

Prima Ricerca & Sviluppo Srl soggetta a direzione e coordinamento da parte della Giovanni Maspero & C. S.p.A. – C.I. 02634780130
Sede legale : 22100 Tavernola (CO) Via Conciliazione, 1 Cod. FISC. e N. R.I. CO 02635860139
Sede operativa : Laboratori Via Campagna, 92 22020 Faloppio fraz. Gaggino (CO) Tel. +39 03135000.11 Fax +39 031991309

EQUIPMENT UNDER TEST :
APPARECCHIO IN PROVA :

**Base Station of Radio-controlled firing device for
pyrotechnic application**

FIREMASTER IV

Unit TX 5000

REFERENCE STANDARDS :
NORME DI RIFERIMENTO :

FCC 47 CFR Part 15.229

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm :** *PARENTE FIREWORKS SRL*
Ente / Società:
- **Mr.:** *Sig. CIZZA*
Sig.:
- **Address:** *VIA OBERDAN, 107 – 45037 – MELARA (RV) - ITALY*
Indirizzo:
- **Tel. :** *++39 0425 801000* • **Telefax** *++39 0425 89640* • **E-mail:** *lucizza@tin.it*
Telefono : *Fax :* *e-mail*

Site of test execution: *Via Campagna, 92 - 22020 Gaggino Faloppio (CO) - Italy*
Località esecuzione prove:

Date of test samples receipt: *18/12/08* **Date of start test:** *18/12/08*
Data ricevimento campioni: *Data inizio prove:*

Date of end test: *18/12/08*
Data fine prove:

Witness to the test:
Presenti alle prove:

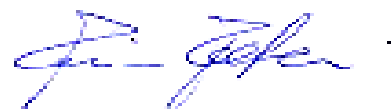
Signature of the engineers:
Firma esecutore prove:

Signature of the Laboratory Director:
Firma Direttore Laboratori:

Nobody / Nessuno
.....



.....
Massimiliano Tallariti



.....
Massimo Maltempi

The test results recorded in this Test Report are exclusively referred to the tested samples.

I risultati del presente rapporto di prova si riferiscono esclusivamente al campione sottoposto a prova.

Reproduction of this EMC-Test Report in whole or in part is prohibited without the written authorization of the Laboratory Director

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1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name:	PARENTE FIREWORKS SRL
Equipment :	Base Station of Radio-controlled firing device for pyrotechnic application
Model name or No. :	TX 5000
Serial number :	-----
FCC ID :	SLO-FIREMASTER4KT
Country of manufacturer:	ITALY

1.2 Technical data for equipment

Supply voltage:	Sealed lead-acid accumulator with gel type electrolyte, 12V 5.6A/h
Typical usage :	Portable radio remote control used for pyrotechnic application
EUT single or system:	Single

1.3 Technical data for Transceiver – Transmitter part

FCC class:	Intentional Radiators
Working Frequency for TX :	40,685 MHz
Frequency Range of Operation for TX :	40,66 – 40,70 MHz
Antenna type for TX :	Dedicated Antenna
TX module type :	NBFM (narrowband frequency modulation)

1.4 Technical data for Transceiver – Receiver part

FCC class:	Unintentional Radiators, Class B
RX module type :	FM superheterodyne, quartz-controlled
RF receiver frequency :	40.665 MHz
Maximum internal frequency generated by EUT :	CPU clock 10 MHz
Receiver Sensitivity:	0.15µV/m for 20db S/N
Antenna type :	Dedicated Antenna

1.5 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test :

- the resistance R=820 Ohm in output of transmitter has been replaced with R=3.9 Kohm

1.6 Ports identification

This section contains descriptions of all signal ports and AC/DC power input/output ports, the length and the type of the cable provided by manufacturer needed for the tests.

Moreover it is specified if the ports are ever or optionally connected.

Port		Description	Connection
1	Enclosure	Plastic surface	By screws
2	AC power input/output ports	115-230 Vac 50/60 Hz for batteries recharge	Plug
3	DC power input/output ports	Customer battery pack Pb 12V 5,7Ah	Internal Battery support
4	Signals ports	Line not present	*****

Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

1.7 Auxiliary equipment

No auxiliary equipment.

2. TEST CONDITIONS

2.1 Operating test modes and test conditions

The equipment has been tested according to the operative conditions described in the user/installation manual provided by the manufacturer and by following reference standards :

Reference Standard:

FCC Part 15, Subpart B and C

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item “Operating condition of the equipment under test” of all technical sheets of the tests (see Section 4)

Operating condition	Description
#1	<i>In transmission mode</i>
#2	<i>In stand-by mode (receiver ready to use)</i>

2.2 Test overview

The transceiver is classified as “*intentional radiator*” in conformity to FCC Part 15 Sub. C, §15.201, §15.229 and it is subject to “*Certification*” procedure.

The application is mainly used as Radio-controlled firing device for pyrotechnic application.

The receiver part is classified as “*unintentional radiator*” in conformity to FCC Part 15 Sub. B, §15.109, §15.107 and it is subject to “*Verification*” procedure.

The application is mainly used as pyrotechnical application radio remote control; the RF signal when the apparatus is switch-on is not continuously present.

