Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554



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| In re Applications of | ) | |
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| MOTOROLA SATELLITE COMMUNICATIONS, INC. | ) | File Nos. 9-DSS-P-91(87) |
| | ) | CSS-91-010 |
| For Authority to Construct, Launch and Operate a Low Earth Orbit Satellite System in the 1610-1626.5 MHz Band. | ) | |
| | ) | |
| ELLIPSAT CORPORATION | ) | File No. 11-DSS-P-91(6) |
| | ) | |
| For Authority to Construct Ellipso I, an Elliptical Orbit Communication Satellite System in the 1610-1626.5 MHz and 2483.5-2500 MHz Bands | ) | |



RESPONSE COMMENTS OF
CONSTELLATION COMMUNICATIONS, INC.

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## SUMMARY

In these Response Comments, Constellation Communications, Inc. reaffirms its opposition to the attempts by the American Mobile Satellite Corporation and Hughes Aircraft Company to have the radiodetermination satellite service frequencies reallocated for mobile satellite services and assigned to AMSC. Instead, CONSTELLATION believes the Commission must reaffirm its commitment to develop the radiodetermination satellite service by expeditiously licensing all the proposed system applicants on file before the Commission.

Adhering to CONSTELLATION's position is the only means for the Commission to fulfill its multiple entry policy in the RDSS band. Notwithstanding this position, CONSTELLATION submits that addition sharing studies, providing detailed analyses of potential interference between low earth orbit systems, are required before the Commission can grant either of the Motorola or Ellipsat applications. The outstanding issues concerning these applications, as well as the competing applications filed on June 3, 1991, can and should be resolved using the Commission's existing radiodetermination satellite service rules. This approach will permit the most expeditious resolution of outstanding questions and grant of these applications.

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RESPONSE COMMENTS OF
CONSTELLATION COMMUNICATIONS, INC.

Constellation Communications, Inc. ("CONSTELLATION™"), by its attorneys, hereby submits its response to the reply comments filed in the above proceedings. A total of six reply comments were filed with the Commission on July 3, 1991 in addition to the reply comments filed by CONSTELLATION. By these Response Comments, CONSTELLATION renews its opposition to the attempts by the American Mobile Satellite Corporation ("AMSC") and Hughes Aircraft Company ("Hughes") to appropriate the 1610-1626.5 and 2483.5-2500 MHz frequency bands for the proposed AMSC mobile satellite service ("MSS") system. CONSTELLATION also provides comments on how the Commission should expeditiously consider and grant the pending low earth orbit system applications proposing to use the 1610-1625.5 and 2483.5-2500 MHz bands.

A. THE COMMISSION MUST REAFFIRM ITS COMMITMENT TO DEVELOP THE RADIODETERMINATION SATELLITE SERVICE

In their individual reply comments, both AMSC and Hughes propose that the radiodetermination satellite service ("RDSS") frequencies be allocated for MSS and assigned to AMSC.[1/] This position is premised on an erroneous conclusion that the radiodetermination satellite service is not viable.[2/] Moreover, both AMSC and Hughes incorrectly assume that none of the low earth orbit ("LEO") systems proposed in this proceeding will provide true RDSS.[3/] These assertions are simply not supported by the record already before the Commission.

Unlike AMSC and Hughes, CONSTELLATION supports the position of Motorola Satellite Communications, Inc. ("Motorola") and TRW Inc. ("TRW") that RDSS remains viable,[4/] and that the record in this proceeding already has established the public interest in and potential market demand for RDSS

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1/ Reply Comments of American Mobile Satellite Corporation at 2; Reply Comments of Hughes Aircraft Company at 6.

2/ Reply Comments of American Mobile Satelitte Corporation at 7-8.

3/ Id. at 7; Reply Comments of Hughes Aircraft Company at 2.

4/ See Reply Comments of TRW Inc. at 4-9; Reply Comments of Motorola Satellite Communications, Inc. at 16-19.

services. The Commission has received multiple applications for RDSS systems which have contained extensive market studies of the potential users of LEO satellite systems and brought to light the large demand for RDSS. In particular, the application for CONSTELLATION's ARIES™ system, the application for Motorola's Iridium system and the application of Loral Cellular Systems Corporation ("Loral") for the Globalstar system demonstrate strong demand for RDSS services. CONSTELLATION submits that this evidence proves the importance of RDSS and the need for the Commission to encourage the development of these types of systems.

