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Test – Results

Order-No.:

80268816-03 Rev_0

Client	TQ-Systems GmbH, Bürgermeister-Ulrich-Str. 100, 86199 AUGSBURG, GERMANY		
Manufacturer	TQ-Systems GmbH, Bürgermeister-Ulrich-Str. 100, 86199 AUGSBURG, GERMANY		
Product Description	HPR DISPLAY V04		
Type / Model Name	HPR DISPLAY V04		
Testing commenced on	2025-10-30	Pretest is made according to Customer specific	
Testing concluded on	2025-10-30		
Serial - No.	3395322234		

Remarks:

Customer specific tests in order to determine antenna gain and antenna performance.

According to the manufacturer, the antenna will be used in a product with FCC ID 2ANFF-Q104.

The HW Version of the EUT is 356974.0101.

This test result consists of 14 page(s). The test result only corresponds to the tested sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

Date	Checked by	Tested by	Result
2025-11-07			Not applicable, no standards used

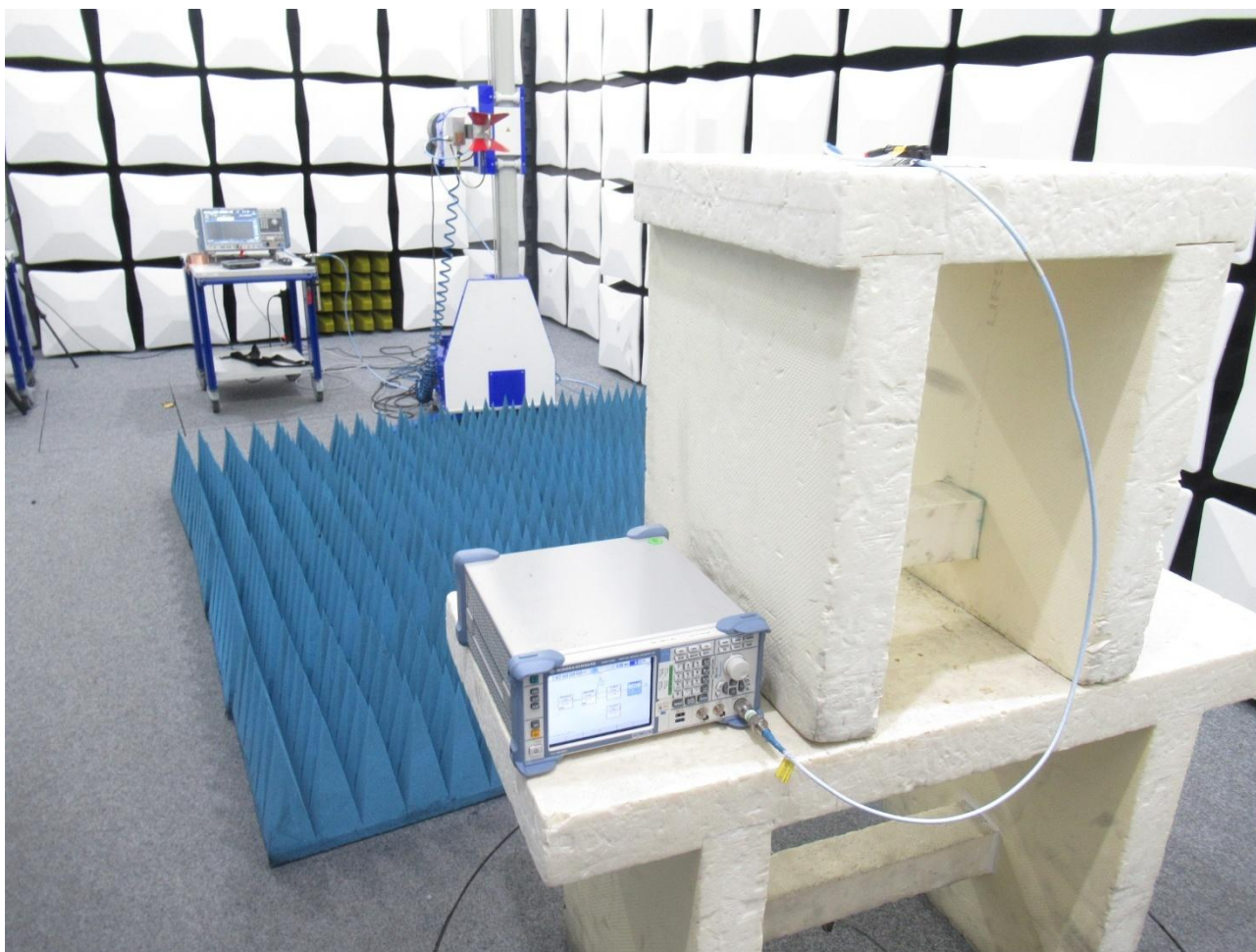
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

Photo documentation and setup description

Measurements are performed with a 3-meter test setup in fully anechoic room FAR1.

