

**SIRIUS SATELLITE RADIO INC.**  
1221 Avenue of the Americas, 36<sup>th</sup> Floor  
New York, NY 10020

**XM RADIO INC.**  
1500 Eckington Place, NE  
Washington, DC 20002

May 19, 2008

**WRITTEN EX PARTE**

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

**Re: Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band - IB Docket No. 95-91, GEN Docket No. 90-357, RM-8610; 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;**

Dear Ms. Dortch:

As discussed in recent meetings with the Commission staff, serious disagreement exists among the parties on basic technical data essential to resolution of the above-referenced proceedings.<sup>1</sup> The two licensed satellite radio operators, Sirius Satellite Radio Inc. and XM Radio Inc. (the "Satellite Radio Operators"), have proposed that joint testing under the Commission's supervision can provide a means to confirm the technical facts in these proceedings, resolve data issues, and expedite completion of the dockets in a manner that best serves consumers and the public interest. This testing can be conducted by an independent consultant under the Commission's oversight and paid for by the parties.

The WCS Coalition has stated its willingness to participate in such tests under the Commission's supervision. The Satellite Radio Operators agree with the Coalition that it would be important "for the Commission staff to participate in the development of any joint testing plan to mediate disputes."<sup>2</sup> More generally, Commission involvement in development of the test plan will be important to ensure that the test provides whatever technical data the Commission believes it needs to bring closure to these proceedings.

---

<sup>1</sup> The comments of the parties in this docket speak for themselves on these issues; XM and Sirius will not repeat their positions on these matters here.

<sup>2</sup> See May 13, 2008 Letter of Paul Sinderbrand, counsel to the WCS Coalition, at 2 (filed in the above-referenced dockets).

**SIRIUS SATELLITE RADIO INC.**  
1221 Avenue of the Americas, 36<sup>th</sup> Floor  
New York, NY 10020

**XM RADIO INC.**  
1500 Eckington Place, NE  
Washington, DC 20002

XM and Sirius are prepared to move very quickly to work with the Commission and the Coalition to develop a detailed test plan. To begin the process, the Satellite Radio Operators have attached here an outline of a joint test plan identifying what they initially believe would be the necessary components. This plan would address both of the main technical questions presented in these dockets:

- (1) **Extent of interference from Satellite Radio repeaters to WCS fixed and proposed mobile operations.** The parties have taken very different positions regarding the impact of Satellite Radio repeaters on WCS fixed and base station operations. Joint testing also will permit analysis of the impact of satellite radio operations on actual or prototype WCS mobile terminals.
- (2) **Extent of interference from proposed WCS mobile terminals to Satellite Radio receivers.** Here too, the parties differ significantly on the level of interference that mobile terminals would cause to Satellite Radio reception, particularly from satellites. Joint testing will create data that will allow the Commission to better address the risk of harmful interference to Satellite Radio consumers.

Sirius and XM are prepared to meet with the WCS Coalition and the Commission staff as soon as that would be convenient to discuss next steps in this matter. It may also be useful for the Aerospace and Flight Test Radio Coordinating Council (“AFTRCC”) to participate in these meetings given their interest in these proceedings. We appreciate the Commission’s willingness to move these dockets forward, and are committed to participating in both the test development process -- and the testing process itself -- on an expedited basis that both minimizes the burden on the Commission staff, and provides the staff the technical data to make sound decisions in these proceedings.<sup>3</sup>

Respectfully submitted,

*/s/ Patrick L. Donnelly*  
Patrick L. Donnelly  
Executive Vice President, General Counsel  
& Secretary  
Sirius Satellite Radio Inc.  
1221 Avenue of the Americas, 36<sup>th</sup> Floor  
New York, NY 10020  
(212) 584-5100

*/s/ James S. Blitz*  
James S. Blitz  
Vice President, Regulatory Counsel  
XM Radio Inc.  
1500 Eckington Place, NE  
Washington, DC 20002  
(202) 380-4000

---

<sup>3</sup> In addition to filing this letter in the above-captioned dockets, copies are being e-mailed today to counsel for the WCS Coalition and AFTRCC for their convenience.

