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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

July 12, 2000

BY HAND

Ms. Magalie R. Salas
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Ex Parte Presentation
CC Docket No. 94-102

Dear Ms. Salas:

On Tuesday, July 11, 2000, representatives of QUALCOMM Incorporated ("QUALCOMM") met with Blaise Scinto and Dan Grosh of the Wireless Telecommunications Bureau. During this meeting, QUALCOMM urged the Commission to keep the current accuracy requirements and to maintain the basic structure of the schedule for implementation of wireless E9-1-1 service as reflected in the Commission's Third Report and Order, FCC 99-245, released October 6, 1999.

To demonstrate the fact that the technology does exist for manufacturers to produce GPS-capable handsets to support carrier handset deployment requirements as detailed in the Third Report and Order, QUALCOMM showed Ms. Scinto and Mr. Grosh a Form Factor Appropriate ("FFA") wireless handset containing QUALCOMM's MSM3300 chipset (xerox copy attached). The MSM3300 is a complete, single integrated circuit ("IC") solution, including high precision position location, for CDMA phones. The MSM3300's wireless assisted GPS is the result of over 200 person years of work by both QUALCOMM and Snap Track.

QUALCOMM noted that carriers will need to perform interoperability testing for each new handset model produced and that this testing needs to be factored into any deployment schedule.

QUALCOMM described that, while it currently produces chipsets only for the CDMA air interface, wireless assisted GPS technology is available for incorporation into GSM, TDMA, and iDEN handsets under licenses executed by SnapTrack with both Motorola and Texas Instruments

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more than a year ago. QUALCOMM also stated that the second phase of its European GSM wireless assisted GPS field tests are currently underway in France.

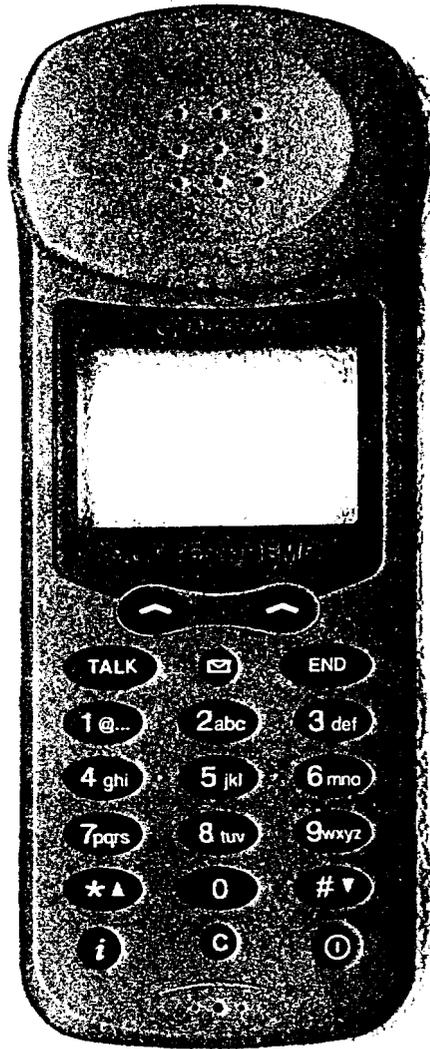
Present at this meeting on behalf of QUALCOMM were Jonas Neihardt, Vice President, Federal Affairs; Ellen Kirk, Vice President, Marketing and Strategic Planning, and myself. The meeting lasted approximately 30 minutes. QUALCOMM distributed the attached materials at the meeting.

