



EMC CONFORMITY TEST REPORT

for

Wireless-G Network Access Point

Trade Name : Compex
Model Number : NetPassage WP54G 6E
Serial Number : N/A
Report Number : SZEE07011910781
Date : Jan.22 to 23, 2007
Regulations : See below

Standards	Results (Pass/Fail)
<input checked="" type="checkbox"/> EN 55022: 1998 + A1: 2000 + A2: 2003	PASS
<input checked="" type="checkbox"/> EN 61000-3-2: 2000 + A2: 2005	PASS
<input checked="" type="checkbox"/> EN 61000-3-3: 1995 + A1: 2001 + A2: 2005	PASS
<input checked="" type="checkbox"/> EN 55024: 1998 + A1: 2001 + A2: 2003	PASS
<input checked="" type="checkbox"/> IEC 61000-4-2: 2001	PASS
<input checked="" type="checkbox"/> IEC 61000-4-3: 2006	PASS
<input checked="" type="checkbox"/> IEC 61000-4-4: 2006	PASS
<input checked="" type="checkbox"/> IEC 61000-4-5: 2005	PASS
<input checked="" type="checkbox"/> IEC 61000-4-6: 2006	PASS
<input checked="" type="checkbox"/> IEC 61000-4-11: 2004	PASS

Prepared for :

Compex Systems Pte Ltd

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Prepared by :

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CEC-Declaration of Conformity

For the following equipment:

Wireless-G Network Access Point

(Product Name)

NetPassage WP54G 6E / Compex

(Model Designation / Trade name)

Compex Systems Pte Ltd

(Manufacturer Name)

135 Joo Seng Road, #08-01 PM Industrial Building , Singapore 368363

(Manufacturer Address)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to Electromagnetic Compatibility Directive (89/336/EEC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EC), For the evaluation regarding the Electromagnetic Compatibility (89/336/EEC, Amended by 92/31/EEC, 93/68/EEC & 98/13/EC), the following standards are applied:

EN 55022: 1998 + A1: 2000 + A2: 2003

EN 61000-3-2: 2000 + A2: 2005

EN 61000-3-3: 1995 + A1: 2001 + A2: 2005

EN 55024: 1998 + A1: 2001 + A2: 2003

IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6;

IEC 61000-4-11)

The following manufacturer / importer or authorized representative established within the EUT is responsible for this declaration:

(Company Name)

(Company Address)

Person responsible for making this declaration:

(Name, Surname)

(Position / Title)

(Place)

(Date)

(Legal Signature)

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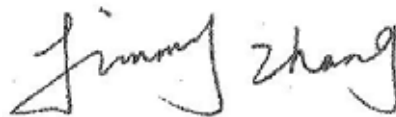
1. VERIFICATION OF CONFORMITY

Equipment Under Test: Wireless-G Network Access Point
Trade Name: Compex
Model Number: NetPassage WP54G 6E
Serial Number: N/A
Applicant: Compex Systems Pte Ltd
135 Joo Seng Road, #08-01 PM Industrial Building, Singapore 368363
Manufacturer: Compex Systems Pte Ltd
135 Joo Seng Road, #08-01 PM Industrial Building, Singapore 368363
Type of Test: EMC Directive 89/336/EEC for CE Marking
Technical Standards: EN 55022: 1998 + A1: 2000 + A2: 2003
EN 61000-3-2: 2000 + A2: 2005
EN 61000-3-3: 1995 + A1: 2001 + A2: 2005
EN 55024: 1998 + A1: 2001 + A2: 2003
(IEC 61000-4-2: 2001; IEC 61000-4-3: 2006; IEC 61000-4-4: 2006;
IEC 61000-4-5: 2005; IEC 61000-4-6: 2006; IEC 61000-4-11: 2004)
File Number: SZEE07011910781
Date of test: Jan. 22 to 23, 2007
Date of Sample Receive Jan.19,2007
Deviation: None
Condition of Test Sample: Normal

The above equipment was tested by Centre Testing International for compliance with the requirements set forth in EMC Directive 89/336/EEC and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Approved by Authorized Signatory:



Jimmy Zhang / Lab. Director

2. SYSTEM DESCRIPTION

EUT Test Procedure:

- 1.Power on the EUT
- 2.Make the EUT work normally during the whole test

3. PRODUCT INFORMATION

Housing Type: PCB
Power during Test: DC12V
DC in Power Cord Type: N/A
OSC/Clock Frequencies: N/A

I/O Port Information (Applicable Not Applicable)

I/O Port of EUT			
I/O Port Type	Q'TY	Cable	Tested with
1) RJ45	2		1

Model Number Information (Applicable Not Applicable)

Difference of Model Numbers	
Model Number	Description of Differences

4. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable

****Note:** All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

5. TEST FACILITY

- Location:** 1F., Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, China
- Description:** There is one 3m semi-anechoic an area test sites and two line conducted labs for final test.
The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
- Site Filing:** The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
- Instrument Tolerance:** All measuring equipment is in accord with ANSI C63.4 and CISPR 22 requirements that meet industry regulatory agency and accreditation agency requirement.
- Ground Plane:** Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

6. TEST EQUIPMENT LIST

Instrumentation: The following list contains equipment used at CTI for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10kHz to 1.0GHz or above.

Equipment used during the tests:

3M Semi-anechoic Chamber — Radiation Test Site					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4443A	N/A	06/29/2006	06/28/2007
Biconilog Antenna	ETS	3142C	N/A	05/30/2006	05/29/2007
Multi_device Controller	ETS	2090	N/A	06/08/2006	06/07/2007

Note: The measure uncertainty is less than +/-2.5078dB, which is evaluated as per the UKAS LAB34 and CISPR/A/291/CDV.

Shielding Room No. 3 — Conduction Test Site					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Spectrum Analyzer	Agilent	E4440A	N/A	06/29/2006	06/28/2007
LISN	ETS	3816	N/A	02/27/2006	02/26/2007

Note: The measure uncertainty is less than +/-2.2318dB, which is evaluated as per the UKAS LAB34 and CISPR/A/291/CDV.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Shielding Room No. 2 — (61000-3-2 & -3-3)					
Power Harmonic & Voltage Fluctuation/Flicker Measurement					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Harmonic Emission Flicker	California instruments	500LIX-400-C TS	N/A	06/08/2006	06/07/2007
Shielding Room No. 3 — ESD Test (61000-4-2)					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
ESD Simulator	EM-Test	ESD 30C/P30C	N/A	06/08/2006	06/07/2007
3M Full-anechoic Chamber — (61000-4-3)					
Radiated Electromagnetic Field Immunity Measurement					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Signal Generator	IFA	2023B	N/A	06/08/2006	06/07/2007
Power Amplifier	AR	150W1000	N/A	06/08/2006	06/07/2007
Power Antenna	AR	25S1G4A	N/A	06/08/2006	06/07/2007

Shielding Room No. 3 — (61000-4-4) (61000-4-5) (61000-4-11)					
Fast Transients /Burst Test / Surge / Voltage Dips & Interruptions Test					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Compact Generator	EM-Test	UCS500M/6B	N/A	02/27/2006	02/26/2007
Capacitive Clamp	EM-Test	C Clamp HFK	N/A	02/27/2006	02/26/2007
CDN for Telecom Port	EM-Test	CNV504S1	N/A	02/27/2006	02/26/2007
Shielding Room No. 2 — CS test (61000-4-6)					
Equipment Type	Manufacturer	Model Number	Serial Number	Last Calibration	Calibration Due
Power Amplifier	AR	75A250A	N/A		
CDN	EM-Test	N/A	N/A	06/08/2006	06/07/2007
Direction Coupler	EM-Test	DC2600N	N/A	06/08/2006	06/07/2007
EM-Clamp	EM-Test	EM101	N/A	06/08/2006	06/07/2007
Caliberation	EM-Test	CAM2/M3	N/A	06/08/2006	06/07/2007
Attenuator	EM-Test	ATT6/75	N/A	06/08/2006	06/07/2007
Power Sensor	AR	PH2000	N/A	06/08/2006	06/07/2007
Power Meter	AR	PM2002	N/A	06/08/2006	06/07/2007
Signal Generator	IFA	2023B	N/A	06/08/2006	06/07/2007

