

VIA ELECTRONIC FILING

September 21, 2018

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street S.W.
Washington D.C. 20554

Re: Supplement to Ex Parte Notice & ODAR Errata
Kepler Communications Petition for Declaratory Ruling
IBFS File No. SAT-PDR-20161115-00114

Dear Ms. Dortch:

On September 19th, 2018, Nickolas Spina of Kepler Communications Inc. (“Kepler”) spoke to Karl Kensinger, Deputy Division Chief of the International Bureau Satellite Division, via phone regarding Kepler’s use of a 6U CubeSat design for its third satellite (nicknamed “TARS”). This followed an earlier call Mr. Kensinger made to Tony Lin of Hogan Lovells, for inquiries regarding the same matter, and from whom Kepler received notice of the Commission’s request. Discussed was the announcement that Kepler would develop TARS as a 6U class CubeSat spacecraft.¹ This was not discussed in Kepler’s *Petition for Declaratory Ruling* (the “Petition”).² The addition of a 6U spacecraft was previously conveyed in a meeting between representatives from Kepler and the International Bureau on July 31st 2018, for which an *ex parte* notice was submitted to the Commission.³

In the call, the Commission made a request for further clarification on the size and status of the TARS spacecraft, as well as its role in the overall constellation development. In response, Kepler reaffirms that TARS is part of a targeted effort to develop Kepler’s core technology, and is not explicitly representative of Kepler’s future satellite design; a complete transition to a larger bus size such as a 6U will ultimately be dependent on the evolving requirements of the market. Regarding the status of TARS, development has already commenced and the finished spacecraft is due to launch in 2019. To clarify, Kepler’s first manufactured spacecraft to date are of the 3U class.⁴

Kepler reiterates that the introduction of a 6U spacecraft does not materially affect the conclusions of its Petition.⁵ In particular, the Orbital Debris and Assessment Report (“ODAR”) submitted by Kepler to the Commission on June 22nd, 2018 contained an updated collision analysis of the Kepler Network that included

¹ See Kepler’s blog, *Kepler Contracts with Clyde Space to Build Third Satellite, TARS, A 6U CubeSat Meant to Demonstrate IOT Narrowband Services*, available at <http://www.keplercommunications.com/blog/item/kepler-contracts-with-clyde-space-to-build-third-satellite-tars-a-6u-cubesat-meant-to-demonstrate-iot-narrowband-services>

² See Kepler Communications Inc., *Petition for Declaratory Ruling*, IBFS File No. SAT-PDR-20161115-00114 (filed Nov. 15, 2016)

³ See *Ex Parte*, Kepler Communications Inc., File No. SAT-PDR-20161115-00114 (filed Aug. 2, 2018) (“August 2nd Kepler Ex Parte”)

⁴ Kepler has manufactured two 3U satellites. The first of which was launched in January 2018 and the second of which is scheduled for launch in Q4 2018.

⁵ See August 2nd Kepler Ex Parte, *Par 3*

a scenario where the full constellation was modelled based on satellites with a 6U form factor.⁶ The conclusions of this analysis was summarized in detail in Kepler's August 2nd Ex Parte and the ODAR report itself.⁷ Of significant importance was the finding that use of 6U spacecraft buses for Kepler's constellation was shown to be compliant with the relevant NASA orbital debris requirements, even when removing conjunction avoidance.⁸

While reviewing Kepler's filings in response to the Commission's request for information, an erratum was identified, consequentially resulting in omissions being present in the ODAR. Specifically, under heading 2.3.1 of the ODAR some input altitudes were mistakenly repeated, which resulted in the omission of several scenarios. Further, Table 1 did not clarify the satellite size associated with the collision risk. These have been corrected and attached hereto.⁹

Using TARS, Kepler will evaluate the nature of a 6U form factor with regards to the overall Kepler Network and, after testing, consider the effects of such architecture for the remainder of the constellation. Kepler further reiterates that the TARS spacecraft, despite having a different size, will make use of the same beams and antenna profiles as those which have previously been discussed within Kepler's Ku band Petition and its associated Schedule S.¹⁰

Sincerely,

/s/ Nickolas G. Spina

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⁶ See *Kepler Ex Parte – Technical*, Kepler Communications Inc., File No. SAT-PDR-20161115-00114 (22 June, 2018); and Attached *Corrected Kepler Ex Parte – Technical*, ("Sept 21st Corrected ODAR")

⁷ See *Id.*, S2.1 Summary of Results

⁸ See *Id.*, S2.1 Summary of Results Table 1 and Aggregate Risk Profile

⁹ See *Id.*, S2.3.1 - Perigee and Apogee Altitudes for 575 Km & 550 Km injection altitudes; and *Id.*, S2.3.1 – 6U showings; and *Id.*, S2.1 Summary of Results – aggregate risk profile; and *Id.*, S2.1 Summary of Results – Table 1

¹⁰ See Kepler Communications Inc., *Petition for Declaratory Ruling, Schedule S*, IBFS File No. SAT-PDR-20161115-00114 (filed Nov. 15, 2016); and *Errata letter to the commission*, Kepler Communications Inc., IBFS File No. SAT-PDR-20161115-00114 (Jun 25, 2017)