Name: APERR_001V01

Description:
Appendix 8 Earth station antenna pattern for GSO networks.

Type: Earth station, Receiving and Transmitting

Region(s): 123

Required Input Parameters:
gain

Validation Warnings/Errors:

Type	Message
Warning	Phib () is less than Phir ().

Pattern information:
The pattern is used for the determination of coordination requirements between GSO networks sharing the same frequency band for non-planed services.

Co-Polar Component:

If $D/\lambda \geq 100$:

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

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

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

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

If $D/\lambda < 100$:

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

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

$G = 52 - 10 \log (D/\lambda) - 25 \log \varphi$ for $\varphi_r \leq \varphi < \varphi_b$

$G = 10 - 10 \log (D/\lambda)$ for $\varphi_b \leq \varphi \leq 180°$

where:

$D/\lambda = 10^{\left(\frac{G_{max} - 7.7}{20}\right)}$. $\varphi_m = 20\ \lambda/D \sqrt{G_{max} - G_1}$.

$G_1 = 2 + 15 \log (D/\lambda)$. $\varphi_b = 48°$.

$\varphi_r = 15.85 (D/\lambda)^{-0.6}$ for $D/\lambda \geq 100$,

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