



EMI – TEST REPORT

- FCC Part 15.225, RSS 210 -

Type / Model Name : 0_3024_2138 Platine Tamino NFC-Board

Product Description : RFID module

Applicant : Fluke Corporation

Address : PO Box 9090 Everett WA
98206.9090 USA

Manufacturer : Fluke Corporation

Address : PO Box 9090 Everett WA
98206.9090 USA

Test Result according to the standards
listed in clause 1 test standards:

POSITIVE

Test Report No. : 80079485-00 Rev0

29. June 2021

Date of issue



DAkkS

Deutsche
Akkreditierungsstelle
D-PL-12030-01-03
D-PL-12030-01-04

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

Contents

1	<u>TEST STANDARDS</u>	3
2	<u>EQUIPMENT UNDER TEST</u>	4
2.1	Information provided by the Client	4
2.2	Sampling	4
2.3	Photo documentation of the EUT – Detailed photos see ATTACHMENT A	4
2.4	Short description of the equipment under test (EUT)	4
2.5	Power supply system utilised	4
3.1	FINAL ASSESSMENT	5
4	<u>TEST ENVIRONMENT</u>	6
4.1	Address of the test laboratory	6
4.2	Environmental conditions	6
4.3	Statement of the measurement uncertainty	6
4.4	Conformity Decision Rule	7
4.5	Measurement Protocol for FCC	7
5	<u>TEST CONDITIONS AND RESULTS</u>	9
5.1	Conducted emissions	9
5.2	Field strength of the fundamental wave	13
5.3	Spurious emissions	15
5.4	Frequency tolerance	19
5.5	Bandwidth	21
5.6	Transmitter spectrum mask	24
6	<u>USED TEST EQUIPMENT AND ACCESSORIES</u>	26

ATTACHMENT A as separate supplement

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.

FCC ID: T68-VXP3**IC ID: 6627A-VXP3**

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (September 2020)

Part 15, Subpart A, Section 15.31

Measurement standards

Part 15, Subpart A, Section 15.33

Frequency range of radiated measurements

Part 15, Subpart A, Section 15.35

Measurement detector functions and bandwidths

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September 2020)

Part 15, Subpart C, Section 15.207

Conducted limits

Part 15, Subpart C, Section 15.209

Radiated emission limits, general requirements

Part 15, Subpart C, Section 15.225

Operation within the band 13.110 - 14.010 MHz

ANSI C63.10: 2013

Testing Unlicensed Wireless Devices

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.

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

2.3 Photo documentation of the EUT – Detailed photos see ATTACHMENT A

2.4 Short description of the equipment under test (EUT)

NFC Reader for a measurement device

Number of tested samples: 1
Serial number: prototype (hardware version number V1.0)

EUT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- continuous tag reading mode

EUT configuration:

The following peripheral devices and interface cables were connected during the measurements:

- | | |
|---|---|
| - <u>Host computer</u> | Model : <u>VIBXPERT3</u> |
| - <u>FPC to Header adapter</u> | Model : <u>Adafruit Industries LLC. Part nr: 1492</u> |
| - <u>10 pin Ribbon and 10 pin FFC cable</u> | Model : <u>FFC part nr: 0152660098</u> |

2.5 Power supply system utilised

Power supply voltage, V_{nom} : 120 V AC
Power supply voltage (NFC module) : 3.3 V DC

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

3 TEST RESULT SUMMARY

FCC Rule Part	RSS Rule Part	Description	Result
15.207	RSS Gen, 8.8	AC power line conducted emissions	passed
15.225	RSS-210, B.6	Field strength of fundamental	passed
15.209	RSS Gen, 8.9	Spurious emissions	passed
15.225	RSS-210, B.6	Frequency tolerance	passed
15.215	RSS-Gen, 6.7	Occupied bandwidth	passed
15.225	RSS-210, B.6	Transmitter spectrum mask	passed

The mentioned RSS Rule Parts in the above table are related to:

RSS-Gen, Issue 5 + Amendment 1, March 2019

RSS-210, Issue 10, December 2019

3.1 FINAL ASSESSMENT

Select final Assessment

Date of receipt of test sample : acc. to storage records

Testing commenced on : 01 June 2021

Testing concluded on : 04 June 2021

Checked by:

Tested by:

Klaus Gegenfurtner
Teamleader Radio

Franz-Xaver Schrettenbrunner
Radio Team

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 ° C

Humidity: 30 - 60 %

Atmospheric pressure: 86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor $k = 2$. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 2011 + A1 / 2014 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	± 3.29 dB
20 dB Bandwidth	Center frequency of EuT	95%	$\pm 2.5 \times 10^{-7}$
99% Occupied Bandwidth	Center frequency of EuT	95%	$\pm 2.5 \times 10^{-7}$
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	± 3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	± 3.71 dB
Radiated Spurious Emissions	1000 MHz to 10000 MHz	95%	± 2.34 dB
Peak conducted output power	902 MHz to 928 MHz	95%	± 0.35 dB
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	± 2.15 dB

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

4.4 Conformity Decision Rule

The conformity decision rule is based on the ILAC G8 published at the time of reporting.

4.5 Measurement Protocol for FCC

4.5.1 GENERAL INFORMATION

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011

ISED: DE0009

4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

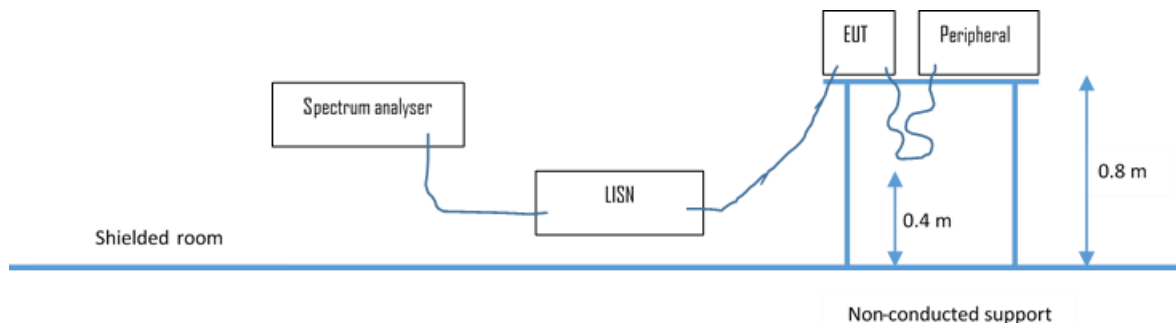
4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

