

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**  
**STARSIGN BIO TOKEN M**

**REFERENCE STANDARDS :**  
**NORME DI RIFERIMENTO :**

**FCC 47 CFR Part 15**

**CUSTOMER:**

**RICHIEDENTE:**

- **Dept. / Firm :** **GIESECKE & DEVRIENT GMBH**  
*Ente / Società:*
- **Mr.:** *Dr. Robert Mueller*  
*Sig.:*
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*Telefono:* *Fax:* *e-mail*

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

|                                                        |                                              |
|--------------------------------------------------------|----------------------------------------------|
| <b>Date of test samples receipt:</b> <b>06/07/2005</b> | <b>Date of start test:</b> <b>06/07/2005</b> |
| <i>Data ricevimento campioni:</i>                      | <i>Data inizio prove:</i>                    |
|                                                        | <b>Date of end test:</b> <b>06/07/2005</b>   |
|                                                        | <i>Data fine prove:</i>                      |

**Witness to the test:**  
Presenti alle prove:

**Signature of the engineers:**  
Firma esecutore prove:

**Signature of the Laboratory Director:**  
Firma Direttore Laboratori:

Mr. Maffioli



Luca Casiraghi



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: GIESECKE & DEVRIENT GMBH,  
PRINZREGENTENSTRAßE 159,  
81677 MÜNCHEN  
GERMANY

Manufacturer: EUTRON INFOSECURITY

Equipment : USB ELECTRONIC KEY

Model name or No. : STARSIGN BIO TOKEN M

FCC ID : TIJ-BIOTOKEN-M

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.

Maximum internal frequency generated by EUT 48 MHz

Typical usage : Mass storage and document encrypting

EUT single or system: Single

EUT dimensions : 10,6 x 3,2 x 1,5 cm

### **1.3 Modifications incorporated in E.U.T.**

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

- None

## 1.4 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) |
| <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> |                             |                                      |                            |

## 1.5 Auxiliary equipment

Personal Computer COMPAQ model 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)

| <b>Operating condition</b> | <b>Description</b>                                                                                                                                                                                        |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>#1</b>                  | <i>Electronic key is connected directly by USB port to PC.<br/><br/>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 encrypting

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### 3. REFERENCE STANDARD FOR PERFORMED TESTS

| <i>Reference standard :</i> | <i>Title :</i>                                                                                                                                                   |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Part 15 part A</b>   | Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)                                         |
| <b>FCC Part 15 part B</b>   | Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)                         |
| <b>ANSI C63.4</b>           | 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 <sup>1</sup> | Result           |
|------|-------------------------|--------------------------------------------------|-------------------------|----------------------------------|------------------|
| 1    | Enclosure               | Radiated emission                                | FCC Part 15<br>§ 15 109 | #1                               | Within the limit |
| 2    | AC mains<br>Input ports | RF Disturbance voltage:<br>• continuous          | FCC Part 15<br>§ 15 107 | #1                               | Within the limit |
| 3    | Antenna<br>terminals    | Antenna power conduction<br>limits for receivers | FCC Part 15<br>§15 111  | Not applicable <sup>2</sup>      |                  |

<sup>1</sup> Ref. Tab. of Section 2

<sup>2</sup> Applicable only to equipments which have an external antenna connector

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## **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 =  $\pm 1.75$  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 $\mu$ 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

