FCC RF Test Report

APPLICANT	:	Motorola Solutions, Inc.
EQUIPMENT	:	Enterprise Digital Assistant (EDA)
BRAND NAME	:	Motorola
MODEL NAME	:	MC4597
FCC ID	:	UZ7MC4597
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Apr. 21, 2012 and completely tested on Oct. 31, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

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
FR250901B	Rev. 01	Initial issue of report	Dec. 05, 2012

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	≥ 0.5MHz	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	-
			Radiated Spurious Emission		Pass	Under limit 3.13 dB at 2484.8 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 18.30 dB at 0.342 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

Motorola Solutions, Inc.
One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Inventec Appliances Corp.
37, Wugong 5th Road, New Taipei industrial Park,Wugu District,New Taipei City, Taiwan 24890

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Enterprise Digital Assistant (EDA)
Brand Name	Motorola
Model Name	MC4597
FCC ID	UZ7MC4597
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11abg / Bluetooth
HW Version	DVT2.3
SW Version	BSP9.351
EUT Stage	Identical Prototype

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

Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g : 2412 MHz ~ 2462 MHz 802.11a: 5745~5825MHz.
Maximum Output Power to Antenna	**<2412 MHz ~ 2462 MHz>** 802.11b : 16.43 dBm (0.0440 W) 802.11g : 21.61 dBm (0.1449 W) **<5745 MHz ~ 5825 MHz>** 802.11a : 21.32 dBm (0.1355 W)
99% Occupied Bandwidth	**<2412 MHz ~ 2462 MHz>** 802.11b : 15.75MHz 802.11g : 19.15MHz **<5745 MHz ~ 5825 MHz>** 802.11a : 19.30MHz
Antenna Type	802.11b/g : PIFA Antenna type with gain 2.70 dBi 802.11a : PIFA Antenna type with gain 4.20 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.	Mobile Computing Terminal	OS Version	BSP9.351
2.	-	OEM Name	MC45
3.	-	OEM Version	DVT2.3
4.	Wireless (Fusion)	Part Number	WM-AG-AT-02-C
5.	-	Version	3.40.0.0.56

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.			
Test Site Location	No. 52, Hwa Ya 1st 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.**
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

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, 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	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals 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) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	159	5795
	151	5755	165	5825
	157	5785	-	-

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and antenna configurations as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

Channel	Frequency	2.4GHz 802.11b Peak RF Power (dBm)			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	15.88	15.83	15.74	15.87
CH 06	2437 MHz	16.14	16.05	16.06	16.09
CH 11	2462 MHz	**16.43**	16.36	16.33	16.38

Channel	Frequency	2.4GHz 802.11g Peak RF Power (dBm)							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	20.21	19.75	19.95	19.65	19.96	19.75	19.82	19.74
CH 02	2417 MHz	20.57	20.1	20.54	20.23	20.54	20.36	20.38	20.43
CH 06	2437 MHz	**21.61**	21.41	21.44	21.37	21.54	21.6	21.26	20.75
CH 10	2457 MHz	20.31	19.92	20.28	19.91	20.25	20.07	20.03	20.08
CH 11	2462 MHz	19.32	18.77	19.23	18.6	19.22	19.01	19.02	19

Channel	Frequency	5GHz 802.11a Peak RF Power (dBm)							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 149	5745 MHz	21.22	21.02	21.15	21.07	21.19	20.6	20.41	20.26
CH 157	5785 MHz	**21.32**	21.13	21.26	21.17	21.22	20.57	20.29	20.12
CH 165	5825 MHz	21.16	21.06	21.14	21.06	21.2	20.55	20.26	20.05

2.3 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

<2.4GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/2/6/10/11
	Conducted Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/2/10/11
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11

<5GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW	802.11a	6 Mbps	149/157/165
	Output Power	802.11a	6 Mbps	149/157/165
	Conducted Band Edge	802.11a	6 Mbps	149/165
	Conducted Spurious	802.11a	6 Mbps	149/157/165
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	149/165
	Radiated Spurious	802.11a	6 Mbps	149/157/165

Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter) Mode 2 WCDMA Band V Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter)

Remark:

1. For conducted emission, the worst case is mode 2; all the test data were reported.

2. “Bluetooth Link” stands for terminal linked to headset by Bluetooth function.

3. “WLAN Link” stands for terminal associated with AP at 2.4GHz or 5GHz band.

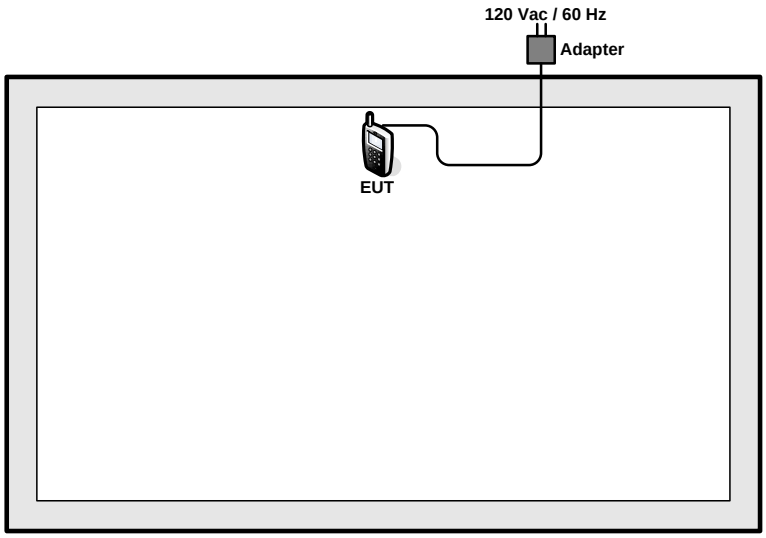
4. “GPS Rx” stands for receive signals from GPS station continuously.

5. “MP3” stands for playing MP3 file.

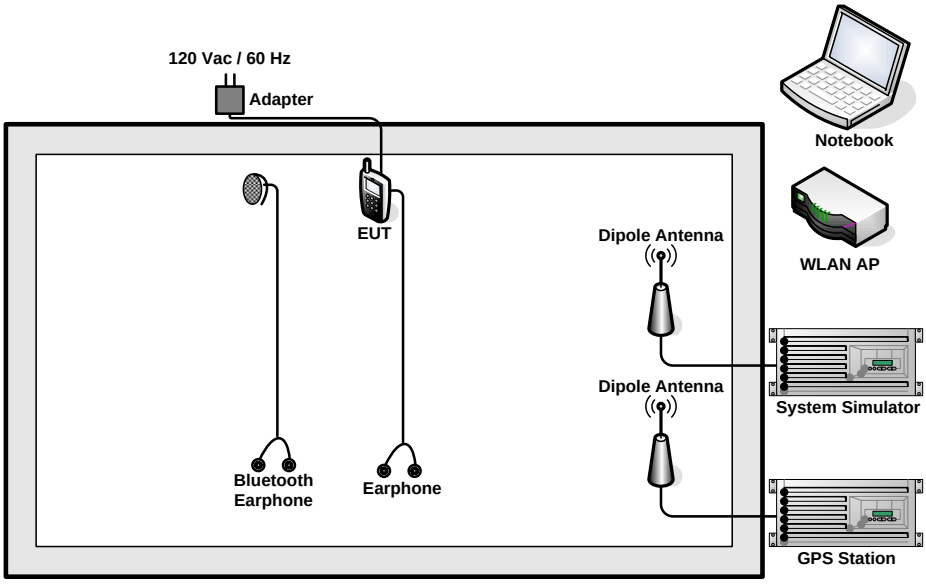
6. The battery (03 Rev A) and battery (01 Rev C) spec are the same, only difference is label.

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 RF Utility

The programmed RF utility “FCC Test” 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 and 99% Bandwidth

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

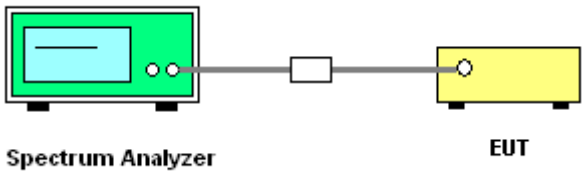
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW).Set the Video bandwidth (VBW) ≥ 3 * RBW. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
5. Use the following spectrum analyzer settings for 99 % Bandwidth measurement.
   For 99% Bandwidth measurement, the RBW=30kHz, and VBW ≥ RBW. Sweep = auto ;
   Detector function = sample. Trace = max hold.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	12.56	0.5	Pass
06	2437	12.10	0.5	Pass
11	2462	12.10	0.5	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.34	0.5	Pass
06	2437	16.34	0.5	Pass
11	2462	16.36	0.5	Pass

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.32	0.5	Pass
157	5785	16.32	0.5	Pass
165	5825	16.32	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	15.75	Pass
06	2437	15.75	Pass
11	2462	15.70	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

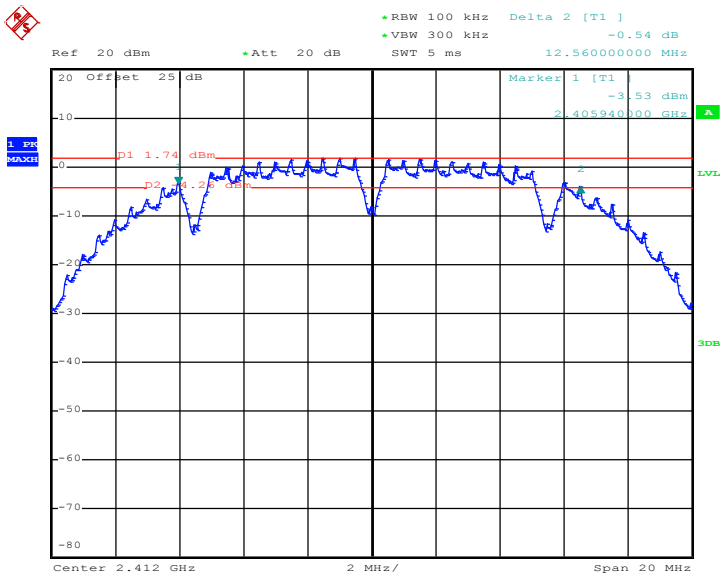
Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.80	Pass
06	2437	19.15	Pass
11	2462	18.85	Pass

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	18.75	Pass
157	5785	19.30	Pass
165	5825	19.30	Pass

3.1.7 Test Result of 6dB Bandwidth Plots

6 dB Bandwidth Plot on 802.11b Channel 01



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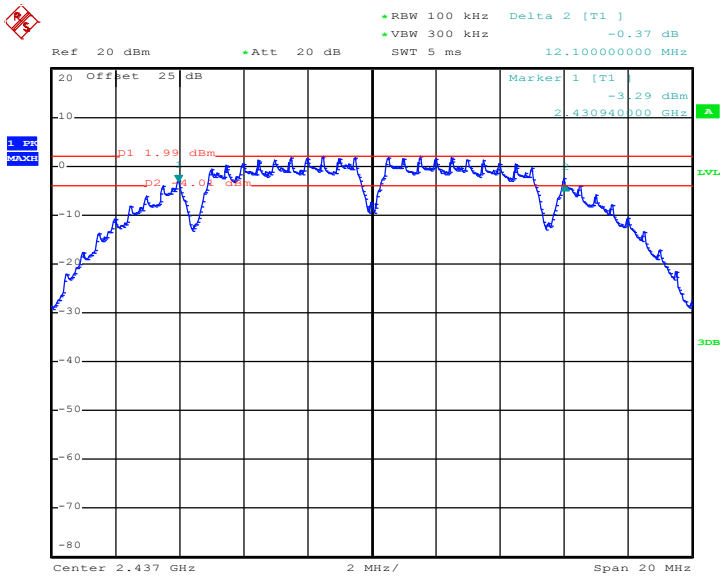
Date: 22.OCT.2012 20:14:52

6 dB Bandwidth Plot on 802.11b Channel 06



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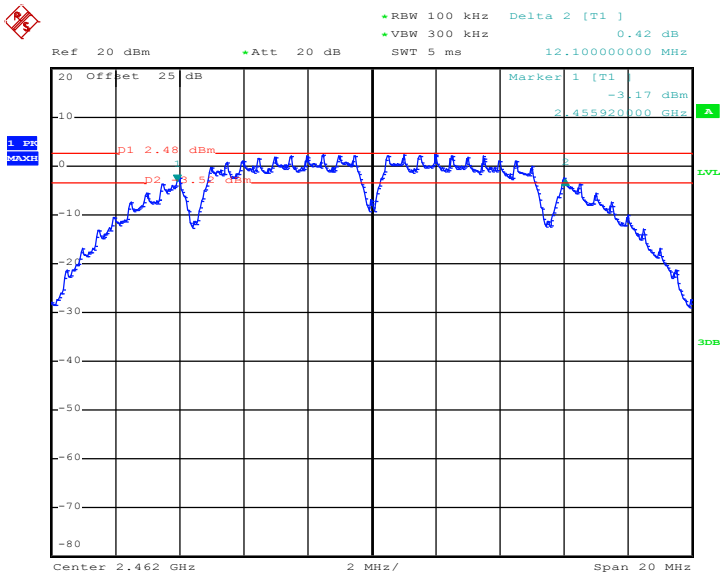
6 dB Bandwidth Plot on 802.11b Channel 11



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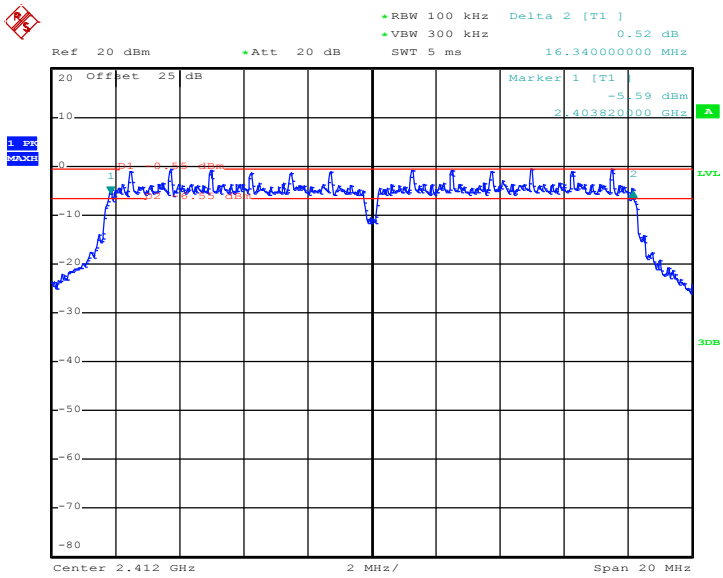
6 dB Bandwidth Plot on 802.11g Channel 01



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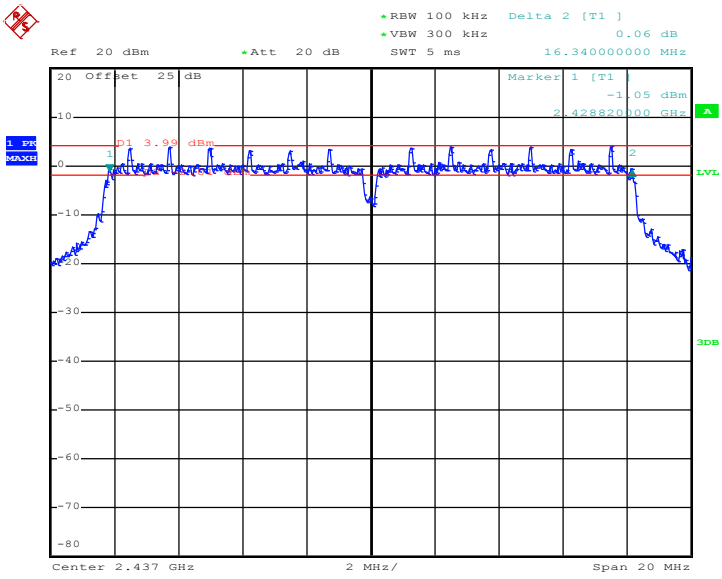
6 dB Bandwidth Plot on 802.11g Channel 06



