

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
The Establishment of Policies and)
Service Rules for the Mobile-Satellite)
Service in the 2 GHz Band)
_____)

IB Docket No. 99-81
RM-9328

REPLY COMMENTS OF GLOBALSTAR, L.P.

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EXECUTIVE SUMMARY

The comments on the Commission's proposed band plans for the Mobile-Satellite Service at 2 GHz established no consensus among the nine applicants. However, the benefits sought by the various applicants in selecting a band plan can all be achieved through Globalstar's proposed "all shared band" arrangement. For this plan, each licensee would be required to design its system to share the entire available 2 x 35 MHz of bandwidth with all other licensed systems.

If this plan were adopted, all systems would be licensed with certain access to 2 x 35 MHz of spectrum, and no spectrum would lie fallow. International coordination could proceed because each system would be aware of its assigned spectrum. Globalstar's band plan also encourages systems to progress steadily toward launch and operation, because delay increases the complexity of coordination for later-launched systems. None of the comments has suggested reasons why any of the Commission's proposed band plans are superior to the "all shared band" plan.

The comments pointed to additional deficiencies in the band plans involving "delayed decisions" on spectrum assignments. For the negotiated entry plan, ICO Services Limited recognizes that there would need to be a dispute resolution process to determine entry into the spectrum as each system becomes operational. This procedure would ultimately delay service to the public and impose significant and avoidable costs on both licensees and the Commission.

Similarly, the flexible band plan would involve the Commission in evaluating which systems should be awarded expansion spectrum based on customer traffic data. The Commission should not become involved in such decision for these multi-billion dollar 2 GHz MSS systems. On the one hand, it may be difficult to measure fairly the differences in service among operational systems. On the other hand, such decisionmaking would not be consistent with allowing the marketplace to govern competition among 2 GHz MSS providers, and instead would require heavy-handed regulatory oversight.

The concerns of the fixed microwave service interests with respect to interference in bands shared with 2 GHz MSS feeder links should be addressed through adoption of the appropriate ITU PFD limits. The ITU has already adopted PFD limits which are designed to protect terrestrial services in bands shared with MSS feeder links, and, therefore, the Commission need not deal with interference concerns in this proceeding. The restrictions proposed by the Fixed Wireless Communications Coalition on number, siting and operation of gateway earth stations have not been justified, and, in any event, are neither necessary to protect against interference nor designed to optimize use of spectrum resources. The FWCC's proposed efficiency requirements for gateway earth stations have also not been justified, and cannot be, given the difference in system architectures between fixed microwave service and MSS systems. The Commission should reject out-of-hand the suggestion that gateway earth stations should be required to accept interference from future fixed service stations at the same level of interference

accepted from fixed service stations authorized at the time of application. Such a rule would eliminate the operational margin on which the MSS operator based coordination, and undermine the ability of the MSS system to use the spectrum for feeder links.

The Commission must also reject the suggestions of the Wireless Communications Association International. There is nothing in the record that suggests the Commission needs to adopt rules and policies to protect MSS systems from interference from Multipoint-Distribution Service systems operating at 2150-2162 MHz. The PFD limit proposed by the WCAI for space-to-earth transmissions in the 2165-2200 MHz band should be rejected because it has not been technically justified and bears no relation to the operational parameters of 2 GHz MSS systems.

The Commission should reject imposing enhanced 9-1-1 requirements of 2 GHz MSS systems at this time. MSS systems are not comparable to terrestrial wireless cellular and broadband PCS systems, and, do not yet have the capability to establish E911 services. Also, since these are global systems, the Commission should wait until an emergency call procedure has been established globally before imposing it on MSS systems. In particular, there are significant impediments to locating a caller within the 125 meter standard adopted for terrestrial wireless systems, and there is no system in place to route calls from the few MSS gateway earth stations to the more than 6200 PSAPs in the United States.

No financial qualification standard should be adopted for 2 GHz MSS applicants. There does not appear to be a need to prevent greenmailing among the existing applicants, and the ability to use greenmail can be defused by adopting the “all shared band” plan. No provision should be made for AMS(R)S in the 2 GHz MSS bands. There is no allocation for AMS(R)S in the 2 GHz bands, and there is a real threat that allowing AMS(R)S would restrict the ability of other licensees to optimize use of the bands. Systems that seek a substantial delay in commencement of implementation milestones should lose the right to coordinate with other systems that adhere to the schedule adopted in this proceeding. The proposed expansion of the GPS SPS Signal specification appears unnecessary, and, if adopted, should not be read to suggest the necessary bandwidth for GLONASS.

No rule or policy should be adopted for placement of TT&C functions in the 5091-5150 MHz band to protect Microwave Landing Systems. MSS systems must coordinate with MLS systems, and so, there is no need for a specific rule. In order to harmonize global standards, the Commission should not adopt an out-of-band emissions limit in the 1559-1605 MHz band for 2 GHz MSS systems. There is no such limit in the corresponding standard for 2 GHz METs in ITU or ETSI standard. Imposing such an idiosyncratic standard could lead to isolation of the United States from the benefits of global roaming. The Commission should also consider how to make spectrum available for U.S. 2 GHz MSS licensees in Europe and should evaluate market entry issues in light of such treatment when considering the applications of non-U.S. companies.

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REPLY COMMENTS OF GLOBALSTAR, L.P.

