

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

In the Matter of)	
)	
Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Band)	IB Docket No. 07-253
)	
Request by Globalstar, Inc. To Expand Its Ancillary Terrestrial Component (“ATC”) Authority To Encompass Its Full Assigned Spectrum)	RM-11339
)	
)	

REPLY COMMENTS OF GLOBALSTAR, INC.

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SUMMARY

In its opening Comments in this proceeding, Globalstar demonstrated that the public interest and long-standing Commission policy require that its limited Ancillary Terrestrial Component (“ATC”) authority be expanded to encompass all portions of its unshared spectrum assignments between 1610–1617.775 MHz and 2483.5–2495 MHz, for a total of 19.275 MHz of ATC-eligible spectrum. Globalstar showed that it can use its expanded ATC authority before the end of 2008 to bring wireless broadband terrestrial and satellite service to rural America through a business venture with Open Range Communications, Inc. (“Open Range”). Conversely, Globalstar showed that its current limited authority essentially precludes it from attracting partners and investment sufficient to meet the needs of the unserved and underserved areas of the United States.

Globalstar submitted a Technical Appendix showing that there are no technical impediments to its providing ATC services in all of its unshared spectrum and that the existing guard band from 2495 to 2496 MHz is sufficient, coupled with the use of recognized interference mitigation techniques, to protect the Broadband Radio Service (“BRS”) above 2496 MHz from any harmful interference from Globalstar’s ATC service. Finally, Globalstar argued that, to the extent that its competitors hold considerably greater ATC authority than Globalstar holds, it is incumbent upon the Commission to remedy the disparity and treat all similarly situated licensees equitably.

The commenters broadly recognize that expanding Globalstar’s ATC authority is essential in order to enable Globalstar to make the most efficient use of its assigned spectrum and to realize the full benefits that the Commission envisioned for Mobile Satellite Service (“MSS”) providers when it authorized them to augment their systems with ATC. In particular, commenters recognize that the Commission should avoid the

imposition of unnecessary restrictions on licensees' use of their assigned spectrum and instead leave it to licensees themselves to determine the best and most efficient means of meeting any interference-protection standards that the Commission concludes are reasonably necessary. This sound approach to spectrum management has been employed in other services, and, as Globalstar shows in these Reply Comments, is vital given the existing congestion in the spectrum below 3 GHz and the increasing demand for expansion spectrum by both satellite and terrestrial wireless providers.

In their comments, Open Range and Main Street Broadband join with Globalstar in citing the benefits that can be expected to flow from expanding Globalstar's ATC spectrum assignment. Specifically, the planned Globalstar/Open Range rural broadband offering would provide reliable, reasonably priced mobile broadband services to more than 500 unserved and underserved communities throughout the United States. These benefits would be jeopardized if Globalstar's ATC authority were restricted to less than the full 11.5 MHz of unshared S-band spectrum.

No commenter has offered any persuasive technical or policy justification for the Commission to delay or deny granting Globalstar the expanded authority that it requests. In the case of the L-band, Iridium, the only other L-band MSS operator, has raised no objection to Globalstar's provision of ATC services between 1610 and 1617.775 MHz. In the case of the S-band, no commenter has opposed extending Globalstar's ATC authority to the spectrum between 2483.5-2487.5 MHz. While certain commenters oppose expansion of Globalstar's ATC authority in the spectrum between 2493-2500 MHz, their concerns are directed primarily to ATC operations between 2496-2500 MHz, which Globalstar's MSS service shares with BRS channel 1 licensees. As Globalstar has

determined at this time not to seek the authority to provide ATC services in any of the spectrum that it shares with other licensees, those concerns have been mooted.

In these Reply Comments, Globalstar shows why the Commission must reject requests by certain BRS commenters that it expand the existing 1 MHz guard band between MSS/ATC and BRS channel 1 to a 3 MHz guard band. Large guard bands are inconsistent with established Commission spectrum assignment policies. No commenter has made a technical or policy case for an excessive guard band in this case, and Globalstar has provided extensive technical analyses showing that BRS operations above 2496 MHz will be fully protected from harmful interference if all licensees adhere to existing best practices for interference abatement. Globalstar also shows that, should Globalstar and any of its potential ATC partners offer WiMAX or another MSS/ATC service that is technologically compatible with BRS licensees' chosen technologies, synchronization between operations in adjacent spectrum can virtually eliminate interference between Globalstar's ATC system below 2495 MHz and BRS above 2496 MHz.

In light of the compelling showing that Globalstar has made demonstrating that it will address an unmet need for wireless rural broadband and satellite service and that it can deploy ATC services throughout its unshared spectrum in the L- and S-bands without causing interference to other licensed operations, the public interest would best be served by expeditious expansion of Globalstar's ATC authority throughout its unshared spectrum assignment (1610–1617.775 MHz and 2483.5–2495 MHz).

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REPLY COMMENTS OF GLOBALSTAR, INC.

Globalstar, Inc. (“Globalstar”) submits these Reply Comments on behalf of itself and its licensee subsidiary, Globalstar Licensee LLC, in the above-referenced proceeding^{1/} in which the Commission proposes to revise its rules to authorize Globalstar to use more of its assigned Mobile Satellite Services (“MSS”) spectrum to provide Ancillary Terrestrial Component (“ATC”) services. As Globalstar discussed in its comments in response to the *NPRM*,^{2/} there is ample justification for the Commission to

^{1/} See Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands, *Notice of Proposed Rulemaking*, 22 FCC Rcd 19733 (2007) (“*NPRM*”). The *NPRM* was issued in response to Globalstar’s Petition for Expedited Rulemaking for Authorization To Provide Ancillary Terrestrial Component Services in Its Entire Spectrum Allocation (filed June 20, 2006), Rulemaking No. 11339 (“*Globalstar Petition*”).

^{2/} See Comments of Globalstar, Inc. in IB Docket No. 07-253 (filed Dec. 19, 2007) (“*Globalstar Comments*”).

revise its rules as contemplated in the *NPRM* to authorize Globalstar to offer ATC services in all of its assigned spectrum that it does not share with other licensees.^{3/} No comments filed in response to the *NPRM* provide any compelling reason for denying Globalstar's request, and many strongly support it. As shown here and in Globalstar's other pleadings in this proceeding, the public interest requires that the Commission promptly amend its rules to allow Globalstar to offer ATC services in all portions of its unshared spectrum assignments between 1610–1617.775 MHz and 2483.5 MHz–2495 MHz.

I. COMMENTERS BROADLY RECOGNIZE THAT EXPANDING GLOBALSTAR'S ATC AUTHORITY WILL PROMOTE EFFICIENT SPECTRUM USE.

As Globalstar showed in its *Petition* and comments, expansion of its ATC authority to encompass all of its unshared spectrum is essential in order to enable Globalstar to make the most efficient use of its assigned spectrum and realize the full benefits that the Commission envisioned for MSS providers when it authorized them to augment their systems with ATC. The comments filed in response to the *NPRM* provide compelling support for this conclusion.

