

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

CRYPTO COMBO model 5

DERIVED MODELS :

APPARECCHI DERIVATI:

**Model ITSEC / Model FIPS
(Itsec-I, Itsec-P)**

REFERENCE STANDARDS :

NORME DI RIFERIMENTO :

FCC 47 CFR Part 15

CUSTOMER:

RICHIEDENTE:

- **Dept. / Firm :** EUTRON INFOSECURITY S.r.l.
Ente / Società:
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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:

23/05/05

Date of start test:

Data inizio prove:

23/05/05

Date of end test:

Data fine prove:

23/05/05

Witness to the test:

Presenti alle prove:

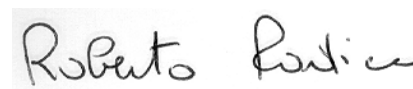
Signature of the engineers:

Firma esecutore prove:

Signature of the Laboratory Director:

Firma Direttore Laboratori:

Mr. Maffioli



R. Radice



R. 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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1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

1.1 Identification

Brand name: EUTRON INFOSECURITY
Manufacturer: EUTRON INFOSECURITY
Equipment : USB KEY
Model name or No. : CRYPTO COMBO Model 5
Serial number : Not present
FCC ID : TFC-AAB
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 : 100 mA max.
Flash Memory: 128MB
Maximum internal frequency generated by EUT 12 MHz
Typical usage : Mass storage and document crypting
EUT single or system: Single
EUT dimensions : 6,2 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

1.4 *Derived models*

Crypto Combo Models

<i>Models</i>	<i>Model 5</i>	<i>Model ITSEC / Model FIPS (Itsec-I, Itsec-P)</i>
<i>Schematics</i>	1461-11-SCH-01R1	1461-12-SCH-01R1
	1461-14-SCH-01R1	1461-14-SCH-01R1
<i>Printed Circuit</i>	1461-11-PCB-01R1	1461-12-PCB-01R1
	1461-14-SCH-01R1	1461-14-SCH-01R1
<i>Bill of Material</i>	1461-11-BOM-01R2	1461-11-BOM-01R2
	1461-12-SCH-01R1	1461-12-SCH-01R1
<i>Housing Box (TPE)</i>	6038-05-MEC-01R1	6038-05-MEC-01R1

How declared by the client, Crypto Combo models differ both as for the FLASH memory size (xxx MB) as for crypto chip mounted (yyyy type). In the table are depicted the three main families. Each crypto chip model grants the same electrical functionality and differ only for mounting typology.

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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	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.

1.6 Auxiliary equipment

Personal Computer

2. TEST CONDITIONS

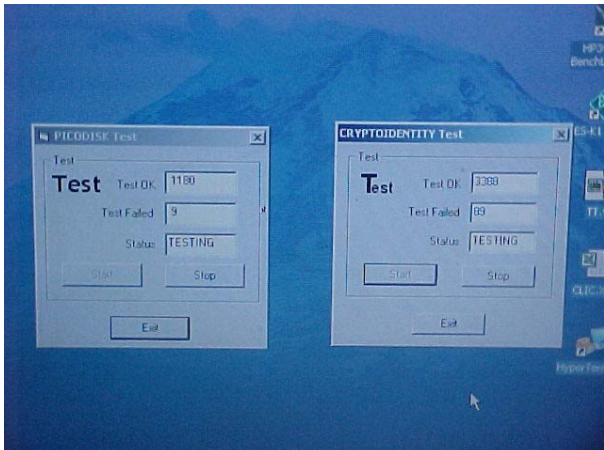
2.1 Operating test modes and test conditions

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.</i> <i>Two test program are available as stimulus: one for the mass storage verification, and the other to verify the crypto 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 mass storage and document crypting

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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

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5. TEST RESULTS

RADIATED EMISSION 30 - 1000 MHz.....	10
EMISSION OF Mains terminal disturbance voltage	14

