

**TEST REPORT****Nr. R20246201****Federal Communication Commission (FCC)**

Report Reference No.	R20246201
Date of issue:	17.02.2021
Total number pages:	199
Applicant's name	Vimar S.p.A.
Address	Viale Vicenza, 14 – 36063 Marostica (VI) – Italy
Test specification:	
Standards	FCC Rules & Regulations, Title 47:2019 Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 247
Non-standard test method	N/A
Test Report Form No.	15-247_DTSCMC
Test Report Form(s) Originator ..	CMC Centro Misure Compatibilità S.r.l.
Master TRF	2021-02
General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of CMC Centro Misure Compatibilità S.r.l.	
Test item description	Tab5S Up video entryphone 2F+ Wi-Fi white
Trademark	Elvox
Manufacturer	Vimar S.p.A.
Model / Type reference	40515
FCC ID	2AX78-40515
Rating(s)	28 Vdc from BUS
Report	
Tested by (name + signature)	A. Bertezzo
Approved by (name + signature)	R. Beghetto



1 Summary

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2 Reference standard	
FCC Rules and Regulation Title 47 part 15:2019	--
3 List of attachments	
Attachment 1: Instruments list, measurement uncertainty, judgement of compliance and quality manual references	
4 Deviation(s) from test specification	
None	
5 Testing location	
CMC Centro Misure Compatibilità S.r.l. Via della Fisica, 20 – 36016 Thiene (VI) – Italy Test site facility's FCC registration number: 182474	

Revision index	Date	Change history
1.0	17.02.2021	--



Testing and sampling:	
Date of receipt of test item	15.12.2020
Testing start date	22.12.2020
Testing end date	16.02.2021
Sampling procedure.....	Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion. The results relate to the sample as it has been received.
Internal identification	Adhesive label with the product number P201335
General remarks:	
This report shall not be reproduced, except in full, without the written approval of CMC. The test results presented in this report relate only to the object tested. “(see appended table)”: refers to a table appended to the report. Throughout this report a comma is used as the decimal separator.	
Possible test case verdicts:	
Test case does not apply to the test object:	N/A (Not Applicable)
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement:	F (Fail)
Test object does not performed:	N/E (Not Executed)
Definition of symbols used in this test report:	
☒ Indicates that the listed condition, standard or equipment is applicable for this report. ☐ Indicates that the listed condition, standard or equipment is not applicable for this report.	

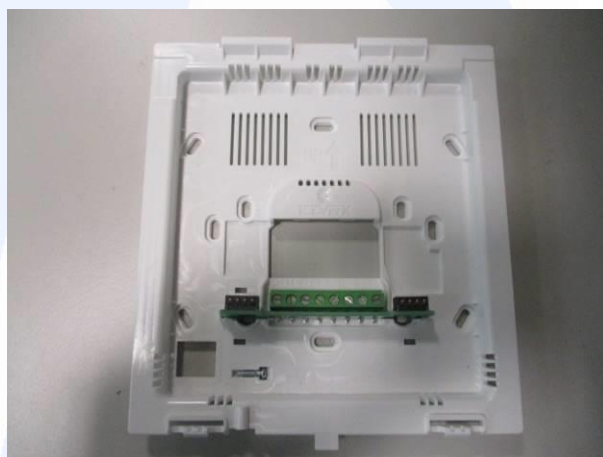


6 General description of tested item and testing condition(s)

Description	Tab5S Up video entryphone 2F+ Wi-Fi white					
Model Number	40515					
FCC ID	2AX78-40515					
Serial Number	--					
Brand name	Elvox					
Frequency band	2400 – 2483,5 MHz					
Nominal frequencies	F _L : 2412 MHz		F _M : 2437 MHz		F _H : 2462 MHz	
Test power supply	Voltage and Frequency			Reference poles		
			N	L1	L2	L3
	☐	AC:	☐	☐	☐	☐
	☐	AC:	☐	☐	☐	☐
	☒	DC: 28 V from BUS				☐
Test configuration	☒	Table top equipment				
	☐	Floor standing equipment				
	☐	Hand-held equipment				
Type of equipment	☒	Transmitter unit				
	☒	Receiver unit				
Type of station	☒	Fixed station				
	☐	Portable station				
	☐	Mobile station				
Operating modes	No.	Operating mode of test item				
	1	EUT in continuous conversation with WiFi enabled				
Accessories (not part of the test item)	Accessory		Type		Manufacturer	
	Due Fili power supply unit 110-240V		6922.1		Vimar S.p.A.	
	Due Fili add. power supply unit 120V		6923/120		Vimar S.p.A.	
	2F+ A/V wide-angle teleloop unit		41005		Vimar S.p.A.	



6.1 Photos of the test item

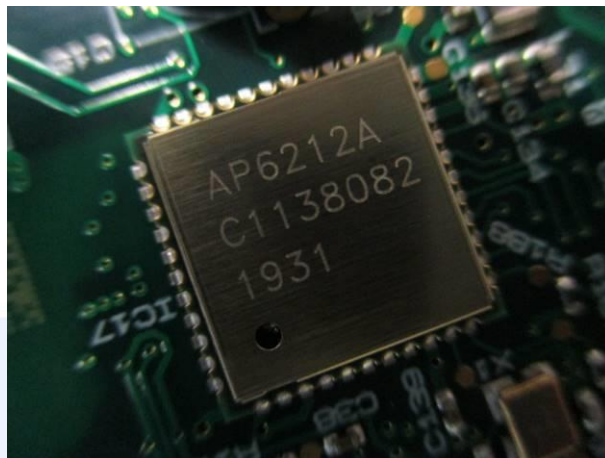




CMC
Centro Misure Compatibilità S.r.l.
Via della Fisica, 20
36016 Thiene (VI)



LAB N° 0168 L



CMC Centro Misure Compatibilità S.r.l.



