# 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  to describe the satellite to ground information.  Part B is for all ground to space transmit links.

**The following space record data is provided for SeaHawk-1 and for SeaHawk-2**

**Part A: Space to Earth Downlink Data**

**Satellite Transmitter Data – SeaHawk-1**

| Transmit Frequency:  400-440 MHz | | |
| --- | --- | --- |
| Satellite Name: SeaHawk-1 | | |

| Data Field | Data Answer | Description/Comments |
| --- | --- | --- |
| Polarization (XAP) | XAP = J | POLARIZATIONS INCLUDE:<br>H = HORIZONTAL,<br>V = VERTICAL,<br>S = HORIZONTAL AND VERTICAL,<br>L = LEFT HAND CIRCULAR,<br>R = RIGHT HAND CIRCULAR,<br>T = RIGHT AND LEFT HAND CIRCULAR,<br>J = LINEAR POLARIZATION |
| Orientation (XAZ) | XAZ = EC | NB= NARROWBEAM EC<br>= EARTH COVERAGE |
| Antenna Dimension (XAD) | ANTENNA GAIN  0 dB<br>BEAMWIDTH    360 degrees<br><br>XAD =00G360B | (NTIA format (XAD), EXAMPLE, XAD01 16G030B) |
| Type of satellite (State = SP) (City = geo or non) | Type = NON | Choose either:<br>Geostationary or<br>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    97.7              ,<br>APOGEE IN KILOMETERS  575      ,<br>PERIGEE IN KILOMETERS   575          ,<br>ORBITAL PERIOD IN HOURS   1     AND FRACTIONS OF HOURS IN DECIMAL   0.605 ,<br>THE NUMBER OF SATELLITES IN THE SYSTEM     2       ,<br><br>ORB = 97.7IN00575AP00575PE001.61H02NRT01 | 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<br>*ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL<br>*ORB FOR IT ENDING IN R01, EXAMPLE, REM05<br>*ORB,72.9IN03209AP00655PE013.46H01NRR01 |

**Part A: Space to Earth Downlink Data**

**Satellite Transmitter Data - SeaHawk-1**

| Transmit Frequency: 8100 MHz | | |
|---|---|---|

| Satellite Name: SeaHawk-1 | | |
|---|---|---|

| 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  7.8 dB BEAMWIDTH    82 degrees  XAD =08G082 | (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    97.7       , APOGEE IN KILOMETERS  575     , PERIGEE IN KILOMETERS   575        , ORBITAL PERIOD IN HOURS   1    AND FRACTIONS OF HOURS IN DECIMAL   0.605  , THE NUMBER OF SATELLITES IN THE SYSTEM      2      ,  ORB = 97.7IN00575AP00575PE001.61H02NRT01 | 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 |

**Part A: Space to Earth Downlink Data**

**Satellite Transmitter Data – SeaHawk-2**

Transmit Frequency: 400-440 MHz

Satellite Name: SeaHawk-2

| Data Field | Data Answer | Description/Comments |
|---|---|---|
| Polarization (XAP) | XAP = J | POLARIZATIONS INCLUDE:<br>H = HORIZONTAL,<br>V = VERTICAL,<br>S = HORIZONTAL AND VERTICAL,<br>L = LEFT HAND CIRCULAR,<br>R = RIGHT HAND CIRCULAR,<br>T = RIGHT AND LEFT HAND CIRCULAR,<br>J = LINEAR POLARIZATION |
| Orientation (XAZ) | XAZ =EC | NB= NARROWBEAM EC<br>= EARTH COVERAGE |
| Antenna Dimension (XAD) | ANTENNA GAIN     0 dB<br>BEAMWIDTH     360 degrees<br><br>XAD = 00G360B | (NTIA format (XAD), EXAMPLE, XAD01 16G030B) |
| Type of satellite (State = SP) (City = geo or non) | Type = NON | Choose either:<br>Geostationary or<br>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    ,<br>APOGEE IN KILOMETERS    525    ,<br>PERIGEE IN KILOMETERS    525    ,<br>ORBITAL PERIOD IN HOURS    1    AND FRACTIONS OF HOURS IN DECIMAL    0.59    ,<br>THE NUMBER OF SATELLITES IN THE SYSTEM    2    ,<br><br>ORB = 97.5IN00525AP00525PE001.59H02NRT01 | 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 |

