CMC Centro Misure Compatibilità S.r.l.
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LAB N° 0168

Independent Testing Laboratory
Accredited by ACCREDIA according to UNI CEI EN ISO/IEC 17025 cert. nr. 0168

TEST REPORT nr. R18007301

Federal Communication Commission (FCC)

Test item

Description .....: CARD READER 13.56 MHz
Trademark .....: SCHINDLER
Model/Type .....: PCR-TWN4
FCC ID .....: XFIPCRTWN4

Test Specification

Standard.....: FCC Rules & Regulations, Title 47:2017
Part 15 paragraph(s): 203, 204, 207, 209 and 225

Client's name .....: TECNOLAB del Lago Maggiore S.r.l.
Address .....: Via dell'Industria, 20 – 28924 Verbania (VB) – ITALY

Manufacturer's name : SCHINDLER ELEVATOR Ltd
Address .....: Via della Pace, 22 – 6600 Locarno (CH) – SWITZERLAND

Report

Tested by .....: A. Bertezzolo .....

Approved by .....: R. Beghetto – *Laboratory Manager* .....
Date of issue .....: 19.06.18
Contents.....: 46 pages

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1. Summary

Standard:

FCC Rules & Regulations, Title 47:2017
Part 15 paragraph(s): 203, 204, 207, 209 and 225

Test specifications	*Environmental Phenomena*	*Tests sequence*	*Result*
Part 15.203	Antenna requirements	1	Complies
Part 15.207	Conducted emissions	2	Complies
Part 15.209	Radiated emissions	3	Complies
Part 15.225	Field strength with the assigned band	4	Complies
Part 15.225 (e)	Frequency tolerance	5	Complies
Part 15.215	20 dB bandwidth	6	Complies

The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification

2. Description of Equipment under test (EUT)

Power supply	:	5 Vdc
		3,3 Vdc
Serial Number	:	--
Type of equipment	:	☑ Transmitter Unit
		☑ Receiver Unit
Type of station	:	☑ Fixed station
		❑ Portable station
		❑ Mobile station
Nominal frequency	:	13,56 MHz

2.1 Test Site

Company	:	CMC Centro Misure Compatibilità S.r.l.
Address	:	Via dell'Elettronica, 12/C
		36016 Thiene (VI) – ITALY
Test site facility's FCC registration number	:	182474

3. Testing and sampling

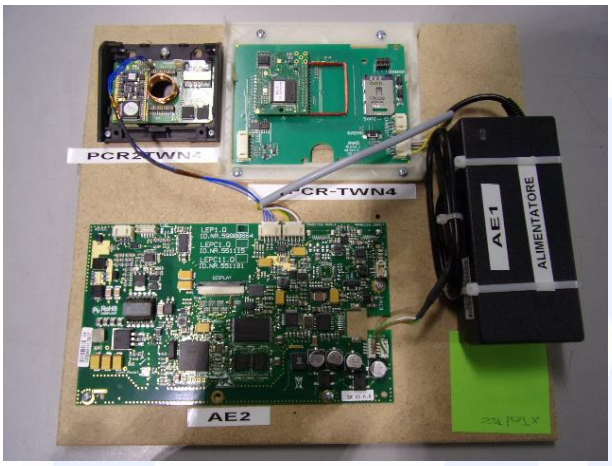
Date of receipt of test item	:	15.01.18
Testing start date	:	06.03.18
Testing end date	:	06.06.18
Samples tested nr.	:	1
Sampling procedure.	:	Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion
Internal identification	:	adhesive label with the product number P180032

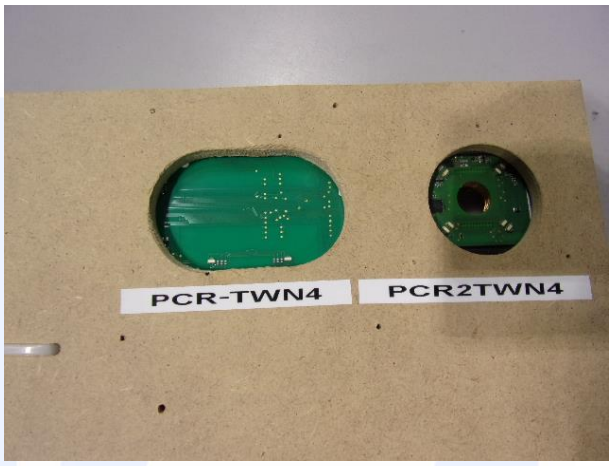
4. Operative conditions

EUT exercising	:	EUT in continuous transmission at maximum power

5. Photograph(s) of EUT

5.1 Photograph(s) of EUT





6. Equipment list

Id. number	*Manufacturer*	*Model*	*Description*	*Serial number*	*Last calibration*	*Due date calibration*
CMC S010	Rohde & Schwarz	ESH3-Z2	Impulses Limiting Device	- - -	January '18	January '19
CMC S108	EMCO	3115	Horn Antenna	9811-5622	June '16	June '19
CMC S127	Schaffner	HLA6120	Loop Antenna	1191	March '17	March '20
CMC S164	Rohde & Schwarz	ESU26	EMC interference receiver	100052	January '18	January '19
CMC S227	Rohde & Schwarz	ESR7	EMI Test Receiver 7GHz	101121	January '18	January '19
CMC S260	CMC	Wfr_N	Shielded Cable	Wfr_ant10-1	November '17	November '18
CMC S261	CMC	Wfr_N	Shielded Cable	Wfr_ant20-1	November '17	November '18
CMC S262	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix32-1	November '17	November '18
CMC S263	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix31-1	November '17	November '18
CMC S264	CMC	Wfr_N	Shielded Cable	Wfr_ext03-1	November '17	November '18
CMC S271	Schwarzbeck	BBA 9106 + VHBB 9124	Biconical Antenna (30-300MHz)	831	June '16	June '19
CMC S288	CMC	W_sma_white	Joint Shielded Cable	W_001	November '17	November '18
CMC S295	Rohde & Schwarz	FSW43	Spectrum Analyzer 43GHz	104059	November '16	November '19
CMC B026	Angelantoni	UY 245 IU	Climatic chamber	1059.78	September '16	September '19

7. Measurement uncertainty

Test	Test Setup	Expanded uncertainty	Note
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150MHz	PE001_01	3,4 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0MHz	PE001_01	2,8 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30MHz	PE001_02	2,6 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30MHz	PE001_03	2,2 dB	1
Conducted emission CISPR 16 ISN 0,15-30MHz	PE001_04	4,5 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0MHz	PE001_05	3,1 dB	1
Disturbance Power 30-300 MHz	PE002_01	3,4 dB	1
Radiated Emission LAS 0,15-30MHz	PE003_01	1,5 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30MHz	PE004_01	3,8 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300MHz	PE004_02	3,3 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000MHz	PE004_03	3,1 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18GHz	PE004_04	3,6 dB	1
Human Exposure to electromagnetic fields	PE005_01	15,0 %	1
Harmonic current emissions test	PE006_01	10 mA + 1,6 %	1
Voltage fluctuation and flicker test	PE007_01	4,2 %	1
Radiated Immunity 80MHz-6GHz	PE102_XX	2,1 dB 0,82 V/m a 3V/m	1
Conducted Immunity 0,15-230MHz	PE105_XX	1,2 dB 0,44 V a 3V	1
AC Magnetic field	PE106_01	1,55 % 0,15 A/m a 10A/m	1
Pulse Magnetic field	PE107_01	6,24 % 18,7 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,24 % 1,87 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,20 % 0,22 V a 10V	1

Test	Test Setup	Expanded uncertainty	Note
Power/Spurious 9kHz-30MHz	PR001_01	3,8 dB	1
Power/Spurious ERP 30-1000MHz d=10m	PR001_02+03	4,3 dB	1
Misura della potenza EiRP 1-18GHz d=3m	PR001_04	4,3 dB	1
Misura della potenza EiRP 18-40GHz d=3m	PR001_05	5,5 dB	1
Frequency error	PR002_01+02	< 1x10-7	1
Timing zero span (1001pts.)	PR002_01+02	0,2 % SWT	1
Modulation bandwidth	PR002_01+02	< 1x10-7	1
Conducted RF power and spurious emission	PR002_01+02	1,2 dB	1
Adjacent channel power	PR002_01+02	1,2 dB	1
Blocking	PR002_01+02	1,2 dB	1

Test	Test Setup	Expanded uncertainty	Note
Electrostatic discharge immunity test	PE101_0X		2
Electrical fast transients / burst immunity test	PE103_0X		2
Surge immunity test	PE104_0X		2
Short interruption immunity test	PE109_01		2
Rev_18_01 date 30/01/2018			

