purchasing officials and other analysis, "some procurement power will rise for department-wide [DoD-level] solutions."

But technology may still win, even in the short term, because the Pentagon may have to move beyond the commercial technologies it acquires through commercial off-the-shelf (COTS) buying policies. "Competitive advantage may demand it," says the GEIA.

The Consumer Electronics Association (CEA) projections of total factory sales of consumer electronics for 2005 rose significantly in January--to more than \$125 billion.

The CEA expects the industry to add on another \$10 billion to its revenue total in 2006.

#### Total Factory Sales Of Consumer Electronics

Dollar sales (billions)

2000	\$96.843
2001	\$94.211
2002	\$95.973
2003	\$102.611
2004 (e)	\$113.545
2005 (p)	\$125.726
2006 (p)	\$135.785
2007 (p)	\$146.647



2008 (p) \$158.379

(e) = estimated

(p) = projected

Source: Consumer Electronics Association, Market Research

Note: Table made from bar graph.

Ultra-thin LCD and plasma displays have shifted the U.S. TV market into a clear upgrade cycle. TV-set revenues topped \$12 billion in 2004, but projections are much higher for 2005.

LCD TV \*--Sales To Dealers

Average unit price

2000	\$129
2001	\$119
2002	\$263
2003	\$530
2004 (e)	\$763
2005 (p)	\$799

\* includes both analog and digital flat-panel LCD televisions

	Unit sales (thousands)	Dollar sales (millions)
2000	832	107
2001	845	101
2002	935	246
2003	1253	664
2004 (e)	2584	2022
2005 (p)	3847	3074

Note: Table made from bar graph.

Led by so-called smart phones with a growing number of



digital features, the overall wireless handset market is expected to increase from \$11 billion in 2004 to \$13.8 billion in 2008. It's growing at a 6% compound annual rate, putting a big dent in the market for PDAs and pagers over the same period.

#### U.S. Wireless Communications Handset Revenue

	Wireless Communications	Personal digital assistants	Paging
1999	\$6.066	\$1.134	\$0.432
2000	\$8.995	\$1.639	\$0.421
2001	\$8.651	\$1.403	\$0.288
2002	\$8.101	\$1.156	\$0.168
2003	\$9.091	\$0.868	\$0.127
2004	\$10.171	\$0.689	\$0.097
2005	\$10.783	\$0.588	\$0.089
2006	\$11.391	\$0.528	\$0.084
2007	\$12.340	\$0.483	\$0.084
2008	\$13.313	\$0.451	\$0.077

Sources: Consumer Electronics Association, TIA,  
Wilkofsky Gruen Associates

Note: Table made from line graph.

WinterGreen Research expects the enterprise-content (EPC) management sector of the RFID market to take off beginning in 2010. The company cites increased functionality and logistical advantages over bar coding, including extended read/write distances, easy-to-change data, and the lack of a line-of-sight requirement.

#### Worldwide Radio-Frequency Identification (RFID) EPC Tag Market

Billions of dollars

2004	\$0.0397
2005	\$0.0536
2006	\$0.0777
2007	\$0.1205
2008	\$0.1988



2009	\$0.3478
2010	\$1.3147
2011	\$2.4323

Source: WinterGreen Research Inc.

Note: Table made from bar graph.

[GRAPHIC OMITTED]

*Copyright 2005 Penton Media, Inc.*

Concept Terms: All market information; Industry forecasts; Sales

Geographic Area: North America (NOAX); United States (USA)

Industry Names: Computer; Mobile communications; Personal computers; Portable computers; Telecom equipment; Telecommunications

Product Names: Cellular phones (366308); Household audio and video equipment and audio recordings (365000); Pagers (366305); Portable computers (357165); Radio communications systems (366301); Telephone and telegraph apparatus (366100)

Special Features: Table



**United States annual wireless telephone market size by subscribers, sales, prices, and market penetration in units, dollars, and percent change for 2003 to 2004, and forecast for 2005 to 2010**

132543137

Title: Entertainment options flourish at CTIA.

Source: TWICE, 20 (6): 1, March 07, 2005. ISSN: 0892-7278

Publisher: Reed Business Information

Document Type: Journal

Record Type: Fulltext Word Count: 1286

Publication Country: United States, Language: English

Text:

NEW ORLEANS -- The city noted for an excess of entertainment options will host a wireless trade show that hopes to give consumers even more entertainment opportunities.

Handset suppliers here at CTIA's Wireless 2005 will serve up a feast of phones with entertainment-oriented features that will appeal to new subscribers and give current subscribers more reasons to upgrade their existing handsets.

Music will play a key role in stimulating replacement sales, marketers contend. Nokia, for example, plans to put Microsoft's Windows Media Audio (WMA) decoder in select handsets, and Sony Ericsson has vowed to increase its selection of handsets that double as music players. These models will add more internal memory to store music files, and more will come with memory card slots to store additional songs.

Recently, for example, Sony Ericsson unveiled a W-CDMA/GSM-GPRS handset with dedicated media player button and MP3, AAC, and M4A decoders. The Z800 operates in 900/1800/1900MHz bands and comes with 64MB Memory Stick Duo card, though it can accept 1GB Duo cards. It's due in the second quarter, but the company didn't specify in which countries. Technology companies will also get into the entertainment act at the CTIA show, with at least one company--U.K.-based Sonaptic--demonstrating cellular surround sound over two built-in speakers.

During the March 14-16 event, attendees will also find demonstrations of infrastructure that will deliver new entertainment options to handsets. The technologies include HSDPA (high-speed downlink packet access), a W-CDMA advancement that in its Phase II variation will accelerate peak download speeds to 14Mbps, from 2Mbps. Previously, Nortel has demonstrated HSDPA infrastructure, and Ericsson has demonstrated HSDPA Phase II infrastructure.

Ericsson contends that Phase II will enable high-resolution interactive gaming, push-to-watch video service, speedy music downloads, DVD-quality video downloads and large e-mail attachments.

For fast transfers of downloaded video and attachments from phone to nearby PC, semiconductor maker Freescale and Samsung might reprise their 3GSM World Congress demonstration of a UWB-enabled cellphone.

Some advanced entertainment functions, however, need not wait for HSDPA. They can be offered through such technologies as EV-DO. In fact, Samsung might demonstrate an infrastructure solution delivering a trio of push technologies over EV-DO networks: push to talk, push to view (a multiuser videoconferencing application) and push to data (to share multimedia files instantly). Samsung also plans implementations over EDGE, W-CDMA and Wi-Fi networks.



Advanced services like these will encourage handset replacement sales in 2005, as will continued strong growth in net-new subscriber growth will also stimulate handset sales. The Yankee Group attributes the past two years of accelerated net-new subscriber growth to MVNO activity and carriers' aggressive marketing of family plans. Yankee puts the number of net new subscribers in 2004 at 22.4 million, up from 2003's 18.9 million. In 2002 and 2001, the number of net new subscribers fell, according to CTIA statistics.

But analysts expect a slowdown in handset unit-sales growth this year to single-digit percentage rates following consecutive years of double-digit percentage growth. "For the past few years, there have been a fair number of reasons to upgrade, including color displays, faster networks and ringtones," In-Stat analyst Neil Strother explained. "Two years of double-digit growth will be hard to sustain."

