SPORTON LAB.

Project No : EH591721

VERIFICATION OF COMPLIANCE

Equipment : **SiP**
Model No. : **M904**
Applicant : **MtM Technology Corporation**
8F, No. 178, Sec 3, MinQuan E. Rd., Taipei City,
Taiwan (R.O.C.)

SPORTON LAB.

I HEREBY DECLARE THAT :

The following technical requirements and test specifications are relevant to the presumption of conformity under article **3.1(b)** of the **R&TTE Directive 1999/5/EC**
The equipment was **Passed** the test performed according to
ETSI EN 301 489-1 V1.9.2 (2011-09) EN 301 489-17 V2.2.1 (2012-09)
The test was carried out on **Oct. 18, 2015** at SPORTON INTERNATIONAL INC. LAB.

Kero Kuo
Assistant Manager

CE TEST REPORT

Equipment	:	**SiP**
Brand Name	:	**MtM**
Model No.	:	**M904**
Standard	:	**EN 301 489-1 V1.9.2 (2011-09)** **EN 301 489-17 V2.2.1 (2012-09)**
Applicant	:	**MtM Technology Corporation** **8F, No. 178, Sec 3, MinQuan E. Rd.,** **Taipei City, Taiwan (R.O.C.)**
Manufacturer	:	**ASE** **No.26, Chin 3rd Rd., N.E.P.Z., Nantze,** **Kaohsiung, Taiwan (R.O.C.)**

The product sample received on Sep. 17, 2015 and completely tested on Oct. 18, 2015. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in EN 301 489-1 V1.9.2 (2011-09) and EN 301 489-17 V2.2.1 (2012-09) and shown compliance with the applicable technical standards. The equipment under R&TTE Directive 1999/5/EC of article 3.1b harmonized essential for the EMC requirements.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:

Kero Kuo / Assistant Manager

Testing Laboratory
1190

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History of This Test Report

Report No.	Version	Description	Issued Date
EH591721	Rev. 01	Initial issue of report	Oct. 21, 2015

1 SUMMARY OF TEST RESULT

EN 301 489-1 V1.9.2 (2011-09) Emission Tests and Conformance Test Specifications				
Report Clause	**Ref. Std. Clause**	**Test Standard**	**Description of Test**	**Result**
5.1	8.4	EN 55022:2006/A1:2007	AC Power Conducted Emissions	Complied
5.1	8.7	EN 55022:2006/A1:2007	Telecom Port Conducted Emissions	NA
5.2	8.2	EN 55022:2006/A1:2007	Radiated Emissions	Complied
3.3	8.5	EN 61000-3-2:2014	Harmonic Current Emissions	NA
5.4	8.6	EN 61000-3-3:2013	Voltage Fluctuations and Flicker	NA

**NA = Not Applicable

EN 301 489-1 V1.9.2 (2011-09) Immunity Tests and Conformance Test Specifications				
Report Clause	**Ref. Std. Clause**	**Test Standard**	**Description of Test**	**Result**
6.1	9.3	EN 61000-4-2:2009	ESD (Enclosure)	Complied
6.2	9.2	EN 61000-4-3:2006/A1:2008/A2:2010	RS (Enclosure)	Complied
6.3	9.4	EN 61000-4-4:2004/A1:2010	EFT (AC Power Port)	NA
6.3	9.4	EN 61000-4-4:2004/A1:2010	EFT (Signal and telecommunication ports)	NA
6.4	9.8	EN 61000-4-5:2006	Surge (AC Power Port)	NA
6.4	9.8	EN 61000-4-5:2006	Surge (Signal and telecommunication ports)	NA
6.5	9.5	EN 61000-4-6:2009	CS (AC Power Port)	NA
6.5	9.5	EN 61000-4-6:2009	CS (Signal and telecommunication ports)	NA
6.6	9.7	EN 61000-4-11:2004	DIP (AC Power Port)	NA

Criteria	During test	After test
A	Shall operate as intended. May show degradation of performance (see note 1). Shall be no loss of function. Shall be no unintentional transmissions.	Shall operate as intended. Shall be no degradation of performance (see note 2). Shall be no loss of function. Shall be no loss of stored data or user programmable functions.
B	May show loss of function (one or more). May show degradation of performance (see note 1). No unintentional transmissions.	Functions shall be self-recoverable. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2). Shall be no loss of stored data or user programmable functions.
C	May be loss of function (one or more).	Functions shall be recoverable by the operator. Shall operate as intended after recovering. Shall be no degradation of performance (see note 2).
NOTE 1:	Degradation of performance during the test is understood as a degradation to a level not below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.	
NOTE 2:	No degradation of performance after the test is understood as no degradation below a minimum performance level specified by the manufacturer for the use of the apparatus as intended. In some cases the specified minimum performance level may be replaced by a permissible degradation of performance. After the test no change of actual operating data or user retrievable data is allowed. If the minimum performance level or the permissible performance degradation is not specified by the manufacturer then either of these may be derived from the product description and documentation (including leaflets and advertising) and what the user may reasonably expect from the apparatus if used as intended.	

2 GENERAL INFORMATION

2.1 Product Details

The equipment is SiP. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.2 Test Manner

a. During testing, the interface cables and equipment positions were varied according to European Standard EN 55022.

b. The equipment under test were performed the following test modes:

Test Items	Description of test modes
AC Conducted Emission	Mode 1. BT LINK
Radiated Emissions	Mode 1. BT LINK
EMS	Mode 1. BT LINK

Reminder:

1. During the test, the EUT also used full function.

2.3 Table for Supporting Units

< EMI >

<For conducted emission and radiated emission below 1GH >

No.	Peripheral	Manufacturer	Model Number	Cable / Spec. Description
For Local				
1	Note book	DELL	E5430	USB Cable D-Shielded 1.0m
2	USB Mouse	Microsoft	1113	USB Cable , AL-F-Shielded , 1.8m
3	IPod Nano	APPLE	A1199	USB Cable D-Shielded 1.2m
For Remote				
-	Mobile Phone(BT)	HTC	ONE MAX	-

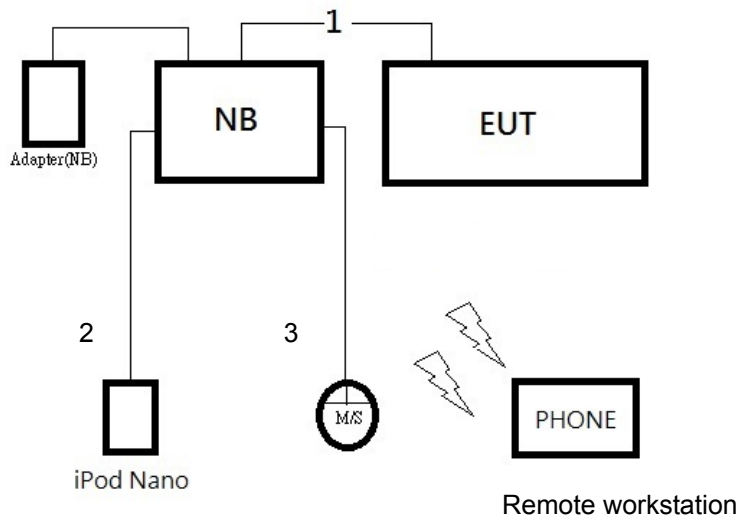
<For radiated emission above 1GHz>

No.	Peripheral	Manufacturer	Model Number	Cable / Spec. Description
For Local				
1	Note book	DELL	P55G	USB Cable D-Shielded 1.0m
2	USB Mouse	DELL	MOC5UO	USB Cable , AL-F-Shielded , 1.8m
3	IPod Nano	APPLE	A1366	USB Cable D-Shielded 1.2m
For Remote				
-	Mobile Phone(BT)	HTC	ONE MAX	-

< EMS >

No.	Peripheral	Manufacturer	Model Number	Cable / Spec. Description
For Local				
1	Mobile Phone(BT)	HTC	ONE MAX	-
2	NB	DELL	Inspiron14-7447	-

2.4 Connection Diagram of Test System for Radiated Emission



1. The USB cable is connected from the EUT to the support unit 1.
2. The USB cable is connected from to the support unit 1 to the support unit 2.
3. The USB cable is connected from to the support unit 1 to the support unit 3.

3 TEST SOFTWARE

< EMI >

Two executive programs, "EMITEST.exe" and "EMCTEST.exe" under Win 7, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The two programs were executed as follows:

a. Turn on the power of all equipment.
b. The NB reads the test program from the hard disk drive and runs it.
c. The NB sends "H" messages to the LCD monitor, and the LCD monitor displays "H" patterns on the screen.
d. The NB reads the test program from the keyboard and mouse and runs it.
f. Repeat the steps from c to d.

At the same time, the following programs were executed:

- The NB executed "WINTHRAX" to read/write iPod nano.
- The Phone (remote workstation) executed "nRF Toolbox" to link with the EUT to maintain the connection by BT.

< EMS >

During the test, the following program under Win 8.1 was executed:

- The Phone executed "nRF Toolbox" to link with the EUT to maintain the connection by BT.

4 GENERAL INFORMATION OF TEST

4.1 Test Facility

< EMI >

Test Site：SPORTON INTERNATIONAL INC.

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055

Test Site No. : CO01-HY, 10CH01-HY,03CH04-HY

< EMS >

Test Site Location : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.
TEL : 886-3-327-3456
FAX : 886-3-318-0055

4.2 Test Voltage

AC 230V / 50Hz

4.3 Measurement Procedure

EMI Test	:	European Standard EN 55022 Class B
Harmonics Test	:	European Standard EN 61000-3-2
Voltage Fluctuations Test	:	European Standard EN 61000-3-3
EMS Test	:	European Standard EN 301489-1 European Standard EN 301489-17

(ESD: IEC 61000-4-2, RS: IEC 61000-4-3, EFT: IEC 61000-4-4, SURGE: IEC 61000-4-5, CS: IEC 61000-4-6, DIPS: IEC 61000-4-11)

4.4 Test in Compliance with

EMI Test	:	European Standard EN 55022 Class B
Harmonics Test	:	European Standard EN 61000-3-2
Voltage Fluctuations Test	:	European Standard EN 61000-3-3
EMS Test	:	European Standard EN 301489-1 European Standard EN 301489-17

(ESD: IEC 61000-4-2, RS: IEC 61000-4-3, EFT: IEC 61000-4-4, SURGE: IEC 61000-4-5, CS: IEC 61000-4-6, , DIPS: IEC 61000-4-11)

4.5 Frequency Range Investigated

a. Conducted emission test: from 150 kHz to 30 MHz
b. Radiated emission test: from 30 MHz to 6,000 MHz
c. Radio frequency electromagnetic field immunity test: 80-2700 MHz

4.6 Test Distance

a. The test distance of radiated emission test from antenna to EUT is 10 M (from 30MHz~1GHz).
b. The test distance of radiated emission test from antenna to EUT is 3 M (from 1GHz~6GHz).
c. The test distance of radio frequency electromagnetic field immunity test from antenna to EUT is 3 M.

