

**Name:** APEREC013V01**Description:****Type:** Earth station, Receiving and Transmitting

Recommendation ITU-R S.465-5 reference Earth station antenna pattern for earth stations coordinated after 1993 in the frequency range from 2 to about 30 GHz.

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

gain

**Validation Warnings/Errors:**

Type	Message
Error	Phib () is less than Phir ().
Error	Gmax () is less than G1 (). Square root of negative value.

**Pattern Information:**

Earth station antenna pattern for use in coordination and interference assessment.

Pattern is extended in the main-lobe range similar to Appendix 8 and Appendix 7 to produce continuous curves.

BR software sets antenna efficiency to 0.7 for technical examination.

**Co-Polar Component:**

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

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

$$G = 32 - 25 \log \varphi \quad \text{for } \varphi_r \leq \varphi < \varphi_b$$

$$G = -10 \quad \text{for } \varphi_b \leq \varphi \leq 180^\circ$$

where:

$$D/\lambda = \sqrt{\frac{10 \left( \frac{G_{\max}}{10} \right)}{\eta \pi^2}} \quad \varphi_m = 20 \lambda/D \sqrt{G_{\max} - G_1}$$

$$G_1 = 32 \quad \text{for } D/\lambda > 100,$$

$$= -18 + 25 \log (D/\lambda) \quad \text{for } D/\lambda \leq 100.$$

$$\varphi_r = 1^\circ \quad \text{for } D/\lambda > 100,$$

$$= 100 \lambda/D \quad \text{for } D/\lambda \leq 100.$$

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