IOT Site

SITE SURVEY QUESTIONNAIRE

Rev. 04/23/03

1 EARTH STATION (E/S) IDENTIFICATION AND LOCATION

E/S name:

City:

Country:

E/S latitude:

E/S longitude:

E/S Elevation: _____ Meters

E/S Shipping address: street,

City, State, country

E/S Contact:

E/S mailing address:

Main Office Shipping address: ,

Main Office Contact:

Main Office Mailing address:

2 EARTH STATION FACILITY INFORMATION

2.1 Earth Station Layout Drawing

IOTS requests an earth station layout drawing that shows the position of the:

IOT equipment staging area with dimensions shown

IOT Personnel Work Area with dimensions shown

Conference room for daily TELCONs

IOT Antenna

RF equipment

TELCO interface for IOT Comm circuits

2.2 Earth Station Facilities

IOT equipment staging area:

Heating capacity _____

Air conditioning capacity _____

Types and voltages of AC power outlets _____

Number of outlets for IOT use _____

Maximum current load per outlet _____

IOT personnel work area:

Heating capacity _____

Air conditioning capacity _____

Types and voltages of AC outlets _____

Number of outlets for IOT use _____

Maximum current load per outlet _____

3 ANTENNA DATA

Antenna Type:

Antenna Aperture Size (meters):

Tracking Type (ex: monopulse, step track):

Antenna Look Angles to Satellite:

Transmit Bands

Receive Bands

3.1 Antenna Hub Boxes

Six IOT hub boxes, three for receive (Ka Band, Ku Band and L Band), and three transmit (Ka band, Ku band, L band), need to be placed in or near the antenna hub.

Antenna hub dimensions: _____

Is there space for six IOTS hub boxes?

Cable run distance from antenna hub to antenna couplers:

Cable run distance from antenna hub to IOTE installation space:

NOTE: Maximum distance to the antenna hub from the IOTE system is 100 feet.

3.2 Uplink Data

3.2.1 Ka-Band Transmit Antenna Gain Data

Transmit Frequency Range: .

Transmit Polarities:

Cross Pol Isolation:

Tx Antenna Gain Low band

Mid band

High band

Tx Gain Uncertainty:

Tx Antenna Efficiency:

3.2.1.1 Transmit Antenna Gain Definition

The antenna gain is defined as the path shown in Figure A.3-3. For the purposes of IOT calibration, the antenna gain is referenced to the transmit coupler output.

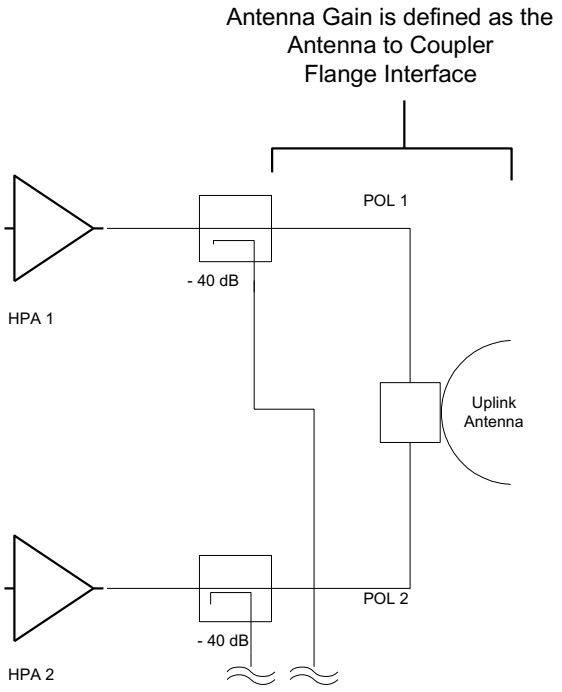

Figure A.3-3. Uplink Antenna Gain Interface

3.2.2 Ka-band HPA to IOTE Interface

Connector type furnished for IOTE interface to HPA system (detailed):

Length of conveyance between IOTE Staging Area and HPA input:

3.2.3 Ka-band HPA

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain

Maximum usable output power at HPA flange (kW):

Input power for 1 dB compression (dBm):

3.2.4 Redundant Ka-band HPA (if applicable)

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain:

Maximum usable output power at HPA flange:

Input power for 1 dB compression (dBm):

3.2.5 Ka-band Tx sample Coupler Data (furnish for each polarity)

Accurate uplink power measurements require precise calibration of the transmit waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 15-MHz below and 15-MHz above the operational frequency band of interest.

