

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



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



**REPLY COMMENTS
OF
CONSTELLATION COMMUNICATIONS INC.**

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Executive Summary

In this Reply Comment, Constellation supports the Commission's efforts to establish processing procedures and service rules for the 2 GHz MSS Service. Constellation believes that all of the pending applications can be accommodated under a frequency assignment plan adopted by the Commission. Consequently, the Commission need not impose stringent financial qualifications standards for grant of a 2 GHz MSS license. The frequency plan should include an initial assignment of 3.75 MHz of service link spectrum in each direction together with a set of coordination and modification procedures that would provide flexibility in developing systems. Finally, Constellation believes that the Commission's existing 1.6/2.4 GHz MSS service rules are a sound basis for the development of 2 GHz MSS service rules.

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REPLY COMMENTS

Constellation Communications, Inc. (“Constellation”)¹ submits these Reply Comments in response to the initial Comments filed in the above-captioned proceeding. In this Reply, Constellation supports the general objectives of the Commission’s proposals in its Notice of Proposed Rule Making (“Notice”) (FCC 99-50, released March 25, 1999) to accommodate all of the pending 2 GHz mobile satellite service (“MSS”) system applicants. As discussed below, Constellation believes that a frequency assignment procedure and service rules can be created to provide the necessary flexibility for system operators to efficiently implement their systems.

I. The Initial Comments Provide The Basis For A Practical 2 GHz MSS Frequency Assignment Plan That Accommodates All Of The Pending Applicants

All of the 2 GHz MSS applicants are willing to accept a resolution of this proceeding through use of a frequency assignment plan that provides each applicant with a license to construct, launch and operate a 2 GHz MSS system. As discussed below, Constellation believes

¹ Constellation is licensed by the Commission to construct a 1.6/2.4 GHz MSS system. See *Constellation Communications, Inc.*, 12 FCC Rcd 9651 (1997). It has filed an application for a 2 GHz MSS system. See Application of Constellation Communications, Inc., File No. 181-SAT-P/LA-97(46).

that with suitable modifications to address the concerns raised by various parties, a workable frequency assignment plan can be developed that is acceptable to all applicants.

A. The Basic Principles Required For A Workable Assignment Plan Appear To Be Supported By All Or Most Of The 2 GHz MSS Applicants

There are a number of principles upon which all or most of the pending 2 GHz MSS applicants agree. First, all of the applicants agree that competitive bidding is neither workable nor desirable, and that an engineering approach to develop some form of assignment plan is the appropriate means for resolving this proceeding. BellSouth is the only party arguing against this position.²

Second, all of the applicants, except Boeing³, support the Commission's proposals not to impose financial qualification tests on applicants. Rather, there is strong support for enforcement of milestones to determine whether a licensee is making satisfactory progress towards system implementation. Boeing argues that strict financial requirements should be imposed to prevent some vague types of abuses, such as "spectrum warehousing" or "greenmail," both which are clearly impermissible under the Commission's proposed milestones and anti-trafficking rules. As Constellation points out in its Comments⁴, the practical realities of financing multi-billion dollar nongeostationary MSS systems demonstrates the impracticality of the Big LEO financial

² Bell South argues that competitive bidding be used to award 2 GHz MSS licenses. The record in this proceeding as well as other MSS proceedings ample demonstrate the problems presented by use of competitive bidding for nongeostationary MSS systems.

³ See Comments of Boeing at 27-33.

⁴ See Constellation Comments at 3-4.

qualifications approach.⁵ In this regard, all of the applicants agree that the spectrum initially assigned to a licensee that fails to meet its milestones be re-assigned to the remaining 2 GHz MSS licensees.

Third, the majority of applicants, as well as NTIA, have noted the practical difficulties that would arise if the 2 GHz MSS system proposed by Boeing was recognized as an AMS(R)S system. Boeing claims that it “can coordinate its operations with MSS networks in adjacent bands utilizing interference parameters that are identical to MSS networks that do not carry emergency services.”⁶ Boeing also states the it “has designed its system with sufficient intra-network protections from external interference that Boeing does not need to secure a higher level of interference from adjacent MSS networks.”⁷ The reliance on coordinating with Mobile Service (“MS”) networks in adjacent bands implies that the Boeing system is not designed to take advantage of one of the major spectrum efficiencies of CDMA systems to use the same bands with cross-polarization discrimination to provide isolation between co-channel systems. The higher level of intra-system protections imply higher power transmissions which cause more interference to other systems.⁸

Finally, the parties generally agree that geostationary (“GSO”) satellites should be restricted to the Region 2 MSS allocations to maximize nongeostationary system access to the

⁵ Constellation also agrees with Celsats' conclusion that application of strict financial requirements is a poor predictor of actual system implementation.

