

FCC RF Test Report

APPLICANT : Motorola Solutions, Inc.
EQUIPMENT : Enterprise Tablet
BRAND NAME : Motorola
MODEL NAME : ET1N2
FCC ID : UZ7ET1N2
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on May 24, 2012 and completely tested on Jun. 05, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



TABLE OF CONTENTS

REVISION HISTORY	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant	5
1.2 Manufacturer	5
1.3 Feature of Equipment Under Test	5
1.4 Testing Site	6
1.5 Applied Standards	6
1.6 Ancillary Equipment List	7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	8
2.1 Carrier Frequency Channel	8
2.2 RF Peak Output Power	9
2.3 Average Conducted Output Power	11
2.4 Test Mode	12
2.5 Connection Diagram of Test System	13
2.6 RF Utility	14
3 TEST RESULT	15
3.1 6dB and 99% Bandwidth Measurement	15
3.2 Output Power Measurement	36
3.3 Power Spectral Density Measurement	39
3.4 Conducted Band Edges and Spurious Emission Measurement	50
3.5 Radiated Emission Measurement	71
3.6 AC Conducted Emission Measurement	109
3.7 Antenna Requirements	115
4 LIST OF MEASURING EQUIPMENT	116
5 UNCERTAINTY OF EVALUATION	117
APPENDIX A. PHOTOGRAPHS OF EUT	
APPENDIX B. SETUP PHOTOGRAPHS	



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR252422B	Rev. 01	Initial issue of report	Jun. 19, 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	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	-
			Conducted Spurious Emission		Pass	-
3.5	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	Under limit 1.04 dB at 5850.000 MHz
			Radiated Spurious Emission		Pass	
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 15.40 dB at 0.446 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

Motorola Solutions, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Tablet
Brand Name	Motorola
Model Name	ET1N2
FCC ID	UZ7ET1N2
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	<2400 MHz ~ 2483.5 MHz> 802.11b : 23.27 dBm (0.212 W) 802.11g : 25.07 dBm (0.321 W) 802.11n HT-20 : 25.02 dBm (0.318 W) <5725 MHz ~ 5850 MHz> 802.11a : 24.45 dBm (0.279 W) 802.11n HT-20 : 24.45 dBm (0.279 W)
Duty Cycle	<2400 MHz ~ 2483.5 MHz> 802.11b : 100.00% 802.11g : 99.15% 802.11n HT-20 : 100.00% <5725 MHz ~ 5850 MHz> 802.11a : 99.54% 802.11n HT-20 : 99.51%
Antenna Type	802.11b/g/n : PIFA Antenna with gain 1.72 dBi 802.11a/n : PIFA Antenna with gain 2.15 dBi
HW Version	DV1
SW Version	91-271301-1664-0100-00-D1-051812
FW Version	D3200-STUGN-1580 1
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
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.

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	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 v01
- FCC TCB Workshop 2012, April
- ANSI C63.4-2003
- 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.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 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.	Notebook	ASUS	A8M	PPD-AR5BXB6	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
7.	Flash Disk	Kingston	Datatraveler 100 4GB	N/A	N/A	N/A
8.	Bluetooth Mobile Phone	Sony Ericsson	W980	PY7A3052091	N/A	N/A
9.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
10.	iPod Earphone	Apple	N/A	FCC DoC	Shielded, 1.0 m	N/A
11.	Earpiece	Motorola	21-154925-01R	N/A	N/A	Unshielded, 1.3 m

2 Test Configuration of Equipment Under Test

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 RF Peak Output Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (802.11b, g, a, n HT-20 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

Channel	Frequency	2.4GHz 802.11b RF Peak Output Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	23.11	22.78	22.26	22.23
CH 06	2437 MHz	23.27	23.16	22.68	22.59
CH 11	2462 MHz	22.92	22.78	22.40	22.35

Channel	Frequency	2.4GHz 802.11g RF Peak Output Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	24.56	24.06	23.98	23.87	23.97	23.86	24.04	23.97
CH 06	2437 MHz	25.07	25.05	24.99	25.02	24.99	24.97	25.01	25.02
CH 11	2462 MHz	24.43	24.40	24.15	24.04	24.24	23.99	24.37	24.03

Channel	Frequency	2.4GHz 802.11n HT-20 RF Peak Output Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	24.04	23.87	23.99	23.68	23.94	23.75	23.54	23.51
CH 06	2437 MHz	25.02	24.95	24.92	24.94	24.92	24.96	24.93	24.96
CH 11	2462 MHz	24.36	24.07	23.98	24.19	24.11	24.02	24.35	24.29

Channel	Frequency	5GHz 802.11a RF Peak Output Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	24.45	24.44	24.42	24.4	24.44	24.41	24.43	24.44
CH157	5785 MHz	24.04	24.03	23.97	23.95	23.96	24.00	23.99	24.01
CH165	5825 MHz	24.20	23.82	23.78	23.69	23.72	23.75	23.77	23.79

Channel	Frequency	5GHz 802.11n HT-20 RF Peak Output Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	24.45	24.41	24.38	24.38	24.38	24.38	24.38	24.40
CH157	5785 MHz	23.96	23.86	23.88	23.87	23.89	23.90	23.92	23.90
CH165	5825 MHz	24.17	23.75	23.71	23.75	23.72	23.78	23.76	23.70

Remark:

1. The EUT is programmed to transmit signals continuously for all testing.
2. The data rates of WLAN 802.11a/b/g/n were set in 1Mbps for 802.11b, 6Mbps for 802.11g, MCS0 for 802.11n HT-20, 6Mbps for 802.11a, and MCS0 for 802.11n HT-20 for all the test cases due to the highest RF output power.

2.3 Average Conducted Output Power

Channel	Frequency	2.4GHz 802.11b Average Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	21.13	20.82	20.62	20.60
CH 06	2437 MHz	21.21	21.13	20.98	20.85
CH 11	2462 MHz	20.90	20.78	20.64	20.63

Channel	Frequency	2.4GHz 802.11g Average Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	16.00	15.67	15.68	15.52	15.46	15.63	15.70	15.69
CH 06	2437 MHz	20.68	20.64	20.61	20.68	20.56	20.58	20.57	20.56
CH 11	2462 MHz	15.41	15.31	15.24	15.14	15.19	15.06	15.13	15.15

Channel	Frequency	2.4GHz 802.11n HT-20 Average Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	14.99	14.68	14.87	14.81	15.01	14.94	15.03	14.95
CH 06	2437 MHz	20.61	20.52	20.52	20.51	20.59	20.53	20.59	20.59
CH 11	2462 MHz	15.11	14.90	15.02	15.06	15.11	14.98	14.96	15.15

Channel	Frequency	5GHz 802.11a Average Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	21.41	21.47	21.44	21.42	21.29	21.27	21.34	21.34
CH157	5785 MHz	21.70	21.54	21.46	21.48	21.37	21.37	21.41	21.48
CH165	5825 MHz	22.51	22.05	21.98	21.90	21.90	21.95	21.98	22.02

Channel	Frequency	5GHz 802.11n HT-20 Average Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	21.36	21.33	21.34	21.27	21.28	21.28	21.28	21.48
CH157	5785 MHz	21.67	21.36	21.35	21.32	21.36	21.36	21.36	21.59
CH165	5825 MHz	22.42	21.91	21.90	21.97	22.01	22.00	21.99	22.18

2.4 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, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations, laptop / tablet modes.

The following table is showing the total pre-scanned test modes, and the worst cases (Z plane for Mode 1~9 and X plane for Mode 10~15) are recorded in this report only.

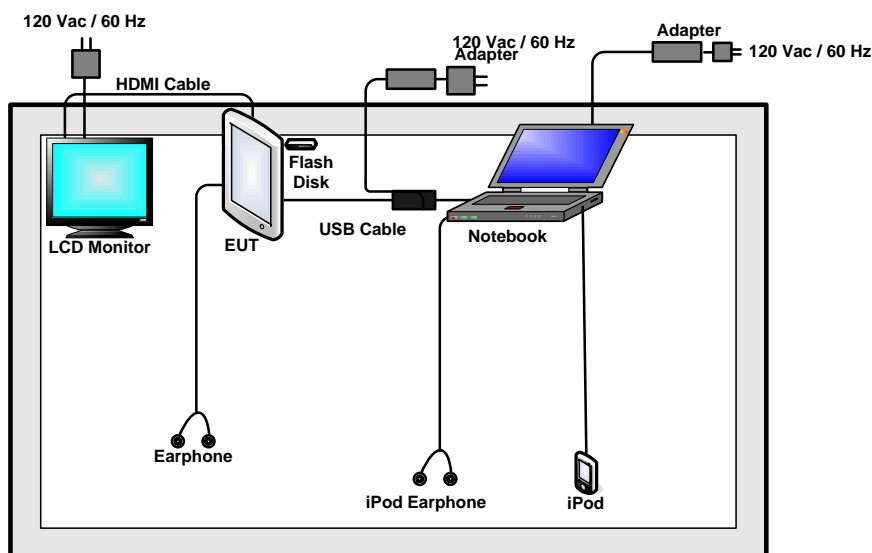
Test Cases					
Test Item	802.11b (Modulation : DSSS)				
	802.11g/n (Modulation : OFDM)				
	802.11a/n (Modulation : OFDM)				
Conducted TCs	Test Mode	802.11b	802.11g	802.11n HT-20	
	CH01	1	4	7	
	CH06	2	5	8	
	CH11	3	6	9	
	Test Mode	802.11a	802.11n HT-20		
	CH149	10	13		
	CH157	11	14		
	CH165	12	15		
	Radiated TCs	Test Mode	802.11b	802.11g	802.11n HT-20
		CH01	1	4	7
CH06		2	5	8	
CH11		3	6	9	
Test Mode		802.11a	802.11n HT-20		
CH149		10	13		
CH157		11	14		
CH165		12	15		
AC Conducted Emission		Mode 1 : GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (2.4G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + Adapter			
		Mode 2 : GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + Adapter			

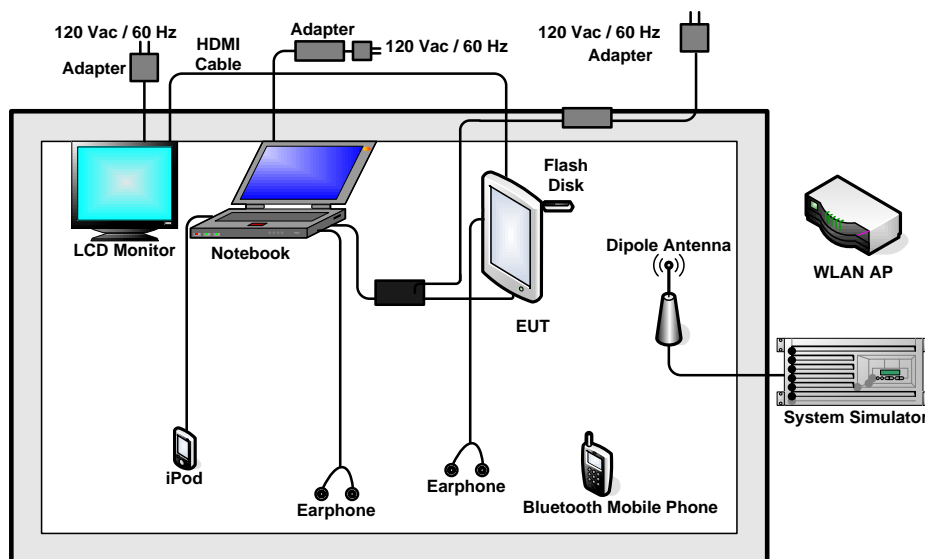
Remark:

1. For conducted emission, the worst case is mode 2; and all the test data were report.
2. "Bluetooth Link" stands for EUT linked to Bluetooth Mobile Phone by Bluetooth function.
3. "WLAN Link" stands for EUT associated with AP at 2.4GHz and 5GHz band.
4. "USB Link" stands for data application transferred mode between EUT and Notebook.
5. "Micro USB Link" stands for execute the programs, "Test Tool" installed in EUT for files transfer with EUT via flash disk.

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>


2.6 RF Utility

The programmed RF utility "RF_Regulator", 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.

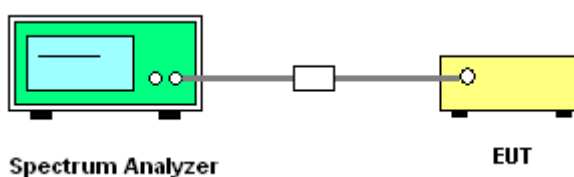
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW) $\geq 3 * RBW$. In order to make an accurate measurement. 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 :	802.11b	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.60	0.5	Pass
06	2437	9.60	0.5	Pass
11	2462	9.16	0.5	Pass

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.88	0.5	Pass
06	2437	15.88	0.5	Pass
11	2462	15.84	0.5	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.20	0.5	Pass
06	2437	17.12	0.5	Pass
11	2462	17.16	0.5	Pass

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

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.08	0.5	Pass
157	5785	16.20	0.5	Pass
165	5825	16.04	0.5	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26℃
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	17.20	0.5	Pass
157	5785	17.44	0.5	Pass
165	5825	17.44	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.70	Pass
06	2437	14.40	Pass
11	2462	14.25	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.40	Pass
06	2437	17.75	Pass
11	2462	16.40	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 99% Occupied Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.60	0.5	Pass
06	2437	18.90	0.5	Pass
11	2462	17.60	0.5	Pass

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	21.20	0.5	Pass
157	5785	24.55	0.5	Pass
165	5825	27.80	0.5	Pass

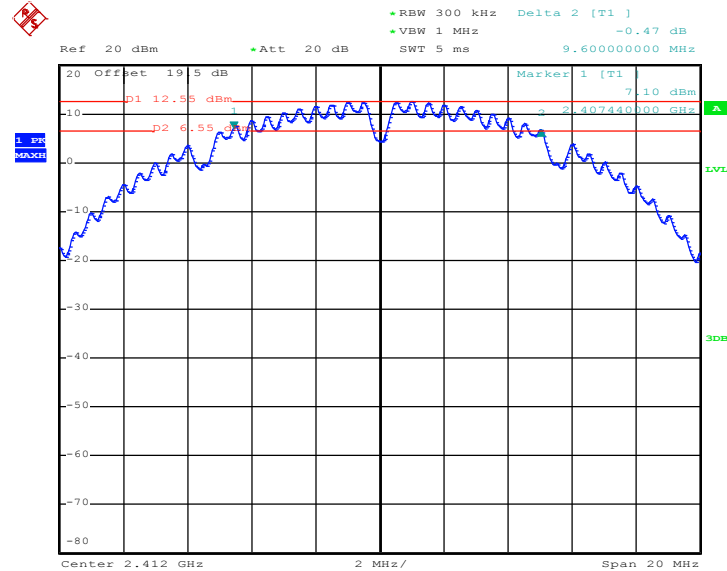
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 99% Occupied Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	22.45	0.5	Pass
157	5785	24.60	0.5	Pass
165	5825	28.80	0.5	Pass



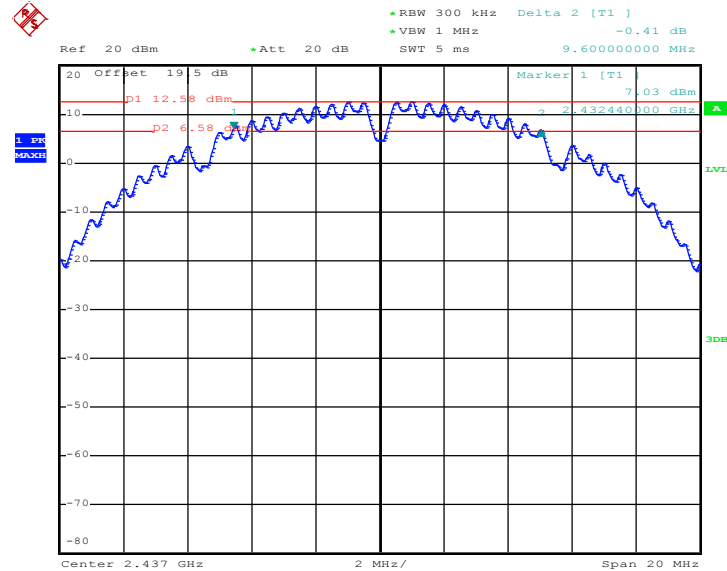
3.1.7 Test Result of 6dB Bandwidth Plots

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

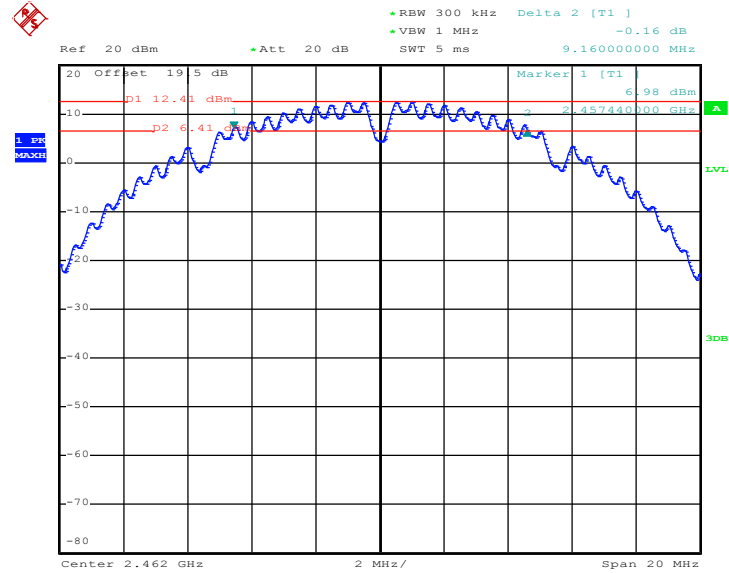


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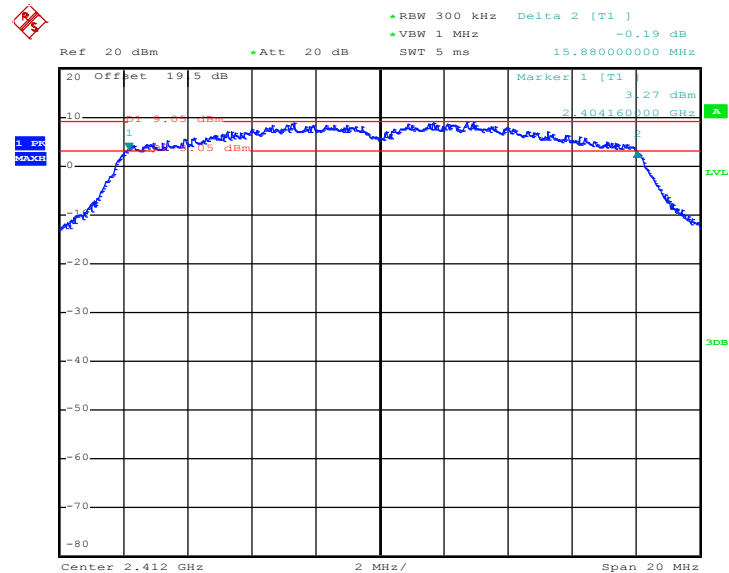
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



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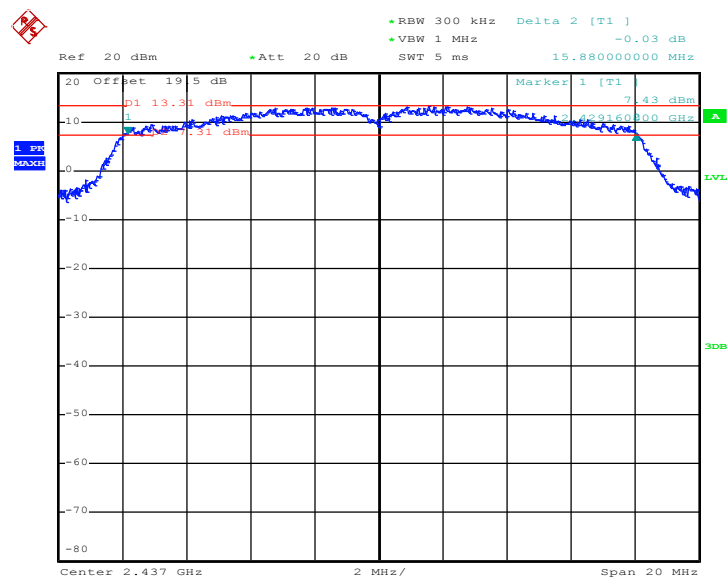
Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11


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


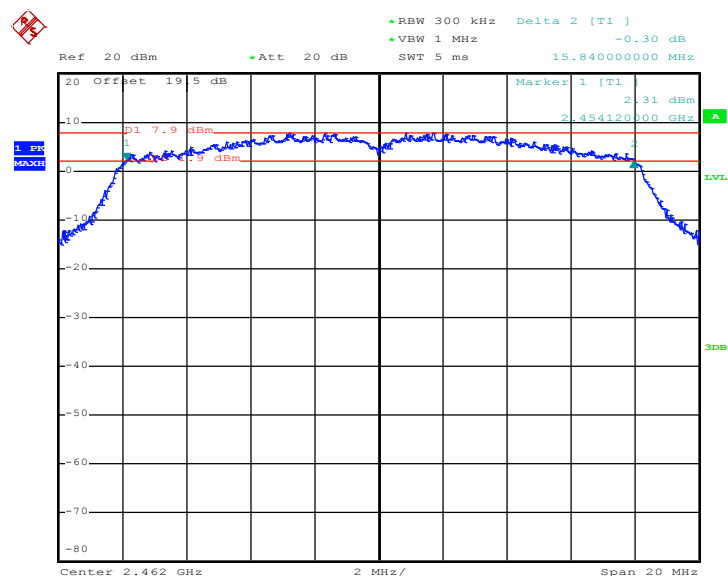
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Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06

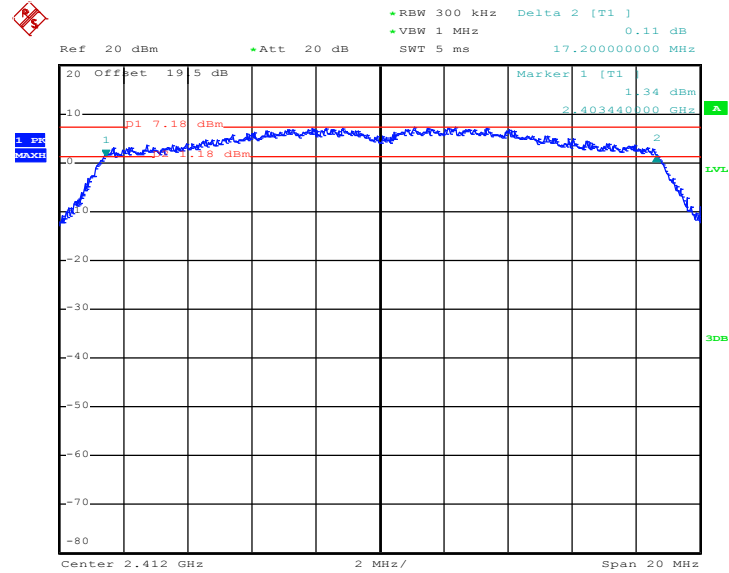


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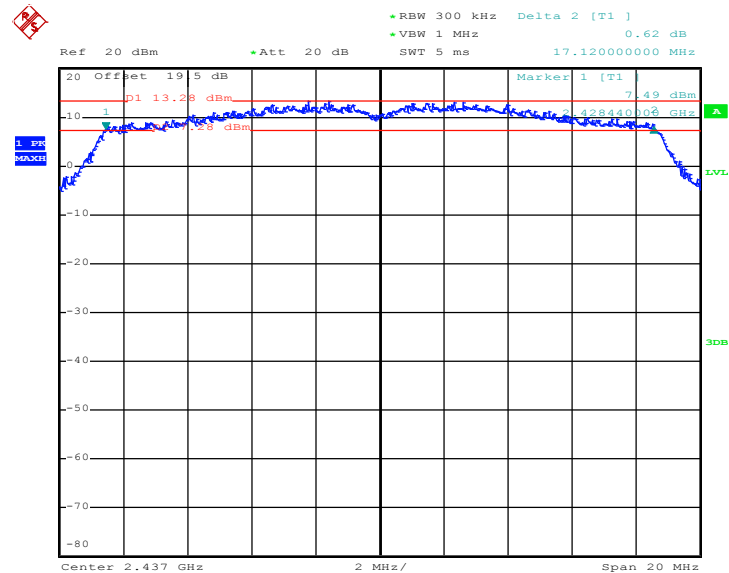
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



