

FCC RF Test Report

APPLICANT : Sony Corporation
EQUIPMENT : Tablet Device
BRAND NAME : SONY
MODEL NAME : SGPT1311
FCC ID : AK8SGPT1311
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Jun. 13, 2012 and completely tested on Jun. 21, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

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

Reviewed by:



Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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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	-
			Radiated Spurious Emission		Pass	Under limit 8.06 dB at 5725.000 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 7.90 dB at 0.198 MHz
3.7	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Sony Corporation

1-7-1 Konan, Minato-ku Tokyo, 108-0075 Japan

1.2 Manufacturer

HON HAI PRECISION IND., CO., LTD.

3F, No. 2, Ziyou St., Tucheng Dist., New Taipei City 236, Taiwan, R.O.C.

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Tablet Device
Brand Name	SONY
Model Name	SGPT1311
Integrated Module	Brand Name: SAMSUNG Model Name: SWB-A51H
FCC ID	AK8SGPT1311
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA WLAN 11abgn / Bluetooth
EUT Stage	Identical Prototype

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



Product Specification subjective to this standard	
Tx/Rx Channel Frequency Range	802.11b/g/n : 2412 MHz ~ 2462 MHz 802.11a/n: 5745~5825MHz.
Maximum Output Power to Antenna	<2412 MHz ~ 2462 MHz> 802.11b : 15.82 dBm (0.0382 W) 802.11g : 22.38 dBm (0.1730 W) 802.11n HT-20 : 22.07 dBm (0.1611 W) <5745 MHz ~ 5825 MHz> 802.11a : 16.75 dBm (0.0473 W) 802.11n HT-20 : 16.83 dBm (0.0482 W) 802.11n HT-40 : 16.82 dBm (0.0481 W)
99% Occupied Bandwidth	<2412 MHz ~ 2462 MHz> 802.11b : 13.75MHz 802.11g : 16.45MHz 802.11n HT-20 : 17.65MHz <5745 MHz ~ 5825 MHz> 802.11a : 16.40MHz 802.11n HT-20 : 17.65MHz 802.11n HT-40 : 36.20MHz
Antenna Type	802.11b/g/n : Inverted-F Antenna with gain 2.72 dBi 802.11a/n : Inverted-F Antenna with gain 1.22 dBi
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

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.
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1

1.5 Applied Standards

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

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01
- FCC TCB Workshop 2012, April
- ANSI C63.4-2003 and ANSI C63.10-2009
- IC RSS-210 Issue 8
- IC RSS-Gen Issue 3

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

1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
4.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	iPod Earphone	Apple	N/A	FCC DoC	Unshielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

WLAN 802.11b / 802.11g / 802.11n:

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	-	-

WLAN 802.11a / 802.11n HT-20:

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	161	5805
	153	5765	165	5825
	157	5785	-	-

WLAN 802.11n HT-40:

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	151	5755	159	5795

2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate as below table and the highest power data rates (11b, 11g, 11n HT-20, 11a, 11n HT-20, 11n HT-40 modes) were chosen for full test in the following sections to demonstrate compliance to the FCC limit line.

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	15.82	15.78	15.68	15.74

2.4GHz 802.11g mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.38	22.05	22.08	21.92	22.22	22.00	22.18	22.01

2.4GHz 802.11n HT-20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.07	22.00	22.01	21.91	21.86	21.89	22.01	21.89

5GHz 802.11a mode								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	16.75	16.44	16.43	15.92	16.73	16.64	16.22	16.04

5GHz 802.11n HT-20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	16.83	16.31	16.39	16.02	15.96	16.13	16.78	16.31

5GHz 802.11n HT-40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	16.82	16.11	16.32	16.48	16.32	16.72	16.32	14.86



2.3 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and ANSI C63.10-2009 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.

The following table is showing the total pre-scanned test modes, and the worst cases (Z plane) are recorded in this report only.

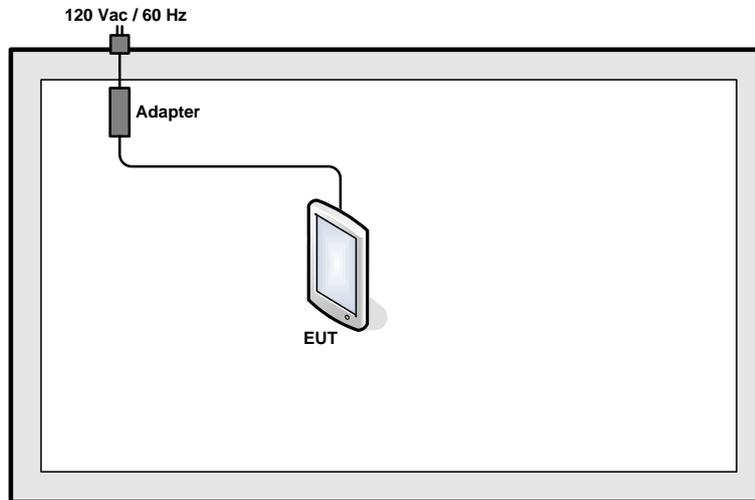
Test Cases				
Test Item	802.11b (Modulation : DSSS)			
	802.11g/n (Modulation : OFDM)			
	802.11a/n (Modulation : OFDM)			
Conducted TCs	Test Mode	802.11b	802.11g	802.11n HT-20
	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
	Test Mode	802.11a	802.11n HT-20	
	CH149	10	13	
	CH157	11	14	
	CH165	12	15	
	Test Mode	802.11n HT-40		
	CH151	16		
	CH159	17		



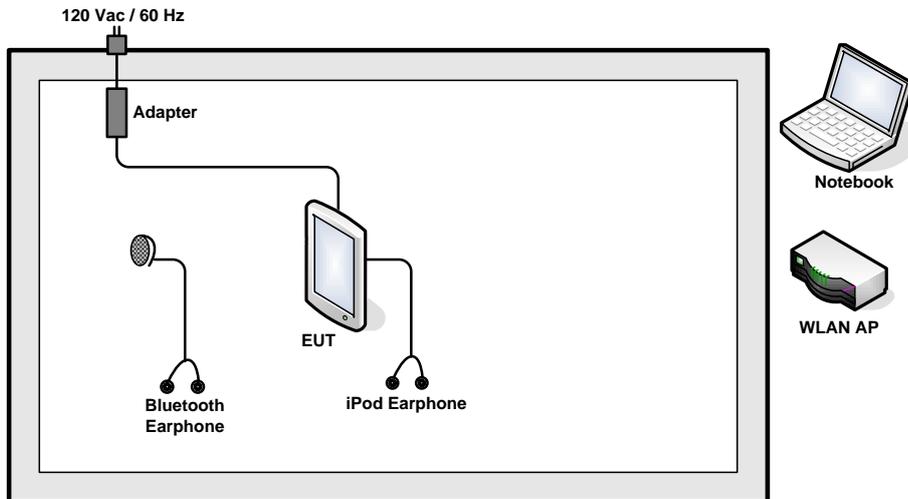
Test Cases				
Radiated TCs	Test Mode	802.11b	802.11g	802.11n HT-20
	CH01	1	4	7
	CH06	2	5	8
	CH11	3	6	9
	Test Mode	802.11a		802.11n HT-20
	CH149	10		13
	CH157	11		14
	CH165	12		15
	Test Mode	802.11n HT-40		
	CH151	16		
	CH159	17		
	AC Conducted Emission	Mode 1 :WLAN (2.4G) Link + Bluetooth Link + Earphone + H Pattern + USB Cable (Charging from Adapter) Mode 2 :WLAN (5G) Link + Bluetooth Link + Earphone + Camera + USB Cable (Charging from Adapter) Mode 3 :WLAN (2.4G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Charging from Adapter) Mode 4 :WLAN (5G) Link + Bluetooth Link + Earphone + GPS Rx + USB Cable (Charging from Adapter)		
Remark: The worst case of conducted emission is mode 3; only the test data of it was reported.				

2.4 Connection Diagram of Test System

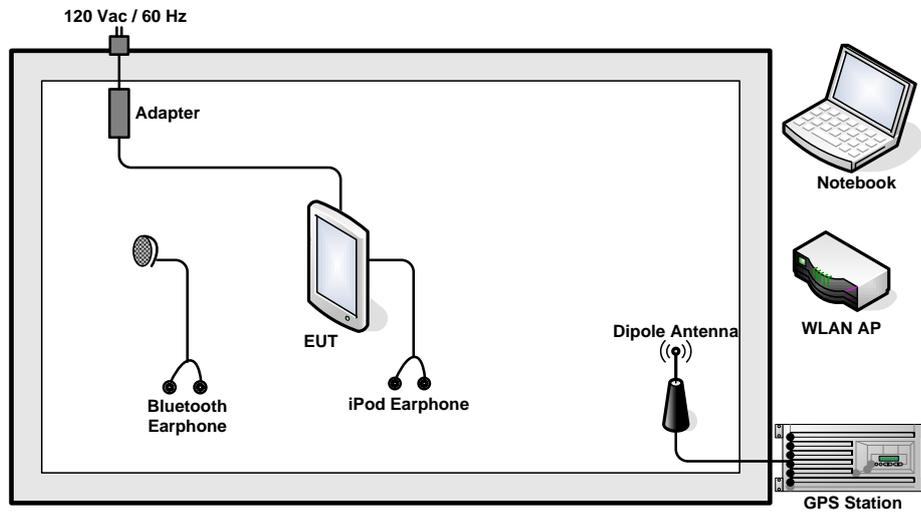
<WLAN Tx Mode>



<EUT with Adapter Mode>



<EUT with Adapter in GPS Rx Mode>



2.5 RF Utility

The programmed RF utility "AT Command" is installed in Notebook 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.

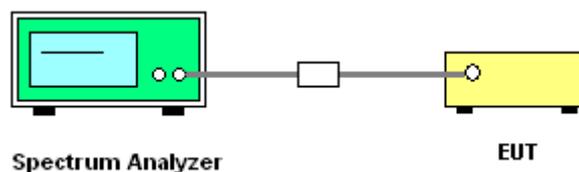
3.1.2 Measuring Instruments

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°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.24	0.5	Pass
06	2437	10.20	0.5	Pass
11	2462	10.20	0.5	Pass

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.44	0.5	Pass
06	2437	16.44	0.5	Pass
11	2462	16.44	0.5	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.68	0.5	Pass
06	2437	17.68	0.5	Pass
11	2462	17.68	0.5	Pass



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

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	16.32	0.5	Pass
157	5785	16.40	0.5	Pass
165	5825	16.36	0.5	Pass

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

Channel	Frequency (MHz)	5GHz 802.11n HT-20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	17.56	0.5	Pass
157	5785	17.60	0.5	Pass
165	5825	17.56	0.5	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT-40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
151	5755	36.16	0.5	Pass
159	5795	36.24	0.5	Pass



3.1.6 Test Result of 99% Occupied Bandwidth

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

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	13.70	Pass
06	2437	13.75	Pass
11	2462	13.75	Pass

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

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	16.45	Pass
06	2437	16.45	Pass
11	2462	16.45	Pass

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

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.65	Pass
06	2437	17.65	Pass
11	2462	17.65	Pass



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

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	16.40	Pass
157	5785	16.40	Pass
165	5825	16.40	Pass

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

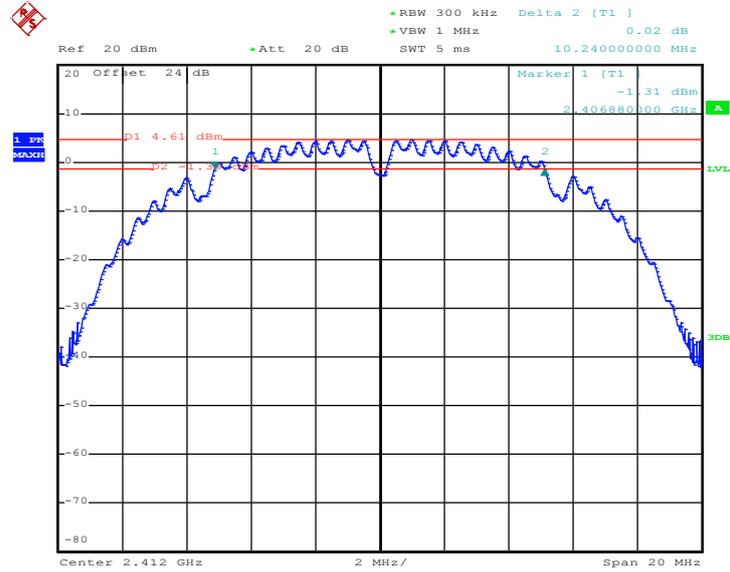
Channel	Frequency (MHz)	5GHz 802.11n HT-20 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	17.65	Pass
157	5785	17.60	Pass
165	5825	17.60	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT-40 99% Occupied Bandwidth (MHz)	Pass/Fail
151	5755	36.20	Pass
159	5795	36.00	Pass

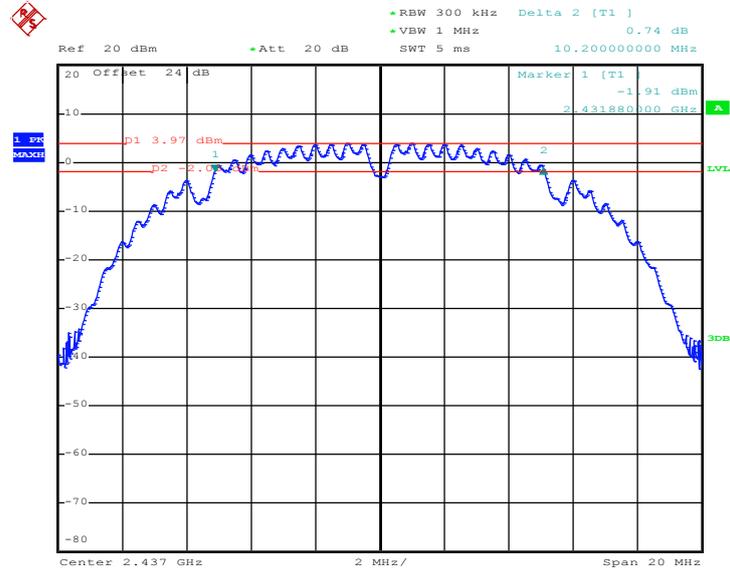
3.1.7 Test Result of 6dB Bandwidth Plots

6 dB Bandwidth Plot on 802.11b Channel 01



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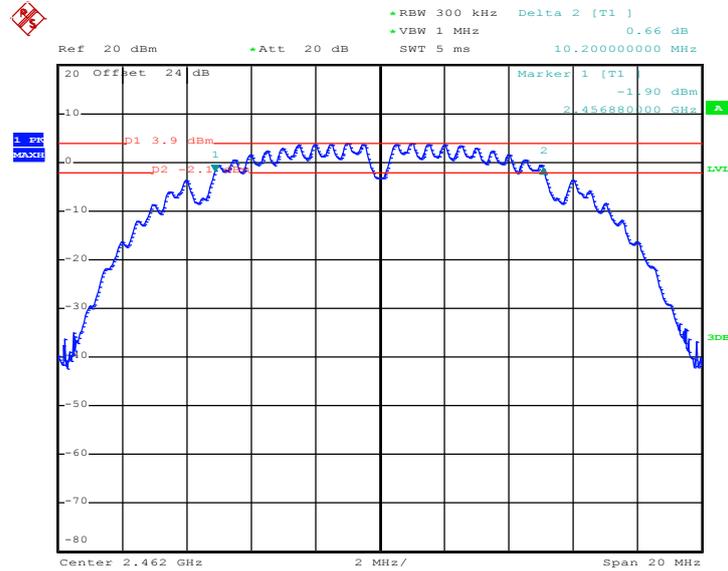
6 dB Bandwidth Plot on 802.11b Channel 06



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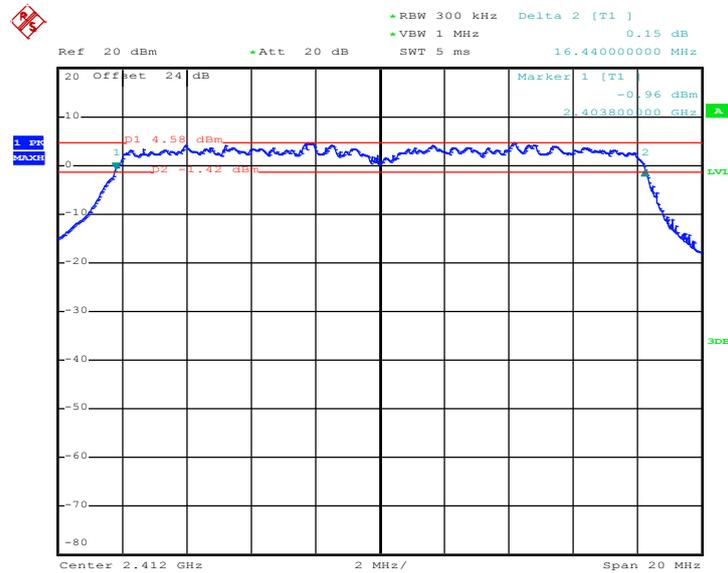


6 dB Bandwidth Plot on 802.11b Channel 11



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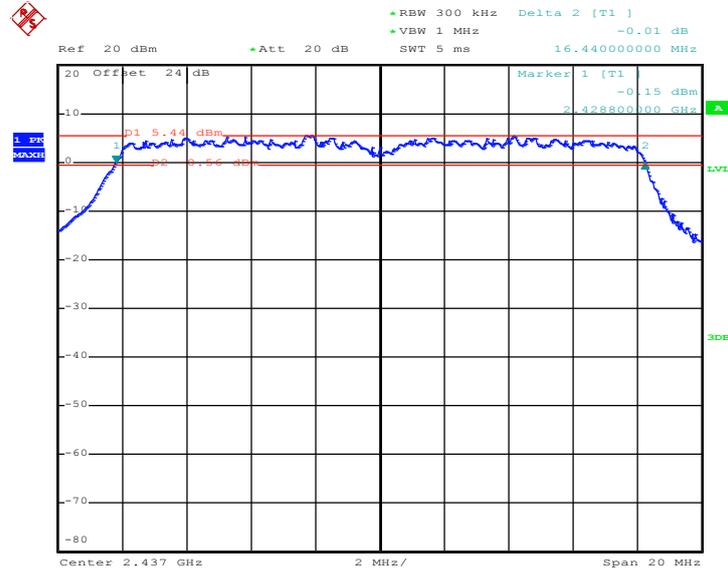
6 dB Bandwidth Plot on 802.11g Channel 01



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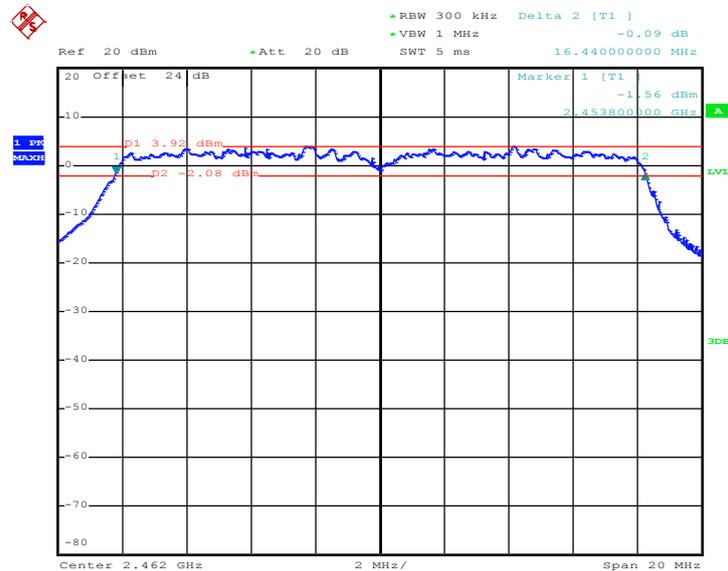


6 dB Bandwidth Plot on 802.11g Channel 06



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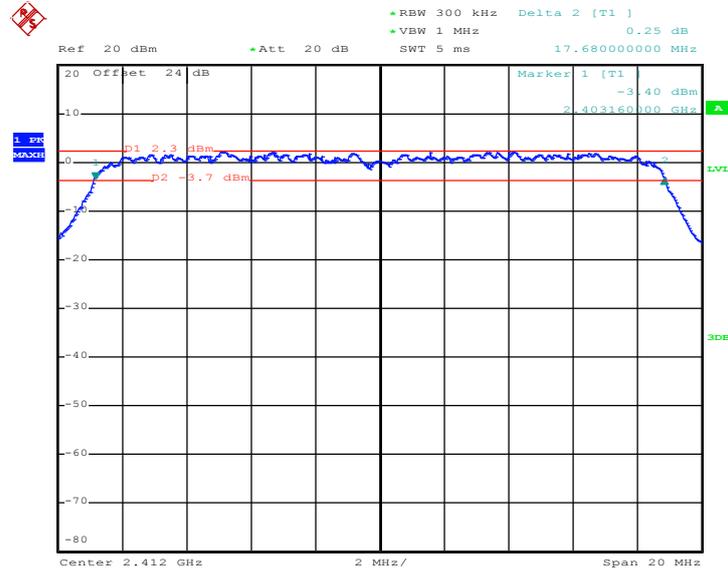
6 dB Bandwidth Plot on 802.11g Channel 11



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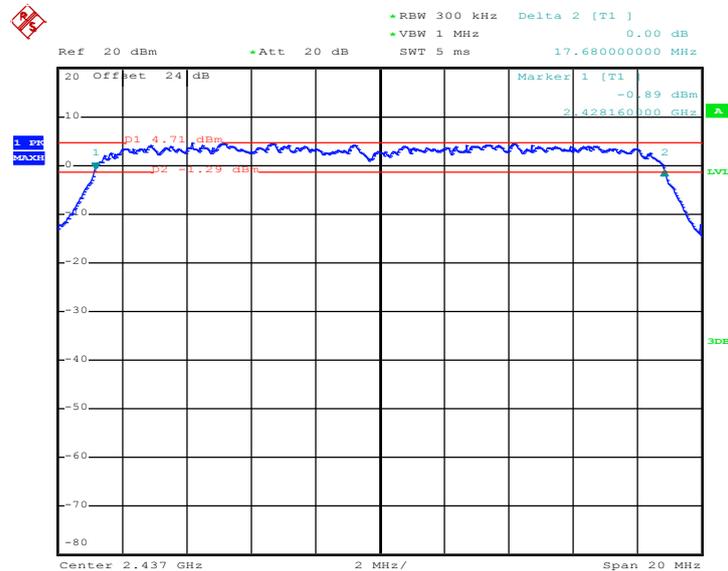


6 dB Bandwidth Plot on 2.4G 802.11n HT-20 Channel 01



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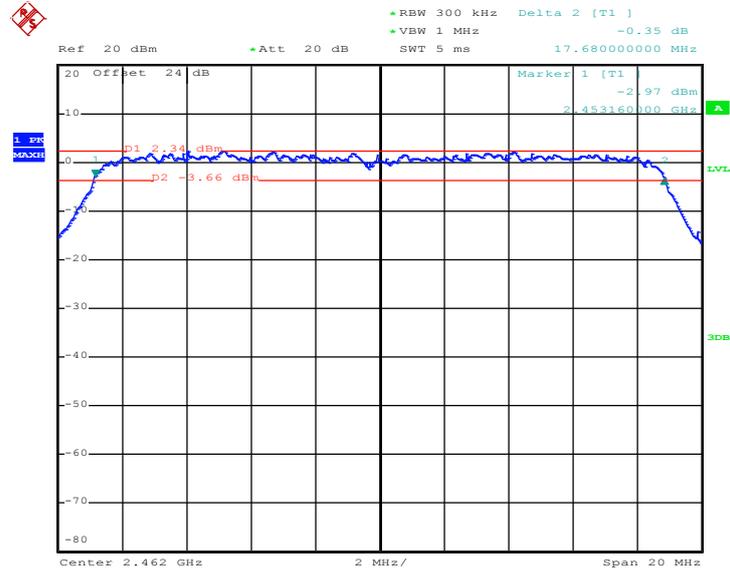
6 dB Bandwidth Plot on 2.4G 802.11n HT-20 Channel 06



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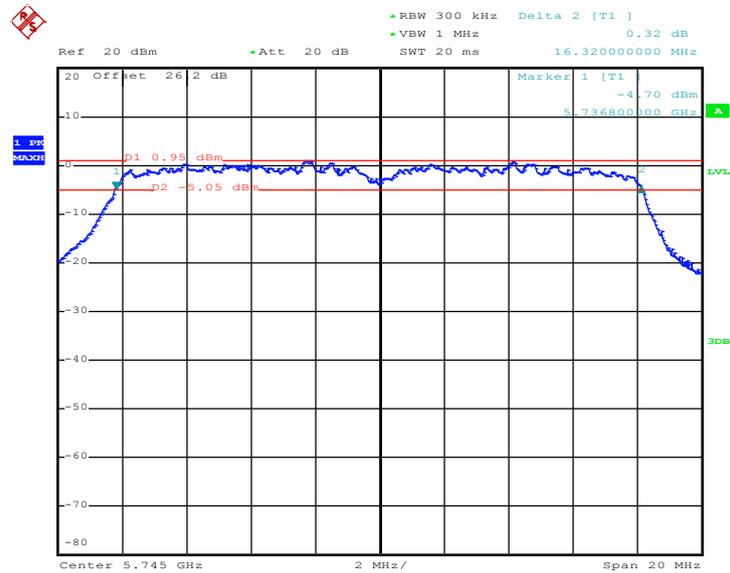


