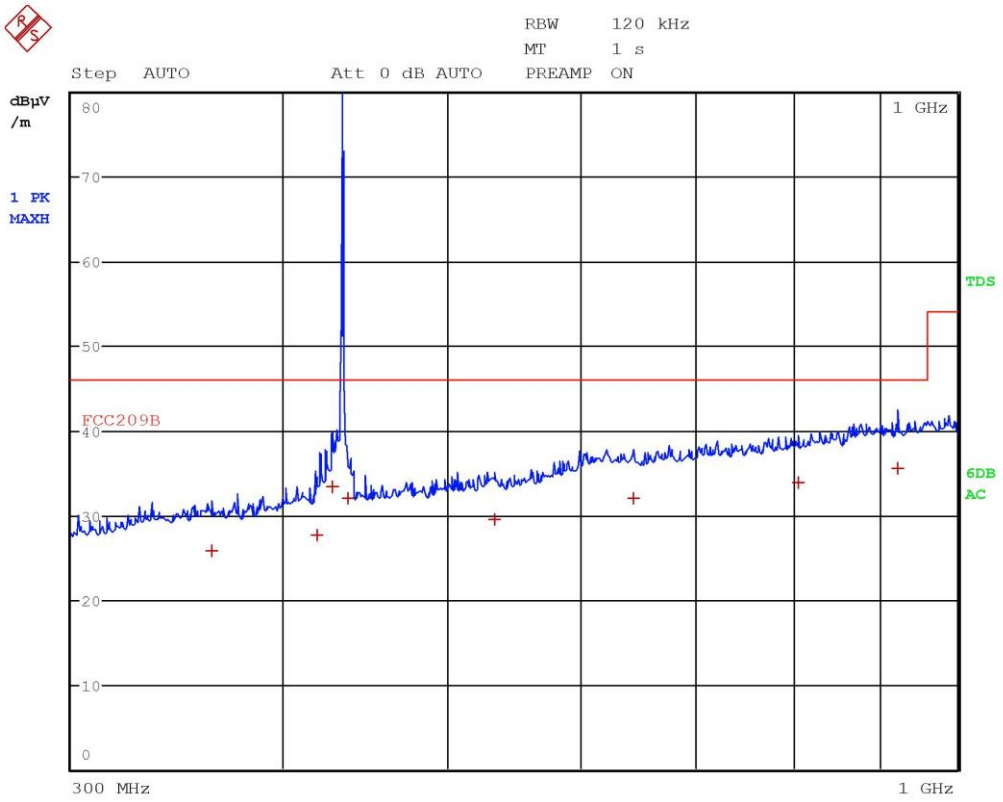
EDIT PEAK LIST (Final Measurement Results)

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

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	362.84 MHz	25.67	-20.34
1 Quasi Peak	421 MHz	28.76	-17.25
1 Quasi Peak	432.36 MHz	33.30	-12.71
1 Quasi Peak	533.76 MHz	29.45	-16.56
1 Quasi Peak	619.2 MHz	32.22	-13.79
1 Quasi Peak	750.64 MHz	33.40	-12.61
1 Quasi Peak	859.68 MHz	34.85	-11.16
1 Quasi Peak	941.32 MHz	35.40	-10.61

Gandini 19065603

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065604

CMC Centro Misure Compatibilità S.r.l.

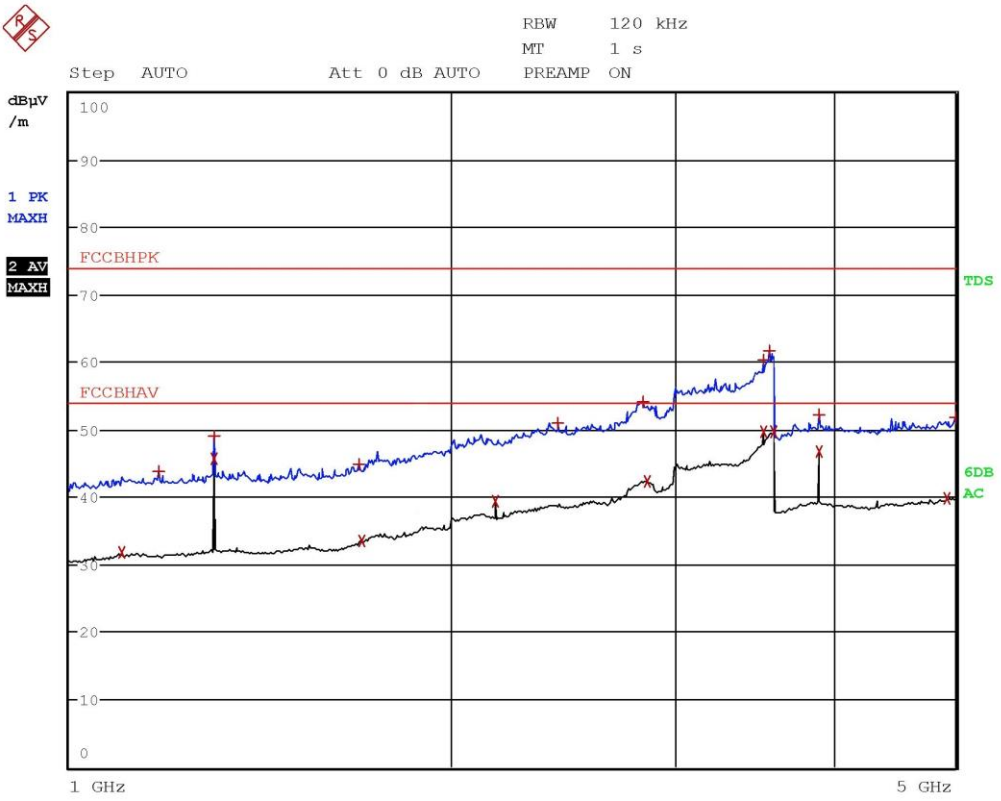
EDIT PEAK LIST (Final Measurement Results)

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

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	363.28 MHz	25.72	-20.29
1 Quasi Peak	419.24 MHz	27.66	-18.35
1 Quasi Peak	427.44 MHz	33.35	-12.66
1 Quasi Peak	436.72 MHz	32.04	-13.97
1 Quasi Peak	532.8 MHz	29.53	-16.48
1 Quasi Peak	644.24 MHz	32.03	-13.98
1 Quasi Peak	805.2 MHz	33.88	-12.13
1 Quasi Peak	922.36 MHz	35.50	-10.51

Gandini 19065604

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065606

CMC Centro Misure Compatibilità S.r.l.

