The State of The Record on Satellite Radio and WCS Compatibility- The Role of Third Party Testing

June 13rd FCC Meeting

IB Docket No. 95-91

WT Docket No. 07-293

Suggested Discussion Points

1. State of the Record: Prior testing and inconsistent test results of the parties.
2. Potential Third Party Testing to Develop a Consensus Factual Record on Technical Interference Data
   - Mobile WiMax to Satellite Radio potential interference: basic use cases to be tested:
   - Satellite Radio to WCS potential interference: basic use cases to be tested.
3. Other testing useful to the Commission
4. Participation of other interested parties (*e.g.,* AFTRCC)
5. Development of Test Plan: Third party confirmation of prior tests and any supplemental testing.
6. Testing and Placement of Third Party Report in the Public Record

Record Status

- The existing record is wildly inconsistent with respect to the question of whether WCS mobile devices will cause harmful interference to satellite reception.

- The existing record contains little data on how satellite radio terrestrial repeaters interfere with WCS receivers.

- Without further joint testing, the FCC would be required to assess the quality and accuracy of two sets of data without full knowledge of methodology. Joint testing can reduce the gulf in the submitted data.

Record on Overload

Overload (WCS tx power, signal environment)	Satellite Radio tests	WCS tests	Impairment measurement used
250 mW, Satellite	34 m (C-6%_5MHz)	Not measured	Distance to mute
250 mW, Satellite	18 m (Bl-6%_5MHz)	1.2 m (Bl-100%_2MHz)	Distance to mute
250 mW, Satellite	19 m (Al-6%_5MHz)	Not measured	Distance to mute
250 mW, Terrestrial	21 m (C-6%_5MHz)	Not measured	Distance to mute
250 mW, Terrestrial	17 m (Bl-6%_5MHz)	No muting (Bl-100%_2MHz)	Distance to mute
250 mW, Terrestrial	14 m (Al-6%_5MHz)	Not measured	Distance to mute
100 mW, Satellite	Not measured	1.2 m (Bl-100%_2MHz)	Distance to mute
112 mW Satellite	6.7-16.2 (D-44%_5MHz)	Not measured	Distance to mute

Record on Overload (cont.)

Measured WCS Tx Power levels at 3m	Satellite	WCS	Impairment measurement
Terrestrial	30 mW (C-6%_5MHz)	Not measured	muting
	40 mW (Bl-6%_5MHz)	>250 mW (Bl-100%_2MHz)	muting
	40 mW (Al-6%_5MHz)	Not measured	muting
Satellite	0.1 mW (C-6%_5MHz)	Not measured	muting
	5 mW (Bl-6%_5MHz)	250 mW (Bl-100%_2MHz)	muting
	3 mW (Al-6%_5MHz)	Not measured	muting

Record on OOBE

OOBE	Satellite	WCS	Metric
WCS Mask required at 3 m	98+10logP 100%		Mask required at 3 m for 1 dB noise rise.
WCS Mask, stepped, 55+10logP-67+10logP		6% - 0-0.9 m 43%- 2.1-6.4 m	Distance to mute

Record on Other Test Cases

Other test cases	**Satellite**	**WCS**	**Impairment measurement**
Vehicle to vehicle/pedestrian and moving (Satellite)	Not measured	No muting	muting
In vehicle	Not measured	No muting	muting

Scope of Third Party Testing

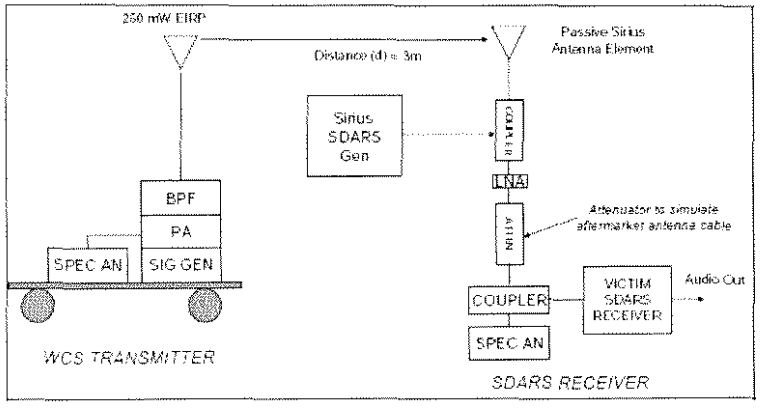
- Collect New Experimental Data on Satellite Repeater Interference to WCS Receivers
  - Use existing 2.3 GHz fixed receivers and 2.3 GHz international mobile equipment.
  - Execute standard lab tests for blocking and OOBE to establish basic interference parameters.
  - Measure satellite radio repeater ground based levels in two selected markets (2 m above ground level and rooftop).

- Improve the Rigor and Completeness of Part 27 Rule Change Test Data
  - Four basic use cases:
    - vehicle to vehicle (static)
    - vehicle to vehicle (moving)
    - WCS pedestrian to satellite vehicle (static)
    - WCS pedestrian to satellite vehicle (moving)

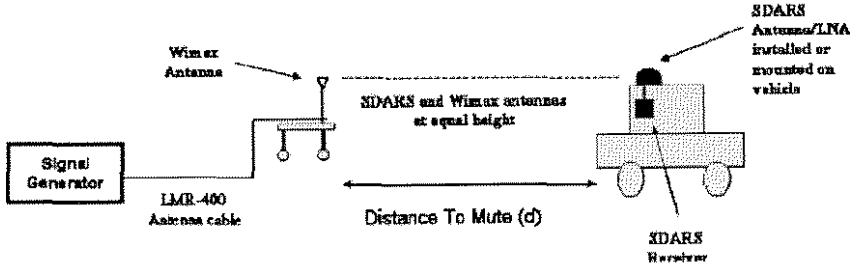
- Use test equipment to emulate WCS mobile fundamental and OOBE transmissions
- XM and Sirius will each provide 2 representative automotive receiver platforms
- Two serving conditions; Satellite only and Terrestrial
- Parameters recorded
  - Distance where satellite radio service is impaired for varying mobile EIRP and OOBE levels.
  - EIRP and OOBE levels that impair satellite radio at 3 meters.
  - Effect of vehicle motion and duty cycle.

Scope of Third Party Testing

- Both sides used similar test set-up to measure WCS user units-to-satellite radio interference:
  - Each moved WCS transmitter toward/away satellite radio receiver.
  - Both sides tested in two different locations without reporting differences (no need to test in multiple markets).



Sirius Reply Comments, Exhibit C, page 8 (March 17, 2008)



WCS Coalition Reply Comments, Attachment B, page 15 (March 17, 2008)

- Joint plan should test impairment criteria from *both* parties

What Would The FCC Involvement Be ?

- The FCC would
  - Select or approve a suitable third party.
  - Review and contribute to the test plan developed jointly by the parties
  - Participate as desired in the test execution
  - Monitor progress and help with issues.

What would the Testing Timeline Be ?

Milestone	Weeks from Start Task is Completed
Test Concept Finalization Meeting	2
Test Plan Draft Complete For FCC Review	4
Equipment Assembly and Acquisition	8
Test Execution	12
Test Report Handed to FCC	15