Pursuant to Section 1.415 of the Commission's Rules, Globalstar, L.P., hereby submits these Reply Comments in response to the initial comments filed regarding the proposed rules and policies for the Mobile-Satellite Service ("MSS") in the 1990-2025/2165-2200 MHz bands ("2 GHz").¹

The level of interest demonstrated by the nine applicants in this proceeding indicates that the 2 GHz spectrum will be used, as the Commission predicts, to enhance competition in MSS and complement terrestrial wireless service offerings. (NPRM, ¶ 2.) But, this level of interest also demonstrates the difficulty of crafting a band plan that will satisfy the spectrum requirements of all.

With respect to the Commission's band plan proposals, there was no consensus among the applicants. However, Globalstar's "all shared band" plan addresses and satisfies the benefits sought by the other applicants in selecting a

¹ See Notice of Proposed Rulemaking, FCC 99-50 (released Mar. 25, 1999) ("NPRM").

spectrum sharing proposal. On licensing and service rules, there was near unanimity among the applicants, which should provide the Commission with clear guidelines for these rules. In these reply comments, Globalstar reiterates that the Commission should resolve spectrum assignment issues in this proceeding, and adopt rules and policies that allow market forces, rather than regulation, to guide 2 GHz MSS service offerings.

I. THE PUBLIC INTEREST IS BEST SERVED BY ADOPTION OF A BAND PLAN WHICH REQUIRES SPECTRUM SHARING AMONG ALL 2 GHZ LICENSEES.

The nine 2 GHz MSS applicants differed substantially in their views on the Commission's proposed band plans. But, the "all shared band" plan recommended by Globalstar is a superior choice to all other recommendations.

A. The Commission Should Adopt the "All Shared Band" Plan.

Aside from Globalstar, three applicants endorsed a "traditional" band plan (Boeing, Constellation, Iridium), four endorsed the "flexible" band plan (Celsat, Inmarsat, MCHI, TMI), and one endorsed the negotiated entry approach (ICO). Significantly, no applicant supported the use of competitive bidding for grant of licenses, indicating that all nine believe that a technical solution is possible for entry of all pending applicants into the 2 GHz MSS spectrum.²

² See Celsat Comments, at 17-20; Constellation Comments, at 6-7; Globalstar Comments, at 12-14; ICO Comments, at 11-14; Inmarsat Comments, at 12; Iridium Comments, at 22; MCHI Comments, at 17-18; TMI Comments, at 8. (Pagination for comments filed electronically may vary from original.)

(continued...)

The reasons offered by the applicants for selecting one band plan over another also varied. Band plans were promoted because they would (a) accommodate all applicants,³ (b) facilitate international coordination,⁴ (c) provide maximum access to spectrum,⁵ (d) avoid spectrum warehousing,⁶ (e) provide certainty for business plans,⁷ and (f) encourage licensees to build out their systems.⁸

As Globalstar explained in its initial comments, an "all shared band" arrangement offers all these benefits.⁹ Pursuant to this plan, each system would be assigned to operate across the entire 2 x 35 MHz available for 2 GHz MSS systems. The Commission would require licensees to coordinate with each other initially to determine basic system parameters for sharing the 2 GHz spectrum. Then, as each

(...continued)

BellSouth recommended that the Commission use competitive bidding to award 2 GHz MSS licenses to ensure that licensees are financially sound and capable of funding relocation costs for terrestrial incumbents in the 1990-2025/2165-2200 MHz MSS bands. BellSouth Comments, at 2-5. Globalstar disagrees. As noted below, the obligation to pay for relocation attaches to the license, and, how the license is granted does not change that fact. It is also obvious that an MSS licensee that must pay an auction price for 2 GHz spectrum is going to be more resistant to paying for relocation of terrestrial incumbents.

³ Boeing Comments, at 21.

⁴ Id.

⁵ Celsat Comments, at 7-8; Inmarsat Comments, at 3-4; TMI Comments, at 5-6.

⁶ MCHI Comments, at 5.

⁷ Iridium Comments, at 21; MCHI Comments, at 5.

⁸ MCHI Comments, at 5-6.

⁹ Globalstar Comments, at 9-12.

system is ready to initiate service, all operational systems would be required to coordinate with the new system to assure optimal service for all.

The “all shared band” plan achieves multiple public interest benefits. All systems would be licensed with certain access to 35 MHz of shared spectrum in each direction. The entire 2 GHz bandwidth would be available for use by all systems, and, therefore, no spectrum would lie fallow. International coordination could proceed because each system is aware of its assigned spectrum. Globalstar’s band plan also encourages systems to progress steadily toward launch and operation, because delay increases the complexity of coordination for later-launched systems. The comments of the other applicants have not provided a reason for Globalstar to change its recommended band plan, nor for the Commission to favor one of the other band plans over the “all shared band” plan. Accordingly, the Commission should adopt the “all shared band” plan.

B. The Commission Should Reject Band Plans Involving Delayed Decisions on Spectrum Assignments.

In its initial comments, Globalstar identified deficiencies in the Commission’s four proposed band plans. The comments filed in this proceeding have pointed to additional difficulties in implementing the negotiated entry and flexible band plans, particularly with regard to delayed decisions on spectrum assignments. As explained below, adopting a band plan which incorporates delayed decisions is shortsighted and likely to minimize the prospects for successful entry of multiple systems.

