



FCC RF Test Report

APPLICANT : Motorola Solutions, Inc.
EQUIPMENT : Enterprise Tablet
BRAND NAME : Motorola
MODEL NAME : ET1N0
FCC ID : UZ7ET1N0
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

The product was received on Oct. 21, 2011 and completely tested on Nov. 22, 2011. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

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



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR1O2207B	Rev. 01	Initial issue of report	Nov. 28, 2011

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(d)	A8.5	Frequency Band Edges	$\leq 20\text{dBc}$	Pass	-
3.4	15.247(d)	A8.5	Spurious Emission	$< 20\text{ dBc}$	Pass	-
3.5	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}$	Pass	-
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 13.3 dB at 0.414 MHz
3.7	15.247(d)	A8.5	Transmitter Radiated Emission	15.209(a) & 15.247(d)	Pass	Under limit 1.22 dB at 2483.5 MHz
3.8	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



1 General Description

1.1 Applicant

Motorola Solutions, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.2 Manufacturer

Motorola Solutions, Inc.

One Motorola Plaza, Holtsville, NY 11742-1300 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	Enterprise Tablet
Brand Name	Motorola
Model Name	ET1N0
FCC ID	UZ7ET1N0
Tx/Rx Frequency Range	802.11b/g/n : 2400 MHz ~ 2483.5 MHz 802.11a/n : 5725 MHz ~ 5850 MHz
Channel Spacing	802.11b/g : 5 MHz 802.11a : 20 MHz
Maximum Output Power to Antenna	<2400 MHz ~ 2483.5 MHz> 802.11b : 23.76 dBm (0.238 W) 802.11g : 24.17 dBm (0.261 W) 802.11n (BW 20MHz) : 24.16 dBm (0.261 W) <5725 MHz ~ 5850 MHz> 802.11a : 24.62 dBm (0.290 W) 802.11n (BW 20MHz) : 24.64 dBm (0.291 W)
Antenna Type	802.11b/g/n : PIFA Antenna with gain 1.30 dBi 802.11a/n : 5725 MHz ~ 5850 MHz : PIFA Antenna with gain 2.14 dBi
HW Version	DV
SW Version	P0-271301-0532-0400-00-D1-091611
Type of Modulation	802.11b : DSSS (BPSK / QPSK / CCK) 802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
EUT Stage	Identical Prototype

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. This test report recorded only product characteristics and test results of Digital Transmission System (DTS).
3. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.		
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978		
Test Site No.	Sporton Site No.		FCC/IC Registration No.
	CO05-HY	03CH07HY	722060/4086B-1

1.5 Applied Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 (Measurement Guidelines of DTS)
- ♦ ANSI C63.4-2003
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
2.	LCD Monitor	Dell	U2410	FCC DoC	Shielded, 1.6 m	Unshielded, 1.8 m
3.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 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.	Bluetooth Earphone	Nokia	BH-102	PYAHS-107W	N/A	N/A
6.	Earpiece	Motorola	21-154925-01R	N/A	N/A	Unshielded, 1.3 m
7.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A

2 Test Configuration of Equipment Under Test

2.1 RF Power

Preliminary tests were performed in different data rate and recorded the RF power output in the following table:

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	23.76	23.70	23.24	23.35
CH 06	2437 MHz	21.40	21.39	21.02	21.07
CH 11	2462 MHz	20.33	20.29	20.07	19.91

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	24.16	24.13	24.12	24.05	24.01	23.98	23.94	24.13
CH 06	2437 MHz	24.17	24.15	24.13	24.11	24.12	24.1	24.08	24.10
CH 11	2462 MHz	24.12	24.11	24.04	23.99	23.96	23.94	24.02	23.99

Channel	Frequency	2.4GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH 01	2412 MHz	24.01	23.96	23.94	23.92	23.89	23.91	23.87	23.92
CH 06	2437 MHz	24.16	24.13	24.08	24.11	24.06	24.05	24.10	24.12
CH 11	2462 MHz	23.49	23.27	23.24	23.14	23.13	23.11	23.22	23.19



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	24.62	24.61	24.6	24.58	24.59	24.54	24.59	24.61
CH157	5785 MHz	24.28	24.23	24.22	24.23	24.25	24.2	24.23	24.25
CH165	5825 MHz	24.40	24.32	24.30	24.32	24.31	24.3	24.31	24.33

Channel	Frequency	5GHz 802.11n (BW 20MHz) RF Power (dBm)							
		OFDM Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
CH149	5745 MHz	24.64	24.63	24.61	24.56	24.55	24.57	24.6	24.58
CH157	5785 MHz	24.33	24.31	24.29	24.19	24.24	24.29	24.32	24.25
CH165	5825 MHz	24.41	24.37	24.34	24.33	24.31	24.34	24.33	24.35

Remark:

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



2.2 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 kHz to 30 MHz), radiated emission (30 MHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

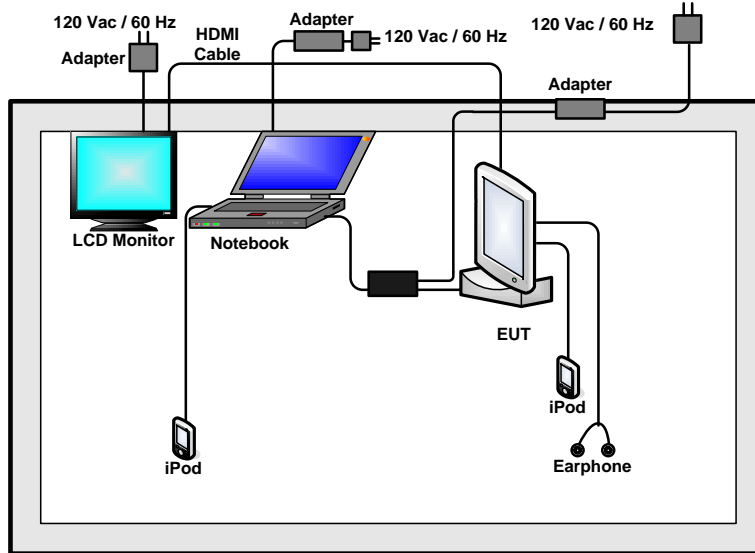
Pre-scanned tests were conducted to determine the final configuration from all possible combinations.