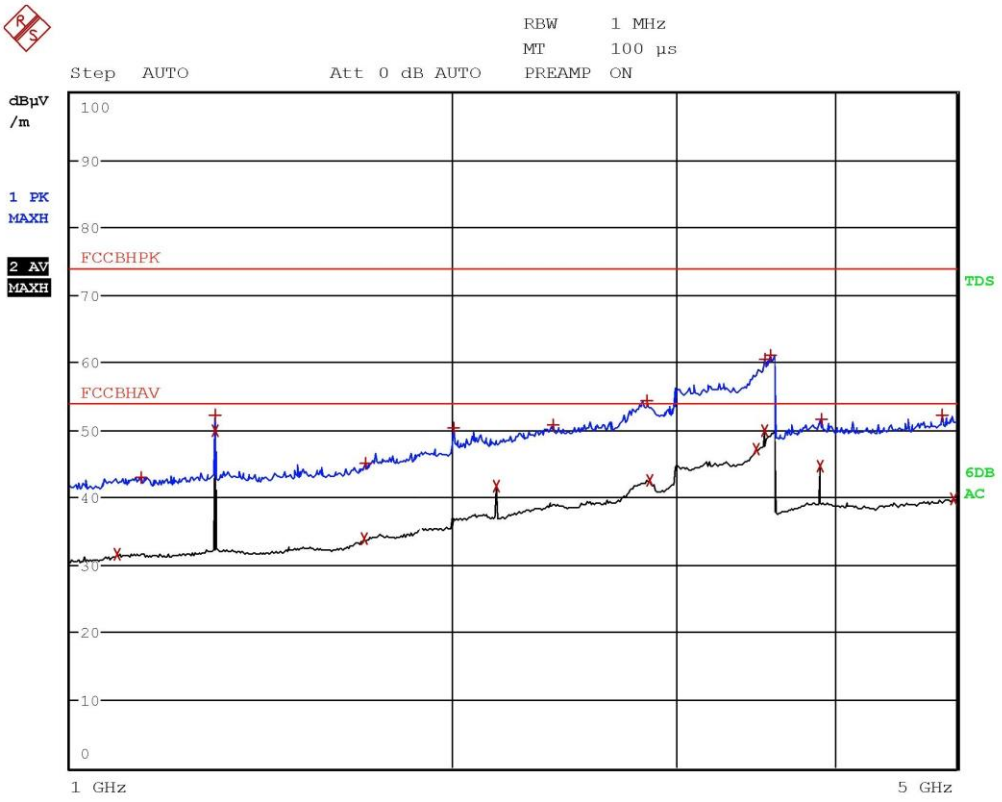
EDIT PEAK LIST (Prescan Results)

Trace1:	FCCBHPK
Trace2:	FCCBHAV
Trace3:	---

TRACE		FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
2	Average	1.1 GHz	31.75	-22.22
1	Max Peak	1.176 GHz	43.85	-30.12
1	Max Peak	1.3016 GHz	49.09	-24.88
2	Average	1.3016 GHz	45.70	-8.27
1	Max Peak	1.6904 GHz	44.90	-29.07
2	Average	1.7024 GHz	33.54	-20.44
2	Average	2.1696 GHz	39.38	-14.59
1	Max Peak	2.4288 GHz	50.91	-23.06
1	Max Peak	2.8324 GHz	54.19	-19.78
2	Average	2.8584 GHz	42.35	-11.62
1	Max Peak	3.4768 GHz	58.40	-15.57
2	Average	3.4768 GHz	49.65	-4.32
1	Max Peak	3.5636 GHz	61.60	-12.37
2	Average	3.6 GHz	49.65	-4.32
2	Average	3.9052 GHz	46.70	-7.27
1	Max Peak	3.9052 GHz	52.24	-21.73
2	Average	4.9284 GHz	39.89	-14.08
1	Max Peak	4.9972 GHz	51.87	-22.10

Gandini 19065606

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065607

CMC Centro Misure Compatibilità S.r.l.

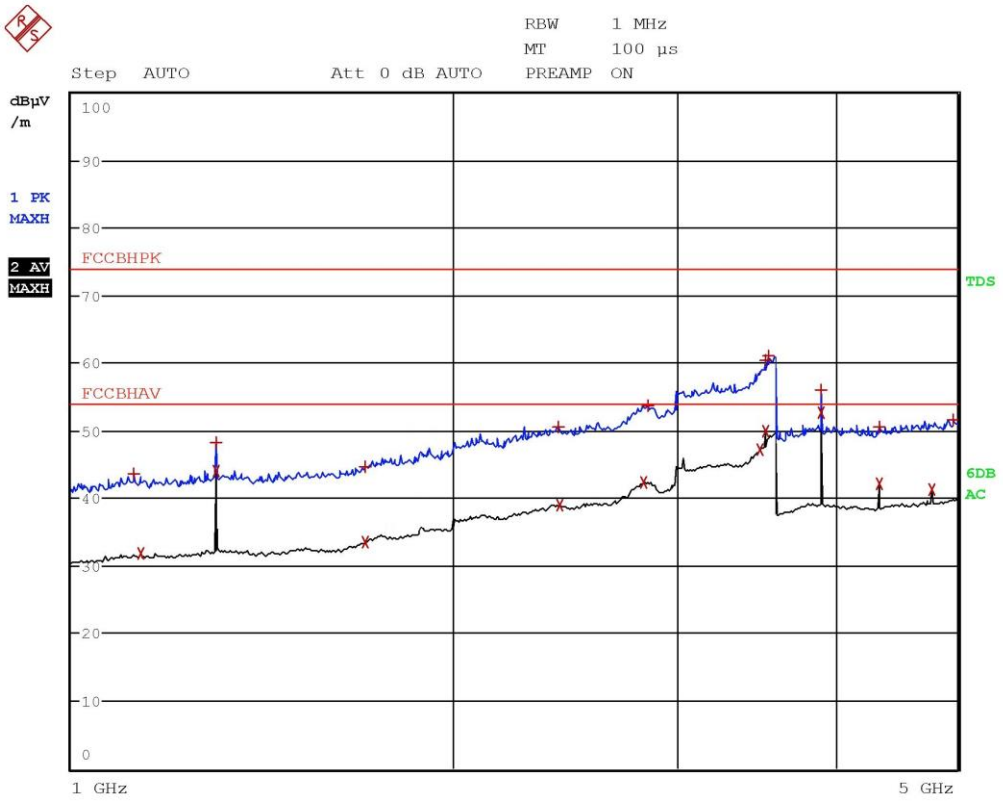
EDIT PEAK LIST (Prescan Results)

