

| City           | Old EIRPs | Old EIRPs + 2.7 | 4/20 Turbo 8PSK 2/3 EIRPs | Delta (4/21 EIRPs - 4/20 EIRPs) | 4/21 Turbo 8PSK 2/3 EIRPs | Delta (8PSK 2/3 - Old EIRPs) | Turbo 8PSK 3/4 EIRPs | Delta (8PSK 3/4 - Old EIRPs) |
|----------------|-----------|-----------------|---------------------------|---------------------------------|---------------------------|------------------------------|----------------------|------------------------------|
| HONOLULU HI    | 50.00     | 52.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| TAMPA FL       | 54.00     | 56.70           | 58.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| ST PETERSBUR   | 54.00     | 56.70           | 58.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SARASOTA FL    | 54.00     | 56.70           | 58.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| CHARLESTON S   | 54.00     | 56.70           | 58.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| NEW ORLEANS    | 54.00     | 56.70           | 57.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| HOUSTON TX     | 53.00     | 55.70           | 56.70                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SAN ANTONIO T  | 50.00     | 52.70           | 51.60                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| ATLANTA GA     | 54.00     | 56.70           | 55.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| NASHVILLE TN   | 54.00     | 56.70           | 55.70                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| EL PASO TX     | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| LAS CRUCES N   | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SHREVEPORT L   | 52.00     | 54.70           | 54.40                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| PHOENIX AZ     | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| PRESCOTT AZ    | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| OKLAHOMA CIT   | 49.50     | 52.20           | 52.20                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| LOS ANGELES C  | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| WASHINGTON D   | 54.00     | 56.70           | 55.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| HAGERSTOWN     | 54.00     | 56.70           | 55.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| ST LOUIS MO    | 50.50     | 53.20           | 53.20                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SAN FRANCISCO  | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| OAKLAND CA     | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SAN JOSE CA    | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| DENVER CO      | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SALT LAKE CITY | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| CLEVELAND OH   | 51.10     | 53.80           | 54.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| AKRON OH       | 51.10     | 53.80           | 54.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| CANTON OH      | 51.10     | 53.80           | 54.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| CHICAGO IL     | 51.50     | 54.20           | 53.90                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| BOISE ID       | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE IA   | 50.80     | 53.50           | 53.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE IL   | 51.50     | 54.20           | 53.60                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE KS   | 49.00     | 51.70           | 51.10                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE MI   | 50.50     | 53.20           | 53.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE NE   | 49.00     | 51.70           | 51.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MARQUETTE W    | 50.50     | 53.20           | 52.40                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MINNEAPOLIS M  | 50.00     | 52.70           | 52.10                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| ST PAUL MN     | 50.00     | 52.70           | 52.10                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SEATTLE WA     | 49.00     | 51.70           | 50.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| TACOMA WA      | 49.00     | 51.70           | 50.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| PORTLAND OR    | 49.00     | 51.70           | 50.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| GREAT FALLS M  | 54.00     | 56.70           | 55.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| GREAT FALLS N  | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| GREAT FALLS S  | 54.00     | 56.70           | 56.70                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| GREAT FALLS V  | 54.00     | 56.70           | 55.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MINOT ND       | 49.40     | 52.10           | 51.90                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| BISMARCK ND    | 49.40     | 52.10           | 51.80                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| DICKINSON ND   | 49.40     | 52.10           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| MIAMI FL       | 54.00     | 56.70           | 58.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| ANCHORAGE A    | 49.00     | 51.70           | 51.70                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| CORPUS CHRIS   | 51.00     | 53.70           | 51.60                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| LUBBOCK TX     | 49.00     | 51.70           | 50.40                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| BAKERSFIELD C  | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| INDIANAPOLIS I | 53.00     | 55.70           | 55.30                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| TOPEKA KS      | 49.00     | 51.70           | 52.50                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SIOUX FALLS S  | 49.00     | 51.70           | 51.60                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| EUGENE OR      | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| IDAHO FALLS ID | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| FARGO ND       | 49.00     | 51.70           | 52.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
| SPOKANE WA     | 48.00     | 50.70           | 50.00                     | #REF!                           | #REF!                     | #REF!                        | #REF!                | #REF!                        |
|                |           |                 | # decreased:              | 0.00                            | Average:                  | #REF!                        | Average:             | #REF!                        |