5 EMISSION TESTS RESULT

5.1 Test of Conducted Powerline and Telecommunication Line

5.1.1 Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

For a device, which is designed to be connected to the telecommunication line, the radio frequency voltage that is conducted back onto the telecommunication line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Me For a device, which is designed to be connected to the telecommunication line, the radio frequency voltage that is conducted back onto the telecommunication line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

	Voltage		Current	
Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)	QP Limit (dBuA)	AV Limit (dBuA)
0.15~0.5	84~74	74~64	40~30	30~20
0.5~30	74	64	30	20

5.1.2 Measuring Instruments and Setting

See list of measuring instruments of this test report.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

5.1.3 Test Procedures

a. The EUT was warmed up for 15 minutes before testing started.
b. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
c. Connect EUT to the power mains through a line impedance stabilization network (LISN).
d. Connect telecommunication port to ISN (Impedance Stabilization Network).
e. All the support units are connect to the other LISN.
f. The LISN provides 50 ohm coupling impedance for the measuring instrument.
g. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
h. Both sides of AC line were checked for maximum conducted interference.
i. The frequency range from 150 kHz to 30 MHz was searched.
j. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

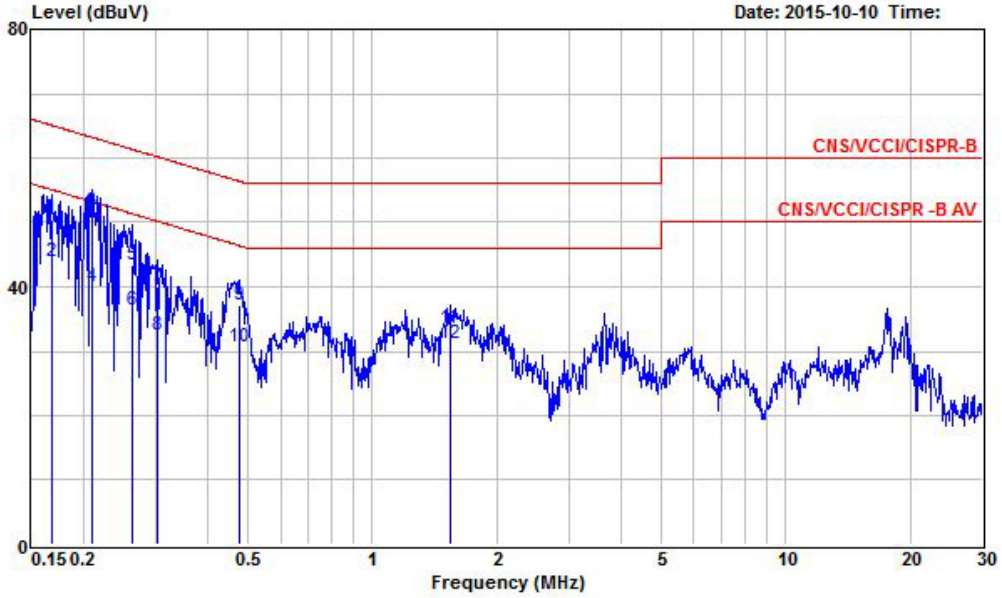
5.1.4 Typical Test Setup Layout of Conducted Powerline

a. AMN is 80 cm from the EUT and at least 80 cm from other units and other metal planes.
b. EUT is connected to one artificial mains network (AMN).
c. All other units of a system are powered from a second AMN. A multiple outlet strip can be used for multiple mains cords.
d. Rear of EUT to be flushed with rear of table top.
e. Peripherals shall be placed at a distance of 10 cm from each other and from the controller, except for the monitor which, if this is an acceptable installation practice, shall be placed directly on the top of the controller.
f. If cables, which hang closer than 40 cm to the horizontal metal ground plane, cannot be shortened to appropriate length, the excess shall be folded back and forth forming a bundle 30 cm to 40 cm long.
g. Mains cords and signal cables shall be positioned for their entire lengths, as far as possible, at 40 cm from the vertical reference plane.
h. Cables of hand operated devices, such as keyboards, mice, etc. shall be placed as for normal usage.

5.1.5 Results of AC Power Line Conducted Emissions Measurement

Test Mode	Mode 1	Test Site No.	CO01-HY
Test Frequency	0.15 MHz ~ 30 MHz	Test Engineer	David
Temperature	24 ℃	Relative Humidity	57 %
Note: 1. Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level			
2. All emissions not reported here are more than 10 dB below the prescribed limit.			
■ The test was passed at the minimum margin that marked by the frame in the following data			

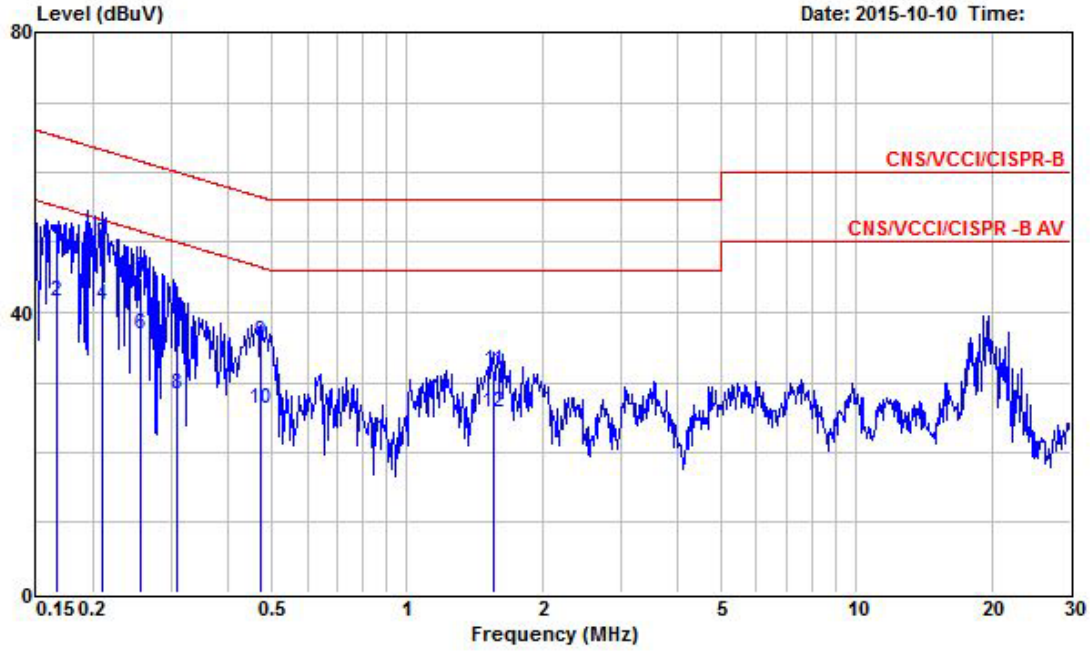
Line



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B LISN 2001/009 140108 LINE

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.168	50.44	-14.62	65.06	50.29	0.05	0.10	QP
2	0.168	44.01	-11.05	55.06	43.86	0.05	0.10	Average
3	0.209	51.63	-11.61	63.24	51.49	0.04	0.10	QP
4	0.209	39.89	-13.35	53.24	39.75	0.04	0.10	Average
5	0.263	43.44	-17.90	61.34	43.30	0.04	0.10	QP
6	0.263	36.41	-14.93	51.34	36.27	0.04	0.10	Average
7	0.302	39.89	-20.30	60.19	39.75	0.04	0.10	QP
8	0.302	32.45	-17.74	50.19	32.31	0.04	0.10	Average
9	0.476	37.26	-19.15	56.41	37.12	0.04	0.10	QP
10	0.476	30.69	-15.72	46.41	30.55	0.04	0.10	Average
11	1.540	33.38	-22.62	56.00	33.21	0.07	0.10	QP
12	1.540	31.08	-14.92	46.00	30.91	0.07	0.10	Average

Neutral



Site : CO01-HY
Condition : CNS/VCCI/CISPR-B LISN 2001/009 140108 NEUTRAL

	Freq	Level	Over Limit	Limit Line	Read Level	Probe Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.166	49.60	-15.56	65.16	49.47	0.03	0.10	QP
2	0.166	41.46	-13.70	55.16	41.33	0.03	0.10	Average
3	0.209	49.92	-13.32	63.24	49.79	0.03	0.10	QP
4	0.209	41.04	-12.20	53.24	40.91	0.03	0.10	Average
5	0.256	44.94	-16.62	61.56	44.81	0.03	0.10	QP
6	0.256	36.99	-14.57	51.56	36.86	0.03	0.10	Average
7	0.308	38.89	-21.13	60.02	38.76	0.03	0.10	QP
8	0.308	28.33	-21.69	50.02	28.20	0.03	0.10	Average
9	0.474	35.86	-20.58	56.44	35.72	0.04	0.10	QP
10	0.474	26.22	-20.22	46.44	26.08	0.04	0.10	Average
11	1.560	31.58	-24.42	56.00	31.41	0.07	0.10	QP
12	1.560	25.84	-20.16	46.00	25.67	0.07	0.10	Average

5.1.6 Test Result for Telecommunication Line Conducted Emissions Measurement

The EUT does not have the communication port.

5.2 Radiated Emissions Measurement

5.2.1 Limit

Radiated emissions below 1GHz were measured with a bandwidth of 120 kHz for 30 MHz to 1,000 MHz and bandwidth of 1 MHz for above 1 GHz, the measurement shall be made up to 5 times the hightest frequency or 6GHz (Based on the hightest operating frequency of EUT), whichever is lower.The quasi-peak measuring receiver shall be in accordance with clause 2 of EN55016-1. Receivers with peak detectors shall be in accordance with clause 3 of EN55016-1, and shall have a 6 dB bandwidth in accordance with clause 2 of EN55016-1 and above 1GHz measurement mothed shall be as specified in 7.3 of EN55016-2-3.

Limits for radiated disturbance of class B ITE at a measuring distance of 10 m	
Frequency range (MHz)	**Quasi-peak limits (dBμV/m)**
30 to 230	30
230 to 1000	37
Note 1: The lower limit shall apply at the transition frequency. Note 2: Additional provisions may be required for cases where interference occurs.	

Limits for radiated disturbance of Class B ITE at a measurement distance of 3 m		
Frequency range (GHz)	**Average limit (dBμV/m)**	**Peak limit (dBμV/m)**
1 to 3	50	70
3 to 6	54	74
Note 1: The lower limit applies at the transition frequency.		

5.2.2 Measuring Instruments and Setting

See list of measuring instruments of this test report.

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP
Start ~ Stop Frequency	1GHz~6GHz / RBW 1MHz for Peak, Average

5.2.3 Test Procedures

< Below 1GHz >

a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 10 meters from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

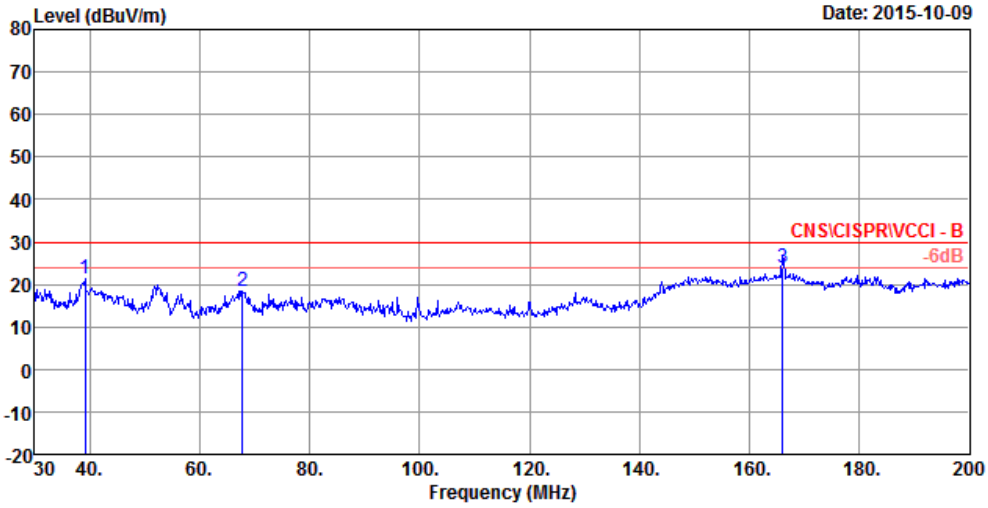
< Above 1GHz >

a. The EUT was placed on a turntable at the height of 0.8 meters from the ground.
b. The EUT was set 3 meters from the interference-receiving antenna which was mounted on the top of a variable height antenna tower.
c. An absorber was placed between the EUT and Antenna as required per the CISPR16-1-14 standard, specifically, the measurement setup requirements defined for an accredited test site.
d. The table was rotated 360 degrees to determine the position of the highest radiation.
e. Set the measuring receiver system to “Peak Detection” function and “Specified Bandwidth” with the “Maximum Hold” mode set on the measuring receiver.
f. The DRG Horn Antenna was set at a height of 1 meter while turning the turntable to obtain the EUT’s most maximized operational radiation noise readings from both the “Horizontal” and “Vertical” polarizations separately.
g. When an EUT is located on the turntable, and its height is over 172cm (when the antenna’s 3dB beam width of 6GHz is at 27°), the DRG Horn Antenna must be raised and descended while turning the turntable to obtain the EUT’s most maximized operational radiation noise readings from both the “Horizontal” and “Vertical” polarizations separately.
NOTE: The maximum raise height of the antenna is the same height as that of the top of the EUT while located on top of the turntable.
h. If the emission level of the EUT in “Peak Detection” mode is 20dB lower than the “Average” limit (means that the emission level in “Peak Detection” mode also complies with the limit in “Average Mode”), testing will be stopped and “Peak” values of the EUT will be reported, otherwise, the emissions of the EUT will be measured in “Average Mode” again and then reported.