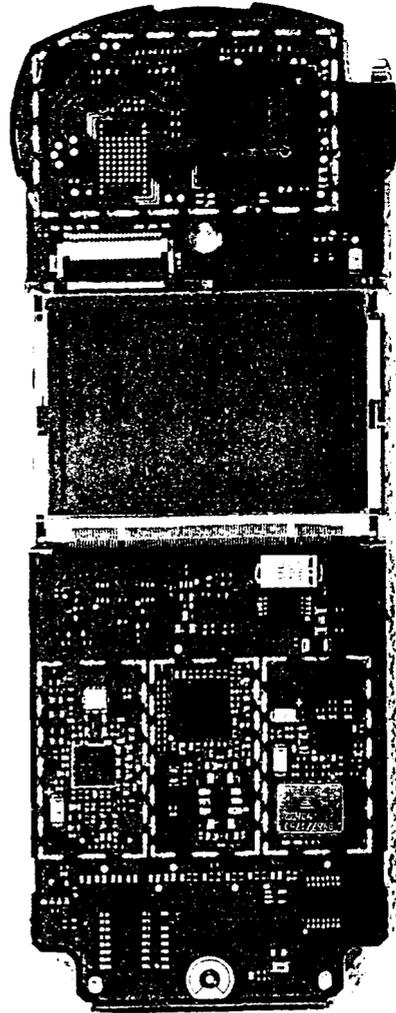
Sincerely yours,

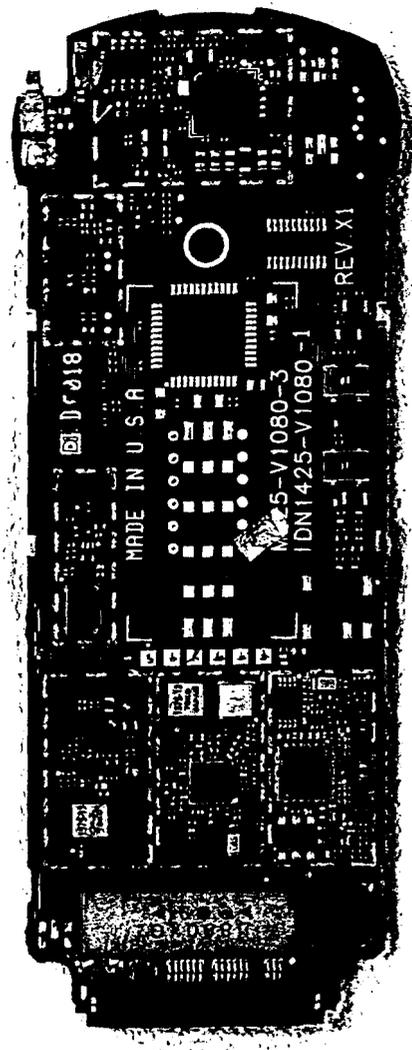
A handwritten signature in black ink, appearing to read 'D. Brenner', with a long horizontal flourish extending to the right.

Dean R. Brenner
Attorney for QUALCOMM Incorporated

cc: Blaise Scinto
Dan Grosh







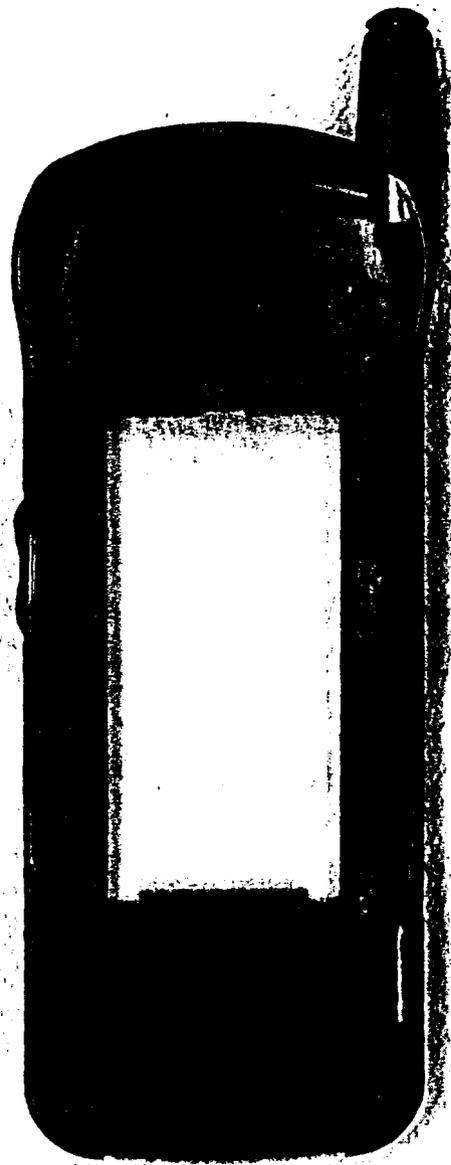
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DN1425-V1080-1