3. REFERENCE STANDARD FOR PERFORMED TESTS

<i>Reference standard :</i>	<i>Title :</i>
FCC Part 15 part A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)
FCC Part 15 part B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (General) of the Federal Communication Commission (FCC)
FCC Part 15 part C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)
ANSI C63.4	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

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4. SUMMARY OF TEST RESULTS

4.1 Tests

Port		Phenomena	Operating condition ¹	Result
1	Enclosure	Radiated emission	#1,#2	Within the limit
		Frequency stability	#1	Within the limit
2	AC mains Input ports	RF Disturbance voltage: • continuous	#1	Within the limit
3	DC Power supply and Battery	Bandwidth of emission	#1	Within the limit

¹ Ref. Tab. of Section 2

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4.2 Emission limits

For receiver use in according with §15.209 all the emission of the appliance shall not exceed the following levels:

Frequency (MHz)	Field Strength at a distance of 3m ($\mu\text{V/m}$)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

For transmitter use in according with §15.229 for intentional radiator operated within the frequency band 40,66-40,70 MHz

Frequency (MHz)	Field Strength of fundamental at a distance of 3m ($\mu\text{V/m}$)	Field Strength of spurious emission at a distance of 3m ($\mu\text{V/m}$)
40,66 - 40,70	1000	225

For Transmitter use in according with §15.209 all the other emission of the appliance shall not exceed the following levels:

Frequency (MHz)	Field Strength at a distance of 3m ($\mu\text{V/m}$)
30 - 88	100 **
88 - 216	150 **
216 - 960	200 **
Above 960	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.

5. TEST RESULTS

TX – radiated FIELD 30 - 1000 MHz.....	11
Emission of mains terminal disturbance voltage (continuous disturbance)	18
TX – FREQUENCY STABILITY	22
TX – Range of modulation bandwidth	24
TIMING	Errore. Il segnalibro non è definito.

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**TEST
1.****TX – RADIATED FIELD 30 - 1000 MHZ****REFERENCE
DOCUMENT**

FCC PART 15 subpart B and C

- **TEST LOCATION:** Semi-anechoic chamber (3 meters)
- **TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI
Chase Antenna Mod. CBL 6111 A
- **TESTED PORT:** Enclosure
- **EMISSION LIMITS:** Acc. to Section 15.209 + 15.229
of reference document
- **UNCERTAINTY OF MEASURE:** Combined uncertainty = ± 1.75 dB
Total uncertainty = $(k=2) \pm 3.5$ dB

TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	26,2 $\pm$ 3 °C
Ambient humidity :	25 - 75 %rH	49 $\pm$ 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :		230 Vac

OPERATING CONDITION (Rif. Section. 2) : #1 + #2**RESULT: WITHIN THE LIMIT**

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EMI Auto Test Template: Electric Field Strength FCC

Hardware Setup: Electric Field Strength FCC
Measurement Type: Open-Area-Test-Site
Frequency Range: 30 MHz - 1 GHz
Graphics Level Range: 0 dB μ V/m - 80 dB μ V/m

Data Reduction:

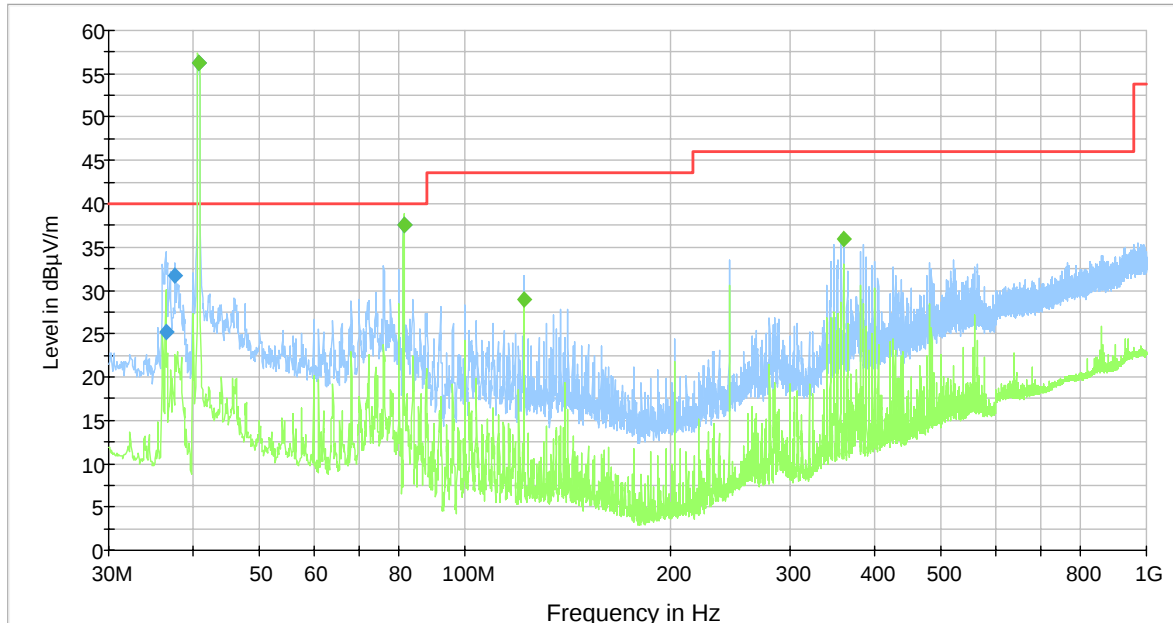
Limit Line #1: FCC Part 15 Class B Electric Field Strength QP+AV
Peak Search: 6 dB
Maximum Results: 4
Subrange Maxima: 0
Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 4

