

BEFORE THE
Federal Communications Commission
WASHINGTON, DC 20554

In the Matter of)
)
LightSquared Subsidiary LLC) File No. SAT-MOD-20101118-00239
)
Request for Modification of its Authority for)
an Ancillary Terrestrial Component)

To: The Commission

APPLICATION FOR REVIEW

Lockheed Martin Corporation (“Lockheed Martin”), pursuant to Section 1.115 of the Commission’s Rules (47 C.F.R. § 1.115), hereby seeks Commission review of the International Bureau’s January 26, 2011 Order and Authorization (“*Order*”)¹ in the above-captioned proceeding. For the reasons stated below, Lockheed Martin urges the Commission to determine on review that the Bureau exceeded its delegation of authority in issuing LightSquared Subsidiary LLC (“LightSquared”) a modification of its authority with respect to the Ancillary Terrestrial Component (“ATC”) of its L-band mobile-satellite service (“MSS”) system that allows non-integrated terrestrial mobile broadband service to be provided in the L-band MSS spectrum authorized to LightSquared. Specifically, Lockheed Martin urges the Commission to determine that unresolved, serious questions regarding the potential for non-integrated mobile broadband service in the 1525-1559 MHz and 1626.5-1660.5 MHz bands to cause harmful interference to systems operating in the radionavigation-satellite service (“RNSS”) band at 1559-1610 MHz – as do Lockheed Martin’s two Regional Positioning System (RPS) satellites²

¹ *LightSquared Subsidiary LLC*, DA 11-133, slip op. (Int’l Bur., released January 26, 2011).

² Lockheed Martin holds two FCC space station licenses to operate RPS satellites at the 107.3° W.L. and 133° W.L. orbital locations, and both spacecraft are in operation in the 1559-1610 MHz band as augmentation systems for the Global Positioning System (“GPS”) satellites. *See* File Nos. SAT-LOA-19990427-00047 (LM-RPS-133W, Call Sign S2372) and SAT-LOA-

– require that all authority for non-integrated terrestrial service be withheld from LightSquared until such time as the Commission is able to determine through a proper notice-and-comment rulemaking proceeding that such a service can be provided compatibly with RNSS services in the 1559-1610 MHz band, and under what specific conditions. To this end, Lockheed Martin has reviewed the Application for Review of the *Order* that is being filed on this date by the U.S. GPS Industry Council, along with its members Trimble Navigation Limited and Garmin International, Inc. (collectively referred to as the “Council”) and the Air Transport Association of America, Inc.,³ and hereby incorporates and endorses as its own the bases for review that are stated therein.

Lockheed Martin is the only Commission licensee of space stations operating in the 1559-1610 MHz (or “L1”) RNSS band. The Lockheed Martin RPS satellites and their associated earth stations provide a service integral to the FAA’s overall Wide Area Augmentation System (“WAAS”).⁴ The performance of space-based navigation is improved by providing the satellite broadcast signal to end-user aircraft. Interference to the Lockheed Martin RPS broadcast signal at L1 affects the ability of the Lockheed Martin uplink stations. This is so because the Lockheed Martin uplink stations have sensitive receivers that provide critical data to control the uplink signal. Interference causes these receivers to output bad data, which results in an incorrect uplink signal. Eventually, if enough interference is present, the receiver will lose

19990427-00046 (LM-RPS-107.3W, Call Sign S2371). Lockheed Martin is using the RPS satellites to provide a GPS augmentation service to the Federal Aviation Administration (“FAA”).

³ See Application for Review by The U.S. GPS Industry Council, along with its members Trimble Navigation Limited and Garmin International, Inc., and the Air Transport Association of America, Inc., of the International Bureau’s January 26, 2011 Order and Authorization in *LightSquared Subsidiary LLC*, DA 11-133 (“Council Application for Review”).

⁴ The Wide Area Augmentation System (WAAS) is a system that provides augmentation of GPS signals throughout the entire NAS to improve the accuracy, reliability and availability of space-based air navigation capability.

lock on the proper signal and shut down. In such circumstances, this Lockheed Martin service – which provides, among other services, a safety critical function for aviation users in the National Airspace System – will necessarily have to cease transmission. This is unacceptable.

As the service Lockheed Martin provides over the RPS satellites incorporates the GPS signals in the same band, disruption of the GPS L1 signal has the potential to cause harmful interference to the RPS system. In particular, the geostationary RPS satellites broadcast a WAAS signal in the 1559-1610 MHz band that is used by GPS aviation receivers and specially-enabled WAAS receivers on aircraft to aid in air navigation and air traffic control. The earth stations that uplink the signal to the RPS satellites include a very sensitive GPS/WAAS receiver with a much higher gain antenna than is found in the typical GPS receiver. These receivers are very sensitive to interference. If signal reception is disrupted, these antennas will be unable to perform a safety critical function to uplink the proper signal for broadcast from the RPS satellites' L1 signals. Interference to the L1 signal on Lockheed Martin's RPS satellites would cause the feedback control loop – utilized in the ground station, which very closely controls the uplink signal – to produce erroneous data. This erroneous data would then be operated upon by the feedback control loop and result in an incorrect uplink signal that would be broadcast from the Lockheed Martin RPS satellite. This erroneous RPS broadcast would not be immediately detected by Lockheed Martin, by the FAA's WAAS monitor, or by the end-user aircraft, and would thus likely result in the introduction of a substantial safety hazard to a significant portion of the, and potentially the entire, National Airspace System. Once the interference situation is detected, the uplink transmission to the satellite would be terminated immediately, and unless a backup ground station is available, the broadcast transmissions would also cease.

