

SIRIUS XM

RADIO INC.

1500 Eckington Place, N.E.
Washington, D.C. 20002
Tel: 202-380-4000
Fax: 202-380-4500
www.sirius.com www.xmradio.com

March 17, 2010

Via Electronic Delivery

Julius P. Knapp
Chief, Office of Engineering and Technology
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

Re: Written *Ex Parte* Presentation on behalf of Sirius XM Radio Inc. in 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; Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band - IB Docket No. 95-91.

Dear Mr. Knapp:

This letter is to follow-up on our recent meeting in which you outlined the staff's tentative technical recommendations to resolve the above-captioned proceedings.¹ In that meeting, we were told that the staff was prepared to propose rules to the Commission that would permit mobile broadband use in 25 of the 30 MHz WCS allocation and would allow for use cases where WCS operations would cause harmful interference to satellite radio's current 35 million listeners.

As an initial matter, we believe that these recommendations are specifically inconsistent with the Commission's recently announced National Broadband Plan.² There, the Commission's staff recommended that the FCC should protect "neighboring . . . satellite radio operations."³ We respectfully submit that rule changes that affirmatively anticipate interfering uses simply do not protect satellite radio consumers.

¹ See *Ex Parte* Letter from Michael A. Lewis, Engineering Consultant, Wiley Rein LLP, Counsel for Sirius XM Radio Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 07-293, IB Docket No. 95-91 (filed March 3, 2010) ("March 3 *Ex Parte*").

² See Federal Communications Commission, *Connecting America: The National Broadband Plan* (rel. March 16, 2010).

³ *Id.* at 85.

We appreciate the work that you and the FCC staff have done in resolving the interference issues inherent in placing terrestrial mobile devices in bands immediately adjacent to satellite spectrum. We understand the staff's position at our recent meeting that it would be "incumbent on [WCS] licensees not to deploy" the interfering use cases that apparently would be possible under the proposed rule changes, and that, in any event, WCS licensees would ultimately be responsible to resolve interference that did occur. As we understand it, the staff anticipates that interference could be avoided through some form of information exchange between Sirius XM and WCS licensees, interference coordination prior to commercial deployment, interference resolution processes, and the like. However, the key to the staff's approach will be the development of meaningful and effective processes for interference avoidance, mitigation, and resolution.

Since this aspect of the staff proposal had not been fleshed out, the staff invited the parties to submit their ideas regarding interference coordination avoidance and resolution. This letter and the attached outline are intended to provide Sirius XM's initial thoughts and recommendations for procedures to minimize the risk of interference to satellite radio from WCS operations, and vice versa, and to identify and immediately redress such interference should it occur.

This proposal attempts to develop a process to effectuate the staff's stated intent: allowing WCS mobile use while preventing harmful interference to satellite radio's 35 million listeners. We believe that any interference avoidance and resolution techniques should clearly assign responsibilities and obligations between satellite radio and WCS licensees, provide for advance coordination of systems, and provide a quick and easy process for the resolution of any disputes that arise. We note that attempting to address interference after adopting rules permitting that result is always more problematic than providing appropriate protections before a new service is deployed. Dealing with interference in this manner attempts to remedy damage after it has already occurred, when it may be impossible to undo the harm that has already been caused to a company's reputation and business. Moreover, any approach that relies upon consumer complaints to identify problem areas will be inadequate since in many cases, consumers receiving impaired service will be unwilling to devote the time needed to properly assess the cause and instead will simply cancel their subscriptions.

Because the unprecedented relaxation of WCS rules the staff recommends is highly likely to cause interference to satellite radio it is imperative that these interference-protection provisions be incorporated directly into the Commission's rules. The proposed loosening of the WCS rules is especially troublesome in the use case of high data rate applications such as streaming video, particularly where a WCS mobile device would be mounted on a car's dashboard.⁴ While the FCC staff and the WCS licensees have both discounted the likelihood that such uses applications will become widely available, even a cursory review of available information shows widespread

⁴ Such applications will exhibit high duty factor and demand higher transmission power to maintain video quality. Throughout these proceedings, it has been shown that interference to satellite radio reception is highly dependent on these two factors, a fact that the staff attempted to address in its tentative recommendations.

commercial interest in such devices on WiMAX platforms.⁵ Further demonstrating this point, Sirius XM has now purchased a wireless device currently available at retail outlets, intended to operate over the WiMAX-based Clear network, which is optimized for video chat applications through the inclusion of a front-facing web camera.⁶ The device even comes with a suction cup which, according to its user guide, “allows you to mount the device onto a car’s windshield,”⁷ thereby substantially increasing the likelihood it will cause crippling interference. Unless controlled, devices such as this one will surely be imported into the WCS spectrum, resulting in precisely the usage model the Commission staff believes will cause interference to satellite radio.

