

Test report nr. R25135601

Federal Communication Commission (FCC)

Customer	Caen RFID S.r.l. Via Vetraia, 11 – 55049 Viareggio (LU) – Italy	
(#) FCC ID	UVECAENRFID040	
(#) Description of item tested	R1353IU – Slate3 – RAIN RFID Desktop Reader – FCC	
(#) Trademark	Caen RFID	
(#) Model and/or type reference	R1353IU	
(#) Manufacturer	Caen RFID S.r.l. Via Vetraia, 11 – 55049 Viareggio (LU) – Italy	
(#) Rating(s)	5 Vdc	
Test method requested, standard(s)	FCC Rules & Regulations, Title 47:2024 Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 247	
Tested by (name / position & signature)	F. De Rosso Technician	
Approved by (name / position & signature)	F. Marenda Laboratory manager	
Date of issue	01.10.2025	
General disclaimer	The test results presented in this report relate only to the item tested. This report shall not be reproduced, except in full, without the written approval of DEKRA Testing and Certification S.r.l.	
Report template No	15-247_Hopping_DEKRA	

(#) information provided by the customer

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Competences and guarantees

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4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification S.r.l. and the Accreditation Bodies.

Data provided by the customer

Information relating to the description of the sample, components list, and software/hardware version (if reported) are provided by the customer/manufacture. DEKRA Testing and Certification S.r.l. cannot be considered responsible for this information, for any other document provided by the customer/manufacture and for any difference between the software/hardware release present in the tested sample and that present in the object intended for final sale.

In some cases, the software in the tested sample is in a version dedicated exclusively to the test, and therefore does not represent the software installed in the final version of the product.

Reference standards

Standard(s)	Description
FCC Rules and Regulation Title 47 part 15:2024	--
KDB 558074 D01 15.247 Meas Guidance v05r02	Guidance for compliance measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under section 15.247 of the FCC rules
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 C63.10:2020 + COR1:2023	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Usage of samples

Sample(s) used for testing chosen by the customer; DEKRA Testing and Certification S.r.l. cannot be considered responsible for the selection of the sample(s).

Internal identification	Serial number/Customer Id	Date of reception	Notes
P250733	0001000425190001	24.06.2025	--

Test sample description

Test power supply	Voltage and Frequency		Reference poles				
			L1	L2	L3	N	PE
	☐	AC:	☐	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐	☐
	☒	DC: 5 V					
	☐	DC:					
Frequency band(s)	902 – 928 MHz						
Nominal frequencies	902,75 MHz 914,75 MHz 927,25 MHz						
Firmware release	1.0.0						
Pseudo randomly ordered list of hopping frequencies.....	See document R1353IU_Operational_Description						
Type of equipment	☒	Transmitter unit					
	☒	Receiver unit					
Type of station	☐	Portable station					
	☒	Mobile station					
Mounting position	☐	Table top equipment					
	☐	Wall/Ceiling mounted equipment					
	☐	Floor standing equipment					
	☐	Hand-held equipment					
	☒	Other, for example rack mounted, body worn, etc.					
Operating modes	N.	Operating mode of test item					
	1	EUT in continuous transmission at maximum power					

Photos of the test item





Testing period and place

Test Location	DEKRA Testing and Certification S.r.l.
FCC Registration Number	182474
Date (start)	18.09.2025
Date (finish)	23.09.2025

Document history

Report number	Date	Description
R25135601	01.10.2025	First release

List of attachments

Name	Description
Attachment 1	Measurement uncertainty, judgement of compliance and quality manual references

Environmental conditions

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment.

The climatic conditions during the tests were within the following limits:

Temperature	Humidity	Atmospheric pressure
15 °C – 35 °C	30 % - 60 %	800 hPa – 1060 hPa

If explicitly required in the basic standard or applied product standard the climatic values are recorded and documented separately in this test report.

Environmental conditions have been monitored with the following instruments:

Id. number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
CMC S302	Testo	175H1	40370182 610	Data Logger	May 2025	May 2026

Remarks and comments

Throughout this report a comma is used as the decimal separator.

Tests reported in this test report marked by wording: "Test not accredited by ACCREDIA" are not part of the ACCREDIA accreditation of this laboratory.

Deviations from test specification

None.

Testing verdicts

N/A (Not Applicable)	Test case does not apply to the test object
P (Pass)	Test object meets the requirement
F (Fail)	Test object does not meet the requirement
N/E (Not Executed)	Test object was not evaluated for the requirement

Verdict summary

FCC Rules & Regulations, Title 47:2024 Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 247			
Clause	Requirement – Test case	Basic standard	Verdict
Part 15.247 (a) (1)	Pseudo randomly ordered list of hopping frequencies	--	P
Part 15.203	Antenna requirements	ANSI C63.10	P
Part 15.207	Conducted emissions	ANSI C63.10	P
Part 15.209	Radiated emissions and spurious emissions	ANSI C63.10	P
Part 15.247	20 dB Bandwidth	ANSI C63.10	P
Part 15.247	Channel Separation	ANSI C63.10	P
Part 15.247	Number of Hopping Channel	ANSI C63.10	P
Part 15.247	Time of occupancy	ANSI C63.10	P
Part 15.247	Band edge	ANSI C63.10	P
Part 15.209 and 15.247	Peak Output Power	ANSI C63.10	P

Test results

Antenna requirements

Tested by	F. De Rosso	
Test date	18.09.2025	
Basic standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.203 and 15.204	
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, 15.221, or § 15.236. 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	
Antenna type	☒	Integral antenna
	☐	External antenna
Antenna gain	-2,6 dBi	
External R.F. power amplifier.....	Not Present	

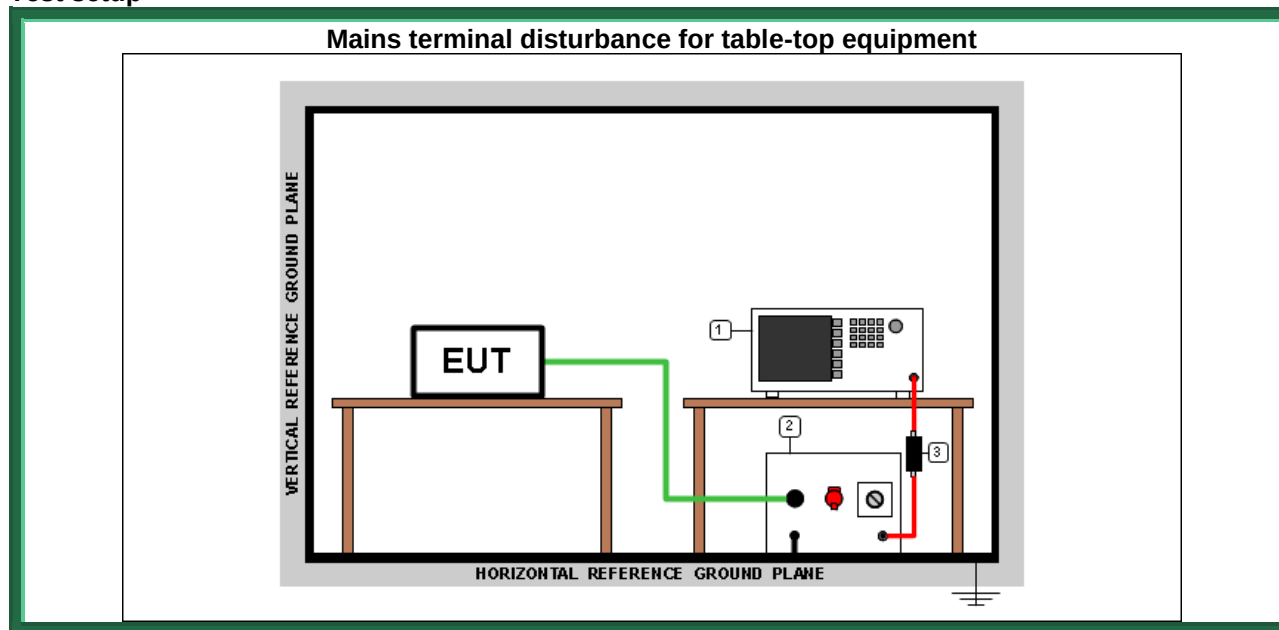
Conducted emission

Tested by	F. De Rosso	
Test date	18.09.2025	
Test location (stand).....	Shielded chamber (CMC A001)	
Basic standard(s)	ANSI C63.10 cl. 6.2	
Product standard(s).....	FCC Rules and Regulation; Titles 47 Part. 15.207	
Test set-up description	☒	Table top equipment set-up (80 cm above the reference ground plane)
	☐	Floor standing equipment set-up (insulating material up to 12 mm thick)
	☐	False floor installation equipment set-up (insulating material up to 34 cm above the reference ground plane)
Supplementary Test set-up description	--	
Test method applied.....	☒	Artificial mains network, 50 μ H/50 Ω LISN
	☐	Other:

Acceptance limits

Frequency range (MHz)	$dB(\mu V)$ Quasi-peak	$dB(\mu V)$ Average
0,15 to 0,50	66 to 56	56 to 46
0,5 to 5	56	46
5 to 30	60	50

Test setup



Test setup PE001_01

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
3	CMC S419	Rohde & Schwarz	ESH3-Z2	--	Pulse limiter	September 2025	September 2026
2	CMC S200	Schwarzbeck	NSLK 8128	8128-273	V-LISN	January 2025	January 2026
1	CMC S206	Rohde & Schwarz	ESCI 7	100781	EMC Receiver 9KHz-7GHz	December 2024	December 2025

Result

Line	Frequency Range (MHz)	Graphs	Remarks	Verdict
N	0,15 – 30	25135601	--	P
L1	0,15 – 30	25135602	--	P

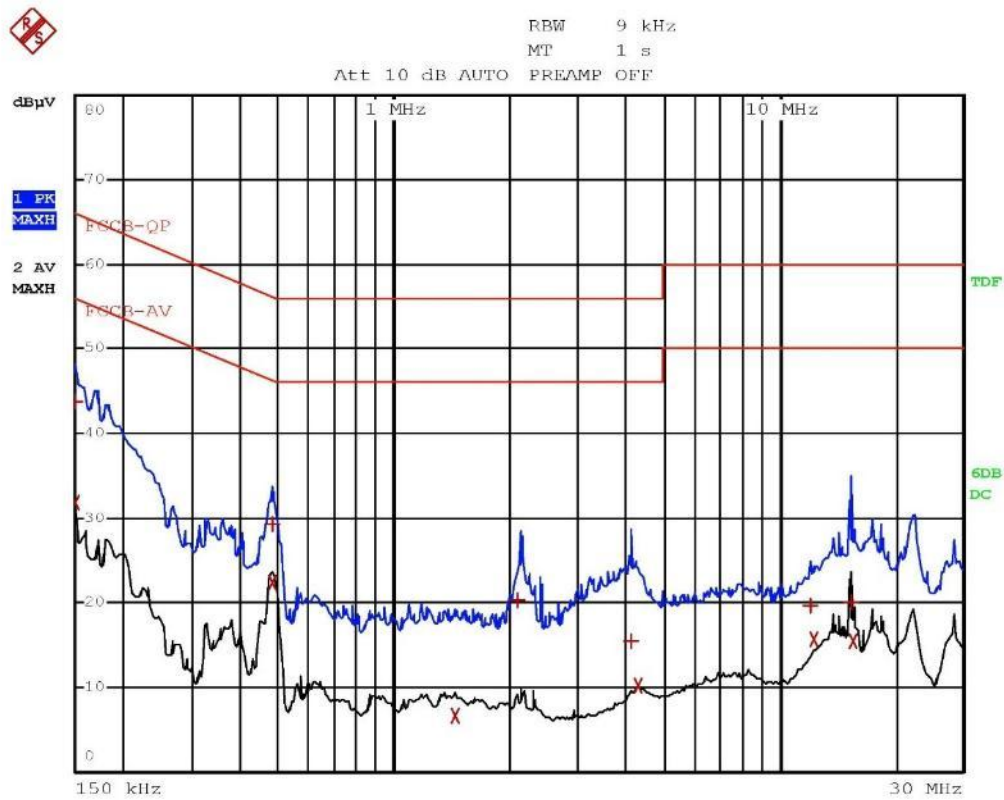
Remarks: tests performed on 120 Vac side of power unit.

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

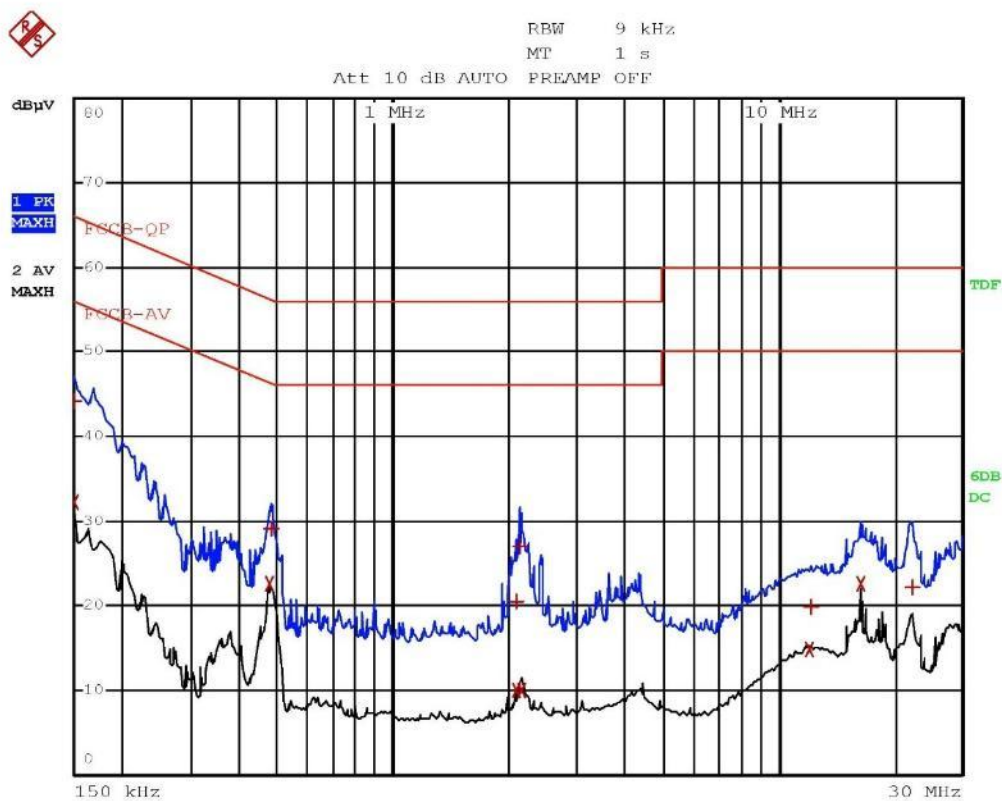
Graphs



De Rosso-25135601-Line N-Working complete setup

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCB-QP		
Trace2:	FCCB-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBpV	DELTA LIMIT dB
1 Quasi Peak	150 kHz	43.77	-22.22
2 Average	150 kHz	31.77	-24.22
1 Quasi Peak	482 kHz	29.23	-27.06
2 Average	482 kHz	22.35	-23.95
2 Average	1.446 MHz	6.66	-39.33
1 Quasi Peak	2.098 MHz	20.16	-35.83
1 Quasi Peak	4.122 MHz	15.37	-40.62
2 Average	4.318 MHz	10.27	-35.72
1 Quasi Peak	12.026 MHz	19.56	-40.43
2 Average	12.378 MHz	15.54	-34.45
1 Quasi Peak	15.354 MHz	19.97	-40.02
2 Average	15.52 MHz	15.52	-34.47

De Rosso-25135601-Line N-Working complete setup



De Rosso-25135602-Line L-Working complete setup

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCB-QP		
Trace2:	FCCB-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBpV	DELTA LIMIT dB
1 Quasi Peak	150 kHz	44.19	-21.80
2 Average	150 kHz	32.32	-23.67
2 Average	478 kHz	22.58	-23.78
1 Quasi Peak	482 kHz	29.16	-27.13
1 Quasi Peak	2.094 MHz	20.37	-35.62
2 Average	2.094 MHz	9.88	-36.11
1 Quasi Peak	2.15 MHz	26.90	-29.09
2 Average	2.162 MHz	9.92	-36.07
2 Average	12.014 MHz	14.75	-35.24
1 Quasi Peak	12.174 MHz	19.84	-40.15
2 Average	16.35 MHz	22.52	-27.47
1 Quasi Peak	22.186 MHz	22.10	-37.89

De Rosso-25135602-Line L-Working complete setup

Emissions in restricted frequency bands and in unrestricted frequency bands

Tested by	F. De Rosso
Test date	22.09.2025
Test location (stand)	Semi-anechoic chamber (CMC A070)
Basic standard(s)	ANSI C63.10 cl. 6.3, 6.4, 6.5 and 6.6
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.209
Test set-up description.....	☒ Table top equipment set-up (80 cm above the reference ground plane) ☐ Floor standing equipment set-up (insulating material up to 12 mm thick) ☐ False floor installation equipment set-up (insulating material up to 34 cm above the reference ground plane)
Supplementary test set-up description.....	--
Test method applied	OATS or SAC with measurement distance [m]: 10 m for frequencies below 1 GHz 3 m for frequencies above 1 GHz
Supplementary information	--

Acceptance limits

Acceptance limits for emissions in restricted frequency bands ($f < 1000$ MHz)		
Frequency range (MHz)	Test distance (m)	Limits [dB(μ V/m)]
0,009 to 0,490	300	$20\log(2400/F(\text{kHz}))$
0,490 to 1,705	30	$20\log(24000/F(\text{kHz}))$
1,705 to 30	30	$20\log(30)$
30 to 88	3	$20\log(100)^{**}$
88 to 216	3	$20\log(150)^{**}$
216 to 960	3	$20\log(200)^{**}$
Above 960	3	$20\log(500)$

** : except as provided in paragraph (g), 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. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

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.

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 and 110 – 490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector. The Verdict have been extrapolated to the specified distance using an extrapolation factor.