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

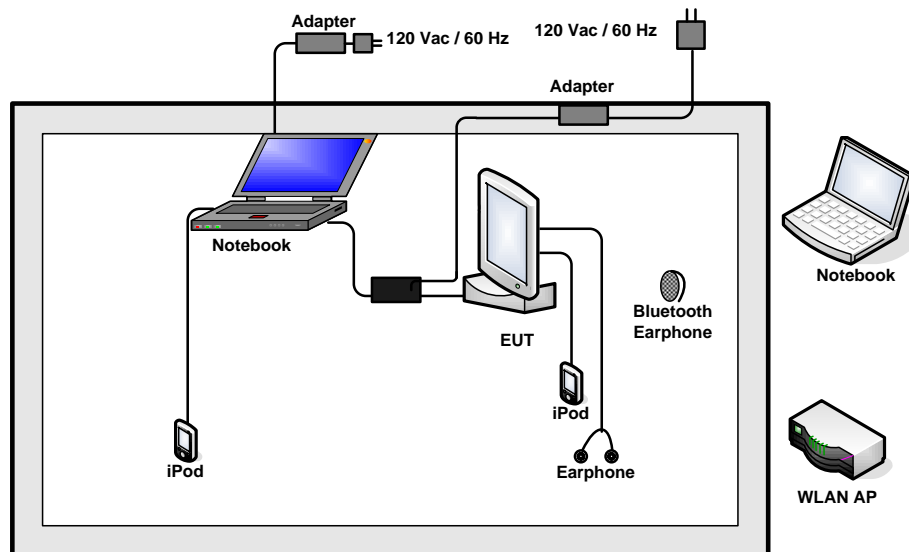
Test Cases		
Test Item	802.11b (Modulation : DSSS) 802.11g/n (Modulation : OFDM)	802.11a/n (Modulation : OFDM)
Conducted TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
Radiated TCs	Mode 1: 802.11b_CH01_2412 MHz Mode 2: 802.11b_CH06_2437 MHz Mode 3: 802.11b_CH11_2462 MHz Mode 4: 802.11g_CH01_2412 MHz Mode 5: 802.11g_CH06_2437 MHz Mode 6: 802.11g_CH11_2462 MHz Mode 7: 802.11n_CH01_2412 MHz (BW 20M) Mode 8: 802.11n_CH06_2437 MHz (BW 20M) Mode 9: 802.11n_CH11_2462 MHz (BW 20M)	Mode 10: 802.11a_CH149_5745 MHz Mode 11: 802.11a_CH157_5785 MHz Mode 12: 802.11a_CH165_5825 MHz Mode 13: 802.11n_CH149_5745 MHz (BW 20M) Mode 14: 802.11n_CH157_5785 MHz (BW 20M) Mode 15: 802.11n_CH165_5825 MHz (BW 20M)
AC Conducted Emission	Mode 1 :Bluetooth Link + WLAN (2.4G) Link + USB Cable (Data Link with Notebook) + Earphone + Micro USB Connector with iPod + Adapter	

2.3 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



2.4 RF Utility

The programmed RF utility "RF_Regulator" is installed in EUT to provide channel selection, power level, data rate and the application type. RF Utility can send transmitting signal for all testing. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB Bandwidth

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

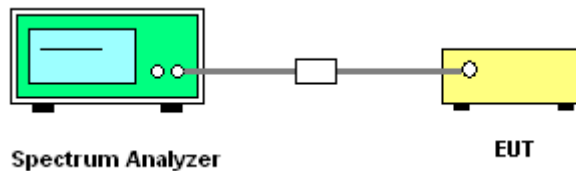
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	10.04	0.5	Pass
06	2437	9.08	0.5	Pass
11	2462	9.04	0.5	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

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

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
01	2412	15.08	0.5	Pass
06	2437	15.12	0.5	Pass
11	2462	15.08	0.5	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11a 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.10	0.5	Pass
157	5785	15.55	0.5	Pass
165	5825	15.65	0.5	Pass

Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 6dB Bandwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
149	5745	15.00	0.5	Pass
157	5785	15.45	0.5	Pass
165	5825	15.00	0.5	Pass



3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	14.90	Pass
06	2437	14.20	Pass
11	2462	14.15	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	18.30	Pass
06	2437	18.35	Pass
11	2462	17.85	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
01	2412	19.15	Pass
06	2437	19.60	Pass
11	2462	19.15	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11a 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	19.85	Pass
157	5785	25.85	Pass
165	5825	25.40	Pass

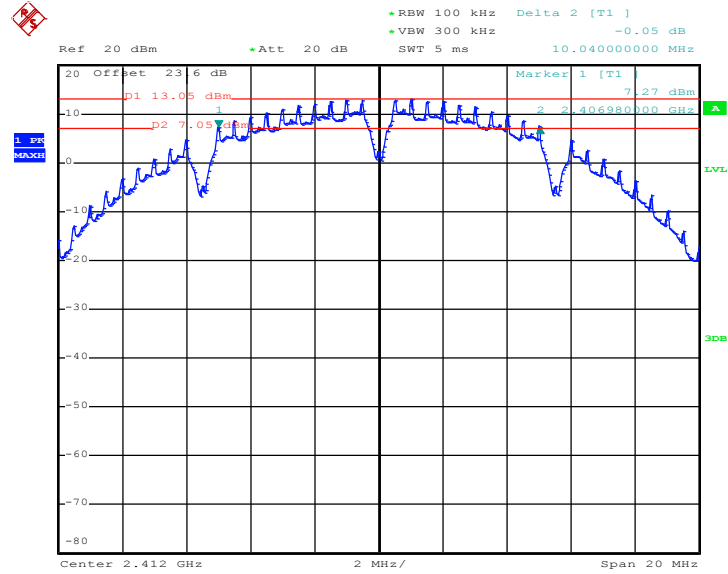
Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) 99% Occupied Bandwidth (MHz)	Pass/Fail
149	5745	20.80	Pass
157	5785	26.95	Pass
165	5825	24.15	Pass



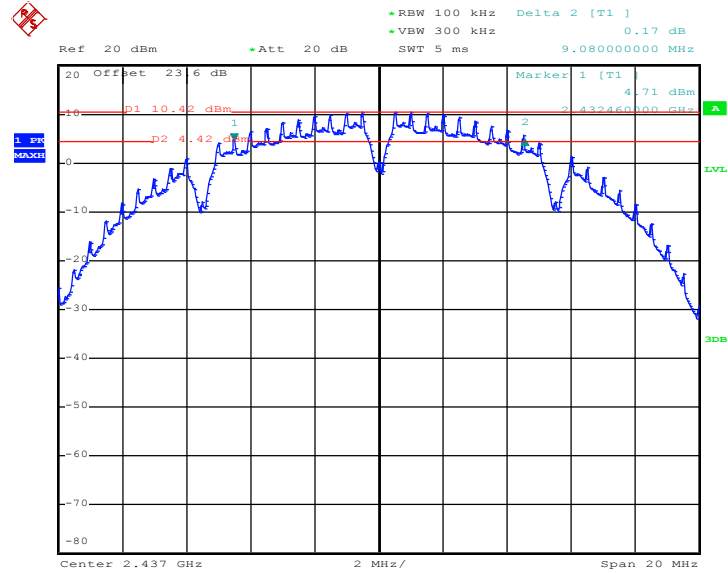
3.1.7 Test Result of 6dB Bandwidth Plots