Although Verizon and Cingular are rolling out their high-speed data services, he explained, "coverage and handset prices are still an issue." In 2006, he said, "we'll see a big EV-DO ramp up."

The Diffusion Group, a market research company in Plano, Texas, also forecasts a slowing in the unit-sales growth rate in 2005, when it forecasts a stagnating handset replacement rate of 56 percent. The company defined the replacement rate as the percentage of subscribers who replace their handsets every two years or less.

Despite the flat replacement rate, Diffusion forecasts a 9 percent gain in 2005 handset sellthrough to 119.4 million (see table). T

In 2005, handset sales will grow for several reasons, Diffusion said, including:

- \* expected growth in subscriber penetration rates to 67 percent from 2004's 61 percent;
- \* the continued migration of Cingular/ AT&T subscribers to GSM from TDMA in a process that will be "largely complete" at the end of 2005;
- \* the "mass introduction of highly functional handsets;"
- \* and high churn rates at Cingular/ AT&T, fueled in part by local number portability.

In 2005, Diffusion forecasts strong growth in CDMA 1xRTT handsets, EDGE-equipped GSM handsets and combination Wi-Fi/cellular phones. "In 2004, the majority of CDMA handsets sold were 1xRTT," a Diffusion report said. "Exceptions to the majority tended to be older down-level versions in second- and third-tier carrier." In 2005, however, "all CDMA handsets will be 1xRTT or higher." CDMA 1xRTT handsets [excluding Wi-Fi-equipped models] will account for 51.9 million in handset unit sell-through, or 43.5 percent of total U.S. handset sell-through of 119.4 million, the report said. CDMA 1x EV-DO sales will account for an additional 1.1 million sellthrough units, or 2 percent of all CDMA phone sales, up from a mere 300,000 in 2004.

Sales of EDGE-equipped GSM handsets will hit 6.3 million, accounting for 15.5 percent of all GSM unit sales, the company said. EDGE sales will be up substantially from 2004's 1.1 million. Because of Cingular's small W-CDMA footprint and high prices on W-CDMA handsets, Diffusion expects W-CDMA handset sales to reach only 600,000, though that's up from near-zero in 2004.

A growing percentage of phones incorporating these technologies will be smartphones, according to Jupiter Research. U.S. smartphone sales will grow at a compound annual growth rate of 28% through 2009, when they will account for 9.3 percent of handsets sold, up from 3.7% in 2004.

The use of advanced services will also grow, Diffusion said. Although only about 1 percent of CDMA subscribers will subscribe to EV-DO service in 2005, Diffusion contends, the figure will jump to 10 percent in 2006.



Likewise, EDGE subscribers will account for up to 10 percent of GPRS subscribers by the end of 2005, Diffusion said. At the end of 2004, GPRS was used by three-fourths of all GSM subscribers living within a GPRS footprint. By 2006, GPRS coverage will be "ubiquitous," the company said.

Suppliers also attribute handset-sales and net-new subscriber growth to the increased competitive activity created by MVNOs such as Boost and Virgin. Many of the MVNOs have increased cellular's youth-market penetration through prepaid plans, youth-oriented features, and marketing. In 2005, analyst Mark Lowenstein said, "a new wave of MVNO activity" will "accelerate" and will likely include cable-TV operators. For its part, Nextel's growing penetration rates among older Americans are also contributing to handset-sales growth, according to The Yankee Group. It found that 50 percent of people between the ages of 65 and 74 own a cellphone, as do 30 percent of people in the 75-94 age group. Those numbers are up from four years ago, when 15 percent of people over 65 were estimated to own a cellphone.

#### U.S. Cellular-Market Performance 2003-2010 \*

(in millions, except for handset prices)

	2003	2004
Subscriber Base	158.5 (+13%)	179.5 (+13%)
Handset Unit Sellthrough	87.4 (+19%)	110.0 (+26%)
Handset Replacement Rate **	49%	56%
Handset Dollar Sales (Factory-Level)	\$13.221 (+34%)	\$16.042 (+21%)
Average Wholesale Price	\$152 (+12%)	\$146 (-2%)
U.S. Population	290	294
Cellular Penetration Rate	55%	61%
	2005	2006
Subscriber Base	198.0 (+10%)	211.1 (+7%)
Handset Unit Sellthrough	119.4 (+9%)	120.4 (+1%)
Handset Replacement Rate **	56%	54%
Handset Dollar Sales (Factory-Level)	\$17.328 (+8%)	\$17.540 (+1%)
Average Wholesale Price	\$145 (-1%)	146% (0%)
U.S. Population	298	301
Cellular Penetration Rate	67%	70%



	2007	2008
Subscriber Base	219.3 (+4%)	225.0 (+3%)
Handset Unit Sellthrough	123.4 (+2%)	126.6 (+3%)
Handset Replacement Rate **	55%	55%
Handset Dollar Sales (Factory-Level)	\$17.742 (+1%)	NA
Average Wholesale Price	\$145 (-1%)	NA
U.S. Population	305	308
Cellular Penetration Rate	72%	73%
	2009	2010
Subscriber Base	230.2 (+2%)	235.6 (+2%)
Handset Unit Sellthrough	131.8 (+4%)	139.2 (+6%)
Handset Replacement Rate **	56%	58%
Handset Dollar Sales (Factory-Level)	NA	NA
Average Wholesale Price	NA	NA
U.S. Population	312	316
Cellular Penetration Rate	74%	75%

\* 2003-2004 estimates, 2005-2010 forecasts

\*\* % subscribers who replace handsets every two years or less

Source: The Diffusion Group, Plano, Texas ([www.tdgresearch.com](http://www.tdgresearch.com))

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Concept Terms: All market information; Industry forecasts; Market size; Sales

Geographic Area: North America (NOAX); United States (USA)

Industry Names: Mobile communications; Telecom equipment; Telecommunications

Product Names: Cellular phones (366100); Radio communications systems (366301); Telephone and telegraph apparatus (366308)

Special Features: Table



## **United States annual wireless telephone service subscribers by total and new subscribers in units and percent change for 2000 to 2004**

132544415

Title: CTIA: '04 subscriber gains are second-best in history.

Source: TWICE, 20 (8): 16, April 04, 2005. ISSN: 0892-7278

Publisher: Reed Business Information

Document Type: Journal

Record Type: Fulltext Word Count: 491

Publication Country: United States, Language: English

Text:

WASHINGTON -- For cellular carriers, it's almost like 2000 again.

Last year, the number of net new cellular subscribers grew 21 percent to reach 21.7 million, the second highest level in the industry's history, according to statistics unveiled by the Cellular Telecommunications and Internet Association (CTIA). The gain was exceeded only by 2000's gain of 23.4 million net new subscribers.

CTIA also put the total subscriber base at 180.5 million, up 13.7 percent from year-end 2003's 158.7 million. Percentage growth in 2003 was 12.7 percent gain.

Although the full-year gain was strong, the industry's momentum might have slowed in the second half, the statistics indicate. For only the second time in 10 years, the number of first- and second-half net additions was almost equal. Normally, the number of second-half net adds exceeds first-half adds by anywhere from 1 million to 3.4 million. In 2004, however, first-half additions were 10.7 million, and second-half additions were 11 million, representing a difference of only 300,000. A similar pattern emerged in 2003, when first-half net adds of 6.19 million almost matched second-half gains of 6.21 million.

