

ORIGINAL

BELLSOUTH
EX PARTE OR LATE FILED

BellSouth Corporation
Suite 900
1133 21st Street, N.W.
Washington, D.C. 20036-3351

karen.possner@bellsouth.com

Karen B. Possner
Vice President-Strategic Policy

202 463-4160
Fax 202 463-4637

RECEIVED

September 14, 2001

SEP 14 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ex Parte

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

*Re: Sirius Request for STA, File No. SAT-STA-20010724-00064;
XM Request for STA, File No. SAT-STA-20010712-00063;
Establishment of Rules and Policies for the Satellite Digital Audio Radio
Service in the 2310-2360 MHz Band, IB Docket No. 95-91*

Dear Ms. Salas:

On August 31, 2001, Sirius Satellite Radio Inc. (Sirius) filed Reply Comments in which it responded to Comments of several WCS licensees filed August 21, 2001 objecting to the grant of Sirius' request to operate more than 100 SDARS terrestrial repeaters at power levels in excess of 2 kilowatts (kW), including comments of BellSouth. Those WCS licensees and several manufacturers of WCS equipment demonstrated that operation of high-powered SDARS terrestrial repeaters will create harmful interference to WCS transmissions. This includes (i) brute force overload of the WCS spectrum (also known as blanketing interference), particularly at the WCS customer premises receivers and (ii) intermodulation distortion. The comments also demonstrated that Sirius has not met its burden of proof under the Communications Act or the Commission's rules sufficient to justify grant of its STA application.

On August 29, 2001, XM Radio Inc. (XM) submitted a so-called "white paper" to the Commission in its own STA application in which it attempted to prove that its extensive system of high-powered repeaters had been designed to minimize interference with the WCS licensees. On September 7, 2001, the WCS licensees (including BellSouth) and WCS equipment manufacturers rebutted the unfounded claims by XM that its high-powered repeaters will not interfere with the WCS licensees.

No. of Copies rec'd
List ABCDE

OTF

Ms. Magalie Roman Salas
September 14, 2001
Page Two

In its Reply Comments, Sirius repeated its claim that (i) its operations will not interfere with the WCS licensees; (ii) if interference occurs, it will be the result of bad equipment design by the WCS community; and, (iii) in any event, the WCS community has no right to complain because when they bought their licenses at auction, they knew or should have known that the SDARS licensees were going to operate high-powered terrestrial repeaters. These contentions are based on many distortions and, in any event, are not correct.

It would take a lengthy response to address all of the errors in Sirius' Reply Comments. BellSouth believes, however, that is not necessary given the fact that Sirius has not met its burden of proof to justify grant of the STA. Nevertheless, BellSouth is compelled to set the record straight on four major points:

1. Contrary to Sirius' bald assertion, the WCS licensees had no reason to assume that Sirius would be permitted to operate repeaters at power levels that would cause known interference to WCS operations. This is especially true where the interference is known to create extensive "exclusion zones" within which WCS licensees will not be able to offer WCS services.
2. Sirius' claim that the WCS licensees have raised no new interference concerns is disingenuous and overlooks the fact that the reason these concerns are not new is because the WCS licensees have raised them repeatedly without ever obtaining a meaningful response from Sirius or XM. The SDARS licensees obviously have elected not to attempt to refute these concerns directly because they know the WCS licensees are correct from an engineering standpoint.
3. Sirius' claim that a few high-powered terrestrial repeaters will cause less harm to WCS licensees than a large number of lower powered repeaters has no basis in fact.
4. Sirius's blatant attempt to shift blame to the WCS licensees by claiming they have poorly designed their equipment is erroneous and transparent.

BellSouth and the other WCS licensees and manufacturers of WCS equipment have demonstrated conclusively that operation of high-powered SDARS repeaters will cause extensive and unnecessary interference to WCS licensees. Indeed, even the SDARS community acknowledges this interference when they argue that there will be exclusion zones created even from those terrestrial repeaters operating at or below 2 kW. Based on XM's own August 29, 2001 *Ex Parte*, simple engineering calculations show that their 40 kW SDARS repeaters would be 20 times more powerful than a 2 kW transmitter (the norm in these bands), and the exclusion zones would be 20 times larger.

Ms. Magalie Roman Salas
September 14, 2001
Page Three

Further, Sirius' position in the instant STA application is particularly disingenuous given the position it has taken in another Commission proceeding. In ET Docket No. 99-231, Sirius filed Comments August 27, 2001 in which it seeks protection for its customer receivers from interference from unlicensed Part 15 emitters -- particularly Fusion lighting devices.

BellSouth understands the nature of this interference and believes that the Fusion lighting devices are indeed a potentially serious source of interference to both SDARS licensees and other nearby bands (including MMDS and WCS). Nevertheless, Sirius' stance in the STA application reveals that it is asking the Commission to adopt a double standard here.

