

FCC RF Test Report

APPLICANT : Motorola, Inc.
EQUIPMENT : Enterprise Smartphone
BRAND NAME : Motorola
MODEL NAME : ES405B
FCC ID : UZ7ES405B
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : Digital Transmission System (DTS)

The product was received on Jan. 01, 2010 and completely tested on Jan. 23, 2010. 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:



Roy Wu / Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR010103B	Rev. 01	Initial issue of report	Mar. 18, 2010

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.4.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Output Power Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 6.7 dB at 0.318 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 6.12 dB at 2385.81 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Inventec Appliances Corp.

No. 37, Wugong 5th Road, Wugu industrial Park, Taipei County 248, Taiwan

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Smartphone
Brand Name	Motorola
Model Name	ES405B
FCC ID	UZ7ES405B
Tx/Rx Frequency Range	802.11b/g : 2400 MHz ~ 2483.5 MHz 802.11a : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	802.11b : 17.22 dBm (52.72 mW) 802.11g : 21.71 dBm (148.25 mW) 802.11a : 19.79 dBm (95.28 mW)
Antenna Type	802.11b/g : PIFA Antenna with gain 3.0 dBi 802.11a : PIFA Antenna with gain 2.4 dBi
HW Version	EVT2
SW Version	BSP2410
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/a : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing 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: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07HY	TW1022/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ANSI C63.4-2003
- IC RSS-210 Issue 7 Annex 8

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Agilent	8960	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	LCD Monitor	Lenovo	6135-AB1	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF Output Power in the following table:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		At DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	16.89	16.82	16.87	16.88
CH 06	2437 MHz	17.05	17.02	16.95	16.98
CH 11	2462 MHz	17.22	17.16	17.19	17.20
CH 12	2467 MHz	12.40	12.32	12.34	12.34
CH 13	2472 MHz	5.12	5.18	5.11	5.11

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		At OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	19.94	19.52	20.05	19.41	19.78	19.75	19.67	19.92
CH 02	2417 MHz	20.21	20.16	20.30	20.10	20.51	20.21	20.22	20.45
CH 06	2437 MHz	21.71	21.66	21.69	21.58	21.70	21.41	21.18	20.78
CH 10	2457 MHz	21.51	21.29	21.59	21.36	21.58	21.51	21.10	20.67
CH 11	2462 MHz	20.25	20.01	20.36	20.03	20.49	20.05	20.02	20.44
CH 12	2467 MHz	18.05	17.59	17.71	17.43	17.97	17.55	17.48	18.07
CH 13	2472 MHz	-15.62	-15.62	-15.57	-15.28	-15.58	-15.52	-15.44	-15.75

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		At OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	19.79	19.70	19.74	19.71	19.77	19.21	18.83	18.76
CH157	5785 MHz	19.61	19.54	19.61	19.52	19.52	18.96	18.70	18.43
CH165	5825 MHz	19.53	19.42	19.50	19.44	19.46	18.98	18.69	18.55

Remark:

1. The data rates of WLAN 802.11a/b/g were set in 1Mbps for 802.11b and 6Mbps for 802.11g/a for all the test cases due to the highest RF output power.
2. The EUT is programmed to transmit signal continuously for all testing.

2.2 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: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

Test Cases			
Test Item	802.11b (Modulation : DSSS)	802.11g (Modulation : OFDM)	802.11a Band III (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b_CH01_ 2412 MHz	Mode 4: 802.11g_CH01_ 2412 MHz	Mode 7: 802.11a_CH149_ 5745 MHz
	Mode 2: 802.11b_CH06_ 2437 MHz	Mode 5: 802.11g_CH06_ 2437 MHz	Mode 8: 802.11a_CH157_ 5785 MHz
	Mode 3: 802.11b_CH11_ 2462 MHz	Mode 6: 802.11g_CH11_ 2462 MHz	Mode 9: 802.11a_CH165_ 5825 MHz

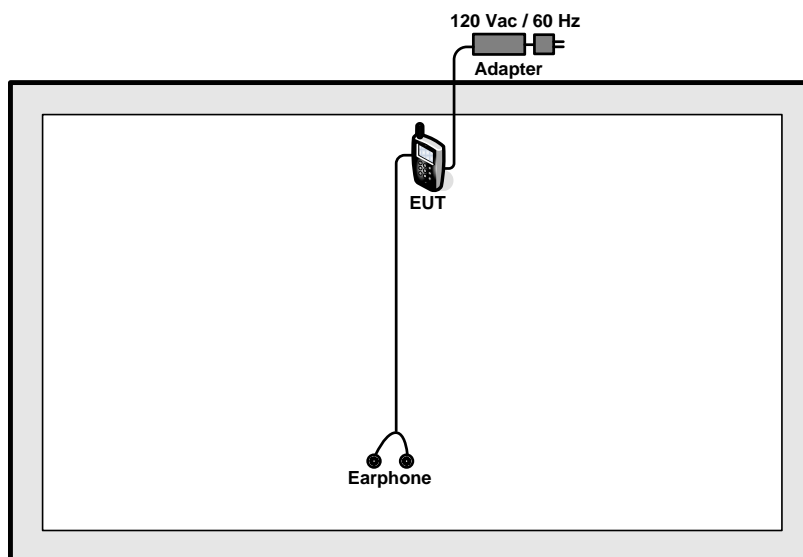
Test Cases			
Radiated TCs	Mode 1: 802.11b_CH01_ 2412 MHz + Battery <3080mAh>	Mode 7: 802.11g_CH01_ 2412 MHz + Battery <3080mAh>	Mode 14: 802.11a_CH149 _5745 MHz + Battery <3080mAh>
	Mode 2: 802.11b_CH06_ 2437 MHz + Battery <3080mAh>	Mode 8: 802.11g_CH02_ 2417 MHz + Battery <3080mAh>	Mode 15: 802.11a_CH157 _5785 MHz + Battery <3080mAh>
	Mode 3: 802.11b_CH11_ 2462 MHz + Battery <3080mAh>	Mode 9: 802.11g_CH06_ 2437 MHz + Battery <3080mAh>	Mode 16: 802.11a_CH165 _5825 MHz + Battery <3080mAh>
	Mode 4: 802.11b_CH12_ 2467 MHz + Battery <3080mAh>	Mode 10: 802.11g_CH10_ 2457 MHz + Battery <3080mAh>	Mode 17: 802.11a_CH157 _5785 MHz + Battery <1540mAh>
	Mode 5: 802.11b_CH13_ 2472 MHz + Battery <3080mAh>	Mode 11: 802.11g_CH11_ 2462 MHz + Battery <3080mAh>	
	Mode 6: 802.11b_CH01_ 2412 MHz + Battery <1540mAh>	Mode 12: 802.11g_CH12_ 2467 MHz + Battery <3080mAh>	
		Mode 13: 802.11g_CH13_ 2472 MHz + Battery <3080mAh>	
AC Conducted Emission	Mode 1 : GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter) + Battery <3080mAh> + Earphone + MP3 + Cradle		
	Mode 2 : WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <3080mAh> + Earphone + Camera + Cradle		
	Mode 3 : CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <1540mAh> + Earphone + Camera + Cradle		

Remark:

1. For radiated TCs test was performed together with USB Cable (Charging from Adapter) and Earphone.
2. The Mode 4, Mode 5, Mode 8, Mode 10, Mode 12, and Mode 13 of radiation test only performed Band Edges.
3. "Bluetooth Link" stands for terminal linked to headset by Bluetooth function.
4. "WLAN Link" stands for terminal associated with AP at 2.4GHz band.
5. "GPS Rx" stands for receive signals from GPS station continuously.
6. "MP3" stands for playing MP3 file.
7. "Camera" stands for playing camera to capture picture.
8. "USB Link" stands for Activesync RNDIS file transfer.

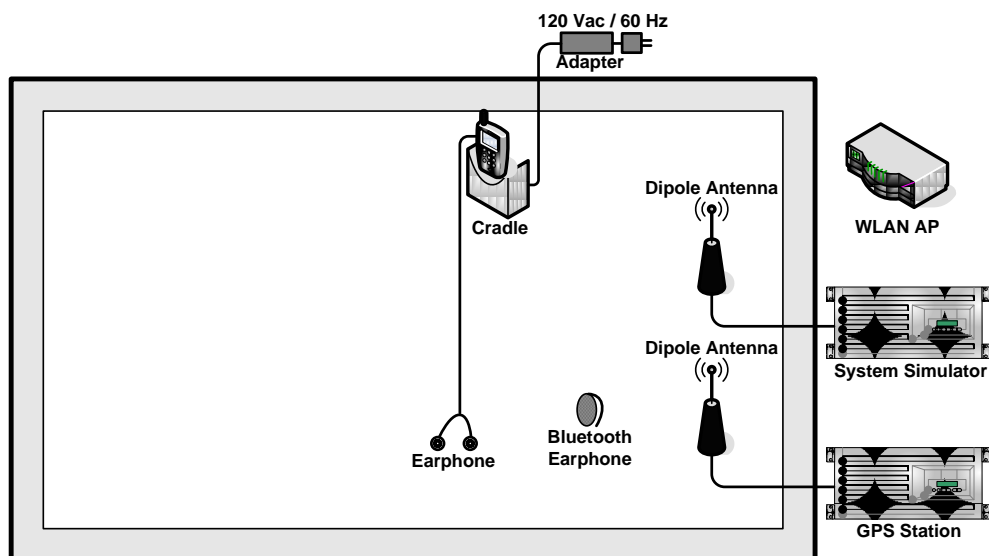
2.3 Connection Diagram of Test System

<Radiation Test>

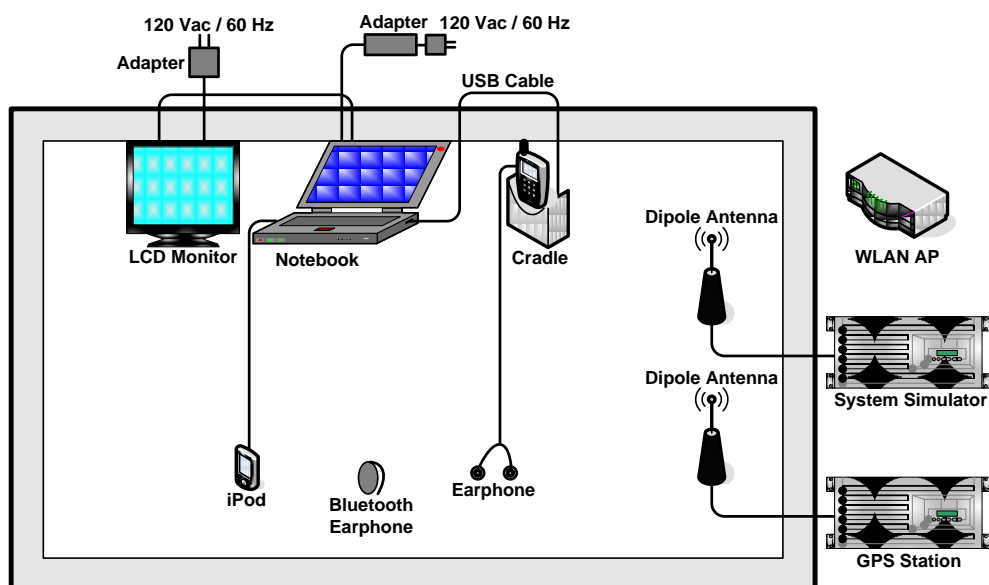


<Conduction Test>

EUT with Adapter Mode



EUT with USB Cable (Link with Notebook) Mode



2.4 RF Utility

The programmed RF utility "Fcc Test 2009" is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

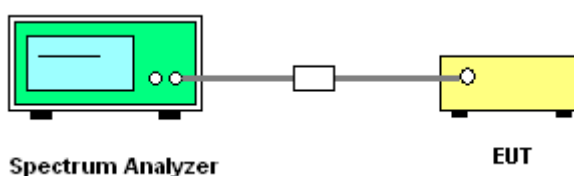
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup

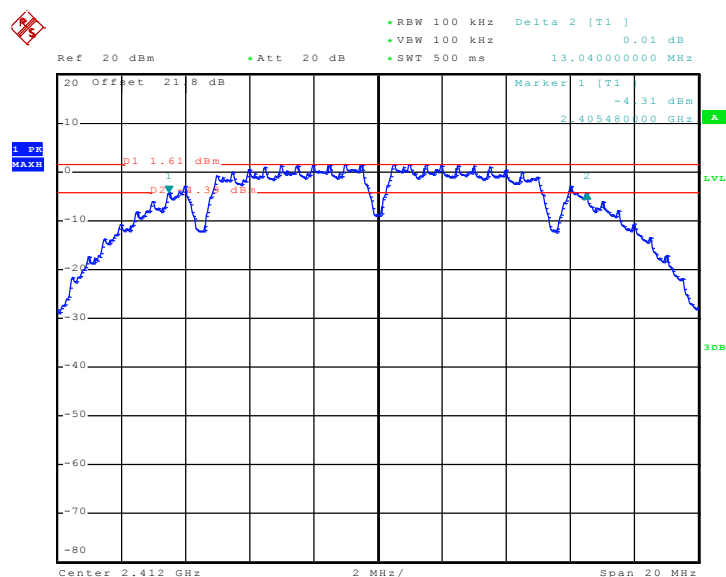


3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

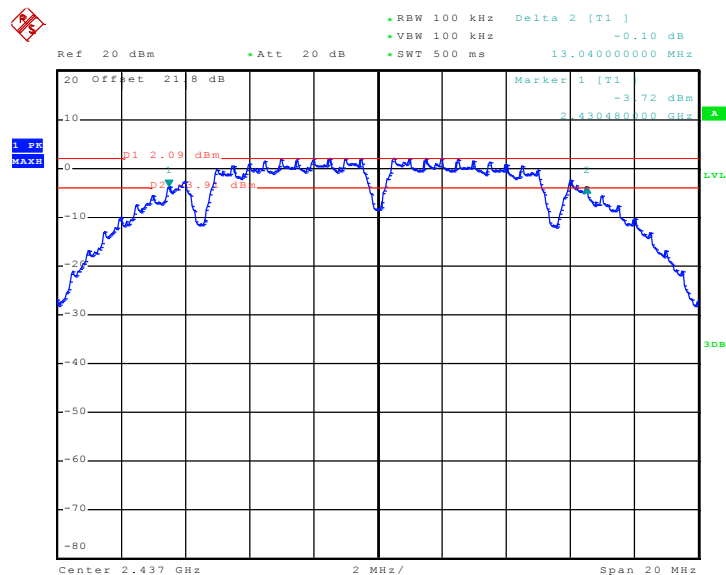
Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	13.04	0.5	Pass
06	2437	13.04	0.5	Pass
11	2462	13.04	0.5	Pass

Mode 1 : 6 dB Bandwidth Plot on 802.11b Channel 01



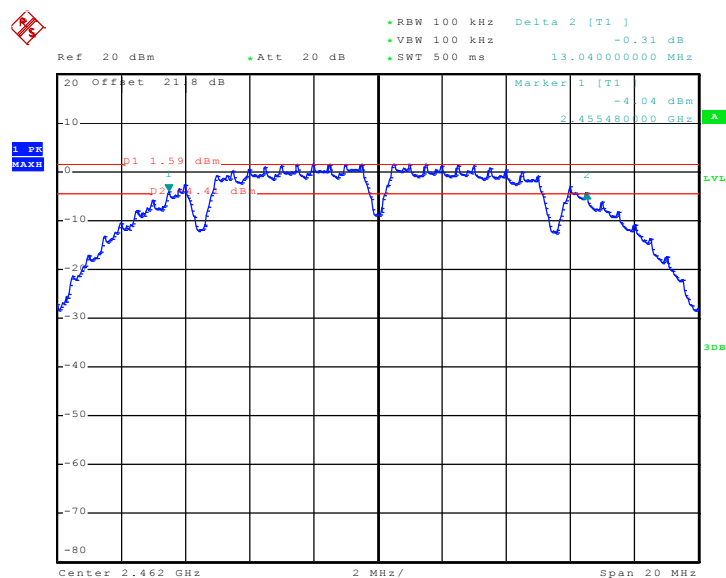
Date: 21.JAN.2010 13:42:00

Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 21 JAN 2010 13:43:19

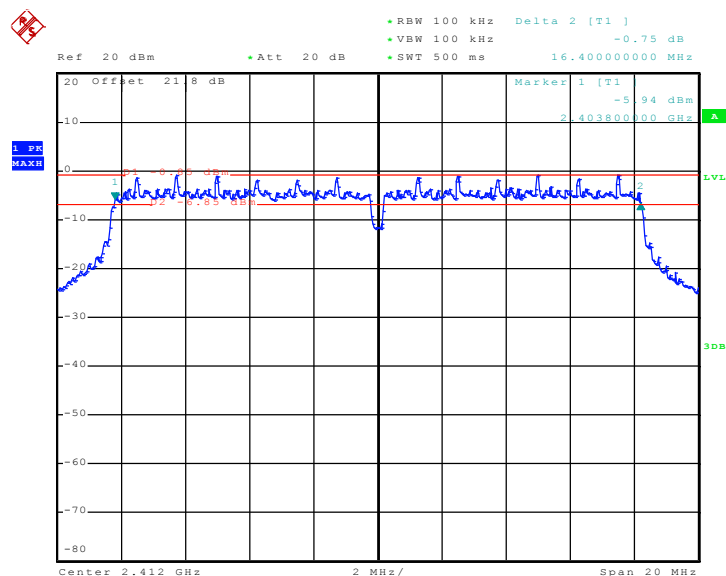
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 21.JAN.2010 13:47:31

Test Mode :	Mode 4, 5, 6	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

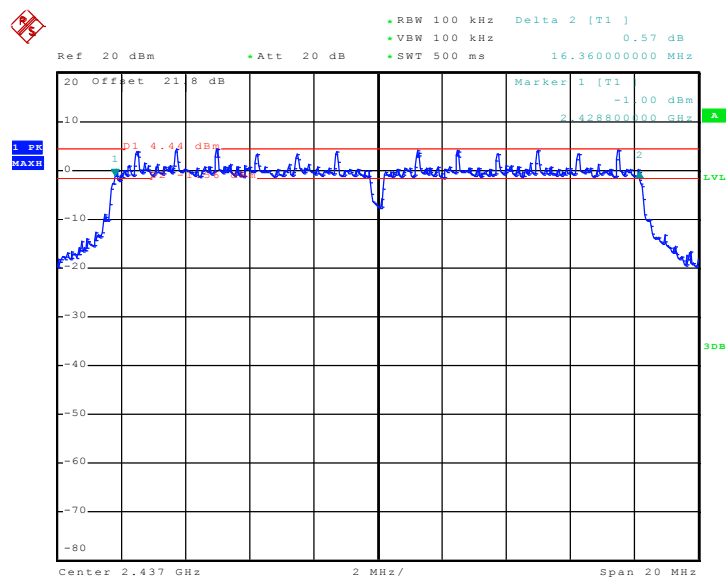
Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.40	0.5	Pass
06	2437	16.36	0.5	Pass
11	2462	16.36	0.5	Pass

Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01


Date: 21..JAN..2010 13:49:00

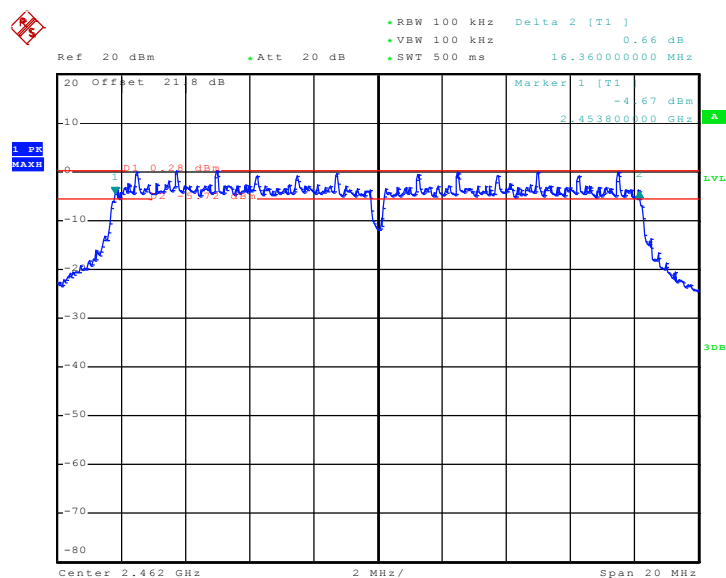


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



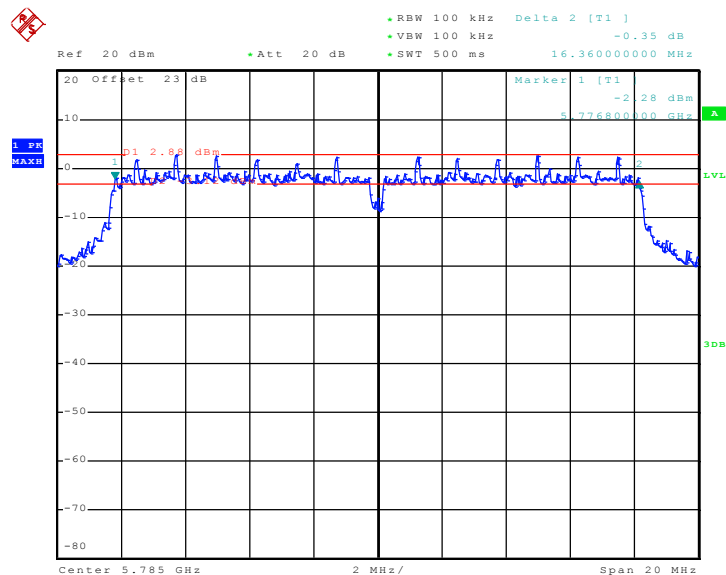
Date: 21 JAN 2010 13:51:23

Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



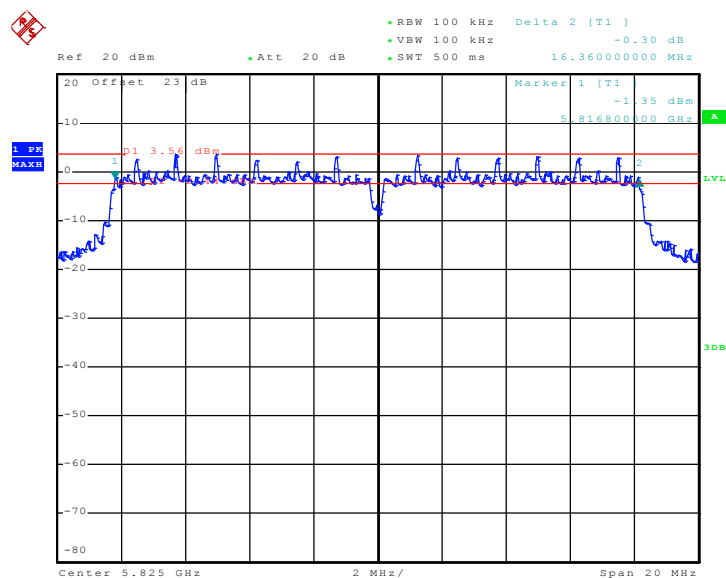
Date: 21.JAN.2010 13:52:42

Mode 8: 6 dB Bandwidth Plot on 802.11a Channel 157



Date: 21 JAN 2010 16:00:19

Mode 9: 6 dB Bandwidth Plot on 802.11a Channel 165



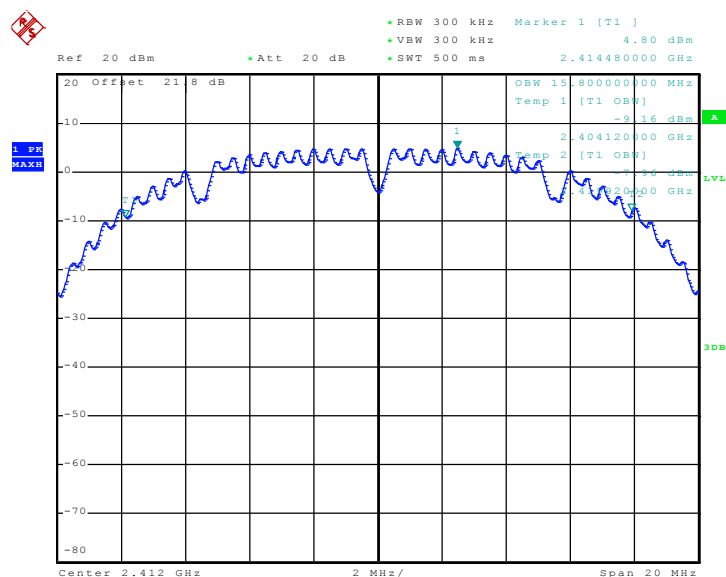
Date: 21.JAN.2010 16:00:56

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.80	Pass
06	2437	15.80	Pass
11	2462	15.80	Pass

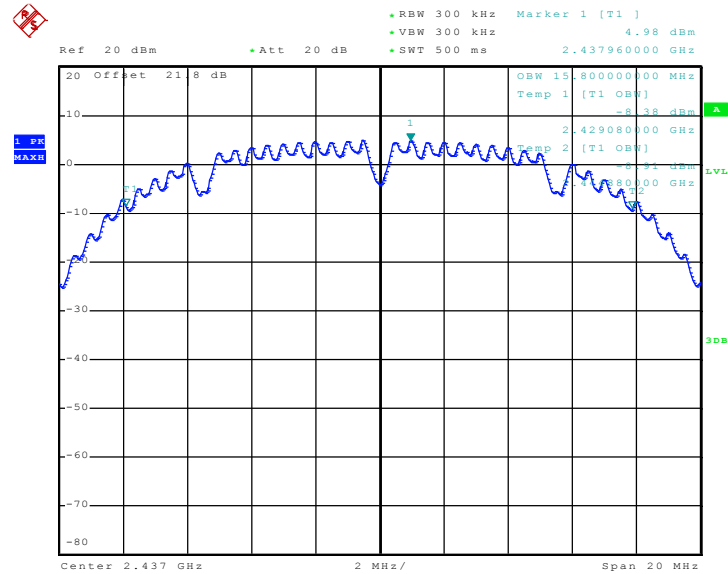
Mode 1 : 99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 21.JAN.2010 14:03:48

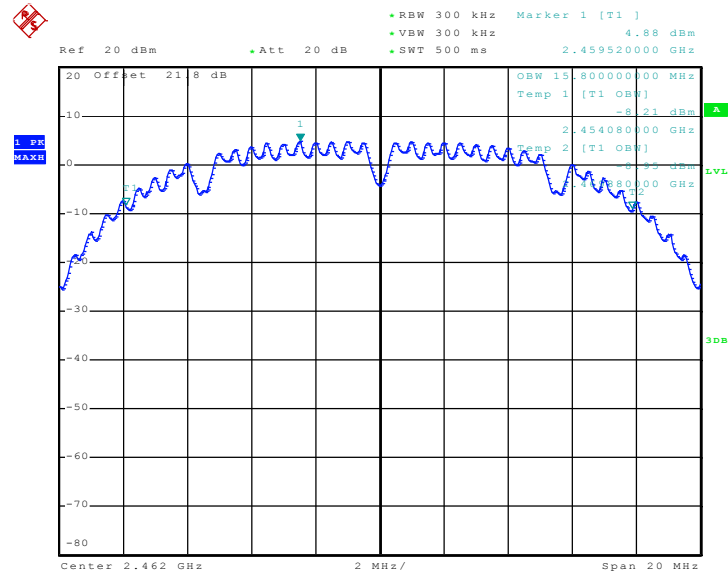


Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 21.JAN.2010 14:04:24

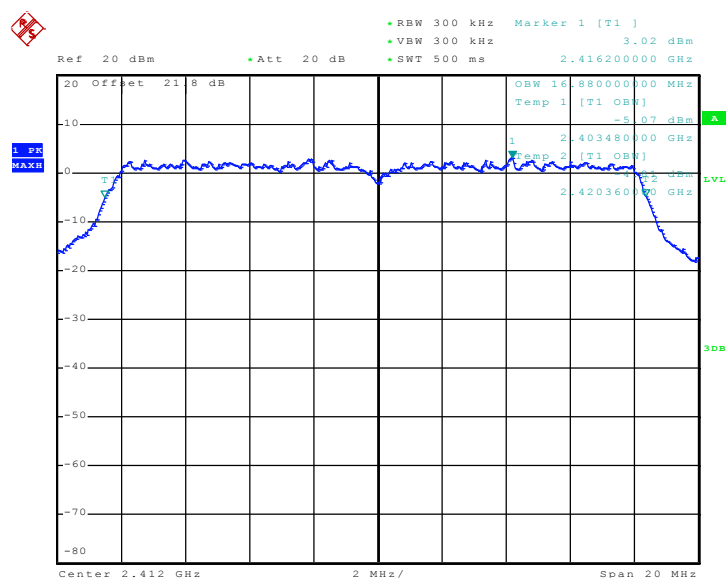
Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 21.JAN.2010 14:05:06

Test Mode :	Mode 4, 5, 6	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

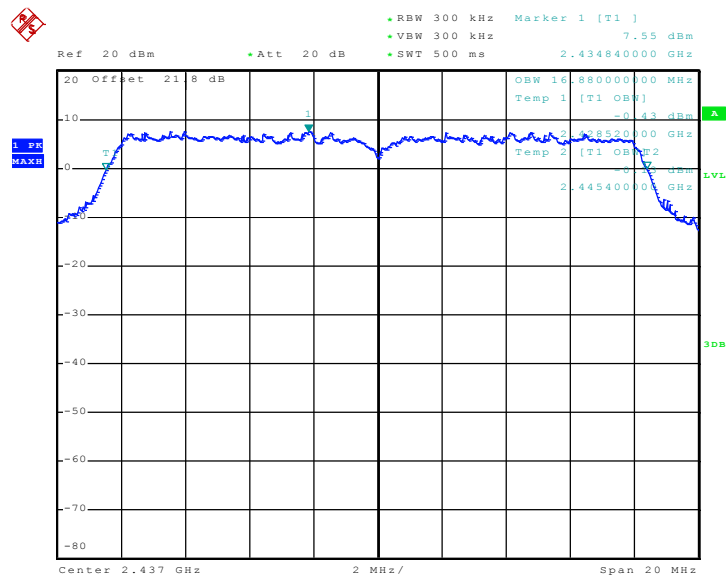
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.88	Pass
06	2437	16.88	Pass
11	2462	16.88	Pass

Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01


Date: 21..JAN..2010 14:09:05

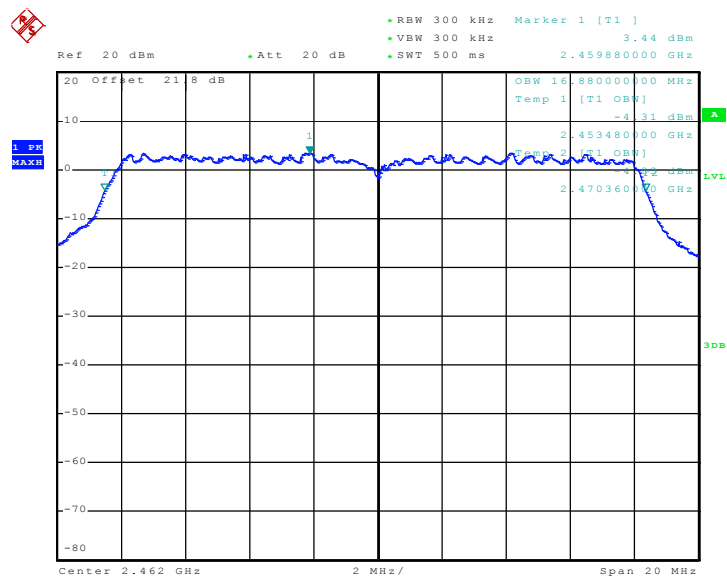


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 21.JAN.2010 14:06:40

Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



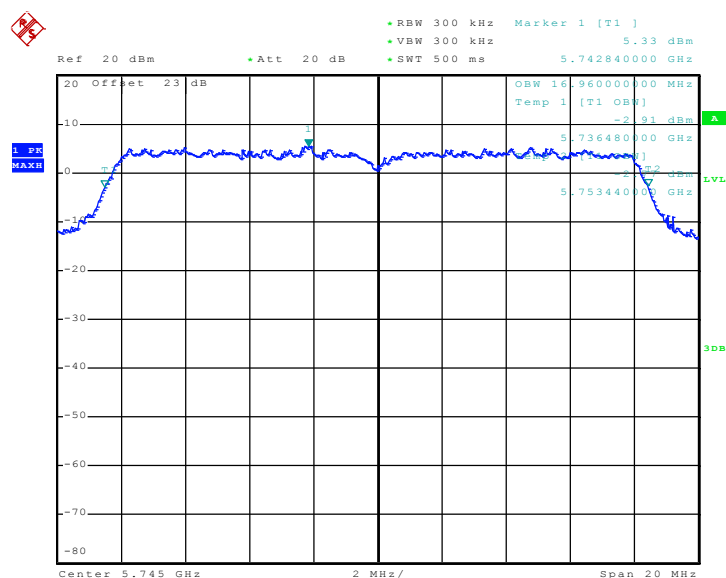
Date: 21.JAN.2010 14:05:48



Test Mode :	Mode 7, 8, 9	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	16.96	Pass
157	5785	16.96	Pass
165	5825	17.04	Pass

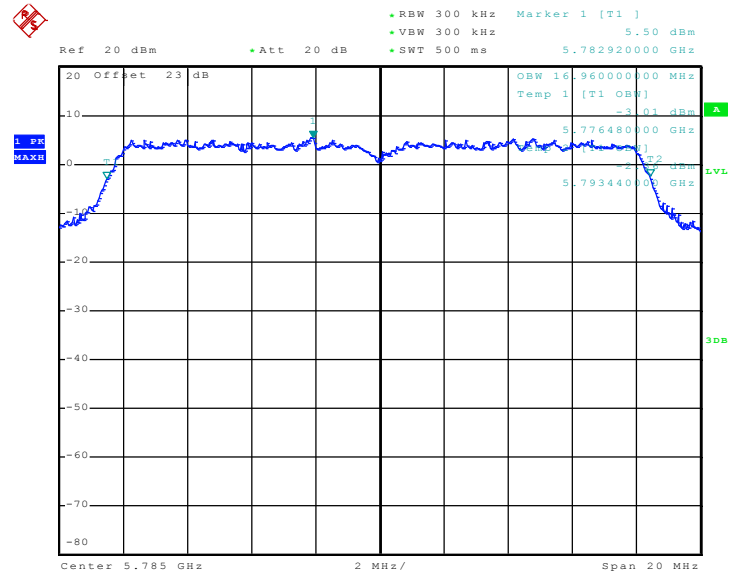
Mode 7: 99% Occupied Bandwidth Plot on 802.11a Channel 149



Date: 21..JAN..2010 16:04:04

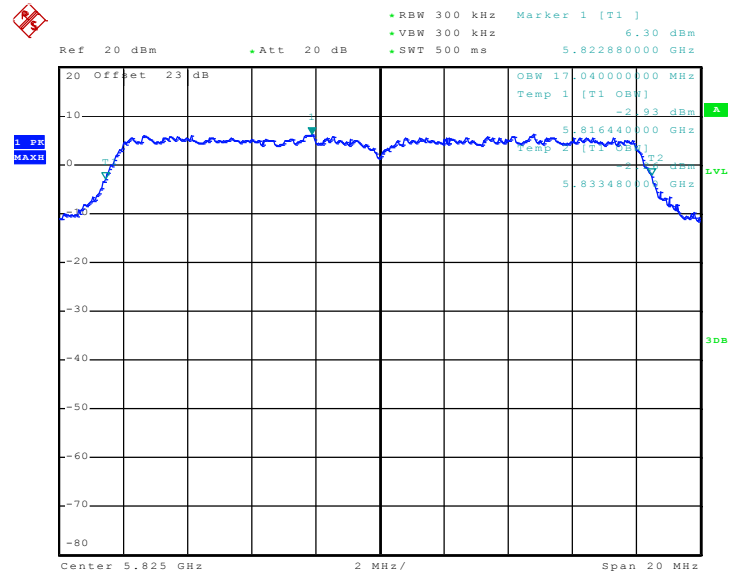


Mode 8: 99% Occupied Bandwidth Plot on 802.11a Channel 157



Date: 21.JAN.2010 16:03:38

Mode 9: 99% Occupied Bandwidth Plot on 802.11a Channel 165



Date: 21.JAN.2010 16:01:45

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

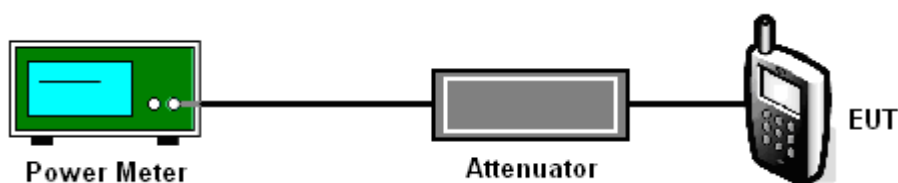
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup



3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	16.89	30	Pass
06	2437	17.05	30	Pass
11	2462	17.22	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	19.94	30	Pass
06	2437	21.71	30	Pass
11	2462	20.25	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	19.79	30	Pass
157	5785	19.61	30	Pass
165	5825	19.53	30	Pass

3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB.

