



Variant FCC Test Report

APPLICANT : DAP Technologies
EQUIPMENT : Rugged Mobile Tablet Computer
BRAND NAME : DAP
MODEL NAME : 9000WBV1
MARKETING NAME : M9010
FCC ID : T5M9000WBV1
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Declaration of Conformity

This is a variant report which is only valid together with the original test report. The product was received on Jul. 07, 2011 and completely tested on Sep. 19, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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SPORTON INTERNATIONAL INC.

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FCC ID : T5M9000WBV1

Page Number : 1 of 20

Report Issued Date : Oct. 24, 2011

Report Version : Rev. 01



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FD170707-02	Rev. 01	This is a variant report by removing WWAN and Zigbee functions. All the test cases were performed on original report which can be referred to Sporton Report Number FD170707 as appendix C. Based on the original report, only the worst case of AC Conducted Emission and Radiated Emission Test was verified.	Oct. 24, 2011



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.4	AC Conducted Emission	< 15.107 limits < RSS-Gen table 2 limits	PASS	Under limit 6.00 dB at 26.23 MHz
3.2	15.109	7.2.3.2	Radiated Emission	< 15.109 limits or < RSS-Gen table 1 limits (Section 6)	PASS	Under limit 1.08 dB at 62.94 MHz



1. General Description

1.1. Applicant

DAP Technologies

7450 South Priest DR Tempe, AZ, US

1.2. Manufacturer

Venture Corporation Limited

Blk5006, Ang Mo Kio Avenue 5, # 03-07 TECHplace II, Singapore 569870

1.3. Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Rugged Mobile Tablet Computer
Brand Name	DAP
Model Name	9000WBV1
Marketing Name	M9010
FCC ID	T5M9000WBV1
Tx Frequency Range	Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz
Rx Frequency Range	Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz
Antenna Type	WLAN : PIFA Antenna Bluetooth : Chip Antenna
HW Version	Merlion P3
SW Version	MER_00.00.10
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Test Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-HY	722060/4086B-1

1.5. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC RSS-Gen Issue 3

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Motorola	S705	IHDT6GH1	N/A	N/A
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Mouse	DELL	MOC5UO	FCC DoC	Shielded, 1.8 m	N/A
4.	Mouse	LOGITECH	M90	FCC DoC	Shielded, 1.8 m	N/A
5.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The EUT uses a USB interface and microprocessor operating 800MHz which is the maximum frequency used.

The following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition	
		EMI AC	EMI RE
1.	Charging Mode (EUT with adapter)	☒	☒

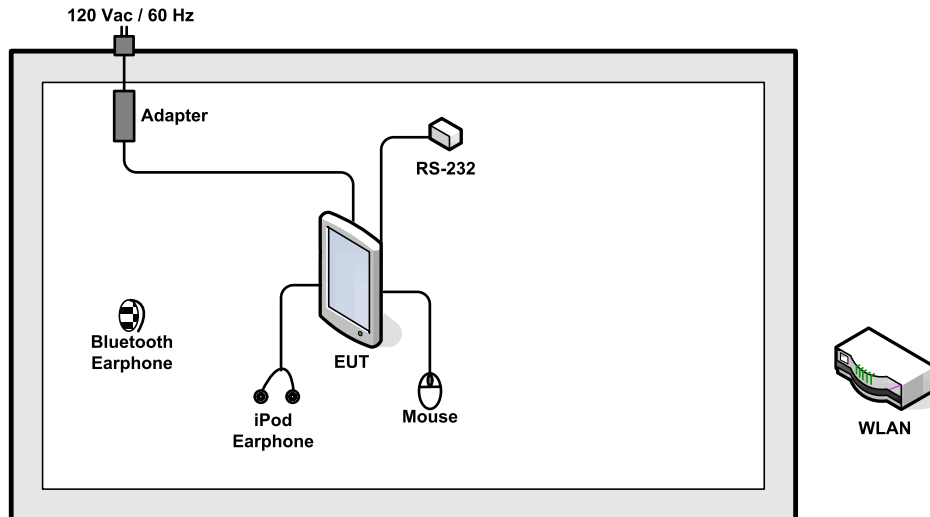
Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE: radiated emissions

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: WLAN Idle + Bluetooth Idle + TC + Adapter
Radiated Emissions	1	Mode 1: WLAN Idle + Bluetooth Idle + TC + Adapter

Remark: TC stands for Test Configuration, and consists of iPod earphone, mouse, and MPEG4.

2.2. Connection Diagram of Test System



2.3. Test Software

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Execute the program, "Winthrax.exe", installed in notebook for active sync files transfer with EUT via USB cable.
2. Execute "Video Player" to play MPEG4 files.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (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 the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

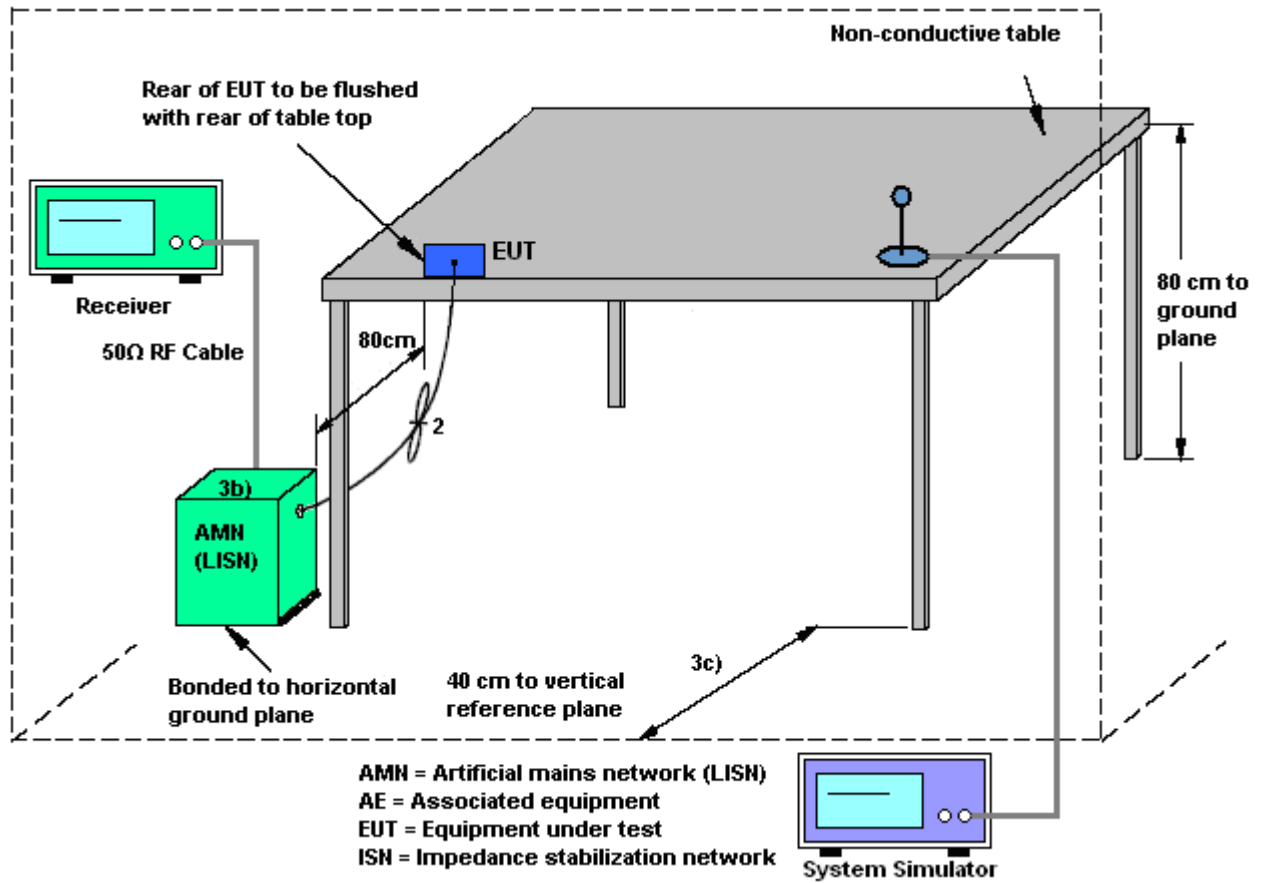
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

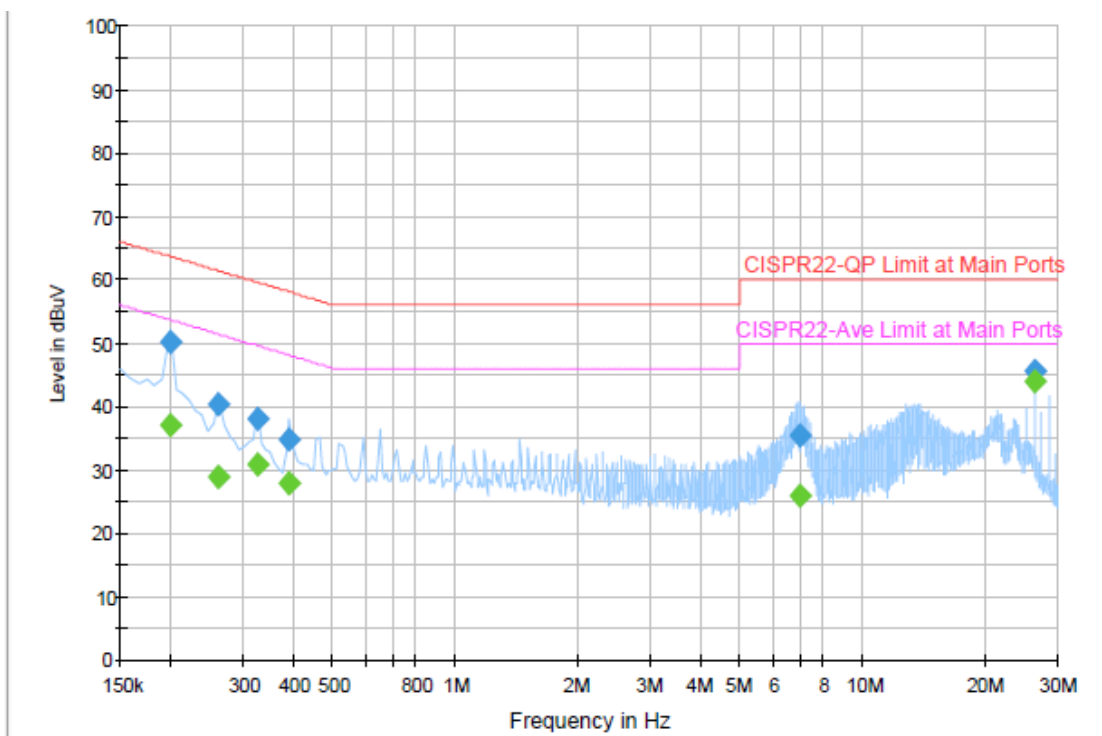
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN Idle + Bluetooth Idle + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