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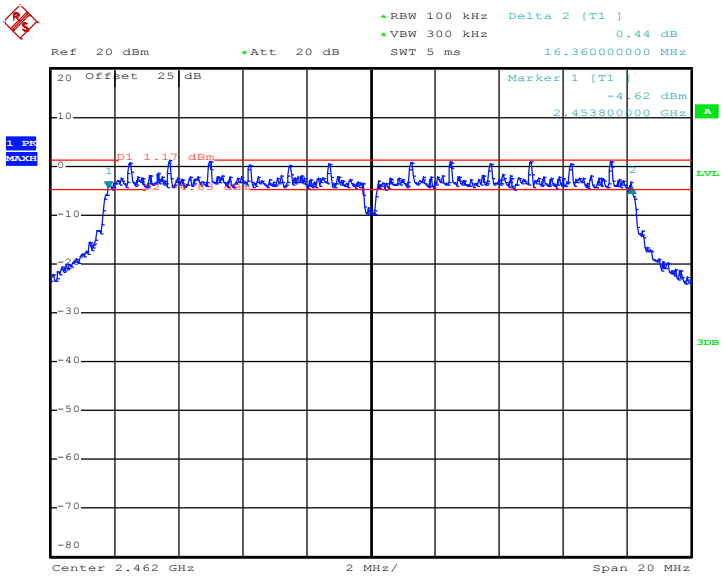
6 dB Bandwidth Plot on 802.11g Channel 11



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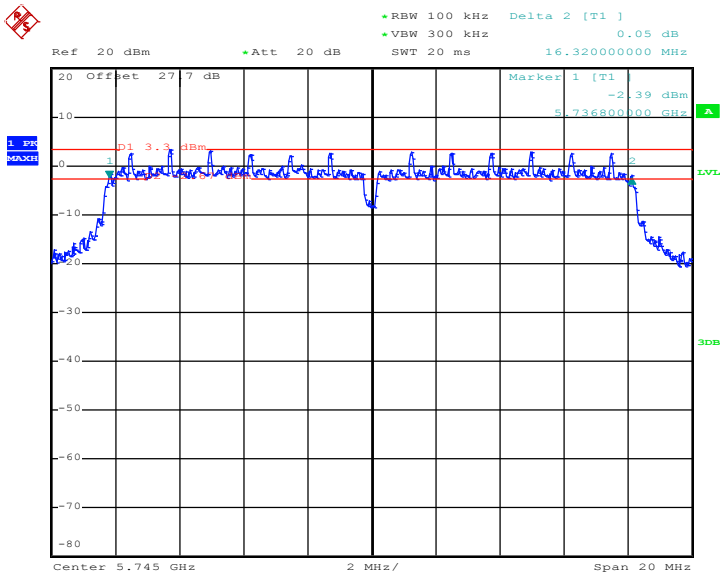
6 dB Bandwidth Plot on 802.11a Channel 149



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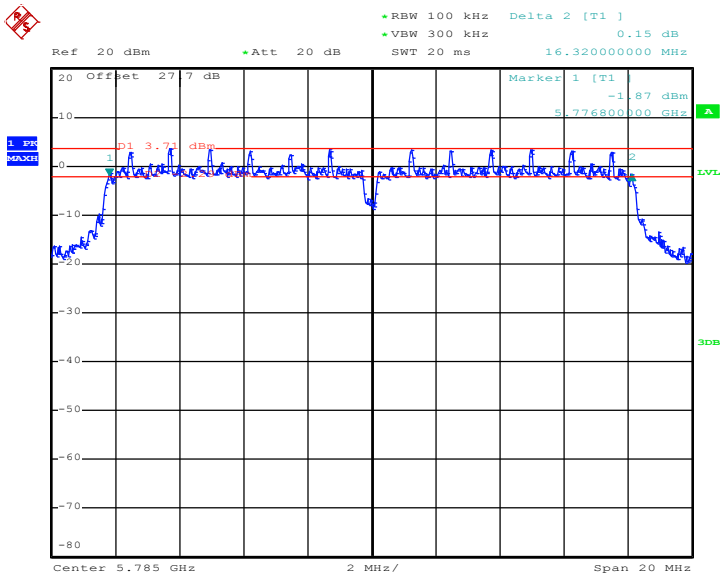
6 dB Bandwidth Plot on 802.11a Channel 157



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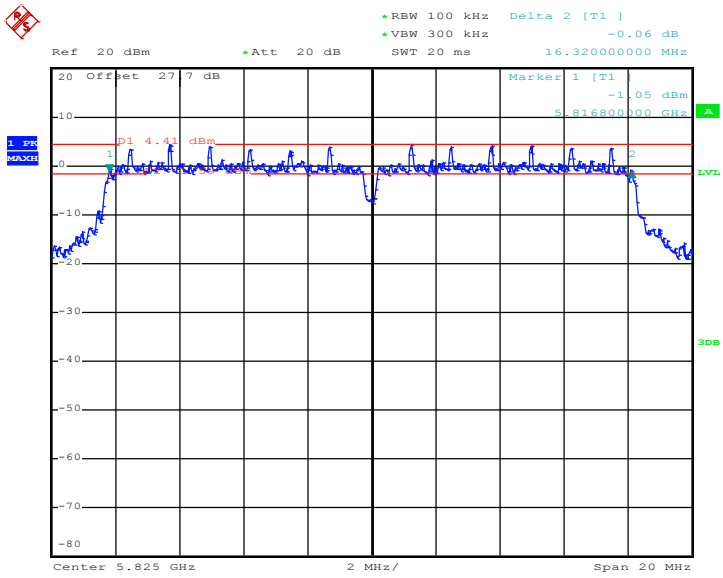
6 dB Bandwidth Plot on 802.11a Channel 165



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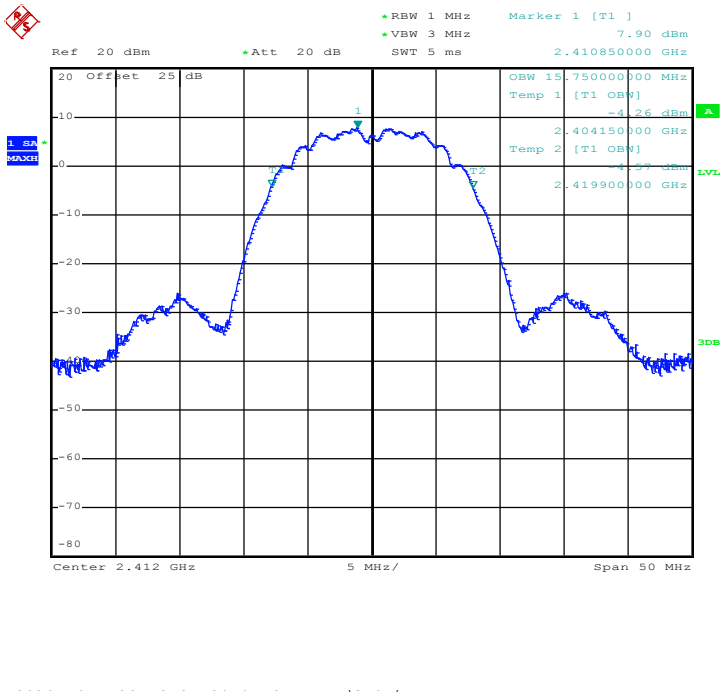
3.1.8 Test Result of 99% Bandwidth Plots

99% Occupied Bandwidth Plot on 802.11b Channel 01



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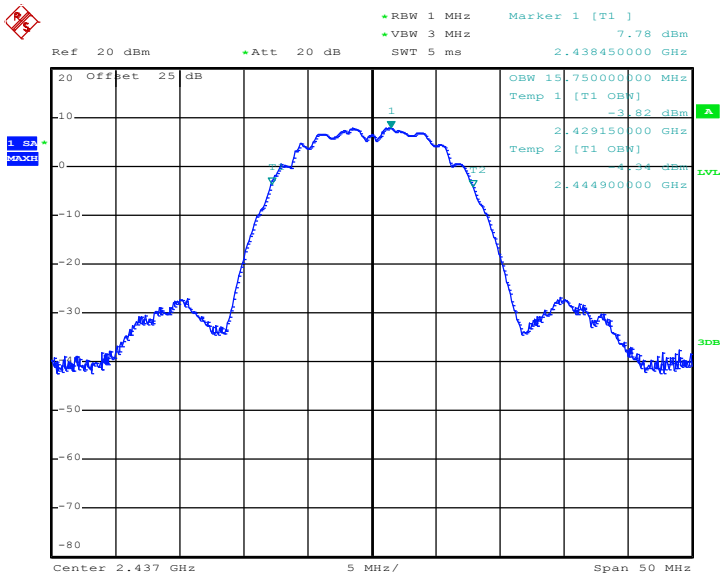
99% Occupied Bandwidth Plot on 802.11b Channel 06



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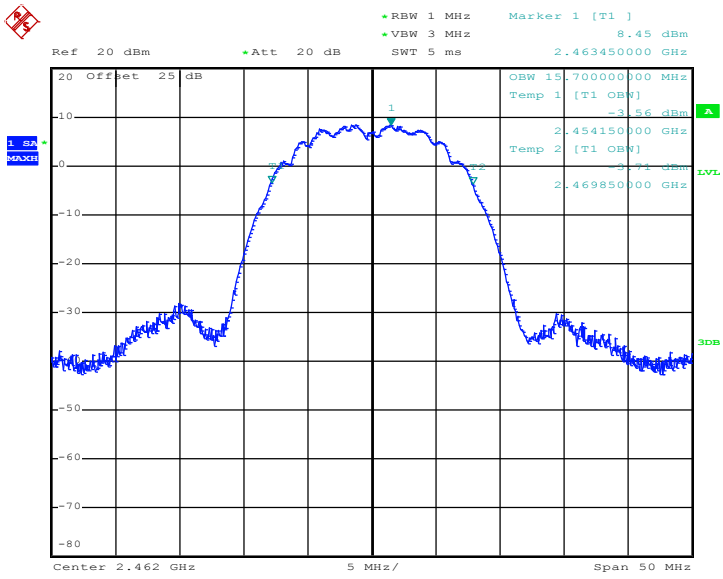
99% Occupied Bandwidth Plot on 802.11b Channel 11



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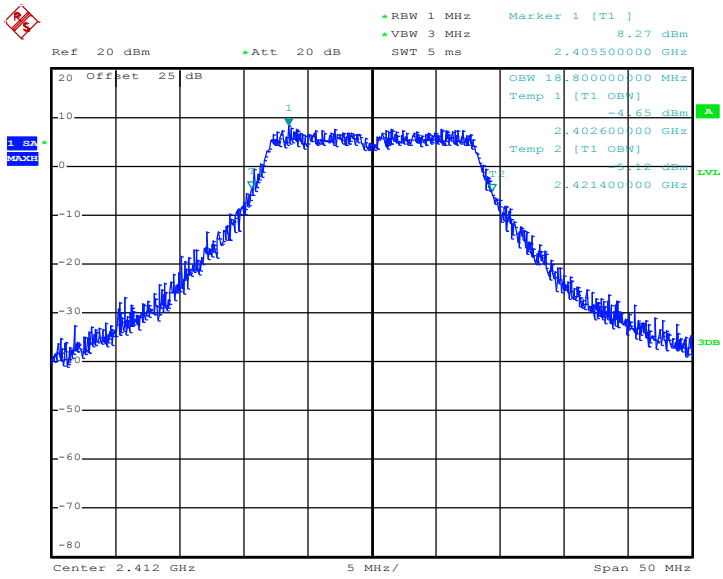
99% Occupied Bandwidth Plot on 802.11g Channel 01



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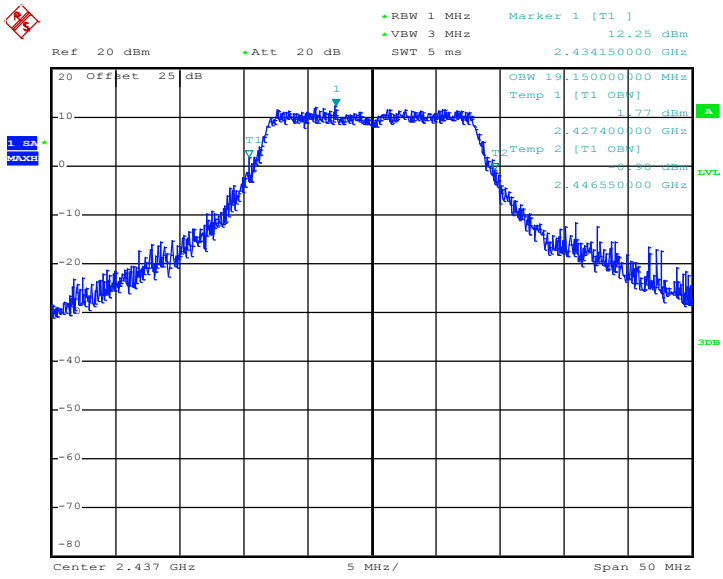
99% Occupied Bandwidth Plot on 802.11g Channel 06



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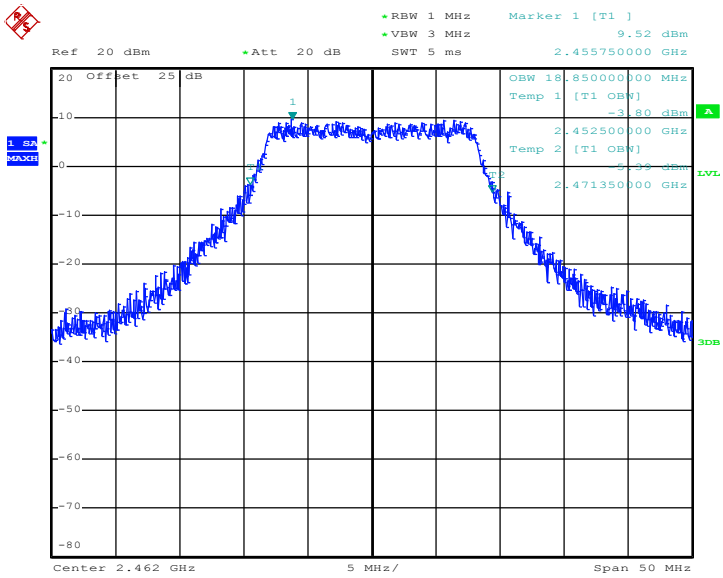
99% Occupied Bandwidth Plot on 802.11g Channel 11



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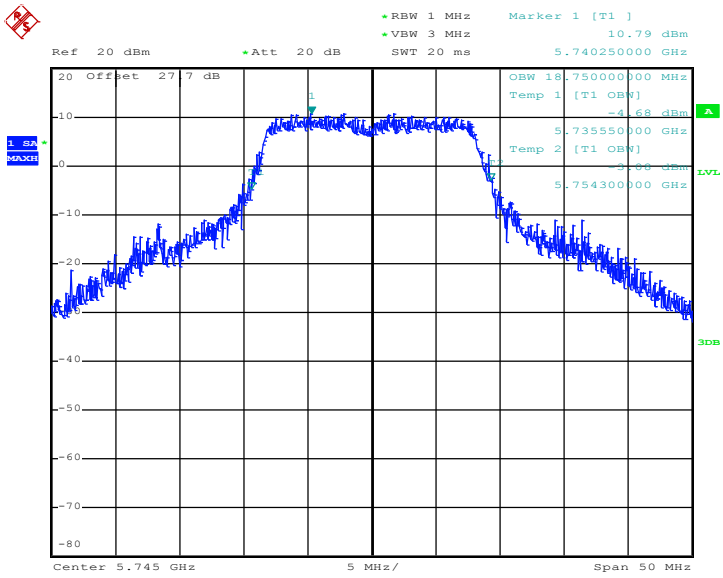
99% Occupied Bandwidth Plot on 802.11a Channel 149



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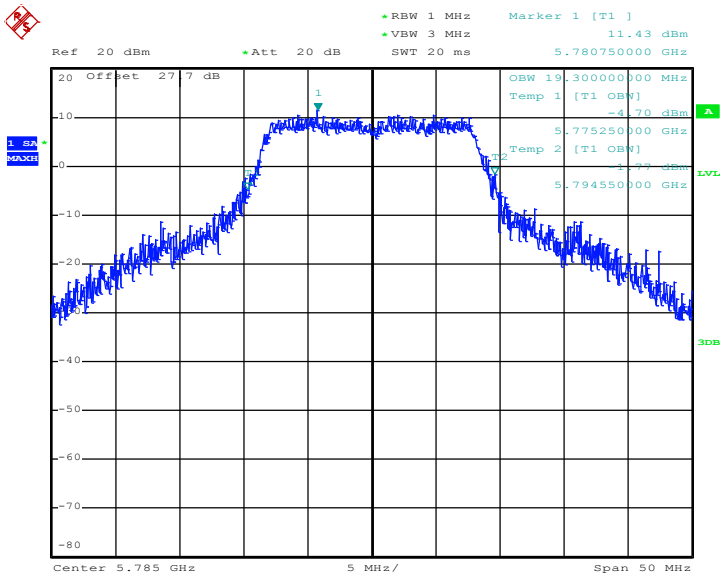
99% Occupied Bandwidth Plot on 802.11a Channel 157



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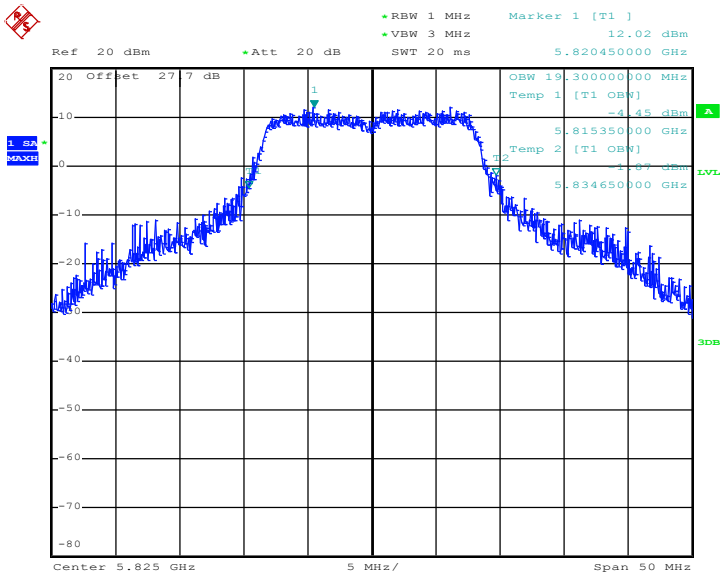
99% Occupied Bandwidth Plot on 802.11a Channel 165



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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.

