FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 25 and 87

[IB Docket No. 95–91; GEN Docket No. 90–357; FCC 97–70]

Digital Audio Radio Service in the 2310–2360 MHZ Frequency Band

AGENCY: Federal Communications Commission.

ACTION: Final Rule.

SUMMARY: After carefully reviewing the comments and information the Commission received following issuance of the Notice of Proposed Rulemaking, concerning service and licensing rules for the Digital Audio Radio Service (DARS) in the 2310–2360 MHZ frequency bands, the Commission reached the following conclusions. The Commission will license satellite DARS. Opponents of the new service have not shown that its potential adverse impact on local radio service outweighs its potential benefits. Based on the record, the Commission finds that an economically viable satellite DARS system will require at least 12.5 MHz of spectrum. Although the Commission has allocated 50 MHz of spectrum for satellite DARS in the S-band (2310–2360 MHz), recently enacted legislation directs the Commission to reallocate 25 MHz of that spectrum for any services consistent with the international allocation and to assign licenses for that 25 MHz by auction. Accordingly, in this proceeding the Commission will designate only two licenses for satellite DARS in the 25 MHz that remains in the part of the S-band allocated for satellite DARS. The Commission will award both satellite DARS licenses using competitive bidding, as it proposed in the NPRM, to resolve mutual exclusivity among the current applicants, under the auction rules they adopt today. The Commission also adopts service rules for satellite DARS licensees, including milestone requirements. Three of the four DARS applicants applied for pioneer's preferences. However, following unanimous recommendations from a panel of satellite experts that no pioneer's preferences be granted for satellite DARS all three applicants have withdrawn their applications. The intended effect of this action is to establish rules and policies for the DARS service in the 2310–2360 MHz frequency band.

EFFECTIVE DATE: The new and amended rules in Sections 25.144, 25.201, 25.202, 25.214 and 87.303 shall become effective April 10, 1997; the new rules in Sections 25.401, 25.402, 25.403, 25.404, 25.405, and 25.406 shall become effective March 11, 1997.

FOR FURTHER INFORMATION CONTACT: Rosalee Chiara at (202) 418–0754 or Ron Repasi at (202) 418–0768 with the International Bureau or Amy Zoslov or Christina Eads Clearwater at (202) 418–0660 with the Wireless Telecommunications Bureau.

SUPPLEMENTARY INFORMATION: This is a summary of the *Report and Order and Memorandum Opinion and Order and Further Notice of Proposed Rulemaking* in IB Docket No. 95–91; GEN Docket No. 90–357; RM No. 8610; PP–24; PP–86; and PP–87, FCC No. 97–70 (adopted and released March 3, 1997). The complete text of the *Report and Order and Memorandum Opinion and Order and Further Notice of Proposed Rulemaking* is available for inspection and copying during normal business hours in the FCC Reference Center (Room 239), 1919 M Street, N.W., Washington, D.C. and also may be purchased from the Commission's copy contractor, International Transcription Services (202) 857–3800, 2100 M Street, N.W., Suite 140, Washington, D.C. 20037.

Synopsis of the Report and Order and Memorandum Opinion and Order and Further Notice of Proposed Rulemaking

1. The Commission will summarize the background in this proceeding, which is described in greater detail in the *NPRM*, 60 FR 35166, (July 6, 1995) and in prior orders. Satellite CD Radio, Inc. (CD Radio) initiated this proceeding in 1990 by filing a petition to allocate spectrum for satellite DARS and an application to provide the service. In February 1992, the World Administrative Radio Conference (WARC–92) adopted international frequency allocations for Broadcasting Satellite Service (BSS) (sound)(the international term for satellite DARS). Internationally, this band is also allocated on a primary basis to radiolocation services and fixed and mobile terrestrial services. In November 1992, the Commission established a proceeding to allocate satellite DARS spectrum domestically and announced a December 15, 1992 cut-off date for satellite DARS license applications to be considered with CD Radio's. Of the six license applicants that filed before the cut-off; four remain: CD Radio, Primosphere Limited Partnership (Primosphere), Digital Satellite Broadcasting Corporation (DSBC) and American Mobile Radio Corporation (AMRC). In January 1995, the Commission allocated the 2310–2360 MHz band for satellite DARS on a primary basis.

2. In the June 1995 *NPRM*, the Commission posed many questions about satellite DARS. The Commission requested detailed information on the new service's potential economic impact on terrestrial broadcasters. The *NPRM* asked about the most appropriate service design and regulatory classification. The Commission sought comment on what public interest obligations to impose and queried whether providers should be permitted to offer ancillary services. The *NPRM* proposed three possible licensing options and rules to allow expeditious licensing after an option was chosen. After the *NPRM* was released, the Appropriations Act directed the Commission to reallocate spectrum at 2305–2320 MHz and 2345–2360 MHz for all services consistent with international allocations and to award licenses in that portion of the band using competitive bidding. As a consequence, the licenses designated pursuant to this order will be in the spectrum between 2320 and 2345 MHz.

3. In the *NPRM* and in prior orders, the Commission discussed the benefits of satellite DARS proffered by the proponents. These include introduction of a new radio service to the public, a national distribution of radio programming to all areas, including underserved and unserved areas and population groups, the creation of jobs and the promotion of technological development in the satellite and receiver industries, and the improvement of U.S. competitiveness in the international economy. The Commission sought comment on its tentative conclusion that satellite DARS offers substantial public benefits.

4. The Commission also invited detailed comment and information on the economic impact of satellite DARS on existing radio broadcasters. It acknowledged the high level of concern that terrestrial broadcasters have expressed about satellite DARS. In addition to three associations of broadcasters, more than one hundred terrestrial radio station owners or operators have submitted individual letters opposing satellite DARS.

5. Recognizing the significant public value of terrestrial radio service, the Commission must weigh the potential public interest benefits of satellite DARS against its potential adverse impact on terrestrial radio. This impact is relevant ''to the extent that [it] 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.'' In the *NPRM*, the Commission emphasized

that, pursuant to Section 7 of the Communications Act, opponents of a new technology, such as satellite DARS, bear the burden of demonstrating that it is inconsistent with the public interest. The Commission has previously noted that, ''[t]he public interest in this regard is the provision of services of value to the listening public and includes the protection of competition, not competitors.''

6. Satellite DARS can offer high-quality radio signals to listeners who currently receive few terrestrial radio signals. Commenters disagree concerning how many people are underserved by local radio. One respondent submitted a county-based analysis of listening diaries contending that only 6,100 people in the U.S. aged 12 and over receive less than six radio signals. However, that study defined a station as ''covering'' a U.S. county if even one diary recorded having received its signal. Given that AM signals travel long distances at night and that such skywave signals fluctuate significantly even when usable, the Commission believes that such diary evidence may not accurately indicate the size of the population that receives radio signals.

7. One study indicates that 722,102 persons (0.3% of the U.S. population) are covered by no FM stations, 2.4 million persons (1.0% of the U.S. population) are covered by one or fewer FM stations, and 22 million persons (8.9% of the U.S. population) are covered by five or fewer FM stations. The NAB criticized this study, however, because it does not include AM radio stations, even though more than 40% of all radio stations are AM stations and even though AM signals often travel much further than FM signals at night. AM signals, due to limited bandwidth and greater susceptibility to noise and interference, do not provide as high fidelity sound as FM signals. Thus, FM signal quality may be closer to the quality of that satellite DARS would provide. While the Commission is unable to estimate an exact figure for the number of potential radio listeners who are currently underserved, it finds that the record is sufficient to indicate that a significant number of persons in the U.S. receive few high-quality audio signals. Satellite DARS offers the substantial benefit of providing these persons with many additional high-quality audio signals.

8. It is the Commission's view that satellite DARS will particularly benefit communities where terrestrial broadcast service is less abundant. The record shows that counties with smaller populations have fewer radio stations and that smaller markets have fewer radio formats. The 33.2% of the U.S. population living in the top ten radio markets have access to an average of 26 formats, while the 18% of the U.S. population living in radio markets ranked 100–261 have access to an average of only 14.9 formats. Persons living outside these 261 ranked markets are likely to have still fewer radio formats available. Given that each satellite DARS applicant proposes to provide 20 or more channels nationwide, satellite DARS would significantly reduce the proportional discrepancy in the geographic distribution of radio service.

9. Moreover, satellite DARS can provide new services that local radio inherently cannot provide. With its national reach, satellite DARS could provide continuous radio service to the long-distance motoring public, persons living in remote areas, and may offer new forms of emergency services.

10. Satellite DARS may also be able to foster niche programming because it can aggregate small, nationally dispersed listener groups that local radio could not profitably serve. Commenters suggest that satellite DARS could fulfill a need for more educational programming, rural programming, ethnic programming, religious programming, and specialized musical programming. One nationally representative survey found that 10–27% of the respondents indicated a strong interest in accessing programming formats that are not widely available. Evidence from a survey by the National Endowment for the Arts suggests that niche marketing opportunities exist for some of the less popular radio formats.

11. The Commission believes that licensees will have an incentive to diversify program formats and thereby provide valuable niche programming. The Commission recognizes that satellite DARS licensees are likely to provide the programming that is most profitable. Nonetheless, given that the Commission anticipates each satellite DARS licensee will control more than 20 channels, each licensee will have an incentive to diversify programming so that one channel will not directly compete with another channel that the licensee itself controls. The Commission has noted the importance of this incentive, particularly with respect to entertainment programming, in other proceedings.

12. In the *NPRM*, the Commission tentatively concluded that implementation of satellite DARS would foster the development of new technology. NAB has argued that U.S. implementation of satellite DARS is not necessary to advance satellite DARS technology. While this may be true, the Commission nevertheless believes that U.S. implementation, by providing large-scale market-based consumer feedback and increased economic incentives for further technological advances, would foster faster and more customer oriented development.

13. The Commission concludes that licensing operators to provide satellite DARS will yield substantial benefits to consumers. The Commission now evaluates whether opponents have met their burden of showing that these benefits are outweighed by the potential harm to listeners from potential loss of terrestrial service resulting from increased competition from satellite DARS.

14. In the *NPRM*, the Commission sought comment on the effect of satellite DARS on terrestrial radio listenership. The Commission explicitly requested commenters to consider the characteristics of satellite DARS that distinguish it from terrestrial radio. Commenters often failed to do so. Instead, several commenters implicitly assumed that satellite DARS' effect on local radio would be similar to the effect from competition generated by new local radio stations. Given the distinguishing features of satellite DARS—it is a national service, it will require new and relatively costly equipment, and it may be offered via paid subscription—the Commission finds that the effect of satellite DARS on terrestrial radio is likely to be significantly smaller than the effect of additional terrestrial radio stations.

15. For example, one commenter includes a consumer survey which suggests that satellite DARS would cause a decline of 11.6% in terrestrial radio listenership. The appropriate interpretation of this figure is not clear, however, because the survey did not take into account the potential cost to the consumer of satellite DARS equipment, and the subscription fee included in the survey was only half of what one satellite DARS applicant (CD Radio) has proposed. Moreover, the survey failed to consider the possible introduction of terrestrial DARS in assessing consumer interest in satellite DARS. For these reasons the Commission believes that this survey may overestimate the likely decline in terrestrial radio listenership. And yet even in this survey 80% of respondents indicated that they would not reduce the time they spend listening to terrestrial radio if satellite DARS was available. However, the Commission realizes that surveys of predicted

consumer response to a new and untried service may be somewhat unreliable.

16. By analogy, the diffusion of other new services and technologies may provide valuable perspective on the time period in which satellite DARS' may affect terrestrial radio listenership. In 1994, six years after their introduction, CD players were in just 3.2 percent of all automobiles. This experience is recent, involves high-quality audio service and roughly comparable equipment costs, and relates to automobiles, perhaps the most likely market for satellite DARS receivers. On the other hand, for the first few years after CD players' introduction there were significant technical problems with their operation in automobiles, and CD players are less convenient to operate than radios. These factors may have reduced the rate at which CD players were installed in cars. Nonetheless, CD players offer a useful example by which to evaluate the penetration profile for satellite DARS receivers. Given anticipated satellite launch dates for satellite DARS applicants (1998–1999) and the example of the diffusion of CD players, the Commission believes it is reasonable to project that by about 2005 the over-all penetration rate of satellite DARS receivers in radio listening environments may not be significantly greater than 4%.

17. Estimating listening time diversion depends on the share of listening time allocated to satellite DARS when the listener has a choice between satellite DARS and terrestrial radio. Drawing an analogy with the diffusion of cable services indicates that established programming loses audience share relatively slowly. In 1984, about a decade after the introduction of premium cable services and the development of 24 to 36 channel cable TV systems, cable channels attracted 14% of television viewing time. After another decade, the share of cable channels in television viewing time rose to 30%. An important weakness in this analogy is that the difference between cable programming and network programming during this period is probably significantly greater than will be the difference between satellite DARS programming and terrestrial radio programming. Nonetheless, the Commission believes that owners of satellite DARS receivers will continue to allocate a significant share of their listening time to terrestrial radio in order to hear music or news of local interest. Even with rapid, further penetration of satellite DARS receivers, the Commission expects that satellite DARS' share of radio listening time will grow relatively slowly over decades.

18. In the *NPRM*, the Commission asked parties to consider advertising revenues that terrestrial radio might lose because of satellite DARS. The record indicates two possible causes of terrestrial radio revenue loss: competition with satellite DARS for advertising dollars and competition with satellite DARS for listeners' attention.

19. While the Commission recognizes that satellite DARS has significant competitive advantages in offering advertising to a national audience with satellite DARS receivers, several factors may limit the possible significance to terrestrial radio of such additional competition. First, at this time, only one out of the four satellite DARS applicants has indicated an intention to implement its system on a non-subscription, advertiser-supported basis. Second, a large share of the national radio audience is not likely to have satellite DARS receivers, at least for a significant period of time. Third, national advertising revenue amounts to only 18% of terrestrial radio advertising revenue and is on average less important for small-market stations than for large-market stations. Local advertising revenue is much more important than national advertising revenue for terrestrial radio's viability and prevalence, and, at this time, the Commission has no evidence that satellite DARS would be able to compete for local advertising revenue.

20. More important to terrestrial radio is possible competition with satellite DARS for listener attention because this new offering could reduce the size of the local listening audience available for terrestrial radio stations to sell. The Commission recognizes that a decrease in the audience size could lead to some reduction in terrestrial station revenues. As discussed above, however, the Commission believes the reduction would be modest, although the record leaves room for significant uncertainty.

21. Commenters have not fully analyzed the relationship between reductions in listenership and reductions in revenue. The Commission does not necessarily agree with those commenters who assert that terrestrial radio station revenue will fall one-for-one with any fall in listenership. Because the price of local radio advertising may rise, the effect on local radio revenue may be smaller than the effect on listenership. However, regardless of the precise relationship, the Commission does assume that a decrease in listenership will lead to a decrease in advertising revenues, if other variables are held constant.

22. In the NPRM, the Commission asked questions about the impact of satellite DARS on the financial viability of local broadcast stations. In general, the Commission encourages competition for the provision of telecommunications services wherever possible and removes barriers for new competitors. Commenters differ sharply on the effect of satellite DARS on the profitability of terrestrial stations, with estimates of the reduction in terrestrial stations' profitability spanning 2.1–3.5% to 52%–122%. The wide range of these estimates do not allow the Commission to judge the effect of satellite DARS on terrestrial stations' profitability. The Kagan Study, by focusing on historical indicators of revenue and profitability and not considering the time path for satellite DARS diffusion, likely overestimates the potential impact of satellite DARS on terrestrial stations profitability. The MTA Study's audience diversion figures are lower than what the Commission believes, and the Commission questions the relevance of their use of the ratio of satellite DARS receiver owners to the total U.S. population, given that segments of the population, such as infants, are not potential satellite DARS owners. The Commission also finds their revenue loss projections to be unsubstantiated and unconvincing.

23. The record supports a finding that the impact of satellite DARS would likely be greater on small-market terrestrial stations than large-market terrestrial stations. This result is not surprising because it is likely that the introduction of a 30-channel satellite DARS system could divert a larger share of the audience in a market with only 6 stations than in a market with 60 stations. Nonetheless, the record does not establish that any predicted reduction in station profitability would harm overall station viability.

24. In fact, the record suggests that profitability figures may be a weak indicator of radio station viability. The wide range in the audience size distribution for existing radio stations suggests that most radio stations could remain viable given plausible audience reductions due to satellite DARS. Despite evidence that a large percentage of radio stations are experiencing losses, there is also evidence that overall the industry is very healthy. The value of radio station purchases in 1996 was 315% higher than in 1995 and radio station values as a multiple of cash flow also rose sharply. Factors such as debt financing and start-up costs may explain

why radio stations would stay in business while reporting losses.