Note 1:
The expanded uncertainty reported according to EN55016-4-2:2011 is based on a standard uncertainty multiplied by a coverage factor of K=2, providing a level of confidence of p = 95%

Note 2:
It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k = 2

8. Reference documents

Reference no.	*Description*
FCC Rules and Regulation Title 47 part 15:2016	--
ANSI C63.4:2014	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz
ANSI C63.10:2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
Internal Procedure PM001 rev. 3.0 (Quality Manual)	Measure Procedure
Internal procedure INC_M rev. 9.0 (Quality Manual)	Measurement uncertainty calculation

9. Deviation from test specification

None

10. Test case verdicts

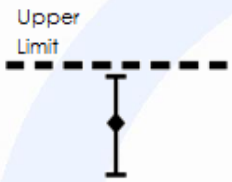
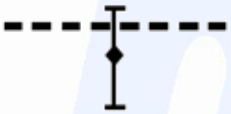
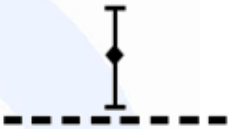
Test case does not apply to the test object	:	N.A.
Test item does meet the requirement	:	Complies
Test item does not meet the requirement	:	Does not comply
Test not performed	:	N.E.

11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC_M rev. 9.0.

Judgement of compliance:

Case 1	Case 2	Case 3	Case 4
			
The sample complies with the requirement.	The sample complies with the requirement.	The sample does not comply with the requirement.	The sample does not comply with the requirement.
The measurement results is within the specification limit when the measurement uncertainty is taken into account.	It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty although the measurement result is below the limit.	It is not possible to state compliance using a 95% coverage probability for the expanded uncertainty also the measurement result is upper the limit.	The measurement results is outside the specification limit when the measurement uncertainty is taken into account.

In agreement with ILAC-G8: 03/2009 Guidelines on the Reporting of Compliance with Specification.

11.1 Antenna requirements

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.203 and 15.204
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Laboratory

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

--
Measurement uncertainty: See clause 7 of this test report

Test specification

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded

Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
22	101	45

Result

Antenna Type	*External R.F. power amplifier*	*Remarks*	*Results*
Integral antenna	Not Present	--	Complies

Result: The requirements are met

11.2 Conducted emissions

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.207
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Shielded chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S010, CMC S200, CMC S206
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Main port
Frequency range: 150 kHz – 30 MHz

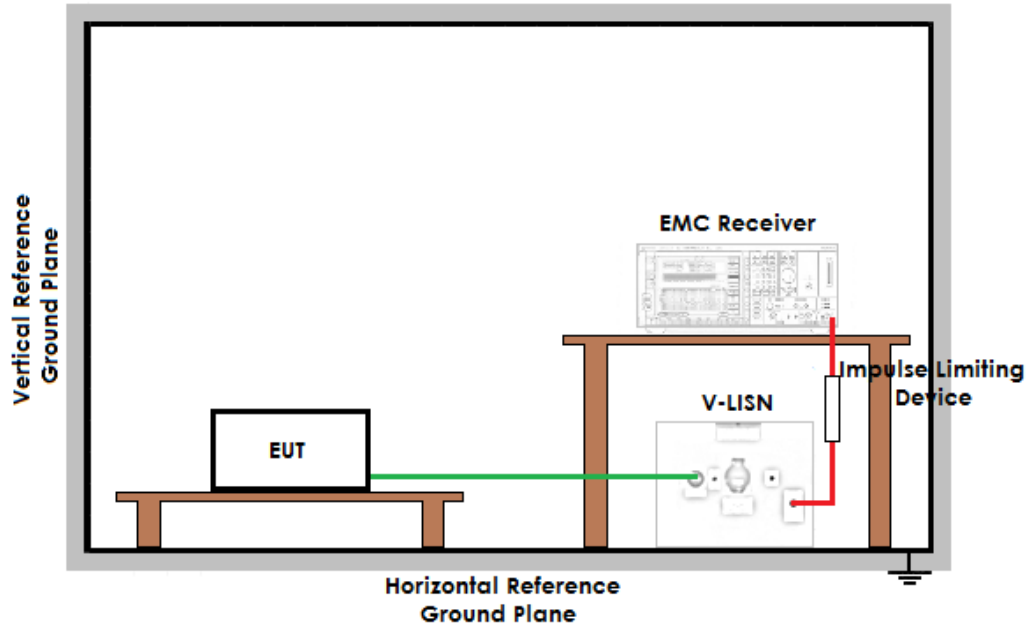
Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
22	101	45

Acceptance limits

Frequency range (MHz)	*dB(µV) Quasi-peak*	*dB(µV) Average*
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

Setup



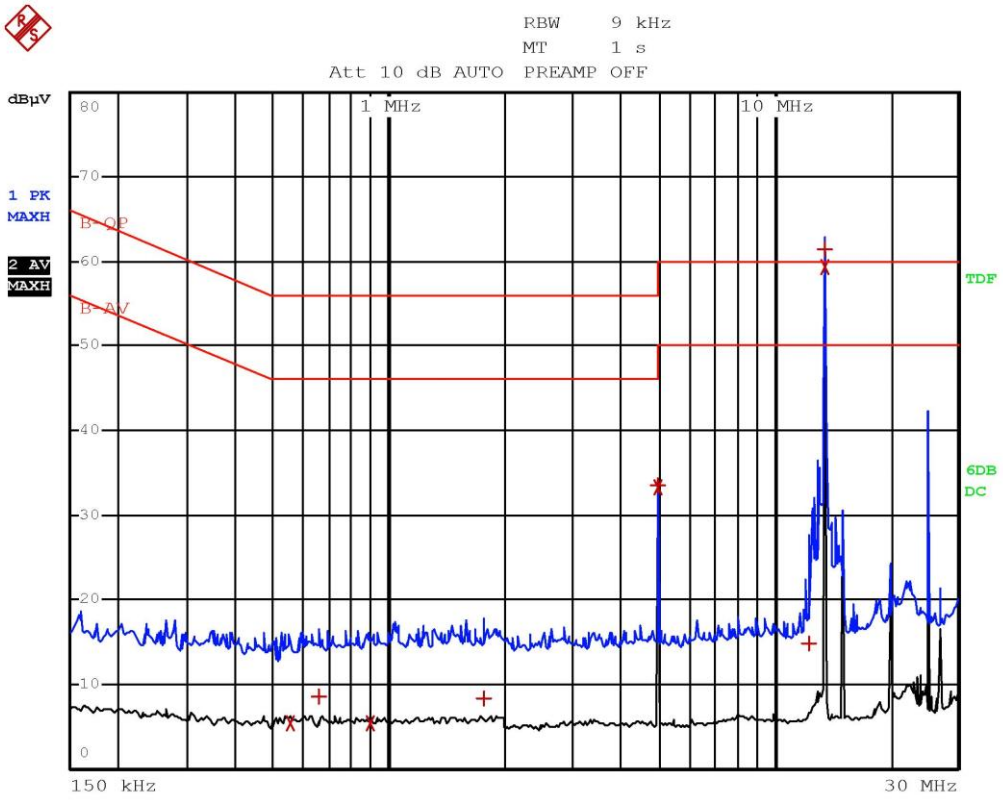
Result

Line	*Graphs*	*Remarks*	*Result*
N	G180073007	--	Complies
L1	G180073008	--	Complies
Remarks:	Tests performed on 120 Vac side of PC. Peaks above the limits are due to the main transmitting frequency		

Line	*Graphs*	*Remarks*	*Result*
L1	G180073009	--	Complies
N	G180073010	--	Complies
Remarks:	Tests performed on 120 Vac side of PC. Tests repeated closing the RF output with 50 Ω resistance instead of antenna		

Graphs Legend
PK: Peak; QP [1s] (quasi-peak at 1 second) values are marked with a +
AV: Average; AV [1s] (average at 1 second) values are marked with a X

