by the licensee, one example of a substantial service showing for a traditional point-to-point licensee might consist of four links per million population within a service area. This revised performance standard should ensure that meaningful service will be provided without unduly restricting service offerings.[106]

47. One of the principal problems that commenters identified with our build-out proposals was that they required too much too soon. We recognize that licensees must be given a reasonable amount of time to meet a performance requirement. Parties, particularly incumbent licensees, also argued that different build-out standards were unfair and would place an unreasonable burden on their ability to respond to market demands.[107] Accordingly, we have decided that in order to impose the least regulatory burden on licensees as possible, but to remain consistent with our statutory responsibilities, we will combine the showing traditionally required for build-out and the showing required to acquire a renewal expectancy into one showing at the time of renewal. We believe this will give licensees a sufficient opportunity to construct their systems. We believe that applying a similar performance requirement to all licensees at the license renewal point will help establish a level playing field without compromising the goals of ensuring efficient spectrum use and expeditious provision of service to the public.[108]

48. We believe that the deadline for compliance that we are adopting should negate concerns about a performance requirement being imposed too early in the license term. To establish a viable operation, we recognize that licensees must have sufficient time in which to develop market plans, secure necessary financing, develop and incorporate new technology in their systems, accommodate equipment manufacturers' production schedules, and build a customer base. Our approach takes these practicalities into account. We recognize that existing licensees who obtained their licenses before August 1, 1996, will receive a somewhat shorter period from the date of this decision to meet the construction threshold (*i.e.*, about four years). Extending the build-out deadline past renewal, however, would not be prudent nor would it appear to be consistent with the objectives of Section 309(j) of the Communications Act.[109] Moreover, these incumbents already have had at least a year, and in some cases more than two years, in which to set in motion their business plans. Thus, we do not believe this approach will adversely affect incumbent 39 GHz licensees.[110]

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[106] *See* No Wire L.L.C. Comments at 5; Cambridge Partners, Inc. Reply Comments at 5 n.11.

[107] *See, e.g.*, ART Comments at 14; Microwave Partners Comments at 9-11; WinStar Comments at 53, 56; TIA Comments at 20; Ameritech Reply Comments at 8; BizTel Comments at 23-27.

[108] Many of the commenters expressed a similar view. *See, e.g.*, ART Comments at 24; Altron Comments at 1; BizTel Comments at 23-32; DCT Comments at 2-15; GEC Comments at 4; Spectrum Comments at 1-2, Milliwave Reply Comments at 12-13.

[109] Even if we keyed a five-year build-out deadline to the date of licensing, the possibility would still remain that some licensees would be required to meet this deadline after their license terms had ended. As we observed above at paragraph 36, common carrier 39 GHz licensees who were licensed before August 1, 1996, are subject to a fixed license term ending February 1, 2001. Therefore, all those licensed from February 2, 1996, to July 31, 1996, have a license term of slightly less than five years.

[110] Our records indicate that there is a private operational fixed service (POFS) licensee (All Medical Communications Technologies, Inc. (AMCT)) holding an area-wide authorization that is renewable on March 28, 2000. Since AMCT has an area-wide license, it will be subject to the same build-out threshold as other incumbent 39 GHz licensees. We do not see a need to provide any exceptions merely because AMCT's license term ends in less than five years. This licensee will still have a substantial amount of time -- over three years from the date of this decision -- to meet the requirement, and it has already had some time in which to place its system in operation. Moreover, providing additional time would create the anomalous situation of requiring a licensee to meet a construction deadline that occurred after the license term ended.

49. We concur with those commenters who advocate adopting a renewal expectancy for all licensees in the 39 GHz band. As with cellular and broadband PCS licensees, affording 39 GHz providers the opportunity to earn a renewal expectancy will facilitate investment for their industry, provide stability over the long run, and better serve the public by reducing the possibility that proven operators will be replaced with less effective licensees. Like broadband PCS, we anticipate that such benefits to the 39 GHz community will promote the rapid development of the service.[111] For such benefits to flow to the public in the most effective manner possible, the opportunity for a renewal expectancy should be available to all 39 GHz licensees, not just those licensed under the rules amended by this decision. Thus, we are not limiting this opportunity to newly licensed 39 GHz providers. The build-out/renewal requirements established herein will, if met, serve to give the incumbent licensee a renewal expectancy as well.

50. We are not persuaded by the arguments of some commenters that a build-out requirement should not be imposed because potential users of the 39 GHz band, such as broadband PCS licensees, are subject to other construction requirements.[112] As we discussed *supra*, we do not believe that use of the 39 GHz spectrum will be limited to such uses. Moreover, our decision herein to adopt a requirement of substantial service by renewal will ensure that our 39 GHz rules do not work at cross purposes with build-out requirements to which broadband PCS licensees and others already are subject.

3. *Spectrum Aggregation Limit*

51. *Background.* In the *NPRM and Order*, we sought general comment on whether there should be a limit on the aggregation of 39 GHz channels within a single BTA.[113] We also requested comment on whether the 39 GHz service represents a discrete market. In the event that we concluded that this service did constitute a discrete market, we indicated that a spectrum aggregation limit might be advisable to ensure that there would be an adequate number of licenses available to meet the needs of broadband PCS licensees and other competitors in the wireless marketplace.[114]

52. *Discussion.* We agree with those commenters who oppose a 39 GHz spectrum aggregation limit.[115] The record strongly supports the conclusion that 39 GHz licensees will participate in a number of broad markets, consisting of a host of short-range fixed communications provided by many operators who employ a range of different, but substitutable, technologies (both radio and wire). Therefore, we are not concerned with guaranteeing a particular number of 39 GHz competitors or with creating competition within the 39 GHz band. Moreover, as we noted above, there is no evidence that the 1400 megahertz of spectrum in the 39 GHz band is particularly important for, or unusually suited for, the creation of competition in two markets where market power still exists -- local telecommunications services and multi-

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[111] *See PCS Second Report and Order*, 8 FCC Rcd at 7753 (finding that a renewal expectancy was necessary to ensure adequate investment in PCS infrastructure, which would, in turn, provide a stable environment to foster the rapid development of the service).

[112] *See. e.g.*, AT&T Comments at 6-8; Pacific Comments at 6.

NPRM and Order, 11 FCC Rcd at 4983.

[114] *See id.*

[115] ART Comments at 27-28; Biztel Comments at 3.

channel video program delivery. Therefore, an aggregation limit is not needed in order to foster competition in these two markets. Indeed, a 39 GHz spectrum aggregation limit that was applicable to 39 GHz licensees might limit the ability of a licensee to bring efficient competition to these markets.[116]

53. Although we believe that some of the 39 GHz spectrum will be used to satisfy CMRS and private mobile radio infrastructure needs, we are persuaded by the commenters that a great portion of this spectrum likely will be used to provide other wireless services, *e.g.*, local area network ("LAN")-to-LAN, local access for long distance providers, wireless augmentations to CAPs' networks, and other high capacity data transmission networks.[117] This is evidenced by current 39 GHz operations, which are not supporting CMRS communications infrastructure but generally tend to be local private line and local bypass services. Since this arena is already being served by multiple providers using a variety of technologies, it is clear that disaggregated ownership of 39 GHz spectrum is not necessary for the competitive provision of those services.

54. We also note that even the current users of the 39 GHz band are still in the early stages of developing their services, and that the particular uses of this spectrum are still being defined by the marketplace. As indicated above, 39 GHz spectrum can be used for almost any fixed, short-range communication -- the internal parts of almost any communications system (mobile or fixed) -- or the "last mile" of any fixed system, whether for voice, data, video, or more than one of the foregoing. At this time, we believe that it would be inappropriate for us to view the output of 39 GHz spectrum as falling into any one of these categories or to find that some limit on spectrum aggregation in order to foster competition in that category is necessary. Accordingly, we do not believe that it is appropriate to restrict the amount of 39 GHz spectrum that may be licensed to any one service or entity.

55. Moreover, we conclude that there may be benefits to the public in terms of efficiencies and types of services provided if we permit aggregation of 39 GHz spectrum. For example, spectrum aggregation would allow a licensee to expand its operation and thereby lower the per unit cost of equipment and its per capita cost of providing service to subscribers. Furthermore, a 39 GHz licensee with substantial spectrum can better compete with established service providers who have large transmission capacity. In addition, we conclude that it is not likely that aggregation of 39 GHz spectrum by a single entity would lead to undue market power. We note that other service providers, such as LECs and CAPs, have some significant competitive advantages over a competitor using only 39 GHz spectrum, such as an established customer base and transmission facilities that carry much more traffic than would be possible by a 39 GHz-based facility using only, for example, 700 MHz of spectrum. In addition, other service providers are not precluded from adding fiber or radio transmission facilities to their existing networks.[118] Moreover, we have proposed to make available additional spectrum enabling more parties

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[116] Many of the considerations that lead us not to adopt eligibility restrictions for 39 GHz spectrum also incline us against adopting a spectrum aggregation limit.

[117] *See, e.g.*, ALTS Comments at 1; ART Comments at 27-29; BizTel Comments at 11-14; Columbia Comments at 2-3; Milliwave Comments at 31-32.