25. The concern about licensing satellite DARS focuses on its impact on the provision of locally oriented radio service. Satellite DARS proponents argue that the ability to offer local content will give terrestrial broadcasters a competitive advantage. Terrestrial broadcasters argue that providing local content is a public service that depends, in effect, on cross-subsidization from more profitable programming.

26. The Commission concludes that the record lacks systematically sampled, quantitative evidence about the listening time, revenue base, and profitability of local content. Nonetheless, if local content were relatively unprofitable for every station, one would expect competition among terrestrial stations to result in minimal local programming on most stations. Yet the record indicates that such analysis is not necessarily accurate; despite vigorous competition among stations, some stations provide much local programming, while others provide relatively little. Competition from satellite DARS may create incentives for at least some terrestrial stations to increase their emphasis on local programming in order to attempt to differentiate their service from satellite DARS. It is unclear the degree to which that might affect overall station profits.

27. In sum, although healthy satellite DARS systems are likely to have some adverse impact on terrestrial radio audience size, revenues, and profits, the record does not demonstrate that licensing satellite DARS would have such a strong adverse impact that it threatens the provision of local radio service.

28. The Commission also notes that revenue of terrestrial radio is projected to grow at a real (inflation adjusted) rate of about 4% per year. Such projected revenue should mitigate, at least to some extent, the eventual impact on terrestrial stations of satellite DARS. The Commission also notes that recently, it implemented provisions of the Telecommunications Act of 1996 and repealed all terrestrial radio national ownership limits and significantly relaxed local ownership limits. These changes should lead to reduced operating costs and increased profits for terrestrial station owners that take advantage of the new rules. The Commission expects any possible impact of satellite DARS on terrestrial radio's revenue to be relatively small and to occur over a long period of time. The Commission rejects as unnecessary a proposed phase-in and evaluation period for satellite DARS. The Commission concludes that opponents of satellite DARS have not shown that its potentially adverse impact on local radio outweighs its potential benefits to the American radio listener.

29. There is uncertainty inherent in any attempt to predict the impact of satellite DARS on the terrestrial radio industry. The technologies, structure, and regulation of the communications industry are changing dramatically. Developments in the next decade may significantly change the market for both satellite DARS and terrestrial broadcasting. Although opponents of satellite DARS have not shown that it will have a sudden and dramatic adverse impact on terrestrial broadcasting, the Commission cannot entirely rule out the possibility of a major adverse impact. The Commission emphasizes that it remains committed to supporting a vibrant and vital terrestrial radio service for the public. Accordingly, the Commission will continue to monitor and evaluate the potential and actual impact of satellite DARS, particularly in small radio markets, so that it will be able to take any necessary action to safeguard the important service that terrestrial radio provides.

30. In addition, the Commission continues to support the efforts of industry committees studying technical standards that would allow terrestrial radio broadcasters to convert to digital transmissions. When it appears that a viable system has been designed, the Commission will act expeditiously to consider changes to its rules to allow AM and FM licensees to offer digital sound. The Commission also remains open to considering other ways to encourage the continued viability of terrestrial radio if the adverse impact of satellite DARS on terrestrial radio proves to be substantially greater than expected.

31. On February 17, 1995, Underripe National Radio Sales, Inc. (Underripe) filed a petition for reconsideration of the Commission's domestic *Report and Order*, 10 FCC Rcd 2310 (1995), 60 FR 8309 (February 14, 1995) (''*Allocation Order*''). Underripe claims that satellite DARS could have an adverse impact on existing radio services and that, therefore, the Commission should not allow satellite DARS operations until terrestrial DARS is licensed. Underripe also suggests a number of guidelines it believes the Commission should adopt with respect to licensing and service rules for satellite DARS. The Commission denies the petition for the reasons given above. That is, the record evidence indicates that the public interest would be served by permitting an innovative new technology and service, satellite DARS, to become available as a competitive choice for consumers. The Commission notes that the petition does not contain any analysis which would undermine those reasons.

32. The Consumer Electronics Manufacturers Association (CEMA) argues in an *ex parte* submission, based on its preliminary draft report on various digital audio radio technology test results, that satellite DARS cannot be successfully provided at 2.3 GHz. Specifically, CEMA argues that ''S-band operations suffer from a significant and startling level of signal blockage,'' that to provide satellite DARS using S-band frequencies will require hundreds or thousands of gap fillers and that satellite DARS in the S-Band has ''no likelihood for nationwide commercial acceptance.''

33. The Commission has decided nevertheless to license DARS in the S-Band. CEMA's testing of signal propagation focused on terrestrial technologies; CEMA tested only one generic satellite technology and did not test any of the system designs of the four satellite DARS applicants. Nor does CEMA comment on any of the specific proposals submitted by the four DARS applicants. In addition, CEMA offers no new relevant information. It has been widely known and discussed in the record that DARS providers will need to rely on terrestrial repeaters and gap fillers. As with all new services, the FCC cannot prove or disprove viability. Only the market place can make this determination. CEMA's assertion that satellite DARS is not commercially viable in the S-Band is belied by the interest of many DARS investors who apparently have concluded that a viable satellite DARS service can be offered in the S-Band.

34. Moreover, CEMA's recommendation that the FCC consider other spectrum options for satellite DARS, such as the L-Band, is beyond the scope of this proceeding. The 2310–2360 MHz band [S-Band] was allocated for satellite DARS internationally at WARC–92 and domestically in 1995. Frequencies in the L-Band, 1452–1492 MHz were considered and rejected. In the domestic *Allocation Order* the Commission noted that ''commenters strongly favored [S-Band] over, for example, the 1.5 GHz band [L-Band]'' in part because the U.S. Government and U.S. commercial mobile aeronautical telemetry (MAT) already operates in the L-Band and it would be very difficult for them to relocate entire operations to the S-band. Satellite DARS cannot share with MAT systems in the same frequency band in the same coverage

area. And even if L-Band had been available, no persuasive evidence suggests that it is significantly better spectrum in which to receive satellite DARS signals. For the reasons stated above, the Commission finds CEMA's argument against proceeding to license satellite DARS applicants in the S-Band unpersuasive.

35. In the *NPRM*, the Commission proposed three options for licensing satellite DARS systems. Under Option One, the Commission would have assigned the entire 50 MHz of spectrum allocated for satellite DARS to the four pending applicants, giving each 12.5 MHz, or 10 MHz, if the Commission determined that the lower 10 MHz of the band should not be assigned at the time of its Order due to international coordination constraints. Option Two was to designate less than the full amount of useable spectrum for satellite DARS and to award the remaining spectrum to new applicants. Option Two proposed licensing the four applicants and assigning them each a band segment of less than 10 MHz of spectrum. If either of the two band segments (one for pre-cut off applicants and one for new applicants) could not accommodate all applicants, the Commission would resolve mutual exclusivity via competitive bidding. Option Three was to reopen the cut-off for satellite DARS applications and allow additional applicants to file proposals for all of the useable DARS spectrum.

36. In light of the recent legislation directing the Commission to conduct an auction for use of 25 MHz of the S-band spectrum previously allocated solely to DARS, the Commission cannot adopt any of the three licensing options exactly as proposed in the *NPRM*. After enactment of that legislation and the ensuing *WCS Order*, only 25 MHz remains exclusively for DARS. The licensing plan the Commission adopts today for that remaining spectrum is a logical outgrowth of Option Two, modified in light of the comments received in this proceeding and the recent legislation. In determining how many licenses may be awarded for use of the remaining DARS spectrum and how those licenses should be assigned, the Commission must first determine how much spectrum each satellite DARS licensee will require to operate an economically viable satellite DARS system.

37. In the *Allocation Order*, the Commission found that, based on the information available at that time, satellite DARS was the best use of all of the 50 MHz of spectrum assigned to U.S. satellite DARS by WARC–92. The Commission requested comment on a number of issues in the *NPRM* to help it determine the best way to make individual satellite DARS frequency assignments. Specifically, the Commission sought comment on the following: the amount of spectrum and number of channels required for a satellite DARS system to be economically viable; the number of competitors that are necessary to ensure sufficient competition in satellite DARS; the possible number of channels per MHz capable of being delivered via satellite to a mobile user; alternative band plans that could be adopted for satellite DARS; possible uses for spectrum that is not licensed for satellite DARS, and, whether the proposal to license less than 50 MHz of spectrum would create a mutually exclusive situation among the four current applicants. Based on comments the Commission received on these specific issues, it concludes that 12.5 MHz of spectrum is necessary to offer enough channels for an economically viable satellite DARS system. In addition, in light of the recent legislation opening 25 MHz of spectrum for use by additional services, the Commission concludes that two licenses can be awarded.

38. While the Commission is not sure of the optimal amount of spectrum necessary for satellite DARS, its goal is to try to determine spectrum block sizes and geographic areas that are most closely suited to provide for efficient provision of the most likely expected use. In this case, because this is a satellite service, the license areas should be nationwide and the Commission has evaluated the evidence about the minimum spectrum block sizes necessary to economically provide satellite DARS. The Commission begins its analysis of determining how much spectrum a single satellite DARS provider will require by considering what the record reveals about how many channels are necessary to operate an economically viable satellite DARS system. Because satellite DARS is a new service, there is an inevitable uncertainty about what precise configuration of channels will best satisfy consumer demand. The record contains no conclusive evidence establishing a specific minimum number of channels needed for a viable DARS system. The Commission will rely on the representations of the applicants which are based on their own market research. The record indicates that a range of channels from 19 to 44 is needed for a viable service.

39. The applicants appear to base their estimated channel requirements on a cable television model in which operators bundle large and diverse packages of channels. The conclusion drawn from the cable television model is that no single channel attracts a large viewing audience, but subscribers value the service because they watch a few channels regularly and occasionally enjoy sampling a wider range of available programming. While the record does not show exactly how many channels a satellite DARS operator must offer to be economically viable, the cable television analogy demonstrates that some critical mass of channels is needed to provide sufficient programming diversity for consumers with diverse tastes.

40. More direct support for the satellite DARS applicants' projections can be found by examining digital audio services packaged with video services and delivered via cable or satellite. Two such nationwide subscription services are Digital Music Express (DMX), offered via cable, and the Primestar direct-to-home video satellite service, a DBS service. Those services each began with roughly 30 channels, but have chosen to increase the number of channels to 60. According to CD Radio, both are now expanding again to offer up to 120 channels. The Commission presumes that the satellite DARS applicants would not undertake the risk and expense of implementing satellite systems if the number of channels they propose were not enough to provide a viable service.

41. The satellite DARS applicants calculate that 12.5 MHz of spectrum would be necessary to offer a range of 19 to 44 CD quality audio channels. They contend that 12.5 MHz of spectrum is necessary to support a single viable satellite DARS system. Others commenters disagree. NAB, for instance, proposes that the satellite DARS spectrum be divided into 5 MHz band segments. DSBC and Primosphere counter that NAB's proposed spectrum plan would support a viable satellite DARS system only if at least three or more 5 MHz blocks can be aggregated. AMRC adds that it would be impossible to deliver enough high quality channels in 5 MHz of spectrum to attract a viable audience.

42. A band plan introduced by Cracker Barrel in its reply comments maintains that by using Time Division Multiplexing (TDM) technology, 30 channels of CD quality audio can be accommodated in 8.32 MHz, or 32 channels of CD quality audio could be provided in 8.32 MHz using Code Division Multiplicity (CDM) technology, and thus six operators (presumably six economically viable systems) could be

accommodated in the 50 MHz initially allocated for satellite DARS. Cracker Barrel also contends that if all satellite DARS providers use the same error correction rates, then as many as eight satellite DARS licensees could be accommodated in the 50 MHz (*i.e.*, each with a 6.25 MHz assignment) and each could offer at least 30 channels of CD quality audio. Cracker Barrel contends that its band plan does not require use of regional spot beams or a higher order modulation constellation to gain additional channels per MHz of spectrum. It asserts that by using ⅓ rate or ½ rate FEC as opposed to ¼ rate as originally proposed by CD Radio and Primosphere, the bandwidth requirement for a 32 or 30 channel CD quality system could be reduced from 12.5 MHz to 8.32 MHz and 6.25 MHz respectively.

43. Satellite DARS applicants assert that Cracker Barrel's assumptions used to derive spectrum requirements do not include techniques to overcome multipath fading present in a mobile environment and do not adequately address the associated limitations on satellite power, weight, launcher capacity, international coordination, or system cost. CD Radio asserts that 12.5 MHz of bandwidth is necessary for its satellite DARS system to provide 33 channels of CD quality audio using a spatially diverse architecture, CDM, and ½ rate FEC, which is capable of operating at power flux-density levels that will make coordination with adjacent countries feasible. CD Radio indicates that it has changed to CDM to provide increased resilience to fading and noise. It concedes that, if it did not employ spatial diversity and instead used a single satellite, it would be possible to transmit approximately twice as many channels in a given amount of spectrum. However, CD Radio maintains that spatial diversity is key to providing high quality audio in a mobile environment. CD Radio contends that abandoning the use of spatial diversity would reduce sound quality, increase fading and blockage, and prove commercially unacceptable to its consumers. While the company notes that these problems could be addressed by increasing satellite power significantly, it points out that any such increase would only add to existing coordination difficulties with adjacent countries.

44. Primosphere maintains that, in the case of CDM technology, even though a signal is coded so that it can be selected from the other signals simultaneously sharing the channel, simultaneous channels can interfere with each other when orthogonality is lost. This sets an effective limit on the number of CDM channels that can occupy a given channel. DSBC asserts that reducing the bandwidth from 12.5 MHz to 10 MHz, or to 8.32 MHz as proposed by Cracker Barrel, while maintaining channel capacity would require greater received signal power (at least 40% more) since the primary coding for a 10 MHz system is much less robust in correcting errors than that found in a 12.5 MHz system. An increase in signal power would increase coordination difficulties with adjacent countries and add cost to satellite DARS receivers and space stations.

45. The Commission concludes, based on the current record, that each DARS licensee will require at least 12.5 MHz to successfully implement an economically viable satellite DARS system. The Commission believes that licensing less than 12.5 MHz would be insufficient to provide a critical mass of channels required for economic viability and could lead to significant power and cost constraints. The Commission does not find the contrary assertions by NAB and Cracker Barrel persuasive. Moreover, the applicants' successful efforts to increase the spectrum efficiency of their proposals supports their estimate of 12.5 MHz as the minimum amount of spectrum needed. Comparing the channel and associated spectrum requirements of the applicants' original proposals with their existing comments, the Commission calculates that, on average, the applicants have increased the number of channels they propose to provide by seven, despite an average decrease in proposed spectrum use of 14 MHz. The applicants' efforts to improve their spectrum efficiency should not be treated as a detriment. DARS applicants may participate in the WCS auction to acquire additional spectrum if they desire it.

46. While the Commission recognizes that further technological advances may result in even greater increases in spectrum efficiency, none of the commenters addressing this issue have demonstrated that they can provide a more spectrum efficient, economically viable, high quality DARS system in less than 12.5 MHz and using current state-of-the-art in satellite technology. The above discussion is indicative of the trade-offs between bandwidth and power that satellite DARS applicants have weighed in their choice of transmission schemes and technology. Because each satellite DARS licensee will be limited to a bandwidth of 12.5 MHz, the trade-offs between increased power and channel capacity is particularly critical to overall satellite system design. The Commission will not attempt to impose its judgments in this regard on the satellite DARS licensees and will allow licensees to use the technology, channeling plans, modulation schemes, and multiple entry techniques of their choice within their 12.5 MHz band segment.

47. Based on the recent legislation passed by Congress directing the Commission to reallocate and auction the 2305–2320 MHz and 2345–2360 MHz bands, the Commission is licensing only the 2320–2345 MHz portion of the 2310–2360 satellite DARS band exclusively for satellite DARS. However, before satellite DARS service can be offered to the public, the Commission will require satellite DARS licensees to complete detailed frequency coordination with existing operations in adjacent countries to prevent the potential for unacceptable interference. The goal of the coordination process is to reach agreement with affected users on an operating arrangement which harmonizes the use of the radio frequency spectrum.

48. In the *NPRM*, the Commission discussed potential issues that might arise during coordination of U.S. satellite DARS systems with existing operations in adjacent countries. Based on that the Commission knew then about the relatively large number of fixed Canadian terrestrial stations licensed in the 2310–2320 MHz band and tentatively concluded that the lowest 10 MHz in the 2310–2360 MHz band would be difficult to coordinate for satellite DARS. Indeed, one option in the *NPRM* proposed to license only spectrum above 2320 MHz for satellite DARS ''[t]o alleviate the potentially difficult and lengthy coordination'' posed by the presence of the nearly 200 Canadian terrestrial stations between 2310 and 2320 MHz. This option would seek to avoid requiring one satellite DARS licensee to be subject to coordination with a greater number of fixed terrestrial systems than other licensees. The Commission requested comment on its tentative conclusion.

