SLOVENSKA AKREDITACIJA
SIST EN ISO/IEC 17025
LP-009

Test report

Number:	**T251-0895/15**	Project file:	C20152720
		Date:	2015-12-11
		Pages:	33
Product:	**NTAG I²C plus Explorer Kit**		
Type reference:	**OM5569/NT322E**		
Ratings:	Board is powered from NTAG I²C plus Antenna Board (from NTAG I²C tag ic) Operating clock frequency: 13,56 MHz		
Trademark:	NXP		
Applicant:	**NXP SEMICONDUCTORS GmbH** **Mikron - Weg 1, AT-8101 Gratkorn, Austria**		
Manufacturer:	ČETRTA POT, d.o.o., Kranj Planina 3, SI-4000 Kranj, Slovenia		
Place of manufacture:	ČETRTA POT, d.o.o., Kranj Planina 3, SI-4000 Kranj, Slovenia		

Summary of testing

Testing method:	FCC Part 15, Subpart C
Testing location:	SIQ Ljubljana, Trpinčeva ulica 37 A, SI-1000 Ljubljana, Slovenia
Remarks:	Date of receipt of test items: 2015-09-21 Number of items tested: 1 Date of performance of tests: 2015-10-13 - 2015-11-03 The test results presented in this report relate only to the items tested. The product complies with the requirements of the testing methods.

Tested by: Andrej Škof

Approved by: Marjan Mak

The report shall not be reproduced except in full.

SIQ Ljubljana, Tržaška cesta 2, SI-1000 Ljubljana, Slovenia
T +386 1 4778 100, F +386 1 4778 444, info@siq.si, www.siq.si

CONTENTS page

1. GENERAL

History sheet			
Date	Report No.	Change	Revision
2015-11-23	T251-0826/15	Initial Test Report issued.	--
2015-12-08	T251-0895/15	Initial Test Report rewriting issued with different data required by manufacturer. Changes include: - product name designation changed from NTAG I^2C Explorer Kit to NTAG I^2C plus Explorer Kit with no changes to product itself. - added new pictures of EUT	--

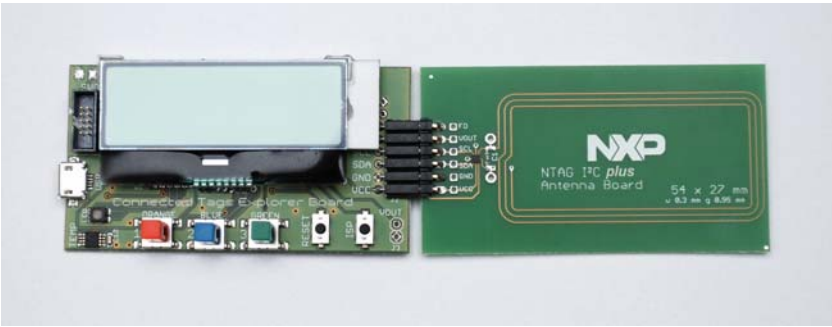
Environmental conditions:
Ambient temperature: 15°C to 35°C
Relative humidity: 30% to 60%
Atmospheric pressure: 860 mbar to 1060 mbar

1.1 Equipment under test

NTAG I2C plus Explorer Kit
Type: OM5569/NT322E
FCC ID: OWROM5569-NT322E

1.1.1 General product information

Tested sample number: S20155280 (Antenna Board 54 x 27 mm), S20155281 (Explorer board), S20155645 (Mobile phone)
Final measurements done with Nexus S phone (sn: 32338E3C360E00EC); Android version 4.1.2.



Picture of EUT

Picture of EUT

1.2 ANSI C63.4 Subpart selection

Subpart B: Unintentional Radiators

Subpart C: Intentional Radiators

1.3 Class statement requirements

- The Class A statement cautions that operation of the device in a residential area is likely to cause harmful interference.
- The Class B statement offers several suggestions for minimizing interference to radio or TV receivers, including reorienting the receiving antenna and moving the Class B device farther away from the receiver.

1.4 Occupied bandwidth measurement

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

1.5 Quasi-peak detector

Frequency range	Bandwidth (-6dB)
10 Hz to 20 kHz	Full range (wideband)
10 kHz to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz

1.6 Peak, rms, and average detectors

Frequency range	Bandwidth (-6dB)
10 Hz to 20 kHz	10, 100, 1000 Hz
10 kHz to 150 kHz	1 and 10 kHz
150 kHz to 30 MHz	1 and 10 kHz
30 MHz to 1 GHz	10 and 100 kHz
1 GHz to 40 GHz	0.1, 1.0 and 10 MHz

2. LIMITS FOR ALL SUBPARTS

2.1 Subpart B: Unintentional Radiators

2.1.1 Conducted emission limits (according to FCC15):

CLASS B limits:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

CLASS A limits:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	79	66
0.5 to 30.0	73	60

2.1.2 Radiated emission limits (according to FCC15):

CLASS B limits:

Frequency Range (MHz)	Limits (dBµV/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
30 to 88	40	40	3
88 to 216	43.5	43.5	3
216 to 960	46	46	3
Above 960	54	54	3

CLASS A limits:

Frequency Range (MHz)	Limits (dBµV/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
30 to 88	39	39	10
88 to 216	43.5	43.5	10
216 to 960	46.4	46.4	10
Above 960	49.5	49.5	10

2.2 Subpart C: Intentional Radiators

2.2.1 Conducted emission limits:

Limits:

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

The shown limits in table shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

- For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.
- Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as appropriate.