3.3.2 Measuring Instruments

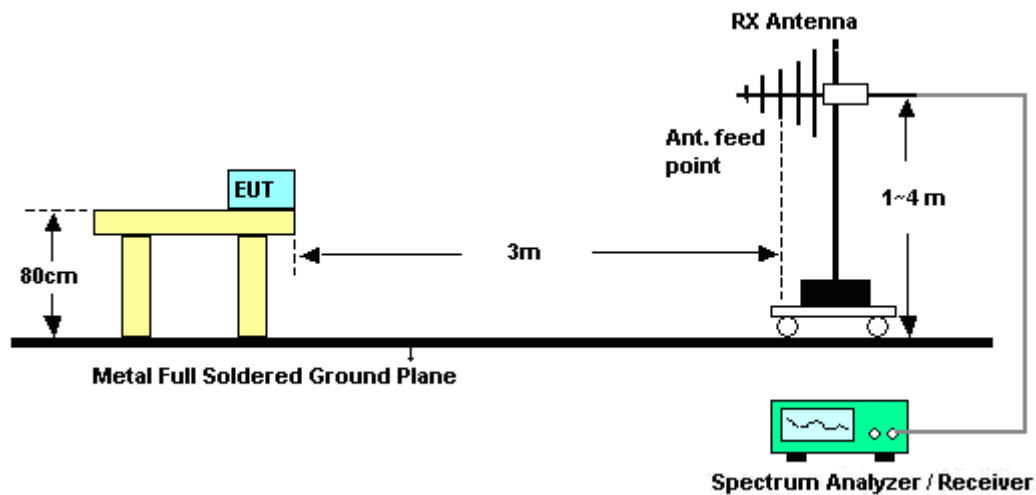
See list of measuring instruments of this test report.

3.3.3 Test Procedures

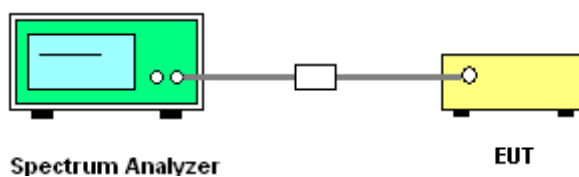
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>



3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.81	55.49	-18.51	74	52.05	32.13	5.46	34.15	104	7	Peak
2385.81	47.88	-6.12	54	44.44	32.13	5.46	34.15	104	7	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.81	51.76	-22.24	74	48.32	32.13	5.46	34.15	100	62	Peak
2385.81	43.29	-10.71	54	39.85	32.13	5.46	34.15	100	62	Average

Test Mode :	Mode 3	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.65	50.04	-23.96	74	46.56	32.3	5.37	34.19	103	28	Peak
2487.65	38.24	-15.76	54	34.76	32.3	5.37	34.19	103	28	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	47.49	-26.51	74	44.03	32.27	5.38	34.19	120	71	Peak
2484.42	35.91	-18.09	54	32.45	32.27	5.38	34.19	120	71	Average

Test Mode :	Mode 4	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	12	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	54.05	-19.95	74	50.59	32.27	5.38	34.19	102	29	Peak
2483.5	44.72	-9.28	54	41.26	32.27	5.38	34.19	102	29	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	51.12	-22.88	74	47.66	32.27	5.38	34.19	121	70	Peak
2483.85	40.93	-13.07	54	37.47	32.27	5.38	34.19	121	70	Average

Test Mode :	Mode 5	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	13	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	54.96	-19.04	74	51.5	32.27	5.38	34.19	100	16	Peak
2483.5	47.75	-6.25	54	44.29	32.27	5.38	34.19	100	16	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	50.61	-23.39	74	47.15	32.27	5.38	34.19	117	56	Peak
2483.5	43.80	-10.2	54	40.34	32.27	5.38	34.19	117	56	Average



Test Mode :	Mode 6	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.62	54.16	-19.84	74	50.72	32.13	5.46	34.15	106	5	Peak
2385.62	46.77	-7.23	54	43.33	32.13	5.46	34.15	106	5	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.81	52.65	-21.35	74	49.21	32.13	5.46	34.15	100	307	Peak
2385.81	44.80	-9.2	54	41.36	32.13	5.46	34.15	100	307	Average

Test Mode :	Mode 7	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	01	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.66	63.84	-10.16	74	60.4	32.13	5.46	34.15	105	354	Peak
2388.66	47.80	-6.2	54	44.36	32.13	5.46	34.15	105	354	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388.66	60.06	-13.94	74	56.62	32.13	5.46	34.15	100	312	Peak
2388.66	44.31	-9.69	54	40.87	32.13	5.46	34.15	100	312	Average

Test Mode :	Mode 8	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	02	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	63.41	-10.59	74	59.97	32.13	5.46	34.15	103	355	Peak
2389.61	45.64	-8.36	54	42.2	32.13	5.46	34.15	103	355	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	57.62	-16.38	74	54.18	32.13	5.46	34.15	100	305	Peak
2389.61	40.75	-13.25	54	37.31	32.13	5.46	34.15	100	305	Average

Test Mode :	Mode 10	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	10	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	66.26	-7.74	74	62.8	32.27	5.38	34.19	100	12	Peak
2484.61	47.11	-6.89	54	43.65	32.27	5.38	34.19	100	12	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.61	63.22	-10.78	74	59.76	32.27	5.38	34.19	142	57	Peak
2484.61	44.06	-9.94	54	40.6	32.27	5.38	34.19	142	57	Average

Test Mode :	Mode 11	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	11	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	60.10	-13.9	74	56.64	32.27	5.38	34.19	102	26	Peak
2483.5	44.26	-9.74	54	40.8	32.27	5.38	34.19	102	26	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	59.27	-14.73	74	55.81	32.27	5.38	34.19	100	191	Peak
2483.5	43.45	-10.55	54	39.99	32.27	5.38	34.19	100	191	Average

Test Mode :	Mode 12	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	12	Test Engineer :	Cona Huang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	64.69	-9.31	74	61.23	32.27	5.38	34.19	101	27	Peak
2483.66	46.56	-7.44	54	43.1	32.27	5.38	34.19	101	27	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.66	64.03	-9.97	74	60.57	32.27	5.38	34.19	100	191	Peak
2483.66	45.78	-8.22	54	42.32	32.27	5.38	34.19	100	191	Average



Test Mode :	Mode 13	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	47~51%
Test Channel :	13	Test Engineer :	Cona Huang

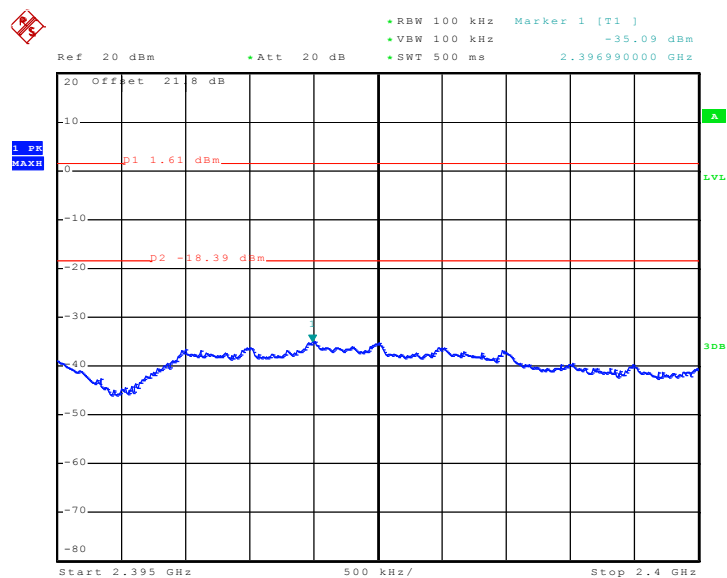
ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	46.91	-27.09	74	43.45	32.27	5.38	34.19	100	28	Peak
2483.5	31.89	-22.11	54	28.43	32.27	5.38	34.19	100	28	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	46.75	-27.25	74	43.29	32.27	5.38	34.19	100	191	Peak
2483.5	31.63	-22.37	54	28.17	32.27	5.38	34.19	100	191	Average

3.3.6 Test Result of Conducted Band Edges

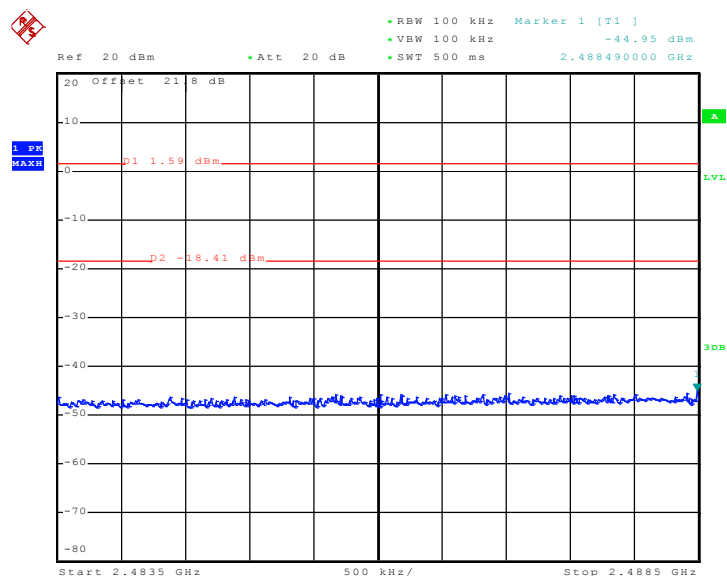
Test Mode :	Mode 1 and 3	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	01 and 11	Test Engineer :	Ken Hsu

Low Band Edge Plot on 802.11b Channel 01



Date: 21.JAN.2010 13:58:52

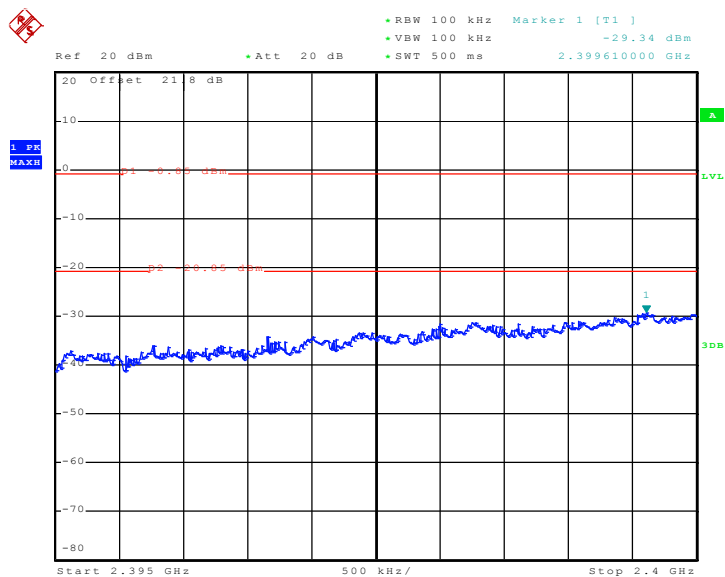
High Band Edge Plot on 802.11b Channel 11



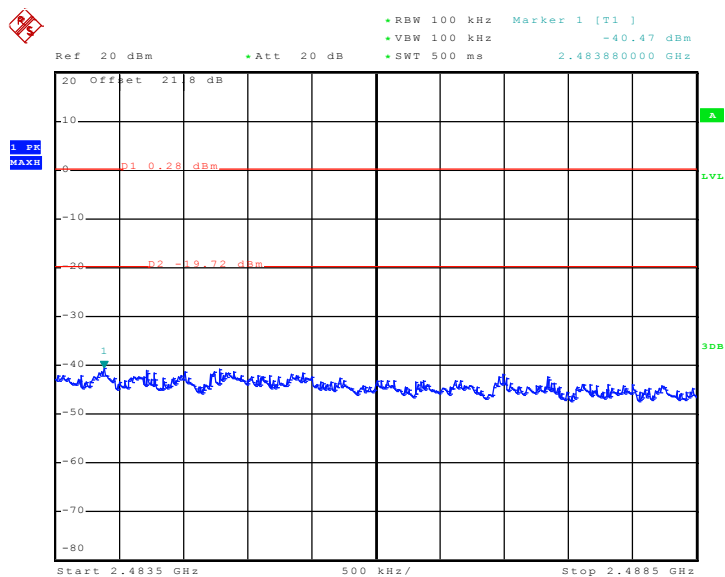
Date: 21.JAN.2010 14:01:24



Test Mode :	Mode 4 and 6	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	01 and 11	Test Engineer :	Ken Hsu

Low Band Edge Plot on 802.11g Channel 01

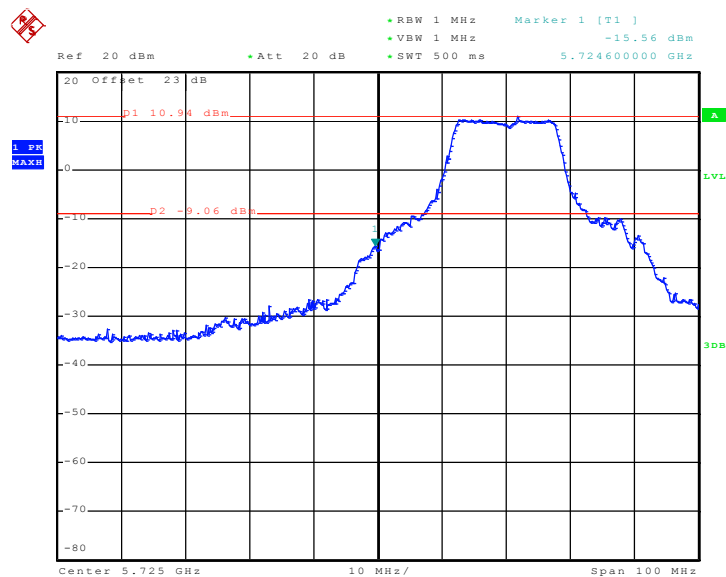
Date: 21.JAN.2010 13:59:43

High Band Edge Plot on 802.11g Channel 11

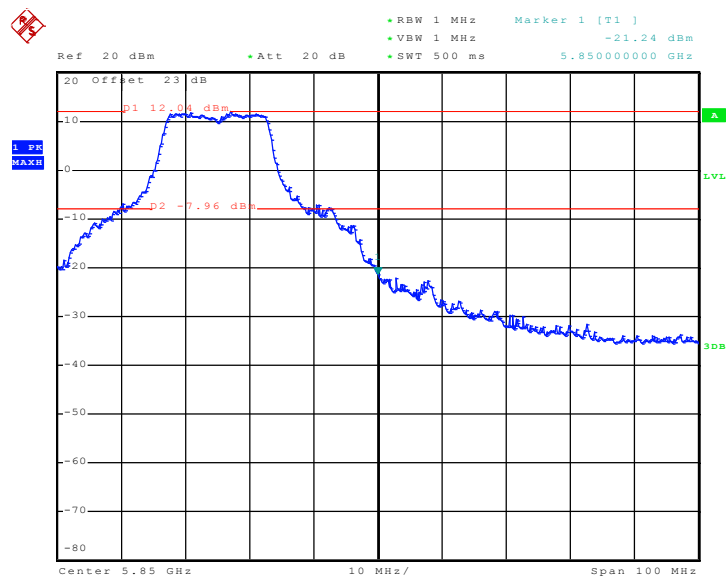
Date: 21.JAN.2010 14:02:12



Test Mode :	Mode 7 and 9	Temperature :	22~25°C
Test Band :	802.11a	Relative Humidity :	43~45%
Test Channel :	149 and 165	Test Engineer :	Ken Hsu

Low Band Edge Plot on 802.11a Channel 149

Date: 21.JAN.2010 16:05:59

High Band Edge Plot on 802.11a Channel 165

Date: 21.JAN.2010 16:07:00

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

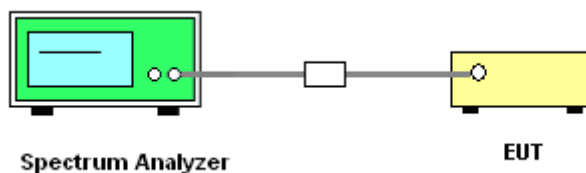
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) \geq RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

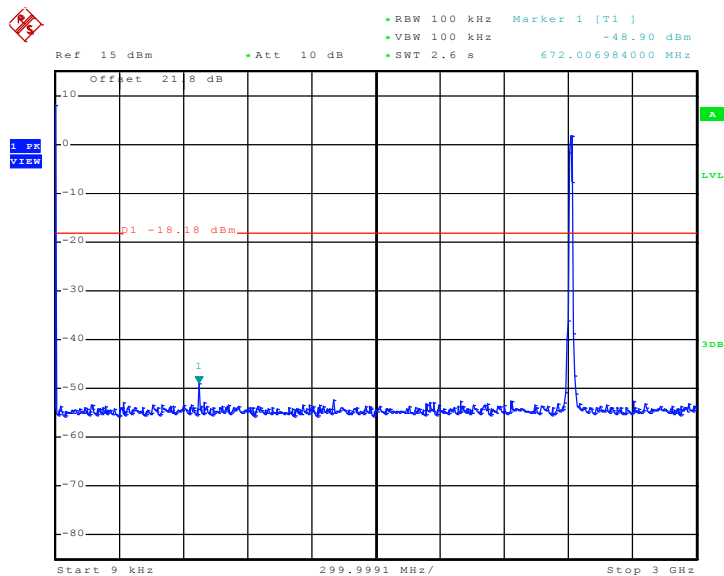
3.4.4 Test Setup



3.4.5 Test Result

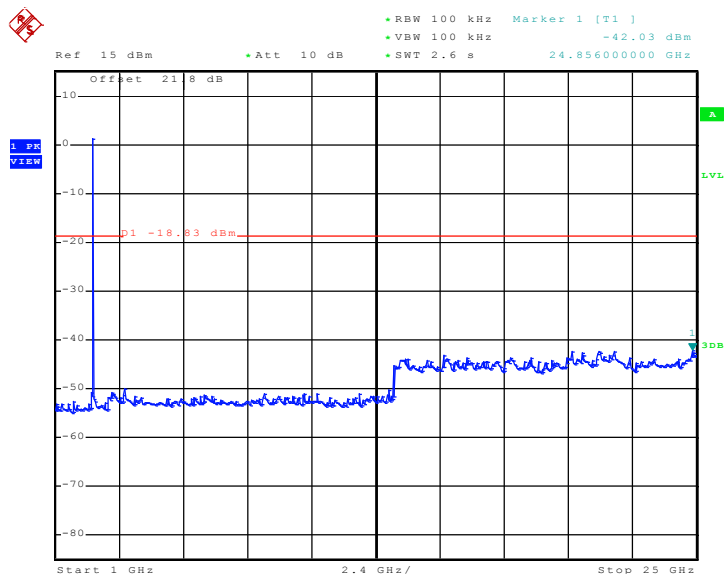
Test Mode :	Mode 1	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	01	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz



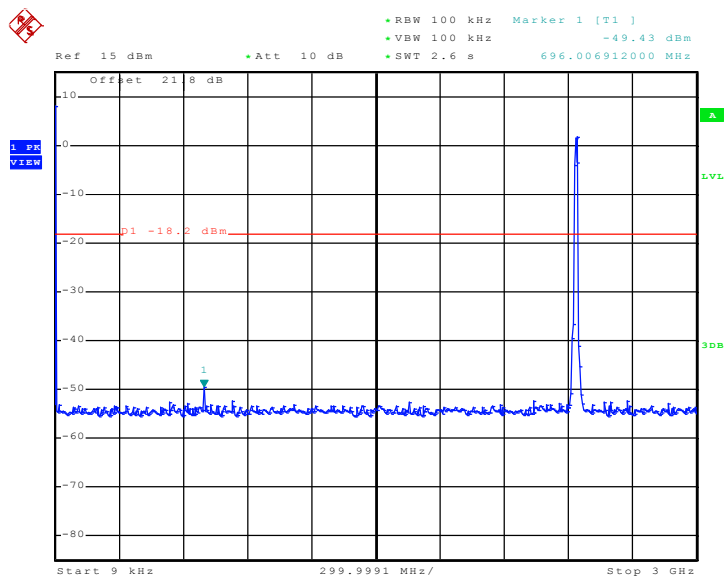
Date: 21.JAN.2010 19:16:54

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

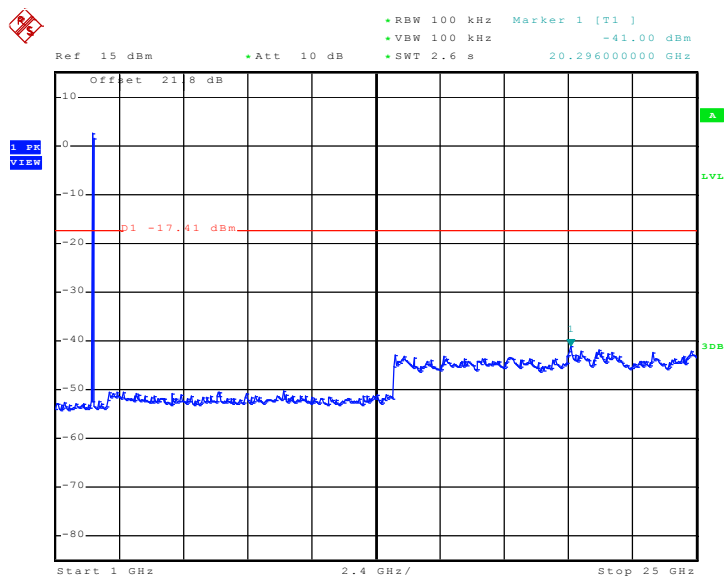


Date: 21.JAN.2010 18:57:08

Test Mode :	Mode 2	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	06	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz


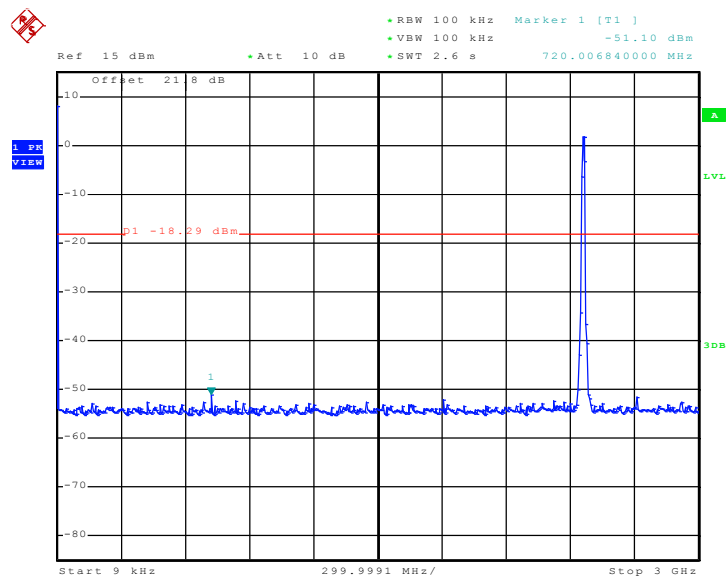
Date: 21.JAN.2010 19:17:38

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz


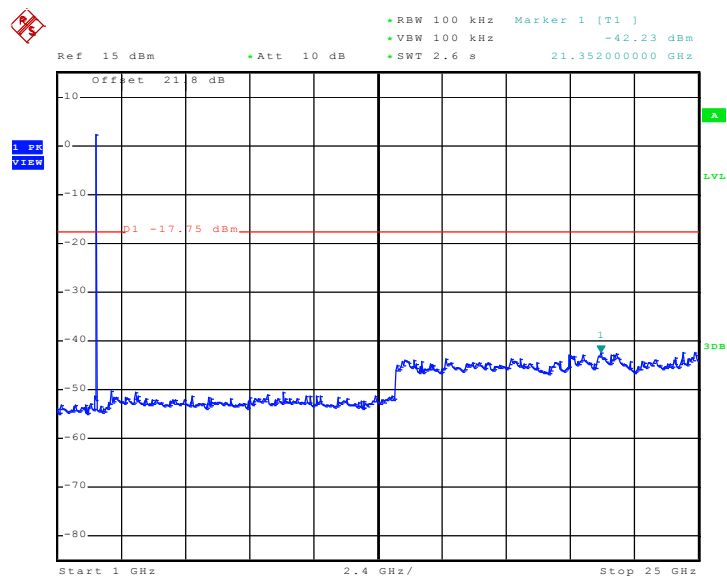
Date: 21.JAN.2010 19:00:30



Test Mode :	Mode 3	Temperature :	22~25°C
Test Band :	802.11b	Relative Humidity :	43~45%
Test Channel :	11	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

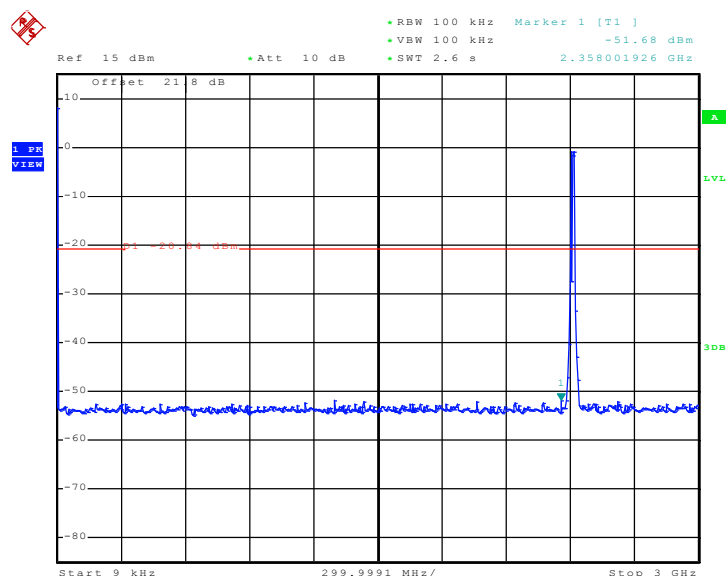
Date: 21.JAN.2010 19:18:29

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

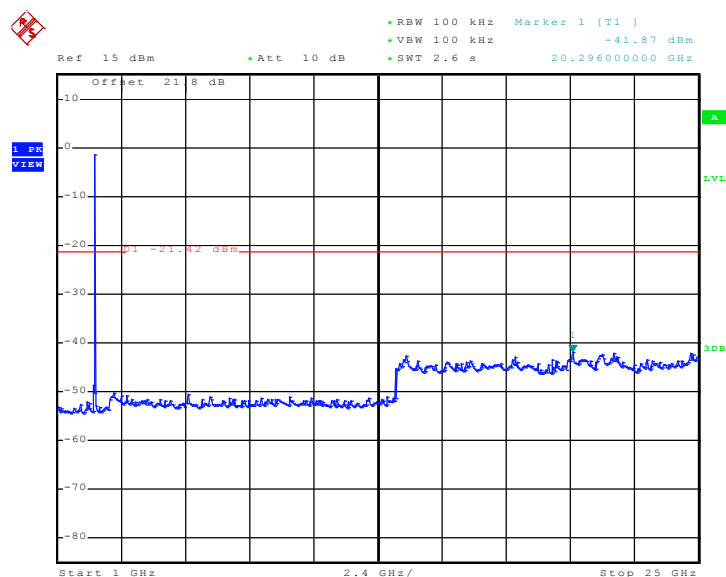
Date: 21.JAN.2010 19:01:52



Test Mode :	Mode 4	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	01	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

Date: 21.JAN.2010 19:08:48

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

Date: 21.JAN.2010 19:09:54



Test Mode :	Mode 5	Temperature :	22~25℃
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	06	Test Engineer :	Ken Hsu

Ref 15 dBm Att 10 dB RBW 100 kHz VBW 100 kHz SWT 2.6 s

Marker 1 [T1] -53.19 dBm 2.556001332 GHz

Offset 21.8 dB

1. dBm VIEW

D1 -16.95 dBm

Start 9 kHz 299.9991 MHz/ Stop 3 GHz

Date: 21.JAN.2010 19:10:23

Ref 15 dBm Att 10 dB RBW 100 kHz VBW 100 kHz SWT 2.6 s Marker 1 [T1] -42.23 dBm 20.63200000 GHz

Offset 21.8 dB

1.80 VIEW

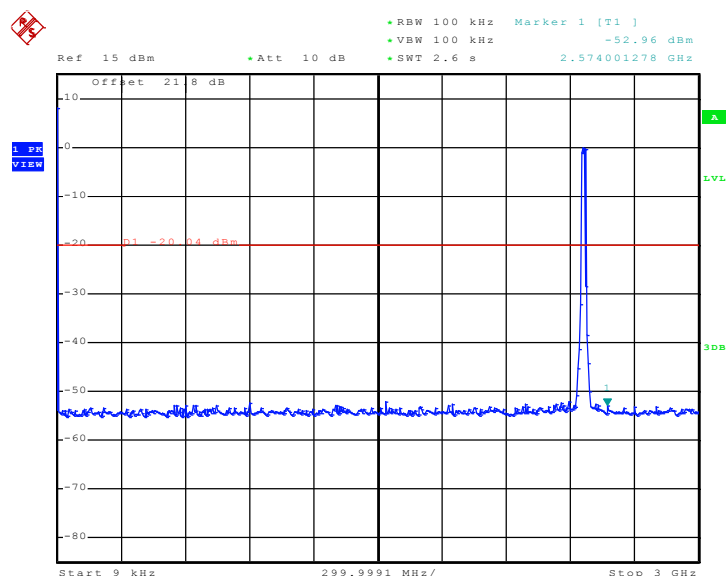
D1 -16.63 dBm

Start 1 GHz 2.4 GHz/ Stop 25 GHz

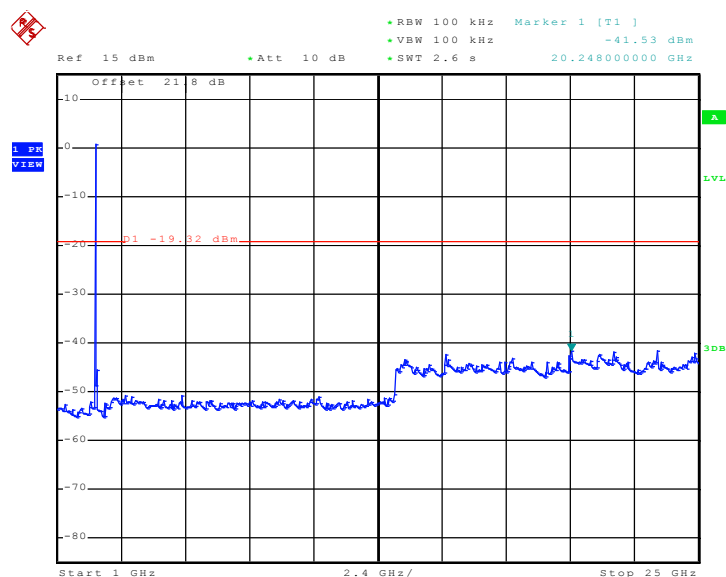
Date: 21 JAN 2010 19:10:57



Test Mode :	Mode 6	Temperature :	22~25°C
Test Band :	802.11g	Relative Humidity :	43~45%
Test Channel :	11	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 9 kHz ~ 3 GHz

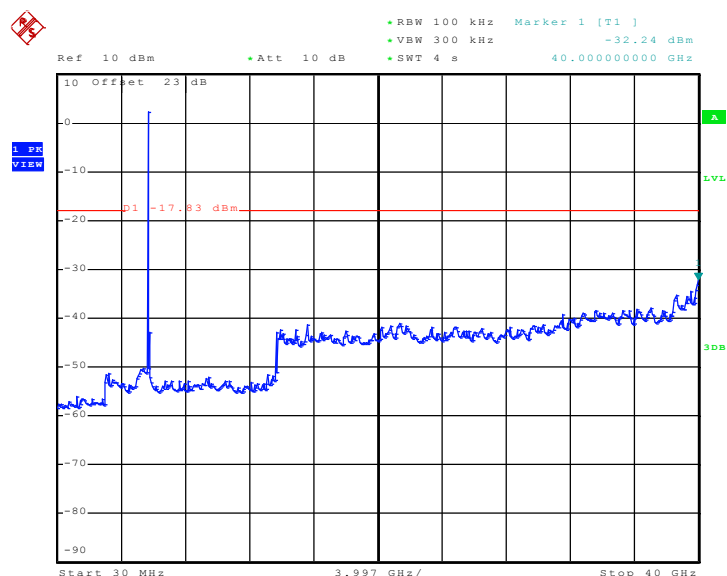
Date: 21.JAN.2010 19:11:45

Conducted Spurious Emission Plot between 1 GHz ~ 25 GHz

Date: 21.JAN.2010 19:12:17

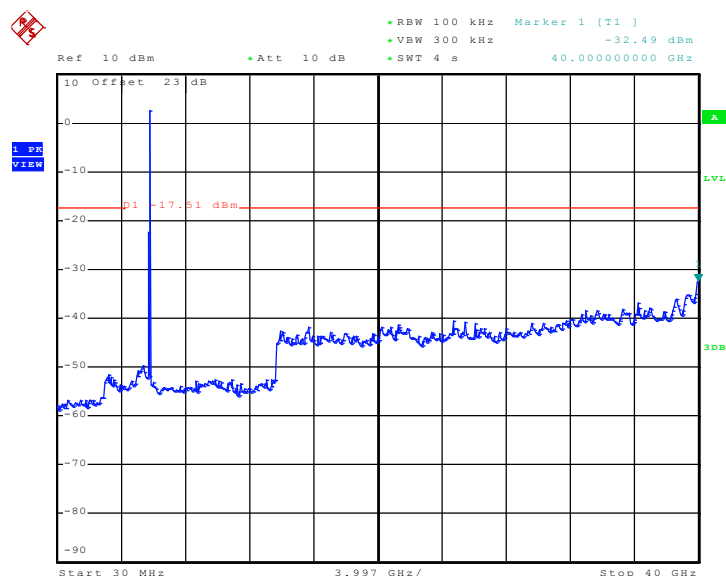


Test Mode :	Mode 7	Temperature :	22~25°C
Test Band :	802.11a	Relative Humidity :	43~45%
Test Channel :	149	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 30 MHz ~ 40 GHz

Date: 21.JAN.2010 19:22:02

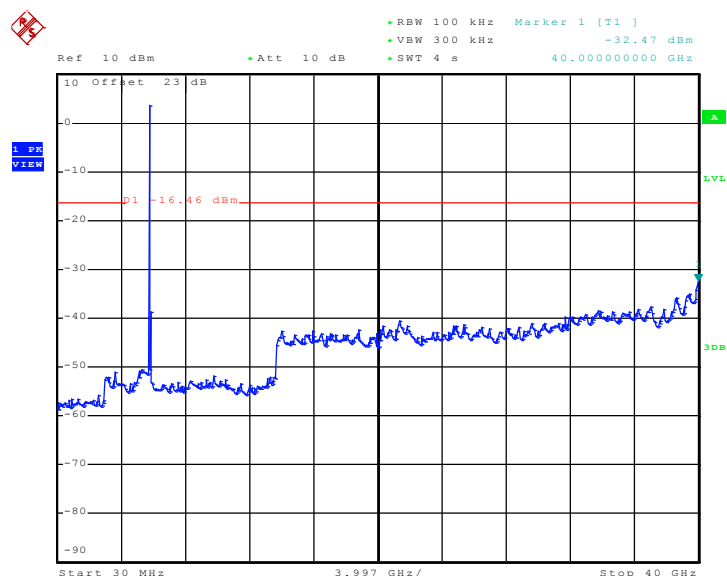
Test Mode :	Mode 8	Temperature :	22~25°C
Test Band :	802.11a	Relative Humidity :	43~45%
Test Channel :	157	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 30 MHz ~ 40 GHz


Date: 21.JAN.2010 19:22:52



Test Mode :	Mode 9	Temperature :	22~25°C
Test Band :	802.11a	Relative Humidity :	43~45%
Test Channel :	165	Test Engineer :	Ken Hsu

Conducted Spurious Emission Plot between 30 MHz ~ 40 GHz

Date: 21.JAN.2010 19:23:45

3.5 Power Spectral Density Measurement

3.5.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3 kHz band at any time interval of continuous transmission.