49. In the *NPRM* the Commission also observed that the upper portion of the 2310–2360 MHz band would likely present other potential obstacles to coordination with adjacent countries. For example, it cited a CD Radio study showing that Canada generally licenses its Mobile Aeronautical Telemetry (MAT) operations between 2350 and 2360 MHz. Despite the operation of MAT above 2350 MHz, however, certain of the satellite DARS applicants maintained that the uppermost spectrum in the DARS band should be assigned to the first licensee that met its

milestone requirements. Based on this proposal, it appeared to the Commission that the satellite DARS applicants did not expect sharing with MAT operations of adjacent countries to be an insurmountable hurdle. The Commission requested specific comment on whether its different assessment was correct. Although the question of whether to reserve the entire S-band (2310–2360 MHz) exclusively for satellite DARS has been determined by the recent Congressional legislation, discussed above, the Commission discusses below terrestrial operations in the S-band that may affect future satellite DARS coordination.

50. The Commission initiated formal negotiations with the Canadian Administration after release of the *NPRM*. The Commission used the information from these recent meetings to re-assess the current operating environment in the 2310–2360 MHz band. In meetings with Canada following release of the *NPRM*, International Bureau staff learned that the number of fixed terrestrial systems in the lower portion of the band has not changed significantly since the Commission accepted satellite DARS applications for filing. However, Canada informed the Commission's staff that Canadian MAT systems are currently licensed and operating at frequencies throughout the S-band from 2329.25–2390 MHz. Upon receipt of this new information from Canada, the Commission forwarded it to the applicants and entered it into the public record so that the applicants' technical experts and others could provide comment.

51. *The Fixed Service.* The applicants recognize that detailed coordination with foreign systems is unavoidable. Coordination between satellite DARS and Fixed Service systems (FS) is required because the power levels at which the applicants propose to operate their systems to achieve sufficient quality service in a mobile environment are higher than the thresholds levels which have triggered on-going bilateral coordination with adjacent countries. Detailed coordination would therefore be necessary with every FS station that is within the satellite DARS transmitting antenna gain contour unless the power levels of the proposed satellite DARS systems is reduced or measures are taken by the fixed terrestrial service to mitigate unacceptable interference from satellite DARS (*e.g.*, re-pointing the receive antenna sufficiently away from the geostationary satellite orbit or upgrading receiver equipment).

52. According to the international allocation, adjacent countries are free to license additional fixed and mobile terrestrial systems on frequencies between 2300–2483.5 MHz. The Commission has confirmed that Canada, alone, has licensed and will continue to license FS systems throughout the 2310–2360 MHz band. Currently, approximately 20% of the total number of systems licensed in Canada are above 2320 MHz.

53. *Mobile Aeronautical Telemetry.* The threshold power levels necessary to protect foreign MAT systems are expected to be similar to the levels which the U.S. has established in the 1435–1525 MHz band (L-band) to safeguard its MAT systems. The U.S. quantified its need to protect its MAT systems from interference in the L-band in detailed studies which it presented to numerous International Telecommunication Union-Radiocommunication Sector Study Groups. These studies show that it would not be feasible for a satellite service to share with MAT on a co-coverage, co-frequency basis. Indeed, the U.S. has taken necessary steps to relocate its own S-band MAT operations to frequencies above 2360 MHz, recognizing that co-frequency, co-coverage operation of satellite DARS and MAT is not practical. Many of these U.S. MAT operations were relocated entirely from S-band to L-band.

54. The Commission now knows that some of the MAT assignments in Canada are used to control remotely piloted vehicles (RPVs) which require reception at the aircraft as well as at land based stations. In addition, some Canadian MAT systems are operating within a hundred miles of the U.S./Canada border, making them even more susceptible to interference from U.S. satellite DARS. Although five of the 12 MAT frequency assignments in Canada lie below 2345 MHz, at least three of those assignments are repeated on center frequencies above 2345 MHz. This may indicate that there is some flexibility in the MAT operations that will help the coordination efforts in the 2320–2345 MHz band.

55. In the *NPRM*, the Commission solicited comment on three pending requests for pioneer's preferences filed by CD Radio, DSBC, and Primosphere. No comments were filed on any of the satellite DARS pioneer's preference requests. On September 20, 1995, in compliance with new pioneer's preference rules, CD Radio, DSBC, and Primosphere each filed a supplement to their respective requests.

56. By letter dated August 30, 1996, the Commission's Office of Engineering and Technology and the International Bureau requested that a specially convened panel of four satellite technology experts (''Panel'') review the three satellite DARS pioneer's preference requests and recommend to the Commission whether each of the requests should be granted. In a report dated November 18, 1996, the Panel unanimously recommended that no pioneer's preference be awarded. The Panel concluded that none of the applicants had demonstrated a seamless satellite DARS service and found that no award of a pioneer's preference could be justified on technical design grounds. On November 19, 1996, the Commission issued a *Public Notice*, Report No. SPB–67, Mimeo No. 70798 requesting comments on the Panel report by December 3, 1996.

57. Following the release of the Panel's report, all three pioneer's preference applicants withdrew their requests. Accordingly, the Commission does not consider whether to award any pioneer's preferences for satellite DARS. While the Commission does not need to discuss the Panel's recommendations and report, the Commission commends the members of the Panel for their remarkable dedication and hard work during the several weeks in which they volunteered their expertise.

58. In light of the withdrawal of each request for pioneer's preference, and having determined that each DARS licensee will require 12.5 MHz, the Commission must now determine whether to reopen the 25 MHz of spectrum that remains allocated primarily for satellite DARS to new applicants or allow only the existing applicants to resolve their mutually exclusive applications. Commenters urging reopening the cutoff for satellite DARS applications contend that it is necessary to ensure true competition and greater program diversity. Cracker Barrel, for example, asserts that it would be interested in filing an application advocating a different transmission technology that it claims will allow more operators in less spectrum. It states that because the cut-off was three years ago, the Commission cannot be sure it has the best proposals before it. It also claims that the satellite DARS proceeding was ''out of order'' because applications were accepted before service rules were established. Because of this situation, Cracker Barrel complains it did not learn of the licensing process until the June 1995 *NPRM* and thus it missed the 1992 cut-off. Cracker Barrel argues that the Commission has discretion under the public interest standard to reopen a cut-off in a given proceeding.

59. Similarly, NAB asserts that technology has changed since the

Commission opened and closed the application window for DARS. It states that licensing multiple applicants will bring more program diversity and more business capabilities to the service. It also argues that any equities favoring the current applicants do not justify preserving the cut-off. NAB, like Cracker Barrel, argues that the available spectrum can support additional operators.

60. Others, particularly the four current applicants, argue that the cut-off should stand. CD Radio asserts that reopening would be unlawful, inequitable, and unwise. It argues that cutoffs are reopened only in extraordinary circumstances that are absent here. CD Radio and AMRC also stress that reopening would ignore the equities favoring the current applicants, including the significant time and money invested to establish satellite DARS. Citizens for a Sound economy, a non-applicant, added that reopening the cut-off could discourage future research and development of new services by allowing new applicants a ''free ride'' on the current applicants' investments.

61. Primosphere argues that cut-offs are key to a successful satellite policy. They bring finality and certainty to satellite proceedings by limiting the universe of applicants, allowing them to prepare their cases against a limited set of opponents and expediting inherently complex and costly development of new services. Similarly, DSBC argues that reopening the cutoff would contravene decades of satellite procedure. It states:

> Unlike its process in other services, the Commission invites applicants for new satellite services to submit their applications prior to the adoption of the technical and operational rules and often prior to a final decision on the threshold question of whether proceeding to authorize any one in the service is in the public interest. The Commission repeatedly has concluded that the technical complexity and the extraordinary lead time required uniquely in the satellite services requires this previously unprecedented approach.

The purpose of this approach, DSBC explains, is to guarantee long-term industry involvement in identifying the best use of spectrum and most efficient technology, thereby expediting new services. DSBC argues that satellite companies invest enormous amounts of time and money to develop new technologies and services, in reliance on the finality and certainty afforded by cutoffs and licensing rounds. Absent cutoffs, these parties would lack the incentive to risk the substantial resources required to develop and offer new satellite services to the public.

62. The Commission agrees with those commenters that assert that the Commission has authority to reopen cut-offs and that doing so in some circumstances has several important advantages, including allowing for new competitors to emerge. But the Commission concludes that in this case, compelling policy reasons unique to satellite services militate against reopening the cut-off for satellite DARS license applications for the two licenses available.

63. Sound satellite licensing policy and precedent, and the equities of this particular proceeding support the use of cut-offs in here. In this satellite proceeding, as in others, applicants require some measure of certainty to justify the inherently long-term investment of resources required by complex and lengthy international allocation and coordination procedures that must be completed prior to inauguration of service. This unique feature of satellite services, combined with the need to most expeditiously provide new services to the public, outweigh any benefits that would accrue from accepting additional applications. Cut-off procedures provide a greater measure of certainty. Given these unique factors in licensing satellite services, the Commission regularly establishes cut-offs, accepts applications and creates processing groups before service rules are adopted or even before specific operating frequencies are established. The Commission then relies heavily on the applicants to help develop service rules that allow them to share spectrum and expeditiously develop and deliver their new services to the public. The Commission relies heavily on applicants to assist the U.S. in international fora to obtain spectrum allocations and expects them to participate in the time consuming process of ITU notification and coordination. All of this activity requires significant expenditure of time and money by the applicants. Once the Commission adopts rules, it will permit applicants to amend their proposals to reflect compromises. This process expedites a complex and inherently risky venture, allowing license applicants to begin construction of their facilities immediately upon the grant of a license. The assertion by those opposing cut-offs that the Commission does not accept applications before adopting service rules in other, very different types of services, does not justify reopening the cut-off in this satellite proceeding.

64. Reopening the cut-off in this case will not necessarily advance DARS technology. There is no reason to assume that applicants will implement outmoded technology or spend hundreds of millions of dollars to construct inefficient satellite systems. Furthermore, in any satellite service rulemaking proceeding, the Commission always gives pending applicants the opportunity to amend their applications to conform to the final rules. In reviewing applications for space station facilities, the Commission requires that proposals reflect ''state-of-the-art'' technology at the time of license grant. In fact, CD Radio had amended its application substantially since 1990 and will have the opportunity to do so again to reflect the adopted rules. Although Cracker Barrel claims that its proposal could use less spectrum than that proposed by CD Radio, the Commission concludes, as discussed previously, that its proposal would not accommodate certain innovations such as spatial diversity.

65. Since CD Radio filed its original application in 1990, steps to implement the service have been well publicized. Both the government and the private sector worked to identify appropriate spectrum for satellite DARS at WARC–92. Shortly after WARC–92, the Commission announced its intention to allocate spectrum domestically and to accept applications for operations in the S-band to be considered in conjunction with CD Radio's. Since 1992, only one entity, Cracker Barrel, has indicated interest in filing an application to provide satellite DARS.

66. Neither Cracker Barrel nor other commenters have presented compelling arguments to justify reopening the previously established cut-off for satellite DARS license applications. No commenter advocating reopening has shown any persuasive reason to depart from the satellite cut-off policy and precedent.

67. Consistent with the conclusion not to reopen the cut-off in this proceeding, the Commission notes that existing Commission rules preclude satellite DARS applicants from effecting a substantial change in beneficial ownership if they want to maintain their pre-cut-off status. Section 25.116 of the rules provides that any amended application substantially changing an applicant's ownership will be considered a newly filed application and thus would not fall within cut-off protection unless the applicant requests and is granted an exemption by the Commission.

68. The Commission proposed in its *NPRM* to authorize specific satellite DARS frequency assignments upon grant of satellite DARS authorizations to begin construction. There were mixed

reactions to its approach. Primosphere, asserts that the Commission should initiate international coordination in conjunction with all licensed satellite DARS systems and should assign specific frequency blocks following the conclusion of this coordination. DSBC proposes to permit licensees to select the frequency band it would like to employ at the time it certifies it has met the first milestone. This is similar to CD Radio's initial proposal that each licensee 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. These alternative methods have one commonality; the exclusive frequency assignment for each satellite DARS licensee will not be known before and during the early stages of the coordination process. Indeed, it was necessary to initiate the coordination process with the ITU for each current satellite DARS system as though each system would operate over the entire 2310–2360 MHz band. Until specific frequency assignments are issued, coordination with adjacent countries for each satellite DARS system is burdensome for both the Commission and the licensees.

69. As discussed above, there is sufficient spectrum in the S-band to license only two satellite DARS systems. Dividing the available 25 MHz of spectrum into four equal segments among the four applicants would result in exclusive frequency assignments of only 6.25 MHz for each satellite DARS applicant. Because the Commission has found that a viable and competitive satellite DARS service will require 12.5 MHz, it can license only two systems. The 2320–2345 MHz band that will remain allocated for satellite DARS will be divided into two equal 12.5 MHz segments (2320–2332.5 MHz and 2332.5–2345 MHz). We will award the two licenses for satellite DARS by using competitive bidding to resolve mutual exclusivity. Satellite DARS applicants that are winning bidders will have 30 days following the conclusion of the auction in which to amend their applications to conform with the satellite DARS service rules adopted today.

70. Using the calculation methods provided in the comments, the satellite DARS licensees will be able to provide 19 to 44 channels of CD quality audio per system in the authorized 12.5 MHz of spectrum. Sufficient spectrum is available for two spatially diverse systems. Although the Commission decides not to reopen the processing round for satellite DARS, the Commission is not by its action today excluding all other potential DARS providers. Indeed, it may be possible to lease channels or purchase advertising time from the licensed satellite DARS providers.

71. CD Radio had proposed that satellite DARS system operators be permitted temporarily to occupy frequency assignments other than their own, provided that their transmissions can be reconfigured to return to and thereafter use only their own frequency assignment upon launch of the satellite operated by the licensee assigned to the temporary frequency. DSBC objected to this proposal, arguing 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. It asserted that 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. Primosphere, supports CD Radio's original proposal to authorize interim frequency assignments.

72. Upon review of the record, the Commission has decided not to authorize interim operations. The Commission has concluded that 12.5 MHz is necessary to implement a viable satellite DARS service. Nothing in the comments indicates that additional spectrum, or an interim assignment, is necessary to implement a viable system. Conversely, the Commission finds that an interim assignment could be disruptive and contrary to public interest because of possible service interruption or reduction. The Commission therefore adopts its original proposal not to authorize interim frequency assignments.

73. Although spectrum constraints limit the Commission to licensing just two satellite DARS systems at this time, its licensing approach nonetheless provides the opportunity for a competitive DARS service. The Commission's goal is to create as competitive a market structure as possible, while permitting each DARS provider to offer sufficient channels for a viable service. In the *NPRM*, the Commission pointed out that ''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,'' and asked whether these delivery media, coupled with fewer than four DARS providers, could ensure an effectively competitive audio services market.

74. Other audio delivery media are not, of course, perfect substitutes for satellite DARS. These media and satellite DARS all differ with respect to the programming menu (terrestrial radio can provide local programming and satellite DARS cannot), the sound quality, the cost of equipment, and the presence or absence of a subscription fee, but they all can provide music. The availability of these media, terrestrial radio in particular, varies across populated areas. Given the conclusion that satellite DARS can provide new and valuable service to the public, and given the overall competitive environment within which it will operate, the Commission is satisfied that licensing two satellite DARS providers will serve the public interest. The Commission agrees with commenters, that there should be more than one satellite DARS license awarded. Licensing at least two service providers will help ensure that subscription rates are competitive as well as provide for a diversity of programming voices. The two DARS licensees will compete against each other for satellite DARS customers and will face additional competitive pressure from the other aural delivery media mentioned above. Accordingly, eligible auction participants may acquire only one of the two licenses being auctioned. One license will be for the use of spectrum between 2320 and 2332.5 MHz and the other for 2332.5 though 2345 MHz.

75. Satellite DARS licensees' authority to operate will be conditioned upon completion of their international coordination obligations. As discussed above, and as the Commission indicated in the *NPRM,* both Canada and Mexico have allocated the 1452–1492 MHz frequency band (L-band) for DARS. Since U.S. satellite DARS systems will operate exclusively in the 2320–2345 MHz frequency band (S-band), coordination between U.S. satellite DARS and Digital Audio Broadcasting systems of adjacent countries is not necessary. The Commission indicated in the *NPRM* that the L-band is used extensively for U.S. Government and commercial mobile aeronautical telemetry operations. Coordination between Canadian terrestrial DARS and U.S. mobile aeronautical telemetry systems at L-band has proven to be challenging.

