Name: APENST806V01

Type: Earth station, Receiving and Transmitting

Region(s): 123

Description:

Non-standard generic earth station antenna pattern similar to that in Recommendation ITU-R S.465-5, where the side-lobe radiation is represented by the expression CoefA - 25 log(phi).

Required Input Parameters:

gain,coefa

Validation Warnings/Errors:

Type	Message
Error	CoefA () is out of limits [18:47].
Error	Gmax () is less than G1 (). Square root of negative value.
Warning	Phir () is less than Phim ().
Error	Phib () is less than Phir ().

Pattern information:

Pattern is extended in the main-lobe range similar to Appendix 8.
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 $\varphi_m \le \varphi < \varphi_r$

$G = \text{Max}(\text{CoefA} - 25 \log \varphi, -10)$ for $\varphi_r \le \varphi \le 180°$

where:

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

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

$= \text{CoefA} - 50 + 25 \log D/\lambda$ for $D/\lambda \le 100$.

$\varphi_m = 20\ \lambda/D \sqrt{G_{max} - G_1}$.

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

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

$$\varphi_b = 10^{\left(\frac{\text{CoefA}+10}{25}\right)}.$$