

service rules in anticipation of earth station applications to be filed in the future to access the non-U.S.-licensed satellite system.<sup>147</sup> The Commission also stated that non-U.S.-licensed systems filing letters of intent generally would be held to the same service and technical requirements as U.S.-licensed systems.<sup>148</sup> This proceeding represents the Commission's first opportunity to implement the *DISCO II Order's* provisions regarding letters of intent and thus, to further the promise of the WTO Basic Telecom Agreement through concrete and comprehensive MSS authorization initiatives.

### 1. Regulatory Classification

73. Section 332(c) of the Communications Act requires that providers of commercial mobile radio service (CMRS)<sup>149</sup> be regulated as common carriers.<sup>150</sup> Section 332(c)(5) provides that the Commission may continue "to determine whether the provision of space segment capacity to providers of commercial mobile services shall be treated as common carriage."<sup>151</sup> Section 3(44) of the Communications Act, which was added by the Telecommunications Act of 1996, further states that "the Commission shall determine whether the provision of fixed and mobile satellite service shall be treated as common carriage."<sup>152</sup> As described below, we interpret these provisions as a grant of discretion to impose, or refrain from imposing, common-carrier regulation in the provision of satellite services, including the provision of space segment capacity in the 2 GHz MSS.<sup>153</sup>

74. All of the 2 GHz MSS participants seek non-common carrier treatment for the space segment component of their proposed systems. We tentatively conclude that we should treat the space segment component of 2 GHz MSS as non-common carriage.<sup>154</sup> The Communications Act grants the Commission discretion to determine whether a space station licensee offering capacity to an entity that then offers CMRS to end users should be regulated on a common carriage basis or a private carriage basis.<sup>155</sup> The Commission has stated that in making this determination it will use the analysis enunciated in *National*

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<sup>147</sup> *Id.* at 24173-74 ¶ 185.

<sup>148</sup> *Id.* at 24158 ¶ 149, 24162-63 ¶ 159, 24168-69 ¶ 173.

<sup>149</sup> CMRS is defined to include all mobile radio services that are provided for profit and that make interconnection service with the public switched network available to the public or to such classes of eligible users as to be effectively available to a substantial portion of the public. 47 U.S.C. § 332(d)(1).

<sup>150</sup> 47 U.S.C. § 332(c)(1)(A) states: "A person engaged in the provision of a service that is a commercial mobile service shall, insofar as such person is so engaged, be treated as a common carrier . . . ."

<sup>151</sup> 47 U.S.C. § 332(c)(5).

<sup>152</sup> 47 U.S.C. § 153(44).

<sup>153</sup> *See, e.g., U.S. Leo Services, Inc., Order and Authorization*, 11 FCC Rcd 13962, 13968 ¶ 21 (Int'l Bur. 1996).

<sup>154</sup> *Accord Big LEO Report & Order*, 9 FCC Rcd at 6002 ¶ 174.

<sup>155</sup> 47 U.S.C. § 332(c)(5). *Implementation of Sections 3(n) and 332 of the Communications Act: Regulatory Treatment of Mobile Services*, GN Docket No. 93-252, Second Report and Order, 9 FCC Rcd 1411, 1457 ¶ 108 (1994) (*CMRS Second Report & Order*).

*Association of Regulatory Utility Commissioners v. FCC*, 525 F.2d 630, 642 (D.C. Cir. 1976), *cert. denied*, 425 U.S. 999 (*NARUC I*).<sup>156</sup> The court in *NARUC I* identified two criteria as determinative of whether an entity may provide a service on a non-common carrier basis: (1) whether there is or should be any legal compulsion to serve the public indifferently; or (2) whether there are reasons implicit in the nature of the service to expect that the entity will in fact hold itself out indifferently to all eligible users.

75. For the following reasons, we tentatively conclude, based on the *NARUC I* analysis, that there does not appear to be a need to impose common carrier requirements on 2 GHz MSS space station operators. Under the first prong of the *NARUC I* analysis, the Commission previously has determined that the presence of significant competition is an important factor in determining whether common carrier requirements should be imposed on satellite operators.<sup>157</sup> Specifically, the Commission has found that if the barriers to entry for new satellite operators are low and alternative competitive sources of satellite services are available to consumers, satellite operators will have an incentive to offer service efficiently at low rates. In such an environment, the Commission has held that it is not necessary to compel space station operators to offer their service indifferently to the public as a common carrier because competition will achieve the same result for purchasers of space segment capacity as regulation, that is, efficient service at low prices.<sup>158</sup> Three Commission licensees are currently providing service and three companies are licensed to provide mobile satellite services.<sup>159</sup> In addition, we expect others to begin offering competitive services as a result of this proceeding. We expect that additional MSS capacity will compel existing service providers to offer their services efficiently and create downward pressure on prices to consumers. In addition, based on the systems proposed for the 2 GHz MSS, we anticipate that some of the space segment providers will tailor their offerings to meet individualized needs of particular customers.<sup>160</sup> We expect, therefore, that there is sufficient space segment capacity to assure service availability at competitive prices and that there is no need to compel licensees to offer it to the public indifferently.

76. Under the second prong of the *NARUC I* analysis, the Commission looks at whether the service provider is likely to hold itself out indifferently to all users. Historically, the Commission has authorized most satellite licensees to provide service on a non-common carrier basis and continues to do

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<sup>156</sup> See, e.g., *First Round NVNG MSS Order*, 8 FCC Rcd at 8456-57 ¶ 24.

<sup>157</sup> *Domestic Fixed Satellite Transponder Sales*, 90 FCC 2d 1238, 1254-55 (1982), *aff'd*, *Wold Communications, Inc. v. FCC*, 735 F.2d 1465 (D.C. Cir. 1984), *modified*, *Martin Marietta Communications Systems*, Memorandum Opinion and Order, 60 Rad. Reg. (P&F) 2d 779 (1986).

<sup>158</sup> *Id.*

<sup>159</sup> See *Orbital Communications Corporation*, Order and Authorization, 9 FCC Rcd 6476 (1994) (Orbcomm provides an NVNG MSS service); *AMSC Order*, 4 FCC Rcd 6041 (American Mobile Satellite Corporation provides a GSO MSS service); *Motorola Satellite Communications, Inc.*, Order and Authorization, 10 FCC Rcd 2268, *erratum*, 10 FCC Rcd 3925 (Int'l Bur. 1995) (Iridium provides a Big LEO MSS service); *Loral/Qualcomm Partnership, L.P.*, Order and Authorization, 10 FCC Rcd 2333, *erratum*, 10 FCC Rcd 3926 (Int'l Bur. 1995) (Globalstar anticipates commencing service in Fall 1999).

<sup>160</sup> See, e.g., *Boeing 2 GHz MSS Application at 2* (proposes to provide AMS(R)S service).

so today.<sup>161</sup> Based on the terms of the proposals before us, once authorized, the 2 GHz MSS space segment operators will provide service similar to those services that the Big LEO space segment licensees currently provide (*i.e.*, wholesale voice and data communications). The space segment portion of the Big LEO service is regulated on a non-common carrier basis.<sup>162</sup> Therefore, we do not anticipate that the 2 GHz MSS operators would offer their services indifferently to all users. In fact, each of the 2 GHz MSS space segment system proponents requests non-common carrier classification for their service offering. We do not see any reason to treat 2 GHz MSS space segment operators any differently than Big LEOS for purposes of regulatory classification of space segment services. Allowing 2 GHz MSS space segment operators to offer service on a non-common carrier basis would also provide operators the freedom to customize their offerings to meet individualized customer needs. We seek comment on our proposal for the regulatory treatment of the space segment of the 2 GHz MSS.

77. Next, we address the regulatory classification of service offered from various 2 GHz MSS earth stations, including user transceivers, gateways, and tracking, telemetry and control earth stations. We expect that many of the 2 GHz MSS earth station licensees will provide service to the public for profit and may fall within the definition or be the functional equivalent of commercial mobile radio service, as defined by the Communications Act.<sup>163</sup> Section 332(d)(1) of the Communications Act defines "commercial mobile service" as "any mobile service . . . that is provided for profit and makes interconnected service available (A) to the public or (B) to such class of eligible users as to be effectively available to a substantial portion of the public, as specified by regulation by the Commission."<sup>164</sup> The Commission has determined that each mobile satellite service must be evaluated to determine whether the service offering is CMRS or private mobile radio service (PMRS).<sup>165</sup> In discussing Section 332(c)(5) of the Communications Act, Congress indicated that the provision of earth segment capacity, either by MSS operators through their own terminals or earth stations sold by vendors, to users of CMRS shall be treated

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<sup>161</sup> See, e.g., *First Round NVNG MSS Order*, 8 FCC Rcd at 8457 ¶ 24 (NVNG operators permitted to offer space segment service on a non-common carrier basis because of competitive service alternatives); *Big LEO Report & Order*, 9 FCC Rcd at 6004 ¶ 179 (Big LEO operators permitted to offer space segment service on a non-common carrier basis because sufficient competitive capacity available to assure ample access to these services). See also *Rulemaking to Amend Part 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 Report and Order, 12 FCC Rcd 22310, 22334 ¶ 60 (1997) (*Ka-band Third Report & Order*) (Ka-band operators permitted to offer service on non-common carrier basis because there is sufficient capacity available in other FSS bands and there is enough capacity to assure access to ample FSS services and expect operators to tailor their service offerings to address individualized needs of potential customers). But see, 47 U.S.C. § 741 (statutory requirement that COMSAT be regulated on a common carrier basis); *Upper L-band MSS Second Report & Order*, 2 FCC Rcd at 490 ¶ 34 (because only a single MSS license granted in the upper L-band frequencies and because MSS new and unprecedented service, American Mobile Satellite Corporation, the space segment operator, placed under an obligation to provide service on a common carrier basis).

<sup>162</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6003-05 ¶ 179.

<sup>163</sup> 47 U.S.C. § 332(d)(1).

<sup>164</sup> *Id.*

<sup>165</sup> *CMRS Second Report & Order*, 9 FCC Rcd at 1457 ¶ 108. PMRS is defined as any service that does not meet the definition of CMRS or is not the functional equivalent of CMRS. *Id.* at 1447 ¶ 79.

as common carriage.<sup>166</sup> In applying this requirement, the Commission has stated that to the extent a system or other entity provides a service to end users that meets the elements of the CMRS definition or its functional equivalent, it will be regulated as common carriage.<sup>167</sup> We expect that a significant number of 2 GHz MSS terminals will be used to interconnect to the public switched telephone network, rather than simply providing service between the 2 GHz MSS terminal and other 2 GHz MSS terminals. We also expect the 2 GHz MSS to be offered to the public. Therefore, we tentatively conclude that, to the extent that 2 GHz MSS earth stations are used to make service available to end users -- (A) the public, or (B) such classes of users as to be effectively available to a substantial portion of the public -- for profit and for interconnection with the public switched network, the offering of user transceivers to end users must be regulated as common carriage because the service falls within the statutory definition of CMRS. We would, however, reserve the right to review individual applications on a case-by-case basis to determine if this classification is appropriate. The Commission has forborne from applying certain provisions of Title II to CMRS providers.<sup>168</sup>

78. We also tentatively conclude that gateway earth stations and stations that may be used for TT&C should be licensed to permit service to be offered on a non-common carriage basis because the service is not generally made available to end users or the public directly for interconnection to the public switched network. Rather, these gateway earth stations and earth stations used for TT&C are generally used to provide backhaul of large amounts of communications traffic and control the space segment of satellite systems. We seek comment on these tentative conclusions.