Moreover, CONSTELLATION disagrees with AMSC's assertion that the new LEO applicants are offering position location only on an ancillary basis.[5/] Unlike geostationary earth orbit ("GEO") systems, such as that proposed by AMSC, LEO systems have the inherent capability to provide RDSS.[6/] Thus, the pending LEO applications propose integrated position determination as envisioned for RDSS in a technically efficient and economically sound manner. Moreover, LEO systems are able to provide voice messaging in addition to the more limited

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5/ See Reply Comments of American Mobile Satellite Corporation at 7.

6/ For example, a user of a LEO RDSS system can determine position using only a series of measurements of doppler frequency shifts and ephemeris data transmitted by the satellite similar to the current Transit system.

data-only services provided by GEO RDSS systems such as the system that had been proposed by Geostar. In contrast, a GEO MSS system, such as AMSC's proposed satellite system, can only provide a position reporting capability through use of a separate position determination system, such as the Global Positioning System ("GPS"). Such a simple position reporting service should not be viewed as a substitute for true RDSS.

But AMSC and Hughes choose to ignore the potential benefits of RDSS in order to satisfy their search for new spectrum for GEO MSS systems. What both AMSC and Hughes seem to overlook in their arguments is the absurdity of asking for new spectrum when AMSC has been unable to make any substantial progress toward development of its own system using the frequencies already assigned to it. Ironically, AMSC claims the RDSS frequencies should be reallocated because "there is no sound public policy reason to maintain an allocation that for so many years has been virtually unused." Yet, it fails to mention that the MSS frequencies assigned to AMSC have been completely unused for many years. The AMSC and Hughes demand that this valuable spectrum be used for GEO MSS becomes even more incredible in light of the substantial doubt as to whether AMSC will ever provide any service given the D.C. Circuit's ruling on the validity of AMSC's license.[7/]

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7/ See Aeronautical Radio, Inc. v. FCC, 928 F.2d 428 (D.C. Cir. 1991).

The arguments being promoted by AMSC and Hughes, in essence, are completely dependent on their erroneous view that the Commission has granted AMSC a monopoly for mobile satellite services. As a corollary matter, AMSC contends that its monopoly and the possibility of creating a viable MSS system are in jeopardy due to a lack of frequency for GEO MSS. As CONSTELLATION asserted in its Reply Comments, these claims are wholly without justification. The Commission has never granted AMSC a monopoly the provision of space segment for domestic MSS. Nor can the Commission grant AMSC priority rights to any frequency outside the band already specifically assigned to AMSC. Moreover, AMSC has yet to make a factual showing that it can fully utilize the frequencies already assigned to it. Nor has AMSC identified with specificity the constraints on its system that are likely to result from the coordination process.8/

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8/ AMSC's position is based solely on the claim that more than 35 MSS systems propose to use the 28 MHz assigned to AMSC. Reply Comments of American Mobile Satellite Corporation at n.2. This claim is insufficient to justify assignment of additional frequencies to AMSC since all authorizations are issued subject to the results of international frequency coordination. See 47 C.F.R. 25.202. Moreover, a technical basis exists for the successful coordination of these systems. See e.g. Azarbar, An Upward Compatible Spectrum Sharing Architecture for Existing, Actively Planned and Emerging Mobile Satellite Systems, International Mobile Satellite Conference, Ottawa, 1990 at 456.

In light of the failure of AMSC and Hughes to establish a justification for the reassignment of the RDSS frequencies to the AMSC MSS system, CONSTELLATION submits that the Commission must reject the AMSC and Hughes Reply Comments and move forward with licensing low earth orbit satellite systems. Instead, CONSTELLATION urges the Commission to adopt TRW's suggestion that the Commission advance the "twin goals of preserving and revitalizing the RDSS service."[9/] CONSTELLATION submits that licensing of low earth orbit satellite systems, such as the ARIES™ system, will best fulfill these goals.