Acceptance limits for emissions in restricted frequency bands ($f \geq 1000$ MHz)			
Frequency (MHz)	Test distance (m)	AV limits [dB(μ V/m)]	Peak limits [dB(μ V/m)]
> 1000	3	54	74

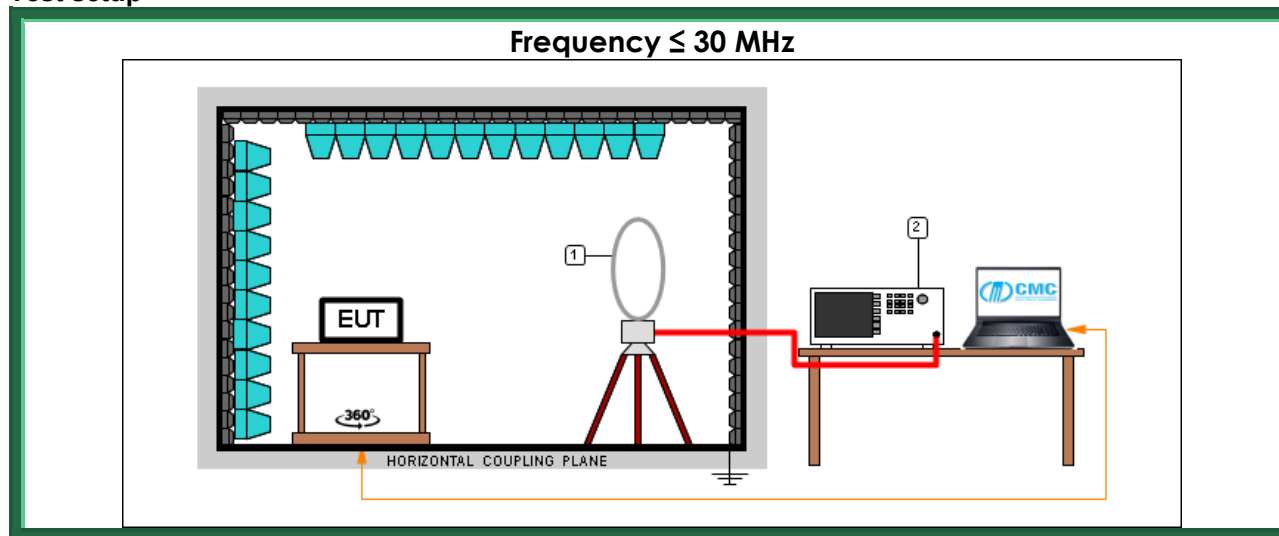
The restricted frequency bands are listed in the following table:

MHz	MHz	MHz	GHz
0,090 – 0,110	16,42 – 16,423	399,9 – 410	4,5 – 5,15
0,495 – 0,505	16,69475 – 16,69525	608 – 614	5,35 – 5,46
2,1735 – 2,1905	16,80425 – 16,80475	960 – 1240	7,25 – 7,75
4,125 – 4,128	25,5 – 25,67	1300 – 1427	8,025 – 8,5
4,17725 – 4,17775	37,5 – 38,25	1435 – 1626,5	9,0 – 9,2
4,20725 – 4,20775	73 – 74,6	1645,5 – 1646,5	9,3 – 9,5
6,215 – 6,218	74,8 – 75,2	1660 – 1710	10,6 – 12,7
6,26775 – 6,26825	108 – 121,94	1718,8 – 1722,2	13,25 – 13,4
6,31175 – 6,31225	123 – 138	2200 – 2300	14,47 – 14,5
8,291 – 8,294	149,9 – 150,05	2310 – 2390	15,35 – 16,2
8,362 – 8,366	156,52475 – 156,52525	2483,5 – 2500	17,7 – 21,4
8,37625 – 8,38675	156,7 – 156,9	2690 – 2900	22,01 – 23,12
8,41425 – 8,41475	162,0125 – 167,17	3260 – 3267	23,6 – 24,0
12,29 – 12,293	167,72 – 173,2	3332 – 3339	31,2 – 31,8
12,51975 – 12,52025	240 – 285	3345,8 – 3358	36,43 – 36,5
12,57675 – 12,57725	322 – 335,4	3600 – 4400	Above 38,6
13,36 – 13,41			

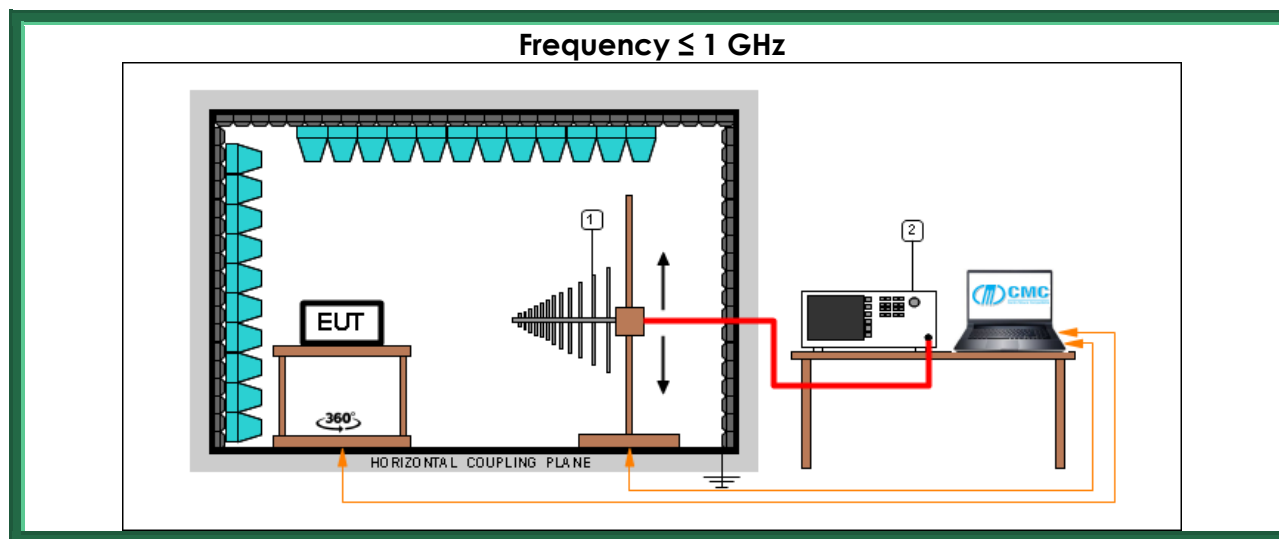
Acceptance limits for emissions in non-restricted frequency bands

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test setup



Test setup PE004_21							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S402	Rohde & Schwarz	ESW44	103433	Emi Test Receiver	December 2024	December 2025
1	CMC S127	Schaffner	HLA6120	1191	Loop Antenna 9kHz - 30MHz	July 2024	July 2027
--	CMC A105	Frankonia	FC06	FC06.1-2017-073	Turntable & Antenna mast controller (Software V02.05.013)	No calibration required	No calibration required

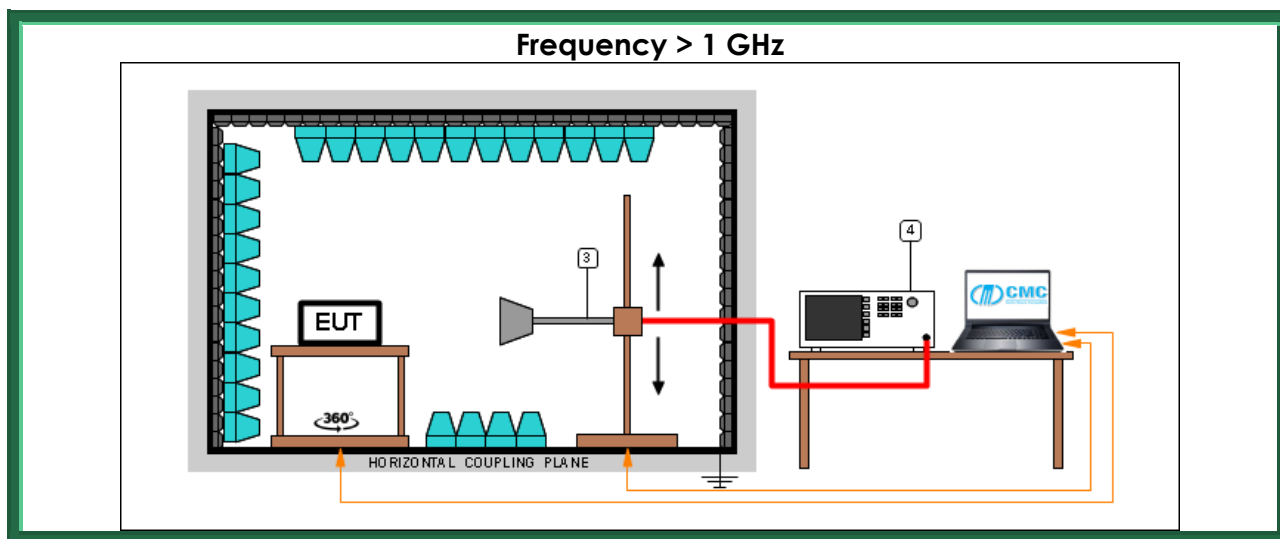


Test setup PE004_22

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S402	Rohde & Schwarz	ESW44	103433	Emi Test Receiver	December 2024	December 2025
1	CMC S271	Schwarzbeck	BBA 9106 + VHBB 9124	831	Broadband Antenna	August 2025	August 2028
--	CMC A105	Frankonia	FC06	FC06.1-2017-073	Turntable & Antenna mast controller (Software V02.05.013)	No calibration required	No calibration required

Test setup PE004_23

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S402	Rohde & Schwarz	ESW44	103433	Emi Test Receiver	December 2024	December 2025
1	CMC S287	Schwarzbeck	VUSLP 9111B	9111B-203	Broadband Antenna	August 2025	August 2028
--	CMC A105	Frankonia	FC06	FC06.1-2017-073	Turntable & Antenna mast controller (Software V02.05.013)	No calibration required	No calibration required



Test setup PE004_24

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
4	CMC S402	Rohde & Schwarz	ESW44	103433	Emi Test Receiver	December 2024	December 2025
3	CMC S108	Emco	3115	9811-5622	Waveguide antenna	August 2025	August 2028
--	CMC A105	Frankonia	FC06	FC06.1-2017-073	Turntable & Antenna mast controller (Software V02.05.013)	No calibration required	No calibration required

Test setup PE004_25

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
4	CMC S402	Rohde & Schwarz	ESW44	103433	Emi Test Receiver	December 2024	December 2025
3	CMC S290	Schwarzbeck	BBHA 9170	733	Horn Antenna	October 2021	October 2026
--	CMC A105	Frankonia	FC06	FC06.1-2017-073	Turntable & Antenna mast controller (Software V02.05.013)	No calibration required	No calibration required

Result

Transmission frequency (MHz)	Polarization	Frequency Range (MHz)	Graphs	Verdict
Worst case	Loop	0,009 – 30	25135603	P
Worst case	V	30 – 300	25135604	P
Worst case	H	30 – 300	25135605	P
902,75	V	300 – 1000	25135606	P
902,75	H	300 – 1000	25135607	P
914,75	V	300 – 1000	25135608	P
914,75	H	300 – 1000	25135609	P
927,25	V	300 – 1000	25135610	P
927,25	H	300 – 1000	25135611	P
902,75	V	1000 – 10000	25135612	P
902,75	H	1000 – 10000	25135613	P
914,75	V	1000 – 10000	25135614	P
914,75	H	1000 – 10000	25135615	P
927,25	V	1000 – 10000	25135616	P
927,25	H	1000 – 10000	25135617	P

Remarks: EUT was tested in 3 orthogonal planes, graphs are related to the highest detected levels.

Measurements at frequencies lower than 30 MHz have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with conversion factor $40\log(\text{test distance}/10)$ based on the measuring distance provided by the standard.

Measurements at frequencies higher than 30 MHz and lower than 1000 MHz have been performed with an EUT – antenna distance of 10 m. Measured values have been corrected with conversion factor $20\log(\text{test distance}/10)$ based on the measuring distance provided by the standard.

Peaks above the limits are caused by the nominal transmitting frequencies.

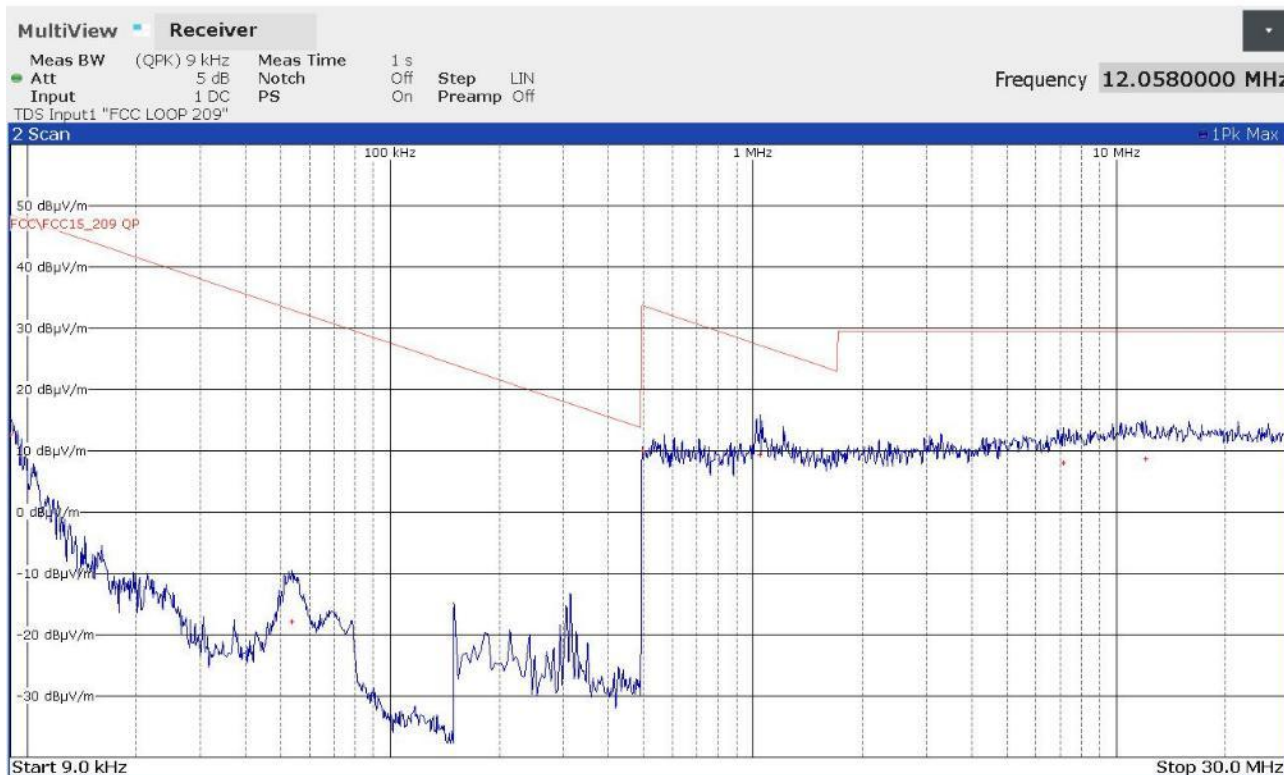
Graphs Legend

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

De Rosso-25135603-Loop-0.009-30MHz-10m-Fmin complete setup



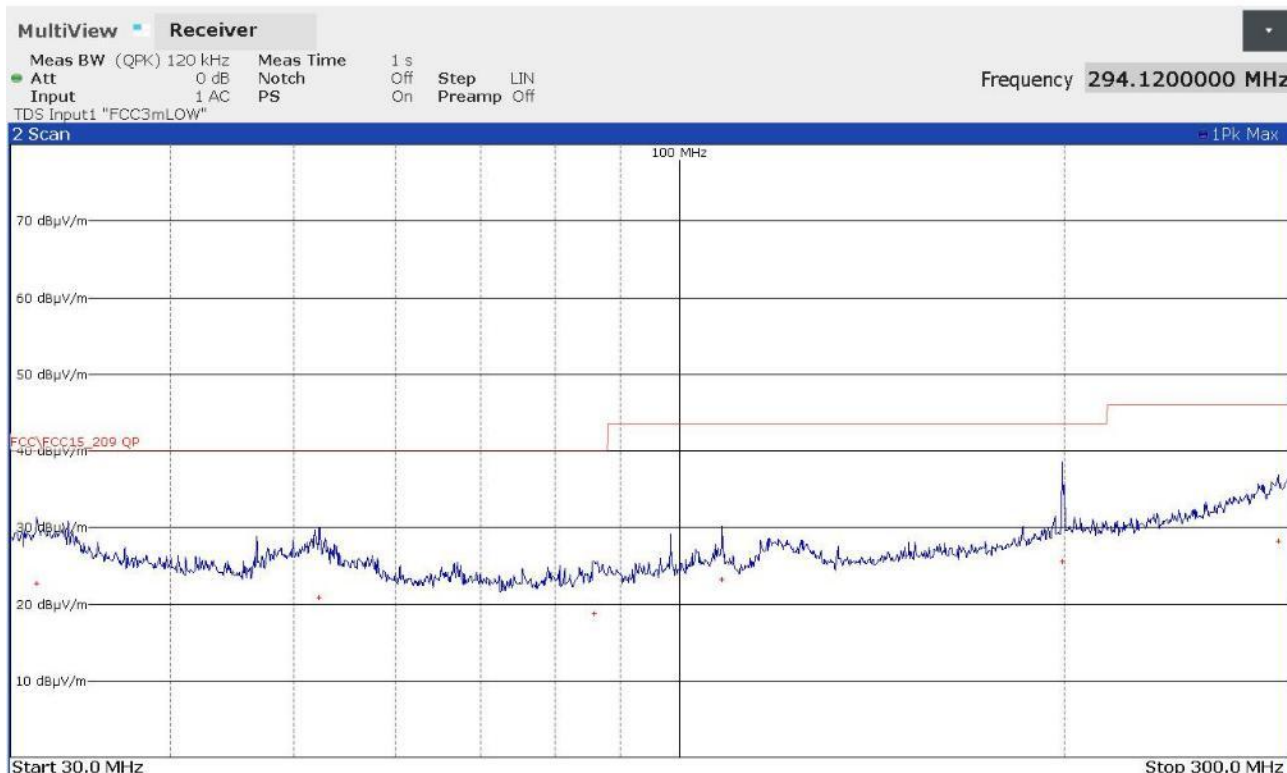
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
9000	+12.68	-35.84
53720	-17.90	-50.90
494000	+9.92	-23.81
1046000	+9.38	-17.83
7146000	+8.05	-21.49
12058000	+8.69	-20.85

