



CATR Measurement System using Dielectric Lens

CATR (Compact Antenna Test Range)

- ✓ Our unique CATR system uses plane wave excitation with dielectric lenses to **significantly shorten the measurement distance required by the general DFF (Direct Far Field) method** for antennas with large surfaces.
- ✓ Compared to CATR using metal reflectors, **the use of dielectric lenses enables low-cost CATR systems** since surface roughness accuracy is not required compared to metal processing.



Specification

- ✓ Compact CATR system using lens antennas with plane wave characteristics in a wide frequency range.

		Specification
Frequency ※1		18 to 110GHz
Feeder Antenna		Conical Horn Antenna
Lens ϕ		600mm
Quiet Zone (QZ)		± 100 mm
Measurement Distance		300mm (from the top of the lens)
QZ Quality	Phase	± 11 deg. (Typ.)
	Amplitude	± 1.0 dB (Typ.)
Size ※2		W x D x H = 1600 x 1200 x 1800mm

※1 Frequency range within the supported frequencies depends on the supported frequencies of the Feeder antenna.

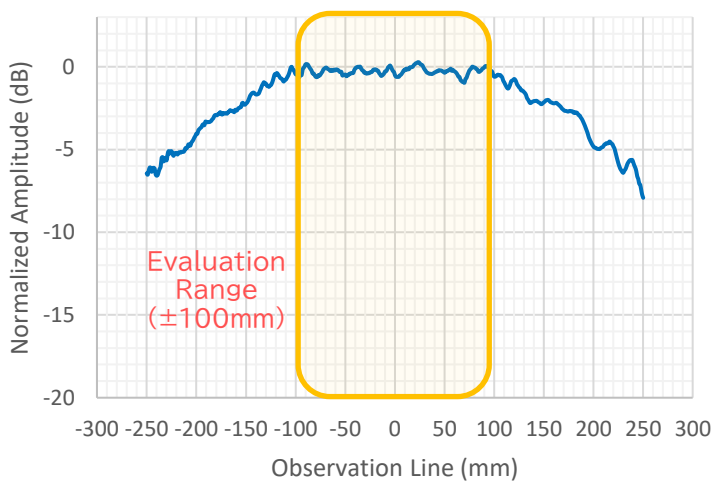
※2 Excluding protrusions. Size can be customized upon request.



QZ Measurement Results (30GHz)

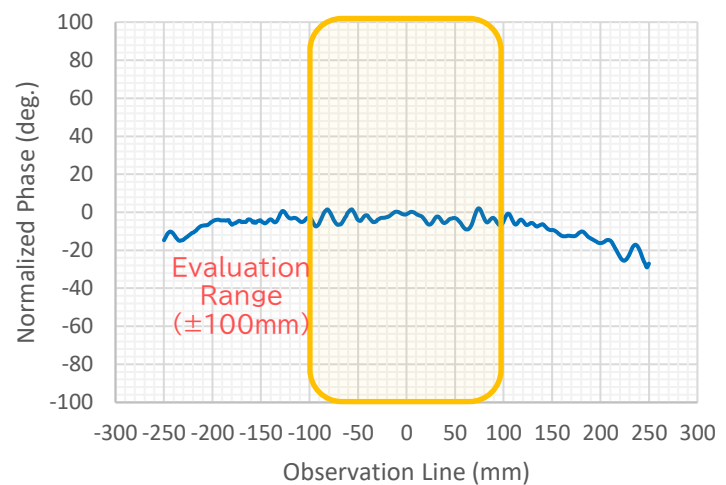
- ✓ Measured as QZ Quality for Pk-Pk values of amplitude and phase in the range of 1/3 of the lens aperture plane (=±100mm). ※3

30GHz QZ Quality (±100mm)	Amplitude	Phase
Ripple(Typ.)	±0.62dB	±5.5deg.



Amplitude Characteristics (30GHz)

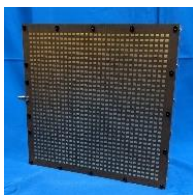
※3 Please contact us for other frequencies.



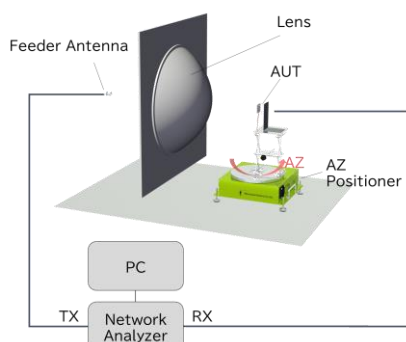
Phase Characteristics (30GHz)

Antenna Measurement Results using CATR System

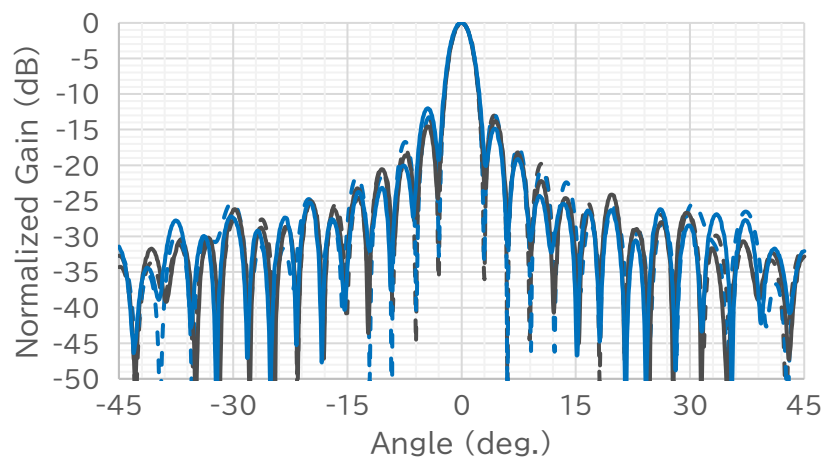
- ✓ Achieved radiation characteristics measurement at 300mm distance for antennas that required 10m in DFF.



AUT (1024 elements Patch Array)



System Configuration



--- Sim. (DFF) Co-Pol. Phi=0deg. - - - Sim. (DFF) Co-Pol. Phi=90deg.
 ——— Meas. (CATR) Co-Pol. Phi=0deg. ——— Meas. (CATR) Co-Pol. Phi=90deg.

Results (Sim. Vs Meas.)