

FCC RF Test Report

APPLICANT : Hewlett-Packard Company
EQUIPMENT : 802.11 a/b/g/n Wi-Fi + BT combo adapter
BRAND NAME : HP
MODEL NAME : HSTNN-AR01
MARKETING NAME : Broadcom BCM4334 802.11abgn 2x2
Wi-Fi + BT 4.0 Combo Adapter
FCC ID : B94HNAR01
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Jan. 31, 2013 and completely tested on Mar. 02, 2013. 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: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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

SPORTON INTERNATIONAL INC.

TEL : 886-3-327-3456

FAX : 886-3-328-4978

FCC ID : B94HNAR01

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APPENDIX A. PHOTOGRAPHS OF EUT

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	RSS-210 A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	RSS-Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges and Conducted Spurious Emission	$\leq 20\text{dBc}$	Pass	-
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.40 dB at 2483.530 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 8.30 dB at 0.158 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Hewlett-Packard Company
3000 Hanover Street, Palo Alto, California 94304, USA

1.2 Manufacturer

AzureWave Technologies (Shanghai) Inc.
No. 8, Lane 66, Chenbao Road, Malu Town, Jiading District, Shanghai, 201801, China

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	802.11 a/b/g/n Wi-Fi + BT combo adapter
Brand Name	HP
Model Name	HSTNN-AR01
Marketing Name	Broadcom BCM4334 802.11abgn 2x2 Wi-Fi + BT 4.0 Combo Adapter
FCC ID	B94HNAR01
EUT supports Radios application	WLAN 11abgn / Bluetooth 2.1/4.0
EUT Stage	Identical Prototype

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



1.4 Product Specification of Equipment Under Test

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 : 18.65 dBm (0.0733 W) 802.11g : 22.31 dBm (0.1702 W) 802.11n HT20 : 21.75 dBm (0.1496 W) 802.11n HT40 : 20.29 dBm (0.1069 W) <5745 MHz ~ 5825 MHz> 802.11a : 21.83 dBm (0.1524 W) 802.11n HT20 : 21.32 dBm (0.1355 W) 802.11n HT40 : 20.55 dBm (0.1135 W)
99% Occupied Bandwidth	<2412 MHz ~ 2462 MHz> 802.11b : 12.70MHz 802.11g : 18.70MHz 802.11n HT20 : 19.55MHz 802.11n HT40 : 38.30MHz <5745 MHz ~ 5825 MHz> 802.11a : 18.55MHz 802.11n HT20 : 19.40MHz 802.11n HT40 : 37.80MHz
Antenna Type	802.11b/g/n : PIFA Antenna type with gain 3.00 dBi 802.11a/n : PIFA Antenna type with gain 4.00 dBi
Type of Modulation	802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)

1.5 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

The test site complies with ANSI C63.4 2003 requirement.

1.6 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
- ♦ ANSI C63.10-2009
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3
- ♦ NOTICE 2012-DRS0126

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.
3. Per the section 2.2.3 of Notice of 2012-DRS0126, " Receivers Excluded from Industry Canada Requirements", only radiocommunication receivers operating in stand-alone mode within the band 30-960 MHz and scanner receivers are subject to Industry Canada requirements.

2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

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

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

2.1 Carrier Frequency Channel

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

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5725-5850 MHz Band 4	149	5745	159	5795
	151	5755	161	5805
	153	5765	165	5825
	157	5785	-	-

2.2 Pre-Scanned RF Power

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

2.4GHz 802.11b mode				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	18.24	18.36	18.31	18.65

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)	22.31	22.30	21.68	21.71	21.77	21.62	21.81	21.86

2.4GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.75	21.53	21.49	21.44	21.50	21.61	21.48	21.36

2.4GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.29	19.65	19.96	20.00	20.06	20.11	20.12	20.14

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)	21.83	21.65	21.44	21.49	21.43	21.44	21.46	21.47

5GHz 802.11n HT20 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.32	21.24	21.29	21.10	21.19	21.24	21.26	21.16

5GHz 802.11n HT40 mode								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.55	20.47	20.45	20.38	20.42	20.46	20.44	20.51



2.3 Test Mode

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

<2.4GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
		802.11n HT40	13.5 Mbps	3/6/9
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
		802.11n HT40	13.5 Mbps	3/6/9
	Conducted Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	6.5 Mbps	1/11
		802.11n HT40	13.5 Mbps	3/9
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
		802.11n HT40	13.5 Mbps	3/6/9
Radiated TCs	Radiated Band Edge	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT20	6.5 Mbps	1/11
		802.11n HT40	13.5 Mbps	3/9
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT20	6.5 Mbps	1/6/11
		802.11n HT40	13.5 Mbps	3/6/9



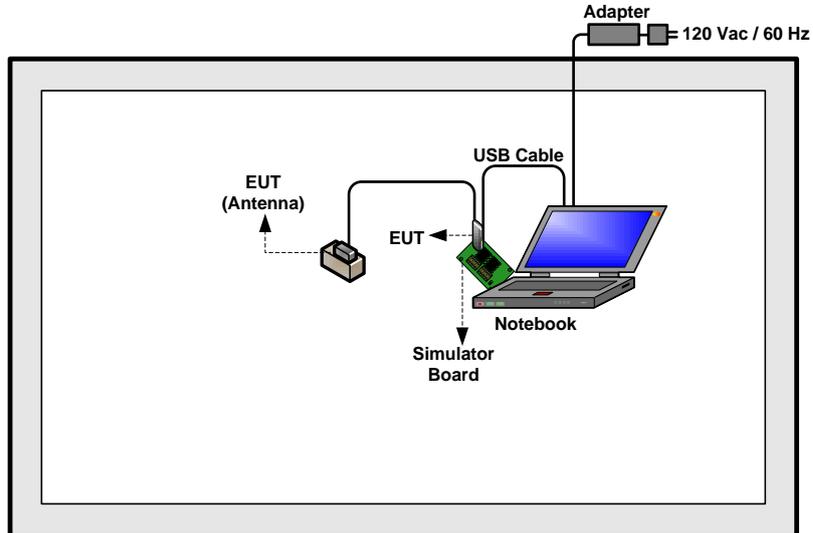
<5GHz>

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW Power Spectral Density	802.11a	6 Mbps	149/157/165
		802.11n HT20	6.5 Mbps	149/157/165
		802.11n HT40	13.5 Mbps	151/159
	Output Power	802.11a	6 Mbps	149/157/165
		802.11n HT20	6.5 Mbps	149/157/165
		802.11n HT40	13.5 Mbps	151/159
	Conducted Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	6.5 Mbps	149/165
		802.11n HT40	13.5 Mbps	151/159
	Conducted Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	6.5 Mbps	149/157/165
		802.11n HT40	13.5 Mbps	151/159
Radiated TCs	Radiated Band Edge	802.11a	6 Mbps	149/165
		802.11n HT20	6.5 Mbps	149/165
		802.11n HT40	13.5 Mbps	151/159
	Radiated Spurious Emission	802.11a	6 Mbps	149/157/165
		802.11n HT20	6.5 Mbps	149/157/165
		802.11n HT40	13.5 Mbps	151/159

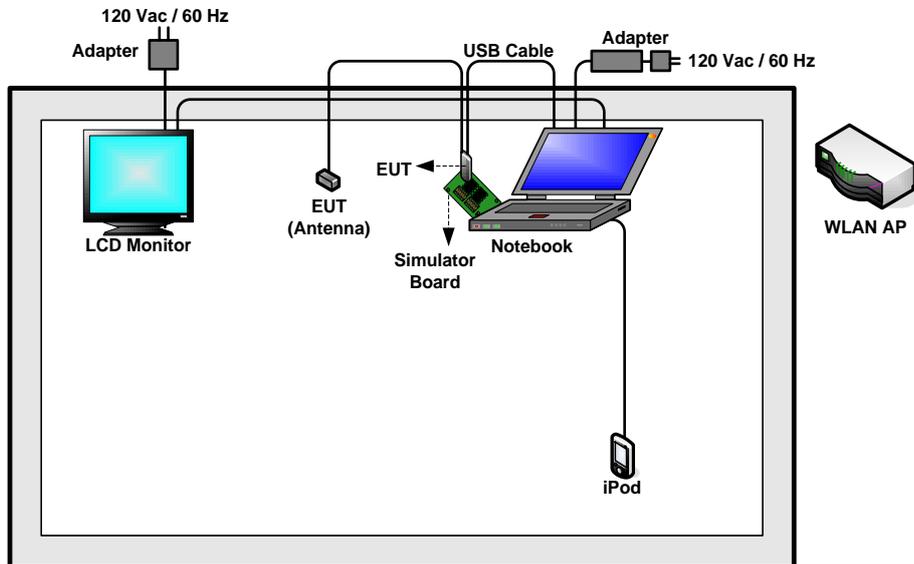
Test Cases	
AC Conducted	Mode 1 : Bluetooth Tx + WLAN (2.4G) Link + USB Cable (Charging from Notebook)
Emission	Mode 2 : Bluetooth Tx + WLAN (5G) Link + USB Cable (Charging from Notebook)
Remark: The worst case of conducted emission is mode 2; only the test data of it was reported.	

2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.5 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	IBM	1860	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
3.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
4.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
5.	SD Card	SanDisk	MOcroSD HC	FCC DoC	N/A	N/A

2.6 Description of RF Function Operation Test Setup

For WLAN function, programmed RF utility, “Command” installed in the notebook make the EUT provides functions like channel selection and power level for continuous transmitting and receiving signals.

2.7 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 4.2 + 10 = 14.2 \text{ (dB)} \end{aligned}$$

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

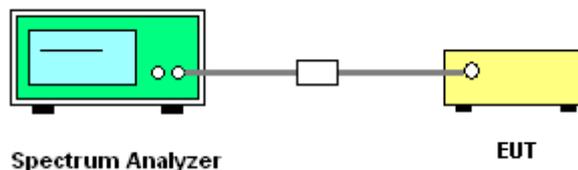
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

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

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	7.72	0.5	Pass
06	2437	7.72	0.5	Pass
11	2462	7.74	0.5	Pass

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	16.32	0.5	Pass
06	2437	16.36	0.5	Pass
11	2462	16.32	0.5	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	17.60	0.5	Pass
06	2437	17.56	0.5	Pass
11	2462	17.56	0.5	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
03	2422	36.32	0.5	Pass
06	2437	36.32	0.5	Pass
09	2452	36.32	0.5	Pass



Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Coyote Lin and 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	16.00	0.5	Pass
165	5825	16.34	0.5	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	17.60	0.5	Pass
157	5785	17.60	0.5	Pass
165	5825	17.60	0.5	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT40 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
151	5755	36.32	0.5	Pass
159	5795	36.32	0.5	Pass



3.1.6 Test Result of 99% Occupied Bandwidth

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

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	12.70	Pass
06	2437	12.70	Pass
11	2462	12.70	Pass

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

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.70	Pass
06	2437	18.70	Pass
11	2462	18.65	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.45	Pass
06	2437	19.45	Pass
11	2462	19.55	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 99% Occupied Bandwidth (MHz)	Pass/Fail
03	2422	37.90	Pass
06	2437	38.00	Pass
09	2452	38.30	Pass



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

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	18.55	Pass
157	5785	18.40	Pass
165	5825	18.50	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	19.40	Pass
157	5785	19.15	Pass
165	5825	19.20	Pass

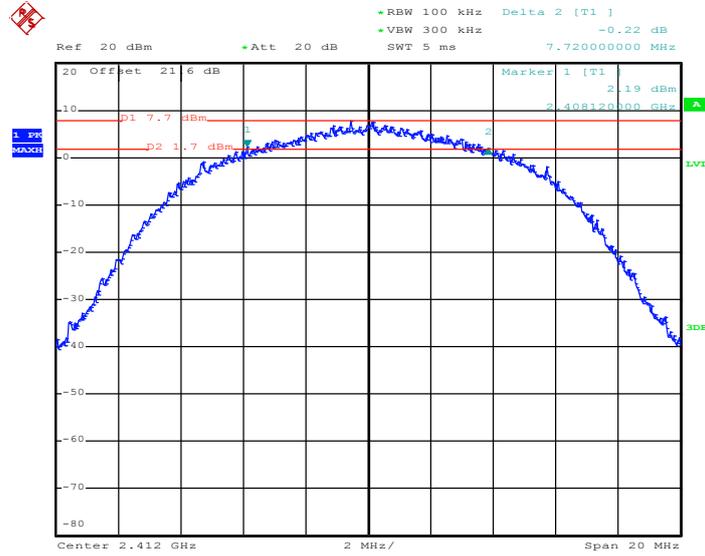
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT40 99% Occupied Bandwidth (MHz)	Pass/Fail
151	5755	37.80	Pass
159	5795	37.80	Pass



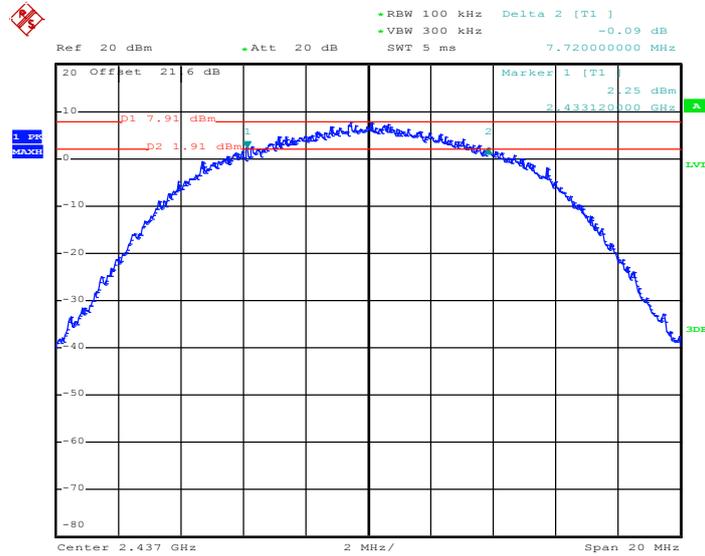
3.1.7 Test Result of 6dB Bandwidth Plots

6 dB Bandwidth Plot on 802.11b Channel 01



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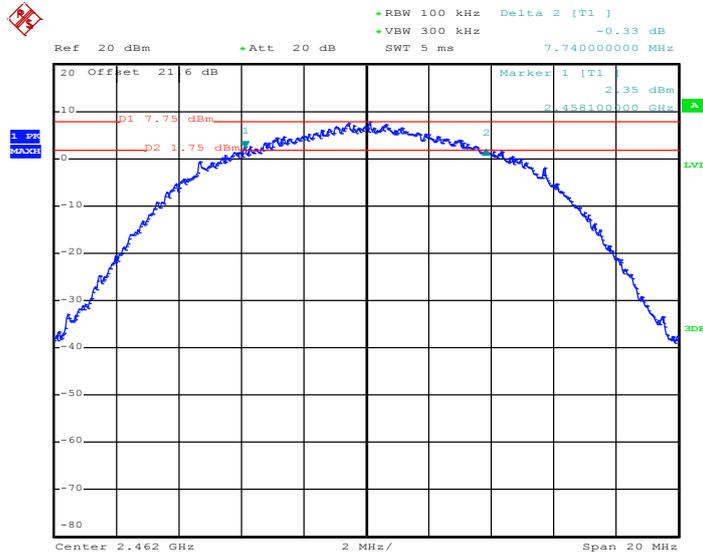
6 dB Bandwidth Plot on 802.11b Channel 06



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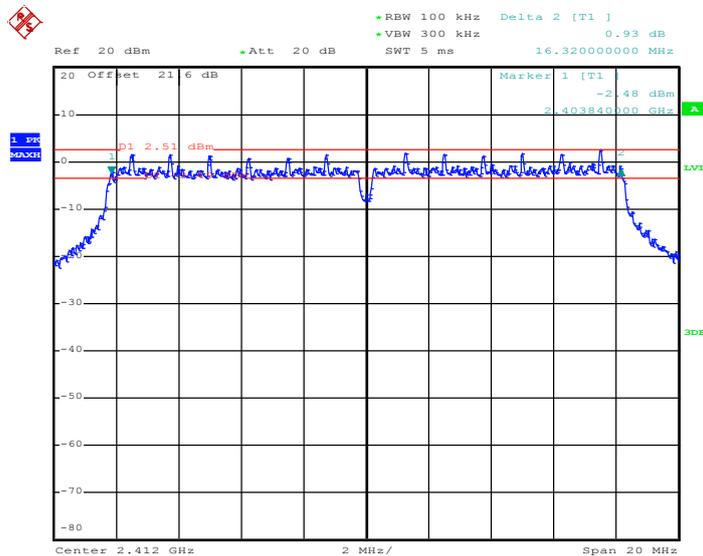


6 dB Bandwidth Plot on 802.11b Channel 11



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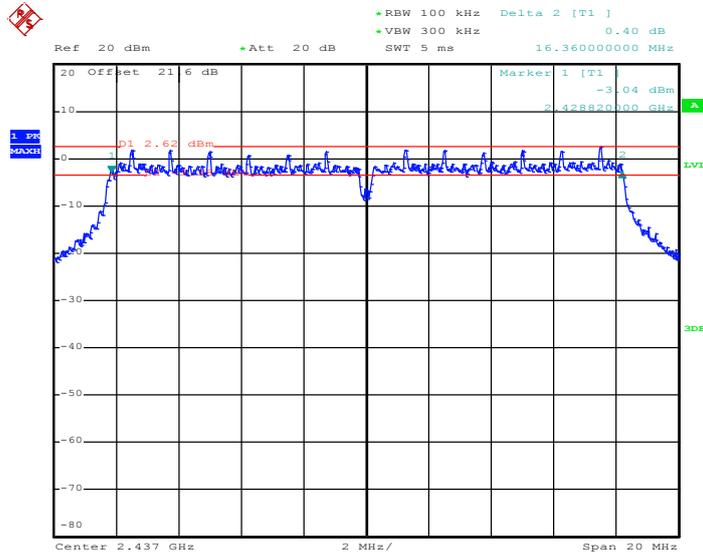
6 dB Bandwidth Plot on 802.11g Channel 01



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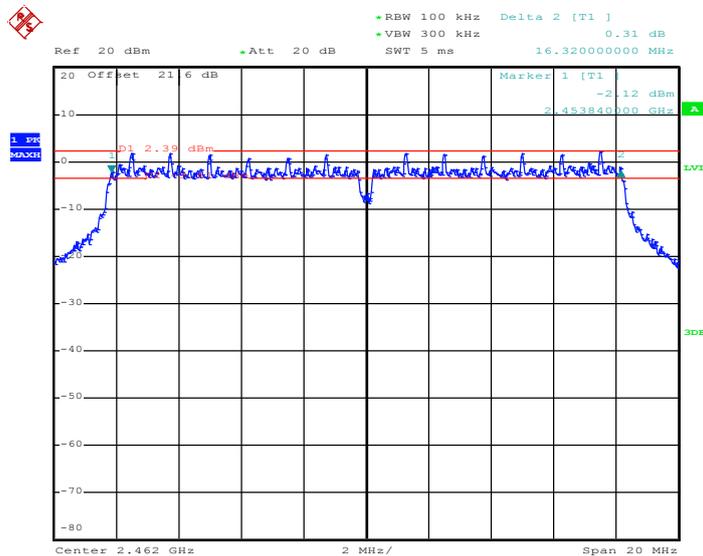


6 dB Bandwidth Plot on 802.11g Channel 06



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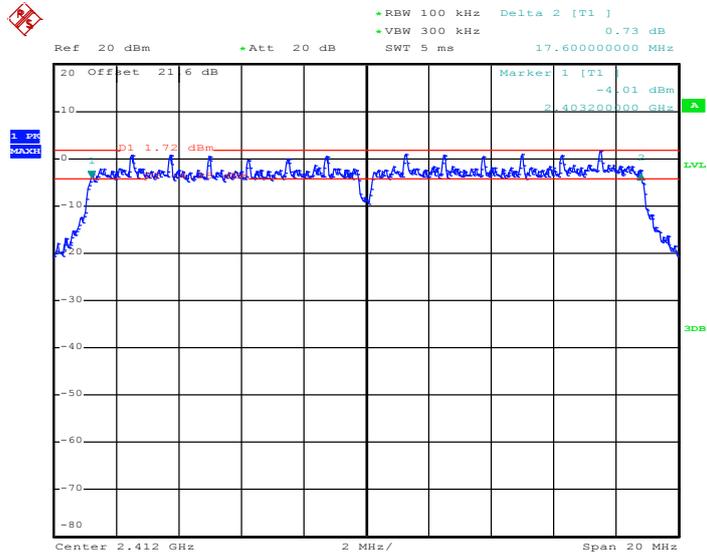
6 dB Bandwidth Plot on 802.11g Channel 11



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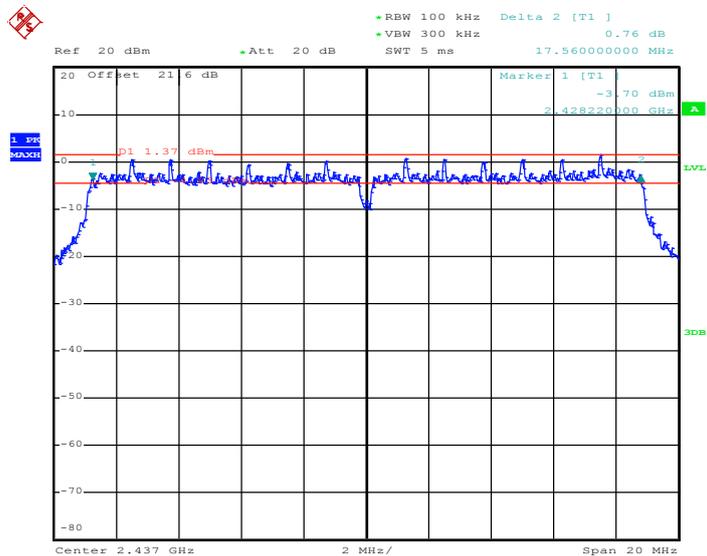


6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 01



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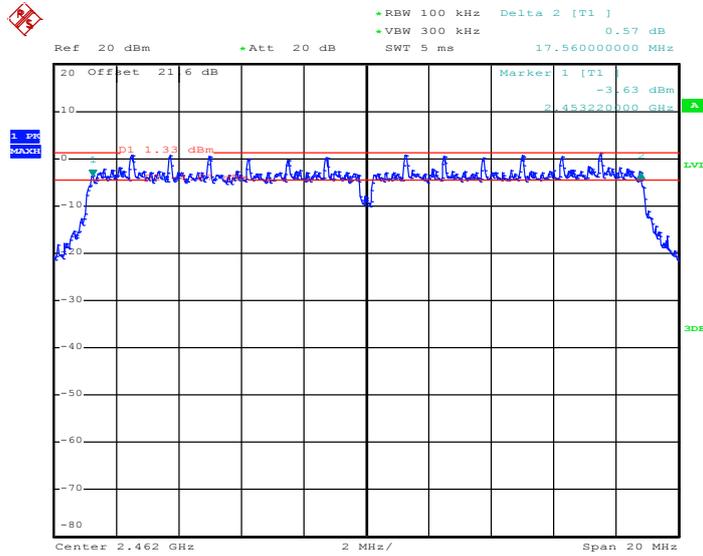
6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 06



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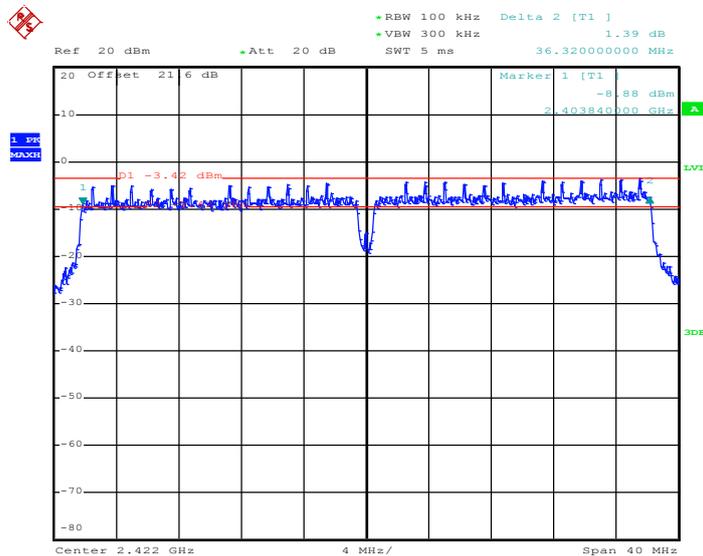


6 dB Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 26.FEB.2013 22:22:07

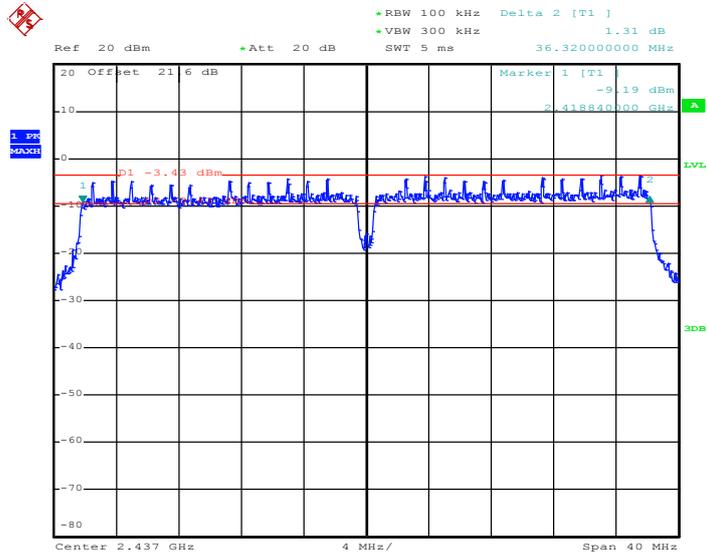
6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 26.FEB.2013 22:30:17

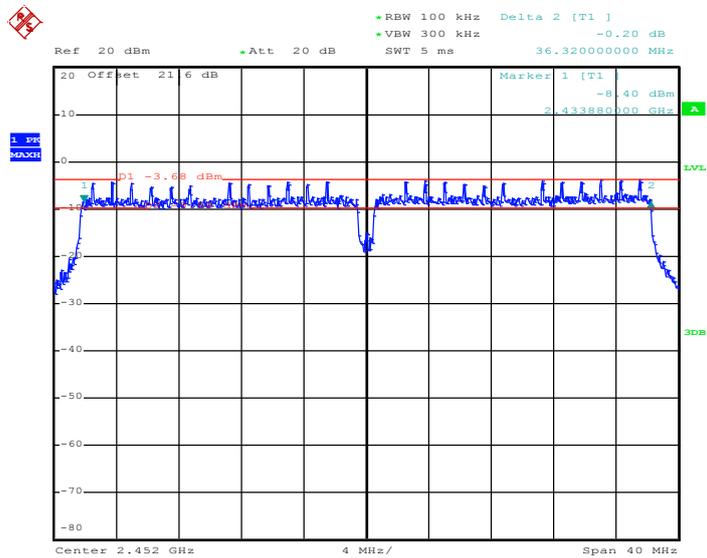


6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 26.FEB.2013 22:40:19

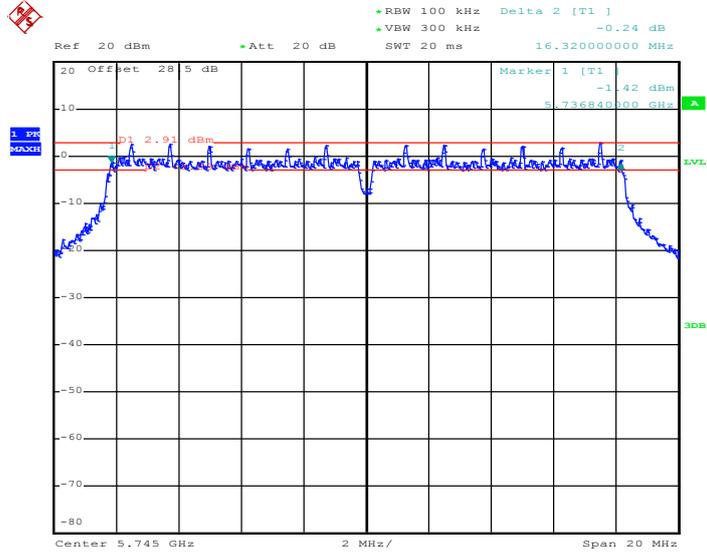
6 dB Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 26.FEB.2013 22:54:01

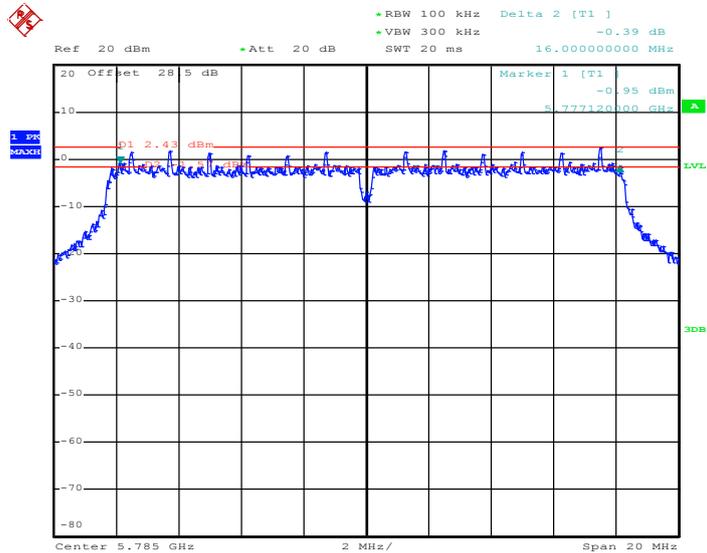


6 dB Bandwidth Plot on 802.11a Channel 149



Date: 15.FEB.2013 11:06:34

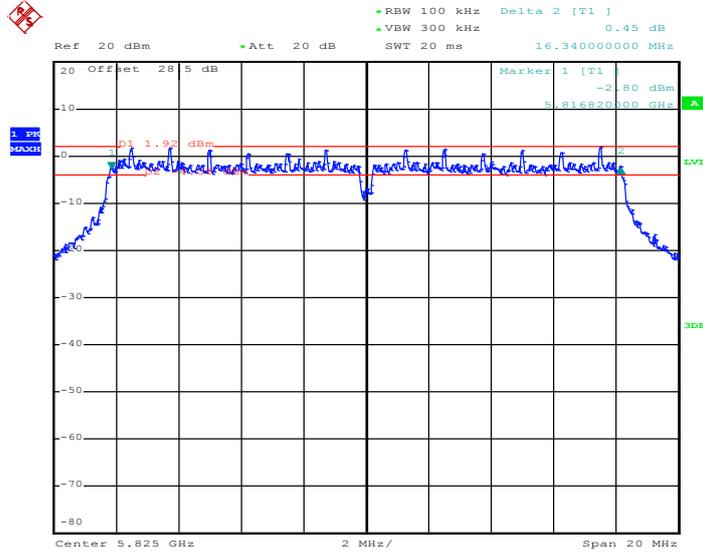
6 dB Bandwidth Plot on 802.11a Channel 157