76. Adjacent countries do, as discussed above, operate terrestrial fixed point-to-point, fixed point-to-multipoint, and mobile aeronautical telemetry systems throughout the S-band. U.S. satellite DARS systems will

be required to coordinate with these terrestrial systems currently operating in the 2320–2345 MHz band. Satellite DARS licensees must submit appropriate Appendix 3 material according to the International Radio Regulations to formally complete the international coordination process. This Appendix 3 material will contain the final configurations of the satellite DARS systems.

77. In the *NPRM,* the Commission sought comment on whether satellite DARS licensees should have the flexibility to determine their own regulatory classification depending on the service they are providing or whether there are reasons to justify mandating a particular type of service. The Commission tentatively concluded that there was no reason to require that satellite DARS providers be licensed as common carriers or as broadcasters. The Commission raised a related question, pursuant to a suggestion by the NAB, whether the Commission should require that all licensees offer subscription service and asked for comment on the legal, policy and practical implications of such a requirement.

78. Commenters addressing these questions fall into two general groups. Those supporting implementation of satellite DARS, including the incumbent applicants, advocate that licensees be permitted to determine their own regulatory classification in order to tailor services to meet customer requirements and to respond to market demands. These commenters also emphasize the extremely high costs of constructing and launching a satellite system and state that licensees cannot afford to be restricted to purely subscription service. They state that they must be allowed to choose their own mix of subscription and advertising. One commenter suggests that satellite DARS licensees be limited to national advertising and be prohibited from accepting local or regional ads. Media Access Project argues that satellite DARS should be classified as broadcasting because the providers use public spectrum and thus should be subject to public interest requirements.

79. Commenters opposing satellite DARS argue that the service should be required to operate on a subscription only basis. NAB, for example, states that although satellite DARS would not be common carriage or broadcasting, providers should be required to restrict their service to subscription offerings in order to lessen the potential adverse impact on terrestrial broadcasters. NAB recognizes that DBS operators have been given the option to offer service as a broadcaster or by subscription but argues that treating satellite DARS like DBS in this regard is not warranted because the services operate in different competitive markets, with DBS subject to much more competition and not able to affect broadcasters as significantly as DARS.

80. The record supports a conclusion that satellite DARS licensees should be able to tailor their services to meet customer needs and that mandating a particular regulatory classification is unwarranted. There is no compelling evidence in the record that would militate in favor of requiring a broadcast classification and in fact it appears that the current applicants favor subscription service. Nor does satellite DARS appear to be a common carrier service because much of the programming offered would be subject to the editorial control of the provider. The services proposed by three of the applicants will be neither broadcast or common carrier. Flexibility for licensees to meet market demands is crucial and it may be that the viability of a satellite DARS service will depend on offering a mix of advertiser supported and subscription service. The Commission finds that a requirement that satellite DARS be entirely subscription is unwarranted. Mandating that providers charge for their services is not in the public interest and raises significant legal questions if done for the purpose of economic protectionism as advocated by several commenters.

81. The Commission's *NPRM* requested comment on a wide variety of questions regarding the advisability of public interest obligations in the context of this service. The Commission asked, for example, if all satellite DARS providers, including those not operating as broadcasters, should be subject to similar requirements. The Commission solicited comment on the Commission's authority to impose such obligations on non-broadcasters. The Commission requested information on the cost of complying with public interest obligations, and on whether the costs could be so significant as to hamper implementation of the service. Finally, the Commission asked about the types of obligations that apply to terrestrial broadcasters, which offerings would not be included by service providers in an unregulated environment, and whether these requirements increased or decreased profitability.

82. Commenters were divided on whether the Commission should adopt public interest programming obligations for satellite DARS providers. In general, pending satellite DARS applicants proposing non-broadcast service cautioned against imposing obligations. For example, DSBC states that public interest programming obligations are not necessary to ensure diverse public oriented programming. It asserts that the economic and distribution structure of satellite DARS makes it good business to offer programming that regular broadcasters would not offer absent incentives. AMRC also expresses concern that many of the suggested service rules would not result in better service to the public but instead would make service impossible. Primosphere, the only applicant clearly proposing to operate as a broadcaster, states the Commission should strike a balance between ensuring that the public interest is served and assuring that timely introduction of service is not impeded. A non-applicant states that the Commission is not in a position to determine which services should be offered in light of rapidly changing technology and potential consumer services. Although arguing against mandatory offerings, many of the current applicants state that they plan to include public interest programming in their services.

83. Media Access Project (''MAP'') urges that the Commission classify satellite DARS as broadcasting to trigger defined statutory public service obligations. In the absence of such a classification, MAP argues that broadcasters' obligations are appropriate. NAB states that imposing public interest obligations on DARS providers will, to some extent, compensate for the loss in local programming that it claims will inevitably result from implementing the service. Individual broadcasters assert that DARS providers will not keep their promises to provide niche programming but instead will offer mainstream services that will compete directly with terrestrial offerings.

84. In response to the request for proposals for possible public service rules, NAB suggested that satellite DARS licensees be held to a ''promises v. performance'' standard, similar to that formerly required of terrestrial broadcasters. Under this concept, operators would provide the Commission with a list of programming they propose to offer and to specifically describe ethnic or niche offerings included. They would then be subject to a periodic public interest review to determine if they have made good on their promises and to justify any substantial variations from their proposals.

85. Bonneville International Corp., a company holding broadcast licenses, advocates requiring that music

programmed channels carry news, information, public service announcements and public service programming. Several commenters urge that satellite DARS providers be required to comply with Equal Employment Opportunity requirements. National Public Radio advocates either a specific reservation of channel capacity for noncommercial or educational programming or a commitment to provide a minimum amount of educational cultural, and informational programming to unserved or underserved areas. The suggestion is supported by the Minority Media and Telecommunications Council which states that satellite DARS licensees should be required to set aside channels for noncommercial public access and for minority entrepreneurial access. One commenter, a terrestrial radio station operator advocated that satellite DARS meet certain requirements for each different programming signal offered and for each different community served. NAB points out that there are certain types of local public interest programming that a national service like satellite DARS can neither provide nor replace. Entertainment Communications advocates a requirement that satellite DARS licensees serve ''niche'' audiences.

86. As explained above, in allocating spectrum and adopting service rules for the satellite DARS service, the Commission has relied on the representations of satellite DARS applicants that they will provide audio programming to audiences that may be unserved or underserved by currently available audio programming. Thus, applicants have proposed new choices in audio programming which may be beneficial for the mobile public and for unserved and underserved communities, particularly in rural or remote areas. The Commission also has considered whether it is appropriate to apply to DARS public interest requirements similar or analogous to those that govern terrestrial radio broadcasters.

87. With regard to non-programming obligations, the Commission concludes that satellite DARS licensees must comply with the Commission's equal employment opportunity requirements. The rationale behind these requirements is a belief that a licensee can better fulfill the needs of the community, whether local or national, if it makes an effort to hire a diverse staff, including minorities and women. This rationale applies with equal force to satellite DARS. The Commission notes that no commenters opposed the imposition of EEO requirements. The Commission has a pending rulemaking proposing revision to its EEO rules. Licensees in this service will be required to comply with the current rule and with any changes adopted when the rulemaking is completed.

88. With regard to programming obligations, the Commission agrees with some of the commenters that satellite DARS service is likely to provide a new forum for political debate in this country. To ensure that there is fair treatment of federal political candidates that may seek to use this new forum, the Commission believes that satellite DARS licensees, whether they operate on a broadcast or subscription basis, should comply with the same substantive political debate provisions as broadcasters. These provisions are the federal candidate access provision, Section 312(a)(7), and the equal opportunities provision, Section 315. As the Supreme Court stated in upholding Section 312(a)(7) against constitutional attack, these political broadcast provisions ''make a significant contribution to freedom of expression by enhancing the ability of candidates to present, and the public to receive, information necessary for the effective operation of the democratic process.''

89. While the Commission is not adopting additional public interest programming obligations at this time, it reserves the right to do so. Licensees are specifically on notice that the Commission may adopt public interest requirements at a later date. If additional public interest obligations are found to be warranted, one option would be to adopt rules similar to those Congress enacted for DBS providers, including a 4–7% set-aside of capacity for noncommercial educational and informational programming. Another option would be to hold satellite DARS licensees to a 'promise vs. performance' standard.

90. In the *NPRM*, the Commission discussed the possibility of satellite DARS providers offering non-DARS, or ancillary, services. The Commission sought comment on what restrictions, if any, should apply to such services and on how to monitor compliance with any restrictions. In response, commenters favored allowing provision of ancillary services. Current satellite DARS applicants urged that the Commission allow flexibility to provide such services. Other commenters stated that allowing ancillary services will promote full and efficient use of the spectrum and could lower the price of DARS service, particularly in the early stages as satellite DARS is established.

91. Some commenters suggested particular services that would be complementary. For example, Ford Motor Co. suggested allowing data services. Radio Order Corp. urges the Commission to allow song related voice messaging that would permit the listener to access information on a particular song during the uninterrupted music. The USDA/Forest Service National Weather Program suggests that satellite DARS providers could dedicate a channel to broadcasting potentially life-saving forest fire and emergency information.

92. The applicants have proposed a mix of ancillary services. The Commission agrees with the commenters who argue that allowing flexibility consistent with the allocation will allow providers to tailor service offerings to meet consumer needs. Because the United States successfully obtained an international allocation for satellite DARS at WARC–92, the Commission would be concerned about any use of the spectrum that is inconsistent with the international allocation.

93. The *NPRM* contained no specific proposal for satellite DARS service area requirements. It did, however, ask whether to require satellite DARS systems to provide 50-state coverage or 50-state plus Puerto Rico/Virgin Islands coverage, as the Commission does in the fixed-satellite service. The Commission noted that two satellite DARS applications propose service solely to the 48 contiguous states of the United States (CONUS). Two other applicants propose coverage of the CONUS, Alaska, Hawaii, Puerto Rico and the Virgin Islands.

94. CD Radio and Primosphere assert that the Commission should not mandate that first generation satellite DARS systems provide service beyond the CONUS. Primosphere adds that requiring full 50-state coverage would require the use of satellite spot beams and additional spacecraft power. Primosphere also noted that most 12–14 GHz (Ku-band) and DBS licensees provide CONUS only coverage. CD Radio asserted that the service area is market-driven and that other applicants propose to serve Alaska, Hawaii, Puerto Rico, and the Virgin Islands CD Radio indicates also that its second generation design will include an expanded service area.

95. One benefit of a satellite system is its ability to provide nation-wide service. The Commission recognizes that 50-state coverage is not mandatory for all satellite services and a service area requirement beyond full CONUS coverage may not be practical for first generation satellite DARS systems. All of the pending applications for satellite

DARS propose at least full CONUS coverage, however, and there appears to be support for such a minimum requirement. Accordingly, the Commission concludes that satellite DARS licensees' systems must provide, at a minimum, full CONUS coverage. The Commission strongly encourages coverage to other areas or territories of the United States where practical to do so for first generation systems.

96. A concern identified in the *NPRM* was that satellite DARS signals be available to listeners, especially mobile ones, at every location nationwide. The Commission noted the service link margin is related to the percentage of service availability. The Commission also noted that there was significant comment on the pending satellite DARS applications which questioned the appropriate service link margin necessary for reception in a mobile environment. The Commission therefore proposed in the *NPRM* that satellite DARS applicants be required to identify the service link margin for their systems and demonstrate that their systems are capable of providing that service link margin in a mobile environment, under clear sky conditions, to the geographic areas they will serve. The Commission also sought 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 analysis to support that value. Technical analyses were not included in initial comments to demonstrate that a particular service link margin would be necessary for mobile reception in urban and suburban environments.

97. Pending applicants assert that satellite DARS operators will have an incentive to provide sufficient margin to deliver the highest quality audio and still permit low-cost manufacture of receiver equipment. Noting also that the amount of service link margin chosen by satellite operators is affected by a variety of factors, such as use of modulation and access techniques, satellite diversity, transmission schemes, intended audience, and use of terrestrial repeaters, it would be difficult for satellite operators to define one specific value that should be used. The Commission therefore will not require that satellite DARS licensees be capable of providing a specific value of service link margin for a given geographic area and withdraws its proposal regarding service link margin. The Commission will only require satellite DARS applicants to provide the information on their service link budgets that is already required by Section 25.114(c)(9) of its rules.

98. In general, it is the Commission's policy to avoid mandating the use of one form of technology. The Commission concludes it is appropriate to follow that policy here because it will allow flexibility for satellite DARS licensees in designing their satellite DARS systems, and will promote innovative system designs. Indeed, in the *NPRM,* the Commission proposed to allow licensees to use the channelling plans, modulation schemes and multiple entry techniques of their choice. One of the underlying reasons for proposing a band segment approach to licensing the satellite DARS spectrum was to avoid imposing complex sharing arrangements among satellite DARS licensees that may result due to the diversity in the proposed satellite DARS designs. The diverse modulation and channelling techniques proposed in the pending satellite DARS applications, however, led it to seek comment in the *NPRM* on the issue of receiver inter-operability and standards for satellite and terrestrial DARS.

99. The Commission indicated its concern that licensing diverse satellite DARS systems could increase the cost of manufacturing a receiver that is compatible with all competing satellite DARS technologies and terrestrial formats. The Commission therefore proposed that each applicant 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. This rule would have been necessary if the Commission were to license more than one band segment to a particular satellite DARS licensee, (whether as an interim assignment or in the event that a license is dismissed and the spectrum is re-divided pro-rata) but in view of its conclusion to license only two satellite DARS systems through competitive bidding, and not to permit interim frequency assignments, such a provision is no longer required. The Commission adopts, however, the principle behind the proposed rule that satellite DARS licensees are required to design a receiver which would accommodate all satellite DARS providers. By promoting receiver inter-operability for satellite DARS, the Commission is encouraging consumer investment in satellite DARS equipment and creating the economies of scale necessary to make satellite DARS receiving equipment affordable. This rule also will promote competition by reducing transaction costs and enhancing consumers' ability to switch between competing DARS providers. The Commission declines to adopt a specific standard for satellite DARS receiver designs, though. This will allow licensees the flexibility to determine the most cost effective way to meet the receiver-interoperability requirements. The Commission does not mandate that satellite DARS receivers be capable of receiving terrestrial broadcasting formats. Terrestrial and satellite DARS are at different developmental stages and the Commission does not want to impede implementation of either service.

100. Parties contend that Commission adoption of a single, industry-developed transmission standard for satellite DARS will keep receiver costs down, minimize design complexity, and encourage competition in the marketing of receivers. The Electronic Industry Association (EIA) maintains further that satellite DARS receivers should be designed so that consumers can seamlessly switch between satellite and terrestrial based DARS systems.

101. Satellite DARS applicants share different views regarding the Commission's role in the process of receiver development. CD Radio asserts that receiver inter-operability is in the clear economic interests of all satellite DARS providers and it expects that its receiver will be fully tunable in the sense that the consumer can select the service provider of their choice. AMRC contends that creation of a common receiver capable of tuning in the entire DARS band is important in promoting consumer acceptance of the technology. Given the market incentive for receiver compatibility, DSBC asserts that it is likely that a compatible receiver standard for satellite DARS will be developed without regulatory intervention. Primosphere adds that it is committed to working with the appropriate industry organizations to develop a common receiver standard and therefore Commission action is not necessary. In a related matter, CD Radio seeks confirmation from the Commission that consumers may rely on the authorization of a satellite DARS provider and need not obtain any additional license or registration for receive-only earth stations used to obtain the service.

102. As an alternative to this Commission mandating standards the Commission will require that a satellite DARS applicant, in its application, certify that its satellite DARS system will include a receiver design that will permit users to access all licensed DARS systems that are operational or under construction. Satellite DARS licensees, during the construction of their satellite systems, will have an opportunity to

work among themselves toward a final receiver design. The Commission agrees with commenters that it is in the interest of the satellite DARS licensees, and consumers, for the licensees to come to agreement on a single DARS receiver design. The Commission also agrees with commenters that, alternatively, a single transmission standard would be in the interest of the satellite DARS providers and consumers, independent of whether it is developed by the Commission or by industry, but it will not mandate use of a certain technology. If satellite DARS licensees redesign their systems to use conforming transmission technology, receiver complexity would be minimized and receiver costs would be lowered correspondingly. The Commission believes that, at the very least, consumers should be able to access the services from all licensed satellite DARS systems and the rule on receiver inter-operability accomplishes this. The Commission also agrees with CD Radio that it is unnecessary for satellite DARS consumers to file for a license for their receive-only terminals. Indeed, the Commission has not licensed receive-only earth stations for years in an effort to deregulate such operations.

