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November 12, 2020

BY ELECTRONIC FILING

Marlene H. Dortch, Secretary
Federal Communications Commission
45 L Street NE
Washington, DC 20554

Re: *Ex Parte* Notification for IBFS File No. SAT-LOA-20200914-00108

Dear Ms. Dortch:

On November 10, 2020, Dan Connors and Duncan Eddy of Capella Space Corp. and I met with Merissa Velez, Jay Whaley, and Sankar Persaud of the Commission's International Bureau, Satellite Division. We discussed Capella's pending application to authorize a constellation of satellites under the Commission's small-satellite rules offering space-based imagery using Synthetic Aperture Radar ("SAR") technology.

As Capella explained in its application, the planned Capella constellation will use advanced SAR technology to offer complete global visibility, enabling vital decisions across dozens of industries from defense to infrastructure, saving money, time, and lives. In fact, operating on an experimental basis, Capella has recently become the first non-governmental U.S. operator of SAR satellites and anticipates providing commercial SAR imagery almost immediately upon grant of the Part 25 license requested in Capella's application.[1] No party has opposed Capella's application. Indeed, the only party to comment, Iridium Constellation LLC, made clear that it "has no objection to Capella's Application."[2] However, to ensure a complete record, Capella provides the following additional information relating to Capella's planned use of space-to-space links and its earth-station operations.

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[1] *See Application of Capella Space Corp. for Authority to Launch and Operate a Non-Geostationary Orbit Satellite System in the Earth Exploration Satellite Service*, File No. SAT-LOA-20200914-00108 (filed Sep. 14, 2020) ("Capella Application").

[2] *See* Comments of Iridium Constellation LLC, File No. SAT-LOA-20200914-00108 (filed Nov. 9, 2020) ("Iridium Comments").

I. Satellite-to-Satellite Links

As described in Capella's application, Capella satellites will communicate with Inmarsat satellites using a spaceborne Inmarsat BGAN terminal operating in L-Band spectrum licensed to Inmarsat. Specifically, the BGAN terminal installed on Capella spacecraft will receive in the 1525.0-1559.0 MHz band and transmit in the 1626.5-1660.0 MHz band.[3] These are bands that the Commission has authorized for regular communications between U.S.-licensed earth stations and Inmarsat's MSS satellites.[4] Because the ITU Radio Regulations and the FCC's rules could be interpreted such that these satellite-to-satellite communications do not conform with the Table of Allocations, Capella requested a waiver of these rules to the extent necessary to permit these operations.[5] No party has opposed this request. Although Iridium filed comments on the topic of Capella's proposed satellite-to-satellite links, it did so to note its need for protection from harmful out-of-band emissions from potential future systems, while confirming that the Capella system itself "would not cause harmful interference to Iridium's service links."[6]

These satellite-to-satellite communications will allow Capella to relay customer observation requests immediately so that they can be acted upon without the need to wait until the appropriate satellite is within view of a Capella earth station, as would be required for other TT&C operations. This will serve the public interest by allowing Capella to provide a more responsive and capable SAR system to users in the U.S. and internationally. Among other things, these rapid tasking capabilities will be critical to maximizing the responsiveness of the Capella imaging platform to support rapid imaging for humanitarian disaster relief efforts and as well as reactive imaging capabilities for governmental and other users.

Notably, this tasking capability will primarily rely on data transmitted to the Capella satellite via the satellite-to-satellite link in the 1525 - 1559 MHz band. The signals will be transmitted by Inmarsat satellites with the same technical parameters as Inmarsat would use to communicate with its authorized MSS terminals on the earth's surface. Thus, because these transmissions are indistinguishable from other Inmarsat network traffic with respect to other terrestrial and space-based systems, they do not present a risk of harmful interference.

A very limited number of transmissions will also occur from the Capella satellite in the 1626.5 - 1660 MHz bands. These transmissions will occur only on frequencies that Inmarsat assigns to the spaceborne Inmarsat BGAN terminal onboard the Capella satellite. As with its other operations, Inmarsat will assign channels to Capella satellites consistent with its coordination agreements with other operators in the band, ensuring that no other licensee will be

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[3] Capella Application at 4-5, 11-23.

[4] *See, e.g., Inmarsat Inc.*, 23 FCC Rcd. 15268 (2008) (establishing ISAT list to streamline earth station licensing). Capella recognizes that the 1544-1545 MHz and 1645.5-1646.5 MHz bands are reserved for distress and safety communications only. *See* 47 C.F.R. § 2.106, nn. 5.356, 5.375.

[5] *See* Waiver Requests *attached to* Capella Application.

[6] Iridium Comments at 2.

transmitting at the same time and on the same frequency as a Capella space-to-space transmission, preventing harmful interference.

Moreover, these transmissions will be limited and would be highly unlikely to cause harmful interference even if they had not been pre-coordinated with other operators in the band. The primary anticipated use of this "uplink" is merely to acknowledge receipt of tasking requests and other data delivered via the satellite-to-satellite "downlink" (i.e., transmissions from Inmarsat satellites). In addition, these space-to-space uplink capabilities will be used to provide critical health and status telemetry periodically, when no ground station is available. The communication protocol the link uses is designed to transmit the minimum amount of information necessary and only actively transmit when there is information to send. When no data is data queued for transmission the link will remain inactive. Thus, Capella anticipates that any space-to-space transmissions from the Capella satellite will be extremely brief and infrequent, preventing any harmful interference to other operators even absent the time- and frequency-based coordination built into Inmarsat's channel-assignment process.

Capella-2 has already begun operating the satellite-to-satellite link described herein—in both the uplink and downlink directions—under an existing experimental license[7] with no reports of interference, confirming that these transmissions will not cause harmful interference to other operators. Capella acknowledges that, to the extent they require a waiver of the Table of Allocations, that these satellite-to-satellite communications will occur on an unprotected, non-interference basis.

II. Earth Station Segment

As Capella explained in its application, Capella has contracted with third-party commercial providers operating ground stations around the world as a service, for both payload and TT&C communications with the Capella system. These operators have obtained or are in the process of obtaining the necessary authorizations from regulators in their respective jurisdictions for communications with the Capella system.

Capella's planned earth station operations include earth stations in the following locations, each which has been coordinated with federal incumbents under a coordination agreement executed by Capella on October 8, 2020.

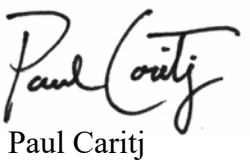
Earth Station 1. Svalbard, Norway
Earth Station 2. Punta Arenas, Chile
Earth Station 3. Punta Arenas, Chile
Earth Station 4. Troll, Antarctica
Earth Station 5. Boardman, OR
Earth Station 6. Kileville, OH
Earth Station 7. Kapolei, HI

[7] *See* Experimental Authorization WL2XAD (granted June 26, 2020).

Earth Station 8. Hartebeesthoek, South Africa
Earth Station 9. Awarua, New Zealand
Earth Station 10. Nemea, Greece
Earth Station 11. Cape Town, South Africa
Earth Station 12. Dublin, Ireland
Earth Station 13. Vasteras, Sweden
Earth Station 14. Manama, Bahrain
Earth Station 15. Sydney, Australia
Earth Station 16. Seoul, South Korea

Please contact the undersigned if you have any additional questions.

Sincerely,



Paul Caritj
Counsel for Capella Space Corp.

cc: meeting participants