

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

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) DOMESTIC FACILITIES DIVISION
) SATELLITE RADIO BRANCH

In the Matter of

ORBITAL COMMUNICATIONS CORPORATION

Application for Authority to
Construct a Low-Earth Orbit
Mobile-Satellite System

To: Chief, Common Carrier Bureau

) File No. 22-DSS-MP-90(20)
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REPLY COMMENTS OF dbX CORPORATION

dbX Corporation ("dbX"), by its attorneys, hereby submits these reply comments in response to the March 4, 1993 "Opposition to Orbcomm Amendment" filed by STARSYS Global Positioning, Inc. ("STARSYS"). That Opposition requested that the Commission reject the December 21, 1993 amendment to the pending application of Orbital Communications Corporation ("ORBCOMM Amendment") for authorization to provide service in the Non-Voice, Non-Geostationary Mobile Satellite Service ("NVNG MSS"). By these Reply Comments, dbX supports the STARSYS arguments detailed below and asks the Commission to classify the ORBCOMM Amendment as a major amendment within the meaning of Section 25.116 of the Commission's Rules. 47 C.F.R. § 25.116.

I. BACKGROUND

dbX has previously expressed its interest in the NVNG MSS in the context of CC Docket 92-76. In that proceeding dbX filed both comments and reply comments in response to the Commission's February 10, 1993 Notice of Proposed Rulemaking for the

NVNG MSS.^{1/} In those comments and reply comments, dbX urged the Commission to develop policies that promote future entry and competition in the NVNG MSS.

dbX has reviewed the applications of STARSYS, ORBCOMM and Volunteers in Technical Assistance ("VITA"), the Joint Sharing Agreement.^{2/} among those applicants, the NVNG MSS Report and Order,^{3/} the ORBCOMM Amendment and the STARSYS Opposition to the ORBCOMM Amendment. dbX believes that the ORBCOMM Amendment will make it more difficult to accommodate additional entrants and promote competition in the NVNG MSS than the proposal agreed to at the Negotiated Rulemaking. If the Commission were to approve this amendment it must revisit the NVNG MSS Order to determine its impact on future entry.

dbX agrees with STARSYS that the system detailed in the ORBCOMM Amendment will create additional interference to other NVNG MSS systems and that the amendment consequently should be treated as a major amendment. Moreover, dbX concurs in the STARSYS allegation that ORBCOMM has violated the Joint Sharing Agreement. Finally, dbX notes that the ORBCOMM proposal to use the entire NVNG MSS band and STARSYS'

^{1/} Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service, 8 FCC Rcd 6330, Notice of Proposed Rulemaking (February 10, 1993).

^{2/} Jointly Filed Supplemental Comments of ORBCOMM, STARSYS and VITA, CC Docket 92-76 (filed Aug. 7, 1992) (hereinafter "Joint Sharing Agreement").

^{3/} Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Non-Voice, Non-Geostationary Mobile-Satellite Service, 8 FCC Rcd 8450 (1993) (hereinafter NVNG MSS Order).

band segmentation rhetoric raise new concerns about competition and future entry in this service.

II. ORBCOMM's AMENDMENT PROPOSES SIGNIFICANT CHANGES TO ITS SATELLITE CONSTELLATION AND OPERATIONS

A. Interference

ORBCOMM's proposal to increase the number of satellites in its constellation will increase the potential for interference to other users. The ORBCOMM Amendment proposes to increase the ORBCOMM constellation from 20 satellites to 36 satellites. This change will increase the probability that an ORBCOMM satellite will be visible in the main beam of a NVNG MSS earth station. As a result, there is an increased probability of interference into NVNG MSS systems which use spread spectrum downlinks and share frequency spectrum with the ORBCOMM downlinks. Because STARSYS proposes to use a CDMA modulation scheme and share frequency spectrum with the ORBCOMM downlinks, it is likely to be affected by the increased potential for interference. This would also be true of any future CDMA system.

