FCC RF Test Report

APPLICANT	**:**	**Motorola Solutions, Inc.**
EQUIPMENT	**:**	**Enterprise Digital Assistant (EDA)**
BRAND NAME	**:**	**MOTOROLA**
MODEL NAME	**:**	**MC67ND**
FCC ID	**:**	**UZ7MC67ND**
STANDARD	**:**	**FCC Part 15 Subpart C §15.247**
CLASSIFICATION	**:**	**(DTS) Digital Transmission System**

The product was received on Jan. 11, 2013 and completely tested on Feb. 20, 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:

Louis Wu

Louis Wu / Manager

Reviewed by:

Jones Tsai

Jones Tsai / Manager

Testing Laboratory 1190

SPORTON INTERNATIONAL INC.
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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR320416B	Rev. 01	Initial issue of report	Mar. 22, 2013

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	≥ 0.5MHz	Pass	-
3.1	-	RSS-Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	RSS-210 A8.4	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	RSS-210 A8.2(b)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges	≤ 20dBc	Pass	-
			Conducted Spurious Emission		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 1.36 dB at 2483.680 MHz
3.6	15.207	RSS-Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 10.50 dB at 0.190 MHz
3.7	15.203 & 15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass	-

1 General Description

1.1 Applicant

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

1.2 Manufacturer

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

1.3 Feature of Equipment Under Test

Product Feature	
Equipment	Enterprise Digital Assistant (EDA)
Brand Name	MOTOROLA
Model Name	MC67ND
FCC ID	UZ7MC67ND
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/ WLAN 11abgn (HT20)/Bluetooth 2.1 EDR
HW Version	EV
SW Version	90.28.21 (RF Fusion Version : X_2.00.0.0.072R)
FW Version	2.47
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 ~ 2472 MHz 802.11a/n: 5745~5825MHz
Maximum Output Power to Antenna	**<2412 MHz ~ 2472 MHz>** 802.11b : 18.57 dBm (0.0719 W) 802.11g : 23.17 dBm (0.2075 W) 802.11n HT20 : 23.32 dBm (0.2148 W) **<5745 MHz ~ 5825 MHz>** 802.11a : 21.26 dBm (0.1337 W) 802.11n HT20 : 21.23 dBm (0.1327 W)
99% Occupied Bandwidth	**<2412 MHz ~ 2472 MHz>** 802.11b : 14.15MHz 802.11g : 17.90MHz 802.11n HT20 : 18.95MHz **<5745 MHz ~ 5825 MHz>** 802.11a : 17.70MHz 802.11n HT20 : 18.85MHz
Antenna Type	802.11b/g/n : Fixed Intenal Antenna type (PIFA Antenna) with gain 1.91 dBi 802.11a/n : Fixed Intenal Antenna type (PIFA Antenna) with gain 3.34 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
Test Site No.	**Sporton Site No.**			**FCC/IC Registration No.**
	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1

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 pursuant to ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) 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	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442	-	-

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

2.2 RF Power

Preliminary tests were performed in different data rate 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.

The conducted power tables are as follows:

Channel	Frequency	2.4GHz 802.11b RF Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	17.38	17.31	17.05	17.14
CH 06	2437 MHz	**18.57**	18.51	18.15	18.11
CH 11	2462 MHz	18.45	18.44	18.18	17.22
CH 12	2467 MHz	11.61	11.58	11.23	11.37
CH 13	2472 MHz	9.49	9.47	9.24	9.17

Channel	Frequency	2.4GHz 802.11g RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	22.51	22.48	22.45	22.47	22.42	22.43	22.46	22.36
CH 06	2437 MHz	22.78	22.75	22.71	22.68	22.66	22.67	22.63	22.51
CH 11	2462 MHz	**23.17**	23.02	22.95	22.93	22.96	22.96	23.02	22.89
CH 12	2467 MHz	19.11	19.01	18.96	18.92	18.88	18.94	18.86	18.62
CH 13	2472 MHz	12.34	12.29	12.26	12.27	12.24	12.21	12.15	12.01

Channel	Frequency	2.4GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	22.74	22.71	22.69	22.62	22.63	22.72	22.57	22.28
CH 06	2437 MHz	**23.32**	23.24	23.23	22.93	23.03	22.95	22.78	22.64
CH 11	2462 MHz	22.49	22.28	22.32	22.36	22.19	22.20	22.19	22.12
CH 12	2467 MHz	18.79	18.74	18.61	18.56	18.59	18.57	18.54	18.41
CH 13	2472 MHz	11.75	11.69	11.57	11.65	11.61	11.57	11.63	11.62

Channel	Frequency	5GHz 802.11a RF Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	21.17	21.12	21.09	21.02	21.06	21.14	20.89	20.84
CH157	5785 MHz	**21.26**	21.24	21.15	21.08	21.22	21.19	20.92	20.91
CH165	5825 MHz	21.17	21.15	21.10	21.11	21.02	21.05	20.84	20.75

Channel	Frequency	5GHz 802.11n HT20 RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	21.19	21.12	21.08	21.12	21.05	21.06	21.12	21.05
CH157	5785 MHz	21.21	21.16	21.15	21.14	21.14	21.15	21.12	21.02
CH165	5825 MHz	**21.23**	21.11	21.14	21.10	21.20	21.12	21.08	21.01

Remark: The EUT is programmed to transmit signals continuously for all testing.

2.3 Average Conducted Output Power

The conducted power tables are as follows:

Channel	Frequency	2.4GHz 802.11b Average Power (dBm)			
		DSSS Data Rate			
		1 Mbps	2 Mbps	5.5 Mbps	11 Mbps
CH 01	2412 MHz	15.21	15.15	15.18	15.20
CH 06	2437 MHz	**16.43**	16.34	16.18	16.25
CH 11	2462 MHz	16.31	16.29	16.27	16.27
CH 12	2467 MHz	9.34	9.31	9.17	9.26
CH 13	2472 MHz	6.99	6.87	6.90	6.80

Channel	Frequency	2.4GHz 802.11g Average Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH 01	2412 MHz	14.69	14.67	14.64	14.66	14.15	14.24	14.09	14.06
CH 06	2437 MHz	**16.43**	16.36	16.09	16.34	14.80	14.50	13.58	13.66
CH 11	2462 MHz	14.12	14.02	13.99	14.02	13.96	13.94	14.04	13.86
CH 12	2467 MHz	8.31	8.22	8.20	8.18	8.08	8.04	8.16	8.10
CH 13	2472 MHz	1.90	1.86	1.83	1.88	1.79	1.82	1.87	1.86

Channel	Frequency	2.4GHz 802.11n HT20 Average Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	14.86	14.69	14.67	14.31	14.23	13.73	13.73	13.00
CH 06	2437 MHz	**16.28**	16.15	16.22	14.86	15.00	13.76	13.68	13.86
CH 11	2462 MHz	13.00	12.94	12.99	12.78	12.90	12.93	12.91	12.82
CH 12	2467 MHz	8.26	8.23	8.21	7.97	8.10	8.01	8.20	8.19
CH 13	2472 MHz	1.59	1.58	1.56	1.56	1.52	1.58	1.41	1.39

Channel	Frequency	5GHz 802.11a Average Power (dBm)							
		OFDM Data Rate							
		6 Mbps	9 Mbps	12 Mbps	18 Mbps	24 Mbps	36 Mbps	48 Mbps	54 Mbps
CH149	5745 MHz	14.59	14.58	14.58	14.46	13.94	13.95	11.74	11.71
CH157	5785 MHz	14.64	14.63	14.63	14.57	13.59	13.62	12.35	12.29
CH165	5825 MHz	**14.68**	14.66	14.67	14.67	13.92	13.95	12.15	12.08

Channel	Frequency	5GHz 802.11n HT20 Average Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	15.29	15.22	15.16	15.21	15.24	15.21	15.20	15.30
CH157	5785 MHz	15.31	15.27	15.24	15.26	15.27	15.30	15.24	15.27
CH165	5825 MHz	**15.44**	15.34	15.14	15.33	15.29	15.21	15.21	15.33

2.4 Test Mode

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

Definition of each configuration about keypad and Camera for EUT

Keypads	Cameras
(1) Qwerty (2) Numeric (3) PIM	(1) With camera (2) Without camera

Preliminary test for Radiated Spurious Emissions and AC Conducted Emission:
The preliminary test purpose is to find out the worst configuration among all components, and choose the worst configuration to perform final test demonstrated in compliance with FCC standard.

MC67ND HW/SW design is the same as FCC ID UZ7MC67NA granted on 2012/07/25, except the WWAN module replacement (PH8-P module in MC67NA, and PXS8 module in MC67ND). Due to the similarity, MC67NA RF performance is representative (Sporton RF Report of FCC ID: UZ7MC67NA, Report No: FR221518-01B Rev.01, Date of available on FCC website: 2012/07/25) and is referenced in this report.

Due to the similarity between MC67NA and MC67ND, the worst configuration is chosen according that found in MC67NA test report.

Pre-scanned tests, X, Y, Z in three orthogonal panels, were conducted to determine the final configuration from all possible combinations.

The following tables are showing the test modes, and the worst cases (X plane for 2.4GHz and Z plane for 5GHz) are recorded in this report.

Test Modes					
Radiated TCs					
No.	**Data Rate**	**Modulation**	**Mode**	**Keypad**	**Camera**
1	802.11b	DSSS	CH01_2412 MHz	1	1
2	802.11b	DSSS	CH06_2437 MHz	1	1
3	802.11b	DSSS	CH11_2462 MHz	1	1
4	802.11b	DSSS	CH12_2467 MHz	1	1
5	802.11b	DSSS	CH13_2472 MHz	1	1
6	802.11g	OFDM	CH01_2412 MHz	1	1
7	802.11g	OFDM	CH06_2437 MHz	1	1
8	802.11g	OFDM	CH11_2462 MHz	1	1
9	802.11g	OFDM	CH12_2467 MHz	1	1
10	802.11g	OFDM	CH13_2472 MHz	1	1
11	802.11n HT20	OFDM	CH01_2412 MHz	1	1
12	802.11n HT20	OFDM	CH06_2437 MHz	1	1
13	802.11n HT20	OFDM	CH11_2462 MHz	1	1
14	802.11n HT20	OFDM	CH12_2467 MHz	1	1
15	802.11n HT20	OFDM	CH13_2472 MHz	1	1
Remark: For radiated TCs, test was performed together with USB charging cable with AC power.					

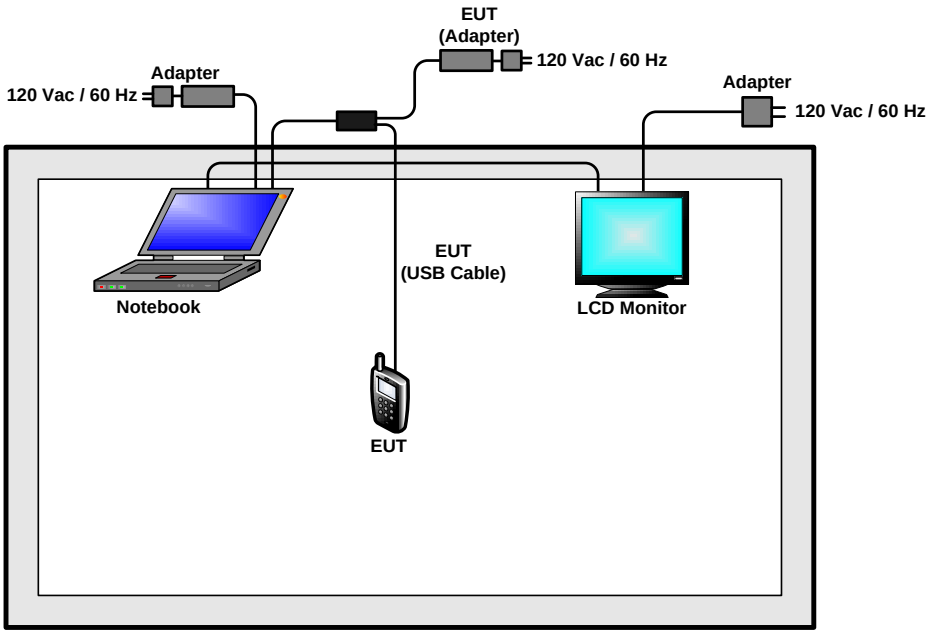
Test Modes					
Radiated TCs					
No.	Data Rate	Modulation	Mode	Keypad	Camera
16	802.11a	OFDM	CH149_5745 MHz	1	1
17	802.11a	OFDM	CH157_5785 MHz	1	1
18	802.11a	OFDM	CH165_5825 MHz	1	1
19	802.11n HT20	OFDM	CH149_5745 MHz	1	1
20	802.11n HT20	OFDM	CH157_5785 MHz	1	1
21	802.11n HT20	OFDM	CH165_5825 MHz	1	1
Remark: For radiated TCs, test was performed together with USB charging cable with AC power.					

Test Modes			
Conducted TCs			
No.	Data Rate	Modulation	Mode
1	802.11b	DSSS	CH01_2412 MHz
2	802.11b	DSSS	CH06_2437 MHz
3	802.11b	DSSS	CH11_2462 MHz
4	802.11g	OFDM	CH01_2412 MHz
5	802.11g	OFDM	CH06_2437 MHz
6	802.11g	OFDM	CH11_2462 MHz
7	802.11n HT20	OFDM	CH01_2412 MHz
8	802.11n HT20	OFDM	CH06_2437 MHz
9	802.11n HT20	OFDM	CH11_2462 MHz
10	802.11a	OFDM	CH149_5745 MHz
11	802.11a	OFDM	CH157_5785 MHz
12	802.11a	OFDM	CH165_5825 MHz
13	802.11n HT20	OFDM	CH149_5745 MHz
14	802.11n HT20	OFDM	CH157_5785 MHz
15	802.11n HT20	OFDM	CH165_5825 MHz

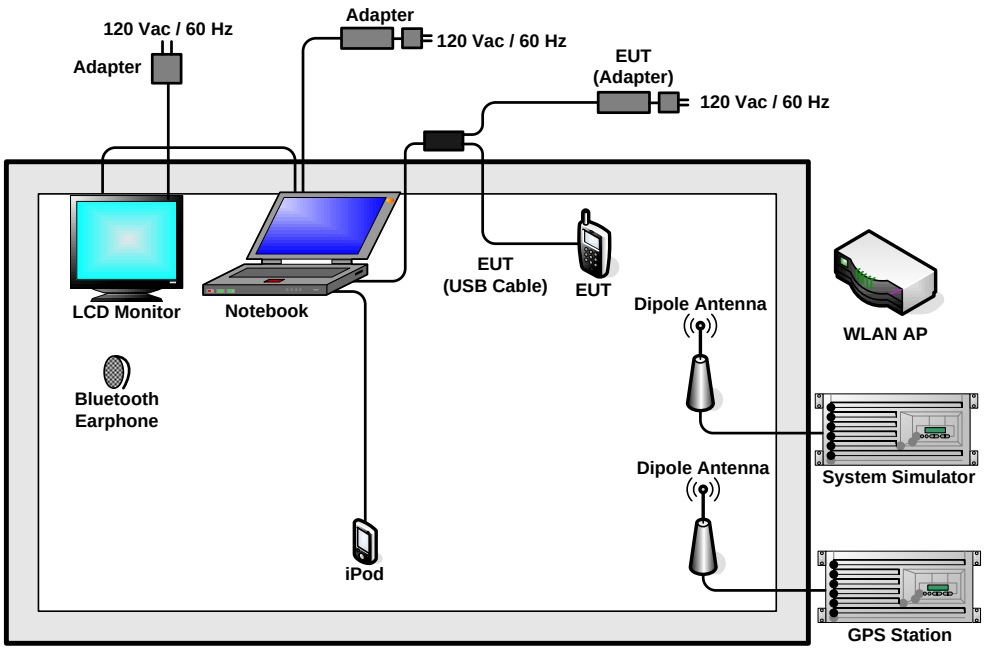
Test Cases
AC Conducted Emission
Mode 1 :GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camera + USB Charging Cable with AC Power + USB Link
Remark: 1. ”BT Link” stands for EUT linked to Bluetooth Earphone by BT function. 2. ”WLAN Link” stands for EUT with AP at 2.4GHz band. 3. “USB Link” stands for data file transfer. 4. DSD keypad PCB is the same as Numeric keypad PCB, only difference is printed.

2.5 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.6 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	GPS Station	T&E	GS-50	N/A	N/A	Unshielded, 1.8 m
3.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
4.	Notebook	DELL	Vostro 1510	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	LCD Monitor	DELL	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
6.	Bluetooth Earphone	Sony Ericsson	MW600	PY70DA2029	N/A	N/A
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
8.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.7 Description of RF Function Operation Test Setup

The programmed RF utility “FILE EXPLORER ➔ XW2DMT ➔ Calibration ➔Run Tx bip ➔ Regulatory and click Enable Manufacturing Test mode”, is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

2.8 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 :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

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.

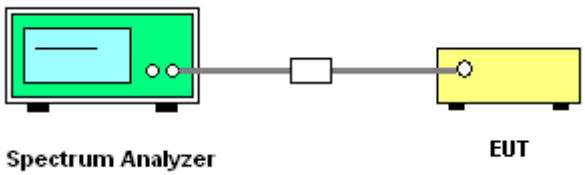
3.1.2 Measuring Instruments

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℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	9.04	0.5	Pass
06	2437	9.08	0.5	Pass
11	2462	9.04	0.5	Pass

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

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.44	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.12	0.5	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.08	0.5	Pass
11	2462	15.12	0.5	Pass

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

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.12	0.5	Pass
157	5785	15.10	0.5	Pass
165	5825	15.12	0.5	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.10	0.5	Pass
157	5785	15.60	0.5	Pass
165	5825	15.12	0.5	Pass

3.1.6 Test Result of 99% Occupied Bandwidth

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

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.10	Pass
06	2437	14.15	Pass
11	2462	14.15	Pass

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

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	17.75	Pass
06	2437	17.90	Pass
11	2462	17.65	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.85	Pass
06	2437	18.95	Pass
11	2462	17.70	Pass

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

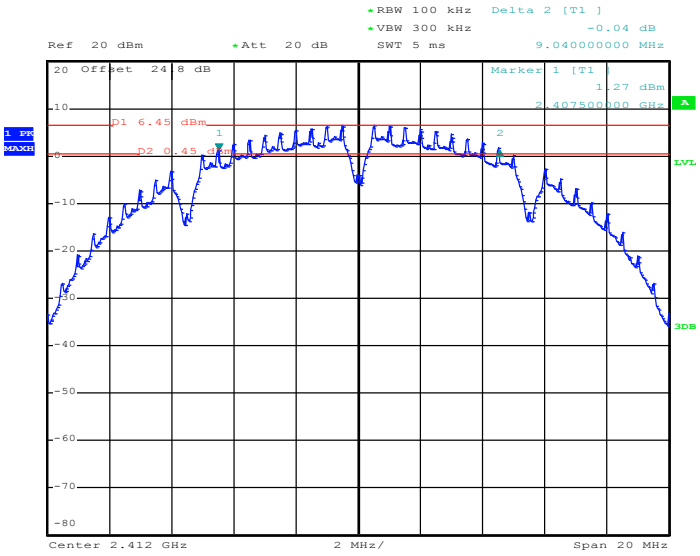
Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	17.55	Pass
157	5785	17.70	Pass
165	5825	17.65	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	18.75	Pass
157	5785	18.85	Pass
165	5825	18.80	Pass

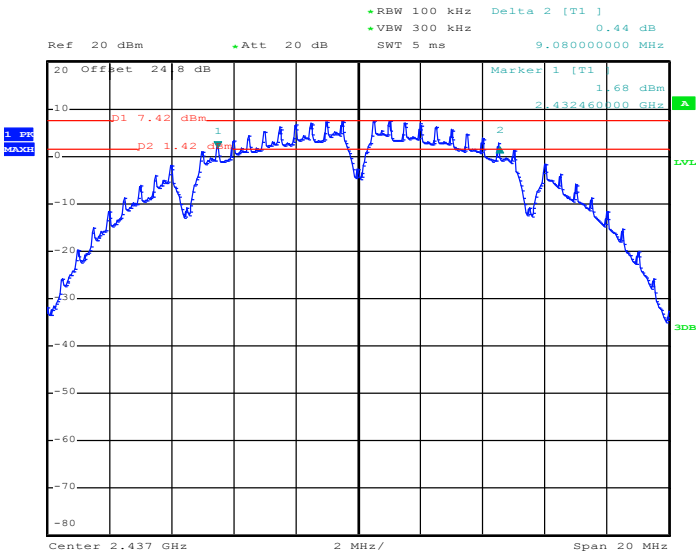
3.1.7 Test Result of 6dB Bandwidth Plots

