



**CONFORMANCE TEST REPORT
FOR
ECE R10**




Report No.: 06-04-MAS-045-01

Client: Systems & Technology Corp.
Product: GPS Vehicle Tracking Device
Model: X1
Manufacturer/supplier: Shuttle Inc.

Date test item received: 2006/04/06
Date test campaign completed: 2006/05/19
Date of issue: 2006/06/10

The test result only corresponds to the tested sample. It is not permitted to copy this report, in part or in full, without the permission of the test laboratory.

Total number of pages of this test report: 19 pages

Test Engineer  Jerry Huang	Checked By  Jerry Huang	Approved By  Jack Lin
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1. TEST REPORT CERTIFICATION

Applicant : Systems & Technology Corp.
3F-7, No.79, Hsin Tai Wu Road, Sec.1, Hsichih, Taipei County, Taiwan, R.O.C.

Manufacturer : Shuttle Inc.
No.30, Lane 76, Rei Kuang Rd., Nei-Hu Dist., Taipei, Taiwan, R.O.C.

Description of EUT : a) Type of EUT : GPS Vehicle Tracking Device
b) Trade Name : IntelliTrac
c) Model No. : X1
d) Power Supply : DC 12.0Vdc

MEASUREMENT PROCEDURE USED : ECE R10

We hereby certify that :

The measurements contained in this report were made in accordance with the procedures indicated, and the energy emitted by the equipment was found to be within the limits applicable.

Laboratory Introduction: Electronics Testing Center, Taiwan is recognized, filed and mutual recognition arrangement as following:

- ① ISO9001: TÜV Product Service
- ② ISO/IEC 17025: BSMI, CNLA, DGT, NVLAP, CCIBLAC, UL, Compliance
- ③ Filing: FCC, Industry Canada, VCCI
- ④ MRA: Australia, Hong Kong, New Zealand, Singapore, USA, Japan, Korea, China, APLAC through CNLA

2. RADIATED EMISSION TEST**2.1 TEST EQUIPMENT**

The following test equipments were used during the radiated emission test:

EQUIPMENT / FACILITIES	SPECIFICATIONS	MANUFACTURER	MODEL # / SERIAL #	DATE OF CAL. & CAL. CENTER	DUE DATE	FINAL TEST
TEST RECEIVER	9 kHz TO 6.5 GHz	HP	8546A	SEP. 2006 ETC	1Y	√
BI-LOG ANTENNA	30 MHz TO 1 GHz	Schwarzbeck	VULB9160	NOV. 2006 ETC	1Y	√
Artificial mains Network	0.01MHz TO 108MHz	ShibaSoku	563	JAN. 2007 ETC	1Y	√

2.2 TEST PROCEDURE

The EUT was tested according to ECE R10. The radiated test was performed at semi-anechoic chamber.

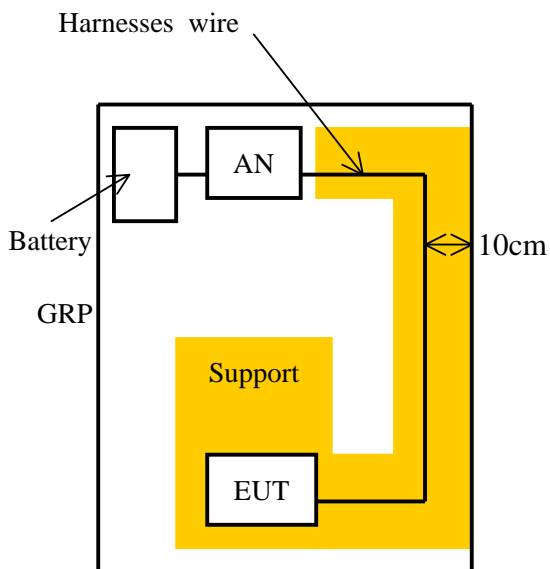
The frequency spectrum from 30 MHz 1 GHz was investigated.