25135603_2

De Rosso-25135604-Vert-30-300MHz-10m-Fmin complete setup



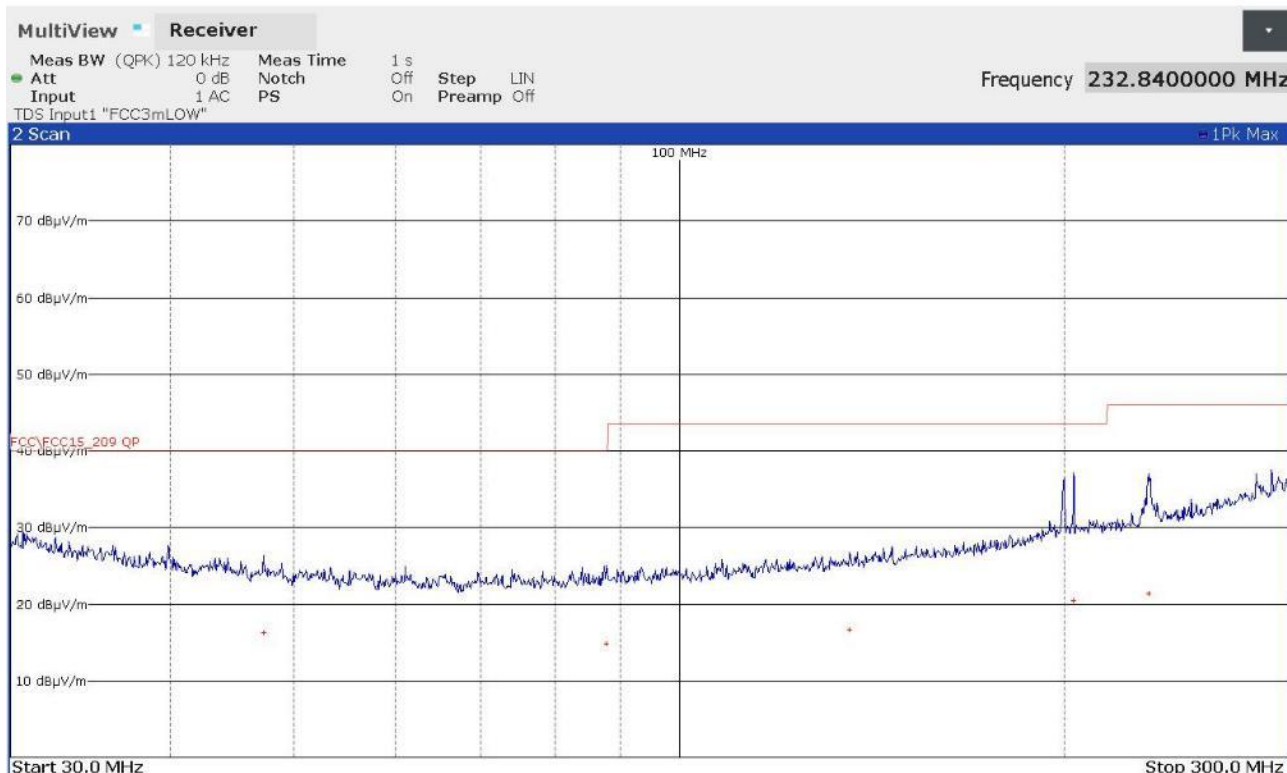
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
31440000	+22.63	-17.37
52320000	+20.87	-19.13
85800000	+18.75	-21.25
107960000	+23.18	-20.34
199320000	+25.55	-17.97
294120000	+28.20	-17.82

25135604_2

De Rosso-25135605-Horiz-30-300MHz-10m-Fmin complete setup



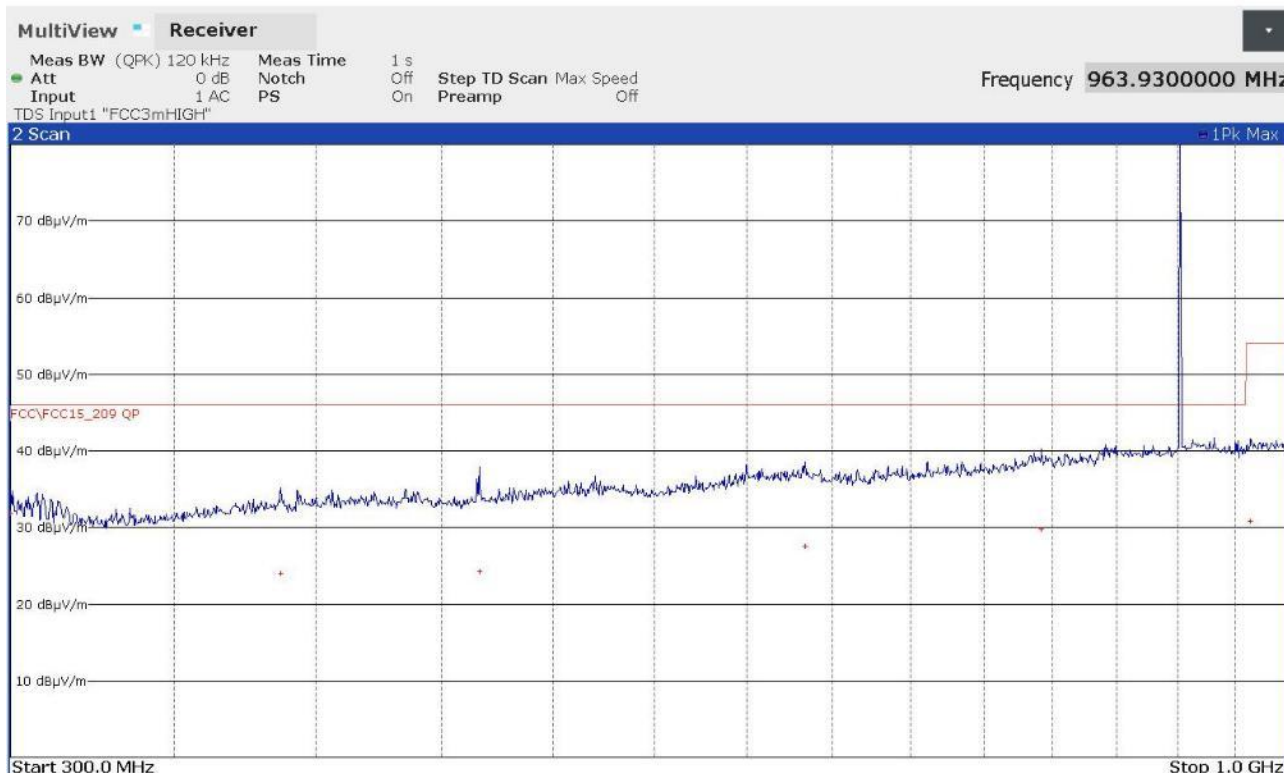
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
30680000	+20.21	-19.79
47320000	+16.27	-23.73
87720000	+14.81	-25.19
135920000	+16.63	-26.89
203520000	+20.46	-23.06
232840000	+21.42	-24.60

25135605_2

De Rosso-25135606-Vert-300-1000MHz-10m-Fmin complete setup



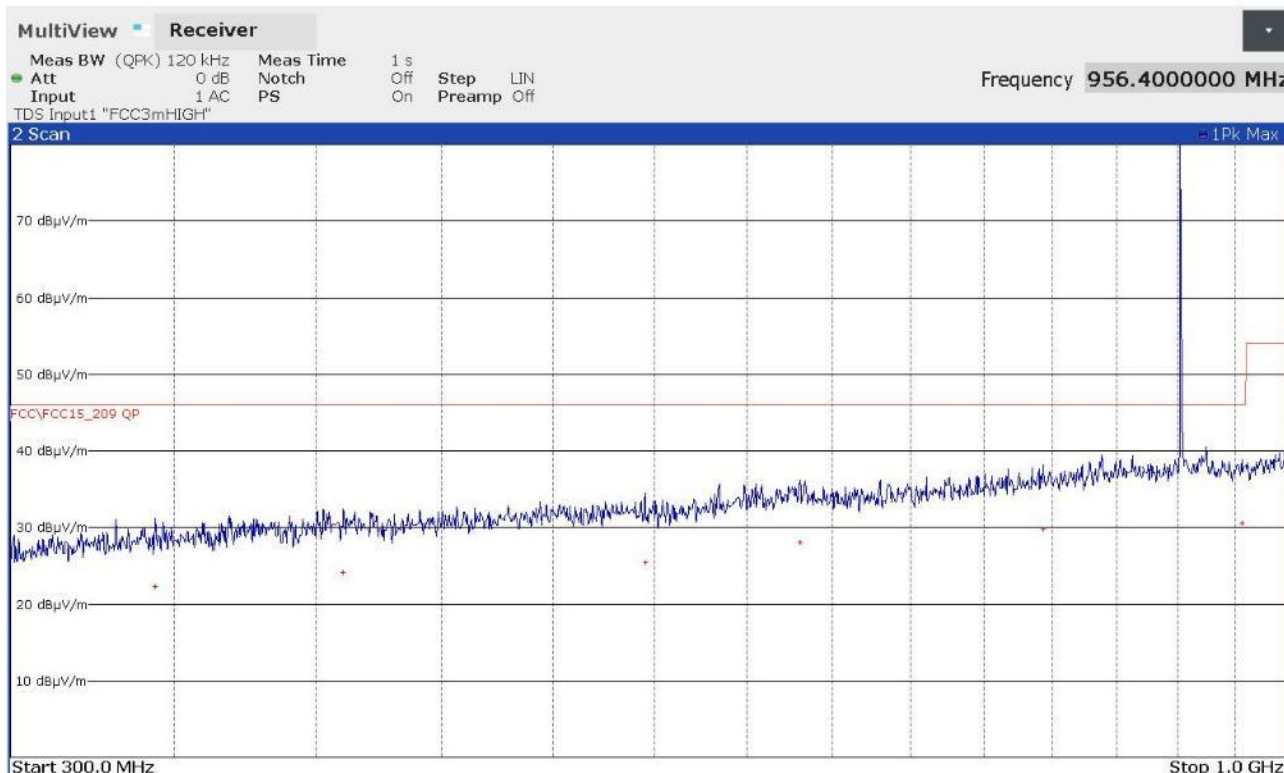
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
300000000	+31.84	-14.18
386790000	+23.99	-22.03
466560000	+24.31	-21.71
633780000	+27.60	-18.42
791970000	+29.72	-16.30
963930000	+30.78	-23.20

25135606_2

De Rosso-25135607-Horiz-300-1000MHz-10m-Fmin complete setup



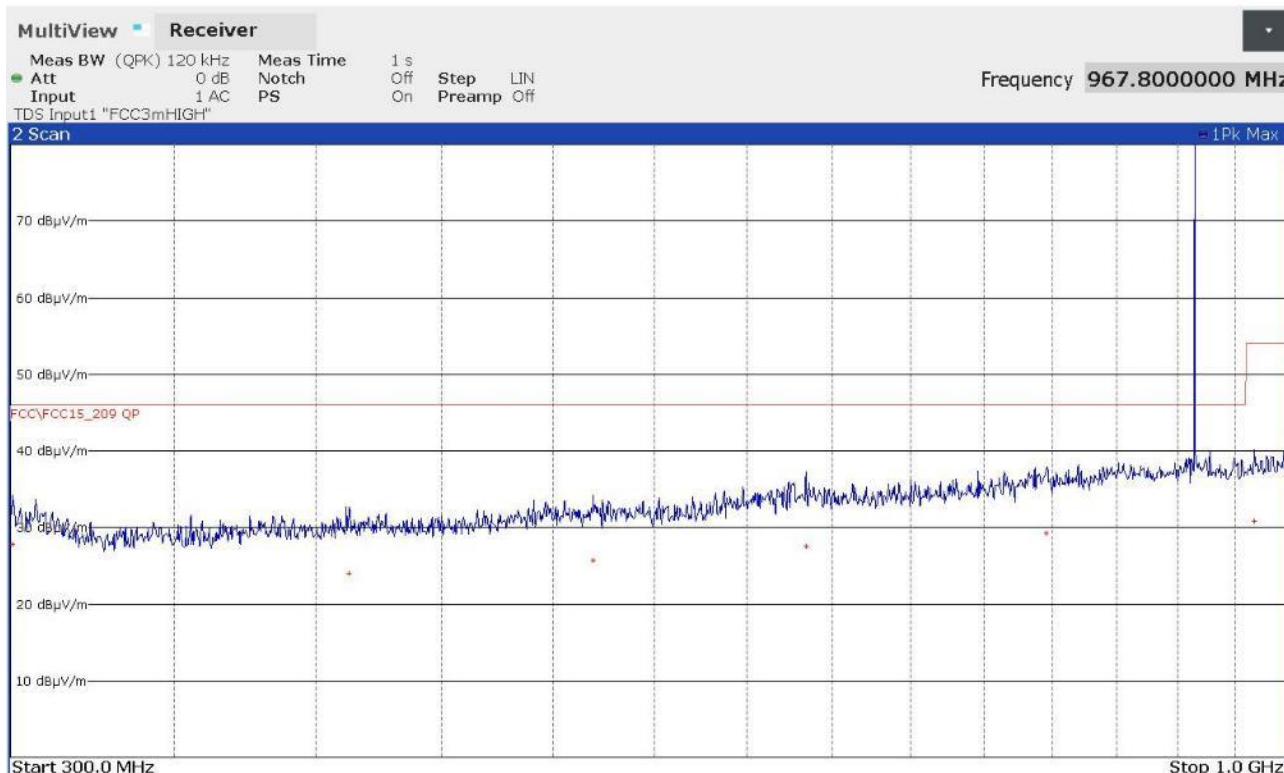
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
343840000	+22.23	-23.79
410400000	+24.08	-21.94
545200000	+25.38	-20.64
630800000	+28.01	-18.01
792840000	+29.72	-16.30
956400000	+30.62	-15.40

25135607_2

De Rosso-25135608-Vert-300-1000MHz-10m-Fmed complete setup



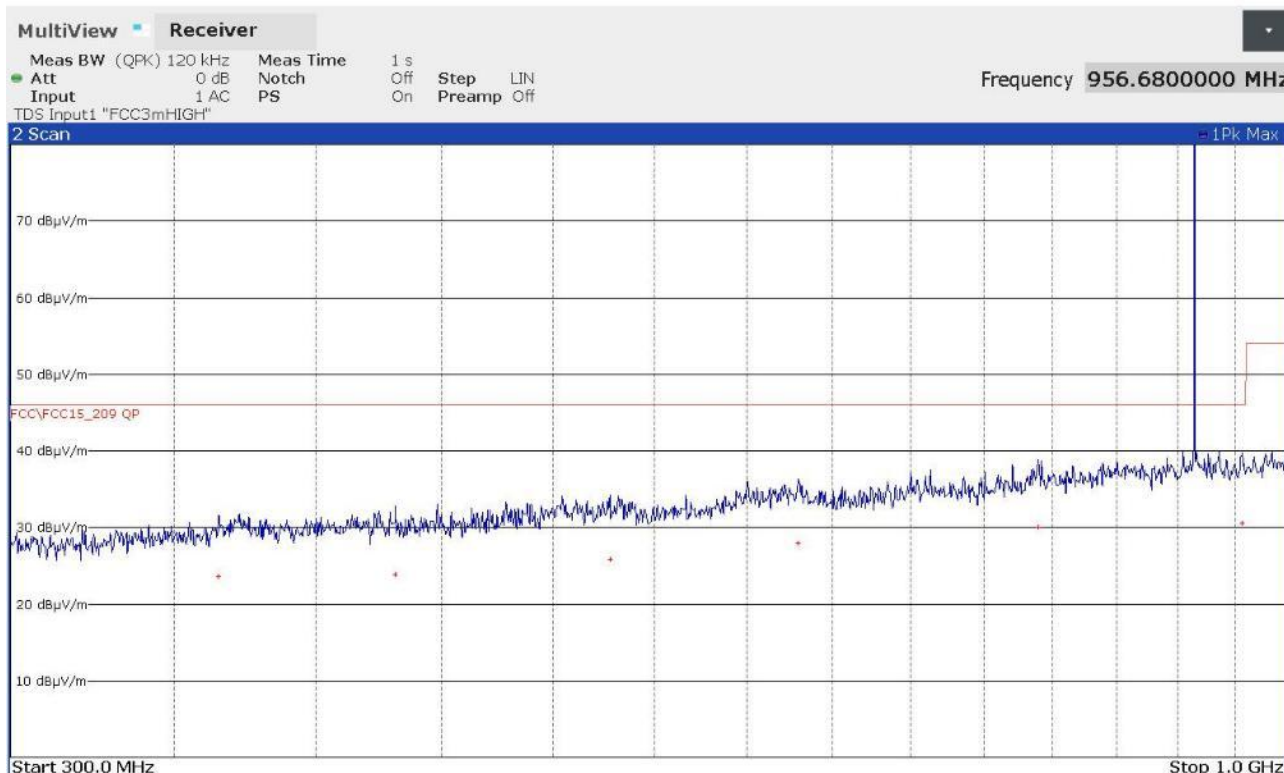
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
300520000	+27.78	-18.24
412760000	+24.02	-22.00
519400000	+25.75	-20.27
634240000	+27.60	-18.42
795800000	+29.28	-16.74
967800000	+30.88	-23.10