^{3/} Although Globalstar's *Petition* sought authority to deploy ATC in all of its assigned 28.75 MHz of spectrum, including that shared with other licensees, Globalstar seeks at this time only to expand its ATC authority to encompass all of the spectrum that it does not share with other MSS or Broadband Radio Service ("BRS") operators (the "unshared spectrum"). See *Globalstar Comments* at note 2. Nor does Globalstar seek at this time to provide ATC services in the 1 MHz guard band from 2495-2496 MHz intended to prevent interference to BRS licensees from Globalstar's operations. *Id.* Globalstar will avoid interference from its ATC services with other types of operations in its bands, such as Broadcast Auxiliary or Radio Astronomy, through geographic separation or coordination. *Id.* See also, Globalstar LLC, Request for Authority to Implement an Ancillary Terrestrial Component for the Globalstar Big LEO Mobile Satellite Service (MSS) System, *Order and Authorization*, 21 FCC Rcd 398 (2006) ("*Globalstar ATC Authorization*") at ¶¶ 37-40; 47 C.F.R. §§ 1.924 and 25.302(e)-(g).

A. Flexibility Of Use By Licensees Permits Them To Make The Most Efficient Use Of Their Licensed Spectrum.

The Commission has long held that its rules and policies must provide licensees with the proper incentives to make the most efficient use of their spectrum resources. Perhaps the single most important incentive is flexibility to use the spectrum as intensively as possible, subject only to the requirement to avoid interference with other licensed operations. Indeed, in adopting the ATC rules, the Commission made clear that its action was intended to enable MSS providers to “enhanc[e] their ability to offer high-quality, affordable mobile services ... without using any additional spectrum resources beyond spectrum already allocated and authorized by the Commission for MSS use.”^{4/} Specifically, the Commission found that the public interest would best be served by “permitting MSS licensees flexibility to improve” their MSS service offerings by deploying ATC systems, and that ATC would allow them to increase their “spectrum efficiency and achieve other public interest goals” – namely expanding the variety and availability of services they can provide for the benefit of their public safety and other customers.^{5/} Moreover, the Commission concluded that, in addition to the “sound

^{4/} See Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, *Report and Order and Notice of Proposed Rulemaking*, 18 FCC Rcd 1962 (2003) (“*ATC Report and Order*”) at ¶ 1. The Commission also made clear that “permitting qualifying MSS licensees the flexibility to incorporate ATC, which will permit them to improve service to certain geographic areas by improving signal quality through the use of terrestrial facilities in the 2 GHz, L-band, and the Big LEO MSS bands, is consistent with the criteria in section 303(y) of the Act and with the Commission’s long standing policy of granting spectrum users additional flexibility to implement new services.” *Id.* at ¶ 208.

^{5/} *Id.* at ¶¶ 18, 29 (“ATC-enabled MSS systems may provide additional communications options and, therefore, offer our nation greater protection in times of crisis or disaster than traditional MSS systems alone.”). See also Flexibility for Delivery

spectrum management principles” that supported the grant of ATC authority, “granting additional flexibility in the provision of MSS to the public also has the advantage of reinforcing potential public interest benefits of MSS itself.”^{6/}

The comments filed in response to the *NPRM* recognize that expanding Globalstar’s ATC authority to encompass all of its unshared spectrum assignment is fully consistent with these goals. As Open Range Communications, Inc. (“Open Range”) suggests, for example, expanding Globalstar’s ATC authority will enable Globalstar to realize the full potential of the unique capabilities afforded by low earth orbit satellite systems and bring a variety of new service offerings to its customers.^{7/} Similarly, in its comments, Nortel urges the Commission to ensure that its rules are flexible enough to allow licensees to make the most efficient use of their spectrum, subject only to the

of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands, *Memorandum Opinion and Order and Second Order on Reconsideration*, 20 FCC Rcd 4616 (2005) (“*ATC Memorandum Opinion and Order*”) at ¶ 9 (“MSS/ATC [will] enhance the ability of the national and global telecommunications systems to protect the public by offering ubiquitous service to law enforcement, public aid agencies, and the public.”).

^{6/} See *ATC Report and Order* at ¶ 32.

We find that permitting ATC will allow MSS operators the opportunity to take advantage of a number of network, spectrum and economic efficiencies that may help defray the substantial capital costs required to create and operate a satellite system. These efficiencies could, in turn, reduce the marginal cost of serving subscribers and permit MSS operators to serve more customers. By taking advantage of potential integration of services, MSS operators may also obtain economies of scale: larger customer bases could provide the opportunity to support larger production volumes and, therefore, lower costs for handsets and other equipment. Also, integrating terrestrial services into MSS may reduce the transaction costs of administering separately owned satellite and terrestrial systems. *Id.* (citations omitted).

^{7/} See Comments of Open Range Communications, Inc. filed in IB Docket No. 07-253 (filed Dec. 19, 2007) (“*Open Range Comments*”) at 2.

requirement that they not cause harmful interference to other licensed users.^{8/} These views are echoed by Main Street Broadband LLC (“Main Street”), which contends that “limiting the availability of any suitable licensed spectrum” for a particular use, such as broadband deployment, “is in direct contradiction to the public interest.”^{9/}

The increased flexibility that will result from expansion of Globalstar’s ATC authority will foster substantial public interest benefits, such as those embodied in Globalstar’s and Open Range’s plan to bring wireless broadband service to unserved and underserved areas throughout the country. Indeed, as Open Range and Main Street both observe, the coverage capabilities of Globalstar’s Big LEO spectrum, when augmented with a fully deployed ATC system, provides an ideal platform for the deployment of broadband services to those areas of the country where such services are notably lacking.^{10/} The Commission’s unequivocal policies favoring flexible and efficient spectrum use, in combination with the significant public interest benefits that Globalstar has demonstrated will result from its ATC services, mandate that the Commission act quickly to authorize Globalstar to provide ATC services in all of its unshared spectrum.

^{8/} See Comments of Nortel filed in IB Docket No. 07-253 (filed Dec. 19, 2007) (“*Nortel Comments*”) at 2 (“Nortel is a strong proponent of spectrum efficiency which includes using spectrum to the maximum extent feasible without causing harmful interference to other authorized users.”).

^{9/} See Comments of Main Street Broadband LLC filed in IB Docket No. 07-253 (filed Dec. 19, 2007) (“*Main Street Comments*”) at 3.

^{10/} See *Open Range Comments* at 4 (“The spectrum licensed to Globalstar for its ATC services, when expanded to include all of its unshared L-Band and S-Band frequencies, provides an ideal platform for the deployment of rural broadband services.”); *Main Street Comments* at 2 (“It is imperative that Globalstar and its commercial partners have access to sufficient spectrum resources to deploy innovative, essential and cost-effective solutions to the millions of households and businesses that do not have competitive broadband availability.”).

B. Commenters Recognize That Use Of Mandatory Guard Bands Should Be Minimized.

The commenters recognize that the use of mandatory guard bands should be kept to a minimum and applied only where absolutely essential to protect adjacent services from one another. As Nortel explains, for example, its “fundamental position is to use guard bands sparingly *or not at all* in order to maximize the utilization and value of the available spectrum In view of the high demand for spectrum, Nortel believes this to be efficient engineering practice and consistent with good public policy.”^{11/} For similar reasons, Open Range advocates the imposition of guard bands only sparingly when necessary to avoid interference to adjacent users, and not at all where there are other, more efficient mechanisms available, such as the use of appropriate filters and synchronization between licensed operations on adjacent channels, to prevent harmful interference.^{12/}

In keeping with this approach to spectrum management, Sprint Nextel has noted in its recent comments filed in another proceeding, and contrary to its position in this proceeding, that “[t]he Commission long ago rejected command-and-control models in favor of technology-neutral limits that the licensees determine how best to satisfy.”^{13/} Rather than impose excessive restraints on licensees’ ability to use their spectrum to its

^{11/} See *Nortel Comments* at 2.

