

RECEIVED
FILED

BEFORE THE

2003 MAR 19 PM 4:37

IDAHO PUBLIC UTILITIES COMMISSION
IDAHO PUBLIC UTILITIES COMMISSION

IN THE MATTER OF THE APPLICATION)
OF QWEST CORPORATION FOR)
DEREGULATION OF BASIC LOCAL)
EXCHANGE RATES IN ITS BOISE, NAMPA,)
CALDWELL, MERIDIAN, TWIN FALLS,)
IDAHO FALLS, AND POCATELLO)
EXCHANGES.)
_____)

CASE NO. QWE-T-02-25

EXHIBITS TESTIMONY OF WAYNE HART

IDAHO PUBLIC UTILITIES COMMISSION

MARCH 19, 2003

ALLEGEDLY PROPRIETARY DATA
HAS BEEN DELETED FROM THIS DOCUMENT

Case No. QWE-T-02-25

**Exhibit No. 101 prepared and sponsored by Wayne Hart is
Proprietary and only available to those persons who have signed
Protective Agreements**

Difference Between Qwest and Wireless Service

Long Distance Comparison

	Average Residential Customer, with 28 Intralata and 36 Interstate Minutes			Average Business Customer with 117 Intralata and 151 Interstate minutes		
	Qwest Monthly Charges	Wireless Monthly Charges	Difference	Qwest Monthly Charges	Wireless Monthly Charges	Difference
Edge Wireless	\$31.30	\$165.99	\$134.69	\$71.16	\$149.99	\$78.83
US Cellular	\$31.30	\$159.20	\$127.90	\$71.16	\$140.00	\$68.84
Sprint PCS	\$31.30	\$100.00	\$68.70	\$71.16	\$100.00	\$28.84
Verizon Wireless	\$31.30	\$154.99	\$123.69	\$71.16	\$121.99	\$50.83
AT&T Wireless	\$31.30	\$169.19	\$137.89	\$71.16	\$149.99	\$78.83
T-Mobile	\$31.30	99.99	\$68.69	\$71.16	\$99.99	\$28.83
Nextel	\$31.30	89.99	\$58.69	\$71.16	\$89.99	\$18.83
Cricket	\$31.30	39.99	\$8.69	\$71.16	\$39.99	-\$31.17
ClearTalk (Magic Valley)	\$31.30	39.39	\$8.09	\$71.16	\$60.39	-\$10.77
ClearTalk (Eastern Idaho)	\$31.30	\$46.35	\$15.05	\$71.16	\$67.35	-\$3.81

For the long distance comparison, I used information from Qwest's report to the Administrator of the Idaho Universal Service Fund (IUSF) and the May 22nd, 2002, *Trends in Telephone Usage* (Trends) published by the FCC Industry Analysis and Technology Division. Using the data from Table 3.2 of the Trend's report, I divided the total number of Intrastate minutes from the IUSF report into residential and business customer classes. I then divided that by the number of customers in each class to determine an average number of intrastate minutes for an average residential and business customer. I then used the ratio of intrastate and interstate minutes from Table 11.2 of the Trends report to determine an amount of interstate minutes. The intrastate and interstate minutes were added to the peak local minutes from Exhibit 101 of the median flat rate customer for both residential and business customers.

For the calculation of wireless costs, I used the lowest cost "national" plan, to obtain the "free" long distance. For Clear Talk, which does not provide a "free" long distance plan, I simply used the per minute long distance rates published on their web site. The analysis assumes all long distance calls, both intrastate and interstate, are from locations within the Carriers network, but outside the carrier's home area. However, except in the case of ClearTalk, the bundled long distance minutes exceeded the average toll usage, so this assumption did not materially impact the analysis.

For the calculation of Qwest's costs, I used 10 cents a minute for interstate calls and 15 cents a minute for intrastate calls, and added this to the local costs from Confidential Exhibit 101.

Difference Between Qwest and Wireless Service

Long Distance Comparison with Directory Listing

	Average Residential Customer, with 28 Intralata and 36 Interstate Minutes			Average Business Customer with 117 Intralata and 151 Interstate minutes		
	Qwest Monthly Charges	Wireless Monthly Charges	Difference	Qwest Monthly Charges	Wireless Monthly Charges	Difference
Edge Wireless	\$31.30	\$167.49	\$136.19	\$71.16	\$155.99	\$84.83
US Cellular	\$31.30	\$160.70	\$129.40	\$71.16	\$146.00	\$74.84
Sprint PCS	\$31.30	\$101.50	\$70.20	\$71.16	\$106.00	\$34.84
Verizon Wireless	\$31.30	\$156.49	\$125.19	\$71.16	\$127.99	\$56.83
AT&T Wireless	\$31.30	\$170.69	\$139.39	\$71.16	\$155.99	\$84.83
T-Mobile	\$31.30	\$101.49	\$70.19	\$71.16	\$105.99	\$34.83
Nextel	\$31.30	\$91.49	\$60.19	\$71.16	\$95.99	\$24.83
Cricket	\$31.30	\$41.49	\$10.19	\$71.16	\$45.99	-\$25.17
ClearTalk (Magic Valley)	\$31.30	\$40.89	\$9.59	\$71.16	\$66.39	-\$4.77
ClearTalk (Eastern Idaho)	\$31.30	\$47.85	\$16.55	\$71.16	\$73.35	\$2.19