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak; Average	120 kHz	1 s	Receiver
1 GHz - 2.8 GHz	Average	1 MHz	0.1 s	Receiver
2.8 GHz - 18 GHz	Average	1 MHz	0.1 s	Receiver

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Operating condition : #1: Vertical polarization

Electric Field Strength FCC



— FCC Part 15 Class B Electric Field Strength QP+AV.LimitLine
— Preview Result 2
◆ Final Result 2
— Preview Result 1
◆ Final Result 1

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
36.400000	25.1	1000.00	120.000	107.0	V	181.0	17.0	14.9	40.0
37.600000	31.7	1000.00	120.000	116.0	V	203.0	16.3	8.3	40.0
40.680000	56.2	1000.00	120.000	100.0	V	181.0	14.7	-16.2	40.0
81.360000	37.5	1000.00	120.000	116.0	V	204.0	9.4	2.5	40.0

Final Result 2

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
40.680000	56.3	1000.00	120.000	109.0	V	203.0	14.7	
81.360000	37.6	1000.00	120.000	100.0	V	203.0	9.4	
122.080000	29.0	1000.00	120.000	100.0	V	177.0	13.8	
360.000000	35.9	1000.00	120.000	150.0	V	179.0	18.3	

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For transmitter use in according with §15.229 for intentional radiator operated within the frequency band 40,66-40,70 MHz

Frequency (MHz)	Field Strength of fundamental at a distance of 3m ($\mu\text{V/m}$)	Field Strength of spurious emission at a distance of 3m ($\mu\text{V/m}$)
40,66 – 40,70	1000	225

Frequency (MHz)	Field Strength of fundamental at a distance of 3m (dB $\mu\text{V/m}$)	Field Strength of spurious emission at a distance of 3m (dB $\mu\text{V/m}$)
40,66 – 40,70	67.044	47.044

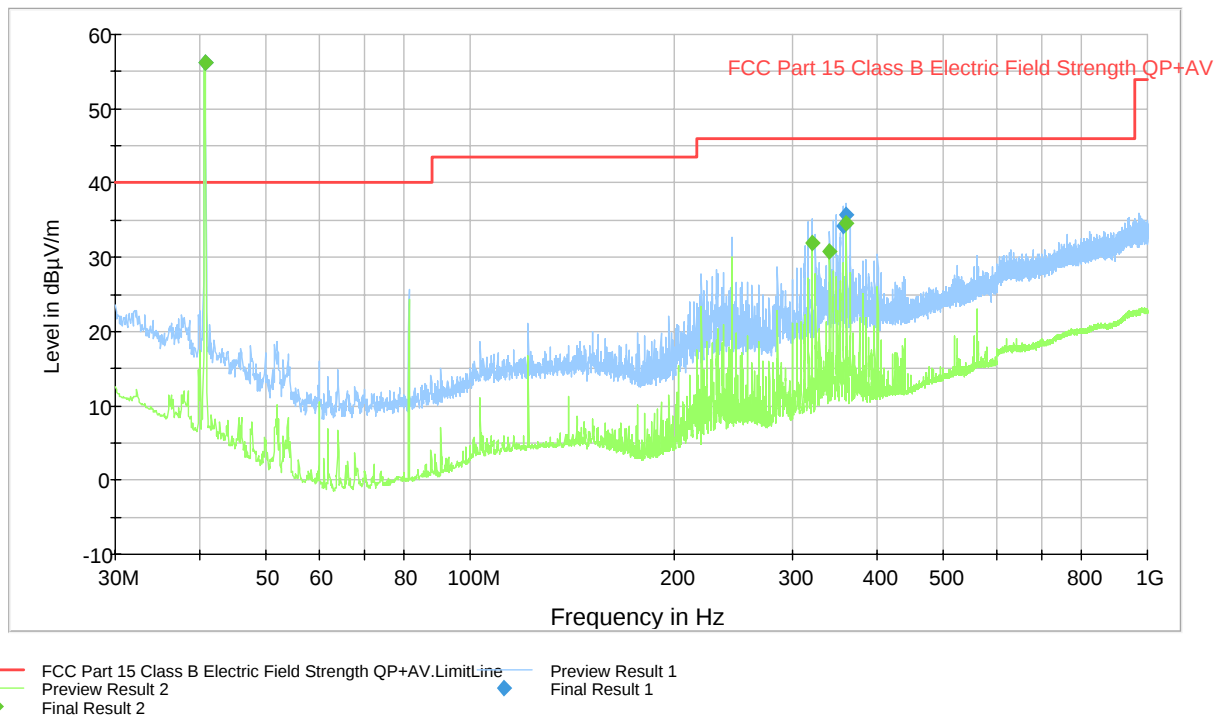
Result

Frequency (MHz)	Measured Peak (dB $\mu\text{V/m}$)	Limit (dB $\mu\text{V/m}$)	Comment
40.680000	57.9	67.044	PASS
81.360000	37.9	47.044	PASS
122.080000	34.5	47.044	PASS