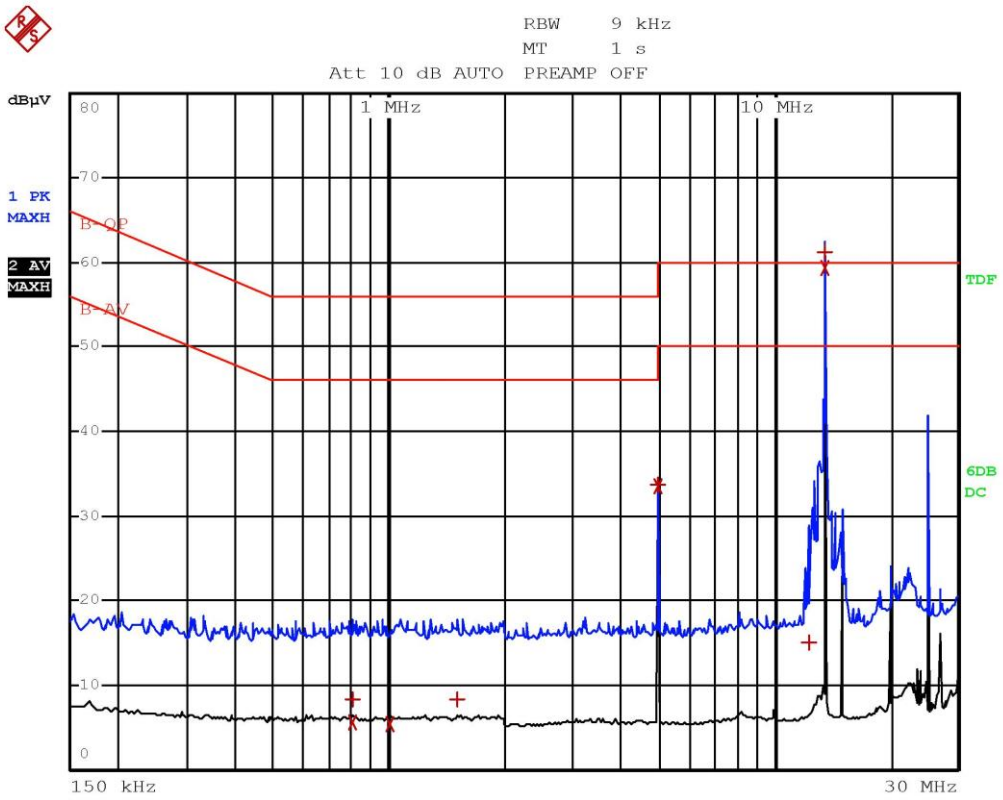
Graphs



Bertezzolo 180073007

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	B-QP		
Trace2:	B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
2 Average	554 kHz	5.41	-40.58
1 Quasi Peak	658 kHz	8.40	-47.59
2 Average	894 kHz	5.37	-40.62
1 Quasi Peak	1.766 MHz	8.22	-47.77
1 Quasi Peak	4.998 MHz	33.41	-22.58
2 Average	4.998 MHz	33.29	-12.70
1 Quasi Peak	12.29 MHz	14.70	-45.29
1 Quasi Peak	13.562 MHz	61.33	1.33
2 Average	13.562 MHz	59.33	9.33

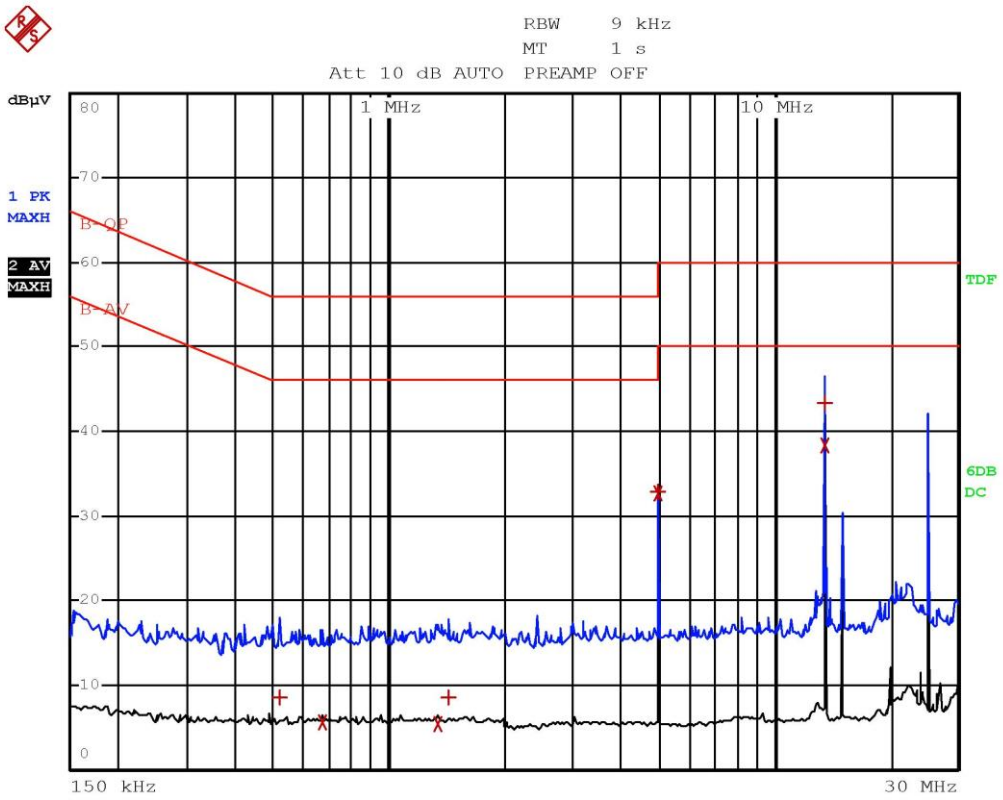
Bertezzolo 180073007



Bertezzolo 180073008

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	B-QP		
Trace2:	B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	802 kHz	8.31	-47.68
2 Average	802 kHz	5.46	-40.53
2 Average	1.006 MHz	5.38	-40.61
1 Quasi Peak	1.506 MHz	8.22	-47.77
1 Quasi Peak	4.998 MHz	33.63	-22.36
2 Average	4.998 MHz	33.42	-12.57
1 Quasi Peak	12.29 MHz	15.07	-44.92
1 Quasi Peak	13.562 MHz	61.19	1.19
2 Average	13.562 MHz	59.27	9.27

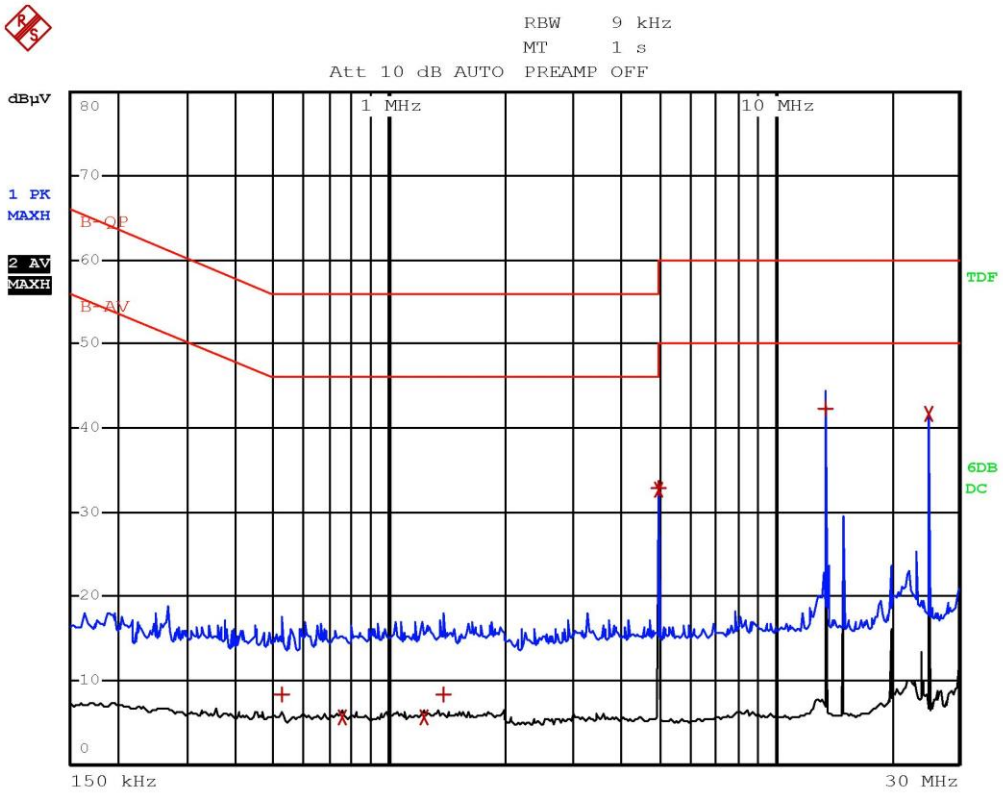
Bertezzolo 180073008



Bertezzolo 180073009

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	B-QP		
Trace2:	B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	522 kHz	8.40	-47.59
2 Average	670 kHz	5.54	-40.45
2 Average	1.346 MHz	5.40	-40.59
1 Quasi Peak	1.434 MHz	8.49	-47.50
1 Quasi Peak	4.998 MHz	32.93	-23.06
2 Average	4.998 MHz	32.71	-13.29
1 Quasi Peak	13.562 MHz	43.41	-16.58
2 Average	13.562 MHz	38.22	-11.77

