

Prima Ricerca & SviluppoSrl 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 :

USB ELECTRONIC KEY
MODEL: WEB OTP TIME

REFERENCE STANDARDS :
NORME DI RIFERIMENTO :

FCC 47 CFR Part 15

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm :** EUTRONSEC S.P.A.
Ente / Società:
- **Mr.:** GIANLUCA MAFFIOLI
Sig.:
- **Address:** VIA GANDHI, 12 – 24048 TREVIOLO (BG) - ITALY
Indirizzo:
- **Tel. :** ++39 035/697005 • **Telefax** ++39 035/697090 • **E-mail:** gianluca.maffioli@eutron.it
Telefono : *Fax :* *e-mail*

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

Date of test samples receipt: 25/09/2007
Data ricevimento campioni:

Date of start test: 25/09/2007
Data inizio prove:

Date of end test: 25/09/2007
Data fine prove:

Witness to the test:
Presenti alle prove:

Signature of the engineers:
Firma esecutore prove:

Approved by:
Approvato da:

Sig. Gianluca Maffioli

Andrea Bortolotti

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

La riproduzione di questo Rapporto in modo parziale o totale è PROIBITO senza l'autorizzazione scritta della Direzione del Laboratorio

0. CONTENTS

	Page	Rev	Date
0. CONTENTS	2	0	25/09/07
1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)...	3	0	25/09/07
1.1 Identification	3	0	25/09/07
1.2 Technical data	3	0	25/09/07
1.3 Modifications incorporated in E.U.T.....	3	0	25/09/07
1.4 Auxiliary equipment	4	0	25/09/07
2. TEST CONDITIONS	5	0	25/09/07
2.1 Operating test modes and test conditions	5	0	25/09/07
2.2 Test overview	5	0	25/09/07
3. REFERENCE STANDARD FOR PERFORMED TESTS	6	0	25/09/07
4. Summary of test results	7	0	25/09/07
4.1 Emission tests	7	0	25/09/07
5. TEST RESULTS	8	0	25/09/07
6. EQUIPMENT LIST	16	0	25/09/07
6.1 Equipment list used for EUT testing	16	0	25/09/07
7. EUT TECHNICAL DOCUMENTATION.....	17	0	25/09/07
7.1 Wiring diagrams.....	17	0	25/09/07
7.2 Technical manual	17	0	25/09/07
7.3 Photographic documentation	18	0	25/09/07

1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name: EUTRONSEC S.P.A.
Manufacturer: EUTRONSEC S.P.A.
Equipment : USB KEY
Model name or No. : WEB OTP TIME
Serial number : Not present
FCC ID : TFC-AAJ
Country of manufacturer: ITALY

1.2 Technical data

FCC class: Unintentional radiators, Class B
Supply voltage: +5 V dc supplied by USB PC connector
Input Power / Current : 20 mA max.
Maximum internal frequency generated by EUT Oscillator: 25 MHz
Typical usage : Web Authentication
EUT single or system: Single
EUT dimensions : 55 x 21 x 10 mm

1.3 Modifications incorporated in E.U.T.

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

- None

Prima Ricerca & SviluppoSrl 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

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 case	*****
2	AC power input/output ports	Line not present	*****
3	DC power input/output ports	+5 V dc supplied by USB PC connector	USB PC connector (Pin 1,4)
4	Signals ports	USB Communication	USB PC connector (Pin 2,3)

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

1.4 Auxiliary equipment

- Personal Computer Compaq EV0 N1020V

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

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>Electronic key is connected directly by USB port to PC. One test program is available, as stimulus, to verify the correct data exchange.</i>

2.2 Test overview

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

The application is mainly used as web authentication.

Prima Ricerca & SviluppoSrl 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

3. REFERENCE STANDARD FOR PERFORMED TESTS

Reference standard :	Title :
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 (Unintentional 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

Prima Ricerca & SviluppoSrl 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

4. SUMMARY OF TEST RESULTS

4.1 Emission tests

Port		Phenomena	Basic standard	Operating condition ¹	Result
1	Enclosure	Radiated emission	FCC Part 15 § 15 109	#1	Within the limit
2	AC mains Input ports	RF Disturbance voltage: continuous	FCC Part 15 § 15 107	#1	Within the limit

¹ Ref. Tab. of Section 2

5. TEST RESULTS

RADIATED EMISSION 30 - 4000 MHZ	9
EMISSION OF MAINS TERMINAL DISTURBANCE VOLTAGE	12

Prima Ricerca & SviluppoSrl 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

