

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

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

**Notice of Proposed Rulemaking**

Adopted: June 14, 1995

Released: June 15, 1995

Comment Date: September 15, 1995

Reply Comment Date: October 13, 1995

By the Commission: Commissioners Quello and Ness issuing separate statements.

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## I. INTRODUCTION

1. Earlier this year we allocated the 2310-2360 MHz band for satellite-delivered digital audio radio service (DARS).<sup>1</sup> With this Notice of Proposed Rulemaking, we initiate consideration of service and licensing rules to govern this service. Specifically, we request comment on issues that include how many licenses should be awarded; how much spectrum each licensee should be assigned; how licensees should be selected if mutually exclusive applications are filed; whether applications already pending before the Commission should receive special consideration; how those licensees should be classified; whether licensees should be permitted to use some of their spectrum for non-DARS services; and what rules should govern the operation of DARS transmissions to ensure service to the public and to prevent interference to competitors and other services.

2. Satellite DARS will both compete with and complement traditional terrestrial AM and FM radio service. It has the capability to serve geographic areas that terrestrial radio does not reach. Because of terrain features and other factors, such as small population, certain areas of the United States receive few or no terrestrial radio broadcasts. Individuals living in or traveling through these areas would be given expanded options by DARS due to its mobile capabilities and nationwide service area. Even in areas with substantial radio service, satellite DARS also could expand and complement the audio programming choices now available to listeners. By offering a nationally based service, satellite DARS providers could target niche audiences that have not been served by traditional local radio but now could be served as an aggregate national audience. Such specialized program offerings could include foreign language programming, music formats not usually carried by radio broadcasts, and programming geared to children or senior citizens.

3. It also is apparent that satellite DARS, to some extent, will compete with terrestrial radio. Proposed satellite DARS systems will provide 30 or more channels of national digital audio programming to fixed and mobile receivers, with the potential for each licensee to offer high quality audio channels throughout the country. By way of contrast, terrestrial broadcasters are limited to four channels in a single geographic area. Thus, satellite DARS may have an advantage in both cost and channel offerings over local broadcast stations in delivering national programming to listeners, as well as an advantage in the number of channel outlets available in each community. Some of these DARS channels may provide some programming that is similar to what is available on local stations.

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<sup>1</sup> Amendment of the Commission's Rules with Regard to the Establishment and Regulation of New Digital Audio Radio Services, 10 FCC Rcd. 2310 (1995) (Allocation Order).

4. However, it does not necessarily follow that satellite DARS would have a significant adverse impact on terrestrial broadcasters, many of whom offer essentially locally oriented programming. Terrestrial broadcasting has the ability to provide local public affairs programming, local news and weather, local traffic reports and local personalities. We believe that consumers attach great significance to such programming. We request comment on whether consumers would alter their listening patterns by abandoning local stations to any significant degree. In this regard, we note that existing audio services provided at fixed locations by satellite do not appear to have adversely effected local radio broadcasting.

5. Implementation of satellite DARS potentially will stimulate significant economic growth by creating jobs in various sectors. Satellite DARS could create jobs in industries involved in technological development and manufacture of spacecraft and receiver components, installation of receivers in vehicles, programming creation and origination, building and operation of satellite uplink facilities and construction and operation of customer service centers. These activities will require employees with various levels of expertise and training. Moreover, many of these economic opportunities would be available to non-licensees, including small and minority owned businesses. Because the construction costs for the space stations proposed in the pending applications range from \$320 million to over \$622 million, and the manufacturing costs for their proposed ground segment(s), including the feeder link earth stations and the end user receivers, are expected to be millions of dollars more, satellite DARS potentially will lead to substantial investment in the U.S. economy.

6. The process of establishing DARS in the United States began in 1990 when Satellite CD Radio (CD Radio) filed a Petition for Rulemaking to allocate spectrum for DARS. At the same time, CD Radio filed an application to provide digital quality audio by satellite which was accepted as tendered for filing on October 19, 1990. In February 1992, the World Administrative Radio Conference (WARC 92) adopted international frequency allocations for satellite digital audio broadcasting.<sup>2</sup> Per U.S. proposals, the frequencies designated in this country are 2310-2360 MHz (S-Band). In November 1992, the Commission released a Notice of Proposed Rulemaking and Further Notice of Inquiry (Allocation Notice) proposing to implement the WARC 92 allocation domestically.<sup>3</sup>

7. The Commission established a December 15, 1992 cut-off date for applications proposing satellite DARS service to be considered in conjunction with CD Radio's application. In response to the cut-off notice, five additional applications were filed. As two of those five applicants have withdrawn, the remaining applicant pool consists of CD Radio, Primosphere Limited Partnership (Primosphere), Digital Satellite Broadcasting Corporation (DSBC) and American Mobile Radio Corporation (AMRC).

8. In its recent Allocation Order, the Commission amended the Table of Frequency Allocations to allocate 50 MHz of spectrum, 2310-2360 MHz, for satellite DARS use on a primary basis. The Commission further noted that this proceeding would be initiated to address satellite DARS implementation.

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<sup>2</sup> International Telecommunication Union, Final Acts of the World Administrative Radio Conference (Malaga-Torremolinos, 1992). The Conference allocated use of the 2310-2360 MHz band in Region 2 solely to the U. S. and limited the introduction of broadcasting-satellite services (sound) to the upper 25 MHz (2335-2360 MHz) pending the action of a further conference to be convened no later than 1998. See Allocation Order, supra n. 1, at para 26.

<sup>3</sup> Notice of Proposed Rule Making and Further Notice of Inquiry, 7 FCC Rcd. 7776 (1992).

9. In the DARS allocation proceeding we also addressed terrestrial digital technology that may permit licensees in our current AM and FM services to convert to digital transmission with CD quality sound. Two industry committees are studying technical standards that relate to this issue.<sup>4</sup> We continue to fully support these activities, and when we receive the reports of these two committees, we will act expeditiously to consider changes to our rule to also permit AM and FM licensees to improve their service by offering digital sound.

## II. DISCUSSION

### A. Economic Impact on Existing Terrestrial Broadcasters and Impact on the Public Interest

10. When we allocated spectrum for satellite DARS last January, we stated that we would examine the effect that this new service could have on terrestrial broadcasting. In the Allocation Order we concluded that the allocation of frequencies for nationwide satellite DARS is consistent with our obligations under Section 307(b) of the Communications Act, which requires us to ensure equitable geographic distribution of radio services. Additionally, we stated that in our satellite DARS service rules proceeding, we would "request information on and consider all relevant and available information which addresses the impact of satellite DARS on traditional service".<sup>5</sup> We noted the possibility that "competition from a new regional or national satellite radio service might diminish the financial ability of some terrestrial stations to provide local service"<sup>6</sup> and listed a series of factors that might be relevant for analyzing the potential economic impact of satellite DARS.<sup>7</sup>

11. Evaluation of the potential impact on broadcasters should be made in the context of Section 7 of the Communications Act. Section 7 makes it clear that opponents of this new technology bear the burden to show that licensing DARS is inconsistent with the public interest. The public interest in this regard is the provision of services of value to the listening public and includes the protection of competition, not competitors. The economic impact of satellite DARS on existing radio broadcasters is relevant to this inquiry to the extent that such impact would predictably lead to serious loss of important services to consumers, taking into account the potential for future enhancements of terrestrial broadcasting by the introduction of new technologies and by appropriate changes in the Commission's rules for terrestrial broadcasting. In this section, we seek comment on how satellite DARS might affect terrestrial broadcasters and, consequently, affect the interests of the listening public. We also seek comment on what might be an appropriate regulatory response to such impact.

12. In the Allocation Order, we concluded that allocation of spectrum for satellite DARS was in the public interest. We cited several benefits the public would receive from this service. These include the provision of continuous radio service of compact disc quality, an increased choice of over-the-air audio programming and service to underserved and unserved areas. We noted that satellite DARS has the potential to provide new services to rural listeners, minority and ethnic groups, and non-English speaking audiences. Finally we stated that the service has the potential to provide opportunities for economic

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<sup>4</sup> See discussion infra at para 48.

<sup>5</sup> Allocation Order, supra n. 1 at para 25.

<sup>6</sup> Id. at para 24.

<sup>7</sup> Id.

development and improve the U.S. position in the international marketplace.<sup>8</sup> We continue to believe that satellite DARS has the potential to offer substantial benefits to the public. We request comment on this conclusion and on other possible public interest benefits that might accrue from this service.

13. We recognize that initiation of satellite DARS may not be without some costs to local broadcasters, particularly in the area of their advertising revenues. Specifically, although satellite DARS may increase the total amount of time spent listening to radio, satellite DARS may also reduce the audience for terrestrial radio. That reduction in audience may, in turn, reduce the advertising revenues available to local broadcasting. We seek comment on the potential and likelihood of such an impact, and its effect, if any, on the continued financial viability of traditional broadcasting and on the amount of local and public affairs programming that traditional broadcasters provide. We particularly seek comment on the effect of satellite DARS given the disparity between the services in the number of stations permitted to broadcast to each community as a whole, the number of commonly owned channels that will be available in each community, and the reach of each station in the two services.

14. We also seek comment on whether, and to what extent, satellite DARS may decrease terrestrial radio listenership. In addressing this, commenters should provide the models and assumptions underlying their predictions and answer, at a minimum, the following questions: What is the expected customer equipment cost and any subscription fee? What service will be provided on a partially or fully advertiser-supported basis? How much of satellite DARS listening will be in automobiles and how much will be at stationary sites? In responding, commenters should take account of the nature of the service provided. For example, listeners of CD quality music might be primarily in automobiles, but the same might not be true for children's programming or programming in languages other than English. Satellite DARS's impact on the local radio audience will also depend on the availability of terrestrial DARS, so commenters should include in their analyses their assumptions regarding the probable timetable for introduction of that service.

15. In estimating any decline in terrestrial radio audiences, we request commenters to consider the currently available alternatives to terrestrial radio and their impact on the terrestrial radio industry. Subscription packages of digital audio service already are available to U.S. households via cable and direct-to-home satellite transmissions. These services include Digital Music Express (DMX), which initiated service in September 1991. DMX currently offers digital audio service to cable subscribers through a satellite feed to a cable company or directly to commercial companies via a one meter satellite antenna.<sup>9</sup> DMX's basic service offers thirty channels of digital audio with no voice-overs and no commercials. Those receiving directly from a satellite antenna also can choose an enhanced service offering seventy-seven channels of digital audio. Another company, Music Choice, offers similar digital audio services to cable customers and, through secondary vendor DirecTV, to DBS satellite system owners. What, if anything, does the impact of existing national digital audio systems on terrestrial broadcasting indicate about the potential impact of satellite DARS on terrestrial broadcasting? How does the added factor of mobile service proposed by satellite DARS proponents affect this analysis?

16. We also seek comment regarding advertising revenues that may be lost due to competition from satellite DARS. We note national advertising presently accounts for an estimated 17-18 percent of

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<sup>8</sup> Allocation Order at para. 22.

<sup>9</sup> This service will soon be offered to Ku-band FSS residential dish owners with compatible equipment.

total radio advertising revenues and local advertising accounts for the other estimated 82-83 percent.<sup>10</sup> In their analyses, commenters should treat separately the effect on national and local advertising revenues. In addressing the question of advertising revenues, commenters should consider the following factors: Will a loss of listeners to satellite DARS services that may not sell advertising reduce the quantity of radio advertising offered for sale? If so, would such a reduction cause the price of advertising to change? How would these factors, in turn, affect broadcast radio advertising revenues? For satellite DARS services that are based on advertising, advertising will most likely be sold on a national basis.<sup>11</sup> Commenters should address the impact of this additional competition for radio advertising dollars for small, medium, and large stations. Additionally, because of differences in demographics and other factors, not all advertising exposures are of equal value. Commenters should consider expected satellite DARS listening patterns in estimating the value of advertising exposures that might be lost to terrestrial radio. For example, is satellite DARS listening likely to be concentrated in morning and evening "drive time" periods and are advertising rates higher than average during those periods?

17. We also recognize that advertising revenue losses could significantly vary among local broadcasters. Therefore, we seek comment on whether, and the extent to which, local station characteristics, including, but not limited to, profitability, market share, programming format (including the share of local programming), the number of households in the market, and the number of stations in the market could affect a particular station's revenue loss. We specifically solicit comment on this issue with respect to terrestrial stations operating in small markets.

18. Because revenue losses may translate into reduced profit margins, reductions in services offered, or other operational changes, we seek comment on radio station profit margins, with data disaggregated by market size and other relevant station characteristics. We note that large numbers of radio stations apparently operate at losses<sup>12</sup> and request comment on how we should utilize reported accounting profitability data to assess radio station viability. In particular, we seek comment on whether any stations might offer less local programming or go off the air as a result of competition from satellite DARS service. The viability of a radio station is determined by a variety of factors, and consequently, comments should establish a credible connection between satellite DARS competition and any predicted impact on radio station viability.

19. To the extent that satellite DARS would result in advertising revenue losses or other adverse financial impacts for local terrestrial broadcasters, we seek comment on how such revenue losses would affect the public interest. In particular, how would DARS competition affect the programming that local radio broadcasters provide? While listeners could turn to satellite DARS services for national programming and advertising, we believe that even with spot beams, local news, weather, traffic, and public affairs programming could not practically be provided via satellite DARS. Would the advent of satellite DARS lead to changes in local programming, including news, traffic, and weather? What percentage of terrestrial audio broadcast programming is currently devoted to local issues? Does this percentage vary systematically with market size or station characteristics? Will competition from satellite

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<sup>10</sup> Average 1993-1994 estimates of Radio Advertising Bureau, Veronis & Suhler & Assoc. and McCann-Erickson, cited in Primosphere's January 1995 comments.

<sup>11</sup> We seek comment on the technical and economic feasibility of regionally or locally targeted advertising on satellite DARS services.

<sup>12</sup> See, e.g., National Association of Broadcasters Radio Financial Report 1992.

DARS give local broadcasters an incentive to provide more local programming, or less? How profitable is local programming? Are the potential risks of decreased local service greater in these areas? Will stations with strong local programming schedules benefit from increased audiences at the expense of stations without such programming? In what other ways would DARS financially affect a local broadcaster's ability to serve the public interest, convenience and necessity? In analyzing the effect of local broadcasters' revenue losses on the public interest, we also seek comment on the extent to which competition may spur incumbents to improve their service, thereby benefitting the public interest. We seek comment on innovative measures terrestrial radio stations may take to respond to competition from satellite DARS, particularly implementing digital transmission techniques in their own service offerings, and the impact of these measures on terrestrial radio's ability to compete. We also seek comment on any possible effects of satellite DARS on terrestrial radio not specifically mentioned herein and on local broadcasters' ability to continue to serve the public interest.

20. Given our concern about the effect of satellite DARS on local broadcasting, we seek comment on appropriate ways to evaluate such effects. In the course of normal, market-driven economic development some local broadcasters experience continuing losses. These broadcasters usually undergo extensive re-organization, often after a change in ownership. Occasionally, they actually turn in their broadcast licenses. How could we best determine if these failures reflect normal market conditions or whether they reflect significant problems in the local broadcasting industry resulting from competitive satellite DARS systems?

#### B. Design of Service

21. In establishing satellite DARS, our goal is to ensure that the listening public's needs are met by the most efficient and responsive service possible. To this end, we discuss below possible service requirements for satellite DARS. We solicit comment on these proposals. We also request comment on whether other service requirements are warranted. Commenters should explain and justify their analysis of each proposal, including consideration of the public interest benefits. Commenters should also indicate the extent to which their service rule proposals and analysis apply in the event that satellite DARS spectrum is auctioned.

##### 1 . Classification of Service

22. First, we seek comment on whether licensees should be able to determine their own regulatory classification or whether there are reasons to justify requiring them to provide service in a particular manner. Three of the four current satellite DARS applicants propose non-broadcast/subscription services. The fourth applicant, Primosphere, proposes to operate as an advertiser supported broadcast service.

