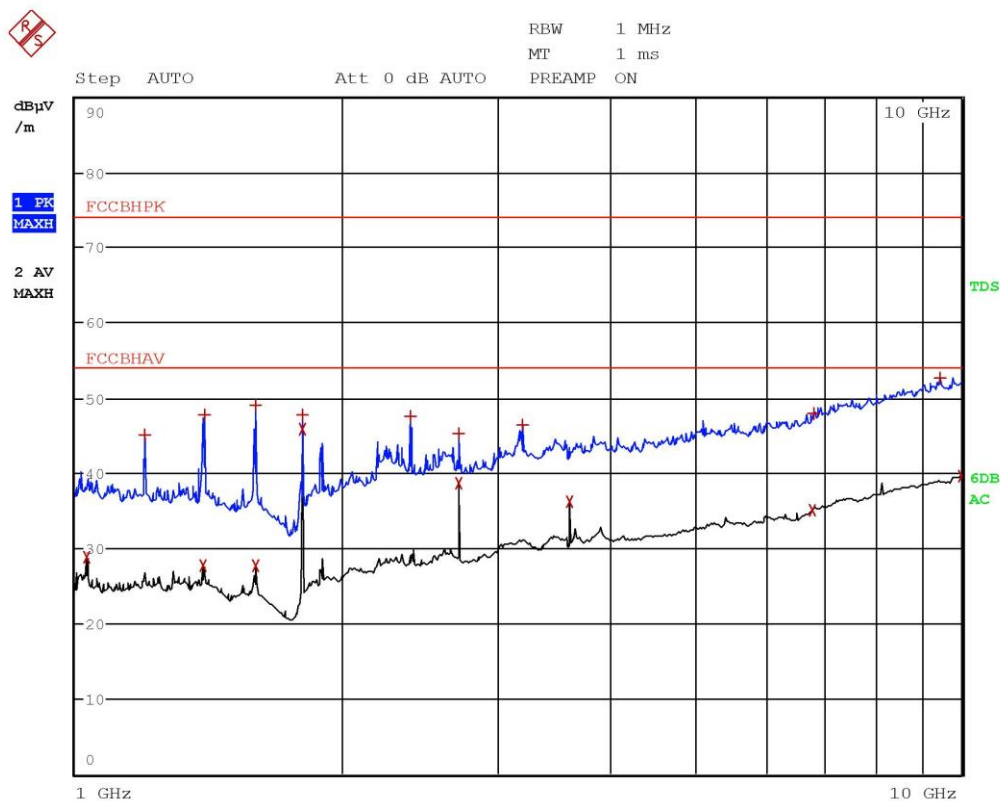


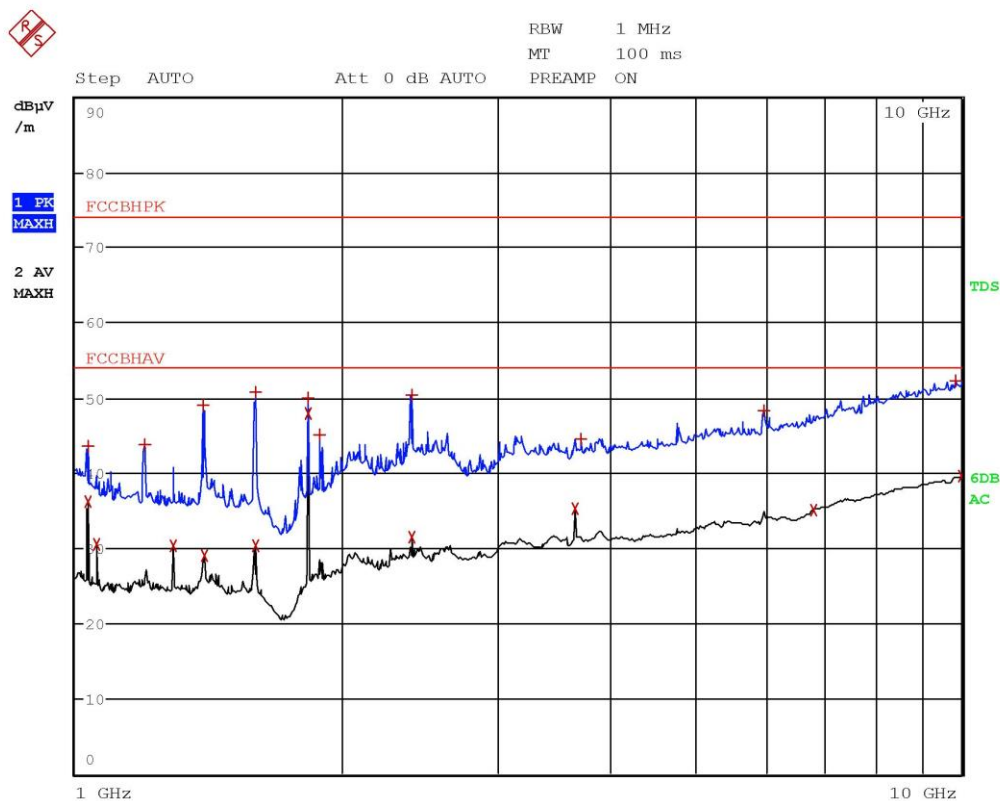


Gandini 20222532



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCCBHPK		
Trace2:	FCCBHAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB
2 Average	1.0312 GHz	28.79	-25.18
1 Max Peak	1.1964 GHz	45.11	-28.86
2 Average	1.396 GHz	27.67	-26.31
1 Max Peak	1.398 GHz	47.78	-26.19
2 Average	1.5976 GHz	27.67	-26.30
1 Max Peak	1.598 GHz	48.99	-24.98
2 Average	1.8056 GHz	45.88	-8.09
1 Max Peak	1.8056 GHz	47.75	-26.22
1 Max Peak	2.3908 GHz	47.46	-26.51
1 Max Peak	2.7084 GHz	45.19	-28.78
2 Average	2.7084 GHz	38.58	-15.39
1 Max Peak	3.1984 GHz	46.48	-27.49
2 Average	3.6112 GHz	36.17	-17.81
2 Average	6.8024 GHz	35.11	-18.86
1 Max Peak	6.8084 GHz	47.84	-26.13
1 Max Peak	9.4492 GHz	52.65	-21.32
2 Average	9.984 GHz	39.66	-14.31

Gandini 20222532

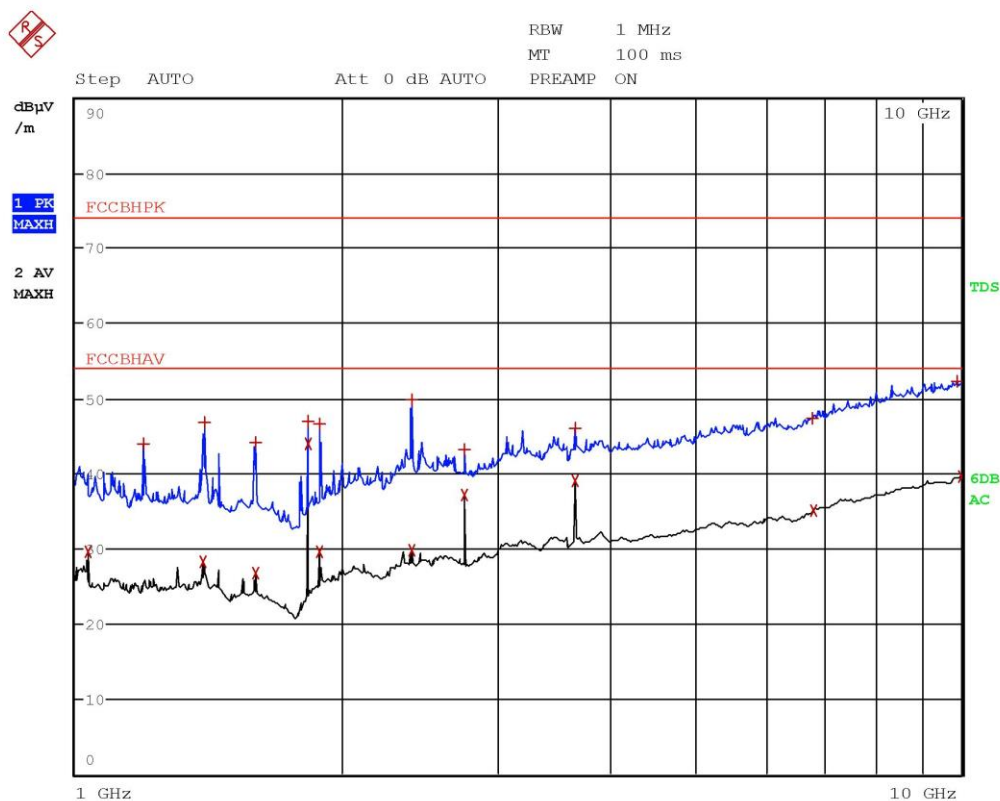


Gandini 20222533



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCCBHPK		
Trace2:	FCCBHAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB
2 Average	1.032 GHz	36.21	-17.76
1 Max Peak	1.0324 GHz	43.66	-30.31
2 Average	1.0548 GHz	30.51	-23.46
1 Max Peak	1.1996 GHz	43.73	-30.24
2 Average	1.2892 GHz	30.36	-23.61
1 Max Peak	1.3956 GHz	48.98	-24.99
2 Average	1.3972 GHz	29.08	-24.89
1 Max Peak	1.5972 GHz	50.72	-23.25
2 Average	1.5972 GHz	30.33	-23.64
2 Average	1.8296 GHz	48.01	-5.96
1 Max Peak	1.8296 GHz	50.06	-23.91
1 Max Peak	1.8892 GHz	45.02	-28.95
1 Max Peak	2.3936 GHz	50.35	-23.62
2 Average	2.3936 GHz	31.41	-22.57
2 Average	3.6592 GHz	35.18	-18.79
1 Max Peak	3.722 GHz	44.53	-29.45
1 Max Peak	5.9948 GHz	48.36	-25.61
2 Average	6.8076 GHz	35.04	-18.93
1 Max Peak	9.858 GHz	52.30	-21.67
2 Average	9.9844 GHz	39.65	-14.32

