

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 :

**USB KEY
OTP SIGN COMBO
(Model ITSEC-I)
Model ITSEC-P / Model FIPS**

DERIVED MODELS :

APPARECCHI DERIVATI:

REFERENCE STANDARDS :

NORME DI RIFERIMENTO :

FCC 47 CFR Part 15

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm :** *EUTRONSEC S.P.A.*
Ente / Società:
- **Mr.:** *GIANLUCA MAFFIOLI*
Sig.:
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Telefono : *Fax :* *e-mail*

Site of test execution:

Località esecuzione prove:

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

Date of test samples receipt:

Data ricevimento campioni:

04/10/06

Date of start test: 04/10/06

Data inizio prove:

Date of end test: 04/10/06

Data fine prove:

Witness to the test:

Presenti alle prove:

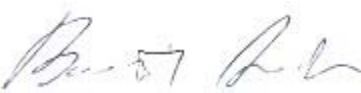
Signature of the engineers:

Firma esecutore prove:

Signature of the Laboratory Director:

Firma Direttore Laboratori:

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.

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0. CONTENTS

	Page	Rev	Date
0. CONTENTS	2	0	04/10/06
1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT).....	3	0	04/10/06
1.1 Identification	3	0	04/10/06
1.2 Technical data	3	0	04/10/06
1.3 Modifications incorporated in E.U.T.....	3	0	04/10/06
1.4 Derived models.....	4	0	04/10/06
1.5 Auxiliary equipment	4	0	04/10/06
2. TEST CONDITIONS	5	0	04/10/06
2.1 Operating test modes and test conditions	5	0	04/10/06
2.2 Test overview	5	0	04/10/06
3. REFERENCE STANDARD FOR PERFORMED TESTS	6	0	04/10/06
4. Summary of test results	7	0	04/10/06
4.1 Emission tests	7	0	04/10/06
5. TEST RESULTS	8	0	04/10/06
6. EUT TECHNICAL DOCUMENTATION.....	15	0	04/10/06
6.1 Wiring diagrams.....	15	0	04/10/06
6.2 Technical manual	15	0	04/10/06
6.3 Photographic documentation.....	16	0	04/10/06

1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name: EUTRONSEC
Manufacturer: EUTRONSEC S.P.A.
Equipment : USB KEY
Model name or No. : OTP SIGN COMBO mod. ITSEC-I
Derived models: OTP SIGN COMBO mod. ITSEC-P and OTP SIGN COMBO mod. FIPS
Serial number : Not present
FCC ID : TFC-AAF
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 : 250 mA max.
Maximum internal frequency generated by EUT 24 MHz ; Data Exchange Rate:480Mbit/s.
Typical usage : Document encrypting and storing (One Time Password generator included).
EUT single or system: Single
EUT dimensions : 7,4 x 2,6 x 1,4 cm

1.3 Modifications incorporated in E.U.T.

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

- None

1.4 Derived models

OTP Sign Combo Models

Models	Model FIPS, Model ITSEC-I and Model ITSEC-P
Schematics	1467-04-SCH-01R1.3 Schematic DP860_v02
Printed Circuit	1467-04-PCB-01R1.3 DP860_PCB_PDF_Rev12
Bill of Material	1467-04-BOM-01R1.3 BOM_DP_OTP_v12
Housing Box	Plastic

How declared by the client, OTP Sign Combo models differ each other only for crypto chip mounted. Different manufacturers realize this type of component: all the crypto chips used must be completely interchangeable to ensure the same product functionality.

1.5 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
4	Signals ports	USB Communication

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

1.6 Auxiliary equipment

- Personal Computer Compaq EVO 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)

<i>Operating condition</i>	<i>Description</i>
<i>#1</i>	<i>Electronic key is connected directly by USB port to PC. One test program is available, as stimulus, to verify the encrypting and data storing properties</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 document encrypting and data storing.

