

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 KEY

PLUG'N'CRYPT ID

REFERENCE STANDARDS :

NORME DI RIFERIMENTO :

FCC 47 CFR Part 15

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm :** CHARISMATHICS GMBH
Ente / Società:
- **Mr.:** XIANGDONG WAN
Sig.:
- **Address:** 47 SENDLINGER STRASSE – 80331 MUENCHEN – GERMANY
Indirizzo:
- **Tel. :** ++49 89 30906700 • **Telefax** ++49 89 30906729 • **E-mail:** Xiangdong.wang@charismath
Telefono : *Fax :* *e-mail* ics.com

Site of test execution:

Località esecuzione prove:

Via Campagna, 92 - 22020 Gaggino Faloppio (CO) - Italy

Date of test samples receipt:

Data ricevimento campioni:

14/09/06

Date of start test:

Data inizio prove:

14/09/06

Date of end test:

Data fine prove:

14/09/06

Witness to the test:

Presenti alle prove:

Signature of the engineers:

Firma esecutore prove:

Signature of the Laboratory Director:

Firma Direttore Laboratori:

Mr. Gianluca Maffioli



Andrea Bortolotti



Roberto Furfari

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	14/09/06
1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)	3	0	14/09/06
1.1 Identification	3	0	14/09/06
1.2 Technical data	3	0	14/09/06
1.3 Modifications incorporated in E.U.T.	3	0	14/09/06
Ports identification	4	0	14/09/06
1.4 Auxiliary equipment	4	0	14/09/06
2. TEST CONDITIONS	5	0	14/09/06
2.1 Operating test modes and test conditions	5	0	14/09/06
2.2 Test overview	5	0	14/09/06
3. REFERENCE STANDARD FOR PERFORMED TESTS	6	0	14/09/06
4. Summary of test results	7	0	14/09/06
4.1 Emission tests	7	0	14/09/06
5. TEST RESULTS	8	0	14/09/06
6. EUT TECHNICAL DOCUMENTATION	16	0	14/09/06
6.1 Wiring diagrams	16	0	14/09/06
6.2 Technical manual	16	0	14/09/06
6.3 Photographic documentation	17	0	14/09/06

1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name: CHARIMATHICS GMBH
Manufacturer: EUTRONSEC SPA
Equipment : USB KEY
Model name or No. : PLUG'N'CRYPT ID
Serial number : Not present
FCC ID : U5Y-AAA
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 : 40 mA max.
Maximum internal frequency generated by EUT 12 MHz
Typical usage : Document encrypting
EUT single or system: Single
EUT dimensions : 7,5 x 1,9 x 1,2 cm

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	Thermoplastic 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)
<p><i>Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.</i></p>			

1.4 Auxiliary equipment

- Personal Computer Compaq EV0 N1020V

2. TEST CONDITIONS

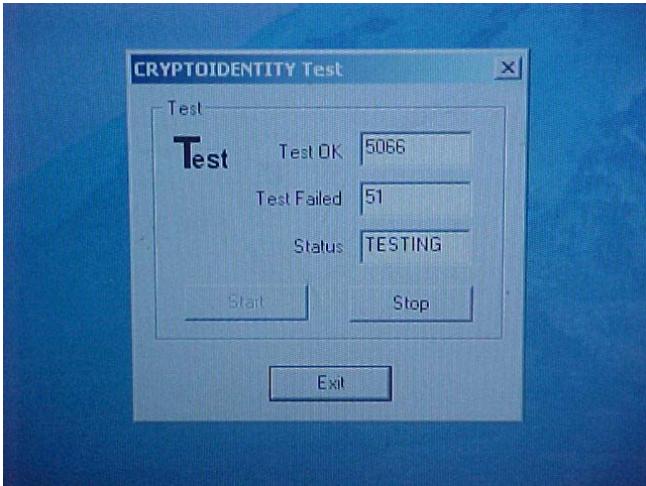
2.1 Operating test modes and test conditions

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

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 document encrypting

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

<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 (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
3	Antenna terminals	Antenna power conduction limits for receivers	FCC Part 15 §15 111	Not applicable ²	

¹ Ref. Tab. of Section 2

² Applicable only to equipments which have an external antenna connector

5. TEST RESULTS

RADIATED EMISSION 30 - 1000 MHZ	9
EMISSION OF MAINS TERMINAL DISTURBANCE VOLTAGE	13

**TEST
1.****RADIATED EMISSION 30 - 1000 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
- **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) ± 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: 1000.0 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

