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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	IB Docket No. 95-91
XM, Radio, Inc. and	)	GEN Docket No. 90-357
Sirius Satellite Radio, Inc.	)	
Requests for Special Temporary Authority	)	SAT-STA-20010712-00063
To Operate Digital Audio Radio Service (DARS)	)	SAT-STA-20010724-00064
Terrestrial Repeaters	)	

COMMENTS OF THE NATIONAL ASSOCIATION OF BROADCASTERS

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EXECUTIVE SUMMARY

The National Association of Broadcasters hereby files comments in response to XM Radio, Inc. ("XM") and Sirius Satellite Radio, Inc.'s ("Sirius") Requests for Special Temporary Authority ("STA") to operate terrestrial repeaters with their Satellite Digital Audio Radio Service ("SDARS") systems. The intent of both the SDARS applicants and the Commission is undisputed – terrestrial repeaters should be used only to reach areas where a satellite signal cannot reach. One of the main arguments that NAB has made against the use of terrestrial repeaters is that repeaters are simply a crutch for a technology that is not up to the task of providing the seamless, mobile coverage promised by its proponents and desired by the Commission, especially in cities where numerous "urban canyons" exist. And as evidenced by the *Requests*, XM and Sirius' repeaters networks, by their sheer numbers and power levels, appear to be designed to blanket metropolitan areas, not fill-in isolated gaps in coverage.

The *Requests* clearly demonstrate the two satellite radio licensees' plans to use STAs and experimental authorizations to deploy a terrestrial network of high-powered broadcast transmitters to serve most of the U.S. population, supplemented by direct reception of their satellite signals in less populated areas. In the absence of service rules for use of terrestrial repeaters, it appears that XM and Sirius are relying on the FCC's granting them temporary authorization in order to commence commercial operation of a largely terrestrial radio service.

These *Requests*, however, do not demonstrate any need for such a large number of high-power terrestrial repeaters. Because XM and Sirius have a long and well-documented history of being less than forthcoming about the use of terrestrial repeaters to support satellite-based

service, the Commission should, *at a minimum*, require that the satellite radio licensees justify their sudden and marked increased "need" for so many high-powered terrestrial repeaters.

Further, the extensive repeater networks proposed by the SDARS license holders represent a disturbing and serious potential threat to radio broadcasters service. Simply stated, the extensive terrestrial digital radio networks have the potential to operate totally divorced of the satellite transmission systems that they supposedly complement. Allowing the use of terrestrial repeaters sets the stage for XM and Sirius to offer nothing more than a satellite-fed terrestrial radio service, or worse, a completely independent terrestrial service, thereby totally circumventing the Commission's stated intentions of establishing a high-tech direct broadcast satellite radio service for the U.S. listening public, that would serve different interests than the existing terrestrial radio system.

In addition to deploying a large and high-powered terrestrial repeater network, the SDARS licensees have proposed service rules which would allow local origination or insertion of locally-targeted programming. As originally proposed by the Commission, the rules governing SDARS use of terrestrial repeaters would require that the signals being transmitted by the repeater be received from the operating DARS satellites. On its face this current proposal appears to echo the SDARS pledge not to transmit locally-originated programming, but upon closer examination the SDARS proposed rule *does not preclude locally originated material* and, as such, contravenes the Commission's tentative conclusion to prohibit the use of terrestrial repeaters to transmit locally originated programming.

The Commission here should ensure that SDARS terrestrial repeaters, like those employed in the terrestrial radio broadcast service, *are used only to retransmit the complete signal from the primary station, intended for the consumer satellite receivers, at the time it is*

transmitted. For these satellite systems, this means that their terrestrial repeaters must be limited to the retransmission of the complete satellite signals. NAB has always maintained that SDARS terrestrial repeaters must be explicitly prohibited from transmitting *any locally* originated programming, lest SDARS become, to any extent, a terrestrial-fed network.

The Commission should also set a reasonable cap as to the amount and type of terrestrial repeaters the SDARS licensees can deploy. And the Commission should license each repeater, or alternatively, require strict record keeping on each repeater installation. This is the *only* way the Commission can prevent this technology from being what it was never intended to be, a terrestrial digital radio network.