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

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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	12

**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 = $(k=2) \pm 3.5$ 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**

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SCAN TABLE : “Radiated Emission”Unit: dB μ V/m

Curve1: Detector : Mode:
MaxPeak ClearWrite
Curve2: -- ClearWrite

Subrange1:

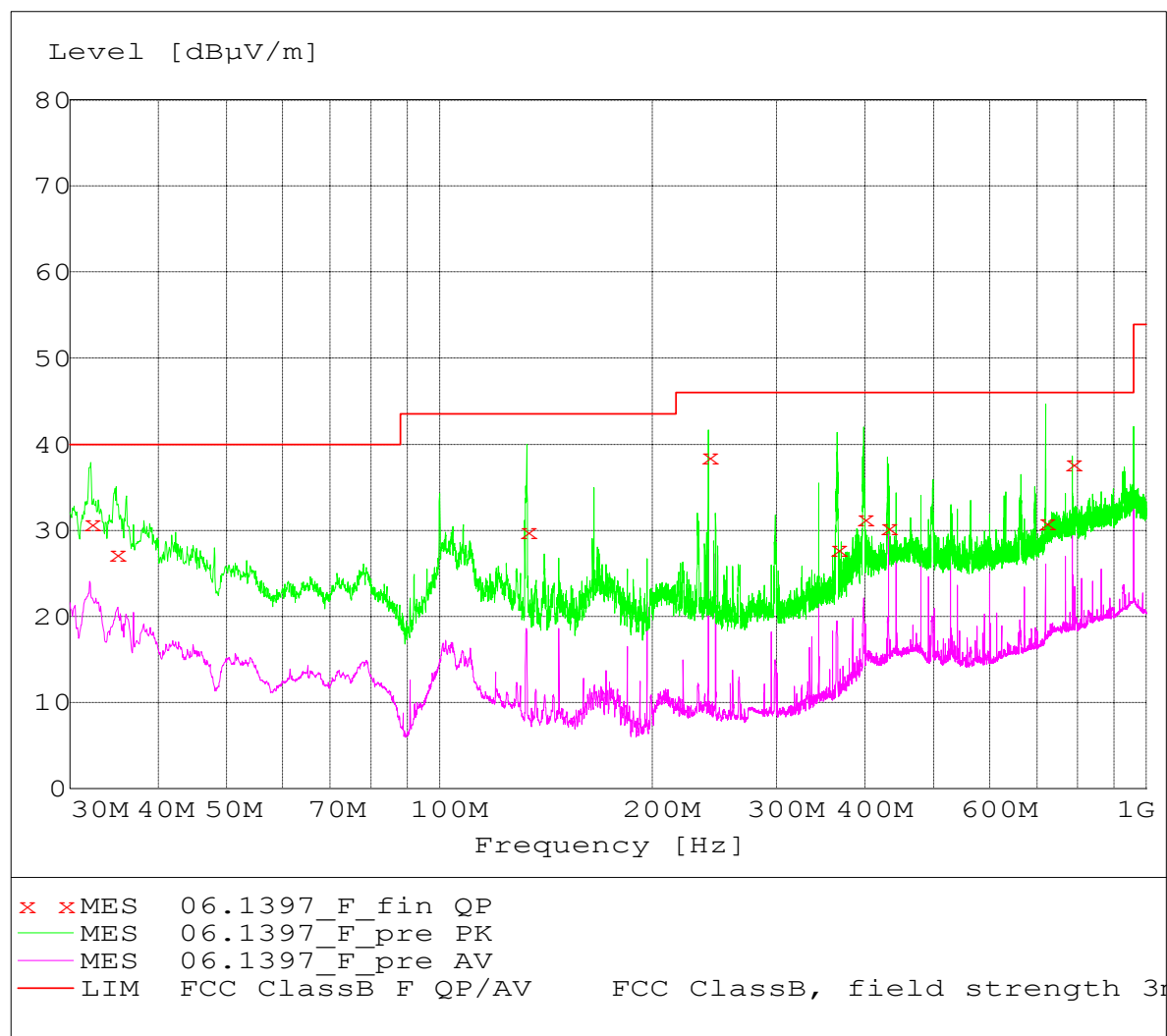
Start Frequency:	30.0 MHz	Step Size:	80 kHz
Stop Frequency:	1000.0 MHz	IF Bandwidth:	120 kHz
Measure Time:	0.01 sec.		