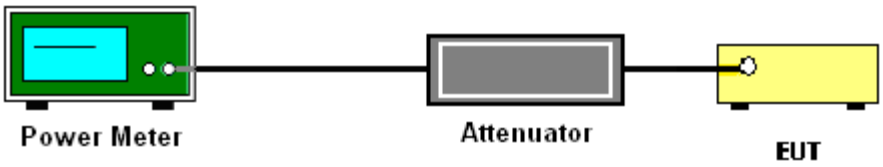
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.88	30	Pass
06	2437	16.14	30	Pass
11	2462	16.43	30	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.21	30	Pass
02	2417	20.57	30	Pass
06	2437	21.61	30	Pass
10	2457	20.31	30	Pass
11	2462	19.32	30	Pass

Test Mode :	802.11 a	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.22	30	Pass
157	5785	21.32	30	Pass
165	5825	21.16	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%
Duty Cycle:	100%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	12.45
06	2437	13.07
11	2462	13.39

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%
Duty Cycle:	94.28%	Duty Factor:	0.26dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	10.85
02	2417	11.57
06	2437	14.92
10	2457	12.15
11	2462	10.02

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%
Duty Cycle:	98.06%	Duty Factor:	0.09dB

Channel	Frequency (MHz)	802.11a Average Output Power (dBm)
149	5745	14.97
157	5785	15.12
165	5825	14.94

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

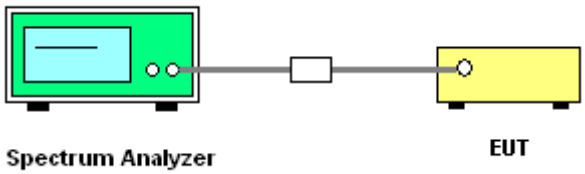
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 9.1 Option 1 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Power Density PSD/3KHz (dBm)	Max. Limits (dBm/3KHz)	Pass/Fail
01	2412	-12.73	8	Pass
06	2437	-13.01	8	Pass
11	2462	-12.42	8	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Power Density PSD/3KHz (dBm)	Max. Limits (dBm/3KHz)	Pass/Fail
01	2412	-13.28	8	Pass
06	2437	-10.15	8	Pass
11	2462	-13.07	8	Pass

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Kenny Chen	Relative Humidity :	50~53%

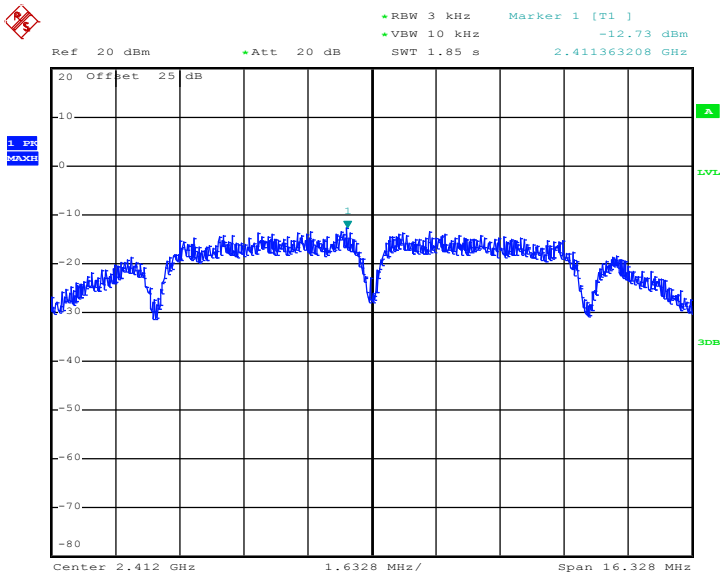
Channel	Frequency (MHz)	802.11a Power Density PSD/3KHz (dBm)	Max. Limits (dBm/3KHz)	Pass/Fail
149	5745	-11.60	8	Pass
157	5785	-11.29	8	Pass
165	5825	-9.29	8	Pass

Note:

1. *Measured power density (dBm) has offset with cable loss.*

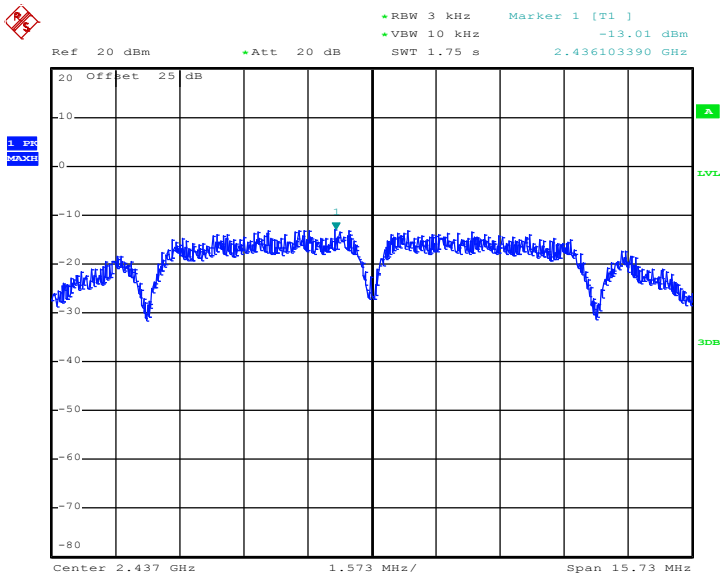
3.3.6 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



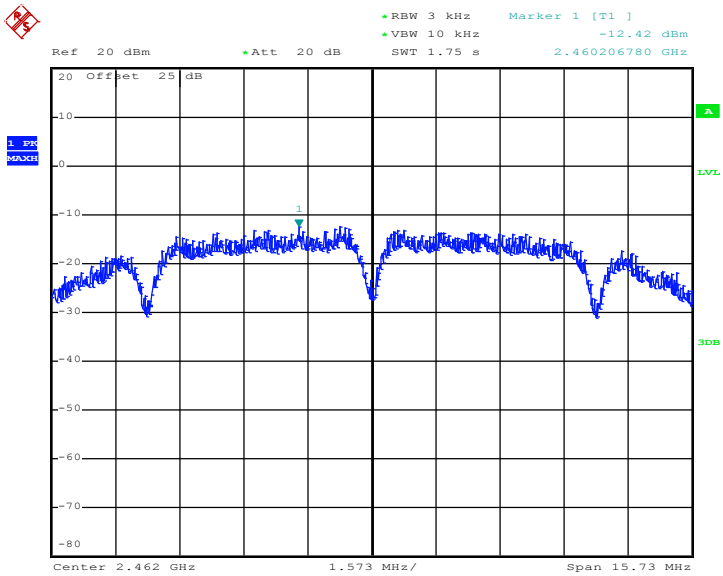
Date: 22.OCT.2012 20:15:28

PSD 3kHz Plot on 802.11b Channel 06



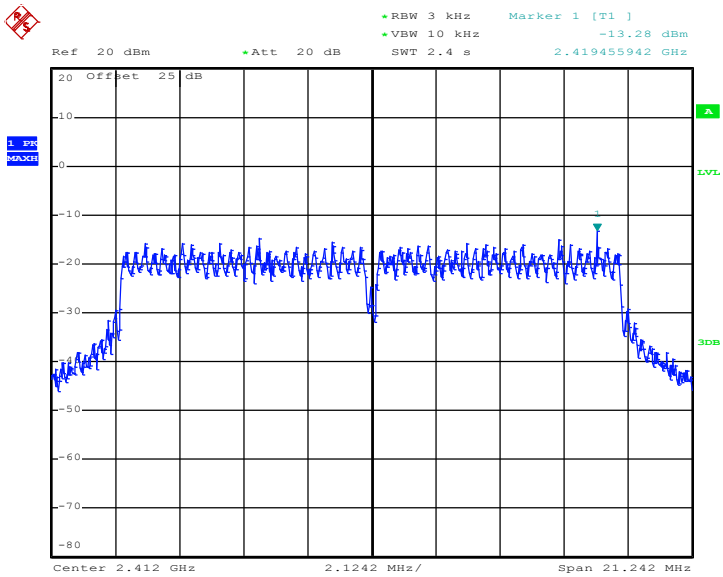
Date: 22.OCT.2012 20:21:10

PSD 3kHz Plot on 802.11b Channel 11



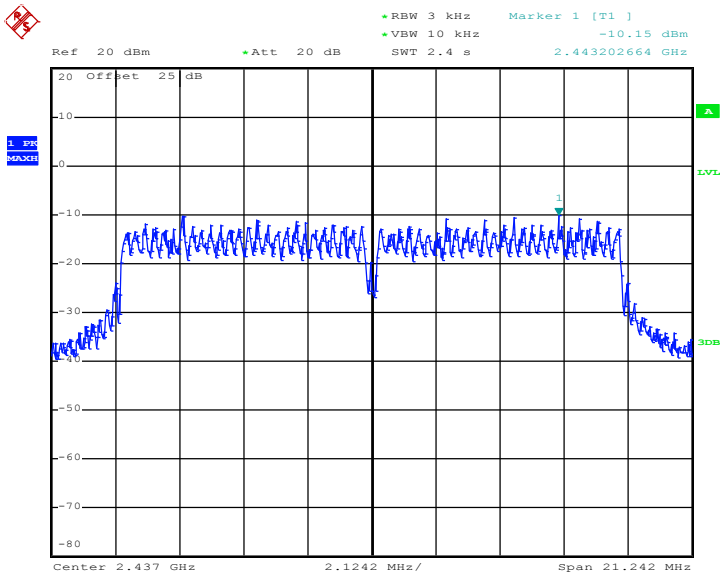
Date: 22.OCT.2012 20:27:38

PSD 3kHz Plot on 802.11g Channel 01



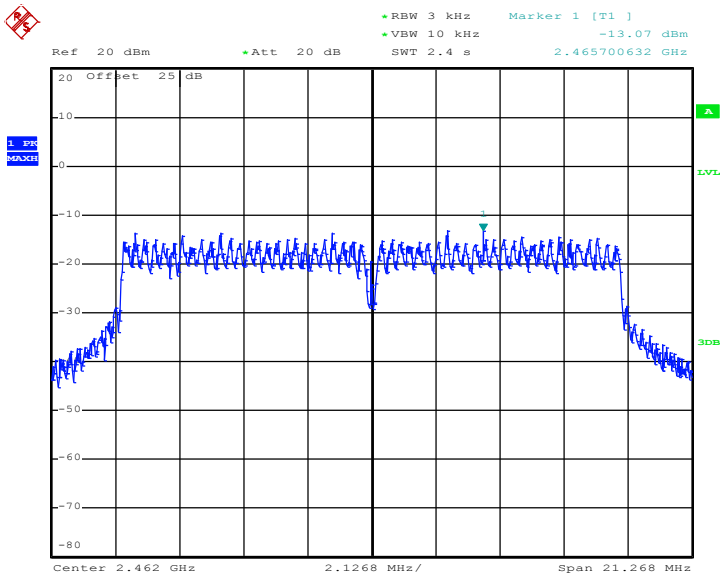
Date: 22.OCT.2012 20:45:26

PSD 3kHz Plot on 802.11g Channel 06



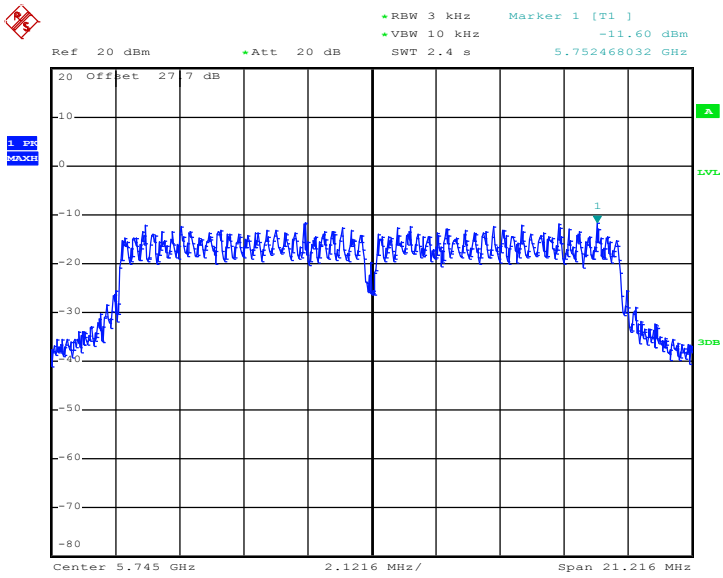
Date: 22.OCT.2012 20:40:04

PSD 3kHz Plot on 802.11g Channel 11



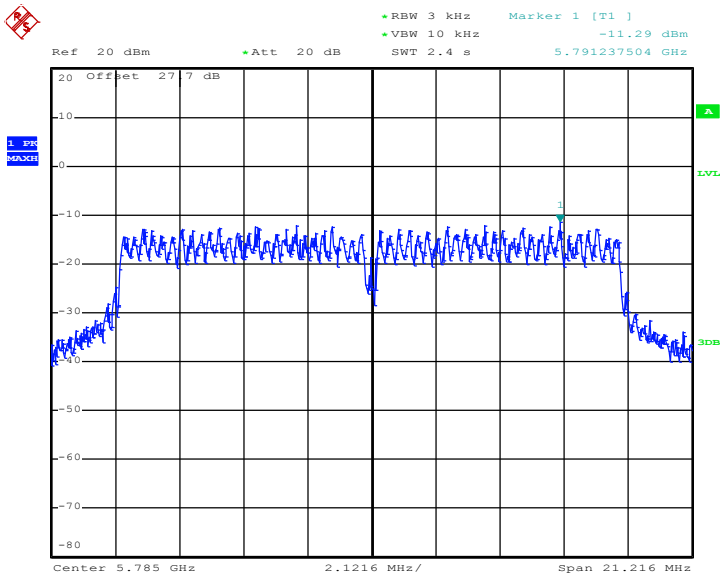
Date: 22.OCT.2012 20:34:59

PSD 3kHz Plot on 802.11a Channel 149



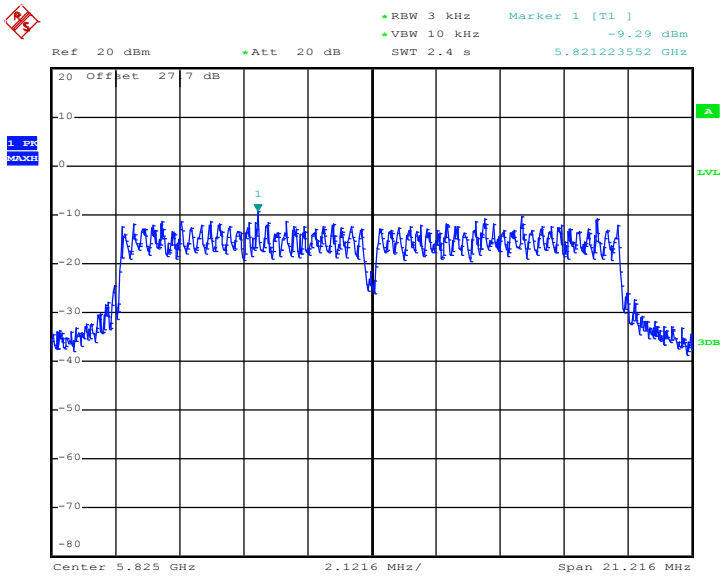
Date: 22.OCT.2012 20:55:44

PSD 3kHz Plot on 802.11a Channel 157



Date: 22.OCT.2012 21:00:29

PSD 3kHz Plot on 802.11a Channel 165



Date: 22.OCT.2012 21:05:27

3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

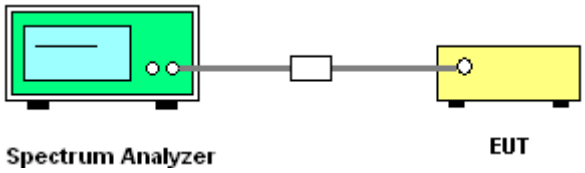
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz, when maximum peak conducted output power procedure is used. The attenuation is set to 30dB, when maximum conducted output power procedure is used.
5. Measure and record the results in the test report.