5.2.4 Test Results for Radiated Emissions for Below 1GHz

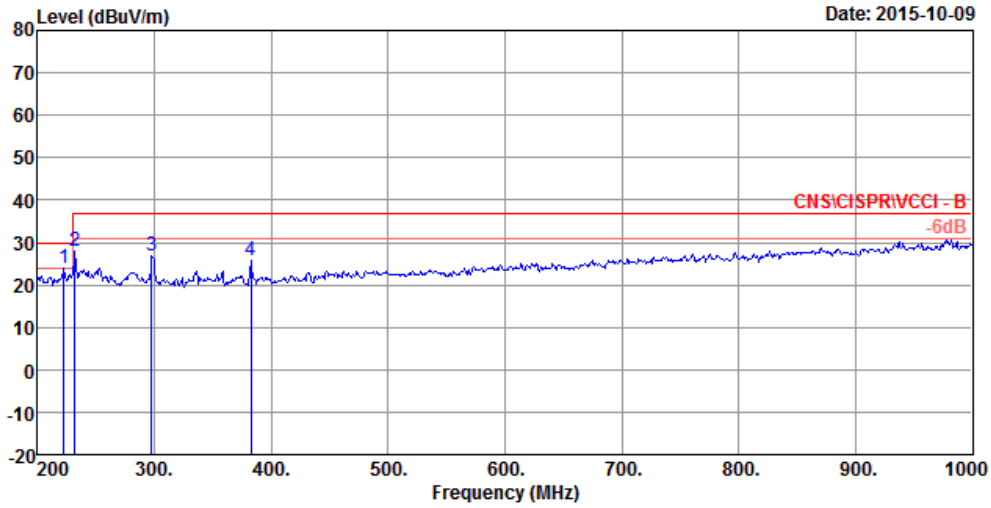
Test mode	Mode 1	Test Site No.	10CH01-HY
Test frequency	30 MHz ~ 1000 MHz	Test Engineer	Verson
Temperature	22 ℃	Relative Humidity	66 %
Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)			
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level			
■ The test was passed at the minimum margin that marked by the frame in the following data			

Vertical



Site : 10CH01-HY
Condition: CNS\CISPR\VCCI - B 10m BICONICAL-1040803 VERTICAL

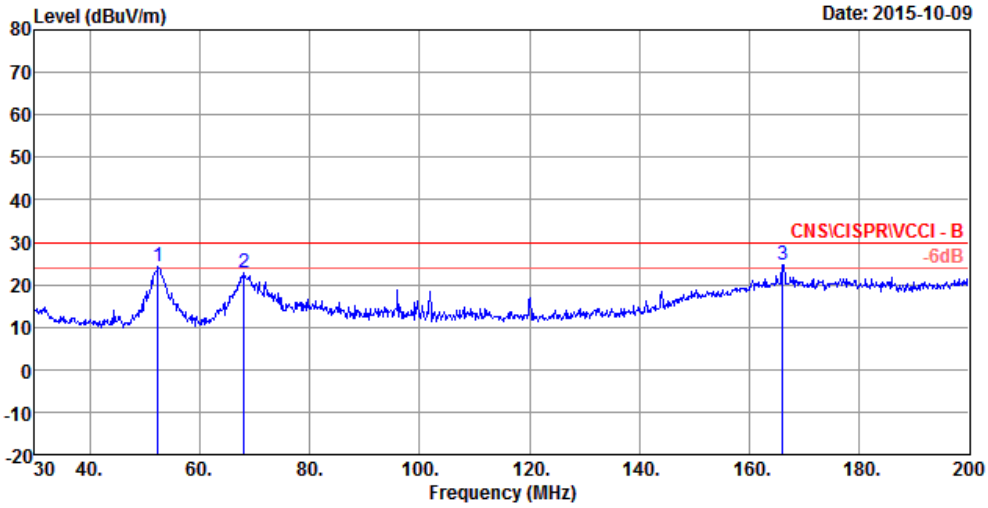
	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		cm	deg
1	39.18	21.37	-8.63	30.00	36.48	1.62	11.51	28.24	Peak	---	---
2	67.74	18.40	-11.60	30.00	35.47	2.09	9.17	28.33	Peak	---	---
3 MX	166.00	23.75	-6.25	30.00	36.37	3.36	12.47	28.45	QP	100	259



Site : 10CH01-HY
Condition: CNS\CISPR\VCCI - B 10m LOG-1040803 VERTICAL

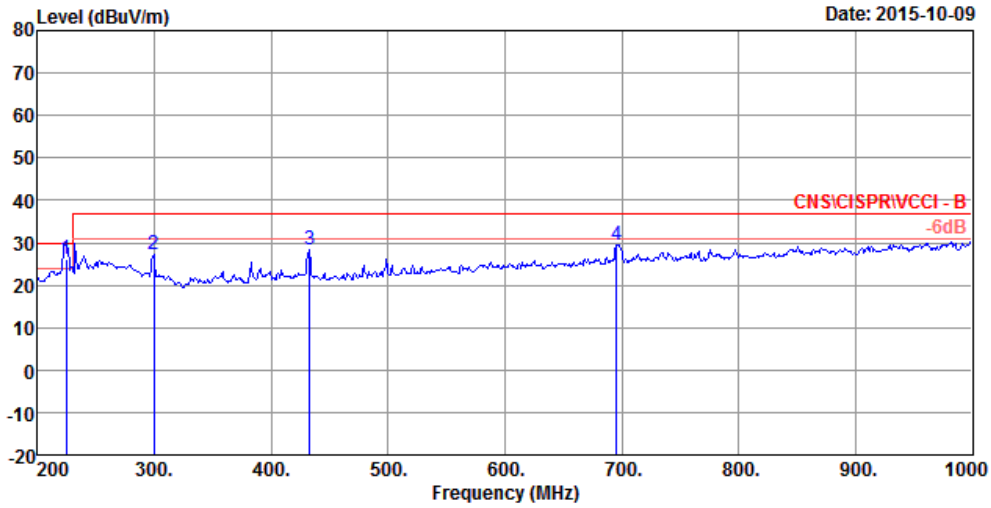
	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		cm	deg
1 MX	222.40	23.81	-6.19	30.00	33.71	3.77	13.83	27.50	Peak	---	---
2	232.00	27.99	-9.01	37.00	38.52	4.02	12.92	27.47	Peak	---	---
3	297.60	26.75	-10.25	37.00	36.42	4.51	13.12	27.30	Peak	---	---
4	382.40	25.78	-11.22	37.00	33.19	5.04	15.40	27.85	Peak	---	---

Horizontal



Site : 10CH01-HY
Condition: CNS\CISPR\VCCI - B 10m BICONICAL-1040803 HORIZONTAL

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		cm	deg
1	52.44	24.38	-5.62	30.00	41.03	1.84	9.70	28.19	Peak	---	---
2	68.08	22.72	-7.28	30.00	39.83	2.09	9.13	28.33	Peak	---	---
3 MX	166.00	24.67	-5.33	30.00	37.29	3.36	12.47	28.45	Peak	---	---



Site : 10CH01-HY
Condition: CNS\CISPR\VCCI - B 10m LOG-1040803 HORIZONTAL

		Freq	Level	Over Limit	Limit Line	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB/m	dB		cm	deg
1	MX	224.20	25.97	-4.03	30.00	35.87	3.77	13.83	27.50	QP	400	115
2		299.20	27.27	-9.73	37.00	36.81	4.62	13.13	27.29	Peak	---	---
3		432.80	28.24	-8.76	37.00	34.33	5.52	16.49	28.10	Peak	---	---
4		695.20	29.47	-7.53	37.00	30.40	7.13	20.11	28.17	Peak	---	---

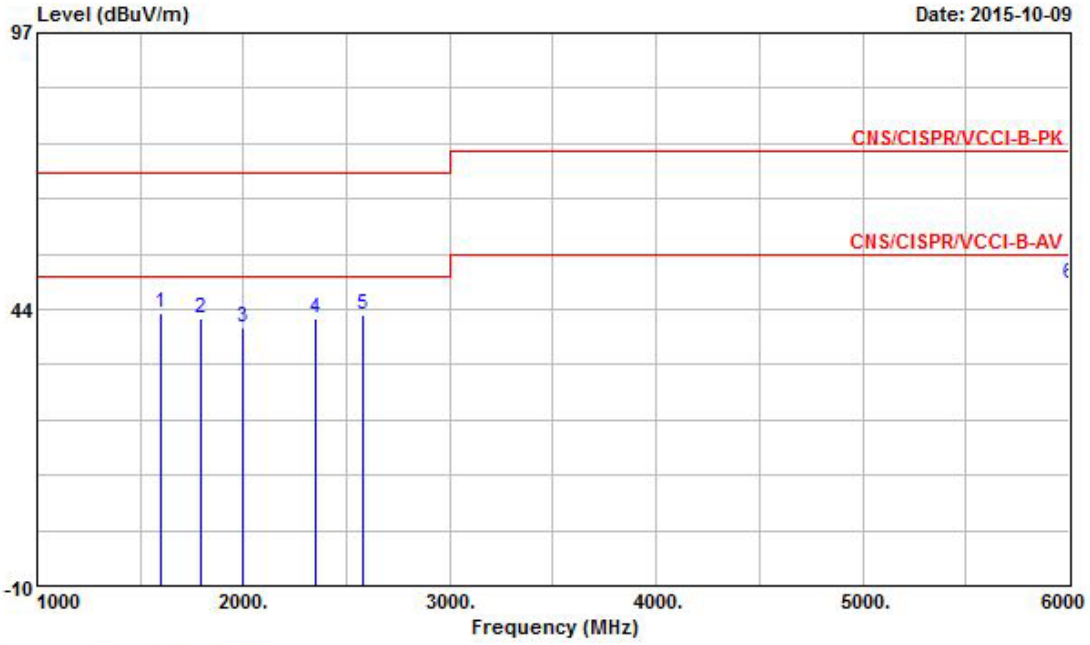
Note: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

V: Vertical Polarization ; H: Horizontal Polarization.

5.2.5 Test Result of Radiated Emission for Above 1GHz

Test mode	Mode 1	Test Site No.	03CH04-HY
Test frequency	1000 MHz ~ 6000 MHz	Test Engineer	Ou Yen Liang
Temperature	26 ℃	Relative Humidity	53 %
Note: 1. Emission level (dBμV/m) = 20 log Emission level (μV/m)			
2. Corrected Reading : Antenna Factor + Cable Loss + Read Level – Preamp Factor = Level			
■ The test was passed at the minimum margin that marked by the frame in the following data			

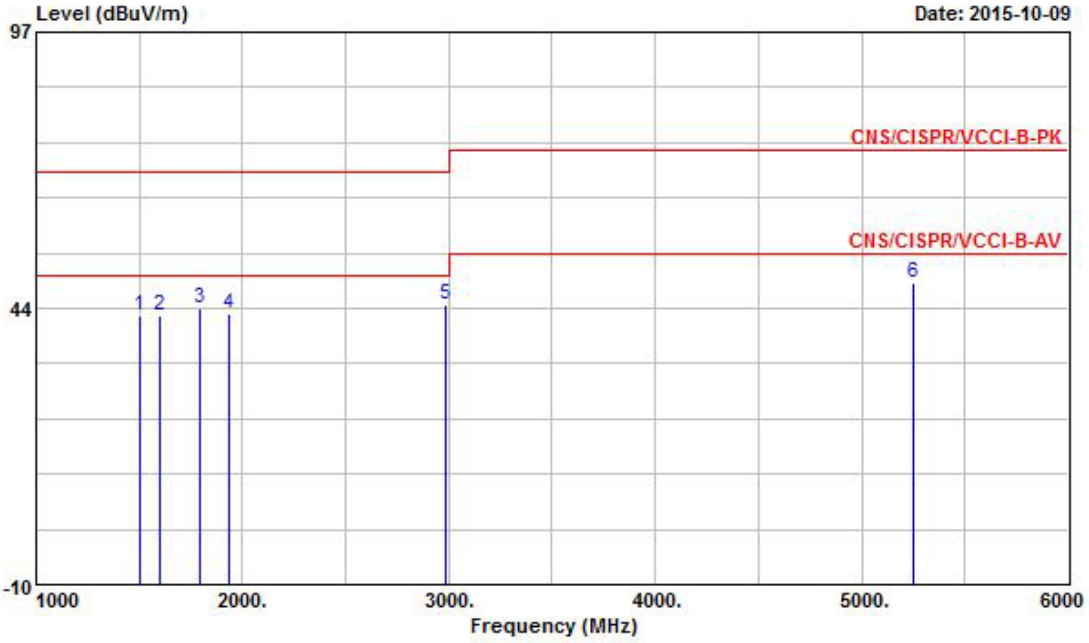
Vertical



Site :03CH04-HY
Condition:CNS/CISPR/VCCI-B-PK 3m HF-ANT-9120D VERTICAL

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1596.000	42.74	-27.26	70.00	47.14	25.96	34.77	4.41	---	---	Peak
2	1790.000	41.80	-28.20	70.00	45.63	26.07	34.65	4.74	---	---	Peak
3	1996.000	40.06	-29.94	70.00	43.31	26.20	34.53	5.08	---	---	Peak
4	2350.000	41.85	-28.15	70.00	43.89	27.03	34.61	5.55	---	---	Peak
5	2580.000	42.43	-27.57	70.00	43.68	27.58	34.67	5.84	---	---	Peak
6 @	5997.000	48.38	-25.62	74.00	42.42	32.50	34.60	8.06	---	---	Peak