REV. X1



CDMA Handset Development

- Qualcomm Business Model

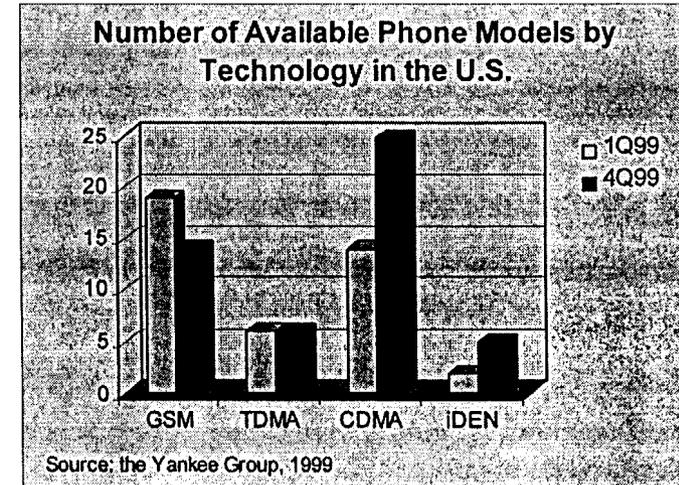
Handset time-to-market and development effort is significantly reduced using the Qualcomm Business Model. Examples:

Case 1

- Japanese electronics company
 - Designing their first-ever cellular/PCS phone
 - 6 months design start to production start
 - Engineering team staffed with 10 SW engrs
- => Most popular handset on the market

Case 2

- Large Korean electronics company
- Typical design cycle is 5 to 6 months
- Engineering team of 11 to 13



In the US Market, cdma handset selection now exceeds GSM, TDMA, and iDen combined

← Six months typical →

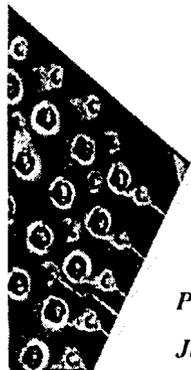
Design & Dvmt Start

- Chipset Engr Samples
- Alpha SW Release
- Reference Design (SURF HW & SW Dvmt Tool)
- Product Training Conference

Commercial Chipset Samples

Commercial SW Release

Initial Production Start



IDO, Cellular Phone Group to Start Location Information Service

June 27, 2000 (TOKYO) -- IDO Corp. and the companies that belong to DDI Corp.'s Cellular Group will launch a new service in July that will provide real-time positioning data to users via their cdmaOne mobile phone handsets.

The service will be the first of its kind to be launched that operates with just users' phone handsets and without the need for any extra equipment. The new service should allow companies that provide content for "EZweb" -- a service that DDI group's cell phone subscribers can use to access the Internet -- to start offering users maps that show their current location and details about stores in the vicinity.

The way the IDO-Cellular Group positioning service works is by using data from the telephone network's base stations to gain an approximate idea of where a particular phone handset is. In effect, the handset is assumed to be in the same location as the base station it is currently nearest to (i.e. the one it is receiving/sending radio signals from/to at the time). Because of this, the accuracy of the service will vary depending on the area a user is in. In downtown areas where there are likely to be more base stations around, it should be accurate to within a few hundred meters.

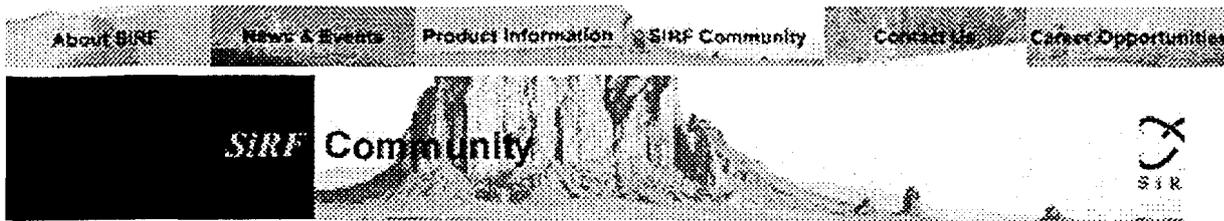
However, owners of phone handsets that until now have been marketed separately under either the IDO or Cellular brand names will not be able to receive the new positioning service. Even though the two brands have been offering ostensibly identical phone units, some of the chips inside them are different. Also, new cdmaOne phones sporting a function called "gpsOne" are being planned for launch onto the market next spring. These units will be capable of receiving global positioning system (GPS) data from satellites, and their superior accuracy will allow for much more precise positioning services to be offered.