7 Verdict summary section

FCC Rules & Regulations, Title 47:2019 Part 15 paragraph(s): 203, 204, 205, 207, 209, 215 and 247			
Clause	Requirement – Test case	Basic standard	Verdict
Part 15.203	Antenna requirements	--	P
Part 15.207	Conducted emissions	ANSI C63.10	P
Part 15.209	Emissions in restricted frequency bands and in unrestricted frequency bands	ANSI C63.10	P
Part 15.247 (a) (2)	DTS bandwidth	ANSI C63.10	P
Part 15.215 (c)	20 dB bandwidth	ANSI C63.10	P
Part 15.247 (d)	Band edge	ANSI C63.10	P
Part 15.209 and 15.247	Fundamental emission output power	ANSI C63.10	P
Part 15.209 and 15.247	Maximum power spectral density level in the fundamental emission	ANSI C63.10	P



Normative references	
Reference no.	Description
FCC Rules and Regulation Title 47 part 15:2019	--
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 C63.10:2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices



8 Test conditions

8.1 General

Environmental reference 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.		
Measurement uncertainties	Attachment 1		



9 Test results

9.1 Antenna requirements

Tested by	A. Bertezolo	
Test date	22.12.2020	
Reference standards	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.....	2,2 dBi	
External R.F. power amplifier	Not Present	



9.2 Conducted emission

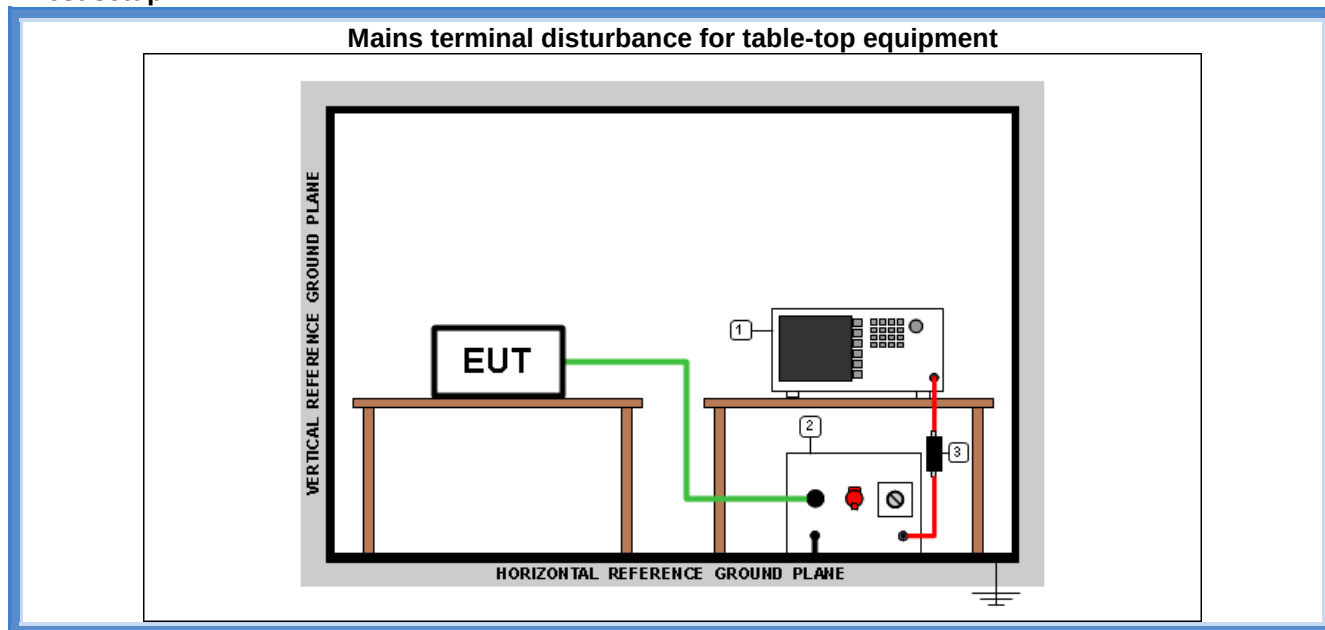
Tested by	A. Bertezolo	
Test date	22.12.2020	
Test location (stand)	Shielded chamber (CMC A001)	
Reference standards	FCC Rules and Regulation; Titles 47 Part. 15.207 ANSI C63.10 cl. 6.2	
Test set-up description	☒	Table top equipment set-up (80 cm above the reference ground plane)
	☐	Floor standing equipment 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)	<i>dB(μV) Quasi-peak</i>	<i>dB(μV) Average</i>
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	Description
3	CMC S010	Rohde & Schwarz	ESH3-Z2	Pulse limiter
2	CMC S200	Schwarzbeck	NSLK 8128	V-LISN
1	CMC S206	Rohde & Schwarz	ESCI 7	EMC Receiver 9KHz-7GHz

Result – WiFi mode B

Auxiliary power unit	Line	Frequency Range (MHz)	Graphs	Result
6923	N	0,15 – 30	G20246209	P
6923	L1	0,15 – 30	G20246210	P
6922.1	N	0,15 – 30	G20246211	P
6922.1	L1	0,15 – 30	G20246212	P