Gandini 20222533

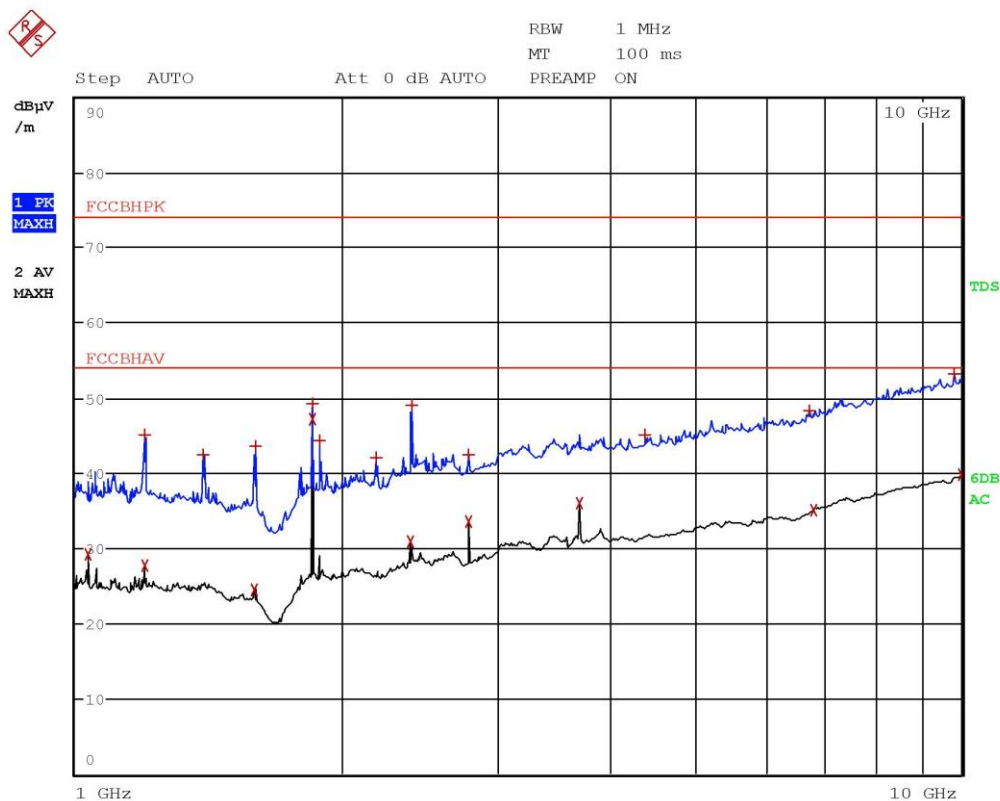


Gandini 20222534



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCCBHPK		
Trace2:	FCCBHAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB
2 Average	1.032 GHz	29.60	-24.37
1 Max Peak	1.1944 GHz	43.95	-30.02
2 Average	1.3952 GHz	28.17	-25.80
1 Max Peak	1.398 GHz	46.79	-27.19
2 Average	1.5984 GHz	26.84	-27.14
1 Max Peak	1.5996 GHz	44.18	-29.79
1 Max Peak	1.8296 GHz	47.04	-26.93
2 Average	1.8296 GHz	44.05	-9.92
1 Max Peak	1.8888 GHz	46.67	-27.30
2 Average	1.8888 GHz	29.60	-24.38
1 Max Peak	2.3936 GHz	49.85	-24.12
2 Average	2.3992 GHz	29.81	-24.16
2 Average	2.7444 GHz	37.20	-16.77
1 Max Peak	2.7444 GHz	43.24	-30.73
1 Max Peak	3.6588 GHz	46.08	-27.89
2 Average	3.6592 GHz	38.99	-14.98
1 Max Peak	6.784 GHz	47.37	-26.60
2 Average	6.8072 GHz	35.16	-18.81
1 Max Peak	9.8956 GHz	52.31	-21.66
2 Average	9.9852 GHz	39.69	-14.28

Gandini 20222534

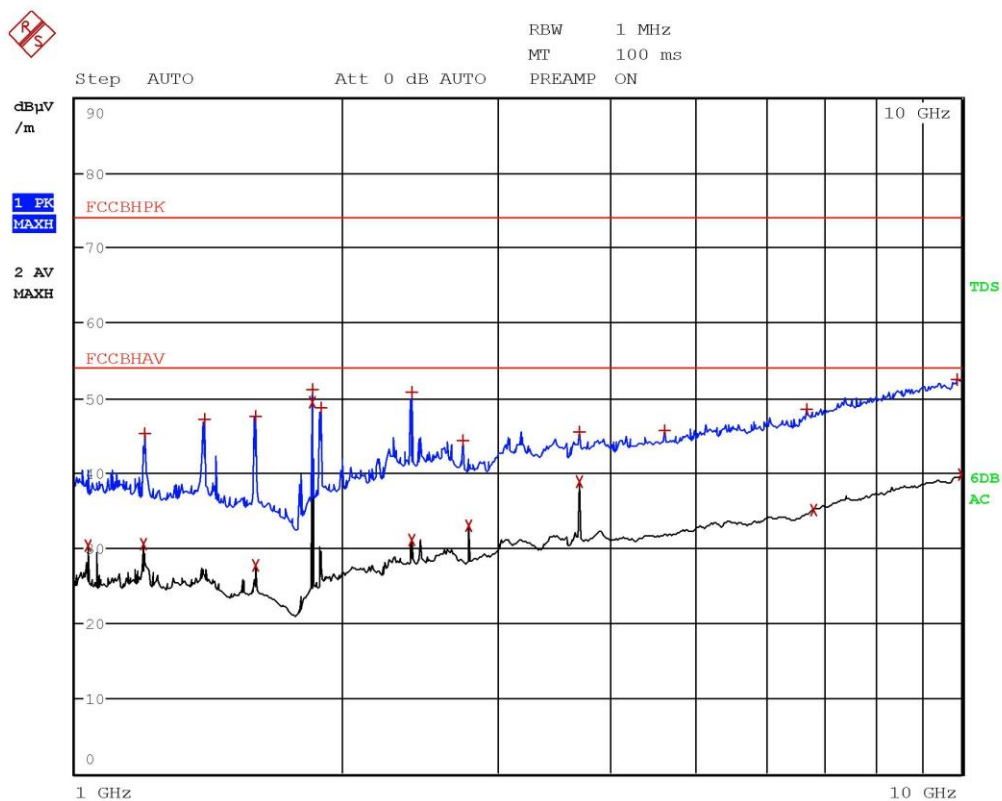


Gandini 20222535



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCCBHPK		
Trace2:	FCCBHAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB
2 Average	1.0328 GHz	29.19	-24.78
1 Max Peak	1.1968 GHz	45.17	-28.80
2 Average	1.1988 GHz	27.61	-26.36
1 Max Peak	1.3952 GHz	42.49	-31.48
2 Average	1.5944 GHz	24.43	-29.54
1 Max Peak	1.5976 GHz	43.49	-30.48
1 Max Peak	1.8544 GHz	49.26	-24.71
2 Average	1.8548 GHz	47.12	-6.85
1 Max Peak	1.8888 GHz	44.33	-29.65
1 Max Peak	2.19 GHz	42.04	-31.93
2 Average	2.3904 GHz	30.99	-22.98
1 Max Peak	2.3972 GHz	49.05	-24.92
2 Average	2.7816 GHz	33.50	-20.47
1 Max Peak	2.782 GHz	42.49	-31.48
2 Average	3.7088 GHz	36.10	-17.87
1 Max Peak	4.3836 GHz	45.18	-28.80
1 Max Peak	6.748 GHz	48.23	-25.74
2 Average	6.808 GHz	35.11	-18.87
1 Max Peak	9.8292 GHz	53.22	-20.75
2 Average	9.9816 GHz	39.76	-14.21

Gandini 20222535



Gandini 20222536



EDIT PEAK LIST (Prescan Results)			
Trace1:	FCCBHPK		
Trace2:	FCCBHAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA LIMIT dB
2 Average	1.0324 GHz	30.28	-23.69
2 Average	1.1944 GHz	30.51	-23.46
1 Max Peak	1.1956 GHz	45.26	-28.71
1 Max Peak	1.3976 GHz	47.09	-26.88
2 Average	1.5976 GHz	27.64	-26.33
1 Max Peak	1.5996 GHz	47.60	-26.37
1 Max Peak	1.8544 GHz	51.18	-22.80
2 Average	1.8544 GHz	49.47	-4.50
1 Max Peak	1.89 GHz	48.60	-25.37
2 Average	2.396 GHz	31.13	-22.84
1 Max Peak	2.3972 GHz	50.79	-23.18
1 Max Peak	2.7384 GHz	44.38	-29.59
2 Average	2.7816 GHz	33.04	-20.93
1 Max Peak	3.7092 GHz	45.53	-28.44
2 Average	3.7092 GHz	38.82	-15.15
1 Max Peak	4.628 GHz	45.61	-28.36
1 Max Peak	6.6796 GHz	48.58	-25.39
2 Average	6.806 GHz	35.07	-18.90
1 Max Peak	9.8864 GHz	52.47	-21.50
2 Average	9.982 GHz	39.74	-14.24

Gandini 20222536



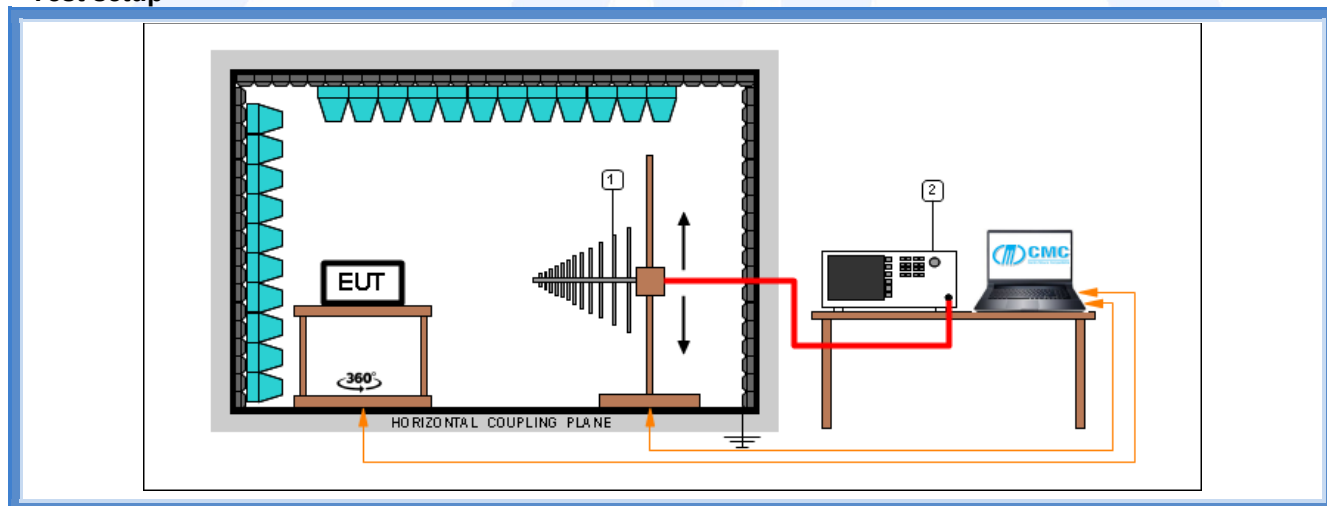
9.4 20 dB bandwidth

Tested by	G. Gandini
Test date	27.11.2020
Test location (stand)	Semi-anechoic chamber (CMC A070)
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 ANSI C63.10 cl. 7.8.7
Supplementary test set-up description	--
Supplementary information.....	--