**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

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

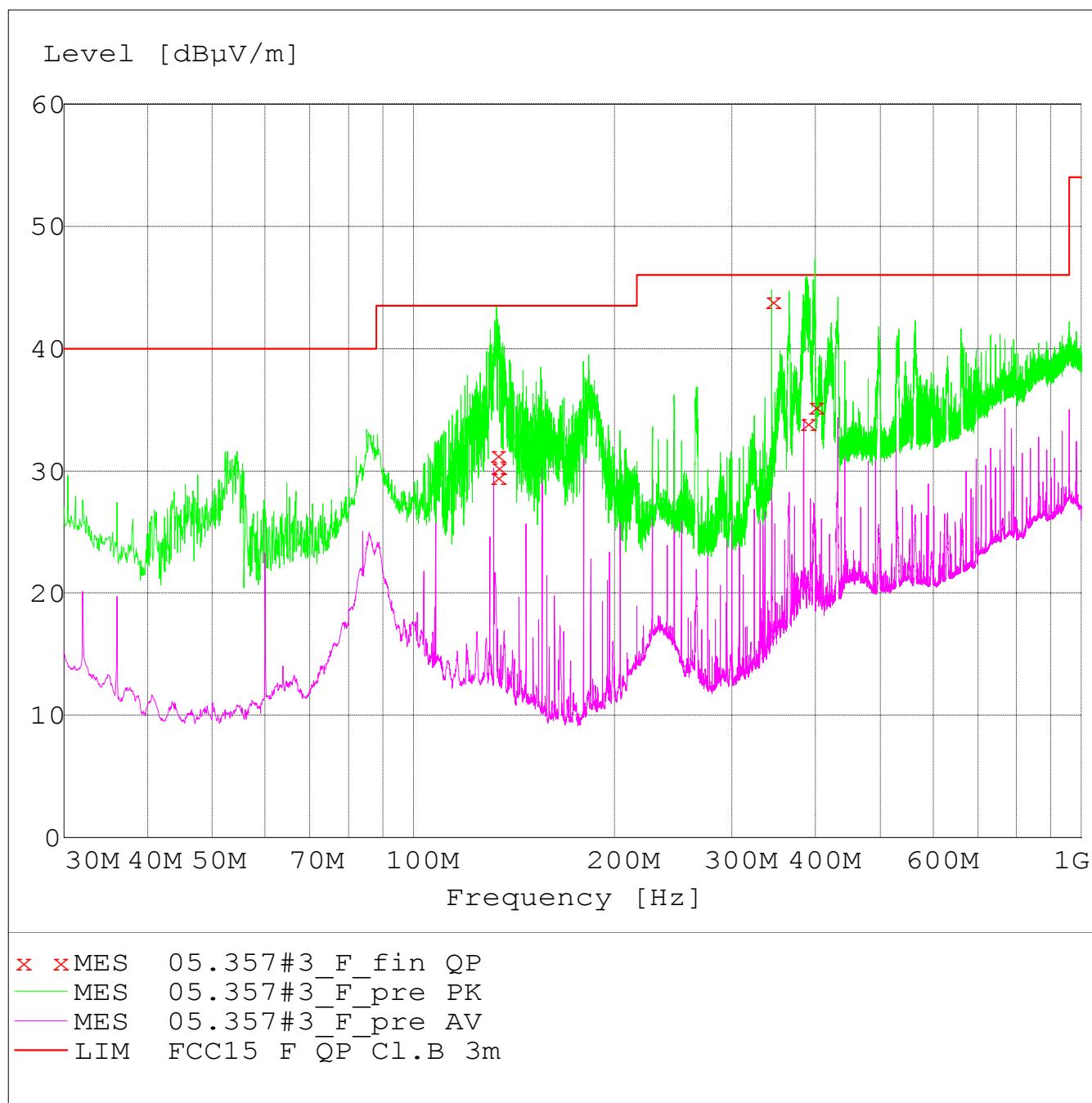
Curve 2: Off

Stop Mark: On

Stop Message: On

Text: Connect antenna

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FINAL TEST (QUASI-PEAK DETECTOR)

Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dB μ V/m	dB	dB μ V/m	dB	cm	deg	
133.280000	31.40	14.30	43.50	12.10	103.0	298.00	VERTICAL
133.440000	29.50	14.30	43.50	14.00	122.0	257.00	VERTICAL
133.760000	30.40	14.30	43.50	13.10	100.0	225.00	VERTICAL
344.080000	43.90	18.20	46.00	2.10	100.0	293.00	HORIZONTAL
388.000000	34.00	19.40	46.00	12.00	101.0	97.00	HORIZONTAL
399.200000	35.30	19.80	46.00	10.70	100.0	51.00	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) ± 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**

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SCAN TABLE : Voltage Mains

Unit : dBμV

	<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

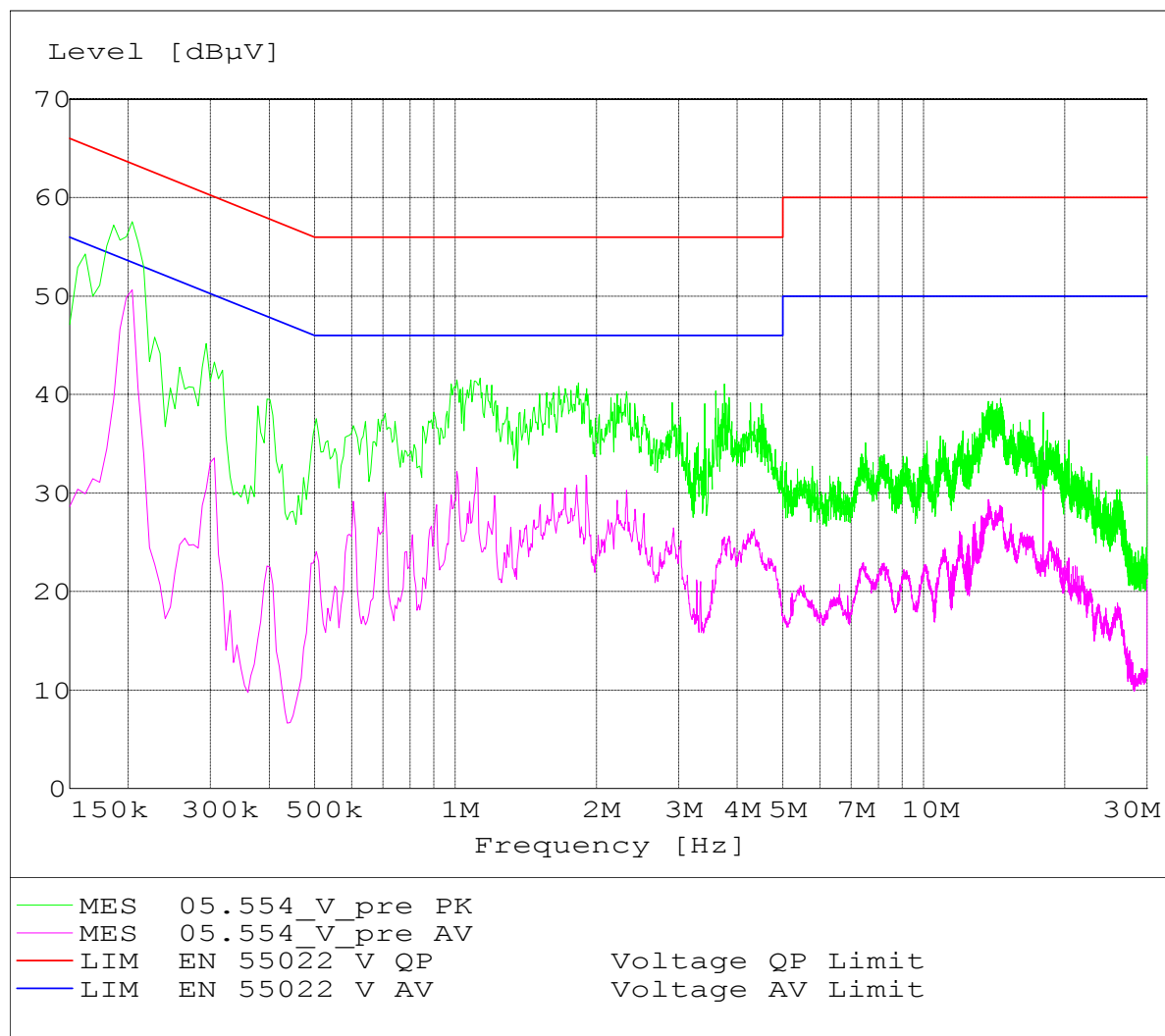
Receiver :	ESMI	Transducer :	ESH3-Z5_PRC
Signal Path :	Path 3	System Transducer :	Rfin1-CP2/X11
Meas. Mode :	Lin	Add. Transd. 1 :	W71.03
Tracking Generator :	Off	Add. Transd. 2 :	None
Input :	1AC	Add. Transd. 3 :	None