Remarks: tests performed on 120 Vac side of the indicated auxiliary power unit

Result – WiFi mode G

Auxiliary power unit	Line	Frequency Range (MHz)	Graphs	Result
6922.1	N	0,15 – 30	G20246230	P
6922.1	L1	0,15 – 30	G20246231	P
6923	N	0,15 – 30	G20246232	P
6923	L1	0,15 – 30	G20246233	P

Remarks: tests performed on 120 Vac side of the indicated auxiliary power unit



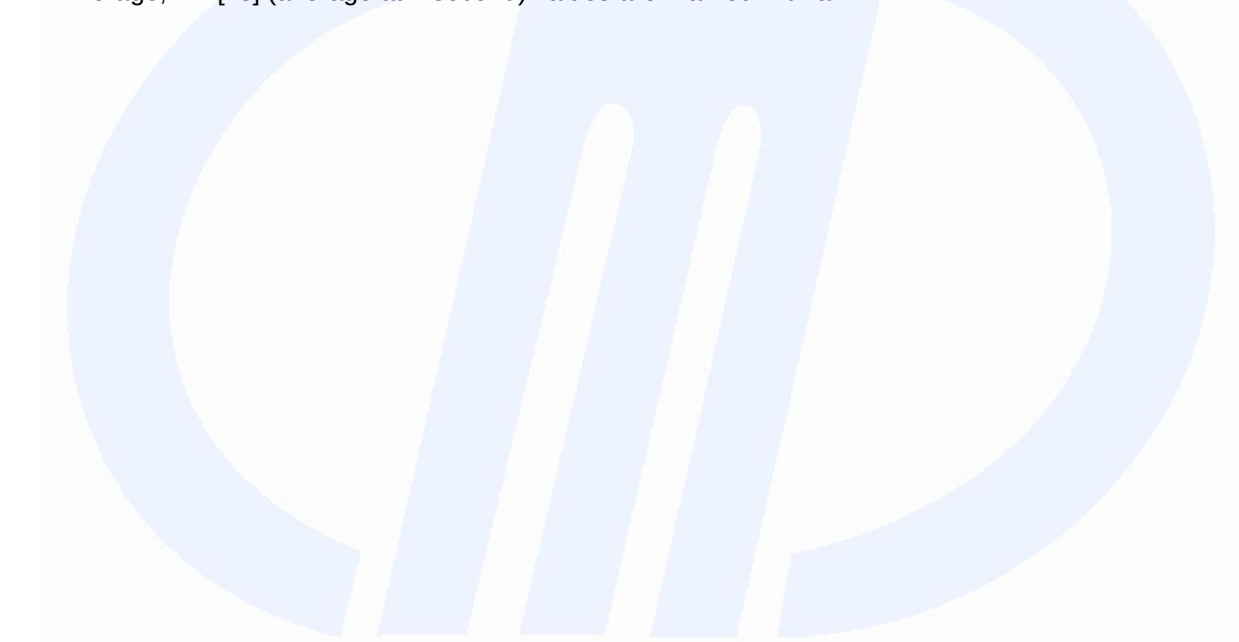
Result – WiFi mode N

Auxiliary power unit	Line	Frequency Range (MHz)	Graphs	Result
6922.1	N	0,15 – 30	G20246234	P
6922.1	L1	0,15 – 30	G20246235	P
6923	N	0,15 – 30	G20246236	P
6923	L1	0,15 – 30	G20246237	P