Acceptance limits

The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz

Test setup



Test setup PE004_03

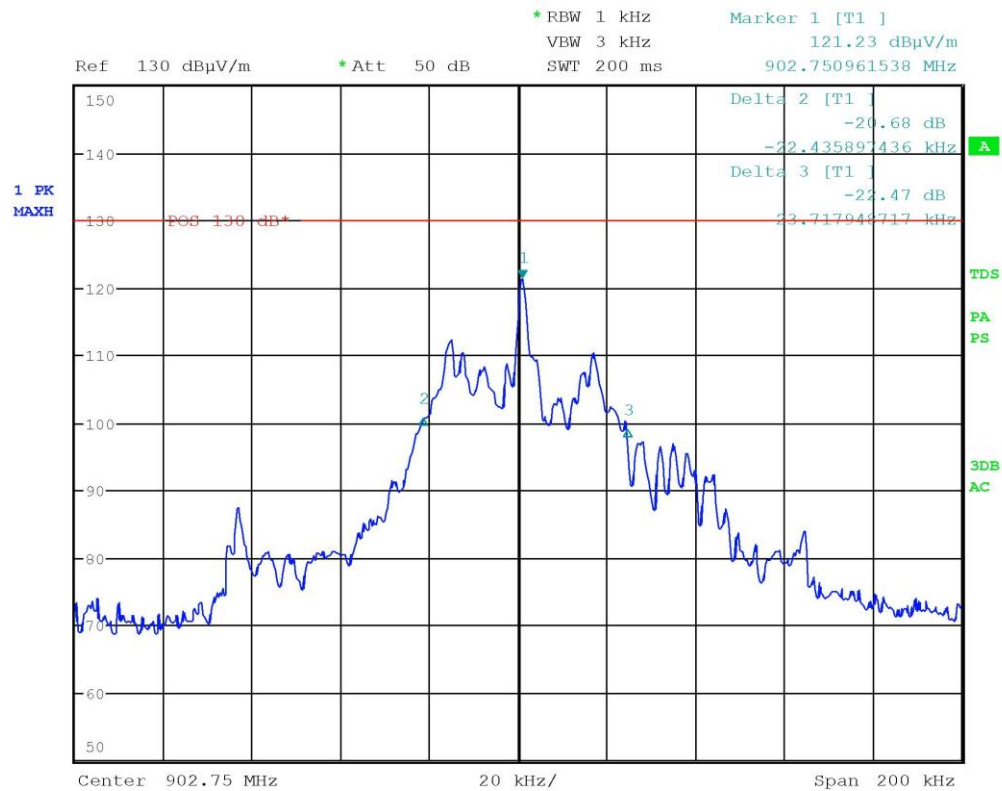
Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna

Result

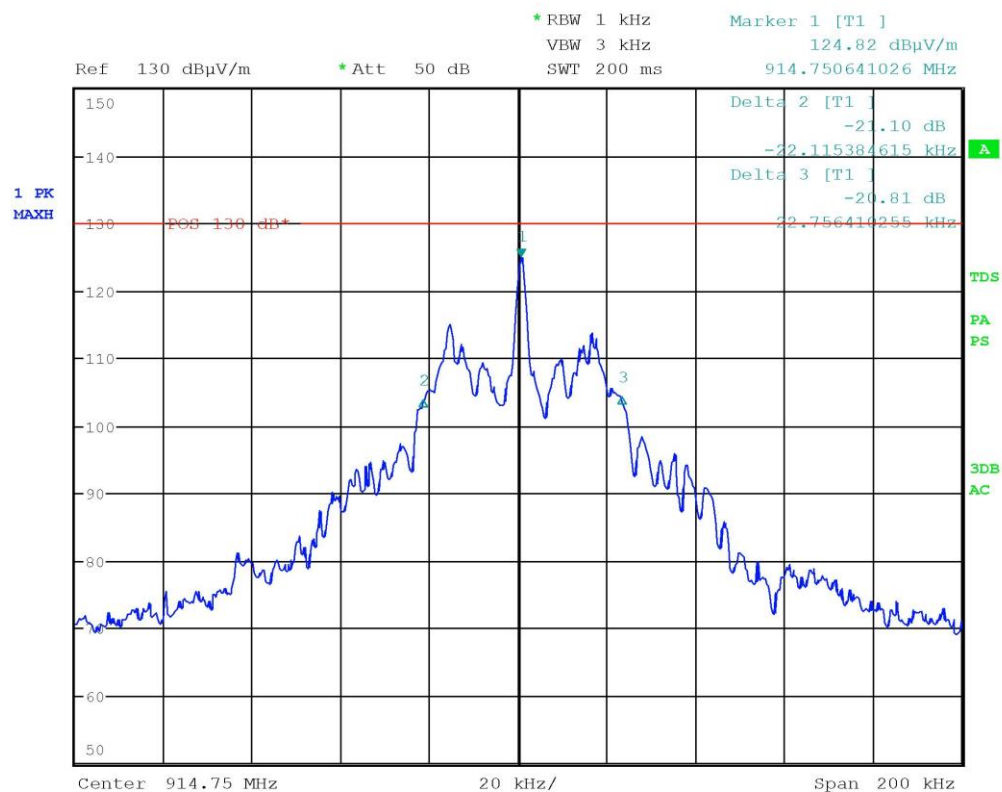
Frequency (MHz)	Graphs	20 dB bandwidth (kHz)	Maximum 20 dB bandwidth allowed (kHz)	Results
902,75	G20222511	46,154	500	Complies
914,75	G20222515	44,871	500	Complies
927,25	G20222518	45,192	500	Complies



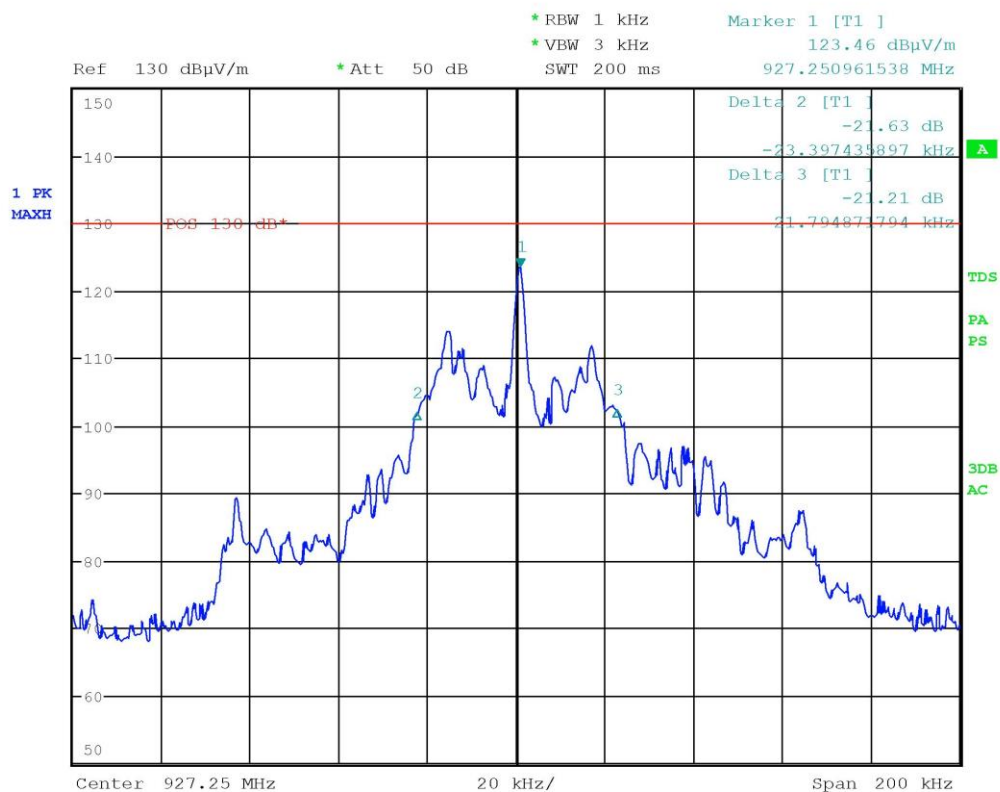
Graphs



Gandini 20222511



Gandini 20222515



Gandini 20222518

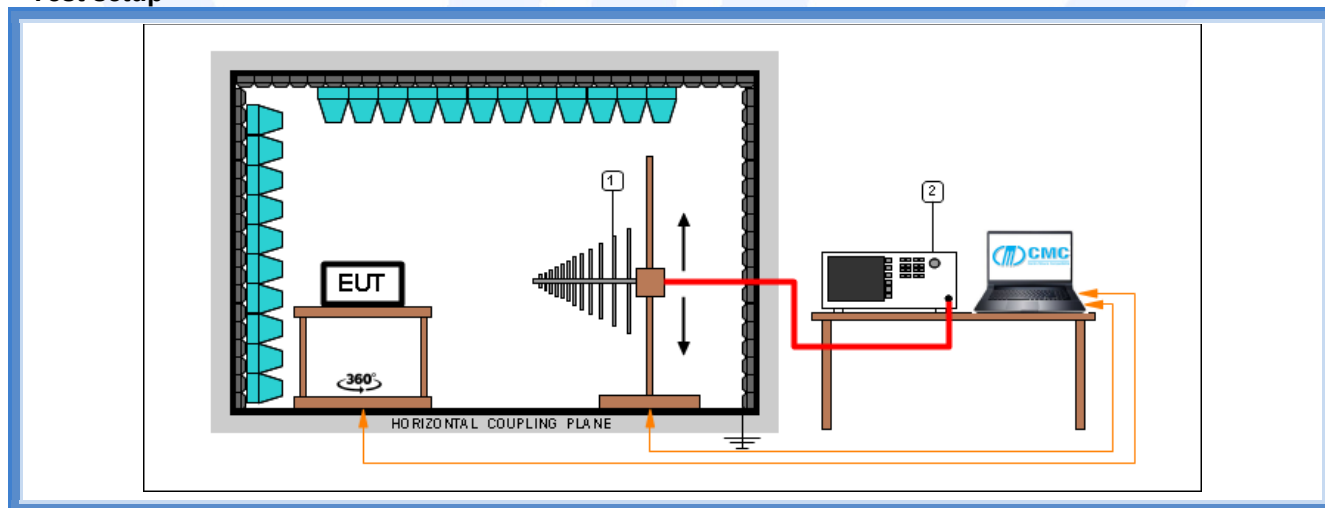
9.5 Channel separation

Tested by	G. Gandini
Test date	27.11.2020
Test location (stand)	Semi-anechoic chamber (CMC A070)
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.2
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 PE004_03				
Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna



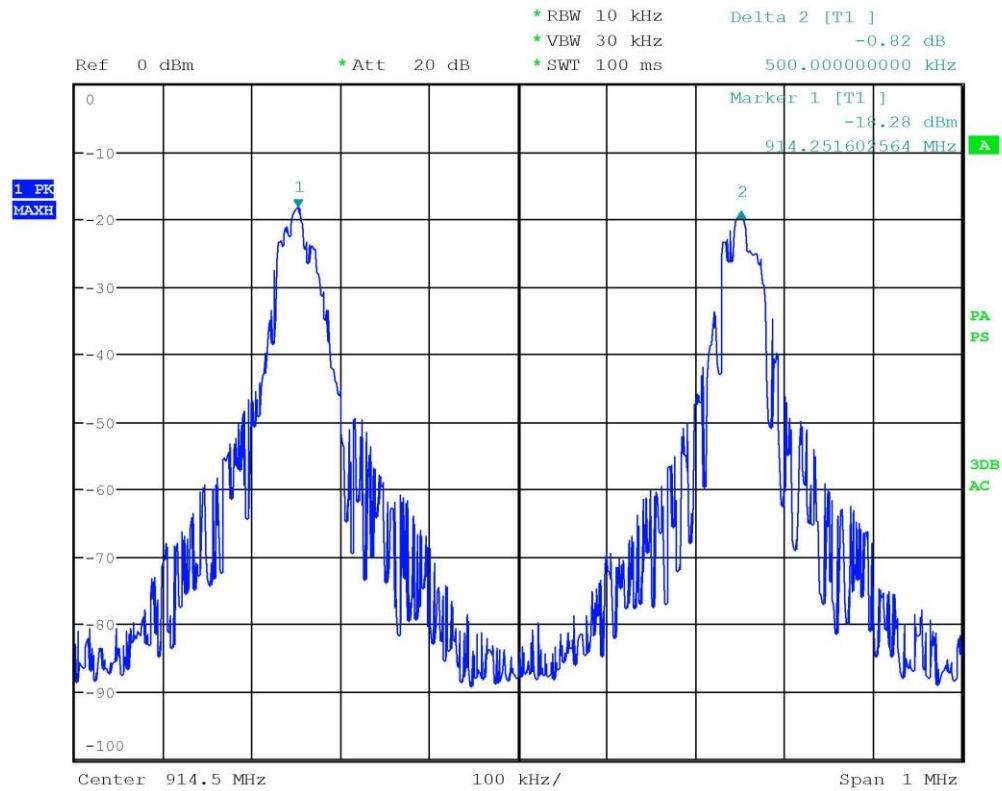
Result

Frequency band (MHz)	Graphs	Channel separation (kHz)	Minimum channel separation required (kHz)	Results
902 – 928	G20222523	500	46,154 (The highest 20 dB bandwidth value)	Complies





Graphs



Gandini 20222523



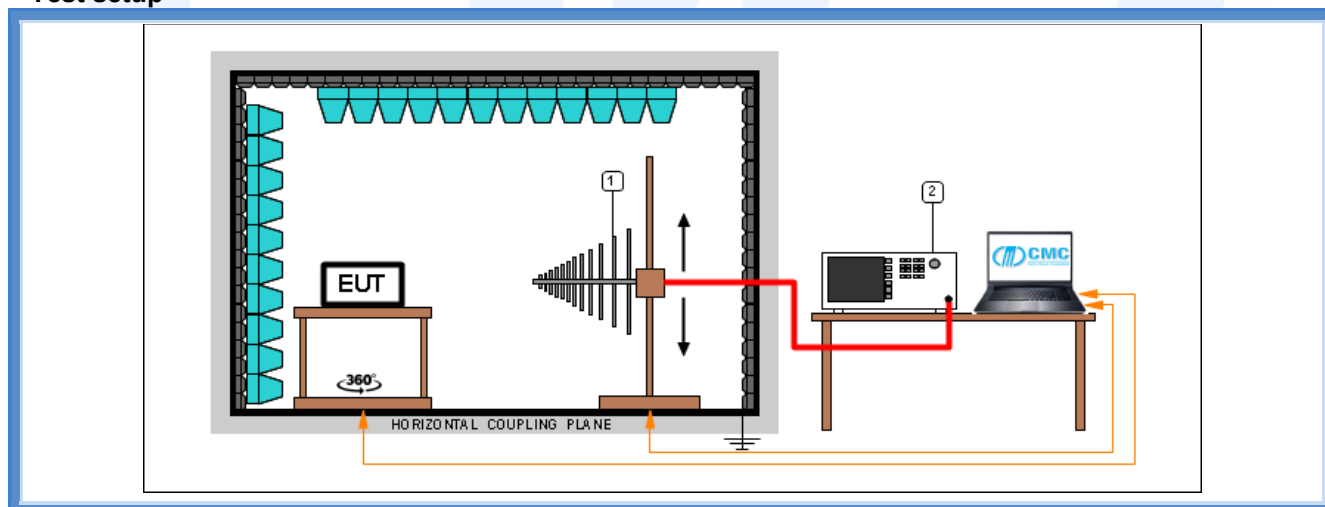
9.6 Number of hopping channels

Tested by	G. Gandini
Test date	27.11.2020
Test location (stand)	Semi-anechoic chamber (CMC A070)
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.3
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 PE004_03

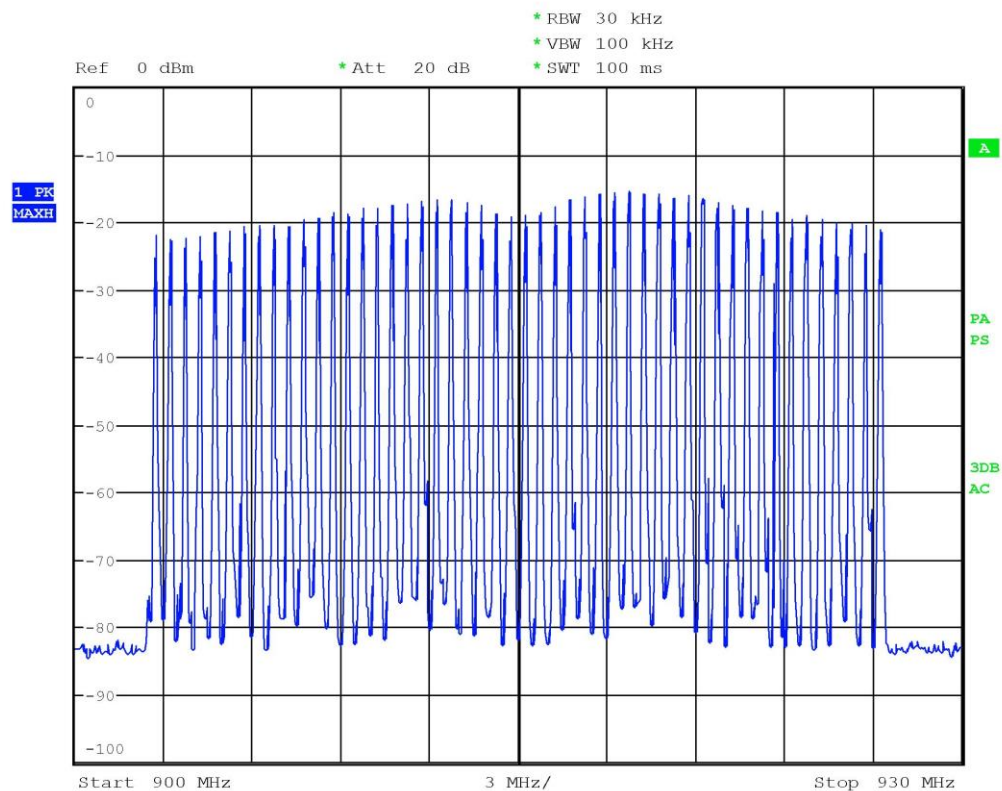
Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna

Result

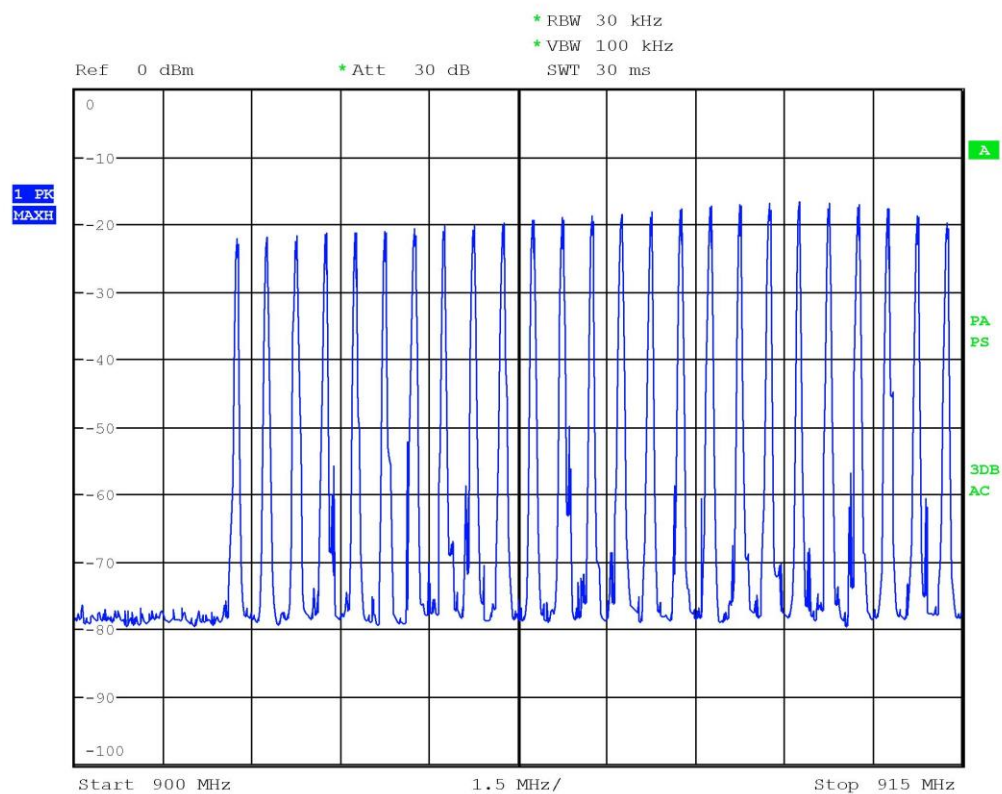
Frequency band (MHz)	Graphs	Number of hopping channels	Minimum number of hopping channels required	Results
902 – 928	G20222524 G20222527 G20222528	50	50	Complies



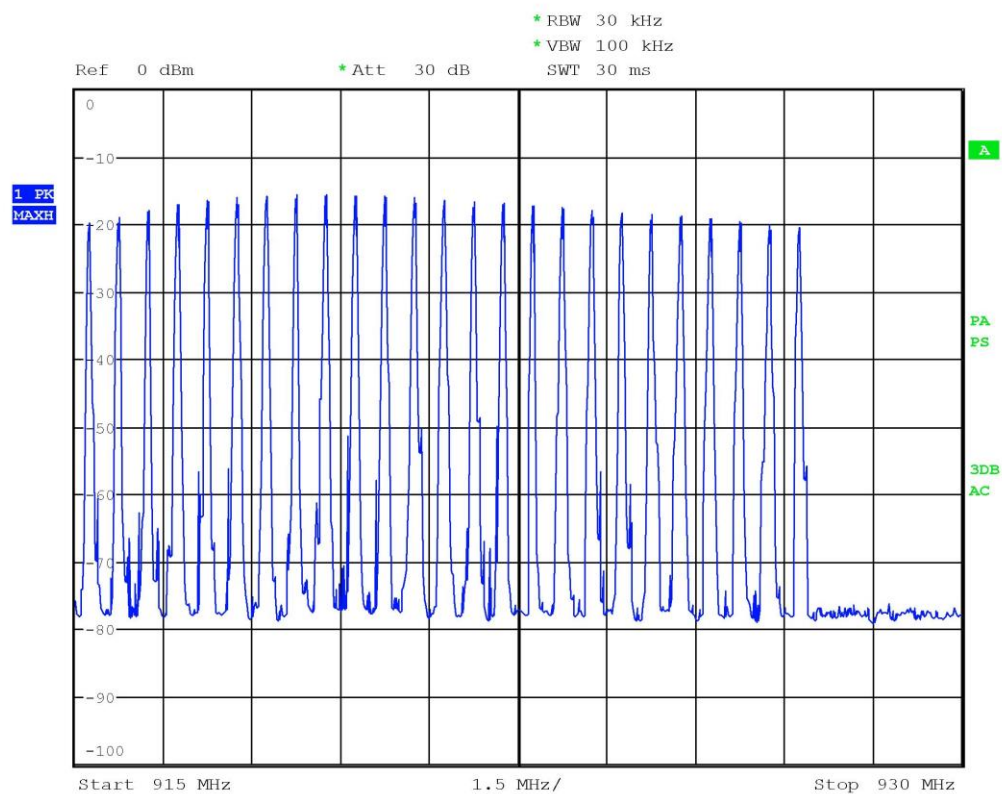
Graphs



Gandini 20222524



Gandini 20222527



Gandini 20222528

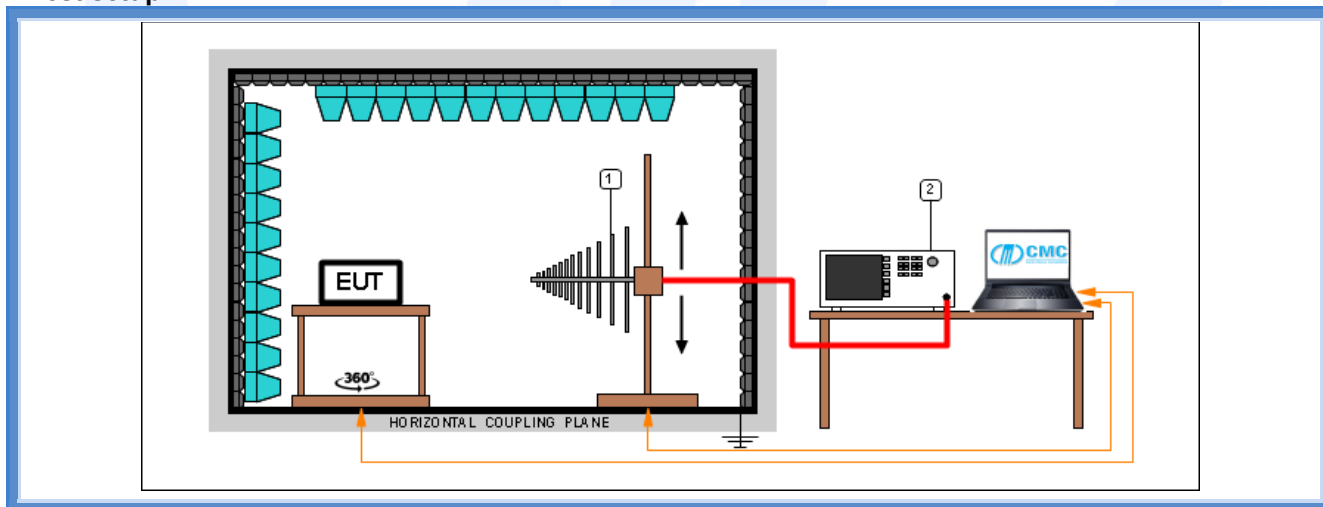
9.7 Time of occupancy

Tested by	G. Gandini
Test date	27.11.2020
Test location (stand)	Semi-anechoic chamber (CMC A070)
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 9 b) ANSI C63.10 cl. 7.8.4
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 PE004_03

Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna



Result

<i>Frequency (MHz)</i>	<i>Graphs</i>	<i>Dwell time (ms)</i>
914,75	G20222525	53,462

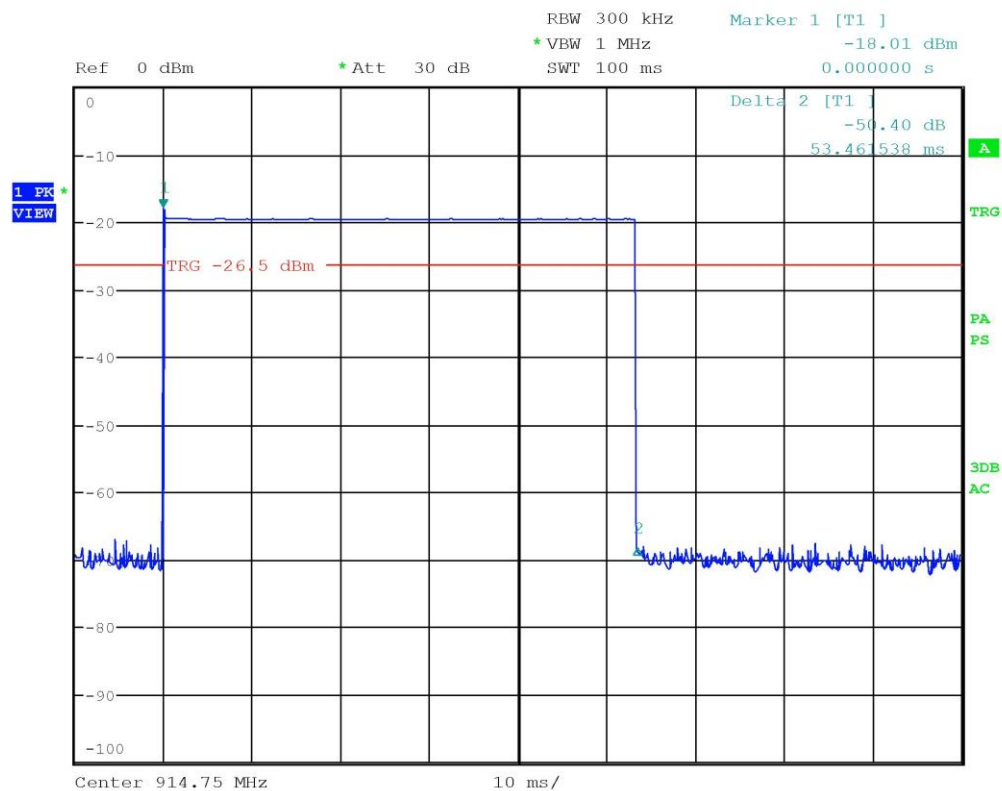
<i>Frequency (MHz)</i>	<i>Graphs</i>	<i>Number of transmissions</i>	<i>Period</i>
914,75	G20222526	5	20 s

Remarks: only the highest peaks have been considered. The lowest peaks are due to the auxiliary receiver unit

