

Antenna Report

Report Number:

F260784E1

Antenna under Test (AUT):

Antenna of

Capacitive level sensor with touch display

Liquicap FMI43-1

Applicant:

Endress+Hauser SE+Co. KG

Manufacturer:

Endress+Hauser SE+Co. KG



References

[1] None (According customer requirements)

Tested and
written by

A handwritten signature in blue ink, appearing to read 'D. Bruschinski'.

Daniel BRUSCHINSKI
23.07.2026

Signature

Reviewed and
approved by:

A handwritten signature in blue ink, appearing to read 'B. Rohde'.

Bernward ROHDE
23.07.2026

Signature

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1 Identification

1.1 Applicant

Name:	Endress+Hauser SE+Co. KG
Address:	Hauptstr. 1, 79689 Maulburg
Country:	Germany
Name for contact purposes:	Mr. Florian SEIDLER
Phone:	+49 7622 28 1450
eMail address:	florian.seidler@endress.com
Applicant represented during the test by the following person:	-

1.2 Manufacturer

Name:	Endress+Hauser SE+Co. KG
Address:	Hauptstr. 1, 79689 Maulburg
Country:	Germany
Name for contact purposes:	Mr. Florian SEIDLER
Phone:	+49 7622 28 1450
eMail address:	florian.seidler@endress.com
Manufacturer represented during the test by the following person:	-

1.3 Test Laboratory

The tests were carried out by: **NMI TESTLAB GmbH formerly PHOENIX TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

1.4 AUT (Antenna under test)

Antenna type: *	PCB IFA Antenna
Antenna name: *	-

* Declared by the applicant

The AUT is included in the EUT which is shown below.

1.5 EUT (Equipment under test)

		EUT number	
		1	2
Serial number: *		2G0010G9A65	2G0010G9ABW
PCB identifier: *	Mainboard:	71439136	71439136
	Terminal Board:	71439136	71439136
	Visualisation Board:	71599584	71599584
	Sensor Board:	71700041	71700041
Hardware version: *		01.00.00	01.00.00
Software version: *		S140 V7.2.0 (Soft device)	S140 V7.2.0 (Soft device)

* Declared by the applicant

Two EUTs were used for the tests. EUT 1 was used for the radiated measurements and EUT 2 for the conducted measurements.

Note: NMI TESTLAB GmbH does not take samples. The samples used for tests are provided exclusively by the applicant.

1.6 Technical Data of Equipment

General	
Frequency Range *	2402 MHz to 2480 MHz

* Declared by the applicant

Ports / Connectors				
Identification	Connector		Length during test	Shielding (Yes / No)
	EUT	Ancillary		
4-wire I/O link communication & DC *	M12	USB-A	≈ 2 m	No

* Declared by the applicant

Equipment used for testing	
FTDI adapter: * ¹	Used for test mode configuration
Test laptop* ²	Fujitsu Lifebook U759

*¹ Provided by the applicant

*² Provided by the laboratory

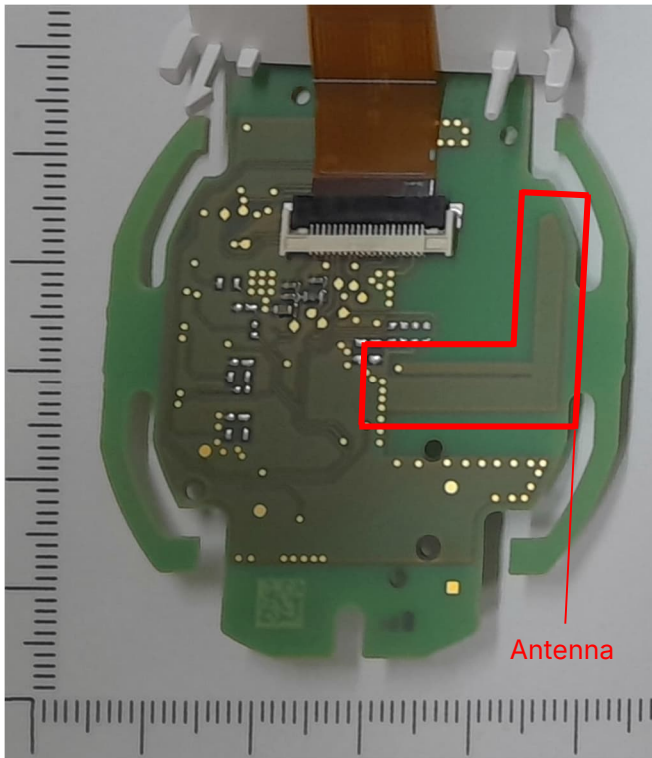
1.7 Dates

Date of receipt of test sample:	10.06.2026
Start of test:	11.06.2026
End of test:	12.06.2026