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



Date: 30.OCT.2011 14:06:55

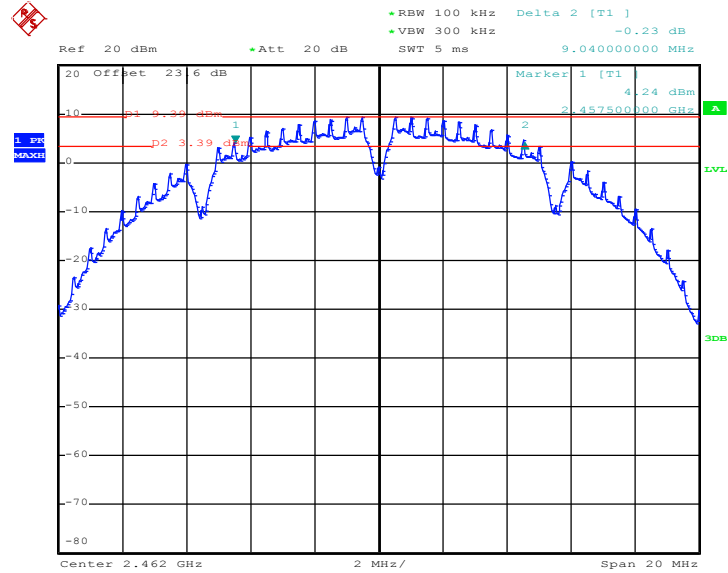
Mode 2 : 6 dB Bandwidth Plot on 802.11b Channel 06



Date: 30.OCT.2011 13:53:35

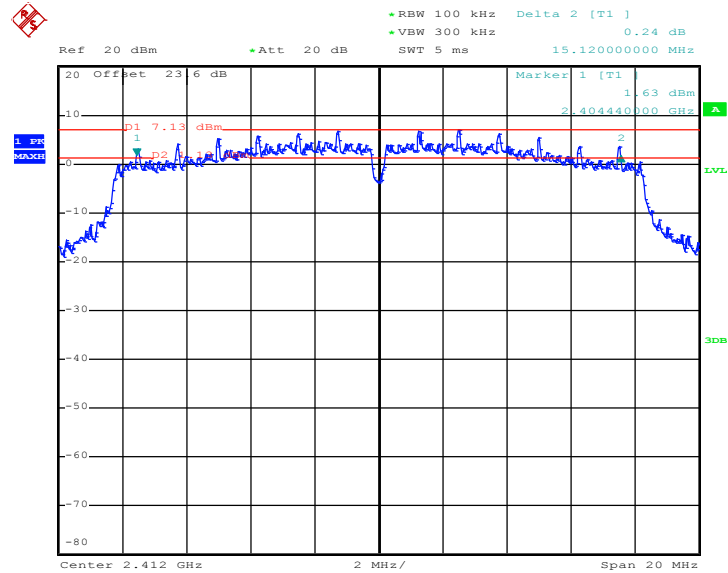


Mode 3 : 6 dB Bandwidth Plot on 802.11b Channel 11



Date: 30.OCT.2011 13:41:03

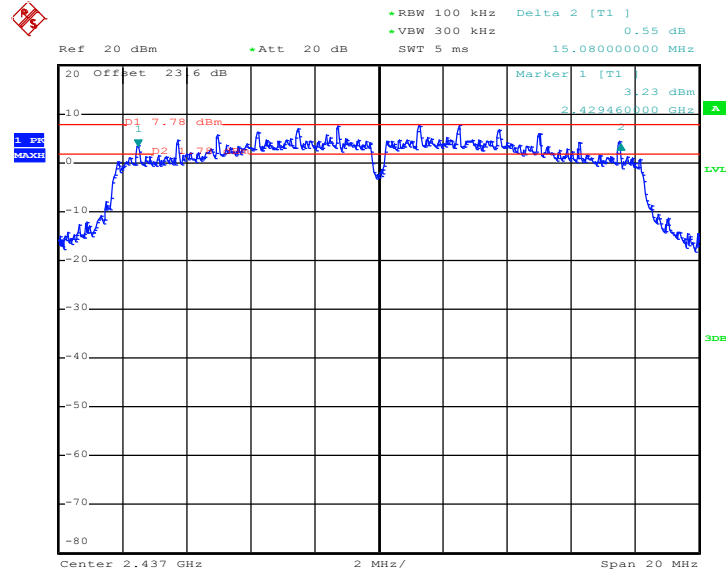
Mode 4 : 6 dB Bandwidth Plot on 802.11g Channel 01



Date: 30.OCT.2011 15:12:20

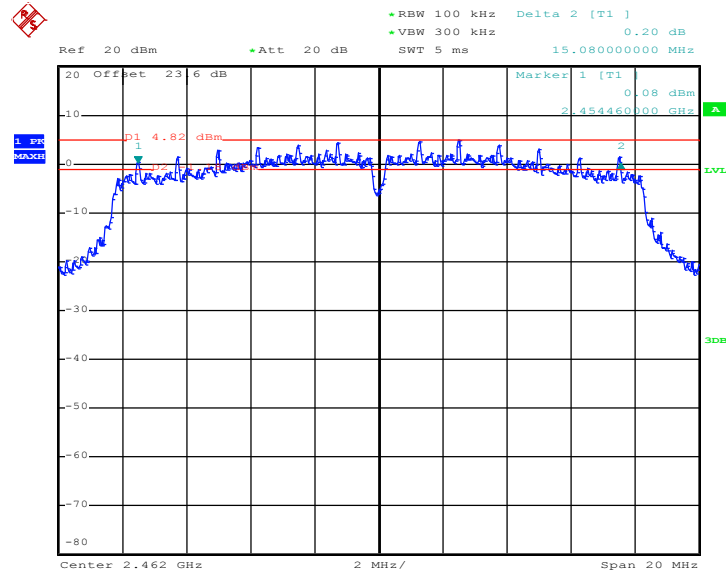


Mode 5 : 6 dB Bandwidth Plot on 802.11g Channel 06



Date: 30.OCT.2011 15:07:22

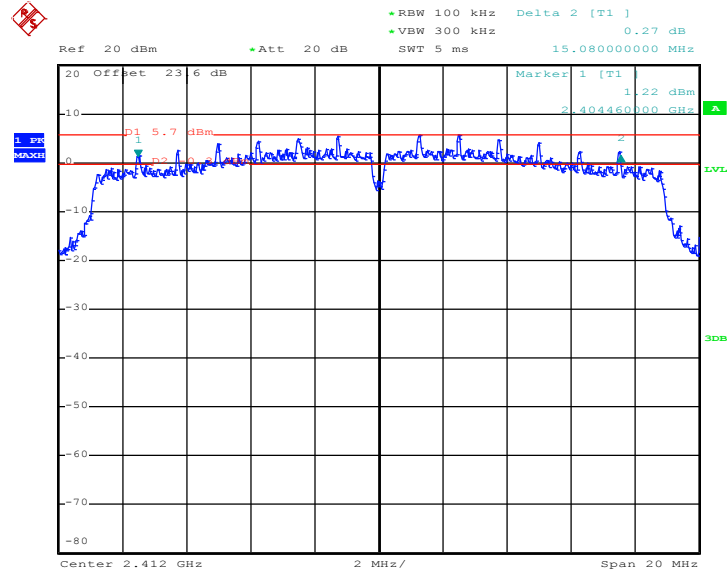
Mode 6 : 6 dB Bandwidth Plot on 802.11g Channel 11



