

Attachment B
Request for Modification of License Term of
Satellite Earth Station E900081

XRS Corporation (“XRS”), a Delaware corporation, is the licensee of satellite earth station E900081, pursuant to which XRS is authorized to operate up to 19,000 half-duplex mobile earth terminals (“METs”) in the upper L-band via the MSAT-1 (Canadian licensed), MSAT-2 and SKYTERRA-1 satellites until September 30, 2013.¹ The instant application (“Application”) seeks consent of the Federal Communications Commission (“FCC” or “Commission”) to modify the license term of the upper L-band authorization to permit XRS to operate its authorized METs for an additional two years, through September 30, 2015. As set forth below, grant of the instant application is in the public interest because it will enable XRS to continue to provide service to its existing customers without disruption until such time as it transitions all of its customers to devices that do not require satellite resources.

I. BACKGROUND

XRS provides mobile communications and tracking systems for the transportation industry.² Hundreds of commercial trucking fleets have installed XRS’s METs on commercial trucks and trailers. These METs, which operate on a multi-mode terrestrial and satellite network, enable XRS’s transportation customers to manage fleets effectively. For example, the METs

¹ See SES-MOD-20110722-00850 (authorizing operation of 19,000 half-duplex METs in the upper L-band). XRS (through its predecessors) historically was authorized to operate 50,100 half-duplex METs in the lower L-band via the MSAT-1 (Canadian licensed) and MSAT-2 satellites. XRS no longer operates in the lower L-band, and has migrated all of its METs to the upper L-band for operations pursuant to its FCC authorization.

² XRS’s customers include the Department of Defense, Superior Carriers, Central Transport, Service Transport, Wadams Trucking, AAFES, and HAZMAT Loads.

automatically record state-line crossings, monitor driver and vehicle performance, communicate engine fault codes, and alert companies of driver arrival at (or departure from) specific locations. In addition to providing its customers with the tools for effective fleet management, XRS's METs serve important public safety needs. The METs permit law enforcement agencies, through cooperation with XRS, to recover stolen loads. In addition, the METs have been used in connection with homeland security efforts (*e.g.*, XRS has participated in a project funded by the Transportation Security Administration to track hazardous material load movements in the transportation industry through a central network operations center.).

In early 2009, LightSquared Subsidiary, LLC ("LightSquared") (formerly, a subsidiary of SkyTerra Communications, Inc.) proposed to require XRS to migrate its operations from the lower L-band to the upper L-band in anticipation of the launch of LightSquared's second generation satellite, SKYTERRA-1 (which launch was, at the time, scheduled for late 2009). XRS initially was required (pursuant to a timetable established by LightSquared) to begin transitioning its customers to the upper L-band as early as November 1, 2009. Consequently, in March 2009, XRS sought authority from the FCC to operate in the upper L-band for a two-year term beginning on October 1, 2009 and terminating on September 30, 2011. The FCC granted this application in August 2009.³

Thereafter, in July 2011, XRS filed a request for the FCC to extend its upper L-band authorization to enable it to operate 19,000 METs for an additional two-year period, until

³ See File No. SES-MFS-20090313-00302 (extending XRS's authority to operate up to 30,000 METs in the upper L-band).

September 30, 2013.⁴ The two-year extension was necessitated by a delay in the launch and testing of LightSquared's SKYTERRA-1 satellite.⁵ Importantly, in reviewing XRS's extension request, the National Telecommunications and Information Administration ("NTIA") determined that the request was "routine" and "raised no policy issues" because:

- the FCC and the NTIA had previously waived Footnote 308 to enable XRS to operate its METs in the upper L-band, and XRS's 2011 application merely sought to extend the existing waiver rather than to obtain a new waiver that would require a modification to the table of allocations;
- the nature of XRS's METs operations had not changed since the initial waiver was granted and, in fact, the number of METs to be operated had been reduced from 30,000 to 19,000; and
- although XRS's METs exceed the three second preemption standard recommended by the NTIA, the METs communicate only with SKYTERRA-1, which is used solely for mobile satellite services, and the METs are not capable of providing ancillary terrestrial component services.⁶

⁴ See *supra* at note 1.