Horizontal



Site :03CH04-HY
Condition:CNS/CISPR/VCCI-B-PK 3m HF-ANT-9120D HORIZONTAL

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.000	41.97	-28.03	70.00	46.60	25.90	34.81	4.28	---	---	Peak
2	1598.000	42.23	-27.77	70.00	46.63	25.96	34.77	4.41	---	---	Peak
3	1790.000	43.42	-26.58	70.00	47.25	26.07	34.65	4.74	---	---	Peak
4	1936.000	42.47	-27.53	70.00	45.87	26.16	34.56	5.00	---	---	Peak
5	2988.000	44.19	-25.81	70.00	44.21	28.46	34.79	6.31	---	---	Peak
6 @	5250.000	48.50	-25.50	74.00	43.53	31.80	34.50	7.66	100	177	Peak

5.3 Harmonic Current Emissions Measurement

5.3.1 Limit

Harmonic current emissions evaluate the potential for the EUT to cause distortion on the AC power lines. It is applicable to electrical and electronic equipment having an input current ≦16 A par phase, and intended to be connected to public low-voltage distribution systems. EUT has been specified power less than or equal to 600 W and complies with Class D equipment and limits.

Harmonics [n]	Class A [A]	Class B [A]	Class C [% of fund]	Class D [mA/W]
Odd harmonics				
3	2.30	3.45	30 x λ	3.4
5	1.14	1.71	10	1.9
7	0.77	1.155	7	1.0
9	0.40	0.60	5	0.5
11	0.33	0.495	3	0.35
13	0.21	0.315	3	3.85/13
15 ≦ n ≦ 39	0.15 x 15/n	0.225 x 15/n	3	3.85/n
Even harmonics				
2	1.08	1.62	2	-
4	0.43	0.645	-	-
6	0.30	0.45	-	-
8 ≦ n ≦ 40	0.23 x 8/n	0.345 x 8/n	-	-

5.3.2 Measuring Instruments and Setting

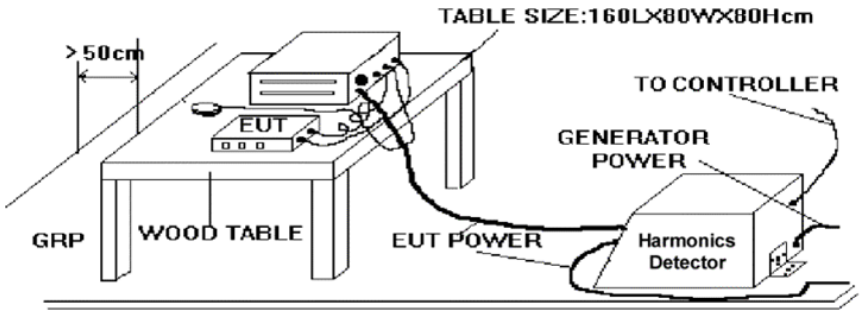
See list of measuring instruments of this test report.

Harmonic and Flicker Tester	Setting
Line Voltage	230 V
Line Frequency	50 Hz
Device Class	---
Current Measurement Range	High
Measurement Delay	10.0 seconds
Test Duration	2.00 minutes

5.3.3 Test Procedures

The measurement of harmonic currents shall be performed as follows:
– for each harmonic order, measure the 1.5 s smoothed r.m.s. harmonic current in each DFT time window as defined in IEC 61000-4-7.
– calculate the arithmetic average of the measured values from the DFT time windows, over the entire observation period Short cyclic (Tcycle ≦ 2.5 min). Because of synchronisation to meet the requirements for repeatability in 5%.

5.3.4 Test Setup Layout



5.3.5 Test Deviation

There is no deviation with the original standard.

5.3.6 Results of Harmonic Current Emissions

The power source of the EUT is only from system power, so this test item is not applicable.

5.4 Voltage Fluctuation and Flicker Measurement

5.4.1 Limit

The objective of voltage changes, voltage fluctuations and flicker in public low voltage supply systems during equipment with rated current ≦ 16 A per phase, ensures that home appliances and certain other electrical equipment do not adversely affect lighting equipment when connected to the same power system.

Voltage Fluctuation and Flicker Limits

— The value of P_{st} shall not be greater than 1.0.

— The value of P_{lt} shall not be greater than 0.65.

— The value of d (t) during a voltage change shall not exceed 3.3 % for more than 500 ms.

— The relative steady-state voltage change, dc, shall not exceed 3.3 %.

— The maximum relative voltage change, dmax, shall not exceed 4.0 %.

5.4.2 Measuring Instruments and Setting

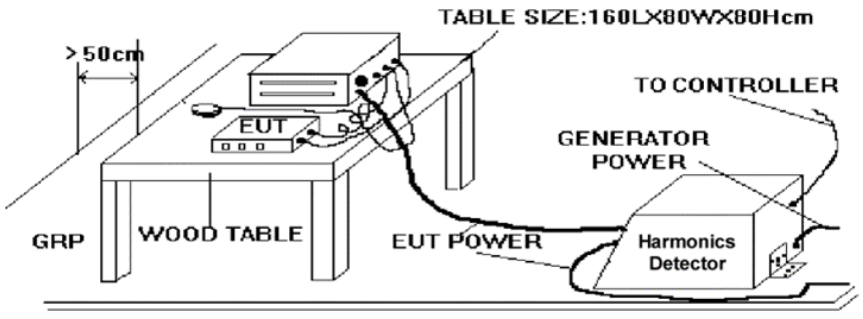
See list of measuring instruments of this test report.

Harmonic and Flicker Tester	Setting
Line Voltage	230 V
Line Frequency	50 Hz
Measurement Delay	10.0 seconds
Pst Integration Time	10 minutes
Pst Integration Periods	1

5.4.3 Test Procedures

The total impedance of the test circuit, excluding the appliance under test, but including the internal impedance of the supply source, shall be equal to the reference impedance. The stability and tolerance of the reference impedance shall be adequate to ensure that the overall accuracy of ±8% is achieved during the whole assessment procedure

5.4.4 Test Setup Layout



5.4.5 Test Deviation

There is no deviation with the original standard.

5.4.6 Test Result of Voltage Fluctuation and Flicker

The power source of the EUT is only from system power, so this test item is not applicable.

6 IMMUNITY TESTS RESULT

6.1 Electrostatic Discharge Immunity Measurement (ESD)

Test mode	Mode 1
Final Test Result	***PASS***
Pass Performance Criteria	**A** ±2 / ±4 / ±8 kV for air discharge
	A ±2 / ±4 kV for contact discharge
Required Performance Criteria	**B** ±2 / ±4 / ±8 kV for air discharge
	B ±2 / ±4 kV for contact discharge
Basic Standard	IEC 61000-4-2
Product Standard	EN 301489-1 / EN 301489-17
Level	3 for air discharge
	2 for contact discharge
Test Voltage	±2 / ±4 / ±8 kV for air discharge
	±2 / ±4 kV for contact discharge
Discharge Impedance	330 ohm / 150 pF
Temperature	24 ℃
Relative Humidity	45%
Atmospheric Pressure	101 kPa
Test Date	Oct 18, 2015
Test Engineer	Mark

6.1.1 Limit

Air discharges and contact charges are estimated to enclosure of EUT on all connectors and conducting surfaces.

Contact Discharges to the conductive surfaces and to coupling planes:

The EUT shall be exposed to at least 200 discharges 100 each at negative and positive polarity. One of the test points shall be subjected to at least 50 indirect discharges (contact) to the center of the front edge of the horizontal coupling plane(HCP). The remaining three test points shall each receive at least 50 direct contact discharges. If no direct contact test points are available, then at least 200 indirect discharges shall be applied in the indirect mode [see IEC 61000-4-2 for use of the Vertical Conducting Plane (VCP)]. Tests shall be performed at a maximum repetition rate of one discharge per second.

Air Discharge at seam between apertures and insulation surfaces:

On those parts of the EUT where it is not possible to perform contact discharge testing, the equipment should be investigated to identify user accessible points where breakdown may occur. This investigation should be restricted to those areas normally handled by the user. A minimum of 10 single air discharges of each polarity and test level shall be applied to the selected test point for each area.

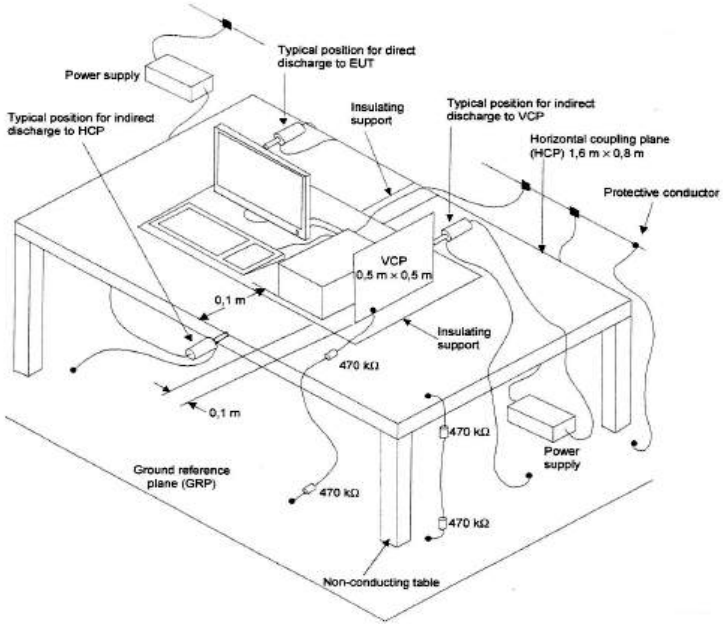
The preferential range of test levels for the ESD test is given in following levels:

Contact discharge Test voltage ±4 kV ; Air discharge Test voltage ±8 kV.

6.1.2 Test Procedures

1. In the case of air discharge testing the climatic conditions shall be within the following ranges:
   - ambient temperature: 15℃ to 35℃;
   - relative humidity : 30% to 60%;
   - atmospheric pressure : 86 kPa (860 mbar) to 106 kPa (1060 mbar).
2. Test programs and software shall be chosen so as to exercise all normal modes of operation of the EUT. The use of special exercising software is encouraged, but permitted only where it can be shown that the EUT is being comprehensively exercised.
3. The test voltage shall be increased from the minimum to the selected test severity level, in order to determine any threshold of failure. The final severity level should not exceed the product specification value in order to avoid damage to the equipment.
4. The test shall be performed with both air discharge and contact discharge. On preselected points at least 10 single discharges (in the most sensitive polarity) shall be applied on air discharge. On preselected points at least 10 single discharges (in the most sensitive polarity) shall be applied on contact discharge.
5. For the time interval between successive single discharges an initial value of one second is recommended. Longer intervals may be necessary to determine whether a system failure has occurred.
6. In the case of contact discharges, the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.
7. In the case of painted surface covering a conducting substrate, the following procedure shall be adopted :
   - If the coating is not declared to be an insulating coating by the equipment manufacturer, then the pointed tip of the generator shall penetrate the coating so as to make contact with the conducting substrate.
   - Coating declared as insulating by the manufacturer shall only be submitted to the air discharge.
   - The contact discharge test shall not be applied to such surfaces.
8. In the case of air discharges, the round discharge tip of the discharge electrode shall be approached as fast as possible (without causing mechanical damage) to touch the EUT. After each discharge, the ESD generator (discharge electrode) shall be removed from the EUT. The generator is then retriggered for a new single discharge. This procedure shall be repeated until the discharges are completed. In the case of an air discharge test, the discharge switch, which is used for contact discharge, shall be closed.