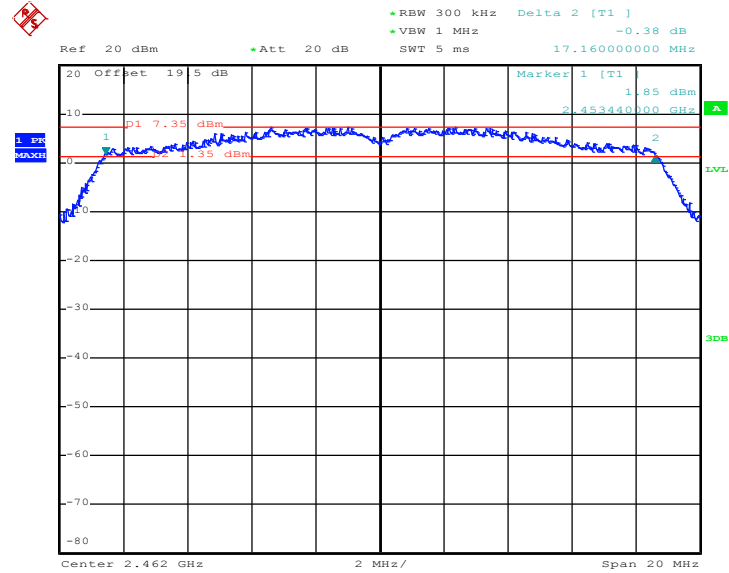
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Mode 7 : 6 dB Bandwidth Plot on 802.11n HT-20 Channel 01


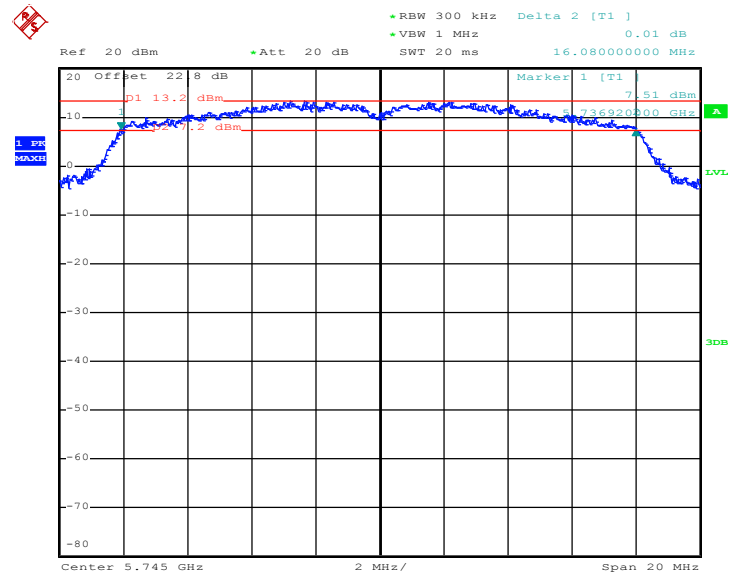
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Mode 8 : 6 dB Bandwidth Plot on 802.11n HT-20 Channel 06


Date: 5.JUN.2012 13:29:21

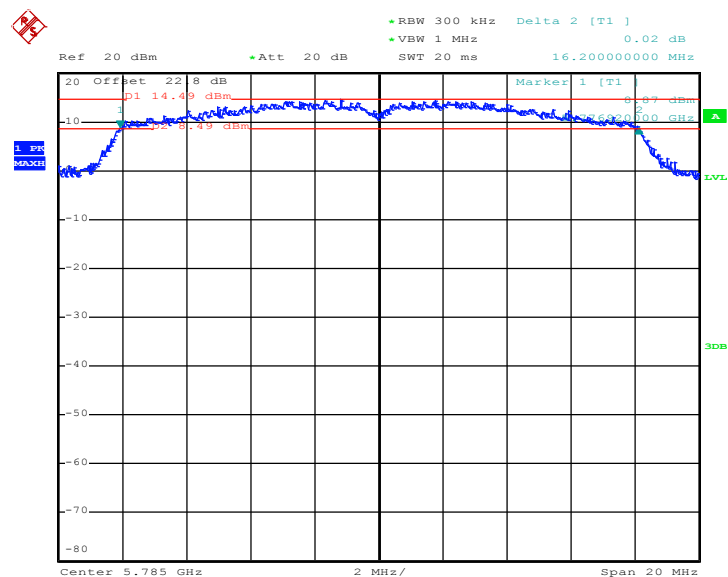
Mode 9 : 6 dB Bandwidth Plot on 802.11n HT-20 Channel 11


Date: 5.JUN.2012 13:26:16

Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149


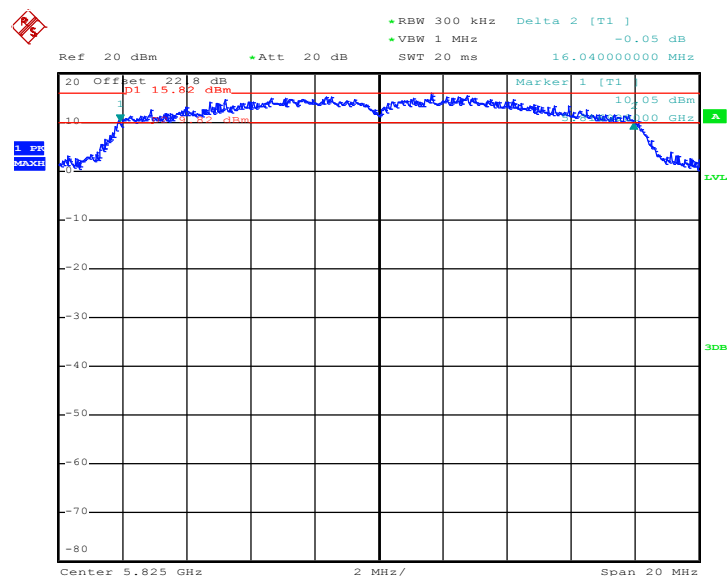
Date: 5.JUN.2012 13:43:24

Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157



Date: 5.JUN.2012 13:45:57

Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165



Date: 5.JUN.2012 13:48:06



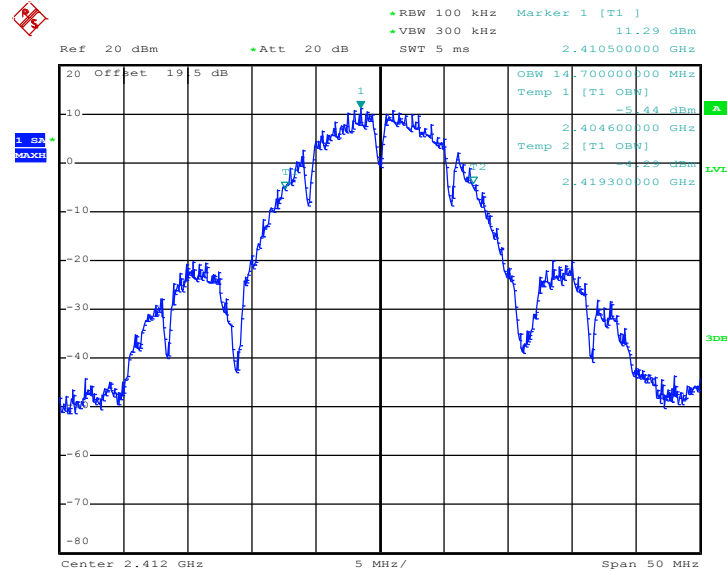
Mode 14 : 6 dB Bandwidth Plot on 802.11n HT-20 Channel 157





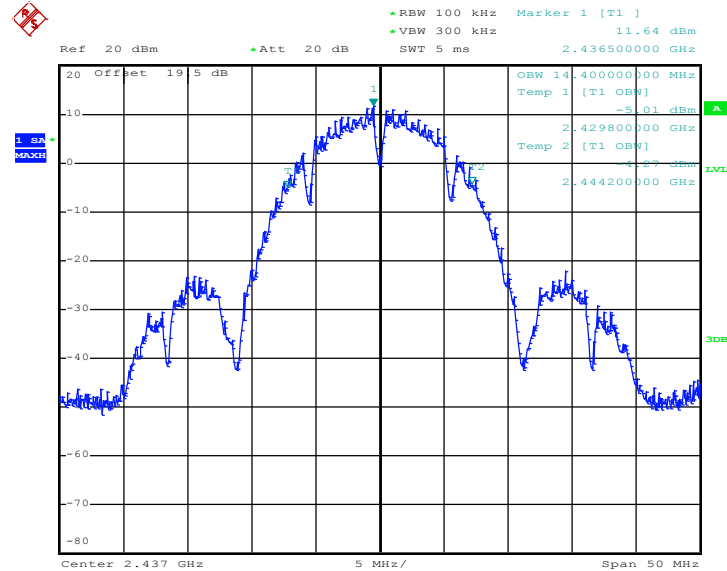
3.1.8 Test Result of 99% Bandwidth Plots

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

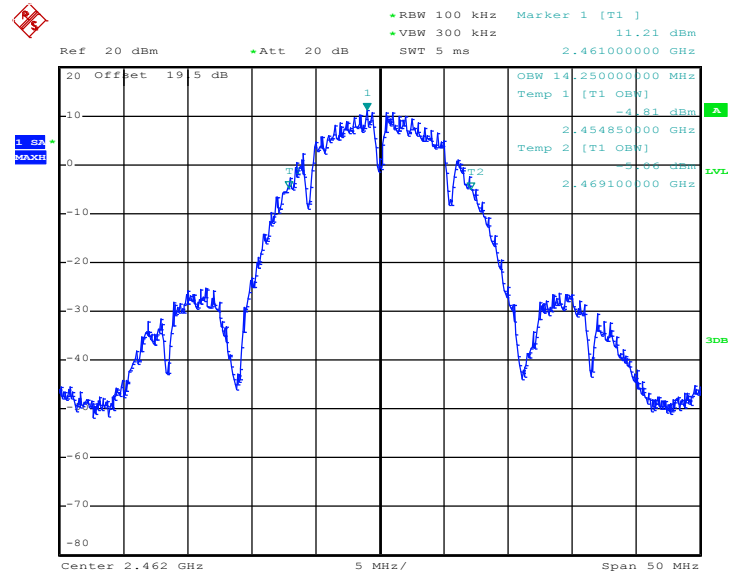


Date: 5.JUN.2012 11:30:16

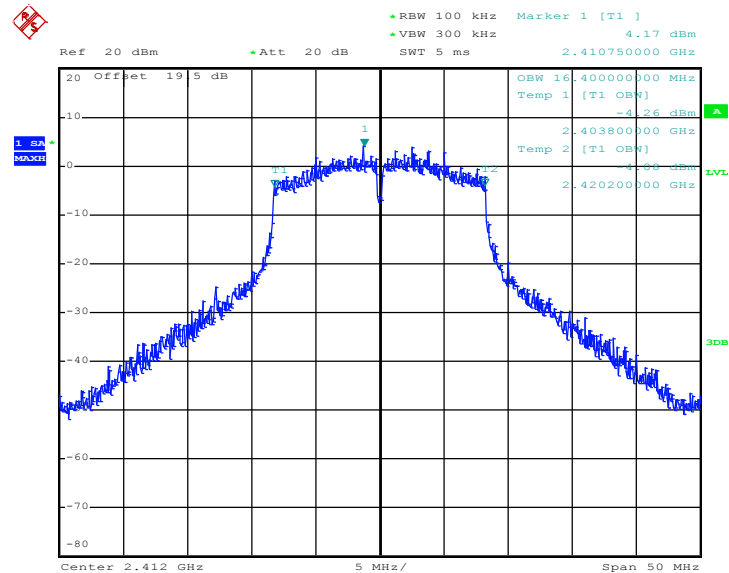
Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 5.JUN.2012 11:32:56

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


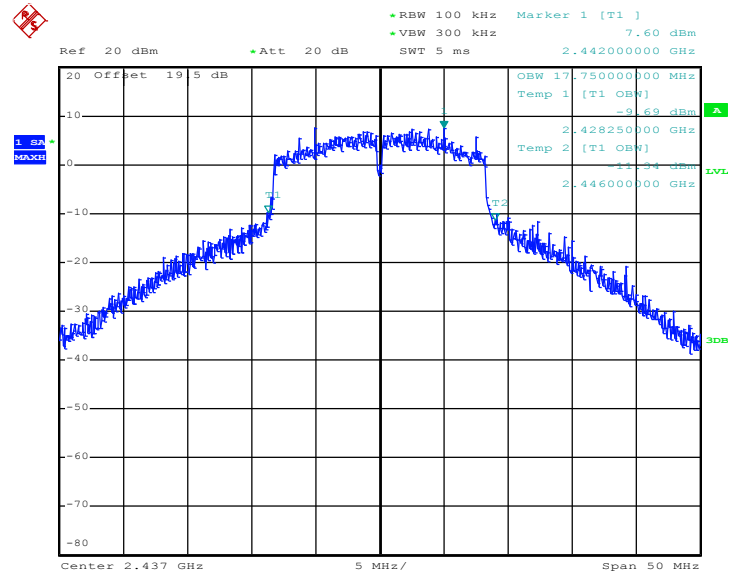
Date: 5.JUN.2012 11:36:05

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


Date: 5.JUN.2012 11:54:13

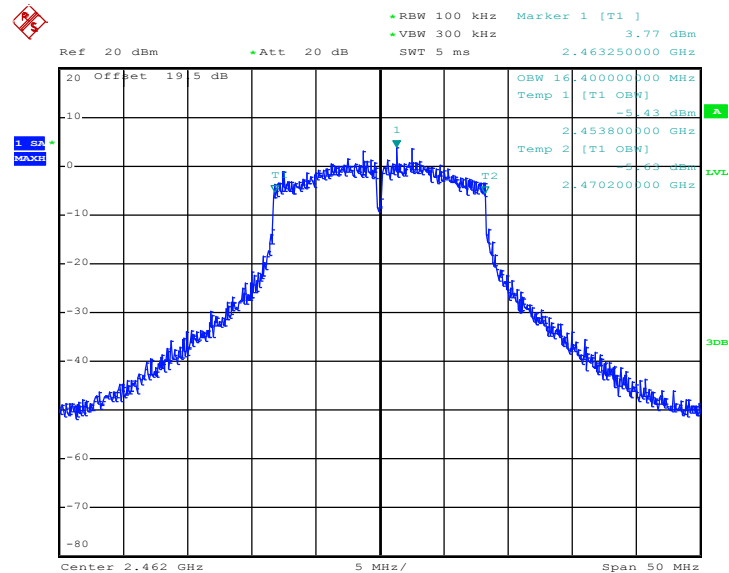


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06

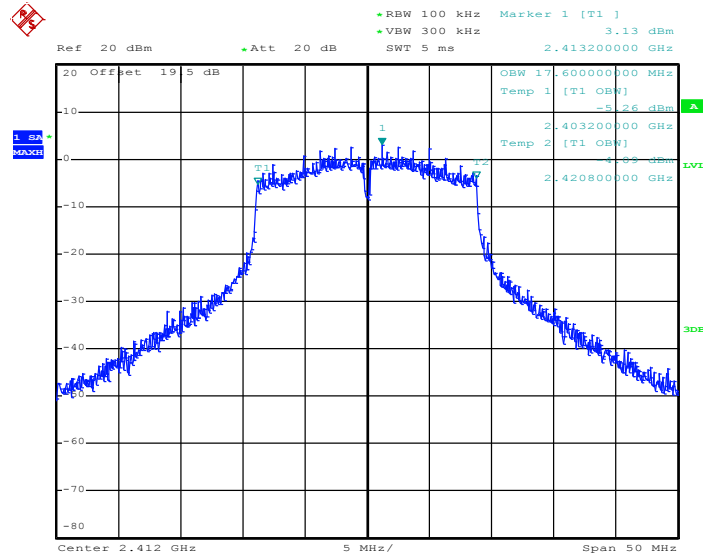


Date: 5.JUN.2012 11:50:47

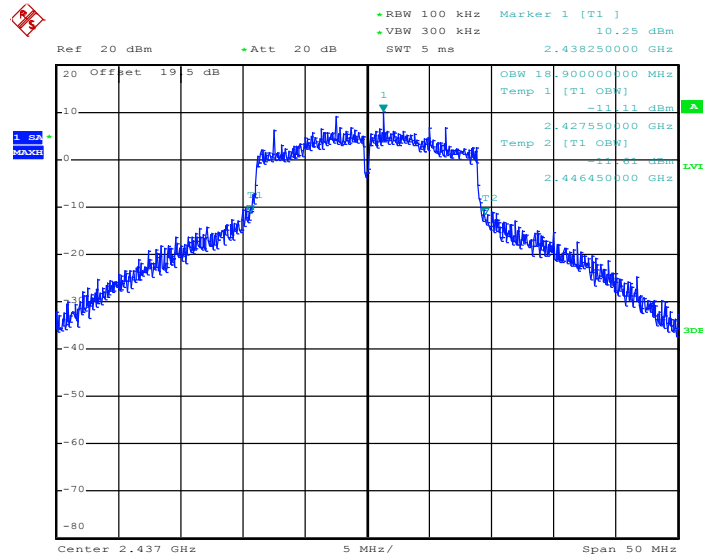
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 5.JUN.2012 11:48:22

Mode 7 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel
01


Date: 5.JUN.2012 11:59:39

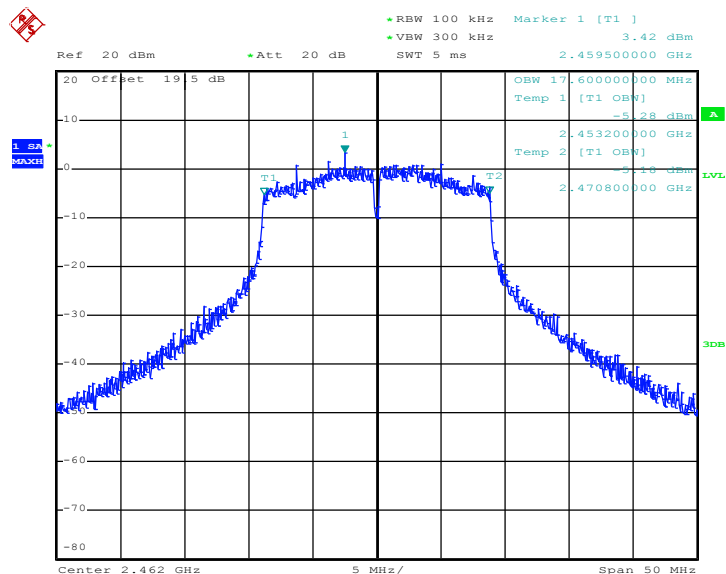
Mode 8 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel
06


Date: 5.JUN.2012 13:30:29



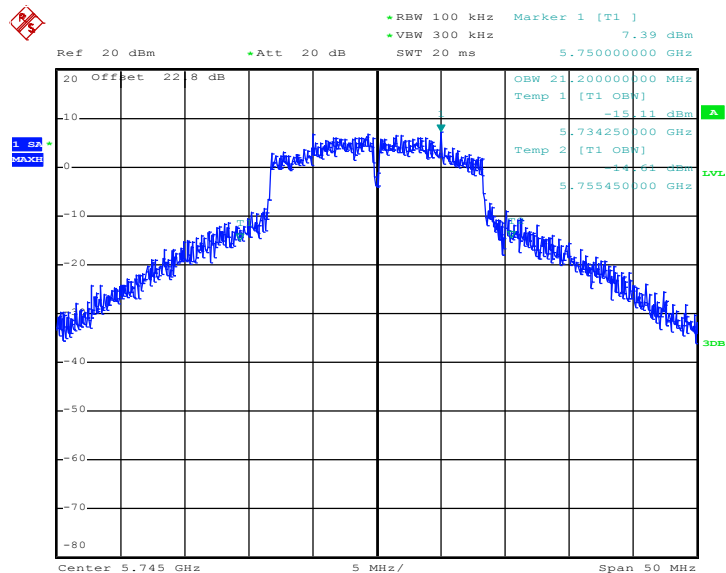
Mode 9 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel

11



Date: 5.JUN.2012 13:27:40

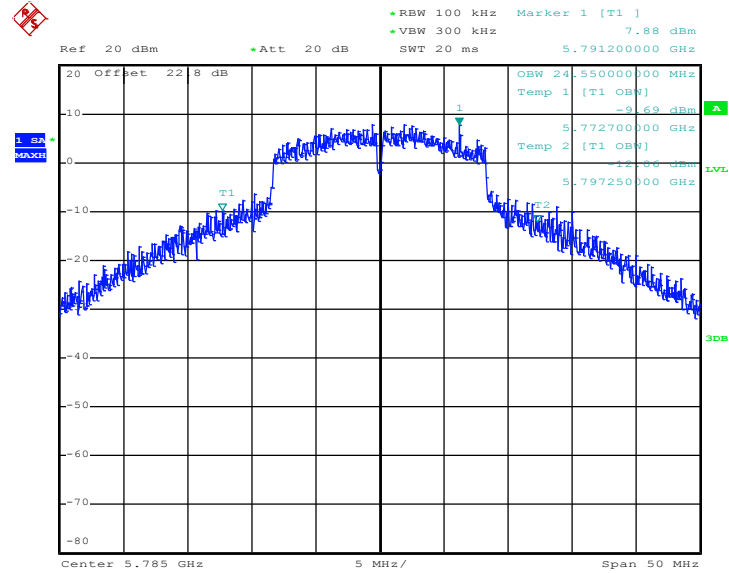
Mode 10: 99% Occupied Bandwidth Plot on 802.11a Channel 149