Height of EUT:	1.5 m
Height of receiving antenna:	1.5 m
Test distance:	3.0 m
Polarisation of receiving antenna	horizontal and vertical
Measured frequencies:	2402 MHz, 2440 MHz, 2480 MHz
Output power of signal generator	0.0 dBm
Attenuator and cable loss	21.0 dB at all frequencies
Power at antenna	- 21.0 dBm

test setup:



Measurement method:

The EUT antenna is connected to a calibrated signal generator with a 20 dB attenuator. In 3 meters distance, a calibrated receiving system is placed following standard test method ANSI C63.10 section 6.6. The EIRP is measured according to formula (39):

$$\text{EIRP[dBm]} = \text{E[dB}\mu\text{V/m]} - 95.2.$$

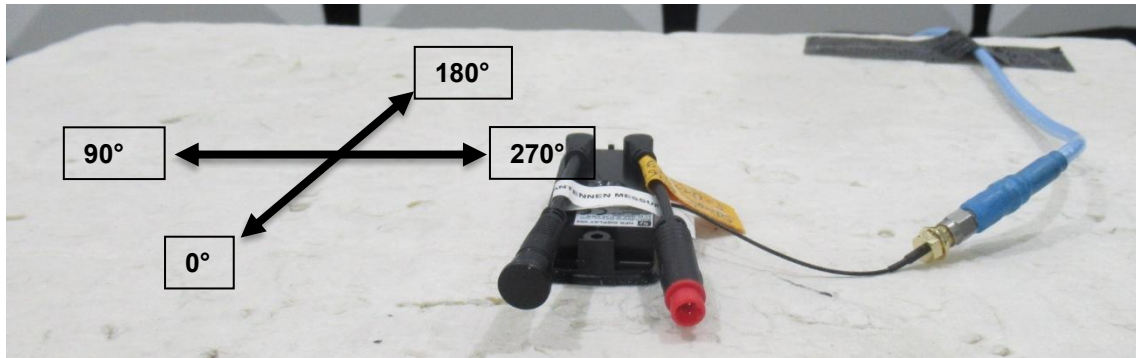
With the knowledge of measured EIRP and applied power P at the antenna, gain G can be determined according to:

$$\text{G[dBi]} = \text{EIRP} - \text{P}$$

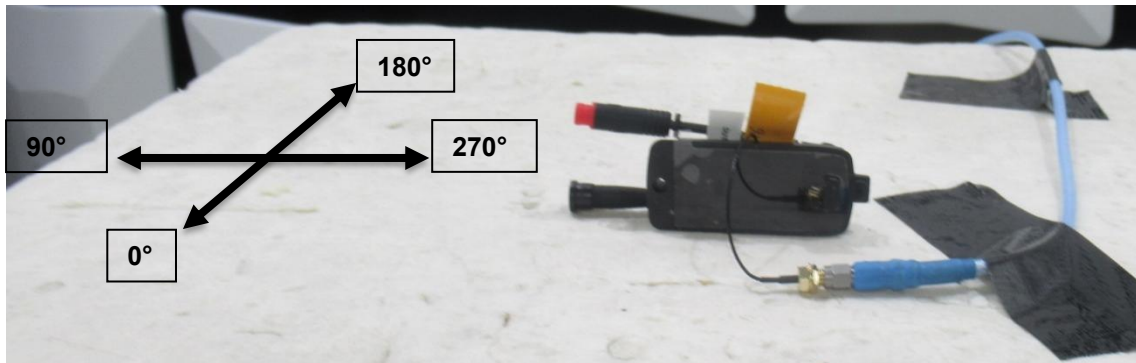
Detailed photos of the EUT are shown in ATTACHMENT A.

The turntable is rotated counterclockwise. This leads to the following relationship in the polar plots of the test result graphs:

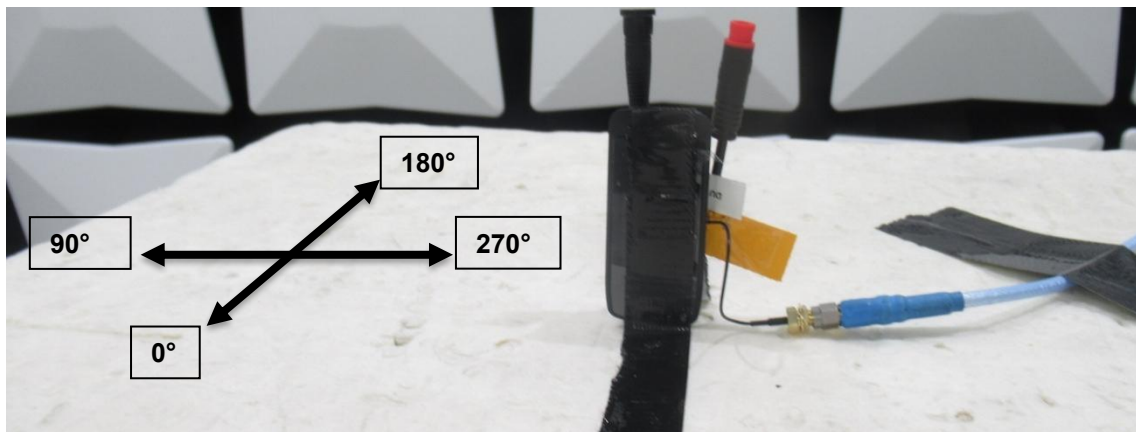
EUT X



EUT Y



EUT Z



Test results

for test instruments and accessories used see **CPR 3**

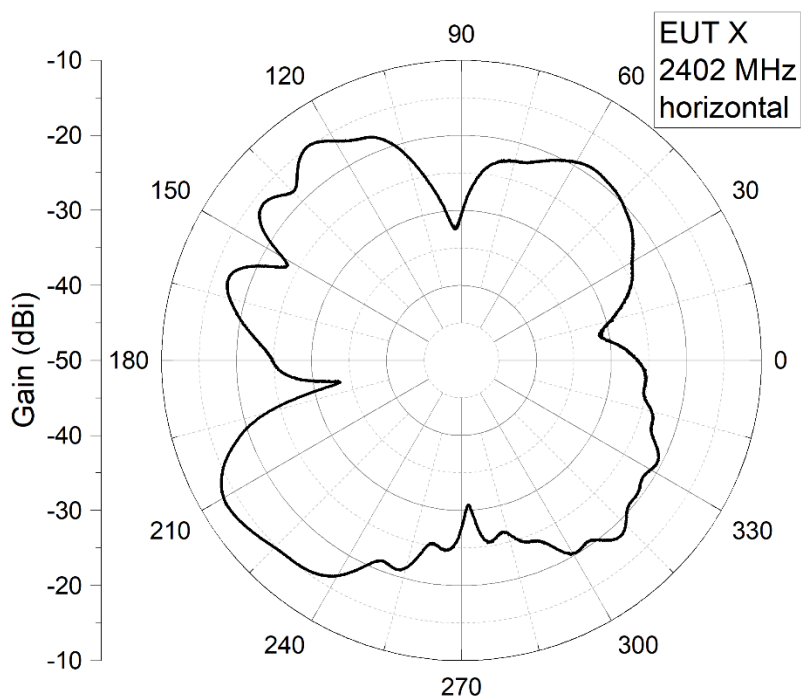
Peak gain overview

Peak Gain (dBi)	EUT X horizontal	EUT X vertical	EUT Y horizontal	EUT Y vertical	EUT Z horizontal	EUT Z vertical
2402 MHz	-13.2	-20.8	-15.4	-22.3	-15.1	-16.9
2440 MHz	-14.5	-20.8	-14.3	-22.4	-16.1	-16.7
2480 MHz	-13.4	-20.1	-13.5	-18.3	-13.5	-16.3

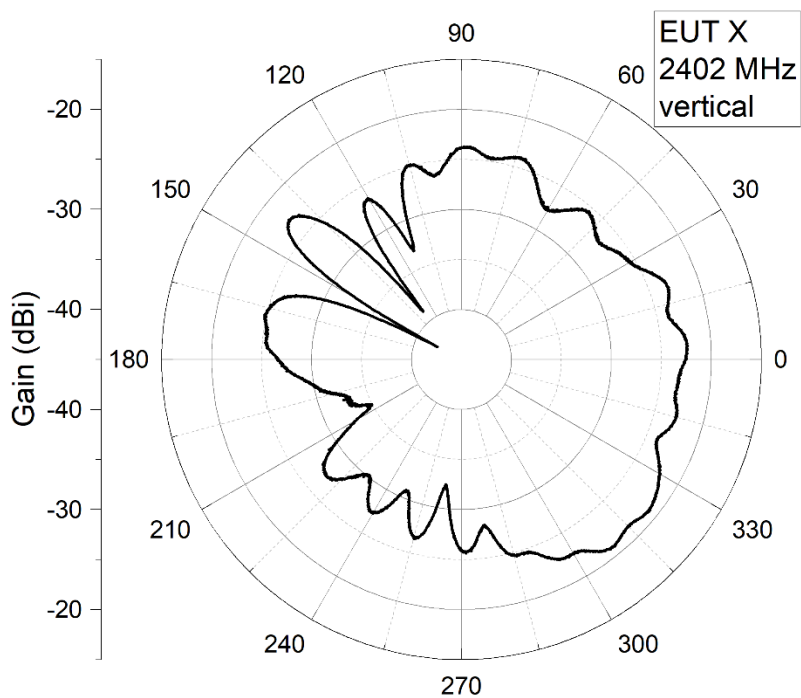
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Detailed graphical representation