2.2.2 Radiated emission limits:

Limits:

Frequency Range (MHz)	Limits (dBµV/m)		Test distance (m)
	VERTICAL	HORIZONTAL	
0,009 to 0,490	20*log(2400/F(kHz))	20*log(2400/F(kHz))	300
0,490 to 1,705	20*log(2400/F(kHz))	20*log(2400/F(kHz))	30
1,705 to 30,0	30	30	30
30 to 88	40**	40**	3
88 to 216	43.5**	43.5**	3
216 to 960	46**	46**	3
Above 960	54	54	3

** Except as provided in paragraph below, fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz.

Perimeter protection systems may operate in the 54-72 MHz and 76-88 MHz bands under the provisions of this section. The use of such perimeter protection systems is limited to industrial, business and commercial applications.

Additional FCC requirements per clause 15.215.
Intentional radiators operating under the alternative provisions to the general emission limits must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Additional FCC requirements per clause 15.225.

Fundamental Frequency (MHz)	Field strength of fundamental (μV/m)	Test distance (m)
13.553-13.567	15,848	30
13.410-13.553 and 13.567-13.710	334	30
13.110-13.410 and 13.710-14.010	106	30
Outside band 13.110-14.010	As per clause 15.209	30

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

3. ALL TEST EQUIPMENT AND THEIR DESCRIPTION

3.1 General information

Description	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
Rohde-Schwarz, RFI receiver	ESU8	105187	2015-10	2017-10	24 months	
Rohde-Schwarz, RFI receiver	ESU26	100428	2014-01	2016-01	24 months	X
Rohde & Schwarz, Artificial main network	ESH2-Z5	106899	2015-05	2017-05	24 months	X
ETS, Anechoic chamber	3m	103949	2014-11	2016-11	24 months	X
R&S, Antenna	HFH2-Z2	/	2015-09	2017-09	24 months	X
EMCO, Antenna	3142B	104351	2015-09	2017-09	24 months	X
EMCO, Antenna	3115	103002	2015-09	2017-09	24 months	X
Heinrich Deisel, Turn table	DS 420.00	103337	NA	NA	NA	X
Antenna tower	/	/	NA	NA	NA	X
Controller for turn table and antenna tower	/	/	NA	NA	NA	X

3.2 Other instrument information and auxiliary equipment

Description	Model No.	Bandwidth	Detector functions	Antenna factors	Cable loss	Range
Rohde-Schwarz, AMN	ENV216	/	/	/	/	9 kHz do 30 MHz
Rohde-Schwarz, RFI receiver	ESU8	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	20 Hz – 8 GHz
Rohde-Schwarz, RFI receiver	ESU26	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	20 Hz – 26.5 GHz
Hewlett Packard, RF Spectrum Analyzer	8593E	200Hz, 9kHz, 120kHz, 1MHz	Peak, Q-peak, Average	/	/	9 kHz – 26.5 GHz
Rohde & Schwarz, Artificial main network	ESH 2-Z5	/	/	/	/	9 kHz – 30 MHz
ETS, Anechoic chamber	3m	/	/	/	/	30 MHz – 18 GHz
EMCO, Antenna	3142B	/	/	See tables below	/	26 MHz – 2 GHz
EMCO, Antenna	3115	/	/	See tables below	/	1 GHz – 18 GHz
Schwarzbeck Mess-Elektronik, Horn antenna	BBHA9120E	/	/	See tables below	/	450 MHz – 6 GHz
SIQ, Conducted emission cable	SIQ	/	/	/	See tables below	/
SIQ, Radiated emission cable	SIQ	/	/	/	See tables below	/

3.2.1 Cable loss and attenuation of radiated emission

3.2.1.1 Conducted emission cable (SIQ-K024)

Point	Frequency (9kHz-30MHz)	Cable length (meters)	Loss (dBm)
1	190 kHz	1	0,4
2	530 kHz	1	0,26
3	2,53 MHz	1	0,16
4	5,19 MHz	1	0,07
5	11,05 MHz	1	0,03
6	22,01 MHz	1	0,06
7	24,03 MHz	1	0,04

3.2.1.2 Radiated emission attenuation

Point	Frequency (30 MHz – 26,5 GHz)	Attenuation (dBm)
1	30 MHz	0,501
2	150 MHz	1,174
3	400 MHz	2,034
4	800 MHz	2,995
5	1 GHz	3,416
6	1,363	1,666667
7	2,686	3,58333
8	5,332	5,25
9	7,978	6,25
10	10,624	7,5
11	13,27	8,333333
12	15,916	9,166666
13	18,562	9,833333
14	21,208	10,66667
15	23,854	11,5
16	26,5	12,16667

4. CONVERSION FACTORS AND ALL OTHER FORMULAS

Unit	Conversion unit	Formula of conversion
dBμV	dBμV/m	dBμV/m = dBμV + AF
μV/m	dBμV/m	dBμV/m = 20log(X(μV/m)/1μV)

	Test distance stated in standard	Test distance of measurement	Conversion factor
Class B	3 m	3 m	/
Class A	10 m	3 m	20dB/decade

5. GENERAL AND SPECIAL CONDITIONS DESCRIPTION

5.1 General condition description

Interconnect and power cabling (or wiring)

5.1.1 Test arrangement for conducted emissions

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground-plane.
All other equipment powered from additional LISN(s).
Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
LISN at least 80 cm from nearest part of EUT chassis.

Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

Non-EUT components of EUT system being tested.

Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground-plane.

5.1.2 Test arrangement for conducted emissions- floor-standing equipment

Excess I/O cables shall be bundled in the center. If bundling is not possible, the cables shall be arranged in serpentine fashion. Bundling shall not exceed 40 cm in length.

Excess power cords shall be bundled in the center or shortened to appropriate length.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. If bundling is not possible, the cable shall be arranged in serpentine fashion.

