XTAR Antenna Certification

XTAR certified terminals do not cause cross pol interference with neighboring satellites.

INTRODUCTION

XTAR has a terminal certification process to ensure that terminals used to transmit on XTAR satellites do not cause cross pol interference or violate our coordination agreements with neighboring satellites. There are two levels of certification, unconditional and conditional. Unconditional certification allows the terminal to transmit without restrictions (on any beam, transponder, and frequency) in accordance with assigned transmission plans. Conditional certification restricts the terminal to transmit only on beams, transponders, and frequencies that are less sensitive to cross pol and with power levels that satisfy our coordination agreements. The certification process is free and is usually completed in approximately two weeks.

INFORMATION REQUIRED FOR CERTIFICATION

To apply for terminal certification, antenna patterns showing Co-Pol and Cross-Pol transmit antenna gain performance at low, mid, and high X-band frequencies (7.9 GHz, 8.15 GHz, 8.4 GHz) on both pols (RHCP, LHCP) must be supplied. These patterns should also be supplied at various Azimuth and Elevation cuts. All patterns need to have enough resolution to see one degree changes within +/- 15 degrees of boresight and less resolution out to greater angles of the measurements.

We only require one set of antenna pattern measurements under normal environmental conditions. We do not certify the other RF portions of the terminal as is part of WGS certification. Although some XTAR certified terminals are mobile, our certification only covers their static performance.

UNCONDITIONAL CERTIFICATION

For unconditional certification the antenna patterns must comply with the performance specified in the table below and the cross-pol isolation must be ≥ 25 dB. If the terminal meets these requirements, XTAR will issue a certification letter to the manufacturer stating that the terminal is unconditionally certified.

Off Axis Angle, θ (°)	CoPolar Gain (dBi) in direction θ
$100\lambda/D° \le \theta \le 20°$	$29 - 25\log\theta$ dBi
$20° < \theta \le 26.3°$	-3.5 dBi
$26.3° < \theta \le 48°$	$32 - 25\log\theta$ dBi
$\theta > 48°$	-10 dBi

D is the antenna diameter in meters and λ is the wavelength in meters.

CONDITIONAL CERTIFICATION

Terminals not meeting the specifications stated above may be conditionally certified. In this case XTAR will issue a conditional certification letter specifying the conditions under which the terminal may be used to transmit on XTAR satellites.