6 dB Bandwidth Plot on 802.11b Channel 01



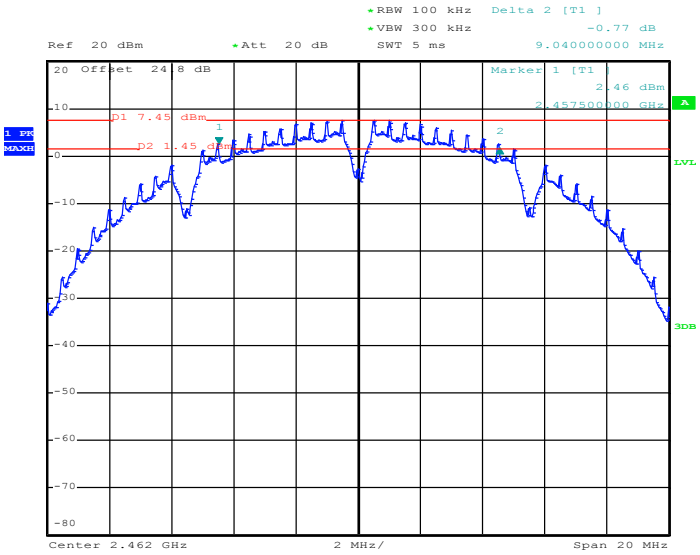
Date: 5.FEB.2013 23:25:52

6 dB Bandwidth Plot on 802.11b Channel 06



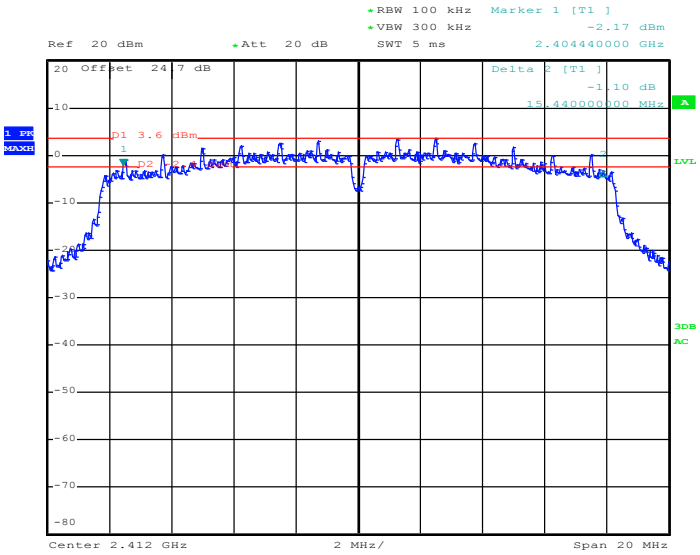
Date: 5.FEB.2013 23:30:12

6 dB Bandwidth Plot on 802.11b Channel 11



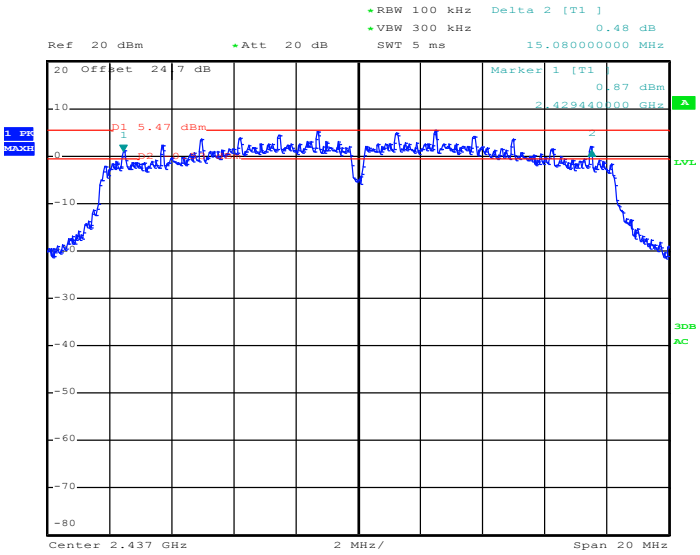
Date: 5.FEB.2013 23:33:14

6 dB Bandwidth Plot on 802.11g Channel 01



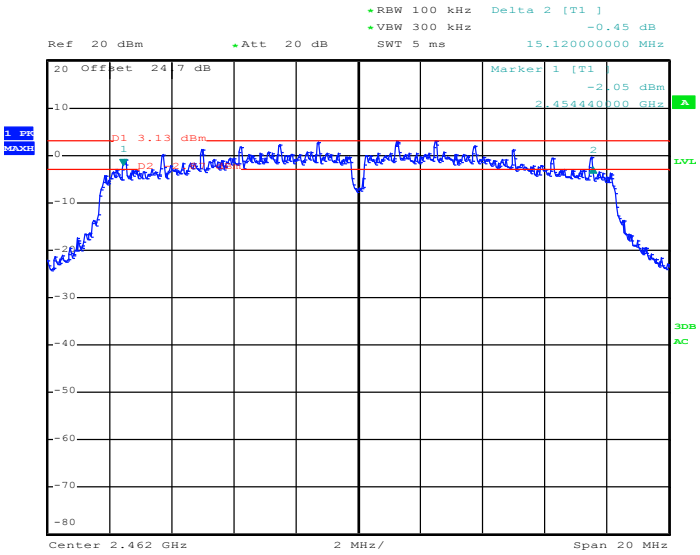
Date: 6.FEB.2013 08:42:59

6 dB Bandwidth Plot on 802.11g Channel 06



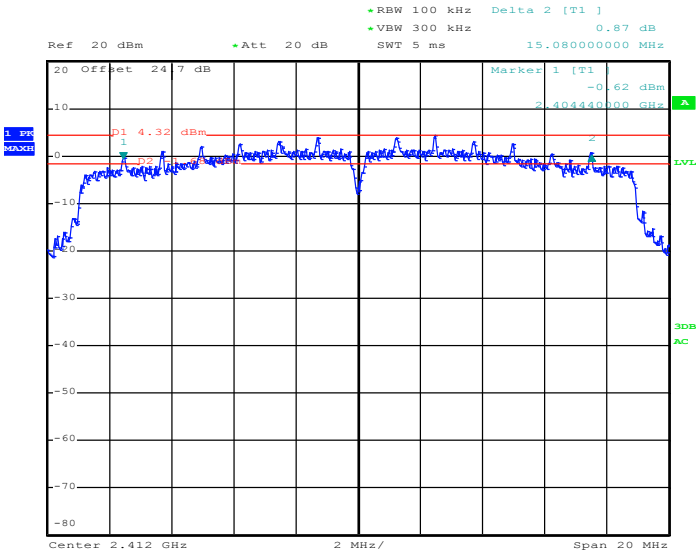
Date: 6.FEB.2013 08:49:13

6 dB Bandwidth Plot on 802.11g Channel 11



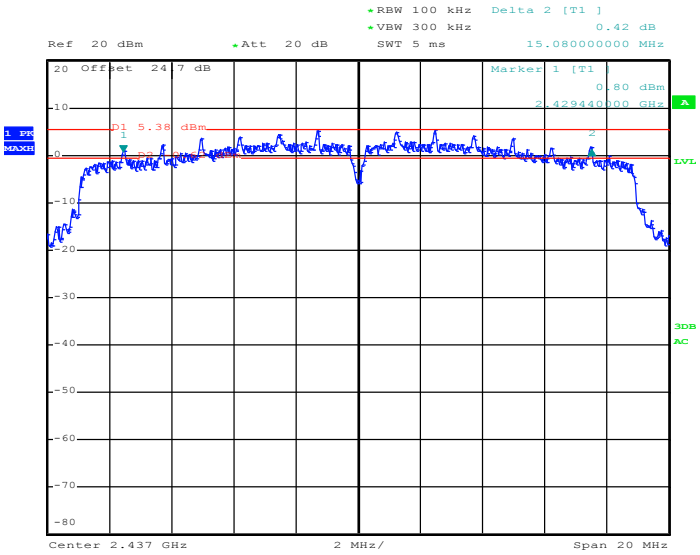
Date: 6.FEB.2013 08:56:29

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



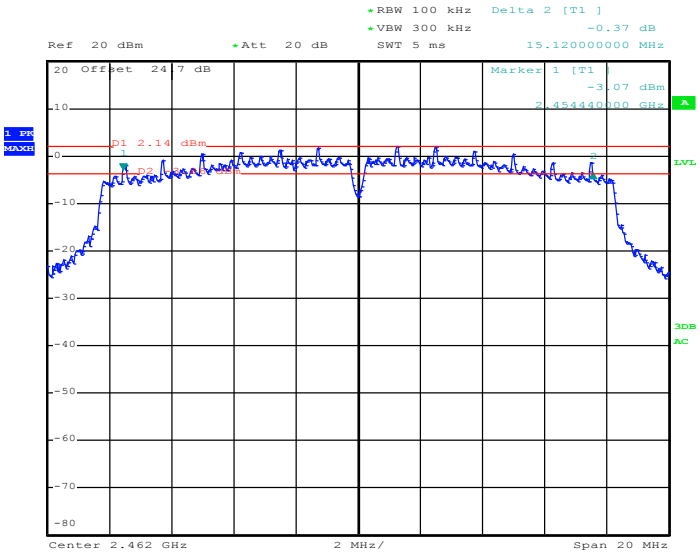
Date: 6.FEB.2013 09:14:40

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



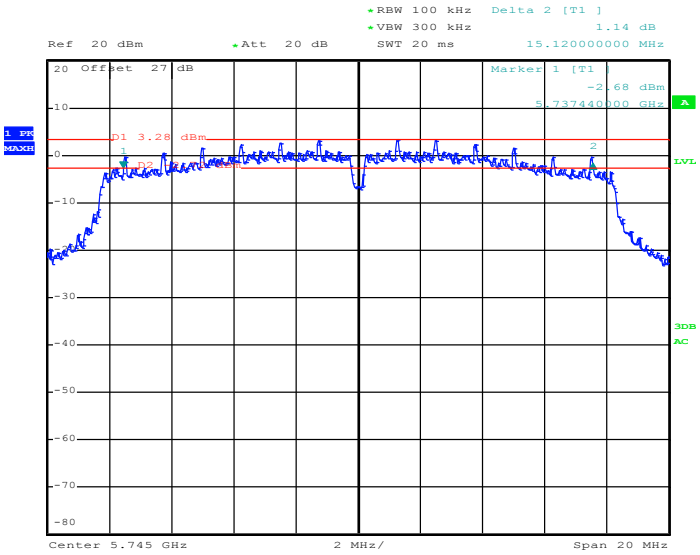
Date: 6.FEB.2013 09:09:56

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



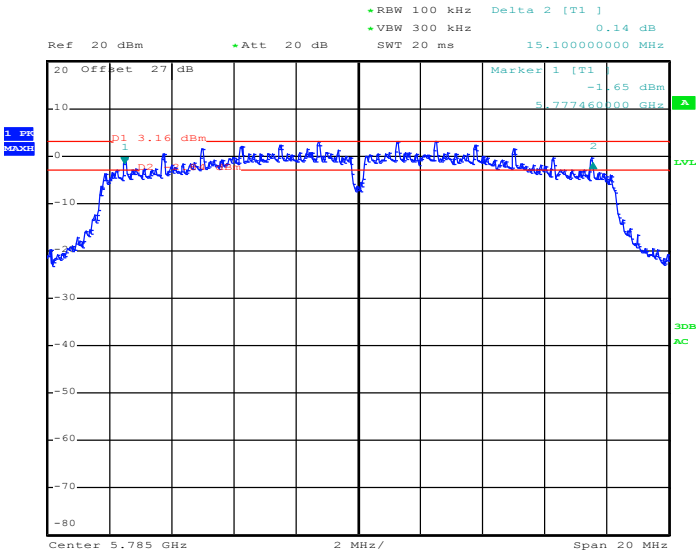
Date: 6.FEB.2013 09:03:50

6 dB Bandwidth Plot on 802.11a Channel 149



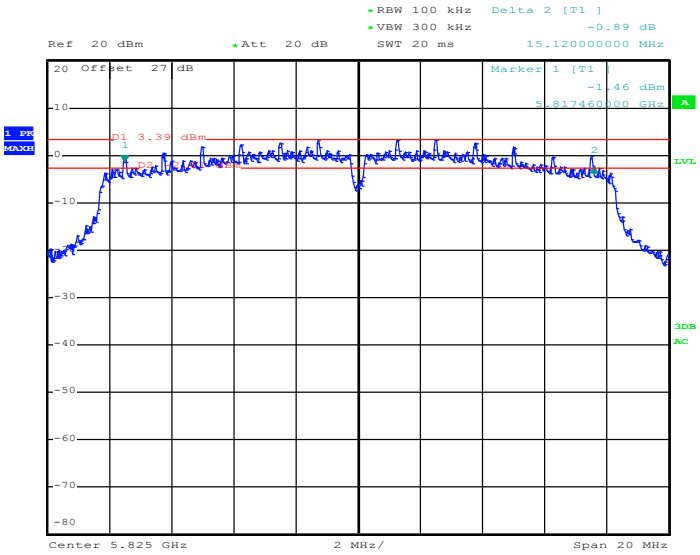
Date: 6.FEB.2013 09:22:07

6 dB Bandwidth Plot on 802.11a Channel 157



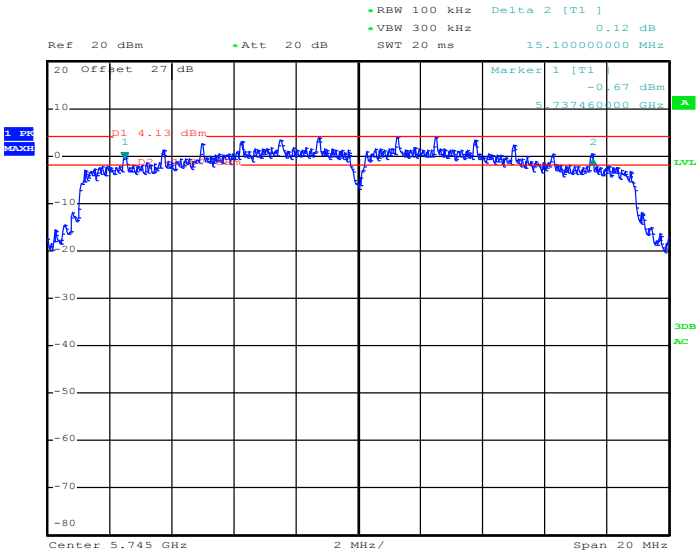
Date: 6.FEB.2013 09:25:40

6 dB Bandwidth Plot on 802.11a Channel 165



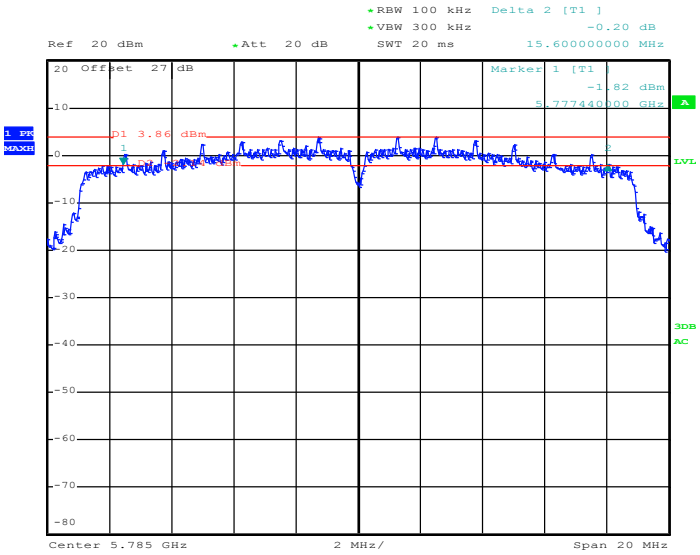
Date: 6.FEB.2013 09:28:56

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



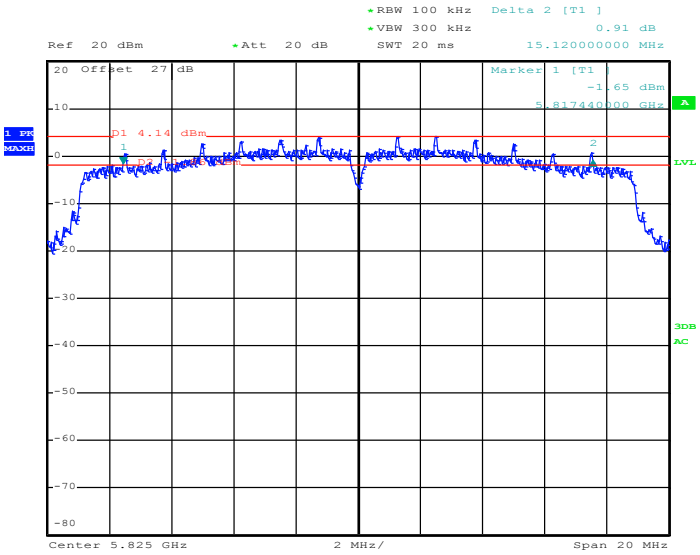
Date: 6.FEB.2013 09:42:00

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



Date: 6.FEB.2013 09:39:50

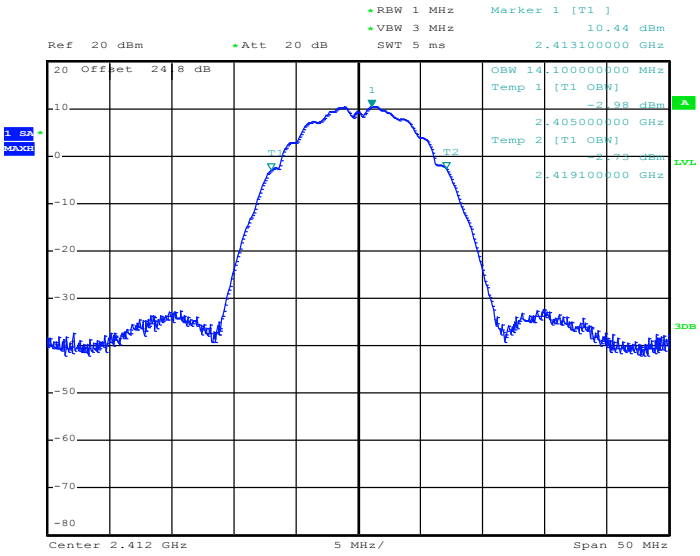
6 dB Bandwidth Plot on 5GHz 802.11n HT20 Channel 165



Date: 6.FEB.2013 09:36:17

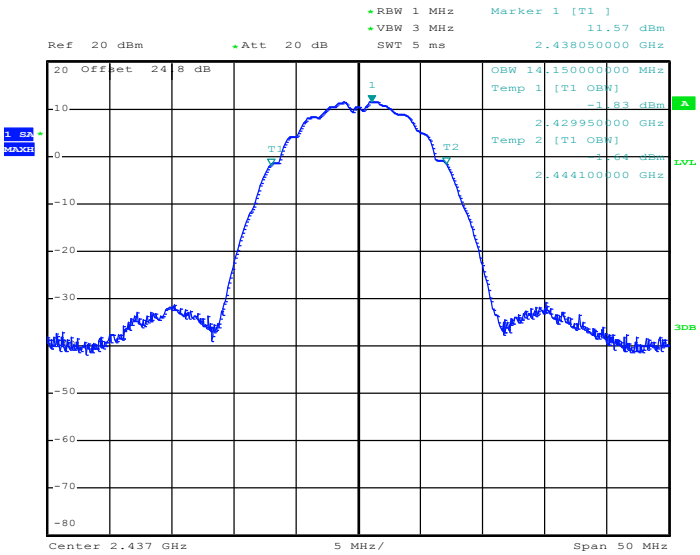
3.1.8 Test Result of 99% Bandwidth Plots