## 2. System License and License Term

79. As discussed above, the proposed 2 GHz MSS systems include non-geostationary constellations of technically identical satellites, geostationary satellites, and a hybrid system with satellites in geostationary and non-geostationary orbits.<sup>169</sup> We propose to continue our policy of granting "blanket" launch and operation licenses<sup>170</sup> for systems of technically identical satellites, which will probably include most NGSO constellations, where possible. We propose to license 2 GHz MSS geostationary satellites by issuing a license that specifies parameters for each particular orbital location to take into account variations in system design, including feeder link and inter-satellite link issues.<sup>171</sup> We propose this distinction in licensing between NGSO and GSO systems because of the satellite design differences between the systems, the beam coverage variations, and our experiences licensing both type of systems. For instance, GSO satellites are usually not technically identical, whereas NGSO satellites which are part of a constellation are usually identical. Because of the design differences among GSO satellites in a

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<sup>166</sup> *Id.* at 1457 ¶ 108 (citing H.R. Conf. Rep. No. 103-213, at 494 (1993)).

<sup>167</sup> *Id.* at 1457-58 ¶ 109.

<sup>168</sup> See 47 C.F.R. § 20.15. See also 47 U.S.C. § 332(c)(1)(A).

<sup>169</sup> See Section III.A., *supra*.

<sup>170</sup> This follows the single-step processing and licensing policy that has been used for satellites since 1980. See *Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service*, Memorandum Opinion & Order, 84 FCC 2d 584 (1981).

<sup>171</sup> See *Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service*, Order and Authorizations, 11 FCC Rcd 13788 (1996).

system, we propose to continue our practice of licensing each GSO satellite individually. For systems proposing geostationary satellites as part of a GSO/NGSO hybrid system, we propose to license the GSO component on this individual satellite basis and the NGSO constellation portion of the system under a "blanket" license for technically identical satellites. We seek comment on these proposals.

80. We also propose ten-year license term rules for 2 GHz MSS operators. At the time we licensed the Big LEO systems, the Communication Act authorized the Commission to grant ten-year licenses for space stations.<sup>172</sup> The Telecommunication Act of 1996, however, amended the Communications Act to modify the statutory license term limit by granting the Commission authority to "prescribe the period or periods for which licenses shall be granted and renewed . . . ."<sup>173</sup> As with the Big LEO license term, we propose that the license term would end ten years following commencement of satellite operations.<sup>174</sup> The ten-year license term adopted for the Big LEO systems appears to provide sufficient certainty for licensees to obtain financing while providing an opportunity for Commission review of the license after a system's first decade of operation. Systems with both NGSO and GSO satellite components would have separate license terms for the NGSO portion of the system and for each GSO satellite. In addition, we propose to permit the licensee to replace any satellites lost during launch and older satellites retired before the end of the ten-year period. We seek comment on whether there are any reasons that this replacement policy should not apply equally to NGSO and GSO systems. Because of the investment required to construct and launch these systems combined with the development of satellite technology, specifically developments that have given satellites longer life spans -- up to 15 or more years in some cases -- we seek comment on whether 2 GHz MSS licenses should be granted for periods longer than ten years. We also propose that to the extent applicants include information in their applications concerning transmissions from their satellites for pre-operational testing, authority for these operations would be included in their license grant.

81. We propose to require that replacement satellites launched during the initial license term would have to be technically identical to those satellites authorized in the original grant, as the Commission required for Big LEO licensees.<sup>175</sup> We propose that this requirement would equally apply to all 2 GHz MSS system designs. We would treat any non-conforming satellites (*e.g.*, different antenna footprints or transmission patterns) as requests for license modification, as the Commission does with respect to Big LEO satellites.<sup>176</sup> Consistent with our previous policy, we also propose to allow system operators to request authority to launch and operate a specified number of technically identical in-orbit spare satellites in the case of NGSO constellations.<sup>177</sup> System operators could activate these spare satellites

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<sup>172</sup> 47 U.S.C. § 307(c) (prior to elimination of ten-year license term by the Telecommunications Act of 1996).

<sup>173</sup> Telecommunication Act of 1996, Pub. L. No. 104-104, Title II, § 203, 110 Stat. 56, 112 (1996) (amending Section 307 of the Communications Act to eliminate ten-year term and creating new Section 307(c)(1) granting the Commission authority to determine license terms for particular classes of stations, including satellite space and earth stations).

<sup>174</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6007 ¶ 185.

<sup>175</sup> 47 C.F.R. § 25.143(c).

<sup>176</sup> Technically identical satellites must have identical satellite antenna footprints and transmission parameters. They need not, however, have the identical physical structure or microelectronics. 47 C.F.R. § 25.143(c).

<sup>177</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6006 ¶ 182.

as necessary, but would be required to notify the Commission, within ten days after activation, that activation of the satellite did not cause the licensee to exceed the total number of authorized space stations.<sup>178</sup> We propose that the license term for any activated spare satellites would expire with the overall system's authorization term. We propose that GSO satellites be subject to the same rules as NGSO constellations requiring replacement satellites to be technically identical for a particular orbital position and would permit GSO system operators to operate collocated in-orbit spares.<sup>179</sup> The license term for technically identical GSO replacement satellites would expire when the replaced satellite's authorization expires. We would also require that individual GSO replacement satellites be technically identical to the satellite replaced, to assure continued compatibility of the systems with other users of the spectrum. Operators would be permitted to file modification applications to upgrade satellite design. We seek comment on these proposals and whether having similar replacement and in-orbit spare policies for GSO and NGSO systems is appropriate.

82. We propose, as we did in the Big LEO service rulemaking, to require applications for replacement systems, or individual satellites in the case of GSO operators, after the end of the initial license term to be filed no earlier than three months before and no later than one month after the end of the seventh year of the existing license.<sup>180</sup> The purpose of this proposed rule is to allow the Commission sufficient time to act upon replacement system/satellite applications and the licensee enough time to implement its follow-on system/satellite. The filing window also would provide public notice of the licensee's plans. We propose not to adopt a renewal expectancy for 2 GHz MSS licensees. As we have previously indicated, we generally prefer to proceed on a case-by-case basis concerning renewal expectancy in the satellite context.<sup>181</sup> As in other satellite services, we will generally grant system operators, whether GSO, NGSO, or hybrid system design operators, the authority to implement replacement systems/satellites, however, if the orbit location and/or frequencies remain available for use by U.S. systems.<sup>182</sup> This recognizes that changed circumstances, including intervening international agreements, may affect our ability to assign or renew orbit and spectrum resources to U.S. systems. We recognize, however, the enormous investment necessary to launch and operate 2 GHz MSS satellite systems and therefore will propose to grant extensions for satellites that continue to operate beyond their license term, replacement authorizations, and renewals, if appropriate, unless extraordinary circumstances require a denial. We also propose that these policies should apply equally to earth station renewals. We invite comment on all of these proposals and whether there are circumstances we should take into account that require any additional distinctions between the method we use to license operators of GSO, NGSO, or hybrid systems.

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<sup>178</sup> *Id.*

<sup>179</sup> See 47 C.F.R. § 25.140(g) (permitting collocation of in-orbit GSO satellites for systems that are not essentially filled). See also 47 C.F.R. § 25.113(g) (application for authority to launch and operate on-ground spare considered newly filed application unless it is for emergency replacement of previously authorized space station).

<sup>180</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6007 ¶ 186.

<sup>181</sup> See *Big LEO Reconsideration*, 11 FCC Rcd at 12878 ¶ 51.

<sup>182</sup> See, e.g., *First Round NVNG MSS Order*, 8 FCC Rcd at 8452 ¶ 7; *Assignment of Orbital Locations to Space Stations in the Domestic Fixed-Satellite Service*, Memorandum Opinion and Order, 3 FCC Rcd 6972, 6976 n.31 (1988).

### 3. Implementation Milestones

83. As detailed below, we propose to adopt a schedule of implementation milestones for 2 GHz MSS systems to ensure that systems are constructed within a reasonable time and thus, ensure delivery of service to the public, and to prevent warehousing of the valuable and limited resources of orbital locations and spectrum. We propose to establish separate milestones for each system and to adopt milestones regardless of the method we select to grant authorizations.<sup>183</sup> The enforcement of milestones would be especially important if, as proposed, we decline adoption of financial qualifications as an entry criterion. Failure to meet the required milestones would render the system authorization or spectrum reservation null and void.

84. The Communications Act states that "[w]ith respect to any other station or class of station [including space and earth stations], the Commission shall not waive the requirement for a construction permit unless the Commission determines that the public interest, convenience, and necessity would be served by such a waiver."<sup>184</sup> Consistent with our statutory authority, and in order to eliminate potential administrative burdens and regulatory delay, we propose to waive the requirement that 2 GHz MSS operators obtain construction permits for space and earth stations prior to commencing construction. We propose, however, that system operators be required to notify the Commission in writing that they intend to begin construction of satellites and earth stations at their own risk.<sup>185</sup>

85. We propose to adopt a milestone schedule similar to the one established for Big LEOs and NVNG MSS for non-geostationary satellite systems<sup>186</sup> and separate milestones for geostationary satellite systems similar to the approach we have taken with other geostationary satellite systems. We propose to distinguish between geostationary and non-geostationary satellite systems for the purpose of establishing milestones because we recognize, as we did in the Ka-band,<sup>187</sup> that geostationary satellites may take more

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<sup>183</sup> Congress has also mandated that when competitive bidding is used, we impose performance requirements to prevent spectrum warehousing and to promote investment in and rapid deployment of new services. 47 U.S.C. § 309(j)(4)(B).

<sup>184</sup> 47 U.S.C. § 319(d). Under this statutory authority, the Commission has eliminated the requirement that applicants be granted construction permits for space stations and earth stations under Part 25, Sections 25.113(f), (b). *Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures*, IB Docket No. 95-117, Report and Order, 11 FCC Rcd 21581, 21584-85, 21590-91 ¶¶ 8, 23 (1996) (elimination of the construction permit requirement for space stations and MSS earth stations, respectively, will accelerate the provision of satellite-delivered services, and eliminate administrative burdens and potential delays).

<sup>185</sup> 47 C.F.R. § 25.113(f).

<sup>186</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6008 ¶ 189 (system authorization requires licensee to begin construction of first two satellites within one year of authorization, complete construction of the first two satellites within four years, commence construction of remaining satellites within three years and commence operations within six years); *First Round NVNG MSS Order*, 8 FCC Rcd at 8455 ¶ 18 (each authorization requires that licensee commence construction of first two satellites within one year of authorization, begin construction of all remaining satellites within three years, complete construction of first two satellites within four years, and be operational within six years of authorization).

<sup>187</sup> We require GSO licensees in the Ka-band to begin construction of their first satellite within one year of grant, begin construction of the remainder within two years of grant, to launch at least one satellite into each assigned orbital location within five years of grant, and to launch the remainder of their satellites by the date required by the

time to construct than technically identical non-geostationary satellites.<sup>188</sup> We seek comment on this proposed distinction. Recognizing the differences in satellite system designs, we propose to require that non-geostationary satellite systems *begin construction* of the first two system satellites within one year of authorization and begin construction of all remaining satellites within three years of authorization. We propose to require that geostationary satellite systems begin construction of the first satellite in their system within one year and begin construction of all remaining satellites in their system within three years of authorization.

86. We propose to require that operators *complete construction* and launch of the first two satellites of their non-geostationary systems within four years of grant as the Commission does for Big LEO licensees. We propose to require geostationary satellite systems to complete construction and launch at least one satellite into each of its assigned orbital locations within five years of grant as the Commission does for Ka-band system operators. The entire system for either an NGSO or GSO system would have to be launched and *operational* within six years of grant. Hybrid non-geostationary and geostationary satellite systems would be required to follow the non-geostationary milestones for the non-geostationary portion of the system and comply with the geostationary milestones for the geostationary portion of the proposed system. We seek comment on these proposals and, specifically, whether we need to take into account any technical variations or other factors — such as the delivery of service to rural and unserved communities — between 2 GHz MSS systems and other satellite systems that may impact construction deadlines.