^{12/} See *Open Range Comments* at 2 (“Open Range believes that adequate operational procedures, including the synchronization of adjacent channel systems, already exist to protect against interference between ATC and BRS/EBS operators [so that] the chance of interference occurring between ATC and BRS-1 operators is minimized with the current 1.0 MHz guard band without the need for expansion of that guard band.”).

^{13/} See Comments of Sprint Nextel Corporation in WT Docket No. 07-195 (filed Dec. 14, 2007) at ii.

fullest potential, the Commission, in Sprint Nextel’s own words, “should impose only those rules minimally necessary to protect adjacent- and co-channel licensees against harmful interference” and “follow its time-tested practice of relying on standard interference-abatement measures, including power, emissions, and signal strength limits to prevent harmful base-to-mobile or mobile-to-mobile interference in adjacent bands.”^{14/} Although Sprint Nextel’s comments in that proceeding do not address base station-to-base station interference, the same considerations apply. Thus, instead of imposing excessive guard bands that would unnecessarily restrict licensees’ flexible use of their spectrum, the Commission should conclude, as Sprint Nextel urges in *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, that “no new rules or restrictions need to apply to any existing or prospective adjacent-channel licensees” and instead leave it to licensees themselves to “determine the best and most efficient means of meeting the interference-protection standards that the Commission establishes.”^{15/}

In light of the existing congestion in the spectrum below 3 GHz and the increasing demand for expansion spectrum by satellite and terrestrial wireless providers, it is imperative that the Commission pursue spectrum policies that encourage licensees to make the most efficient use of their own spectrum, and not look to the Commission to provide anything more than the minimum amount of spectral separation from adjacent services that may be necessary to prevent interference.^{16/} With these minimal technical

^{14/} *Id.* at 3-4; 5.

^{15/} *Id.* at ii, 5-6.

^{16/} *See Globalstar Comments* at 27 (“Each and every licensed operator bears responsibility to design its system not only to avoid out-of-band interference, but also to

requirements in place, licensees of course remain free *voluntarily* to use frequency separation together with other recognized interference mitigation techniques to protect themselves and licensees operating in adjacent spectrum from harmful interference, but they should not look to the Commission to impose excessive levels of protection that threaten licensees' ability to make the most efficient use of their spectrum. As Sprint Nextel notes, for example, the "real world" experience of BRS licensees themselves make clear that, in today's crowded spectrum environment, licensees must take adequate measures when planning and deploying their systems to ensure that they can operate free of interference.^{17/} For this very reason, BRS licensees design their systems to employ channelization schemes that rely on frequency separation to avoid interference between incompatible operations, without the need for any Commission-imposed guard band at all.^{18/} In particular, BRS channel 1 licensees that are concerned about interference from Globalstar's ATC operations below 2495 MHz, despite the existence of the 1 MHz guard band, are free to implement recognized interference mitigation techniques to protect themselves against interference. Terrestrial wireless licensees have been successfully operating for many years in adjacent spectrum with no guard bands between them by using a variety of easily implemented techniques, such as transmit and receive filtering, antenna placement and tilt, digital spectrum shaping, and EIRP management, to minimize the threat of interference. There is no sound policy or technical reason that they cannot

protect itself to the greatest extent possible from unintentional interference that might be caused by its spectrum neighbors.").

^{17/} See Comments Sprint Nextel Corporation filed in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*Sprint Nextel Comments*") at 9.

^{18/} See *id.*

do so here. Similarly, in the case of technically compatible operations, licensees operating on adjacent channels can easily synchronize their operations to prevent interference to one another. Commenters have provided no compelling reason not to apply the same sound spectrum management principals that favor flexible spectrum use over restrictive technical requirements to Globalstar's ATC operations in the expanded spectrum.

C. The Globalstar/Open Range Broadband Offering Illustrates The Substantial Public Interest Benefits Of Flexible MSS/ATC Service Rules.

There is perhaps no greater demonstration of the benefits that can flow from permitting MSS/ATC licensees to make the most flexible and efficient use of their assigned spectrum than the planned Globalstar/Open Range rural broadband offering. As Globalstar and Open Range discuss in their comments,^{19/} the two companies intend to work together to provide state-of-the-art mobile broadband services to more than 500 unserved and underserved communities throughout the United States within the first five years of deployment. Specifically, Globalstar will use its first and second-generation satellite constellations and ground stations and Open Range will construct a terrestrial infrastructure that will enable the companies to jointly provide rural broadband/MSS and related services pursuant to Globalstar's MSS/ATC authority. Rural broadband is one of the highest priorities of the Commission and one of the highest domestic priorities of the Congress;^{20/} to date, however, no technologically workable or cost-effective solution has been implemented for bringing affordable, wide-scale broadband services to unserved

^{19/} See *Globalstar Comments* at 5-8; *Open Range Comments* at 3.

^{20/} See *Globalstar Comments* at 5-6 and note 13 (citations omitted).

and underserved areas within the foreseeable future. The Globalstar/Open Range partnership presents an ideal solution to this problem, and promises to bring reliable, reasonably priced broadband service to areas of the country where they are sorely lacking, within a time frame that no other service provider can match.^{21/} Prompt action by the Commission to expand Globalstar's ATC authority to encompass all of its unshared spectrum will enable the companies to begin to deploy the first operational MSS/ATC system ever within nine to twelve months, fulfilling the Commission's goal to increase MSS providers' ability to provide high-quality, affordable mobile services for public safety and commercial customers, no matter where they are located.^{22/}

However, as Globalstar and other commenters recognize, if Globalstar is not promptly granted the flexibility to use all of its unshared spectrum to provide ATC

^{21/} Sprint Nextel asserts that Globalstar and Open Range "cannot reasonably be expected to deploy a system prior to Sprint Nextel." See *Sprint Nextel Comments* at note 13. Sprint Nextel fails to acknowledge, however, that it and other terrestrial wireless providers have no concrete plans ever to reach the customers that Globalstar and Open Range will serve. Indeed, as Sprint Nextel has recognized, if its WiMAX business in fact becomes a reality, it will only be deployed in the "larger metropolitan areas," with the goal of launching service in "some of those markets" beginning in 2008. See Sprint Nextel Corporation Form 10-K filed with the United States Securities and Exchange Commission (Mar. 1, 2007) at 38. Specifically, in order to obtain approval for their merger, Sprint and Nextel agreed only to provide service by August 2009 to areas within "nine of the nation's most populous 100 BTAs and at least one BTA less populous than the nation's 200th most populous BTA." *Id.* at 12. By August 2011, the combined company must only reach "nine additional BTAs in the 100 most populous BTAs, and at least one additional BTA less populous than the nation's 200th most populous BTA." *Id.* And Sprint Nextel's own comments in this proceeding suggest that those deadlines may well be in doubt. See *Sprint Nextel Comments* at note 14, citing Kelly Hill, Xohm Soft-launch Starts -- Long-Term Delays Expected as Sprint Nextel Juggles Troubles, RCR Wireless News, (Dec. 15, 2007), available at <http://www.rcrnews.com/apps/pbcs.dll/article?AID=/20071215/SUB/71215005/1002/allnews> ("Despite the on-time soft launch, some observers expect to see mobile WiMAX deployment delayed in the U.S., as Sprint Nextel struggles to re-focus its efforts on its core business and stem its wireless customer losses.").