25135608_2

De Rosso-25135609-Horiz-300-1000MHz-10m-Fmed complete setup



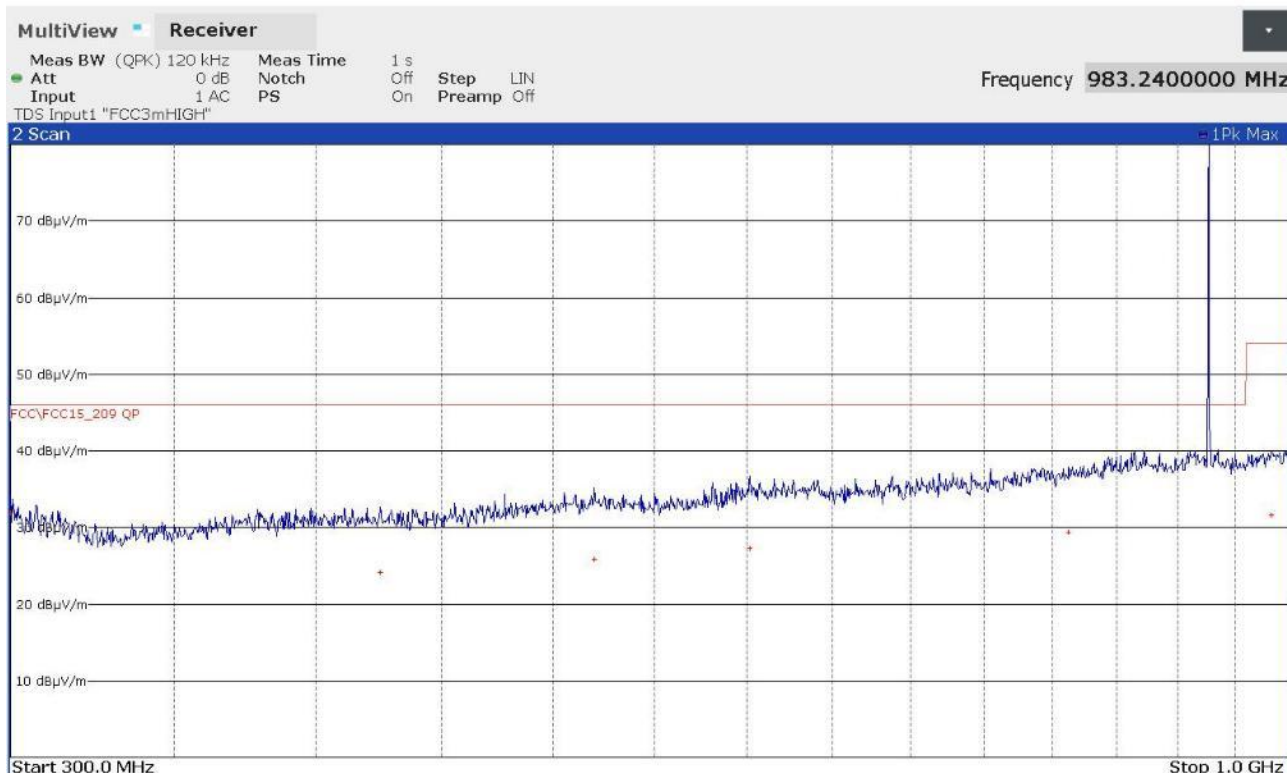
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
365040000	+23.66	-22.36
430960000	+23.83	-22.19
527480000	+25.85	-20.17
629720000	+27.94	-18.08
789440000	+30.05	-15.97
956680000	+30.62	-15.40

25135609_2

De Rosso-25135610-Vert-300-1000MHz-10m-Fmax complete setup



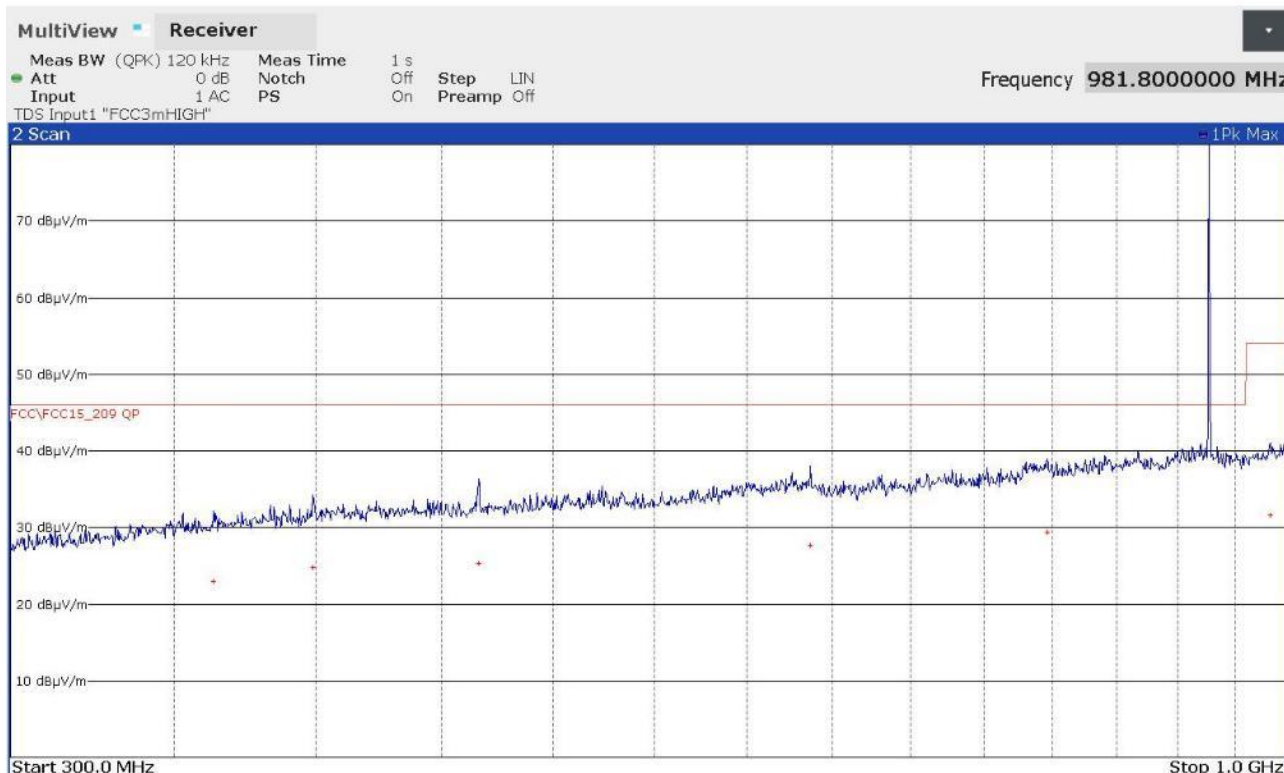
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
300000000	+31.81	-14.21
425000000	+24.09	-21.93
519760000	+25.80	-20.22
601560000	+27.22	-18.80
812360000	+29.43	-16.59
983240000	+31.67	-22.31

25135610_2

De Rosso-25135611-Horiz-300-1000MHz-10m-Fmax complete setup



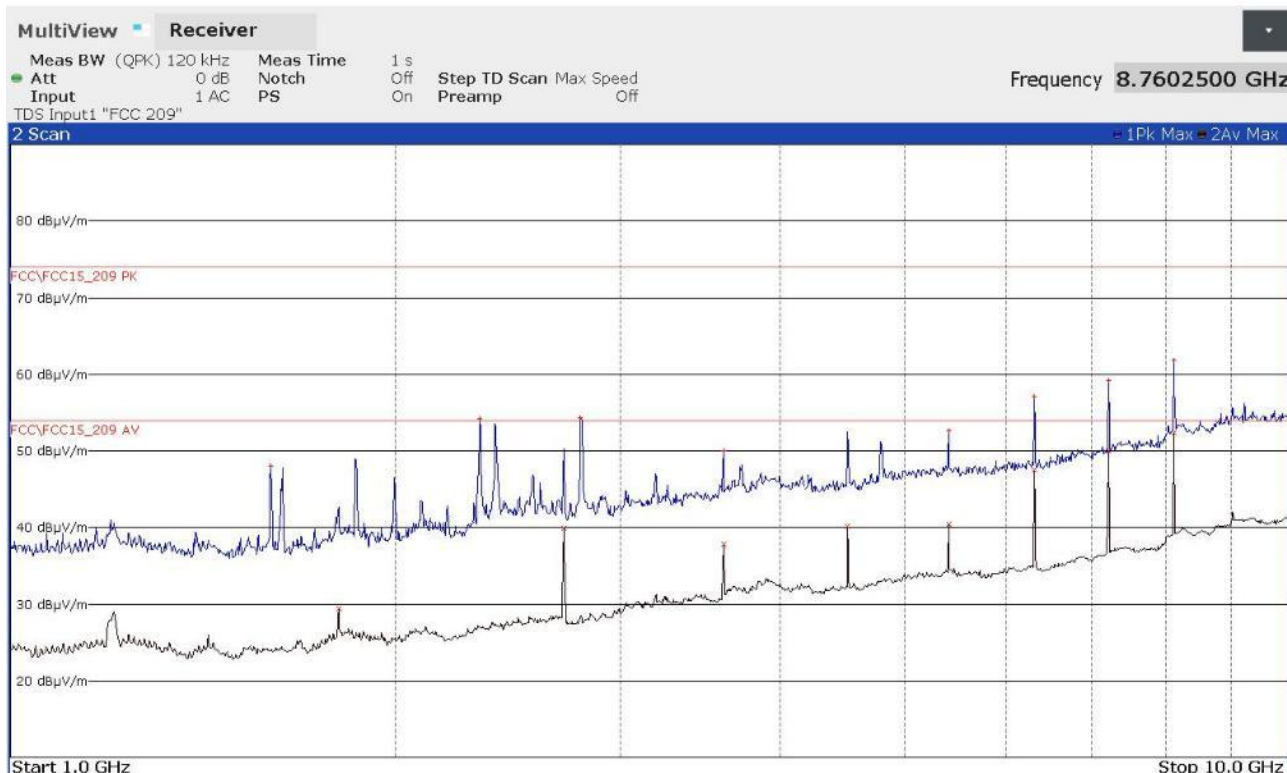
FINAL RESULT TABLE

QUASI PEAK

Freq Hz	Lev dBuV/m	Margin dB
363240000	+22.89	-23.13
398800000	+24.74	-21.28
466320000	+25.31	-20.71
637000000	+27.67	-18.35
795880000	+29.44	-16.58
981800000	+31.60	-22.38

25135611_2

De Rosso-25135612-Vert-1000-10000MHz-3m-Fmin complete setup

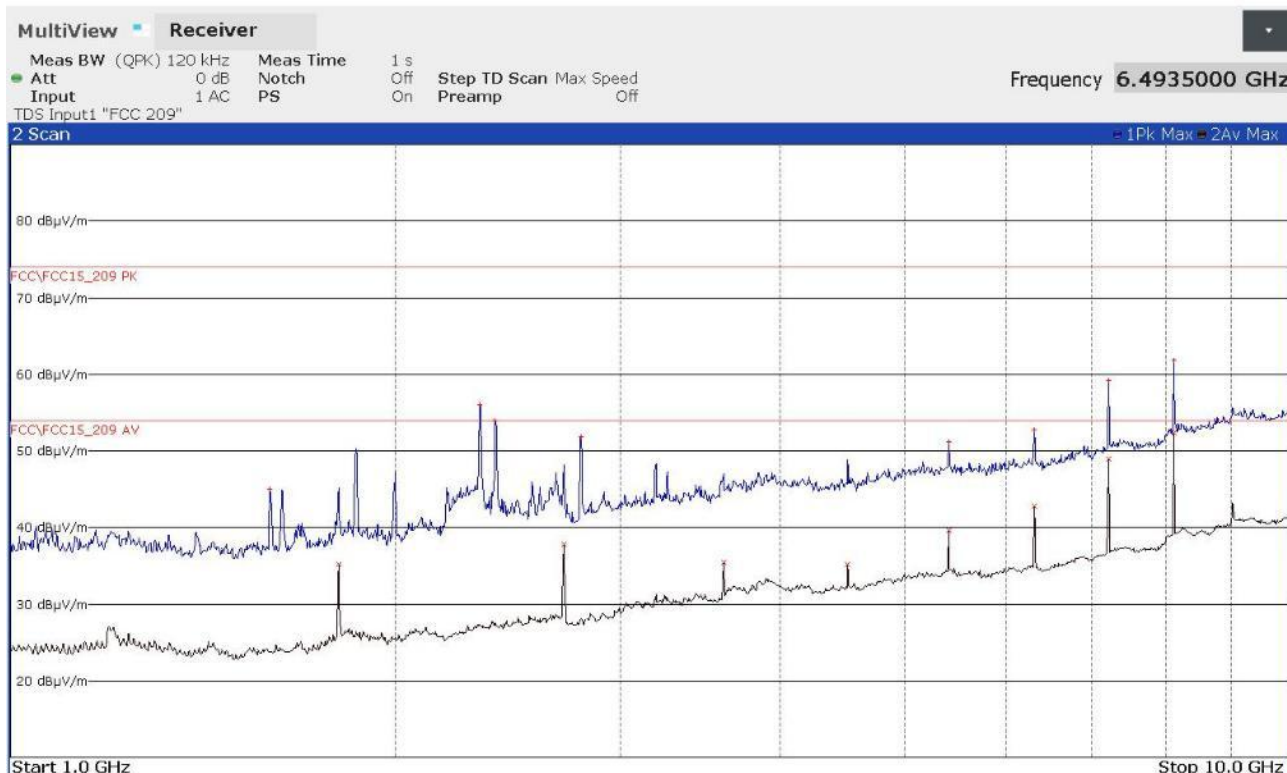


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1597500000	+48.07	-25.91	1805500000	+29.40	-24.58
2328250000	+54.21	-19.77	2708250000	+39.93	-14.05
2790500000	+54.30	-19.68	3611000000	+37.75	-16.23
3611000000	+50.00	-23.98	4513750000	+40.21	-13.77
5416500000	+52.62	-21.36	5416500000	+40.37	-13.61
6319250000	+57.07	-16.91	6319250000	+47.51	-6.47
7222000000	+59.13	-14.85	7222000000	+50.00	-3.98
8124750000	+61.80	-12.18	8124750000	+52.38	-1.60

25135612_2

De Rosso-25135613-Horiz-1000-10000MHz-3m-Fmin complete setup

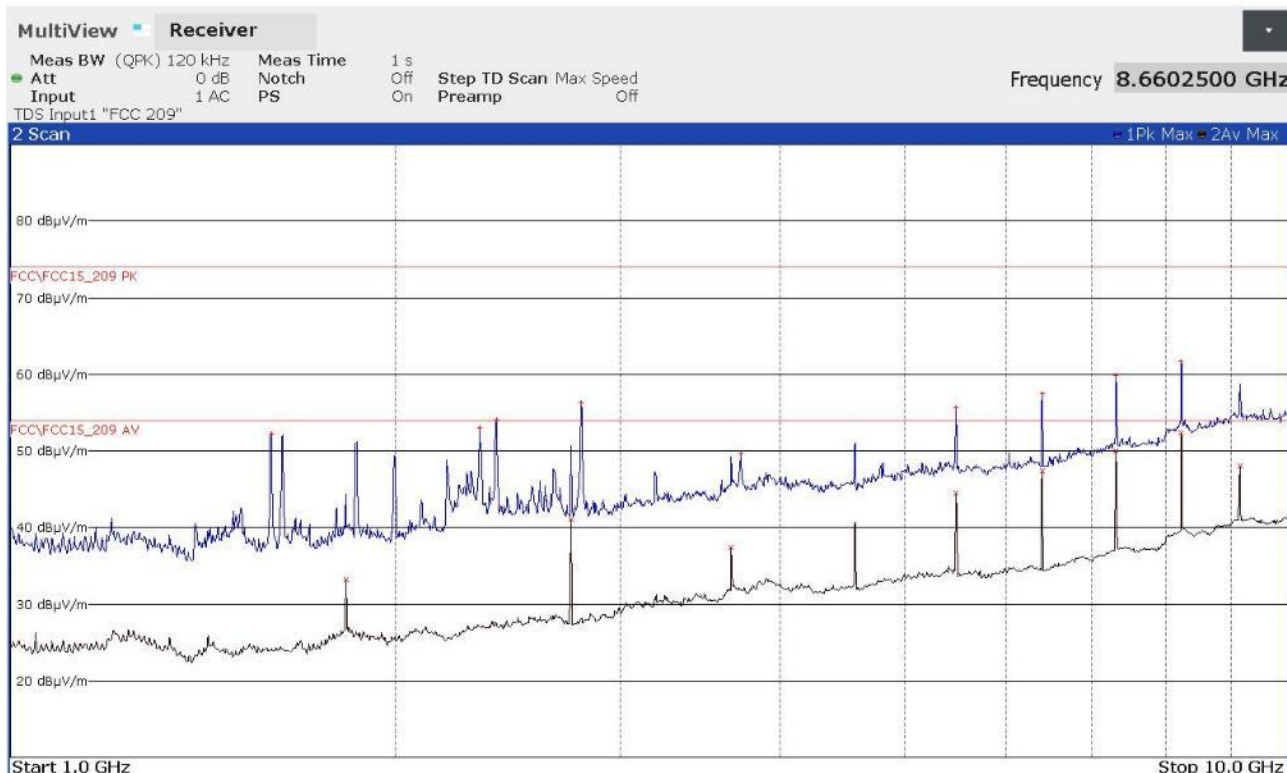


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1594750000	+45.02	-28.96	1805500000	+35.14	-18.84
2326500000	+56.09	-17.89	2708250000	+37.86	-16.12
2392750000	+53.93	-20.05	3611000000	+35.40	-18.58
2791250000	+51.89	-22.09	4513750000	+35.23	-18.75
5416500000	+51.17	-22.81	5416500000	+39.64	-14.34
6319250000	+52.69	-21.29	6319250000	+42.78	-11.20
7222000000	+59.13	-14.85	7222000000	+48.96	-5.02
8124750000	+61.83	-12.15	8124750000	+52.31	-1.67