Measurement were made at 1 meters with an antenna or peripherals, cables, EUT orientation, and find the maximum emission for each frequency.

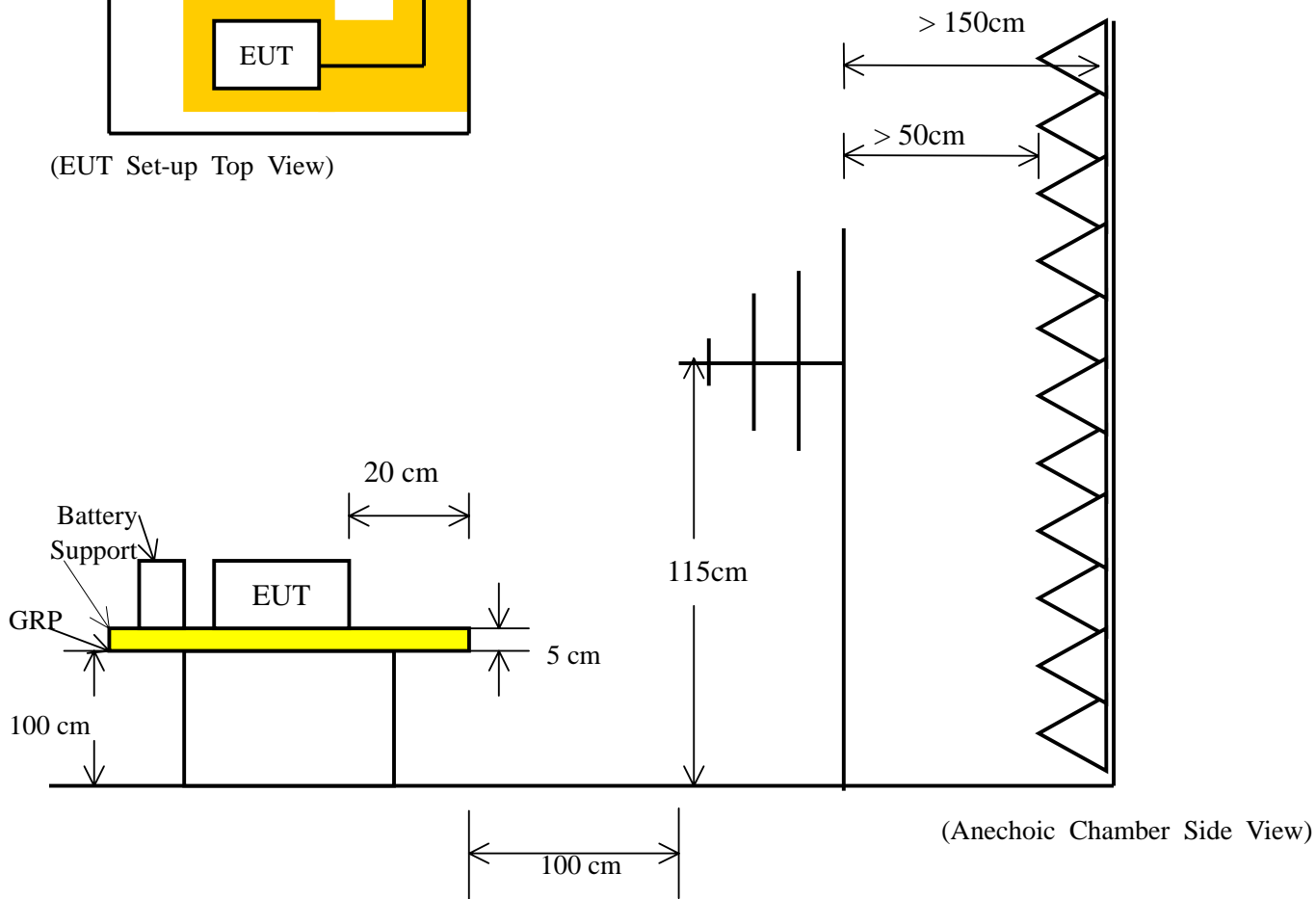
2.3 MODIFICATION RECORD

No modifications were required. (That is the EUT complied with the requirement as tested.)