**TEST
1.****RADIATED EMISSION 30 - 4000 MHZ****REFERENCE
DOCUMENT**

FCC PART 15 subpart B

- **TEST LOCATION:** Semi-anechoic chamber
- **TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI
Chase Antenna Mod. CBL 6111 A
Log-periodica Broadband Antenna mod. HL025
- **TESTED PORT:** Enclosure
- **EMISSION LIMITS:** Acc. to Section 15.109 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	23,5 $\pm$ 3 °C
Ambient humidity : 25 - 75 %rH	39 $\pm$ 5 %rH
Pressure : 85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :	+5 V dc USB

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

Prima Ricerca & SviluppoSrl 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

SCAN TABLE : “Radiated Emission”

Unit: dB μ V/m

Detector : Mode:

Curve1: MaxPeak ClearWrite

Curve2: -- ClearWrite

Subrange1:

Start Frequency: 30.0 MHz

Step Size: 80 kHz

Stop Frequency: 4000.0 MHz

IF Bandwidth: 120 kHz

Measure Time: 0.01 sec.

Receiver: ESXI

Probe Transducer: CHASE_6111_PRC

Signal Path: Path 4

System Transducer: RFin2-CP1/X11

Scan Mode: Lin

Add. Transducer: W71.01

Tracking Gen.: Off

Input: 2 DC

Preamplifier: 10 dB

Demodulation: FM Broad

RF att.: Coupled

Volume: 0.0%

Ref. Level: -50 dBm

Squelch: --

