

HISPASAT-LINK BUDGET
DIGITAL SERVICES

REF. LINK
TRANSPONDER Nº
SATELLITE

AMAZONAS
Clear Sky
Rain
up
Rain
down

GENERAL DATA

| | | | |
|----------------------------|----------|---------------|-------|
| Transponder bandwidth(MHz) | 36 | | |
| carrier type | outbound | | |
| Modulation | 8-psk | | |
| Information rate (Kb/s) | 11300 | OVERHEAD | 15/16 |
| FEC | 2/3 | Reed Solomon | 67/73 |
| bandwidth occupied (KHz) | 7879.64 | | |
| BER | 1.00E-07 | | |
| Eb/No (dB) | 5.5 | Nº portadoras | |
| LINEALIZADOR (0=NO, 1=SI) | 0 | BW | POT |
| Nº of carriers | 3.00 | 3.92 | 4.93 |
| IBO total (dB) | 7.00 | | |
| OBO total (dB) | 3.373 | | |
| C/I intermodulation | 15.741 | | |
| Occupation factor | 1.32 | | |
| availability (%) | 99.50 | | |
| satellite longitude | -61 | | |

UPLINK

| | |
|------------------------------|----------|
| E/T Tx Name | new York |
| E/T Tx (degrees E) Longitude | -74.00 |
| E/T Tx (degrees N) latitude | 40.75 |
| E/T Tx (m) Altitude | 100.00 |
| Uplink Frequency (GHz) | 14.00 |
| EIRP E/T Tx.(dBW) | 68.10 |

E/T Tx example

| | | |
|----------------------|-------|--------------------------|
| HPA (W) | 20.00 | |
| HPA-antena (dB) loss | 0.20 | ES off axis psd (dBW/Hz) |
| Ant. gain (dB) | 53.00 | -53.87 |
| Ant. Diameter (m) | 3.70 | |

| | | | |
|--|--------|---------|--|
| Polarization discrim (dB) | 30.00 | | |
| Accuracy polarization(°) | 0.10 | | |
| % unavailability | | 0.13000 | |
| Rain atten. | | 3.08 | |
| Atmosp. Atten. loss (dB) | 0.20 | | |
| aiming error loss (dB) | 0.30 | | |
| sky loss (dB) | 206.90 | | |
| D.F.P. (dBW/m2) | -97.93 | -101.01 | |
| saturation D.F.P.in the BEAM CENTER (dBW) | -84.00 | | |
| Back-off Input (dB) | 13.93 | 17.01 | |
| Geogr. advantage (dB) | -3.00 | | |
| G/T satellite in the BEAM CENTER (dB/K) | 4.70 | | |
| C/N up (dB) | 22.03 | 18.95 | |
| C/I cochannel up(dB) | 18.34 | 15.26 | |
| C/(N+I without other interf. satellites up) (dB) | 15.59 | 12.51 | |
| psd Interference from satellite 2º(dBW/Hz) | -50.00 | | |
| C/I with other interf. Satellites 2º up (dB) | 27.66 | 24.58 | |
| c/(N+I) with other interf. Satellites up (dB) | 15.33 | 12.25 | |
| Xpolar Interference excess (dB) | 7.0 | | |

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DOWNLINK

| | | | |
|---|--------|--------------------|---------|
| E/T Rx Name | MIAMI | | |
| E/T Rx (degrees E) Longitude | -80.18 | | |
| E/T Rx (degrees N) Latitude | 25.77 | | |
| E/T Rx (Km) Altitude | 100.00 | | |
| Down Frequency (GHz) | 12.00 | SAT deirp (dBW/Hz) | |
| EIRP satellite in the beam center (dBW) | 48.00 | -31.27 | |
| Back-off output (dB) | 10.30 | 13.39 | |
| Geogr. advantage (dB) | -5.00 | | |
| % unavailability | | | 0.37000 |
| Rain Atten. | | | 2.15 |
| Atmosp. Atten. loss (dB) | 0.20 | | |
| aiming error loss (dB) | 0.30 | | |
| sky loss (dB) | 205.37 | | |
| G/T E/T Rx. (dB/K) | 30.00 | | 26.01 |

E/T Rx Example

| | |
|---------------------------|-------|
| Ant. Gain(dB) | 48.62 |
| antenna-receptor loss(dB) | 0.10 |
| Tlna (°K) | 45.00 |
| Ta (°K) | 20.00 |
| Tsyst. (°K) | 71.15 |
| Ant. Diameter (m) | 2.57 |

| | | | |
|--|--------|-------|-------|
| Polarization discrim.(dB) | 30.00 | | |
| C/N down (dB) | 16.46 | 13.37 | 10.31 |
| C/I cochannel down(dB) | 21.47 | 21.47 | 21.47 |
| C/I channel adjacent (dB) | 24.70 | 24.70 | 24.70 |
| C/(N+I without other interf. satellites down) (dB) | 12.37 | 9.70 | 8.91 |
| deirp Interference from satellite 2º(dBW/Hz) | -30.00 | | |
| C/I with other interf. Satellites 2º down (dB) | 20.88 | 20.88 | 18.73 |
| c/(N+I) with other interf. Satellites up (dB) | 11.79 | 9.38 | 8.48 |
| Xpolar Interference excess (dB) | 3.4 | | |

GLOBAL RESULTS

| | | | |
|--|-------|------|------|
| C/(N+I without other interf. satellites TOTAL) | 10.68 | 7.87 | 8.07 |
| C/(N+I with other interf. satellites) Total (dB) | 10.20 | 7.57 | 7.67 |
| Excess margin (dB) | 0.50 | 0.50 | 0.50 |
| Eb/No available (interf nominal)(dB) | 8.14 | 5.51 | 5.60 |
| Eb/No request (dB) | 5.50 | 5.50 | 5.50 |
| Margin (nominal)(dB) | 2.64 | 0.01 | 0.10 |