Date: 5.JUN.2012 13:44:52

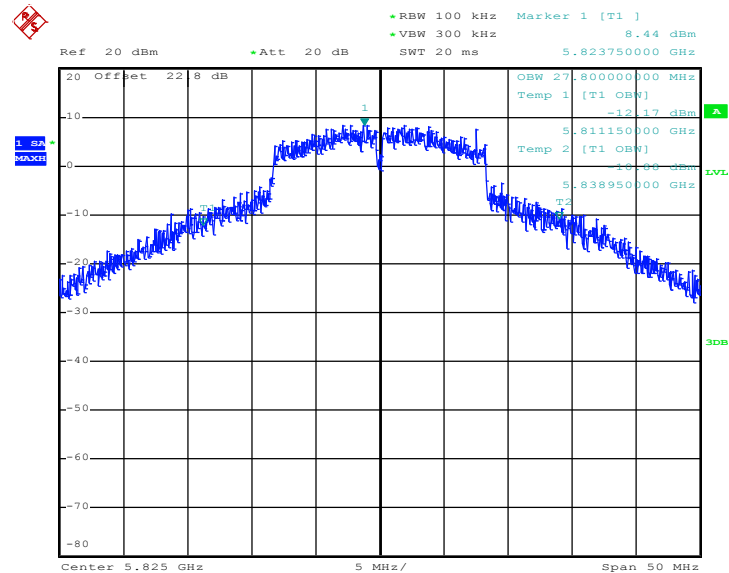


Mode 11: 99% Occupied Bandwidth Plot on 802.11a Channel 157



Date: 5.JUN.2012 13:47:05

Mode 12: 99% Occupied Bandwidth Plot on 802.11a Channel 165

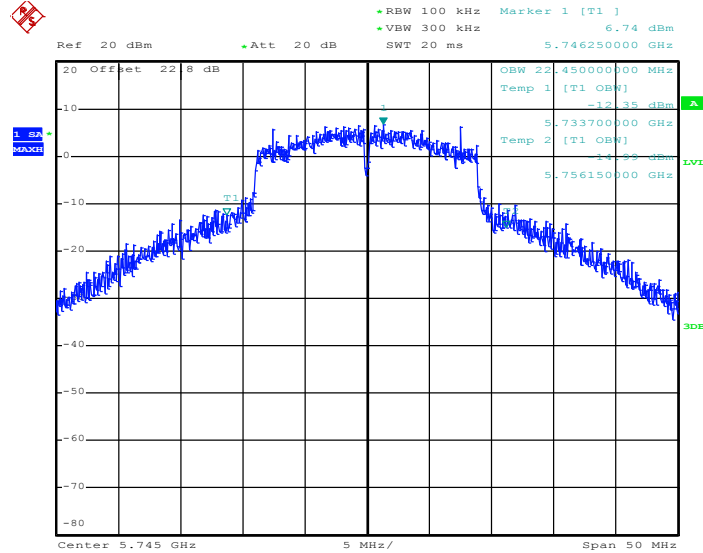


Date: 5.JUN.2012 13:49:36



Mode 13 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel

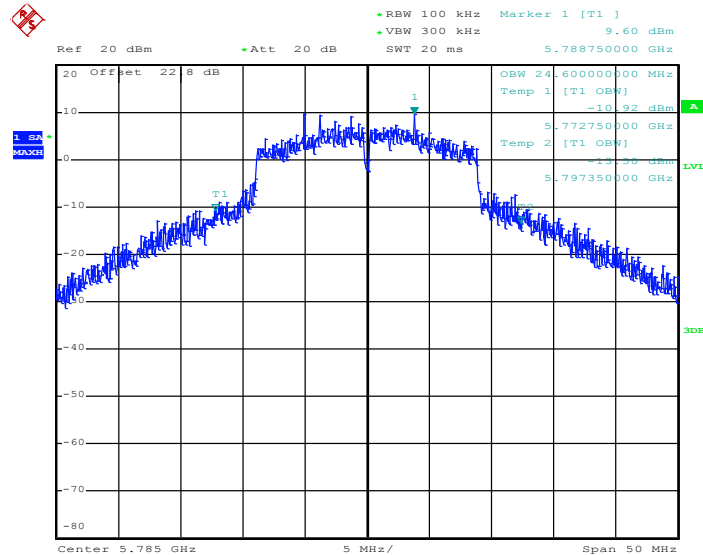
149



Date: 5.JUN.2012 13:58:24

Mode 14 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel

157

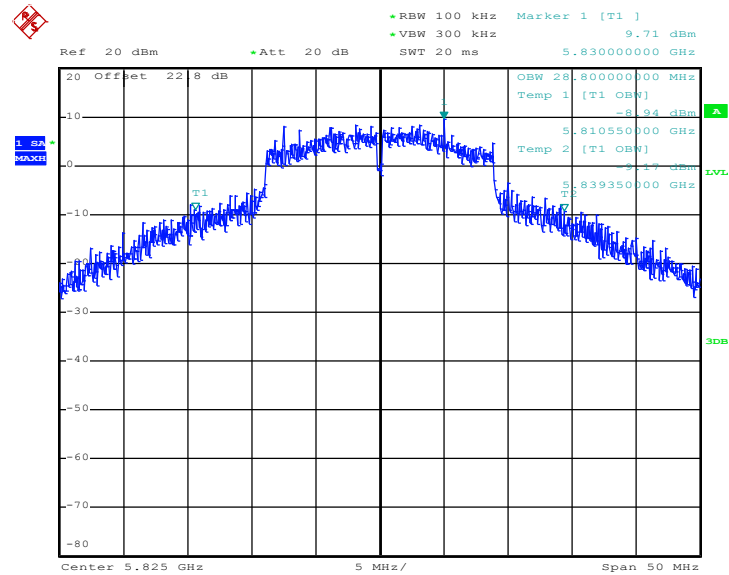


Date: 5.JUN.2012 13:55:44



Mode 15 : 99% Occupied Bandwidth Plot on 802.11n HT-20 Channel

165



Date: 5.JUN.2012 13:53:14

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.

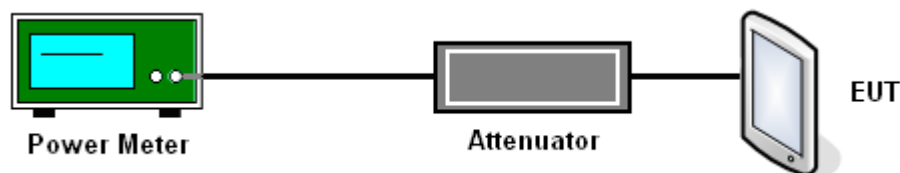
3.2.2 Measuring Instruments

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 and TCB Workshop 2012, April.
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 :	802.11b	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.11	30	Pass
06	2437	23.27	30	Pass
11	2462	22.92	30	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.56	30	Pass
06	2437	25.07	30	Pass
11	2462	24.43	30	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.04	30	Pass
06	2437	25.02	30	Pass
11	2462	24.36	30	Pass

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	24.45	30	Pass
157	5785	24.04	30	Pass
165	5825	24.20	30	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	24.45	30	Pass
157	5785	23.96	30	Pass
165	5825	24.17	30	Pass

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.

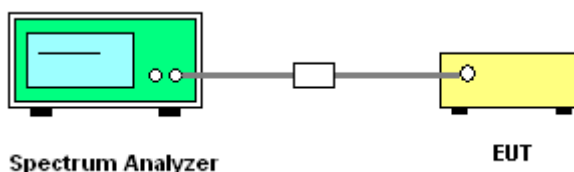
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 5.3.1 (Peak PSD) of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Record the measurement data derived from spectrum analyzer.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW) \geq 300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
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 in any 100 kHz band segment within the fundamental EBW.
6. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	11.91	-3.29	8	Pass
06	2437	11.84	-3.36	8	Pass
11	2462	11.83	-3.37	8	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	5.11	-10.09	8	Pass
06	2437	10.32	-4.88	8	Pass
11	2462	4.39	-10.81	8	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	4.24	-10.96	8	Pass
06	2437	9.97	-5.23	8	Pass
11	2462	3.99	-11.21	8	Pass

Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11a Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	10.59	-4.61	8	Pass
157	5785	11.36	-3.84	8	Pass
165	5825	11.70	-3.50	8	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Pinkston Tu	Relative Humidity :	50~53%

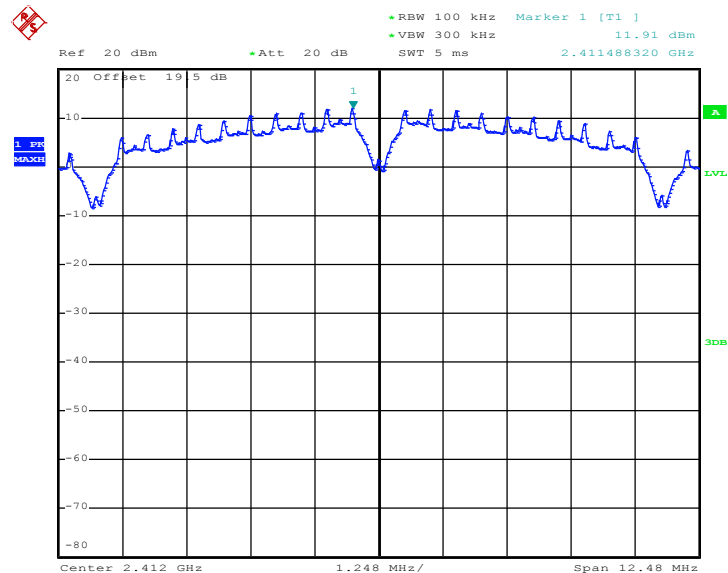
Channel	Frequency (MHz)	802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	10.80	-4.40	8	Pass
157	5785	11.05	-4.15	8	Pass
165	5825	11.10	-4.10	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) = $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3kHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)

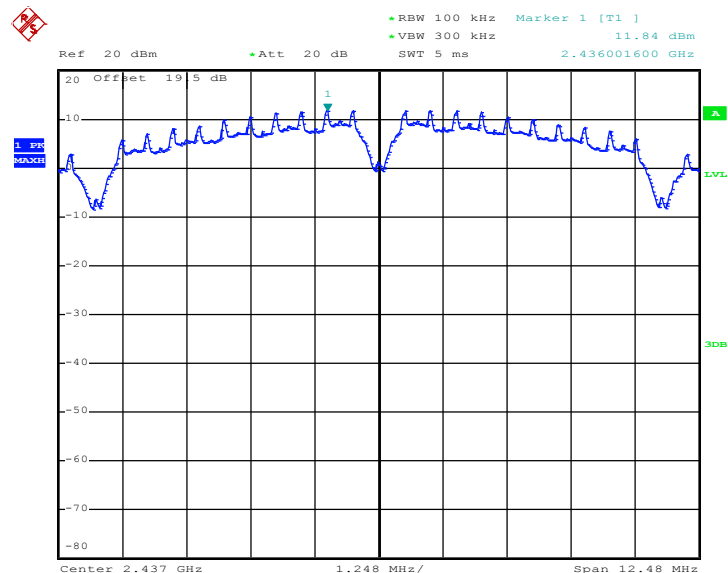
3.3.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



