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AUG 14 2001
Federal Communications Commission
Office of Secretary

J. R. Carbonell
Carol L. Tacker
David G. Richards
Cingular Wireless
5565 Glenridge Connector, Suite 1700
Atlanta, GA 30342

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RE: E911 Phase II Waiver Request

August 10, 2001

To Mr. Carbonell, Ms. Tacker, and Mr. Richards:

This communication is in response to your E911 Phase II waiver request on July 6, 2001. We would like to let you know about an inexpensive and robust handset positioning solution that will meet the FCC standards for accuracy.

In December 2000, Rosum Corporation ("Rosum") through Dr. Matthew Rabinowitz and Dr. James Spilker, the architect of the Global Positioning System, began investigating a new idea for positioning mobile devices. The new idea is to use high power digital television ("DTV") signals which were broadcast for the first time last year and which will soon cover the United States and several other countries. Today, Rosum's idea of using high power DTV appears to solve the E911 problem more effectively and more economically than any of the alternatives.

In April 2001, Rosum began proprietary discussions with the primary cellular service providers and handset manufacturers. As a result of these discussions, Rosum is convinced that its DTV-based solution to Phase II E911 is cheaper and will perform better than any of the existing technologies. We realize that our DTV-based technology is entering the E911 arena at a very late stage. However, given that Cingular Wireless is applying for a waiver of the FCC's October 2001 deadline, we feel that our new technology could provide the right solution for the E911 issue.

What follows is an overview of our solution. More information is available at www.rosum.com and detailed technical documentation is available upon request.

> In order to position wireless devices indoors and outdoors throughout the United States, Rosum Corporation determines the range to high-power DTV transmitters.

The FCC has mandated that all television stations broadcast a digital signal according to the ATSC (Advanced Television Systems Committee) format. The synchronization codes embedded in the ATSC DTV signals can be used for very robust, accurate ranging with low cost hardware, and very low computational requirements. In order to range from the DTV signal, it is not necessary to demodulate the actual DTV data. Consequently, the ranging receiver has a processing gain of roughly 50dB above that of a standard television receiver. As a result, signals may be used well beyond the standard DTV coverage areas, and the availability and geometry of signals for positioning is substantially better than that provided by GPS (Global Positioning System). The DTV signal has a huge power advantage over GPS since DTV transmitters are broadcasting signals at the Megawatt level from a distance of roughly 100 kilometers, while GPS is broadcasting a signal of a few tens of Watts from a distance of roughly 20,000 kilometers. Due to the high power and low duty factor of the DTV signal used for ranging, the receiver processing requirements are minimal. Consequently, the positioning technique can accommodate far cheaper and lower power devices than a GPS technique would require. The signal has roughly six times the bandwidth of GPS, consequently, the effects of urban and indoor multipath are substantially mitigated. The full rollout of the DTV is slated to occur by May 1, 2002 for public broadcast stations, and by May 1, 2003 for private stations. Our technique requires no changes to the digital broadcast stations.

Unlike the terrestrial AOA/TOA (Angle-of-Arrival/Time-of-Arrival) positioning systems for cell phones, this technique requires no change to the hardware of the cellular base station. When used to position cell phones, the technique is independent of the air-interface, such as GSM (global system for mobile communications) or CDMA (code division multiple access). Since a wide range of UHF frequencies have been allocated to DTV transmitters, there is redundancy built into the system to protect against deep fades on particular frequencies due to absorption, multipath and other attenuating effects. Since Rosum technology makes use of pre-existing infrastructure, pre-allocated spectrum, and does not become obsolete when the cellular protocols change, the cost of the system is far less than techniques requiring upgrades to the cellular network. Unlike the terrestrial AOA/TOA systems, our technique can achieve positioning accuracies of a few meters. The Rosum technology may be used to position cell phones, PDA's (personal digital assistants), pagers, cars, OCDMA (orthogonal code division multiple access) transceivers and a host of other devices.

We are providing courtesy copies of this communication to those individuals at the FCC listed below. Thank you for your time and we look forward to speaking with you.

Morgan R. Branch
Rosum Corporation

Cc: Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, (Rm. #3-C252)

Kris Monteith, Chief, Policy Division, WTB (Rm. #3-C124)
Thomas Stanley, WTB (Rm. #3-C460)
Daniel Grosh, WTB (Rm. #3-A221)
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