Trace1:	FCCBHPK
Trace2:	FCCBHAV
Trace3:	---

TRACE		FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
2	Average	1.088 GHz	31.70	-22.28
1	Max Peak	1.1384 GHz	43.02	-30.95
1	Max Peak	1.3016 GHz	52.11	-21.86
2	Average	1.3016 GHz	49.97	-4.00
2	Average	1.7072 GHz	33.85	-20.13
1	Max Peak	1.708 GHz	45.09	-28.88
1	Max Peak	2.008 GHz	50.29	-23.68
2	Average	2.1696 GHz	41.76	-12.21
1	Max Peak	2.4048 GHz	50.67	-23.30
1	Max Peak	2.852 GHz	54.39	-19.58
2	Average	2.8616 GHz	42.61	-11.37
2	Average	3.478 GHz	47.14	-6.83
1	Max Peak	3.478 GHz	60.48	-13.52
2	Average	3.5316 GHz	49.82	-4.15
1	Max Peak	3.5644 GHz	61.08	-12.89
2	Average	3.9052 GHz	44.63	-9.34
1	Max Peak	3.916 GHz	51.50	-22.47
1	Max Peak	4.8772 GHz	52.15	-21.82
2	Average	4.9732 GHz	39.83	-14.14

Gandini 19065607

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065608

CMC Centro Misure Compatibilità S.r.l.

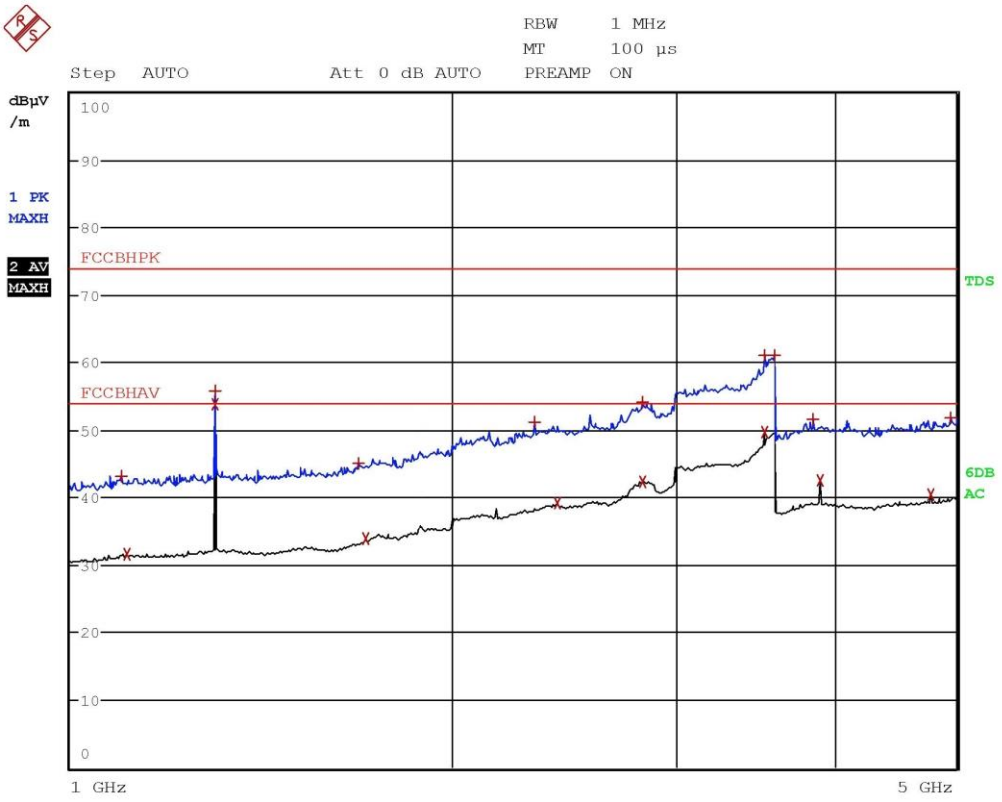
EDIT PEAK LIST (Prescan Results)

Trace1:	FCCBHPK
Trace2:	FCCBHAV
Trace3:	---

	TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1	Max Peak	1.1204 GHz	43.49	-30.48
2	Average	1.1336 GHz	31.81	-22.17
1	Max Peak	1.3016 GHz	48.11	-25.86
2	Average	1.3016 GHz	43.94	-10.03
2	Average	1.7048 GHz	33.42	-20.55
1	Max Peak	1.7056 GHz	44.72	-29.25
1	Max Peak	2.4196 GHz	50.53	-23.44
2	Average	2.426 GHz	39.06	-14.91
2	Average	2.8272 GHz	42.34	-11.63
1	Max Peak	2.8528 GHz	53.71	-20.26
2	Average	3.4948 GHz	47.10	-6.87
1	Max Peak	3.5316 GHz	60.36	-13.64
2	Average	3.5316 GHz	49.97	-4.00
1	Max Peak	3.5452 GHz	60.96	-13.01
1	Max Peak	3.9052 GHz	55.95	-18.02
2	Average	3.9052 GHz	52.63	-1.34
1	Max Peak	4.338 GHz	50.57	-23.40
2	Average	4.3392 GHz	42.21	-11.76
2	Average	4.7792 GHz	41.22	-12.75
1	Max Peak	4.9592 GHz	51.55	-22.42

Gandini 19065608

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065609

CMC Centro Misure Compatibilità S.r.l.