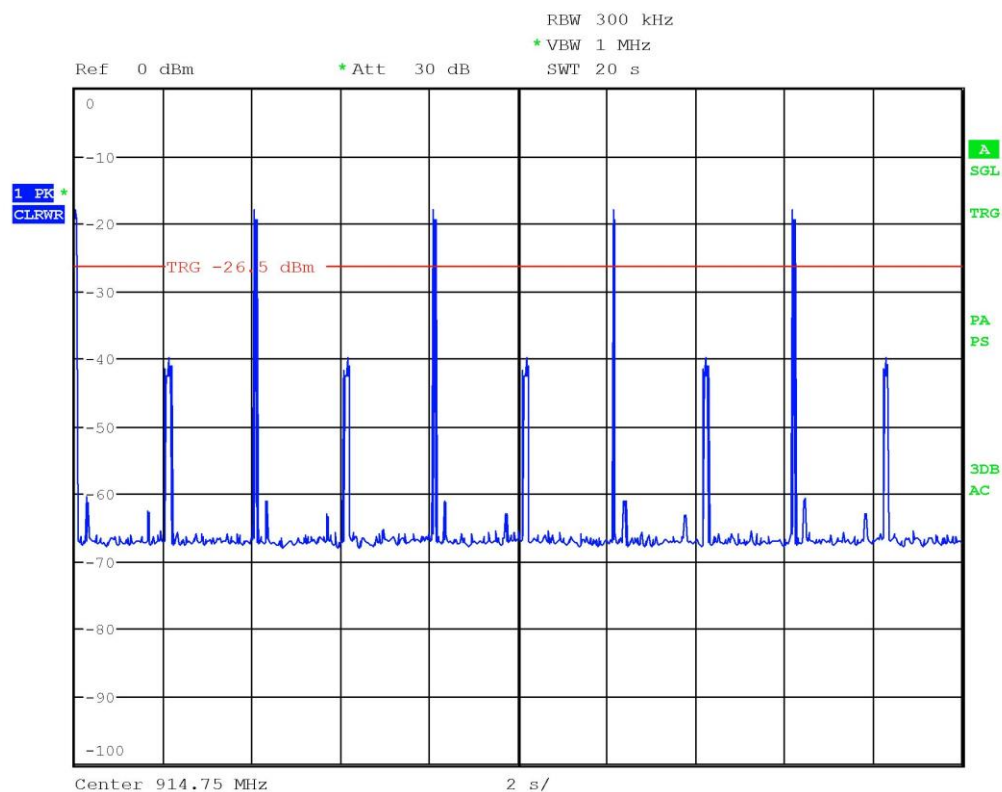
<i>Time of occupancy (Dwell time x Nr. transmissions)</i>	<i>Maximum allowed time of occupancy</i>	<i>Results</i>
267,31 ms	400 ms	Complies



Graphs



Gandini 20222525



Gandini 20222526



9.8 Band edge

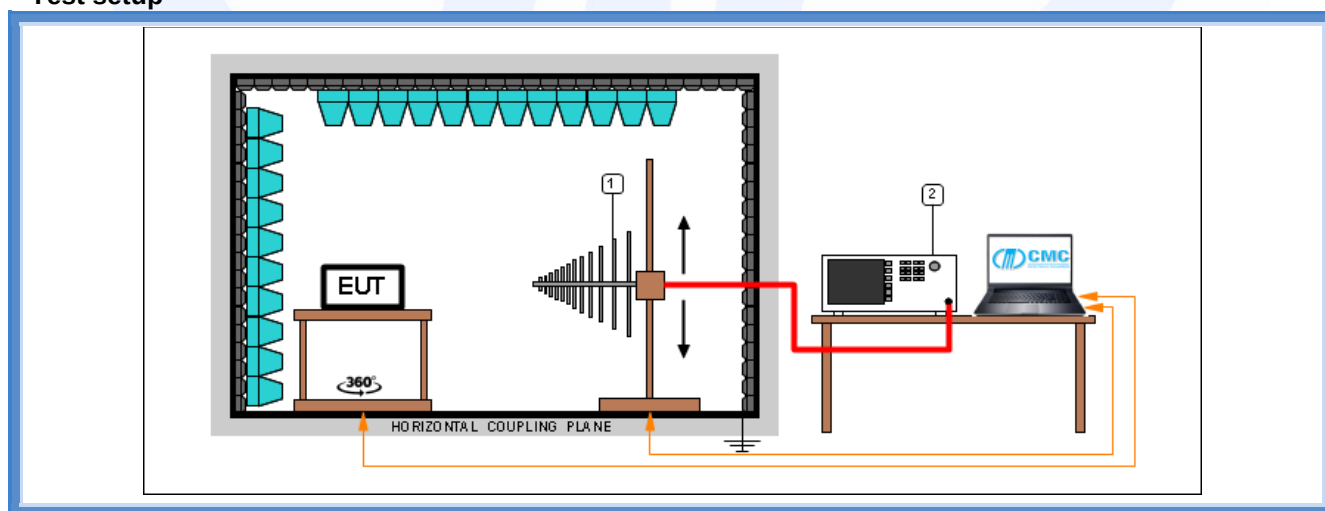
Tested by	G. Gandini
Test date	27.11.2020
Test location (stand)	Semi-anechoic chamber (CMC A070)
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 ANSI C63.10 cl. 7.8.6
Supplementary test set-up description	--
Supplementary information.....	--

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 complies 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

Test setup



Test setup PE004_03				
Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna



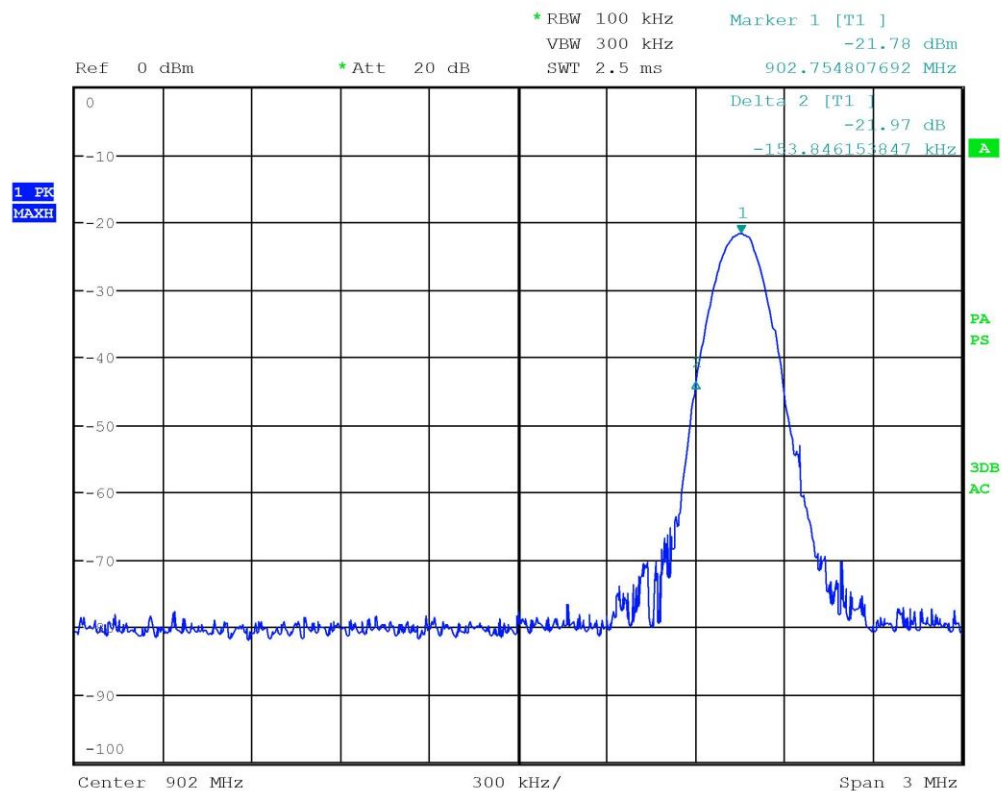
Result

Frequency (MHz)	Bandwidth	Graph(s) – Hopping	Results	
902,75	100 kHz	G20222522	F _L : 902,600 MHz	Complies
927,25	100 kHz	G20222521	F _H : 927,394 MHz	Complies

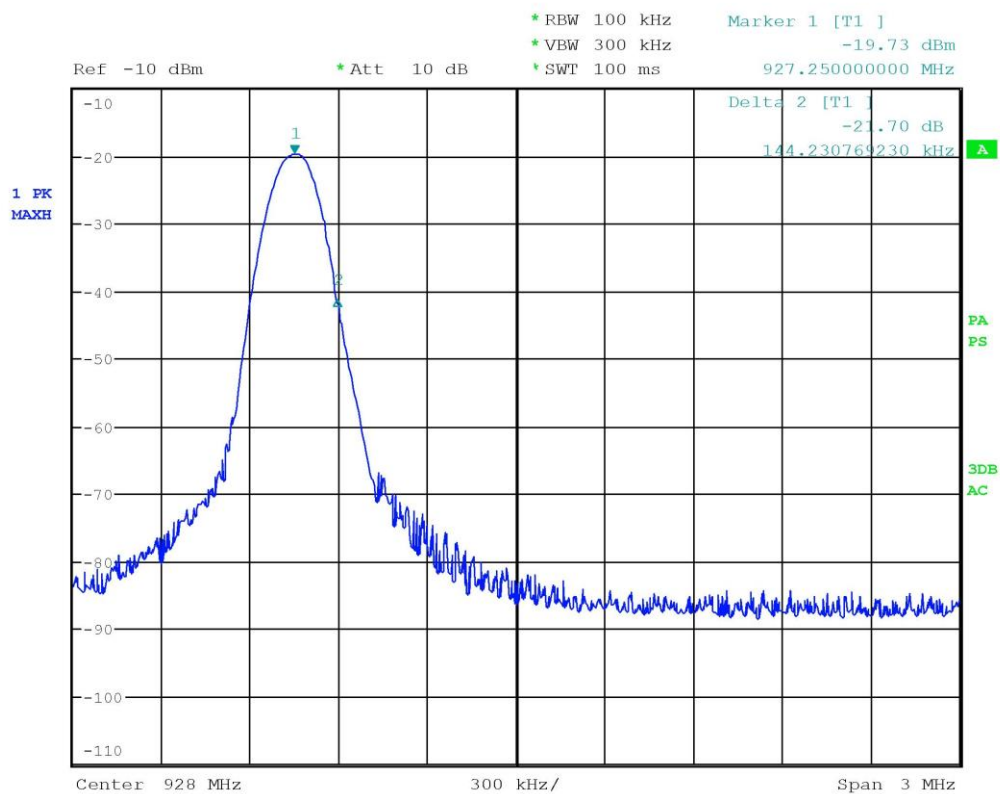
Frequency (MHz)	Bandwidth	Graph(s) – No hopping	Results	
902,75	100 kHz	G20222513	F _L : 902,601 MHz	Complies
927,25	100 kHz	G20222520	F _H : 927,394 MHz	Complies