99% Occupied Bandwidth Plot on 802.11b Channel 01



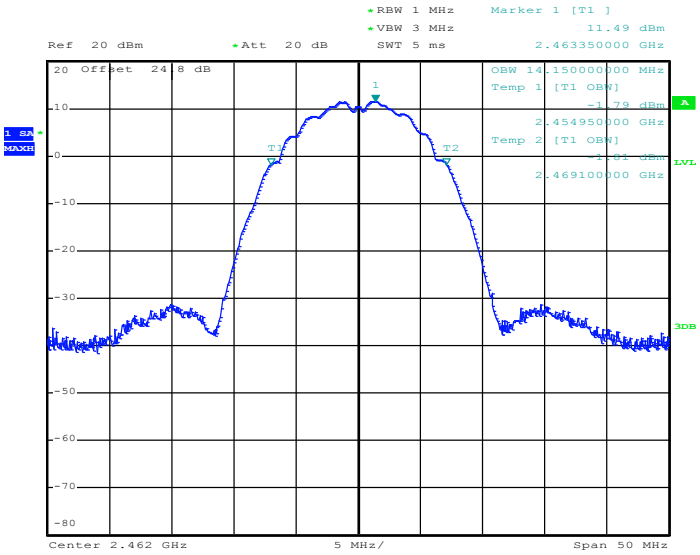
Date: 5.FEB.2013 23:27:22

99% Occupied Bandwidth Plot on 802.11b Channel 06



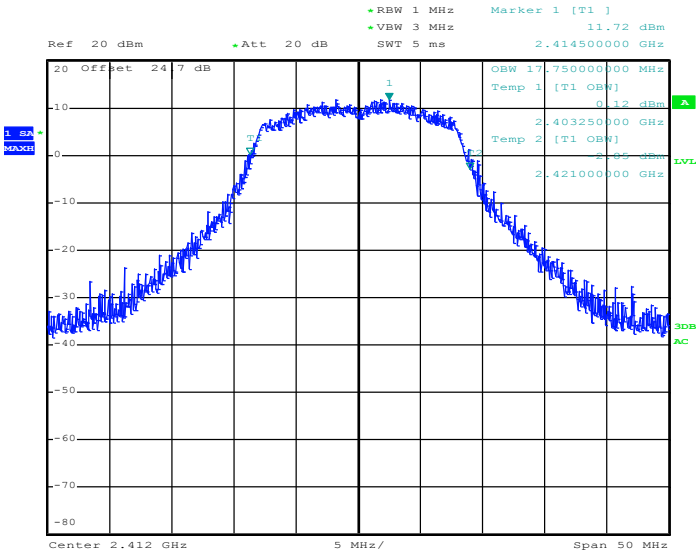
Date: 5.FEB.2013 23:31:30

99% Occupied Bandwidth Plot on 802.11b Channel 11



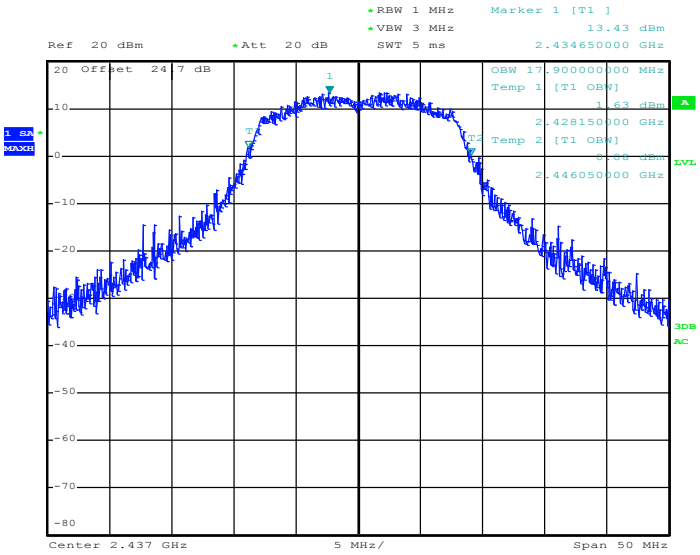
Date: 5.FEB.2013 23:34:45

99% Occupied Bandwidth Plot on 802.11g Channel 01



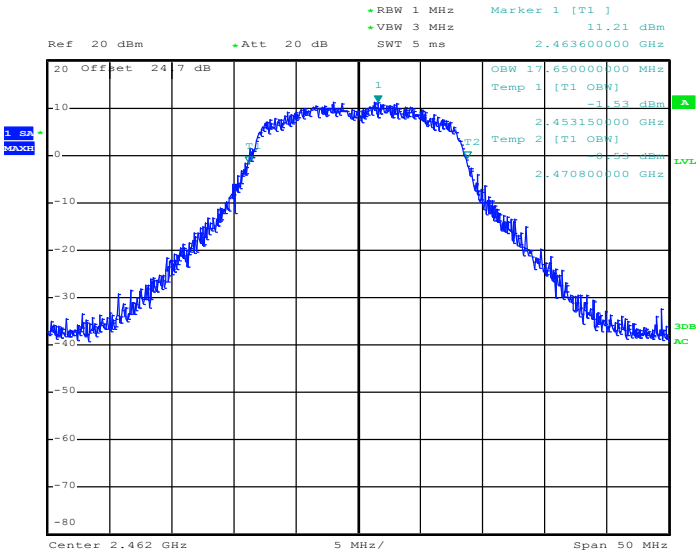
Date: 6.FEB.2013 08:44:59

99% Occupied Bandwidth Plot on 802.11g Channel 06



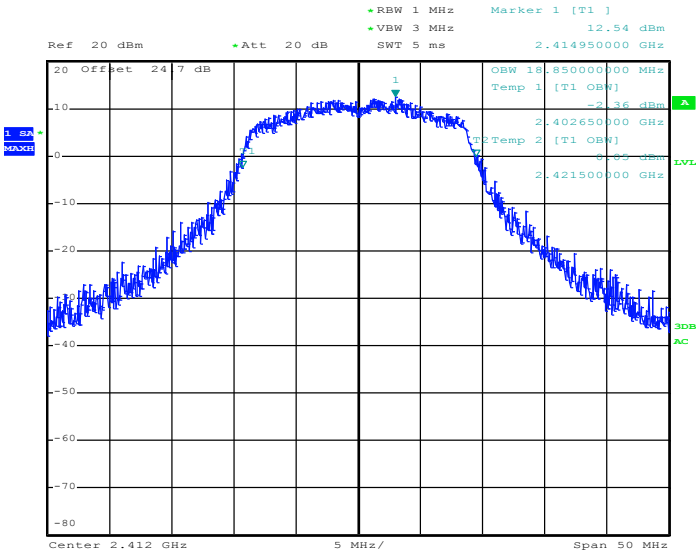
Date: 6.FEB.2013 08:50:40

99% Occupied Bandwidth Plot on 802.11g Channel 11



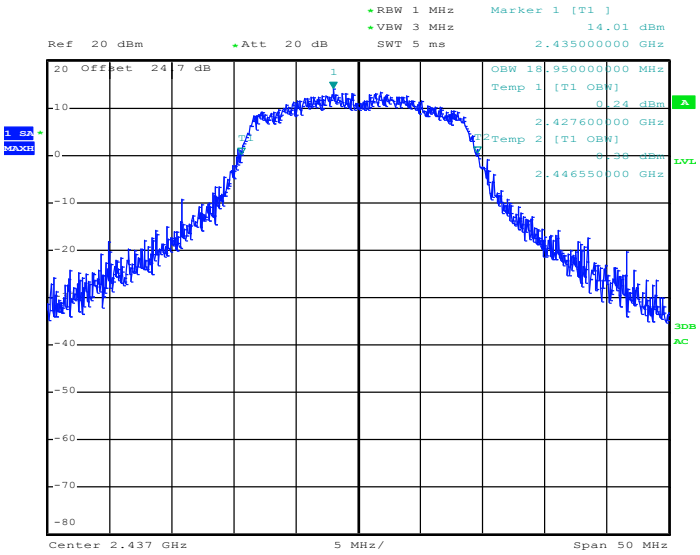
Date: 6.FEB.2013 08:59:09

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



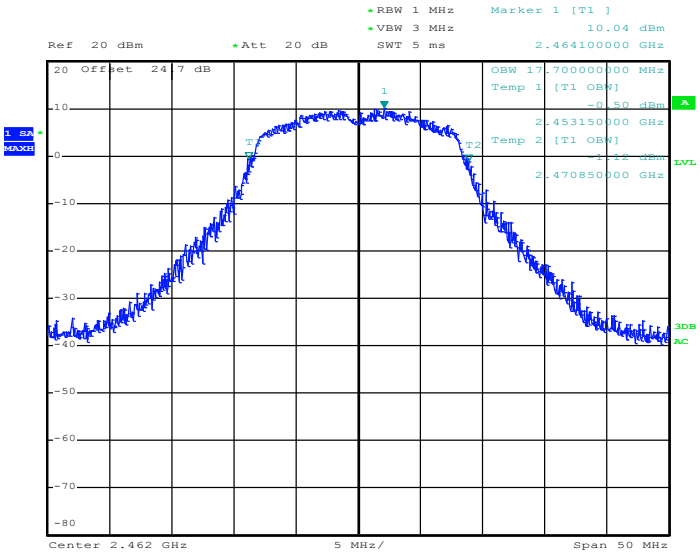
Date: 6.FEB.2013 09:17:12

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



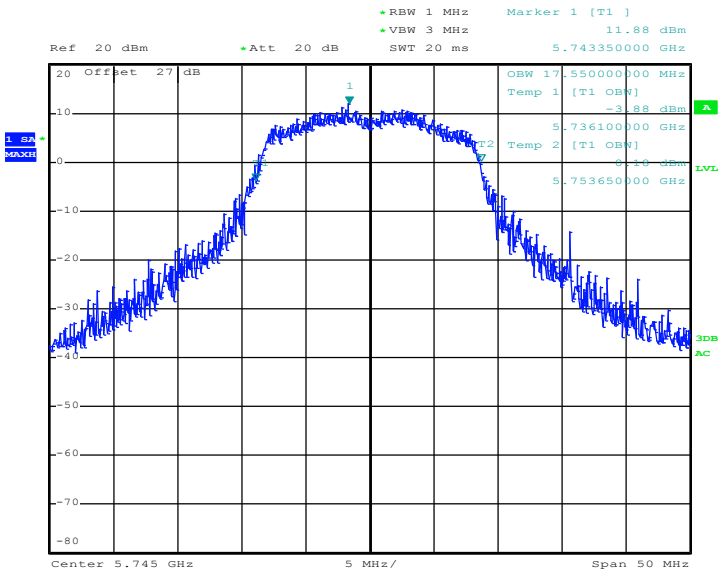
Date: 6.FEB.2013 09:12:00

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



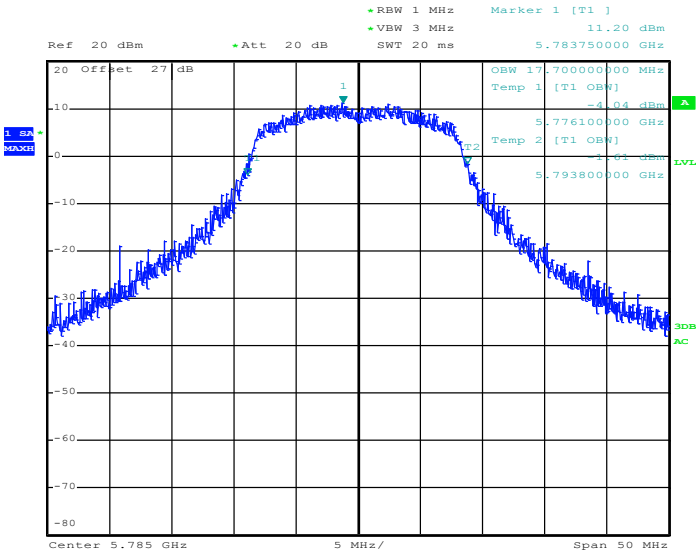
Date: 6.FEB.2013 09:06:01

99% Occupied Bandwidth Plot on 802.11a Channel 149



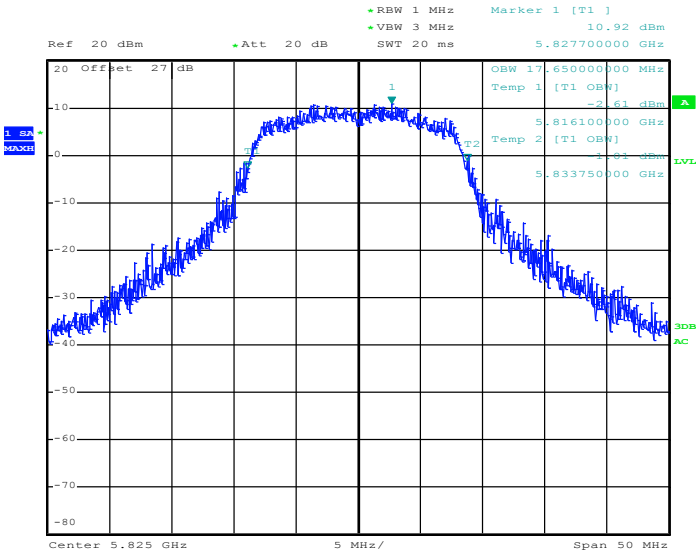
Date: 6.FEB.2013 09:23:20

99% Occupied Bandwidth Plot on 802.11a Channel 157



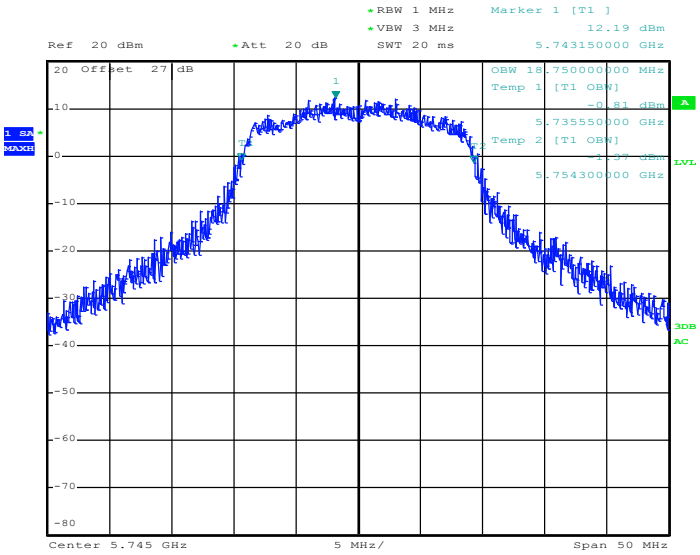
Date: 6.FEB.2013 09:26:49

99% Occupied Bandwidth Plot on 802.11a Channel 165



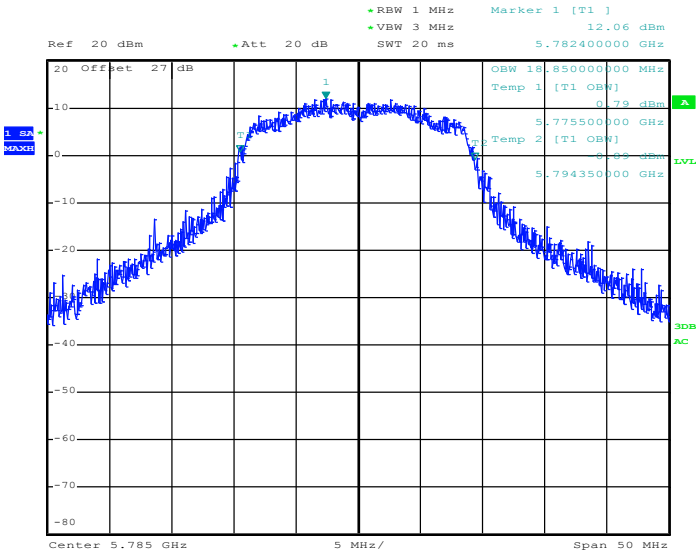
Date: 6.FEB.2013 09:30:23

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



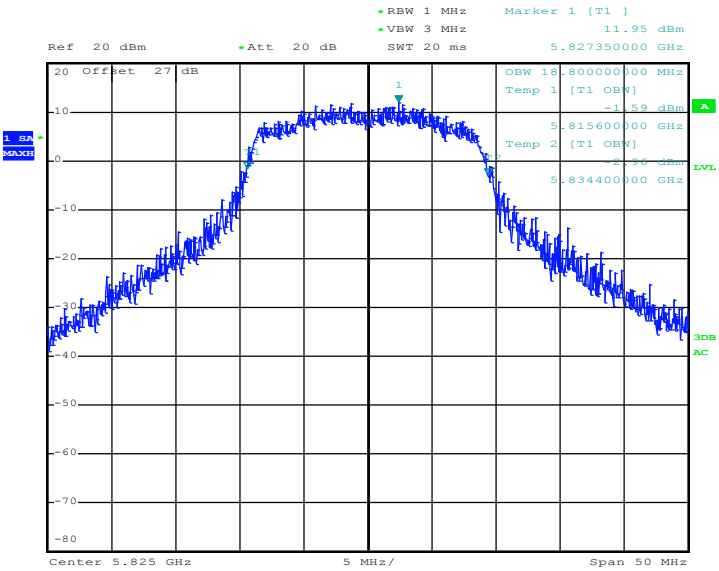
Date: 6.FEB.2013 09:43:28

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



Date: 6.FEB.2013 09:40:34

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



Date: 6.FEB.2013 09:37:35

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

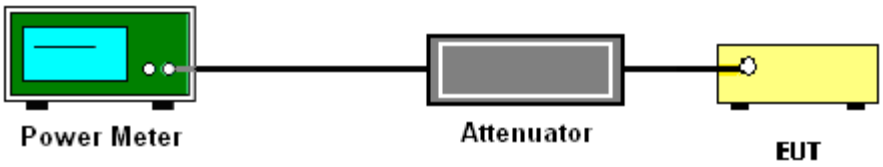
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

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

Channel	Frequency (MHz)	802.11b Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	17.38	30	Pass
06	2437	18.57	30	Pass
11	2462	18.45	30	Pass
12	2467	11.61	30	Pass
13	2472	9.49	30	Pass

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

Channel	Frequency (MHz)	802.11g Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.51	30	Pass
06	2437	22.78	30	Pass
11	2462	23.17	30	Pass
12	2467	19.11	30	Pass
13	2472	12.34	30	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	22.74	30	Pass
06	2437	23.32	30	Pass
11	2462	22.49	30	Pass
12	2467	18.79	30	Pass
13	2472	11.75	30	Pass

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

Channel	Frequency (MHz)	802.11a Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.17	30	Pass
157	5785	21.26	30	Pass
165	5825	21.17	30	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

Channel	Frequency (MHz)	5GHz 802.11n HT20 Peak Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	21.19	30	Pass
157	5785	21.21	30	Pass
165	5825	21.23	30	Pass

3.2.6 Test Result of Average output Power (Reporting Only)

Test Mode :	802.11b	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%
Duty Cycle:	100.00%	Duty Factor:	0.00dB

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)
01	2412	15.21
06	2437	16.43
11	2462	16.31
12	2467	9.34
13	2472	6.99

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%
Duty Cycle:	98.62%	Duty Factor:	0.06dB

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)
01	2412	14.69
06	2437	16.43
11	2462	14.12
12	2467	8.31
13	2472	1.90

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%
Duty Cycle:	98.37%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	2.4GHz 802.11n HT20 Average Output Power (dBm)
01	2412	14.86
06	2437	16.28
11	2462	13.00
12	2467	8.26
13	2472	1.59

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%
Duty Cycle:	98.62%	Duty Factor:	0.06dB

Channel	Frequency (MHz)	802.11a Average Output Power (dBm)
149	5745	14.59
157	5785	14.64
165	5825	14.68

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%
Duty Cycle:	98.37%	Duty Factor:	0.07dB

Channel	Frequency (MHz)	5GHz 802.11n HT20 Average Output Power (dBm)
149	5745	15.29
157	5785	15.31
165	5825	15.44

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.

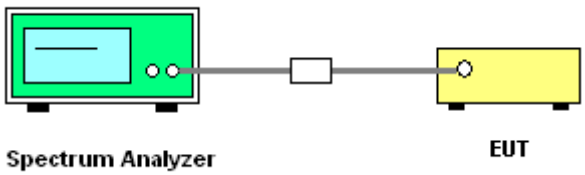
3.3.2 Measuring Instruments

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℃
Test Engineer :	Coyote Lin	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	6.23	-8.13	8	Pass
06	2437	7.13	-6.25	8	Pass
11	2462	7.07	-6.43	8	Pass

Test Mode :	802.11g	Temperature :	24~26℃
Test Engineer :	Coyote Lin	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	3.42	-10.62	8	Pass
06	2437	5.37	-8.30	8	Pass
11	2462	3.04	-11.39	8	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	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	3.79	-11.23	8	Pass
06	2437	5.29	-9.26	8	Pass
11	2462	2.09	-11.56	8	Pass

Test Mode :	802.11a	Temperature :	24~26℃
Test Engineer :	Coyote Lin	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	3.16	-11.13	8	Pass
157	5785	3.05	-9.70	8	Pass
165	5825	3.31	-10.85	8	Pass

Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Engineer :	Coyote Lin	Relative Humidity :	50~53%

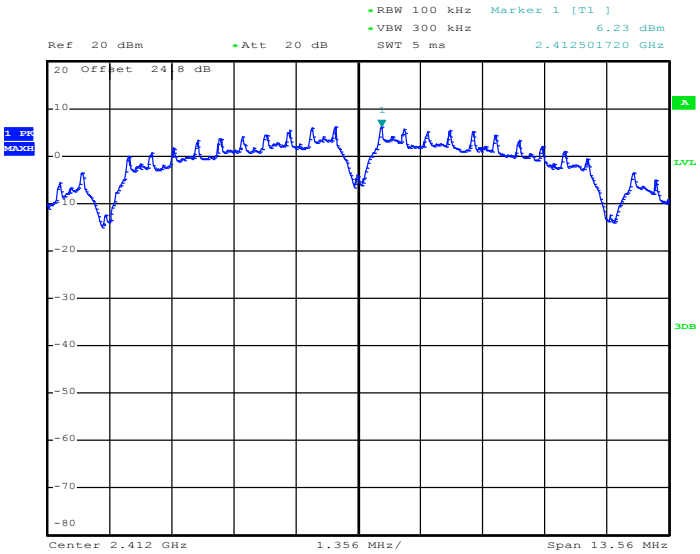
Channel	Frequency (MHz)	5GHz 802.11n HT20 Power Density		Max. Limits (dBm/3kHz)	Pass/Fail
		PSD/100kHz (dBm)	PSD/3kHz (dBm)		
149	5745	4.05	-9.94	8	Pass
157	5785	3.91	-11.18	8	Pass
165	5825	4.08	-10.18	8	Pass

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.*

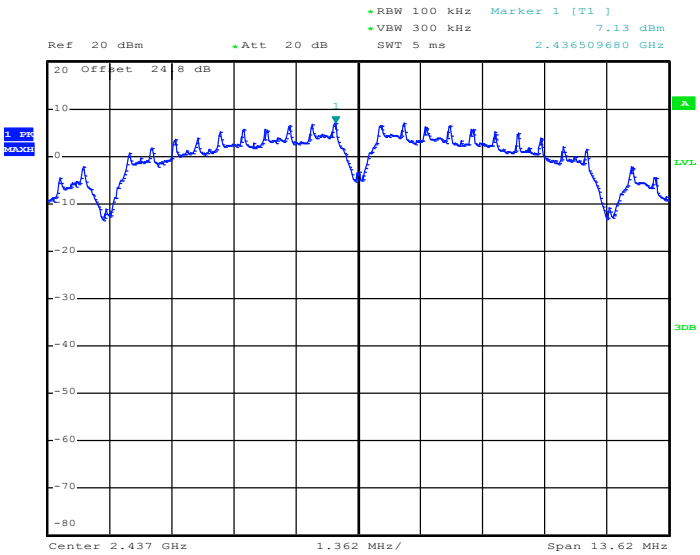
3.3.6 Test Result of Power Spectral Density Plots (100kHz)