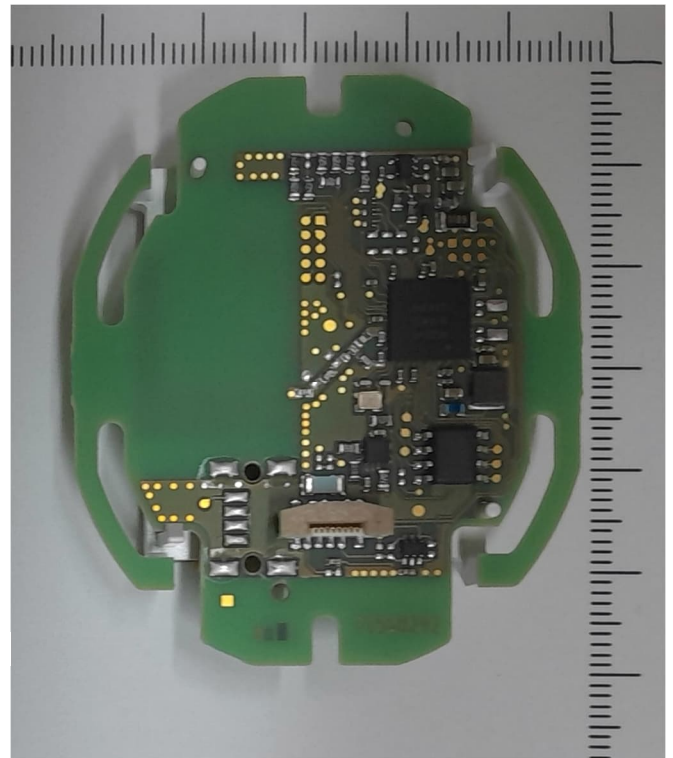
2 Operational States

During the antenna chart measurements, the PCB antenna was supplied with a CW rf signal generated by the EUT.