25135613_2

De Rosso-25135614-Vert-1000-10000MHz-3m-Fmed complete setup

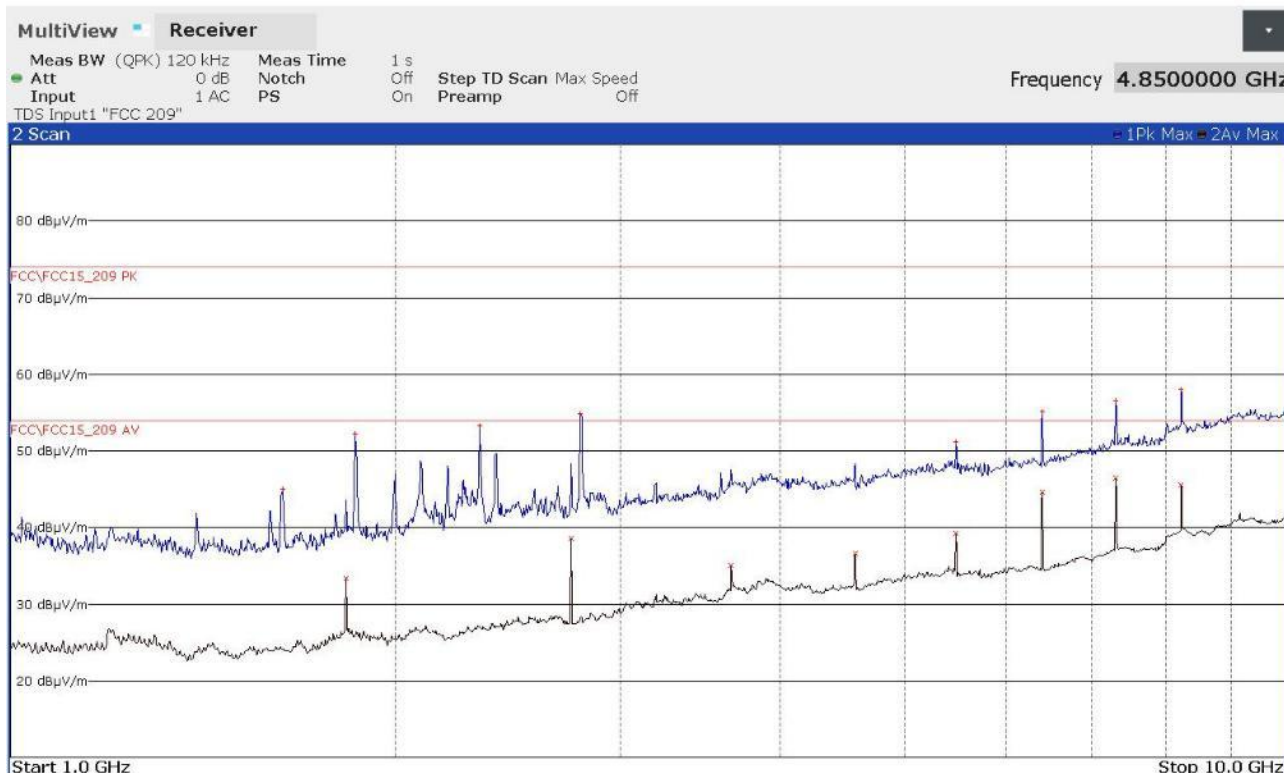


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1599500000	+52.25	-21.73	1829500000	+33.15	-20.83
2326750000	+52.99	-20.99	2744250000	+41.11	-12.87
2398250000	+54.07	-19.91	3659000000	+37.44	-16.54
2793250000	+56.29	-17.69	5488500000	+44.51	-9.47
3722750000	+49.63	-24.35	6403250000	+47.32	-6.66
5488500000	+55.67	-18.31	7318000000	+50.03	-3.95
6403250000	+57.43	-16.55	8232750000	+52.36	-1.62
7318000000	+59.78	-14.20	9147500000	+48.01	-5.97
8232750000	+61.62	-12.36			

25135614_2

De Rosso-25135615-Horiz-1000-10000MHz-3m-Fmed complete setup

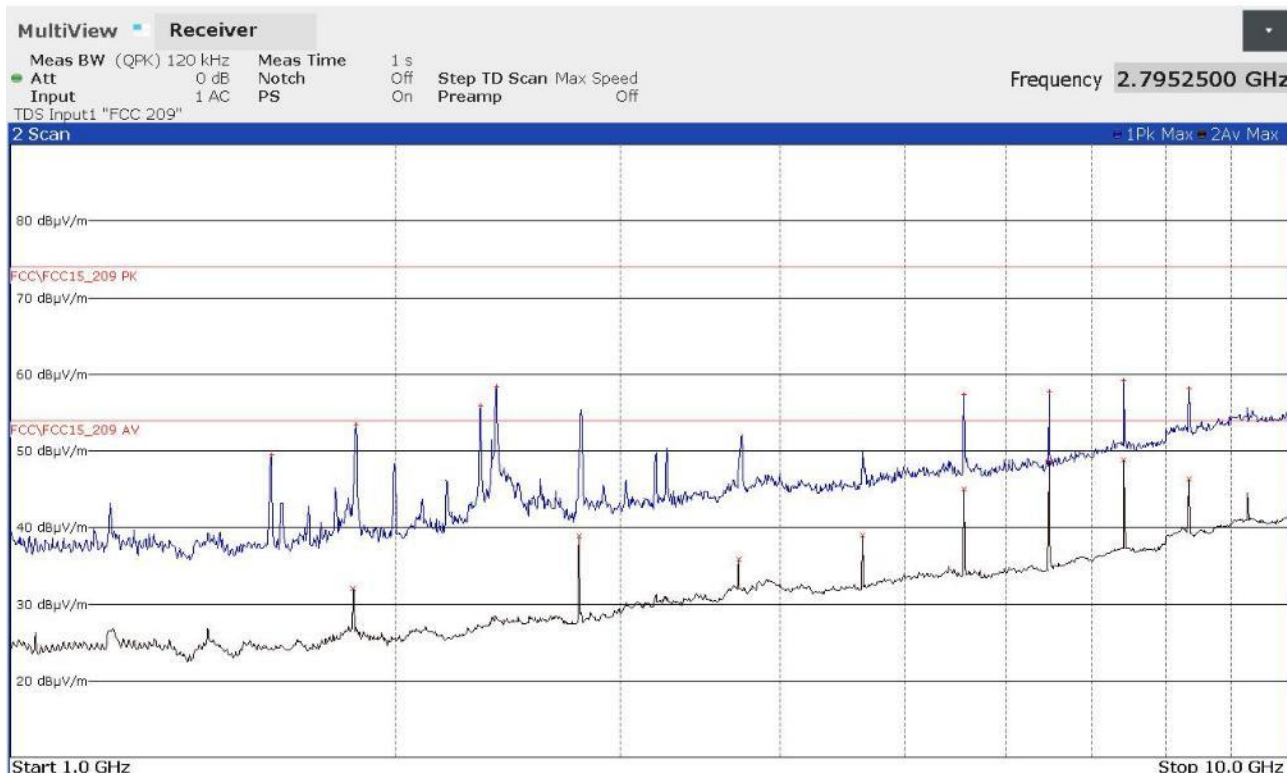


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1632000000	+44.98	-29.00	1829500000	+33.36	-20.62
1859750000	+52.17	-21.81	2744250000	+38.56	-15.42
2326500000	+53.22	-20.76	3659000000	+35.07	-18.91
2790000000	+54.91	-19.07	4573750000	+36.58	-17.40
5488500000	+51.21	-22.77	5488500000	+39.21	-14.77
6403250000	+55.05	-18.93	6403250000	+44.64	-9.34
7318000000	+56.56	-17.42	7318000000	+46.52	-7.46
8232750000	+57.94	-16.04	8232750000	+45.58	-8.40

25135615_2

De Rosso-25135616-Vert-1000-10000MHz-3m-Fmax complete setup

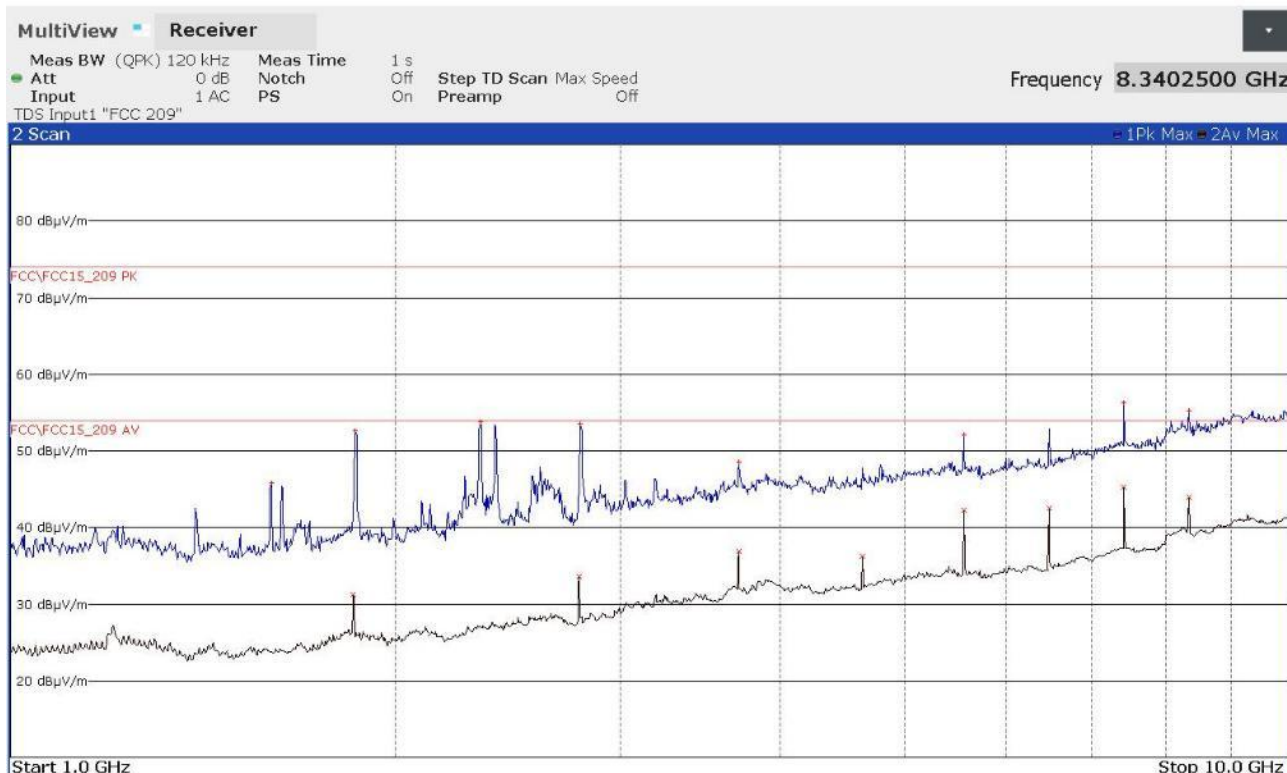


FINAL RESULT TABLE

MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1599500000	+49.43	-24.55	1854500000	+32.07	-21.91
1862000000	+53.42	-20.56	2781750000	+38.87	-15.11
2330250000	+55.86	-18.12	3709000000	+35.80	-18.18
2398000000	+58.43	-15.55	4636250000	+38.99	-14.99
5563500000	+57.37	-16.61	5563500000	+44.97	-9.01
6490750000	+57.75	-16.23	6490750000	+48.71	-5.27
7418000000	+59.14	-14.84	7418000000	+48.78	-5.20
8345250000	+58.18	-15.80	8345250000	+46.29	-7.69

25135616_2

De Rosso-25135617-Horiz-1000-10000MHz-3m-Fmax complete setup



FINAL RESULT TABLE

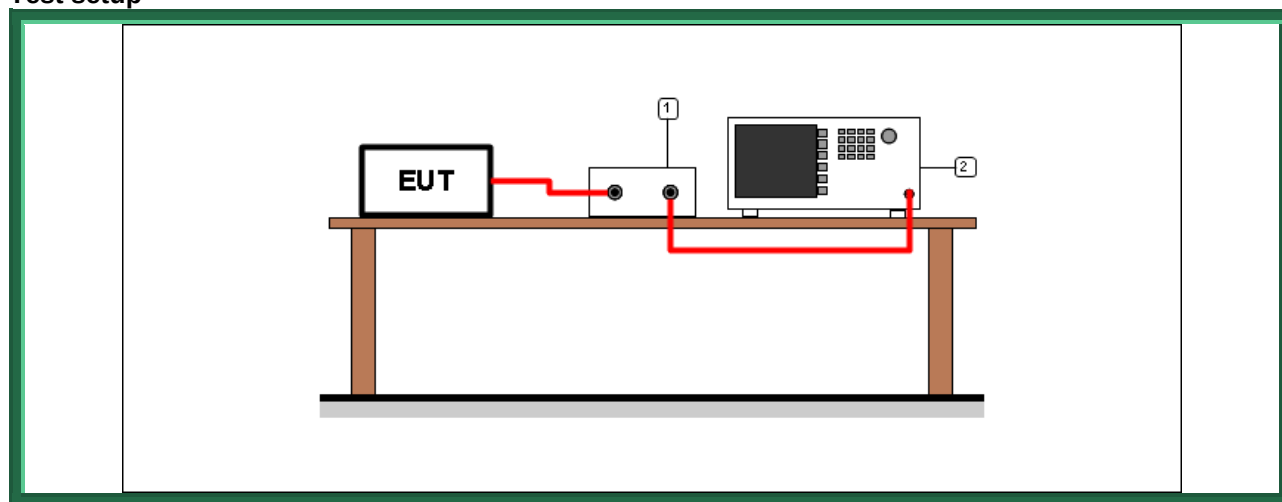
MAX PEAK			AVERAGE		
Freq Hz	Lev dBuV/m	Margin dB	Freq Hz	Lev dBuV/m	Margin dB
1599750000	+45.75	-28.23	1854500000	+31.31	-22.67
1860500000	+52.57	-21.41	2781750000	+33.65	-20.33
2333250000	+53.76	-20.22	3709000000	+36.87	-17.11
2789750000	+53.59	-20.39	4636250000	+36.25	-17.73
3709000000	+48.59	-25.39	5563500000	+42.20	-11.78
5563500000	+52.08	-21.90	6490750000	+42.56	-11.42
7418000000	+56.30	-17.68	7418000000	+45.29	-8.69
8345250000	+55.30	-18.68	8345250000	+44.01	-9.97

25135617_2

20 dB bandwidth

Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	ANSI C63.10 cl. 7.8.7
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.215 (c)
Supplementary test set-up description	--
Supplementary information	--

Test setup



Test setup PR002_01							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

Result

Transmission frequency (MHz)	Graphs	20 dB bandwidth (kHz)
902,75	25135618	69,540
914,75	25135620	66,730
927,25	25135622	72,920

Graphs

De Rosso-25135618-Fmin 902.75MHz



De Rosso-25135620-Fmed 914.75MHz



De Rosso-25135622-Fmax 927.25MHz



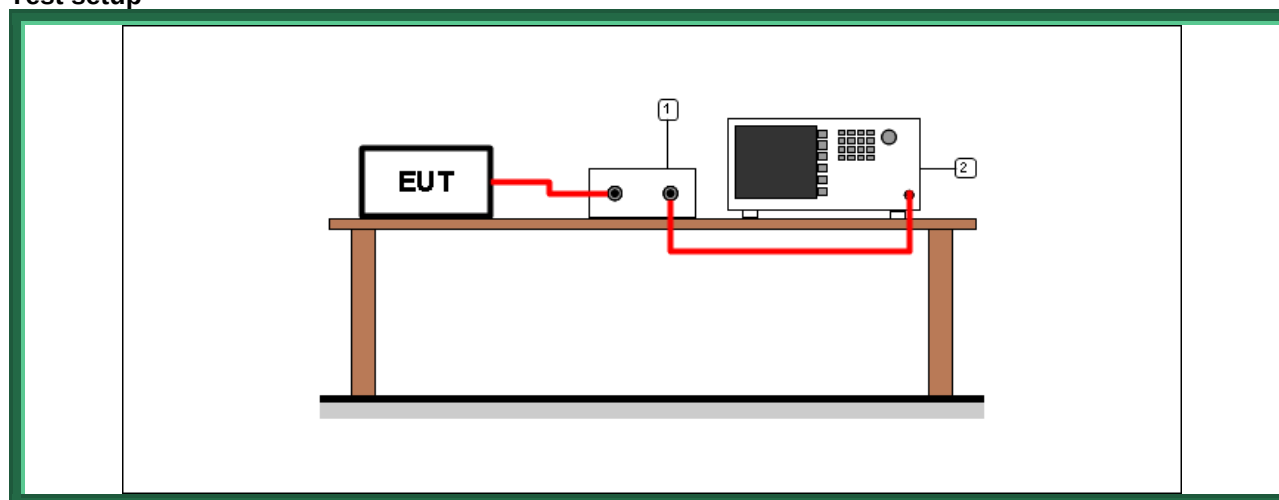
Channel separation

Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.2
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.247
Supplementary test set-up description	--
Supplementary information	--

Acceptance limits

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Test setup



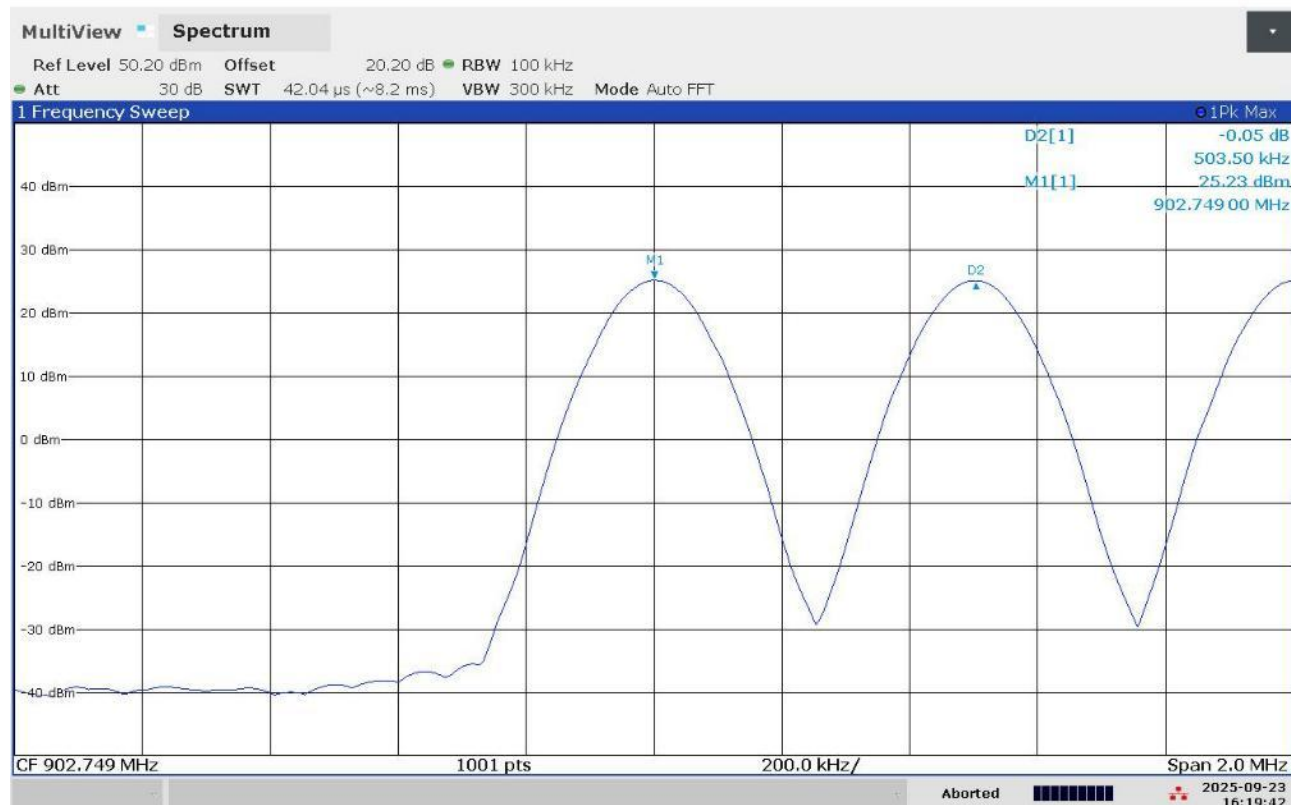
Test setup PR002_01							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