Bertezzolo 180073009



Bertezzolo 180073010

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	B-QP		
Trace2:	B-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	526 kHz	8.31	-47.68
2 Average	758 kHz	5.53	-40.46
2 Average	1.23 MHz	5.49	-40.50
1 Quasi Peak	1.378 MHz	8.31	-47.68
1 Quasi Peak	4.998 MHz	32.86	-23.13
2 Average	4.998 MHz	32.65	-13.34
1 Quasi Peak	13.558 MHz	42.30	-17.69
2 Average	24.998 MHz	41.68	-8.31

Bertezzolo 180073010

Result: The requirements are met

11.3 Radiated emissions

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part. 15.209
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Semi-anechoic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S127, CMC S164, CMC S271
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Enclosure
Frequency range: 0,009 MHz – 300 MHz
Antenna polarization: Horizontal (H) – Vertical (V)
EUT – Antenna distance: 10 m
EUT height about the floor: 80 cm

Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
22	100	45

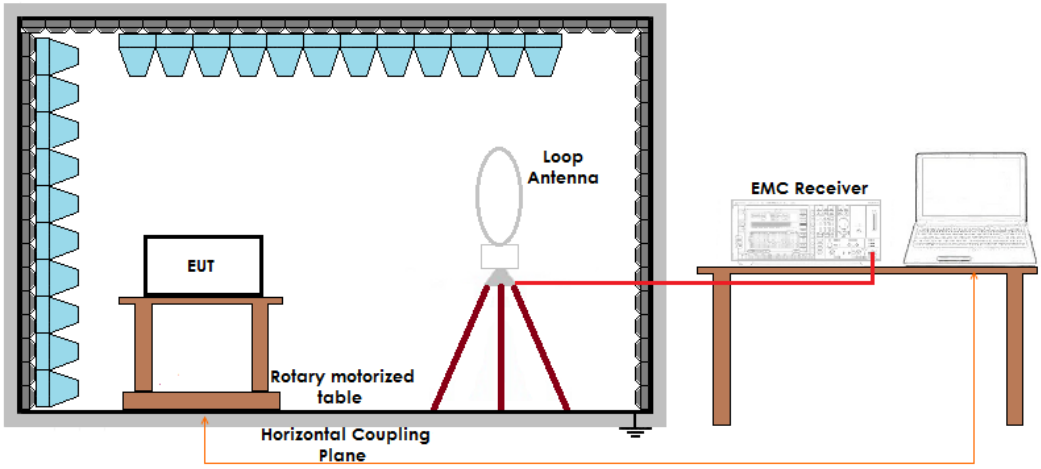
Acceptance limits

Frequency range (MHz)	*Test distance (m)*	*Limits [dB(µV/m)]*	
0,009 to 0,490	300	48,5 to 13,8	
0,490 to 1,705	30	33,8 to 22,9	
1,705 to 30	30	29,5	
30 to 88	3	40	
88 to 216	3	43,5	
216 to 960	3	46,0	
Above 960	3	53,9	
	Test distance (m)	*Linear average detector [dB(µV/m)]*	*Peak detector [dB(µV/m)]*
Above 1000	3	53,9	73,9

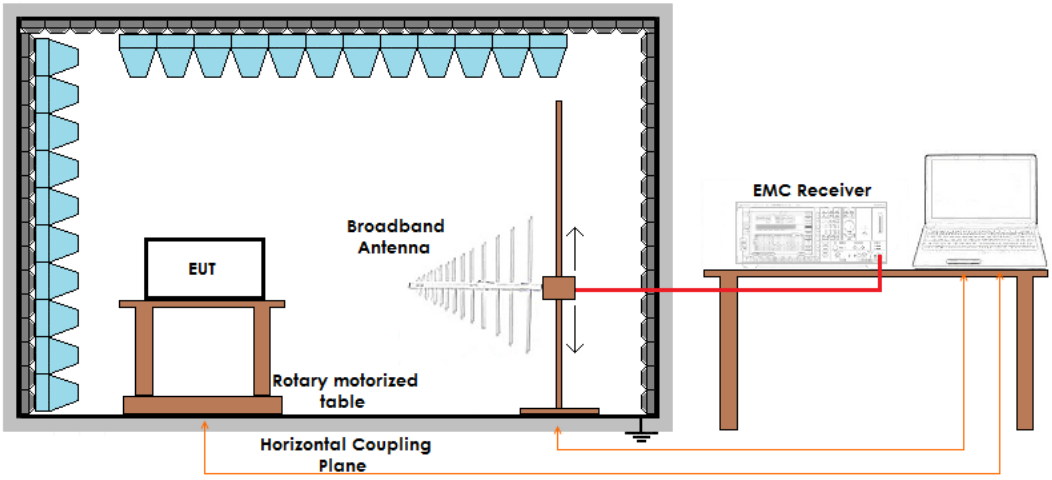
Remarks: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Setup

Frequency ≤ 30 MHz



Frequency ≤ 1 GHz

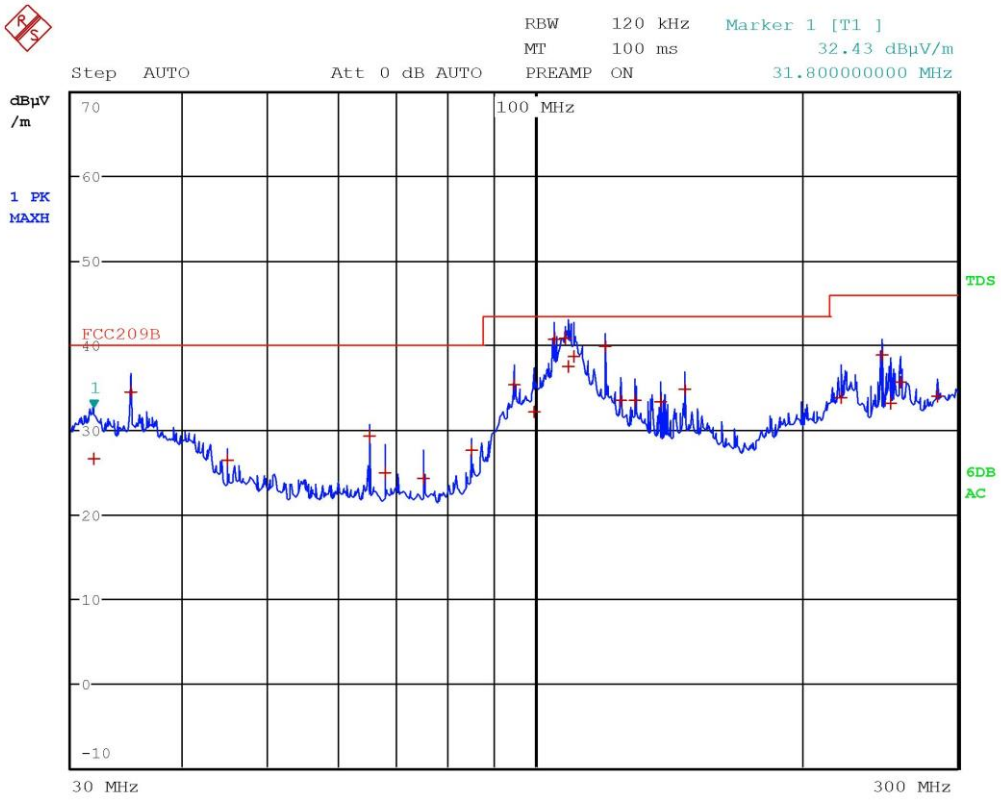


Result

Polarization	*Frequency Range (MHz)*	*Graphs*	*Remarks*	*Result*
V	30 – 300	G180073013	--	Complies
H	30 – 300	G180073014	--	Complies
V	300 – 1000	G180073015	--	Complies
H	300 – 1000	G180073016	--	Complies
Loop	0,009 – 30	G180073019	--	Complies
Remarks:	Measurements have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with different conversion factors, based on the measuring distance provided by the standard			

Graphs Legend
PK: Peak; QP [1s] (quasi-peak at 1 second) values are marked with a +
AV: Average; AV [1s] (average at 1 second) values are marked with a x