EUT and all cables shall be insulated, if required, from the ground-plane by up to 12 mm of insulating material.

EUT connected to one LISN. LISN can be placed on top of, or immediately beneath, the ground-plane.
All other equipment powered from a second LISN or additional LISN(s).
Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

5.1.3 Test arrangement for radiated emissions tabletop equipment

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center, forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using the correct terminating impedance. The total length shall not exceed 1 m.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground-plane.

Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

Non-EUT components of EUT system being tested.

Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

No vertical conducting plane used.

Power cords drape to the floor and are routed over to receptacle.

5.1.4 Test arrangement for radiated emissions floor-standing equipment

Excess I/O cables shall be bundled in center. If bundling is not possible, the cables shall be arranged in serpentine fashion. Bundling not to exceed 40 cm in length.

Excess power cords shall be bundled in the center or shortened to appropriate length.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. If bundling is not possible, the cable shall be arranged in a serpentine fashion.

EUT and all cables shall be insulated, if required, from the ground-plane by up to 12 mm of insulating material.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground plane.

Overhead cable trays and suspended ceilings

5.1.5 Test arrangement for floor-standing equipment

Only one vertical riser may be used where typical of system under test.

Excess power cord shall be bundled in the center or shortened to appropriate length.

EUT and cables shall be insulated from ground-plane by up to 12 mm. Where the manual has specified or there exists a code of practice for installation of the EUT, the test arrangement shall allow the use of this practice for the tests.

Power cords being measured connected to one LISN. All other system power cords powered through other LISN(s). A multiple receptacle strip may be used for other power cords.

For *conducted* tests, the LISNs may be placed on top of or immediately beneath and bonded directly to the ground-plane. For *radiated* tests, the LISN(s), if used, should be installed under, with the receptacle flush with the ground-plane.

5.1.6 Placement and manipulation of interconnect cabling (or wiring) of tabletop equipment

LISN(s) may have to be positioned to the side of the table to meet the criterion that the LISN receptacle shall be 80 cm away from the EUT. LISN(s) may be above ground-plane only for conducted emission measurements.

Accessories, such as ac power adapter, if typically table-mounted, shall occupy peripheral positions as is applicable.

Accessories, which are typically floor-mounted, shall occupy a floor position directly below the portion of the EUT to which they are typically connected. T

Table length may be extended beyond 1.5 m with peripherals aligned with the back edge. The table depth may be extended beyond 1 m. The 40 cm distance to the vertical conducting plane shall be maintained for conducted emission testing.

Placement of wall-mounted equipment

5.1.7 Test configuration/arrangement for combination floor-standing and tabletop equipment

Interconnecting cables that hang closer than 40 cm to the ground-plane shall be folded back and forth in the center, forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated if required using the correct terminating impedance.

If LISNs are kept in the test setup for radiated emissions, it is preferred that they be installed under the ground-plane with the receptacle flush with the ground-plane.

Cables of hand-operated devices, such as keyboards, mice, etc., have to be placed as for normal use.

Non-EUT components of EUT system being tested.

I/O cable to floor-standing unit drapes to the ground-plane and shortened or excess bundled. Cables not reaching the metal ground-plane are draped to the height of the connector or 40 cm, whichever is lower.

Power cords and signal cables shall drape to the floor. No extension cords shall be used to the power receptacles.

The floor-standing unit can be placed under the table if its height permits.

5.2 Special condition description

If for some reason the above measurement conditions can’t be met, the description below should be used as an appropriate measurement condition and placement.

(Description is written additionally as the measurements differ – all is within test procedure)

6. TEST SUMMARY

STANDARDS (details on first page)	Tested yes	Tested no	Sample pass	Sample not pass
ANSI C63.4-2009; FCC Part 15, Subpart C	☑	☐	☑	☐

Test	Section within the report	Class	Conclusion
Conducted emission	3.1	/	N/A
Radiated emission	3.2	/	PASS

6.1 Operating voltages/frequencies used for testing

Section.	Test	Operating conditions
7.1	Conducted emission	/
7.2	Radiated emission	DC power supply connection from NTAG I^2C tag ic

7. EMISSION TESTS

7.1 Conducted emission measurement (intentional radiator)

Not applicable due to DC power supply connection from NTAG I^2C tag ic.