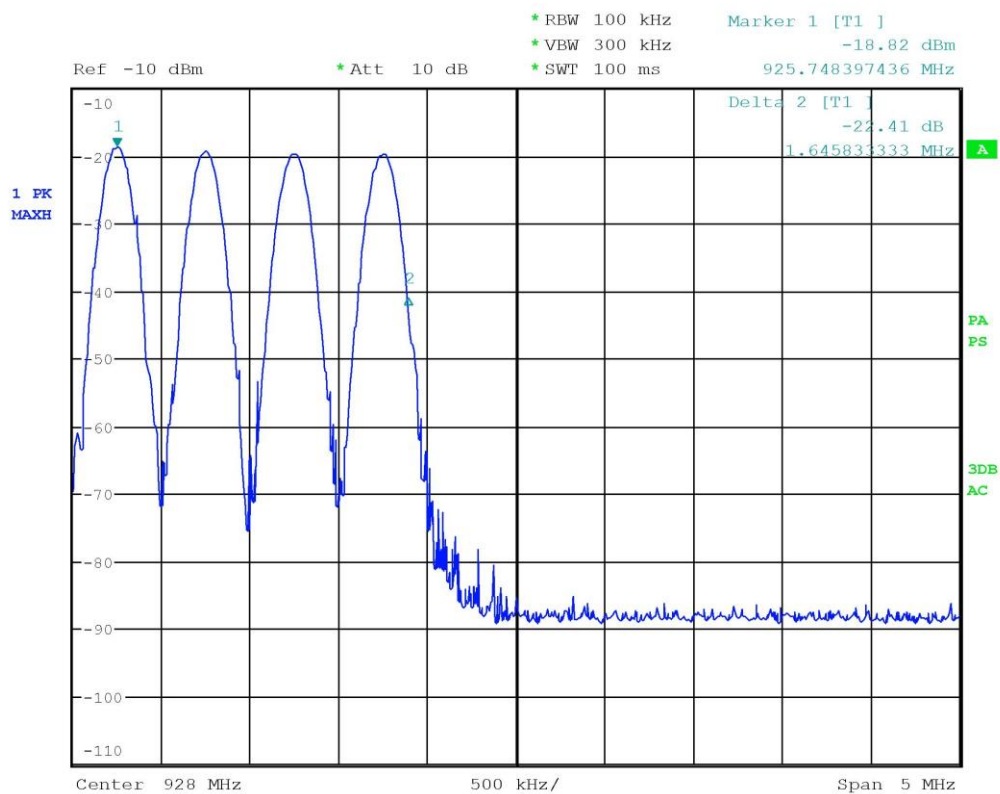
Graphs



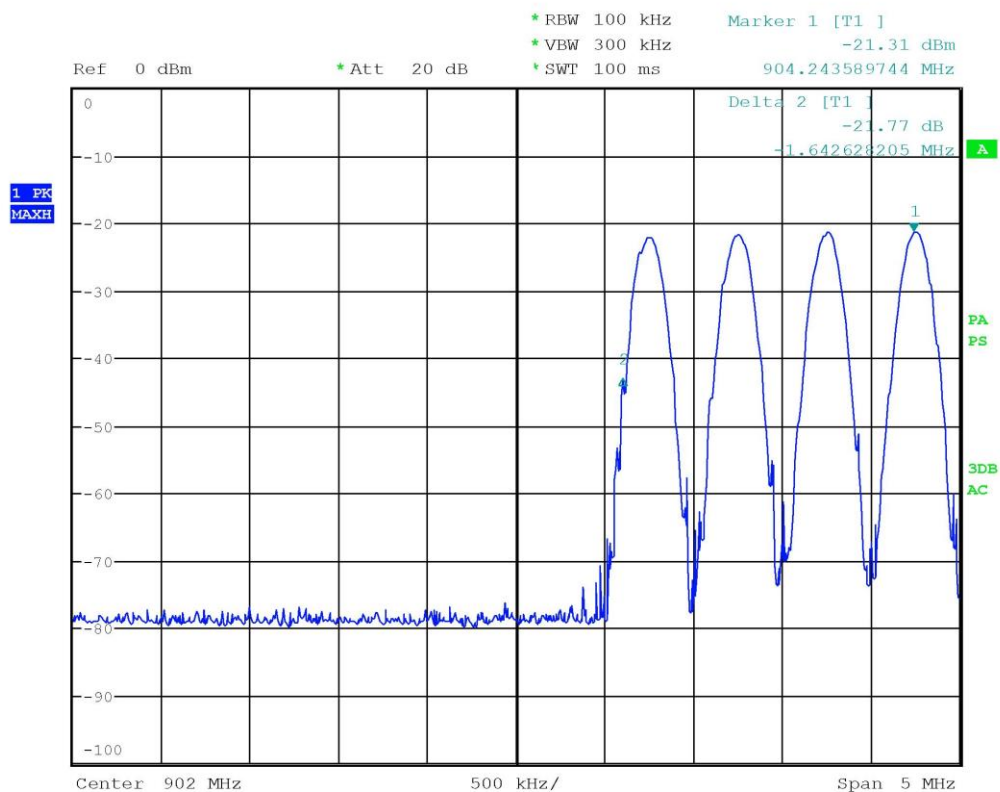
Gandini 20222513



Gandini 20222520



Gandini 20222521



Gandini 20222522



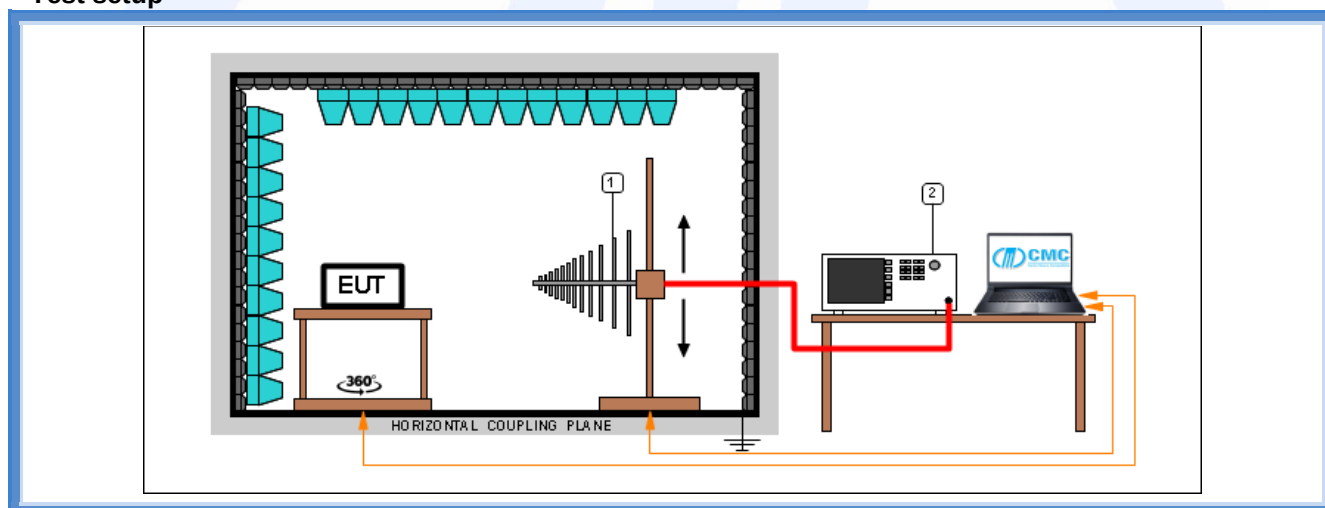
9.9 Peak Output Power

Tested by	G. Gandini
Test date	Semi-anechoic chamber (CMC A070)
Test location (stand)	Laboratory
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.247 KDB 558074 D01 15.247 Meas Guidance v05r02 cl. 2.2 ANSI C63.10 cl. 7.8.5
Supplementary information.....	EUT – antenna distance: 3 m

Acceptance limits

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 PE004_03				
Nr.	Id. Number	Manufacturer	Model	Description
2	CMC S164	Rohde & Schwarz	ESU26	Receiver 20 Hz - 26.5 GHz
1	CMC S287	Schwarzbeck	VUSLP 9111B	Broadband Antenna



Result

Frequency (MHz)	Polarization	Graphs	Measured level (dB μ V/m)	Peak Output Power (mW)	Limit (mW)
902,75	Worst case	G20222510	123,95	373,35	1000
914,75	Worst case	G20222514	126,31	642,87	1000
927,25	Worst case	G20222517	123,66	349,24	1000

Remarks

$P = (E \times d)^2 / (30 \times G)$

Where:

E = the measured maximum fundamental field strength in V/m

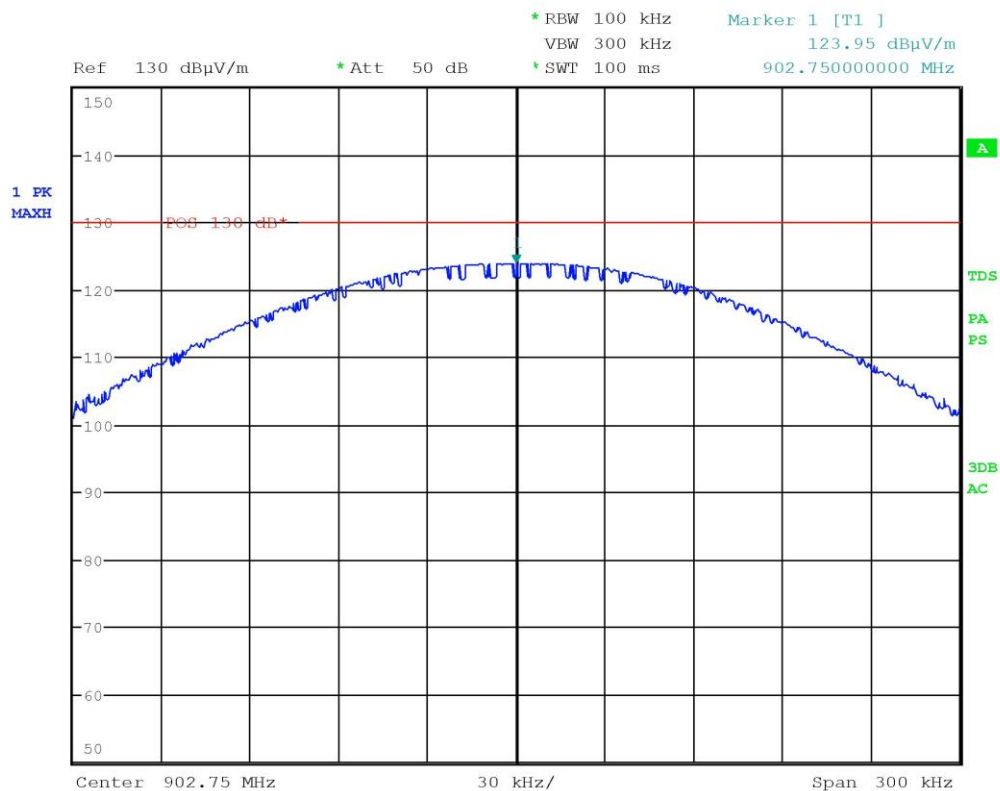
G = the numeric gain of the transmitting antenna: 1,995 (3 dBi)

d = the distance in meters from which the field strength was measured (3 m)