Green: lower than old EIRPs + 2.7 dB  
Red: higher

**BSS @129W**

|                  | <b>Eb/No</b> | <b>datarate</b> |         |                 | <b>EIRP values?</b> |
|------------------|--------------|-----------------|---------|-----------------|---------------------|
| DVB S2 QPSK 1/4  | 0.75         | 9804.86         | #DIV/0! |                 | n/a                 |
| DVB S2 QPSK 1/3  | 0.59         | 13128.96        | #DIV/0! |                 | n/a                 |
| DVB S2 QPSK 2/5  | 0.73         | 15788.24        | #DIV/0! |                 | n/a                 |
| Turbo QPSK 1/2   | 1.7          | 18974.44        | #DIV/0! | updated 3/23    | Old EIRPs           |
| DVB S2 QPSK 3/5  | 1.48         | 23766.08        | #DIV/0! |                 | n/a                 |
| Turbo QPSK 2/3   | 2.7          | #REF!           | #REF!   | updated 3/23    | Old EIRPs           |
| Turbo QPSK 3/4   | 3.1          | #REF!           | #REF!   | updated 3/23    | Old EIRPs           |
| DVB S2 QPSK 4/5  | 2.67         | #REF!           | #REF!   |                 | n/a                 |
| Turbo QPSK 5/6   | 3.7          | #REF!           | #REF!   | updated 4/18 u: | 4/19 EIRPs          |
| Turbo QPSK 7/8   | 4.2          | #REF!           | #REF!   | updated 4/19 u: | 4/19 EIRPs          |
| DVB S2 QPSK 9/10 | 3.89         | #REF!           | #REF!   |                 | n/a                 |
| Turbo 8PSK 2/3   | 4.4          | #REF!           | #REF!   | updated 4/18 u: | 4/19 EIRPs          |
| Turbo 8PSK 3/4   | 4.9          | #REF!           | #REF!   | updated 4/18 u: | 4/19 EIRPs          |
| Turbo 8PSK 5/6   | 6.4          | #REF!           | #REF!   | updated 4/18 u: | 4/19 EIRPs          |
| Turbo 8PSK 8/9   | 6.7          | #REF!           | #REF!   | updated 4/18 u: | n/a                 |

|                                  |     |    |
|----------------------------------|-----|----|
| Earth Station G/T<br>degrade by: | 0.5 | dB |
|----------------------------------|-----|----|















DATA RATE  
 NUMBER OF PHASES  
 LDPC  
 SPECTRAL EFFICIENCY  
 REQUIRED Eb/No  
 IF BANDWIDTH  
 C/N REQUIRED  
 Faded System Margin  
 Antenna Efficiency

|          |      |
|----------|------|
| 18974.44 | kbps |
| 4        |      |
| 1 / 2    |      |
| 0.948722 |      |
| 1.70     | dB   |
| 20000.0  | kHz  |
| 1.47     | dB   |
| 0.3      | dB   |
| 63.00%   |      |

sat #REF!  
 xpdr #REF!  
 loc #REF!

UPLINK SITE #NAME? #NAME?  
 UPLINK SFDR #NAME? dBW/m2  
 ATTENUATOR 10.0 dB  
 UPLINK G/T #NAME? dB/K  
 UPLINK FREQ #REF! MHz  
 DOWNLINK FREQ #REF! MHz  
 UPLINK EIRP #NAME? dBW  
 Uncompensated U/L Fade 0.0 dB  
 UPLINK C/N #NAME? dB

Spacing Factor  
 Required Bandwidth  
 Allocated Bandwidth  
 Transponder SCPC IBO  
 Transponder SCPC OBO  
 Carrier IBO  
 Carrier OBO

|        |     |
|--------|-----|
| 1.2    |     |
| 24.000 | MHz |
| 24.000 | MHz |
| 0.0    | dB  |
| 0.0    | dB  |
| 0.00   | dB  |
| 0.00   | dB  |

Adjacent satellite C/I 15  
 Spot beam C/I 15.0  
 Transponder Bandwidth 24.0 MHz  
 Required Bandwidth 100.00 %  
 Allocated Bandwidth 100.00 %  
 Carrier Allocated Power 100.00 %

| RECEIVE SITE | 0.45 | ANT DIA (m) | ES Tsys (K) | ANT G/T (dB/K) | Assumed C/I (dB) | MINIMUM C/N DOWN (dB) | XPDR SAT EIRP (dBW) | CXR EIRP (dBW) | CLEAR-SKY DOWNLINK C/N (dB) | MARGIN TO MIN C/Ndn (dB) |
|--------------|------|-------------|-------------|----------------|------------------|-----------------------|---------------------|----------------|-----------------------------|--------------------------|
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 50.00                 | 50.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.60                 | 52.60               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.60                 | 52.60               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.60                 | 52.60               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 53.80                 | 53.80               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.50                 | 51.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.00                 | 51.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 50.00                 | 50.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.60                 | 52.60               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.50                 | 52.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.00                 | 52.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 49.50                 | 49.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.50                 | 52.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 52.50                 | 52.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 50.00                 | 50.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.50                 | 51.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.50                 | 51.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.50                 | 51.50               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 51.00                 | 51.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 48.00                 | 48.00               | #NAME?         | #NAME?                      | #                        |
| #NAME?       | 0.45 | 110.0       | 13.6        | 12.0           | #NAME?           | 50.50                 | 50.50               | #NAME?         | #NAME?                      | #                        |

|        |      |       |      |      |        |       |       |        |        |   |
|--------|------|-------|------|------|--------|-------|-------|--------|--------|---|
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 50.50 | 50.50 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.50 | 48.50 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 50.00 | 50.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.50 | 48.50 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 50.00 | 50.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 49.10 | 49.10 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 49.10 | 49.10 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.00 | 48.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.00 | 48.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.00 | 48.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.00 | 48.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.30 | 48.30 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.30 | 48.30 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.90 | 48.90 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.90 | 48.90 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 48.90 | 48.90 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 53.00 | 53.00 | #NAME? | #NAME? | # |
| #NAME? | 0.45 | 110.0 | 13.6 | 12.0 | #NAME? | 49.00 | 49.00 | #NAME? | #NAME? | # |





