FCC CFR 47 PART 15 Subpart B

E.M.I. TEST REPORT

Test report No..... :	00ER001EM-R01	
Prepared by..... :	C. Carù	Signature .....
Approved by..... :	G. Baroni	Signature .....
Date of issue..... :	June 30, 2000	
Number of pages..... :	13	

Test Laboratory

Name..... :	CiaoLAB S.p.A. - Standard Compliance Services
Address..... :	Via ai Laboratori Olivetti, 79 - 20010 Pregnana Milanese (MI) - I

Equipment under test

Model..... :	INTERNET ON/OFF
Serial Number..... :	Not provided on the keys
Trade Mark..... :	EUTRON S.p.A.
Manufacturer..... :	EUTRON S.p.A.
Rating's..... :	5Vdc / 20mA
Operating temperature range..... :	From 0°C to +50°C

Applicant for the test

Name..... :	EUTRON S.p.A.

Equipment information

Equipment category..... :	Class B Personal Computers and Peripherals
Classification of the equipment..... :	Unintentional Radiator
Weight..... :	Less than 500g
Tested for IT power system..... :	No

Test specification

Applicable standard..... :	FCC CFR 47 - Part 15 - Subpart B
Additional installation requirements :	No

Test results

Summary of test results..... :	**COMPLIANT**

Legend: NA: Not Applicable - P: Pass - F: Fail

General Remarks

The test results presented in this report related only to the item tested.

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

As stated in FCC §2.902:
Verification attaches to all items subsequently marketed by the manufacturer or importer which are identical as defined in §2.908 to the sample tested and found acceptable by the manufacturer.

In order to clarify the identical concept the §2.908 states:
As used in this subpart the term *identical* means identical within the variation that can be expected to arise as a result of quantity production techniques.

General Information of the Appliance

Manufacturer

Eutron S.p.A. - Via Gandhi, 12
24048 Treviolo - Bergamo - Italy -

Applicant for Certification

The manufacturer is the applicant for certification.

ID Number

O4HEUTI201 The FCC ID Number is molded on the plastic cover of the appliance.

Description of the Appliance

The smart key is an intelligent system for software protection from piracy and virus attacks.

The “INTERNET ON/OFF” Smart Key is an electronic key that connected to USB port controls the time of the internet connections.

The appliance is about 67mm long, 8mm high and 16mm depth.

The picture below shows the appliance under test.

General Consideration of the Test

The appliance is classified under the *Unintentional Radiator Category* as a "Class B personal Computers and Peripherals" so in conformity to the requirements of the table reported in FCC Part 15 Subpart B §15.101, it is subject to "CERTIFICATION" procedure.

As defined in FCC Part 15 Subpart B §15.207 (d) measurements to demonstrate compliance to the conducted limits are not required because the device cannot operate and do not contains provision for operation while directly connected to the AC power lines.

The appliance generates frequencies of 6MHz, as described in the FCC Part 15 Subpart A §15.33 the frequency range for the radiated noise emission measurement is 30MHz ÷ 1GHz and the limits defined in §15.109 at a distance of 3mt are reported in the following table:

30MHz ÷ 88MHz	100µV/m	40dbµV/m
88MHz ÷ 216MHz	150µV/m	43.5dbµV/m
216 MHz ÷ 960 MHz	200µV/m	46dbµV/m
Above 960 MHz	500µV/m	54dbµV/m

A unit of product "INTERNET ON/OFF" smart key representative of the production was subjected to the test program.

Date of Test

The test started on June 21, 2000 and concluded on June 23, 2000.

Reference Documents

FCC CFR 47 Code of Federal Regulations, Title 47 Part 15

CISPR 16-1 (1993) Specification for radio disturbance and immunity measuring apparatus and methods. Part 1: Radio disturbance and immunity measuring apparatus.

CISPR 16-2 (1996) Specification for radio disturbance and immunity measuring apparatus and methods. Part 2: Methods of measurement of disturbance and immunity.

ANSI C63.4 (1992) Methods of measurement of radio noise emission from low voltage electrical and electronic equipment in the range of 9KHz to 40GHz.

EMC Test Site N.2 description report Code QRD-RQ-0660.