Finally, NAB is opposed to *any* experimental authorization, STA or service rules that grant SDARS licensees *carte blanche* authority to build a large number of high-power terrestrial repeaters. As the Commission stated over six years ago, "if a large number of gap fillers is required, there comes a point at which the service becomes essentially a terrestrial rather than a satellite service." It is clear that time has come. XM and Sirius' *Requests* should be denied because deployment of a terrestrial-based, satellite-supplemented radio service is contrary to the Commission's goal of creating a new *satellite* radio service and thus, would not serve the public interest.

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To: The Commission

COMMENTS OF
THE NATIONAL ASSOCIATION OF BROADCASTERS

I. Introduction.

The National Association of Broadcasters ("NAB")[1] submits these comments in the above-captioned proceeding. The two Satellite Digital Audio Radio Service ("SDARS") license holders, XM Radio, Inc. ("XM") and Sirius Satellite Radio, Inc. ("Sirius"), recently filed applications for Special Temporary Authority ("STA") to operate terrestrial repeaters with their SDARS systems.[2] XM and Sirius request authority to deploy 778 and 151 terrestrial repeaters, respectively, each operating above 2 kW effective radiated power ("EIRP").[3]

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[1] NAB is a non-profit, incorporated association of radio and television stations and broadcast networks which serves and represents the American broadcasting industry.

[2] FCC Public Notice Report No. SAT-00077, July 31, 2001.

[3] Letter from Lon C. Levin, Senior Vice President, XM to Magalie Roman Salas, Secretary, FCC, July 12, 2001 (requesting STA for 168 terrestrial repeaters operating at EIRP between greater than 10 kW and 40 kW and 610 terrestrial repeaters operating at EIRP between greater than 2 kW and 10 kW); Letter from Robert D. Briskman, Technical Executive, Sirius to Magalie Roman Salas, Secretary, FCC, July 24, 2001 (requesting STA for 151 repeaters at 104 sites operating at EIRP between greater than 2 kW and 40 kW) [hereinafter "*Requests*"].

These *Requests* clearly demonstrate the two satellite radio licensees' plans to use STAs and experimental authorizations to deploy a terrestrial network of high-powered broadcast transmitters to serve most of the U.S. population, supplemented by direct reception of their satellite signals in less populated areas. In the absence of service rules for use of terrestrial repeaters, it appears that XM and Sirius are relying on the FCC's granting them temporary authorization in order to commence commercial operation of a largely terrestrial radio service.

These *Requests*, however, do not demonstrate any need for such a large number of high-power terrestrial repeaters. As detailed in Section III, XM and Sirius have a long and well-documented history of being less than forthcoming about the use of terrestrial repeaters to support satellite-based service. The Commission should, *at a minimum*, require that the satellite radio licensees justify their sudden and marked increased "need" for so many high-powered terrestrial repeaters.

NAB is opposed to *any* experimental authorization, STA or service rules that grant SDARS licensees *carte blanche* authority to build a large number of high-power terrestrial repeaters. As the Commission stated over six years ago, "if a large number of gap fillers is required, there comes a point at which the service becomes essentially a terrestrial rather than a satellite service."[4] It is clear that time has come. XM and Sirius' *Requests* should be denied because deployment of a terrestrial-based, satellite-supplemented radio service is contrary to the Commission's goal of creating a new *satellite* radio service and thus, would not serve the public interest.

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[4] Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, *Notice of Proposed Rulemaking*, 11 FCC Rcd 1 (1995) at ¶ 56. [hereinafter "*NPRM*"].

II. Background and History.

In the *NPRM*, the Commission observed that applicants for satellite radio licenses had advocated service rules for the operation of "terrestrial repeaters, or 'gap-fillers', in urban canyons and other areas where it may be difficult to receive DARS signals transmitted by a satellite." *NPRM* at ¶ 55. At that time, the Commission declined to propose rules for terrestrial repeaters, citing the applicants' failure to provide detailed information and commenting that "[u]ntil such information is available and applicants demonstrate how these complementary terrestrial networks would be implemented in the overall satellite system design, [the FCC] cannot determine if terrestrial gap-fillers should be permitted and what rules should govern their use." *Id.* The Commission did, however, determine *that gap-fillers would be complementary to satellite service* – thus, the Commission proposed to prohibit the use of terrestrial repeaters "except in conjunction with an operating satellite DARS system." *Id.* at ¶ 56.