Whatever the industry's second-half momentum, the year-end cellular penetration rate reached about 61 percent of the total U.S. population of roughly 295 million, as indicated by Census Bureau statistics.

In other findings:

Average bill: The average monthly phone bill rose for the sixth consecutive year to \$50.65, up 1.5 percent from the previous year's \$49.91. The average bill fell every year between 1988 and 1998, when it hit an all-time low of \$39.43. The average bill in 2004 fell only 36 cents short of the average 1995 phone bill.

Talk time: Minutes of use grew 32.7 percent in 2004 to about 1.1 trillion.

Record capital investment: Carriers resumed their big-spending ways in 2004, when they spent \$27.93 billion on capital investment. That's up from 2003's \$18.95 billion, 2002's \$21.89 billion, 2001's \$15.41 billion, and 2000's \$18.36 billion.

Even though 2004 capital spending was up 47.4 percent over 2003 levels, the number of new cell sites actually fell in 2004 to 12,739, from 2003's 23,648. Much of that capital spending growth, therefore, was likely directed to such technology enhancements such as EDGE and EV-DO rather than into new cell sites, the figures suggest.

All told, the installed base of cell sites hit 175,725 at the end of 2004, up 7.8 percent from 2003's year-end 162,986.

For its latest semiannual statistics, CTIA surveyed cellular, PCS, and ESMR systems and received responses from systems serving 96.3 percent of U.S. wireless subscribers. The association estimated subscriber levels for the other systems.

Wireless-Phone Industry Gains



## Full Year 2004

Year	Estimated Total Subscribers	% Change In		Average Phone Bill
		Number Of Net New Subscribers	No. of Net New Subscribers	
2000	109,478,031	23,431,028	+39.2%	\$45.27
2001	128,374,512	18,896,481	-19.4%	\$47.37
2002	140,766,842	12,392,330	-23.3%	\$48.40
2003	158,721,981	17,955,141	+44.9%	\$49.91
2004	180,464,003	21,742,022	+21.1%	\$50.64

## Wireless-Phone Industry Gains

### Second-Half 2004

Year	Net New Subscribers	% Change
2000	12,442,106	+27.5%
2001	9,976,778	-23.3%
2002	6,205,472	-37.8%
2003	10,656,157	+71.7%
2004	10,996,610	+3.2%

(Includes cellular, PCS and ESMR subscribers)

Source: Cellular Telecommunications and Internet Association,  
Washington

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Concept Terms: All market information; Market size; Users

Geographic Area: North America (NOAX); United States (USA)

Industry Names: Mobile communications; Telecom services; Telecommunications

Product Names: Cellular telephone services (481200); Radiotelephone communications (481218)

Special Features: Table

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St. Petersburg Times (Florida)



November 14, 2001, Wednesday, 0 South Pinellas Edition

SECTION: BUSINESS; COLUMN; Pg. 1E

LENGTH: 1119 words

HEADLINE: FCC vote ends cell phone industry's adolescence

BYLINE: ROBERT TRIGAUX

BODY:

Get set for a new era in the crazy wireless phone market.

A little noticed regulatory decision in Washington just set the stage for a major shift in who will dominate the nation's wireless phone business and, in turn, how much they may charge customers.

Last week, the Federal Communications Commission voted to do away with a cap limiting how much of the airwaves any one wireless company can control. The cap has limited a company to owning no more than 45 megahertz of spectrum out of about 185 megahertz available to mobile phone companies in any metropolitan area, including Tampa Bay.

The new rule eases the cap by 22 percent or 10 megahertz, to 55 megahertz, before eliminating it totally in 2003.

For starters, the FCC decision allows wireless companies to acquire enough spectrum to improve coverage and upgrade their networks with next-generation technology.

But it also gives the green light for big wireless phone companies to acquire their smaller and once-protected competitors.

The upshot? Say goodbye to the industry's early and entrepreneurial period (late 1980s to 2001), marked by aggressive, young wireless providers and intense price competition.

Say hello to the next industry cycle of fewer, bigger providers and - as competition cools - eventually higher prices.

The adolescent rise of the wireless phone business has been phenomenal.

From 1.2-million adventurous subscribers in 1987 (who paid an average of \$ 96.83 a month for less-than-stellar quality service), the industry has grown to more than 123-million subscribers who pay an average monthly local bill that's half the 1987 price. (See table, right.)

Since the tragedy of Sept. 11, the appeal of wireless phones as emergency lifelines has boosted their popularity.



Still, the days of ever-shrinking monthly bills appear to be over.

Ending 12 consecutive years of sharp drops in the average local monthly bill for wireless phone service, a low of \$ 39.43 was hit in 1998. Since then, average monthly local bills have been climbing, in part because consumers are talking more as they've grown increasingly dependent on wireless phones for everyday use.

In the Tampa Bay area, six wireless phone companies vie for your business today. They include Verizon Wireless, AT&T, Sprint PCS, Cingular (a BellSouth/SBC venture), Alltel and Voicestream. (Another provider, Nextel Communications, offers a wireless phone service combined with a two-way radio.)

Remember these days. By 2003 or so, it's very doubtful six companies will be around to pitch their services.

Merger mania won't happen overnight. A struggling economy will slow the pace. Technical compatibility issues will discourage a few potential combinations of providers.

But consolidation is coming.

Led by FCC chairman Michael K. Powell, the federal agency's decision last week to end all ownership caps is a victory for Verizon, Cingular, AT&T and other large mobile carriers. They wanted additional spectrum in order to introduce phones that allow higher-speed wireless Internet access. Such service will gobble huge amounts of the nation's airwaves.

Of the big wireless providers, AT&T and Cingular most desperately need additional airwaves to satisfy customer demand and update their networks.

One of the easiest ways to gain more market share is to buy it. That's why analysts point to Voicestream, owned by Germany's Deutsche Telekom AG, as well as regional player Alltel and Nextel as obvious takeover targets once the ownership caps disappear in 2003.

Until then, big wireless providers are scrambling for spectrum leftovers. Bankrupt NextWave Telecom Inc., for example, owns licenses for a piece of the wireless spectrum that Verizon Wireless and others are eager to acquire.

Analysts say Verizon, the nation's leading wireless carrier, already has bumped up against its ownership ceiling in the two largest wireless markets in the country: Los Angeles and New York City. That would restrict Verizon from adding new customers or new services in those areas.

No wonder the company is considered the likeliest candidate to go shopping for smaller carriers in the wake of the FCC vote.

To prepare for that day, Verizon Wireless wants to split from parent Verizon Communications and complete a \$ 5-billion initial public offering by mid-2002. The wireless business delayed its IPO more than a year due to poor market conditions. Verizon wants to list its common stock on



the New York Stock Exchange under the symbol VZW.

The FCC's move to eliminate the caps on wireless market share suggests the feds are satisfied that carriers finally have enough competition in big cities to keep them from becoming monopolists and gouging consumers.

The fed's action also reminds us that the intense price competition in the wireless market makes it hard for companies to become profitable.

A J.D. Power and Associates 2001 survey of the wireless business found that it costs a wireless phone company between \$ 350 and \$ 475 to acquire a new customer. To make a profit on that customer, the wireless provider must hold on to the consumer long enough to cover that acquisition cost.

That's not happening, J.D. Power says. The length of time a typical wireless user stays with a carrier before switching is growing shorter - from 2.54 years on average in 1999 to 2.40 years in 2001.

