

**DESCRIPTION OF PROPOSED DEMONSTRATION
AND STATEMENT OF PUBLIC INTEREST**

By the instant application, Horizon Wi-Com, LLC (“Horizon”), on behalf of the WCS Coalition, seeks special temporary authority to conduct a demonstration for Sirius XM Radio, Inc. (“Sirius XM”) and Commission staff of the performance of Satellite Digital Audio Radio Services (“SDARS”) receivers in close proximity to Wireless Communication Service (“WCS”) mobile subscriber terminals operating at or near the performance characteristics proposed by the WCS Coalition for the 2310-2320 MHz and 2345-2355 MHz Wireless Communications Service band.

Objective

A recent video supplied to the FCC by Sirius XM purported to represent the interplay between WCS and SDARS end user devices in moving vehicles. The WCS Coalition has criticized this video on the grounds that Sirius XM used signal generators, noise generators, power amplifiers, and other test instruments to emulate WCS-band signals in a manner that did not accurately reflect the characteristics of a WCS device operating in accordance with the WCS Coalition’s technical proposal.¹ The goal of the field demonstration will be to produce a similar video, but to use operational WCS base station equipment and end user devices to show the potential impact of mobile WCS end user device operation on SDARS receivers under real world conditions. Specifically, the field testing proposed herein intends to evaluate:

- The effectiveness of low maximum transmit power, transmit power control, adaptive modulation and restrictive spectral masks on reducing the potential for interference from mobile WCS devices to nearby SDARS receivers.
- Whether WCS user activity, user proximity, relative motion, and coupling loss further reduce the occurrences of interference to SDARS receivers.

Scope

A demonstration environment has been developed in Ashburn, VA near Dulles International Airport. The area consists largely of modern commercial and office park developments with buildings ranging in height from one to five stories and is characterized as an open area with rolling terrain, wide streets, and moderate foliage. A survey of SDARS network coverage suggests that both Sirius and XM have suitable satellite coverage in the area. XM also appears to have some weak, intermittent terrestrial repeater coverage.

¹ See Letter from Paul J. Sinderbrand, Counsel for WCS Coalition, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 95-91, et al (filed March 9, 2009).

The WCS test network will consist of a base station and an end user device. The base station and commercial mobile device are provided by Alvarion Ltd. and are certified to comply with ETSI specifications.

SDARS subscriber equipment will be comprised of newly purchased “after market” units and commercially-installed units in rental cars. The WCS end user device will be comprised of the WCS modem connected to a laptop and will be situated in a separate car.

A video/audio recording will document the performance of the various SDARS receivers while the SDARS and WCS test vehicles drive along a prescribed route. Software applications will be used to generate traffic to send over the WCS airlink connection and to record the real time operating characteristics – output power, position, etc. – of the WCS subscriber terminal. The traffic profiles and drive route will be selected to ensure that the WCS end user device operates over a full range of possible transmit power levels and activity profiles.

Methodology

This field test will be conducted using two test vehicles: one outfitted with SDARS subscriber equipment and one with the WCS end user device. The WCS test vehicle will be outfitted with the WCS mobile subscriber terminals and a laptop PC. The SDARS test vehicle will be outfitted with the representative Sirius and XM satellite radio receivers. The Sirius and XM receiver antennas will be mounted on the vehicle roof using typical installation. Data will be collected while these test vehicles drive along a prescribed route.

Software applications will be used to generate traffic to send over the WCS airlink connection and to record the real time operating characteristics – output power, position, etc. – of the WCS subscriber terminal.

A number of different test cases, which include various WCS bands of operation, SDARS service, SDARS coverage condition, and traffic application will be performed. The collected data will be analyzed to determine the effectiveness of reduced maximum power levels, restrictive OOB limits, transmit power control and other “real world” parameters on coexistence.

Performing a link budget analysis combined with the transmit power and receive sensitivity characteristics of the WCS base station and end user devices yields a maximum allowable path loss metric of 142 dB for in-vehicle operation. Applying an adjusted SUI propagation model suggests that the maximum coverage range of the WCS base station should be approximately 1.0 miles. As a result, Horizon is requesting authority to operate WCS end user devices within a 2 mile radius of the base station in Ashburn, VA.

Test Equipment

The overall architecture for the trial WCS network is depicted in Figure 1 below.