[118] *See* WinStar Comments at 41.

to compete in many of the types of services proposed by potential 39 GHz service providers,[119] and we plan to consider these proceedings in connection with our global upper-gigahertz band plan proceeding.[120] Therefore, we believe that even if a single licensee controls a significant part of the 39 GHz band in a single BTA, it could not control service prices or limit competition, given the number of providers of similar or substitutable services and the variety of transmission media at their disposal.

56. We also observe that 39 GHz licensees would be unable to overcome the competitive disadvantages of operating under a spectrum aggregation limit simply by improving engineering efficiency. While an entity with limited technical capacity may strive to use its facilities in the most efficient manner possible, those same engineering techniques and procedures may be utilized by other parties to similarly increase their efficiencies. For example, one of the most discussed means of increasing transmission capacity is the use of digital compression technology. For the most part, this technology is transferable from one transmission medium to another. Therefore, while a 39 GHz service provider might be able to gain a significant increase in engineering efficiency by employing such technology, this increase in efficiency will not give it any competitive advantage, because its competitors will have the same opportunities to deploy this technology.

57. We also do not believe that a spectrum aggregation limit is warranted to ensure that there is adequate support spectrum available for broadband PCS, cellular radio, and other commercial and private mobile radio operations. While the use of the 39 GHz band may help meet these needs, such backhaul and backbone support can also be provided by using wire-based technologies and over-the-air spectrum outside the 39 GHz band (*e.g.*, at 6, 11, 18 and 23 GHz). Given this availability of substitutable spectrum for backhaul and backbone support, coupled with the aforementioned competition that exists to 39 GHz providers of alternative types of services, we find that imposing a spectrum aggregation limit for the 39 GHz band would be contrary to the public interest.

5. *Technical Rules*

a. *Frequency Tolerance and Efficiency Standard*

58. *Background.* In the *NPRM and Order*, we tentatively concluded that only those technical rules required to minimize interference between channel blocks and between service areas are needed. Thus, as a mitigating interference factor, we proposed to adopt a 0.001% frequency tolerance for equipment operating in the 39 GHz band, instead of the 0.03% tolerance standard currently required by Section 101.107 of the Rules. In order to promote more efficient use of the spectrum, we also requested

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[119] *See also* Amendment of Parts 2, 15, and 97 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, ET Docket No. 94-124, *First Report and Order and Second Notice of Proposed Rule Making*, 11 FCC Rcd 4481 (1995); Rule Making to Amend Parts 1, 2, 21 and 25 of the Commission's Rules to Redesignate the 27.5 -29.5 GHz Frequency Band, to Reallocate the 29.5 - 30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, CC Docket No. 92-297, *Third Notice of Proposed Rule Making and Supplemental Tentative Decision*, 11 FCC Rcd 53 (1995).

[120] Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band, Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz Frequency Band for Government Operations, *Notice of Proposed Rule Making*, IB Docket No. 97-95, FCC 97-85, — FCC Rcd —, (released March 24, 1997).

comment on adding an efficiency standard to our Part 101 rules, of 1 bit per second per hertz ("bps/Hz") for new assignments in this band.[121]

59. *Discussion.* Initially, we believed that this spectrum principally would be used to provide support facilities for various mobile services. As a result, we proposed technical standards intended to ensure a certain level of equipment efficiency and performance. The record, however, indicates that much wider uses are anticipated. For example, a number of commenters stated that 39 GHz facilities will be employed to provide wireless equal access, LAN-to-LAN communications, and other high capacity data transmission services. In order to accommodate these varied services and to provide 39 GHz licensees the necessary technical flexibility to meet these demands, we have determined that any benefits to be gained by adoption of the proposed standards are outweighed by the limitations they would place on the development of 39 GHz service. For these same reasons, we have reevaluated our existing frequency tolerance standard and determined that it is unnecessary, particularly in light of other interference safeguards in our rules. We note that in our 220-222 MHz proceeding we concluded that interim spectral efficiency standards were warranted.[122] This decision stemmed from one of our specific objectives in establishing the band, *i.e.*, to encourage the development of spectrally efficient technologies. Here, however, there is sufficient evidence that 39 GHz licensees and manufacturers are proceeding with the improvement of spectrally efficient equipment. For example, one manufacturer, [P-Com], has off-the-shelf equipment which operates at an efficiency rate of 1.25 bits per hertz, a rate which exceeds the one bit per hertz rate proposed in the *NPRM and Order*. Given the advancements that are already made in this area, and that more are likely to follow, we believe that a spectral efficiency standard for 39 GHz equipment is unnecessary.

60. With respect to setting a spectrum efficiency standard -- which is principally designed to ensure that the licensee's technical quality of service to its end users meets a certain level -- setting a mandatory standard could be harmful to the continued development and growth of the 39 GHz service.[123] If we set the standard at or below what licensees would voluntarily adopt, then the standard would have no effect. If we set it above the voluntary level, then we would be imposing a cost in excess of any benefit. Moreover, consistent with our actions in other proceedings, we believe it unwise to adopt technical rules that will require updating as technological advances are made because we believe 39 GHz licensees need maximum flexibility to respond to market forces.[124] As commenter Columbia notes, "[t]he trend toward spectrum flexibility is one of the great achievements of . . . [the FCC] and is perhaps the single most important development of the decade in encouraging innovation and imaginative service to

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121 *NPRM and Order*, 11 FCC Rcd at 4984, 4987.

122 Amendment of Part 90 of the Commission's Rules To Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service; Implementation of Sections 3(n) and 332 of the Communications Act, *Third Report and Order; Fifth Notice of Proposed Rulemaking*, PR Docket No. 89-552, GN Docket No. 93-252, FCC 97-57, (released March 12, 1997), paras. 116-119, 62 Fed. Reg. 16004 (April 3, 1997).

123 *See, e.g.*, ART Comments at 20-23, 37-38; DCT Comments at 27; Milliwave Comments at 23-25; Winstar Comments at 60-63.

124 *See, e.g.*, *GWCS Second R&O*, 11 FCC Rcd 624 (1995).

the public."[125] In contrast, TIA contends this "hands-off" approach is premature because it would, among other things, "unleash large numbers of incompatible operators in individual markets without adequate safeguards against harmful interference . . . and create uncertainty over potential market demand and related production and performance requirements because specific uses for the [band] are not prescribed."[126]

61. As a general matter, whenever spectrum is exclusively assigned and licensees cannot expect to obtain additional spectrum at a price significantly below its market value, we believe that a mandatory efficiency standard is unnecessary.[127] Under these conditions, licensees can be expected to invest voluntarily in efficient technology up to the socially optimal level, and a mandatory standard would either have no effect (if it is at or below the voluntary level) or impose unjustified costs that exceed any resulting gain. We believe that mandatory standards are beneficial if they correct for under-investment in efficiency by licensees. A licensee with a shared assignment may under-invest in efficiency because much of the gain from that investment would accrue to others.[128] But even if a licensee has an exclusive assignment, it may choose to under-invest in efficiency if it can expand capacity by obtaining spectrum at less than the market value.[129]

62. In the 39 GHz band, however, neither of these conditions exists; thus, we find that a mandatory efficiency standard is not necessary. Given that the 39 GHz assignments will continue to be exclusive, other licensees will be denied any "free ride" from a gain in increased efficiency. In other words, the benefits gained by an increase in efficiency (*e.g.*, more available spectrum) are not shared by other licensees who did not contribute, as would be the case in a shared environment. There is also little likelihood that 39 GHz licensees will be able to obtain additional 39 GHz spectrum below its market value because we expect that the remaining 39 GHz band will be subject to competing interests and that the competitive bidding process will be used to assign this spectrum. Thus, competitive forces of the marketplace should cause licensees to maximize the use of their assigned channels. While 39 GHz licensees may be able to obtain additional spectrum in other bands in the future, our use of auctions to select between future mutually exclusive applications for 39 GHz spectrum should ensure that these licensees are subject to full marketplace incentives to operate efficiently. Consequently, the use of competitive bidding procedures provides additional support for our finding that an efficiency standard is unnecessary.

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125 Columbia Comments at 12-13.

126 TIA Reply Comments at 14-15.

127 By "market value" we mean the value of the next highest value use. When licenses are auctioned, the price paid approximates the opportunity cost, but may be less than the full opportunity cost if potentially valuable uses are excluded by the service definition. As we move toward increasingly flexible allocations, we believe that auction prices will more closely reflect the full opportunity cost of the spectrum.

128 *See, e.g.*, Spectrum Efficiency in the Private Land Mobile Radio Bands in Use Prior to 1968, PR Docket No. 91-170, *Notice of Inquiry*, 6 FCC Rcd 4126, 4133 (1991).

129 This situation may occur when spectrum is assigned with minimal cost to the new licensee (*e.g.*, via lottery or, in some cases, comparative hearing).