Date: 30.OCT.2011 15:09:15

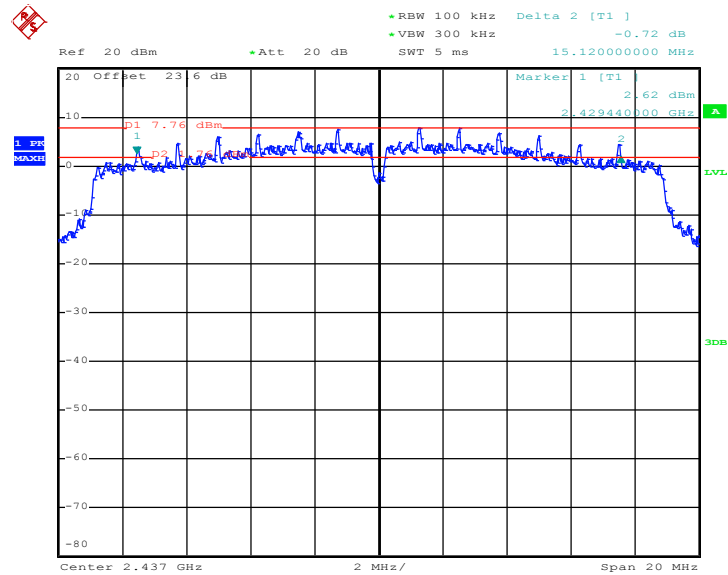


Mode 7 : 6 dB Bandwidth Plot on 802.11n Channel 01



Date: 30.OCT.2011 15:15:13

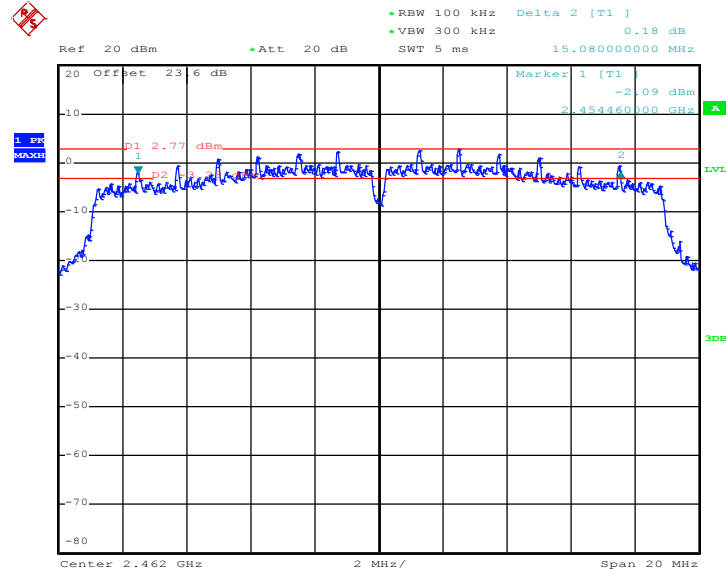
Mode 8 : 6 dB Bandwidth Plot on 802.11n Channel 06



Date: 30.OCT.2011 15:23:19

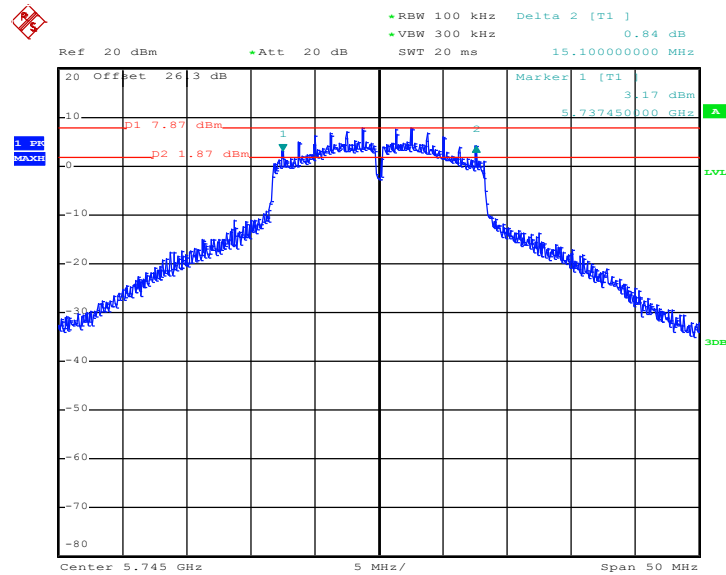


Mode 9 : 6 dB Bandwidth Plot on 802.11n Channel 11



Date: 30.OCT.2011 15:20:31

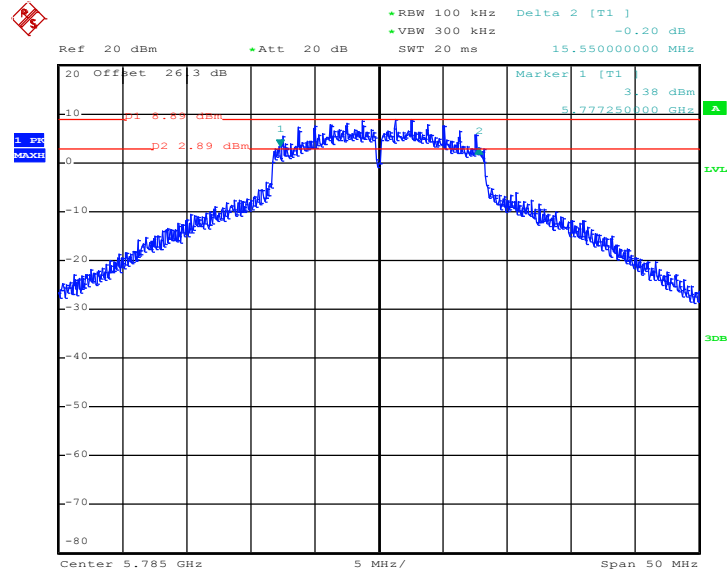
Mode 10: 6 dB Bandwidth Plot on 802.11a Channel 149