Negotiated Entry. The negotiated entry approach earned a well-deserved position as the least favored band plan but for competitive bidding.¹⁰ The proposals for this approach advanced by ICO and the ICO USA Service Group (“IUSG”) reflect yet another reason why this plan should be rejected. Both ICO and the IUSG acknowledge as necessary, and provide proposals for, a “dispute resolution process” as an integral part of the negotiated entry approach.¹¹ In other words, it is assumed that the entry of each newly-operational system will require Commission intervention to resolve spectrum usage conflicts. Obviously, a dispute resolution process in addition to the negotiated entry process will (a) delay entry into service, (b) impose significant and avoidable costs upon licensees and the Commission, and (c) require multiple “licensing” procedures in the years following the completion of this proceeding.

As Globalstar pointed out in its comments, the dynamics of the negotiated entry approach produce a very strong incentive for operational systems to attempt to hamstring the entry into operation of new systems.¹² The dispute resolution processes proposed by ICO and IUSG confirm the accuracy of that prediction. The Commission should avoid these impediments to service and competition by resolving how the 2 GHz MSS spectrum will be assigned in this proceeding, rather

¹⁰ See Constellation Comments, at 16-19; Iridium Comments, at 17; MCHI Comments, at 11-17; Celsat Comments, at 14-17; TMI Comments, at 6-7; Inmarsat Comments, at 10-11.

¹¹ See ICO Comments, at 9-10; ICO USA Group Comments, Ex. A, at 2.

¹² Globalstar Comments, at 17-20.

than leaving the assignment process to a series of “negotiations” over spectrum assignments in the future.

Flexible Band Plan. Globalstar has pointed out the pitfalls in the flexible band plan that arise from the necessity of assigning “expansion” spectrum.¹³ Those applicants that supported the flexible band plan suggested various methods for assigning this “expansion” spectrum.¹⁴ Celsat recommended that spectrum should be assigned based on subscriber minutes per MHz for systems that are “fully utilizing” their assigned spectrum.¹⁵ MCHI recommended that licensees be required to demonstrate a uniform minimum level of customer traffic per channel transmitted to or from the United States, and that access to expansion spectrum be revoked from licensees whose traffic levels fall below a certain minimum.¹⁶

One could hardly imagine more heavy-handed regulatory oversight of a dynamic, evolving industry. It is unwise and inappropriate for the Commission to put itself in the position of evaluating how much spectrum each 2 GHz MSS licensee should hold, on an ongoing basis, using customer traffic data.¹⁷ On the one hand,

¹³ Globalstar Comments, at 15-17; see also Constellation Comments, at 11-13; Iridium Comments, at 19.

¹⁴ Inmarsat’s proposed alternative to the flexible band plan is completely unacceptable. This proposal severely restricts the spectrum available to CDMA systems and does not provide any expansion spectrum in the global allocation adjacent to the CDMA core segments. See Inmarsat Comments, at Annex 1.

¹⁵ Celsat Comments, at 9.

¹⁶ MCHI Comments, at 8-9.

¹⁷ See Constellation Comments, at 13-14.

the Commission will be called upon to resolve disputes among operators over how to measure usage, with access to scarce spectrum riding on the outcome. On the other hand, such decisions awarding spectrum would inevitably be used to reflect on the “success” of one system compared to another, which could have serious competitive consequences in the MSS market.

The Commission must be mindful that by the time each 2 GHz MSS system is operational and seeks access to expansion spectrum, the licensee and its partners will have invested billions of dollars in construction, launch and operational costs. It is simply bad policy for the Commission to place the competitive position of these systems in jeopardy over decisions to award additional spectrum based on traffic data. Rather, the Commission should be neutral toward the marketplace, provide each system with a fair opportunity for success at the outset, and then let the marketplace decide which systems achieve greater demand for spectrum. In short, the Commission should resolve spectrum assignment decisions in this proceeding, so that applicants and licensees can perform now a realistic evaluation of the opportunity for success of a 2 GHz MSS system.

II. THE CONCERNS OF TERRESTRIAL FIXED MICROWAVE SERVICES SHOULD BE ADDRESSED THROUGH ADOPTION OF APPROPRIATE PFD LIMITS FOR 2 GHZ MSS.

Several parties representing Fixed Microwave Service (“FMS”) and other terrestrial wireless interests filed comments regarding the use of spectrum designated for MSS user links and feeder links and asked the Commission to impose various technical requirements on MSS mobile-earth terminals (“METs”)

and gateway earth stations. None of these comments has demonstrated any reason to conclude that terrestrial incumbents will not be adequately protected in these bands. Therefore, the proposals for restrictions on MSS systems are not justified, and should be rejected.

A. The Fixed Service Is Sufficiently Protected from Uses of Common Bands for MSS Feeder Links.

Several FMS parties expressed concern about the use of spectrum shared by FMS and MSS feeder links and proposed harsh and unnecessary restrictions on gateway earth stations.¹⁸ But, the issues regarding protection requirements for terrestrial systems have been or are being resolved in allocation proceedings for these bands. For example, the Commission has initiated a proceeding to adopt the International Telecommunication Union (“ITU”) allocations for the 15.43-15.63 GHz band and 6700-7075 MHz band for MSS feeder links.¹⁹ The ITU has already specified PFD limits for space-to-earth feeder links in these bands, which are subject to coordination pursuant to Resolution 46 (S9.11A), and the Commission has proposed to adopt the PFD limits specified by the ITU for space-to-earth links in

¹⁸ See Fixed Wireless Communications Coalition Comments, at 2-7 (“FWCC Comments”); UTC Comments, at 3-6; Association of Am. Railroads Comments, at 3-5 (“AAR Comments”). To the extent that these commenters also seek allocations of additional spectrum for FMS, their recommendations are misplaced in this proceeding which only concerns licensing and service rules for 2 GHz MSS.