Test Laboratory Information

Radiated and conducted measurements was performed at the Ciao LAB Technologies EMI Measurement Test Site (Open Area Test Site and Shielded Room) denominated "EMC Test Site N. 2" and located at the following address:

CiaoLAB Technologies
Via ai Laboratori Olivetti, 79
20010 Pregnana Milanese
Milano - ITALY

The "EMC Test Site N. 2" is in compliance with the requirements of section 9.248 of the FCC rules.
The CiaoLAB Technologies test facility is in the Commission's list whose measurement data will be accepted in conjunction with application for certification or notification under part 15 and 18 of the FCC Rules.
The "EMC Test Site N. 2" complies also with the radiated and AC line conducted test site criteria described in ANSI C63.4-1992 and it is recognized by FCC with the filing number 31040/SIT.

CiaoLAB Technologies is also member of VCCI (Voluntary Control Council for Interference of ITE) in Japan.
The "EMC Test Site N. 2" (Shielded Room) has obtained the approval from VCCI Conference with the registration number C-813.
The "EMC Test Site N. 2" (Free Field) has obtained the approval from VCCI Conference with the registration number R-777.

Test Equipment List

	Instrument Type	Manufacturer	Model number	Serial Number	Cal./ Ver. Date
N.1	Artificial Main Network	Rohde & Schwarz	ESH 2-Z5	830364/007	Nov. 06, 1999
N.1	Biconical Antenna	EMCO	3109	3105	Mar. 14, 2000
N.1	Log Periodic 200-1GHz	EMCO	3146	4922	Mar. 16, 2000
N. 1	EMI RECEIVER	Hewlett Packard	HP 8574B		
The system is composed by four parts and it is yearly calibrated from Agilent Technologies, the date of the last calibration is **Feb 17, 2000**.					
	RF Preselector	Hewlett Packard	HP 85685A	2602A00237	
	Spectrum Analyzer RF	Hewlett Packard	HP 85680A	2634A02785	
	Spectrum Analyzer IF	Hewlett Packard	HP 85662A	2542A12241	
	Quasi peak Adapter	Hewlett Packard	HP 85650A	2521A00799	
N.1	EMI TEST RECEIVER	Rohde & Schwarz	ESBI		
The system is composed by two parts and it is yearly calibrated from Agilent Technologies, the date of the last calibration is **Feb. 21, 2000**.					
	Display Section	Rohde & Schwarz		844348/017	
	RF Section	Rohde & Schwarz		845658/002	

Devices

Antenna support
Control panel
Antenna tower
Turntable

Environmental Conditions

AC Main:	Voltage:	N/A
	Frequency:	N/A

	Conducted noise emission test	Radiated noise emission test
Temperature:	N/A	23ºC
Relative Humidity:	N/A	38%
Atmospheric Pressure	N/A	1016mbar

Operating Conditions

During the test the appliance was exercised by a specific test in order to simulate the typical use.

EUT Test Setup

During the radiated emission test, the appliance was installed in the Open Area test site on a wooden table 80cm high over the ground plane.
The smart key was connected directly to the USB port of a portable PC manufactured by Hewlett Packard, considered as a exerciser.

The test setup was in accordance of standard ANSI C63.4, paragraph 6.

It is possible to see the pictures of the test setup in the picture paragraph

E.M.I. Measurement Procedures

The EUT was installed in the Open Area Test Site and inside the shielded room in accordance to requirements of ANSI C63.4, the system setup was prepared in order to maximize the emissions.

The radiated noise emission measurements were performed in the Open Area Test Site and the EUT to antenna distance was 3m as specified in the FCC part 15 Subpart B §15.109.
The maximum radiated emissions are found by using the following step-by-step procedure:

- The EUT is installed and configured as specified in the standards ANSI C63.4 in the paragraph 8, dedicated to Radiated Emissions Testing.
- The whole frequency range (30MHz ÷ 5GHz) is divided in sub-ranges of about 7 - 8MHz up to 1GHz and about 20MHz over 1GHz.
- For all the sub ranges a peak measurement is performed at fixed antenna high (1m for the Vertical polarization and 3.5m for the Horizontal Polarization), and rotating of 360° the turntable, holding the Spectrum Analyzer in max. hold conditions.
- The highest peaks are corrected with the antenna factors and cable losses from the software, and they are added to a list called "Suspect List".
- Now I have the availability of two different lists, the first one for the vertical polarization and the second one for the horizontal polarization.
- For each one of the Suspect list all the signals with less then 10db of margins from the specific limit are remeasured in Quasi Peak Mode as follows:
  - The test receiver is tuned on the highest point of the signal.
  - The Quasi Peak Detector is activated to store the maximum value.
  - The turntable is rotated of 360°, and the azimuth of maximum emission is found.
  - The turntable is stopped on the angle of maximum emission.
  - The antenna high is varied from 1m to 4m, and the antenna is stopped on the high of maximum emission.
  - The turntable is rotated of 360°, and the new maximum emission is found.
  - The system cables are manipulated to produce the highest amplitude signal.
  - A new scan changing the antenna height and rotating the turntable as described before is performed.
  - The Quasi Peak maximum value is corrected with cable's losses and antenna factors, and it is added to a list called "Final List".