B. THE COMMISSION MUST ADHERE TO ITS MULTIPLE ENTRY POLICY IN THE RDSS BAND.

CONSTELLATION agrees with Motorola's conclusion that "the Commission prefers competition and multiple entry over having to choose between mutually exclusive satellite service applicants."[10/] This is the position that CONSTELLATION presented to the Commission in its Petition for Rulemaking

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9/ Reply Comments of TRW, Inc. at 7.

10/ Consolidated Opposition and Reply of Motorola Satellite Communications, Inc. at 28.

filed on June 3, 1991 and in its Reply Comments filed on July 3, 1991. Motorola further asserts that it is not asking for a monopoly because the Iridium system is compatible with GEO RDSS systems that comply with the Commission's rules.[11/] Having given support for this multiple entry policy on the one hand, Motorola appears to take it away with the other by hinting that qualitatively superior designs may justify licensing a single LEO system.[12/] Not only does this position fly in the face of the long standing Commission policy discussed by Motorola itself, but it assumes incorrectly that Motorola has established the technical superiority and economic viability of its proposed Iridium system.

The Commission's multiple entry policy is based on the conclusion that multiple licensees will promote price competition and innovation. Alleged qualitative superiority of a particular system proposal should not be used as an excuse for creation of a monopoly LEO system which eliminates the

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11/ Consolidated Opposition and Reply of Motorola Satellite Communications, Inc. at 29. It should be noted that the only interference analyses submitted to date by Motorola address the Geostar and Locstar GEO RDSS systems, and not any LEO systems. Apparently Motorola believes that there is no need for it to address interference between the Ellipsat and Iridium LEO systems because the Ellipsat system, in its view, does not conform to the Commission's RDSS rules. Id. at 27. Motorola's logic on this point is strained since the Iridium system does not conform to the Commission's RDSS rules either.

12/ Id. at 29.

public interest benefits associated with competition. Moreover, Motorola has failed to either demonstrate the unquestionable superiority of its system or resolve all of the outstanding questions regarding the Iridium system to justify the grant of a single LEO system license.

Although Iridium offers a technically more complex system than other LEO proposals, Motorola has not been able to establish that that level of technical capability is appropriate for the marketplace at this time. CONSTELLATION submits that the Iridium system presents too many technical, economic and institutional risks to justify its authorization as the only LEO system in the RDSS bands. It is more appropriate to view smaller satellite systems that permit multiple entry and present lower technical and economic risks as "qualitatively superior" than a system that has the most advanced and challenging technical design but does not meet the needs of the public or the Commission.

A careful review of the record will demonstrate that Motorola has simply swept many critical questions under the rug rather than try to answer them head-on. For example, Motorola appears to concede TRW's argument that the on-board computer switching and processing hardware is beyond the current state-of-the-art, but simply extrapolates from current designs to express its expectation that the necessary space qualified

hardware will be available at the time it is ready to fly its satellites.[13/]

A second example is Motorola's reply to AMSC's criticisms of its power system capabilities. Motorola responds that the full traffic loading requires only 619 watts,[14/] but neglects the 232 watt L-band power amplifier load.[15/] Thus, if full traffic capacity is maintained during eclipse, the batteries will have to be discharged during eclipse to a greater degree than that indicated in Motorola's response.

Finally, Motorola simply brushes off AMSC's analyses that the delay in an Iridium link could be longer than the delay in a GEO system. Apart from the relative effects of such long satellite delays (and associated echo effects) on user acceptance of the Iridium system, the impact of such a delay on Motorola's ability to effectively and reliably route communications and comply with the operational sharing conditions it advocates needs to be addressed.

CONSTELLATION proposes that the most prudent course for the Commission to follow is to support the multiple entry policies that have worked well in previous proceedings. With multiple systems authorized in a band, there is no need for the

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13/ Id. at 34, n. 82.

14/ Id. at 38

15/ See Motorola Application at 80, Table V-6.

