

Mars Outpost NTIA Space record data form

NTIA requires the following data for space related experiments using government shared spectrum. For each transmit frequency, please provide the data for both ends of the transmit-receive link. Use Part A

Mars Outpost: a one day hosted mission on SpaceX second stage. S band Tx and Rx, X band Tx.

Part A: Space to Earth Downlink Data

Satellite Transmitter Data S Band

Transmit Frequency: 2209.2 MHz		
Satellite Name: Mars Outpost		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Orientation (XAZ)	XAZ = NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN__ 5 _____ BEAMWIDTH ____ 75 _____ XAD = 05G075B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Non	Choose either: Geostationary or Nongeostationary
For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__ 97.5 _____, APOGEE IN KILOMETERS _ 538 _____, PERIGEE IN KILOMETERS ____ 531 _____, ORBITAL PERIOD IN HOURS _ 1 ___ AND FRACTIONS OF HOURS IN DECIMAL _ 59, THE NUMBER OF SATELLITES IN THE SYSTEM ____ 1 _____, ORB = 97.5IN00538AP00531PE001.59H01NRT01	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, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

Two S Band ground stations are described.

Earth Station Data (Receiver) Fairbanks AK S Band		
State (RSC)	RSC = AK	
City Name (RAL)	RAL = FAIRBANKS	
Latitude (DDMMSS)	Lat = 644800 North	
Longitude (DDDMMSS)	Lon = 1474900 West	
Antenna Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN__45.8_____, BEAMWIDTH__001_____, AZIMUTHAL RANGE__000-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS __187__ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __40_____ RAD = RAD01 46G001B000-360A00187H040	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Hosted Payload, not Cubesat		

Earth Station Data (Receiver) McMurdo Antarctic Region MG1 S Band		
State (RSC)	RSC = Antarctic Region	
City Name (RAL)	RAL = McMurdo Station	
Latitude (DDMMSS)	Lat = 775000 South	
Longitude (DDDMMSS)	Lon = 1664000 East	

Antenna Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = V05	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN__45.8_____, BEAMWIDTH__001_____, AZIMUTHAL RANGE__000-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS __143_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __10_____ RAD = RAD01 46G001B000-360A00143H010	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006
FCC notes: 1. Use S-Note S945. 2. REM AGN, Hosted Payload, not Cubesat		

Satellite Transmitter Data X Band Tx

Transmit Frequency: 8045 MHz		
Satellite Name: Mars Outpost		
Data Field	Data Answer	Description/Comments
Polarization (XAP)	XAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Orientation (XAZ)	XAZ = NB	NB= NARROWBEAM EC = EARTH COVERAGE
Antenna Dimension (XAD)	ANTENNA GAIN__5_____ BEAMWIDTH__75_____ XAD = 05G075B	(NTIA format (XAD), EXAMPLE, XAD01 16G030B)
Type of satellite (State = SP) (City = geo or non)	Type = Non	Choose either: Geostationary or Nongeostationary

For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__98_____, APOGEE IN KILOMETERS__600_____, PERIGEE IN KILOMETERS__600_____, ORBITAL PERIOD IN HOURS__1____AND FRACTIONS OF HOURS IN DECIMAL__36, THE NUMBER OF SATELLITES IN THE SYSTEM__1_____, ORB = 98.0IN00600AP00600PE001.36H01NRT01	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, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

Two X band ground stations are described

Earth Station Data (Receiver) Fairbanks AK X Band		
State (RSC)	RSC = AK	
City Name (RAL)	RAL = FAIRBANKS	
Latitude (DDMMSS)	Lat = 644800 North	
Longitude (DDDMMSS)	Lon = 1474900 West	
Antenna Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = V10	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN__56.8_____, BEAMWIDTH__001_____, AZIMUTHAL RANGE__000-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS__187_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS__40_____ RAD = RAD01 57G001B000-360A00187B040	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

FCC notes:

3. Use S-Note S945.
4. REM AGN, Cubesat, Hosted Payload, not Cubesat

**Earth Station Data (Receiver) McMurdo Antarctic Region
MG1 X Band**

State (RSC)	RSC = Antarctic Region	
City Name (RAL)	RAL = McMurdo Station	
Latitude (DDMMSS)	Lat = 775000 South	
Longitude (DDDMMSS)	Lon = 1664000 East	
Antenna Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (RAZ)	RAZ = V10	THE EARTH STATION RECEIVER ANTENNA AZIMUTH (RAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00
Antenna Dimensions (RAD)	ANTENNA GAIN__56_____, BEAMWIDTH__001_____, AZIMUTHAL RANGE__000-360_____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS __143_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __10_____ RAD = RAD01 56G001B000-360A00143H010	EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006