PSD 100kHz Plot on 802.11b Channel 01



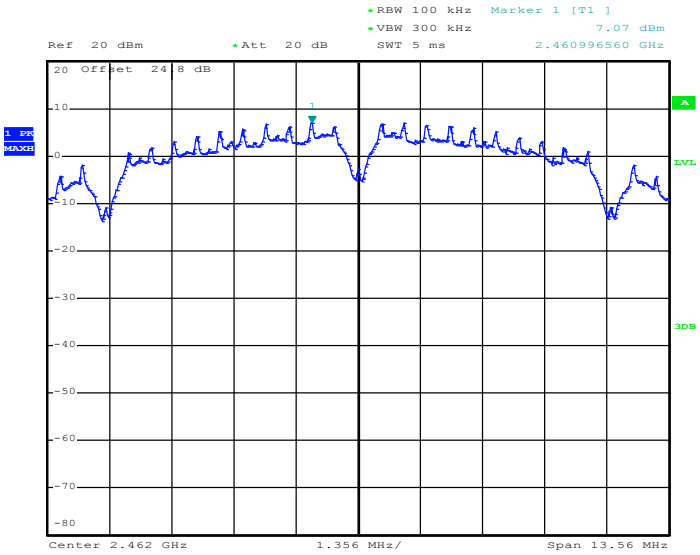
Date: 5.FEB.2013 23:26:21

PSD 100kHz Plot on 802.11b Channel 06



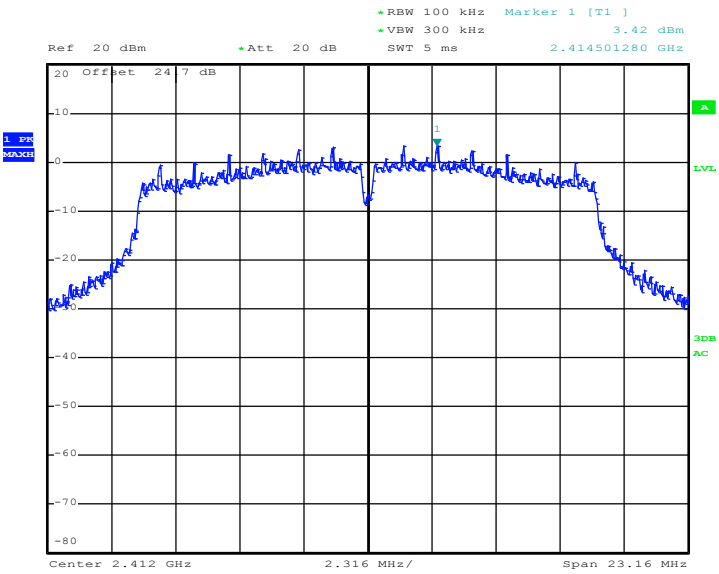
Date: 5.FEB.2013 23:30:41

PSD 100kHz Plot on 802.11b Channel 11



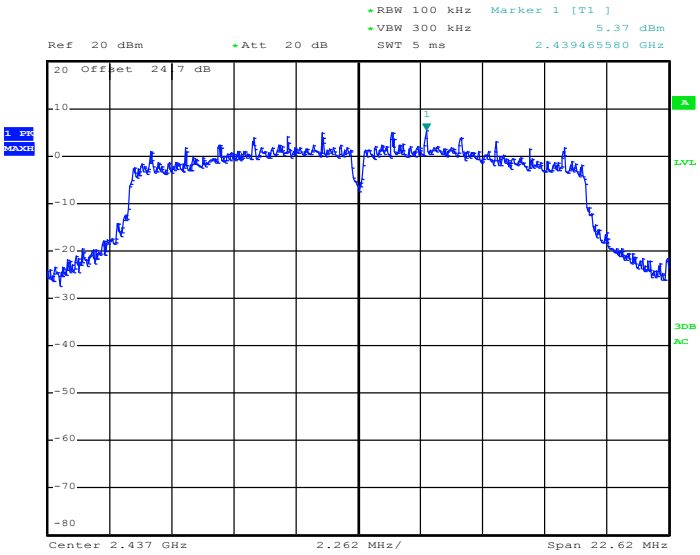
Date: 5.FEB.2013 23:33:43

PSD 100kHz Plot on 802.11g Channel 01



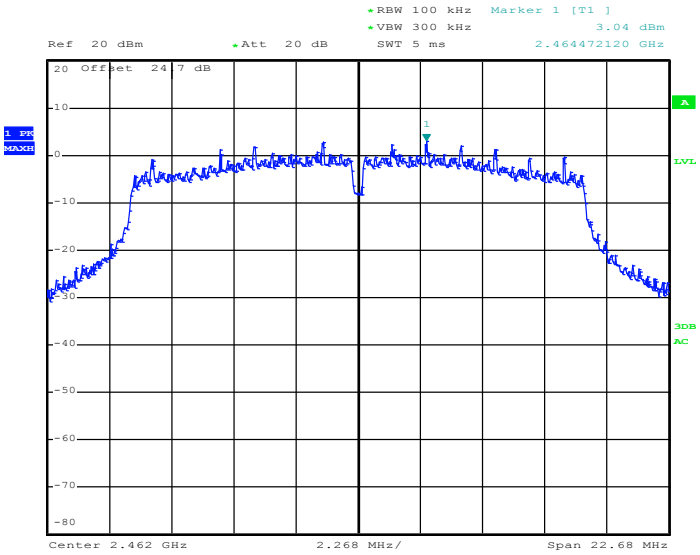
Date: 6.FEB.2013 08:43:39

PSD 100kHz Plot 802.11g Channel 06



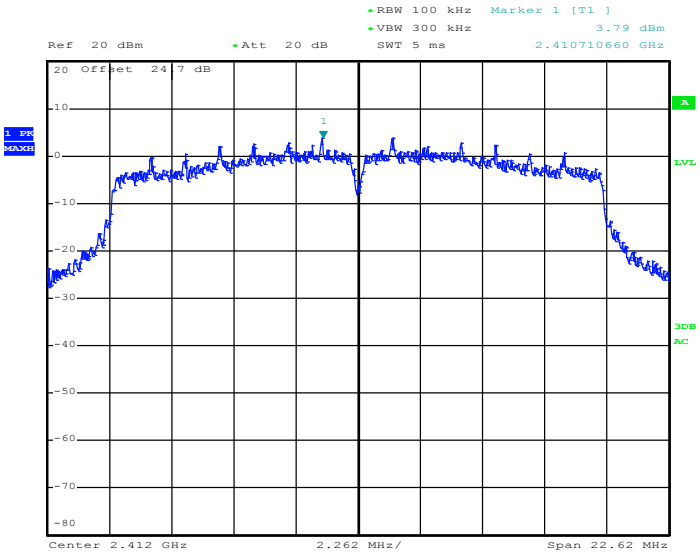
Date: 6.FEB.2013 08:50:16

PSD 100kHz Plot 802.11g Channel 11



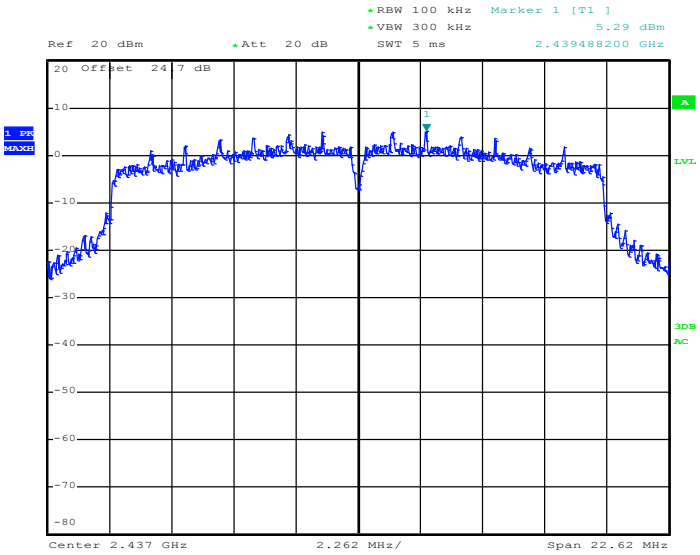
Date: 6.FEB.2013 08:58:21

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



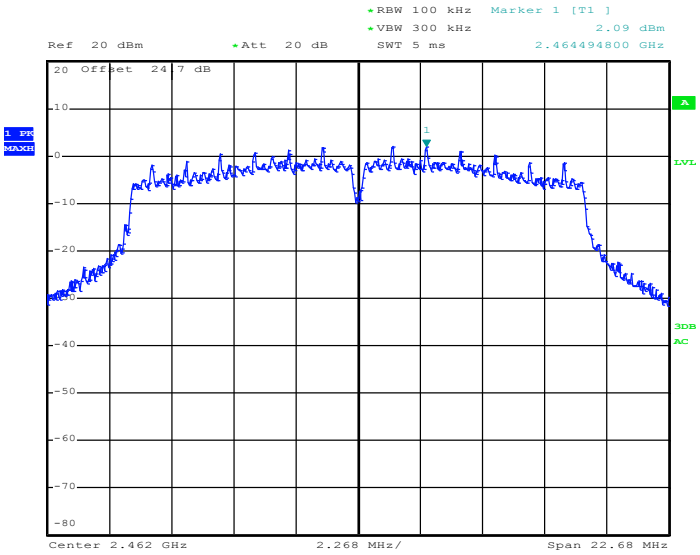
Date: 6.FEB.2013 09:15:19

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



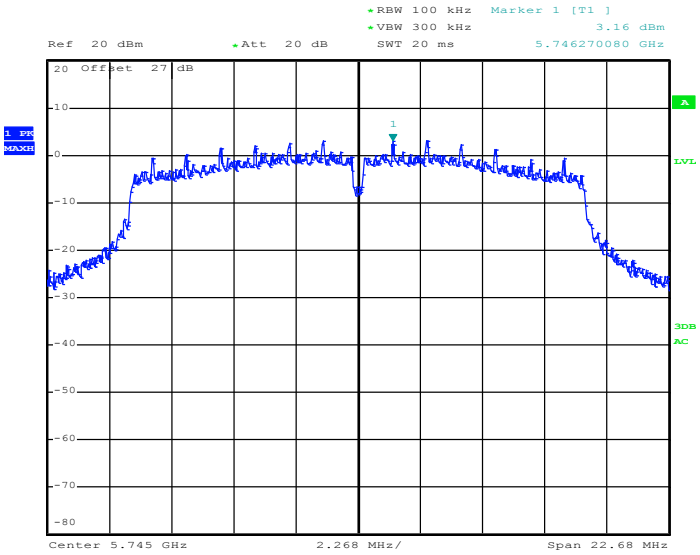
Date: 6.FEB.2013 09:10:52

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



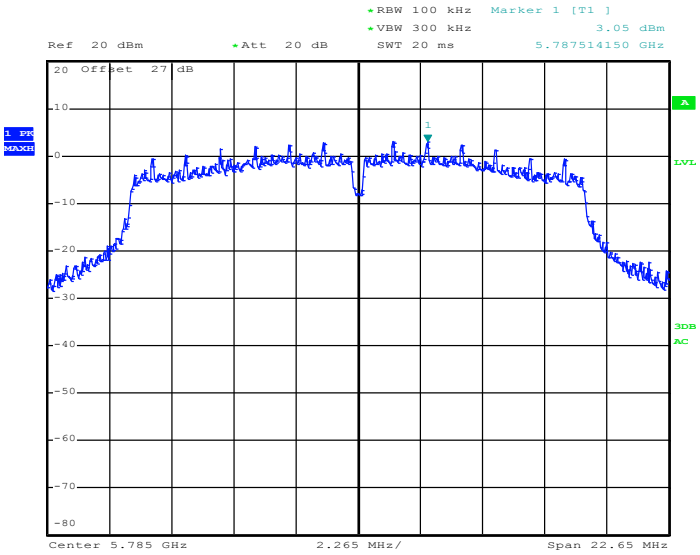
Date: 6.FEB.2013 09:05:21

PSD 100kHz Plot on 802.11a Channel 149



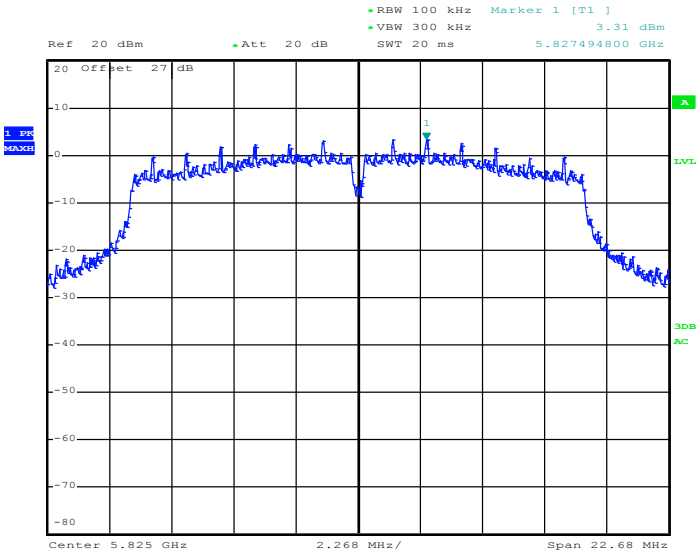
Date: 6.FEB.2013 09:22:41

PSD 100kHz Plot on 802.11a Channel 157



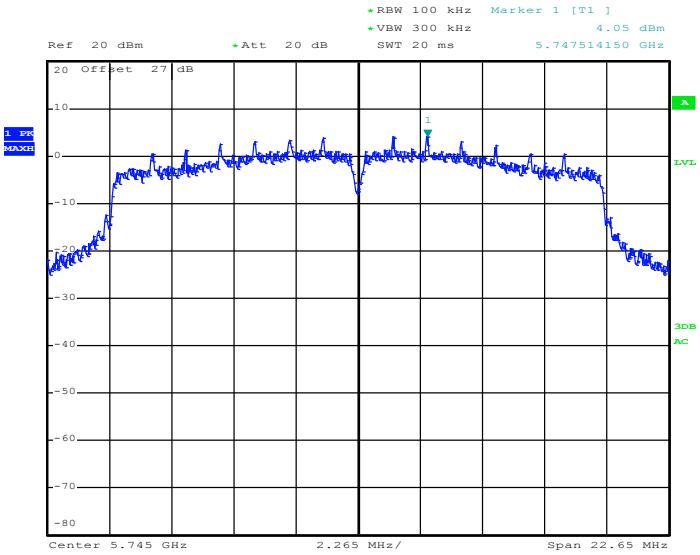
Date: 6.FEB.2013 09:26:31

PSD 100kHz Plot on 802.11a Channel 165



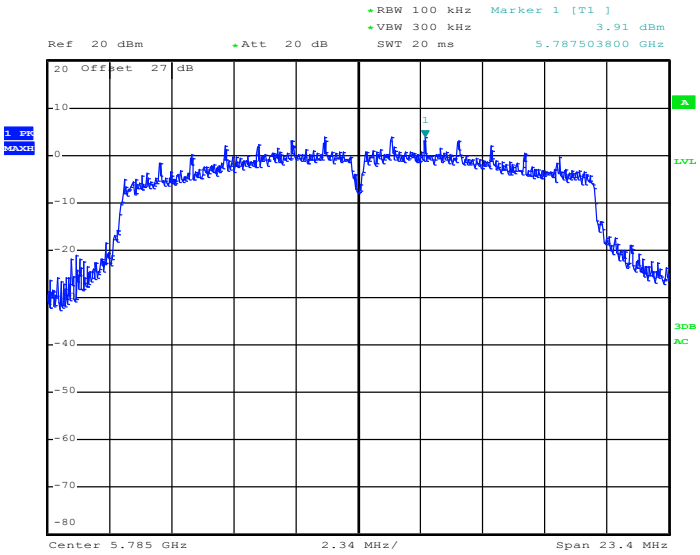
Date: 6.FEB.2013 09:29:34

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



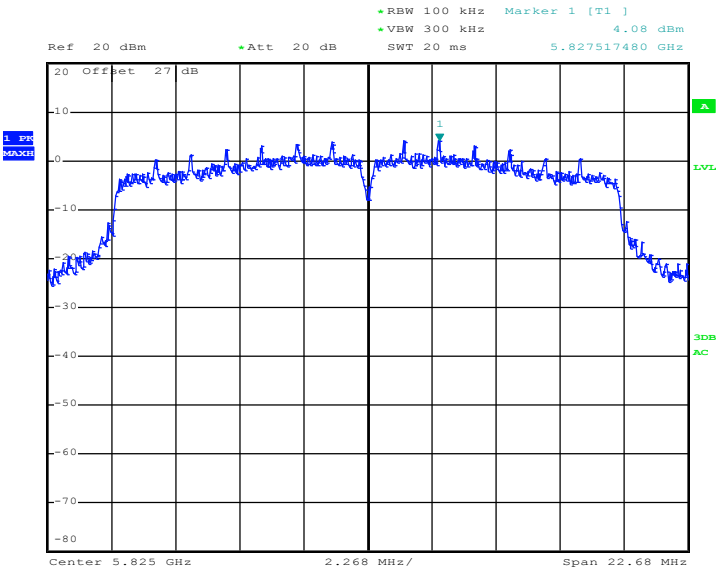
Date: 6.FEB.2013 09:42:34

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



Date: 6.FEB.2013 09:40:23

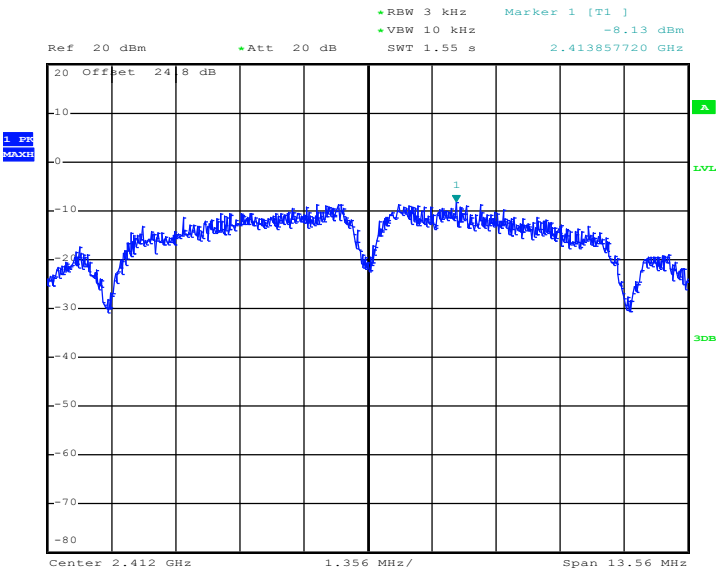
PSD 100kHz Plot on 5GHz 802.11n HT20 Channel 165



Date: 6.FEB.2013 09:36:54

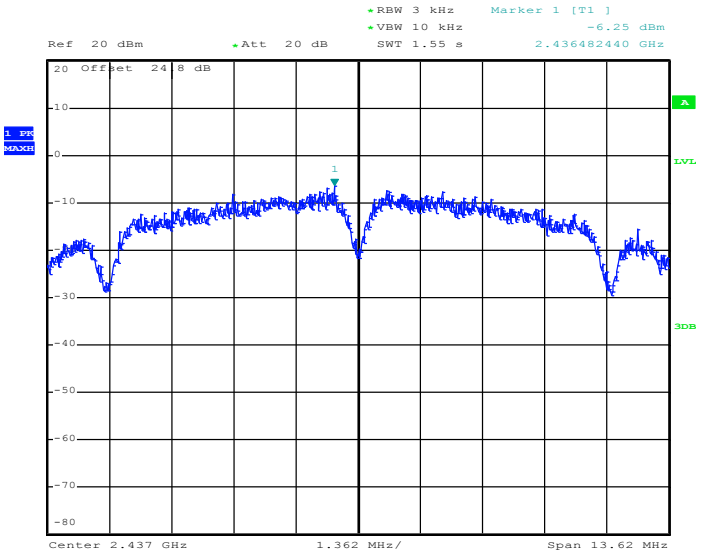
3.3.7 Test Result of Power Spectral Density Plots (3kHz)

PSD 3kHz Plot on 802.11b Channel 01



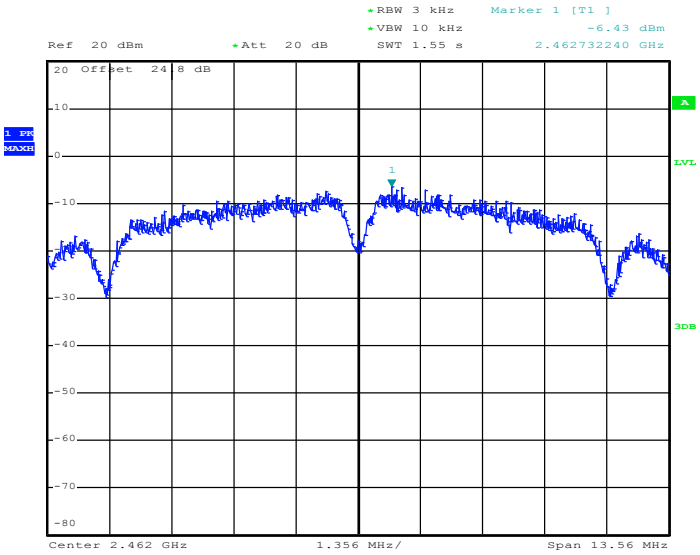
Date: 5.FEB.2013 23:26:12

PSD 3kHz Plot on 802.11b Channel 06



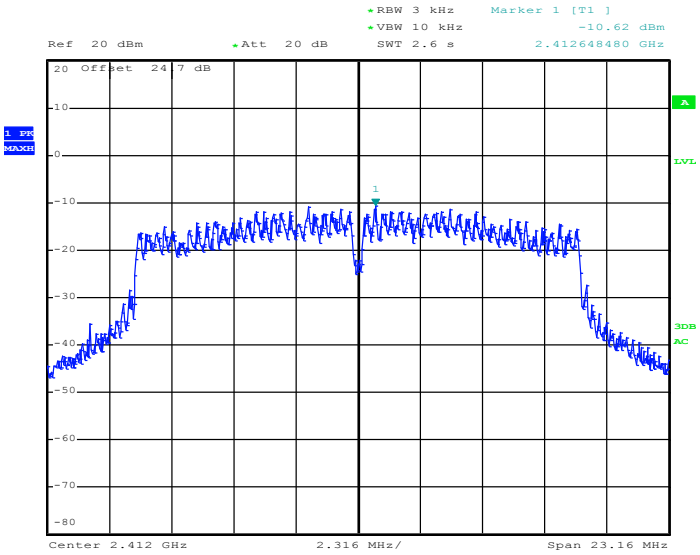
Date: 5.FEB.2013 23:30:33

PSD 3kHz Plot on 802.11b Channel 11



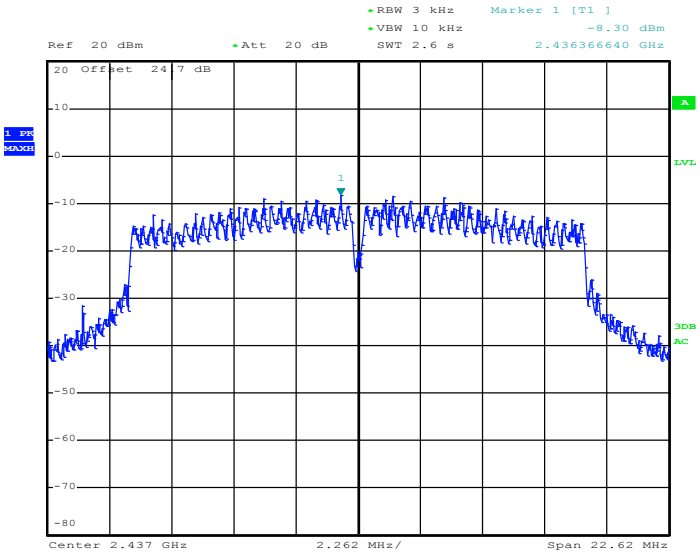
Date: 5.FEB.2013 23:33:35

PSD 3kHz Plot on 802.11g Channel 01



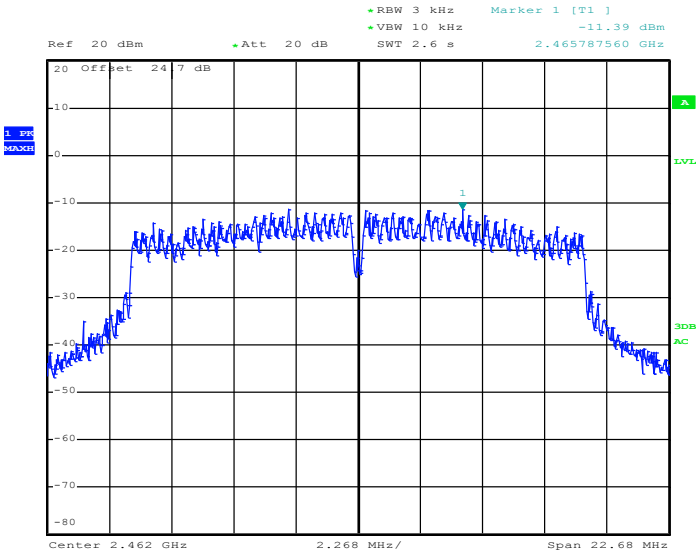
Date: 6.FEB.2013 08:43:22

PSD 3kHz Plot on 802.11g Channel 06



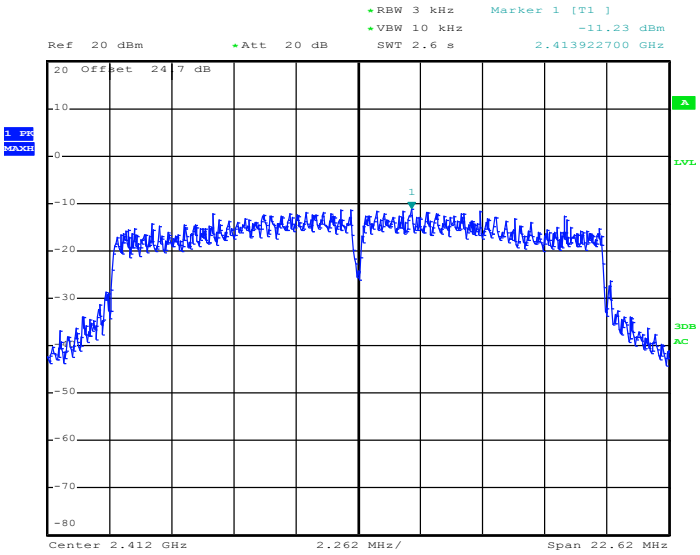
Date: 6.FEB.2013 08:49:41

PSD 3kHz Plot on 802.11g Channel 11



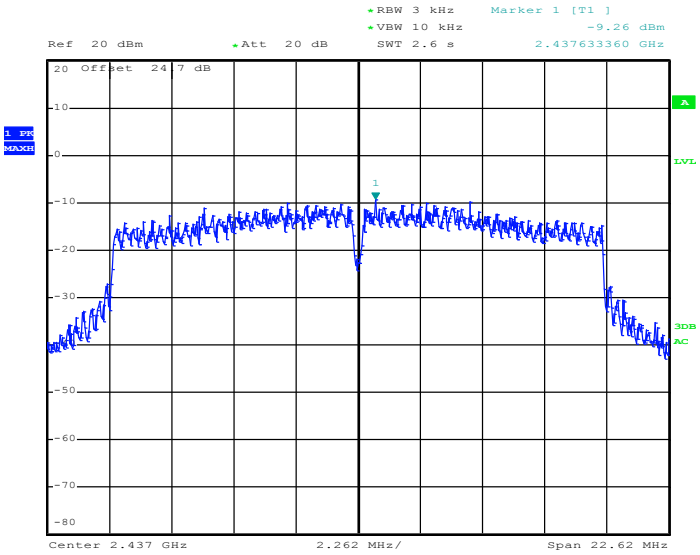
Date: 6.FEB.2013 08:57:41

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



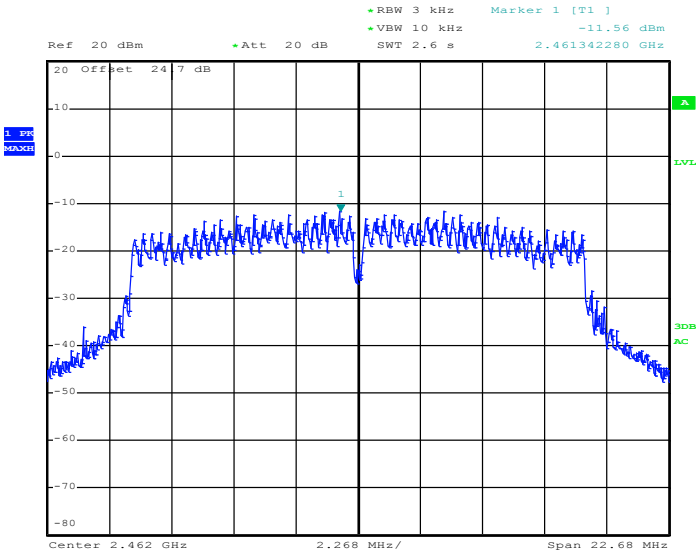
Date: 6.FEB.2013 09:15:02

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



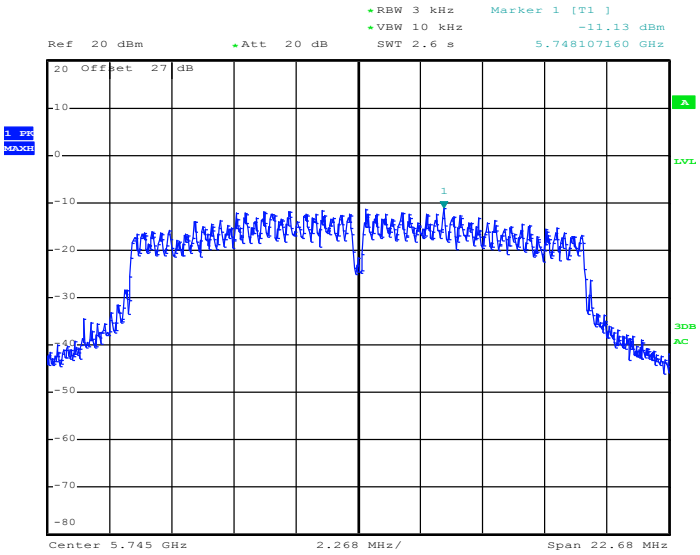
Date: 6.FEB.2013 09:10:43

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



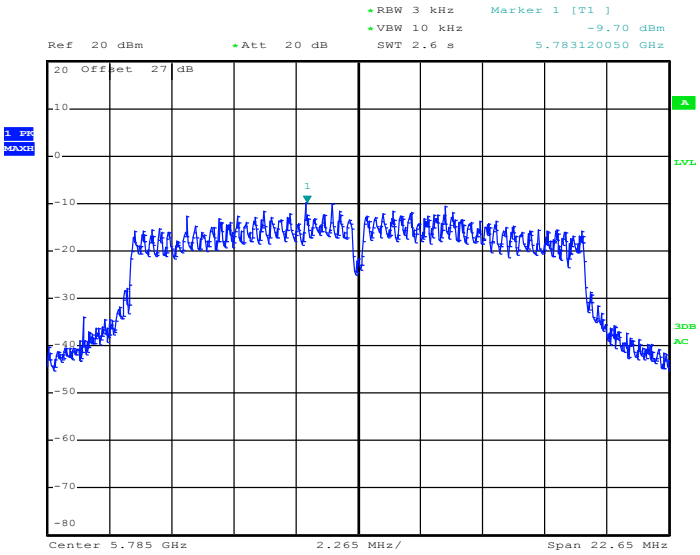
Date: 6.FEB.2013 09:04:46

PSD 3kHz Plot on 802.11a Channel 149



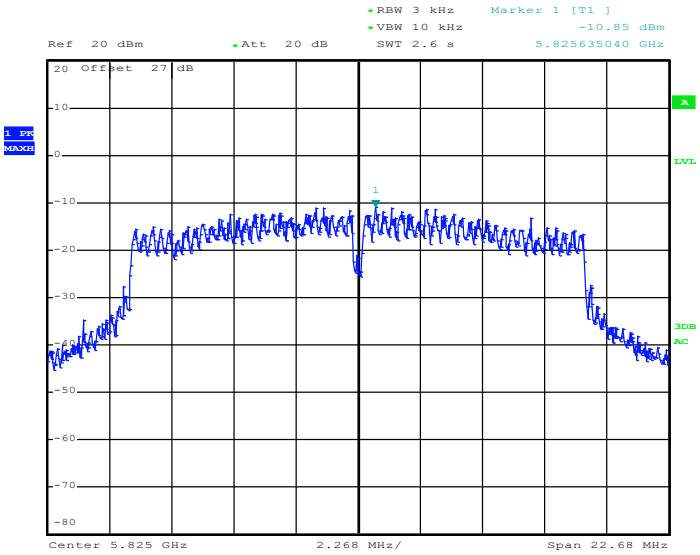
Date: 6.FEB.2013 09:22:31

PSD 3kHz Plot on 802.11a Channel 157



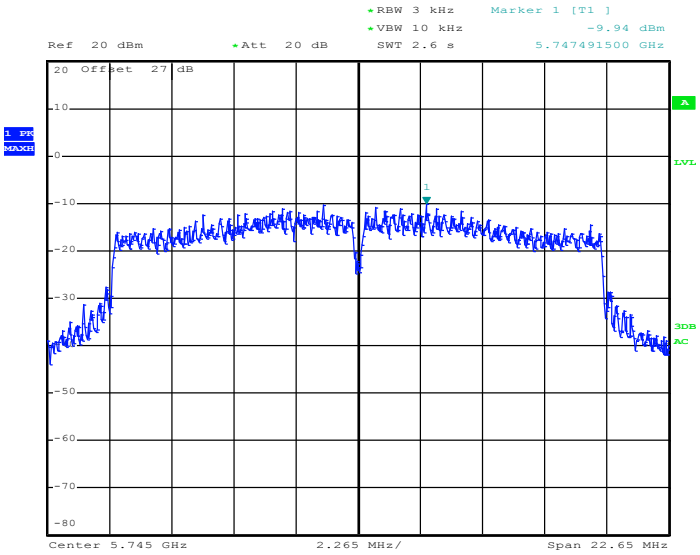
Date: 6.FEB.2013 09:26:05

PSD 3kHz Plot on 802.11a Channel 165



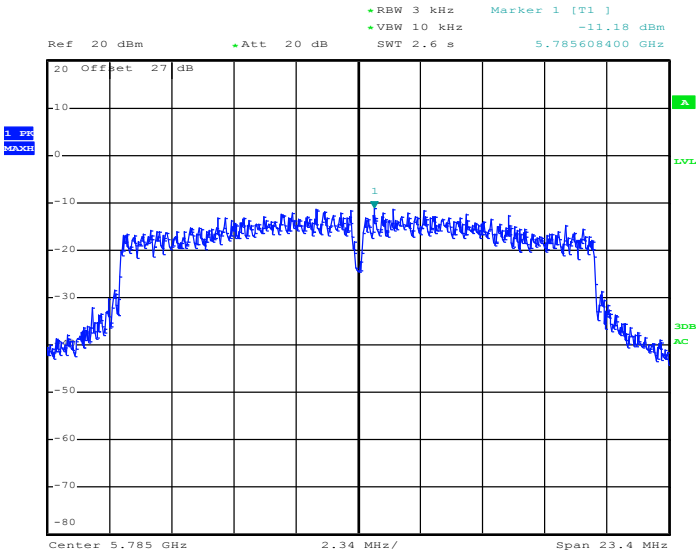
Date: 6.FEB.2013 09:29:24

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



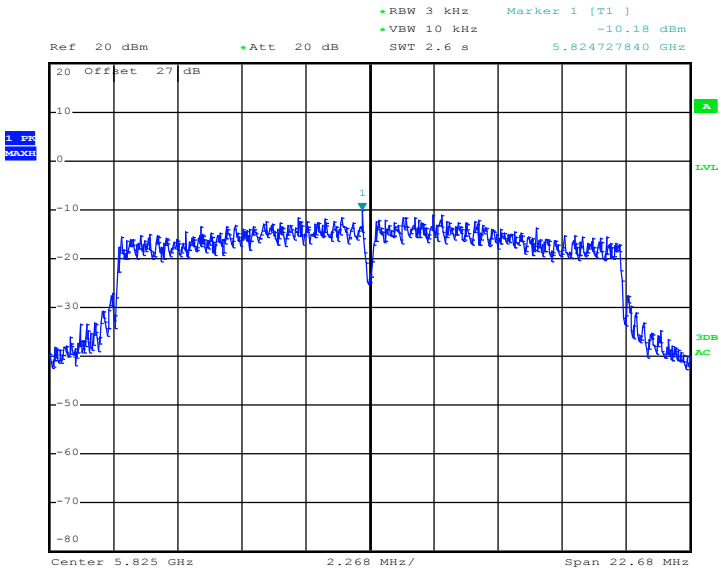
Date: 6.FEB.2013 09:42:22

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



Date: 6.FEB.2013 09:40:13

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



Date: 6.FEB.2013 09:36:40

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).

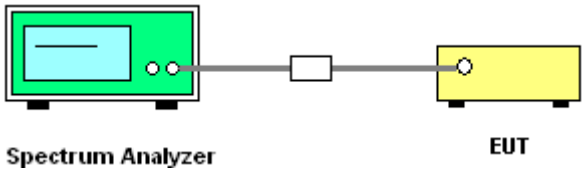
3.4.2 Measuring Instruments

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.