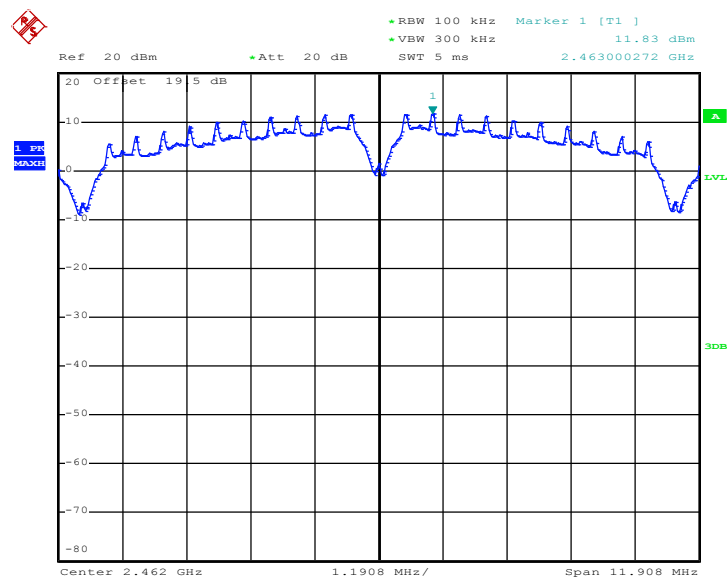
Date: 5.JUN.2012 11:29:02

Mode 2 : PSD Plot on 802.11b Channel 06



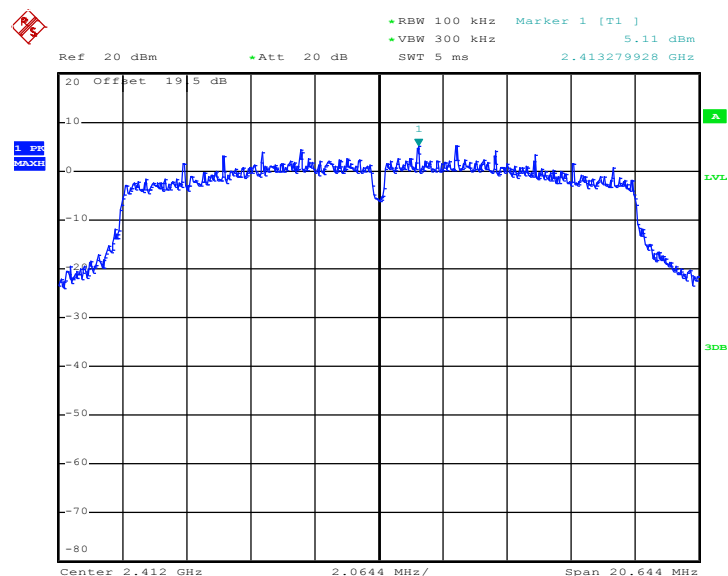
Date: 5.JUN.2012 11:31:47

Mode 3 : PSD Plot on 802.11b Channel 11

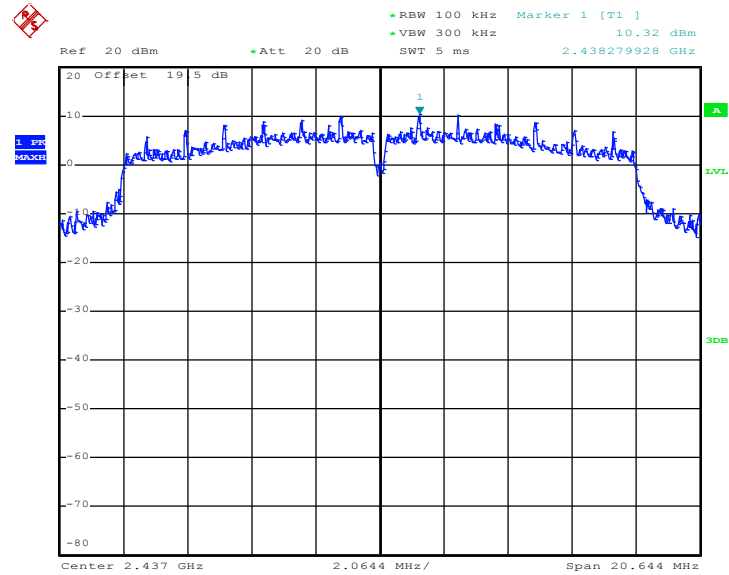


Date: 5.JUN.2012 11:34:53

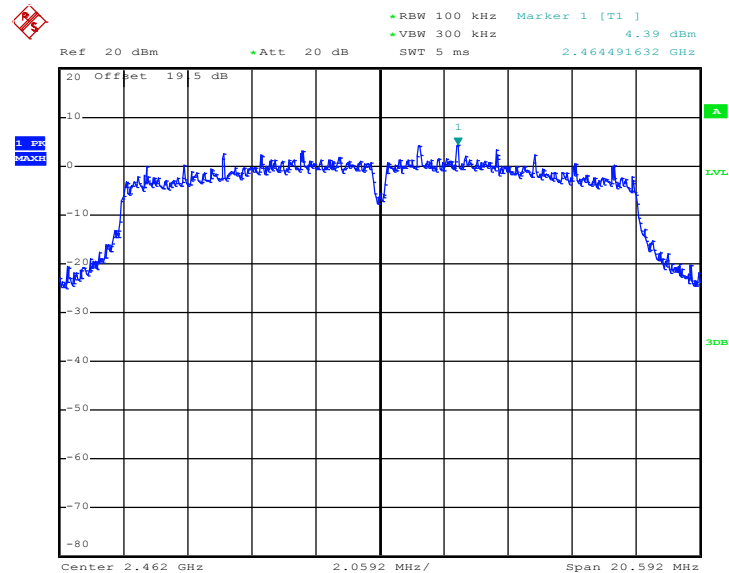
Mode 4 : PSD Plot on 802.11g Channel 01



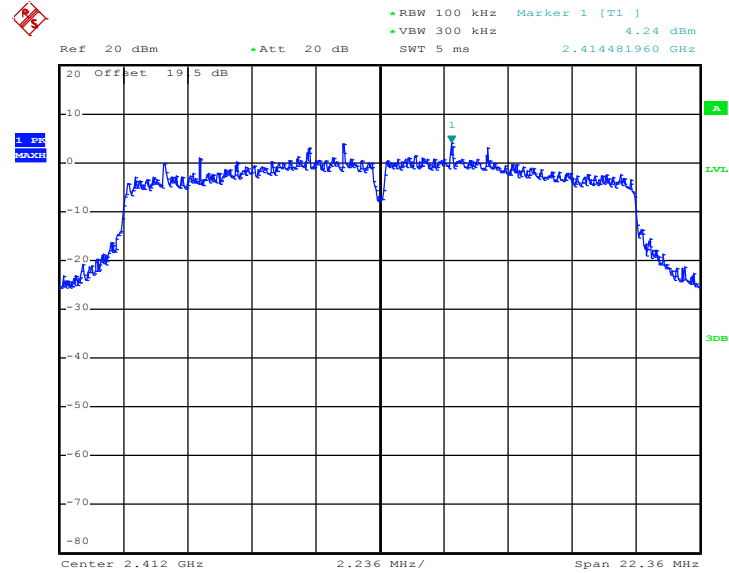
Date: 5.JUN.2012 11:53:01

Mode 5 : PSD Plot on 802.11g Channel 06


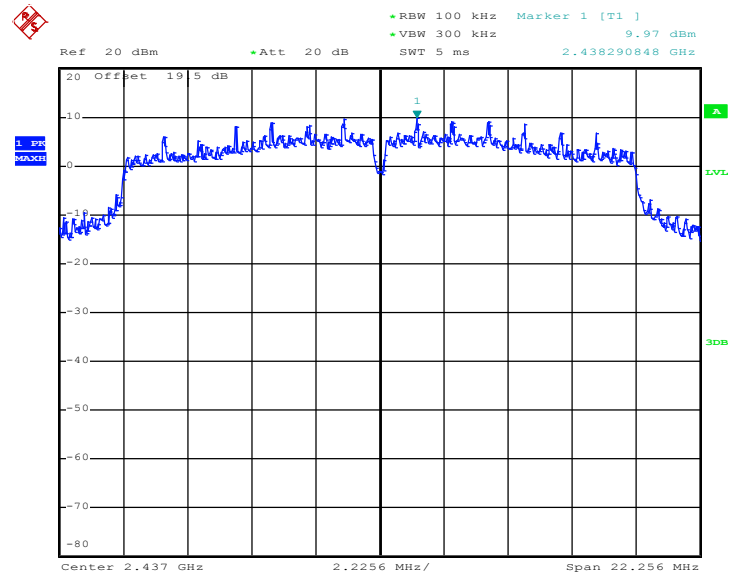
Date: 5.JUN.2012 11:49:55

Mode 6 : PSD Plot on 802.11g Channel 11


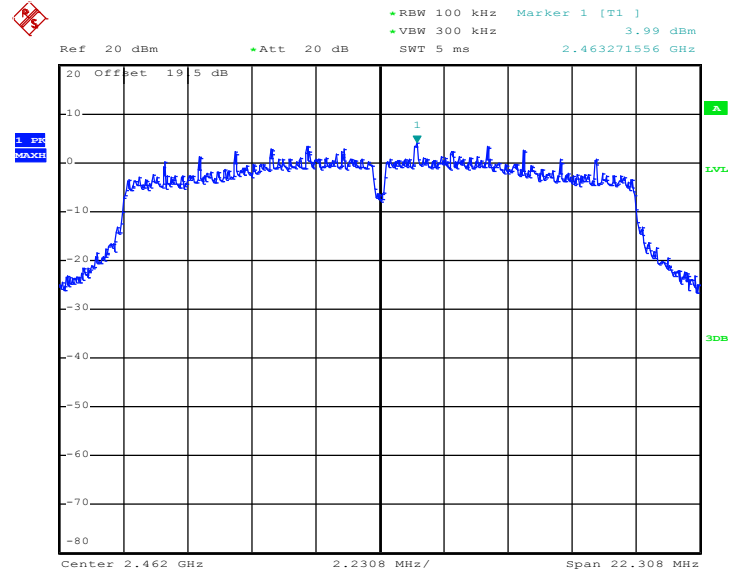
Date: 5.JUN.2012 11:46:57

Mode 7 : PSD Plot on 802.11n HT-20 Channel 01


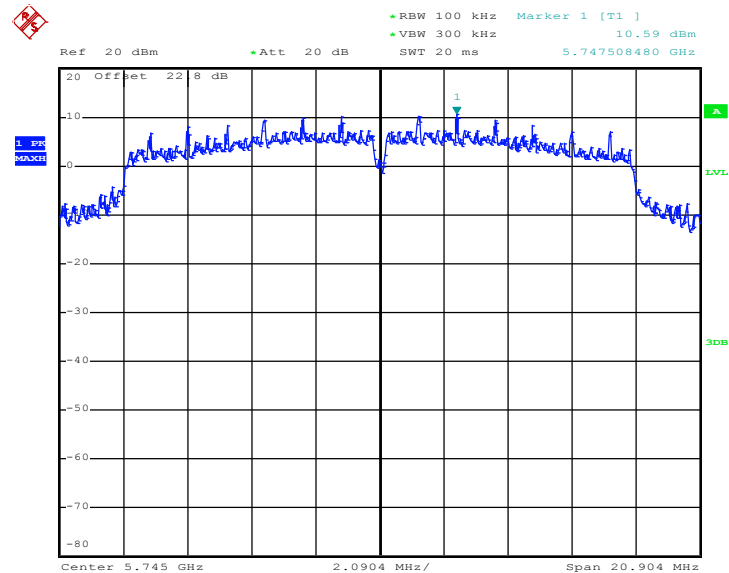
Date: 5.JUN.2012 11:58:32

Mode 8 : PSD Plot on 802.11n HT-20 Channel 06


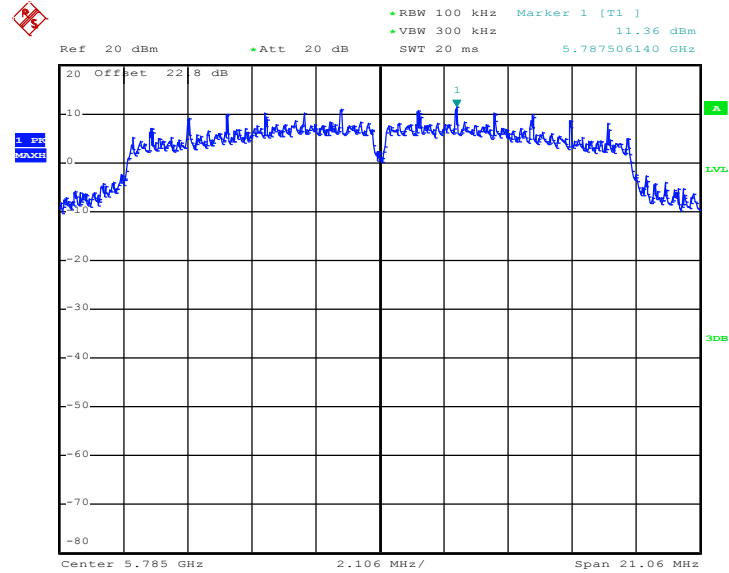
Date: 5.JUN.2012 13:29:41

Mode 9 : PSD Plot on 802.11n HT-20 Channel 11


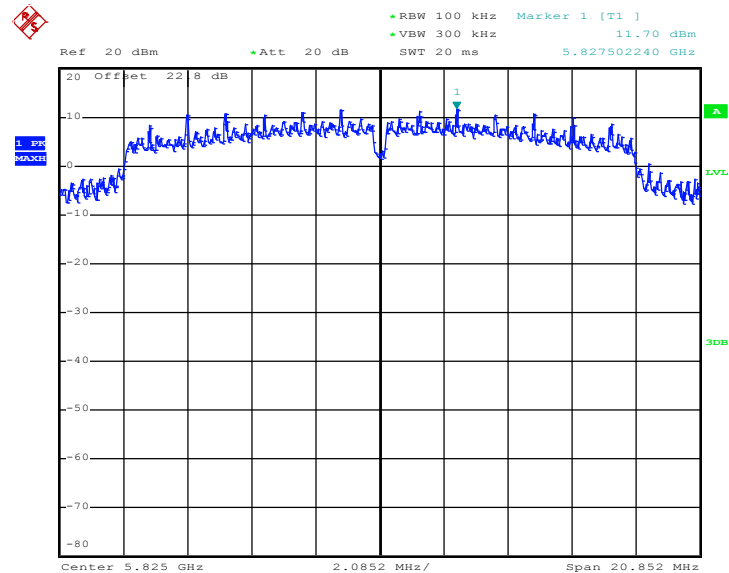
Date: 5.JUN.2012 13:26:35

Mode 10: PSD Plot on 802.11a Channel 149


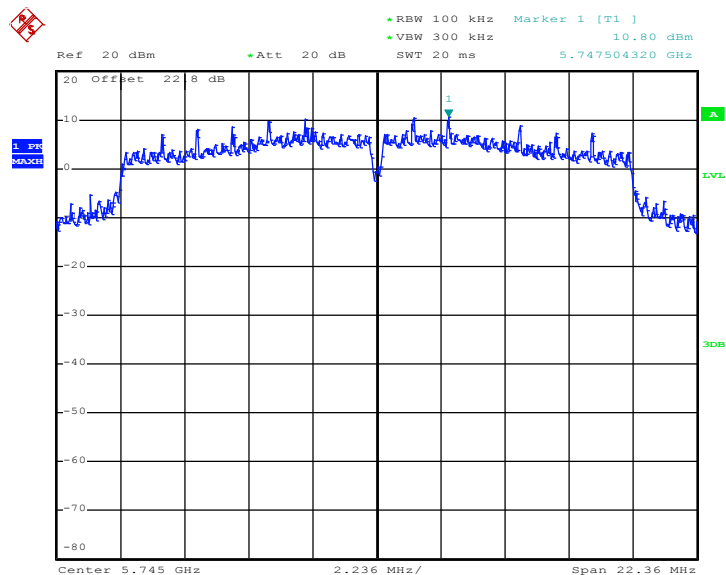
Date: 5.JUN.2012 13:43:45

Mode 11: PSD Plot on 802.11a Channel 157


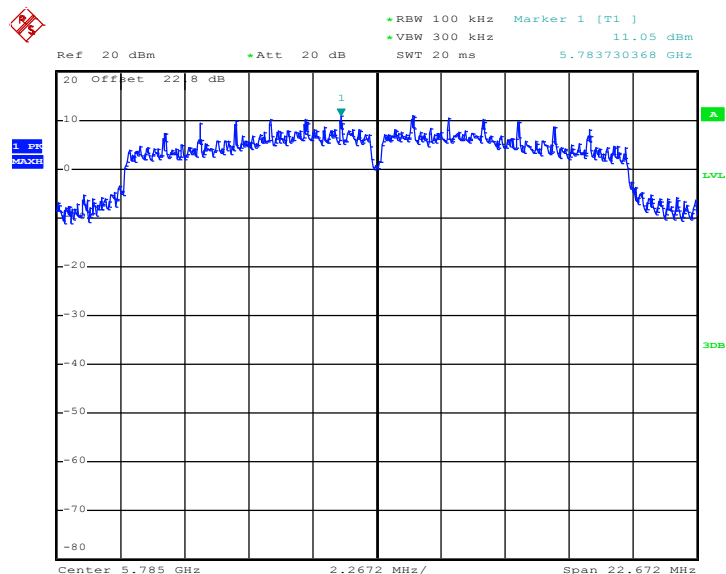
Date: 5.JUN.2012 13:46:14

Mode 12: PSD Plot on 802.11a Channel 165


Date: 5.JUN.2012 13:48:28

Mode 13 : PSD Plot on 802.11n HT-20 Channel 149


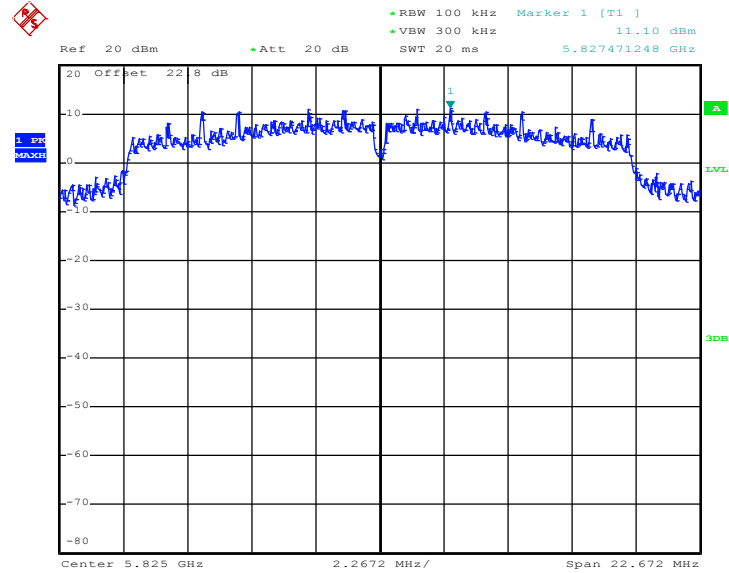
Date: 5.JUN.2012 13:57:21

Mode 14 : PSD Plot on 802.11n HT-20 Channel 157


Date: 5.JUN.2012 13:54:51



Mode 15 : PSD Plot on 802.11n HT-20 Channel 165



Date: 5.JUN.2012 13:52:08

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).

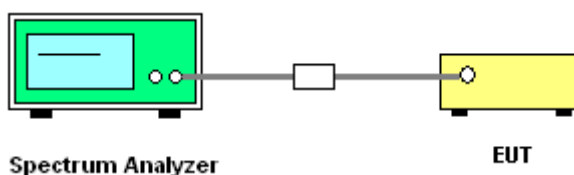
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

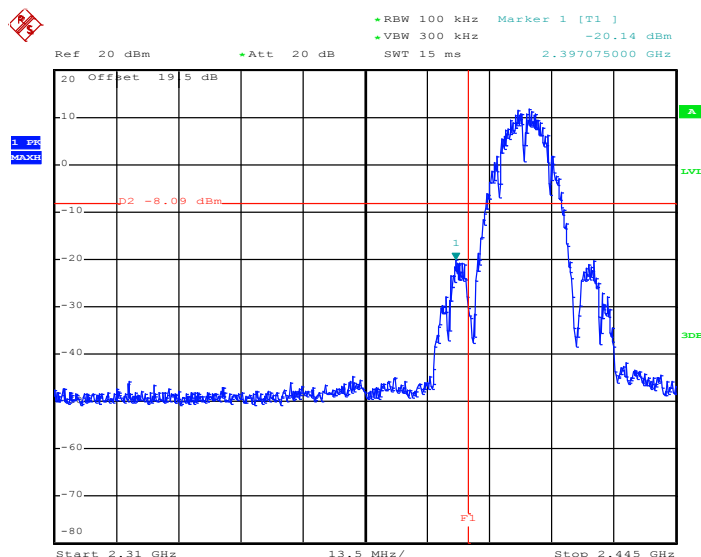
1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall 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.

3.4.4 Test Setup

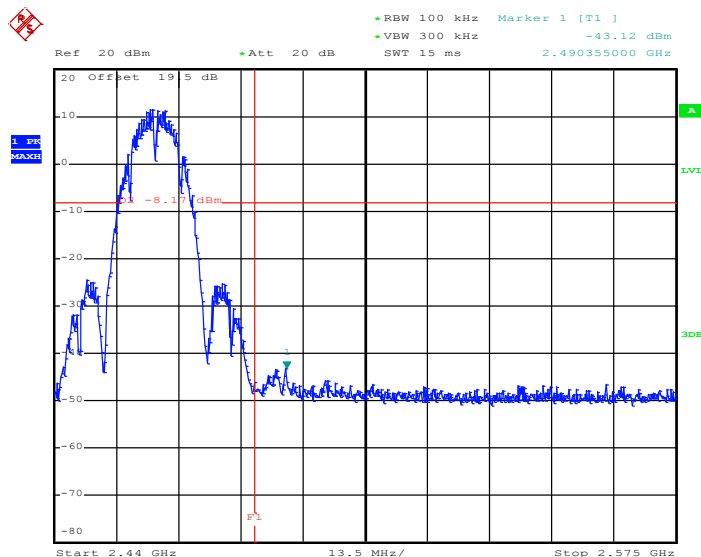




Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu



Date: 5.JUN.2012 11:29:19

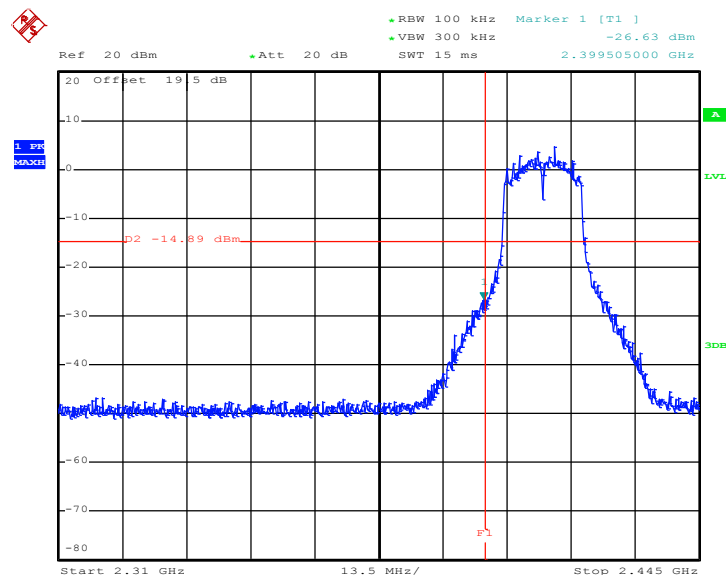


Date: 5.JUN.2012 11:35:07



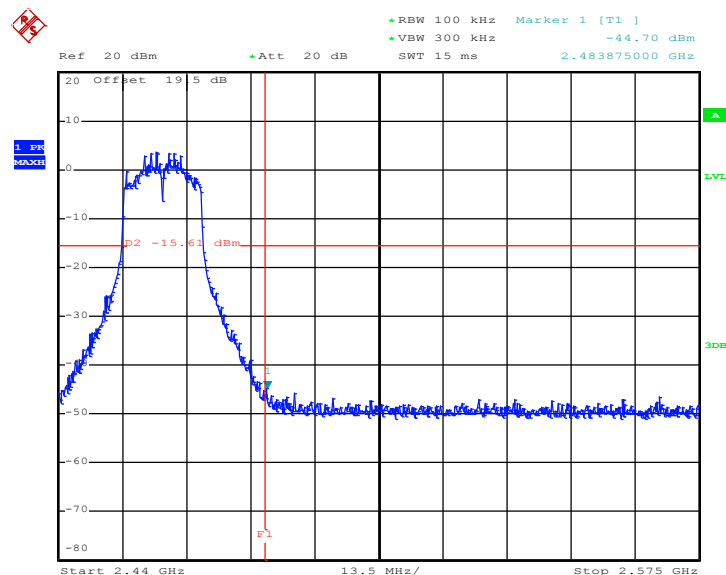
Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11g Channel 01



Date: 5.JUN.2012 11:53:16

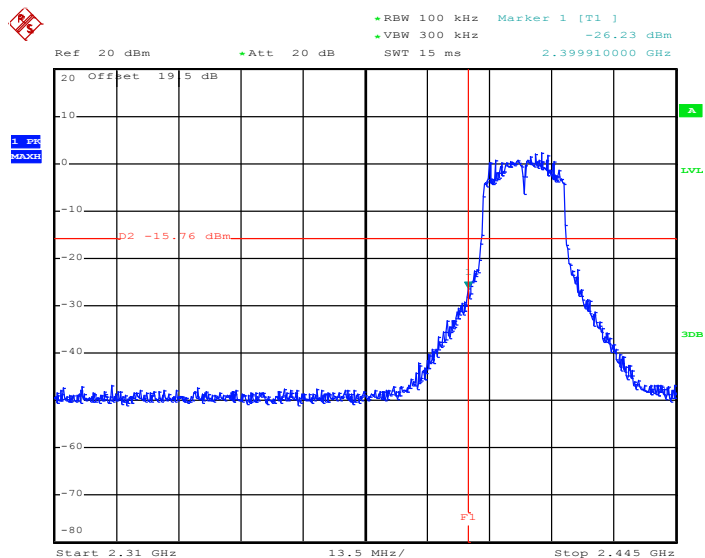
High Band Edge Plot on 802.11g Channel 11



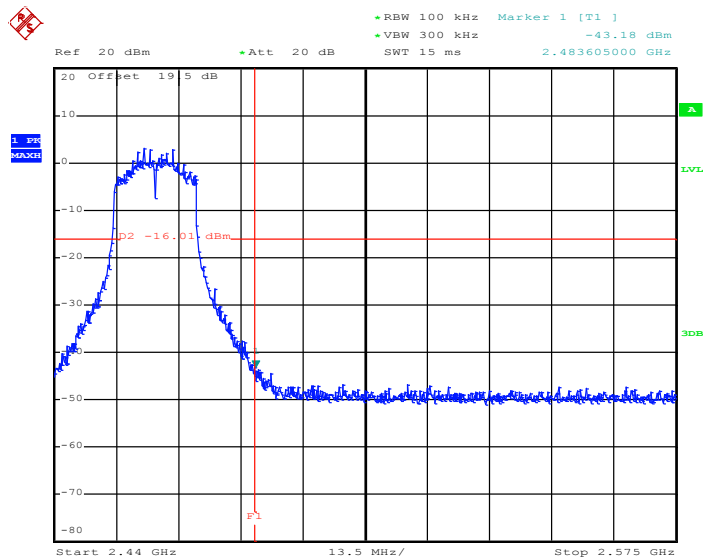
Date: 5.JUN.2012 11:47:26



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11n HT-20 Channel 01

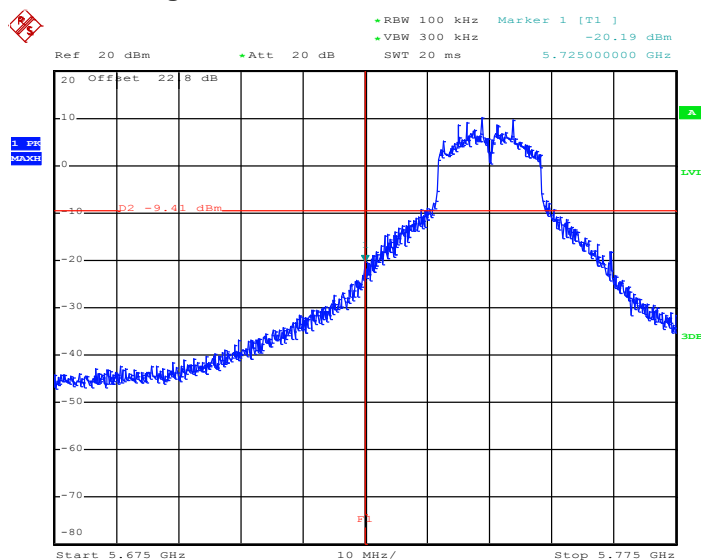
Date: 5.JUN.2012 11:58:49

High Band Edge Plot on 802.11n HT-20 Channel 11

Date: 5.JUN.2012 13:26:51

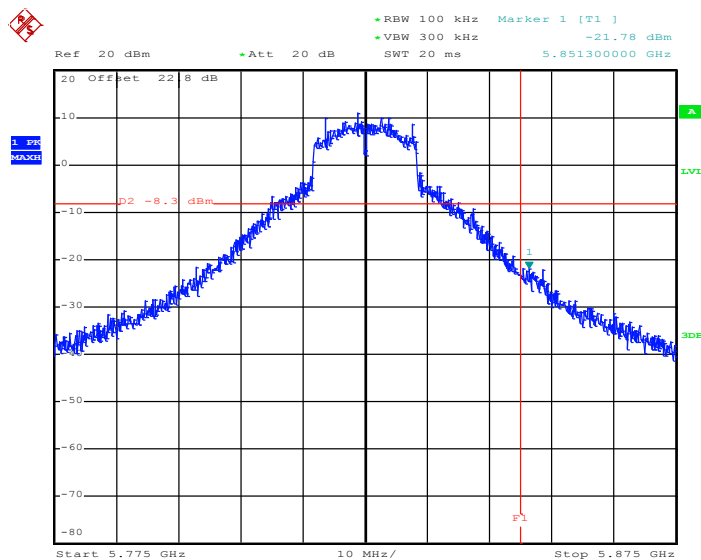
Test Mode :	802.11a	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11a Channel 149



Date: 5.JUN.2012 13:44:00

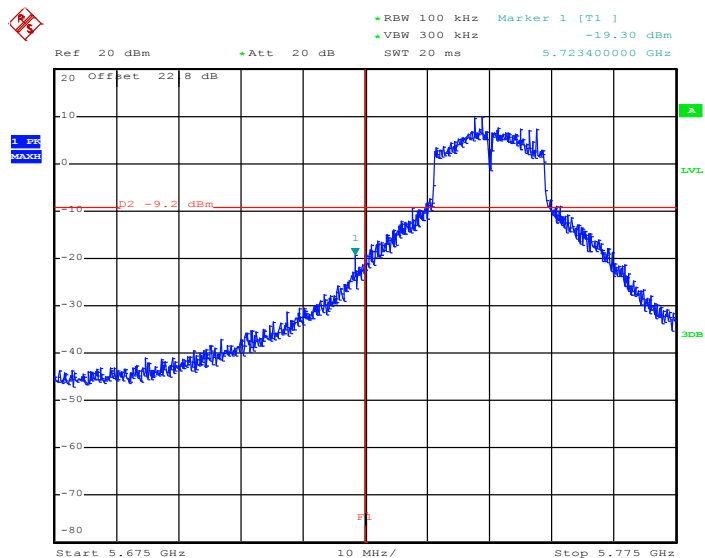
High Band Edge Plot on 802.11a Channel 165



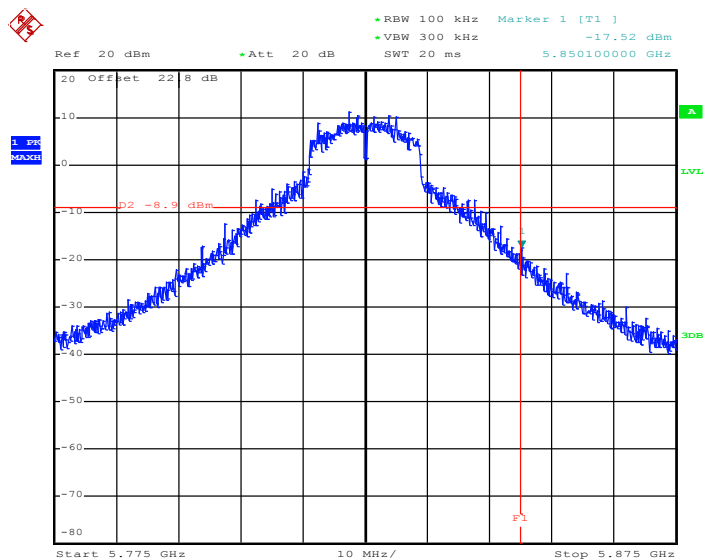
Date: 5.JUN.2012 13:48:45



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Pinkston Tu

Low Band Edge Plot on 802.11n HT-20 Channel 149

Date: 5.JUN.2012 13:57:35

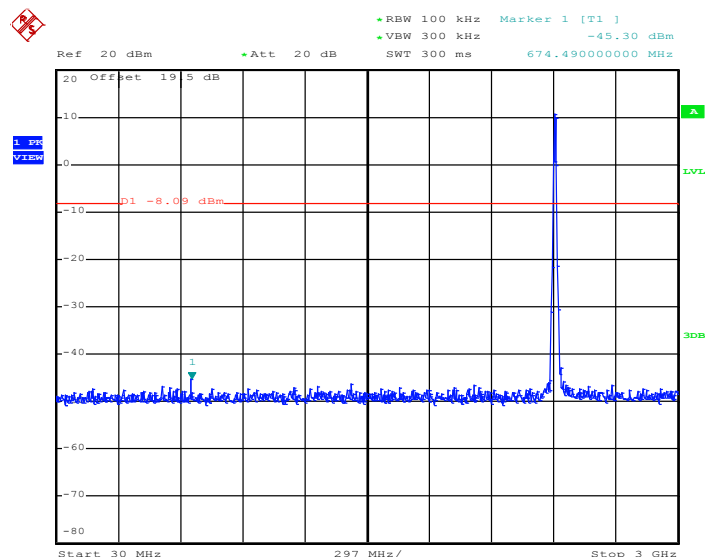
High Band Edge Plot on 802.11n HT-20 Channel 165

Date: 5.JUN.2012 14:56:01

3.4.6 Test Result of Conducted Spurious Emission

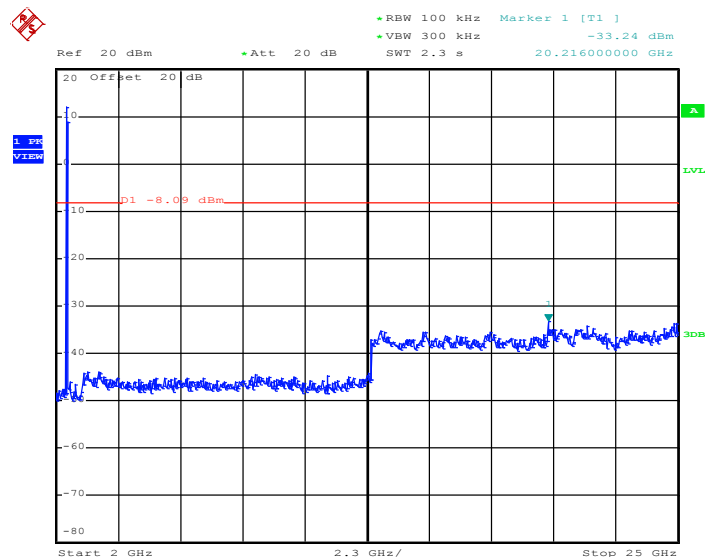
Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