6.1.3 Test Setup



The test setup shall consist of a non-conductive table,(0.8±0.08)m high ,standing on the ground reference plan .
A horizontal coupling plane (HCP), (1.6±0.02) m, shall be placed on the table. The EUT and its cables shall be isolated from the coupling plane by an insulating support (0.5±0.05)mm in thickness. If the EUT is too large to be located 0.1m minimum from all sides of the HCP, an additional, identical HCP shall be used, placed (0.3±0.02) m from the first HCP. The table has to be enlarged or two table maybe used. The HCPs shall not be bonded together, other than via resistive cables to the GRP.
Setup consists of the test generator, EUT and auxiliary instrumentation necessary to perform DIRECT and INDIRECT application of discharges to the EUT as applicable, in the follow manner :
a. CONTACT DISCHARGE to the conductive surfaces and to coupling plane;
b. AIR DISCHARGE at insulating surfaces.

The preferred test method is that of type tests performed in laboratories and the only accepted method of demonstrating conformance with this standard. The EUT was arranged as closely as possible to arrangement in final installed conditions.

6.1.4 Test Record

Test Result of Contact Discharge

Indirect discharge to HCP and VCP

Test Point	No. Of Discharges	Contact Discharge / Pointed Tip				Test Record
		+2kV	-2kV	+4kV	-4kV	
HCP (At Front)	10	A	A	A	A	No influencing
HCP (At Left)	10	A	A	A	A	No influencing
HCP (At Right)	10	A	A	A	A	No influencing
HCP (At Rear)	10	A	A	A	A	No influencing
VCP (At Front)	10	A	A	A	A	No influencing
VCP (At Left)	10	A	A	A	A	No influencing
VCP (At Right)	10	A	A	A	A	No influencing
VCP (At Rear)	10	A	A	A	A	No influencing

6.2 Radio Frequency Electromagnetic Field Immunity Measurement (RS)

Test mode	Mode 1
Final Test Result	***PASS***
Pass Performance Criteria	**A**
Required Performance Criteria	A
Basic Standard	IEC 61000-4-3
Product Standard	EN 301489-1 / EN 301489-17
Level	2
Frequency Range	80-1000 MHz, 1400-2700 MHz
Field Strength	3 V/m (unmodulated, r.m.s) 80% AM (1 kHz)
Temperature	22 ℃
Relative Humidity	46 %
Atmospheric Pressure	101 kPa
Test Date	Oct. 18, 2015
Test Engineer	Mark

6.2.1 Test Record

Sides of the EUT have been exposed to the field	Antenna positioned	Test field strength Level	Test field strength (V/m)	Observation
Front	Vertical	2	3	Normal (No influencing)
	Horizontally	2	3	
Left	Vertical	2	3	Normal (No influencing)
	Horizontally	2	3	
Back	Vertical	2	3	Normal (No influencing)
	Horizontally	2	3	
Right	Vertical	2	3	Normal (No influencing)
	Horizontally	2	3	

6.2.2 Limit

Most electronic equipment is in some manner affected by electromagnetic radiation. RF immunity test entails subjecting the equipment under test to a uniform field of radiated electromagnetic energy of a specified electromagnetic field strength and frequency and monitoring the functionality of the device as the frequency is swept over a specified frequency range.
The preferential range of test field strength levels for the RS test is given in following levels:
80~1GHz 3V/m; 1.4~2.7GHz: 3V/m.

6.2.3 Exclusion Bands

Using the 2,450 MHz band as an example:
• lower limit of exclusion band = 2400 - 120 = 2280 MHz;
• upper limit of exclusion band = 2483,5 + 124,175 = 2607,675 MHz;
• thus the exclusion band for 2,45 GHz equipment falling within the scope of the present document extends from 2280 MHz to 2607,675 MHz.

6.2.4 Test Procedures

1. The equipment to be tested is placed in the center of the enclosure on a wooden table. The equipment is then connected to power and signal leads according to pertinent installation instructions.
2. The bilog antenna which is enabling the complete frequency range of 80 MHz to 1000 MHz and 1400 MHz to 2700 MHz is placed 3m away from the equipment. The required field strength is determined by placing the field strength meter(s) on top of or directly alongside the equipment under test and monitoring the field strength meter via a remote field strength indicator outside the enclosure while adjusting the continuous-wave to the applicable antennae.
3. The test is normally performed with the generating antenna facing each of four sides of the EUT. The polarization of the field generated by the bi-conical antenna necessitates testing each position twice, once with the antenna positioned vertically and again with the antenna positioned horizontally. The circular polarization of the field from the log-spiral antenna makes a change of position of the antenna unnecessary.
4. At each of the above conditions, the frequency range is swept 80 MHz to 1000 MHz and 1400 MHz to 2700 MHz pausing to adjust the R.F. signal level or to switch oscillators and antenna. The rate of sweep is in the order of $1.5*10^{-3}$ decades/s. The sensitive frequencies or frequencies of dominant interest may be discretely analyzed.

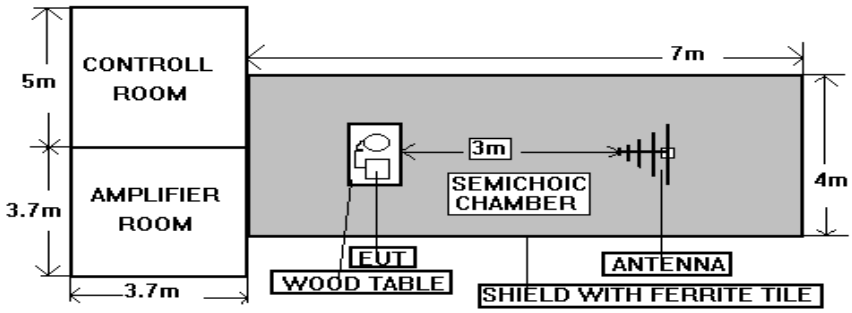
6.2.5 Test Severity Levels

Frequency Band : 80MHz to 2,700 MHz

Level	Test Field Strength (V/m)
1	1
2	3
3	10
X	Specified

Remark : "X" is an open class.

6.2.6 Test Setup Layout



NOTE : The SPORTON 7m x 4m x 4m semichoic chamber is compliance with the sixteen points uniform field requirement as stated in IEC 61000-4-3 Section 6.2.

The procedure defined in this part requires the generation of electromagnetic fields within which the test sample is placed and its operation observed. To generate fields that are useful for simulation of actual (field) conditions may require significant antenna drive power and the resultant high field strength levels. To comply with local regulations and to prevent biological hazards to the testing personnel, it is recommended that these tests be carried out in a shielded enclosure or semichoic chamber.

6.3 Electrical Fast Transient/Burst Immunity Measurement (EFT)

The power source of the EUT is only from system power, so this test item is not applicable.

6.4 Surge Immunity Measurement (Surge)

The power source of the EUT is only from system power, so this test item is not applicable.

6.5 Conducted Disturbances Induced by RF Field Immunity Measurement (CS)

The power source of the EUT is only from system power, so this test item is not applicable.

6.6 Voltage Dips and Voltage Interruption Immunity Measurement (DIP)

The power source of the EUT is only from system power, so this test item is not applicable.

7 UNCERTAINTY

For EMI

Test Items	Test Site No.	Uncertainty	Remark
Conducted Emissions	CO01-HY	± 2.2dB	Confidence levels of 95%
Radiated Emissions below 1GHz	10CH01-HY	± 2.5dB	Confidence levels of 95%
Radiated Emissions above 1GHz	03CH04-HY	± 4.8dB	Confidence levels of 95%

For EMS

- **ESD Immunity (IEC 61000-4-2)**

Negative Discharge Current

From Standard			
2kV	First Peak Current	Current at 30ns	Current at 60ns
Nominal	7.5	4	2
Min	6.75	2.8	1.4
Max	8.25	5.2	2.6
Tolerance in %	10%	30%	30%

From Calibration Certificate					
Measured First Peak Current	1st Peak Worst Case. +5%	Measured Current at 30ns	30ns Worst Case. +5%	Measured Current at 60ns	60ns Worst Case. -5%
7.48	7.85	4.2	4.41	2.01	2.11
---	6.75	---	2.8	---	1.4
---	8.25	---	5.2	---	2.6

4kV	First Peak Current	Current at 30ns	Current at 60ns
Nominal	15	8	4
Min	13.5	5.6	2.8
Max	16.5	10.4	5.2
Tolerance in %	10%	30%	30%

First Peak Current	1st Peak Worst Case. +5%	Measured Current at 30ns	30ns Worst Case. +5%	Measured Current at 60ns	60ns Worst Case. +5%
15.12	15.88	8.03	8.43	3.68	3.86
---	13.5	---	5.6	---	2.8
---	16.5	---	10.4	---	5.2

6kV	First Peak Current	Current at 30ns	Current at 60ns
Nominal	22.5	12	6
Min	20.25	8.4	4.2
Max	24.75	15.6	7.8
Tolerance in %	10%	30%	30%

First Peak Current	1st Peak Worst Case. -5%	Measured Current at 30ns	30ns Worst Case. +5%	Measured Current at 60ns	60ns Worst Case. +5%
22.78	23.92	12.37	12.99	5.45	5.72
---	20.25	---	8.4	---	4.2
---	24.75	---	15.6	---	7.8

From Standard			
8kV	First Peak Current	Current at 30ns	Current at 60ns
Nominal	30	16	8
Min	27	11.2	5.6
Max	33	20.8	10.4
Tolerance in %	10%	30%	30%

From Calibration Certificate					
First Peak Current	1st Peak Worst Case. +5%	Measured Current at 30ns	30ns Worst Case. +5%	Measured Current at 60ns	60ns Worst Case. +5%
30.26	31.77	16.13	16.94	7.39	7.76
---	27	---	11.2	---	5.6
---	33	---	20.8	---	10.4

Negative Discharge Voltage

Standard Parameters			
Indicated Voltage (kV)	Tolerance (%)	Max. (kV)	Min. (kV)
2	10	2.20	1.80
4	10	4.40	3.60
6	10	6.60	5.40
8	10	8.80	7.20
15	10	16.50	13.50

Measured Values (kV)
2.05
4.027
5.955
7.916
14.839

Negative Rise Time

Standard Parameters	
T max.	1ns
T min	0.7ns

Measured Values			
Indicated Voltage	Measured Rise Time	Worst Case Max. +6%	Worst Case Min. -6%
2kV	0.851	0.902	0.799
4kV	0.780	0.827	0.733
6kV	0.750	0.795	0.705
8kV	0.772	0.818	0.726

It has been demonstrated that the ESD generator meets the specified requirements in the standard with at least a 95% confidence.

- **RF Radiated Immunity (IEC 61000-4-3)**

Symbol	Source of Uncertainty	Value	Probability Distribution	Divisor	$u_i(y)$
F_{SM}	Field Strength monitor	1.5	Normal 2	2.000	0.75
FS_{AW}	Field Strength acceptability window	0.50	Rectangular	1.732	0.29
PAH	Power Amplifier Harmonics	0.50	Rectangular	1.732	0.29
R_S	Measurement System Repeatability	0.50	normal 1	1.000	0.50
R_{EUT}	Repeatability of EUT	0.00	normal 1	1.000	0.00
$u_c(F_S)$	Combined Standard Uncertainty		normal		0.83
$U(F_S)$	**Expanded Uncertainty**		**normal k= 2**		**1.66**

Specified Level (V/m)	Test level (V/m)
For 1 Volts	1.25
For 3 Volts	3.33
For 10 Volts	11.22

8 LIST OF MEASURING EQUIPMENTS

Conducted Emission

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz ~ 2.75GHz	Nov. 07, 2014	Conduction (CO01-HY)
LISN	MessTec	NNB-2/16Z	2001/009	9kHz ~ 30MHz	Jan. 14, 2015	Conduction (CO01-HY)
EMI Filter	LINDGREN	LRE-2060	1004	< 450Hz	N/A	Conduction (CO01-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832010001	9kHz ~ 30MHz	Feb. 27, 2015	Conduction (CO01-HY)

Note: Calibration Interval of instruments listed above is one year. NCR: NO CALIBRATION REQUEST.