7. EN 55022 LINE CONDUCTED EMISSION TEST

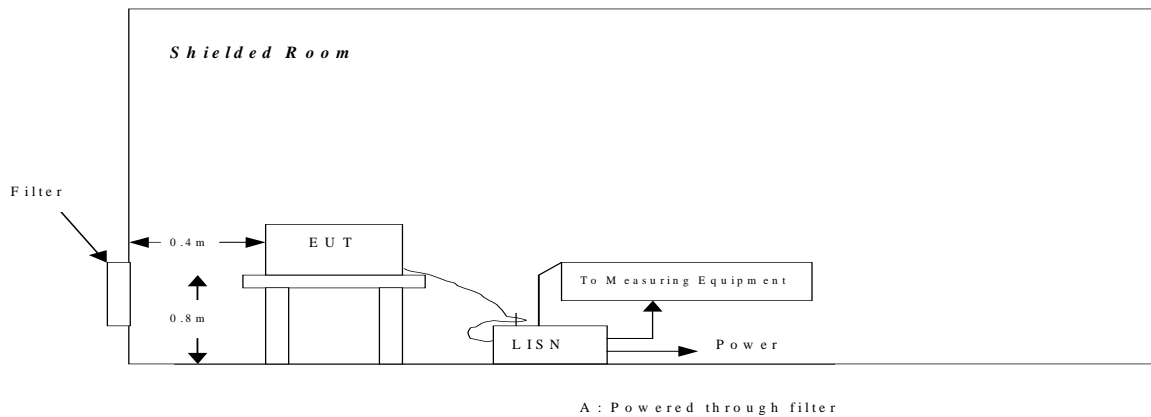
7.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

****Note:** 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

7.2. BLOCK DIAGRAM OF TEST SETUP



7.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

Support equipment, if needed, was placed as per EN55022.

All I/O cables were positioned to simulate typical actual usage as per EN55022.

The EUT received AC230V/50Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

All support equipments received power from a second LISN supplying power of AC 230V/50Hz, if any.

The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.

Analyzer / Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The following test mode(s) were scanned during the preliminary test:

Preliminary Conducted Emission Test				
Frequency Range Investigated		150KHz TO 30 MHz		
Mode of operation	Date	Report No.	Data#	Worst Mode
Normal	22/01/2007	SZEE07011910781	N_0(L, N)	<input checked="" type="checkbox"/>

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

7.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.

A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition(s) was reported on the Summary Data page.

7.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

Limit : EN55022 Class B Conduction(QP) **Power** : DC12V
M/N : N/A **Temperature** : 26
Mode : Normal **Humidity** : 60%

Conducted Emission Test Result													
Frequency (MHz)	Reading Level (dBuV)			Factor dB	Emission Level (dBuV)			Limits		Margin		Result (P/F)	Remarks (L/N)
	Peak	Q.P.	Avg.		Peak	Q.P.	Avg.	Q.P.	Avg.	Q.P.	Avg.		
0.317	15.22	--	13.98	10.03	25.25	--	24.01	59.77	49.77	-34.5	-25.8	P	L
0.575	17.94	--	13.67	10.02	27.96	--	23.69	56	46	-28	-22.3	P	L
1.205	21.1	--	15.23	10.02	31.12	--	25.25	56	46	-24.9	-20.8	P	L
2.855	26.04	--	22.77	10.03	36.07	--	32.80	56	46	-19.9	-13.2	P	L
4.505	30.29	--	26.85	10.04	40.33	--	36.89	56	46	-15.7	-9.11	P	L
15.208	25.88	--	22.09	10.11	35.99	--	32.20	60	50	-24	-17.8	P	L
0.381	15.9	--	13.96	10	25.95	--	23.99	58.26	48.26	-32.3	-24.3	P	N
0.823	21	--	18.11	10	30.99	--	28.13	56	46	-25	-17.9	P	N
2.090	24.9	--	19.26	10	34.92	--	29.28	56	46	-21.1	-16.7	P	N
3.935	31	--	25.2	10	41.06	--	35.23	56	46	-14.9	-10.8	P	N
4.880	10.5	--	3.3	10	20.51	--	13.34	56	46	-35.5	-32.7	P	N
15.167	25.4	--	17.35	10.1	35.49	--	27.46	60	50	-24.5	-22.5	P	N

Freq. = Emission frequency in MHz
 Reading level = Uncorrected Analyzer/Receiver reading
 Factor = Cable loss + LISN inserting loss
 Emission level = Reading level + Factor
 Limit = Limit stated in standard
 Margin = Reading in reference to limit
 “--“ = The emission level complied with the Average limits, with at least 2 dB margin, so no further recheck.

8. EN 55022 RADIATION EMISSION TEST

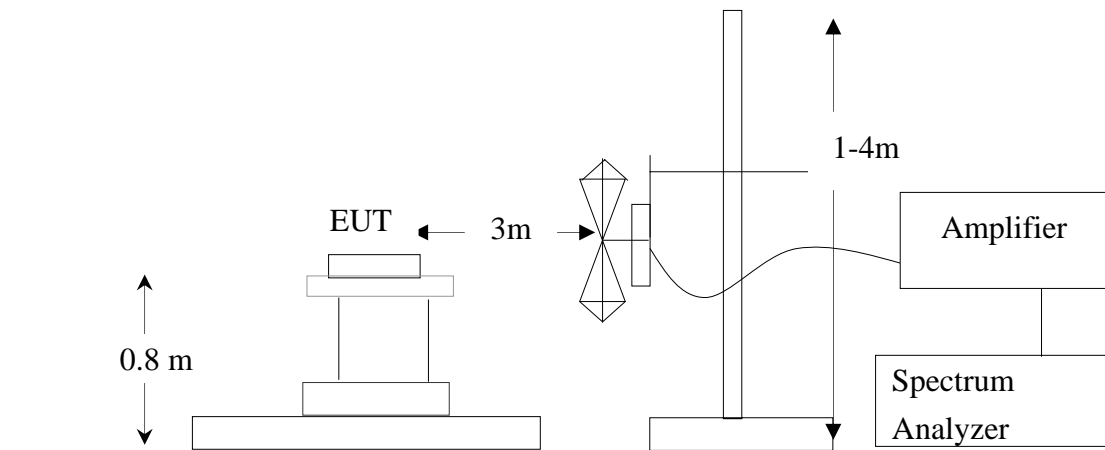
8.1. LIMITS OF RADIATED DISTURBANCES AT 3M DISTANCES

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m Q.P.)
30-230	10	30.00
230-1000	10	37.00

****Note:** The lower limit shall apply at the transition frequency.

8.2. BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators



8.3. PRELIMINARY PROCEDURE OF RADIATED EMISSION TEST

The equipment was set up as per the test configuration to simulate typical actual usage per the user’s manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

Support equipment, if needed, was placed as per EN 55022.

All I/O cables were positioned to simulate typical actual usage as per EN 55022.

The EUT received AC230V/50Hz power through the outlet socket under the turntable. All support equipments received AC230V/50Hz power from socket under the turntable, if any.

The antenna was placed at 10 meter away from the EUT as stated in EN 55022. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The following test mode(s) were scanned during the preliminary test:

Preliminary Radiated Emission Test				
Frequency Range Investigated			30 MHz TO 1000 MHz	
Mode of operation	Date	Report No.	Data#	Worst Mode
Normal	22/01/2007	SZEE07011910781	N_0(H,V)	<input checked="" type="checkbox"/>

Then, the EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for final testing.

8.4. FINAL PROCEDURE OF RADIATED EMISSION TEST

EUT and support equipment were set up on the turntable as per step 7 of the preliminary test.

The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

The test data of the worst case condition(s) was reported on the Summary Data page.