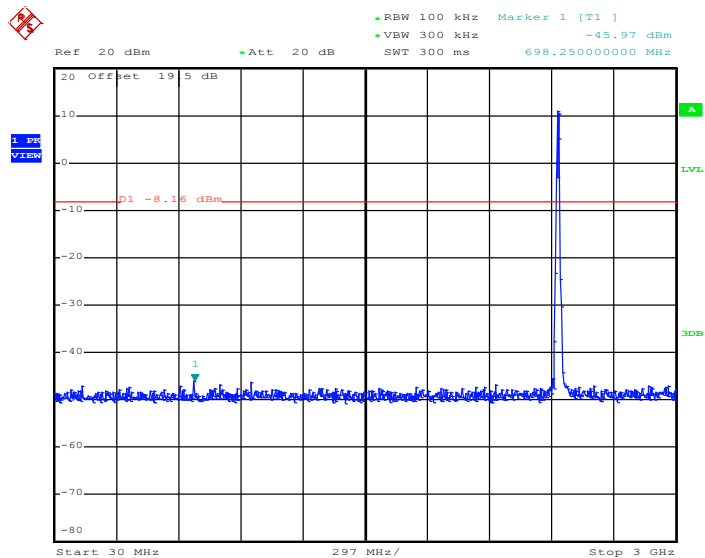
Date: 5.JUN.2012 11:29:42

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz

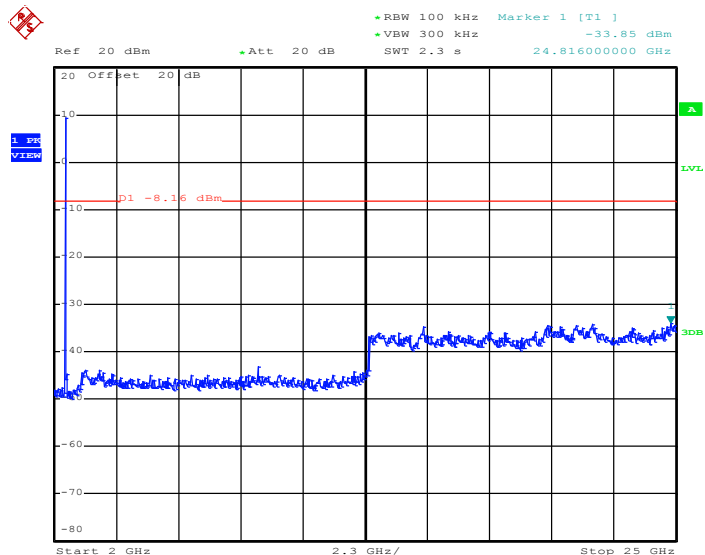


Date: 5.JUN.2012 11:30:00

Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

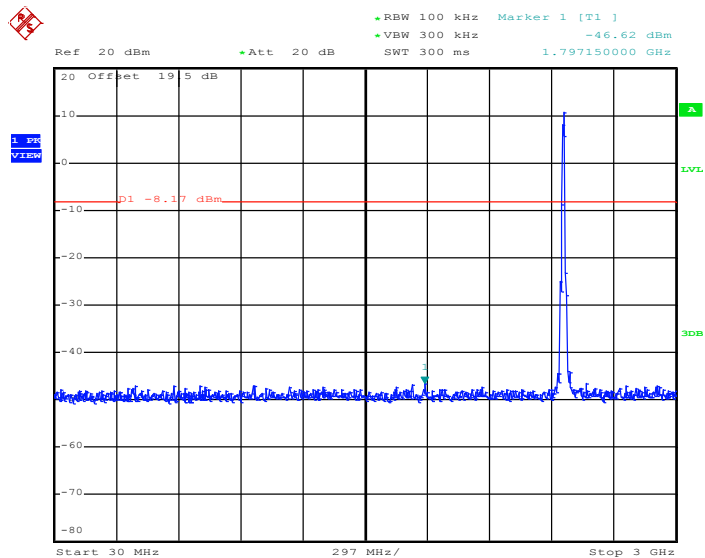
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.JUN.2012 11:32:20

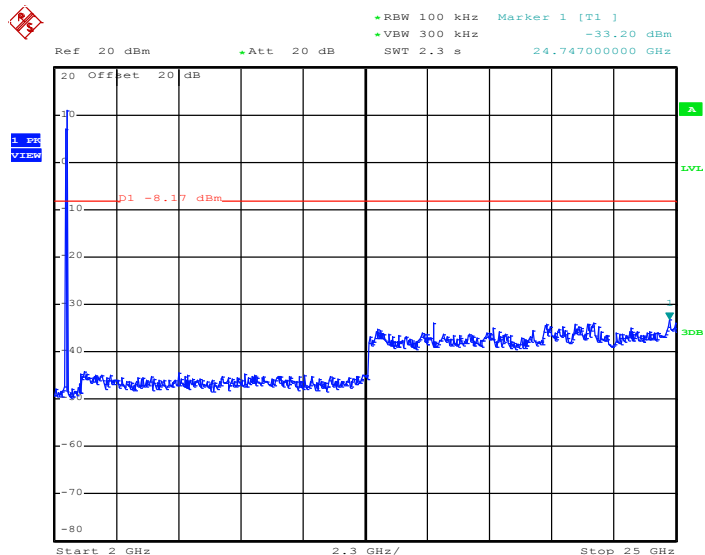
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz


Date: 5.JUN.2012 11:32:37

Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

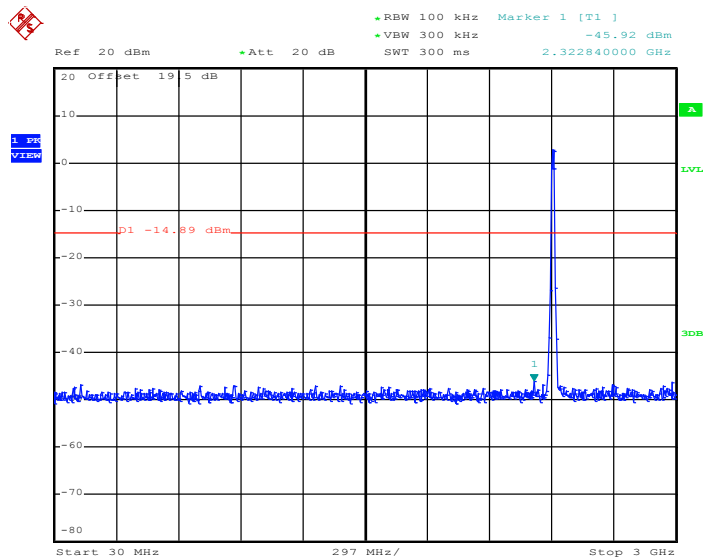
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.JUN.2012 11:36:25

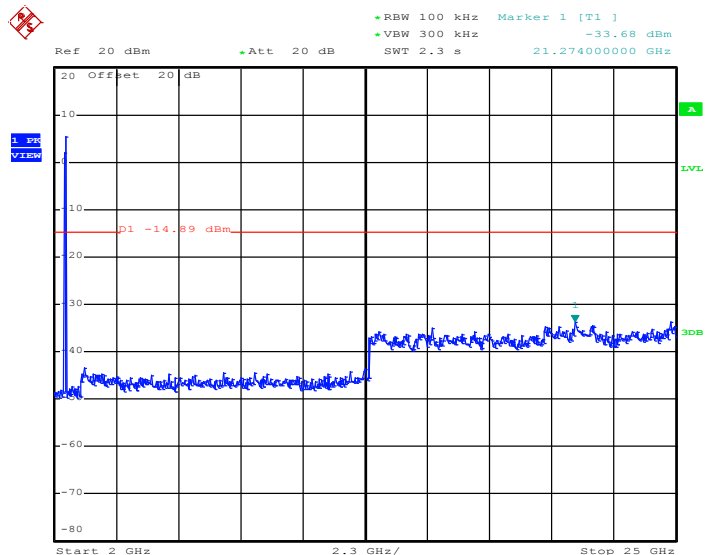
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz


Date: 5.JUN.2012 11:36:43

Test Mode :	802.11g	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


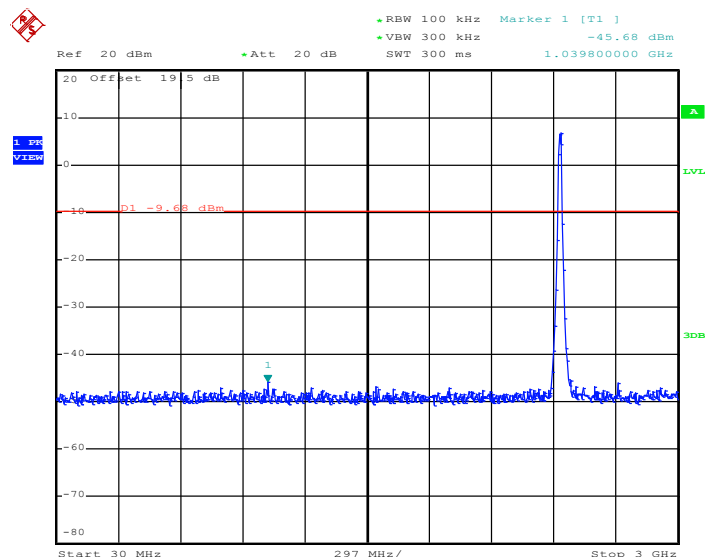
Date: 5.JUN.2012 11:53:43

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz


Date: 5.JUN.2012 11:54:01

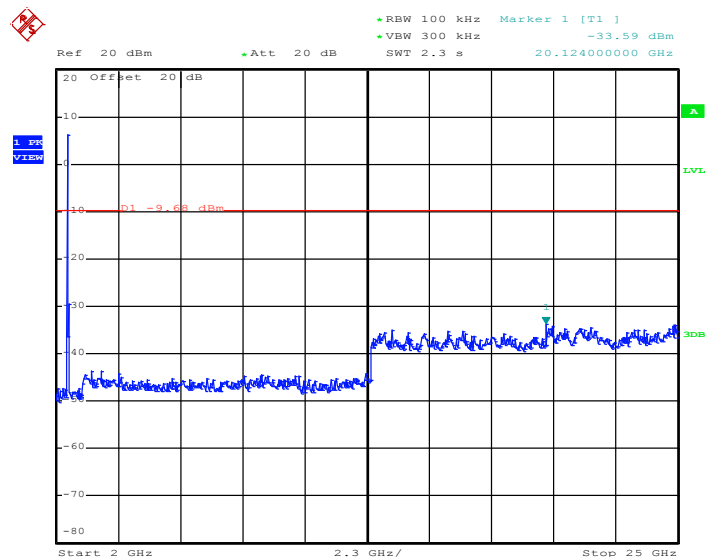
Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 5.JUN.2012 11:50:17

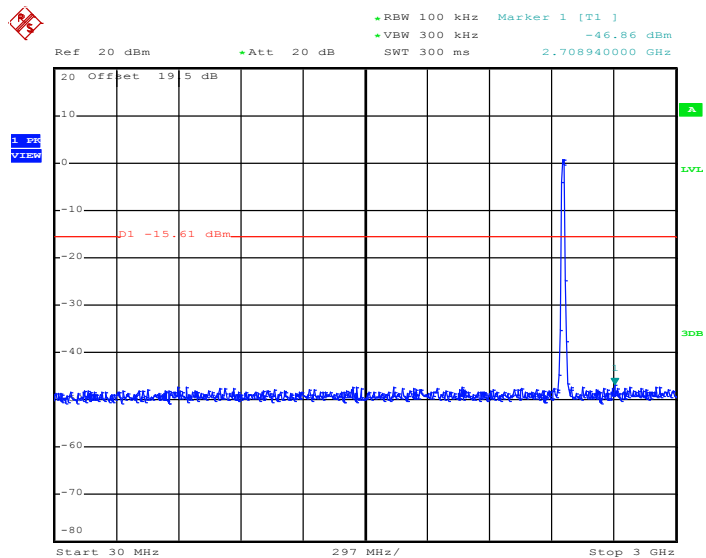
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz



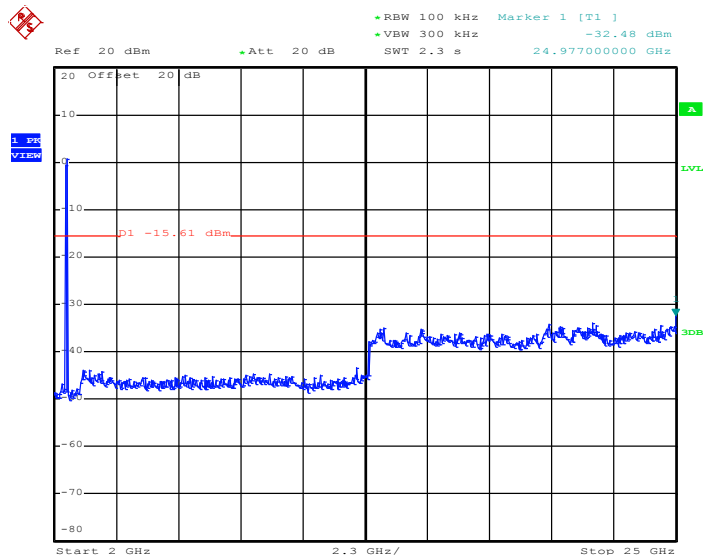
Date: 5.JUN.2012 11:50:34



Test Mode :	802.11g	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

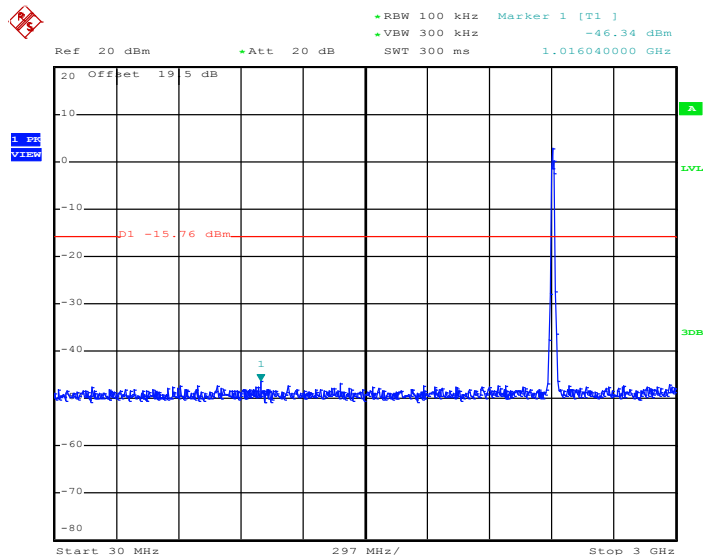
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 5.JUN.2012 11:47:50

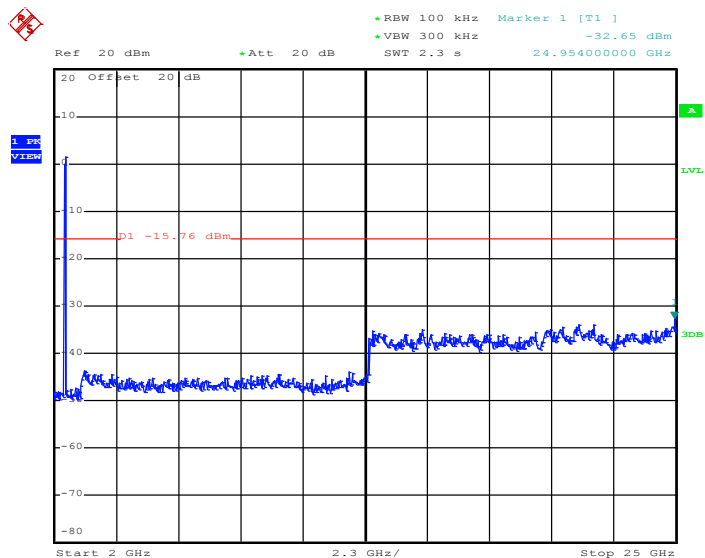
Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz

Date: 5.JUN.2012 11:48:07

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


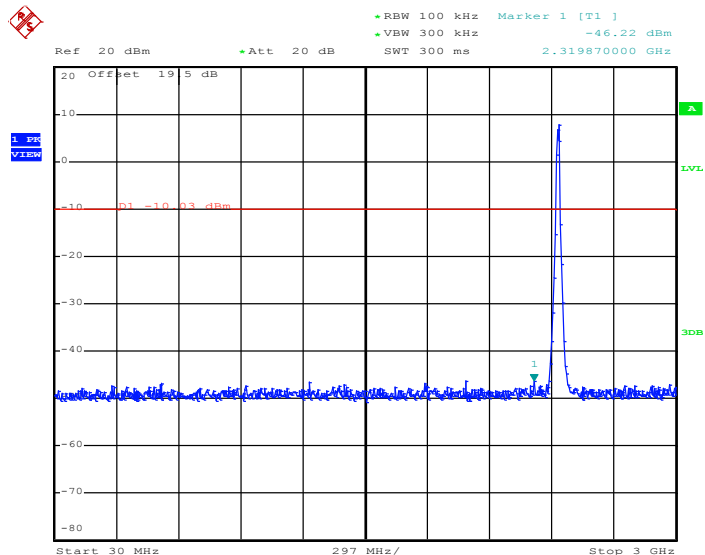
Date: 5.JUN.2012 11:59:09

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz


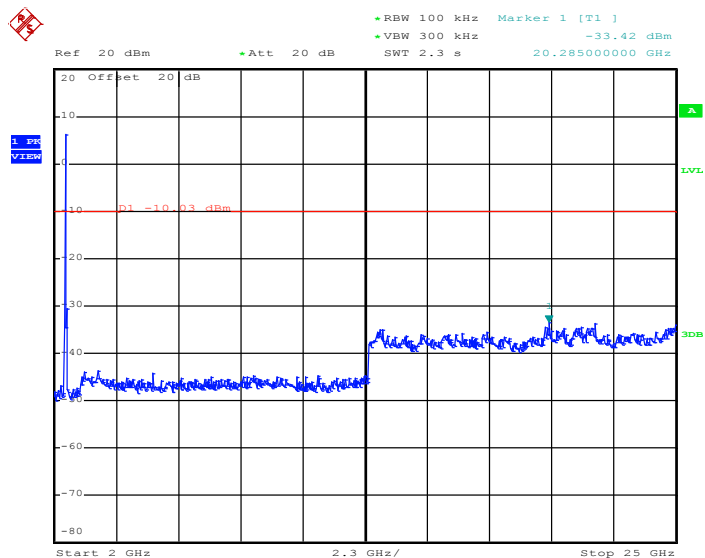
Date: 5.JUN.2012 11:59:26



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	06	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

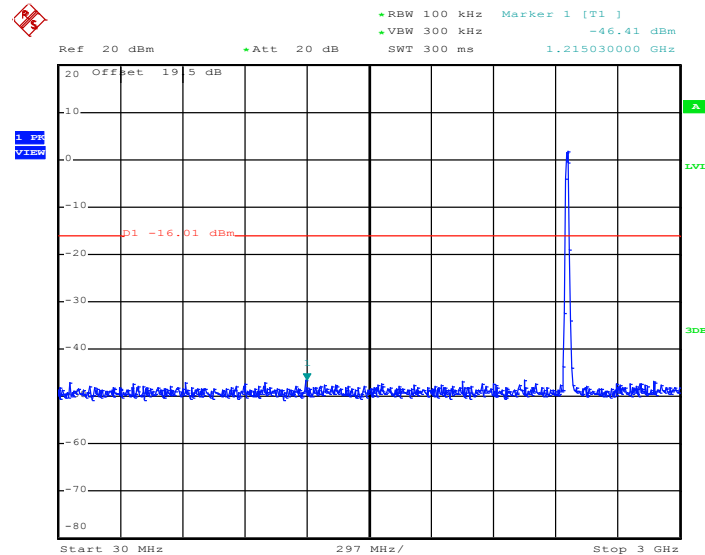
Date: 5.JUN.2012 13:30:01

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz

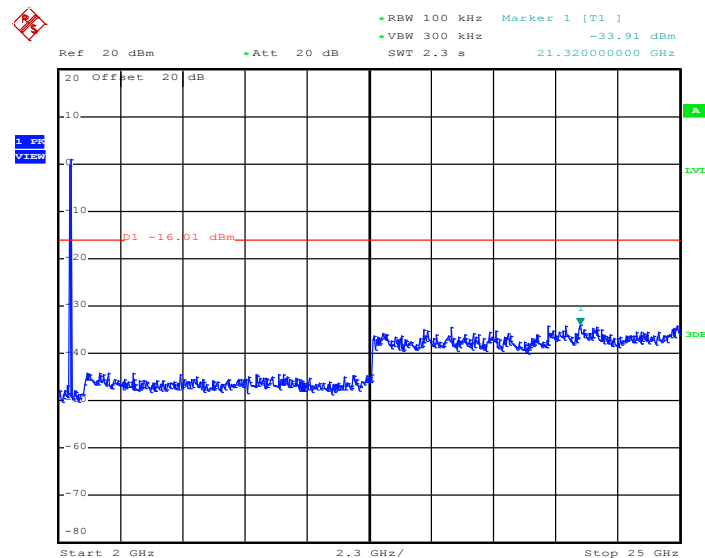
Date: 5.JUN.2012 13:30:18



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	11	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