In comments filed with the FCC, the satellite industry again restated its intention to use terrestrial repeaters to "gap-fill" only where there was signal obstruction.[5] Two years later, the Commission issued a *Report and Order* authorizing SDARS service and requested further comments on the use of terrestrial repeaters to retransmit information from the satellite signal in order to overcome "effects of signal blockage and multipath interference."[6] In the instant *Requests*, both XM and Sirius restate this as the purpose of terrestrial repeaters.[7]

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[5] *See, e.g., In 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, Reply Comments of American Mobile Radio Corporation (predecessor of XM), Oct. 13, 1995 at 21.

[6] Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band *Report and Order, Memorandum Opinion and Order and Further*

Thus, the intent of both the SDARS applicants and the Commission is undisputed – terrestrial repeaters should be used only to reach areas where a satellite signal cannot reach. The Commission has proposed limiting repeater use to this purpose only, lest there be a "transformation of satellite DARS into an independent terrestrial DARS network." *Further Notice* at ¶139.

To date, the Commission has not adopted rules authorizing or governing the use of terrestrial repeaters for SDARS service. In lieu of service rules, the SDARS licensees began to build a national network of repeaters by way of a series of experimental authorizations. Initially, the Commission granted several of these experimental authorizations without public notice or comment.[8] But, beginning in January 2000, the Commission issued a public notice for XM and Sirius' requests for STAs to build terrestrial repeaters.[9] In its earlier comments, NAB called upon the Commission to require that the satellite radio industry provide detailed information as to its plans for building terrestrial repeater networks.[10] To date, this call has gone unanswered. Absent from the record, still, is data providing the location, type and number of all terrestrial repeaters currently operating nationwide.

Notice of Proposed Rulemaking, 12 FCC Rcd 5754 (1997) at ¶ 138 [hereinafter "*Report and Order/Further Notice*"].

[7] XM *Request* at 4, Sirius *Request* at 3.

[8] Experimental Radio Station Construction Permit and License, File No. 0013-EX-TC-2000, XM Radio, Inc., granted Aug. 25, 2000; Experimental Radio Station Construction Permit and License, File No. 0160-EX-ML-2000, XM Radio, Inc., granted Aug. 23, 2000.

[9] Satellite Policy Branch Information, Public Notice, IB Docket No. 95-91 and GEN Docket No. 90-357 (issued Jan. 21, 2000). XM's STA request was granted on Aug. 1, 2000 (Experimental Special Temporary Authorization, File No. 0271-EX-ST-2000).

[10] *See* Comments of NAB, IB Docket No. 95-91 and GEN Docket No. 90-357 (Feb. 22, 2000).

III. The Satellite Radio Industry Has Not Filed Critical Information Pertaining to the Number and Types of Terrestrial Repeaters It Has and Intends to Deploy.

Recently, the Wireless Communications Service (WCS) and the SDARS licensees have held several meetings at the Commission to try to resolve terrestrial repeater interference issues. The WCS service and the SDARS service occupy adjacent frequencies in the S-band. Specifically, the WCS license holders argued against the on-going deployment of SDARS repeaters, based on concerns that high-power repeaters will create severe interference.[11]

As demonstrated in the recent WCS *ex parte* filings, the SDARS "need" for terrestrial repeaters has been a continuously moving target. At the January 11, 2001 joint industry meeting at the FCC, the SDARS licensees pledged to provide to WCS a list of all high-power terrestrial repeaters they had constructed or were planning to construct.[12] At that time, XM estimated they would deploy no more than 150 high-power terrestrial repeaters.[13] Two weeks later, Sirius proposed service rules which would allow up to 225 high-power repeaters.[14] Six weeks passed and Sirius again proposed rules – this time Sirius advocated that it be allowed to deploy at least

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[11] *See, e.g.*, Letters from William M. Wiltshire, *et al.*, Counsel for AT&T Wireless Services to Magalie Roman Salas, Secretary, FCC, Jan. 5, 2001, Feb. 6, 2001, Feb. 20, 2001, March 8, 2001, April 30, 2001 and Aug. 8, 2001. *See also* Letters from Karen B. Possner, Vice President-Strategic Policy, Bell South to Magalie Roman Salas, Secretary, FCC, March 8, 2001 and May 18, 2001.

[12] Letter from William M. Wiltshire, Counsel for AT&T Wireless, *et al.* to Magalie Roman Salas, Secretary, FCC, Jan. 25, 2001.