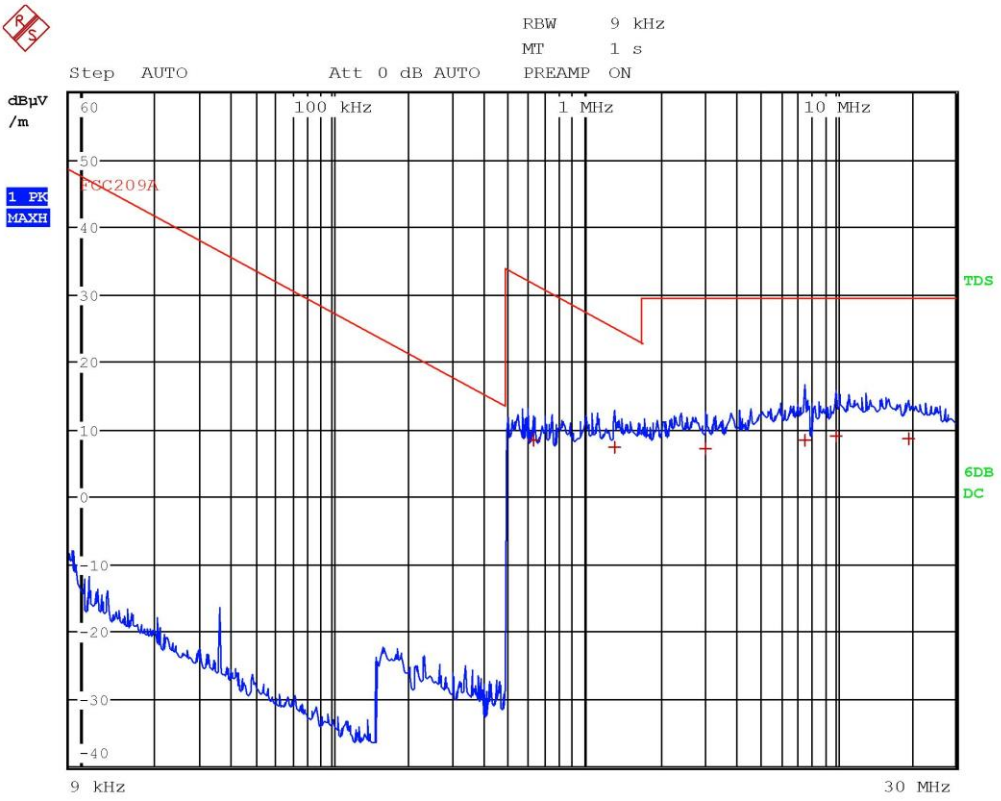
EDIT PEAK LIST (Prescan Results)

Trace1:	FCCBHPK
Trace2:	FCCBHAV
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Max Peak	1.0964 GHz	43.13	-30.84
2 Average	1.1076 GHz	31.72	-22.25
1 Max Peak	1.3016 GHz	55.73	-18.24
2 Average	1.3016 GHz	53.88	-0.12
1 Max Peak	1.6876 GHz	45.06	-28.91
2 Average	1.7096 GHz	33.88	-20.09
1 Max Peak	2.3244 GHz	51.16	-22.81
2 Average	2.4208 GHz	39.21	-14.76
2 Average	2.8248 GHz	42.42	-11.55
1 Max Peak	2.8272 GHz	54.19	-19.78
1 Max Peak	3.5316 GHz	61.06	-12.91
2 Average	3.5316 GHz	49.73	-4.24
1 Max Peak	3.6 GHz	61.11	-12.86
1 Max Peak	3.8536 GHz	51.56	-22.41
2 Average	3.9052 GHz	42.60	-11.37
2 Average	4.7732 GHz	40.38	-13.59
1 Max Peak	4.9496 GHz	51.70	-22.28

Gandini 19065609

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065615

CMC Centro Misure Compatibilità S.r.l.

9.4 Fundamental and spurious emissions (≤ 1 GHz)

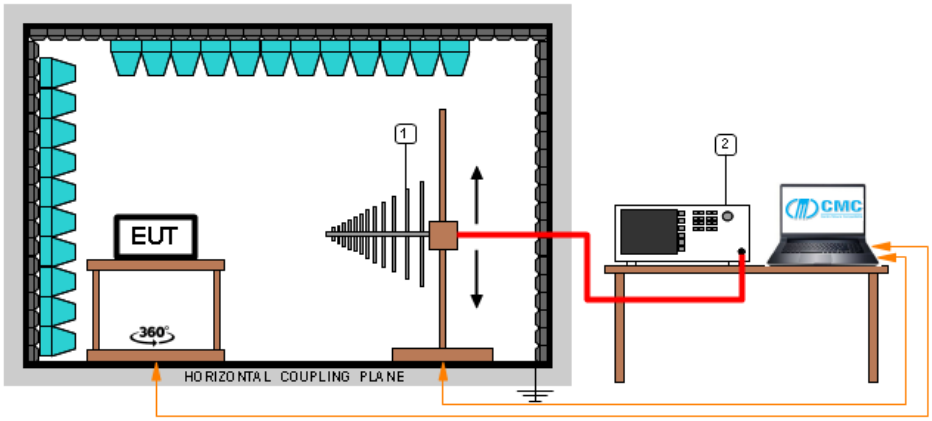
Tested by ..... :	G. Gandini
Test date ..... :	22.11.19
Test location (stand) ..... :	Semi-anechoic chamber (CMC A070)
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.231(b)
Supplementary test set-up description ..... :	EUT – antenna distance: 3 m
Supplementary information..... :	--

Acceptance limits

FCC Part 15.231 (b)		
Fundamental frequency (MHz)	*Field strength of fundamental [dB(µV/m)]*	*Field strength of spurious emissions [dB(µV/m)]*
40,66 to 40,70	67,04	47,04
70 to 130	61,94	41,94
130 to 174	61,94 to 71,48	41,94 to 51,48
174 to 260	71,48	51,48
260 to 470	71,48 to 81,94	51,48 to 61,94
Above 470	81,94	61,94

Test setup

Frequency ≤ 1 GHz



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

CMC Centro Misure Compatibilità S.r.l.