Min. RF att.: 0 dBm

Option: None

Autorange: On

Curve 1: On

Repetition: Single

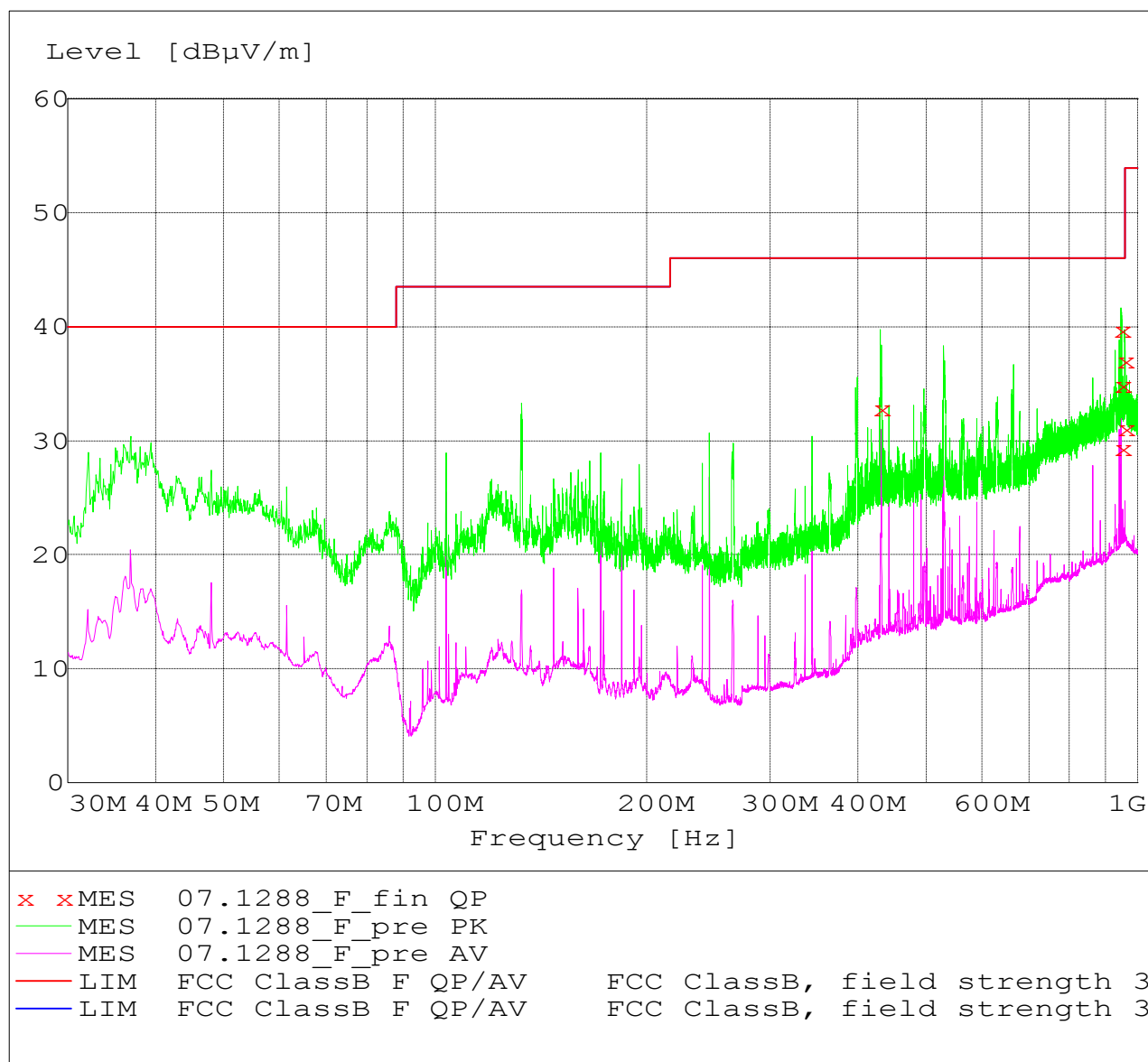
Curve 2: Off

Stop Mark: On

Stop Message: On

Text: Connect antenna

Prima Ricerca & SviluppoSrl 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



Final measurement in QP detector

Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
430.320000	32.80	20.40	46.00	13.20	120.0	45.00	VERTICAL
946.240000	39.70	29.70	46.00	6.30	125.0	11.00	VERTICAL
948.320000	34.90	29.80	46.00	11.10	144.0	51.00	HORIZONTAL
948.640000	29.30	29.90	46.00	16.70	242.0	57.00	HORIZONTAL
958.240000	37.00	30.20	46.00	9.00	225.0	269.00	VERTICAL
958.880000	31.10	30.20	46.00	14.90	206.0	56.00	VERTICAL

No significant disturbance in the range 1-4 GHz

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

FCC PART 15 subpart B

- **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:** Acc. to reference document 15.107
- **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	40 $\pm$ 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :	powered from host (Notebook)	110 Vac $\pm$ 3%

OPERATING CONDITION (Rif. Section. 2) : #1**RESULT: Within the limits**

SCAN TABLE : Voltage Mains

Unit : dB μ V

Detector : Mode :