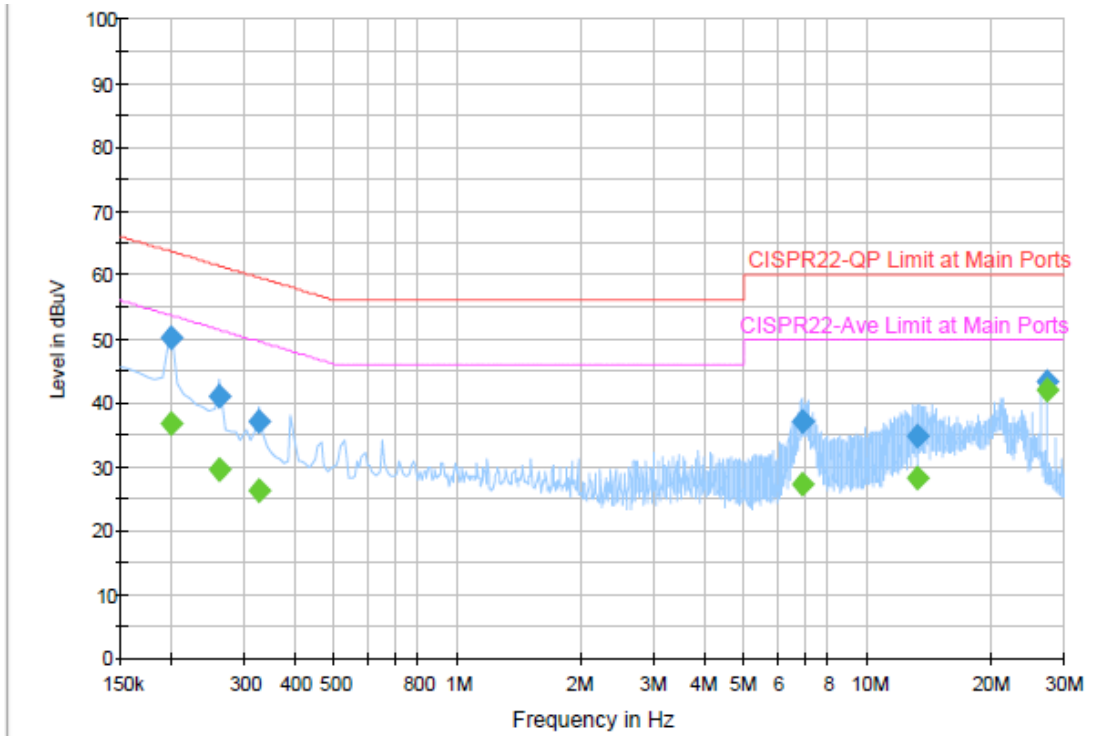
Frequency (MHz)	QuasiPeak (dBuV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	50.3	Off	L1	19.4	13.4	63.7
0.262000	40.2	Off	L1	19.4	21.2	61.4
0.326000	38.1	Off	L1	19.4	21.5	59.6
0.390000	34.7	Off	L1	19.4	23.4	58.1
6.998000	35.5	Off	L1	19.5	24.5	60.0
26.230000	45.6	Off	L1	19.7	14.4	60.0

Final Result 2

Frequency (MHz)	Average (dBuV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.198000	37.2	Off	L1	19.4	16.5	53.7
0.262000	29.0	Off	L1	19.4	22.4	51.4
0.326000	30.8	Off	L1	19.4	18.8	49.6
0.390000	28.0	Off	L1	19.4	20.1	48.1
6.998000	25.9	Off	L1	19.5	24.1	50.0
26.230000	44.0	Off	L1	19.7	6.0	50.0



Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN Idle + Bluetooth Idle + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	50.2	Off	N	19.4	13.5	63.7
0.262000	40.9	Off	N	19.4	20.5	61.4
0.326000	37.2	Off	N	19.4	22.4	59.6
6.926000	37.0	Off	N	19.6	23.0	60.0
13.198000	34.7	Off	N	19.7	25.3	60.0
27.430000	43.3	Off	N	19.8	16.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	36.8	Off	N	19.4	16.9	53.7
0.262000	29.6	Off	N	19.4	19.8	51.4
0.326000	26.3	Off	N	19.4	23.3	49.6
6.926000	27.1	Off	N	19.6	22.9	50.0
13.198000	28.2	Off	N	19.7	21.8	50.0
27.430000	42.1	Off	N	19.8	7.9	50.0



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

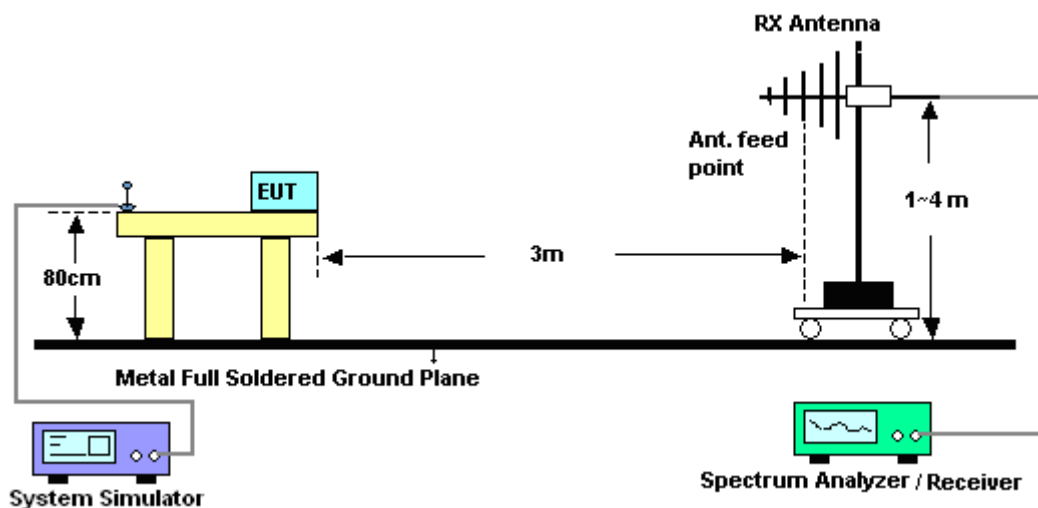
3.2.2. Measuring Instruments

See list of measuring instruments of this test report.

3.2.3. Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. 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 turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. 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 will be repeated one by one using the quasi-peak method and reported
8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

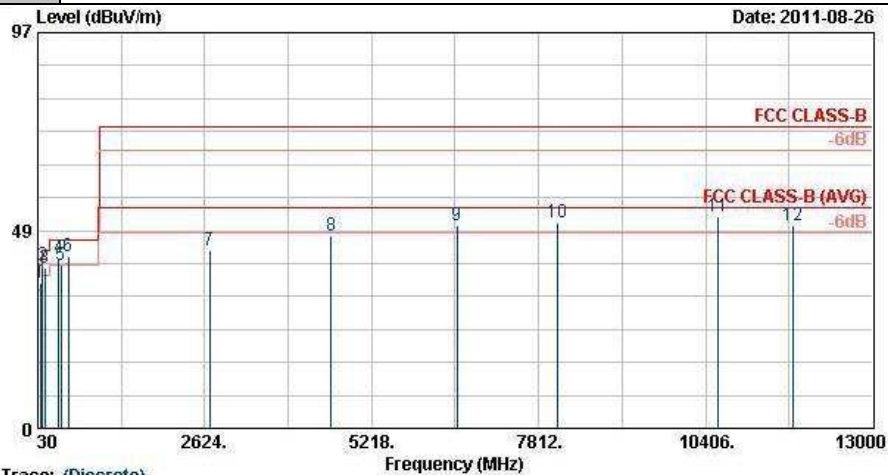
3.2.4. Test Setup of Radiated Emission





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WLAN Idle + Bluetooth Idle + TC + Adapter		



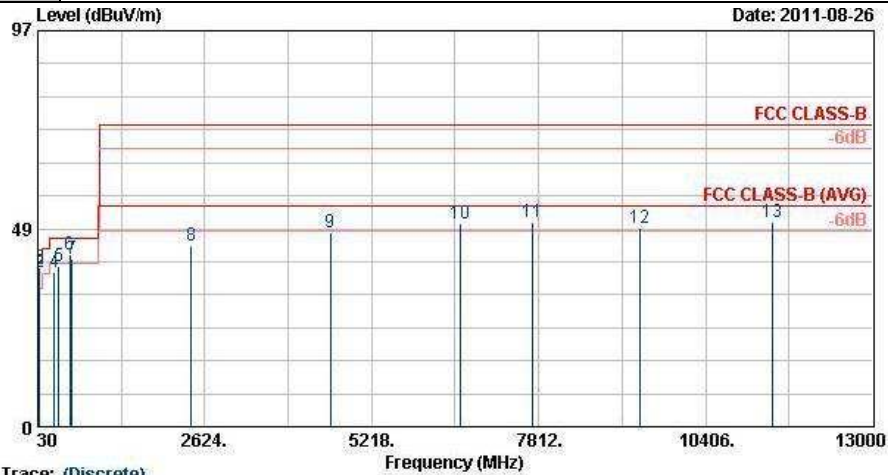
Site
Condition
Project
Model

Trace: (Discrete)
D3CR06-HY
FCC CLASS-B HF-ANT_090824 HORIZONTAL
FD 170707-02
Mode 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	66.18	35.59	-4.41	40.00	59.91	6.36	0.99	31.68	---	---	Peak
2 @	109.65	39.93	-3.57	43.50	58.93	11.42	1.28	31.71	251	295	Peak
3 !	139.35	39.44	-4.06	43.50	58.30	11.40	1.44	31.70	---	---	Peak
4 !	358.80	41.97	-4.03	46.00	56.45	14.82	2.26	31.56	---	---	Peak
5 !	387.50	40.20	-5.80	46.00	54.11	15.49	2.37	31.77	---	---	Peak
6 !	505.80	42.14	-3.86	46.00	53.33	17.91	2.69	31.79	---	---	Peak
7	2700.00	43.60	-30.40	74.00	59.97	32.88	5.76	55.01	---	---	Peak
8	4590.00	47.22	-26.78	74.00	60.78	34.90	7.82	56.28	---	---	Peak
9	6540.00	49.61	-24.39	74.00	60.59	36.11	10.02	57.12	---	---	Peak
10	8094.00	50.54	-23.46	74.00	60.55	36.18	10.42	56.62	---	---	Peak
11	10590.00	51.89	-22.11	74.00	59.68	37.92	10.59	56.31	100	128	Peak
12	11774.00	49.87	-24.13	74.00	55.19	38.54	10.96	54.82	---	---	Peak



Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WLAN Idle + Bluetooth Idle + TC + Adapter		



Trace: (Discrete)

Site : D3CH06-HY
 Condition : FCC CLASS-B HF-ANT_090824 VERTICAL
 Project : FD_170707-02
 Model : Mode 1

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	cm	deg	
1	30.54	32.73	-7.27	40.00	46.41	17.31	0.72	31.72	---	Peak
2 @	62.94	37.88	-2.12	40.00	62.18	6.42	0.97	31.68	100	Peak
3 @	62.94	38.92	-1.08	40.00	63.22	6.42	0.97	31.68	100	QP
4	292.98	38.03	-7.97	46.00	54.29	13.35	2.03	31.64	---	Peak
5	358.80	39.40	-6.60	46.00	53.88	14.82	2.26	31.56	---	Peak
6 !	525.40	42.05	-3.95	46.00	52.95	18.17	2.76	31.83	---	Peak
7 !	561.80	41.12	-4.88	46.00	51.55	18.65	2.87	31.94	---	Peak
8	2414.00	44.36	-29.64	74.00	61.33	32.50	5.43	54.91	---	Peak
9	4572.00	47.48	-26.52	74.00	61.05	34.90	7.81	56.27	---	Peak
10	6596.00	49.93	-24.07	74.00	60.82	36.13	10.09	57.12	---	Peak
11	7708.00	50.25	-23.75	74.00	59.87	36.14	11.01	56.77	100	4l Peak
12	9390.00	48.78	-25.22	74.00	58.56	36.74	10.28	56.79	---	Peak
13	11444.00	50.23	-23.77	74.00	57.03	38.09	10.83	55.71	---	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000M Hz	May 10, 2011	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 01, 2011	Jul. 31, 2012	Radiation (03CH06-HY)
Double Ridge Horn Antenna	Training Research	AH-0801	95119	8GHz~18GHz	Oct. 20, 2010	Oct. 19, 2011	Radiation (03CH06-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA917025 1	15GHz- 40GHz	Oct. 18, 2010	Oct. 17, 2011	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)

5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		



Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP170707-02 as below.



