

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

RECEIVED
MAR 27 1997
Federal Communications Commission
Office of Secretary

In the Matter of)	IB Docket No. 95-91
)	GEN Docket No. 90-357
Establishment of Rules and Policies for the)	RM No. 8610
Digital Audio Radio Satellite Service in the)	PP-24
2310 - 2360 MHz Frequency Band)	PP-86
)	PP-87

PETITION FOR RECONSIDERATION

I. INTRODUCTION AND STATEMENT OF INTEREST

The Consumer Electronics Manufacturers Association ("CEMA"),¹ a sector of the Electronic Industries Association ("EIA"), through undersigned counsel and pursuant to Section 1.429 of the Rules of the Federal Communications Commission ("Commission" or "FCC"), respectfully seeks reconsideration of the *Report and Order* issued in the above-captioned matter on March 3, 1997.² Specifically, CEMA requests that the Commission impose reasonable -- yet necessary -- coverage, performance, and build-out requirements on satellite Digital Audio Radio Service ("DARS") licensees.³ Although CEMA shares the Commission's vision of a satellite DARS that will enable "motorists on the highways of America to tune into one of many satellite DARS channels offering a

¹ CEMA represents the consumer electronics industry including manufacturers of radios, televisions, and compact disk players and digital and analog recorders. Accordingly, CEMA's membership includes most major manufacturers of consumer electronics products as well as smaller companies that design, produce, distribute and service consumer electronics products.

² See 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 Notice of Proposed Rulemaking*, IB Docket No. 95-91, GEN Docket No. 90-357, RM No. 8610, PP-24, PP-86, PP-87 (released March 3, 1997) (hereinafter "*Report and Order*").

³ See 47 U.S.C. § 309(j)(3)(A)-(D) (1996).

No. of Copies rec'd 0+9
List ABCDE

particular format without interruption or fading as they travel across the United States.”^{4/} CEMA’s test data regarding the suitability of the S-band for satellite DARS portends a far less promising result. CEMA believes that these license conditions are necessary to fulfill the Commission’s obligations under Section 309(j) of the Communications Act “to . . . promote . . . the development and rapid deployment of new technologies, products, and services for the benefit of the public,” as well as to ensure the “efficient and intensive use of the electromagnetic spectrum,” and otherwise hold the applicants to their promise of a superior quality, seamless, mass market, satellite DARS service.^{5/} These requirements were noticeably lacking from the Commission’s initial *Report and Order*, yet similar requirements have been routinely imposed upon other communications services.^{6/}

As discussed below, CEMA strongly believes that reasonable coverage, quality and build-out requirements will provide critical economic incentives necessary to ensure that the applicants begin work, in earnest, to overcome the tremendous technical hurdles they face in implementing a truly robust and successful satellite DARS service in mobile and urban environments at the chosen spectrum location. Without these conditions, CEMA fears that it may be years, perhaps decades, before the Commission and U.S. consumers will have an opportunity to assess the success -- or lack thereof -- of the current DARS proposals.

^{4/} *Report and Order* at ¶1.

^{5/} 47 U.S.C. § 309(j)(3).

^{6/} *See, e.g.*, 47 C.F.R. § 24.203 (1996) (imposing various service and construction requirements on PCS licensees).

II. DISCUSSION

As outlined in its earlier filings in the above-captioned proceeding, CEMA has serious concerns regarding the technical viability of satellite DARS in the S-band (2310-2360 MHz).² CEMA's extensive testing has revealed that the provision of satellite DARS in the S-band suffers from, among other things:

- signal blockage rates in excess of 90%;
- signal reacquisition times in excess of the threshold of consumer acceptance; and
- inherently unfavorable propagation characteristics that will require hundreds, perhaps thousands of "gap filling" terrestrial transmitters in order to provide seamless metropolitan coverage to mobile and stationary receivers.

Based upon these results, CEMA believes that S-band propagation characteristics will likely render satellite delivered DARS a limited service receivable only on stationary receivers located in relatively small, unobstructed fractions of the rural countryside. Accordingly, CEMA urged the Commission to consider spectrum other than the S-band for satellite DARS.

Other parties in the Commission's Wireless Communications Service ("WCS") proceeding have separately raised concerns regarding the detrimental effects of an S-band allocation for satellite DARS upon the WCS band.³ For example, DigiVox Corporation and the PACS Providers Forum

² See *Ex Parte* Submission entitled the Consumer Electronics Manufacturers Association Vision for Digital Audio Radio Services (filed January 30, 1997) (attached hereto as Exhibit 1); See also, *Ex Parte* filing entitled Report of the Field Test Task Group; Field Test Data Presentation (filed January 30, 1997); Letter of Gary Shapiro, President CEMA, to Julius Genachowski (filed February 4, 1997) (attached hereto as Exhibit 2).

³ Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS"), *Report and Order*, GN Docket No. 96-228 (released Feb 19, 1997).

("PPF") have found that the allocation of S-band spectrum for satellite DARS, and, in particular, the out-of-band emission limits imposed on the WCS for the supposed protection of satellite DARS licensees, will significantly impair the ability of licensees to utilize the WCS for mobile applications.⁹ As a result, WCS spectrum may be relegated for use by a limited number of licensees offering niche, fixed wireless services. Accordingly, it is anticipated that the WCS auction will raise far less for the U.S. Treasury than originally expected.

Despite these concerns, the Commission has chosen to move forward with satellite DARS in the S-band. According to the Commission, "the FCC cannot prove or disprove [satellite DARS'] viability. Only the marketplace can make this determination."¹⁰ Nevertheless, despite the enthusiasm of Wall Street, the Commission is entrusted with a fiduciary responsibility to ensure that the performance, coverage and quality of the licenced radio service meets the public's expectations.¹¹ The Commission has expended tremendous resources and wagered the unrealized potential of the WCS band on the ultimate and overwhelming success of satellite DARS. In light of the troubling limits placed on the WCS in order to preserve DARS, without a doubt the worst possible scenario would be for the Commission to allow satellite DARS spectrum to lie fallow, or otherwise permit inefficient and limited use of this valuable spectrum to provide limited radio services only to fixed receivers located in unobstructed rural areas.

⁹ See *Ex Parte* filing of Digivox, GN Docket No. 96-228 (filed February 11, 1997) (expressing additional concerns regarding the viability of satellite DARS at S-band). See also, Petition for Expedited Reconsideration of PACS Providers Forum and Digivox Corporation, GN Docket 96-228 (filed March 14, 1997).

¹⁰ Report and Order at ¶ 37.

¹¹ See, e.g. 47 U.S.C. § 309(j) (1996).

In this regard, CEMA urges the Commission to take additional affirmative steps to ensure that the satellite DARS applicants fulfill their promise to provide seamless coverage to the vast majority of urban and mobile users. Indeed, in light of the requirements of Section 309(j) of Communications Act, the Commission's own uncertainty regarding the viability of satellite DARS at this spectrum location, as well as the significant technical concerns raised by CEMA and others -- the Commission is under a clear and compelling obligation to adopt reasonable performance, coverage, and build-out milestones such as those outlined below.

As of this date, the Commission has imposed only limited satellite construction milestones on the DARS licensees. Specifically, the *Report and Order* requires: that the DARS licensees begin construction of their satellites within one year of license, that they launch and begin operating their first satellite within four years, and begin operating their entire system within six years. Licenses will expire eight years following the launch of the licensees' satellite.^{12/} Unfortunately, these requirements alone are woefully inadequate to ensure that acceptable service is provided, not only to fixed receivers in unobstructed rural locations, but also to urban locations and mobile receivers.

In numerous other contexts, the Commission has recognized that construction, coverage and service requirements are essential to ensure that service "is made available to as many communities as possible;" to "promote efficient use of spectrum;" to "encourage the provision of service to rural, remote and insular areas" and to "prevent the warehousing of spectrum."^{13/} Although the Commission

^{12/} *Report and Order* at ¶¶ 110-11.

^{13/} See, e.g., Amendment of the Commission's Rules to Establish New Personal Communications Services, *Memorandum Opinion and Order*, GEN Docket No. 90-314 at ¶154 (released June 13, 1994) (hereinafter "*PCS Licensing Order*"). See also Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29-30 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint

has imposed greater or less restrictive requirements, depending upon the service -- several factors suggest that more stringent requirements are required in this instance.

As an initial matter, unlike with PCS, WCS and LMDS, participation in the satellite DARS auction will be limited only to four applicants. Although the Commission has relied in part upon the competitive bidding process to create natural economic pressures upon licensees to complete rapid build-out, provide adequate service and coverage, and limit the likelihood that spectrum will be warehoused, the bidding process for satellite DARS -- if in fact it can be categorized as such -- will be limited to, at most, four preexisting parties.^{14/} As compared with PCS, WCS and LMDS, there is no assurance that the bidding process for satellite DARS licences will provide sufficient pressure to increase the likelihood licensees will ultimately provision their service to a majority of Americans, including those in mobile and urban locations.

