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

GeoLogic Solutions, Inc. ("GeoLogic"), a Delaware corporation, is the licensee of satellite earth station E900081 ("Earth Station"), pursuant to which GeoLogic is authorized to operate up to 30,000 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, 2011 ("Upper L-Band Authorization").[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 GeoLogic to operate its authorized METs for an additional two years, through September 30, 2013. As set forth below, grant of the instant Application is in the public interest because it will enable GeoLogic to continue to provide service to its existing customers without disruption.

I. BACKGROUND

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

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[1] *See* SES-MFS-20100916-01164. GeoLogic 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. GeoLogic no longer operates in the lower L-band, and has migrated all of its METs to the upper L-band for operations pursuant to the Upper L-Band Authorization.

[2] GeoLogic's customers include the Department of Defense, Superior Carriers, Central Transport, Service Transport, Wadams Trucking, AAFES, and HAZMAT Loads.

example, the METs 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, GeoLogic's METs serve important public safety needs. The METs permit law enforcement agencies, through cooperation with GeoLogic, to recover stolen loads. In addition, the METs are used increasingly in connection with homeland security efforts (*e.g.*, GeoLogic 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 GeoLogic 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). GeoLogic 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, GeoLogic 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.[3] The FCC granted this application in August 2009.

Since the time GeoLogic obtained authority to operate in the upper L-band, LightSquared's timeline to implement its second generation satellite network has been delayed.

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[3] *See* Upper L-Band Authorization, File No. SES-MFS-20090313-00302.

Specifically, due to a manufacturing issue which resulted in a delay in the delivery of the satellite to LightSquared, LightSquared did not launch SKYTERRA-1 until November 14, 2010, over one year later than initially anticipated.[4] As a result, GeoLogic continued to operate in the lower L-band until April 30, 2011 but now operates approximately 19,000 METs in the upper L-band only. Now that SKYTERRA-1 is in orbit, LightSquared has scheduled an emulation period to enable the migration of its current customers to its next generation satellite network (i.e., the network using SKYTERRA-1). GeoLogic understands that the emulation period will not commence until at least August or September 2011 and will run through December 31, 2014. 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. Accordingly, because the Upper L-Band Authorization will expire on September 30, 2011 (a date shortly after the emulation period is scheduled to begin), GeoLogic is filing the instant request to extend the license term of the Upper L-Band Authorization through September 30, 2013.[5]

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[4] Press Release, LightSquared Announces the Successful Launch of Next-Generation Satellite (Nov. 15, 2010) (available at http://www.lightsquared.com/press-room/press-releases/lightsquared-announces-the-successful-launch-of-next-generation-satellite/).

[5] It was initially anticipated that LightSquared would commence commercial services using the SKYTERRA-1 satellite as early as October 2010. *See* Upper L-Band Authorization, FCC File No. SES-AFS-20090323-00359. Based on the foregoing LightSquared timetable and the recommendation of the National Telecommunications and Information Administration that waivers of Footnote 308 (as defined herein) be limited to two years, *see infra* at note [12], GeoLogic requested authority to operate 30,000 METs in the Upper L-band for a two year license term, from October 1, 2009 through September 30, 2011. However, in its application for the Upper L Band Authorization, GeoLogic noted that it was possible that it would need to extend the term of the license beyond September 30, 2011. Similarly, consistent with NTIA's recommendation that waivers of Footnote 308 (as defined herein) be limited to two years, GeoLogic is requesting that its Upper L-Band Authorization be extended for two years, notwithstanding that LightSquared has agreed to permit GeoLogic to operate in the upper L-band throughout the end of the emulation period (currently scheduled to expire on December 31, 2014).

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

Modification of the Upper L-Band Authorization to enable Geologic to operate the METs through September 30, 2013 will not increase the likelihood of possible harmful interference with aeronautical safety systems operating in the upper L-band. GeoLogic is neither requesting any additional bandwidth nor any additional METs.[6] In fact, the number of GeoLogic's METs in operation is over thirty-five percent lower than the number authorized by the Upper L-Band Authorization. GeoLogic merely requests authority to continue to operate its METs in the upper L-band pursuant to a waiver of footnote US308 of Section 2.106 of the FCC's rules ("Footnote 308"), which the Commission has granted GeoLogic as recently as August 2009.[7]

Since the Commission first granted GeoLogic a waiver of Footnote 308, GeoLogic has not received any indication that its operations in the upper L-band have interfered with aeronautical broadcasts. Moreover, as explained below, the vast majority of messages using GeoLogic'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 percentage of the METs. Importantly, as demonstrated below and in the METs analysis set forth in Attachment 1, the vast majority of the limited number of messages transmitted over satellite using GeoLogic's METs can be preempted within 3.56 seconds, and these messages utilize a small amount of mobile satellite spectrum. In short, as explained below, GeoLogic has satisfied the conditions imposed on its

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Accordingly, GeoLogic anticipates that it may be necessary to seek an additional extension of the term of the Upper L-Band Authorization beyond September 30, 2013.

[6] *See infra* at note 13.

[7] *See* Upper L-Band Authorization, FCC File No. SES-AFS-20090323-00359.