¹⁹ See Amendment of Parts 2, 25 and 97 of the Commission’s Rules with Regard to the Mobile-Satellite Service Above 1 GHz, 13 FCC Rcd 17107 (1998).

these bands to protect terrestrial systems.²⁰ If there is any concern regarding interference into FMS systems, these concerns should be addressed in such proceedings, rather than here. In any event, the PFD limits adopted for MSS feeder link bands are intended to provide more than adequate protection for terrestrial systems, and addressing interference concerns in this proceeding is not necessary.²¹

In addition to the concerns about interference in shared spectrum, the Association of American Railroads and the FWCC have also suggested that the Commission should impose additional restrictions on MSS gateway earth stations, including: limiting the number of gateway earth stations that a system can deploy; requiring that earth stations of multiple systems be collocated; siting gateway stations in remote areas; requiring the use of the largest feasible antennas at gateway stations; and imposing shielding requirements.²² The only rationale

²⁰ Id. at 17111-26; see Final Acts of the World Radiocommunication Conference (WRC-97) Geneva, 1997, Res. 46 (Rev. WRC-97, S9.11A), Annex 2, A2.2.1; see also RR S5.458B (6700-7075 MHz); RR S5.511A (15.43-15.63 GHz).

²¹ MCHI suggests that the Commission should restrict assignment of the 7 GHz and 15 GHz feeder link spectrum, because MCHI is not certain that it can coordinate feeder links in these bands for other 2 GHz systems and its 1.6/2.4 GHz MSS system, its 2 GHz MSS system, and the 1.6/2.4 GHz systems of Globalstar and Constellation without incurring high costs to prevent interference. MCHI Comments, at 25. It is premature for the Commission to make judgments about intersystem sharing for feeder link frequencies, particularly since MCHI has launched no satellites for its 1.6/2.4 GHz system, and is still under the obligation to demonstrate that it can feasibly share its Big LEO feeder downlinks at 7 GHz with all other persons or organizations authorized to use that spectrum for feeder links to gateway earth stations in the United States. Mobile Communications Holdings, Inc., 12 FCC Rcd 9663, 9678 (Int'l Bur. 1997).

²² See AAR Comments, at 4-5; FWCC Comments, at 4-5.

offered for these restrictions is “to promote equitable band sharing” with terrestrial services.²³ But, there is no explanation at all of what is meant by “equitable” or how these restrictions would accomplish such a result. Given that there is no identified, much less rational, public interest goal or purpose for these various restrictions, the Commission should not even consider them.

In any event, these proposals would not add to the protection provided to FMS stations, and may exacerbate the alleged problems which the FMS interests attempt to remedy. With respect to limiting the number and siting of MSS gateway stations, there is an existing guideline for siting earth stations to avoid interference to terrestrial services with equal rights in a band.²⁴ No more restrictive policy is needed, because the earth station applicant must also complete coordination with such terrestrial stations (47 C.F.R. § 25.203(b-c)) and the earth station licensing process (47 C.F.R. § 25.130).

Moreover, the design of most MSS systems requires only a few gateway earth stations in the United States, and they will be spaced to provide maximum coverage for each station. Imposing location restrictions could cause increases in the number of gateway stations if, for example, a population-based restriction precluded selection of the optimal sites and spacing for the earth stations. Similarly, forcing earth stations of several systems to collocate could result in inefficient and

²³ FWCC Comments, at 4.

²⁴ 47 C.F.R. § 25.203(a).

increased use of feeder link spectrum by making it more difficult for the operators to coordinate use of the same feeder link frequencies. As for antenna size or shielding requirements, these techniques may be used in certain instances to facilitate coordination of an earth station; but, the FWCC has demonstrated no benefit to FMS or other users that would be obtained from mandatory restrictions, and, therefore, these proposals must be rejected.

The FWCC also suggests that the Commission should impose “efficiency” requirements on gateway earth stations.²⁵ FWCC reasons that the fixed service has been “a technology leader in the efficient use of ever-scarcer spectrum,” and so should MSS by reaching the equivalent of 16-QAM or 4 bits/second/Hz.²⁶ Apparently, the FWCC assumes that because the FMS and MSS use the same frequency bands, the same standards should be imposed on both. Again, the FWCC has presented no rational basis for this proposal, and, indeed, has ignored the fact that the differing regulatory requirements for FMS and MSS arise from differences in their system architectures.

FMS stations connect two points over relatively short distances. On the other hand, MSS earth stations serve very large regions, e.g., most of North America, in communication with orbiting spacecraft. This extensive coverage constrains the amount of power available to the gateway station, and limits the ability of satellite

²⁵ FWCC Comments, at 6.

²⁶ Id. The FWCC makes no effort to prove its naked assertion that its members use spectrum efficiently.

operators to achieve the same number of bits per Hz (if, indeed, that is a reasonable measure) as a terrestrial microwave link.

Similarly, the spectrum assignment process for FMS stations and gateway stations differ radically. The Commission encourages FMS to use spectrum efficiently by requiring many fixed stations to occupy the same geographic area but on different frequencies. On the other hand, the amount of spectrum required for MSS feeder links is a function of user bandwidth, number of antenna beams, and frequency reuse techniques, such as cross-polarization. Imposing an “efficiency” requirement makes no sense since the necessary bandwidth has already been selected for the satellite system design. Post-licensing reduction in feeder link bandwidth (because of “inefficiency”) could restrict the service link capacity of the system, and thereby lead to inefficient rather than efficient use of the satellite and gateway station feeder link frequency assignments.

