NAB Radio TechCheck

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New Satellite Phones on the Horizon

Cell phone technology has provided broadcasters with a ubiquitous news gathering tool as cellular networks now offer nearly seamless coverage across the U.S. News stories sometimes break in remote locations lacking cellular service, however, and in those situations broadcasters can turn to satellite-based solutions for relaying critical and timely news information to the studio (see, for example, the April 30, 2007 issue of *Radio TechCheck* discussing broadcaster use of remote satellite terminals).

Two Internet Protocol (IP)-based satellite phone systems will soon be available to broadcasters offering new options for satellite-based remotes. TerreStar Networks (Reston, Va., www.terrestar.com) launched its first satellite, the geostationary TerreStar-1, earlier this month, and last week announced the successful completion of an end-to-end phone call over that satellite which they claim is "the world's largest, most advanced commercial communications satellite."

TerreStar-1 will provide coverage to the continental U.S., Canada, Puerto Rico, U.S. Virgin Islands, Hawaii and Alaska. The TerreStar network will operate in two 10 MHz blocks of contiguous Mobile Satellite Service (MSS) spectrum in the S-band and will accommodate voice, data and content delivery. TerreStar-1 will offer approximately 500 dynamically configurable spot beams allowing for spectrum allocation using ground-based beam forming (GBBF). This allows for great efficiency during day-to-day operations and capacity as needed in a situational crisis. A second satellite, TerreStar-2, is currently under construction.

TerreStar's network will be IP-based and as such will support converged voice and multimedia communication (mobile and fixed) with flexible, packet-based technologies. This network also makes use of an ancillary terrestrial component (ATC) which utilizes high capacity land-based mobile cellular coverage in areas of dense population, in and around urban centers.

One of the first devices to be offered for use with the TerreStar system is shown in the photo and according to TerreStar is "the world's first quad-band global system for mobile communications (GSM) and tri-band wideband code-division multiple access (WCDMA)/high-speed packet access (HSPA) smartphone with

integrated all-IP satellite-terrestrial voice and data capabilities." This phone will support connectivity to TerreStar's satellite and terrestrial network components and will offer:

- High-speed packet data
- Touch screen and full QWERTY keyboard
- Windows Mobile OS
- Service offerings that include short message service (SMS), multimedia message service (MMS), instant messaging (IM), email, push-to-talk (PTT) and location-based services (LBS).

The first-ever call mentioned above was completed between two of these smartphones. TerreStar anticipates commercial service of its satellite system by the end of 2009.

As reported in *TV TechCheck* of June 22, 2009, the 2 GHz spectrum for TerreStar's MSS service is currently allocated to the Broadcast Auxiliary Service (BAS), which is being relocated to a new part of the band. During the period up to the BAS transition deadline of February 2010, in which both MSS and BAS may operate in the same part of the 2 GHz band, MSS entrants may conduct operations where the BAS incumbents have not been relocated only if they successfully coordinate with the BAS incumbents.

Mobile satellite communications service provider SkyTerra Communications (Reston, Va., www.skyterra.com) currently operates an L-band satellite network but is planning to transition to a next-generation system (also L-band) which will utilize "conventional handsets" and, like the TerreStar system, will be IP-based. SkyTerra's current network is comprised of two geostationary satellites, MSAT-1 and MSAT-2, which utilize spot beams to cover all of North America, Central America, northern South America, the Caribbean, Hawaii, and up to 250 miles offshore.

SkyTerra's next-generation system will be a hybrid communications network integrating mobile satellite service with an ATC (as with TerreStar). Covering the landmasses of North and South America with hundreds of spot beams, the satellites will use SkyTerra's patented ATC technology, which will be made up of an ensemble of land-based cell sites, to deliver service to wireless devices that are virtually identical to cell phone handsets in terms of aesthetics, cost and functionality.

The launch window for the first of SkyTerra's two satellites, SkyTerra 1, is scheduled for the spring 2010, and for the second, SkyTerra 2, in late 2010/early 2011. According to information on the SkyTerra Web site, SkyTerra has developed technology to allow current subscribers to continue to operate their existing devices on the SkyTerra next-generation satellites during an "Emulation Period" which is expected to run through 2012. A "Customer Transition Incentive Program" was announce in June – SkyTerra customers who own an active MSAT-G2 radio (shown in photo), or customers who purchase MSAT-G2 radios and are active SkyTerra customers prior to the company's transition to its next-generation network, will be eligible to receive a new next-generation device for each active radio at the time when SkyTerra formally announces the transition (at the conclusion of the emulation period). Additional information about the customer transition incentive program is available on the SkyTerra Web site at www.skyterra.com/about/transition-incentive-plan.cfm.

2009 NAB Radio Show Engineering Program

This year's three-day Radio Show Engineering Program focuses on planning, building and maintaining an IP-based radio facility, operating under emergency conditions, computerized antenna modeling, preventing tower failures, datacasting opportunities and much more. Our engineering sessions are presented in a workshop-type environment where you have ample time to ask questions and interact with experts and your industry peers.

The relaxed atmosphere of the Radio Show means you always have plenty of time to network with exhibitors. You'll learn about their latest products while enjoying lunch and snacks on the show floor. For busy radio engineers, the

NAB Radio Show is an excellent way to advance your technical education and maintain your edge in an increasingly competitive business.

What's Working for You?

It's time for broadcasters to accentuate the positive, eliminate the negative and latch on to the affirmative. Progress is made every day and good deeds should not go unnoticed. Have you come up with innovative ways of bringing in new revenue? Found a way to prevent layoffs? Are you finding new opportunities using the power of technology? We would like to highlight your station or company's great work in our newsletters, conferences and programs. Tell us "What's Working for You?" and be entered into a drawing for two registrations to the NAB Show, April 10-15, 2010, along with a hotel room for two nights at a sanctioned NAB Show hotel. Click here to tell us "What's Working for You?"