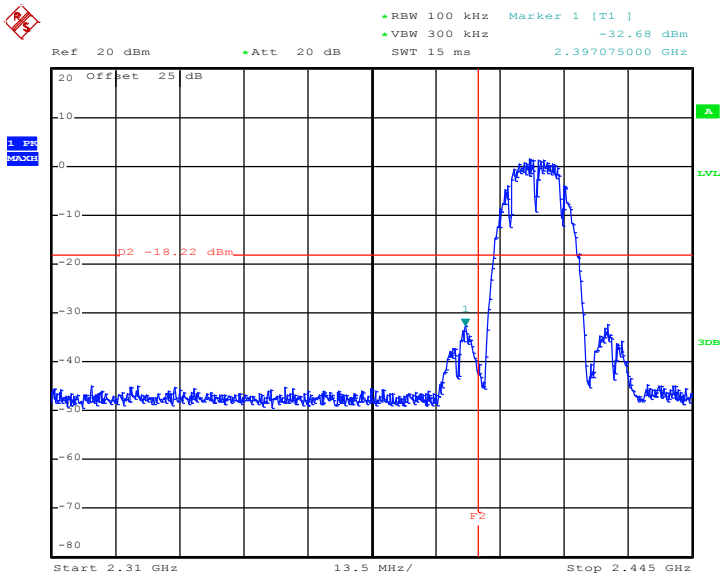
3.4.4 Test Setup



3.4.6 Test Result of Conducted Spurious at Band Edges

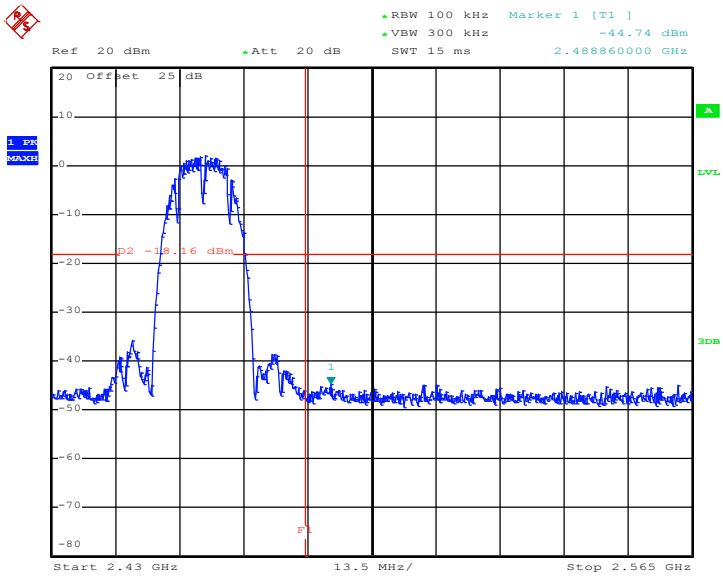
Test Mode :	802.11b	**Temperature :**	24~26℃
Test Band :	Low and High	**Relative Humidity :**	50~53%
Test Channel :	01 and 11	**Test Engineer :**	Kenny Chen

Low Band Edge Plot on 802.11b Channel 01



Date: 22.OCT.2012 20:15:50

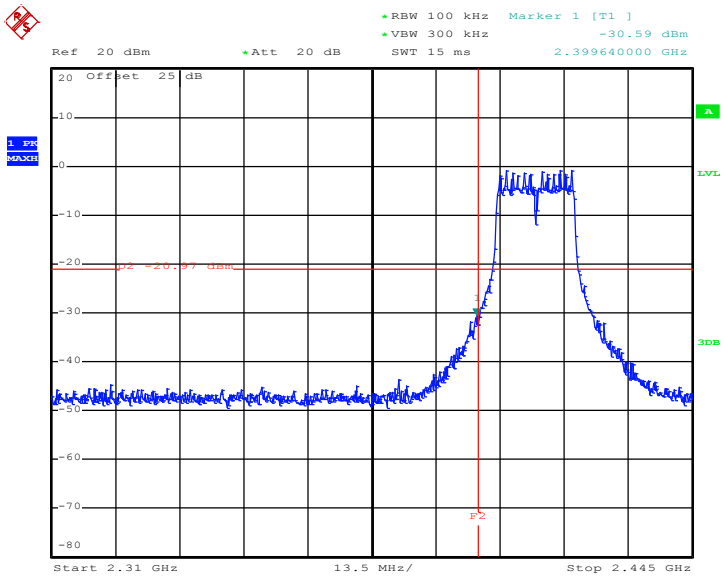
High Band Edge Plot on 802.11b Channel 11



Date: 22.OCT.2012 20:28:11

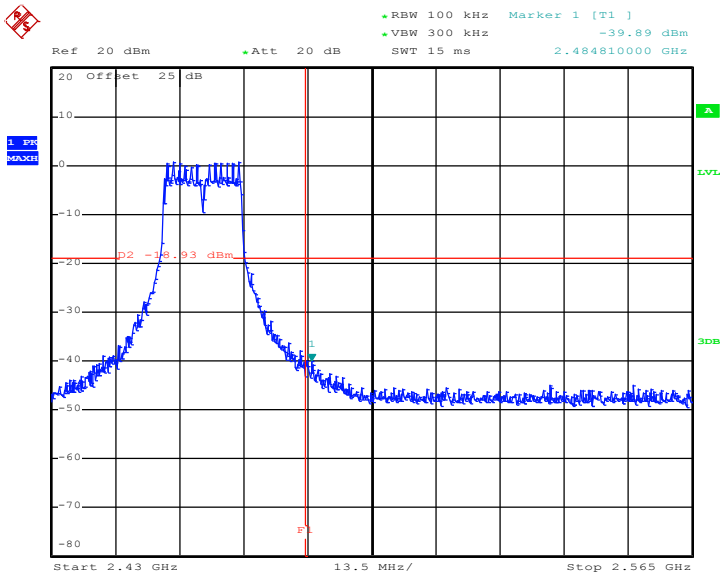
Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Kenny Chen

Low Band Edge Plot on 802.11g Channel 01



Date: 22.OCT.2012 20:46:56

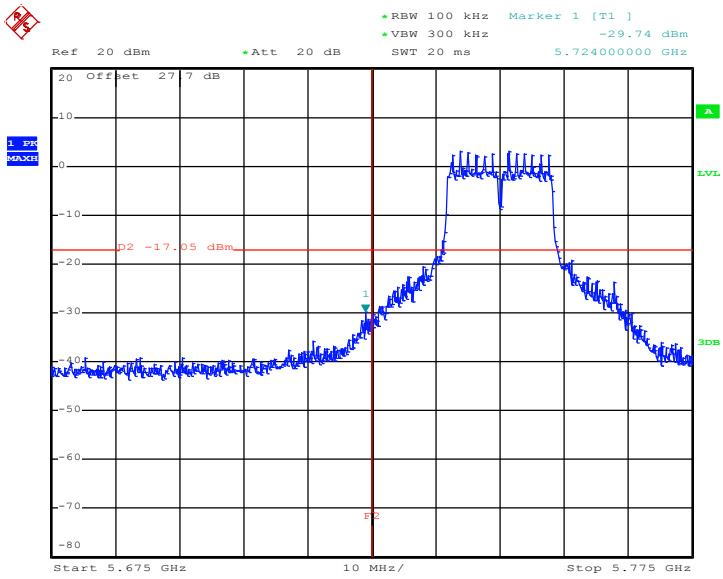
High Band Edge Plot on 802.11g Channel 11



Date: 22.OCT.2012 20:35:30

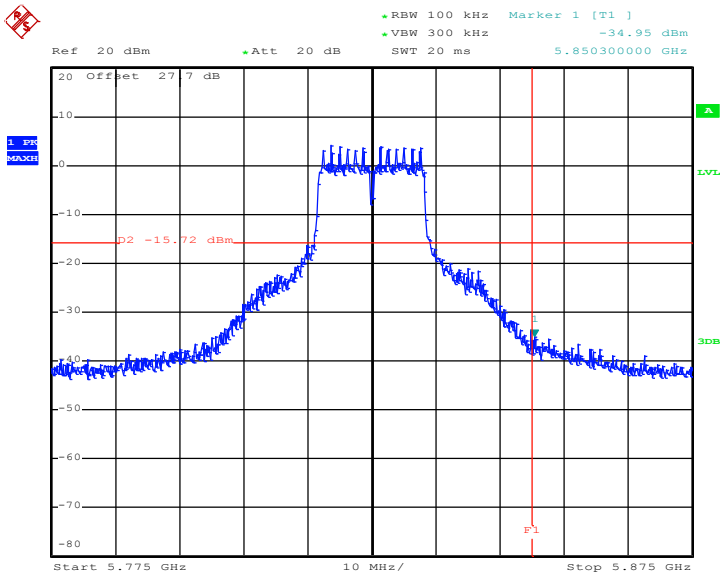
Test Mode :	802.11a	**Temperature :**	24~26℃
Test Band :	Low and High	**Relative Humidity :**	50~53%
Test Channel :	149 and 165	**Test Engineer :**	Kenny Chen

Low Band Edge Plot on 802.11a Channel 149



Date: 22.OCT.2012 20:56:51

High Band Edge Plot on 802.11a Channel 165



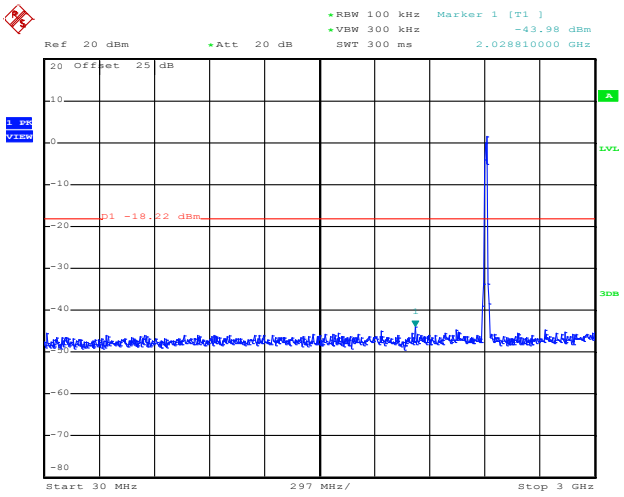
Date: 22.OCT.2012 21:05:54

3.4.7 Test Result of Conducted Spurious Emission

Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Kenny Chen

802.11b 30 MHz~3 GHz

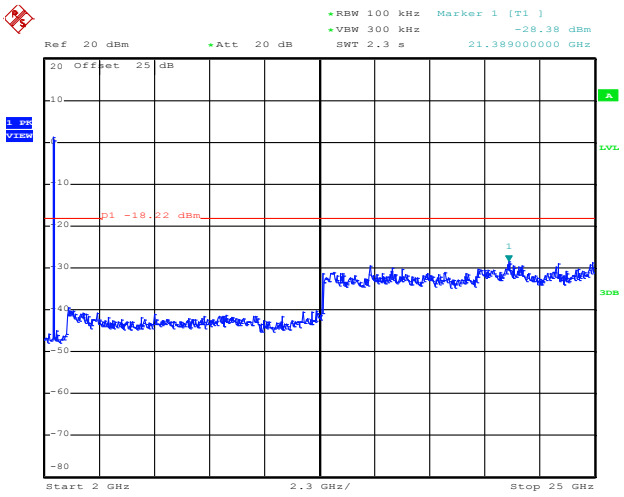
Conducted Spurious Emission Plot on Channel 01



Date: 22.OCT.2012 20:16:21

802.11b 2 GHz~25 GHz

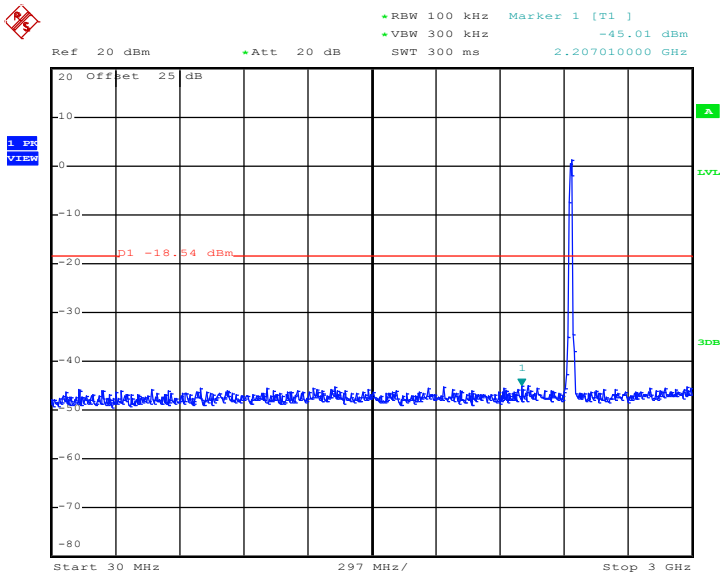
Conducted Spurious Emission Plot on Channel 01



Date: 22.OCT.2012 20:16:38

802.11b 30 MHz~3 GHz

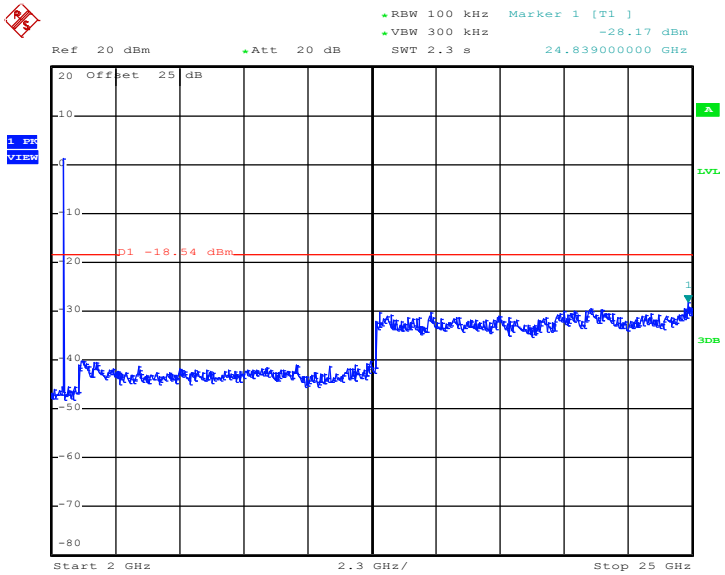
Conducted Spurious Emission Plot on Channel 06



Date: 22.OCT.2012 20:21:48

802.11b 2 GHz~25 GHz

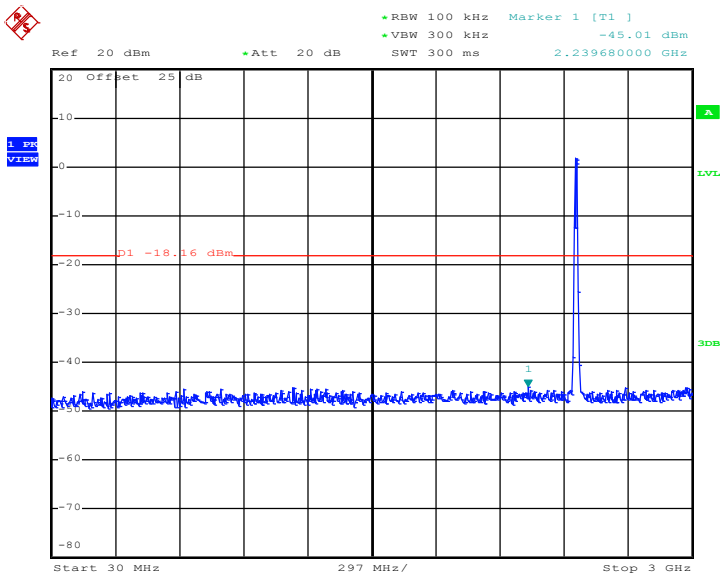
Conducted Spurious Emission Plot on Channel 06



