

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC, 20554**

In the Matter of)	
)	
Spectrum and Service Rules for Ancillary)	IB Docket No. 07-253
Terrestrial Components in the 1.6/2.4 GHz)	RM-11339
Big LEO Bands)	
)	
)	
Review of the Spectrum Sharing Plan Among)	IB Docket No. 02-364
Non-Geostationary Satellite Orbit Mobile)	
Satellite Service Systems in the 1.6/2.4 GHz)	
Bands)	

COMMENTS OF SPRINT NEXTEL CORPORATION

Lawrence R. Krevor
Vice President, Government Affairs
Trey Hanbury
Director, Government Affairs
Richard Engelman
Director, Government Affairs

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Summary

Globalstar has petitioned to expand the ancillary terrestrial component (ATC) of its mobile-satellite service (MSS) system near and into spectrum already assigned by competitive bidding to channel one of the Broadband Radio Service (BRS-1).

Globalstar's petition should be denied.

First, the Commission should affirm its tentative conclusion to not authorize ATC in the same spectrum that the Commission has already awarded to BRS-1 licensees. The Commission has repeatedly recognized that two terrestrial systems cannot coexist in the same place at the same time. While Globalstar has proposed that the Commission award it a temporary ATC authorization in the band already licensed to BRS-1, this proposal is unrealistic, unworkable, and contrary to the investment-backed expectations of BRS-1 licensees. Whether permanent or nominally "temporary," permitting ATC in the 2495-2500 MHz band will cause harmful interference to BRS-1 and disrupt the deployment of wireless broadband services to the public that is already well underway.

Second, the Commission should deny Globalstar's request to encroach upon the 2493-2496 MHz band that is licensed to the mobile-satellite service (MSS), the industrial scientific and medical service (ISM), and the broadcast auxiliary service (BAS). Aside from being already heavily encumbered by other uses, the 2493-2496 MHz band that Globalstar wants for ATC serves as an important interference barrier between ATC and BRS. Both the Commission and Globalstar have previously recognized the need for frequency separation between ATC operations and BRS-1, and BRS licensees have instituted a three-megahertz separation among their own incompatible operations. The

Commission should affirm its prior conclusion that BRS-1 and ATC require a three-megahertz frequency separation to avoid harmful interference.

Third, the Commission should apply the same out-of-band emissions limits to ATC that apply to BRS. The ATC band out-of-band emissions limits are currently up to *8300 times as great* as those of the BRS band. No rational basis exists for any material distinction between BRS and ATC out-of-band emissions limits, much less one of this magnitude. MSS ATC operations are likely to be similar to those of BRS licensees, and similar technical standards should apply to both.

Adopting these three measures will help prevent harmful interference to BRS-1 and promote the rapid introduction of advanced wireless services to the public.

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COMMENTS OF SPRINT NEXTEL CORPORATION

I. INTRODUCTION

Globalstar has petitioned to expand the ancillary terrestrial component (ATC) of its mobile-satellite service (MSS) system near and into spectrum already assigned by competitive bidding to channel one of the Broadband Radio Service (BRS-1).¹ The Commission should affirm its tentative conclusion not to license two terrestrial mobile

¹ *Globalstar Petition of Globalstar for Expedited Rulemaking for Authorization to Provide Ancillary Terrestrial Component Services in its Entire Spectrum Allocation*, RM-11339 (June 20, 2006) (Petition). Despite its dubious legal and public policy justification, permitting Globalstar to operate ATC in the 2483.5-2487.5 MHz band is not likely to cause harmful interference to the wireless WiMAX broadband system that Sprint Nextel is deploying in its BRS-1 spectrum in the 2496-2502 MHz band. Therefore, Sprint Nextel takes no position on Globalstar's request for ATC authority in the 2483.5-2487.5 MHz band. Nevertheless, the 2483.5-2487.5 MHz band – much like the 2493-2500 MHz band – remains encumbered by broadcast operations, industrial users, medical equipment, public safety radios, radio astronomy and other assorted uses. Globalstar will have to relocate these operations or restrict its planned service to accommodate the many licensed incumbents in the 2483.5-2487.5 MHz band. *See generally, e.g.*, 47 C.F.R. § 2.106.

services in the same place at the same time in the 2495-2500 MHz band.² The Commission should also deny Globalstar's request to encroach upon the 2493-2496 MHz band that is licensed to the mobile-satellite service (MSS), the industrial scientific and medical service (ISM), and the broadcast auxiliary service (BAS).