7.2 Radiated emission measurement (intentional radiator)

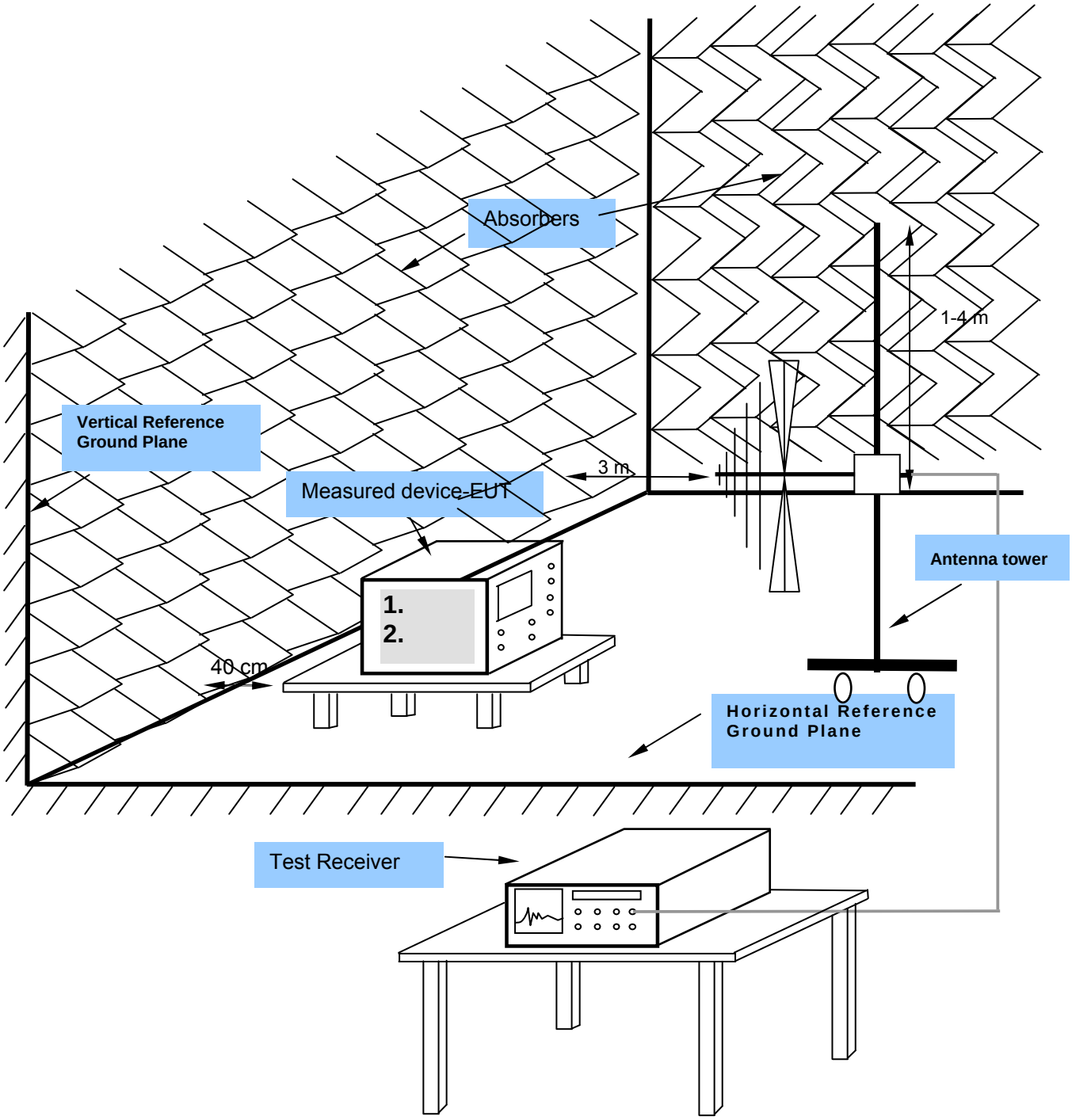
7.2.1 Test instruments

Description & Manufacturer	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
ETS, Anechoic chamber	3m	103949	2014-11	2016-11	24 months	X
Rohde-Schwarz, RFI receiver	ESU8	105187	2015-10	2017-10	24 months	
Rohde-Schwarz, RFI receiver	ESU26	100428	2014-01	2016-01	24 months	X
R&S, Antenna	HFH2-Z2	/	2015-09	2017-09	24 months	X
EMCO, Antenna	3142B	104351	2015-09	2017-09	24 months	X
EMCO, Antenna	3115	103002	2015-09	2017-09	24 months	X
Heinrich Deisel, Turn table	DS 420.00	103337	NA	NA	NA	X
Antenna tower	/	/	NA	NA	NA	X
Controller for turn table and antenna tower	/	/	NA	NA	NA	X

7.2.2 Test procedure

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground in an Anechoic Chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 m and 10 m away from the interference-receiving antenna, which was mounted on the top of variable-height antenna tower. Highest peaks were recalculated to proper distance requirement.
3. The antenna is a loop and a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to PEAK and QUAS-PEAK Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The highest points would be re-tested one by one using the quasi-peak method.

7.2.3 Test setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.2.4 Test result (15.209)

Preliminary measurement at 3 m in SAC:

13.Oct 15 09:43

C20152720

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

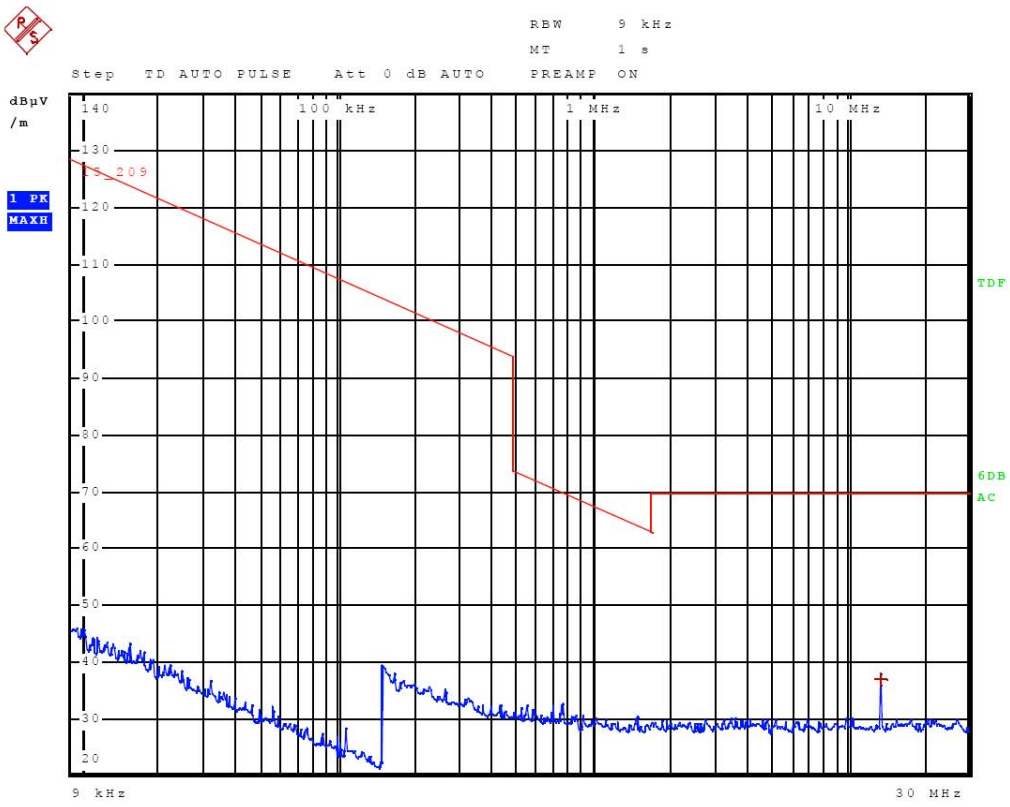
Test Spec

Antenna: 0 deg, Sample: 350 deg

Time Domain Scan (2 Ranges)

Scan Start: 9 kHz
Scan Stop: 30 MHz
Detector: Trace 1: MAX PEAK
Transducer: HFH2-Z2V

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
9.000000 kHz	149.950000 kHz	50.00 Hz	200.00 Hz	300 ms	Auto	20 dB	INPUT2
150.000000 kHz	30.000000 MHz	2.25 kHz	9.00 kHz	30 ms	Auto	20 dB	INPUT2



C20152720

13.Oct 15 09:43

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Final Measurement

Meas Time:	1 s
Margin:	35 dB
Subranges:	1

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	13.564500000 MHz	36.81	Quasi Peak	-32.69

Final measurement at 10 m in OATS

Results with measuring distance of 10 m			
Frequency (MHz)	**Measured value (dBµV/m)**	**Limit (dBµV/m)**	**Margin (dB)**
13,56	6,38	104,00	- 97,62

Calculated value from 10 m to 30 m					
Frequency (MHz)	**Measured value at 10 m (dBµV/m)**	**Correction factor from 10 m to 30 m (dB)**	**Calculated value at 30 m (dBµV/m)**	**Limit at 30 m (dBµV/m)**	**Margin (dB)**
13,56	6,38	20	-13,62	84,00	-97,62

NOTE: Antenna factor and cable loss are already included in measurement correction.

C20152720

13.Oct 15 08:56

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

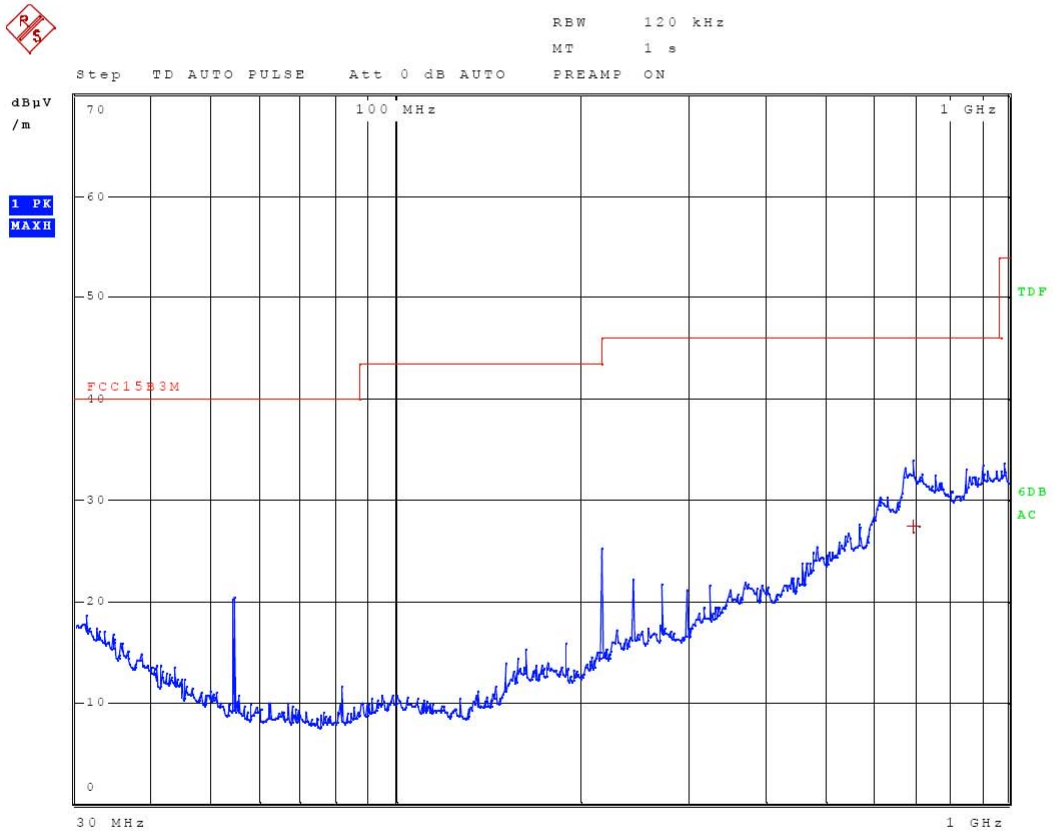
Test Spec

VERTICAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	1 ms	Auto	20 dB	INPUT2



13.Oct 15 08:56

C20152720

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Final Measurement

Meas Time:	1 s
Margin:	15 dB
Peaks:	1

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	698.010000000 MHz	27.50	Quasi Peak	-18.50

