

Capella Radar Calibration STA Request (Space Segment)

Capella Space Corp. requests Special Temporary Authority to operate an experimental ground-based system for calibrating Capella synthetic aperture radar systems on-orbit, following deployment of the radars in space. This application relates only to on-orbit reception of the calibration signal by the Capella satellite. The spacecraft communications and radar operation will occur only pursuant to separate FCC authorizations. Applications for these authorization are currently pending under IBFS File Nos SAT-LOA-20210119-00012 and SES-STA-20210316-00513, respectively.

The ground-based system will transmit a calibrated CW tone in the direction of the spacecraft as it passes overhead. The tone will be tuned to the frequency of the Capella radar and the power level carefully controlled. The ground-station antenna will track the spacecraft using a commercial off-the-shelf computer-controlled telescope mount. The power received by the spacecraft radar receiver will be used to radiometrically calibrate radar measurements.

The ground station will follow the spacecraft as the spacecraft traverses the sky but transmit only when the spacecraft is more than 10 degrees above the horizon. Orientation of the ground station antenna in the horizontal plane (degrees from true north) and orientation in the vertical plane (degrees from horizontal) will vary continuously as the ground station transmits.

Transmitter Location:

San Francisco, CA
Within 50 miles of 37° 46' 26" N, 122° 25' 52" W
Height: < 6m

RF Characteristics:

Frequency: 9.4 – 9.9 GHz +/- 0.00025%
Output Power: 25W / 1412.5 W EIRP (Peak)
Beamwidth at the half-power point: 12°