1. External Photograph of EUT

Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010





Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010





2. Photograph of Accessory

Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

List of Accessory:

Specification of Accessory		
AC Adapter	Brand Name	CINCON ELECTRONICS
	Model Name	TRG36A15 12E03
Battery 1	Brand Name	DAP
	Model Name	VE026-8034
Battery 2	Brand Name	DAP
	Model Name	VE026-8035
LCD Panel	Brand Name	SGD
	Model Name	GNTW70NNBA1E0
Camera 1	Brand Name	DEMARREN
	Model Name	Q5M03A
WLAN Module	Brand Name	Summit Data Communications
	Model Name	SDC-PE15N
Bluetooth Module	Brand Name	Bluegiga
	Model Name	WT21-A
Power Cord 1	Brand Name	QUAIL
	Model Name	1062.079(NAM032)
Power Cord 2	Brand Name	QUAIL
	Model Name	8002.079(NAM033)
Power Cord 3	Brand Name	QUAIL
	Model Name	9657.079(NAM034)

Remark: For accessories equipped with this EUT, please refer to the following photos.

Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010



Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010



Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

Battery 1



Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

Battery 2

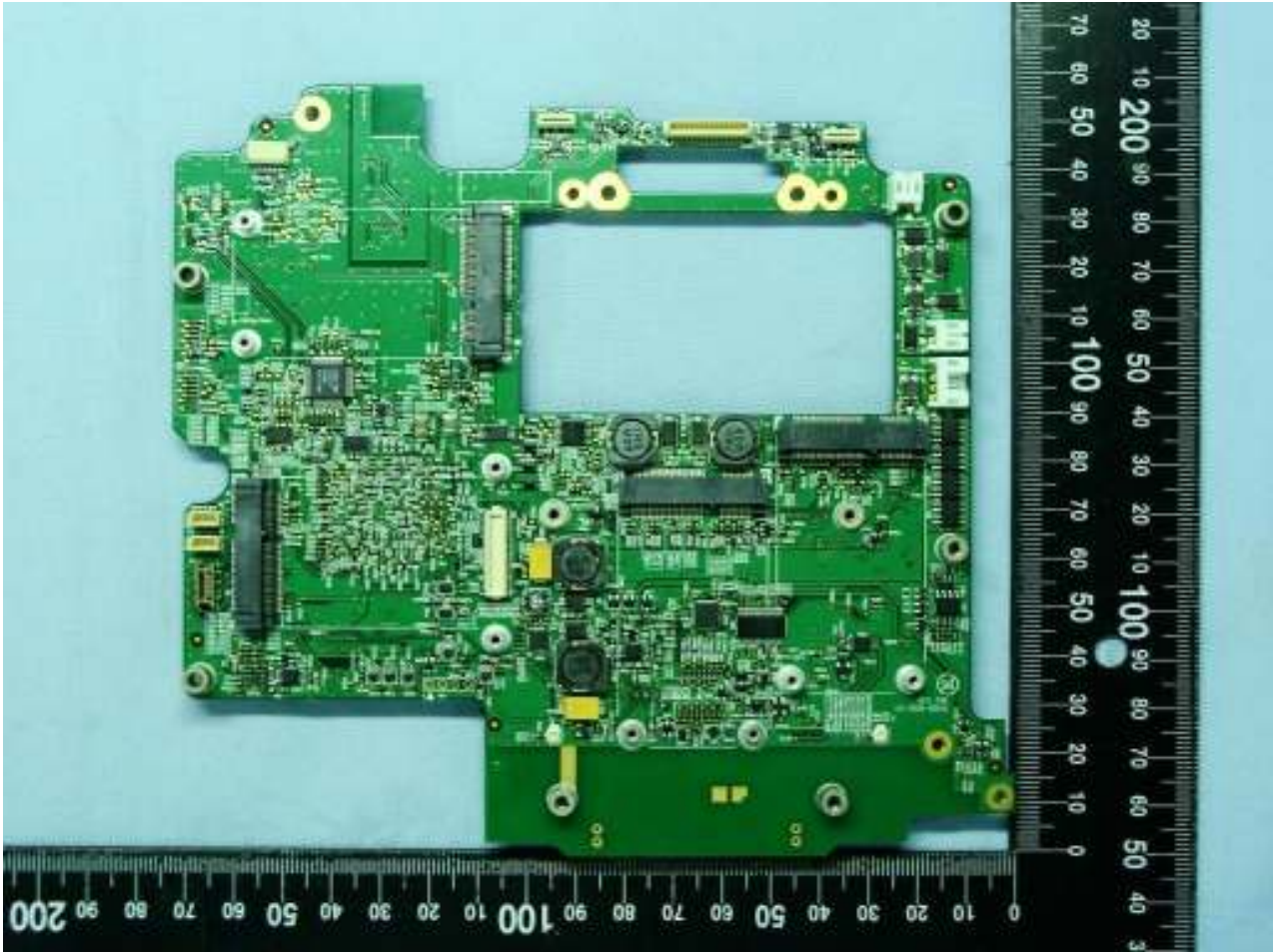


3. Internal Photograph of EUT

Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

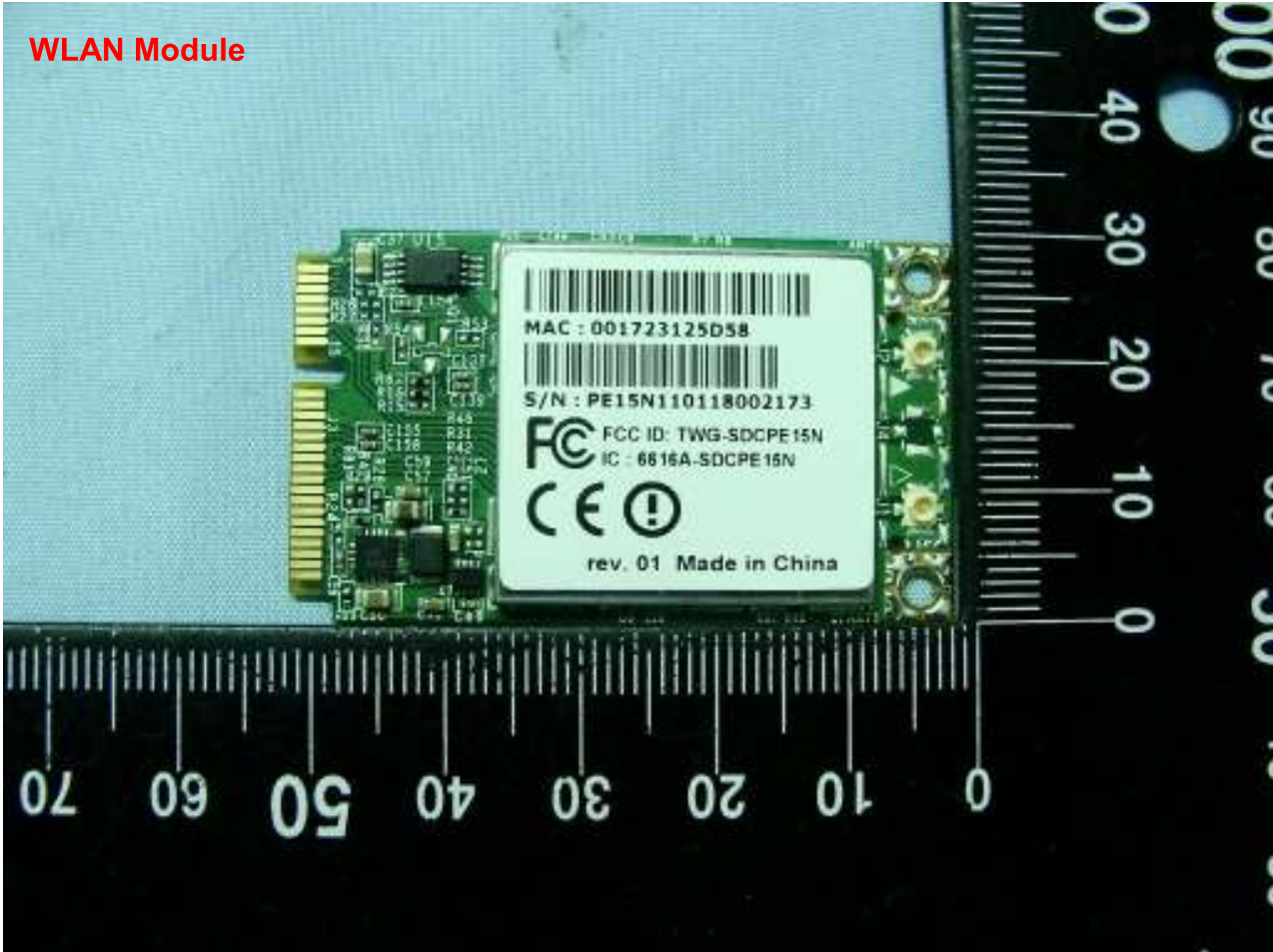


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

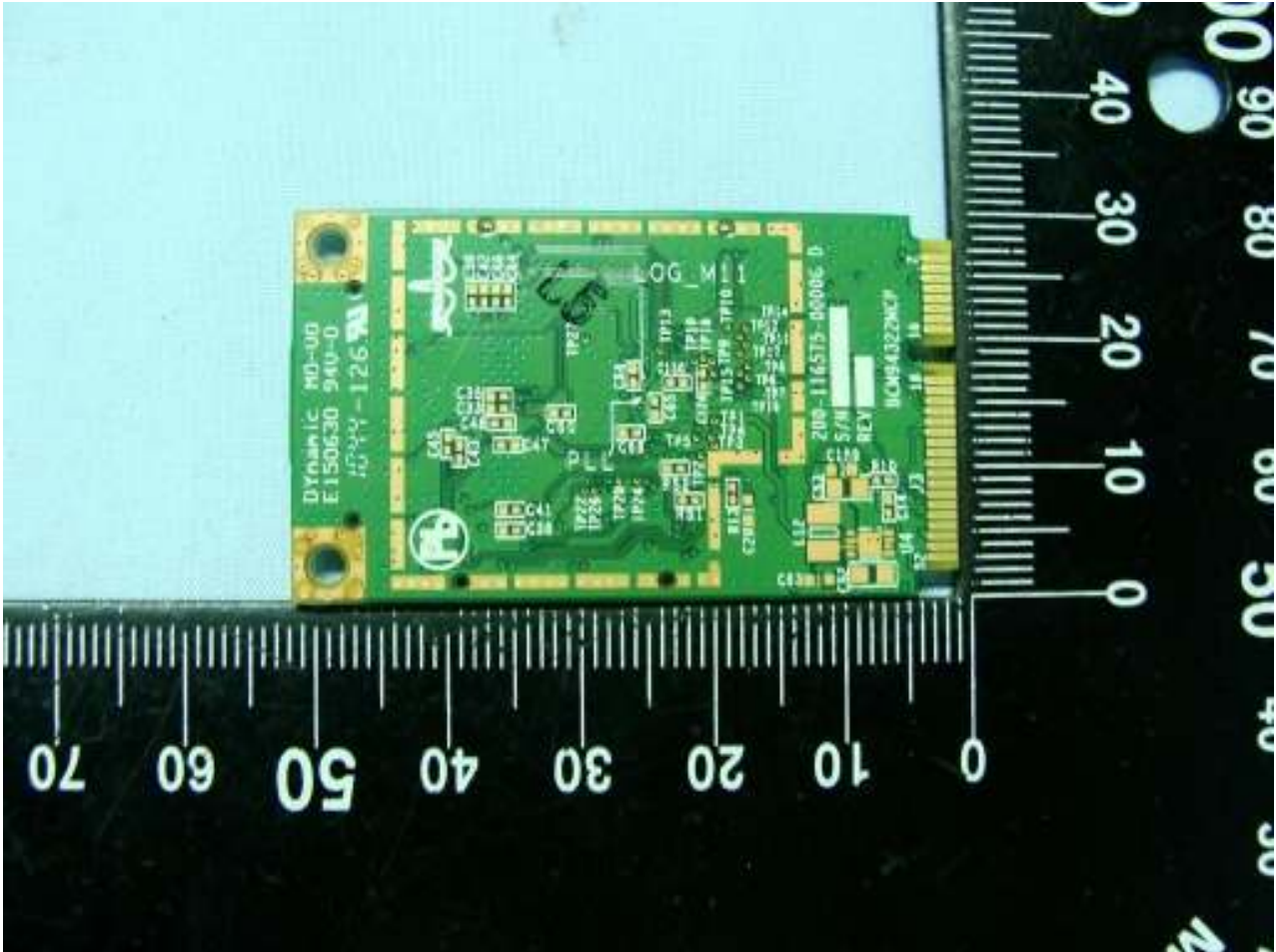


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

WLAN Module

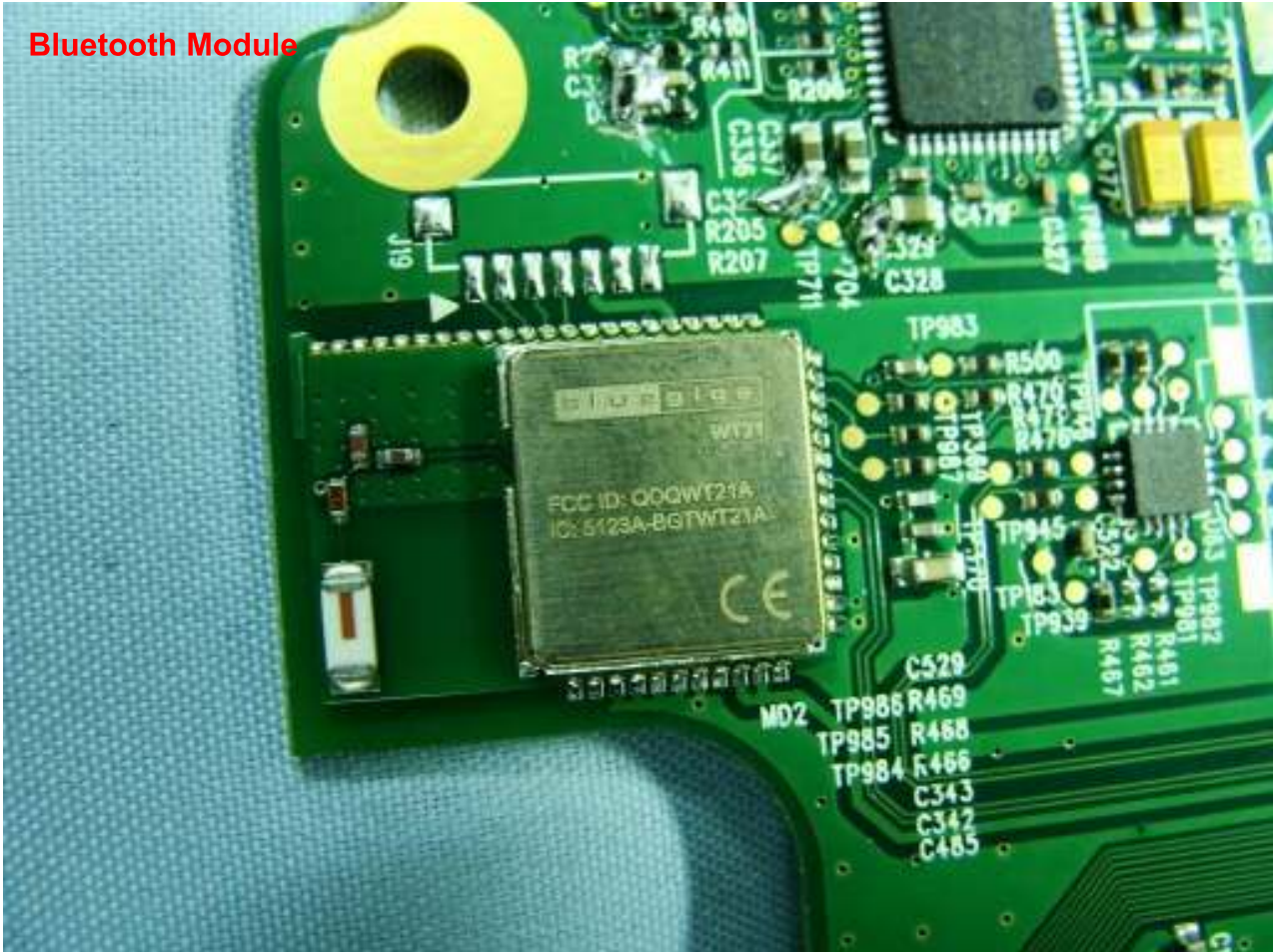


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

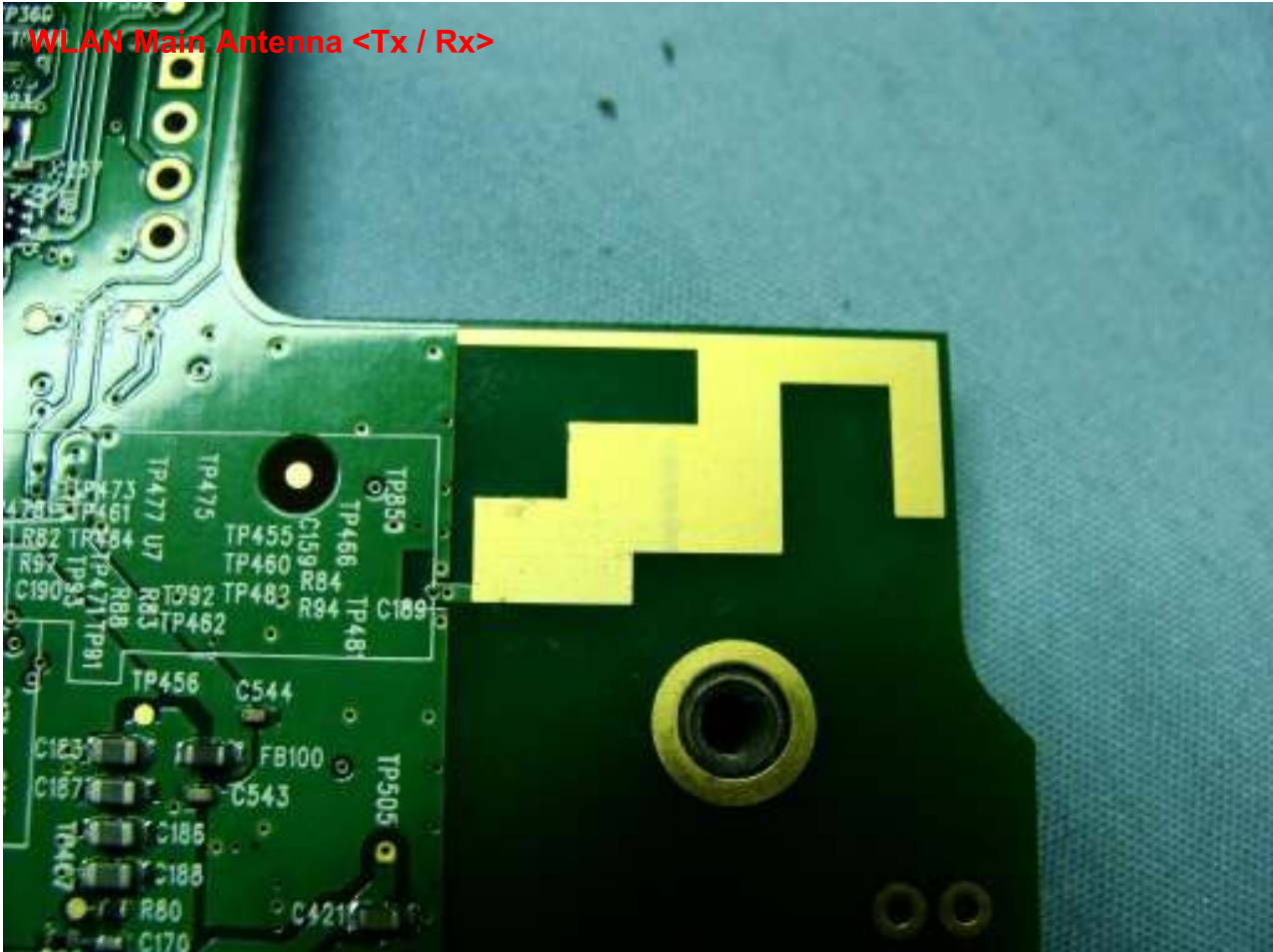


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

Bluetooth Module

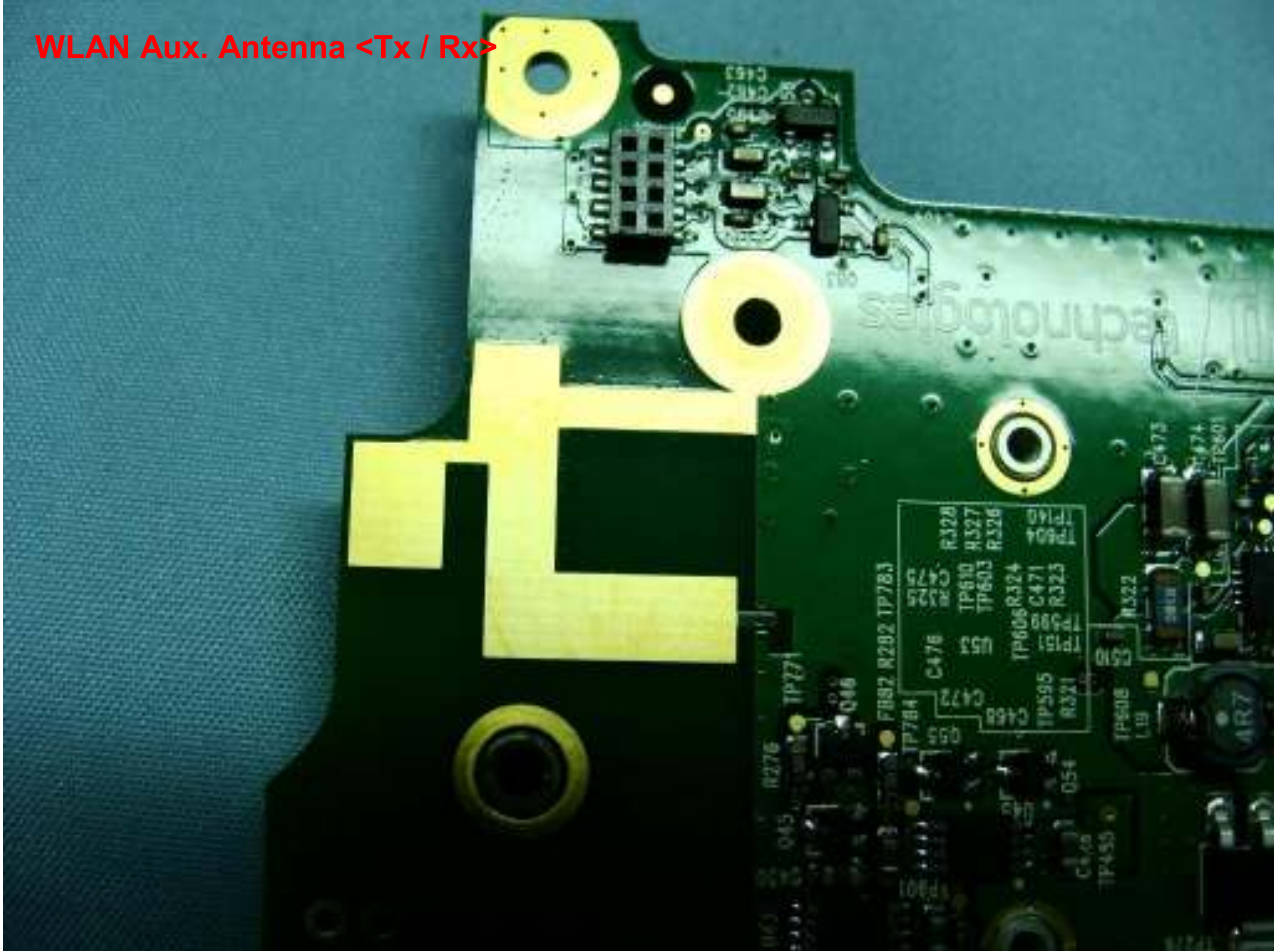


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

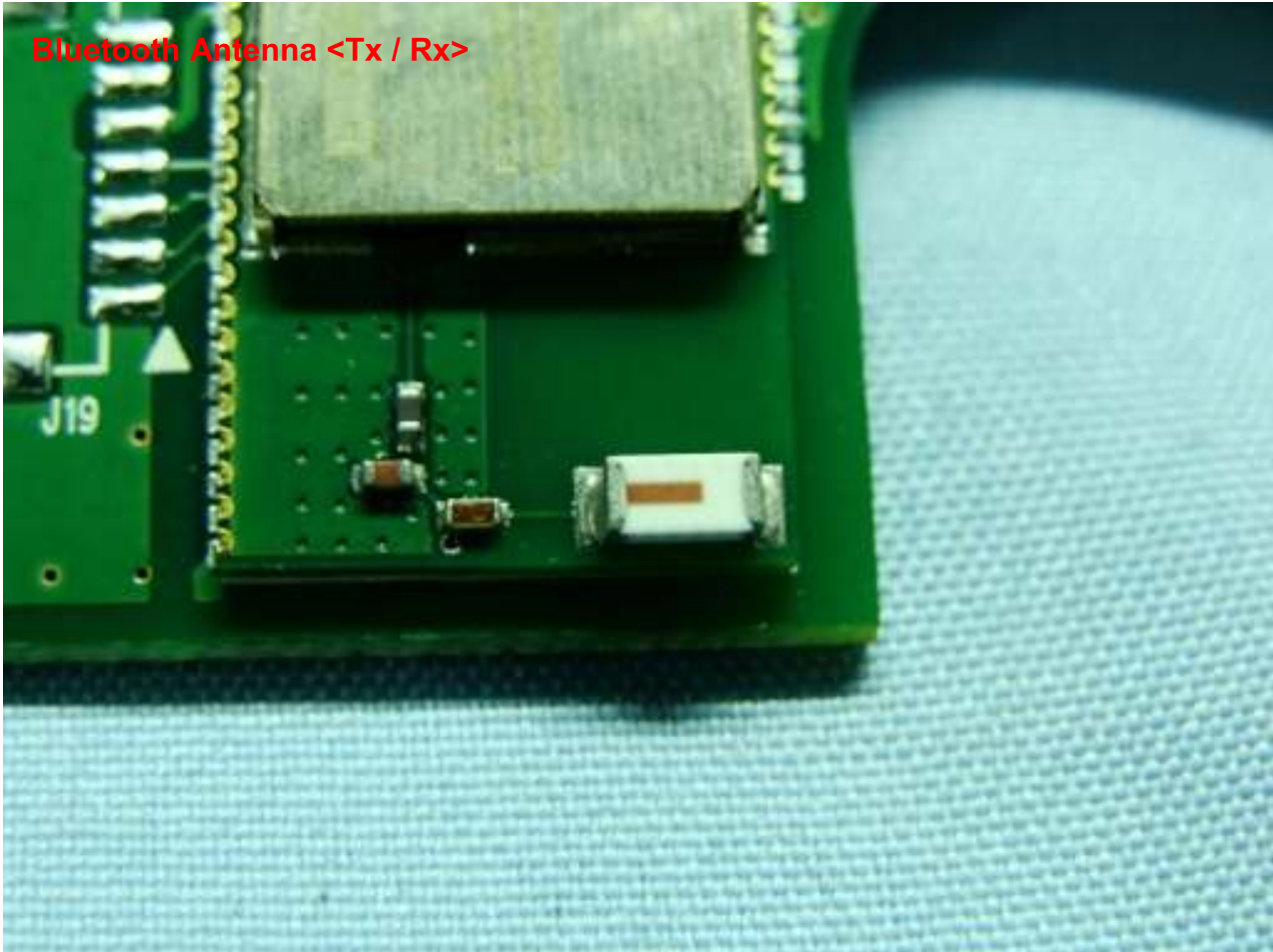


Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010

WLAN Aux. Antenna <Tx / Rx>



Brand Name: DAP / Model Name: 9000WBV1 / Marketing Name: M9010