^{22/} See *ATC Report and Order* at ¶ 29.

services, the benefits of the Globalstar/Open Range service offering may never be realized. Specifically, as Globalstar and Open Range both have shown, in order to deploy a broadband system that provides the throughput that customers require, while still ensuring that Globalstar has the frequency agility necessary to prevent interference between its MSS and ATC operations, Globalstar must have access to all of its unshared L- and S-band spectrum (7.775 MHz in the L-band and 11.5 MHz in the S-band).^{23/} As Open Range explains, “[t]he spectrum licensed to Globalstar for its ATC services, when expanded to include all of its unshared L-Band and S-Band frequencies, provides an ideal platform for the deployment of rural broadband services” that “will make possible the delivery of broadband services in a time frame not normally afforded to rural America in new technology roll outs.”^{24/} In this instance, “the public interest, and the policy interest of the United States government, are served by the greatest availability of spectrum” to provide broadband services “in unserved and underserved markets” and “limiting the availability of any suitable licensed spectrum for broadband deployment is in direct contradiction to the public interest.”^{25/} Accordingly, the public interest benefits of

^{23/} See *Globalstar Comments* at 8 (“WiMAX and other broadband services require multiple channels of at least 1.25 MHz, 3.5 MHz, 5 MHz, or 10 MHz bandwidth per channel to achieve the throughput that customers want” and, at the same time, “Globalstar must have sufficient spectrum available for ATC to provide for any internal guard bands necessary to prevent interference between Globalstar’s MSS and ATC services.”); *Open Range Comments* at 5-6 (“WiMAX channels are specified in a variety of bandwidths including 3.5 MHz, 5 MHz and multiples of these. As the Phase I deployment proceeds the existing 5.5 MHz will be exhausted in the second year and the full unshared bandwidth requested by Globalstar will be needed to support completion of the Phase I network.”).

^{24/} See *Open Range Comments* at 4.

^{25/} *Main Street Comments* at 1-2.

ensuring that Globalstar has the flexibility to use all of its unshared MSS spectrum to provide ATC services are undeniable.

II. THOSE WHO OPPOSE EXPANSION OF GLOBALSTAR'S ATC AUTHORITY FOCUS PRINCIPALLY ON THE PROVISION OF ATC IN SHARED SPECTRUM.

Although Globalstar continues to believe that it has demonstrated that it would be technically feasible for it to offer ATC services throughout its entire MSS spectrum assignment, in order to expedite the resolution of this proceeding, Globalstar seeks at this time only to expand its ATC authority to encompass all of the spectrum that it does not share with other MSS or BRS operators.^{26/} Globalstar also does not seek the authority at this time to provide ATC services in the 1 MHz guard band between 2495-2496 MHz.^{27/} Because those parties that oppose Globalstar's request for expansion of its ATC authority do so primarily on the basis that Globalstar should not be authorized to provide ATC services in spectrum that it shares with other licensees, there is no rational basis for the Commission to delay revising its rules to authorize Globalstar to provide ATC services throughout its unshared L- and S-band spectrum assignments.

In the case of the L-band, Iridium has raised no objection to Globalstar's provision of ATC services throughout its unshared MSS spectrum assignment between 1610-1617.775 MHz, and has requested only that Globalstar's ATC operations comply with the existing out of channel EIRP limits imposed on ATC services by the current rules^{28/} – a condition to which Globalstar already has agreed.^{29/} Similarly, in the case of

^{26/} See *Globalstar Comments* at note 2. See also note 3, *supra*.

^{27/} See *Globalstar Comments* at note 2.

^{28/} See Comments of Iridium Satellite LLC in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*Iridium Comments*") at 4.

the S-band, those parties that oppose Globalstar's request principally argue that Globalstar should not be permitted to deploy ATC services above 2495 MHz because of concerns that its ATC services may interfere with BRS channel 1 licensees' operations. In particular, these commenters focus extensively on the potential for interference from Globalstar's ATC operations that might occur if Globalstar were authorized to provide ATC services *in the same spectrum and the same geographic area* as BRS licensees that may one day deploy service on BRS channel 1.^{30/} No commenter has opposed extending Globalstar's ATC authority to the spectrum between 2483.5-2487.5 MHz because it is not shared spectrum.

^{29/} See *Globalstar Comments* at 20. As Globalstar demonstrated in its Comments, its deployment of ATC in its unshared Big LEO L-band spectrum assignment also will have no impact on operators in-band in the Radio Astronomy Service ("RAS") or out-of-band in the adjacent Radionavigation Satellite Service ("RNSS"). No commenter has challenged that showing. See *Globalstar Comments* at 21-22.

^{30/} See Comments of WiMAX Forum in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*WiMAX Forum Comments*") at 2 ("The WiMAX Forum urges adoption of the Commission's tentative conclusion that it would not be feasible or in the public interest to authorize the operation of [ATC] system in any portion of the S-band spectrum that Big LEO MSS shares with the fixed and mobile services (2495-2500 MHz)."); Comments of Motorola, Inc. in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*Motorola Comments*") at 2 ("Motorola previously commented on Globalstar's request to expand its ATC authority and supplied technical data demonstrating the incompatibility of co-channel BRS and MSS ATC operations in the 2495-2500 MHz frequencies.") (citations omitted); Comments of CTIA-The Wireless Association® in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*CTIA Comments*") at 4 ("CTIA supports the Commission's tentative conclusion in the *Globalstar NPRM* that ATC and BRS cannot operate in the same spectrum.") (citations omitted); Comments of the Wireless Communications Association International, Inc. in IB Docket No. 07-253 (filed Dec. 19, 2007) ("*WCA Comments*") at 4 ("When the Consumer and Governmental Affairs Bureau solicited public comment on Globalstar's petition for rulemaking, WCA, the WiMAX Forum, Sprint Nextel Corporation, CTIA, and T-Mobile USA, Inc. all presented incontrovertible evidence that sharing of the 2495-2500 MHz band is not feasible.") (citations omitted); *Sprint Nextel Comments* at 1-2 ("The Commission should affirm its tentative conclusion not to license two terrestrial mobile services in the same place at the same time in the 2495-2500 MHz band.") (citation omitted).