23. Historically, all domestic satellite (domsat) operators were licensed to provide services on a common carrier basis.<sup>13</sup> Shortly thereafter, domsat operators began to request authorization to provide service on a non-common carrier basis to particular customers. In response, the Commission established its transponder sales policy. Pursuant to this policy, the Commission relies on the analysis set forth in

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<sup>13</sup> See Amendment to the Commissions Regulatory Policies Governing Domestic Fixed Satellites and Separate International Satellite Systems, \_\_FCC Rcd \_\_, FCC 95-146 (released April 25, 1995).

NARUC I<sup>14</sup> which identified two criteria as determinative of whether a service may be provided on a non-common carrier basis: 1) whether there are reasons implicit in the nature of the service to expect an indifferent holding out to the eligible user public and 2), if not, whether there is or should be any legal compulsion to serve the public indifferently. In the DARS service, there does not appear to be a reason to impose common carrier status on licensees. First, under the NARUC I criteria and based on the examples of applications on file, DARS providers will not be holding themselves out indifferently to serve the public but instead will be providing programming of their own selection. Further, we see nothing on the face of the applications or comments to suggest that it would be necessary to require that this service be common carrier.<sup>15</sup> We request comment on this tentative conclusion.

24. A broadcasting service involves the transmission of programming intended for direct reception by the general public.<sup>16</sup> In the context of developing service rules for DBS, a satellite based national programming distribution service, the Commission has held that a service offered pursuant to a subscription agreement using a scrambled signal is not broadcasting.<sup>17</sup> Here, three out of four of the applications on file propose services offered pursuant to a private contractual relationship with the subscribing audience using a scrambled signal. Thus, it is clear that the intention of three applicants is to provide non-broadcast service within the meaning of Section 2.1 of the Commission's rules and Subscription Video.<sup>18</sup> Accordingly, a requirement that all DARS licensees operate as broadcasters appears to be unwarranted and inappropriate. We request comments on this tentative conclusion.

25. As noted above, three of the four current applicants propose to operate in a subscription mode. These applicants also could accept advertising in conjunction with subscription fees or as a sole revenue source. NAB has requested that satellite DARS be authorized on a "subscription only" basis, arguing that to do so would differentiate satellite DARS from terrestrial stations and thereby help minimize harm to traditional broadcasting. NAB also posited that a subscription requirement would provide satellite DARS providers with the economic framework to permit delivering niche programming to specialized or geographically dispersed markets.<sup>19</sup> We request comment on the legal, policy and practical implications of requiring DARS service to be provided on a subscription basis. We also request comment on whether advertising should or should not be permitted if this option is chosen, but tentatively conclude that requiring subscription service should not limit providers from accepting advertisements.

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<sup>14</sup> National Association of Regulatory Commissioners, 525 F. 2d 630 (1976 D.C.Cir.), cert. denied, 425 U.S. 999 (1976) (NARUC I).

<sup>15</sup> Cf. Mobile Satellite Service, 2 FCC Rcd 485 (1987) at para. 34, where the Commission determined that because only one MSS system could be accommodated in the available spectrum, that system should be required to provide service on a non-discriminatory basis.

<sup>16</sup> See 47 C.F.R. §2.1.

<sup>17</sup> Subscription Video, 2 FCC Rcd 1001, 1006 (1987) (licensees that limit receipt of program services to paying subscribers are providing non-broadcast services); aff'd sub nom National Association for Better Broadcasting v F.C.C., 849 F. 2d 665 (D.C. Cir. 1988).

<sup>18</sup> Id.

<sup>19</sup> Letter to Chairman, FCC from President and CEO of NAB, May 3, 1995.

26. We could allow satellite DARS providers to tailor their services to meet the requirements of their targeted customers. Under this option, any regulatory classification of licensees would depend on their business choices. Further, once applicants are granted licenses, they would be free to tailor their DARS service offerings in response to market demand.<sup>20</sup> This approach is similar to that taken by the Commission in its 1982 rules to govern DBS.<sup>21</sup> The Commission decided to avoid requiring DBS licensees to operate under a specified service classification. Instead, the Commission indicated that it would consider the particular services proposed by individual applicants in making any service classification decisions.<sup>22</sup>

## 2. Public Interest Obligations

27. We seek proposals for and comments on possible public service rules for satellite DARS. In this regard, the Commission has the obligation to make licensing decisions that are consistent with the public interest, convenience and necessity.<sup>23</sup> In addition, licensees providing broadcast services are subject to specific public interest obligations. We seek comment on whether satellite DARS providers offering subscription or non-broadcast services should also be subject to similar public interest obligations. Commenters offering proposals on this issue are specifically requested to consider what public service offerings would not necessarily be provided absent regulatory obligations. Should public service rules be limited to licensees offering broadcasting services, those providing subscription services, or should they be imposed on all satellite DARS licensees? With regard to non-broadcast satellite DARS licensees, we seek comment on the Commission's authority under the Communications Act to regulate licensees in this manner. Commenters should also address any constitutional implications of imposing such public service obligations in light of Daniels Cablevision, Inc. v U.S.,<sup>24</sup> where the U.S. District Court for the District of Columbia struck down provisions of the 1992 Cable Act requiring certain public interest obligations for DBS operators, and rendered other relevant decisions. We recognize that public interest obligations would impose a cost on satellite DARS providers. We request commenters to estimate the cost of providing public interest programming. Are the estimated costs outweighed by the public interest benefits of more news and informational programming? Could these costs be so significant that they might potentially hamper the deployment and success of the service?

28. We seek comment on public interest requirements that terrestrial radio broadcasters face and on the impact of those requirements on the current and future profitability of terrestrial radio stations. We believe that this information will have predictive value in determining whether DARS providers should

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<sup>20</sup> See Comments of Primosphere at 6 stating that consumer choice would be further expanded by a mix of subscription and advertiser supported services.

<sup>21</sup> DBS is the only precedent we have for rules governing satellite broadcasting although direct-to-home service in the C-band appears the same to the viewer.

<sup>22</sup> See Inquiry into the Development of Regulatory Policy in regard to Direct Broadcast Satellites for the Period Following the 1982 Regional Administrative Radio Conference, 86 FCC 2d 719 (1981) (NPRM); 90 FCC 2d 676 (1982) (Report and Order); aff'd sub nom National Association of Broadcasters v F.C.C., 740 F. 2d 1190 (1984).

<sup>23</sup> 47 U.S.C. §307 (a).

<sup>24</sup> 835 F. Supp 1 (D.D.C. 1983), appeals pending sub nom. Time Warner Entertainment Co. L.P. v FCC, No. 93-5349 and consolidated cases (D.C.Cir.).

be subject to similar obligations. For example, one of the major public interest obligations of terrestrial radio broadcasters is to provide reasonable access to their facilities for use by legally qualified candidates for federal elective office.<sup>25</sup> Radio broadcasters who permit use of their facilities by any legally qualified candidate must also afford equal opportunities to use such facilities to all other candidates for that office.<sup>26</sup> In addition, broadcasters are required to develop and carry out an EEO program designed to ensure that potential employees are not discriminated against on the basis of race, color, religion, national origin or sex.<sup>27</sup> Perhaps most importantly, broadcasters are obliged to serve the needs and interests of the members of their communities of license. As a means to this end, the Commission requires broadcasters to maintain lists of programs aired which address community issues.<sup>28</sup> Commenters are asked to discuss the following: What public interest offerings would not be included by service providers in an unregulated market environment? Do terrestrial radio public interest programming requirements increase profitability by providing valuable information to listeners or do they reduce profitability?

### 3. Ancillary Services

29. We also seek comment on whether licensees in the 2310 -2360 MHz band, allocated domestically for Broadcast-satellite (sound) on a primary basis, should be permitted to offer non-DARS services on an ancillary basis. If so, what limits, if any, should apply? The current satellite DARS applicants propose to offer additional services to their end users which are ancillary to DARS. These include high-speed broadcast data or location-based geographic information, electronic graphic/visual information, voice mail, and alphanumeric messages on dedicated channels or in conjunction with (multiplexed into) the channels used for digital audio.<sup>29</sup>

30. Ancillary uses of allocated bands are legally permissible. For example, with regard to DBS, we permitted temporary ancillary uses of satellite spectrum.<sup>30</sup> We seek comment on whether ancillary uses should be permitted in this service and if so, how they should be defined, specifically in the context of satellite DARS. For example, since the principal use of the spectrum capacity is for satellite DARS audio programming, what percentage of the spectrum capacity could be devoted to ancillary services? In addition, how would we monitor such a requirement, particularly in a digital environment where different service offerings may not appear to be different from a technical perspective? Would a requirement to certify compliance and reliance on complaints be sufficient? Would such a requirement create an unwarranted burden on licensees?

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<sup>25</sup> 47 U.S.C. §312(a); 47 C.F.R. §73.1944.

<sup>26</sup> 47 C.F.R. §73.1941.

<sup>27</sup> 47 C.F.R. §73.2080.

<sup>28</sup> 47 C.F.R. §73.3526(a)(9).

<sup>29</sup> See AMRC Application at 5, DSBC Application, Section C at 9, CD Radio Application at 35-36 and Primosphere Application, Appendix 1 at 20.

<sup>30</sup> This authority is subject to certain restrictions including compliance with technical power and transmission requirements that ensure home reception capability, initiation of DBS within the initial license term, provision of DBS service on the same transponder and ancillary service does not exceed 50% each day. See United States Satellite Broadcasting, Inc., 1 FCC Rcd. 977 (1986).

### C. Licensing Approaches

31. In the Allocation Order, we adopted domestically the international frequency allocation of 50 MHz of spectrum for this service. To alleviate potentially difficult and lengthy coordination with other administrations, particularly Canada, we propose to initially license a maximum of 40 MHz.<sup>31</sup> We now request comment on how much of this spectrum should be authorized for immediate use by DARS, how much spectrum should be assigned to each licensee, and the number of competitors that should be accommodated in the available spectrum. In connection with this, we request comment on the minimum number of channels necessary to provide effective and economically viable nationwide DARS service and on how much spectrum is necessary to support this minimum number of channels? We note that the four current satellite DARS applications propose various numbers of near CD quality channels for each system, e.g., 11, 23, 30, and 32 (16 CONUS channels and 16 additional channels in 31 spot beams). These applicants originally stated that their spectrum requirements to offer their channels were 10 MHz, 50 MHz, 20 MHz and 25 MHz, respectively. We also note that the ATV Grand Alliance system claims to have enough capacity to deliver 75 CD quality stereo channels in 6 MHz as a terrestrial service. We ask how many channels per megahertz can be delivered by satellite to mobile users.

32. How many service providers are necessary to provide competition in this market? To what extent would the existence of multiple DARS providers increase the likelihood that public interest benefits, including low consumer costs, can be achieved? To what extent are other licensing models, such as those used for DBS or PCS, helpful in making decisions regarding the number of satellite DARS providers? We also seek comment on how to assign spectrum that might become available if one or more applicants fail to implement their proposals. Should new applications be solicited, or should the spectrum be assigned in equal shares to the existing applicants?

33. In determining the entities eligible to be licensed in this service, we have identified three basic options: to license the available spectrum to the current four applicants; to license less than the total available spectrum to the four applicants and auction the remainder; or to accept new applications and auction all licenses. These approaches are described below and we seek comment on them and on any other alternatives. The first option would assign the available spectrum to the four applicants that filed in response to the Commission's 1992 cut-off notice. The spectrum would be divided equally among the qualified applicants. Assuming all four of the pending applications are qualified, each would be awarded a 12.5 MHz segment or, if we determine that the lower 10 MHz of spectrum is not available for assignment at this time, a 10 MHz spectrum segment.<sup>32</sup> Two of the current applicants suggested the available spectrum be divided equally among the four. We seek comment on this proposal and whether a 10 MHz assignment would be feasible, i.e., whether a viable satellite DARS service could be provided using a 10 MHz spectrum block.

34. We believe that this approach would recognize certain equities in favor of the current applicants. It has been almost five years since the first DARS application was filed by CD Radio. Since that time we have accepted CD Radio's application, accepted competing applications by establishing and issuing an official cut-off date notice, and allocated spectrum for DARS on a primary basis as had been requested in CD Radio's petition. These actions have been fully consistent with the procedures previously used in establishing other satellite services where applications are often accepted before the Commission

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<sup>31</sup> See discussion re international coordination, infra at paras 62-67.

<sup>32</sup> See discussion infra at paras 62-67 regarding international coordination with Canadian terrestrial systems.

allocates spectrum and establishes service rules. Moreover, the Commission has held that adherence to cut-off procedures promotes " 'orderliness, expedition and finality' in the licensing process".<sup>33</sup> It has also found that in some instances, reopening the cut-off to new applications would delay the proceeding.<sup>34</sup> Applicants state that they have expended substantial sums of money in apparent reliance on the Commission's satellite cut-off procedures including filing and other application related fees and expenses. We seek comment on the merits of these and any other equities in favor of the current applicants and on the fairness of any action that would reopen the cut-off.

35. On the other hand, the satellite application cut-off procedures are in contrast to the practices followed in licensing other services. For example, in the broadcast service, applications are not accepted for filing and afforded cut-off protection until spectrum is allocated to the service, channels established and allotted to specific communities, and service rules are adopted. Similarly, in other recently established services such as broadband and narrowband PCS and Interactive Video Distribution Service (IVDS), we allocated spectrum and established licensing and service rules before accepting applications.<sup>35</sup> We seek comment on whether the public is better served by following the broadcast cut-off model or the satellite model. In this regard, we also seek to determine answers to a number of questions related to any equities of the four applicants presumably tied to reliance on continued Commission adherence to the satellite cut-off model. Specifically, what is the level of actual investment by the four applicants to date and how does that investment compare to the value of the spectrum and the potential sales value of a DARS license in an immediate, post-grant private transfer. How would the Commission assess the value of the contributions made by the current applicants in furthering the development of satellite DARS? If we were to reopen the proceeding for new applicants and we receive mutually exclusive applications, is it possible and desirable to compensate for such value in an auction environment by, e.g., assigning appropriate bidding credits to the current applicants?

36. A second option would be to designate a segment of less than the full amount of spectrum that we believe is useable at this time,<sup>36</sup> and to award the remaining spectrum to other new applicants. The spectrum designated for the current four applicants would still be divided equally, but the band segments ultimately licensed to each would be less than 10 MHz, either in equal segments or in segments of different amounts. Under this scenario, we would need to determine how much spectrum to keep for new applicants, whether the remaining spectrum can accommodate the pending applicants, how and for what purpose to license the spectrum not assigned to the four current applicants, and how to choose an additional applicant or applicants for the remaining spectrum. If any of the two band segments (i.e., the spectrum band for current applicants and the spectrum band for new applicants) could not accommodate all applicants eligible to be licensed in each, we could assign the "mutually exclusive" band segment through the auction procedures proposed herein. This approach offers a compromise between a desire to acknowledge the equities in favor of the four current applicants and an interest in efficient spectrum

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<sup>33</sup> See Mobile Satellite Service, 6 FCC Rcd. 4900, 4914 (1991). See also Radio Athens, Inc. (WATH) v FCC, 401 F.2d 398,400-01 (D.C. Cir. 1968); John W. Talbott, 60 FCC 2d 511, 513 (1976).

<sup>34</sup> Mobile Satellite Service, id.

<sup>35</sup> See, e.g., New Personal Communications Services, GEN Docket No. 90-314, 8 FCC Rcd. 7700 (1993), recon. 9 FCC Rcd. 4957 (1994) (broadband PCS); ET Docket No. 92-100, 8 FCC Rcd. 7162 (1993), recon. 9 FCC Rcd. 1309 (1994) (narrowband PCS); Interactive Video and Data Services, GEN Docket No. 91-2, 7 FCC Rcd. 1630, recon. 7 FCC Rcd. 4923 (1992).

<sup>36</sup> See discussion, infra regarding international coordination at paras 62-67.

management that auction procedures might achieve. We seek comment on all aspects of this option, including the minimum spectrum block required to provide a viable satellite DARS service, and its possible implementation.