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Operating condition : #1: Horizontal polarization

Electric Field Strength FCC



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
40.680000	56.2	1000.000	120.000	150.0	H	180.0	14.7	-16.2	40.0
356.080000	34.3	1000.000	120.000	100.0	H	175.0	18.3	11.7	46.0
360.000000	35.7	1000.000	120.000	109.0	H	177.0	18.3	10.3	46.0

Final Result 2

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
40.680000	56.2	1000.000	120.000	150.0	H	188.0	14.7	
320.000000	32.0	1000.000	120.000	100.0	H	185.0	16.8	
340.000000	30.7	1000.000	120.000	100.0	H	165.0	17.7	
360.000000	34.6	1000.000	120.000	100.0	H	177.0	18.3	

RESULT

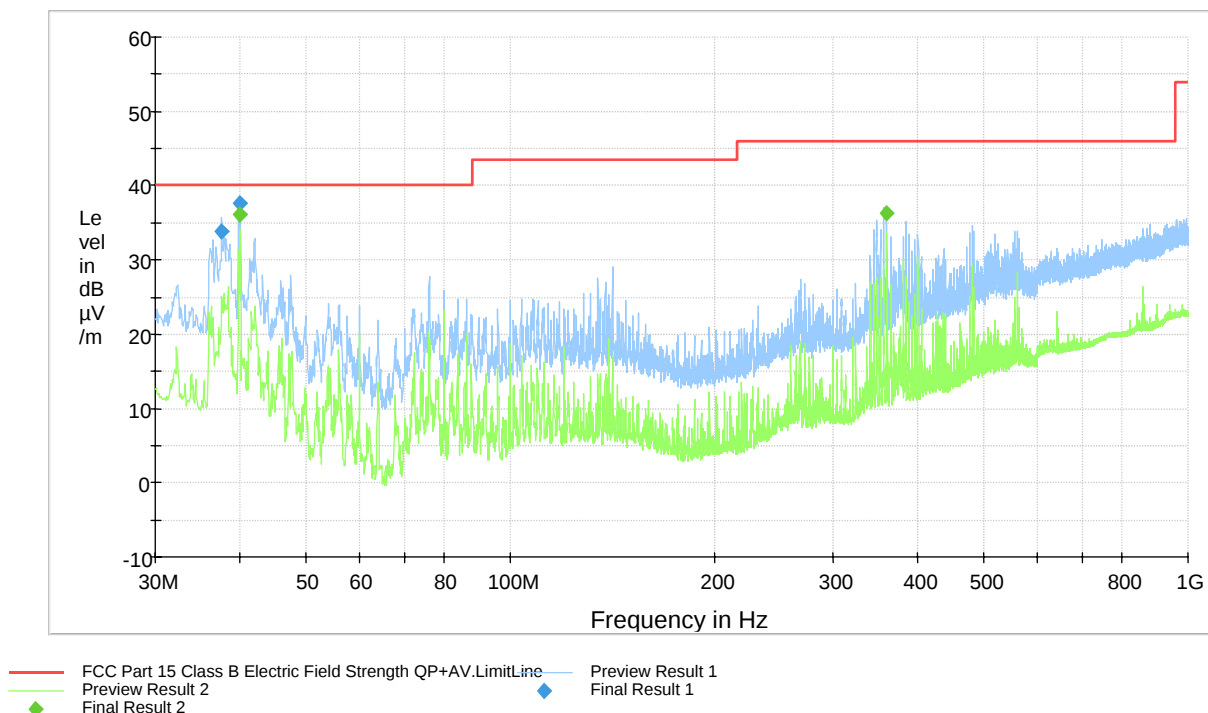
Frequency (MHz)	Measured Peak (dBµV/m)	Limit (dBµV/m)	Comment
40.680000	56.8	67.044	PASS
81.360000	27.6	47.044	PASS
122.080000	23.8	47.044	PASS

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Operating condition : #2 , vertical polarization

In stand-by mode (receiver ready to use)

Electric Field Strength FCC



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
37.600000	33.7	1000.000	120.000	106.0	V	202.0	16.3	6.3	40.0
40.000000	37.6	1000.000	120.000	109.0	V	201.0	15.0	2.4	40.0