8.5. TEST RESULT OF RADIATED EMISSION TEST

Limit : CISPR22 ClassA 3M Radiation **Power** : DC12V
M/N : N/A **Temperature** : 26
Mode : Normal **Humidity** : 60%

(The chart below shows the highest readings taken from the final data)

Radiated Emission Test Result													
Frequency (MHz)	Reading Level (dBUv)			Factor dB	Emission Level (dBUV/m)			Limits (dBUV/m)			Margin (dB)	Result (P/F)	Remarks (H/V)
	Peak	Q.P.	Avg.		Peak	Q.P.	Avg.	Peak	Q.P.	Avg.			
192	43.93			-16.2	27.78				40		-12.2	P	H
300	45.78			-11.8	33.98				47		-13	P	H
335	44.9			-10.6	34.28				47		-12.7	P	H
566	39.23			-7.01	32.22				47		-14.8	P	H
912.5	50.67			-2.21	48.46				47		1.46	F	H
480.25	49.39			-8.37	41.02				47		-5.98	P	H
192	46.82			-16.2	30.67				40		-9.33	P	V
239.925	48.51			-13.9	34.66				47		-12.3	P	V
336.75	43.3			-10.6	32.74				47		-14.3	P	V
480.25	52.67			-8.37	44.3				47		-2.7	P	V
529.25	39.99			-7.64	32.35				47		-14.7	P	V
669.25	35.19			-5.12	30.07				47		-16.9	P	V

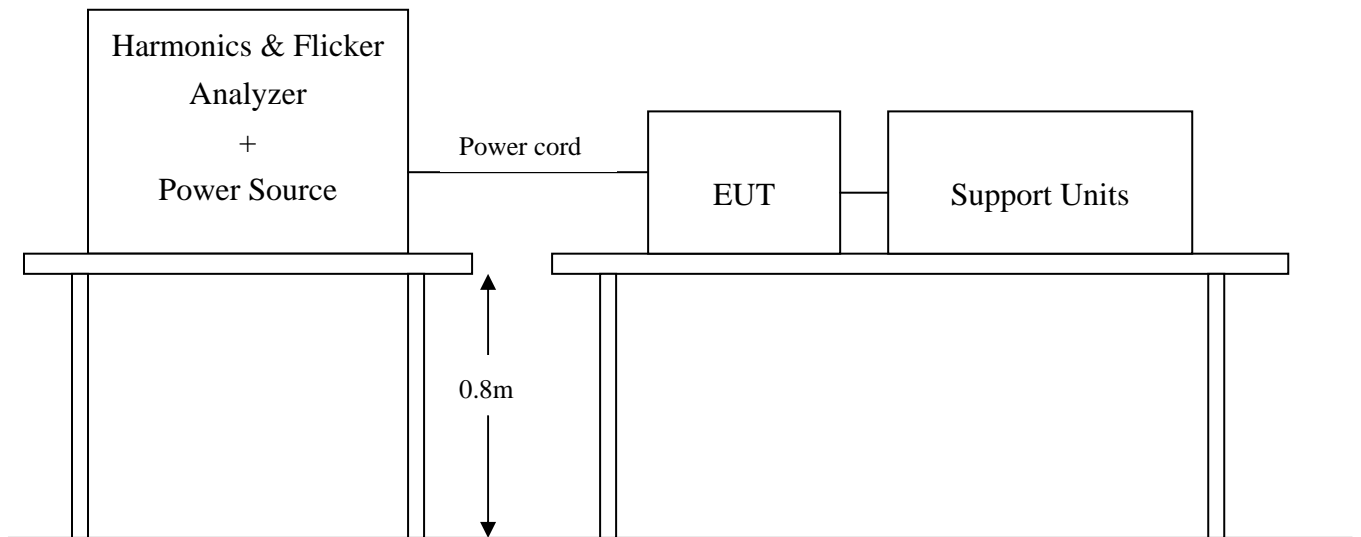
Freq. = Emission frequency in MHz
 Raw Data (dBUV/m) = Uncorrected Analyzer / Receiver reading
 Corr. Factor (dB) = Correction factors of antenna factor and cable loss
 Emiss. Level = Raw reading converted to dBUV/m and CF added
 Limit dBUV/m = Limit stated in standard
 Margin dB = Reading in reference to limit
 PK = Peak Reading
 QP = Quasi-peak

9. EN 61000-3-2 POWER HARMONICS TEST

POWER HARMONICS MEASUREMENT

Port : AC mains
Basic Standard : EN 61000-3-2 :2005
Limits : CLASS A ; CLASS D
Tester : Christy
Temperature : 25°C
Humidity : 55%

9.1. BLOCK DIAGRAM OF TEST SETUP



9.2. RESULT

Harmonics – Class-D per Ed. 3.0 (2005-11)(Run time)

EUT: Wireless-G Network Access Point

Tested by: Christy

Test category: Class-D per Ed. 3.0 (2005-11) (European limits)

Test Margin: 100

Test date: 2007-01-22

Start time: 13:13:35

End time: 13:16:16

Test duration (min): 2.5

Data file name: H-000072.cts_data

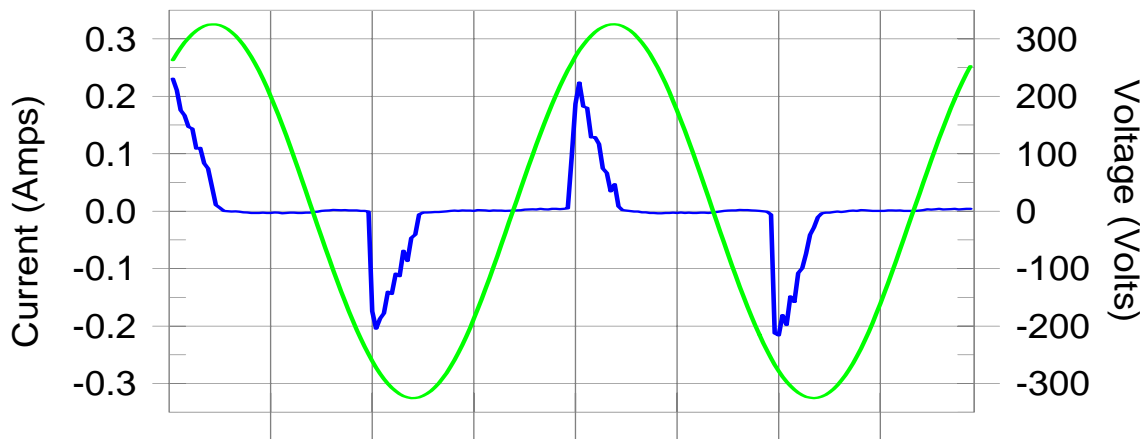
Comment: NetPassage WP54G 6E

Customer: Compex Systems Pte Ltd

Test Result: Pass

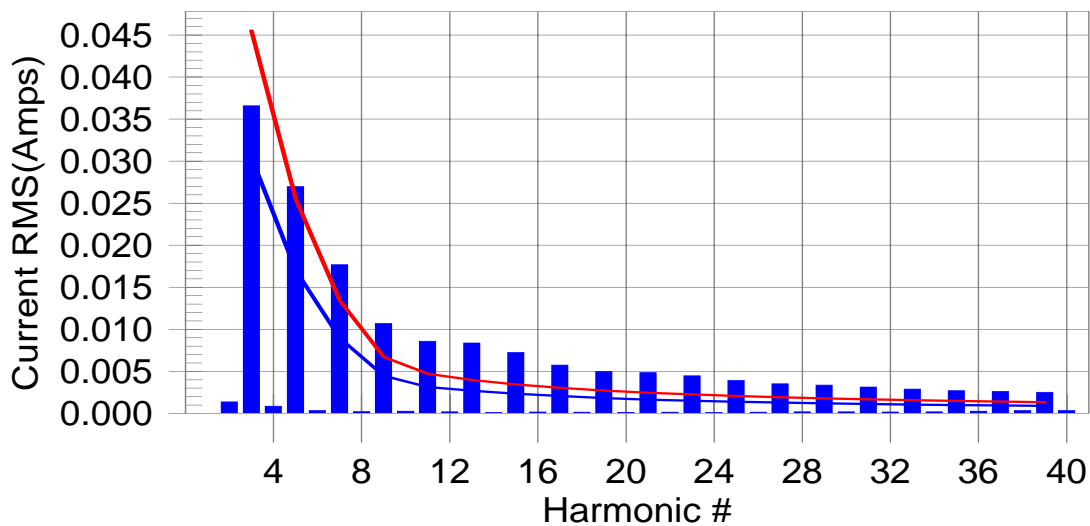
Source qualification: Normal

Current & voltage waveforms



Harmonics and Class D limit line

European Limits



Test result: Pass Worst harmonic was #0 with 0.00% of the limit.