37. A third option would be to re-open the processing window and allow additional applicants to file satellite DARS proposals. If this option is chosen, it is likely that additional applications will be filed and that a mutually exclusive situation could result. The Commission must then determine whether to assign licenses through lottery, comparative hearing or competitive bidding. We discuss a framework for a possible auction below. We seek comment on this option, including mechanisms such as an appropriate bidding credit or similar mechanism that would recognize the extent of investment by each of the four current applicants to date. We also seek comment on the magnitude of the expected recovery for the public of a portion of the value of this public spectrum resource made available for commercial use.

38. If auctions are used under option three, we propose to divide the 50 MHz of spectrum into blocks of an appropriate size<sup>37</sup> and license those spectrum blocks on a nationwide basis. Each applicant would be permitted to bid successfully on several blocks of spectrum, contiguous or not. This band plan would permit applicants to assemble blocks of spectrum best suited to the service that they intend to provide. The current satellite DARS applicants differ significantly regarding the digital signal coding rates needed to produce near compact disk (CD) quality sound. These differences translate into differences in the amount of spectrum required to transmit a channel of near CD quality music. Thus, while the applicants have apparently agreed that they can share the 50 MHz allocated, dividing the allocation evenly among them might not lead to optimal service to the public. We seek comment on whether, because satellite DARS will face competition from terrestrial radio services, CD players in automobiles and homes, and audio services delivered as part of cable and satellite services, there could be effective competition in delivery of audio services with fewer than four satellite DARS providers.

39. We seek comment on an appropriate band plan for option three and on whether a spectrum cap is needed. One band plan possibility is to divide the 50 MHz into 10 five MHz blocks. Alternatively, we could attempt to fashion a band plan for auctions that is more consistent with the plan to divide spectrum evenly among the four existing applicants. We seek comment on these options as well as on other alternatives. The purpose of a spectrum cap would be to ensure reasonable competition in the provision of near CD quality audio services. One spectrum cap possibility is 20 MHz. Under this option, if we were to divide the band into 5 MHz blocks, licensees could hold up to four blocks. We seek comment on this and on other spectrum cap possibilities.<sup>38</sup>

40. With respect to option two, a combination of licensing the four applicants and possible auctions, the choice of a band plan would depend on the amount of spectrum that we would plan to auction. Similarly, the band plan would depend on whether all 40 MHz we expect to be initially available

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<sup>37</sup> See discussion *infra* at paras 94-111 re auctions. If we use an auction to assign this spectrum, all 50 MHz could be auctioned because, in an auction, bidders can take account of the potential international coordination difficulties that encumber the lower 10 MHz of spectrum. If the lower 10 MHz is, in fact, less well suited to providing service, bids will be lower on that block than on the rest of the spectrum.

<sup>38</sup> We also seek comment as described in paras 57-59 on whether agreements between licensees to share cross polarized frequencies should count toward a spectrum cap should we adopt one.

should be licensed initially, or if some smaller amount should be licensed first and the remainder at a later time. In addressing this issue, we request that parties address how much spectrum and how many providers should be licensed as discussed below. Rather than propose a specific plan, we ask commenters to address the issues of how much spectrum to assign to each licensee and how to structure the plan.

#### D. Licensing Procedures

41. To enable us to license applicants as expeditiously as possible, we are proposing alternative licensing approaches that will be consistent with the three options outlined above. First, we propose service rules that will enable licensees to operate systems efficiently, avoiding harmful interference to other licensees. Second, we propose additional rules and licensing qualifications specific to a licensing approach based on Commission approval of the four current applicants. Finally, we propose auction procedures that would allow the Commission to implement such a selection method if it chooses to reopen the processing group to additional applicants.

##### 1. Technical Rules

42. As in past satellite licensing proceedings, we propose technical requirements that reflect the unique nature of the service proposed and that promote entry opportunities for applicants.<sup>39</sup> Comments received throughout the allocation proceeding and in response to the filed applications, including the supplemental comments recently filed by CD Radio and DSBC, form the basis of our technical proposals. We seek comment on whether these proposals maximize spectrum and orbit resource efficiency. We seek additional comment on whether these technical rules will accomplish our goal to ensure that satellite DARS applications can be considered and the service can be implemented expeditiously.

##### a. Service Area

43. First, we seek comment on whether we should adopt rules mandating a service area coverage requirement for satellite DARS systems. Two of the four pending satellite DARS applications propose service solely to the 48 contiguous states of the United States (CONUS). Two propose coverage of the CONUS, Alaska, Hawaii, Puerto Rico and/or the Virgin Islands. Recognizing that there are areas outside the CONUS underserved by terrestrial broadcasting, we seek comment on whether to require satellite DARS systems to provide 50-state coverage or 50-state plus Puerto Rico/Virgin Island coverage, as we do in the fixed-satellite service.

##### b. Service Link Margin

44. Satellite DARS reception in any geographic area, including within the CONUS, and especially to mobile end users, depends heavily on the available service link margin for a high percentage

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<sup>39</sup> In the domestic fixed-satellite service, for example, we adopted a full frequency reuse requirement for space stations to ensure spectral efficiency when it appeared that orbital locations were limited. See, e.g., Licensing Space Stations in the Domestic Fixed-Satellite Service, 101 FCC 2d 223 (1985), at paras. 11-12; see also, United States v. Storer Broadcasting, 351 U.S. 192 (1956).

of service availability.<sup>40</sup> The service link margin necessary for satellite DARS reception has been a topic of discussion throughout the comments on the satellite DARS proposals. Service link margin is related to satellite visibility which may be limited in some urban and suburban areas.<sup>41</sup> Satellite visibility may also be limited in geographic areas outside of the CONUS where low elevation angles above the horizon from the end user to the DARS space station could lead to increased instances of signal blockage. An increase in signal blockage decreases the available service link margin of a satellite DARS system.

45. The service link margins identified in the pending satellite DARS applications range from approximately 4 dB to 14 dB.<sup>42</sup> Parties question whether the satellite DARS proposals provide the amount of service link margin necessary for urban and suburban environments.<sup>43</sup> Comments do not offer technical analyses to demonstrate and specify the service link margin necessary for mobile reception in urban and suburban environments. The satellite DARS applicants do, however, propose several techniques to solve the complex problem of maintaining adequate service link margin in a mobile environment. DSBC, for example, notes that coverage in urban canyons may be enhanced by using rake receivers.<sup>44</sup> Two of the satellite DARS applicants propose to employ a frequency and satellite diversity system which they contend will maintain sufficient service link margin.<sup>45</sup>

46. We propose that applicants be required to identify the service link margin for their systems and to demonstrate that their systems will provide that service link margin in a mobile environment, under clear sky conditions, to the geographic areas they intend to serve.<sup>46</sup> We also seek comment on whether a specific value should be used to define an adequate service link margin for the specified service areas in urban and suburban environments and, if so, what that value is and the analysis for it.

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<sup>40</sup> Service link margin identifies the amount of excess received power available to the end user receiver in an ideal free-space propagation environment (where there is no signal blockage or attenuation from precipitation) to reproduce the information originally transmitted by the satellite.

<sup>41</sup> Increased instances of signal blockage can be expected in suburban areas where there is heavy foliage and in "urban canyons" where tall buildings could limit satellite visibility and cause multipath interference (from reflected signals).

<sup>42</sup> NPR notes that the satellite DARS proponents do not agree on an acceptable service link margin. See NPR Comments at 3.

<sup>43</sup> Advance Communications Corporation Comments at 3; NAB Petition to Deny Primosphere at 8.

<sup>44</sup> Rake receivers can aggregate and process CDMA signals, a technique which DSBC maintains is employed in the cellular telephone systems now implemented by some U.S. operators. See DSBC Opposition, Technical Response at 5-6. DSBC adds that it is committed to its proposed "system A", one of three systems proposed by DSBC in their original application which uses O-CDM technology. See DSBC Opposition at 20.

<sup>45</sup> In a proposed frequency and satellite diversity DARS system, identical audio programming information is transmitted from two space stations located approximately 30 degrees apart on two frequencies that are separated by approximately 20 MHz. It is argued that the two independent signals from the two space stations would arrive at the user simultaneously and the receiver would select the stronger of the two signals to effectively provide greater service link margin. See Primosphere Reply, Engineering Statement at 5; CD Radio Reply, Technical Appendix at 1.

<sup>46</sup> See para 43 supra.

c. Receiver Inter-Operability and Tunability

47. Comments on the satellite DARS applications raise the issue of whether the Commission should set receiver inter-operability standards for satellite DARS. Some parties contend that substantial benefits would be gained if a single standard is adopted.<sup>47</sup> Another party asserts that a single standard would encourage consumer investment in satellite DARS equipment and create the economies of scale necessary to make DARS receiving equipment affordable.<sup>48</sup> Multi-standard DARS receivers almost inevitably would be more expensive than single standard receivers. Parties did not address whether a single satellite DARS receiver design should be compatible with competing satellite DARS formats and/or terrestrial broadcasting services such as traditional AM and FM and planned digital in-band, on-channel (IBOC) DARS on AM and FM frequencies.

48. Testing and evaluation of proposed digital audio radio technologies has been on-going since 1991. As we noted in the Allocation Order, two industry committees are considering issues relating to DARS technical standards. The Electronic Industry Association's Consumer Electronics Group (EIA/CEG) is developing standards for terrestrial and satellite DARS and the National Radio Systems Committee (NRSC), sponsored jointly by EIA/CEG and NAB, is pursuing the development and implementation of standards for terrestrial DARS systems to operate in the AM and/or FM broadcast bands. Both committees are cooperating in testing DARS technologies. Laboratory testing is expected to be completed in June or July 1995. EIA/CEG currently plans to conduct field measurements in July and August 1995. A final report and recommendation is anticipated by the end of 1995.<sup>49</sup>

49. One concern is that the additional cost to manufacture a receiver that is compatible with all competing satellite DARS and terrestrial formats may exceed the price range applicants are targeting for their individual satellite receivers.<sup>50</sup> We are further concerned that the market penetration projected by the satellite DARS applicants may not be attainable if the cost of individual satellite DARS receivers is too high. We request comment on the costs and benefits of adopting a single standard for satellite DARS.

50. We also seek comment on whether individual satellite DARS receivers should be remote command tunable across the entire 2310-2360 MHz band. This tunability would be accomplished by transmitting a signaling channel from the feeder link earth station, through the spacecraft and to the individual DARS receivers, and would be necessary for satellite DARS licensees to be able to operate in any portion of the allocated DARS frequency band. It would also be necessary to facilitate sharing among the different satellite systems according to our band sharing proposal. Applicants would therefore be required to demonstrate how they would implement the forward signalling command through the space

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<sup>47</sup> NAB Reply at 4; Digital Cable Radio Comments at 8.

<sup>48</sup> AMRC Comments at 5.

<sup>49</sup> Ex Parte Statement filed by EIA Digital Audio Radio Subcommittee on March 15, 1995.

<sup>50</sup> The individual satellite receiver costs to the consumer are estimated by the applicants to range from \$50 to \$300. Individual satellite receiver cost estimates are based on existing technology. The standards for terrestrial DARS are still under development and it is difficult to determine the added cost to the satellite receiver to include this technology.

station for receivers to select and tune to any center frequency in the allocated bandwidth and demonstrate how the channelling plan seen by the end user would be affected.

51. We seek comment on the issue of receiver inter-operability standards for satellite and terrestrial DARS. Commenters should provide specific proposals that take note of the diverse modulation and channelling techniques of the satellite DARS applications before us and that the technology for terrestrial DARS is still being developed. We also encourage satellite DARS proponents to continue to participate actively in standards setting organizations such as the National Radio Systems Committee (NRSC) and the Electronics Industry Association (EIA). This will facilitate design of individual satellite DARS receivers according to state-of-the-art standards.

d. Data Rates

52. The four current satellite DARS applicants propose different digital signal coding rates which range from 128 to 384 kbps to produce near compact disc (CD) quality audio. Two satellite DARS applicants assert that CD quality audio is possible using a 128 kbps data rate.<sup>51</sup> One applicant questions whether a data rate of 128 kbps is sufficient to provide the high level of signal quality needed to differentiate digital sound broadcasting from other sound broadcasting media.<sup>52</sup> National Public Radio maintains that if acceptable audio quality is obtained at a bit rate of 128 kbps, then proposals using higher bit rates make inefficient use of the spectrum. It asserts further that if the lower bit rates are unworkable for high quality audio, however, then proposals employing them do not offer significant advantages over analog radio.<sup>53</sup>

53. Moreover, some satellite DARS applicants propose to use variable data rates to transmit a mix of audio formats.<sup>54</sup> The bandwidth necessary to produce one CD quality channel, for example, would be used to provide several high quality channels at data rates which are lower than those necessary to produce CD quality.<sup>55</sup> Use of variable data rates would promote efficient use of the spectrum.

54. We believe that DARS system licensees should be permitted to implement a mix of audio formats at variable data rates. We therefore do not propose to limit the licensees to a single standard for digital audio coding. We propose, instead, that satellite DARS applicants be required to identify which coding scheme and coding rate(s) they plan to implement on their satellite DARS systems and require those satellite DARS systems which intend to offer audio formats other than CD quality to be capable of transmitting lower quality audio at lower data rates. An applicant that intends to implement variable data rates, therefore, would be required to demonstrate how its space station will deliver signals at variable rates and how its individual satellite DARS receivers would be capable of adjusting the coding rate to provide less than CD quality audio channel selections to the end user. We propose to refrain from

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<sup>51</sup> DSBC Application, Appendix I at 10. CD Radio maintains that the technical feasibility of CD quality delivery at 128 kbps has been confirmed. CD Radio Opposition to Deny and Response at 37.

<sup>52</sup> Primosphere Comments at 11.

<sup>53</sup> NPR Comments at 3.

<sup>54</sup> AMRC Application at 5, Primosphere Application, Appendix 1 at 1; DSBC Application, Appendix I at 3.

<sup>55</sup> These high quality channels would be comparable to FM stereo or FM monaural and could be used to provide less demanding radio formats such as talk radio, sports and news.

requiring a particular level of audio quality or other quality for satellite DARS. We seek comment on this conclusion.

e. Terrestrial Gap Fillers

55. As previously discussed, signal blockage and multipath interference can affect the service link margin of a satellite DARS system. It is important for the satellite DARS systems to maintain sufficient service link margin to reproduce the original information transmitted by the satellite. Some satellite DARS applicants indicate that they intend to implement, as they find necessary, terrestrial repeaters, or "gap-fillers", in urban canyons and other areas where it may be difficult to receive DARS signals transmitted by a satellite. These terrestrial gap-fillers would re-transmit the information from the satellite to overcome the effects of signal blockage and multipath interference. None of the satellite DARS applicants, however, provided the necessary technical information in their applications to demonstrate how these complementary terrestrial repeater networks would be implemented. The proposed rules for satellite DARS provided in the supplemental comments include a number of provisions for complementary terrestrial networks, however.

56. We are not proposing rules to govern complementary terrestrial gap-fillers at this time because we do not have sufficient information. We request comment on whether separate applications for complementary terrestrial DARS authorization should be required to identify the number and locations of these terrestrial repeaters and also their operating frequencies. We request comment on whether, 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. We also request comment on other specifics of operation that would have to be identified. This would include whether the gap-fillers would require a bandwidth the same as the satellite's and whether the gap-fillers use the same frequencies as the satellite transmitters. If other frequencies would be used, what would they be? How would the end user tune the receiver to receive the signal, or would this be done automatically by the receiver according to signal strength? Until such information is available and applicants demonstrate how these complementary terrestrial networks would be implemented in the overall satellite system design, we cannot determine if terrestrial gap-fillers should be permitted and what rules should govern their use. Because gap-fillers are complementary to the satellite service, we propose to prohibit their operation except in conjunction with an operating satellite DARS system.

f. Cross Polarized Emissions

57. Cross polarized signals are orthogonal signals as seen by the receiver.<sup>56</sup> This technique is used extensively in the fixed-satellite service because it facilitates re-use of frequencies to accommodate multiple signals. It is proposed by the two parties filing Supplemental Comments that each licensee with an operational system may employ cross polarization within its frequency assignment and may transmit cross polarized signals in another licensee's frequency assignment under mutual agreement with that licensee.