Aside from being already heavily encumbered by other uses, the 2493-2496 MHz band that Globalstar wants for ATC serves as an important interference barrier between ATC and BRS. When the Commission relocated BRS-1 licensees to the 2.5 GHz band, the dislocated BRS-1 licensees were entitled to receive comparable spectrum.³ Rather than further compromise the spectrum assigned to BRS-1 licensees by reducing or removing the interference barrier between these services, the Commission should affirm its prior conclusion that BRS-1 and ATC require at least a three megahertz separation to avoid harmful interference. The Commission should also apply the same out-of-band emissions limits to ATC operations that apply to BRS/EBS licensees in the adjoining band.

II. DISCUSSION

In January 2006, the Commission granted authority to Globalstar to provide ATC service in the 1610-1615.5 MHz/2487.5-2493 MHz band segment.⁴ In June 2006, despite not having built a single base station or provided terrestrial wireless service to a

² *Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands; 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 Nos. 07-253, 02-364, RM-11339, Second Order on Reconsideration, Second Report and Order, and Notice of Proposed Rulemaking, 22 FCC Rcd. 19733, ¶ 40 (rel. Nov. 9, 2007) (*Notice*).

³ Several parties, including Sprint Nextel, have challenged the Commission's decision to locate BRS-1 in the 2.5 GHz band without adjustments to the co-primary operations of BAS, ISM, and MSS operations in the band.

⁴ *Globalstar LLC*, Order and Authorization, 21 FCC Rcd. 398 (2006).

single customer, Globalstar filed a petition asking that the Commission expand its ATC authority to cover its entire MSS assignment at 1610-1621.35 MHz and 2483.5-2500 MHz.⁵ Assuming Globalstar uses its 2.4 GHz band spectrum for frequency division duplexing (FDD),⁶ Globalstar's downlink operations would occur immediately adjacent to BRS-1, which would result in harmful interference to BRS-1. Due to the high likelihood of harmful interference to BRS-1, Sprint Nextel, the Wireless Communications Association, and numerous other parties opposed Globalstar's request. These parties provided technical and policy grounds for denying Globalstar's petition.⁷ As a result, the Commission issued the *Notice* seeking comment on Globalstar's proposed expansion of its ATC authority.

A. The Commission Should Confirm Its Tentative Conclusion Prohibiting ATC Operations at 2495-2500 MHz

In the *Notice*, the Commission tentatively concluded that it is neither feasible, nor in the public interest to authorize ATC in the 2495-2500 MHz band.⁸ Sprint Nextel

⁵ Petition at ii.

⁶ Although Globalstar's 2.4 GHz spectrum is limited to downlink only operation, Globalstar has not announced a system configuration plan for its ATC spectrum and it remains unclear whether Globalstar might operate on an FDD basis or seek a waiver or rule change to operate on a TDD basis instead. Whether FDD or TDD, however, Globalstar's base station transmitters will be immediately adjacent to BRS-1 licensee's base station receivers, which presents a highly challenging interference environment for the base station receivers.

⁷ See, e.g., Opposition of Sprint Nextel Corporation, RM-11339 (Aug. 28, 2006); Comments of WiMAX Forum, RM-11339 (Aug. 28, 2006); Opposition to Petition for Rulemaking, The Wireless Communications Association International, Inc. (WCA), RM-11339 (Aug. 28, 2006); Letter from Burton J. Callaway, KMW Communications, to Marlene H. Dortch, FCC, RM-11339 (Oct. 24, 2007) (KMW Communications Letter); Letter from Vince Caputo, Andrew Corporation, to Marlene H. Dortch, FCC, RM 11339 (Oct. 26, 2007) (Andrew Corp. Letter); Letter from David M. Sobczak, CSS Antenna, Inc. to Marlene H. Dortch, FCC, RM-11339 (Oct. 24, 2007) (CSS Antenna Letter).