Result

Frequency band (MHz)	Graphs	Channel separation (kHz)	Minimum channel separation required (kHz)	Verdict
902 – 928	25135627	503,50	25	P

Graphs

De Rosso-25135627



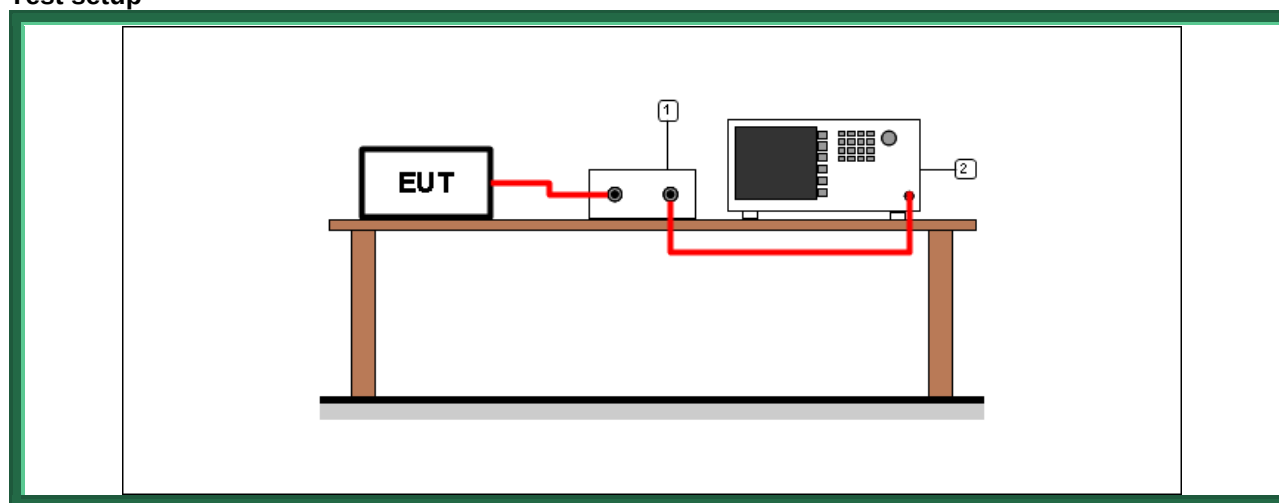
Number of hopping channels

Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.3
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.247
Supplementary test set-up description	--
Supplementary information	--

Acceptance limits

For frequency hopping systems operating in the 902 – 928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0,4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0,4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test setup



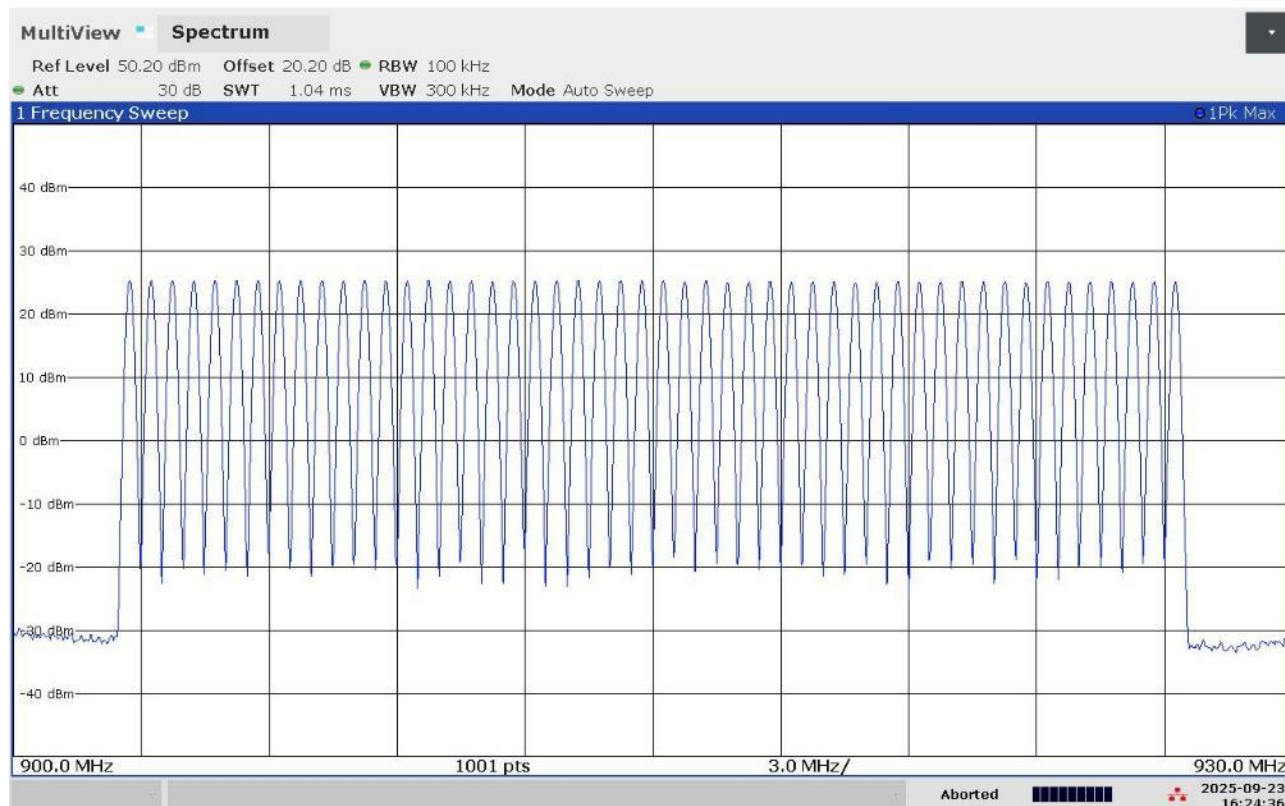
Test setup PR002_01							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

Result

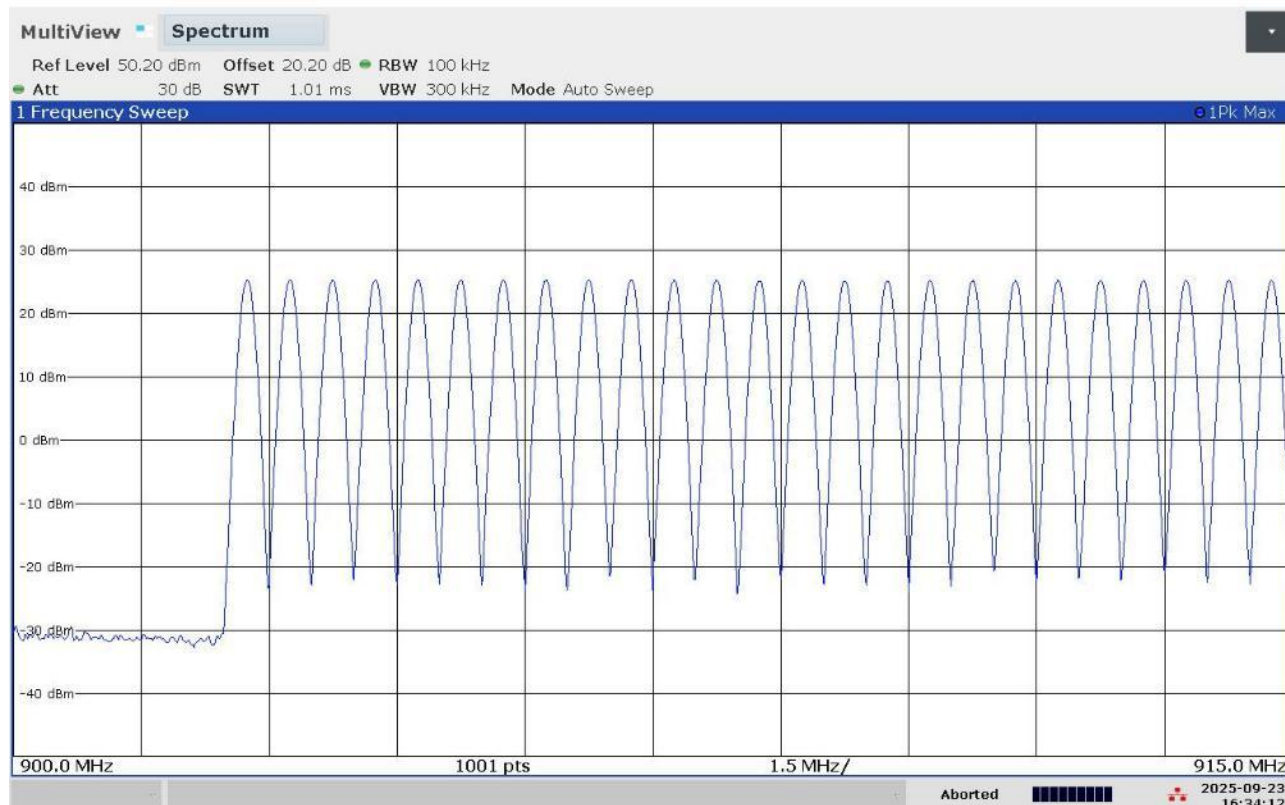
<i>Frequency band (MHz)</i>	<i>Graphs</i>	<i>Number of hopping channels</i>	<i>Minimum number of hopping channels required</i>	<i>Verdict</i>
902 – 928	25135628	50	50	P
	25135629			
	25135630			

Graphs

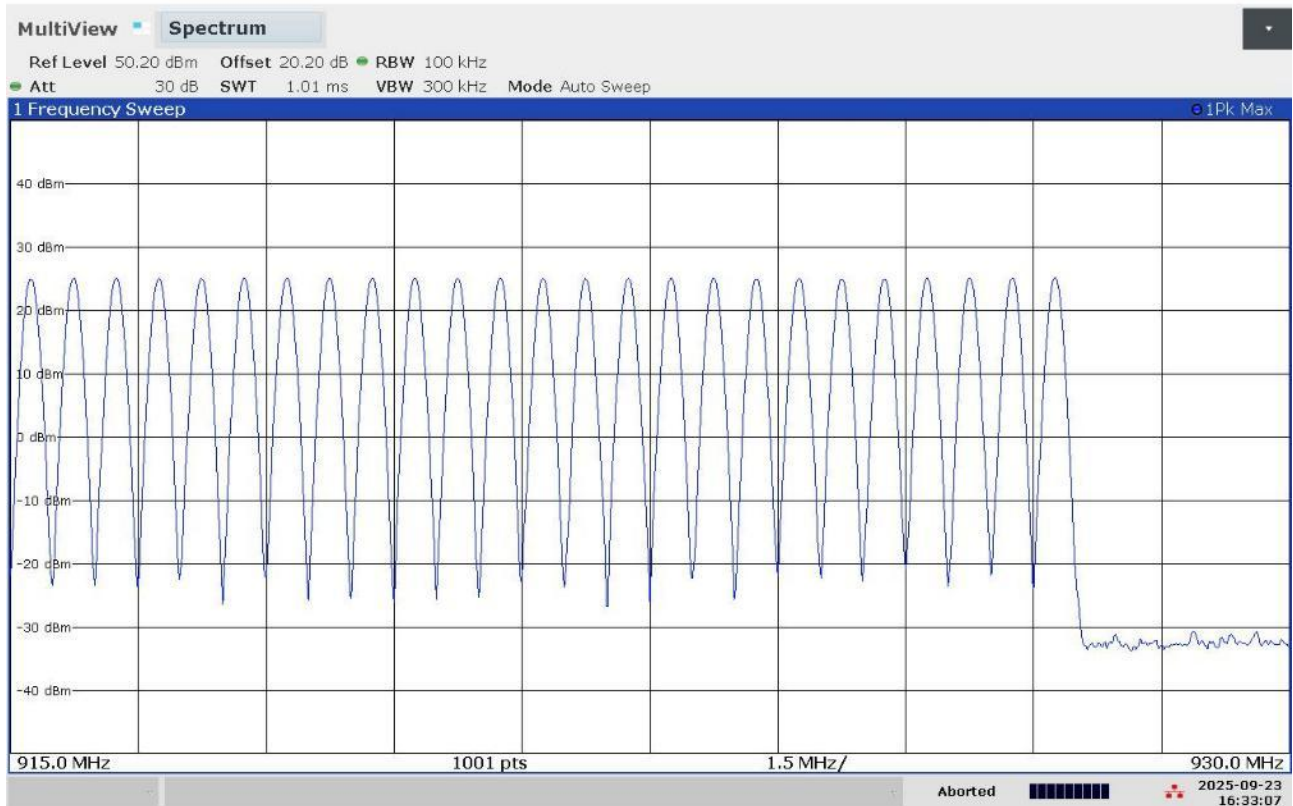
De Rosso-25135628



De Rosso-25135629



De Rosso-25135630



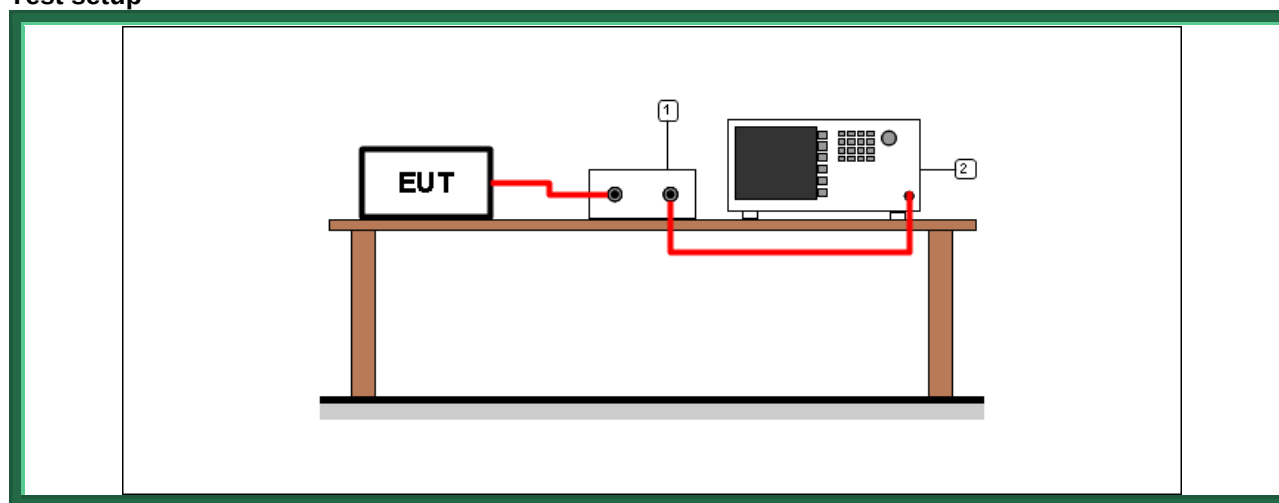
Time of occupancy

Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.4
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.247
Supplementary test set-up description	--
Supplementary information	--

Acceptance limits

For frequency hopping systems operating in the 902 – 928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0,4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0,4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test setup



Test setup PR002_01							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

Result

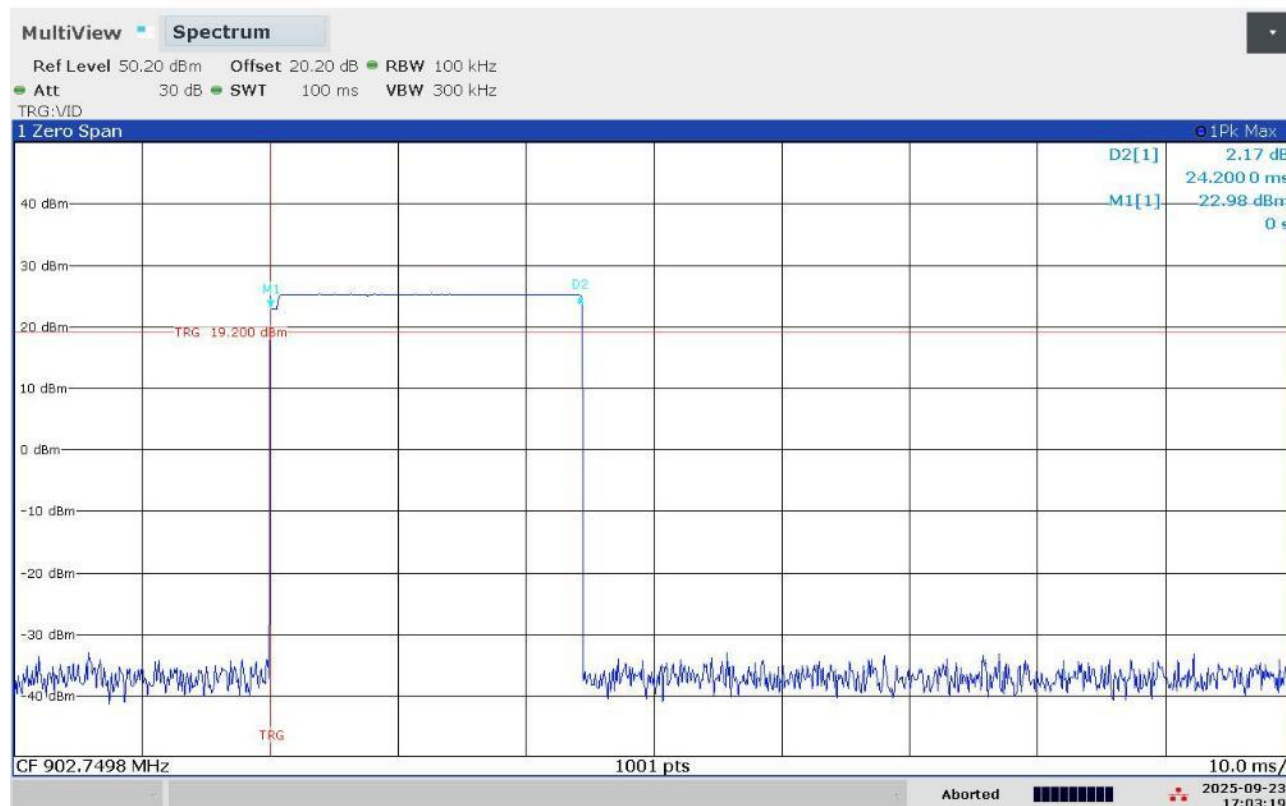
<i>Transmission frequency (MHz)</i>	<i>Graphs</i>	<i>Dwell time (ms)</i>
902,75	25135631	24,20