103. Terrestrial broadcast and satellite DARS services are at different stages of development, however, and the Commission does not intend to add delay to the progress of the satellite service with further regulatory intervention by requiring that receivers be tunable to terrestrial broadcast signals. Testing and evaluation of proposed digital audio radio technologies has been on-going since 1991. The Commission urges satellite DARS licensees to take this information into account before they finalize their system and receiver designs. The comments indicate that satellite DARS licensees will continue to participate in the industry groups related to their service and the Commission has good reason to believe that this is sufficient to facilitate the design of a state-of-the-art satellite DARS receiver.

104. The applicants propose various coding rates to produce near compact disc (CD) quality audio. Some applicants propose to use variable data rates to transmit a mix of audio formats where 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. The Commission tentatively concluded that the use of variable data rates would promote efficient use of the spectrum and that satellite DARS licensees should be permitted to implement a mix of programming formats at variable data rates. The Commission reflected this in its proposal to require satellite DARS licensees 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. The Commission proposed to refrain from requiring a particular level of audio quality or other quality for satellite DARS and sought comment on its tentative conclusions. The Commission adopts, today, a rule that is consistent with its proposal for variable data rates.

105. Comments generally support the Commission proposal to allow use of variable data rates depending on the programming being offered and not to define a particular level of quality for DARS based on data rates. CD Radio asserts that satellite DARS licensees should be permitted to rely on market preferences to determine the data rates to use for particular formats and to determine the quality of the service. AMRC agrees with the Commission proposal because it intends to include some non-CD quality channels in its system. In this respect, CD Radio proposed a modification to the original proposal that would require a satellite DARS applicant to identify the compression rate it will use to transmit audio programming whether CD or other quality. The Commission adopts this proposal and extend it to require licensees to identify the compression rates used for non-audio formats.

106. In the *NPRM,* the Commission proposed to adopt financial qualifications and milestone requirements for satellite DARS licensees. Because of the decision to auction licenses, financial qualifications are unnecessary. However, the Commission believes that strict adherence to satellite construction and operational milestones will assure that licensees are proceeding with their proposals and spectrum is used efficiently. Because of the long lead time necessary for satellite construction, the Commission proposed that satellite DARS licensees begin construction of their space stations within one year, launch and begin operating their first satellite within four years, and begin operating their entire system within six years. The Commission also proposed that licensees file annual reports on the status of their systems. The current applicants support the rules proposed in the *NPRM.* Accordingly, the Commission adopts the requirements as proposed.

107. In the *NPRM,* the Commission proposed that licenses for satellite DARS space segment facilities would be issued for ten years. The Commission also noted that licensees choosing to operate as broadcasters would be limited by statute to a shorter term. Adoption of the original proposal would place DARS licensees that choose to be broadcasters at a disadvantage by giving them a shorter term. In addition, two different terms could cause confusion if an operator decided to change the mix of services it offered and might hamper the flexibility the Commission intended that licensees should have in choosing formats. Accordingly, because the Communications Act limits broadcast license terms to eight years, the Commission has determined that all satellite DARS license terms should be eight years. The license term will commence when each satellite is launched and put into operation. In addition, as proposed in the NPRM, individual satellite DARS receivers will not be licensed.

108. As one of the pending satellite DARS applicants indicates, satellite systems are a collection of technical trade-offs between satellite power, number of channels, data rates, service link margin and bandwidth. Therefore, the greater the flexibility in the Commission's technical rules, the greater the flexibility satellite DARS licensees will have in designing their systems in such a way as to meet their business plans and marketing goals. The technical rules adopted today will offer satellite DARS licensees sufficient flexibility to make necessary trade-offs and to implement systems that are viable and competitive.

109. The Commission proposed in the *NPRM* not to apply power flux-density (pfd) limits on satellite DARS networks and it believes the record supports its tentative decision. While initially CD Radio maintained that coordination of satellite DARS systems with adjacent countries would be facilitated if all systems were required to meet a pfd level at the Earth's surface of −139 dB(W/m^2/4 kHz), CD Radio now contends that it is not necessary for the Commission to re-open the issue of required pfd limits since it will be part of the coordination process. Others agree. DSBC, for instance, maintains that experience has shown that the flexibility in the international coordination process is far superior to the rigidity of pfd limits. Accordingly, Satellite DARS licenses will be conditioned on the completion of

international coordination with adjacent countries.

110. It is clear that each satellite DARS licensee will need to operate its satellite(s) at a pfd level that is high enough to provide sufficient service availability and yet low enough to coordinate with terrestrial services in adjacent countries. Coordination with adjacent countries becomes an important issue because the pfd values characteristic of proposed satellite DARS systems exceed the threshold levels that have been identified by foreign administrations to protect their existing terrestrial services. The discussion of coordination, above, provides satellite DARS applicants with a detailed understanding of the coordination issues in the 2320–2345 MHz band. The applicants are in a better position than the Commission to make necessary power trade-offs to implement their satellite DARS systems. Moreover, since the Commission is licensing satellite DARS providers in two separate frequency assignments, the failure of one licensee to complete coordination with adjacent countries in a timely fashion will not delay the coordination of the other licensee's system. In light of the above, adoption of a specific pfd limit is unnecessary. Satellite DARS applicants are reminded, however, that they are required to identify in their modified 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.

111. Satellite licensees are required to suppress out-of-band and spurious emissions from their space stations to the levels specified in Section 25.202(f) of the Commission's Rules. The Commission indicated in the *NPRM* that techniques such as spectral shaping, coding, offset quadraphase modulation and filtering, would be useful in mitigating out-of-band emissions. The Commission sought comment, however, on whether the out-of-band emission limits in Section 25.202(f) would be sufficient to protect radiocommunication services in bands adjacent to the 2310–2360 MHz band, particularly deep space operations below 2310 MHz and U.S. MAT operations above 2360 MHz.

112. Cornell University asserts in its comments that the Arecibo Observatory in Puerto Rico, which it operates for the National Science Foundation in the 2370–2390 MHz band, would require greater protection from satellite DARS than that which is currently required by Section 25.202(f). Specifically, Cornell requests that, as a minimum, the Commission require the out-of-band emission limits of Section 25.202(f)(3) for satellite DARS emissions beyond the 2370 MHz band edge. It requests that a rule for spurious emissions, consistent with those being considered by ITU–R Task Group 1/3 be applied to satellite DARS as well. This would require an additional 9 dB of attenuation below the out-of-band emission limits required by Section 25.202(f).

113. Cornell's calculations assume that a satellite DARS licensee will be authorized to operate at a center frequency of 2355 MHz with a bandwidth of 8 MHz. Considering that satellite DARS systems will be licensed below 2345 MHz, and that the Commission is not requiring the provision of satellite DARS to Puerto Rico and the Virgin Islands, which offers further protection to the Arecibo Observatory, attenuation of out-of-band emissions beyond the limits already required by Section 25.202(f) may not be necessary. It would be premature for the Commission to require satellite DARS licensees to meet the spurious emission limits which are currently in place as ''design guidelines'' and which may be reviewed again by ITU-R Study Groups. The TG 1/3 Recommendation that Cornell cites in its comments is a draft Recommendation and the issue of spurious emissions will not be finalized until the 1999 international Radiocommunication Assembly.

114. The Commission therefore will only require satellite DARS licensees to meet out-of-band and spurious emission limits which are contained in Section 25.202(f) of the Commission's Rules. Satellite DARS licensees should, however, take cognizance of the TG 1/3 ''design guidelines'' and the Arecibo deep space operations in the 2370–2390 MHz when designing, constructing and operating their space stations. In a related matter, the pending satellite DARS applicants assert that they can each operate without causing harmful interference to one another. Since the pending satellite DARS applicants propose a band segment licensing approach, the Commission presumes that the out-of-band emission limits of Section 25.202(f) would provide for interference-free, *intra*-service satellite DARS operation. The issue of out-of-band emission limits to protect satellite DARS receivers is addressed in the Wireless Communication Services proceeding.

115. The Commission sought comment in the *NPRM* on a suitable location for satellite DARS telemetry beacons. The Commission proposed in the *NPRM* that each system operator reduce its bandwidth occupancy by 0.1 MHz to create two 0.2 MHz assignments adjacent to the edges of the satellite DARS band for location of telemetry beacons. The Commission also proposed an alternative location for all satellite DARS telemetry beacons at the lower edge of the 2310–2360 MHz band, considering the tentative conclusion not to immediately license the lower 10 MHz for satellite DARS. The alternative proposal would put fewer constraints on the satellite DARS licensees (*i.e.*, they would no longer have to reduce their bandwidth occupancy to accommodate telemetry beacons), but the Commission indicated that further constraints would be placed on any future licensee of the lower portion of the band. The Commission requested comment on its proposals for satellite DARS telemetry beacons and it requested comment on alternative locations.

116. In its comments, DSBC suggests that, alternatively, the 3697–3699 MHz band would be suitable for satellite DARS telemetry beacons. It contends that the 3697–3699 MHz band could readily be coordinated for satellite DARS telemetry beacons thereby retaining the total DARS band for service links. CD Radio, in its comments, proposes a modification to the satellite DARS telemetry beacon proposal in the *NPRM*. According to CD Radio's proposal, satellite DARS licensees *may* reduce their assigned bandwidth occupancy to provide telemetry beacons. No other alternatives were identified for the location of satellite DARS telemetry beacons.

117. The Commission adopts its original proposal to locate telemetry beacons for satellite DARS in the satellite DARS band, with minor modification. No parties supported the proposal made by DSBC. Further, DSBC provided no supporting information in its comments to assess the impact of satellite DARS telemetry beacons in the 3697–3699 MHz band on the Radiolocation and Aeronautical Radionavigation users of the band. DSBC indicates that Intelsat and Inmarsat and numerous other non-U.S. satellite systems make use of all or large portions of this band. These satellite systems, however, are not located in the geostationary orbit between 80° and 110'' W.L., where the satellite DARS applicants propose to locate their satellites. CD Radio, on the other hand, supports the operation of satellite DARS telemetry beacons within the satellite DARS service link spectrum. CD Radio's proposal is more flexible than the proposal in the *NPRM* because it does not mandate an amount of spectrum by which each satellite DARS licensee must reduce its bandwidth to accommodate telemetry beacons (*i.e.*,

0.1 MHz). The Commission therefore modifies its original proposal to require satellite DARS licensees to accommodate telemetry beacons for their systems within their exclusively licensed bandwidth but allow each licensee the flexibility to determine the appropriate amount of spectrum necessary for its telemetry beacons.

118. Cross polarized signals are orthogonal signals as seen by the receiver. This technique is used extensively in the fixed-satellite service because it facilitates reuse of frequencies to accommodate multiple signals, thereby promoting efficient use of the spectrum. In the *NPRM* the Commission indicated that the record was insufficient for it to analyze the benefits of potential capacity increases, if any, that may result from use of cross-polarized transmissions for satellite DARS. The Commission proposed, however, that satellite DARS licensees be permitted to reach agreement with other satellite DARS licensees to transmit on cross-polarized frequencies in frequency assignments of other licensees. The parties who reach such agreements would be required to apply to the Commission for approval of the agreement. Commission approval would be conditioned on the outcome of coordination with other administrations.

119. The satellite DARS applicants generally support this proposal. CD Radio asserts that a licensee should at least be permitted to transmit cross-polarized signals within its own frequency assignment. AMRC contends that the use of cross polarization techniques is still untested in the S-band and the availability of such techniques for DARS licensees should not be assumed. However, to the extent that cross polarization techniques become feasible, the Commission should allow its use to expand program offerings. The Commission believes that its proposed rule for cross polarization leaves open the possibility for satellite DARS operators to use this technique, when proven feasible, to meet future market demands for their service. The Commission received no comment in opposition to its proposal for use of cross-polarized frequencies and it adopts its original proposal, without modification.

120. In the *NPRM* the Commission indicated that modification to Part 87 of its rules (Aviation Services) would be consequential to the licensing of satellite DARS systems in the 2310–2360 MHz band. The Commission recognized that the mobile and radiolocation services are currently allocated on a primary basis in the 2310–2360 MHz band until January 1, 1997 or until the first broadcasting-satellite (sound) system is operating and affecting or be affected by the mobile and radiolocation services in those service areas, whichever date is later. Further, its *Allocation Order* warned that the BSS(sound) and complementary terrestrial broadcasting service, during their implementation, should 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.

121. The Commission proposed modification of Section 87.303, in Appendix II of the *NPRM*, to align Part 87 with Parts 2 and 25 of its Rules. The Commission recommended authorization of new primary assignments for mobile telemetry and telecommand operations, pursuant to Section 87.303, above 2360 MHz. The *NPRM* indicated that there was support from the aeronautical community to reaccommodate existing aeronautical telemetry users of the 2310–2390 MHz band to the 2360–2390 MHz band. The Commission proposed modification to Section 87.303 to assign telemetry and associated telecommand operations in fully operational or expendable and re-usable launch vehicles above 2360 MHz. Moreover, the Commission suggested that any other telemetry use of the band 2310–2390 MHz would be secondary to launch vehicle use.

122. As discussed, *supra*, co-frequency, co-coverage operation of satellite DARS and MAT is not possible and it would not be practical to license MAT systems in the satellite DARS band on a co-primary basis. There was no opposition to the proposal to modify Section 87.303. Only DSBC and AFTRCC commented with modifications to the proposal to clarify the status of telemetry use of the 2310–2390 MHz band. Consistent with its original proposal, footnote US328 to Part 2 of the Rules, and the developments in the remainder of the 2310–2360 MHz band, the Commission modifies Section 87.303 as it pertains to the 2320–2345 MHz band. The Commission therefore adopts the modified Section 87.303 contained below.

123. In addition to satellite DARS space stations providing service downlinks in the 2320–2345 MHz band, feeder link earth stations for each satellite DARS system will be required to uplink programming information to the space station(s). The Commission recognized in the *NPRM* that feeder link networks are essential to deliver service to the end user and that ample contiguous spectrum is necessary to implement a viable satellite DARS system. The Commission also recognized that satellite DARS feeder link earth stations will be few in number (*i.e.* one, or possibly two for redundancy, per licensee) and will operate at fixed locations. Therefore, the Commission will authorize satellite DARS feeder link networks in fixed-satellite service (FSS) frequency allocations.

124. The Commission indicated, however, that it would not authorize satellite DARS feeder link networks in the conventional FSS 4/6 GHz (C-band) and 12/14 GHz (Ku-band) frequency bands which are already congested with U.S. fixed-satellite service networks. The Commission tentatively concluded that this would not be an efficient use of the FSS spectrum or the geostationary orbit. Additionally, the Commission recognized in the *NPRM* that the pending satellite DARS applicants propose feeder link operations in FSS bands other than the conventional 4/6 and 12/14 GHz bands. This is consistent with its tentative conclusion. Moreover, the Commission understands that feeder link requirements for each satellite DARS system may increase or decrease depending on the amount of satellite DARS service link spectrum that is exclusively licensed to each applicant, and on the final configuration of the satellite DARS systems. For these reasons the Commission sought comment on possible alternative non-congested FSS frequency bands that would be suitable for satellite DARS feeder link operations in the event that the frequency bands originally proposed by the applicants are not available.

125. Licensing service link spectrum in the 2320–2345 MHz band without designating spectrum for feeder link networks would result in the Commission licensing an incomplete satellite DARS system. The satellite DARS systems cannot operate without sufficient feeder link spectrum. The Commission therefore will permit satellite DARS feeder link networks in the FSS frequency bands 7025–7075 MHz and 6725–7025 MHz (101° W.L. orbital location only), consistent with the requirements identified in the current applications. The Commission will license satellite DARS feeder link Earth stations according to existing regulations for FSS Earth stations.

126. According to the proposals in the pending applications, the feeder link spectrum requirements for three of the four applicants can be accommodated in the 7025–7075 MHz band. Since satellite DARS systems will be operating space stations in the geostationary orbit,

this 50 MHz of spectrum can be reused by satellite DARS licensees in the uplink direction, given sufficient orbital separation between the space stations. The Commission believes that an orbital separation of at least two degrees between satellite DARS space stations is obtainable. Primosphere and CD Radio propose in their applications to use the 7025–7075 MHz band. Though AMRC proposes to use the 6530–6545 MHz band for its feeder links, it proposed no alternative bands. The Commission believes that AMRC's feeder link spectrum requirements, too, can be accommodated in the 7025–7075 MHz band.