B. Polarization

Although dbX was not privy to the negotiations leading to the Joint Sharing Agreement, dbX's review of the Agreement supports STARSYS' claim that the ORBCOMM Amendment creates additional technical problems. For example, the Joint Sharing Agreement contains the statement that:

ORBCOMM and STARSYS will share the same
downlink frequency band using a combination of angular

separation of the satellites, cross polarization, and power flux density limitations.^{4/}

This statement implies that ORBCOMM agreed to use only one of the two possible circular polarization schemes. In the ORBCOMM Amendment, however, ORBCOMM seeks authorization to use both Right Hand Circular Polarization and Left Hand Circular Polarization for its subscriber downlinks. In addition to violating the Joint Sharing Agreement, this change will increase interference into other future NVNG MSS systems that would rely on using orthogonal polarization to that used by ORBCOMM. In particular, the lack of polarization isolation will introduce more interference into the STARSYS system and future systems than if the systems were cross-polarized. STARSYS in its Comments indicates that there would be an increase of 20db in interference if its system is not cross-polarized with ORBCOMM.

C. System Coverage

As is detailed in the ORBCOMM Amendment, ORBCOMM has proposed to both increase the number of satellites in its system from 20 to 36 and to reduce the satellite altitude in the majority of the orbits from 970 km to 775 km. At a 5° elevation mask angle, the satellite footprint area for each space station will be reduced from 24.2 million km² to 19.2 million km². Nonetheless, the growth in the size of the constellation will result in a system-wide increased constellation footprint from 484 million km² to 692 million km², a 43%

^{4/} Joint Sharing Agreement at 5.

increase. While this increase in size does not account for overlap, it will certainly create more interference to other systems.

III. The ORBCOMM Amendment Proposes Significant Changes Which Should Be Treated As A Major Amendment

dbX agrees with STARSYS that the Commission's Rules dictate that the ORBCOMM Amendment be classified as a major amendment. The Rules unambiguously state that any amendment to pending applications which increases the potential for interference to other users of the spectrum will automatically be considered a major amendment. 47 C.F.R. § 25.116(b)(1). ORBCOMM cannot overcome the presumption that its amendment is a major amendment by relying on the NVNG MSS Order. Although it is true that the NVNG MSS Order authorized the applicants to amend their applications in order to conform their applications to the newly adopted rules, the order specifically restricted the scope of amendments stating:

We emphasize, however, that only necessary amendments will be accepted unconditionally. All others will be treated under the existing procedural regulations.

NVNG MSS Order at ¶ 26. ORBCOMM cannot, and has not attempted to, argue that the ORBCOMM Amendment was necessary to bring ORBCOMM's application in line with the NVNG MSS rules. It is beyond dispute that the ORBCOMM Amendment greatly exceeds ORBCOMM's needs to amend its application to conform to the rules. As a result, ORBCOMM's amendment must be evaluated under Part 25.116 of the Rules which directs a finding that it be treated as a major amendment. Similarly, the proposed changes in

polarization and coverage also raise material and substantial changes to ORBCOMM's application, which changes must be classified as major amendments.

To hold otherwise would contradict Commission precedent in other services and set an unfortunate precedent for future proceedings. For example, dbX notes that in the cellular service the Commission unambiguously stated that any changes in power or coverage areas of pending applications would automatically be considered major amendments resulting in the applications being classified as "newly filed."^{5/} There is no policy reason for the FCC to reject this precedent in the context of the NVNG MSS. Moreover, dbX notes that the Commission will confront this same issue in numerous upcoming proceedings involving new services in both a satellite and non-satellite based context. Any decision by the Commission accepting material changes of this magnitude as a minor amendment may restrict the Commission's flexibility to reject broad amendments in future proceedings.

IV. ORBCOMM'S PROPOSED USE OF THE ENTIRE 148-149.9 MHZ BAND STARSYS' RESPONSE RAISE NEW CONCERNS ABOUT COMPETITION IN THE NVNG MSS

In its Amendment, ORBCOMM seeks authorization to use the entire 148-149.9 MHz band allocated for the NVNG MSS.^{6/} ORBCOMM proposes to scale back its use of the band after competing service providers launch their satellites and commence their operations.