1. Coupler Value (Nominal)

2. Waveguide type, Coupled Port to IOT

3. Coupler Calibration: Customer to furnish calibration table across frequency plan plus at least15 MHz on each side.

6. Insertion loss of coupler

3.2.5.1 Ka band HPA to Antenna output

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total loss Between HPA output and antenna feed output:

Earth Station Ka band uplink Eirp: _____dBW

3.2.6 Ka band HPA2 to Antenna output (if used or different from HPA1)

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total losses Between HPA output and antenna feed output:

Earth Station Ka band uplink Eirp, from HPA2: _____dBW

3.2.7 Ku-Band Transmit Antenna Gain Data

Transmit Frequency Range:

Transmit Polarities:

Cross Pol Isolation:

Tx Antenna Gain Low band

Mid band

High band

Tx Gain Uncertainty:

Tx Antenna Efficiency:

3.2.7.1 Transmit Antenna Gain Definition

The antenna gain is defined as the path shown in Figure A.3-3. For the purposes of IOT calibration, the antenna gain is referenced to the transmit coupler output.

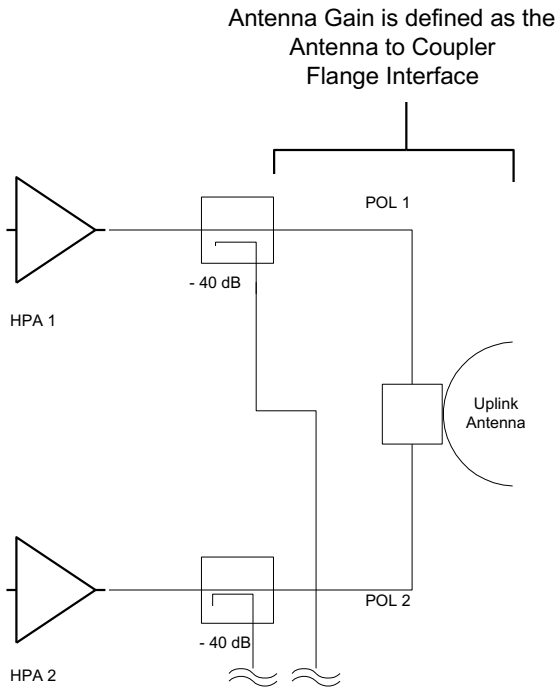

Figure A.3-3. Uplink Antenna Gain Interface

3.2.8 Ku band HPA to IOTE Interface

Coax connector type furnished for IOTE interface to HPA system:

Length of cable run between IOTE Staging Area and HPA input:

3.2.9 Ku band HPA

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain:

Maximum usable output power at HPA flange (kW):

Input power for 1 dB compression (dBm):

3.2.9.1 Redundant Ku band HPA (if applicable)

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain

Maximum usable output power at HPA flange :

Input power for 1 dB compression (dBm):

3.2.9.2 Ku band Tx Coupler Data (furnish for each polarity).

Accurate uplink power measurements require precise calibration of the transmit waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 15-MHz below and 15-MHz above the operational frequency band of interest.

1. Coupler Value (Nominal)

2. Connector type, Coupled Port for IOT

3. Coupler Calibration: Customer to furnish calibration table across frequency plan plus at least15 MHz on each side.

4. Insertion loss of coupler

3.2.9.3 Ku band HPA to Antenna output.

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total loss Between HPA output and antenna feed output:

Earth Station Ku band uplink Eirp: _____dBW

3.2.9.4 Ku band HPA2 to Antenna output (if used or different from HPA1).

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total losses Between HPA output and antenna feed output:

Earth Station Ku band uplink Eirp, from HPA2: _____dBW

3.2.10 L-Band Transmit Antenna Gain Data

Transmit Frequency Range:

Transmit Polarities:

Cross Pol Isolation:

Tx Antenna Gain Low band

Mid band

High band

Tx Gain Uncertainty:

Tx Antenna Efficiency:

3.2.10.1 Transmit Antenna Gain Definition

The antenna gain is defined as the path shown in Figure A.3-3. For the purposes of IOT calibration, the antenna gain is referenced to the transmit coupler output.