Result – Field strength of fundamental

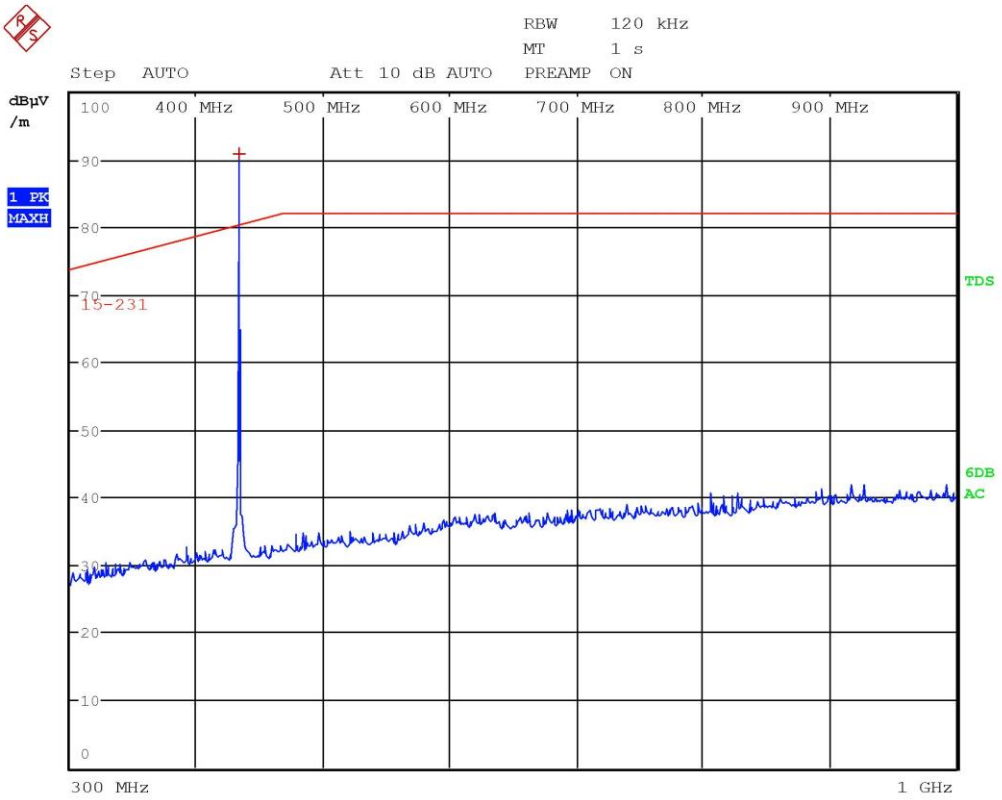
Frequency (MHz)	*Limits (dBµV/m)*	*Peak level (dBµV/m)*	*Duty cycle correction (dB)*	*Level (dBµV/m)*	*Results*
433,92	80,83	90,97	-12,12	78,85	Complies
Remarks: EUT was tested in 3 orthogonal planes. The results in this table show the highest value. Duty cycle value has been obtained using the following formula: Duty cycle = 20log0,2478 = -12,12 dB where 0,2478 is the duty cycle declared by the manufacturer					

Result – Field strength of spurious emissions

Frequency (MHz)	*Limits (dBµV/m)*	*Peak level (dBµV/m)*	*Duty cycle correction (dB)*	*Level (dBµV/m)*	*Results*
867,84	60,83	--	-12,12	--	Complies
Remarks: EUT was tested in 3 orthogonal planes. The results in this table show the highest value. Duty cycle value has been obtained using the following formula: Duty cycle = 20log0,2478 = -12,12 dB where 0,2478 is the duty cycle declared by the manufacturer					

CMC Centro Misure Compatibilità S.r.l.

Graphs



Gandini 19065610

CMC Centro Misure Compatibilità S.r.l.