**Part A: Space to Earth Downlink Data**

**Satellite Transmitter Data – SeaHawk-2**

| Transmit Frequency: 8100 MHz | | |
|---|---|---|
| Satellite Name: SeaHawk-2 | | |
| **Data Field** | **Data Answer** | **Description/Comments** |
| Polarization (XAP) | XAP = R | POLARIZATIONS INCLUDE:<br>H = HORIZONTAL,<br>V = VERTICAL,<br>S = HORIZONTAL AND VERTICAL,<br>L = LEFT HAND CIRCULAR,<br>R = RIGHT HAND CIRCULAR,<br>T = RIGHT AND LEFT HAND CIRCULAR,<br>J = LINEAR POLARIZATION |
| Orientation (XAZ) | XAZ =NB | NB= NARROWBEAM EC<br>= EARTH COVERAGE |
| Antenna Dimension (XAD) | ANTENNA GAIN ___7.8 dB___<br>BEAMWIDTH ___82 degrees___<br>XAD = 08G082B | (NTIA format (XAD), EXAMPLE, XAD01 16G030B) |
| Type of satellite (State = SP) (City = geo or non) | Type = NON | Choose either:<br>Geostationary or<br>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___,<br>APOGEE IN KILOMETERS _525_,<br>PERIGEE IN KILOMETERS __525__,<br>ORBITAL PERIOD IN HOURS __1__ AND FRACTIONS OF HOURS IN DECIMAL___0.59_,<br>THE NUMBER OF SATELLITES IN THE SYSTEM ___2___,<br><br>ORB = 97.5IN00525AP00525PE001.59H02NRT01 | 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<br>*ORB,98.0IN00510AP00510PE001.58H01NRT01, AND FOR SPACE-TO-SPACE COMMUNICATIONS WITH ANOTHER NONGEOSTATIONARY SATELLITE ADD AN ADDITIONAL<br>*ORB FOR IT ENDING IN R01, EXAMPLE, REM05<br>*ORB,72.9IN03209AP00655PE013.46H01NRR01 |

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

## Clyde Space, Glasgow, Scotland, UK: Uplink to SeaHawk-1 and SeaHawk-2

Earth Station Transmitter Data

| Transmit Frequency: **VHF --- 140 – 150 MHz** | | |
|---|---|---|
| State (XSC) | XSC = G | |
| City Name (XAL) | XAL = Glasgow | |
| Latitude (DDMMSS) | Lat = 555744 | |
| Longitude (DDDMMSS) | Lon = 0041649 | |
| Antenna Polarization (XAP) | XAP = T | 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 = V00 | THE EARTH STATION Transmitter ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, XAZ01 V00 |
| Antenna Dimensions (XAD) | ANTENNA GAIN ___10.2 dB___ , BEAMWIDTH ____52 degrees___ , AZIMUTHAL RANGE___0 – 360 , THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS ___30 m_____ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS ____25 m_____ <br><br> XAD = 10G052B000-360A00030H025 | EXAMPLE ASSUMING NONGEOSTATIONARY, XAD01 16G030B000-360A00357H006 |
| Satellite Receive Specifications **UHF --- 140 - 150 MHz** | | |
| 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 = V00 | STATION RECEIVER ANTENNA AZIMUTH (XAZ), THE MINIMUM ANGLE OF ELEVATION, V00 TO V90, EXAMPLE, RAZ01 V00 |
| Dimension (RAD) | ANTENNA GAIN___0.0 dB___ BEAMWIDTH _30 degrees_ RAD = 00G030B | (NTIA format (RAD), EXAMPLE, RAD01 16G030B) |
| Type of satellite (State = SP) City = G/No | Type = NO | Choose either: Geostationary or Nongeostationary |

**Part B:  Ground Stations – Receive Only 8100 MHz – SeaHawk-1 and SeaHawk-2**

## NASA/NEN Wallops Flight Facility Ground Station -WG1 (Primary)

| Earth Station Data (Receiver) Wallops Flight Facility Ground Station -WG1 | | |
|---|---|---|
| State (RSC) | RSC = Virginia | |
| City Name (RAL) | RAL = Wallops | |
| Latitude (DDMMSS) | Lat = 375528 | |
| Longitude (DDDMMSS) | Lon = 0752835 | |
| Antenna Polarization (RAP) | RAP = T | 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 = 00 | 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 dBi__ , BEAMWIDTH __0.23 degrees__ , AZIMUTHAL RANGE __0-360__ THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS __-20.1__ THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS __XXXXX__<br><br>RAD = 56G0.2G000-360A00000HXXX | EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006 |
| FCC notes:<br>1. Use S-Note S945.<br>2. REM AGN, Cubesat, (insert name) | | |