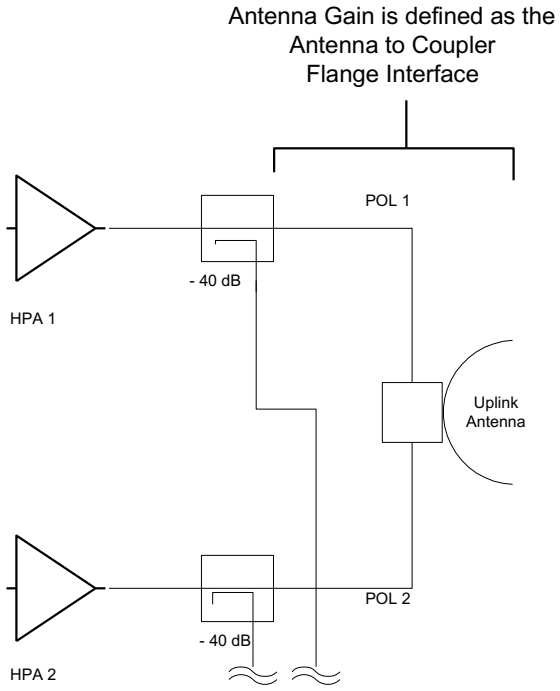

Figure A.3-3. Uplink Antenna Gain Interface

3.2.11 L-band HPA to IOTE Interface

Coax connector type furnished for IOTE interface to HPA system:

Length of cable run between IOTE Staging Area and HPA input:

3.2.12 L-band HPA

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain:

Maximum usable output power at HPA connector:

Input power for 1 dB compression (dBm):

3.2.13 Redundant L band HPA (if applicable)

Name or designator:

Type of HPA (TWTA, KPA, etc.)

Total Freq. Range (GHz):

Gain:

Maximum usable output power at HPA connector:

Input power for 1 dB compression (dBm):

3.2.14 L band Tx Coupler Data (furnish for each polarity)

Accurate uplink power measurements require precise calibration of the transmit waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 15-MHz below and 15-MHz above the operational frequency band of interest.

1. Coupler Value (Nominal)

2. Connector type, Coupled Port for IOT

3. Coupler Calibration: Customer to furnish calibration table across frequency plan plus at least15 MHz on each side.

4. Insertion loss of coupler

3.2.14.1 L band HPA to Antenna output

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total loss Between HPA output and antenna feed output:

Earth Station L band uplink Eirp: _____dBW

3.2.15 L band HPA2 to Antenna output (if used or different from HPA1)

Waveguide type:

Waveguide length:

Waveguide loss:

Type of switching or Muxing between HPA(s) and feed:

Switching and/or Muxing insertion loss:

Transmit coupler insertion loss:

Transmit feed insertion loss

Total losses Between HPA output and antenna feed output:

Earth Station L band uplink Eirp, from HPA2: _____dBW

3.3 Downlink Reception Data

3.3.1 Ka-Band Receive Antenna Data

Receive Frequency Range:

Polarities:

Cross Pol Isolation:

Rx Antenna Gain	Low
	Mid
	High

Rx Gain Uncertainty specification:

Total Ka band System Noise Temperature

Rx G/T

3.3.2 Ka-band LNA Output Interface for IOTE

Connector type for IOTE interface

Cable conveyance distance from LNA port to IOTE Staging Area

3.3.3 Ka-band LNA

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.4 Ka-band LNA 2

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.4.1 Ka-band LNA Switching Network

Please provide Switching Network Block Diagram for LNA Connections, Input and Output. Please include:

Insertion losses

3.3.5 Ka-band Receive Inject Coupler Calibration Data

For optimal IOTE operation, precise calibration data is required for receive waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 5-MHz below and 5-MHz above the operational frequency band of interest.

3.3.5.1 Ka-band Rx Coupler Data

1. Coupler Value (Nominal)
2. Coupled Port Connection type for IOT
3. Coupler Calibration: Customer to furnish calibration table across MTSAT 1R frequency plan with additional 15 MHz on each side.
4. Insertion loss of coupler

3.3.5.2 Receive Coupler to LNA

1. Waveguide or Coax Type
2. Length from Rx coupler to LNA

3. Attenuation per foot at test freq.

4. Loss from Rx Coupler to LNA

3.3.6 Earth Station Schematic

Customer needs to furnish a schematic that includes LNAs, HPAs, antennas, and interfaces pertaining to IOT.

3.3.7 Earth Station IOT Ka band Interfaces

Customer needs to furnish earth station connector types and gender for:

HPA input interface for IOTS use

LNA output for IOTS use

Rx coupler output to Rx hub box

Tx coupler output to Tx hub box

3.3.8 Ku-Band Receive Antenna Data

Receive Frequency Range:

Polarities:

Cross Pol Isolation:

Rx Antenna Gain	Low
	Mid
	High

Rx Gain Uncertainty specification:

Total Ku band System Noise Temperature

Rx G/T

3.3.9 Ku-band LNA Output Interface for IOTE

Connector type for IOTE interface

Cable conveyance distance from LNA port to IOTE Staging Area

3.3.10 Ku-band LNA

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.11 Ku-band LNA 2

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.11.1 Ku-band LNA Switching Network

Please provide Switching Network Block Diagram for LNA Connections, Input and Output. Please include:

Insertion losses

3.3.12 Ku-band Receive Inject Coupler Calibration Data

For optimal IOTE operation, precise calibration data is required for receive waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 5-MHz below and 5-MHz above the operational frequency band of interest.