63. As noted in paragraph 59, we have determined that a frequency tolerance standard is unnecessary. Our basis for this view stems from our desire to provide 39 GHz licensees flexibility in the operation of their facilities and to avoid imposing unnecessary regulations. In addition, we believe such a standard could inhibit technological advances, for equipment performance is likely to be influenced by customer demand. For those that might be concerned that elimination of this standard may lead to inter-system interference, we point to our existing out of band emission requirements (emission mask) contained in Sections 101.111 of the Rules.[130] That rule requires frequencies removed in various percentage from the center frequency to be attenuated below the mean power of the transmitter. This means that the frequencies at the outer edges of an assigned 50 MHz channel or the edge of an aggregated group of 50 MHz channels power levels will be significantly reduced such that interference to an adjacent channel licensee is unlikely. Thus, we believe that strict adherence to Section 101.111 will be as effective in controlling inter-system interference as the imposition of a frequency tolerance standard. As observed in the *NPRM and Order*, "the effect of requiring operations to stay within the emission mask at all time would . . . reduce the frequency tolerance to levels more restrictive than the recommended [frequency tolerance].[131] In addition, concerns for inter-system interference should be further eased, as we are requiring neighboring and adjacent channel licensees to engage in frequency coordination before implementation of their planned operations.[132]

b. Antenna Requirements

64. *Background.* In the *NPRM and Order*, we proposed that for any new assignments in the 39 GHz band not acquired through competitive bidding, we would restrict licensees to the use of Category A antennas, which provide a more focused antenna pattern than Category B antennas, thus allowing for greater frequency reuse.[133] Additionally, in the event that a BTA licensee was prevented from providing communications in its service area because an incumbent licensee of a grandfathered link is using a Category B antenna, we proposed to require the incumbent licensee to replace that antenna with one meeting the Category A antenna standard or cease transmission on the interfering link. We also proposed that in the case of licenses for grandfathered links in the 39 GHz band, all rule changes would only apply to facilities that are constructed after January 1, 1998, and to replacement equipment which is installed after that date. We believed that the January 1, 1998 date for implementing these requirements would allow manufacturers adequate time to make any necessary changes to their equipment production lines and to deplete inventory.

65. *Discussion.* There is evidence in the record that our proposal to require 39 GHz licensees to employ only Category A antennas is too restrictive because parties are contemplating a variety of system configurations that would require different types of antennas, *e.g.*, sectorized or wide beam units,

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130 *See* 47 C.F.R. § 101.111.

131 *NPRM and Order*, 11 FCC Rcd 4985, n. 190.

132 *See* paras. 44-48, *infra*.

133 *NPRM and Order*, 11 FCC Rcd at 4987. Category A and B antennas are defined in Section 101.115(c) of the Commission's Rules. *See* 47 C.F.R. § 101.115(c).

characteristics of which would be incompatible with the standards of a Category A antenna.[134] These models represent a more cost-effective and technically suitable alternative to traditional narrowbeam Category A antennas when deployed in a point-to-multipoint configuration. As the deployment of 39 GHz facilities increases, we expect other system configurations to be developed in which narrowbeam antennas may not be the optimal solution. While DCT argues that Category A antennas should be required because they are inherently more efficient and less prone to cause interference (DCT Comments at 29), we conclude that the need to provide 39 GHz licensees the technical flexibility to meet service demands outweighs any benefits that would ensue by adopting the requirement. Therefore, we decline to require licensees in the 39 GHz band to use Category A antennas initially. We conclude that 39 GHz licensees should be given the flexibility to employ antennas other than Category A types, provided they do not cause interference problems.[135] Should the use of an antenna other than a Category A become the source of an interference problem, however, we will require that the licensee immediately resolve such interference by replacing the antenna with a Category A model or one with better performance characteristics.[136]

c. *Frequency Coordination and Power Flux Density ("PFD") Limit*

66. *Background.* In the *NPRM and Order*, we noted that existing 39 GHz licensees are using the frequency coordination procedures of former Section 21.100(d) (now Section 101.103(d)) of our Rules to avoid interference between operations in the band. To further facilitate coordination between licensees in adjoining areas, we proposed to establish a maximum field strength limit that would apply at the boundaries of each service area.[137] Under this proposal, licensees' operations not exceeding this limit would avoid the need to complete the formal coordination process. Also, licensees could negotiate higher or lower limits or enter into other mutually beneficial agreements to facilitate efficient spectrum use near their common boundaries. Due to our lack of technical data in the 39 GHz band, we did not propose a specific PFD or field strength limit. We therefore requested industry recommendations on a reasonable limit. We also sought comment on what effect, if any, our adoption of a PFD or field strength limit would have on the appropriateness of removing the existing EIRP limit.[138]

67. *Discussion.* As an initial matter, we note that the National Spectrum Management Association (NSMA)[139] stated in its initial comments that it was evaluating processes and technical criteria necessary

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134 *See, e.g.*, ART Comments at 38-41; WinStar Comments at 63.

135 *See, e.g.*, INNOVA Comments at 3-5; TIA Comments at 26.

136 Under Section 101.115(d), the Commission may require a licensee to replace an antenna that does not meet the Standard A performance criteria, at the expense of the licensee using such antenna, upon a showing that said antenna causes or is likely to cause an interference problem to existing or proposed systems where a higher performance antenna is not likely to involve such interference. 47 C.F.R. § 101.115(d).

137 This limit, if exceeded, would trigger requirements to coordinate formally with potentially affected licensees.

138 *NPRM and Order*, 11 FCC Rcd at 4987.

139 NSMA is a non-profit U. S.-Canadian professional society dedicated to developing consensus industry recommendations for the conduct of frequency coordination among commercial and private FCC and Industry Canada applicants, permittees and licensees engaged in the provision of a broad range of wireless services.

to formalize a frequency coordination process for the 39 GHz band. On September 4, 1996, NSMA filed Supplemental Comments providing a report on the progress made in developing frequency coordination policies and procedures for precluding harmful interference among co-channel operators in the band.[140] According to NSMA, however, further studies must be concluded to complete formal recommendations relating to its overall 39 GHz frequency coordination process, including issues related to harmful interference that may result from adjacent channel operations. Despite the incomplete state of NSMA's evaluations, it recommends that the Commission delegate to it the principal responsibility for promulgating recommendations regarding technical procedures and criteria for 39 GHz Fixed Service frequency coordination.

68. NSMA's Supplemental Comments indicate considerable progress toward developing a process that will minimize interference in the 39 GHz band. However, there is additional work to be done which we believe should be completed before taking final action on NSMA recommendations and considering revisions to our rules. As to measures we will take in the interim, we are persuaded by the record that adoption of a PFD limit or field strength limit now would not further our goal of facilitating the growth and development of the 39 GHz spectrum.[141] In this connection, we note that there is a lack of consensus regarding the parameters necessary to establish a reasonable and practical PFD or field strength limit. As a result, we are concerned that establishing a service area boundary PFD or field strength limit without such information may stifle the development of advanced 39 GHz technology. Thus, we decline to adopt such a standard at this time, and consequently, we need not reevaluate the current EIRP at this time. As NSMA continues to evaluate means to control inter-licensee interference, we will also be exploring this issue in a future, separate proceeding. Meanwhile, we conclude that it is in the public interest to continue to use the frequency coordination procedures outlined in Section 101.103(d) of our Rules. We describe these procedures, *infra*, as modified to implement certain improvements supported by the record of this proceeding. Despite the fact that licensees will not be able to rely on PFD or field strength limits to avoid the formal coordination process, we believe that our modified coordination procedures will provide licensees substantial flexibility in system design while ensuring that inter-system interference will be kept to a minimum. Our experience with other services employing frequency coordination procedures shows that those services have been successfully implemented with little delay and rarely result in unresolved frequency interference cases. For example, this process has been in use in the common carrier point-to-point microwave industry for over 20 years with few interference complaints. Given the support in the record[142] and the past success of the process in other services, we believe 39 GHz licensees will continue to benefit from this program.

69. Under our frequency coordination procedures, 39 GHz licensees will be subject to the requirements of Section 101.103(d) of our Rules, with certain modifications. As a result, they must provide values for the appropriate parameters listed in that subsection to each neighboring BTA licensee

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[140] According to the submission, a licensee planning an installation would be required to coordinate with a neighboring service area co-channel operator if it is determined that the planned operation exceeds defined trigger criteria. These yet to be determined trigger criteria will signify the potential for harmful interference and the need to frequency coordinate between facilities located anywhere within adjacent service areas of co-channel licensees. These criteria will be defined in terms of an interference distance, based on either the transmitting station mainbeam EIRP or a power flux density threshold.

[141] *See, e.g.*, ART Comments at 42-43; Comsearch Comments at 8-9; DCT Comments at 28; NSMA Comments at 1-8.

[142] *See, e.g.*, ART Comments at 42; Bachow Comments at 12-13; DCT Comments at 28; NSMA Comments at 2; TIA Comments at 27-28; Milliwave Reply Comments at 22.

authorized to use adjacent and co-channel frequencies. Likewise, they must provide the same information to each potentially-affected, adjacent-channel licensee in the same BTA.[143] Coordinating parties also must supply technical information related to their subchannelization plan and system geometry. Based on the propagation characteristics of this spectrum, coordination between neighboring systems need only encompass operations located within 16 kilometers of BTA boundaries. Currently, Section 101.103(d) of our Rules gives each party that receives a coordination notification 30 days in which to respond. The record in this proceeding indicates that 30 days is an inappropriate time frame for operations in the 39 GHz band because licensees often offer service that requires much shorter installation deadlines. In order to facilitate such rapid service installation schedules, we will require that recipients of coordination notifications respond within 10 days. Each licensee must complete this coordination process prior to initiating service within its service area. Finally, participating parties should resolve any problems that develop during this process. Only unresolved frequency conflicts should be reported to the Commission. In such cases we will resolve the conflicts. We believe that the coordination approach we are adopting does not preclude licensees from entering into private agreements that mitigate interference problems. These agreements may include an arrangement to conduct a one-time blanket coordination as opposed to coordinating each individual link as they are planned for activation, or arrangements for one party to compensate another financially for modifying its operation to accommodate new installations.