C20152720

13.Oct 15 09:00

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

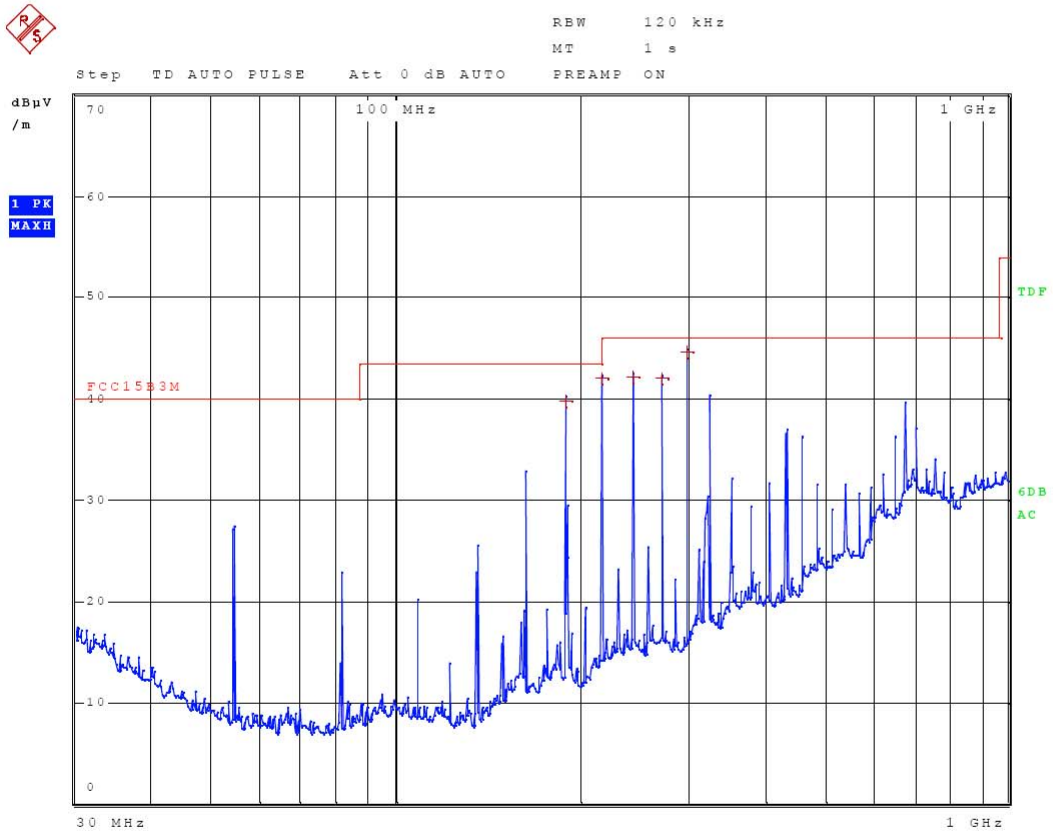
Test Spec

HORIZONTAL 100 cm, 0 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	1 ms	Auto	20 dB	INPUT2



13.Oct 15 09:00

C20152720

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Final Measurement

Meas Time:	1 s
Margin:	5 dB
Peaks:	5

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	298.410000000 MHz	44.65	Quasi Peak	-1.35
1	189.900000000 MHz	39.80	Quasi Peak	-3.70
1	244.170000000 MHz	42.10	Quasi Peak	-3.90
1	271.290000000 MHz	42.04	Quasi Peak	-3.96
1	217.020000000 MHz	42.00	Quasi Peak	-4.00

Worst case:

C20152720

13.Oct 15 09:10

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

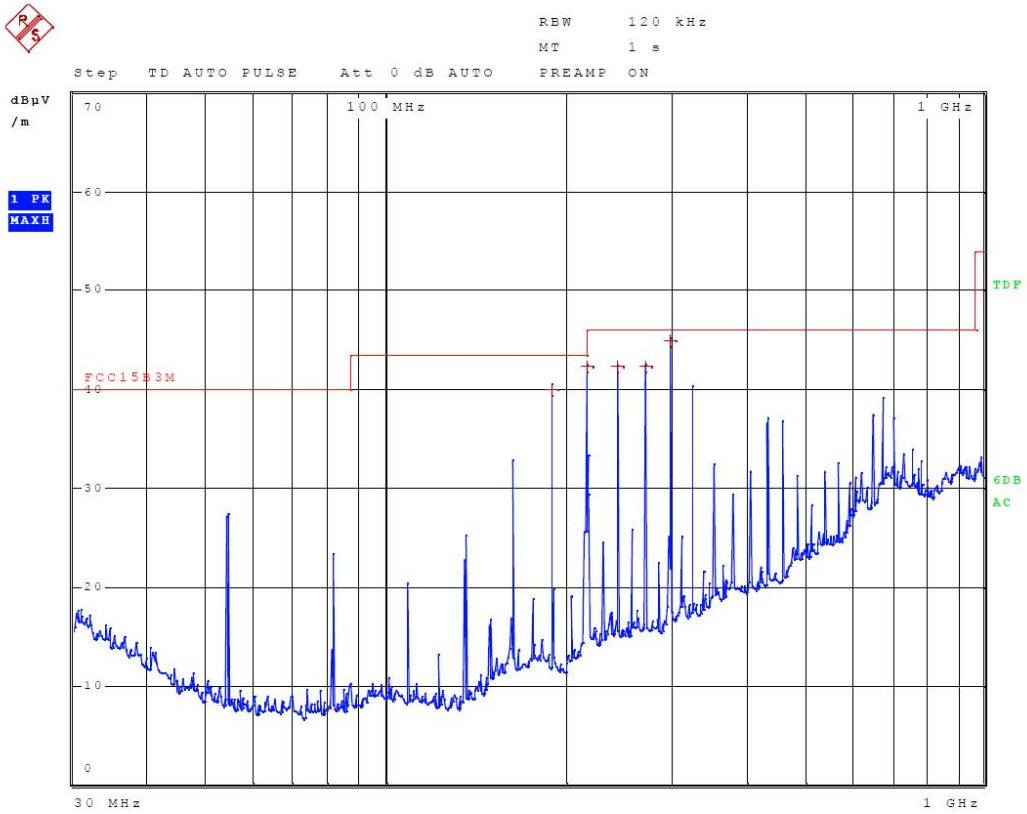
Test Spec

HORIZONTAL 100 cm, 190 deg

Time Domain Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 1 GHz
Detector: Trace 1: MAX PEAK
Transducer: 3142B3m