Fusion lighting devices are separated from the SDARS band by more than 100 MHz (as compared to the 4 MHz between SDARS repeaters and the closest WCS licensees), affording a far better opportunity for filtering to economically suppress this interference.

Further, in its filing in ET Docket No. 99-231, Sirius implicitly seeks protection for its customer receivers from interference at the input to its receiver by holding Fusion's interference to less than -115 dBm (14.6dB microvolts/meter) at 3 meters. Yet, in its STA application, Sirius is asking the Commission to require the WCS licensees to accept SDARS repeater interference at the input to their receivers at levels up to -35 dBm, a signal strength that is more than 100 million times stronger.

In other words, in one case, Sirius is asking the Commission to find that the public interest would be served by protecting Sirius (and for that matter, MMDS and WCS licensees) from interference from Fusion lighting. At that same time, in another case, Sirius is asking the Commission to find that the public interest would be served by permitting Sirius to inflict 100 million times more powerful interference on the WCS licensees **in an adjacent band**. This simply boggles the mind.

Using the incredible logic offered by Sirius in its STA application regarding the WCS licensees, perhaps the Commission should tell Sirius:

- Sirius knew or should have known that Part 15 devices could operate at 500 microvolts per meter (-90.5 dBm) at 3 meters distance;
- The claimed disruptions to the SDARS services are caused in fact by the SDARS licensees' technical decisions to operate across their entire band; and,

- Sirius can cure any of these problems with modern engineering techniques or through the use of filters (without regard to size, expense or power level at the customer location).

The WCS licensees have never accepted interference from high-powered SDARS terrestrial repeaters. In an attempt to minimize the impact on WCS licensees from SDARS terrestrial repeaters, Sirius asserts: “The Commission established and auctioned WCS after satellite DARS and with full knowledge of its proposed used of high-powered repeaters.”¹ Sirius conveniently fails to mention several pertinent facts.

First, the Commission has never sanctioned the operation of terrestrial repeaters at the levels **requested** by Sirius or XM. Unless Congress has elevated requests from licensees to the level of Commission rules or decisions, those requests have remained mere requests all these years. The WCS licensees are not required to comply with a Sirius wish list when, after years of consideration, even the Commission has not been able to determine whether that request is in the public interest. Moreover, Sirius has been unable to cite any existing Commission rule that the WCS licensees or their manufacturers have failed to take into account in designing their WCS services or equipment.

Second, the Commission warned Sirius and XM in 1995 and again in 1997 that it had not decided how or under what circumstances to license terrestrial repeaters. In fact, the Commission twice asked for additional information from Sirius and XM about their repeater networks stating that such information was necessary for the Commission to make a reasoned decision about the operation and licensing of the terrestrial repeaters. Twice Sirius ignored those requests. Sirius should not now be allowed to shift that blame to some other party.

Third, it is worthwhile noting that the Communications Act empowers the Commission to promulgate rules to “prevent interference between stations....” 47 U.S.C.A. Section 303 (f). Under these circumstances, it is Sirius (far more than the WCS licensees) that was on notice that it would not be permitted to operate terrestrial repeaters at levels that clearly would interfere with other licensees. Sirius has a duty to avoid imposing interference on others. The WCS licensees and others are not required to anticipate unreasonable interference from Sirius. Under Sirius’ logic, the injured parties bear the burden of Sirius’ technology and design decisions. Under the law, however, Sirius is not entitled to operate a service that interferes with other licensees.

No matter how often Sirius repeats its cry that it will be harmed by delay, no matter how often it points the finger of blame at others, the simple fact is that Sirius is asking the Commission to authorize Sirius to operate its terrestrial repeaters at power levels that have

¹ Sirius Reply Comments at 3.

been shown to cause harm to other licensees. That simply is not and cannot be in the public interest.

The WCS licensees' interference concerns are real and remain unanswered by Sirius or XM. Sirius attempts to deflect the Comments of BellSouth and others by contending that the WCS licensees have raised no new interference concerns.² It focuses on the Comments of AT&T Wireless Services (AWS) and WorldCom and attempts to dismiss other comments as "speculative." While clever sophistry, Sirius' contentions are in and of themselves "speculative" and should be rejected.

Sirius speculates that WCS filters and other technologies can cure the interference to WCS licensees. It offers no technical analyses or testing data to support this speculation.

Sirius speculates again by implicitly asserting that the WCS licensees should be responsible for curing the interference that Sirius' high-powered operations will cause. It demands that the WCS licensees incur costs for designing and obtaining filters or other devices, but it fails to provide any hard data showing that the costs of developing and deploying effective filters would be economical for WCS licensees or their customers.