2.4 TEST SET-UP



(EUT Set-up Top View)



(Anechoic Chamber Side View)

2.5 CONFIGURATION OF THE EUT

The EUT was configured according to ECE R10. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

1. EUT

DEVICE	MANUFACTURER	MODEL #	REMARK
UNIT ASSY , BACK SENSOR / SENSOR CORNER (VERT) / SENSOR ASSY BACK R (13°) / SENSOR ASSY BACK L (13°) / BUZZER ASSY , CORNER SENSOR	Whetron Electronics Co., Ltd.	HA02-41200G0T / HA02-42100G0T / HA02-42200G0T / HA02-42300G0T / HA02-44100G0T	N/A

2. INTERNAL DEVICES

DEVICE	MANUFACTURER	MODEL #	REMARK
N/A	N/A	N/A	N/A

3. PERIPHERALS

DEVICE	MANUFACTURER	MODEL # SERIAL #	CABLE
Load	N/A	N/A	1.2m*2, Unshielded Line

REMARK :

1. Cables - All 1m or greater in length - bundled according to regulations.

2.6 EUT OPERATING CONDITION

Operating condition is according to ECE R10.

1. EUT Power ON.
2. Set-up the EUT under recording working function.
3. Full Load (Max Power)

2.7 RADIATED EMISSION LIMITS

All emission from a device , including any network of conductors and apparatus connected thereto , shall not exceed the level of field strength specified below:

ESA BROADBAND

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
30 75	1	62 52
75 400	1	52 63
400 1000	1	63

ESA NARROWBAND

FREQUENCY (MHz)	DISTANCE (m)	FIELD STRENGTH (dB μ V/m)
30 75	1	52 42
75 400	1	42 53
400 1000	1	53

- NOTE** :
1. In the emission tables above , the tighter limit applies at the band edges.
 2. Distance refers to the distance between measuring instrument , antenna , and the closest point of any part of the device or system.
 3. In the 30 to 75 MHz frequency band, the limit decreasing logarithmically (linearly) with frequencies.
In the 75 to 400MHz, the limit increasing logarithmically (linearly) with frequencies.

2.8 RADIATED EMISSION TEST RESULTS (DC 12.0Vdc)

The frequency spectrum from 30 MHz to 1 GHz was investigated.

Under 1 GHz, ESA Narrowband readings are AV values.

Values with a resolution bandwidth of 120 KHz.

Measurement were made at 1 meter.

- . Temperature : 23
- . Humidity : 63 %RH
- . Test result : Narrowband

Spot Frequency (MHz)	Emission Frequency (MHz)	Ant. Position Hor. or Ver.	Reading (dBuV/m)	CORR'd Factor (dB/m)	Results (dBuV/m)	Limit (dBuV/m)	Margins (dB)
30-50	47.160	V	-1.6	14.81	13.2	47.1	-33.9
30-50	47.660	H	-11.2	14.87	3.7	46.9	-43.2
50-75	59.230	V	-7.5	14.15	6.7	44.6	-37.9
50-75	72.590	H	-4.5	12.20	7.7	42.4	-34.7
75-100	88.030	H	8.1	11.45	19.5	43.1	-23.6
75-100	88.650	V	0.1	11.45	11.5	43.1	-31.6
100-130	110.570	H	3.5	13.13	16.6	44.6	-28.0
100-130	130.000	V	-6.5	14.73	8.2	45.6	-37.4
130-165	144.850	H	5.8	15.23	21.0	46.3	-25.3
130-165	160.910	V	0.3	15.61	15.9	47.0	-31.1
165-200	187.100	H	-1.0	12.21	11.2	48.0	-36.8
165-200	187.100	V	-0.1	12.21	12.1	48.0	-35.9
200-250	243.380	H	15.4	11.90	27.3	49.7	-22.4
200-250	250.000	V	-1.8	12.03	10.2	49.9	-39.7