Up to now, most of the mobile phone positioning services that have already been launched are for users of personal handyphone system (PHS) units, which typically operate with a cell radius in the 100 meter to 500 meter range. NTT DoCoMo Inc., DDI Pocket Inc., and Astel Corp., each offer their original positioning service.

In January 2000 NTT DoCoMo launched its "DoCo-Navi" service, offering GPS positioning data for subscribers that use their mobile phone in conjunction with a personal digital assistant (PDA) equipped with a GPS receiver.

Related story: NTT DoCoMo to Launch Nationwide GPS Service for Cell Phones
<<http://www.nikkeibp.asiabiztech.com/wcs/frm/leaf?CID=onair/asabt/news/91525>>

(Nikkei Communications)



Press Releases

Ericsson Selects SiRF's Global Position System Technology for Future Wireless Phones and Terminals

RESEARCH TRIANGLE PARK, N.C. (August 12, 1998) – Ericsson customers may soon use their mobile phones to get help in an emergency, navigate through an unfamiliar city, or report their location for roadside assistance.

Ericsson has agreed to license SiRF Technology Inc.'s Global Positioning System (GPS) technology for use in a wide range of wireless, hand-held devices. The technology makes it possible to develop exciting and innovative applications for use in mobile phones and terminals.

Ericsson is investigating a range of applications which will be included in future products. The possibilities are intriguing: Having an emergency? Your Ericsson phone could direct emergency personnel to your exact location. Need directions to the closest hospital, your next business appointment or a trendy restaurant? An Ericsson phone could show you the way with a mapping system that guides you to your destination.

"Our phones of the future will literally change the way people use information and communicate every day," said Jeff Mandell, vice president of marketing, Ericsson Mobile Phones, Region Americas.

As early as the year 2000, Ericsson plans to use the technology in its products. GPS technology enables a person to determine their location within 100 meters using an array of satellites operated by the U.S. government. (Using a technique called differential GPS, a receiver can determine its location to within a few feet in some cases.) The system is used extensively in vehicle navigation, emergency location and theft recovery systems. Ericsson mobile phones and hand-held computers with integrated GPS receivers will lead to convenient and useful applications and services.

SiRF's technology includes a high-performance, low-power GPS engine that is particularly well-suited for integration into a handheld communications device. The flexibility offered by SiRF's solution allows for continuous enhancement of performance and applications as cellular networks and handset technology evolve.

"We started SiRF with a mission to bring GPS-based instant location information to mainstream consumers," said Kanwar Chadha, co-founder and vice president of marketing for SiRF Technology. "Our relationship with Ericsson, a leader in the wireless industry, is a key step towards bringing GPS to potentially millions."

SiRF Technology Inc. was founded in 1995 to bring GPS technology and other wireless communications innovations to a wide range of consumer applications. The company's SiRFstar(tm) GPS technology is driving widespread adoption of products and applications that provide instant location information, enabling users to find their way or track their loved ones anywhere in the world using car navigation systems, portable PCs, cellular phones, entertainment systems, hand-held devices and a limitless range of new and existing consumer products.

Information about Ericsson mobile phones and accessories is available on the World Wide Web at <http://www.ericsson.com/US/phones>. Ericsson's 100,000 employees are active in more than 130 countries. Their combined expertise in fixed and mobile networks, mobile phones and infocom systems makes Ericsson a world-leading supplier in telecommunications.

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SiRF is a registered trademark and the SiRF logo, SiRFstar and WinSiRF are trademarks of SiRF Technology, Inc. All other trademarks are the property of their respective owners.

