

Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Flexibility for Delivery of)	IB Docket No. 01-185
Communications by)	
Mobile-Satellite Service Providers)	
In the 2 GHz Band, the L-Band, and)	
The 1.6/2.4 GHz Band)	
)	
Amendment of Section 2 of the)	ET Docket No. 95-18
Commission's Rules to Allocate)	
Spectrum at 2 GHz for Use by)	
The Mobile-Satellite Service)	
_____)	

RESPONSE TO FCC PUBLIC NOTICE DA 02-554

Pursuant to the Commission Staff's request for technical information on the provision of an "ancillary terrestrial component" by Mobile-Satellite Service ("MSS") systems, Globalstar, L.P., ("GLP") is providing a technical analysis of the interference and spectrum use issues arising from ATC in the MSS Above 1 GHz bands (1610-1626.5/2483.5-2500 MHz).¹ GLP has previously filed comments and reply comments in this proceeding and enthusiastically supports grant of flexibility to MSS licensees, specifically for the provision of ATC.

¹ See Commission Staff Invites Technical Comment on the Certain Proposals to Permit Flexibility in the Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band, DA 02-554 (released Mar. 6, 2002).

I. BACKGROUND

As explained in its initial comments, GLP owns and operates the international MSS business offered through the Globalstar™ satellite constellation.² GLP also holds a 2 GHz MSS license.³ The 2 GHz MSS spectrum will be used to expand the service offerings available over the Globalstar system.

Globalstar commenced commercial service in the first quarter of 2000. Currently, Globalstar service is available in 109 countries, including the United States, through 25 gateway earth stations. There are approximately 68,000 commercial subscribers, which represents a steady increase over the last two years of service.⁴

By granting MSS systems the flexibility to provide complementary and ancillary services, such as ATC, the Commission can significantly enhance the economic viability of these systems. Economic stability ensures that satellite

² On February 15, 2002, GLP filed a petition under Chapter 11 of the U.S. Bankruptcy Code in the U.S. Bankruptcy Court for the District of Delaware. Normal company operations and customer support are continuing uninterrupted while GLP operates under Chapter 11 protection, and the company intends to continue providing services in the normal course, as Globalstar, L.P., Debtor-in-Possession.

³ Globalstar, L.P., DA 01-1634 (Int'l Bur. released July 17, 2001).

⁴ On January 14, 2002, Globalstar Corporation, a wholly owned subsidiary of GLP, filed applications to acquire control of Globalstar USA, LLC and Globalstar Caribbean Ltd., which hold the earth station licenses used to offer service in the United States, from Vodafone Americas Asia Inc. As part of its financial reorganization, GLP is planning to become the service provider for Globalstar™ in North America and, potentially, other areas of the globe.

services will be available to those people and in those areas that are not now and will never be covered by terrestrial systems -- not only in the U.S. but worldwide.⁵ On the other hand, by partitioning MSS spectrum or authorizing an unaffiliated person to use the MSS spectrum for terrestrial services, the Commission would undermine the viability of, and perhaps irrevocably debilitate, the MSS business in the U.S.

Over the past two years, Globalstar and its service providers have become painfully aware that the MSS business is not a mass market business like cellular but rather a collection of small niche markets. Accordingly, Globalstar has been developing new product lines to respond to customer demands for various types of niche satellite services. Most recently, on March 20, Globalstar and AeroAstro announced their joint development of a simplex data modem for remote sensing and monitoring. Another example: the demand for maritime uses of Globalstar services is greater than anticipated, so GLP has been developing several types of small, weatherproof MSS installations for pleasure boats and commercial ships. Globalstar is also developing aeronautical uses for the system that can provide cockpit- and cabin-to-ground connections and will enable users to establish an airplane office, with voice, data and fax capabilities.

⁵ After a year, Globalstar remains the only company providing service to Myra Jodie, the young Navajo woman in New Mexico whose lack of phone service was brought to the nation's attention by President Clinton in March 2000.

ATC fits into the commercial plans of Globalstar because it offers an opportunity to market an integrated combination of satellite and terrestrial services to a segment of wireless users. MSS-ATC will not compete with stand-alone cellular or PCS services; nevertheless, there are niche markets for the combination of satellite-terrestrial phones offering one-number and one-bill convenience. These markets cannot and will not be served by any terrestrial or PCS operator -- they simply will not be served if MSS does not serve them. And, as noted above, by increasing the potential market and financial base for MSS, ATC will ultimately serve the public interest by making MSS more useful to its core subscriber populations in rural and underserved areas.

ATC is also key to jump-starting the MSS industry, which, like nearly all industry segments, has been in the doldrums for these past two years. It goes without saying that the subscriber base and income for MSS systems have been slow to develop. ATC is exactly the type of product that MSS needs at this time to help improve its standing in the commercial and financial markets as well as in the consciousness of potential subscribers.