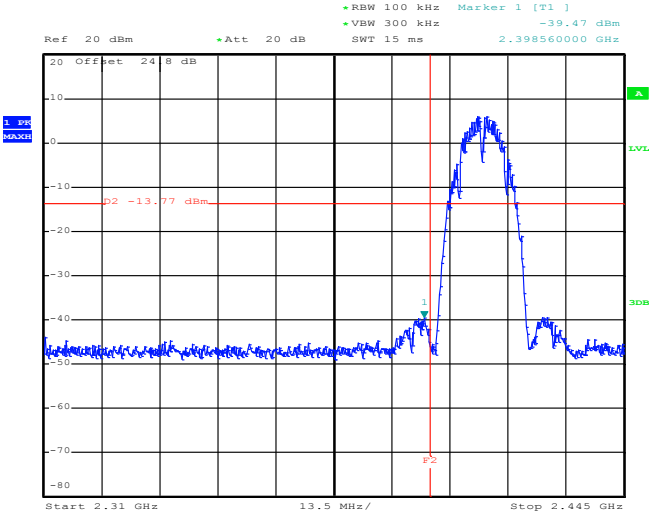
3.4.4 Test Setup



3.4.5 Test Result of Conducted Spurious at Band Edges

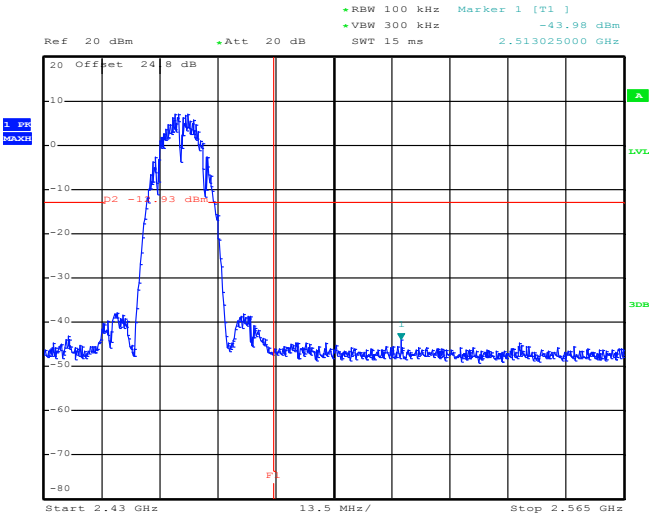
Test Mode :	802.11b	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin

Low Band Edge Plot on 802.11b Channel 01



Date: 5.FEB.2013 23:26:34

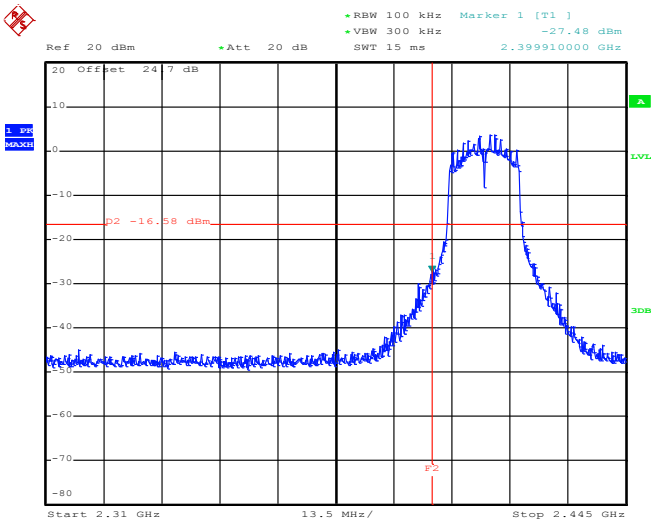
High Band Edge Plot on 802.11b Channel 11



Date: 5.FEB.2013 23:33:57

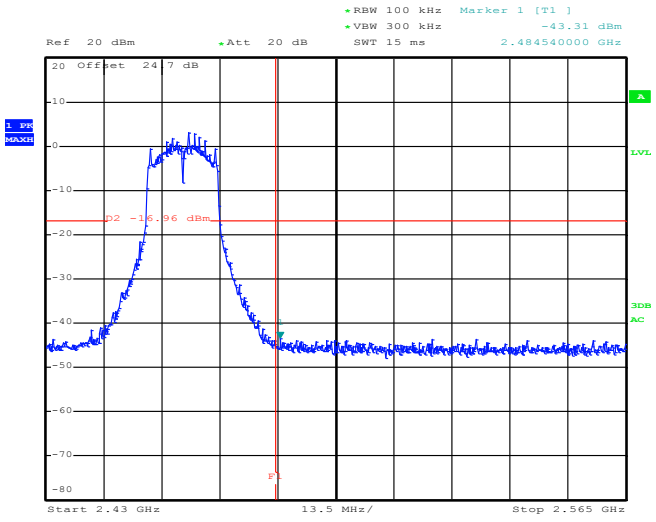
Test Mode :	802.11g	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin

Low Band Edge Plot on 802.11g Channel 01



Date: 6.FEB.2013 16:21:34

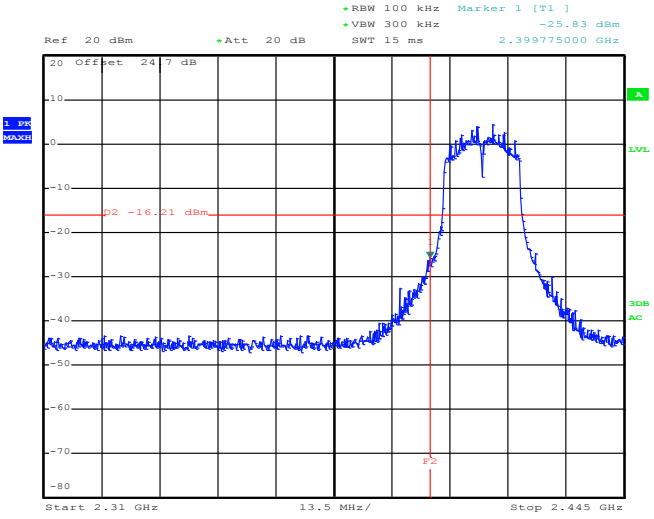
High Band Edge Plot on 802.11g Channel 11



Date: 6.FEB.2013 08:58:41

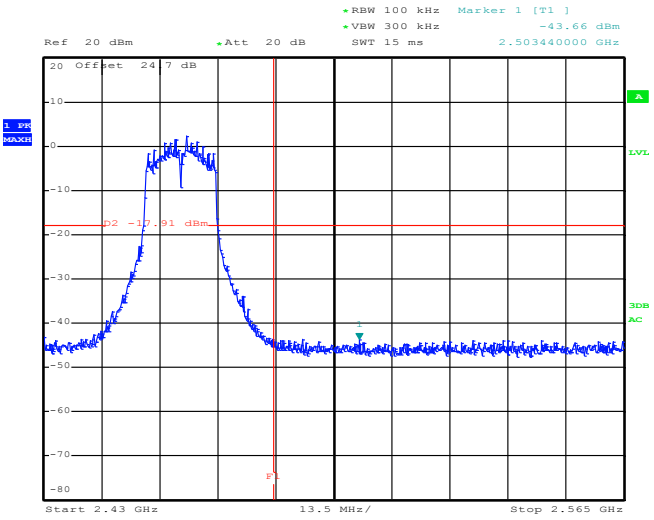
Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Coyote Lin

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



Date: 6.FEB.2013 09:15:37

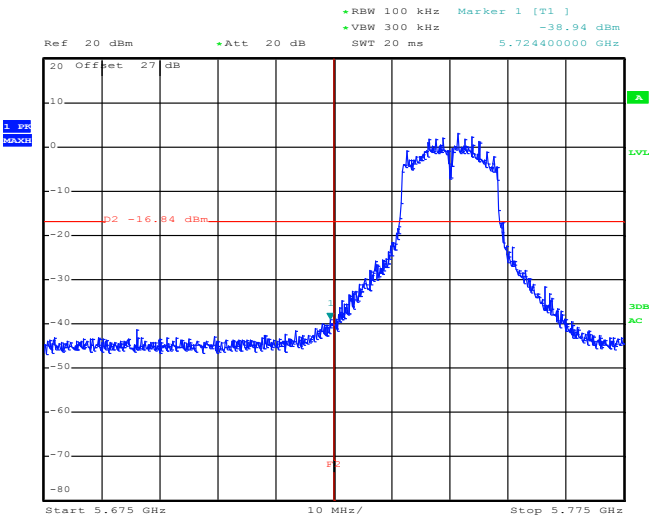
High Band Edge Plot on 2.4GHz 802.11n HT20 Channel 11



Date: 6.FEB.2013 09:05:37

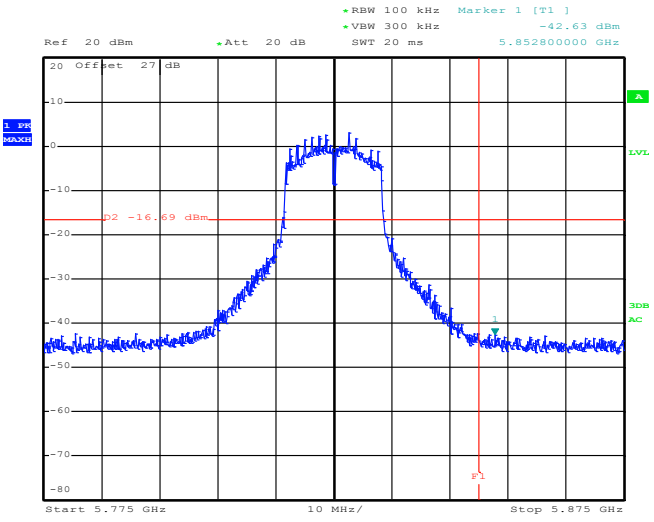
Test Mode :	802.11a	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Coyote Lin

Low Band Edge Plot on 802.11a Channel 149



Date: 6.FEB.2013 09:23:06

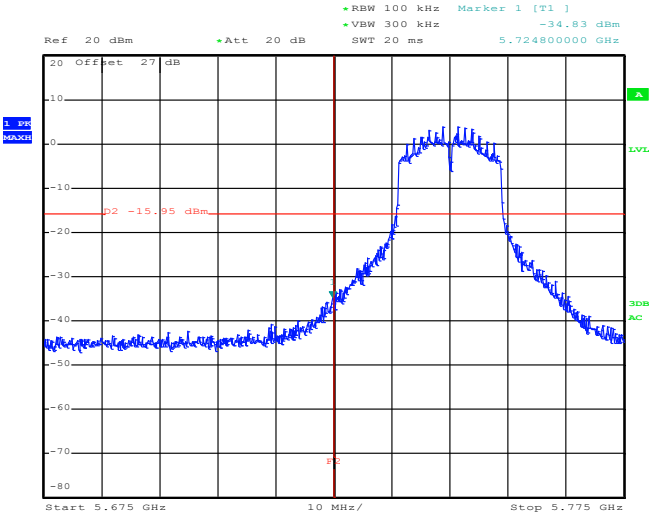
High Band Edge Plot on 802.11a Channel 165



Date: 6.FEB.2013 09:29:58

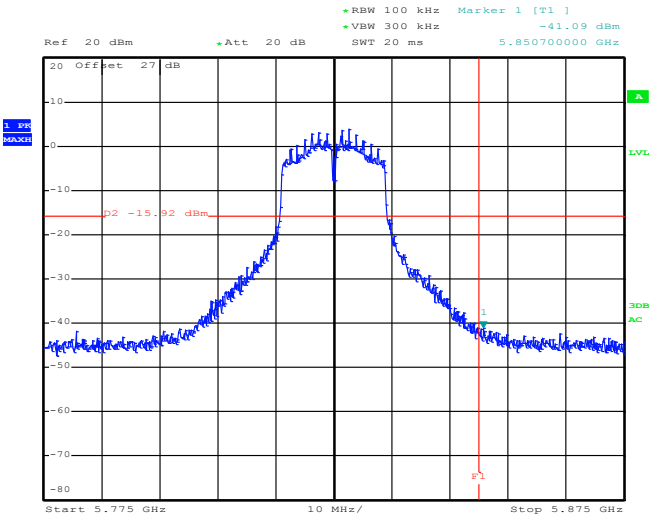
Test Mode :	802.11n HT20	Temperature :	24~26℃
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	149 and 165	Test Engineer :	Coyote Lin

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



Date: 6.FEB.2013 09:43:13

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



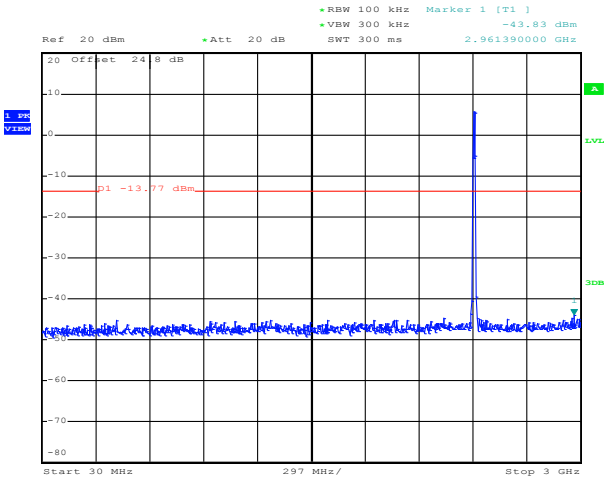
Date: 6.FEB.2013 09:37:13

3.4.6 Test Result of Conducted Spurious Emission

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

802.11b 30 MHz~3 GHz

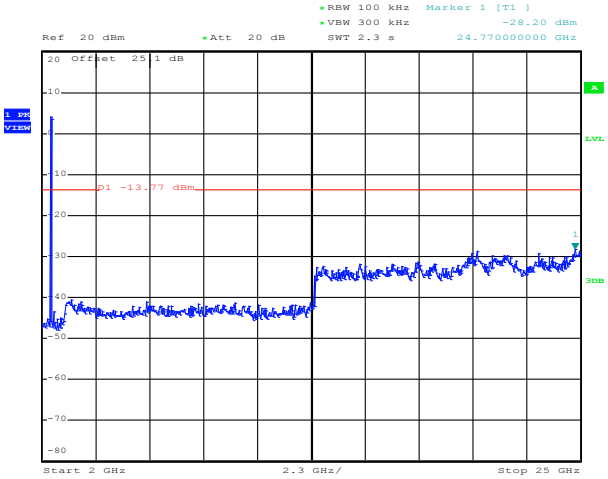
Conducted Spurious Emission Plot on Channel 01



Date: 5.FEB.2013 23:26:53

802.11b 2 GHz~25 GHz

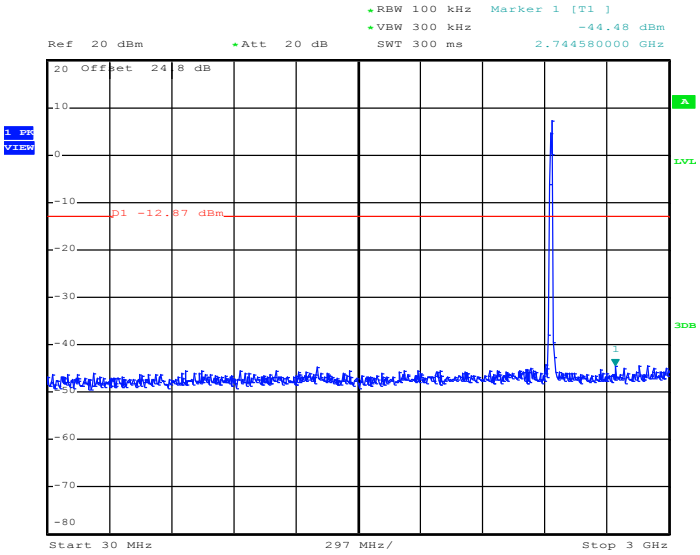
Conducted Spurious Emission Plot on Channel 01



Date: 5.FEB.2013 23:27:12

802.11b 30 MHz~3 GHz

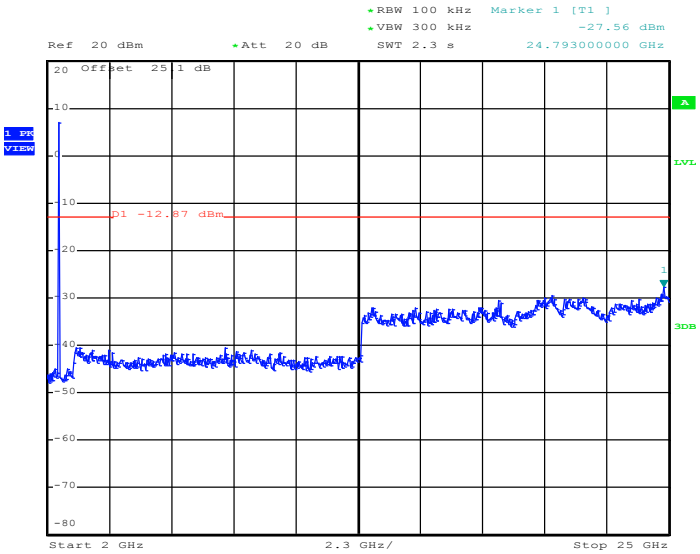
Conducted Spurious Emission Plot on Channel 06



Date: 5.FEB.2013 23:31:01

802.11b 2 GHz~25 GHz

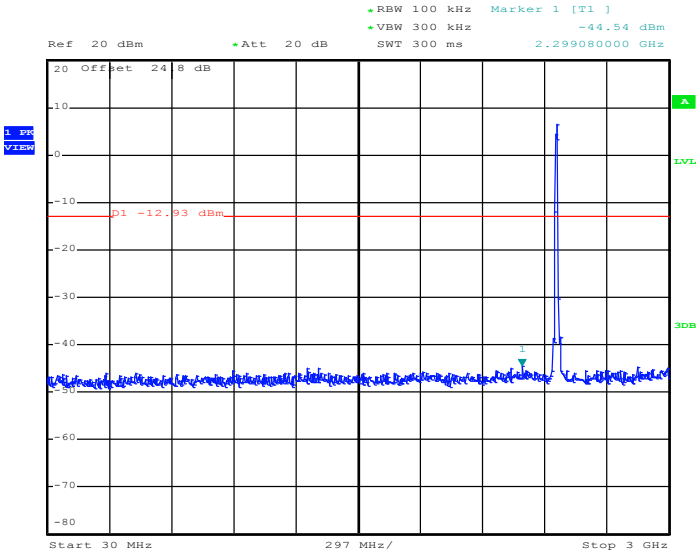
Conducted Spurious Emission Plot on Channel 06



Date: 5.FEB.2013 23:31:19

802.11b 30 MHz~3 GHz

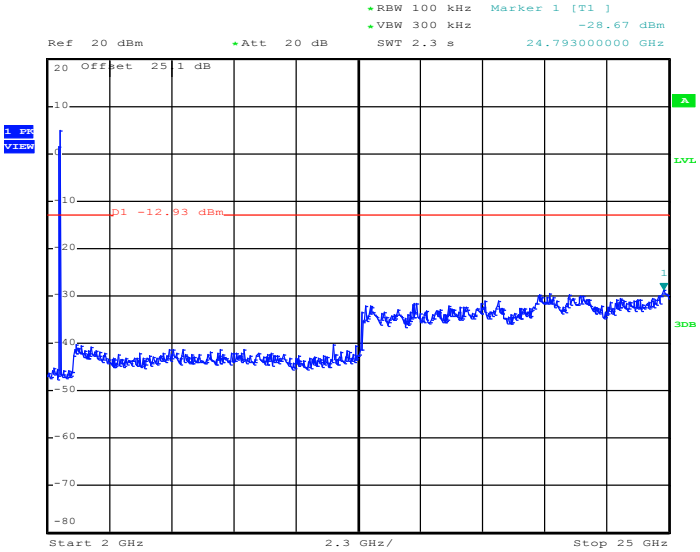
Conducted Spurious Emission Plot on Channel 11



Date: 5.FEB.2013 23:34:16

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

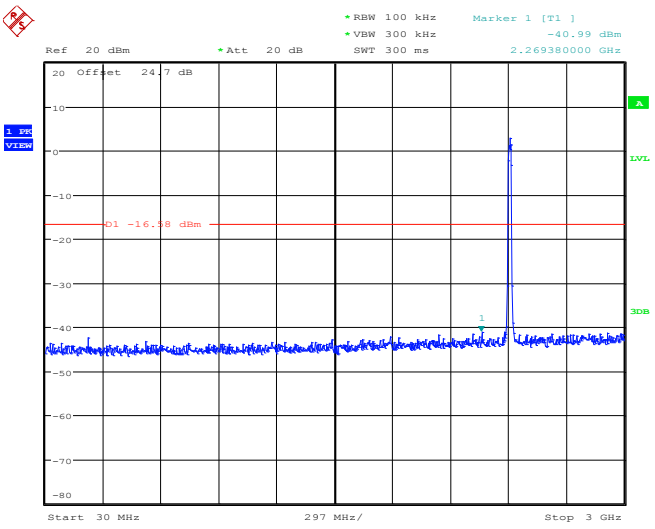


Date: 5.FEB.2013 23:34:34

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

802.11g 30 MHz~3 GHz

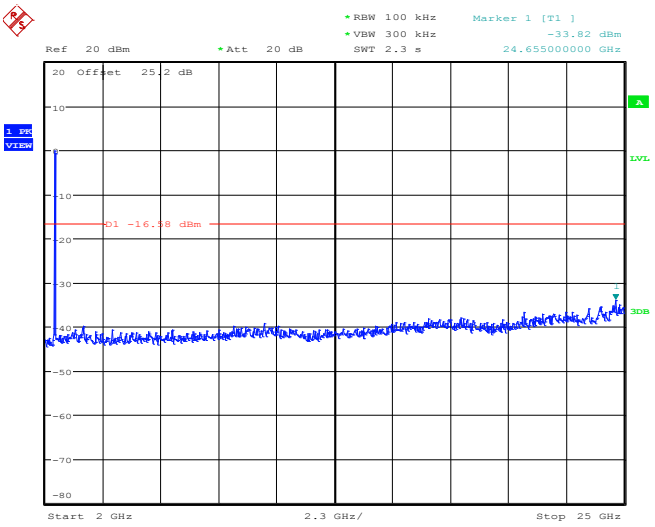
Conducted Spurious Emission Plot on Channel 01



Date: 15.FEB.2013 13:42:43

802.11g 2 GHz~25 GHz

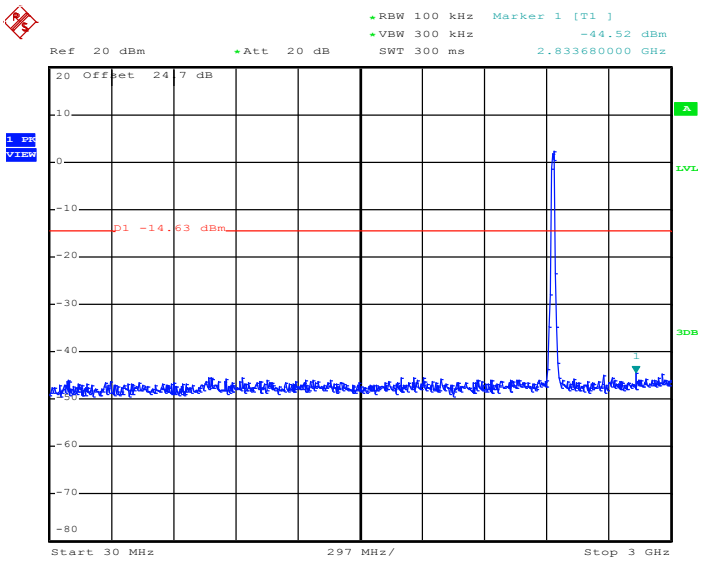
Conducted Spurious Emission Plot on Channel 01



Date: 15.FEB.2013 13:43:01

802.11g 30 MHz~3 GHz

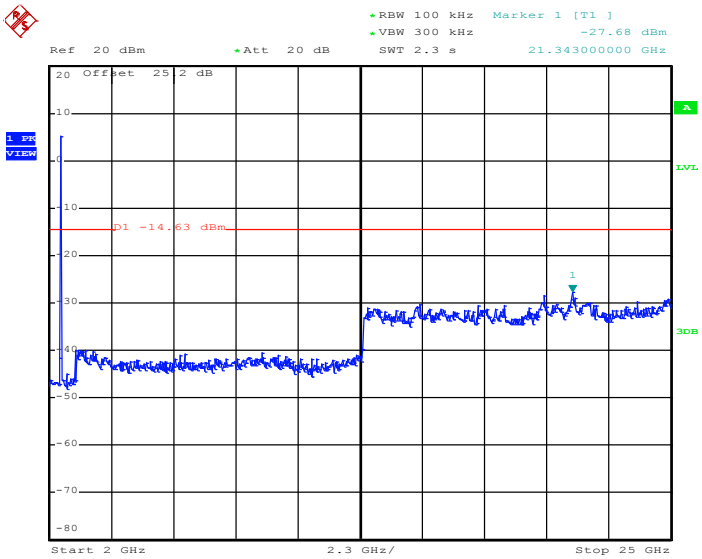
Conducted Spurious Emission Plot on Channel 06



Date: 6.FEB.2013 11:02:52

802.11g 2 GHz~25 GHz

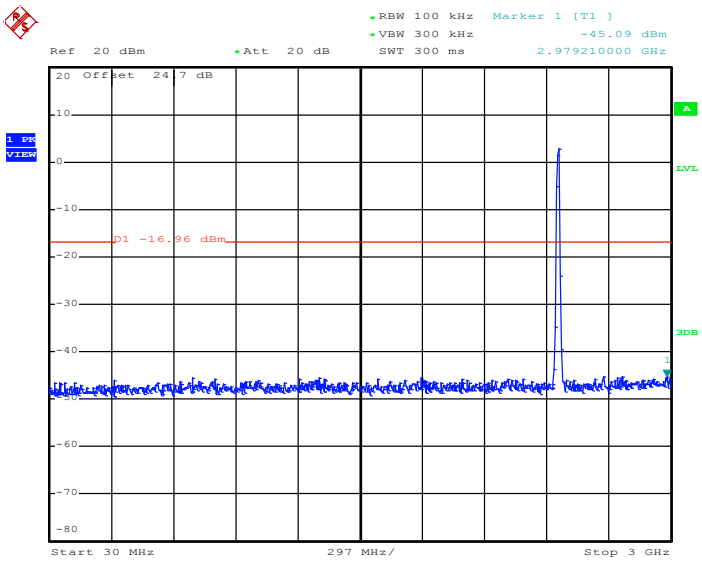
Conducted Spurious Emission Plot on Channel 06



Date: 6.FEB.2013 11:03:10

802.11g 30 MHz~3 GHz

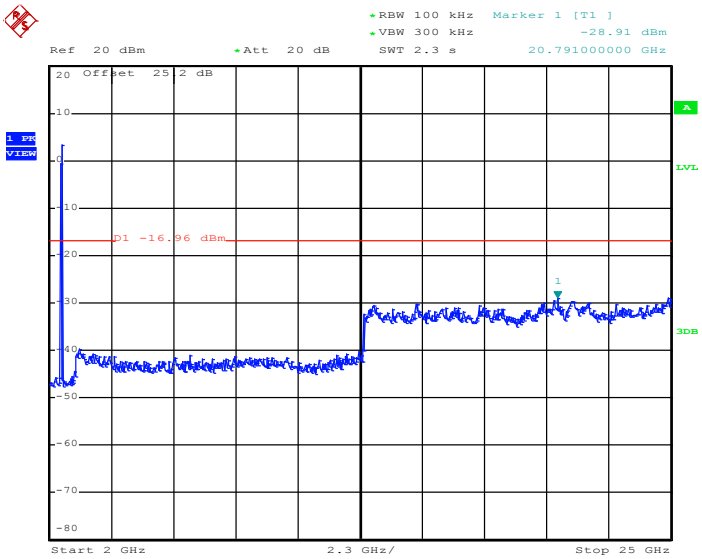
Conducted Spurious Emission Plot on Channel 11