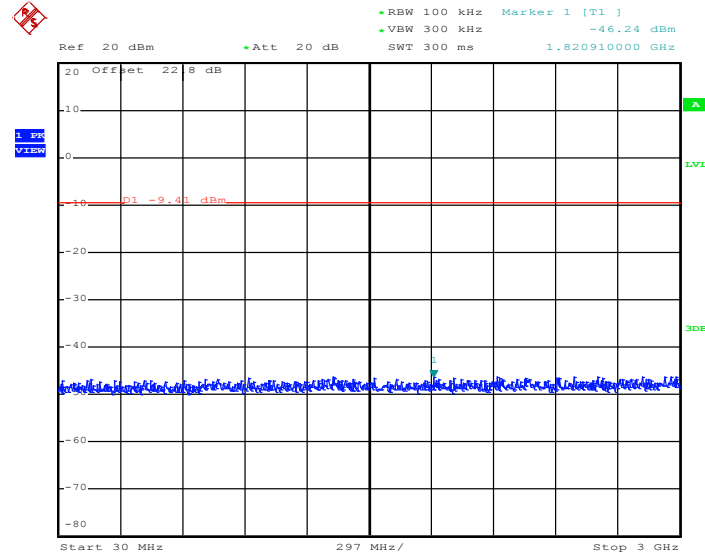
Date: 5.JUN.2012 13:27:11

Conducted Spurious Emission Plot between 2 GHz ~ 25 GHz

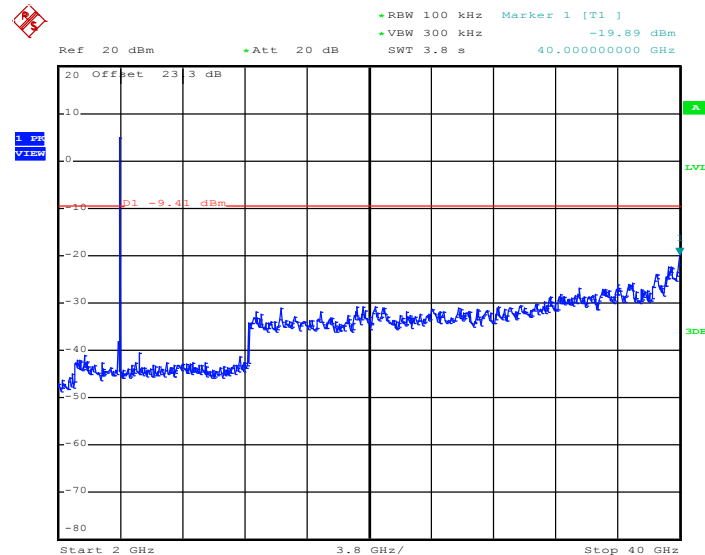
Date: 5.JUN.2012 13:27:29



Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

Date: 5.JUN.2012 13:44:22

Conducted Spurious Emission Plot between 2 GHz ~ 40 GHz

Date: 5.JUN.2012 13:44:40



Report No. : FR252422B

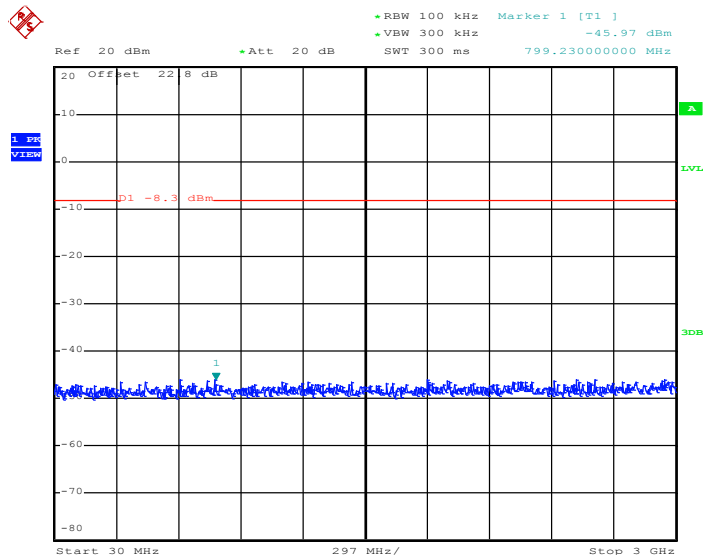
Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



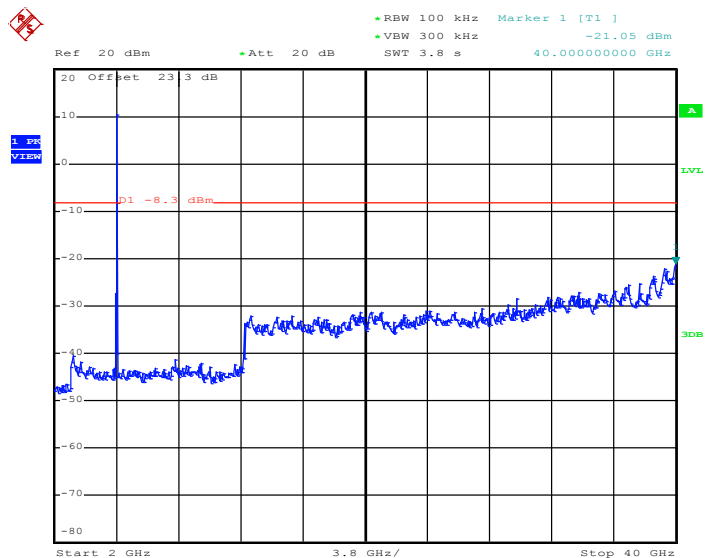
Date: 5.JUN.2012 13:46:52



Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	165	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

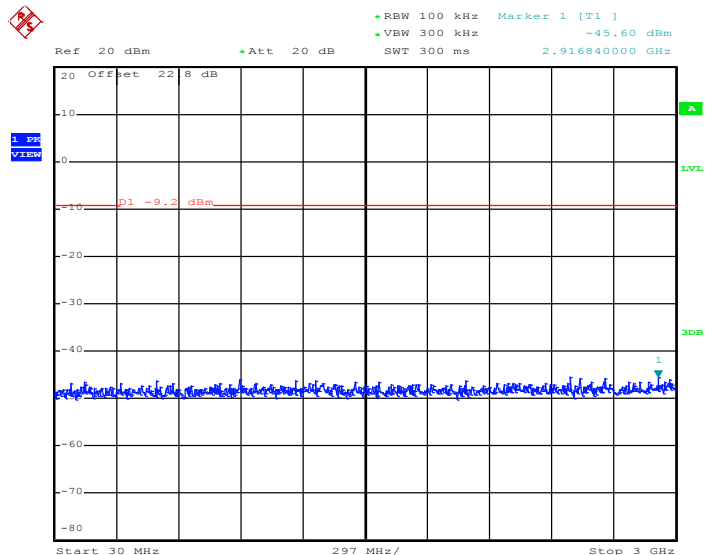
Date: 5.JUN.2012 13:49:07

Conducted Spurious Emission Plot between 2 GHz ~ 40 GHz

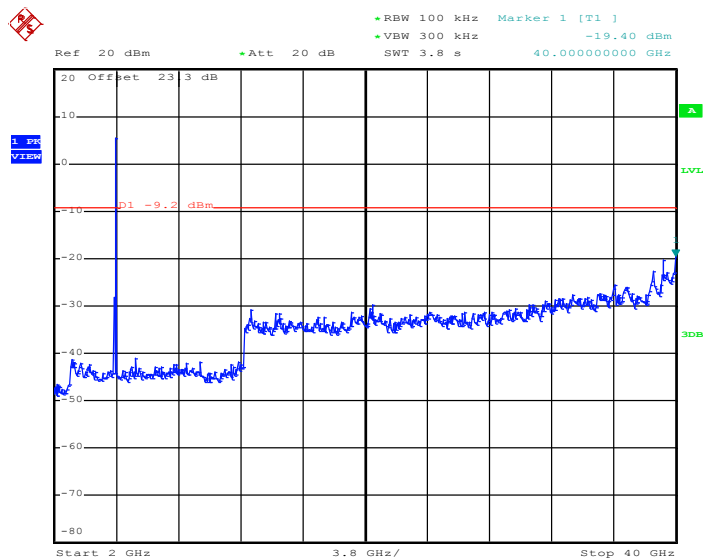
Date: 5.JUN.2012 13:49:25



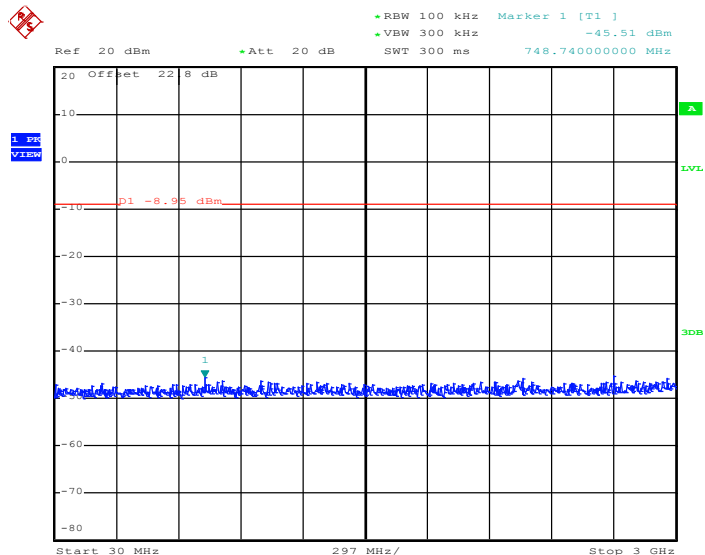
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	149	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz

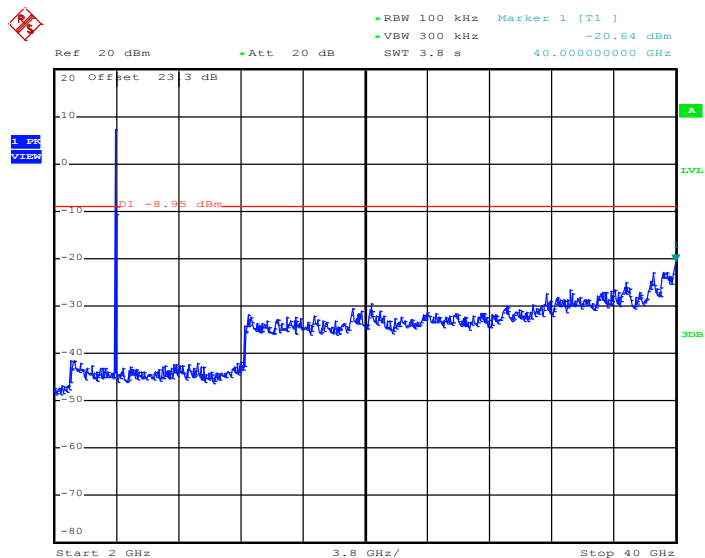
Date: 5.JUN.2012 13:57:55

Conducted Spurious Emission Plot between 2 GHz ~ 40 GHz

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	157	Test Engineer :	Pinkston Tu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz


Date: 5.JUN.2012 13:55:11

Conducted Spurious Emission Plot between 2 GHz ~ 40 GHz


Date: 5.JUN.2012 13:55:28



Report No. : FR252422B

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Conducted Spurious Emission Plot between 2 GHz ~ 40 GHz



3.5 Radiated Emission Measurement

3.5.1 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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

- The testing follows TCB Workshop 2012, April and the guidelines in ANSI C63.4-2003 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
- The EUT was placed on a turntable with 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving Antenna, which was mounted on the top of a variable height Antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- Use the following spectrum analyzer settings:
 - Span shall wide enough to fully capture the emission being measured;
 - Set 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;

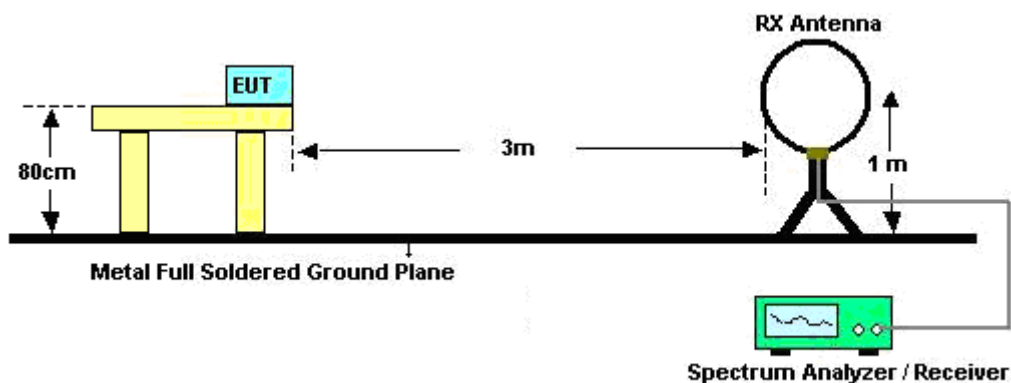
(3) Measurement above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB per decade from 3m to 1m.

Distance extrapolation factor = $20 \log (\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)

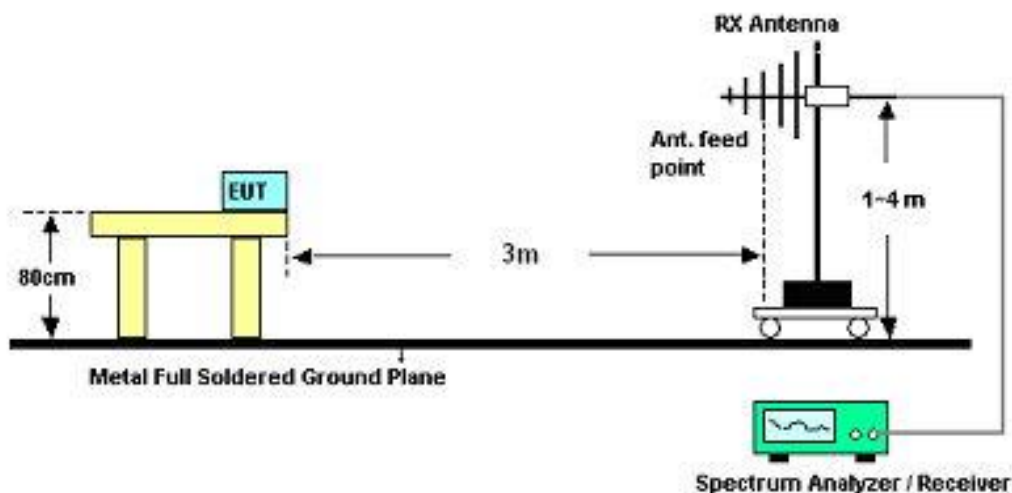
6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
7. If the emission level of the EUT measured by the peak detector is more than 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

3.5.4 Test Setup

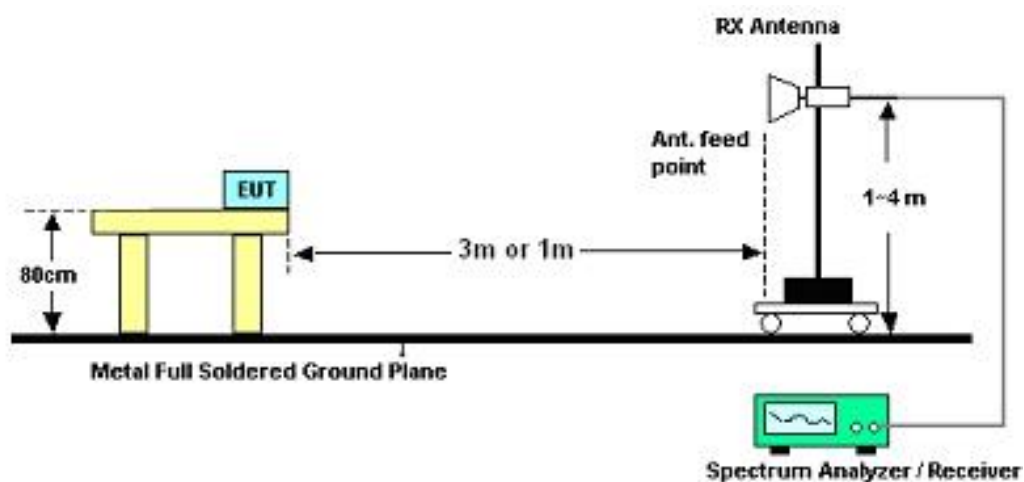
For radiated emissions below 30MHz



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 :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2383.91	58.4	-15.6	74	54.3	32.03	6.03	33.96	102	167	Peak
2383.91	50.9	-3.1	54	46.8	32.03	6.03	33.96	102	167	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	52.59	-21.41	74	48.49	32.03	6.03	33.96	100	67	Peak
2389.42	41.59	-12.41	54	37.46	32.06	6.03	33.96	100	67	Average

Test Mode :	802.11b	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2488.22	59.73	-14.27	74	55.37	32.18	6.18	34	132	170	Peak
2488.22	52.07	-1.93	54	47.69	32.2	6.18	34	132	170	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
2488.22	52.13	-21.87	74	47.77	32.18	6.18	34	100	62	Peak
2488.22	43.17	-10.83	54	38.79	32.2	6.18	34	100	62	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2389.61	72.69	-1.31	74	68.56	32.06	6.03	33.96	102	167	Peak
2389.61	50.65	-3.35	54	46.52	32.06	6.03	33.96	102	167	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
2389.99	65.41	-8.59	74	61.28	32.06	6.03	33.96	100	67	Peak
2389.99	43.03	-10.97	54	38.9	32.06	6.03	33.96	100	67	Average

Test Mode :	802.11g	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2483.66	72.5	-1.5	74	68.14	32.18	6.18	34	132	172	Peak
2483.66	51.81	-2.19	54	47.45	32.18	6.18	34	132	172	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	63.31	-10.69	74	58.95	32.18	6.18	34	100	62	Peak
2483.5	48.26	-5.74	54	43.9	32.18	6.18	34	100	62	Average



Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	01	Test Engineer :	Gavin Wu

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
2389.61	71.65	-2.35	74	67.52	32.06	6.03	33.96	102	167	Peak
2389.61	51.08	-2.92	54	46.95	32.06	6.03	33.96	102	167	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
2389.99	66.5	-7.5	74	62.37	32.06	6.03	33.96	100	65	Peak
2389.99	43.87	-10.13	54	39.74	32.06	6.03	33.96	100	65	Average

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	11	Test Engineer :	Gavin Wu

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
2484.23	72.63	-1.37	74	68.27	32.18	6.18	34	132	166	Peak
2484.23	52.27	-1.73	54	47.91	32.18	6.18	34	132	166	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
2483.66	68.11	-5.89	74	63.75	32.18	6.18	34	100	62	Peak
2483.66	45.74	-8.26	54	41.38	32.18	6.18	34	100	62	Average



Test Mode :	802.11a	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	149	Test Engineer :	Gavin Wu

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	95.12	-1.66	96.78	83.65	34.81	9.92	33.26	121	32	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	95.06	-2.35	97.41	83.59	34.81	9.92	33.26	111	272	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	165	Test Engineer :	Gavin Wu

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	94.74	-1.7	96.44	83.35	34.98	9.87	33.46	100	251	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	95.5	-1.04	96.54	84.11	34.98	9.87	33.46	100	267	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	149	Test Engineer :	Gavin Wu

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	94.25	-2.01	96.26	82.78	34.81	9.92	33.26	123	36	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	96.02	-1.72	97.74	84.55	34.81	9.92	33.26	100	273	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	165	Test Engineer :	Gavin Wu

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	93.7	-3.28	96.98	82.31	34.98	9.87	33.46	100	252	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	92.51	-5.08	97.59	81.12	34.98	9.87	33.46	100	268	Peak

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

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz and 9648 MHz are not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 114.24 dBuV/m - 20dB = 94.24 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
31.62	23.58	-16.42	40	36.34	18.56	0.55	31.87	-	-	Peak
49.17	28.04	-11.96	40	50.48	8.5	0.69	31.63	101	89	Peak
150.96	21.98	-21.52	43.5	41.03	11.13	1.21	31.39	-	-	Peak
341.3	23.87	-22.13	46	38.95	14.43	1.9	31.41	-	-	Peak
454.7	22.25	-23.75	46	33.95	17.15	2.31	31.16	-	-	Peak
789.3	23.78	-22.22	46	28.96	21.94	3.12	30.24	-	-	Peak
2383.91	50.9	-3.1	54	46.8	32.03	6.03	33.96	102	167	Average
2383.91	58.4	-15.6	74	54.3	32.03	6.03	33.96	102	167	Peak
2412	110.03	-	-	105.85	32.08	6.07	33.97	102	167	Average
2412	114.24	-	-	110.06	32.08	6.07	33.97	102	167	Peak
2500	40.68	-13.32	54	36.3	32.2	6.18	34	102	167	Average
2500	53.47	-20.53	74	49.09	32.2	6.18	34	102	167	Peak
4824	41.79	-32.21	74	58.56	34.1	9.12	59.99	100	0	Peak
7236	46.52	-47.72	94.24	60.18	35.7	10.03	59.39	100	0	Peak
9648	45.98	-48.26	94.24	57.69	36.62	11.99	60.32	100	0	Peak
12060	47.3	-26.7	74	52.55	38.94	13.44	57.63	100	0	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz and 9648 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
49.17	28.54	-11.46	40	50.98	8.5	0.69	31.63	121	78	Peak
106.95	22.3	-21.2	43.5	42.56	10.43	1.03	31.72	-	-	Peak
170.67	20.57	-22.93	43.5	41.14	9.47	1.23	31.27	-	-	Peak
341.3	21.85	-24.15	46	36.93	14.43	1.9	31.41	-	-	Peak
568.8	26.59	-19.41	46	35.72	19.26	2.6	30.99	-	-	Peak
796.3	26.64	-19.36	46	31.66	22.04	3.13	30.19	-	-	Peak
2389.42	41.59	-12.41	54	37.46	32.06	6.03	33.96	100	67	Average
2389.42	52.59	-21.41	74	48.49	32.03	6.03	33.96	100	67	Peak
2412	103.11	-	-	98.93	32.08	6.07	33.97	100	67	Average
2412	106.98	-	-	102.8	32.08	6.07	33.97	100	67	Peak
2486	34.67	-19.33	54	30.31	32.18	6.18	34	100	67	Average
2486	51.23	-22.77	74	46.87	32.18	6.18	34	100	67	Peak
7236	44.79	-42.19	86.98	58.45	35.7	10.03	59.39	100	0	Peak
9648	46.71	-40.27	86.98	58.42	36.62	11.99	60.32	100	0	Peak
12060	48.14	-25.86	74	53.39	38.94	13.44	57.63	100	0	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 9748 MHz is 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
30.27	25.65	-14.35	40	36.99	20	0.53	31.87	-	-	Peak
49.17	27.63	-12.37	40	50.07	8.5	0.69	31.63	121	147	Peak
227.64	17.43	-28.57	46	36.12	11.05	1.47	31.21	-	-	Peak
341.3	24.05	-21.95	46	39.13	14.43	1.9	31.41	-	-	Peak
454.7	22.27	-23.73	46	33.97	17.15	2.31	31.16	-	-	Peak
796.3	26.4	-19.6	46	31.42	22.04	3.13	30.19	-	-	Peak
2390	42.45	-11.55	54	38.32	32.06	6.03	33.96	101	171	Average
2390	52.65	-21.35	74	48.52	32.06	6.03	33.96	101	171	Peak
2437	110.97	-	-	106.71	32.13	6.11	33.98	101	171	Average
2437	114.89	-	-	110.63	32.13	6.11	33.98	101	171	Peak
2486	42.16	-11.84	54	37.8	32.18	6.18	34	101	171	Average
2486	53.26	-20.74	74	48.9	32.18	6.18	34	101	171	Peak
4874	43.54	-30.46	74	60.09	34.1	9.13	59.78	100	0	Peak
9748	43.67	-51.22	94.89	55.38	36.76	11.94	60.41	100	0	Peak
12185	48.48	-25.52	74	53.66	39.01	13.49	57.68	100	0	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2437 MHz is fundamental signal which can be ignored. 2. 9748 MHz is 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
49.17	28.44	-11.56	40	50.88	8.5	0.69	31.63	111	52	Peak
106.95	19.96	-23.54	43.5	40.22	10.43	1.03	31.72	-	-	Peak
170.67	20.97	-22.53	43.5	41.54	9.47	1.23	31.27	-	-	Peak
398	21.45	-24.55	46	34.86	15.95	2.14	31.5	-	-	Peak
568.8	26.54	-19.46	46	35.67	19.26	2.6	30.99	-	-	Peak
796.3	26.96	-19.04	46	31.98	22.04	3.13	30.19	-	-	Peak
2352	38.8	-15.2	54	34.78	32.01	5.95	33.94	100	62	Average
2352	50.39	-23.61	74	46.37	32.01	5.95	33.94	100	62	Peak
2437	102.65	-	-	98.39	32.13	6.11	33.98	100	62	Average
2437	106.53	-	-	102.27	32.13	6.11	33.98	100	62	Peak
2492	38.83	-15.17	54	34.45	32.2	6.18	34	100	62	Average
2492	50.9	-23.1	74	46.52	32.2	6.18	34	100	62	Peak
7311	41.39	-32.61	74	55.08	35.7	10.06	59.45	100	0	Peak
9748	44.41	-42.12	86.53	56.12	36.76	11.94	60.41	100	0	Peak
12185	48.98	-25.02	74	54.16	39.01	13.49	57.68	100	0	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 9848 MHz is 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
33.24	24.14	-15.86	40	37.62	17.84	0.56	31.88	-	-	Peak
49.17	27.38	-12.62	40	49.82	8.5	0.69	31.63	103	285	Peak
227.64	18.22	-27.78	46	36.91	11.05	1.47	31.21	-	-	Peak
341.3	24.54	-21.46	46	39.62	14.43	1.9	31.41	-	-	Peak
454.7	22.02	-23.98	46	33.72	17.15	2.31	31.16	-	-	Peak
796.3	25.55	-20.45	46	30.57	22.04	3.13	30.19	-	-	Peak
2354	35.05	-18.95	54	31.03	32.01	5.95	33.94	132	170	Average
2354	49.69	-24.31	74	45.67	32.01	5.95	33.94	132	170	Peak
2462	110.19	-	-	105.89	32.15	6.14	33.99	132	170	Average
2462	114.4	-	-	110.1	32.15	6.14	33.99	132	170	Peak
2488.22	52.07	-1.93	54	47.69	32.2	6.18	34	132	170	Average
2488.22	59.73	-14.27	74	55.37	32.18	6.18	34	132	170	Peak
4924	44.2	-29.8	74	60.53	34.1	9.15	59.58	100	0	Peak
9848	42.98	-51.42	94.4	54.7	36.88	11.88	60.48	100	0	Peak
12310	50.76	-23.24	74	55.86	39.09	13.53	57.72	100	0	Peak