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ABOUT SiRF NEWS & EVENTS PRODUCTS INFORMATION SiRF COMMUNITY CONTACT SiRF

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Press Releases

Nokia Invests \$3 Million in SiRF Technology

Strategic investment underscores Nokia's commitment to SiRF's GPS architecture

SANTA CLARA, Calif. — August 10, 1998 — SiRF Technology, Inc., a leading developer of global positioning system (GPS) technology, today announced that Nokia has made a \$3 million investment in the company as a part of its current round of financing and Nokia has been granted an observer seat on SiRF's board of directors.

GPS has a high potential for a number of wireless communications applications, including the Federal Communications Commission's Enhanced 911 (E911) mandate that calls for cellular carriers to be able to identify the position of emergency callers within 125 meters so that 911 operators can locate them.

"We believe that the combination of GPS and wireless technologies provides the largest market opportunity for GPS," said Kanwar Chadha, founder and vice president of marketing for SiRF. "We are seeing strong demand from telecommunications suppliers to be ready in time for the FCC's E911 deadline at the end of the year 2001. "We are especially pleased that the wireless market leader, Nokia, has confidence in our technology and has committed financially to our company."

SiRF's SiRFstarI/LX product line, a chip set and software package introduced in October, 1997 provides location awareness to consumer applications requiring low power, small footprint and low cost. Using a range of patented and patent-pending technologies, SiRF's architecture solves the problems of GPS signal reception caused by foliage, urban canyons and other obstacles, making GPS more reliable for mobile applications. SiRF's TricklePower mode technology reduces GPS power consumption by a factor of 10 - 15X over traditional GPS architectures.

"Market forces couldn't be more positive for GPS," said Will Strauss, analyst at Forward Concepts. "There are currently more than 170 million wireless handsets in use and growing to over 500 million by 2001. That growth, coupled with consumer desire for location-awareness and, more importantly, the FCC's E911 mandate, demonstrates how GPS is becoming a 'must have' technology for wireless carriers and subscribers alike."

About Nokia

Nokia is a broad-scope communications company supplying mobile phones, mobile and fixed telecommunications networks, wireless data communications solutions, multimedia terminals and computer monitors. In 1997, net sales totalled FIM 52.6 billion (\$9.8 billion). Headquartered in Finland, Nokia, listed on NYSE (NOKA), has sales in 130 countries and employs more than 41,000 people worldwide.

About SiRF

SiRF Technology, Inc. was founded in 1995 to bring GPS technology and other wireless communications innovations to a wide variety of consumer platforms. The company's SiRFstar GPS technology is driving widespread adoption of products and applications that provide instant location information, enabling users to find their way or track their loved ones anywhere in the world using car navigation systems, portable PCs, cellular phones, entertainment systems, handheld devices and a limitless range of new and existing consumer products.

SiRF Technology has extensive experience in GPS, spread spectrum, radio frequency (RF), semiconductor and communications technologies. Operating as a fabless communications IC company with IP licensing, SiRF is able to concentrate its resources on developing high-performance, cost-effective and high-quality chip set and software solutions that will serve high-growth markets such as consumer GPS navigation and wireless communications.

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ABOUT THE COMPANY: SiRF COMMUNITY

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IMMEDIATE RELEASE

SnapTrack Personal Location System Licensed to Motorola

Royalty-bearing Agreement Widens Lead in Personal Location Market

SAN JOSE, Calif., April 26, 1999 -SnapTrack, Inc. solidified its leadership position in the personal location technology market today, announcing a strategic partnership with Motorola. Intending to offer personal location services as an integral part of its wireless chip-sets for mobile consumers, Motorola will license SnapTrack's personal location technology to complement its DigitalDNA™ solutions for wireless platforms. Under the terms of the agreement, SnapTrack will provide Motorola Semiconductor with its wireless-assisted Global Positioning System (GPS) technologies for mobile devices. In addition to the broad licensing agreement, Motorola has made an equity investment in SnapTrack. Financial terms of the transaction were not disclosed.

Previously, SnapTrack has announced a strategic investment by Texas Instruments, the worldwide leader and pioneer in digital signal processing solutions. These relationships could put SnapTrack's personal location system into the majority of wireless telephones sold globally. Given handset purchase rates, the deals position SnapTrack to become the leading technology provider for the multi-billion dollar wireless location market.

