

Section 25.220 of the FCC Rules applies to stations that do not qualify for routine licensing under relevant criteria in §25.138, §25.211, §25.212, §25.218, §25.221(a)(1) or (a)(3), §25.222(a)(1) or (a)(3), §25.226(a)(1) or (a)(3), or §25.227(a)(1) or (a)(3). The proposed experimental operations will comply with the criteria in Section 25.218 as shown below, and thus would be eligible for routine licensing and a certification from the satellite operator under Section 25.220 should not be required, just as it was not required for prior Higher Ground experimental applications (See Call Sign WH2XHP).

§25.218 Off-axis EIRP density envelopes for FSS earth stations transmitting in certain frequency bands.

(a) This section applies to applications for FSS earth stations transmitting to GSO space stations in the conventional C-band, extended C-band, conventional Ku-band, or extended Ku-band, with the following exceptions:

(1) ESV, VMES, and ESAA applications and

(2) Applications proposing transmission of analog command signals at a band edge with bandwidths greater than 1 MHz or transmission of any other type of analog signal with bandwidths greater than 200 kHz.

(b) Earth station applications subject to this section may be routinely processed if they meet the applicable off-axis EIRP density envelopes set forth in this section.

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(d) *Digital earth station operation in the conventional or extended C-bands.* (1) For co-polarized transmissions in the plane tangent to the GSO arc:

$26.3-25\log_{10}\theta$	dBW/4 kHz	for $1.5^\circ \leq \theta \leq 7^\circ$.
5.3	dBW/4 kHz	for $7^\circ < \theta \leq 9.2^\circ$.
$29.3-25\log_{10}\theta$	dBW/4 kHz	for $9.2^\circ < \theta \leq 48^\circ$.
-12.7	dBW/4 kHz	for $48^\circ < \theta \leq 180^\circ$.

Where θ is as defined in paragraph (c)(1) of this section. The EIRP density levels specified for $\theta > 7^\circ$ may be exceeded by up to 3 dB in up to 10% of the range of theta (θ) angles from ± 7 -180°, and by up to 6 dB in the region of main reflector spillover energy.

(2) For co-polarized transmissions in the plane perpendicular to the GSO arc:

$29.3-25\log_{10}\theta$	dBW/4 kHz	for $3^\circ \leq \theta \leq 48^\circ$.
-12.7	dBW/4 kHz	for $48^\circ < \theta \leq 180^\circ$.

Where θ is as defined in paragraph (c)(1) of this section. These EIRP density levels may be exceeded by up to 6 dB in the region of main reflector spillover energy and in up to 10% of the range of θ angles not included in that region, on each side of the line from the earth station to the target satellite.

The maximum transmitter power is 1 Watt, with a 5 MHz emission designator as indicated in the application, resulting in a -31 dB adjustment when measured in a 4 kHz bandwidth. Thus, the power density is:

$$\frac{1 \text{ Watt}}{5 \text{ MHz}} = \frac{-1 \text{ dBW}}{4 \text{ kHz}}$$

Antenna gain will increase the radiated power density, while cable losses and antenna insertion losses will reduce the radiated power density. The transmitter and antenna will always be configured such that the radiated power density will comply with the radiated power density limits in Section 25.218 as shown below. The limits are shown in orange, while the radiated power density is shown in blue. By complying with these limits, the terminal would be considered eligible for routine licensing and the certification of the satellite operator under Section 25.220 is not required.