4.5.3 Details of test procedures

4.5.3.1 Conducted emission

Test setup according ANSI C63.10



The final level, expressed in dB μ V, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between dB μ V and μ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50 Ω / 50 μ H (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

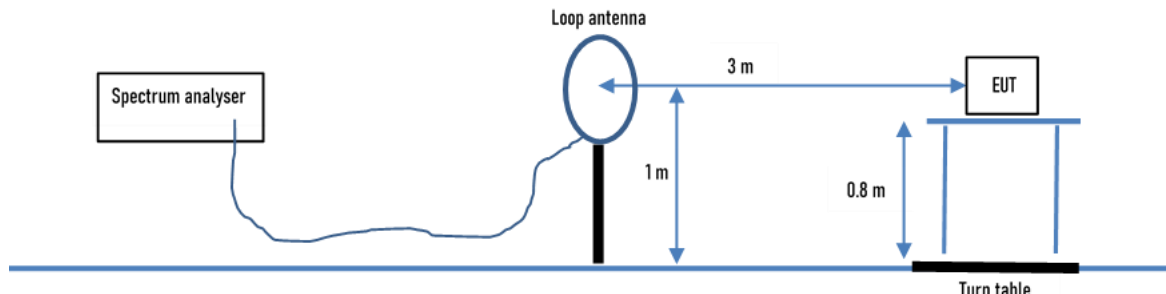
FCC ID: T68-VXP3

IC ID: 6627A-VXP3

4.5.3.2 Radiated emission

4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):

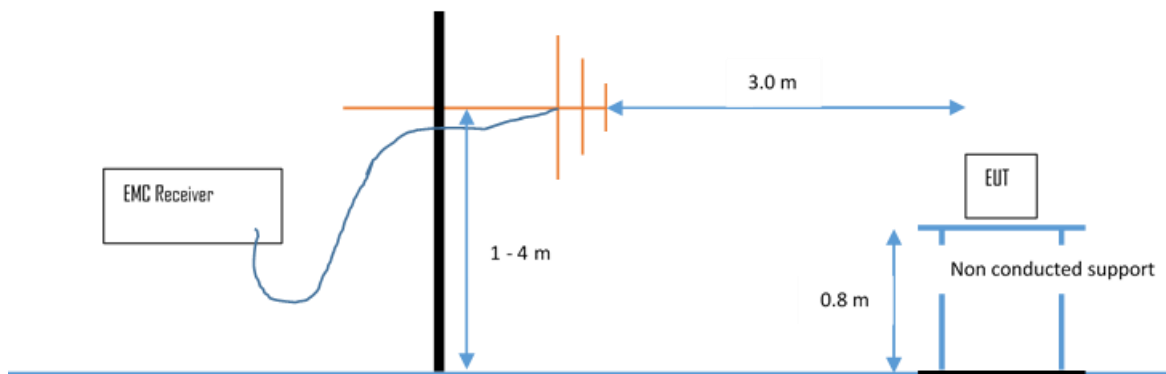
Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):

Test setup according ANSI C63.10.



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dBμV/m is calculated by taking the reading from the EMI receiver (Level dBμV) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting:

30 MHz – 1000 MHz: RBW: 120 kHz

Example:

Frequency (MHz)	Level (dBμV)	+	Factor (dB)	=	Level (dBμV/m)	-	Limit (dBμV/m)	=	Delta (dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

5 TEST CONDITIONS AND RESULTS

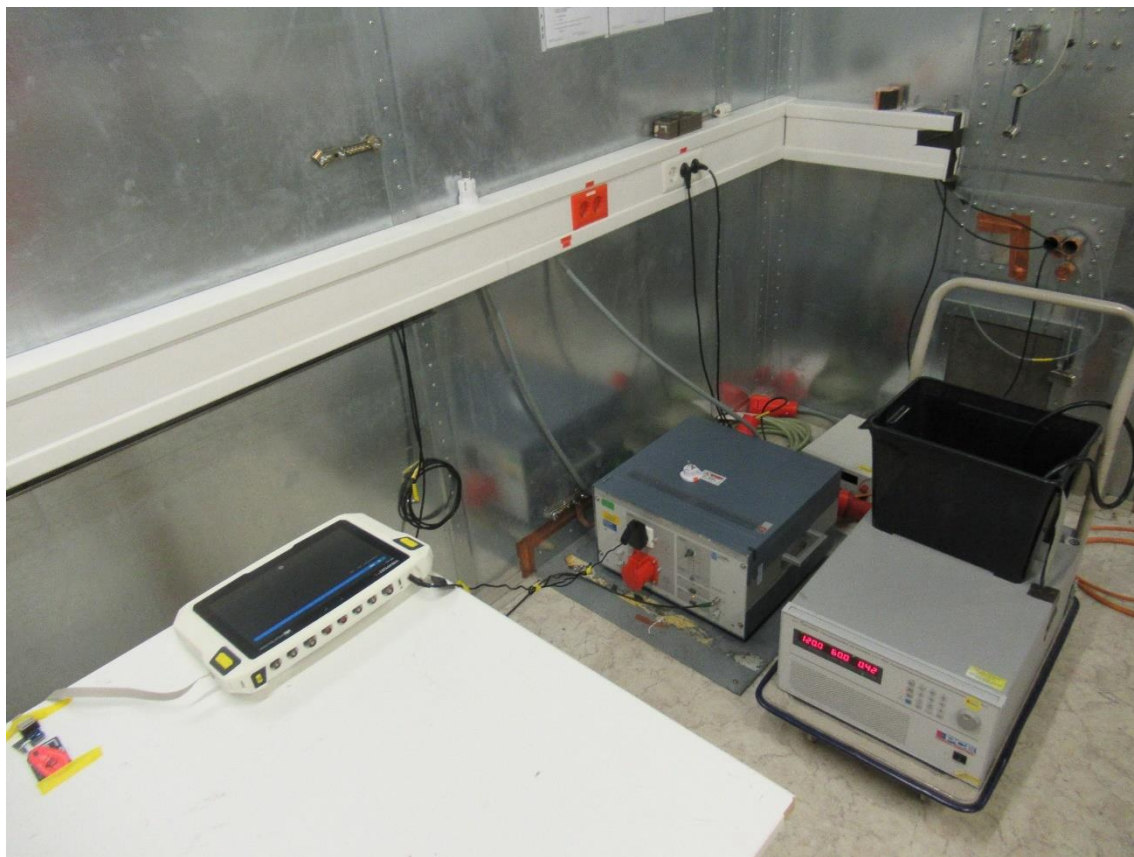
5.1 Conducted emissions

For test instruments and accessories used, see section 6 Part A 4.