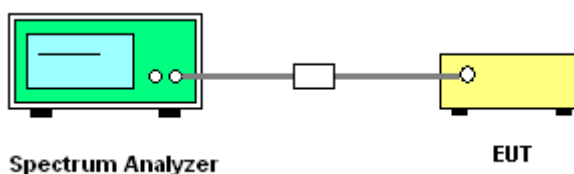
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup

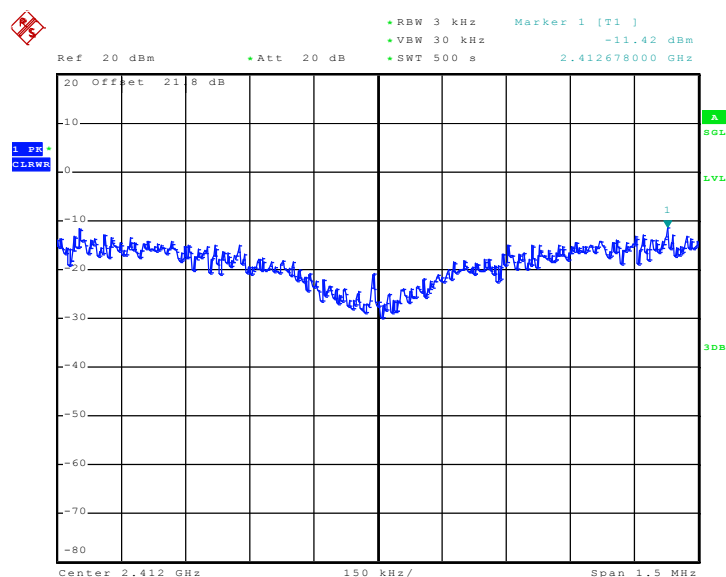


3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	22~25℃
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-11.42	8	Pass
06	2437	-11.33	8	Pass
11	2462	-11.84	8	Pass

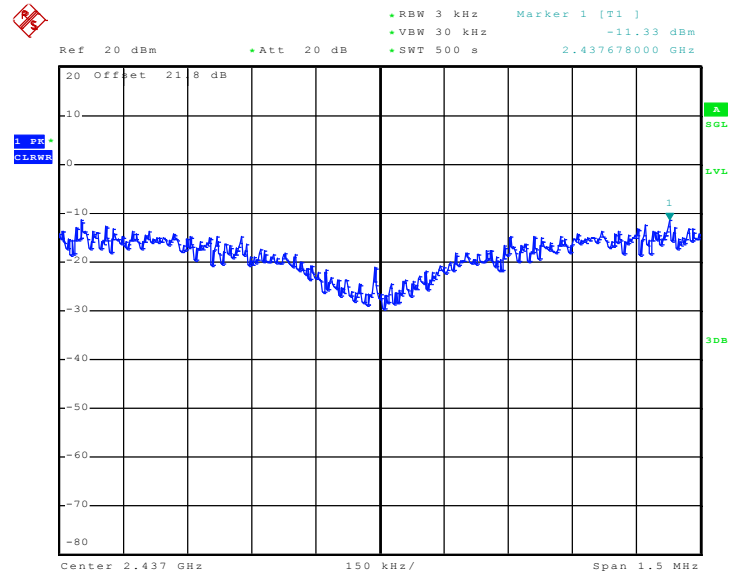
Mode 1 : PSD Plot on 802.11b Channel 01



Date: 21.JAN.2010 14:29:32

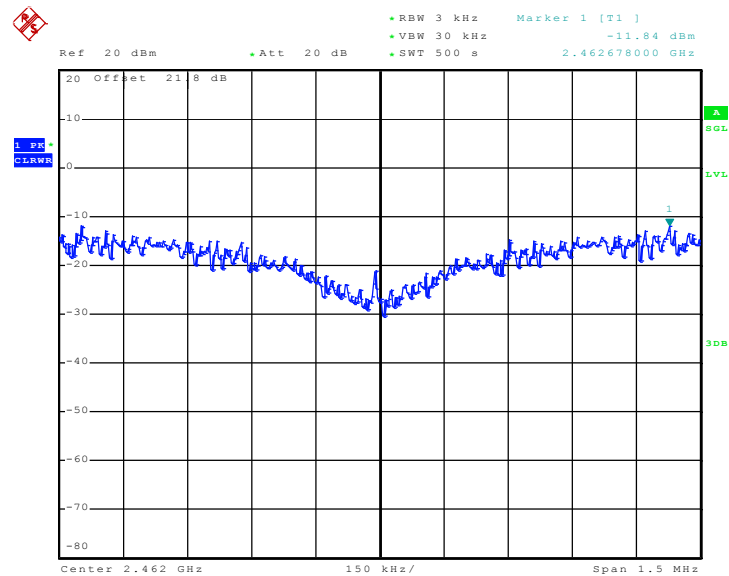


Mode 2 : PSD Plot on 802.11b Channel 06



Date: 21.JAN.2010 14:38:20

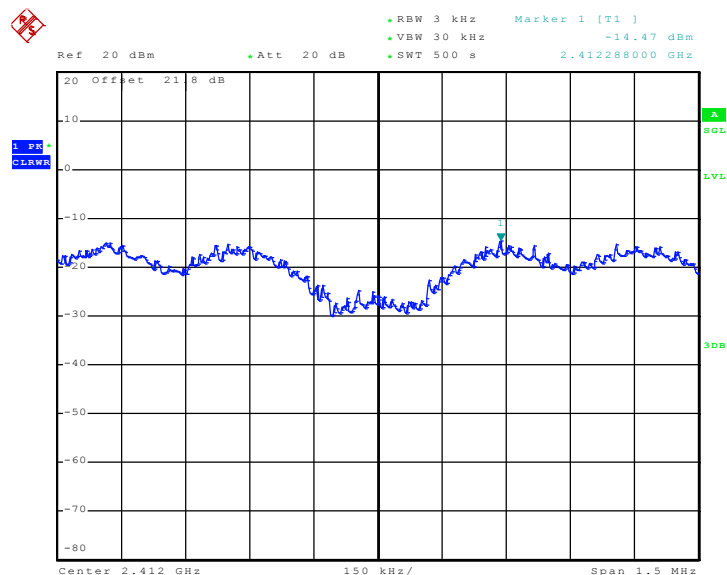
Mode 3 : PSD Plot on 802.11b Channel 11



Date: 21.JAN.2010 14:47:15

Test Mode :	Mode 4, 5, 6	Temperature :	22~25°C
Test Engineer :	Ken Hsu	Relative Humidity :	43~45%

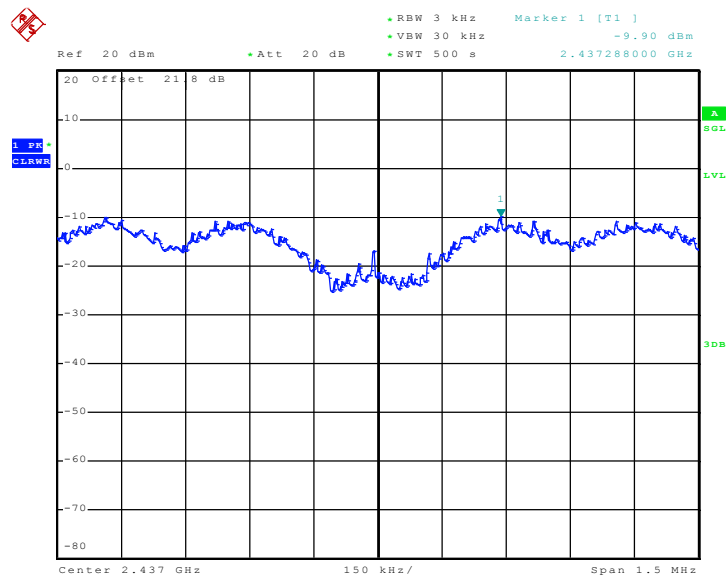
Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-14.47	8	Pass
06	2437	-9.90	8	Pass
11	2462	-13.81	8	Pass

Mode 4 : PSD Plot on 802.11g Channel 01


Date: 21.JAN.2010 14:56:24

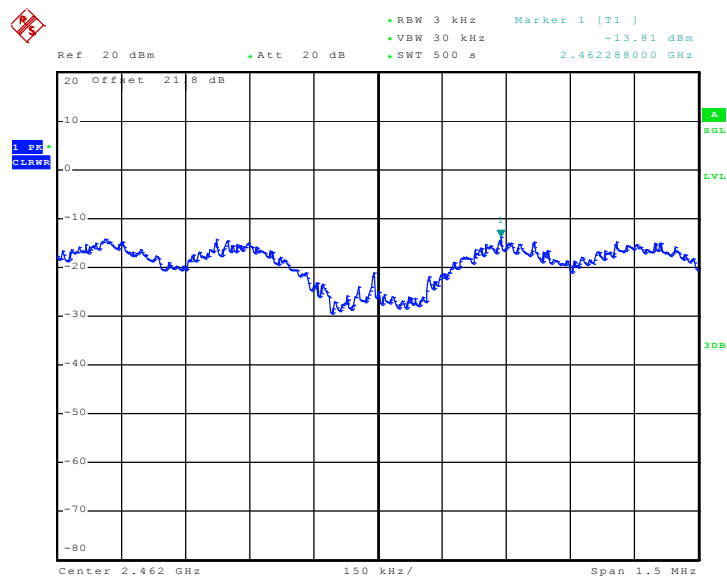


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 21.JAN.2010 15:05:25

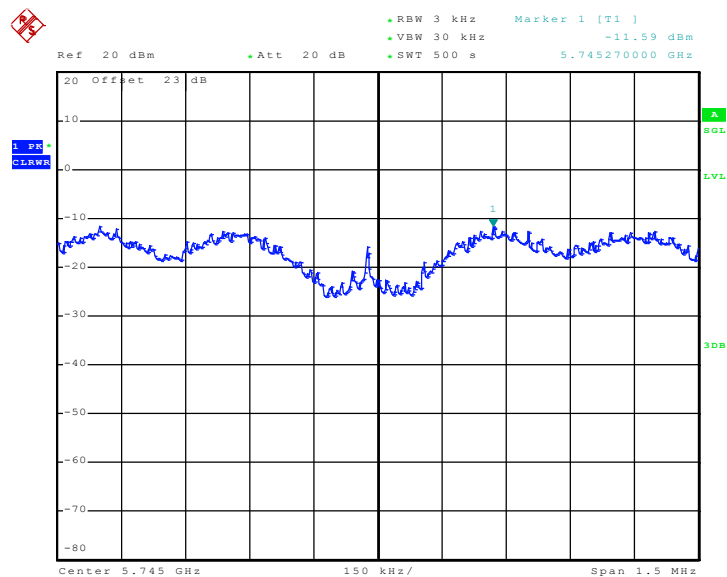
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 21.JAN.2010 15:15:02

Test Mode :	Mode 7, 8, 9	Temperature :	22~25
Test Engineer :	Ken Hsu	Relative Humidity :	43~45

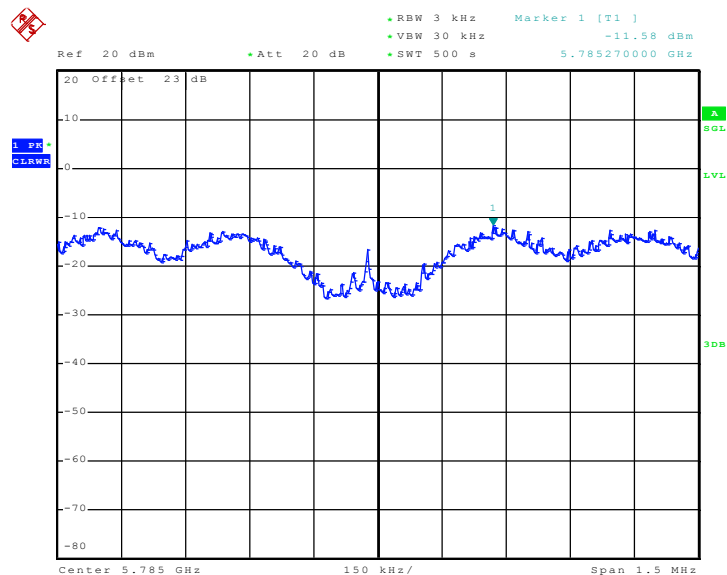
Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-11.59	8	Pass
157	5785	-11.58	8	Pass
165	5825	-11.22	8	Pass

Mode 7 : PSD Plot on 802.11a Channel 149


Date: 21.JAN.2010 15:35:04

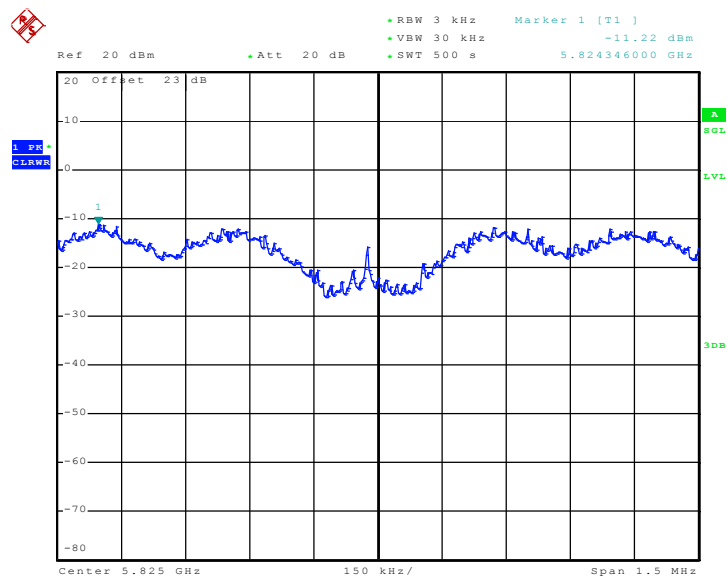


Mode 8 : PSD Plot on 802.11a Channel 157



Date: 21.JAN.2010 15:44:22

Mode 9 : PSD Plot on 802.11a Channel 165



Date: 21.JAN.2010 15:53:45

3.6 AC Conducted Emission Measurement

3.6.1 Limit 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.

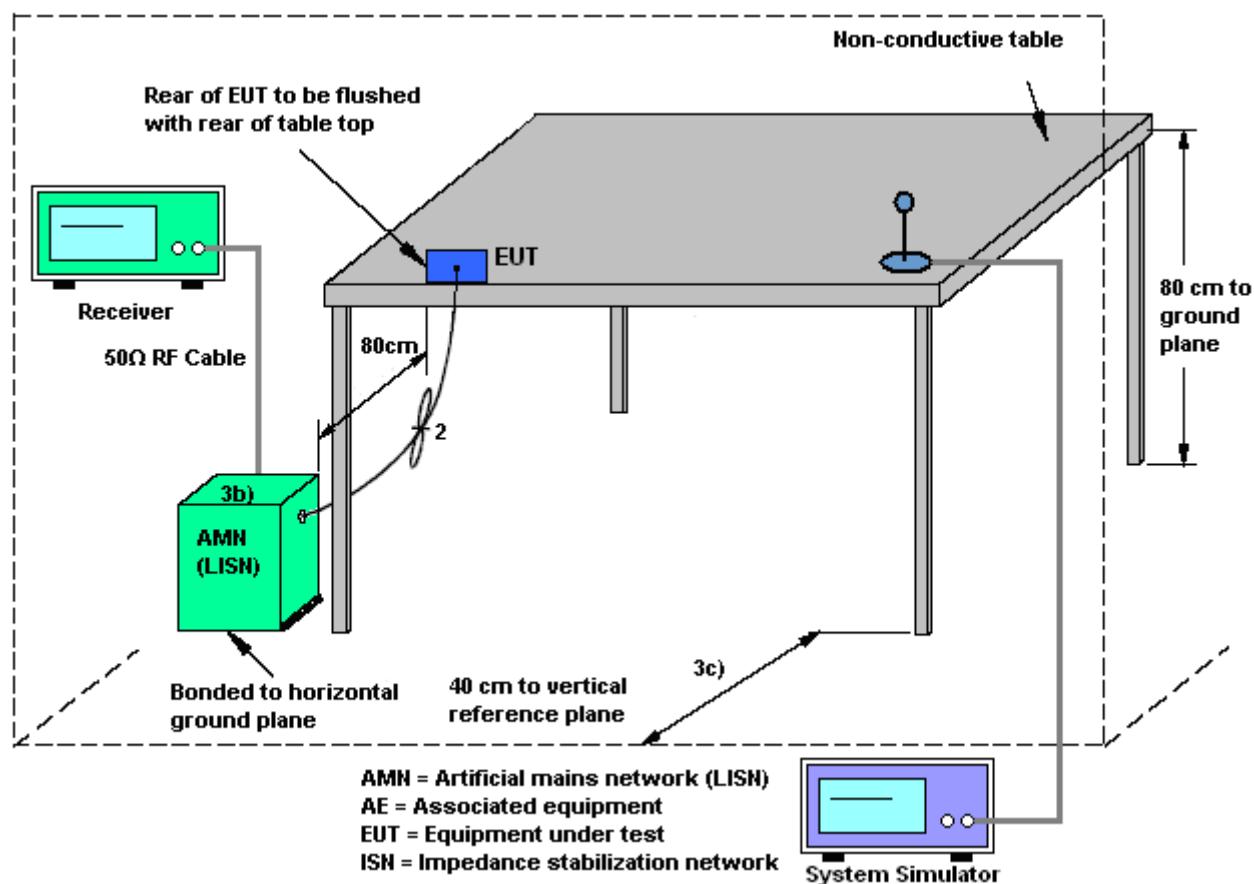
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

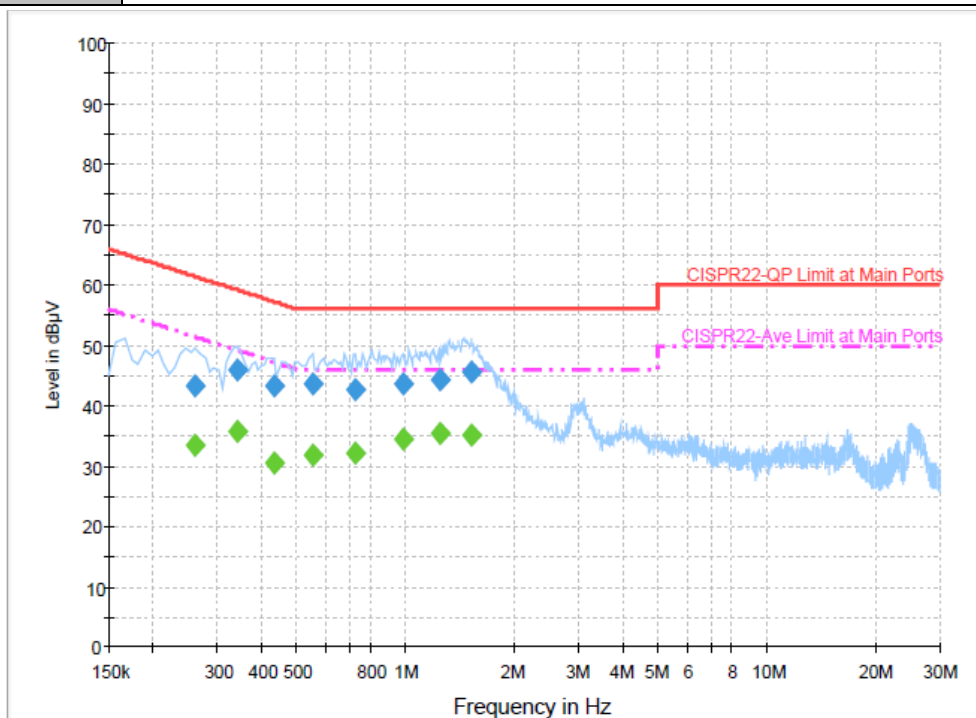
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter) + Battery <3080mAh> + Earphone + MP3 + Cradle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



