O3b Response to OET Question from 10/28/2021

OET Question: *Please address the following questions and concerns: Applicant certified that the proposed operations in the 29.5-30 GHz band will meet the equivalent power Flux-density levels limit (-162 dBW/m2 in 40 kHz bandwidth) in the Table 22-2 of Article 22, Section II, of the ITU radio Regulations. Please provide the following uplink information that used to conduct in the EPFD calculation: a. a maximum input power spectral density (dBW/40kHz and dBW/4kHz) for earth station, b. the minimum separation angle between the O3b NGSO orbit and the GSO arc (degrees), c. the off-axis gain (dBi) (32-25log(?) transmitting from earth station), d. the off-axis EIRP density towards the GSO (dBW/40kHz and dBW/4kHz), e. the spreading loss f. the minimum elevation angle from centered around NL 35-58-01; WL 84-13-45 to the GSO orbit/ satellite i. the maximum EIRP density (dBW/40kHz and dBW/4kHz) radiated towards a victim GSO satellite at any point on the GSO arc (which will result at very low power and would not cause interference to GSO satellite.*

O3b response: Please see below uplink information used to conduct EPFD calculations as requested:

Please note that, items a-f address the determination of EPFD at the GSO arc. Items d and g appear redundant (g is worded differently), with g apparently seeking a response regarding the full visible GSO arc independent of the response to d. This data is provided using the Honeywell antenna pattern, for each elevation angle (minimum, and center of pass).

		At minimum Elevation		At center of pass	
		4 kHz	40 kHz	4 kHz	40 kHz
a.	a maximum input power spectral density (dBW/40kHz and dBW/4kHz) for earth station,	-21.24	-11.24	-21.24	-11.24
b.	the minimum separation angle between the O3b orbit and the GSO arc (degrees),	12.3	12.3	15.8	15.8
c.	the off-axis gain (dBi) (32−25log(θ) transmitting from earth station),	4.752372214	4.752372214	2.033572826	2.033572826
d.	the off-axis EIRP density towards the GSO (dBW/40kHz and dBW/4kHz),	-16.48762779	-6.487627786	-19.20642717	-9.206427174
e.	the minimum elevation angle from earth station FIXED site/location to the GSO orbit/ satellite,	10	10	34.8	34.8
f.	the spreading loss	163.4	163.4	162.4	162.4

g.	the maximum EIRP density (dBW/40kHz and dBW/4kHz) radiated towards a victim GSO satellite at any point on the GSO arc (which will result at very low power and would not cause interference to GSO satellite)	-16.03	-6.03	-24.22	-14.22