6 dB Bandwidth Plot on 2.4G 802.11n HT-20 Channel 11



Date: 21.JUN.2012 22:56:26

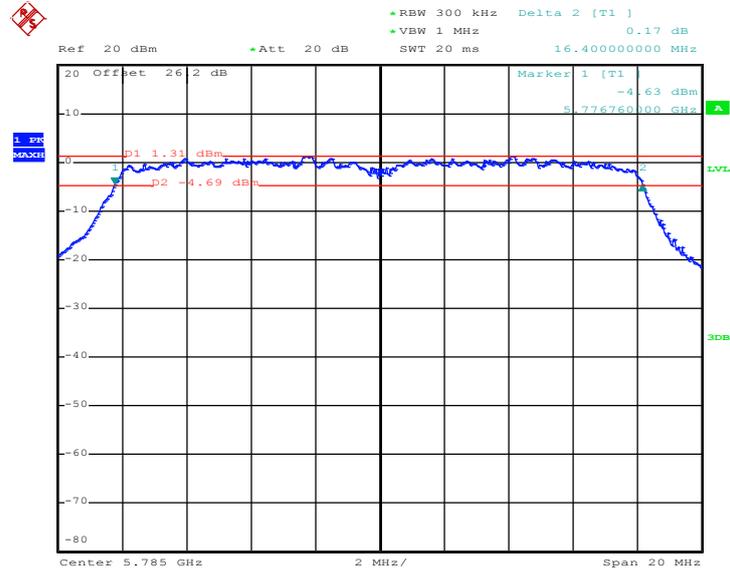
6 dB Bandwidth Plot on 802.11a Channel 149



Date: 21.JUN.2012 19:05:49

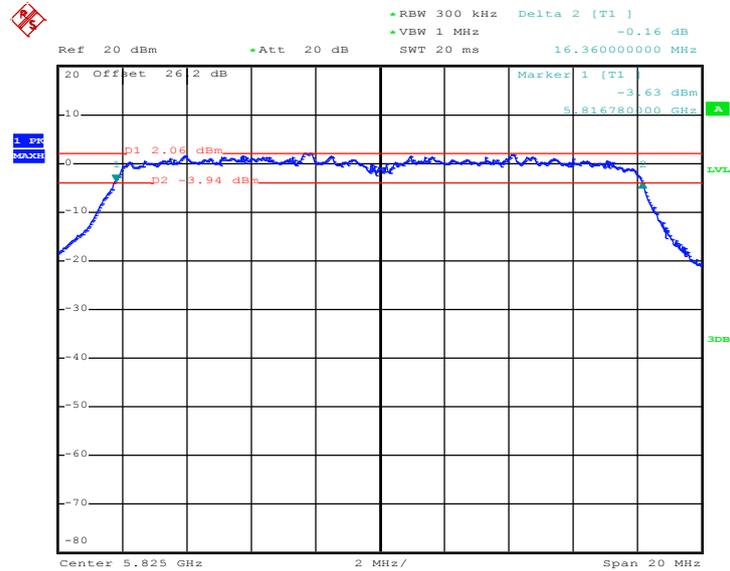


6 dB Bandwidth Plot on 802.11a Channel 157



Date: 21.JUN.2012 21:04:12

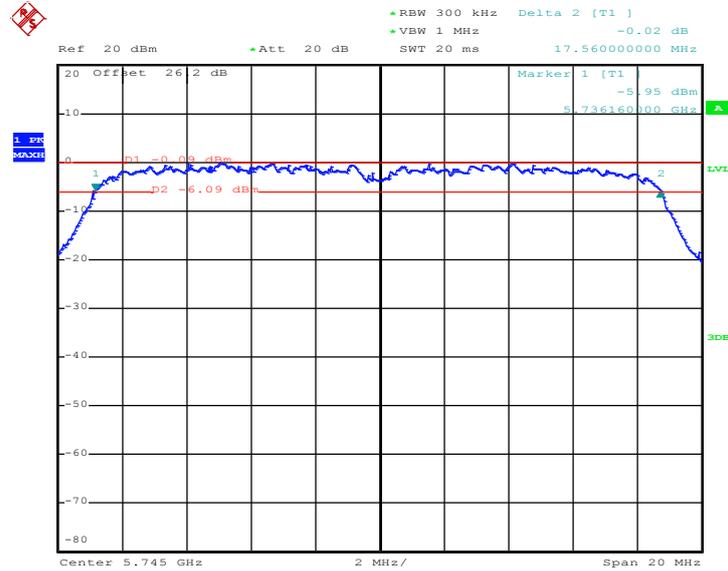
6 dB Bandwidth Plot on 802.11a Channel 165



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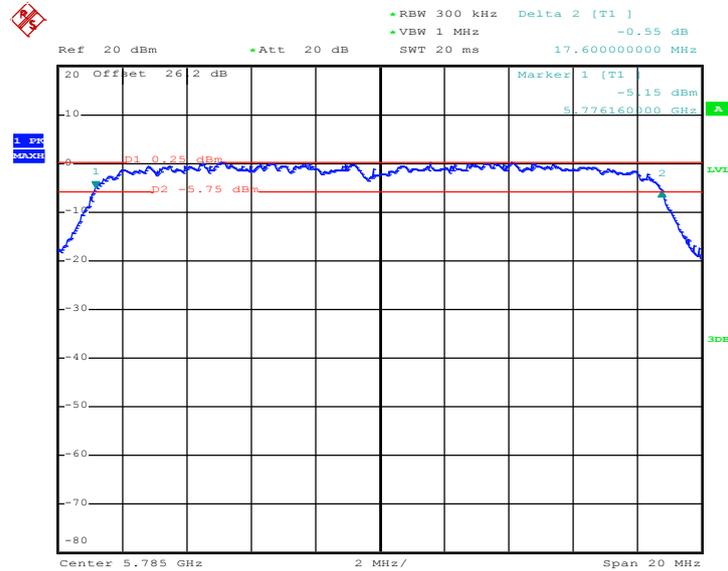


6 dB Bandwidth Plot on 5G 802.11n HT-20 Channel 149



Date: 21.JUN.2012 21:40:51

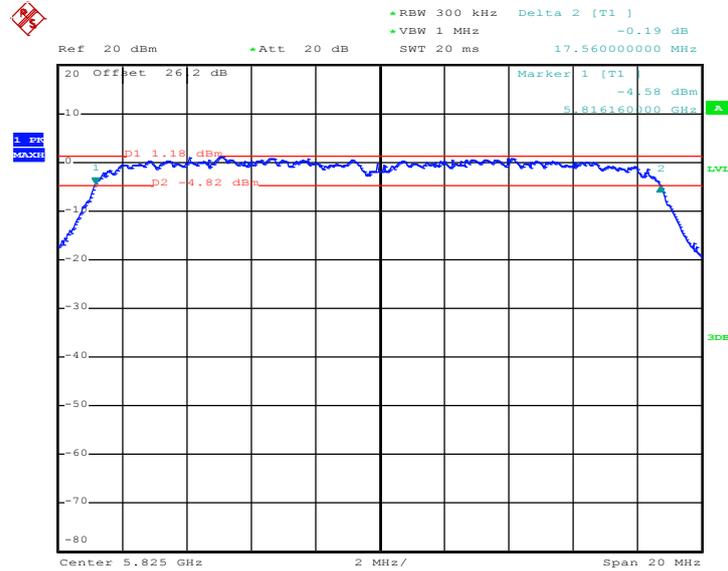
6 dB Bandwidth Plot on 5G 802.11n HT-20 Channel 157



Date: 21.JUN.2012 21:36:58

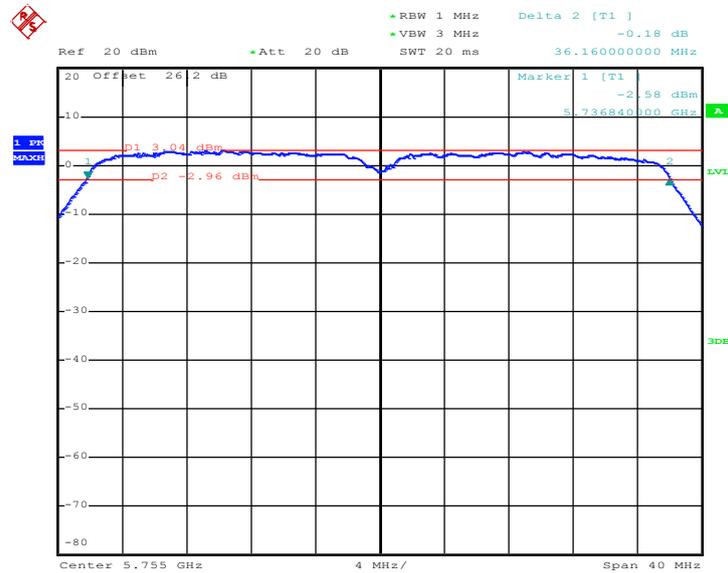


6 dB Bandwidth Plot on 5G 802.11n HT-20 Channel 165



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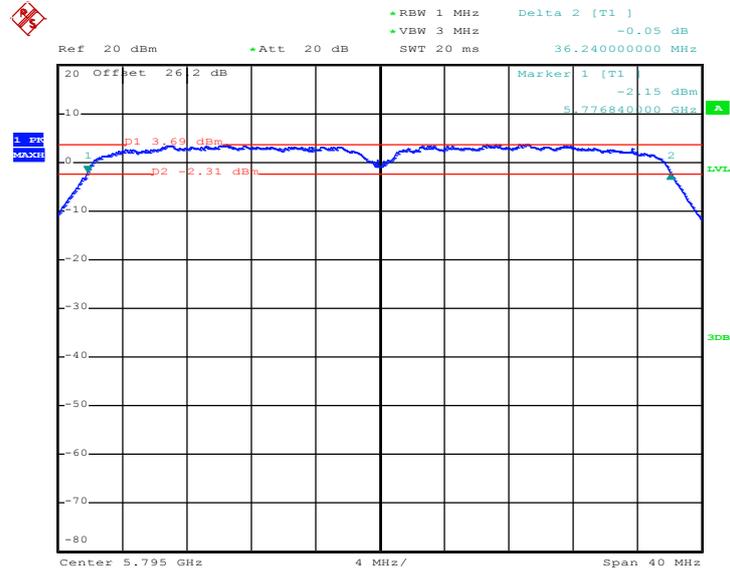
6 dB Bandwidth Plot on 5G 802.11n HT-40 Channel 151



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6 dB Bandwidth Plot on 5G 802.11n HT-40 Channel 159

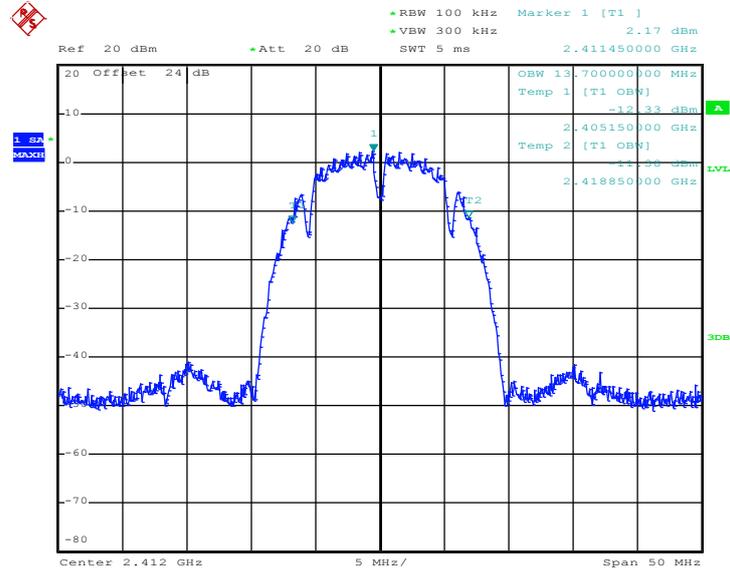


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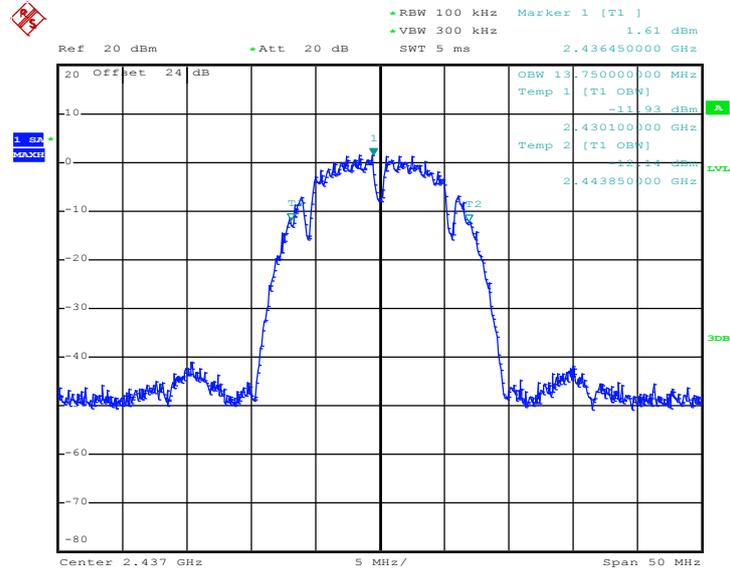
3.1.8 Test Result of 99% Bandwidth Plots

99% Occupied Bandwidth Plot on 802.11b Channel 01



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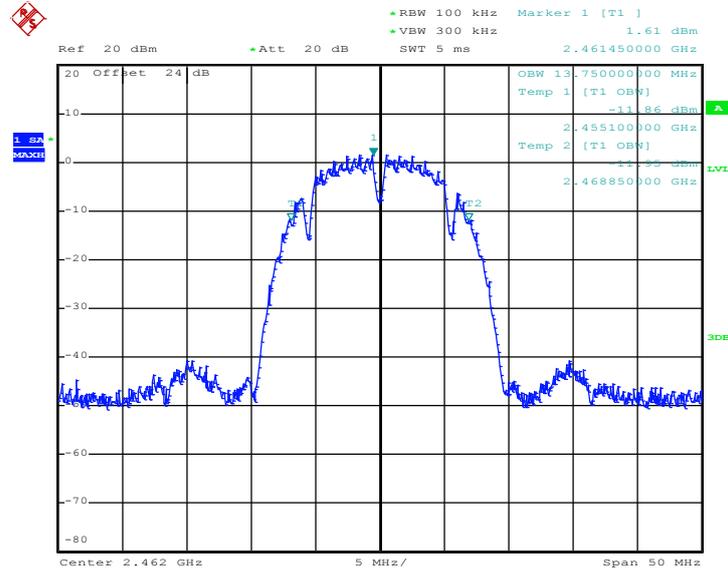
99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 21.JUN.2012 09:44:40

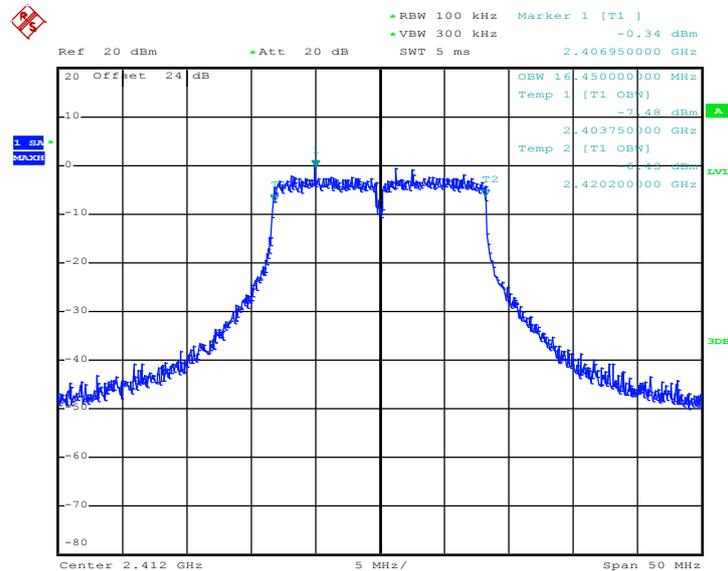


99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 21.JUN.2012 09:50:33

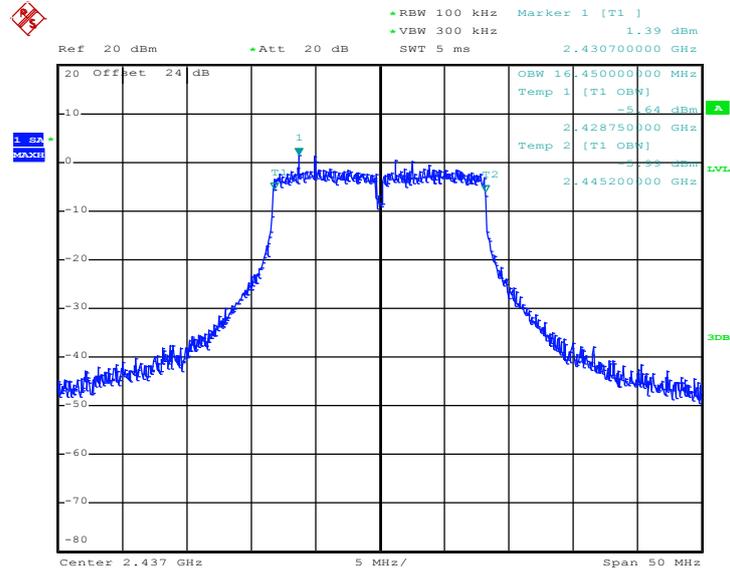
99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 21.JUN.2012 17:49:05

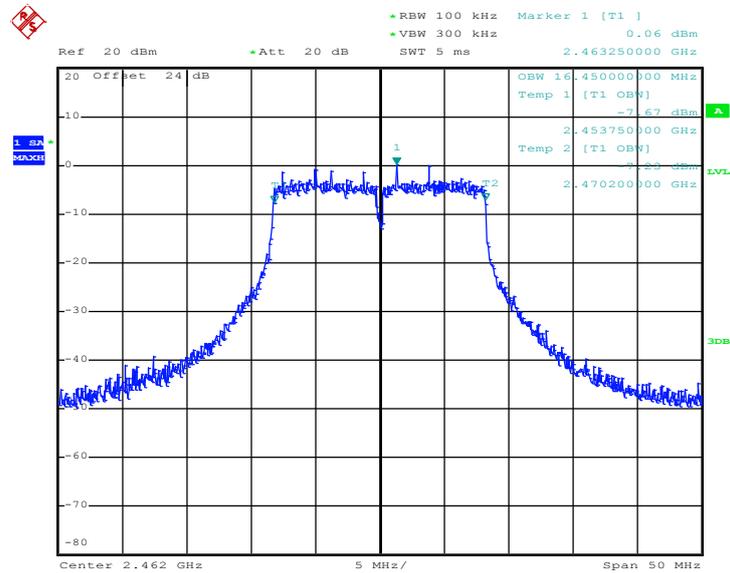


99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 21.JUN.2012 22:53:18

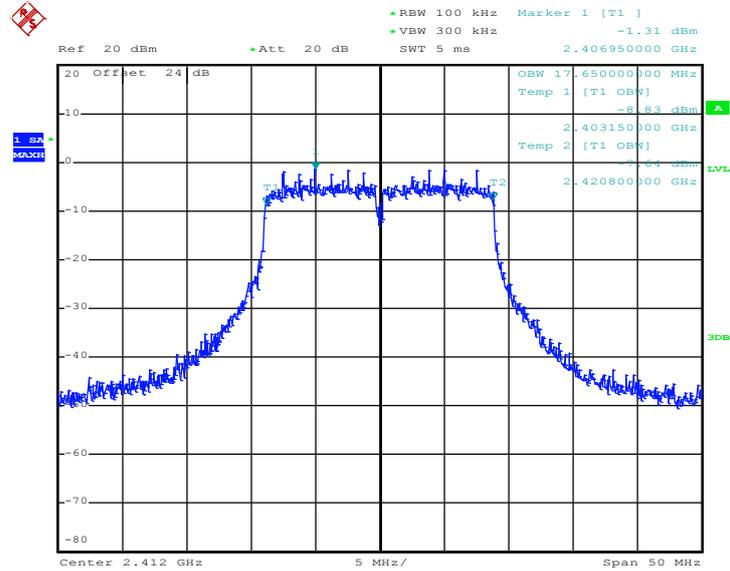
99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 21.JUN.2012 17:57:38

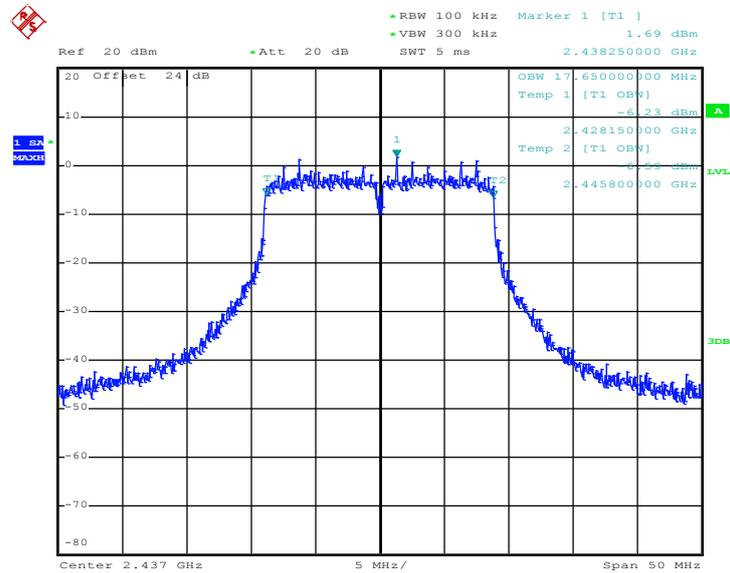


99% Occupied Bandwidth Plot on 2.4G 802.11n HT-20 Channel 01



Date: 21.JUN.2012 18:10:14

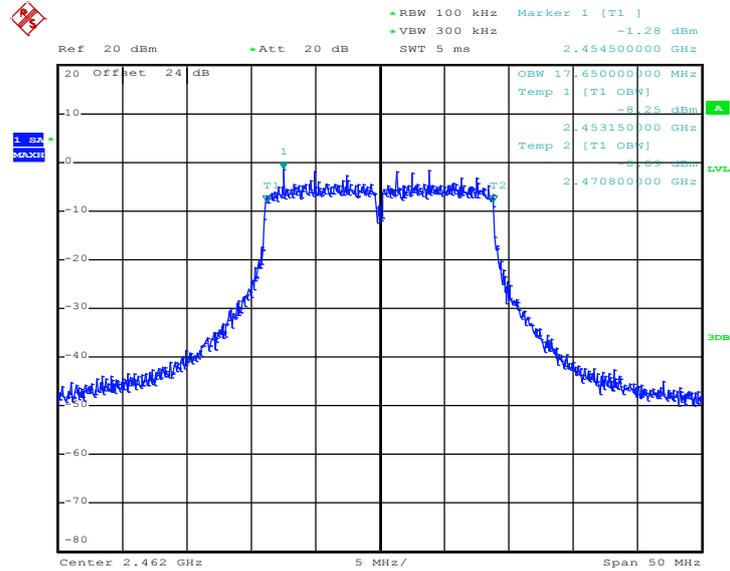
99% Occupied Bandwidth Plot on 2.4G 802.11n HT-20 Channel 06