Date: 15.FEB.2013 11:11:54

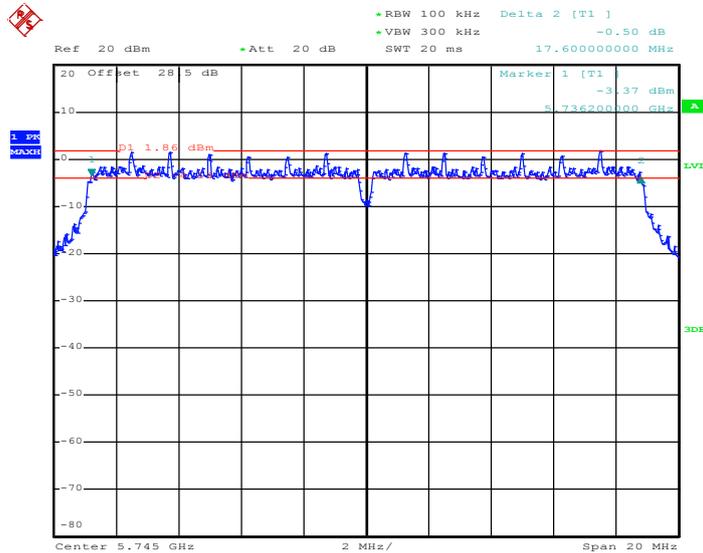


6 dB Bandwidth Plot on 802.11a Channel 165



Date: 15.FEB.2013 11:16:32

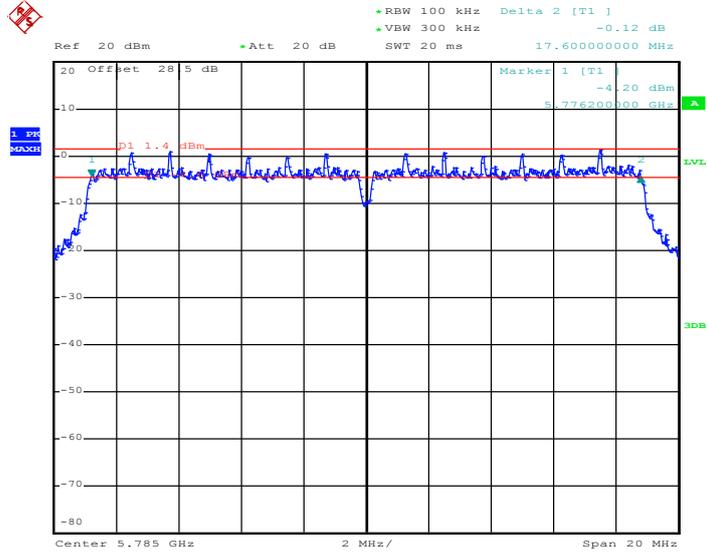
6 dB Bandwidth Plot on 5GHz 802.11n HT20 Channel 149



Date: 15.FEB.2013 11:22:24

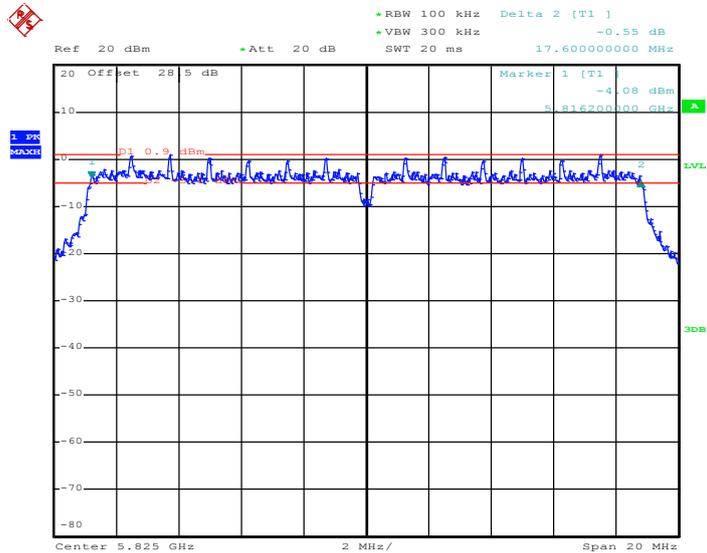


6 dB Bandwidth Plot on 5GHz 802.11n HT20 Channel 157



Date: 15.FEB.2013 11:28:13

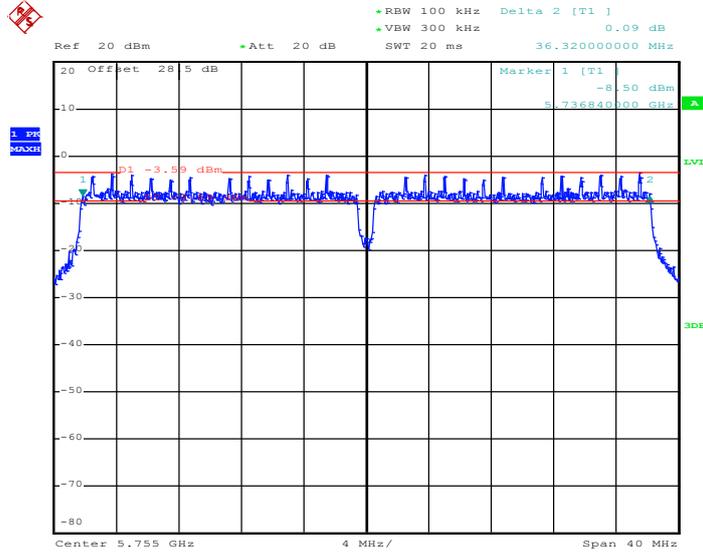
6 dB Bandwidth Plot on 5GHz 802.11n HT20 Channel 165



Date: 15.FEB.2013 11:31:23

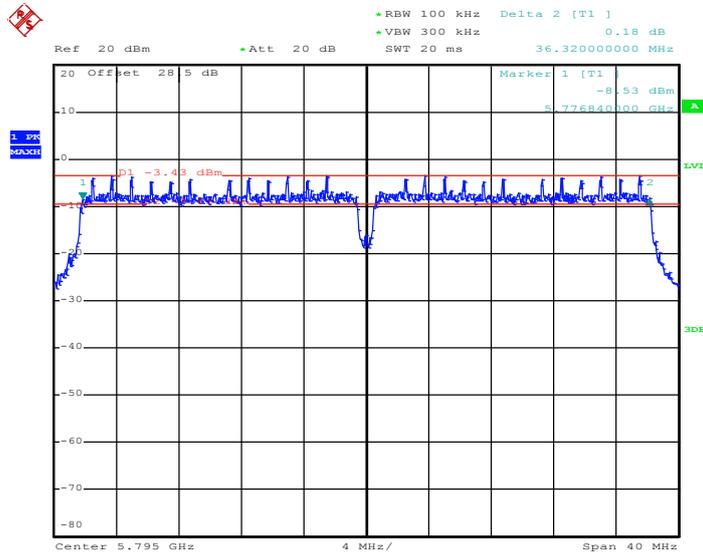


6 dB Bandwidth Plot on 5GHz 802.11n HT40 Channel 151



Date: 15.FEB.2013 11:35:06

6 dB Bandwidth Plot on 5GHz 802.11n HT40 Channel 159

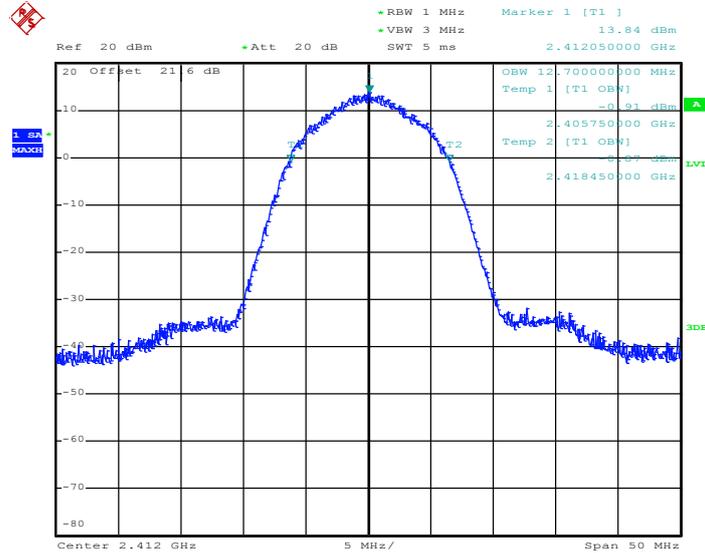


Date: 15.FEB.2013 11:38:11



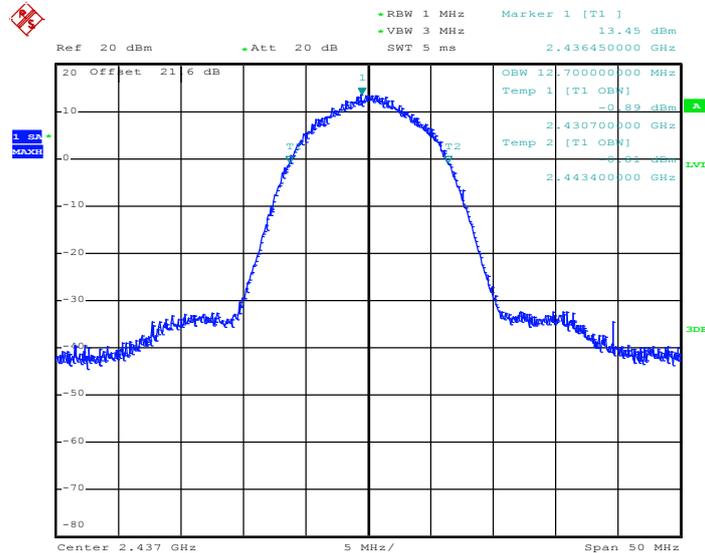
3.1.8 Test Result of 99% Bandwidth Plots

99% Occupied Bandwidth Plot on 802.11b Channel 01



Date: 26.FEB.2013 20:27:45

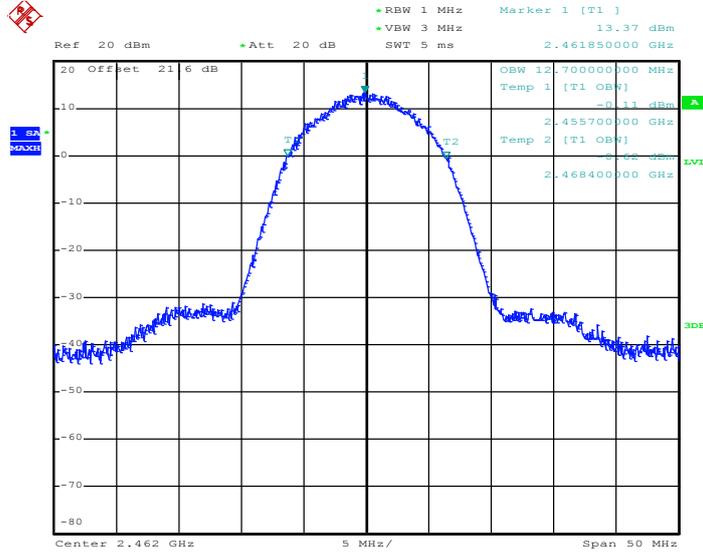
99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 26.FEB.2013 20:35:48

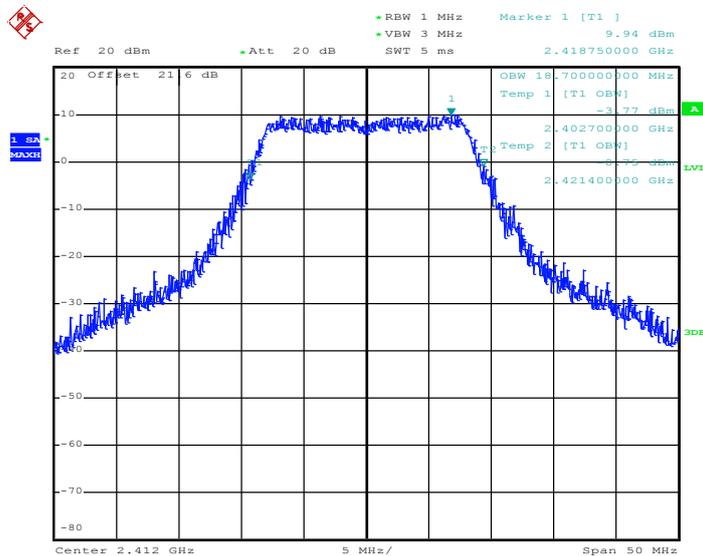


99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 26.FEB.2013 20:56:55

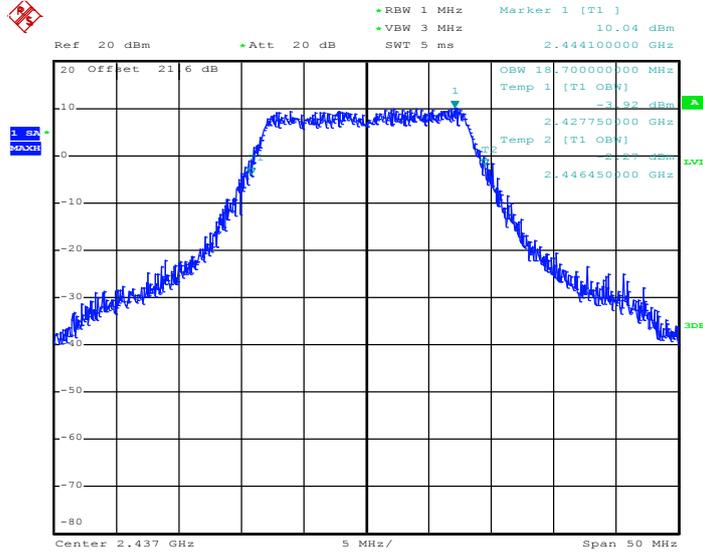
99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 26.FEB.2013 21:39:43

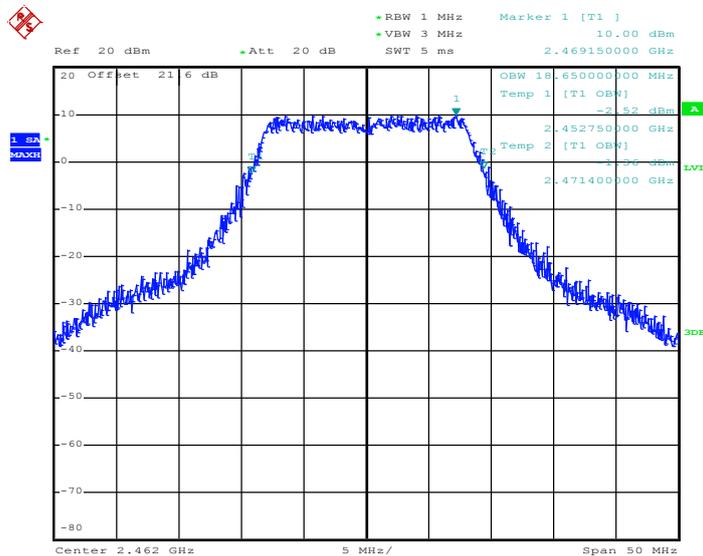


99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 26.FEB.2013 21:26:34

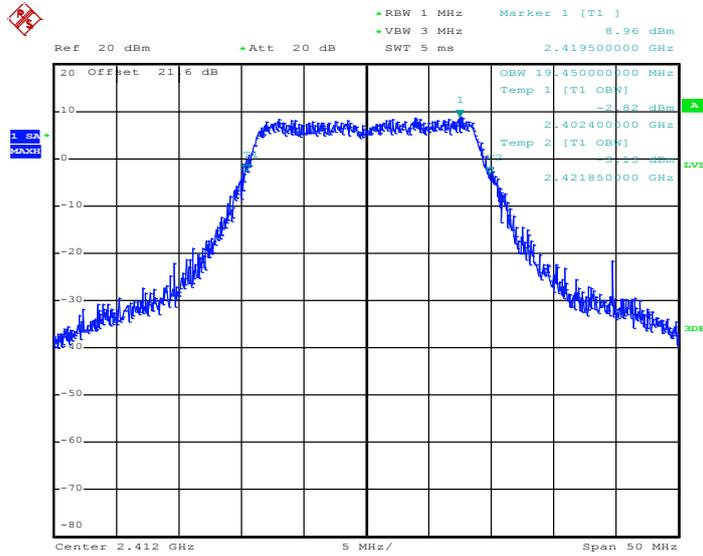
99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 26.FEB.2013 21:20:52

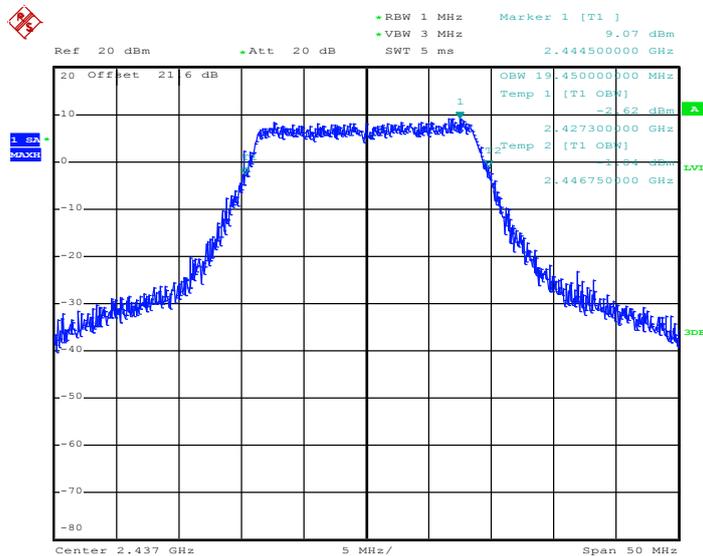


99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 01



Date: 26.FEB.2013 21:47:16

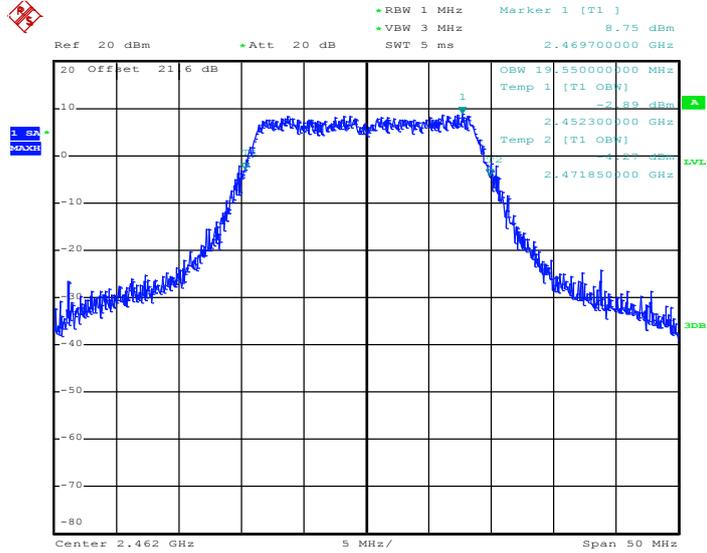
99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 06



Date: 26.FEB.2013 21:54:24

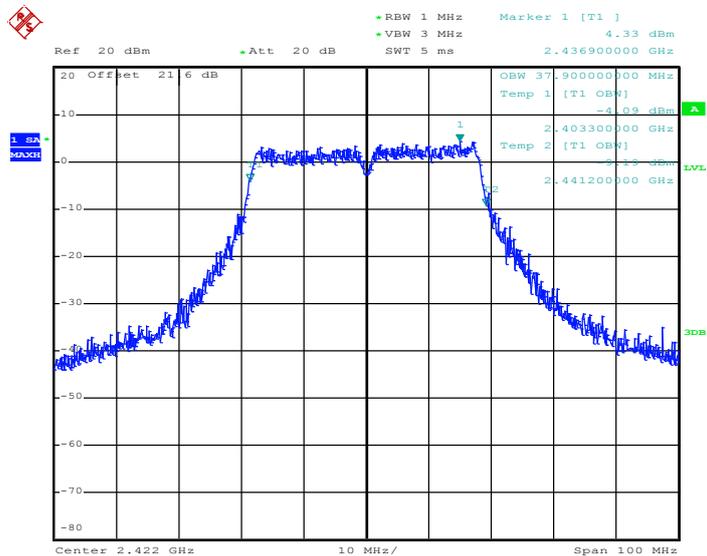


99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 26.FEB.2013 22:05:32

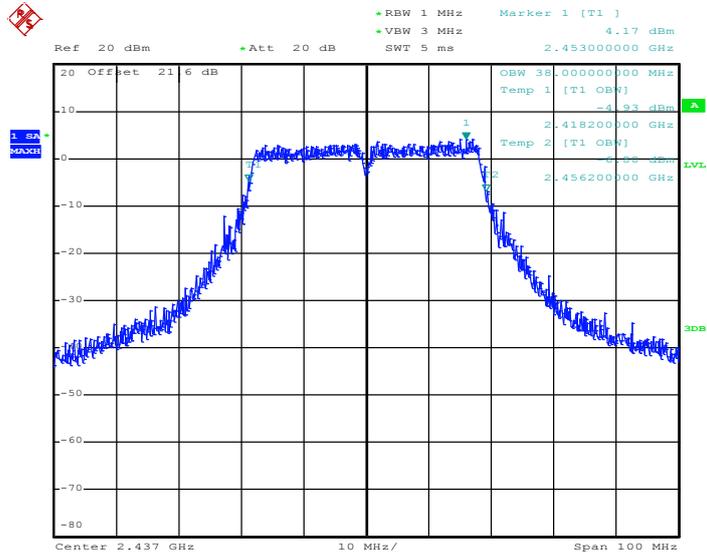
99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 26.FEB.2013 23:39:12

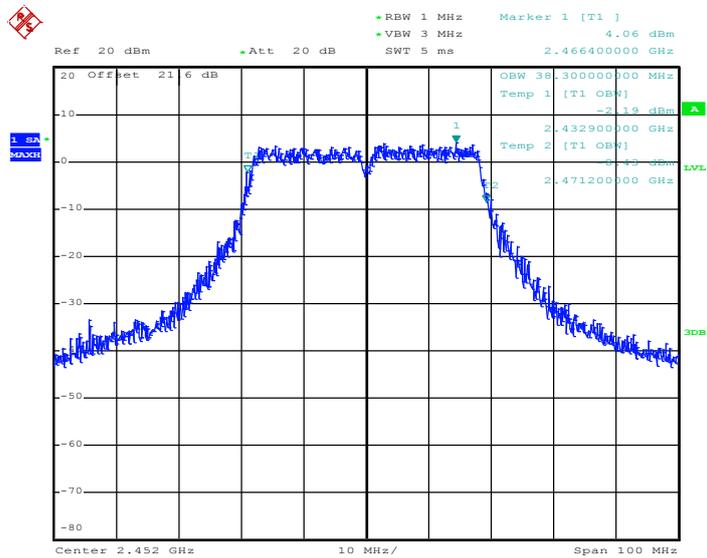


99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 26.FEB.2013 22:42:35

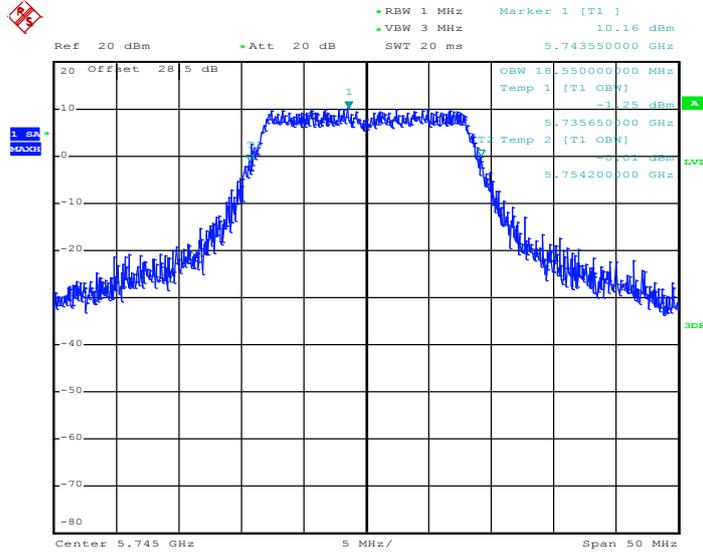
99% Occupied Bandwidth Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 26.FEB.2013 22:58:34

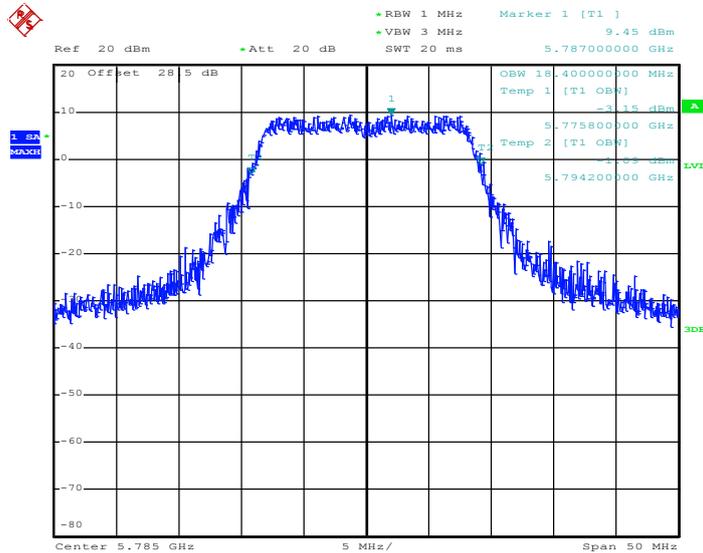


99% Occupied Bandwidth Plot on 802.11a Channel 149



Date: 15.FEB.2013 11:09:36

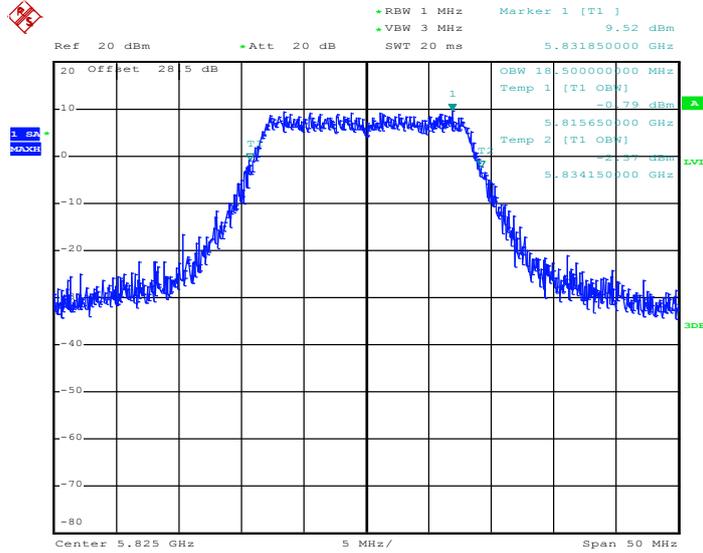
99% Occupied Bandwidth Plot on 802.11a Channel 157



Date: 15.FEB.2013 11:13:42

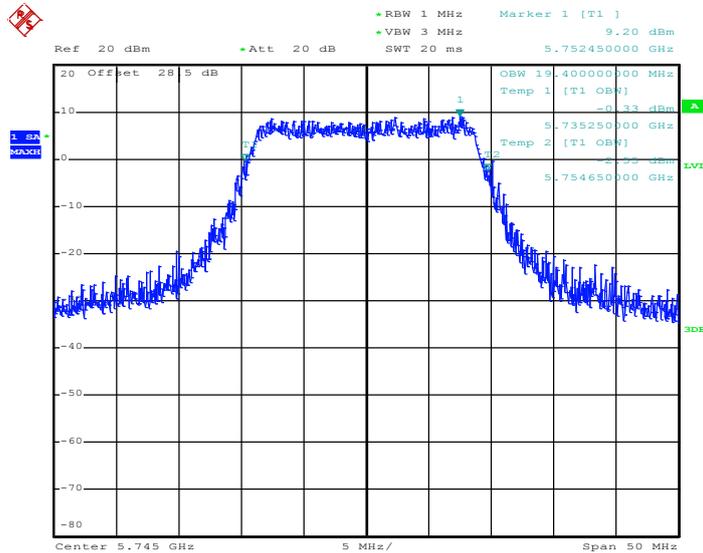


99% Occupied Bandwidth Plot on 802.11a Channel 165



Date: 15.FEB.2013 11:19:35

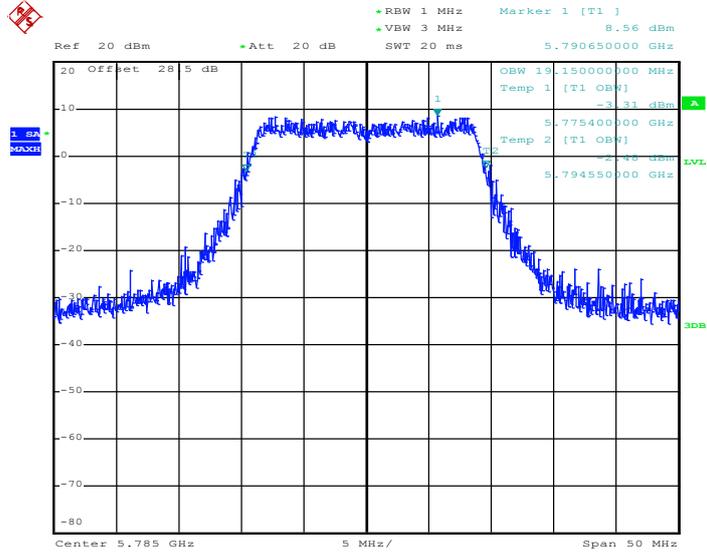
99% Occupied Bandwidth Plot on 5GHz 802.11n HT20 Channel 149



Date: 15.FEB.2013 11:26:40

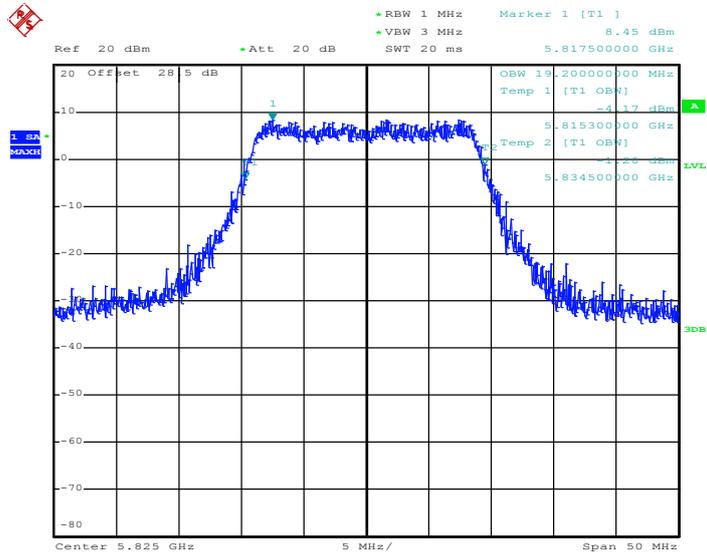


99% Occupied Bandwidth Plot on 5GHz 802.11n HT20 Channel 157



Date: 15.FEB.2013 11:29:45

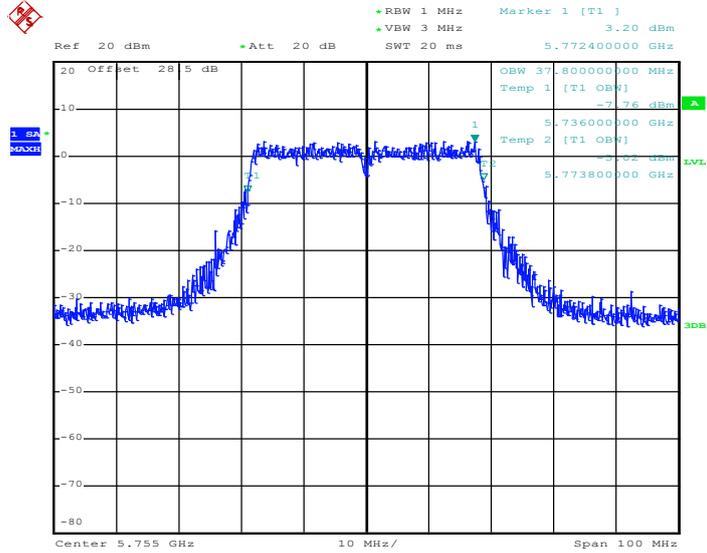
99% Occupied Bandwidth Plot on 5GHz 802.11n HT20 Channel 165