⁵ At the time, XRS sought to extend its upper L-band authority for twenty-four months only, from September 30, 2011 through September 30, 2013. This request was consistent with the NTIA's recommendation that waivers of Footnote 308 (as defined herein) be limited to two years. See Letter to Julius Knapp, Chief, Office of Engineering and Technology, FCC from Karl Nebbia, Associate Administrator, Office of Spectrum, NTIA (May 13, 2009) ("NTIA Letter"). However, because Lightsquared had authorized it to operate in the upper L-band throughout the entire emulation period scheduled by LightSquared for SKYTERRA-1 (which was then scheduled to end on December 31, 2014), XRS noted in its application to the FCC that it was possible that an additional extension of the term of the upper L-band authorization beyond September 30, 2013 may be necessary in order to enable XRS to access SKYTERRA-1 throughout the emulation period. See Attachment B to FCC File No. SES-MOD-20110722-00850.

⁶ See Review of Application to Federal Communications Commission for Earth Stations in the Range 1610-2500 MHz (GeoLogic Solutions, Inc.; File No. SES-MOD-20110722-00850, call sign E900081), Memorandum for Executive Secretary, Interdependent Radio Advisory Committee (IRAC) from Edward M. Davison (Sept. 29, 2011).

For these reasons, the NTIA notified the FCC that it had no objections to XRS's request to extend its upper L-band authorization for two years.⁷ Thereafter, the FCC granted XRS's application and extended its METs license term through September 30, 2013.

Since the time the NTIA and the FCC last evaluated XRS's operations, XRS has ceased operating nearly sixty percent of the 19,000 METs authorized in September 2011. Currently, XRS operates approximately only 7,600 METs that access upper L-band spectrum via SKYTERRA-1. Although XRS continues to reduce its reliance on upper L-band spectrum for these remaining METs, it anticipates that it will be unable to cease operation of all of its METs before September 30, 2013, the date on which the instant authorization is scheduled to expire. Moreover, LightSquared has agreed to permit its current customers, including GeoLogic, to continue to operate in the upper L-band using their current devices throughout the emulation period, which is currently scheduled to run through the end of 2015.⁸ Accordingly, XRS is filing the instant request to extend the license term of the upper L-band authorization for an additional two years, through September 30, 2015.

⁷ *Id.*

⁸ See Press Release, LightSquared Announces Extension of Emulation on its Skyterra-1 Satellite Network for Existing Customers (March 6, 2012) (available at <http://www.lightsquared.com/press-room/press-releases/lightsquared-announces-extension-of-emulation-on-its-skyterra-1-satellite-network-for-existing-customers/>). XRS believes that it will have ceased using upper L-band spectrum for all of its remaining METs operations prior to September 30, 2015. However, in the event that XRS is unable to transition its METs operations as planned, it may be necessary to seek an additional extension of the term of the upper L-band authorization until the expiration of the emulation period for SKYTERRA-1.

II. GRANT OF THE INSTANT APPLICATION WILL NOT ADVERSELY AFFECT AERONAUTICAL COMMUNICATIONS

Since the Commission first granted XRS a waiver of Footnote 308, XRS has not received any indication that its METs operations in the upper L-band have interfered with aeronautical broadcasts. Modification of its upper L-band authorization to enable XRS to operate the METs through September 30, 2015 will not increase the likelihood of possible harmful interference with aeronautical safety systems operating in the upper L-band. Indeed, the requested modification is non-controversial and should to be treated as “routine” given that XRS is merely seeking an extension of its license pursuant to an existing waiver of Footnote 308 to facilitate its ongoing operations of significantly fewer METs than previously authorized. Indeed, the number of METs currently operated by XRS is nearly seventy-five percent lower than the number of METs initially authorized for XRS (i.e., from 30,000 to approximately 7,600 METs),⁹ and is nearly sixty percent lower than the number authorized in September 2011 by the FCC (i.e., from 19,000 to approximately 7,600 METs).¹⁰ Importantly, XRS is not requesting any additional bandwidth nor is it proposing any changes in the operation of its METs, which will continue to communicate only with SKYTERRA-1, which is used solely for mobile satellite services.¹¹

As explained below and demonstrated in Attachment 1, XRS has satisfied the conditions imposed on its upper L-band authorization to extend the license term for an additional two years,

⁹ See File No. SES-MFS-20090313-00302.