Historically, the FCC has understood that placing mobile terrestrial transmitters immediately adjacent to satellite radio receivers is virtually an invitation for severe interference problems. WCS and satellite radio are technically dissimilar and highly incompatible services. Satellite radio, which broadcasts from tens of thousands of miles in space, is particularly vulnerable to interference from spectrally adjacent devices that may be transmitting a few feet away from a receiver. That is why the Commission determined in 1997 that mobile use in the WCS band was “technologically infeasible.”⁸ And that is why the Commission should seek public comment on the staff’s complete proposal, including its proposals for interference avoidance and remedies.

Satellite radio does not compete with the WCS licensees for customers. We also understand the Commission’s search for additional spectrum to satisfy future broadband needs. And we certainly do not relish continuing what has already been an expensive regulatory fight with WCS licensees; we would much rather devote our resources to running our business. However, we will act to protect the interests of our 35 million listeners, which has been and continues to be our sole interest in these proceedings.

Again, we look forward to working with you to bring these proceedings to a mutually agreeable resolution.

⁵ Recently, Sirius XM provided the staff with information easily found on the Internet discussing the wireless industry’s plans to provide video chat services over mobile devices. *See, e.g.,* Ex Parte Letter from Michael A. Lewis, Engineering Consultant, Wiley Rein LLP, Counsel for Sirius XM Radio Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission at 2, WT Docket No. 07-293, IB Docket No. 95-91 (filed Feb. 24, 2010).

⁶ The device is the Samsung Mondy SWD-M100. The Virtual User Guide for this device highlights the camera’s use for live video transmissions, saying the “Webcam lens is used to shoot a streaming video of the user during a video conference.” *See* http://www.samsung.com/us/documentation/SWD-M100/SWD-M100_User_VG/flash.html#/18, at p. 15.

⁷ *Id* at p. 12.

⁸ *See* Amendment of the Commission’s Rules to Establish Part 27, the Wireless Communications Service, Report and Order, 12 FCC Rcd 10785, ¶ 3 (1997).

Respectfully submitted,

/s/ Terrence R. Smith

Terrence R. Smith
Corporate Vice President and
Chief Engineering Officer
Sirius XM Radio Inc.
1221 Avenue of the Americas
New York, NY 10020

/s/ James S. Blitz

James S. Blitz
Vice President, Regulatory Counsel
Sirius XM Radio Inc.
1500 Eckington Place, N.E.
Washington D.C. 20002

cc: Honorable Julius Genachowski
Honorable Michael J. Copps
Honorable Robert M. McDowell
Honorable Mignon Clyburn
Honorable Meredith Atwell Baker
Mindel De La Torre
Robert Nelson
Steve Duall
Ruth Milkman
Joel Taubenblatt
Ron Repasi
Bruce Gottlieb
David Goldman
John Giusti
Angela Giancarlo
Louis Peraertz
Charles Mathias

WCS AND SATELLITE RADIO INTERFERENCE AVOIDANCE AND RESOLUTION

I. INTRODUCTION

These proceedings present unique technical challenges in part because allowing mobile WCS operations requires authorizing systems and devices that are incompatible with satellite radio use on frequencies immediately adjacent to that spectrum. As the Commission's Spectrum Policy Task Force has explained "[o]ne of the challenges presented by permitting additional flexibility within assigned spectrum is the potential for incompatible adjacent systems" that can "require additional constraints in the form of guard bands, consuming valuable spectrum, or expensive filtering systems to avoid adjacent band interference."⁹ The difficulties are even more pronounced in this instance because Sirius XM's satellite service relies on relatively low power signals originating up to 30,000 miles away, which are therefore highly sensitive to interference. These differences in design parameters and protection requirements for satellite systems and terrestrial mobile radio networks have prevented Sirius XM and WCS licensees from developing mutually satisfactory compromises that would have allowed a prompt resolution of these proceedings.