Commission to involve itself in the technical details of whether and how well a satellite system will work in practice. In a competitive market with multiple entry, ill-conceived systems, and those which take unnecessarily risky approaches, will be filtered out by the investment community. Multiple entry also will avoid many of the problems that have occurred in the mobile satellite service proceeding and should permit the prompt introduction of service while promoting competitive offerings. The alternative, licensing only one service provider, would require the imposition of an extremely high standard that all outstanding questions be fully investigated. Given the high complexity of the Iridium system, with all of the inter-satellite links and message routing contingencies and frequency sharing conditions it has proposed, more than Motorola's "trust me" response to the technical issues will be needed if the Commission is to depart from its multiple entry policies that favor the authorization of all of the LEO applications. Moreover, the cost and delay associated with the need to analyze who meets this standard may be prohibitive and cripple the attempts to initiate service to the public. Consequently, CONSTELLATION believes that the Commission must license competitive offerings of LEO services even if this requires that Motorola modify the Iridium proposal to accommodate other users.

C. ADDITIONAL SHARING STUDIES ARE REQUIRED BEFORE THE COMMISSION CAN GRANT EITHER OF THESE APPLICATIONS

It is clear that there are still a number of substantial sharing issues yet to be resolved in the RDSS bands before either the Motorola or Ellipsat applications can be granted. Neither Ellipsat nor Motorola have as yet provided detailed analyses of potential interference between LEO systems in the RDSS bands. In particular, CONSTELLATION disagrees with Motorola's claim that it "... should not have to prove that IRIDIUM can co-exist with every possible system, but only those RDSS systems that comply with the Commission's Rules."16/ The Motorola system does not conform to the Commission's RDSS rules, and all of the LEO applications filed by the June 3 cut-off date have equal status with the Motorola application. Thus, it is incumbent on Motorola, as well as all of the other applicants, to develop technical criteria to allow all of the proposed systems to operate compatibly, or face the difficult burden of resolving all outstanding questions of fact and proving that their system will better serve the public interest.

In addition, Ellipsat's technical response to CONSTELLATION's Comments concerning its antenna design creates additional questions concerning its technical design. In order to perform meaningful interference analyses of the effects of

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16/ Consolidated Opposition and Reply of Motorola Satellite Communications, Inc. at 27.

the various proposed systems in the RDSS bands, it is necessary to individually identify such technical parameters as HPA output power, line losses, antenna gains, and individual carrier power. By responding that the so-called antenna gain pattern (labelled in dBi) is really a composite "antenna beam/eirp coverage requirement" that "can be accomplished by forming two separate beams",[17/] Ellipsat only raises more questions as to the adequacy of the technical description of the Ellipso I satellites, e.g. will the multiple beams be fed by separate HPAs or will there be a power split between the two beams, and how does such a design affect the carrier power to be used in inter-system interference calculations? In effect, Ellipsat's response has made it more difficult to separate the individual components needed to perform a detailed interference analysis, and further clarification is needed of Ellipso system parameters in accordance with the engineering standards normally employed in detailed interference analyses.

As a more general matter, there remain issues regarding sharing between space and terrestrial services as well as between space services. It also appears that the 1992 WARC may have a significant impact on the status of the systems

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17/ Opposition of Ellipsat Corporation to Petitions, and Reply to Comments at 17.

in these bands.[18/] However, except for the problems of sharing between LEO systems and conventional GEO MSS systems, CONSTELLATION believes that it will be possible for the LEO applicants working together to develop any necessary technical conditions at the 1992 WARC that will allow successful coordination of the proposed LEO systems with other services in the band.

AMSC tries to twist the FCC's WARC Report to bolster its claim that the bands should be allocated for GEO MSS systems. However, a closer reading of that decision indicates that the Commission's proposals to enhance the RDSS bands by including an allocation for compatible MSS is distinct from its proposals to find additional spectrum for GEO MSS systems, such as the AMSC system. Since AMSC has made no attempt to date to develop a scheme for compatible operations of LEO systems and GEO MSS systems in the RDSS bands, the Commission is only wasting valuable time and resources in keeping the door open

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18/ Constellation does not agree with Motorola's claim that it "... has been the only RDSS applicant actively involved in the numerous organizations and committees providing advice to the [1992 WARC]." Consolidated Opposition and Reply of Motorola Satellite Communications, Inc. at 10. While it is true that Motorola has contributed to the 1992 WARC preparatory efforts with respect to its own system architecture, the Commission should also recognize that other RDSS applicants filing on June 3, through either employees or consultants, are also knowledgeable and have also made substantial contributions to the 1992 WARC preparatory efforts and will continue to do so.

for AMSC access to a third set of bands[19/] rather than the new bands being proposed in the WARC Report.