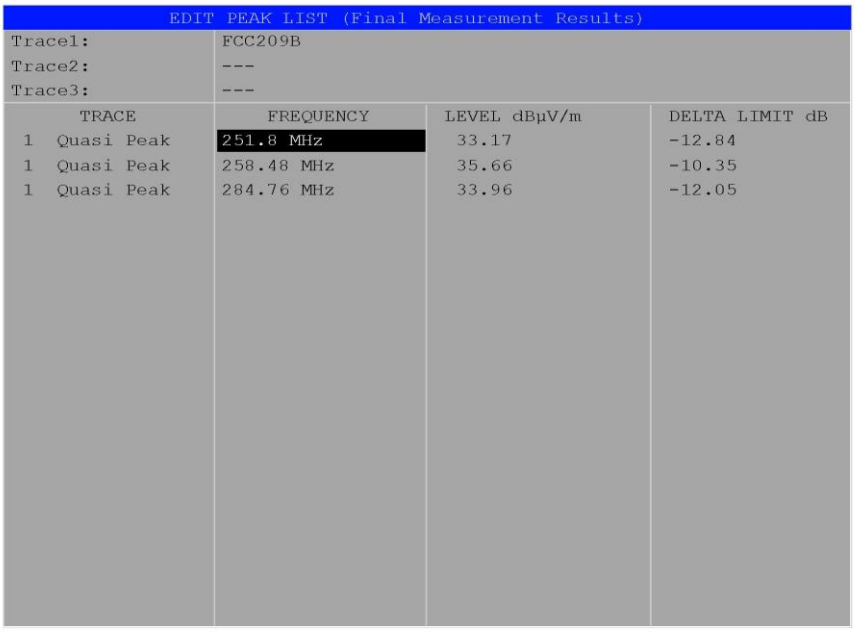
Graphs



Bertezzolo 180073013

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCC209B		
Trace2:	---		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	31.8 MHz	26.60	-13.39
1 Quasi Peak	35 MHz	34.43	-5.56
1 Quasi Peak	45 MHz	26.31	-13.68
1 Quasi Peak	65 MHz	29.17	-10.83
1 Quasi Peak	67.8 MHz	24.90	-15.09
1 Quasi Peak	75 MHz	24.15	-15.84
1 Quasi Peak	85 MHz	27.64	-12.35
1 Quasi Peak	95 MHz	35.31	-8.20
1 Quasi Peak	100.04 MHz	32.16	-11.35
1 Quasi Peak	105 MHz	40.60	-2.91
1 Quasi Peak	108.48 MHz	40.85	-2.66
1 Quasi Peak	109.24 MHz	37.47	-6.04
1 Quasi Peak	110.8 MHz	38.68	-4.83
1 Quasi Peak	120 MHz	39.77	-3.74
1 Quasi Peak	124.96 MHz	33.44	-10.07
1 Quasi Peak	130 MHz	33.46	-10.05
1 Quasi Peak	138.48 MHz	33.19	-10.32
1 Quasi Peak	147.68 MHz	34.78	-8.73
1 Quasi Peak	221.56 MHz	33.81	-12.20
1 Quasi Peak	246.6 MHz	38.81	-7.20

Bertezzolo 180073013

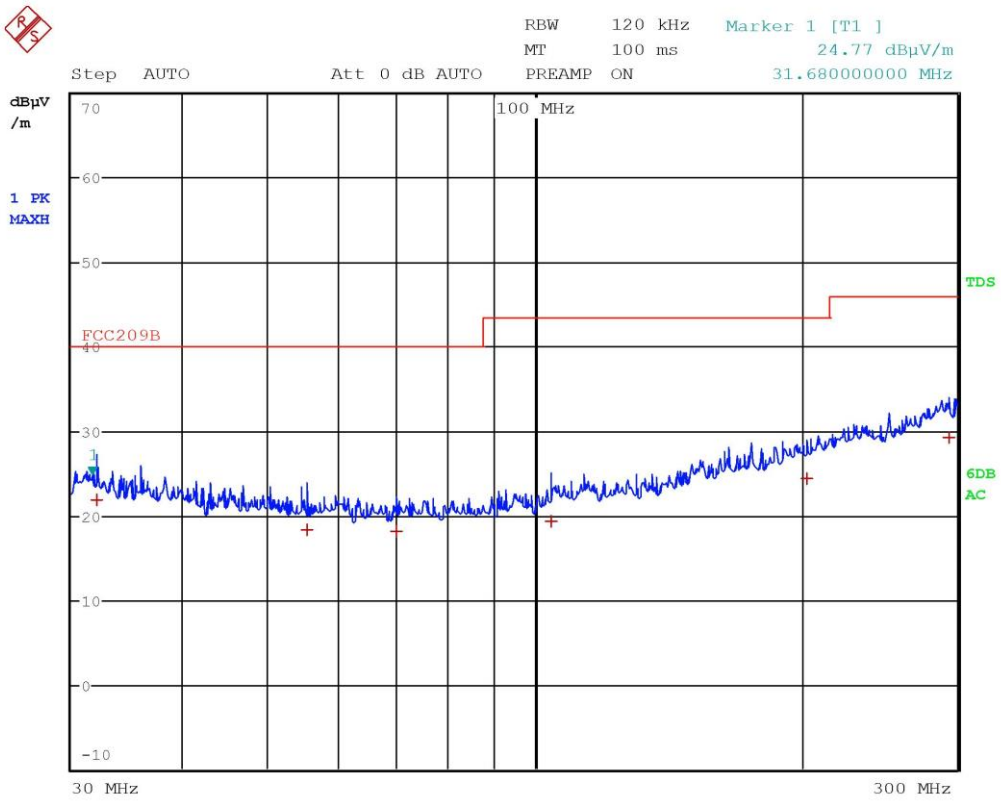


EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC209B
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	251.8 MHz	33.17	-12.84
1 Quasi Peak	258.48 MHz	35.66	-10.35
1 Quasi Peak	284.76 MHz	33.96	-12.05

Bertezzolo 180073013



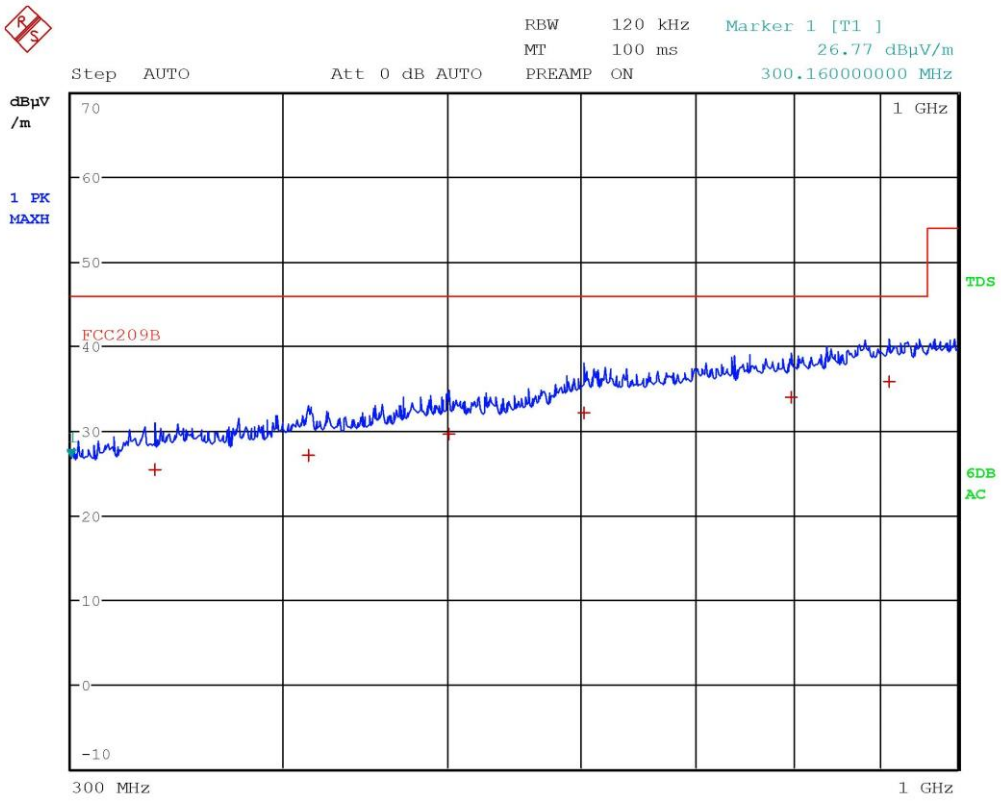
Bertezzolo 180073014

EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC209B
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	32.04 MHz	21.77	-18.22
1 Quasi Peak	55.28 MHz	18.40	-21.59
1 Quasi Peak	69.76 MHz	18.14	-21.85
1 Quasi Peak	104.56 MHz	19.26	-24.25
1 Quasi Peak	202.64 MHz	24.36	-19.15
1 Quasi Peak	293.8 MHz	29.20	-16.81

