Name: APEREC013V01

Type: Earth station, Receiving and Transmitting

Region(s): 123

Description:

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.

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:

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

$G = G_1$ for $\varphi_m \le \varphi < \varphi_r$

$G = 32 - 25 \log \varphi$ for $\varphi_r \le \varphi < \varphi_b$

$G = -10$ for $\varphi_b \le \varphi \le 180°$

where:

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

$G_1 = 32$ for $D/\lambda > 100$,

$= -18 + 25 \log (D/\lambda)$ for $D/\lambda \le 100$.

$\varphi_r = 1°$ for $D/\lambda > 100$,

$= 100\ \lambda/D$ for $D/\lambda \le 100$.

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