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FEDERAL COMMUNICATIONS COMMISSION
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AUG 23 2001

In re Application of

Satellite Policy Branch International Bureau
IB Docket No. 95-91

XM Radio, Inc. Request for Special Temporary Authorization and)	File No. SAT-STA-20010712-00063
Sirius Satellite Radio, Inc. Request for Special Temporary Authority)	File No. SAT-STA-20010724-00064

To: Chief, International Bureau

OPPOSITION TO STA REQUEST

WorldCom, Inc. ("WorldCom"), on behalf of itself and its affiliates, hereby submits its Opposition to the above-captioned applications for Special Temporary Authority filed by XM Radio, Inc. ("XM") and Sirius Satellite Radio, Inc. ("Sirius") (the "Applications"). WorldCom is opposed to the grant the Applications as filed because the power levels requested by XM and Sirius for their terrestrial repeaters will interfere with WorldCom's operating WCS system in Memphis, Tennessee and planned system in Dallas/Fort Worth, Texas.

WorldCom holds numerous WCS licenses throughout the southern United States. Each of these licenses was won, and paid for, at auction. WorldCom utilizes the WCS spectrum licensed to it in a number of markets in the Southeast and is moving toward deploying additional markets in the near future.

1. **WorldCom Will Suffer Interference to Its Operations In Memphis**

Currently, WorldCom is operating a WCS system in Memphis, Tennessee that provides two-way internet service to customers throughout the Memphis metropolitan area. As set forth in Attachment 1 hereto, the repeaters proposed by both XM and Sirius will significantly interfere with WorldCom's operating WCS facilities in Memphis. This interference is caused by brute force overload (also referred to as "blanketing"), rather than out of band emissions. As a result of the high power operations of XM's and Sirius's terrestrial repeaters, exclusion zones --zones of unacceptable interference-- are created around the terrestrial repeaters. The size and intensity of such exclusion zones in Memphis are set forth in Attachment 1.

WorldCom would not object to repeaters that are limited to a maximum power of 2kW.¹ While a repeater with an output power of 2kW will still cause some interference to WorldCom's Memphis WCS facilities, WorldCom can accept such power levels without serious degradation to its system. As the Commission is well aware, 2kW is the maximum power that WCS licensees may utilize in order to prevent brute force overload interference to its spectrum neighbors up to 150 MHz away from the WCS spectrum.^{2,3} WorldCom recognizes the need for terrestrial repeaters to augment the DARS systems; however, the power levels of these terrestrial repeaters must be limited so as not to cause unacceptable interference to existing or planned WCS facilities.

¹ See Technical Exhibit of Stephen Daugherty.

² See 47 C.F.R. §§ 21.904, 74.935.

³ See *Amendment of the FCC's Rules to Establish Part 27, the Wireless Communications Service*, 12 FCC Rcd. 3977, 3979-86 (1997).

2. Proposed WCS Systems Must Be Protected

WorldCom plans to deploy WCS facilities in the Dallas/Fort Worth metropolitan area. It has not been decided precisely how the WCS spectrum will be utilized due to the lack of certainty regarding interference protection from the DARS terrestrial repeaters. A number of the sites from which the system will operate have already been identified. WorldCom engineers reviewed the STA requests of XM and Sirius as they relate to WorldCom's planned WCS operations. The blanketing interference caused by either XM or Sirius alone is serious; the interference caused by the combined operation of XM and Sirius would be devastating. The exclusion zones created by the proposed XM and Sirius repeaters will cover a great majority of the Dallas/Fort Worth area. See Attachment 2, which also shows the currently planned WorldCom sites for its WCS system. As one can see, the prospect for serving this area utilizing WCS spectrum is dismal. If the proposed repeaters are authorized at the power levels applied for in the Applications there is very little area that is not affected by brute force overload.⁴

3. Notification Process

If the FCC is to grant an STA for any of these repeaters, WorldCom believes that a notification process between the DARS licensees and the WCS licensees must first be established. Without coordination, it would be impossible to launch a viable system in Dallas/Fort Worth or other WorldCom markets due to the interference environment. Both XM and Sirius acknowledge that if any interference is experienced, upon

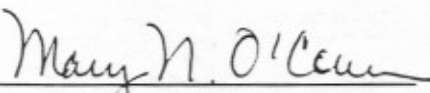
⁴ See Attachment 2.

notification they will immediately turn off the offending repeater.⁵ Rather than wait for unacceptable interference to disrupt WCS and/or DARS operations, WorldCom recommends a process by which the WCS licensee gives the DARS licensee 30 days advance notice of commencement of operations in a market, whereupon the DARS licensees would have 30 days to power down all of the repeaters in that market to 2kW. Thus, both operators would have time to adjust their systems without experiencing any disruption of service to their customers.

It is imperative that any grant of the Applications be conditioned on interference free operation and coordination with WCS licensees. Therefore, WorldCom urges the FCC to not grant the Applications as filed.