Finally, FWCC recommends that the Commission should require gateway earth stations that accept interference in the coordination process to do so at the same level of interference for every new FMS station. Such a rule would penalize the earth station operator for taking the risk that the remaining margin will permit satisfactory operation. A requirement that the operator accept increasingly more interference could preclude operations in the shared band. Such a rule would deprive the incumbent earth station operator of the use of the spectrum for the benefit of later-filed FMS applicants, contrary to Commission’s general policies on

licensing spectrum, i.e., that newcomers must accept the interference environment as they find it and not increase the interference into existing users.

B. Interference to or from MDS Transmissions Does Not Warrant Additional Restrictions on 2 GHz MSS.

The Wireless Communications Association International (“WCAI”) recommended restrictions on 2 GHz MSS systems to protect against interference from and into Multipoint Distribution Stations (“MDS”) operating at 2150-2162 MHz. Both of its recommendations should be rejected.

First, the WCAI suggested that the Commission “confirm that 2 GHz MSS satellite systems would be required to accept any interference from current and future MDS operations that comply with the Commission’s MDS spectral mask and EIRP limitations.”²⁷ It also claims that the record supports a finding that there will be no significant threat from MDS operations at 2150-2162 MHz into MSS operations at 2165-2200 MHz.²⁸ The WCAI has obviously answered its own question, and the Commission does not need to take any action to promote the robustness of 2 GHz MSS receivers.

Second, the WCAI claims that the out-of-band and spurious emissions limit for 2 GHz MSS systems into the 2150-2162 MHz band calculated in Section 25.202(f) of the Commission’s Rules is not sufficiently stringent. It recommends that the Commission should impose a PFD limit of -190 dBW/m²/Hz on 2 GHz MSS

²⁷ WCAI Comments, at 3.

²⁸ Id., at 5.

transmissions in the 2165-2200 MHz band.²⁹ However, the WCAI has offered no technical support for its proposal. The proposed limit was designed to protect co-channel terrestrial MDS stations from mutual interference;³⁰ it is not appropriate for adjacent-channel downlink MSS transmissions from a spacecraft hundreds of kilometers above the terrestrial station with a completely different set of operational parameters and no relationship to the station on the ground. Because WCAI's proposal has no technical justification, it should be rejected in favor of the existing approach in Section 25.202.³¹

III. THE COMMISSION SHOULD NOT IMPOSE E911 REQUIREMENTS ON 2 GHZ MSS SYSTEMS.

The Association of Public Safety Communications Officials-International ("APCO"), the U.S. Coast Guard, and the National Telecommunications and Information Administration ("NTIA") recommended that the Commission impose emergency service (E911) and position location obligations on 2 GHz MSS licensees,³² including the Phase II 125 meter position location standard adopted for

²⁹ Id., at 9.

³⁰ Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, 13 FCC Rcd 19112, 19137-40 (1998).

³¹ For space stations operating at 2160-2200 MHz, ITU Resolution 46 (WRC-97, S9.11A) includes a recommended PFD limit which is significantly less stringent than that proposed by the WCAI. See WRC-97 Final Acts, Res. 46, Annex 2.

³² See APCO Comments, at 2-3; Coast Guard Comments, at 4-7; NTIA Comments, at 15-17.

terrestrial wireless systems.³³ The Commission should reject imposing E911 requirements of MSS systems at this time.³⁴

These commenters assume that satellite system networks are comparable to mature terrestrial cellular and broadband PCS systems. However, this is not the case. Satellite system technology is not comparable to terrestrial wireless telecommunications for implementing E911 requirements, as the Commission recognized in its E911 proceeding.³⁵ Less than two years ago, the Commission stated that the commercial MSS had not yet developed sufficiently to warrant imposition of E911 standards, and that the Commission would not consider imposing such requirements until the MSS industry has developed “into a mobile public telephone service like cellular or broadband PCS.”³⁶

The technology for E911 for global satellite systems is still in a developmental stage. For example, MSS systems can generally locate a terminal only within a large area, e.g., 10 kilometers, for caller registration purposes.³⁷ While E911 service capabilities can be anticipated as features of future generations

³³ 47 C.F.R. § 20.18(e).

³⁴ See Iridium Comments, at 38; Constellation Comments, at 26-27.

³⁵ Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services, 11 FCC Rcd 18676, 18718 (1996), on recon. 12 FCC Rcd 22665 (1997).

³⁶ Revision of the Commission’s Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Services, 12 FCC Rcd 22665, ¶ 87 (1997) (“E911 Recon. Order”).

³⁷ See Globalstar Comments, at 41-44; Iridium Comments, at 38; Constellation Comments, at 26-27.

of MSS systems, it is premature for the Commission to anticipate when such technology and services would be available.

In the E911 rulemaking, the Commission also stated that “emergency service requirements for global MSS systems should be developed in an international forum to take into account compatibility and consistency with international standards, and to avoid burdening United States MSS licensees with a patchwork of different requirements.”³⁸ If the Commission desires satellite systems to offer E911 services, it should find an international forum to deal with that issue.

The Coast Guard suggested that MSS systems can achieve the same position location capabilities as terrestrial wireless systems by incorporating GPS receivers into their handsets.³⁹ However, there are significant costs associated with that solution, and no guarantee that use of GPS will necessarily achieve the emergency call capability that would meet the Commission’s E911 requirements for terrestrial systems.⁴⁰

The Coast Guard also suggests that 2 GHz MSS systems should be required to provide certain caller identification and caller location information to the nearest Public Safety Answering Point (“PSAP”) including the location of the caller, the subscriber’s name, the subscriber’s call back number, priority of the call and routing

³⁸ E911 Recon. Order, 12 FCC Rcd 22665, ¶ 89.