The Federal Communications Commission (FCC) has mandated that wireless carriers have the ability to locate wireless callers to 9-1-1 to within 125 meters by October 1, 2001; in multiple trials, SnapTrack technology has far exceeded this requirement.

"We are impressed with SnapTrack's concept and recent CDMA tests in Tampa, Florida have provided real data that demonstrates the capability of the technology," said Mario Rivas, corporate vice president and general manager, Motorola Wireless Subscriber Systems Group. "By integrating high-performance GPS functionality in the chip-sets we sell for mobile communications, Motorola has the ability to offer value added services to our customers. All this becomes possible through a creative combination of Motorola and SnapTrack technologies."

SnapTrack's personal location system requires no additional cell sites or modification to existing network equipment and is designed to have a minimal impact on handset cost and form. The system allows wireless phone suppliers to add Global Positioning System (GPS) functionality into handsets for less than \$10. SnapTrack improves upon conventional GPS performance by sharing processing tasks between patented software algorithms, which harness the power of the DSP inside a wireless handset, and sophisticated server software running in the wireless network; by using information available from the wireless network itself; and by processing only a snapshot of GPS data, rather than processing continuously. When a caller requests a location-based service, the SnapTrack-enabled handset takes a snapshot of GPS data, processes it and transmits location information back to the network server. The server computes longitude and latitude and performs complex error corrections to improve accuracy. While traditional GPS receivers may take several minutes to provide a location "fix," SnapTrack's

personal location system generally locates callers within 2-3 seconds.

"The commercialization of SnapTrack technology marks the beginning of a new era in wireless communications," said Steve Poizner, president of SnapTrack. "The utility of wireless location technology changes the wireless paradigm by changing the way people think about wireless phones. Location technology will make users safer and more productive in ways not yet imagined."

Digital handset sales are increasing rapidly. In the U.S. market, 33 percent of wireless subscribers replaced their telephones in 1998. According to market research from the Strategis Group, the digital wireless telephone market is projected to more than double by 2003, with annual handset sales exceeding 230 million by that time. The three leading digital air interfaces -- GSM, CDMA and TDMA -- already hold a commanding share of the wireless market and are expected to increase market penetration beyond 90 percent within five years.

The forces driving the commercialization of wireless location technology vary by market. In the United States, wireless carriers are expected to spend more than \$2 billion in order to meet the Federal Communications Commission's mandate to locate wireless callers requesting 9-1-1 service by Oct. 1, 2001. A survey by Peter D. Hart Research Associates found that 54 percent of wireless users in the United States are willing to pay higher monthly fees for emergency location service. In partnership with leading U.S. carriers, SnapTrack conducted extensive tests in Seattle, Denver, San Francisco and Tampa, Fla. In optimal conditions, SnapTrack locates callers within five meters, and the system typically delivers 25-meter accuracy, a significant improvement over the FCC's 125-meter requirement for E911.

Overseas, value-added services are the driving force behind wireless location. In Japan, more than 60 percent of wireless users are demanding personal navigation services. After extensive testing in Tokyo in 1997, NTT DoCoMo, the world's largest wireless carrier, licensed SnapTrack for use in a personal navigation system in 1998. DoCoMo plans to launch the product later this year. In Europe, there is strong interest in location-based billing and asset tracking. European testing of SnapTrack's personal location technology is already underway.

About SnapTrack

Headquartered in San Jose, Calif., SnapTrack is focused on integrating GPS and two-way wireless technologies to create high-performance personal location systems.

<http://www.snaptrack.com>

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Ellen Kirk
SnapTrack, Inc.
4040 Moorpark Ave. Suite 250



IMMEDIATE RELEASE

Texas Instruments Licenses SnapTrack's Personal Location System™

Agreement Deepens SnapTrack's Relationship With World Leader in Wireless DSP

SAN JOSE, Calif., June 8, 1999 < In a move that further solidifies its position as the leader in the emerging personal location technology market, SnapTrack Inc. today announced an agreement with Texas Instruments (NYSE: TXN) to develop an end-to-end digital signal processor (DSP) solution that will add location capabilities to millions of new wireless phones.