Current Test Result Summary (Run time)

EUT: Wireless-G Network Access Point

Tested by: Christy

Test category: Class-D per Ed. 3.0 (2005-11) (European limits)

Test Margin: 100

Test date: 2007-01-22

Start time: 13:13:35

End time: 13:16:16

Test duration (min): 2.5

Data file name: H-000072.cts_data

Comment: NetPassage WP54G 6E

Customer: Complex Systems Pte Ltd

Test Result: Pass Source qualification: Normal

THC(A): 0.00 I-THD(%): 0.00 POHC(A): 0.000 POHC Limit(A): 0.000

Highest parameter values during test:

V_RMS (Volts): 230.10 Frequency(Hz): 50.00

I_Peak (Amps): 0.274 I_RMS (Amps): 0.069

I_Fund (Amps): 0.042 Crest Factor: 4.087

Power (Watts): 9.0 Power Factor: 0.573

Harm#	Harms(avg)	100%Limit	%of Limit	Harms(max)	150%Limit	%of Limit	Status
2	0.001						
3	0.035	0.030	0.0	0.037	0.046	0.00	Pass
4	0.001						
5	0.026	0.017	0.0	0.027	0.026	0.00	Pass
6	0.000						
7	0.017	0.009	0.0	0.018	0.013	0.00	Pass
8	0.000						
9	0.010	0.004	0.0	0.011	0.007	0.00	Pass
10	0.000						
11	0.008	0.003	0.0	0.009	0.005	0.00	Pass
12	0.000						
13	0.008	0.003	0.0	0.008	0.004	0.00	Pass
14	0.000						
15	0.007	0.002	0.0	0.007	0.003	0.00	Pass
16	0.000						
17	0.006	0.002	0.0	0.006	0.003	0.00	Pass
18	0.000						
19	0.005	0.002	0.0	0.005	0.003	0.00	Pass
20	0.000						
21	0.005	0.002	0.0	0.005	0.002	0.00	Pass
22	0.000						
23	0.004	0.001	0.0	0.004	0.002	0.00	Pass
24	0.000						
25	0.004	0.001	0.0	0.004	0.002	0.00	Pass
26	0.000						
27	0.003	0.001	0.0	0.004	0.002	0.00	Pass
28	0.000						
29	0.003	0.001	0.0	0.003	0.002	0.00	Pass
30	0.000						
31	0.003	0.001	0.0	0.003	0.002	0.00	Pass
32	0.000						
33	0.003	0.001	0.0	0.003	0.002	0.00	Pass
34	0.000						
35	0.003	0.001	0.0	0.003	0.001	0.00	Pass
36	0.000						
37	0.003	0.001	0.0	0.003	0.001	0.00	Pass
38	0.000						
39	0.002	0.001	0.0	0.003	0.001	0.00	Pass
40	0.000						

Note: The EUT power level is below 75.0 Watts and therefore has no defined limits

Voltage Source Verification Data (Run time)

EUT: Wireless-G Network Access Point Tested by: Christy
Test category: Class-D per Ed. 3.0 (2005-11) (European limits) Test Margin: 100
Test date: 2007-01-22 Start time: 13:13:35 End time: 13:16:16
Test duration (min): 2.5 Data file name: H-000072.cts_data

Comment: NetPassage WP54G 6E

Customer: Compex Systems Pte Ltd

Test Result: Pass **Source qualification: Normal**

Highest parameter values during test:

Voltage (Vrms):	230.10	Frequency(Hz):	50.00
I_Peak (Amps):	0.274	I_RMS (Amps):	0.069
I_Fund (Amps):	0.042	Crest Factor:	4.087
Power (Watts):	9.0	Power Factor:	0.573

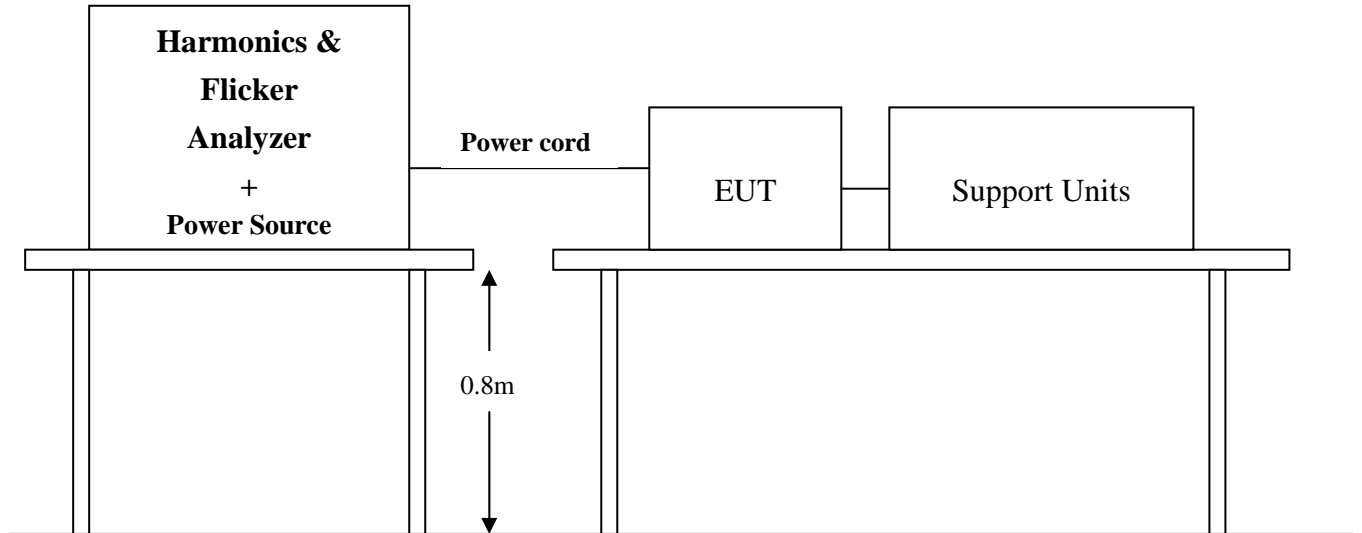
Harm#	Harmonics	V-rms	Limit V-rms	% of Limit	Status
2		0.376	0.460	81.69	OK
3		0.561	2.071	27.11	OK
4		0.192	0.460	41.66	OK
5		0.126	0.920	13.70	OK
6		0.105	0.460	22.83	OK
7		0.081	0.690	11.77	OK
8		0.071	0.460	15.53	OK
9		0.075	0.460	16.21	OK
10		0.070	0.460	15.18	OK
11		0.062	0.230	26.74	OK
12		0.055	0.230	23.98	OK
13		0.047	0.230	20.54	OK
14		0.046	0.230	19.83	OK
15		0.044	0.230	19.16	OK
16		0.040	0.230	17.20	OK
17		0.032	0.230	14.11	OK
18		0.041	0.230	17.67	OK
19		0.025	0.230	10.80	OK
20		0.034	0.230	14.76	OK
21		0.034	0.230	14.59	OK
22		0.029	0.230	12.66	OK
23		0.033	0.230	14.22	OK
24		0.025	0.230	10.92	OK
25		0.020	0.230	8.57	OK
26		0.018	0.230	8.00	OK
27		0.020	0.230	8.65	OK
28		0.020	0.230	8.51	OK
29		0.023	0.230	9.82	OK
30		0.018	0.230	7.70	OK
31		0.020	0.230	8.59	OK
32		0.017	0.230	7.37	OK
33		0.013	0.230	5.44	OK
34		0.015	0.230	6.63	OK
35		0.014	0.230	6.06	OK
36		0.015	0.230	6.32	OK
37		0.016	0.230	7.07	OK
38		0.011	0.230	4.97	OK
39		0.007	0.230	2.88	OK
40		0.011	0.230	4.85	OK