Sirius speculates further when it contends that the WCS licensees should have designed their operations to conform to terrestrial repeater power levels that, to this day, the Commission has not authorized. In the real world, Sirius does not get to set the rules, and its requests do not and cannot have the force and effect of law.

In the end, this is a simple matter. Sirius' speculations and avoidance tactics do not answer the real question before the Commission: how will Sirius avoid brute force overload and intermodulation distortion in the WCS band?

For eighteen months, the WCS licensees have clearly and consistently pointed to a single concern. For eighteen months, the WCS licensees have shown that the SDARS licensees will cause brute force overload not only at WCS transmitters but also at WCS customer premises locations (*i.e.*, at customers' WCS receivers) if they are permitted to operate SDARS terrestrial repeaters at levels above 2 kW. For eighteen months, the WCS licensees have done this against the same incomplete backdrop that Sirius and XM have painted for the Commission in the SDARS rulemaking proceeding.

Only as a result of the Sirius and XM STA applications have the extent and impact of the operation of those high-powered terrestrial repeaters fully been known. Previously BellSouth and the other WCS licensees could only demonstrate interference harm by mathematical equations and other tools.

² Sirius Reply Comments at 3, 11.

Ms. Magalie Roman Salas
September 14, 2001
Page Six

With submission of more complete data in the STA applications, BellSouth has been able to demonstrate more than theoretical exclusion zones caused by Sirius and XM. It has delineated extensive areas within which it will be unable to offer its WCS services and demonstrated that these exclusion zones cripple large segments of BellSouth's potential WCS business.

To the extent that Sirius says the WCS licensees are just repeating the same brute force overload arguments, BellSouth takes this as a compliment to BellSouth's consistency of position. However, BellSouth has had to repeat these concerns because neither Sirius nor XM has been able or willing to provide a satisfactory response concerning how they are going to avoid causing such interference.

Sirius has simply failed to demonstrate with any credible technical analyses that its operations will not interfere with WCS services. That is Sirius' burden and it has failed totally in that regard. Until Sirius and XM provide a satisfactory answer to BellSouth's legitimate concern, BellSouth will continue to assert its right to operate its WCS licenses free from interference from Sirius.

Further, in response to the XM white paper mentioned above, WCS licensees and BeamReach Networks, Inc. (BeamReach) have raised the significant issue of intermodulation distortion (the latter was raised by BeamReach in its Comments of August 21, 2001). Admittedly, this is a new concern, but nevertheless it is a real concern that remains unaddressed by Sirius or resolved by XM.

The injury to the WCS licensees would not be worse with more terrestrial repeaters operating at or below 2 kW. While Sirius makes the claim that a few high-powered SDARS repeaters will cause less interference to the WCS licensees than more repeaters operating at 2 kW or lower power, it provides no analysis to prove this point. It is significant to note that every WCS licensee that has filed in this proceeding comes to exactly the opposite conclusion.

Moreover, a comparison of Sirius' filings with those of XM raises significant doubts as to the validity of Sirius' claim. For example, in Atlanta, Sirius would use 5 high-powered repeaters to cover the city; XM would use 10 lower powered repeaters. Yet, Sirius would cover less households than XM. At the same time, however, Sirius would impose an exclusion zone on BellSouth's WCS offerings that would cover 35 percent more households than XM (153,000 households versus 113,000).

While both of these systems create troublesome exclusion zones, the point is that Sirius has not shown and cannot show that a high-powered SDARS terrestrial repeater

Ms. Magalie Roman Salas
September 14, 2001
Page Seven

network is better for WCS licensees and their customers. In many applications, BellSouth believes, the high-powered system will create unjustifiable exclusion zones.

The WCS licensees' equipment has been properly designed and meets all existing Commission rules. Sirius contends that any possible disruption of the WCS licensees' operations from the operation of the SDARS' terrestrial repeaters is the result of bad design decisions of the WCS licensees and their manufacturers. Sirius is wrong.

As noted above, implicit in Sirius' contention is its belief that the WCS licensees should have assumed the Commission would grant Sirius's request to operate high-powered terrestrial repeaters. While BellSouth questions the accuracy of Sirius' assertion that its earlier descriptions clearly showed the extent of coverage of the high-powered terrestrial repeaters, that is not the real issue. Until the Commission adopts a specific licensing plan, the WCS licensees had no reason to build to a specification, especially a specification that clearly would cause extensive interference to non-SDARS licensees.

Moreover, the "design flaws" Sirius cites are not design flaws at all. In support of its claim of bad design, Sirius cites to the "fact" that the WCS equipment "receive[s] across the entire WCS upper or lower bands." In fact, it would be a major inadequacy if the equipment did not receive across the entire upper or lower bands in which it is licensed to operate.