127. The fourth applicant, DSBC, proposes in its application to use the 6500–6855 MHz band for its feeder links. DSBC has a greater spectrum requirement than the other applicants because it proposes a system which uses multiple spot beams. Spot beams allow for greater frequency reuse of the service link spectrum but the amount of feeder link spectrum required is proportionately greater. The Commission notes also that DSBC has requested the 101° W.L. orbital position which is allocated to the U.S. in accordance with the international FSS allotment plan. The spectrum in the 6725–7025 MHz allotment band is contiguous with the 7025–7075 MHz band. By combining the 300 MHz of spectrum from the allotment plan with the 50 MHz between 7025–7075 MHz, 350 MHz of spectrum could be available to implement a satellite DARS system at 101° W.L. which uses a multiple spot beam configuration. Moreover, this proposal would be a more efficient use of the FSS allotment plan by using it to its fullest.

128. The 6725–7025 MHz allotment and 7025–7075 MHz bands are currently lightly used in the U.S. by the fixed-satellite service, in contrast to the conventional 4/6 GHz and 12/14 GHz bands. Indeed, the WRC–95 designated these frequency bands for NGSO MSS feeder link use because, globally, they are currently lightly used by the FSS. Though NGSO MSS feeder link networks are planned to operate in these frequency bands and these bands are used in the U.S. for broadcast auxiliary and Electronic News Gathering (ENG), the Commission believes, for the reasons stated herein, that satellite DARS feeder links can share the 6725–7025 MHz allotment and 7025–7075 MHz bands with existing and planned co-primary users.

129. Regarding the sharing situation in the U.S. with broadcast auxiliary and ENG use of the bands, the Commission identified in the *NPRM* the sharing issues that satellite DARS operators would have to address. Initially, commenters maintained that bands allocated for broadcast auxiliary are heavily used for ENG, 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. Joint Comments from broadcasters assert, however, that satellite DARS feeder links could share the 7 GHz band with broadcast operations under certain conditions. The National Association of Broadcasters (NAB) maintains that satellite DARS feeder link use of the 7 GHz band would be possible only in small markets, noting that ENG may move from the 2 GHz band to the 7 GHz band thereby crowding the 7 GHz band. CD Radio contends that, even in light of the mobile nature of ENG operations in the 7 GHz band, a carefully engineered and coordinated satellite DARS uplink may well be able to co-exist with these broadcast facilities.

130. Most of the conditions for sharing the 7 GHz band identified by the broadcasters in their Joint Comments are typically negotiated during the domestic licensing process between satellite licensees and broadcasters. The results of this domestic coordination would be reflected in the satellite DARS earth station application to demonstrate that Earth station operations would not affect other co-primary users of the band. Satellite DARS feeder link networks will be authorized as a fixed-satellite service in the 6725–7025 MHz allotment and 7025–7075 MHz bands on a co-primary basis, but Earth station operations are expected to be coordinated with pre-existing users of the spectrum before they will be licensed to operate. The Commission will authorize satellite DARS feeder link Earth stations only after the applicant demonstrates that coordination with potentially affected users in the band, including co-primary broadcast users, has been successfully completed.

131. Certain of the conditions proposed by the broadcasters would not be imposed on satellite DARS operators after the earth station licensing process is completed. For instance, satellite DARS feeder links would not be required to accept interference received from existing and planned TV broadcast auxiliary stations once the earth stations are licensed. Moreover it would be premature for the Commission to identify and adopt ''keep out zones'' for satellite DARS earth stations, for example in areas near major sporting arenas and around existing 7 GHz television broadcast auxiliary receive sites, as proposed by broadcasters in their comments. This detailed frequency coordination exercise will be conducted between the satellite DARS licensees and broadcasters during the domestic licensing process and in parallel with the construction and deployment of the satellite DARS systems. Nevertheless, the fact that the Joint Commenters identified conditions that would facilitate sharing in the 7 GHz band is an indication that a workable solution can be realized for satellite DARS feeder link networks to operate in the bands shared with broadcast facilities.

132. The Commission also identified the sharing issues regarding satellite DARS feeder links and planned feeder link networks for NGSO MSS systems in the *NPRM*. NGSO MSS feeder link networks will be transmitting in the downlink direction in the 7 GHz band while satellite DARS feeder links will be transmitting in the uplink direction in the same band (i.e., NGSO MSS feeder links will be operating ''reverse band''). Coordination between the transmitting satellite DARS earth stations and receiving NGSO MSS feeder link earth stations, and between receiving DARS space stations and transmitting NGSO MSS space stations is therefore required. Primosphere asserts that because satellite DARS feeder link earth stations do not have significant geographic limitations on where they can be located, it is not expected that coordinated use of the 7 GHz band with NGSO MSS feeder link earth stations will be difficult. DSBC adds that there are no apparent problems with satellite DARS feeder link band proposals even in light of WRC–95 proposals for NGSO MSS feeder links.

133. Loral Qualcomm Partnership (LQP) asserts that any satellite DARS feeder link assignment in the 7 GHz band should be required to operate within the sharing criteria adopted at WRC–95 for sharing between GSO FSS and NGSO MSS feeder link networks. The Commission expects satellite DARS feeder link networks, and NGSO MSS feeder link networks, to operate according to WRC–95 decisions. The Commission believes that, based on WRC–95 decisions, geostationary satellite DARS feeder links and NGSO MSS feeder links can co-exist in the 7 GHz band. There will be relatively few feeder link earth stations for both services and sufficient distance can be maintained between the transmitting feeder link earth stations for satellite DARS and the receiving earth stations of NGSO MSS feeder links networks. Additionally, according to WRC–95 decisions, transmitting NGSO MSS feeder link space stations must meet power flux density limits at the

geostationary orbit to protect receiving space stations in the 7 GHz band. The domestic coordination process, in accordance with Section 25.130 of the Rules, will facilitate feeder link Earth station licensing of both satellite DARS and NGSO MSS systems.

134. Two 12.5 MHz DARS licenses will be granted for use of the spectrum at 2320–2332.5 MHz, and 2332.5–2345 MHz, respectively. As discussed above, since the Commission is not opening the filing cut-off, the four applicants are the only eligible parties for these licenses. Accordingly, as all four applicants' proposals cannot be accommodated, it adopts rules to assign the licenses to two of these applicants through use of competitive bidding.

135. The Commission has authority under Section 309(j) of the Communications Act of 1934, as amended (''Communications Act''), to employ auctions to choose among mutually exclusive applications for initial licenses where the principal use of the spectrum is likely to involve the licensee receiving compensation from subscribers. Specifically, the Communications Act permits auctions where: (1) mutually exclusive applications for initial license or construction permits are accepted for filing by the Commission; (2) the principal use of the spectrum will involve, or is reasonably likely to involve, the receipt by the licensee of compensation from subscribers in return for enabling those subscribers to receive or transmit communication signals utilizing the licensed frequencies; and (3) the public interest objectives of Section 309(j) would be served by subjecting mutually exclusive applications in the service to competitive bidding.

136. In the *NPRM*, the Commission recognized that mutual exclusivity could arise if it decided not to make the entire 50 MHz of allocated spectrum available for satellite DARS licensing. The Commission also tentatively concluded that the principal use of the spectrum will be to provide subscription-based services. The Commission further concluded that using competitive bidding to assign DARS licenses would fulfill the public interest obligations mandated by statute.

137. Some commenters contend that the Commission is not authorized to auction DARS licenses because they believe the applications on file are not mutually exclusive. The pending applicants argue that the Commission has a statutory obligation to avoid mutual exclusivity, citing Section 309(j)(6)(E) of the Communications Act. CD Radio and American Mobile Radio Corporation (AMRC) also allege that the use of auctions to resolve applications filed before the Commission was granted competitive bidding authority is not warranted.

138. Based upon a review of the record in this proceeding, the Commission disagree with these commenters. As the Commission stated in the *NPRM*, with respect to the ''principal use'' requirement of Section 309(j), auctions are authorized if at least a majority of the use of the spectrum is likely to be for subscription-based services. In making this determination, the Commission looks to classes of licenses and permits rather than individual licenses. Given that three of the four current applicants propose to provide subscription-based service, the Commission concludes that the principal use of the satellite DARS spectrum is likely to involve the licensee receiving compensation from subscribers. The Commission notes, however, that its ''principal use'' determination does not in any way preclude satellite DARS licensees from providing any amount of non-subscription service, and they are not precluded from recovering auction costs, as well as the costs of construction, launch, and operation from sources other than subscribers, such as advertising.

139. The Commission also expects that the amended applications to be filed for the satellite DARS licenses will raise mutual exclusivity. While eligibility for this license is limited to the four existing applicants, the Commission expects that each of these applicants will file amended applications to participate in the auction for the two licenses in view of their continued interest, as expressed in this proceeding, in providing satellite DARS. In the event the Commission receives only one acceptable amended application for each of the licenses, the Wireless Telecommunications Bureau will issue a public notice cancelling the auction and establishing a date for the filing of an amended long-form application that complies with the service and technical rules adopted herein.

140. The Commission turns now to the issue of whether using competitive bidding to assign the satellite DARS licenses will promote the public interest objectives set forth in Section 309(j)(3) of the Communications Act. These objectives are:

(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 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.

The Commission concludes that using competitive bidding procedures to award the DARS licenses will further these objectives. Using competitive bidding for satellite DARS, a new national satellite service, does not present the same complexities and difficulties inherent in any consideration of using auctions for transnational systems. The complex and difficult issues involved in using competitive bidding to award licenses for global systems are described in the Commission's recent *Little LEO* NPRM 61 FR 69062 (December 31,1996). Satellite DARS is a domestic service. In fact, other countries will use different frequency bands for satellite DARS service. This unique situation offers the Commission the opportunity to provide the public with the advantages of competitive bidding without the significant disadvantages involved in using auctions to license transnational services.

141. In general, paying for spectrum provides incentives for the licensee to construct quickly in order to obtain a return on its investment. The Commission therefore concludes that, in this particular set of circumstances, an auction for the satellite DARS licenses is likely to promote the rapid deployment of service because the party that is in the best position to deploy satellite DARS technologies and services is also likely to be the highest bidder. The Commission further believes that adopting competitive bidding procedures to award satellite DARS licenses is the most efficient mechanism for ensuring that satellite DARS is offered to the public in the most expeditious manner possible. Use of competitive bidding, as compared to other licensing methods, will speed the development and deployment of satellite DARS service to the public with

minimal administrative or judicial delays, and encourage efficient use of the spectrum as required by Section 309(j)(3)(A) and (D) of the Communications Act. Based on its experience with DBS, for example, the Commission believes that the satellite DARS auction could be concluded in a matter of days and it could move forward expeditiously with licensing. Additionally, competitive bidding will recover a portion of the value of the spectrum, as envisioned in Section 309(j)(3)(C).

142. As discussed *infra,* the Commission has not adopted special provisions for small businesses and other designated entities because of the extremely high implementation costs associated with satellite-based services and the lack of sufficient evidence in the current record to support the adoption of designated entity provisions. However, this does not mean either that the Commission has ignored Congress' mandate to offer designated entities the opportunity to participate in competitive bidding, that designated entities will be unable to participate in the DARS industry or that auctions of DARS spectrum will not promote many of the objectives of Section 309(j). Based upon prior experience with respect to other satellite-based services, it is likely that a wide variety of businesses, including designated entities, will be involved in various sectors of this industry as non-licensed operators, programmers, and equipment suppliers.

143. Moreover, the Commission disagrees with commenters' arguments that it is inappropriate to use competitive bidding procedures to select from mutually exclusive applications that were filed before the Commission was granted competitive bidding authority. The Commission observes that Section 6002 of the Omnibus Budget Reconciliation Act of 1993 (''1993 Budget Act'') specifically grants the Commission the discretion to decide whether to employ either lotteries or auctions to choose between mutually exclusive applications filed before July 26, 1993. In this regard, the Commission believes that, in balancing the advantages and disadvantages of using a lottery or an auction to award the DARS licenses, the public interest is best served by its use of competitive bidding. As discussed *supra,* the Commission believes that an auction will ensure that the licenses are awarded to the party that values it most highly, thereby maximizing efficient use of the spectrum and facilitating the expeditious delivery of service to the public. This is especially true with regard to nationwide licenses because the winning bidders at the auction will likely be the parties that have made the greatest commitment to satellite DARS and are best prepared to begin construction of a nationwide system. Finally, use of auctions to assign the DARS licenses will advance the goals of Section 309(j)(3)(C) of the Communications Act by enabling the Commission to recover for the public a portion of the value of the spectrum and avoid unjust enrichment to license winners.

144. In sum, the Commission concludes that it has the authority to award DARS licenses by means of competitive bidding. The Commission further concludes that the use of competitive bidding to assign DARS spectrum will promote the rapid deployment of DARS and the efficient use of DARS spectrum most effectively. The Commission will therefore award two 12.5 MHz DARS licenses by means of competitive bidding.

145. In the *NPRM,* the Commission proposed that a simultaneous multiple round auction be used to award DARS licenses if the Commission determined that competitive bidding procedures should be implemented. In a simultaneous multiple round auction, in every round, a bidder may bid on any of the licenses for which it is eligible. The auction does not close until bidding has ceased on all licenses. In the *Competitive Bidding Second Report and Order,* 59 FR 24947 (May 13, 1994), the Commission concluded that this method ensures that interdependent licenses will be awarded to the bidders who value them most highly by generating the most information about license values and providing bidders with the greatest degree of flexibility to pursue back-up strategies. In the *NPRM,* the Commission said that if it employs competitive bidding for DARS licensing, it would conduct it ''pursuant to the general framework adopted in the *Second Report and Order,* the Commission's rules, and consistent with other Commission proceedings where auctions have been employed.'' There were no comments on the Commission's proposed auction design or bidding procedures for DARS.

146. In view of the fact that the two DARS licenses are substitutable and these licenses will be significantly interdependent, the Commission concludes that a simultaneous multiple round auction design is the appropriate auction methodology. This auction methodology will generate valuable information about the licenses during the course of the auction. In addition, as noted below, consistent with the rules for other auctionable services, the Commission adopts bidding procedures to ensure that the auction proceeds at a rapid pace.

147. The Commission observes that a multiple round electronic auction generally will provide bidders useful information about other bidders' valuations. Bidders will be able to observe who is willing to bid on a license at each announced price. Providing this information may enable bidders to refine their estimates of the license value, thereby reducing the tendency of bidders for licenses with uncertain value to shade down their bids to avoid the ''winner's curse.'' Because of the Commission's discretion to adjust the length of bidding rounds in an electronic auction and the other auction design features described below, the Commission expects the auction to proceed rapidly. The Commission will provide for on-site electronic bidding because of the limited number of eligible participants and the anticipated rapid auction pace. The Commission reserves the option, however, to offer remote bidding where bidders can place their bids by computer from any location.

148. Consistent with the rules adopted in other services, the Commission concludes that the Wireless Telecommunications Bureau should have discretion to establish, raise and lower minimum bid increments during the course of the DARS auction. The Commission believes that this discretion over minimum bid increments is necessary to ensure that it can efficiently control the pace of the auction. The Commission anticipates using larger percentage minimum bid increments early in the auction and reducing the minimum increment percentage as bidding activity falls. The Commission also believes that the efficiency of the auction may be enhanced by limiting jump bidding, *i.e.*, bidding above the minimum accepted bids. Therefore, the Wireless Telecommunications Bureau will announce by Public Notice prior to auction the specific bid increment that generally will be used, and will also retain the discretion to establish and change maximum bid increments during the course of the auction. Where a tie bid occurs, the high bidder will be determined by the order in which the bids were received by the Commission.

149. To maximize the amount of information generated during the course of an auction and to ensure that the auction closes in a reasonable amount of time, the Commission will require a bidder to be active on one license in each round of the auction or use an

activity rule waiver, as defined below. To be active in the current round, a bidder must submit an acceptable bid in the current round or have the high bid from the previous round. A bidder who is not active in a round and has no remaining activity rule waivers will no longer be eligible to bid on the license being auctioned. Bidders will not be permitted to be active on more than one license in a single round. The Commission sees no efficiency-enhancing reason to permit such bidding because the service rules allow only one license to be acquired per bidder. Moreover, experience in previous auctions has raised concerns that such bidding could be used to signal or engage in other forms of anticompetitive strategic bidding. The Commission delegates to the Wireless Telecommunications Bureau the authority to determine and announce by Public Notice bid withdrawal procedures for the DARS auction.

150. The Commission concludes that a minimum opening bid would help ensure that the auction proceeds quickly and would increase the likelihood that the public receives fair market value for the spectrum. The Commission will therefore establish a minimum opening bid for this spectrum, the amount of which will be announced by the Wireless Telecommunications Bureau by Public Notice. The Commission observes that this approach is consistent with its approach in the DBS context. The Wireless Telecommunications Bureau will determine the amount of the minimum opening bid using all available information and taking into consideration the uncertainty as to the value of the spectrum.