⁸ *Notice*, 22 FCC Rcd. at 19733, ¶ 40.

agrees. The Commission should affirm its tentative conclusion to not authorize ATC in the same spectrum that the Commission has already awarded to BRS-1 licensees.

The Commission has repeatedly recognized that two terrestrial systems cannot coexist in the same place at the same time.⁹ Nothing has changed since the Commission reached these conclusions. Indeed, ample record evidence, including information from three independent BRS antenna manufacturers, confirms that ATC operations cannot share the 2495-2500 MHz band with BRS-1.¹⁰ Even Globalstar concedes that spectrum sharing in the same geographic area between two wide-area, co-channel terrestrial licensees licensed for mobile operations is not feasible.¹¹ Therefore, the Commission should deny Globalstar's request for ATC authorization in the 2495-2500 MHz.

With policy and precedent firmly against authorizing ATC in the 2495-2500 MHz, Globalstar has proposed the Commission award it a *temporary* ATC authorization in the band already licensed to BRS-1.¹² Globalstar claims that if it deploys terrestrial services in the BRS-1 licensees' spectrum, it would disable those operations once the BRS-1 licensees deploy wireless broadband services in the same geographic area.

⁹ See, e.g., *Inquiry Into the Use of the Bands 825-845 MHz and 870-890 MHz for Cellular Communications Systems; and Amendment of Parts 2 and 22 of the Commission's Rules Relative to Cellular Communications Systems*, Report and Order, 86 F.C.C.2d 469, ¶ 100 (1981) ("A grant authorizing a cellular system to operate in a given frequency Block within a specified CGSA will be exclusive. Therefore, two or more applications using the same frequency Block and proposing CGSAs that will overlap with each other will be considered mutually exclusive.").

¹⁰ See Letter from Trey Hanbury, Sprint Nextel Corporation, to Marlene H. Dortch, FCC, RM-11339 (attaching presentation "MSS ATC Interference into the Broadband Radio Service") (Sep. 13, 2007) (Sprint Nextel Sep. 13 *Ex Parte*); KMW Communications Letter; Andrew Corp. Letter; CSS Antenna Letter.

¹¹ See Reply of Globalstar, Inc., RM-11339, at 12 (Sep. 12, 2006) (Globalstar Reply); *Notice*, 22 FCC Rcd. at 19733, ¶ 40.

¹² Globalstar Reply at 13-14; *Notice*, 22 FCC Rcd. at 19733, ¶ 40.

Globalstar's proposal is unrealistic, unworkable, and contrary to the investment-backed expectations of BRS-1 licensees. Globalstar strains credulity when it suggests that temporary authorization of incompatible terrestrial mobile operations on a nationwide basis in the BRS-1 operators' licensed spectrum will not impede BRS licensees' wireless broadband deployment. Sprint Nextel has already invested significant resources based on repeated assurances that BRS spectrum will remain unencumbered by co-channel terrestrial mobile operations.¹³ One of the nation's leading licensee of BRS spectrum and lessee of Educational Broadband Service (EBS) spectrum, Sprint Nextel already is deploying a facilities-based wireless broadband WiMAX network in the 2.5 GHz band that supports portable computing, multimedia applications, and a wide variety of consumer electronic devices.¹⁴ Globalstar's proposal would require BRS-1 incumbents to somehow force Globalstar to exit the band prior to providing BRS wireless broadband service, which will commence soon in several markets. This type of conditional authorization contradicts the primary authorizations that BRS-1 licensees received through competitive bidding. Authorizing an incompatible nationwide network

¹³ Sprint Nextel has labored for years to realize its longstanding vision of deploying wireless broadband services in the 2.5 GHz band. Among other things, Sprint Nextel has devoted considerable human and capital resources to developing domestic and international standards, conducting research and development, rationalizing its spectrum holdings, optimizing system designs, purchasing base station and end user equipment, selecting base station locations, and procuring backhaul from incumbent Bell monopoly or, where available, competitive backhaul providers. Globalstar, to Sprint Nextel's knowledge, has made none of these investments, and cannot reasonably be expected to deploy a system prior to Sprint Nextel.

