

January 29, 2010

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: *Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band* (WT Docket No. 07-293) and *Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band* (IB Docket No. 95-91) NOTICE OF ORAL EX PARTE PRESENTATION

Dear Ms. Dortch:

I am writing pursuant to Section 1.1206(b)(2) of the Commission's Rules to notify the Commission that yesterday, Jennifer McCarthy of NextWave Broadband, Inc., Kurt Schaubach of the National Rural Telecommunications Cooperative, Ron Olexa of Horizon Wi-Com, Mary O'Connor of Wilkinson Barker Knauer, and I met on behalf of the WCS Coalition with Julius Knapp, Ron Repasi, Bob Weller, Patrick Forster, Hung Le and John Kennedy of the Office of Engineering and Technology, and Richard Arsenault, Jay Jackson and Linda Chang of the Wireless Telecommunications Bureau, to discuss the recent proposals by Sirius XM Radio, Inc. ("Sirius XM") regarding the coexistence of Satellite Digital Audio Radio Service ("SDARS") terrestrial repeaters and Wireless Communications Service ("WCS") broadband systems in the 2305-2360 MHz band. The WCS Coalition also redistributed slides 12-14 of Sirius XM's January 22, 2010 *ex parte* during the meeting to facilitate discussion of the fundamental flaws in Sirius XM's proposed rules.¹ The following is a summary of the ensuing discussion.

The WCS Coalition emphasized that Sirius XM has proposed a set of rules that, if adopted, will doom WCS to being a backwater niche service, rather than a part of the solution to America's pressing need for mobile broadband spectrum. Instead, virtually every one of Sirius XM's rules appears specifically designed to impose "one off" requirements on WCS equipment deployed in the United States that are so far removed from those imposed elsewhere in the world that no manufacturer is likely to produce equipment for the United States 2.3 GHz band market. And, perhaps more importantly, the WCS Coalition explained that Sirius XM's rationale for its proposed "one off" rules is predicated on mischaracterizations of the record and inconsistent with the results of live testing and extensive documentation submitted by the WCS Coalition.

¹ See Letter from Robert Petit, Counsel to Sirius XM Radio, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 07-293 (submitted Jan. 22, 2010) (the "Sirius XM Proposal").

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Before turning to the specific rules proposed by Sirius XM, the WCS Coalition noted several fundamental concerns with the recent Sirius XM *ex partes*. First, it took issue with Sirius XM's transparent attempt to denigrate the live demonstration conducted by the WCS Coalition in Ashburn, VA last summer – a demonstration that successfully demonstrated that the Commission can adopt without risk of interference to SDARS the proposals incorporated in the draft rules circulated for Commission vote more than a year ago. The live Ashburn demonstrations were performed pursuant to an open and transparent process, hewing to a test plan vetted in advance. It was noted that the test conditions were similar in many respects to those of the Princeton, NJ tests presented by Sirius XM (including the satellite signal levels), and were far from “best case” from the WCS perspective because of the presence of foliage and the absence of meaningful repeater coverage. Moreover, the WCS Coalition reiterated that while the number of demonstrations actually performed during the live Ashburn testing were less than called for under the test plan, they were limited to the “worst-case” scenarios at the request of Commission staff and with the consent of the Sirius XM observers on site at the time so as to avoid devoting time to tests that posed no threat of interference. Indeed, the WCS Coalition reminded that additional “worst-case” testing outside the test plan was performed at the specific request of Sirius XM when the WCS-modem equipped laptop was placed on the dashboard – a test that showed no muting of the SDARS signal.

The WCS Coalition also took issue with the assertion by Sirius XM that the case for its proposed rules is made by “testing” it purportedly conducted in South Florida on January 12, 2010. The fact that it conducted this “testing” was conducted under the cloak of darkness, without giving the Commission or WCS community advance notice or an opportunity to participate, speaks volumes about the legitimacy of those tests. As was the case when Sirius XM first rolled out its Princeton tests, the WCS Coalition noted that it does know how the tests were conducted, and thus cannot comment on them specifically. But, just as proved to be the case with the Princeton testing, the WCS Coalition expressed its belief that Sirius XM may have once again cooked the books to come up with results to its liking.

FDD-Only

The WCS Coalition observed that for the first time since the WCS Coalition first advocated relief to permit mobile broadband operations in the 2.3 GHz band, Sirius XM has started calling for the Commission to mandate that only frequency division duplex (“FDD”) technology be used in the 2.3 GHz band in the United States. It has provided no explanation whatsoever for this stunning eleventh-hour proposal, which is in line with its other proposals to hamstring the use of the band for mobile broadband. The WCS Coalition noted that the 2.3 GHz band is currently being used worldwide with time division duplex (“TDD”) technology, and that no FDD equipment is available for deployment in the 2.3 GHz band at the present time. Indeed, given the global use of the band for TDD, it is questionable whether any equipment manufacturer would even build FDD equipment, and highly unlikely that it could build for the 2.3 GHz band in the United States at prices comparable to those for other mobile broadband devices.