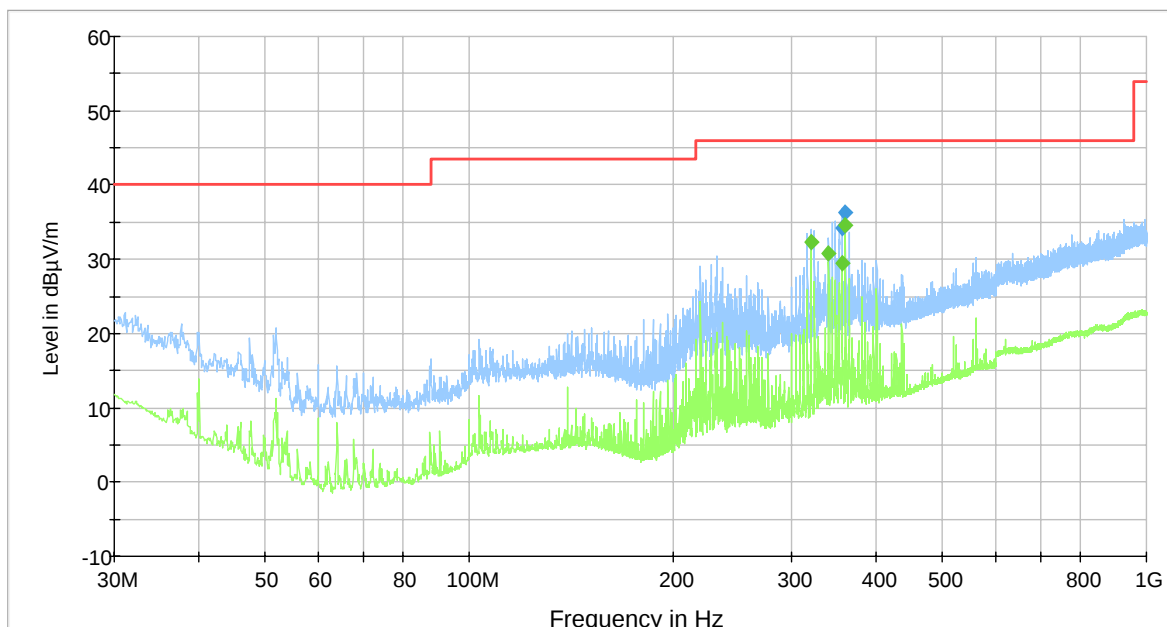
Final Result 2

Frequency (MHz)	Average (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
40.000000	36.0	1000.000	120.000	100.0	V	201.0	15.0	
360.000000	36.3	1000.000	120.000	139.0	V	177.0	18.3	

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Horizontal polarization

Electric Field Strength FCC



— FCC Part 15 Class B Electric Field Strength QP+AV.LimitLine
— Preview Result 2
◆ Final Result 2
— Preview Result 1
◆ Final Result 1

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
356.080000	34.3	1000.00	120.000	100.0	H	177.0	18.3	11.7	46.0
360.000000	36.3	1000.00	120.000	100.0	H	178.0	18.3	9.7	46.0

Final Result 2

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Comment
320.000000	32.3	1000.000	120.000	100.0	H	177.0	16.8	
340.000000	30.7	1000.000	120.000	100.0	H	169.0	17.7	
356.000000	29.4	1000.000	120.000	100.0	H	177.0	18.3	
360.000000	34.5	1000.000	120.000	100.0	H	177.0	18.3	

For a fundamental frequency in according with the Section 15.33 is not necessary verify the spurious other 1 GHz.

**TEST
2.****EMISSION OF MAINS TERMINAL DISTURBANCE VOLTAGE
(CONTINUOUS DISTURBANCE)****REFERENCE
DOCUMENT**

FCC47CFR Part 15

- **TEST SETUP:** According to reference standard
- **TEST LOCATION:** Semianechoic chamber
- **TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI
Artificial Network Rohde & Schwarz Mod. ESH3-Z5

- **TESTED PORT:** AC mains
- **FREQUENCY RANGE:** 0.15 - 30 MHz
- **EMISSION LIMITS:** Section 15.107 of Standard
- **MEASUREMENT UNCERTAINTY:** Total uncertainty (k=2) ± 2.5 dB

TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	24 $\pm$ 3 °C
Ambient humidity :	25 - 75 %rH	38 $\pm$ 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	975 $\pm$ 50 mbar
Voltage :		230 Vac $\pm$ 3 %

OPERATING CONDITION (Rif. Section. 2) : #1**RESULT: WITHIN THE LIMIT**

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EMI Auto Test Template: Voltage with 2-Line-LISN

Hardware Setup: Voltage with 2-Line-LISN
Measurement Type: 2 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dB μ V - 80 dB μ V

Preview Measurements:
Scan Test Template: Voltage with 2-Line-LISN pre

Data Reduction:
Limit Line #1: EN 55022 V QP
Limit Line #2: EN 55022 V AV
Peak Search: 6 dB
Maximum Results: 6
Subrange Maxima: 0
Maxima per Subrange: 1
Acceptance Offset: -10 dB
Maximum Number of Results: 6