58. Parties in this proceeding, however, disagree on the feasibility of cross polarization for multiple entry in a mobile environment. CD Radio maintains that sufficient cross-polarization isolation

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<sup>56</sup> Two signals which are orthogonal can occupy the same frequency. The cross polarization isolation achievable between two signals determines the practicality of two signals occupying the same bandwidth.

can be attained to permit use of cross polarization as a service enhancement for satellite DARS.<sup>57</sup> However, AMRC contends that cross-polarization will not be effective for transmission to mobile users since mobile receivers typically will not be able to discriminate cross-polarized signals after the polarization reversal effects of multipath reflections.<sup>58</sup>

59. The record is insufficient for us to analyze the benefits of potential capacity increases, if any, that may result from use of cross-polarized transmissions. It is not clear whether optimum cross-polarization isolation would be available to allow use of this technique for multiple entry in a mobile environment. However, licensees may be able to use this technique as a means of increasing system capacity.<sup>59</sup> We therefore propose that satellite DARS licensees, pursuant to mutual agreement with other satellite DARS licensees, may transmit on cross polarized frequencies in frequency assignments of other licensees.<sup>60</sup> We seek comment on whether any mutual agreements to share cross polarized frequencies should be subject to a spectrum cap should one be adopted.<sup>61</sup> Licensees who come to mutual agreement on the use of cross-polarized transmissions would be required to notify the Commission and demonstrate that cross-polarization sharing is feasible under shadowing and multipath conditions. The parties who achieve mutual agreement would also be required to apply to the Commission for approval of the agreement. Approval would be conditioned on the outcome of coordination with other administrations.

g. Inter-service Sharing

60. The issues related to inter-service sharing and, specifically, international coordination, are relevant regardless of the licensing option the Commission chooses to adopt, including an auction of spectrum. Satellite DARS licensees are required to coordinate with other Administrations over that portion of the 2310 - 2360 MHz band they are exclusively licensed to operate. Licensees may also reach mutual agreements with other licensees to maximize efficient use of the spectrum. Licensees would be required to submit their agreement to the Commission for authorization and would be required to coordinate their exclusive frequency assignments. We seek comment on any of the proposed requirements which follow and any additional requirements that would be necessary to facilitate international coordination in the most efficient manner, under any licensing approach.

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<sup>57</sup> CD Radio Response, Technical Response at 1-2. CD Radio notes that its antenna manufacturer states a 24.8 dB cross polarization isolation level. CD Radio maintains further that an occasional reflection causing the cross polarization isolation to fall from 20 dB to 9 dB causes only a 0.5 dB reduction in Eb/No.

<sup>58</sup> AMRC Reply Comments, Technical Appendix at 4. AMRC maintains that in a shadowing and multipath environment, cross-polar isolation levels can be expected to be only 11-12 dB which is significantly less than the traditionally accepted allowable limit of 20 dB for inter-system interference. See AMRC Application at 8 citing Propagation Effects for Land Mobile Satellite Systems: Overview of Experimental and Modeling Results, Goldhirsh and Vogel, NASA Reference Publication 1274.

<sup>59</sup> We note that two of the pending applicants propose a frequency diversity system. If the available bandwidth is equally divided and licensed to the four pending satellite DARS applicants, it would be necessary for the two licensees implementing a frequency diversity system to reach mutual agreement with other satellite DARS licensees to operate on cross-polarized frequencies in those licensees' band segments.

<sup>60</sup> See proposed section 25.214, Technical requirements for space stations in the digital audio radio service.

<sup>61</sup> See discussion, supra at para 39.

i. Domestic

61. The Commission noted in the Allocation Order that by allocating the 2310 - 2360 MHz band to satellite DARS, it would be necessary to accommodate aeronautical telemetry services now operating in the 2310 - 2390 MHz band in the upper portion of the band from 2360 - 2390 MHz. The aeronautical telemetry community supported this re-accommodation.<sup>62</sup> Footnote US328 was therefore added to Section 2.106 of our rules which allocated satellite DARS in the 2310 - 2360 MHz band on a primary basis. Continued use of the 2310-2360 MHz band by aeronautical telemetry and radiolocation users will be on a secondary basis only.<sup>63</sup> There is no need, therefore, to develop specific rules or coordination provisions for inter-service sharing between satellite DARS and existing users of the 2310 - 2360 MHz band in the U.S.

ii. International

62. Both Canada and Mexico are allocated the 1452 - 1492 MHz frequency band (L-band) for satellite and/or terrestrial DARS. Since U.S. satellite DARS systems will operate in the 2310 - 2360 MHz frequency band (S-band), coordination between U.S. satellite DARS and satellite and/or terrestrial DARS systems of adjacent countries is not necessary. Canada does, as we describe below, operate fixed terrestrial point-to-point microwave and mobile aeronautical telemetry systems in the 2310 - 2360 MHz band and the U.S. satellite DARS systems will be required to coordinate with these systems. We also note that the U.S. government uses the 1452-1492 MHz band extensively for mobile aeronautical telemetry operations and coordination of Canadian satellite and/or terrestrial DARS could be extremely difficult for U.S. government systems. This difficult coordination at 1452-1492 MHz between Canadian DARS and U.S. government systems could impact the coordination of U.S. satellite DARS systems with Canadian systems at 2310-2360 MHz.

63. CD Radio conducted an independent study which analyzes the coordination of U.S. satellite DARS systems with Canadian terrestrial systems in S-band and submitted it to the Commission.<sup>64</sup> This study identifies that the 2310-2350 MHz band is allocated, in Canada, for Fixed Service and Multipoint Communications Systems. The 2350 - 2360 MHz band is allocated for Mobile Telemetry.<sup>65</sup> The majority of Canadian fixed terrestrial systems operate in the lower 10 MHz of the 2310 - 2360 MHz

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<sup>62</sup> Allocation Order, supra n. 1 at 13.

<sup>63</sup> Footnote US328 states "In the band 2310 - 2360 MHz, the mobile and radiolocation services are allocated on a primary basis until January 1, 1997 or until a broadcasting-satellite (sound) service has been brought into use in such a manner as to affect or be affected by the mobile and radiolocation services in those service areas, whichever is later. The broadcasting-satellite (sound) service during implementation should also take cognizance of the expendable and reusable launch vehicle frequencies 2312.5, 2332.5, and 2352.5 MHz, to minimize the impact on this mobile service use to the extent possible." See Report and Order, GEN Docket No. 90-357, Released January 18, 1995, at 18.

<sup>64</sup> Letter to Chief, Satellite Radio Branch regarding the Coordination of 2310-2360 MHz with Canada (Coordination Study), dated February 14, 1994.

<sup>65</sup> Coordination Study at 3.

band.<sup>66</sup> It is also noted that 11 aeronautical telemetry base stations operate in the 2350 - 2360 MHz band. The majority of these base stations are located at high latitudes, however, where reduced power flux-density, the measured power of the satellite transmission in a specified area and bandwidth, would be received at the Earth's surface from the U.S. DARS satellite.<sup>67</sup>

64. CD Radio also argues that coordination of satellite DARS systems would be facilitated if all systems were required to meet a power flux-density (pfd) level at the Earth's surface of  $-139$  dB(W/m<sup>2</sup>/4kHz). It maintains further that the failure to meet this limit by any of the satellite DARS operators would lead to delays in service initiation by all licensees. DSBC disagrees with CD Radio regarding its proposal to require pfd limits on satellite DARS downlink transmissions. It adds that there is no pfd limit in the international Radio Regulations or the Commission's Rules for the 2310-2360 MHz band.

65. DSBC is correct that there is no pfd limit or threshold level to trigger coordination specified in the international Radio Regulations or in the Commission's Rules. We do not propose to require limits here. Further, our band sharing proposal could allow coordination of U.S. satellite DARS systems to proceed independently if necessary. It is therefore not likely that one satellite DARS operator would delay the coordination and implementation of other satellite DARS systems in the event the pfd at the Earth's surface is greater than  $-139$  dB(W/m<sup>2</sup>/4kHz) for each system. Applicants are reminded, however, that they are required to identify in their satellite DARS system applications the pfd at the Earth's surface from their spacecraft according to Section 25.114 (c)(11) of the Commission's Rules.

66. To alleviate the potentially difficult and lengthy coordination with other administrations, especially Canada, we propose to consider only spectrum above 2320 MHz for initial U.S. satellite DARS systems unless we decide to auction this spectrum.<sup>68</sup> We believe our proposal will equitably distribute the allocated satellite DARS spectrum. We further note that the Supplemental Comments propose that the first satellite DARS licensee(s) assigned spectrum would be authorized use of the uppermost available frequency assignment. It appears from the Coordination Study and the Supplemental Comments filed that the Canadian aeronautical base stations located in the upper portion of the 2310 - 2360 MHz band could be less difficult to coordinate than the fixed terrestrial stations located in the lower portion of the band. We request specific comment on whether our conclusions are correct.

67. Our proposal is to require that each satellite DARS licensee coordinate with other Administrations over that portion of the 2310 - 2360 MHz band they are exclusively licensed to operate. Since we propose to allow satellite DARS operators under mutual agreement with other licensees to

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<sup>66</sup> According to the Coordination Study, 186 of 213 Canadian terrestrial stations operate between 2310 - 2320 MHz. The remaining terrestrial networks are distributed relatively evenly across the 2320 - 2360 MHz band. See Coordination Study at 14.

<sup>67</sup> Coordination Study at 7. We note, however, that the Coordination Study is based on CD Radio's operating parameters and design. CD Radio does not propose to serve high latitude areas, such as Alaska, where pfd levels at the Earth's surface as high as those necessary to provide satellite DARS to the CONUS would be required. CD Radio's design therefore allows for a reduced pfd level at the Earth's surface in high latitude areas and the potential for harmful interference to Canadian terrestrial systems would be minimized.

<sup>68</sup> See discussion supra at paras 94-111. We note that CD Radio also suggests the potential for interference to a large majority of Canadian terrestrial systems could be avoided if the lower portion of the 2310 - 2360 MHz band is not implemented. See Coordination Study at 4.

transmit on cross polarized frequencies, we propose that licensees who come to mutual agreement apply to the Commission for approval of the agreement before coordination is initiated with other administrations by the licensee of the exclusive frequency assignment. The coordination process would begin after the systems' pertinent information is provided to the Commission for the advance publication, coordination and notification of frequency assignments pursuant to the international Radio Regulations as required by Section 25.111(b) of our Rules. We request comment on whether these proposals would require change if the proceeding is reopened and spectrum is auctioned.

### iii. Adjacent Band Services

68. Space Research has a primary allocation in Region 2 for deep space operations in the 2290-2300 MHz band. This radiocommunication service uses spacecraft or other objects located two million kilometers or more from Earth for scientific or technological research purposes. As AMRC maintains, it is important that this service remain protected from emissions that may be produced by operating satellite DARS transponders in the 2310-2360 MHz band.

69. Satellite DARS licensees must suppress emissions outside of the 2310-2360 MHz band to an acceptable level according to Section 25.202(f) of our rules. Techniques such as spectral shaping, coding, offset quadrature modulation and filtering, we believe, will minimize these emissions.<sup>69</sup> We solicit specific comment, however, on the levels of out-of-band emissions from satellite DARS space stations necessary to protect deep space operations and other radiocommunication services operating below the 2310-2360 MHz band and U.S. aeronautical telemetry systems which are to operate in the 2360-2390 MHz band.

### h. Feeder Links

70. In addition to the service links from the space station to the mobile, portable and fixed DARS receivers, one, or possibly more, feeder uplink earth stations in each satellite DARS system are required to transmit the audio programming information to be received by the end user. The feeder link portion of the satellite DARS network is essential to deliver service to the end user and ample contiguous spectrum is necessary to implement a viable satellite DARS service.

71. We do not propose a separate allocation of spectrum specifically for DARS feeder link use, however. Satellite DARS feeder link earth stations will operate at fixed locations and therefore are to be operated within fixed-satellite service (FSS) allocations. We propose not to permit, for DARS feeder links, use of the conventional FSS 4/6 GHz (C-band) and 12/14 GHz (Ku-band) frequency bands already used for U.S. fixed-satellite services.<sup>70</sup> We do not believe that satellite DARS feeder links operating in the conventional C-band and Ku-band FSS frequencies at orbital locations between 60 to 145 degrees west longitude would be an efficient use of the geostationary orbit and FSS spectrum. The DARS space

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<sup>69</sup> CD Radio contends that by employing these techniques, they can operate their transponders and achieve the out-of-band emission requirements specified by Section 25.202(f) of our rules. CD Radio Motion to Accept Additional Pleading at 3.

<sup>70</sup> The FSS frequency bands 3700-4200 MHz / 5925-6425 MHz (C-band) and 11.7-12.2 GHz / 14.0-14.5 GHz (Ku-band) are heavily used for domestic and separate international system FSS operations and are not available for satellite DARS feeder link operations. As a matter of licensing policy, we determined that MSS feeder link and similarly RDSS feeder links, should be at frequency bands other than those already used by domestic fixed satellites. See Mobile Satellite Service, 4 FCC Rcd. 604, 6050 (1989).

stations do not require the entire 500 MHz of spectrum allocated to the FSS in these conventional bands. Use of these frequency bands for satellite DARS feeder links would therefore preclude an FSS space station from using those particular orbital locations and spectrum for conventional FSS services and inhibit the fungibility of these orbit locations for future domestic FSS assignments.

72. The satellite DARS applicants propose feeder link operations in FSS bands other than the conventional 4/6 and 12/14 GHz bands<sup>71</sup> and comments were received on these proposals. Broadcast auxiliary users at 7 GHz generally agree that the portions of the satellite DARS applications which pertain to feeder link operations in the 7 GHz band should be denied.<sup>72</sup> They contend that the broadcast auxiliary bands are heavily used for electronic news gathering, inter-city relays and studio-to-transmitter links and that use of the 7 GHz band for satellite DARS feeder link operations would not be feasible.<sup>73</sup> There has been no indication from the satellite DARS applicants which propose to use the 7 GHz band for feeder links whether mobile Electronic News Gathering (ENG) equipment would cause interference to satellite receivers. We request comment on this matter.

73. We note, however, that satellite DARS feeder link earth stations would undoubtedly employ highly directive antennas at high elevation angles. It is likely that satellite DARS feeder links in the 7025-7075 MHz band could be coordinated to operate compatibly with fixed point-to-point terrestrial TV broadcast auxiliary microwave stations. We also recognize that the mobile nature of ENG operations in the 7 GHz band could make coordination difficult in areas where ENG is heavily used. We therefore believe that in those markets where TV broadcast auxiliary stations are fixed links and light ENG use is presently conducted at 7 GHz, a carefully engineered and coordinated satellite DARS uplink may well be able to co-exist with point-to-point terrestrial TV broadcast auxiliary microwave stations.

74. We propose not to delay the licensing and implementation of the space segment for satellite DARS. We are encouraged that sufficient non-congested FSS frequency bands will be available for use for satellite DARS feeder link operations. We also recognize that, in light of our proposed band sharing plan, feeder link requirements for each satellite DARS system may change. To this end, we are placing the satellite DARS applicants on notice that the bands which have been indicated in their initial satellite DARS applications for feeder link operations may not be available and they may consequently be required to modify their system designs. Applicants should identify in their amended satellite DARS applications which non-congested FSS frequency band it proposes for feeder link operations, and should identify alternative non-congested FSS frequency bands that would be suitable for its feeder link operations.

75. In addition, we will act on the space station and earth station filings for satellite DARS separately. Choice of earth station sites and frequencies is typically provided in an earth station

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<sup>71</sup> Primosphere proposes use of 50 MHz in the 7025-7075 MHz frequency band, AMRC proposes use of 10 MHz in the 6530-6545 MHz frequency band, DSBC proposes use of 355 MHz in the 6500-6855 MHz frequency band and CD Radio proposes use of 20 MHz in the 7035 -7055 MHz band. Primosphere Application, Appendix 1 at 2, AMRC application at 12, DSBC application, Appendix I at 34, and CD Radio Application at 23.

<sup>72</sup> Comments of Society of Broadcast Engineers at 3.