Radiation Emission Below 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
10m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-10M	10CH01-HY	30MHz ~ 1GHz 10m/3m	Jun. 08, 2015	Radiation (10CH01-HY)
Spectrum Analyzer	R&S	FSP7	838858/013	9kHz ~ 7GHz	Mar. 03, 2015	Radiation (10CH01-HY)
Receiver	R&S	ESI7	838496/009	20Hz ~ 7GHz	Sep. 18, 2015	Radiation (10CH01-HY)
Amplifier	Agilent	8447D	2944A10825	100kHz ~ 1.3GHz z	Apr. 27, 2015	Radiation (10CH01-HY)
Amplifier	Agilent	8447D	2944A10826	100kHz ~ 1.3GHz	Apr. 15, 2015	Radiation (10CH01-HY)
Biconical Antenna	Schwarz beck	VHBB 9124	286	30MHz ~ 200MHz	Aug. 03, 2015	Radiation (10CH01-HY)
Log Antenna	Schwarz beck	VUSLP 9111	206	200MHz ~ 1GHz	Aug. 03, 2015	Radiation (10CH01-HY)
Turn Table	HD	DT 60 RPS	1513/004/00	0 ~ 360 degree	NCR	Radiation (10CH01-HY)
Antenna Mast	HD	MA240	240/556/00	1 ~ 4 m	NCR	Radiation (10CH01-HY)
Antenna Mast	HD	MA240	240/559/00	1 ~ 4 m	NCR	Radiation (10CH01-HY)
RF Cable-R10m	BELDEN	RG8/U	CB023-INSIDE	30MHz ~ 1GHz	Nov. 13, 2014	Radiation (10CH01-HY)
RF Cable-R10m	Suhner Switzerland + Rosenberger	RG223/U + UAA220A-0	CB022-DOOR	30MHz ~ 1GHz	Nov. 13, 2014	Radiation (10CH01-HY)

Note: Calibration Interval of instruments listed above is one year. NCR: NO CALIBRATION REQUEST.

Radiation Emission Above 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH04-HY	1 GHz ~ 6 GHz 3m	Apr. 01, 2015	Radiation (03CH04-HY)
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	Sep. 03, 2015	Radiation (03CH04-HY)
Amplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	Sep. 07, 2015	Radiation (03CH04-HY)
Horn Antenna	SCHWARZBECK	BBHA9120	BBHA9120D1130	1 GHz ~ 18 GHz	Sep. 25, 2015	Radiation (03CH04-HY)
Turn Table	Chaintek	3000	MF7802056	0 ~ 360 degree	NCR	Radiation (03CH04-HY)
Antenna Mast	MF	MF-7802	MF780208163	1 m ~ 4 m	NCR	Radiation (03CH04-HY)
RF Cable-HIGH	SUHNER	SUCOFLEX 106	CB067-HF	1 GHz ~ 40 GHz	Sep. 17 , 2015	Radiation (03CH04-HY)

Note: Calibration Interval of instruments listed above is one year. NCR: NO CALIBRATION REQUEST.

EMS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
ESD Simulator	KEYTEK	MZ-15/EC	0302234	Air: 0 ~15kV Contact: 0 ~ 8kV	Oct. 24, 2014	ESD
RS immunity Test system	ROHDE& SCHWARZ	RSF	RS-01	80M~3GHz	Apr. 21, 2015	RS
Amplifier	AMPLIFIER& RESEARCH	250W 1000AM	0332909	80MHz ~ 1GHz	Mar. 19, 2015	RS
Amplifier	AMPLIFIER& RESEARCH	30S1G3	312505	800M~3GHz	Oct. 14, 2015	RS
DUAL DIRECTIONAL COUPLER	AMPLIFIER& RESEARCH	DC6180A	312453	0.08 ~ 1GHz	Oct. 14, 2015	RS
DUAL DIRECTIONAL COUPLER	AMPLIFIER& RESEARCH	DC7144A	312782	0.8 ~ 4.2GHz	Oct. 14, 2015	RS
INTEGRATED MEASUREMENT SYSTEM	ROHDE& SCHWARZ	IMS	100007	9kHz ~ 3GHz	May 08, 2015	RS
NRP-Z91 POWER SENSOR 6GHZ	ROHDE& SCHWARZ	NRP-Z91 1168.8004.02	100095	9kHz ~ 3GHz	May 08, 2015	RS
Antenna	FRANKONIA	BTA-L	02002L	26MHz ~ 1GHz	May 05, 2015	RS
Antenna	AR	AT4002A	312601	800MHz ~ 5GHz	May 05, 2015	RS

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Probe	ETS-LINDGREN	HI-6005	00052473	0.1MHz ~ 5GHz	Feb. 05, 2014	RS

Note: Calibration Interval of instruments listed above is two year.

9 TEST LOCATION

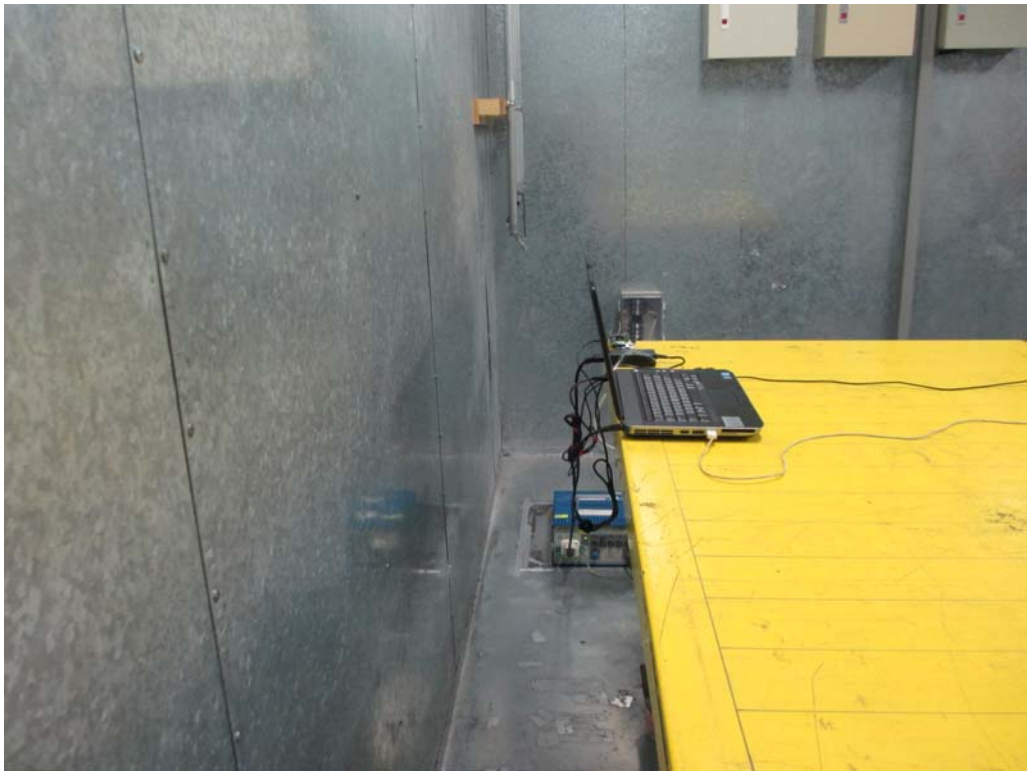
SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C
	TEL	:	886-3-327-3456
	FAX	:	886-3-327-0973
LINKOU	ADD	:	No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C.
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