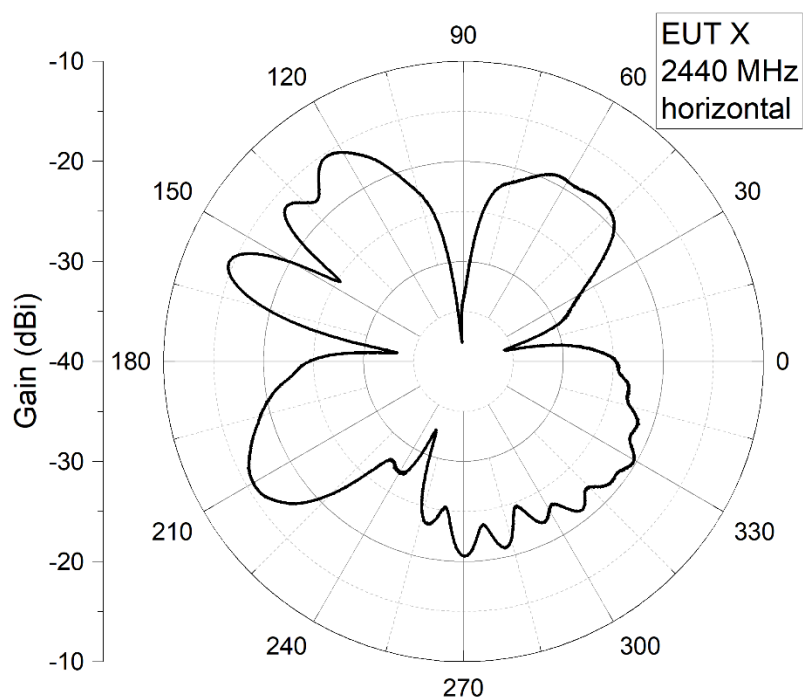
EUT X, 2402 MHz, horizontal



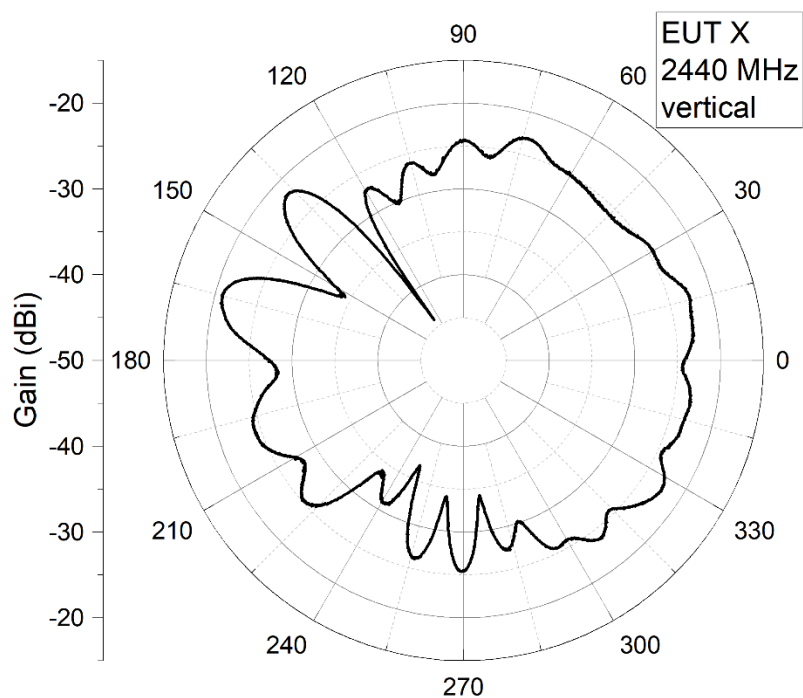
EUT X, 2402 MHz, vertical



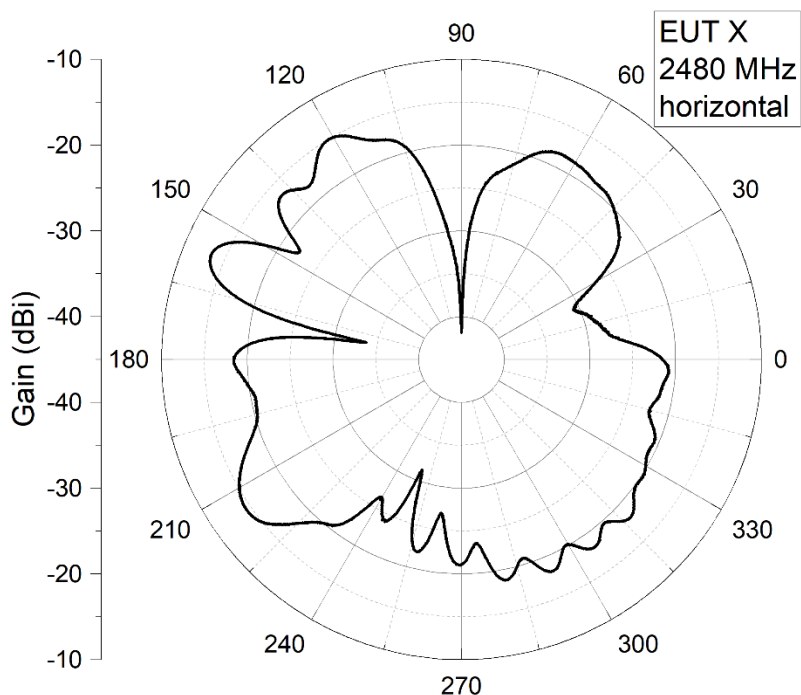
EUT X, 2440 MHz, horizontal



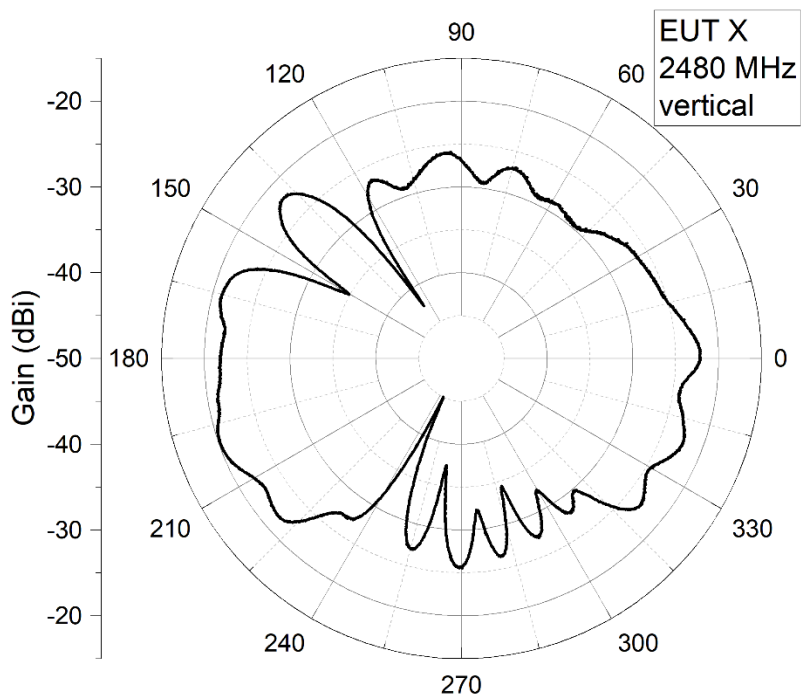
EUT X, 2440 MHz, vertical



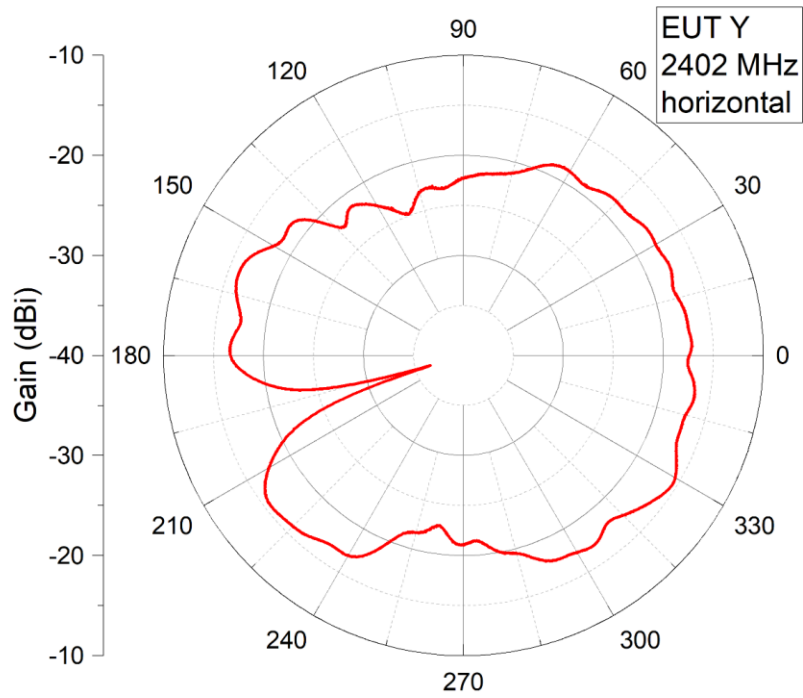
EUT X, 2480 MHz, horizontal