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

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Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
32.080000	30.80	19.70	40.00	9.20	100.0	0.00	VERTICAL
34.880000	27.30	18.20	40.00	12.70	185.0	0.00	VERTICAL
132.880000	29.90	14.30	43.50	13.60	109.0	0.00	VERTICAL
240.080000	38.60	14.50	46.00	7.40	136.0	0.00	VERTICAL
365.360000	27.80	18.60	46.00	18.20	129.0	0.00	HORIZONTAL
398.560000	31.40	19.70	46.00	14.60	171.0	0.00	VERTICAL
430.400000	30.40	20.40	46.00	15.60	136.0	0.00	VERTICAL
720.080000	30.90	25.60	46.00	15.10	100.0	0.00	HORIZONTAL
786.480000	37.80	26.90	46.00	8.20	113.0	0.00	HORIZONTAL

**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) $\pm$ 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**

SCAN TABLE : Voltage Mains

Unit : dB μ V

	<u>Detector :</u>	<u>Mode :</u>
Curve 1:	MaxPeak	ClearWrite
Curve 2:	Average	ClearWrite

Start Frequency :	150.0 kHz		
Stop Frequency :	30.0 MHz	IF Bandwidth :	9 kHz
Measure Time :	10.0 ms	Step size :	6 kHz

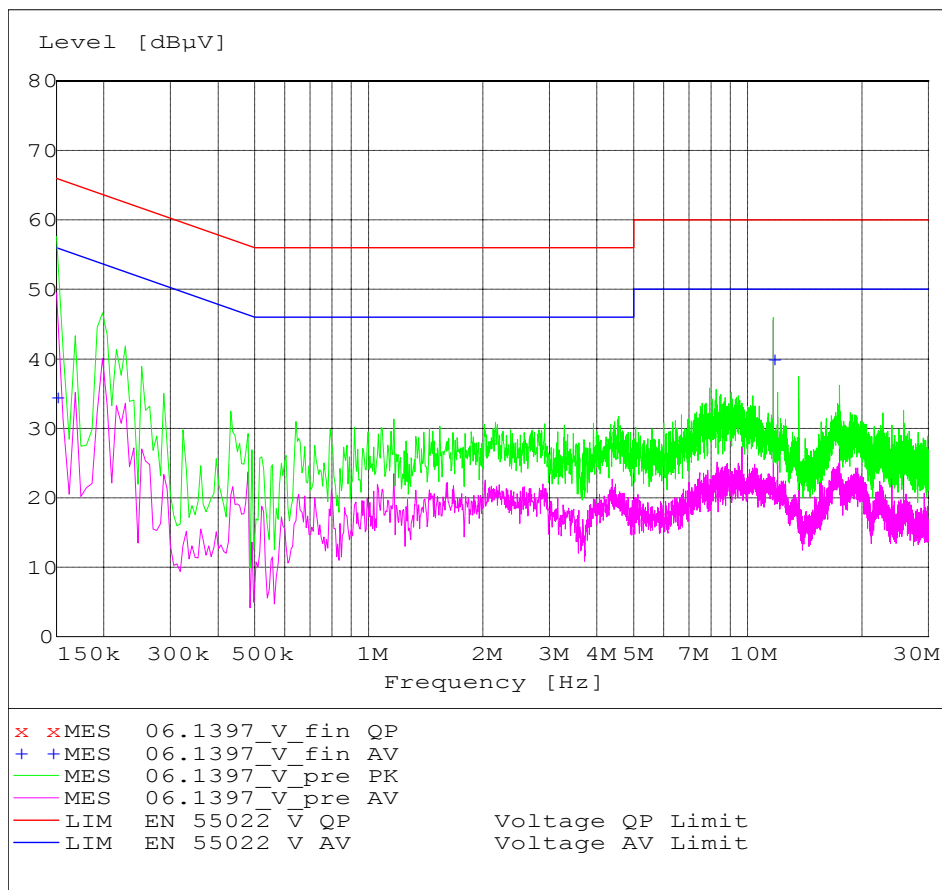
Receiver :	ESMI	Transducer :	ESH3-Z5_PRC
Signal Path :	Path 3	System Transducer :	Rfin1-CP2/X11
Meas. Mode :	Lin	Add. Transd. 1 :	W71.03
Tracking Generator :	Off	Add. Transd. 2 :	None
Input :	LAC	Add. Transd. 3 :	None

Preamplifier :	10 dB	Demodulation :	FM Broad
RF Att. :	Coupled	Volume :	0 %
Ref. Level :	-10 dBm	Squelch :	--
Min. RF Att. :	0 dB	Option :	None
IF Att. :	0 dB		
Autorange :	On		

Curve 1 :	On	Repetition :	Single
Curve 2 :	On	Stop Mark :	On
		Stop Message :	On
		Stop Message :	Connect EUT

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- With EUT powered by a Personal Computer Compaq EVO N1020v