The FCC's action will change all that. When the mergers begin, the competition will ease, and the price of service should rise. (Though new technologies may help moderate price increases.)

Enjoy the waning days of a young and restless industry.

- Robert Trigaux can be reached at [trigaux@sptimes.com](mailto:trigaux@sptimes.com) or (727)893-8405.

#### Cell phone bills rising

After 12 years of technology improvements and increased competition, the average local monthly bill hit a low in 1998. Since then, the average bill has climbed 15 percent.

Year	Avg. local monthly bill
1987	\$ 96.83
1988	\$ 98.02
1989	\$ 89.30
1990	\$ 80.90
1991	\$ 72.74
1992	\$ 68.68



1993	\$ 61.49
1994	\$ 56.21
1995	\$ 51.00
1996	\$ 47.70
1997	\$ 42.78
1998	\$ 39.43
1999	\$ 41.24
2000	\$ 45.27

Source: Cellular Telecommunications & Internet Association

GRAPHIC: CHART; PHOTO; lists average local monthly phone bill from 1987 to 2000; a Motorola cell phone

LOAD-DATE: November 14, 2001



## **China, United States, Japan, Germany, United Kingdom, Italy, and South Korea mobile communications market by product/service type in number of users and mobile-to-net ratios for 2004**

133951722

Title: It's a mobile world for broadband, too.

Source: Online Reporter: 18, June 18, 2005

Publisher: Rider Research

Document Type: Newsletter

Record Type: Fulltext Word Count: 373

Publication Country: United States, Language: English

Text:

Reed Hundt, former FCC chairman and now a senior advisor with McKinsey & Company, led a discussion at SuperComm about wireless broadband that turned into a session about the role of local government agencies in broadband deployment (see "Broadband for Everyone: Local Government Involvement" in this issue). He started things out by presenting numbers that compare the penetration of mobile phone, Internet and PC usage in the various major economies:

Mobile Increasingly Important,  
Especially Outside US (in millions)

Country	Mobile phones	Internet users	Mobile-to Net Ratio	Installed PCs
China	334	94	3.6:1	42
US	180	201	0.9:1	204
Japan	94	68	1.4:1	54
Germany	68	42	1.6:1	40
UK	54	30	1.8:1	26
Italy	54	26	2.1:1	15
S. Korea	34	30	1.1:1	27

Source: Euromonitor, CNNIC, World Bank, Morgan Stanley Research--2004 year-end data

The conclusion to draw from the numbers, said Hundt, is that if you're going to be mobile, you're also going to be Internet-connected. One other conclusion, we might add, is that either there's still a heck of a market for PCs in the rest of the world, or the mobile phone market in the States still has lots of room for growth or, perhaps both.

The point of competition, Hundt said quoting Bsquare CEO Bill Baxter, is to create, seize and hold a bottleneck. Possible bottlenecks lie in the network, which, he said, should be open to: all content, all points of view, other networks, all people, all devices and all protocols. Hundt pointed out that the Internet Protocol (IP) is an open protocol standard, where Microsoft's isn't. The "communications industry today," he said, isn't only telephones. It also has to include "the hardware and software that transmits, receives, stores and displays the electromagnetic waves



that are modulated so as to carry binary code waves and code." A list of communications devices therefore has to include:

- Cellular phones
- Cellular service
- Cellular networks
- Data centers
- Storage
- Circuit-switched telephone network
- Broadcast TV and radio
- Cable TV
- Satellite radio
- Satellite video
- Cable modem (cable broadband)
- DSL (telephone broadband)
- Set-top boxes
- Personal computers with Wi-Fi (or Wi-whatever) chips
- DVRs
- DVDs
- Etc

Fortunately, Hundt said, the District of Columbia Court of Appeals has prevented the FCC from regulating consumer gear, ruling that "the FCC has no authority to regulate consumer electronic devices that can be used for receipt of wire or radio communication when those devices are not engaged in the process of radio or wire transmission."

*Copyright 2005 Rider Research*

Concept Terms: All market information; Users

Geographic Area: China (CHI); European Union (EUCX); Germany (GER); Italy (ITA); Japan (JPN); North America (NOAX); Pacific Rim (PARX); South Korea (SOK); Southern & Eastern Asia (SSAX); United Kingdom (UNK); United States (USA); Western Europe (WEEX)

Industry Names: Computer; Information industry; Mobile communications; Online services; Personal computers; Telecom equipment; Telecommunications

Product Names: Cellular phones (366308); On-line service providers (737500); Personal computers (357160); Radio communications systems (366301)

Special Features: Table



# **Marketing Assessments**

- 1. Technology Assessment Tool**
- 2. Market Assessment Tool**



# Technology Assessment Tool



# Appendix 1. Technology Assessment Tool

## Strategic Market Assessments for New Technologies

### I. Investigators' Information Report Form

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Please complete the following information regarding principal investigators' research activities. Additional support information should be attached as requested or required.

#### 1. Principal Investigators (PI's):

Presenter and Key Contact: Mr. Frank Bates  
Dept.: President and CEO Bates RV  
Phone: (Cell) 941 915-7103  
E-mail:

Name:  
Dept.:  
Phone:  
E-mail:

Name:  
Dept.:  
Phone:  
E-mail:

Name:  
Dept.:  
Phone:  
E-mail:

#### 2. Lay summary of PI's key research and technological inventions:

Mr. Bates is currently in the process of submitting a patent application for a type of cell phone tether that attaches to pants or belt loop. In addition, the cell phone tether (coiled so that it is able to stretch from the belt to the ear) is going to have metal running through it so that it will improve the cell phone reception for the user.
<i>Basic Cord:</i> The invention is a cell phone safety cord that prevents a cell phone from being damaged or lost if cell phone user drops the phone.
One end of the cord is attached to the and the other end of the cord can be attached to the cell phone user's belt loop, cell phone case, or another secure location.
The cord stretches so that the normal use of the phone can take place, but in the event that the phone is dropped, the cord will ensure that the cell phone does not reach the ground.
<i>Antenna Cord:</i> This cord has similar features as the basic cord, but it also serves as an additional antenna for the cell phone to allow for better reception.

#### 3. Recent relevant PI's published scientific papers (please attach reprints):

Titles of articles and authors

1) N/A
2)
3)
4)
5)



**4. PI's patent applications and issued patents (please attach copies):**

Titles of patents, dates of issuance or application, patent numbers and inventors

1) Will get a copy of the patent application that has been submitted. No other patents have been issued to Mr. Bates.
2)
3)
4)

**5. Potential Competitive Issued Patents (please attach copies)**

Titles of patents, dates of issuance or application, patent numbers and inventors

1) Retractable tether system for cellular phone. April 7, 2005. United States Patent Application #20050072819 A1. Maldonado, Wilfredo ; et al.
2) Cellular Phone Leash. August 17, 1999. United States Patent #5,938,137. Harold T. Poulson.
3) Combination Lanyard and External Antenna for Wireless Communication Device. October 296, 2004. United States Patent #6,810,237 B1. James R. McEowen.
4)
5)

**6. Names and locations of key leading investigators in your field of study:**

Name: Dr. Larry Dunleavy, PhD.  
Affiliation: Option Supervisor, Wireless and  
Microwave Program  
Phone: (813) 974-2574

Name:  
Affiliation:  
Phone:

Name:  
Affiliation:  
Phone:

Name:  
Affiliation:  
Phone:

**7. View of research competition in your field (how do PI's rank themselves, in their own view). Additional comments may be attached.**

N/A



**8. Names and locations of collaborating investigators in your field of study working within university settings:**

Name: N/A  
Dept.:  
University:  
Phone:

Name:  
Dept.:  
University:  
Phone:

Name:  
Dept.:  
University:  
Phone:

Name:  
Dept.:  
University:  
Phone:

**9. Names and locations of collaborating investigators in your field of study working within industrial settings:**

Name: N/A  
Company:  
Phone:  
Name:  
Company:  
Phone:

Name:  
Company:  
Phone:  
Name:  
Company:  
Phone:

**10. Current status of PIs' research and developing technologies (status of PIs' commercialization activities and contracted studies):**

Mr. Bates is currently in the process of sourcing out for a prototype to be built. He will need to perform research to validate the claims of improving cellular reception, using USF resources, if possible.

