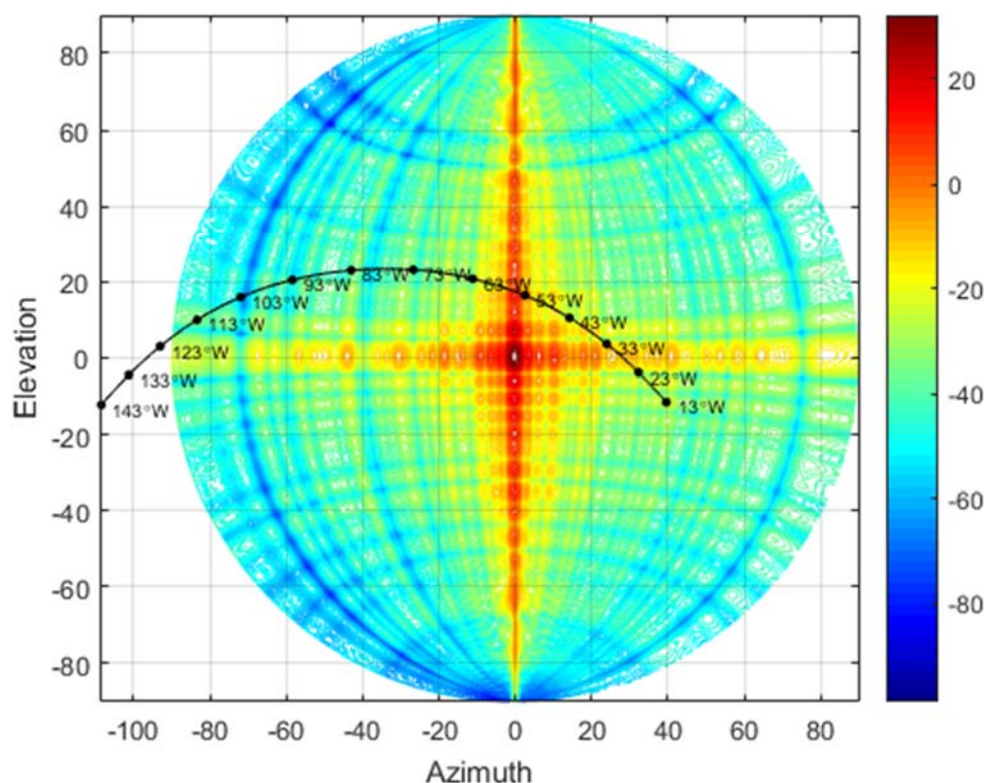


Annex Revision: Getsat compliance with EPFD ↑ limits

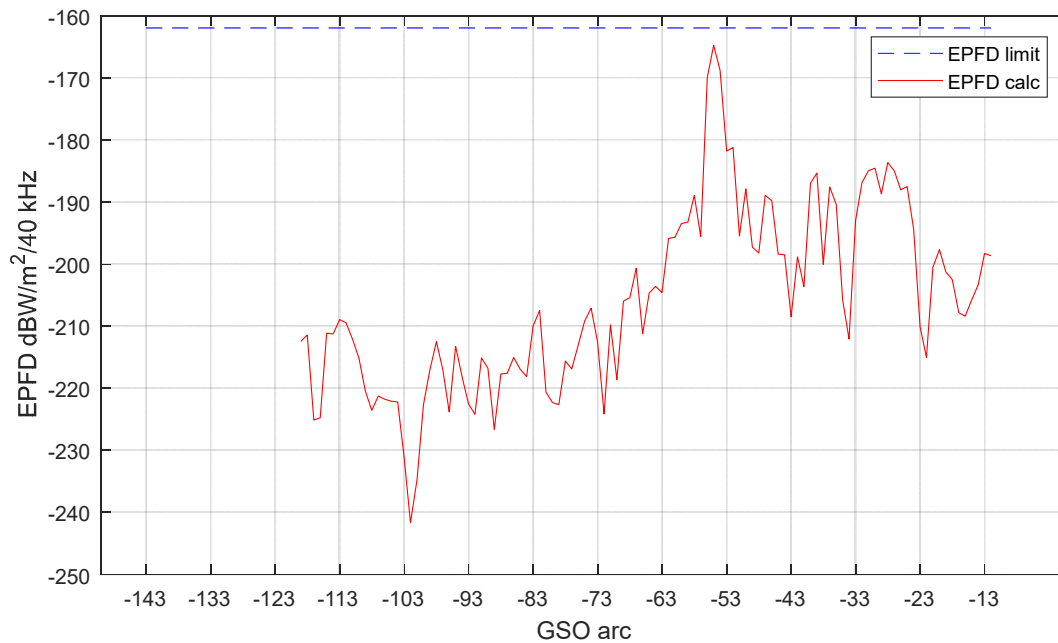
The following graphic illustrates the GETSAT antenna pattern in azimuth and elevation with the GSO arc superimposed in az/el coordinates when the antenna boresight is pointing toward an O3b satellite located at 55°W (for example). The colormap shows the antenna gain (units in dBi) as a function of azimuth and elevation angles. The antenna gain data that intersects with the GSO arc is used to determine the gain in the direction of the GSO arc.



The EPFD ↑ limit is $-162 \text{ dBW/m}^2/40 \text{ kHz}$. The spreading loss determined by the equation

$$\text{spreading loss (dB)} = 10\log_{10}(4\pi d^2)$$

where d is the distance to a point on the GSO arc from the location on the Earth of the transmitting earth station. With the spreading loss, input power spectral density and antenna gain in the direction of the GSO arc, the EPFD↑ can be determined. The following graphic illustrates the EPFD↑ produced at the GSO arc from the GETSAT antenna.



As seen by the plot above, the GETSAT operations are compliant with the EPFD \uparrow limits in Article 22 of the ITU Radio Regulations.¹ This graphic is for when the antenna boresight is pointing toward an O3b satellite located at 55°W.

Since this is a moving antenna tracking an O3b satellite, the EPFD \uparrow limits are confirmed in the same way as demonstrated above for all pointing directions along the O3b orbit.

¹ 47 C.F.R. 25.289. If the applicable EPFD_{up} limits are met, the NGSO FSS satellite system is considered to have met its obligations to protect GSO FSS networks from unacceptable interference.