[13] *Id.* This number correlates to the estimate provided by XM in its 1999 Supplemental Comments. Specifically, XM stated its "standard" repeater would have an EIRP of 2kW, its (intermediate) repeater would operate with an EIRP of 5 kW, and its (high power) repeaters would number 150 of which only 25 would be higher than 20 kW." *Supplemental Comments of XM Radio, Inc.*, IB Docket No. 95-91, Appendix A at p. 4 (December 17, 1999).

[14] Letter from Carl R. Frank, Counsel for Sirius, to Magalie Roman Salas, Secretary, FCC, Jan. 25, 2001.

1150 repeaters with EIRP of up to 40 kW without any coordination with, and regardless of impact on, wireless operators.[15] Meanwhile, XM proposed a limit of 250 high-power repeaters which would be allowed to operate without any coordination.[16] But then just two months later, XM applied for STAs for 778 high-power terrestrial repeaters for 61 urban sites, a fivefold increase in just six months.[17] This continuous "number-creep" illustrates XM's and Sirius' lack of candor in these proceedings.[18]

And despite these efforts by the wireless communities, XM and Sirius have failed to provide any detailed information concerning the deployment of terrestrial repeaters.[19] As AT&T states, it is "[a]pparent that they are sharing network information only coincident with public announcement of impending commercial launch."[20]

Even now, the *Requests* emphasize the satellite radio licensees' blatant refusal to provide the Commission, the wireless industry and the public detailed, technical information concerning

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[15] Letter from Carl R. Frank, Counsel for Sirius, to Magalie Roman Salas, Secretary, FCC, Feb. 20, 2001. In response to the wireless industry's objections to the proposed rules, Sirius simply stated that it "made absolutely clear in a Nov. 1997 that its satellite DARS service would require 100-150 active terrestrial repeaters." Letter from Carl R. Frank, Council for Sirius Radio, Inc. to FCC, Feb. 27, 2001.

[16] Letter from Bruce D. Jacobs, Counsel for XM, to Magalie Roman Salas, Secretary, FCC, April 25, 2001.

[17] *See* XM *Request* at Exhibit A.

[18] In a dispute involving microwave-powered light bulbs, XM and Sirius also appear to have been less than forthcoming to another government agency. According to the Wall Street Journal article, XM and Sirius simultaneously told the FCC that left unchecked the microwave emissions would "imperil the promise of satellite radio" while they told the Securities and Exchange Commission that these "new devices *may* interfere with our service." Schroeder, M. and Dreasen, Y. *Politics & Policy, Energy Saving Light-Bulb Maker Battles with Satellite-Radio Firms for Bandwidth*, (August 6, 2001) <http://interactive.wsj.com>.

[19] *See* Letter from Douglas I. Brandon,Vice President, External Affairs and Law, AT&T Wireless Services, *et al.* to Magalie Roman Salas, Secretary, FCC, July 27, 2001.

the exact location, count and technical operating parameters of their terrestrial networks. Specifically, XM and Sirius state that they have "not included...information for the low power repeaters (*i.e.*, EIRP of 2 kW or less) it seeks to operate pursuant to this STA."[21] Thus, based on the *Requests*, XM and Sirius believe they are entitled to a potentially infinite amount of repeaters, irrespective of their potential interference characteristics. Further, neither XM nor Sirius' *Requests* provide any guidance as to the satellite industry's future plans for terrestrial repeaters.

This hide-and-seek approach to terrestrial repeater deployment directly contravenes the Commission's Rules. Holders of blanket experimental licenses are required to "notify [the Commission] of the specific details of each individual experiment, including location, number of base and mobile units, power, emission designator, *and any other pertinent technical information* not specified by the blanket license."[22] Indeed, the Commission's proposed rules state that "[t]errestrial gap-fillers may be implemented by a satellite DARS licensee only after obtaining prior Commission authorization" and they must establish compliance with international coordination, antenna structure, and environmental processing requirements.[23] And yet, nowhere in the record (prior to the filing of these STA Requests) is there *any* information detailing or even summarizing such pertinent technical information.

The Commission should require the applicants immediately to provide pertinent, specific technical information regarding their full plans for terrestrial repeaters, including such

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[20] Letter from William M. Witshire, *et al.*, Counsel for AT&T Wireless to Thomas Sugrue, Chief, Wireless Telecommunications Bureau, FCC, August 8, 2001.