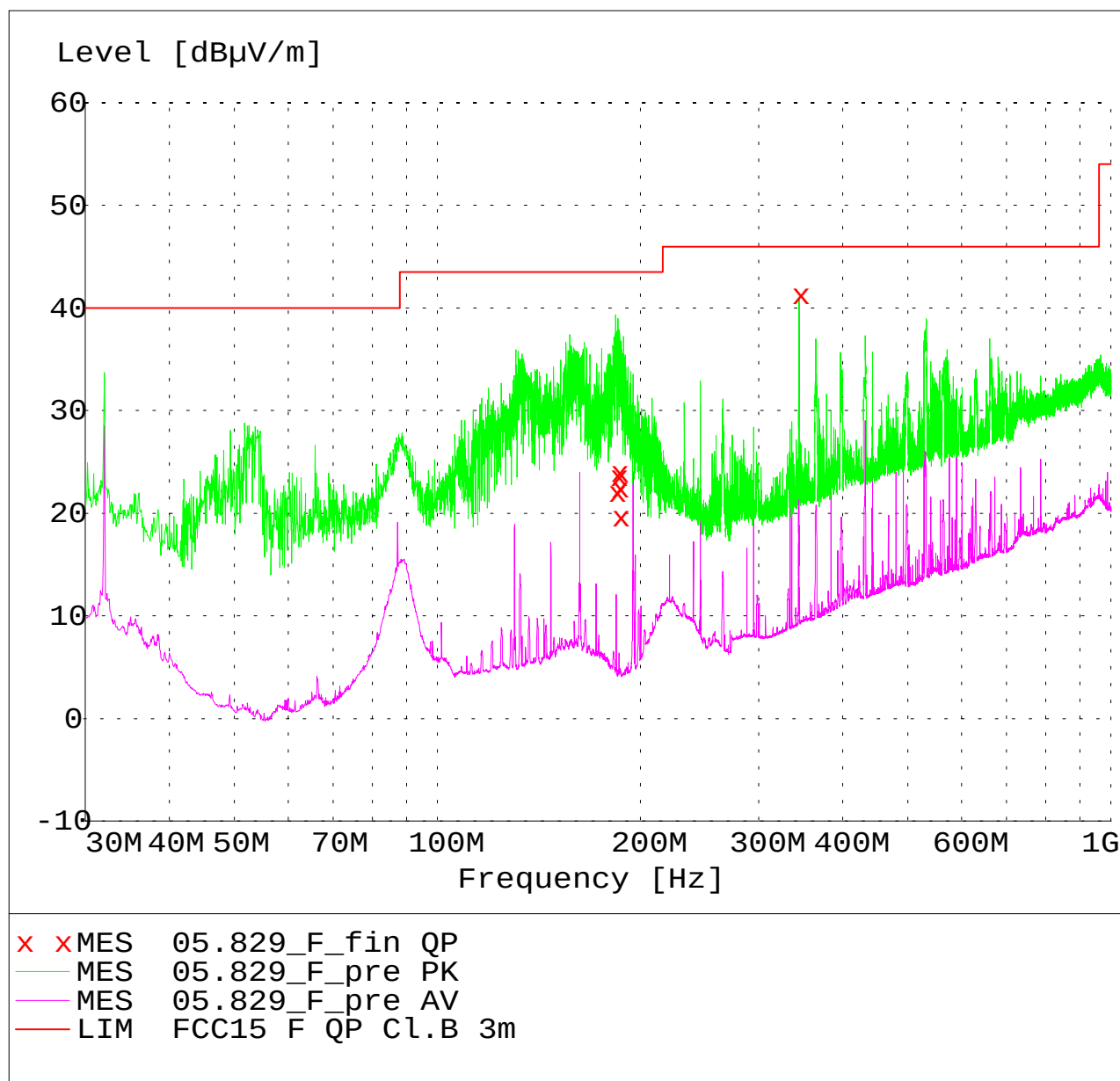
Curve 2: Off

Stop Mark: On

Stop Message: On

Text: Connect antenna

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| Frequency<br>MHz | Level<br>dBµV/m | Transd<br>dB | Limit<br>dBµV/m | Margin<br>dB | Height<br>cm | Azimuth<br>deg | Polarisation |
|------------------|-----------------|--------------|-----------------|--------------|--------------|----------------|--------------|
| 183.920000       | 22.00           | 11.50        | 43.50           | 21.50        | 100.0        | 254.00         | VERTICAL     |
| 185.040000       | 23.50           | 11.60        | 43.50           | 20.00        | 100.0        | 244.00         | VERTICAL     |
| 185.520000       | 23.90           | 11.60        | 43.50           | 19.60        | 100.0        | 246.00         | VERTICAL     |
| 185.840000       | 22.40           | 11.60        | 43.50           | 21.10        | 100.0        | 234.00         | VERTICAL     |
| 186.080000       | 19.60           | 11.60        | 43.50           | 23.90        | 105.0        | 54.00          | VERTICAL     |
| 344.160000       | 41.30           | 18.20        | 46.00           | 4.70         | 100.0        | 315.00         | HORIZONTAL   |

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**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**

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## 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