<i>Transmission frequency (MHz)</i>	<i>Graphs</i>	<i>Number of transmissions</i>	<i>Period</i>
902,75	25135632	7	20 s

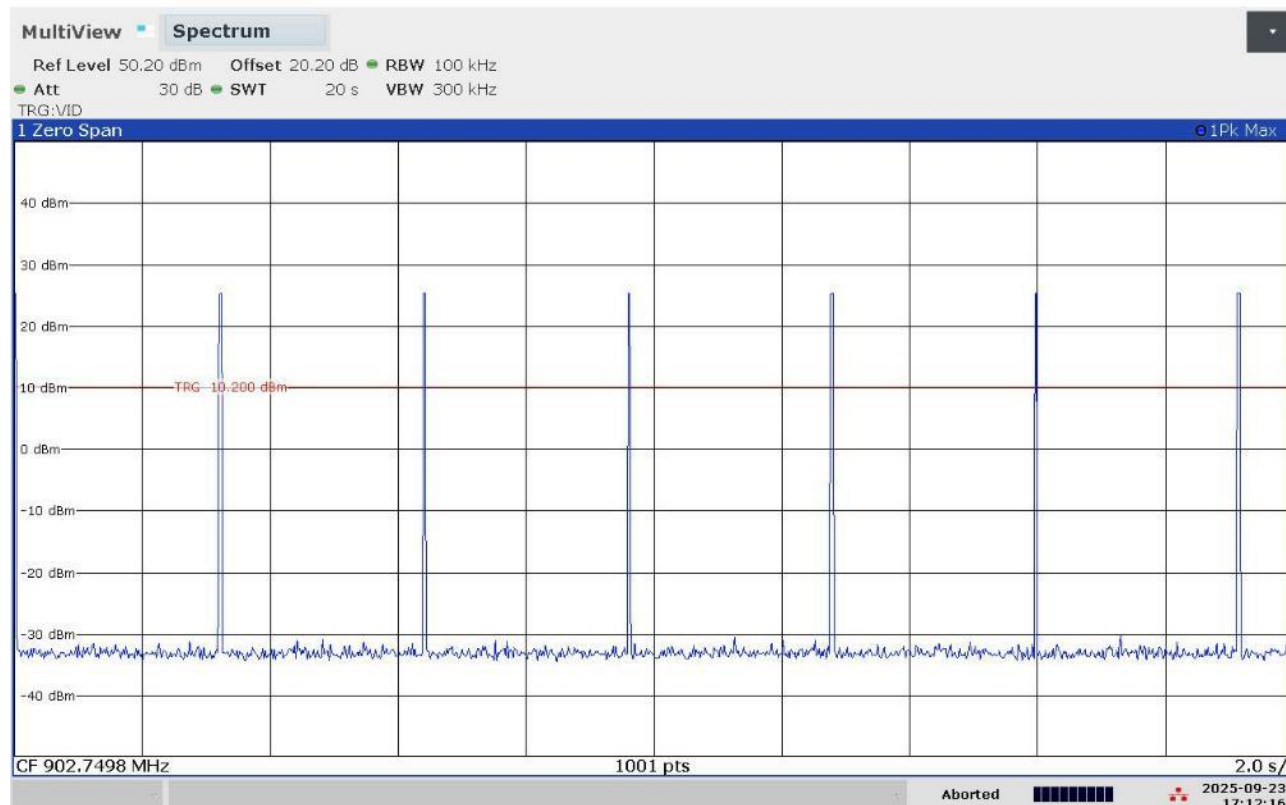
<i>Time of occupancy (Dwell time x Nr. transmissions)</i>	<i>Maximum allowed time of occupancy</i>	<i>Verdict</i>
169,40	400 ms	P

Graphs

De Rosso-25135631



De Rosso-25135632



Band edge

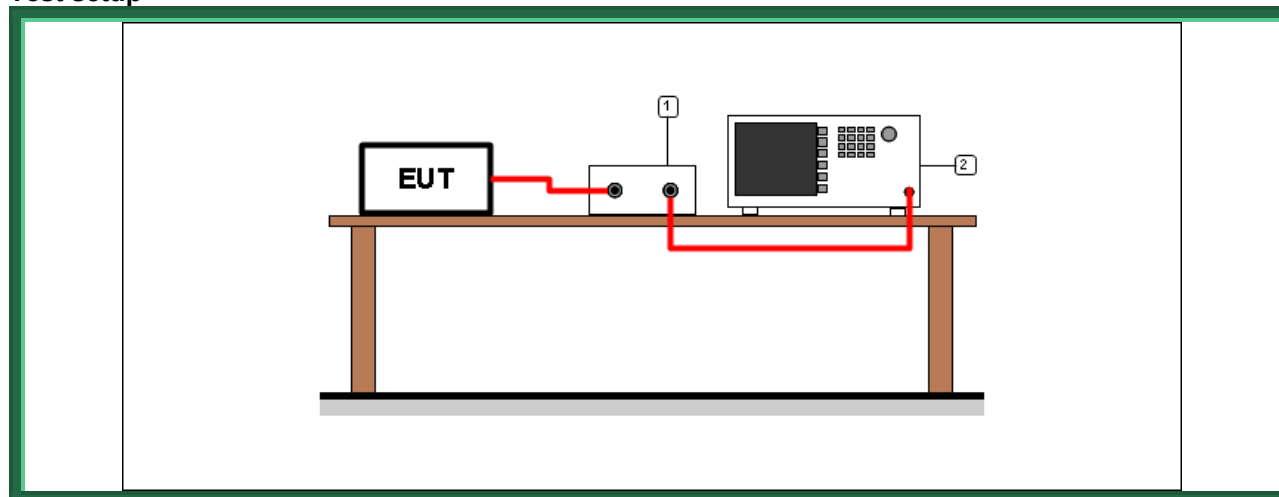
Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	ANSI C63.10 cl. 7.8.6
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.247
Supplementary test set-up description	--
Supplementary information	--

Acceptance limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter P with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Operation within the band 902 – 928 MHz $\pm$ RBW/2.

Test setup



Test setup PR002_01

Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

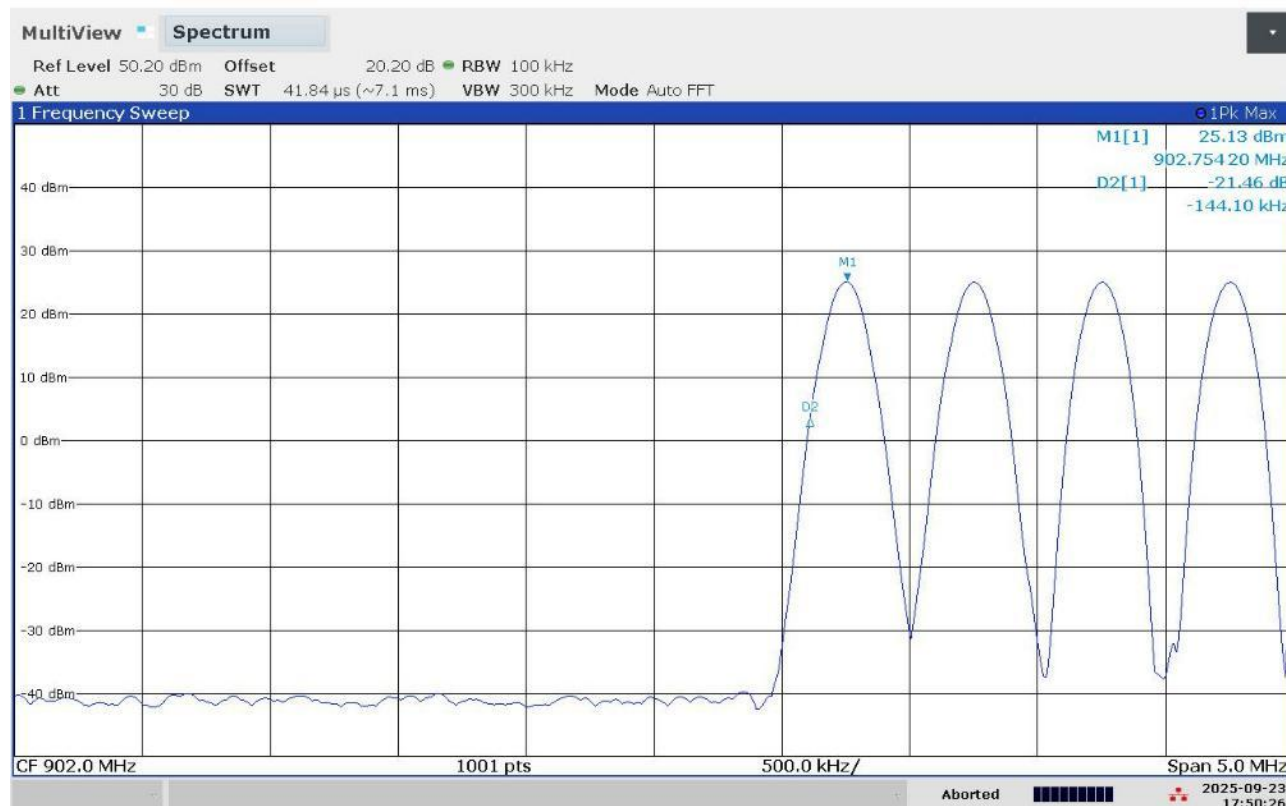
Result

<i>Transmission frequency (MHz)</i>	<i>Bandwidth</i>	<i>Graph(s) – Hopping</i>	<i>Absolute power (dBm)</i>	<i>Power limit (dBm)</i>	<i>Frequency</i>	<i>Verdict</i>
902,75	100 kHz	25135633	3,67	5,13	F _L : 902,610 MHz	P
927,25	100 kHz	25135634	4,44	5,01	F _H : 927,386 MHz	P

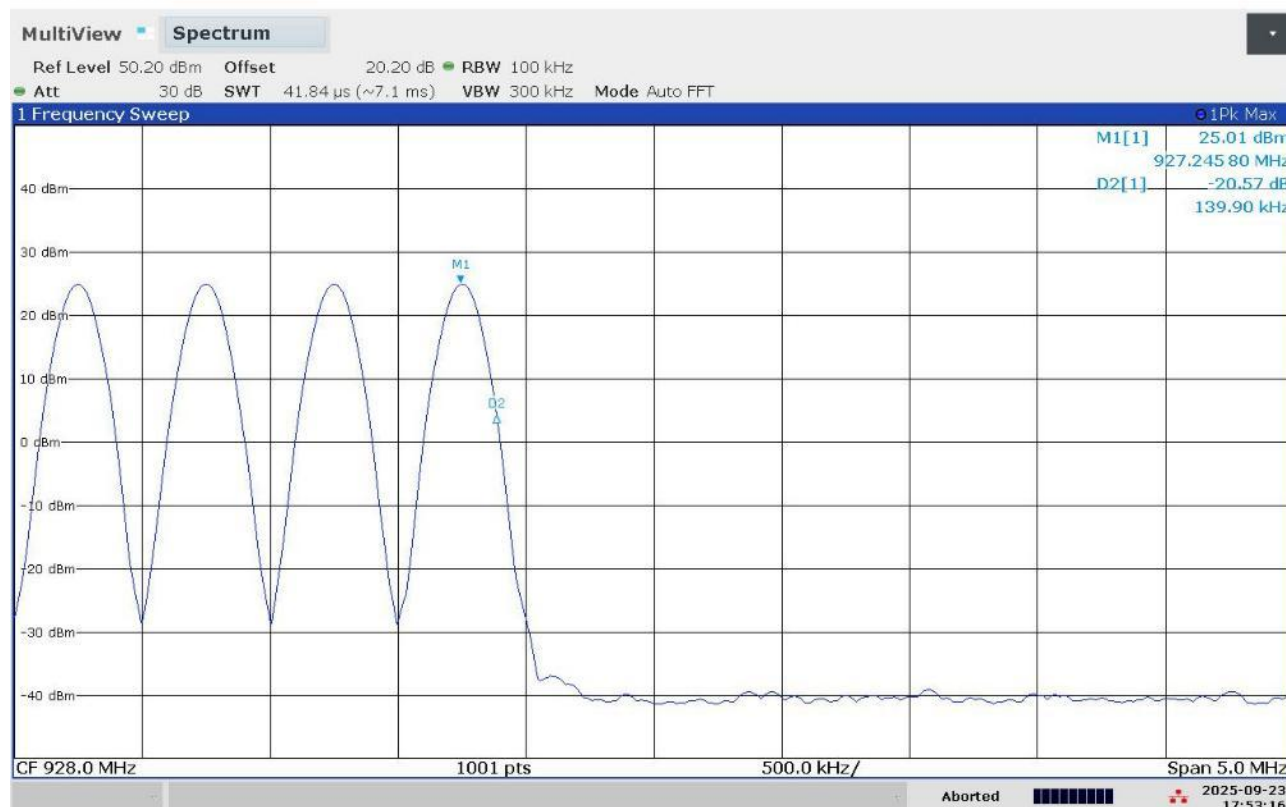
<i>Transmission frequency (MHz)</i>	<i>Bandwidth</i>	<i>Graph(s) – No hopping</i>	<i>Absolute power (dBm)</i>	<i>Power limit (dBm)</i>	<i>Frequency</i>	<i>Verdict</i>
902,75	100 kHz	25135635	5,06	5,22	F _L : 902,613 MHz	P
927,25	100 kHz	25135636	4,48	5,03	F _H : 927,388 MHz	P