5.1.1 Description of the test location

Test location: Shielded Room S2

5.1.2 Photo documentation of the test set-up



5.1.3 Applicable standard

FCC Part 15, Section 15.207 and RSS-Gen clause 8.8

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.

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.1.4 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin -10.4 dB at 0.191 MHz

Limit according to FCC Part 15, Section 15.207 and RSS-Gen clause 8.8

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency

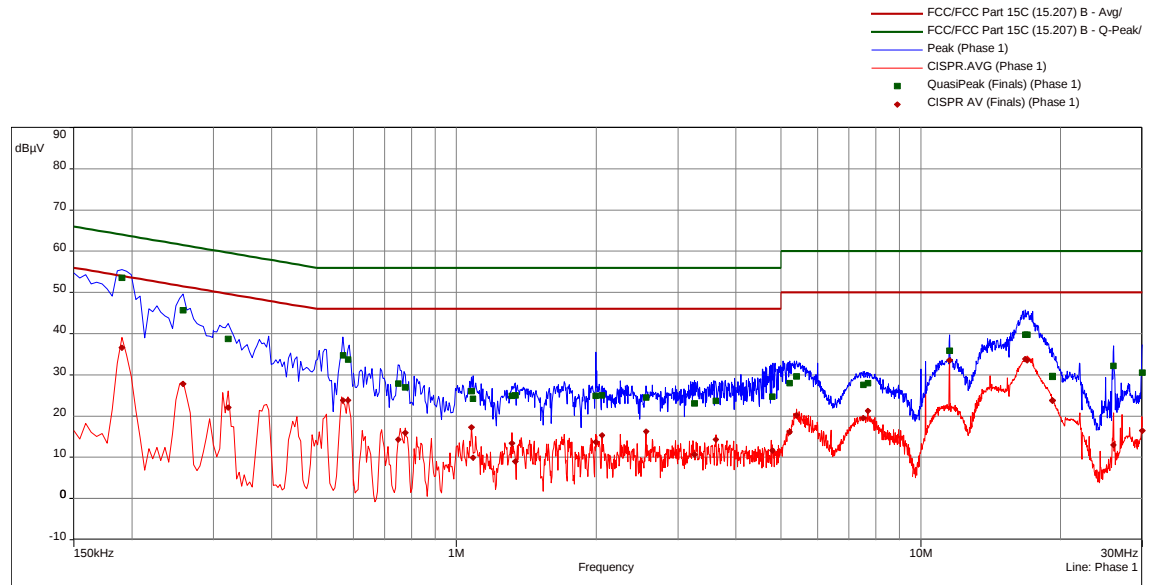
The requirements are **FULFILLED**.