The unique issues in this proceeding call for unique technical solutions. Recognizing the fundamental incompatibility between the two services, the FCC staff proposes to establish a 2.5 MHz guard band on either side of the satellite radio allocation where the current WCS rules would continue to apply, thereby effectively prohibiting mobile WCS operations in this part of the WCS band. We understand the staff is also prepared to recommend duty cycle limits and require transmitter power control technology for mobile WCS operations in an effort to protect satellite radio reception from interference. ***Yet even with these proposed technical standards for mobile WCS operations, the FCC staff itself understands that some usage models for WCS mobile services will cause unacceptable interference to satellite radio reception.***

In light of the substantial interference potential inherent in adjacent terrestrial and satellite systems, the staff suggested a variety of interference avoidance and resolution measures that could be employed.¹⁰ The staff recommended use of techniques such as information exchanges and pre-deployment consultation and even post-deployment actions to resolve interference if interference nonetheless occurs. Sirius XM believes that establishing an operational environment where harmful interference can be identified and remedied requires at a minimum, that the revised rules include coordination requirements and interference resolution processes. Moreover, those rules should assign interference rights and obligations now, before networks are deployed and WCS commercial services have begun. Should the Commission's technical standards and coordination requirements fail to prevent instances of interference, Commission processes must provide for immediate resolution.

⁹ See *Spectrum Policy Task Force Report*, ET Docket No. 02-135 at 22 (rel. Nov. 15, 2002).

¹⁰ See March 3 Ex Parte.

II. SPECIFIC PROPOSALS.

In order to accomplish these results – and serve the staff’s announced goal of avoiding interference from the outset – Sirius XM recommends, at a minimum, the following:

A. The Commission should require the development of a detailed, written coordination agreement between satellite radio and WCS as an essential component of completing this proceeding. The specific terms of the coordination agreement can either be incorporated into any order adopted by the FCC or, alternatively, the Commission can impose a deadline on the parties to negotiate and complete an agreement within a certain number of days following Commission action. If the FCC takes the latter approach, its decision in this proceeding should provide a framework for what must be included in that agreement. Under either scenario, the following items should be specifically addressed:

- By the earlier of [X] days following adoption of such Order or 180 days before a WCS licensee commences operations in any market, WCS and satellite radio licensees or their designees should enter into a coordination agreement requiring advance coordination prior to commencing operations over a WCS system or over new or modified satellite radio terrestrial repeaters.
- The coordination agreement should define harmful interference from WCS fixed and mobile transmitters to satellite radio as well as harmful interference from satellite radio repeaters to WCS receivers.
- At least three months before a WCS licensee commences operations in a market, the WCS licensee or licensees operating in that market should provide the information specified in the coordination agreement pursuant to the procedures adopted therein.
- Likewise, at least three months before a satellite radio licensee commences commercial operations using a new terrestrial repeater, the satellite radio licensee shall provide the information specified in the coordination agreement pursuant to the procedures adopted therein.
- Neither a WCS system nor a new satellite radio repeater may commence commercial operations until the coordination process has been successfully completed.
- A similar coordination process will be used if a WCS licensee plans to begin serving a market but first needs a satellite radio licensee to reduce the power of a terrestrial repeater operating at over 12 kw average EIRP. In that circumstance, the WCS licensee should initiate the coordination process at least 180 days before the WCS licensee intends to begin operations in a market.
- The coordination agreement should allow for expedited Commission adjudication of any disputes.

B. The coordination agreement should also define key parameters and metrics that will underlie the parties’ agreement with or objection to certain deployments. These parameters and metrics should also be used to ascertain rights and obligations to resolve interference that might

occur from coordinated facilities. These parameters should address interference from both fixed infrastructure of both services and mobile operations. For example, Sirius XM recommends the following areas be addressed and defined in a coordination agreement:

- The power levels from WCS base stations and satellite radio terrestrial repeaters should not exceed [X] dBm for more than [Y] continuous meters of road service when measured at 6 feet above ground.
- The availability of satellite radio mobile service should not be degraded by more than [Z%] due to the introduction of WCS mobile service in a given area.
- Minimum performance specification for both satellite radio and WCS receivers shall be provided.

Although Sirius XM is proposing a reciprocal process that would impose coordination requirements prior to the commercial deployment of new satellite radio terrestrial repeaters, it is confident that its terrestrial repeaters pose no interference risk to WCS operations. Sirius XM is prepared, however, to share site information and undergo a similar coordination procedure prior to repeater deployment to avoid any unforeseen circumstances.

* * *

Sirius XM looks forward to further discussions with the staff on these and other related issues.