Bertezzolo 180073014



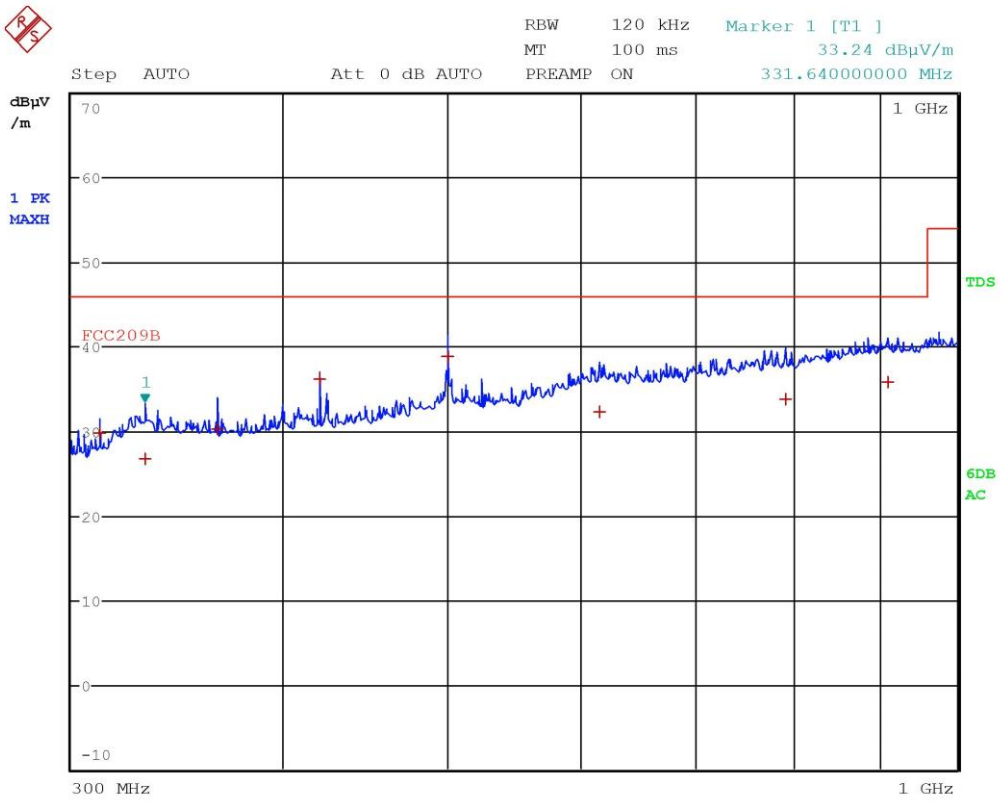
Bertezzolo 180073015

EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC209B
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	335.84 MHz	25.37	-20.64
1 Quasi Peak	414.24 MHz	27.11	-18.90
1 Quasi Peak	500.84 MHz	29.51	-16.50
1 Quasi Peak	601.68 MHz	32.17	-13.84
1 Quasi Peak	798.64 MHz	33.91	-12.10
1 Quasi Peak	912.04 MHz	35.87	-10.14

Bertezzolo 180073015



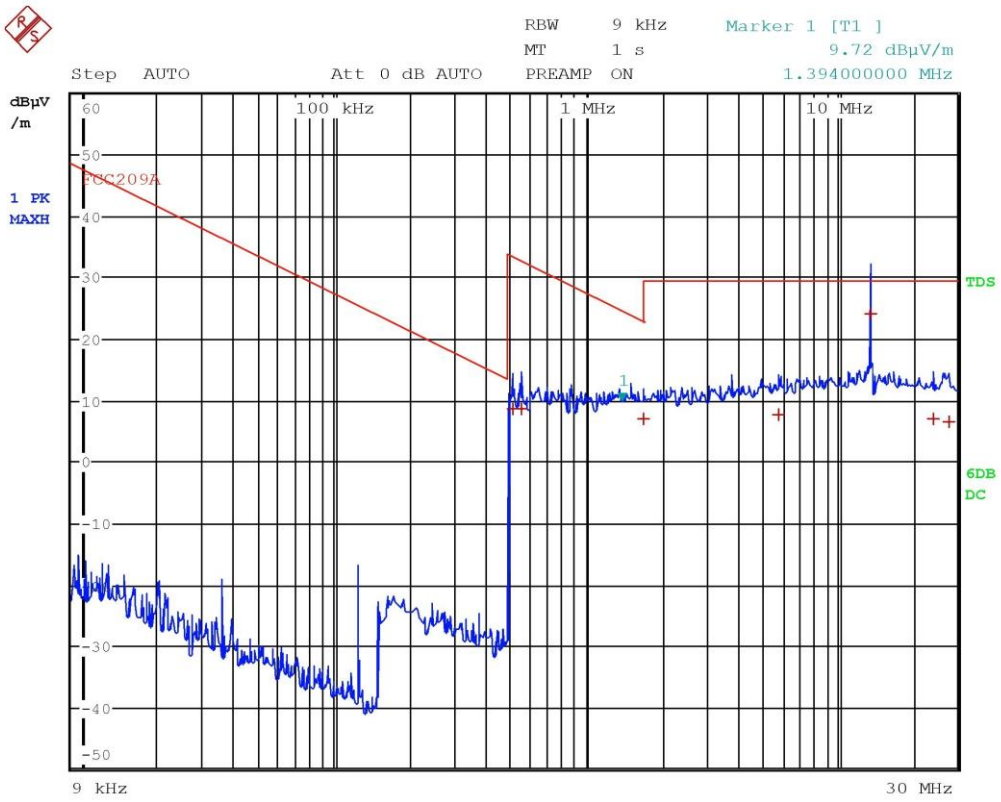
Bertezzolo 180073016

EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC209B
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	311.88 MHz	29.71	-16.30
1 Quasi Peak	331.64 MHz	26.65	-19.36
1 Quasi Peak	366.12 MHz	30.27	-15.74
1 Quasi Peak	420.36 MHz	36.07	-9.94
1 Quasi Peak	500 MHz	38.75	-7.26
1 Quasi Peak	614.8 MHz	32.26	-13.75
1 Quasi Peak	792.24 MHz	33.82	-12.19
1 Quasi Peak	909.92 MHz	35.81	-10.20

Bertezzolo 180073016



Bertezzolo 180073019

EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC209A
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	510 kHz	8.65	-24.80
1 Quasi Peak	550 kHz	8.58	-24.20
1 Quasi Peak	1.702 MHz	7.06	-15.91
1 Quasi Peak	5.838 MHz	7.74	-21.79
1 Quasi Peak	13.558 MHz	24.10	-5.43
1 Quasi Peak	23.906 MHz	6.98	-22.55
1 Quasi Peak	27.876 MHz	6.59	-22.94

Bertezzolo 180073019

Result: The requirements are met

11.4 Field strength within the assigned band

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.225
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Semi-anechoic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S127, CMC S164
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Enclosure
EUT – Antenna distance: 10 m

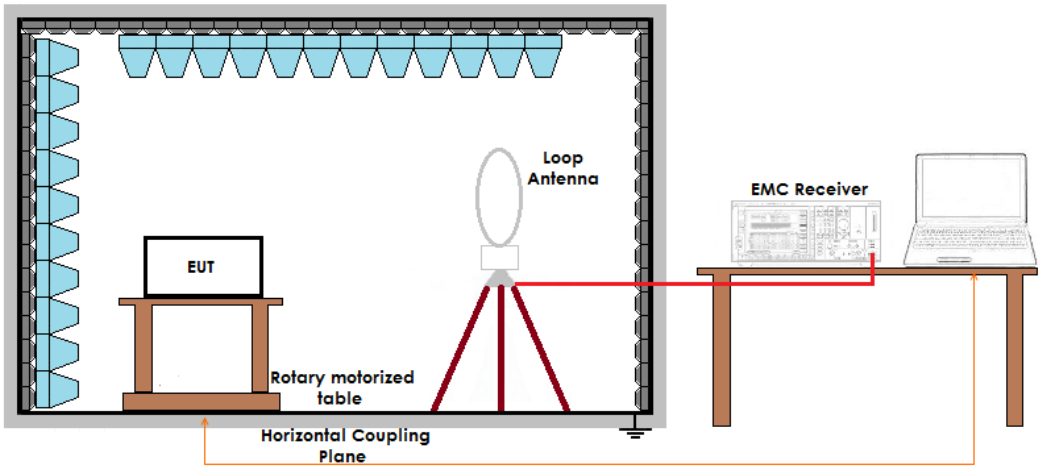
Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
22	100	45