3 Antenna photographs



Visualisation Board - top view, display removed *

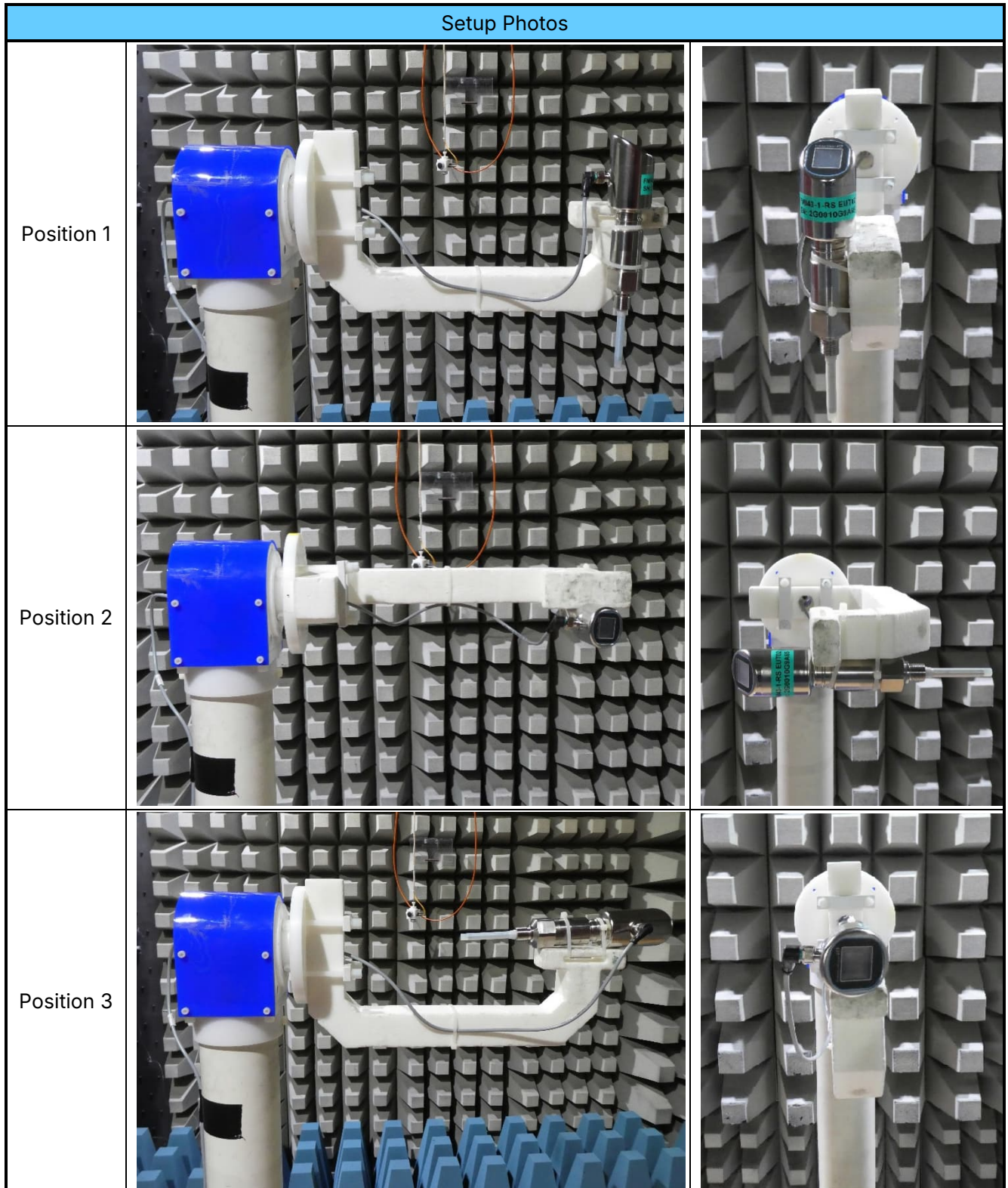


Visualisation Board - bottom view *

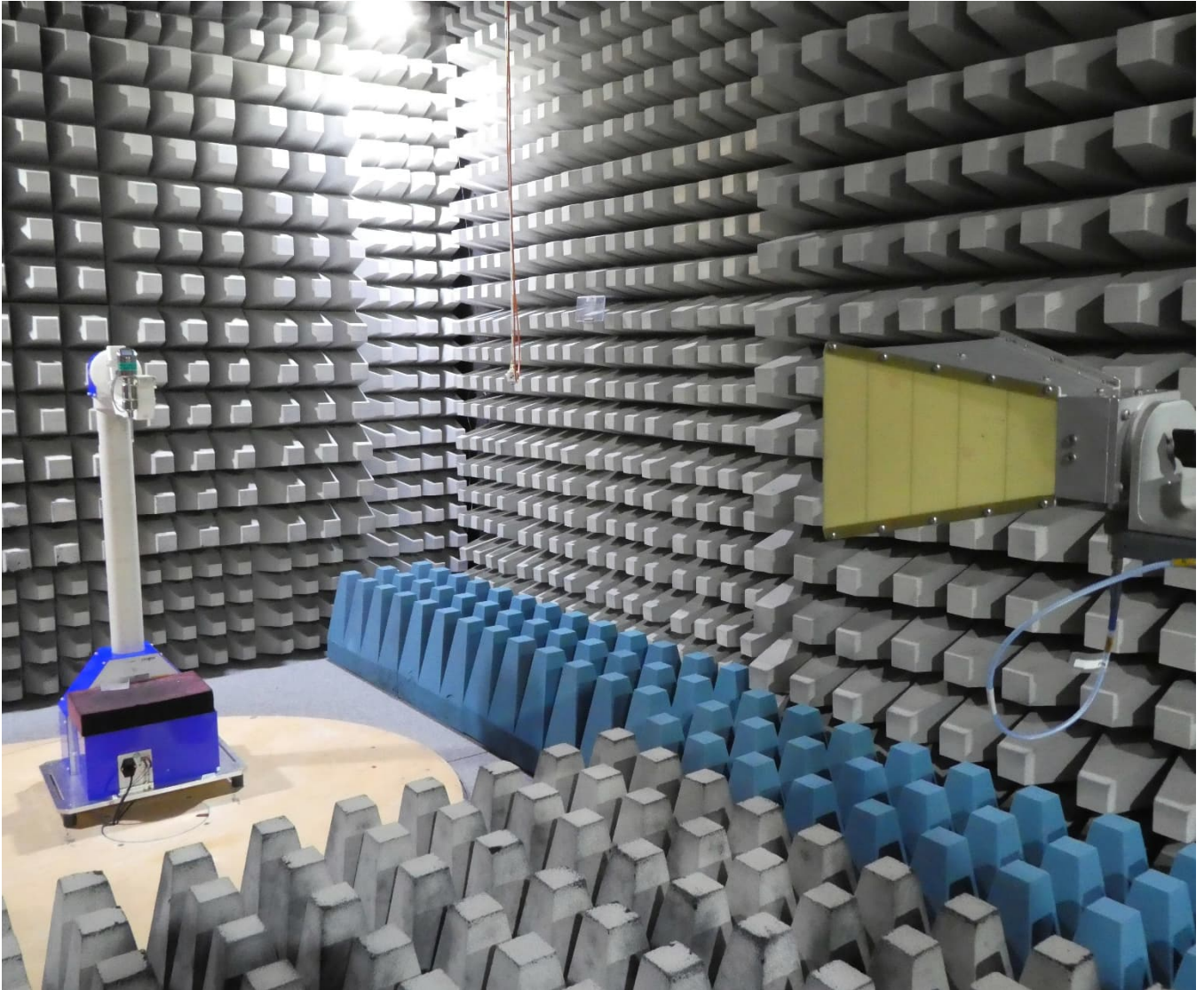
These internal photographs were provided by the applicant.

4 Test setup

4.1 Photos of EUT positions



4.2 Test setup photo



General test setup (here EUT position 1)

5 Test results

5.1 Calculation of maximum antenna gain

		f_{low}	f_{mid}	f_{high}
Conducted output power [dBm]		5.9	5.8	5.4
Radiated EIRP [dBm]		3.9	4.9	5.2
Antenna Gain [dBi]		-2.0	-0.9	-0.2
Position		3	3	2
Position of maximum gain	Azimuth [°]	12	17	300
	Polarisation	V	V	V