Date: 30.OCT.2011 15:46:31

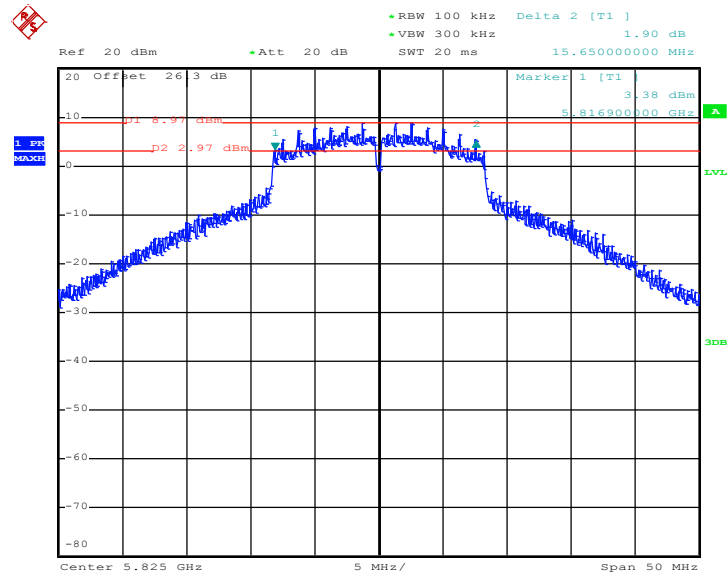


Mode 11: 6 dB Bandwidth Plot on 802.11a Channel 157



Date: 30.OCT.2011 15:43:34

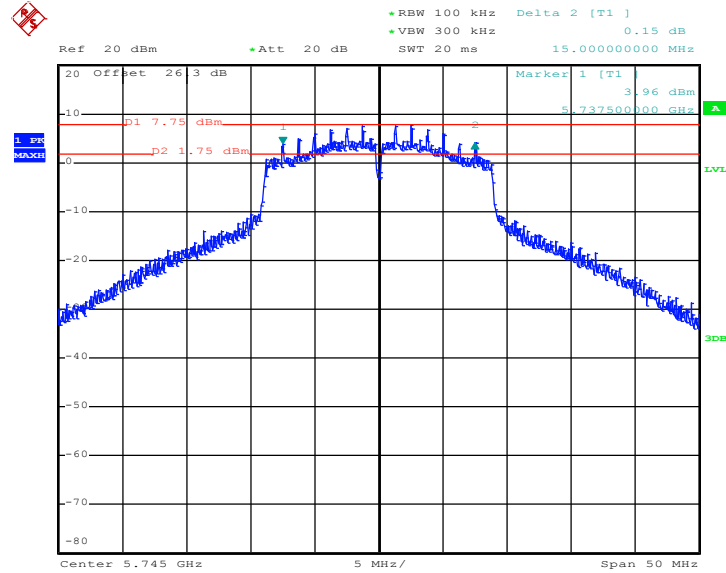
Mode 12: 6 dB Bandwidth Plot on 802.11a Channel 165



Date: 30.OCT.2011 15:50:03

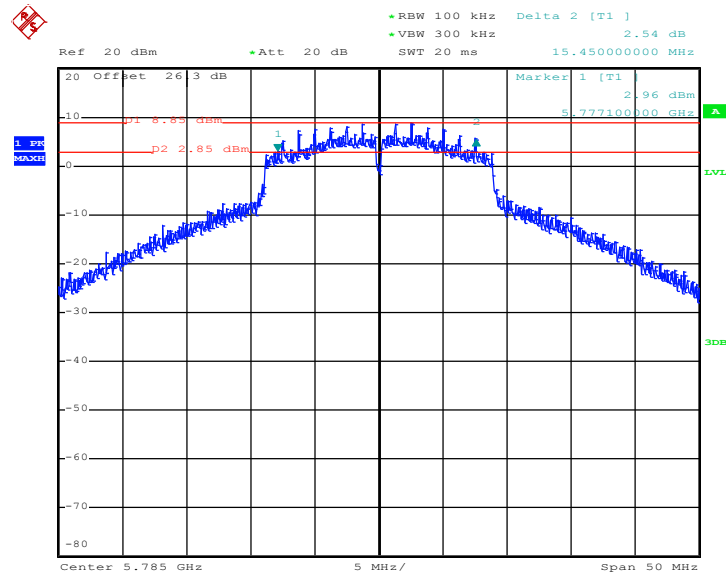


Mode 13: 6 dB Bandwidth Plot on 802.11n Channel 149



Date: 30.OCT.2011 15:33:31

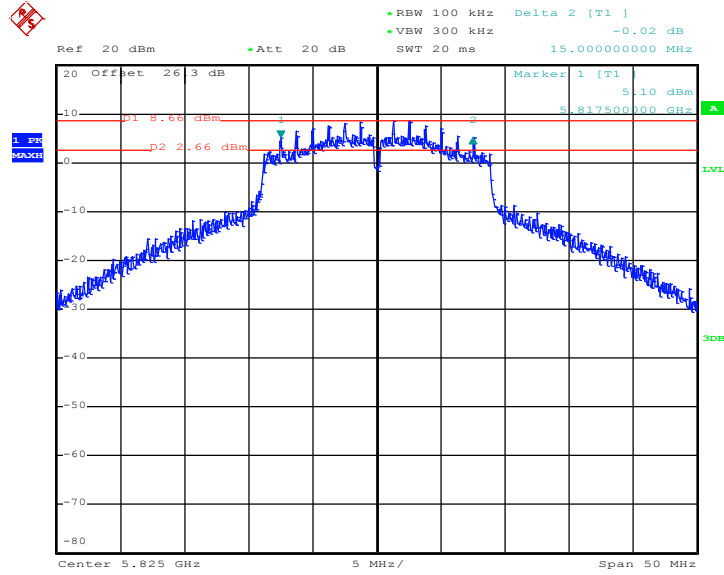
Mode 14: 6 dB Bandwidth Plot on 802.11n Channel 157