Frequency Zoom:
Zoom Scan Template: Voltage with 2-Line-LISN max

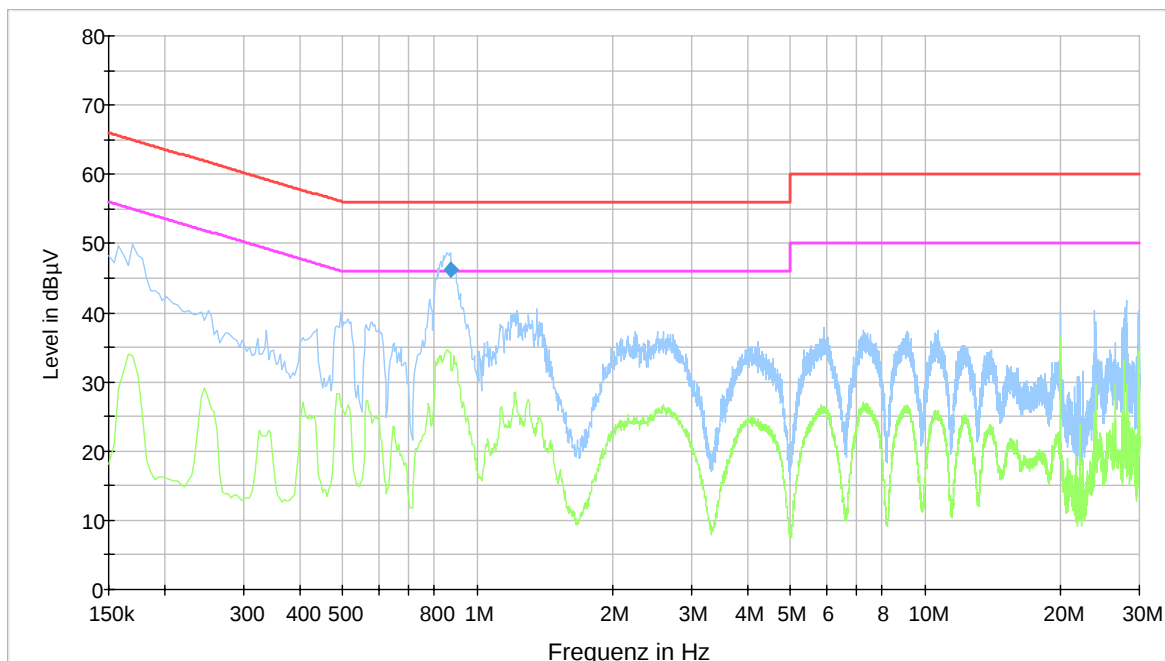
Final Measurements:
Template for Single Meas.: Voltage with 2-Line-LISN fin

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
150 kHz - 30 MHz	QuasiPeak; CAverage	9 kHz	1.5 s	Receiver

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LINE N:

Voltage with 2-Line-LISN



— EN 55022 V QP.LimitLine — EN 55022 V AV.LimitLine — Preview Result 1 — Preview Result 2 ◆ Final Result 1

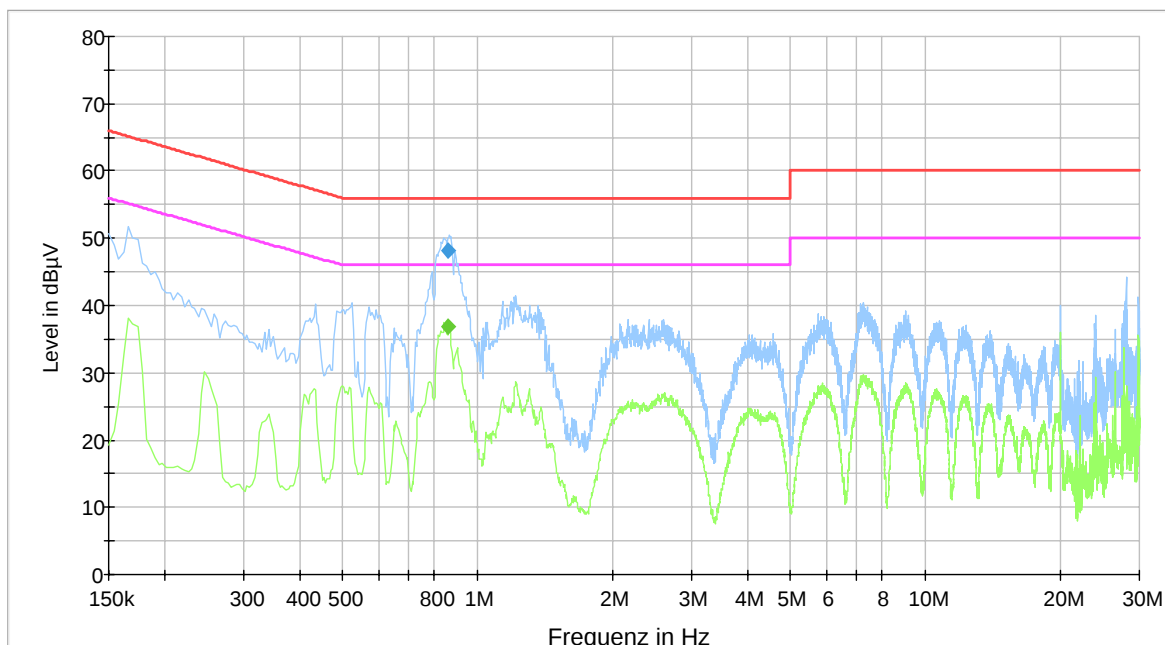
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.872000	46.2	1500.000	9.000	GN	N	10.2	9.80	56.00	

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LINE L1

Voltage with 2-Line-LISN



— EN 55022 V QP.LimitLine — EN 55022 V AV.LimitLine — Preview Result 1
— Preview Result 2 ◆ Final Result 1 ◆ Final Result 2