**11. List SBIRs and STTRs awarded to PI's. Please attach copies.**

Titles, dates and granting agencies of PIs' awards

1) N/A
2)
3)



**12. Current status of commercial products developed using this or related research and technologies:**

Overview: N/A
Examples:

**13. Current status of PI's research and clinical studies support (by whom, amount funded, how long, what areas of research)? Additional research support may be attached.**

Current research grants and contracts

1) N/A
2)
3)
4)
5)
6)

**14. How much research support do the PIs need for the next three years, for what purposes?**

Mr. Bates will need support to validate the claims of improved cell phone reception. We will be putting him in touch with Dr. Robert Carnahan to begin a possible research project to validate these claims.



### Appendix 3. TECHNOLOGY OPPORTUNITY ASSESSMENT

#### DECISION MATRIX

##### TECHNOLOGY INDEX SCORE

	<u>Very Weak</u>	<u>Strong</u>	Score
	<u>0</u>	<u>5</u>	
*PI Scientific Publications	< 5	≥15	<u>  0  </u>
*PI # of Patent Disclosures	< 1	> 5	<u>  0  </u>
*PI # of Patents Issued	< 1	> 5	<u>  0  </u>
Age of Patent Disclosures (Tech. Specific)	≥ 5 years	≤ 1 year	<u>  3  </u>
Patent Competition (U.S. Patents)	≥ 50	< 5	<u>  5  </u>
*PI Grant Support (Annual Total) (score takes private funding into consideration)	≤ \$100K	≥ \$5M	<u>  1  </u>
*PI SBIR/STTR Grants (0-5)			<u>  0  </u>
Overall Team Competitive Assessment (0-5)			<u>  4  </u>
Raw Score (= Sum)			<u> 13 </u>
Technology Index Score (= Raw Score x 2.5)			<u>32.5</u>

Factors to be Considered in Team Competitive Assessment:

- PI's Energy and/or Enthusiasm
- PI's Breadth and Depth of Knowledge of Subject/Technology
- PI's Background/Credentials/Focus/"Track Record"
- PI's "Feel" for Competitive "Space"—Science/Technology/Industry/Competition
- PI's Interest in Developing Technology
  - Personally
  - as Part of a Team
- PI's Interest in Developing Business
- PI's Business Experience
- PI's "Business Savvy"

\*PI = Principal Investigator

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#### TECHNOLOGY OPPORTUNITY ASSESSMENT

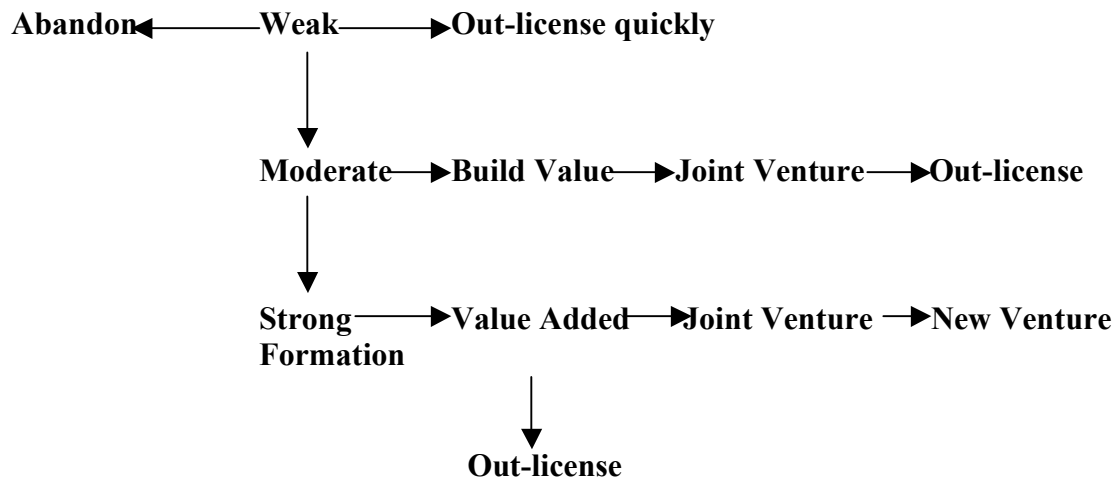


	<u>TECHNOLOGY INDEX SCORE</u>	<u>ACTION</u>
VERY WEAK	< 50	ABANDON
WEAK	50 – 69	OUT-LICENSE QUICKLY
MODERATE	70 – 84	BUILD VALUE OUT-LICENSE JOINT VENTURE
STRONG	85 – 100	VALUE ADDED —> LICENSE JOINT VENTURE NEW VENTURE FORMATION

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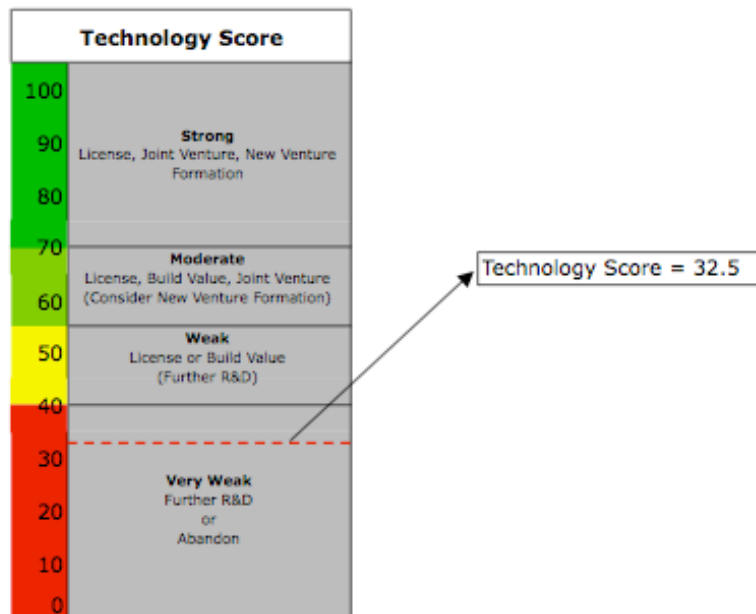
### TECHNOLOGY OPPORTUNITY ASSESSMENT

#### DECISION TREE





## Technology Opportunity Assessment



Graphic showing technology assessment as very weak.