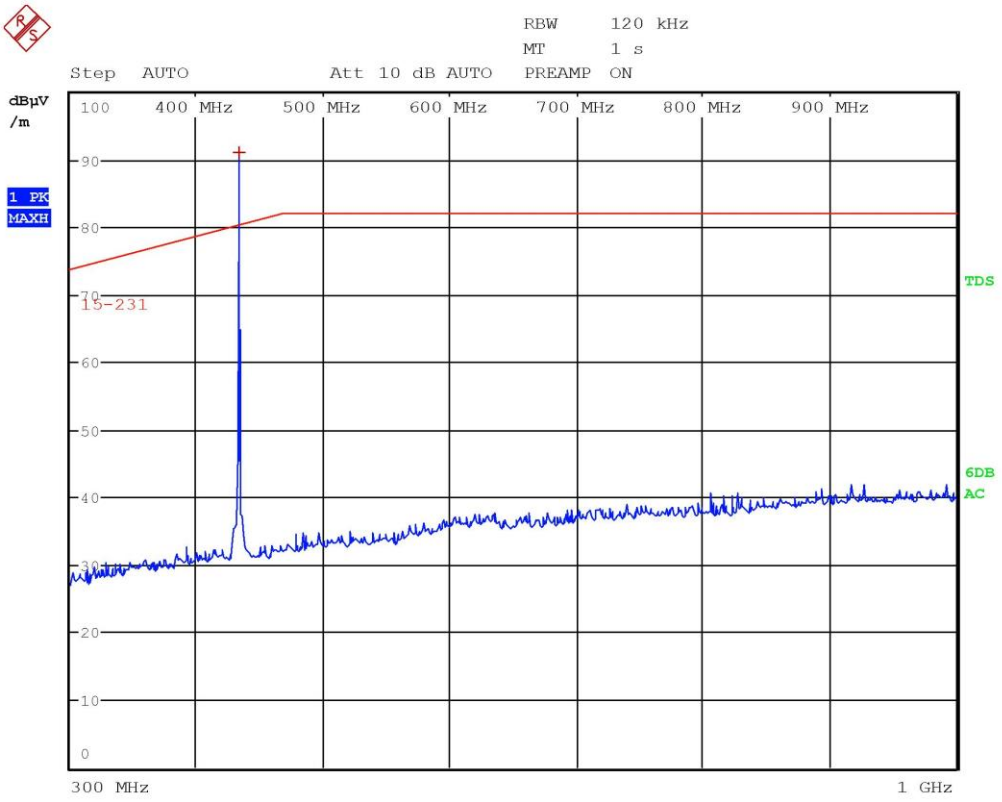
EDIT PEAK LIST (Final Measurement Results)

Trace1:	15-231
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Quasi Peak	433.92 MHz	90.86	10.71

Gandini 19065610

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065611

CMC Centro Misure Compatibilità S.r.l.

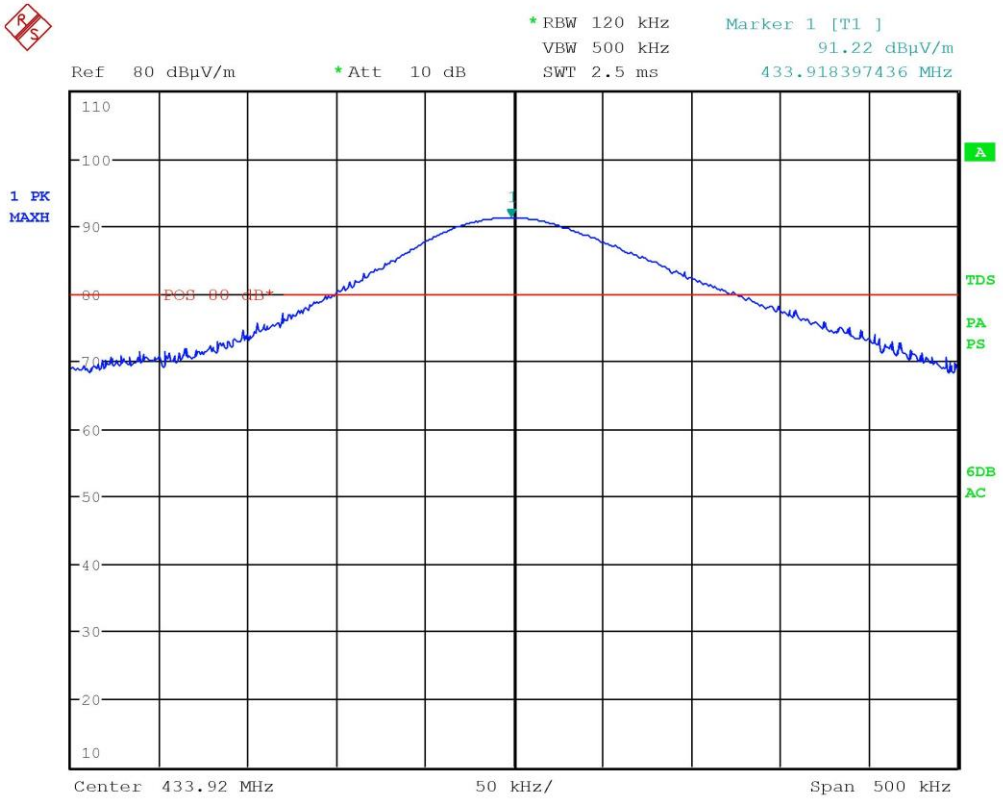
EDIT PEAK LIST (Prescan Results)

Trace1:	15-231
Trace2:	---
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV/m	DELTA LIMIT dB
1 Max Peak	433.92 MHz	90.97	10.83

Gandini 19065611

CMC Centro Misure Compatibilità S.r.l.



Gandini 19065612

CMC Centro Misure Compatibilità S.r.l.

9.5 Occupied channel bandwidth

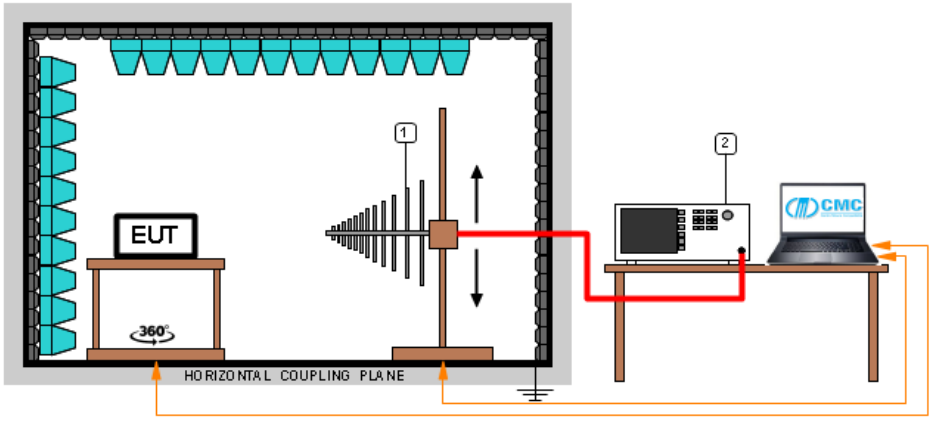
Tested by ..... :	G. Gandini
Test date ..... :	22.11.19
Test location (stand) ..... :	Semi-anechoic chamber (CMC A070)
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part 15.231 (c)
Test specification ..... :	The bandwidth of the emission shall be no wider than 0,25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0,5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier
Supplementary information..... :	--