Date: 6.FEB.2013 11:04:10

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

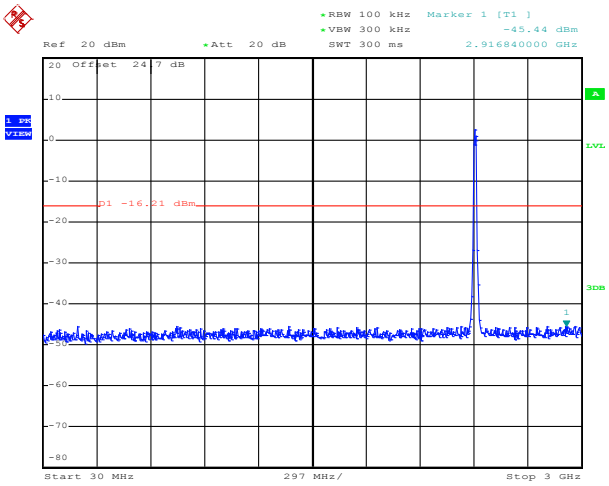


Date: 6.FEB.2013 11:04:29

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

2.4GHz 802.11n HT20 30 MHz~3 GHz

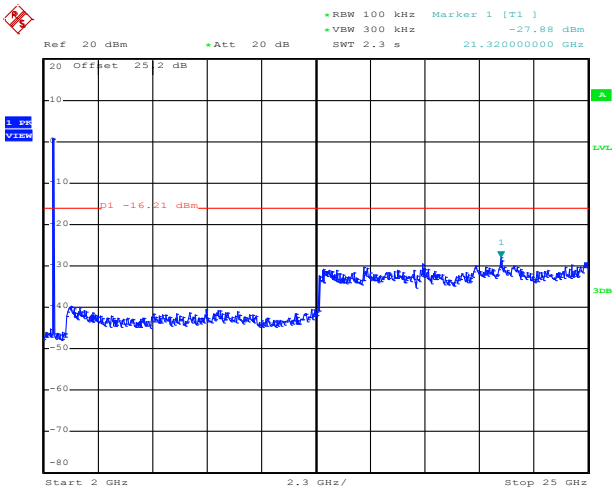
Conducted Spurious Emission Plot on Channel 01



Date: 6.FEB.2013 11:08:19

2.4GHz 802.11n HT20 2 GHz~25 GHz

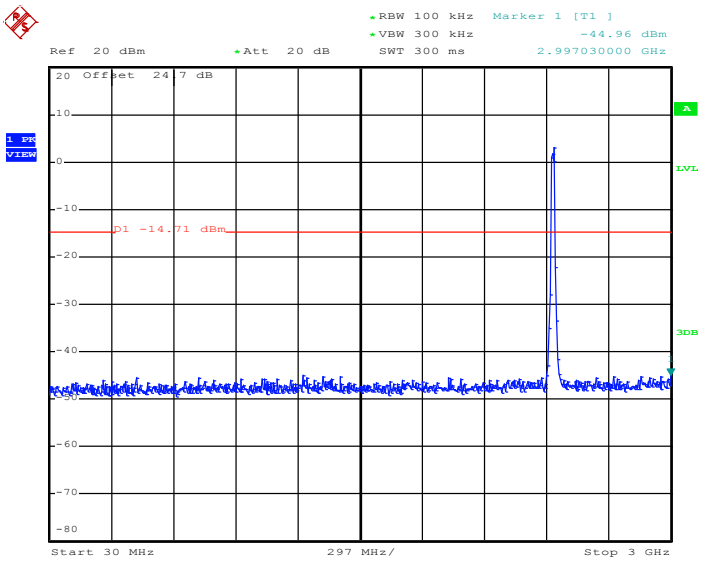
Conducted Spurious Emission Plot on Channel 01



Date: 6.FEB.2013 11:08:37

2.4GHz 802.11n HT20 30 MHz~3 GHz

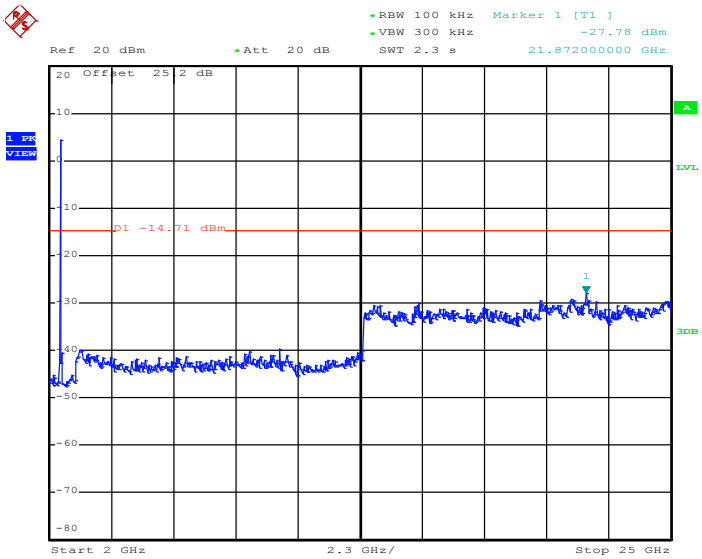
Conducted Spurious Emission Plot on Channel 06



Date: 6.FEB.2013 11:07:14

2.4GHz 802.11n HT20 2 GHz~25 GHz

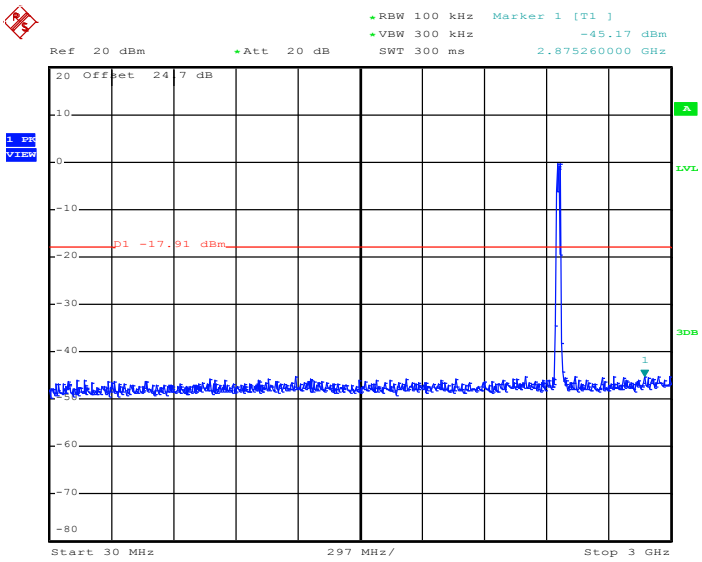
Conducted Spurious Emission Plot on Channel 06



Date: 6.FEB.2013 11:07:33

2.4GHz 802.11n HT20 30 MHz~3 GHz

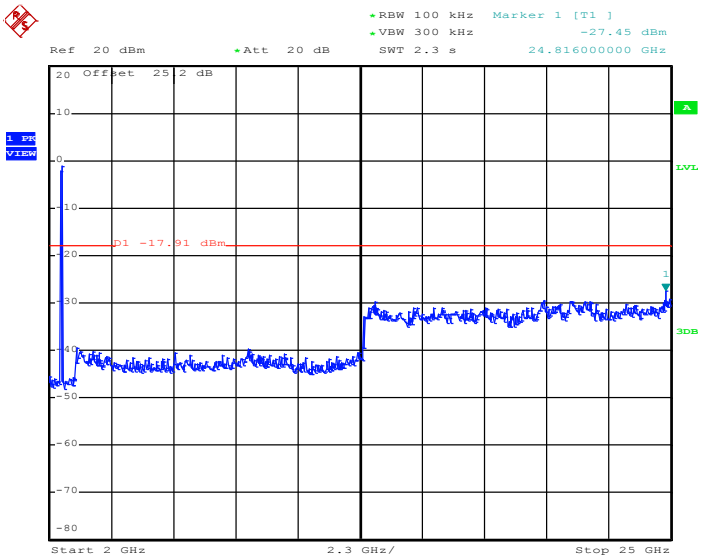
Conducted Spurious Emission Plot on Channel 11



Date: 6.FEB.2013 11:06:01

2.4GHz 802.11n HT20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11

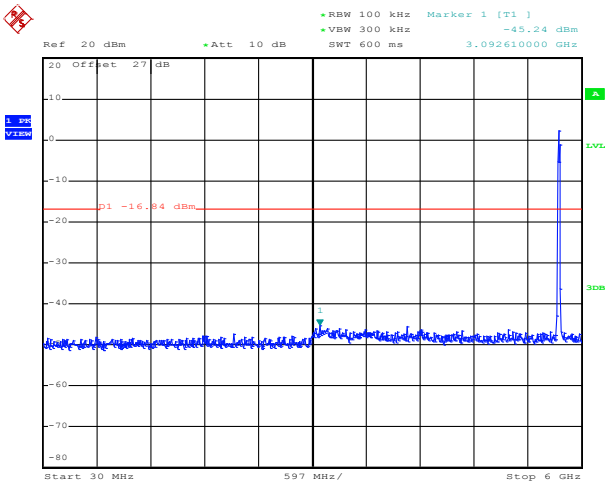


Date: 6.FEB.2013 11:06:19

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

802.11a 30 MHz~6 GHz

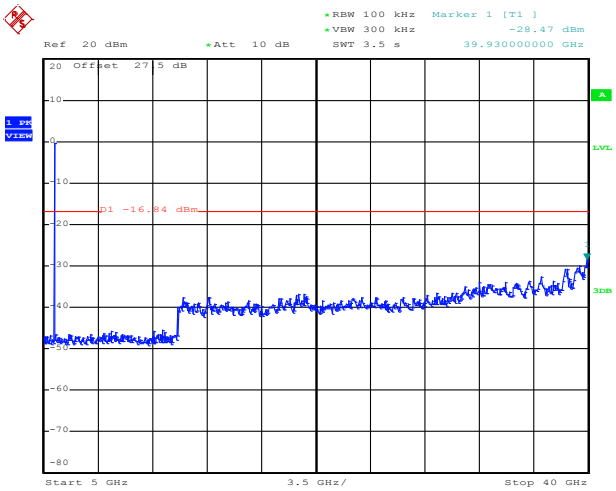
Conducted Spurious Emission Plot on Channel 149



Date: 15.FEB.2013 14:27:51

802.11a 5 GHz~40 GHz

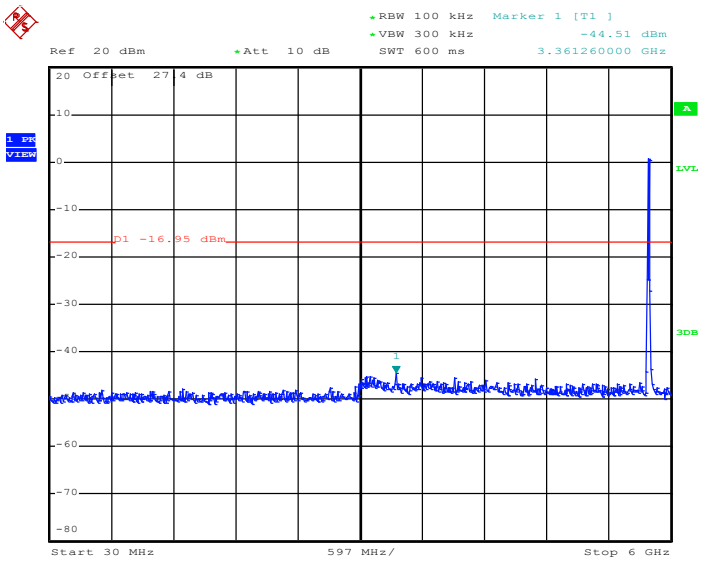
Conducted Spurious Emission Plot on Channel 149



Date: 15.FEB.2013 14:28:09

802.11a 30 MHz~6 GHz

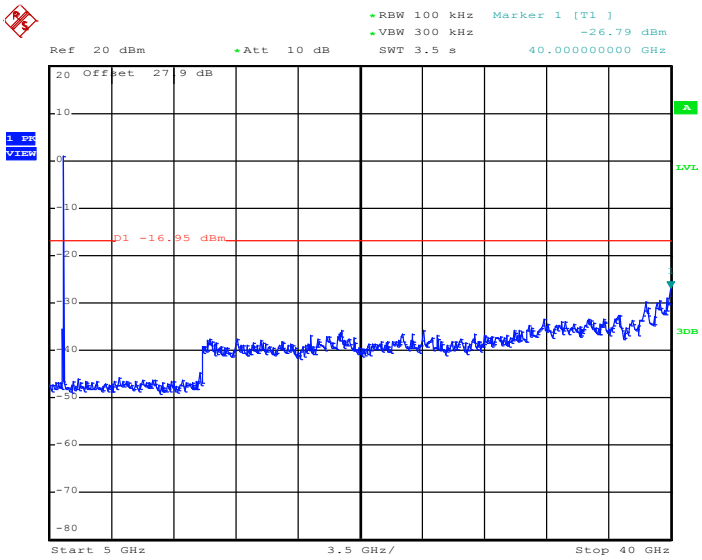
Conducted Spurious Emission Plot on Channel 157



Date: 6.FEB.2013 10:57:05

802.11a 5 GHz~40 GHz

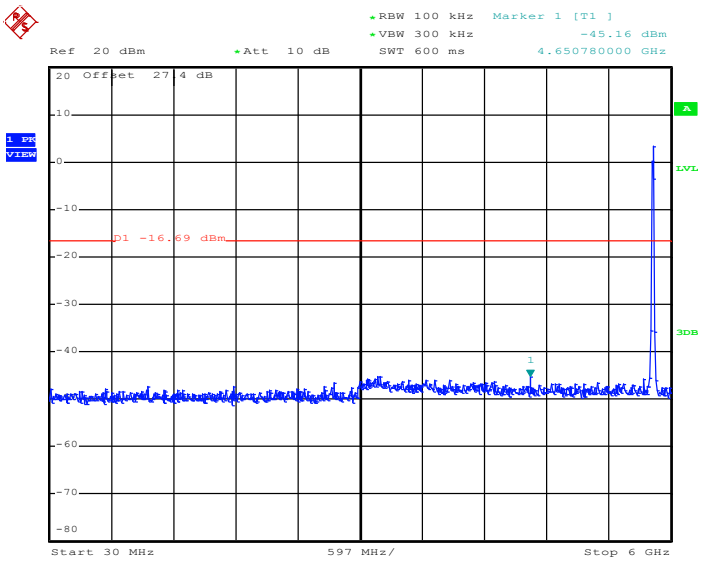
Conducted Spurious Emission Plot on Channel 157



Date: 6.FEB.2013 10:57:24

802.11a 30 MHz~6 GHz

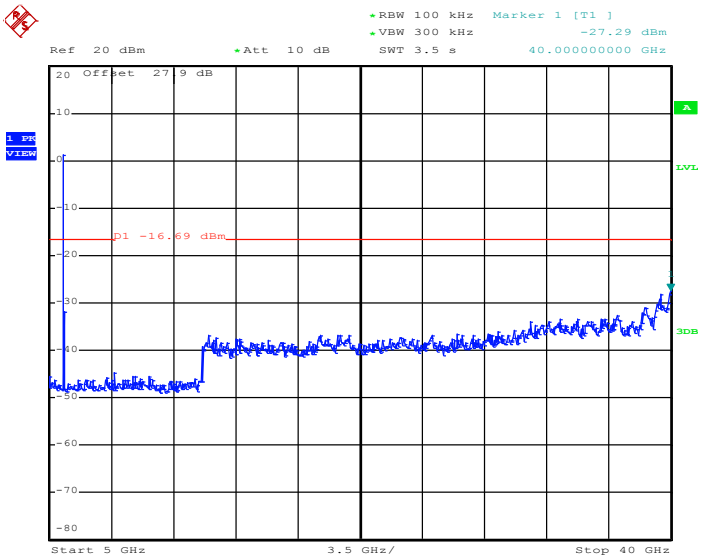
Conducted Spurious Emission Plot on Channel 165



Date: 6.FEB.2013 10:55:51

802.11a 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 165

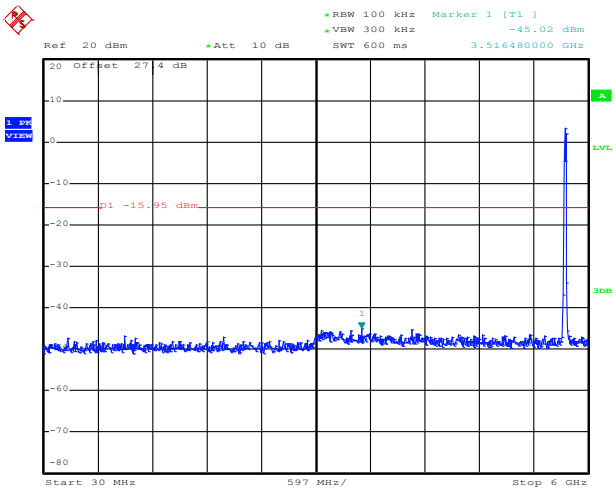


Date: 6.FEB.2013 10:56:10

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

5GHz 802.11n HT20 30 MHz~6 GHz

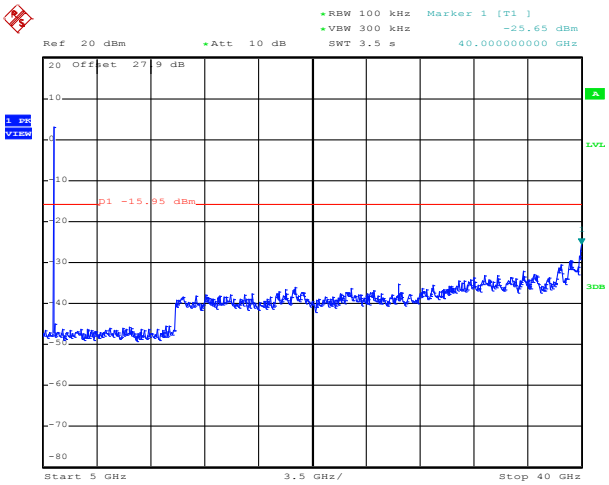
Conducted Spurious Emission Plot on Channel 149



Date: 6.FEB.2013 10:52:44

5GHz 802.11n HT20 5 GHz~40 GHz

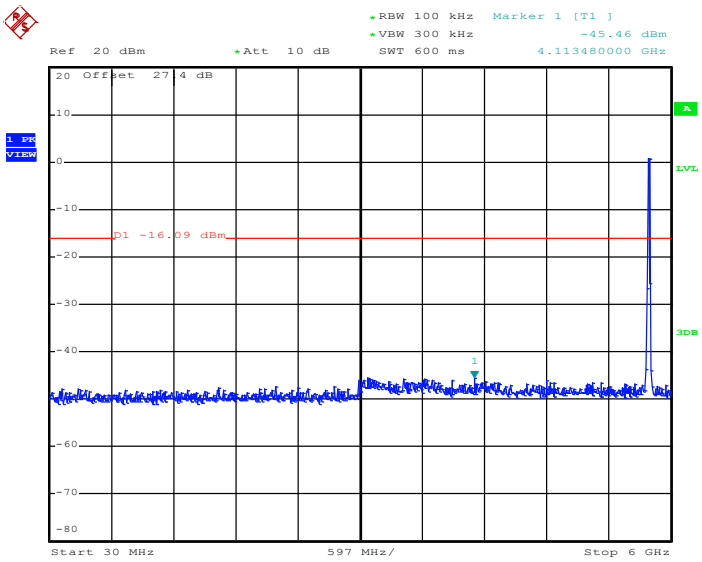
Conducted Spurious Emission Plot on Channel 149



Date: 6.FEB.2013 10:53:03

5GHz 802.11n HT20 30 MHz~6 GHz

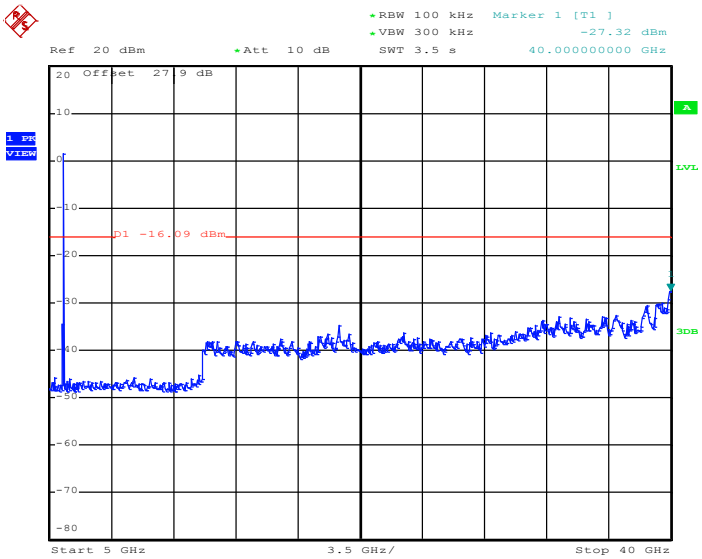
Conducted Spurious Emission Plot on Channel 157



Date: 6.FEB.2013 10:51:39

5GHz 802.11n HT20 5 GHz~40 GHz

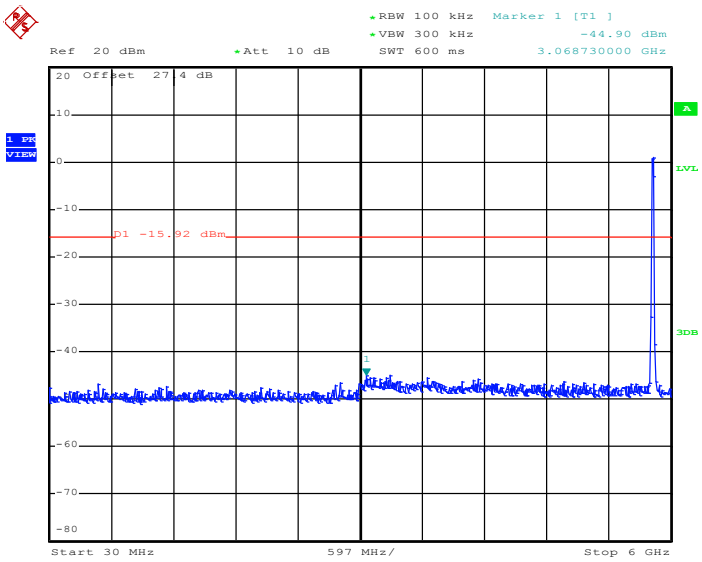
Conducted Spurious Emission Plot on Channel 157



Date: 6.FEB.2013 10:51:57

5GHz 802.11n HT20 30 MHz~6 GHz

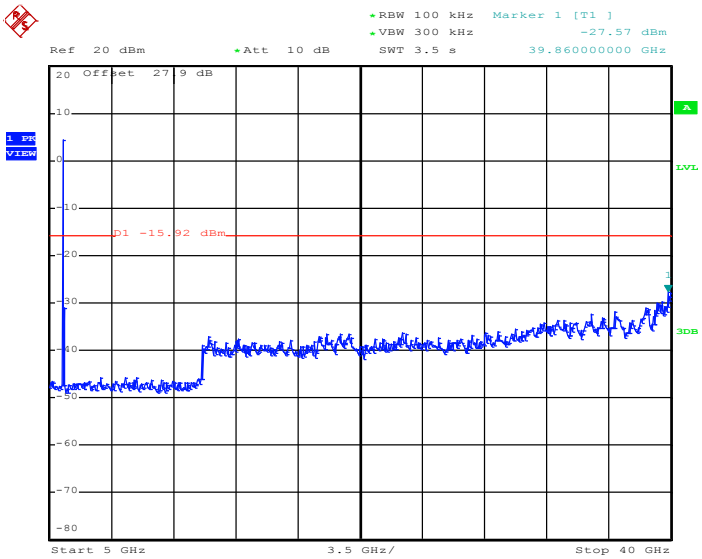
Conducted Spurious Emission Plot on Channel 165



Date: 6.FEB.2013 10:53:57

5GHz 802.11n HT20 5 GHz~40 GHz

Conducted Spurious Emission Plot on Channel 165



Date: 6.FEB.2013 10:54:15

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

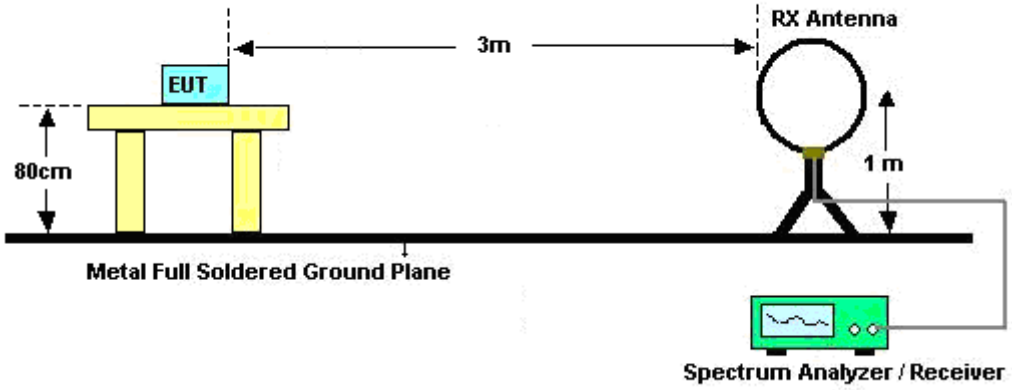
1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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	100.00	-	-	10Hz
802.11g	98.62	-	-	10Hz
2.4GHz 802.11n HT20	98.37	-	-	10Hz
802.11a	98.62	-	-	10Hz
5GHz 802.11n HT20	98.37	-	-	10Hz