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.860000	48.2	1500.000	9.000	GN	L1	10.2	7.80	56.00	

Final Result 2

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.860000	36.8	1500.000	9.000	GN	L1	10.2	9.20	46.00	

**TEST
3.****TX – FREQUENCY STABILITY****REFERENCE
DOCUMENT**

FCC PART 15 sub C §15.229

- **TEST LOCATION:** Climatic chamber
- **TEST EQUIPMENT USED FOR TEST:** Climatic chamber Mazzali mod. Climatest M1574
Spectrum Analyzer Rohde & Schwarz mod. FSP
- **TESTED PORT:** Enclosure

TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	25 ± 3 °C
Ambient humidity :	25 - 75 %rH	40 ± 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	12 Vdc	12 Vdc

OPERATING CONDITION (Rif. Section. 2) : #1**RESULT: WITHIN THE LIMIT**

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Frequency stability measurements

Temperature (°C)	Measured RF Frequency (Hz)
-20.0	40684064
-10.0	40684056
0.0	40684054
10.0	40684030
20.0	40684014
25.0	40683998
30.0	40683998
40.0	40683974
50.0	40683982
55.0	40683998

Reference value (Hz)	40685000
Min. value (Hz)	40683974
Max. value (Hz)	40684064
Max frequency deviation (Hz)	1,026
Max frequency deviation (%)	0,00252

LIMIT
frequency tolerance = 0,01%
frequency band = 40,66 – 40,70 MHz

**TEST
4.****TX – RANGE OF MODULATION BANDWIDTH****REFERENCE
DOCUMENT**

FCC PART 15 subpart C

- **TEST LOCATION:** Control room
- **TEST EQUIPMENT USED FOR TEST:** Spectrum Analyzer Rohde & Schwarz Mod. FSP
- **TESTED PORT:** AC Mains, DC Port and Battery
- **EMISSION LIMITS:** Acc. to Section 15.215 c) of reference document

TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	24 ± 3 °C
Ambient humidity :	25 - 75 %rH	40 ± 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 ± 50 mbar
Voltage :	internal battery pack	12 Vdc

OPERATING CONDITION (Rif. Section. 2) : #1**RESULT: WITHIN THE LIMIT**

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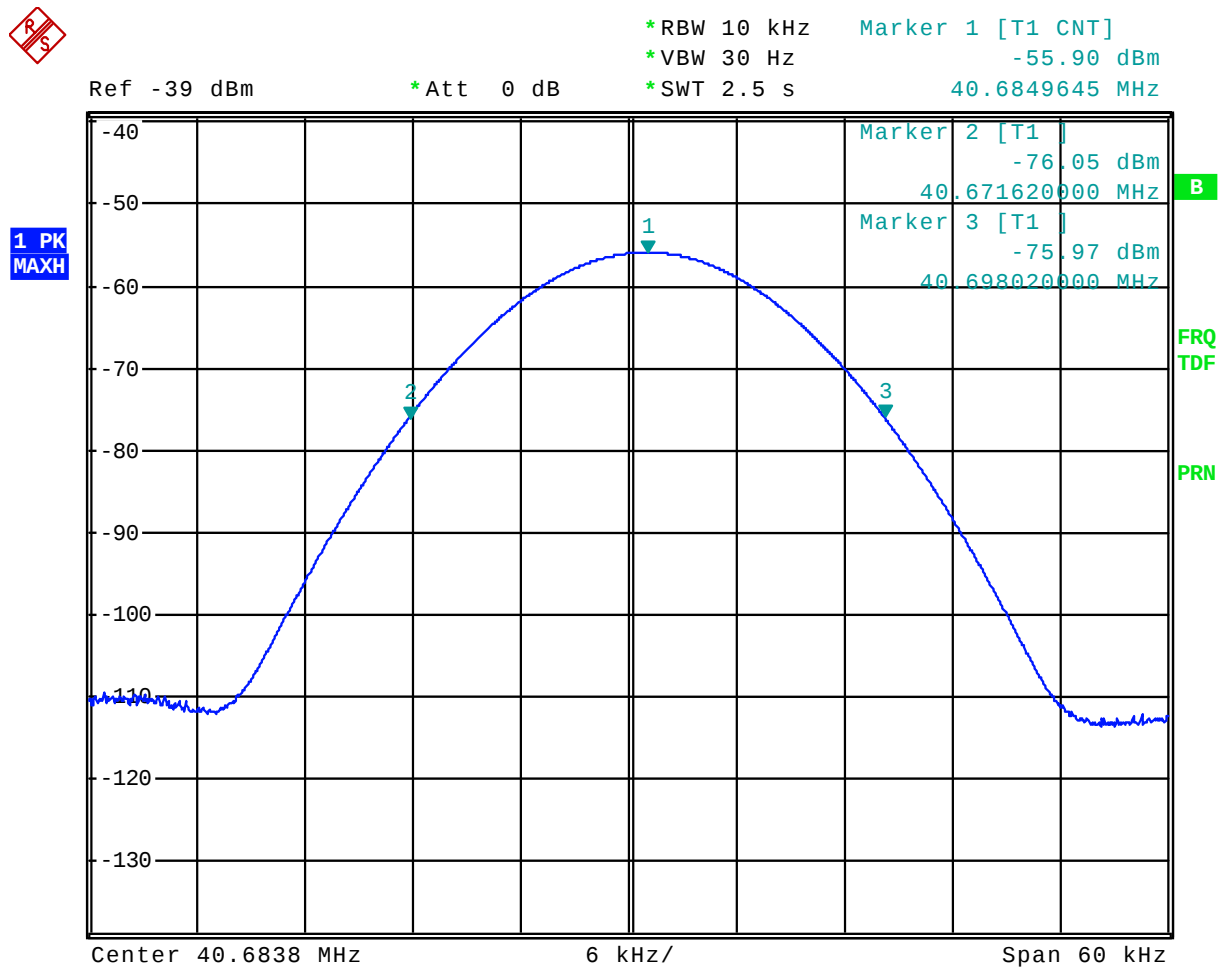
MEASUREMENT RESULTS