Globalstar has made clear that as a condition to any expansion of its ATC authority, it will continue to abide by the non-interference obligations contained in the Commission's existing ATC rules and incorporated into Globalstar's ATC Authorization.^{31/} As the Commission stated in the *Notice*, the feasibility of Globalstar's offering ATC services below 2495 MHz is now only a matter of determining the appropriate "coordination requirements, out-of-band emissions limits, and power limits" necessary "to protect BRS/EBS operations from interference from ATC."^{32/} As demonstrated below and in Globalstar's comments,^{33/} the requirements in Globalstar's ATC authorization and the Commission's existing rules governing ATC and BRS operations will adequately address any concerns about interference from Globalstar's ATC operations in the 2493-2495 MHz band, and there is no longer any technical or policy justification for the Commission to delay amending its rules to authorize Globalstar to provide ATC services throughout its unshared S-band assignment, from 2483.5-2495 MHz.

III. NO COMMENTER HAS OPPOSED GLOBALSTAR'S REQUEST FOR EXPANDED ATC AUTHORITY IN ITS UNSHARED L-BAND SPECTRUM ASSIGNMENT.

Now that the Commission has decided the issues that have remained open since 2004 regarding the possibility of further spectrum sharing between Globalstar and Iridium in the L-band, there is no technical or policy reason to delay authorizing

^{31/} See *Globalstar Comments* at 23-24 (citing *Globalstar ATC Authorization* at ¶¶ 19-32).

^{32/} See *NPRM* at ¶ 41.

^{33/} See *Globalstar Comments* at 23-24.

Globalstar to offer ATC services throughout its unshared L-band spectrum assignment.^{34/} Only Iridium filed comments addressing the expansion of Globalstar’s ATC authority to include all of its unshared spectrum in the L-band between 1610 –1617.775. Iridium, which operates its TDMA system in the L-band spectrum adjacent to Globalstar, expressed concern only about the potential for interference to its system should Globalstar deploy ATC services in the small amount of spectrum in which both of the companies are authorized to operate, asking that the Commission not “authorize Globalstar’s use of ATC in the portion of the spectrum shared between Globalstar and Iridium.”^{35/} Because, as noted above and in Globalstar’s comments,^{36/} Globalstar does not seek at this time the authority to provide ATC in the spectrum that it shares with other licensees, there is no reason for the Commission to delay action on Globalstar’s request.^{37/}

^{34/} *Id.* at 12-14.

^{35/} *See Iridium Comments* at 1-2.

^{36/} *See Globalstar Comments* at 19-22.

^{37/} Globalstar has framed its arguments in this proceeding without prejudice to any rights it may exercise with respect to the Commission’s November 9th decision to reassign a portion of Globalstar’s spectrum to Iridium for Iridium’s exclusive use. *See Globalstar Comments* at note 34; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, *Second Order on Reconsideration, Second Report and Order*, 22 FCC Rcd 19733 (2007) (“*Second L-Band Sharing Report and Order*”). In the event that reconsideration or judicial review of the *Second L-Band Sharing Report and Order* should result in any modification of the L-band MSS band plan, Globalstar’s ATC authority should then extend to whatever unshared spectrum Globalstar ultimately occupies. It is simply not true, as Iridium suggests in its comments, that Globalstar has provided only “vague assurances” that its ATC services in expanded spectrum will not cause interference to Iridium. *See Iridium Comments* at 3. To the contrary, Globalstar has provided extensive technical analyses in this proceeding demonstrating that its provision of ATC services in the L-band will not cause interference to Iridium, and Iridium has never made any technical submission to refute them. *See, e.g., Globalstar Petition* at 22. *See also*

Nor will expansion of Globalstar's authority to provide ATC services throughout its unshared L-band spectrum assignment between 1610-1617.775 MHz require any alteration of the existing technical rules governing Globalstar's ATC operations. As Globalstar stated in its comments, it will abide by the existing out-of-band emission limits set forth in section 25.254(b)(3) of the Commission's rules^{38/} to prevent interference to TDMA operations in adjacent spectrum. As the sole party to comment on the L-band spectrum assignment, Iridium agrees that no changes are necessary to these out-of-band emission limits to ensure that Globalstar's ATC operations do not cause interference to Iridium's operations in adjacent spectrum.^{39/} Specifically, Iridium recommends that the current out of channel EIRP limits for ATC mobile terminals in the 1610 –1626.5 MHz band of -57.1 dBW/30 kHz at the edge of the licensed MSS frequency assignment be applied to the band edge for CDMA operations, now set at 1617.775 MHz.^{40/} Globalstar accepts this limitation, and, as it made clear in its comments,^{41/} if granted the authority to provide ATC services in its unshared L-band spectrum assignment, will abide by these limits.

Globalstar Reply at 15-18 and attached Technical Appendix at 1 (all demonstrating that Globalstar's ATC operations throughout its L-band spectrum assignment will not cause interference to Iridium). In any event, Iridium's concerns are now mooted, as Globalstar does not seek herein the authority to provide ATC services in any spectrum that the two companies may share.

^{38/} 47 C.F.R. § 25.254(b)(3).

^{39/} *See Iridium Comments* at 4.

^{40/} *Id.*

^{41/} *See Globalstar Comments* at 20-21 (“Globalstar has complied with all in-band and out-of-band emission limits to date in providing its MSS services, and will comply with them in the future to ensure that its MSS/ATC service does not interfere with Iridium's operations in adjacent spectrum.”).

Accordingly, because no commenter has raised any objection, Globalstar urges the Commission to promptly adopt its proposal to revise section 25.149(a)(2)(iii) of its rules^{42/} to authorize Globalstar and any future CDMA carrier to provide ATC services in the spectrum between 1610 –1617.775 MHz.

IV. THERE IS NO TECHNICAL OR POLICY BASIS TO IMPOSE A THREE MHZ GUARD BAND IN THE S-BAND.

No commenter opposes Globalstar’s request to extend its ATC authority to include its unshared spectrum between 2483.5-2487.5 MHz; rather, BRS licensees and interest groups have focused primarily on the feasibility of Globalstar’s offering ATC services in the spectrum that it shares with BRS channel 1 licensees between 2495-2500 MHz.^{43/} Certain of those commenters oppose extending Globalstar’s ATC authority to the spectrum between 2493-2495 MHz on the theory that the Commission should establish a mandatory 3 MHz guard band between ATC and BRS channel 1 operations above 2496 MHz. As Globalstar demonstrated in its comments,^{44/} there is no technical or policy basis to mandate such an extensive guard band – especially given the Commission’s express recognition of the importance of ensuring that licensees have the ability to make the most efficient and flexible use of their scarce spectrum resources. Indeed, as Globalstar has demonstrated, and as other commenters recognize,^{45/} the existing 1 MHz guard band between 2495-2496 MHz is more than sufficient to protect

^{42/} 47 C.F.R. § 25.149(a)(2)(iii).

^{43/} See *NPRM* at ¶ 40.

^{44/} See *Globalstar Comments* at 26-30.

^{45/} See, e.g., *Open Range Comments* at 6-7; *Nortel Comments* at 2-3.

BRS channel 1 licensees and, depending on the type of MSS/ATC system Globalstar may deploy, it is possible that no guard band at all may be necessary because Globalstar and BRS channel 1 licensees can easily synchronize their respective operations.

A. Application Of The Commission’s Existing ATC And BRS/EBS Out-Of-Band Emission Limits Are Sufficient To Prevent Interference To BRS Channel 1 Licensees.