**Part B: Ground Station – Receive Only 8100 MHz – SeaHawk-1 and SeaHawk-2**

# NASA/NEN ALASKA AS1 (Secondary)

| Earth Station Data (Receiver) NASA/NEN ALASKA AS1 | | |
|---|---|---|
| State (RSC) | RSC = AK | |
| City Name (RAL) | RAL = Fairbanks | |
| Latitude (DDMMSS) | Lat = 645131 | |
| Longitude (DDDMMSS) | Lon = 1475127 | |
| Antenna Polarization (RAP) | RAP = T | 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 = 00 | 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 dBi  , BEAMWIDTH   0.23 degrees , AZIMUTHAL RANGE  0-360   THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS   00217 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS  XXX RAD = 56G0.23B000-360A00217HXXX | EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006 |
| FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, (insert name) | | |

**Part B:  Ground Station – Receive Only 8100 MHz – SeaHawk-1 and SeaHawk-2**

## NASA/NEN ALASKA AS2 (Secondary)

| Earth Station Data (Receiver) NASA/NEN ALASKA AS2 | | |
|---|---|---|
| State (RSC) | RSC = AK | |
| City Name (RAL) | RAL = Fairbanks | |
| Latitude (DDMMSS) | Lat =   645135 | |
| Longitude (DDDMMSS) | Lon = 1475050 | |
| Antenna Polarization (RAP) | RAP = T | POLARIZATIONS INCLUDE: <br> H = HORIZONTAL, <br> V = VERTICAL, <br> S = HORIZONTAL AND VERTICAL, <br> L = LEFT HAND CIRCULAR, <br> R = RIGHT HAND CIRCULAR, <br> T = RIGHT AND LEFT HAND CIRCULAR, <br> J = LINEAR POLARIZATION |
| Antenna Azimuth (RAZ) | RAZ = 00 | 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 dBi  , BEAMWIDTH   0.23 degrees , AZIMUTHAL RANGE  0-360   THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS   00238           THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS   XXX <br><br> RAD = 56G0.23B000-360A00238HXXX | EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006 |
| FCC notes: <br> 1.   Use S-Note S945. <br> 2.   REM AGN, Cubesat, (insert name) | | |

**Part B: Ground Station – Receive Only 8100 MHz – SeaHawk-1 and SeaHawk-2**

## NASA/NEN ALASKA AS3 (Secondary)

| **Earth Station Data (Receiver)** NASA/NEN ALASKA AS3 | | |
|---|---|---|
| State (RSC) | RSC = AK | |
| City Name (RAL) | RAL = Fairbanks | |
| Latitude (DDMMSS) | Lat = 645132 | |
| Longitude (DDDMMSS) | Lon = 1475115 | |
| Antenna Polarization (RAP) | RAP = T | 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 = 00 | 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 dBi , BEAMWIDTH  0.23 degrees , AZIMUTHAL RANGE 0-360  THE SITE ELEVATION ABOVE MEAN SEA LEVEL IN METERS  00220 THE ANTENNA HEIGHT ABOVE TERRAIN IN METERS XXX  RAD = 56G0.23B000-360A00220HXXX | EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006 |
| FCC notes: 1. Use S-Note S945. 2. REM AGN, Cubesat, (insert name) | | |

**Part B:  Ground Station – Receive Only 8100 MHz – SeaHawk-1 and SeaHawk-2**

# NASA/NEN McMurdo -  MG1  (Backup)

| Earth Station Data (Receiver) McMurdo -  MG1 | | |
|---|---|---|
| State (RSC) | RSC = ANTR | |
| City Name (RAL) | RAL = MCMURDO STATION | |
| Latitude (DDMMSS) | Lat =   775021 | |
| Longitude (DDDMMSS) | Lon = 1664001 | |
| Antenna Polarization (RAP) | RAP = T | POLARIZATIONS INCLUDE:<br>H = HORIZONTAL,<br>V = VERTICAL,<br>S = HORIZONTAL AND VERTICAL,<br>L = LEFT HAND CIRCULAR,<br>R = RIGHT HAND CIRCULAR,<br>T = RIGHT AND LEFT HAND CIRCULAR,<br>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    56 dBi    ,<br>BEAMWIDTH   0.26 degrees  ,<br>AZIMUTHAL RANGE   0-360    THE  SITE ELEVATION ABOVE MEAN SEA  LEVEL IN METERS    00153<br>THE  ANTENNA HEIGHT ABOVE TERRAIN IN METERS    XXX<br><br>RAD = 56G0.26B000-360A00153HXXX | EXAMPLE ASSUMING NONGEOSTATIONARY, RAD01 16G030B000-360A00357H006 |
| FCC notes:<br>   1.   Use S-Note S945.<br>   2.   REM AGN, Cubesat, (insert name) | | |