Date: 22.OCT.2012 20:22:06

802.11b 30 MHz~3 GHz

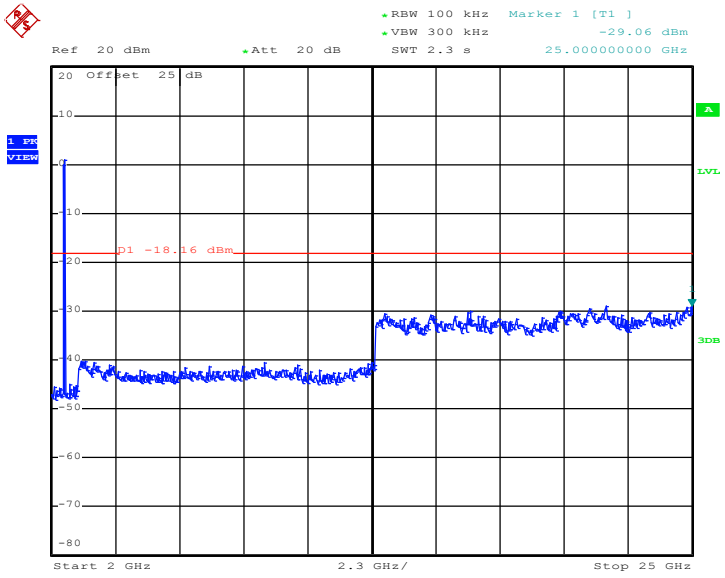
Conducted Spurious Emission Plot on Channel 11



Date: 22.OCT.2012 20:30:02

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

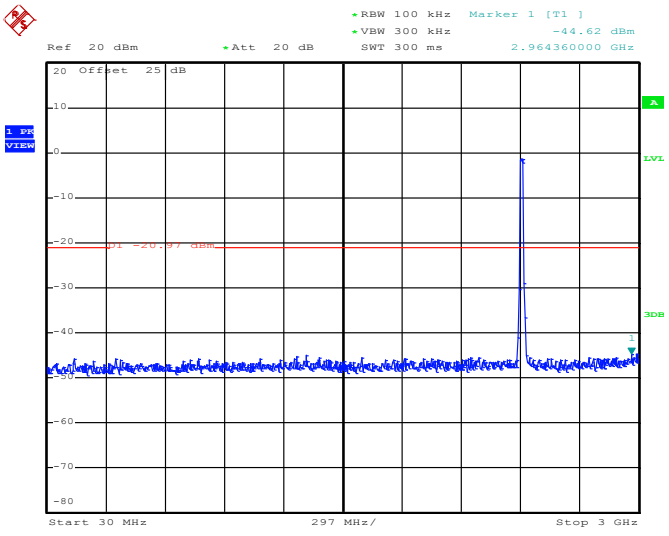


Date: 22.OCT.2012 20:30:20

Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Kenny Chen

802.11g 30 MHz~3 GHz

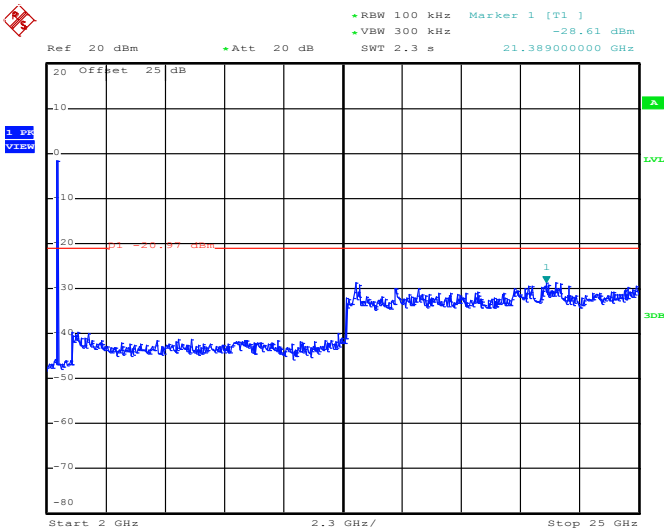
Conducted Spurious Emission Plot on Channel 01



Date: 22.OCT.2012 20:47:16

802.11g 2 GHz~25 GHz

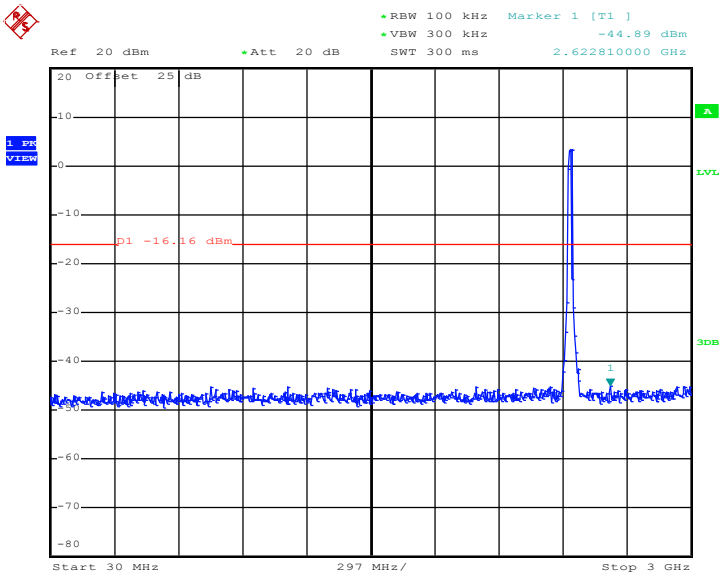
Conducted Spurious Emission Plot on Channel 01



Date: 22.OCT.2012 20:47:33

802.11g 30 MHz~3 GHz

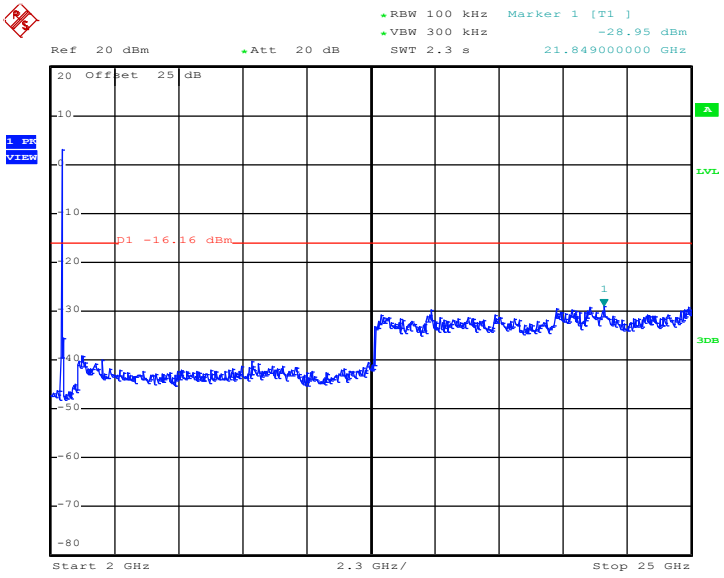
Conducted Spurious Emission Plot on Channel 06



Date: 22.OCT.2012 20:40:47

802.11g 2 GHz~25 GHz

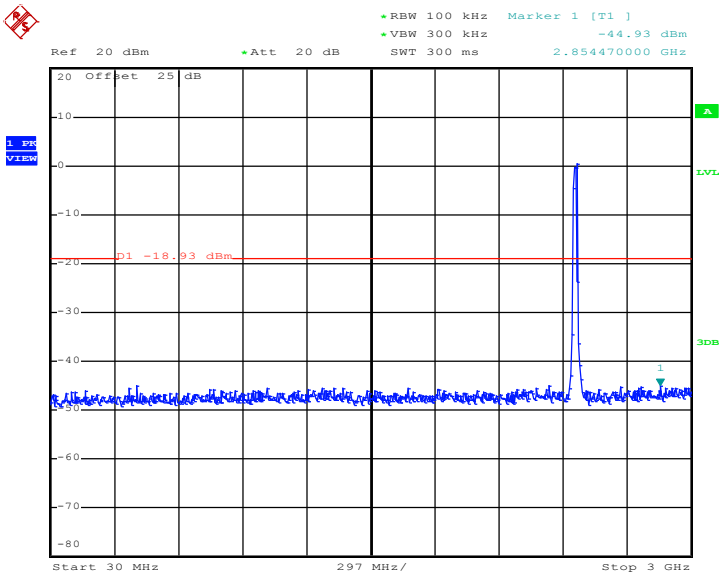
Conducted Spurious Emission Plot on Channel 06



Date: 22.OCT.2012 20:41:04

802.11g 30 MHz~3 GHz

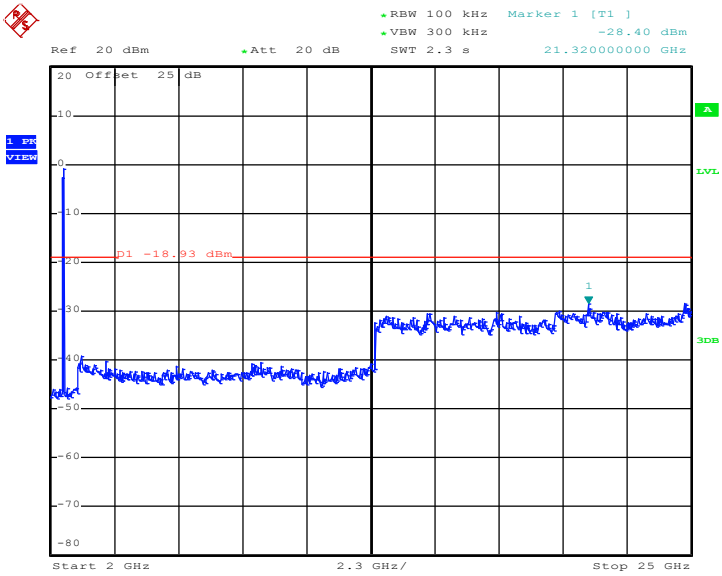
Conducted Spurious Emission Plot on Channel 11



Date: 22.OCT.2012 20:36:45

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

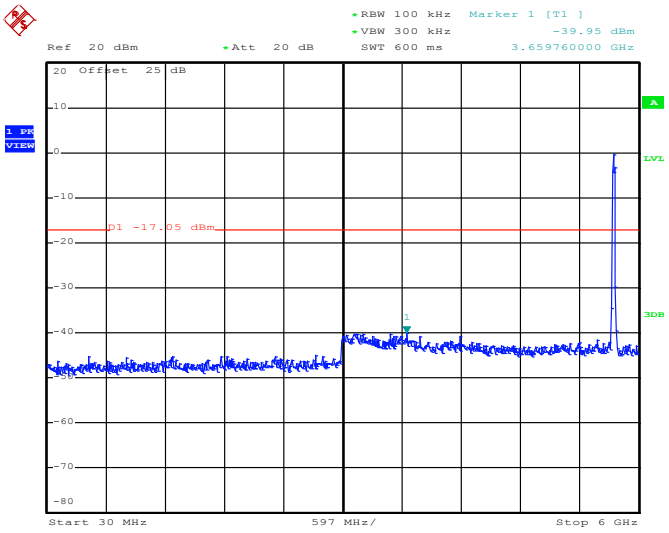


Date: 22.OCT.2012 20:37:02

Test Mode :	802.11a	Temperature :	24~26℃
Test Band :	30MHz-6GHz and 5G-40GHz	Relative Humidity :	50~53%
Test Channel :	149, 157, 165	Test Engineer :	Kenny Chen

802.11a 30 MHz~6 GHz

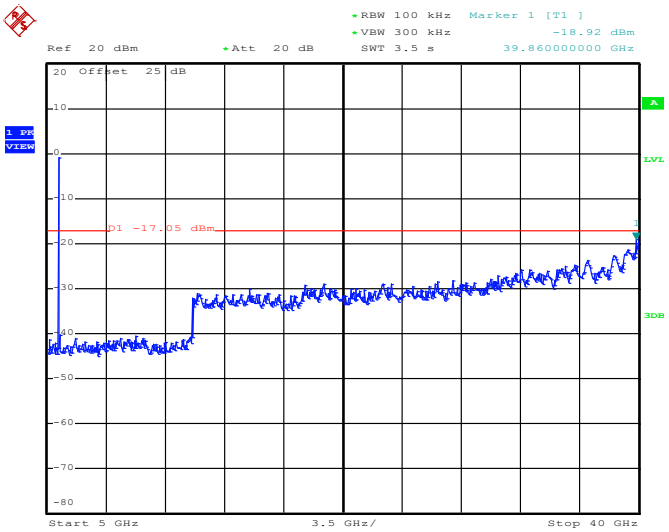
Conducted Spurious Emission Plot on Channel 149



Date: 22.OCT.2012 20:57:15

802.11a 5 GHz~40 GHz

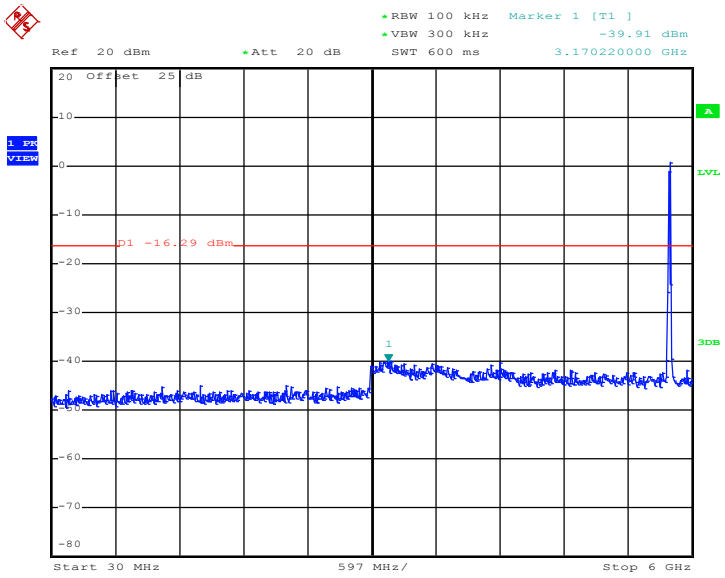
Conducted Spurious Emission Plot on Channel 149



Date: 22.OCT.2012 20:57:33

802.11a 30 MHz~6 GHz

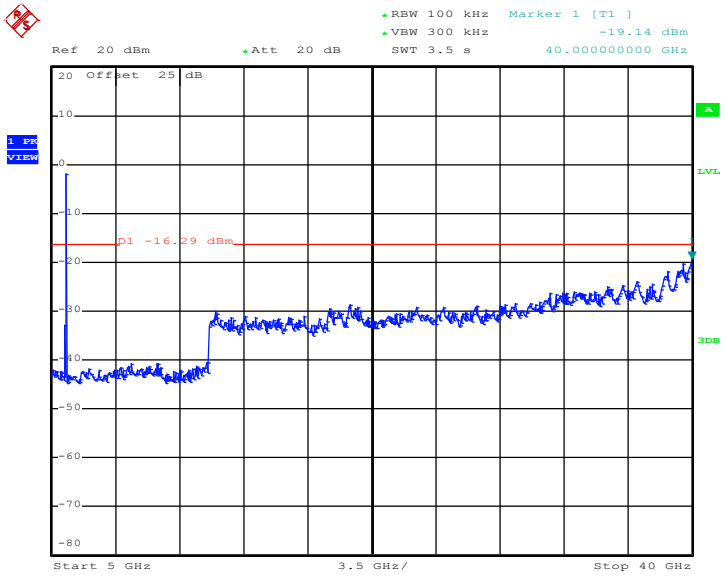
Conducted Spurious Emission Plot on Channel 157



Date: 22.OCT.2012 21:01:50

802.11a 5 GHz~40 GHz

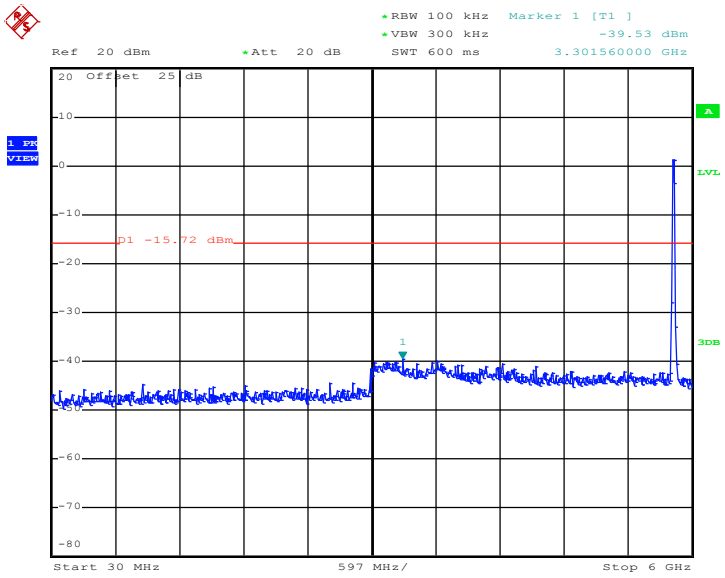
Conducted Spurious Emission Plot on Channel 157