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Spot Frequency (MHz)	Emission Frequency (MHz)	Ant. Position Hor. or Ver.	Reading (dBuV/m)	CORR'd Factor (dB/m)	Results (dBuV/m)	Limit (dBuV/m)	Margins (dB)
250-320	256.520	H	7.8	12.16	20.0	50.1	-30.1
250-320	284.980	V	8.1	12.56	20.7	50.8	-30.1
320-400	324.460	H	1.5	13.13	14.6	51.6	-37.0
320-400	373.310	V	-0.2	13.74	13.5	52.5	-39.0
400-520	465.600	V	23.8	15.12	38.9	53.0	-24.1
400-520	508.260	H	8.2	15.37	23.6	53.0	-39.4
520-660	649.660	H	7.1	17.36	24.5	53.0	-38.5
520-660	649.660	V	13.1	17.36	30.5	53.0	-32.5
660-820	684.750	V	8.9	17.63	26.5	53.0	-36.5
660-820	779.610	H	3.8	18.68	22.5	53.0	-40.5
820-1000	929.010	H	2.6	19.86	22.5	53.0	-40.5
820-1000	979.180	V	2.6	20.28	22.9	53.0	-40.1

REMARKS :

1. The estimated measurement uncertainty of the result measurement is
+ 4.5dB / - 4.6dB (30MHz f 300MHz)
+ 4.3dB / - 4.3dB (300MHz f 1GHz)
2. If an ESA broadband test applies, the results of measurement shall find the maximum values in the 13 frequencies : 45, 65, 90, 120, 150, 190, 230, 280, 380, 450, 600, 750, 900MHz with QP detector.
3. Place of Measurement: Measuring site of the ETC
4. Measurement Distance: 1 m
5. Height of table on which the EUT was placed: 1.0 m
6. Height of Receiving Antenna: 1.15 m
7. ①If the data table appeared symbol of "***" means the value was too low to be measured.
②If the data table appeared symbol of "#" means the noise was low, so record the peak value.

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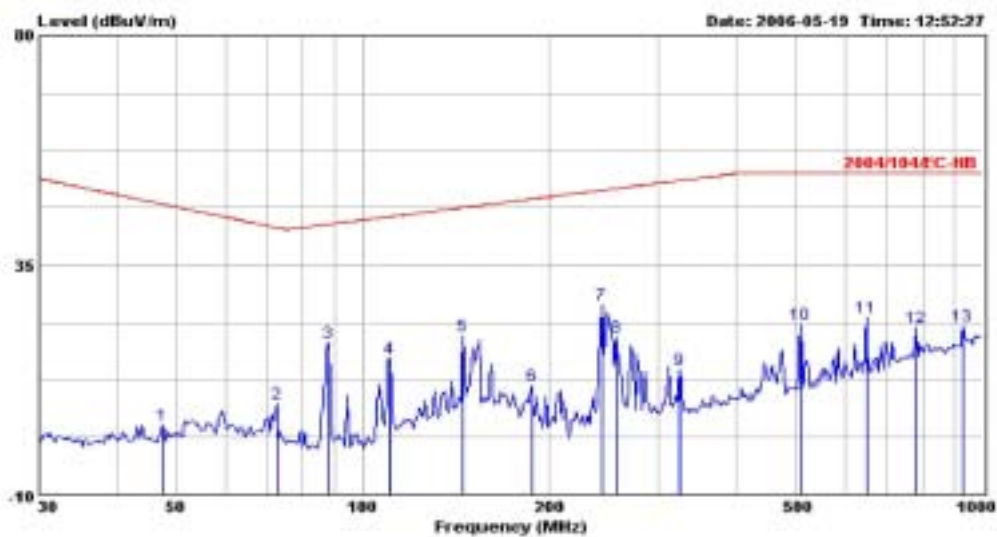
*Narrowband : Horizontal