⁶ See Comments of Boeing at 5.

⁷ *Id.*

⁸ In addition, Boeing should not be assigned additional spectrum for a one-way service. Since the total available MSS spectrum is the same in each direction, each system should be assigned the same amount of uplink and downlink service link spectrum. If Boeing desires to provide a one-way service, it should

portions of the 2 GHz band allocated in all three ITU Regions. However, Inmarsat argues as a global, not regional GSO system, it should only be assigned spectrum in the portion of the band available in all three Regions.⁹ Inmarsat claims that technical and economic burden will be imposed if it is required to customize its satellites for each region. Inmarsat's undocumented technical claims are not convincing. For example, even though the 1980-1990 MHz band is not available for MSS service in the United States, Constellation plans to design its satellites to be capable of using this band in other parts of the world by making its satellites capable of switching between different frequency plans while in orbit. There is no reason why Inmarsat could not employ a similar type of satellite design in order to make optimal use of the spectrum available in the United States.

B. The Commission Should Establish Modifications To Its Flexible Traditional Band Assignment Plan That Addresses The Concerns Raised By The Applicants Favoring The Other Two Frequency Plan Approaches

The Commission proposed three frequency plan approaches in its Notice: the flexible band plan, the negotiated entry plan, and the traditional band plan.¹⁰ All of the other applicants

design such a service within the constraints of such an assignment rather than creating a spectrum imbalance that is detrimental to other systems operating in the band.

⁹ See Comments of Inmarsat at 7-8.

¹⁰ Globalstar proposes an "all shared band" arrangement as its preferred approach. See Globalstar Comments at 11-12. Constellation believes that the "all shared band" approach is not workable as a practical matter and suffers from many of the problems associated with the negotiated entry approach in not providing any structure for guaranteed spectrum access by later entrants.

favor, in roughly equal proportions, either the flexible band approach¹¹ or the traditional band approach.¹²

Only one applicant, ICO and its associates¹³, advocates the negotiated entry approach. All of the other applicants reject the negotiated entry approach because of the inherent advantages it gives the earliest entrant and the lack of incentive this approach provides to negotiate in good faith with later entrants. Without an initial basic structure of frequency assignments, the proposed procedures contained in the Appendix to the BT North America Comments are likely to embroil the Commission in lengthy disputes since the initial operator has every incentive to use these procedures to delay and frustrate later entrants. These difficulties are compounded by the fact that ICO, a non-U.S. entity is much farther along with its system implementation than the U.S. applicants and the absence of any structure will be detrimental to Commission efforts to obtain international recognition to U.S. licensed systems.¹⁴ The only significant advantage identified by the proponents of the negotiated entry approach is its flexibility to handle terrestrial relocation in the most economic and efficient manner. However, Constellation does not believe that this is an inherent advantage of the negotiated entry approach. Both the flexible and traditional band plan approaches can be supplemented by a cost recovery procedure that allows early entrants to request temporary authority to operate on up to 3.75 MHz of spectrum in the portions of the 2 GHz MSS bands that are the easiest or lowest cost to clear.

¹¹ See Comments of Celsat, Inmarsat, MCHI and TMI.

¹² See Comments of Boeing, Constellation, Globalstar and Iridium.

¹³ See Comments of ICO and BT North America et al.

¹⁴ These difficulties are exacerbated by the proposed deferral of any intersystem coordination until one year before launch and the current European Community Plan that provides no opportunity for recognition of U.S. systems until 2005.

All of the other applicants see the need for some structure in a 2 GHz MSS plan that guarantees a minimum amount of spectrum from the outset. All agree that spectrum must be re-assigned from licensees that fail to implement their systems in a timely fashion to the remaining licensees in this processing group. The major difference between the flexible and traditional band approaches is that the flexible band approach assigns less spectrum at the outset and reserves a pool of expansion spectrum that an operator has to apply for after its system is operational, while the traditional band approach assigns more spectrum at the outset to each system¹⁵ and re-assigns unused spectrum.