10. EN 61000-3-3 VOLTAGE FLUCTUATION / FLICKER TEST

VOLTAGE FLUCTUATION/FLICKER MEASUREMENT

Port	: AC mains
Basic Standard	: EN 61000-3-3 :2005
Limits	: §5 of EN 61000-3-3
Tester	: Christy
Temperature	: 25°C
Humidity	: 55%

10.1. BLOCK DIAGRAM OF TEST SETUP



10.2. RESULT

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

EUT: Wireless-G Network Access Point

Tested by: Christy

Test category: All parameters (European limits)

Test Margin: 100

Test date: 2007-01-22

Start time: 10:35:48

End time: 10:46:10

Test duration (min): 10

Data file name: F-000071.cts_data

Comment: NetPassage WP54G 6E

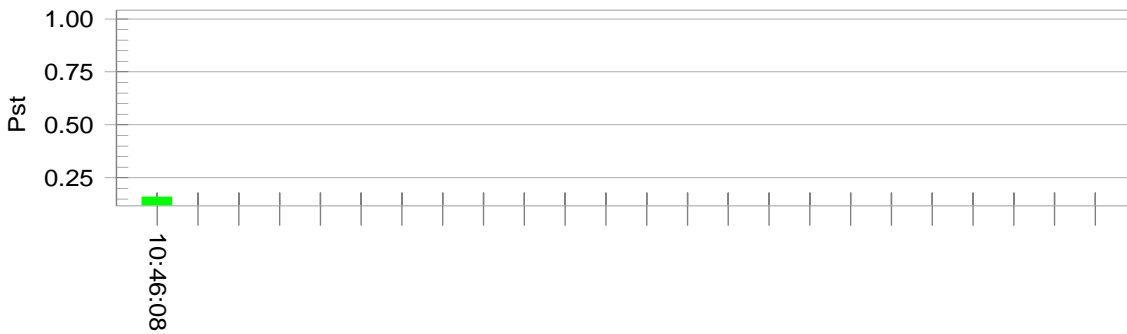
Customer: Compex Systems Pte Ltd

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt):	230.00			
Highest dt (%):	0.26	Test limit (%):	3.30	Pass
Time(mS) > dt:	0.0	Test limit (mS):	500.0	Pass
Highest dc (%):	0.00	Test limit (%):	3.30	Pass
Highest dmax (%):	0.16	Test limit (%):	4.00	Pass
Highest Pst (10 min. period):	0.160	Test limit:	1.000	Pass
Highest Plt (2 hr. period):	0.070	Test limit:	0.650	Pass

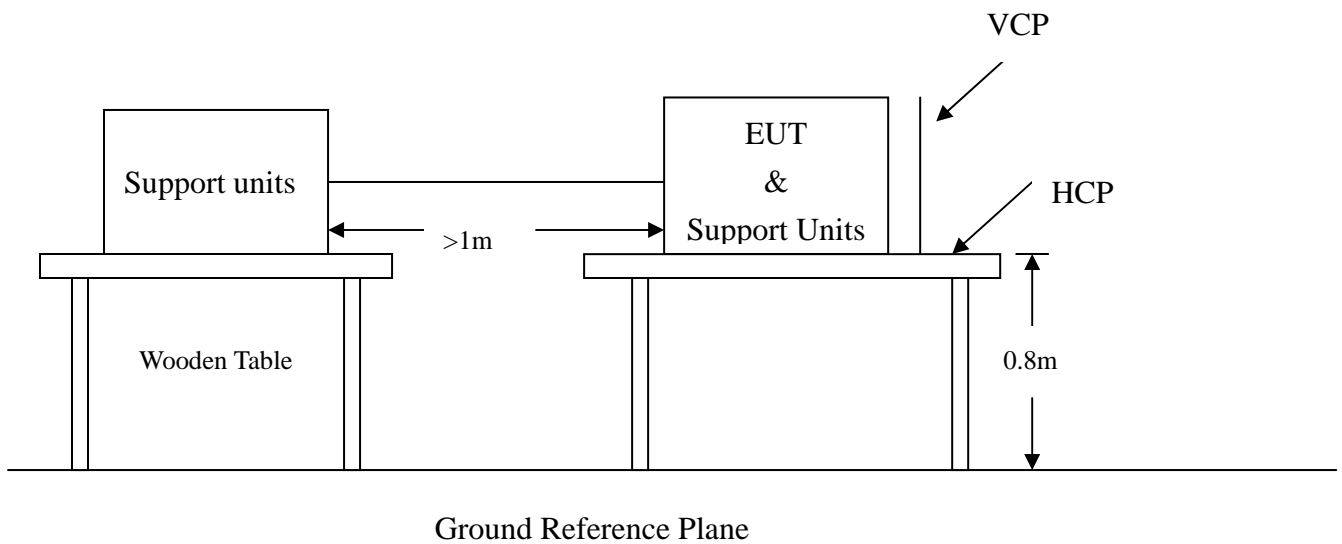
11. IEC 61000-4-2 ESD IMMUNITY TEST

ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC 61000-4-2: 2001
Test Level :	± 8 kV (Air Discharge) ± 4 kV (Contact Discharge) ± 4 kV (Indirect Discharge)
Standard require	: B
Tester :	Christy
Temperature/Humidity:	25°C/55%

11.1. BLOCK DIAGRAM OF TEST SETUP

(The 470 k ohm resistors are installed per standard requirement)



11.2. TEST PROCEDURE

The EUT was located 0.1 m minimum from all side of the HCP.

The support units were located 1 m minimum away from the EUT.

EUT worked with resistance load, and make sure EUT worked normally.

Active the communication function if the EUT with such port(s).

As per the requirement of EN 55024; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.

Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.

The application of ESD to the contact of open connectors is not required.

Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Note: As per the A2 to IEC 61000-4-2, a bleed resistor cable is connected between the EUT and HCP during the test.

The electrostatic discharges were applied as follows:

Amount of Discharges	Voltage	Coupling	Result (Pass/Fail)
Mini 25 /Point	±2kV; ±4kV	Contact Discharge	No discharge point
Mini 25 /Point	±2kV; ±4kV	Indirect Discharge HCP (Front)	Pass
Mini 25 /Point	±2kV; ±4kV	Indirect Discharge VCP (Left)	Pass
Mini 25 /Point	±2kV; ±4kV	Indirect Discharge VCP (Back)	Pass
Mini 25 /Point	±2kV; ±4kV	Indirect Discharge VCP (Right)	Pass
Mini 10 /Point	±2kV; ±4kV; ±8kV	Air Discharge	Pass