Date: 15.FEB.2013 11:33:33

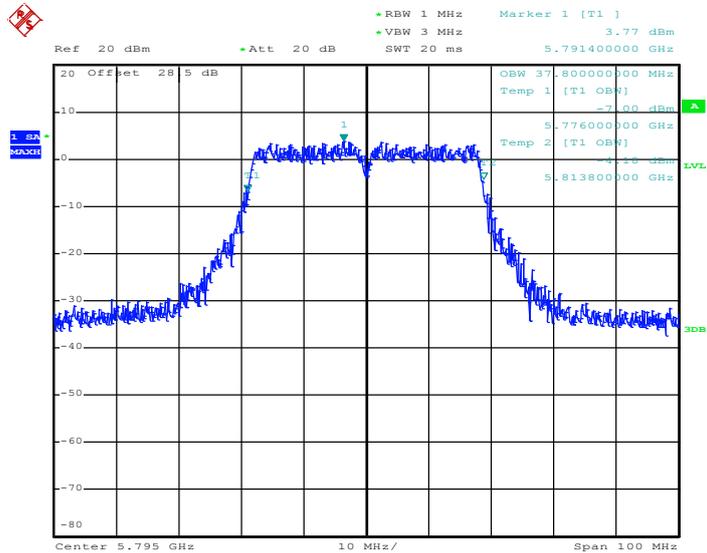


99% Occupied Bandwidth Plot on 5GHz 802.11n HT40 Channel 151



Date: 15.FEB.2013 11:36:53

99% Occupied Bandwidth Plot on 5GHz 802.11n HT40 Channel 159



Date: 15.FEB.2013 11:40:13

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

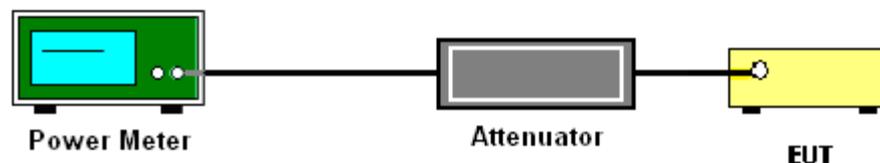
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup





3.2.5 Test Result of Peak Output Power

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

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	18.65	30	Pass
06	2437	18.53	30	Pass
11	2462	18.52	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.31	30	Pass
06	2437	22.25	30	Pass
11	2462	21.71	30	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	21.75	30	Pass
06	2437	21.51	30	Pass
11	2462	21.60	30	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
03	2422	20.29	30	Pass
06	2437	20.25	30	Pass
09	2452	20.26	30	Pass



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

Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.83	30	Pass
157	5785	21.79	30	Pass
165	5825	21.73	30	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.32	30	Pass
157	5785	21.31	30	Pass
165	5825	21.21	30	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT40 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
151	5755	20.49	30	Pass
159	5795	20.55	30	Pass



3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	96.77%	Duty Factor:	0.14dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	15.71
06	2437	15.47
11	2462	15.36

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.57%	Duty Factor:	0.06dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	13.79
06	2437	13.64
11	2462	13.53

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.46%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Average Output Power (dBm)
01	2412	12.80
06	2437	12.63
11	2462	12.48

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	96.93%	Duty Factor:	0.14dB

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Average Output Power (dBm)
03	2422	10.70
06	2437	10.62
09	2452	10.45



Test Mode :	802.11a	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.32%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	802.11a Average Output Power (dBm)
149	5745	13.93
157	5785	13.43
165	5825	13.08

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	98.36%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	5GHz 802.11n HT20 Average Output Power (dBm)
149	5745	12.90
157	5785	12.35
165	5825	12.28

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%
Duty Cycle:	97.05%	Duty Factor:	0.13dB

Channel	Frequency (MHz)	5GHz 802.11n HT40 Average Output Power (dBm)
151	5755	10.57
159	5795	10.97

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

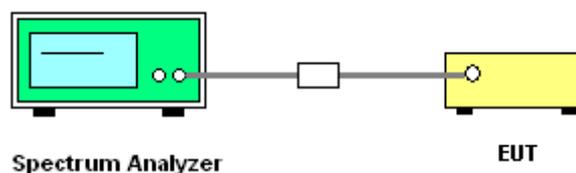
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. The testing follows Measurement Procedure 9.1 Option 1 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. The Measured power density (dBm)/ 100KHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

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

Channel	Frequency (MHz)	802.11b Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	6.39	-8.17	8	Pass
06	2437	6.32	-7.43	8	Pass
11	2462	6.53	-8.18	8	Pass

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

Channel	Frequency (MHz)	802.11g Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	1.80	-12.80	8	Pass
06	2437	2.04	-12.00	8	Pass
11	2462	2.27	-12.15	8	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
01	2412	0.96	-13.87	8	Pass
06	2437	1.24	-13.60	8	Pass
11	2462	0.88	-13.36	8	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT40 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
03	2422	-3.49	-17.92	8	Pass
06	2437	-3.64	-18.28	8	Pass
09	2452	-3.72	-18.23	8	Pass



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

Channel	Frequency (MHz)	802.11a Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	2.79	-11.30	8	Pass
157	5785	2.01	-12.62	8	Pass
165	5825	1.75	-12.04	8	Pass

Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
149	5745	1.86	-12.69	8	Pass
157	5785	1.42	-12.58	8	Pass
165	5825	0.89	-13.32	8	Pass

Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Engineer :	Coyote Lin and Reece Li	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT40 Power Density		Max. Limits (dBm/3KHz)	Pass/Fail
		PSD/100KHz (dBm)	PSD/3KHz (dBm)		
151	5755	-3.51	-18.55	8	Pass
159	5795	-3.58	-18.18	8	Pass

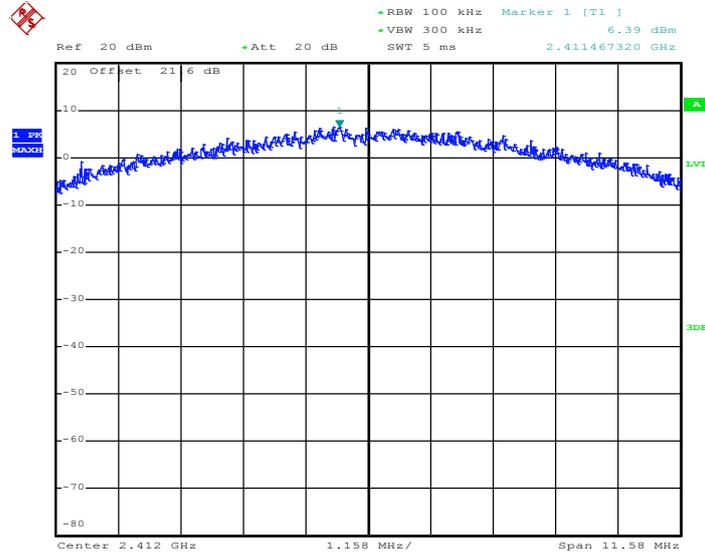
Note:

1. Measured power density (dBm) has offset with cable loss.
2. The Measured power density (dBm)/ 100KHz is reference level and used as 20dBc down for Conducted Band Edges and Conducted Spurious Emission limit line.



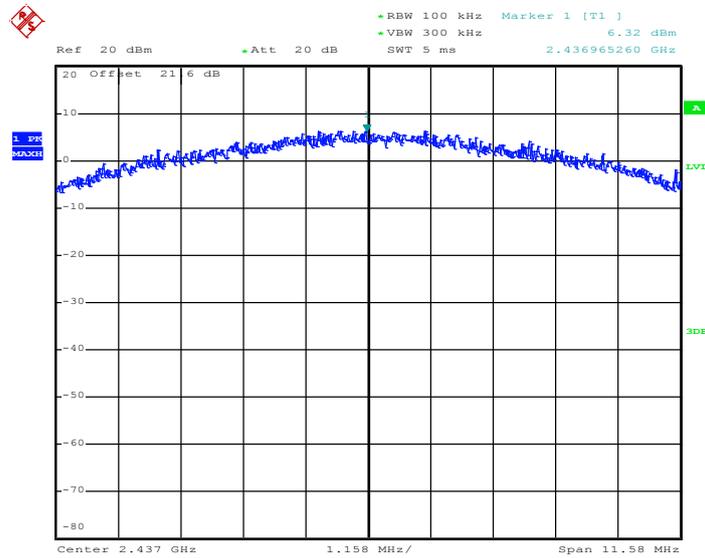
3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on 802.11b Channel 01



Date: 26.FEB.2013 20:26:15

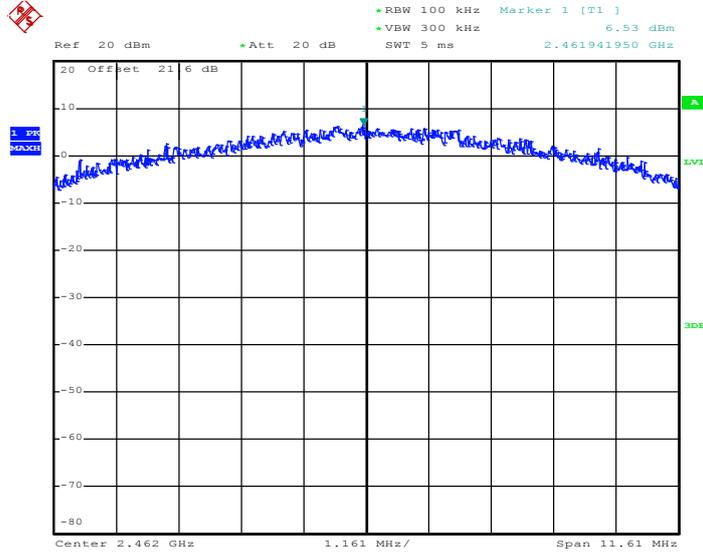
PSD 100kHz Plot on 802.11b Channel 06



Date: 26.FEB.2013 20:33:27

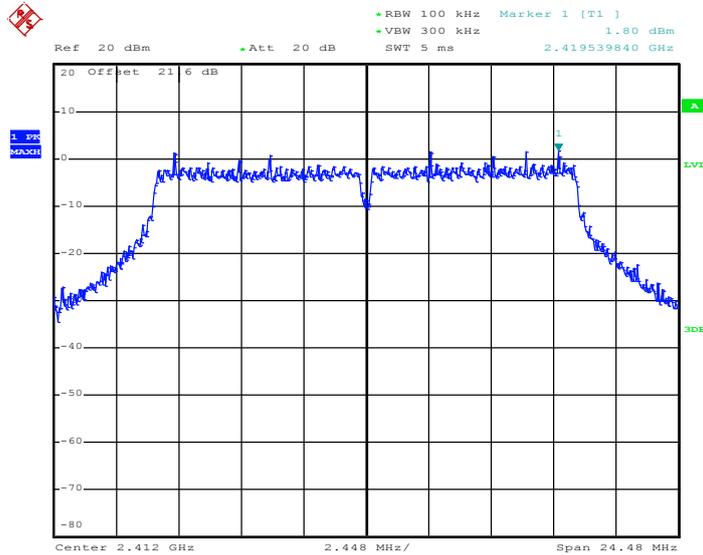


PSD 100kHz Plot on 802.11b Channel 11



Date: 26.FEB.2013 20:54:04

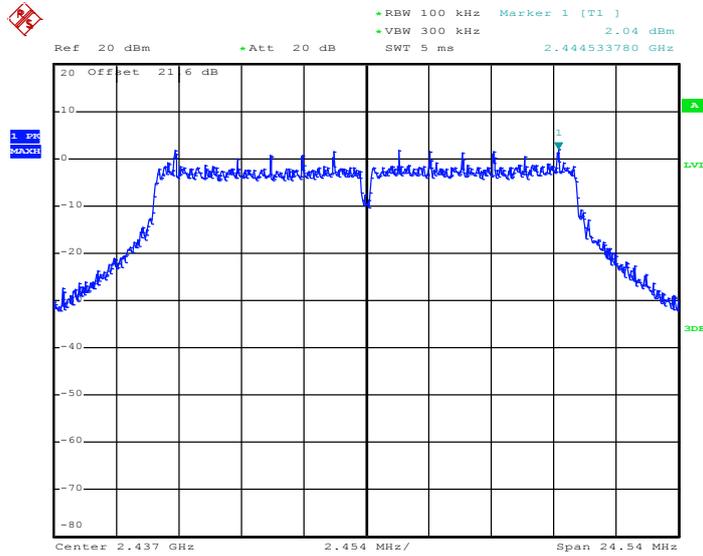
PSD 100kHz Plot on 802.11g Channel 01



Date: 26.FEB.2013 21:36:24

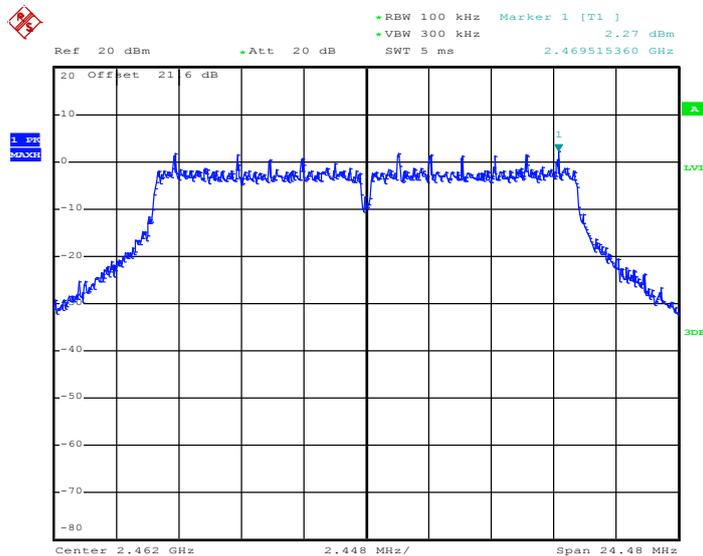


PSD 100kHz Plot 802.11g Channel 06



Date: 26.FEB.2013 21:25:29

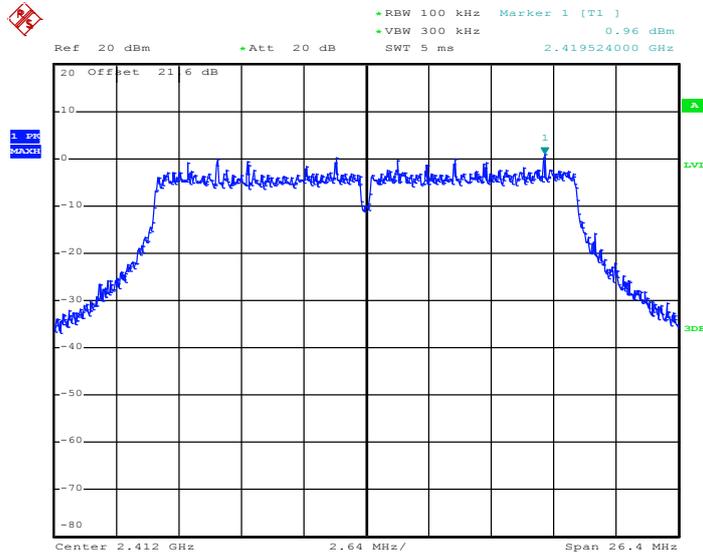
PSD 100kHz Plot 802.11g Channel 11



Date: 26.FEB.2013 21:18:41

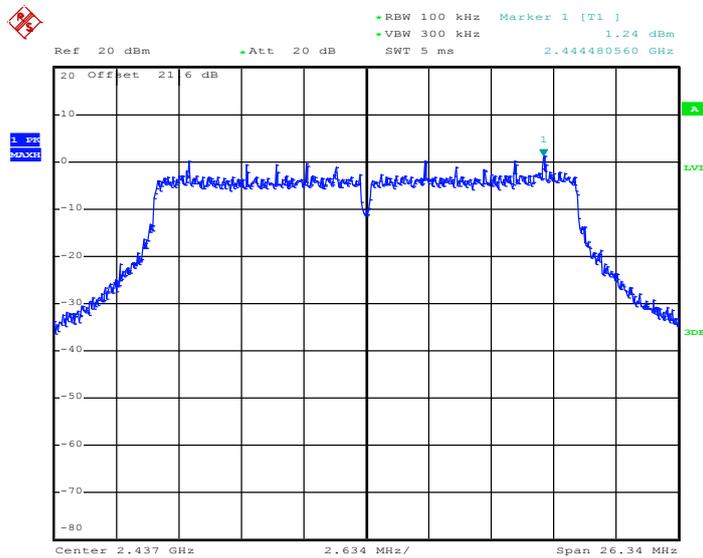


PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 01



Date: 26.FEB.2013 21:45:46

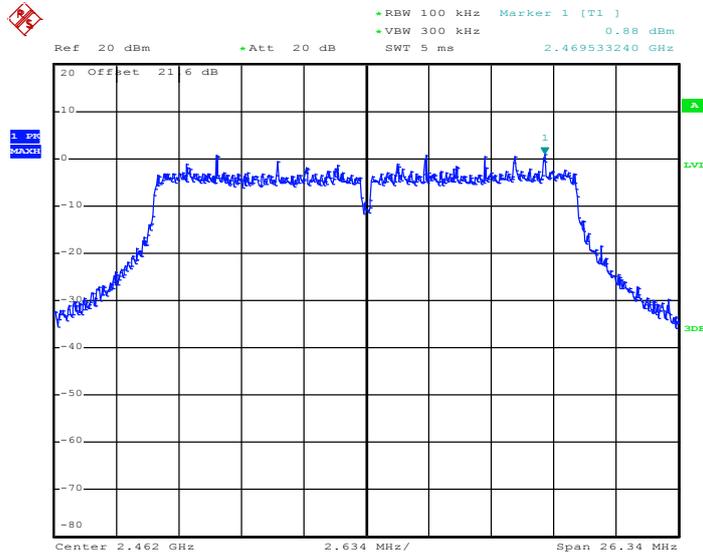
PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 06



Date: 26.FEB.2013 21:53:17

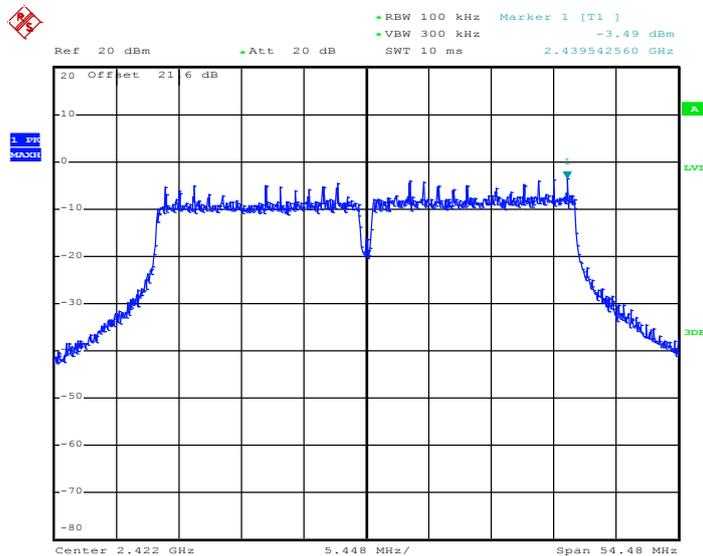


PSD 100kHz Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 26.FEB.2013 22:22:44

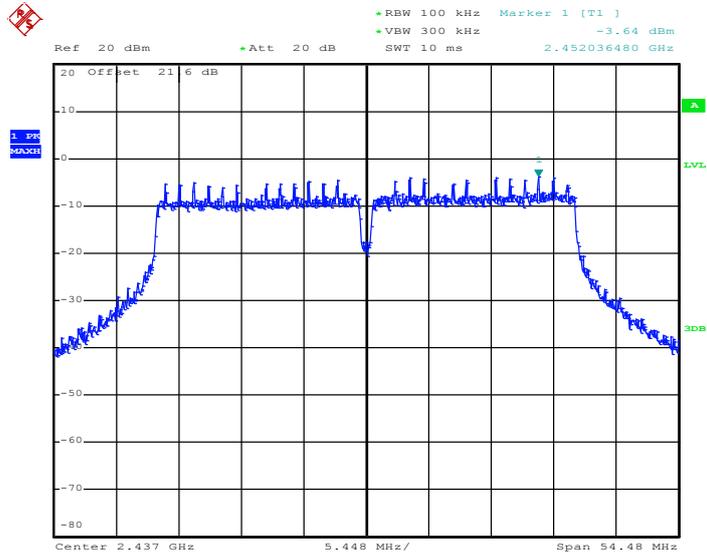
PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 26.FEB.2013 22:31:05

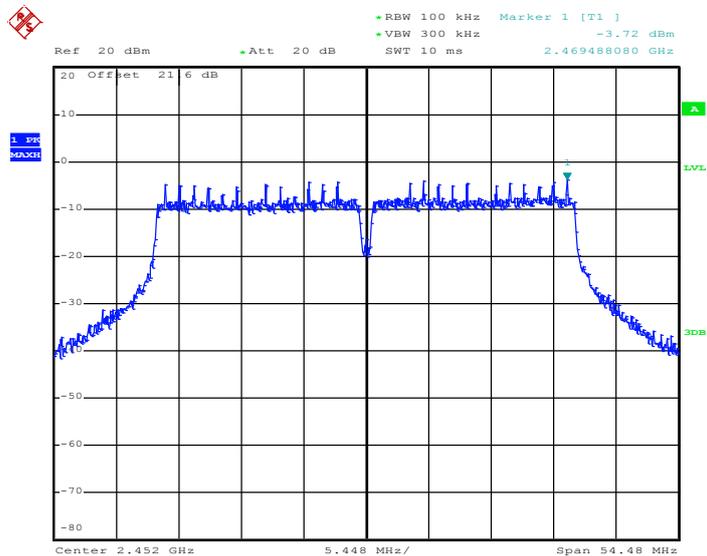


PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 26.FEB.2013 22:40:57

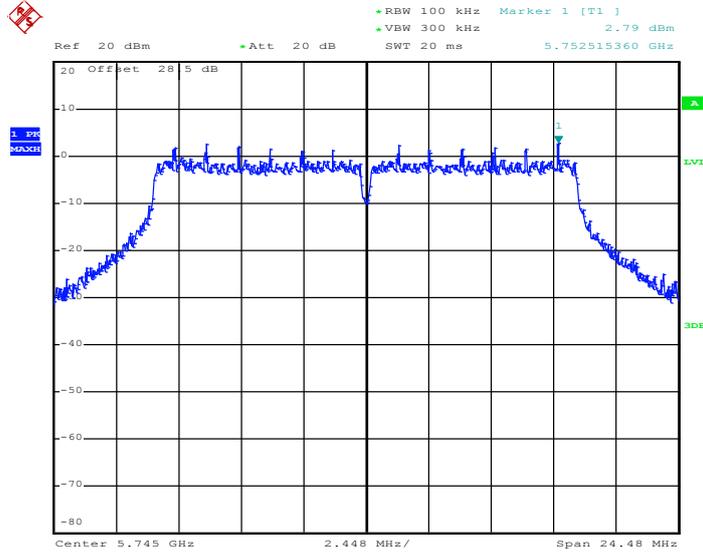
PSD 100kHz Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 26.FEB.2013 22:54:37

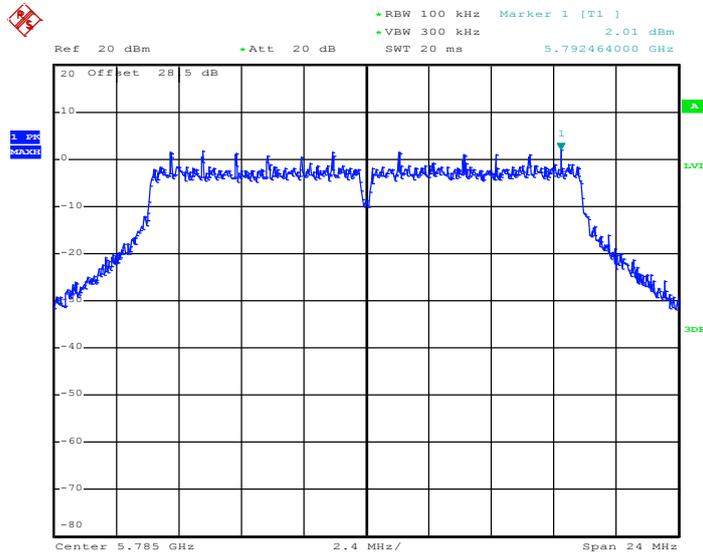


PSD 100kHz Plot on 802.11a Channel 149



Date: 15.FEB.2013 11:07:24

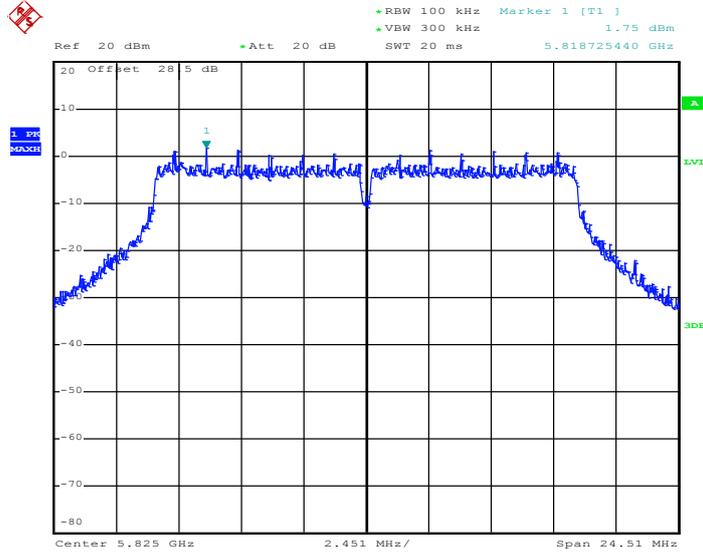
PSD 100kHz Plot on 802.11a Channel 157



Date: 15.FEB.2013 11:12:40

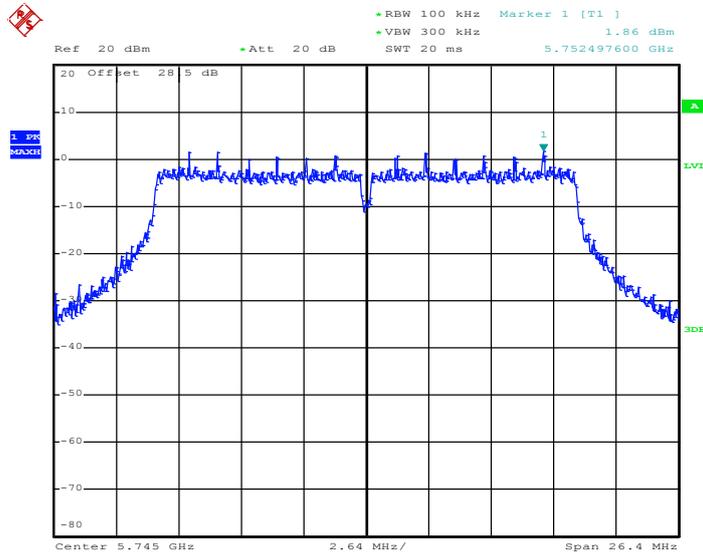


PSD 100kHz Plot on 802.11a Channel 165



Date: 15.FEB.2013 11:17:09

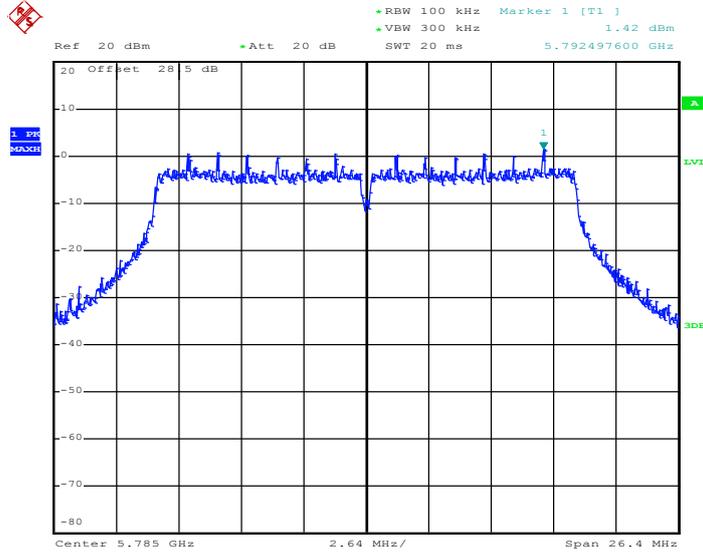
PSD 100kHz Plot on 5GHz 802.11n HT20 Channel 149



Date: 15.FEB.2013 11:22:58

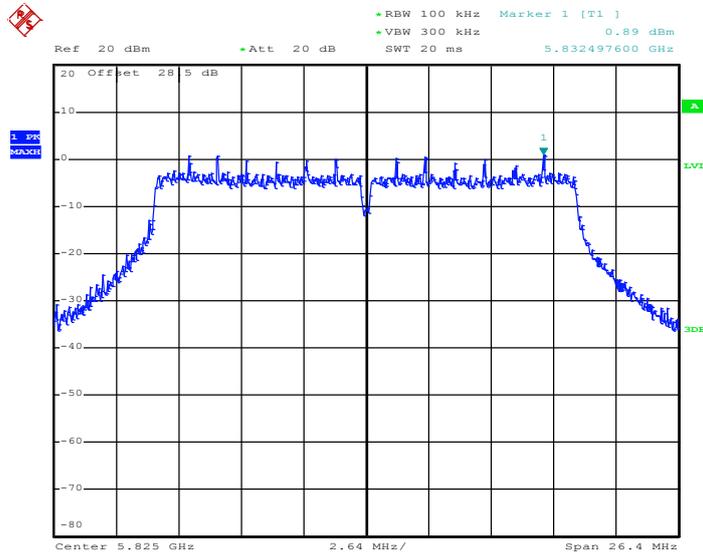


PSD 100kHz Plot on 5GHz 802.11n HT20 Channel 157



Date: 15.FEB.2013 11:28:46

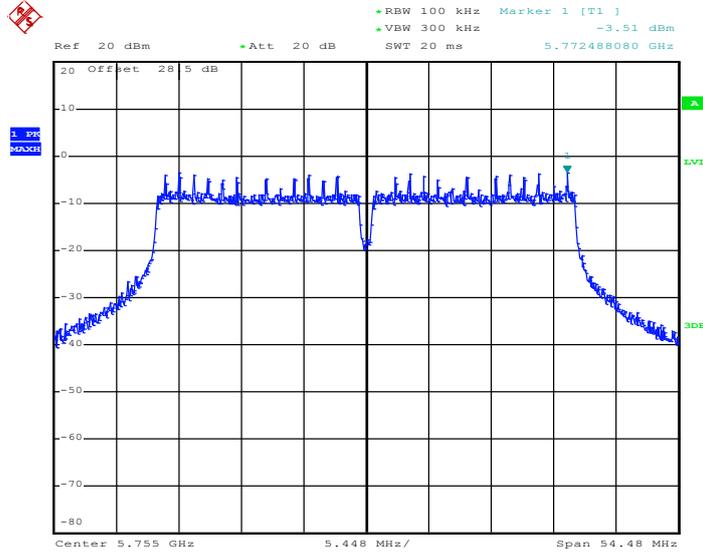
PSD 100kHz Plot on 5GHz 802.11n HT20 Channel 165