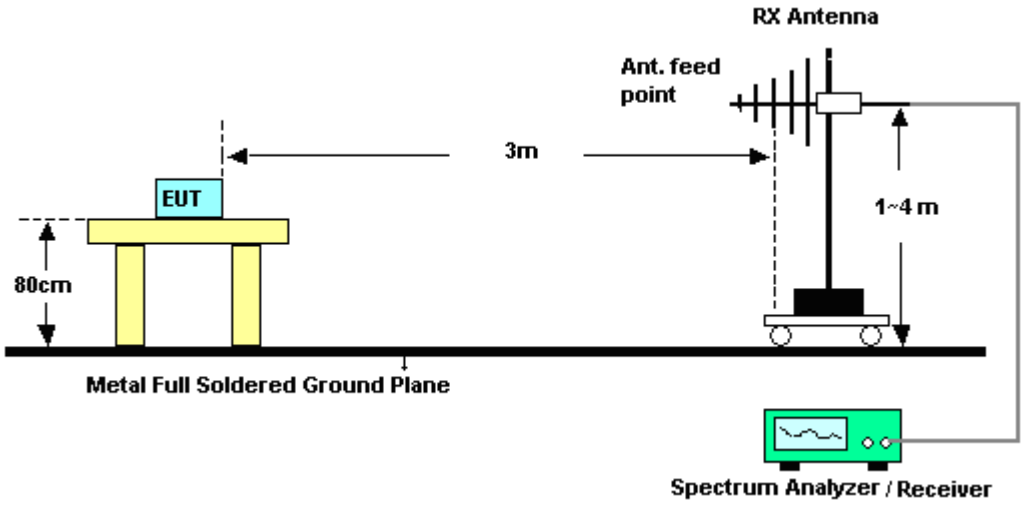
Note: For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

3.5.4 Test Setup

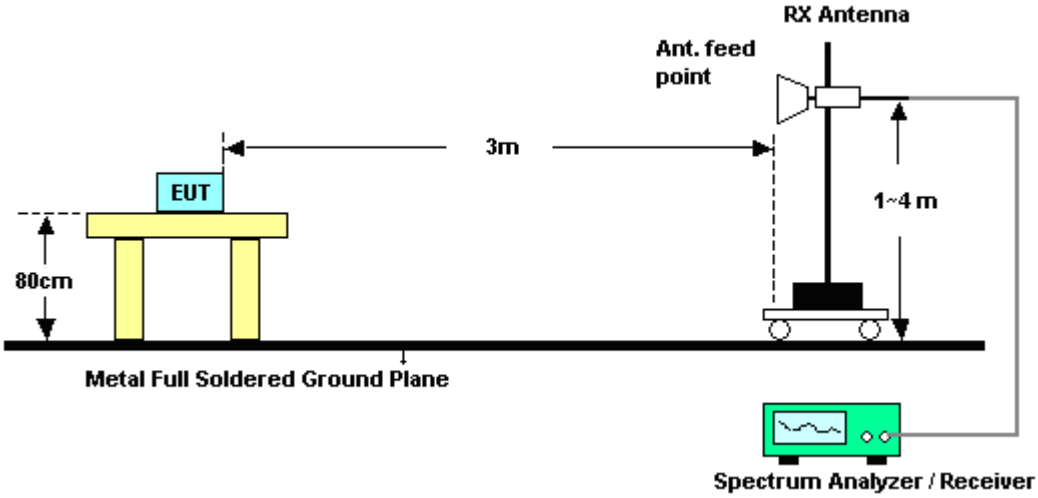
For radiated emissions below 30MHz



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 :**	21~22°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**
2385.96	56.01	-17.99	74	51.07	32.3	6.91	34.27	108	144	Peak
2386.59	47.21	-6.79	54	42.27	32.3	6.91	34.27	108	144	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**
2384.79	51.44	-22.56	74	46.52	32.28	6.91	34.27	150	360	Peak
2385.69	42.16	-11.84	54	37.22	32.3	6.91	34.27	150	360	Average

Test Mode :	802.11b	**Temperature :**	21~22°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**
2488	59.08	-14.92	74	54.05	32.4	7.06	34.43	103	97	Peak
2488.21	49.24	-4.76	54	44.21	32.4	7.06	34.43	103	97	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**
2487.4	53.27	-20.73	74	48.26	32.38	7.06	34.43	144	354	Peak
2488.12	43.23	-10.77	54	38.2	32.4	7.06	34.43	144	354	Average

Test Mode :	802.11b	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	12	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
2483.56	55.2	-18.8	74	50.19	32.38	7.06	34.43	103	97	Peak
2484.4	45.42	-8.58	54	40.41	32.38	7.06	34.43	103	97	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
2483.53	51.55	-22.45	74	46.54	32.38	7.06	34.43	145	10	Peak
2484.25	39.94	-14.06	54	34.93	32.38	7.06	34.43	145	10	Average

Test Mode :	802.11b	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	13	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
2486.74	54.16	-19.84	74	49.15	32.38	7.06	34.43	104	96	Peak
2487.37	44.95	-9.05	54	39.94	32.38	7.06	34.43	104	96	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
2483.56	50.5	-23.5	74	45.49	32.38	7.06	34.43	120	6	Peak
2483.5	39.68	-14.32	54	34.67	32.38	7.06	34.43	120	6	Average

Test Mode :	802.11g	Temperature :	21~22°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
2389.56	71.57	-2.43	74	66.63	32.3	6.91	34.27	135	135	Peak
2390	45.09	-8.91	54	40.18	32.3	6.91	34.3	135	135	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
2386.23	68.33	-5.67	74	63.39	32.3	6.91	34.27	149	353	Peak
2390	43.47	-10.53	54	38.56	32.3	6.91	34.3	149	353	Average

Test Mode :	802.11g	Temperature :	21~22°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
2483.86	70.76	-3.24	74	67.15	32.38	7.06	35.83	104	94	Peak
2483.5	47.55	-6.45	54	43.94	32.38	7.06	35.83	104	94	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2484.64	66.13	-7.87	74	61.12	32.38	7.06	34.43	144	357	Peak
2483.5	42.81	-11.19	54	37.8	32.38	7.06	34.43	144	357	Average

Test Mode :	802.11g	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	12	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
2483.8	69.09	-4.91	74	64.08	32.38	7.06	34.43	104	94	Peak
2483.5	48.18	-5.82	54	43.17	32.38	7.06	34.43	104	94	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	64.1	-9.9	74	59.09	32.38	7.06	34.43	144	356	Peak
2483.5	41.86	-12.14	54	36.85	32.38	7.06	34.43	144	356	Average

Test Mode :	802.11g	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	13	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
2483.68	72.12	-1.88	74	67.11	32.38	7.06	34.43	105	99	Peak
2483.5	49.55	-4.45	54	44.54	32.38	7.06	34.43	105	99	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
2483.53	70	-4	74	64.99	32.38	7.06	34.43	144	293	Peak
2483.5	42.96	-11.04	54	37.95	32.38	7.06	34.43	144	293	Average

Test Mode :	802.11n HT20	Temperature :	21~22°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	71.92	-2.08	74	67.01	32.3	6.91	34.3	110	148	Peak
2390	51.16	-2.84	54	46.25	32.3	6.91	34.3	110	148	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
2389.92	69	-5	74	64.09	32.3	6.91	34.3	149	5	Peak
2390	46.79	-7.21	54	41.88	32.3	6.91	34.3	149	5	Average

Test Mode :	802.11n HT20	Temperature :	21~22°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
2483.62	69.58	-4.42	74	64.57	32.38	7.06	34.43	104	97	Peak
2483.5	48.79	-5.21	54	43.78	32.38	7.06	34.43	104	97	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2486.59	57.14	-16.86	74	52.13	32.38	7.06	34.43	144	340	Peak
2483.5	37.32	-16.68	54	32.31	32.38	7.06	34.43	144	340	Average

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	12	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
2483.77	71.21	-2.79	74	66.2	32.38	7.06	34.43	103	95	Peak
2483.5	50.33	-3.67	54	45.32	32.38	7.06	34.43	103	95	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	57.31	-16.69	74	52.3	32.38	7.06	34.43	100	340	Peak
2483.5	38.2	-15.8	54	33.19	32.38	7.06	34.43	100	340	Average

Test Mode :	802.11n HT20	Temperature :	21~22°C
Test Band :	High	Relative Humidity :	51~53%
Test Channel :	13	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
2483.68	72.64	-1.36	74	67.63	32.38	7.06	34.43	103	99	Peak
2483.5	49.15	-4.85	54	44.14	32.38	7.06	34.43	103	99	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	67.43	-6.57	74	62.42	32.38	7.06	34.43	151	107	Peak
2483.5	43.54	-10.46	54	38.53	32.38	7.06	34.43	151	107	Average

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Band :	Low	**Relative Humidity :**	51~53%
Test Channel :	149	**Test Engineer :**	Marlboro Hsu
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. 5725 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level. For example, 105.27dBμV/m - 20dB = 85.27dBμV/m.		

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	69.18	-16.09	85.27	57.96	35.33	10.04	34.15	100	126	Peak
5744	94.12	-	-	82.89	35.34	10.06	34.17	100	126	Average
5744	105.27	-	-	94.04	35.34	10.06	34.17	100	126	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	71.23	-18.07	89.3	60.01	35.33	10.04	34.15	164	8	Peak
5744	98.27	-	-	87.04	35.34	10.06	34.17	164	7	Average
5744	109.3	-	-	98.07	35.34	10.06	34.17	164	7	Peak

Test Mode :	802.11a	**Temperature :**	21~22°C
Test Band :	High	**Relative Humidity :**	51~53%
Test Channel :	165	**Test Engineer :**	Marlboro Hsu
Remark :	1. 5824 MHz and 5826 MHz are fundamental signal which can be ignored. 2. 5850 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	93.8	-	-	82.56	35.4	10.11	34.27	107	122	Average
5824	105.45	-	-	94.21	35.4	10.11	34.27	107	122	Peak
5850	59.49	-25.96	85.45	48.26	35.41	10.13	34.31	107	122	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
5826	98.55	-	-	87.31	35.4	10.11	34.27	190	14	Average
5826	110.08	-	-	98.84	35.4	10.11	34.27	190	14	Peak
5850	64.54	-25.54	90.08	53.31	35.41	10.13	34.31	190	14	Peak

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Band :	Low	**Relative Humidity :**	51~53%
Test Channel :	149	**Test Engineer :**	Marlboro Hsu
Remark :	1. 5744 MHz is fundamental signal which can be ignored. 2. 5725 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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	69.28	-15.45	84.73	58.06	35.33	10.04	34.15	100	125	Peak
5744	93.74	-	-	82.51	35.34	10.06	34.17	100	125	Average
5744	104.73	-	-	93.5	35.34	10.06	34.17	100	125	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	72.88	-16.89	89.77	61.66	35.33	10.04	34.15	194	16	Peak
5744	98.05	-	-	86.82	35.34	10.06	34.17	194	16	Average
5744	109.77	-	-	98.54	35.34	10.06	34.17	194	16	Peak

Test Mode :	802.11n HT20	**Temperature :**	21~22°C
Test Band :	High	**Relative Humidity :**	51~53%
Test Channel :	165	**Test Engineer :**	Marlboro Hsu
Remark :	1. 5826 MHz is fundamental signal which can be ignored. 2. 5850 MHz is not within a restricted band, and its limit line is 20dB below the highest emission level.		

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
5826	92.39	-	-	81.15	35.4	10.11	34.27	100	121	Average
5826	104.34	-	-	93.1	35.4	10.11	34.27	100	121	Peak
5850	59.91	-24.43	84.34	48.68	35.41	10.13	34.31	100	121	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
5826	97.95	-	-	86.71	35.4	10.11	34.27	190	16	Average
5826	109.86	-	-	98.62	35.4	10.11	34.27	190	16	Peak
5850	70.81	-19.05	89.86	59.58	35.41	10.13	34.31	190	16	Peak

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

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2410 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. For example, 110.40 dBμV/m - 20dB = 90.40 dBμV/m. 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
96.69	26.93	-16.57	43.5	48.18	9.44	0.98	31.67	100	123	Peak
177.42	22.34	-21.16	43.5	43.31	9	1.24	31.21	-	-	Peak
239.79	19.94	-26.06	46	37.75	11.86	1.53	31.2	-	-	Peak
446.3	17.56	-28.44	46	29.44	16.97	2.29	31.14	-	-	Peak
699.7	22.66	-23.34	46	29.62	20.59	2.94	30.49	-	-	Peak
797	24.73	-21.27	46	29.71	22.06	3.14	30.18	-	-	Peak
2410	105.54	-	-	100.58	32.31	6.95	34.3	108	144	Average
2410	110.4	-	-	105.44	32.31	6.95	34.3	108	144	Peak
4824	41.68	-32.32	74	56.41	33.97	8.77	57.47	100	0	Peak
7236	42.62	-47.78	90.4	54.22	35.55	10.83	57.98	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2410 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. 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
64.56	26.22	-13.78	40	50.99	6.2	0.8	31.77	100	76	Peak
119.1	24.88	-18.62	43.5	43.8	11.61	1.1	31.63	-	-	Peak
190.65	15.13	-28.37	43.5	36.16	9.01	1.28	31.32	-	-	Peak
460.3	18.56	-27.44	46	30.14	17.27	2.32	31.17	-	-	Peak
577.9	21.06	-24.94	46	29.87	19.42	2.63	30.86	-	-	Peak
701.1	23.07	-22.93	46	30.01	20.61	2.94	30.49	-	-	Peak
2410	100.14	-	-	95.18	32.31	6.95	34.3	150	360	Average
2410	105.31	-	-	100.35	32.31	6.95	34.3	150	360	Peak
4824	39.21	-34.79	74	56.46	33.97	8.77	59.99	100	0	Peak
7236	41.49	-43.82	85.31	54.5	35.55	10.83	59.39	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°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
49.17	29.81	-10.19	40	52.25	8.5	0.69	31.63	100	156	Peak
118.83	28.27	-15.23	43.5	47.19	11.61	1.1	31.63	-	-	Peak
228.18	19.12	-26.88	46	37.81	11.05	1.47	31.21	-	-	Peak
446.3	17.56	-28.44	46	29.44	16.97	2.29	31.14	-	-	Peak
654.9	22.47	-23.53	46	29.75	20.23	2.85	30.36	-	-	Peak
882.4	24.44	-21.56	46	28.92	22.93	3.32	30.73	-	-	Peak
2438	106.25	-	-	101.26	32.35	6.99	34.35	134	147	Average
2438	111.01	-	-	106.02	32.35	6.99	34.35	134	147	Peak
4875	44.4	-29.6	74	59.11	33.95	8.82	57.48	100	0	Peak
7311	42.56	-31.44	74	54.13	35.54	10.91	58.02	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°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
85.89	24.96	-15.04	40	47.5	8.24	0.92	31.7	100	56	Peak
172.29	22.49	-21.01	43.5	43.22	9.29	1.24	31.26	-	-	Peak
261.12	16.54	-29.46	46	33.45	12.75	1.6	31.26	-	-	Peak
358.8	18.07	-27.93	46	32.53	14.9	2.05	31.41	-	-	Peak
647.9	22.31	-23.69	46	29.66	20.18	2.83	30.36	-	-	Peak
804.7	25.01	-20.99	46	29.91	22.15	3.15	30.2	-	-	Peak
2438	101.92	-	-	96.93	32.35	6.99	34.35	147	352	Average
2438	106.47	-	-	101.48	32.35	6.99	34.35	147	352	Peak
4875	41.06	-32.94	74	58.07	33.95	8.82	59.78	100	0	Peak
7311	40.94	-33.06	74	53.94	35.54	10.91	59.45	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°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. 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
80.49	20.13	-19.87	40	43.27	7.7	0.88	31.72	100	97	Peak
191.73	18.01	-25.49	43.5	39.02	9.02	1.29	31.32	-	-	Peak
247.62	17.96	-28.04	46	35.2	12.4	1.53	31.17	-	-	Peak
377.7	16.9	-29.1	46	30.72	15.4	2.09	31.31	-	-	Peak
633.9	21.58	-24.42	46	29.13	20.07	2.79	30.41	-	-	Peak
831.3	24.34	-21.66	46	29.11	22.41	3.22	30.4	-	-	Peak
2464	108.11	-	-	103.11	32.37	7.02	34.39	103	97	Average
2464	112.88	-	-	107.88	32.37	7.02	34.39	103	97	Peak
4923	42.02	-31.98	74	56.7	33.93	8.87	57.48	100	0	Peak
7386	42.77	-31.23	74	54.34	35.52	10.99	58.08	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2464 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
36.48	25.11	-14.89	40	41.13	15.24	0.6	31.86	-	-	Peak
63.48	28.91	-11.09	40	53.71	6.18	0.79	31.77	100	43	Peak
119.1	24.88	-18.62	43.5	43.8	11.61	1.1	31.63	-	-	Peak
387.5	17.07	-28.93	46	30.64	15.69	2.12	31.38	-	-	Peak
667.5	22.41	-23.59	46	29.6	20.34	2.87	30.4	-	-	Peak
829.9	24.51	-21.49	46	29.28	22.4	3.22	30.39	-	-	Peak
2464	101.89	-	-	96.89	32.37	7.02	34.39	144	354	Average
2464	106.6	-	-	101.6	32.37	7.02	34.39	144	354	Peak
4923	39.82	-34.18	74	56.6	33.93	8.87	59.58	100	0	Peak
7386	41.06	-32.94	74	54.07	35.52	10.99	59.52	100	0	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2466 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2466	101.95	-	-	96.95	32.37	7.02	34.39	103	97	Average
2466	106.63	-	-	101.63	32.37	7.02	34.39	103	97	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2466 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2466	95.13	-	-	90.13	32.37	7.02	34.39	145	10	Average
2466	99.81	-	-	94.81	32.37	7.02	34.39	145	10	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2472 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2472	98.58	-	-	93.61	32.38	7.02	34.43	104	96	Average
2472	103.29	-	-	98.32	32.38	7.02	34.43	104	96	Peak

Test Mode :	802.11b	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2472 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2474	92.75	-	-	87.78	32.38	7.02	34.43	120	6	Average
2474	97.34	-	-	92.37	32.38	7.02	34.43	120	6	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2412 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. 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
60.24	16.87	-23.13	40	41.79	6.1	0.76	31.78	-	-	Peak
127.74	22.23	-21.27	43.5	41.03	11.64	1.14	31.58	-	-	Peak
213.33	17.06	-26.44	43.5	37	10.04	1.38	31.36	-	-	Peak
400.1	17.76	-28.24	46	31.12	16.02	2.14	31.52	-	-	Peak
608	20.9	-25.1	46	28.84	19.86	2.71	30.51	-	-	Peak
856.5	25.05	-20.95	46	29.68	22.66	3.28	30.57	100	76	Peak
2412	100.03	-	-	95.07	32.31	6.95	34.3	135	135	Average
2412	110.57	-	-	105.61	32.31	6.95	34.3	135	135	Peak
4824	41.91	-32.09	74	56.64	33.97	8.77	57.47	100	0	Peak
7236	42.21	-48.36	90.57	53.81	35.55	10.83	57.98	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2411 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. 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
49.17	24.85	-15.15	40	47.29	8.5	0.69	31.63	100	52	Peak
106.95	20.24	-23.26	43.5	40.5	10.43	1.03	31.72	-	-	Peak
190.11	14.29	-29.21	43.5	35.33	9	1.28	31.32	-	-	Peak
366.5	16.08	-29.92	46	30.28	15.11	2.07	31.38	-	-	Peak
592.6	21.41	-24.59	46	29.71	19.67	2.67	30.64	-	-	Peak
857.9	23.87	-22.13	46	28.5	22.68	3.28	30.59	-	-	Peak
2411	96.51	-	-	91.55	32.31	6.95	34.3	149	353	Average
2411	107.79	-	-	102.83	32.31	6.95	34.3	149	353	Peak
4824	39.04	-34.96	74	56.29	33.97	8.77	59.99	100	0	Peak
7236	40.71	-47.08	87.79	53.72	35.55	10.83	59.39	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°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
49.17	29.62	-10.38	40	52.06	8.5	0.69	31.63	100	77	Peak
112.62	25.25	-18.25	43.5	44.92	10.98	1.06	31.71	-	-	Peak
213.33	17.06	-26.44	43.5	37	10.04	1.38	31.36	-	-	Peak
424.6	17.1	-28.9	46	29.57	16.52	2.23	31.22	-	-	Peak
636.7	21.3	-24.7	46	28.81	20.09	2.8	30.4	-	-	Peak
809.6	24.93	-21.07	46	29.8	22.2	3.17	30.24	-	-	Peak
2438	104.3	-	-	99.31	32.35	6.99	34.35	104	94	Average
2438	114.21	-	-	109.22	32.35	6.99	34.35	104	94	Peak
4875	42.68	-31.32	74	57.39	33.95	8.82	57.48	100	0	Peak
7311	42.37	-31.63	74	53.94	35.54	10.91	58.02	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	06	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2435 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
64.02	27.77	-12.23	40	52.57	6.18	0.79	31.77	100	91	Peak
145.56	16.7	-26.8	43.5	35.62	11.29	1.21	31.42	-	-	Peak
202.8	12.28	-31.22	43.5	32.99	9.3	1.33	31.34	-	-	Peak
548.5	19.17	-26.83	46	28.94	18.93	2.55	31.25	-	-	Peak
729.1	22.19	-23.81	46	28.65	21.04	3.01	30.51	-	-	Peak
902.7	24.47	-21.53	46	28.81	23.14	3.35	30.83	-	-	Peak
2435	98.54	-	-	93.57	32.33	6.99	34.35	148	354	Average
2435	109.44	-	-	104.47	32.33	6.99	34.35	148	354	Peak
4875	39.79	-34.21	74	56.8	33.95	8.82	59.78	100	0	Peak
7311	40.4	-33.6	74	53.4	35.54	10.91	59.45	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°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
84	17.33	-22.67	40	40.08	8.06	0.9	31.71	-	-	Peak
164.46	22.01	-21.49	43.5	42.1	10.03	1.23	31.35	-	-	Peak
291.09	20.62	-25.38	46	37.15	13.18	1.7	31.41	-	-	Peak
597.5	20.87	-25.13	46	29.02	19.75	2.68	30.58	-	-	Peak
809.6	24.93	-21.07	46	29.8	22.2	3.17	30.24	-	-	Peak
856.5	25.05	-20.95	46	29.68	22.66	3.28	30.57	100	36	Peak
2463	102.08	-	-	97.08	32.37	7.02	34.39	104	94	Average
2463	113.42	-	-	108.42	32.37	7.02	34.39	104	94	Peak
4923	43.12	-30.88	74	57.8	33.93	8.87	57.48	100	0	Peak
7386	42.62	-31.38	74	54.19	35.52	10.99	58.08	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
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
59.7	24.1	-15.9	40	49.02	6.1	0.76	31.78	100	76	Peak
113.43	22.12	-21.38	43.5	41.69	11.07	1.07	31.71	-	-	Peak
174.45	21.15	-22.35	43.5	42.05	9.1	1.24	31.24	-	-	Peak
313.3	16.98	-29.02	46	32.68	13.67	1.8	31.17	-	-	Peak
506.5	19.13	-26.87	46	29.4	18.2	2.46	30.93	-	-	Peak
850.9	24.09	-21.91	46	28.77	22.6	3.27	30.55	-	-	Peak
2463	96.89	-	-	91.89	32.37	7.02	34.39	144	357	Average
2463	107.39	-	-	102.39	32.37	7.02	34.39	144	357	Peak
4923	40.02	-33.98	74	56.8	33.93	8.87	59.58	100	0	Peak
7386	42.11	-31.89	74	55.12	35.52	10.99	59.52	100	0	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2466 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2466	96.61	-	-	91.61	32.37	7.02	34.39	104	94	Average
2466	107.39	-	-	102.39	32.37	7.02	34.39	104	94	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2466 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2466	90.69	-	-	85.69	32.37	7.02	34.39	144	356	Average
2466	101.97	-	-	96.97	32.37	7.02	34.39	144	356	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2471 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2471	88.56	-	-	83.59	32.38	7.02	34.43	105	99	Average
2471	99.79	-	-	94.82	32.38	7.02	34.43	105	99	Peak