5. *Partitioning and Disaggregation*

70. *Background.* In the *NPRM and Order*, we proposed a partitioning[144] scheme (similar to that adopted in broadband PCS[145]), which we believed would encourage participation by rural telephone companies.[146] In addition to seeking comment on partitioning for rural telephone companies, we also sought comment on whether the scope of partitioning should be broadened to include all applicants seeking to utilize the 39 GHz band, similar to what we offered in the Multipoint Distribution Service (MDS) context.[147] In particular, we sought comment on methods available to meet the needs of those who might desire individual links, smaller geographic service areas, or smaller spectrum blocks. We presented

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143 New licensees who acquire BTAs encumbered by existing licensees authorized rectangular service areas must coordinate with incumbent licensees as well.

144 Partitioning is the assignment of all the spectrum within specific geographic portions of a licensee's service area.

145 *Competitive Bidding Fifth Report and Order*, 9 FCC Rcd at 5597.

146 *NPRM and Order*, 11 FCC Rcd at 4972-73. Section 3(37) of the Communications Act states that "[t]he term 'rural telephone company' means a local exchange carrier operating entity to the extent that such entity -- (A) provides common carrier service to any local exchange carrier study area that does not include either -- (i) any incorporated place of 10,000 inhabitants or more, or any part thereof, based on the most recently available population statistics of the Bureau of the Census; or (ii) any territory, incorporated or unincorporated, included in an urbanized area, as defined by the Bureau of the Census as of August 10, 1993; (B) provides telephone exchange service, including exchange access, to fewer than 50,000 access lines; (C) provides telephone exchange service to any local exchange carrier study area with fewer than 100,000 access lines; or (D) has less than 15 percent of its access lines in communities of more than 50,000 on the date of enactment of the Telecommunications Act of 1996." 47 U.S.C. § 153(37).

147 *See* Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service and Implementation of Section 309(j) of the Communications Act - Competitive Bidding, MM Docket No. 94-131, PP Docket No. 93-253, *Report and Order*, 10 FCC Rcd 9589, 9612 (1995) (*MDS Report and Order*).

the question of whether we should allow some form of partitioning or spectrum disaggregation to facilitate market entry by entities with these specialized needs.[148]

71. *Discussion.* We conclude that partitioning and disaggregation should be permitted in the 39 GHz band. We further conclude that the option of partitioning should not be limited to rural telephone companies but should be made available to all entities eligible to be licensees in the 39 GHz band, including incumbent 39 GHz licensees. We thus concur with commenters who support partitioning,[149] and note that no parties opposed this proposal. We believe that the availability of these options will enhance 39 GHz licensees' flexibility with respect to system design and service offerings. We also believe that partitioning and disaggregation opportunities further the objectives of Section 309(j) of the Communications Act by facilitating the development of niche markets and the arrival of new entrants, including small businesses, rural telephone companies and businesses owned by members of minority groups and women. In addition, these tools will promote efficient use of 39 GHz spectrum.

72. As a result, 39 GHz licensees acquiring their licenses under the new rules established herein will be permitted to acquire partitioned and/or disaggregated licenses in either of two ways: (1) they may form bidding consortia to participate in auctions, and then partition or disaggregate the licenses won among consortia participants after grant; or (2) they may acquire partitioned or disaggregated 39 GHz licenses from other licensees through private negotiation and agreement either before or after the auction. A licensee planning to partition or disaggregate its license must first be granted the license, and the licensee and partitionee and/or disaggregatee will be required to file an assignment application. We will require that a licensee disaggregate by frequency pairs. This requirement is necessary for administrative purposes: the database necessary to track authorizations could otherwise become too cumbersome and complex and processing could become delayed or prone to error.

73. Overall, we believe that partitioning and disaggregation will promote competition in the 39 GHz service and expedite the delivery of service to the public, particularly in rural areas. Moreover, partitioning and disaggregation will help to eliminate market entry barriers pursuant to Section 257 of the Communications Act by creating smaller, less capital intensive service areas that may be more accessible to small entities. We consider partitioning and disaggregation effectively to be types of assignments, which will, therefore, require prior approval by the Commission. In authorizing partitioning and disaggregation, we will follow existing assignment procedures.[150] The licensee must file FCC Form 702 Assignment of License signed by both the licensee and qualifying entity. The qualifying entity will also be required to file an FCC Form 430 Licensee Ownership unless a current FCC Form 430 is already on file with the Commission. In addition, any 39 GHz BTA licensees taking advantage of bidding credits and seeking to utilize these options may be subject to the restrictions on assignments or transfer of control

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[148] *NPRM and Order*, 11 FCC Rcd at 4942-43. By disaggregation, we mean the assignment of discrete portions or "blocks" of licensed spectrum to another entity.

[149] *See* 47 C.F.R. § 309(j); DCR Comments at 7-8 (partitioning); Pacific Comments at 6 (partitioning); GTE Comments at 5; U S West Reply Comments at 6.

[150] *See* 47 C.F.R. § 101.56.

for such entities, delineated *infra*.[151] We conclude that this approach is necessary in order to ensure that partitioning and disaggregation are not used as means to circumvent such restrictions.

74. We will require the entity acquiring a license by partitioning or disaggregation to satisfy the same construction requirements as the initial licensee, regardless of when its license was acquired.[152] Should a licensee fail to meet the construction requirements, the license will cancel automatically. The cancelled license will, if it was partitioned from a rectangular service area, revert to the BTA licensee for that channel (unless the forfeiting entity *is* the BTA licensee for that channel). If the forfeited license was partitioned from a BTA, the license will be auctioned. In addition, parties must comply with our current technical rules with respect to service area boundary limits and protections. Coordination and negotiation among licensees must be maintained and applied in licensing involving partitioned areas and disaggregated spectrum. Finally, under partitioning or spectrum disaggregation, an entity will be authorized to hold its license for the disaggregated spectrum or partitioned area for the remainder of the original license term. We conclude that this approach is appropriate because we should not bestow greater rights to a licensee receiving its authorization pursuant to partitioning or spectrum disaggregation than we awarded under the terms of the original license grant.

7. *Regulatory Status*

75. *Background.* In the *NPRM and Order* we requested comment on whether a new licensee in the 39 GHz band should be allowed to use the spectrum for private use and also to provide a common carrier service.[153]

76. *Discussion.* We conclude that 39 GHz band licensees should be permitted to serve as a common carrier or as a private licensee. Further, those licensees who select common carrier regulatory status will be able to provide private service, and those licensees who select private service provider regulatory status may share the use of their facilities on a non-profit basis or may offer service on a for-profit, private carrier basis subject to Section 101.135 of the Commission's Rules.[154] Under this scenario, licensees will elect the status of the services they wish to offer and be governed by the rules applicable to their status. Although no commenters addressed this issue, we believe our approach will promote economic efficiencies by reducing construction and operating costs associated with having to provide separate facilities. This result also is consistent with Section 101.133(a) of our Rules.[155]

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151 *See infra* paras. 160-161.

152 For a discussion of the build-out requirements, see *supra* paras. ?-50.

153 *NPRM and Order*, 11 FCC Rcd 4976-77.

154 47 C.F.R. §101.135.

155 *See* Part 101 *Report and Order* at paras. 37-39.

E. Treatment of Incumbent 39 GHz Licensees

77. Incumbent 39 GHz licensees are those who have been licensed under the current fixed microwave rules in 47 C.F.R. Part 101, or its predecessors, Parts 21 (for common carriers) or 94 (for private carriers). Their service areas are self-defined and generally are restricted to point-to-point operations. Many of these licensees have participated as commenters in this proceeding, and include WinStar, ART, BizTel, Columbia, and a number of PCS licensees.

1. Reconciling Service Areas of 39 GHz Incumbents with BTA Service Areas of New Licensees

78. While we have decided that BTAs are appropriate for the new licensing system in the 39 GHz band, we recognize that many of the newly-licensed BTA service areas will be encumbered by incumbent 39 GHz band licensees. These incumbents are authorized in various locations throughout the country, and their rectangular service areas will occupy portions of BTAs or cross BTA boundaries.[156] Our licensing approach toward these encumbered areas will necessarily differ depending on whether the incumbent licensee's authorization covers all or a portion of a BTA. We believe that resolution of this issue is an essential element of our goal to adopt a rational licensing approach for the 39 GHz band. After careful consideration of the concerns expressed by various commenters, we conclude that the following approaches are appropriate.