Date: 21.JUN.2012 18:14:41

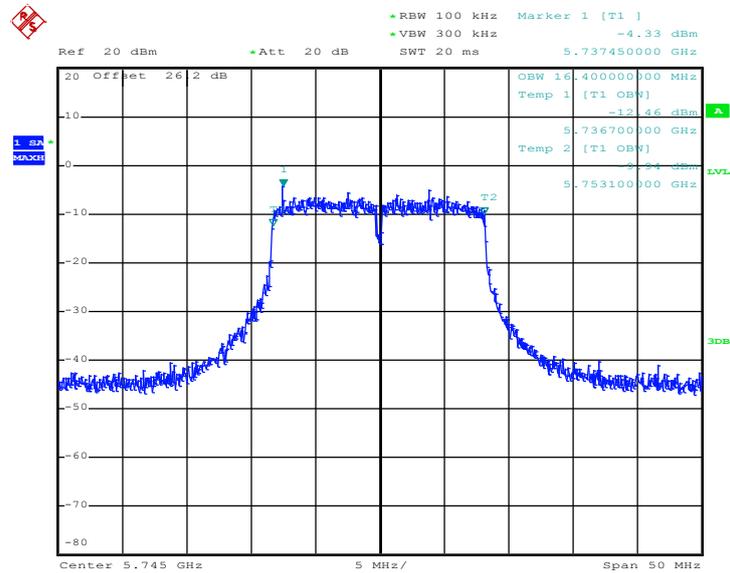


99% Occupied Bandwidth Plot on 2.4G 802.11n HT-20 Channel 11



Date: 21.JUN.2012 22:58:17

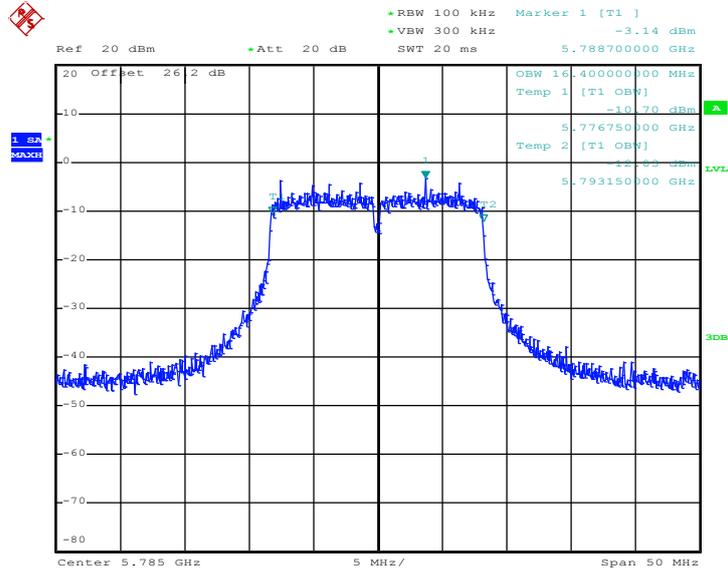
99% Occupied Bandwidth Plot on 802.11a Channel 149



Date: 21.JUN.2012 20:59:00

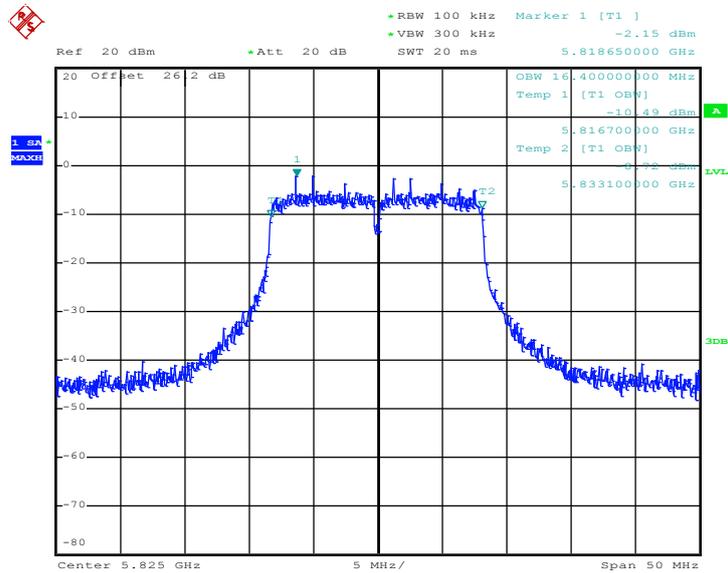


99% Occupied Bandwidth Plot on 802.11a Channel 157



Date: 21.JUN.2012 21:05:38

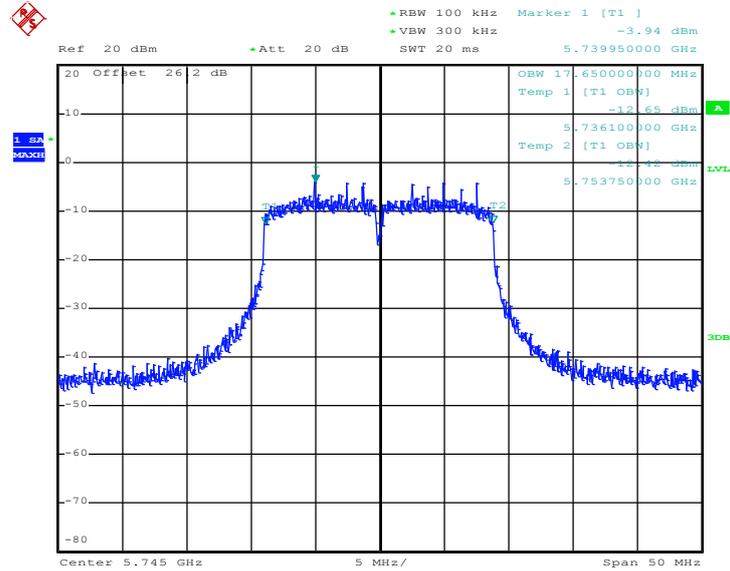
99% Occupied Bandwidth Plot on 802.11a Channel 165



Date: 21.JUN.2012 21:14:39

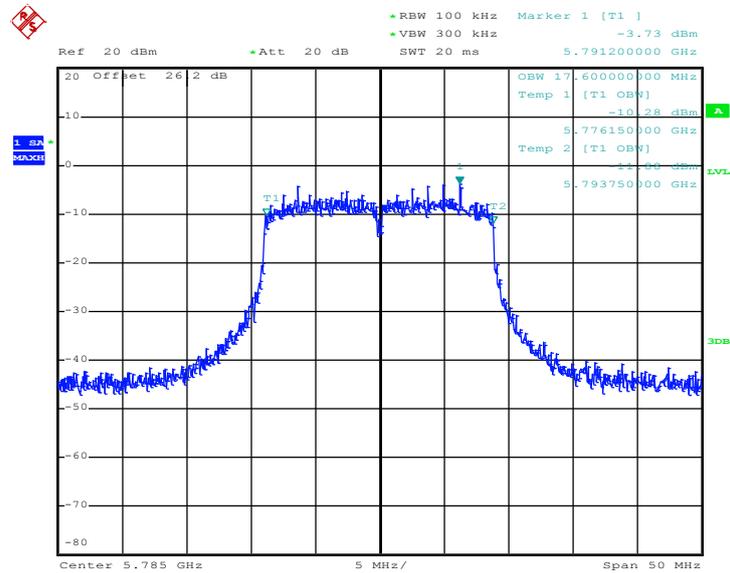


99% Occupied Bandwidth Plot on 5G 802.11n HT-20 Channel 149



Date: 21.JUN.2012 21:42:48

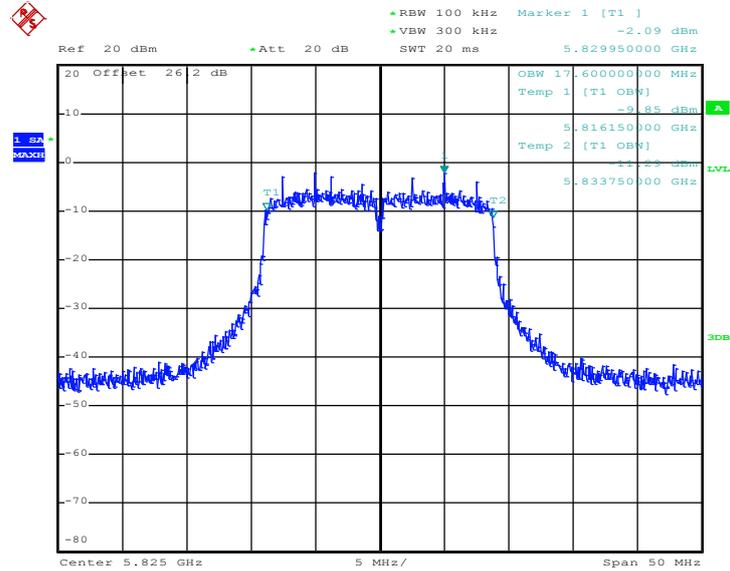
99% Occupied Bandwidth Plot on 5G 802.11n HT-20 Channel 157



Date: 21.JUN.2012 21:38:38

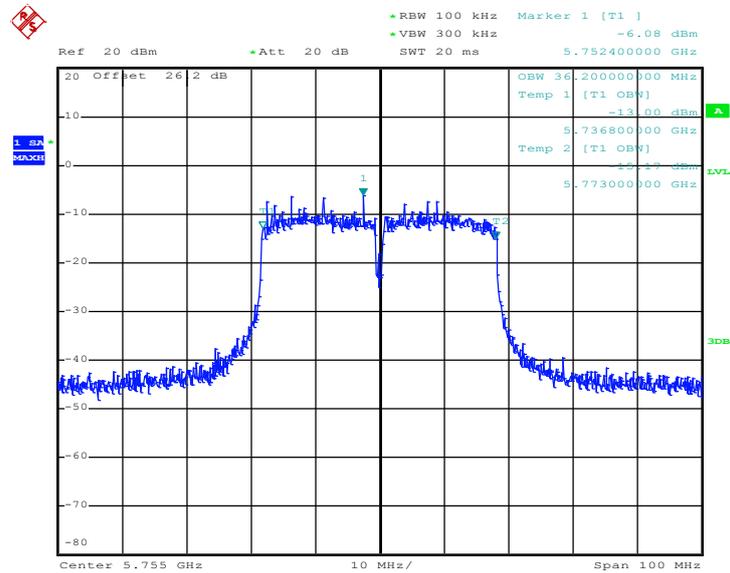


99% Occupied Bandwidth Plot on 5G 802.11n HT-20 Channel 165



Date: 21.JUN.2012 21:33:45

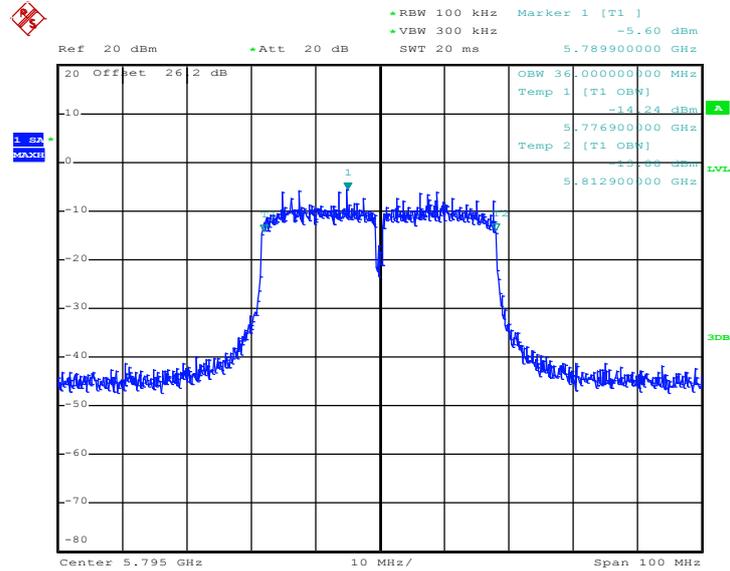
99% Occupied Bandwidth Plot on 5G 802.11n HT-40 Channel 151



Date: 21.JUN.2012 21:56:25



99% Occupied Bandwidth Plot on 5G 802.11n HT-40 Channel 159



Date: 21.JUN.2012 22:03:10

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.

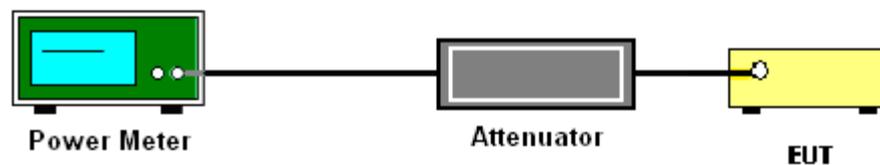
3.2.2 Measuring Instruments

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 Peak Output Power

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

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	15.82	30	Pass
06	2437	15.26	30	Pass
11	2462	15.52	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.67	30	Pass
06	2437	22.38	30	Pass
11	2462	21.94	30	Pass

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

Channel	Frequency (MHz)	2.4G 802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	20.81	30	Pass
06	2437	22.07	30	Pass
11	2462	20.89	30	Pass



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

Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	16.75	30	Pass
157	5785	16.41	30	Pass
165	5825	16.50	30	Pass

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

Channel	Frequency (MHz)	5G 802.11n HT-20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	16.83	30	Pass
157	5785	16.26	30	Pass
165	5825	16.42	30	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5G 802.11n HT-40 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
151	5755	16.82	30	Pass
159	5795	16.43	30	Pass



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	100.00%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	13.57
06	2437	12.97
11	2462	13.01

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	97.62%	Duty Factor:	0.10dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	12.34
06	2437	13.44
11	2462	12.10

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.47%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)
01	2412	10.83
06	2437	13.43
11	2462	10.85



Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.56%	Duty Factor:	0.06dB

Channel	Frequency (MHz)	802.11a Average Output Power (dBm)
149	5745	7.23
157	5785	6.95
165	5825	7.10

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	97.45%	Duty Factor:	0.11dB

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)
149	5745	7.09
157	5785	6.92
165	5825	7.02

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%
Duty Cycle:	96.93%	Duty Factor:	0.14dB

Channel	Frequency (MHz)	802.11n HT-40 Average Output Power (dBm)
151	5755	7.12
159	5795	7.05

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.

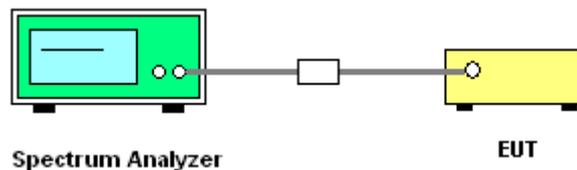
3.3.2 Measuring Instruments

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 :	Reece Li	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	2.36	-12.84	8	Pass
06	2437	1.66	-13.54	8	Pass
11	2462	1.69	-13.51	8	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Reece Li	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	0.92	-14.28	8	Pass
06	2437	1.73	-13.47	8	Pass
11	2462	0.19	-15.01	8	Pass

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

Channel	Frequency (MHz)	2.4G 802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	-0.53	-15.73	8	Pass
06	2437	1.67	-13.53	8	Pass
11	2462	-0.82	-16.02	8	Pass



Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Reece Li	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	-2.56	-17.76	8	Pass
157	5785	-2.16	-17.36	8	Pass
165	5825	-1.48	-16.68	8	Pass

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

Channel	Frequency (MHz)	5G 802.11n HT-20 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	-2.95	-18.15	8	Pass
157	5785	-2.28	-17.48	8	Pass
165	5825	-1.51	-16.71	8	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5G 802.11n HT-40 Power Density		Max. Limits (dBm)	Pass/Fail
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)		
151	5755	-5.28	-20.48	8	Pass
159	5795	-5.13	-20.33	8	Pass

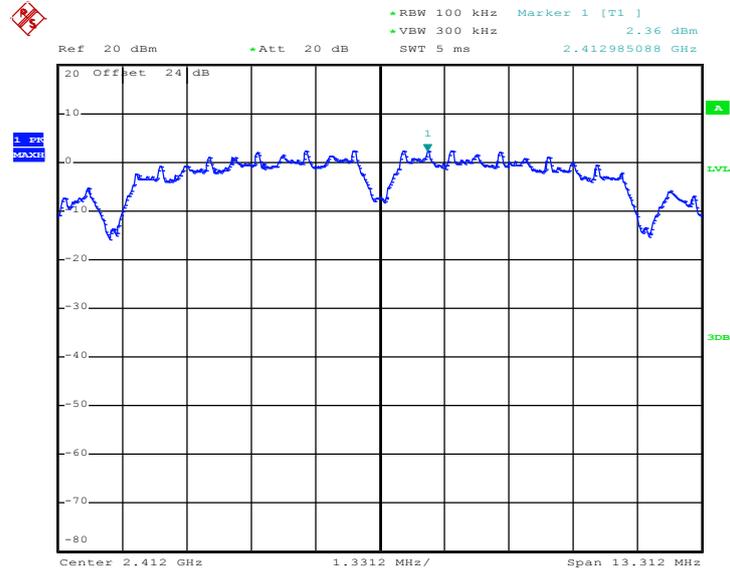
Note:

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)



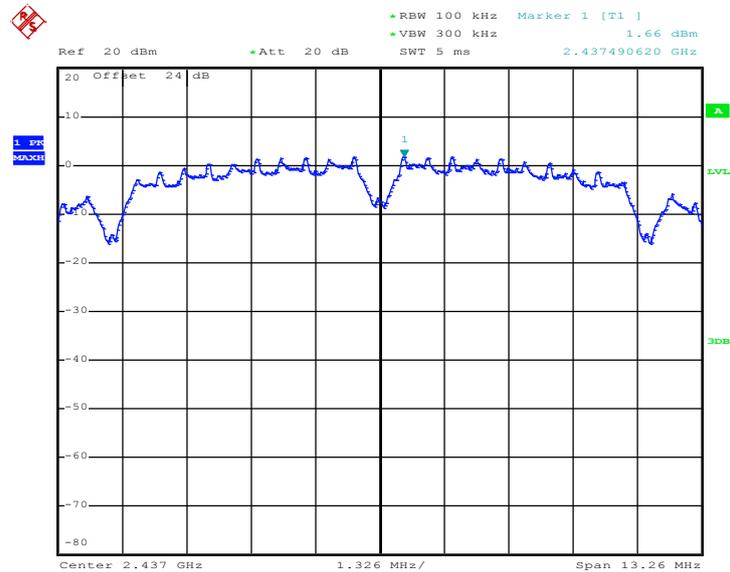
3.3.6 Test Result of Power Spectral Density Plots

PSD Plot on 802.11b Channel 01



Date: 21.JUN.2012 09:35:46

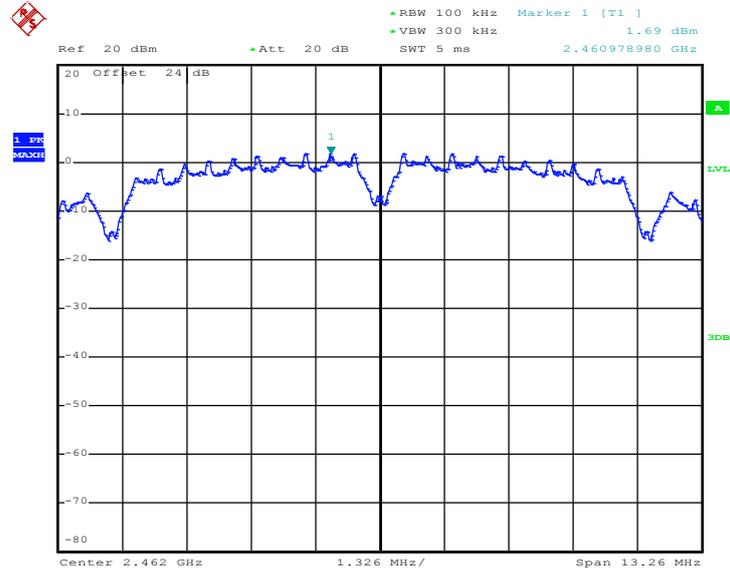
PSD Plot on 802.11b Channel 06



Date: 21.JUN.2012 09:42:57

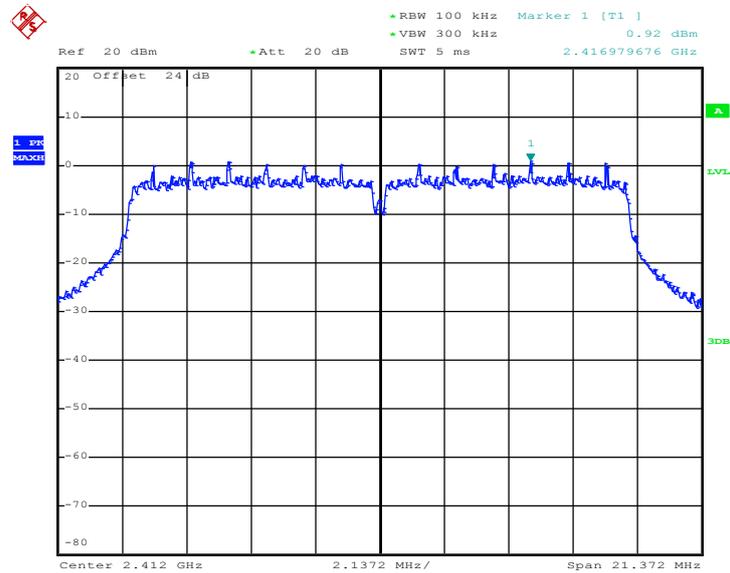


PSD Plot on 802.11b Channel 11



Date: 21.JUN.2012 09:49:00

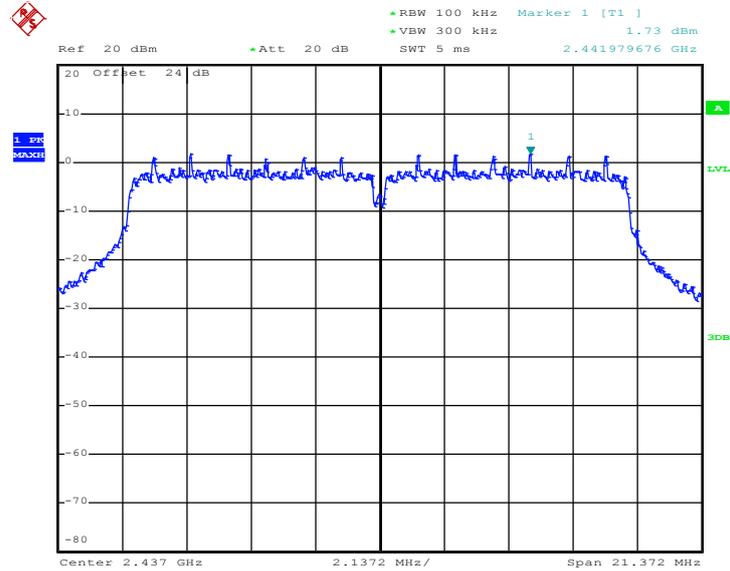
PSD Plot on 802.11g Channel 01



Date: 21.JUN.2012 17:44:25

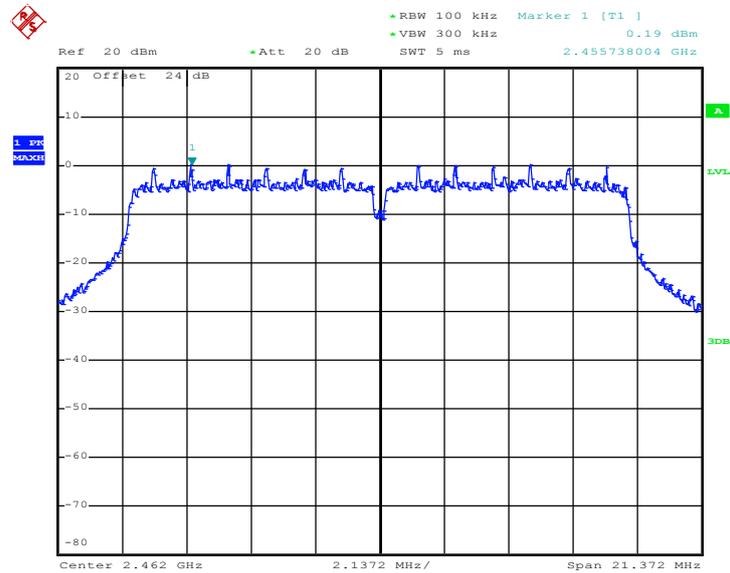


PSD Plot on 802.11g Channel 06



Date: 21.JUN.2012 22:50:29

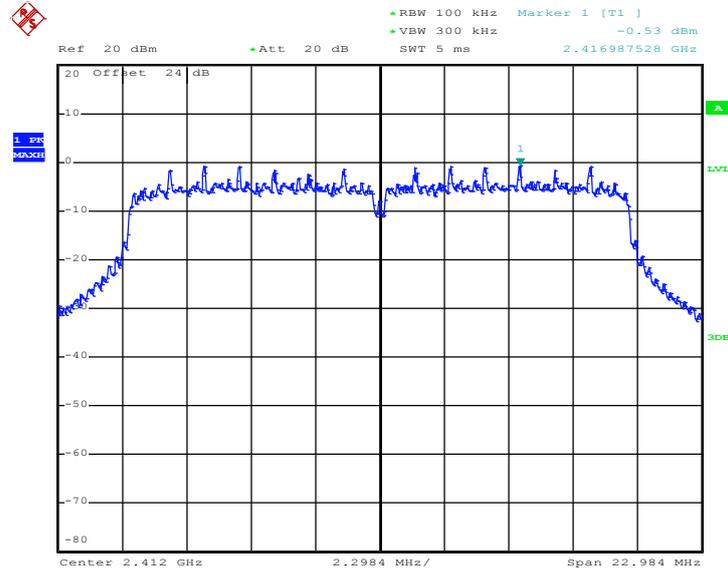
PSD Plot on 802.11g Channel 11



Date: 21.JUN.2012 17:55:11

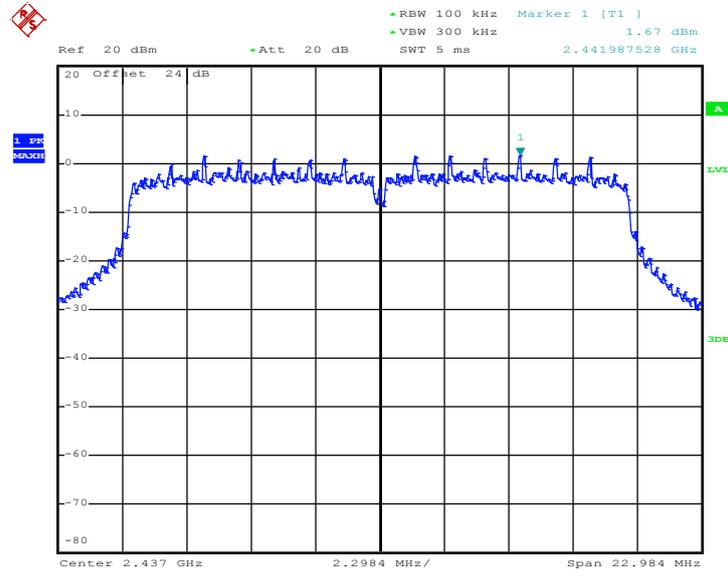


PSD Plot on 2.4G 802.11n HT-20 Channel 01



Date: 21.JUN.2012 18:08:38

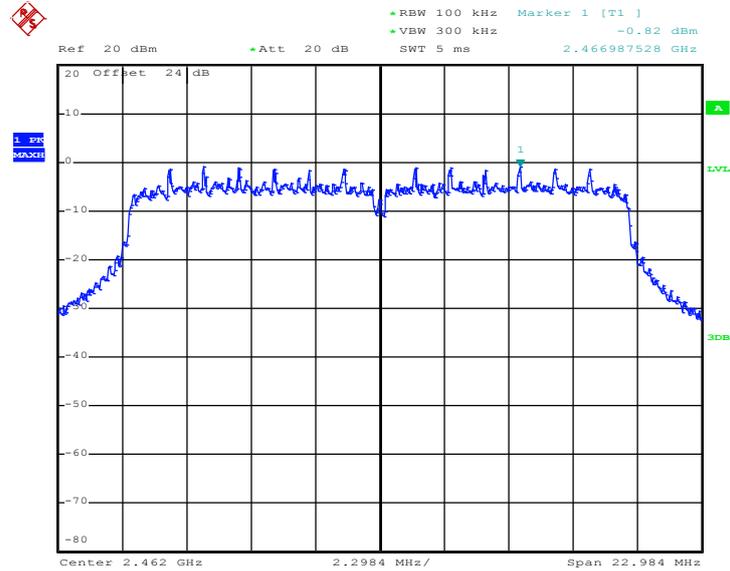
PSD Plot on 2.4G 802.11n HT-20 Channel 06