TEST CONDITIONS		Occupied frequency range (at 20 dB point)		
		f _L [MHz]	F _C [MHz]	f _H [MHz]
T _{amb} : + 24 °C	V _{nom} : 12 Vdc	40.67162	----	40.69802
Incertezza di misura / Measurement Uncertainty : ± 0.1 kHz				
Legenda / Abbreviations : f _L : Lowest frequency at 20dB point F _C : Central frequency f _H : Highest frequency at 20dB point				

LIMITS
Permitted operating frequency range
40.66 – 40.70 MHz

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Plot of modulation bandwidth



Re. to tests performed on previous version (FCC.TR.04.1139): THE FIRMWARE, THE RADIO FREQUENCY SECTION as well as THE DATA CODING SYSTEM is ABSOLUTELY UNCHANGED in order to grant the complete compatibility with any previous version. It shouldn't however so surprisingly to find the plots of the modulation bandwidth IDENTICAL to the previous ones: the effort in designing this instrument aimed exactly to obtain this result.

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5.1 Equipment List

EQUIPMENT	MANUFACTURER	MODEL	SERIAL N.	CAL. DUE
NETWORK SIMULATOR	SPITZENBERGER	PAS5000	A154201/00595	APR.2009
DIGITAL IEC LOW FREQ. EMI ANALYZER -	SPITZENBERGER	B10	0411026003	APR.2009
EMI TEST RECEIVER 20HZ 40GHZ	ROHDE & SCHWARZ	ESU40	100111	JUL 2009
ARTIFICIAL MAINS NETWORK	ROHDE & SCHWARZ	ESH 2 - Z5	841887/011	SEPT.2009
ABSORBING CLAMP	ROHDE & SCHWARZ	MDS21	840031/005	JUL.2009
RF SEMI-ANECHOIC CHAMBER (CSSA)	SIEMENS	B83117-D6019-T232	003-005-134/94C	APR.2010
BILOG ANTENNA	CHASE	CBL6111A	1798	JUL.2009
BILOG ANTENNA	CHASE	CBL6111C	2717	JUL.2009
DISCONTINUOS INTERFERENCE ANALYZER	CHASE	DIA 1512D	21548	JUN.2009
ESD GENERATOR	SCHAFFNER	NSG435-01	1063	APR.2009
COUPLING/DECOUPLING NETWORK	HILO TEST	CDN 414	962213	JUN.2009
CAPACITIVE CLAMP PER FTB	HILO TEST	EFTC-105	951843	-
FTB/BURST GENERATOR	HILO TEST	EFTG-4510	951842	JUN.2009
FTB/SURGE/VOLTAGE DIPS GENERATOR	EM TEST	UCS 500	0596-76	JUN 2009
RF SIGNAL GENERATOR 9 KHZ - 6 GHZ	ROHDE & SCHWARZ	SMB100A	100831	JUN 2011
DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	AR-DC2500	14844	AUG.2009
DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	AR-DC6180	14757	AUG.2009
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	AR-250L	15093	SEPT.2009
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	AR100W1000M1	15146	SEPT.2009
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	25S1G4	320317	SEPT.2009
COUPLIG/DECOUPLING NETWORK	LUTHI	CDN801-6 M2/M3	95230	SEPT.2009
EM INJECTION CLAMP	FCC	F-203I	98	SEPT.2009
RF ATTENUATOR 6 DB	EM TEST	ATT 6	9604 006A	MAY.2009
LOG PERIODIC ANTENNA BROAD BAND 1-18 GHZ	ROHDE & SCHWARZ	HL025	350380/007	DEC.2009
SPECTRUM ANALYZER	ROHDE & SCHWARZ	FSP40	100038	DEC.2009
PROGRAMMABLE DC POWER SUPPLY	HEWLETT PACKARD	6623A	3448A04501	SEPT.2009
CLIMATIC CHAMBER	MAZZALI	CLIMATEST	AZC150HS0000	JEN.2009
DIGITAL OSCILLOSCOPE	TEKTRONIX	TDS 680B	B010130	MAY.2009

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5.2 Photographic documentation

PHOTO N° 1 – EQUIPMENT UNDER TEST IDENTIFICATION



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PHOTO N° 2 – SET-UP FOR EMISSION RADIATED TEST