<sup>73</sup> Association for Maximum Television at 2, NPR Further Comments at 8; SBE Informal Objections at 2.

application as well as analyses to determine the impact on existing users of the frequency bands.<sup>74</sup> Satellite DARS applicants that propose to use the 7 GHz band for feeder link operations, for example, would be required in their earth station filing to demonstrate that no mutually unacceptable interference exists with broadcast auxiliary and mobile ENG users in the band.<sup>75</sup> Satellite DARS applicants are also cautioned that feeder link operations for non-geostationary MSS networks are proposed in non-congested FSS frequency bands.<sup>76</sup> In this regard we invite comment on the feasibility of satellite DARS feeder link networks and non-geostationary MSS feeder link networks operating compatibly in the same frequency bands.

## 2. Rules Applicable to a Licensing Approach Based on the Four Current Applicants

76. In addition to the generic technical proposals that would apply to any satellite DARS applicant, we also propose several specific rules and licensee qualifications that will allow prompt action on the four current applications if the Commission chooses not to reopen the processing group.

### a. Intra -Service Sharing

77. The four pending satellite DARS applications, as originally filed, have combined spectrum requirements which exceed the 50 MHz of spectrum allocated for satellite DARS. The four applicants also propose system designs which differ in channelling plans, modulation schemes, and multiple entry techniques.<sup>77</sup> The applicants have made efforts, however, to demonstrate that their applications are not mutually exclusive and, as a result, two of the applicants have submitted proposed rules for satellite DARS intra-service sharing. On November 9, 1994, CD Radio filed supplemental comments including, among other proposals, a plan that would permit each of the four applicants to share the available spectrum on an equal basis.<sup>78</sup> CD Radio filed the proposed rules on behalf of itself but stated that they were a result of negotiations among the parties. It stated that no final agreement was reached on all of the rules but that, to CD Radio's knowledge, no controversy among the applicants exists over spectrum sharing. Indeed, DSBC replied to CD Radio's supplemental comments and submitted its own proposals, stating that any differences between its proposals and CD Radio's proposals can be harmonized and should not

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<sup>74</sup> See Section 25.130 of the Commission's Rules, Filing requirements for transmitting earth stations.

<sup>75</sup> Satellite DARS licensees shall take whatever steps necessary to avoid mutual interference with broadcast auxiliary and mobile ENG users in the 7 GHz band according to Section 74.604 of the Commission's Rules.

<sup>76</sup> Considerable work, both domestic and international, has been completed to determine the feasibility of non-geostationary MSS feeder link operations using reverse band working in certain FSS bands below 17 GHz. FCC proposals for WRC-95 reflect the outcome of ITU-RS Task Groups 4/5 and 8/3 which studied this issue. See Second Notice of Inquiry, \_\_\_ FCC Rcd \_\_\_, 60 Fed. Reg. 8894 (Feb. 16, 1995).

<sup>77</sup> CD Radio, Primosphere and AMRC, for example, propose to time division multiplex a number of signals into a composite channel but DSBC proposes use of orthogonal code division multiplexing (spread spectrum). CD Radio, Primosphere, and DSBC propose use of cross polarization to provide for multiple systems in the 50 MHz of allocated spectrum. AMRC, however, asserts that use of cross polarization for multiple entry would not be feasible.

<sup>78</sup> These Supplemental Comments are being considered as a petition for rulemaking. See RM 8610.

block the development of an NPRM.<sup>79</sup> The Supplemental Comments propose a band segment approach for intra-service sharing to avoid imposing complex sharing arrangements on satellite DARS licensees that may result from the wide diversity in satellite DARS system designs. We propose to use this approach as a basis for our proposed rules and intra-service sharing arrangement if we determine to license the four current applicants and do not accept additional applications. Applicants would be permitted to amend their applications to conform with the sharing approach, if adopted.

78. Based on preliminary technical analysis, we believe that the four pending applicants should be able to operate over 40 MHz of the available spectrum, with each assigned to a minimum spectrum block of 10 MHz. We base this on the coding schemes and channeling plans presented in the originally filed applications. It is also based on the provision in our proposed rules that licensees would be permitted to operate on the cross polarized frequencies of other licensees' assignments under mutual agreement. This approach would accommodate the pending applicants, even assuming that the lower 10 MHz of the allocated DARS spectrum is not readily available for DARS licensing because of interference constraints. We request comment on whether our tentative conclusion is correct that exclusive assignment of 10 MHz of spectrum is sufficient for each proposed satellite DARS system.

#### i. Band Segments

79. The Supplemental Comments identify the term "usable bandwidth". Both DSBC and CD Radio define the term as that portion of the 2310-2360 MHz band that is usable by satellite DARS licensees. DSBC more specifically defines the usable bandwidth as the 2310-2360 MHz band, and indicates that this may be changed by the Commission or by mutual agreement of the satellite DARS licensees. Nevertheless, it was proposed that the usable bandwidth be divided into four frequency assignments and that these frequency assignments be distributed equally among the four pending applicants from the initial processing group. Should any system license be cancelled, it is proposed that the usable bandwidth be re-divided, pro-rata, among the remaining licensees.

80. We propose a similar band sharing approach but based specifically on 10 MHz band assignments. As discussed elsewhere in this NPRM in further detail, due to the number of Canadian fixed point-to-point microwave facilities in the lower 10 MHz (2310-2320 MHz) portion of the band, a satellite DARS licensee assigned these frequencies would experience relatively greater coordination difficulties with Canadian terrestrial services than those licensees assigned to the upper 40 MHz (2320-2360 MHz).<sup>80</sup> It therefore appears that the proposals submitted in the Supplemental Comments could lead to an inequitable coordination burden for the licensee assigned the lower 10 MHz of the DARS band. If we decide not to accept additional applications, we propose to divide the 2310-2360 MHz band into five equal 10 MHz bands and to assign each satellite DARS licensee a minimum of 10 MHz of exclusive spectrum located in one of the four 10 MHz bands above 2320 MHz. The term "usable bandwidth" defined by the applicants would therefore be considered as the 2320-2360 MHz band in our proposal. We also propose to allow licensees to use the channelling plans, modulation schemes, and multiple entry techniques of their choice in their exclusive frequency assignments as proposed in the Supplemental Comments. In addition,

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<sup>79</sup> DSBC suggested somewhat different rules for financial qualifications, the authorization duration and time of frequency assignments, and authorization of interim frequency assignments but it did propose a spectrum sharing plan consistent with CD Radio's plan.

<sup>80</sup> See discussion on inter-service sharing with Canadian terrestrial systems, supra at paras 62-67.

subject to any applicable legal restrictions,<sup>81</sup> we propose that licensees be permitted to acquire additional spectrum from other licensees.

81. We request comment on whether this sharing arrangement furthers the public interest in efficient use of spectrum and in maximizing competition in this market. Commenters addressing this issue should also indicate whether this proposed 10 MHz band segment approach would render the current applications mutually exclusive by limiting the amount of spectrum assigned to such an extent that viable service is not possible and all four applicants can not be accommodated. We propose to auction any additional spectrum that becomes available if any of the four current applicants fails to implement its proposal and we receive mutually exclusive applications for that spectrum. Also, if the Commission ultimately adopts the 10 MHz band segment approach, what uses for the lower 10 MHz of spectrum would be appropriate and how should it be licensed? Could a similar band segment approach be implemented if the Commission chose to assign only part of the usable bandwidth such as a total of 25 MHz?

82. We request overall comment on our band sharing proposal for licensing the four applicants, including whether the four applicants can be accommodated in 40 MHz, and on other alternative spectrum sharing approaches that could accommodate multiple entry in this service. If the record in response to this Notice clearly reveals that assignment of the lower 10 MHz would not result in an inequitable coordination burden among the licensees, we would re-consider defining the usable bandwidth as 2310-2360 MHz and the four 12.5 MHz band segment approach. We also request comment on how our band sharing proposal would impact individual satellite DARS receiver designs including the incorporation of the command signalling channels necessary for the satellite DARS operator to remotely tune the receivers to operate at various center frequencies.

83. Specific comment is also sought on how our band sharing approach would affect the location of telemetry beacons. The Supplemental comments suggest that each system operator reduce its bandwidth occupancy by 0.1 MHz to create two 0.2 MHz assignments adjacent to the edge of the usable bandwidth for location of telemetry beacons. In light of our proposed band sharing plan, however, we request comment on how location of telemetry beacons would be impacted if unlicensed spectrum is assigned to other licensees and a center frequency shift is necessary for each satellite DARS system. An alternative might be to locate all telemetry beacons at the lower edge of the 2310 - 2360 MHz band. Though this would put less of a constraint on the use of the upper 40 MHz of spectrum, an added constraint would be placed on any future licensee of the lower 10 MHz band. We request comment on this alternative and the appropriate location for telemetry beacons.

## ii. Frequency Assignments

84. CD Radio proposes in its Supplemental Comments that, unless the licensees agree otherwise, each licensee shall be assigned the highest frequency assignment available on the date of launch of its first spacecraft. It further proposes that each licensee must notify the Commission of the specific frequency assignment it is using at the same time it certifies to the Commission it has met the milestone and launched its first spacecraft. DSBC asserts that the frequency assignment should be assigned on the date the applicant is authorized to commence construction.

85. The coordination process with Canada and Mexico will need to begin long before the first satellite DARS licensee certifies to the Commission that it has met the milestone requiring launch of its

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<sup>81</sup> E.g., 47 U.S.C. § 310.

spacecraft.<sup>82</sup> CD Radio's approach would therefore require satellite DARS licensees to begin coordination with Canada across the entire 2310 - 2360 MHz band since each licensee would not know in the interim which exclusive frequency assignment it must coordinate. This approach, we believe, would be overly burdensome for both the Commission and the licensees. We propose to authorize specific satellite DARS frequency assignments upon grant of satellite DARS licenses to begin construction. We propose to assign frequencies on the basis that, pursuant to our band sharing plan, each assignment is equally suitable for service. This approach would expedite the U.S./Canada coordination process and the implementation of U.S. satellite DARS systems. We request comment on our proposal to assign frequencies.

### iii. Interim Frequency Assignments

86. CD Radio proposes in its Supplemental Comments that a satellite DARS system operator be permitted temporarily to occupy frequency assignments other than its own provided its transmissions can be reconfigured to use only its own frequency assignment upon launch of the satellite operated by the licensee assigned to the frequency. DSBC objects to this proposal in its reply comments. It asserts that while temporary use by the first operator(s) might avoid having frequencies lie fallow for a short time, prescribing temporary use may be disruptive and contrary to the public interest because the temporary operator could be faced with reducing its services, discontinuing its service to its customers, or seeking to utilize frequencies that are rightfully assigned to another licensee once the temporary spectrum is no longer available for use.<sup>83</sup>

87. It is unclear whether an interim assignment would be necessary to implement a satellite DARS system. We expect that the coordination of the individual satellite DARS licensed systems will proceed simultaneously according to our proposed milestone requirements and spectrum would not lie fallow during the coordination process. Also, in the event that one or more licensed systems are not implemented, and remaining spectrum is assigned to other licensees, we agree with DSBC that an interim assignment may be disruptive and contrary to public interest because of possible service interruption or reduction. We therefore propose not to authorize interim frequency assignments to satellite DARS licensees but request comment on this issue.

#### b. Financial Qualifications/Milestone Requirements

88. The Commission has historically imposed financial qualifications on applicants seeking to provide satellite based services. The huge costs involved in implementing satellite proposals have proven to be a significant obstacle to new entrants and have often led to unsuccessful and prolonged attempts to obtain financing while service to the public is delayed and other qualified applicants are precluded from participating.<sup>84</sup>

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<sup>82</sup> Although we specifically mention coordination with Canada and Mexico, we may need to coordinate with other countries depending on the final configurations of the satellite systems.

<sup>83</sup> DSBC Reply to Supplemental Comments at 4, fn. 9.

<sup>84</sup> See, e.g., National Exchange Satellite, Inc., 7 FCC Rcd 1990, (Com. Car. Bur. 1992), recon. 8 FCC Rcd 3 (1993); Rainbow Satellite Inc., Mimeo No. 2584 (Com. Car. Bur., released Feb. 14, 1985); United States Satellite Systems, Inc., Mimeo No. 2583 (Com. Car. Bur., released Feb. 14, 1985) (domestic satellite licenses declared null and void for failure to begin implementation as required by license).

89. Two DARS applicants suggested financial qualification rules. CD Radio suggests that applicants be required to demonstrate their financial ability to proceed with construction, launch and operation of their proposed systems in accordance with an established schedule of milestones. While CD Radio suggests that each applicant submit the same financial information as that required from domestic fixed-satellite applicants, it is not clear at what point in the construction process that CD Radio intends to require satellite DARS licensees to obtain full financing. DSBC urges the Commission to adopt a financial qualification standard based on due diligence requirements identical to the one used in the Direct Broadcast Service.<sup>85</sup> DSBC argues that such a relaxed standard is appropriate because DARS is a new high-technology, high risk, capital intensive venture where it may be difficult to attract financial support.

90. Although we appreciate DBSC's concerns about the difficulty in obtaining financing for new, unproven ventures, our experience in licensing satellite system applicants that have not been able to raise sufficient funds to implement their systems makes us wary of adopting a standard that does not ensure that the public will be offered service in a timely fashion. We also believe that DARS applicants should not be held to the stricter standard imposed on applicants in the domestic fixed-satellite service. Because it appears that all pending applications can be granted if the Commission chooses to license the current applicants and not reopen the processing group, and that one licensee's pursuit of financial resources will not preclude another applicant from implementing its system, we see no need to require applicants to demonstrate full funding before we will award licenses. Rather, we propose to adopt a standard that will give applicants an additional year to arrange financing but will nonetheless assure that limited frequencies do not remain unused.<sup>86</sup> Pursuant to this standard, applicants may demonstrate financial qualifications in stages. In order to receive a license, we propose to require applicants to provide evidence of financial capability, through a balance sheet showing the funding, a commitment from a corporate parent if the applicant is relying on the parent for the funds, or showing estimated income or revenues anticipated from proposed operations.

91. In addition, we propose to require each satellite DARS licensee to show that, within one year of grant and in conjunction with its showing that it has commenced construction of its first satellite, it has firmly committed resources sufficient to cover the cost of construction, launch and one year's operation of its proposed system. This second demonstration is to be made in the same manner as that required of domestic fixed-satellite licensees. This will provide DARS licensees with a year to complete financing arrangements once they have a license in hand. In addition, the public interest will be served by bringing DARS service to consumers in a timely manner.

92. In addition to financial qualifications, strict adherence to milestones will assure that licensees are proceeding expeditiously with their plans and that scarce spectrum resources do not remain unused. Applicants filing supplemental comments, CD Radio and DSBC, suggest that licensees be required to begin construction of the first satellite within one year of license grant, begin construction of the second satellite, if applied for, within two years and have at least one satellite in operation within six years of grant. We are concerned that the final operational milestone of six years suggested by the applicants will not provide the Commission with sufficient control over the prompt implementation of satellite DARS systems. After a contract has been signed, the typical time required to complete construction of a space station is three years. Thus, if a licensee is actively pursuing its plans, its first satellite should be ready to launch within four years of license grant. Therefore, in addition to requiring

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<sup>85</sup> See 47 C.F.R. § 100.19(b).

<sup>86</sup> See e.g. Radiodetermination Satellite Service, 104 F.C.C. 2d 650 (1986) at paras 22-25; 47 CFR §25.141.

that licensees begin construction of their first satellite within one year, we propose a rule requiring launch and operation of the first satellite within four years of license grant and full operation of an entire satellite system comprised of more than one satellite within six years of grant. Such a schedule, together with the financial showing proposed, will allow careful monitoring of licensees' progress. We request comment on whether this tighter milestone schedule is appropriate. DARS licenses will be conditioned on meeting these milestones, licensees will be required to notify the Commission when they have met them, and failure to conform to this schedule will render the licenses null and void.