Coupler Value (Nominal)

Coupled Port Connection type for IOT

Coupler Calibration: Customer to furnish calibration table across MTSAT 1R frequency plan with additional 15 MHz on each side.

Insertion loss of coupler

3.3.12.1 Ku-band Rx Coupler Data

3.3.12.2 Ku-band Receive Coupler to LNA

Waveguide or Coax Type

Length from Rx coupler to LNA

Attenuation per foot at test freq.

Loss from Rx Coupler to LNA

3.3.13 Earth Station Schematic

Customer needs to furnish a schematic that includes LNAs, HPAs, antennas, and interfaces pertaining to IOT.

3.3.14 Earth Station IOT Ku-band Interfaces

Customer needs to furnish earth station connector types and gender for:

HPA input interface for IOTS use

LNA output for IOTS use

Rx coupler output to Rx hub box

Tx coupler output to Tx hub box

3.3.15 L Band Receive Antenna Data

Receive Frequency Range:

Polarities:

Cross Pol Isolation:

Rx Antenna Gain Low

Mid

High

Rx Gain Uncertainty specification:

Total L band System Noise Temperature

Rx G/T

3.3.15.1 Receive Antenna Gain Definition

The antenna gain is defined as the path shown in Figure A.3-4. For the purposes of IOT calibration, the reference point for the antenna gain is at the input of the Receive coupler.

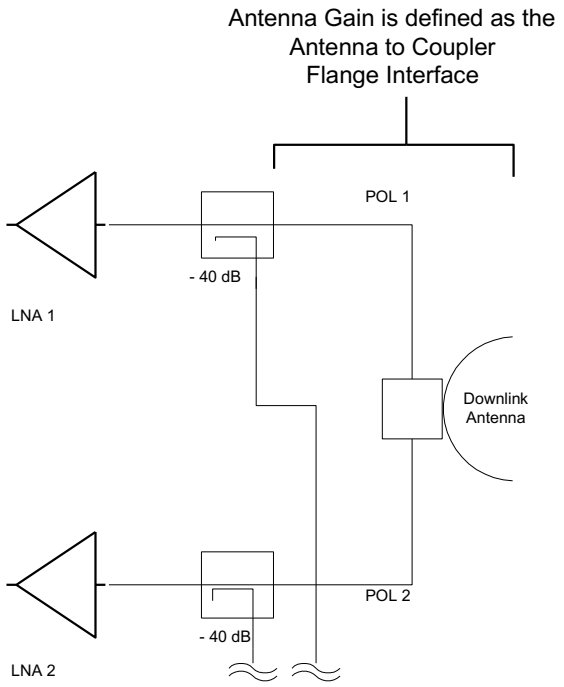

Figure A.3-4. Downlink Antenna Gain Interface

3.3.16 L-band LNA Output Interface for IOTE

Connector type for IOTE interface

Cable conveyance distance from LNA port to IOTE Staging Area

3.3.17 L-band LNA

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.18 L-band LNA 2

Name or Designator:

Frequency Range:

Low-band Gain:

Mid-band Gain:

High-band Gain:

LNA 1-dB compression point:

3.3.18.1 L-band LNA Switching Network

Please provide Switching Network Block Diagram for LNA Connections, Input and Output. Please include:

Insertion losses

3.3.19 L band Receive Inject Coupler Calibration Data

For optimal IOTE operation, precise calibration data is required for receive waveguide coupler assemblies. The calibration must be performed across the operational frequency band of interest at frequency points no more than 5-MHz apart and must include frequency points at least 5-MHz below and 5-MHz above the operational frequency band of interest.

3.3.19.1 L band Rx Coupler Data

Coupler Value (Nominal)

Coupled Port Connection type for IOT

Coupler Calibration: Customer to furnish calibration table across MTSAT 1R frequency plan with additional 15 MHz on each side.

Insertion loss of coupler

3.3.19.2 L band Receive Coupler to LNA

Waveguide or Coax Type

Length from Rx coupler to LNA

Attenuation per foot at test freq.

Loss from Rx Coupler to LNA

3.3.20 Earth Station Schematic

Customer needs to furnish a schematic that includes LNAs, HPAs, antennas, and interfaces pertaining to IOT.

3.3.21 Earth Station IOT L band Interfaces

Customer needs to furnish earth station connector types and gender for:

HPA input interface for IOTS use

LNA output for IOTS use

Rx coupler output to Rx hub box

Tx coupler output to Tx hub box