Acceptance limits

	Limits		
cl.	*Frequency range (MHz)*	*dB(µV/m) Quasi-peak*	*Test distance (m)*
15.225 (a)	13,553 to 13,567	23,99	30
15.225 (b)	13,410 to 13,553 and 13,567 to 13,710	50,47	30
15.225 (c)	13,110 to 13,410 and 13,710 to 14,010	40,51	30
15.225 (d)	outside of the 13,110 – 14,010 MHz band	FCC 15.209	

Setup

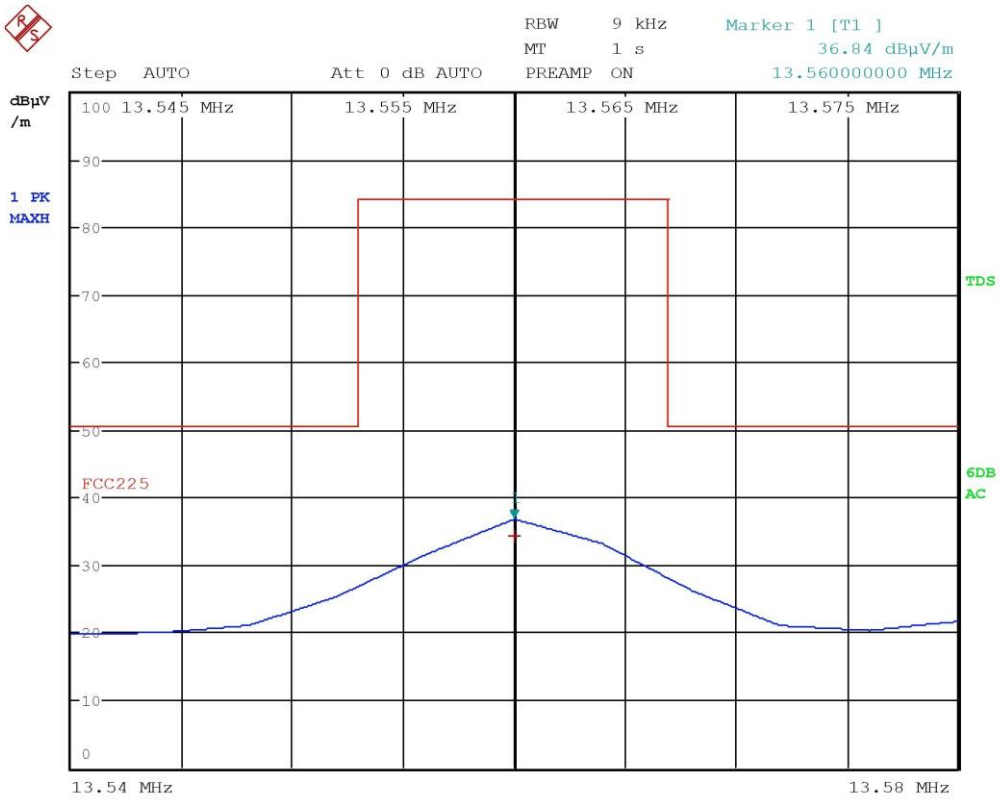


Result

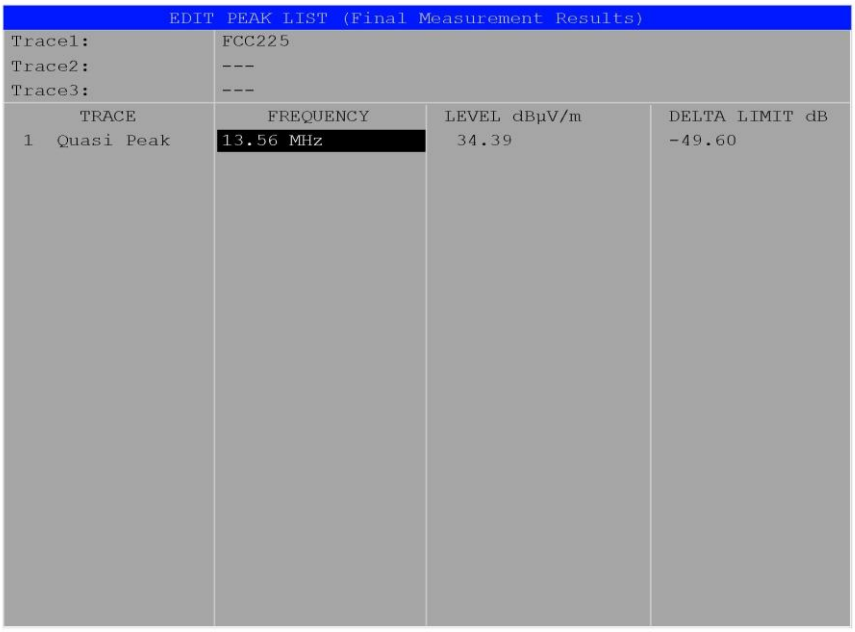
Graphs	*Limits (dBµV/m)*	*Level (dBµV/m)*	*Results*
G180073002	84,00	34,39	Complies
G180073003			

Remarks: Measurements have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with different conversion factors, based on the measuring distance provided by the standard. EUT was tested in 3 orthogonal planes. The results in this table show the highest value.

Graphs



Bertezzolo 180073002

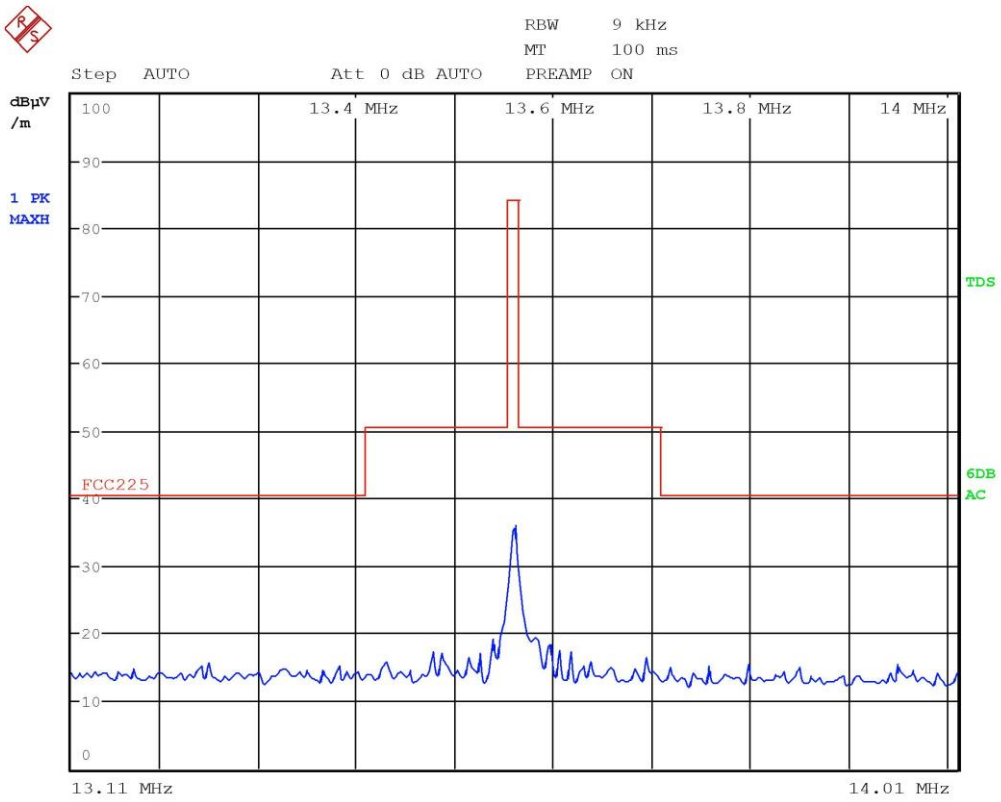


EDIT PEAK LIST (Final Measurement Results)

Trace1:	FCC225
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	13.56 MHz	34.39	-49.60