II. GRANTING ATC AUTHORITY “SEVERED” FROM MSS LICENSES IS NOT TECHNICALLY FEASIBLE.

In Public Notice DA 02-554, the Commission’s Staff seeks technical comments on the issue of whether MSS operations can be severed from terrestrial operations in the same band, that is, “is it technically feasible for one operator to provide terrestrial services and another operator to provide satellite services in the same MSS band?”

As explained in the attached technical discussion, the answer to the Commission's question is unequivocally "no." MSS in either the satellite mode or the terrestrial mode is primarily a *mobile* service that deploys omnidirectional antennas. Therefore, independent satellite and terrestrial mobile systems operating in the same bands would cause debilitating interference to each other, whether the terrestrial service operates using a forward band or reverse band system with respect to the satellite service.

The only feasible method to manage the interference, and for the satellite operator to comply with the Commission's geographic coverage requirements for licensed satellite systems,⁶ is to offer terrestrial service in selected locations on selected channels, reusing the channels outside the relatively small boundaries of the terrestrial service area. As explained in the technical discussion, the terrestrial and satellite services require complex coordination "on the fly" between the satellite and terrestrial modes. Through dynamic frequency assignment, a single operator could offer both satellite and terrestrial services in certain locations while maintaining universal satellite coverage. There is absolutely no chance that two different operators of two separate mobile systems could successfully accomplish such coordination.

Because the beam patterns used by non-geostationary satellite systems are large relative to a city or urban area, the terrestrial component would cause

⁶ 47 C.F.R. § 25.143(b)(2).

harmful interference in areas substantially beyond the targeted ATC service areas, and the areas would shift as the beams from each satellite cross the United States. The operator of an integrated MSS-ATC system would mitigate the loss in capacity from this phenomenon by assigning separate frequencies for terrestrial use and MSS use, respectively, within the designated ATC coverage areas. In this way, an MSS operator can offer both the satellite and terrestrial modes and still achieve efficient and effective use of the spectrum. But this complex coordination process requires that a single operator must have control over the spectrum and the channel assignment process, so that it can assign frequencies to achieve maximum capacity between the two service modes while avoiding intrasystem interference and optimizing frequency reuse.

The same efficiencies could not be achieved if the terrestrial service were provided in a severed frequency band by an operator independent of the MSS licensee. Given the limited spectrum at 1.6/2.4 GHz, severing the bands would destroy the viability of both businesses. Moreover, splitting the band is inconsistent with the Commission's stated rationale of granting flexibility to *MSS providers* to broaden their subscriber base and improve their financial standing.

Band splitting the MSS spectrum at 1.6/2.4 GHz would also require a costly redesign of Globalstar's system software and modification of existing handsets. A reduction in spectrum would mean a corresponding reduction in system capacity and would limit the ability to offer innovative services. For ATC, band splitting is not spectrum efficient because neither operator would be able to coordinate

dynamically the use of satellite and ATC spectrum to mitigate capacity lost to interference. Loss of spectrum would also make it more difficult for Globalstar to meet the existing requirements to protect radio-navigation satellite systems (GPS, GLONASS) and the radio-astronomy service,⁷ and to coordinate with any other MSS CDMA operator in the band. Therefore, any benefits arising from the grant of ATC authority would be lost if the available MSS L-/S-band spectrum were split between independent terrestrial and satellite operators.

III. AN INTEGRATED MSS-ATC SYSTEM CAN AVOID INTERFERENCE TO OTHER SYSTEMS AND SERVICES.

In the Public Notice, the Commission also sought comment on the impact of MSS systems providing ATC on other services and systems. In the attached technical appendix, GLP demonstrates that an integrated MSS-ATC system would be able to avoid harmful interference into other services.

First, GLP demonstrates that at least two CDMA systems operating in the 1.6/2.4 GHz bands would be able to coordinate use of the assigned frequencies so that both could provide ATC and MSS without causing harmful interference to the other.

Second, GLP demonstrates that the terrestrial component of an integrated MSS-ATC system at 1.6/2.4 GHz could avoid interservice interference by meeting the existing rules governing interference protection for other services and/or through frequency coordination. Thus, ATC would not cause interference into

⁷ See 47 C.F.R. § 25.213.

aeronautical radionavigation satellite services, the radio-astronomy service, TDMA MSS systems, all operating at L-band, and could avoid harmful interference into ITFS/MMDS services, operating at S-band.

Finally, given the unique parameters for operating MSS systems at 1.6/2.4 GHz, the Part 24 standards for PCS systems have little relevance. A limited set of technical requirements and the CALEA aspects would be applicable to ATC. Although it is anticipated that ATC, like MSS, would be treated as a Commercial Mobile Radio Service, the technology and design of an ATC service would primarily arise from the specific spectrum band in use and the design of the satellite system.

CERTIFICATE OF SERVICE

I, William D. Wallace, hereby certify that I have on this 22nd day of March, 2002, caused to be served true and correct copies of the foregoing "Response to FCC Public Notice DA 02-554" upon the following parties via hand delivery:

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