AMSC also mistakenly claims that all of the proposed systems violate the RDSS EIRP density limit at L-band and PFD limit at S-band.[20/] While seeking to protect terrestrial users from LEO systems, AMSC is being disingenuous because a GEO MSS system would violate these limits as well. In effect, AMSC desires a dual standard, the application of strict technical constraints on LEO systems to prevent their access to the spectrum (or severely limit their capacity) under the guise of protecting terrestrial users, and less strict standards applicable to its own GEO MSS system because the AMSC system cannot comply with existing sharing criteria. Thus, AMSC requests a much higher EIRP density level at L-band simply because it can't operate at a lower level, while it would hold

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19/ In addition to the 28 MHz of spectrum assigned initially by the Commission to AMSC, it has also requested the assignment of 33 MHz of additional spectrum. See e.g. application File Nos. 7/8/9-DSS-MP/ML-90 and General Docket No. 90-56. AMSC's current request would add another 20 MHz of spectrum to its system.

20/ Reply Comments of American Mobile Satellite Corporation at 7. In point of fact, the Ellipsat mobile terminal uplinks satisfy the EIRP density limit by AMSC's own calculations. See AMSC's June 3, 1991 Petition, Technical Appendix at Table 1. Also, AMSC's claim in Table 2 that the Iridium mobile uplinks violate the EIRP density limit by 1 dB also warrants closer scrutiny in view of the relatively wide range of EIRP levels indicated in Motorola's link budgets that result from the power control scheme used in the system.

the LEO systems to the more stringent RDSS EIRP density level in the same band. Moreover, while AMSC claims the LEO systems would cause harmful interference to terrestrial users in the countries that have a primary or secondary footnote allocation to the fixed service in the RDSS L-band, it gives no recognition to the fact that the 1515-1525 MHz band it requests for itself is allocated in the international table of frequency allocations to the fixed and mobile services on a primary basis in all three Regions, and that a power flux density limit is a likely condition for adding space service to the band.

Motorola also includes a discussion of the "inherent limits of sharing spectrum."[21/] However, Motorola has made no attempt to demonstrate how the theoretical analysis presented in Appendix A to its pleading provides a reasoned analysis of whether or not the pending LEO applications can share the RDSS bands and what are the technical conditions needed to achieve such sharing.

CONSTELLATION notes Ellipsat's willingness to change its system design to relocate its feeder links from the L/S-bands and TRW's support for excluding gateways from the band. CONSTELLATION does not believe that locating earth-to-space feeder links in the radioastronomy sub-band is a

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21/ Consolidated Opposition and Reply of Motorola Satellite Communications, Inc. at 32-34.

sufficient reason to permit feeder links in the L/S-bands because operational constraints can allow sharing of this sub-band with mobile uplinks. Moreover, the same factor does not apply to feeder links in the S-band downlink since S-band is not shared with radioastronomy.

In summary, neither Ellipsat nor Motorola has fully demonstrated the feasibility of their systems sharing the RDSS bands with the other pending proposed systems, nor have they identified the technical conditions under which such sharing would be feasible. On this basis, neither of the applications should be granted until the Commission completes a detailed analyses of the sharing conditions involving all of the pending non-GEO applications. CONSTELLATION expects that such analyses will be forthcoming when the Commission issues public notice of the new applications filed on June 3, 1991 and intends to update the preliminary interference analyses contained in Appendix H to its June 3 application with detailed analyses including all of the other proposed systems in the RDSS bands.

## D. THE COMMISSION SHOULD UTILIZE ITS EXISTING RDSS RULES TO PROCESS THE PENDING LEO APPLICATIONS

In 1986, the Commission established its processing rules for the RDSS service.[22/] These rules were designed to

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22/ See Second Report and Order, 104 FCC 2d 650 (1986)("Licensing Order").

allow the innovative and emerging RDSS service to evolve. There are four policies that underlie these rules. The first is multiple entry. The Commission indicated in the initial RDSS Licensing Order that multiple entry would "benefit the public by allowing competition in the provision of RDSS services."[23/] Furthermore, it concluded that while technical efficiency is a desirable goal, "the benefits of competition, including continued innovation will be best provided by independently licensed multiple systems."[24/] The second is minimal technical parameters for RDSS licensees and a requirement that all RDSS permittees coordinate any technical differences in their systems.[25/] The Commission believed that this would promote compatible multiple entry and at the same time allow the technology to develop. The third is financial qualifications that allow applicants only to demonstrate that sufficient funds are or will be available to meet the costs of constructing and launching the system and operating it for one year.[26/] This standard is equivalent to that applied in other satellite services where the Commission encourages new entry (e.g. separate systems and direct broadcast satellite) rather

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23/ Id. at 653.