Date: 22.OCT.2012 21:02:07

802.11a 30 MHz~6 GHz

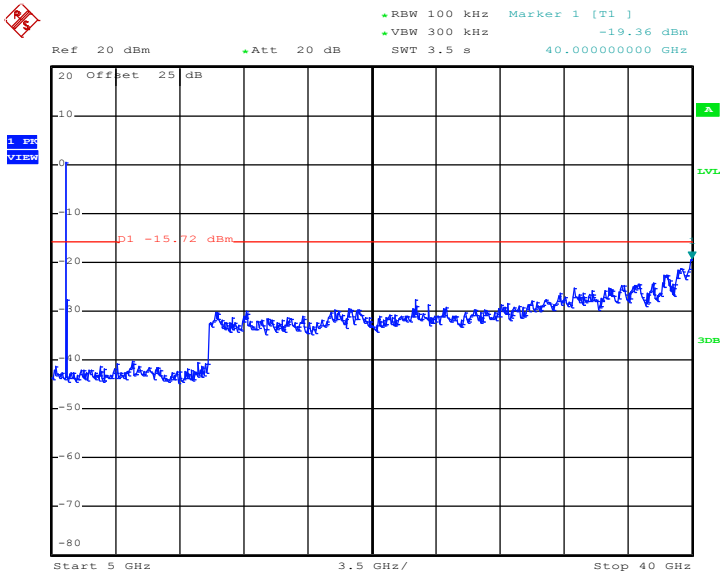
Conducted Spurious Emission Plot on Channel 165



Date: 22.OCT.2012 21:06:19

802.11a 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 165



Date: 22.OCT.2012 21:06:37

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

3.5.2 Measuring Instruments

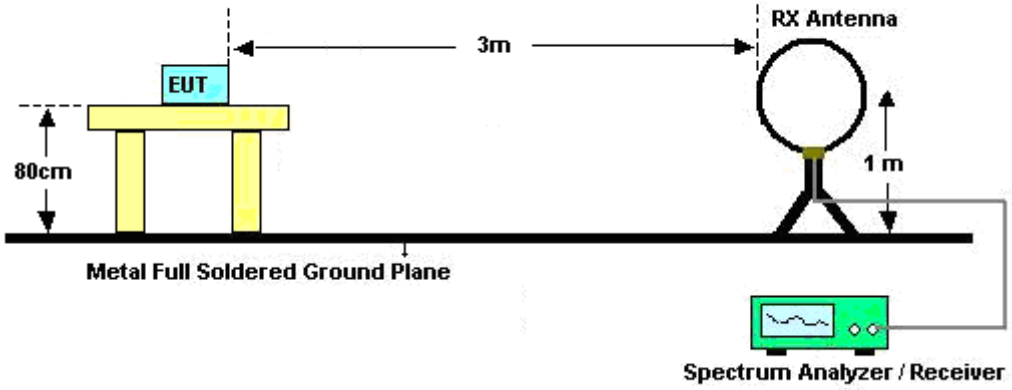
See list of measuring instruments of this test report.

3.5.3 Test Procedures

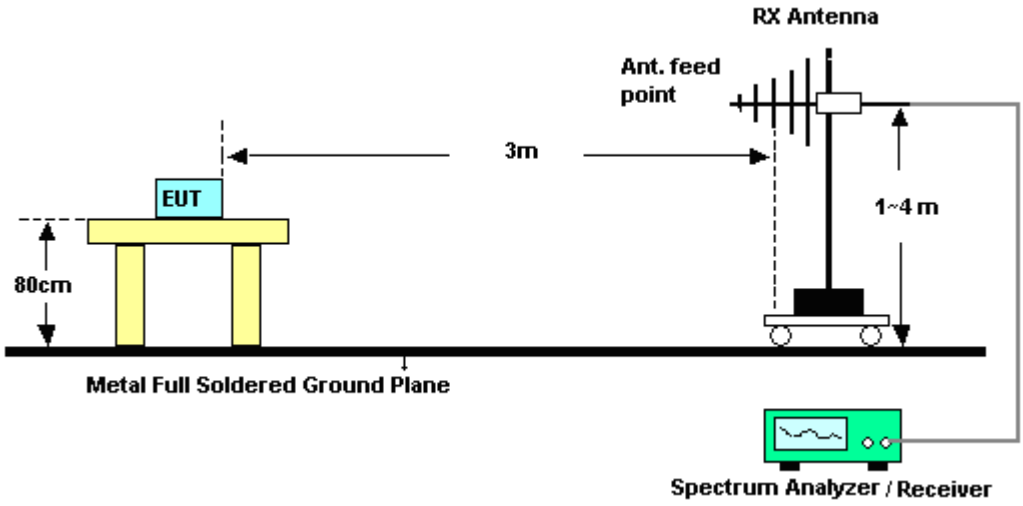
1. The testing follows the guidelines in ANSI C63.10-2009 and the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance DR01.
2. Conducted emission test: Set RBW = 100 KHz, Video bandwidth (VBW) ≥ RBW. Out of the authorized frequency band emissions must be at least 20 dB lower than the highest emission level within the authorized band as measured with a 100 KHz RBW. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
3. Radiated emission test: Apply to band edge emissions that falling on 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.
4. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW = 1 MHz for f ≥ 1 GHz, 100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)

3.5.4 Test Setup

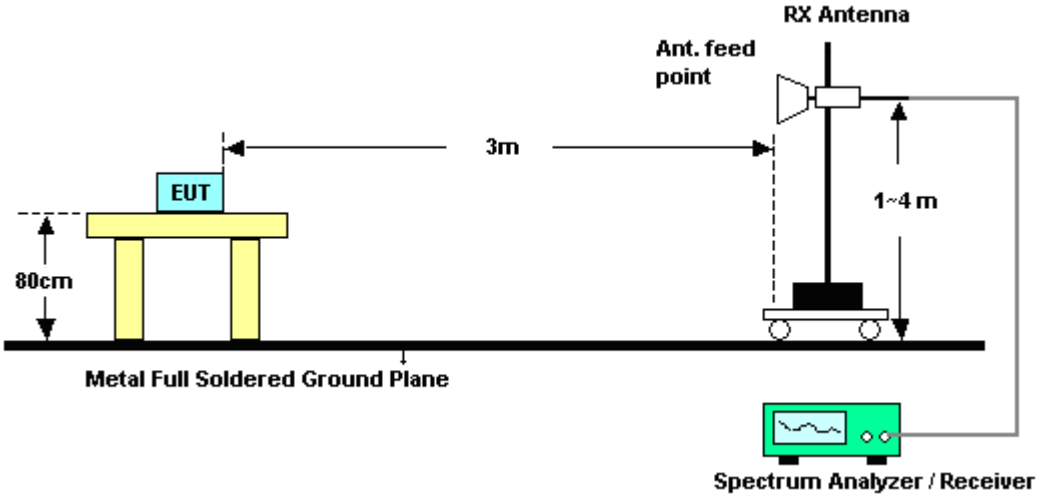
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 Test Results of Radiated Emissions (9KHz ~ 30MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

3.5.6 Test Result of Radiated Band Edges

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.38	55.69	-18.31	74	51.56	32.06	6.03	33.96	100	4	Peak
2386.38	45.05	-8.95	54	40.92	32.06	6.03	33.96	100	4	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2385.62	48.98	-25.02	74	44.85	32.06	6.03	33.96	100	90	Peak
2385.62	37.68	-16.32	54	33.55	32.06	6.03	33.96	100	90	Average

Test Mode :	802.11b	Temperature :	23~24℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.41	54.31	-19.69	74	49.93	32.2	6.18	34	100	33	Peak
2488.41	45.34	-8.66	54	40.96	32.2	6.18	34	100	33	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.13	48.5	-25.5	74	44.14	32.18	6.18	34	191	258	Peak
2486.13	36.98	-17.02	54	32.62	32.18	6.18	34	191	258	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	01	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	68.51	-5.49	74	64.38	32.06	6.03	33.96	100	4	Peak
2389.99	48.49	-5.51	54	44.36	32.06	6.03	33.96	100	4	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.42	59.49	-14.51	74	55.36	32.06	6.03	33.96	100	91	Peak
2389.42	42.14	-11.86	54	38.01	32.06	6.03	33.96	100	91	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	Low	Relative Humidity :	46~47%
Test Channel :	02	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	66.64	-7.36	74	62.27	32.3	6.03	33.96	100	33	Peak
2389.23	46.58	-7.42	54	42.21	32.3	6.03	33.96	100	33	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	60.24	-13.76	74	55.87	32.3	6.03	33.96	100	96	Peak
2389.23	42.24	-11.76	54	37.87	32.3	6.03	33.96	100	96	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	10	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.8	70.87	-3.13	74	66.31	32.38	6.18	34	100	38	Peak
2484.8	49.33	-4.67	54	44.77	32.38	6.18	34	100	38	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	65.44	-8.56	74	60.88	32.38	6.18	34	100	139	Peak
2483.5	44.54	-9.46	54	39.98	32.38	6.18	34	100	139	Average

Test Mode :	802.11g	Temperature :	23~24℃
Test Band :	High	Relative Humidity :	46~47%
Test Channel :	11	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.42	70.87	-3.13	74	66.31	32.38	6.18	34	150	4	Peak
2484.42	48.12	-5.88	54	43.56	32.38	6.18	34	150	4	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	62.88	-11.12	74	58.32	32.38	6.18	34	100	10	Peak
2483.5	41.94	-12.06	54	37.38	32.38	6.18	34	100	10	Average

Test Mode :	802.11a	Temperature :	23~24
Test Band :	Low	Relative Humidity :	46~47
Test Channel :	149	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	81.9	-8.23	90.13	70.43	34.81	9.92	33.26	100	325	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	78.18	-7.92	86.1	66.71	34.81	9.92	33.26	108	315	Peak

Test Mode :	802.11a	Temperature :	23~24
Test Band :	High	Relative Humidity :	46~47
Test Channel :	165	Test Engineer :	David Ke and Kai Wang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	74.69	-14.6	89.29	63.3	34.98	9.87	33.46	100	316	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	70.7	-14.93	85.63	59.31	34.98	9.87	33.46	107	315	Peak

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

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.88	-18.12	40	33.22	20	0.53	31.87	100	139	Peak
168.24	22.72	-20.78	43.5	43.13	9.66	1.23	31.3	-	-	Peak
246	21.59	-24.41	46	38.91	12.33	1.53	31.18	-	-	Peak
505.1	19.02	-26.98	46	29.31	18.18	2.46	30.93	-	-	Peak
729.8	23.21	-22.79	46	29.67	21.04	3.01	30.51	-	-	Peak
921.6	24.56	-21.44	46	28.58	23.42	3.39	30.83	-	-	Peak
2386.38	45.05	-8.95	54	40.92	32.06	6.03	33.96	100	4	Average
2386.38	55.69	-18.31	74	51.56	32.06	6.03	33.96	100	4	Peak
2412	104.2	-	-	100.02	32.08	6.07	33.97	100	4	Average
2412	108.6	-	-	104.42	32.08	6.07	33.97	100	4	Peak
2484	35.11	-18.89	54	30.75	32.18	6.18	34	100	4	Average
2484	48.22	-25.78	74	43.86	32.18	6.18	34	100	4	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	28.55	-11.45	40	39.89	20	0.53	31.87	100	48	Peak
64.56	21.53	-18.47	40	46.3	6.2	0.8	31.77	-	-	Peak
153.66	28.66	-14.84	43.5	47.85	10.99	1.21	31.39	-	-	Peak
304.2	20.8	-25.2	46	36.83	13.43	1.78	31.24	-	-	Peak
552.7	23.7	-22.3	46	33.37	18.99	2.56	31.22	-	-	Peak
925.1	24.76	-21.24	46	28.71	23.48	3.4	30.83	-	-	Peak
2385.62	37.68	-16.32	54	33.55	32.06	6.03	33.96	100	90	Average
2385.62	48.98	-25.02	74	44.85	32.06	6.03	33.96	100	90	Peak
2412	96.79	-	-	92.61	32.08	6.07	33.97	100	90	Average
2412	101.17	-	-	96.99	32.08	6.07	33.97	100	90	Peak
2496	33.32	-20.68	54	28.94	32.2	6.18	34	100	90	Average
2496	45.85	-28.15	74	41.47	32.2	6.18	34	100	90	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.83	-18.17	40	33.17	20	0.53	31.87	100	128	Peak
92.64	18.34	-25.16	43.5	40.08	8.96	0.96	31.66	-	-	Peak
166.89	22.69	-20.81	43.5	42.92	9.85	1.23	31.31	-	-	Peak
307	17.38	-28.62	46	33.3	13.51	1.79	31.22	-	-	Peak
536.6	20.15	-25.85	46	30.08	18.71	2.52	31.16	-	-	Peak
906.9	25.13	-20.87	46	29.4	23.2	3.36	30.83	-	-	Peak
2390	37.42	-16.58	54	33.29	32.06	6.03	33.96	100	11	Average
2390	49.42	-24.58	74	45.29	32.06	6.03	33.96	100	11	Peak
2437	102.99	-	-	98.73	32.13	6.11	33.98	100	11	Average
2437	107.36	-	-	103.1	32.13	6.11	33.98	100	11	Peak
2484	35.85	-18.15	54	31.49	32.18	6.18	34	100	11	Average
2484	48.05	-25.95	74	43.69	32.18	6.18	34	100	11	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	26.48	-13.52	40	37.82	20	0.53	31.87	100	248	Peak
64.56	22.44	-17.56	40	47.21	6.2	0.8	31.77	-	-	Peak
153.66	28.1	-15.4	43.5	47.29	10.99	1.21	31.39	-	-	Peak
303.5	20.51	-25.49	46	36.58	13.4	1.78	31.25	-	-	Peak
623.4	22.49	-23.51	46	30.19	19.99	2.76	30.45	-	-	Peak
944.7	24.92	-21.08	46	28.54	23.77	3.45	30.84	-	-	Peak
2368	34.41	-19.59	54	30.36	32.01	5.99	33.95	100	88	Average
2368	47.36	-26.64	74	43.31	32.01	5.99	33.95	100	88	Peak
2437	97.71	-	-	93.45	32.13	6.11	33.98	100	88	Average
2437	102.36	-	-	98.1	32.13	6.11	33.98	100	88	Peak
2484	34.34	-19.66	54	29.98	32.18	6.18	34	100	88	Average
2484	45.27	-28.73	74	40.91	32.18	6.18	34	100	88	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	21.69	-18.31	40	33.03	20	0.53	31.87	100	14	Peak
143.94	20.76	-22.74	43.5	39.66	11.33	1.2	31.43	-	-	Peak
168.24	22.43	-21.07	43.5	42.84	9.66	1.23	31.3	-	-	Peak
311.9	21.5	-24.5	46	37.25	13.64	1.79	31.18	-	-	Peak
616.4	22.5	-23.5	46	30.31	19.93	2.74	30.48	-	-	Peak
872.6	24.84	-21.16	46	29.38	22.83	3.3	30.67	-	-	Peak
2364	36.91	-17.09	54	32.86	32.01	5.99	33.95	100	33	Average
2364	49.6	-24.4	74	45.55	32.01	5.99	33.95	100	33	Peak
2462	102.82	-	-	98.52	32.15	6.14	33.99	100	33	Average
2462	107.42	-	-	103.12	32.15	6.14	33.99	100	33	Peak
2488.41	45.34	-8.66	54	40.96	32.2	6.18	34	100	33	Average
2488.41	54.31	-19.69	74	49.93	32.2	6.18	34	100	33	Peak