Test Mode :	802.11b	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 9848 MHz is 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
49.17	28.34	-11.66	40	50.78	8.5	0.69	31.63	115	20	Peak
106.95	20.31	-23.19	43.5	40.57	10.43	1.03	31.72	-	-	Peak
295.68	21.64	-24.36	46	37.98	13.25	1.74	31.33	-	-	Peak
341.3	21.91	-24.09	46	36.99	14.43	1.9	31.41	-	-	Peak
568.8	26.46	-19.54	46	35.59	19.26	2.6	30.99	-	-	Peak
682.9	25.85	-20.15	46	32.92	20.46	2.91	30.44	-	-	Peak
2382	33.29	-20.71	54	29.19	32.03	6.03	33.96	100	62	Average
2382	50.13	-23.87	74	46.03	32.03	6.03	33.96	100	62	Peak
2462	103.8	-	-	99.5	32.15	6.14	33.99	100	62	Average
2462	107.68	-	-	103.38	32.15	6.14	33.99	100	62	Peak
2488.22	43.17	-10.83	54	38.79	32.2	6.18	34	100	62	Average
2488.22	52.13	-21.87	74	47.77	32.18	6.18	34	100	62	Peak
4924	43.13	-30.87	74	59.47	34.1	9.14	59.58	100	0	Peak
7386	42.28	-31.72	74	56	35.7	10.1	59.52	100	0	Peak
9848	43.16	-44.52	87.68	54.86	36.91	11.88	60.49	100	0	Peak
12310	46.04	-7.96	54	51.14	39.09	13.53	57.72	100	0	Average
12310	51.65	-22.35	74	56.75	39.09	13.53	57.72	100	0	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is 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
32.7	23.32	-16.68	40	36.8	17.84	0.56	31.88	-	-	Peak
49.17	26.52	-13.48	40	48.96	8.5	0.69	31.63	132	74	Peak
227.64	18.03	-27.97	46	36.72	11.05	1.47	31.21	-	-	Peak
341.3	24.22	-21.78	46	39.3	14.43	1.9	31.41	-	-	Peak
454.7	22.5	-23.5	46	34.2	17.15	2.31	31.16	-	-	Peak
874	25.13	-20.87	46	29.67	22.84	3.3	30.68	-	-	Peak
2389.61	50.65	-3.35	54	46.52	32.06	6.03	33.96	102	167	Average
2389.61	72.69	-1.31	74	68.56	32.06	6.03	33.96	102	167	Peak
2412	102.8	-	-	98.62	32.08	6.07	33.97	102	167	Average
2412	112.85	-	-	108.67	32.08	6.07	33.97	102	167	Peak
2490	38.24	-15.76	54	33.86	32.2	6.18	34	102	167	Average
2490	53.08	-20.92	74	48.7	32.2	6.18	34	102	167	Peak
7236	49.25	-43.6	92.85	62.91	35.7	10.03	59.39	100	0	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
49.17	29.01	-10.99	40	51.45	8.5	0.69	31.63	107	98	Peak
106.95	21.08	-22.42	43.5	41.34	10.43	1.03	31.72	-	-	Peak
170.67	21.06	-22.44	43.5	41.63	9.47	1.23	31.27	-	-	Peak
341.3	21.77	-24.23	46	36.85	14.43	1.9	31.41	-	-	Peak
568.8	26.68	-19.32	46	35.81	19.26	2.6	30.99	-	-	Peak
796.3	26.52	-19.48	46	31.54	22.04	3.13	30.19	-	-	Peak
2389.99	43.03	-10.97	54	38.9	32.06	6.03	33.96	100	67	Average
2389.99	65.41	-8.59	74	61.28	32.06	6.03	33.96	100	67	Peak
2412	95.13	-	-	90.95	32.08	6.07	33.97	100	67	Average
2412	104.84	-	-	100.66	32.08	6.07	33.97	100	67	Peak
2496	33.76	-20.24	54	29.38	32.2	6.18	34	100	67	Average
2496	50.34	-23.66	74	45.96	32.2	6.18	34	100	67	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
48.9	27.57	-12.43	40	49.62	8.9	0.68	31.63	128	157	Peak
82.38	15.77	-24.23	40	38.72	7.88	0.89	31.72	-	-	Peak
260.85	17.89	-28.11	46	34.8	12.75	1.6	31.26	-	-	Peak
341.3	23.82	-22.18	46	38.9	14.43	1.9	31.41	-	-	Peak
568.8	23.5	-22.5	46	32.63	19.26	2.6	30.99	-	-	Peak
796.3	25.79	-20.21	46	30.81	22.04	3.13	30.19	-	-	Peak
2384	43.72	-10.28	54	39.62	32.03	6.03	33.96	100	173	Average
2384	63.98	-10.02	74	59.88	32.03	6.03	33.96	100	173	Peak
2437	107.37	-	-	103.11	32.13	6.11	33.98	100	173	Average
2437	117.5	-	-	113.24	32.13	6.11	33.98	100	173	Peak
2484	45.56	-8.44	54	41.2	32.18	6.18	34	100	173	Average
2484	68.06	-5.94	74	63.7	32.18	6.18	34	100	173	Peak
12185	47.22	-26.78	74	52.4	39.01	13.49	57.68	100	0	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
49.17	29.15	-10.85	40	51.59	8.5	0.69	31.63	110	39	Peak
106.95	19.55	-23.95	43.5	39.81	10.43	1.03	31.72	-	-	Peak
170.67	20.92	-22.58	43.5	41.49	9.47	1.23	31.27	-	-	Peak
341.3	21.58	-24.42	46	36.66	14.43	1.9	31.41	-	-	Peak
568.8	26.13	-19.87	46	35.26	19.26	2.6	30.99	-	-	Peak
796.3	26.17	-19.83	46	31.19	22.04	3.13	30.19	-	-	Peak
2388	36.42	-17.58	54	32.29	32.06	6.03	33.96	100	62	Average
2388	55.25	-18.75	74	51.12	32.06	6.03	33.96	100	62	Peak
2437	99.14	-	-	94.88	32.13	6.11	33.98	100	62	Average
2437	109.13	-	-	104.87	32.13	6.11	33.98	100	62	Peak
2484	37.52	-16.48	54	33.16	32.18	6.18	34	100	62	Average
2484	55.87	-18.13	74	51.51	32.18	6.18	34	100	62	Peak
7311	42.25	-31.75	74	55.94	35.7	10.06	59.45	100	0	Peak
12185	47	-27	74	52.18	39.01	13.49	57.68	100	0	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
30.81	20.66	-19.34	40	32.71	19.28	0.54	31.87	-	-	Peak
170.67	20.49	-23.01	43.5	41.06	9.47	1.23	31.27	-	-	Peak
227.64	28.77	-17.23	46	47.46	11.05	1.47	31.21	-	-	Peak
341.3	23.45	-22.55	46	38.53	14.43	1.9	31.41	-	-	Peak
568.8	23.6	-22.4	46	32.73	19.26	2.6	30.99	-	-	Peak
803.3	25.19	-20.81	46	30.09	22.13	3.15	30.18	-	-	Peak
2388	39.24	-14.76	54	35.11	32.06	6.03	33.96	132	172	Average
2388	50.68	-23.32	74	46.55	32.06	6.03	33.96	132	172	Peak
2462	103.35	-	-	99.05	32.15	6.14	33.99	132	172	Average
2462	113.32	-	-	109.02	32.15	6.14	33.99	132	172	Peak
2483.66	51.81	-2.19	54	47.45	32.18	6.18	34	132	172	Average
2483.66	72.5	-1.5	74	68.14	32.18	6.18	34	132	172	Peak

Test Mode :	802.11g	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
42.69	21.66	-18.34	40	41.07	11.7	0.64	31.75	-	-	Peak
51.6	18.39	-21.61	40	41.43	7.9	0.71	31.65	-	-	Peak
227.64	25.18	-20.82	46	43.87	11.05	1.47	31.21	-	-	Peak
341.3	21.77	-24.23	46	36.85	14.43	1.9	31.41	-	-	Peak
568.8	26.1	-19.9	46	35.23	19.26	2.6	30.99	-	-	Peak
796.3	31.15	-14.85	46	36.17	22.04	3.13	30.19	-	-	Peak
2356	38.37	-15.63	54	34.35	32.01	5.95	33.94	100	62	Average
2356	50.62	-23.38	74	46.6	32.01	5.95	33.94	100	62	Peak
2462	95.92	-	-	91.62	32.15	6.14	33.99	100	62	Average
2462	106.4	-	-	102.1	32.15	6.14	33.99	100	62	Peak
2483.5	48.26	-5.74	54	43.9	32.18	6.18	34	100	62	Average
2483.5	63.31	-10.69	74	58.95	32.18	6.18	34	100	62	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 2412 MHz is fundamental signal which can be ignored. 2. 7236 MHz is 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
32.16	22.65	-17.35	40	35.41	18.56	0.55	31.87	-	-	Peak
49.17	23.22	-16.78	40	45.66	8.5	0.69	31.63	-	-	Peak
227.64	31.97	-14.03	46	50.66	11.05	1.47	31.21	108	36	Peak
321.7	27.94	-18.06	46	43.37	13.9	1.82	31.15	-	-	Peak
568.8	23.47	-22.53	46	32.6	19.26	2.6	30.99	-	-	Peak
849.5	25.82	-20.18	46	30.48	22.6	3.27	30.53	-	-	Peak
2389.61	51.08	-2.92	54	46.95	32.06	6.03	33.96	102	167	Average
2389.61	71.65	-2.35	74	67.52	32.06	6.03	33.96	102	167	Peak
2412	101.3	-	-	97.12	32.08	6.07	33.97	102	167	Average
2412	110.76	-	-	106.58	32.08	6.07	33.97	102	167	Peak
2492	40.33	-13.67	54	35.95	32.2	6.18	34	102	167	Average
2492	52.33	-21.67	74	47.95	32.2	6.18	34	102	167	Peak
7236	45.15	-45.61	90.76	58.8	35.7	10.03	59.38	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
30.54	20.75	-19.25	40	32.8	19.28	0.54	31.87	-	-	Peak
51.06	18.03	-21.97	40	41.05	7.9	0.71	31.63	-	-	Peak
227.64	24.84	-21.16	46	43.53	11.05	1.47	31.21	-	-	Peak
341.3	21.87	-24.13	46	36.95	14.43	1.9	31.41	-	-	Peak
625.5	26.1	-19.9	46	33.77	20	2.77	30.44	-	-	Peak
796.3	30.67	-15.33	46	35.69	22.04	3.13	30.19	145	21	Peak
2389.99	43.87	-10.13	54	39.74	32.06	6.03	33.96	100	65	Average
2389.99	66.5	-7.5	74	62.37	32.06	6.03	33.96	100	65	Peak
2412	93.66	-	-	89.48	32.08	6.07	33.97	100	65	Average
2412	103.35	-	-	99.17	32.08	6.07	33.97	100	65	Peak
2490	33.83	-20.17	54	29.45	32.2	6.18	34	100	65	Average
2490	45.91	-28.09	74	41.53	32.2	6.18	34	100	65	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
33.24	25.16	-14.84	40	38.64	17.84	0.56	31.88	102	118	Peak
49.17	24.88	-15.12	40	47.32	8.5	0.69	31.63	-	-	Peak
227.64	28.97	-17.03	46	47.66	11.05	1.47	31.21	-	-	Peak
341.3	23.86	-22.14	46	38.94	14.43	1.9	31.41	-	-	Peak
568.8	22.98	-23.02	46	32.11	19.26	2.6	30.99	-	-	Peak
814.5	25.16	-20.84	46	30	22.25	3.18	30.27	-	-	Peak
2386	43.53	-10.47	54	39.4	32.06	6.03	33.96	100	173	Average
2386	62.98	-11.02	74	58.85	32.06	6.03	33.96	100	173	Peak
2437	106.58	-	-	102.32	32.13	6.11	33.98	100	173	Average
2437	116.44	-	-	112.18	32.13	6.11	33.98	100	173	Peak
2486	45.35	-8.65	54	40.99	32.18	6.18	34	100	173	Average
2486	62.98	-11.02	74	58.62	32.18	6.18	34	100	173	Peak
12185	46.91	-27.09	74	52.09	39.01	13.49	57.68	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	06	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
31.35	21.73	-18.27	40	33.78	19.28	0.54	31.87	-	-	Peak
140.16	24.82	-18.68	43.5	43.7	11.38	1.2	31.46	-	-	Peak
144.21	25.84	-17.66	43.5	44.76	11.31	1.2	31.43	-	-	Peak
568.8	25.61	-20.39	46	34.74	19.26	2.6	30.99	-	-	Peak
682.9	29.38	-16.62	46	36.45	20.46	2.91	30.44	-	-	Peak
796.3	30.29	-15.71	46	35.31	22.04	3.13	30.19	100	92	Peak
2378	39.8	-14.2	54	35.73	32.03	5.99	33.95	100	61	Average
2378	57.98	-16.02	74	53.91	32.03	5.99	33.95	100	61	Peak
2437	98.23	-	-	93.97	32.13	6.11	33.98	100	61	Average
2437	108.92	-	-	104.66	32.13	6.11	33.98	100	61	Peak
2484	40.39	-13.61	54	36.03	32.18	6.18	34	100	61	Average
2484	58.87	-15.13	74	54.51	32.18	6.18	34	100	61	Peak
12185	47.1	-26.9	74	52.28	39	13.49	57.67	100	0	Peak



Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
32.97	22.52	-17.48	40	36	17.84	0.56	31.88	-	-	Peak
49.17	27.6	-12.4	40	50.04	8.5	0.69	31.63	112	100	Peak
227.64	28.56	-17.44	46	47.25	11.05	1.47	31.21	-	-	Peak
454.7	21.8	-24.2	46	33.5	17.15	2.31	31.16	-	-	Peak
568.8	22.64	-23.36	46	31.77	19.26	2.6	30.99	-	-	Peak
746.6	23.23	-22.77	46	29.41	21.3	3.05	30.53	-	-	Peak
2386	39.05	-14.95	54	34.92	32.06	6.03	33.96	132	166	Average
2386	50.37	-23.63	74	46.24	32.06	6.03	33.96	132	166	Peak
2462	101.96	-	-	97.66	32.15	6.14	33.99	132	166	Average
2462	111.39	-	-	107.09	32.15	6.14	33.99	132	166	Peak
2484.23	52.27	-1.73	54	47.91	32.18	6.18	34	132	166	Average
2484.23	72.63	-1.37	74	68.27	32.18	6.18	34	132	166	Peak
7386	44.04	-29.96	74	57.76	35.7	10.1	59.52	-	-	Peak



Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	11	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	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
42.96	25.02	-14.98	40	44.43	11.7	0.64	31.75	-	-	Peak
49.17	29.15	-10.85	40	51.59	8.5	0.69	31.63	106	225	Peak
227.64	24.32	-21.68	46	43.01	11.05	1.47	31.21	-	-	Peak
625.5	25.85	-20.15	46	33.52	20	2.77	30.44	-	-	Peak
682.9	30.63	-15.37	46	37.7	20.46	2.91	30.44	-	-	Peak
796.3	30.58	-15.42	46	35.6	22.04	3.13	30.19	-	-	Peak
2390	33.32	-20.68	54	29.19	32.06	6.03	33.96	100	62	Average
2390	44.71	-29.29	74	40.58	32.06	6.03	33.96	100	62	Peak
2462	94.79	-	-	90.49	32.15	6.14	33.99	100	62	Average
2462	104.24	-	-	99.94	32.15	6.14	33.99	100	62	Peak
2483.66	45.74	-8.26	54	41.38	32.18	6.18	34	100	62	Average
2483.66	68.11	-5.89	74	63.75	32.18	6.18	34	100	62	Peak
7386	42.66	-31.34	74	56.38	35.7	10.1	59.52	-	-	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signals 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
34.59	19.23	-20.77	40	34.13	16.4	0.58	31.88	105	221	Peak
121.53	20.2	-23.3	43.5	39	11.7	1.11	31.61	-	-	Peak
251.13	18.74	-27.26	46	35.76	12.61	1.54	31.17	-	-	Peak
454.7	22.05	-23.95	46	33.75	17.15	2.31	31.16	-	-	Peak
625.5	22.03	-23.97	46	29.7	20	2.77	30.44	-	-	Peak
796.3	24.3	-21.7	46	29.32	22.04	3.13	30.19	-	-	Peak
5725	95.12	-1.66	96.78	83.65	34.81	9.92	33.26	121	32	Peak
5745	105.84	-	-	94.39	34.84	9.91	33.3	121	32	Average
5745	116.78	-	-	105.33	34.84	9.91	33.3	121	32	Peak
5850	53.03	-43.75	96.78	41.64	34.98	9.87	33.46	121	32	Peak
17235	46.78	-50	96.78	47.86	42.07	14.37	57.52	100	0	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signals 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
42.96	24.36	-15.64	40	43.77	11.7	0.64	31.75	-	-	Peak
49.17	25.91	-14.09	40	48.35	8.5	0.69	31.63	112	187	Peak
121.53	20.2	-23.3	43.5	39	11.7	1.11	31.61	-	-	Peak
625.5	25.94	-20.06	46	33.61	20	2.77	30.44	-	-	Peak
739.6	23.86	-22.14	46	30.14	21.2	3.04	30.52	-	-	Peak
853.7	24.72	-21.28	46	29.37	22.63	3.28	30.56	-	-	Peak
5725	95.06	-2.35	97.41	83.59	34.81	9.92	33.26	111	272	Peak
5745	106.95	-	-	95.5	34.84	9.91	33.3	111	272	Average
5745	117.41	-	-	105.96	34.84	9.91	33.3	111	272	Peak
5850	52.83	-44.58	97.41	41.44	34.98	9.87	33.46	111	272	Peak
17235	47.08	-50.33	97.41	48.15	42.07	14.38	57.52	100	0	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signals which can be ignored. 2. 5725 MHz, 5850 MHz, and 17355 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
31.35	21.03	-18.97	40	33.08	19.28	0.54	31.87	-	-	Peak
152.58	18.49	-25.01	43.5	37.61	11.06	1.21	31.39	-	-	Peak
227.64	28.61	-17.39	46	47.3	11.05	1.47	31.21	105	207	Peak
341.3	23.58	-22.42	46	38.66	14.43	1.9	31.41	-	-	Peak
398	21.99	-24.01	46	35.4	15.95	2.14	31.5	-	-	Peak
568.8	23.19	-22.81	46	32.32	19.26	2.6	30.99	-	-	Peak
5725	67.85	-28.74	96.59	56.38	34.81	9.92	33.26	101	244	Peak
5785	108.41	-	-	96.96	34.89	9.9	33.34	101	244	Average
5785	116.59	-	-	105.14	34.89	9.9	33.34	101	244	Peak
5850	65.92	-30.67	96.59	54.53	34.98	9.87	33.46	101	244	Peak
17355	49.02	-47.57	96.59	50.04	41.97	14.41	57.4	100	0	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signals which can be ignored. 2. 5725 MHz, 5850 MHz, and 17355 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
30.81	20.8	-19.2	40	32.85	19.28	0.54	31.87	-	-	Peak
51.33	18.05	-21.95	40	41.07	7.9	0.71	31.63	-	-	Peak
219.81	25.46	-20.54	46	44.75	10.51	1.42	31.22	-	-	Peak
568.8	25.17	-20.83	46	34.3	19.26	2.6	30.99	-	-	Peak
682.9	29.59	-16.41	46	36.66	20.46	2.91	30.44	-	-	Peak
796.3	31.15	-14.85	46	36.17	22.04	3.13	30.19	112	183	Peak
5725	69.79	-27.96	97.75	58.32	34.81	9.92	33.26	100	264	Peak
5785	107.5	-	-	96.05	34.89	9.9	33.34	100	264	Average
5785	117.75	-	-	106.3	34.89	9.9	33.34	100	264	Peak
5850	64.35	-33.4	97.75	52.96	34.98	9.87	33.46	100	264	Peak
17355	46.94	-50.81	97.75	47.96	41.95	14.41	57.38	100	0	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signals 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
47.82	29.35	-10.65	40	51.03	9.3	0.67	31.65	103	167	Peak
227.64	28.52	-17.48	46	47.21	11.05	1.47	31.21	-	-	Peak
233.85	23.79	-22.21	46	42.04	11.46	1.5	31.21	-	-	Peak
341.3	24.53	-21.47	46	39.61	14.43	1.9	31.41	-	-	Peak
454.7	22.07	-23.93	46	33.77	17.15	2.31	31.16	-	-	Peak
724.9	22.54	-23.46	46	29.09	20.96	3	30.51	-	-	Peak
5725	62.96	-33.48	96.44	51.49	34.81	9.92	33.26	100	251	Peak
5825	103.34	-	-	91.92	34.96	9.88	33.42	100	251	Average
5825	116.44	-	-	105.02	34.96	9.88	33.42	100	251	Peak
5850	94.74	-1.7	96.44	83.35	34.98	9.87	33.46	100	251	Peak
17475	46.87	-49.57	96.44	47.83	41.83	14.45	57.24	100	0	Peak