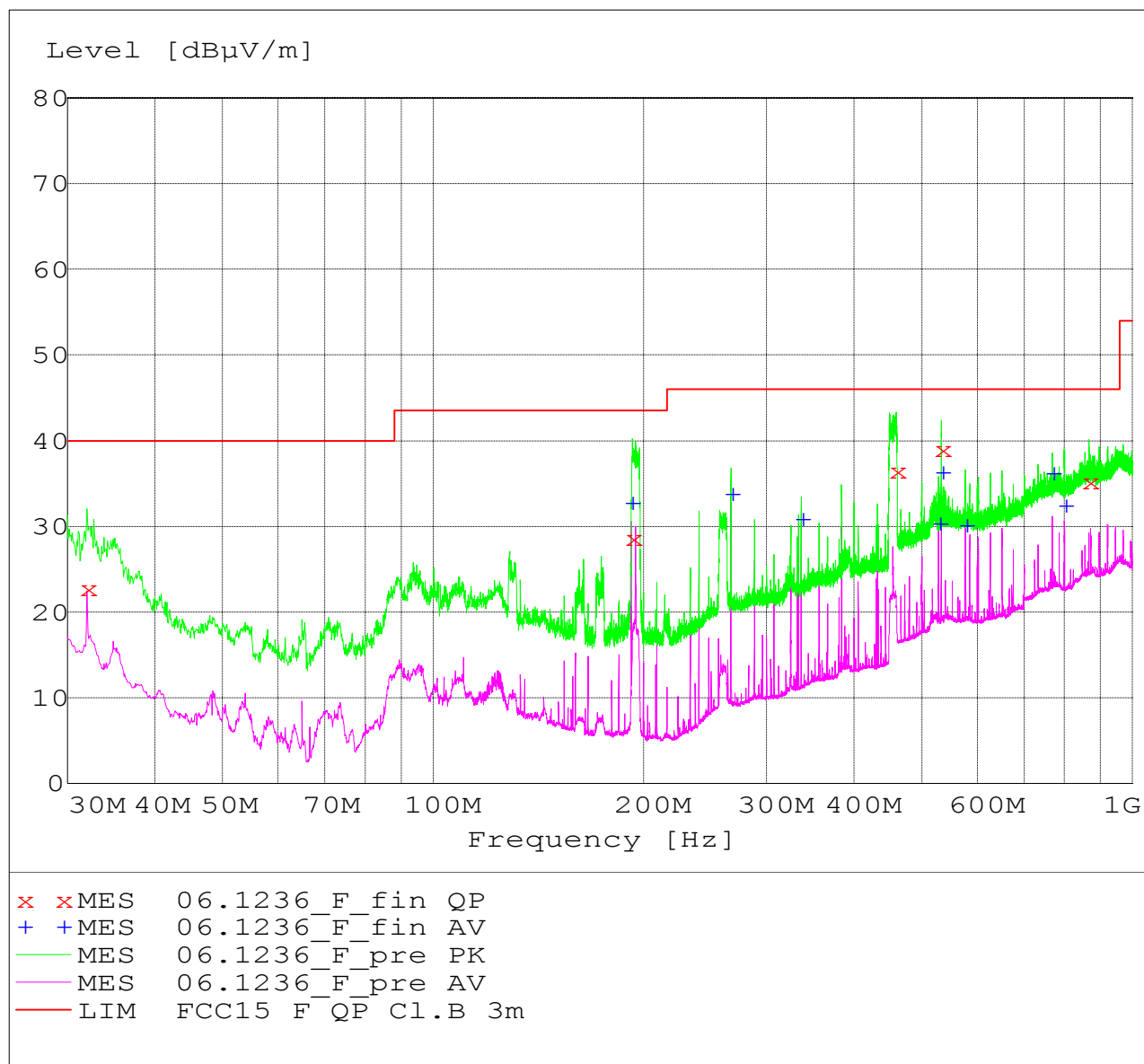
Curve 2: Off

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



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 MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.000000	22.80	19.80	40.00	17.20	107.0	143.00	VERTICAL
192.800000	28.70	11.90	43.50	14.80	100.0	1.00	VERTICAL
459.440000	36.50	21.10	46.00	9.50	112.0	272.00	VERTICAL
533.440000	39.00	23.10	46.00	7.00	102.0	132.00	VERTICAL
866.400000	35.30	27.80	46.00	10.70	100.0	169.00	VERTICAL