79. Where an incumbent licensee's rectangular service area occupies only a portion of a BTA, the licensee's channels will be available for application under the new competitive bidding rules, but the incumbent will retain the exclusive right to use those channels within its rectangular service area. The holder of the BTA authorization thus will be required to design its system to protect against harmful interference to the incumbent by complying with the Commission's interference protection standards.[157] Specifically, the BTA authorization holder will be required to coordinate with the rectangular service area licensee to ensure that interference protection is provided. Such a licensing policy enables incumbents and new licensees to operate concurrently and maximizes the provision of service to the public. We note that should such an incumbent lose its authority to operate, the BTA license holder will be entitled to operate within the portion of the forfeited rectangular service areas located within its BTA, without being subject to competitive bidding. This approach best serves the public because it gives the service providers an incentive to make efficient use of available spectrum, and it ensures that any disruption of service will be remedied as quickly as possible. This licensing design is similar to that used in the MDS service.[158] When we were amending the MDS rules, we were faced with an analogous situation arising from our decision to change the method for licensing from one that provided 35-mile zone of protection around the licensee's transmitter site to one that provided exclusive rights within a BTA. We maintained the *status quo* for incumbents, by continuing to recognize the sanctity of their 35-mile zone, but we provided that the holders of the new BTA authorizations would receive contingent rights to encumbered MDS spectrum

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156 The precise contours of incumbent service are currently unclear. While licenses have been issued, licensees are in various stages of constructing their systems.

157 *See* 47 C.F.R. § 101.105.

158 *See MDS Report and Order*, 10 FCC Rcd at 9612-13 (1995).

within the BTA. Accordingly, if an MDS incumbent lost its authorization (by, *e.g.*, failing to construct), the forfeited channels would revert and become part of the BTA licensee's authorization.

80. Where an authorized incumbent licensee has a rectangular service area covering an entire BTA, we will not make those channels available for "overlay" licensing in that BTA. Unlike the scenario described above, in this situation a BTA will not have areas that are currently unassigned. Since incumbents will be required to construct and operate pursuant to Commission Rules,[159] the public should be assured of receiving service throughout the BTA without the need to license an alternative provider.[160]

2. *Repacking*

81. *Background.* In the *NPRM and Order*, we asked for comment on whether incumbent facilities should be relicensed on their current frequency or whether incumbent links should be "repacked" into a different portion of the band than initially occupied. We noted that under a repacking approach, most grandfathered links would be switched to one designated channel pair, provided that mutual interference would not result.[161]

82. *Discussion.* There was very little discussion by commenters on the issue of repacking. WinStar addressed this issue within its discussion of fair treatment to incumbents, by pointing out that the Commission generally does not single out incumbent licensees for treatment harsher than that given to new licensees.[162] Specifically, WinStar stated that the Commission chose not to repack incumbents when we established a mechanism for exclusive licensing of private carrier paging systems.[163] We agree that our general approach up to this point has been to refrain from repacking, if possible. For example, in a proceeding to provide for spectrum sharing between private land mobile services and the UHF television broadcast service, we chose not to repack existing broadcast stations because we found that the relocation of existing UHF-TV stations into the remaining portion of the UHF-TV spectrum would be costly and cause a major disruption in existing television service.[164] Similarly, we find that repacking the 39 GHz

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159 *See supra* paras. ?-50 for discussion on build-out requirements.

160 The practice in MDS and some mobile services of permitting incumbents to request an expansion of their service areas prior to identifying areas available for auction does not appear to be appropriate here. First, MDS is a broadcast video distribution service which, with power adjustments, could have a wider reach than that originally licensed. Mobile services may have found that subscribers need additional areas covered. The 39 GHz services licensed to date, however, appear to be short-hop point-to-point in nature, and we find no justification for permitting licensees to expand their service areas.

161 *NPRM and Order*, 11 FCC Rcd at 4981.

162 WinStar Comments at 54.

163 *Id.* at 55 (citing Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Service, PR Docket No. 89-552, GN Docket No. 93-252, *Second Report and Order*, 11 FCC Rcd 3668 (1996)).

164 *See* In the Matter of Further Sharing of the UHF Television Band by Private Land Mobile Radio Services, Gen. Docket No. 85-172, *Notice of Proposed Rule Making*, 101 FCC 2d 852 (1985).

band would also cause a significant disruption of incumbent 39 operations.[165] As noted throughout this proceeding, we do not intend to alter or restrict significantly the operations of incumbents. Moreover, we believe that we can coordinate with the extant licenses of 39 GHz incumbents so that they will not impair our new licensing system using BTAs and 50-MHz channel blocks. Accordingly, we do not believe that repacking is necessary under these circumstances.

3. Disposition of Pending 39 GHz Band Applications

a. Background

83. On November 13, 1995, the Wireless Telecommunications Bureau ("Bureau"), pursuant to delegated authority, adopted and released an *Order* (*"Freeze Order"*) announcing that the Commission would no longer accept for filing any new applications for 39 GHz licenses in the Common Carrier or Operational Fixed Point-to-Point Microwave Radio Services, pending Commission action on the TIA Petition.[166] The *Freeze Order* was made effective upon its release.

84. The *NPRM and Order* extended the freeze, providing that pending applications would be processed only if (1) they were not mutually exclusive with other applications at the time of the Bureau's November 13, 1995, *Freeze Order*, and (2) the 60-day period for filing mutually exclusive applications had expired prior to November 13, 1995 (*i.e.*, the applications were "ripe").[167] The *NPRM and Order* further provided that those applications that were mutually exclusive with others as of November 13, 1995, or within the 60-day period for filing competing applications on or after November 13, 1995, would be held in abeyance for processing and disposition. In addition, amendments to these frozen applications received on or after November 13, 1995, were also held in abeyance. Moreover, applications for modification of existing 39 GHz licenses (*e.g.*, applications to modify existing licenses for the purpose of changing the height of an antenna) filed on or after November 13, 1995, were held in abeyance, as well as amendments thereto that were filed on or after November 13, 1995. Finally, no new applications to modify existing licenses, or amendments to pending modification applications, were to be accepted for filing on or after December 15, 1995, unless they (1) did not involve any enlargement of any portion of the proposed area of operation, and (2) did not change frequency blocks, other than to delete one or more.[168]

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165 We note that with certain emerging technologies, such as PCS and digital television ("DTV"), the relocation of licensees may be unavoidable. *See, e.g.*, Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, FCC 96-317, at 9-17 (released Aug. 14, 1996) (proposing options for relocating those broadcast television licensees who are outside a "core" portion of the broadcast spectrum to this core, thereby avoiding the repacking of many broadcast stations); Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation, *First Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd 8825 (1996); *Second Report and Order*, 12 FCC Rcd 2705 (1997).

166 *Freeze Order*, 11 FCC Rcd 1156 (Chief, Wireless Telecom. Bureau, 1995).

167 *NPRM and Order*, 11 FCC Rcd at 4988-89. By using the terms "ripe" and "unripe" to identify applications' status with respect to completion of the public notice period, we do so only for purposes of clarity; the terms are not meant to prejudge the acceptability of any of these applications.

168 *Id.*

85. On January 16, 1996, Commco filed a Petition for Reconsideration and an Emergency Request for Stay, asking the Commission to vacate that portion of the *NPRM and Order* imposing an interim freeze on the processing of mutually exclusive applications to establish new facilities in the 39 GHz band, including amendments thereto, pending as of November 13, 1995.[169] BizTel, GHZ Equipment Company, Inc. ("GEC"), and TIA filed comments in support of the Stay Request. Additionally, on January 16, 1996, DCT Communications, Inc., filed a Petition for Partial Reconsideration, requesting that the Commission process (a) minor amendments, at least those that eliminate mutual exclusivity, and (b) as-yet uncontested applications for which the 60-day period for filing mutually exclusive applications had not expired prior to the November 13, 1995, *Freeze Order*.[170]

86. On January 17, 1997, we reconsidered certain aspects of our processing freeze and decided to lift the processing freeze on amendments of right filed before December 15, 1995.[171] Thus, all applications that were amended to resolve mutual exclusivity before that date were to be processed, provided they had completed their 60-day public notice period as of November 13, 1995. In addition, we clarified that applications to modify existing 39 GHz licenses and amendments thereto were to be processed regardless of when filed, provided they neither enlarge the service area nor change the assigned frequency blocks (except to delete them). In all other respects, our decisions regarding the filing and processing of 39 GHz applications and amendments were unaffected by the reconsideration decision. A summary of other main points of the decision follows:

- We decided to process those amendments of right filed on or after November 13, 1995, but before December 15, 1995.

- We noted that all other amendments filed on or after November 13, 1995, would continue to be held in abeyance.[172]

- We affirmed our decision to continue to hold in abeyance all pending mutually exclusive applications, unless the mutual exclusivity was resolved by an amendment of right filed before December 15, 1995. Where the mutual exclusivity was resolved, we expressly stated that we would process the application provided it was "ripe" as of November 13, 1995 -- *i.e.*, it had been placed on public notice and completed the 60-day cut-off period for filing of competing applications as of November 13, 1995.

- We affirmed our decision to hold in abeyance all applications that had not been placed on public notice or completed the 60-day cut-off period as of November 13, 1995.

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169 Commco, L.L.C., PLAINCOM, INC., and Sintra Capital Corporation Petition for Reconsideration (filed Jan. 16, 1996) ("Commco Petition"); Commco Emergency Request for Stay (filed Jan. 16, 1996).

170 DCT Communications, Inc., Petition For Partial Reconsideration of Freeze Order at 6 (filed Jan. 16, 1996) ("DCT Petition").

171 *Memorandum Opinion and Order*, FCC 96-486 (released Jan. 17, 1997), *supra*. *See* 47 C.F.R. § 101.29 (addressing amendments of right).