93. Under an auction-based procedure, given the substantial up-front payments expected, we assume that financial qualifications and construction milestones for licensees would be unnecessary. We seek comments on this assumption. The Commission's statutory authority directs it to include in auction rules performance requirements necessary to ensure that service is implemented promptly and spectrum is not warehoused.<sup>87</sup> Raising additional capital necessary to prevail in an auction creates additional pressure from investors to use licenses efficiently and intensively. We seek comment on whether the auction-based assignment procedure should include less stringent administrative requirements and supervision of progress in system implementation than do the other licensing options. We seek further comment on appropriate performance requirements for the auction-based option, and anti-warehousing and anti-trafficking rules appropriate in an auction environment.

### 3. Rules Applicable to a Licensing Approach Based on Auctions Procedures

94. If the Commission chooses to reopen the application cut-off window and if additional applications are filed that create a mutually exclusive situation, competitive bidding auctions would be a possible selection method. Section 309(j) of the Communications Act gives the Commission the authority to employ competitive bidding procedures to select licensees if certain factors are present. These factors include: 1) mutual exclusivity between applicants, 2) the principal use of the spectrum would be to provide subscription services, and 3) the use of auctions would further certain public interest objectives.<sup>88</sup> In this NPRM we propose rules that would enable us to use auctions as a licensing method for satellite DARS if that decision appears warranted.

95. In order to employ auctions in any given service, the Commission must determine if mutual exclusivity exists between applications. Although it does not appear on the existing record that the four current applicants are mutually exclusive,<sup>89</sup> if additional entities file, given the limited amount of spectrum available, *i.e.* 50 MHz, all applicants' proposals might not be able to be accommodated. We seek comment on whether, if the processing group were reopened, new applicants would file and whether these applications would result in a mutually exclusive situation.<sup>90</sup>

96. In addition, the Commission must determine if

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<sup>87</sup> See 47 U.S.C. § 309(j)(4)(B).

<sup>88</sup> 47 U.S.C. § 309(j). Implementation of Section 309 9(j) of the Communications Act Competitive Bidding, 9 FCC Rcd 2348 (1994) (Second Report and Order).

<sup>89</sup> See discussion *supra* at paras 79-83.

<sup>90</sup> See Second Report and Order, *supra* n. 88 at para. 19 where we stated that it was premature to determine whether mutual exclusivity will occur in the satellite DARS proceeding.

...the principal use of such spectrum will involve, or is likely to involve, the licensee receiving compensation from subscribers in return for which the licensee (i) enables those subscribers to receive communications signals that are transmitted utilizing frequencies on which the licensee is licensed to operate; or (ii) enables those subscribers to transmit directly communications signals utilizing frequencies on which the licensee is licensed to operate...<sup>91</sup>

The Commission has previously decided that auctions were authorized if at least a majority of the use of the spectrum would be for service to subscribers and in making this determination, we decided to look to classes of licenses and permits rather than at individual licenses.<sup>92</sup> With respect to satellite DARS, we tentatively conclude it is likely that the principal use of the spectrum will be to provide subscription based services.<sup>93</sup> We base this tentative conclusion on the proposals by the four current applicants, three out of four of whom propose subscription service. We request comment on this issue, including information from any potential applicants on the type of service they contemplate offering.

97. Further, we tentatively conclude, but ask for comment on this tentative conclusion, that a competitive bidding procedure could further the statutory public interest objectives we are obliged to consider.<sup>94</sup> These objectives include:

(A) the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas, without administrative or judicial delays;

(B) promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women;

(C) recovery for the public of a portion of the value of the public spectrum resource made available for commercial use and avoidance of unjust enrichment through the methods employed to award uses of that resource and

(D) efficient and intensive use of the electromagnetic spectrum.<sup>95</sup>

98. First, a competitive bidding procedure for satellite DARS could permit this new technology to be rapidly introduced, particularly to those residing in rural areas without a wide range of terrestrial radio choices. We ask for comment on whether auctions would be a faster licensing process than other approaches such as lotteries or comparative hearings for mutually exclusive applications. Alternatively,

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<sup>91</sup> 47 U.S.C. § 309 (j)(2)(A).

<sup>92</sup> Second Report and Order, *supra*, n. 88 at 2354.

<sup>93</sup> See First Report and Order and Second Notice of Proposed Rule Making in ET Docket No. 94-32, FCC 95-47, 10 FCC Rcd. 4769 (1995).

<sup>94</sup> 47 U.S.C. § 309(j)(2)(B).

<sup>95</sup> 47 U.S.C. § 309 (j)(3).

would licensing the four current applicants pursuant to rules proposed in this notice provide quicker service to the public than would auctions?

99. Second, the statutory policy objective of promoting economic opportunity by awarding licenses to a variety of entities including small businesses, and businesses owned by minorities and women, has been addressed in our auction rules in other services via bidding credits, installment payments and set-asides. We seek comment on how to address this directive in the context of satellite DARS. Third, an auction also would allow the public to recover the value of the spectrum resource. Finally, it could encourage efficient spectrum use and force bidding applicants to develop concrete and realistic business plans in the process of preparing bids. We note that the Commission, in its discretion under the 1993 Budget Act, could choose to utilize a lottery to issue satellite DARS licenses.<sup>96</sup> We seek comment on whether the factors that led the Commission to prefer lotteries over auctions for pending applications in existing services, such as concern about delay in licensing and equitable considerations in favor of existing applicants, are present here.<sup>97</sup>

100. If an auction is employed for satellite DARS, we anticipate conducting it pursuant to the general framework adopted in the Second Report and Order,<sup>98</sup> the Commission's rules,<sup>99</sup> and consistent

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<sup>96</sup> Omnibus Budget Reconciliation Act of 1993 § 6002 (e) (prohibiting the use of lotteries to issue licenses unless one or more applications for such license were accepted for filing before July 26, 1993).

<sup>97</sup> See Memorandum Opinion and Order, PP Docket 93-253, 9 FCC Rcd. 7387 (1994) (determining to use lotteries to award licenses for cellular unserved areas in which applications were filed prior to July 26, 1993).

<sup>98</sup> Supra n. 88.

<sup>99</sup> 47 CFR Part 1, Subpart Q.

with other Commission proceedings where auctions have been employed.<sup>100</sup> We also propose certain service specific parameters if we choose to auction this spectrum.<sup>101</sup>

101. In addition, if the Commission chooses the auction option, we also request comment on whether there are any ways within the context of competitive bidding procedures, that the investment of the four current satellite DARS applicants and accompanying equities in their favor could be recognized.<sup>102</sup> In designing auctions, the Commission has an obligation to enact payment schedules that prevent unjust enrichment.<sup>103</sup> Current DARS applicants' efforts and expenditures in the past may have lowered the cost of developing DARS service and increased consumer receptivity to DARS. Assuming this is so, new applicants will benefit from these efforts and expenditures. We seek comment about whether such benefits would cause unjust enrichment for new applicants if this spectrum were auctioned. We request comment on whether current DARS applicants could be given bidding credits equal to the estimated value of the benefits that they have created for new applicants or whether they could be permitted to use a system of installment payments to satisfy their commitments pursuant to an auction. We also seek comment on how the value of such benefits could be measured, and on their magnitude. We request comment on these possibilities and on any other procedures the Commission could employ and on the extent of our legal authority to do so. For example, we may provide a licensee up to a 15% discount and guaranteed license pursuant to the pioneer's preference provisions in Section 309(j)(13) if it qualifies for a preference. Below we seek comment on the pending pioneer's preference requests filed by DSBC, Primosphere and CD Radio.

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<sup>100</sup> See, Narrowband PCS Third Report and Order in PP Docket No. 93-253, 9 F.C.C. Rcd. 2941 (1994) (establishing competitive bidding rules for narrowband Personal Communications Service), recon. Third Memorandum Opinion and Order and Further Notice of Proposed Rule Making, 10 F.C.C. Rcd. 175 (1994). See also Order on Reconsideration in PP Docket No. 93-253, 9 F.C.C. Rcd. 5306 (1994). IVDS The Fourth Report and Order, PP Docket No. 93-253, 9 F.C.C. Rcd. 2330 (1994) (establishing rules for Interactive Video and Data Service). Broadband PCS Fifth Report and Order in PP Docket No. 93-253, 9 F.C.C. Rcd. 5532 (1994) (establishing competitive bidding rules for broadband Personal Communications Service); See also Order on Reconsideration, PP Docket No. 93-253, 9 F.C.C. Rcd. 4493 (1994); Fourth Memorandum Opinion and Order in PP Docket 93-253, 9 F.C.C. Rcd. 6858 (1994); Fifth Memorandum Opinion and Order in PP Docket 93-253 10 F.C.C. Rcd. 403 (1994). Second Report and Order in Gen Docket No. 90-314, 8 F.C.C. Rcd. 7700 (1993) (establishing the allocation and regulatory structure for Personal Communications Service), recon. Memorandum Opinion and Order, 9 F.C.C. Rcd. 4957 (1994). See also Order on Reconsideration in Gen Docket No. 90-314, 9 F.C.C. Rcd. 4441 (1994), on further recon. Third Memorandum Opinion and Order in Gen. Docket No. 90-314, 9 F.C.C. Rcd. 6908 (1994) FCC 94-265. See also, SMRS Second Report and Order and Second Further Notice of Proposed Rule Making in PP Docket No. 93-253, FCC 95-159 (released April 17, 1995) (proposing competitive bidding rules for licensing 900 MHz Specialized Mobile Radio service). 5 GHz First Report and Order and Second Notice of Proposed Rule Making in ET Docket No. 94-32, FCC 95-47, 60 Fed. Reg. 13102 (March 10, 1995) (proposing competitive bidding rules for the 4660-4685 MHz frequency band); Notice of Proposed Rulemaking in MM Docket No. 94-131, 9 FCC Rcd 7665 (1994) (proposing competitive bidding rules for MMDS and ITFS).

<sup>101</sup> See 47 U.S.C. § 309(j)(4).

<sup>102</sup> See discussion of Option 3, infra.

<sup>103</sup> 47 U.S.C. § 309 (j)(4)(E).

102. We propose to auction 50 MHz of downlink frequency segments<sup>104</sup> according to a band plan that we choose based on comments in this proceeding and we may also limit the number of segments on which a licensee may bid successfully.<sup>105</sup> Licenses would be national in scope. We propose that our rules on a band plan and spectrum cap be structured to allow flexibility in DARS system design while also ensuring competition among service providers. The size of the proposed spectrum blocks may be different for the auction based approach than for the approach based on spectrum sharing between the four current applicants.<sup>106</sup>

103. In addition, we tentatively conclude to use a single, simultaneous multiple round procedure to allow licensees to aggregate and/or substitute spectrum blocks. The International Bureau would announce the time and place of the auction and provide additional information to bidders by future public notice.

104. We propose to adopt the short-form application procedures, payment requirement, public notice procedures, and anti-collusion rules, and default and disqualification payment requirements set forth in Subpart Q of Part 1 of the Commission's rules.<sup>107</sup> We propose adoption of the standard upfront payment formula of \$0.02 per pop-MHz, based on the number of 5-MHz blocks identified in the applicants' Form 175. Requiring applicants to make significant financial arrangements prior to participation helps assure that applicants take the licensing procedure seriously. In addition, upfront payments provide available funds for the collection of possible bid withdrawal and default payments. The formula proposed would result in an upfront payment of about twenty-five million dollars for a national license of 5MHz. We seek comment on whether this is an appropriate amount for an upfront payment for an auction of S-band spectrum. We also seek comment on whether and to what extent rules on upfront payments should include special consideration for the four current applicants.<sup>108</sup> We also ask whether the upfront payment should be reduced for small businesses.<sup>109</sup> Would such a large upfront fee impose a significant barrier to entry to these auctions that it would be contrary to the directives of Section 309(j) regarding opportunities for small businesses or, as discussed below,<sup>110</sup> should a substantial upfront payment be imposed to ensure that applicants are financially qualified to acquire a DARS license and to construct and operate a DARS system?

105. Section 309(j) of the Communications Act also provides that, when promulgating competitive bidding regulations, the Commission must "ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given the opportunity

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<sup>104</sup> See para 31, supra.

<sup>105</sup> See discussion supra at para 39.

<sup>106</sup> Id.

<sup>107</sup> 47 C.F.R. Part 1, Subpart Q. See Second Report and Order in PP Docket 93-252.

<sup>108</sup> See discussion infra at para 101 re possible auction preferences for the current applicants.

<sup>109</sup> See discussion on designated entities infra at para 107-108.

<sup>110</sup> Id.

to participate in the provision of spectrum-based services."<sup>111</sup> To implement the statute's provisions concerning these "designated entities," the Commission specified several possible measures, including installment payments, bidding credits and spectrum set-asides, to choose from when establishing competitive bidding procedures for particular services.<sup>112</sup>

106. In the Competitive Bidding Second Report and Order, we also indicated that special measures for such entities may not be appropriate in all circumstances. For example, we stated that installment payments should not be available for all spectrum auctions. Rather, in order to match such measures with eligible recipients (*i.e.*, small businesses), installment payments would only be available for certain licenses that do not involve the largest spectrum blocks and service areas. We did not want to delay service to the public by encouraging under-capitalized firms to receive licenses for facilities which they lack the resources adequately to finance.<sup>113</sup> In addition to installment payments, we also indicated that, in service-specific rules, we may determine that bidding credits are necessary to provide designated entities the opportunity to bid successfully for a license. This determination, we stated, would "rest in whole or in part on our assessment of the available opportunities in, and characteristics of, a specific spectrum-based service."<sup>114</sup>

107. We note further that, as discussed above, Section 309(j)(3) also requires the Commission to promote economic opportunity and competition and ensure that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants, including designated entities.<sup>115</sup> The statute, however, directs the Commission, in specifying auction procedures, to pursue other objectives: "the development and rapid deployment of new technologies, products, and services for the benefit of the public, including those residing in rural areas, without administrative or judicial delays" and of promoting "efficient and intensive use of the electromagnetic spectrum."<sup>116</sup>

108. In light of the above discussion and the Commission's previous determination in another satellite service,<sup>117</sup> we seek comment on how the Commission can strike a proper balance in the public interest among the statutory objectives if competitive bidding is used for licensing satellite DARS. In particular, we seek comment on what, if any, special measures for designated entities are necessary in this service to achieve each of the statute's objectives. In this regard, parties should comment on appropriate

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<sup>111</sup> 47 U.S.C. § 309(j)(4)(D); § 309(j)(3)(B), (j)(4)(A).

<sup>112</sup> See Second Report and Order, *supra*, n. 88 at paras. 227-288.

<sup>113</sup> *Id.* at para 237, *citing* 47 U.S.C. § 309(j)(3)(A). In addition, the legislative history explaining the designated entity provisions of the auction statute states that "the characteristics of some services are inherently national in scope, and are therefore ill-suited for small businesses." H.R.Rep. No. 111, 103d Cong., 1st Sess. 254 (1993).

<sup>114</sup> Second Report and Order, *supra*, n. 88 at para. 242.

<sup>115</sup> 47 U.S.C. § 309(j)(3)(B)

<sup>116</sup> *Id.* § 309(j)(3)(A), (D).

<sup>117</sup> See Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 Mhz Frequency Bands, Report and Order, CC Docket 92-166, 9 FCC Rcd 5936, 5969-70 (1994).

eligibility criteria for such measures. Specifically, if installment payments are adopted for small businesses, we invite comment on the appropriate definition of "small business," taking into account the likely capital requirements for DARS licensees and the other characteristics of the service.<sup>118</sup> We also request comment on whether to implement a bidding credit program for satellite DARS. In connection with any measures for designated entities, commenters should also address means of preventing unjust enrichment through trafficking of licenses.<sup>119</sup>

109. We propose that each applicant would be required to specify on its Form 175 its status as a designated entity (if applicable), the frequency blocks applied for, and the persons authorized to place or withdraw bids. Applicants would have to identify any arrangements or agreements with other parties relating to the licenses that are subject to auction. The timing and duration of auction rounds would be determined by the International Bureau and announced by public notice. This notice would include information on the size of bid increments, activity rule, and stopping rules, and the proposed end of an auction after a specified number of rounds.