Remarks: tests performed on 120 Vac side of the indicated auxiliary power unit

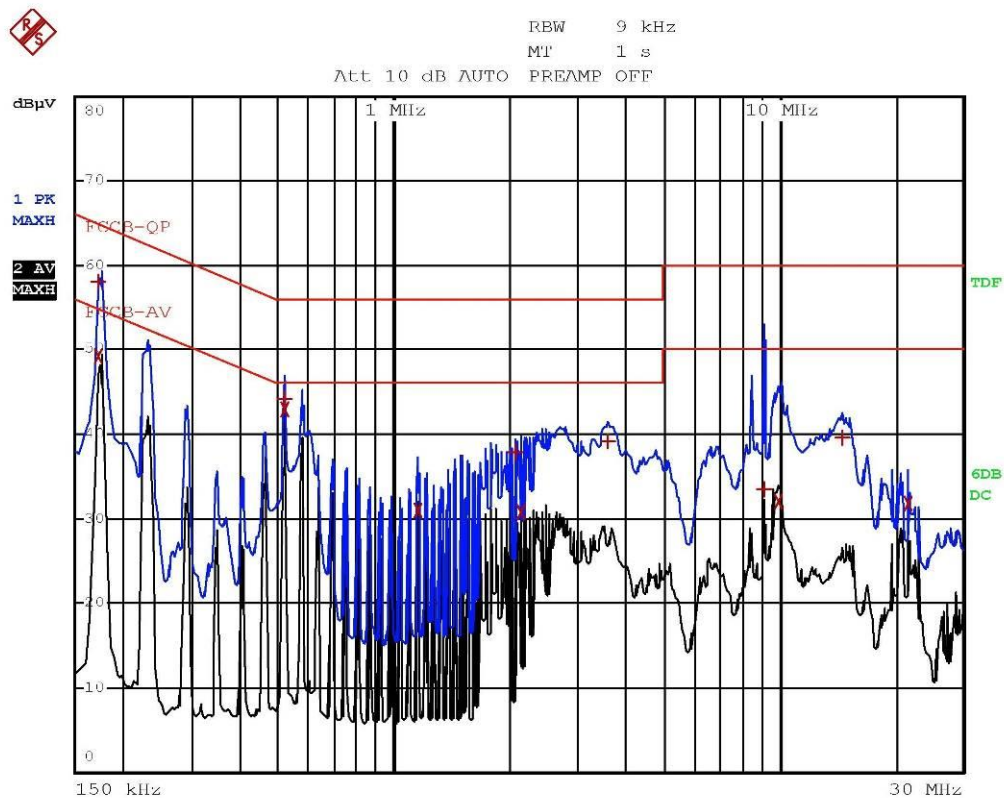
Graphs Legend

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

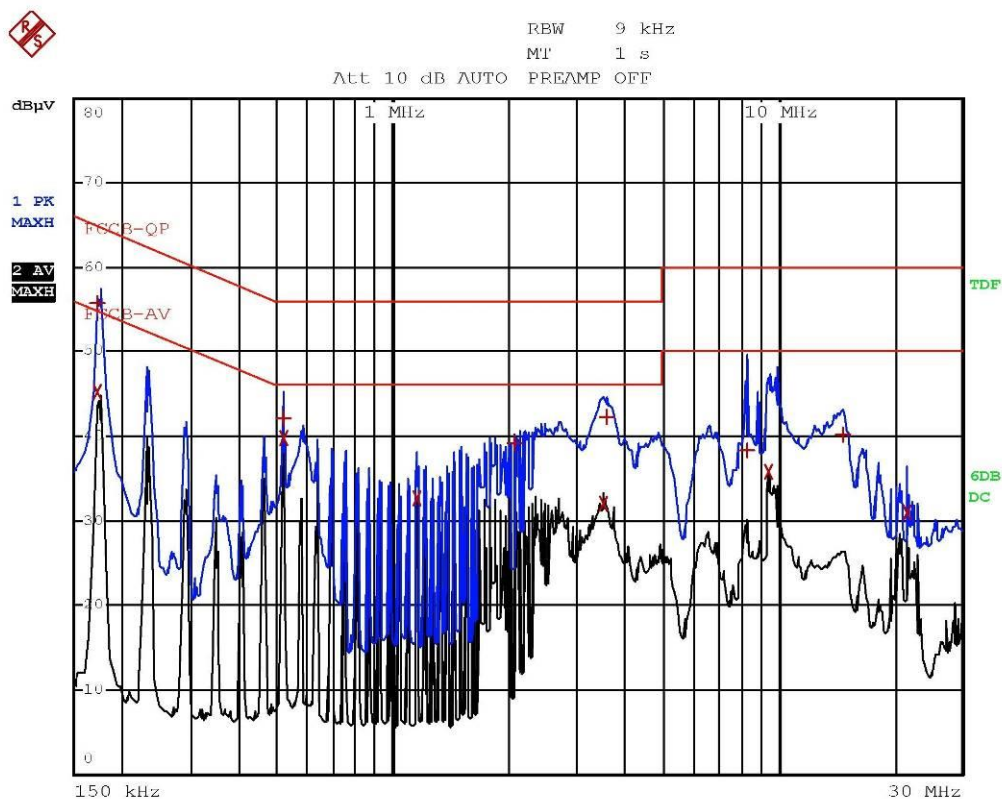


Zanivan 20246209-Line N (120V alimentatore BUS)-Conversazion
e continua wifi attivo



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCB-QP		
Trace2:	FCCB-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	174 kHz	57.95	-6.80
2 Average	174 kHz	49.25	-5.51
2 Average	518 kHz	42.91	-3.08
1 Quasi Peak	522 kHz	44.18	-11.81
2 Average	1.154 MHz	31.01	-14.98
1 Quasi Peak	2.078 MHz	37.99	-18.00
2 Average	2.138 MHz	30.69	-15.30
1 Quasi Peak	3.582 MHz	39.08	-16.91
1 Quasi Peak	9.15 MHz	33.42	-26.57
2 Average	10.014 MHz	31.92	-18.07
1 Quasi Peak	14.626 MHz	39.48	-20.51
2 Average	21.662 MHz	31.75	-18.24

Zanivan 20246209-Line N (120V alimentatore BUS)-Conversazion
e continua wifi attivo