ETC TEST LABORATORY

Data#: 5476

File#: C:\Program Files\E3\Jerry.emi



Site : H00 SITE
Condition : 2004/104/EC-NS HORIZONTAL
EUT :

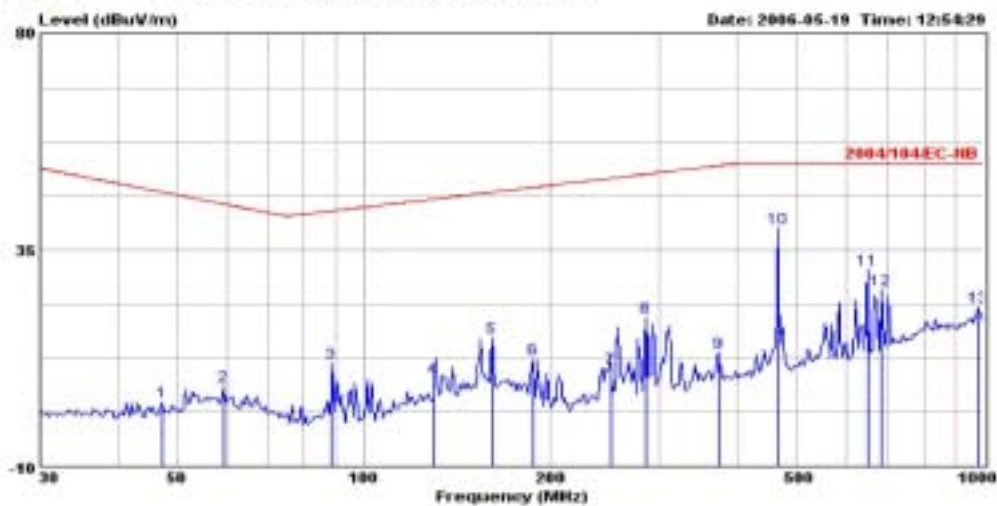
* Narrowband : Vertical



ETC TEST LABORATORY

Data#: 5477

File#: C:\Program Files\E3\Jerry.emf



Site : R08 SITE
Condition : 2004/104/EC-NB VERTICAL
EUT :

Radiated Emission Test

2.9 RADIATED EMISSION TEST RESULTS (DC 12.0Vdc)

The frequency spectrum from 30 MHz to 1 GHz was investigated.
Under 1 GHz, ESA Narrowband readings are AV values. ESA
Broadband readings are QP values. Values with a resolution bandwidth
of 120 KHz. Measurement were made at 1 meter.

- . Temperature : 23
- . Humidity : 63 %RH
- . Test result : Broadband

Spot Frequency (MHz)	Emission Frequency (MHz)	Ant. Position Hor. or Ver.	Reading (dBuV/m)	CORR'd Factor (dB/m)	Results (dBuV/m)	Limit (dBuV/m)	Margins (dB)
40-50	43.660	H	3.9	14.81	18.7	57.9	-39.2
40-50	44.740	V	0.9	14.81	15.7	57.6	-41.9
60-70	60.920	V	2.8	14.15	16.9	54.3	-37.4
60-70	69.500	H	9.4	12.20	21.6	52.8	-31.2
85-95	88.030	H	27.1	11.45	38.5	53.1	-14.6
85-95	88.650	V	4.0	11.45	15.4	53.1	-37.7
115-125	122.830	V	2.9	14.26	17.2	55.2	-38.0
115-125	123.700	H	4.2	14.26	18.5	55.3	-36.8
145-155	152.660	H	15.2	15.57	30.8	56.7	-25.9
145-155	154.280	V	10.2	15.57	25.8	56.7	-30.9
185-195	187.100	H	10.3	12.21	22.5	58.0	-35.5
185-195	187.100	V	11.2	12.21	23.4	58.0	-34.6
225-235	230.910	H	5.2	11.68	16.9	59.4	-42.5
225-235	233.350	V	4.9	11.68	16.6	59.5	-42.9

