

Name: APERR_009V01**Description:**

Appendix 30A reference transmitting earth station antenna pattern for Regions 1 and 3 (WARC Orb-88).

Type: Earth station, Transmitting**Region(s):** 13**Required Input Parameters:**

gain

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

Used in the original 1988 feeder-link Plan (WARC Orb-88) and for the assignments notified and brought into use before 27 October 1997.

The feeder-link Plan was based on an antenna diameter of 5 m for the band 17.3-18.1 GHz and 6 m for the band 14.5-14.8 GHz. The on-axis gain was taken as 57 dBi.

Co-Polar Component:

$$\begin{aligned}
 G &= G_{\max} && \text{for } 0^\circ \leq \varphi \leq 0.1^\circ \\
 G &= G_{\max} - 21 - 20 \log \varphi && \text{for } 0.1^\circ < \varphi \leq 0.32^\circ \\
 G &= G_{\max} - 5.7 - 53.2 \varphi^2 && \text{for } 0.32^\circ < \varphi \leq 0.44^\circ \\
 G &= G_{\max} - 25 - 25 \log \varphi && \text{for } 0.44^\circ < \varphi \leq 48^\circ \\
 G &= G_{\max} - 67 && \text{for } 48^\circ < \varphi \leq 180^\circ
 \end{aligned}$$

Cross-Polar Component:

$$\begin{aligned}
 G_x &= G_{\max} - 30 \\
 \text{If } G_x > G: G_x &= G
 \end{aligned}$$