Final measurement in AV detector

Frequency MHz	Level dBµV/m	Transd dB	Height cm	Azimuth deg	Polarisation
192.000000	32.70	11.80	150.0	61.00	HORIZONTAL
266.640000	33.80	16.00	103.0	199.00	HORIZONTAL
336.000000	30.90	17.80	100.0	101.00	HORIZONTAL
528.000000	30.30	22.80	100.0	167.00	VERTICAL
533.360000	36.30	23.10	100.0	114.00	VERTICAL
577.520000	30.10	23.80	100.0	174.00	VERTICAL
768.080000	36.20	26.60	100.0	225.00	HORIZONTAL
800.080000	32.40	26.70	145.0	343.00	VERTICAL

**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 :	220Vac	98 Vac \pm 3%

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

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 : Voltage Mains

Unit : dBμV

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

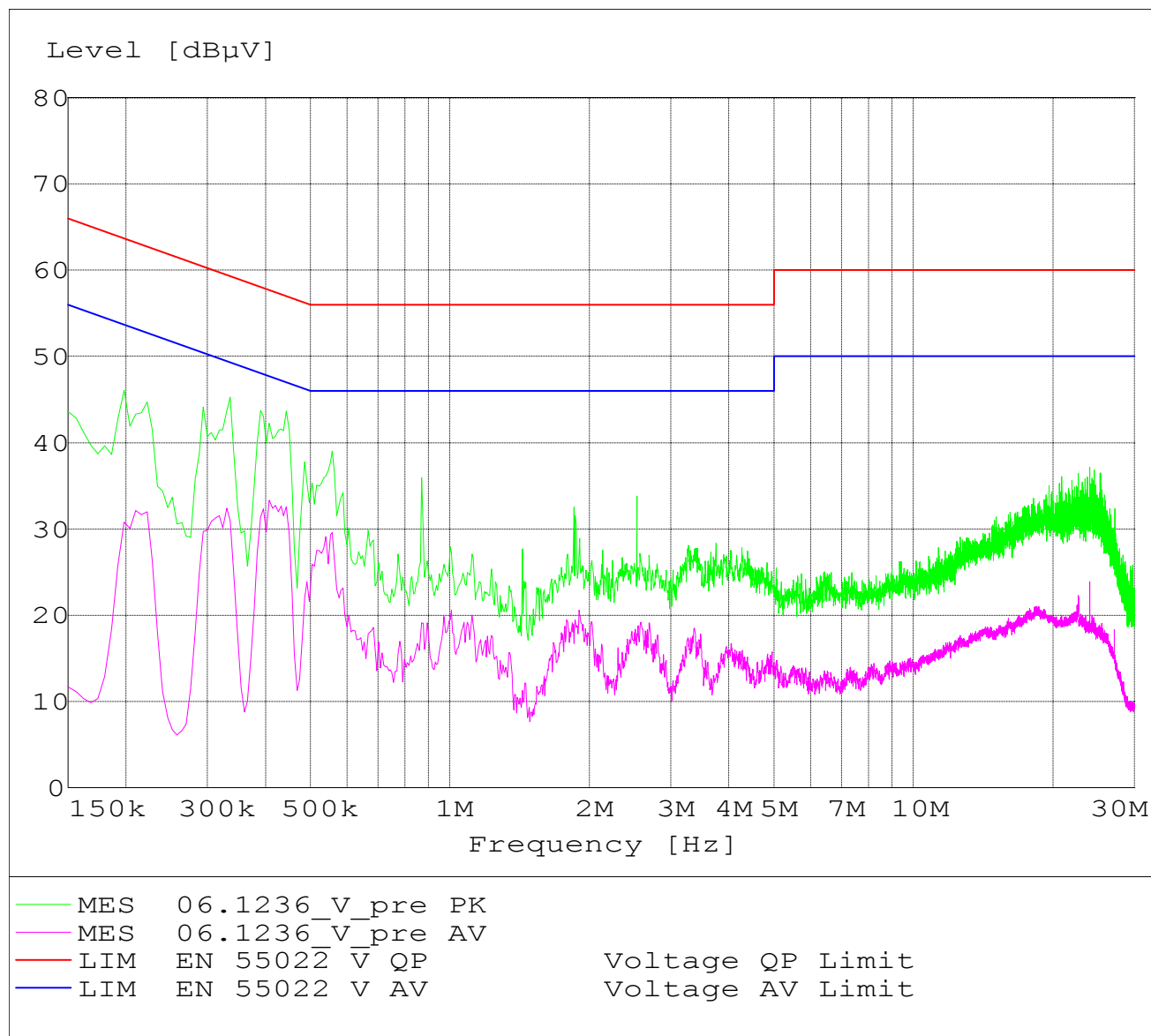
Stop Mark : On

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



6. EUT TECHNICAL DOCUMENTATION

6.1 Wiring diagrams

	<i>Document reference (n., edition, date, ...)</i>
WIRING DIAGRAM	Not applicable
PART LIST	1467-01-BOM-01R1