Appendix A. Test Photos

1 Photographs of Conducted Emissions Test Configuration

FRONT VIEW

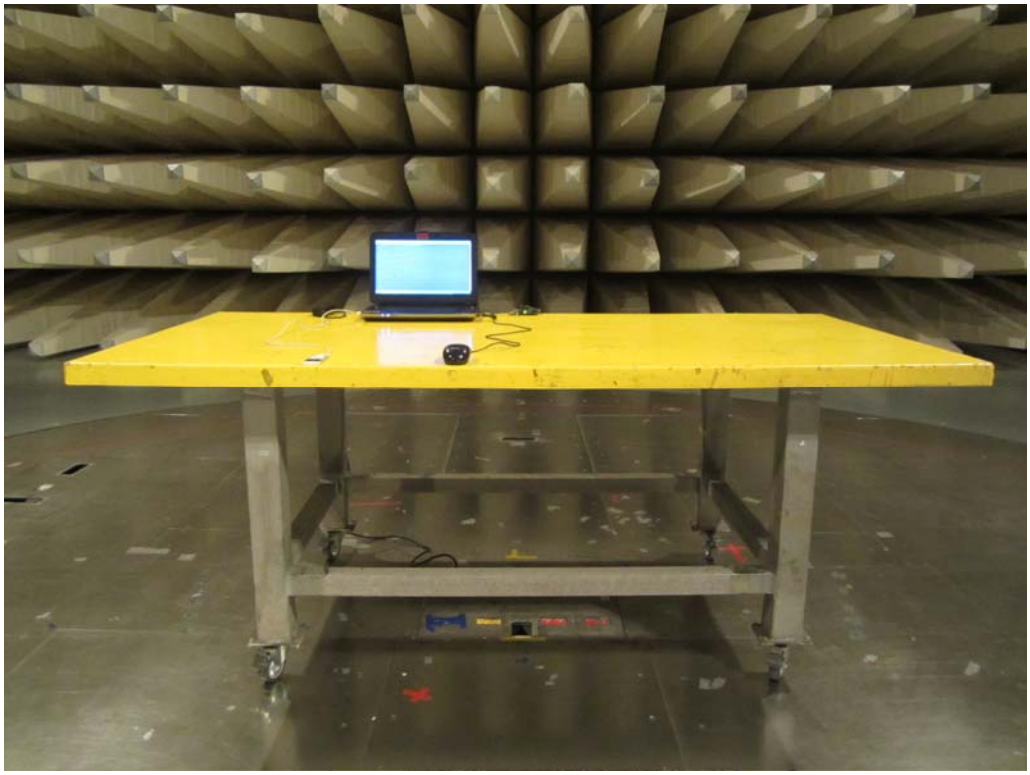
REAR VIEW



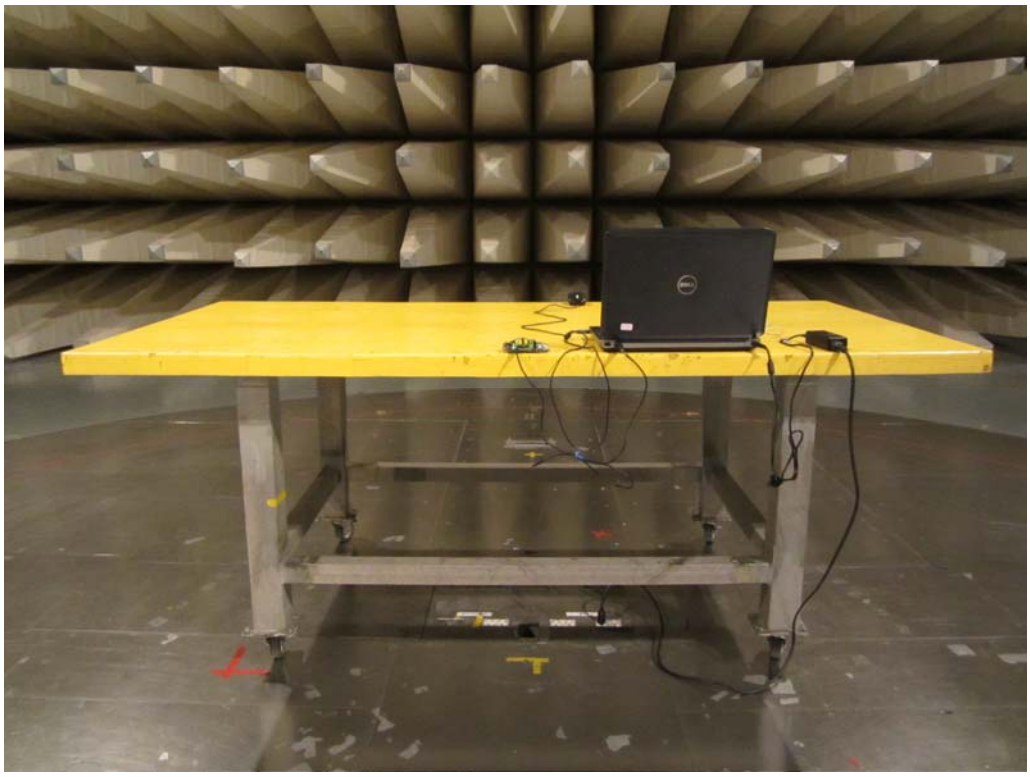
SIDE VIEW

2 Photographs of Radiated Emission Test Configuration

Below 1GHz

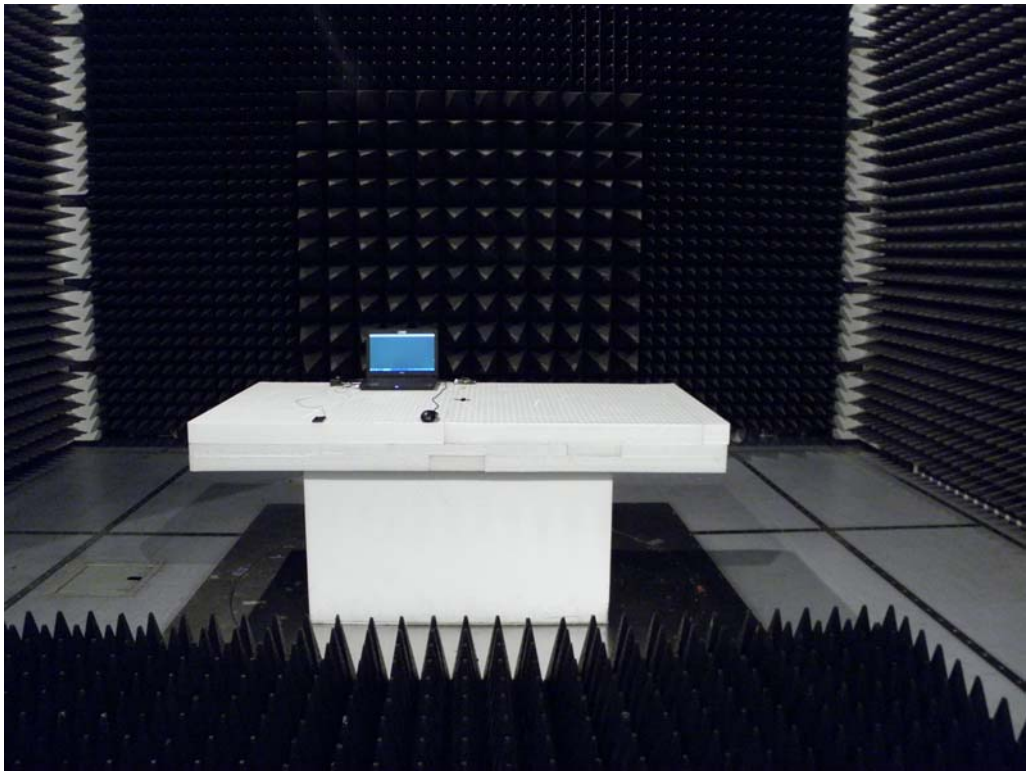


FRONT VIEW

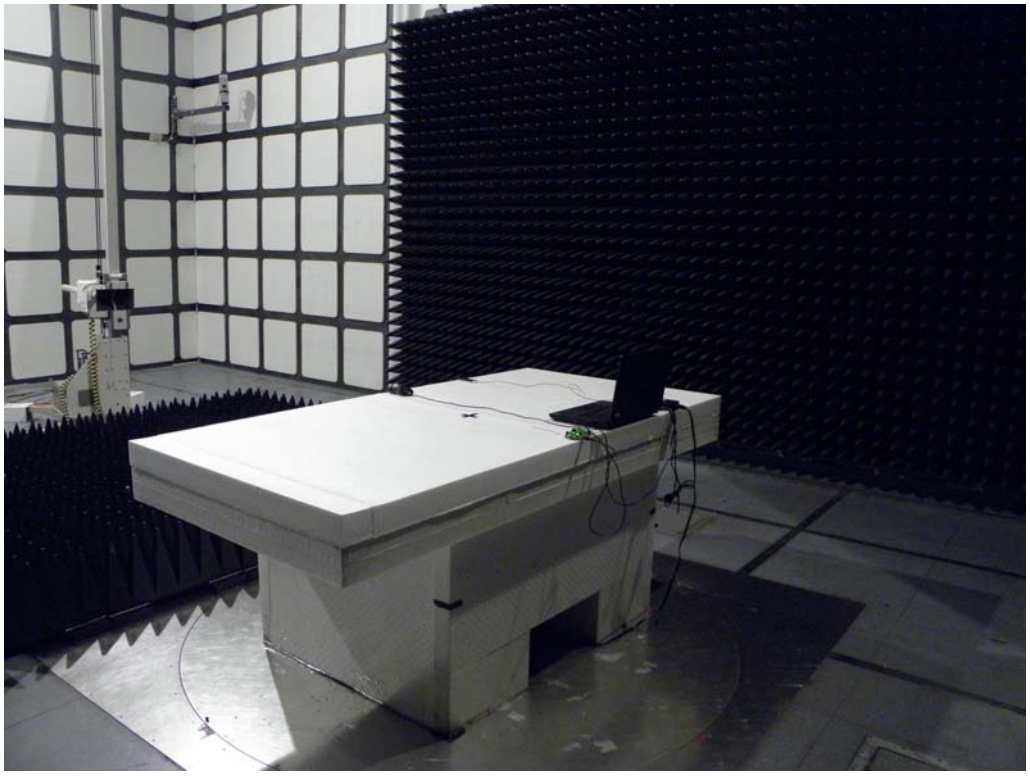


REAR VIEW

From 1GHz to 6GHz



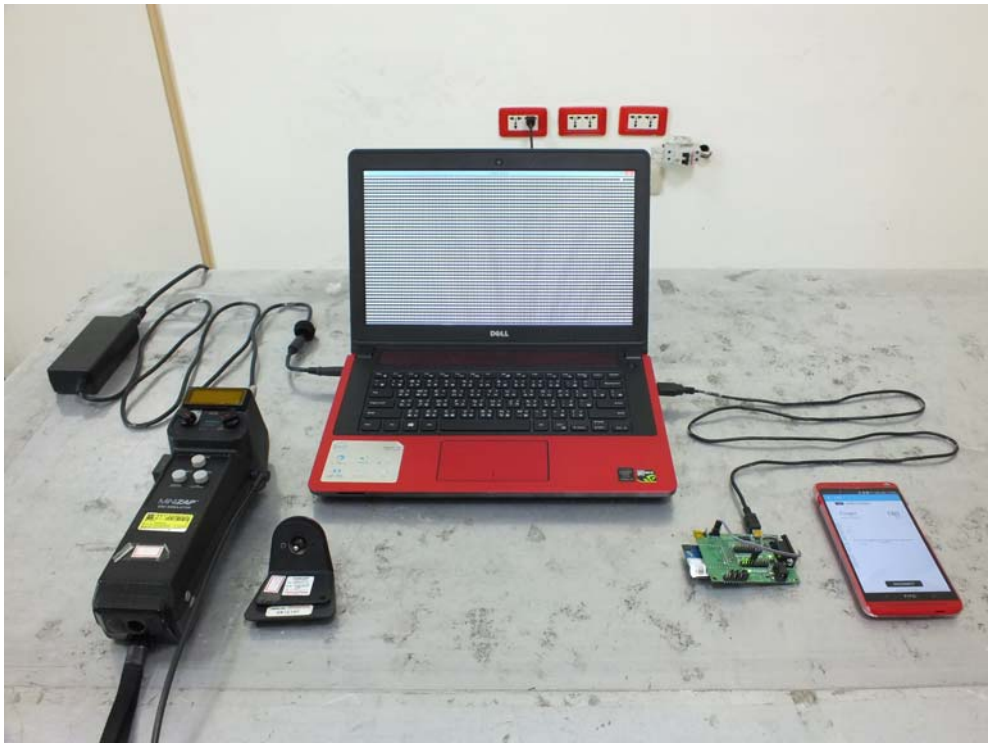
FRONT VIEW



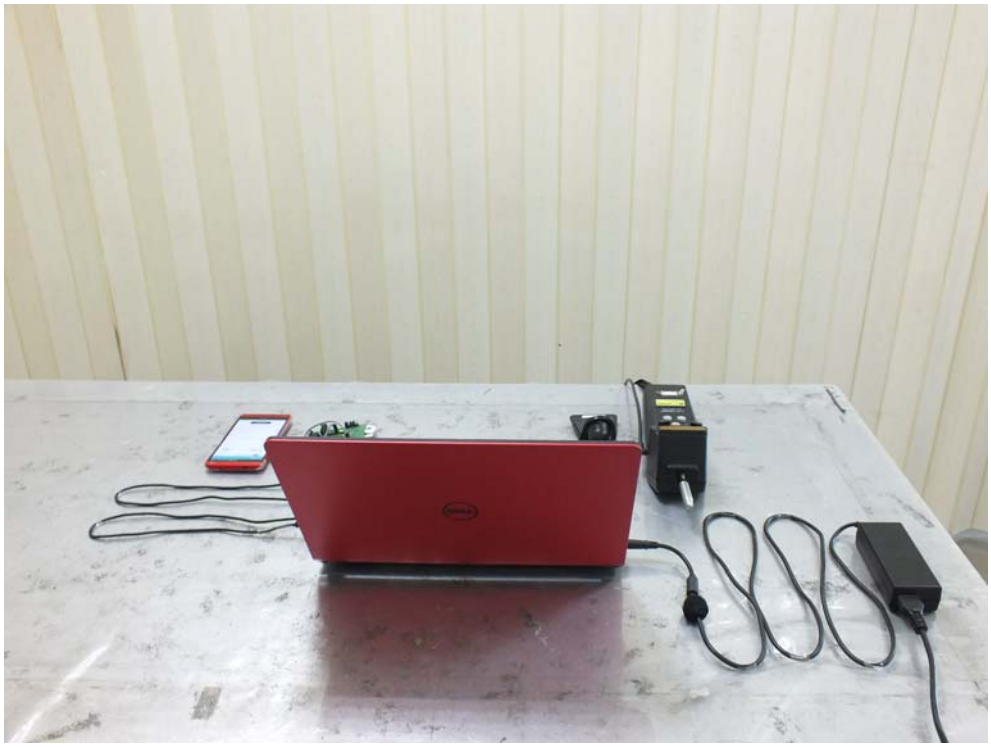
REAR VIEW