151. To make allowance for unusual circumstances that might delay a bidder's bid preparation or submission in a particular round, the Commission will provide bidders with a limited number of waivers of the above-described activity rule. The Commission believes that some waiver procedure is needed because the Commission does not wish to end a bidder's participation due to an accidental act or circumstances not under the bidder's control. The Commission will provide bidders with three activity rule waivers that may be used in any round during the course of the auction. A waiver will preserve eligibility in the next round. Waivers may be applied automatically by the Commission or invoked proactively by bidders. If a bidder is not active in a round, a waiver will be applied automatically. An automatic waiver applied in a round in which there are no new valid bids will not keep the auction open. A proactive activity rule waiver is a waiver invoked by a bidder during the bid submission period. If a bidder submits a proactive waiver in a round in which no other bidding activity occurs, the auction will remain open.

152. The Commission will retain the discretion to issue additional waivers during the course of an auction for circumstances beyond a bidder's control or in the event of a bid withdrawal, as discussed below. The Commission will also retain the flexibility to adjust, by Public Notice prior to an auction, the number of waivers permitted.

153. A stopping rule specifies when an auction is over. The auction will close after one round passes in which no new valid bids or proactive activity rule waivers are submitted. The Commission retains the discretion, however, to keep the auction open even if no new valid bids and no proactive waivers are submitted. In the event that the Commission exercises this discretion, the effect will be the same as if a bidder had submitted a proactive waiver. This will help ensure that the auction is completed within a reasonable period of time, because it will enable the Commission to utilize larger bid increments, which speed the pace of the auction, without risking premature closing of the auction.

154. In the *NPRM*, the Commission proposed to adopt the short-form application procedures, upfront payment requirements, public notice procedures, and default and disqualification provisions set forth in Subpart Q of Part 1 of the Commission's rules.

155. The Commission received no comments addressing these proposals. Because there only are four applicants eligible in this auction, all of whom previously filed applications for DARS licenses, the Commission will not use its short-form application requirement (FCC Form 175) and adopts a new rule for the DARS auction. Specifically, it will require these applicants to supplement their previously-filed applications within five days of the publication of this *Report & Order* in the Federal Register. The supplemental information must be certified and include the following: 1. Applicant's name; 2. Mailing Address (no Post Office boxes); 3. City; 4. State; 5. ZIP Code; 6. Auction Number 15; 7. FCC Account Number; 8. Person(s) authorized to make or withdraw a bid (list up to three individuals); 9. Certifications and name and title of person certifying the information provided; 10. Applicant's contact person and such person's telephone number, E-mail address and FAX number; 11. Signature and date. In keeping with previous practice, the Commission also retains discretion to implement or modify certain other procedures prior to the DARS auction, including rules governing the payment requirements.

156. As discussed below, the Commission will require applicants to submit to the Commission an upfront payment prior to commencement of the DARS auction. In addition, each auction winner will be required to submit an amount sufficient to bring its total deposit up to 20 percent of its winning bid within ten (10) business days of the announcement of the winning bidder. The winning bidder also will be required to supplement its application in accordance with Part 25 of the Commission's Rules. This procedure will constitute the ''long-form application'' process referred to in the general auction rules. The winning bidder will be required to file such information by a date specified by Public Notice, generally within 30 business days after the close of bidding. After receiving the winning bidder's long-form application and verifying receipt of the bidder's 20 percent down payment, the Commission will announce the application's acceptance for filing, thus triggering the filing window for petitions to deny. If, pursuant to Section 309(d) of the Communications Act, the Commission dismisses or denies any and all petitions to deny, the Commission will issue an announcement to this effect, and the winning bidder will then have ten (10) business days to submit the balance of its winning bid. If the bidder fails to submit the balance of the winning bid or the license is otherwise denied, the Commission will assess a default payment as set forth below and re-auction the license among the other existing applicants. If no petitions to deny are filed, the Commission will issue a public notice conditionally granting the licenses pending final payment.

157. In the *NPRM* the Commission proposed an upfront payment requirement of $0.02 per MHz-pop to ensure that only serious, qualified bidders participate at auction. Initially, the commenters did not address the proposed upfront payment provisions. In various recent ex parte filings, however, the eligible applicants claim that an upfront payment based on $0.02 per MHz-pop is too high and is not needed to ensure that only serious, qualified bidders participate at auction. The Commission concludes that its proposed up-front payment of $0.02 per MHz-pop may be too high here. The

Commission observes that the eligible applicants in this auction have demonstrated a continued interest in providing DARS and have already expended significant resources towards this end. Accordingly, the Commission believes a more modest upfront payment for the auction of the DARS licenses is appropriate. The Commission believes that a payment that takes into consideration the valuation of similarly auctioned satellite spectrum (such as DBS) would be appropriate. The Commission therefore delegates authority to the Wireless Telecommunications Bureau and the International Bureau to determine an appropriate calculation for the upfront payment and announce it by Public Notice.

158. In the *Competitive Bidding Second Report and Order*, the Commission determined that bid withdrawal, default and disqualification provisions were needed to discourage insincere bidding. The Commission observed that insincere bidding, whether frivolous or strategic, distorts the price information generated by the auction process and reduces its efficiency. Accordingly, the Commission adopts the bid withdrawal, default and disqualification provisions as set forth in Sections 1.2104(g) and 1.2109 of the Commission's rules. Pursuant to these rules, any bidder who withdraws a high bid during an auction before the Commission declares bidding closed will be required to reimburse the Commission in the amount of the difference between its high bid and the amount of the winning bid the next time the license is offered by the Commission, if this subsequent winning bid is lower than the withdrawn bid. If a license is reoffered by auction, the ''winning bid'' refers to the high bid in the auction in which the license is reoffered. If a license is reoffered in the same auction, the winning bid refers to the high bid amount in that auction, made subsequent to the withdrawal. If the subsequent high bidder also withdraws its bid, that bidder will be required to pay an amount equal to the difference between its withdrawn bid and the amount of the subsequent winning bid the next time the license is offered by the Commission. If a license which is the subject of withdrawal or default is not re-auctioned, but is instead offered to the highest losing bidders in the initial auction, the ''winning bid'' refers to the bid of the highest bidder who accepts the offer. Losing bidders would not be required to accept the offer, *i.e.*, they may decline without additional payment. The Commission wishes to encourage losing bidders in simultaneous multiple round auctions to bid on other licenses, and therefore the Commission will not hold them to their losing bids on license for which another bidder has withdrawn a bid or on which another bidder has defaulted.

159. After bidding closes, a defaulting auction winner (*i.e.*, a winner who fails to remit the required down payment within the prescribed time, fails to pay for a license, or is otherwise disqualified) will be assessed the difference between its high bid and the amount of the winning bid the next time the license is offered by the Commission, if this subsequent winning bid is lower than the high bid, plus an additional payment of three percent of the subsequent winning bid or three percent of the amount of the defaulting bid, if the defaulting bid was less. The additional three percent payment is designed to encourage bidders who wish to withdraw their bids to do so before bidding ceases. The Commission believes that these additional payments will adequately discourage default and ensure that bidders have adequate financing and that they meet all eligibility and qualification requirements.

160. In addition, if withdrawal, default or disqualification involves gross misconduct, misrepresentation or bad faith by an applicant, the Commission retains the option to declare the applicant and its principals ineligible to bid in future auctions, or to take any other action it deems necessary, including institution of proceedings to revoke any existing licenses held by the applicant.

161. The Commission notes that DARS licensees, like other satellite licensees, will be subject to rule 25.118, which prohibits transfers or assignments of licenses except upon application to the Commission and upon a finding by the Commission that the public interest would be served thereby. Even after DARS licenses are granted, one licensee will not be permitted to acquire control of the other remaining satellite DARS license. This prohibition on transfer of control will help assure sufficient continuing competition in the provision of satellite DARS service.

162. As it stated in the *NPRM*, the Commission believes that it is necessary to adopt a rule prohibiting collusive conduct in connection with the satellite DARS auction. However, the Commission believes that a modified rule is warranted because there are a limited number of identified eligible participants for the satellite DARS action and thus the additional safeguards associated with an auction with many more bidders are absent here. Specifically, the Commission will not adopt any exceptions to the general anti-collusion rule. As noted above, in lieu of short-form applications, the eligible DARS applicants will be required to supplement their pending applications with certain information within five days of the publication date of this *Order.* At that time, all applicants will be prohibited from cooperating, collaborating, discussing or disclosing in any manner the substance of their bids or bidding strategies, or discussing or negotiating settlement agreements with other bidders.

163. Due to the fact that this is a closed auction with a fixed number of eligible applicants, the Commission has determined that none of the three exceptions to its general collusion rules prohibiting discussions with other applicants will apply. Therefore, the applicants will not be permitted to enter into consortia or any type of joint bidding arrangement at any time since cooperation and collaboration are prohibited under the anti-collusion rule. Nor will they be able to enter into settlement arrangements following the filing of their supplemental information. Given the limited number of applicants (four) and available licenses (two), this is not the type of situation the Commission contemplated when it expressed its desire to preserve ''efficiency enhancing bidding consortia'' so as to possibly reduce entry barriers for smaller firms. The universe of bidders here is already established and very small. In this situation, the Commission believes that allowing any joint bidding arrangements among this limited group will merely serve to undercut the competitiveness of the auction process and limit the number of bidders for each license. In this vein, the Commission also concludes that the other exceptions to the collusion rule designed to allow bidders to combine or obtain additional capital from one another during an auction are inapplicable or unnecessary here. These applicants have been preparing and developing this service for years, and this will be a very short auction. Thus, any additional capitalization requirements are likely to already have been met or should be after the auction. The Commission believes that the five-day window is sufficient to enable the applicants to conclude any settlement discussions, given the fact that the parties have had significant time prior to the adoption of this Order to reach a settlement. After this five-day period, all negotiations (if any) must cease. This

rule is both fair to the four applicants, who had time to negotiate settlements and raise capital, while helping to ensure the competitiveness of the auction and the post-auction market. All applicants will be prohibited from cooperating, collaborating, discussing or disclosing in any manner the substance of their bids or bidding strategies with other bidders five days after publication of this report and order in the Federal Register.

164. Finally, in adopting these rules for the DARS auction, the Commission also reminds the eligible bidders that allegations of collusion may be investigated by the Commission or referred to the U.S. Department of Justice for investigation. Bidders who are found to have violated the antitrust laws or the Commission's Rules while participating in an auction may be subject to forfeiture of their down payment or their full bid amount, as well as revocation of their license, and may be prohibited from participating in future auctions.

165. In the *NPRM*, the Commission asked commenters to discuss whether special provisions should be adopted to enable small businesses, businesses owned by minorities and women, and rural telephone companies (rural telcos) (collectively referred to as ''designated entities'') to participate at auction and in the provision of DARS.

166. The Commission received no comments addressing this issue. In an *ex parte* filing, CD Radio proposes that entrepreneurs and small businesses (as defined in the rules for broadband PCS C and F blocks) be afforded an installment payment plan. CD Radio claims, among other things, that failure to adopt such financing incentives would put pressure on the small business applicants to sell their ''place in line'' to large companies and encourage transfers and possible unjust enrichment of speculative applicants. The Commission first notes that the legislative history of the designated entity provisions shows that Congress did not necessarily intend for special measures in services such as DARS, as demonstrated by the following reference: ''[t]he characteristics of some services are inherently national in scope, and are therefore ill-suited for small businesses.'' Moreover, the Commission previously concluded that, because of the extremely high implementation costs associated with satellite-based services, no special provisions for designated entities would be made. In part, this conclusion was reached because it was unclear whether small businesses could attract the capital necessary to implement and provide satellite-based services. Second, pursuant to Section 309(j), the purpose of such provisions is to attract the participation of a wide variety of small business applicants. In view of the fact that this is a closed auction with a fixed number of eligible applicants, this purpose of attracting a wide-array of applicants will not be served here. Third, the record is lacking in support for what the appropriate small business threshold is in the DARS context and whether any of the four applicants, including CD Radio, would qualify as a small business. In the DBS context, the Commission did not provide for designated entity provisions, primarily due to the high implementation costs and the lack of interest expressed by the potential beneficiaries, *i.e.*, small businesses, businesses owned by minorities and women, and rural telecos. In this connection, the Commission notes that CD Radio's proposal is not supported by the *ex parte* filings of other potential applicants who arguably would fall within the definitions of entrepreneur and small business proposed by CD Radio. In contrast to CD Radio's proposal, in its *ex parte* filing, DSBC states that, ''[s]o long as the auction is limited to the four pending applicants, the Commission need not employ bidding credits or installment payments, or identify designated entities, to level the playing field among this group of potential licensees.'' Likewise, in its *ex parte* filing, Primosphere similarly states that ''[t]here should be no bidding preferences'' and ''[a]ll four applicants should be treated equally.''

167. The Commission is, therefore, not convinced that in order to promote the objectives of Section 309(j)(3)(B) ensuring that new and innovative technologies are readily accessible to the American people and the dissemination of licenses among a wide variety of applicants, including small businesses, it needs to provide designated entity provisions, such as the financial incentives requested by CD Radio. Moreover, it concludes that the present record is insufficient to support either race-based rules under the strict scrutiny standard, or to support gender-based rules under the intermediate scrutiny standard that currently applies to those rules. Accordingly, the Commission is not adopting designated entity provisions for DARS.

168. The Commission believes that the foregoing decision and licensing plan best serves the public interest in assuring that the spectrum in question is most efficiently utilized while allowing the implementation of new, innovative services.

169. Accordingly, *it is ordered* that Part 25 of the Commissions rules are hereby amended as set forth below.

170. Accordingly, *it is ordered* that Parts 25 and 87 of the Commissions rules are hereby *amended* as set forth below, and the new and amended rules in Sections 25.144, 25.201, 25.202, 25.214 and 87.303 *shall become effective* April 10, 1997, except that the new rules in Sections 25.401, 25.402, 25.403, 25.404, 25.405, and 25.406 *shall become effective* March 11, 1997. The Commission finds good cause to make the auction rules for satellite DARS (Subpart F of Part 25) effective immediately upon publication in the Federal Register. These rules will allow the four pending applicants to amend their applications, which have been pending for more than four years, and to participate in the auction for this new service, for which spectrum was allocated two years ago. Immediate application of the rules governing the auction procedures will therefore expedite the DARS auction and the introduction of service to the public, including those residing in rural areas, in accordance with Section 309(j)(3)(A) of the Communications Act. In addition, the Commission notes that the pending applicants have made substantial financial investment in anticipation of the licensing of DARS. Finally, it is important that the DARS auction take place prior to the Wireless Communications Service (''WCS'') auction, which Congress had mandated begin no later than April 15, 1997. According to the applicants, their several years of planning and financial investment would be undermined if a WCS auction winner were to enter the DARS market first. The DARS applicants also contend that they may need WCS spectrum for auxiliary support of DARS operations, that they need time to assess these auxiliary needs, but that their efforts will be frustrated if WCS is auctioned first. Accordingly, the Commission finds that further deferral of the DARS auction and licensing procedures by a delay in the effective date, for purposes of providing adequate notice to the affected parties, would be impracticable, unnecessary and contrary to the public interest.

171. The Final Regulatory Flexibility analysis is included as follows:

Final Regulatory Flexibility Analysis of Report and Order and Memorandum Opinion and Order and Further Notice of Proposed Rulemaking

As required by Section 603 of the Regulatory Flexibility Act (RFA), 5 U.S.C. § 603, the Commission incorporated and sought comment on an

Initial Regulatory Flexibility Analysis (IRFA) in Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310–2360 MHz Frequency Band, 11 FCC Rcd 1 (1995) (NPRM). The Commission's Final Regulatory Flexibility Analysis (FRFA) in this Report and Order and Memorandum Opinion and Order and Further Notice of Proposed Rulemaking (Order) conforms to the RFA, as amended by the Small Business Regulatory Enforcement and Fairness Act of 1996 (SBREFA).

A. Need for and Purpose of This Action

In this Order, the Commission promulgates rules and assigns licenses for satellite Digital Audio Radio Service (DARS). The objective in this proceeding is to help establish a new service to provide continuous nationwide radio programming with compact disc quality sound. This new service has the potential to increase the variety of programming available to the listening public by offering new niche channels. Satellite DARS also promises to serve listeners in areas of the country that have been underserved by terrestrial radio.

B. Summary of Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis

No comments were filed in direct response to the IRFA. The Commission received numerous comments on the wide variety of licensing and other issues raised by the NPRM, none of which were directly related to the treatment of small entities. Although not directed to the IRFA, three entities proposing to provide satellite DARS have filed *ex parte* comments concerning the issue of whether the Commission should employ special auction provisions to aid small businesses. These comments are addressed in Section V of this analysis.