110. We propose to employ bid withdrawal and default rules similar to prior auctions. At the conclusion of the auction, winning bidders would be required to supplement their upfront payments and file their long-form applications pursuant to our rules on satellite applications.<sup>120</sup> Applicants would have 30 days to file their long form applications and when these are filed, the International Bureau would issue a public notice announcing the acceptance of the applications for filing.

111. Finally, recognizing that we have not yet identified specific frequencies for feeder links in this service,<sup>121</sup> we request comment on whether auctionable satellite DARS spectrum segments should include accompanying feeder link spectrum.<sup>122</sup> The Commission has previously concluded that service used as part of end-to-end subscriber based offerings would meet the statutory criteria for auctions. While the Commission decided in its Second Report and Order in the Competitive Bidding rulemaking proceeding, not to auction intermediate links, including feeder links in the Mobile Satellite Services (MSS), it appears that this determination was based not on the failure of such services to meet the principal use test, but on the finding that auctions for intermediate links would not achieve the public interest objectives in 309(j)(3).<sup>123</sup> We tentatively conclude, however, that mutually exclusive applications

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<sup>118</sup> See 47 C.F.R. § 1.2110(b)(1).

<sup>119</sup> See 47 U.S.C. § 309(j)(4)(E).

<sup>120</sup> See 47 C.F.R. § 25.114.

<sup>121</sup> See discussion, supra re feeder links at paras 70-75.

<sup>122</sup> In our Competitive Bidding NPRM, the Commission proposed to use auctions for mutually exclusive license applications in FSS bands and also proposed that licenses for frequencies used as "intermediate links" for the provision of a continuous, end-to-end service to subscribers would be subject to competitive bidding. See Notice of Proposed Rulemaking, PP Docket No. 93-253, 8 FCC Rcd. 7635, 7661, 7639 (1993).

<sup>123</sup> See Second Report and Order, PP Docket No. 93-253, 9 FCC Rcd 2348, 2355-56 n. 30 (1994); 47 C.F.R. §1.2102(b)(4). While the Commission's auction rules do not specifically indicate if FSS spectrum, whether used for feeder links or for subscriber-based services, may be auctioned, it can reasonably be inferred from the determination regarding MSS feeder links, and intermediate links in general, that the Commission

for feeder link spectrum for satellite DARS would satisfy the principal use test and the public interest objectives in the competitive bidding statute. We seek comment on this tentative conclusion and whether feeder link spectrum should be auctioned separately or in conjunction with the S-band frequencies. We also seek comment on whether auctions would apply to feeder links for satellite DARS if a mutually exclusive situation arises with other users of this spectrum, for example fixed satellite services or broadcast auxiliary services. Commenters should also take into consideration our previous discussion of feeder links in this NPRM.

#### 4. Pioneer's Preference Requests

112. DSBC, Primosphere and CD Radio each have pending satellite DARS pioneer's preference requests in GEN Docket No. 90-357. CD Radio's request, filed July 30, 1991, and its supplemental request, filed January 23, 1992, were placed on public notice January 31, 1992 and assigned file number PP-24. CD Radio's second supplemental request and the requests of DSBC and Primosphere, each of which were filed June 2, 1993, were not placed on public notice. We are associating CD Radio's second supplemental request with file number PP-24 and are assigning file number PP-86 to DSBC's request and file number PP-87 to Primosphere's request, all in GEN Docket No. 90-357.

113. In the Notice of Proposed Rulemaking and Further Notice of Inquiry in GEN Docket No. 90-357,<sup>124</sup> we deferred consideration of pioneer's preference requests because we found that DARS technology was rapidly evolving, but was not yet fully developed. In the Allocation Order,<sup>125</sup> we continued to defer action on pioneer's preference requests because we were conducting a review of the pioneer's preference rules in ET Docket No. 93-266 to assess the preference program following the enactment of competitive bidding authority.<sup>126</sup> In the Second Report and Order and Further Notice of Proposed Rule Making in ET Docket No. 93-266,<sup>127</sup> we adopted new rules and procedures for pioneer's preference requests, which are applicable to the pending DARS requests. We have recently amended our pioneer's preference rule to implement Section 309(j)(13) of the Communications Act which was added by legislation implementing the General Agreement on Tariffs and Trade (GATT).<sup>128</sup> These new rules will also apply to the pending satellite DARS requests. Accordingly, DSBC, Primosphere, and CD Radio will be required to amend or supplement their pioneer's preference requests to bring them into compliance with the new rules.<sup>129</sup>

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intended that FSS spectrum used for feeder links would not be subject to auctions.

<sup>124</sup> 7 FCC Rcd. 7776, 7781 n. 15 (1992).

<sup>125</sup> Allocation Order, supra. n. 1 at n. 8.

<sup>126</sup> See Notice of Proposed Rule Making, ET Docket No. 93-266, 8 FCC Rcd. 7692 (1993); First Report and Order, ET Docket No. 93-266, 9 FCC Rcd. 605 (1994) (deferring decision whether to apply our existing or new pioneer's preference rules in proceedings where tentative pioneer's preference decisions had not been issued), recon. denied, 9 FCC Rcd. 6837 (1994).

<sup>127</sup> FCC 95-80, released March 1, 1995 (petition for reconsideration pending).

<sup>128</sup> Third Report and Order, ET Docket No. 93-266, 95 FCC 218 (released June 8, 1995).

<sup>129</sup> See id. at para. 22.

114. Under our revised rules adopted in the Second Report and Order in ET Docket No. 93-266, pioneer's preference requests complying with our acceptability requirements and procedures "will be accepted for filing and listed by file number in a notice of proposed rulemaking addressing the new service or technology proposed in the request." 47 C.F.R. § 1.402(d). Because each of the requests referenced above appears to be acceptable for filing, we herein solicit comment on these requests. Pursuant to Section 1.402(e) of the Commission's rules, 47 C.F.R. § 1.402(e), parties wishing to comment on any of these three pioneer's preference requests should file comments separate from any comments filed on the rules proposed in this Notice and should reference both the appropriate pioneer's preference file number(s) and GEN Docket No. 90-357 on the cover page of their comments.

## 5. Miscellaneous Issues

115. These issues are generally associated with our analysis of the four current applicants but we seek comment on which might be applicable to licenses awarded pursuant to auctions. As a non-common carrier/subscription service, DARS licensees would not be subject to the foreign ownership restrictions of the Communications Act.<sup>130</sup> However, licensees providing broadcast services would be covered by these restrictions and would thus be limited in the amount of foreign investment they could attract. We request comment on whether foreign ownership restrictions should apply to any DARS licensees, to all DARS licensees or only to those DARS licensees proposing broadcast services.

116. We propose that licenses for DARS space segment facilities would be issued for ten years.<sup>131</sup> We note that Primosphere proposes to offer broadcast services. Broadcast licenses are limited to seven years.<sup>132</sup> We seek comment on whether the license term we select should differ based on the operational classification of the service or on whether licenses are granted through a competitive bidding process. In addition, we propose that the license term would begin when each satellite is launched and put into operation. We propose that receivers would not be licensed. In addition, we propose that licensees in this service will be required to file reports with the Commission on an annual basis and provide information similar to that required of domestic fixed-satellite operators regarding transponder loading and general satellite operation.

117. The Recording Industry Association of America (RIAA) has filed comments asking the Commission to impose conditions on licensees requiring them to secure license agreements from copyright owners of the sound recordings they intend to transmit. We do not believe that it is appropriate for this Commission to address copyright issues in the context of proposing DARS service rules. We would expect, however, that DARS licensees will comply with all applicable copyright laws and if they do not, copyright owners have appropriate legal remedies available to them.<sup>133</sup>

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<sup>130</sup> 47 U.S.C. § 310(b) provides that foreign ownership restrictions apply to broadcast and common carrier licenses. DARS licensees would, of course, be subject to § 310(a) restrictions that prohibit grant of a license to a representative of a foreign government.

<sup>131</sup> See 47 C.F.R. § 25.120.

<sup>132</sup> 47 U.S.C. § 307(c).

<sup>133</sup> See Title 17 U.S.C. We note that Primosphere in its application pledges to comply with the intellectual property obligations applicable to broadcasters.

118. Because the U.S. is the only country in Region 2 with an allocation of S-Band frequencies for DARS, licensees can only provide domestic service. As discussed above, significant international coordination issues exist in this band and thus it would be impractical to permit international service.

119. National Public Radio (NPR) suggests that the Commission establish an Industry Advisory Committee (IAC) to guide the nature and continuing development of proposed DARS system diversity. While there are substantial technical and regulatory issues that must be resolved as a result of the differences among the four satellite DARS proposals, we do not believe an IAC is necessary in this instance. We believe that we have sufficient flexibility to craft service rules that will accommodate diverse satellite DARS systems. We request comment on whether an IAC would be appropriate in this proceeding if we proceed with licensing the four current applicants.

120. As we provided in our Allocation Order, the mobile and radiolocation services are allocated primary use of the 2310-2360 MHz band until January 1, 1997 or until the first Broadcasting Satellite (sound) system is brought into use. After that time, mobile and radiolocation use of the band would be permitted only on a secondary basis. It was also noted in the Allocation order that, of particular importance, the aeronautical telemetry community supported the reaccommodation of existing aeronautical telemetry users of the 2310-2390 MHz band to the 2360-2390 MHz band. The Allocation Order further noted that when service rules are adopted for satellite DARS, the frequencies allocated for space telecommand in the 2310-2360 MHz band may also need to be reaccommodated.

121. Modification to Part 87 (Aviation Services) of our rules therefore would be consequential to the licensing of satellite DARS systems in the 2310-2360 MHz band. Specifically, our proposal to modify Part 87 can be found in Appendix II. We seek comment on this proposal and we seek comment on any additional modifications to Part 87 that may be necessary.

### III. CONCLUSION

122. Based on the considerations discussed above, we conclude that the proposals set forth in this Notice will facilitate the implementation of DARS in the United States. We seek comment on all aspects of these service rules and anticipate an extensive record on which to base decisions on final regulations

### IV. PROCEDURAL MATTERS

123. This is a non-restricted notice and comment rulemaking proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in Commission rules. See generally 47 CFR §§ 1.1202, 1.1203, and 1.1206(a). The individual satellite DARS applications and pioneer's preference proceedings are restricted proceedings, to the extent that any party has formally opposed an application or pioneer's preference request. Ex parte presentations concerning any formally opposed application or request are prohibited. See 47 CFR § 1.1208.

124. As required by Section 603 of the Regulatory Flexibility Act, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the expected impact on small entities of the proposals suggested in this document. The IRFA is set forth in Appendix III. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines as comments on the rest of the Notice, but they must have a separate and distinct heading designating them as responses to the Initial Regulatory Flexibility Analysis.

125. Pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's Rules, 47 CFR §§ 1.415 and 1.419, interested parties may file comments on or before September 15, 1995 and reply comments on or before October 13, 1995. To file formally in this proceeding, parties must file an original and five copies of all comments, reply comments, and supporting comments. If parties want each Commissioner to receive a personal copy of their comments, they must file an original plus nine copies. Parties should send comments and reply comments to Office of the Secretary, Federal Communications Commission, Washington, D.C. 20554. Comments and reply comments will be available for public inspection during regular business hours in the Reference Center of the Federal Communications Commission, 1919 M Street, N.W., Washington, D.C. 20554, room 239. For further information contact Rosalee Chiara or Ron Repasi at (202) 739-0735. Parties filing comments on the pioneer's preferences requests must file comments separate from those on the rules proposed in this notice and reference both the file numbers and the General Docket No. 90-357. For further information on pioneer's preference requests contact Rodney Small at (202) 776-1622.

#### V. ORDERING CLAUSES

126. Accordingly, IT IS ORDERED that, pursuant to sections 1, 4(i), 4(j), 7, and 309(j) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i) and 154(j), 157, and 309(j), NOTICE IS HEREBY GIVEN of the proposed amendments to Part 25 of the Commission's Rules, 47 CFR Part 25, in accordance with the proposals in this Notice of Proposed Rulemaking, and that COMMENT IS SOUGHT regarding such proposals.

127. IT IS FURTHER ORDERED that the Secretary shall send a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with paragraph 603(a) of the Regulatory Flexibility Act, Pub. L. No. 96-354, 94 Stat. 1164, 5 U.S.C. § 601 et seq (1981).

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton  
Acting Secretary

## APPENDIX I

### Proposed Rules and Regulations to be Added to 47 C.F.R. Part 25 of the Commission's Rules

1. The Table of Contents for Part 25 is revised to read as follows:

#### PART 25 - SATELLITE COMMUNICATIONS

##### Subpart A - General

Sec.

- 25.101 Basis and Scope.
- 25.102 Station authorization required.
- 25.103 Definitions.
- 25.104 Preemption of local zoning of earth stations.
- 25.105-25.108 [Reserved]
- 25.109 Cross-reference.

##### Subpart B - Applications and Licenses

- 25.110 Filing of applications, fees, and number of copies.
- 25.111 Additional information.
- 25.112 Defective applications.
- 25.113 Construction permits.
- 25.114 Applications for space station authorizations.
- 25.115 Applications for earth station authorizations.
- 25.116 Amendments to applications.
- 25.117 Modification of station license.
- 25.118 Assignment or transfer of control of station authorization.
- 25.119 Application for special temporary authorization.
- 25.120 License term and renewals.

#### EARTH STATIONS

- 25.130 Filing requirements for transmitting earth stations.
- 25.131 Filing requirements for receive-only earth stations.
- 25.132 Verification of earth station antenna performance standards.
- 25.133 Period of construction; certification of commencement of operation.
- 25.134 Licensing provision of very small aperture terminal (VSAT) networks.
- 25.135 Licensing provisions for earth station networks in the non-voice, non-geostationary mobile-satellite service.
- 25.136 Operating provisions for earth station networks in the 1.6/2.4 GHz mobile-satellite service.

## SPACE STATIONS

- 25.140 Qualifications of domestic fixed-satellite space station licensees.
- 25.141 Licensing provisions for the radiodetermination satellite service
- 25.142 Licensing provisions for the non-voice, non-geostationary mobile-satellite service.
- 25.143 Licensing provisions for the 1.6/2.4 GHz mobile-satellite service.
- 25.144 Licensing provisions for the 2.3 GHz satellite digital audio radio service.

## PROCESSING OF APPLICATIONS

- 25.150 Receipt of applications.
- 25.151 Public notice period.
- 25.152 Dismissal and return of applications.
- 25.153 Repetitious applications.
- 25.154 Opposition to applications and other pleadings.
- 25.155 Mutually exclusive applications.
- 25.156 Consideration of applications.

## FORFEITURE, TERMINATION, AND REINSTATEMENT OF STATION AUTHORIZATION

- 25.160 Administrative sanctions.
- 25.161 Automatic termination of station authorization.
- 25.162 Cause for termination of interference protection.
- 25.163 Reinstatement.

## Subpart C - Technical Standards

- 25.201 Definitions.
- 25.202 Frequencies, frequency tolerance and emission limitations.
- 25.203 Choice of sites and frequencies.
- 25.204 Power limits.
- 25.205 Minimum angle of antenna elevation.
- 25.206 Station identification.
- 25.207 Cessation of emissions.
- 25.208 Power flux density limits.
- 25.209 Antenna performance standards.
- 25.210 Technical requirements for space stations in the Fixed-Satellite Service.
- 25.211 Video transmissions in the Domestic Fixed-Satellite Service.
- 25.212 Narrowband transmission in the Fixed-Satellite Service.
- 25.213 Inter-service coordination requirements for the 1.6/2.4 GHz Mobile-Satellite Service.
- 25.214 Technical requirements for space stations in the satellite digital audio radio service.
- 25.251 Special requirements for coordination.
- 25.252 Maximum permissible interference power.
- 25.253 Determination of coordination distance for near great circle propagation mechanisms.
- 25.254 Computation of coordination distance contours for propagation modes associated with precipitation scatter.
- 25.255 Guidelines for performing interference analyses for near great circle propagation mechanisms.
- 25.256 Guidelines for performing interference analyses for precipitation scatter modes.