87. We also seek comment on whether any interim milestones should be established. For instance, we seek comment on whether it would be useful to require systems to certify that they have completed Critical Design Review (*i.e.*, completed the design phase of implementation and commenced physical construction) within two years, or some other appropriate date, after milestones begin to run. This would require 2 GHz MSS operators to begin construction approximately two years after the initial grant or reservation in the case of LOI filers. We seek comment on whether this type of milestone is useful for monitoring system implementation, simple to comply with, and appropriate given the other milestones we propose to apply to 2 GHz MSS system operators.

88. We propose that milestones begin to run upon award of a service link license, or, in the case of LOI filers, upon issuance of a Public Notice or Declaratory Ruling establishing a milestone schedule contemporaneous with licensing of U.S. space stations.<sup>189</sup> We seek comment on whether we should continue our current practice of including milestones in instruments of authorization. Under this approach, milestone deadlines for LOI filers would begin to run once spectrum is reserved in the Report and Order before milestones commence for U.S. licensees. The difference in milestone commencement dates is because the licenses for U.S. systems, which include milestones, would be granted after U.S. space station applicants were given an opportunity to amend their applications to conform to the final service rules

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International Telecommunications Union to assure international recognition and protection. *Ka-band Third Report & Order*, 12 FCC Rcd at 22334-35 ¶ 61.

<sup>188</sup> *Id.*

<sup>189</sup> We have traditionally permitted applicants to amend their applications after the adoption of the service rules Report and Order in order to modify any inconsistencies with our service rules. Therefore, there is usually a time delay between the Report and Order and the issuance of licenses. By issuing a Declaratory Ruling or Public Notice commencing the service rule requirements for non-U.S.-licensed systems at the same time as U.S. licenses are granted, we would ensure that all 2 GHz MSS system operators have the same deadlines.

adopted in the Report and Order. Therefore, in order to establish contemporaneous milestones for U.S. licensees and LOI filers we also ask alternatively, whether a specific milestone schedule should be incorporated into the rules which could be triggered by release of licenses and a separate Public Notice or Declaratory Ruling for LOI filers. For example, we would propose to issue 2 GHz MSS space station licenses and a Public Notice or Declaratory Ruling for LOI filers which have been reserved spectrum at the same time. The purpose of this procedure would be to ensure that system implementation milestones for U.S. licensed systems and LOI filers are the same. By aligning all 2 GHz MSS system milestones, we would be able to review all operators' implementation progress simultaneously and hold all operators to the same implementation deadlines. We generally seek comment on the manner in which milestones should be applied to 2 GHz MSS systems.

89. We tentatively conclude that we will impose milestones whether or not a system has obtained adequate feeder link or inter-satellite link assignments. In the past we have refrained from establishing milestones until licensees have secured access to feeder link and inter-satellite link spectrum because of the inability to complete their overall system design.<sup>190</sup> We believe, however, in the interest of promoting efficient use of limited spectrum resources that systems as a general matter should be required to assume the risk of constructing without such spectrum assignments, if necessary. We have found that applications for feeder link and inter-satellite link spectrum assignments can involve significant delay if the requested spectrum is already in use or not allotted for such use at the time of the service link authorization. It is the responsibility of the system operators to seek unencumbered feeder link and inter-satellite link spectrum. Milestones will provide an incentive for system operators to seek necessary feeder links in a reasonable time or they will risk losing service link spectrum if they are unable or unwilling to proceed with implementation of their systems. On balance, we find that the benefits of not delaying implementation of 2 GHz MSS service outweigh the burden this requirement may place on system operators to design systems in accordance with the proposed milestone rules. This proposal will also deter applicants from warehousing spectrum until such time as additional spectrum is allocated and assigned to address feeder links and inter-satellite links requirements. We seek comment on this analysis and our tentative conclusions.

90. We do not propose separate milestones for construction of in-orbit spares or for earth segment. The Commission's determination in the *Big LEO Report & Order* that prudent system operators will determine the appropriate timetable for building and launching in-orbit spares has proven correct with the implementation of at least two NGSO satellite systems.<sup>191</sup> Similarly, systems have constructed ground segments, e.g., gateways, as satellites are launched without the need for separate milestones. Although ground segment construction would appear to be a relevant indication of system progress, we seek comment on whether satellite construction and launch milestones will adequately address warehousing concerns, making separate milestones for in-orbit spares and ground segment facilities unnecessary.

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<sup>190</sup> See *Big LEO Report & Order*, 9 FCC Rcd at 5998 ¶ 166. We permitted Big LEO applicants to request issuance of licenses with conditional feeder link frequencies or no feeder link grant due to the feeder link spectrum shortage and on-going international efforts to obtain additional feeder link spectrum. See also, e.g., *KaStar Satellite Communications Corp.*, Order and Authorization, 13 FCC Rcd 1366, 1374-75 ¶ 24 (Int'l Bur. 1997) (because inter-satellite link spectrum not allocated internationally or domestically at time of grant, and inability of licensee to construct system until such grant, system milestones held in abeyance until inter-satellite link spectrum available).

<sup>191</sup> See *Big LEO Report & Order*, 9 FCC Rcd at 6009 ¶ 190. Globalstar and Iridium are successfully following this policy.

#### 4. Reporting Requirements

91. In this proceeding, we propose to apply to 2 GHz MSS the Commission's Part 25 reporting requirements, which are currently applicable to satellite systems in other services.<sup>192</sup> Pursuant to our reporting requirements, system operators must file annual reports describing satellite system implementation, anticipated launch dates, system utilization, and system outages or malfunctions. The annual reports are also used to determine appropriate annual regulatory fees for each system. We propose to apply this requirement for 2 GHz MSS operators because they have proven effective for monitoring implementation compliance and operations with a minimum of regulatory burden on the licensees. We propose to amend the current Big LEO rule that requires licensees to submit the annual report by June 30th each year<sup>193</sup> to require submission of the annual reports through the Commission's fiscal year-end by October 10th. Annual reports with information up to September 30th will provide the Commission and licensees with timely information for determining annual regulatory fees.<sup>194</sup> We seek comment on these proposals.

92. We propose to apply to 2 GHz MSS operators the requirement that systems file affidavits certifying whether milestone requirements are met following the appropriate milestone deadlines.<sup>195</sup> The Commission would retain the right to request additional information (*e.g.*, copies of construction contracts), as required, to ensure compliance with milestones. Finally, as in other services, we propose to allow parties to request confidential treatment for any portion of an annual report pursuant to Section 0.459 of the Commission's rules.<sup>196</sup> We seek comment on these proposals.

#### 5. Distress and Safety Communications and Enhanced 9-1-1

93. Many of the 2 GHz MSS systems proposed would be capable of providing distress and safety communications services. Specifically, in addition to voice and data services, several of the applicants propose position determination features. While 2 GHz MSS systems cannot be used in place of distress beacons, such as temporary locator transmitters which are required to be carried by passenger ships and certain cargo ships by international agreement and statute,<sup>197</sup> 2 GHz MSS operators, like Big LEO operators, will have certain statutory obligations, as described below, related to maritime distress communications. In the *Big LEO Report & Order*, the Commission stated that, although the Big LEO applicants did not have plans for extensive distress and safety service, because their systems were capable of carrying such services, the licensees would have to meet certain statutory obligations. For instance,

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<sup>192</sup> See, *e.g.*, 47 C.F.R. §§ 25.210(j) (fixed-satellite service reporting requirements), 25.142(c) (NVNG MSS satellite service reporting requirements), 25.143(e) (Big LEO reporting requirements).

<sup>193</sup> *Id.*

<sup>194</sup> These fees are now assessed based on system status as of September 30. The Commission does not currently have statutory authority to assess annual regulatory fees in connection with non-licensed systems.

<sup>195</sup> 47 C.F.R. § 25.143(e)(2). This requirement currently applies to Big LEO operators.

<sup>196</sup> 47 C.F.R. § 0.459.

<sup>197</sup> Compulsory equipment carriage requirements are established in portions of the Commission's rules as well as by statute. See, *e.g.*, 47 C.F.R. §§ 80.801, *et seq.*; Ch. IV, International Convention on the Safety of Life at Sea, 32 U.S.T. 47, T.I.A.S. 9700 (1974).

the Communications Act requires licensees operating within the territorial waters of the U.S. to give priority to radio communications or signals relating to ships in distress and to cease transmitting on frequencies that will interfere with distress signals.<sup>198</sup> The Communications Act also requires that stations on board ships must transmit to other ships in the vicinity and to authorities on land information concerning severe weather conditions or dangerous ice.<sup>199</sup> The Communications Act prohibits licensees from charging a fee for the transmission of maritime distress calls and related traffic.<sup>200</sup> The Commission stated in the *Big LEO Report & Order* that it expected any satellite licensee that chose to offer emergency or safety communications to coordinate with the appropriate safety and rescue organizations.<sup>201</sup> The Commission codified these requirements for Big LEO licensees at Section 25.143(f).<sup>202</sup> We tentatively conclude, that because the services being proposed by 2 GHz MSS systems are similar to those proposed by Big LEO licensees, the distress and safety rules adopted for Big LEO licensees should also be adopted for 2 GHz MSS systems. We request comment on this tentative conclusion.

94. In the *Big LEO Report & Order*, the Commission also considered and denied requests that Big LEO operators be required to provide caller ID, standardized position information and automatic routing for distress and safety communications or disaster response communications, stating that it would address the issue in a separate rulemaking on enhanced 9-1-1.<sup>203</sup> In the *E911 Report & Order*<sup>204</sup> on enhanced 9-1-1 capability,<sup>205</sup> the Commission determined that because MSS was still in the early development stages and facing more technological and international hurdles than terrestrial carriers, it would not impose any obligation to provide enhanced 9-1-1 at that time.<sup>206</sup> The Commission, however, stated that it expected mobile satellite operators to incorporate enhanced 9-1-1 features<sup>207</sup> in future systems

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<sup>198</sup> 47 U.S.C. § 321(b); *Big LEO Report & Order*, 9 FCC Rcd at 6010-11 ¶ 196.

<sup>199</sup> 47 U.S.C. § 359.

<sup>200</sup> 47 U.S.C. § 359(d).

<sup>201</sup> The Commission explained that Big LEO operators providing safety and rescue services should coordinate with the Interagency Committee on Search and Rescue (ICSAR) and all other similar domestic and international search and rescue organizations. *Big LEO Report & Order*, 9 FCC Rcd at 6013 ¶ 200.

<sup>202</sup> 47 C.F.R. § 25.143(f).

<sup>203</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6012-13 ¶ 199.

<sup>204</sup> *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Report and Order and Further Notice of Proposed Rulemaking, 11 FCC Rcd 18676 (1996) (*E911 Report & Order*).

<sup>205</sup> Enhanced 9-1-1 services are designed to speed delivery and processing of 911 calls to the appropriate emergency response personnel by accurately determining the caller's location.

<sup>206</sup> *E911 Report & Order*, 11 FCC Rcd at 18718 ¶ 83.