Date: 15.FEB.2013 11:31:59

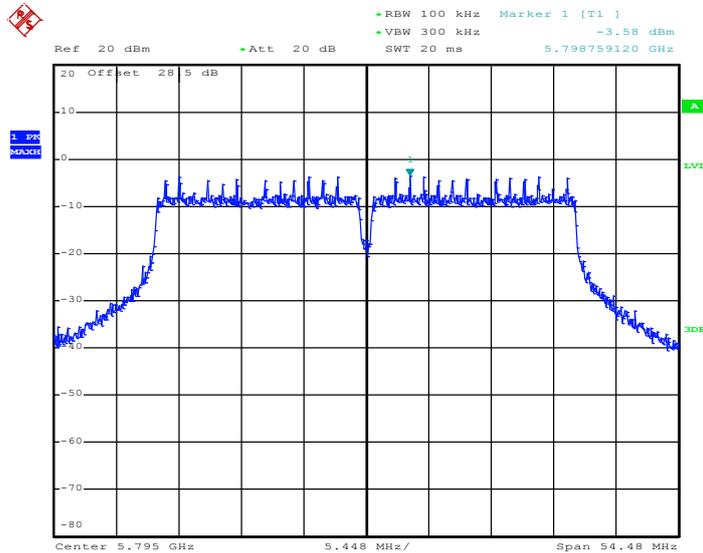


PSD 100kHz Plot on 5GHz 802.11n HT40 Channel 151



Date: 15.FEB.2013 11:35:42

PSD 100kHz Plot on 5GHz 802.11n HT40 Channel 159

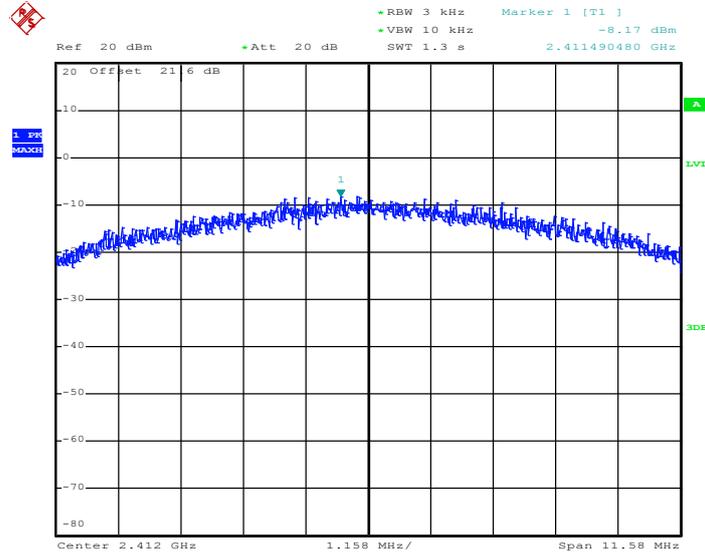


Date: 15.FEB.2013 11:38:49



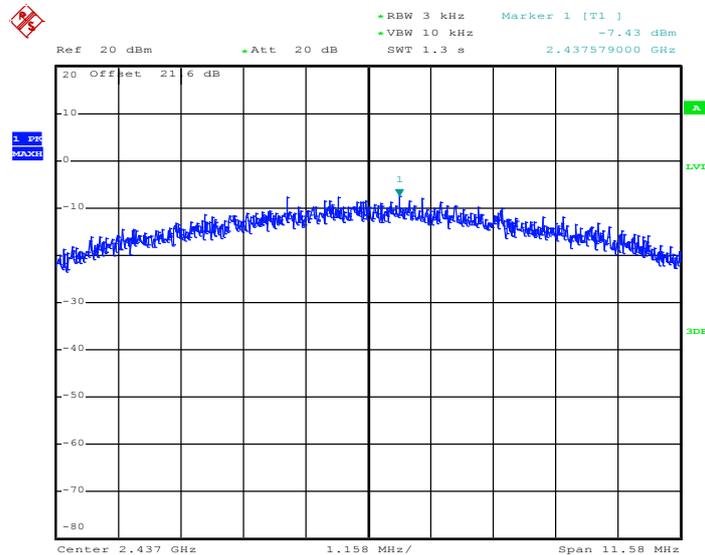
3.3.7 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



Date: 26.FEB.2013 20:25:47

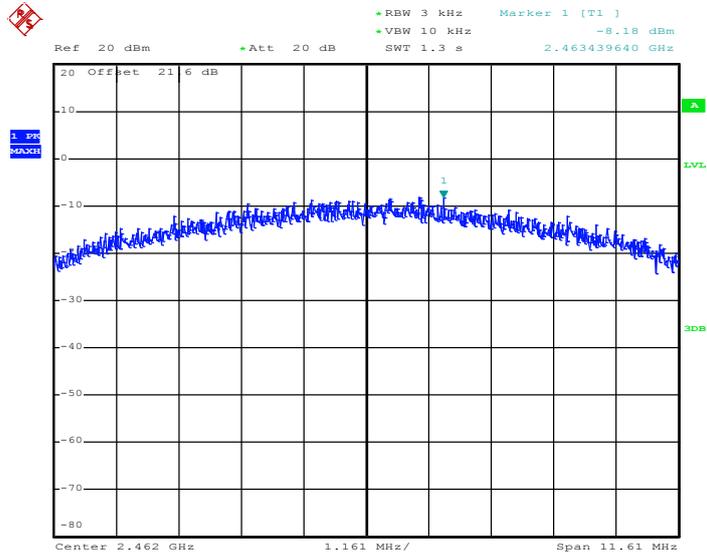
PSD 3kHz Plot on 802.11b Channel 06



Date: 26.FEB.2013 20:33:15

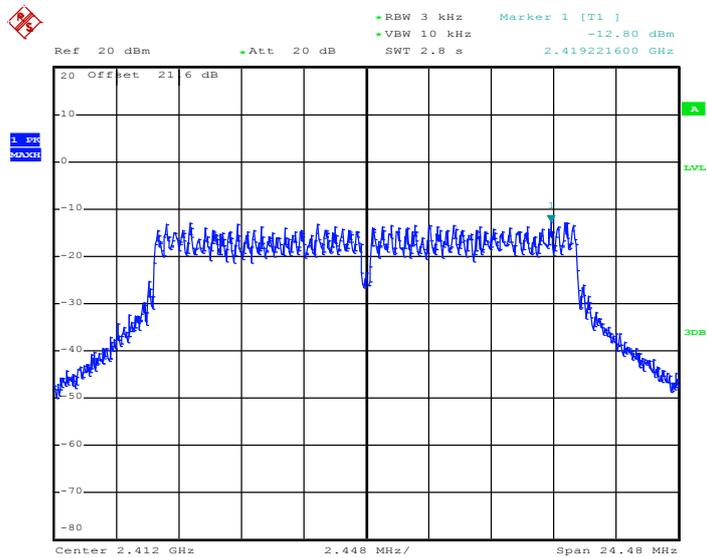


PSD 3kHz Plot on 802.11b Channel 11



Date: 26.FEB.2013 20:53:52

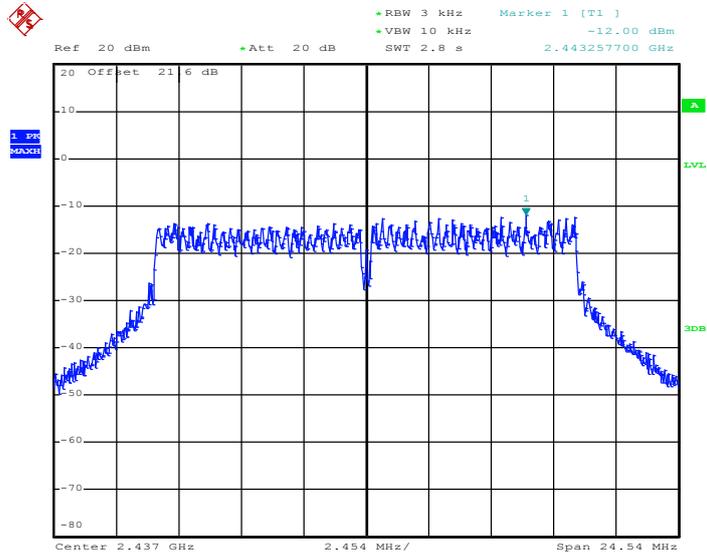
PSD 3kHz Plot on 802.11g Channel 01



Date: 26.FEB.2013 21:35:57

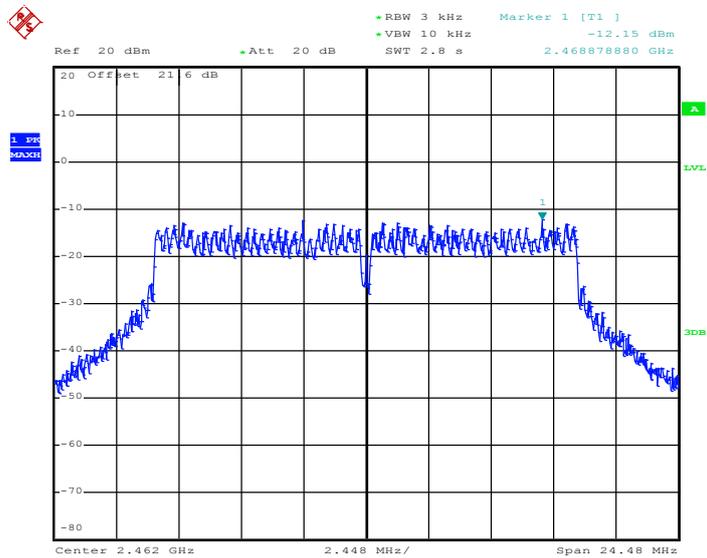


PSD 3kHz Plot on 802.11g Channel 06



Date: 26.FEB.2013 21:25:17

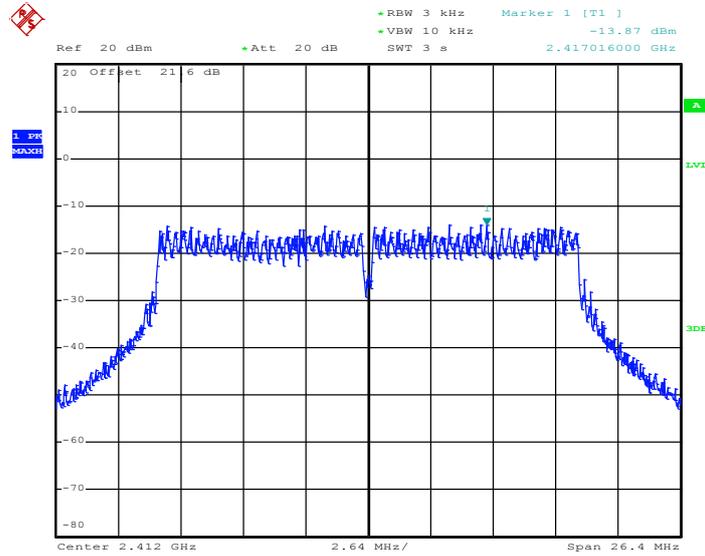
PSD 3kHz Plot on 802.11g Channel 11



Date: 26.FEB.2013 21:18:31

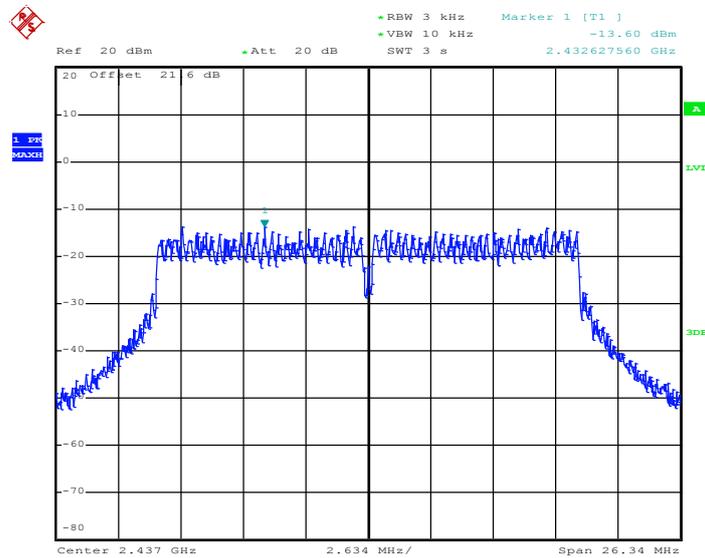


PSD 3kHz Plot on 2.4GHz 802.11n HT20 Channel 01



Date: 26.FEB.2013 21:45:32

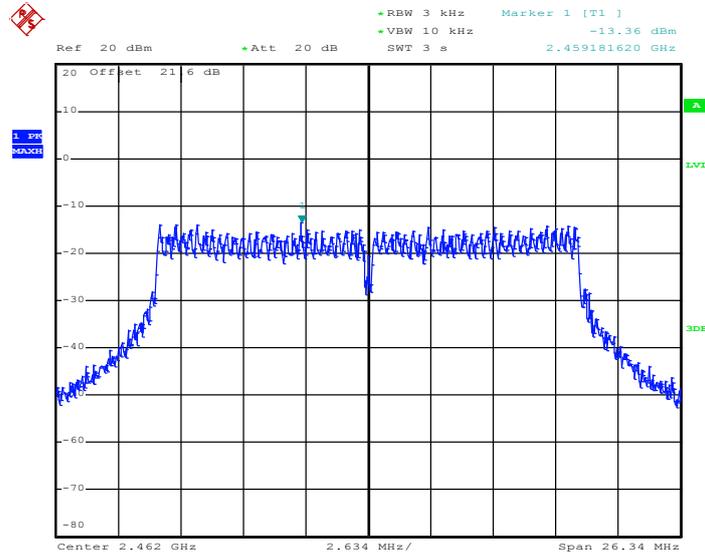
PSD 3kHz Plot on 2.4GHz 802.11n HT20 Channel 06



Date: 26.FEB.2013 21:53:06

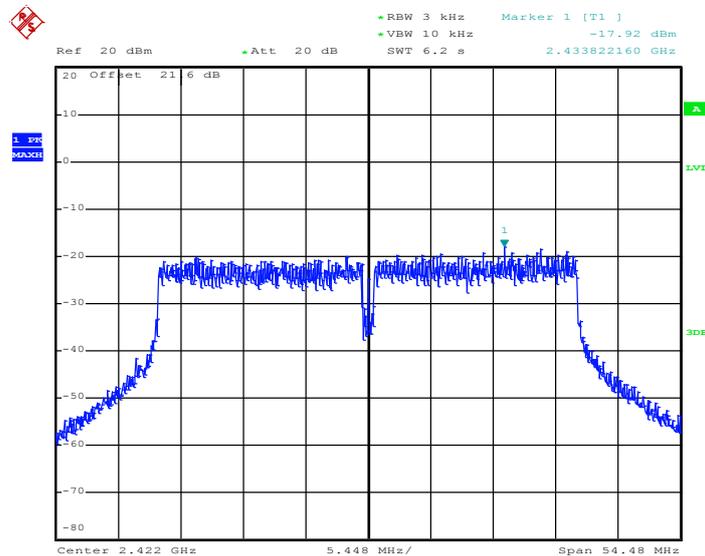


PSD 3kHz Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 26.FEB.2013 22:22:33

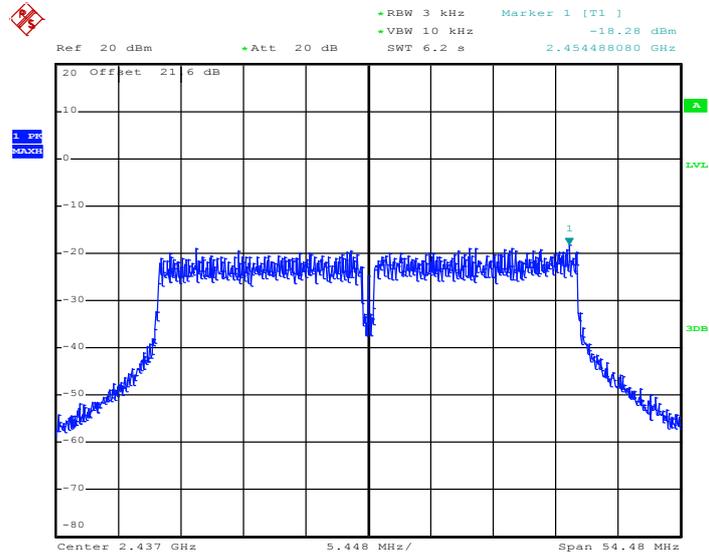
PSD 3kHz Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 26.FEB.2013 22:30:45

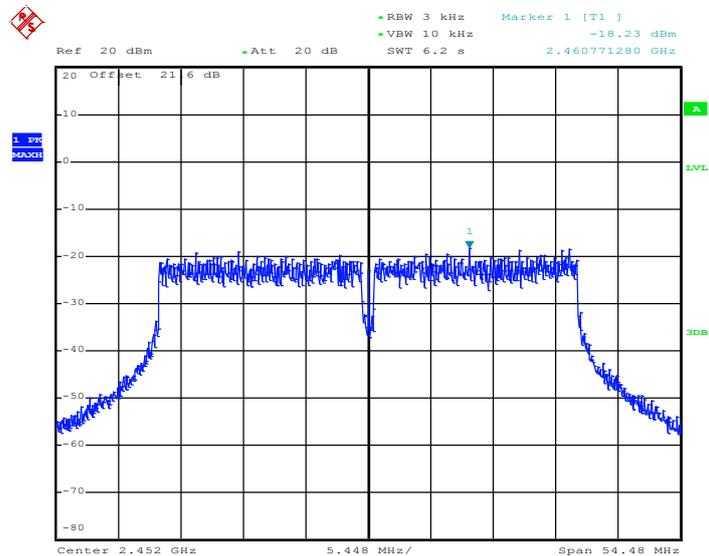


PSD 3kHz Plot on 2.4GHz 802.11n HT40 Channel 06



Date: 26.FEB.2013 22:40:46

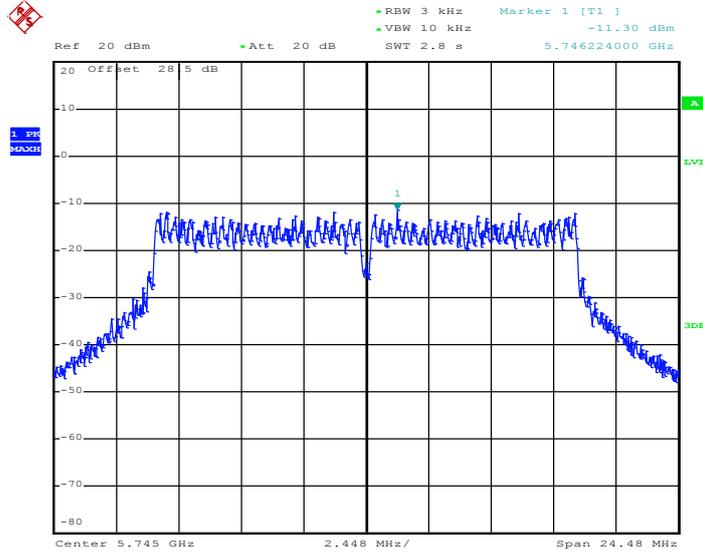
PSD 3kHz Plot on 2.4GHz 802.11n HT40 Channel 09



Date: 26.FEB.2013 22:54:28

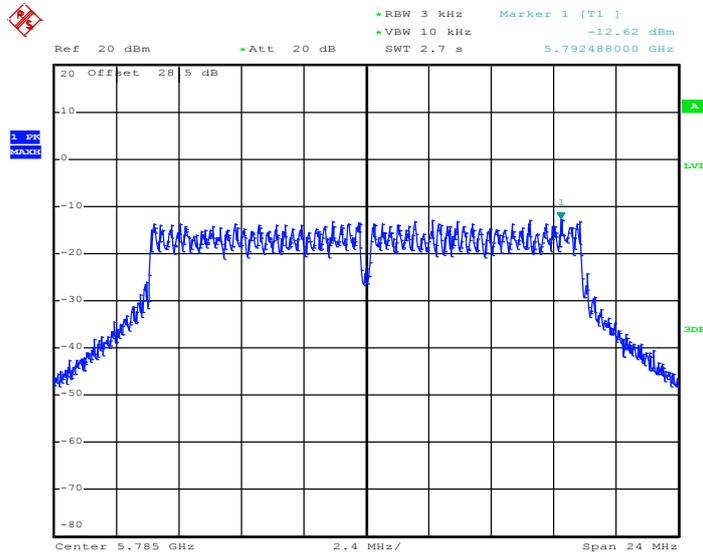


PSD 3kHz Plot on 802.11a Channel 149



Date: 15.FEB.2013 11:06:57

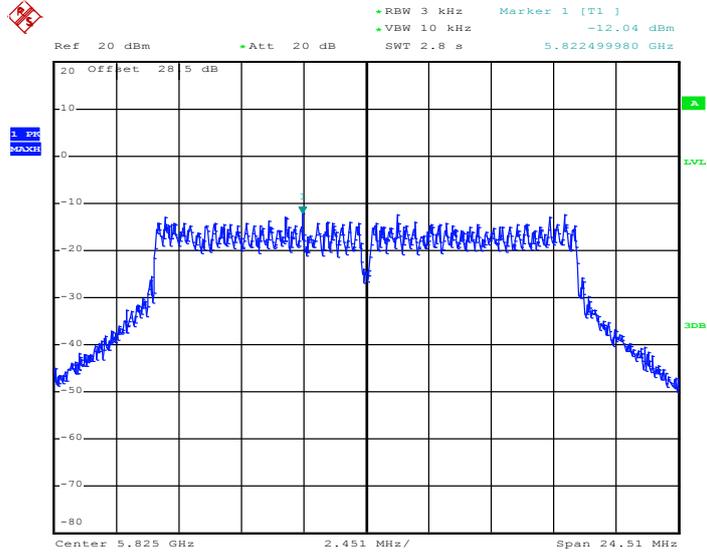
PSD 3kHz Plot on 802.11a Channel 157



Date: 15.FEB.2013 11:12:20

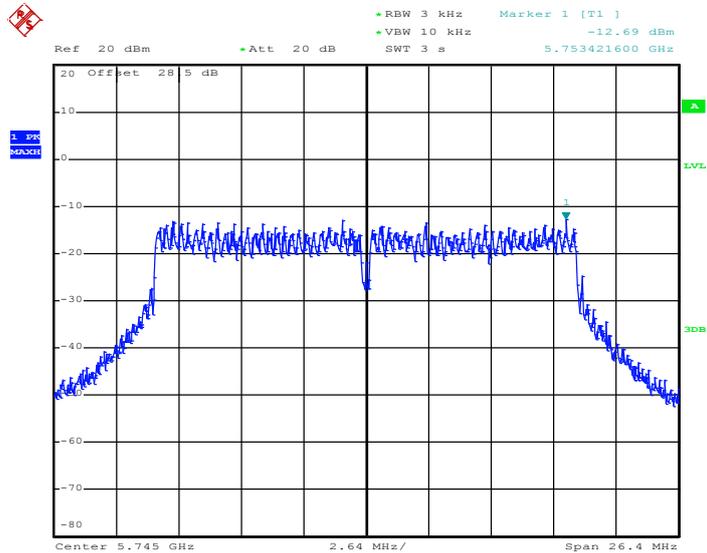


PSD 3kHz Plot on 802.11a Channel 165



Date: 15.FEB.2013 11:16:55

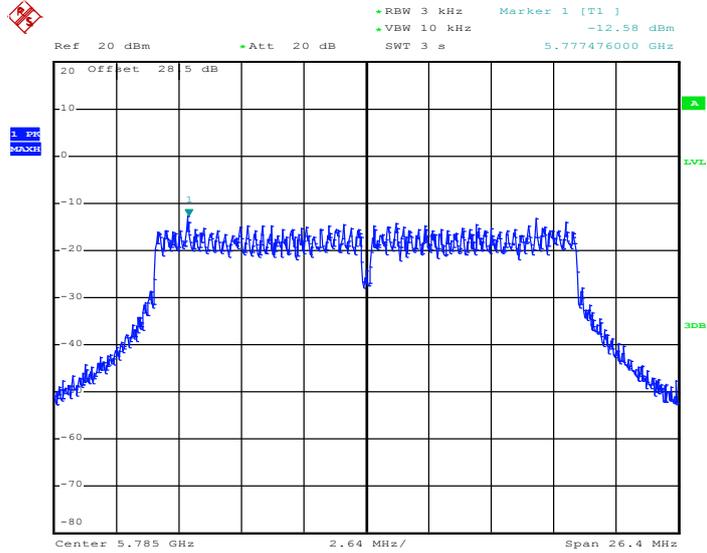
PSD 3kHz Plot on 5GHz 802.11n HT20 Channel 149



Date: 15.FEB.2013 11:22:47

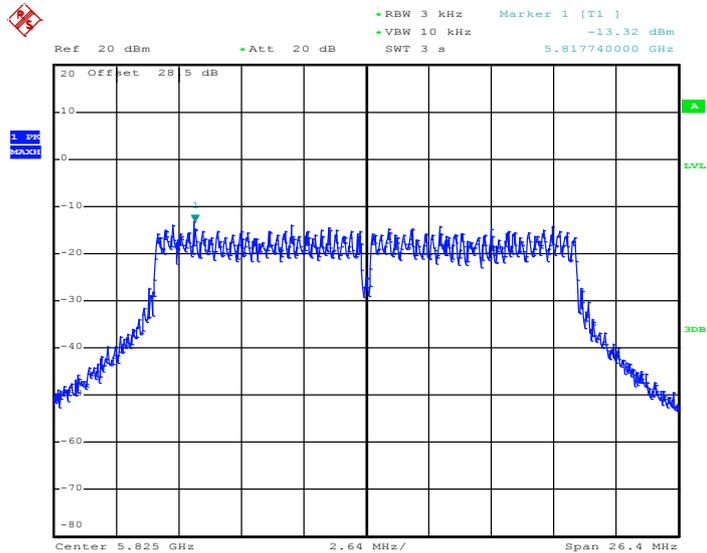


PSD 3kHz Plot on 5GHz 802.11n HT20 Channel 157



Date: 15.FEB.2013 11:28:36

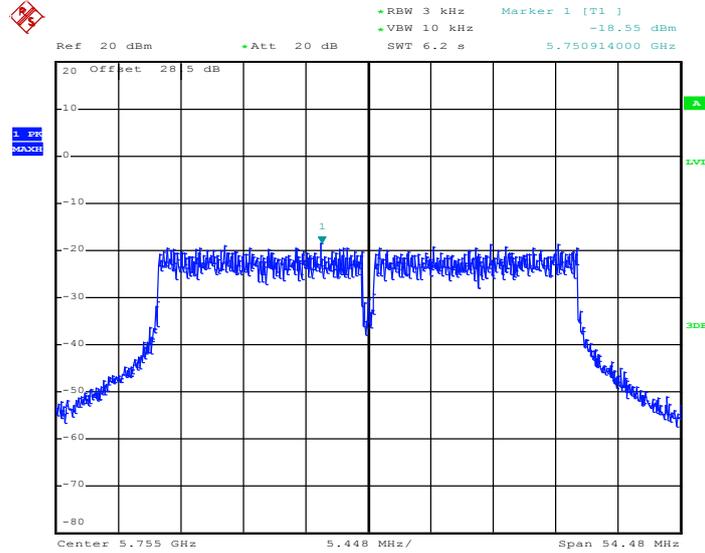
PSD 3kHz Plot on 5GHz 802.11n HT20 Channel 165



Date: 15.FEB.2013 11:31:49

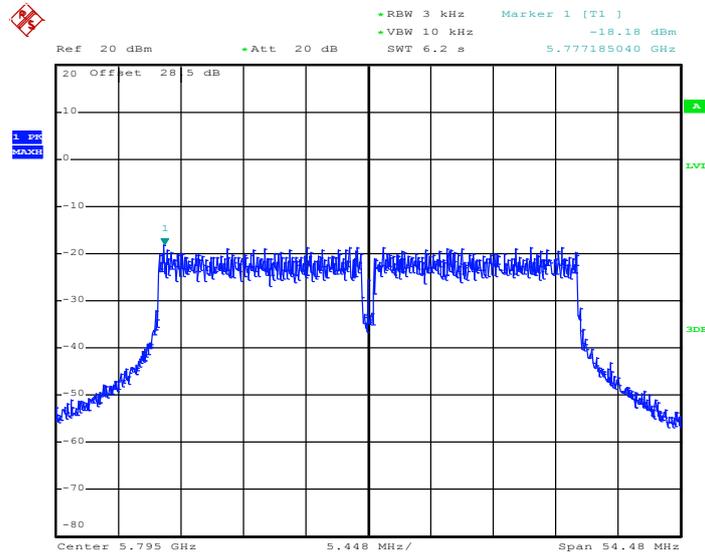


PSD 3kHz Plot on 5GHz 802.11n HT40 Channel 151



Date: 15.FEB.2013 11:35:32

PSD 3kHz Plot on 5GHz 802.11n HT40 Channel 159



Date: 15.FEB.2013 11:38:38

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).