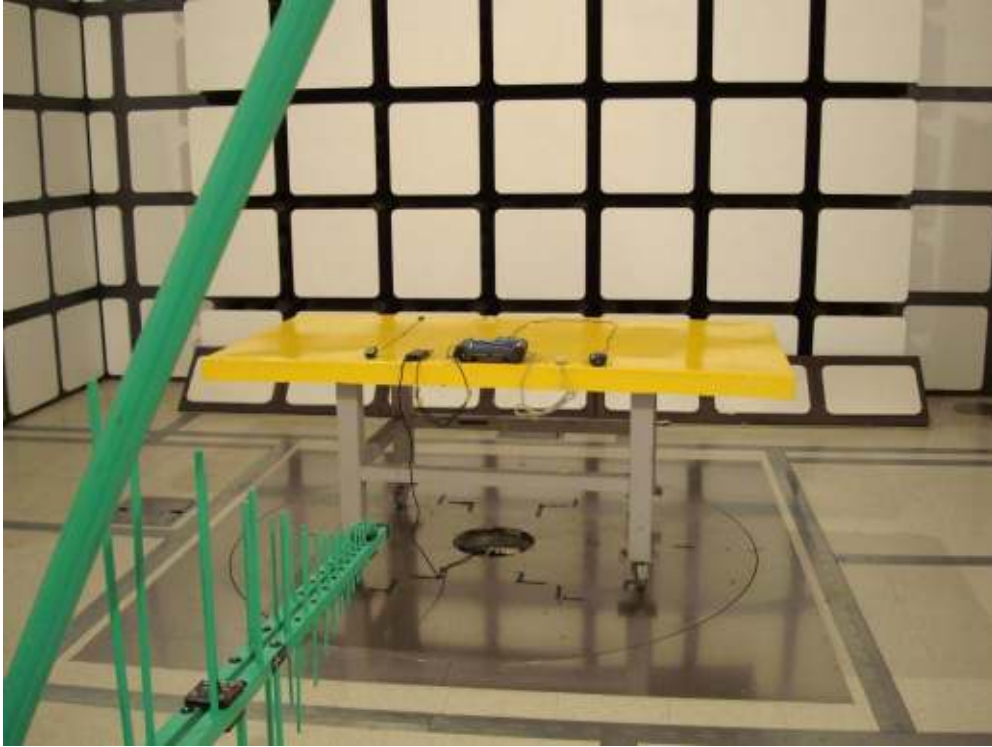
Appendix B. Setup Photographs

<Conducted Emission>



<Radiated Emission>

LF



HF





APPENDIX C. Original Report

Please refer to Sporton report number FD170707 as below.



Partial FCC RF Test Report

APPLICANT : DAP Technologies
EQUIPMENT : Rugged Mobile Tablet Computer
BRAND NAME : DAP
MODEL NAME : 9000WBWZV1
MARKETING NAME : M9010
FCC ID : T5M9000WBWZV1
STANDARD : FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION : Declaration of Conformity

This is a partial report which is included the Radiated Emission and Conducted Emission tests item. The product was received on Jul. 07, 2011 and completely tested on Oct. 23, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : T5M9000WBWZV1

Page Number : 1 of 27

Report Issued Date : Oct. 24, 2011

Report Version : Rev. 01



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APPENDIX A. PHOTOGRAPHS OF EUT

APPENDIX B. SETUP PHOTOGRAPHS



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	7.2.4	AC Conducted Emission	< 15.107 limits < RSS-Gen table 2 limits	PASS	Under limit 6.2 dB at 26.23 MHz
3.2	15.109	7.2.3.2	Radiated Emission	< 15.109 limits or < RSS-Gen table 1 limits (Section 6)	PASS	Under limit 1.61 dB at 109.38 MHz



1. General Description

1.1. Applicant

DAP Technologies

7450 South Priest DR Tempe, AZ, US

1.2. Manufacturer

Venture Corporation Limited

Blk5006, Ang Mo Kio Avenue 5, #03-07 TECHplace II, Singapore 569870



1.3. Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Rugged Mobile Tablet Computer
Brand Name	DAP
Model Name	9000WBWZV1
Marketing Name	M9010
FCC ID	T5M9000WBWZV1
Tx Frequency Range	GSM850 : 824 MHz ~ 849 MHz GSM1900 : 1850 MHz ~ 1910 MHz WCDMA Band V : 824 MHz ~ 849 MHz WCDMA Band II : 1850 MHz ~ 1910 MHz WCDMA Band IV : 1710 MHz ~ 1755 MHz CDMA2000 BC0 : 824 MHz ~ 849 MHz CDMA2000 BC1 : 1850 MHz ~ 1910 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5825 MHz
