How to find the Max EIRP Density Towards the Horizon

This paper shows how to calculate the maximum EIRP density towards the horizon, so that you can make the required entry in the FCC application. This step applies only to transmitting earth terminals.

1) From the Technical Characteristics of the "data" page of the Frequency Coordination and Interference Analysis Report, find the entry for Maximum Transmitter/Available Power in dBw/4KHz into the antenna. Enter this number at "***a***" below.

2) Again on the data page, find the "Range of Satellite Arc"; just under that is the "Azimuth Range". Copy the Azimuth Range two numbers (in degrees) with a slash between them into "***b".*** below.

3) In the Frequency Coordination Report, find the list of Gain Values per Azimuth Degrees (usually in 5 degree increments). The first column on that table is marked "Azimuth (degrees)". Go down that column until you come to the number closest in degrees to the first number you wrote down in "***b"*** and make note of Horizontal Gain value. Then go further down the list until you come to the number closest in degrees to the second number you entered in ***"b"*** and make note of its Horizontal Gain value. Examine all the Horizontal Gain values in the 6 GHz/Transmit column between your two satellite arc Azimuth ranges. Find the highest number and enter it at ***"c"*** below. If all the numbers in this portion of the column are negative, remember that -2 dB is higher than -3 dB.

4) Add "***a"*** and "***c",*** enter total in ***"d".*** This number is the maximum EIRP density towards the horizon in the arc. Enter this number on FCC application (E60).

Calculations

a) Maximum Transmitter Power into antenna: -15.23 dBw/4KHz

b) Range of satellite arc: 124.9 / 244.36 degrees

c) Highest antenna gain towards horizon in coordinated arc: -2.15 dBi

d) Add ***a*** + ***c*** for Max EIRP density towards the horizon: -17.38 dBw/4KHz

e) Enter the number at "***d"*** on FCC application question **E60**