Acceptance limits

Devices operating above 70 MHz and below 900 MHz	***Devices operating above 900 MHz***
0,25% of the center frequency	0,5% of the center frequency

Test setup

Frequency ≤ 1 GHz



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

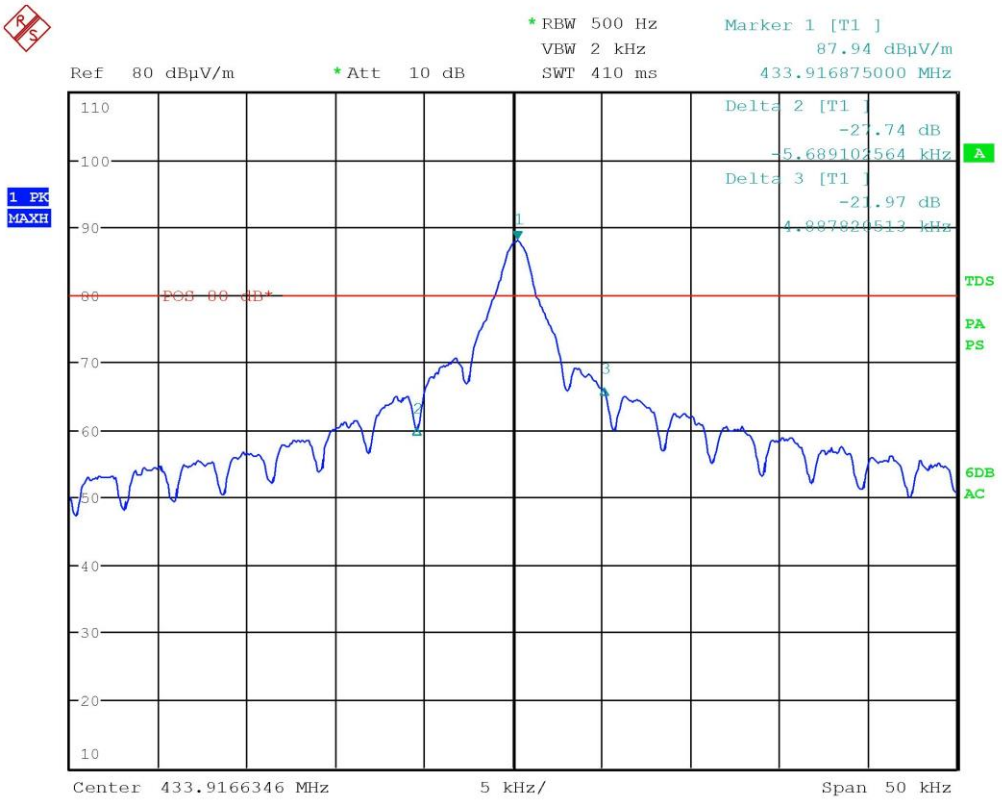
CMC Centro Misure Compatibilità S.r.l.

Result

Frequency (MHz)	*Limit (kHz)*	*20 dB bandwidth (kHz)*	*Graphs*	*Results*
433,92	1084,80	10,5769	G19065614	Complies

CMC Centro Misure Compatibilità S.r.l.

Graphs



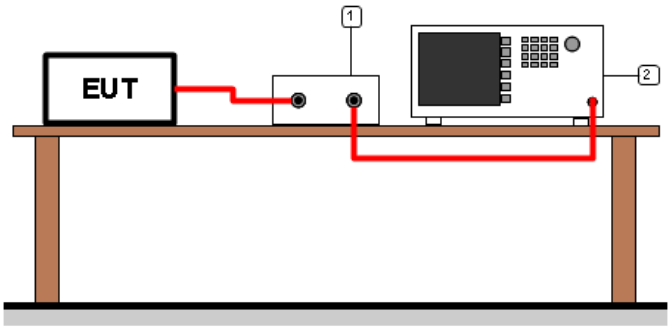
Gandini 19065614

CMC Centro Misure Compatibilità S.r.l.

9.6 Periodic operation characteristics

Tested by ..... :	G. Gandini
Test date ..... :	22.11.19
Test location (stand) ..... :	Laboratory
Reference standards ..... :	FCC Rules and Regulation; Titles 47 Part 15.231 (a) (e)
Transmitter type ..... :	☑ Manually operated transmitter ❑ Transmitter activated automatically
Test specification ..... :	The provisions of this section are restricted to periodic operation within the band 40,66 – 40,70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation

Test setup



Test setup PR002_01				
Nr.	*Id. Number*	*Manufacturer*	*Model*	*Description*
2	CMC S295	Rohde & Schwarz	FSW43	Spectrum Analyzer 43GHz
1	--	--	--	Cable + attenuator (calibrated before the test)