Rx Frequency Range	GSM850 : 869 MHz ~ 894 MHz GSM1900 : 1930 MHz ~ 1990 MHz WCDMA Band V : 869 MHz ~ 894 MHz WCDMA Band II : 1930 MHz ~ 1990 MHz WCDMA Band IV : 2110 MHz ~ 2155 MHz CDMA2000 BC0 : 869 ~ 894 MHz CDMA2000 BC1 : 1930 ~ 1990 MHz Bluetooth : 2400 MHz ~ 2483.5 MHz WLAN : 2400 MHz ~ 2483.5 MHz 5150 MHz ~ 5250 MHz 5250 MHz ~ 5350 MHz 5470 MHz ~ 5725 MHz 5725 MHz ~ 5850 MHz GPS : 1.57542 GHz
Antenna Type	WWAN: Fixed Internal Antenna WLAN: PIFA Antenna Bluetooth: Chip Antenna
HW Version	Merlion P3
SW Version	MER_00.00.10



Type of Modulation	GSM / GPRS : GMSK EDGE : 8PSK WCDMA : QPSK (Uplink) HSDPA : QPSK (Uplink) HSUPA : BPSK (Uplink) CDMA2000 : QPSK Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK 802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS : BPSK
EUT Stage	Production Unit

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4. Test Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH06-HY	722060/4086B-1

1.5. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003
- IC RSS-Gen Issue 3

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



1.6. Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
5.	Bluetooth Earphone	Motorola	S705	IHDT6GH1	N/A	N/A
6.	(USB) Mouse	DELL	MOC5UO	FCC DoC	Shielded, 1.8 m	N/A
7.	Mouse	Logitech	M90	FCC DoC	Shielded, 1.8 m	N/A
8.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A



2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition		
		EMI AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	☒	☒	☒

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1	Mode 1: GSM850 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 2: GSM1900 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 3: WCDMA Band V Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 4: WCDMA Band II Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 5: CDMA2000 BC0 Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 6: CDMA2000 BC1 Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 7: WLAN Idle + Bluetooth Idle + Zigbee On + TC + Adapter Mode 8: WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter



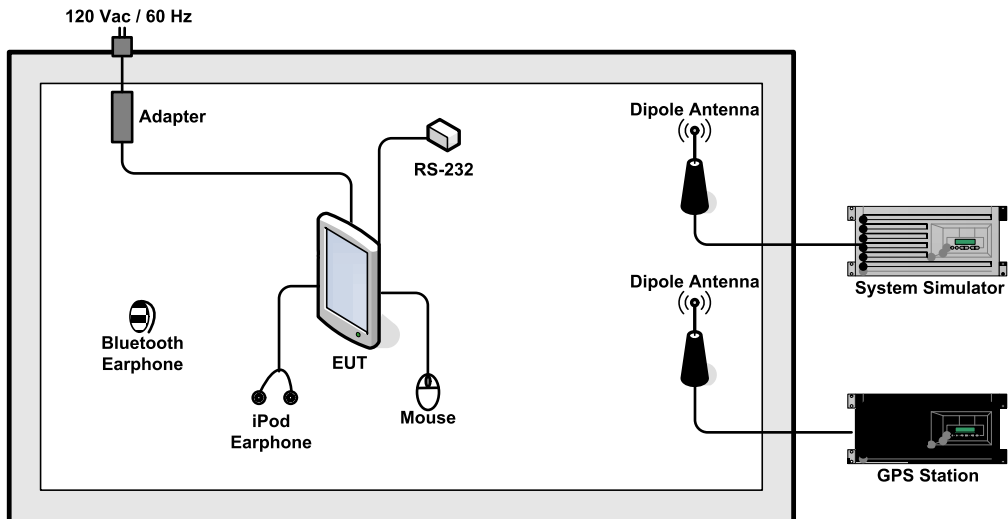
Radiated Emissions < 1GHz	1	Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 2 : GSM1900 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 3 : WCDMA Band V Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 4 : WCDMA Band II Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 5 : CDMA2000 BC0 Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 6 : CDMA2000 BC1 Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter Mode 7 : WLAN Idle + Bluetooth Idle + Zigbee On + TC + Adapter Mode 8 : WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter
Radiated Emissions ≥ 1GHz	1	Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter

Remark:

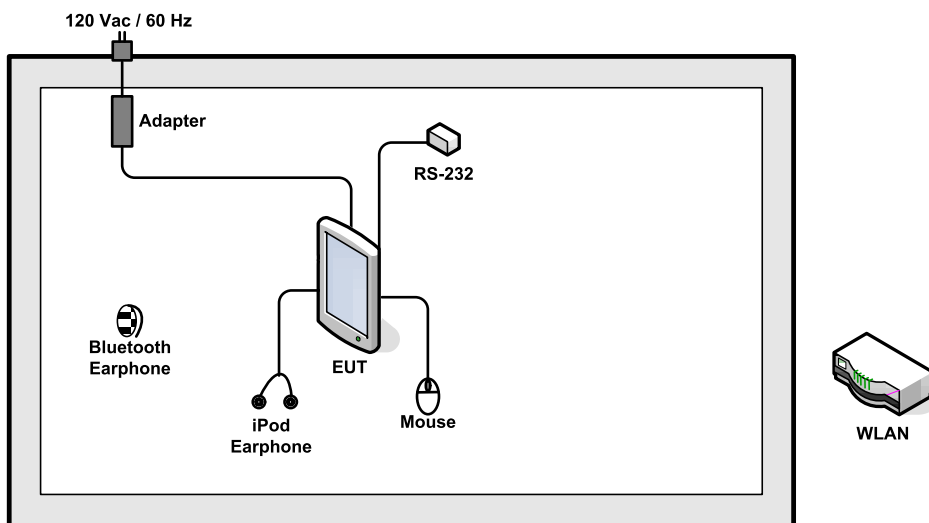
1. The worst case of AC is mode 4; only the test data of this mode was reported.
2. The worst case of RE < 1G is mode 1; only the test data of this mode was reported.
3. Link with Notebook means data application transferred mode between DUT and Notebook.
4. TC stands for Test Configuration, and consists of iPod earphone, mouse, and MPEG4.

2.2. Connection Diagram of Test System

<EUT with Adapter Mode>



<EUT with WLAN Mode>





2.3. Test Software

The EUT was in GSM or WCDMA or CDMA2000 idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. GPS, open AirCard GPS Monitor to execute "MiniGPS" to make the EUT receive signals from GPS station continuously.
2. Execute "Video Player" to play MPEG4 files.
3. Execute "command" to Zigbee normal.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (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 the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

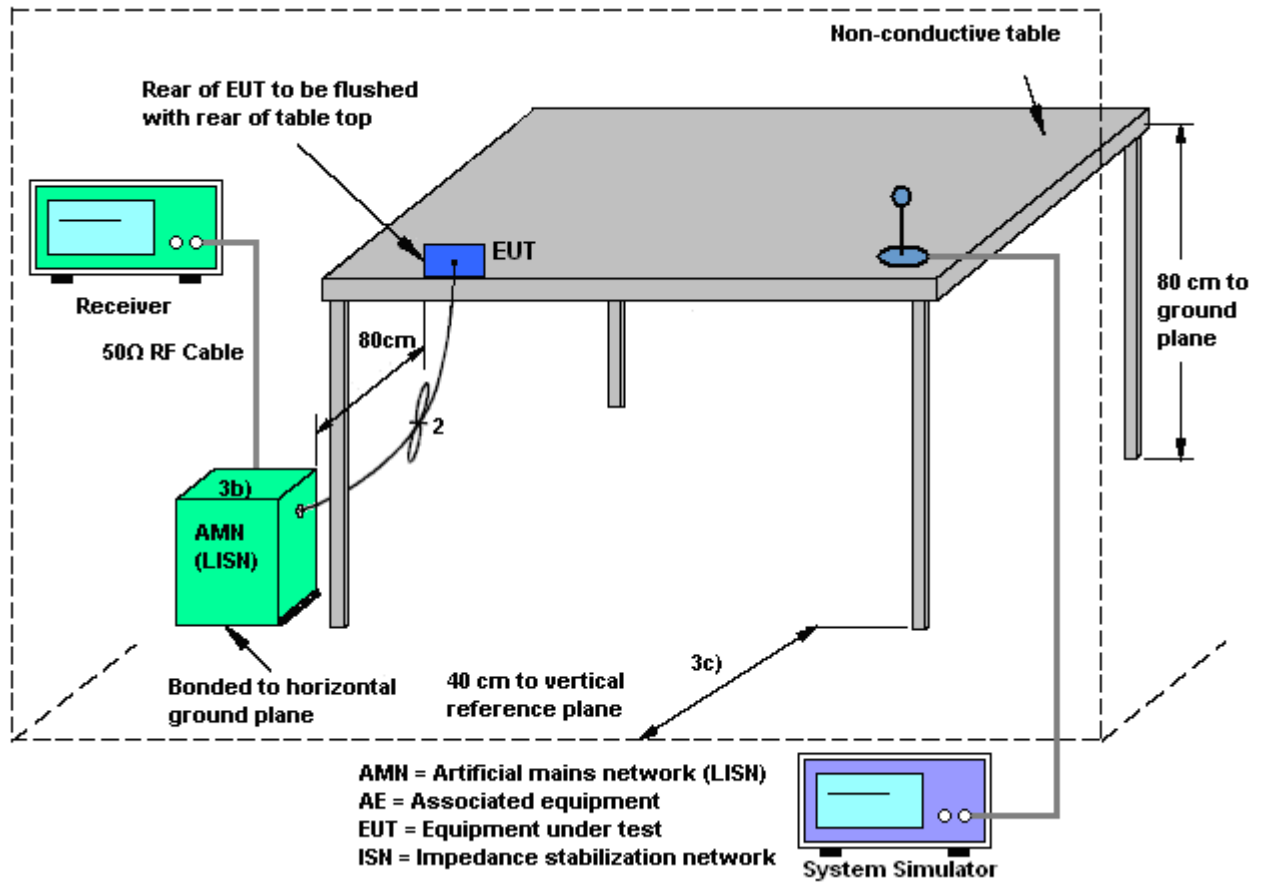
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

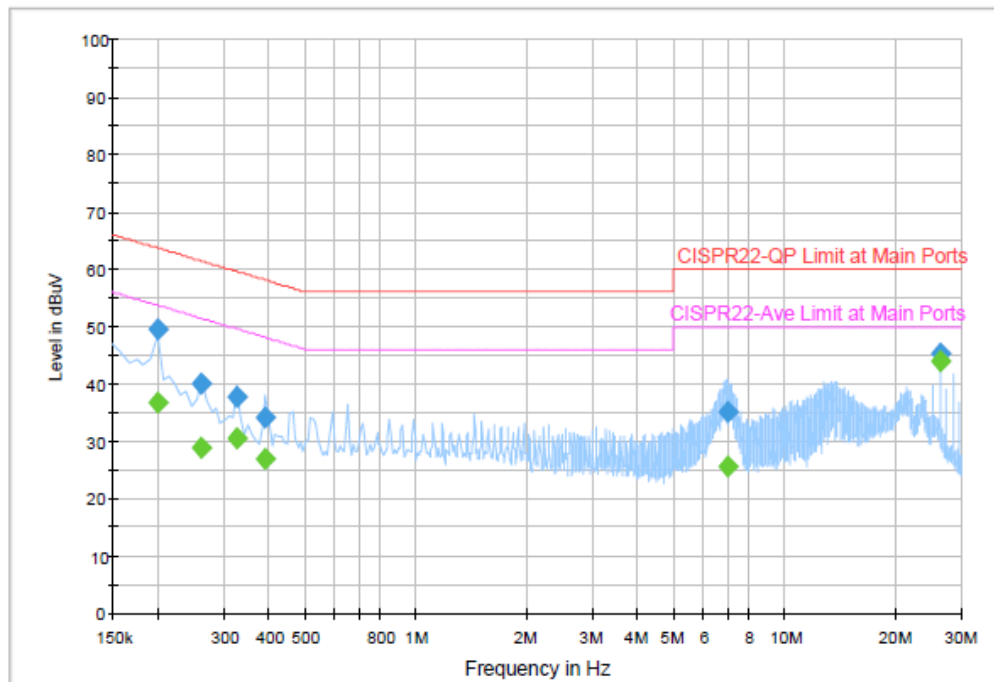
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band II Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

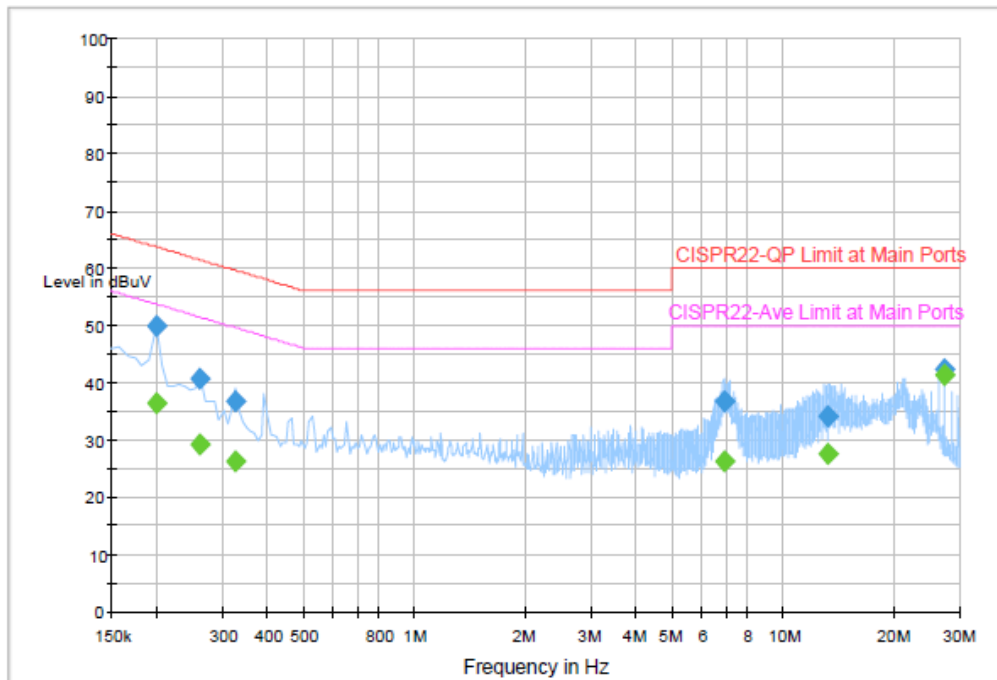
Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	49.5	Off	L1	19.4	14.2	63.7
0.262000	40.0	Off	L1	19.4	21.4	61.4
0.326000	37.6	Off	L1	19.4	22.0	59.6
0.390000	34.1	Off	L1	19.4	24.0	58.1
6.998000	35.1	Off	L1	19.5	24.9	60.0
26.230000	45.2	Off	L1	19.7	14.8	60.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	36.6	Off	L1	19.4	17.1	53.7
0.262000	28.7	Off	L1	19.4	22.7	51.4
0.326000	30.5	Off	L1	19.4	19.1	49.6
0.390000	27.0	Off	L1	19.4	21.1	48.1
6.998000	25.6	Off	L1	19.5	24.4	50.0
26.230000	43.8	Off	L1	19.7	6.2	50.0