Respectfully Submitted,

WORLDCOM, INC.

By: 
Mary Nordberg O'Connor
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August 21, 2001

⁵ See XM STA File No. SAT-STA-20010712-00063 at p.2, and Sirius STA File No. SAT-STA-200010724-00064 at p.3.

Exhibit 1 Technical Narrative

This Technical Narrative describes the calculation and illustrations of predicted interference from XM Radio, Inc. ("XM") and Sirius Satellite Radio, Inc. ("Sirius") SDARS repeaters to WorldCom, Inc. ("WCOM") receivers using the WCS spectrum to provide digital two-way services

Customer Premise Equipment (CPE)

WCOM has found that the typical CPE receivers available from vendors have a 1 dB compression point of approximately +14 dBmW. This is the RF level at the input to the receiver that will cause saturation and brute force overload of the receiver's signal demodulation circuitry. This signal level referenced to the frontend of the 32 dB (typical) gain low noise amplifier (LNA) is -18dBm. Allowing 6 dB backoff to account for the digital signal peak-to-average ratio, 10 dB backoff to insure optimum linearity of the amplifiers, and 17 dB (typical) antenna gain, the RF level in front of the CPE antenna that will cause the CPE receiver to saturate is -51 dBmW.

Higher gain antennas, up to 24 dB, are typically used for CPE further distant from hub sites. In this case, the interference level in front of the CPE antenna becomes -58 dBmW.

WCOM has prepared an analysis of the predicted RF emissions from the proposed XM and Sirius repeaters utilizing an EDX Engineering utility, which uses a Free Space + RMD propagation model. The predicted RF levels are compared to the levels in front of the antenna at potential WCOM customer sites. The sites are assumed to be 25 feet above ground level, although some of WCOM's business customers may use antennae mounted on buildings up to 250 feet. Although there is obviously more potential for line-of-site to CPE receivers mounted higher, this analysis uses the more conservative 25 foot level.

Attachments 1 and 2 hereto demonstrate the predicted interference from the proposed XM and Sirius SDARS repeaters in WCOM's Memphis and Dallas/Ft Worth markets. Areas of interference that exceed -51 dBmW are depicted. The interference regions extend up to 5 miles in front of the interfering emitters. Any WCOM CPE receiver oriented in the direction of the emitters will experience unacceptable interference.

As is depicted in the graphic, at least 4 proposed SDARS sites in Dallas/Ft Worth and 1 site in Memphis are located very near, if not co-located with, WCOM hub sites; nearly all the interference regions depicted in this case would cause WCOM's CPE receivers to experience brute force overload.