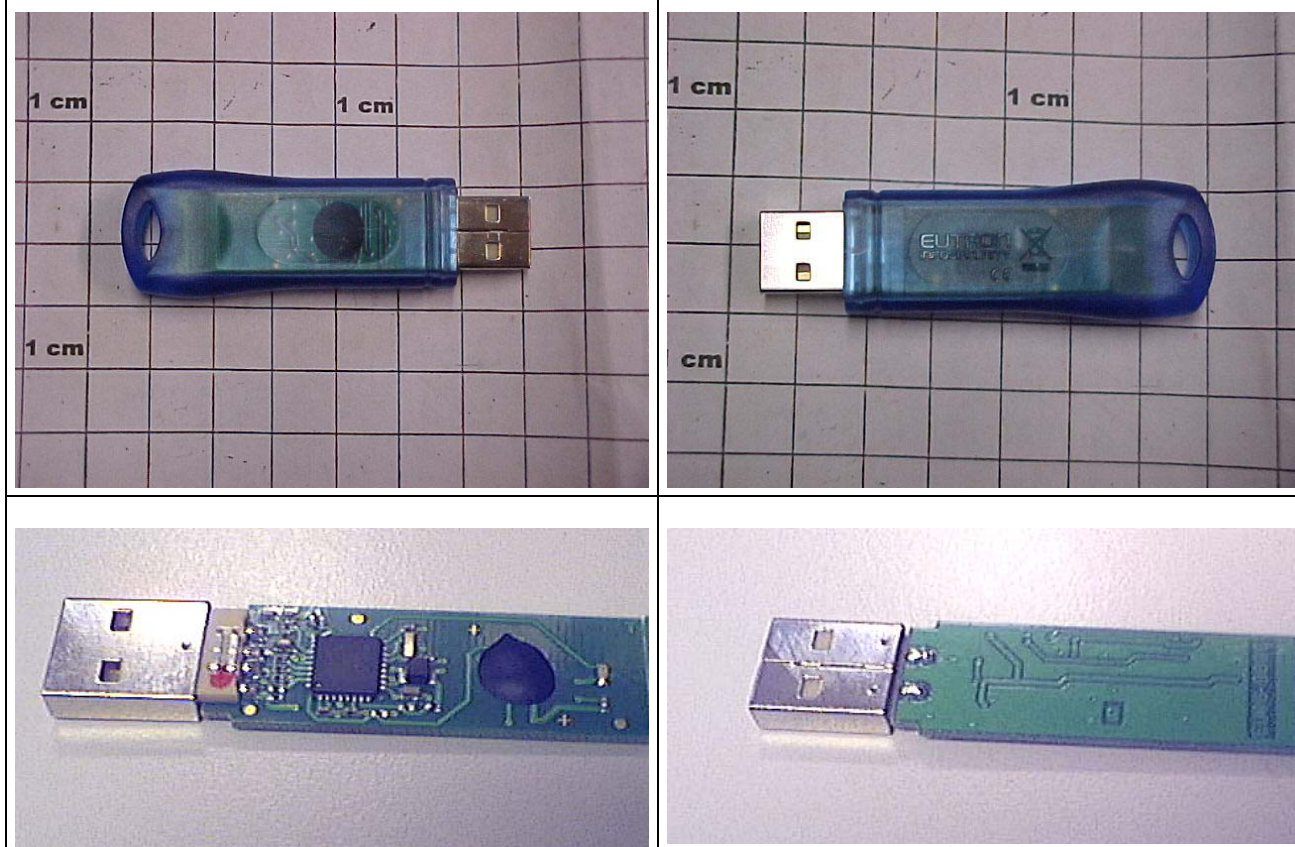
6.2 Technical manual

	<i>Document reference (n., edition, date, ...)</i>
USER MANUAL	Plug'n'crypt ID User Guide v2.4
TEST PLAN	1467-00-SDT-08R1.0

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

6.3 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