**SIRIUS SATELLITE RADIO INC.**  
1221 Avenue of the Americas, 36<sup>th</sup> Floor  
New York, NY 10020

**XM RADIO INC.**  
1500 Eckington Place, NE  
Washington, DC 20002

cc:

Aaron Goldberger  
Bruce Gottlieb  
Renee Crittendon  
Wayne Leighton  
Angela Giancarlo  
Julius Knapp  
Ira Keltz  
Joel Taubenblatt  
Thomas Derenge  
Helen Domenici  
Roderick Porter  
Robert Nelson  
Steven Spaeth  
Stephen Duall

**Outline of Joint Test Plan for Use in Connection  
with FCC Dockets 07-293 and 95-91**

**May 19, 2008**

# Table of Contents

<b>1</b>	<b>PREFACE.....</b>	<b>2</b>
<b>2</b>	<b>INTERFERENCE FROM SATELLITE RADIO REPEATERS INTO WCS FIXED AND MOBILE RECEIVERS .....</b>	<b>2</b>
2.1	TEST SCENARIOS .....	2
2.2	TEST OUTCOME TO BE DOCUMENTED .....	3
2.3	EQUIPMENT PROVISIONING .....	3
2.4	TEST SCHEDULE .....	4
<b>3</b>	<b>INTERFERENCE FROM WCS MOBILE TRANSMITTERS INTO SATELLITE RADIO RECEIVERS.....</b>	<b>4</b>
3.1	TEST SCENARIOS .....	4
3.2	TEST OUTCOME TO BE DOCUMENTED .....	4
3.3	EQUIPMENT PROVISIONING .....	4
3.4	TEST SCHEDULE .....	5
<b>4</b>	<b>WCS AND SATELLITE RADIO BAND PLAN.....</b>	<b>5</b>

## Figures

FIGURE 1: SATELLITE RADIO TO WCS INTERFERENCE TEST SETUP .....	3
FIGURE 2: WCS / SATELLITE RADIO FREQUENCY ALLOCATION .....	5

## Tables

TABLE 1: WCS / SATELLITE RADIO FREQUENCY ALLOCATION .....	5
---	---

# 1 Preface

The testing described in this document represents the most significant cases, and is intended to include testing for interference from both overload and out-of-band emissions. Additional tests not referenced here may be appropriate in order to address other use cases.

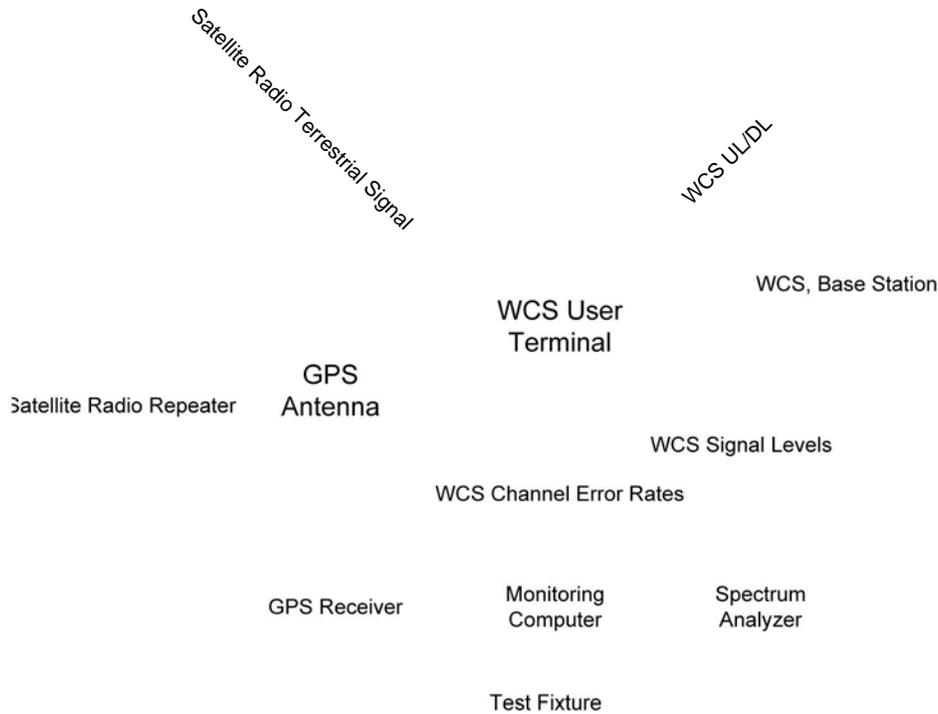
## 2 Interference from Satellite Radio Repeaters into WCS Fixed and Mobile Receivers

The test configuration shall consist of:

1. WCS infrastructure equipment communicating with both fixed and mobile user terminals operating in WCS blocks.
2. A spectrum analyzer connected to an external car roof-mounted antenna to monitor and log Satellite Radio repeater signal levels to the monitoring computer.
3. A GPS receiver to log time and location of the WCS equipment to the monitoring computer.
4. Satellite Radio terrestrial repeaters that have been installed and are in service, or, alternatively, surrogate Satellite Radio repeaters that can be deployed as needed to produce the Satellite Radio terrestrial waveforms. Both XM Radio and Sirius repeaters will be used.