3 Photographs of ESD Immunity Test Configuration

FRONT VIEW

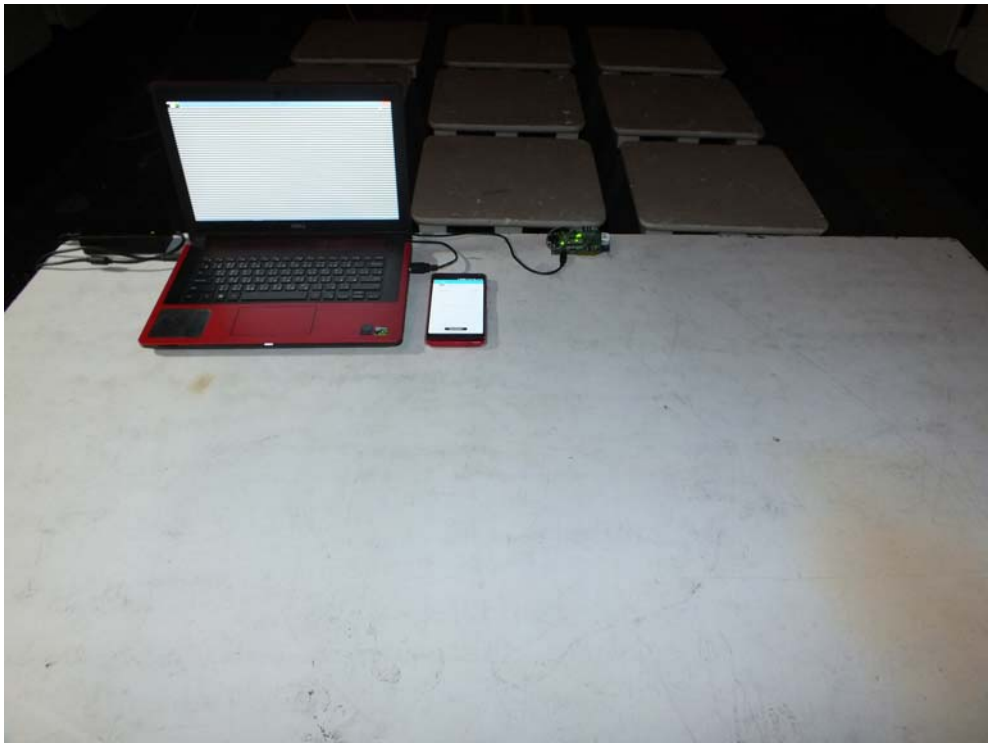


REAR VIEW

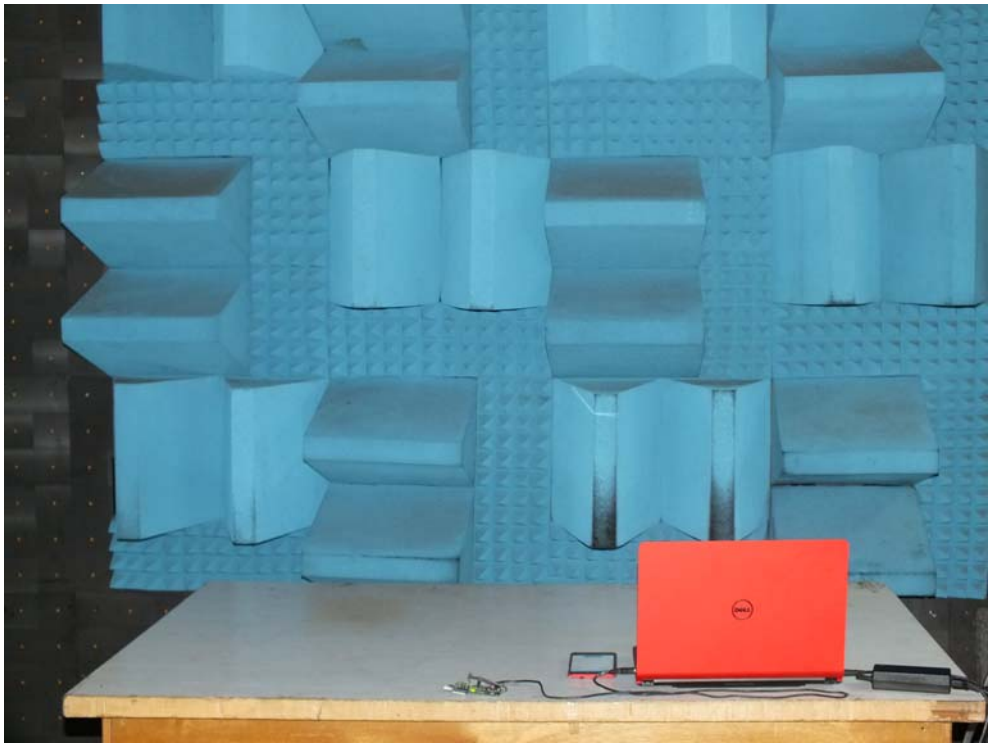


4 Photographs of RS Immunity Test Configuration

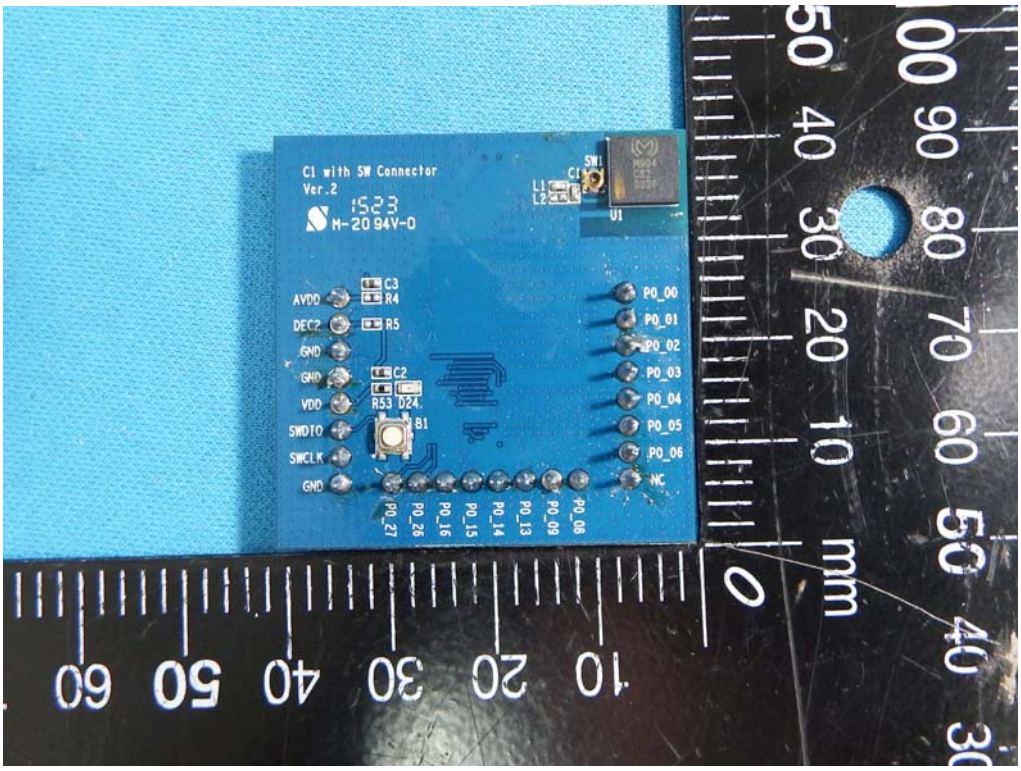
FRONT VIEW

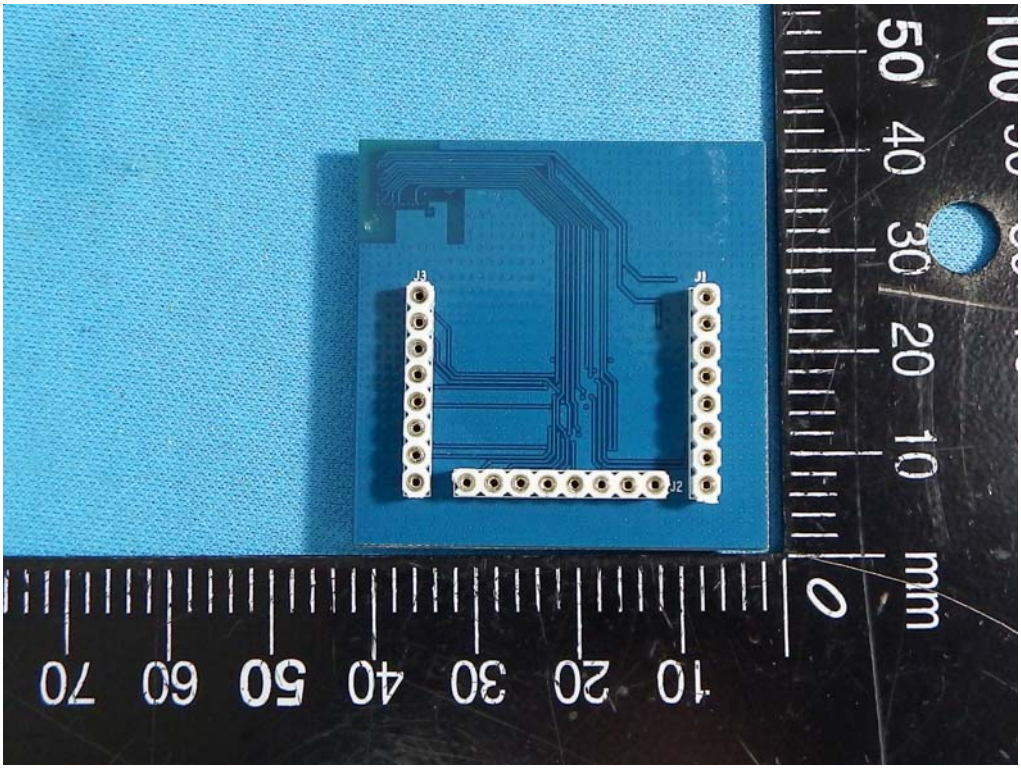


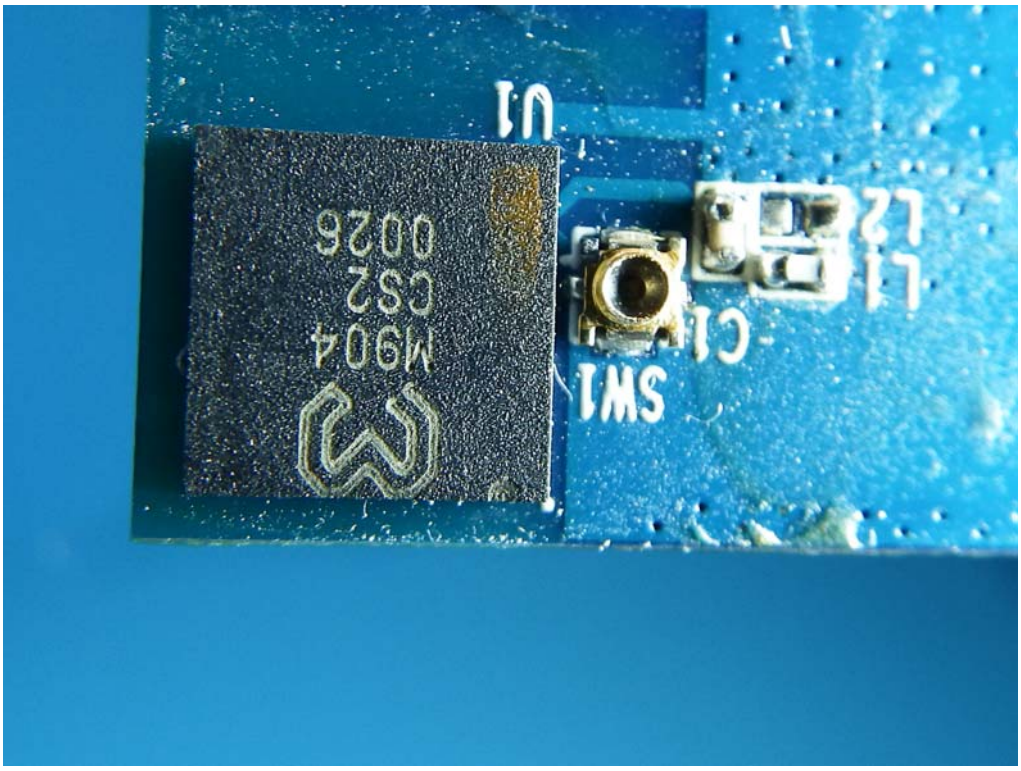
REAR VIEW

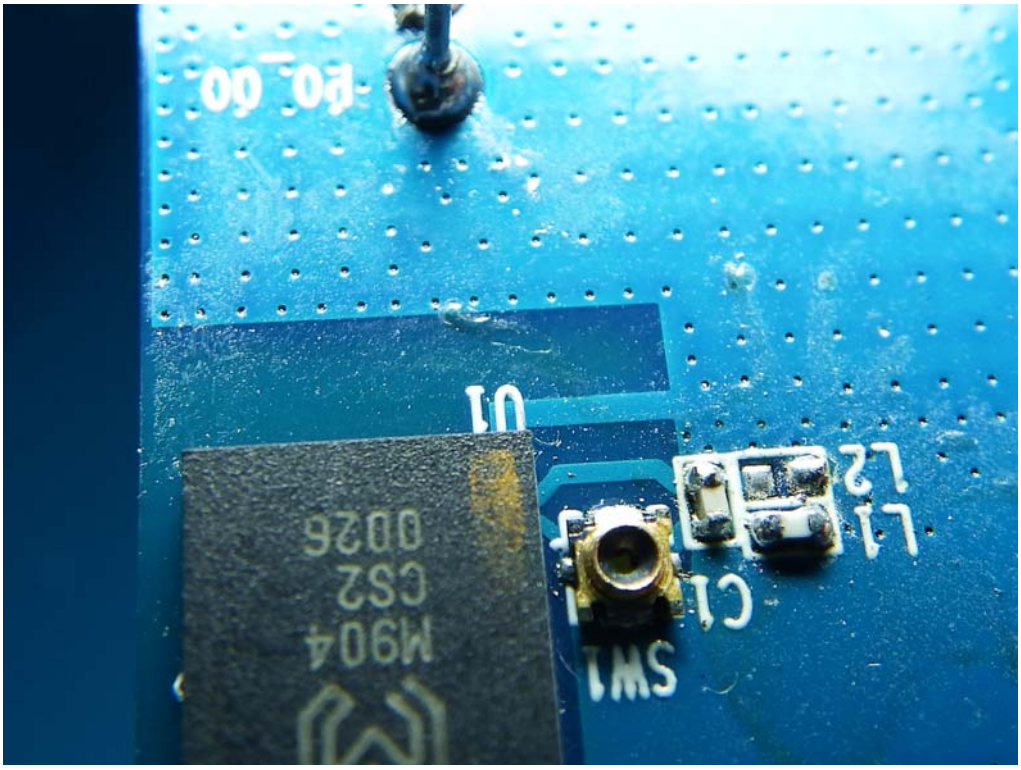


APPENDIX B. Photographs of EUT






U1
M904
CS2
0026
SW1
C1
L1
L2


U1
M904
CS2
0026
SW1
C1
L1
L2