Measurement Results

Radiated Emission Summary

EQUIPMENT UNDER TEST	**FCC Part 15 Subpart B Class B**
Personal Computer (Exerciser) + Smart key “INTERNET ON/OFF”	PASS

Radiated Emission Graphics and Tables

Measurement distance: 3m
Polarization: VERTICAL

Quasi Peak measurement results

Blue limit line: FCC CFR 47 Part 15 Subpart B - Class B
Red bar graph: Quasi Peak measured signals.

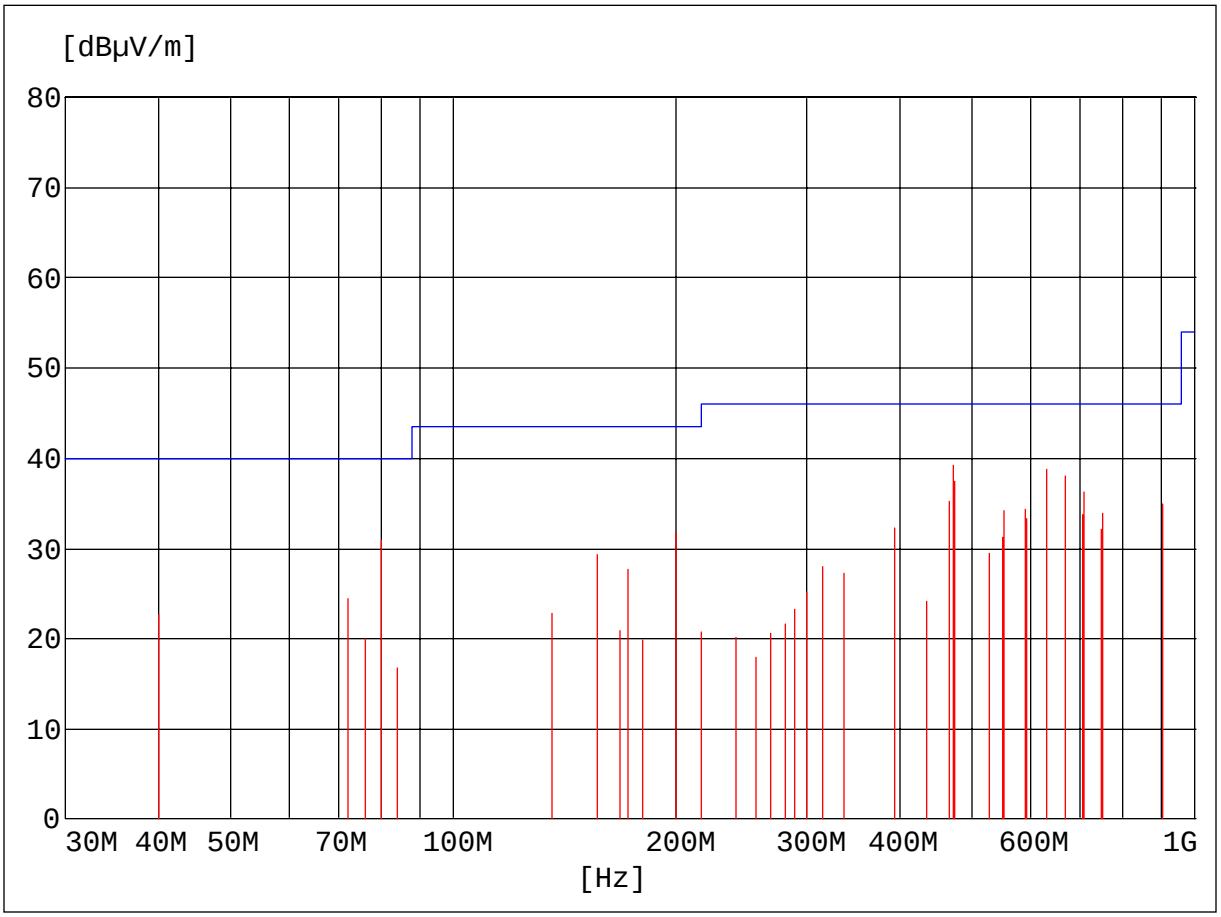

Table with Quasi Peak measurements results **Vertical Polarization**

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	IFBW kHz	Height cm	Azi deg	Pol	Comment
40.000000	22.70	13.20	40.00	17.20	120	100.0	0.00	VER	
72.020000	24.50	9.60	40.00	15.40	120	100.0	0.00	VER	
76.000000	20.00	9.00	40.00	19.90	120	100.0	0.00	VER	
79.966000	30.90	8.40	40.00	9.00	120	100.0	0.00	VER	
84.000000	16.70	8.80	40.00	23.20	120	100.0	0.00	VER	
136.000000	22.80	14.70	43.50	20.60	120	100.0	0.00	VER	
156.020000	29.30	14.30	43.50	14.10	120	100.0	0.00	VER	
168.010000	20.90	14.20	43.50	22.50	120	100.0	0.00	VER	
172.020000	27.70	14.30	43.50	15.70	120	100.0	0.00	VER	
180.020000	19.80	14.90	43.50	23.60	120	100.0	0.00	VER	
199.999000	31.80	16.80	43.50	11.60	120	100.0	0.00	VER	
216.021000	20.80	13.00	46.00	25.10	120	100.0	0.00	VER	
240.062000	20.20	13.90	46.00	25.70	120	100.0	0.00	VER	
255.930000	18.00	14.90	46.00	27.90	120	100.0	0.00	VER	
268.000000	20.60	15.40	46.00	25.30	120	100.0	0.00	VER	