Date: 30.OCT.2011 15:39:41



Mode 15: 6 dB Bandwidth Plot on 802.11n Channel 165

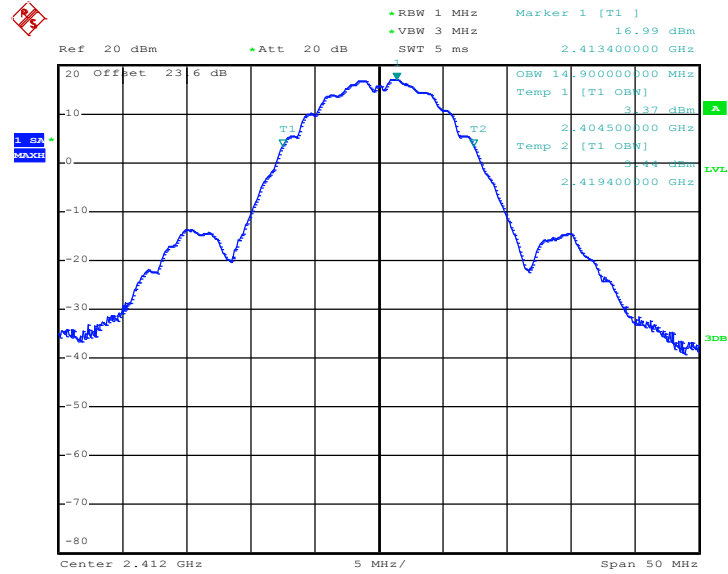


Date: 30.OCT.2011 15:36:18



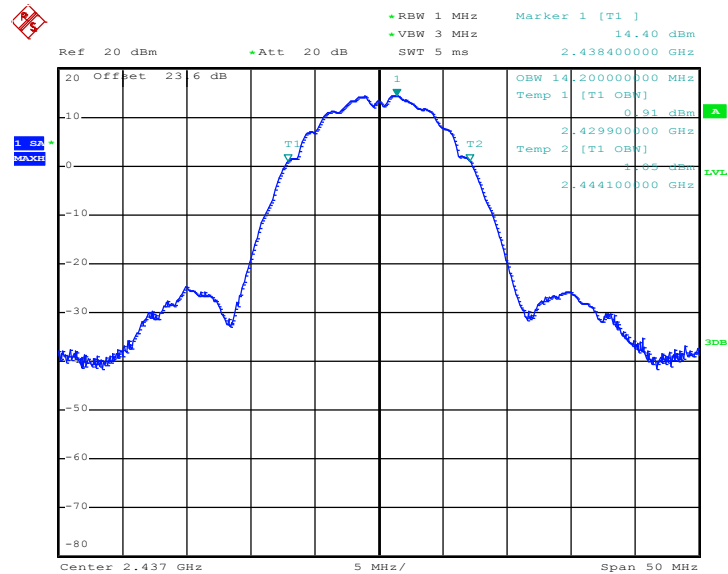
3.1.8 Test Result of 99% Bandwidth Plots

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



Date: 30.OCT.2011 14:08:29

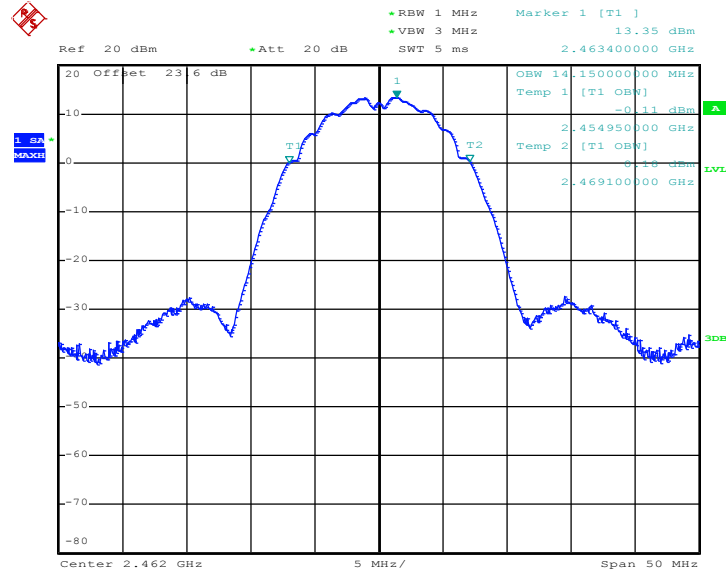
Mode 2 : 99% Occupied Bandwidth Plot on 802.11b Channel 06



Date: 30.OCT.2011 13:54:05

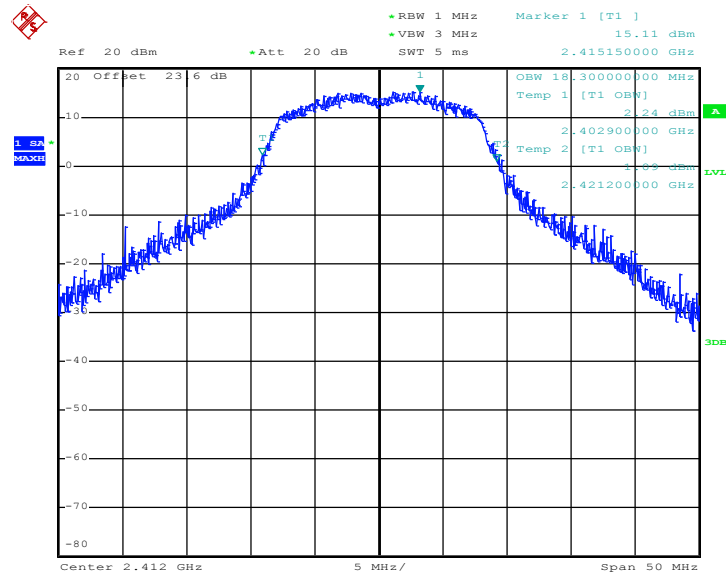


Mode 3 : 99% Occupied Bandwidth Plot on 802.11b Channel 11



Date: 30.OCT.2011 13:42:15

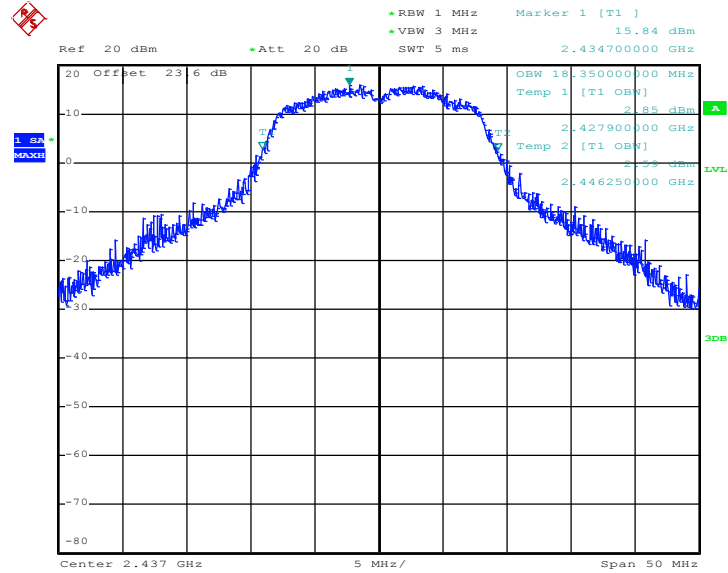
Mode 4 : 99% Occupied Bandwidth Plot on 802.11g Channel 01