11.3. PERFORMANCE & RESULT

- Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

PASS

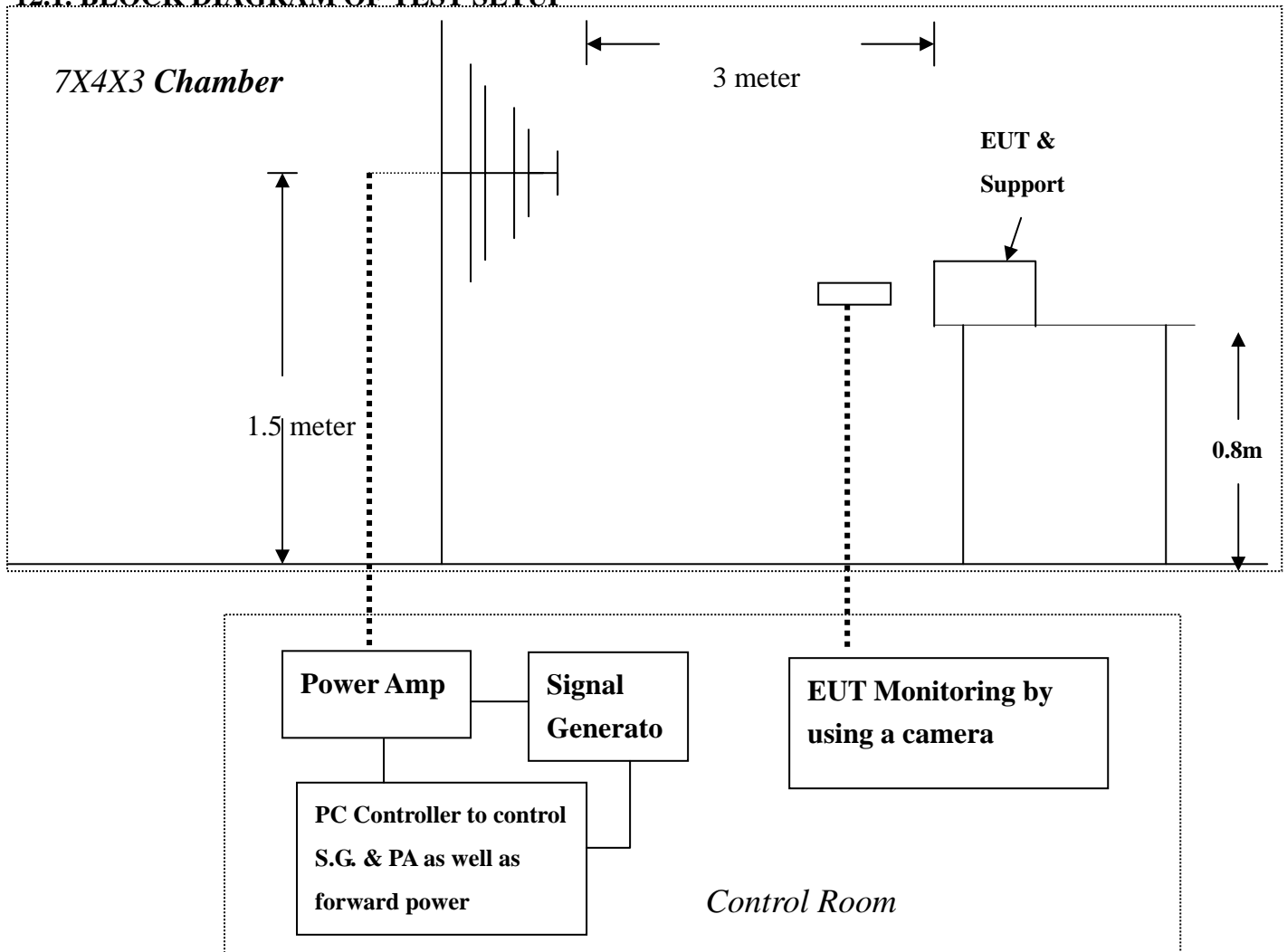
FAILED

12. IEC 61000-4-3 TEST

RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port	: Enclosure
Basic Standard	: IEC 61000-4-3:2006
Requirements	: 3 V/m with 80% AM. 1kHz Modulation.
Standard require	: A
Tester	: Christy
Temperature	: 25°C
Humidity	: 55%

12.1. BLOCK DIAGRAM OF TEST SETUP



12.2. TEST PROCEDURE

The EUT was located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity. The support units were located outside of the uniformity area, but the cable(s) connected with EUT were exposed to the calibrated field as per IEC 61000-4-3.

EUT worked with resistance load, and make sure EUT worked normally.

Setting the testing parameters of RS test software per IEC 61000-4-3.

Performing the pre-test at each side of with double specified level (6V/m) at 4% steps.

From the result of pre-test in step 5, choose the worst side of EUT for final test from 80 MHz to 1000 MHz at 1% steps.

Recording the test result in following table.

It is not necessary to perform test as per annex A of EN 55024 if the EUT doesn't belong to TTE product.

IEC 61000-4-3 Preliminary test conditions:

Test level : 6V/m

Steps : 4 % of fundamental

Dwell Time : 1 sec

Range (MHz)	Field	Modulation	Polarity	Position	Result (Pass/Fail)
80-1000	6V/m	Yes	H	Front	Pass
80-1000	6V/m	Yes	V	Front	Pass
80-1000	6V/m	Yes	H	Right	Pass
80-1000	6V/m	Yes	V	Right	Pass
80-1000	6V/m	Yes	H	Back	Pass
80-1000	6V/m	Yes	V	Back	Pass
80-1000	6V/m	Yes	H	Left	Pass
80-1000	6V/m	Yes	V	Left	Pass

IEC 61000-4-3 Final test conditions:

Test level : 3V/m

Steps : 1 % of fundamental

Dwell Time : 1 sec

Range (MHz)	Field	Modulation	Polarity	Position (°)	Result (Pass/Fail)
80-1000	3V/m	Yes	H	Front	Pass
80-1000	3V/m	Yes	H	Left	Pass
80-1000	3V/m	Yes	H	Back	Pass
80-1000	3V/m	Yes	H	Right	Pass
80-1000	3V/m	Yes	V	Front	Pass
80-1000	3V/m	Yes	V	Left	Pass
80-1000	3V/m	Yes	V	Back	Pass
80-1000	3V/m	Yes	V	Right	Pass

12.3. PERFORMANCE & RESULT

- Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

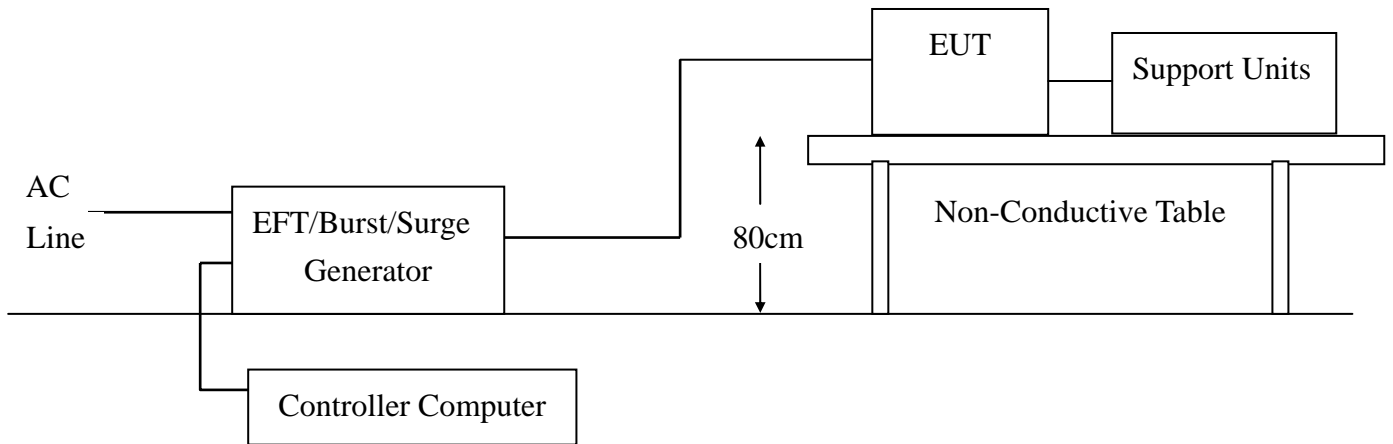
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
--

13. IEC 61000-4-4 TEST

ELECTRICAL FAST TRANSIENTS/BURST IMMUNITY TEST

Port	: On Power Supply Lines
Basic Standard	: IEC 61000-4-4:2006
Requirements	: +/- 1kV for Power Supply Lines
Standard require	: B
Tester	: Christy
Temperature	: 25°C
Humidity	: 55%

13.1. BLOCK DIAGRAM OF TEST SETUP



13.2. TEST PROCEDURE

The EUT and support units were located on a wooden table 0.8m away from ground reference plane. A 1.0 meter long power cord was attached to EUT during the test.

The length of communication cable between communication port and clamp was keeping within 1 meter.

EUT worked with resistance load, and make sure EUT worked normally.

Related peripherals work during the test.

Recording the test result as shown in following table.