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 model EVO N1020v



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6. EUT TECHNICAL DOCUMENTATION

6.1 Wiring diagrams

	<i>Document reference (n., edition, date, ...)</i>
WIRING DIAGRAM	1461-11-SCH-01R1 1461-14-SCH-01R1
PART LIST	1461-11-BOM-01R2 1461-14-BOM-01R1

6.2 Technical manual

	<i>Document reference (n., edition, date, ...)</i>
Infosecurity key products: FCC Test Plan	1367-00-SDT-04 R2.0

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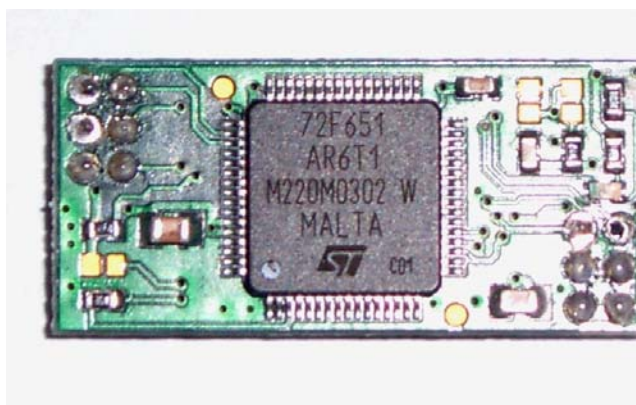
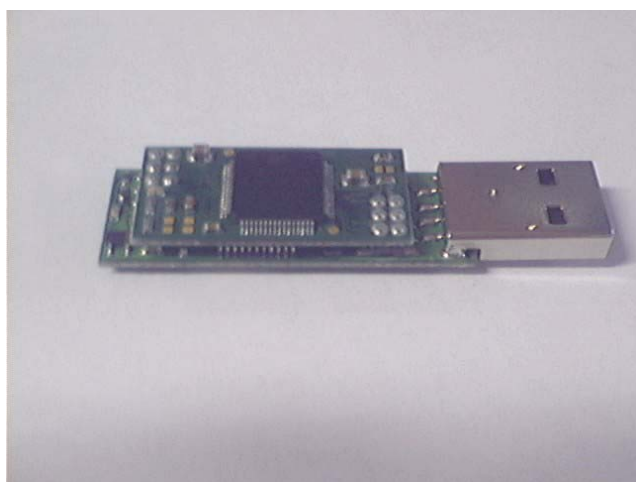
6.3 Photographic documentation

PHOTO No. 1 – EQUIPMENT UNDER TEST IDENTIFICATION AND LABEL



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PHOTO No. 1 – EQUIPMENT UNDER INTERNAL PHOTO



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