### **Subpart D - Technical Operations**

- 25.271 Control of transmitting stations.
- 25.272 General inter-system coordination procedures.
- 25.273 Duties regarding space communications transmissions.
- 25.274 Procedures to be followed in the event of interference.
- 25.275 Particulars of operation.
- 25.276 Points of communication.
- 25.277 Temporary fixed earth station operations.
- 25.278 Additional coordination obligations for non-geostationary and geostationary satellite systems in frequencies allocated to the Fixed-Satellite Service.
- 25.279 Inter-Satellite Service

### **Subpart E - Developmental Operations**

- 25.300 Developmental operation.
- 25.308 Automatic Transmitter Identification System (ATIS).

### **Subparts F-G -- [Reserved]**

### **Subpart H - Authorization to own stock in the Communications Satellite Corporation**

- 25.501 Scope of this sub-part.
- 25.502 Definitions.
- 25.503-25.504 [Reserved]
- 25.505 Persons requiring authorization.
- 25.506-25.514 [Reserved]
- 25.515 Method of securing authorization.
- 25.516-25.519 [Reserved]
- 25.520 Contents of application.
- 25.521 Who may sign applications.
- 25.522 Full disclosures.
- 25.523 Form of application, number of copies, fees, etc.
- 25.524 [Reserved].
- 25.525 Action upon applications.
- 25.526 Amendments.
- 25.527 Defective applications.
- 25.528-25.529 [Reserved]
- 25.530 Scope of authorization.
- 25.531 Revocation of authorization.

### **Subpart I -- Equal Employment Opportunities**

- 25.601 Equal employment opportunity requirement.

2. The authority citation for Part 25 continues to read as follows:

**AUTHORITY:** Sections. 101-404, 76 Stat. 419-427; 47 U.S.C. 701-744, Sec. 4, 48 Stat. 1066, as amended; 47 U.S.C. 154. Interprets or applies sec. 303, 48 Stat. 1082, as amended; 47 U.S.C. 303.

3. Section 25.114 is amended by revising paragraph (c)(18), to read as follows:

**§ 25.114. Applications for space station authorizations.**

\* \* \*

(c) \* \* \*

(18) Detailed information demonstrating the financial qualifications of the applicant to construct and launch the proposed satellites. Applications for domestic fixed-satellite systems and mobile-satellite systems shall provide the financial information required by § 25.140(b)-(e), § 25.142(a)(4), or § 25.143(b)(3), as appropriate. Applications for satellite DARS systems shall comply with the requirements of § 25.144(b)(3). Applications for international satellite systems authorized pursuant to Establishing of Satellite Systems Providing International Communications, 50 FR 42266 (October 18, 1985), 101 FCC 2d 1046 (1985), recon. 61 RR 2d 649 (1986), further recon. 1 FCC Rcd 439 (1986), shall provide the information required by that decision.

4. A new Section 25.144 is added to read as follows:

**§ 25.144 Licensing provisions for the 2.3 GHz satellite digital audio radio service.**

(a) Definitions

(1) "System" The term "System" refers to the constellation of one or more satellite DARS space stations, the feeder link earth station(s), and the mobile, fixed and/or portable receivers.

(2) "Allocated bandwidth." The term "allocated bandwidth" refers to the entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall be applied to the 2310-2360 MHz band for satellite DARS.

(3) "Frequency Assignment." The term "frequency assignment" refers to the authorization given by the Commission for a radio station to use a radio frequency or radio frequency channel under specified conditions.

(b) Qualification Requirements:

(1) General Requirements: Each application for a system authorization in the satellite digital audio radio service in the 2310-2360 MHz band shall describe in detail the proposed satellite digital audio radio system, setting forth all pertinent technical and operational aspects of the system, and the technical, legal, and financial

qualifications of the applicant. In particular, satellite DARS applicants must file information demonstrating compliance with § 25.114 and all of the requirements of this section.

(2) Technical Qualifications: In addition to the information specified in (b)(1), each applicant shall:

(i) identify the service link margin of its satellite DARS system and demonstrate that its system will, in a mobile environment under clear sky conditions, provide that service link margin to the geographical areas it intends to serve;

(ii) demonstrate that its satellite DARS system is capable of remotely tuning its individual mobile, fixed, and/or portable receivers across the allocated bandwidth 2310-2360 MHz and demonstrate how it will implement the forward signalling command for its receivers to select and tune to any center frequency(ies) in the allocated bandwidth;

(iii) identify the coding scheme and coding rate it will use to transmit CD quality audio. If applicable, the applicant shall identify any other audio format(s) it will provide to its end users as well as their associated coding scheme and coding rates. If audio formats which are less than CD quality will be provided, it shall demonstrate that it is capable of transmitting those audio formats at variable data rates which are less than those necessary to produce CD quality audio;

(3) Financial Qualifications:

(i) Each applicant for a space station system authorization in the 2.3 GHz satellite digital audio radio service must demonstrate, on the basis of a detailed business plan, how it proposes to meet the estimated costs of the construction and launch of its proposed space station(s) and the estimated operating expenses for one year after the launch of its space station(s).

(ii) Within one year of license grant, licensees are required to demonstrate full financing of their systems in the form specified in §§ 25.140(c) and (d). In addition, applicants relying on current assets or operating income must submit evidence of a management commitment to the proposed satellite system. Failure to make such a showing will result in the dismissal of the application.

(c) Milestone Requirements.

(1) Each applicant for system authorization in the satellite digital audio radio service must demonstrate within 10 days after a required implementation milestone as specified in the system authorization, and on the basis of the documentation contained in its application, certify to the Commission by affidavit that the milestone has been met or notify the Commission by letter that it has not been met. At its discretion, the Commission may require the submission of additional information (supported by affidavit of a person or persons with knowledge thereof) to demonstrate that the

milestone has been met. This showing shall include all information described in § 25.140 (c), (d) and (e) of this part. The satellite DARS milestones are as follows, based on the date of authorization:

- (i) One year: Complete contracting for construction of first space station or begin space station construction.
- (ii) Two years: If applied for, complete contracting for construction of second space station or begin second space station construction.
- (iii) Four years: In orbit operation of at least one space station.
- (iv) Six years: Full operation of the satellite system

(d) Reporting requirements. All operators of satellite digital audio radio service systems shall, on June 30 of each year, file a report with the International Bureau and the Commission's Laurel, Maryland field office containing the following information:

- (1) Status of space station construction and anticipated launch date, including any major problems or delay encountered;
- (2) A listing of any non-scheduled space station outages for more than thirty minutes and the cause(s) of such outages;
- (3) Identification of any space station(s) not available for service or otherwise not performing to specifications, the cause(s) of these difficulties, and the date any space station was taken out of service or the malfunction identified.

6. A new paragraph is added, in alphabetical order Section 25.201 to read as follows (addition of this paragraph to Section 2.1 is consequential):

**§ 25.201 Definitions**

\* \* \* \*

*Satellite Digital Audio Radio Service ("DARS").* A radiocommunication service in which compact disc quality audio programming is digitally transmitted by one or more space stations directly to fixed, mobile, and/or portable stations.

\* \* \* \*

7. Section 25.202 is amended by adding a new paragraph (a)(6), as follows:

**§ 25.202. Frequencies, frequency tolerance and emission limitations.**

\* \* \*

(a) \* \* \*

(6) The following frequencies are available for use by the satellite digital audio radio service:

2310-2360 MHz: space-to-Earth (primary)

8. A new Section 25.214 is added to read as follows:

**§ 25.214 Technical requirements for space stations in the satellite digital audio radio service.**

(a) Each system authorized under this section will be conditioned upon construction, launch and operation milestones as outlined in Section 25.144(c). The failure to meet any of the milestones contained in an authorization will result in its cancellation, unless such failure is due to circumstances beyond the licensee's control or unless otherwise determined by the Commission upon proper showing by the licensee in any particular case.

(b) Frequency assignments will be made for each satellite DARS system as follows:

(1) All licensees are limited to the allocated bandwidth of 2310-2360 MHz.

(2) [Subject to Decision -- Band Segments]

(3) [Subject to Decision -- Frequency Assignments]

(4) Each satellite DARS licensee shall reduce its assigned bandwidth occupancy by 0.1 MHz to create two (2) 0.2 MHz assignments adjacent to the edge of the allocated bandwidth for location of telemetry beacons.

(5) Each licensee may employ cross polarization within its exclusive frequency assignment and/or may employ cross polarized transmissions in frequency assignments of other satellite DARS licensees under mutual agreement with those licensees. Licensees who come to mutual agreement to use cross-polarized transmissions shall apply to the Commission for approval of the agreement before coordination is initiated with other administrations by the licensee of the exclusive frequency assignment.

## APPENDIX II

### Proposed Rules and Regulations to be Added to 47 C.F.R. Part 87 of the Commission's Rules

#### PART 87 - AVIATION SERVICES

1. The authority citation in Part 87 continues to read:

**AUTHORITY:** 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-156, 301-609.

2. Paragraph (d)(1) of Section 87.303 is revised to read as follows:

#### § 87.303 Frequencies.

\* \* \* \* \*

(d)(1) Frequencies in the bands 1435-1525 MHz and 2360-2390 MHz are assigned primarily for telemetry and telecommand operations associated with the flight testing of manned or unmanned aircraft and missiles, or their major components. The bands 1525-1535 MHz and 2310-2360 MHz are also available for these purposes on a secondary basis. Permissible uses of these bands include telemetry and telecommand transmissions associated with the launching and reentry into the earth's atmosphere as well as any incidental orbiting prior to reentry of manned or unmanned objects undergoing flight tests. In the 1435-1530 MHz band, the following frequencies are shared with flight telemetry mobile stations: 1444.5, 1453.5, 1501.5, 1515.5, 1524.5 and 1525.5 MHz. In the 2360-2390 MHz band, the following frequencies may be assigned on a co-equal basis for telemetry and associated telecommand operations in fully operational or expendable and re-usable launch vehicles whether or not such operations involve flight testing: 2364.5, 2370.5 and 2382.5 MHz. In 2310-2390 MHz band, all other telemetry and telecommand uses are secondary.

\* \* \* \* \*

## APPENDIX III

### Initial Regulatory Flexibility Analysis

#### Reason for Action

The rulemaking is initiated to obtain comment on the proposed satellite Digital Audio Radio licensing and service rules.

#### Objectives

The Commission seeks to evaluate whether the proposed rules will facilitate efficient implementation of DARS in the U.S.

#### Legal Basis

The proposed action is authorized under Sections 1, 4(j) and 4(j) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151(i), 154(i) and 154 (j).

#### Reporting, Recordkeeping and Other Compliance Requirements

Satellite DARS licensees would be required to file annual reports with the Commission.

#### Federal rules that Overlap, Duplicate or Conflict with These Requirements

None

#### Description, Potential Impact and Number of Small Entities Involved

Small businesses that do not meet the proposed financial qualifications could become involved in producing programming for DARS providers, especially in niche markets not now served by traditional broadcasting. Opportunities for leasing satellite time from DARS Satellite licensees to provide service could also be available to small businesses as well as opportunities in equipment design and manufacturing.

#### Any significant Alternatives Minimizing the Impact on Small Entities Consistent With the Stated Objectives

This Notice solicits comments on any suggested alternatives.

**Separate Statement of  
Commissioner James H. Quello**

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

In voting to issue this NPRM, it is impossible for me not to look ahead to what could happen in several years' time: multiple new channels of radio programming, available nationwide, bringing a new richness of program diversity to underserved areas and enhancing the diversity of radio services already available in larger markets.

But at the same time, it is impossible for me not to look back at what did happen several years ago: Docket 80-90. For like the promise of satellite DARS today, in 1983 Docket 80-90 promised to bring radio program diversity to underserved areas and enhance radio program diversity in larger markets.

Was it successful in doing this? Some would say yes: others, particularly radio licensees in smaller markets, would say that the addition of FM drop-in stations weakened existing stations in some markets, lessened the amount of locally-produced and oriented programming, and led to a chase for audience that, in some ways, transformed the nature of the radio service many of us receive today.

While I do not intend to dissect the good and the not-so-good effects of Docket 80-90 here, I feel compelled to note that, for good or ill, satellite DARS has the potential to become a super high-tech 80-90. This prospect counsels that this Commission be acutely concerned with how satellite DARS may impact terrestrial broadcasters' abilities to serve the needs and interests of their local communities.

I need not explain in detail my position on the importance of free, over-the-air broadcasting in a mass media environment based on the First Amendment, diversity, and access to information for everyone in our society. Keeping this in mind, I will carefully examine evidence submitted on the record in this proceeding to ascertain satellite DARS's potential impact on the future viability of terrestrial radio. Should the evidence indicate that satellite DARS will have a substantially adverse impact on the vital local service provided by terrestrial radio, I will consider either structuring the satellite DARS rules to ameliorate this impact, or relaxing the terrestrial rules to enhance traditional radio's ability to compete with a multichannel satellite radio system. We must strike a balance between ensuring the viability of existing services and authorizing new communications services.

Additionally, I am particularly concerned about the proposals to open up the satellite DARS service to new applicants and to auction off this spectrum. While I will fully review the record before etching my position in stone, I have very serious

concerns about these proposals. Before us stand four applicants, who apparently are ready, willing and able to initiate DARS service just as soon as the Commission grants their applications. These applications have been before us for as long as **four years**. Public notice of these applications appeared at the time they were filed, and other parties willing to invest time, money, and entrepreneurial ability, had an opportunity to file as well. Also, Congress instituted the Commission's auction authority only after these applications were on file. Under these circumstances, it strikes me as inequitable to do anything other than exercise the discretion given us in the auction legislation and grant the current applications, which the existing allocation can completely accommodate. This is consistent with my longstanding position in other proceedings in which the Commission has faced the issue of whether to auction off applications filed prior to auction authority. *See Memorandum Opinion and Order, Cellular Unserved Areas (License Selection Procedures), 9 FCC Rcd 7387 (1994); see also MM Docket No. 94-131 & PP Docket 93-253 (June 15, 1995) (MDS pending applications).*

I look forward to the comments in this very contentious proceeding.

SEPARATE STATEMENT  
OF  
COMMISSIONER SUSAN NESS

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

I am pleased to support this Notice of Proposed Rulemaking to consider rules that will govern the licensing and operation of satellite-delivered digital audio radio (DARS).

DARS has the potential to expand radio choices for the rural population, which often is underserved by terrestrial broadcasters. It also may offer niche programming services which would be uneconomical if limited to one market but may be successful when marketed to an aggregated nationwide audience.

By creating DARS as a national radio service, the Commission is departing from its long-standing policy of licensing radio as a local service. As a national service, DARS will have the capability of beaming one hundred or more CD quality radio signals into each and every U.S. radio market. The fifty megahertz of spectrum allocated is approximately two and one-half times the amount of spectrum available on the AM and FM dials combined.

While these are very laudable benefits of the proposed service, the massive channel capacity and national service area also have the potential to overwhelm local terrestrial broadcasting. Radio, which is highly competitive, is an important source of local news and information. For this reason, I favor parameters for the service that will maximize the unique benefits of DARS and at the same time minimize its adverse impact on local terrestrial broadcasters. It would appear that establishing DARS as a subscription service may further this goal.

This NPRM properly seeks comment on several key issues:

- How much spectrum is needed for each CD-quality channel?
- How many channels will result in a viable service?
- How much spectrum should be licensed each provider?
- How many licensees are needed to ensure a competitive marketplace?

- Should we license all the spectrum immediately, or only some portion of it?
- Should the process be opened up to new applicants?
- Should DARS be a subscription service (with advertising permitted)?
- If mutually exclusive applications are filed, should we use auctions to select licensees?
- To what extent should DARS operators be able to use terrestrial repeaters?

The comments filed in this proceeding will help us to answer these questions. Much has changed in the marketplace since the application window was established three years ago, before the Commission had allocated spectrum for DARS and before the Commission had proposed DARS service rules. We need to update our record on the current technical details of proposed DARS systems, given the rapid innovation in digital technology and the many competing demands for spectrum -- a scarce and valuable public resource.

I am enthusiastic about the potential for in-band, on-channel digital AM and FM systems to better enable terrestrial broadcasters to compete in a digital world. I will do what I can to move it along as rapidly as possible.