August 23, 1995

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

DOCKET FILE COPY ORIGINAL

Dear Mr. Caton:

Yesterday, we filed a document in Dkt. 95-91 and inadvertently failed to attach the enclosure. We are therefore enclosing an original and five copies of the attachment for you to place on the document. A copy of what was filed yesterday is also enclosed in order for you to identify the correct document.

Thank you.

IEEE/USA

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IEEE

UNITED STATES ACTIVITIES

Promoting Career and Technology Policy Interests of Electrical, Electronics and Computer Engineers

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United States Activities Board

Member Services Council
Awards & Recognition
Communications
Consultants' Networks Coordinating Committee
Employment Assistance
State Government Activities
Surveys

Career Policy Council
Career Equality
Career Maintenance & Development
Engineering Employment Benefits
Intellectual Property
Licensure & Registration
Precollege Education
Student Professional Awareness
Work Force

Technology Policy Council
Aerospace Policy
Communications & Information Policy
Energy Policy
Medical Technology Policy
Research & Development Policy
U.S. Competitiveness Policy

Government Fellowships

Network of Professional Activities Committees for Engineers

August 9, 1995

Mr. William Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, D.C. 20554

Dear Mr. Caton:

The Institute of Electrical and Electronics Engineers - United States Activities (IEEE-USA) respectfully supports the licensing of service providers of satellite-Digital Audio Radio Services (DARS) in the recently allocated 2310-2360 MHz band. This is consistent with our previous submission dated January 28, 1993, "*In the matter of Amendment of the Commission's rules with regard to the Establishment and Regulation of New Digital Audio Radio Services*" (GEN Docket No. 90-357), with respect to the allocation of this spectrum. We also enclose a copy of our original submission in that matter, for your reference.

If there are any questions, please contact Deborah Rudolph at the IEEE-USA Washington Office at (202) 785-0017.

Sincerely,

Joel B. Snyder, P.E.
Vice President - Professional Activities
and
Chairman, United States Activities Board

enc.

◆ The Institute of Electrical and Electronics Engineers, Inc. ◆ IEEE-USA, 1828 L Street, N.W., Suite 1202, Washington, DC 20036-5104 ◆
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IEEE

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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

COMMENTS OF
THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS-UNITED STATES ACTIVITIES

The Institute of Electrical and Electronics Engineers, Inc. - United States Activities (IEEE-USA) respectfully submits these comments in response to the Federal Communications Commission's (Commission) above captioned Notice of Proposed Rule Making and Further Noticed Inquiry (NPRM/NOI). In this phase of the proceeding the Commission proposes to allocate spectrum domestically for satellite-Digital Audio Radio Services (DARS). IEEE-USA is in favor of the adoption of the proposed frequencies for DARS. IEEE-USA also supports efforts to afford incumbent broadcasters an opportunity to fully participate in DARS.

I. Introduction

This statement was developed by the Committee on Communications and Information Policy of the United States Activities Board (USAB) of the Institute of Electrical and Electronics Engineers (IEEE) and represents the considered judgment of a group of U.S. IEEE members with expertise in the subject field. The United States Activities Board promotes the career and technology policy interests of the 250,000 electrical, electronics and computer engineers who are U.S. members of the IEEE.

IEEE-USA is interested in the development of technologies and their effect on the technology base of the United States. Due to these two interests IEEE-USA is commenting on the NPRM and commends the Commission for investigating the impact of DARS. IEEE-USA will address the following areas from the NPRM: frequency allocation and technical feasibility, U.S. technology and industry, and consumer demand and benefit.

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II. Frequency Allocation and Technical Feasibility

The NPRM proposed to allocate 2310-2360 MHz for satellite-DARS. This allocation is consistent with the U.S. position adopted at WARC-92 for BSS (sound). IEEE-USA agrees with the Commission that this proposed allocation is technically feasible for digital audio transmission and further posits that technologies for satellite-DARS are presently available.

Developments in digital coding and modulation have made the transmission of digital audio commonplace. Several commercial entities are engaged in the routine transmission of digital audio via satellite both nationally and internationally utilizing C and Ku-Band. Several coding algorithms are employed for digital data rate compression with the goal of CD-quality being achieved at relatively low data rates. Ongoing work in psychoacoustics and composite encoding promise to further decrease the data rates necessary for the transmission of CD-quality audio. Advances in antenna design and digital signal processing have made the transmission of this encoded digital audio from satellites to low gain omnidirectional antennas on automobiles with low cost receivers possible in the 2310-2360 MHz band. These factors contribute to the feasibility of DARS to fixed and mobile low cost receivers with a minimum of physical and economic packaging concerns.

III. U.S. Technology and Industry

The establishment of DARS in the United States will contribute to the advancement of the U.S. technology base. More widespread commercial use of digital audio transmission will drive development of more efficient methods for the distribution of digital data. The U.S. will derive expertise in DARS technology as well as benefit from the further development of associated technologies. Advancements in compression and coding algorithms and receiver design will be driven by the desire of commercial enterprises to provide higher quality and diverse services more economically. These advancements will increase the pool of knowledge available to U.S. companies for the development of related technologies.

Technological developments associated with the creation of DARS will benefit U.S. industry. U.S. industry will be better able to compete internationally in this area, an area where other countries are currently more advanced in the commercial exploitation of technologies relevant to DARS. This enhanced ability of U.S. business to compete in both the domestic and international arenas will contribute to an increase in engineering and manufacturing related jobs and bolster the economic health of high-technology in the U.S.

IV. Consumer Demand and Benefit

Consumer demand for DARS has been cultivated by the proliferation of digital recording and playback media and equipment that are readily accessible as mass market consumer products (i.e. CD and DAT equipment). This accessibility has increased consumer expectations of the level of audio fidelity that is deemed desirable. Digital audio of CD-quality is becoming the norm.

DARS has the capability of satisfying consumer demand for higher fidelity in the automobile and in rural areas. Consumers are also becoming accustomed to a wider range of options for entertainment. DARS opens up another medium for the communication of diverse and new programming sources to satisfy the desire for increased entertainment choices.

Satellite-DARS has the potential to deliver these benefits to consumers who would otherwise remain out of the area of accessibility. Satellite-DARS can provide country-wide coverage thereby incorporating previously underserved people and locations. IEEE-USA appreciates the Commission's understanding of this benefit of satellite-DARS and the potential impact of this equalization of accessibility upon those people who are presently underserved.

IEEE-USA also supports the development of DARS technology for incumbent broadcasters. Terrestrial DARS has the potential to allow existing broadcasters to transmit CD-quality audio and provide ancillary data services. IEEE-USA agrees with the Commission that the record in this proceeding contains practically no technical information on the latest developments in terrestrial DARS, including information on systems designed to operate in the existing AM and FM bands. Proponents or industry groups should submit this information to the Commission so it has a full technical record with which to make rules for terrestrial DARS.

V. Conclusion

IEEE-USA believes that benefits will be derived by the establishment of DARS in the U.S. These benefits will favorably impact technology and economy, thereby increasing American competitiveness and employment. IEEE-USA recommends that the Commission adopt its proposed rules allocating the 2310-2360 MHz band for DARS.

Respectfully Submitted,

Joel B. Snyder, P.E.
Vice President - Professional Activities
and
Chair, United States Activities Board