280.000000	21.60	16.00	46.00	24.30	120	100.0	0.00	VER	
288.037000	23.20	16.50	46.00	22.70	120	100.0	0.00	VER	
300.080000	25.20	17.30	46.00	20.70	120	100.0	0.00	VER	
315.048000	28.00	17.40	46.00	17.90	120	100.0	0.00	VER	
336.055000	27.20	17.50	46.00	18.70	120	100.0	0.00	VER	
393.750000	32.30	18.60	46.00	13.60	120	100.0	0.00	VER	
434.015000	24.10	19.60	46.00	21.80	120	100.0	0.00	VER	
466.938000	35.20	20.80	46.00	10.70	120	100.0	0.00	VER	
472.506000	39.20	21.00	46.00	6.70	120	100.0	0.00	VER	
474.339000	37.50	21.00	46.00	8.40	120	100.0	0.00	VER	
528.075000	29.50	22.10	46.00	16.40	120	100.0	0.00	VER	
549.476000	31.20	22.40	46.00	14.70	120	100.0	0.00	VER	
553.076000	34.30	22.40	46.00	11.60	120	100.0	0.00	VER	
590.629000	34.40	23.10	46.00	11.50	120	100.0	0.00	VER	
592.453000	33.30	23.10	46.00	12.60	120	100.0	0.00	VER	
630.000000	38.80	24.10	46.00	7.10	120	100.0	0.00	VER	
669.375000	38.10	25.10	46.00	7.80	120	100.0	0.00	VER	
706.924000	33.80	25.80	46.00	12.10	120	100.0	0.00	VER	
710.601000	36.20	25.80	46.00	9.70	120	100.0	0.00	VER	
746.311000	32.10	25.90	46.00	13.80	120	100.0	0.00	VER	
750.000000	33.90	26.10	46.00	12.00	120	100.0	0.00	VER	
905.645000	34.90	28.70	46.00	11.00	120	100.0	0.00	VER	

Measurement distance: **3m**
Polarization: **HORIZONTAL**

Quasi Peak measurement results

Blue limit line: FCC CFR 47 Part 15 Subpart B - Class B
Red bar graph: Quasi Peak measured signals.