24/ Id. at 654.

25/ Id. at 661.

26/ Id. at 664.

than the very stringent requirements applied in the domestic fixed satellite service. The Commission chose not to impose strict financial requirements because RDSS was a new, innovative and as yet unproven service. Fourth, all licenses in the RDSS bands are required to provide radiodetermination services, and may include two-way messaging as an inherent, albeit ancillary, component of RDSS.[27/]

These policies are directly applicable to any system operating in the RDSS bands, whether in geostationary or low earth orbit, that proposes to provide competitive and compatible radiodetermination services to the public. Like GEO RDSS service, compatible low earth orbit systems involve new and innovative technology being marketed to an untested market. This demands a flexible and responsive regulatory environment.

CONSTELLATION urges the Commission to apply these existing RDSS policies to the pending LEO applications. This will allow the prompt processing of the pending applications and insure that service is expeditiously provided to the public. The Commission should also initiate a parallel rulemaking proceeding to adjust basic technical criteria for low earth orbit systems that will enhance and promote the Commission's existing RDSS policies and resolve any conflicts

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27/ See 47 C.F.R. § 25.392(d).

between applications in order to allow multiple LEO systems in the RDSS bands to be granted promptly. More specifically, CONSTELLATION makes the following proposals for the Commission to utilize in processing the pending LEO applications:

1. The Commission Should Examine and Authorize the Pending LEO Applications Based on the Existing RDSS Multiple Entry Policy.

The use of the existing RDSS rules will allow the Commission to promptly consider the pending LEO applications and insure that the public receives the benefits of the proposed service in an expeditious fashion. There is no reason that the Commission now needs to revisit the underlying RDSS policies. As indicated above, these policies are best equipped to deal with new emerging technologies and services.

The Commission should initiate a parallel rulemaking proceeding as a means of promptly resolving any technical conflicts between applicants and to make any minor adjustments to the Commission's rules that may be needed to accommodate the proposed LEO systems. The Commission should not, however, use the rulemaking proceeding to establish baseline parameters for RDSS low earth orbit systems related to specific spacecraft design parameters given the diversity of satellite designs

proposed in the pending applications which claim they are compatible with multiple entry.[28/]

In addition, clarification will be needed as to the status to be afforded the RDSS payloads on board the GTE domestic fixed satellites. CONSTELLATION does not agree with Ellipsat that future RDSS systems should be granted any preference with respect to the pending LEO applications. Any new RDSS application is fully subject to the June 3 cut-off. The concerns expressed in the June 3 Comments of GTE Spacenet and RDSS, Inc. relating to the protection of the RDSS relays on Spacenet 3/Gstar 3 should be accommodated only until the end of the 10-year license term for the GTE Spacenet 3 satellite since no application for new RDSS relays were filed by GTE by the June 3 cut-off date.[29/]

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28/ In its initial comments, CONSTELLATION requested that the Commission not use the Ellipso I satellite as a baseline for LEO RDSS systems for various reasons. Comments of Constellation Communications, Inc. at 7. Ellipsat responded that it does not desire its system to be used as a baseline. CONSTELLATION agrees with this response and believes that none of the non-GEO systems proposed in the RDSS bands should be used as a baseline which other LEO systems have to conform to or face denial.

29/ CONSTELLATION can accept an argument by GTE Spacenet that it is entitled to a "renewal expectancy" for its RDSS relays, but only if the Commission grants a similar "renewal expectancy" to the compatible LEO systems filed on June 3, 1991.

In its initial comments, CONSTELLATION requested that the Commission not use the Ellipso I satellite as a baseline for LEO RDSS systems for various reasons. Comments of Constellation Communications, Inc. at 7. Ellipsat responded that it does not desire its system to be used as a baseline. CONSTELLATION agrees with this response and believes that none of the non-GEO systems proposed in the RDSS bands should be used as a baseline which other LEO systems have to conform to or face denial.

