



Federal Communications Commission
Washington, D.C. 20554

April 21, 2021

Mr. Philip Hover-Smoot
Deputy General Counsel
Chief Ethics & Compliance Officer
Momentum Inc.
3050 Kenneth St.
Santa Clara, CA 95054
philip.hover-smoot@momentus.space

Re: Momentum, Inc.,
IBFS File No: SAT-STA-20200831-00102

Dear Mr. Hover-Smoot:

On August 31, 2020 Momentum, Inc. (Momentum) filed the above-captioned request for special temporary authority to operate its Vigoride-2 (VR-2) non-geostationary orbit spacecraft, designed to deploy multiple customer spacecraft in low-Earth orbit. To aid in the Commission's evaluation of Momentum's request, please respond to the following:

1. Momentum seeks waiver of 47 CFR 25.113(g), which requires approval for orbital deployment and a station license before a space station may be deployed and operated in orbit. We ask that Momentum provide responses to Form 312 Main Form, Application for Satellite Space Station Authorizations, Questions 29-34 and 36-40. To the extent that Momentum has already supplemented the application with information responsive to question 40, please provide the information in a single updated supplement.
2. Will Momentum be communicating for the full 180-days using the requested frequency bands—and will any portion of this time be after the satellite perigee has been lowered to 150 km? In other words, will the period of spacecraft disposal that follows the lowering of the perigee to 150 km begin before the 180-day mark, and if so, will telemetry, tracking, and command communications continue for any portion of that period?
3. The Orbital Debris Assessment Report (ODAR) at page 17 states that Momentum VR-2 will ensure "real time collision avoidance and orbital maintenance maneuvers." Will the VR-2 reserve fuel for conducting avoidance maneuvers during its mission? Would the VR-2 retain fuel for conducting collision avoidance during the period following the lowering of the perigee to 150 km to the extent that communications with the spacecraft are maintained? If so, what type of reserve would be expected to remain?
4. Please describe whether, and if so, how, Momentum will be sharing information regarding initial deployment, ephemeris, and planned maneuvers with the 18th Space Control Squadron.
5. With regard to the VR-2 Microwave Electrothermal Thruster, please provide the PFD calculations showing that the VR-2 meets the requirements for ITU RR 21.16 for the 5670–5725 MHz range as indicated in the original Narrative (filed on August 31, 2020) at page 12. Please

also indicate whether the electromagnetic emissions of the VR-2 thruster would exceed $15 \times \text{SQRT}(\text{power}/500)$ uV/m at a distance of 300 meters.

6. Please provide a demonstration as to how VR-2 will comply with the PFD limit in ITU RR 22.5. Specifically, please provide the PFD calculations for the 8025-8400 MHz space-to-Earth transmit band of the VR-2.
7. The supplemental letter filed by Momentus on March 29, 2021 specifies that there will be three customer “payloads” not deployed from the VR-2, and that all three are deployers. The letter states there will be four 12U deployers, one 3U deployer and two other deployers (size not provided.) The updated ODAR also filed on March 29, 2021 specifies, in the inputs to the NASA Debris Assessment Software (DAS), that the VR-2 contains four 12U deployers, one 3U deployer and one “PocketPod” deployer. *See* March 29, 2021 ODAR at page 42-44. Please clarify the correct number of each type of deployer, the customer, and its associated size. Also, please provide a list of the spacecraft that will be deployed from each of the individual deployers.
8. The supplemental letter filed by Momentus on March 29, 2021 also specifies that one of the satellites will be 1.5U in size and one will be 0.3U. Will the associated 0.5U and 0.7U remain empty on the Momentus VR-2?
9. Regarding the recontact mitigation provided on page 11 of the updated March 29, 2021 ODAR, please provide an updated list of all spacecraft to be deployed that are capable of propulsive maneuvers and indicate whether those spacecraft would have the capability to use propulsion as a means of collision avoidance.

The requested information must be submitted no later than **April 28, 2021**. Failure to do so may result in the dismissal of Momentus’s application pursuant to section 25.112(c) of the Commission’s rules, 47 CFR § 25.112(c).

Sincerely,

Karl A. Kensinger

Karl A. Kensinger
Acting Chief, Satellite Division
International Bureau

cc:

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