For the long distance comparison, I used information from Qwest's report to the Administrator of the Idaho Universal Service Fund (IUSF) and the May 22nd, 2002, *Trends in Telephone Usage* (Trends) published by the FCC Industry Analysis and Technology Division. Using the data from Table 3.2 of the Trend's report, I divided the total number of Intrastate minutes from the IUSF report into residential and business customer classes. I then divided that by the number of customers in each class to determine an average number of intrastate minutes for an average residential and business customer. I then used the ratio of intrastate and interstate minutes from Table 11.2 of the Trends report to determine an amount of interstate minutes. The intrastate and interstate minutes were added to the peak local minutes from Exhibit 101 of the median flat rate customer for both residential and business customers.

For the calculation of wireless costs, I used the lowest cost "national" plan, to obtain the "free" long distance. For Clear Talk, which does not provide a "free" long distance plan, I simply used the per minute long distance rates published on their web site. The analysis assumes all long distance calls, both intrastate and interstate, are from locations within the Carriers network, but outside the carrier's home area. However, except in the case of ClearTalk, the bundled long distance minutes exceeded the average toll usage, so this assumption did not materially impact the analysis.

For the calculation of Qwest's costs, I used 10 cents a minute for interstate calls and 15 cents a minute for intrastate calls, and added this to the local costs from Confidential Exhibit 101.



February 18, 2003

TELECOMMUNICATIONS

Cellphone Carriers Cut Back On Some Generous Call Plans

By **JESSE DRUCKER**
Staff Reporter of THE WALL STREET JOURNAL

The wireless gravy train is slowing down.

In the past few weeks, several mobile-phone carriers have pared some of their most generous calling plans, with some cutting back on minutes by as much as 60% and others getting rid of free-evening calling.

AT&T Wireless Services Inc. stopped offering a national plan with 1,000 "anytime" minutes for \$39.99. That promotional plan, started in September, was meant to get users on to its new, higher-speed network, which allows subscribers to send photos, check e-mail, and surf the Web at speeds comparable with dial-up.

Now, AT&T Wireless subscribers paying that much per month get as few as 550 "anytime" national minutes. (In some markets, it's 600.) The carrier also cut back minutes in several other plans, and raised rates some customers pay when they go over their allotted minutes and also raised some roaming rates.

Meanwhile, at the beginning of the month, T-Mobile USA Inc. stopped offering unlimited nighttime calling in one plan. The carrier has also pared back a national \$39.99 plan from 1,000 minutes to 600.

THE ABCS OF WIRELESS

How much is your monthly cellphone bill? Participate in the **Question of the Day**¹.



Can't keep your 3G straight from your CDMA? Our expanded glossary² will help you sort through wireless jargon.

Tangled in a web of woes, cellphone companies face increasing pressure to merge. Rumors are buzzing, but the big question is -- who will it be? Meet the players³ in the world of wireless.

Cingular Wireless also recently reduced the number of minutes in its \$39.99 local calling plan from 1,000 minutes to as little as 400 minutes in some markets. Customers in Los Angeles, New York, Las Vegas and some other markets are still in luck: They get 600 minutes in those places, as long as they have a phone that operates on its new network.

Experts think it is likely that price cutting will eventually return, given how competitive the industry remains. So unless you're desperate to sign up for a plan now, just wait a while for another round of promotions. Or, keep in mind that even with the heaviest discounting gone, many plans still offer more minutes than before the promotions.

If you're a super-heavy caller, some of AT&T Wireless's higher-end plans actually got more generous: a local plan that gave you 1,200 peak minutes for \$99.99 now offers 1,600 minutes.

Why are mobile-phone companies cutting back on their bargain plans now? Carriers worried about the continued slowdown in the wireless-industry growth rolled out generous plans late last year to help generate stronger growth in subscribers. Now, the industry wants to report strong cash positions at the expense of growth.

ALSO ON TELECOM

- FCC Chief Salvaging Local-Phone Plan
 - Nokia, Oracle Unveil Cellphone Pact
 - PC Industry Bets on Cellphones
- MORE

A spokesman for AT&T Wireless said the company made the changes for simplicity's sake, and pointed out that in a few cases, service got a bit cheaper. "In some cases we've added minutes, in some cases we've reduced minutes," he said.

Write to Jesse Drucker at jesse.drucker@wsj.com⁴

URL for this article:

<http://online.wsj.com/article/0,,SB1045523387832429303,00.html>

Hyperlinks in this Article:

(1) `javascript: window.open('http://online.wsj.com/documents/info-wirealpha02-frameset.html',",','toolbar=no,scrollbars=no,location=no,width=488,height=350,left=100+,top=100'); void("");`

(3) `javascript: window.open('http://online.wsj.com/documents/info-wireless02-frameset.html',",','toolbar=no,scrollbars=no,location=no,width=540,height=360,left=100+,top=100'); void("");`

(4) `mailto:jesse.drucker@wsj.com`

Updated February 18, 2003

Copyright 2003 Dow Jones & Company, Inc. All Rights Reserved

Printing, distribution, and use of this material is governed by your Subscription agreement and Copyright laws.