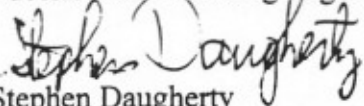
Hub Receivers

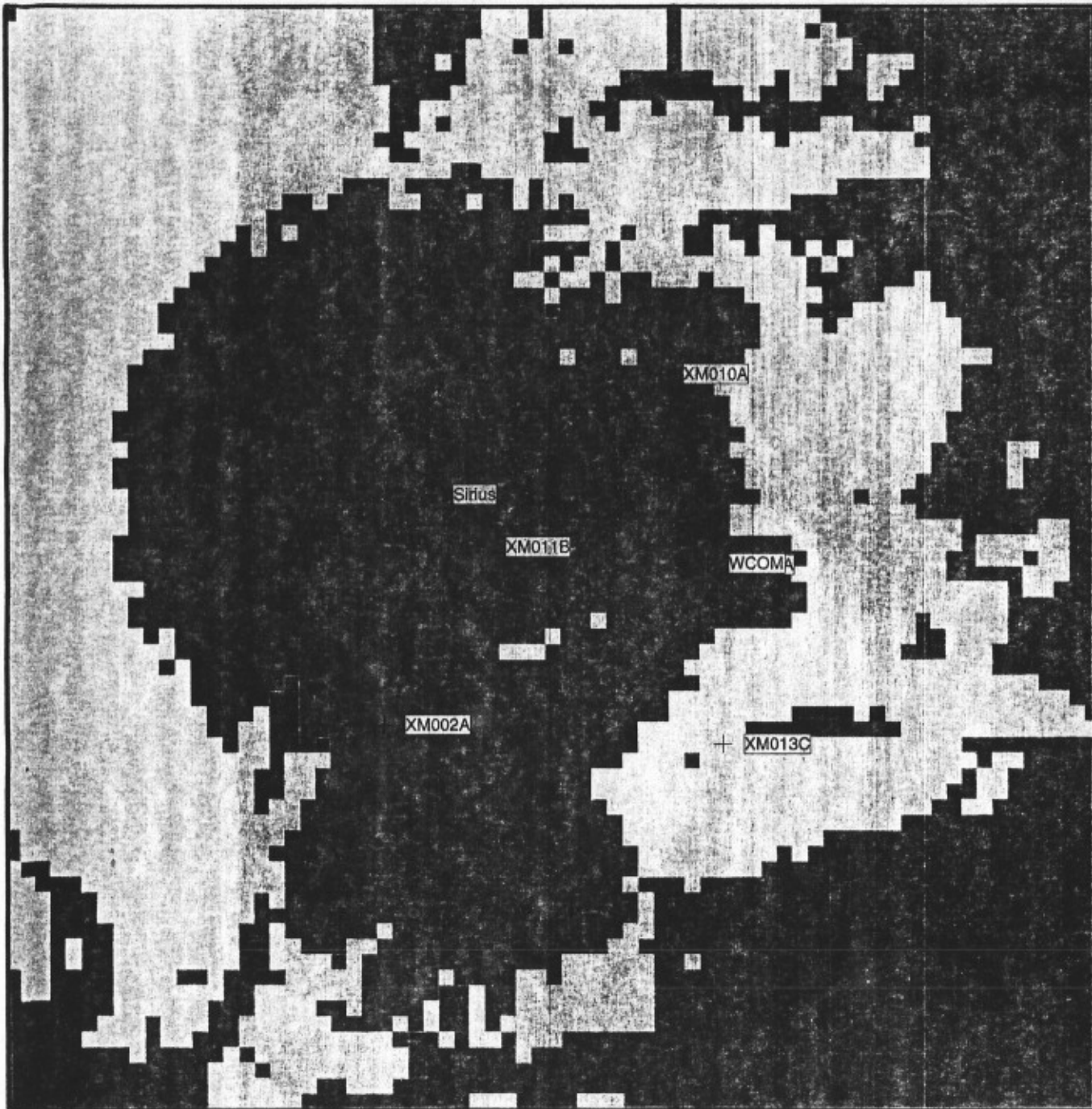
WCOM's proposed hub receivers in the WCS spectrum have sensitivities and gains similar to the CPE receivers. The hub antenna would normally be installed much higher above ground level than CPE receivers and, therefore, be much more likely to have a line-of-site path from SDARS repeaters installed in the same market. The same RF level, -51 dBmW, at the hub antenna input could cause the hub receiver to experience brute force overload. As depicted in Attachments 1 and 2 hereto, WCOM hubs in the Memphis and Dallas/Ft Worth markets are predicted to experience the brute force overload problem.

Statement of Engineer

This statement was prepared by the undersigned who is the Director of Engineering Analysis at WorldCom Broadband Solutions, Inc. He holds an MS degree in Electrical Engineering.

I declare that the foregoing is true and correct to the best of my knowledge.


Stephen Daugherty
Director, Engineering Analysis
WorldCom Broadband Solutions, Inc.

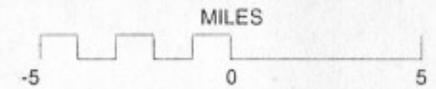


EDX SignalPro™: SDARS Vs WCOM (Memphis).map

Prop. model: Free Space + RMD
 Time: 50.0% Loc.: 50.0%
 Prediction Confidence Margin: 0.0dB
 Climate: Maritime Temperate (Land)
 Groundcover: none
 Atmospheric Abs.: none
 K Factor: 1.333
 RX Antenna - Type: OMNI
 Height: 25.0 ft AGL Gain: 14.85 dBd
 Received power at remote

- > -34.0 dBmW
- 40.0 to -34.0 dBmW
- 74.0 to -40.0 dBmW
- 79.0 to -74.0 dBmW
- < -79.0 dBmW

Min. receiver threshold level: -200.0 dBmW



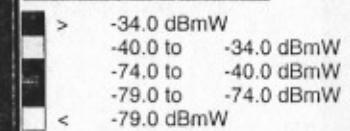
ATTACHMENT 1

Memphis SDARS RF Interference

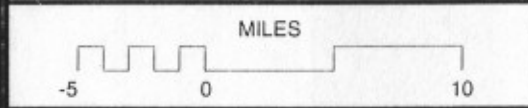


EDX SignalPro™: SDARS Vs WCOM Dallas_FtWorth.m

Prop. model: Free Space + RMD
 Time: 50.0% Loc.: 50.0%
 Prediction Confidence Margin: 0.0dB
 Climate: Maritime Temperate (Land)
 Groundcover: none
 Atmospheric Abs.: none
 K Factor: 1.333
 RX Antenna - Type: OMNI
 Height: 25.0 ft AGL Gain: 14.85 dBd
 Received power at remote



Min. receiver threshold level: -200.0 dBmW



ATTACHMENT 2

Dallas/Ft Worth SDARS RF Interference

CERTIFICATE OF SERVICE

I, De-el Shorter , hereby certify that the foregoing Opposition to STA Request was served this 21st day of August, 2001, by depositing a true copy thereof with the United States Postal Service, first class postage prepaid, addressed to:

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A handwritten signature in black ink, appearing to read "Dr. Robert Pepper", written over a horizontal line.

*** VIA HAND DELIVERY**