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	1 ms	Auto	20 dB	INPUT2



C20152720

13.Oct 15 09:10

Meas Type	RADIATED EMISSION
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Final Measurement

Meas Time:	1 s
Margin:	5 dB
Peaks:	5

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	298.410000000 MHz	44.96	Quasi Peak	-1.04
1	189.900000000 MHz	39.94	Quasi Peak	-3.56
1	271.290000000 MHz	42.31	Quasi Peak	-3.69
1	244.170000000 MHz	42.30	Quasi Peak	-3.70
1	217.020000000 MHz	42.25	Quasi Peak	-3.75

7.2.5 Test result (15.215)

C20152720

13.Oct 15 09:56

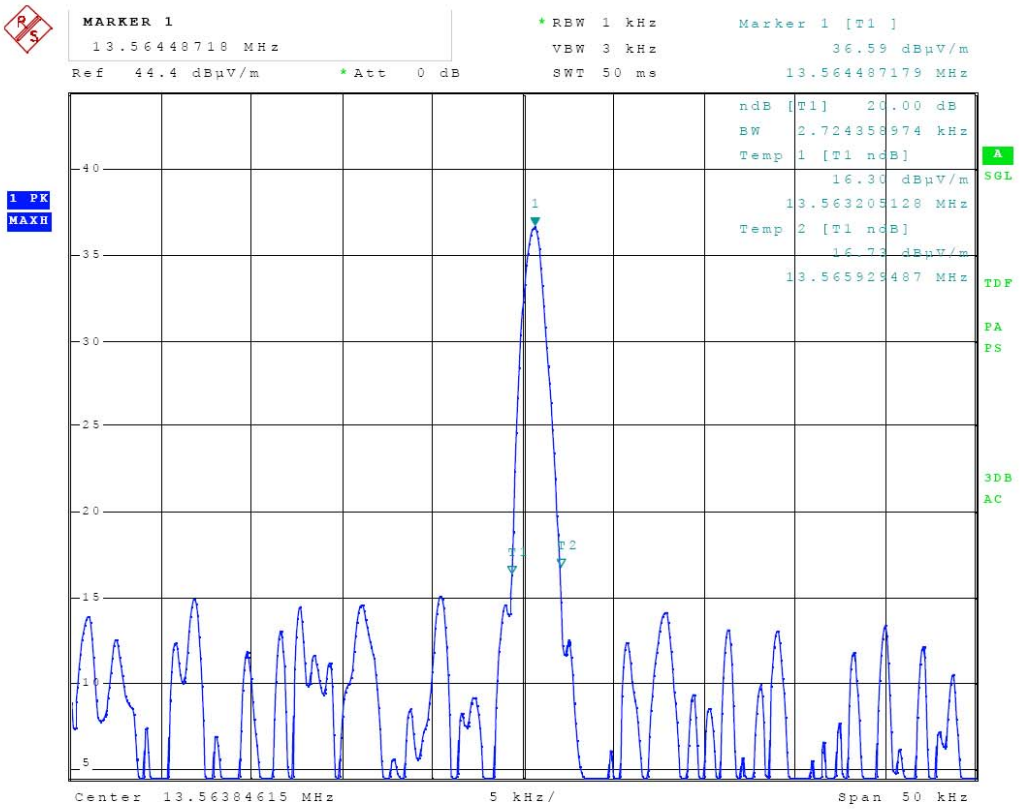
Meas Type	OCCUPIED BANDWIDTH
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Test Spec

Antenna: 0 deg, Sample: 350 deg

Sweep Settings **Screen A**

Center Frequency	13.563846 MHz	Ref Level	44.400 dBµV/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	50.000000 kHz	Ref Position	100.000 %
Start Frequency	13.538846 MHz	Level Range	40.000 dB
Stop Frequency	13.588846 MHz	RF Att	0.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	50.00 ms	Y-Axis	LOG



Frequency (MHz)	Permitted frequency band (MHz)	20 dB bandwidth (kHz)	PASS/FAIL
13.56	13.110 – 14.010	2,72	PASS