C. Description and Estimate of the Small Entities Subject to the Rules

The Commission has not developed its own definition of ''small entity'' for purposes of licensing satellite delivered services. Accordingly, the Commission relies on the definition of ''small entity'' provided under the Small Business Administration (SBA) rules applicable to Communications Services, Not Elsewhere Classified. A ''small entity'' under these SBA rules is defined as an entity with $11.0 million or less in annual receipts. Based on the record in this proceeding, the Commission finds that the four current satellite DARS applicants are all ''small entities'' under the SBA definition. Because of spectrum limitations, the Commission does not foresee that there will be capacity for additional systems in the frequency band exclusively allocated for satellite DARS.

D. Summary of Projected Reporting, Record Keeping and Other Compliance Requirements

Satellite DARS licensees will be required to begin construction of their space stations within one year of license grant, launch and begin operating their first satellite within four years, and begin operating their entire system within six years. They will be required to file annual reports on the status of their progress. Entities will require knowledge of satellite operations in order to prepare these reports.

E. Significant Alternatives and Steps Taken By Agency To Minimize Significant Economic Impact on a Substantial Number of Small Entities Consistent With Stated Objectives

The NPRM proposed three possible licensing options for satellite DARS: (1) to license the available spectrum to the current four applicants; (2) to license less that the total available spectrum to the four applicants and auction the remainder; or, (3) to accept new applications and auction all licenses.

After the NPRM was released, the Omnibus Consolidated Appropriations Act, 1997, Pub. L. 104–208, 110 Stat. 3009 (1996) (Appropriations Act) directed the Commission to reallocate spectrum at 2305–2320 MHz and 2345–2360 MHz for all services consistent with international allocations and to award licenses in that portion of the band using competitive bidding. As a consequence, the licenses designated pursuant to this Order will authorize satellite DARS operation in the spectrum between 2320 and 2345 MHz. Because the record indicates that 12.5 MHz is necessary for a licensee to provide a viable satellite DARS service and because only 25 MHz remains as an exclusive DARS allocation, the Commission will award two licenses and use competitive bidding to resolve mutual exclusivity among the four current applicants. These applicants are CD Radio, Inc., Digital Satellite Broadcasting Corp., Primosphere Limited Partnership, and American Mobile Radio Corp.

In deciding how to proceed, the Commission had two alternatives—either to reopen the filing window and accept additional applications or to limit eligibility to the four applicants that filed before the 1993 cut-off date. Because the Commission is not permitting additional applications, the four applicants who filed applications in 1990 and 1993, all of which are small entities, are the only parties eligible to participate in the satellite DARS auction, and only two of these applicants will receive operating licenses. No other entities, including any small entities, will be able to participate in the subsequent auctions, or ultimately receive operating licenses. The decision to not reopen the filing cut-off is based on sound satellite licensing policy and precedent and the equities of this particular proceeding. In this satellite proceeding, as in others, applicants require some measure of certainty to justify the inherently long-term investment of resources required by complex and lengthy international allocation and coordination procedures that must be completed prior to inauguration of service. This unique feature of satellite services, combined with the need to most expeditiously provide new services to the public, outweighs any benefits that would accrue from accepting additional applications.

Although one current applicant argues that special auction provisions are necessary, two others state that as long as the auction is limited to the four applicants, the Commission should not employ bidding credits or installment payments. As it has explained, the Commission has not adopted special auction provisions for small businesses. The Commission notes, however, that the proposal adopted herein will promote the principal objectives of Section 309(j) because all those participating in the bidding for these licenses are small businesses under the SBA definition.

172. The Paperwork Reduction Act does not apply to the rules adopted herein as such rules apply to less than ten persons.

173. 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 Sections 1.202, 1.203, and 1.1206(a).

174. Pursuant to applicable procedures set forth in sections 1.415 and 1.419 of the Commission's rules, 47 CFR Sections 1.415 and 1.419, interested parties may file comments on or before May 2, 1997 and reply comments on or before May 23, 1997. To file formally in this proceeding, you must file an original and five copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file

an original plus nine copies. You 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 FCC Reference Center of the Federal Communications Commission, Room 239,1919 M Street, N.W., Washington, D.C. 20554.

175. *It is further ordered* that, pursuant to 47 U.S.C. 155(c), the Chiefs, Wireless Telecommunications Bureau and International Bureau, *are delegated authority* to implement and modify auction procedures in the DARS service, including the general design and timing of an auction, the manner of submitting bids, minimum opening bids and bid increments, activity and stopping rules, and application and payment requirements.

176. *It is further ordered* that the requests for pioneer's preference filed by Satellite CD Radio, Inc., Digital Satellite Broadcasting Corporation, and Primosphere Limited Partnership—PP–24, PP–86 and PP–87, respectively, in GEN Docket No. 90–357—*are dismissed*.

177. *It is further ordered* that the petition for reconsideration filed on February 17, 1995 by Underripe National Radio Sales, Inc. *is denied*.

178. This action is taken pursuant to Sections 1, 4(i), 4(j), 7, 303(r) and 309(j) of the Communications Act of 1934, as amended, 47 U.S.C. 151, 154(i), 154(j), 157, 303(r) and 309(j).

List of Subjects

47 CFR Part 25

Communications common carriers, Communications equipment, Radio, Reporting and recordkeeping requirements, Satellites.

47 CFR Part 87

Air Transportation, Communications equipment, Defense communications, Radio, Reporting and recordkeeping requirements.

Federal Communications Commission

William F. Caton,

Acting Secretary.

Rule Changes

Parts 25 and 87 of Title 47 of this chapter are amended as follows:

PART 25—SATELLITE COMMUNICATIONS

1. The authority citation for Part 25 is revised to read as follows:

Authority: 47 U.S.C. 701–744. Interprets or applies sec. 303, 47 U.S.C. 303. 47 U.S.C. sections 154, 301, 302, 303, 307, 309 and 332, unless otherwise noted.

2. A new Section 25.144 is added under the heading ''Space Stations'' to read as follows:

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

(a) Qualification Requirements:

(1) Satellite CD Radio, Primosphere Limited Partnership, Digital Satellite Broadcasting Corporation, and American Mobile Radio Corporation are the applicants eligible for licensing in the satellite digital audio radio service.

(2) 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, applicants must file information demonstrating compliance with § 25.114 and all of the requirements of this section.

(3) Technical Qualifications: In addition to the information specified in paragraph (a)(1) of this section, each applicant shall:

(i) Demonstrate that its system will, at a minimum, service the 48 contiguous states of the United States (full CONUS);

(ii) Certify that its satellite DARS system includes a receiver that will permit end users to access all licensed satellite DARS systems that are operational or under construction; and

(iii) Identify the compression rate it will use to transmit audio programming. If applicable, the applicant shall identify the compression rate it will use to transmit services that are ancillary to satellite DARS.

(b) Milestone Requirements. 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). The satellite DARS milestones are as follows, based on the date of authorization:

(1) One year: Complete contracting for construction of first space station or begin space station construction;

(2) Two years: If applied for, complete contracting for construction of second space station or begin second space station construction;

(3) Four years: In orbit operation of at least one space station; and

(4) Six years: Full operation of the satellite system.

(c) Reporting requirements. All licensees 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; and

(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.

(d) The license term for each digital audio radio service satellite shall commence when the satellite is launched and put into operation and the term will run for eight years.

3. Section 25.201 is amended by adding the definition of ''Satellite Digital Audio Radio Service'' in alphabetical order to read as follows:

§ 25.201 Definitions

* * * * *

Satellite Digital Audio Radio Service (''DARS''). A radiocommunication service in which audio programming is digitally transmitted by one or more space stations directly to fixed, mobile, and/or portable stations, and which may involve complementary repeating terrestrial transmitters, telemetry, tracking and control facilities.

* * * * *

4. Section 25.202 is amended by adding a new paragraph (a)(6) to read as follows:

§ 25.202. Frequencies, frequency tolerance and emission limitations.

(a) * * *

(6) The following spectrum is available for exclusive use by the satellite digital audio radio service:

2320–2345 MHz: space-to-Earth (primary).

* * * * *

5. A new § 25.214 is added to read as follows:

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

(a) Definitions.

(1) *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 under specified conditions. This term shall be applied to the 2310–2360 MHz band for satellite DARS.

(2) *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. This term shall be applied to the two frequency bands (A) 2320.0–2332.5 MHz and (B) 2332.5–2340.0 MHz for satellite DARS.

(b) Each system authorized under this section will be conditioned upon construction, launch and operation milestones as outlined in § 25.144(b). 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.

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

(1) Exclusive satellite DARS licenses are limited to the 2320–2345 MHz band segment of the allocated bandwidth for satellite DARS;

(2) Two, 12.5 MHz frequency assignments are available for satellite DARS: 2320.0–2332.5 MHz and 2332.5–2345.0 MHz;

(3) Satellite DARS licensees may reduce their assigned bandwidth occupancy to provide telemetry beacons in their exclusive frequency assignments;

(4) 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; and

(5) Feeder uplink networks are permitted in the following Fixed-Satellite Service frequency bands: 7025–7075 MHz and 6725–7025 MHz (101° W.L. orbital location only).

6. A new subpart F consisting of sections 25.401 through 25.406 is added to Part 25 to read as follows:

Subpart F—Competitive Bidding Procedures for DARS

Sec.

Subpart F—Competitive Bidding Procedures for DARS

§ 25.401 Satellite DARS applications subject to competitive bidding.

Mutually exclusive initial applications filed by Satellite CD Radio, Primosphere Limited Partnership, Digital Satellite Broadcasting Corporation, and American Mobile Radio Corporation, to provide DARS service are subject to competitive bidding procedures. The procedures set forth in Part 1, Subpart Q of this chapter will apply unless otherwise specified in this subpart.

§ 25.402 Competitive bidding mechanisms.

(a) *Tie bids.* Where a tie bid occurs, the high bidder will be determined by the order in which the bids were received by the Commission.

(b) *Maximum bid increments.* The Commission may, by announcement before or during the auction, establish maximum bid increments in dollar or percentage terms.

(c) *Minimum opening bid.* The Commission will establish a minimum opening bid for the DARS spectrum, and the amount of which will be announced by Public Notice prior to the auction.

(d) *Activity rules.* The Commission will establish activity rules which require a minimum amount of bidding activity. Bidders will be entitled to request and be granted waivers of such rule. The Commission will specify the number of waivers permitted in an auction, the frequency with which they may be exercised, and the method of operation of waivers by Public Notice prior to the auction.

§ 25.403 Bidding application and certification procedures.

Submission of Supplemental Application Information. In order to be eligible to bid, each pending applicant must timely submit certain supplemental information. All supplemental information shall be filed by the applicant five days after publication of these rules in the Federal Register. The supplemental information must be certified and include the following:

(a) Applicant's name;

(b) Mailing Address (no Post Office boxes);

(c) City;

(d) State;

(e) ZIP Code;

(f) Auction Number 15;

(g) FCC Account Number;

(h) Person(s) authorized to make or withdraw a bid (list up to three individuals);

(i) Certifications and name and title of person certifying the information provided;

(j) Applicant's contact person and such person's telephone number, E-mail address and FAX number; and

(k) Signature and date.

§ 25.404 Submission of down payment and filing of long-form applications.

(a) After bidding has ended, the Commission will identify and notify the high bidder and declare the bidding closed.

(b) Within ten (10) business days of a Public Notice announcing the high bidder on a particular license(s), a high bidder must submit to the Commission's lockbox bank such additional funds (the ''down payment'') as are necessary to bring its total deposits (not including upfront payments applied to satisfy bid withdrawal or default payments) up to twenty (20) percent of its high bid(s). This down payment must be made by wire transfer or cashier's check drawn in U.S. dollars from a financial institution whose deposits are insured by the Federal Deposit Insurance Corporation and must be made payable to the Federal Communications Commission. Down payments will be held by the Commission until the high bidder has been awarded the license and has paid the remaining balance due on the license, in which case it will not be returned, or until the winning bidder is found unqualified to be a licensee or has defaulted, in which case it will be returned, less applicable payments. No interest on any down payment will be paid to a bidder.

(c) A high bidder that meets its down payment obligations in a timely manner must, within thirty (30) business days after being notified that it is a high bidder, submit an amendment to its pending application to provide the information required by § 25.144.

§ 25.405 Prohibition of collusion.

Upon the deadline for filing the supplemental information required by § 25.403, all applicants are prohibited from cooperating, collaborating, discussing or disclosing in any manner the substance of their bids or bidding strategies, or discussing or negotiating settlement agreements, with other applicants until after the high bidder makes the required down payment.

§ 25.406 License Grant, Denial, Default, and Disqualification.

(a) Unless otherwise specified in these rules, auction winners are required to pay the balance of their winning bids in a lump sum within ten (10) business days following public notice by the Commission that it is prepared to award the licenses. Grant of the license will be conditioned on full and timely payment of the winning bid.

(b) If a winning bidder withdraws its bid after the Commission has declared competitive bidding closed or fails to remit the required down payment within ten (10) business days after the Commission has declared competitive bidding closed, the bidder will be deemed to have defaulted, its application will be dismissed, and it will be liable for the default payment specified in § 1.2104(g)(2). In such event, the Commission may either re-auction the license to existing or new applicants or offer it to the other highest bidders (in descending order) at their final bids. The down payment obligations set forth in § 25.404(b) will apply.

(c) A winning bidder who is found unqualified to be a licensee, fails to remit the balance of its winning bid in a timely manner, or defaults or is disqualified for any reason after having made the required down payment, will be deemed to have defaulted and will be liable for the penalty set forth in § 1.2104(g)(2). In such event, the Commission will conduct another auction for the license, affording new parties an opportunity to file an application for the license.

(d) Bidders who are found to have violated the antitrust laws or the Commission's rules in connection with their participation in the competitive bidding process may be subject, in addition to any other applicable sanctions, to forfeiture their up front payment, down payment or full bid amount, and may be prohibited from participating in future auctions.

PART 87—AVIATION SERVICES

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

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 § 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 band 1525–1535 MHz is also available for these purposes on a secondary basis. In the band 2320–2345 MHz, the mobile and radiolocation services are allocated on a primary basis until a Broadcast-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. 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 2320–2345 MHz and 2360–2390 MHz bands, 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: 2332.5, 2364.5, 2370.5 and 2382.5 MHz. In the 2360–2390 MHz band, all other telemetry and telecommand uses are secondary to the above stated launch vehicle uses.

* * * * *

[FR Doc. 97–6064 Filed 3–10–97; 8:45 am]

BILLING CODE 6712–01–P

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

48 CFR Part 1833 and 1852

NASA FAR Supplement; Protests to the agency

AGENCY: Office of Procurement, Contract Management Division, National Aeronautics and Space Administration (NASA).

ACTION: Interim rule; request for comments.

SUMMARY: The Federal Acquisition Regulation (FAR) was amended to revise procedures for submission of protests to Federal agencies. In order to implement the changes made to the FAR, this rule provides for a solicitation provision that informs offerors to whom protests may be submitted as an alternative to submission to the NASA contracting officer. The effect of the changes is to give prospective NASA contractors an additional means for submitting protests in order to resolve their concerns about a contract or solicitation.

DATES: This interim rule is effective March 11, 1997. NASA will accept written comments until May 12, 1997.

ADDRESSES: Comments regarding this rule should be addressed as follows: National Aeronautics and Space Administration, Contract Management Division (Code HK/Beck), Washington, DC 20546.

FOR FURTHER INFORMATION CONTACT: Dave Beck, (202) 358–0482.

SUPPLEMENTARY INFORMATION: .

Availability of NASA FAR Supplement

The NASA FAR Supplement, of which this rule is a part, is available in its entirety on a subscription basis from the Superintendent of Documents, Government Printing Office, Washington, DC 20402, telephone number (202) 512–1800. Cite GPO Subscription Stock Number 933–003–00000–1. It is not distributed to the public, either in whole or in part, directly by NASA.

Background

Section 33.103 of the Federal Acquisition Regulation (FAR), 48 CFR 33.103, was amended to revise procedures for submission of protests to Federal agencies (62 FR 270, January 2, 1997). In order to implement the changes made to the FAR, this rule provides for a solicitation provision that informs offerors to whom protests may be submitted as an alternative to submission to the contracting officer.

Regulatory Flexibility Act

The interim rule is not expected to have a significant economic impact on a substantial number of small entities within the meaning of the Regulatory Flexibility Act, 5 U.S.C. 601, *et seq.*, because this rule implements previously adopted Federal-wide regulations by simply providing for a solicitation provision that informs offerors to whom protests may be submitted as an alternative to submission to the contracting officer. An Initial Regulatory Flexibility Analysis has, therefore, not been performed. Comments from small