³⁹ Coast Guard Comments, at 7.

⁴⁰ See Globalstar, L.P., L/Q Licensee, Inc., AirTouch Satellite Services, Inc., Joint Reply Comments, (IB Dkt. No. 99-67), at 17-20 (filed July 21, 1999).

information.⁴¹ While meritorious in principle, this suggestion is impractical for the present network architecture of MSS systems. MSS is not a “local” service. Since each MSS system is likely to have only up to six gateway earth stations in the United States, there is an immediate problem of routing the information to the nearest PSAP in the United States to the call, of which there are over 6200. Moreover, a Globalstar caller in the United States need not be a subscriber to the United States service provider, and, therefore, the information on the subscriber may not be readily available to the service provider who is handling the emergency call.

Despite the difficulties in providing E911 service, satellite systems are and will be useful in emergency services, including, for example, search and rescue missions.⁴² The Commission should adopt its proposed rules on cooperating with distress and safety organizations but not E911 requirements. (NPRM, ¶ 93.)

IV. THE COMMISSION SHOULD ADOPT RULES AND POLICIES FOR 2 GHZ MSS THAT PROMOTE COMPETITIVE SERVICE.

The Commission’s proposals for licensing qualifications for 2 GHz MSS licensees and the regulatory framework for 2 GHz MSS were generally supported in the comments. A few suggestions, however, deserve attention.

⁴¹ Coast Guard Comments, at 7-9.

⁴² The suggestion in the tables attached to the Coast Guard’s comments that the current Globalstar 1.6/2.4 GHz system has E911 capabilities is inaccurate. See Coast Guard Comments, at Tables 1A, 2A.

Financial Qualification Standard. Boeing and BellSouth recommended that the Commission adopt a financial qualification standard for 2 GHz MSS applicants. For the reasons set forth below and in Globalstar's initial comments, the Commission should not adopt a financial standard for 2 GHz MSS.⁴³

Boeing suggests that imposing a financial standard would eliminate underfinanced applicants "that have no real interest in operating a satellite system but are seeking to profit from obtaining a license."⁴⁴ It also advances the rationale that a financial requirement will identify applicants that can promptly commence construction and operation of a system, rather than spending years in search of financing.⁴⁵

Although Boeing's reasons for adopting a financial standard have merit, they do not apply in this context. Five of the nine applicants for 2 GHz MSS are operating or close to operating licensed systems (Globalstar, ICO, Inmarsat, Iridium, and TMI). Of the four that are not, Boeing is well-established in the aviation industry, and Celsat has been pursuing a spacecraft license for nearly a decade. MCHI and Constellation hold licenses and have actively participated in the MSS industry since the 1.6/2.4 GHz MSS proceeding commenced. There are no apparent "greenmailers" among the nine. Moreover, Boeing is mistaken if it assumes that meeting a financial standard means that the applicant will actually

⁴³ See Globalstar Comments, at 6-8.

⁴⁴ Boeing Comments, at 29.

⁴⁵ Id. at 31.

build the system, or that the applicant will not spend years developing a financial plan for the system. Neither assumption follows from the Commission's current financial standard, as Globalstar pointed out in its initial comments.⁴⁶

Boeing's concerns regarding financial plans are legitimate. But, the Commission can avoid the adverse effects from not adopting a financial standard by imposing and enforcing stringent milestones. Also, the Commission can defuse the ability of greenmailers to influence systems and ensure that spectrum does not lie fallow if a few licensed systems are not constructed by adopting an appropriate band plan. Globalstar's "all shared band" plan would eliminate the incentive for greenmail as well as the threat of fallow spectrum assignments.

BellSouth claims that a financial standard should be adopted to ensure that licensees have the financial ability to underwrite relocation of terrestrial incumbents in the 2 GHz MSS bands.⁴⁷ BellSouth's rationale is misguided. First, the Commission has not yet adopted procedures for relocation of terrestrial incumbents in the 1990-2025/2165-2200 MHz bands, and so, it is not yet clear to what extent relocation will need to be funded by satellite licensees. Second, the funding of relocation of terrestrial incumbents is a financial obligation that the

⁴⁶ See Globalstar Comments, at 6-8. It should be noted that the Commission's willingness to waive the applicable financial requirements for satellite applications, e.g., for Constellation, MCHI and Teledesic, undermines Boeing's argument that a financial requirement can stand as a significant barrier to speculative applications. See id., at 8.

⁴⁷ BellSouth Comments, at 5-8.

Commission has decided should attach to the MSS license. The financial standard is not intended to measure that obligation, and satisfying the standard would not reflect whether the licensee would fulfill the obligation to pay relocation costs.

AMS(R)S. As Globalstar has previously explained,⁴⁸ there is no allocation of spectrum or provision for protection for Boeing's proposed Aeronautical Mobile Satellite (Route) Service ("AMS(R)S"). Therefore, no justification exists for granting Boeing a license to provide such service if it would impose restrictions on the use of the 2 GHz spectrum by other MSS licensees.⁴⁹

In its comments, Boeing claims that its satellite network is "fully capable of providing intra-network preemptive access for priority communications," and that it has no need to seek "inter-network preemptive capabilities with satellite networks in adjacent bands."⁵⁰ However, without explicitly so stating, Boeing appears to require exclusive spectrum to provide its AMS(R)S service. In other words, grant of a license to Boeing would require a de facto spectrum allocation for AMS(R)S within the 2 GHz band.