For information about subscribing go to <http://www.wsj.com>



FEATURE REPORT

February 2002

The complete cell-phone guide

Illustration by Bek Shakirov

Service shortcomings

Why you can't always count on a cell phone when you need it. How to get better service.

Sept. 11 became a proving ground for emergency calling, especially from the cell phones on which 123 million Americans depend. On normal days cellular carries roughly 30 percent of 911 calls. Total cellular traffic nearly doubled in the hours following the terrorist attacks. That's when the thousands of people trying to make a call learned not only how vital cell phones have become, but how fickle cellular networks can be.

"We had the highest calling volume we've ever had," said Danielle Perry, a spokeswoman for AT&T Wireless. Many people in New York City and Washington, D.C., heard only the fast busy signal that means the network can't handle another call. Rescue workers using cell phones were as stymied as anyone.

CELLULAR BUSINESS, AS USUAL

The past two years have seen cellular subscribers soar by more than 40 percent, to 123 million. And Americans' cell-phone use has risen sharply, from 89 billion minutes in 1998 to nearly 200 billion in just the first six months of last year.

Americans are clearly willing to forgive a lot for those minutes. Telephia, a San Francisco company that measures network performance, pegs the chances of getting disconnected at 2 percent in a 2-minute cell-phone call. William E. Kennard, chairman of the Federal Communications Commission (FCC) from 1997 until last June, says that if a regular call on a landline phone cut out that often, outraged consumers would call the phone company. "But there is not the same expectation of quality for wireless," he says.

There are no service standards for cellular--minimal benchmarks for disconnects, clarity, or blocked calls, for instance. But then, landline phones grew up as a tightly regulated monopoly, not in the openly competitive market that distinguishes cellular.

"It's made wireless phones affordable for the majority of people," but not without problems, says Kennard. Indeed, Americans consistently rate their cellular-phone service as mediocre.

A national survey of households with wireless service conducted in 2000 by the Yankee Group, a Boston-based research firm, found that only 41 percent of the 2,910 respondents



Many people buy a cell phone for on-the-road emergencies, but the cellular 911 system can't locate callers.

- [Performance in rr cities](#)
- [Where providers licensed](#)
- [What the FCC sh require](#)

Expert Forum, [Ce phones -- service handsets](#), January, February 1, 2002

Which products and services are worth paying for and which aren't? Take a minute to subscribe and get our unbiased Ratings of thousands of products in dozens of categories.

Exhibit No. 104
Case No. QWE-T-02-25
W. Hart, Staff Page 1 of 4
3/19/03

said they are "very satisfied." A *Consumer Reports* survey of about 1,500 cell-phone users in 2000 found that half were very satisfied.

The reasons for such low levels of satisfaction--and what we can do to help you find better service--include:

► **Spotty coverage.** The maps carriers provide often show service that blankets entire regions. But accurate national maps for some carriers actually eliminate entire states or sizable swaths (see [Where providers are licensed](#)).

Accurate local maps are more like Swiss cheese, riddled with dead spots. Carriers map those spots regularly, but consumers never have a chance to see those maps. The maps consumers do see aren't independently audited by anyone, not even the FCC. Jim Schlichting, deputy chief of the commission's wireless bureau, echoes advice we've given: that a good way to find out about coverage is to ask neighbors and friends.

How we can help. In addition to the maps in [Where providers are licensed](#), we give an overall satisfaction score for cellular service in nine large metropolitan areas in [Performance in major cities](#), based on data provided by Telephia.

► **Surprisingly costly plans.** The Wireless Consumers Alliance, a California-based nonprofit organization at www.wirelessconsumers.org, receives two to three complaints a day. Recent ones include these:

A Gloucester Township, N.J., customer switched from prepaid cellular service to Sprint PCS, only to find that the new Sprint service wouldn't work at home; the area is a dead spot on Sprint's network. And the Sprint contract carries a \$150 early-termination fee.

A Sacramento, Calif., lawyer using AT&T Wireless is billed for long distance and roaming, but his plan includes both. "I always get credited, but they put me on hold for a long time," he says.

How we can help. The table in [A sample of calling plans](#) breaks down charges from the five leading carriers for four kinds of typical cell-phone users. You can use the data to help determine the best value for your calling pattern.

► **Billing problems.** Last fall, the FCC issued its first report on cellular complaints. Billing problems topped the chart, accounting for 55 percent of the 3,076 problems logged in over a three-month period. The FCC won't name companies that are the subject of those complaints. And though the FCC sends the complaints on to carriers--in the first 10 months of last year, it forwarded more than 10,000--the agency has no system to follow up.

The California Public Utilities Commission noted a 47 percent jump in cellular "complaints and inquiries" last year; billing disputes and service quality topped the list. The agency is now proposing a state consumer bill of rights for telecommunications, citing the "frustration many feel in dealing with carriers."