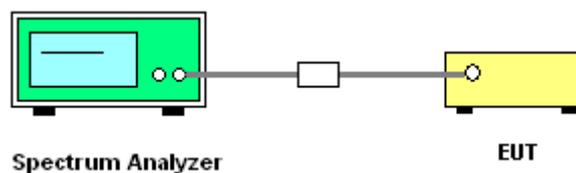
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. 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. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup

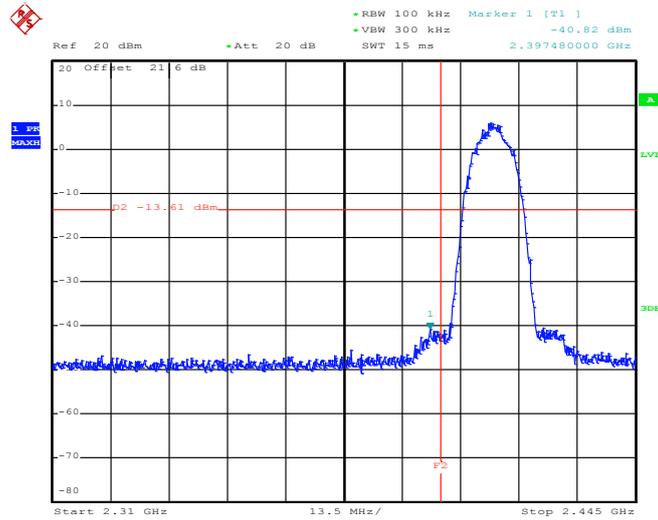




3.4.5 Test Result of Conducted Spurious at Band Edges

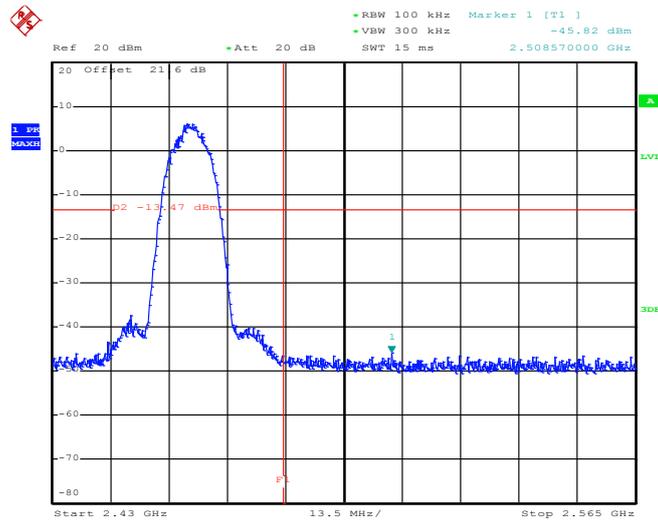
Test Mode :	802.11b	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 802.11b Channel 01



Date: 26.FEB.2013 20:26:47

High Band Edge Plot on 802.11b Channel 11

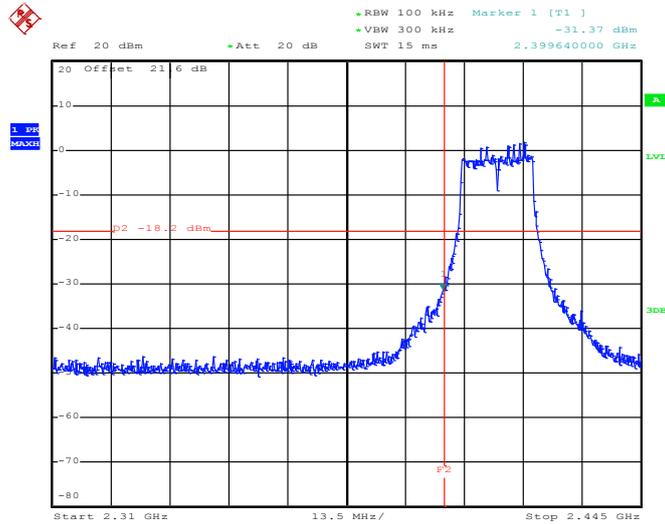


Date: 26.FEB.2013 20:55:16



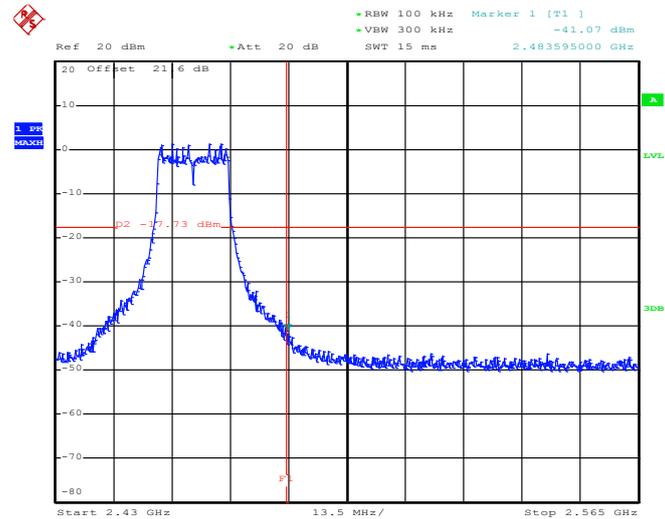
Test Mode :	802.11g	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 802.11g Channel 01



Date: 26.FEB.2013 21:37:07

High Band Edge Plot on 802.11g Channel 11

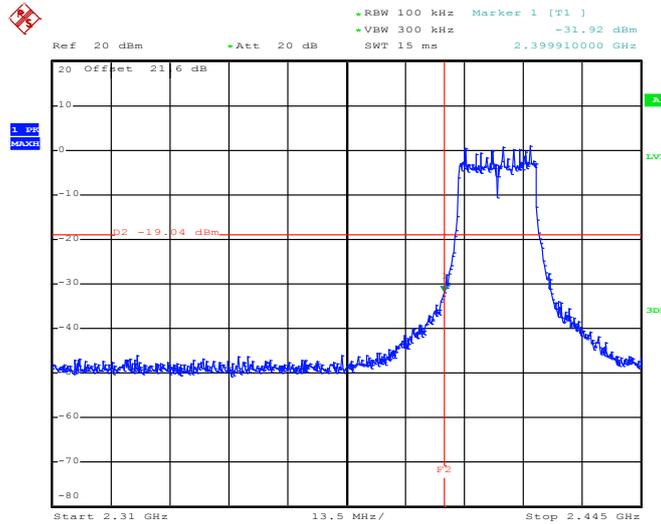


Date: 26.FEB.2013 21:19:13



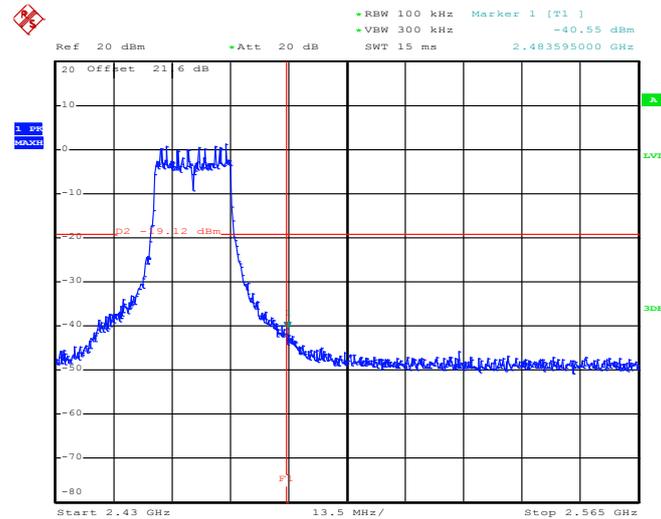
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 2.4GHz 802.11n HT20 Channel 01



Date: 26.FEB.2013 21:46:08

High Band Edge Plot on 2.4GHz 802.11n HT20 Channel 11

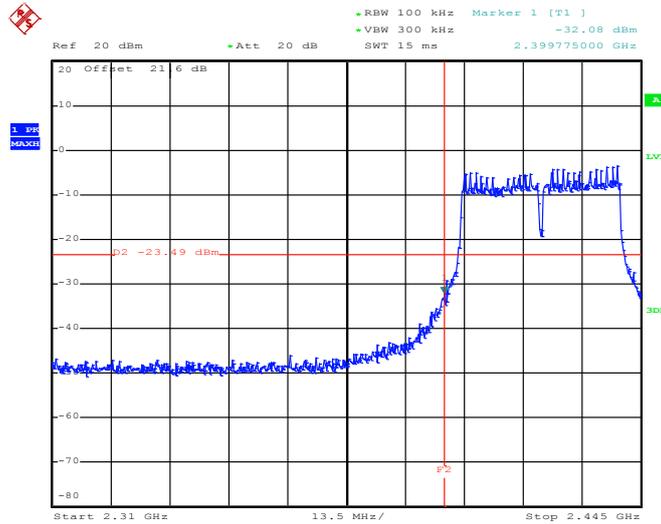


Date: 26.FEB.2013 22:23:02



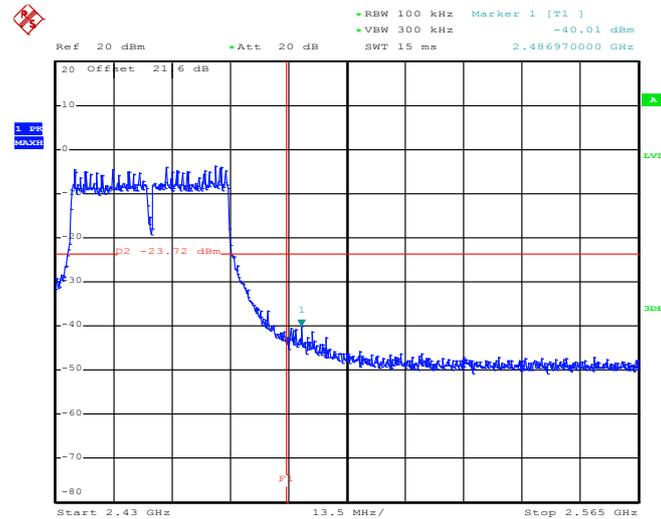
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 2.4GHz 802.11n HT40 Channel 03



Date: 26.FEB.2013 22:31:48

High Band Edge Plot on 2.4GHz 802.11n HT40 Channel 09

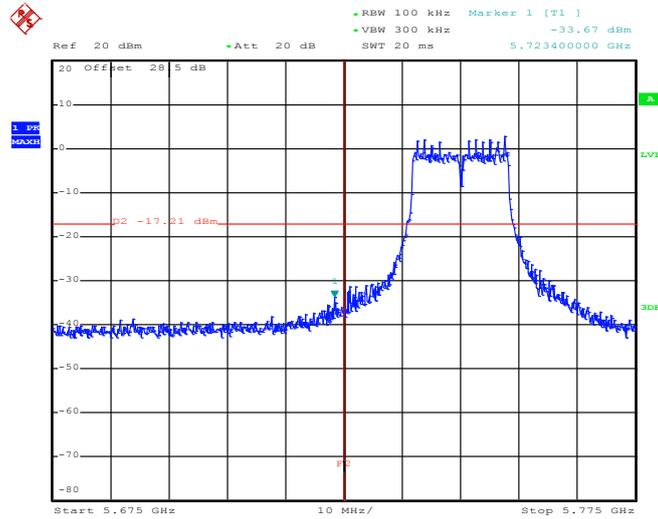


Date: 26.FEB.2013 22:54:52



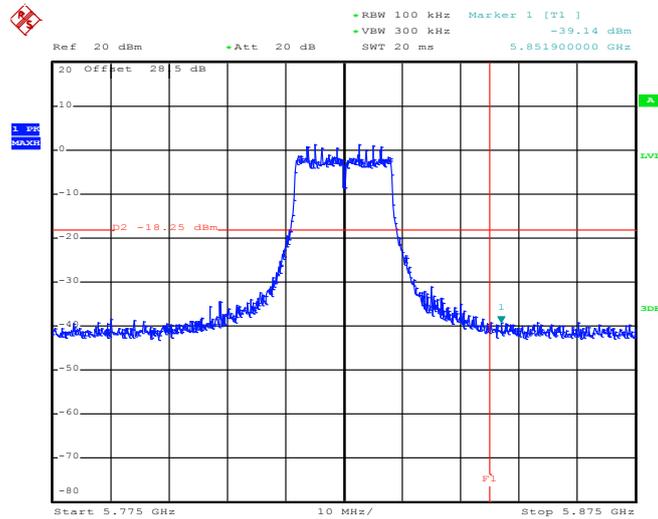
Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 802.11a Channel 149



Date: 15.FEB.2013 11:08:06

High Band Edge Plot on 802.11a Channel 165

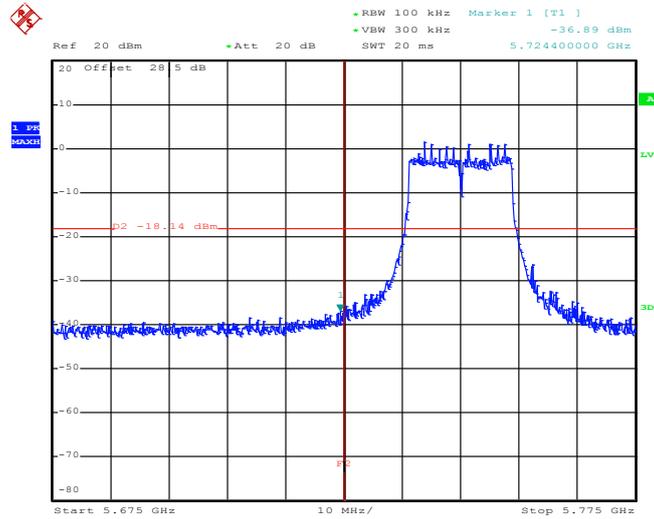


Date: 15.FEB.2013 11:17:49



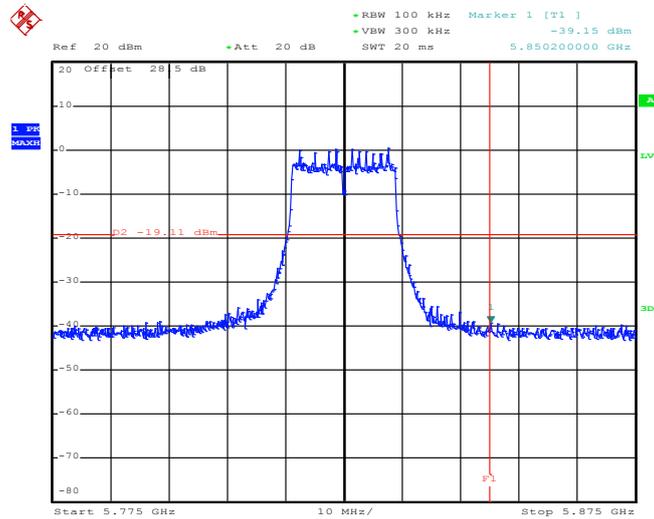
Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 5GHz 802.11n HT20 Channel 149



Date: 15.FEB.2013 11:23:14

High Band Edge Plot on 5GHz 802.11n HT20 Channel 165

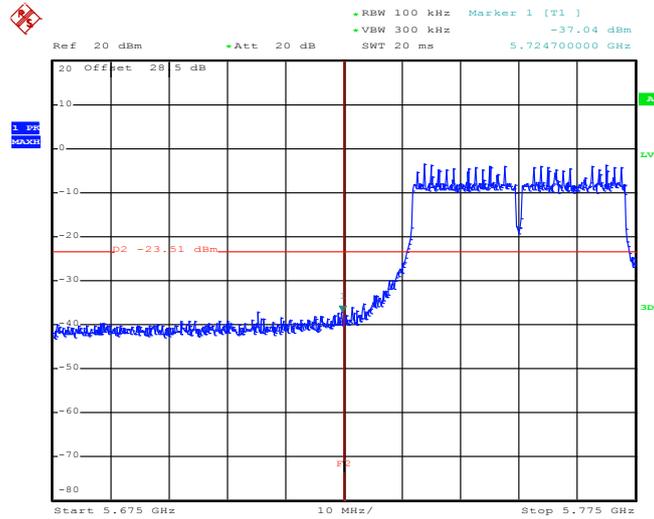


Date: 15.FEB.2013 11:32:15



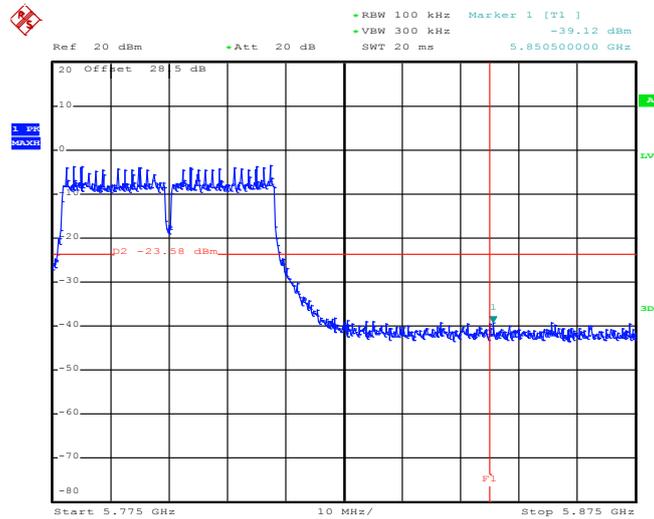
Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	151 and 159	Test Engineer :	Coyote Lin and Reece Li

Low Band Edge Plot on 5GHz 802.11n HT40 Channel 151



Date: 15.FEB.2013 11:35:58

High Band Edge Plot on 5GHz 802.11n HT40 Channel 159



Date: 15.FEB.2013 11:39:05

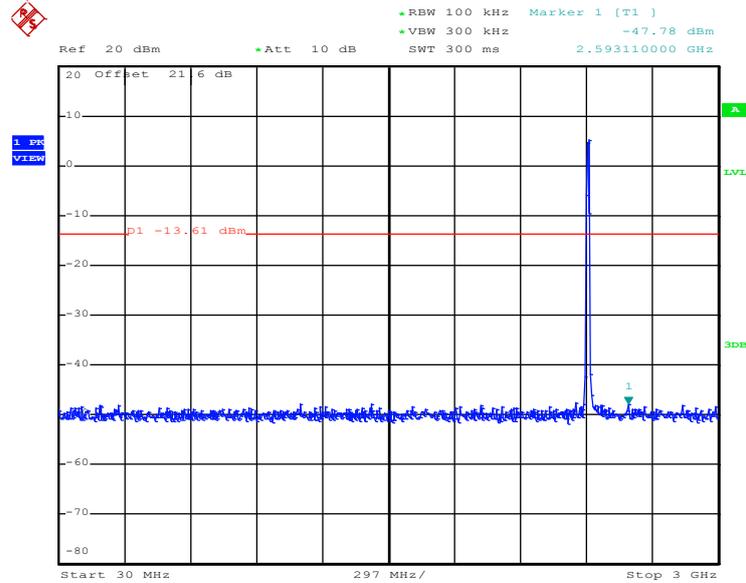


3.4.6 Test Result of Conducted Spurious Emission

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

802.11b 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

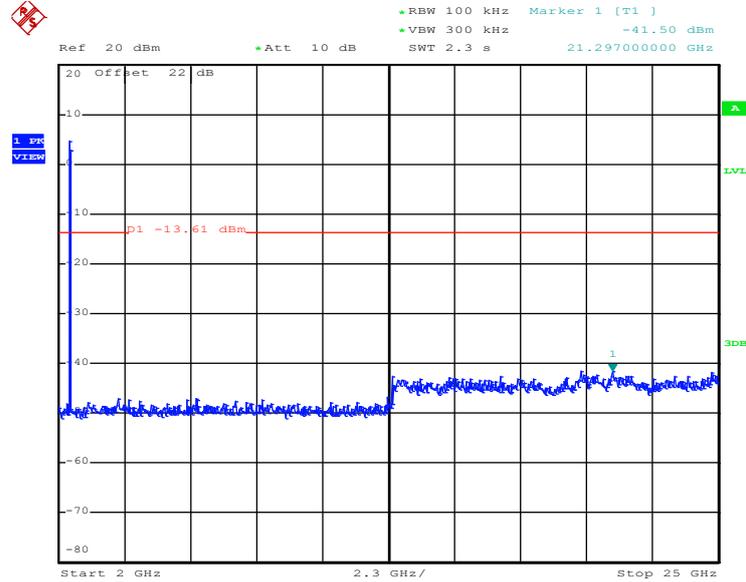


Date: 26.FEB.2013 22:26:19



802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

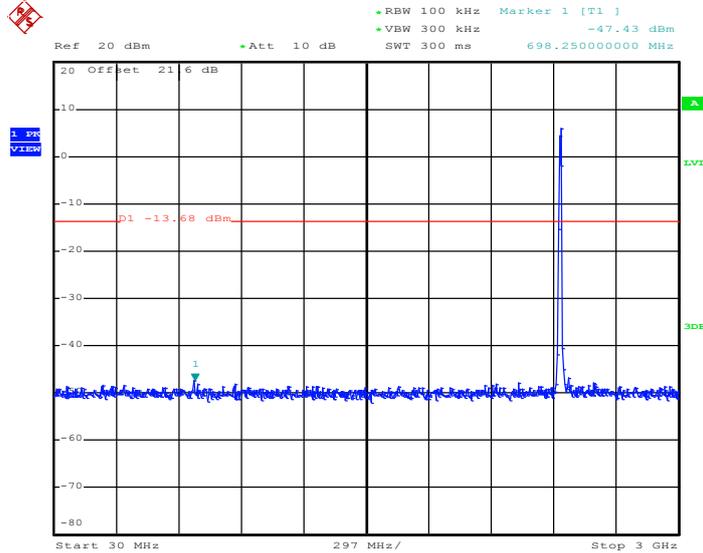


Date: 26.FEB.2013 22:26:37



802.11b 30 MHz~3 GHz

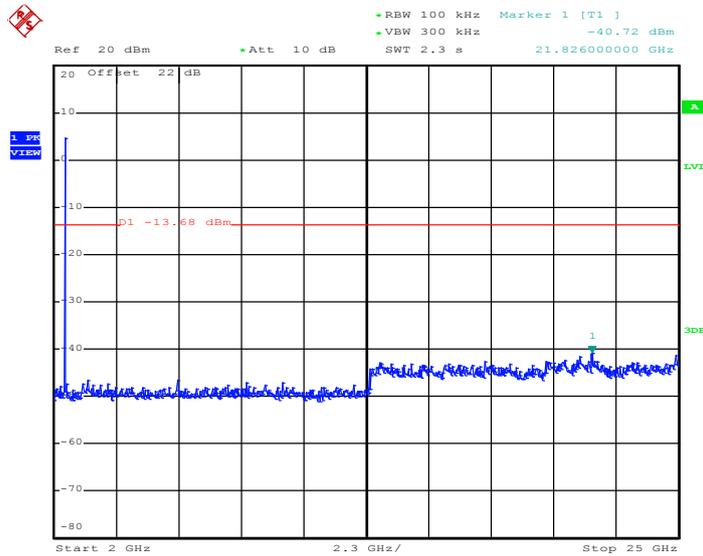
Conducted Spurious Emission Plot on Channel 06



Date: 26.FEB.2013 20:35:08

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

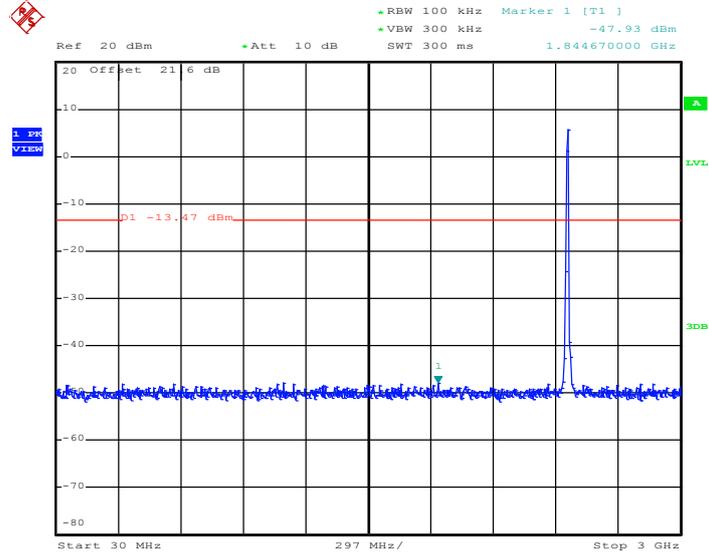


Date: 26.FEB.2013 20:35:27



802.11b 30 MHz~3 GHz

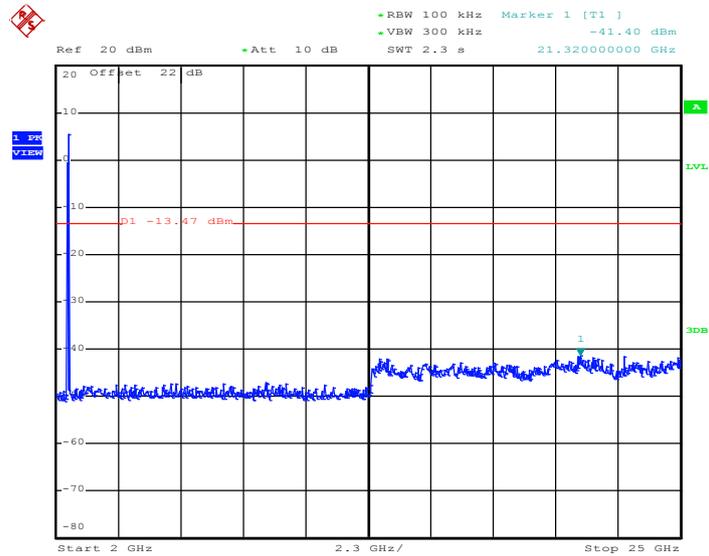
Conducted Spurious Emission Plot on Channel 11



Date: 26.FEB.2013 20:55:39

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



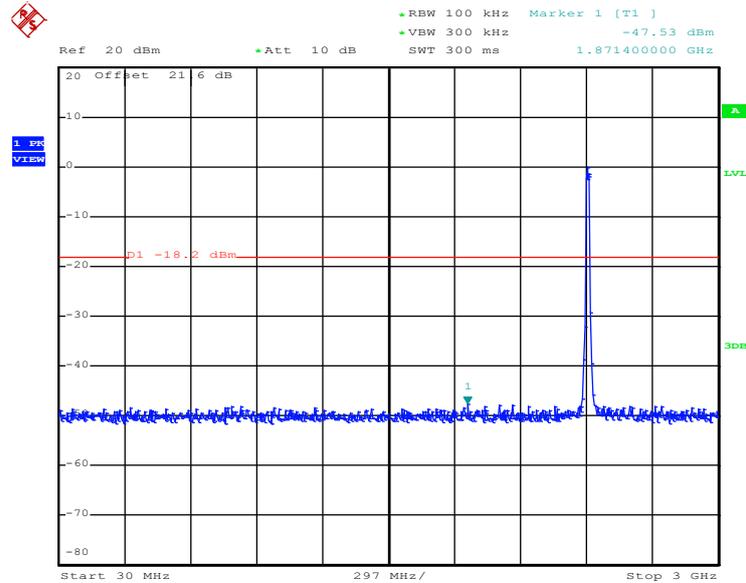
Date: 26.FEB.2013 20:55:58



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 :	Coyote Lin and Reece Li

802.11g 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

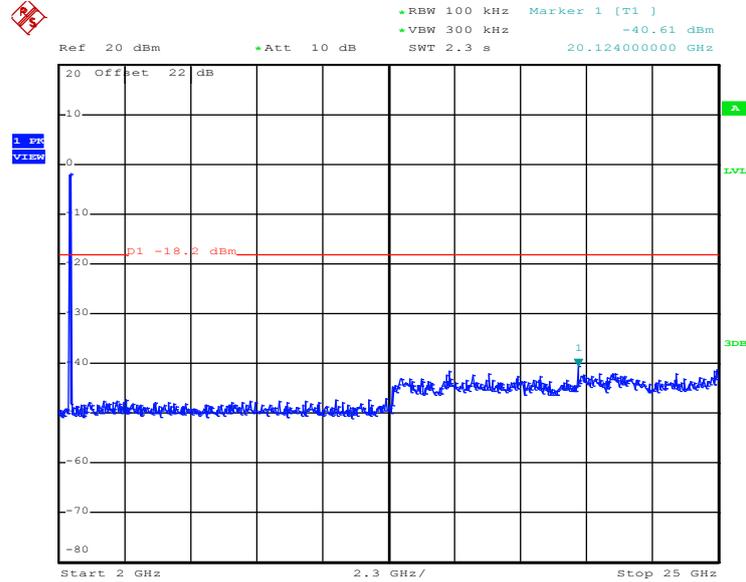


Date: 26.FEB.2013 21:38:59



802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

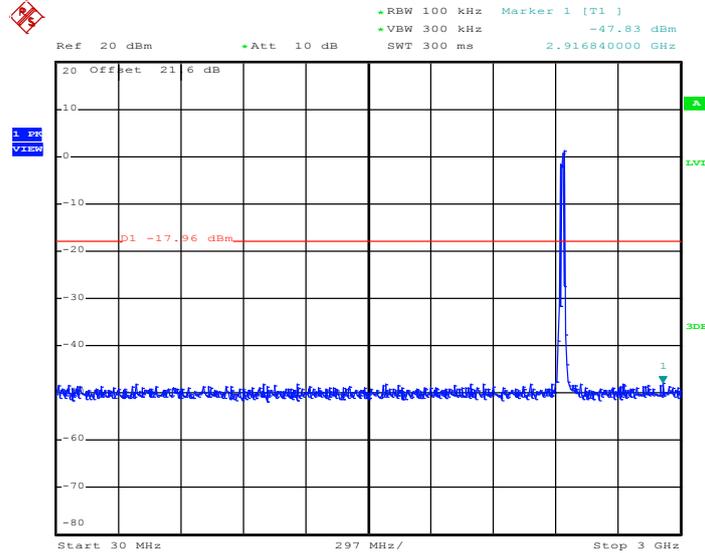


Date: 26.FEB.2013 21:39:18



802.11g 30 MHz~3 GHz

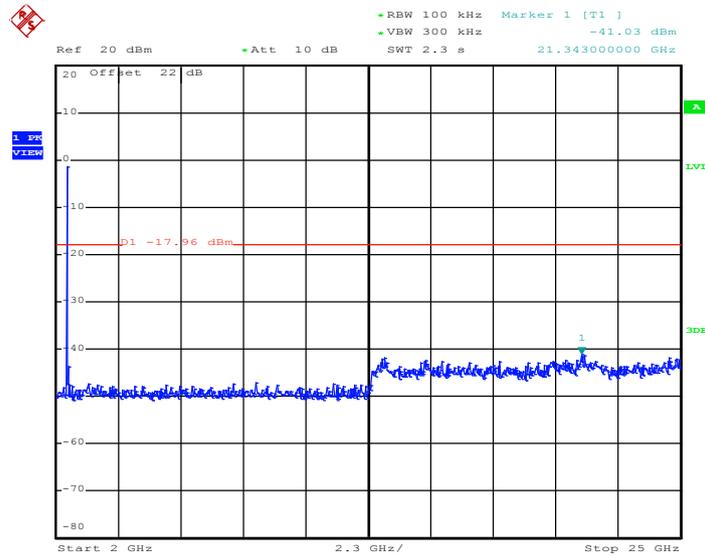
Conducted Spurious Emission Plot on Channel 06



Date: 26.FEB.2013 21:25:55

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

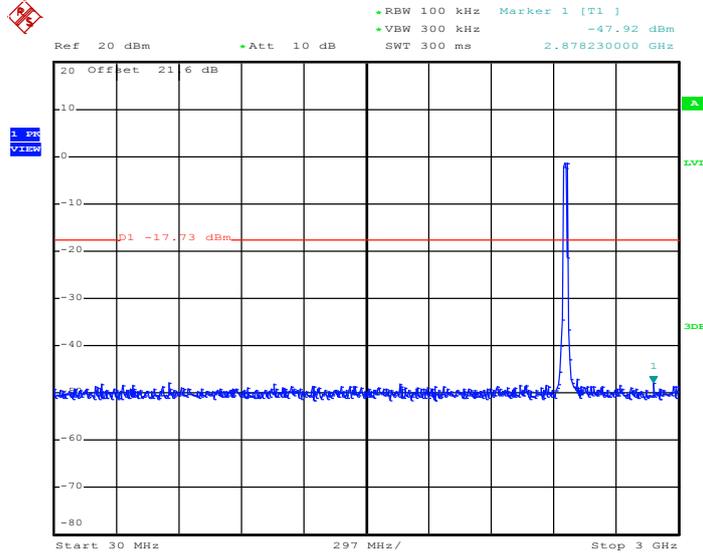


Date: 26.FEB.2013 21:26:14



802.11g 30 MHz~3 GHz

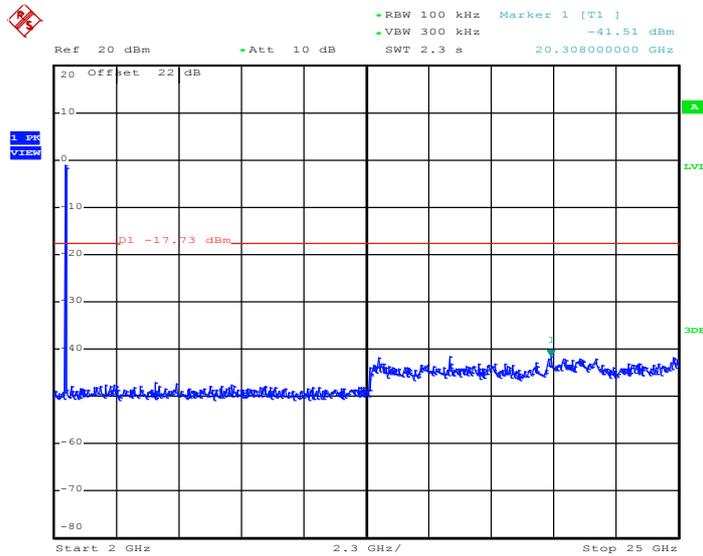
Conducted Spurious Emission Plot on Channel 11