[21] XM *Request* at 2, n. 4; Sirius *Request* at 2, n. 3.

[22] *Amendment of Part 5 of the Commission's Rules to Revise the Experimental Radio Service Regulations*, 13 FCC Rcd 21391, 21394 (1998) (emphasis added).

[23] *Further Notice* at Appendix C.

parameters as EIRP, antenna gain and pattern, specific technical criteria used to establish the need for repeaters at any given location, repeater interference characteristics both with the satellites and with other repeaters, required spacing between repeaters and other installation requirements, impact on receiver performance of co-incident illumination by both satellite and repeater signals, *etc.*

IV. The Proposed Terrestrial-Based Radio Network Contravenes The Commission's Intent.

The Commission has already stated that the public benefits of satellite radio include the "introduction of a *new* radio service to the public, a *national distribution* of radio programming to all areas, including the underserved and unserved areas and population groups, the creation of jobs and the *promotion of technological development in the satellite and receiver industries*, and the improvement of U.S. competitiveness in the international economy." *Report and Order* at ¶ 7 (emphasis added); *see also NPRM* at ¶¶ 2, 5, 12. Satellite-radio was contemplated and authorized as a service that would provide service unique to that of local radio – one that could provide a national, satellite-based network of continuous radio service for long-distance commuters, for niche audiences, and for persons living in remote areas. *Report and Order* at ¶¶ 12-14. But in building a terrestrial-based radio network to blanket urban areas XM and Sirius have not created a new or unique radio service.

One of the main arguments that NAB has made against the use of terrestrial repeaters is that repeaters are simply a crutch for a technology that is not up to the task of providing the seamless, mobile coverage promised by its proponents and desired by the Commission, especially in cities where numerous "urban canyons" exist.[24] As noted by AT&T Wireless Services, "[a]pparently the gaps to be filled in the satellite service now encompass entire

metropolitan areas."[25] And as evidenced by the *Requests*, XM and Sirius' repeaters networks, by their sheer numbers and power levels, appear to be designed to blanket metropolitan areas, not fill-in isolated gaps in coverage.[26]

Further, the extensive repeater networks proposed by the SDARS license holders represent a disturbing and serious potential threat to radio broadcasters' service. Simply stated, the extensive terrestrial digital radio networks proposed by XM And Sirius have the potential to operate totally divorced of the satellite transmission systems that they supposedly are intended to complement.[27] Allowing the use of terrestrial repeaters sets the stage for XM and Sirius to offer nothing more than a satellite-fed terrestrial radio service, or worse, a completely independent terrestrial service, thereby totally circumventing the Commission's stated intentions of establishing a high-tech direct broadcast satellite radio service for the U.S. listening public, that would serve different interests than the existing terrestrial radio system. We are concerned that, should the nationally-based, no-local-origination-allowed SDARS systems experience grave

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[24] Comments of NAB, IB Docket No. 95-91 and GEN Docket No. 90-357 (Feb. 22, 2000) at 3.

[25] *Written Ex-Parte Presentation* from AT&T Wireless Service, Feb. 20 2001, at 4; *see also* Letter from Karen B. Possner, Vice President-Strategic Policy, Bell South to Magalie Roman Salas, Secretary, FCC, May 18, 2001 observing that, "[o]ver time, it has become increasingly evident that XM and Sirius do not intend to rely on satellite reception any where in urban markets, but rather intend to blanket those markets with terrestrial signals from extremely high-power repeaters . . . such that terrestrial signals will be ubiquitous."

[26] For example, XM's *Request* calls for 66 repeaters above 2 kW and 34 repeaters greater than 12 kW in just the Boston Metropolitan Area.

[27] The most extreme example of this can be found in the terrestrial repeater network architecture employed by Sirius, which is fed by a VSAT network operating in the Ku-band and is (in a technical sense) totally and completely disconnected from the SDARS satellite transmission system.

business difficulties (a circumstance not uncommon for untried satellite services),[28] these service providers' fallback position will be to petition the FCC to be allowed to operate a local service on a par with the existing base of terrestrial AM and FM radio broadcasters.[29] The Commission should ensure that the satellite radio licensees' use of terrestrial repeaters does not contravene the stated purpose for the SDARS authorization , *i.e.*, the benefit of a new and unique satellite-based radio service.