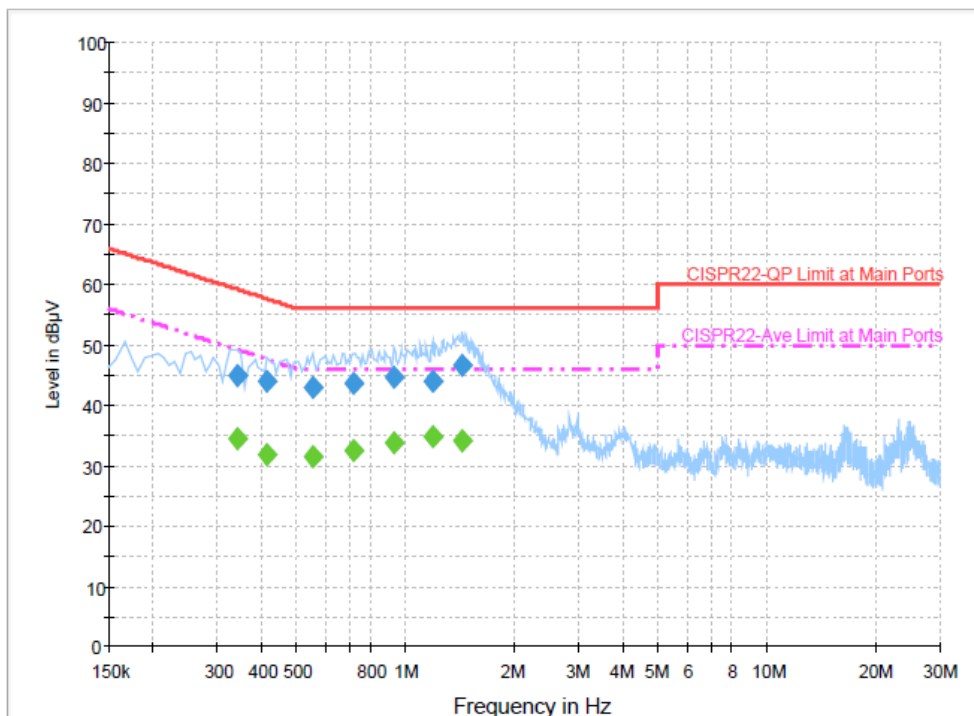
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.262000	43.4	Off	L1	19.4	18.0	61.4
0.342000	45.8	Off	L1	19.5	13.4	59.2
0.430000	43.3	Off	L1	19.4	14.0	57.3
0.550000	43.7	Off	L1	19.5	12.3	56.0
0.726000	42.6	Off	L1	19.5	13.4	56.0
0.982000	43.5	Off	L1	19.4	12.5	56.0
1.238000	44.1	Off	L1	19.5	11.9	56.0
1.518000	45.6	Off	L1	19.5	10.4	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.262000	33.4	Off	L1	19.4	18.0	51.4
0.342000	35.9	Off	L1	19.5	13.3	49.2
0.430000	30.4	Off	L1	19.4	16.9	47.3
0.550000	31.7	Off	L1	19.5	14.3	46.0
0.726000	32.2	Off	L1	19.5	13.8	46.0
0.982000	34.3	Off	L1	19.4	11.7	46.0
1.238000	35.5	Off	L1	19.5	10.5	46.0
1.518000	35.0	Off	L1	19.5	11.0	46.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM 850 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Charging from Adapter) + Battery <3080mAh> + Earphone + MP3 + Cradle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

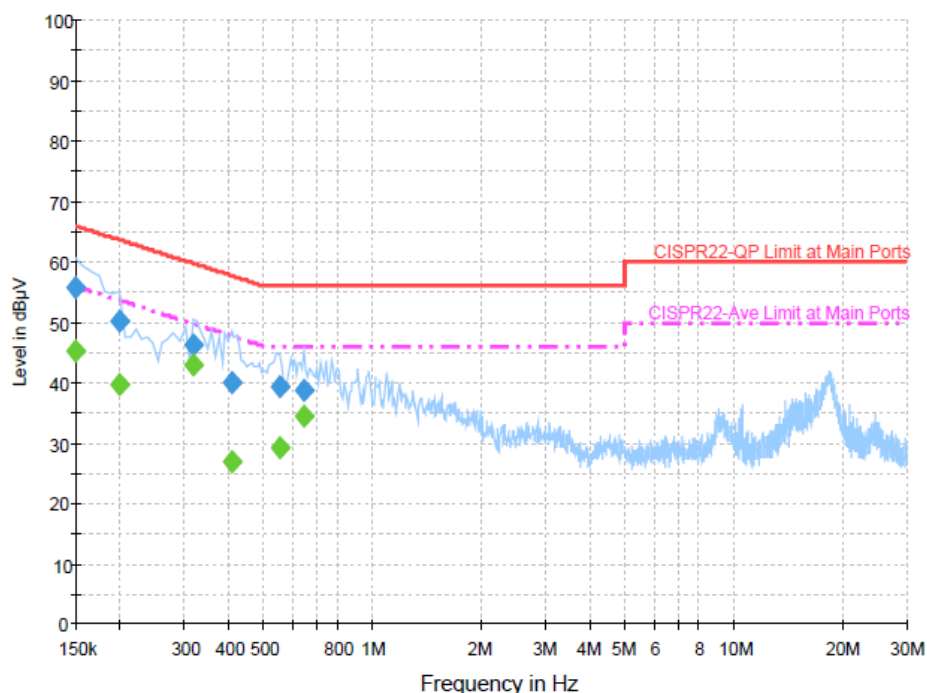

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.342000	45.0	Off	N	19.4	14.2	59.2
0.414000	44.0	Off	N	19.4	13.6	57.6
0.550000	43.0	Off	N	19.5	13.0	56.0
0.718000	43.7	Off	N	19.5	12.3	56.0
0.926000	44.6	Off	N	19.4	11.4	56.0
1.182000	44.1	Off	N	19.5	11.9	56.0
1.430000	46.7	Off	N	19.5	9.3	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.342000	34.3	Off	N	19.4	14.9	49.2
0.414000	31.8	Off	N	19.4	15.8	47.6
0.550000	31.5	Off	N	19.5	14.5	46.0
0.718000	32.6	Off	N	19.5	13.4	46.0
0.926000	33.9	Off	N	19.4	12.1	46.0
1.182000	34.6	Off	N	19.5	11.4	46.0
1.430000	34.2	Off	N	19.5	11.8	46.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <3080mAh> + Earphone + Camera + Cradle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

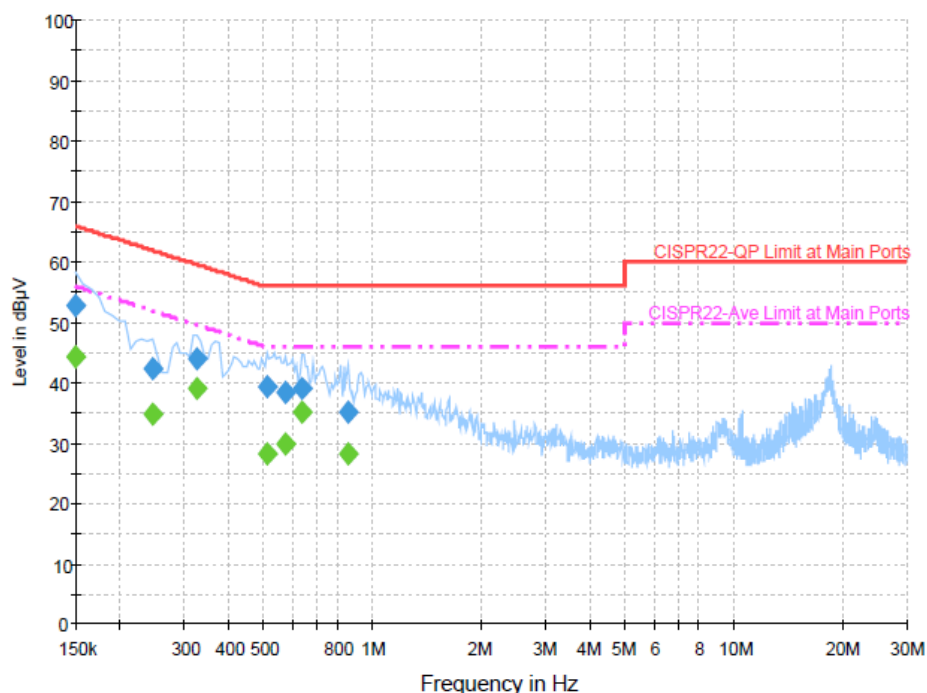

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	55.6	Off	L1	19.5	10.4	66.0
0.198000	50.3	Off	L1	19.6	13.4	63.7
0.318000	46.1	Off	L1	19.5	13.7	59.8
0.406000	39.9	Off	L1	19.4	17.8	57.7
0.550000	39.3	Off	L1	19.5	16.7	56.0
0.646000	38.8	Off	L1	19.5	17.2	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.1	Off	L1	19.5	10.9	56.0
0.198000	39.6	Off	L1	19.6	14.1	53.7
0.318000	43.1	Off	L1	19.5	6.7	49.8
0.406000	26.9	Off	L1	19.4	20.8	47.7
0.550000	29.2	Off	L1	19.5	16.8	46.0
0.646000	34.3	Off	L1	19.5	11.7	46.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <3080mAh> + Earphone + Camera + Cradle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

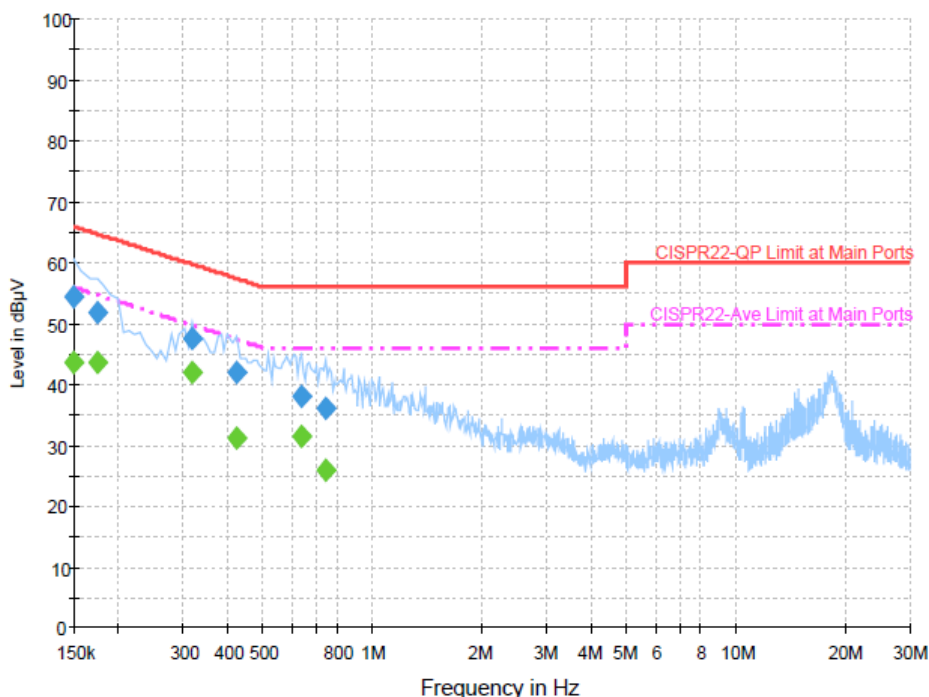

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	52.9	Off	N	19.5	13.1	66.0
0.246000	42.2	Off	N	19.5	19.7	61.9
0.326000	43.9	Off	N	19.5	15.7	59.6
0.510000	39.2	Off	N	19.4	16.8	56.0
0.574000	38.2	Off	N	19.5	17.8	56.0
0.638000	39.1	Off	N	19.5	16.9	56.0
0.854000	35.0	Off	N	19.4	21.0	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	44.1	Off	N	19.5	11.9	56.0
0.246000	34.7	Off	N	19.5	17.2	51.9
0.326000	38.9	Off	N	19.5	10.7	49.6
0.510000	28.1	Off	N	19.4	17.9	46.0
0.574000	29.8	Off	N	19.5	16.2	46.0
0.638000	35.1	Off	N	19.5	10.9	46.0
0.854000	28.3	Off	N	19.4	17.7	46.0

Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <1540mAh> + Earphone + Camera + Cradle		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

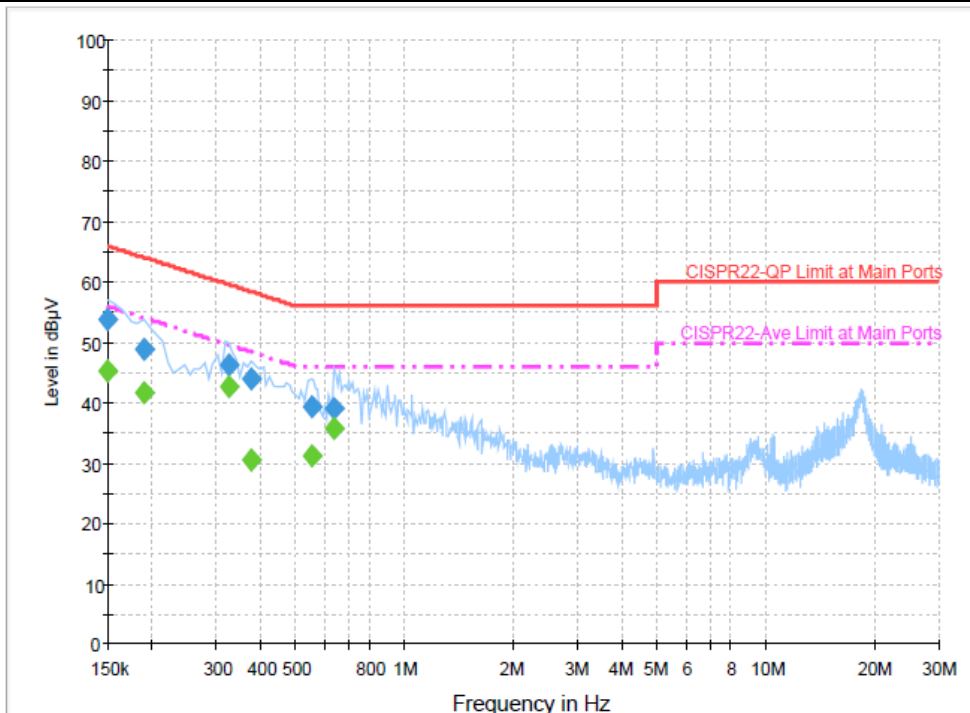

Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	54.6	Off	L1	19.5	11.4	66.0
0.174000	51.7	Off	L1	19.5	13.1	64.8
0.318000	47.5	Off	L1	19.5	12.3	59.8
0.422000	42.0	Off	L1	19.4	15.4	57.4
0.638000	38.0	Off	L1	19.5	18.0	56.0
0.742000	36.1	Off	L1	19.5	19.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	43.7	Off	L1	19.5	12.3	56.0
0.174000	43.6	Off	L1	19.5	11.2	54.8
0.318000	41.8	Off	L1	19.5	8.0	49.8
0.422000	31.0	Off	L1	19.4	16.4	47.4
0.638000	31.5	Off	L1	19.5	14.5	46.0
0.742000	26.0	Off	L1	19.5	20.0	46.0

Test Mode :	Mode 3	Temperature :	20~22°C
Test Engineer :	Hayden Wu	Relative Humidity :	45~48%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	CDMA2000 BC0 Idle + WLAN Link (2.4G) + Bluetooth Link + GPS Rx + USB Cable (Link with Notebook) + Battery <1540mAh> + Earphone + Camera + Cradle		
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	53.6	Off	N	19.5	12.4	66.0
0.190000	48.7	Off	N	19.5	15.3	64.0
0.326000	46.3	Off	N	19.5	13.3	59.6
0.374000	44.0	Off	N	19.4	13.6	58.4
0.550000	39.5	Off	N	19.5	16.5	56.0
0.638000	39.1	Off	N	19.5	16.9	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	45.4	Off	N	19.5	10.6	56.0
0.190000	41.7	Off	N	19.5	12.3	54.0
0.326000	42.7	Off	N	19.5	6.9	49.6
0.374000	30.6	Off	N	19.4	17.8	48.4
0.550000	31.1	Off	N	19.5	14.9	46.0
0.638000	35.8	Off	N	19.5	10.2	46.0

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

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

3.7.2 Measuring Instruments

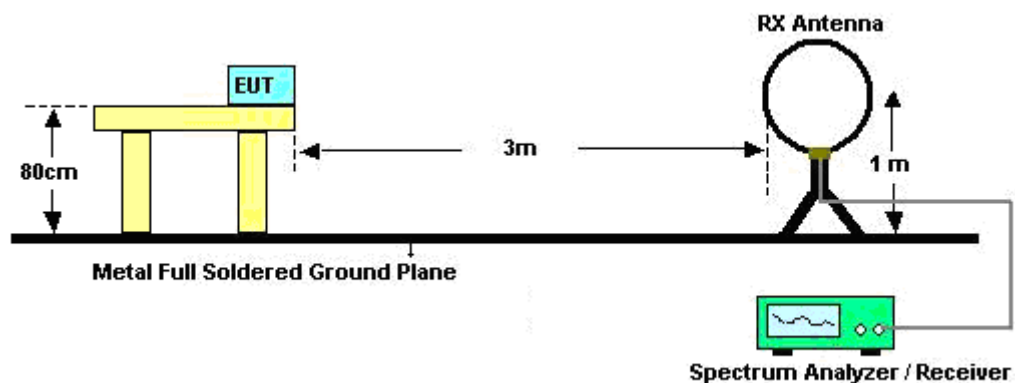
See list of measuring instruments of this test report.

3.7.3 Test Procedures

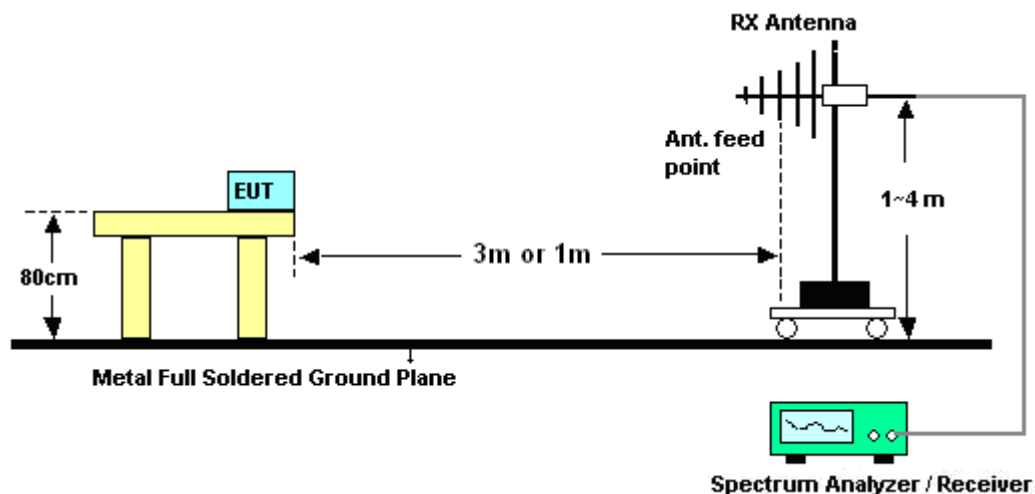
- The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
- Use the following spectrum analyzer settings:
 - Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
- Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Cona Huang	Temperature :	22~25℃	
		Relative Humidity :	47~51%	