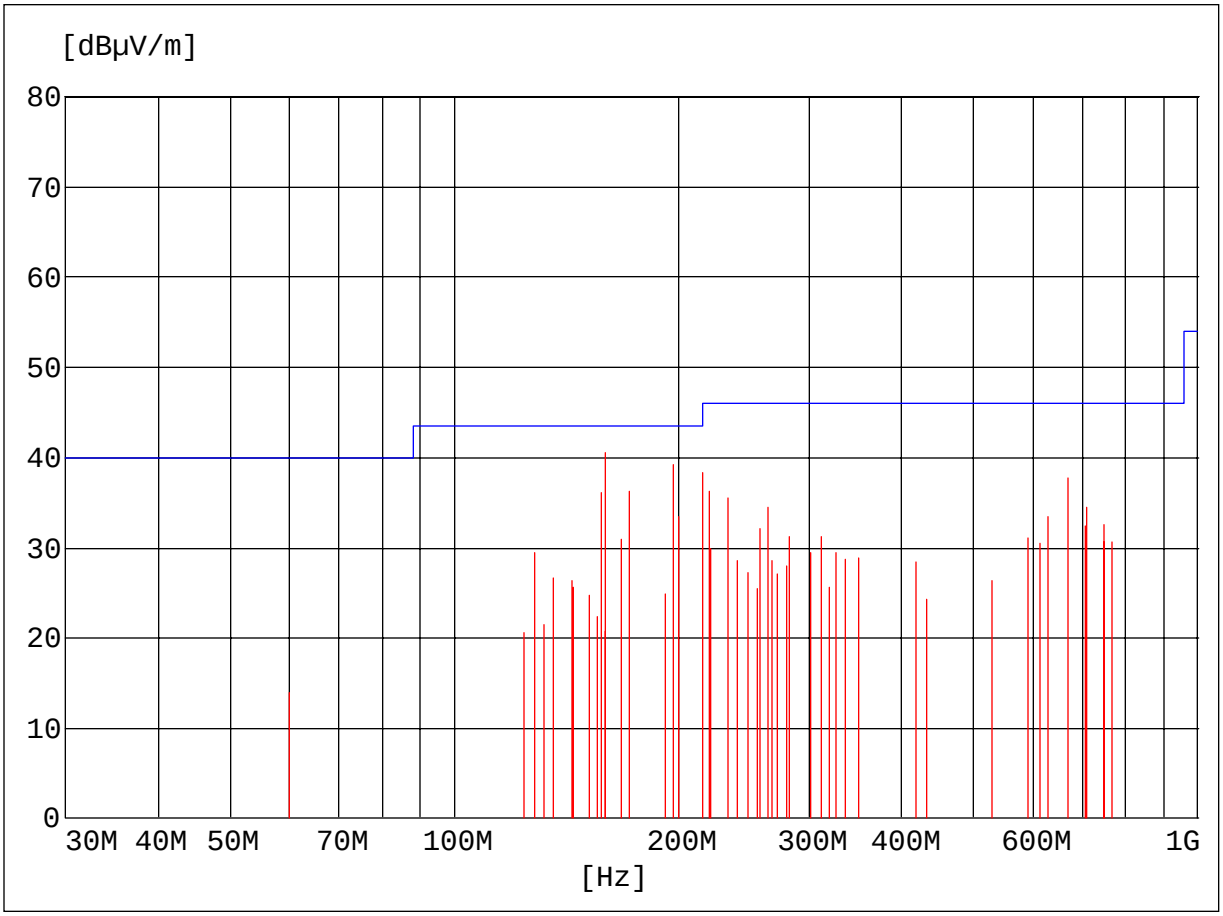

Table with Quasi Peak measurements results **Horizontal Polarization**

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	IFBW kHz	Height cm	Azi deg	Pol	Comment
60.000000	13.90	9.60	40.00	26.00	120	120.0	0.00	HOR	
124.000000	20.50	13.70	43.50	22.90	120	120.0	0.00	HOR	
128.011000	29.50	14.10	43.50	13.90	120	120.0	0.00	HOR	
132.000000	21.50	14.50	43.50	21.90	120	120.0	0.00	HOR	
136.000000	26.60	14.70	43.50	16.80	120	120.0	0.00	HOR	
144.000000	26.40	14.80	43.50	17.00	120	120.0	0.00	HOR	
144.428000	25.60	14.80	43.50	17.80	120	120.0	0.00	HOR	
152.000000	24.70	14.60	43.50	18.70	120	120.0	0.00	HOR	
156.010000	22.40	14.30	43.50	21.00	120	120.0	0.00	HOR	
157.488000	36.10	14.30	43.50	7.30	120	120.0	0.00	HOR	
159.730000	40.50	14.20	43.50	2.90	120	120.0	0.00	HOR	P.C.
160.000000	20.80	14.20	43.50	22.60	120	120.0	0.00	HOR	P.C.
168.012000	31.00	14.20	43.50	12.50	120	120.0	0.00	HOR	
172.011000	36.20	14.30	43.50	7.20	120	120.0	0.00	HOR	
192.010000	24.90	16.10	43.50	18.50	120	120.0	0.00	HOR	
196.891000	39.30	16.50	43.50	4.10	120	120.0	0.00	HOR	P.C.
200.008000	33.50	13.50	43.50	9.90	120	120.0	0.00	HOR	
216.028000	38.30	13.00	46.00	7.60	120	120.0	0.00	HOR	
220.000000	36.30	13.00	46.00	9.60	120	120.0	0.00	HOR	
221.169000	30.00	13.00	46.00	15.90	120	120.0	0.00	HOR	
233.460000	35.50	13.60	46.00	10.40	120	120.0	0.00	HOR	
240.027000	28.60	13.90	46.00	17.30	120	120.0	0.00	HOR	
248.000000	27.30	14.40	46.00	18.60	120	120.0	0.00	HOR	
256.028000	25.40	14.90	46.00	20.50	120	120.0	0.00	HOR	
258.020000	32.20	15.00	46.00	13.70	120	120.0	0.00	HOR	
264.032000	34.50	15.30	46.00	11.40	120	120.0	0.00	HOR	
268.015000	28.60	15.40	46.00	17.30	120	120.0	0.00	HOR	
272.020000	27.10	15.60	46.00	18.80	120	120.0	0.00	HOR	
280.000000	28.80	16.00	46.00	17.10	120	120.0	0.00	HOR	
280.000000	28.00	16.00	46.00	17.90	120	120.0	0.00	HOR	