Globalstar made clear in its comments^{46/} that it supports the Commission’s suggestion in the *NPRM*^{47/} that the existing obligations imposed on Globalstar’s ATC operations combined, to the extent practicable, with the out-of-band emission rules in section 47 C.F.R. § 27.53 that apply to BRS and EBS operations, will be sufficient to ensure that Globalstar’s ATC operations in its unshared MSS spectrum assignment will not cause interference to BRS channel 1 operations. All commenters addressing this issue agree that these rules, as well as the requirement set forth in its ATC authorization and section 25.254(a)(3) of the Commission’s rules that Globalstar perform any necessary frequency coordination prior to commencing ATC operations to avoid causing harmful interference to other licensed operations between 2450-2500 MHz,^{48/} will provide an appropriate level of protection to BRS channel 1 licensees.^{49/}

^{46/} See *Globalstar Comments* at 24-26.

^{47/} See *NPRM* at ¶ 41.

^{48/} See 47 C.F.R. § 25.254(a)(3); *Globalstar ATC Authorization* at ¶ 9.

^{49/} See *WCA Comments* at 8 (“WCA does not object to the proposal advanced in the *NPRM* to subject Globalstar’s ATC operations to the restrictions on OOBE set forth in Section 27.53(l)(2) of the Commission’s Rules, provided that the Commission makes absolutely clear that compliance with the requirements of Section 27.53(l)(2) does not obviate Globalstar’s obligations under Section 25.255.”); *Sprint Nextel Comments* at 10-11 (“To prevent harmful interference from occurring to broadband terrestrial mobile BRS systems, the same out-of-band emissions limits and applicable resolution bandwidths of sections 27.53(l)(2) and 27.53(l)(6) that apply to BRS should apply to ATC.”); *Open*

First and foremost, the requirements that the Commission already has imposed on Globalstar as a condition to its existing ATC authority ensure that Globalstar’s ATC operations will not interfere with licensees operating in adjacent spectrum. As WCA states, in authorizing Big LEO MSS licensees to deploy ATC systems the Commission “unambiguously declared that if ‘*an adjacent . . . operator does receive harmful interference from ATC operations, either from ATC base stations or mobile terminals, the ATC operator must resolve such interference.*’^{50/} Indeed, as WCA acknowledges, this rule, which is codified at 47 C.F.R. § 25.255 of the Commission’s rules, provides the “essential safety net against interference and guarantees that [BRS channel 1 licensees’] spectrum near Globalstar’s ATC spectrum will be fully usable for the provision of wireless broadband services to consumers.”^{51/} This obligation imposed on Globalstar’s ATC operations did not change when the Commission decided in 2004 to shift Globalstar’s assigned ATC spectrum down by five MHz. To the contrary, as part of that action, the Commission “[o]nce again...stressed that those BRS channel 1 licensees being involuntarily relocated would be fully protected against interference because Section 25.255 requires Globalstar to cure any interference it causes to terrestrial operations of BRS channel 1 licensees.”^{52/} Thus, it is abundantly clear that these existing rules create

Range Comments at 7 (“[A]pplication of the BRS/EBS service rules, specifically those defined in 47 C.F.R. §27.53 and suggested by the Commission in the *NPRM*, can also be utilized to minimize or completely eliminate adjacent channel interference.”).

^{50/} See *WCA Comments* at 3 (citing *ATC Report and Order* at ¶ 104 (emphasis added)).

^{51/} *Id.*

^{52/} *Id.* at 4 (citing *Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, IB Docket No. 02-364, *Report and Order, Fourth Report and Order and Further Notice of Proposed*

“an absolute obligation” on Globalstar to comply with the Commission’s rules and the terms of its ATC authority to resolve harmful interference caused by its ATC operations and as WCA notes, “*arguably obviates any need for a protective guard band.*”^{53/}

Sprint Nextel’s assertion that the existing out-of-band emissions limits for ATC are less protective than those for BRS licensees is incorrect.^{54/} Globalstar’s analysis of 47 C.F.R. § 27.53(1)(6) reveals that a measurement resolution bandwidth of one percent of the emission bandwidth of the BRS carrier can be used in the one megahertz band immediately adjacent to the BRS frequency block for the evaluation of out-of-band emissions. The purpose of this smaller resolution bandwidth is to allow a more definitive characterization of the spectrum of the potentially interfering out-of-band emissions from a carrier in the band adjacent to the frequency block. As WiMAX carriers use bandwidths of 3.5, 5, and 10 MHz, a typical BRS bandwidth could be 5 MHz, which implies a one percent bandwidth of 50 kHz. Taking bandwidth conversion factors into account, the -43 dBW allowance for out-of-band emissions at the BRS band edge, where out-of-band emissions would be evaluated, is only 1.1 dB more stringent than the -44.1 dBW/30 kHz out-of-band emission requirement for ATC at its band edge.^{55/} Given the

Rulemaking, 19 FCC Rcd 13356 (2004) (“*First L-Band Sharing Report and Order*”) at ¶¶ 72-74).

^{53/} *Id.* at 6.

^{54/} *See Sprint Nextel Comments* at 10-12.

^{55/} The -43 dBW BRS out-of-band emission requirement taken in a 50 kHz bandwidth corresponds to a power spectral density of -90 dBW/Hz. Normalizing the ATC band edge out-of-band emission requirement of -44.1 dBW/30 kHz to a per Hz basis yields a power spectral density of -88.9 dBW/Hz. Thus, when considering the BRS and ATC out-of-band emission requirements at their respective band edges, the ATC out-of-band requirement is only 1.1 dB away from the BRS out-of-band requirement.

degree of filtering required to meet the ATC out-of-band emission requirements, it is unlikely that the power spectral density of the ATC out-of-band emissions would “flatten out” at the band edge but, rather, would continue to decrease, likely being attenuated by more than the BRS requirement of $67 + 10 \log P$ at 3 MHz from the band edge. Thus, under the current rules, ATC presents no greater interference threat to BRS than other adjacent BRS licensees.

As Globalstar argued in its comments,^{56/} the BRS rules already govern certain aspects of Globalstar’s MSS operations, *as well as BRS licensees’ operations vis-à-vis other BRS licensees*, and there is no sound technical reason for not applying them to Globalstar’s ATC operations as well.^{57/} Sprint Nextel has advocated application of the same rules in the AWS context, recognizing that they have “proven straightforward and reliable enough to permit Sprint Nextel, Clearwire, and many others to invest the billions of dollars...necessary to deploy next-generation mobile broadband services.”^{58/} Globalstar has made clear that it “will design its equipment to be compatible with the existing BRS/EBS out-of-band emission limits and will adhere to the procedures in the applicable rules for ATC operations in the expanded spectrum.”^{59/} These rules will

^{56/} See *Globalstar Comments* at 25.

^{57/} See, e.g., 47 C.F.R. § 27.53(1)(2) (allowing BRS/EBS licensees and MSS licensees operating below 2495 MHz to file complaints of interference against each other “on the same terms and conditions as adjacent channel BRS and EBS licensees”).

^{58/} See Comments of Sprint Nextel Corporation in WT Docket No. 07-195 (filed Dec. 14, 2007) at 5.