Test Mode :	802.11b	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	26.02	-13.98	40	37.36	20	0.53	31.87	100	58	Peak
147.18	28.88	-14.62	43.5	47.83	11.25	1.21	31.41	-	-	Peak
254.64	26.75	-19.25	46	43.73	12.67	1.56	31.21	-	-	Peak
303.5	21.1	-24.9	46	37.17	13.4	1.78	31.25	-	-	Peak
552.7	23.16	-22.84	46	32.83	18.99	2.56	31.22	-	-	Peak
942.6	25.83	-20.17	46	29.49	23.74	3.44	30.84	-	-	Peak
2368	34.21	-19.79	54	30.16	32.01	5.99	33.95	191	258	Average
2368	46.47	-27.53	74	42.42	32.01	5.99	33.95	191	258	Peak
2462	96.42	-	-	92.12	32.15	6.14	33.99	191	258	Average
2462	100.94	-	-	96.64	32.15	6.14	33.99	191	258	Peak
2486.13	36.98	-17.02	54	32.62	32.18	6.18	34	191	258	Average
2486.13	48.5	-25.5	74	44.14	32.18	6.18	34	191	258	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	21.77	-18.23	40	33.11	20	0.53	31.87	112	168	Peak
145.29	20.1	-23.4	43.5	39.02	11.29	1.21	31.42	-	-	Peak
166.89	22.57	-20.93	43.5	42.8	9.85	1.23	31.31	-	-	Peak
620.6	21.53	-24.47	46	29.28	19.96	2.75	30.46	-	-	Peak
692	22.44	-23.56	46	29.46	20.53	2.92	30.47	-	-	Peak
795.6	23.71	-22.29	46	28.74	22.03	3.13	30.19	-	-	Peak
2389.99	48.49	-5.51	54	44.36	32.06	6.03	33.96	100	4	Average
2389.99	68.51	-5.49	74	64.38	32.06	6.03	33.96	100	4	Peak
2412	96.77	-	-	92.59	32.08	6.07	33.97	100	4	Average
2412	108.61	-	-	104.43	32.08	6.07	33.97	100	4	Peak
2496	36.56	-17.44	54	32.18	32.2	6.18	34	100	4	Average
2496	48.79	-25.21	74	44.41	32.2	6.18	34	100	4	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	01	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	25.92	-14.08	40	37.26	20	0.53	31.87	103	204	Peak
64.56	21.97	-18.03	40	46.74	6.2	0.8	31.77	-	-	Peak
146.1	28.02	-15.48	43.5	46.96	11.27	1.21	31.42	-	-	Peak
552.7	23.4	-22.6	46	33.07	18.99	2.56	31.22	-	-	Peak
717.2	22.8	-23.2	46	29.47	20.85	2.98	30.5	-	-	Peak
813.8	24.41	-21.59	46	29.26	22.24	3.18	30.27	-	-	Peak
2389.42	42.14	-11.86	54	38.01	32.06	6.03	33.96	100	91	Average
2389.42	59.49	-14.51	74	55.36	32.06	6.03	33.96	100	91	Peak
2412	89.55	-	-	85.37	32.08	6.07	33.97	100	91	Average
2412	101.38	-	-	97.2	32.08	6.07	33.97	100	91	Peak
2492	33.82	-20.18	54	29.44	32.2	6.18	34	100	91	Average
2492	45.98	-28.02	74	41.6	32.2	6.18	34	100	91	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	02	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2417 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	46.58	-7.42	54	42.21	32.3	6.03	33.96	100	33	Average
2389.23	66.64	-7.36	74	62.27	32.3	6.03	33.96	100	33	Peak
2417	96.21	-	-	91.8	32.31	6.07	33.97	100	33	Average
2417	108.93	-	-	104.52	32.31	6.07	33.97	100	33	Peak
2490	39.44	-14.56	54	34.86	32.4	6.18	34	100	33	Average
2490	51.29	-22.71	74	46.71	32.4	6.18	34	100	33	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	02	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2417 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.23	42.24	-11.76	54	37.87	32.3	6.03	33.96	100	96	Average
2389.23	60.24	-13.76	74	55.87	32.3	6.03	33.96	100	96	Peak
2417	89.9	-	-	85.49	32.31	6.07	33.97	100	96	Average
2417	102.4	-	-	97.99	32.31	6.07	33.97	100	96	Peak
2496	37.08	-16.92	54	32.5	32.4	6.18	34	100	96	Average
2496	46.82	-27.18	74	42.24	32.4	6.18	34	100	96	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	26.6	-13.4	40	38.65	19.28	0.54	31.87	114	152	Peak
68.07	22.84	-17.16	40	47.54	6.26	0.82	31.78	-	-	Peak
147.18	20.83	-22.67	43.5	39.78	11.25	1.21	31.41	-	-	Peak
693.4	22.06	-23.94	46	29.05	20.55	2.93	30.47	-	-	Peak
776.7	24.02	-21.98	46	29.5	21.75	3.1	30.33	-	-	Peak
826.4	25.04	-20.96	46	29.83	22.36	3.21	30.36	-	-	Peak
2390	41.27	-12.73	54	37.14	32.06	6.03	33.96	100	8	Average
2390	59.1	-14.9	74	54.97	32.06	6.03	33.96	100	8	Peak
2437	98.81	-	-	94.55	32.13	6.11	33.98	100	8	Average
2437	111.64	-	-	107.38	32.13	6.11	33.98	100	8	Peak
2484	40.79	-13.21	54	36.43	32.18	6.18	34	100	8	Average
2484	62.23	-11.77	74	57.87	32.18	6.18	34	100	8	Peak
7311	42.91	-31.09	74	56.6	35.7	10.06	59.45	100	0	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	06	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2437 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	25.15	-14.85	40	36.49	20	0.53	31.87	103	186	Peak
147.18	28.39	-15.11	43.5	47.34	11.25	1.21	31.41	-	-	Peak
153.66	27.98	-15.52	43.5	47.17	10.99	1.21	31.39	-	-	Peak
552.7	22.73	-23.27	46	32.4	18.99	2.56	31.22	-	-	Peak
649.3	22.94	-23.06	46	30.26	20.19	2.84	30.35	-	-	Peak
779.5	23.63	-22.37	46	29.05	21.79	3.11	30.32	-	-	Peak
2388	36.1	-17.9	54	31.97	32.06	6.03	33.96	100	88	Average
2388	52.16	-21.84	74	48.03	32.06	6.03	33.96	100	88	Peak
2437	94.05	-	-	89.79	32.13	6.11	33.98	100	88	Average
2437	105.79	-	-	101.56	32.1	6.11	33.98	100	88	Peak
2484	35.09	-18.91	54	30.73	32.18	6.18	34	100	88	Average
2484	51.04	-22.96	74	46.68	32.18	6.18	34	100	88	Peak
7311	42.14	-31.86	74	55.83	35.7	10.06	59.45	100	0	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	10	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2457 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386	39.94	-14.06	54	35.57	32.3	6.03	33.96	100	38	Average
2386	51.81	-22.19	74	47.44	32.3	6.03	33.96	100	38	Peak
2457	96.22	-	-	91.7	32.37	6.14	33.99	100	38	Average
2457	109.11	-	-	104.59	32.37	6.14	33.99	100	38	Peak
2484.8	49.33	-4.67	54	44.77	32.38	6.18	34	100	38	Average
2484.8	70.87	-3.13	74	66.31	32.38	6.18	34	100	38	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	10	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2457 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2368	37.6	-16.4	54	33.3	32.26	5.99	33.95	100	139	Average
2368	48.62	-25.38	74	44.32	32.26	5.99	33.95	100	139	Peak
2457	90.03	-	-	85.51	32.37	6.14	33.99	100	139	Average
2457	102.79	-	-	98.27	32.37	6.14	33.99	100	139	Peak
2483.5	44.54	-9.46	54	39.98	32.38	6.18	34	100	139	Average
2483.5	65.44	-8.56	74	60.88	32.38	6.18	34	100	139	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	22.39	-17.61	40	33.73	20	0.53	31.87	106	191	Peak
165.81	18.96	-24.54	43.5	39.11	9.94	1.23	31.32	-	-	Peak
168.24	22.32	-21.18	43.5	42.73	9.66	1.23	31.3	-	-	Peak
594	21.38	-24.62	46	29.66	19.68	2.67	30.63	-	-	Peak
729.8	22.13	-23.87	46	28.59	21.04	3.01	30.51	-	-	Peak
834.1	24.42	-21.58	46	29.17	22.44	3.23	30.42	-	-	Peak
2358	38.5	-15.5	54	34.2	32.26	5.99	33.95	150	4	Average
2358	49.56	-24.44	74	45.26	32.26	5.99	33.95	150	4	Peak
2462	96.24	-	-	91.72	32.37	6.14	33.99	150	4	Average
2462	109.05	-	-	104.53	32.37	6.14	33.99	150	4	Peak
2484.42	48.12	-5.88	54	43.56	32.38	6.18	34	150	4	Average
2484.42	70.87	-3.13	74	66.31	32.38	6.18	34	150	4	Peak

Test Mode :	802.11g	Temperature :	23~24℃
Test Channel :	11	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	2462 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	26.9	-13.1	40	38.24	20	0.53	31.87	-	-	Peak
63.75	21.95	-18.05	40	46.75	6.18	0.79	31.77	-	-	Peak
147.18	30.99	-12.51	43.5	49.94	11.25	1.21	31.41	102	178	Peak
552.7	23.83	-22.17	46	33.5	18.99	2.56	31.22	-	-	Peak
672.4	22.46	-23.54	46	29.62	20.37	2.88	30.41	-	-	Peak
717.9	22.58	-23.42	46	29.24	20.86	2.98	30.5	-	-	Peak
2362	38	-16	54	33.7	32.26	5.99	33.95	100	10	Average
2362	49.34	-24.66	74	45.04	32.26	5.99	33.95	100	10	Peak
2462	89.8	-	-	85.28	32.37	6.14	33.99	100	10	Average
2462	102.46	-	-	97.94	32.37	6.14	33.99	100	10	Peak
2483.5	41.94	-12.06	54	37.38	32.38	6.18	34	100	10	Average
2483.5	62.88	-11.12	74	58.32	32.38	6.18	34	100	10	Peak

Test Mode :	802.11a	Temperature :	23~24℃
Test Channel :	149	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17235 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 110.13 dBuV/m - 20dB = 90.13 dBuV/m.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.9	29.11	-10.89	40	51.16	8.9	0.68	31.63	115	167	Peak
147.18	22.87	-20.63	43.5	41.82	11.25	1.21	31.41	-	-	Peak
162.84	20.13	-23.37	43.5	40.05	10.22	1.22	31.36	-	-	Peak
598.2	22.15	-23.85	46	30.27	19.77	2.68	30.57	-	-	Peak
640.9	22.2	-23.8	46	29.64	20.13	2.81	30.38	-	-	Peak
806.1	23.72	-22.28	46	28.61	22.16	3.16	30.21	-	-	Peak
5725	81.9	-8.23	90.13	70.43	34.81	9.92	33.26	100	325	Peak
5745	99.19	-	-	87.74	34.84	9.91	33.3	100	325	Average
5745	110.13	-	-	98.68	34.84	9.91	33.3	100	325	Peak
5850	55.61	-34.52	90.13	44.22	34.98	9.87	33.46	100	325	Peak
11490	35.1	-18.9	54	41.81	38.19	13.14	58.04	100	43	Average
11490	51.84	-22.16	74	58.55	38.19	13.14	58.04	100	43	Peak
17235	57.06	-33.07	90.13	58.15	42.08	14.37	57.54	100	0	Peak

Test Mode :	802.11a	Temperature :	23~24℃
Test Channel :	149	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17235 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	23.18	-16.82	40	34.52	20	0.53	31.87	104	201	Peak
147.45	24.92	-18.58	43.5	43.87	11.25	1.21	31.41	-	-	Peak
210.9	22.56	-20.94	43.5	42.76	9.84	1.36	31.4	-	-	Peak
603.1	21.78	-24.22	46	29.79	19.82	2.7	30.53	-	-	Peak
710.9	22.55	-23.45	46	29.32	20.76	2.97	30.5	-	-	Peak
790	24.03	-21.97	46	29.19	21.95	3.12	30.23	-	-	Peak
5725	78.18	-7.92	86.1	66.71	34.81	9.92	33.26	108	315	Peak
5745	94.74	-	-	83.29	34.84	9.91	33.3	108	315	Average
5745	106.1	-	-	94.65	34.84	9.91	33.3	108	315	Peak
5850	53.4	-32.7	86.1	42.01	34.98	9.87	33.46	108	315	Peak
17235	51.43	-34.67	86.1	52.5	42.07	14.38	57.52	100	0	Peak

Test Mode :	802.11a	Temperature :	23~24℃
Test Channel :	157	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17335 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.63	28.81	-11.19	40	50.86	8.9	0.68	31.63	103	162	Peak
146.37	22.35	-21.15	43.5	41.29	11.27	1.21	31.42	-	-	Peak
166.08	19.74	-23.76	43.5	39.89	9.94	1.23	31.32	-	-	Peak
605.9	21.38	-24.62	46	29.34	19.85	2.71	30.52	-	-	Peak
693.4	22.51	-23.49	46	29.5	20.55	2.93	30.47	-	-	Peak
827.8	25.01	-20.99	46	29.8	22.37	3.21	30.37	-	-	Peak
5725	75.55	-14.86	90.41	64.08	34.81	9.92	33.26	100	327	Peak
5785	98.51	-	-	87.06	34.89	9.9	33.34	100	327	Average
5785	110.41	-	-	98.99	34.91	9.89	33.38	100	327	Peak
5850	69.96	-20.45	90.41	58.57	34.98	9.87	33.46	100	327	Peak
11570	50.06	-23.94	74	56.53	38.3	13.17	57.94	100	0	Peak
17355	55.29	-35.12	90.41	56.31	41.95	14.41	57.38	100	0	Peak

Test Mode :	802.11a	Temperature :	23~24℃
Test Channel :	157	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17335 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
52.41	20.8	-19.2	40	44.04	7.7	0.71	31.65	111	127	Peak
146.64	24.12	-19.38	43.5	43.05	11.27	1.21	31.41	-	-	Peak
153.66	24.29	-19.21	43.5	43.48	10.99	1.21	31.39	-	-	Peak
552.7	22.07	-23.93	46	31.74	18.99	2.56	31.22	-	-	Peak
755	23.14	-22.86	46	29.14	21.42	3.07	30.49	-	-	Peak
793.5	24.61	-21.39	46	29.69	22	3.13	30.21	-	-	Peak
5725	72.26	-14.02	86.28	60.79	34.81	9.92	33.26	107	316	Peak
5785	94.6	-	-	83.15	34.89	9.9	33.34	107	316	Average
5785	106.28	-	-	94.83	34.89	9.9	33.34	107	316	Peak
5850	67.68	-18.6	86.28	56.29	34.98	9.87	33.46	107	316	Peak
11570	44.87	-29.13	74	51.39	38.27	13.17	57.96	100	0	Peak
17355	51.64	-34.64	86.28	52.66	41.95	14.41	57.38	100	0	Peak

Test Mode :	802.11a	Temperature :	23~24℃
Test Channel :	165	Relative Humidity :	46~47%
Test Engineer :	David Ke and Kai Wang	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17475 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
48.63	28.93	-11.07	40	50.98	8.9	0.68	31.63	104	187	Peak
146.64	23.19	-20.31	43.5	42.12	11.27	1.21	31.41	-	-	Peak
163.38	19.71	-23.79	43.5	39.72	10.13	1.22	31.36	-	-	Peak
603.8	21.17	-24.83	46	29.16	19.83	2.7	30.52	-	-	Peak
710.2	22.72	-23.28	46	29.51	20.75	2.96	30.5	-	-	Peak
808.9	24.43	-21.57	46	29.31	22.19	3.16	30.23	-	-	Peak
5725	55.47	-33.82	89.29	44	34.81	9.92	33.26	100	316	Peak
5825	97.65	-	-	86.23	34.96	9.88	33.42	100	316	Average
5825	109.29	-	-	97.87	34.96	9.88	33.42	100	316	Peak
5850	74.69	-14.6	89.29	63.3	34.98	9.87	33.46	100	316	Peak
11650	37.52	-16.48	54	43.8	38.39	13.22	57.89	100	45	Average
11650	52.52	-21.48	74	58.76	38.42	13.22	57.88	100	45	Peak
17475	56.32	-32.97	89.29	57.28	41.83	14.45	57.24	100	0	Peak

Test Mode :	802.11a	Temperature :	23~24
Test Channel :	165	Relative Humidity :	46~47
Test Engineer :	David Ke and Kai Wang	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725 MHz, 5850 MHz, and 17475 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
42.69	22.71	-17.29	40	42.12	11.7	0.64	31.75	103	226	Peak
52.68	22.02	-17.98	40	45.28	7.7	0.71	31.67	-	-	Peak
146.64	24.7	-18.8	43.5	43.63	11.27	1.21	31.41	-	-	Peak
570.2	23.26	-22.74	46	32.33	19.29	2.61	30.97	-	-	Peak
739.6	23.08	-22.92	46	29.36	21.2	3.04	30.52	-	-	Peak
825	24.55	-21.45	46	29.34	22.35	3.21	30.35	-	-	Peak
5725	54.9	-30.73	85.63	43.43	34.81	9.92	33.26	107	315	Peak
5825	94.28	-	-	82.86	34.96	9.88	33.42	107	315	Average
5825	105.63	-	-	94.21	34.96	9.88	33.42	107	315	Peak
5850	70.7	-14.93	85.63	59.31	34.98	9.87	33.46	107	315	Peak
11650	47.81	-26.19	74	54.05	38.42	13.22	57.88	100	0	Peak
17475	49.87	-35.76	85.63	50.81	41.82	14.46	57.22	100	0	Peak

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.