Remarks: For detailed test result please refer to following test protocols

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

5.1.5 Test protocol

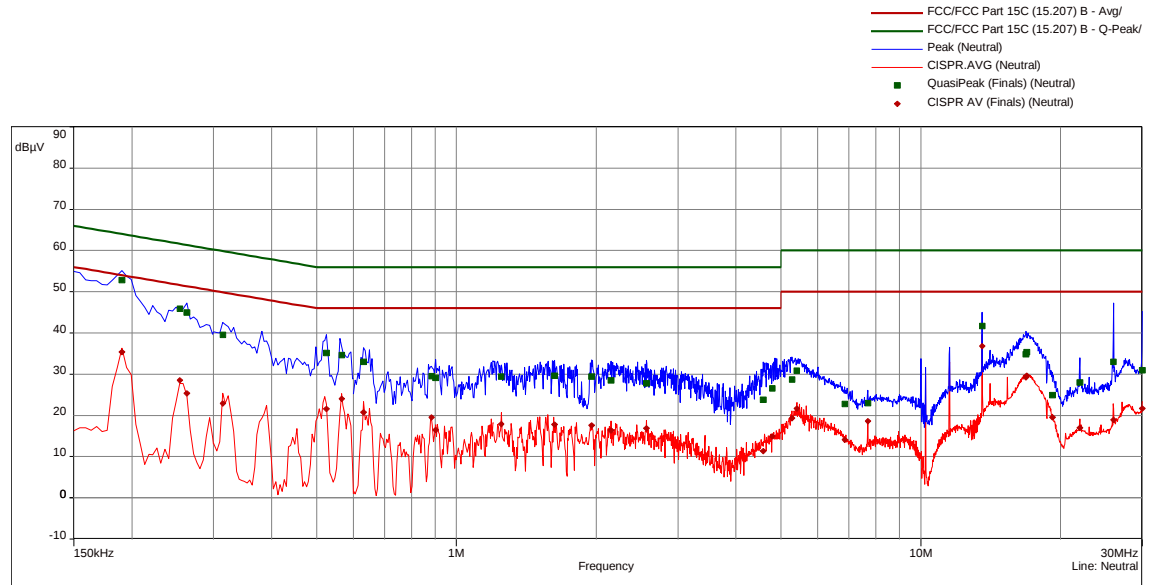


FCC/Part 15C (15.207)B

freq	QP	margin	limit	AV	margin	limit	corr
MHz	dBμV	dB	dBμV	dBμV	dB	dBμV	dB
0.191	53.6	-10.4	64.0	36.7	-17.4	54.0	10.1
0.258	45.7	-15.8	61.5	27.9	-23.6	51.5	10.1
0.323	38.8	-20.9	59.6	22.1	-27.6	49.6	10.1
0.570	34.8	-21.2	56.0	23.9	-22.2	46.0	10.2
0.584	33.8	-22.2	56.0	23.9	-22.2	46.0	10.2
0.749	27.9	-28.1	56.0	14.4	-31.6	46.0	10.2
0.776	27.0	-29.0	56.0	16.0	-30.0	46.0	10.2
1.077	26.1	-29.9	56.0	17.3	-28.7	46.0	10.2
1.086	24.3	-31.7	56.0	9.9	-36.1	46.0	10.2
1.317	25.0	-31.0	56.0	13.4	-32.6	46.0	10.3
1.340	25.1	-30.9	56.0	9.0	-37.0	46.0	10.3
1.997	25.0	-31.0	56.0	13.7	-32.3	46.0	10.3
2.060	25.1	-30.9	56.0	15.3	-30.7	46.0	10.3
2.562	24.5	-31.5	56.0	16.3	-29.7	46.0	10.3
3.260	23.1	-32.9	56.0	10.6	-35.4	46.0	10.4
3.624	23.8	-32.2	56.0	14.4	-31.6	46.0	10.4
4.799	24.8	-31.2	56.0	11.7	-34.3	46.0	10.4
5.228	28.1	-31.9	60.0	16.2	-33.8	50.0	10.5
5.408	29.7	-30.3	60.0	20.3	-29.7	50.0	10.5
7.523	27.7	-32.3	60.0	19.6	-30.4	50.0	10.6
7.685	28.1	-31.9	60.0	21.3	-28.7	50.0	10.6
11.531	35.9	-24.1	60.0	33.6	-16.4	50.0	10.9
16.782	39.8	-20.2	60.0	33.8	-16.2	50.0	11.3
16.962	39.8	-20.2	60.0	33.6	-16.4	50.0	11.3
19.205	29.7	-30.3	60.0	23.8	-26.2	50.0	11.4
19.227	29.6	-30.4	60.0	23.7	-26.3	50.0	11.4
26.009	32.2	-27.8	60.0	13.0	-37.0	50.0	11.7
29.978	30.6	-29.4	60.0	16.5	-33.5	50.0	11.7

FCC ID: T68-VXP3

IC ID: 6627A-VXP3



freq	QP	margin	limit	AV	margin	limit	corr
MHz	dBμV	dB	dBμV	dBμV	dB	dBμV	dB
0.191	52.9	-11.1	64.0	35.4	-18.6	54.0	10.1
0.254	45.9	-15.7	61.6	28.5	-23.1	51.6	10.1
0.263	45.0	-16.4	61.4	25.4	-26.0	51.4	10.1
0.314	39.6	-20.3	59.9	22.9	-27.0	49.9	10.1
0.525	35.2	-20.8	56.0	21.6	-24.4	46.0	10.2
0.566	34.7	-21.3	56.0	24.0	-22.0	46.0	10.2
0.632	33.0	-23.0	56.0	20.8	-25.2	46.0	10.2
0.884	29.5	-26.5	56.0	19.5	-26.5	46.0	10.2
0.902	29.2	-26.9	56.0	16.5	-29.5	46.0	10.2
1.250	29.5	-26.5	56.0	17.9	-28.1	46.0	10.2
1.628	29.7	-26.3	56.0	17.8	-28.2	46.0	10.3
1.956	29.5	-26.5	56.0	17.7	-28.3	46.0	10.3
2.154	28.6	-27.4	56.0	16.4	-29.7	46.0	10.3
2.567	27.8	-28.2	56.0	16.9	-29.1	46.0	10.3
4.578	23.8	-32.2	56.0	11.4	-34.6	46.0	10.4
4.785	26.6	-29.4	56.0	15.0	-31.0	46.0	10.4
5.277	28.8	-31.2	60.0	19.4	-30.6	50.0	10.5
5.412	30.9	-29.1	60.0	21.7	-28.3	50.0	10.5
6.861	22.8	-37.2	60.0	14.2	-35.8	50.0	10.6
7.685	23.1	-37.0	60.0	18.7	-31.3	50.0	10.6
13.565	41.8	-18.2	60.0	36.8	-13.2	50.0	10.9
16.836	34.9	-25.1	60.0	29.3	-20.7	50.0	11.1
16.917	35.5	-24.6	60.0	29.7	-20.4	50.0	11.1
19.218	25.0	-35.0	60.0	19.6	-30.5	50.0	11.2
22.004	28.1	-31.9	60.0	17.0	-33.1	50.0	11.3
26.004	33.1	-26.9	60.0	18.9	-31.1	50.0	11.2
29.982	31.1	-28.9	60.0	21.7	-28.3	50.0	11.1

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part CPR 1.

5.2.1 Description of the test location

Test location: OATS 1
Test distance: 3 metres

5.2.2 Photo documentation of the test set-up



5.2.3 Applicable standard

FCC Part 15, Section 15.225(a) and RSS-210 clause B.6(a)

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.

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.2.4 Test result

- a) Result at a measurement distance of 3m

Frequency (MHz)	Level (dBμV)	Ant. factor (dB 1/m)	Field strength dB(μV/m)
13.56	39.7	20.0	59.7

- b) Result extrapolated to a distance of 30 m

Frequency (MHz)	Field strength dB(μV/m) @3m	Extrapolation factor (dB)	Field strength dB(μV/m) @30m	Limit dB(μV/m)	Delta (dB)
13.56	59.7	-40	19.7	84.0	-63.7

Limit according to FCC Part 15, Section 15.225(a): and RSS-210 clause B.6(a)

Frequency (MHz)	Field strength of fundamental wave		Measurement distance (metres)
	(μV/m)	dB(μV/m)	
13.553 - 13.567	15848	84.0	30

The requirements are **FULFILLED**.

Remarks:

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

5.3 Spurious emissions

For test instruments and accessories used see section 6 Part SER 1, SER 2.

5.3.1 Description of the test location

Test location: OATS 1
Test distance: 3 metres

5.3.2 Photo documentation of the test set-up

9 kHz – 30 MHz



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.