Upper L-Band Authorization to extend the license term for an additional two years, through September 30, 2013 pursuant to a waiver of Footnote 308.[8]

Over the past several years, the METs manufactured and distributed by GeoLogic 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 aeronautical, as well as maritime, communications.[9] All of GeoLogic's METs now 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's upper L-band satellite system only where terrestrial coverage is unavailable, and none of the METs

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[8] Specifically, the Upper L-Band Authorization states that "[i]f GeoLogic Solutions wishes to continue to operate in the upper L-band beyond September 30, 2011, 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." 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." GeoLogic has provided specific information in the text (pages 6-7) and Attachment 1 to show compliance with such conditions. While the FCC-imposed condition requires GeoLogic to show the number of packets each month having a transmission duration of 3 seconds or longer if GeoLogic wishes to continue to operate in the upper L-Band beyond September 30, 2011, GeoLogic 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 6-7 of the text show that only 14.25% of the packets transmitted during a high volume week in July exceeded the 3 second preemption requirement.

[9] GeoLogic also notes that it has developed new mobile earth terminals to replace the half-duplex METs currently in use by GeoLogic'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, GeoLogic has deployed 1,200 replacement devices. GeoLogic anticipates that all of its customers will be transitioned to the replacement devices over the next twenty-four to thirty-six months, such that the Upper L-Band Authorization will no longer be necessary. However, to date, not all of GeoLogic's customers have transitioned to these replacement devices. Accordingly, in order to serve its existing customers, GeoLogic requests continuing authority to operate up to 19,000 half-duplex METs in the upper L-band using LightSquared's satellite system.

operated by GeoLogic communicate exclusively with SkyTerra's upper L-band satellite system. Indeed, presently approximately 87% all message traffic is transmitted terrestrially. The remaining 13% of message traffic is routed over SkyTerra's first generation satellite system only where terrestrial coverage is unavailable.

Importantly, the satellite transmissions by GeoLogic's METS do not have a significant impact on aeronautical broadcasts. As an initial matter, at any point in time, GeoLogic'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 on the Upper L-band Authorization.[10] Moreover, only a minute amount of data is transmitted via satellite each day.[11] Approximately 87% of satellite messages transmitted by GeoLogic's METs are short messages (*i.e.*, less than 240 characters/two data packets) sent over signaling channels ("Short Messages"). Any satellite resources used by GeoLogic's METs to transmit Short Messages can be shifted to aeronautical safety systems within 3.56 seconds, which is only 0.56 longer than the 3 second preemption standard recommended by the NTIA.[12] The remaining 13% of satellite messages ("Other Messages") are transmitted on channels other than signaling channels. Based on GeoLogic's operating experience, actual worse-case analysis during peak usage shows that (a) 62% of the

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[10] *See supra* note [8]. Moreover, it is likely that GeoLogic will decrease its spectrum requirements over the next thirty-six months from the current 140 kHz.

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

[12] *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"). 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).

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 321) of the 19,000 METs that are currently used by GeoLogic's customers.[13] 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 441 devices) of the 19,000 currently-deployed METs. Notably, GeoLogic's experience indicates that, during seasonal peak hour processing periods, no more than 24 METs were active in any one minute, down from 52 METs in March, 2009.[14] Importantly, during seasonal peak hour processing periods, no more than 6 devices presently could require up to 10.34 seconds to preempt whereas all of the other devices in use could be preempted in 3 seconds or less.[15] In the high volume week of July 2011, 85.8% of the packets transmitted did not exceed the 3 second preemption requirement (in other words, 14.25% 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 GeoLogic's METs in the upper L-Band through September 30, 2013 as a

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[13] Although GeoLogic's Upper L-Band Authorization authorizes it to operate 30,000 METs, GeoLogic currently has deployed less than two-thirds of the authorized MET to its customers. Moreover, as explained *supra* at note 9, GeoLogic is in the process of transitioning its customers to replacement devices that do not access L-band spectrum.

[14] *See* Attachment 1.

[15] *Id.*

result of the delay in the launch and testing of SKYTERRA-1 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 GeoLogic to continue to provide service to its customers without disruption, as well as prevent GeoLogic's customers from incurring the significant costs that would be required to secure alternative services.[16] Indeed, as explained herein, the requested extension is necessitated by circumstances outside of GeoLogic's control, namely, the delay in the launch and testing of SKYTERRA-1 by LightSquared. In July 2011, GeoLogic discussed with the NTIA the proposed modification of the license term of the Upper L-Band Authorization. The NTIA informally indicated it would likely support such a request.[17]] Accordingly, for the reasons set forth herein, GeoLogic requests that the Commission grant the instant Application to modify the license term of the Upper L-Band Authorization for an additional two years, through September 30, 2013.