^{5/} See 47 C.F.R. § § 22.23(c) and (g), 22.918(a) and (b) and Report and Order in CC Docket No. 80-57, 95 FCC 2d 769 (1983) at 789-792.

^{6/} ORBCOMM Amendment, Technical Description at 7.

STARSYS presents very vocal objections to this proposal. dbX agrees with STARSYS that this frequency plan also violates the Joint Sharing Agreement. Consequently, the Commission cannot grant the ORBCOMM Amendment and simultaneously claim that it is licensing the applicants pursuant to the Joint Sharing Arrangement.

At the same time dbX notes that the language of both the ORBCOMM Amendment and the STARSYS Opposition renew concerns which dbX raised in its comments and reply comments in CC Docket 92-76. Although the Commission has refused to authorize a formal band segmentation of the 148-149.9 MHz band, preferring instead to impose a requirement that all licensees coordinate their systems with existing and future licensees, the ORBCOMM and STARSYS filings indicate a de facto band segmentation. Additionally, dbX is troubled that STARSYS claims it is entitled to one half of the NVNG MSS band.^{2/} These sentiments directly contradict the Commission's policy statements in CC Docket 92-76 and the recently released NVNG MSS rules. Moreover, based on these statements, dbX again raises before the Commission the question of the feasibility and probability of future entry and competition in this band when the current applicants are attempting to grab all of the available spectrum. The Commission's failure to restrain the appetite of these applicants for available spectrum will only reduce competition for NVNG MSS services and ultimately hurt the interest of the NVNG MSS user. It is important to note that in the NVNG MSS Order the Commission stated "we would be more likely to entertain the notion of imposing our own limits on a licensee's spectrum usage and power levels . . . if the first round applicants proposed to use

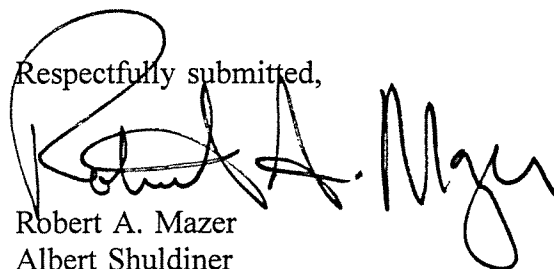
^{2/} STARSYS Opposition at 4.

all available spectrum."^{8/} The ORBCOMM Amendment and STARSYS Opposition seem to demonstrate that these two applicants believe that they own all the spectrum. Such a view is clearly contrary to the Commission's pronouncements in the NVNG MSS proceeding.

V. CONCLUSION

For the foregoing reasons, dbX requests that the Commission classify the ORBCOMM Amendment as a major amendment. At the same time, dbX encourages the Commission to reject the attempts of the applicants to create a de facto band segmentation which will stifle competition and decrease the likelihood that consumers will be offered robust NVNG MSS services.

Respectfully submitted,



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March 21, 1994

Counsel for dbX Corporation

^{8/} NVNG MSS Order at 8455.

TECHNICAL DECLARATION

I, Richard Barnett, hereby certify that I am a technically qualified and experienced consulting engineer. I have reviewed the foregoing "Reply Comments of dBX Corporation", and certify that the technical information presented is complete and accurate to the best of my knowledge, information, and belief.

Dated this 21st day of March 1994

By: _____

A handwritten signature in cursive script, appearing to read "R. Barnett", is written over a horizontal line.

Dr. Richard J. Barnett

CERTIFICATE OF SERVICE

I, Robert A. Mazer, do hereby certify that a copy of the foregoing Reply
Comments of dbX Corporation was mailed by first class United States mail, postage prepaid,
this 21st day of March, 1994 to the following:

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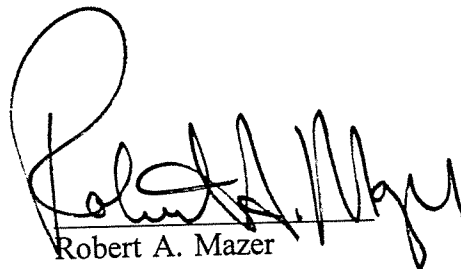
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