Curve 1: MaxPeak ClearWrite

Curve 2: Average ClearWrite

Start Frequency : 150.0 kHz

Stop Frequency : 30.0 MHz

Measure Time : 10.0 ms

IF Bandwidth : 9 kHz

Step size : 6 kHz

Receiver : ESMI

Signal Path : Path 3

Meas. Mode : Lin

Tracking Generator : Off

Input : 1AC

Transducer : ESH3-Z5_PRC

System Transducer : Rfin1-CP2/X11

Add. Transd. 1 : W71.03

Add. Transd. 2 : None

Add. Transd. 3 : None

Preamplifier : 10 dB

RF Att. : Coupled

Ref. Level : -10 dBm

Min. RF Att. : 0 dB

IF Att. : 0 dB

Autorange : On

Demodulation : FM Broad

Volume : 0 %

Squelch : --

Option : None

Curve 1 : On

Curve 2 : On

Repetition : Single

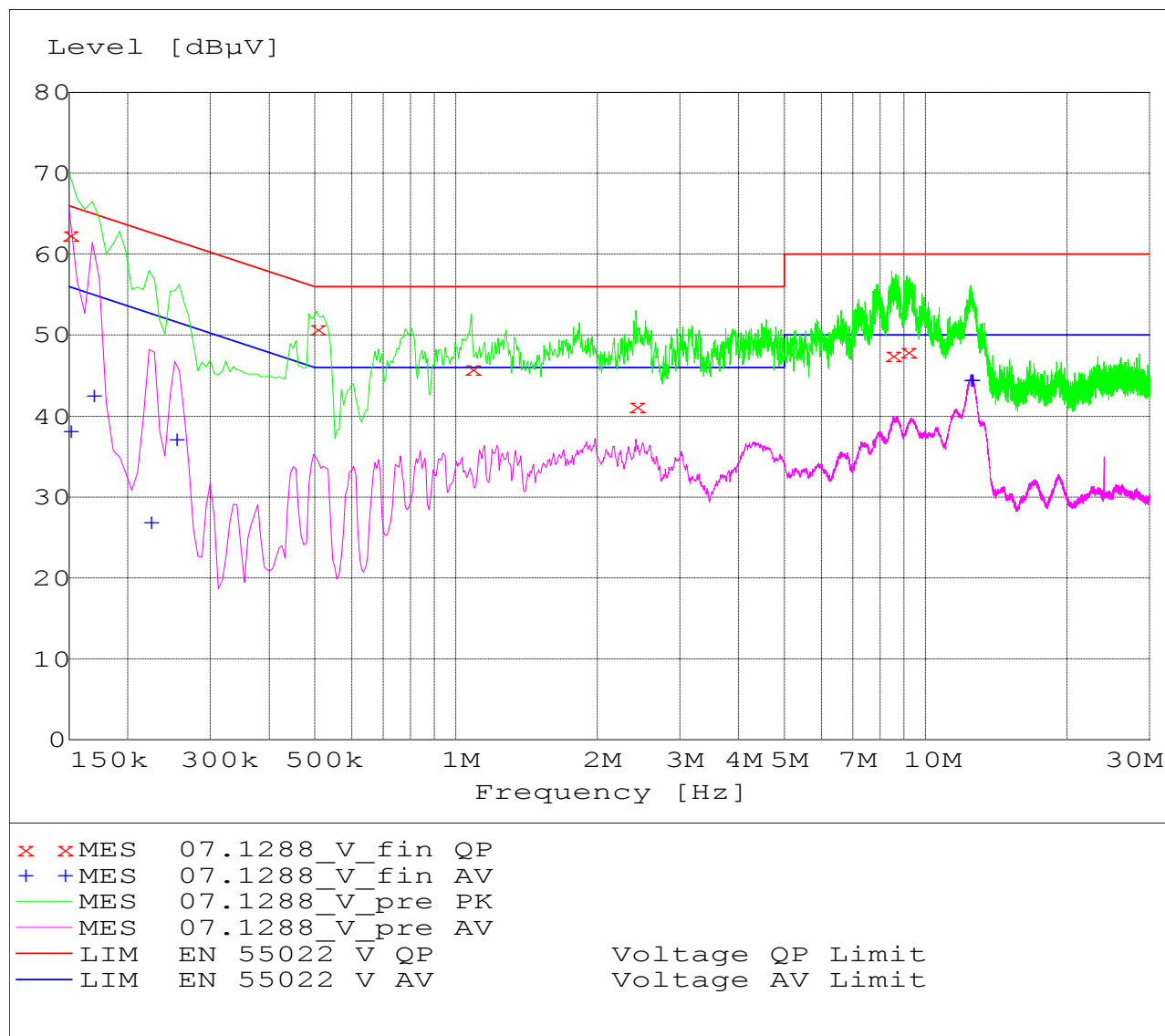
Stop Mark : On

Stop Message : On

Stop Message : Connect EUT

Prima Ricerca & SviluppoSrl 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

- With EUT powered by a Personal Computer Compaq EV0 N1020V



Prima Ricerca & SviluppoSrl 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

Final measurement in QP detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	62.50	10.10	66.00	3.50	N	GND
0.504000	50.80	10.10	56.00	5.20	L1	GND
1.080000	45.90	10.10	56.00	10.10	L1	GND
2.418000	41.30	10.20	56.00	14.70	L1	GND
8.472000	47.60	10.50	60.00	12.40	L1	GND
9.132000	48.00	10.50	60.00	12.00	L1	GND

Final measurement in AV detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	38.10	10.10	56.00	17.90	N	GND
0.168000	42.50	10.10	55.10	12.60	L1	GND
0.222000	26.90	10.00	52.70	25.80	N	GND
0.252000	37.10	10.10	51.70	14.60	L1	GND
12.396000	44.40	10.60	50.00	5.60	L1	GND
12.492000	44.40	10.60	50.00	5.60	L1	GND

Prima Ricerca & SviluppoSrl 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