V. The Satellite Radio Industry Should Not Rely on Experimental Authorizations And STAs to Deploy A Terrestrial-Based, Satellite-Supported Radio Network.

The Commission has already noted instances in which its processes "have been abused by companies attempting to establish commercial businesses under the guise of experimental licenses."[30] The *Requests* are clear and striking examples of such abuse, where the satellite radio industry is refusing to describe in full their ever-expanding terrestrial networks, networks built on experimental authorizations and STAs. And as the Commission's Rules expressly state:

> The applicant for a station in the Experimental Radio Services accepts the licensee with the express understanding: (a) that the authority to use the frequency or frequencies assigned is granted upon an experimental basis only and does not confer any right to conduct an activity of a continuing nature; and (b) that said grant is subject to change or cancellation by the Commission at any time without hearing if in its discretion the need for such action arises. 47 U.S.C. § 5.83.

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[28] *See, e.g.*, Press Release of New Eastland Study, which reveals that 80% of Americans surveyed show little interest in subscription satellite radio services, August 14, 2001, attached as Exhibit 2.

[29] "Although opponents of satellite DARS have not shown that it will have a sudden and dramatic adverse impact on terrestrial broadcasting, [the Commission] cannot entirely rule out the possibility of a major adverse impact. [The Commission] emphasize[s] that [it] remain[s] committed to supporting a vibrant and vital terrestrial radio service for the public." *NPRM* at ¶ 33.

[30] *Amendment of Part 5 of the Commission's Rules to Revise the Experimental Radio Service Regulations*, 11 FCC Rcd 20130, 20136 (1996).

Thus, it is clear that, in building-out a large terrestrial network, satellite radio licensees have contravened Commission's intent and the Commission has the authority to order the immediate shut down of terrestrial repeaters. Indeed, XM attempts to portray its latest *Request* as "critical" to its successful launch of satellite radio service operation.[31] It is relying on a large number of terrestrial repeaters, not satellite technology, to reach its subscription audience, particularly those in urban markets. Both XM and Sirius have staked their financial future on the expectation that the Commission would either grant these *Requests* and/or transform the current experimental authorizations and STAs into permanent licenses.

But the Commission must first determine that the ultimate use of terrestrial repeaters is legitimate *before* it authorizes any additional construction. XM and Sirius' financial investment is an irrelevant factor; the Court of Appeals has stated that in cases where a company not been granted a permanent license, "the [licensee] agreed and the Commission asserts *that no weight is to be given* to the investment involved in the *temporary operation* of the advantages which inhere in satisfactory interim operation for 2 to 3 years." *Community Broadcasting Co., v. FCC*, 274 F. 2d 753, 759 (D.C. Cir. 1960) (emphasis added). Further, the Court of Appeals has held that ultimately a licensee applicant "still bears the risk that it willingly accepted [in commencing operation with interim operating authority], namely that it will not finally be awarded the license." *Orion Communications Ltd. v. FCC*, 131 F.3d 176, 181 (D.C. Cir. 1997). Thus, the satellite radio licensees have no basis, or reasonable expectation that their experimental authorizations, STAs and financial investments in terrestrial repeaters are to be given any weight.

[31] XM *Request* at 1.

VI. SDARS Terrestrial Repeaters Must Be Prohibited From Transmitting Locally Originated Programming.

By now it is clear that the SDARS licensees are establishing a widespread terrestrial network, in stark contrast to the satellite networks they proposed. For, in addition to deploying a large and high-powered terrestrial repeater network, the SDARS licensees have proposed service rules which would allow local origination or insertion of locally-targeted programming. As originally proposed by the Commission, the rules governing SDARS use of terrestrial repeaters would require that the signals being transmitted by the repeater be received from the operating DARS satellites.[32] In January 2000, Sirius proposed replacing this requirement with a requirement that repeaters simply retransmit the "same programming" as the DARS satellite.[33] One year later, XM and Sirius proposed that the rules being sought by both license holders be crafted so that "[t]errestrial repeaters shall not be used to originate programming not also transmitted from authorized DARS satellites."[34]

On its face this current proposal appears to echo the SDARS pledge not to transmit locally-originated programming, a pledge which is restated in the just-filed STA *Requests*.[35] But, upon closer examination, the SDARS proposed rule *does not preclude locally originated*

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[32] *Further Notice* at ¶ 142.

