

Communications Plan - Meshbed

The Meshbed mission involves testing the capabilities of the FUSE antenna and the communications subsystem hardware on the satellite.

Delay of launch and expansion of functions both lead to the requirement for a new STA. The following describes all of the communications functions that are requested in the new STA application.

Radio Operations - TT&C

Communications with RBC ground station are conducted at 401.3 MHz for TT&C purposes. Meshbed will receive and transmit TT&C signals out of its onboard dipole UHF antenna. RBC and Meshbed will communicate each time Meshbed passes over the RBC ground station in Windham, New York.

Antenna Test - FUSE

Communications between Meshbed and the MITRE ground station in Bedford MA will be used to test the frequency flexibility, range, and signal performance of the FUSE antenna. To that end, the MITRE ground station and Meshbed will transmit and receive both the previously licensed 5 GHz and the currently requested 2 GHz beams.

Comms System Test- Compatibility

Meshbed will also test its comms system compatibility with 3rd party satellite radio systems through an “alpha ops” test campaign. During alpha ops, the Meshbed satellite will conduct listen-only passive receive tests of pre-licensed, pre-scheduled ground terminal passes of 3rd party partner satellites. When Meshbed flies within the transmission beam of the partner satellite, it will listen and relay the data back to Earth. To achieve the greatest partner radio system diversity and highest chances of a beam conjunction event, ASI has partnered with several satellite operators. An agreement letter has been obtained from each partner, consenting to the specifics of the test. The list of partners, their satellites, frequencies, agreement letters, and operating licenses follows.

Meshbed Passive Receive Alpha Ops Participants and Agreements

Operator	Mission	Int'l Code Designator	Test Frequencies	Agreement Letter	Operating License
University of Michigan	Cyclone Global Navigation Satellite System (CYGNSS)	2016-078A, 2016-078B, 2016-078C, 2016-078D, 2016-078E, 2016-078F, 2016- 078G, 2016-078H	2272.7 MHz	Submitted as exhibit	Note 2
University of Stuttgart	Flying Laptop (FLP)	2017-042G	2263.50MHz	Submitted as exhibit	Submitted as exhibit
GomSpace	GOMX-4A, GOMX-4B	2018-015F, 2018-015E	2208.8 MHz,	Submitted as exhibit	Submitted as exhibit
Open Cosmos	LacunaSat-2	Note 1	2258.6 MHz	Submitted as exhibit	Note 2

Note 1: Analytical Space Inc. (ASI) will update this table with the International Code Designator as an exhibit to the STA, before conducting passive-receive tests with these satellites.

Note 2: ASI will upload partner satellite operating licenses and an updated version of this table, as exhibits to the STA, before conducting passive-receive tests with these satellites.