How we can help. When a problem arises, you will have to deal with the cellular company first, but don't hesitate to call state regulators or the FCC (see [What the FCC should require](#)). If the problem is with the telephone itself, go to one of the cell-company's stores, not an independent agent; the staff is likely to be better equipped to provide a remedy.

THE PATCHWORK NETWORK

Cell-phone carriers have built networks that handle most calls most days, but capacity isn't infinite. Adding a new cellular tower can cost carriers as much as \$300,000, a dubious investment if the additional capacity goes largely unused.

Because a major emergency can overwhelm the system, the government is pushing carriers to quickly set up a priority access system. It would give precedence to the cell phones that rescuers may carry; their calls would shoot to the front of a site's queue when an emergency

Exhibit No. 104
Case No. QWE-T-02-25
W. Hart, Staff Page 2 of 4
3/19/03

is declared.

The industry expects to have 50,000 priority lines in place by the end of the year, says Kathryn Condello, a spokeswoman for the Cellular Telecommunications & Internet Association, a trade group.

But there is one formidable problem in the way of priority access, which also helps explain why everyday cell-phone service can be maddening. In 1986, the FCC dropped its requirement that carriers use one common analog standard, although cellular carriers must still support analog. And in 1993, when the FCC opened up the digital PCS band, the agency didn't require those carriers to carry analog signals at all.

As a result, different companies have erected their digital networks as technical fiefdoms; users can't easily cross from one to another. AT&T's TDMA system can't communicate with Verizon's CDMA system. Such incompatibilities mean that carriers can't pool resources, allowing, say, AT&T to tap some idle Verizon capacity.

Kennard says that the carriers' diverse technical standards "made for a more balkanized industry" that has difficulty coordinating, especially in emergencies.

ELUSIVE E911--WE COULD BE SAFER

Cellular's biggest failing may well be its limited usefulness in an emergency. If you call 911 from a cell phone, rescuers cannot readily find you. To give just one example: A *Consumer Reports* staffer who wanted to alert authorities to an accident on New York City's West Side Highway was taken aback when the 911 operator asked what town he was in. His emergency cellular call had somehow been routed to Totowa, N.J., 18 miles west, and been answered by New Jersey State Troopers. They quickly transferred the call back to a New York City call center.

Granted, it's hard to find a moving target, but the technology to do so has been around for years, most notably in the OnStar system built into many luxury cars, which relies on navigational satellites. Most cellular carriers plan to use the same system in what's known as Enhanced 911, or E911. But government and industry have been dragging their feet.

In 1996, carriers agreed to provide E911 in two steps over five years. Phase I would convey a cell phone's number for callbacks and the location of the cell tower handling the call, a rough indication of whereabouts. Carriers complied with Phase I, although most emergency call centers must still upgrade their facilities to handle the extra information. There is no timetable or dollar figure for the upgrade.

The cellular industry hasn't delivered on Phase II, which was supposed to take effect last October. By then, cell systems should have been capable of pinpointing callers to within a few hundred feet or better. But the industry apparently underestimated the technological challenge. For example, a Verizon spokeswoman says the company spent "a lot of money trying a network-based system that did not work well, especially in rural areas." So it adopted a handset solution. The big carriers asked the FCC for an extension and were given four years.

"My own view is that the carriers don't see this as a money-making proposition, locating people in emergencies" says Kennard. Michael K. Powell, the current FCC chairman, has said he is "disappointed and unsatisfied" with progress on E911.

Even when E911 finally arrives, the carriers' digital fiefdoms may well stymie its effectiveness if there is no legal requirement for them to accept a caller's location from other carriers. For example, an E911 call from a Verizon handset might not register your location if an AT&T cell site receives it (911 calls must travel over the first available circuit). Most E911 systems won't work on the older analog system, either. As of last fall, only St. Clair County, Ill., a suburb of St. Louis, Mo., had E911. The system now works only with phones that can access a Verizon tower.

Exhibit No. 104
Case No. QWE-T-02-25
W. Hart, Staff Page 3 of 4
3/19/03

A CAPACITY FIX?

Calls can be lost as you move from one cellular site--the radius covered by a transmission antenna--into another.

In theory, more cell sites in an area may mean fewer disconnects and blocked calls. Carriers say they've invested billions to add sites, but that radio signals are inherently unreliable, affected by buildings, topography, weather, and even foliage.

The industry convinced the Federal Communications Commission that it needs a bigger wedge of frequencies for emergencies and to improve service. Last November, the commission removed the "spectrum caps" limiting the number of airwaves each carrier could own in a particular market.

Lifting the caps was unfortunate for two reasons:

First, those caps have fostered competition. Today 90 percent of Americans can choose from among three or more wireless carriers, and 75 percent from five or more.

Second, there's new technology that will also deliver relief without inhibiting competition. In coming years carriers plan to upgrade to 3G, or third generation, cellular. (1G was analog; 2G is today's system.) 3G technology can cram many more voice calls into airwaves and boost the speed at which wireless data travel.

After the vote to lift caps, Kennard told us: "This was not about spectrum but about mergers and acquisition. If you only have two or three carriers, there will be less incentive to compete on price and service."