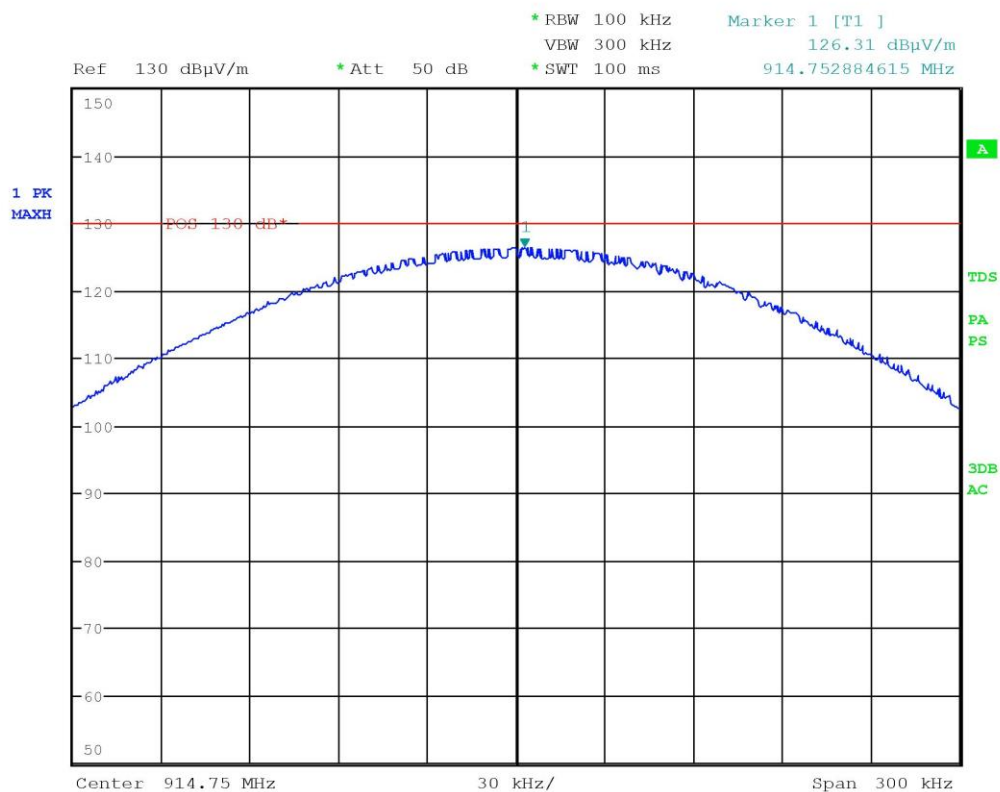
P = the power in watts



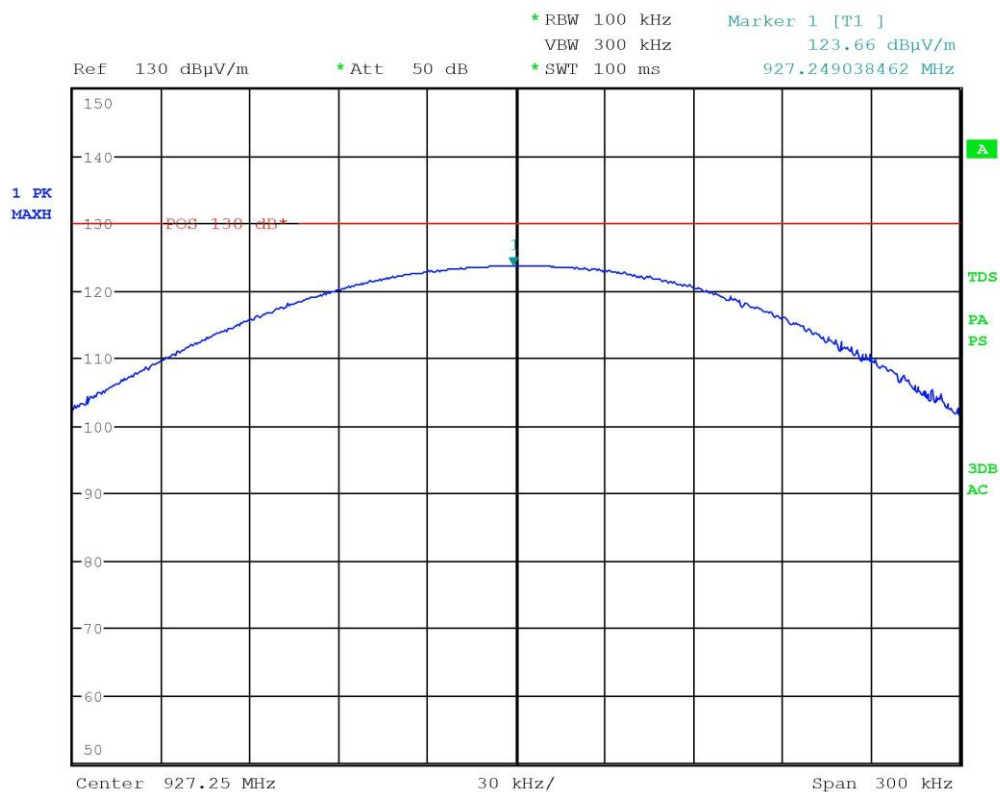
Graphs



Gandini 20222510



Gandini 20222514



Gandini 20222517



Attachment 1

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>	<i>Last calibration</i>	<i>Due date calibration</i>
CMC S010	Rohde & Schwarz	ESH3-Z2	Impulses Limiting Device	- - -	January '20	January '21
CMC S108	EMCO	3115	Horn Antenna	9811-5622	June '19	June '22
CMC S127	Schaffner	HLA6120	Loop Antenna	1191	November '18	November '23
CMC S164	Rohde & Schwarz	ESU26	EMC interference receiver	100052	January '20	January '21
CMC S200	Schwarzbeck	NSLK 8128	V-LISN	8128-273	January '20	January '21
CMC S260	CMC	Wfr_N	Shielded Cable	Wfr_ant10-1	November '20	November '21
CMC S261	CMC	Wfr_N	Shielded Cable	Wfr_ant20-1	November '20	November '21
CMC S262	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix32-1	November '20	November '21
CMC S263	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix31-1	November '20	November '21
CMC S264	CMC	Wfr_N	Shielded Cable	Wfr_ext03-1	November '20	November '21
CMC S271	Schwarzbeck	BBA 9106 + VHBB 9124	Biconical Antenna (30-300MHz)	831	June '19	June '22
CMC S287	Schwarzbeck	VUSLP 9111B	Log-periodic Antenna (200 MHz-3Ghz)	9111B-203	June '19	June '22
CMC S288	CMC	W_sma_white	Joint Shielded Cable	W_001	November '20	November '21
CMC S295	Rohde & Schwarz	FSW43	Spectrum Analyzer 43GHz	104059	November '20	November '23
CMC S353	Rohde & Schwarz	ESW26	EMI Test Receiver 1 Hz - 26.5 GHz	101492	September '20	September '22



Attachment 1

Measurement uncertainty

Test	Test Setup	Expanded uncertainty	Note
Conducted emission CISPR 16 LISN 50uH 0,009-0,0150 MHz	PE001_01	3,4 dB	1
Conducted emission CISPR 16 LISN 50uH 0,150-30,0 MHz	PE001_01	3,0 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30 MHz	PE001_02	2,9 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30 MHz	PE001_03	2,6 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_01	3,6 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_01	4,0 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300 MHz	PE004_02	3,9 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000 MHz	PE004_03	3,8 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18 GHz	PE004_04	4,2 dB	1
Human Exposure to electromagnetic fields	PE005_01	23,6 %	1
Harmonics	PE006_01	10 mA + 2,6 %	1
Flicker	PE007_01	4,79 %	1
Radiated Immunity 80 MHz - 6 GHz	PE102_XX	1,95 dB 0,75 V/m a 3V/m	1
Conducted Immunity 0,15 - 230 MHz	PE105_XX	1,20 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	6,25 % 18,7 A/m a 300A/m	1
Dumped Magnetic field	PE108_01	6,25 % 1,87 A/m a 30A/m	1
Common mode conducted immunity	PE112_01	2,21 % 0,22 V a 10V	1



Attachment 1

Test	Test Setup	Expanded uncertainty	Note
Power/Spurious 9kHz-30MHz	PR001_01	4,0 dB	1
Power/Spurious ERP 30-1000MHz d=10m	PR001_02+03	4,7 dB	1
Misura della potenza EIRP 1-18GHz d=3m	PR001_04+05	4,7 dB	1
Misura della potenza EIRP 18-40GHz d=3m	PR001_06	5,4 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_20_02 date 24/02/2020			

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 $p = 95\%$

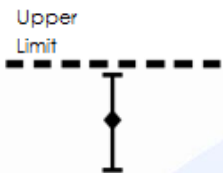
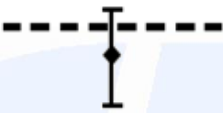
Note 2:

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



Attachment 1

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: 03/2009 Guidelines on the Reporting of Compliance with Specification

Quality manual references – Internal procedure

Internal Procedure PM001 rev. 3.0 (Quality Manual)	Measure procedure
Internal Procedure INC_M rev. 9.1 (Quality Manual)	Measurement uncertainty calculation