Date: 26.FEB.2013 21:20:19

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



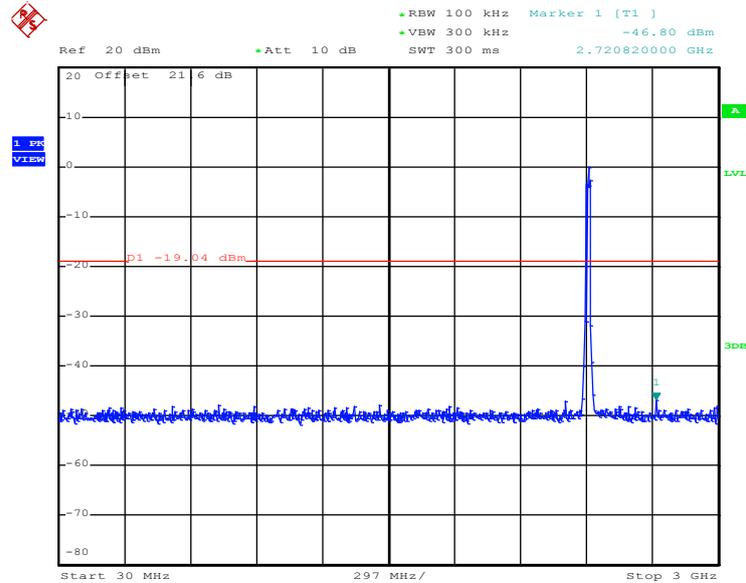
Date: 26.FEB.2013 21:20:38



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Coyote Lin and Reece Li

2.4GHz 802.11n HT20 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 01

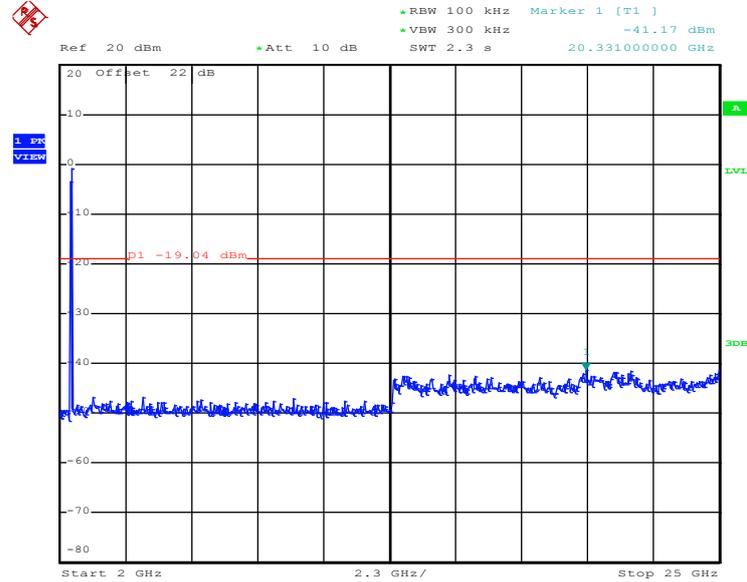


Date: 26.FEB.2013 21:46:31



2.4GHz 802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

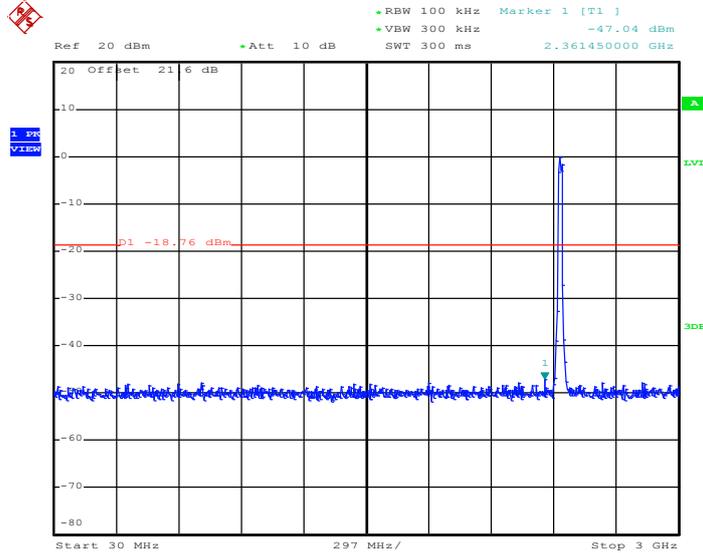


Date: 26.FEB.2013 21:46:50



2.4GHz 802.11n HT20 30 MHz~3 GHz

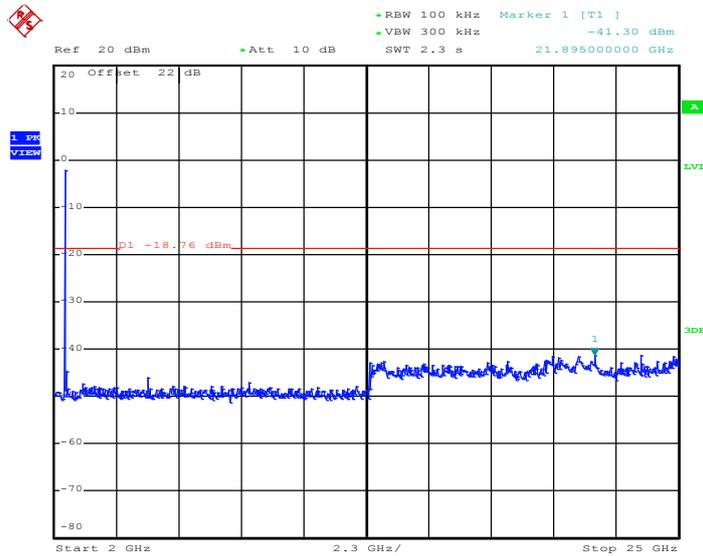
Conducted Spurious Emission Plot on Channel 06



Date: 26.FEB.2013 21:53:40

2.4GHz 802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

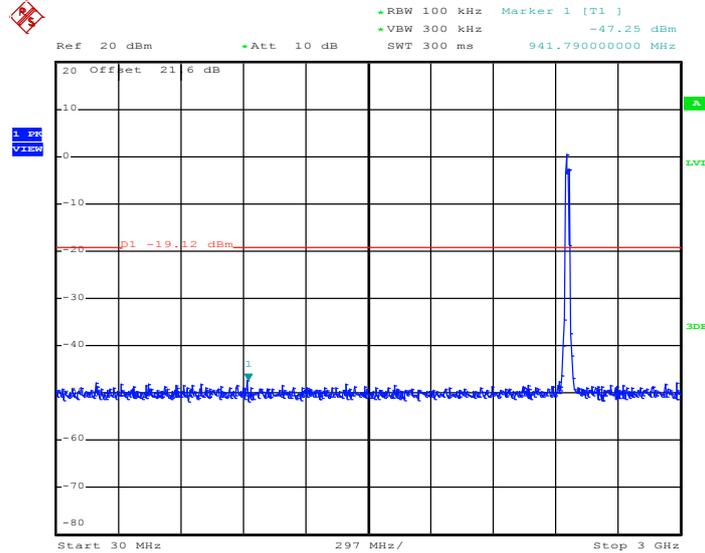


Date: 26.FEB.2013 21:53:58



2.4GHz 802.11n HT20 30 MHz~3 GHz

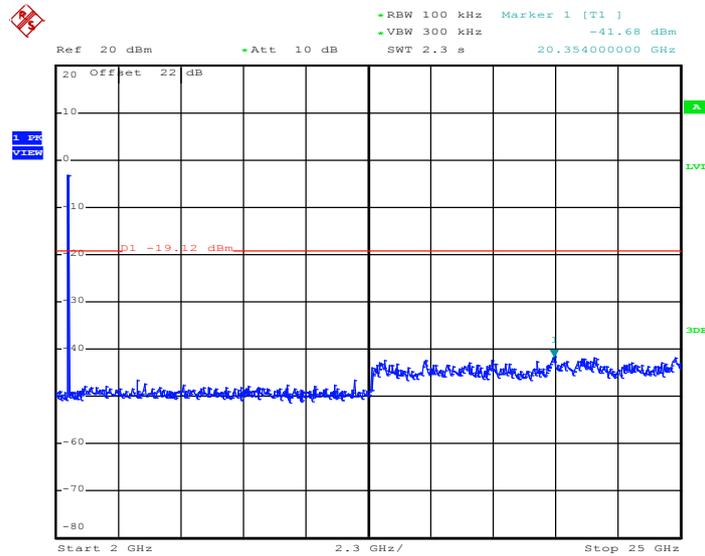
Conducted Spurious Emission Plot on Channel 11



Date: 26.FEB.2013 22:24:13

2.4GHz 802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



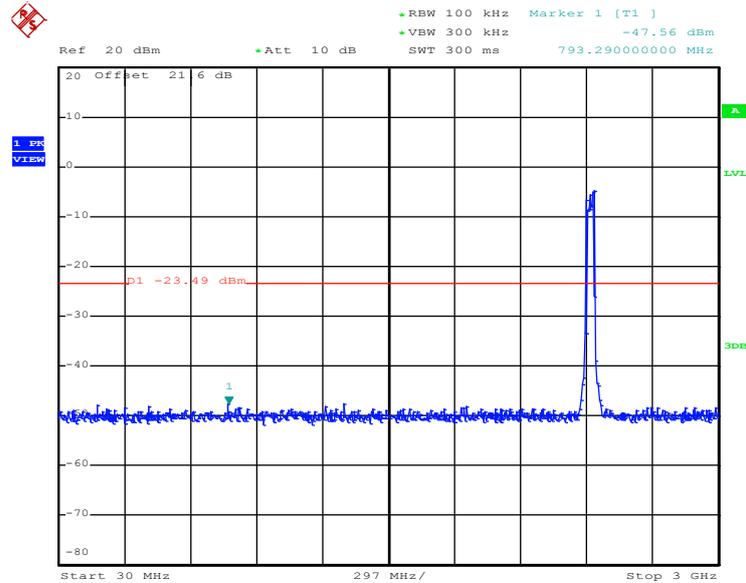
Date: 26.FEB.2013 22:24:32



Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	03, 06, 09	Test Engineer :	Coyote Lin and Reece Li

2.4GHz 802.11n HT40 30 MHz~3 GHz

Conducted Spurious Emission Plot on Channel 03

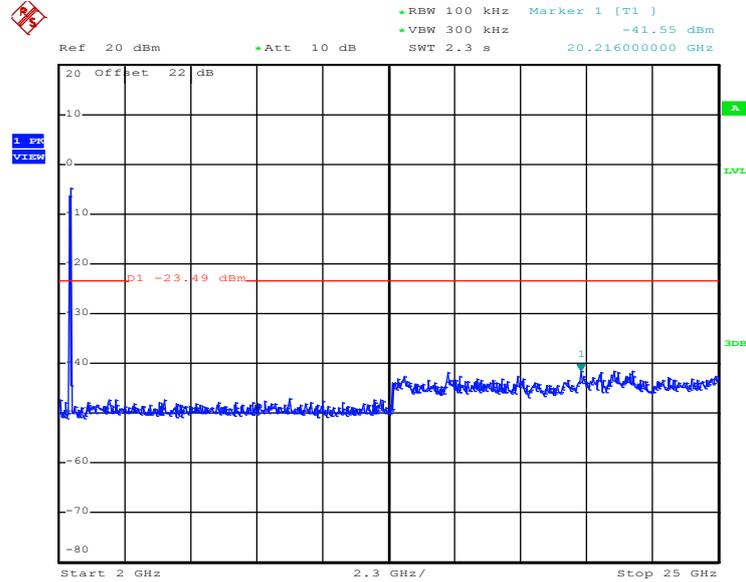


Date: 26.FEB.2013 22:32:33



2.4GHz 802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03

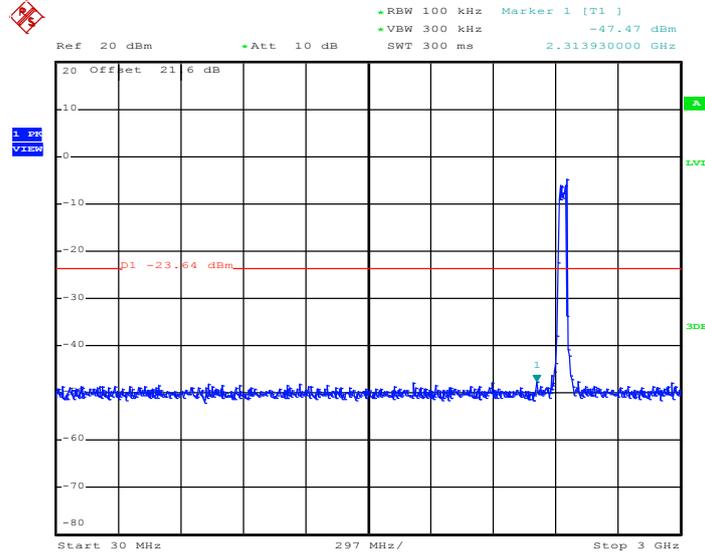


Date: 26.FEB.2013 22:32:52



2.4GHz 802.11n HT40 30 MHz~3 GHz

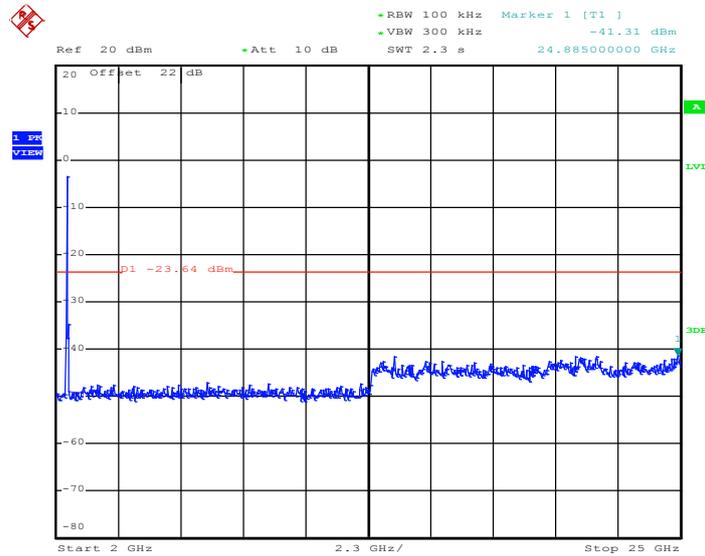
Conducted Spurious Emission Plot on Channel 06



Date: 26.FEB.2013 22:42:01

2.4GHz 802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

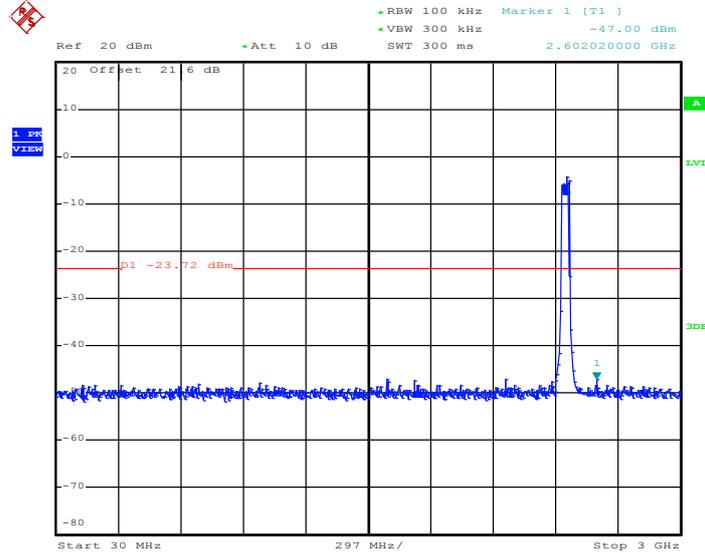


Date: 26.FEB.2013 22:42:19



2.4GHz 802.11n HT40 30 MHz~3 GHz

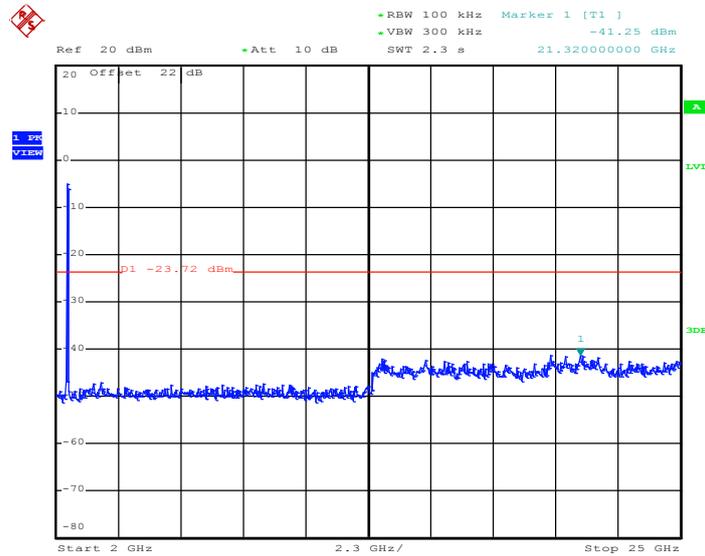
Conducted Spurious Emission Plot on Channel 09



Date: 26.FEB.2013 22:57:58

2.4GHz 802.11n HT40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



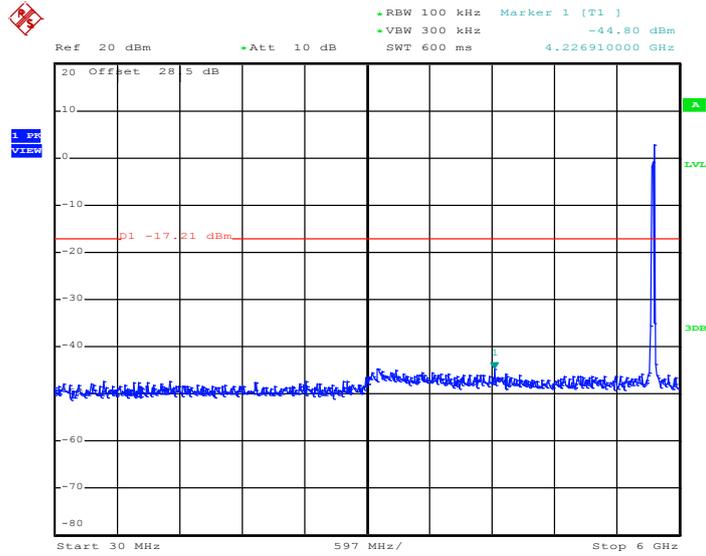
Date: 26.FEB.2013 22:58:17



Test Mode :	802.11a	Temperature :	24~26°C
Test Band :	30MHz-6GHz and 5G-40GHz	Relative Humidity :	50~53%
Test Channel :	149, 157, 165	Test Engineer :	Coyote Lin and Reece Li

802.11a 30 MHz~6 GHz

Conducted Spurious Emission Plot on Channel 149

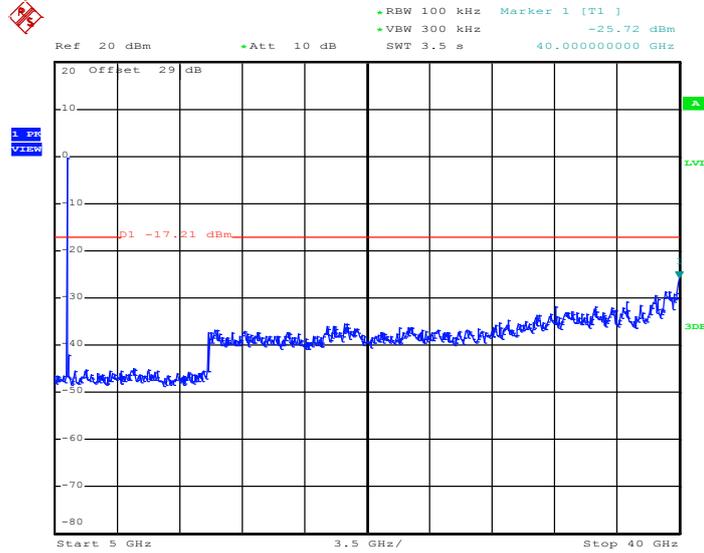


Date: 15.FEB.2013 11:08:58



802.11a 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 149

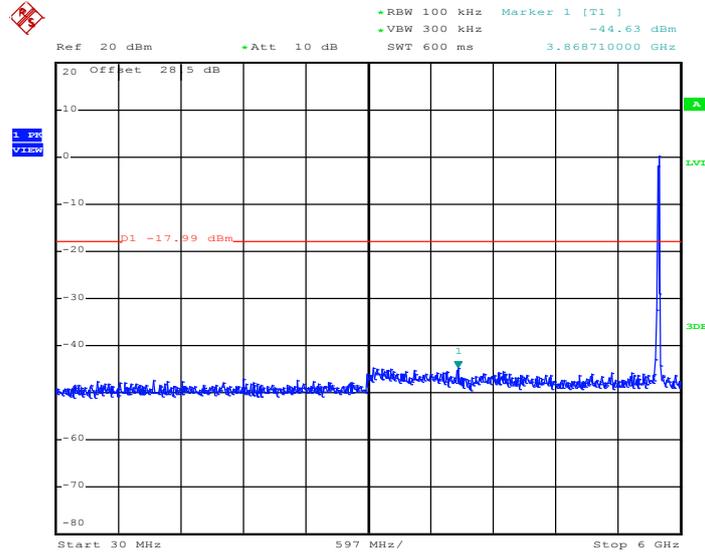


Date: 15.FEB.2013 11:09:16



802.11a 30 MHz~6 GHz

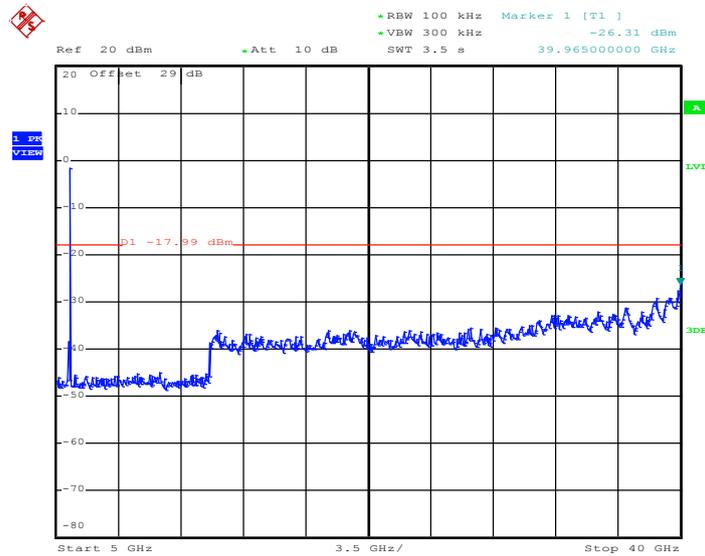
Conducted Spurious Emission Plot on Channel 157



Date: 15.FEB.2013 11:13:08

802.11a 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 157

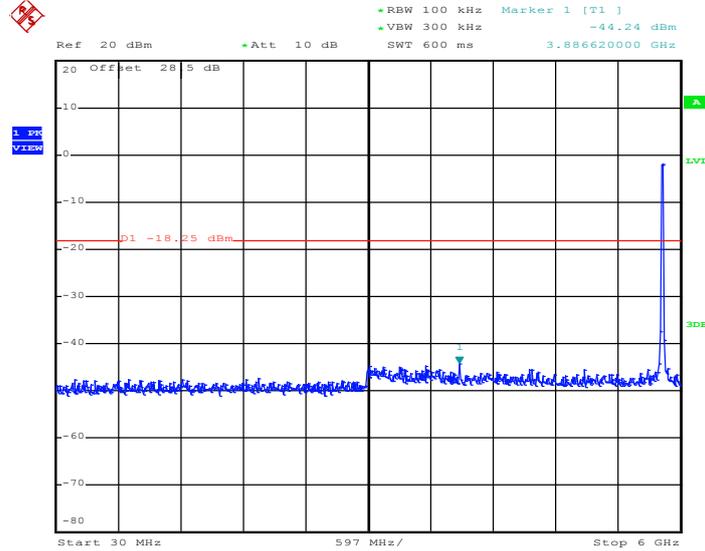


Date: 15.FEB.2013 11:13:26



802.11a 30 MHz~6 GHz

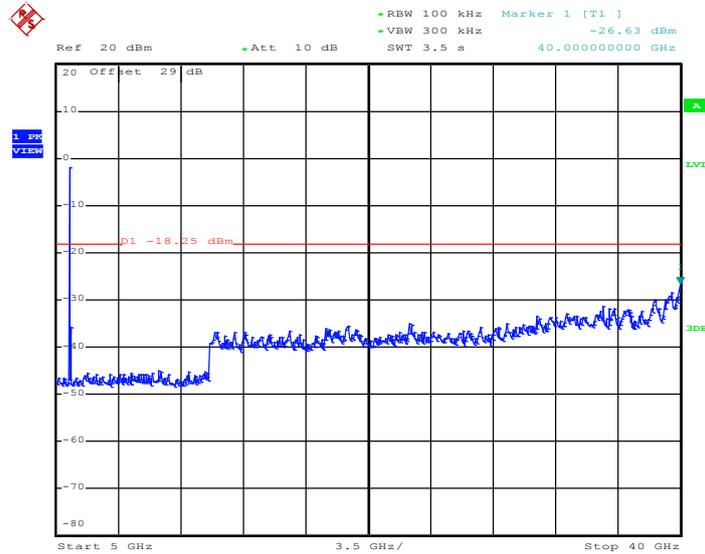
Conducted Spurious Emission Plot on Channel 165



Date: 15.FEB.2013 11:18:26

802.11a 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 165



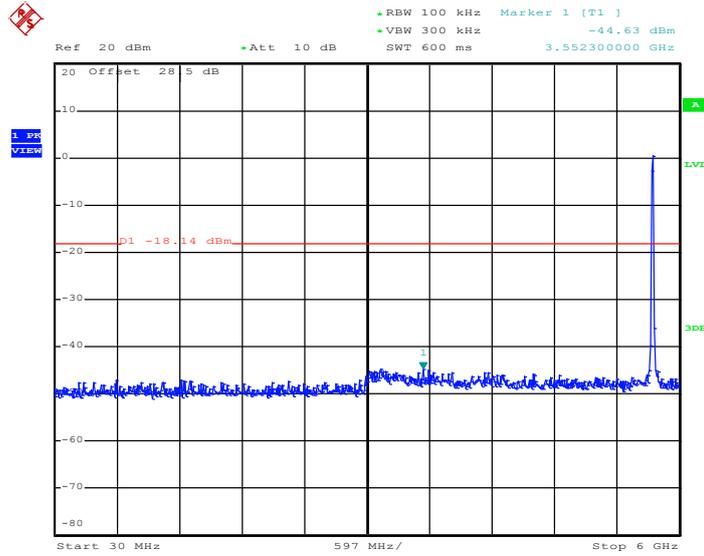
Date: 15.FEB.2013 11:18:45



Test Mode :	802.11n HT20	Temperature :	24~26°C
Test Band :	30MHz-6GHz and 5G-40GHz	Relative Humidity :	50~53%
Test Channel :	149, 157, 165	Test Engineer :	Coyote Lin and Reece Li

5GHz 802.11n HT20 30 MHz~6 GHz

Conducted Spurious Emission Plot on Channel 149

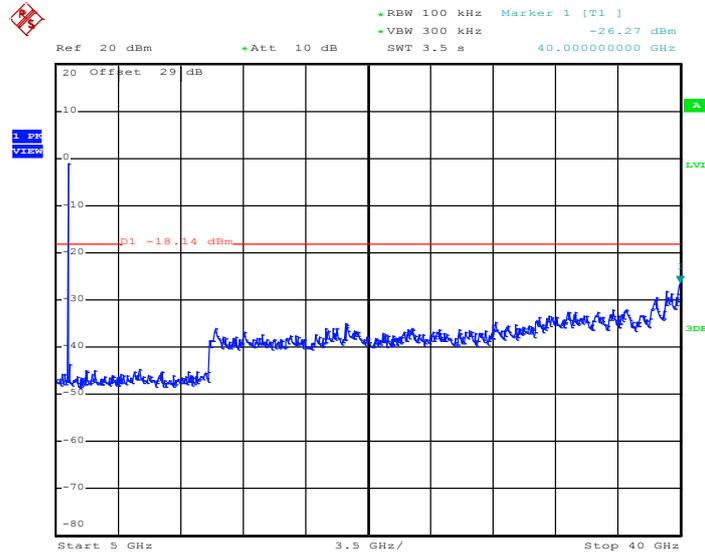


Date: 15.FEB.2013 11:26:07



5GHz 802.11n HT20 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 149

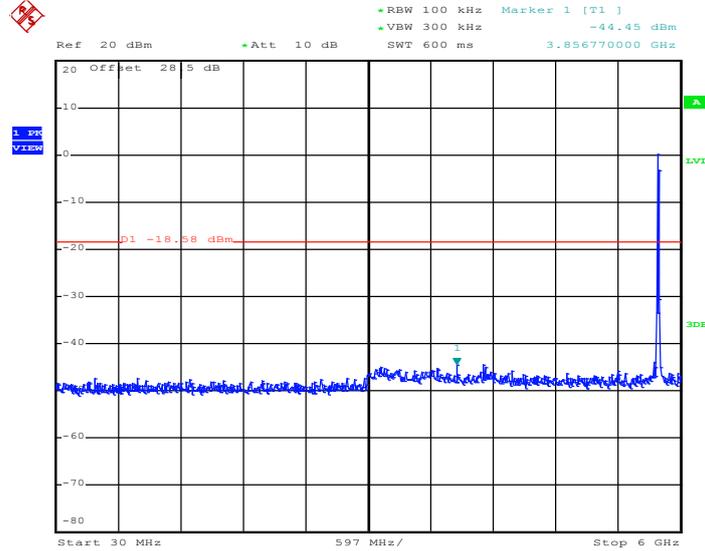


Date: 15.FEB.2013 11:26:25



5GHz 802.11n HT20 30 MHz~6 GHz

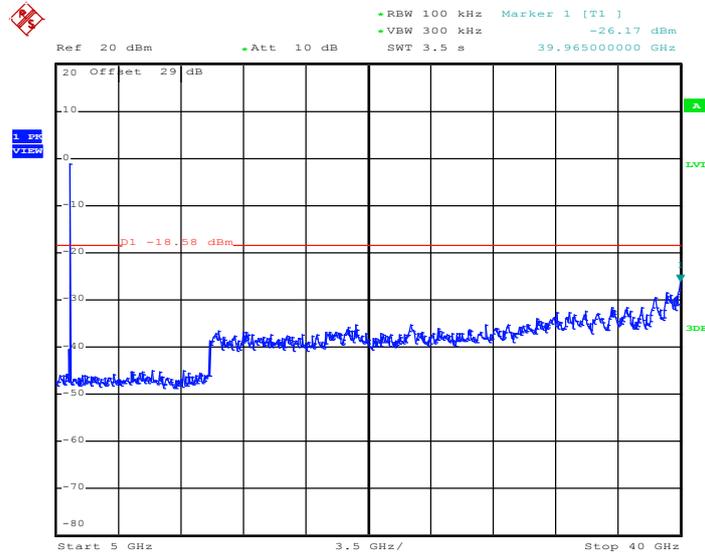
Conducted Spurious Emission Plot on Channel 157



Date: 15.FEB.2013 11:29:11

5GHz 802.11n HT20 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 157

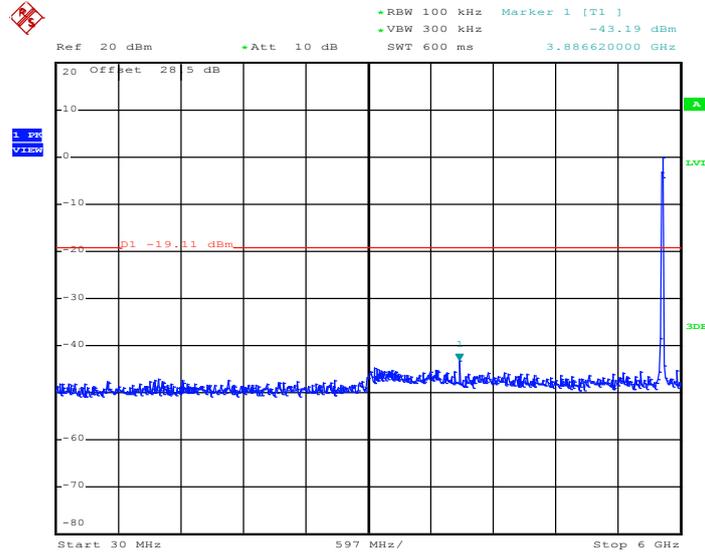


Date: 15.FEB.2013 11:29:29



5GHz 802.11n HT20 30 MHz~6 GHz

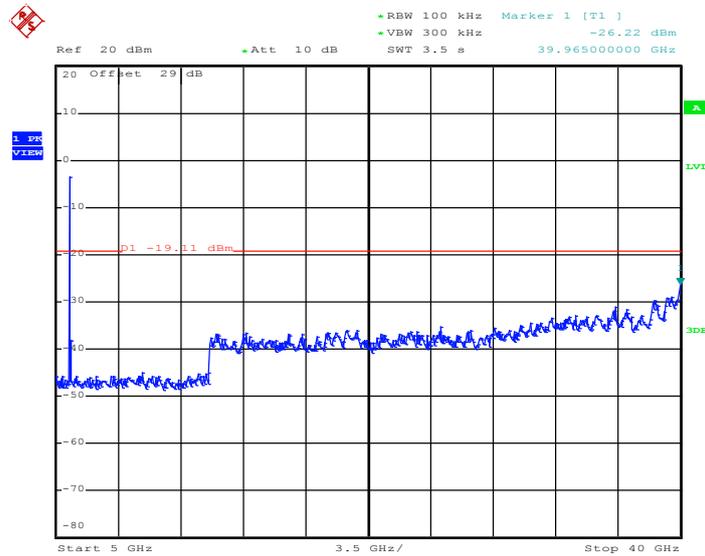
Conducted Spurious Emission Plot on Channel 165