Date: 30.OCT.2011 15:13:54

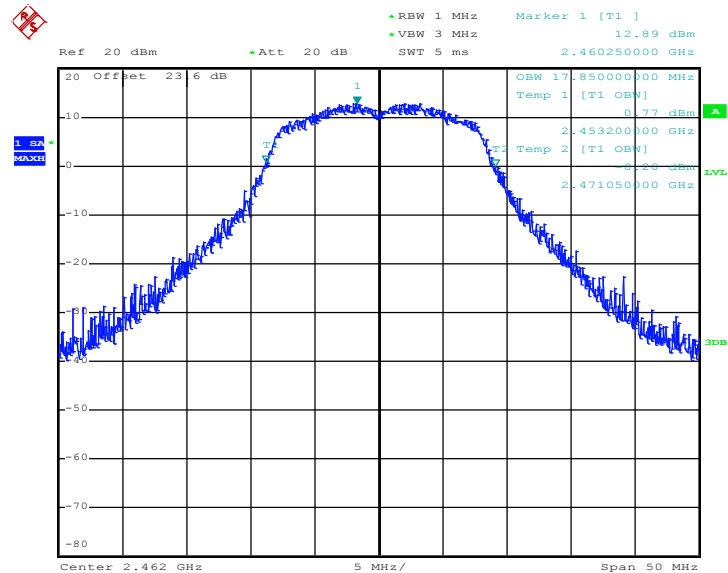


Mode 5 : 99% Occupied Bandwidth Plot on 802.11g Channel 06



Date: 30.OCT.2011 15:05:52

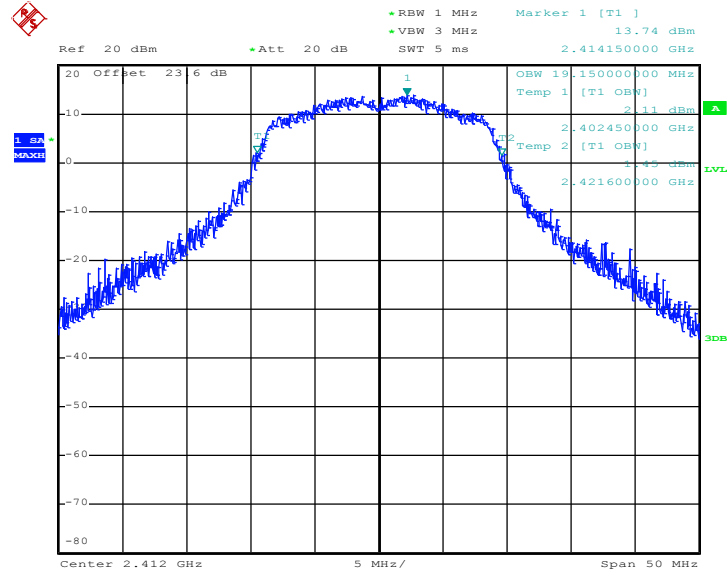
Mode 6 : 99% Occupied Bandwidth Plot on 802.11g Channel 11



Date: 30.OCT.2011 15:10:51

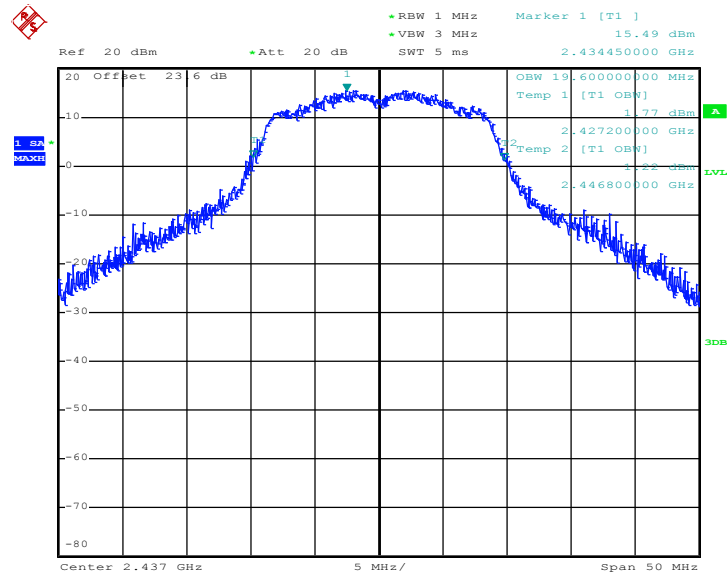


Mode 7 : 99% Occupied Bandwidth Plot on 802.11n Channel 01



Date: 30.OCT.2011 15:16:47

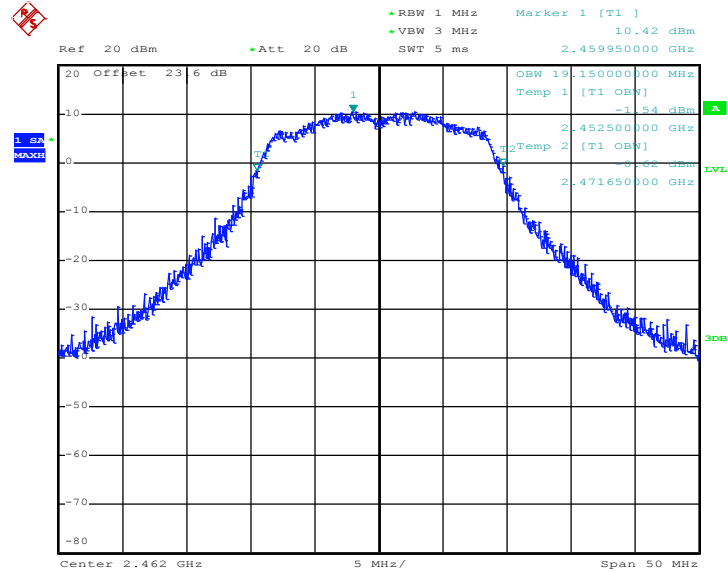
Mode 8 : 99% Occupied Bandwidth Plot on 802.11n Channel 06



Date: 30.OCT.2011 15:23:44

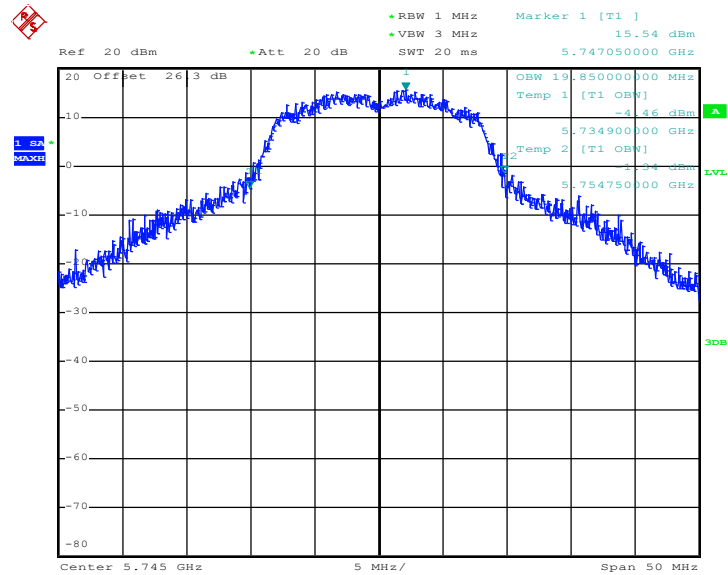


Mode 9 : 99% Occupied Bandwidth Plot on 802.11n Channel 11



Date: 30.OCT.2011 15:21:43

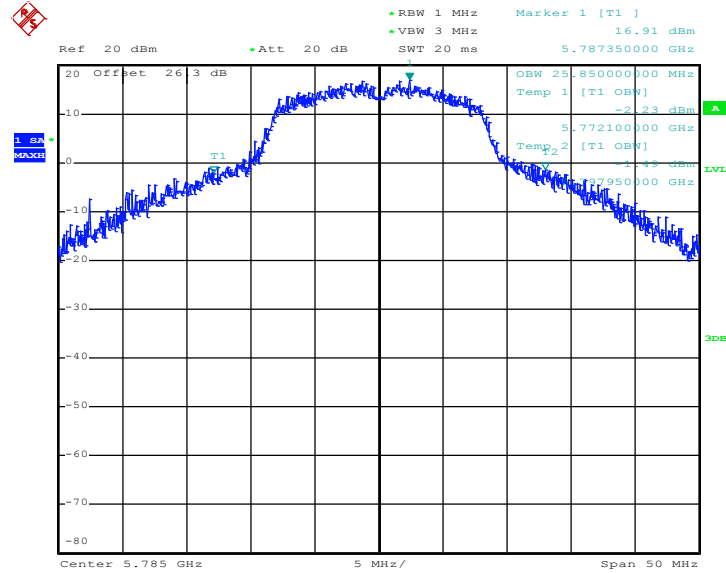
Mode 10: 99% Occupied Bandwidth Plot on 802.11a Channel 149