The key advantage cited by supporters of the flexible band approach is the apparent guarantee of access to expansion spectrum in a timely fashion to prevent spectrum warehousing. Constellation believes that the advantages of having a higher initial spectrum assignment, both as a minimum capacity guarantee to bolster the business case for financing the system, as well as to optimize a wideband CDMA waveform for more efficient spectrum utilization and sharing, outweighs these perceived concerns over the traditional band approach. Moreover, the concerns of these parties over warehousing of spectrum by early entrants can be ameliorated by a Commission procedure to promptly re-assign spectrum to the remaining operators after a licensee fails to meet a milestone requirement.

One problem with the flexible band approach is the level of detail in system traffic and forecasts which parties deem necessary for the Commission to manage the expansion spectrum

¹⁵ Constellation believes that each system should be initially allowed to access only 3.75 MHz of spectrum unless it agrees with other system operators to share a larger band assembled from their combined assignments. Furthermore, applicants proposing both GSO and NGSO satellites in their system should not be allowed to access more than 3.75 MHz of spectrum. Constellation also believes that the adjustments proposed by Globalstar violates this principle since it appears to assign more spectrum to GSO systems than required by the applicants proposals. *See* Globalstar Comments of Globalstar at 21.

pool. Constellation is concerned that the proposal of Inmarsat and Celsat¹⁶ for regular review of system usage and forecasted demand in order to re-portion spectrum among systems will drag the Commission into examining an inordinate amount of detailed subjective data concerning internal system operations. While the Commission should retain jurisdiction to re-assess the assignment plan to correct major spectrum use inefficiencies, Constellation believes that system operators should be assigned proportionate amounts of expansion spectrum.¹⁷ Unless the Commission wants to examine the complex issues of spectrum efficiency and market demand statistics using subjective information provided by each applicant, it will need to provide each licensee the same amount of expansion spectrum.

As discussed above, Constellation believes that the criticisms of the traditional band approach as too rigidly structured can be overcome by prompt Commission action to re-assign spectrum from licensees who fail to satisfy milestone requirements and by granting special temporary authorizations to early entrants to operate in portions of the 2 GHz MSS bands that are easiest and most economical to clear of terrestrial usage. Moreover, since the traditional band plan covers the entire 2 GHz MSS spectrum available in the United States, it offers the best means of protecting U.S. interests through the international frequency coordination procedures. Any international coordination agreement will necessarily require modifications to reflect actual system implementation regardless of which band plan approach is selected. However, the flexible band approach leaves large portions of the 2 GHz bands unassigned and likely unprotected in the international coordination process, while the negotiated entry approach raises

¹⁶ See Comments of Inmarsat at 4-5.

¹⁷ Spectrum returned by licensees failing to meet milestones should be designated for system expansion.

the possibility that the first non-U.S. system will use the international procedures to notify use of the entire band through another administration. The traditional band approach avoids these scenarios by establishing a basis for international coordination that protects use of the entire 2 GHz band within the United States.¹⁸

II. The Commission's Proposed Rules Address All Of The Issues That Need To Be Resolved Before Granting Authorizations For All Of The Proposed 2 GHz Systems

The Commission's proposals to extend the existing rules governing the 1.6/2.4 GHz MSS to cover the 2 GHz MSS is a practical and efficient approach to complete this proceeding. Adoption of the proposed rules, with a few minor modifications, is sufficient for the Commission to conclude that the public interest will be served by granting each of the pending 2 GHz MSS applications.

A. The 1.6/2.4 GHz MSS Service Rules Provide An Adequate Basis For The 2 GHz MSS Service Rules

All of the applicants support the Commission's proposed service rules for the 2 GHz MSS Service that are based on the service rules for the 1.6/2.4 GHz MSS Service. Only a few modifications to the Commission's proposals were presented by the parties.

Constellation supports the proposals that the license term be increased beyond ten years to 12 or 15 years.¹⁹ Several proposals were made relating to the nature of the milestones to be impose in 2 GHz MSS authorizations. Constellation can support Iridium's proposed milestones

¹⁸ Constellation believes that all 2 GHz MSS systems authorized to provide service in the United States should be required to support Commission efforts to complete international coordination of licensed systems under the frequency assignment plan adopted in this proceeding. The Commission should clearly define in its Report and Order in this proceeding the precise legal nature of the "authorization" it grants to non-U.S. system operators filing Letters of Intent and the conditions which they must satisfy in order to provide service within the United States.

¹⁹ See e.g. Comments of Boeing at 37-38

as being more practical than the Commission's which were adapted from GSO FSS and NVNG systems.²⁰ However, proposals for more detailed milestones, should be rejected since they are unnecessary and are likely to involve overly detailed Commission intrusion into the day-to-day management of its licensees.