Test conditions:

Impulse Frequency: 5kHz

Tr/Th: 5/50ns

Burst Duration: 15ms

Burst Period: 300ms

Inject Line	Voltage kV	Inject Method	Result (Pass/Fail)
L	+/- 1	Direct	Pass
N	+/- 1	Direct	Pass
L+N	+/- 1	Direct	Pass
PE	+/- 1	Direct	Pass
PE+L	+/- 1	Direct	Pass
PE+N	+/- 1	Direct	Pass
PE+L+N	+/- 1	Direct	Pass

13.3. PERFORMANCE & RESULT

Criteria A: The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

Criteria B: The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

Criteria C: Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

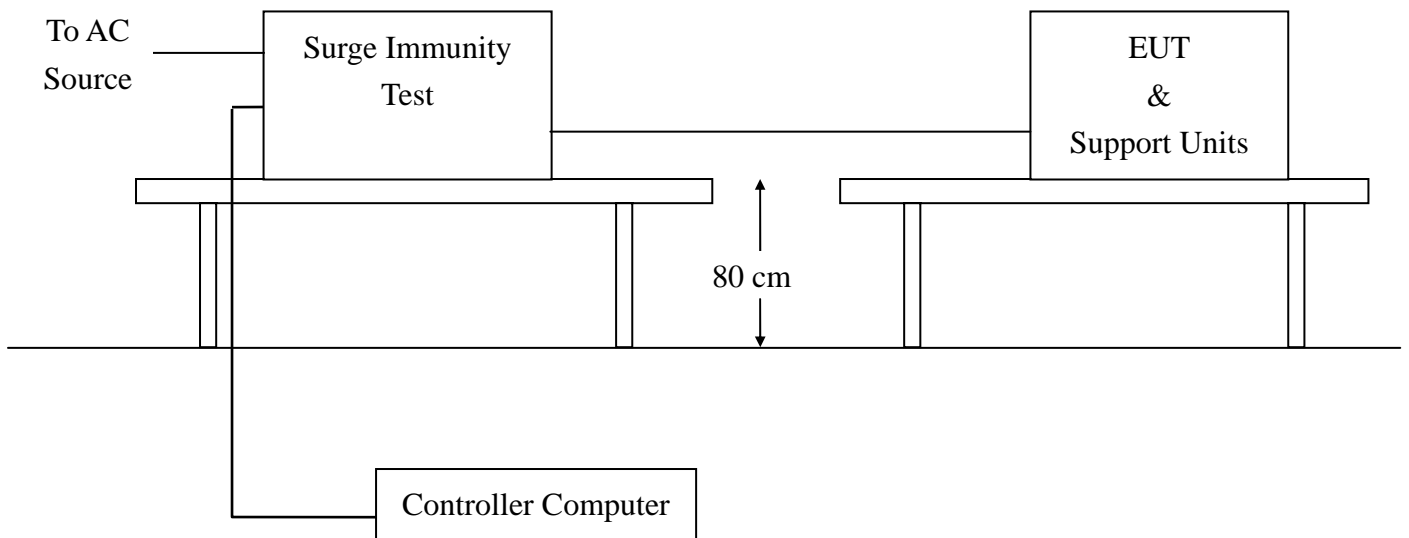
<input checked="" type="checkbox"/> PASS	<input type="checkbox"/> FAILED
---	--

14. IEC 61000-4-5 SURGE IMMUNITY TEST

SURGE IMMUNITY TEST

Port	: On Power Supply Lines
Basic Standard	: IEC 61000-4-5:2005
Requirements	: +/- 1kV (Line to Line) : +/- 2kV (Line to Ground)
Standard require	: B
Tester	:Christy
Temperature	: 25°C
Humidity	: 55%

14.1. BLOCK DIAGRAM OF TEST SETUP



14.2. TEST PROCEDURE

The EUT and support units were located on a wooden table 0.8 m away from ground floor.

EUT worked with resistance load, and make sure EUT worked normally.

Recording the test result as shown in following table.

Test conditions:

Voltage Waveform : 1.2/50 *us*
 Current Waveform : 8/20 *us*
 Polarity : Positive/Negative
 Phase angle : 0°, 90°, 270°
 Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
L1-L2	1	Positive	Capacitive	Pass
L1-L2	1	Negative	Capacitive	Pass
L1-PE	2	Positive	Capacitive	Pass
L1-PE	2	Negative	Capacitive	Pass
L2-PE	2	Positive	Capacitive	Pass
L2-PE	2	Negative	Capacitive	Pass

14.3. PERFORMANCE & RESULT

- Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

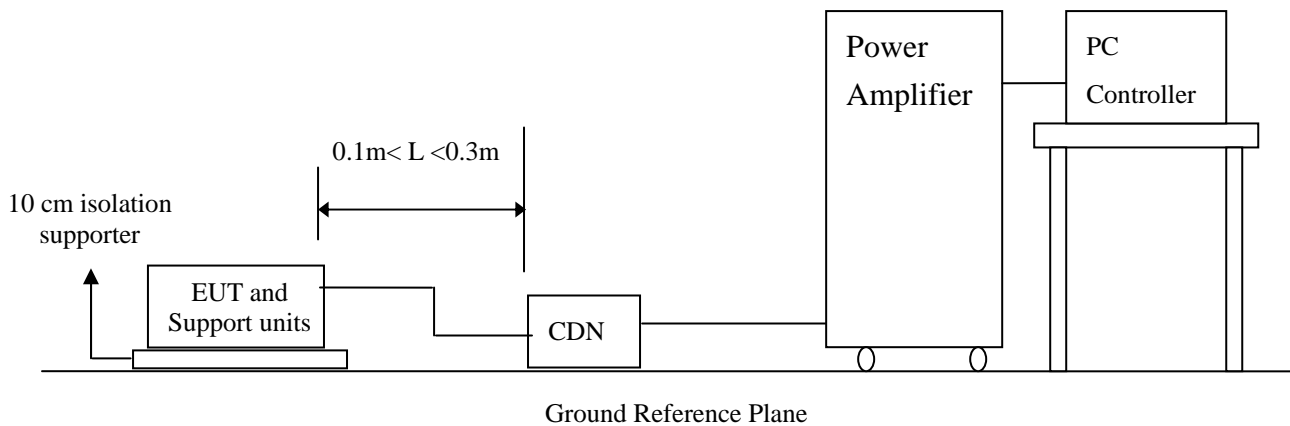
<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
--

15. IEC 61000-4-6 TEST

IEC 61000-4-6 IMMUNITY TO CONDUCTED DISTURBANCES, INDUCED BY RADIO-FREQUENCY FIELD

Port	: On Power Supply Lines
Basic Standard	: IEC 61000-4-6: 2006
Requirements	: 3V with 80% AM. 1kHz Modulation
Injection Method	: CDN M3
Standard require	: A
Tester	: Christy
Temperature	: 25°C
Humidity	: 55%

15.1. BLOCK DIAGRAM OF TEST SETUP



15.2. TEST PROCEDURE

The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.

EUT worked with resistance load, and make sure EUT worked normally.

Related peripherals work during the test.

Setting the testing parameters of CS test software per IEC 61000-4-6.

Recording the test result in following table.

Test conditions:

Frequency Range : 0.15MHz-80MHz
Frequency Step : 1% of fundamental
Dwell Time : 1 sec

Range (MHz)	Strength	Modulation	Result (Pass/Fail)
0.15-80	3V	Yes	Pass

15.3. PERFORMANCE & RESULT

- Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.
- Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.
- Criteria C:** Temporary loss of function is allowed, provided the functions self-recoverable or can be restored by the operation of controls.