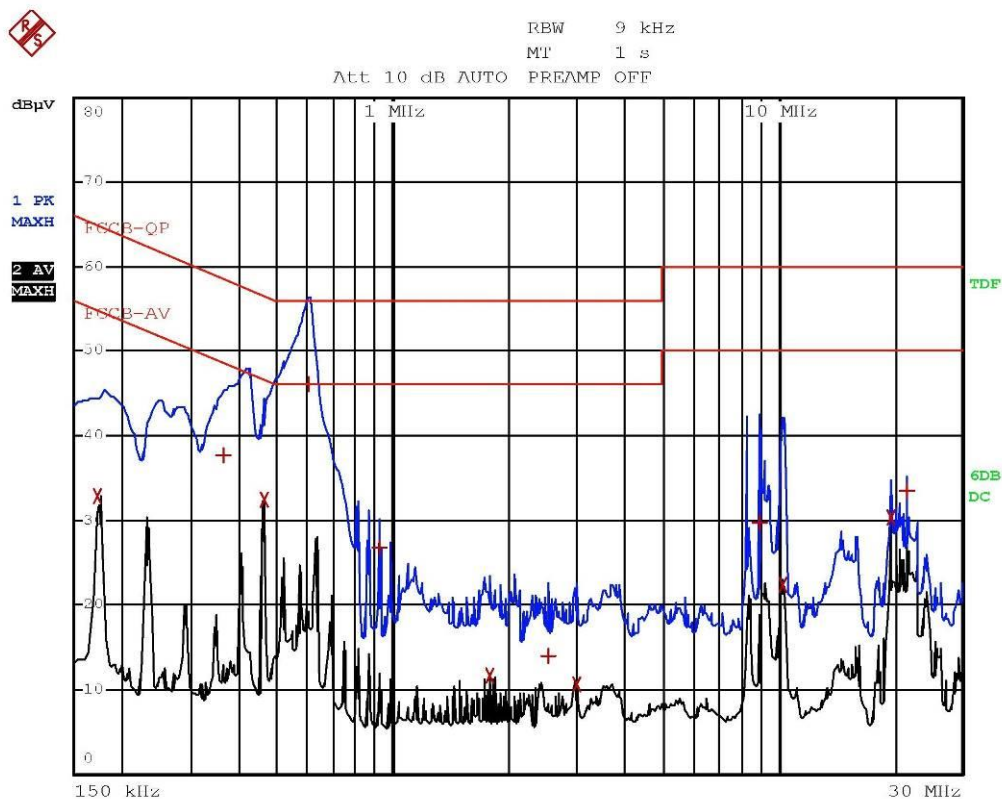


Zanivan 20246210-Line L (120V alimentatore BUS)-Conversazion
e continua wifi attivo



EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCCB-QP		
Trace2:	FCCB-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	174 kHz	55.84	-8.92
2 Average	174 kHz	45.34	-9.41
2 Average	518 kHz	39.80	-6.19
1 Quasi Peak	522 kHz	42.16	-13.83
2 Average	1.154 MHz	32.65	-13.34
1 Quasi Peak	2.078 MHz	39.07	-16.92
2 Average	3.506 MHz	31.99	-14.00
1 Quasi Peak	3.598 MHz	42.37	-13.62
1 Quasi Peak	8.282 MHz	38.22	-21.77
2 Average	9.426 MHz	35.76	-14.23
1 Quasi Peak	14.686 MHz	40.30	-19.69
2 Average	21.662 MHz	30.96	-19.03

Zanivan 20246210 -Line L (120V alimentatore BUS)-Conversazion
e continua wifi attivo

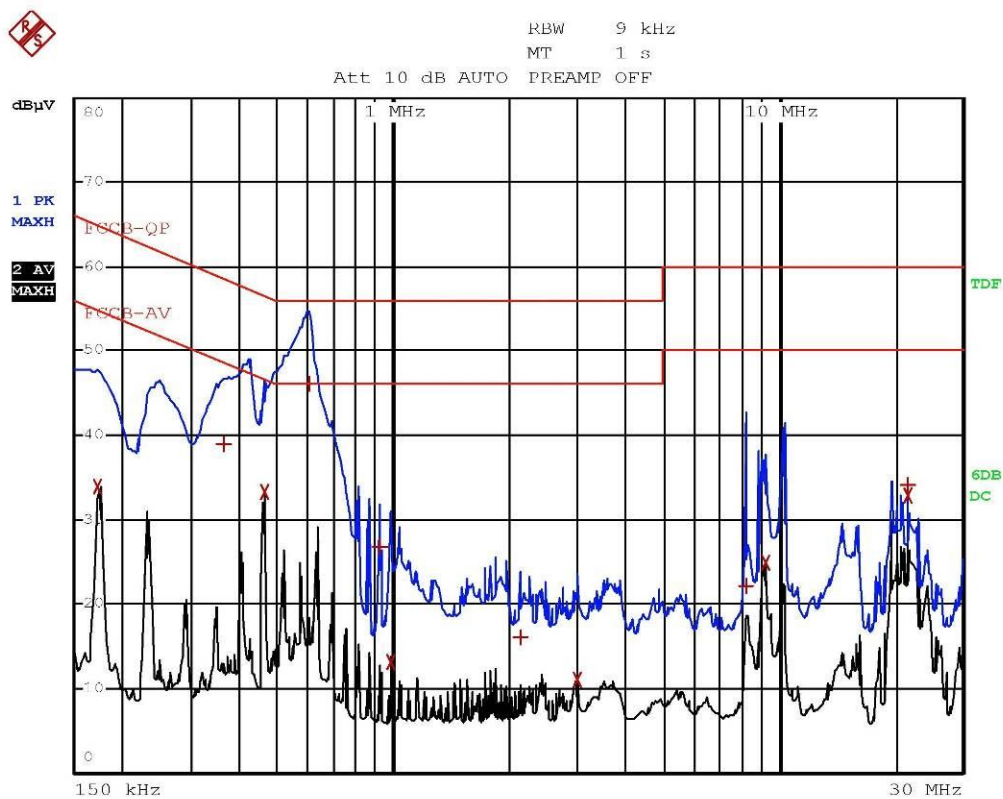


Zanivan 20246211-Line N (120V alimentatore supplementare)-Co
nversione continua wifi attivo