Frequency (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

3.7.6 Test Result of Radiated Emission (30MHz ~ 10th Harmonic)

Test Mode :	Mode 1	Temperature :	22~25℃
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	29.26	-10.74	40	42.46	17.84	0.66	31.7	-	-	Peak
52.14	27.47	-12.53	40	50.75	7.57	0.85	31.7	-	-	Peak
284.34	28.98	-17.02	46	45.12	13.24	2.05	31.43	-	-	Peak
438.6	25.86	-20.14	46	37.35	16.91	2.76	31.16	-	-	Peak
542.9	30.63	-15.37	46	39.63	18.99	3.07	31.06	-	-	Peak
915.3	36.99	-9.01	46	40.07	23.41	4.19	30.68	100	118	Peak
2385.81	55.49	-18.51	74	52.05	32.13	5.46	34.15	104	7	Peak
2385.81	47.88	-6.12	54	44.44	32.13	5.46	34.15	104	7	Average
2412	105.79	-	-	102.35	32.16	5.44	34.16	104	7	Peak
2412	102.91	-	-	99.47	32.16	5.44	34.16	104	7	Average
2494	33.19	-20.81	54	29.72	32.3	5.37	34.2	104	7	Average
2494	46	-28	74	42.53	32.3	5.37	34.2	104	7	Peak
8817	53.65	-20.35	74	42.35	36.19	10.28	35.17	100	78	Peak
8817	41.41	-12.59	54	30.11	36.19	10.28	35.17	100	78	Average
9648	42.42	-43.37	85.79	77.07	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 1	Temperature :	22~25°C
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	24.17	-15.83	40	36.27	18.95	0.65	31.7	-	-	Peak
92.37	27.85	-15.65	43.5	49.26	9.17	1.12	31.7	-	-	Peak
157.98	22.49	-21.01	43.5	42.09	10.54	1.5	31.64	-	-	Peak
368.6	26.9	-19.1	46	40.44	15.29	2.43	31.26	-	-	Peak
542.9	32.21	-13.79	46	41.21	18.99	3.07	31.06	-	-	Peak
915.3	36.96	-9.04	46	40.04	23.41	4.19	30.68	100	126	Peak
2385.81	43.29	-10.71	54	39.85	32.13	5.46	34.15	100	62	Average
2385.81	51.76	-22.24	74	48.32	32.13	5.46	34.15	100	62	Peak
2412	101.61	-	-	98.17	32.16	5.44	34.16	100	62	Peak
2412	97.08	-	-	93.64	32.16	5.44	34.16	100	62	Average
2484	45.66	-28.34	74	42.2	32.27	5.38	34.19	100	62	Peak
2484	32.24	-21.76	54	28.78	32.27	5.38	34.19	100	62	Average
8865	54.17	-19.83	74	42.82	36.22	10.3	35.17	103	110	Peak
8865	43.31	-10.69	54	31.96	36.22	10.3	35.17	103	110	Average
9648	41.57	-40.04	81.61	76.22	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~25°C
Test Channel :	06	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.85	-18.15	40	33.4	19.51	0.64	31.7	-	-	Peak
157.98	21.89	-21.61	43.5	41.49	10.54	1.5	31.64	-	-	Peak
298.65	19.46	-26.54	46	35.29	13.45	2.12	31.4	-	-	Peak
368.6	24.97	-21.03	46	38.51	15.29	2.43	31.26	-	-	Peak
542.9	30.49	-15.51	46	39.49	18.99	3.07	31.06	156	31	Peak
578.6	29.35	-16.65	46	37.52	19.67	3.18	31.02	-	-	Peak
2382	47.5	-26.5	74	44.07	32.11	5.47	34.15	102	14	Peak
2382	34.25	-19.75	54	30.82	32.11	5.47	34.15	102	14	Average
2437	104.73	-	-	101.27	32.22	5.41	34.17	102	14	Peak
2437	101.84	-	-	98.38	32.22	5.41	34.17	102	14	Average
2486	45.74	-28.26	74	42.28	32.27	5.38	34.19	102	14	Peak
2486	33.88	-20.12	54	30.42	32.27	5.38	34.19	102	14	Average
8829	53.35	-20.65	74	42.03	36.2	10.29	35.17	101	100	Peak
8829	42.09	-11.91	54	30.77	36.2	10.29	35.17	101	100	Average
9748	38.75	-45.98	84.73	73.11	-9.87	10.81	35.3	100	0	Peak

Test Mode :	Mode 2	Temperature :	22~25°C
Test Channel :	06	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	25.85	-14.15	40	37.4	19.51	0.64	31.7	-	-	Peak
92.37	28.47	-15.03	43.5	49.88	9.17	1.12	31.7	-	-	Peak
157.98	22.26	-21.24	43.5	41.86	10.54	1.5	31.64	-	-	Peak
368.6	27.23	-18.77	46	40.77	15.29	2.43	31.26	-	-	Peak
542.9	31.67	-14.33	46	40.67	18.99	3.07	31.06	-	-	Peak
915.3	37.17	-8.83	46	40.25	23.41	4.19	30.68	100	88	Peak
2382	45.77	-28.23	74	42.34	32.11	5.47	34.15	122	68	Peak
2382	33.12	-20.88	54	29.69	32.11	5.47	34.15	122	68	Average
2437	101.76	-	-	98.3	32.22	5.41	34.17	122	68	Peak
2437	96.75	-	-	93.29	32.22	5.41	34.17	122	68	Average
2500	45.37	-28.63	74	41.9	32.3	5.37	34.2	122	68	Peak
2500	32.28	-21.72	54	28.81	32.3	5.37	34.2	122	68	Average
8838	53.77	-20.23	74	42.45	36.2	10.29	35.17	110	37	Peak
8838	43.42	-10.58	54	32.1	36.2	10.29	35.17	110	37	Average
9748	39.7	-42.06	81.76	74.06	-9.87	10.81	35.3	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~25°C
Test Channel :	11	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 9848 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.1	-17.9	40	33.65	19.51	0.64	31.7	-	-	Peak
157.98	22.76	-20.74	43.5	42.36	10.54	1.5	31.64	-	-	Peak
298.65	19.5	-26.5	46	35.33	13.45	2.12	31.4	-	-	Peak
368.6	24.8	-21.2	46	38.34	15.29	2.43	31.26	-	-	Peak
542.9	30.87	-15.13	46	39.87	18.99	3.07	31.06	-	-	Peak
915.3	38.69	-7.31	46	41.77	23.41	4.19	30.68	100	74	Peak
2382	47.9	-26.1	74	44.47	32.11	5.47	34.15	103	28	Peak
2382	34.19	-19.81	54	30.76	32.11	5.47	34.15	103	28	Average
2462	104.9	-	-	101.44	32.24	5.4	34.18	103	28	Peak
2462	100.91	-	-	97.45	32.24	5.4	34.18	103	28	Average
2487.65	50.04	-23.96	74	46.56	32.3	5.37	34.19	103	28	Peak
2487.65	38.24	-15.76	54	34.76	32.3	5.37	34.19	103	28	Average
8871	53.38	-20.62	74	42.03	36.22	10.3	35.17	130	110	Peak
8871	43.24	-10.76	54	31.89	36.22	10.3	35.17	130	110	Average
9848	39.67	-45.23	84.9	73.71	-9.63	10.89	35.3	100	0	Peak

Test Mode :	Mode 3	Temperature :	22~25°C
Test Channel :	11	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 9848 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	23.63	-16.37	40	35.73	18.95	0.65	31.7	-	-	Peak
92.37	28.33	-15.17	43.5	49.74	9.17	1.12	31.7	-	-	Peak
181.74	22.02	-21.48	43.5	42.99	9.03	1.62	31.62	-	-	Peak
368.6	27.16	-18.84	46	40.7	15.29	2.43	31.26	-	-	Peak
542.9	31.47	-14.53	46	40.47	18.99	3.07	31.06	-	-	Peak
915.3	36.62	-9.38	46	39.7	23.41	4.19	30.68	135	221	Peak
2388	46.08	-27.92	74	42.64	32.13	5.46	34.15	120	71	Peak
2388	33.2	-20.8	54	29.76	32.13	5.46	34.15	120	71	Average
2462	101.87	-	-	98.41	32.24	5.4	34.18	120	71	Peak
2462	94.11	-	-	90.65	32.24	5.4	34.18	120	71	Average
2484.42	47.49	-26.51	74	44.03	32.27	5.38	34.19	120	71	Peak
2484.42	35.91	-18.09	54	32.45	32.27	5.38	34.19	120	71	Average
8853	53.66	-20.34	74	42.33	36.21	10.29	35.17	100	64	Peak
8853	42.63	-11.37	54	31.3	36.21	10.29	35.17	100	64	Average
9848	41.4	-40.47	81.87	75.44	-9.63	10.89	35.3	100	0	Peak

Test Mode :	Mode 4	Temperature :	22~25°C
Test Channel :	12	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2467 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	46.93	-27.07	74	43.49	32.13	5.46	34.15	102	29	Peak
2388	34.6	-19.4	54	31.16	32.13	5.46	34.15	102	29	Average
2467	103.39	-	-	99.93	32.24	5.4	34.18	102	29	Peak
2467	97.73	-	-	94.27	32.24	5.4	34.18	102	29	Average
2483.5	54.05	-19.95	74	50.59	32.27	5.38	34.19	102	29	Peak
2483.5	44.72	-9.28	54	41.26	32.27	5.38	34.19	102	29	Average

Test Mode :	Mode 4	Temperature :	22~25°C
Test Channel :	12	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2467 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2324	46.18	-27.82	74	42.78	32.02	5.51	34.13	121	70	Peak
2324	32.67	-21.33	54	29.27	32.02	5.51	34.13	121	70	Average
2467	100.3	-	-	96.84	32.24	5.4	34.18	121	70	Peak
2467	90.76	-	-	87.3	32.24	5.4	34.18	121	70	Average
2483.85	51.12	-22.88	74	47.66	32.27	5.38	34.19	121	70	Peak
2483.85	40.93	-13.07	54	37.47	32.27	5.38	34.19	121	70	Average

Test Mode :	Mode 5	Temperature :	22~25°C
Test Channel :	13	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2472 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	46.07	-27.93	74	42.64	32.13	5.46	34.16	100	16	Peak
2390	33.06	-20.94	54	29.63	32.13	5.46	34.16	100	16	Average
2472	94	-	-	90.54	32.27	5.38	34.19	100	16	Peak
2472	90.06	-	-	86.6	32.27	5.38	34.19	100	16	Average
2483.5	54.96	-19.04	74	51.5	32.27	5.38	34.19	100	16	Peak
2483.5	47.75	-6.25	54	44.29	32.27	5.38	34.19	100	16	Average

Test Mode :	Mode 5	Temperature :	22~25°C
Test Channel :	13	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2472 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2388	46.04	-27.96	74	42.6	32.13	5.46	34.15	117	56	Peak
2388	32.79	-21.21	54	29.35	32.13	5.46	34.15	117	56	Average
2472	90.69	-	-	87.23	32.27	5.38	34.19	117	56	Peak
2472	85.34	-	-	81.88	32.27	5.38	34.19	117	56	Average
2483.5	50.61	-23.39	74	47.15	32.27	5.38	34.19	117	56	Peak
2483.5	43.8	-10.2	54	40.34	32.27	5.38	34.19	117	56	Average

Test Mode :	Mode 6	Temperature :	22~25°C
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.73	-18.27	40	33.28	19.51	0.64	31.7	-	-	Peak
71.85	16.47	-23.53	40	40.43	6.77	0.97	31.7	-	-	Peak
157.98	21.77	-21.73	43.5	41.37	10.54	1.5	31.64	-	-	Peak
368.6	24.71	-21.29	46	38.25	15.29	2.43	31.26	-	-	Peak
542.9	30.47	-15.53	46	39.47	18.99	3.07	31.06	-	-	Peak
915.3	38.25	-7.75	46	41.33	23.41	4.19	30.68	154	199	Peak
2385.62	46.77	-7.23	54	43.33	32.13	5.46	34.15	106	5	Average
2385.62	54.16	-19.84	74	50.72	32.13	5.46	34.15	106	5	Peak
2412	100.29	-	-	96.85	32.16	5.44	34.16	106	5	Average
2412	104.18	-	-	100.74	32.16	5.44	34.16	106	5	Peak
2494	45.95	-28.05	74	42.48	32.3	5.37	34.2	106	5	Peak
2494	33.6	-20.4	54	30.13	32.3	5.37	34.2	106	5	Average
8910	54.07	-19.93	74	42.7	36.24	10.31	35.18	121	245	Peak
8910	40.81	-13.19	54	29.44	36.24	10.31	35.18	121	245	Average
9648	41.55	-42.63	84.18	76.2	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 6	Temperature :	22~25°C
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
39.45	25.03	-14.97	40	41.94	14.06	0.73	31.7	-	-	Peak
92.37	27.7	-15.8	43.5	49.11	9.17	1.12	31.7	-	-	Peak
157.98	21.96	-21.54	43.5	41.56	10.54	1.5	31.64	-	-	Peak
368.6	27.38	-18.62	46	40.92	15.29	2.43	31.26	-	-	Peak
542.9	31.69	-14.31	46	40.69	18.99	3.07	31.06	-	-	Peak
914.6	36.59	-9.41	46	39.69	23.4	4.19	30.69	100	231	Peak
2385.81	44.8	-9.2	54	41.36	32.13	5.46	34.15	100	307	Average
2385.81	52.65	-21.35	74	49.21	32.13	5.46	34.15	100	307	Peak
2412	99.09	-	-	95.65	32.16	5.44	34.16	100	307	Average
2412	102.72	-	-	99.28	32.16	5.44	34.16	100	307	Peak
2484	47.11	-26.89	74	43.65	32.27	5.38	34.19	100	307	Peak
2484	32.94	-21.06	54	29.48	32.27	5.38	34.19	100	307	Average
8841	54.57	-19.43	74	43.25	36.2	10.29	35.17	110	55	Peak
8841	40.97	-13.03	54	29.65	36.2	10.29	35.17	110	55	Average
9648	40.46	-42.26	82.72	75.11	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 7	Temperature :	22~25°C
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.48	-17.52	40	34.03	19.51	0.64	31.7	-	-	Peak
77.25	19.16	-20.84	40	42.57	7.3	0.99	31.7	-	-	Peak
157.98	21.76	-21.74	43.5	41.36	10.54	1.5	31.64	-	-	Peak
368.6	25.11	-20.89	46	38.65	15.29	2.43	31.26	-	-	Peak
542.9	30.16	-15.84	46	39.16	18.99	3.07	31.06	-	-	Peak
914.6	37.5	-8.5	46	40.6	23.4	4.19	30.69	145	18	Peak
2388.66	63.84	-10.16	74	60.4	32.13	5.46	34.15	105	354	Peak
2388.66	47.8	-6.2	54	44.36	32.13	5.46	34.15	105	354	Average
2412	96.42	-	-	92.98	32.16	5.44	34.16	105	354	Average
2412	105.19	-	-	101.74	32.19	5.43	34.17	105	354	Peak
2484	33.48	-20.52	54	30.02	32.27	5.38	34.19	105	354	Average
2484	47.27	-26.73	74	43.81	32.27	5.38	34.19	105	354	Peak
8802	52.96	-21.04	74	41.66	36.18	10.28	35.16	100	26	Peak
8802	41.88	-12.12	54	30.58	36.18	10.28	35.16	100	26	Average
9648	39.68	-45.51	85.19	74.33	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 7	Temperature :	22~25°C
Test Channel :	01	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2412 MHz is Fundamental Signals which can be ignored. 2. 9648 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	24.09	-15.91	40	35.64	19.51	0.64	31.7	-	-	Peak
92.37	28.25	-15.25	43.5	49.66	9.17	1.12	31.7	-	-	Peak
157.98	23.01	-20.49	43.5	42.61	10.54	1.5	31.64	-	-	Peak
368.6	26.04	-19.96	46	39.58	15.29	2.43	31.26	-	-	Peak
542.9	31.77	-14.23	46	40.77	18.99	3.07	31.06	-	-	Peak
915.3	35.84	-10.16	46	38.92	23.41	4.19	30.68	114	90	Peak
2388.66	60.06	-13.94	74	56.62	32.13	5.46	34.15	100	312	Peak
2388.66	44.31	-9.69	54	40.87	32.13	5.46	34.15	100	312	Average
2412	94.02	-	-	90.58	32.16	5.44	34.16	100	312	Average
2412	104.02	-	-	100.57	32.19	5.43	34.17	100	312	Peak
2486	34.43	-19.57	54	30.97	32.27	5.38	34.19	100	312	Average
2486	48.02	-25.98	74	44.56	32.27	5.38	34.19	100	312	Peak
8820	53.17	-20.83	74	41.87	36.19	10.28	35.17	100	44	Peak
8820	42.18	-11.82	54	30.88	36.19	10.28	35.17	100	44	Average
9648	38.87	-45.15	84.02	73.52	-10.09	10.74	35.3	100	0	Peak

Test Mode :	Mode 8	Temperature :	22~25°C
Test Channel :	02	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2417 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	63.41	-10.59	74	59.97	32.13	5.46	34.15	103	355	Peak
2389.61	45.64	-8.36	54	42.2	32.13	5.46	34.15	103	355	Average
2417	106.4	-	-	102.97	32.16	5.44	34.17	103	355	Peak
2417	97.19	-	-	93.76	32.16	5.44	34.17	103	355	Average
2484	46.13	-27.87	74	42.67	32.27	5.38	34.19	103	355	Peak
2484	34.03	-19.97	54	30.57	32.27	5.38	34.19	103	355	Average

Test Mode :	Mode 8	Temperature :	22~25°C
Test Channel :	02	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2417 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	57.62	-16.38	74	54.18	32.13	5.46	34.15	100	305	Peak
2389.61	40.75	-13.25	54	37.31	32.13	5.46	34.15	100	305	Average
2417	100.51	-	-	97.08	32.16	5.44	34.17	100	305	Peak
2417	92.17	-	-	88.74	32.16	5.44	34.17	100	305	Average
2484	44.94	-29.06	74	41.48	32.27	5.38	34.19	100	305	Peak
2484	33.37	-20.63	54	29.91	32.27	5.38	34.19	100	305	Average

Test Mode :	Mode 9	Temperature :	22~25°C
Test Channel :	06	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.58	-17.42	40	34.13	19.51	0.64	31.7	-	-	Peak
75.09	17.55	-22.45	40	41.23	7.04	0.98	31.7	-	-	Peak
157.98	22.05	-21.45	43.5	41.65	10.54	1.5	31.64	-	-	Peak
438.6	25.64	-20.36	46	37.13	16.91	2.76	31.16	-	-	Peak
542.9	30.62	-15.38	46	39.62	18.99	3.07	31.06	-	-	Peak
915.3	36.31	-9.69	46	39.39	23.41	4.19	30.68	100	331	Peak
2390	59.05	-14.95	74	55.62	32.13	5.46	34.16	101	6	Peak
2390	42.94	-11.06	54	39.51	32.13	5.46	34.16	101	6	Average
2437	109.53	-	-	106.07	32.22	5.41	34.17	101	6	Peak
2437	101.08	-	-	97.62	32.22	5.41	34.17	101	6	Average
2486	59.02	-14.98	74	55.56	32.27	5.38	34.19	101	6	Peak
2486	41.02	-12.98	54	37.56	32.27	5.38	34.19	101	6	Average
8832	53.5	-20.5	74	42.18	36.2	10.29	35.17	103	40	Peak
8832	43.02	-10.98	54	31.7	36.2	10.29	35.17	103	40	Average
9748	40.13	-49.4	89.53	74.46	-9.85	10.82	35.3	100	0	Peak
12185	40.35	-33.65	74	73.04	-10.21	12.18	34.66	100	0	Peak