B. Feeder Link Issues Should Not Delay Processing Of The 2 GHz MSS Applications

Constellation proposes to utilize the 5091-5250 MHz, 6700-7075 MHz and 15.43-15.63 GHz bands for its feeder links. Constellation and the other applicants proposing to use these feeder link bands agree that all of the feeder link requests can be accommodated with appropriate coordination agreements.

While NTIA and certain parties interested in terrestrial fixed service have raised concerns over use of these feeder link bands for 2 GHz MSS systems, all of these concerns are addressed, either by the Commission's current rules or by the proceedings in the pending ET Docket 98-142.²¹ Consequently, Constellation sees no basis for deferring action on licenses for feeder links in these bands since any feeder link licenses would be subject to existing coordination procedures that protect the interests of these parties.

Constellation agrees with Boeing that the Commission should not reduce the amount of feeder link spectrum assigned to applicants simply to reflect the anticipated reductions in service link spectrum.²² Satellite architectures in these bands are likely to be complex, and the

²⁰ See Comments of Iridium at 43-44

²¹ See Notice of Proposed Rule Making, FCC 98-177, released August 4, 1998 and Constellation's comments and Reply Comments filed in that proceeding.

²² See Comments of Boeing at 23.

relationship between the number of beams, capacity per beam, and the interconnections between feeder link spectrum and service link spot beams will be too complicated to draw a simple relationship between service link and feeder link spectrum requirements.

C. Processing Of The 2 GHz MSS Applications Should Not Be Constrained By The Other Issues Raised By The Commission

The Commission raised a number of issues in its Notice on which comment was requested. None of them require action in this proceeding. The first such issue involved service to underserved areas. As the majority of applicants pointed out, all of the 2 GHz MSS systems are, by their nature, designed to provide affordable, high quality services to remote areas and other areas not well served by current terrestrial facilities. Consequently, consideration of such an issue in assigning additional spectrum to 2 GHz systems will only involve the Commission in complex, artificial distinctions between the marketing activities of different operators.

With respect to the second issue involving emergency services, the majority of the applicants agree that it is premature to impose E911 requirements on 2 GHz MSS systems. Constellation recently addressed this issue in another proceeding and incorporates that discussion into these Reply Comments.²³

Finally, the majority of applicants agree that implementation of orbit debris mitigation procedures are an important part of their system implementation plans, but that it is inappropriate to establish any specific requirements in this proceeding limited to a single satellite service. If

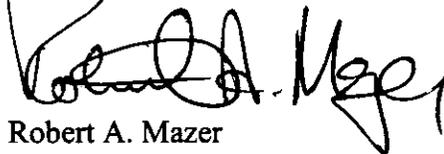
²³ See Constellation Reply Comments in IB Docket No. 99-67 filed January 21, 1999.

the Commission intends to establish any requirements dealing with orbital debris mitigation, it should do so in a separate proceeding applicable to all of the affected space services.²⁴

CONCLUSION

Constellation supports the Commission's efforts to establish processing procedures and service rules for the 2 GHz MSS Service. Constellation believes that all of the pending applications can be accommodated under a frequency assignment plan adopted by the Commission. Consequently, the Commission need not impose stringent financial qualifications standards for grant of a 2 GHz MSS license. The frequency plan should include an initial assignment of 3.75 MHz of service link spectrum in each direction together with a set of coordination and modification procedures that would provide flexibility in developing systems. Generally, the 1.6/2.4 GHz MSS service rules are a sound basis for the development of 2 GHz MSS service rules.

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²⁴ In particular, Constellation does not agree with Iridium that every satellite have the ability to de-orbit at end of life. See Comments of Iridium at 53-54. The amount of fuel required to de-orbit a satellite from the altitude proposed by Constellation would be inordinate and would substantially reduce capacity and/or increase cost. Boosting satellites into higher altitude orbits into the high radiation belts that are unlikely to be used by operational satellites may be more acceptable.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 26th day of July, 1999, a true and correct copy of the foregoing Comments of Constellation Communications, Inc. was served by first class mail, postage prepaid, upon the following:

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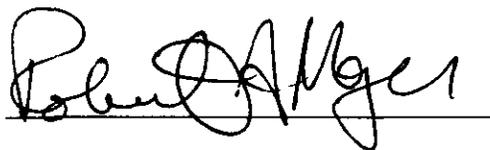
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