Date: 21.JUN.2012 18:13:26

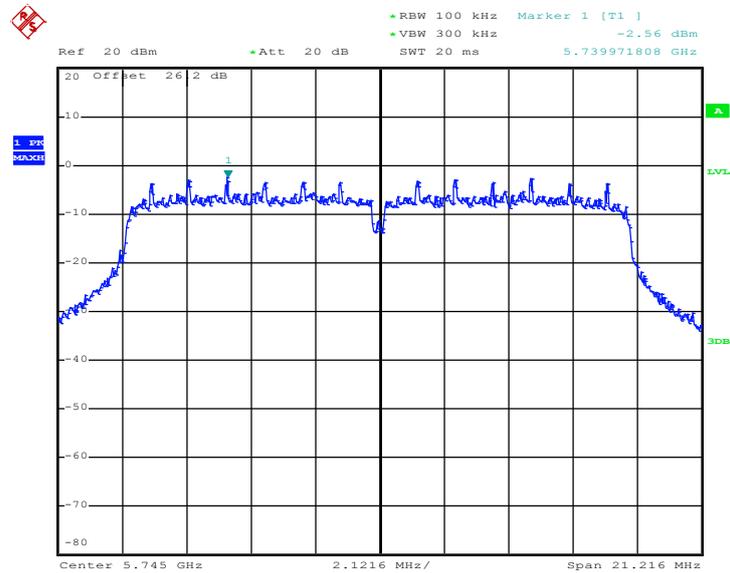


PSD Plot on 2.4G 802.11n HT-20 Channel 11



Date: 21.JUN.2012 22:56:50

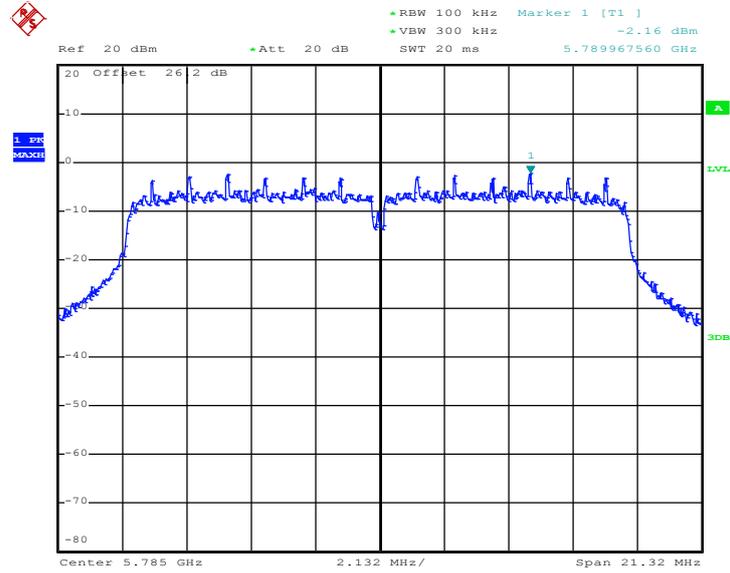
PSD Plot on 802.11a Channel 149



Date: 21.JUN.2012 19:06:12

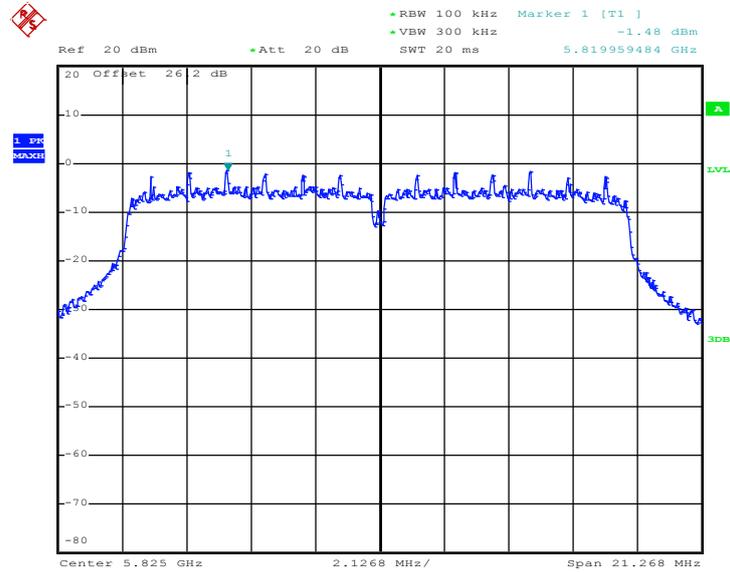


PSD Plot on 802.11a Channel 157



Date: 21.JUN.2012 21:04:39

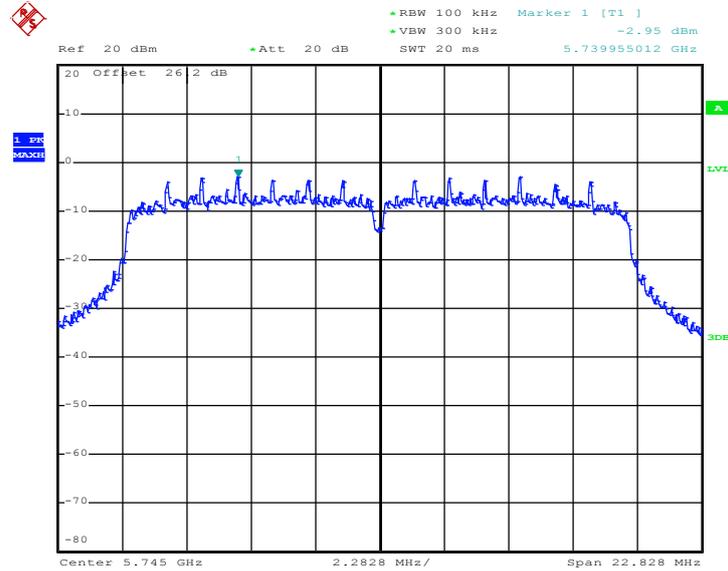
PSD Plot on 802.11a Channel 165



Date: 21.JUN.2012 21:12:34

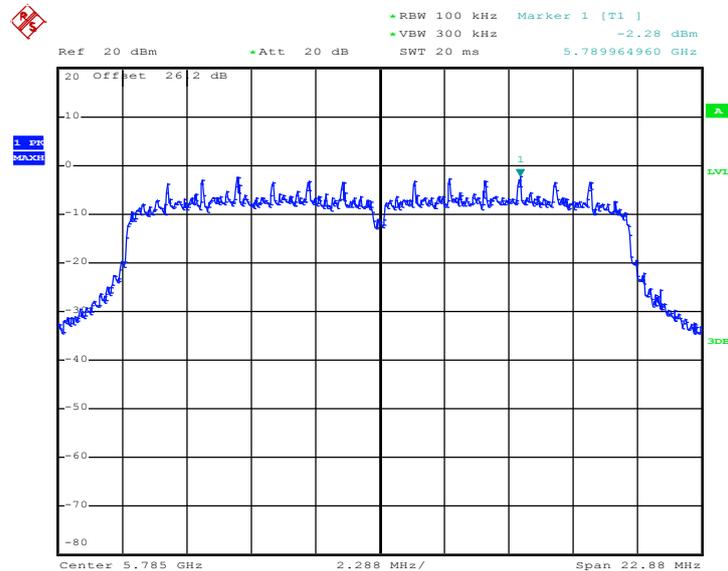


PSD Plot on 5G 802.11n HT-20 Channel 149



Date: 21.JUN.2012 21:41:13

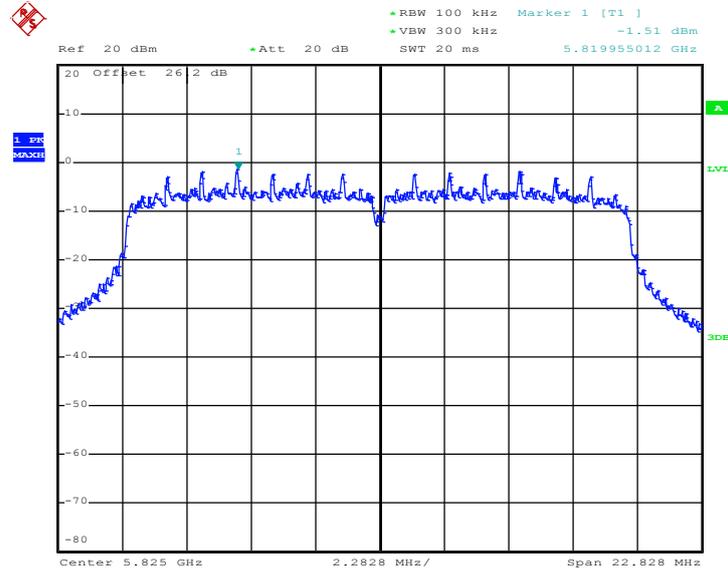
PSD Plot on 5G 802.11n HT-20 Channel 157



Date: 21.JUN.2012 21:37:21

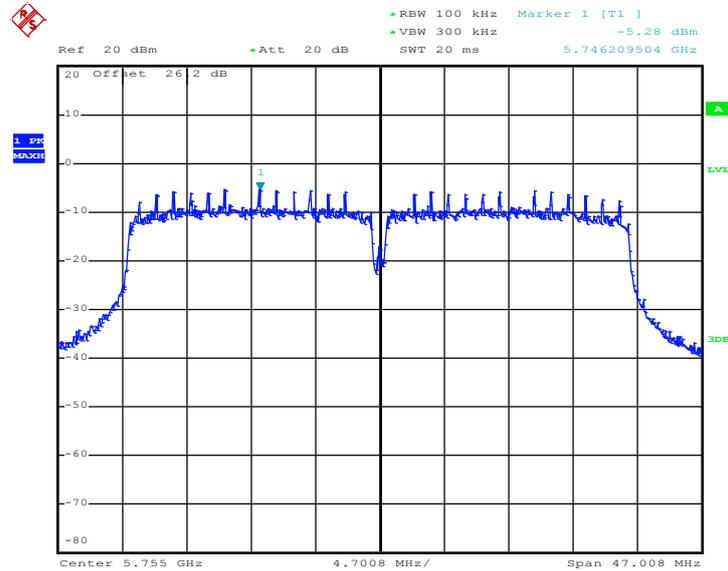


PSD Plot on 5G 802.11n HT-20 Channel 165



Date: 21.JUN.2012 21:32:27

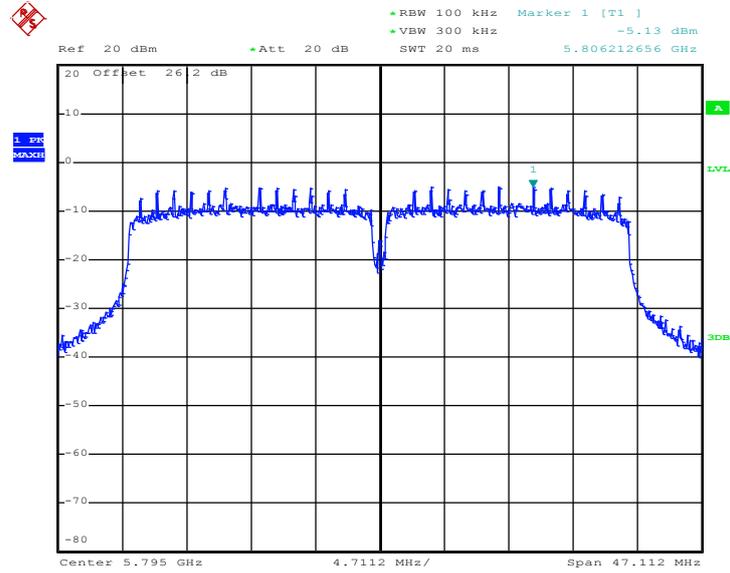
PSD Plot on 5G 802.11n HT-40 Channel 151



Date: 21.JUN.2012 21:55:03



PSD Plot on 5G 802.11n HT-40 Channel 159



Date: 21.JUN.2012 22:01:18

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).

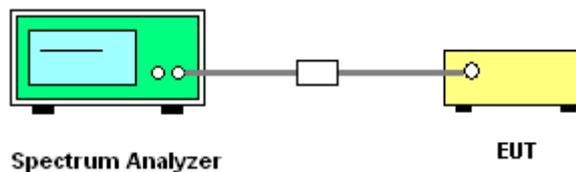
3.4.2 Measuring Instruments

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

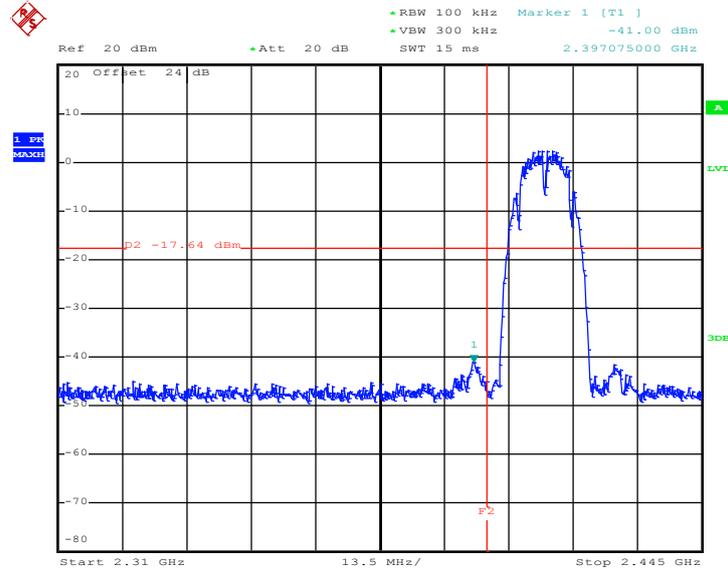




3.4.6 Test Result of Conducted Spurious at Band Edges

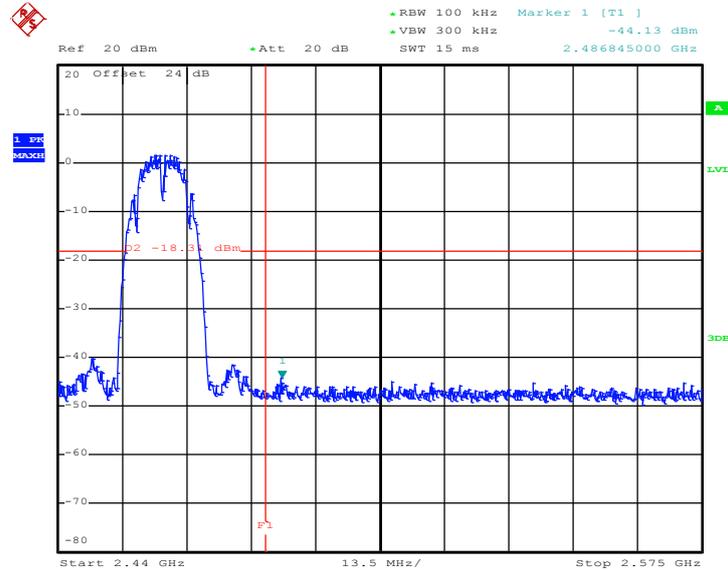
Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11b Channel 01



Date: 21.JUN.2012 09:37:09

High Band Edge Plot on 802.11b Channel 11

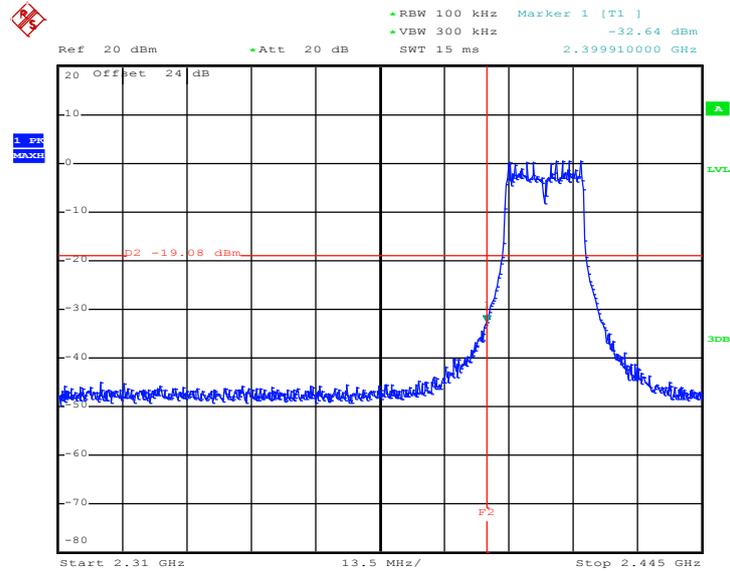


Date: 21.JUN.2012 09:49:23



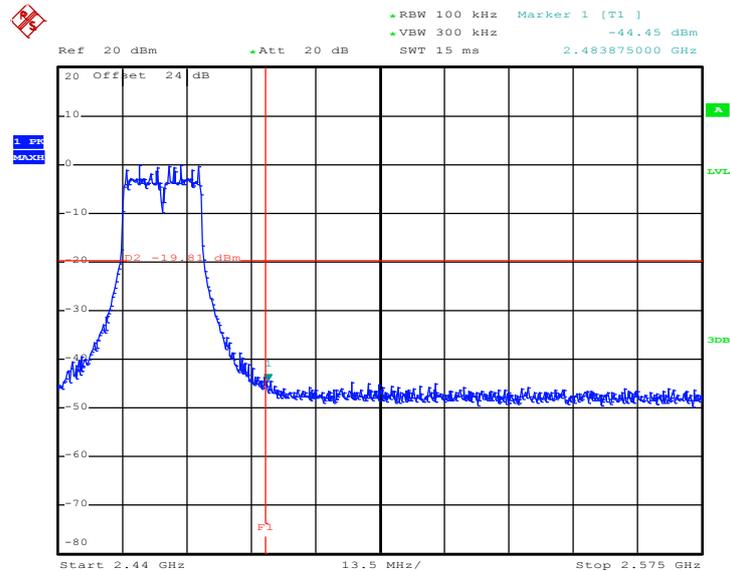
Test Mode :	802.11g	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11g Channel 01



Date: 21.JUN.2012 17:47:57

High Band Edge Plot on 802.11g Channel 11

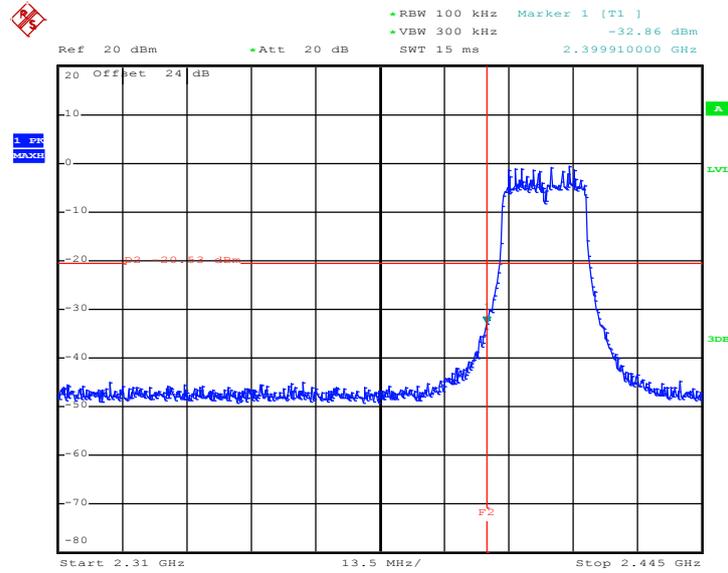


Date: 21.JUN.2012 17:55:37



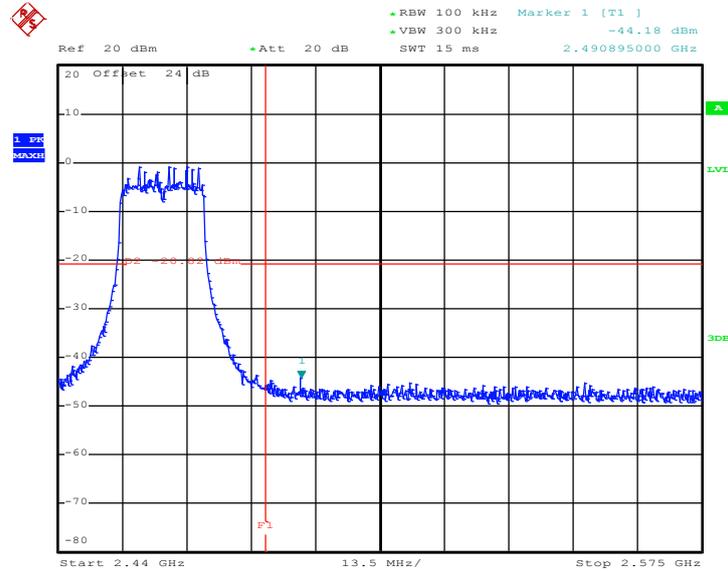
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Reece Li