172 See 47 C.F.R. § 101.29 (c)(1)-(c)(5) for discussion of major amendments.

b. *Processing of Pending Applications*

87. In view of the goals of this proceeding, *e.g.*, to foster competition among different service providers, to promote maximum efficient use of the spectrum, and to provide efficient service to customers by improving the licensing procedure, we conclude that what follows is the best approach for processing currently pending 39 GHz license applications that were affected by the November 13, 1995, *Freeze Order* and the December 15, 1995, freeze. The Commission has processed: (1) those 39 GHz applications that were not mutually exclusive as of December 15, 1995, and that, as of November 13, 1995, had passed the 60-day cut-off period for filing competing applications, (2) applications to modify existing licenses ("modification applications"), or amendments to modification applications, which do not enlarge the service area or change frequency blocks, except to delete them. For the reasons that follow, we have decided to dismiss, without prejudice, all other applications that have remained subject to the freeze, *i.e.*, (1) applications that are mutually exclusive, (2) applications that were not yet on public notice, or for which the 60-day cut-off period had not been completed prior to November 13, 1995, and (3) modification applications or amendments thereto that do not meet the criteria set out *infra*, in paragraph 95. These applicants may reapply under the new geographic area licensing rules established in this proceeding.

i. *Pending Mutually Exclusive 39 GHz Applications*

88. PCS and other CMRS licensees, equipment manufacturers, and TIA ask that we process 39 GHz applications that are pending and mutually exclusive.[173] GTE, however, urges us either to (1) dismiss the pending 39 GHz applications that we are holding in abeyance and open a new application filing window for such frequencies and licensing areas under the new rules that we adopt in this proceeding; or (2) retain those applications on file and permit other interested parties to file competing applications that will be processed pursuant to adopted competitive bidding procedures and corresponding rules for 39 GHz authorizations.[174] Some commenters recommend a specific time frame for allowing 39 GHz license applicants to resolve mutual exclusivity, *i.e.*, between 60 days and six months after a *Report and Order* is issued in this proceeding. Bachow asks that the Commission dismiss, without prejudice, any mutually exclusive applications that remain after the time for resolving mutual exclusivity passes.[175]

89. Some commenters further ask that the Commission dismiss as defective any applications which did not limit themselves to only one specified 39 GHz channel as of November 13, 1995, or which otherwise failed to satisfy a 1994 Public Notice that described the processing procedures and rules applicable to the 39 GHz band.[176] Under this approach, any remaining applicants that are still subject to mutual exclusivity would be allowed to file amendments to reduce their proposed service area contours or otherwise enter into settlement agreements to resolve their conflicts.

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[173] *See, e.g.*, ANS Comments at 2; Altron Comments at 2; Ameritech Comments at 4-6; AT&T Comments at 12-13; BizTel Comments at 36-39; Columbia Comments at 5-12; Commco Comments at 3-4; DCT Comments at 29-34; DMC Comments at 2; GEC Comments at 5; Harris Comments at 2; Microwave Partners Comments at 7-9; Spectrum Comments at 2-3; TIA Comments at 10-12; Pinnacle Reply Comments at 2.

[174] GTE Comments at 6-7.

[175] Bachow Comments at 6, 16.

[176] *Public Notice*, Mimeo No. 44787 (released Sept. 16, 1994). *See also* Ameritech Comments at 3-4; AT&T Comments at 12-13; Bachow Comments at 5-6.

90. We have determined that the best approach for processing pending mutually exclusive applications is to dismiss them without prejudice, and to allow these applicants to submit new applications under the competitive bidding rules established in this proceeding.[177] We take this action because we find that it will optimize the public interest by promoting fair and efficient licensing practices. As we explain below in Section V-A ("Auctionability of the 39 GHz Band"), the use of a competitive bidding system for licensing the 39 GHz band constitutes the best method for choosing among mutually exclusive applicants. Competitive bidding allows spectrum to be acquired by the parties who value it most highly and increases the likelihood that innovative, competitive services will be offered to consumers. These benefits will be lost, in part, if we were to process pending mutually exclusive applications under our old rules. Moreover, under such an approach, those pending mutually exclusive applications that cannot be accommodated by the availability of alternative frequencies would be subject to comparative hearing (either formal or informal).[178] While these rules may be useful in other bands to address the rare situation in which two point-to-point links cannot be coordinated to avoid interference, in the 39 GHz band, applicants seek to serve geographic areas rather than to provide service on a single point-to-point link basis. This, coupled with the exponential growth in demand for 39 GHz spectrum, results in a significant number of mutually exclusive applications, including "daisy-chain" situations, among entities seeking to acquire spectrum. Resolving these mutually exclusive applications through comparative hearings would be much slower and possibly more costly, both to the government and applicants, than competitive bidding.

91. We also find that those who believe that they should be afforded the opportunity to amend their pending applications to avoid mutual exclusivity had ample opportunity to file such amendments prior to the commencement of this rule making. We are not convinced that parties who have not already entered such agreements will successfully accomplish such agreements now. Moreover, even if such agreements are possible, the parties will have the opportunity to accomplish similar results through the partitioning and disaggregation rules we are adopting today. Similarly, parties may resolve existing conflicts by forming joint ventures or similar arrangements to apply for BTA licenses. If, however, we permitted pending mutually exclusive applicants to resolve their conflicts outside the structure of the competitive bidding process, other entities would be foreclosed from an opportunity to apply for 39 GHz spectrum under the flexible rules we adopt herein. This would have the result of limiting the pool of

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[177] *Cf.* Amendments of Parts 2 and 22 of the Commission's Rules to Allocate Spectrum in the 928-941 MHz Band and to Establish Other Rules, Policies, and Procedures for One-Way Paging Stations in the Domestic Public Land Mobile Radio Service, Gen Docket No. 80-183, *Third Report and Order*, 97 FCC 2d 900 (1984) (changing expected method for choosing among mutually exclusive applications); *Maxcell Telecom Plus, Inc. v. FCC*, 915 F.2d 1551 (D.C. Cir. 1987) (holding that Commission's overriding concern with efficient processing of the many applications for cellular radiotelephone licenses before it justified its use of a lottery to select applicants).

[178] Even the "informal" comparative hearing can be quite involved. Thus, applicants meeting the criteria for an informal comparative hearing in accordance with Section 101.51 of our Rules are required to submit to the Commission a written statement containing (1) a waiver of the applicant's right to a formal hearing, (2) a request and agreement that in order to avoid the delay and expense of a formal hearing, the Commission should exercise its judgment to select from the mutually exclusive applications the proposal(s) that would best serve the public interest, and (3) the signature of a principal (and the principal's attorney if represented). After receipt of the written requests of all of the applicants, the Commission (if it deems this procedure appropriate) would issue a notice designating the comparative criteria upon which the applications are to be evaluated and would request each applicant to submit, within a specified period of time, additional information concerning the applicant's proposal relative to the comparative criteria. Within 30 days following the due date for filing this information, the Commission would accept argument on the competing proposals from rival applicants, potential customers, and other knowledgeable parties in interest. Within 15 days following the due date for the filing of comments, the rival applicants would file replies. From time to time during the course of this procedure the Commission might request additional information from the applicants and hold informal conferences at which all competing applicants would have the right to be represented. At the end of this process, the Commission would issue a decision granting one (or more) of the proposals which it concludes would best serve the public interest, convenience and necessity.

potential applicants to those who have already filed under the current, more restrictive rules, and may inhibit the development of new and innovative services in this spectrum. Accordingly, we find that existing applicants have a reasonable avenue of relief for their concerns in the procedures we adopt herein, and we deny their requests.

ii. Applications Within the 60-day Public Notice Period on November 13, 1995

92. Some petitioners and commenters argue that we should process the "unripe" applications -- those that had not passed the 60-day public notice period as of the date of the November 13, 1995, *Freeze Order*.[179] According to DCT, for example, all applications that have been or should have been placed on public notice announcing their susceptibility to petitions to deny as required by Section 309 of the Communications Act meet the processing requirements of the Communications Act.[180] DCT contends that the disparate treatment of these applications and those we have decided to process would only make sense if there were no vacant channel pairs available for a second applicant in the same service area.[181] DCT and WinStar argue that under the rules, if there were a vacant channel pair, a second applicant would have to yield ultimately to the first-in-time applicant with respect to the frequencies specified by the first-in-time applicant.[182]

93. In the January 17, 1997, *Memorandum Opinion and Order, supra*, we held that unripe applications would continue to be held in abeyance because, until we had completed our consideration of the record, we were not in a position to state whether further applications may be filed, or how the applications presently held in abeyance would have been treated. Having concluded here that the 39 GHz band should be subject to significantly different rules than the ones used previously, we believe that the most fair and reasonable approach with regard to pending unripe applications is to dismiss them and allow these applicants to reapply under the new rules set forth in this proceeding. Taking into account our conclusion that these new rules further the public interest, we believe that applying the new 39 GHZ rules to those applications that were still subject to the possibility of competing applications under the former rules adequately balances the expectations of applicants with the public need for a better system for licensing use of the 39 GHz band. We further believe that we have crafted a fair approach because such applicants will be permitted to apply for spectrum under the new rules.

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179 *See, e.g.*, DCT Comments at 34-36.