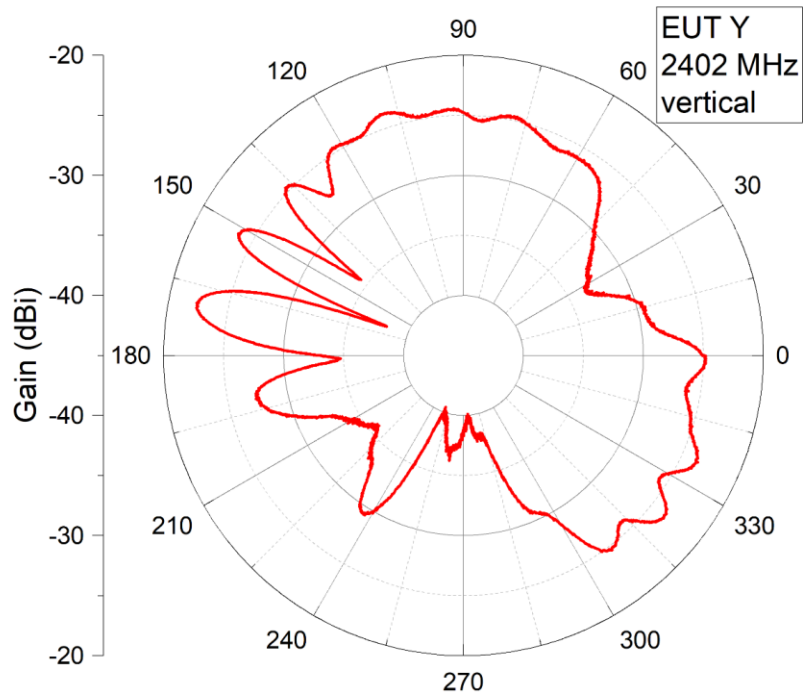
EUT X, 2480 MHz, vertical



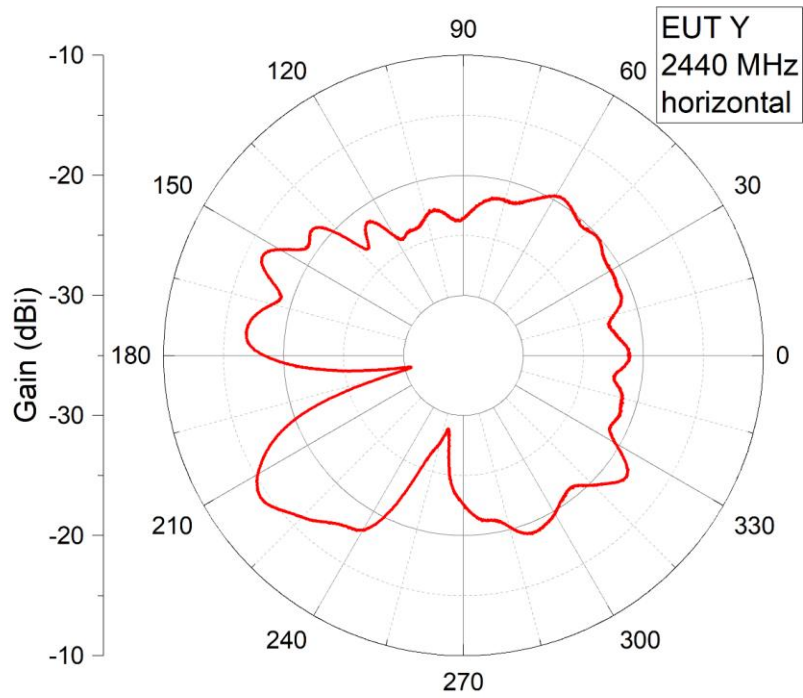
EUT Y, 2402 MHz, horizontal



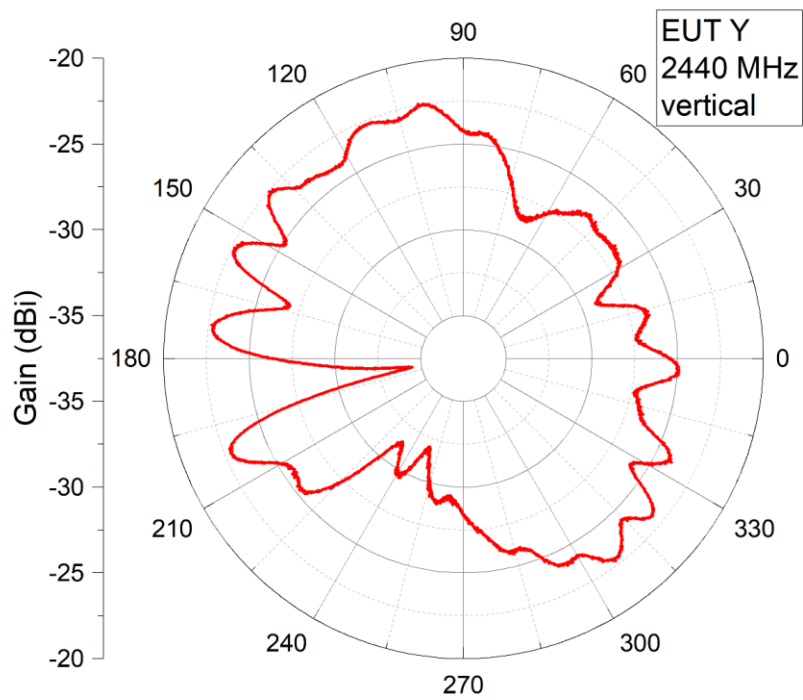
EUT Y, 2402 MHz, vertical



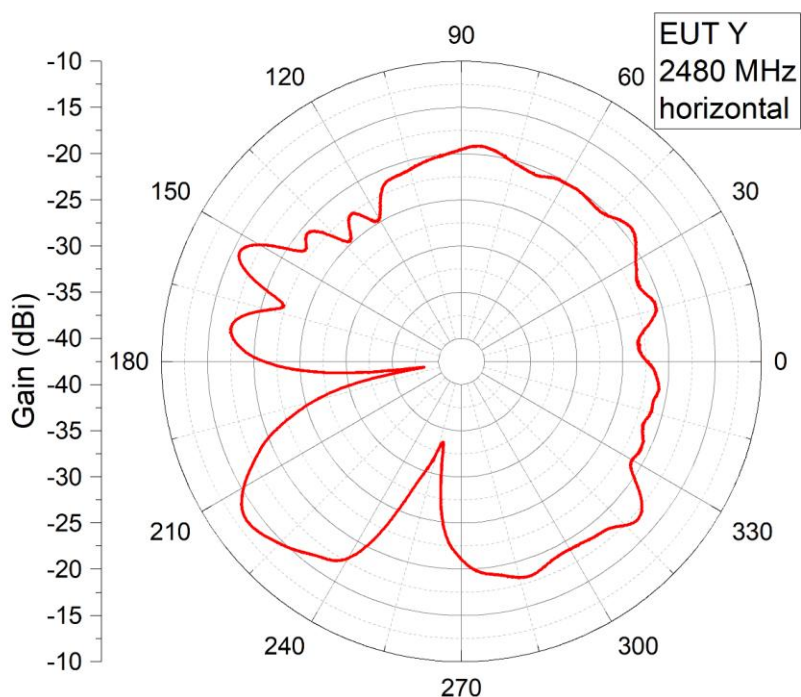
EUT Y, 2440 MHz, horizontal



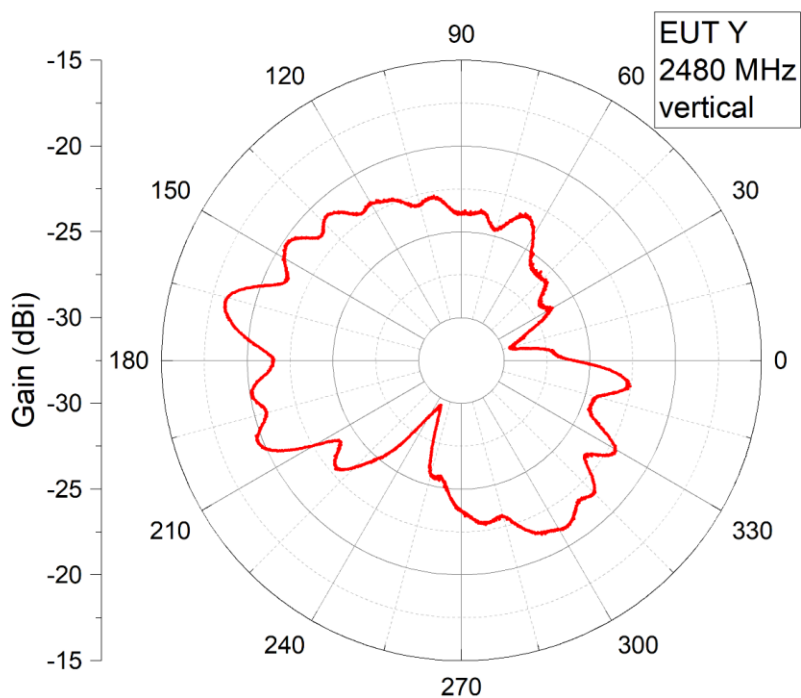
EUT Y, 2440 MHz, vertical