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	174 kHz	32.91	-21.85	
1 Quasi Peak	362 kHz	37.75	-20.92	
2 Average	462 kHz	32.54	-14.11	
1 Quasi Peak	606 kHz	46.09	-9.90	
1 Quasi Peak	926 kHz	26.73	-29.26	
2 Average	1.786 MHz	11.67	-34.32	
1 Quasi Peak	2.538 MHz	14.01	-41.98	
2 Average	3.002 MHz	10.52	-35.47	
1 Quasi Peak	8.982 MHz	29.70	-30.29	
2 Average	10.306 MHz	22.36	-27.63	
2 Average	19.71 MHz	30.26	-19.73	
1 Quasi Peak	21.662 MHz	33.57	-26.42	

Zanivan 20246211-Line N (120V alimentatore supplementare)-Co
nversione continua wifi attivo

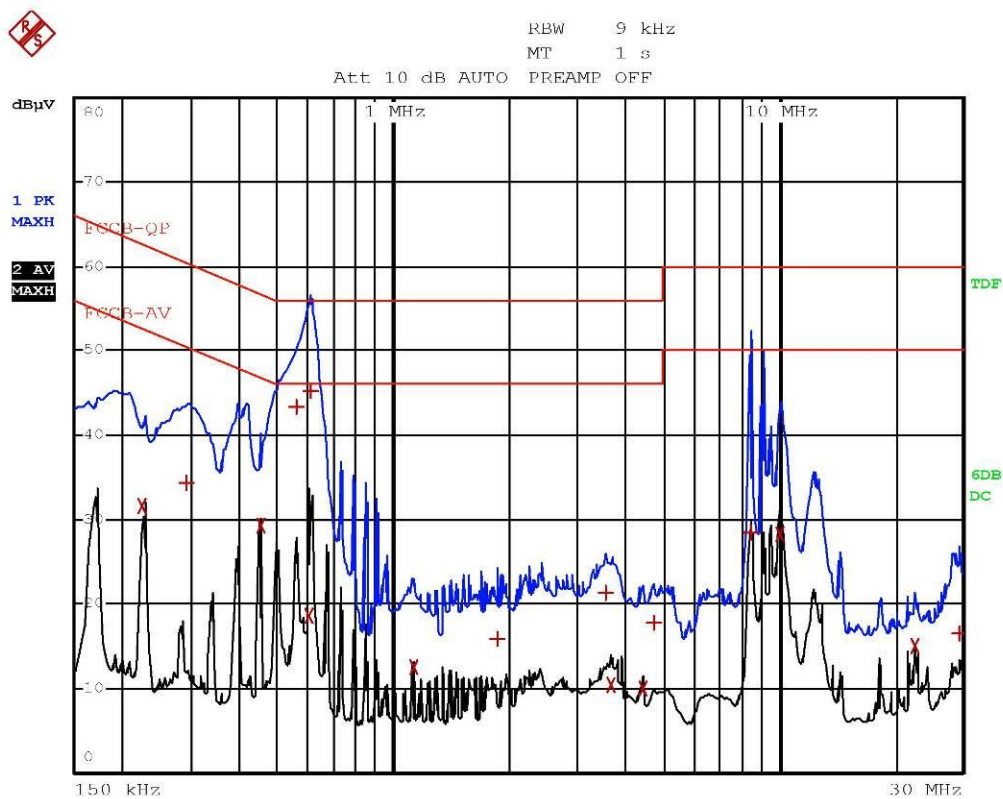


Zanivan 20246212-Line L (120V alimentatore supplementare)-Co
nversione continua wifi attivo



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	174 kHz	33.89	-20.87	
1 Quasi Peak	362 kHz	38.99	-19.68	
2 Average	462 kHz	33.18	-13.46	
1 Quasi Peak	602 kHz	46.08	-9.91	
1 Quasi Peak	922 kHz	26.79	-29.20	
2 Average	986 kHz	13.03	-32.96	
1 Quasi Peak	2.138 MHz	16.03	-39.96	
2 Average	2.998 MHz	11.02	-34.97	
1 Quasi Peak	8.254 MHz	22.24	-37.75	
2 Average	9.238 MHz	24.93	-25.06	
1 Quasi Peak	21.662 MHz	34.03	-25.96	
2 Average	21.662 MHz	32.84	-17.15	

Zanivan 20246212-Line L (120V alimentatore supplementare)-Co
nversione continua wifi attivo

