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Please find the responses to the additional information that was requested. UM responses are in blue and the original questions are in black italics

a) THE TYPE OF SATELLITE, GEOSTATIONARY OR NONGEOSTATIONARY

[Nongeostationary](#)

B) IF ANY SATELLITES ARE NONGEOSTATIONARY, REPORT ITS INCLINATION ANGLE, APOGEE IN KILOMETERS, PERIGEE IN KILOMETERS, ORBITAL PERIOD IN HOURS AND FRACTIONS OF HOURS IN DECIMAL, THE NUMBER OF SATELLITES IN THE SYSTEM,

[The TBEx CubeSats will deploy with the following orbital parameters:](#)

[Inclination Angle: 28.4 degrees](#)

[Apogee Altitude: 860 km](#)

[Perigee Altitude: 300 km](#)

[Orbital Period: 1.6045 Hrs \(96.27 minutes\)](#)

b) THE SATELLITE TRANSMITTER ANTENNA GAIN AND BEAMWIDTH,

[TT&C:](#)

[UHF Monopole Antenna: 3dBi and 80 degrees](#)

[Payload:](#)

[VHF Antenna: 6.2 dBi and 80 degrees](#)

[UHF Antenna: 1.6 dBi and 120 degrees](#)

[L Band Antenna: 6 dBi and 60 degrees](#)

c) THE SATELLITE TRANSMITTER ANTENNA AZIMUT: NARROWBEAM (NB), EARTH COVERAGE (EC),

[For all satellite antennas the antenna azimuth does not remain fixed but varies over time.](#)

[The UHF and VHF antennas remain perpendicular to nadir and the L-Band patch antenna will point in the nadir direction for majority of the mission.](#)

d) THE EARTH STATION RECEIVER ANTENNA GAIN, BEAMWIDTH, AZIMUTHAL RANGE, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS AND THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS,

UHF Receiver Station 1:

| | |
|-------------------------------|-------------|
| Antenna Gain: | 18.9 dBi |
| Beamwidth: | 21 degrees |
| Azimuthal Range: | 360 degrees |
| Elevation: | 900 feet |
| Antenna Height Above Terrain: | 75 feet |

UHF Receiver Station 2:

| | |
|-------------------------------|-------------|
| Antenna Gain: | 18.9 dBi |
| Beamwidth: | 21 degrees |
| Azimuthal Range: | 450 degrees |
| Elevation: | 60 feet |
| Antenna Height Above Terrain: | 61 feet |

e) THE EARTH STATION RECEIVER ANTENNA AZIMUTH, THE MINIMUM ANGLE OF ELEVATION (V00 TO V90),

UHF Receiver Station 1:

| | |
|--------------------|---------------|
| Antenna Azimuth: | 0-360 degrees |
| Minimum Elevation: | 0 degrees |

UHF Receiver Station 2:

| | |
|--------------------|---------------|
| Antenna Azimuth: | 0-450 degrees |
| Minimum Elevation: | 0 degrees |

f) THE TRANSMITTER ANTENNA ORIENTATION (XAP), EXAMPLE XAP01 J, AND THE RECEIVER ANTENNA ORIENTATION (RAP), EXAMPLE RAP01 J, WHERE J REPRESENTS LINEAR POLARIZATION. OTHER POLARIZATIONS INCLUDE H FOR HORIZONTAL, V FOR VERTICAL, S FOR HORIZONTAL AND VERTICAL, L FOR LEFT HAND CIRCULAR, R FOR RIGHT HAND CIRCULAR, T FOR RIGHT AND LEFT HAND CIRCULAR, E FOR ELLIPTICAL AND O FOR OBLIQUE ANGLE CROSSED.,

TT&C Antennas:

XAP01 V
RAP01 V

Payload Antennas:

XAP02 R
XAP03 R
XAP04 R