Low Band Edge Plot on 2.4G 802.11n HT-20 Channel 01



Date: 21.JUN.2012 18:09:09

High Band Edge Plot on 2.4G 802.11n HT-20 Channel 11

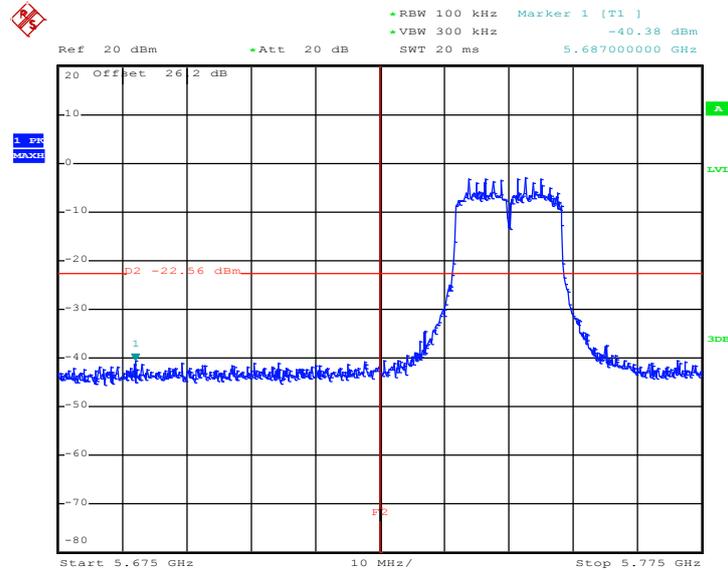


Date: 21.JUN.2012 22:57:24



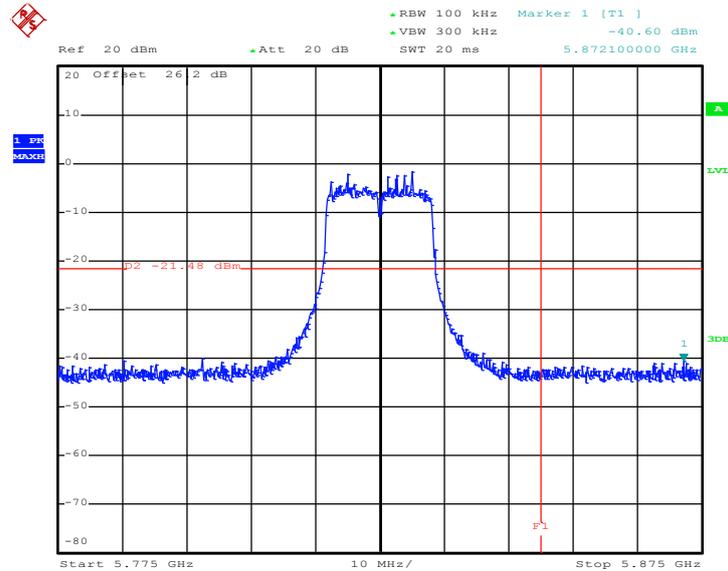
Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Reece Li

Low Band Edge Plot on 802.11a Channel 149



Date: 21.JUN.2012 19:06:31

High Band Edge Plot on 802.11a Channel 165

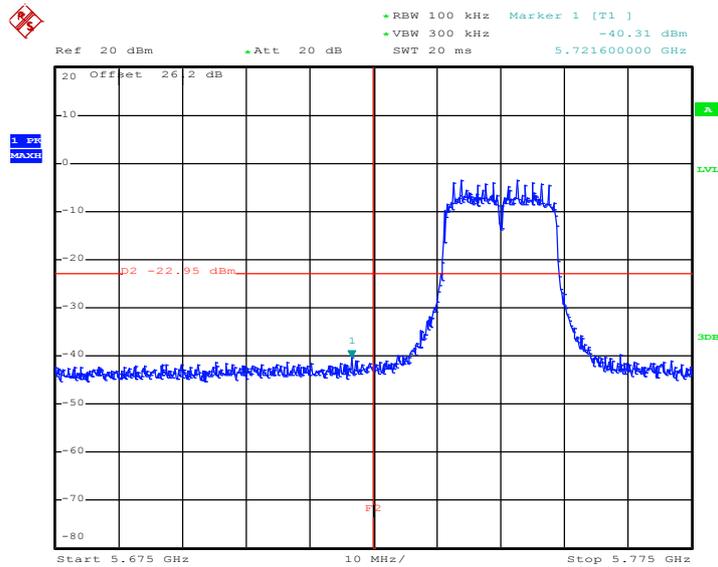


Date: 21.JUN.2012 21:12:55



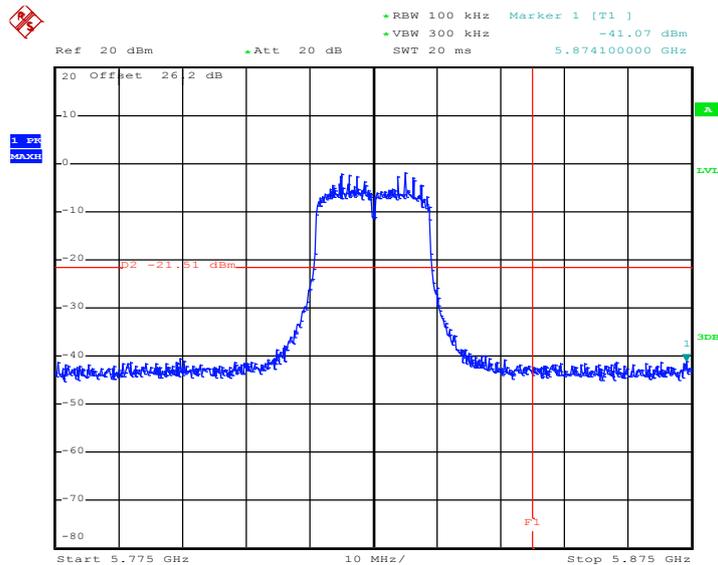
Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Reece Li

Low Band Edge Plot on 5G 802.11n HT-20 Channel 149



Date: 21.JUN.2012 21:41:39

High Band Edge Plot on 5G 802.11n HT-20 Channel 165

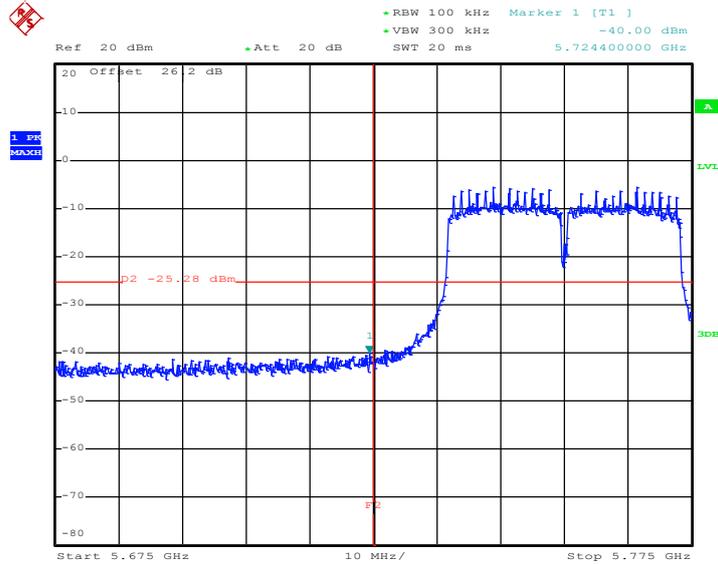


Date: 21.JUN.2012 21:32:44



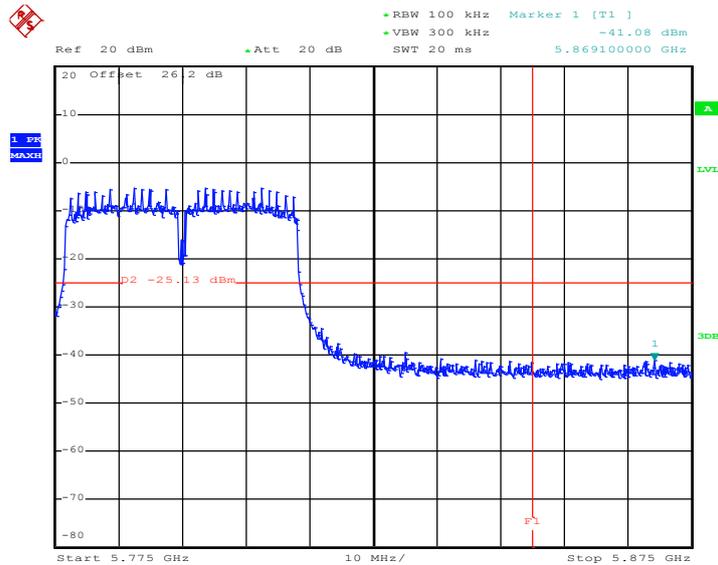
Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	151 and 159	Test Engineer :	Reece Li

Low Band Edge Plot on 5G 802.11n HT-40 Channel 151



Date: 21.JUN.2012 21:55:31

High Band Edge Plot on 5G 802.11n HT-40 Channel 159



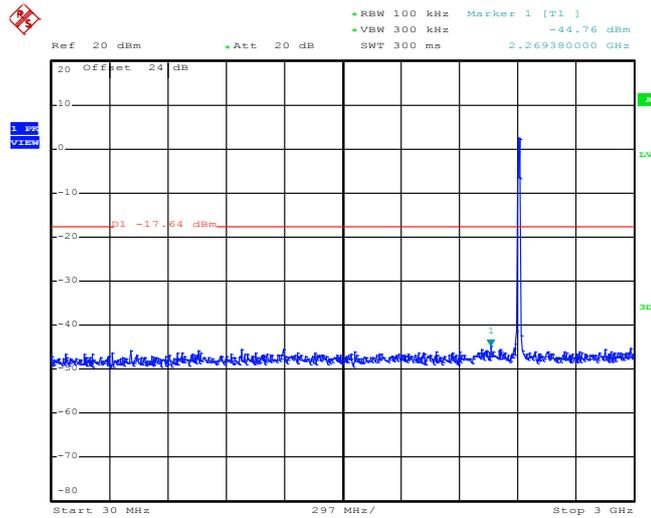
Date: 21.JUN.2012 22:01:35

3.4.7 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, 06, 11	Test Engineer :	Reece Li

802.11b 30 MHz~3 GHz

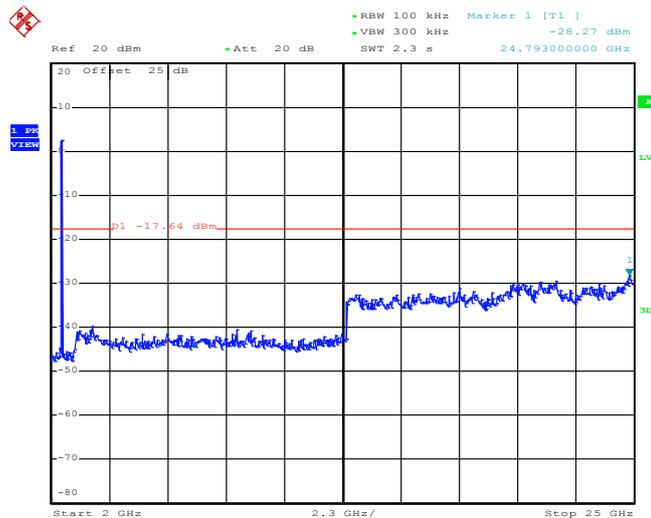
Conducted Spurious Emission Plot on Channel 01



Date: 21.JUN.2012 18:00:50

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

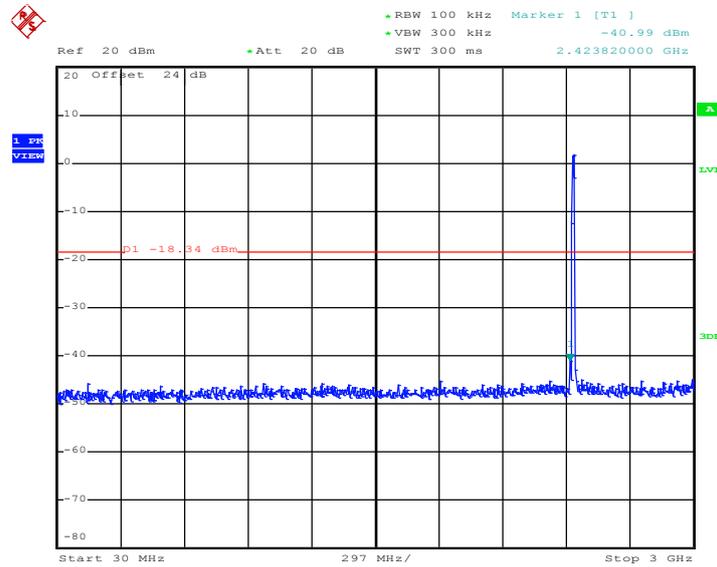


Date: 21.JUN.2012 18:01:08



802.11b 30 MHz~3 GHz

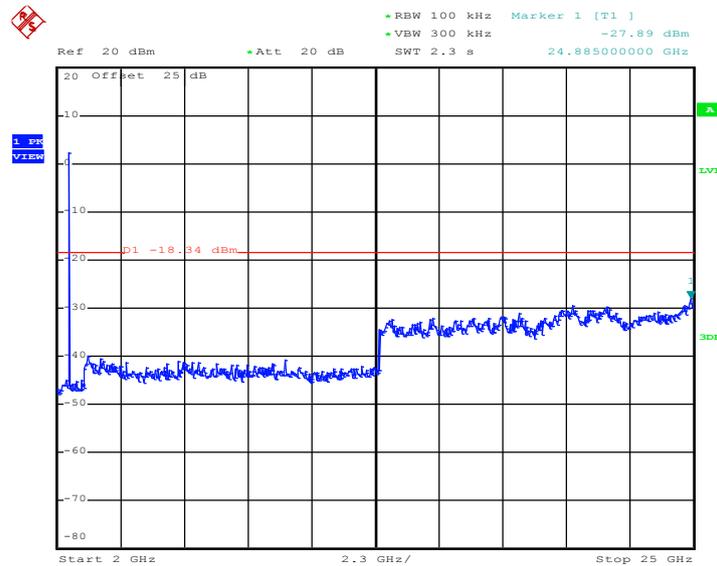
Conducted Spurious Emission Plot on Channel 06



Date: 21.JUN.2012 18:02:52

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

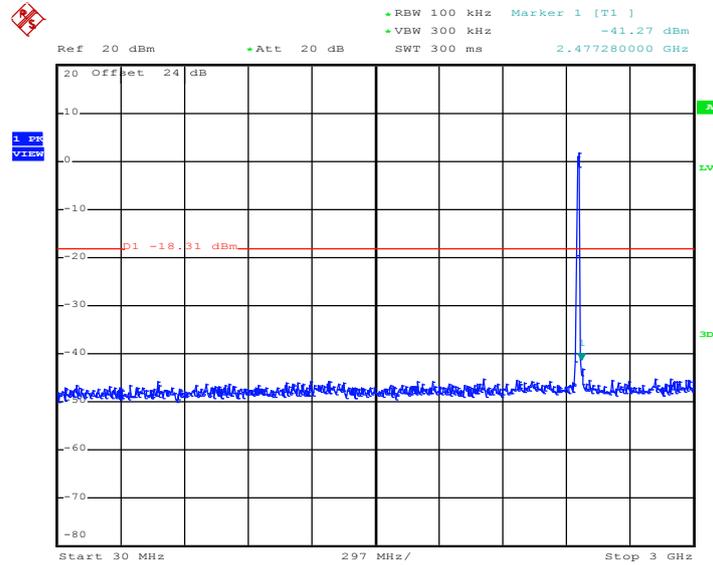


Date: 21.JUN.2012 18:03:10



802.11b 30 MHz~3 GHz

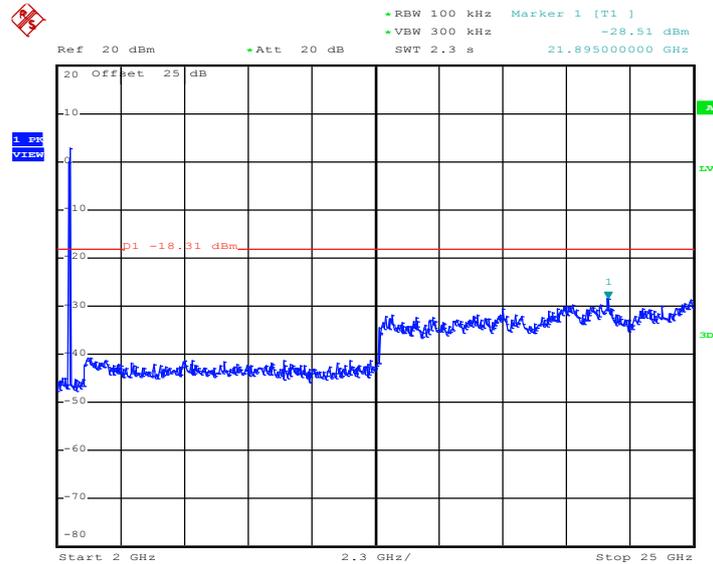
Conducted Spurious Emission Plot on Channel 11



Date: 21.JUN.2012 18:04:22

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



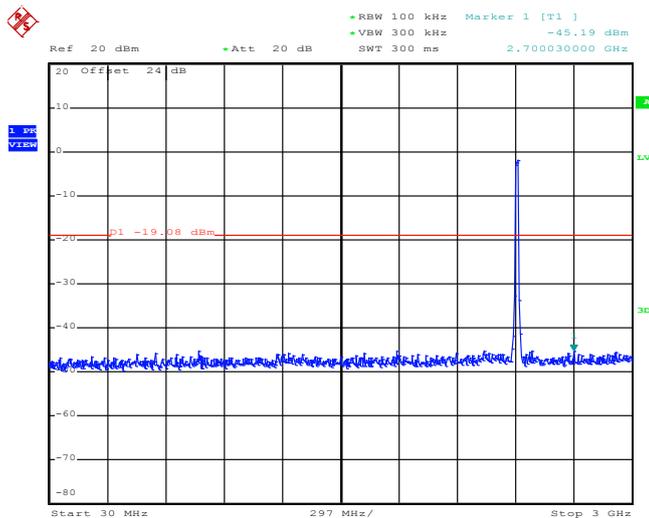
Date: 21.JUN.2012 18:04:40



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

802.11g 30 MHz~3 GHz

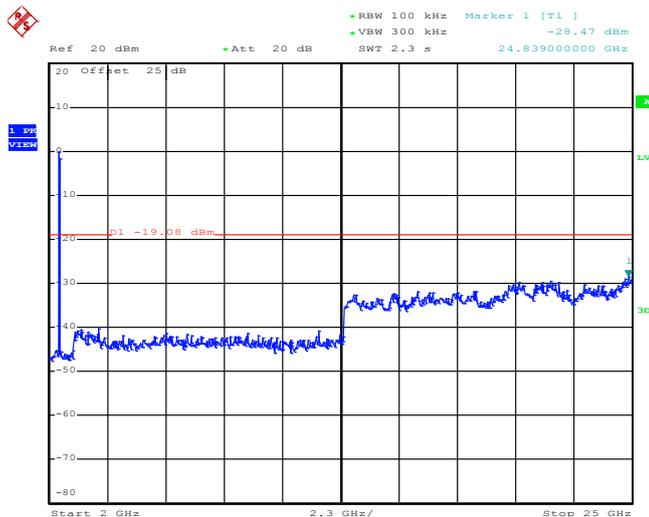
Conducted Spurious Emission Plot on Channel 01



Date: 21.JUN.2012 17:48:34

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

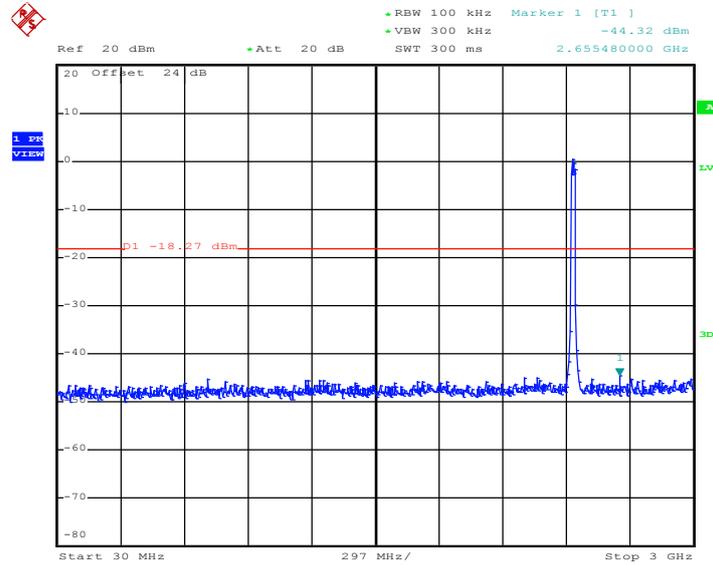


Date: 21.JUN.2012 17:48:53



802.11g 30 MHz~3 GHz

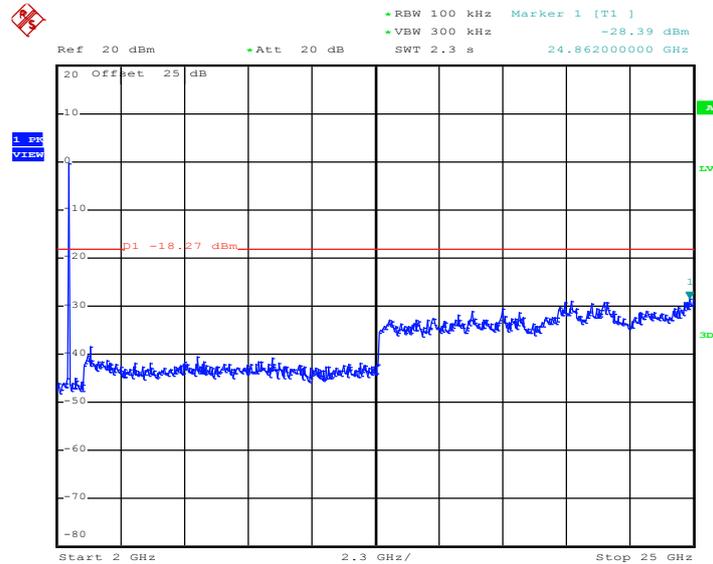
Conducted Spurious Emission Plot on Channel 06



Date: 21.JUN.2012 22:52:43

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

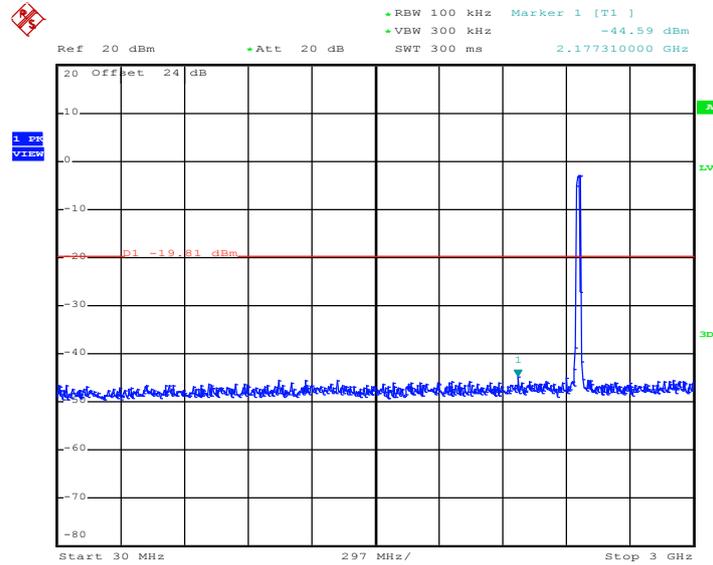


Date: 21.JUN.2012 22:53:04



802.11g 30 MHz~3 GHz

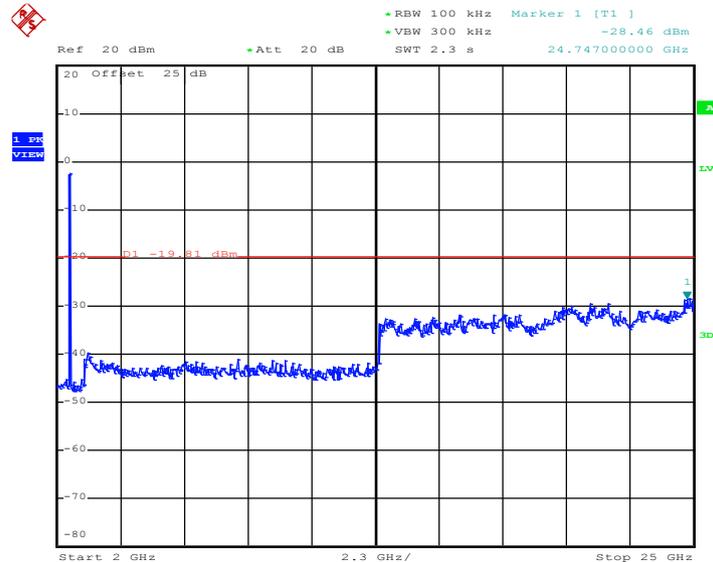
Conducted Spurious Emission Plot on Channel 11