2. Each Application Should be Examined for Completeness by Providing a Meaningful Response to All Questions in Appendix B.

CONSTELLATION does not believe that there is any reason to impose the "letter perfect standard" on the pending LEO system applications, and agrees with Ellipsat that some of Motorola's comments on the completeness of the Ellipsat application is unnecessary and unproductive. However, the Commission should carefully review all of the applications and require each applicant to amend its application to provide the same minimum level of information.

3. All Applications Should be Dismissed that do not Provide Real Radiodetermination Satellite Services.

This proceeding should not be used as a subterfuge to eliminate the radiodetermination satellite service. As

indicated above, there continues to be a strong public demand for position determination services. Consequently, there is no need to change the requirement that systems operating in the RDSS bands provide true position determination services. If the Commission accepts this fact, it has no choice but to dismiss the application of AMSC since AMSC proposes to use these bands for everything but position determination services.

4. The Commission Should Grant Each Application Based Only on the Applicant's Financial Preparedness to Assume the Costs and Liabilities of Constructing and Launching a System and Operating It For One Year.

It is neither necessary nor desirable for the Commission to require any applicant to have in hand all the funds necessary to build its proposed system prior to the grant of its application. It is highly unlikely that any meaningful iron-clad commitments could be provided at this time. This is just as applicable to the $287 million required to implement the ARIES system as it is to the $3.7 billion required to implement the Iridium system. All the pending applicants are likely to seek other equity partners to share in the risk and economic burden associated with these types of satellite systems.[30/] In light of the high costs and high risks

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30/ The AMSC consortium experience demonstrates the need for phased investment commitments in establishing a new satellite system.

associated with LEO systems, the Commission must continue to allow RDSS applicants to obtain financing for their systems in stages.[31/] If the Commission were to use stricter financial qualifications, all the pending applications would have to be dismissed.

5. The Commission Should only Grant Waiver Requests that are Consistent with Existing RDSS Rules And Policies.

CONSTELLATION believes that the Commission should not use waivers to change the current Commission RDSS policies. These policies do not preclude LEO RDSS systems, and the pending LEO applications allow the Commission to re-invigorate RDSS by approving multiple LEO systems to operate in the RDSS bands on a competitive basis to provide radiodetermination service, and two-way voice and data messaging. Waivers should not be granted that would undercut such multiple entry. For example, a waiver of Section 25.202(a)(2) to permit bi-directional use of the 1610-1626.5 MHz band should not be granted if such spectrum use does not permit multiple entry by LEO systems.

Although the parallel rulemaking and coordination among applicants may ultimately remove any need for waivers,

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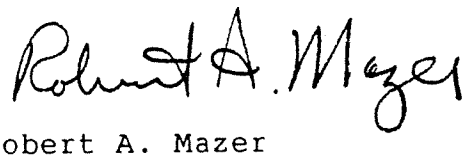
31/ In this regard, Constellation supports the comments of Ellipsat on financial qualifications. See Opposition of Ellipsat Corporation at 4-5, 8-22.

LEO applicants may nevertheless find a need to request technical waivers to enable their LEO RDSS systems to be more economically viable and therefore insure that service is provided to the consumer at the lowest possible cost and in the most expeditious timeframe possible. For example, requests for waivers of Section 25.392(f) of the Commission Rules, 47 C.F.R. § 25.392(f), to allow non-spread spectrum use or waivers to exceed international frequency sharing criteria should be granted if the result facilitates multiple entry.

E. CONCLUSION.

For the foregoing reasons, Constellation Communications, Inc. requests that the Commission reject the attempts by the American Mobile Satellite Corporation and Hughes Aircraft Company to appropriate the readiodetermination satellite service frequencies. Moreover, CONSTELLATION encourages the Commission to expeditiously proceed with licensing low earth orbit systems subject to the concerns outlined in these Response Comments.

Respectfully submitted,



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Dated: August 5, 1991

I, Robert A. Mazer, hereby certify that a copy of theforegoing Response Comments of Constellation Communications, Inc. was served by first-class mail, postage prepaid this 5th day of August, 1991 on the following:

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