^{59/} See *Globalstar Comments* at 24-25.

provide BRS licensees that expect to deploy in BRS channel 1,^{60/} as well as Globalstar, with certainty regarding their respective operations and will provide a workable process for resolving any interference complaints between them.^{61/} By applying these rules to Globalstar's ATC authority in its unshared S-band spectrum from 2483.5-2495 MHz, the "essential safety net against interference" recognized by WCA will remain fully intact.

Finally, as Globalstar has reiterated throughout this proceeding, it has never received an interference complaint in its eight years of providing MSS service, and will do whatever is required by the Commission's rules to ensure that its ATC services avoid causing harmful interference to co-channel or adjacent licensees should the Commission expand its ATC authority as contemplated in the *NPRM*. As indicated both in its Petition and in its comments, Globalstar has a proven and unchallenged record of successfully operating without causing interference to the multiple in-band and adjacent-band licensed and unlicensed users in its spectrum.^{62/} Globalstar is confident that it can successfully deploy ATC services throughout its unshared spectrum in compliance with reasonable out-of-band emission limits that are necessary to protect licensees operating in adjacent spectrum.

^{60/} As Globalstar stated in its comments, at present it does not appear that any BRS licensees are in fact using BRS channel 1. *See Globalstar Comments* at note 69.

^{61/} The WiMAX Forum is simply wrong in its assertion that the Commission's rules designate ATC services as secondary to BRS operations. *See WiMAX Forum Comments* at 4. The Commission has never indicated that ATC is a secondary service; nor do the imposition of out-of-band limits and other technical requirements on ATC operations that may be necessary to protect BRS licensees result in the designation of MSS/ATC as secondary. Moreover, since Globalstar does not seek herein the authority to provide ATC services in any of the spectrum in which the WiMAX Forum's members may be licensed, in practical terms its operations in this spectrum could never be defined as secondary to the BRS.

^{62/} *See Globalstar Petition* at 20-24; *Globalstar Comments* at 23-24.

B. No Commenter Has Provided Any Technical Justification For Imposition Of A Mandatory 3-MHz Guard Band.

Contrary to the assertions by Sprint Nextel, CTIA, and certain other BRS interests,^{63/} the Commission has never found that a 3 MHz guard band is necessary to protect BRS channel 1 licensees from interference from Globalstar's ATC operations in the S-band. Rather, the Commission has expressly concluded that a 1 MHz guard band would be sufficient to ensure that Globalstar's ATC operations would not interfere with BRS operations in adjacent spectrum and, at a time when Globalstar was limited to just 5.5 MHz of ATC in the S-band, found it convenient to place that authority toward the midpoint of Globalstar's S-band spectrum.

As Globalstar detailed in its comments,^{64/} when the Commission decided to move Globalstar's 5.5 MHz S-band ATC allocation down by 5 MHz in connection with its decision to add a new allocation for BRS licensees in the 2496-2500 MHz band, it expressly stated that it was establishing a "1 megahertz guard band from 2495-2496 MHz ... to protect BRS" licensees while still ensuring that "CDMA MSS operators can provide service in urban areas."^{65/} At the time, the Commission made clear that it never

^{63/} The WiMAX Forum asserts for the first time in its comments in response to the *NPRM* that a 3 MHz guard band is necessary in order to protect BRS licensees from Globalstar's ATC operations. See *WiMAX Forum Comments* at 3. This assertion is flatly contradicted by the WiMAX Forum's prior comments in this proceeding, in which it made clear that its only concerns about interference centered around potential ATC operations between 2495-2500 MHz. See *Comments of WiMAX Forum in RM No. 11339* (filed Aug. 25, 2006) ("[T]he WiMax Forum believes that Part 27 licensees will experience significant harmful interference from any ATC base station operations in 2496-2500 MHz.").

^{64/} See *Globalstar Comments* at 26-30.

^{65/} See *First L-Band Sharing Report and Order* at ¶ 72. See also *id.* at ¶ 74 ("In addition to the 1 megahertz guard band from 2495-2496, strict OOB limits on the BRS operations at 2496 MHz and above, and power limits on BRS stations operating in the

envisioned anything more than a 1 MHz guard band when it recognized that “[a]n MSS user in an urban setting may still be able to access the CDMA MSS system through ATC operations *even if the top 4 megahertz* of the CDMA MSS downlink were to be unavailable.”^{66/} The Commission subsequently affirmed that decision, reiterating that it has “established a 1-megahertz guard band at 2495-2496 MHz to separate BRS operations from MSS.”^{67/} That the Commission observed in passing that its new location of Globalstar’s ATC authority incidentally resulted in an additional 2 MHz of MSS-only use between the border of Globalstar’s ATC and “non-MSS services”^{68/} does not transform the 1 MHz guard band between 2495-2496 MHz into anything more extensive, and there is plainly no public interest finding to that effect in the Commission’s decision.

Nor has any party to this proceeding submitted any technical showing demonstrating that anything more than a 1 MHz guard band is required to protect BRS channel 1 operations from Globalstar’s ATC operations below 2495 MHz. The lack of technical data to support a request for a larger guard band stands in stark contrast to Globalstar’s extensive technical analysis accompanying its comments that demonstrate, consistent with the Commission’s prior conclusions, that BRS operations above 2496

2496-2500 MHz band will be implemented to protect CDMA MSS downlink operations just below the new band edge at 2495.”) (emphasis added).

^{66/} See *id.* at ¶ 72.

^{67/} See Amendment of Parts 1, 21, 73, 74 and 101 of the Commission’s Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands, *Order on Reconsideration and Fifth Memorandum Opinion and Order and Third Memorandum Opinion and Order and Second Report and Order*, 21 FCC Rcd 5606 (2006) (“2006 Reconsideration Order”) at ¶ 29.

^{68/} See *First L-Band Sharing Report and Order* at ¶ 75.

MHz will be fully protected from interference from Globalstar's MSS and ATC operations (and *vice versa*), without expansion of the 1 MHz guard band.^{69/} As noted above, it also is flatly contradicted by the submissions of Open Range and Nortel, which both assert that the existing 1 MHz guard band is sufficient, and that *no* guard band is required to protect BRS licensees operating on BRS channel 1 from Globalstar's ATC operations in adjacent spectrum where Globalstar and BRS channel 1 licensees are able to synchronize their respective operations.^{70/}

Far from supporting the imposition of a mandatory 3 MHz guard band, the real world practices of manufacturers and BRS licensees show that, with regulatory flexibility, licensees can choose the interference-avoidance techniques most appropriate to their particular circumstances, with no need to allow valuable spectrum to go unused as a guard band. As Nortel asserts, guard bands should be used "sparingly or not at all in order to maximize the utilization and value of the available spectrum."^{71/} Section 27.53(1)(2) of the Commission's rules,^{72/} cited by Sprint Nextel,^{73/} does not support imposing an expanded guard band; to the contrary, it illustrates that the flexible application of out-of-band emission limits and other operational mechanisms, such as the use of filtering and internal channelization techniques,^{74/} should be preferred over the use

^{69/} See *Globalstar Comments* at 28-30 and attached Technical Appendix.

^{70/} See *Open Range Comments* at 6; *Nortel Comments* at 2.

^{71/} See *Nortel Comments* at 2.

^{72/} See 47 C.F.R. § 27.53(1)(2).

^{73/} See *Sprint Nextel Comments* at 9-10.

