

**Name:** APEREC025V01**Description:****Type:** Earth station, Transmitting

Recommendation ITU-R S.465-6 TRANSMITTING reference Earth station antenna pattern for earth stations in FSS in the frequency range from 2 to 31 GHz coordinated after 1993.

**Region(s):** 123**Required Input Parameters:**

gain

**Validation Warnings/Errors:** None**Pattern Information:**

For use in coordination and interference assessment.

Note 5 of the recommendation is not applied.

Pattern is extended in the main-lobe range as described in Rep. ITU-R S.2196.

BR software sets antenna efficiency to 0.7 for technical examination.

**Co-Polar Component:**If  $D/\lambda \leq 54.5$ :

$$G = G_{\max} - 2.5 \times 10^{-3} ((D/\lambda) \varphi)^2 \quad \text{for } 0^\circ \leq \varphi < \varphi_1$$

$$G = \max(G_{\max} - 2.5 \times 10^{-3} ((D/\lambda) \varphi)^2, 32 - 25 \log \varphi) \quad \text{for } \varphi_1 \leq \varphi < \varphi_{\min}$$

$$G = \max(32 - 25 \log \varphi, -10) \quad \text{for } \varphi_{\min} < \varphi \leq 180^\circ$$

If  $D/\lambda > 54.5$ :

$$G = G_{\max} - 2.5 \times 10^{-3} ((D/\lambda) \varphi)^2 \quad \text{for } 0^\circ \leq \varphi < \varphi_m$$

$$G = G_1 \quad \text{for } \varphi_m \leq \varphi \leq \varphi_r$$

$$G = \max(32 - 25 \log \varphi, -10) \quad \text{for } \varphi_r < \varphi \leq 180^\circ$$

where:

$$(D/\lambda) = \sqrt{\frac{10^{\left(\frac{G_{\max}}{10}\right)}}{\eta \pi^2}} \cdot \varphi_r = 15.85 (D/\lambda)^{-0.6} \cdot G_1 = 32 - 25 \log \varphi_r.$$

$$\varphi_m = 20 (\lambda/D) \sqrt{G_{\max} - G_1} \cdot \varphi_1 = 0.9 \times 114 (D/\lambda)^{-1.09}.$$

$$\varphi_{\min} = \max(1, 100 \lambda/D) \quad \text{for } D/\lambda \geq 50,$$

$$\varphi_{\min} = \max(2, 114 (D/\lambda)^{-1.09}) \quad \text{for } D/\lambda < 50.$$

$$\varphi_b = 10^{\left(\frac{42}{25}\right)}.$$