

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

Application of)	
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Kepler Communications Inc.)	Call sign: S2981
)	
For Modification of Authorization for the)	File No. SAT-MOD-_____
Kepler NGSO Satellite System)	
)	
To: The International Bureau		

**APPLICATION FOR THE MODIFICATION OF THE KEPLER NGSO SATELLITE
SYSTEM**

Kepler Communications Inc. (Kepler) hereby submits this request for modification of authorization for its NGSO satellite system to reflect a change in its physical satellite design from a 5-kg class to a 12-kg class architecture. This change reflects an array of advancements Kepler has developed since the launch of its first two 5 kg spacecraft in 2018 that will improve the capability of its network and its quality of service. Such changes were anticipated in Kepler's original application and grant and have been the subject of further *ex parte* discussion between Kepler and the Commission.¹ In its grant, the Commission previously conditioned an authorization of the 12 kg platform on the approval of an updated technical description and orbital debris

¹ See Kepler Communications Inc., *Petition for Declaratory Ruling to Grant Access to the U.S. Market for Kepler's NGSO FSS System*, Order and Declaratory Ruling, FCC 18-162 (Nov. 19, 2018) (Kepler Grant). See also Letter from Nicholas G. Spina, *6U Satellites in Kepler Communications' Market Access Grant And Earth Stations*, IBFS File No. SAT-PDR-2016-1115-00114 (Mar. 11, 2020); Letter from Innovation, Science and Economic Development Canada to Nicholas G. Spina, *Canadian 6U design approval*, IBFS File No. SAT-PDR-2016-1115-00114 (Dec. 20, 2019); Letter from Nicholas G. Spina, *Ex Parte* and *Ex Parte Erratum*, IBFS File No. SAT-PDR-2016-1115-00114 (Sep. 6 and Sep. 21, 2018); Letter from Nicholas G. Spina, *Ex Parte – Notice*, IBFS File No. SAT-PDR-2016-1115-00114 (Aug. 7, 2018); Letter from Nicholas G. Spina, *Ex Parte*, IBFS File No. SAT-PDR-2016-1115-00114 (Jun. 22, 2018).

mitigation plan for Kepler's system.² To that end, this application seeks to consolidate these items for the Commission's review. Kepler is excited to debut its next-generation spacecraft and the substantial expansion they bring to its services and to the public interest.

The upgrade to a 12 kg platform achieves four main objectives:

1. To equip Kepler spacecraft with a new payload for delivery of a low-data rate Mobile Satellite Service outside of the US.
2. To update bus systems for improved pointing, tasking, and overall service quality.
3. To update onboard Ku-band payload computers with newer, more powerful models.

Because the first item concerns a service for which Kepler has not sought market access authorization in the US, it will not be discussed further. The other advancements directly improve Kepler's ability to deliver the Ku-band high data rate service authorized in its market access grant. Notably, Kepler has introduced new subsystems for its Attitude Determination and Control Systems to benefit spacecraft pointing performance, thereby improving the quality and consistency of signal lock with ground terminals. Additionally, Kepler has taken significant steps to vertically integrate its operations by bringing all spacecraft assembly and testing in-house.³ This has allowed Kepler to establish more comprehensive control over its network architecture. Kepler can now more effectively develop its spacecraft, refine its procedures, and troubleshoot anomalies as they arise – improving network reliability as a whole.

The changes only affect the physical profile and component makeup of the spacecraft. In accordance with 47 C.F.R. § 25.117(d)(1), a request for modification need only contain the

² Kepler Grant at paras. 11-12.

³ See SpaceNews, *Kepler decides to build its 140-satellite cubesat constellation in-house* (Jan. 29, 2020). URL: <https://spacenews.com/kepler-decides-to-build-its-140-satellite-cubesat-constellation-in-house/>

information pertaining to the modified parts of the system. In this case that merely requires an update to Kepler's Orbital Debris and Assessment Report, which is attached under Exhibit B. Other than changes pertaining to orbital debris risk, Kepler hereby certifies that all other information normally required for applications under 47 C.F.R. § 25.114 remains consistent with its system as presently authorized.⁴ This includes, among other things: orbital parameters, constellation size, mission lifetime, deployment schedule, frequency plan, service characteristics/coverage, target market, concept of operations, network architecture, PFD and EPFD compliance, and public interest benefits. Kepler also certifies that its updated operations will comply with any new rules adopted by the Commission from its recent proceeding on new orbital debris rules.⁵

Kepler's first 12 kg spacecraft is scheduled to launch in Q3 2020 and can begin augmenting Kepler's Ku-band service in the United States shortly thereafter. The Commission's rules state that modifications of space station authorizations shall be granted unless doing so would either render the applicant unqualified to operate a space station, increase authorized bandwidth, or would not serve the public interest, convenience and necessity.⁶ This modification does not fulfill any of these conditions for disqualification. Therefore, to reduce delay and maximize the public interest benefit, Kepler requests that this modification be granted expeditiously.

⁴ See Kepler Communications Inc., *Petition for a Declaratory Ruling*, IBFS File No. SAT-PDR-20161115-00114 (filed Nov. 15, 2016).

⁵ See *Mitigation of Orbital Debris in the New Space Age*, Report and Order and Further Notice of Proposed Rulemaking, FCC 20-54 (rel. Apr. 24, 2020).

⁶ See 47 C.F.R §25.117(d)(2).

Respectfully Submitted

/S/ Nickolas G. Spina

Nick G. Spina

Director, Regulatory Affairs