Test Mode :	802.11a	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signals 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
48.9	29.26	-10.74	40	51.31	8.9	0.68	31.63	-	-	Peak
106.95	16.52	-26.98	43.5	36.78	10.43	1.03	31.72	-	-	Peak
227.64	23.87	-22.13	46	42.56	11.05	1.47	31.21	-	-	Peak
568.8	25.94	-20.06	46	35.07	19.26	2.6	30.99	-	-	Peak
682.9	30.02	-15.98	46	37.09	20.46	2.91	30.44	-	-	Peak
796.3	30.3	-15.7	46	35.32	22.04	3.13	30.19	-	-	Peak
5725	64.22	-32.32	96.54	52.75	34.81	9.92	33.26	100	267	Peak
5825	103.51	-	-	92.09	34.96	9.88	33.42	100	267	Average
5825	116.54	-	-	105.12	34.96	9.88	33.42	100	267	Peak
5850	95.5	-1.04	96.54	84.11	34.98	9.87	33.46	100	267	Peak
17475	46.38	-50.16	96.54	47.33	41.83	14.46	57.24	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signals which can be ignored. 2. 5725 MHz and 5850 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
32.97	20.5	-19.5	40	33.98	17.84	0.56	31.88	-	-	Peak
151.23	18.58	-24.92	43.5	37.63	11.13	1.21	31.39	-	-	Peak
227.64	28.1	-17.9	46	46.79	11.05	1.47	31.21	103	169	Peak
341.3	23.65	-22.35	46	38.73	14.43	1.9	31.41	-	-	Peak
454.7	23.16	-22.84	46	34.86	17.15	2.31	31.16	-	-	Peak
690.6	22.76	-23.24	46	29.78	20.52	2.92	30.46	-	-	Peak
5725	94.25	-2.01	96.26	82.78	34.81	9.92	33.26	123	36	Peak
5745	105.62	-	-	94.17	34.84	9.91	33.3	123	36	Average
5745	116.26	-	-	104.81	34.84	9.91	33.3	123	36	Peak
5850	52.28	-43.98	96.26	40.89	34.98	9.87	33.46	123	36	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signals which can be ignored. 2. 5725 MHz and 5850 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
49.17	29.82	-10.18	40	52.26	8.5	0.69	31.63	114	175	Peak
99.66	19.79	-23.71	43.5	40.66	9.8	0.99	31.66	-	-	Peak
227.64	24.06	-21.94	46	42.75	11.05	1.47	31.21	-	-	Peak
568.8	25.46	-20.54	46	34.59	19.26	2.6	30.99	-	-	Peak
682.9	30.22	-15.78	46	37.29	20.46	2.91	30.44	-	-	Peak
796.3	31.03	-14.97	46	36.05	22.04	3.13	30.19	-	-	Peak
5725	96.02	-1.72	97.74	84.55	34.81	9.92	33.26	100	273	Peak
5745	106.86	-	-	95.41	34.84	9.91	33.3	100	273	Average
5745	117.74	-	-	106.29	34.84	9.91	33.3	100	273	Peak
5850	52.75	-44.99	97.74	41.36	34.98	9.87	33.46	100	273	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signals which can be ignored. 2. 5725 MHz, 5850 MHz, and 17355 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
32.43	22.9	-17.1	40	36.37	17.84	0.56	31.87	116	134	Peak
54.3	20.96	-19.04	40	44.63	7.3	0.72	31.69	-	-	Peak
227.64	28.8	-17.2	46	47.49	11.05	1.47	31.21	-	-	Peak
341.3	24.31	-21.69	46	39.39	14.43	1.9	31.41	-	-	Peak
769	23.53	-22.47	46	29.2	21.63	3.09	30.39	-	-	Peak
812.4	25.21	-20.79	46	30.06	22.23	3.17	30.25	-	-	Peak
5725	69.77	-26.23	96	58.3	34.81	9.92	33.26	100	247	Peak
5785	106.84	-	-	95.39	34.89	9.9	33.34	100	247	Average
5785	116	-	-	104.55	34.89	9.9	33.34	100	247	Peak
5850	63.69	-32.31	96	52.3	34.98	9.87	33.46	100	247	Peak
17355	47.31	-48.69	96	48.32	41.95	14.42	57.38	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signals which can be ignored. 2. 5725 MHz, 5850 MHz and 17355 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
49.17	29.51	-10.49	40	51.95	8.5	0.69	31.63	114	169	Peak
226.56	24.47	-21.53	46	43.24	10.98	1.46	31.21	-	-	Peak
234.12	23.98	-22.02	46	42.23	11.46	1.5	31.21	-	-	Peak
568.8	25.34	-20.66	46	34.47	19.26	2.6	30.99	-	-	Peak
682.9	30.81	-15.19	46	37.88	20.46	2.91	30.44	-	-	Peak
796.3	29.95	-16.05	46	34.97	22.04	3.13	30.19	-	-	Peak
5725	72.3	-25.61	97.91	60.83	34.81	9.92	33.26	100	264	Peak
5785	107.15	-	-	95.7	34.89	9.9	33.34	100	264	Average
5785	117.91	-	-	106.46	34.89	9.9	33.34	100	264	Peak
5850	64.74	-33.17	97.91	53.35	34.98	9.87	33.46	100	264	Peak
17355	48.8	-49.11	97.91	49.81	41.95	14.42	57.38	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signals 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
30.27	19.82	-20.18	40	31.16	20	0.53	31.87	-	-	Peak
150.69	18.17	-25.33	43.5	37.15	11.2	1.21	31.39	-	-	Peak
227.64	28.52	-17.48	46	47.21	11.05	1.47	31.21	112	194	Peak
341.3	23.19	-22.81	46	38.27	14.43	1.9	31.41	-	-	Peak
454.7	22.95	-23.05	46	34.65	17.15	2.31	31.16	-	-	Peak
659.8	22.36	-23.64	46	29.61	20.27	2.86	30.38	-	-	Peak
5725	58.91	-38.07	96.98	47.44	34.81	9.92	33.26	100	252	Peak
5825	105.8	-	-	94.38	34.96	9.88	33.42	100	252	Average
5825	116.98	-	-	105.56	34.96	9.88	33.42	100	252	Peak
5850	93.7	-3.28	96.98	82.31	34.98	9.87	33.46	100	252	Peak
17475	45.89	-51.09	96.98	46.85	41.83	14.45	57.24	100	0	Peak

Test Mode :	802.11n HT-20	Temperature :	22~23°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signals 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
49.17	30.67	-9.33	40	53.11	8.5	0.69	31.63	106	147	Peak
91.02	17.94	-25.56	43.5	39.92	8.72	0.95	31.65	-	-	Peak
227.64	23.99	-22.01	46	42.68	11.05	1.47	31.21	-	-	Peak
568.8	25.52	-20.48	46	34.65	19.26	2.6	30.99	-	-	Peak
682.9	29.45	-16.55	46	36.52	20.46	2.91	30.44	-	-	Peak
796.3	30.37	-15.63	46	35.39	22.04	3.13	30.19	-	-	Peak
5725	64.48	-33.11	97.59	53.01	34.81	9.92	33.26	100	268	Peak
5825	106.76	-	-	95.34	34.96	9.88	33.42	100	268	Average
5825	117.59	-	-	106.17	34.96	9.88	33.42	100	268	Peak
5850	92.51	-5.08	97.59	81.12	34.98	9.87	33.46	100	268	Peak
17475	46.63	-50.96	97.59	47.58	41.83	14.46	57.24	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.

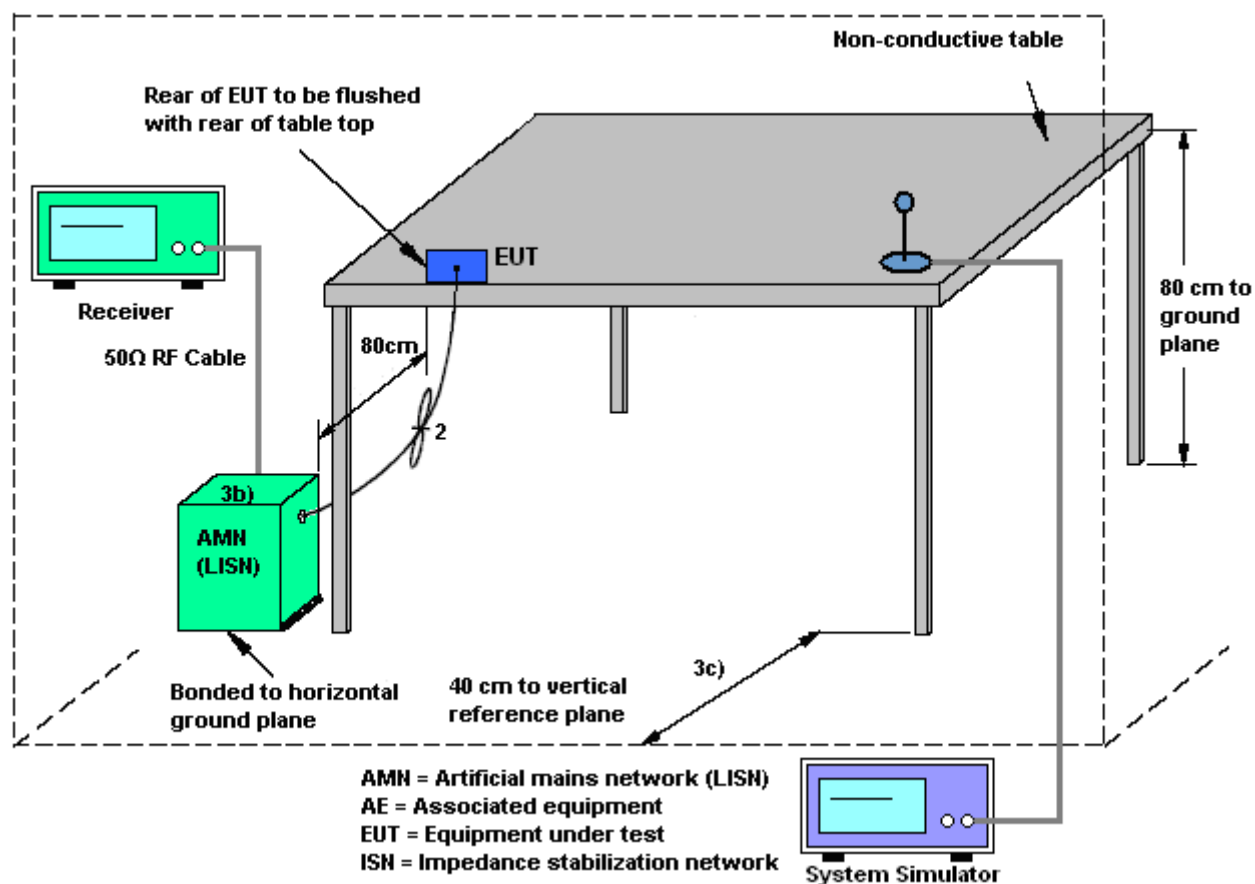
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

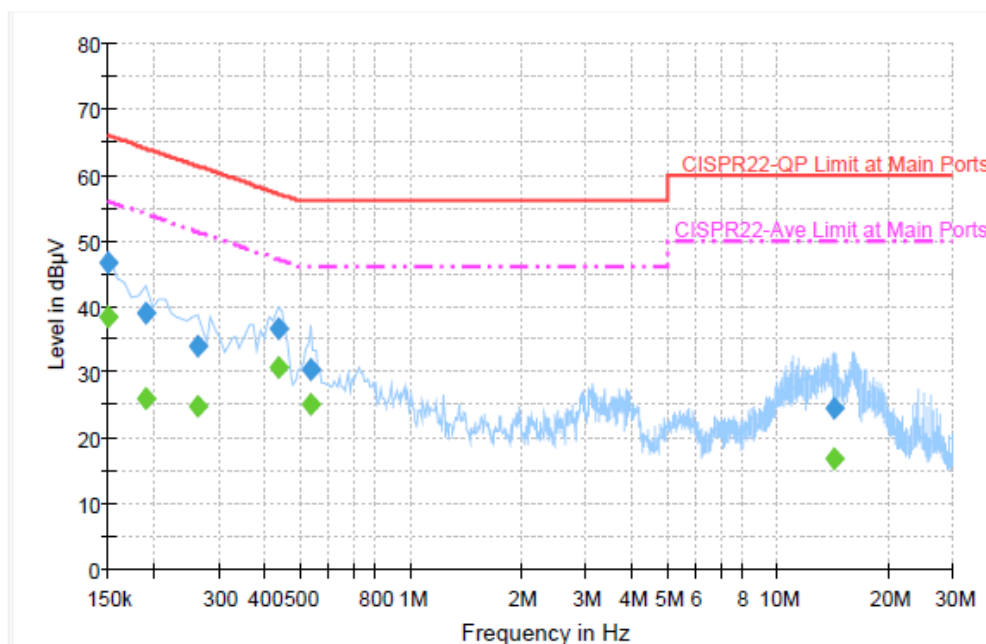
1. The testing follows the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (2.4G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



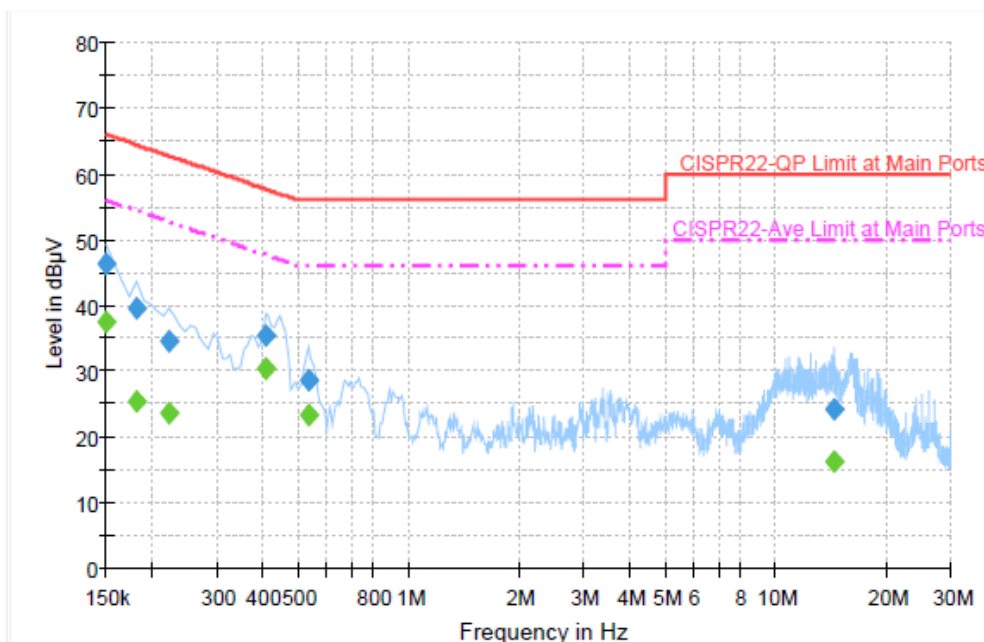
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	46.7	Off	L1	19.4	19.3	66.0
0.190000	38.9	Off	L1	19.4	25.1	64.0
0.262000	34.0	Off	L1	19.4	27.4	61.4
0.438000	36.7	Off	L1	19.5	20.4	57.1
0.534000	30.5	Off	L1	19.4	25.5	56.0
14.358000	24.5	Off	L1	19.6	35.5	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.3	Off	L1	19.4	17.7	56.0
0.190000	26.1	Off	L1	19.4	27.9	54.0
0.262000	24.8	Off	L1	19.4	26.6	51.4
0.438000	30.8	Off	L1	19.5	16.3	47.1
0.534000	25.2	Off	L1	19.4	20.8	46.0
14.358000	16.8	Off	L1	19.6	33.2	50.0

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (2.4G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

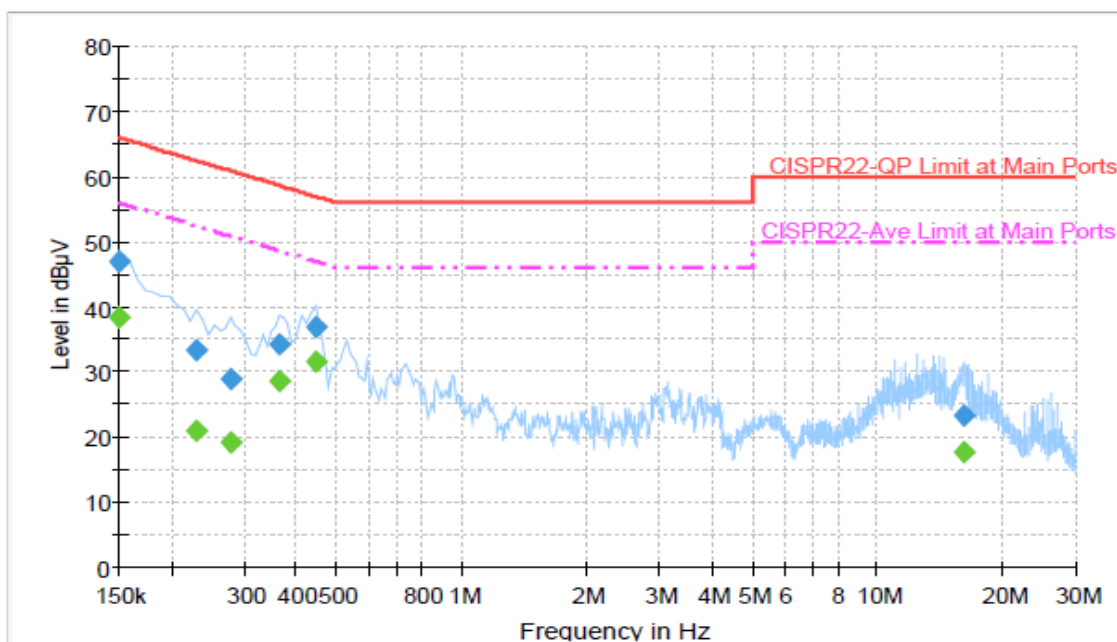

Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	46.3	Off	N	19.4	19.7	66.0
0.182000	39.7	Off	N	19.4	24.7	64.4
0.222000	34.5	Off	N	19.4	28.2	62.7
0.406000	35.5	Off	N	19.5	22.2	57.7
0.534000	28.8	Off	N	19.4	27.2	56.0
14.390000	24.1	Off	N	19.7	35.9	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	37.5	Off	N	19.4	18.5	56.0
0.182000	25.4	Off	N	19.4	29.0	54.4
0.222000	23.6	Off	N	19.4	29.1	52.7
0.406000	30.5	Off	N	19.5	17.2	47.7
0.534000	23.3	Off	N	19.4	22.7	46.0
14.390000	16.1	Off	N	19.7	33.9	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + Adapter		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		

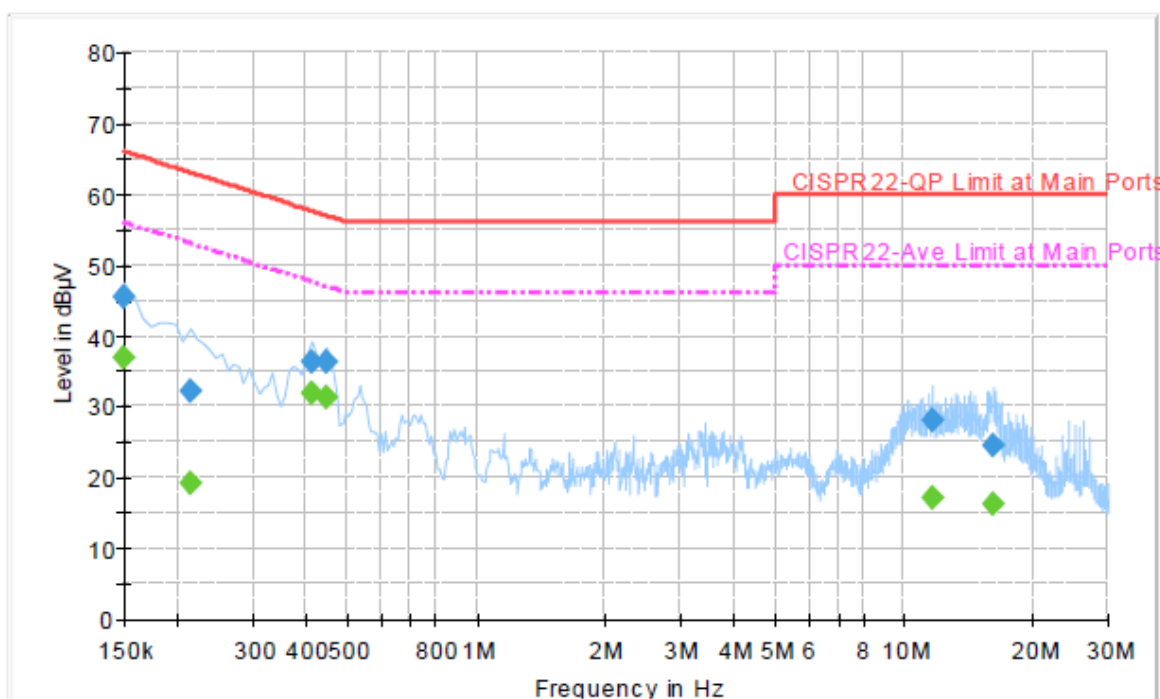

Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	46.9	Off	L1	19.4	19.1	66.0
0.230000	33.4	Off	L1	19.4	29.0	62.4
0.278000	28.8	Off	L1	19.4	32.1	60.9
0.366000	34.1	Off	L1	19.4	24.5	58.6
0.446000	36.8	Off	L1	19.4	20.1	56.9
16.086000	23.4	Off	L1	19.6	36.6	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.5	Off	L1	19.4	17.5	56.0
0.230000	21.1	Off	L1	19.4	31.3	52.4
0.278000	19.1	Off	L1	19.4	31.8	50.9
0.366000	28.5	Off	L1	19.4	20.1	48.6
0.446000	31.5	Off	L1	19.4	15.4	46.9
16.086000	17.7	Off	L1	19.6	32.3	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 (GPRS 8) Idle + Bluetooth Link + WLAN (5G) Link + USB Link (Data Link with Notebook) + HDMI Cable with Monitor + Earphone + Micro USB Link + 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)
0.150000	45.5	Off	N	19.4	20.5	66.0
0.214000	32.3	Off	N	19.4	30.7	63.0
0.414000	36.2	Off	N	19.5	21.4	57.6
0.446000	36.2	Off	N	19.4	20.7	56.9
11.710000	28.1	Off	N	19.6	31.9	60.0
16.230000	24.5	Off	N	19.7	35.5	60.0

Final Result : Average

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	36.9	Off	N	19.4	19.1	56.0
0.214000	19.1	Off	N	19.4	33.9	53.0
0.414000	31.8	Off	N	19.5	15.8	47.6
0.446000	31.2	Off	N	19.4	15.7	46.9
11.710000	17.2	Off	N	19.6	32.8	50.0
16.230000	16.3	Off	N	19.7	33.7	50.0



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. 13, 2011	May 25, 2012 ~ Jun. 05, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	May 25, 2012 ~ Jun. 05, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	May 25, 2012 ~ Jun. 05, 2012	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 24, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 24, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 24, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 24, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	May 24, 2012	Jul. 27, 2013	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	May 25, 2012 ~ Jun. 01, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	May 25, 2012 ~ Jun. 01, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	May 25, 2012 ~ Jun. 01, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15GHz ~ 40GHz	Oct. 21, 2011	May 25, 2012 ~ Jun. 01, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A023 62	1GHz ~ 26.5GHz	Dec. 05, 2011	May 25, 2012 ~ Jun. 01, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Feb. 27, 2012	May 25, 2012 ~ Jun. 01, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	May 25, 2012 ~ Jun. 01, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	May 25, 2012 ~ Jun. 01, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9 kHz~30 MHz	Jul. 29, 2010	May 25, 2012 ~ Jun. 01, 2012	Jul. 28, 2012	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 EP252422 as below.