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TV TechCheck

NAB NATIONAL ASSOCIATION OF BROADCASTERS

The Weekly NAB Newsletter for Television Broadcast Engineers

New Satellite Phones *Still* on the Horizon

In broadcast engineering, things typically take longer than expected, especially when implementation of new technology is involved. Apparently the same is also true of satellite telephone systems. A year ago, NAB *TechCheck* reported on two Internet Protocol (IP)-based satellite phone systems that were expected to soon be available (see the July 27, 2009 issue of *Radio TechCheck* for additional background information on these services). While still not up-and-running, there have been new developments for each system.

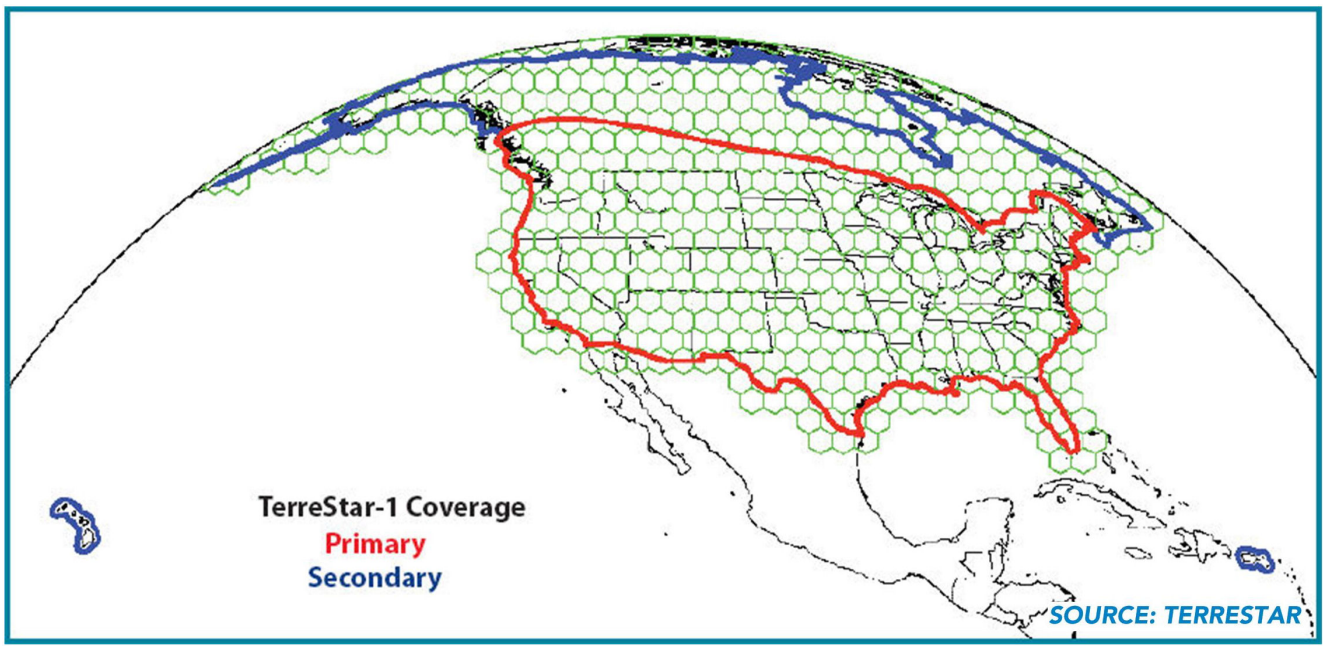
TerreStar Networks (Reston, Va., www.terrestar.com) plans to offer a hybrid satellite/terrestrial mobile broadband network that will provide voice, data and video services "…dedicated to helping solve the critical communication and business continuity challenges faced by government, emergency responders, enterprise businesses and rural communities." TerreStar expects to offer next generation mobile communications through a network of partners and service providers to users who need "anywhere" coverage throughout the United States and Canada.

Recently, TerreStar announced that commercial rollout of the TerreStar Genus dual-mode satellite-cellular smartphone (see photo) is expected to begin in September of this year. TerreStar unveiled the smartphone and its service partnership with AT&T in September 2009. The Genus service will be offered to customers in the United States, Puerto Rico and U.S. Virgin Islands.

The TerreStar-1 satellite was launched in July 2009 and according to TerreStar is "the world's largest and most powerful commercial communications satellite." TerreStar-1 is located in a geostationary orbital slot at 111.0 degrees west longitude and operates in the 2 GHz band (a second satellite, TerreStar-2, currently under construction, will be added to the system when completed). As shown in the map below, this satellite has a primary service area shaped to cover the 48 contiguous U.S. states and the area of southern Canada encompassing 90 percent of the population. The secondary service area includes the rest of Canada, Alaska, Hawaii, Puerto Rico and the U.S. Virgin Islands.

Satellite service is provided using approximately 500 spot beams across the North American coverage area, each about 100 miles in diameter. In February of this year, the initial on-orbit testing of the Ground Based Beam Forming (GBBF) technology used to create these spot beams was completed. According to TerreStar, this is the first two-way GBBF system to employ both ground-based calibration and beam forming. The system provides the flexibility to deploy over 500 spot beams and manage power and capacity as customer demand dictates.