¹⁰ See SES-MOD-20110722-00850.

¹¹ As has been the case, XRS’s METs are not capable of providing ancillary terrestrial component services.

through September 30, 2015 pursuant to a continued waiver of Footnote 308.¹² The vast majority of messages using XRS's METs are transmitted terrestrially, such that at any particular moment in time, it may be necessary to provide preemptive access for only a small number of the METs using a minimal amount of mobile satellite spectrum. The few messages that may require preemption use only mobile satellite spectrum,¹³ and the overwhelming majority can be preempted within 3.56 seconds.

A. XRS's METs Rely Primarily and Increasingly on Terrestrial Networks to Transmit Messages

Over the past several years, the METs manufactured and distributed by XRS have relied increasingly upon the use of terrestrial networks to transmit messages, thus eliminating reliance on the satellite network and significantly reducing the need to provide preemptive access for

¹² Specifically, the upper L-band authorization states that “[i]f [XRS] wishes to continue to operate in the upper L-band beyond September 30, 2013, it must file a new modification application, and in that application must justify its need to continue to operate under a waiver of Footnote US308 to the Table of Frequency Allocations, Section 2.106 of the Commission’s rules, 47 C.F.R. § 2.106, and must submit an analysis of its MET operations in the United States showing the number of packets each month having a transmission duration of 3 seconds or longer since the release of this authorization.” FCC File No. SES-MOD-20110722-00850 at Section H, Special and General Provisions, #8196. The upper L-band authorization further states that “[u]pper L-band operation authorized herein will be limited to no more than 180 kHz of the spectrum coordinated for the satellite system of SkyTerra Communications, Inc. and no additional spectrum will be requested or used.” *Id.* at Section H, Special and General Provisions, #16305. XRS has provided specific information in the text (pages 8-9) and Attachment 1 to show compliance with such conditions. While the FCC-imposed condition requires XRS to show the number of packets each month having a transmission duration of 3 seconds or longer if XRS wishes to continue to operate in the upper L-Band beyond September 30, 2013, XRS is providing the worst case scenario of the most packets that would exceed the 3 second preemption requirement in a high volume month. Specifically, Attachment 1 and pages 8-9 of the text show that only 14.57% of the packets transmitted during a high volume week in June 2013 exceeded the 3 second preemption requirement.

¹³ *See supra* note 11.

aeronautical, as well as maritime, communications.¹⁴ The approximately 7,600 METs currently deployed by XRS operate on a multi-mode terrestrial and satellite network. Messages are first attempted over the GPRS terrestrial network operated by AT&T Corporation. Messages are routed over SKYTERRA-1 only where terrestrial coverage is unavailable, and none of the METs operated by XRS communicate exclusively with SKYTERRA-1. Indeed, presently approximately 87% all message traffic is transmitted terrestrially. The remaining 13% of message traffic is routed over SKYTERRA-1 only where terrestrial coverage is unavailable.

B. XRS's METs utilize minimal satellite resources and do not significantly impact aeronautical communications

As has been the case over the past several years, the satellite transmissions by XRS's METS do not have a significant impact on aeronautical broadcasts. At any point in time, XRS's METs utilize, at the most, only 140 kHz of mobile satellite spectrum, which is approximately 80 kHz less than the 180 kHz spectrum limit imposed by XRS's upper L-band authorization.¹⁵ Indeed, only a minute amount of data is transmitted via satellite each day,¹⁶ and approximately 87% of satellite-transmitted messages are "short messages" that can be preempted within 3.56

¹⁴ XRS also notes that it has developed new mobile earth terminals to replace the half-duplex METs currently in use by XRS's customers. These replacement devices access satellite spectrum in the Big LEO bands (rather than L-band spectrum), and do not use LightSquared as the satellite provider. To date, however, not all of XRS's customers have transitioned to these replacement devices. Accordingly, in order to serve its existing customers, XRS requests continuing authority to operate up to 8,000 half-duplex METs in the upper L-band using LightSquared's satellite system.