"This agreement is a key milestone in our vision of making SnapTrack technology the foundation for personal location services worldwide," said Steve Poizner, SnapTrack president. "Through TI, SnapTrack's technology will be readily available to a significant percentage of wireless devices."

Under terms of the commercial agreement, which includes the licensing of SnapTrack software by TI, the companies will jointly integrate SnapTrack's enhanced Global Positioning System (EGPS) technology with TI's advanced DSP platforms for digital wireless systems. TI is the world leader in DSP and provides DSP solutions for more than two thirds of the digital wireless handsets around the world. Products resulting from the development will allow wireless handset manufacturers to easily and cost-effectively integrate location capabilities into their products. Financial terms of the transaction were not disclosed, but in a related move TI recently increased its equity investment in SnapTrack.

"TI will offer a DSP solution with embedded SnapTrack GPS technology for digital wireless phones that will enable TI wireless customers to add high-performance location functionality to their products with minimal effort and expense," said Bob Carl, manager of Americas marketing for Texas Instruments. "Personal location technology will not only make it easier to locate wireless phone users, it will give them access to a broad array of location-based services offered by carriers to make their lives easier and more productive."

Location-enabled phones are the first step in wireless service providers meeting the federal mandate that requires them to locate wireless 9-1-1 calls by Oct. 1, 2001. With SnapTrack's personal location technology embedded in handsets based on TI's DSP solutions, and SnapTrack's server software running in their networks, it is expected carriers will be able to deploy this critical location service sooner than competing options. While the mandate requires that wireless 9-1-1 calls be located to within 125 meters, SnapTrack's system typically locates calls to within 25 meters, and within 5 meters under optimal conditions.

SnapTrack's personal location technology will allow wireless service providers to offer such value-added

services as location-based billing, driving directions, mobile yellow pages and concierge services. These services not only will provide new sources of revenue, but also can help decrease churn and increase customer loyalty.

About SnapTrack Technology

SnapTrack's personal location technology improves upon conventional GPS performance by sharing processing tasks between patented software algorithms which harness the power of the digital signal processor (DSP) inside a wireless handset and sophisticated server software running in the wireless network; by using information available from the wireless network itself; and by processing only a snapshot of GPS data, rather than processing continuously.

While traditional GPS receivers may take several minutes to provide a location "fix," SnapTrack's system typically locates callers within 2-3 seconds, even under harsh conditions where conventional GPS does not operate, such as inside buildings and cars, under dense foliage and in street canyons between high-rise buildings. The system requires no expensive infrastructure modifications to the wireless network. SnapTrack's personal location technology is air-interface independent and is applicable in any two-way cell-based wireless system: cellular or paging; 800/900 MHz or 1800/1900 MHz; CDMA, TDMA, GSM or iDEN..

About SnapTrack

Headquartered in San Jose, Calif., SnapTrack is focused on integrating GPS and two-way wireless technologies. For more information on the activities of or possible participation in SnapTrack testing.

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JUL 7 2000

July 7, 2000

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

CORRECTED VERSION

VIA HAND DELIVERY

Magalie R. Salas
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Dear Ms. Salas:

On June 21st, 2000, representatives of QUALCOMM, Inc., participated in a multiparty meeting called by the Wireless Telecommunications Bureau to discuss Phase II E9-1-1 solution availability, performance, PSAP readiness, and location technology cost in the context of the Commission's pending reconsideration of its Phase II E9-1-1 rules. Participating parties were: Ericsson, Sprint PCS, Verizon, APCO, Voicestream, and QUALCOMM. Representing QUALCOMM were Sanjay Jha, Saed Younis, Jonas Neihardt, and Ellen Kirk.

Staff present for the Federal Communications Commission included Tom Sugrue, Blaise Scinto, Dan Grosh, Pat Foerster, James Schlichting, Dale Hatfield, Martin Liebman, and Tom Stanley.

For its part of the presentation, QUALCOMM stated that SnapTrack/QUALCOMM has commercially licensed integrated chip vendors who support CDMA, TDMA, GSM, iDEN, and AMPS. QUALCOMM delivered the following statement (with permission) on behalf of Texas Instruments ("TI"):

"TI will develop a catalog baseband device incorporating SnapTrack technology. TI expects that handset vendors will be able to deliver handsets containing this TI baseband IC by the 3rd quarter of 2001."