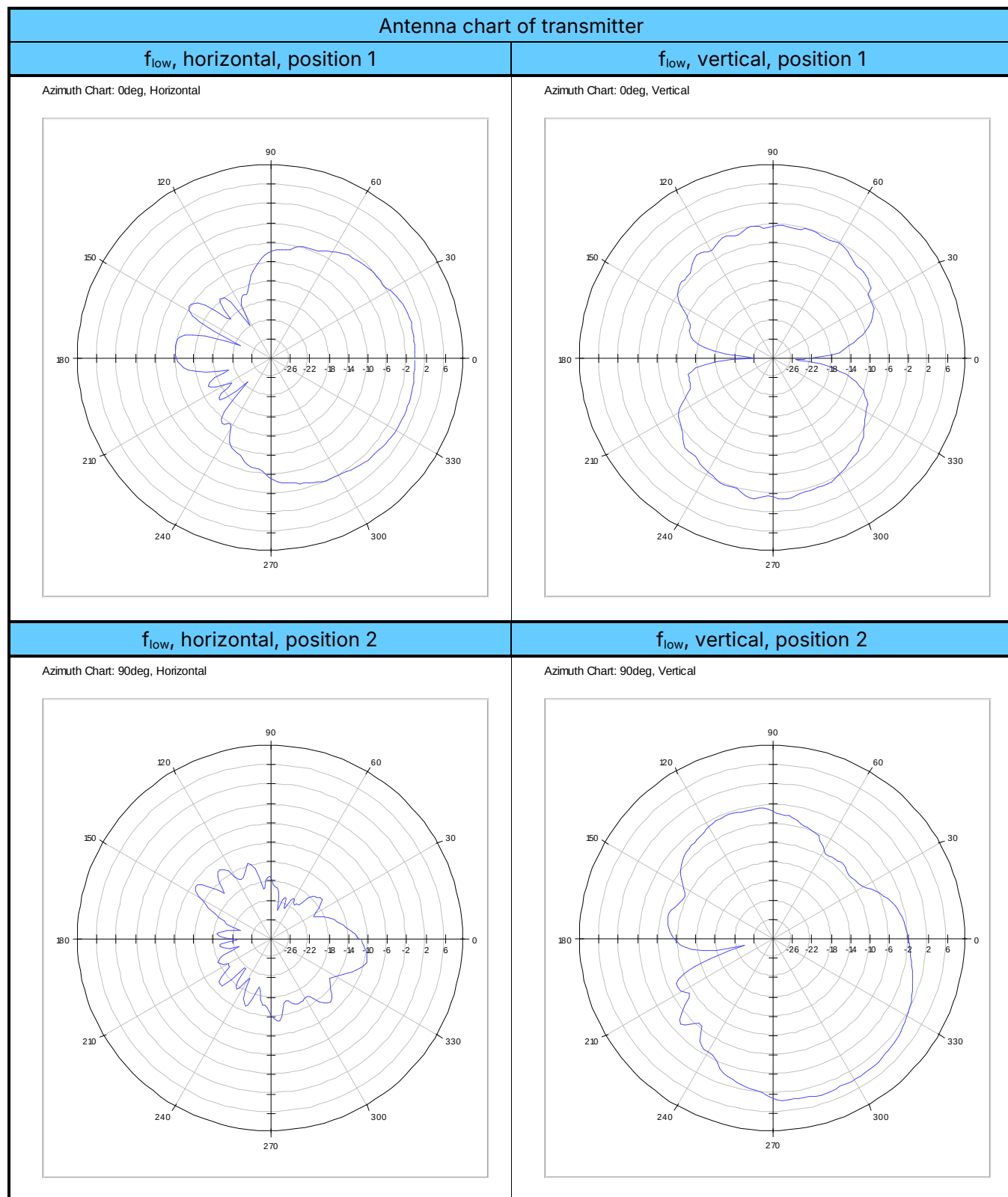
Conducted f_{low}	Max Peak	5.93 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	Average	5.83 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	RMS	5.83 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
Conducted f_{mid}	Max Peak	5.78 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	Average	5.68 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	RMS	5.68 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
Conducted f_{high}	Max Peak	5.41 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	Average	5.31 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10
	RMS	5.31 dBm	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	10