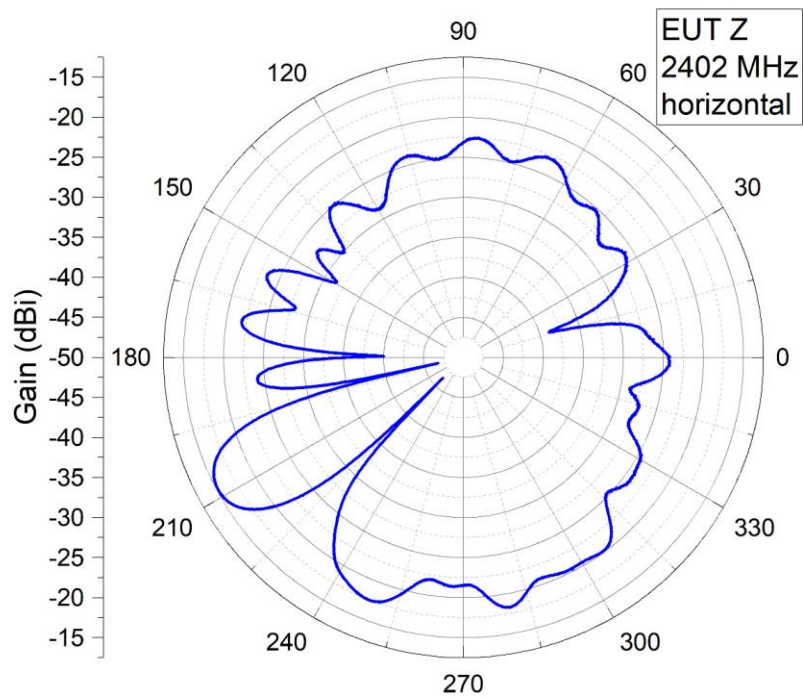
EUT Y, 2480 MHz, horizontal



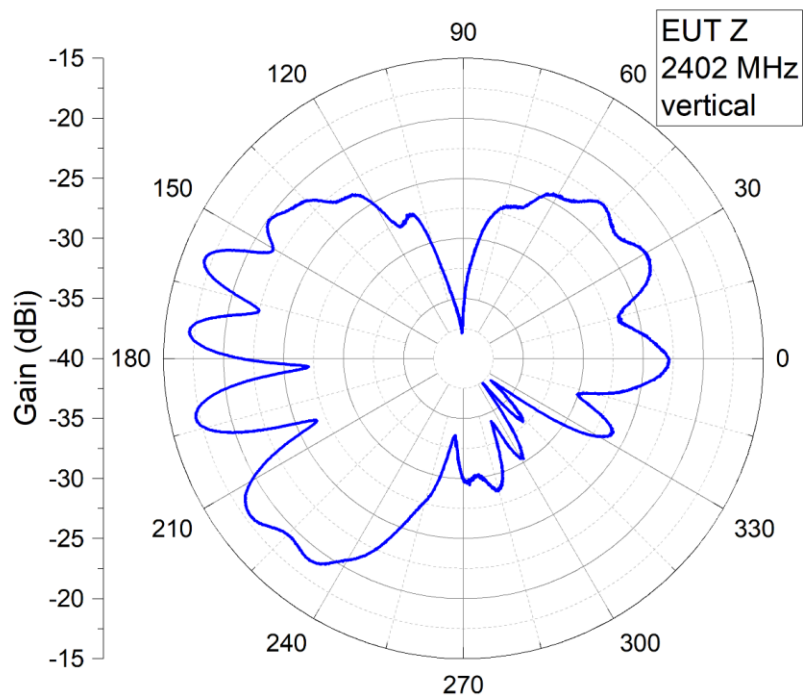
EUT Y, 2480 MHz, vertical



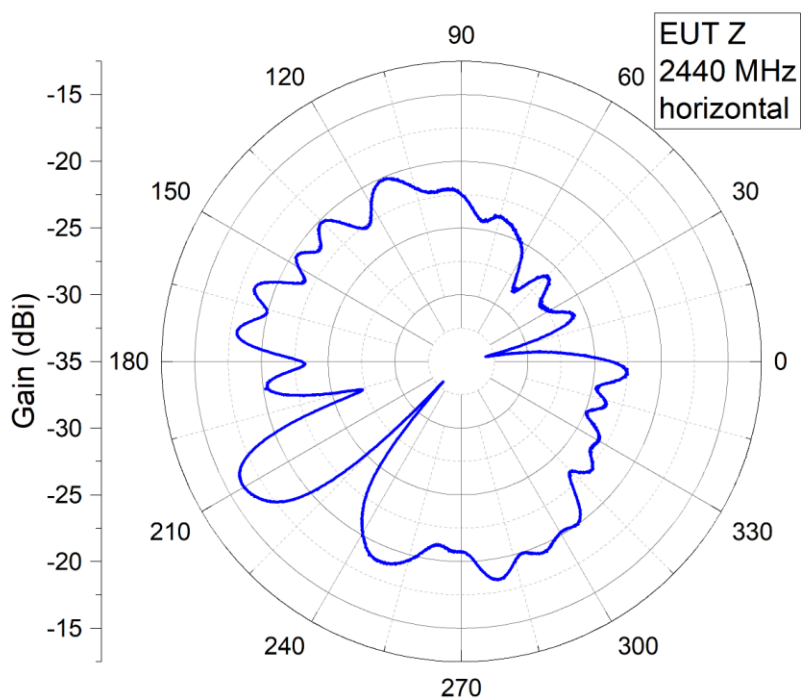
EUT Z, 2402 MHz, horizontal



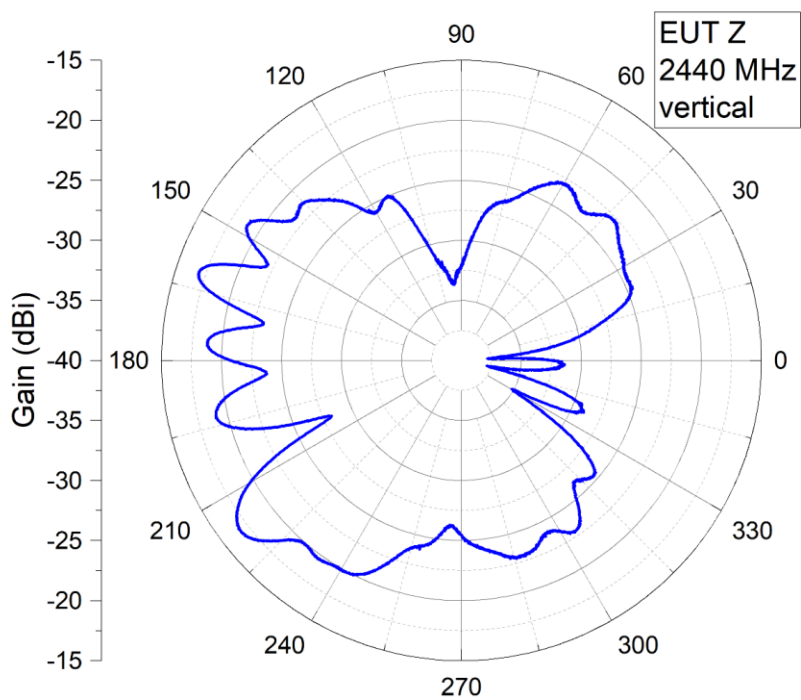
EUT Z, 2402 MHz, vertical



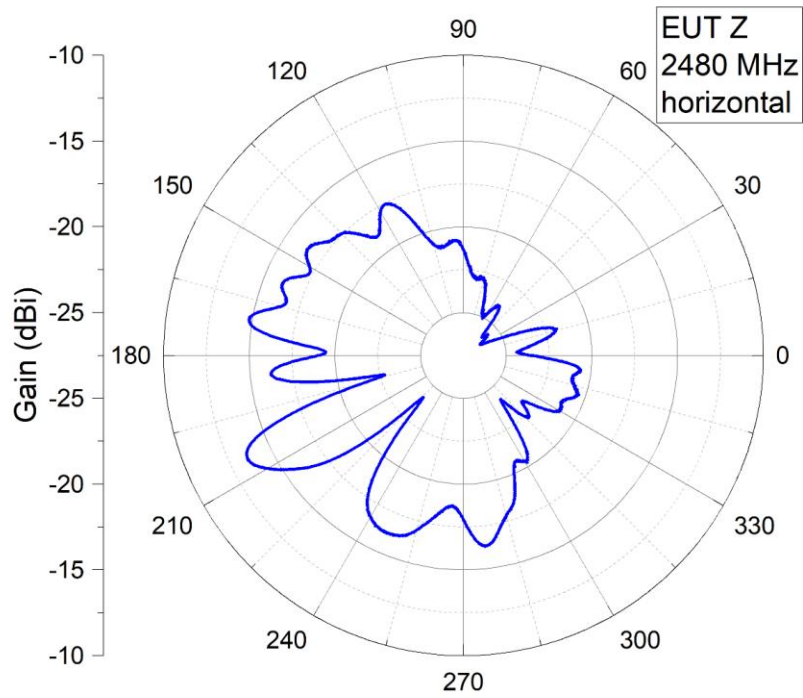
EUT Z, 2440 MHz, horizontal