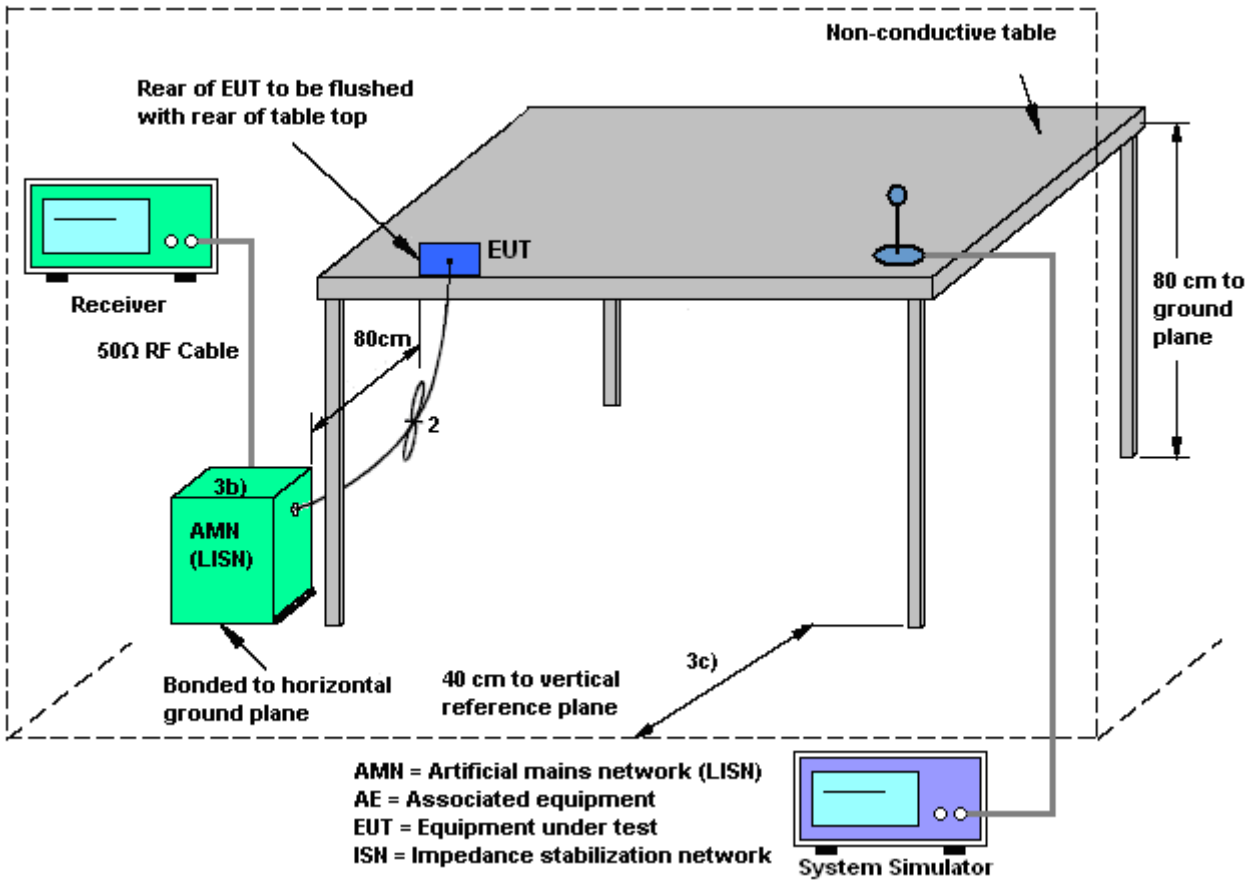
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

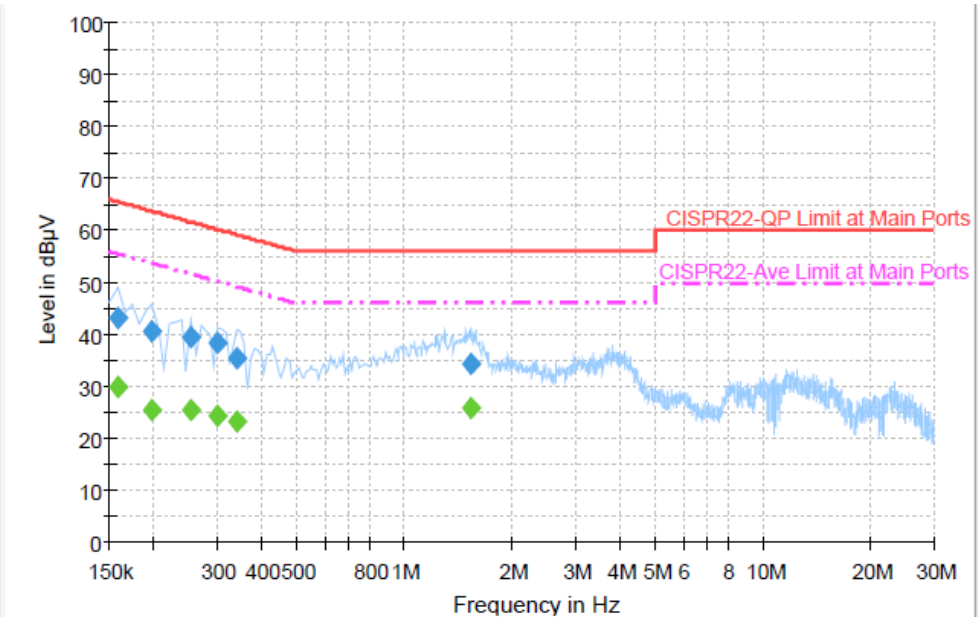
1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance 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℃
Test Engineer :	Slash Huang	**Relative Humidity :**	57~59%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



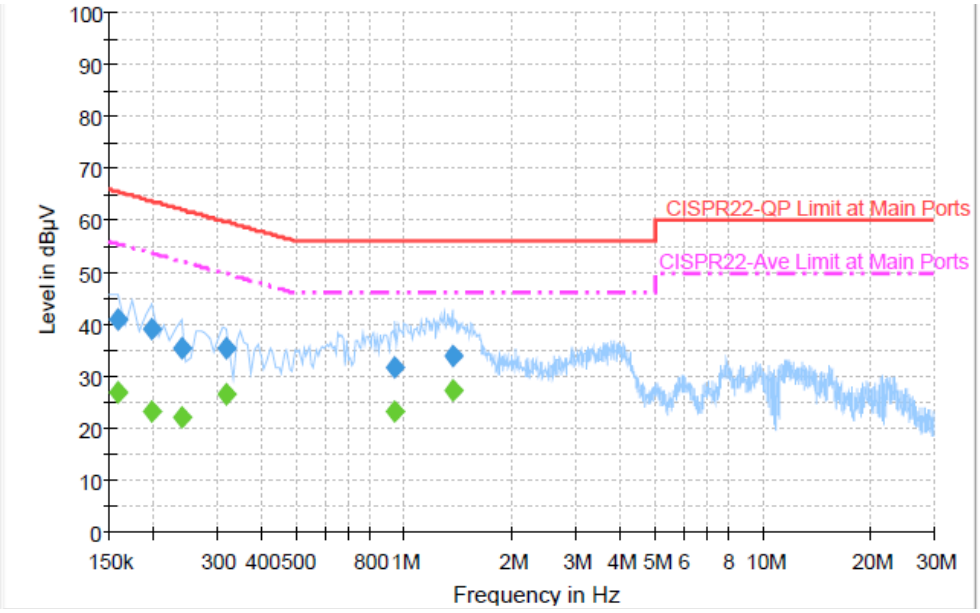
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	43.2	Off	L1	19.4	22.4	65.6
0.198000	40.6	Off	L1	19.4	23.1	63.7
0.254000	39.5	Off	L1	19.4	22.1	61.6
0.302000	38.3	Off	L1	19.4	21.9	60.2
0.342000	35.3	Off	L1	19.4	23.9	59.2
1.526000	34.5	Off	L1	19.4	21.5	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	30.0	Off	L1	19.4	25.6	55.6
0.198000	25.5	Off	L1	19.4	28.2	53.7
0.254000	25.3	Off	L1	19.4	26.3	51.6
0.302000	24.3	Off	L1	19.4	25.9	50.2
0.342000	23.4	Off	L1	19.4	25.8	49.2
1.526000	25.9	Off	L1	19.4	20.1	46.0

Test Mode :	Mode 1	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	57~59%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + Bluetooth Link + WLAN (2.4G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



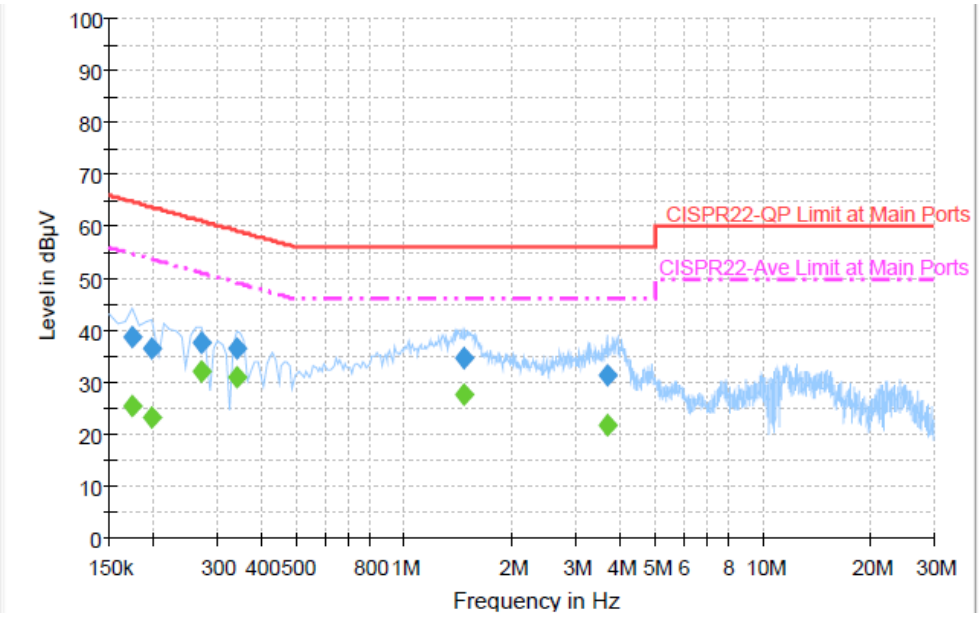
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	41.0	Off	N	19.4	24.6	65.6
0.198000	39.3	Off	N	19.4	24.4	63.7
0.238000	35.3	Off	N	19.4	26.9	62.2
0.318000	35.6	Off	N	19.4	24.2	59.8
0.942000	31.7	Off	N	19.4	24.3	56.0
1.366000	34.0	Off	N	19.5	22.0	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	26.9	Off	N	19.4	28.7	55.6
0.198000	23.4	Off	N	19.4	30.3	53.7
0.238000	22.2	Off	N	19.4	30.0	52.2
0.318000	26.5	Off	N	19.4	23.3	49.8
0.942000	23.4	Off	N	19.4	22.6	46.0
1.366000	27.3	Off	N	19.5	18.7	46.0

Test Mode :	Mode 2	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	57~59%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



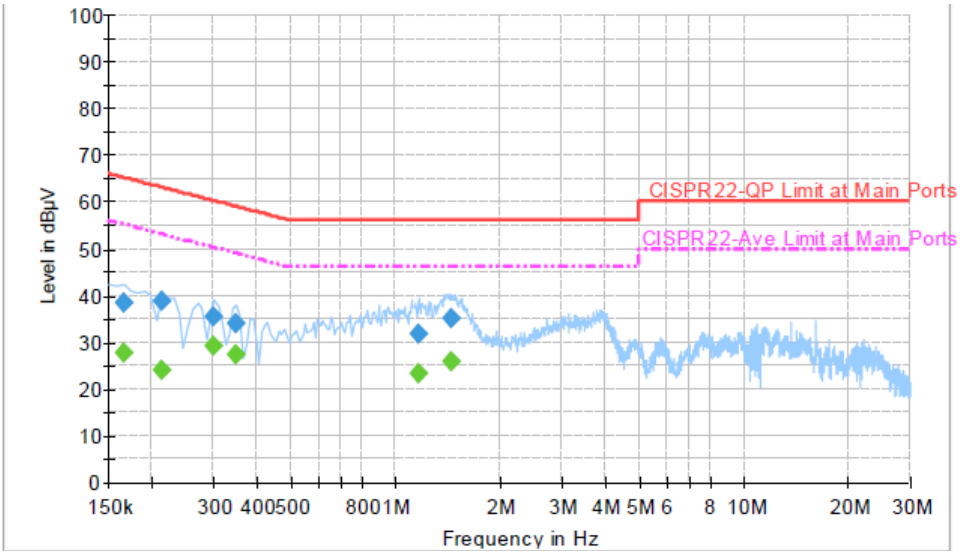
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	38.6	Off	L1	19.4	26.2	64.8
0.198000	36.4	Off	L1	19.4	27.3	63.7
0.270000	37.5	Off	L1	19.4	23.6	61.1
0.342000	36.6	Off	L1	19.4	22.6	59.2
1.470000	34.8	Off	L1	19.4	21.2	56.0
3.670000	31.2	Off	L1	19.5	24.8	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.174000	25.6	Off	L1	19.4	29.2	54.8
0.198000	23.2	Off	L1	19.4	30.5	53.7
0.270000	32.2	Off	L1	19.4	18.9	51.1
0.342000	30.9	Off	L1	19.4	18.3	49.2
1.470000	27.7	Off	L1	19.4	18.3	46.0
3.670000	21.8	Off	L1	19.5	24.2	46.0

Test Mode :	Mode 2	Temperature :	20~22℃
Test Engineer :	Slash Huang	Relative Humidity :	57~59%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WCDMA Band V Idle + Bluetooth Link + WLAN (5G) Link + GPS Rx + MP3 + USB Cable (Chaging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	38.2	Off	N	19.4	27.0	65.2
0.214000	38.6	Off	N	19.4	24.4	63.0
0.302000	35.5	Off	N	19.4	24.7	60.2
0.350000	33.9	Off	N	19.4	25.1	59.0
1.166000	31.9	Off	N	19.5	24.1	56.0
1.454000	35.2	Off	N	19.5	20.8	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	27.8	Off	N	19.4	27.4	55.2
0.214000	24.1	Off	N	19.4	28.9	53.0
0.302000	29.2	Off	N	19.4	21.0	50.2
0.350000	27.3	Off	N	19.4	21.7	49.0
1.166000	23.3	Off	N	19.5	22.7	46.0
1.454000	25.8	Off	N	19.5	20.2	46.0

3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 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	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Jun. 06, 2012 ~ Oct. 22, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Apr. 21, 2012 ~ Sep. 08, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Sep. 08, 2012 ~ Oct. 22, 2012	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Apr. 21, 2012 ~ Sep. 08, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Sep. 08, 2012 ~ Oct. 22, 2012	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 10, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 10, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 10, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 10, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	112403	N/A	Feb. 22, 2011	May 10, 2012	Feb. 21, 2013	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	May 10, 2012	N/A	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	May 19, 2012 ~ Oct. 31, 2012	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	May 19, 2012 ~ Oct. 31, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	May 19, 2012 ~ Aug. 01, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00066583	1GHz ~ 18GHz	Aug. 01, 2012	Aug. 01, 2012 ~ Aug. 21, 2012	Jul. 31, 2013	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	May 19, 2012 ~ Oct. 31, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	May 19, 2012 ~ Oct. 31, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	May 19, 2012 ~ Aug. 20, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Sep. 03, 2012 ~ Oct. 31, 2012	Sep. 02, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	May 19, 2012 ~ Oct. 31, 2012	Mar. 09, 2013	Radiation (03CH07-HY)

Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	May 19, 2012 ~ Jul. 03, 2012	Jul. 28, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Jul. 03, 2012 ~ Oct. 31, 2012	Jul. 02, 2014	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.26**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.54**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.72**

Appendix A. Photographs of EUT

Please refer to Sporton report number EP250901 as below.