## Market Assessment Tool



## Appendix 2. Strategic Market Assessment Tool

### A. Strategic Market Assessments for New Technologies B. Business Opportunity Analysis Outline

---

1. Name of researcher(s), their department(s) and description of potential product(s) to be derived from the technology.

Mr. Frank Bates  
President and CEO Bates RV  
Phone: (Cell) 941 915-7103

Mr. Bates is currently in the process of submitting a patent application for a type of cell phone tether that attaches to pants or belt loop. In addition, the cell phone tether (coiled so that it is able to stretch from the belt to the ear) is going to have metal running through it so that it will improve the cell phone reception for the user.

2. Overall Market (Wireless Telephone Market)

In 2003, there were more than 1.137 billion cell phone connections worldwide<sup>1</sup>. In 2000, the number of cell phone shipments was close to 400 million and expected to increase steadily to nearly 900 million in 2005.<sup>2</sup> China has the most cell phone usage, with 334 million cell phones in 2004. Penetration of mobile phones in the U.S. was the next highest at 180 million.

#### Mobile Phone, Internet, and Personal Computer Penetration in Major Economies in 2004<sup>3</sup> (Numbers in Millions)

Country	Mobile Phones	Internet Users	Mobile-to-Net Ratio	Installed PCs
China	334	94	3.6:1	42
US	180	201	0.9:1	204
Japan	94	68	1.4:1	54
Germany	68	42	1.6:1	40
UK	54	30	1.8:1	26
Italy	54	26	2.1:1	15
S. Korea	34	30	1.1:1	27

Although the United States comes in second for the most cell phone usage, the number of installed PCs in the U.S. is much higher than other major economies. This suggests that there is plenty of room for computer growth in other countries, room for cell phone growth in the U.S.,

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<sup>1</sup> "Riding the big wireless wave: can anything stop the endless summer of profits from Qualcomm's cell phone innovation?" *Electronic Business*, 29 (10): 54, July 01, 2003.

<sup>2</sup> "Faster, better, smaller." *Electronic Business*, 27 (12): s22, December 2001.

<sup>3</sup> "It's a mobile world for broadband, too." *Electronic Business*, 29 (10): 54, July 01, 2003.



or both.<sup>4</sup> In the United States, sales for the cell phone market exceeded \$124 billion in 2004. The 180 billion cell phone subscribers in the U.S. make up 61% of the country's population.<sup>5</sup>

### **Growth:**

The wireless telephone market has grown steadily since the 1980s and is expected to continue to grow as more and more people become cell phone users and new technologies and features are introduced.

While the average cell phone service bill decreased until 1998<sup>6</sup>, the number of people subscribing to cell phone carriers – and buying cell phones and accessories – steadily increased. This number is still increasing, but now people are also paying more for service. New features such as text messaging, pictures, and ring tones are being used more and more, bringing in additional sales to cellular carriers.

Sales for the cell phone market could grow almost 35% in six years to reach \$170 billion in 2010. Cellular service makes up a majority of sales, but phones and accessories are expected to have a large percentage growth in this time period. Percentage growth for cell phone service providers, phones, and accessories, and U.S. sales for each segment are shown below.

#### Percentage Growth from 2004-2010

<b><u>Segment</u></b>	<b><u>% Growth</u></b>
<b>Phones</b>	49.86%
<b>Service</b>	31.20%
<b>Accessories</b>	77.18%
<b>Overall Industry</b>	34.40%

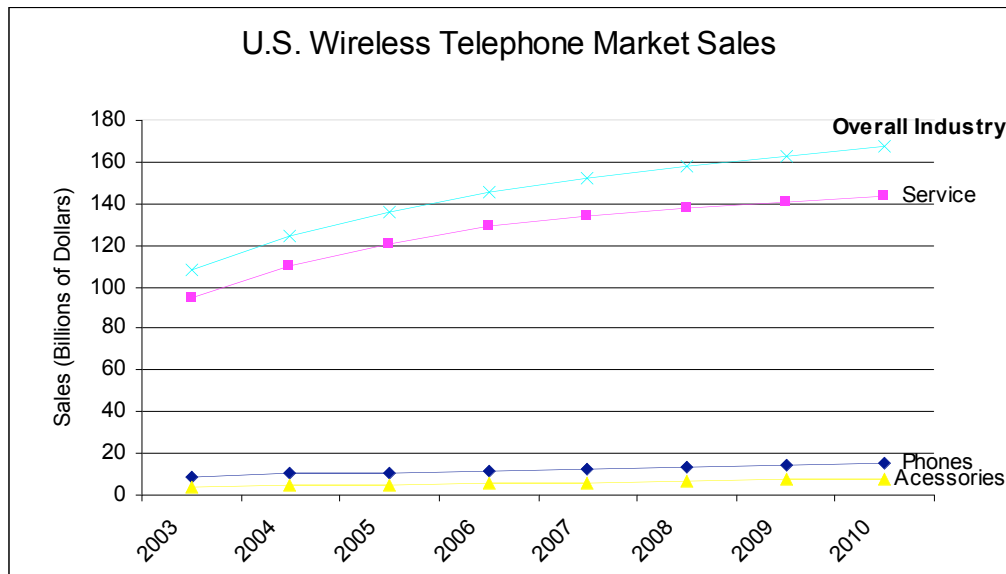
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<sup>4</sup> "It's a mobile world for broadband, too." *Electronic Business*, 29 (10): 54, July 01, 2003.

<sup>5</sup> "Entertainment options flourish at CTIA." *TWICE*, 20 (6): 1, March 07, 2005.

<sup>6</sup> Trigaux, Robert. "FCC vote ends cell phone industry's adolescence." *St. Petersburg Times*, November 14, 2001.





(Sales are projected for 2005 -2010)

Growth rates for the industry are expected to be between 6% and 15% in the U.S. in the next year. By 2010, growth for cellular service will slow down as a greater percentage of the population will have a service plan already. Phones and accessories, however, will have more room to grow, especially with the increase in younger cell phone users. As the market becomes saturated in the United States, companies will begin to focus more on foreign markets where fewer people are using cell phones, but the number of users is climbing.

An obvious trend driving growth is the convenience of cell phones. Having easy access to a phone makes many lives easier, especially in the increasingly fast-paced society in which we live. They are desirable in the case of an emergency, even more so now that pay phones are becoming harder and harder to find (mostly because so many people have cell phones).

The industry is growing as technology becomes more advanced. Cell phones can do more, so more people want them. People are getting to be more comfortable with new technologies including cell phones. Children are growing up not knowing a time when cell phones did not exist, and they are the up and coming market for the industry.

Young people, including children as young as 8, are beginning to use cell phones more and more. This also opens the door for greater sales in the personalization market (including accessories), as kids like things to be unique, colorful, and fun.

Advancement of technology also makes devices smaller, which means they are easier for users to wear. For example, they can more easily be carried in a cell phone holder attached to an article of clothing. This trend could increase the amount of accessories sold and also the amount of talk time. Cell phone users will have easier access to their phones, making more calls and using additional features more often.



### 3. Specific Market Segment (Cell Phone Accessories Market)

The cell phone accessories market currently generates about \$5 billion a year and is expected to grow 10 to 15% per year. Profit margins for accessories range from 60 to 80%.<sup>7</sup>

Currently there are no products that act as both a safety cord for a cell phone and a reception enhancer, so competition for the product will include antenna products that increase reception and cell phone attachments such as the tether model by Gear Keeper.