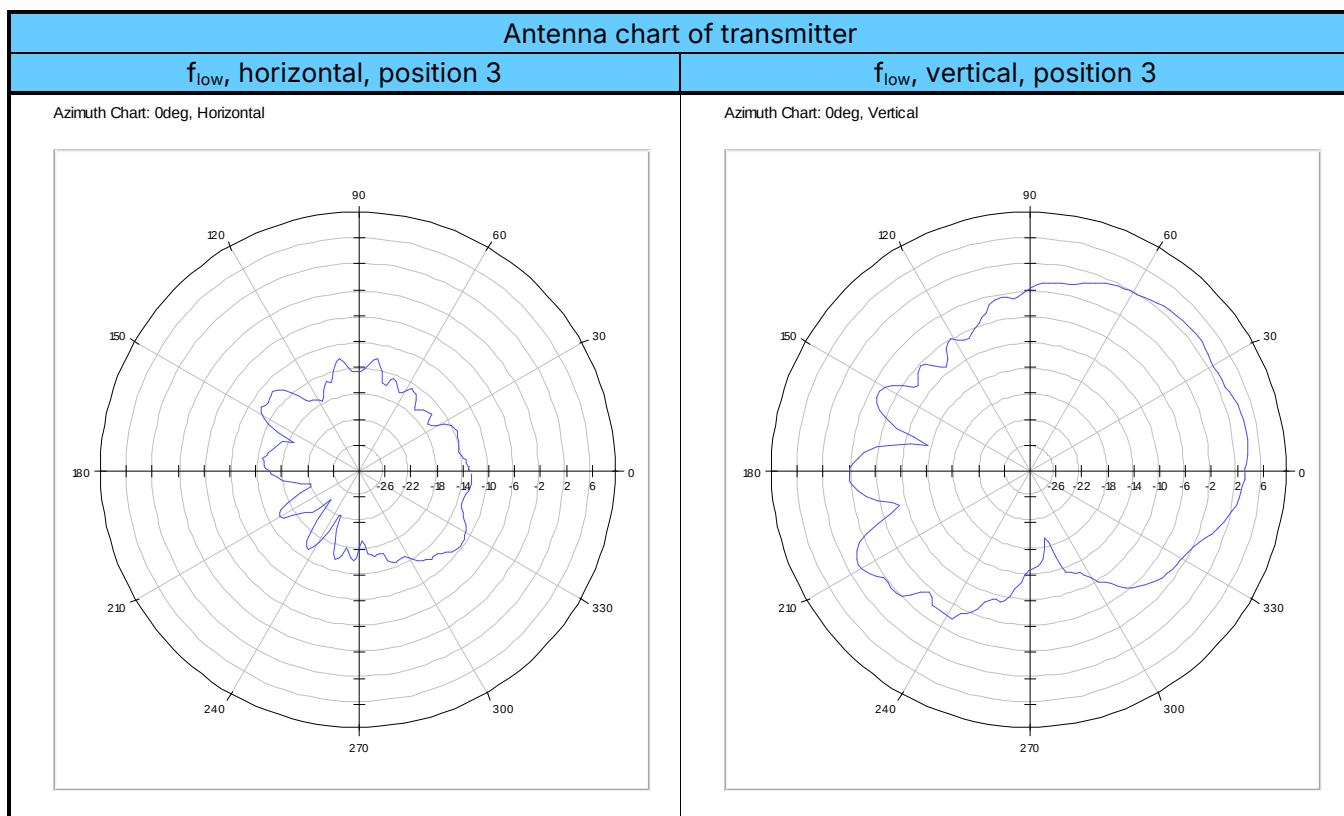
Test equipment (please refer to chapter 7 for details)