Globalstar generally does not object to 2 GHz MSS licensees providing whatever services they deem commercially viable, as long as their systems do not impose use restrictions or coordination obligations that are in excess of those that

⁴⁸ Globalstar Comments, at 4-6.

⁴⁹ Most applicants opposed adopting conditions that would permit AMS(R)S in the 2 GHz MSS bands. See Constellation Comments, at 4-5; Iridium Comments, at 6; Celsat Comments, at 27-28; TMI Comments, at 3; Inmarsat Comments, at 12-14.

⁵⁰ Boeing Comments, at 6.

are inherent in the intersystem coordination process necessary to share the frequencies allocated for MSS. Boeing's description of its system indicates that it cannot comply with this principle, particularly if the Commission adopts the "all shared band" plan recommended by Globalstar. Moreover, although Boeing may not seek to impose such restrictions or obligations, the Commission cannot be assured that the aviation interests who decide to rely on Boeing's proposed service would not seek to impose such conditions on other licensees in the name of "safety of life."⁵¹ Such a request would place the Commission in the awkward position of re-examining, and potentially modifying, the conditions on which 2 GHz MSS licenses were issued to satisfy the concerns that Boeing is now dismissing. Once a licensee for a multi-billion dollar system has been awarded, the Commission should not leave open the potential for significantly modifying that license.

Accordingly, the Commission should make absolutely clear in this proceeding that it cannot and will not provide any accommodation for AMS(R)S in the 2 GHz spectrum, including adoption of a band-splitting plan for the purpose of permitting AMS(R)S, or requiring any licensee to accept coordination conditions required by AMS(R)S. Boeing's proposed service should only become available if Boeing wants

⁵¹ See NTIA Comments, at 18 ("Priority must be given to AMS(R)S traffic within MSS systems in specific bands. At this time, action needed is to strengthen the existing ITU Radio Regulation footnotes addressing AMS(R)S priority and preemption by including a requirement for AMS(R)S provision, and to complete the ITU-R Working Document toward a Draft New Recommendation on MSS provision of AMS(R)S").

to assume the contractual obligation and associated liability of providing such a service in a shared band.

Implementation Milestones. Like Globalstar, most applicants supported the adoption of strict implementation milestones for 2 GHz MSS licensees.⁵² Constellation, on other hand, suggested that the Commission should adopt milestones for applicants that are also licensees of 1.6/2.4 GHz systems that commence three years prior to the end of life of the licensee's first generation 1.6/2.4 GHz system, i.e., about five years hence. Although it may be difficult to raise financing for construction of two systems at the same time, depending upon the band plan adopted for 2 GHz MSS, it would also be unfair to other 2 GHz MSS licensees for systems to receive licenses now that would not be launched until the year 2010.

The Commission can accommodate such requests by adopting the "all shared band" plan, because the spectrum will not lie fallow as a result of the delayed entry. However, if the Commission does accommodate such requests for delayed commencement of milestones, it should relieve other licensees from any obligation to coordinate with systems not on the same milestone schedule adopted for all authorized systems. The applicant that chooses to delay entry should not be allowed to restrict the operation of other applicants, and should be forced to

⁵² See Globalstar Comments, at 35-37; ICO Comments, at 17; Iridium Comments, at 43.

“assume the risk” that coordination will be difficult if and when it ultimately launches its system.

GPS SPS Signal Specification. NTIA asked that the Commission modify Section 25.213(b) of its rules to reflect the new frequency range of 1563.42-1587.42 MHz based on the theory that civil GPS receivers utilize the entire transmitted bandwidth of the Coarse/Acquisition code signal to minimize tracking errors due to noise, interference and multipath.⁵³ Although this proposal is not objectionable, there are technical factors which suggest that optimum design point is not the full bandwidth of the C/A code signal.⁵⁴ Moreover, the optimum design point for GPS is not necessarily the same for GLONASS. Therefore, even if Section 25.213(b) is modified, no conclusion should be drawn regarding the necessary protection bandwidth for GLONASS.

TT&C in 5091-5250 MHz Band. The NTIA expressed concern about 2 GHz MSS operators using the 5091-5150 MHz band for MSS feeder links and successfully coordinating with the ICAO Microwave Landing System (“MLS”). To avoid interference from Tracking, Telemetry and Command (“TT&C”) transmissions, NTIA recommended “to the extent practicable that 2 GHz MSS

⁵³ NTIA Comments, at 4-6.

⁵⁴ See Globalstar, L.P., L/Q Licensee, Inc., AirTouch Satellite Services, Inc., Joint Reply Comments, (IB Dkt. No. 99-67), at 15-16 (filed July 21, 1999).

operators locate their TT&C signal in the middle or upper end of the 5091-5150 MHz band.”⁵⁵

Given that coordination with government systems is required in this band, it is not necessary for the Commission to adopt a rule governing placement of TT&C frequencies in the 5091-5150 MHz band. For example, Globalstar’s 1.6/2.4 GHz MSS system features TT&C frequencies in this band, and AirTouch has successfully coordinated its gateway earth station in Clifton, Texas, with nearby government users. (AirTouch Satellite Service U.S., Inc., Application File No. 746-DSE-P/L-97.) Under these circumstances, there is no reason to adopt a rule or policy for locating TT&C frequencies within a specific band.