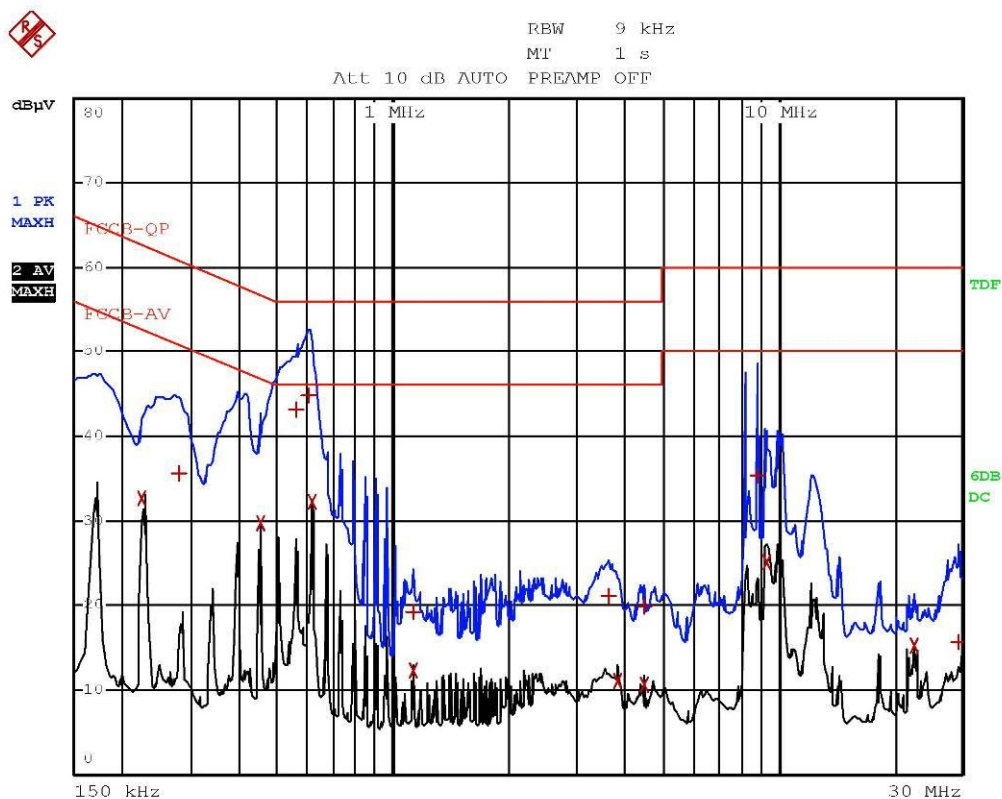


De Rosso 20246230



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	226 kHz	31.57	-21.01	
1 Quasi Peak	290 kHz	34.29	-26.23	
2 Average	450 kHz	29.36	-17.51	
1 Quasi Peak	562 kHz	43.33	-12.66	
2 Average	606 kHz	18.57	-27.43	
1 Quasi Peak	610 kHz	45.24	-10.75	
2 Average	1.126 MHz	12.47	-33.52	
1 Quasi Peak	1.866 MHz	15.85	-40.14	
1 Quasi Peak	3.546 MHz	21.25	-34.74	
2 Average	3.674 MHz	10.36	-35.63	
2 Average	4.47 MHz	10.03	-35.96	
1 Quasi Peak	4.766 MHz	17.76	-38.23	
1 Quasi Peak	8.494 MHz	28.53	-31.46	
2 Average	10.05 MHz	28.33	-21.66	
2 Average	22.578 MHz	15.00	-34.99	
1 Quasi Peak	29.342 MHz	16.48	-43.51	

De Rosso 20246230

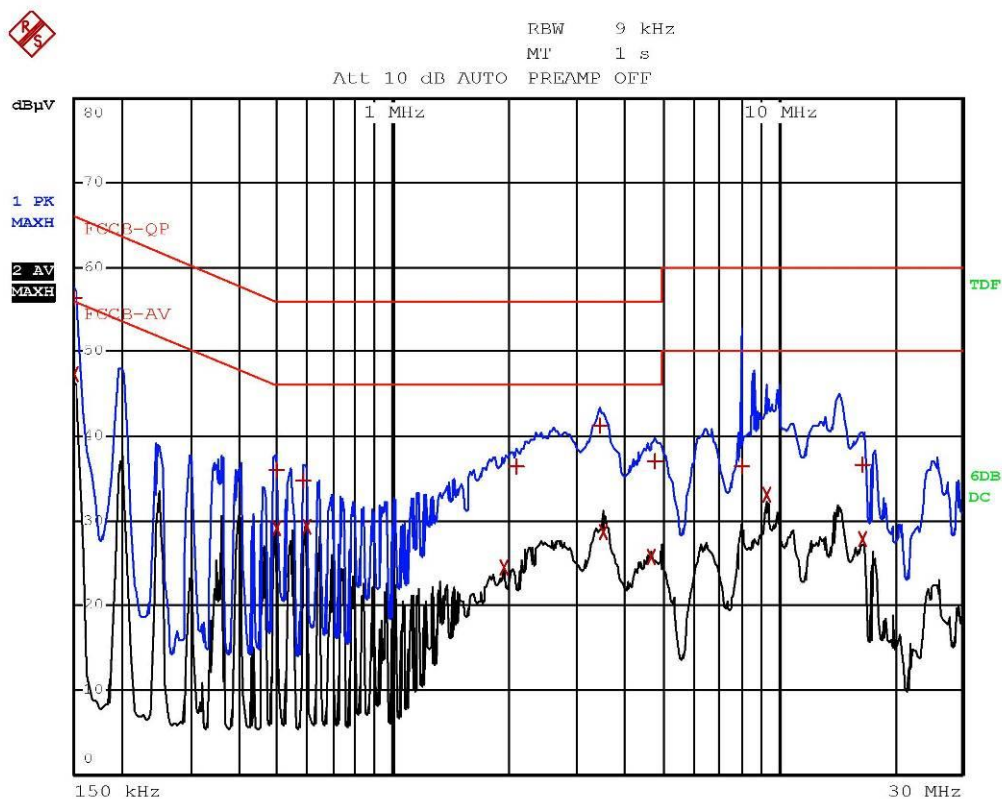


De Rosso 20246231



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
2 Average	226 kHz	32.70	-19.89	
1 Quasi Peak	278 kHz	35.65	-25.22	
2 Average	450 kHz	29.69	-17.18	
1 Quasi Peak	558 kHz	43.13	-12.86	
1 Quasi Peak	606 kHz	44.92	-11.07	
2 Average	618 kHz	32.28	-13.71	
2 Average	1.126 MHz	12.24	-33.75	
1 Quasi Peak	1.13 MHz	19.21	-36.78	
1 Quasi Peak	3.63 MHz	21.20	-34.80	
2 Average	3.854 MHz	11.11	-34.88	
1 Quasi Peak	4.478 MHz	19.78	-36.21	
2 Average	4.478 MHz	10.55	-35.44	
1 Quasi Peak	8.858 MHz	35.35	-24.64	
2 Average	9.394 MHz	25.08	-24.91	
2 Average	22.578 MHz	15.15	-34.84	
1 Quasi Peak	29.394 MHz	15.59	-44.40	