¹⁴ See, e.g., *Sprint Nextel Switches on WiMAX Lights*, WiMAX Vision, (Dec. 17, 2007), available at http://www.wimax-vision.com/newt/l/wimaxvision/article_view.html?artid=20017489334 (stating that Sprint Nextel has "10,000 base station sites readied for deployment" and "is sticking to its rollout deadlines" for wireless broadband services); Kelly Hill, *Xohm Soft-launch Starts*, RCR Wireless News, (Dec. 15, 2007), available at <http://www.rcrnews.com/apps/pbcs.dll/article?AID=/20071215/SUB/71215005/1002/allnews> (quoting reports that "mobile WiMAX will hit the market much sooner than competing fourth-generation" wireless broadband services and offer "faster network speeds").

on BRS-1 spectrum would also frustrate Sprint Nextel's ability to meet the mandatory substantial service and other deployment obligations for the 2.5 GHz band.¹⁵ Whether permanent or nominally "temporary," ATC in the 2495-2500 MHz band will cause harmful interference to BRS-1 and disrupt the deployment of wireless broadband services to the public that is already well underway.

B. A Three Megahertz Separation between ATC and BRS-1 Is Necessary to Protect BRS Operations From Harmful Interference.

The Commission should preserve the heavily encumbered 2493-2496 MHz band as an interference barrier between BRS and ATC for at least three reasons. First, the Commission adopted and subsequently affirmed the need for a frequency separation between BRS-1 and MSS ATC.¹⁶ Second, Globalstar's own technical analysis suggests that spectrum separation is necessary to prevent harmful interference.¹⁷ Third, licensees in the broadband radio service and educational broadband service (BRS-EBS) band themselves use three-megahertz separations to permit dissimilar technologies within the

¹⁵ See *Applications of Nextel Communications, Inc. and Sprint Corporation; For Consent to Transfer Control of Licenses and Authorizations*, Memorandum Opinion and Order, 20 FCC Rcd. 13967, ¶¶ 164-65 (2005) (requiring that Sprint Nextel offer service in the 2.5 GHz band to at least 30 million Americans in at least 20 BTAs within six years of the order approving its merger). Globalstar's proposal for "temporary" ATC authorization also presents a host of practical problems. How would the Commission determine the relevant geographic area in which Globalstar's "temporary" operations would be prohibited? What rational basis exists for defining this area? How long would Globalstar have to come into compliance with a directive to vacate that geographic area? What penalties would Globalstar face if it failed to vacate the band as directed on the off chance that it builds a functioning network prior to the BRS licensees? Would these penalties be delayed or adjusted if end users would be adversely affected? These questions represent only the beginning issues that the Commission would have to oversee for years to come.

¹⁶ 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*, Report and Order and Notice of Proposed Rulemaking, 18 FCC Rcd. 1962, 1997 (2003) (*2003 ATC Order*); *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, Fourth Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd. 13356, ¶ 72 (2004) (*2004 Spectrum Sharing Order*).

¹⁷ See Letter from William D. Wallace, Counsel for Globalstar, L.P., to William F. Caton, FCC, IB Docket No. 01-185, Attachment 1 at 26 (Mar. 13, 2002) (*Globalstar Mar. 13 Ex Parte*).

2.5 GHz spectrum to co-exist. For the same reason, moreover, Sprint Nextel has proposed the equivalent of a three megahertz separation between similarly incompatible services in the 2155-2175 MHz (AWS-3) and 2110-2155 MHz (AWS-1) bands.¹⁸

Maintaining the current three-megahertz frequency separation will promote wireless broadband deployment in the BRS spectrum, encourage facilities-based investment in the available spectrum, and protect investments that BRS licensees such as Sprint Nextel continue to bring advanced wireless broadband services to the American public.