Date: 15.FEB.2013 11:32:57

5GHz 802.11n HT20 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 165



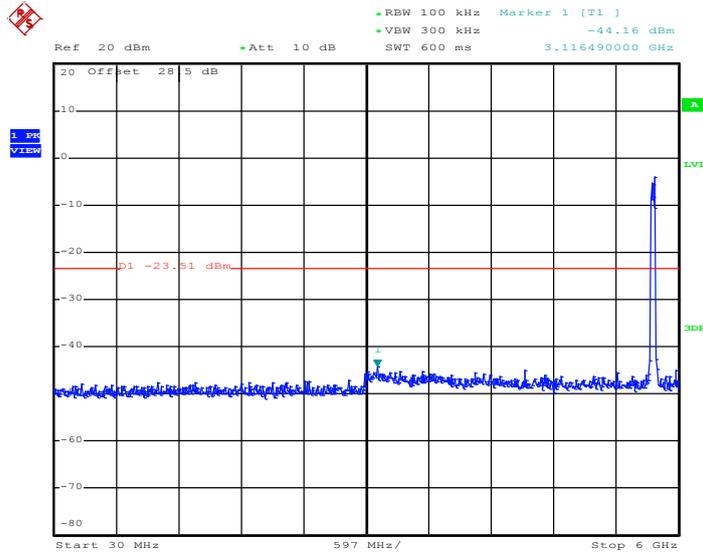
Date: 15.FEB.2013 11:33:16



Test Mode :	802.11n HT40	Temperature :	24~26°C
Test Band :	30MHz-6GHz and 5G-40GHz	Relative Humidity :	50~53%
Test Channel :	151 and 159	Test Engineer :	Coyote Lin and Reece Li

5GHz 802.11n HT40 30 MHz~6 GHz

Conducted Spurious Emission Plot on Channel 151

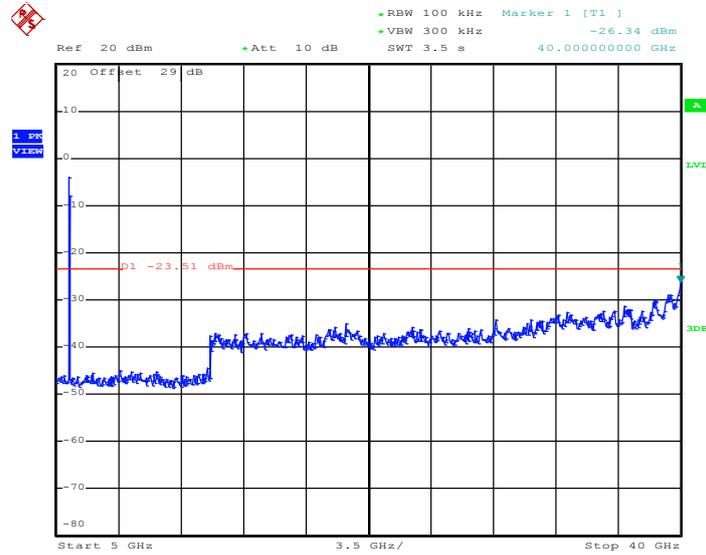


Date: 15.FEB.2013 11:36:20



5GHz 802.11n HT40 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 151

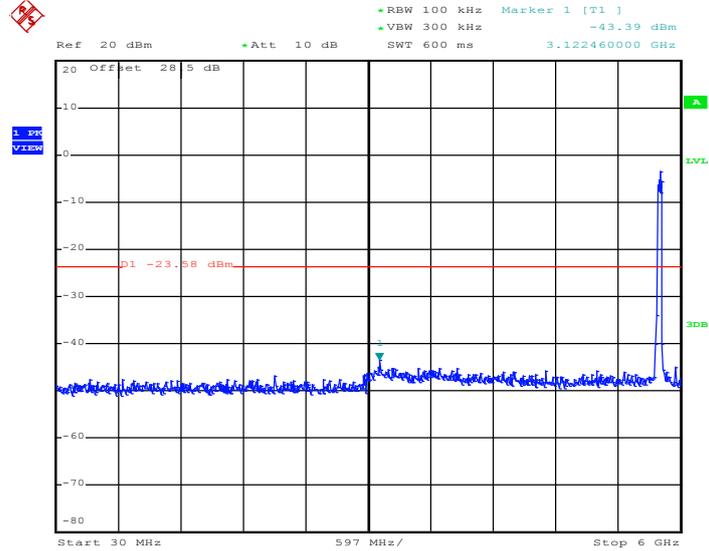


Date: 15.FEB.2013 11:36:39



5GHz 802.11n HT40 30 MHz~6 GHz

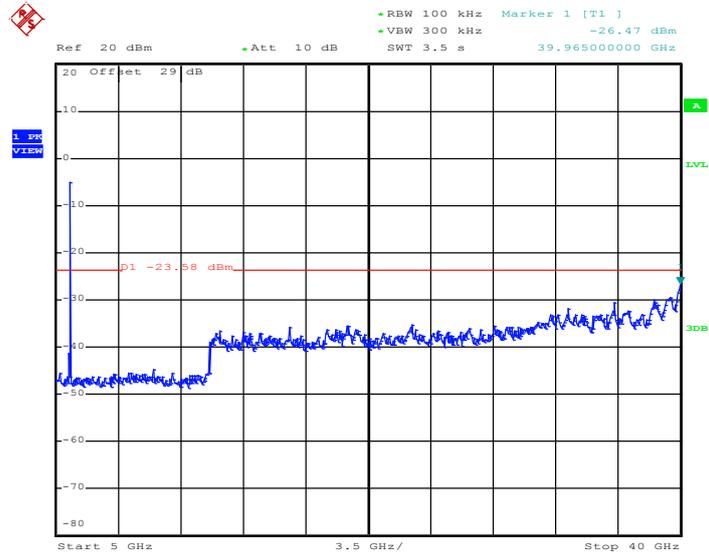
Conducted Spurious Emission Plot on Channel 159



Date: 15.FEB.2013 11:39:28

5GHz 802.11n HT40 5GHz~40 GHz

Conducted Spurious Emission Plot on Channel 159



Date: 15.FEB.2013 11:39:46

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

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

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

3.5.2 Measuring Instruments

See list of measuring instruments of this test report.



3.5.3 Test Procedures

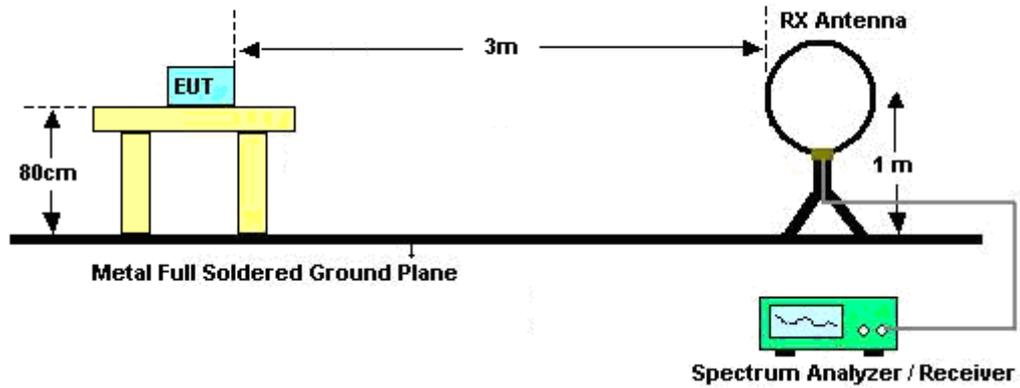
1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 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.
7. Use the following spectrum analyzer settings:
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
 For average measurement:
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(μs)	1/T(kHz)	VBW Setting
802.11b	96.77	1200.00	0.833	1kHz
802.11g	98.57	-	-	1KHz
2.4GHz 802.11n HT20	98.46	-	-	1KHz
2.4GHz 802.11n HT40	96.93	948.00	1.055	3kHz
802.11a	98.32	-	-	10Hz
5GHz 802.11n HT20	98.36	-	-	10Hz
5GHz 802.11n HT40	97.05	948.08	1.055	3kHz

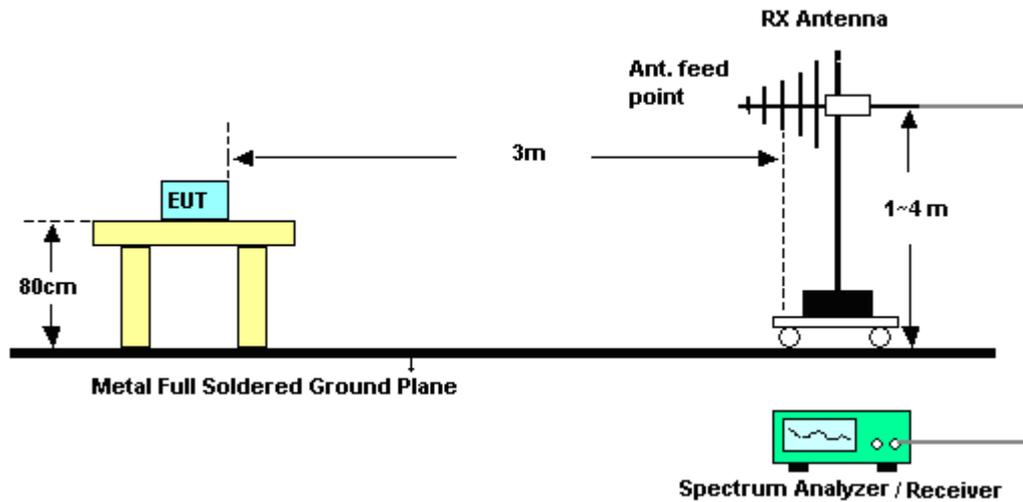
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

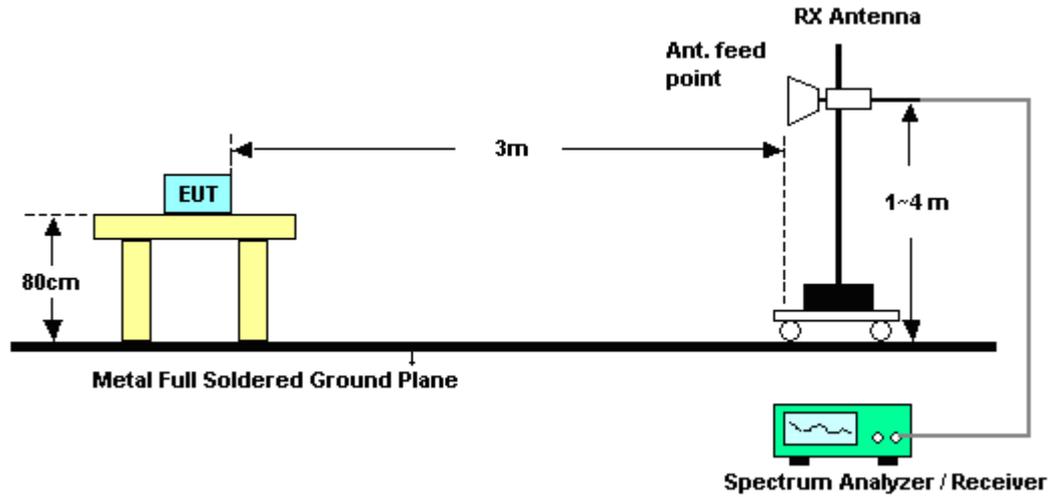
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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



3.5.6 Test Result of Radiated Band Edges

Test Mode :	802.11b	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	Marlboro Hsu

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
2386.32	61.34	-12.66	74	56.4	32.3	6.91	34.27	196	340	Peak
2390	48.51	-5.49	54	43.6	32.3	6.91	34.3	196	340	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
2389.47	58.2	-15.8	74	53.26	32.3	6.91	34.27	106	243	Peak
2389.2	45.82	-8.18	54	40.88	32.3	6.91	34.27	106	243	Average

Test Mode :	802.11b	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	Marlboro Hsu

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
2494.09	63.51	-10.49	74	58.53	32.4	7.06	34.48	104	358	Peak
2485.81	49.27	-4.73	54	44.26	32.38	7.06	34.43	104	358	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
2494.6	58.83	-15.17	74	53.85	32.4	7.06	34.48	159	243	Peak
2488.54	45.27	-8.73	54	40.24	32.4	7.06	34.43	159	243	Average



Test Mode :	802.11g	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	Marlboro Hsu

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
2386.32	57.35	-16.65	74	52.41	32.3	6.91	34.27	107	3	Peak
2390	44.81	-9.19	54	39.9	32.3	6.91	34.3	107	3	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
2368.5	56.74	-17.26	74	51.87	32.26	6.88	34.27	129	244	Peak
2389.83	43.72	-10.28	54	38.81	32.3	6.91	34.3	129	244	Average

Test Mode :	802.11g	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	Marlboro Hsu

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
2495.89	57.99	-16.01	74	53.01	32.4	7.06	34.48	103	19	Peak
2483.53	44.68	-9.32	54	39.67	32.38	7.06	34.43	103	19	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
2493.46	56.83	-17.17	74	51.85	32.4	7.06	34.48	103	245	Peak
2483.74	43.54	-10.46	54	38.53	32.38	7.06	34.43	103	245	Average



Test Mode :	802.11n HT20	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	01	Test Engineer :	Marlboro Hsu

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
2389.83	71.54	-2.46	74	66.63	32.3	6.91	34.3	107	0	Peak
2390	53.17	-0.83	54	48.26	32.3	6.91	34.3	107	0	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
2388.57	65.63	-8.37	74	60.69	32.3	6.91	34.27	133	243	Peak
2390	49.2	-4.8	54	44.29	32.3	6.91	34.3	133	243	Average

Test Mode :	802.11n HT20	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	11	Test Engineer :	Marlboro Hsu

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
2485.6	70.44	-3.56	74	65.43	32.38	7.06	34.43	106	39	Peak
2483.5	53.5	-0.5	54	48.49	32.38	7.06	34.43	106	39	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
2483.59	68.54	-5.46	74	63.53	32.38	7.06	34.43	160	260	Peak
2483.5	47.53	-6.47	54	42.52	32.38	7.06	34.43	160	260	Average



Test Mode :	802.11n HT40	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	03	Test Engineer :	Marlboro Hsu

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
2387.76	68.19	-5.81	74	63.25	32.3	6.91	34.27	105	0	Peak
2389.74	53.5	-0.5	54	48.56	32.3	6.91	34.27	105	0	Average
2495.2	59.55	-14.45	74	54.57	32.4	7.06	34.48	105	0	Peak
2483.95	45.48	-8.52	54	40.47	32.38	7.06	34.43	105	0	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
2389.38	63.68	-10.32	74	58.74	32.3	6.91	34.27	103	245	Peak
2390	50.32	-3.68	54	45.41	32.3	6.91	34.3	103	245	Average
2498.2	59.62	-14.38	74	54.64	32.4	7.06	34.48	103	245	Peak
2494.51	45.6	-8.4	54	40.62	32.4	7.06	34.48	103	245	Average



Test Mode :	802.11n HT40	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	09	Test Engineer :	Marlboro Hsu

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	59.84	-14.16	74	54.93	32.3	6.91	34.3	106	358	Peak
2389.92	46.28	-7.72	54	41.37	32.3	6.91	34.3	106	358	Average
2485.87	70.14	-3.86	74	65.13	32.38	7.06	34.43	106	358	Peak
2483.53	53.6	-0.4	54	48.59	32.38	7.06	34.43	106	358	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
2384.07	57.24	-16.76	74	52.32	32.28	6.91	34.27	103	246	Peak
2383.98	45.34	-8.66	54	40.42	32.28	6.91	34.27	103	246	Average
2483.65	64.84	-9.16	74	59.83	32.38	7.06	34.43	103	246	Peak
2483.62	50.63	-3.37	54	45.62	32.38	7.06	34.43	103	246	Average



Test Mode :	802.11a	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	149	Test Engineer :	Marlboro Hsu

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	73.25	-16.69	89.94	62.03	35.33	10.04	34.15	100	353	Peak
5744	97.5	-	-	86.27	35.34	10.06	34.17	100	353	Average
5744	109.94	-	-	98.71	35.34	10.06	34.17	100	353	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	68.15	-17.73	85.88	56.93	35.33	10.04	34.15	195	0	Peak
5746	95.04	-	-	83.81	35.34	10.06	34.17	195	0	Average
5746	105.88	-	-	94.65	35.34	10.06	34.17	195	0	Peak

Test Mode :	802.11a	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	165	Test Engineer :	Marlboro Hsu

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
5824	96.53	-	-	85.29	35.4	10.11	34.27	100	338	Average
5824	108.31	-	-	97.07	35.4	10.11	34.27	100	338	Peak
5850	67.06	-21.25	88.31	55.83	35.41	10.13	34.31	100	338	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
5827	94.6	-	-	83.36	35.4	10.11	34.27	192	360	Average
5827	106.19	-	-	94.95	35.4	10.11	34.27	192	360	Peak
5850	65.49	-20.7	86.19	54.26	35.41	10.13	34.31	192	360	Peak



Test Mode :	802.11n HT20	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	149	Test Engineer :	Marlboro Hsu

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	71.39	-16.25	87.64	60.17	35.33	10.04	34.15	100	321	Peak
5744	96.72	-	-	85.49	35.34	10.06	34.17	100	321	Average
5744	107.64	-	-	96.41	35.34	10.06	34.17	100	321	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	67.02	-17.76	84.78	55.8	35.33	10.04	34.15	195	0	Peak
5744	93.81	-	-	82.58	35.34	10.06	34.17	195	0	Average
5744	104.78	-	-	93.55	35.34	10.06	34.17	195	0	Peak

Test Mode :	802.11n HT20	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	165	Test Engineer :	Marlboro Hsu

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
5824	96.28	-	-	85.04	35.4	10.11	34.27	100	339	Average
5824	107.3	-	-	96.06	35.4	10.11	34.27	100	339	Peak
5850	65.06	-22.24	87.3	53.83	35.41	10.13	34.31	100	339	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
5827	93.95	-	-	82.71	35.4	10.11	34.27	193	360	Average
5827	105.21	-	-	93.97	35.4	10.11	34.27	193	360	Peak
5850	66.25	-18.96	85.21	55.02	35.41	10.13	34.31	193	360	Peak



Test Mode :	802.11n HT40	Temperature :	22~24°C
Test Band :	Low	Relative Humidity :	51~53%
Test Channel :	151	Test Engineer :	Marlboro Hsu

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	73.33	-9.87	83.2	62.11	35.33	10.04	34.15	100	339	Peak
5757	93.97	-	-	82.75	35.36	10.06	34.2	100	339	Average
5757	103.2	-	-	91.98	35.36	10.06	34.2	100	339	Peak
5850	54.3	-28.9	83.2	43.07	35.41	10.13	34.31	100	339	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	67.7	-12.71	80.41	56.48	35.33	10.04	34.15	193	0	Peak
5757	91.13	-	-	79.91	35.36	10.06	34.2	193	0	Average
5757	100.41	-	-	89.19	35.36	10.06	34.2	193	0	Peak
5850	49.35	-31.06	80.41	38.12	35.41	10.13	34.31	193	0	Peak



Test Mode :	802.11n HT40	Temperature :	22~24°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	159	Test Engineer :	Marlboro Hsu

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	57.79	-25.87	83.66	46.57	35.33	10.04	34.15	100	339	Peak
5797	93.55	-	-	82.31	35.38	10.09	34.23	100	339	Average
5797	103.66	-	-	92.42	35.38	10.09	34.23	100	339	Peak
5850	58.16	-25.5	83.66	46.93	35.41	10.13	34.31	100	339	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	54.47	-26.88	81.35	43.25	35.33	10.04	34.15	195	360	Peak
5793	91.73	-	-	80.49	35.38	10.09	34.23	195	360	Average
5793	101.35	-	-	90.11	35.38	10.09	34.23	195	360	Peak
5850	56.39	-24.96	81.35	45.16	35.41	10.13	34.31	195	360	Peak



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

Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	<ol style="list-style-type: none"> 2414 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 113.94 dBμV/m - 20dB = 93.94 dBμV/m. Average measurement was not performed if peak level went lower than the average limit. 		

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
2414	109.61	-	-	104.65	32.31	6.95	34.3	196	340	Average
2414	113.94	-	-	108.98	32.31	6.95	34.3	196	340	Peak
4824	41.67	-32.33	74	56.4	33.97	8.77	57.47	100	0	Peak
7236	42.79	-51.15	93.94	54.39	35.55	10.83	57.98	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 2412 MHz is fundamental signal which can be ignored. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. Average measurement was not performed if peak level went lower than the average limit. 		

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
2412	104.18	-	-	99.22	32.31	6.95	34.3	106	243	Average
2412	108.38	-	-	103.42	32.31	6.95	34.3	106	243	Peak
4824	39.66	-34.34	74	56.91	33.97	8.77	59.99	100	0	Peak
7236	40.81	-47.57	88.38	63.76	0	10.83	33.78	100	0	Peak



Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2438 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2438	107.36	-	-	102.37	32.35	6.99	34.35	112	321	Average
2438	111.59	-	-	106.6	32.35	6.99	34.35	112	321	Peak
4875	42.07	-31.93	74	56.78	33.95	8.82	57.48	100	0	Peak
7311	42.21	-31.79	74	53.78	35.54	10.91	58.02	100	0	Peak

Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2436 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2436	100.58	-	-	95.61	32.33	6.99	34.35	102	256	Average
2436	104.75	-	-	99.78	32.33	6.99	34.35	102	256	Peak
4875	42.06	-31.94	74	56.77	33.95	8.82	57.48	100	0	Peak
7311	43.66	-30.34	74	55.23	35.54	10.91	58.02	100	0	Peak



Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2464 MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. " * " are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	53.23	*	43.5	74.1	9.8	0.99	31.66	-	-	Peak
129.36	31.9	-11.6	43.5	50.72	11.62	1.14	31.58	-	-	Peak
149.88	32.78	-10.72	43.5	51.76	11.2	1.21	31.39	-	-	Peak
166.08	63.68	*	43.5	83.83	9.94	1.23	31.32	-	-	Peak
199.29	58.19	*	43.5	79.08	9.1	1.32	31.31	-	-	Peak
216.03	37.54	-8.46	46	57.2	10.24	1.4	31.3	138	69	Peak
225.21	36.9	-9.1	46	55.82	10.85	1.45	31.22	-	-	Peak
233.31	62.11	*	46	80.36	11.46	1.5	31.21	-	-	Peak
298.92	58.29	*	46	74.53	13.29	1.76	31.29	-	-	Peak
331.5	41.48	*	46	56.73	14.17	1.86	31.28	-	-	Peak
349.7	29.01	-16.99	46	43.79	14.66	1.97	31.41	-	-	Peak
366.5	55.53	*	46	69.73	15.11	2.07	31.38	-	-	Peak
433	49.88	*	46	62.11	16.69	2.25	31.17	-	-	Peak
449.8	30.43	-15.57	46	42.23	17.05	2.3	31.15	-	-	Peak
497.4	41.34	*	46	51.76	18.04	2.44	30.9	-	-	Peak
647.9	25.96	-20.04	46	33.31	20.18	2.83	30.36	-	-	Peak
2464	107.39	-	-	102.39	32.37	7.02	34.39	104	358	Average
2464	113.05	-	-	108.05	32.37	7.02	34.39	104	358	Peak
4923	41.96	-32.04	74	56.64	33.93	8.87	57.48	100	0	Peak
7386	46.71	-27.29	74	58.28	35.52	10.99	58.08	100	0	Peak
9849	46.25	-46.8	93.05	54	36.81	13.69	58.25	100	0	Peak



Test Mode :	802.11b	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2462 MHz is fundamental signal which can be ignored. 2. 9849 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. " * " are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit.		

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
99.66	50.14	*	43.5	71.01	9.8	0.99	31.66	-	-	Peak
129.36	36.97	-6.53	43.5	55.79	11.62	1.14	31.58	138	25	Peak
149.88	24.13	-19.37	43.5	43.11	11.2	1.21	31.39	-	-	Peak
166.62	55.13	*	43.5	75.36	9.85	1.23	31.31	-	-	Peak
194.97	36.1	-7.4	43.5	57.06	9.05	1.3	31.31	-	-	Peak
199.29	45.23	*	43.5	66.12	9.1	1.32	31.31	-	-	Peak
226.56	31.65	-14.35	46	50.42	10.98	1.46	31.21	-	-	Peak
232.5	53.34	*	46	71.66	11.39	1.5	31.21	-	-	Peak
298.92	49.38	*	46	65.62	13.29	1.76	31.29	-	-	Peak
349.7	22.25	-23.75	46	37.03	14.66	1.97	31.41	-	-	Peak
366.5	47.77	*	46	61.97	15.11	2.07	31.38	-	-	Peak
433	40.81	*	46	53.04	16.69	2.25	31.17	-	-	Peak
454.7	27.17	-18.83	46	38.87	17.15	2.31	31.16	-	-	Peak
499.5	38.31	*	46	48.67	18.08	2.45	30.89	-	-	Peak
566	40.36	*	46	49.57	19.22	2.6	31.03	-	-	Peak
647.2	23.48	-22.52	46	30.84	20.17	2.83	30.36	-	-	Peak
2464	103.13	-	-	98.13	32.37	7.02	34.39	159	243	Average
2464	108.57	-	-	103.57	32.37	7.02	34.39	159	243	Peak
4923	42.88	-31.12	74	57.56	33.93	8.87	57.48	100	0	Peak
7386	49.16	-24.84	74	60.73	35.52	10.99	58.08	100	0	Peak
9849	51.45	-37.12	88.57	59.2	36.81	13.69	58.25	100	0	Peak



Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2417 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. " * " are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	53.15	*	43.5	74.02	9.8	0.99	31.66	-	-	Peak
129.36	32.33	-11.17	43.5	51.15	11.62	1.14	31.58	-	-	Peak
149.88	31.28	-12.22	43.5	50.26	11.2	1.21	31.39	-	-	Peak
166.62	63.49	*	43.5	83.72	9.85	1.23	31.31	-	-	Peak
199.29	58.26	*	43.5	79.15	9.1	1.32	31.31	-	-	Peak
216.03	38.05	-7.95	46	57.71	10.24	1.4	31.3	108	20	Peak
225.21	35.62	-10.38	46	54.54	10.85	1.45	31.22	-	-	Peak
232.5	62.08	*	46	80.4	11.39	1.5	31.21	-	-	Peak
298.92	57.99	*	46	74.23	13.29	1.76	31.29	-	-	Peak
349.7	28.8	-17.2	46	43.58	14.66	1.97	31.41	-	-	Peak
366.5	55.64	*	46	69.84	15.11	2.07	31.38	-	-	Peak
399.4	40.91	*	46	54.28	16	2.14	31.51	-	-	Peak
433	49.25	*	46	61.48	16.69	2.25	31.17	-	-	Peak
449.8	30.35	-15.65	46	42.15	17.05	2.3	31.15	-	-	Peak
499.5	41.23	*	46	51.59	18.08	2.45	30.89	-	-	Peak
650	22.86	-23.14	46	30.17	20.2	2.84	30.35	-	-	Peak
2417	90.3	-	-	85.39	32.31	6.95	34.35	107	1	Average
2417	101.83	-	-	96.9	32.33	6.95	34.35	107	1	Peak
4824	41.86	-32.14	74	56.59	33.97	8.77	57.47	100	0	Peak
7236	42.2	-39.63	81.83	53.8	35.55	10.83	57.98	100	0	Peak



Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	<ol style="list-style-type: none"> 1. 2407 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit. 		

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
99.66	50.16	*	43.5	71.03	9.8	0.99	31.66	-	-	Peak
129.36	37.12	-6.38	43.5	55.94	11.62	1.14	31.58	127	35	Peak
149.88	23.91	-19.59	43.5	42.89	11.2	1.21	31.39	-	-	Peak
166.62	55.18	*	43.5	75.41	9.85	1.23	31.31	-	-	Peak
174.99	35.43	-8.07	43.5	56.32	9.1	1.24	31.23	-	-	Peak
199.83	45.33	*	43.5	66.22	9.1	1.32	31.31	-	-	Peak
224.94	29.82	-16.18	46	48.74	10.85	1.45	31.22	-	-	Peak
232.5	53.37	*	46	71.69	11.39	1.5	31.21	-	-	Peak
298.92	49.53	*	46	65.77	13.29	1.76	31.29	-	-	Peak
349.7	22.68	-23.32	46	37.46	14.66	1.97	31.41	-	-	Peak
366.5	47.84	*	46	62.04	15.11	2.07	31.38	-	-	Peak
433	40.58	*	46	52.81	16.69	2.25	31.17	-	-	Peak
449.8	24.23	-21.77	46	36.03	17.05	2.3	31.15	-	-	Peak
499.5	38.66	*	46	49.02	18.08	2.45	30.89	-	-	Peak
566	40.24	*	46	49.45	19.22	2.6	31.03	-	-	Peak
647.9	25.11	-20.89	46	32.46	20.18	2.83	30.36	-	-	Peak
2407	84.03	-	-	79.07	32.31	6.95	34.3	129	244	Average
2407	95.47	-	-	90.51	32.31	6.95	34.3	129	244	Peak
4824	39.64	-34.36	74	56.89	33.97	8.77	59.99	100	0	Peak
7236	40.44	-35.03	75.47	53.45	35.55	10.83	59.39	100	0	Peak



Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2436 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2436	92.12	-	-	87.15	32.33	6.99	34.35	174	49	Average
2436	101.61	-	-	96.64	32.33	6.99	34.35	174	49	Peak
4875	42.63	-31.37	74	57.34	33.95	8.82	57.48	100	0	Peak
7311	41.64	-32.36	74	53.21	35.54	10.91	58.02	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2438 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2438	82.02	-	-	77.03	32.35	6.99	34.35	106	245	Average
2438	91.73	-	-	86.74	32.35	6.99	34.35	106	245	Peak
4875	42.06	-31.94	74	56.77	33.95	8.82	57.48	100	0	Peak
7311	41.81	-32.19	74	53.38	35.54	10.91	58.02	100	0	Peak



Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2467 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2467	89.33	-	-	84.37	32.37	7.02	34.43	103	19	Average
2467	100.06	-	-	95.1	32.37	7.02	34.43	103	19	Peak
4923	43.65	-30.35	74	58.33	33.93	8.87	57.48	100	0	Peak
7386	41.86	-32.14	74	53.43	35.52	10.99	58.08	100	0	Peak