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Transmit Power Control

From the time it first proposed changes to Part 27 to facilitate the use of the WCS band for mobile broadband, the WCS Coalition has recommended that any WCS devices that are subject to the revised out-of-band emissions (“OOBE”) rules utilize transmit power control (“TPC”). Now, rather than oppose TPC as a viable mechanism for mitigating interference as it has done in the past,² Sirius XM would mandate a new, never-before-seen variation on TPC that, as a practical matter, would preclude use of the WCS band as viable mobile broadband spectrum in the United States. Under that proposal, each mobile device would not only be limited to 250 milliwatts (which the WCS Coalition has proposed and continues to advocate), but would have to be designed so that it could not exceed 150 milliwatts more than 10% of some unspecified time frame. The WCS Coalition noted that, while WCS mobile devices using TPC, taken as a whole, would not exceed 150 milliwatts more than 10% of the time under the WCS Coalition’s proposed rules, that does not necessarily mean that a given WCS mobile device will not exceed 150 milliwatts more than 10% over a short time duration (for example, if it is operating indoors and near cell edge – a usage that is not likely to be in proximity to a car listening to Sirius XM). The WCS Coalition also noted, once again, that no current commercial mobile system is designed to meet the proposed Sirius XM rule – none have the capability to track the power level of mobile devices over time and restrict operations to no more than 150 milliwatts if the temporal benchmark is exceeded. Requiring WCS mobiles to incorporate this capability will result in “one off” devices for the United States market that, once again, will be far more expensive devices than devices for other bands, assuming that any vendor is prepared to manufacture them in the first instance. Moreover, the WCS Coalition reminded staff that since the Ashburn tests and other submissions from the WCS Coalition demonstrated that harmful interference is not going to occur even when maximum power of 250 milliwatts is employed, there is no need for such a restriction.

Out-of-Band Emissions

Sirius XM similarly would preclude mobile broadband in the WCS band with its proposal that all OOBE into the SDARS band be attenuated by a factor of not less than $70+10\log(P)$. Sirius XM justifies this by adding 15 dB - a figure Sirius XM appears to have pulled out of a hat because there is no basis for it to the WCS Coalition’s $55+10\log(P)$ proposal albeit without any explanation of the basis for the 15 dB increase in attenuation. Although Sirius XM appears to suggest that this 15 dB increase in attenuation is necessary to compensate for what even it claims is at most an 8 dB lower XM satellite signal in south Florida (a claim with which the WCS Coalition does not concur), Sirius XM’s logic is flawed. The Ashburn test proved that there would be no interference into the SDARS band with the $55+10\log(P)$ stepped mask proposed by WCS licensees, not that $55+10\log(P)$ is the baseline for when interference to SDARS reception

² At one point in time Sirius XM asserted that TPC would not only be of no benefit to the interference environment but rather that it would in fact make interference potential worse. See Letter from James S. Blitz, Sirius XM Radio, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 07-293 (filed May 6, 2009)

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occurs. Sirius XM has provided no evidence that an additional 15 dB of attenuation is required to protect its two satellite constellations – indeed, it has not even addressed the more robust Sirius satellites. Furthermore, the testing conducted by Sirius XM itself during the second day in Ashburn demonstrated that the interference between WCS and SDARS fare more likely to result from receiver overload, rather than from OOB.

Sirius XM's proposal is a transparent attempt to effectively preclude the use of the WCS band for mobile broadband, particularly when coupled with Sirius XM's proposal that only battery-operated mobile devices be permitted. Although Sirius XM claims that filters are available to meet its proposed spectral mask, it conveniently fails to identify any possible source of such filters or the full technical parameters of those filters. The WCS Coalition noted during the meeting, however, that whatever filters might be available likely cannot be implemented in a viable battery-operated handheld format. Indeed, Sirius XM concedes that the filters it suggests as a solution would result in an insertion loss of 8 dB, as opposed the 1 to 1.5 dB loss that would occur under the WCS Coalition proposal, which would require so much power to overcome that the mobile device would have unacceptable battery life and would generate too much heat to be commercially viable. Indeed, this proposal is a perfect example of Sirius XM's goal to make commercial mobile operation in the WCS band impossible – limit devices to battery-operation, but then preclude viable use of battery-operated devices.

Duty Cycle

While the WCS Coalition cannot determine precisely how Sirius XM conducted its secret testing in Florida supporting its proposed restrictions on duty cycle, it suspects those tests were conducted in a manner similar to Sirius XM's testing in July 2009. The WCS Coalition noted that Sirius XM's tests were performed in the full C and D blocks, and what was demonstrated did not represent was the true impact of a TDD network on SDARS receivers. It was pointed out that in an operating broadband system there is a transmission followed by guard time, followed by a reception, followed by guard time, etc. Rather than simulate this modulation pattern, Sirius XM simply burst the channel (or some subset of tones) 6, 12, or 25 % of the time. Thus, the WCS Coalition submitted that Sirius XM showed nothing more than the effect of average power density, based on a duty cycle of a transient waveform.

Notwithstanding the likely artificial nature of its test, under the latest Sirius XM proposal, WCS mobile devices would be limited in duty cycle to 6% or less and require 300 microsecond pulses to occur no sooner than 5 millisecond apart. This requirement would preclude the use of any existing technology for the provision of a viable broadband service, and no vendor is likely to produce equipment that meets it. Moreover, the resulting device would be so crippled as to its capabilities that it would not be capable of providing a viable broadband experience. The mobile device duty cycle the WCS Coalition utilized during the live demonstration in Ashburn was 35%.³

³ During the meeting the WCS Coalition misspoke when it identified the duty cycle during the WCS Coalition's demonstrations as 46%.

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Other Issues

In response to a staff inquiry, the WCS Coalition indicated that it does not currently see a use case for external antennas on vehicles for WCS devices.

Pursuant to Sections 1.1206(b)(2) and 1.49(f) of the Commission's Rules, this letter is being filed electronically with the Commission via the Electronic Comment Filing System. Should you have any questions regarding this presentation, please contact the undersigned.

Respectfully submitted,

/s/ Paul J. Sinderbrand

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Counsel to the WCS Coalition

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