In addition, unlike with WCS and LMDS where the Commission imposed more liberal construction requirements, the provision of satellite DARS is a clearly defined service for which

Distribution Service and for Fixed Satellite Services, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking*, CC Docket 93-297 at ¶226 (released March 13, 1997) (hereinafter "*LMDS Licensing Order*").

^{14/} See *PCS Licensing Order* at ¶154. Section 309(j) of the Communications Act authorizes competitive bidding only in the event of mutually exclusive license applications. The formation of a consortium of DARS applicants, for example, could prevent mutual exclusivity and preclude competitive bidding.

each of the applicants has had substantial lead time developing transmission standards, equipment, and in some cases, actual satellite transmitters.^{15/} Indeed, unlike with WCS and LMDS, each of the prospective DARS licensees has maintained its ability to provide seamless, uninterrupted, CD quality radio coverage to urban, rural, fixed and mobile listeners.

In light of the requirements of Section 309(j) of the Communications Act, the assertions of the prospective DARS licensees, the technical concerns raised by CEMA and others, as well as the unique facts surrounding the satellite DARS competitive bidding process, CEMA maintains that the Commission is obligated to adopt more comprehensive build-out, coverage, and performance milestones. Consistent with such obligations, CEMA recommends that the construction and performance requirements be, at a minimum, at least as restrictive as those imposed upon 30 MHz broadband PCS licensees.

Under such requirements, satellite DARS licensees would be obligated to provide substantial service to at least one-third of the population in their service area within five years of being licensed and two-thirds of the population in the service area within 10 years of license.^{16/} Substantial service should be defined as service which provides continuous, uninterrupted CD-quality sound to both mobile and fixed receivers in urban and rural environments.^{17/} As is the case with broadband PCS licensees, satellite DARS licensees that are unable to satisfy these requirements would forfeit their license.

^{15/} Compare *LMDS Licensing Order* at ¶ 266.

^{16/} See 47 C.F.R. § 24.203(a) (1996).

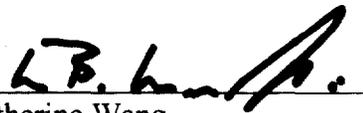
^{17/} Compare 47 C.F.R. § 22.940(a)(1)(i) (1996).

The imposition of construction, build-out and performance milestones such as these are critical to the ultimate success of satellite DARS.

CONCLUSION

For the foregoing reasons, CEMA urges the FCC to reconsider its initial *Report and Order* in the above-captioned proceeding, and impose the suggested coverage, performance, and build-out requirements on the provision of satellite DARS service.

Respectfully submitted,



Catherine Wang
William B. Wilhelm, Jr.
Swidler & Berlin, Chartered
3000 K Street, N.W., Suite 300
Washington, D.C. 20007
(202) 424-7500 (tel)
(202) 424-7645 (fax)

Dated: March 27, 1997

EXHIBIT 1

**THE CONSUMER ELECTRONICS MANUFACTURERS ASSOCIATION
VISION FOR DIGITAL AUDIO RADIO SERVICES**

BACKGROUND: After almost 10 years of review, the Federal Communications Commission has endorsed the introduction of digital audio radio ("DAR") service so that American consumers can enjoy seamless, nationwide, CD quality sound over the radio.

The FCC is currently considering the best technology for making DAR available in the United States. **CEMA has been tasked with the responsibility of providing technical expertise for evaluating DAR technologies.**

DAR will provide listeners, not only the fidelity that they have come to expect from CDs, but also with real-time ancillary data services including: weather, news, traffic, emergency and other advanced services that are not available through the use of current analog broadcasting technology. In the face of declining listenership, DAR will provide a powerful opportunity to compete with other advanced digital transmission technologies available to cable providers, Internet providers, and now, television broadcasters.

THE FCC SHOULD NOT AUCTION DAR LICENSES AT S-BAND

CEMA'S VIEW: DAR cannot be successfully provided at S-Band or on existing frequencies using IBOC/IBAC methods. The Commission must immediately reconsider its proposal to use S-Band spectrum for purposes of providing DAR within the US.