FCC notes:

3. Use S-Note S945.
4. REM AGN, Hosted Payload, not Cubesat

Part B: Ground Stations, Earth to Space link data:

Two S Band Ground stations are described

Earth Station Transmitter Data Fairbanks AK S Band

Transmit Frequency: 2079.2 MHz		
State (XSC)	XSC = AK	
City Name (XAL)	XAL = FAIRBANKS	
Latitude (DDMMSS)	Lat = 645135 N	
Longitude (DDDMMSS)	Lon = 1475050 w	
Antenna Polarization (XAP)	XAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (XAZ)	XAZ = V10	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00
Antenna Dimensions (XAD)	ANTENNA GAIN__41.6_____, BEAMWIDTH__1.07_____, AZIMUTHAL RANGE__000-360_____, THE SITE ELEVATION AB MEAN SEA LEVEL IN METERS __207_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __10_____ XAD = 42G002B000-360A00207H010	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
Satellite Receive Specifications		
Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Azimuth (RAZ)	RAZ = NB	NB= NARROWBEAM EC = EARTH COVERAGE
Dimension (RAD)	ANTENNA GAIN__5_____ BEAMWIDTH__75__ RAD = RAD01 05G075B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)

Type of satellite (State = SP) City = G/No	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary
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For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__97.5_____, APOGEE IN KILOMETERS__538_____, PERIGEE IN KILOMETERS__531_____, ORBITAL PERIOD IN HOURS _1__AND FRACTIONS OF HOURS IN DECIMAL__59, THE NUMBER OF SATELLITES IN THE SYSTEM__1_____, ORB=97.5IN00538AP00531PE001.59H01NRR01	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, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

Earth Station Transmitter Data McMurdo S Band

Transmit Frequency: 2079.2 MHz		
State (XSC)	XSC =	
City Name (XAL)	XAL =	
Latitude (DDMMSS)	Lat = 775021 S	
Longitude (DDDMMSS)	Lon = 1664001 E	
Antenna Polarization (XAP)	XAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Antenna Azimuth (XAZ)	XAZ = V10	THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00

Antenna Dimensions (XAD)	ANTENNA GAIN__44_____, BEAMWIDTH__1.05_____, AZIMUTHAL RANGE__000-360____, THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS __143____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __10____ XAD = 44G001B000-360A00143H010	EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006
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Satellite Receive Specifications

Polarization (RAP)	RAP = R	POLARIZATIONS INCLUDE : H = HORIZONTAL, V = VERTICAL, S = HORIZONTAL AND VERTICAL, L = LEFT HAND CIRCULAR, R = RIGHT HAND CIRCULAR, T = RIGHT AND LEFT HAND CIRCULAR, J = LINEAR POLARIZATION
Azimuth (RAZ)	RAZ = NB	NB= NARROWBEAM EC = EARTH COVERAGE
Dimension (RAD)	ANTENNA GAIN__5_____ BEAMWIDTH____75____ RAD = RAD01 05G075B	(NTIA format (RAD), EXAMPLE, RAD01 16G030B)
Type of satellite (State = SP) City = G/No	Type = Nongeostationary	Choose either: Geostationary or Nongeostationary

For Geostationary	Longitude =	IF ANY SATELLITES ARE GEOSTATIONARY, REPORT ITS LATITUDE AS 000000N (XLA AND/OR RLA) AND REPORT ITS LONGITUDE (XLG AND/OR RLG).
For Nongeostationary (Orbital Data)	INCLINATION ANGLE__97.5_____, APOGEE IN KILOMETERS__538_____, PERIGEE IN KILOMETERS____531____, ORBITAL PERIOD IN HOURS _1__AND FRACTIONS OF HOURS IN DECIMAL__59____, THE NUMBER OF SATELLITES IN THE SYSTEM__1____, ORB=97.5IN00538AP00531PE001.59H01NRR01	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, THEN T01, EXAMPLE, REM04 *ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL *ORB FOR IT ENDING IN R01, EXAMPLE, REM05 *ORB,72.9IN03209AP00655PE013.46H01NRR01

