

**ORIGINAL**

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of

Establishment of Rules and Policies  
for the Digital Audio Radio Satellite  
Service in the 2310-2360 MHz  
Frequency Band

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) IB Docket No. 95-91 /  
) GEN Docket No. 90-357  
) RM No. 8610  
) PP-24  
) PP-86  
) PP-87

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JUN 27 1997

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**Reply Comments of the  
National Association of Broadcasters**

The National Association of Broadcasters ("NAB")<sup>1</sup> hereby submits brief reply comments on the issue of the authorization of terrestrial repeaters for use in the SDARS service.

**I. Comments Filed In This Proceeding Support NAB's Contention That the Record Is Not Ripe For Authorizing SDARS Terrestrial Repeaters.**

NAB, in initial comments, pointed out that insufficient technical information exists regarding the proposed use of terrestrial repeaters with the SDARS system on which to base authorization or rules for the use of such repeaters. Other initial comments support this conclusion.<sup>2</sup> NAB again submits that, until additional detailed technical information is provided, and commented upon, the FCC cannot consider authorization of SDARS terrestrial repeaters.

<sup>1</sup> NAB is a nonprofit incorporated association of broadcast stations and networks. NAB serves and represents the American broadcasting industry.

<sup>2</sup> Comments of Alabama Broadcasters Association, IB Docket No. 95-91, June 13 1997; Comments of Mt. Wilson FM Broadcasters, Inc. on Further Notice of Proposed Rulmaking, IB Docket No. 95-91, June 13, 1997; Comments of Susouehanna Radio Corp., IB Docket No. 95-91, June 13, 1997.

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Supporting NAB's contention is a comment of one of the applicants, AMRC, where it states that:

AMRC has not yet determined the actual number of terrestrial repeaters that it will deploy. That number depends on several factors, including the final satellite system design, *the result of frequency-specific propagation studies that have not been completed*, and studies of the significance of blocking and of interference generated by various terrestrial sources ....<sup>3</sup>

The studies referred to here by AMRC belong in the record of this proceeding and should be made available to the Commission and other interested parties before any decisions regarding the use of terrestrial repeaters are reached. Clearly, information of this sort is necessary and will have a profound influence upon the rulemaking process.

NAB also calls the Commission's attention to the comments of the other applicant, Satellite CD Radio, and of CEMA, whose contradictory claims on the number of terrestrial repeaters required for the SDARS service serve to reinforce the need for further detailed technical information. CEMA's claims, if true, that an extensive network of terrestrial repeaters is necessary not only beg for a more complete technical record, but more alarmingly call into question the very nature of the SDARS service being proposed by the applicants.

CD Radio states that it "envision[s] using only a relatively *limited number* of repeaters located in difficult propagation environments, primarily in core urban areas."<sup>4</sup> On the other hand, CEMA indicates in its comments that, based upon the results of an independent technical

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<sup>3</sup> Comments of American Mobile Radio Corporation, IB Docket No. 95-91, June 13, 1997, at 3 (emphasis added).

<sup>4</sup> Comments of CD Radio, IB Docket No. 95-91, June 13, 1997, at 4 (emphasis added).

evaluation which they have sponsored,<sup>5</sup> "the deployment of a *significant number* of terrestrial gap-fillers is necessary if S-band DARS systems are to realistically provide reasonable service to either urban or mobile users."<sup>6</sup>

These two diametrically-opposed claims cannot be resolved based upon the technical information currently available. CD Radio provides no supporting evidence to their claim whatsoever, and CEMA's technical justification, while seemingly authoritative, is in fact inappropriately applied to the current applicants' systems, as will be elaborated upon below, and must be called into question.

Furthermore, if CEMA's information is for the moment presumed valid, then the conclusion to be reached goes far beyond its call for an extensive network of repeaters. Its arguments actually suggest that the SDARS service is reliant upon the terrestrial component to such a degree that it is, in fact a terrestrial service and not a satellite service. If the Commission gives credence to CEMA's claims, NAB challenges not just the concept of terrestrial repeater networks, but the very licensing of these applicants as SDARS service providers.

## **II. CEMA's Technical Analysis, As Presented In Its Comments, Is Inappropriately Applied To the Systems Proposed By the SDARS Applicants.**

NAB takes exception to many of the claims made by CEMA in its comments, which are meant to provide a technical basis for its request that the Commission "adopt rules governing ... the build-out of terrestrial gap-fillers."<sup>7</sup> In support of its request, CEMA proffers statements

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<sup>5</sup> Analysis of the technical merits of terrestrial gap-fillers supplementing DAR satellite broadcasting in the L-band and S-band frequency range, Communications Research Centre, Ottawa, Ontario CANADA, May 21, 1997 ("CRC Study"). This report is included with CEMA's comments as Exhibit 1.