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260-300	277.090	H	12.8	12.56	25.4	60.6	-35.2
260-300	290.020	V	11.5	12.71	24.2	60.9	-36.7
360-400	373.310	V	9.8	13.74	23.5	62.5	-39.0
360-400	390.720	H	7.1	14.08	21.2	62.8	-41.6
430-470	465.600	H	25.9	15.12	41.0	63.0	-22.0
430-470	465.600	V	27.9	15.12	43.0	63.0	-20.0
580-620	584.790	V	12.5	16.50	29.0	63.0	-34.0
580-620	620.000	H	10.7	17.15	27.8	63.0	-35.2
730-770	747.480	H	11.1	18.39	29.5	63.0	-33.5
730-770	766.060	V	11.3	18.68	30.0	63.0	-33.0
880-920	909.670	V	11.9	19.64	31.5	63.0	-31.5
880-920	919.290	H	12.3	19.86	32.2	63.0	-30.8

REMARKS :

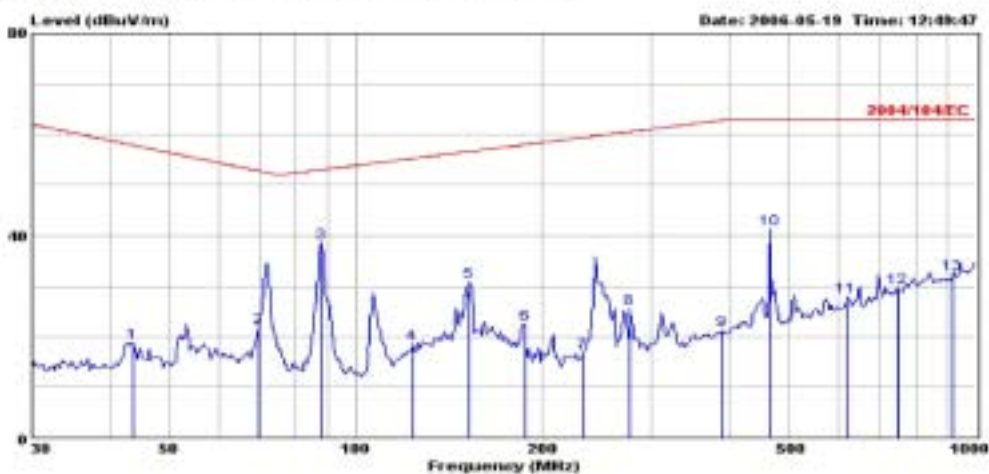
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*Broadband : Horizontal



ETC TEST LABORATORY

Data#: 5474 File#: C:\Program Files\ES\Jerry.emi



Site : H00 SITE
Condition : 2004/104/EC HORIZONTAL
EUT :

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Report No.: 06-04-MAS-045-01