This means that any interference to the reception and use by aircraft in flight of the signal broadcast by the Lockheed Martin RPS satellites is, without question, an endangerment to

safety of life and property. The Bureau's *Order* allows such interference to occur.⁵ Lockheed Martin is thus a "person aggrieved" by the Bureau's action in the *Order* for purposes of Section 1.115(a) of the Commission's Rules, 47 C.F.R. § 1.115(a).

Lockheed Martin urges the Commission to conclude that there is good cause for the consideration of Lockheed Martin's instant Application for Review, notwithstanding the fact that Lockheed Martin did not participate in the comment/reply phase of the LightSquared modification application. First, had the Bureau followed Commission procedures regarding both the treatment of waiver requests and the extent of its delegated authority, Lockheed Martin would have had adequate notice of the fact that the Commission's clear rules regarding ATC gating criteria were in danger of being set aside. As it developed, these changes were, in fact, made without a notice-and-comment rulemaking proceeding and without an express invitation for affected RNSS stakeholders to place into the record any concerns.⁶ The Bureau's failings in these critical areas provide good cause for allowing Lockheed Martin to seek review now.

Second, although the Bureau's treatment of the LightSquared application and the GPS receiver desensitization issues was flawed for reasons stated in the Council Application for Review and endorsed in full by Lockheed Martin here, the Bureau has expressed a desire to establish through testing and analysis a comprehensive understanding of the interference situation. The RPS system needs to be part of that analysis and treated on the record as engendering considerations that are related to, but also independent of, the considerations brought to the proceeding by the Council. Finally, no prejudice to LightSquared will result from Lockheed Martin's participation now based upon review of the FCC public docket. Issues

⁵ In this regard, Lockheed Martin refers specifically to Section VI of the Council Application for Review, where the insufficiency of the Bureau's condition prohibiting only "commercial service" by non-integrated terrestrial transmitters operation in the LightSquared MSS frequencies is addressed.

⁶ See Council Application for Review at Sections III and IV.

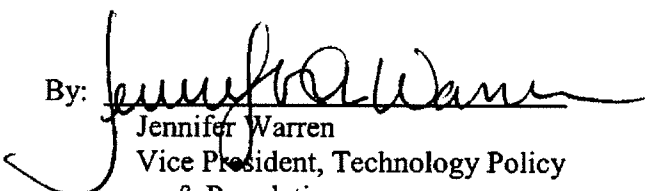
regarding the impact that non-integrated, widespread, high-power terrestrial broadband transmitters have on GPS receivers (including augmentation system receivers) in the 1559-1610 MHz band were timely raised by other parties to the proceeding.

In sum, the Bureau, without any delegated authority and in violation of core procedural protections guaranteed both by the Communications Act and the Administrative Procedure Act, issued a fatally-flawed decision. The Commission should thus vacate the *Order* and initiate at its earliest convenience a notice-and-comment rulemaking proceeding to examine with a complete record the public interest and national policy considerations associated with LightSquared's proposal. Lockheed Martin understands the context of this decision in the Commission's broader and ongoing efforts to find spectrum for broadband wireless use, but believes that that overarching quest cannot justify this waiver order. When there are directly affected interests, such as those impacted by the proposed high-power terrestrial service, the Commission must conduct a serious analysis of those impacts in each instance. Failure to do so risks setting a very unfortunate precedent for addressing legitimate concerns in future Commission spectrum repurposing efforts. Lockheed Martin stands prepared to contribute to this process and provide all relevant information pertaining to its RPS system the Commission may require to accurately and fully complete its examination of the LightSquared proposal.

Respectfully submitted,

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February 25, 2011

CERTIFICATE OF SERVICE

I, Jennifer Warren, hereby certify that on this 25th day of February, 2011, a copy of the foregoing Application for Review is being sent via first class, U.S. Mail, postage prepaid, to the following:

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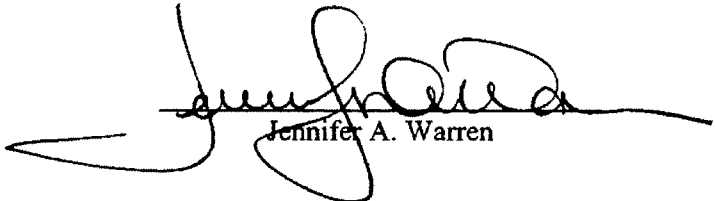
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