Test Mode :	Mode 4	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band II Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

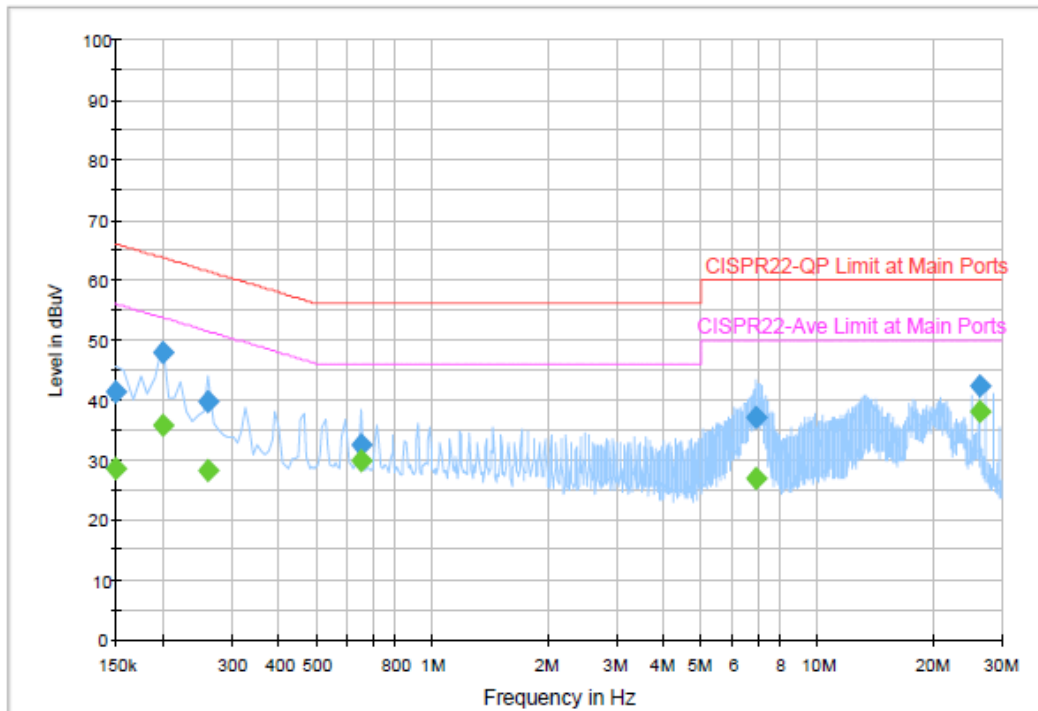
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	49.7	Off	N	19.4	14.0	63.7
0.262000	40.6	Off	N	19.4	20.8	61.4
0.326000	36.6	Off	N	19.4	23.0	59.6
6.926000	36.7	Off	N	19.6	23.3	60.0
13.198000	34.2	Off	N	19.7	25.8	60.0
27.430000	42.2	Off	N	19.8	17.8	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.198000	36.3	Off	N	19.4	17.4	53.7
0.262000	29.2	Off	N	19.4	22.2	51.4
0.326000	26.1	Off	N	19.4	23.5	49.6
6.926000	26.2	Off	N	19.6	23.8	50.0
13.198000	27.6	Off	N	19.7	22.4	50.0
27.430000	41.3	Off	N	19.8	8.7	50.0



Test Mode :	Mode 8	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

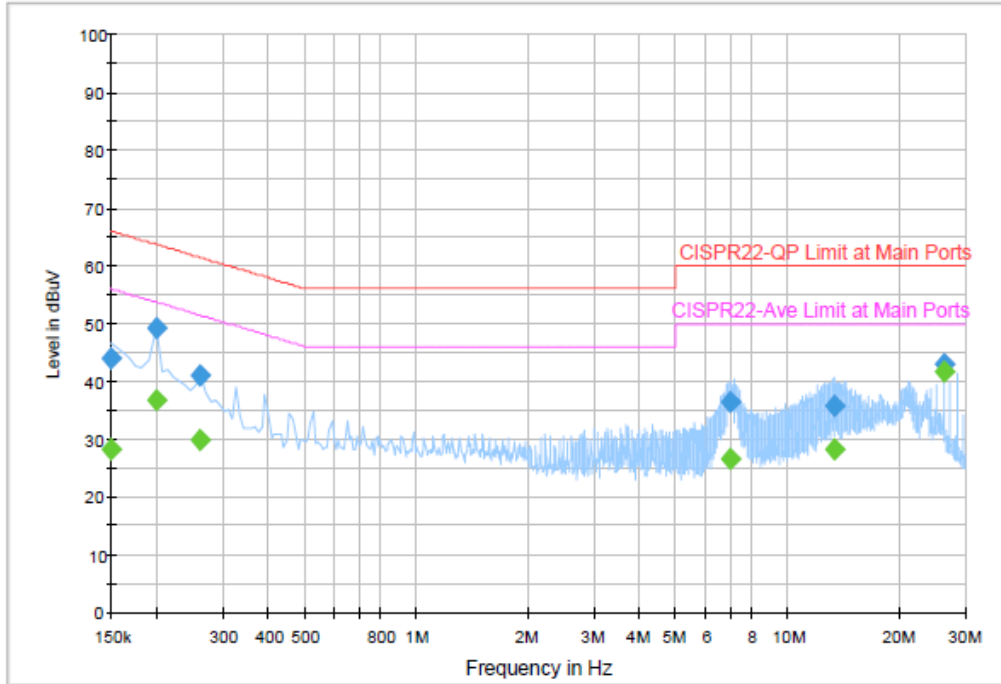
Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	41.3	Off	L1	19.6	18.7	66.0
0.198000	48.0	Off	L1	19.4	15.7	63.7
0.262000	39.6	Off	L1	19.4	21.8	61.4
0.654000	32.5	Off	L1	19.4	23.5	56.0
6.934000	36.9	Off	L1	19.5	23.1	60.0
26.222000	42.3	Off	L1	19.7	17.7	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	28.5	Off	L1	19.6	21.5	56.0
0.198000	35.7	Off	L1	19.4	18.0	53.7
0.262000	28.2	Off	L1	19.4	23.2	51.4
0.654000	29.7	Off	L1	19.4	16.3	46.0
6.934000	26.9	Off	L1	19.5	23.1	50.0
26.222000	37.9	Off	L1	19.7	12.1	50.0



Test Mode :	Mode 8	Temperature :	20~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	42~44%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	43.8	Off	N	19.4	22.2	66.0
0.198000	49.2	Off	N	19.4	14.5	63.7
0.262000	41.0	Off	N	19.4	20.4	61.4
6.998000	36.5	Off	N	19.6	23.5	60.0
13.278000	35.8	Off	N	19.7	24.2	60.0
26.230000	42.9	Off	N	19.9	17.1	60.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	28.3	Off	N	19.4	21.3	49.6
0.198000	36.8	Off	N	19.4	16.9	53.7
0.262000	29.8	Off	N	19.4	21.6	51.4
6.998000	26.4	Off	N	19.6	23.6	50.0
13.278000	28.3	Off	N	19.7	21.7	50.0
26.230000	41.6	Off	N	19.9	8.4	50.0



3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

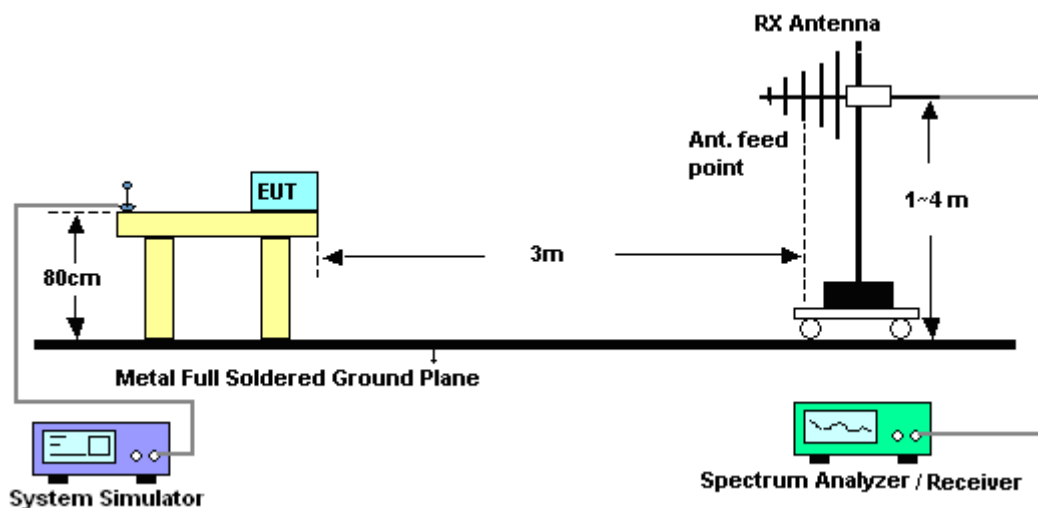
3.2.2. Measuring Instruments

See list of measuring instruments of this test report.

3.2.3. Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. 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 turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. 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 will be repeated one by one using the quasi-peak method and reported
8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

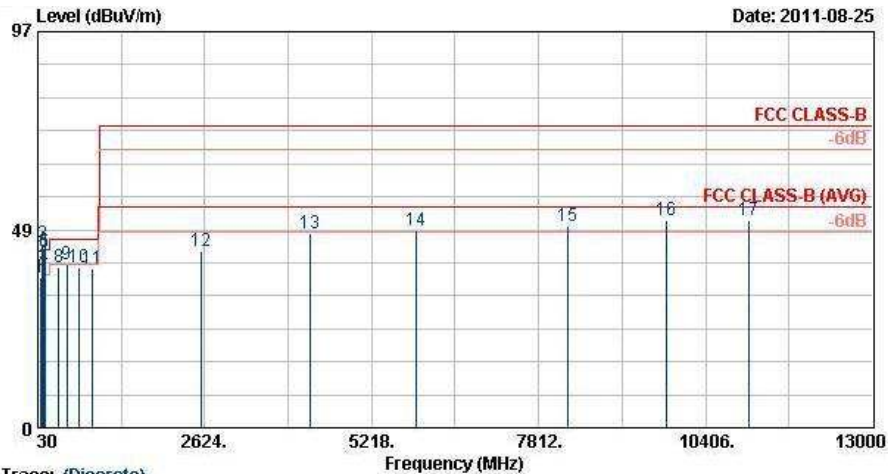
3.2.4. Test Setup of Radiated Emission





3.2.5. Test Result of Radiated Emission

Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	#11 is System Simulator Signal which can be ignored.		