Test Mode :	802.11g	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2473 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2473	81.89	-	-	76.92	32.38	7.02	34.43	144	293	Average
2473	92.92	-	-	87.95	32.38	7.02	34.43	144	293	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	01	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 2410 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. 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
44.85	23.89	-16.11	40	44.46	10.5	0.65	31.72	100	103	Peak
89.67	18.38	-25.12	43.5	40.49	8.6	0.94	31.65	-	-	Peak
163.92	22.39	-21.11	43.5	42.39	10.13	1.22	31.35	-	-	Peak
449.1	17.82	-28.18	46	29.64	17.03	2.3	31.15	-	-	Peak
668.9	22.09	-23.91	46	29.26	20.35	2.88	30.4	-	-	Peak
869.1	24.32	-21.68	46	28.88	22.79	3.3	30.65	-	-	Peak
2410	99.9	-	-	94.94	32.31	6.95	34.3	110	148	Average
2410	110.76	-	-	105.8	32.31	6.95	34.3	110	148	Peak
4824	42	-32	74	56.73	33.97	8.77	57.47	100	0	Peak
7236	41.97	-48.79	90.76	53.57	35.55	10.83	57.98	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	21~22°C
Test Channel :	01	**Relative Humidity :**	51~53%
Test Engineer :	Marlboro Hsu	**Polarization :**	Vertical
Remark :	1. 2411 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. 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
63.48	28.73	-11.27	40	53.53	6.18	0.79	31.77	100	68	Peak
118.02	25.07	-18.43	43.5	44.11	11.52	1.09	31.65	-	-	Peak
230.61	16.07	-29.93	46	34.54	11.25	1.49	31.21	-	-	Peak
419.7	17.45	-28.55	46	30.07	16.42	2.21	31.25	-	-	Peak
699	22.01	-23.99	46	28.97	20.59	2.94	30.49	-	-	Peak
854.4	24.92	-21.08	46	29.56	22.64	3.28	30.56	-	-	Peak
2411	97.07	-	-	92.11	32.31	6.95	34.3	149	5	Average
2411	107.81	-	-	102.85	32.31	6.95	34.3	149	5	Peak
4824	40.14	-33.86	74	57.39	33.97	8.77	59.99	100	0	Peak
7236	40.6	-47.21	87.81	53.61	35.55	10.83	59.39	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°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
81.03	17.26	-22.74	40	40.3	7.79	0.89	31.72	-	-	Peak
163.92	22.39	-21.11	43.5	42.39	10.13	1.22	31.35	100	39	Peak
238.17	20.66	-25.34	46	38.55	11.79	1.52	31.2	-	-	Peak
449.1	17.82	-28.18	46	29.64	17.03	2.3	31.15	-	-	Peak
628.3	21.89	-24.11	46	29.51	20.03	2.78	30.43	-	-	Peak
823.6	24.72	-21.28	46	29.53	22.33	3.2	30.34	-	-	Peak
2438	102.84	-	-	97.85	32.35	6.99	34.35	134	100	Average
2438	113.52	-	-	108.53	32.35	6.99	34.35	134	100	Peak
4875	42.78	-31.22	74	57.49	33.95	8.82	57.48	100	0	Peak
7311	41.96	-32.04	74	53.53	35.54	10.91	58.02	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	**Temperature :**	21~22°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
86.16	24.66	-15.34	40	47.2	8.24	0.92	31.7	100	89	Peak
131.79	22.21	-21.29	43.5	41.04	11.56	1.16	31.55	-	-	Peak
230.61	16.07	-29.93	46	34.54	11.25	1.49	31.21	-	-	Peak
316.1	17	-29	46	32.6	13.75	1.8	31.15	-	-	Peak
583.5	20.57	-25.43	46	29.19	19.52	2.64	30.78	-	-	Peak
854.4	24.92	-21.08	46	29.56	22.64	3.28	30.56	-	-	Peak
2438	96.66	-	-	91.67	32.35	6.99	34.35	147	348	Average
2438	107.64	-	-	102.65	32.35	6.99	34.35	147	348	Peak
4875	40.55	-33.45	74	57.56	33.95	8.82	59.78	100	0	Peak
7311	41.86	-32.14	74	54.86	35.54	10.91	59.45	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°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
89.67	18.38	-25.12	43.5	40.49	8.6	0.94	31.65	-	-	Peak
129.36	22.53	-20.97	43.5	41.35	11.62	1.14	31.58	100	95	Peak
239.25	19.71	-26.29	46	37.52	11.86	1.53	31.2	-	-	Peak
395.9	16.89	-29.11	46	30.34	15.9	2.13	31.48	-	-	Peak
668.9	22.09	-23.91	46	29.26	20.35	2.88	30.4	-	-	Peak
823.6	24.72	-21.28	46	29.53	22.33	3.2	30.34	-	-	Peak
2463	101.02	-	-	96.02	32.37	7.02	34.39	104	97	Average
2463	112.59	-	-	107.59	32.37	7.02	34.39	104	97	Peak
4923	42.97	-31.03	74	57.65	33.93	8.87	57.48	100	0	Peak
7386	42.54	-31.46	74	54.11	35.52	10.99	58.08	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	11	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 2464 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
63.48	28.73	-11.27	40	53.53	6.18	0.79	31.77	100	143	Peak
162.84	23.46	-20.04	43.5	43.38	10.22	1.22	31.36	-	-	Peak
230.61	16.07	-29.93	46	34.54	11.25	1.49	31.21	-	-	Peak
497.4	19.11	-26.89	46	29.53	18.04	2.44	30.9	-	-	Peak
619.2	21.56	-24.44	46	29.33	19.95	2.75	30.47	-	-	Peak
658.4	21.93	-24.07	46	29.17	20.27	2.86	30.37	-	-	Peak
2464	91.55	-	-	86.55	32.37	7.02	34.39	144	340	Average
2464	103.07	-	-	98.07	32.37	7.02	34.39	144	340	Peak
4923	40.91	-33.09	74	57.69	33.93	8.87	59.58	100	0	Peak
7386	41.08	-32.92	74	54.09	35.52	10.99	59.52	100	0	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2468 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2468	96.59	-	-	91.63	32.37	7.02	34.43	103	95	Average
2468	107.68	-	-	102.72	32.37	7.02	34.43	103	95	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	12	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2466 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2466	86.88	-	-	81.88	32.37	7.02	34.39	100	340	Average
2466	97.25	-	-	92.25	32.37	7.02	34.39	100	340	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	2473 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2473	87.66	-	-	82.69	32.38	7.02	34.43	103	99	Average
2473	99.44	-	-	94.47	32.38	7.02	34.43	103	99	Peak

Test Mode :	2.4GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	13	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	2473 MHz is fundamental signal which can be ignored.		

Frequency (MHz)	Level (dBµV/m)	Over Limit (dB)	Limit Line (dBµV/m)	Read Level (dBµV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2473	79.33	-	-	74.36	32.38	7.02	34.43	151	107	Average
2473	90.62	-	-	85.65	32.38	7.02	34.43	151	107	Peak

Test Mode :	802.11a	Temperature :	21~22°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. 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
59.97	17.34	-22.66	40	42.26	6.1	0.76	31.78	-	-	Peak
134.49	20.36	-23.14	43.5	39.22	11.5	1.17	31.53	-	-	Peak
237.09	20.41	-25.59	46	38.44	11.66	1.51	31.2	-	-	Peak
357.4	17.03	-28.97	46	31.53	14.87	2.04	31.41	-	-	Peak
745.9	23.42	-22.58	46	29.62	21.28	3.05	30.53	-	-	Peak
885.9	25.36	-20.64	46	29.84	22.95	3.32	30.75	100	124	Peak
5744	94.12	-	-	82.89	35.34	10.06	34.17	100	126	Average
5744	105.27	-	-	94.04	35.34	10.06	34.17	100	126	Peak
11490	45.17	-28.83	74	51	38.38	14.33	58.54	100	0	Peak

Test Mode :	802.11a	Temperature :	21~22°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. 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
63.21	29.13	-10.87	40	53.96	6.16	0.78	31.77	100	50	Peak
160.95	23.54	-19.96	43.5	43.29	10.41	1.22	31.38	-	-	Peak
216.84	14.78	-31.22	46	34.35	10.31	1.4	31.28	-	-	Peak
419	17.72	-28.28	46	30.37	16.4	2.21	31.26	-	-	Peak
626.2	21.45	-24.55	46	29.11	20.01	2.77	30.44	-	-	Peak
753.6	23.53	-22.47	46	29.56	21.4	3.07	30.5	-	-	Peak
5744	98.27	-	-	87.04	35.34	10.06	34.17	164	7	Average
5744	109.3	-	-	98.07	35.34	10.06	34.17	164	7	Peak
11490	45.34	-28.66	74	50.67	38.38	14.33	58.04	100	0	Peak

Test Mode :	802.11a	Temperature :	21~22°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
49.17	28.65	-11.35	40	51.09	8.5	0.69	31.63	100	76	Peak
118.02	28.44	-15.06	43.5	47.48	11.52	1.09	31.65	-	-	Peak
237.09	20.41	-25.59	46	38.44	11.66	1.51	31.2	-	-	Peak
432.3	18.12	-27.88	46	30.36	16.69	2.25	31.18	-	-	Peak
639.5	22.55	-23.45	46	30.02	20.11	2.81	30.39	-	-	Peak
813.1	24.39	-21.61	46	29.25	22.23	3.17	30.26	-	-	Peak
5784	93.7	-	-	82.49	35.37	10.07	34.23	100	96	Average
5784	104.69	-	-	93.48	35.37	10.07	34.23	100	96	Peak
11571	44.61	-29.39	74	50.32	38.46	14.41	58.58	100	0	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
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
63.21	29.13	-10.87	40	53.96	6.16	0.78	31.77	100	53	Peak
157.71	21.02	-22.48	43.5	40.55	10.64	1.22	31.39	-	-	Peak
216.84	14.78	-31.22	46	34.35	10.31	1.4	31.28	-	-	Peak
365.8	16.48	-29.52	46	30.71	15.08	2.07	31.38	-	-	Peak
626.2	21.45	-24.55	46	29.11	20.01	2.77	30.44	-	-	Peak
848.1	25.64	-20.36	46	30.32	22.58	3.26	30.52	-	-	Peak
5786	98.82	-	-	87.6	35.38	10.07	34.23	193	16	Average
5786	110.03	-	-	98.81	35.38	10.07	34.23	193	16	Peak
11571	44.21	-29.79	74	49.28	38.46	14.41	57.94	100	0	Peak

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Test Mode :	802.11a	Temperature :	21~22°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
59.97	17.34	-22.66	40	42.26	6.1	0.76	31.78	-	-	Peak
129.09	22.37	-21.13	43.5	41.19	11.62	1.14	31.58	100	123	Peak
221.97	18.36	-27.64	46	37.5	10.65	1.43	31.22	-	-	Peak
428.1	17.15	-28.85	46	29.52	16.59	2.24	31.2	-	-	Peak
691.3	22.28	-23.72	46	29.29	20.53	2.92	30.46	-	-	Peak
813.1	24.39	-21.61	46	29.25	22.23	3.17	30.26	-	-	Peak
5824	93.8	-	-	82.56	35.4	10.11	34.27	107	122	Average
5824	105.45	-	-	94.21	35.4	10.11	34.27	107	122	Peak
11649	43.5	-30.5	74	49.08	38.51	14.52	58.61	100	0	Peak

Test Mode :	802.11a	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5826 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
97.5	23	-20.5	43.5	44.12	9.56	0.99	31.67	100	21	Peak
191.73	15.58	-27.92	43.5	36.59	9.02	1.29	31.32	-	-	Peak
216.84	14.78	-31.22	46	34.35	10.31	1.4	31.28	-	-	Peak
419	17.72	-28.28	46	30.37	16.4	2.21	31.26	-	-	Peak
691.3	22.23	-23.77	46	29.24	20.53	2.92	30.46	-	-	Peak
820.1	25.34	-20.66	46	30.16	22.3	3.19	30.31	-	-	Peak
5826	98.55	-	-	87.31	35.4	10.11	34.27	190	14	Average
5826	110.08	-	-	98.84	35.4	10.11	34.27	190	14	Peak
11649	44.14	-29.86	74	49	38.51	14.52	57.89	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°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. 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
86.7	17.33	-22.67	40	39.86	8.24	0.92	31.69	-	-	Peak
117.48	27.65	-15.85	43.5	46.79	11.43	1.09	31.66	100	148	Peak
191.73	18.53	-24.97	43.5	39.54	9.02	1.29	31.32	-	-	Peak
444.2	17.16	-28.84	46	29.08	16.93	2.29	31.14	-	-	Peak
664.7	21.63	-24.37	46	28.84	20.31	2.87	30.39	-	-	Peak
876.1	24.98	-21.02	46	29.5	22.86	3.31	30.69	-	-	Peak
5744	93.74	-	-	82.51	35.34	10.06	34.17	100	125	Average
5744	104.73	-	-	93.5	35.34	10.06	34.17	100	125	Peak
11490	44.89	-29.11	74	50.72	38.38	14.33	58.54	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°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. 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
86.7	23.99	-16.01	40	46.52	8.24	0.92	31.69	100	27	Peak
130.98	22.94	-20.56	43.5	41.77	11.58	1.15	31.56	-	-	Peak
212.79	14.73	-28.77	43.5	34.74	9.98	1.37	31.36	-	-	Peak
400.1	16.84	-29.16	46	30.2	16.02	2.14	31.52	-	-	Peak
653.5	21.9	-24.1	46	29.18	20.23	2.85	30.36	-	-	Peak
821.5	24.95	-21.05	46	29.76	22.31	3.2	30.32	-	-	Peak
5744	98.05	-	-	86.82	35.34	10.06	34.17	194	16	Average
5744	109.77	-	-	98.54	35.34	10.06	34.17	194	16	Peak
11490	45.95	-28.05	74	51.28	38.38	14.33	58.04	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°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
90.75	18.98	-24.52	43.5	40.96	8.72	0.95	31.65	-	-	Peak
164.46	22.3	-21.2	43.5	42.39	10.03	1.23	31.35	100	62	Peak
220.62	18.7	-27.3	46	37.91	10.58	1.43	31.22	-	-	Peak
419.7	17.01	-28.99	46	29.63	16.42	2.21	31.25	-	-	Peak
626.2	21.67	-24.33	46	29.33	20.01	2.77	30.44	-	-	Peak
760.6	23.66	-22.34	46	29.53	21.5	3.08	30.45	-	-	Peak
5786	93.05	-	-	81.83	35.38	10.07	34.23	100	96	Average
5786	105.2	-	-	93.98	35.38	10.07	34.23	100	96	Peak
11571	45.15	-28.85	74	50.86	38.46	14.41	58.58	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	157	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
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
63.48	29.25	-10.75	40	54.05	6.18	0.79	31.77	100	49	Peak
130.98	22.94	-20.56	43.5	41.77	11.58	1.15	31.56	-	-	Peak
250.59	15.54	-30.46	46	32.58	12.6	1.53	31.17	-	-	Peak
435.1	16.97	-29.03	46	29.12	16.75	2.26	31.16	-	-	Peak
517.7	19.7	-26.3	46	29.83	18.4	2.49	31.02	-	-	Peak
749.4	22.8	-23.2	46	28.93	21.34	3.06	30.53	-	-	Peak
5786	98.05	-	-	86.83	35.38	10.07	34.23	193	17	Average
5786	109.41	-	-	98.19	35.38	10.07	34.23	193	17	Peak
11571	45.21	-28.79	74	50.28	38.46	14.41	57.94	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Horizontal
Remark :	1. 5826 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
81.84	15.69	-24.31	40	38.73	7.79	0.89	31.72	-	-	Peak
160.41	20.97	-22.53	43.5	40.64	10.5	1.22	31.39	-	-	Peak
193.62	17.52	-25.98	43.5	38.5	9.04	1.3	31.32	-	-	Peak
393.8	17.01	-28.99	46	30.49	15.84	2.13	31.45	-	-	Peak
748	22.72	-23.28	46	28.88	21.31	3.06	30.53	-	-	Peak
839	24.61	-21.39	46	29.34	22.49	3.24	30.46	100	95	Peak
5826	92.39	-	-	81.15	35.4	10.11	34.27	100	121	Average
5826	104.34	-	-	93.1	35.4	10.11	34.27	100	121	Peak
11649	45.81	-28.19	74	51.39	38.51	14.52	58.61	100	0	Peak

Test Mode :	5GHz 802.11n HT20	Temperature :	21~22°C
Test Channel :	165	Relative Humidity :	51~53%
Test Engineer :	Marlboro Hsu	Polarization :	Vertical
Remark :	1. 5826 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
95.61	23.06	-20.44	43.5	44.43	9.32	0.98	31.67	100	43	Peak
212.79	14.73	-28.77	43.5	34.74	9.98	1.37	31.36	-	-	Peak
237.9	17.54	-28.46	46	35.49	11.73	1.52	31.2	-	-	Peak
424.6	16.92	-29.08	46	29.39	16.52	2.23	31.22	-	-	Peak
712.3	22.5	-23.5	46	29.26	20.77	2.97	30.5	-	-	Peak
850.9	24.59	-21.41	46	29.27	22.6	3.27	30.55	-	-	Peak
5826	97.95	-	-	86.71	35.4	10.11	34.27	190	16	Average
5826	109.86	-	-	98.62	35.4	10.11	34.27	190	16	Peak
11649	45.92	-28.08	74	50.78	38.51	14.52	57.89	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 (dBμV)	
	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.

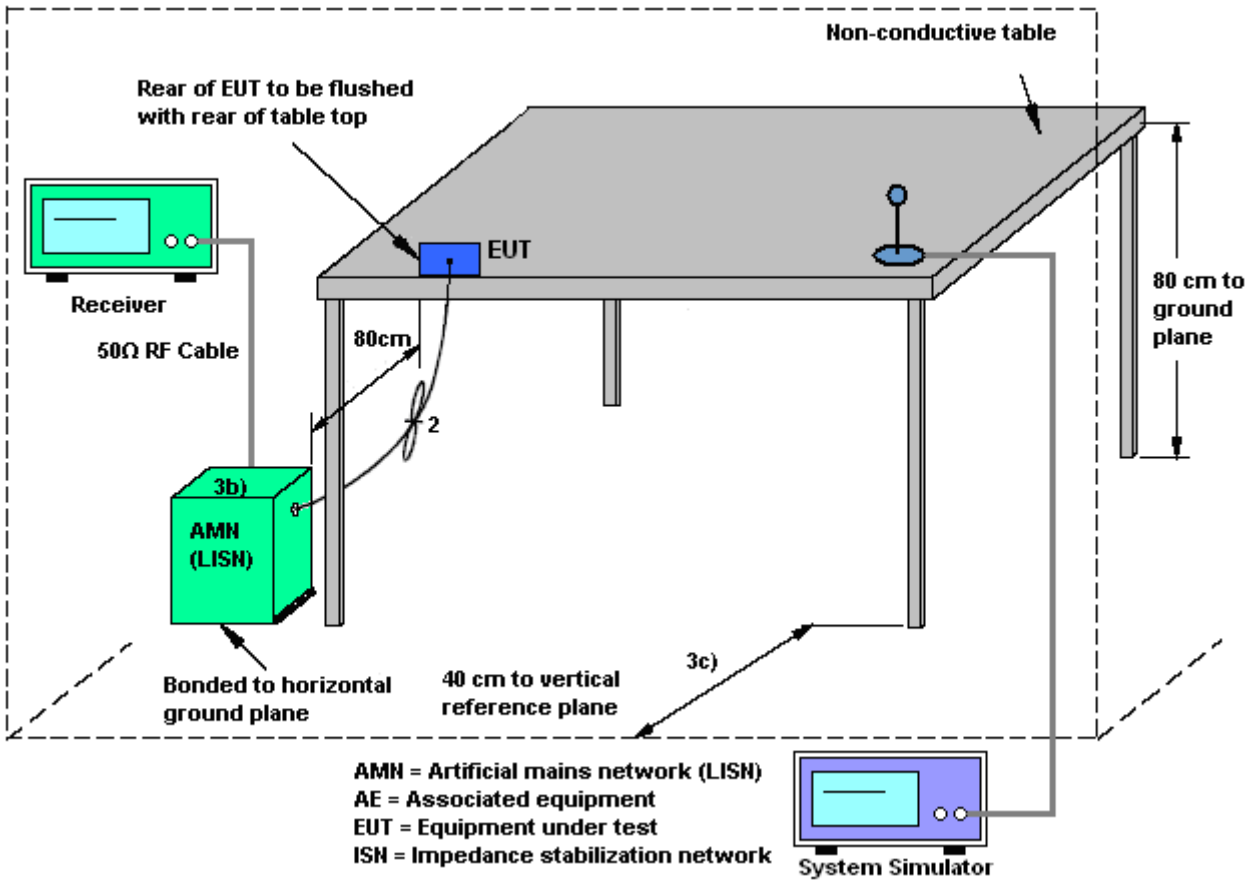
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

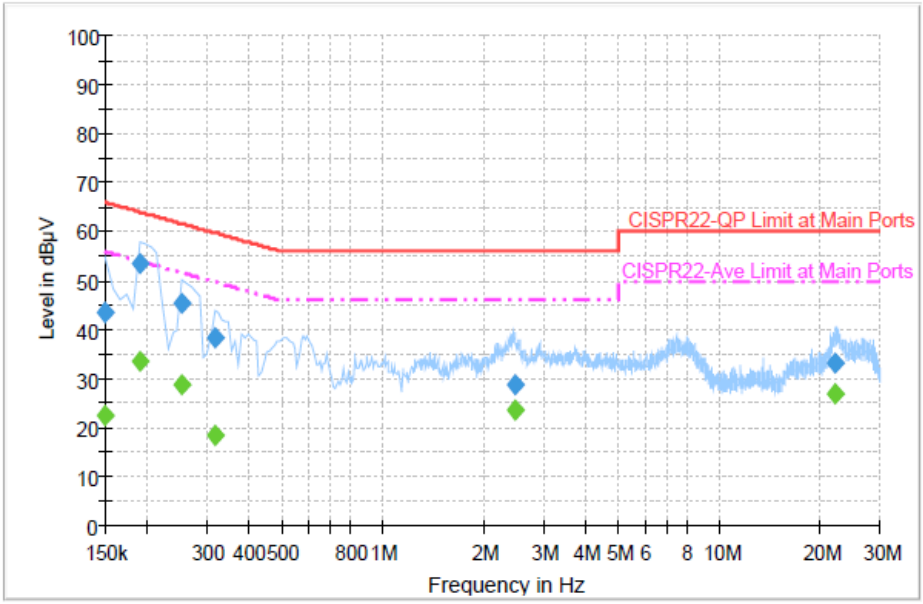
1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (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 1	**Temperature :**	20~22℃
Test Engineer :	Slash Huang	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camera + USB Charging Cable with AC Power + USB Link		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



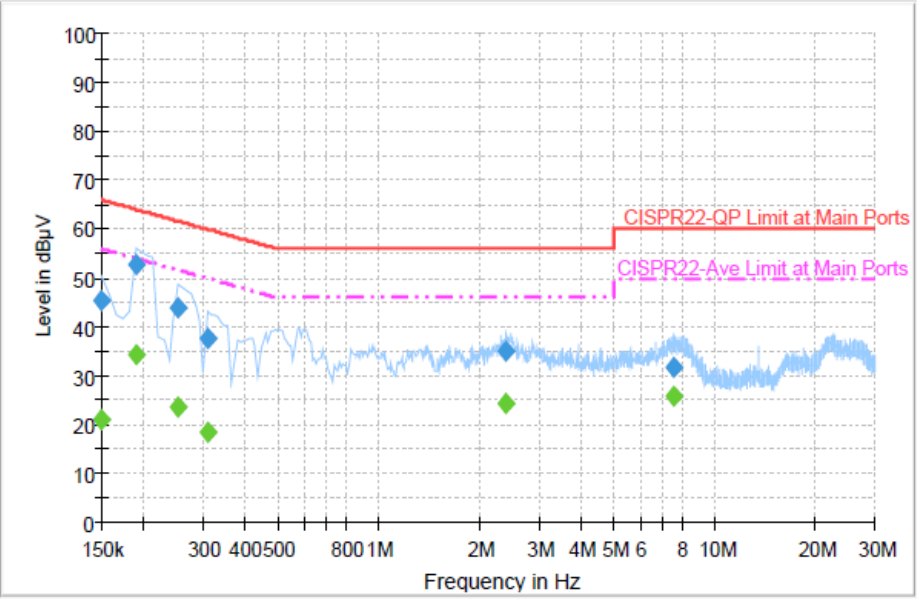
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.5	Off	L1	19.4	22.5	66.0
0.190000	53.5	Off	L1	19.4	10.5	64.0
0.254000	45.4	Off	L1	19.4	16.2	61.6
0.318000	38.5	Off	L1	19.3	21.3	59.8
2.478000	28.8	Off	L1	19.6	27.2	56.0
22.134000	33.3	Off	L1	19.9	26.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	22.5	Off	L1	19.4	33.5	56.0
0.190000	33.5	Off	L1	19.4	20.5	54.0
0.254000	28.8	Off	L1	19.4	22.8	51.6
0.318000	18.3	Off	L1	19.3	31.5	49.8
2.478000	23.7	Off	L1	19.6	22.3	46.0
22.134000	26.8	Off	L1	19.9	23.2	50.0

Test Mode :	Mode 1	**Temperature :**	20~22℃
Test Engineer :	Slash Huang	**Relative Humidity :**	45~47%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Function Type :	GSM850 Idle + WLAN (2.4G) Link + Bluetooth Link + GPS Rx + Qwerty Keypad with Camera + USB Charging Cable with AC Power + USB Link		
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)
0.150000	45.5	Off	N	19.4	20.5	66.0
0.190000	52.6	Off	N	19.4	11.4	64.0
0.254000	43.7	Off	N	19.4	17.9	61.6
0.310000	37.5	Off	N	19.4	22.5	60.0
2.398000	34.9	Off	N	19.7	21.1	56.0
7.550000	31.6	Off	N	19.7	28.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.2	Off	N	19.4	34.8	56.0
0.190000	34.3	Off	N	19.4	19.7	54.0
0.254000	23.8	Off	N	19.4	27.8	51.6
0.310000	18.4	Off	N	19.4	31.6	50.0
2.398000	24.2	Off	N	19.7	21.8	46.0
7.550000	25.7	Off	N	19.7	24.3	50.0

3.7 Antenna Requirements

3.7.1 Standard Applicable

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

3.7.2 Antenna Connected Construction

Non-standard connector used.

3.7.3 Antenna Gain

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

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 06, 2012	Jan. 11, 2013 ~ Feb. 15, 2013	Jun. 05, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GHz	Sep. 08, 2012	Jan. 11, 2013 ~ Feb. 15, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GHz	Sep. 08, 2012	Jan. 11, 2013 ~ Feb. 15, 2013	Sep. 07, 2013	Conducted (TH02-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9KHz – 2.75GHz	Nov. 13, 2012	Feb. 20, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100081	9KHz ~ 30MHz	Dec. 12, 2012	Feb. 20, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9KHz ~ 30MHz	Dec. 06, 2012	Feb. 20, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	Feb. 20, 2013	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	Feb. 20, 2013	Jul. 27, 2013	Conduction (CO05-HY)
GPS Station	T&E	GS-50	N/A	N/A	N/A	Feb. 20, 2013	N/A	Conduction (CO05-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Nov. 30, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Aug. 21, 2013	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 01, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-00101800-30-10P	159088	1GHz ~ 18GHz	Mar. 10, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Mar. 09, 2013	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Feb. 27, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Feb. 26, 2013	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz ~ 40GHz	Sep. 28, 2012	Feb. 05, 2013 ~ Feb. 09, 2013	Sep. 27, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Feb. 05, 2013 ~ Feb. 09, 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**

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

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

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

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

Appendix A. Photographs of EUT

Please refer to Sporton report number EP320416 as below.