[33] *See* Supplemental Comments of Sirius Satellite Radio, January 18, 2000, at Exhibit 3; *see also* Comments of NAB, Feb. 22, 2000 at 3-4.

[34] *See* Proposed Rule §25.144 (e)(1), XM's *Ex Parte Submission*, IB Docket No. 95-91, April 25, 2001 and Proposed Rule §25.144 (e)(1), Sirius' *Ex Parte Submission*, IB Docket No. 95-91, April 23, 2001, Attached as Exhibit 1.

[35] XM *Request* at 2, Sirius *Request* at 3.

material and, as such, contravenes the Commission's tentative conclusion to prohibit the use of terrestrial repeaters to transmit locally originated programming.[36]

Specifically, the satellite radio licensees' proposed language is not a prohibition on locally originated material (as it should be). Instead, it is merely a confirmation that material transmitted from terrestrial repeaters is also transmitted by the SDARS satellites. Because it is technically feasible for XM and Sirius to transmit programming coded in such a way that it would not be processed by the satellite signal portion of consumer receivers, but instead would be received and stored in memory residing within the terrestrial repeater,[37] programming could be targeted to specific repeaters and have local content. This potentially locally-originated material could then be transmitted to a consumer receiver. The following example illustrates this point:

- Local advertisements could be sent overnight on the SDARS satellite for local storage on terrestrial repeaters. The capacity for effecting this transfer could be easily obtained simply by reducing the bit rate on some of the music audio channels during this time period when there are likely to be fewer listeners.
- Throughout the following day, the locally stored ads could be sent out at specific times from the terrestrial repeaters to consumer receivers.
- Receivers could be designed to favor the signal being received from the terrestrial repeaters over that being received by the satellites, again facilitated by the fact that SDARS receivers are actually two receivers in one, ensuring that the locally-originated material reaches the listener.

Thus, the downloaded material would adhere to the "letter" of the proposed rule since it would have (at some point earlier) been transmitted over the SDARS satellite (the only requirement

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[36] *Further Notice* at ¶¶ 140-142.

[37] This capability stems from the fact that SDARS consumer receivers are in fact two receivers in one – a satellite receiver (which processes the single-carrier TDM transmission from the satellite) and a terrestrial receiver (processing the multi-carrier OFDM terrestrially-transmitted signal).

stipulated), but in fact it would be locally originated from the terrestrial repeater (similar to practice of an AM or FM station's insertion of a local advertisement over a nationally-syndicated radio feed).

The Commission has well-established rules regarding the use of repeaters and radio broadcast signals. 47 C.F.R. Part 74, Subpart L. These rules require that each radio broadcast repeater be used only to retransmit an incoming radio broadcast signal without altering any characteristics of the incoming signal other than its amplitude and, in some cases, its frequency. *See* 47 C.F.R. § 74.1201(a) and (f). Broadcast repeaters are not permitted to change the bandwidth of the incoming signal. Nor are they permitted to change the content of the incoming signal.[38] The purpose of these and other Part 74 rule provisions is to ensure that broadcast repeaters are not used for any other purpose other than the retransmission of a complete signal from the primary station.

The Commission here should ensure that SDARS terrestrial repeaters, like those employed in the terrestrial radio broadcast service, *are used only to retransmit the complete signal from the primary station, intended for the consumer satellite receivers, at the time it is transmitted.* For these satellite systems, this means that their terrestrial repeaters must be limited to the retransmission of the complete satellite signals. NAB has always maintained that SDARS

[38] There are a few very limited exceptions to this rule. Specifically, 47 C.F.R. § 74.1231(f) and (g) permit broadcast terrestrial repeaters to transmit locally originated announcements concerning emergency warning of imminent danger and requests for, or acknowledgements of, financial support. Also, 47 C.F.R. § 74.1283(c) permits a broadcast terrestrial repeater to either frequency shift or amplitude modulate the incoming carrier signal in order to transmit its call sign in International Morse Code at least once an hour. If the incoming signal contains a supplemental subcarrier, such as those commonly used at 67 kHz and 92 kHz in the FM baseband to provide services like foreign language programming, then this subcarrier must also be retransmitted. Conversely, if a subcarrier is not included in the incoming signal, one may not be added at the repeater.