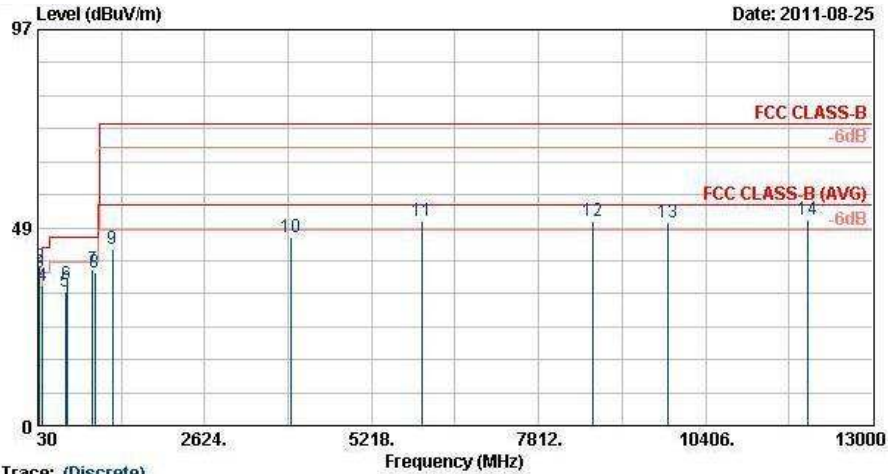
Site :
Condition :
Project :
Model :

Trace: (Discrete)
D3CH06-HY
FCC CLASS-B 3m HF-ANT_090824 HORIZONTAL
FD 170707
Mode 1

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1 !	65.64	36.95	-3.05	40.00	61.27	6.36	0.99	31.68	---	Peak
2 @	109.38	41.89	-1.61	43.50	60.90	11.42	1.28	31.71	287	271 QP
3 @	109.38	45.04	1.54	43.50	64.05	11.42	1.28	31.71	287	271 Peak
4 !	126.39	39.39	-4.11	43.50	57.80	11.92	1.37	31.70	282	276 QP
5 @	126.39	43.03	-0.47	43.50	61.45	11.92	1.37	31.70	282	276 Peak
6 @	139.08	43.12	-0.38	43.50	61.94	11.44	1.44	31.70	330	93 Peak
7 !	139.08	40.37	-3.13	43.50	59.20	11.44	1.44	31.70	330	93 QP
8	358.80	39.43	-6.57	46.00	53.90	14.82	2.26	31.56	---	Peak
9 !	479.90	40.11	-5.89	46.00	51.87	17.41	2.60	31.77	---	Peak
10	673.80	39.18	-6.82	46.00	48.68	19.33	3.16	31.99	---	Peak
11	880.30	38.97			45.55	21.46	3.68	31.72	---	Peak
12	2574.00	43.45	-30.55	74.00	60.07	32.72	5.63	54.96	---	Peak
13	4254.00	47.43	-26.57	74.00	61.48	34.35	7.56	55.96	---	Peak
14	5908.00	48.42	-25.58	74.00	61.00	35.74	9.04	57.36	---	Peak
15	8262.00	49.46	-24.54	74.00	59.61	36.15	10.29	56.59	---	Peak
16	9798.00	50.79	-23.21	74.00	60.16	37.11	10.37	56.85	---	Peak
17	11070.00	50.98	-23.02	74.00	57.59	38.01	11.00	55.63	100	159 Peak



Test Mode :	Mode 1	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Vertical
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		
Remark :	#7 is System Simulator Signal which can be ignored.		

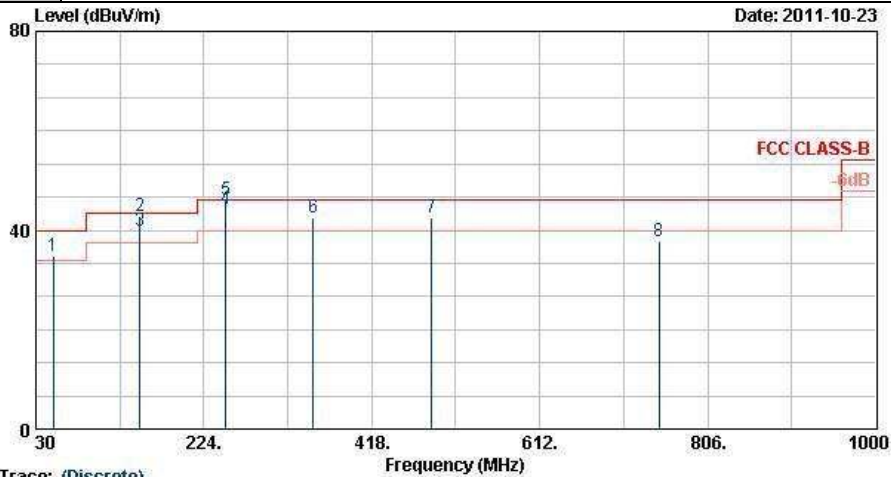


Trace: (Discrete)
 Site : D3CH06-HV
 Condition : FCC CLASS-B 3m HF-ANT_000824 VERTICAL
 Project : FD 170707
 Model : Mode 1

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 !	31.08	34.56	-5.44	40.00	48.24	17.31	0.72	31.72	---	---	Peak
2 @	62.94	39.01	-0.99	40.00	63.30	6.42	0.97	31.68	106	262	Peak
3 @	62.94	37.50	-2.50	40.00	61.80	6.42	0.97	31.68	106	262	QP
4	108.03	34.36	-9.14	43.50	53.52	11.28	1.27	31.70	---	---	Peak
5	455.40	32.83	-13.17	46.00	45.24	16.91	2.52	31.85	---	---	Peak
6	479.90	34.74	-11.26	46.00	46.49	17.41	2.60	31.77	---	---	Peak
7	880.30	38.11			44.69	21.46	3.68	31.72	---	---	Peak
8	913.90	37.32	-8.68	46.00	43.32	21.69	3.77	31.46	---	---	Peak
9	1196.00	43.18	-30.82	74.00	65.84	28.20	3.66	54.51	---	---	Peak
10	3972.00	46.10	-27.90	74.00	60.69	33.79	7.32	55.69	---	---	Peak
11	5998.00	49.95	-24.05	74.00	62.29	35.90	9.13	57.37	---	---	Peak
12	8662.00	50.15	-23.85	74.00	60.40	36.23	10.17	56.66	---	---	Peak
13	9828.00	49.71	-24.29	74.00	59.07	37.13	10.37	56.86	---	---	Peak
14	12004.00	50.55	-23.45	74.00	54.65	38.90	11.09	54.09	100	48	Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Horizontal
Function Type :	WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		

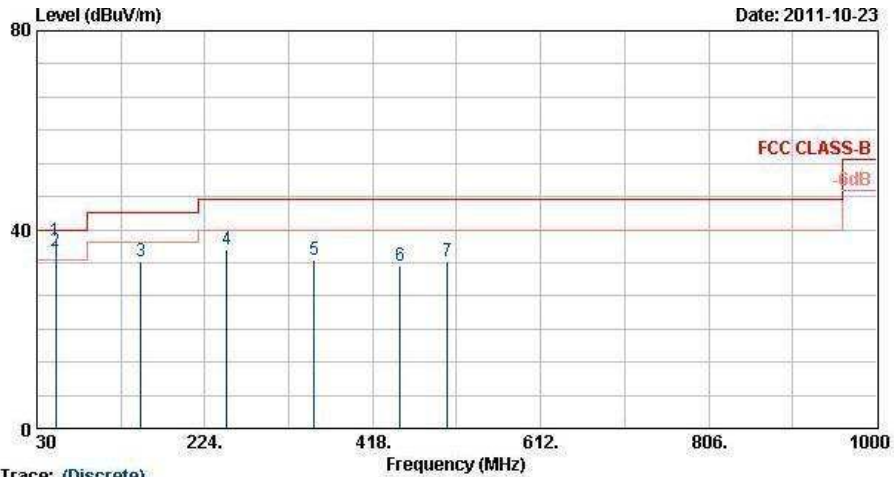


Site : 03CH06-RY
 Condition : FCC CLASS-B BTLOC_101103 HORIZONTAL
 Project : FD 170707
 Model : Mode 8

	Trace: (Discrete)	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	
	Freq	Level	Limit	Level	Loss	Factor	Pos	Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dB	dB	cm	deg	
1 !	49.98	34.91	-5.09	40.00	57.68	8.08	0.86	31.71	--- Peak
2 @	149.88	42.92	-0.58	43.50	62.46	10.70	1.46	31.70	128 312 Peak
3 !	149.88	39.86	-3.64	43.50	59.40	10.70	1.46	31.70	128 312 QP
4 @	249.78	44.17	-1.83	46.00	61.30	12.67	1.85	31.65	128 294 QP
5 @	249.78	46.15	0.15	46.00	63.28	12.67	1.85	31.65	128 294 Peak
6 !	350.40	42.47	-3.53	46.00	57.18	14.62	2.23	31.56	--- Peak
7 !	486.90	42.54	-3.46	46.00	54.14	17.55	2.62	31.77	--- Peak
8	749.40	37.83	-8.17	46.00	46.52	20.07	3.35	32.11	--- Peak



Test Mode :	Mode 8	Temperature :	23~24°C
Test Engineer :	Kai Wang	Relative Humidity :	45~46%
Test Distance :	3m	Polarization :	Vertical
Function Type :	WCDMA Band IV Idle + Bluetooth Idle + Zigbee On + GPS Rx + TC + Adapter		



Trace: (Discrete)
 Site : D3CH08-HY
 Condition : FCC CLASS-B BILOG_101103 VERTICAL
 Project : FD 170707
 Model : Mode 8

	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Ant	Table	Remark
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Pos	Pos	
			dB	dBuV/m	dBuV	dB	dB	cm	deg	
1 @	52.14	37.79	-2.21	40.00	60.85	7.76	0.88	31.69	68	Peak
2 !	52.14	35.64	-4.36	40.00	58.70	7.76	0.88	31.69	68	QP
3	149.88	33.61	-9.89	43.50	53.15	10.70	1.46	31.70	---	Peak
4	249.78	36.01	-9.99	46.00	53.14	12.67	1.85	31.65	---	Peak
5	350.40	33.77	-12.23	46.00	48.49	14.62	2.23	31.56	---	Peak
6	449.80	32.77	-13.23	46.00	45.32	16.80	2.50	31.85	---	Peak
7	504.40	33.57	-12.43	46.00	44.80	17.88	2.68	31.79	---	Peak



4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz – 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz – 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Spectrum Analyzer	R&S	FSP40	100057	9KHz-40GHz	Oct. 25, 2010	Oct. 24, 2011	Radiation (03CH06-HY)
EMI Test Receiver	R&S	ESVS10	834468/003	20MHz-1000M Hz	May 10, 2011	May 09, 2012	Radiation (03CH06-HY)
Bilog Antenna	SCHAFFNER	CBL6112B	2885	30MHz -2GHz	Oct. 31, 2010	Oct. 30, 2011	Radiation (03CH06-HY)
Double Ridge Horn Antenna	EMCO	3117	00066583	1GHz~18GHz	Aug. 01, 2011	Jul. 31, 2012	Radiation (03CH06-HY)
Pre Amplifier	Agilent	8449B	3008A01917	1GHz- 26.5GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
Amplifier	Agilent	310N	186713	9KHz~1GHz	Apr. 14, 2011	Apr. 13, 2012	Radiation (03CH06-HY)
System Simulator	R&S	CMU200	114256	N/A	Feb. 15, 2011	Feb. 14, 2012	-
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	-
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	N/A	-

5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		



Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP170707 as below.