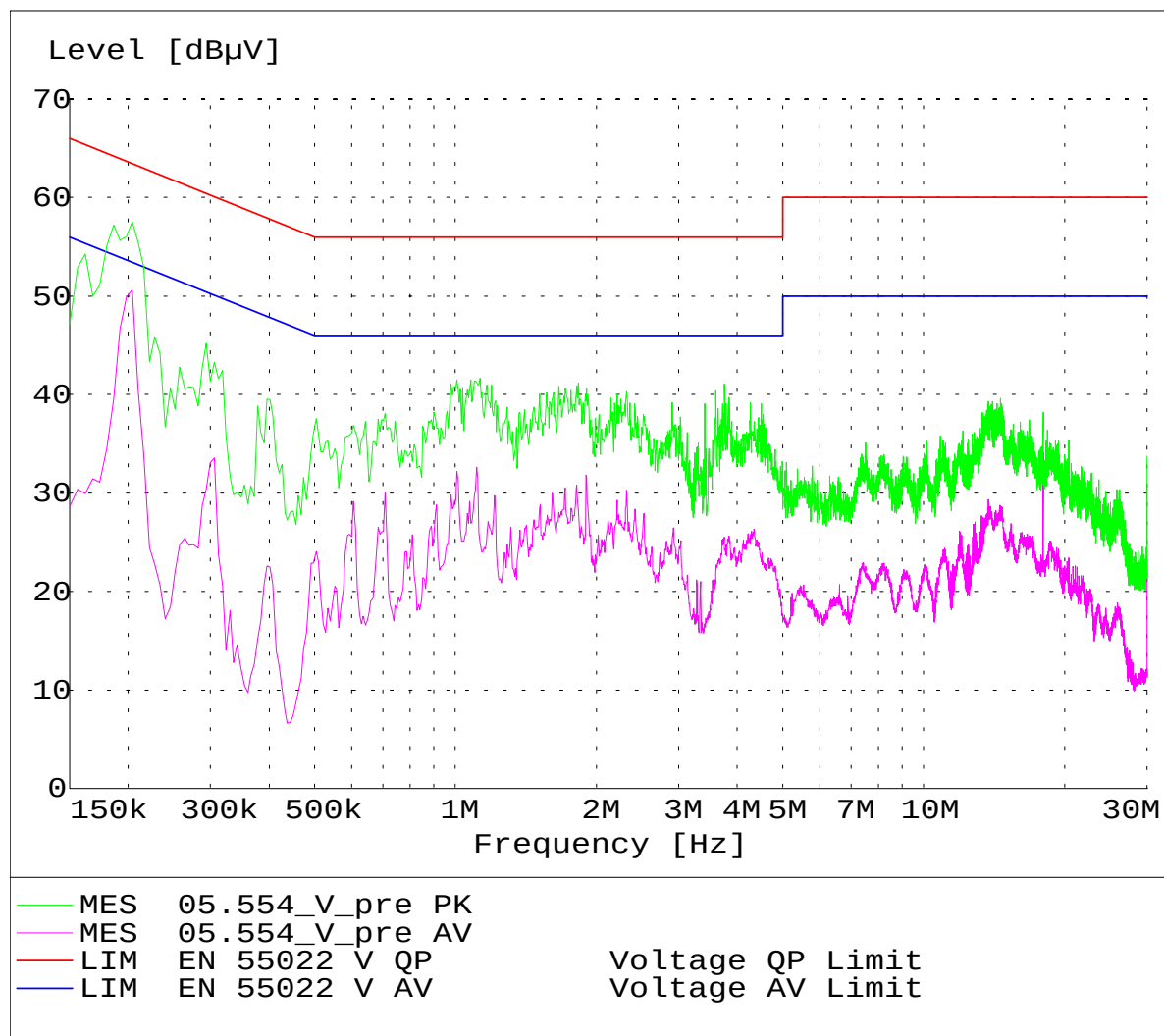
**Stop Mark :** On

**Stop Message :** On

**Stop Message :** Connect EUT

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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>           |
|----------------------------------------------------------|--------------------------------------------------------------|
| <b>WIRING DIAGRAM</b><br><i>Schematics</i><br><i>PCB</i> | 1461-15-SCH-01R1, 22/03/2005<br>1461-15-PCB-01R1, 09/05/2005 |
| <b>PART LIST</b>                                         | 1461-15-BOM-02R1, 08/07/2005                                 |

### 6.2 Technical manual

|                         | <i>Document reference (n., edition, date, ...)</i> |
|-------------------------|----------------------------------------------------|
| <b>TECHNICAL MANUAL</b> | Preliminary StarSign Bio Token 3.0                 |

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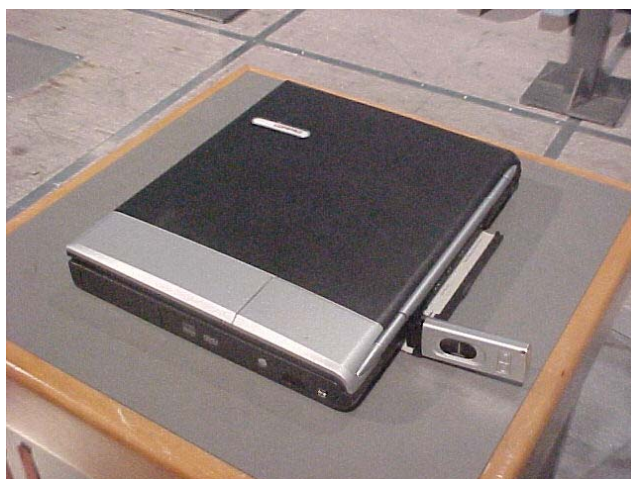
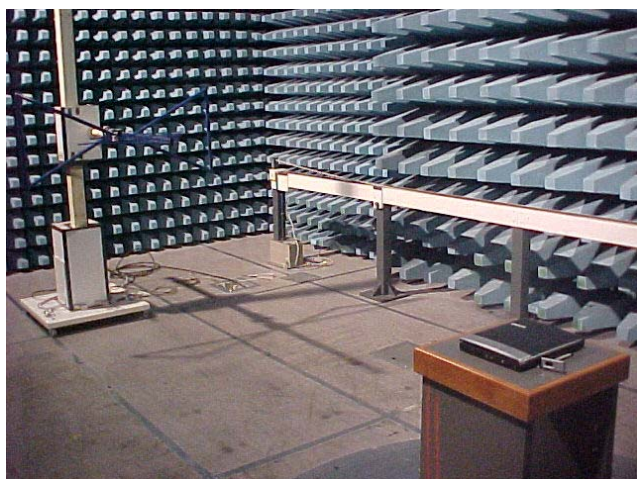
### 6.3 Photographic documentation

PHOTO No. 1 – EQUIPMENT UNDER TEST IDENTIFICATION



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



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**PHOTO N° 3 : INTERNAL VIEW**