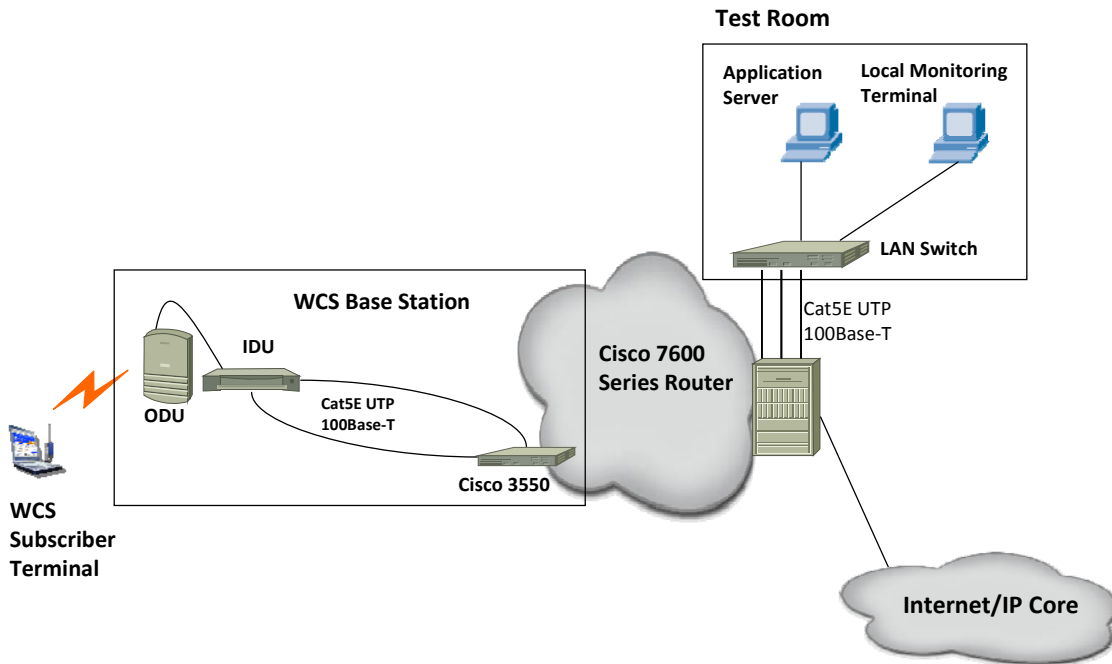


Figure 1. WCS Test Network Architecture.

The components of the test network include an access layer consisting of a WCS radio base station and WCS end user device based on the WiMAX 16e standard; a Cisco 7600 series router, which serves as the IP gateway for the access layer; an IP Core network, which performs authentication, security, IP address management, and Internet traffic management.² A Test Room, which consists of an application server and local monitoring terminal, which interface with the Cisco router, will be used to manage the network during the tests, to host applications used for traffic generation, and to collect statistics related to access network performance.

WCS Radio Base Station Equipment

A WCS radio base station developed by Alvarion Ltd. will be used for the testing. Alvarion's BreezeMAX radio base station is a WiMAX 802.16e certified platform for fixed, nomadic and mobile wireless access.

² The demonstration will be conducted utilizing WiMax technology as it is the only commercially available technology for the 2.3 GHz band and, that as a cellularized, two-way network it is representative of other technologies we envision for use in the WCS band.

The modular base station consists of an Indoor Unit and an Outdoor Access Unit. The Indoor Unit (IDU) is the main chassis of the BreezeMAX base station, which establishes wireless network connections and manages bandwidth in compliance with the IEEE 802.16e-2005 wireless standard. The IDU is comprised of two main units in addition to power and management components: the Access Unit, a programmable WiMAX modem card that performs radio resource management and the Network Processing Unit that manages the base station components and all connected subscriber units. The Outdoor Access Unit (ODU) is a remote radio unit that connects to an external antenna. The ODU supports 5 MHz and 10 MHz WiMAX channel bandwidths.

The BreezeMAX base station is certified to comply with ETSI specifications and is intended for operation outside of the United States. The base station emissions exceed the OOB limit currently authorized under Part 27.53(a)(1), however the additional OOB are not anticipated to impact the drive test results.

The WCS base station is capable of operating over the entire 2300 – 2400 MHz band and has a tuning resolution of 125 kHz, providing flexibility for WCS C-Block and D-Block testing, which will require partial use of the allocated 5 MHz frequency blocks. Horizon is only requesting authority to operate in the 2310-2320 and 2345-2355 MHz bands.

WCS End User Device

The Alvarion BreezeMAX WCS end user device is a PC Card with a PCMCIA adaptor for operation with a laptop. The BreezeMAX modem is a WiMAX 802.16e certified device for fixed, nomadic and mobile wireless access. The device supports Windows XP and Windows Vista operating systems.

The Alvarion end user device will use either its internal antenna or an external antenna.. The end user device has an average EIRP of +24 dBm and is configured with transmit power control.

The BreezeMAX end user device is certified to comply with ETSI specifications and due to its OOB performance is intended for operation outside of the United States only.

SDARS Receivers

Both standard after-market and Original Equipment Manufacturer (OEM) installed SDARS receivers will be used for the testing.

Test Location and Base Station Installation

The WCS radio base station will be installed at 44675 Cape Ct., Ashburn, VA. The antennas are situated at latitude 39.01759°N and longitude 77.45573°W and have a radiation centerline of 28 feet above ground level.

Two Telsa T01281605 panel antennas are installed on pipe mounts on top of the rooftop of the two story office building. The pipe mounts are attached to a steel frame that provides visual screening for the HVAC condensers and other items installed on the rooftop. With this configuration, the orientation of the sector can be adjusted to optimize signal coverage and drive route selection.

The Telsa panel antennas are cross-polarized ($\pm 45^\circ$) panel antennas covering the 2300 – 2700 MHz band. The panel antennas have a nominal gain of 15.5 dBi with a half power beamwidth of 85° in the horizontal plane and 7° in the vertical plan.

The Alvarion radio heads are affixed to the pipe mounts and connected to the antennas through short coax jumper cables. The IF cables from the radio heads extend across the rooftop and enter the equipment room, where the baseband portion of the base station is installed, through a roof penetration.

Drive Route Selection

Considering the initial analysis related to link budget coverage, it is anticipated that the coverage will extend approximately 1.0 mile from the test site.

The following criteria will be applied in selecting the drive test route:

- Full range of WCS RF coverage, from weak, “cell edge” conditions to strong “cell interior” conditions so that the full range of power control and modulation coding scheme effects can be characterized.
- Received power from the base station of no more than -55 dBm to ensure that the WCS base station does not contribute to the SDARS receiver overload or noise floor rise effects to be tested.
- Roadways which have variable terrain, shadowing, foliage, traffic density, and vehicle speed limits.
- Suitable SDARS satellite coverage levels.

General

Although it is anticipated that it will only take a 2-3 days in mid-late June to complete the demonstration, Horizon is requesting special temporary authority for a period of 60 days to allow for the establishment of the network and to cover any unexpected delays in the demonstration.

Consent to this testing has been granted by the other licensees of the WCS spectrum to be utilized, and letters evidencing that consent are attached at Exhibit 2.