Getting through in a pinch: Send text

Cell phones aren't totally hopeless in the kind of emergency that clogs lines and blocks calls. Many newer phones provide a second track to get through, using a text message.

Text messages stand a good chance of reaching their destination, even if voice circuits are overloaded. Text demands less from network resources. Voice calls must be transmitted right away, while text is broken into packets of data that squeeze through airwaves when there's a bit of room.

The short-messaging service (SMS) that cell phones offer limits you to 160 characters, entered from the keypad. Some handsets also offer canned messages, such as "I'll be late." You enter the recipient's cell-phone number and push Send. In a few minutes his or her phone beeps and delivers your message.

Until now, carriers haven't allowed messages to be sent outside their network. Now, carriers say they will open the system, perhaps sometime this year. Some also let anyone with a regular Internet connection send a note to a cell customer. SMS is different from full-fledged wireless e-mail, however.

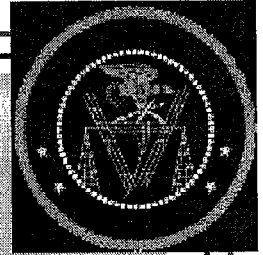
Pricing varies, but 10 cents a message is typical for senders; recipients might also pay a few cents.

[Home](#) | [Appliances](#) | [Autos](#) | [Electronics](#) | [Computers](#) | [More Ratings](#) | [Consumer advice](#)
[Privacy](#) | [Security](#) | [About us](#) | [Customer service](#) | [My account](#) | [Subscribe](#) | [Site map](#) | [Our products](#)

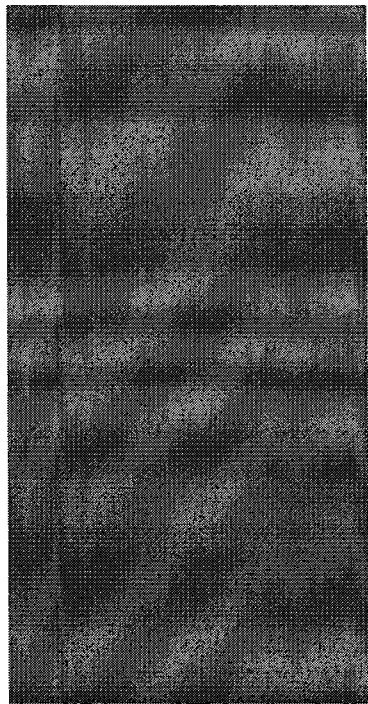
Copyright © 1998-2002 Consumers Union of U.S., Inc.

Exhibit No. 104
Case No. QWE-T-02-25
W. Hart, Staff Page 4 of 4
3/19/03

what you should know *about*

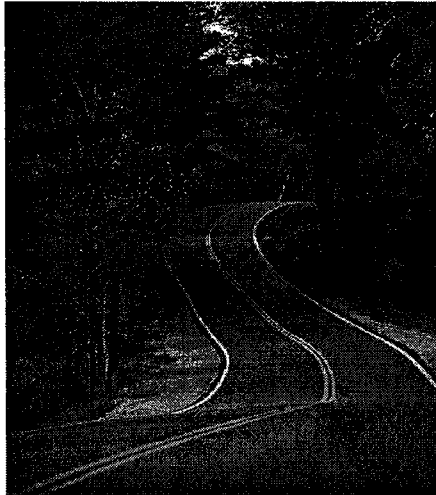


Wireless Phone Service



- Coverage..... 2
- Pricing.4
- Handsets.....8
- More Information...9

Coverage...



“Coverage” refers to the geographic area where mobile telephone subscribers can use their cell phones. Cell phones must be able to receive or “pick up” a signal from a mobile telephone carrier’s network. Coverage varies by carrier and is determined by the extent to which carriers have built out their networks.*

■ ANALOG VS. DIGITAL

There are essentially two types of coverage: analog and digital. Calls made on digital networks are clearer, more secure, and more feature-rich than calls made on analog networks. Because analog technology has been in use since the 1980s, virtually every part of the country where people live has analog coverage. Carriers have deployed digital technology more recently and, therefore, digital service plans and coverage tend to be available in the more populated and highly-traveled areas of the country. The FCC estimates approximately 90 percent of the U.S. population lives in counties that have some digital coverage. Significant portions of the country’s land area do not have access to digital service. Carriers are constantly upgrading their networks to expand the areas where they can offer digital mobile telephone service.