1. The Commission Has Repeatedly Held that BRS-1 and ATC Require Frequency Separation.

Maintaining frequency separation between ATC and BRS-1 is consistent with the Commission's prior findings. In its initial ATC rulemaking in 2003, the Commission established 2498 MHz as the upper limit for Globalstar's ATC systems to protect the former BRS-EBS band at 2500-2690 MHz.¹⁹ When the Commission in 2004 assigned the 2496-2502 MHz band to BRS-1, it reaffirmed the need to separate ATC from BRS. Indeed, the Commission moved the ATC designation from the 2493.5-2498 MHz band to the 2487.5-2493 MHz band to create "even greater frequency separation (*i.e.*, 2 megahertz plus 1 megahertz guard band from 2495-2496 MHz) to protect BRS" while ensuring that MSS operators could continue to offer service.²⁰ The Commission

¹⁸ Comments of Sprint Nextel Corporation, WT Docket No. 07-195, at 9-11 (Dec. 14, 2007) (Sprint Nextel AWS-3 Comments); *see also Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band*, Notice of Proposed Rulemaking, 22 FCC Rcd. 17035 (2007).

¹⁹ *2003 ATC Order*, 18 FCC Rcd. at 1962, ¶ 204.

²⁰ *2004 Spectrum Sharing Order*, 19 FCC Rcd. at 13356, ¶ 72. By establishing this three megahertz separation between BRS-1 and ATC, the Commission recognized that section 25.255 of its rules by itself is insufficient to protect BRS operators. While this rule provision imposes a general obligation on ATC operators to resolve harmful interference to other services and effectively makes Globalstar's ATC operations, in essence, secondary to BRS, the Commission has stated that "[e]stablishing a secondary allocation . . . does not itself adequately protect primary licensees against interference." *2003 ATC Order*, 18 FCC Rcd. at 1962, ¶ 61. If section

subsequently noted that it had adopted the three-megahertz separation “to ensure adequate separation between MSS ATC and BRS operations.”²¹ Consistent with its prior findings, the Commission should maintain a three-megahertz frequency separation between BRS and ATC.

2. Globalstar Has Told the Commission that BRS-1 and ATC Require Frequency Separation.

Globalstar has conceded that an ATC system could not share frequencies with another terrestrial service.²² Indeed, Globalstar advised the Commission that two megahertz of separation between ATC and BRS-1 was necessary to avoid harmful interference between ATC and BRS-1.²³ Since Globalstar made these statements neither basic filter technology nor the operating parameters of BRS systems have changed. Moreover, Globalstar has failed to present any evidence demonstrating that its ATC systems could operate above 2493 MHz without causing interference to BRS operations. Globalstar’s undocumented capacity needs, its contradictory claims about the minimum frequency separation necessary, and its unsupported statements about the likelihood of

25.255 were the only safeguard against harmful interference, BRS customers would have to accept degraded wireless broadband service while their service providers determined the interference source, worked with Globalstar, and waited for the technical remedy. After-the-fact interference mitigation by Globalstar would fail to alleviate subscriber dissatisfaction or undo the economic harm to the investment-backed expectations of BRS licensees in the competitive marketplace for advanced wireless broadband services.

²¹ 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; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Order on Reconsideration and Fifth Memorandum Opinion and Order and Third Memorandum Opinion and Order and Second Report and Order, 21 FCC Rcd. at 5606, ¶ 7 (2006).

²² See Globalstar Mar. 13 *Ex Parte*, Attachment 1 at 26 (“ATC base stations will not interfere with ITFS or MDS if operated below 2498.0 MHz”).

²³ See *id.*

interference fall far short of the record evidence necessary to support authorizing ATC on the spectrum immediately adjacent to BRS-1.

3. The Real-World Operational Practices of BRS-1 Licensees Rely on Three Megahertz Separation Between Incompatible Operations.