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

30 MHz – 1000 MHz



5.3.3 Applicable standard

FCC Part 15, Section 15.209 and RSS-Gen clause 8.9

The resolution bandwidth during the measurement is as follows:

9 kHz – 150 kHz:	RBW:	200 Hz
150 kHz – 30 MHz:	RBW:	9 kHz
30 MHz – 1000 MHz:	RBW:	120 kHz

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.3.4 Test result <30MHz
FCC

<i>f</i> (MHz)	Level QP@3m (dBμV)	Ant. factor (dB/m)	Field strength QP@3m dB(μV/m)	Distance corr. 3m to 30m (dB)	Corrected level QP@30m dB(μV/m)	Limit QP@30m dB(μV/m)	Delta (dB)
0.1	11.8	20.0	31.8	-40	-8.2	27.6	-35.8
1.0	8.8	20.0	28.8	-40	-11.2	27.6	-38.8
10.0	13.0	20.0	33.0	-40	-7.0	29.5	-36.5
20.0	10.3	20.0	30.3	-40	-9.7	29.5	-39.2
27.12	3.3	20.0	23.3	-40	-16.7	29.5	-46.2

ISED

<i>f</i> (MHz)	Level QP@3m (dBμA)	Ant. factor (dB/m)	Field strength QP@3m dB(μA/m)	Distance corr. 3m to 30m (dB)	Corrected level QP@30m dB(μA/m)	Limit QP@30m dB(μA/m)	Delta (dB)
0.1	-22.2	20.0	-2.2	-40	-42.2	-23.9	-18.3
1.0	-25.2	20.0	-5.2	-40	-45.2	-23.9	-21.3
10.0	-21.0	20.0	-1.0	-40	-41.0	-22.0	-19.0
20.0	-23.7	20.0	-3.7	-40	-43.7	-22.0	-21.7
27.12	-30.7	20.0	-10.7	-40	-50.7	-22.0	-28.7

5.3.5 Test result 30 MHz < f < 1 GHz

Frequency (MHz)	Reading Vert. (dBμV)	Reading Hor. (dBμV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBμV/m)	Level Hor. (dBμV/m)	Limit (dBμV/m)	Dlimit (dB)
54.24	8.8	2.6	15.0	14.0	23.8	16.6	40.0	-16.2
121.73	14.8	11.2	12.5	13.0	27.3	24.2	43.5	-16.2
203.80	7.3	14.3	11.4	12.1	18.7	26.4	43.5	-17.1
249.00	8.4	12.8	13.7	13.9	22.1	26.7	46.0	-19.3
350.00	16.6	20.7	18.4	18.0	35.0	38.7	46.0	-7.3
550.00	14.0	17.5	24.0	23.8	38.0	41.3	46.0	-4.7
650.02	10.6	12.4	26.2	25.9	36.8	38.3	46.0	-7.7
750.02	8.1	11.9	28.3	27.7	36.4	39.6	46.0	-6.4

Note: The correction factor includes cable loss and antenna factor.

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.

FCC ID: T68-VXP3
IC ID: 6627A-VXP3

Limit according to FCC Part 15 Subpart 15.209(a)

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (metres)
	($\mu\text{V}/\text{m}$)	$\text{dB}(\mu\text{V}/\text{m})$	
0.009 - 0.490	2400/F(kHz)	--	300
0.490 - 1.705	24000/F (kHz)	--	30
1.705 - 30.0	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Limit according to RSS-Gen clause 8.9

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (metres)
	($\mu\text{A}/\text{m}$)	$\text{dB}(\mu\text{A}/\text{m})$	
0.009 - 0.490	6.37/F(kHz)	--	300
0.490 - 1.705	63.7/F (kHz)	--	30
1.705 - 30.0	0.08	-22	30
Frequency (MHz)	Field strength of spurious emissions		Measurement distance (metres)
	($\mu\text{V}/\text{m}$)	$\text{dB}(\mu\text{V}/\text{m})$	
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

The requirements are **FULFILLED**.

Remarks: Measurement has been performed up to 1000MHz

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.

FCC ID: T68-VXP3**IC ID: 6627A-VXP3**

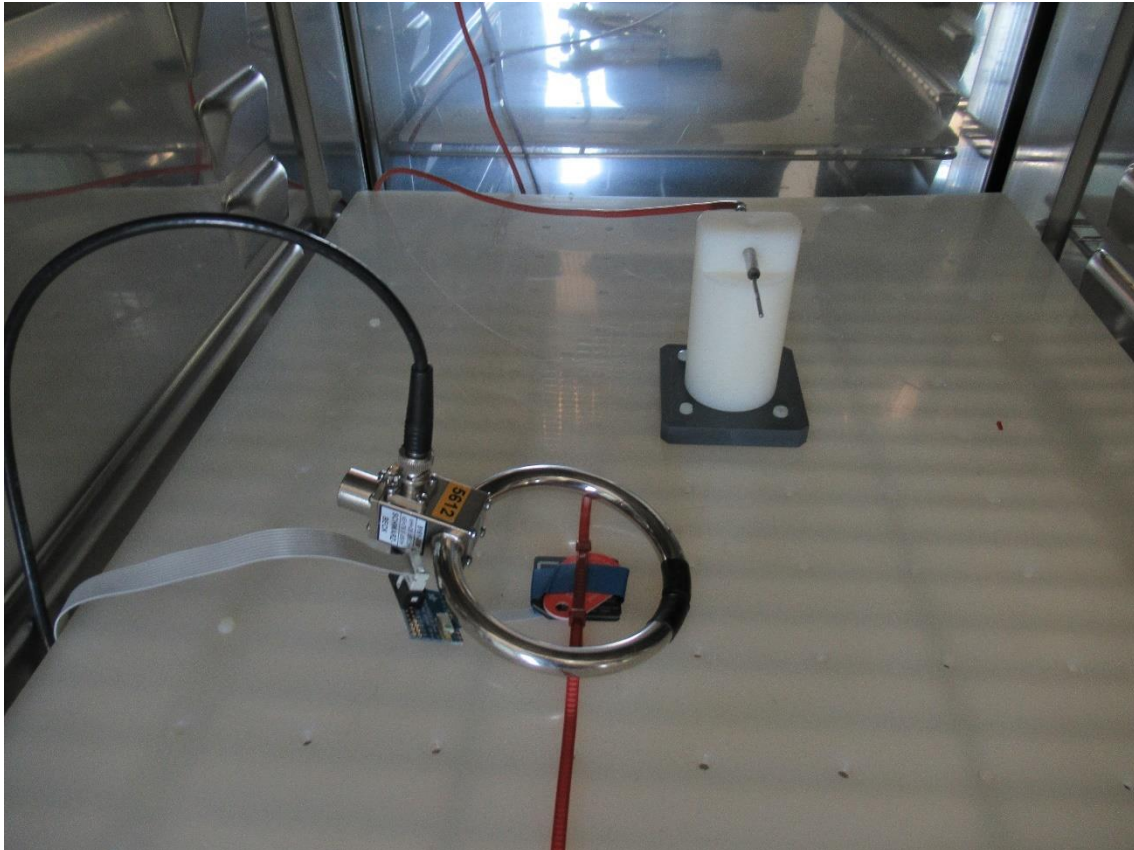
5.4 Frequency tolerance

For test instruments and accessories used see section 6 Part FE.