Normally, the number of users and traffic load will determine the particular beam configuration, however, during a national emergency, the satellite is capable of supplying full spectrum and over 100 times the regular power to any spot beam or customized shaped beam. In particular, beams can be designed to cover incident staging areas and evacuation routes according to the particular disaster or incident. Additional information on the emergency capabilities of the system are available in a white paper entitled "A Highly Resilient Communications Solution for First Responders," available on the TerreStar Web page at www.terrestar.com/whitepaper.php.



It was announced last week that the other satellite phone system, originally called SkyTerra, has been "re-launched" as LightSquared (www.lightsquared.com), a new nationwide 4G-LTE (Long Term Evolution) wireless broadband network integrated with satellite coverage (using the L-band). The satellites to be used in this service are planned for launch in the 2010-11 time frame.

As the nation's first wholesale-only integrated wireless broadband and satellite network, LightSquared will provide wireless broadband capacity to a diverse group of customers including: retailers, wireline and wireless communication service providers, cable operators, device manufacturers, Web players; content providers and many others. The LightSquared network will allow these partners to offer satellite-only, terrestrial-only or integrated satellite-terrestrial services to their end users. The wholesale-only business model ensures LightSquared has no conflict of interest with its customers.

The driving force behind LightSquared is Philip Falcone, founder and chief executive officer of Harbinger Capital Partners. Falcone has made several investments through the Harbinger funds, including the acquisition of SkyTerra Communications, Inc., to form LightSquared, with the goal of "…meeting the explosive demand for wireless broadband connectivity generated by new devices and the mobile Internet." Falcone has partnered with telecommunications visionary Sanjiv Ahuja, who will lead the LightSquared team as chairman and chief executive officer. Ahuja was chief executive officer of the global telecom giant Orange Group (www.orange.com/en_EN/group/) from 2004 through 2007, during which Orange's customer base grew from 48 million to more than 100 million subscribers globally.

In addition, Nokia Siemens Networks, a leading supplier of telecommunications equipment and services, has signed an 8-year agreement with LightSquared, subject to final approval by both the Nokia Siemens Networks and the LightSquared Boards. The agreement represents more than $7 billion over 8 years, and includes network design, equipment manufacturing and installation, and network operations and maintenance. The nationwide LightSquared network, to consist of approximately 40,000 cellular base stations, is expected to cover 92 percent of the U.S. population by 2015. LightSquared is reportedly planning to conduct trial market test runs in Phoenix and Denver early next year.

2GHz BAS Spectrum Relocation Completed

July 20, 2010 Sprint announced that it has finished the 2 GHz broadcast auxiliary service (BAS) spectrum relocation with the completion of the Anchorage DMA, the last of 213 markets to be transitioned. Sprint notified the FCC of the BAS project's completion in a filing on July 15. The filing states that the relocation involved approximately 1,000 television broadcasters and that more than 1,000 highly skilled engineers, technicians, tower climbers and laborers worked together to install over 100,000 pieces of new equipment with no disruption of broadcasting service during any part of the five year project. The relocation was completed at an estimated cost of approximately $750 million. The FCC filing is available here: http://fjallfoss.fcc.gov/ecfs/document/view?id=7020544596

NAB Comments on FCC's Proposed Tower Rule Changes

On July 20, 2010 NAB filed comments on an FCC proposal to revise Part 17 of the Rules governing the construction, marking and lighting of antenna structures. In our comments, NAB generally agreed with the commission's proposals to eliminate certain rule sections and, overall streamline the tower rules. However we did not agree with other proposals, specifically one that would require tower owners and possibly broadcast licensees to notify the FCC every 15 days when a tower light has gone out. The docket number is WT-10-88. Reply comments are due on August 19, 2010. The NPRM is available here: http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-10-53A1.pdf. NAB's comments can be found here: http://fjallfoss.fcc.gov/ecfs/document/view?id=7020550025

Mark your Calendars!
The 60th Annual IEEE Broadcast Symposium
Westin Hotel • Alexandria, Va.
October 20 - 22, 2010

The 60th Annual IEEE Broadcast Symposium will feature a full and varied technical program with a day of tutorials dealing with ATSC Mobile and IBOC issues along with presentations from around the world on important and significant new developments in radio engineering, ATSC Systems and DTV Transmission issues. A panel on spectrum issues related to the FCC's Broadband Plan will feature experts from the broadcast industry and government.

Luncheon keynote speakers include Jim Martin, Director ISR Programs, Office of the Deputy Under Secretary of Defense and James E. O'Neal, broadcast historian and technology editor for New Bay Media's TV Technology. The Welcome and Manufacturer's Receptions provide an excellent opportunity for attendees to meet, mix, and discuss contemporary broadcast engineering issues.

The symposium will be attended by broadcast engineers, consultants, equipment manufacturers, government regulators, and educators. The Broadcast Symposium offers Continuing Education Units (CEU) for attending technical sessions. Registration and Technical Program information for the IEEE Broadcast Symposium can be found at: http://www.ieee.org/organizations/society/bt/.

1st Synposium on Next Generation Broadcast Television

Westin Hotel • Alexandria, Va.
October 19, 2010

The Advanced Television Systems Committee (ATSC) is holding their 1st Symposium on Next Generation Broadcast Television one day prior (October 19) to the IEEE Symposium at the same location. Abstracts for papers are due by August 6. Additional information on the ATSC Symposium may be found at http://www.atsc.org/cms/.