SDARS receiver equipment certainly operates across its entire assigned band, just as WCS receivers operate across their bands. Moreover, BellSouth holds the licenses for the entire 30 MHz of spectrum in many areas and coverage of the entire band is required for operation in these areas. Sirius has known that BellSouth obtained this spectrum at auction in April 1997 and, applying Sirius's own logic, Sirius should have known that employing equipment designed to operate across that available spectrum would be the most economical way for BellSouth to proceed.

All current equipment designs under consideration by Bellsouth utilize modern, state-of-the-art technology and design techniques in an effort to filter out interference created by the SDARS repeaters. However, technology can only do so much given the extreme levels that will be created by the proposed Sirius operations -- even if cost were not an issue. (Compare this to Sirius' objection to filtering its receivers for interference from Part 15 emitters operating at far less powerful levels.)

Of course, in the real world, cost is an issue, especially for customer premises equipment (CPE). Indeed, that is Sirius' motivation in attempting to stop interference from Fusion lighting -- keep receiver costs down by avoiding the expense of costly and ungainly

filtering devices. It also is a basic motivation for building their high-powered terrestrial repeater network in the first place.

WCS licensees and their manufacturers have demonstrated that Sirius' terrestrial repeaters will cause severe brute force overload and intermodulation distortion even with some solutions that have been shown to be cost-prohibitive. (*See, e.g., Letter from Karen Possner to Magalie Roman Salas, Sirius Request for STA, File No. SAT-STA-20010724, dated Aug. 28, 2001 (Possner Letter)*). While Sirius asserts that it has been able to design for interference from XM transmitters operating at as little as 8 MHz separation, it has failed to point out that its own transmitters are as little as 4 MHz away from the WCS band. It also fails to point out that co-location, or near co-location, with XM and/or Sirius transmitters is required to make its techniques work. There is no evidence in the record that this technique will work with 4 MHz spacing, and there certainly is no evidence that co-locating, or near co-locating, WCS licensee transmitters with SDARS repeaters is practicable from a market standpoint. Are the coverage area needs the same given the significant difference between the SDARS and WCS services? BellSouth and the Commission have no reason to believe they are or will be.

Moreover, the WCS licensees clearly have demonstrated that 4 MHz separation is inadequate for protection of CPE against brute force overload from SDARS terrestrial repeaters operating at as much as 20 times the power level of the WCS transmitters. (*See, e.g., Possner Letter*). Also, given the fact that the WCS services are two-way, it is entirely impractical for WCS CPE to operate at 40 kW in homes and businesses. Thus, not only are Sirius' proposed solutions technically and economically impracticable, they could be physically hazardous to the health and safety of WCS customers.

As noted above, this letter is not intended as a point-by-point refutation of the many errors and omissions made by Sirius, so BellSouth's decision to address a particular item should not be treated as an admission to or agreement with other matters. In the end, it is Sirius' obligation to carry the burden of proof in this STA application and it is Sirius alone that bears the responsibility for failing to meet this burden.

BellSouth continues to support Sirius and XM in their desire to offer CD quality radio services, and will reap no benefit if Sirius must delay its service rollout or must roll out a sub-optimal service. It would note, however, that Sirius must look only to itself for this result and cannot blame either the Commission or the WCS licensees. Sirius has long been aware of the Commission's concerns and has had more than eighteen months to resolve the specific brute force overload issues raised by the WCS licensees. It simply has tried to evade its legal responsibility to avoid interfering with other licensees.

Ms. Magalie Roman Salas
September 14, 2001
Page Nine

Moreover, BellSouth does not believe that the current design of the SDARS repeater networks is consistent with the public interest because it effectively will preclude BellSouth (and the other WCS licensees) from offering new, innovative WCS services, such as wireless Internet access, in many areas within the Southeastern United States -- services that may bridge the "digital divide" in areas that cannot be served economically by traditional landline facilities.

If and when Sirius is prepared to accept its responsibility for avoiding brute force overload and intermodulation distortion in Bellsouth's WCS band, BellSouth stands ready to work out a practical solution to Sirius' problems. Until then, BellSouth believes the Commission must protect the rights of WCS licensees and preserve the integrity of the auction process.

Sincerely,



cc: Don Abelson
Tom Sugrue
Bruce Franca
Anna Gomez
Ron Repasi
Rockie Patterson
Rick Engleman
Rosalee Chiara
Sasha Field
David Furth
Tom Stanley
Ron Netro
Cathy Seidel

Bob Eckert
Bruno Pattan
Saj Durrani
Keith Larson
Counsel for Sirius
Counsel for XM Radio
Randall Schwartz
Donald Brittingham
Mary Nordberg O'Connor
Michael Hamra
Andrew Krieg
William Wiltshire
Douglas Brandon