5.4.1 Description of the test location

Test location: AREA4

5.4.2 Photo documentation of the test set-up



5.4.3 Applicable standard

According to FCC Part 15, Section 15.225(e) and RSS-210 clause B.6

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.4.4 Test result

Test conditions		Test result	Tolerance	Limit
		Frequency (MHz)	(kHz)	(kHz)
$T_{min} (-20)^{\circ}C$	V_{nom}	13.56003	+0.03	± 1.356
$T (-10)^{\circ}C$	V_{nom}	13.56006	+0.06	± 1.356
$T (0)^{\circ}C$	V_{nom}	13.56006	+0.06	± 1.356
$T (10)^{\circ}C$	V_{nom}	13.56004	+0.04	± 1.356
$T_{nom} (20)^{\circ}C$	V_{min}	13.56002	+0.02	± 1.356
	V_{nom}	13.56001	+0.01	± 1.356
	V_{max}	13.56002	0.02	± 1.356
$T (30)^{\circ}C$	V_{nom}	13.55998	-0.02	± 1.356
$T (40)^{\circ}C$	V_{nom}	13.55995	-0.05	± 1.356
$T_{max} (50)^{\circ}C$	V_{nom}	13.55994	-0.06	± 1.356
Measurement uncertainty		$\pm 10 \text{ Hz}$		

Limit Calculation:

Carrier frequency: $f_c = 13.56 \text{ MHz}$

Max. tolerance: $\pm 0.01 \% \text{ of } 13.56 \text{ MHz} = \pm 1.356 \text{ kHz}$

Limit according to FCC Part 15, Section 15.225(e) and RSS-210 clause B.6:

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01 \%$ of the operating frequency.

The requirements are **FULFILLED**.

Remarks: None.

FCC ID: T68-VXP3**IC ID: 6627A-VXP3**

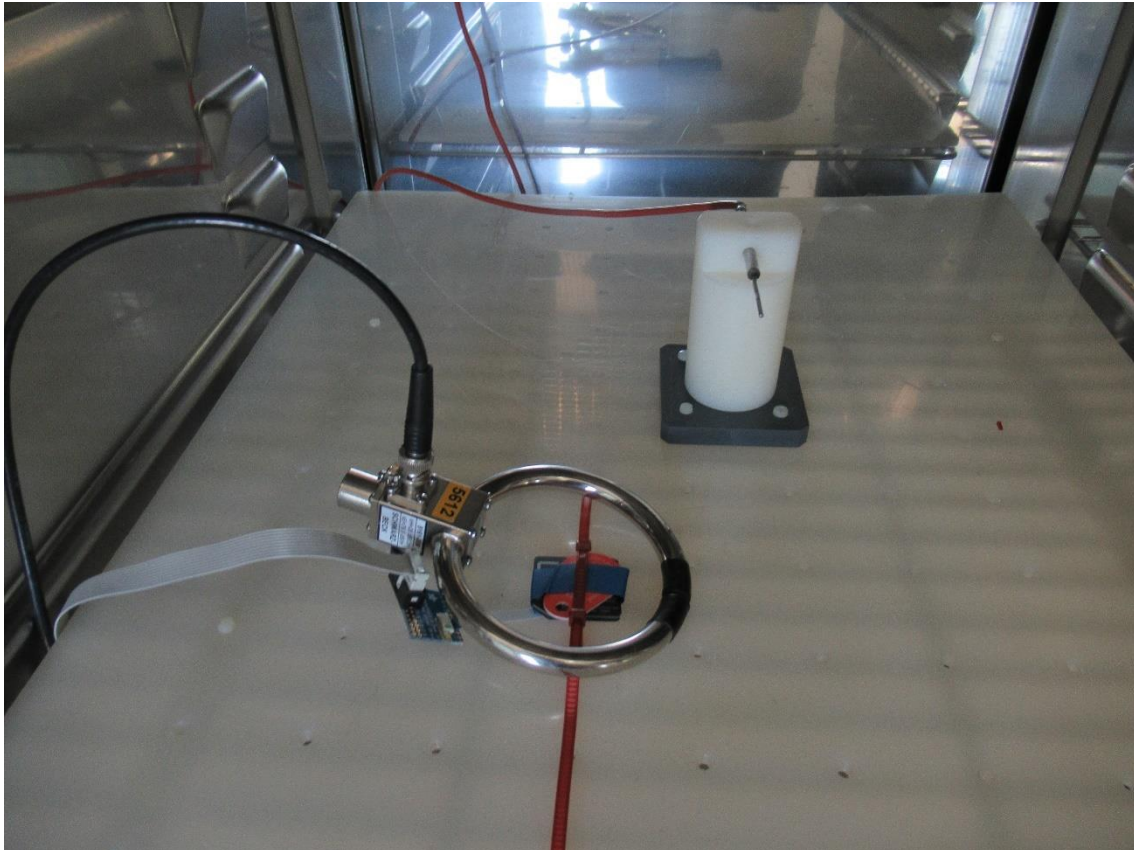
5.5 Bandwidth

For test instruments and accessories used see section 6 Part **MB**.

5.5.1 Description of the test location

Test location: AREA4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to FCC Part 15, Section 15.215(c) and RSS-Gen 6.7

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.5.4 Test result

Measured Bandwidth	result (kHz)	Limit (kHz)
20dB	1.023	--
99%	1.917	--

The requirements are **FULFILLED**.

Remarks: For detailed test result please refer to following test protocol.

