



FCC BEGINS INQUIRY INTO DISTANT DTV SIGNALS FROM SATELLITE TV SERVICE PROVIDERS

On April 29, 2005, the Federal Communications Commission adopted a *Notice of Inquiry (NOI)* regarding the adequacy of the digital signal strength standard and testing procedures that would be used to determine whether households are eligible to receive distant broadcast digital television (DTV) network signals from satellite communications providers. This inquiry is being initiated at the request of Congress in response to a requirement contained in the Satellite Home Viewer Extension and Reauthorization Act of 2004 (SHVERA).

This Inquiry requests information on whether any revisions to existing statutes or regulations concerning the digital signal strength standard and testing procedures for identifying households that are unserved by local network TV signals are necessary. The FCC will use the information gathered by this *NOI* to prepare a Report to Congress by December 8, 2005.

The SHVERA, enacted in December 2004, extends to digital broadcast signals similar requirements as had been placed on analog broadcast TV signals. In 1988 Congress passed the Satellite Home Viewer Act (SHVA), which contained a provision that allowed satellite video service providers to deliver network television programming to subscribers that if they are unable to receive that network's local affiliate over-the-air. The Commission implemented this legislation by defining a signal intensity level that is used to determine households that are eligible to receive broadcast network programming via satellite. Later under the Satellite Home Viewer Improvement Act of 1999 (SHVIA) the Commission established a predictive model for determining if a household is unserved by local analog television broadcast stations.

This *NOI* requests information on the following topics:

- Whether the Commission should account for different antenna installations (such as roof mounted or indoor) and orientation (i.e. is the antenna fixed or can it be rotated);
- Whether the Commission should revise measurement procedures for DTV signals to determine if a location is unserved;
- Whether a standard that does not rely on signal strength should be used;
- Whether a new predictive methodology for determining whether a household is unserved by an adequate digital signal should be developed;
- Whether the Commission should account for variation in the ability of reasonably priced consumer digital television sets to receive and resolve over-the-air signals when setting a standard for determining if a household is unserved by DTV (the FCC Lab has begun a DTV receiver testing program in order to get data to help answer this question);
- Whether the Commission should account for factors such as external interference sources—foliage and man-made clutter, or undesired signals from both digital television and analog television stations using either the same or adjacent channels in nearby markets.

The docket number for this proceeding is ET 05-182. The text is not yet on the FCC's web site but should be available soon.

TV SIGNALS FOR IMPROVED POSITIONING

The Rosum Corporation has developed technology to leverage the commercial broadcast TV infrastructure to enable position finding devices, even inside buildings. The Rosum Positioning Technology (RPT) is claimed to deliver indoor and outdoor coverage and is claimed effective in urban areas, where traditional location systems such as GPS have difficulty maintaining reliability and accuracy. Test data and other information that is summarized here can be found at <http://www.rosum.com>. Rosum was founded in 2000 and is engaged in the design and marketing of digital chips, servers and infrastructure products based on this technology.

Traditional positioning systems are satellite-based and were designed for outdoor applications. However, they have limitations indoors, in obstructed areas or difficult urban environments, where satellite signals attenuate and/or fail. Rosum decided that since TV signals are plentiful, powerful and diverse in frequency, and penetrate walls, automobiles and city buildings, they would be optimal for urban-area and indoor positioning applications as a multifrequency terrestrial GPS.

The field synch of the ATSC (DTV) signal is well defined and arrival times can be precisely measured and compared to a reference. Regional units are deployed in a city/area to establish the arrival times with respect to a very accurate known reference. That data and the arrival times of three or more DTV signals at a portable unit's location enable determination of the position from the time differences. NTSC signals can also be used, but the DTV signals provide better timing information. The arrangement is shown below.

The RTTM in the picture is a Rosum TV Measurement Module, a chipset which can be integrated into a user device. The RTMM contains a TV tuner module, a digital signal processing module, and other supporting glue logic and memory.

This effort may also provide an approach to provide location information in the event GPS satellites are not available. President George W. Bush authorized a new national policy on December 8, 2004 that establishes the need for augmentations to space-based positioning, navigation and timing programs.

Much more detail, including a paper showing the math of the location calculation and test results are on the Rosum web page at <http://www.rosum.com>.