<sup>6</sup> Comments of the Consumer Electronics Manufacturers Association, IB Docket No. 95-91, June 13, 1997 (CEMA Comments), at 3 (emphasis added).

<sup>7</sup> Id. at 2.

unsupported by fact and relies as well upon a technical study which, by and large, is not applicable to the systems being put forth by the applicants.

First, CEMA refers to the VOA-JPL satellite system test results obtained during the EIA DAR Subcommittee field tests, noting that "[o]n some routes, particularly segments in the downtown areas, the signal blockage caused by terrain, buildings, and other structures resulted in more than 90% system failures."<sup>8</sup> It goes on to say that "[t]hese system outages could be improved only marginally by a higher elevation angle, higher power and/or diversity satellite transmitters,"<sup>9</sup> a conclusion which is totally unsupported by any fact or reference.

To the contrary, the systems being put forth by the SDARS applicants, which incorporate not only space and frequency diversity but time diversity as well and which are optimally placed within the orbital arc for CONUS coverage, are likely to far outperform the VOA-JPL system which consisted of a single satellite at an extremely low, 23° elevation angle and which did not incorporate any diversity aspect at all. For CEMA to use these results as a benchmark for the systems under consideration here is wholly inappropriate.

Next, CEMA proceeds to quote from the CRC study in support of their request for requirements on gap-filler build-out -- but the fact of the matter is that much of this CRC evidence is not applicable to the applicants' systems at all. For instance, CEMA points out that

[t]he CRC report ...demonstrates that satellite coverage can be transparently supplemented with gap-fillers without interference, but only through the careful and elegant tailoring of the gap-filler's coverage and *through the finely tuned use of guard-interval duration.*"<sup>10</sup>

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<sup>8</sup> Id. at 4.

<sup>9</sup> Id.

<sup>10</sup> Id. at 5 (emphasis added).

This conclusion, presented as though it applies to the applicants systems, is actually based upon analysis of the Eureka-147 system which utilizes guard intervals as part of its waveform design. Neither of the applicants' systems is based upon the Eureka method of DAB, nor do the applicants' systems utilize guard intervals in their waveforms, and consequently this remark is not germane here.<sup>11</sup>

On the other hand, upon examination of the remarks contained within the CRC study which *do* pertain to the applicants systems, it becomes perfectly clear why this study, while of high quality and technically illuminating in general, does not serve to contribute to the technical record regarding the systems actually being considered. Spread spectrum systems, such as the one CD Radio is proposing, are specifically excluded from the CRC analysis.<sup>12</sup> And, the conclusions reached in the CRC study regarding wideband SCPC systems<sup>13</sup> not supporting on-channel gap fillers<sup>14</sup> are inapt since AMRC is not proposing on-channel gap fillers, but rather has proposed dedicating 20% of its spectrum solely for terrestrial re-transmission of its signal, presumably because they are cognizant of the technical considerations raised by the CRC report in this regard.

### **III. Conclusion**

NAB, for the foregoing reasons, therefore repeats its request that the FCC not proceed with consideration of terrestrial gap fillers for SDARS until it has received adequate technical

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<sup>11</sup> Similarly, numerous references to the differences between L-band and S-band SDARS systems are made both in CEMA's comments and in the CRC study. NAB fails to see the relevance of such remarks to the instant proceeding.

<sup>12</sup> CRC Study at 40.

<sup>13</sup> The AMRC system falls within this classification; in fact, the example of a wideband SCPC system used in the CRC report is that of WorldSpace, and the AMRC system is essentially modeled after the Worldspace system.

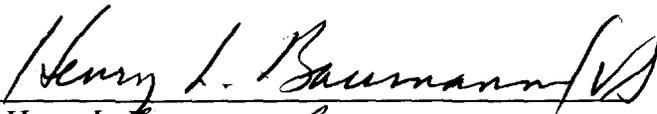
<sup>14</sup> CEMA Comments 4 at 8.

information. Such information is critical not only to consider gap filler rules, but to enable commenters and the FCC alike to examine the true nature of this proposed "satellite" service, which, as NAB has here suggested, may be something quite different from what the FCC, the commenters and the public have heretofore believed. That is, should examination of the missing technical information reveal that, in fact, DARS does require significant numbers of repeaters, NAB, and, we suspect, many others, would vociferously object to the establishment of a what would amount to a new terrestrial radio service. Such a service, NAB maintains, flies in the face of the satellite DARS allocation and the FCC's expectations and notice in this regard.

Respectfully submitted,

NATIONAL ASSOCIATION OF  
BROADCASTERS

1771 N Street, N.W.  
Washington, D.C. 20036  
(202)429-5430



Henry L. Baumann



Valerie Schulte

David H. Layer  
Senior Engineer

June 27, 1997