De Rosso 20246231

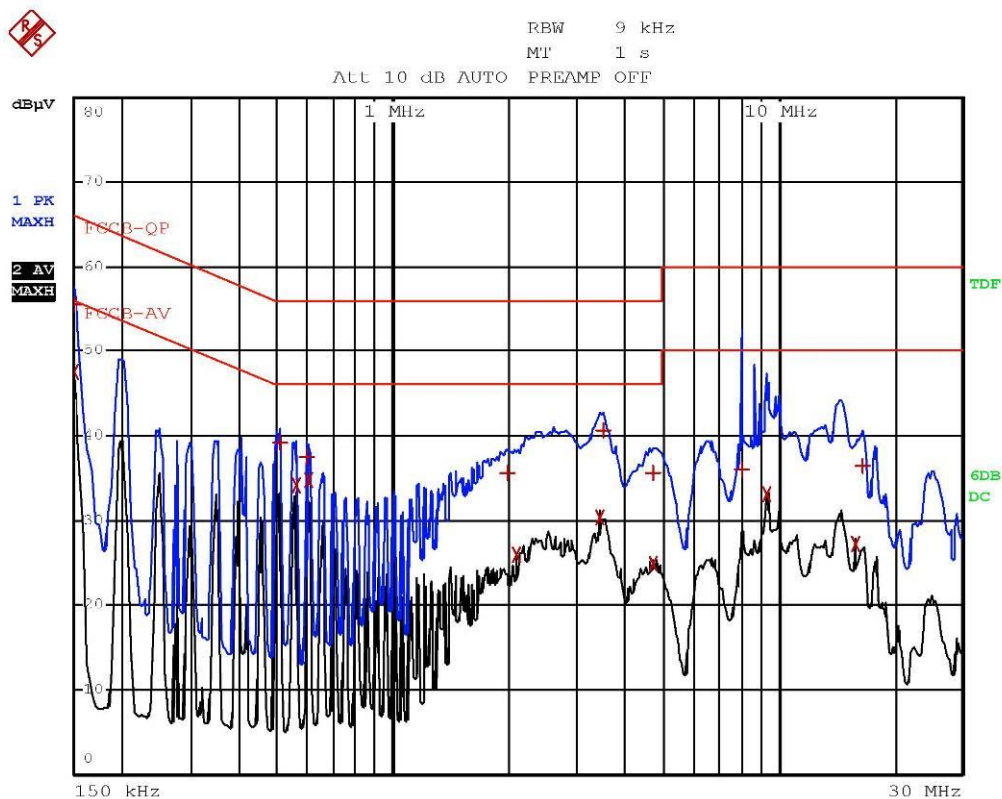


De Rosso 20246232



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	150 kHz	56.36	-9.63	
2 Average	150 kHz	47.30	-8.69	
1 Quasi Peak	498 kHz	35.99	-20.03	
2 Average	498 kHz	29.06	-16.96	
1 Quasi Peak	586 kHz	34.79	-21.21	
2 Average	598 kHz	29.21	-16.78	
2 Average	1.954 MHz	24.47	-21.52	
1 Quasi Peak	2.098 MHz	36.35	-19.65	
1 Quasi Peak	3.446 MHz	41.32	-14.67	
2 Average	3.518 MHz	28.57	-17.42	
2 Average	4.674 MHz	25.67	-20.32	
1 Quasi Peak	4.798 MHz	37.11	-18.89	
1 Quasi Peak	8.034 MHz	36.41	-23.58	
2 Average	9.338 MHz	33.15	-16.84	
1 Quasi Peak	16.59 MHz	36.69	-23.30	
2 Average	16.594 MHz	27.79	-22.20	

De Rosso 20246232



De Rosso 20246233



EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCCB-QP			
Trace2:	FCCB-AV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB	
1 Quasi Peak	150 kHz	55.60	-10.39	
2 Average	150 kHz	47.56	-8.43	
1 Quasi Peak	510 kHz	39.16	-16.83	
2 Average	558 kHz	34.13	-11.86	
1 Quasi Peak	598 kHz	37.44	-18.55	
2 Average	602 kHz	34.73	-11.26	
1 Quasi Peak	1.998 MHz	35.53	-20.46	
2 Average	2.098 MHz	26.00	-19.99	
2 Average	3.454 MHz	30.28	-15.71	
1 Quasi Peak	3.51 MHz	40.66	-15.33	
2 Average	4.742 MHz	24.78	-21.21	
1 Quasi Peak	4.746 MHz	35.67	-20.32	
1 Quasi Peak	8.07 MHz	36.02	-23.97	
2 Average	9.386 MHz	33.05	-16.94	
2 Average	15.922 MHz	27.12	-22.87	
1 Quasi Peak	16.594 MHz	36.52	-23.48	

De Rosso 20246233