Graphs

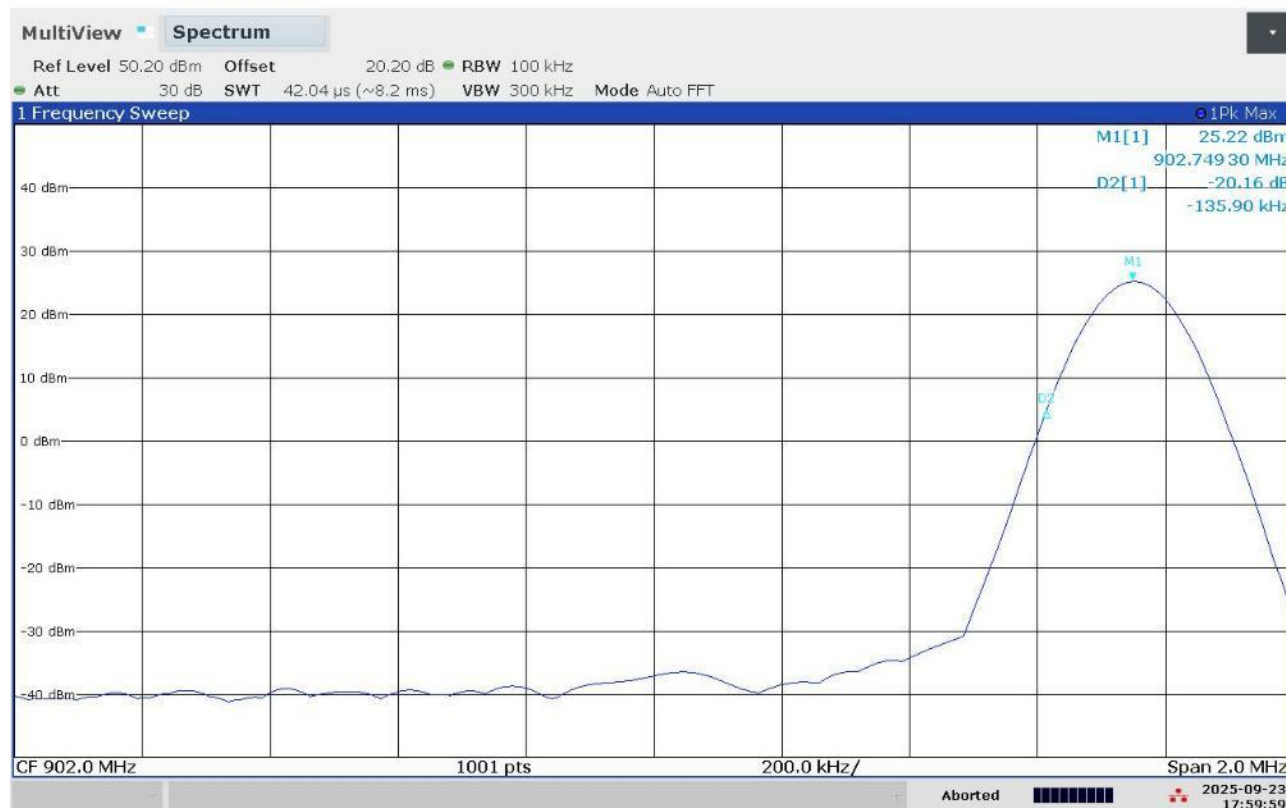
De Rosso-25135633



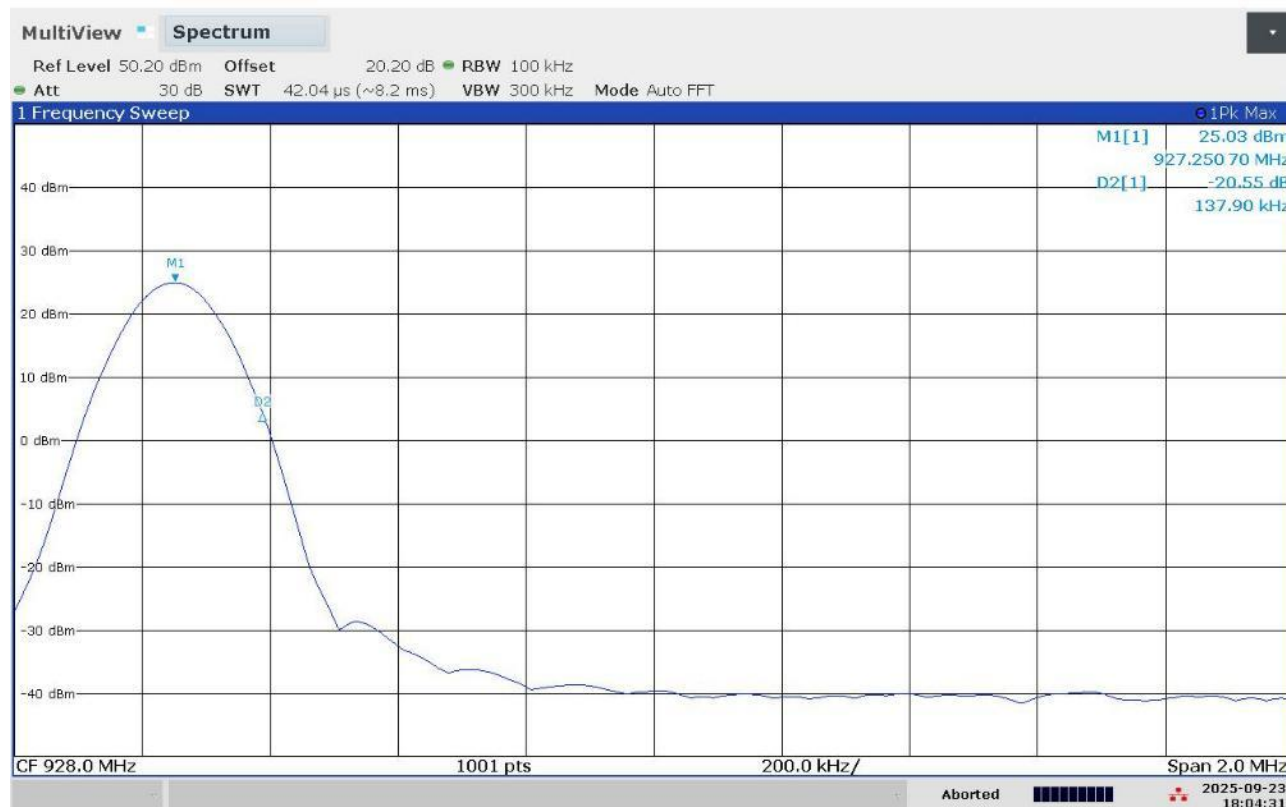
De Rosso-25135634



De Rosso-25135635



De Rosso-25135636



Peak Output Power

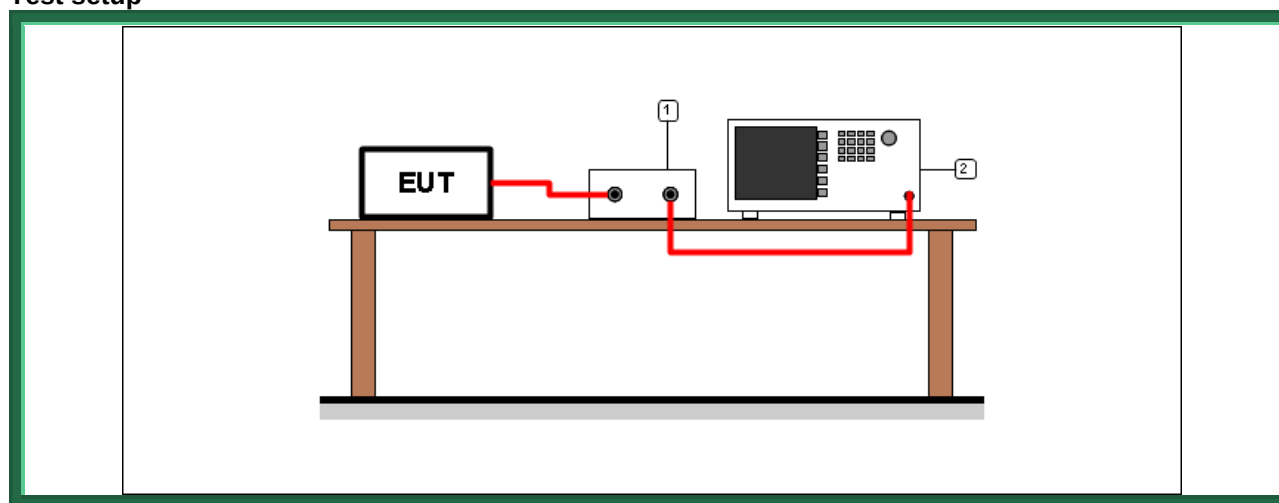
Tested by	F. De Rosso
Test date	23.09.2025
Test location (stand)	Laboratory
Basic standard(s)	KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 2.2 ANSI C63.10 cl. 7.8.5
Product standard(s)	FCC Rules and Regulation; Titles 47 Part. 15.247
Supplementary test set-up description	--
Supplementary information	--

Acceptance limits

For frequency hopping systems operating in the 2400–2483,5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483,5 MHz band: 0,125 watts.

For frequency hopping systems operating in the 902–928 MHz band: 1 watt for systems employing at least 50 hopping channels; and 0,25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels.

Test setup



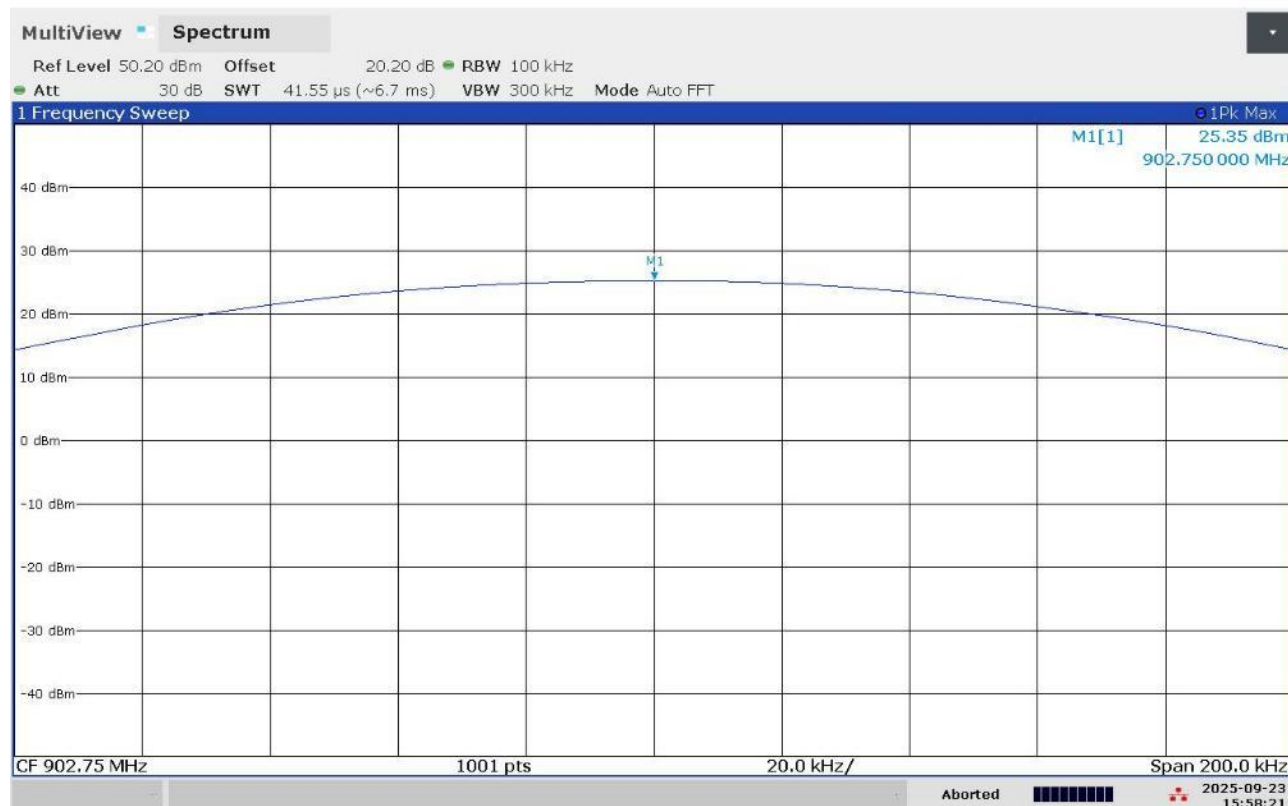
Test setup PR002_01							
Nr.	Id. Number	Manufacturer	Model	Serial number	Description	Last calibration date	Calibration expiration
2	CMC S295	Rohde & Schwarz	FSW43	104059	Spectrum Analyzer 43GHz	January 2023	January 2026
1	--	--	--	--	Cable + attenuator	Calibrated before the test	Calibrated before the test

Result

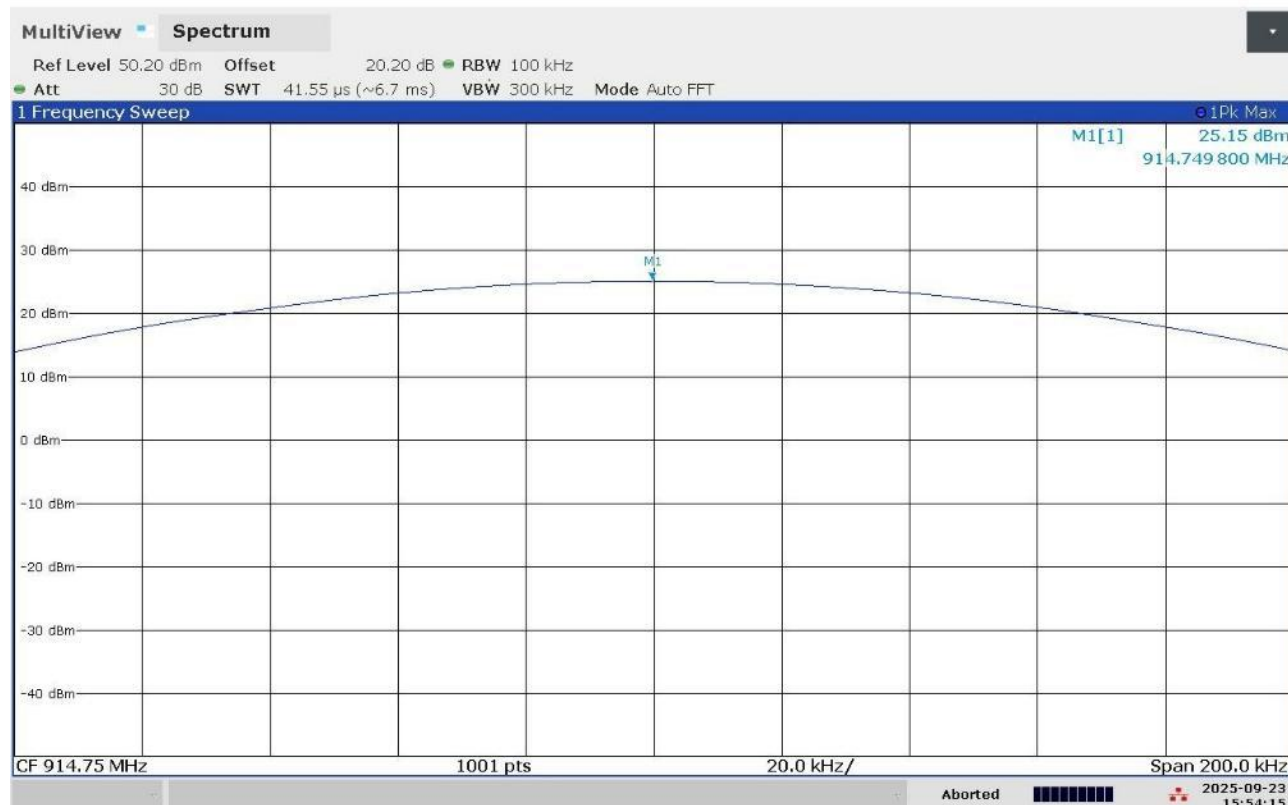
<i>Transmission frequency (MHz)</i>	<i>Graphs</i>	<i>Peak Output Power (dBm)</i>	<i>Peak Output Power (mW)</i>	<i>Limit (mW)</i>	<i>Verdict</i>
902,75	25135624	25,35	342,77	1000	P
914,75	25135625	25,15	327,34	1000	P
927,25	25135626	25,08	322,11	1000	P

Graphs

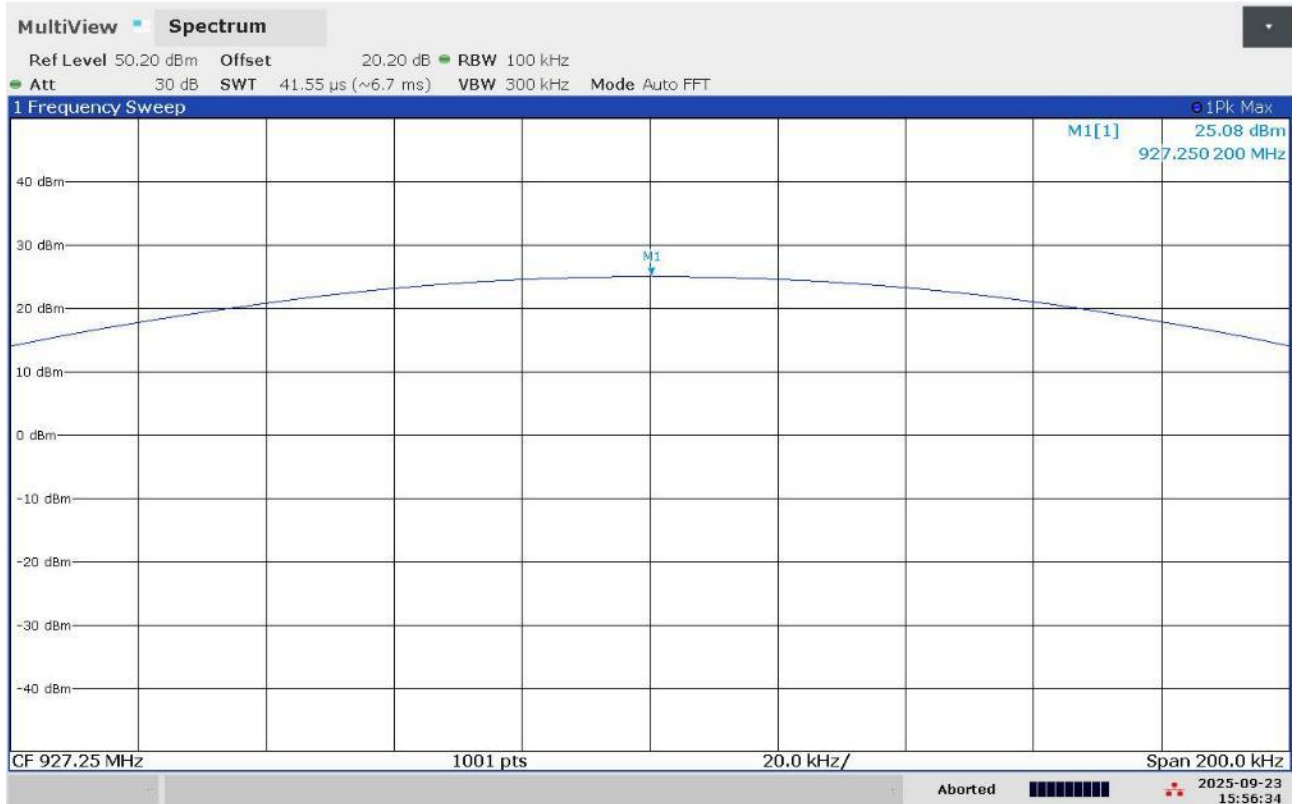
De Rosso-25135624-Fmin 902.75MHz



De Rosso-25135625-Fmed 914.75MHz



De Rosso-25135626-Fmax 927.25MHz



Attachment 1

Measurement uncertainty

Test	Test Setup	Expanded uncertainty	Note
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150 MHz	PE001_01	3,5 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_01	2,9 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30 MHz	PE001_02	2,2 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30 MHz	PE001_03	2,5 dB	1
Conducted emission CISPR 16 ISN 0,15-30 MHz	PE001_04	4,7 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_05	2,9 dB	1
Radiated Emission CDNE 30-300 MHz	PE001_06	3,3 dB	1
Disturbance Power 30-300 MHz	PE002_X1	3,8 dB	1
Radiated Emission LAS 0,15-30 MHz	PE003_01	2,0 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30 MHz	PE004_X1	4,1 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300 MHz	PE004_X2	4,7 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000 MHz	PE004_X3	4,6 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18 GHz	PE004_X4	4,7 dB	1
Human Exposure to electromagnetic fields	PE005_01	16,2 %	1
Harmonics	PE006_01	10 mA + 2,9 %	1
Flicker	PE007_01	3,40 %	1
Radiated Immunity 80 MHz - 6 GHz	PE102_XX	2,43 dB 0,97 V/m a 3V/m	1
Conducted Immunity 0,15 - 230 MHz	PE105_XX	1,26 dB 0,47 V a 3V	1
AC Magnetic field	PE106_01	1,55 % 0,15 A/m a 10A/m	1
Pulse Magnetic field	PE107_01	6,21 % 18,6 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,21 % 1,86 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,11 % 0,21 V a 10V	1

Test	Test Setup	Expanded uncertainty	Note
Power/Spurious 9kHz-30MHz	PR001_X1	4,1 dB	1
Power/Spurious ERP 30-1000MHz d=10m/3m	PR001_X2+X3	4,8 dB	1
Misura della potenza EIRP 1-18GHz d=3m	PR001_X4+X5	4,7 dB	1
Misura della potenza EIRP 18-40GHz d=3m	PR001_X6	5,1 dB	1
Frequency error	PR002_01+02	$< 1 \times 10^{-7}$	1
Timing zero span (1001pts.)	PR002_01+02	0,2 % SWT	1
Modulation bandwidth	PR002_01+02	$< 1 \times 10^{-7}$	1
Conducted RF power and spurious emission	PR002_01+02	1,1 dB	1
Adjacent channel power	PR002_01+02	1,1 dB	1
Blocking	PR002_01+02	1,1 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
Ring Wave immunity test	PE110_01		2
Low frequency immunity test	PE111_01		2
Dumped Oscillatory immunity test	PE113_01		2
Rev_25_01 date 26/02/2025			

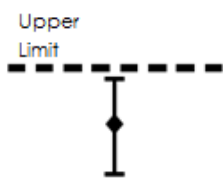
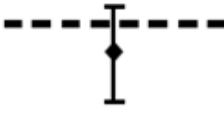
Note 1:

The expanded uncertainty reported according to the document EA-4-02 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 $k=2$

Judgement of compliance

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

In agreement with ILAC-G8:09/2019 cl.4.2.1 Guidelines on Decision Rules and Statements of Conformity

Quality manual references – Internal procedure

Internal Procedure PM001 rev. 4.1 (Quality Manual)	Measure procedure
Internal Procedure INC_M rev. 10.1 (Quality Manual)	Measurement uncertainty calculation