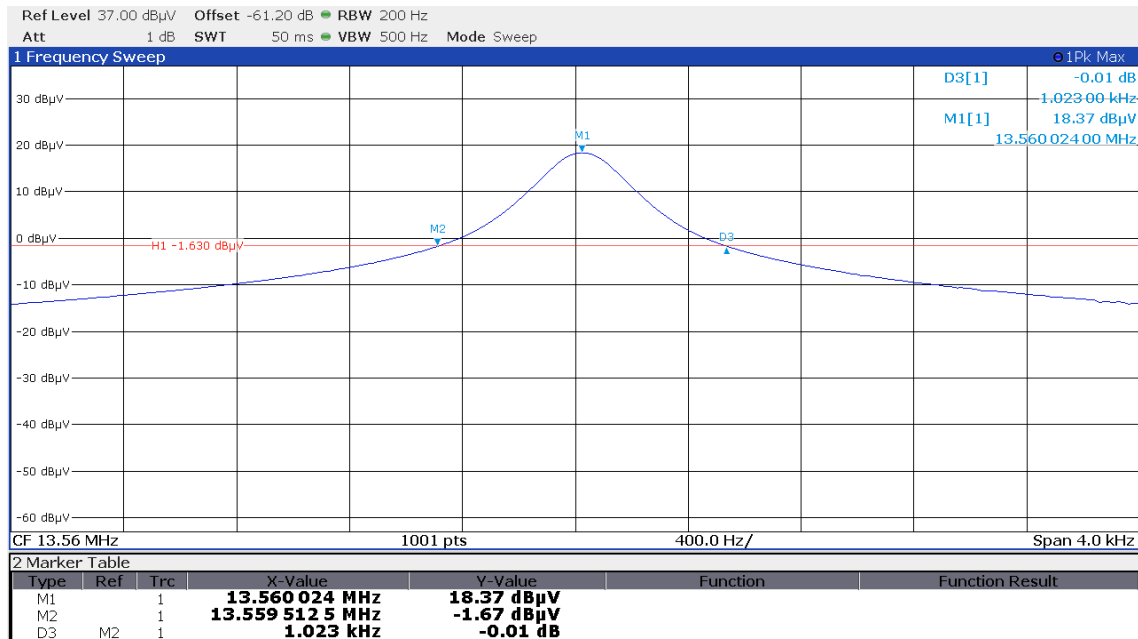
The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

FCC ID: T68-VXP3

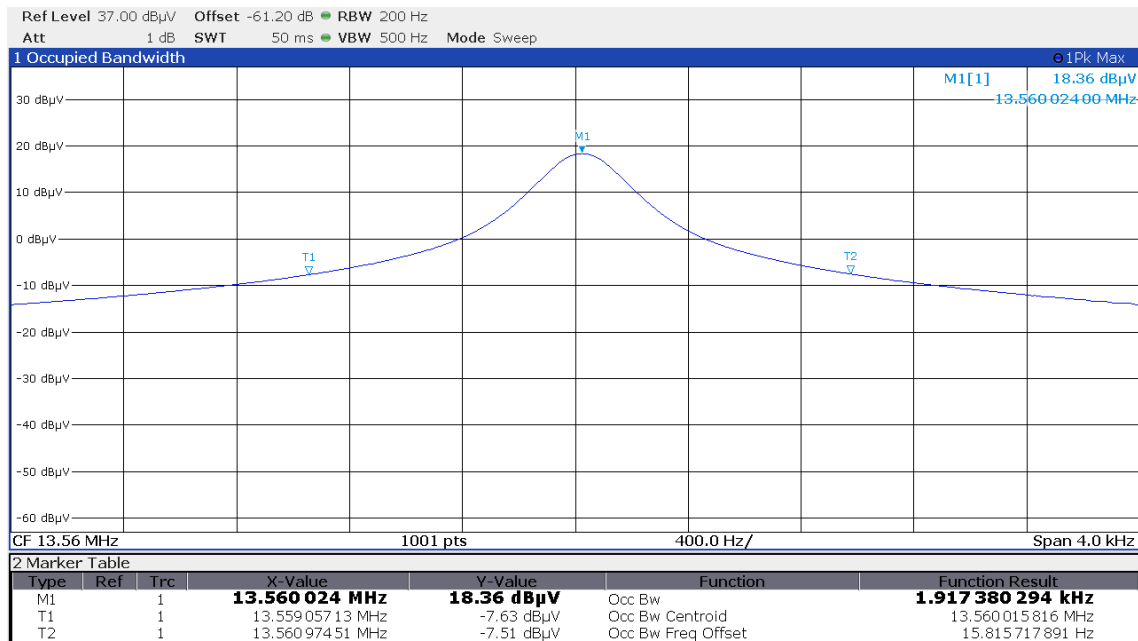
IC ID: 6627A-VXP3

5.5.5 Test protocol

20 dB bandwidth



99% Bandwidth



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.