### 2.1 Test Scenarios

The test scenarios will consist of the mobile and fixed WCS equipment operating within the coverage area of an existing Satellite Radio repeater(s), or Satellite Radio repeater surrogate, while communicating with the WCS infrastructure. The test computer will log: 1) WCS link outage conditions (due to Satellite Radio terrestrial interference) on the WCS equipment, 2) Satellite Radio terrestrial signal serving levels, and 3) time and location for later processing and analysis.



**Figure 1: Satellite Radio to WCS Interference Test Setup**

## 2.2 Test Outcome to be Documented

Test results will show maps of measured Satellite Radio terrestrial signal serving levels with the corresponding WCS downlink fixed and mobile receiver link outage conditions. To verify the impact of Satellite Radio terrestrial signals on WCS downlink performance, additional maps of these same areas will show the WCS receiver performance measures when the Satellite Radio terrestrial waveforms are turned off.

## 2.3 Equipment Provisioning

Participating WCS interests will need to provide WCS base station infrastructure and mobile and fixed terminals with receiver performance monitoring capability, spectrum analyzer, GPS receiver, etc.

The Satellite Radio repeater ground-based signal shall be provided by existing and operational Satellite Radio repeaters. If there is not an operational Satellite Radio

terrestrial repeater available, XM and/or Sirius will provide a surrogate Satellite Radio repeater for use in these tests. The surrogate Satellite Radio repeater(s) will consist of a signal generator that produces the Satellite Radio terrestrial waveform(s), a power amplifier, a transmit filter, cabling and an antenna.

## **2.4 Test Schedule**

The WCS band fixed and mobile infrastructure equipment may require relocation to a suitable test location with adequate Satellite Radio terrestrial repeater signal levels. The Satellite Radio repeaters are currently in place in many locations. If a surrogate Satellite Radio repeater is used to produce the potentially interfering Satellite Radio terrestrial waveform(s), it can be deployed as needed to accommodate the location of existing WCS infrastructure deployment. The expected time to complete testing after the WCS and Satellite Radio equipment is in place is 2 weeks.

## **3 Interference from WCS Mobile Transmitters into Satellite Radio Receivers**

### **3.1 Test Scenarios**

The test cases envisaged will include overload and out of band emissions cases with the following use cases:

1. Pedestrian WCS Terminal to Satellite Radio equipped vehicle.
2. In Vehicle WCS Terminal to Satellite Radio equipped vehicle.
3. In vehicle WCS Terminal with vehicle mounted accessory antenna to Satellite Radio equipped vehicle.

The exact parameters of the test to be jointly developed as part of the detailed test design.

### **3.2 Test Outcome to be Documented**

For each of the developed test cases, a measurement would be made of the distance over which impairment is observed to Satellite Radio reception, and power level at the Satellite Radio receiver causing the specified impairment.

### **3.3 Equipment Provisioning**

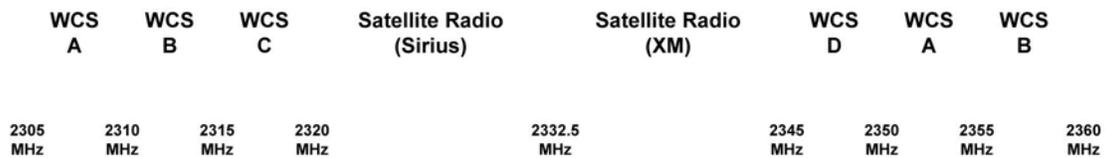
XM and Sirius will each provide 2 representative vehicles with OEM installed radios to be tested. These radios will be representative of the population of receivers that are currently in service, and that are scheduled to be placed into service in OEM applications.

WCS equipment either prototype or lab equipment representative of the WCS Coalition’s proposals will be provided.

### 3.4 Test Schedule

It is anticipated that these tests would be done simultaneously or completed after the tests described in Section 2.

## 4 WCS and Satellite Radio Band Plan



**Figure 2: WCS / Satellite Radio Frequency Allocation**

Service	Frequency (MHz)
WCS A-lower	2305-2310
WCS B-lower	2310 - 2315
WCS C	2315 - 2310
Satellite Radio (Sirius)	2320 - 2332.5
Satellite Radio (XM-A)	2332.5 - 2338.75
Satellite Radio (XM-B)	2338.75 - 2345
WCS D	2345 - 2350
WCS A-upper	2350 - 2355
WCS B-upper	2355 - 2360

**Table 1: WCS / Satellite Radio Frequency Allocation**