CEMA'S TESTS: CEMA, in conjunction with NASA, has performed extensive technical testing of multiple transmission technologies, including S-Band, L-Band, IBOC and IBAC over the course of the past few years. *CEMA's goal was to conduct an open and impartial evaluation of these technologies* and choose the system that will satisfy realistic performance requirements in order to ensure broad consumer acceptance and the rapid growth of DAR within the US. *CEMA and others have continually urged the Commission to not preclude any options, including spectrum options, until the technical facts on DAR system performance were established by this testing initiative.*

S-BAND DEFICIENCIES:

The FCC has allocated S-Band DAR frequencies. CEMA and FCC panel testing show, however, that the innate propagation characteristics of S-Band prove unacceptable for the provision of commercially viable DAR service. CEMA's extensive battery of testing reveals that:

- ***S-Band operations suffer from a significant and startling level of signal blockage*** by buildings and foliage. In major urban areas, S-Band system failure rate exceeded 90%. Overall system performance is unsuitable for commercial applications;
- ***Signal reacquisition times in excess of 1 second likely exceed a maximum threshold of consumer acceptance.*** The S-Band VOA/JPL system universally failed to satisfy this criteria;
- The propagation characteristic of ***S-Band frequencies will require hundreds, perhaps thousands, of "gap filling" transmitters*** for a single metropolitan market, as well as other costly remedial solutions in order to achieve seamless coverage;
- As a practical matter, S-Band DAR systems provide ***unacceptable service quality***, and as such have no likelihood for nationwide commercial acceptance. Similar conclusions were reached by the independent panel investigating the satellite DAR applicants' pioneer preference applications.

**CONCURRENCE WITH
PIONEER'S
PREFERENCE
REPORT:**

CEMA's findings concerning use of the S-Band are consistent with the FCC's own DAR Pioneer Preference Panel findings that the proposed DAR S-Band services would require substantial terrestrial buildout in order to be viable as a seamless service.

ADDITIONAL CEMA TEST FINDINGS

IBOC/IBAC DEFICIENCIES

- ***IBOC systems failed to meet fundamental performance criteria, including: audio quality, non-interference, and digital coverage.*** Accordingly, CEMA found IBOC to be categorically unacceptable.
- ***Implementing the IBAC system tested by CEMA relies on spectrum vacancies that are not available.*** Further, coverage is limited by interference from existing stations and therefore has limited potential to be successfully implemented and cannot be recommended.

* * * *

CONCLUSION: CEMA recommends immediate FCC consideration of other spectrum options such as L-Band (1452-1492 MHz), UHF or VHF.

THE FCC MUST LOCATE OTHER, MORE APPROPRIATE DAR SPECTRUM

Because CEMA's testing conclusively finds that S-Band is unsuitable for purposes of DAR. CEMA urges the FCC to consider use of alternative spectrum, including L-Band, UHF and VHF.

**FACTORS FOR
CONSIDERATION:**

In evaluating alternative spectrum allocations, the FCC should consider reallocation of spectrum that will provide DAR with:

- ***Superior audio quality;***
- ***Immunity to interference;***
- ***Robust transmission and recovery characteristics;***
- Significant potential for ***ancillary data capacity*** and services;
- Substantial likelihood of meeting and ***exceeding customer expectations for DAR.***
- ***Compatibility*** with other worldwide DAR systems.

EXHIBIT 2



Consumer Electronics Manufacturers Association
 A sector of the Electronic Industries Association
 2500 Wilson Boulevard ■ Arlington, Virginia 22201-3834 USA
 Tel 703.907-7600 ■ Fax 703.907-7601

February 4, 1997

Mr. Julius Genachowski
 Legal Counsel
 Office of the Chairman
 Federal Communications Commission
 1919 M Street NW
 Washington, DC 20554

RECEIVED
FEB 5 1997
 FEDERAL COMMUNICATIONS COMMISSION
 OFFICE OF GENERAL COUNSEL

Re: Allocation of the S-Band Spectrum for DAR Service; IB Docket No. 95-91;
 GEN Docket 90-357

Dear Mr. ^{Shuss}Genachowski:

Thank you for meeting with us on Wednesday to discuss the Commission's proposed allocation of the S-Band spectrum for DAR service, and allowing us to provide you with data from our recent testing of DAR transmission technologies.

We believe that our tests have documented significant technical problems with the use of the S-Band for DAR, and we encourage the Commission to investigate the allocation of alternative spectrum that may be more suitable. At the same time, we recognize that prospective DAR license auction participants hold a different technical opinion as to the suitability of S-Band for digital radio service.

CEMA's overriding interest in this matter is to ensure that DAR, when introduced, is capable of providing a seamless national service that can be received in urban and rural areas in both mobile and stationary environments. If not, the great promise of DAR will be squandered on a limited-use service receivable only on stationary receivers by the small fraction of the public located in unobstructed regions of the country.