QUALCOMM noted that TI chips power the majority of the world's GSM and TDMA handsets.

NIXON PEABODY LLP

Magalie R. Salas

July 7, 2000

Page 2

QUALCOMM presented to the group the MSM3300 handset, and described the technology integration underlying the design. QUALCOMM stated that customers get not only chipsets but full reference designs, fully tested software, support and documentation. The Bureau staff asked specific questions about battery life, antenna, RF interference, and memory. QUALCOMM stated in response that although each of the above issues had represented technological challenges for the development team, each of these challenges had been fully overcome.

QUALCOMM also outlined its plans for deployment of its upcoming series of WAG enabled chipsets. To ensure full understanding of these deployment plans, they are restated below:

1. MSM3300

- a. Schedule: End of 3Q 2000: Samples with reference design, full SW stack, and fully integrated RF/IF and power management chipset (RFR3100, IFR3300, RFT3100, PM1000). Production ramps in 1Q 2001.
- b. IS95A/B (up to 86kbps packet switched data support).
- c. Fully integrated assisted GPS (gpsOne) supported.
- d. Chipset supports fully integrated dual band (PCS/GPS or CELL/GPS), tri-mode (CDMA, AMPS, gpsOne) operation.
- e. By replacing RFR3100 with RFR3300 (sample end of Oct-00) fully integrated tri-band (800/GPS/1900) tri-mode (CDMA, AMPS, gpsOne) operation is supported.

2. MSM5100

- a. Schedule: End of 1Q 2001: Samples with reference design, full SW stack, and fully integrated RF/IF and power management chipset (RFR3100, IFR3300, RFT3100, PM1000). Production Ramps in early 3Q-2001.
- b. IS95A/B and IS2000 supported (up to 153.6kbps packet switched data support).
- c. Fully integrated assisted GPS (gpsOne) supported.
- d. Chipset supports fully integrated dual band (PCS/GPS or CELL/GPS), tri-mode (CDMA, AMPS, gpsOne) operation.

NIXON PEABODY LLP

Magalie R. Salas
July 7, 2000
Page 3

- e. By replacing RFR3100 with RFR3300 (sample end of Oct-00) fully integrated tri-band (800/GPS/1900) tri-mode (CDMA, AMPS, gpsOne) operation is supported.

QUALCOMM concluded its presentation by describing a typical production schedule for Asian customers as 6 months from the time they receive chipsets and a reference design to the time they have a commercial product. For additional detail on the 6 month production schedule for our Asian customers, see attachment #1.

To further the FCC's understanding of the deployment of WAG in Asian markets, QUALCOMM also presented a news article from Nikkei Communications stating that KDDI will begin deploying gpsOne handsets in Spring of 2001. That news article is attachment #2.

The Bureau directed a series of questions regarding the likelihood of widespread PSAP demand and readiness for Phase II. Joe Hanna (President of APCO) outlined various steps that both NENA and APCO have undertaken to insure PSAP readiness. Sprint confirmed that their recent polling of PSAP personnel indicates the demand for Phase II will be much higher. APCO noted that the benefit relative to the cost of Phase II is much higher than Phase I.

VoiceStream stated that they believe that their E-OTD solution will succeed in meeting the Commission's current accuracy requirements.

WTB Chief Tom Sugrue indicated that the Commission could benefit from an enhanced understanding of the public's expectations of E91-1-1 service, and QUALCOMM committed to providing to the Bureau with the relevant portions of the transcripts of recent and upcoming focus groups on this subject.

Respectfully submitted,



Veronica M. Ahern

cc: Jonas Neihardt
Ellen Kirk
Tom Sugrue, Wireless Telecommunications Bureau
Blaise Scinto, Wireless Telecommunications Bureau
Dan Grosh, Wireless Telecommunications Bureau
Pat Foerster, Wireless Telecommunications Bureau
James Schlichting, Wireless Telecommunications Bureau
Dale Hatfield, Office of Engineering & Technology
Martin Liebman, Wireless Telecommunications Bureau
Tom Stanley, Wireless Telecommunications Bureau