<input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAILED
--

16. IEC 61000-4-11 TEST

VOLTAGE DIPS, SHORT INTERRUPTIONS AND VOLTAGE VARIATIONS IMMUNITY TEST

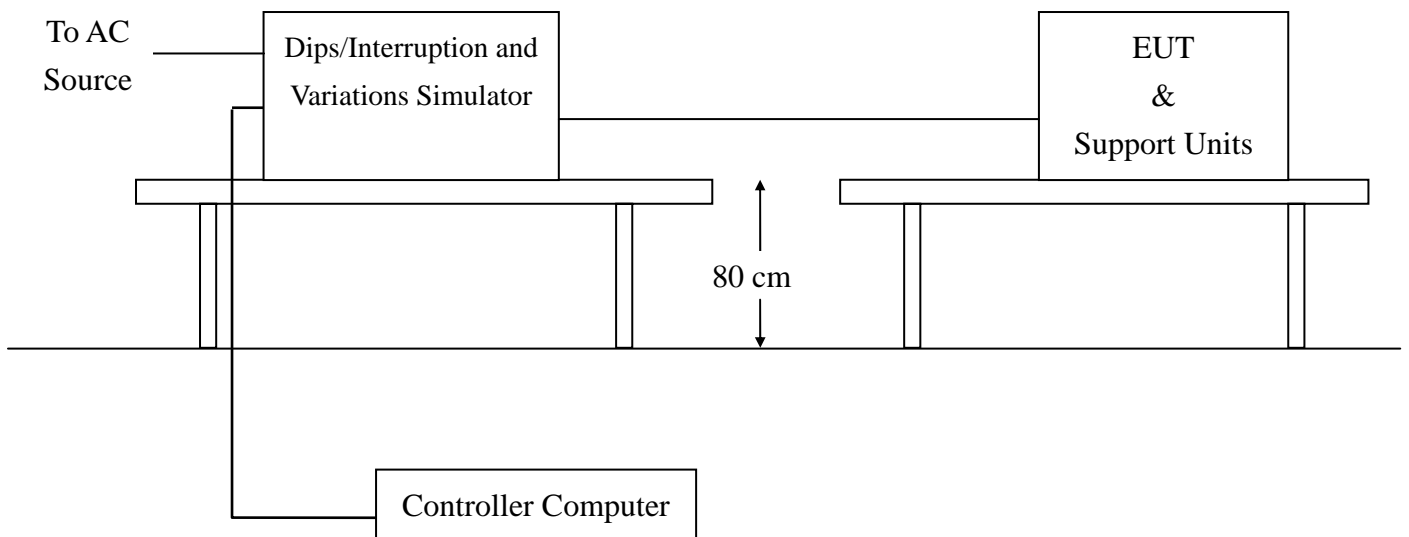
Port : On Power Supply Lines
Basic Standard : IEC 61000-4-11: 2004
Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

Voltage Dips	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
	<5	>95	0.5	B
	70	30	25	C

Voltage Interceptions	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
	<5	>95	250	C

Test Interval : Min. 10 sec.
Tester : Christy
Temperature : 25°C
Humidity : 55%

16.1. BLOCK DIAGRAM OF TEST SETUP



16.2. TEST PROCEDURE

The EUT and support units were located on a wooden table, 0.8 m away from ground floor. EUT worked with resistance load, and make sure EUT worked normally. Setting the parameter of tests and then Perform the test software of test simulator. Conditions changes to occur at 0 degree crossover point of the voltage waveform. Recording the test result in test record form.

Test conditions:

The duration with a sequence of three dips/interruptions with interval of 10 s minimum (Between each test event)

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	B
70	30	25	Normal	C

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250	Normal	C

16.3. PERFORMANCE & RESULT

Criteria A: The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

Criteria B: The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

Criteria C: Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

PASS **FAILED**

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

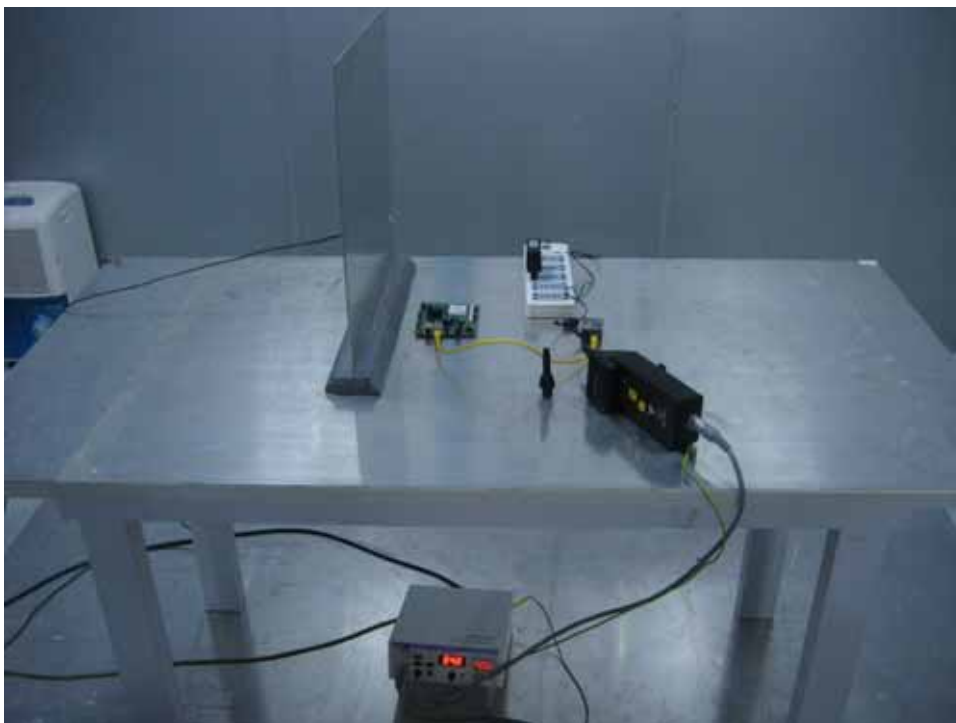
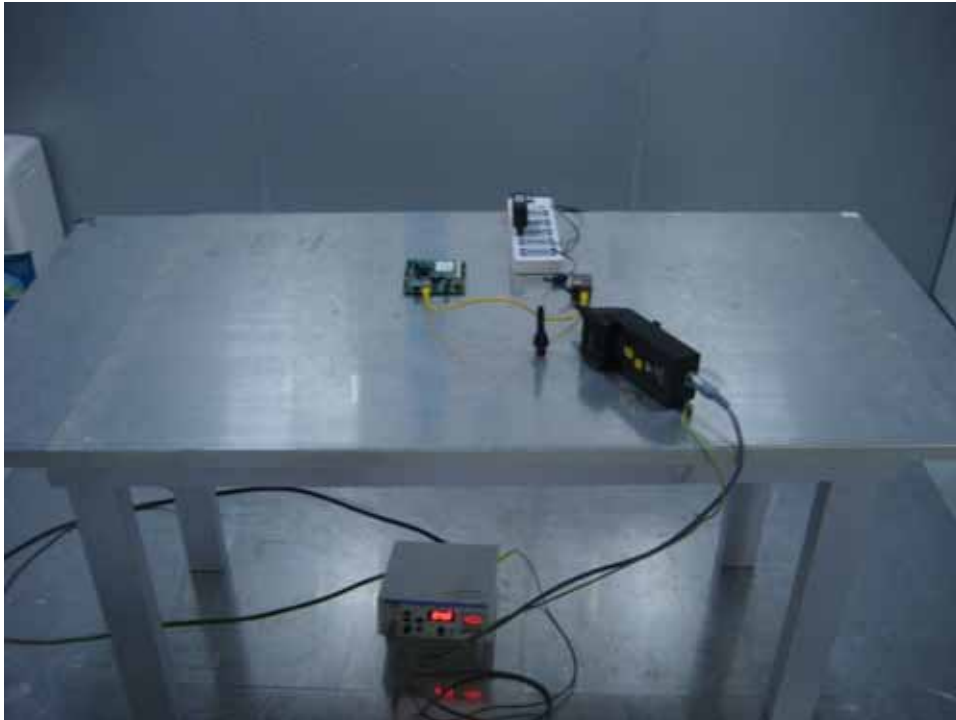
EN 55022 Line Conducted Emission Test Setup



EN 55022 Radiated Emission Test Setup



EN 61000-4-2 Electrostatic Discharge Test Setup



EN 61000-4-3

Radiated, Radio-frequency, Electromagnetic Field Immunity Test Setup



EN 61000-4-4 Fast Transients/Burst Test Setup

EN 61000-4-5 Surge Immunity Test Setup

EN 61000-4-11 Voltage Dips / Interruption Test Setup



EN 61000-4-6 Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields Test Setup



APPENDIX 2 PHOTOGRAPHS OF EUT

Fig.1 Top of EUT



Fig.2 Bottom of EUT



Fig.3 Side of EUT



----- End of report -----