1 - 12

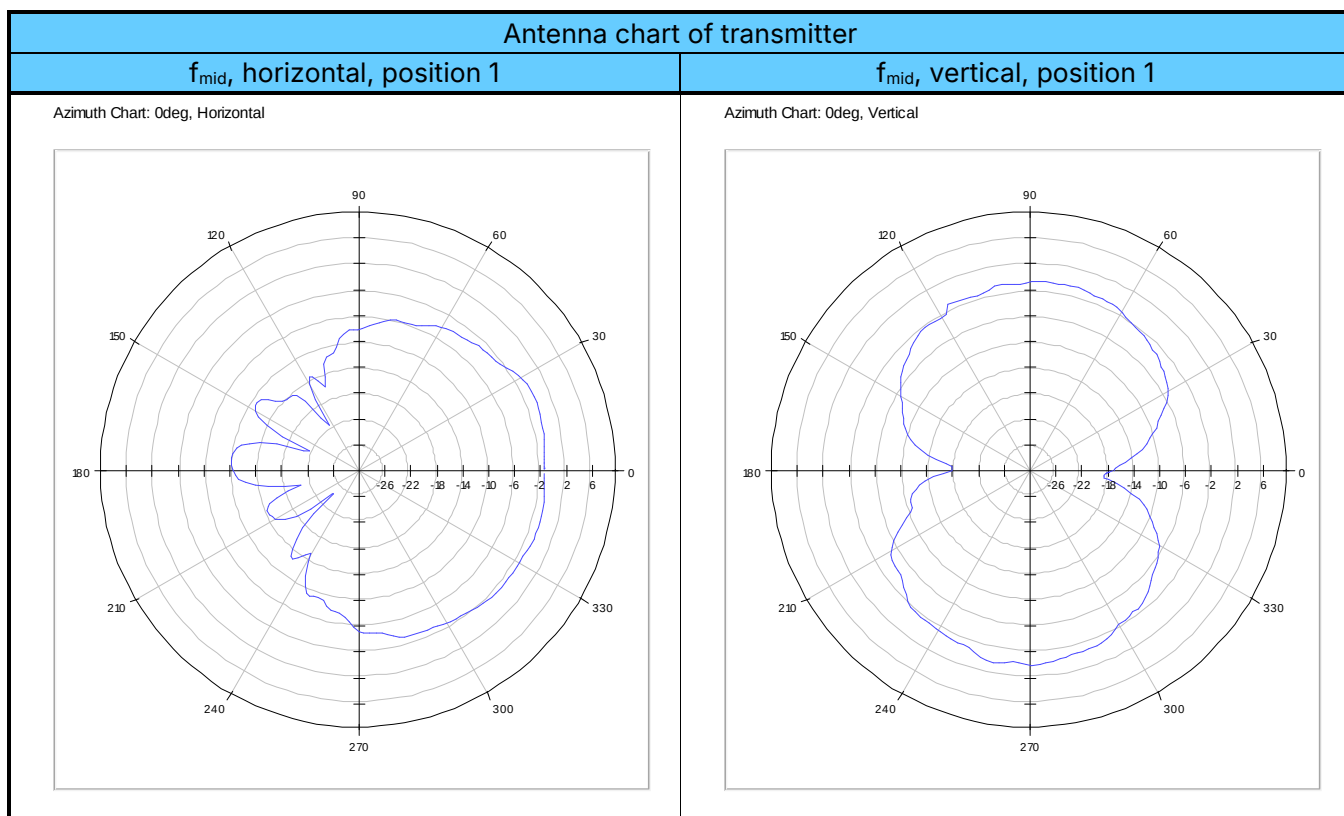
5.2 Azimuth charts of transmitter

5.2.1 Frequency near bottom (f_{low})





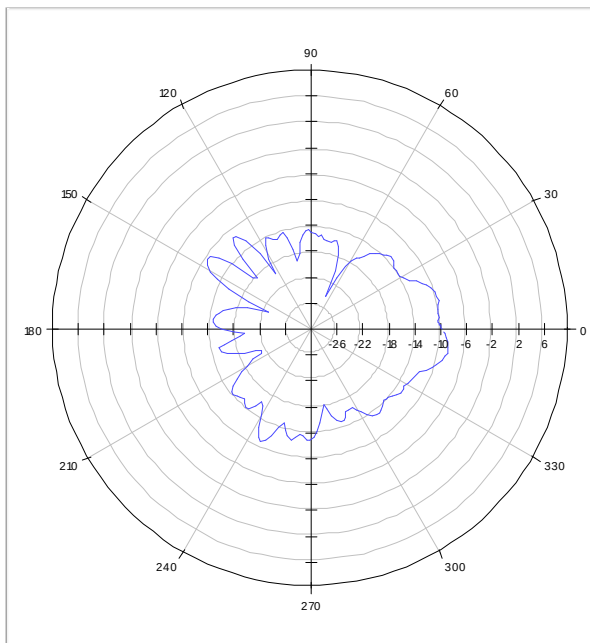
5.2.2 Frequency near middle (f_{mid})