Date: 21.JUN.2012 17:57:00

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



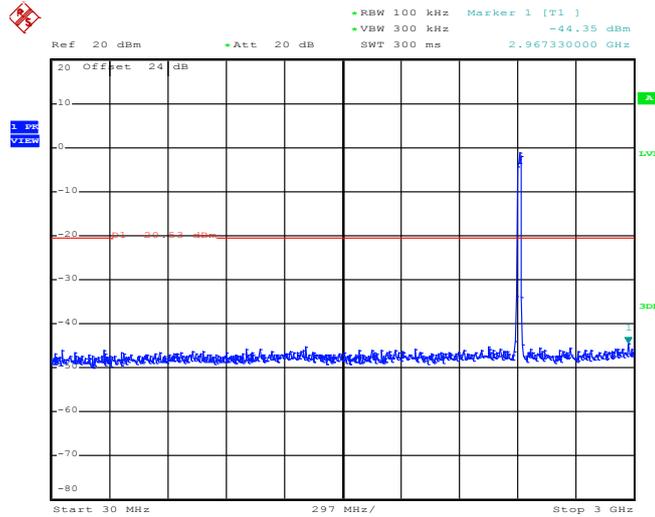
Date: 21.JUN.2012 17:57:18



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Reece Li

2.4G 802.11n HT-20 30 MHz~3 GHz

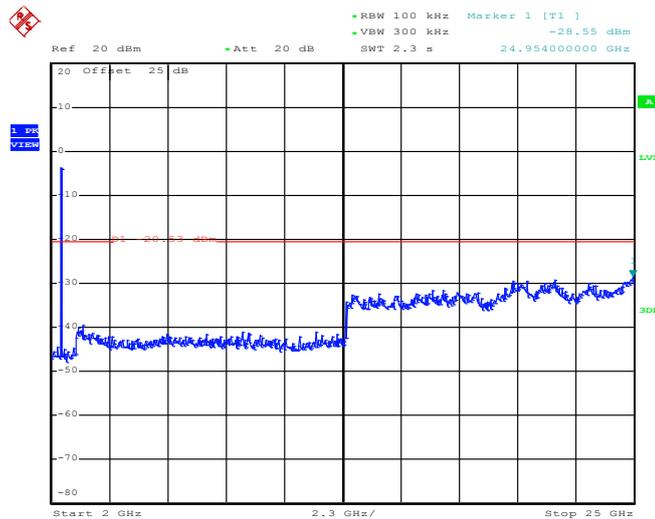
Conducted Spurious Emission Plot on Channel 01



Date: 21.JUN.2012 18:09:44

2.4G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

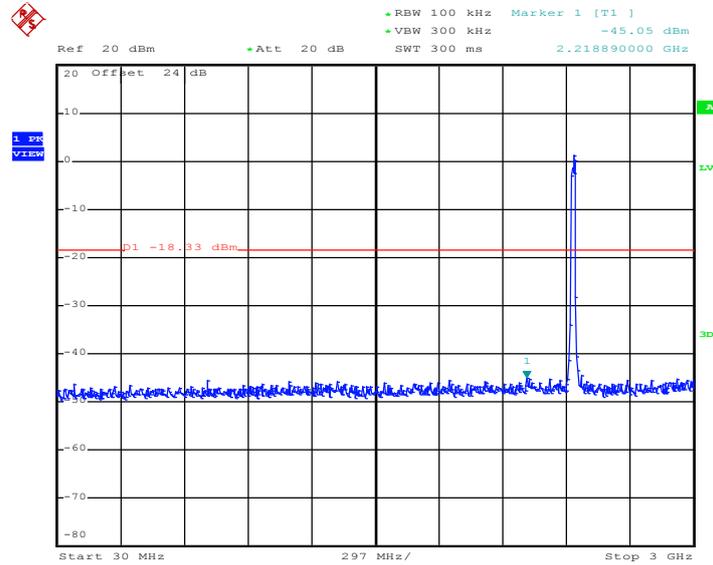


Date: 21.JUN.2012 18:10:01



2.4G 802.11n HT-20 30 MHz~3 GHz

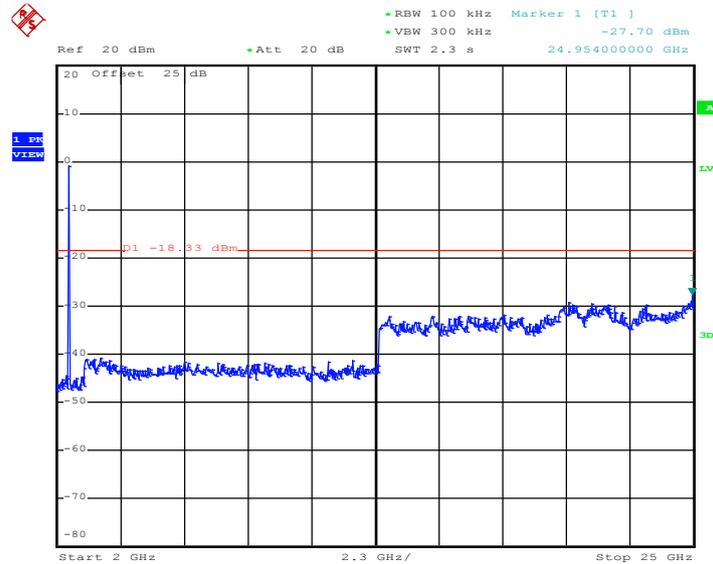
Conducted Spurious Emission Plot on Channel 06



Date: 21.JUN.2012 18:14:02

2.4G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

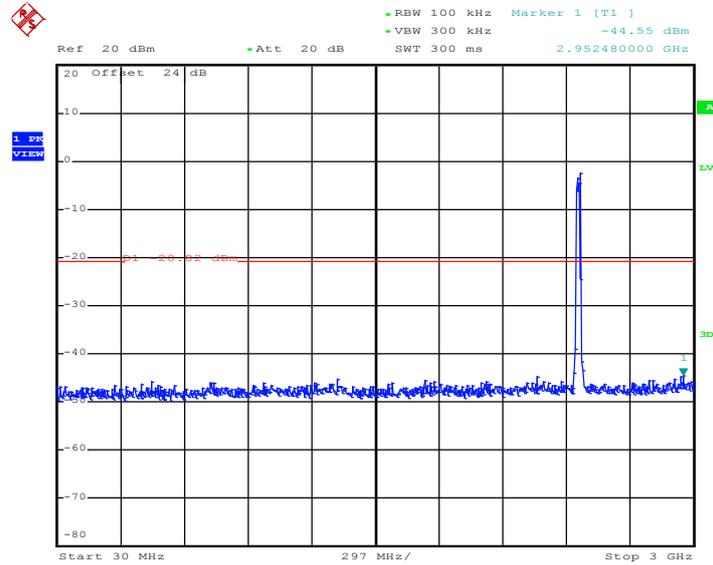


Date: 21.JUN.2012 18:14:20



2.4G 802.11n HT-20 30 MHz~3 GHz

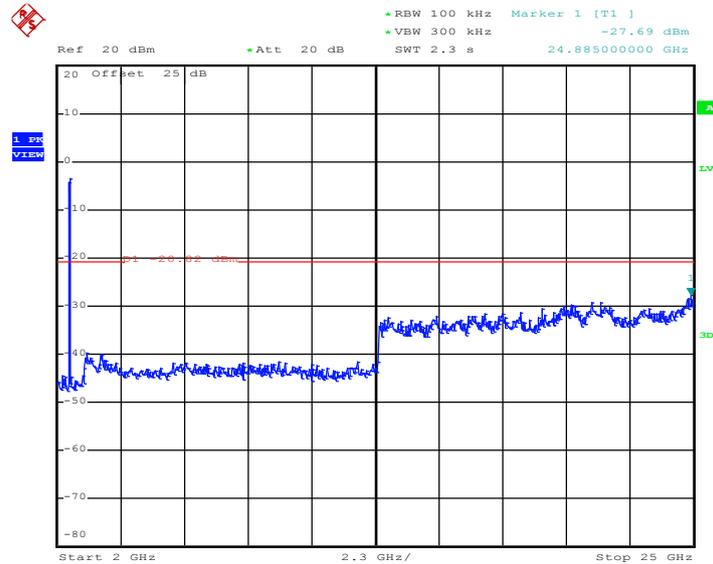
Conducted Spurious Emission Plot on Channel 11



Date: 21.JUN.2012 22:57:47

2.4G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



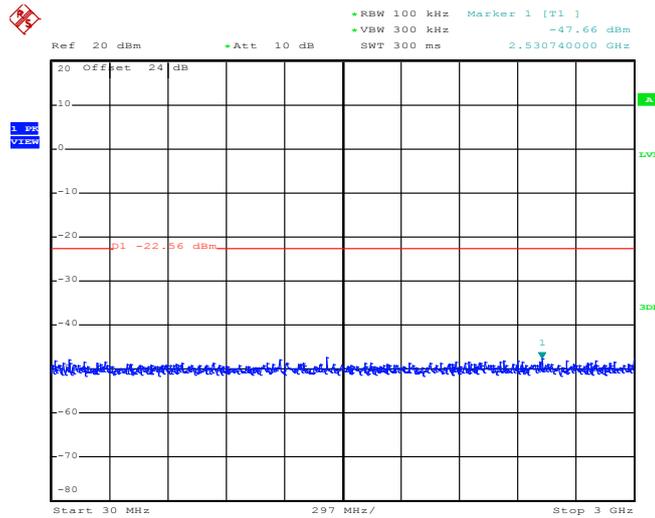
Date: 21.JUN.2012 22:58:05



Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	149, 157, 165	Test Engineer :	Reece Li

802.11a 30 MHz~3 GHz

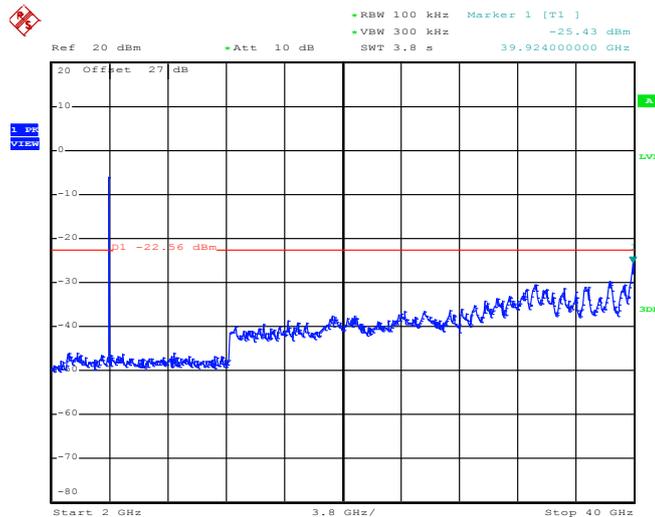
Conducted Spurious Emission Plot on Channel 149



Date: 21.JUN.2012 19:11:34

802.11a 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 149

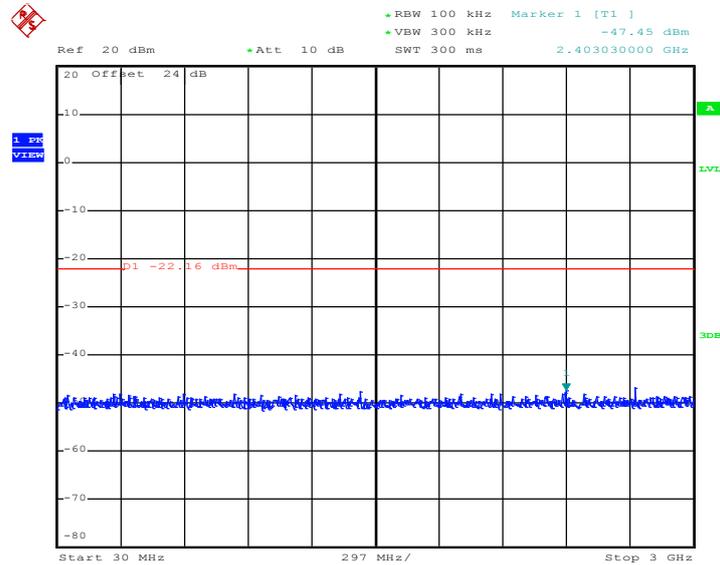


Date: 21.JUN.2012 19:11:53



802.11a 30 MHz~3 GHz

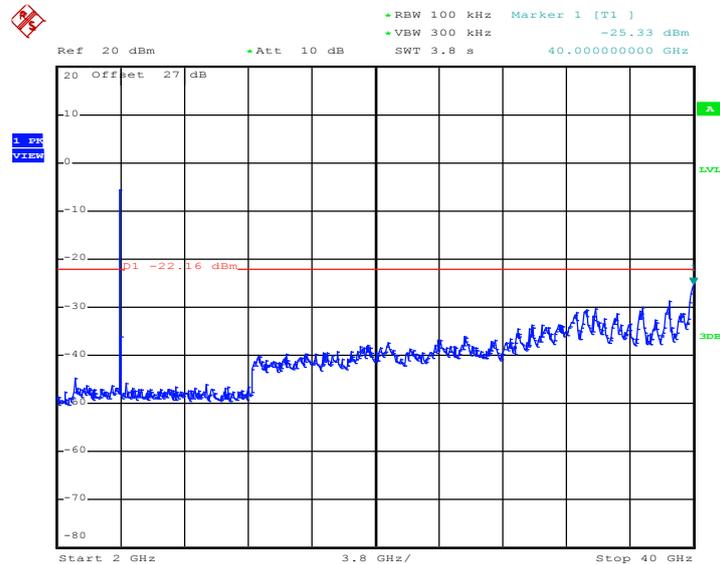
Conducted Spurious Emission Plot on Channel 157



Date: 21.JUN.2012 21:05:02

802.11a 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 157

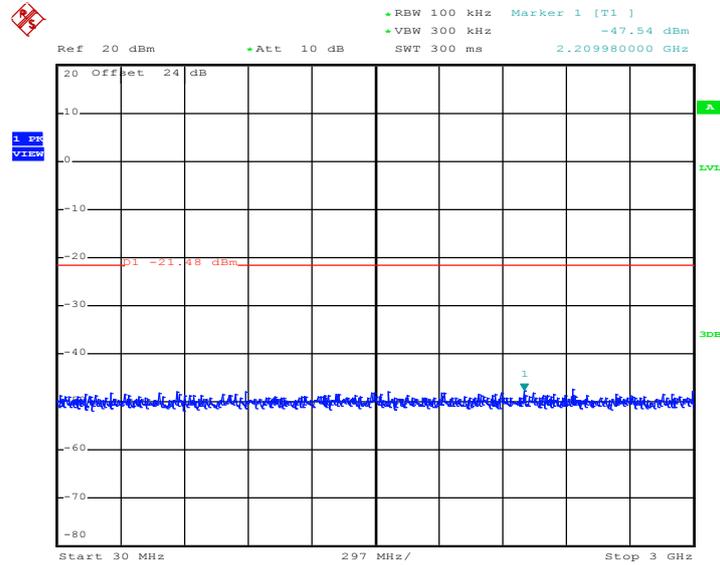


Date: 21.JUN.2012 21:05:20



802.11a 30 MHz~3 GHz

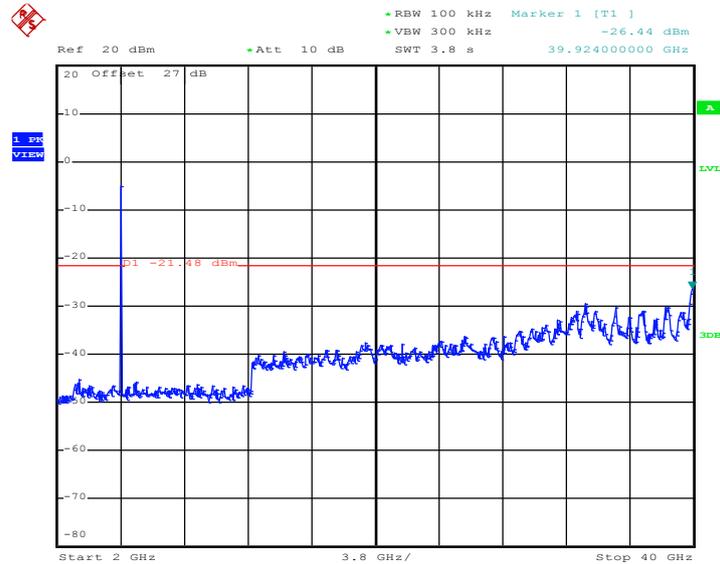
Conducted Spurious Emission Plot on Channel 165



Date: 21.JUN.2012 21:14:07

802.11a 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 165



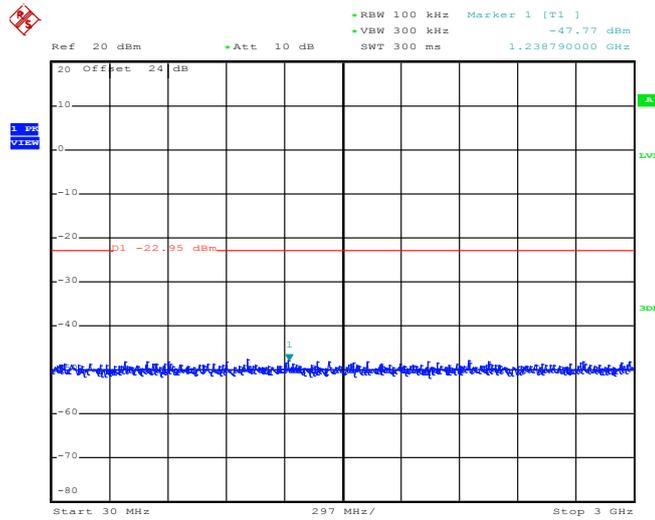
Date: 21.JUN.2012 21:14:25



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	149, 157, 165	Test Engineer :	Reece Li

5G 802.11n HT-20 30 MHz~3 GHz

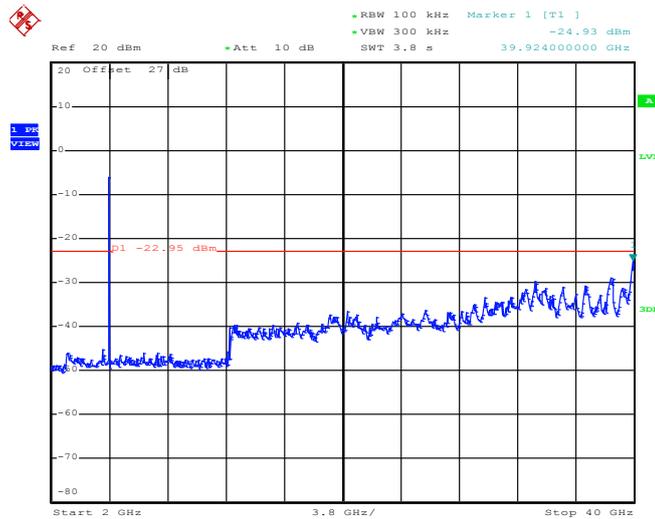
Conducted Spurious Emission Plot on Channel 149



Date: 21.JUN.2012 21:42:04

5G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 149

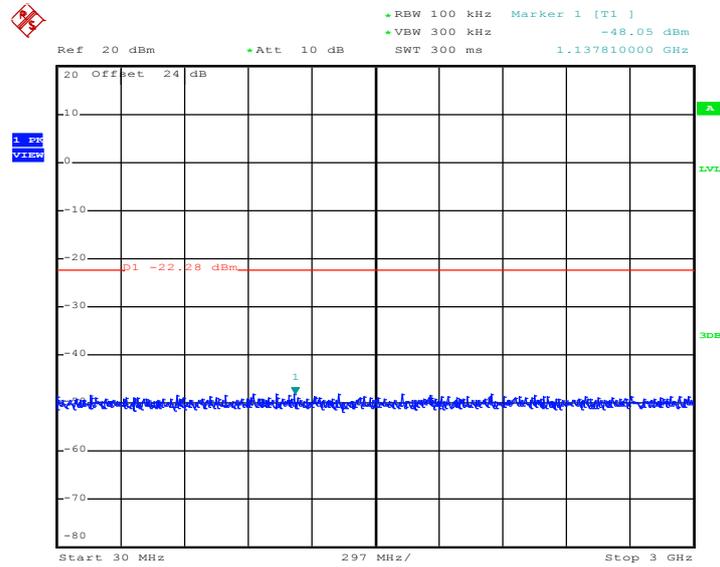


Date: 21.JUN.2012 21:42:22



5G 802.11n HT-20 30 MHz~3 GHz

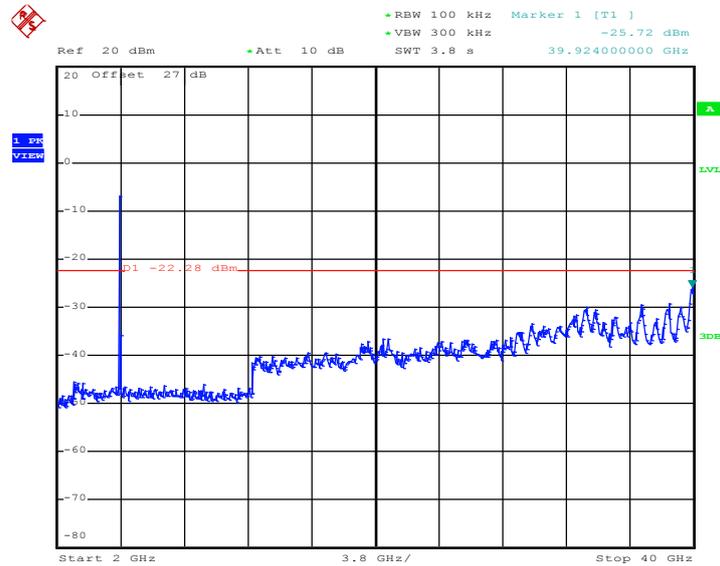
Conducted Spurious Emission Plot on Channel 157



Date: 21.JUN.2012 21:38:07

5G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 157

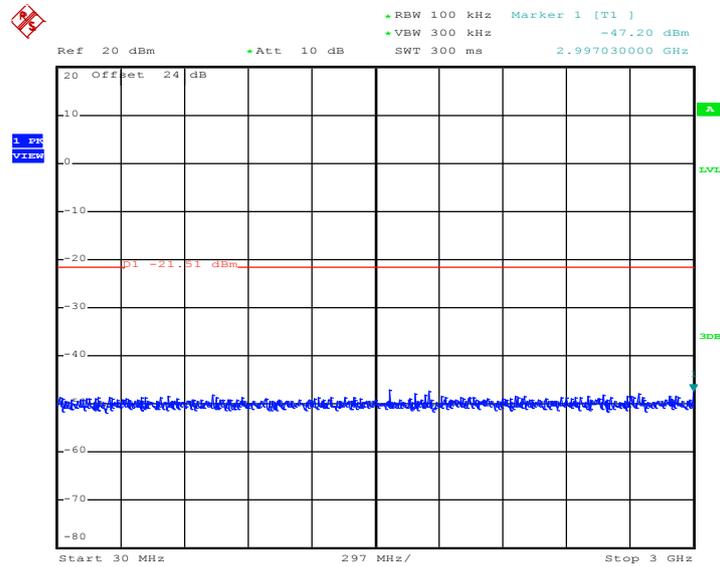


Date: 21.JUN.2012 21:38:25



5G 802.11n HT-20 30 MHz~3 GHz

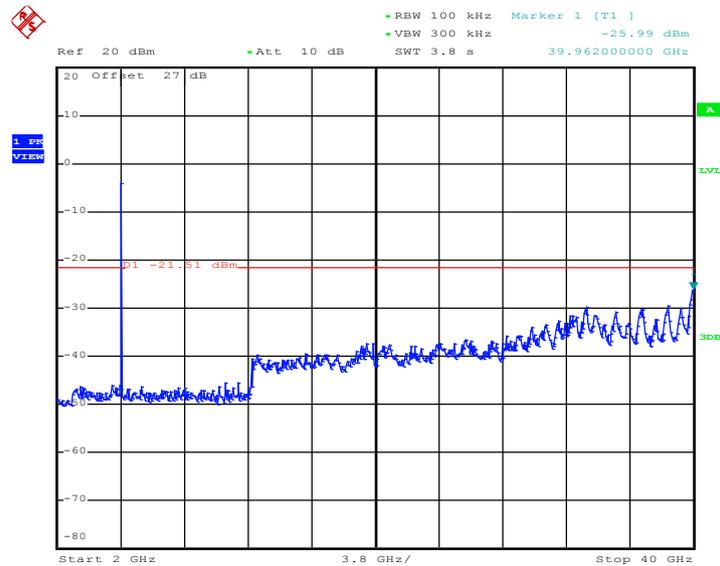
Conducted Spurious Emission Plot on Channel 165



Date: 21.JUN.2012 21:33:09

5G 802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 165



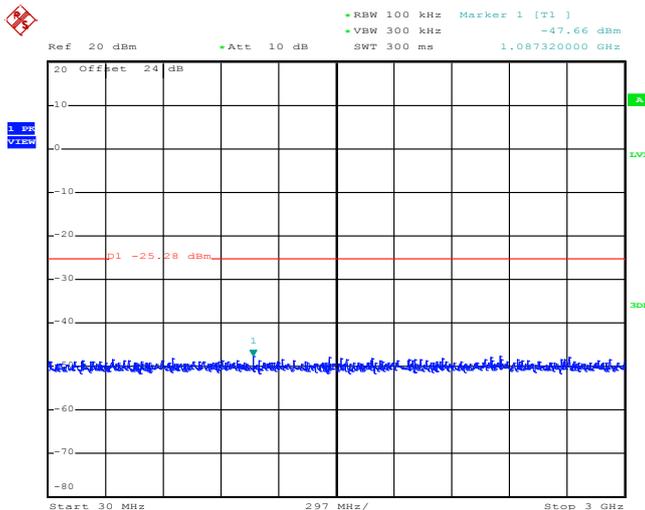
Date: 21.JUN.2012 21:33:27



Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	151 and 159	Test Engineer :	Reece Li

