



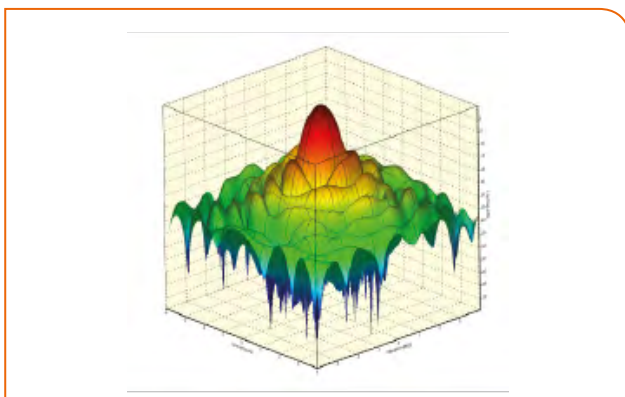
INSTALLING
RELIABILITY

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COMPACT ANTENNA AND RADAR CROSS SECTION (RCS) TEST RANGE

NEAR AND FAR FIELD MEASUREMENTS WITH HIGH FREQUENCY RANGE

The COMPACT ANTENNA and RADAR CROSS SECTION (RCS) TEST RANGE has been designed for antenna, radome and RCS measurements under plane wave conditions. The far field is achieved by two parabolic reflectors, which allow accurate measurements in a test zone (quiet zone) with diameter of 2.4 m and a frequency range from 2 GHz up to 100 GHz. The possibility of direct illumination provides real time measurements for frequencies lower than 2 GHz. The 14 m x 7 m x 6 m anechoic chamber is fully lined with pyramidal foam and high power absorbers.



HIGH-RESOLUTION

A 6-axis control unit with 0.03° accuracy assures high-resolution measurements. The antenna is mounted on a rotor to easily change polarisation. For RCS measurements a foam-lined tower can be used to minimise undesirable wave propagation effects and guarantee accurate measurements.

EASY DATA HANDLING

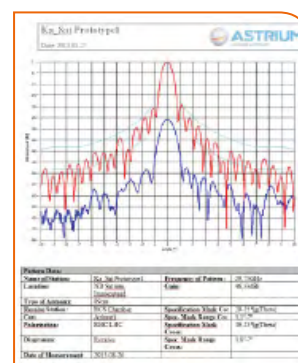
Measurements are performed with the Antenna and RADAR CROSS SECTION Measurement System (ARCS) of March Microwave Systems B.V. and the analysis, graphics and ISAR tool provide many options for post-processing. A dual computer system allows for simultaneous acquisition and processing in a room next to the anechoic chamber.

POWERFUL HARDWARE

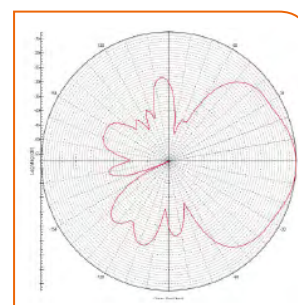
To transmit and receive signals a Rhode & Schwarz ZVA 40 is used. Fast sweep time and high measurement speed (with less than 3.5 μ s per test point) enhance system performance. An attenuator/switch driver automatically handles polarisation of the transmitted signal. Waveguides, instead of coaxial cables, minimise the loss of antenna-received signals.

TECHNICAL SPECIFICATIONS

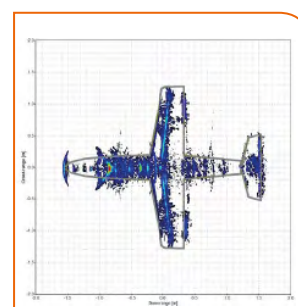
DIMENSIONS	
Test Chamber	14 m x 7 m x 6 m
Subreflector	3.2 m x 3.8 m
Main Reflector	4.8 m x 3.8 m
Test Zone Diameter	1.6 m (2.4 m)
FREQUENCY RANGE	
	2 – 100 GHz (<2 GHz possible on request)
AMPLITUDE RIPPLE	
	<0.7 dB pp
PHASE RIPPLE	
	<7° pp
SENSITIVITY	
(detectable cross section, S/N >10 dB)	-75 dBsm 2 GHz
	-70 dBsm 18 GHz
	-65 dBsm 45 GHz
	-50 dBsm 95 GHz
DYNAMIC RANGE	
	>90 dB 2 GHz – 40 GHz
	>75 dB 95 GHz
POSITIONER	
	Elevation over azimuth rotor and additional model tower with polarization head, mounted on motorized slide
6-Axis Control Unit	
Max. Load Az.-Rotor	2,250 kg
Bending Moment	6,622 Nm
Max. Load Model Tower	200 kg
Bending Moment	2,650 Nm
Accuracy	$\pm 0.03^\circ$
RF-EQUIPMENT	
	Rhode & Schwarz ZVA 40, HP 11713A Attenuator/Switch Driver, HP 8349B Microwave Amplifier
DISPLAYS	
	Cartesian Plots, Polar Plots, Contour Plots, Waterfall Plots, etc.



FINAL ANTENNA REPORT



360° POLAR PLOT OF ANTENNA MEASUREMENTS



ISAR POST-PROCESSING OF RCS MEASUREMENT

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