■ A BRIEF HISTORY

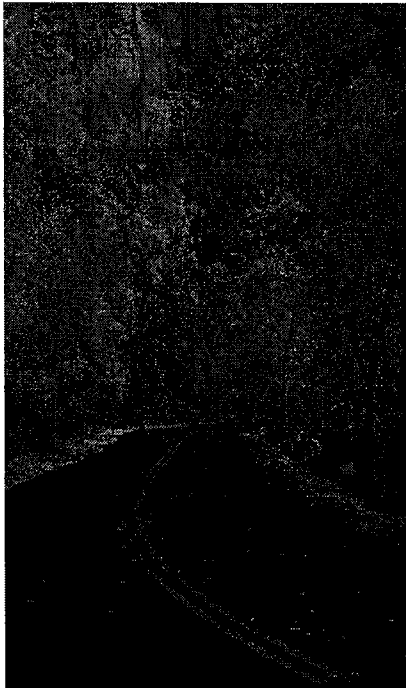
During the 1980s, the FCC licensed cellular spectrum in the 800 MHz band to two cellular carriers in virtually every market in the country. These carriers began building out their networks and offering analog cellular service. In 1995 the FCC began auctioning additional mobile telephone spectrum in the 1900 MHz band for Personal Communication Services (PCS). The carriers that purchased this spectrum began building out digital technology and offering digital mobile telephone services. Cellular carriers in the 800 MHz band have upgraded most of their networks from analog to digital technology in order to expand capacity and improve the quality of service. During the late 1990s, carriers operating in spectrum bands allocated for Specialized Mobile Radio (SMR) service began upgrading their networks with digital technology and offering mobile telephone service in competition with cellular and PCS operators. Mobile telephone carriers using these various spectrum bands continue to deploy digital technology in their networks today.

**The term “cell phones” generally refers to all mobile phones that operate on any of the three types of mobile telephone spectrum: cellular, PCS, or digital SMR.*

■ WHERE CAN I USE MY CELL PHONE?

This is determined mainly by where your carrier owns spectrum licenses and where it has built out its network within its license areas. Analog networks cover almost every area of the country, whereas digital networks, while extensive, are not everywhere. The extent to which individual carriers have built out their networks in a given market varies.

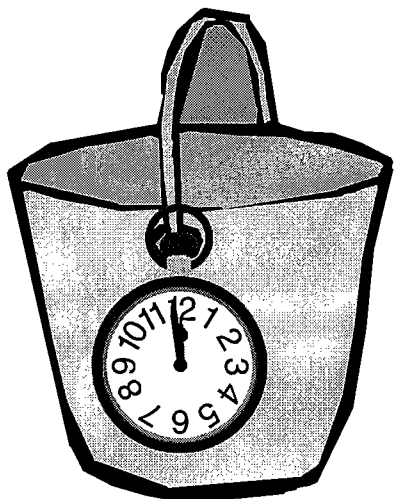
Even if your carrier has not built out its network in a given area, you may be able to connect to or "roam on" another carrier's network. If your carrier has an agreement with another carrier, and if you have a type of handset that allows roaming, you may be able to connect (see "The Handset," page 4). Most handsets that allow roaming have an indicator to let subscribers know when they are outside their home calling area and/or out of reach of their carrier's network. How much you will pay for calls in different areas depends on your pricing plan (see "Pricing," page 5).



■ DROPPED CALLS, DEAD SPOTS & BUSY SIGNALS

Even where a carrier offers coverage in a specific geographic area, you may not be able to complete a given call due to limitations in network architecture and capacity. When a carrier fails to hand off a call in progress, as you travel from one part of the carrier's network to another a "dropped call" results. When many customers use a carrier's network at the same time, it becomes capacity constrained. Other customers trying to connect will hear a busy signal instead of being able to complete their calls. Topography can also affect coverage causing "dead spots." A dead spot is an area where service is not available because the signal between the handset and the cell tower is blocked, usually by hilly terrain, excessive foliage, or tall buildings. Carriers are constantly improving and upgrading their networks in order to minimize these types of problems.

Pricing . . .



Most wireless pricing plans include a certain number of minutes per month (often called a "basket" or "bucket" of minutes) for a certain price, and any minutes over that specified amount are charged on a per-minute basis. Any unused minutes at the end of the month expire. Carriers generally offer several variations of these types of plans with increasing baskets of minutes at increasing monthly fees. Carriers also vary their service plans by where subscribers can use their phones without incurring additional roaming and long distance fees.

■ NIGHT & WEEKEND VS. "ANYTIME" MINUTES

Many carriers offer plans that include a basket of minutes that can be used anytime during the month plus a larger basket of minutes that can be used during certain times, generally nights and/or weekends. Which time periods constitute "night" and "weekend" vary by carrier.

■ PEAK & OFF-PEAK MINUTES

Before the advent of "bucket" pricing plans, carriers charged subscribers a per-minute fee for each minute of airtime on every call. Some carriers still offer these types of plans today. With these plans, calls made during certain "peak" times of the day - generally business hours - often cost more, and calls made during other "off-peak" times - generally nights and weekends - often cost less. Again, which times constitute "night" and "weekend" vary by carrier.

■ WHO PAYS FOR INCOMING CALLS?

With the majority of pricing plans, consumers pay for both outgoing and incoming calls. In the case of bucket plans, the minutes from both outgoing and incoming calls are usually deducted from a customer's monthly bucket of minutes. However, some carriers offer pricing plans where all or some of the minutes of incoming calls are free to customers.

■ MINUTES OR SECONDS?

In general, mobile carriers charge by the minute. When you use a fraction of a minute, many carriers round up to the next minute, charging or deducting subscribers a full minute when only a portion of it is used. However, some carriers offer plans that round to the nearest second instead of minute.