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

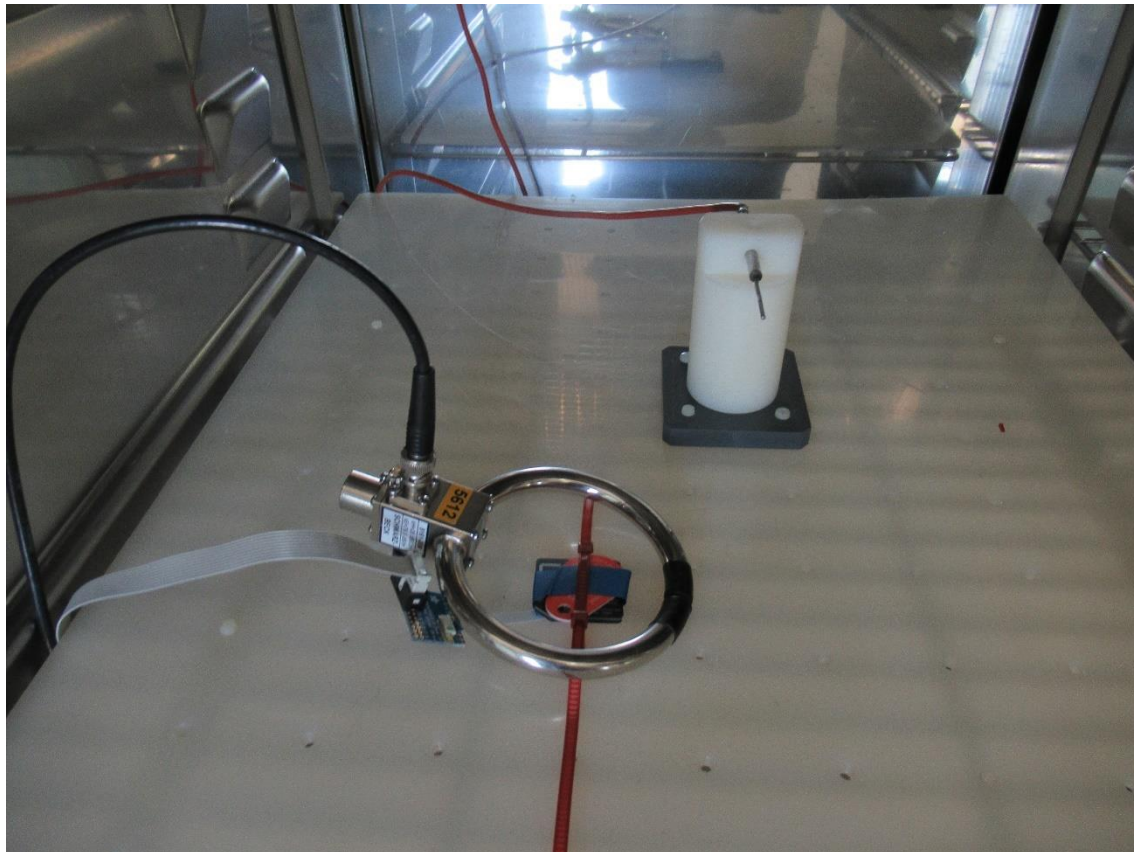
5.6 Transmitter spectrum mask

For test instruments and accessories used see section 6 Part MB.

5.6.1 Description of the test location

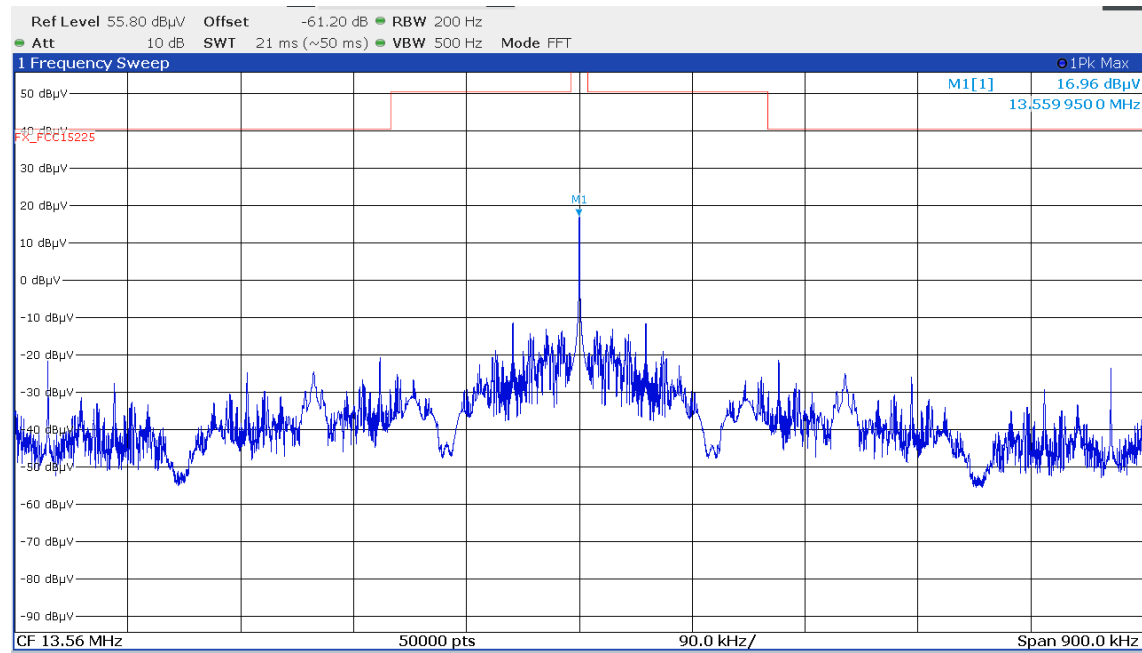
Test location: AREA4

5.6.2 Photo documentation of the test set-up



5.6.3 Applicable standard

According to FCC Part 15, Section 15.225 (a-d) and RSS-210 clause B.6 (a-d)

FCC ID: T68-VXP3
IC ID: 6627A-VXP3
5.6.4 Test result


Limits according to FCC Part 15, Section 15.225(a-d) and RSS-210 clause B.6 (a-d)

Frequency band (MHz)	Emission level limit at 30 m (μV/m)	Emission level limit at 30 m (dBμV/m)
13.110 – 13.410	106	40.5
13.410 - 13.553	334	50.5
13.553 - 13.567	15.848	84.0
13.567 – 13.710	334	50.5
13.710 – 14.010	106	40.5
outside of 13.110 – 14.010	30	29.5

The requirements are **FULFILLED**.

Remarks: None.

FCC ID: T68-VXP3

IC ID: 6627A-VXP3

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	BAT-EMC 3.20.0.23	01-02/68-13-001				
	ESCI	02-02/03-15-001	24/06/2021	24/06/2020		
	ESH 2 - Z 5	02-02/20-05-004	31/10/2021	31/10/2019	26/10/2021	26/04/2021
	N-4000-BNC	02-02/50-05-138				
	N-1500-N	02-02/50-05-140				
	ESH 3 - Z 2	02-02/50-05-155	13/11/2022	13/11/2019	26/10/2021	26/04/2021
CPR 1	ESCI	02-02/03-05-005	24/11/2021	24/11/2020		
	HFH 2 - Z 2	02-02/24-15-001	30/03/2022	30/03/2021		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
FE	FSW43	02-02/11-15-001	06/04/2022	06/04/2021		
	HZ-10	02-02/24-05-012	04/12/2021	04/12/2020		
	METRAHIT WORLD	02-02/32-15-001	01/12/2021	01/12/2020		
	WK-340/40	02-02/45-05-001	15/08/2021	15/08/2020		
	Type 5315.5	02-02/50-05-197				
MB	FSW43	02-02/11-15-001	06/04/2022	06/04/2021		
	HZ-10	02-02/24-05-012	04/12/2021	04/12/2020		
	METRAHIT WORLD	02-02/32-15-001	01/12/2021	01/12/2020		
	WK-340/40	02-02/45-05-001	15/08/2021	15/08/2020		
	Type 5315.5	02-02/50-05-197				
SER 1	ESCI	02-02/03-05-005	24/11/2021	24/11/2020		
	HFH 2 - Z 2	02-02/24-15-001	30/03/2022	30/03/2021		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				
SER 2	ESVS 30	02-02/03-05-006	15/07/2021	15/07/2020		
	VULB 9168	02-02/24-05-005	18/12/2021	18/12/2020		
	NW-2000-NB	02-02/50-05-113				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
	KK-SD_7/8-2X21N-33,0M	02-02/50-15-028				

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.