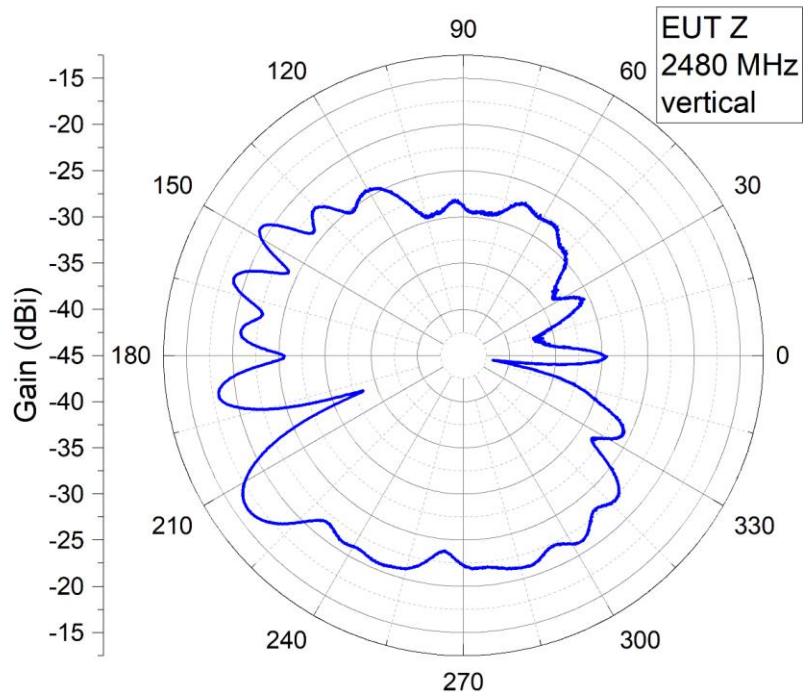
EUT Z, 2440 MHz, vertical



EUT Z, 2480 MHz, horizontal



EUT Z, 2480 MHz, vertical



USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
CPR 3	ESW26	02-02/03-17-002	25/04/2026	25/04/2025		
	SMBV100A	02-02/05-09-001	04/12/2027	04/12/2024	04/12/2025	04/12/2024
	AFS4-01000400-10-10P-4	02-02/17-13-002				
	AMF-4F-04001200-15-10P	02-02/17-13-003				
	AMF-6D-01002000-22-10P	02-02/17-15-004				
	3117	02-02/24-20-007	20/11/2025	20/11/2024		
	SF104/11SMA/11N/1500MM	02-02/50-13-017				
	18N-20	02-02/50-17-002	24/01/2026	24/07/2025		
	BAM 4.5-P	02-02/50-17-024				
	KK-SF106-2X11N-6,5M	02-02/50-18-016				
	0_5 Meter DC-18GHz	09-16/50-23-003				

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