Out-of Band Emissions at 1559-1626.5 MHz. In the NPRM, the Commission proposed to adopt for 2 GHz MSS METs the out-of-band emissions limits in the 1559-1605 MHz band that have been proposed for MSS METs operating in the 1610-1660.5 MHz band.⁵⁶ (NPRM, ¶ 116.) In response, NTIA recommended adoption of out-of-band emission limits in the 1559-1626.5 MHz band of –70 dBW/MHz for broadband signals and –80 dBW for narrowband signals.⁵⁷ NTIA’s

⁵⁵ NTIA Comments, at 8-9.

⁵⁶ See Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (“GMPCS”) Memorandum of Understanding and Arrangements (IB Dkt. No. 99-67), FCC 99-37 (released Mar. 5, 1999).

⁵⁷ NTIA Comments, at 9-12. In its initial comments, Globalstar recommended that the Commission adopt for 2 GHz MSS the out-of-band emissions limits for the 1559-1605 MHz band specified in ITU-R Recommendation M.1343 and the ETSI Standard TBR-42. Globalstar Comments, at 48-50.

recommendation was allegedly based on standards adopted by the ITU (ITU-R Recommendation M.1343) and the European Telecommunications Standards Institute (“ETSI”) (TBR-42).

NTIA’s recommendation for the broadband emissions limits is consistent with M.1343 and TBR-42, and should be adopted. However, there is currently no out-of-band emissions limit for narrowband signals for 2 GHz MSS terminals in the Commission’s Rules, and such a limit does not appear in either the ITU or ETSI recommendation. Moreover, as NTIA recognizes, the “narrowband limit” was adopted for protection of Aeronautical Radio-Navigation-Satellite (“ARNS”) service systems in the 1559-1605 MHz band.⁵⁸ But, the United States is not protecting such systems above 1605 MHz. Therefore, it does not appear necessary for protection of ARNS systems to adopt a narrowband limit up to 1626.5 MHz.

As Globalstar has noted in the Commission’s GMPCS rulemaking, adoption of an idiosyncratic national standard can have an adverse impact on the deployment and free roaming of GMPCS terminals, which include 2 GHz MSS terminals.⁵⁹ MSS METs certified by other administrations (to standards such as TBR-42 which do not include the narrowband limit) can receive the ITU mark for GMPCS terminals without having demonstrated compliance with the narrowband limit. A Commission mandate that GMPCS METs be certified to meet the narrowband limit

⁵⁸ NTIA Comments, at 10.

⁵⁹ See Globalstar, L.P., L/Q Licensee, Inc., AirTouch Satellite Service US, Inc., “Joint Reply Comments” (IB Dkt. No. 99-67), at 14-15 (filed July 21, 1999).

for either entry or operation in the United States could have the effect of precluding entry or operation of METs certified outside the United States that bear the ITU mark. If other administrations, in turn, impose idiosyncratic conditions for entry and operation of METs certified in the United States, then the goal and purpose of the GMPCS MOU and Arrangements could be defeated.⁶⁰

In recommending adoption of the broadband and narrowband limits up to 1626.5 MHz, NTIA states that “if it is the Commission’s intent to establish emissions limits for 2 GHz MSS mobile earth terminals that will facilitate GMPCS certification, it is important that harmonized technical standards be established by all participating administrations.”⁶¹ Adoption of the narrowband limit, which is an idiosyncratic U.S. standard, is simply inconsistent with this statement.

Accordingly, the Commission should adopt out-of-band emissions limits for 2 GHz MSS terminals consistent with ITU-R Recommendation M.1343 and ETSI TBR-42.

International Coordination. Iridium noted that current European band plan for 2 GHz MSS is set so that no U.S.-licensed systems would be able to access 2 GHz MSS spectrum in Europe until after 2005.⁶² The Commission’s policies on market

⁶⁰ It is not a viable solution for the Commission to place upon GMPCS service providers in the United States the responsibility to ensure that incoming METs be certified to meet all idiosyncratic national requirements. U.S. service providers generally would not have the power to require that all METs be type-accepted to standards not applicable in the administration of certification. See 47 C.F.R. § 25.136(c).

⁶¹ NTIA Comments, at 11.

⁶² Iridium Comments, at 48; see MCHI Comments, at 20-21.

entry for non-U.S. licensed systems are designed to address this concern by ensuring that non-U.S.-licensed satellite systems do not receive undue advantages in U.S. markets and U.S. satellite licensees are not disadvantaged in foreign markets.⁶³ To the extent that the European band plan blocks access to spectrum for U.S. licensees, the Commission must consider how to ensure that spectrum is available for U.S. licensees in Europe, and should consider market entry issues in granting authorizations for use of MSS spectrum in the United States to non-U.S.-licensed systems.

⁶³ Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, 12 FCC Rcd 24094 (1997).

V. CONCLUSION

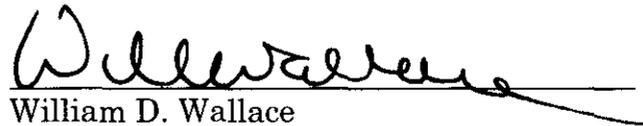
For the reasons set forth in Globalstar's initial comments and herein, the Commission should adopt the rules and policies proposed by Globalstar in its "Comments" and these "Reply Comments" for 2 GHz MSS.

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Date: July 26, 1999

CERTIFICATE OF SERVICE

I, William D. Wallace, hereby certify that I have on this 26th day of June, 1999, caused to be served true and correct copies of the foregoing "Reply Comments of Globalstar, L.P." upon the following parties via hand delivery (marked with an asterisk(*)), or by first-class United States mail, postage prepaid, upon:

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