^{74/} For example, those BRS channel 1 licensees that remain concerned that Globalstar's ATC operations below 2495 MHz may interfere with them, despite the

of overly broad guard bands to achieve any interference protection that may be required. As Sprint Nextel itself suggests, where the Commission grants licensees the flexibility to use all of their spectrum as they see fit, they are in the best position to determine how to operate most efficiently while minimizing interference to adjacent operations.^{75/}

For similar reasons, Sprint Nextel's references to the outcome it has advocated in the Commission's Advanced Wireless Services rulemaking proceeding actually contradict its arguments here in favor of an overly broad guard band. In that proceeding, Sprint Nextel states that "mandat[ing] large guard bands" in the BRS/EBS service "would have consumed significant spectrum resources and stifled innovation in the band."^{76/} Indeed, Sprint Nextel's comments in that proceeding, filed just five days before its submission here, quite strongly make the point that the Commission should *avoid* the use of excessive guard bands, and instead grant licensees the flexibility to rely on standard interference mitigation techniques so as to make the most efficient use of their assigned spectrum.^{77/} The Commission should provide similar flexibility here, and allow

presence of the one megahertz guard band between 2495-2496 MHz, could use recognized interference mitigation techniques to address such concerns. Terrestrial wireless licensees have relied on such techniques to minimize the threat of interference from other terrestrial operations in adjacent spectrum for decades, and there is no technical or policy reason that they should not be required to do so here.

^{75/} See *Sprint Nextel Comments* at 9-10. For example, as Sprint Nextel notes, BRS licensees have designed their systems in a manner that allows for self-imposed "transition zones" as part of their channelization plan as a primary means of preventing interference to adjacent users and, in turn, minimizing interference to their own operations. *Id.*

^{76/} See Comments of Sprint Nextel Corporation in WT Docket No. 07-195 (filed Dec. 14, 2007) at 8-9.

^{77/} Sprint Nextel advocates that licensees should "bear the sole and exclusive responsibility for purchasing better filters, carving out internal separations between their operations and adjacent channels [and] exercising discretion in choosing antennas, or

Globalstar to determine the most efficient technical and operational solutions necessary to comply with applicable out-of-band emission limits and the conditions in its ATC authorization.

C. Technically Compatible Services In Adjacent Bands Do No Require Any Guard Band.

In the event that Globalstar and any of its potential ATC partners offer WiMAX or another MSS/ATC service that is technologically compatible with BRS/EBS licensees' chosen technologies, *no* guard band between 2495-2496 MHz would be required to prevent interference to (or from) BRS channel 1 operations.^{78/} Specifically, where the ATC system uses WiMAX-like technologies, as the Globalstar/Open Range system likely will do, synchronization between operations in adjacent spectrum can be used to virtually eliminate interference between systems operating in adjacent bands that overlap geographically.^{79/} Nortel, which, as a designer and manufacturer of transmitting equipment is in a position to know, notes that synchronization “allows both operators to maximize the use of the spectrum and optimize performance” without the need for any spectrum between them to go unused.^{80/}

taking any one of a number of different methods to meet the technology neutral limits that the Commission has established.” *Id.* at ii. Sprint Nextel also recommends that “[r]ather than impose blanket restrictions that artificially constrain...system designs,” the Commission should “follow its time-tested practice of relying on standard interference-abatement measures, including power, emissions, and signal strength limits to prevent harmful...interference in adjacent bands. *Id.* at 5-6. Through these techniques, “[s]pectrum licensees can then determine the best and most efficient means of meeting the interference-protection standards that the Commission establishes.” *Id.*

^{78/} See *Open Range Comments* at 6-7; *Nortel Comments* at 2.

^{79/} See *Globalstar Comments* at 26 and attached Technical Appendix at 16-17.

^{80/} See *Nortel Comments* at 2.

BRS licensees themselves already will be required to employ such synchronization techniques in order to protect other BRS licensees operating in adjacent spectrum from interference, and there is no technical reason why they cannot be used to prevent interference between Globalstar and BRS operations as well. Because the Globalstar/Open Range service offering would use standards-based WiMAX technology in the S-band, consistent with the announced plans of other BRS/EBS operators, “[s]ynchronization of TDD WiMAX systems can be used to avoid interference between systems and can be accomplished through operational coordination if systems are within close proximity to each other” without the need for a guard band to protect adjacent channel operations.^{81/} Moreover, the Commission has recognized that synchronization is a key method of ensuring that licensees operating in adjacent spectrum can make the most efficient and intensive use of their assigned frequencies, without the need for frequency separation.^{82/} The fact that one of Globalstar’s initial ATC offerings is likely to be entirely compatible with adjacent-channel BRS WiMAX offerings illustrates the unsoundness of imposing an inflexible mandatory 3 MHz guard band between ATC and BRS operations in the S-band. When Globalstar proposes additional ATC implementations in the future, the Commission can consider what technical limitations

^{81/} See *Open Range Comments* at 6-7.

^{82/} See, e.g., *Wireless Operations in the 3650-3700 MHz Band, Memorandum Opinion and Order*, 22 FCC Rcd 10421 (2007) at n.73 (“Wi-MAX technology...avoids interference by synchronizing the timing of potentially competing transmissions so that the various transmitters are assigned to discrete time slots. Although the transmitters operate on the same frequency, their transmissions do not overlap in time and therefore do not interfere with each other.”); *Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band, Notice of Proposed Rulemaking*, 22 FCC Rcd 17035 (2007) at n.116 (“To avoid causing interference,” licensees operating systems on adjacent channels may “synchronize their systems so that their base stations will transmit and receive at the same time”).

are appropriate to those offerings, thus achieving interference protection without the meat-cleaver approach of an expanded mandatory guard band.

V. THE COMMISSION SHOULD ACT PROMPTLY TO ADOPT THE PROPOSALS IN THE *NPRM*.

In light of Globalstar's extensive (and wholly un rebutted) technical demonstration that it can deploy ATC services throughout its unshared spectrum in the L- and S-bands without causing interference to other licensed operations, the public interest would not be served by any further delay by the Commission in amending its rules to authorize Globalstar to provide ATC services throughout its unshared spectrum assignment (1610-1617.775 MHz and 2483.5-2495 MHz). Amendment of the rules as Globalstar has requested will harm no party, and stands to provide extensive benefits to those customers who will be served by Globalstar and its ATC partners.

In particular, expedited resolution of this proceeding is essential if Globalstar and its partner Open Range are to realize their plan to make the most efficient use of Globalstar's assigned spectrum to provide affordable broadband services to users in rural America. Further delay in the completion of this proceeding could destroy this opportunity to bridge the digital divide by greatly increasing America's rural broadband deployment. Delay also risks preventing Globalstar, on its own or with potential partners, from moving ahead with the deployment of other MSS/ATC service offerings and taking advantage of the network, spectrum and economic efficiencies that the Commission intended ATC authority would provide to MSS licensees.

CONCLUSION

No commenter has made any compelling showing that should prevent the Commission from promptly amending its rules to allow Globalstar and other qualified CDMA licensees in the Big LEO MSS band to offer ATC services throughout their unshared spectrum assignments (1610-1617.775 MHz and 2483.5-2495 MHz).

Respectfully Submitted,

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