¹⁵ See *supra* note 12.

¹⁶ Each day, an average of only 0.5 kB of data per MET is delivered over satellite.

seconds,¹⁷ which is only 0.56 longer than the 3 second preemption standard recommended by the NTIA.¹⁸

Based on XRS's operating experience, actual worse-case analysis during peak usage shows that (a) 62% of the Other Messages (*i.e.*, 8.06% of all satellite messages) are less than four data packets and thus can be preempted in 8.57 seconds and (b) 38% of Other Messages (*i.e.*, 4.94% of all satellite messages) consist of four or more data packets and can be preempted in 10.34 seconds.

Notably, at any particular moment in time, it may be necessary to provide preemptive access for no more than 1.69% (or approximately 128) of the approximately 7,600 METs that are currently used by XRS's customers.¹⁹ In a peak hour of processing, there is only a slight increase in the risk of preemption, such that preemptive access may be required for merely 2.32% (or approximately 176 devices) of the approximately 7,600 currently-deployed METs. XRS's experience indicates that, during seasonal peak hour processing periods, no more than 27

¹⁷ The approximately 87% of satellite-transmitted messages that are short messages (*i.e.*, less than 240 characters/two data packets) are transmitted by XRS's METs over signaling channels ("Short Messages"). The remaining 13% of satellite-transmitted messages are sent on channels other than signaling channels.

¹⁸ *See* NTIA Letter. The 3.56 preemption time also is consistent with the preemption time of other METs operating in the upper L-band pursuant to a waiver of Footnote 308. *See, e.g.*, Comtech Mobile Datacom Corp., 24 FCC Rcd 5283 (Int'l Bureau 2009) (granting an application to operate half-duplex METs in the upper L-band in situations where the preemption time for some of the METs was 3.6 seconds).

¹⁹ Although XRS's upper L-band authorization authorizes it to operate 19,000 METs, XRS currently has deployed only a portion of these authorized METs to its customers. Moreover, as explained *supra* at note 14, XRS is in the process of transitioning its customers to replacement devices that do not access L-band spectrum.

METs were active in any one minute, down from 52 METs in March, 2009.²⁰ Importantly, as demonstrated in Attachment 1, during the busiest minute in a peak hour processing period in June 2013, only 9 devices required up to 10.34 seconds to preempt. Indeed, throughout the majority of this processing period, five or fewer METs required 10.34 seconds to preempt, and the remaining METs could be preempted within 3 seconds or less.²¹ During the June 2013 peak processing period depicted on Attachment 1, 85.43% of the packets transmitted by XRS's METs did not exceed the 3 second preemption requirement (in other words, only 14.57% of the packets transmitted during that high volume week exceeded the 3 second preemption requirement).

In short, as demonstrated herein and by the METs analysis set forth in Attachment 1, continued operation of XRS's METs in the upper L-Band through September 30, 2015 (which is within the emulation period for SKYTERRA-1 scheduled by LightSquared) will not have an adverse effect on aeronautical communications.

III. CONCLUSION

Grant of the instant application is in the public interest because it will enable XRS to continue to provide service to its customers without disruption, as well as prevent XRS's customers from incurring the significant costs that would be required to secure alternative services.²² For the reasons set forth herein, XRS respectfully requests that the Commission grant

²⁰ See Attachment 1.

²¹ *Id.*

²² If the Commission were to deny the instant request, XRS's customers would be forced to purchase new terminals to meet their mobile data needs, even though XRS's METS have not fully depreciated or become technically obsolete. The high-costs of securing alternative communications devices would have a devastating effect on XRS's customers in the transportation industry, an industry

the instant application to modify the license term of its upper L-band authorization for an additional two years, through September 30, 2015.

with average profit margins of 10% or lower. XRS estimates that the costs to the industry to replace its METs could be in excess of \$25,000,000. In addition to the costs to replace individual METs, XRS's customers will incur significant expenses, monetary and otherwise, to integrate new terminals into back-office systems and install such terminals in trucks.

Attachment 1

BUSY HOUR DEVICE COUNT