7.2.6 Test result (15.225)

C20152720

13.Oct 15 09:53

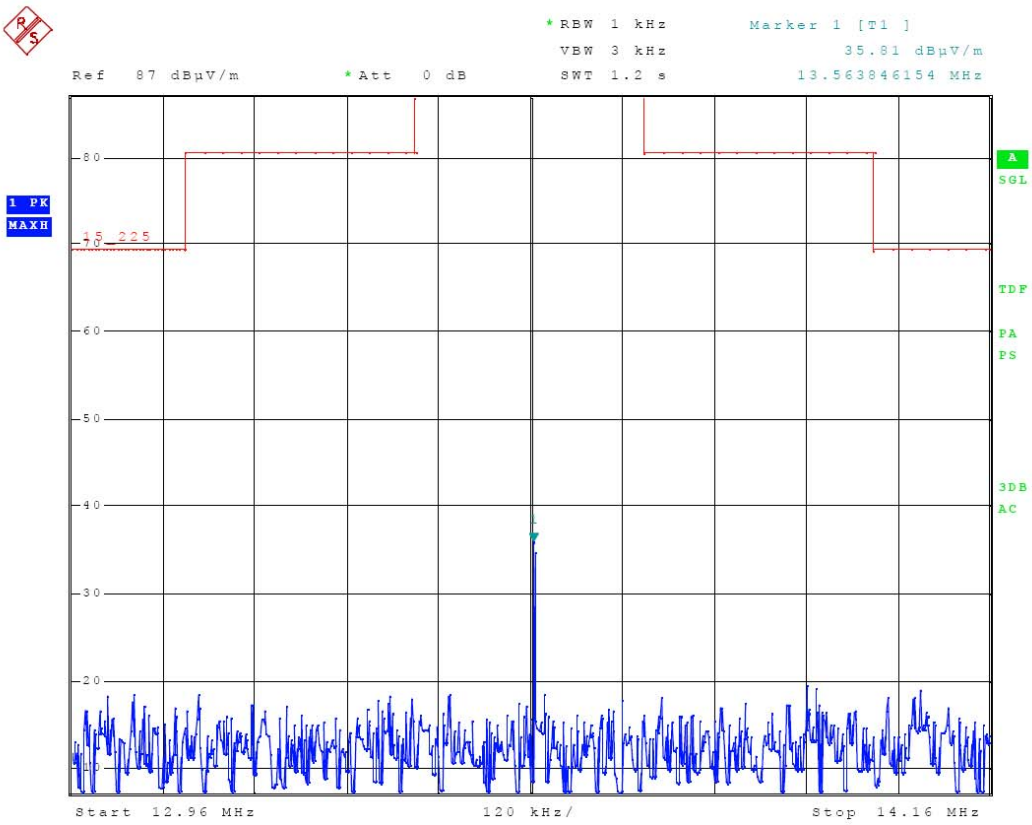
Meas Type	SPECTRUM MASK
Equipment under Test	OM5569/NT322E
Manufacturer	CETRTA POT, D.O.O.
OP Condition	NORMAL
Operator	Andrej Skof

Test Spec

Antenna: 0 deg, Sample: 350 deg

Sweep Settings **Screen A**

Center Frequency	13.560000 MHz	Ref Level	87.000 dBµV/m
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.200000 MHz	Ref Position	100.000 %
Start Frequency	12.960000 MHz	Level Range	80.000 dB
Stop Frequency	14.160000 MHz	RF Att	0.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	1.20 s	Y-Axis	LOG



Fundamental Frequency (MHz)	Limit at 3 m distance (dBμV/m)	Recalculation to 30 m distance (dBμV/m)
13.553-13.567	112,5	More than 10 dB under the limit
13.410-13.553 and 13.567-13.710	79	More than 10 dB under the limit
13.110-13.410 and 13.710-14.010	69	More than 10 dB under the limit

Temperature	Supply voltage (V)	Minutes after switch on	Measured Frequency (MHz)	Allowed tolerance	Measured tolerance	RESULT
50	5,00	0	13,564485	Fref±0,01%	0,208	PASS
	5,00	2	13,564462	Fref±0,01%	0,185	PASS
	5,00	5	13,564457	Fref±0,01%	0,181	PASS
	5,00	10	13,564453	Fref±0,01%	0,177	PASS
40	5,00	0	13,564498	Fref±0,01%	0,221	PASS
	5,00	2	13,564492	Fref±0,01%	0,216	PASS
	5,00	5	13,564493	Fref±0,01%	0,217	PASS
	5,00	10	13,564492	Fref±0,01%	0,216	PASS
30	5,00	0	13,564427	Fref±0,01%	0,151	PASS
	5,00	2	13,564433	Fref±0,01%	0,156	PASS
	5,00	5	13,564438	Fref±0,01%	0,162	PASS
	5,00	10	13,564444	Fref±0,01%	0,168	PASS
20	2,60	0	13,564252	Fref±0,01%	-0,025	PASS
	2,60	2	13,564273	Fref±0,01%	-0,003	PASS
	2,60	5	13,564276	Fref±0,01%	0,000	PASS
	2,60	**10**	13,564276	**Fref**	0,000	
10	5,00	0	13,563698	Fref±0,01%	-0,579	PASS
	5,00	2	13,563726	Fref±0,01%	-0,550	PASS
	5,00	5	13,563742	Fref±0,01%	-0,534	PASS
	5,00	10	13,563758	Fref±0,01%	-0,518	PASS
0	5,00	0	13,563369	Fref±0,01%	-0,907	PASS
	5,00	2	13,563383	Fref±0,01%	-0,893	PASS
	5,00	5	13,563396	Fref±0,01%	-0,880	PASS
	5,00	10	13,563408	Fref±0,01%	-0,868	PASS
-10	5,00	0	13,563160	Fref±0,01%	-0,599	PASS
	5,00	2	13,563272	Fref±0,01%	-0,486	PASS
	5,00	5	13,563281	Fref±0,01%	-0,477	PASS
	5,00	10	13,563281	Fref±0,01%	-0,477	PASS
-20	5,00	0	13,562837	Fref±0,01%	-0,571	PASS
	5,00	2	13,563030	Fref±0,01%	-0,378	PASS
	5,00	5	13,563059	Fref±0,01%	-0,349	PASS
	5,00	10	13,563064	Fref±0,01%	-0,344	PASS

Figure 1: Radiated emission test – under 30 MHz

Figure 2: Radiated emission test – over 30 MHz

Figure 3: Radiated emission test – under 30 MHz on OATS