Competitors include:

Competitor Name	Product Name	Total Sales (\$)	Product Sales (\$)	Strengths	Weaknesses
Cell Antenna	Internal Cell Phone Antenna Booster	N/A	N/A	Simple, cheap, boosts cell signal	Can be damaged easily, effectiveness really unknown
Gear Keeper	Cell Phone Retractable Tether Attachment	N/A	N/A	Established company, relatively inexpensive, no unsightly cord hanging	Retractor could bind, attachment to cell phone or belt could fail

### 4. Market Influences

The economy could affect the sales of the industry somewhat. If the economy is doing well, people will spend more money on extras such as more talk time, the use of more per-use charged features, and purchase of newer phones and accessories. The opposite is true if the economy is not doing so well.

Advancements in technology keep people wanting more. When there is always something new being offered, there are always people who have to have it. This has occurred in the cell phone industry with smaller phones, color phones, picture phones, and phones that play music. Development of new useful and fun accessories such as hats, sunglasses and clothing with built-in cellular microphones also fall into this category.

Safety concerns about cell phones could negatively affect the industry. Such concerns have been raised in the past, but they did not seem to have a large effect. Recently the Supreme Court rejected an appeal by the cell phone industry that would have stopped class-action lawsuits over

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<sup>7</sup> Noguchi, Yuki. "Portable Gadgets Adding a Little Chic to Geek," *The Washington Post*, October 18, 2005



potentially dangerous radiation emissions. Events such as these could both harm and help the industry. If technologies evolve that make cell phone use safer, these devices could greatly increase sales.

Holiday months may have a slight impact on the industry if cell phones and related products are given as gifts. Some accessories and devices may be used and purchased more in warmer months, such as accessories that increase reception when in remote locations (for boating, camping, etc.)

## 5. Historical and projected sales

### **Historical and Projected Sales for Wireless Telephone and Cell Phone Accessories Markets**

(\$Millions)	<b>II. <u>Historical</u></b>			<b>I. <u>Projected</u></b>				
	Year T-3	Year T-2	Year T-1	Year 1	Year 2	Year 3	Year 4	Year 5
	2003	2004	2005	2006	2007	2008	2009	2010
<b>Overall Industry</b> (Wireless Telephone Market)	108,285	124,360	136,413	145,966	152,628	158,233	162,596	167,146
<b>Specific Market</b> (Cell Phone Accessories)	4,132	4,545	5,000	5,500	6,050	6,655	7,321	8,053
<b>% of Overall</b>	3.82%	3.65%	3.67%	3.77%	3.96%	4.21%	4.50%	4.82%
<b>Product</b>								
<b>Best Case</b>				100	110.00	121.00	133.11	146.42
<b>Worst Case</b>				5.00	4.50	4.05	3.64	3.28
<b>Most Likely</b>				30.00	33.00	36.30	39.93	43.93
<b>% of Overall</b>				0.02%	0.02%	0.02%	0.02%	0.02%
<b>% of Specific</b>				0.55%	0.55%	0.55%	0.55%	0.55%

Sales in 2005 for the specific market (cell phone accessories) were \$5 billion and are predicted to grow 10-15% each year<sup>8</sup>. The projected sales for 2006 to 2010 increase by 10% (the most conservative estimate) and sales for 2003 to 2004 are decreased by 10%. Sales of the overall industry (wireless telephones) were found by adding the sales of cellular phones, service, and accessories. The table below outlines sales for the segments of the wireless telephone market.

<sup>8</sup> Noguchi, Yuki. "Portable Gadgets Adding a Little Chic to Geek," *The Washington Post*, October 18, 2005.



## Historical and Projected Sales for Wireless Telephone Market

	Sales in \$Millions							
	Historical			Projected				
	Year	Year	Year	Year 1	Year 2	Year 3	Year 4	Year 5
	T-3	T-2	T-1					
	2003	2004	2005	2006	2007	2008	2009	2010
<b>Phones</b>	9,091	10,171	10,783	11,391	12,340	13,313	14,245	15,242
<b>Service</b>	95,062	109,644	120,630	129,075	134,238	138,265	141,030	143,851
<b>Accessories</b>	4,132	4,545	5,000	5,500	6,050	6,655	7,321	8,053
<b>Overall Industry</b>	108,285	124,360	136,413	145,966	152,628	158,233	162,596	167,146

Cell phone (handset) sales for 2003 and 2004 and forecasted sales for 2005-2008 were taken from Consumer Electronics Association data<sup>9</sup>. Since growth was fairly steady for these years and growth in related segments is expected to continue, we used the average growth from 2005-2008 (which was 7%) to predict sales for 2009 and 2010.

Service sales for 2003 and 2004 were found by multiplying the total number of subscribers by the average monthly service plan bill<sup>10</sup> and then multiplying that value by 12 to get annual revenue. To determine projected cellular service sales, we used the percentage growth in subscriber base<sup>11</sup> for corresponding years.

Sales for accessories were found as described above.

Projected sales for the product were estimated based on sales of competitors of various sizes. Sales as large companies like Motorola are much higher than would be obtainable by a relatively unknown player in the market selling a new product. Sales will probably also be lower than that of smaller companies, but if successful, the product could generate significant revenue.

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Available at [www.ce.usf.edu](http://www.ce.usf.edu)

<sup>9</sup> "The pulse of our industry." *Electronic Design*, 53 (14): 27, June 30, 2005.

<sup>10</sup> "CTIA: '04 subscriber gains are second-best in history." *TWICE*, 20 (8): 16, April 04, 2005.

<sup>11</sup> "Entertainment options flourish at CTIA." *TWICE*, 20 (6): 1, March 07, 2005.



## Appendix 4. MARKET OPPORTUNITY ASSESSMENT

### DECISION MATRIX

#### MARKET INDEX SCORE

	<u>Very Weak</u>	<u>Strong</u>	<u>Mkt 1</u>	<u>Mkt 2</u>	<u>Mkt 3</u>
	<u>0</u>	<u>5</u>	Score	Score	Score
Number of Competitors	< 5	>10	<u>2</u>	_____	_____
Market Size (Sales)	\$100M	\$1B	<u>3</u>	_____	_____
Market Growth Rate	≤15%	50%	<u>0</u>	_____	_____
Market Structure (VW-Consolidated/Hi-Competitive) (S-Fragmented/Lo-Competitive) (VW-Regulatory/Difficult Entry) (S-No Regulatory/Easy Entry)			<u>VW</u>	_____	_____
Market Share Attainable	< 5%	> 40%	<u>1</u>	_____	_____
Market Capacity (VW-Currently met by participants) (S-Currently unmet)			<u>S</u>	_____	_____
Comparables (VW-Largest competitor > 50% Mkt Sh) (S-Largest competitor < 20% Mkt Sh)			<u>W</u>	_____	_____
Marketing Budget (Budget required vs. “Adequate Resources” obtainable; internal, equity, debt, license, partner, etc.)			<u>5</u>	_____	_____
Opportunities (Build, License, Partner, etc.) “Split” Technology Additional Mkt Segments			<u>3</u>	_____	_____
Overall Team Competitive Assessment (0-5)			<u>3</u>	_____	_____
Raw Score (= Sum)			<u>17</u>	_____	_____
Market Index Score (= Raw Score x 2.0)			<u>34</u>	_____	_____



Factors to be considered in Team Competitive Assessment:

Is technology potentially “life/world-changing”?