Therefore, should the proposed auction of S-Band DAR licenses proceed, we request that the Commission define a set of specific requirements for DAR service implementation.

Specifically, we suggest that in addition to the satellite construction and launch milestones recommended by the Commission, each license be subject to additional buildout and service conditions. CEMA recommends that these license conditions should include: (i) a requirement that a DAR licensee be offering quality, seamless digital radio coverage to a significant percentage of the stationary and mobile radio receivers within the top 100 metropolitan markets within five years of the license grant; and (ii) a requirement that DAR licensees demonstrate to the Commission that they are successfully providing seamless quality DAR to mobile users. Only

Mr. Genachowski
February 4, 1997
Page 2

such requirements ensure that the American public is not denied full benefit of DAR, and that DAR assumes its rightful place in this nation's communications structure.

In addition, CEMA is poised to undertake for a comprehensive analysis of the comparative technical merits of the candidate frequency bands (2310-2360 MHz, 1710-1755 MHz and 1452-1492 MHz) by an unaffiliated, third-party research organization. We are prepared to go forward should the Commission believe such data would be of assistance prior to making a determination concerning DAR allocation. The results of this analysis could be ready in as little as eight weeks

Please do not hesitate to contact us if we can provide you with any further information.

Sincerely,



Gary Shapiro
President

CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of March, 1997, copies of the foregoing Petition for Reconsideration of the Consumer Electronics Manufacturers Association were delivered via courier or sent First-Class Mail, U.S. postage prepaid, to the persons on the attached list.

A handwritten signature in cursive script, appearing to read "Cathy Sampson", is written above a solid horizontal line.

Cathy Sampson

* Robert Briskman, President
Satellite CD Radio
1001 22nd Street, N.W., 6th Floor
Washington, D.C. 20037

* Guy Christiansen, Esq.
Leslie Taylor & Associates
6800 Carlynn Court
Bethesda, Maryland 20817
Counsel for Primosphere

* Lon Levin, Vice President
American Mobile Radio Corp.
10802 Parkridge Boulevard
Reston, Virginia 20191

Rudolfo Baca
Federal Communications Commission
1919 M Street, Room 802
Washington, D.C. 20554

Richard Engelman
Federal Communications Commission
2000 M Street, Room 230
Washington, D.C. 20554

Don Gips
Federal Communications Commission
2000 M Street, Room 827
Washington, D.C. 20554

Steve Sharkey
Federal Communications Commission
2000 M Street, Room 512
Washington, D.C. 20554

Thomas Stanley
Federal Communications Commission
2025 M Street, Room 5002
Washington, D.C. 20554

International Transcription Service
1919 M Street, N.W.
Room 146
Washington, D.C. 20036

* Via First-Class Mail

* Richard E. Wiley, Esq.
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006

* Mr. Doug Minster
V.P. Corporate Development
Digital Satellite Broadcast Corp.
1667 K Street, N.W., Suite 801
Washington, D.C. 20006

John Prawat
Digivox Corporation
1250 24th Street, N.W., Suite 300
Washington, D.C. 20037

Rosalee Chiara
Federal Communications Commission
2000 M Street, Room 516
Washington, D.C. 20554

Michelle Farquhar
Federal Communications Commission
2025 M Street, Room 5002
Washington, D.C. 20554

Jane Mago
Federal Communications Commission
1919 M Street, Room 844
Washington, D.C. 20554

David Siddall
Federal Communications Commission
1919 M Street, Room 832
Washington, D.C. 20554

John Stern
Federal Communications Commission
2000 M Street, Room 819-A
Washington, D.C. 20554

* Arter & Hadden
Howard Liberman, Esq.
1801 K Street, N.W.
Washington, D.C. 20006
Counsel for Primosphere

* Diane Hinson, Esq.
Morrison & Forester
2000 Pennsylvania Ave., Suite 5500
Washington, D.C. 20006

James F. Rogers
John G. Holland
Latham & Watkins
1001 Pennsylvania Avenue, N.W. #1300
Washington, D.C. 20004
PACS Providers Forum
Jonathan Cohen
Federal Communications Commission
2025 M Street, 5th Floor
Washington, D.C. 20554

Julius Genachowski
Federal Communications Commission
1919 M Street, Room 814
Washington, D.C. 20554

Ruth Milkman
Federal Communications Commission
2000 M Street, Room 821
Washington, D.C. 20554

Richard M. Smith
Federal Communications Commission
2000 M Street, Room 412
Washington, D.C. 20554

John Williams
Federal Communications Commission
1919 M Street, Room 822
Washington, D.C. 20554