282.620000	31.20	16.10	46.00	14.70	120	120.0	0.00	HOR	
301.303000	29.50	17.30	46.00	16.40	120	120.0	0.00	HOR	
301.572000	30.30	17.30	46.00	15.60	120	120.0	0.00	HOR	
312.055000	31.20	17.40	46.00	14.70	120	120.0	0.00	HOR	
320.053000	25.60	17.50	46.00	20.30	120	120.0	0.00	HOR	
325.632000	29.50	17.50	46.00	16.40	120	120.0	0.00	HOR	
336.049000	28.70	17.50	46.00	17.20	120	120.0	0.00	HOR	
350.719000	28.90	17.50	46.00	17.00	120	120.0	0.00	HOR	
417.777000	28.40	19.30	46.00	17.50	120	120.0	0.00	HOR	
432.035000	24.30	19.60	46.00	21.60	120	120.0	0.00	HOR	
528.020000	26.30	22.10	46.00	19.60	120	120.0	0.00	HOR	
592.476000	31.10	23.10	46.00	14.80	120	120.0	0.00	HOR	
614.356000	30.50	23.50	46.00	15.40	120	120.0	0.00	HOR	
630.022000	33.40	24.10	46.00	12.50	120	120.0	0.00	HOR	
669.379000	37.70	25.10	46.00	8.20	120	120.0	0.00	HOR	
706.937000	32.40	25.80	46.00	13.50	120	120.0	0.00	HOR	
710.609000	34.50	25.80	46.00	11.40	120	120.0	0.00	HOR	
748.119000	32.50	26.00	46.00	13.40	120	120.0	0.00	HOR	
750.012000	30.60	26.10	46.00	15.30	120	120.0	0.00	HOR	
768.059000	30.60	26.30	46.00	15.30	120	120.0	0.00	HOR	

Equipment Under Test Details

Manufacturer: EUTRON S.p.A.
Mark: EUTRON S.p.A.
Model: INTERNET ON/OFF
Serial number: N./A.

INTERNET ON/OFF Smart key

The electronic circuit is inserted into a plastic enclosure without any shielding provision.

Generated Frequencies: 6MHz

Noise Suppression Components: No noise suppression components are used.

Personal Computer

A Hewlett Packard Personal Computer was used to exercise the Equipment Under Test.
the information regarding the exerciser are the followings:

Manufacturer: Hewlett Packard
Model: Omnibook XE
HP Serial Number: TW90600753
MFG Serial Number: TW90600753

On the computer there is the following FCC label:
Tested to comply with FCC Standard.
FOR HOME OR OFFICE USE.

Pictures

Test setup

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