■ LONG DISTANCE

Cell phone users have traditionally had to pay additional fees for "long distance" calls. Long distance calls are generally calls made to locations outside of a customer's home coverage area. However, some carriers may define long distance calls differently for purposes of their pricing plans. Several carriers offer pricing plans that eliminate per-minute long distance fees. Some plans charge no long distance fees for calls made from a customer's home calling area, some for calls made from anywhere on a carrier's network, and some for calls made from anywhere in the United States. Whenever a long distance call is made, the mobile telephone carrier determines which long distance carrier will complete the call, unlike with landline service where the customer chooses the long distance carrier.

■ ROAMING

Carriers have traditionally charged per-minute roaming fees on calls made from the network of the carrier that has a roaming arrangement with your carrier from a location outside of a customer's home calling area. However, several carriers have eliminated these fees in their "nationwide" pricing plans.

■ "NATIONWIDE" PRICING PLANS

All of the major mobile carriers offer pricing plans that allow customers to purchase a bucket of monthly minutes to use on a nationwide basis without incurring roaming or long distance charges. Consumers should be aware that how carriers define "nationwide" varies. For some carriers, this means being able to use your phone anywhere in the country where any type of signal is available at no additional charge. For other carriers, it means being able to send and receive calls only on the carrier's network without incurring roaming and long distance fees. These carriers' networks generally extend through the country's more populated and highly-traveled locations but do not cover the entire United States.

■ PREPAID SERVICES

With prepaid service, consumers purchase a handset and pay for a fixed amount of minutes prior to making any calls. There is usually a set time period in which unused minutes will expire. Prepaid minutes are often subject to peak and off-peak airtime rates. When prepaid customers have used up their minutes, they can refill them. Carriers do not obtain credit history reports on prepaid subscribers as they generally do with other subscribers.

■ SPECIAL OPTIONS

Special options (also known as vertical services) include such things as call waiting, CallerID, voicemail, call forwarding, and three-way calling. Carriers offer these to customers as add-on features beyond simply dialing and talking. Some of these options are included in the monthly price of most digital calling plans, while others are generally offered at an additional monthly or per-use charge. Many of these features may not be available on analog networks.

■ SHORT MESSAGING SERVICES (SMS)

SMS provides the ability to send and receive short text messages to and from mobile handsets. Many carriers charge a flat monthly fee for a basket of messages, with additional messages costing a few cents per message.

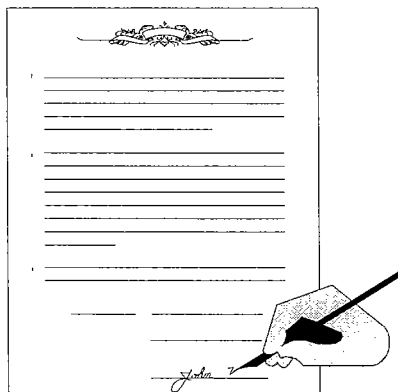
■ MOBILE DATA SERVICES

"Wireless Web" or "mobile Web" services allow customers to obtain a limited amount of text-based Internet content on their mobile phones. The type of content available generally varies from carrier to carrier. Some carriers charge a flat monthly fee for access to wireless Web content, while others offer the service at no additional charge beyond voice service. In addition, some carriers deduct wireless Web access minutes from their subscribers' basket of monthly voice minutes while others do not.



■ ACTIVATION FEES

Many carriers charge a one-time fee to customers when they initiate service, called an "activation fee." Carriers will sometimes waive this fee as part of a promotional pricing plan.



■ SERVICE AGREEMENTS

Most carriers require new subscribers to sign one-year contracts or service agreements when they sign up for a new service plan. Most charge an "early termination fee" to users who cancel their service plans prior to the end of that year. Some carriers offer additional incentives to subscribers who sign up for two-year service agreements. Consumers should carefully read any potential service contract prior to signing up for service.

WHAT TO CONSIDER WHEN BUYING A HANDSET

MODE

Is the phone single or multi-mode? Can it operate on analog or digital networks, or both? Does it indicate when it's roaming?

STORAGE

How many phone numbers and other data can the handset store?

SCREEN SIZE

This can be an important factor for viewing phone numbers and other stored data, as well as wireless web content.