6. EQUIPMENT LIST

6.1 Equipment list used for EUT testing

EQUIPMENT	MANUFACTURER	MODEL	SERIAL N.	CAL. DUE
NETWORK SIMULATOR	SPITZENBERGER	PAS5000	A154201/00595	NOV.2007
DIGITAL IEC LOW FREQ. EMI ANALYZER -	SPITZENBERGER	B10	0411026003	NOV.2007
EMI RECEIVER	ROHDE & SCHWARZ	ESMI	835862/016+838325/007	SEPT.2007
ARTIFICIAL MAINS NETWORK	ROHDE & SCHWARZ	ESH 2 - Z5	841887/011	SEPT.2007
ABSORBING CLAMP	ROHDE & SCHWARZ	MDS21	840031/005	JUN.2009
RF SEMI-ANECHOIC CHAMBER (CSSA)	SIEMENS	B83117-D6019-T232	003-005-134/94C	AUG.2008
BILOG ANTENNA	CHASE	CBL6111A	1798	JUL.2009
BILOG ANTENNA	CHASE	CBL6111C	2717	JUL.2009
DISCONTINUOUS INTERFERENCE ANALYZER	CHASE	DIA 1512D	21548	JUN.2008
ESD GENERATOR	SCHAFFNER	NSG435-01	1063	APR.2008
COUPLING/DECOUPLING NETWORK	HILO TEST	CDN 414	962213	JUN.2008
CAPACITIVE CLAMP PER FTB	HILO TEST	EFTC-105	951843	-
FTB/BURST GENERATOR	HILO TEST	EFTG-4510	951842	JUN.2008
SURGE GENERATOR	HILO TEST	CWG4-412	951813	JUN.2008
RF SIGNAL GENERATOR 5 KHZ - 3 GHZ	ROHDE & SCHWARZ	SME03	833331/012	SEPT.2007
DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	AR-DC2000	14844	AUG.2008
DIRECTIONAL COUPLER	AMPLIFIER RESEARCH	AR-DC6180	14757	AUG.2008
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	AR-250L	15093	SEPT.2007
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	AR-10M1	15146	SEPT.2007
RF POWER AMPLIFIER	AMPLIFIER RESEARCH	30S1G3	320317	SEPT.2007
COUPLIG/DECOUPLING NETWORK	LUTHI	CDN801-6 M2/M3	95230	AUG.2008
EM INJECTION CLAMP	FCC	F-203I	98	AUG.2008
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	NOV.2007
SPECTRUM ANALYZER	ROHDE & SCHWARZ	FSP40	100038	SEP.2007
PROGRAMMABLE DC POWER SUPPLY	HEWLETT PACKARD	6623A	3448A04501	SEP.2007
CLIMATIC CHAMBER	MAZZALI	CLIMATEST	AZC150HS0000	JEN.2008
DIGITAL OSCILLOSCOPE	TEKTRONIX	TDS 680B	B010130	MAY.2008

7. EUT TECHNICAL DOCUMENTATION

7.1 Wiring diagrams

	<i>Document reference (n., edition, date, ...)</i>
WIRING DIAGRAM	<i>WebOTP-Sch-03-v1.3-Versione con RTC</i>
PRINTED CIRCUIT	<i>WebOTP-PCB-05-v1.0 - Topografico Versione RTC - PCB Rel. D</i>
PART LIST	<i>WebOtpTime-BOM-01-V1.1</i>

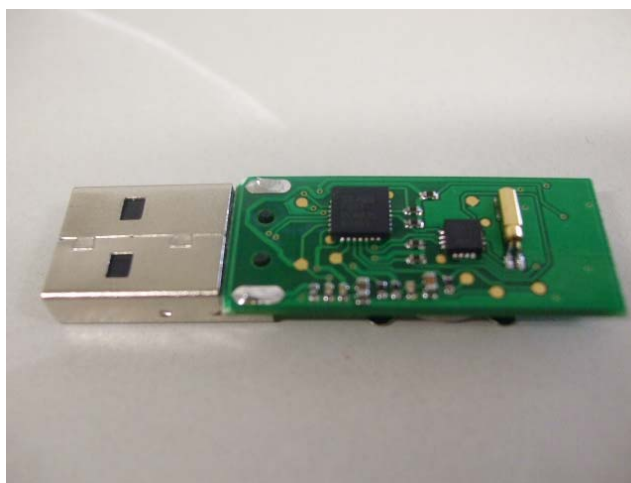
7.2 Technical manual

	<i>Document reference (n., edition, date, ...)</i>
USER MANUAL	Web OTP Developer's Manual 1.2
TEST PLAN	1267-00-SDT-12 R1.0

Prima Ricerca & SviluppoSrl 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

7.3 Photographic documentation

PHOTO No. 1 – EQUIPMENT UNDER TEST



Prima Ricerca & SviluppoSrl 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

PHOTO No. 2 – SET-UP FOR EMISSION RADIATED TEST