Test Mode :	Mode 9	Temperature :	22~25°C
Test Channel :	06	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.99	-16.01	40	35.54	19.51	0.64	31.7	-	-	Peak
92.37	28.71	-14.79	43.5	50.12	9.17	1.12	31.7	-	-	Peak
157.98	22.1	-21.4	43.5	41.7	10.54	1.5	31.64	-	-	Peak
368.6	26.96	-19.04	46	40.5	15.29	2.43	31.26	-	-	Peak
542.9	31.76	-14.24	46	40.76	18.99	3.07	31.06	-	-	Peak
915.3	36.31	-9.69	46	39.39	23.41	4.19	30.68	120	146	Peak
2390	55.21	-18.79	74	51.78	32.13	5.46	34.16	119	67	Peak
2390	39.74	-14.26	54	36.31	32.13	5.46	34.16	119	67	Average
2437	106.89	-	-	103.43	32.22	5.41	34.17	119	67	Peak
2437	95.41	-	-	91.95	32.22	5.41	34.17	119	67	Average
2484	56.26	-17.74	74	52.8	32.27	5.38	34.19	119	67	Peak
2484	40.14	-13.86	54	36.68	32.27	5.38	34.19	119	67	Average
8811	53.29	-20.71	74	41.99	36.18	10.28	35.16	100	48	Peak
8811	42.28	-11.72	54	30.98	36.18	10.28	35.16	100	48	Average
9748	44.17	-42.72	86.89	78.5	-9.85	10.82	35.3	100	0	Peak



Test Mode :	Mode 10	Temperature :	22~25°C
Test Channel :	10	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2457 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382	49.92	-24.08	74	46.49	32.11	5.47	34.15	100	12	Peak
2382	37.2	-16.8	54	33.77	32.11	5.47	34.15	100	12	Average
2457	107.53	-	-	104.07	32.24	5.4	34.18	100	12	Peak
2457	98.26	-	-	94.8	32.24	5.4	34.18	100	12	Average
2484.61	66.26	-7.74	74	62.8	32.27	5.38	34.19	100	12	Peak
2484.61	47.11	-6.89	54	43.65	32.27	5.38	34.19	100	12	Average



Test Mode :	Mode 10	Temperature :	22~25°C
Test Channel :	10	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2457 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2372	47.51	-26.49	74	44.08	32.11	5.47	34.15	142	57	Peak
2372	35.08	-18.92	54	31.65	32.11	5.47	34.15	142	57	Average
2457	105.64	-	-	102.18	32.24	5.4	34.18	142	57	Peak
2457	94.2	-	-	90.74	32.24	5.4	34.18	142	57	Average
2484.61	63.22	-10.78	74	59.76	32.27	5.38	34.19	142	57	Peak
2484.61	44.06	-9.94	54	40.6	32.27	5.38	34.19	142	57	Average

Test Mode :	Mode 11	Temperature :	22~25°C
Test Channel :	11	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	21.89	-18.11	40	33.99	18.95	0.65	31.7	-	-	Peak
80.22	17.3	-22.7	40	40.43	7.57	1	31.7	-	-	Peak
157.98	22.22	-21.28	43.5	41.82	10.54	1.5	31.64	-	-	Peak
438.6	25.95	-20.05	46	37.44	16.91	2.76	31.16	-	-	Peak
542.9	31.45	-14.55	46	40.45	18.99	3.07	31.06	-	-	Peak
915.3	38.84	-7.16	46	41.92	23.41	4.19	30.68	124	330	Peak
2390	47.29	-26.71	74	43.86	32.13	5.46	34.16	102	26	Peak
2390	34.81	-19.19	54	31.38	32.13	5.46	34.16	102	26	Average
2462	101.48	-	-	98.02	32.24	5.4	34.18	102	26	Peak
2462	92.99	-	-	89.53	32.24	5.4	34.18	102	26	Average
2483.5	60.1	-13.9	74	56.64	32.27	5.38	34.19	102	26	Peak
2483.5	44.26	-9.74	54	40.8	32.27	5.38	34.19	102	26	Average
8832	53.5	-20.5	74	42.18	36.2	10.29	35.17	140	100	Peak
8832	42.13	-11.87	54	30.81	36.2	10.29	35.17	140	100	Average

Test Mode :	Mode 11	Temperature :	22~25°C
Test Channel :	11	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 9848 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.8	-16.2	40	35.35	19.51	0.64	31.7	-	-	Peak
92.37	27.27	-16.23	43.5	48.68	9.17	1.12	31.7	-	-	Peak
153.66	22.84	-20.66	43.5	42.06	10.95	1.48	31.65	-	-	Peak
368.6	27.13	-18.87	46	40.67	15.29	2.43	31.26	-	-	Peak
542.9	31.39	-14.61	46	40.39	18.99	3.07	31.06	-	-	Peak
915.3	36.01	-9.99	46	39.09	23.41	4.19	30.68	100	256	Peak
2380	45.46	-28.54	74	42.03	32.11	5.47	34.15	100	191	Peak
2380	32.69	-21.31	54	29.26	32.11	5.47	34.15	100	191	Average
2462	100.19	-	-	96.74	32.24	5.4	34.19	100	191	Peak
2462	90.58	-	-	87.12	32.24	5.4	34.18	100	191	Average
2483.5	59.27	-14.73	74	55.81	32.27	5.38	34.19	100	191	Peak
2483.5	43.45	-10.55	54	39.99	32.27	5.38	34.19	100	191	Average
8817	53.14	-20.86	74	41.84	36.19	10.28	35.17	120	100	Peak
8817	40.41	-13.59	54	29.11	36.19	10.28	35.17	120	100	Average
9848	39.62	-40.57	80.19	73.66	-9.63	10.89	35.3	100	0	Peak

Test Mode :	Mode 12	Temperature :	22~25°C
Test Channel :	12	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2467 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2382	45.09	-28.91	74	41.66	32.11	5.47	34.15	101	27	Peak
2382	32.73	-21.27	54	29.3	32.11	5.47	34.15	101	27	Average
2467	96.74	-	-	93.28	32.24	5.4	34.18	101	27	Peak
2467	88.5	-	-	85.05	32.24	5.4	34.19	101	27	Average
2483.66	64.69	-9.31	74	61.23	32.27	5.38	34.19	101	27	Peak
2483.66	46.56	-7.44	54	43.1	32.27	5.38	34.19	101	27	Average

Test Mode :	Mode 12	Temperature :	22~25°C
Test Channel :	12	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2467 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2364	43.06	-30.94	74	39.63	32.08	5.49	34.14	100	191	Peak
2364	30.75	-23.25	54	27.32	32.08	5.49	34.14	100	191	Average
2467	96.65	-	-	93.19	32.24	5.4	34.18	100	191	Peak
2467	86.3	-	-	82.85	32.24	5.4	34.19	100	191	Average
2483.66	64.03	-9.97	74	60.57	32.27	5.38	34.19	100	191	Peak
2483.66	45.78	-8.22	54	42.32	32.27	5.38	34.19	100	191	Average

Test Mode :	Mode 13	Temperature :	22~25°C
Test Channel :	13	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	2472 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2380	43.44	-30.56	74	40.01	32.11	5.47	34.15	100	28	Peak
2380	30.89	-23.11	54	27.46	32.11	5.47	34.15	100	28	Average
2472	67.26	-	-	63.81	32.24	5.4	34.19	100	28	Peak
2472	58.15	-	-	54.69	32.27	5.38	34.19	100	28	Average
2483.5	46.91	-27.09	74	43.45	32.27	5.38	34.19	100	28	Peak
2483.5	31.89	-22.11	54	28.43	32.27	5.38	34.19	100	28	Average

Test Mode :	Mode 13	Temperature :	22~25°C
Test Channel :	13	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	2472 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2380	43.23	-30.77	74	39.8	32.11	5.47	34.15	100	191	Peak
2380	30.82	-23.18	54	27.39	32.11	5.47	34.15	100	191	Average
2472	66.59	-	-	63.14	32.24	5.4	34.19	100	191	Peak
2472	56.04	-	-	52.58	32.27	5.38	34.19	100	191	Average
2483.5	46.75	-27.25	74	43.29	32.27	5.38	34.19	100	191	Peak
2483.5	31.63	-22.37	54	28.17	32.27	5.38	34.19	100	191	Average

Test Mode :	Mode 14	Temperature :	22~25°C
Test Channel :	149	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 17235 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.28	-17.72	40	33.83	19.51	0.64	31.7	-	-	Peak
77.25	17.32	-22.68	40	40.73	7.3	0.99	31.7	-	-	Peak
157.98	21.94	-21.56	43.5	41.54	10.54	1.5	31.64	-	-	Peak
438.6	26.18	-19.82	46	37.67	16.91	2.76	31.16	-	-	Peak
542.9	30.98	-15.02	46	39.98	18.99	3.07	31.06	-	-	Peak
914.6	36.36	-9.64	46	39.46	23.4	4.19	30.69	100	168	Peak
5745	105.73	-	-	96.78	35.04	8.41	34.5	100	320	Peak
5745	96.35	-	-	87.4	35.04	8.41	34.5	100	320	Average
8870	54.37	-19.63	74	43.02	36.22	10.3	35.17	100	26	Peak
8870	43.03	-10.97	54	31.68	36.22	10.3	35.17	100	26	Average
11490	47.88	-26.12	74	82.56	-11.73	11.65	34.6	100	39	Peak
11490	37.69	-16.31	54	72.37	-11.73	11.65	34.6	100	39	Average
17235	46.67	-39.06	85.73	77.17	-11.07	14.83	34.26	100	0	Peak

Test Mode :	Mode 14	Temperature :	22~25°C
Test Channel :	149	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 17235 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.77	-16.23	40	35.32	19.51	0.64	31.7	-	-	Peak
92.37	28.3	-15.2	43.5	49.71	9.17	1.12	31.7	-	-	Peak
157.98	22.26	-21.24	43.5	41.86	10.54	1.5	31.64	-	-	Peak
368.6	27.29	-18.71	46	40.83	15.29	2.43	31.26	-	-	Peak
542.9	31.76	-14.24	46	40.76	18.99	3.07	31.06	-	-	Peak
915.3	37.28	-8.72	46	40.36	23.41	4.19	30.68	146	200	Peak
5745	103.5	-	-	94.55	35.04	8.41	34.5	100	203	Peak
5745	93.37	-	-	84.42	35.04	8.41	34.5	100	203	Average
8884	54.24	-19.76	74	42.88	36.23	10.3	35.17	131	40	Peak
8884	41.47	-12.53	54	30.11	36.23	10.3	35.17	131	40	Average
11490	39.9	-34.1	74	74.58	-11.73	11.65	34.6	100	145	Peak
11490	25.77	-28.23	54	60.45	-11.73	11.65	34.6	100	145	Average
17235	44.06	-39.44	83.5	74.56	-11.07	14.83	34.26	100	0	Peak

Test Mode :	Mode 15	Temperature :	22~25°C
Test Channel :	157	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 17355 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.07	-17.93	40	33.62	19.51	0.64	31.7	-	-	Peak
78.33	18.35	-21.65	40	41.67	7.39	0.99	31.7	-	-	Peak
157.98	22.31	-21.19	43.5	41.91	10.54	1.5	31.64	-	-	Peak
368.6	24.85	-21.15	46	38.39	15.29	2.43	31.26	-	-	Peak
542.9	30.62	-15.38	46	39.62	18.99	3.07	31.06	-	-	Peak
915.3	38.39	-7.61	46	41.47	23.41	4.19	30.68	166	112	Peak
5785	106.42	-	-	97.43	35.09	8.42	34.52	101	320	Peak
5785	97.04	-	-	88.05	35.09	8.42	34.52	101	320	Average
8892	54.66	-19.34	74	43.3	36.23	10.3	35.17	102	100	Peak
8892	43.36	-10.64	54	32	36.23	10.3	35.17	102	100	Average
11570	48.53	-25.47	74	82.96	-11.49	11.69	34.63	100	330	Peak
11570	40.11	-13.89	54	74.54	-11.49	11.69	34.63	100	330	Average
17355	45.46	-40.96	86.42	76.26	-11.57	15	34.23	100	0	Peak

Test Mode :	Mode 15	Temperature :	22~25°C
Test Channel :	157	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 17355 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamplifier Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.77	-16.23	40	35.32	19.51	0.64	31.7	-	-	Peak
92.37	27.69	-15.81	43.5	49.1	9.17	1.12	31.7	-	-	Peak
157.98	21.82	-21.68	43.5	41.42	10.54	1.5	31.64	-	-	Peak
368.6	27.47	-18.53	46	41.01	15.29	2.43	31.26	-	-	Peak
542.9	31.75	-14.25	46	40.75	18.99	3.07	31.06	-	-	Peak
915.3	36.95	-9.05	46	40.03	23.41	4.19	30.68	142	33	Peak
5785	103.74	-	-	94.75	35.09	8.42	34.52	100	200	Peak
5785	94.49	-	-	85.5	35.09	8.42	34.52	100	200	Average
8806	54.24	-19.76	74	42.94	36.18	10.28	35.16	122	96	Peak
8806	41.17	-12.83	54	29.87	36.18	10.28	35.16	122	96	Average
11570	41.11	-32.89	74	75.59	-11.54	11.68	34.62	100	89	Peak
11570	31.03	-22.97	54	65.46	-11.49	11.69	34.63	100	89	Average
17355	39.66	-44.08	83.74	70.46	-11.57	15	34.23	100	0	Peak

Test Mode :	Mode 16	Temperature :	22~25°C
Test Channel :	165	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 17475 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.09	-17.91	40	33.64	19.51	0.64	31.7	-	-	Peak
79.14	17.56	-22.44	40	40.78	7.48	1	31.7	-	-	Peak
157.98	21.99	-21.51	43.5	41.59	10.54	1.5	31.64	-	-	Peak
438.6	26.4	-19.6	46	37.89	16.91	2.76	31.16	-	-	Peak
542.9	30.51	-15.49	46	39.51	18.99	3.07	31.06	-	-	Peak
913.9	35.42	-10.58	46	38.53	23.39	4.19	30.69	133	256	Peak
5825	105.46	-	-	96.4	35.16	8.43	34.53	100	326	Peak
5825	95.41	-	-	86.35	35.16	8.43	34.53	100	326	Average
8878	54.39	-19.61	74	43.04	36.22	10.3	35.17	100	116	Peak
8878	42.56	-11.44	54	31.21	36.22	10.3	35.17	100	116	Average
11650	46.63	-27.37	74	80.69	-11.14	11.74	34.66	100	57	Peak
11650	39.15	-14.85	54	73.21	-11.14	11.74	34.66	100	57	Average
17475	46.46	-39	85.46	77.57	-12.07	15.17	34.21	100	0	Peak

Test Mode :	Mode 16	Temperature :	22~25°C
Test Channel :	165	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 17475 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.5	-16.5	40	35.05	19.51	0.64	31.7	-	-	Peak
92.37	26.76	-16.74	43.5	48.17	9.17	1.12	31.7	-	-	Peak
157.98	22.43	-21.07	43.5	42.03	10.54	1.5	31.64	-	-	Peak
368.6	26.27	-19.73	46	39.81	15.29	2.43	31.26	-	-	Peak
542.9	31.53	-14.47	46	40.53	18.99	3.07	31.06	-	-	Peak
915.3	37.57	-8.43	46	40.65	23.41	4.19	30.68	100	99	Peak
5825	101.64	-	-	92.58	35.16	8.43	34.53	110	263	Peak
5825	94.14	-	-	85.08	35.16	8.43	34.53	110	263	Average
8836	54.04	-19.96	74	42.72	36.2	10.29	35.17	105	61	Peak
8836	41.72	-12.28	54	30.4	36.2	10.29	35.17	105	61	Average
11650	45.05	-28.95	74	79.11	-11.14	11.74	34.66	100	66	Peak
11650	34.56	-19.44	54	68.62	-11.14	11.74	34.66	100	66	Average
17475	38.81	-42.83	81.64	69.97	-12.12	15.17	34.21	100	0	Peak

Test Mode :	Mode 17	Temperature :	22~25°C
Test Channel :	157	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Horizontal
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 17355 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.57	-17.43	40	34.12	19.51	0.64	31.7	-	-	Peak
78.33	17.2	-22.8	40	40.52	7.39	0.99	31.7	-	-	Peak
157.98	22.38	-21.12	43.5	41.98	10.54	1.5	31.64	-	-	Peak
368.6	24.78	-21.22	46	38.32	15.29	2.43	31.26	-	-	Peak
542.9	31.34	-14.66	46	40.34	18.99	3.07	31.06	-	-	Peak
915.3	37.22	-8.78	46	40.3	23.41	4.19	30.68	132	88	Peak
5785	106.09	-	-	97.09	35.09	8.42	34.51	101	330	Peak
5785	97.62	-	-	88.63	35.09	8.42	34.52	101	330	Average
8884	54.18	-19.82	74	42.82	36.23	10.3	35.17	100	321	Peak
8884	40.13	-13.87	54	28.77	36.23	10.3	35.17	100	321	Average
11570	48.74	-25.26	74	83.17	-11.49	11.69	34.63	100	4	Peak
11570	32.91	-21.09	54	67.34	-11.49	11.69	34.63	100	4	Average
17355	46.47	-39.62	86.09	77.27	-11.57	15	34.23	100	0	Peak

Test Mode :	Mode 17	Temperature :	22~25°C
Test Channel :	157	Relative Humidity :	47~51%
Test Engineer :	Cona Huang	Polarization :	Vertical
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 17355 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.04	-16.96	40	34.59	19.51	0.64	31.7	-	-	Peak
92.37	29.81	-13.69	43.5	51.22	9.17	1.12	31.7	-	-	Peak
157.98	22.29	-21.21	43.5	41.89	10.54	1.5	31.64	-	-	Peak
368.6	26.94	-19.06	46	40.48	15.29	2.43	31.26	-	-	Peak
542.9	31.63	-14.37	46	40.63	18.99	3.07	31.06	-	-	Peak
915.3	37.7	-8.3	46	40.78	23.41	4.19	30.68	145	59	Peak
5785	103.7	-	-	94.69	35.11	8.42	34.52	100	200	Peak
5785	93.63	-	-	84.64	35.09	8.42	34.52	100	200	Average
8910	54.23	-19.77	74	42.86	36.24	10.31	35.18	109	111	Peak
8910	40.29	-13.71	54	28.92	36.24	10.31	35.18	109	111	Average
11570	41.56	-32.44	74	75.99	-11.49	11.69	34.63	100	351	Peak
11570	28.41	-25.59	54	62.84	-11.49	11.69	34.63	100	351	Average
17355	38.83	-44.87	83.7	69.67	-11.61	15	34.23	100	0	Peak



3.8 Antenna Requirements

3.8.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 23, 2009	Jun. 22, 2010	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 17, 2009	Sep. 16, 2010	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 10, 2009	Sep. 09, 2010	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Aug. 05, 2009	Aug. 04, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
System Simulator	Agilent	E5515C (8960)	MY48360820	N/A	Dec. 15, 2008	Dec. 14, 2010	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 31, 2009	Oct. 30, 2010	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP	101067	9KHz ~ 30GHz	Dec. 04, 2009	Dec. 03, 2010	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 20, 2009	Aug. 19, 2010	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 14, 2009	Oct. 13, 2010	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec.09,2009	Dec. 08, 2010	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 27, 2009	Mar. 26, 2010	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 KHz~30 MHz	May 22, 2008	May 21, 2010	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

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 (30MHz ~ 1000MHz)

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 (1GHz ~ 40GHz)

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 EP010103 as below.