<sup>207</sup> In the *E911 Report & Order*, the Commission required the implementation of enhanced features in two phases. Phase I required covered carriers, beginning April 1, 1998, to be able to provide automatic number identification (ANI) and cell site information for 9-1-1 calls to public safety answering points (PSAPs). Phase II, to be effective October 1, 2001, requires covered carriers to identify the location of mobile units making 9-1-1 calls within an accuracy of 125 meters using a root mean square (RMS) calculation. The enhanced 9-1-1 requirements

as they are deployed.<sup>208</sup> We now seek comment on whether 2 GHz MSS systems, particularly those at an early stage of development, should be required to implement their systems with enhanced 9-1-1 capabilities. Since four of the 2 GHz MSS applicants are Big LEO licensees proposing essentially second generation or expansion systems, it appears appropriate to consider whether enhanced 9-1-1 capabilities should be incorporated into these expansion systems. Moreover, several of the 2 GHz MSS applicants are proposing systems that complement terrestrial wireless communications networks, which are required to provide enhanced 9-1-1 capabilities. We seek comment, therefore, as to whether we should require 2 GHz MSS operators to provide a seamless network with similar emergency services as terrestrial systems for users. We also seek comment on what technological and practical challenges implementation of this requirement presents for global systems. Specifically, how would the accuracy location requirement of Phase I be applied, or would only a Phase II-type requirement be more appropriate or practicable, for MSS systems? If coordinates are to be provided, can the 125-meter RMS standard applicable to terrestrial systems be used or should a different criterion be established for MSS systems? Can automatic number identification (ANI) be provided by MSS systems? What methods are available for routing enhanced 9-1-1 calls on MSS systems to the appropriate PSAP? We also seek comment on the appropriate timetable for Phase I and Phase II implementation by MSS systems.

## 6. Service to Unserved Communities

95. Satellites are an excellent technology for delivering both basic and advanced telecommunication services to unserved, rural, insular or economically isolated areas, including Native American communities, Alaska, Hawaii, and Puerto Rico, and U.S. territories and possessions such as communities within the U.S. Virgin Islands, Guam and American Samoa.<sup>209</sup> Satellites may offer a cost advantage over wireline access alternatives in remote areas where a limited population may not provide the economies of scale to support the deployment of wireline or terrestrial wireless networks. The basic build-out required to obtain satellite service is for earth stations to transmit and receive satellite signals.<sup>210</sup> The Commission is committed to encouraging delivery of telecommunications services, including satellite services, to unserved and high-cost communities and seeking to develop cost-effective incentives for such services. Once authorized, many of the 2 GHz MSS systems will be capable of providing voice and data communications to these communities. We seek guidance from commenters as to any policies or rules we could implement (or forebear from) to encourage 2 GHz MSS service to those areas. For example, we seek comment on whether one criterion for resolution of expansion band coordination disputes should be whether a licensee is providing service to unserved areas,<sup>211</sup> or whether licensees should be granted

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apply only if the carrier receives a request for such services from a PSAP capable of receiving and using the service and if a mechanism for the recovery of the costs relating to provision of such services is in place.

<sup>208</sup> *Id.*, *aff'd on recon.*, *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, CC Docket No. 94-102, Memorandum Opinion and Order, 12 FCC Rcd 22665, 22706-08 ¶¶ 87-89 (1997).

<sup>209</sup> *See Federal-State Joint Board on Universal Service*, CC Docket No. 96-45, Second Recommended Decision, FCC 98J-7, at ¶ 55 (rel. November 25, 1998).

<sup>210</sup> We note that American Mobile Satellite Corporation, a GSO MSS licensee, is providing service to a police force in the Navajo Nation and to the remote community of Tortilla Flat, Arizona, and that General Communications, Inc., an earth station operator, provides voice and private line services to fifty rural Alaskan Bush communities.

<sup>211</sup> *See* Section III.A.4.a., *supra*.

extension of system implementation milestones if they will provide service to unserved communities.<sup>212</sup> We note that we have not adopted such policies or rules for Big LEO licensees or other MSS providers. We seek comment on how this fact, and our commitment to competitive neutrality in our rules,<sup>213</sup> could affect whether or not we should pursue, in a separate proceeding, adopting similar policies or rules for unserved areas for Big LEO and other satellite licensees.

## 7. Trafficking

96. The Commission adopted an anti-trafficking rule to govern the transfer of Big LEO licenses that were not obtained through competitive bidding.<sup>214</sup> The purpose of this rule is to prevent unjust enrichment of those who would obtain a license for speculation only and that have not made concrete progress toward system implementation.<sup>215</sup> We seek comment on whether to adopt an anti-trafficking rule for 2 GHz MSS licensees. If adopted, an anti-trafficking rule would not be intended to prevent debt or equity transactions, but rather to ensure that licensees were not selling bare licenses for profit. An anti-trafficking rule could permit firms to combine operations or sell operating facilities, including their licenses, subject to Commission approval. We seek comment on whether, if adopted, an anti-trafficking rule should be limited to licensees, and not apply to foreign systems for which a spectrum reservation has been made and how we would retain the discretion to address any concerns in connection with spectrum reservations for foreign-licensed satellites, should such concerns arise. We propose not to apply an anti-trafficking rule if competitive bidding is adopted here. We request comment on this proposal.

## 8. Orbital Debris Mitigation

97. In 1995, the White House Office of Science and Technology Policy issued an *Interagency Report on Orbital Debris*.<sup>216</sup> That report recommended, among other things, that NASA and other U.S. Federal government agencies conduct a focused study of debris and emerging LEO systems, including identifying possible measures for debris mitigation. It also recommended that NASA and the Department of Defense (DoD) jointly develop draft design guidelines for debris mitigation, with a goal of developing government/industry guidelines that both sectors could use in the design and development of future systems.

98. Following these recommendations, NASA and DoD have developed a set of draft debris mitigation practices.<sup>217</sup> These practices focus on four objectives:

- a. Control of Debris Released During Normal Operations -- Programs and projects will assess and limit the amount of debris released in a planned manner during normal operations.

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<sup>212</sup> See Section III.C.3., *supra*.

<sup>213</sup> See, e.g., *DISCO II Order*, 12 FCC Rcd at 24168 ¶ 173.

<sup>214</sup> 47 C.F.R. § 25.143(g).

<sup>215</sup> Cf. 47 U.S.C. § 309(j)(3)(c).

<sup>216</sup> Office of Science and Technology Policy, *Interagency Report on Orbital Debris* (November 1995).

<sup>217</sup> Attached as Appendix C.

b. Minimizing Debris Generated by Accidental Explosion -- Programs and projects will assess and limit the probability of accidental explosion during and after completion of mission operations.

c. Selection of Safe Flight Profile and Operational Configuration -- Programs and projects will assess and limit the probability of operating space systems becoming a source of debris by collisions with man-made objects or meteoroids.

d. Post-mission Disposal of Space Structures -- Programs and projects will plan for, consistent with mission requirements, cost effective disposal procedures for launch vehicle components, upper stages, spacecraft, and other payloads at the end of mission life to minimize impact on future space operations.

99. NASA and other U.S. Federal government agencies require that, for space missions under their control, new missions and projects be designed with these practices in mind. In addition, the Departments of Transportation and Commerce have adopted or proposed to adopt regulatory provisions for commercial operations implementing some elements of these practices.<sup>218</sup>

100. As a general matter, many of these practices already have been adopted by satellite system operators, since they facilitate satellite system reliability and are thus in the economic interests of operators and their customers. However, we seek comment on whether some or all elements of these practices should be incorporated in the Commission's rules or authorization process for 2 GHz MSS systems. In particular, should we consider a rule requiring that 2 GHz mobile satellite systems serving the United States adequately provide for end-of-life disposal of the space craft, including depletion or neutralization of sources of stored energy on the spacecraft? Alternatively, should we require submission of narrative information concerning debris mitigation in connection with satellite system licensing?

101. We also seek comment on any transitional issues that may arise if new orbital debris mitigation requirements are adopted. In particular, we do not wish to require expensive redesigns for systems already at an advanced stage of development. Therefore, we tentatively conclude that any new requirements should be applied only to systems that have not passed a stage at which such requirements reasonably can be incorporated into the design, construction, or operation of the system. We seek comment on what that stage may be.

102. We also recognize that debris mitigation practices are relevant to communications satellite systems operating at frequencies other than 2 GHz. We are seeking comment on debris mitigation practices in this proceeding in order to provide 2 GHz system proponents early notice concerning factors that may be relevant to any system modifications they may undertake, either resulting from technical rules adopted in this proceeding or technological developments in the marketplace. However, it is possible that any requirements concerning debris mitigation for 2 GHz MSS systems will not become final until the Commission has completed a separate proceeding that seeks comment from all interested parties on adopting debris mitigation practices applicable to all Commission-licensed satellite systems.

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<sup>218</sup> See, e.g., *Land Remote Sensing Policy Act of 1992*, Title II, Section 202(b)(3), P.L.102-555 (licensees should, upon termination of operations, make disposition of satellites in a manner satisfactory to the President); 62 Fed. Reg. 59317 (1997) (proposing requirement for disposal at end of life of remote sensing satellites licensed by NOAA); NPRM concerning Commercial Space Transportation Licensing Regulations, 62 Fed. Reg. 13216, 13230 (March 19, 1997) (regulations for launch vehicles concerning safe flight profiles and minimizing debris from accidental explosions).

## 9. Exclusionary Arrangements

103. We propose to adopt for 2 GHz MSS providers our rule now applicable to other satellite services that prohibits exclusionary arrangements for traffic between the United States and foreign countries.<sup>219</sup> Exclusive arrangements generally take the form of an agreement between a space station operator or service provider that offers a particular satellite system as the only permissible facility through which to obtain a particular satellite service between the United States and another country. Prohibiting these type of arrangements is intended to facilitate competition by encouraging the use of multiple satellite systems in other countries and to ensure that all parties have an opportunity to provide truly global service, which also would facilitate competition in the U.S. market. For example, if a provider were not able to provide service in a particular foreign country because another entity had an exclusive arrangement there, then the provider could not offer satellite service between the United States and that country. Prior to the DISCO II decision, the Commission applied this prohibition to U.S. licensees and in the *DISCO II Order* adopted the prohibition on exclusionary arrangements for non-U.S. systems as well.<sup>220</sup> Thus, if a provider (U.S. or non-U.S.) has an exclusive arrangement, we will not authorize service by the provider between the U.S. and the country with which the provider has such an exclusive arrangement.<sup>221</sup> We have concluded that this type of rule will help ensure that markets worldwide will be open to all 2 GHz MSS operators,<sup>222</sup> subject to their system requirements and concerns related to spectrum coordination and availability. We seek comment on our intention to extend this proposal to all 2 GHz MSS systems.

### D. Mobile Earth Station Licensing

104. Next, we address licensing issues involving the earth station component of 2 GHz MSS systems. Based on the system proposals, the earth stations to be used by systems will be lightweight, typically hand-held, terminals. The Commission has adopted licensing rules for earth stations in other related services.<sup>223</sup> For example, in the *Big LEO Report & Order*, the Commission adopted a licensing

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<sup>219</sup> 47 C.F.R. § 25.143(h) (prohibition against licensing Big LEO applicants with exclusive rights to carry traffic to or from the United States); 47 C.F.R. § 25.145(e) (prohibition against licensing Ka-band applicants with exclusive rights to carry traffic to or from the United States); 47 C.F.R. § 25.142(d) (prohibition against licensing NVNG MSS applicants with exclusive rights to carry traffic to or from the United States); the *DISCO II Order* extends this policy to non-U.S. operators. *DISCO II Order*, 12 FCC Rcd at 24166 ¶ 166.

<sup>220</sup> *DISCO II Order*, 12 FCC Rcd at 24166 ¶ 166.