EMC TESTING DEPARTMENT

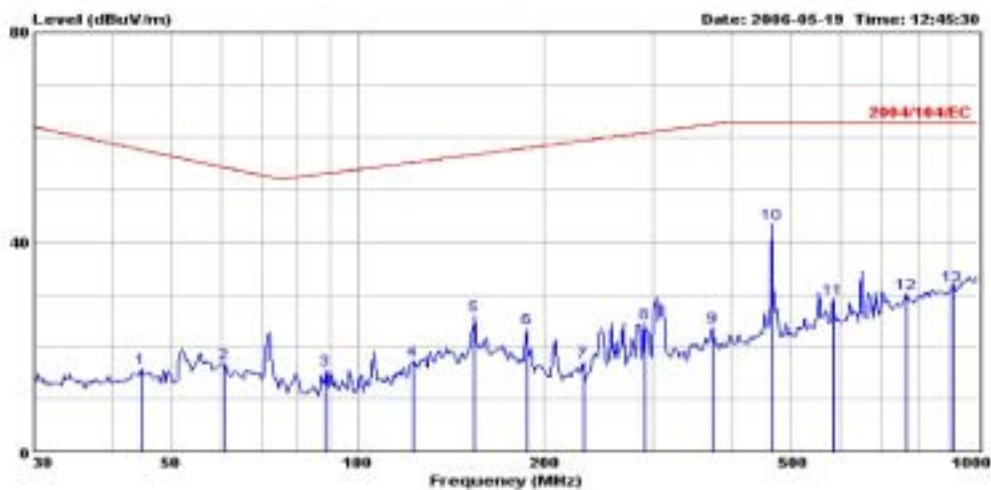
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*Broadband : Vertical



ETC TEST LABORATORY

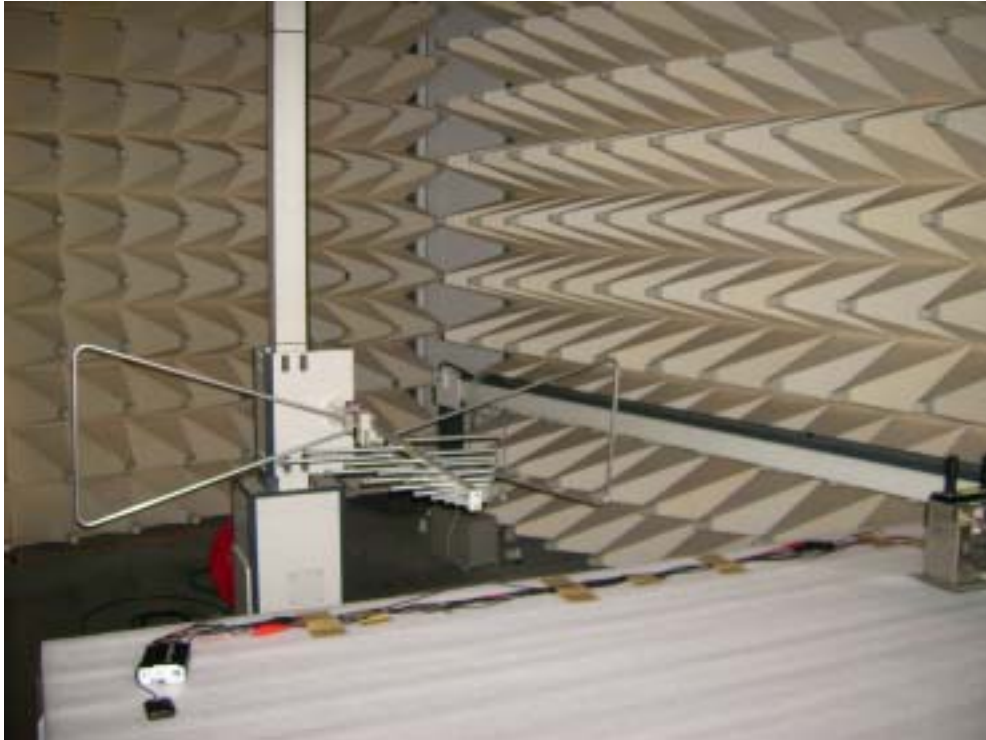
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Site : E00 SITE
Condition : 2004/104/EC VERTICAL
EUT :

3. PHOTOS OF TESTING

A. Radiated emission test front view



4. CONSTRUCTION PHOTOS OF EUT

1. Outside View 1 of EUT



2. Outside View 2 of EUT



3. Inside View 1 of EUT



4. Front View of PCB



5. Rear View of PCB