BRS licensees' own channelization schemes within the 2.5 GHz band rely on a three-megahertz frequency separation between incompatible operations. In the 2.5 GHz band, BRS-EBS operators that use Time Division Duplex (TDD) technologies, such as WiMAX, design their systems to operate with at least three megahertz of separation from other non-synchronized TDD operations or FDD systems. This three-megahertz "transition zone" allows TDD base station uplinks to filter out adjacent-channel base station downlinks. Indeed, the Commission itself recognized the desirability of these transition zones and incorporated them into its BRS-EBS rules and policies.²⁴ The same frequency separation should apply between BRS and ATC.²⁵

Equipment manufacturers agree. According to KMW Communications, for example, ATC and BRS-1 require three megahertz of spectral separation "to achieve marginally sufficient attenuation even with the best of filter designs, to avoid overload interference while still being capable of sufficiently amplifying the extremely weak signals from mobile devices."²⁶ For similar reasons, Sprint Nextel has proposed the equivalent of a three megahertz separation between TDD operations in the 2155-2175 MHz (AWS-3) band and downlink-only spectrum in the 2110-2155 MHz (AWS-1)

²⁴ Section 27.53 of the Commission's rules, for instance, provides for a more stringent base station out-of-band emissions limit measure three megahertz from a station's channel edge. *See* 47 C.F.R. § 27.53(1)(2).

²⁵ *See* Sprint Nextel Sep. 13 *Ex Parte*; KMW Communications Letter; Andrew Corp. Letter; CSS Antenna Letter.

²⁶ KMW Communications Letter.

band.²⁷ Sprint Nextel has encouraged the Commission to affirm a flexible-use model for the AWS-3 band. This model would require AWS-3 new entrants to fully internalize the costs of their operations, including the expense of (i) protecting adjacent channel licensees against harmful interference, and (ii) managing any constraints that adjacent-channel systems that operate within their licensed parameters might impose on the AWS-3 licensees.²⁸

In sum, standard BRS operational practices that the Commission has affirmed, manufacturers' statements on state-of-the-art WiMAX equipment design, and consistent BRS regulatory advocacy all confirm that a three-megahertz frequency separation between BRS and ATC is needed to prevent harmful interference to BRS.

C. The Same Out-of-Band Emissions Limits Should Apply to ATC that Apply to BRS-1.

The same out-of-band emissions limits should apply to terrestrial mobile systems in the BRS and ATC services.²⁹ Currently, very different out-of-band emissions limits and coordination requirements apply to MSS ATC operations in the 2487.5-2493 MHz band compared to BRS-EBS operations in the 2496-2690 MHz band. Section 25.254(a)(2) limits ATC out-of-band emissions to -44.1 dBW *over a thirty kilohertz resolution bandwidth* measured at the edge of the MSS licensee's authorized frequency assignment. Section 27.53(1)(2), however, limits BRS out-of-band emissions to at least

²⁷ Sprint Nextel AWS-3 Comments at 9-11. Other things being equal, a filter operating at lower frequencies will attenuate signals more rapidly than a filter of the same quality operating at higher frequencies. Thus, a 2.5 megahertz separation in the 2.1 GHz band is equivalent to a three megahertz separation in the 2.5 GHz band.

²⁸ *Id.* at 11. Sprint Nextel, for instance, would likely need to offset any AWS-3 channels it might acquire through competitive bidding by 2.5 megahertz from the AWS-2/3 band edges to avoid receiving harmful base-station interference from adjacent-channel operators.

²⁹ *See Notice*, 22 FCC Rcd. at 19733, ¶ 41.

-43 dBW over a one megahertz resolution bandwidth.³⁰ If two 2.5 GHz BRS licensees cannot resolve a documented interference complaint, moreover, then the BRS licensees must reduce their out-of-band emissions to at least -67 dBW over a one megahertz resolution bandwidth measured at three megahertz from their channel edges.³¹ While the numerical differences are seemingly minor, the difference in resolution bandwidth between thirty kilohertz and one megahertz proves significant.³² Simply converting the ATC out-of-band limit to the one megahertz resolution bandwidth of BRS demonstrates that the current ATC out of band emissions limit is -27.8 dBW/1 MHz. In other words, ATC has a maximum out-of-band emissions limit *more than thirty-three times higher than the BRS maximum without a complaint and 8300 times higher than the BRS maximum with a complaint.*

³⁰ Section 27.53(1)(2) of the Commission's rules specifies an out-of-band emissions limit of $43 + 10 \log P$ dB, which is converted here to -43 dBW/1 MHz for purposes of comparison. The BRS out-of-band emissions must be measured in a one megahertz resolution bandwidth, except in the one megahertz band immediately adjacent to the frequency block. See 47 C.F.R. § 27.53(1)(6).