<sup>221</sup> As stated in the *DISCO II Order*, we recognize that certain countries may not yet have mechanisms in place by which to authorize competitive systems. In these cases, consistent with the *DISCO II Order*, we will allow non-U.S.-licensed systems to access the U.S. market but will prohibit service between the U.S. and the country with which it has the exclusive arrangement.

<sup>222</sup> A policy that prohibits exclusive agreements promotes the goal of fair and effective competition and is consistent with the WTO commitments made by the United States because it is applied equally to U.S. and non-U.S.-licensed systems. *DISCO II Order*, 12 FCC Rcd at 24165-66 ¶¶ 166-167.

<sup>223</sup> See 47 C.F.R. § 25.135 (licensing provisions for earth stations networks in the non-voice, non-geostationary mobile satellite service), § 25.136 (operating provisions for earth station networks in the 1.6/2.4 GHz mobile satellite service), § 80.51 (ship earth station licensing), §§ 80.1185 - .1189 (maritime mobile satellite service), § 87.51 (aircraft earth station commissioning).

procedure and rules for the mobile earth station segment of the Big LEO systems.<sup>224</sup> We propose to amend the Commission's rules to license 2 GHz MSS gateways and TT&C frequencies in a similar manner. We seek comment on this proposal.

105. The rules require satellite service providers to obtain blanket licenses to cover multiple user transceiver units.<sup>225</sup> The rules prohibit operation of mobile earth stations on civil aircraft, unless directly connected to the aircraft cabin communications system, require that user transceiver units obtain authorization from the space segment operator before commencing communications through space stations, and require the holder of a blanket license to assume responsibility for individual units when they are communicating with a satellite system.<sup>226</sup> These rules are designed to reduce the regulatory burden of filing for individual earth station licenses while ensuring safe and secure communications for the public and other licensees. Under the rule, the blanket license can be applied for and granted to service providers, which may or may not be the space segment licensee. The blanket license permits a service provider to manufacture and sell a specified number of user transceivers that are compatible for use with a particular Big LEO licensee's satellite system.

106. We propose to license 2 GHz MSS user transceiver units in the same manner because of the similarity of services that are proposed to be offered. The license term would be for ten years or could be longer if we adopt a longer space segment system authorization term. Requests for additional units would be treated as minor license modifications, as in the case of Big LEOs. We seek comment on these proposals and ask commenters to identify whether any different rules may be required for transceivers not currently contemplated by the Big LEO or 2 GHz system proponents.

107. We are currently considering rules to certify terminals associated with Global Mobile Personal Communications by Satellite (GMPCS) service under the procedures included in Part 2, Subsection J of our rules.<sup>227</sup> We expect that some of the 2 GHz MSS systems may be considered GMPCS systems, based on the participants' proposals. As a general matter, we anticipate certifying 2 GHz MSS terminals based on the procedures adopted in the GMPCS proceeding. We seek comment on whether there are any new technical requirements, such as position determination or out-of-band emissions limitations, that should be adopted for 2 GHz MSS terminals beyond those currently proposed or applicable. For example, should we require that 2 GHz MSS terminals be capable of operating across all portions of the 2 GHz MSS band in order to ensure flexibility in system coordination and operations? We also seek comment on whether current radiation hazard standards should apply to 2 GHz MSS terminals.<sup>228</sup>

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<sup>224</sup> *Big LEO Report & Order*, 9 FCC Rcd at 6016 ¶ 208.

<sup>225</sup> 47 C.F.R. § 25.115(d). This authorization would include authority for operation of transceivers owned by both Government and non-Government customers.

<sup>226</sup> 47 C.F.R. §§ 25.115(d), 25.136.

<sup>227</sup> *Amendment of Parts 2 and 25 to Implement Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements*, IB Docket No. 99-67, Notice of Proposed Rule Making, FCC 99-37 (rel. March 5, 1999) (*GMPCS NPRM*).

<sup>228</sup> We seek comment in Section III.F., *infra*, regarding any standards necessary for sharing between MSS terminals and stations in other services.

## E. International Coordination

108. All of the systems currently proposed will require some degree of international coordination, either on a regional or global basis. We seek comment on the approach we should undertake in international coordinations.

109. In particular, we seek comment on whether the U.S. band arrangement or, if mutual exclusivity cannot be avoided, the auction outcome, should form the basis for coordinating systems internationally. We have long recognized the desirability of internationally compatible band plans and frequency assignments, particularly for international systems. In our Big LEO proceeding, for example, we observed that global satellite systems will be more likely to succeed if individual administrations adopt complementary licensing systems.<sup>229</sup> In our Ka-Band Service Rules Proceeding, we adopted a policy of pursuing international coordination for U.S.-licensed satellite systems consistent with our domestic frequency band plans, recognizing that substantial delay can result if licensees do not conform their international plans, and instead pursue differing and irreconcilable assignments on a country-by-country basis.<sup>230</sup> Although we indicated that there would be exceptions to this general approach, we found that this general policy would ensure timely coordination and prompt provision of service.<sup>231</sup> We ask commenters to address specifically whether a similar approach is appropriate with respect to 2 GHz MSS systems.

110. Because our earlier international coordination policies were adopted prior to the *DISCO II Order*, we specifically seek comment on the effect of that decision. This 2 GHz MSS proceeding is the first one in which the Commission has developed service rules and coordination policies that will apply to a processing round involving "letters of intent" filed by non-U.S. licensed satellite systems. Therefore, unlike prior proceedings, this proceeding involves participants for which the United States is not directly responsible for international coordination. In the *DISCO II Order*, the Commission stated that the outcome of a processing round may include the designation of spectrum for use by a non-U.S. licensed system or systems.<sup>232</sup> We have not yet, however, been in a position to address the subsequent treatment of such designations in the international coordination process. We seek comment on this issue. Should designations of spectrum for non-U.S. licensed systems be conditioned in some manner on successful coordination internationally? If so, what form should those conditions take?

111. In addition, we seek comment on how any U.S. band approach or, if mutual exclusivity cannot be avoided, any auction outcome, could achieve compatibility with the spectrum planning and satellite system licensing process that already has occurred in other countries. Specifically, the European Radiocommunications Committee ("ERC") has adopted a decision concerning provision of satellite personal communications services in both the 1.6/2.4 GHz and 2 GHz ranges.<sup>233</sup> In several respects, our

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<sup>229</sup> See *Big LEO Reconsideration*, 11 FCC Rcd at 12878-79 ¶¶ 52-53.

<sup>230</sup> *Ka-band Third Report & Order*, 12 FCC Rcd at 22337 ¶¶ 67-68.

<sup>231</sup> *Id.* at 22337-38 ¶¶ 67-71.

<sup>232</sup> *DISCO II Order*, 12 FCC Rcd 24094, 24173 ¶ 185.

<sup>233</sup> See ERC Decision of 30 June 1997 on the Harmonized Use of Spectrum for Satellite Personal Communication Services (S-PCS) operating within the bands 1610-1626.5 MHz, 2483.5-2500 MHz, 1980-2010 MHz and 2170-2200 MHz, ERC/DEC/(97)03.

\proposals and the ERC band approach are complementary. However, the approaches differ in some respects. The ERC band approach was developed with a goal of accommodating systems to be brought into service by January 1, 2001. Our proposals address systems with scheduled implementation as late as 2005. We note, however, that the ERC decision includes a process for periodic review of developments in the MSS field, and contemplates further decisions to take into account system requirements beyond the year 2001. The ERC approach does not address the different regional allocations in the European region and the Americas, nor does it provide for CDMA systems in the 2 GHz range. The proposals in the instant proceeding do. Further compatibility of U.S. and European plans could benefit the public by speeding rapid implementation of these services. We seek comment on any implications of our proposals with respect to the ERC approach.

#### F. Interservice Sharing

112. In the *2 GHz MSS Allocation Order*,<sup>234</sup> the Commission found that incumbents affected by new 2 GHz MSS systems would be treated in accordance with our *Emerging Technologies* policies.<sup>235</sup> In particular, the Commission concluded that MSS and Broadcast Auxiliary Service (BAS) could not share spectrum without unacceptable mutual interference. The Commission, therefore, determined that it is necessary to relocate BAS in order to accommodate MSS in the 1990-2025 MHz band. The Commission also concluded that it would provide for MSS sharing with, and any necessary relocation of, Fixed Services (FS). The Commission decided that MSS cannot begin operations in the 2165-2200 MHz band until that spectrum is cleared of all FS licensees who would receive harmful interference from MSS licensees, but that MSS licensees will not be required to relocate any FS incumbent with whom they can successfully share spectrum.<sup>236</sup>

113. We find that the scope of the *2 GHz MSS Allocation Order* is sufficiently comprehensive to address adequately MSS/BAS and MSS/FS sharing issues. We, therefore, see no need for additional proposals in this area. Commenters are free, however, to address MSS/BAS and/or MSS/FS in-band sharing issues, particularly insofar as they may affect our choice of assignment methods in this proceeding. For example, does any particular licensing method provide greater flexibility for systems to address interservice sharing issues?

114. Satellite licensees are required to suppress out-of-band and spurious emissions<sup>237</sup> from the space and earth stations to the level specified in Section 25.202(f) of the Commission's Rules. We expect MSS operators to meet this requirement by employing a variety of spectral shaping, coding, modulation

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<sup>234</sup> See *2 GHz MSS Allocation Order*, 12 FCC Rcd 7388.

<sup>235</sup> See *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, ET Docket No. 92-9, First Report and Order and Third Notice of Proposed Rule Making, 7 FCC Rcd 6886 (1992); Second Report and Order, 8 FCC Rcd 6495 (1993); Third Report and Order and Memorandum Opinion and Order, 8 FCC Rcd 6589 (1993); Memorandum Opinion and Order, 9 FCC Rcd 1943 (1994); Second Memorandum Opinion and Order, 9 FCC Rcd 7797 (1994), *aff'd*, *Association of Public Safety Communications Officials-Int'l Inc. v. FCC*, 76 F.3d 395 (D.C. Cir. 1996) (*Emerging Technologies*).

<sup>236</sup> See *2 GHz MSS Allocation Order*, 12 FCC Rcd at 7406-07 ¶¶ 42-43.

<sup>237</sup> Out-of-band emissions are transmissions on a frequency or frequencies immediately outside the necessary bandwidth that result from the modulation process. Spurious emissions exclude out-of-band emissions and may be reduced without affecting the corresponding transmission of information.

and filtering techniques in mitigating out-of-band emissions. We propose to apply the domestic out-of-band emission limits in Section 25.202(f) to all 2 GHz MSS systems operating in the United States to protect existing services in the adjacent bands and seek comment on this proposal.

115. We also seek comment concerning potential adjacent band interference between 2 GHz MSS space systems and U.S. Government space systems in the Space Research, Earth Exploration Satellite and Space Operations services operating in the 2025-2110 MHz and 2200-2290 MHz bands. Concerning the 2025-2110 MHz band, we note that in the *2 GHz MSS Allocation Order*, the Commission proposed to grant co-primary status to the Government space operations (Earth-to-space and space-to space), Earth-exploration satellite (Earth-to-space and space-to space), and space research (Earth-to-space and space-to space) services in the 2025-2110 MHz band.<sup>238</sup> Given the nature of U.S. Government operations in the 2025-2110 MHz band (transmit power measured in kilowatts, high-gain antennas, etc.) we seek comment on whether any additional requirements are necessary to facilitate compatible adjacent band operations between 2 GHz MSS systems' service links and U.S. Government space systems' operations. Concerning the 2200-2290 MHz band, the band is primarily used for U.S. Government Space Research, Earth Exploration Satellite and Space Operations space systems' downlinks. These systems use high-gain receive Earth stations that may be susceptible to interference from out-of-band emissions from MSS systems' downlinks in the 2165-2200 MHz band. Hence, we also seek comment on whether any additional requirements are necessary to facilitate compatible adjacent band operations between 2 GHz MSS systems and U.S. Government space systems operating in the 2200-2290 MHz band.