Test Mode :	802.11g	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2467 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2467	83.96	-	-	79	32.37	7.02	34.43	103	245	Average
2467	94.67	-	-	89.71	32.37	7.02	34.43	103	245	Peak
4923	40.07	-33.93	74	56.85	33.93	8.87	59.58	100	0	Peak
7386	41.44	-32.56	74	54.45	35.52	10.99	59.52	100	0	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2413 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	53.3	*	43.5	74.17	9.8	0.99	31.66	-	-	Peak
112.62	33.96	-9.54	43.5	53.63	10.98	1.06	31.71	132	52	Peak
125.04	19.99	-23.51	43.5	38.77	11.7	1.12	31.6	-	-	Peak
150.15	32.05	-11.45	43.5	51.03	11.2	1.21	31.39	-	-	Peak
166.62	63.52	*	43.5	83.75	9.85	1.23	31.31	-	-	Peak
199.29	58.44	*	43.5	79.33	9.1	1.32	31.31	-	-	Peak
224.94	35.67	-10.33	46	54.59	10.85	1.45	31.22	-	-	Peak
233.31	62.12	*	46	80.37	11.46	1.5	31.21	-	-	Peak
298.92	58.37	*	46	74.61	13.29	1.76	31.29	-	-	Peak
331.5	41.28	*	46	56.53	14.17	1.86	31.28	-	-	Peak
349.7	30.14	-15.86	46	44.92	14.66	1.97	31.41	-	-	Peak
366.5	55.65	*	46	69.85	15.11	2.07	31.38	-	-	Peak
433	49.64	*	46	61.87	16.69	2.25	31.17	-	-	Peak
449.8	30.19	-15.81	46	41.99	17.05	2.3	31.15	-	-	Peak
497.4	41.16	*	46	51.58	18.04	2.44	30.9	-	-	Peak
650	22.82	-23.18	46	30.13	20.2	2.84	30.35	-	-	Peak
2413	101.08	-	-	96.12	32.31	6.95	34.3	107	0	Average
2413	111.73	-	-	106.77	32.31	6.95	34.3	107	0	Peak
4824	42.41	-31.59	74	57.14	33.97	8.77	57.47	100	0	Peak
7236	42.37	-49.36	91.73	53.97	35.55	10.83	57.98	100	0	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2413 MHz is fundamental signal which can be ignored. 2. 7236 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. 3. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 4. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	50.17	*	43.5	71.04	9.8	0.99	31.66	-	-	Peak
129.36	36.56	-6.94	43.5	55.38	11.62	1.14	31.58	108	81	Peak
149.88	23.64	-19.86	43.5	42.62	11.2	1.21	31.39	-	-	Peak
166.62	55.21	*	43.5	75.44	9.85	1.23	31.31	-	-	Peak
194.16	35.87	-7.63	43.5	56.85	9.04	1.3	31.32	-	-	Peak
199.29	45.42	*	43.5	66.31	9.1	1.32	31.31	-	-	Peak
224.94	29.58	-16.42	46	48.5	10.85	1.45	31.22	-	-	Peak
232.5	53.38	*	46	71.7	11.39	1.5	31.21	-	-	Peak
298.92	49.43	*	46	65.67	13.29	1.76	31.29	-	-	Peak
349.7	22.06	-23.94	46	36.84	14.66	1.97	31.41	-	-	Peak
366.5	47.82	*	46	62.02	15.11	2.07	31.38	-	-	Peak
430.9	40.39	*	46	52.67	16.65	2.25	31.18	-	-	Peak
449.8	24.52	-21.48	46	36.32	17.05	2.3	31.15	-	-	Peak
499.5	38.24	*	46	48.6	18.08	2.45	30.89	-	-	Peak
566	39.83	*	46	49.04	19.22	2.6	31.03	-	-	Peak
649.3	23.05	-22.95	46	30.37	20.19	2.84	30.35	-	-	Peak
2413	95.38	-	-	90.42	32.31	6.95	34.3	133	243	Average
2413	106.04	-	-	101.08	32.31	6.95	34.3	133	243	Peak
4824	42.49	-31.51	74	57.22	33.97	8.77	57.47	100	0	Peak
7236	42.9	-43.14	86.04	54.5	35.55	10.83	57.98	100	0	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2440	102.29	-	-	97.3	32.35	6.99	34.35	174	49	Average
2440	112.28	-	-	107.29	32.35	6.99	34.35	174	49	Peak
4875	42.02	-31.98	74	56.73	33.95	8.82	57.48	100	0	Peak
7311	41.6	-32.4	74	53.17	35.54	10.91	58.02	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2440	92.13	-	-	87.14	32.35	6.99	34.35	105	245	Average
2440	101.21	-	-	96.26	32.35	6.99	34.39	105	245	Peak
4875	41.78	-32.22	74	56.49	33.95	8.82	57.48	100	0	Peak
7311	44.91	-29.09	74	56.48	35.54	10.91	58.02	100	0	Peak



Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2463 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2463	99.04	-	-	94.04	32.37	7.02	34.39	105	17	Average
2463	109.61	-	-	104.61	32.37	7.02	34.39	105	17	Peak
4923	41.63	-32.37	74	56.31	33.93	8.87	57.48	100	0	Peak
7386	42.04	-31.96	74	53.61	35.52	10.99	58.08	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2461 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2461	94.04	-	-	89.04	32.37	7.02	34.39	159	244	Average
2461	104.62	-	-	99.62	32.37	7.02	34.39	159	244	Peak
4923	41.59	-32.41	74	56.27	33.93	8.87	57.48	100	0	Peak
7386	42.43	-31.57	74	54	35.52	10.99	58.08	100	0	Peak



Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	03	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2424 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2424	97.2	-	-	92.27	32.33	6.95	34.35	105	0	Average
2424	106.31	-	-	101.38	32.33	6.95	34.35	105	0	Peak
4845	42.28	-31.72	74	56.99	33.96	8.8	57.47	100	0	Peak
7266	41.42	-32.58	74	53.02	35.54	10.86	58	100	0	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	03	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2424 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2424	92.86	-	-	87.93	32.33	6.95	34.35	103	245	Average
2424	101.31	-	-	96.38	32.33	6.95	34.35	103	245	Peak
4845	43.56	-30.44	74	58.27	33.96	8.8	57.47	100	0	Peak
7266	42.08	-31.92	74	53.68	35.54	10.86	58	100	0	Peak



Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2440	97.55	-	-	92.56	32.35	6.99	34.35	105	354	Average
2440	106.34	-	-	101.35	32.35	6.99	34.35	105	354	Peak
4875	41.06	-32.94	74	55.77	33.95	8.82	57.48	100	0	Peak
7311	41.41	-32.59	74	52.98	35.54	10.91	58.02	100	0	Peak

Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2440 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
2440	92.35	-	-	87.36	32.35	6.99	34.35	104	245	Average
2440	102.03	-	-	97.04	32.35	6.99	34.35	104	245	Peak
4875	42.03	-31.97	74	56.74	33.95	8.82	57.48	100	0	Peak
7311	42.61	-31.39	74	54.18	35.54	10.91	58.02	100	0	Peak



Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	09	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2454 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	52.84	*	43.5	73.71	9.8	0.99	31.66	-	-	Peak
112.89	33.41	-10.09	43.5	53.08	10.98	1.06	31.71	124	24	Peak
125.04	20.57	-22.93	43.5	39.35	11.7	1.12	31.6	-	-	Peak
149.88	31.76	-11.74	43.5	50.74	11.2	1.21	31.39	-	-	Peak
166.08	63.66	*	43.5	83.81	9.94	1.23	31.32	-	-	Peak
199.29	57.93	*	43.5	78.82	9.1	1.32	31.31	-	-	Peak
224.94	35.32	-10.68	46	54.24	10.85	1.45	31.22	-	-	Peak
233.31	61.72	*	46	79.97	11.46	1.5	31.21	-	-	Peak
298.92	57.96	*	46	74.2	13.29	1.76	31.29	-	-	Peak
349.7	29.71	-16.29	46	44.49	14.66	1.97	31.41	-	-	Peak
366.5	55.1	*	46	69.3	15.11	2.07	31.38	-	-	Peak
398	40.77	*	46	54.18	15.95	2.14	31.5	-	-	Peak
433	49.32	*	46	61.55	16.69	2.25	31.17	-	-	Peak
449.8	29.75	-16.25	46	41.55	17.05	2.3	31.15	-	-	Peak
497.4	40.99	*	46	51.41	18.04	2.44	30.9	-	-	Peak
650	23.13	-22.87	46	30.44	20.2	2.84	30.35	-	-	Peak
2454	97.12	-	-	92.12	32.37	7.02	34.39	106	358	Average
2454	106.04	-	-	101.04	32.37	7.02	34.39	106	358	Peak
4904	41.68	-32.32	74	56.36	33.93	8.87	57.48	100	0	Peak
7356	41.49	-32.51	74	53.06	35.53	10.96	58.06	100	0	Peak



Test Mode :	2.4GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	09	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2450 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	49.85	*	43.5	70.72	9.8	0.99	31.66	-	-	Peak
129.36	36.73	-6.77	43.5	55.55	11.62	1.14	31.58	111	69	Peak
149.88	23.28	-20.22	43.5	42.26	11.2	1.21	31.39	-	-	Peak
166.62	54.79	*	43.5	75.02	9.85	1.23	31.31	-	-	Peak
174.99	35.04	-8.46	43.5	55.93	9.1	1.24	31.23	-	-	Peak
199.29	45.32	*	43.5	66.21	9.1	1.32	31.31	-	-	Peak
225.21	28.22	-17.78	46	47.14	10.85	1.45	31.22	-	-	Peak
232.5	52.9	*	46	71.22	11.39	1.5	31.21	-	-	Peak
298.92	49.14	*	46	65.38	13.29	1.76	31.29	-	-	Peak
349.7	22.24	-23.76	46	37.02	14.66	1.97	31.41	-	-	Peak
366.5	47.95	*	46	62.15	15.11	2.07	31.38	-	-	Peak
433	40.53	*	46	52.76	16.69	2.25	31.17	-	-	Peak
449.8	24.14	-21.86	46	35.94	17.05	2.3	31.15	-	-	Peak
499.5	38.41	*	46	48.77	18.08	2.45	30.89	-	-	Peak
566	40	*	46	49.21	19.22	2.6	31.03	-	-	Peak
650	24.88	-21.12	46	32.19	20.2	2.84	30.35	-	-	Peak
2450	92.44	-	-	87.49	32.35	6.99	34.39	103	246	Average
2450	101.98	-	-	97.03	32.35	6.99	34.39	103	246	Peak
4904	41.21	-32.79	74	55.89	33.93	8.87	57.48	100	0	Peak
7356	44.16	-29.84	74	55.73	35.53	10.96	58.06	100	0	Peak



Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. " * " are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.66	53.12	*	43.5	73.99	9.8	0.99	31.66	-	-	Peak
112.35	33.94	-9.56	43.5	53.62	10.98	1.06	31.72	-	-	Peak
125.04	20.18	-23.32	43.5	38.96	11.7	1.12	31.6	-	-	Peak
149.88	31.47	-12.03	43.5	50.45	11.2	1.21	31.39	-	-	Peak
166.08	63.58	*	43.5	83.73	9.94	1.23	31.32	-	-	Peak
199.29	58.27	*	43.5	79.16	9.1	1.32	31.31	-	-	Peak
225.21	36.74	-9.26	46	55.66	10.85	1.45	31.22	103	95	Peak
232.5	62.17	*	46	80.49	11.39	1.5	31.21	-	-	Peak
298.92	58.27	*	46	74.51	13.29	1.76	31.29	-	-	Peak
349.7	30.22	-15.78	46	45	14.66	1.97	31.41	-	-	Peak
366.5	55.65	*	46	69.85	15.11	2.07	31.38	-	-	Peak
398	41.78	*	46	55.19	15.95	2.14	31.5	-	-	Peak
433	49.77	*	46	62	16.69	2.25	31.17	-	-	Peak
449.8	29.84	-16.16	46	41.64	17.05	2.3	31.15	-	-	Peak
497.4	41.64	*	46	52.06	18.04	2.44	30.9	-	-	Peak
649.3	24.03	-21.97	46	31.35	20.19	2.84	30.35	-	-	Peak
5744	97.5	-	-	86.27	35.34	10.06	34.17	100	353	Average
5744	109.94	-	-	98.71	35.34	10.06	34.17	100	353	Peak
11490	44.79	-29.21	74	50.62	38.38	14.33	58.54	100	0	Peak



Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5746 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	50.24	*	43.5	71.11	9.8	0.99	31.66	-	-	Peak
129.9	36.85	-6.65	43.5	55.67	11.6	1.15	31.57	113	63	Peak
149.88	23.63	-19.87	43.5	42.61	11.2	1.21	31.39	-	-	Peak
166.62	55.07	*	43.5	75.3	9.85	1.23	31.31	-	-	Peak
194.16	36	-7.5	43.5	56.98	9.04	1.3	31.32	-	-	Peak
199.83	45.27	*	43.5	66.16	9.1	1.32	31.31	-	-	Peak
225.21	29.65	-16.35	46	48.57	10.85	1.45	31.22	-	-	Peak
232.5	53.25	*	46	71.57	11.39	1.5	31.21	-	-	Peak
298.92	49.58	*	46	65.82	13.29	1.76	31.29	-	-	Peak
349.7	22.27	-23.73	46	37.05	14.66	1.97	31.41	-	-	Peak
366.5	48.12	*	46	62.32	15.11	2.07	31.38	-	-	Peak
433	40.63	*	46	52.86	16.69	2.25	31.17	-	-	Peak
449.8	24.07	-21.93	46	35.87	17.05	2.3	31.15	-	-	Peak
499.5	38.51	*	46	48.87	18.08	2.45	30.89	-	-	Peak
566	40.47	*	46	49.68	19.22	2.6	31.03	-	-	Peak
650	22.47	-23.53	46	29.78	20.2	2.84	30.35	-	-	Peak
5746	95.04	-	-	83.81	35.34	10.06	34.17	195	0	Average
5746	105.88	-	-	94.65	35.34	10.06	34.17	195	0	Peak
11490	45.39	-28.61	74	50.72	38.38	14.33	58.04	100	0	Peak



Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5786 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5786	97.71	-	-	86.49	35.38	10.07	34.23	100	341	Average
5786	108.82	-	-	97.6	35.38	10.07	34.23	100	341	Peak
11571	44.04	-29.96	74	49.75	38.46	14.41	58.58	100	0	Peak

Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5784 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5784	95.59	-	-	84.38	35.37	10.07	34.23	196	0	Average
5784	107.03	-	-	95.82	35.37	10.07	34.23	196	0	Peak
11571	43.96	-30.04	74	49.03	38.46	14.41	57.94	100	0	Peak



Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5824 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5824	96.53	-	-	85.29	35.4	10.11	34.27	100	338	Average
5824	108.31	-	-	97.07	35.4	10.11	34.27	100	338	Peak
11649	44.31	-29.69	74	49.89	38.51	14.52	58.61	100	0	Peak

Test Mode :	802.11a	Temperature :	22~24°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5827	94.6	-	-	83.36	35.4	10.11	34.27	192	360	Average
5827	106.19	-	-	94.95	35.4	10.11	34.27	192	360	Peak
11649	44.7	-29.3	74	49.56	38.51	14.52	57.89	100	0	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.66	53.23	*	43.5	74.1	9.8	0.99	31.66	-	-	Peak
113.16	35.3	-8.2	43.5	54.87	11.07	1.07	31.71	-	-	Peak
125.04	19.87	-23.63	43.5	38.65	11.7	1.12	31.6	-	-	Peak
149.88	31.2	-12.3	43.5	50.18	11.2	1.21	31.39	-	-	Peak
166.62	63.82	*	43.5	84.05	9.85	1.23	31.31	-	-	Peak
199.29	58.24	*	43.5	79.13	9.1	1.32	31.31	-	-	Peak
216.03	37.8	-8.2	46	57.46	10.24	1.4	31.3	155	63	Peak
224.94	35.55	-10.45	46	54.47	10.85	1.45	31.22	-	-	Peak
233.31	62.06	*	46	80.31	11.46	1.5	31.21	-	-	Peak
298.92	58.25	*	46	74.49	13.29	1.76	31.29	-	-	Peak
349.7	29.35	-16.65	46	44.13	14.66	1.97	31.41	-	-	Peak
366.5	55.37	*	46	69.57	15.11	2.07	31.38	-	-	Peak
398	41.07	*	46	54.48	15.95	2.14	31.5	-	-	Peak
433	49.42	*	46	61.65	16.69	2.25	31.17	-	-	Peak
449.8	29.91	-16.09	46	41.71	17.05	2.3	31.15	-	-	Peak
499.5	41.26	*	46	51.62	18.08	2.45	30.89	-	-	Peak
650	21.73	-24.27	46	29.04	20.2	2.84	30.35	-	-	Peak
5744	96.72	-	-	85.49	35.34	10.06	34.17	100	321	Average
5744	107.64	-	-	96.41	35.34	10.06	34.17	100	321	Peak
11490	44.27	-29.73	74	50.1	38.38	14.33	58.54	100	0	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	149	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	50.1	*	43.5	70.97	9.8	0.99	31.66	-	-	Peak
129.9	36.43	-7.07	43.5	55.25	11.6	1.15	31.57	147	63	Peak
149.88	23.32	-20.18	43.5	42.3	11.2	1.21	31.39	-	-	Peak
166.62	54.79	*	43.5	75.02	9.85	1.23	31.31	-	-	Peak
194.97	35.34	-8.16	43.5	56.3	9.05	1.3	31.31	-	-	Peak
199.83	45.54	*	43.5	66.43	9.1	1.32	31.31	-	-	Peak
224.94	29.33	-16.67	46	48.25	10.85	1.45	31.22	-	-	Peak
232.5	53.41	*	46	71.73	11.39	1.5	31.21	-	-	Peak
298.92	49.54	*	46	65.78	13.29	1.76	31.29	-	-	Peak
349.7	22.95	-23.05	46	37.73	14.66	1.97	31.41	-	-	Peak
366.5	48.1	*	46	62.3	15.11	2.07	31.38	-	-	Peak
433	40.67	*	46	52.9	16.69	2.25	31.17	-	-	Peak
449.8	24.71	-21.29	46	36.51	17.05	2.3	31.15	-	-	Peak
499.5	38.65	*	46	49.01	18.08	2.45	30.89	-	-	Peak
566	40.44	*	46	49.65	19.22	2.6	31.03	-	-	Peak
647.2	23.61	-22.39	46	30.97	20.17	2.83	30.36	-	-	Peak
5744	93.81	-	-	82.58	35.34	10.06	34.17	195	0	Average
5744	104.78	-	-	93.55	35.34	10.06	34.17	195	0	Peak
11490	44.72	-29.28	74	50.05	38.38	14.33	58.04	100	0	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5784 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5784	96.59	-	-	85.38	35.37	10.07	34.23	100	340	Average
5784	107.9	-	-	96.69	35.37	10.07	34.23	100	340	Peak
11571	44.08	-29.92	74	49.79	38.46	14.41	58.58	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5784 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5784	94.55	-	-	83.34	35.37	10.07	34.23	195	360	Average
5784	105.02	-	-	93.81	35.37	10.07	34.23	195	360	Peak
11571	44.62	-29.38	74	49.69	38.46	14.41	57.94	100	0	Peak



Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5824 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5824	96.28	-	-	85.04	35.4	10.11	34.27	100	339	Average
5824	107.3	-	-	96.06	35.4	10.11	34.27	100	339	Peak
11649	44.52	-29.48	74	50.1	38.51	14.52	58.61	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	22~24°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5827 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5827	93.95	-	-	82.71	35.4	10.11	34.27	193	360	Average
5827	105.21	-	-	93.97	35.4	10.11	34.27	193	360	Peak
11649	46.07	-27.93	74	50.93	38.51	14.52	57.89	100	0	Peak



Test Mode :	5GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	151	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.93	56.28	*	43.5	77.15	9.8	0.99	31.66	-	-	Peak
125.04	19.86	-23.64	43.5	38.64	11.7	1.12	31.6	-	-	Peak
149.88	34.17	-9.33	43.5	53.15	11.2	1.21	31.39	-	-	Peak
166.08	63.56	*	43.5	83.71	9.94	1.23	31.32	-	-	Peak
199.29	55.43	*	43.5	76.32	9.1	1.32	31.31	-	-	Peak
224.94	38.51	-7.49	46	57.43	10.85	1.45	31.22	106	63	Peak
232.5	61.93	*	46	80.25	11.39	1.5	31.21	-	-	Peak
298.92	57.25	*	46	73.49	13.29	1.76	31.29	-	-	Peak
349.7	27.72	-18.28	46	42.5	14.66	1.97	31.41	-	-	Peak
366.5	53.66	*	46	67.86	15.11	2.07	31.38	-	-	Peak
433	49.83	*	46	62.06	16.69	2.25	31.17	-	-	Peak
449.8	27.76	-18.24	46	39.56	17.05	2.3	31.15	-	-	Peak
499.5	42.17	*	46	52.53	18.08	2.45	30.89	-	-	Peak
633.2	44.17	*	46	51.73	20.06	2.79	30.41	-	-	Peak
650	24.34	-21.66	46	31.65	20.2	2.84	30.35	112	258	Peak
5757	93.97	-	-	82.75	35.36	10.06	34.2	100	339	Average
5757	103.2	-	-	91.98	35.36	10.06	34.2	100	339	Peak
11511	44.04	-29.96	74	49.83	38.4	14.35	58.54	100	0	Peak



Test Mode :	5GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	151	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5757 MHz is fundamental signal which can be ignored. 2. “*” are from extender card which is provided by Applicant, declared to ignore those signal due to not from WLAN module. 3. Average measurement was not performed if peak level went lower than the average limit.		

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
99.66	52.74	*	43.5	73.61	9.8	0.99	31.66	-	-	Peak
126.39	22.96	-20.54	43.5	41.74	11.68	1.13	31.59	-	-	Peak
149.88	29.45	-14.05	43.5	48.43	11.2	1.21	31.39	-	-	Peak
166.62	61.97	*	43.5	82.2	9.85	1.23	31.31	-	-	Peak
174.99	36.79	-6.71	43.5	57.68	9.1	1.24	31.23	127	32	Peak
199.29	46.28	*	43.5	67.17	9.1	1.32	31.31	-	-	Peak
225.21	29.07	-16.93	46	47.99	10.85	1.45	31.22	-	-	Peak
233.31	56.27	*	46	74.52	11.46	1.5	31.21	-	-	Peak
298.92	48.91	*	46	65.15	13.29	1.76	31.29	-	-	Peak
349.7	22.19	-23.81	46	36.97	14.66	1.97	31.41	-	-	Peak
366.5	47.4	*	46	61.6	15.11	2.07	31.38	-	-	Peak
433	42.28	*	46	54.51	16.69	2.25	31.17	-	-	Peak
449.8	28.21	-17.79	46	40.01	17.05	2.3	31.15	-	-	Peak
497.4	38.64	*	46	49.06	18.04	2.44	30.9	-	-	Peak
566	39.14	*	46	48.35	19.22	2.6	31.03	-	-	Peak
648.6	24.92	-21.08	46	32.24	20.19	2.84	30.35	-	-	Peak
5757	91.13	-	-	79.91	35.36	10.06	34.2	193	0	Average
5757	100.41	-	-	89.19	35.36	10.06	34.2	193	0	Peak
11511	45.05	-28.95	74	50.3	38.4	14.35	58	100	0	Peak



Test Mode :	5GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	159	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5797 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5797	93.55	-	-	82.31	35.38	10.09	34.23	100	339	Average
5797	103.66	-	-	92.42	35.38	10.09	34.23	100	339	Peak
11589	44.69	-29.31	74	50.36	38.47	14.44	58.58	100	0	Peak

Test Mode :	5GHz 802.11n HT40	Temperature :	22~24°C
Test Channel :	159	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5793 MHz is fundamental signal which can be ignored. 2. Average measurement was not performed if peak level went lower than the average limit.		

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
5793	91.73	-	-	80.49	35.38	10.09	34.23	195	360	Average
5793	101.35	-	-	90.11	35.38	10.09	34.23	195	360	Peak
11589	44.63	-29.37	74	49.65	38.47	14.44	57.93	100	0	Peak

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	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.

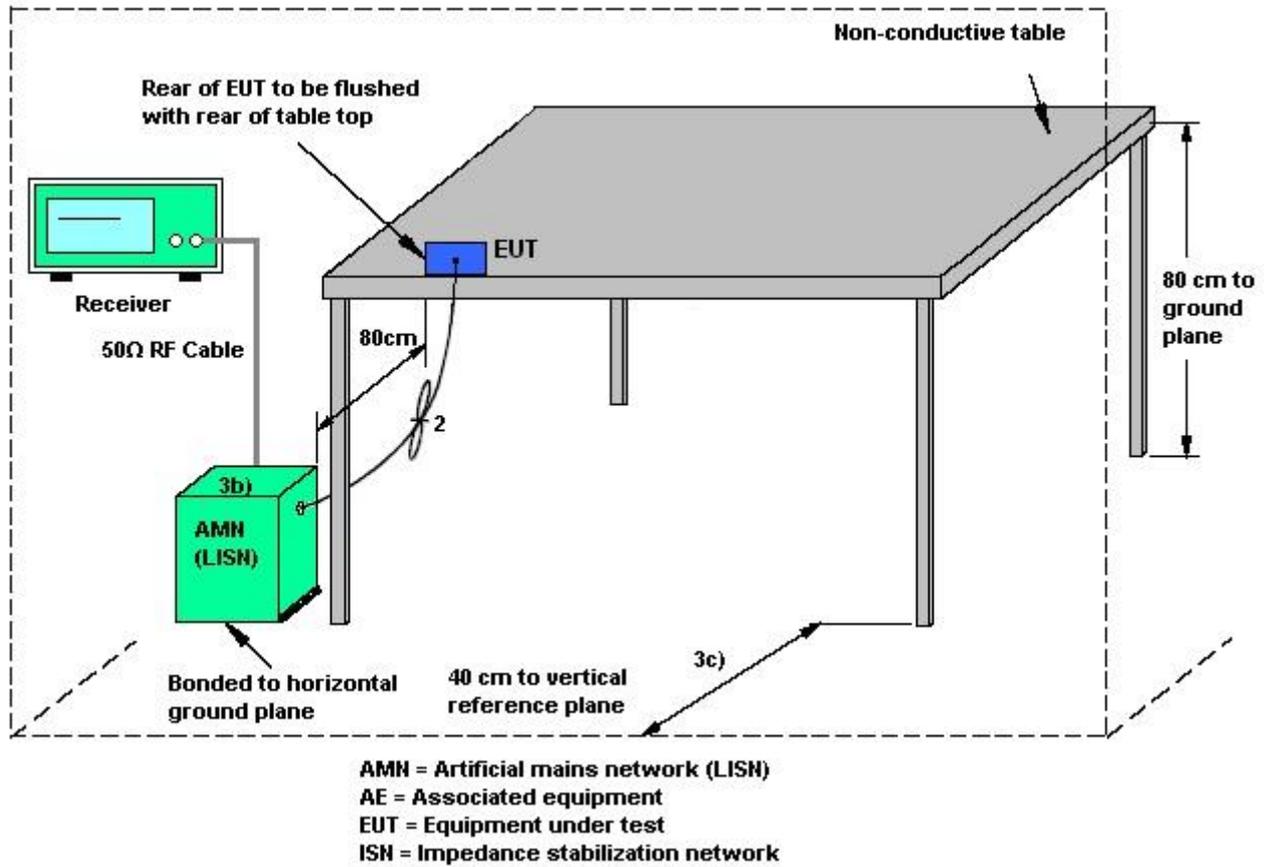
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

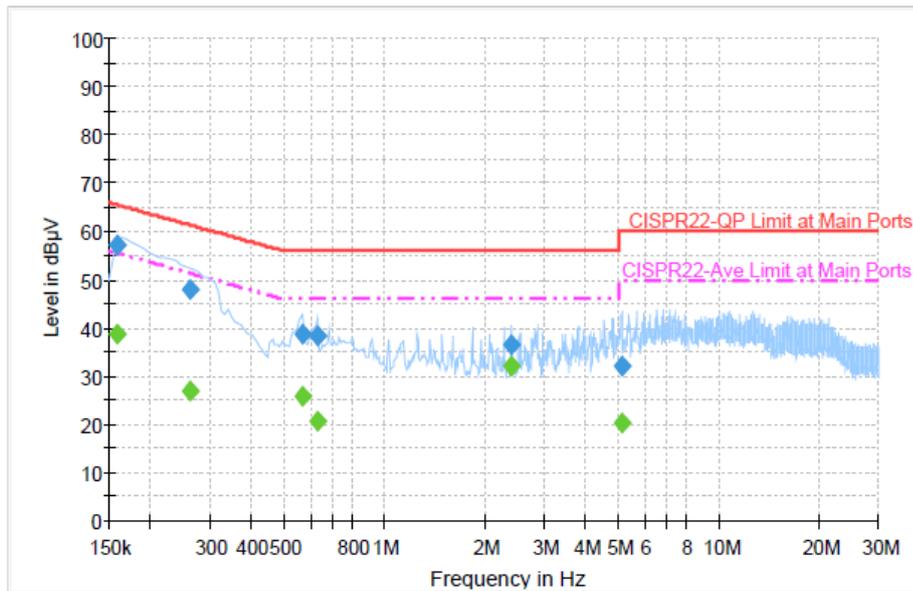
1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network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

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	Bluetooth Tx + WLAN (5G) Link + USB Cable (Charging from Notebook)		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



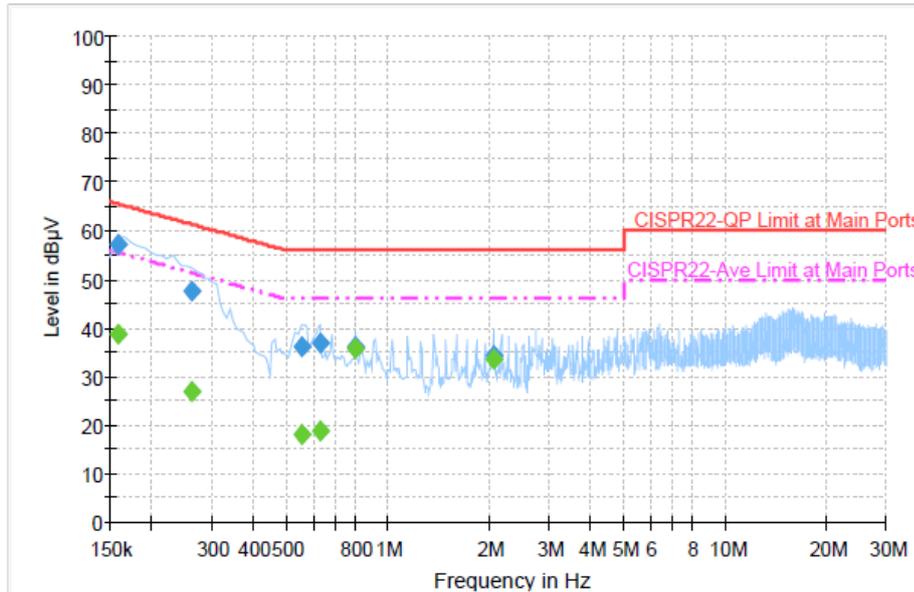
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	57.3	Off	L1	19.4	8.3	65.6
0.262000	48.0	Off	L1	19.4	13.4	61.4
0.566000	38.7	Off	L1	19.4	17.3	56.0
0.630000	38.4	Off	L1	19.5	17.6	56.0
2.398000	36.6	Off	L1	19.6	19.4	56.0
5.110000	31.9	Off	L1	19.7	28.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	38.8	Off	L1	19.4	16.8	55.6
0.262000	26.9	Off	L1	19.4	24.5	51.4
0.566000	25.7	Off	L1	19.4	20.3	46.0
0.630000	20.7	Off	L1	19.5	25.3	46.0
2.398000	32.2	Off	L1	19.6	13.8	46.0
5.110000	20.1	Off	L1	19.7	29.9	50.0

Test Mode :	Mode 2	Temperature :	20~22°C
Test Engineer :	Slash Huang	Relative Humidity :	45~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	Bluetooth Tx + WLAN (5G) Link + USB Cable (Charging from Notebook)		
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)
0.158000	57.2	Off	N	19.4	8.4	65.6
0.262000	47.7	Off	N	19.5	13.7	61.4
0.558000	36.1	Off	N	19.4	19.9	56.0
0.630000	36.9	Off	N	19.5	19.1	56.0
0.798000	36.3	Off	N	19.4	19.7	56.0
2.054000	34.2	Off	N	19.6	21.8	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	38.8	Off	N	19.4	16.8	55.6
0.262000	26.9	Off	N	19.5	24.5	51.4
0.558000	17.9	Off	N	19.4	28.1	46.0
0.630000	18.6	Off	N	19.5	27.4	46.0
0.798000	35.7	Off	N	19.4	10.3	46.0
2.054000	33.5	Off	N	19.6	12.5	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	Rohde & Schwarz	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Jan. 31, 2013 ~ Feb. 26, 2013	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Jan. 31, 2013 ~ Feb. 26, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Jan. 31, 2013 ~ Feb. 26, 2013	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9KHz ~ 2.75GHz	Nov. 13, 2012	Feb. 15, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100081	9KHz ~ 30MHz	Dec. 12, 2012	Feb. 15, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9KHz ~ 30MHz	Dec. 06, 2012	Feb. 15, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Feb. 15, 2013	N/A	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Nov. 30, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Aug. 21, 2013	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 01, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Mar. 09, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Feb. 27, 2012	Feb. 06, 2013 ~ Feb. 25, 2013	Feb. 26, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Feb. 26, 2013	Feb. 26, 2013 ~ Mar. 02, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA91702 51	15GHz ~ 40GHz	Sep. 28, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Sep. 27, 2013	Radiation (03CH07-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Feb. 06, 2013 ~ Mar. 02, 2013	Jul. 02, 2013	Radiation (03CH07-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.26
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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 EP320849 as below.