Antenna chart of transmitter

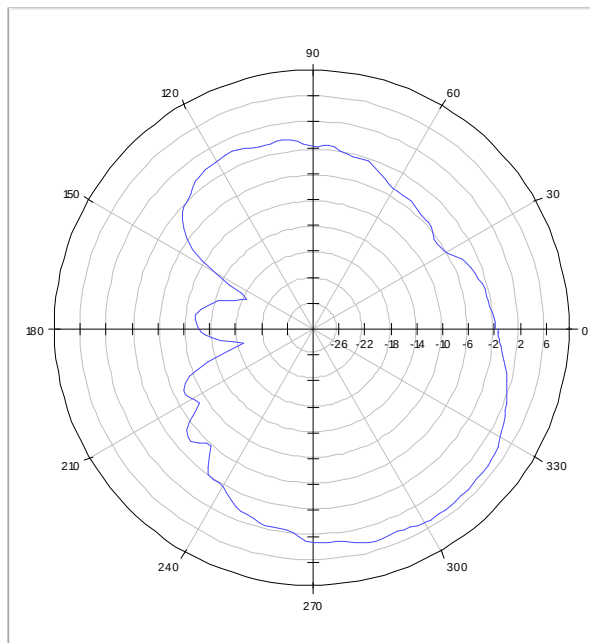
f_{mid} , horizontal, position 2

Azimuth Chart: 90deg, Horizontal



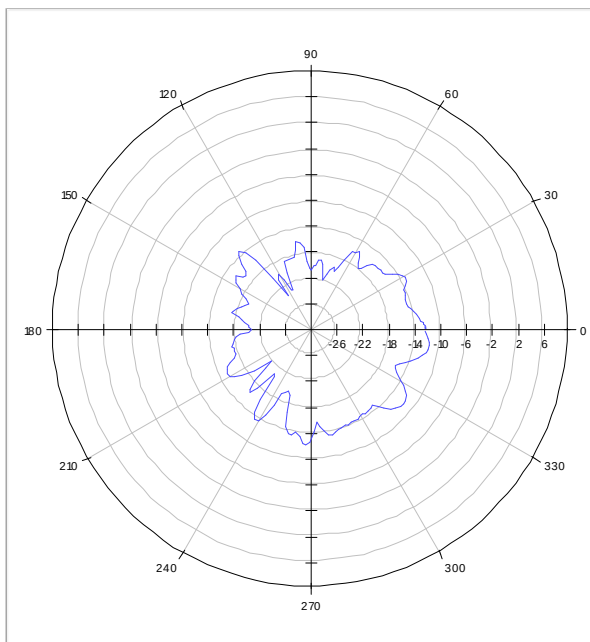
f_{mid} , vertical, position 2

Azimuth Chart: 90deg, Vertical



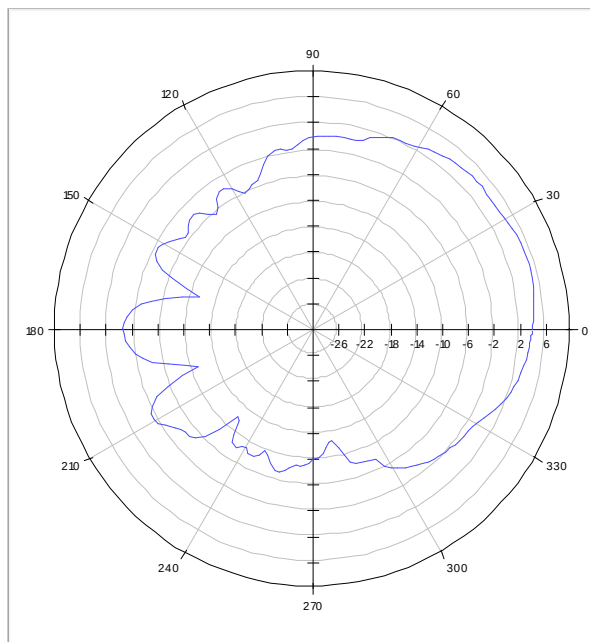
f_{mid} , horizontal, position 3

Azimuth Chart: 0deg, Horizontal

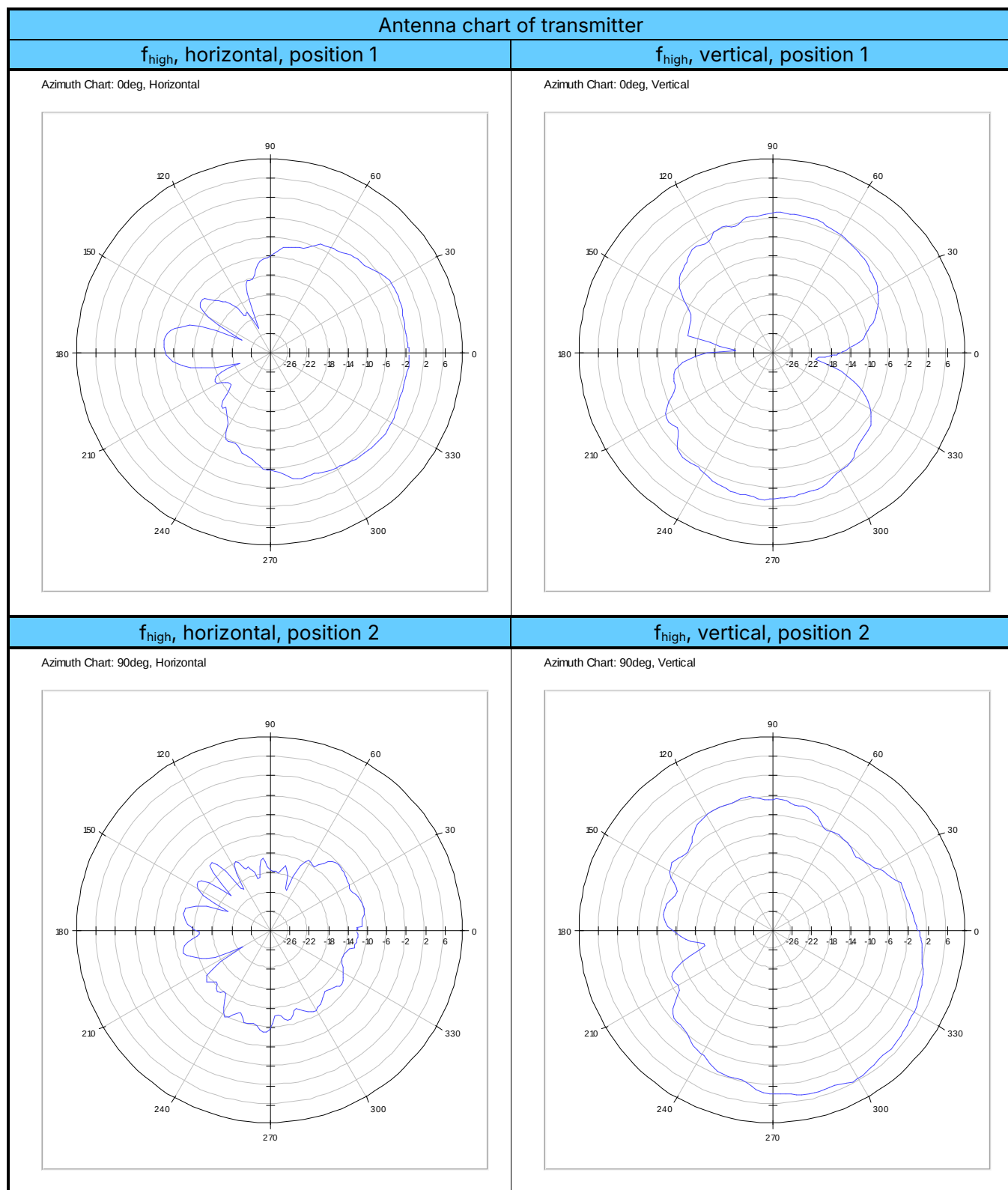


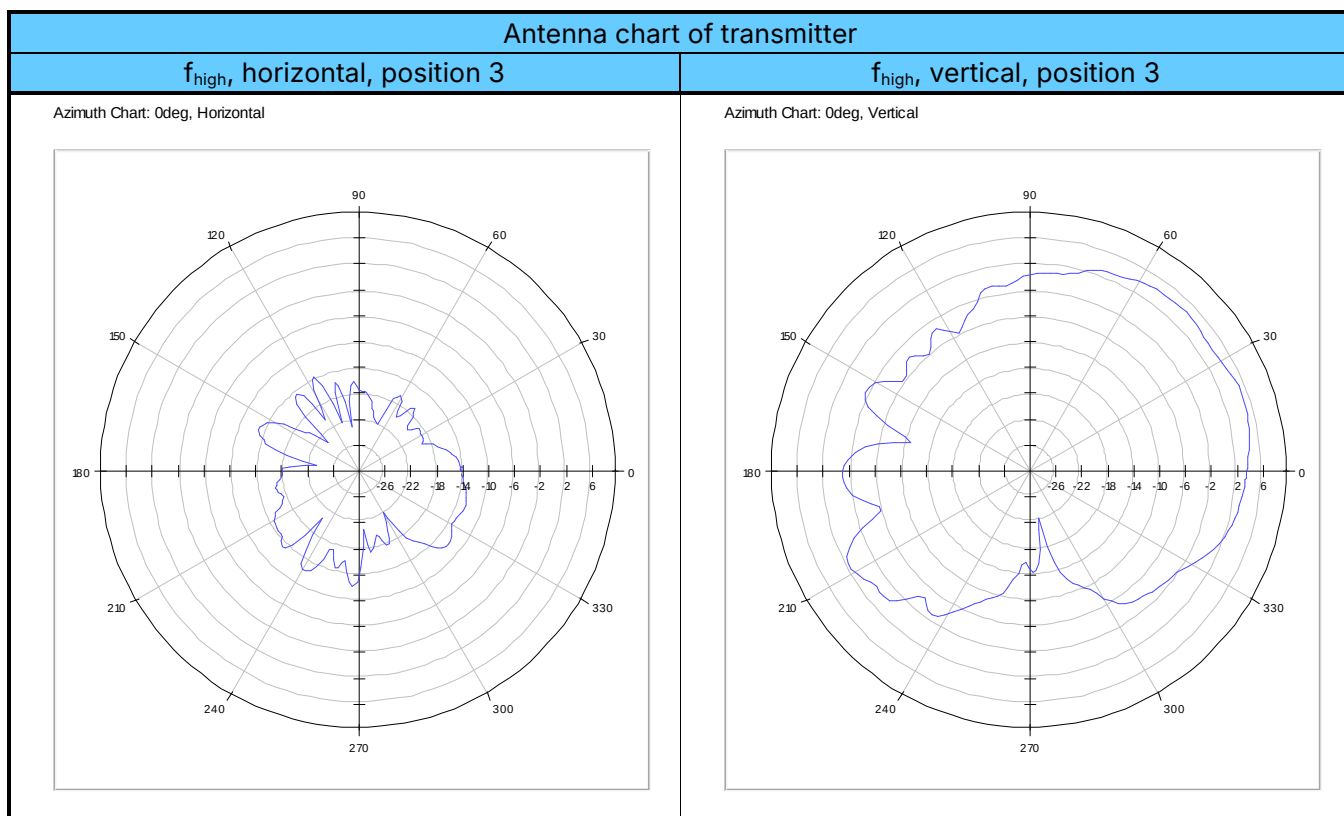
f_{mid} , vertical, position3

Azimuth Chart: 0deg, Vertical



5.2.3 Frequency near top (f_{high})





Test equipment (please refer to chapter 7 for details)

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6 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	RF cable	Sucoflex 102	Suhner	521885/2	483401	Calibration not necessary	
2	Horn antenna	3115	EMCO Elektronik	9609-4918	480183	13.02.2024	02.2027
3	Software	EMC32 V10.60.20	Rohde & Schwarz	-	483261	Calibration not necessary	
4	RF cable	SF106/11N/11N/4 500.0	Huber & Suhner	500218/6	482415	Calibration not necessary	
5	Antenna support	AS620P	Deisel	620/375	480325	Calibration not necessary	
6	Fully anechoic chamber M20	B83117-E2439-T232	Albatross Projects	103	480303	Calibration not necessary	
7	Turntable	DS420 HE	Deisel	420/620/00	480315	Calibration not necessary	
8	Multiple Control Unit	MCU	Maturo	MCU/043/971107	480832	Calibration not necessary	
9	EMI receiver / Spectrum analyser	ESW44	Rohde & Schwarz	101635	482467	29.10.2025	02.2028
10	Positioner	TDF 1.5- 10Kg	Maturo	15920215	482034	Calibration not necessary	
11	Horn antenna	3115	EMCO Elektronik	9609-4922	480184	21.11.2025	11.2028
12	Microwave CW generator	83650L	Agilent	3844A00554	480333	05.02.2026	02.2028

7 Report History

Report Number	Date	Comment
F260784E1	23.07.2026	Initial test report
-	-	-
-	-	-

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