116. We also propose to adopt additional requirements in order to protect certain aeronautical radionavigation operations and to facilitate GMPCS certification of 2 GHz MSS mobile earth terminal equipment. By way of background, in response to a petition from the National Telecommunications and Information Administration, we proposed in the recently-released *GMPCS NPRM* to impose certain limits on out-of-band emissions from MSS terminals transmitting in the L Band in order to protect aircraft reception of aeronautical radionavigation signals.<sup>239</sup> The principal requirements we proposed were that such terminals must meet a -70 dBW/MHz limit on wideband e.i.r.p. density of emissions in the 1559-1605 MHz band and a -80 dBW e.i.r.p. limit on narrowband spurs in that band as of January 1, 2005.<sup>240</sup> We also invited comments on a proposal to require suppression of out-of-band emissions from Big LEO MSS terminals to -10 dBW/MHz at 1610 MHz and to a level between 1605 and 1610 MHz determined by linear interpolation.<sup>241</sup> We said in the *GMPCS NPRM* that we would decide in the context of this proceeding whether to adopt analogous requirements for 2 GHz MSS systems.<sup>242</sup> We see no reason to adopt a different standard for 2 GHz MSS terminals with respect to suppression of emissions to protect aeronautical navigation than we have proposed for L Band terminals. We also note that ITU Radiocommunications Sector ("ITU-R") Assembly adopted a recommendation for licensing administrations concerning regulatory limits on out-of-band emissions from MSS terminals licensed for transmission to

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<sup>238</sup> See *2 GHz MSS Allocation Order*, 12 FCC Rcd at 7406-07 ¶ 34. See also 47 C.F.R. § 2.106 & nn. US90, US111, US219, US222. In the 2025-2035 MHz band, the Government currently transmits or plans to transmit from a limited number of earth stations to satellites, including TDRSS, QUICKSAT, GOES and NOAA/TIROS.

<sup>239</sup> See *GMPCS NPRM*, FCC 99-37, at ¶¶ 61-62.

<sup>240</sup> *Id.* at ¶ 62.

<sup>241</sup> *Id.* at ¶ 83.

<sup>242</sup> *Id.* at ¶¶ 94-96.

non-geostationary satellites in frequency bands between 1 and 3 GHz.<sup>243</sup> Similar limits were adopted by the European Testing and Standards Institute ("ETSI") and apply to GSO and NGSO Mobile Earth Stations.<sup>244</sup> We therefore seek comment on whether any additional provisions may be appropriate or needed concerning unwanted emissions.

117. We specifically seek comment on the relationship between multipoint distribution service (MDS) operations at 2150-2165 MHz band and MSS downlink operations at 2165-2200 MHz. In response to the *2 GHz MSS PN*, Wireless Cable Association International, Inc. (WCA) expressed concern that there may be potential for out-of-band emission interference into MSS downlinks at 2165-2200 MHz from MDS operations.<sup>245</sup> WCA asserts that MSS receivers could be interference prone if not properly designed, lacking sufficient selectivity to avoid interference from MDS facilities.

118. We addressed a similar adjacent band interference issue in the Big LEO proceeding.<sup>246</sup> In that case, we found no significant threat of harmful interference to MSS receivers operating at 2483.5-2500 MHz from ITFS/MDS operations above 2500 MHz.<sup>247</sup> The current record, however, is insufficient for us to reach a conclusion in the case of MDS operations in the 2150-2165 MHz band. We therefore request commenters to reassess, with respect to the 2150-2165/2165-2200 MHz bands the interference potential from MDS operations. We specifically seek comment on any economic and technical tradeoffs involved, taking into account technological advancements in MSS receiver design, the possibility of assigning the 2165-2170 MHz band to GSO MSS systems' downlink, ITFS/MDS conversion from analog to digital technology and any improvements in ITFS/MDS transmitter design, and any other relevant developments.

119. We also seek comment on whether current out-of-band limits and technical requirements for systems, other than ITFS/MDS, in adjacent bands are sufficient to protect 2 GHz MSS operations from harmful interference.

#### IV. CONCLUSION

120. This *Notice* is intended to open the way for rapid deployment of 2 GHz mobile satellite services in the United States by quickly establishing service and technical rules based on the public interest. We anticipate that these MSS systems, once authorized, will provide additional competition and, in some cases additional seamless world-wide capacity, for MSS providers and terrestrial systems. We have put forward several innovative options for assigning spectrum, including methods that would provide incentives for system operators to initiate service as quickly as possible while providing enough certainty to encourage investment in the proposed systems. We have also proposed applying the system service rules equally to U.S.-licensed and non-U.S.-licensed systems with strict milestones for implementing

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<sup>243</sup> Recommendation ITU-R M.1343, *Essential technical requirements of mobile Earth Stations for Global Non-geostationary Mobile Satellite Service Systems in the Bands 1-3 GHz*.

<sup>244</sup> ETSI TBR-42.

<sup>245</sup> See Comments of WCA at 3 (filed May 4, 1998).

<sup>246</sup> See *Big LEO Report & Order*, 9 FCC Rcd at 5996 ¶ 158.

<sup>247</sup> *Id.*

service to ensure that spectrum is not warehoused. We have made our proposals flexible enough to accommodate the divergent satellite and radio communications technologies envisioned by the 2 GHz MSS system proponents without preferring one technology or service over another. We seek to encourage development of communications on a national and global basis and request comment on methods for creating incentives for 2 GHz MSS system operators to provide service to underdeveloped areas in the United States and globally. We seek comment on all our proposals and any other suggestions commenters may have in this proceeding.

## V. PROCEDURAL MATTERS

### A. *Ex Parte* Presentations

121. This is a permit-but-disclose notice and comment rulemaking proceeding under Section 1.1200 of the Commission's rules. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided that they are disclosed as provided in the Commission's rules. *See generally* 47 C.F.R. §§ 1.1202, 1.1203, 1.1206.

### B. Initial Regulatory Flexibility Analysis

122. As required by the Regulatory Flexibility Act (RFA),<sup>248</sup> the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band provided below in paragraph D of this Section. The Commission will send a copy of the Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). In addition, the Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band and IRFA (or summaries thereof) will be published in the Federal Register. *See id.* Pursuant to the Regulatory Flexibility Act of 1990, 5 U.S.C. §§ 601–612 (RFA), as amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847, the Commission's Initial Regulatory Flexibility Analysis with respect to this Notice of Proposed Rulemaking is as follows:

**1. Need for and Objectives of the Proposed Rule:** This Notice of Proposed Rulemaking (*Notice*) seeks comment on various proposals for creating a spectrum assignment approach that would accommodate all proposed 2 GHz MSS systems and provide service to consumers as quickly as possible. This *Notice* also seeks comment on proposals for service rules to apply to 2 GHz MSS systems. These actions are necessary for the Commission to evaluate these proposals and seek comment from the public on any other alternatives. The objective of this proceeding is to assign the 2 GHz MSS spectrum in an efficient manner and create rules to ensure systems implement their proposals in a manner that serves the public interest. We believe that adoption of the proposed rules will reduce regulatory burdens and, with minimal disruption to existing permittees and licensees, result in the continued development of 2 GHz MSS and other satellite services to the public.

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<sup>248</sup> *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

**2. Legal Basis:** This *Notice* is adopted pursuant to Sections 1, 4(i), 303(r), 303(v), 307, 309(a), 309(j), 310, 319(d), 321(b), 332, 359 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 303(r), 303(v), 307, 309(a), 309(j), 310, 319(d), 321(b), 332, 359 and 5 U.S.C. Section 553 of the Administrative Procedures Act.

**3. Description and Estimate of Small Entities Subject to the Rules:** The Commission has not developed a definition of small entities applicable to geostationary or non-geostationary orbit fixed-satellite or mobile satellite service operators. Therefore, the applicable definition of small entity is the definition under the Small Business Administration (SBA) rules applicable to Communications Services, Not Elsewhere Classified. This definition provides that a small entity is one with \$11.0 million or less in annual receipts.<sup>249</sup> According to Census Bureau data, there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified which could potentially fall into the 2 GHz MSS category. Of those, approximately 775 reported annual receipts of \$11 million or less and qualify as small entities.<sup>250</sup> The rules proposed in this *Notice* apply only to entities providing 2 GHz mobile satellite service. Small businesses may not have the financial ability to become 2 GHz MSS system operators because of the high implementation costs associated with satellite systems and services. At least one of the 2 GHz MSS applicants may be considered a small business at this time. We expect, however, that by the time of implementation it will no longer be considered a small business due to the capital requirements for launching and operating its proposed system. Since there is limited spectrum and orbital resources available for assignment, we estimate that no more than 9 entities will be approved by the Commission as operators providing these services. Therefore, because of the high implementation costs and the limited spectrum resources, we do not believe that small entities will be impacted by this rulemaking to a great extent.

**4. Reporting, Recordkeeping, and Other Compliance Requirements:** The proposed action in this *Notice* would affect those entities applying for 2 GHz MSS space station and earth station authorizations and those applying to participate in assignment of 2 GHz MSS spectrum. In the case where there is not any mutual exclusivity, applicants will be required to follow the streamlined application procedures of Part 25 for space and earth station licenses by submitting the information required by Form 312, where applicable. In the case where there is mutual exclusivity between applicants for authorizations and spectrum reservations in the case of letter of intent filers, the competitive bidding rules of Part 1 will be used to determine the licensee and/or spectrum designee. If auctions are required, applicants and letter of intent filers will have to comply with the requirement to file a short-form (FCC Form 175). Completion of short-form FCC Form 175 to participate in an auction is not estimated to be a significant economic burden for these entities. The action proposed will also affect auction winners in that it will require them to submit a long Form 312 application for authorization. Submission of Form 312 will be required by all 2 GHz MSS applicants and letter of intent filers whether selected through the competitive bidding process or not.

**5. Federal Rules that Overlap, Duplicate or Conflict with These Proposed Requirements:** None. One of the main objectives of the *Notice* is to eliminate any existing overlap or duplication of rules between the 2 GHz MSS and other satellite services.

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<sup>249</sup> 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4899.

<sup>250</sup> U.S. Bureau of Census, U.S. Department of Commerce, 1992 Census of Transportation, Communications, Utilities, UC92-S-1, Subject Series, Establishment and Firm Size, Table 2D, Employment Size of Firms: 1992, SIC Code 4899 (issued May 1995).

**6. Steps Taken to Minimize Significant Economic Impact on Small Entities and Significant Alternatives Considered:** In developing the proposals contained in this *Notice*, we have attempted to minimize the burdens on all entities in order to allow maximum participation in the 2 GHz MSS market while achieving our other objectives. We seek comment on the impact of our proposals on small entities and on any possible alternatives that could minimize the impact of our rules on small entities. In particular, we seek comment on alternatives to the reporting, recordkeeping, and other compliance requirements discussed above. Written comments are requested on this Initial Regulatory Flexibility Analysis. These comments must be filed in accordance with the same filing deadlines set for comments on the other issues in this Notice of Proposed Rulemaking, but they must have a separate and distinct heading designating them as responses to the Regulatory Flexibility Analysis. The Secretary shall send a copy of this Notice to the Chief Counsel for Advocacy of the Small Business Administration in accordance with Section 603(a) of the Regulatory Flexibility Act.