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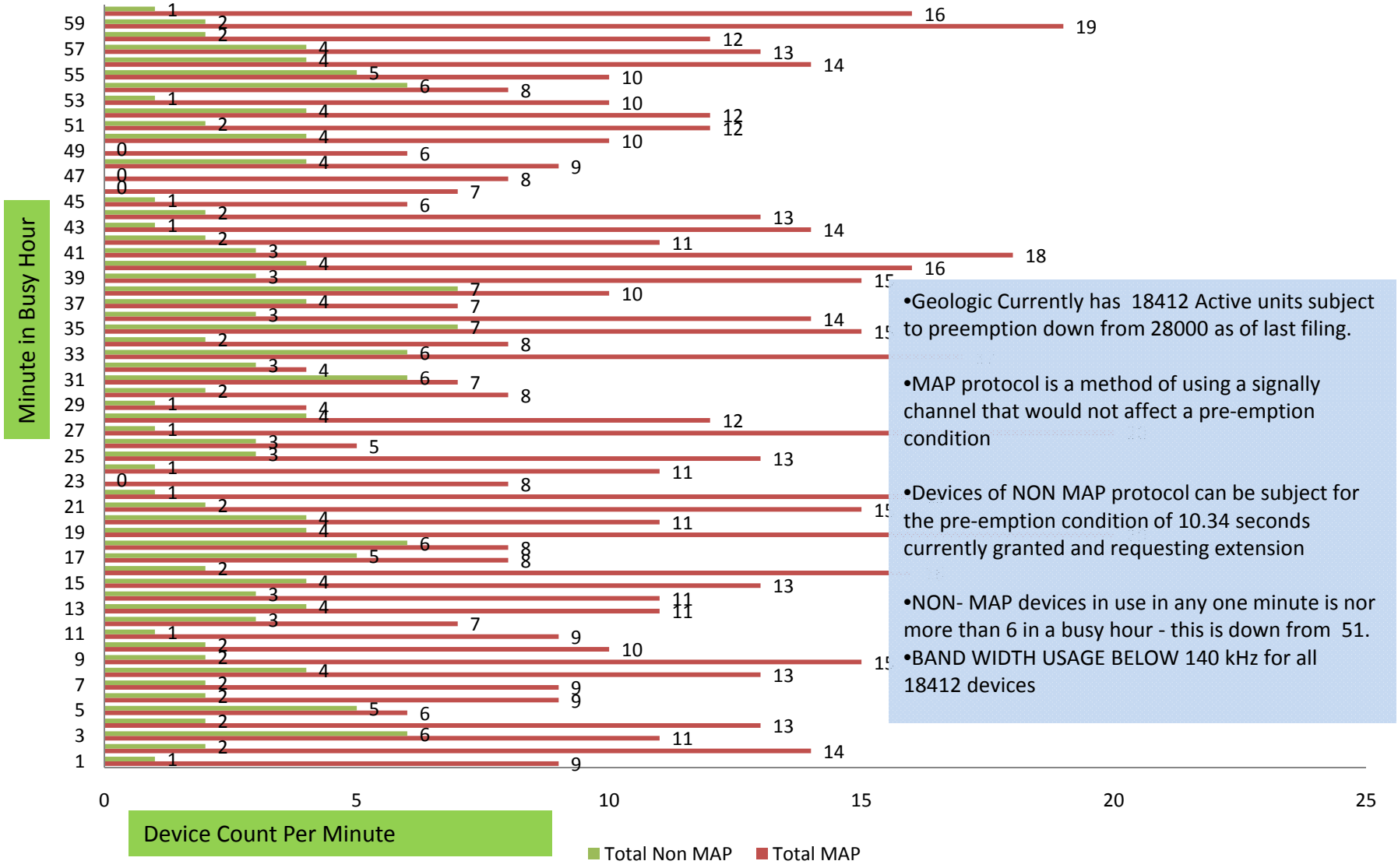
[16] If the Commission were to deny the instant request, GeoLogic's customers would be forced to purchase new terminals to meet their mobile data needs, even though GeoLogic's METS have not fully depreciated or become technically obsolete. The high-costs of securing alternative communications devices would have a devastating effect on GeoLogic's customers in the transportation industry, an industry with average profit margins of 10% or lower. GeoLogic estimates that the costs to the industry to replace its METs could be in excess of $50,000,000. In addition to the costs to replace individual METs, GeoLogic's customers will incur significant expenses, monetary and otherwise, to integrate new terminals into back-office systems and install such terminals in trucks.

[17] The Commission considers requests to operate half-duplex METs pursuant to a waiver of Footnote 308 on a case-by-case basis, in consultation with the NTIA. In May 2009, the NTIA recommended that the FCC establish a 3 second preemption standard for METs to cease operations in the lower L-band for maritime communications, and limit waivers of Footnote 308 to a two year time period. *See* NTIA Letter.

Attachment 1

Geologic Pre-Emption Statistics
BUSY HOUR DEVICE COUNT



- Geologic Currently has 18412 Active units subject to preemption down from 28000 as of last filing.
- MAP protocol is a method of using a signally channel that would not affect a pre-emption condition
- Devices of NON MAP protocol can be subject for the pre-emption condition of 10.34 seconds currently granted and requesting extension
- NON- MAP devices in use in any one minute is nor more than 6 in a busy hour - this is down from 51.
- BAND WIDTH USAGE BELOW 140 kHz for all 18412 devices