terrestrial repeaters must be explicitly prohibited from transmitting *any locally* originated programming, lest SDARS become, to any extent, a terrestrial-fed network. Therefore, the Commission should carefully craft its "no local origination rule" to specify that terrestrial repeaters be used and are restricted to re-transmitting only what is currently being broadcast by the SDARS satellite, and that input to these repeaters be restricted to the SDARS satellite signal itself. No other input, backup or otherwise, should be allowed, in order to insure the complementary nature of the terrestrial component.[39]

NAB asks that the Commission adopt its rules as now proposed in this regard and reaffirm its original intention in this rulemaking – the establishment of a satellite-only radio service – using the only means now left for it to do so, namely, requiring that these terrestrial repeaters be *fed* from the same satellite signal which is used by the receivers themselves and *expressly prohibiting* all other means of signal delivery to said repeaters. The Commission should also set a reasonable cap as to the amount and type of terrestrial repeaters the SDARS licensees can deploy. Finally, the Commission should license each repeater, or alternatively, require strict record keeping on each repeater installation. This is the *only* way the Commission can prevent this technology from being what it was never intended to be, a terrestrial digital radio network.[40]

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[39] Therefore, if, in the future SDARS satellites were to fail, or, alternatively the SDARS service ceases operation, the terrestrial repeaters could not be transformed into a terrestrial radio service.

[40] The Commission states, *Further Notice, supra,* at ¶ 142, that it "must determine how to ensure any use of terrestrial repeaters is complementary to the DARS service and is only for retransmission of signals received from the satellite." Given the highly problematic task of the Commission's physically verifying that every repeater is being fed only from an authorized satellite, the Commission's rules must *explicitly* require such operation, as the Commission here proposes.

VII. Conclusion.

For the reasons stated above, NAB XM and Sirius' request for STA to operate terrestrial repeaters be denied.

Respectfully Submitted,

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Exhibit 1

(Excerpt from Part 25 rules changes proposed by XM and Sirius)

§25.144 Licensing provisions for the 2.3 GHz satellite digital audio radio service
* * * * *
(e)(1) Licensing of satellite DARS terrestrial repeaters. Satellite DARS licensees may construct and operate ground-based transmitters with a total EIRP of each transmitter not exceeding 40 kW in the frequency assignment of the licensee ("terrestrial repeaters"). Terrestrial repeaters shall not be used to originate programming not also transmitted from authorized DARS satellites. Any medium or high power repeater must be operated so that the amplitude of the repeater's main signal within the spectrum assigned to the licensee, measured anywhere between ground level and 30 above ground level, shall not exceed 25 dBm per 1 MHz, using a calibrated field measurement set to 1 MHz intervals.

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Exhibit 2

August 14, 2001
For Immediate Release
Contact: Mike Gould (877-886-3320)

NEW EASTLAN STUDY REVEALS 80% OF AMERICANS HAVE LITTLE INTEREST IN SATELLITE RADIO.

(Wenatchee, WA)-Satellite radio's impact on commercial broadcasters may be minimal according to new research released today by the media research firm, Eastlan Resources.

The Eastlan study was conducted during the period of March 22-May 16, 2001. A sample of 4,851 Americans (12 years or older) were asked if they would be interested in purchasing a new satellite delivered radio service that offered dozens of commercial-free radio channels for a monthly fee of around $10.00.

Men expressed slightly more interest than women in satellite radio as 21.5% of male sample and 19.1% of women indicated a propensity toward purchasing satellite radio.

The actual market penetration of satellite radio may be much lower says Eastlan Vice President/Research Bert Hambleton. "A four-fold differential between propensity to purchase and actual likelihood of trial is typical of new hi-tech products. Additionally, our study did not suggest any cost of entry. The cost of a new receiver may also negatively effect the penetration of satellite radio." Hambleton adds, "at the bottom line, at this point. our study would suggest satellite radio's market penetration potential to be around 5%."

Eastlan expects to release additional data from this study in the next 30 days. Household income and specific demographic breakouts are currently being tabulated.

Eastlan Resources is privately held media-research firm headquartered in Wenatchee, Washington with offices in Issaquah, Washington (Seattle) and Sisters, Oregon (Portland). Eastlan provides radio audience measurement data to over 225 subscribing radio stations in more than 60 markets across the United States.