### C. Initial Paperwork Reduction Act of 1995 Analysis

123. This Notice of Proposed Rulemaking contains either a proposed or a modified information collection. As part of our continuing effort to reduce paperwork burdens, we invite the general public and the Office of Management and Budget (OMB) to comment on the information collections contained in this Notice, as required by the Paperwork Reduction Act of 1995, Pub. L. No. 104-13. Public and agency comments are due on or before June 24, 1999. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology.

### D. Comment Filing Procedures

124. Pursuant to Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on or before **June 24, 1999**, and reply comments on or before **July 26, 1999**. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies. See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 Fed. Reg. 24,121 (1998).

125. Comments filed through the ECFS can be sent as an electronic file via the Internet to <<http://www.fcc.gov/e-file/ecfs.html>>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to [ecfs@fcc.gov](mailto:ecfs@fcc.gov), and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply.

126. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appear in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to the Commission's Secretary, Magalie Roman Salas, Office of the Secretary, Federal Communications Commission, 445 Twelfth Street, S.W.; TW-A325; Washington, D.C. 20554.

127. Parties who chose to file by paper should also submit their comments on diskette. These diskettes should be submitted to: Christopher J. Murphy, International Bureau, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554. Such a submission should be on a 3.5 inch diskette formatted in an IBM compatible format using WordPerfect 5.1 for Windows or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labelled with the commenter's name, proceeding (including the lead docket number in this case (IB Docket No. 99-81), type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette. The label should also include the following phrase "Disk Copy - Not an Original." Each diskette should contain only one party's pleadings, preferably in a single electronic file. In addition, commenters must send diskette copies to the Commission's copy contractor, International Transcription Service, Inc., 1231 20th Street, N.W., Washington, D.C. 20037.

## VI. ORDERING CLAUSES

128. Accordingly, IT IS ORDERED that the Petition for Expedited Rulemaking filed by ICO Services Limited IS GRANTED in part to the extent described above and IS DENIED in all other respects.

129. IT IS FURTHER ORDERED that, pursuant to the authority contained in Sections 1, 4(i), 303(r), 303(v), 307, 309(a), and 310 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 303(r), 303(v), 307, 309(a), 310, 319(d), 332 this NOTICE IS HEREBY GIVEN of our intent to adopt the policies set forth in this Notice and that COMMENT IS SOUGHT on all proposals in this Notice.

130. IT IS ORDERED that the Office of Public Affairs, Reference Operations Division, shall send a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with Section 603(a) of the Regulatory Flexibility Act, 5 U.S.C. §§ 601 *et. seq.* (1981).

FEDERAL COMMUNICATIONS COMMISSION



Magalie Roman Salas  
Secretary

## Appendix A

## Service Link Spectrum Allocations for 2 GHz MSS

Uplink Frequencies	Global: 1980-2010 MHz	United States: 1990-2025 MHz
Downlink Frequencies	Global: 2170-2200 MHz	United States: 2165-2200 MHz

Applicants' Proposals<sup>1</sup>

Applicant	Service Link Spectrum Request	System	Technology
Boeing	uplink: 8.25 MHz at 1990-1998.25 MHz downlink: 8.85 MHz in 2170-2185 MHz <sup>2</sup>	16 NGSO	CDMA
Celsat	uplink: 25 MHz in 1990-2025 MHz downlink: 25 MHz in 2165-2200 MHz	1 GSO	TDMA/ CDMA <sup>3</sup>
Constellation II	uplink: 45 MHz at 1980-2025 MHz downlink: 35 MHz at 2165-2200 MHz	46 NGSO	CDMA
Globalstar	uplink: 35 MHz at 1990-2025 MHz downlink: 35 MHz at 2165-2200 MHz	4 GSO; 64 NGSO	TDMA/ CDMA <sup>3</sup>
ICO	uplink: 30 MHz at 1985-2015 MHz downlink: 30 MHz at 2170-2200 MHz	10-12 NGSO	TDMA
Inmarsat Horizons	uplink: 45 MHz at 1980-2025 MHz downlink: 40 MHz at 2160-2200 MHz	4 GSO	TDMA
Iridium Macrocell	uplink: 35 MHz at 1990-2025 MHz downlink: 35 MHz at 2165-2200 MHz	96 NGSO	TDMA/ CDMA <sup>3</sup>
MCHI Ellipso 2G	uplink: 35 MHz at 1990-2025 MHz downlink: 35 MHz at 2165-2200 MHz	26 NGSO	CDMA
TMI Cansat-M3	uplink: 35 MHz at 1990-2025 MHz downlink: 35 MHz at 2165-2200 MHz	1 GSO	TDMA/ CDMA <sup>3</sup>

<sup>1</sup> We intend to consider proposals only to the extent they are within the U.S. 2 GHz MSS frequency allocation.

<sup>2</sup> The differential between Boeing's uplink and downlink requests reflects Boeing's proposed Traffic Information Service that would utilize 600 kHz of TDMA downlink spectrum.

<sup>3</sup> Iridium, Globalstar, TMI and Celsat propose to use both TDMA and CDMA technologies in this proceeding.

**Appendix B - FLEXIBLE BAND ARRANGEMENT**

<b>TDMA NGSO Core Spectrum</b>	<b>Expansion Spectrum for TDMA NGSO and CDMA Systems</b>	<b>CDMA Core Spectrum</b>	<b>Expansion Spectrum for CDMA and TDMA GSO Systems</b>	<b>TDMA GSO Core Spectrum</b>
1990.00	1995.00	2001.25	2013.75	2020.00
				2025.00

**UPLINK FLEXIBLE BAND ARRANGEMENT**

<b>TDMA GSO Core Spectrum</b>	<b>Expansion Spectrum for TDMA GSO and CDMA Systems</b>	<b>CDMA Core Spectrum</b>	<b>Expansion Spectrum for CDMA and TDMA NGSO Systems</b>	<b>TDMA NGSO Core Spectrum</b>
2165.00	2170.00	2176.25	2188.75	2195.00
				2200.00

**DOWNLINK FLEXIBLE BAND ARRANGEMENT**

**APPENDIX C****DRAFT  
U.S. Government/Industry  
Orbital Debris Mitigation Practices****OBJECTIVE****1. CONTROL OF DEBRIS RELEASED DURING NORMAL OPERATIONS**

Programs and projects will assess and limit the amount of debris released in a planned manner during normal operations.

**GUIDELINES**

- 1-1. *In all operational orbit regimes:* Spacecraft and upper stages should be designed to eliminate or minimize debris released during normal operations. Each instance of planned release of debris larger than 5 mm in any dimension that remains on orbit for more than 25 years should be evaluated and justified on the basis of cost effectiveness and mission requirements.

**OBJECTIVE****2. MINIMIZING DEBRIS GENERATED BY ACCIDENTAL EXPLOSIONS**

Programs and projects will assess and limit the probability of accidental explosion during and after completion of mission operations.

**GUIDELINES**

- 2-1. *Limiting the risk to other space systems from accidental explosions during mission operations:* In developing the design of a spacecraft or upper stage, each program, via failure mode and effects analyses or equivalent analyses, should demonstrate either that there is no credible failure mode for accidental explosion, or, if such credible failure modes exist, design or operational procedures will limit the probability of the occurrence of such failure modes.
- 2-2. *Limiting the risk to other space systems from accidental explosions after completion of mission operations:* All on-board sources of stored energy of a spacecraft or upper stage should be depleted or safed when they are no longer required for mission operations or postmission disposal. Depletion should occur as soon as such an operation does not pose an unacceptable risk to the payload. Propellant depletion burns and compressed gas releases should be designed to minimize the probability of subsequent accidental collision and to minimize the impact of a subsequent accidental explosion.

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**DRAFT**  
**U.S. Government/Industry**  
**Orbital Debris Mitigation Practices**

**OBJECTIVE**

**3. SELECTION OF SAFE FLIGHT PROFILE AND OPERATIONAL CONFIGURATION**

Programs and projects will assess and limit the probability of operating space systems becoming a source of debris by collisions with man-made objects or meteoroids.

**GUIDELINES**

- 3-1. *Collision with large objects during orbital lifetime:* In developing the design and mission profile for a spacecraft or upper stage, a program will estimate and limit the probability of collision with known objects during orbital lifetime.
- 3-2. *Collision with small debris during mission operations:* Spacecraft design will consider and, consistent with cost effectiveness, limit the probability that collisions with debris smaller than 1cm diameter will cause loss of control to prevent post-mission disposal.
- 3-3. *Tether systems* will be uniquely analyzed for both intact and severed conditions.

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**DRAFT**  
**U.S. Government/Industry**  
**Orbital Debris Mitigation Practices**

**OBJECTIVE**

**4. POSTMISSION DISPOSAL OF SPACE STRUCTURES**

Programs and projects will plan for, consistent with mission requirements, cost effective disposal procedures for launch vehicle components, upper stages, spacecraft, and other payloads at the end of mission life to minimize impact on future space operations.

**GUIDELINES**

- 4-1. *Disposal for final mission orbits:* A spacecraft or upper stage may be disposed of by one of three methods:
- a. Atmospheric reentry option: Leave the structure in an orbit in which, using conservative projections for solar activity, atmospheric drag will limit the lifetime to no longer than 25 years after completion of mission. If drag enhancement devices are to be used to reduce the orbit lifetime, it should be demonstrated that such devices will significantly reduce the area-time product of the system or will not cause spacecraft or large debris to fragment if a collision occurs while the system is decaying from orbit. If a space structure is to be disposed of by reentry into the Earth's atmosphere, either the total debris casualty area for components and structural fragments surviving reentry will not exceed 8 m<sup>2</sup>, or it will be confined to a broad ocean or essentially unpopulated area.
  - b. Maneuvering to a storage orbit: At end of life the structure may be relocated to one of the following storage regimes:
    - I. Between LEO and MEO: Maneuver to an orbit with perigee altitude above 2000 km and apogee altitude below 19,700 km (500 km below semi-synchronous altitude).
    - II. Between MEO and GEO: Maneuver to an orbit with perigee altitude above 20,700 km and apogee altitude below 35,300 km (approximately 500 km above semi-synchronous altitude and 500 km below synchronous altitude).
    - III. Above GEO: Maneuver to an orbit with perigee altitude above 36,100 km (approximately 300 km above synchronous altitude).
    - IV. Heliocentric, Earth-escape: Maneuver to remove the structure from Earth orbit, into a heliocentric orbit.
- Because of fuel gauging uncertainties near the end of mission, a program should use a maneuver strategy that reduces the risk of leaving the structure near an operational orbit regime.
- c. Direct retrieval: Retrieve the structure and remove it from orbit as soon as practical after completion of mission.
- 4-2. *Tether systems* will be uniquely analyzed for both intact and severed conditions when performing trade-offs between alternative disposal strategies.

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## APPENDIX D

## Proposed Rule Changes to 47 C.F.R. Part 25 of the Commission's Rules

## Subpart B-- Applications and Licenses

Sec. 25.114 Applications for space station authorizations.

\* \* \* \* \*

(c) The following information in narrative form shall be contained in each application:

\* \* \*

(6) \* \* \*

(iii) For 1.6/2.4 and 2 GHz Mobile-Satellite Service space stations, the feeder link frequencies requested for the satellite, together with the demonstration required by Sec. 25.203 (j) and (k);

\* \* \*

(21) Applications for authorizations in the 1.6/2.4 or 2 GHz Mobile-Satellite Service shall also provide all information specified in Sec. 25.143.

\* \* \* \* \*

Sec. 25.115 Application for earth station authorizations.

\* \* \* \* \*

(d) User transceivers in the NVNG, and 1.6/2.4 and 2 GHz Mobile-Satellite Service need not be individually licensed. Service vendors may file blanket applications for transceivers units using FCC Form 312, Main Form and Schedule B, and specifying the number of units to be covered by the blanket license. Each application for a blanket license under this section shall include the information described in Sec. 25.135 6.