SPECIAL OPTIONS

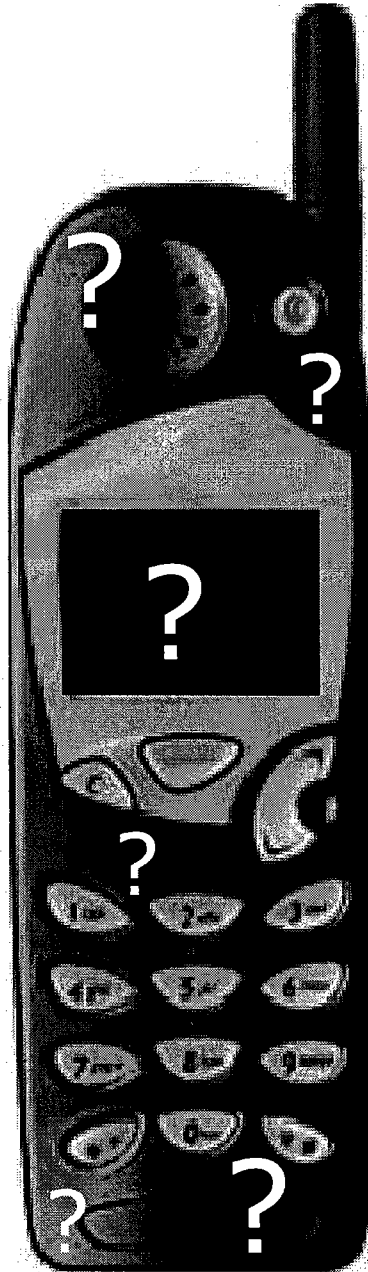
What types of "vertical features," such as CallerID, call waiting, and voicemail, are included with the handset and service plan?

VOICE FEATURES

Does the phone have voice-activated dialing?
Does it have a speaker phone?

BATTERY LIFE

What are the handset's talk time and standby time? Standby time is the number of hours or days the phone can stay on before the battery will run out. Talk time is the number of hours a user can talk on the phone before the battery will run out. These times can vary with analog and digital service. Also, a handset's battery will affect its size and weight.



SAR RATING

The Specific Absorption Rate (SAR) is a measure of the level of human exposure to radiofrequency (RF) emissions from a handset. You can obtain information on SAR ratings of specific handsets on the FCC Web site at: www.fcc.gov/oet/rfsafety/#sar.

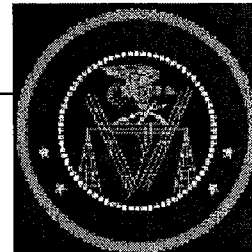
MOBILE DATA CAPABILITIES

Does the handset have the ability to access the carrier's wireless web services and/or send and receive text messages?

HEARING AID COMPATIBILITY

Hearing aids generally work with cellphones that use analog signals but not currently with those that use digital signals. More information about hearing aid compatibility is on the FCC's Consumer and Governmental Affairs Bureau webpage at: <http://www.fcc.gov/cgb/dro/hearing>

Where To Get More Information...



■ FEDERAL COMMUNICATIONS COMMISSION

WWW. FCC.GOV

1-888-225-5322 (CALL-FCC) - VOICE

1-888-835-5322 (TELL-FCC) - TTY

■ CARRIERS

The Web sites and toll-free numbers of mobile carriers with over 1 million subscribers in the United States (as of the end of 2001), listed below, provide information on where these carriers offer service, the extent of their network coverage, pricing plans and other services they offer, and the corresponding handsets and accessories they sell.

ALLTEL	www.alltel.com	(800) 255-8351
AT&T Wireless	www.attws.com	(800) 888-7600
Cellular One/Western Wireless	www.cellularonewest.com	(800) 635-0304
Cingular Wireless	www.cingular.com	(866) 246-4852
Leap Wireless/Cricket Communications	www.cricketcommunications.com	(866) 274-2538
Nextel	www.nextel.com	(800) 639-8359
Qwest	www.qwestwireless.com	(800) 899-7780
Sprint PCS	www.sprintpcs.com	(800) 480-4727
US Cellular	www.uscellular.com	(888) 944-9400
Verizon Wireless	www.verizonwireless.com	(866) 256-4646
VoiceStream	www.voicestream.com	(800) 937-8997

■ CONSUMER INFORMATION WEB SITES

The following Web sites provide consumer information on mobile telephone service, such as side-by-side comparisons of the service plans available in a given area, general advice on purchasing a mobile phone, educational information on wireless technology, user ratings of phones and pricing plans, and answers to commonly asked questions.

www.cellmania.com
www.dealtime.com
www.getconnected.com
www.point.com
www.wirelessadvisor.com

Exhibit No. 105
Case No. QWE-T-02-25
W. Hart, Staff Page 9 of 9
3/19/03

■ OTHER CONSUMER INFORMATION

Consumer Reports (www.consumerreports.org) provides free consumer information on its Web site, including details on the various mobile service plans available in major U.S. markets and their accompanying handsets. With an online or print subscription, consumers can obtain a full ratings report and comparison of mobile service plans and handsets.

J.D. Power (www.jdpower.com) provides ratings on its Web site of all of the wireless carriers in major U.S. cities. The carriers are rated on various criteria, including call quality, cost, and customer service.

CTIA (www.wow-com.com) is a trade association representing the wireless industry. Its Web site contains tips for consumers on purchasing mobile service as well as an overview of all mobile handsets that have hands-free accessories.

AARP, the American Association of Retired Persons (www.aarp.com), provides on its Web site a published survey entitled *Understanding Consumer Use of Wireless Telephone Service* that discusses various issues related to wireless service and older consumers.

NOTE: The sources listed on this page represent a sample of the consumer information available to the public on wireless issues and is not meant to be a complete list. In addition, the FCC does not vouch for the accuracy of the information contained in these Web sites and publications.

Brochure Last Updated: 7/1/02

