

To: Justin Robinson
E-Mail: jrobinson@gatr.com
From: Doug Young
Date: July 17, 2020

Subject: Request for Info - File # 0053-EX-CN-2020

Message:

Respond to the comments below from the Air Force representative of NTIA's Frequency Assignment subcommittee:

"Please request the applicant to redo or re-verify their PFD calculations. AF could not support the frequency request, based on the PFD levels provided in the attached, significant impact to AF 8 GHz Ops.

2. Per attached (calculations provided by applicant)

For 1.2M antenna:

PFD level at the surface of earth in 4kHz = 0.4297W/m^2 (-13 dBW/m²)

PFD level at the GEO belt in 4kHz = $2.33\text{e-}14\text{W/m}^2$ (-136 dBW/m²)

For 2.4M antenna:

PFD level at the surface of earth in 4kHz = 0.0108W/m^2 (-19.67 dBW/m²)

PFD level at the GEO belt in 4kHz = $9.29\text{e-}14\text{ W/m}^2$ (-130 dBW/m²)

3. Regulations

a. NTIA 8.2.36 specified the PFD limits for 8 GHz EESS at the surface of the earth in 4 KHz from -150 dBW/m² to -140 dBW/m², depending on the arrival angle

b. ITU Article 22.5 the maximum PFD produced at the geostationary-satellite orbit by any 8 GHz EESS space station shall not exceed -174 dB(W/m²) in any 4 kHz band.

4. As a result:

a. For 1.2M antenna: NG 237972 exceeds NTIA 8.2.36 and ITU Article 22.5 PFD limits by at least 127 dB and 38 dB, respectively

b. For 2.4M antenna: NG 237972 exceeds NTIA 8.2.36 and ITU Article 22.5 PFD limits by at least 120.33 dB and 44 dB, respectively

It is rarely to see any 8 GHz EESS space station that exceeds NTIA and ITU PFD limits by 15 or so dB. For this case, the satellite exceeds ITU PFD Limits by over a hundred dB - significant impact to AF 8 GHz Ops. Request the applicant to redo or re-verify their PFD calculations.

The items indicated above must be submitted before processing can continue on the above referenced application. Failure to provide the requested information within 30 days of July 17, 2020 may result in application dismissal pursuant to Section 5.67 and forfeiture of the filing fee pursuant to Section 1.1108.

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Responses to this correspondence must contain the Reference number : 56326