\* \* \* \* \*

Sec. 25.133 Period of construction; certification of commencement of operation.

\* \* \* \* \*

(b) Each license for a transmitting earth station included in this part shall also specify as a condition therein that upon the completion of construction, each licensee must file with the Commission a certification containing the following information: The name of the licensee; file number of the application; call sign of the antenna; date of the license; a certification that the facility as authorized has been completed and that each antenna facility has been tested and is within 2 dB of the pattern specified in Sec. 25.209, Sec. 25.135 (NVNG MSS earth stations), or Sec. 25.213 (1.6/2.4 and 2 GHz Mobile-Satellite Service earth stations); the date on which the station became operational; and a statement that the station will remain operational during the license period unless the license is submitted for cancellation. For stations authorized under Sec. 25.115(c) of this part (Large Networks of Small Antennas operating in the 12/14 GHz bands) and Sec. 25.115(d) of this part (User Transceivers in the Mobile-Satellite Service), a certificate must be filed when the network is put into operation.

\* \* \* \* \*

Sec. 25.136 Operating provisions for earth station networks in the 1.6/2.4 **and 2 GHz** mobile-satellite service.

In addition to the technical requirements specified in Sec. 25.213, earth stations operating in the 1.6/2.4 **or 2 GHz Mobile-Satellite Service** are subject to the following operating conditions:

(a) User transceiver units associated with the 1.6/2.4 **or 2 Mobile-Satellite service** may not be operated on civil aircraft unless the earth station has a direct physical connection to the aircraft Cabin Communication system.

~~(b) User transceiver units in this service are authorized to communicate with and through U.S. authorized space stations only.~~ No person shall transmit to a space station unless the user transceiver is first authorized by the space station ~~licensee operator~~ **operator** or by a service vendor authorized by that ~~licensee operator~~ **operator**, and the specific transmission is conducted in accordance with the operating protocol specified by the system operator.

(c) Any user transceiver unit associated with this service will be deemed, when communicating with a particular 1.6/2.4 **or 2 GHz Mobile-Satellite Service** system pursuant to paragraph (b) of this section, to be temporarily associated with and licensed to the system operator or service vendor holding the blanket earth station license awarded pursuant to Section 25.115(d). The domestic earth station licensee shall, for this temporary period, assume the same licensee responsibility for the user transceiver as if the user transceiver were regularly licensed to it.

\* \* \* \* \*

Sec. 25.137 Application requirements for earth stations operating with non-U.S. licensed space stations.

**(d) Earth station applicants requesting authority to operate with a non-U.S. licensed space station must demonstrate that the space station the applicant seeks to access has complied with all applicable Commission milestones, reporting requirements, and any other applicable service rules required for non-U.S. licensed systems to operate in the United States.**

\* \* \* \* \*

Sec. 25.143 Licensing provisions for the 1.6/2.4 **and 2 GHz** mobile-satellite service.

(a) *System License:* Applicants authorized to construct and launch a system of technically identical ~~non-geostationary satellite orbit~~ satellites will be awarded a single "blanket" license. **In the case of non-geostationary satellites, the blanket license will covering a specified number of space stations to operate in a specified number of orbital planes. In the case of geostationary satellites, as part of a geostationary-only satellite system or a geostationary/non-geostationary hybrid satellite system, an individual license will be issued for each satellite to be located at a geostationary orbital location.**

(b) *Qualification Requirements.*

(1) *General Requirements:* Each application for a space station system authorization in the 1.6/2.4 **or 2 GHz** mobile-satellite service shall describe in detail the proposed satellite system, setting forth all pertinent technical and operational aspects of the system, and the technical, legal, and financial qualifications of the applicant. In particular, each application shall include the information specified in Sec. 25.114. **Non-U.S. licensed systems shall comply with the provisions of Sec. 25.137.**

(2) *Technical Qualifications:* In addition to providing the information specified in paragraph (b)(1) of this section, each applicant **and letter of intent filer** shall demonstrate the following:

(i) That ~~the a~~ proposed system in the 1.6/2.4 GHz MSS frequency bands employs a non-geostationary constellation or constellations of satellites;

(ii) That ~~the a~~ system proposed to operate using non-geostationary satellites ~~system~~ be capable of providing mobile satellite services to all locations as far north as 70 deg. North latitude and as far south as 55 deg. South latitude for at least 75% of every 24-hour period, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5 deg. for at least 18 hours each day within the described geographic area;

(iii) That ~~the a~~ system proposed to operate using non-geostationary satellites be ~~is~~ capable of providing mobile satellite services on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands, ~~U.S.~~, i.e., that at least one satellite will be visible above the horizon at an elevation angle of at least 5 deg. at all times within the described geographic areas; and

(iv) That a system only using geostationary orbit satellites, at a minimum, be capable of providing mobile satellite services on a continuous basis throughout the 50 states, Puerto Rico, and the U.S. Virgin Islands, if technically feasible.

(iv) That operations will not cause unacceptable interference to other authorized users of the spectrum. In particular, each application in the 1.6/2.4 GHz frequency bands shall demonstrate that the space station(s) comply with the requirements specified in Sec. 25.213.

\* \* \*

(e) *Reporting requirements.* (1) All operators of 1.6/2.4 and 2 GHz mobile-satellite systems shall, on ~~June 30~~ **October 15** of each year, file with the International Bureau and the Commission's Columbia Operations Center, Columbia, Maryland, a report containing the following information current as of ~~May 31st~~ **September 30** of that year:

\* \* \*

(2) **The Commission will issue a Public Notice establishing the milestone commencement date for all 2 GHz MSS operators.** All operators of 1.6/2.4 and 2 GHz mobile-satellite systems shall, within 10 days after a required implementation milestone as specified in the system authorization, certify to the Commission by affidavit that the milestone has been met or notify the Commission by letter that it has not been met. At its discretion, the Commission may require the submission of additional information (supported by affidavit of a person or persons with knowledge thereof) to demonstrate that the milestone has been met.

(f) *Safety and distress communications.*

(1) Stations operating in the 1.6/2.4 and 2 GHz Mobile-Satellite Service that are voluntarily installed on a U.S. ship or are used to comply with any statute or regulatory equipment carriage requirements may also be subject to the requirements of sections 321(b) and 359 of the Communications Act of 1934. Licensees are advised that these provisions give priority to radio communications or signals relating to ships in distress and prohibits a charge for the transmission of maritime distress calls and related traffic.

\* \* \*

(h) *Prohibition of certain agreements.* No license shall be granted to any applicant for a space station or earth station in the mobile satellite service operating at 1610-1626.5/2483.5-2500 or 1990-2025/2165-2200 MHz if that applicant, or any persons or companies controlling or controlled by the applicant, shall acquire or enjoy any right, for the purpose of handling traffic to or from the United States, its territories or possessions, to construct or operate space segment or earth stations, or to interchange traffic, which is denied to any other United States company by reason of any concession, contract, understanding, or working arrangement to which the Licensee or any persons or companies controlling or controlled by the Licensee are parties.

\* \* \* \* \*

Sec. 25.201 Definitions.

*Mobile-Satellite Service.* A radiocommunication service:

(1) Between mobile earth stations and one or more space stations, or between space stations used by this service; or

(2) Between mobile earth stations, by means of one or more space stations.

This service may also include feeder links necessary for its operation. (RR)

*1.6/2.4 GHz Mobile-Satellite Service.* A mobile-satellite service that operates in the 1610-1626.5 MHz and 2483.5-2500 MHz frequency bands, or in any portion thereof.

*2 GHz Mobile-Satellite Service.* A mobile-satellite service that operates in the 1990-2025, MHz and 2165-2200 MHz frequency bands, or in any portion thereof.

\* \* \* \* \*

Sec. 25.202 Frequencies, frequency tolerance and emission limitations.

(a)(1) \* \* \*

<sup>2</sup> Use of this band by the fixed-satellite service, **except geostationary MSS feeder links**, is limited to international systems, i.e., other than domestic systems.

\* \* \*

(4) The following frequencies are available for use by the 1.6/2.4 GHz Mobile-Satellite Service:

1610-1626.5 MHz: User-to-Satellite Link

1613.8-1626.5 MHz: Satellite-to-User Link (secondary)

2483.5-2500 MHz: Satellite-to-User Link

(5) The following frequencies are available for use by the 2 GHz Mobile-Satellite Service:

**1990-2025 MHz: User-to-Satellite Link**

**2165-2200 MHz: Satellite-to-User Link**

(6~~5~~) The following frequencies are available for use by the inter-satellite service:

22.55-23.00 GHz

23.00-23.55 GHz

24.45-24.65 GHz

24.65-24.75 GHz

\* \* \* \* \*

Sec. 25.203 Choice of sites and frequencies.

\* \* \* \* \*

(c) Prior to the filing of his an application, an earth station applicant shall coordinate the proposed frequency usage with existing terrestrial users and with applicants for terrestrial station authorizations with previously filed applications in accordance with the following procedure:

\* \* \* \* \*

**5. A new section 25.216 is added and reads as follows:**

**Section 25.216 *Limits on Out-of-band Emissions from Terminals Operating in the 1610-1660.5 MHz and 1990-2025 MHz Bands for Protection of Aeronautical Satellite Radionavigation***

**(a) *Limits on Emissions Below 1605 MHz.***

(1) The e.i.r.p. density of emissions from mobile earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over any 20 ms interval, in the band 1559-1580.42 MHz. The e.i.r.p. of discrete spurious emissions of less than 700 Hz bandwidth generated by such terminals shall not exceed -80 dBW, averaged over 20 ms, in the band 1559-1585.42 MHz.

(2) The e.i.r.p. density of emissions from mobile earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1626.5 MHz shall not exceed -64 dBW/MHz, averaged over 20 ms, in the band 1580.42-1605 MHz. The e.i.r.p. of discrete spurious emissions of less than 700 Hz bandwidth generated by such terminals shall not exceed -74 dBW, averaged over 20 ms, in the band 1585.42-1605 MHz.

(3) The e.i.r.p. density of emissions from mobile earth terminals placed in service after January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over 20 ms, in the 1559-1605 MHz band. The e.i.r.p. of spurious emissions of less than 700 Hz bandwidth from such terminals shall not exceed -80 dBW, averaged over 20 ms, in the 1559-1605 MHz band.

(4) As of January 1, 2005 and from then on, the e.i.r.p. density of emissions from mobile Earth terminals placed in service prior to January 1, 2002 with assigned frequencies between 1610 MHz and 1660.5 MHz shall not exceed -70 dBW/MHz, averaged over 20 ms, in the 1559-1605 MHz band, and the e.i.r.p. of spurious emissions of less than 700 Hz bandwidth from such terminals shall not exceed -80 dBW, averaged over 20 ms, in that band.

(5) The e.i.r.p. density of emissions from mobile earth terminals with assigned frequencies between 1990 MHz and 2025 MHz shall not exceed -70 dBW/MHz, averaged over 20 ms, in the 1559-1605 MHz band, and the e.i.r.p. of spurious emissions of less than 700 Hz bandwidth from such terminals shall not exceed -80 dBW, averaged over 20 ms, in that band.

**(b) *Emissions Above 1605 MHz.*** Until the GLONASS operating band shifts to frequencies below 1605 MHz, harmful interference with reception of aeronautical radionavigation transmission on frequencies above 1605 MHz from mobile Earth terminals with assigned transmission frequencies between 1610 MHz and 1660.5 MHz or between 1990 MHz and 2025 MHz will be resolved on a case-by-case basis.