5G 802.11n HT-40 30 MHz~3 GHz

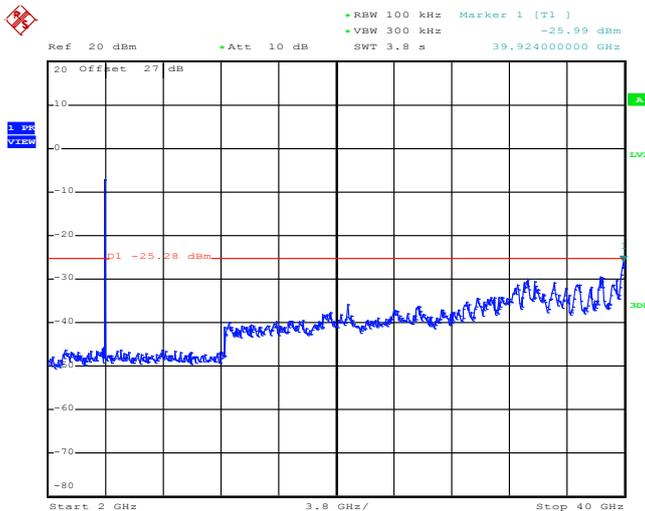
Conducted Spurious Emission Plot on Channel 151



Date: 21.JUN.2012 21:55:54

5G 802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 151

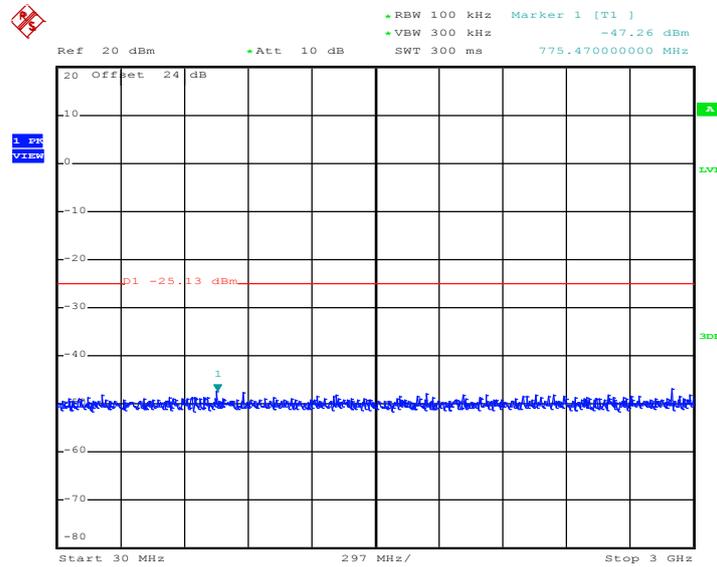


Date: 21.JUN.2012 21:56:12



5G 802.11n HT-40 30 MHz~3 GHz

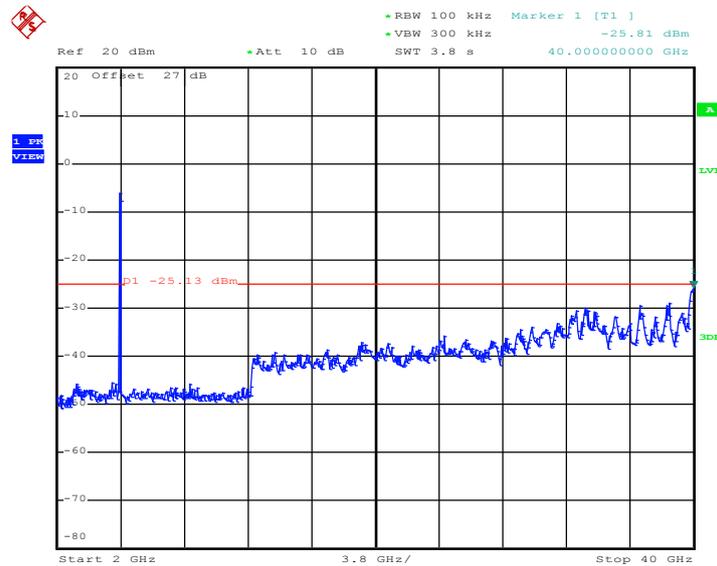
Conducted Spurious Emission Plot on Channel 159



Date: 21.JUN.2012 22:02:38

5G 802.11n HT-40 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 159



Date: 21.JUN.2012 22:02:56



3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

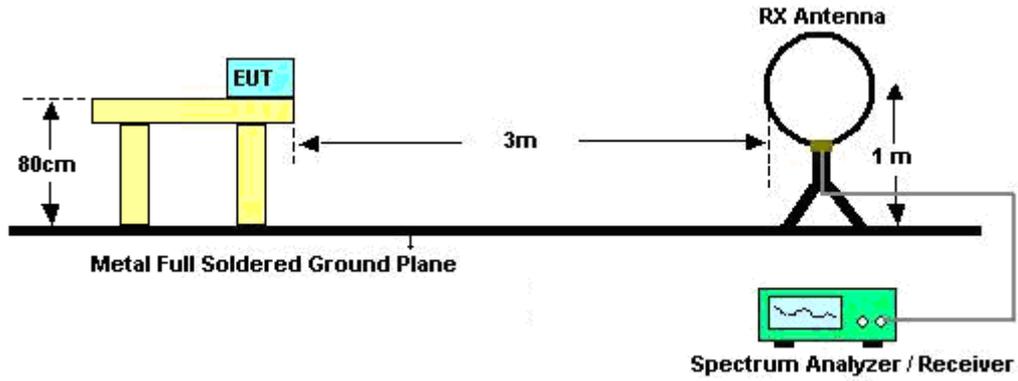


3.5.3 Test Procedures

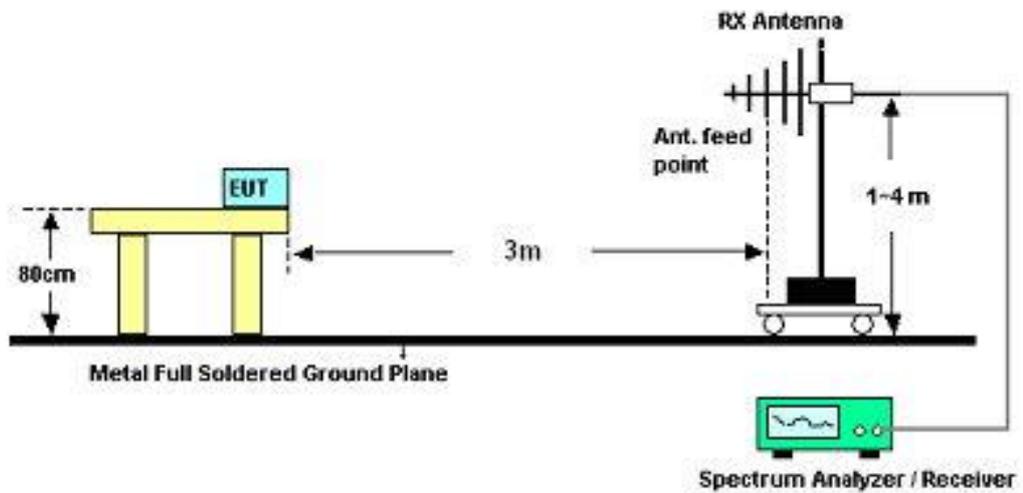
1. The testing follows TCB Workshop 2012, April and fulfills ANSI C63.4-2003 test site requirement. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
2. The EUT was placed on a turntable with 0.8 meter above ground.
3. The EUT was set 3 meters from the interference receiving Antenna, which was mounted on the top of a variable height Antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest radiation.
5. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW = 1 MHz for $f \geq 1$ GHz, 100 KHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
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

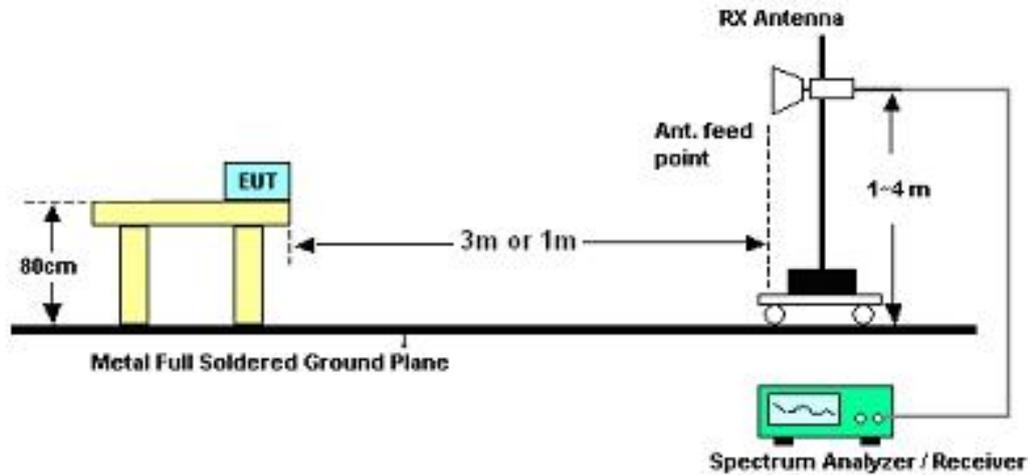
For radiated emissions below 30MHz



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 :	24~25°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
2386.77	56.89	-17.11	74	52.76	32.06	6.03	33.96	105	167	Peak
2386.77	43.54	-10.46	54	39.41	32.06	6.03	33.96	105	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
2388.84	50.76	-23.24	74	46.63	32.06	6.03	33.96	200	360	Peak
2388.84	37.97	-16.03	54	33.84	32.06	6.03	33.96	200	360	Average

Test Mode :	802.11b	Temperature :	24~25°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
2483.68	59.77	-14.23	74	55.41	32.18	6.18	34	130	162	Peak
2483.68	43.82	-10.18	54	39.46	32.18	6.18	34	130	162	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
2483.52	56.62	-17.38	74	52.26	32.18	6.18	34	200	0	Peak
2483.52	39.12	-14.88	54	34.76	32.18	6.18	34	200	0	Average



Test Mode :	802.11g	Temperature :	24~25°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
2389.56	63.07	-10.93	74	58.94	32.06	6.03	33.96	107	164	Peak
2389.56	45.12	-8.88	54	40.99	32.06	6.03	33.96	107	164	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
2389.83	56.09	-17.91	74	51.96	32.06	6.03	33.96	200	69	Peak
2389.83	39.14	-14.86	54	35.01	32.06	6.03	33.96	200	69	Average

Test Mode :	802.11g	Temperature :	24~25°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
2483.6	62.55	-11.45	74	58.19	32.18	6.18	34	107	155	Peak
2483.6	43.78	-10.22	54	39.42	32.18	6.18	34	107	155	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
2483.86	59.05	-14.95	74	54.69	32.18	6.18	34	193	67	Peak
2483.86	40.47	-13.53	54	36.11	32.18	6.18	34	193	67	Average



Test Mode :	802.11n HT-20	Temperature :	24~25°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
2389.92	59.53	-14.47	74	55.4	32.06	6.03	33.96	162	162	Peak
2389.92	43.6	-10.4	54	39.47	32.06	6.03	33.96	162	162	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
2390	56.18	-17.82	74	52.05	32.06	6.03	33.96	200	66	Peak
2390	39.37	-14.63	54	35.24	32.06	6.03	33.96	200	66	Average

Test Mode :	802.11n HT-20	Temperature :	24~25°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
2483.86	58.55	-15.45	74	54.19	32.18	6.18	34	104	163	Peak
2483.86	43.23	-10.77	54	38.87	32.18	6.18	34	104	163	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
2484.16	55.28	-18.72	74	50.92	32.18	6.18	34	193	77	Peak
2484.16	39.35	-14.65	54	34.99	32.18	6.18	34	193	77	Average



Test Mode :	802.11a	Temperature :	24~25°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	58.98	-21.79	80.77	47.51	34.81	9.92	33.26	103	157	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	55.79	-22.9	78.69	44.32	34.81	9.92	33.26	162	281	Peak

Test Mode :	802.11a	Temperature :	24~25°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	54.21	-26.48	80.69	42.82	34.98	9.87	33.46	113	187	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	52.55	-26.69	79.24	41.16	34.98	9.87	33.46	180	18	Peak



Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	149	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	60.74	-19.64	80.38	49.27	34.81	9.92	33.26	114	187	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	55.51	-22.6	78.11	44.04	34.81	9.92	33.26	162	281	Peak

Test Mode :	802.11n HT-20	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	165	Test Engineer :	Gavin Wu

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	53.29	-26.58	79.87	41.9	34.98	9.87	33.46	113	186	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dB μ V/m)	Over Limit (dB)	Limit Line (dB μ V/m)	Read Level (dB μ V)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	55.74	-23.38	79.12	44.35	34.98	9.87	33.46	152	20	Peak



Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Band :	Low	Relative Humidity :	41~42%
Test Channel :	151	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	60.8	-17.58	78.38	49.33	34.81	9.92	33.26	103	188	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	68.37	-8.06	76.43	56.9	34.81	9.92	33.26	152	19	Peak

Test Mode :	802.11n HT-40	Temperature :	24~25°C
Test Band :	High	Relative Humidity :	41~42%
Test Channel :	159	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	54.92	-23.27	78.19	43.53	34.98	9.87	33.46	112	187	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	63.58	-11.33	74.91	52.19	34.98	9.87	33.46	146	280	Peak



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

Test Mode :	802.11b	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2386.77	43.54	-10.46	54	39.41	32.06	6.03	33.96	105	167	Average
2386.77	56.89	-17.11	74	52.76	32.06	6.03	33.96	105	167	Peak
2412	102.1	-	-	97.92	32.08	6.07	33.97	105	167	Average
2412	107.92	-	-	103.74	32.08	6.07	33.97	105	167	Peak
2498	38.91	-15.09	54	34.53	32.2	6.18	34	105	167	Average
2498	49.87	-24.13	74	45.49	32.2	6.18	34	105	167	Peak
4824	47.62	-26.38	74	64.39	34.1	9.12	59.99	100	0	Peak

Test Mode :	802.11b	Temperature :	24~25°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
2388.84	37.97	-16.03	54	33.84	32.06	6.03	33.96	200	360	Average
2388.84	50.76	-23.24	74	46.63	32.06	6.03	33.96	200	360	Peak
2412	96.73	-	-	92.55	32.08	6.07	33.97	200	360	Average
2412	102.64	-	-	98.46	32.08	6.07	33.97	200	360	Peak
2484	34.91	-19.09	54	30.55	32.18	6.18	34	200	360	Average
2484	47.89	-26.11	74	43.53	32.18	6.18	34	200	360	Peak
4824	45.49	-28.51	74	62.26	34.1	9.12	59.99	100	0	Peak



Test Mode :	802.11b	Temperature :	24~25°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
2388	35.57	-18.43	54	31.44	32.06	6.03	33.96	159	162	Average
2388	47.23	-26.77	74	43.1	32.06	6.03	33.96	159	162	Peak
2437	102.51	-	-	98.25	32.13	6.11	33.98	159	162	Average
2437	108.45	-	-	104.19	32.13	6.11	33.98	159	162	Peak
2484	38.38	-15.62	54	34.02	32.18	6.18	34	159	162	Average
2484	53.53	-20.47	74	49.17	32.18	6.18	34	159	162	Peak
4874	46.75	-27.25	74	63.3	34.1	9.13	59.78	100	0	Peak

Test Mode :	802.11b	Temperature :	24~25°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
2356	33.04	-20.96	54	29.02	32.01	5.95	33.94	200	360	Average
2356	44.62	-29.38	74	40.6	32.01	5.95	33.94	200	360	Peak
2437	96.61	-	-	92.35	32.13	6.11	33.98	200	360	Average
2437	102.49	-	-	98.23	32.13	6.11	33.98	200	360	Peak
2492	35.37	-18.63	54	30.99	32.2	6.18	34	200	360	Average
2492	47.39	-26.61	74	43.01	32.2	6.18	34	200	360	Peak
4874	46.68	-27.32	74	63.23	34.1	9.13	59.78	100	0	Peak



Test Mode :	802.11b	Temperature :	24~25°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
2378	35.37	-18.63	54	31.3	32.03	5.99	33.95	130	162	Average
2378	46.45	-27.55	74	42.38	32.03	5.99	33.95	130	162	Peak
2462	102.73	-	-	98.43	32.15	6.14	33.99	130	162	Average
2462	108.48	-	-	104.18	32.15	6.14	33.99	130	162	Peak
2483.68	43.82	-10.18	54	39.46	32.18	6.18	34	130	162	Average
2483.68	59.77	-14.23	74	55.41	32.18	6.18	34	130	162	Peak
4924	47.63	-26.37	74	63.96	34.1	9.15	59.58	100	0	Peak

Test Mode :	802.11b	Temperature :	24~25°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
2382	33.17	-20.83	54	29.07	32.03	6.03	33.96	200	0	Average
2382	45.5	-28.5	74	41.4	32.03	6.03	33.96	200	0	Peak
2462	96.67	-	-	92.37	32.15	6.14	33.99	200	0	Average
2462	102.27	-	-	97.97	32.15	6.14	33.99	200	0	Peak
2483.52	39.12	-14.88	54	34.76	32.18	6.18	34	200	0	Average
2483.52	56.62	-17.38	74	52.26	32.18	6.18	34	200	0	Peak
4924	46.83	-27.17	74	63.16	34.1	9.15	59.58	100	0	Peak



Test Mode :	802.11g	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	20.69	-19.31	40	32.74	19.28	0.54	31.87	-	-	Peak
169.32	21.76	-21.74	43.5	42.25	9.57	1.23	31.29	-	-	Peak
204.69	29.08	-14.42	43.5	49.66	9.44	1.34	31.36	100	27	Peak
311.2	24.35	-21.65	46	40.14	13.61	1.79	31.19	-	-	Peak
482.7	20.07	-25.93	46	30.88	17.74	2.39	30.94	-	-	Peak
799.8	24.99	-21.01	46	29.91	22.1	3.14	30.16	-	-	Peak
2389.56	45.12	-8.88	54	40.99	32.06	6.03	33.96	107	164	Average
2389.56	63.07	-10.93	74	58.94	32.06	6.03	33.96	107	164	Peak
2412	95.27	-	-	91.09	32.08	6.07	33.97	107	164	Average
2412	108.08	-	-	103.9	32.08	6.07	33.97	107	164	Peak
2496	37.95	-16.05	54	33.57	32.2	6.18	34	107	164	Average
2496	51.91	-22.09	74	47.53	32.2	6.18	34	107	164	Peak
4824	44.61	-29.39	74	61.38	34.1	9.12	59.99	100	0	Peak



Test Mode :	802.11g	Temperature :	24~25°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	30.31	-9.69	40	41.65	20	0.53	31.87	100	55	Peak
80.22	26.17	-13.83	40	49.31	7.7	0.88	31.72	-	-	Peak
171.21	24.83	-18.67	43.5	45.49	9.38	1.23	31.27	-	-	Peak
465.9	19.42	-26.58	46	30.81	17.37	2.34	31.1	-	-	Peak
601.7	22.09	-23.91	46	30.12	19.81	2.69	30.53	-	-	Peak
804.7	24.2	-21.8	46	29.1	22.15	3.15	30.2	-	-	Peak
2389.83	39.14	-14.86	54	35.01	32.06	6.03	33.96	200	69	Average
2389.83	56.09	-17.91	74	51.96	32.06	6.03	33.96	200	69	Peak
2412	92.38	-	-	88.2	32.08	6.07	33.97	200	69	Average
2412	104.55	-	-	100.37	32.08	6.07	33.97	200	69	Peak
2488	35.81	-18.19	54	31.43	32.2	6.18	34	200	69	Average
2488	46.82	-27.18	74	42.44	32.2	6.18	34	200	69	Peak
4824	42.53	-31.47	74	59.3	34.1	9.12	59.99	100	0	Peak



Test Mode :	802.11g	Temperature :	24~25°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
2390	39.38	-14.62	54	35.25	32.06	6.03	33.96	165	158	Average
2390	50.77	-23.23	74	46.64	32.06	6.03	33.96	165	158	Peak
2437	98.86	-	-	94.6	32.13	6.11	33.98	165	158	Average
2437	111.38	-	-	107.12	32.13	6.11	33.98	165	158	Peak
2488	40.46	-13.54	54	36.08	32.2	6.18	34	165	158	Average
2488	52.39	-21.61	74	48.01	32.2	6.18	34	165	158	Peak
4874	48.08	-25.92	74	64.63	34.1	9.13	59.78	100	0	Peak

Test Mode :	802.11g	Temperature :	24~25°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
2384	32.94	-21.06	54	28.84	32.03	6.03	33.96	198	78	Average
2384	44.35	-29.65	74	40.25	32.03	6.03	33.96	198	78	Peak
2437	94.46	-	-	90.2	32.13	6.11	33.98	198	78	Average
2437	107.75	-	-	103.49	32.13	6.11	33.98	198	78	Peak
2484	36.54	-17.46	54	32.18	32.18	6.18	34	198	78	Average
2484	47.79	-26.21	74	43.43	32.18	6.18	34	198	78	Peak
4874	45.49	-28.51	74	62.04	34.1	9.13	59.78	100	0	Peak



Test Mode :	802.11g	Temperature :	24~25°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
2384	35.06	-18.94	54	30.96	32.03	6.03	33.96	107	155	Average
2384	46.43	-27.57	74	42.33	32.03	6.03	33.96	107	155	Peak
2462	96.72	-	-	92.42	32.15	6.14	33.99	107	155	Average
2462	110.15	-	-	105.85	32.15	6.14	33.99	107	155	Peak
2483.6	43.78	-10.22	54	39.42	32.18	6.18	34	107	155	Average
2483.6	62.55	-11.45	74	58.19	32.18	6.18	34	107	155	Peak
4924	45.39	-28.61	74	61.72	34.1	9.15	59.58	100	0	Peak

Test Mode :	802.11g	Temperature :	24~25°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
2320	32.57	-21.43	54	28.62	31.96	5.92	33.93	193	67	Average
2320	43.78	-30.22	74	39.83	31.96	5.92	33.93	193	67	Peak
2462	93.24	-	-	88.94	32.15	6.14	33.99	193	67	Average
2462	106.41	-	-	102.11	32.15	6.14	33.99	193	67	Peak
2483.86	40.47	-13.53	54	36.11	32.18	6.18	34	193	67	Average
2483.86	59.05	-14.95	74	54.69	32.18	6.18	34	193	67	Peak
4924	44.33	-29.67	74	60.66	34.1	9.15	59.58	100	0	Peak



Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.92	43.6	-10.4	54	39.47	32.06	6.03	33.96	162	162	Average
2389.92	59.53	-14.47	74	55.4	32.06	6.03	33.96	162	162	Peak
2412	94.68	-	-	90.5	32.08	6.07	33.97	162	162	Average
2412	106.51	-	-	102.33	32.08	6.07	33.97	162	162	Peak
2496	36.78	-17.22	54	32.4	32.2	6.18	34	162	162	Average
2496	49	-25	74	44.62	32.2	6.18	34	162	162	Peak
4824	42.58	-31.42	74	59.35	34.1	9.12	59.99	100	0	Peak

Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°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
2390	39.37	-14.63	54	35.24	32.06	6.03	33.96	200	66	Average
2390	56.18	-17.82	74	52.05	32.06	6.03	33.96	200	66	Peak
2412	91.46	-	-	87.28	32.08	6.07	33.97	200	66	Average
2412	102.87	-	-	98.69	32.08	6.07	33.97	200	66	Peak
2488	35.1	-18.9	54	30.72	32.2	6.18	34	200	66	Average
2488	46.74	-27.26	74	42.36	32.2	6.18	34	200	66	Peak
4824	42.16	-31.84	74	58.93	34.1	9.12	59.99	100	0	Peak



Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°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
2390	35.47	-18.53	54	31.34	32.06	6.03	33.96	159	164	Average
2390	46.68	-27.32	74	42.55	32.06	6.03	33.96	159	164	Peak
2437	98.26	-	-	94	32.13	6.11	33.98	159	164	Average
2437	109.62	-	-	105.36	32.13	6.11	33.98	159	164	Peak
2484	37.68	-16.32	54	33.32	32.18	6.18	34	159	164	Average
2484	49.45	-24.55	74	45.09	32.18	6.18	34	159	164	Peak
4874	49.33	-24.67	74	65.88	34.1	9.13	59.78	100	0	Peak

Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°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
2386	33.73	-20.27	54	29.6	32.06	6.03	33.96	200	80	Average
2386	45.5	-28.5	74	41.37	32.06	6.03	33.96	200	80	Peak
2437	94.07	-	-	89.81	32.13	6.11	33.98	200	80	Average
2437	105.36	-	-	101.1	32.13	6.11	33.98	200	80	Peak
2492	35.01	-18.99	54	30.63	32.2	6.18	34	200	80	Average
2492	46.77	-27.23	74	42.39	32.2	6.18	34	200	80	Peak
4874	44.87	-29.13	74	61.41	34.1	9.14	59.78	100	0	Peak



Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°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
2364	35.77	-18.23	54	31.72	32.01	5.99	33.95	104	163	Average
2364	47.65	-26.35	74	43.6	32.01	5.99	33.95	104	163	Peak
2462	95.54	-	-	91.24	32.15	6.14	33.99	104	163	Average
2462	108.05	-	-	103.75	32.15	6.14	33.99	104	163	Peak
2483.86	43.23	-10.77	54	38.87	32.18	6.18	34	104	163	Average
2483.86	58.55	-15.45	74	54.19	32.18	6.18	34	104	163	Peak
4924	44.45	-29.55	74	60.79	34.1	9.14	59.58	100	0	Peak

Test Mode :	2.4G 802.11n-HT20	Temperature :	24~25°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
2350	32.42	-21.58	54	28.43	31.98	5.95	33.94	193	77	Average
2350	44.18	-29.82	74	40.19	31.98	5.95	33.94	193	77	Peak
2462	92.15	-	-	87.85	32.15	6.14	33.99	193	77	Average
2462	103.55	-	-	99.25	32.15	6.14	33.99	193	77	Peak
2484.16	39.35	-14.65	54	34.99	32.18	6.18	34	193	77	Average
2484.16	55.28	-18.72	74	50.92	32.18	6.18	34	193	77	Peak
4924	45.11	-28.89	74	61.45	34.1	9.14	59.58	100	0	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level. For example, 100.77 dBuV/m - 20dB = 80.77 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
5725	58.98	-21.79	80.77	47.51	34.81	9.92	33.26	103	157	Peak
5745	89.45	-	-	78	34.84	9.91	33.3	103	157	Average
5745	100.77	-	-	89.32	34.84	9.91	33.3	103	157	Peak
5850	52.09	-28.68	80.77	40.7	34.98	9.87	33.46	103	157	Peak

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	55.79	-22.9	78.69	44.32	34.81	9.92	33.26	162	281	Peak
5745	87.33	-	-	75.88	34.84	9.91	33.3	162	281	Average
5745	98.69	-	-	87.24	34.84	9.91	33.3	162	281	Peak
5850	51.35	-27.34	78.69	39.96	34.98	9.87	33.46	162	281	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	53.07	-28.29	81.36	41.6	34.81	9.92	33.26	126	186	Peak
5785	90.19	-	-	78.74	34.89	9.9	33.34	126	186	Average
5785	101.36	-	-	89.91	34.89	9.9	33.34	126	186	Peak
5850	52.5	-28.86	81.36	41.11	34.98	9.87	33.46	126	186	Peak

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	51.77	-26.53	78.3	40.3	34.81	9.92	33.26	174	279	Peak
5785	87.08	-	-	75.63	34.89	9.9	33.34	174	279	Average
5785	98.3	-	-	86.85	34.89	9.9	33.34	174	279	Peak
5850	54.27	-24.03	78.3	42.88	34.98	9.87	33.46	174	279	Peak



Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	53.94	-26.75	80.69	42.47	34.81	9.92	33.26	113	187	Peak
5825	89.41	-	-	77.99	34.96	9.88	33.42	113	187	Average
5825	100.69	-	-	89.27	34.96	9.88	33.42	113	187	Peak
5850	54.21	-26.48	80.69	42.82	34.98	9.87	33.46	113	187	Peak

Test Mode :	802.11a	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	53.86	-25.38	79.24	42.39	34.81	9.92	33.26	180	18	Peak
5825	87.9	-	-	76.48	34.96	9.88	33.42	180	18	Average
5825	99.24	-	-	87.82	34.96	9.88	33.42	180	18	Peak
5850	52.55	-26.69	79.24	41.16	34.98	9.87	33.46	180	18	Peak



Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	60.74	-19.64	80.38	49.27	34.81	9.92	33.26	114	187	Peak
5745	89.1	-	-	77.65	34.84	9.91	33.3	114	187	Average
5745	100.38	-	-	88.93	34.84	9.91	33.3	114	187	Peak
5850	52.94	-27.44	80.38	41.55	34.98	9.87	33.46	114	187	Peak

Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5745 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	55.51	-22.6	78.11	44.04	34.81	9.92	33.26	162	281	Peak
5745	86.66	-	-	75.21	34.84	9.91	33.3	162	281	Average
5745	98.11	-	-	86.66	34.84	9.91	33.3	162	281	Peak
5850	52.49	-25.62	78.11	41.1	34.98	9.87	33.46	162	281	Peak



Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	53.71	-27.6	81.31	42.24	34.81	9.92	33.26	126	157	Peak
5785	89.78	-	-	78.33	34.89	9.9	33.34	126	157	Average
5785	101.31	-	-	89.86	34.89	9.9	33.34	126	157	Peak
5850	51.94	-29.37	81.31	40.55	34.98	9.87	33.46	126	157	Peak

Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5785 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	52.71	-24.57	77.28	41.24	34.81	9.92	33.26	162	287	Peak
5785	86.06	-	-	74.61	34.89	9.9	33.34	162	287	Average
5785	97.28	-	-	85.83	34.89	9.9	33.34	162	287	Peak
5850	51	-26.28	77.28	39.61	34.98	9.87	33.46	162	287	Peak



Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5724 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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
5724	53.69	-26.18	79.87	42.22	34.81	9.92	33.26	113	186	Peak
5825	88.24	-	-	76.82	34.96	9.88	33.42	113	186	Average
5825	99.87	-	-	88.45	34.96	9.88	33.42	113	186	Peak
5850	53.29	-26.58	79.87	41.9	34.98	9.87	33.46	113	186	Peak

Test Mode :	5G 802.11n-HT20	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5825 MHz is fundamental signal which can be ignored. 2. 5724 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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
5724	54.08	-25.04	79.12	42.61	34.81	9.92	33.26	152	20	Peak
5825	87.67	-	-	76.25	34.96	9.88	33.42	152	20	Average
5825	99.12	-	-	87.7	34.96	9.88	33.42	152	20	Peak
5850	55.74	-23.38	79.12	44.35	34.98	9.87	33.46	152	20	Peak



Test Mode :	5G 802.11n-HT40	Temperature :	24~25°C
Test Channel :	151	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5755 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	20.82	-19.18	40	32.16	20	0.53	31.87	-	-	Peak
169.32	21.76	-21.74	43.5	42.25	9.57	1.23	31.29	-	-	Peak
204.69	29.08	-14.42	43.5	49.66	9.44	1.34	31.36	103	227	Peak
311.2	24.35	-21.65	46	40.14	13.61	1.79	31.19	-	-	Peak
635.3	22.16	-23.84	46	29.69	20.08	2.8	30.41	-	-	Peak
693.4	22.21	-23.79	46	29.2	20.55	2.93	30.47	-	-	Peak
5725	60.8	-17.58	78.38	49.33	34.81	9.92	33.26	103	188	Peak
5755	86.43	-	-	74.96	34.86	9.91	33.3	103	188	Average
5755	98.38	-	-	86.91	34.86	9.91	33.3	103	188	Peak
5850	52.57	-25.81	78.38	41.18	34.98	9.87	33.46	103	188	Peak



Test Mode :	5G 802.11n-HT40	Temperature :	24~25°C
Test Channel :	151	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5755 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	30.31	-9.69	40	41.65	20	0.53	31.87	111	105	Peak
80.22	26.17	-13.83	40	49.31	7.7	0.88	31.72	-	-	Peak
171.21	24.83	-18.67	43.5	45.49	9.38	1.23	31.27	-	-	Peak
601.7	22.09	-23.91	46	30.12	19.81	2.69	30.53	-	-	Peak
629.7	22.5	-23.5	46	30.12	20.03	2.78	30.43	-	-	Peak
769.7	24.19	-21.81	46	29.83	21.65	3.09	30.38	-	-	Peak
5725	68.37	-8.06	76.43	56.9	34.81	9.92	33.26	152	19	Peak
5755	84.75	-	-	73.28	34.86	9.91	33.3	152	19	Average
5755	96.43	-	-	84.96	34.86	9.91	33.3	152	19	Peak
5850	52.69	-23.74	76.43	41.3	34.98	9.87	33.46	152	19	Peak



Test Mode :	5G 802.11n-HT40	Temperature :	24~25°C
Test Channel :	159	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Horizontal
Remark :	1. 5795 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	53.1	-25.09	78.19	41.63	34.81	9.92	33.26	112	187	Peak
5795	86.51	-	-	75.09	34.91	9.89	33.38	112	187	Average
5795	98.19	-	-	86.77	34.91	9.89	33.38	112	187	Peak
5850	54.92	-23.27	78.19	43.53	34.98	9.87	33.46	112	187	Peak

Test Mode :	5G 802.11n-HT40	Temperature :	24~25°C
Test Channel :	159	Relative Humidity :	41~42%
Test Engineer :	Gavin Wu	Polarization :	Vertical
Remark :	1. 5795 MHz is fundamental signal which can be ignored. 2. 5725 MHz and 5850 MHz are not within the restricted bands, and there's limit line are 20dB below the highest emission level.		

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	54.13	-20.78	74.91	42.66	34.81	9.92	33.26	146	280	Peak
5795	83.25	-	-	71.83	34.91	9.89	33.38	146	280	Average
5795	94.91	-	-	83.49	34.91	9.89	33.38	146	280	Peak
5850	63.58	-11.33	74.91	52.19	34.98	9.87	33.46	146	280	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

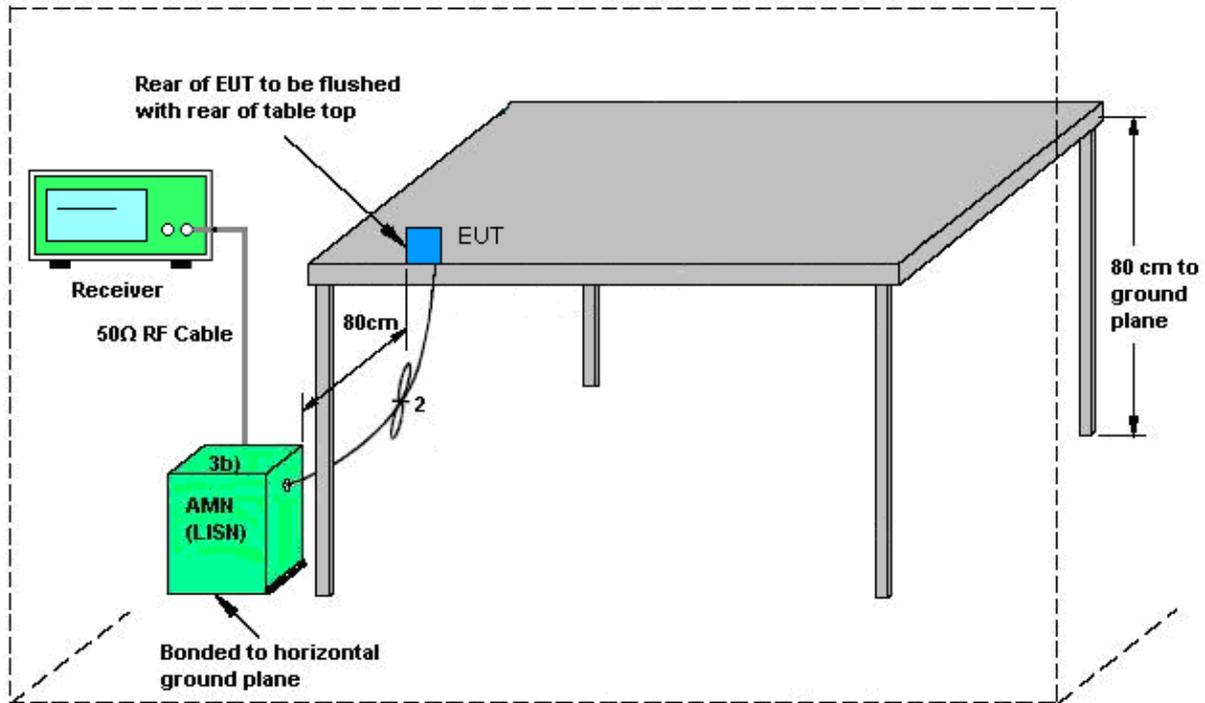
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.4-2003 and ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

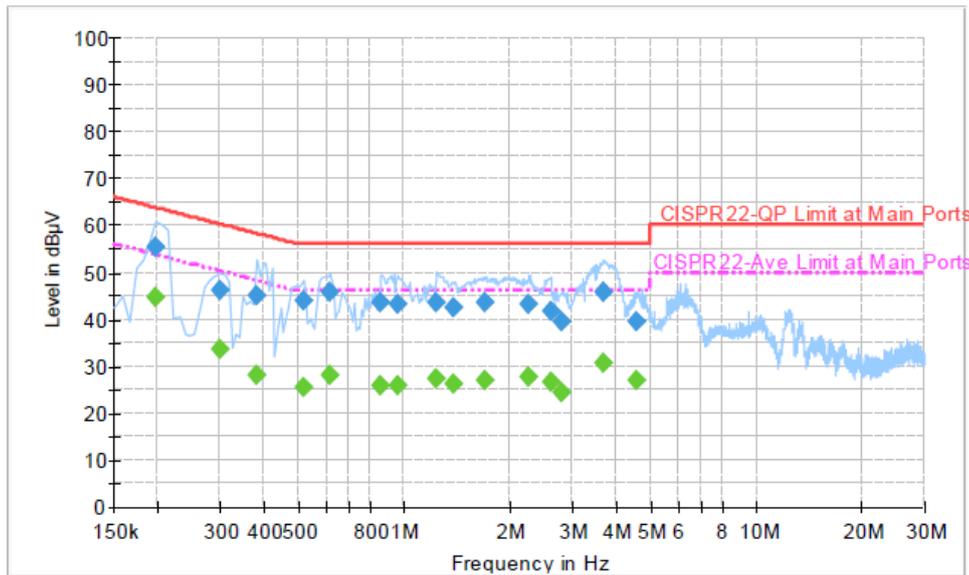
3.6.4 Test Setup



AMN = Artificial mains network (LISN)
 AE = Associated equipment
 EUT = Equipment under test
 ISN = Impedance stabilization network

3.6.5 Test Result of AC Conducted Emission

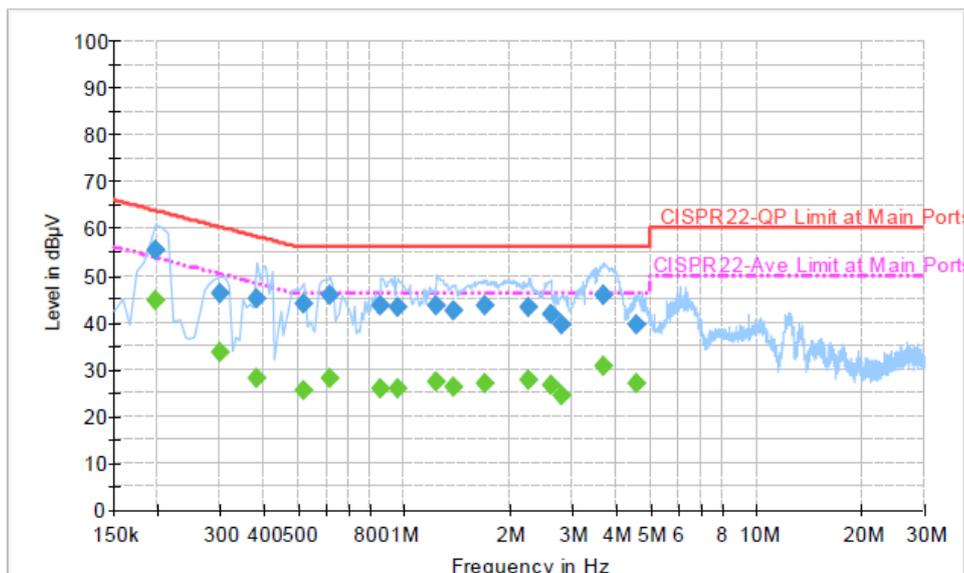
Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	55.2	Off	L1	19.3	8.5	63.7
0.302000	46.2	Off	L1	19.3	14.0	60.2
0.382000	44.8	Off	L1	19.4	13.4	58.2
0.518000	44.0	Off	L1	19.4	12.0	56.0
0.614000	45.9	Off	L1	19.4	10.1	56.0
0.862000	43.7	Off	L1	19.5	12.3	56.0
0.958000	43.0	Off	L1	19.4	13.0	56.0
1.238000	43.5	Off	L1	19.5	12.5	56.0
1.382000	42.3	Off	L1	19.5	13.7	56.0
1.694000	43.6	Off	L1	19.5	12.4	56.0
2.270000	43.2	Off	L1	19.6	12.8	56.0
2.606000	41.8	Off	L1	19.6	14.2	56.0
2.806000	39.4	Off	L1	19.6	16.6	56.0
3.670000	45.8	Off	L1	19.6	10.2	56.0
4.582000	39.5	Off	L1	19.7	16.5	56.0

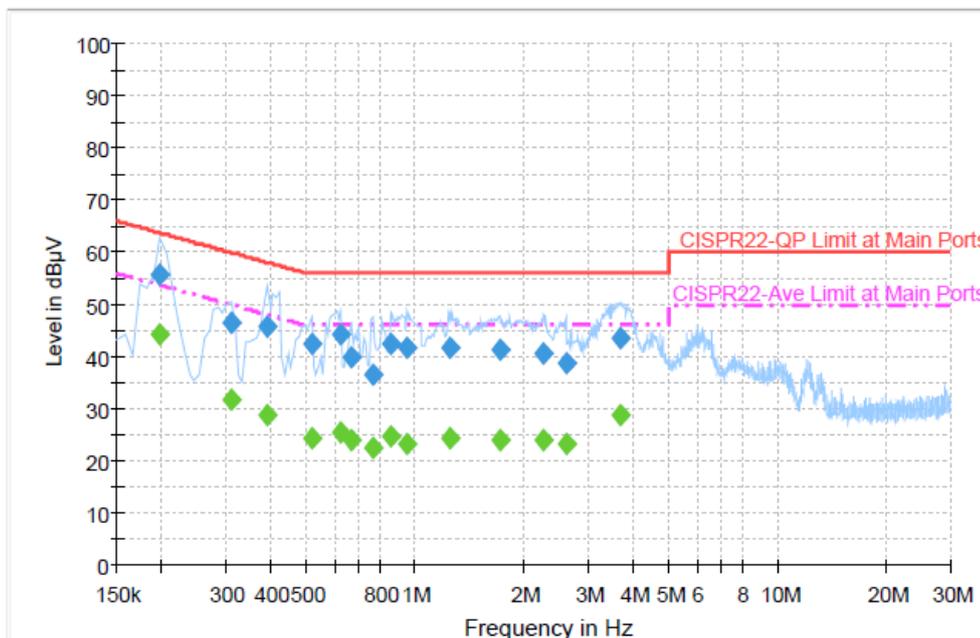
Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	44.7	Off	L1	19.3	9.0	53.7
0.302000	33.5	Off	L1	19.3	16.7	50.2
0.382000	28.2	Off	L1	19.4	20.0	48.2
0.518000	25.5	Off	L1	19.4	20.5	46.0
0.614000	28.0	Off	L1	19.4	18.0	46.0
0.862000	26.0	Off	L1	19.5	20.0	46.0
0.958000	25.9	Off	L1	19.4	20.1	46.0
1.238000	27.4	Off	L1	19.5	18.6	46.0
1.382000	26.3	Off	L1	19.5	19.7	46.0
1.694000	27.1	Off	L1	19.5	18.9	46.0
2.270000	27.7	Off	L1	19.6	18.3	46.0
2.606000	26.5	Off	L1	19.6	19.5	46.0
2.806000	24.2	Off	L1	19.6	21.8	46.0
3.670000	30.7	Off	L1	19.6	15.3	46.0
4.582000	26.9	Off	L1	19.7	19.1	46.0

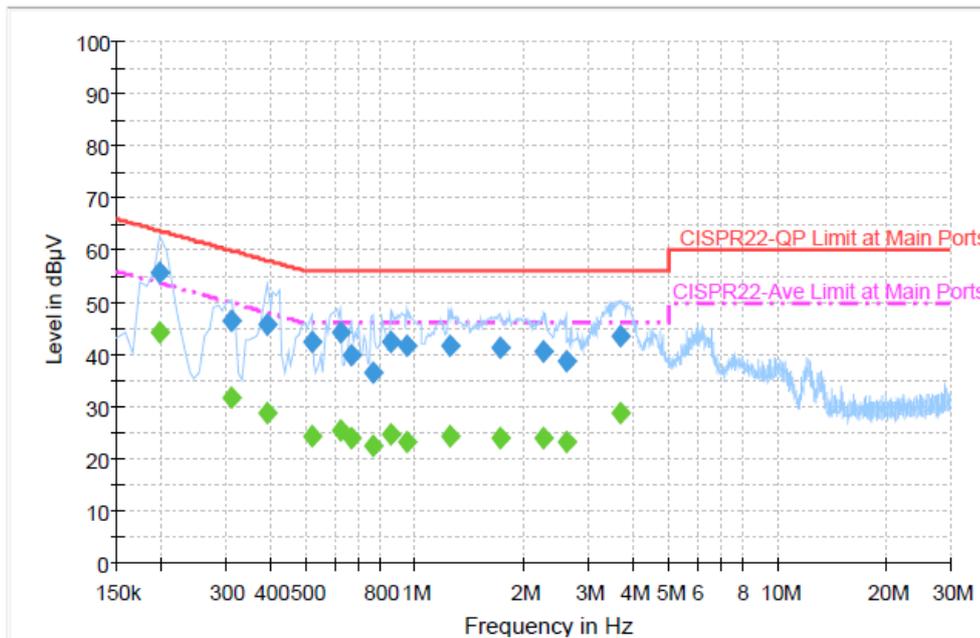
Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	55.8	Off	N	19.3	7.9	63.7
0.310000	46.5	Off	N	19.4	13.5	60.0
0.390000	45.7	Off	N	19.4	12.4	58.1
0.518000	42.4	Off	N	19.4	13.6	56.0
0.622000	44.5	Off	N	19.4	11.5	56.0
0.670000	39.8	Off	N	19.5	16.2	56.0
0.766000	36.7	Off	N	19.5	19.3	56.0
0.854000	42.6	Off	N	19.6	13.4	56.0
0.950000	41.5	Off	N	19.4	14.5	56.0
1.254000	41.6	Off	N	19.5	14.4	56.0
1.718000	41.5	Off	N	19.5	14.5	56.0
2.262000	40.7	Off	N	19.6	15.3	56.0
2.606000	38.8	Off	N	19.6	17.2	56.0
3.686000	43.5	Off	N	19.6	12.5	56.0

Test Mode :	Mode 3	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	50~51%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	WLAN (2.4G) Link + Bluetooth Link + Earphone + MPEG4 + USB Cable (Charging from Adapter)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.198000	44.2	Off	N	19.3	9.5	53.7
0.310000	31.9	Off	N	19.4	18.1	50.0
0.390000	28.8	Off	N	19.4	19.3	48.1
0.518000	24.2	Off	N	19.4	21.8	46.0
0.622000	25.5	Off	N	19.4	20.5	46.0
0.670000	23.9	Off	N	19.5	22.1	46.0
0.766000	22.5	Off	N	19.5	23.5	46.0
0.854000	24.6	Off	N	19.6	21.4	46.0
0.950000	23.4	Off	N	19.4	22.6	46.0
1.254000	24.4	Off	N	19.5	21.6	46.0
1.718000	23.9	Off	N	19.5	22.1	46.0
2.262000	24.2	Off	N	19.6	21.8	46.0
2.606000	23.1	Off	N	19.6	22.9	46.0
3.686000	28.8	Off	N	19.6	17.2	46.0



3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Jun. 14, 2012 ~ Jun. 21, 2012	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Jun. 14, 2012 ~ Jun. 21, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Jun. 14, 2012 ~ Jun. 21, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 06, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Dec. 05, 2012	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Aug. 09, 2012	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Oct. 21, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Oct. 20, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz ~ 26.5GHz	Dec. 05, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Dec. 04, 2012	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32dB.GAIN	Feb. 27, 2012	Jun. 18, 2012 ~ Jun. 21, 2012	Feb. 26, 2013	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz ~ 7GHz	Aug. 22, 2011	Jun. 18, 2012 ~ Jun. 21, 2012	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Jun. 18, 2012 ~ Jun. 21, 2012	Mar. 09, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz~30 MHz	Jul. 29, 2010	Jun. 18, 2012 ~ Jun. 21, 2012	Jul. 28, 2012	Radiation (03CH07-HY)
EMI Test Receive	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	Jun. 18, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	Jun. 18, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	Jun. 18, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Jun. 18, 2012	N/A	Conduction (CO05-HY)
GPS Station	Pendulum	GSG-54	N/A	N/A	N/A	Jun. 18, 2012	N/A	Conduction (CO05-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.54
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Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.72
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Appendix A. Photographs of EUT

Please refer to Sporton report number EP261317 as below.