180 *Id.*

181 DCT Comments at 34-36.

182 DCT Comments at 34-36; WinStar Comments at 5. These commenters cite Section 101.103(e) of our Rules, which states that "[w]here frequency conflicts arise between co-pending applications in the Point-to-Point Microwave Radio and Local Television Transmission Services, it is the obligation of the later filing applicant to amend his application to remove the conflict, unless it can make a showing that the conflict cannot be reasonably eliminated. Where a frequency conflict is not resolved and no showing is submitted as to why the conflict cannot be resolved, the Commission may grant the first filed application and dismiss the later filed application(s) after giving the later filing applicant(s) 30 days to respond to the proposed action." 47 C.F.R. § 101.103(e).

iii. Modification Applications

94. In the *NPRM and Order*, we stated that we would hold in abeyance modification applications, and any amendments thereto, that were filed on or after November 13, 1995, the date of the *Freeze Order*.[183] We stated that no new applications to modify existing licenses would be accepted after December 15, 1995, unless they did not involve any enlargement in any portion of the service area and did not change frequency blocks (unless to delete one).[184]

95. In the January 17, 1997, *Memorandum Opinion and Order*, we clarified that any pending modification application or amendment thereto filed prior to November 13, 1995, was to be processed. Modification applications or amendments to such applications, filed between November 13 and December 15, 1995, which meet the criteria of Section 101.59 of our Rules[185] and which do not enlarge the applicant licensee's service area, were to be accepted for filing and processed. Any modification application, or amendment thereto, which meets the criteria of Section 101.61 of our Rules were likewise to be accepted for filing and processed.[186] All other modification applications and amendments thereto were to be held in abeyance.

96. For the same reasons that we dismiss without prejudice the pending mutually exclusive and unripe applications as discussed *supra*, we also dismiss without prejudice any modification application held in abeyance pursuant to the freeze. Such applications, if granted under the previous rules, would frustrate the goals underlying this proceeding by continuing the licensing scheme which we are abandoning today. As discussed *supra*, we must choose a point from which our new rules will apply, taking into account our conclusion that these new rules are in the best interest of the public for the development of new services in the 39 GHz band. We believe that it is fair to dismiss major modification applications because such applicants will be permitted to apply for additional spectrum, without disadvantaging potential new entrants, under the new rules.

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[183] A modification application and any amendment thereto, is filed pursuant to an existing license. There is no amendment of right for an existing license. An amendment of right is filed pursuant to a license application.

[184] *NPRM and Order*, 11 FCC Rcd at 4989.

[185] 47 C.F.R. § 101.59 provides that eligible licensees applying for certain minor station modifications receive an automatic grant of the modification as of the twenty-first day following public notice of the modification application. Modifications that may be authorized under this procedure are: (1) changes in a transmitter and existing transmitter operating characteristics, or protective configuration of a transmitter, if the increase in EIRP is less that 3 dB and if the bandwidth is not increased; (2) changes in the center line height of an antenna of less that 3.0 meters (10 feet) and of the antenna structure of 6.1 meters (20 feet) or less; (3) change in the geographical coordinates of a transmit station, receive station or passive facility by five seconds or less of latitude, longitude, or both, subject to FAA notice.

[186] 47 C.F.R. § 101.61 permits certain modifications without prior authorization, requiring only that the licensee notify the Commission of the changes and undertake any necessary coordination with other licensees. Modifications eligible for notification include: (1) change or modification of a transmitter if the replacement or modification is type-accepted, if the modulation is not changed, the frequency stability is equal to or better than the previously authorized level, and if the bandwidth and output power do not exceed previously authorized values; (2) addition or deletion of a transmitter for protection without changing the authorized power output (*e.g.*, hot standby transmitters; (3) change to an antenna which conforms to the requirements of §101.115 and has the same or better radiation characteristics as the previously authorized antenna; (4) any technical changes that would decrease the effective radiated power; (5) change of less than 1.5 meters in the centerline height of an antenna system, providing the new height of the antenna structure is increased 6.1 meters or less; (6) decrease in overall height of an antenna structure; (7) changes of no more than 1 degree in the azimuth of the center of the main lobe of radiation; (8) changes to the transmission line and other devices between the transmitter and the antenna if the effective radiated power of the station is not increased by more than one dB.

iv. Applications That Are Partially Mutually Exclusive

97. There are seven applications that are partially mutually exclusive. That is, these applications request more than one frequency pair, some of which are mutually exclusive with frequencies requested in other applications and some of which are not mutually exclusive. Although the non-mutually exclusive portion of these applications was subject to processing under our December 15, 1995, *NPRM and Order*, the mutually exclusive portion of each of the applications was required to be held in abeyance. The divided status of these applications has presented a unique processing issue. Our electronic process for addressing these applications does not permit partial grants because there is no capability for allowing an application to remain in pending status if final action has been taken on a portion of it. As a result, we have not been able to process the non-mutually exclusive portion of these applications until we had reached a decision regarding the disposition of pending mutually-exclusive applications in general. As we have now made this determination, we will process these applications as follows. Specifically, we will process to completion that portion of each of these applications that is non-mutually exclusive with other applications. However, we will dismiss the remainder of the application which cannot be granted due to mutual exclusivity, consistent with our order herein.

V. DECISION – COMPETITIVE BIDDING ISSUES

A. Auctionability of the 39 GHz Band

98. *Background.* In the *NPRM and Order*, we proposed to use competitive bidding to select among mutually exclusive applications for initial licenses in the 39 GHz band.[187] We reconsidered our previous decision not to license intermediate links by competitive bidding and the various factors that influenced our decision. First, we noted that point-to-point microwave channels used as part of end-to-end subscriber-based service offerings meet the "principal use" requirement of the Communications Act. Second, because BTAs are large areas, we stated that defining service areas by BTAs likely will result in the filing of mutually exclusive applications. Third, we noted that based upon our experience with auctions in other services, an auction for intermediate links within a well-defined service area will neither significantly delay the provision of other services, such as PCS, to the public nor impose significant administrative costs on the applicants or the Commission. Fourth, we noted that by placing licenses in the hands of those who value this spectrum most highly, competitive bidding will likely promote the development and rapid deployment of new technologies and ensure that new and innovative technologies are readily accessible to the American people. Finally, we noted that some of the licensees in the 39 GHz band have offered to sell or lease their licenses and may never have intended to directly serve the public, but rather to hold their own auctions and thereby deprive the public of the aforementioned benefits.[188]

99. *Discussion.* Upon consideration of the record in this proceeding, we conclude that auctioning the 39 GHz band meets the new criteria set forth in Section 309(j) of the Communications Act, as

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[187] *NPRM and Order*, 11 FCC Rcd at 4978.

[188] *Id.* at 4945.

amended by the Balanced Budget Act of 1997.[189] During the pendency of this proceeding and after comments were received in this proceeding, Congress enacted the Budget Act which extended and expanded the Commission's auction authority.[190] Many commenters support the award of unallocated spectrum through auctions for the 39 GHz band.[191] Using the pre-Budget Act criteria for auctionability of spectrum, some commenters argued that the 39 GHz band did not meet such criteria[192] because: (1) the band is being used for providing intermediate links and, therefore, is not principally being used to garner compensation from subscribers as required under the former "principal use" criteria of the Act;[193] (2) an auction of the 39 GHz band does not promote the objectives contained in the Act; and (3) an auction of intermediate links could significantly delay the development and deployment of new products and services and impose significant costs on licensees and the Commission.[194] As discussed below, as a result of the Budget Act provisions, the "principal use" criteria of 309(j)(2)(A) and "promote the objectives" criteria of 309(j)(2)(B) and 309(j)(3) of the Act no longer govern the auctionability of electromagnetic spectrum. Thus, we do not find these arguments to be compelling reasons not to employ competitive bidding procedures for 39 GHz spectrum.

100. Under the Budget Act, the Commission's auction authority covers all mutually exclusive applications for initial licenses or construction permits, with three limited exceptions which are not applicable in this proceeding.[195] The Budget Act replaced language in Section 309(j)(2), formerly called "Uses to Which Bidding May Apply,"[196] which stated the requirements for spectrum to be auctionable, *i.e.*, a determination that the principle use of the spectrum will be on a subscription basis and that competitive bidding will promote the objectives stated in Section 309(j)(3) with the new paragraph that expands the Commission's auction authority. Accordingly, under the amended Section 309(j), the Commission has the authority to auction the 39 GHz band.

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[189] Balanced Budget Act of 1997, P.L. 105-33, 111 Stat. 251 (1997)("Budget Act"). Because we adopt competitive bidding as the licensing method for awarding licenses in the 39 GHz band, it is unnecessary for us to address the alternative of revising our current licensing rules for the 39 GHz band. *See NPRM and Order*, 11 FCC Rcd at 4977-81.

[190] *See* Budget Act, P.L. 105-33, 111 Stat. 251 (1997), § 3002.

[191] *See e.g.*, Altron Comments at 3; BizTel Comments at 14; Commco Comments at 8; GEC Comments at 14; GTE Comments at 2; Milliwave Comments at 6-8; Microwave Partners Comments at 5; No Wire Comments at 2; Spectrum Comments at 3; WinStar Comments at 14.