Application potential of technology within market(s)

Likelihood of significant market interest in technology (e.g., ease of use, cost, etc.)

Likelihood of competitive “paradigm shift” (+ or -)

Ability to generate repetitive sales/cash flows (e.g., “razor blade model”)

Likelihood of significant market resistance to technology/products

Process required to enter market (e.g., regulatory approval, etc.)

Other....

Sources:

1.

2.

3.

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### MARKET OPPORTUNITY ASSESSMENT

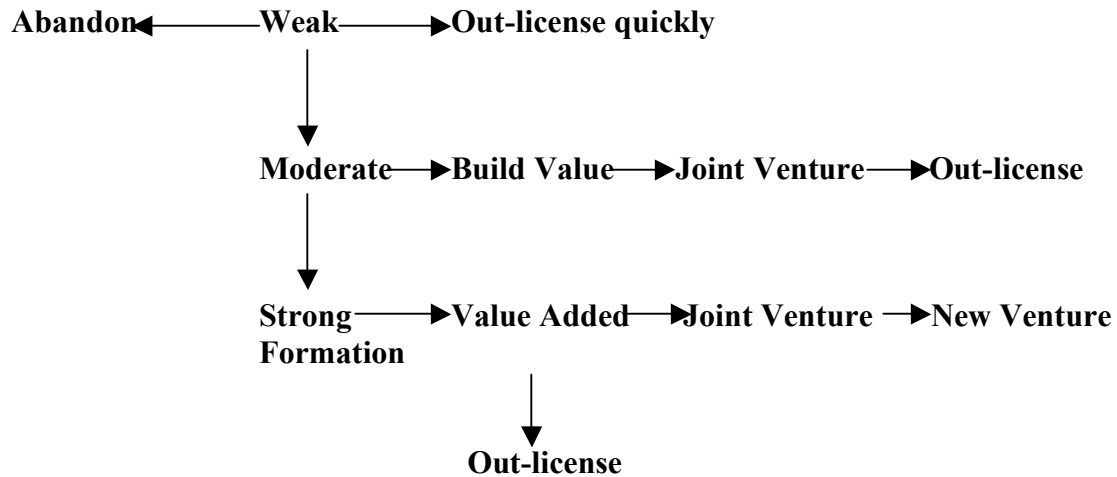
	<u>MARKET INDEX SCORE</u>	<u>ACTION</u>
<b>VERY WEAK</b>	<b>&lt; 50</b>	<b>ABANDON</b>
<b>WEAK</b>	<b>50 – 69</b>	<b>OUT-LICENSE QUICKLY</b>
<b>MODERATE</b>	<b>70 – 84</b>	<b>BUILD VALUE OUT-LICENSE JOINT VENTURE</b>
<b>STRONG</b>	<b>85 – 100</b>	<b>VALUE ADDED —►LICENSE JOINT VENTURE NEW VENTURE FORMATION</b>



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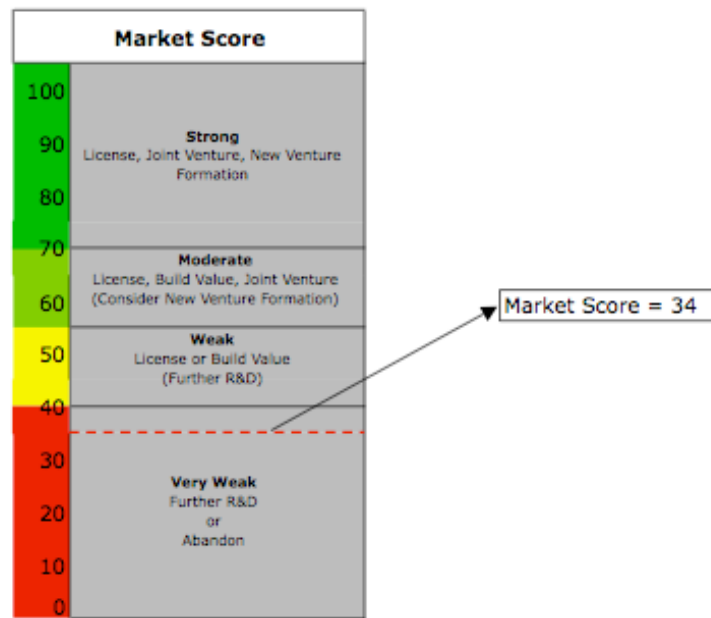
## MARKET OPPORTUNITY ASSESSMENT

### DECISION TREE



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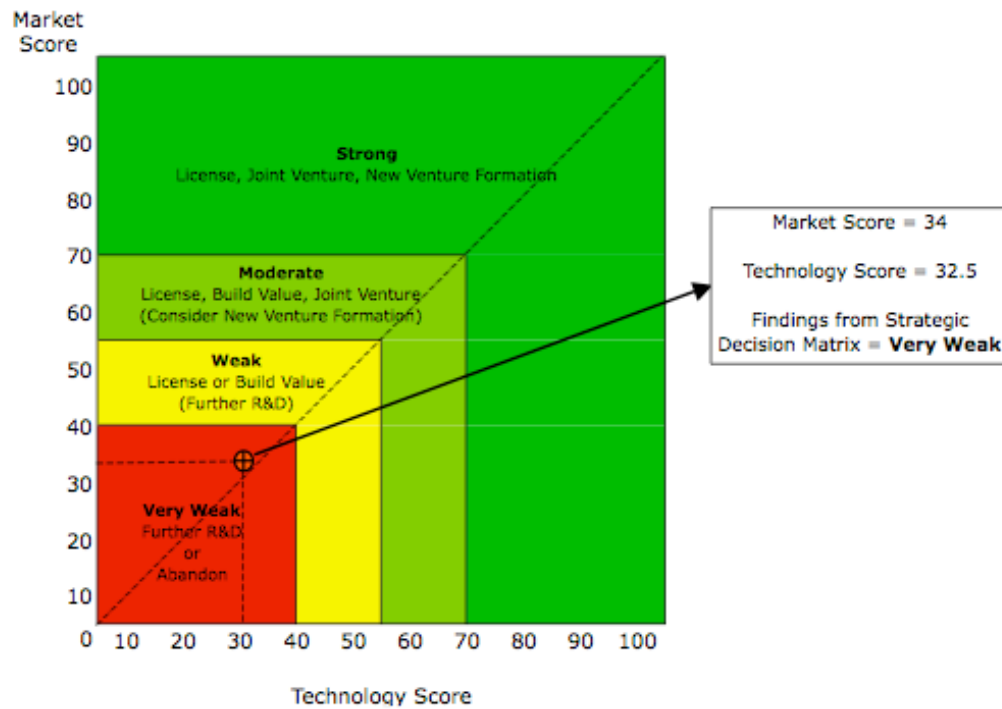
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Graphic showing market assessment as very weak.



## TECHNOLOGY-MARKET STRATEGIC DECISION MATRIX



Graphic showing the combination of the technology and market assessment scores. Decision matrix advises to perform further R&D or abandon. Graphic is color coded to mimic a traffic signal where red is stop, yellow is proceed with caution, and green is go ahead.

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