

Request for Special Temporary Authority

O3b Limited (“O3b”), pursuant to Section 25.120 of the Commission’s rules, respectfully requests earth station Special Temporary Authority (“STA”) for 180 days, commencing January 21, 2022, to allow its gateway earth stations¹ located in Haleiwa, Hawaii² and Phoenix, Arizona³ to communicate using Ka-band frequencies with O3b’s next generation non-geostationary orbit (“NGSO”) mPOWER satellites during launch and early orbit phase (“LEOP”) operations.

O3b operates a U.K.-authorized Ka-band NGSO system that has been granted U.S. market access,⁴ with 20 high-throughput, low-latency satellites currently in orbit. O3b is scheduled to launch the first three of its next generation mPOWER satellites as early as late January 2022, and the next three later in 2022. All of the mPOWER satellites will use electric propulsion to raise their orbits from the rocket drop-off point to their operating positions. The first three satellites will be launched from an insertion altitude of 300.3 km and the next three will be launched from 2,000.0 km. Once the satellites reach O3b’s authorized operational altitude, O3b will test the communications payload on each satellite.

O3b seeks STA to allow the gateway earth stations to communicate with the mPOWER satellites to perform telemetry, tracking, and control during orbit raising, payload testing, and on-orbit operations, and to support testing of the satellites at the final operational altitude. The mPOWER LEOP operations will be performed at the following frequencies: 29.086 MHz and 29.089 MHz in the uplink, and between 19,283.5 MHz and 19.3055 MHz in the downlink.

The LEOP operations of the mPOWER satellites will be authorized by the U.K. and conducted consistent with that authorization. Operations of the gateway earth stations will conform to the technical parameters set forth in the pending earth station license applications.

In the extremely unlikely event that harmful interference should occur due to transmissions to or from its spacecraft, O3b will take all reasonable steps to eliminate the interference. Should an issue arise, O3b’s 24/7 point of contact information is set out below:

Name	Phone	Email
Payload Monitoring Operations Center	+1 800 772 2363	pmoc@ses.com
O3b Network Operations Center	+1 703 366 1500	O3bNOC@ses.com

¹ The mPOWER gateway earth station applications are currently pending.

² O3b Limited, Call Sign E202133, File No. SES-LIC-20200721-00777.

³ O3b Limited, Call Sign E210037, File No. SES-LIC-20210217-00350.

⁴ See *O3b Limited*, Order and Declaratory Ruling, 33 FCC Rcd 5508 (2018) (“Market Access Grant”), available at <https://www.fcc.gov/document/commission-grants-o3b-modification-us-market-access>.

O3b will closely track the mPOWER satellites' trajectory. Regular monitoring of the orbit determination and maneuver planning is taking place, and the orbital ephemeris data is regularly sent to the Combined Space Operations Center ("CSpOC") every 10 days for close approach screening. If an event is identified with a Time of Closest Approach ("TCA") of 72 hours and it is determined that this event violates the safety thresholds (i.e., probability of collision and/or miss distance), this will trigger an assessment of possible avoidance strategies. Simultaneously, CSpOC is requested to further screen these events. If CSpOC finds that an event violates the safety thresholds with a TCA of 48 hours, avoidance strategies are then implemented. For the mPOWER satellites that are continuously maneuvering during LEOP, the avoidance strategy consists of stopping the planned burns some time before the predicted TCA (usually 24 to 36 hours) in order to increase the separation between the satellite and the other object. The maneuvers will then be-replanned and resumed once a safe separation is confirmed by new ephemeris screening.

Grant of O3b's STA request will serve the public interest by allowing O3b to launch and test its mPOWER satellites, which will deliver satellite communication services to customers throughout the U.S. Granting this STA is also consistent with Commission precedent.⁵

⁵ The Satellite Division has previously granted special temporary authority in connection with LEOP operations for NGSO space stations. *See, e.g.*, File Nos. SAT-STA-20170726-00109 & SAT-STA-20180724-00055 (granting 180-day space station STAs to Terra Bella for LEOPs); File No. SAT-STA-20190405-00023 (granting a 60-day space station STA to SpaceX for LEOPs and testing for its first tranche of Starlink satellites). While certain temporary post-launch operations are already permitted under Section 25.282 of the Commission's rules for geostationary orbit satellites, there is no similar rule automatically authorizing communications with NGSO satellites during the LEOP stage.