Final measurement in AV detector

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.150000	34.50	10.10	56.00	21.50	L1	GND
11.700000	39.90	10.60	50.00	10.10	L1	GND

6. EUT TECHNICAL DOCUMENTATION

6.1 Wiring diagrams

	<i>Document reference (n., edition, date, ...)</i>
WIRING DIAGRAM	Not applicable
PART LIST	1467-04-BOM-01R1.3 BOM_DP_OTP_v12

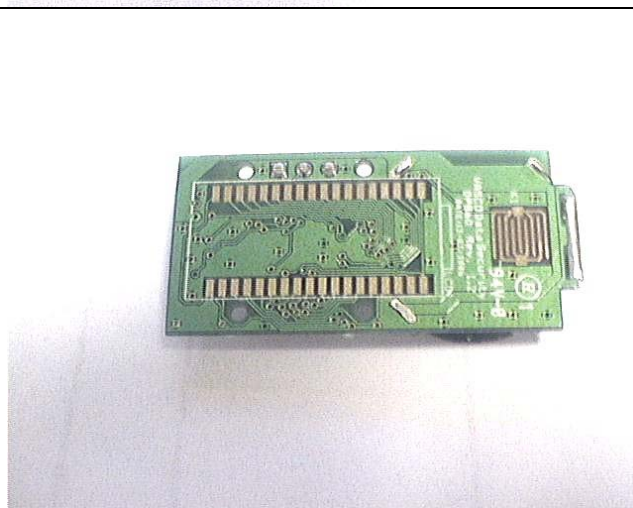
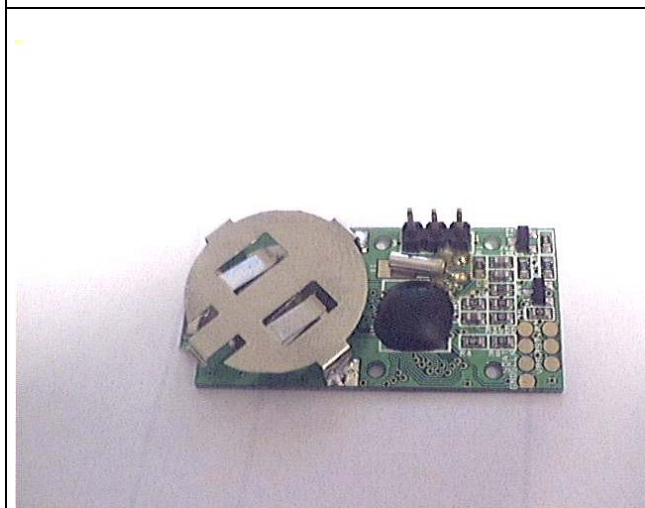
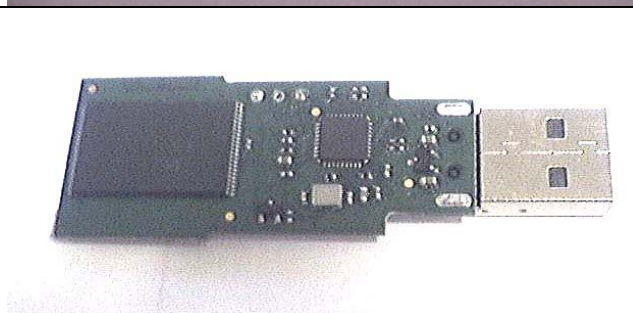
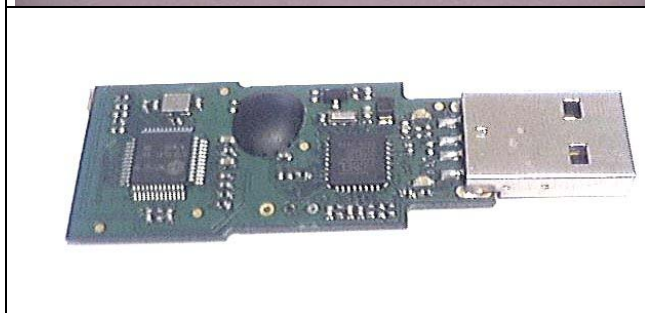
6.2 Technical manual

	<i>Document reference (n., edition, date, ...)</i>
USER MANUAL	OTP Sign Combo Overview v.1.0
TEST PLAN	
	1467-00-SDT-08R1.1

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6.3 Photographic documentation

PHOTO No. 1 – EQUIPMENT UNDER TEST



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

