

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

By the instant application, the Wireless Communications Association International, Inc. (“WCA”) seeks special temporary authority to conduct a limited experiment into the vulnerability of Satellite Digital Audio Radio Service (“SDARS”) subscriber reception devices to overload and out-of-band emissions (“OOBE”) interference caused by mobile consumer devices operating in the 2305-2320 MHz and 2345-2360 MHz Wireless Communications Service (“WCS”) band.

WCA is the founding member of the WCS Coalition, a group that comprises virtually all of the WCS licensees in the United States. Among other activities, the WCS Coalition has advocated a loosening of the extraordinarily restrictive spectral mask imposed on mobile low-power consumer devices under Section 27.53(a) of the Commission’s Rules. As the Commission itself has recognized, the requirement that the OOBE of mobile WCS devices be attenuated at the WCS/SDARS border by a factor of $110 + 10\log(P)$ dB has been partially responsible for the slow development of WCS operations in the United States.¹ Thus, the WCS Coalition has urged the Commission to modify Section 27.53(a) such that mobile low-power WCS devices are only required to attenuate their OOBE by a factor of not less than $55 + 10\log(P)$ dB on all frequencies between 2320-2324 MHz, and between 2341 and 2345 MHz; by a factor of not less than $61 + 10\log(P)$ dB for frequencies between 2324 and 2328 MHz and between 2337 and 2341 MHz and by $67 + 10\log(P)$ dB between 2328 and 2337 MHz.² In a *Notice of Proposed Rulemaking* (“NPRM”) released earlier this month, the Commission specifically solicited comment on the WCS Coalition’s proposal.³

The experimental program WCA proposes to undertake is designed to inform the Commission’s consideration of the issues raised in the *NPRM*. Specifically, the program is designed to determine, under worst case circumstances, the distance at which a device compliant with the WCS Coalition’s OOBE proposal will mute a SDARS receiver. The testing will be conducted at two locations in the greater Washington, DC metropolitan area. The location in Washington, VA is not within the service area of any SDARS terrestrial repeater, while the location in Annandale, VA is served by terrestrial repeaters of both SDARS licensees. By conducting the experiment at these two locations, WCA will be able to identify the implications of terrestrial repeater signal availability on the vulnerability of SDARS subscriber devices to audible muting. Preliminary testing conducted by the WCS

¹ See *Consolidated Request of the WCS Coalition For Limited Waiver of Construction Deadline for 132 WCS Licenses*, Order, 21 FCC Rcd 14134 (WTB 2006).

² See Letter from Paul J. Sinderbrand, Counsel to WCA Coalition, to Marlene H. Dortch, FCC Secretary, IB Docket No. 95-91, at 7-13 (filed July 9, 2007).

³ See *Amendment of Part 27 of the Commission’s Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, Notice of Proposed Rulemaking, WT Docket No. 07-293, at ¶¶ 24-25 (rel. Dec. 18, 2007)[“NPRM”].

Coalition using a WCS transmitter meeting the $80 + 10\log(P)$ dB attenuation requirement for fixed devices has shown that SDARS receivers are practically immune to audible muting where there is terrestrial repeater signal reception. WCA's testing program, which will utilize a signal generator replicating less restrictive OOB attenuation requirements down to the WCS Coalition's proposal of $55 + 10\log(P)$ dB, is designed to expand upon that initial testing.

An Agilent 4438C or Rhode & Schwarz SMJ 100A waveform generator will be configured to produce a realistic simulation of an operating WCS CPE waveform, as shown in Figure 1:

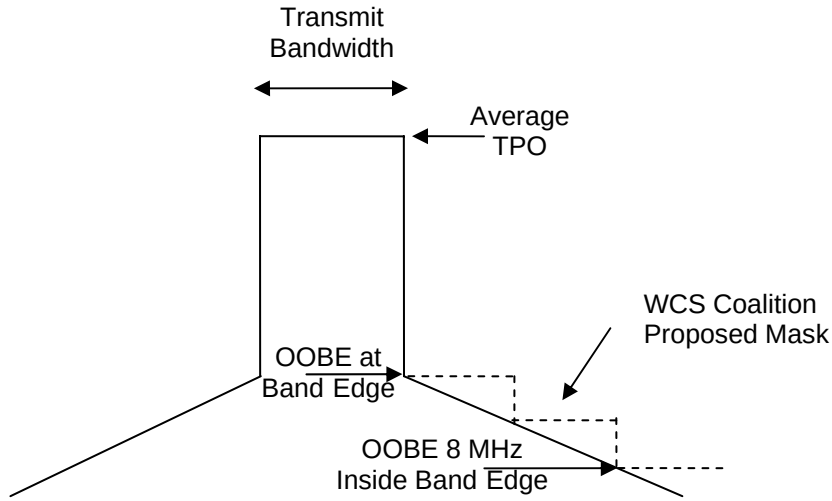


Figure 1: General Test Waveform

The waveform will be modulated by white noise, and fed into a calibrated omni directional antenna to provide the interference source. The following transmit waveforms will be tested to simulate handheld devices:

Transmit Bandwidth: 1, 2, 3.5 and 5 MHz

Average TPO: 100 mW, 250 mW (All Cases)
500 mW and 1 W (Baseline Case Only)

OOBE:	Case 1:	- 50 dBm at Band edge (Baseline) - 50 dBm 8 MHz inside Band Edge
	Case 2:	- 40 dBm at Band Edge, - 45 dBm 8 MHz inside Band Edge
	Case 3:	- 35 dBm at Band Edge, - 45 dBm 8 MHz inside Band Edge
	Case 4:	- 30 dBm at Band Edge,

- 45 dBm 8 MHz inside Band Edge

Case 5: - 25 dBm at Band Edge,
 - 45 dBm 8 MHz inside Band Edge

Cases 1-5 correspond to OOB suppression levels of $80 + 10\log(P)$, $70 + 10\log(P)$, $65 + 10\log(P)$, $60 + 10\log(P)$, and $55 + 10\log(P)$, at the WCS/SDARS boundary, respectively.

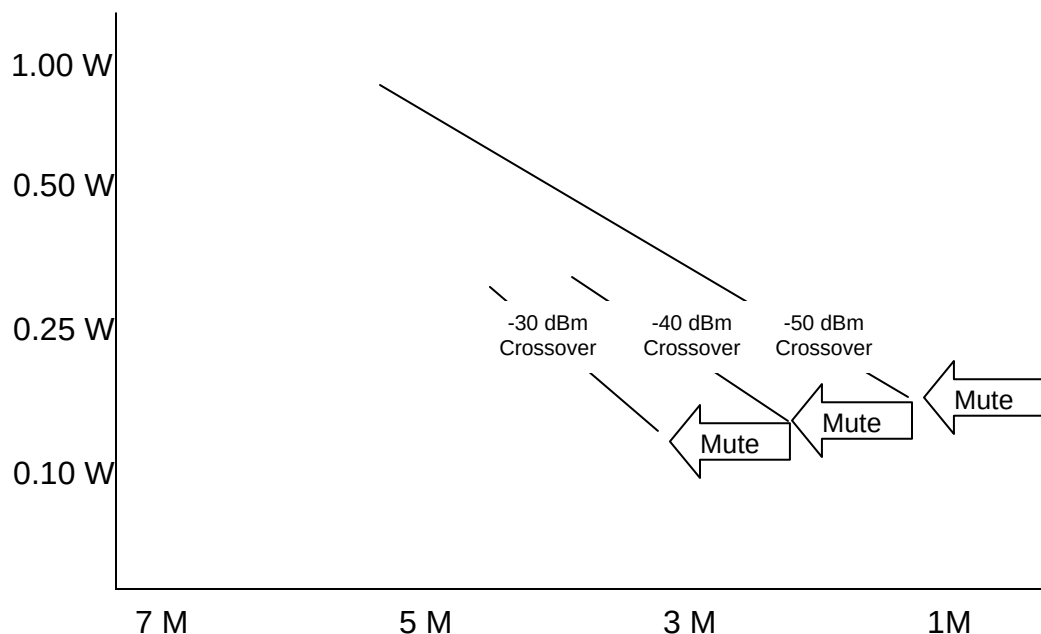
Several different types of commercially available SDARS receivers/antennas from each SDARS licensee will be tested to insure that realistic levels for a variety of receivers are determined. Satellite receivers will be placed in normal operating modes, with test screens displayed where possible so that receive signal level, as well as other relevant parameters can be monitored and recorded. Different receivers display various parameters, but the following will be recorded as and if available:

Signal Level (For Each Signal Source) Relative Scale And/Or dBm
Bit Error Rate And/Or Frame Error Rate
Signal Source (Satellite Or Terrestrial)
Number Of Satellite Beams Available
Signal Quality Indicators Which Are Available

The transmit antenna and test generator will be placed on a test fixture at 1.5 M (representing the approximate height of a handset in use) above ground and moved in 1 m increments toward the test receiver until audible muting is observed. Power levels will be set with a step attenuator. A time lapse of 10 seconds will be maintained at each test point so that receiver buffers can empty, thus insuring that audible muting has or has not occurred.

Testing will be conducted by beginning with Case 1, establishing a baseline for interference. The test equipment will be located approximately 7 M (21 Feet) from the test subject receiver, and at a level of 1.5 M above ground level. The test generator will be moved in 1 M increments toward the test subject until audible muting is noted. At each distance increment, the test system will be stopped and left to operate for at least 60 seconds so that any buffers in the test subject receiver will be emptied. At each point, power will be increased until a maximum of 1 W is reached, or audible muting is noted. Levels will be recorded and verified by two repetitions.

The 1 W/Case 1 test suite will establish a baseline for overload and OOB impact. This case is 113 dB below FCC rules maxima today. By comparing the audible muting distance for lower power levels vs. 1 W we can demonstrate the impact of overload on the SDARS receiver. By comparing Cases 2-5 at a particular power level, we can demonstrate the impact of a reduced OOB limit on receiver impairment *vis-à-vis* overload by developing a family of curves as illustrated below.



The horizontal axis spread at different OOB levels should indicate the additional contribution to audible muting distance from OOB, as shown above.

In addition, because theoretical free-space loss models do not always accurately reflect received signal levels when the transmitter is in close proximity to the receiver, a coupling loss evaluation will be undertaken to compare theoretical to actual received signal levels at the SDARS receiving antenna. Coupling loss measurements will be taken by calibrating the system at various distances. The transmitter will be operated at each distance, and the received signal level at the output of the SDARS antenna will be measured using a 10 dB directional coupler and a calibrated spectrum analyzer. These measurements will be compared to free space loss calculations.

The two test sites have been specifically selected to assure that the testing not adversely impact any SDARS subscriber. The test equipment will be located at least 225 feet from any public road, in a controlled area, on private property. The 225 foot distance has been chosen to assure that no SDARS subscriber will receive an OOB level greater than would be the case from currently deployed, type accepted fixed equipment operating in the WCS band under line-of-sight conditions. As noted above, the WCS Coalition has previously tested the vulnerability of SDARS subscriber equipment to audible muting under the current fixed equipment spectral mask, and established that even under worst case conditions (involving satellite-only service), audible muting does not occur until the interfering device is within 4-13 feet when transmitting at 250 mW EIRP. While WCA appreciates that it proposes to transmit at higher power, and with less OOB attenuation, the testing program will take place where there is attenuation between the test sites and any public roads (trees and man-made obstructions), and potential victim receivers will be in motion and thus highly unlikely to suffer actual interference given the buffering capability in SDARS receivers. Of course, in the highly unlikely event interference does occur, WCA's testing contractor will cease the testing until a cure can be implemented.

These tests will be conducted during a two-month window on selected days. Each test session will last approximately 6 hours from start to finish.

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