³¹ Section 27.53(1)(2) of the Commission's rules specifies an additional out-of-band emissions limit of $67 + 10 \log P$ when the parties cannot reach a mutually acceptable alternative. Here too, the $67 + 10 \log P$ attenuation requirement is converted to -67 dBW/1 MHz for purposes of comparison. See 47 C.F.R. § 27.53(1)(2). The $67 + 10 \log P$ limit applies to stations separated by more than 1.5 kilometers; additional attenuation is required if the stations are closer than 1.5 kilometers. *Id.*

³² When assessing interference to other operations, engineers typically specify the noise level in a resolution bandwidth that is similar in size to the channel of the signal that might receive interference. A thirty kilohertz resolution bandwidth simply means that every thirty kilohertz may have out-of-band emissions up to the level specified. Because one megahertz consists of 33.3 thirty-kilohertz segments, a one megahertz resolution bandwidth will observe thirty-three times the emissions levels permitted in an out-of-band emissions limit with a resolution bandwidth of just thirty kilohertz. Similarly, by specifying an out-of-band emissions limit in a thirty kilohertz resolution bandwidth, the *de facto* limit for a one megahertz resolution bandwidth is 33.3 times higher than that of a thirty kilohertz resolution bandwidth. While the existing thirty kilohertz ATC resolution bandwidth may be relevant for the purpose of protecting the narrowband incumbent operations located elsewhere in the MSS bands, such as GPS, measuring the out-of-band emissions in a thirty kilohertz resolution bandwidth for purposes of assessing harmful interference to BRS substantially and improperly understates the level of protection that ATC must provide to BRS broadband signals.

No rational basis exists for any distinction between BRS and ATC out-of-band emissions limits, much less one of this magnitude. MSS ATC operations are likely to be similar to those of BRS licensees, and similar technical standards should apply to both. Furthermore, the current ATC limits are inadequate to avoid significant harmful interference to BRS-1 and other BRS operations.³³ The ATC out-of-band emissions limits, which are *thousands* of times higher than those that apply to BRS systems, do not comport with section 25.255, which requires MSS ATC operators to resolve any harmful interference that their operations cause to other services.³⁴ 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(1)(2) and 27.53(1)(6) that apply to BRS should apply to ATC.

III. CONCLUSION

The Commission should affirm its tentative conclusion not to license two terrestrial mobile services in the same place at the same time – a feat that even Globalstar concedes is impossible without system-disabling interference. To prevent harmful interference and permit the rapid introduction of advanced wireless broadband services to the public, the Commission should also maintain the existing three megahertz frequency

³³ The existing BRS out-of-band emissions limits protect BRS licensees from receiving interference or noise in its own frequency band because of the out-of-band emissions of another licensee. Both the out-of-band emissions requirement and the underlying interference mechanism are quite different from the three megahertz separation discussed in Section B above. The three-megahertz separation that Sprint Nextel has sought will help avoid receiver overload interference due to strong signals on *adjacent frequencies*. By comparison, applying the more stringent out-of-band emissions limits to ATC will protect BRS licensees against harmful interference from strong signals *in their own band*.

³⁴ 47 C.F.R. § 25.255.

separation between ATC and BRS-1 and apply the BRS out-of-band emissions limits to ATC operations.

Respectfully submitted,

SPRINT NEXTEL CORPORATION

/s/ Lawrence R. Krevor

Lawrence R. Krevor
Vice President, Government Affairs
Trey Hanbury
Director, Government Affairs
Richard Engelman
Director, Government Affairs

SPRINT NEXTEL CORPORATION
2001 Edmund Halley Drive
Reston, VA 20191
(703) 433-8124

Regina M. Keeney
Charles W. Logan
Stephen J. Berman
Lawler, Metzger, Milkman & Keeney, LLC
2001 K Street, NW, Suite 802
Washington, DC 20006
(202) 777-7700
Counsel for Sprint Nextel Corporation

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