Bertezzolo 180073002



Bertezzolo 180073003

Result: The requirements are met

11.5 Frequency tolerance

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.225 (e)
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Climatic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC B026, CMC S295
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Enclosure
EUT – Antenna distance: 3 m

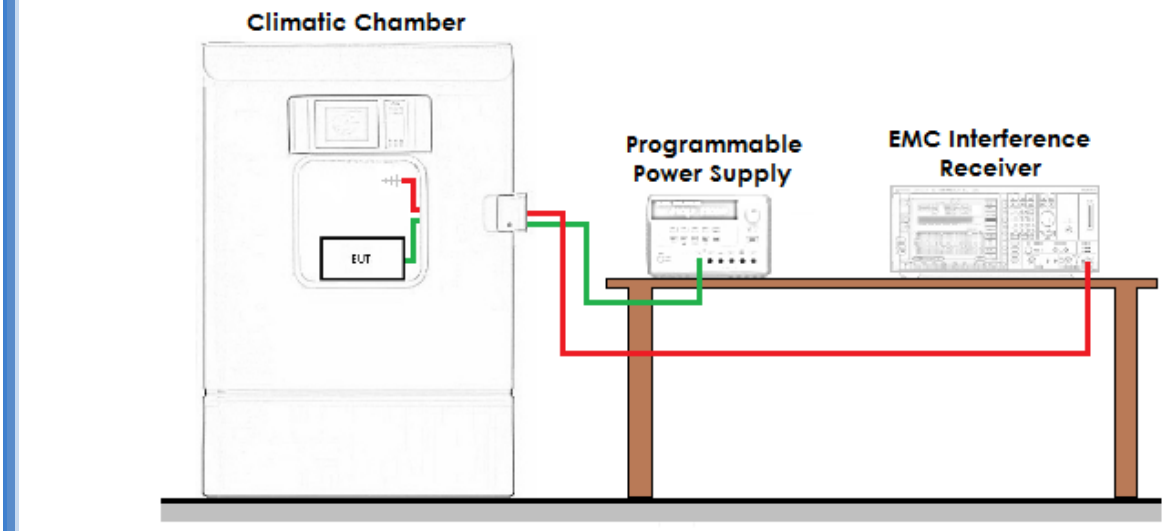
Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
23	100	55

Acceptance limits:

The frequency tolerance of the carrier signal shall be maintained within ±0,01% of the operating frequency (±1,36 kHz)

Setup



Result

Test conditions		*Measured frequency*	*Frequency limits*
Temperature (°C)	*Voltage level (V)*	*(MHz)*	*(MHz)*
-20	Normal supply voltage	13,560360	13,55864 – 13,56136
-10	Normal supply voltage	13,560380	13,55864 – 13,56136
0	Normal supply voltage	13,560380	13,55864 – 13,56136
10	Normal supply voltage	13,560340	13,55864 – 13,56136
20	Normal supply voltage	13,560320	13,55864 – 13,56136
30	Normal supply voltage	13,560300	13,55864 – 13,56136
40	Normal supply voltage	13,560260	13,55864 – 13,56136
50	Normal supply voltage	13,560220	13,55864 – 13,56136

Test conditions			*Measured frequency*	*Frequency limits*
Temperature (°C)	*Voltage level (%)*	*Voltage level (V)*	*(MHz)*	*(MHz)*
20	85	4,25	13,560280	13,55864 – 13,56136
20	90	4,50	13,560280	13,55864 – 13,56136
20	95	4,75	13,560280	13,55864 – 13,56136
20	100	5,00	13,560280	13,55864 – 13,56136
20	105	5,25	13,560280	13,55864 – 13,56136
20	110	5,50	13,560280	13,55864 – 13,56136
20	115	5,75	13,560280	13,55864 – 13,56136

Result: The requirements are met

11.6 20 dB bandwidth

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.215
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Laboratory

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S127, CMC S164
Measurement uncertainty: See clause 7 of this test report

Test specification

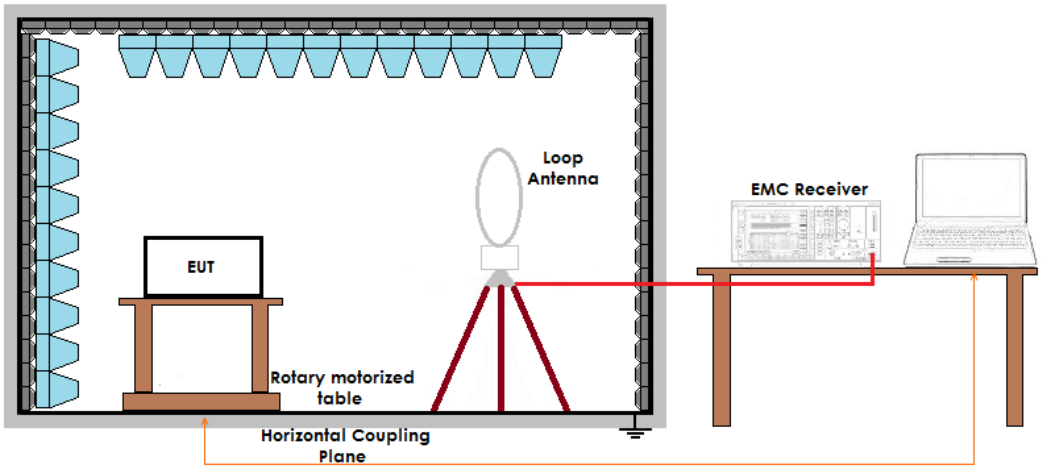
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated

Environmental conditions

Temperature (°C)	*Atmospheric pressure (kPa)*	*Relative humidity (%)*
22	100	45

Acceptance limits: operation within the band 13,110 – 14,010 MHz

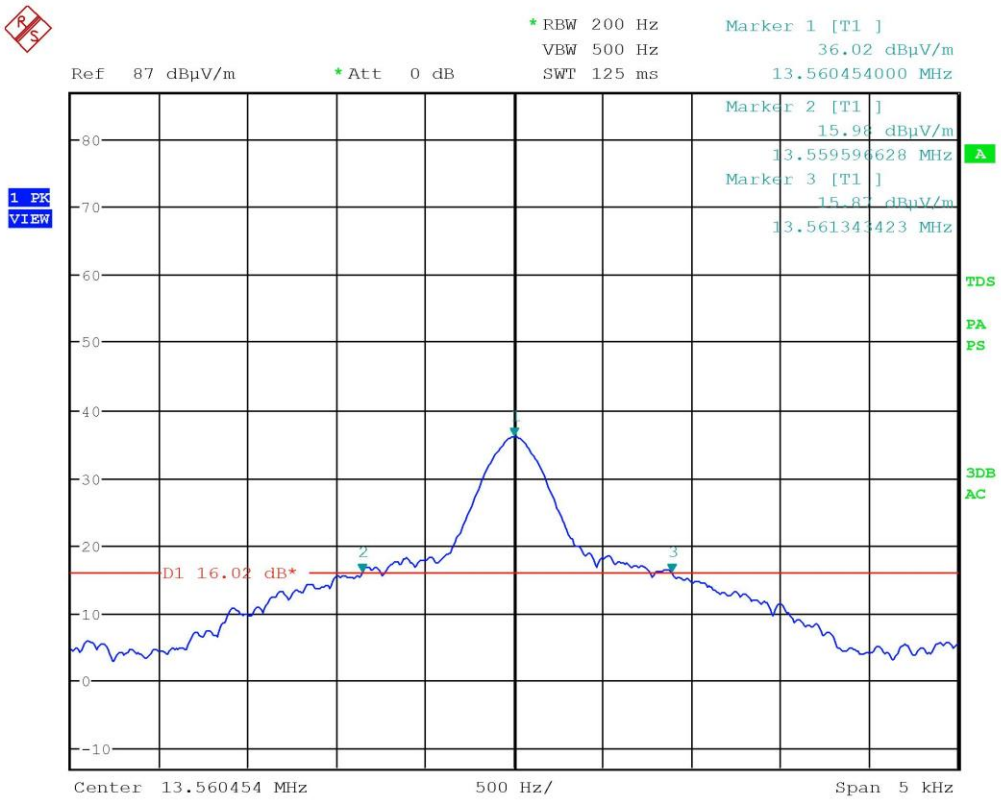
Setup



Result

f (MHz)	*20 dB bandwidth (MHz)*		*Graph*	*Results*
	FL	FH		
13,560454	13,559596	13,561343	G180073004	Complies

Graphs



Bertezzolo 180073004

Result: The requirements are met