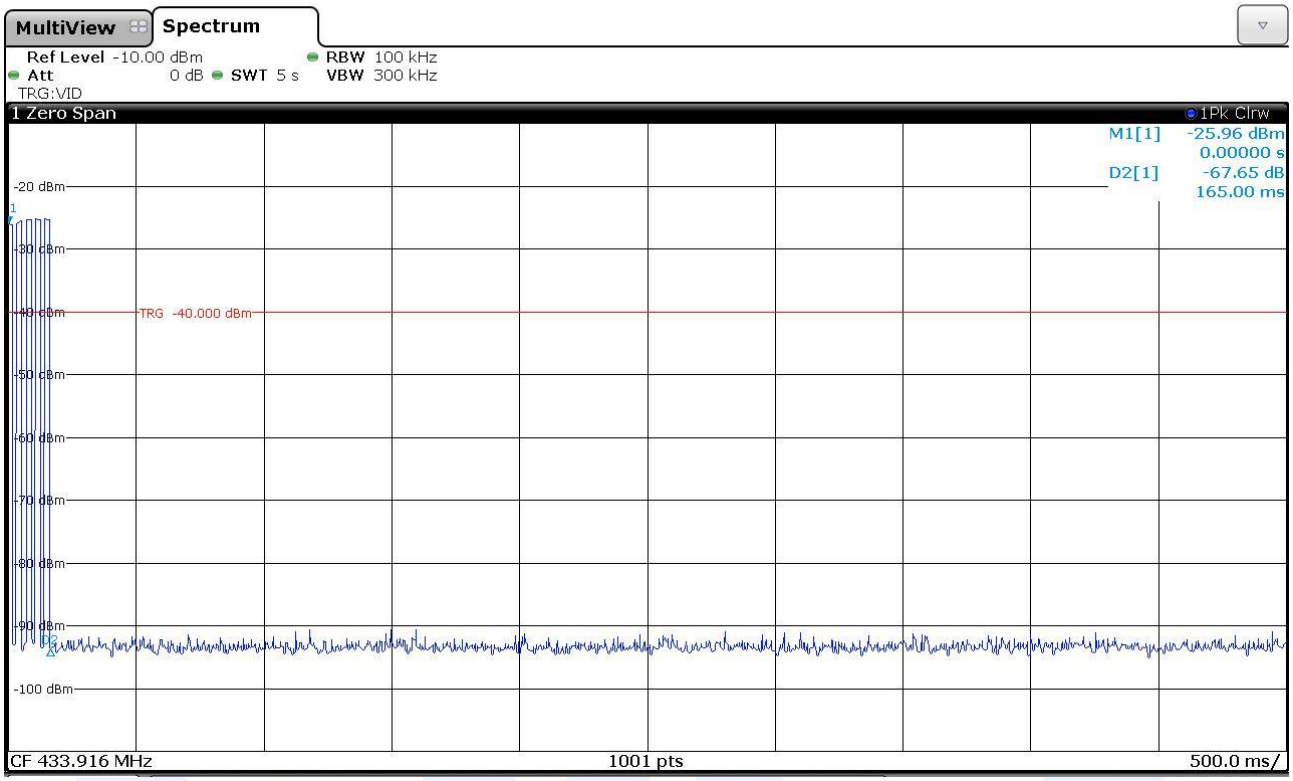
CMC Centro Misure Compatibilità S.r.l.

15.231(a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released. See graph G19065616
15.231(a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation. **Result:** N.A.
15.231(a3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour. **Result:** The EUT does not employ periodic transmission.
15.231(a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition. **Result:** N.A.
15.231(a5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data. **Result:** N.A.

CMC Centro Misure Compatibilità S.r.l.

Graphs

Gandini 19065616



Attachment 1

Instruments list

Id. number	*Manufacturer*	*Model*	*Description*	*Serial number*	*Last calibration*	*Due date calibration*
CMC S010	Rohde & Schwarz	ESH3-Z2	Impulses Limiting Device	- - -	January '19	January '20
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 '19	January '20
CMC S200	Schwarzbeck	NSLK 8128	V-LISN	8128-273	January '19	January '20
CMC S206	Rohde & Schwarz	ESCI 7	EMC Receiver 9KHz-7GHz	100781	January '19	January '20
CMC S260	CMC	Wfr_N	Shielded Cable	Wfr_ant10-1	November '19	November '20
CMC S261	CMC	Wfr_N	Shielded Cable	Wfr_ant20-1	November '19	November '20
CMC S262	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix32-1	November '19	November '20
CMC S263	CMC	Wfr_N_fix	Shielded Cable	Wfr_fix31-1	November '19	November '20
CMC S264	CMC	Wfr_N	Shielded Cable	Wfr_ext03-1	November '19	November '20
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 '19	November '20
CMC S295	Rohde & Schwarz	FSW43	Spectrum Analyzer 43GHz	104059	November '19	November '22

CMC Centro Misure Compatibilità S.r.l.

Attachment 1

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	3,0 dB	1
Conducted emission CISPR 16 Voltage Probe 0,15-30MHz	PE001_02	2,9 dB	1
Conducted emission CISPR 16 Current Probe 0,15-30MHz	PE001_03	2,6 dB	1
Conducted emission CISPR 16 ISN 0,15-30MHz	PE001_04	4,7 dB	1
Clic CISPR 16 LISN 50uH 0,150-30,0MHz	PE001_05	3,1 dB	1
Disturbance Power 30-300 MHz	PE002_01	3,6 dB	1
Radiated Emission LAS 0,15-30MHz	PE003_01	2,0 dB	1
Radiated Emission CISPR 16 Loop Ant. 0,15-30MHz	PE004_01	4,0 dB	1
Radiated Emission CISPR 16 Bicon. Ant. 30-300MHz	PE004_02	3,9 dB	1
Radiated Emission CISPR 16 LogP. Ant. 300-1000MHz	PE004_03	3,8 dB	1
Radiated Emission CISPR 16 Horn Ant. 1-18GHz	PE004_04	4,2 dB	1
Human Exposure to electromagnetic fields	PE005_01	23,6 %	1
Harmonic current emissions test	PE006_01	10 mA + 2,6 %	1
Voltage fluctuation and flicker test	PE007_01	4,8 %	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	6,25 % 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

CMC Centro Misure Compatibilità S.r.l.

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	4,7 dB	1
Misura della potenza EiRP 18-40GHz d=3m	PR001_05	5,4 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	1,1 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
Rev_19_02 date 27/03/2019			

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%

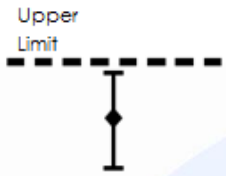
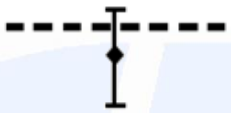
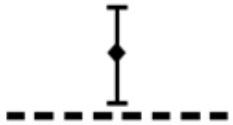
Note 2:

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

CMC Centro Misure Compatibilità S.r.l.

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

CMC Centro Misure Compatibilità S.r.l.