[192] *See. e.g.*, DCR Comments at 2-4; DMC Comments at 1, 3 (supporting TIA's Comments); Harris Comments at 3; Pacific Comments at 2; TIA Comments at 15-17.

[193] *See. e.g.*, DCR Comments at 2-3; TIA Comments at 16.

[194] *See. e.g.*, DCR Comments at 4; DCT Comments at 21-23.

[195] Budget Act, Pub. L. No. 105-33, 111 Stat. 251 (1997), § 3002(a)(1)(a). The three exceptions to the Commission's auction authority are in the areas of public safety radio services, digital television service to be provided by existing terrestrial broadcast licensees as replacement for their analog television licenses, and noncommercial educational or public broadcast stations.

[196] These paragraphs, 47 U.S.C. 309(j)(1) and (2) were entitled "General Authority" and "Uses to Which Bidding May Apply," respectively.

101. We reject DCT's contentions that using competitive bidding procedures for this band violates Sections 309(j)(1) and 309(j)(6)(E), because the Commission is required to use various means to avoid mutual exclusivity, including the use of engineering solutions, negotiate threshold qualifications and service regulations, and licensing proceedings, before turning to auctions.[197] DCT argues that because the *NPRM and Order* finds that current point-to-point rules are structured to avoid mutual exclusivity through frequency coordination,[198] changing the rules to license by BTAs is tantamount to adopting a licensing system designed to encourage mutual exclusivity. However, the 39 GHz band has been the subject of significantly increased requests for large rectangular service areas and multiple channels. Frequency coordination techniques, suitable for the level of point-to-point spectrum demand existing prior to the existence of emerging technologies, are no longer adequate. Accordingly, our use of pre-defined geographic areas rather than the applicant-defined rectangular areas currently used as service areas furthers our public interest goals, as we concluded above in Section IV(C)(1). As we noted there, predetermined service areas will provide a more orderly structure for the licensing process and will foster efficient utilization of the 39 GHz spectrum in an expeditious manner. Indeed, the use of applicant-defined service areas can actually slow the delivery of services because the processing of each application requires extensive analysis and review by Commission staff.

102. Similarly, we also reject DCT's related contention that the proposed auction framework for the 39 GHz band -- simultaneous multiple round bidding, the Milgrom-Wilson activity rule and the simultaneous stopping rule -- encourages mutual exclusivity of applications.[199] DCT further rejects the proposed rule that would have limited licensees to an interest in four channel blocks contending that the "expansion of the number of channels which an applicant may receive from a de facto one channel to four channels also encourages mutual exclusivity."[200] The competitive bidding rules proposed have been used successfully in previous auctions and are intended to provide flexibility to bidders to pursue different strategies for interrelated licenses. Finally, as noted *supra*, we have decided not to place any limit on the number of channels a licensee may hold. We reject the contention that this will encourage mutual exclusivity, but rather believe that this will best foster the creation and deployment of new services. As discussed below, various other auction provisions adopted here will address the speculative bidding concerns raised by DCT.

103. While we believe that competitive bidding will place licenses in the hands of those who value them the most, various commenters propose other methods for licensing this band.[201] DCR, for example, proposes that the Commission use the alternative licensing proposal set forth in the *NPRM and*

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197 DCT Comments at 16-21. Section 309(j)(1) of the Communications Act, as amended by the Budget Act, § 3002(a)(1)(A).

198 DCT Comments at 16, citing the *NPRM and Order* at para. 27.

199 *Id.* at 18-21.

200 DCT Comments at 18-21.

201 Ameritech Comments at 5; Bachow Comments at 14; DCR Comments at 4; TGI Comments at 4-8.

Order.[202] TGI proposes tight usage requirements, *e.g.*, existing permittees would have six months from completion of rule making to construct and commence operation of their systems. Bachow proposes that the Commission adopt a going-forward licensing approach that provides for, among other things, applicant-defined service areas in contrast to geographic licensing; public notice and thirty-day cut-off windows; exhaustion of coordination efforts prior to any auction; and reasonable build-out requirements.[203] Finally, Ameritech and others state that after the Commission has finished processing 39 GHz amendments, there likely will be little or no desirable spectrum for any subsequent overlay auction of the 39 GHz channels. These commenters recommend that, in lieu of auctions, the Commission make the 39 GHz band available for the licensing of point-to-point paths.[204] While we note these various proposals, we conclude that the Budget Act's amendments to Section 309(j) of the Act direct us to auction the 39 GHz band.

104. We also note that under the Budget Act amendments, we are required to provide adequate time before the issuance of bidding rules to permit notice and comment, and after the issuance of bidding rules to ensure adequate time for interested parties to assess the market and develop their strategies or approaches as required under Section 309(j)(3)(E).[205] We believe we have satisfied the first requirement by seeking comment in the *NPRM and Order*. As to the second requirement, the Wireless Telecommunications Bureau ("Bureau") recently released a Public Notice announcing general time frames for upcoming auctions.[206] We anticipate that the Bureau will routinely release similar public notices in the future. We believe that the release of such public notices combined with the release of a Public Notice announcing the 39 GHz auction should ensure that interested parties have adequate time to assess the market and develop their strategies.

B. Competitive Bidding Design and Procedures

1. Competitive Bidding Design

105. *Background.* In the *NPRM and Order*, we tentatively concluded that simultaneous multiple round auctions are appropriate for this band.[207] We noted that compared with other bidding mechanisms, simultaneous multiple round bidding will generate the most information about license values during the course of the auction and provide bidders with the most flexibility to pursue back-up strategies.

106. *Discussion.* Based on the record in this proceeding and our successful experience conducting simultaneous multiple round auctions for other services, we believe a simultaneous multiple

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202 *NPRM and Order*, 11 FCC Rcd at 4977-78.

203 Bachow Comments at 14.

204 Ameritech Reply Comments at 7; *See, e.g.*, Bachow Comments at 6; No Wire Comments at 6.

205 Section 309(j)(3)(E) was added by the Budget Act, Pub. L. No. 105-33, 111 Stat. 251 (1997), § 3002.

206 *See* FCC Announces Upcoming Spectrum Auction Schedule, *Public Notice*, DA 97-1627 (July 30, 1997).

207 *See e.g.*, *NPRM and Order*, 11 FCC Rcd at 4947, 4979.

round auction design is the preferable competitive bidding design for the 39 GHz band. The commenters generally support our proposal to use simultaneous multiple round auctions for selecting among mutually exclusive applicants.[208] In addition, we believe that the value of these licenses will be significantly interdependent because of the desirability of aggregation across geographic regions. Under these circumstances, simultaneous multiple round bidding will generate more information about license values during the course of the auction and provide bidders with more flexibility to pursue back-up strategies, than if the licenses were auctioned separately.

107. DCT, on the other hand, argues that simultaneous multiple round auctions gives applicants only one opportunity to file for any or all channels and that this approach creates an urgency to file for channels that the applicant would not otherwise seek, thereby fostering unnecessary creation of mutual exclusivity.[209] DCT's argument misses several points. As an initial matter, we are not proposing to auction all of the channels at one time but rather in a series of simultaneous multiple round auctions in which three channels would be placed up for bid in each auction. *See* Section V (C)(1) *infra*. Thus, applicants will have more than one opportunity to file for channels. Moreover, the nature of this auction design provides bidders with flexibility to pursue different strategies for interrelated licenses. Specifically, it allows a bidder to pursue substitute licenses in the event it fails to obtain its first choices. In addition, we believe that the upfront payment requirement and our withdrawal rules provide a sufficient deterrent against applicants seeking licenses that they do not want or intend to use.[210] Notwithstanding our conclusion regarding the use of simultaneous multiple round bidding, we retain the discretion to use a different methodology if that proves to be more administratively efficient.

2. *Applicability of Part 1, Standardized Auction Rules*

108. In the *Competitive Bidding Second Report and Order*, as modified by the *Competitive Bidding Second Memorandum Opinion and Order*, the Commission established general competitive bidding rules for all auctionable services, but also stated that such rules may be modified on a service-specific basis.[211] These general competitive bidding rules are contained in Part 1 of our Rules. In the recent *Order, Memorandum Opinion and Order and Notice of Proposed Rule Making* in WT Docket No. 97-82, we amended some of the Part 1 provisions, and proposed further amendments to the Part 1 rules to streamline our auction procedures.[212] Accordingly, for the 39 GHz band, we will follow the competitive bidding rules contained in, or ultimately established for, Subpart Q of Part 1 of the Commission's Rules, as amended by the Part 1 proceedings and related decisions, unless specifically indicated otherwise below.

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[208] Altron Comments at 3; BizTel Comments at 15; Columbia Comments at 19; Commco Comments at 8; GEC Comments at 7; GTE Comments at 7; Milliwave Comments at 8-10; Pacific Comments at 3-4; Spectrum Comments at 3; TDS Comments at 7-8.

[209] DCT Comments at 18.

[210] *See Competitive Bidding Second Report and Order*, 9 FCC Rcd at 2377.

[211] *Competitive Bidding Second Report and Order*, 9 FCC Rcd at 2350.

[212] Amendment of Part 1 of the Commission's Rules -- Competitive Bidding Proceeding, *Order, Memorandum Opinion and Order*, and *Notice of Proposed Rule Making*, FCC 97-60, 12 FCC Rcd 5686 (1997) (*Part 1 Order and NPRM*).