Date: 30.OCT.2011 15:47:23

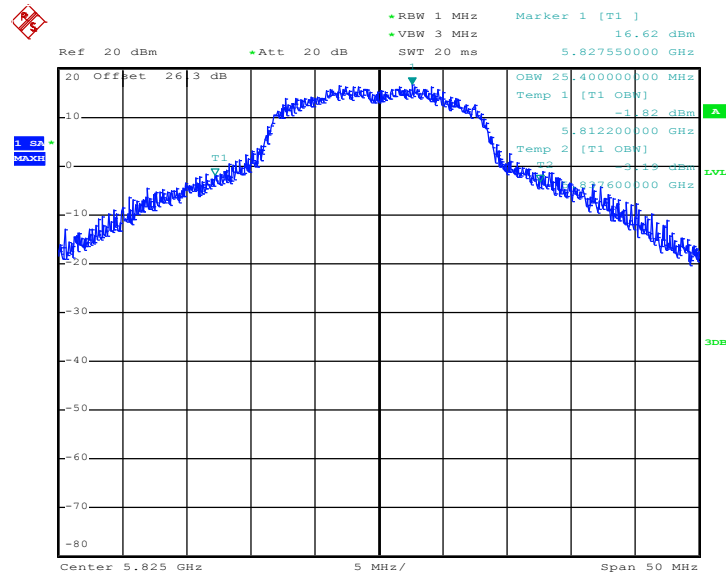


Mode 11: 99% Occupied Bandwidth Plot on 802.11a Channel 157



Date: 30.OCT.2011 15:44:00

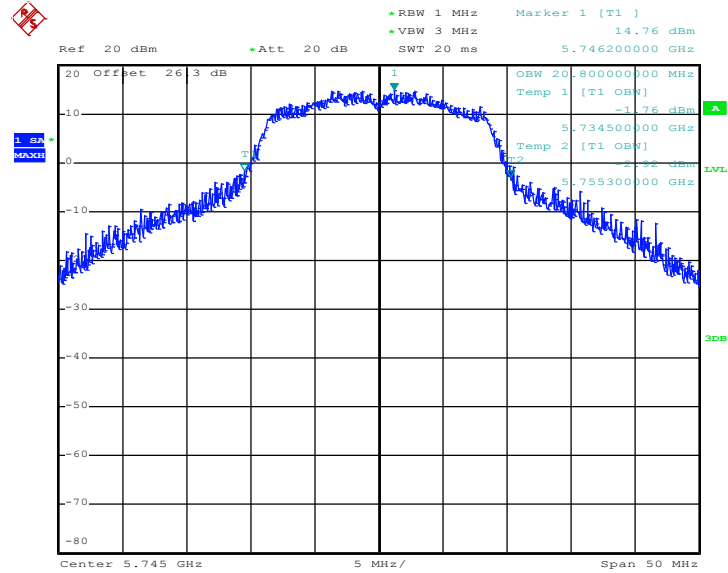
Mode 12: 99% Occupied Bandwidth Plot on 802.11a Channel 165



Date: 30.OCT.2011 15:50:54

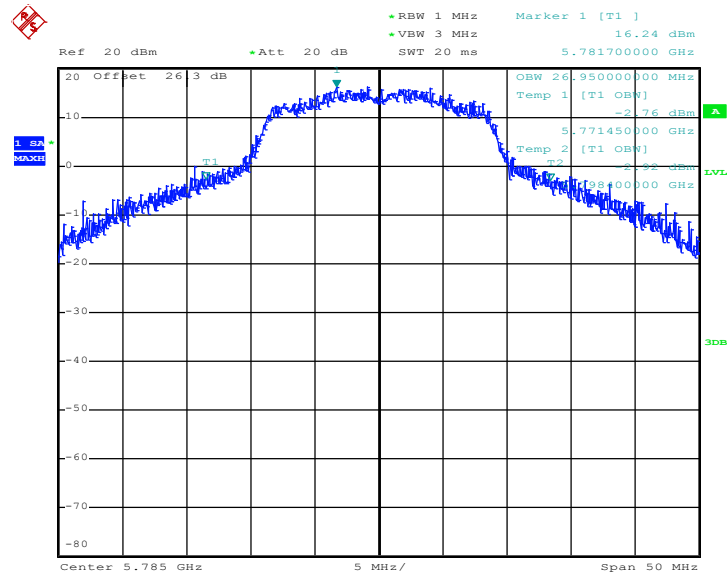


Mode 13: 99% Occupied Bandwidth Plot on 802.11n Channel 149



Date: 30.OCT.2011 15:34:23

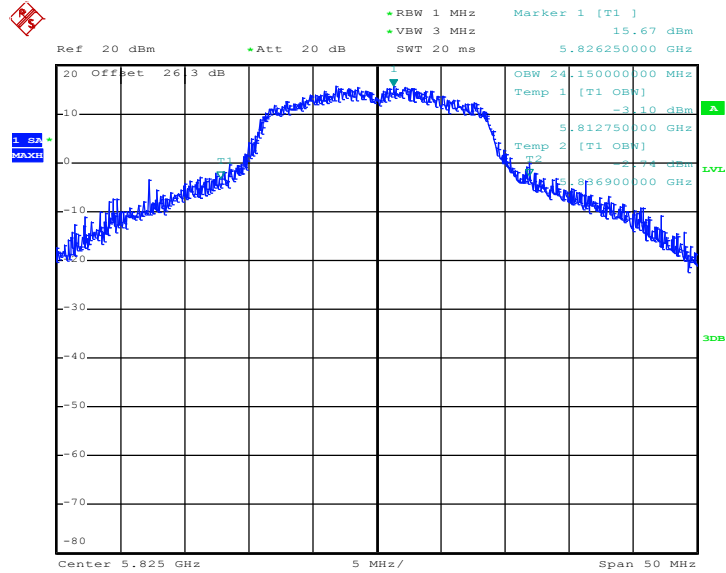
Mode 14: 99% Occupied Bandwidth Plot on 802.11n Channel 157



Date: 30.OCT.2011 15:40:07



Mode 15: 99% Occupied Bandwidth Plot on 802.11n Channel 165



Date: 30.OCT.2011 15:37:09

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.

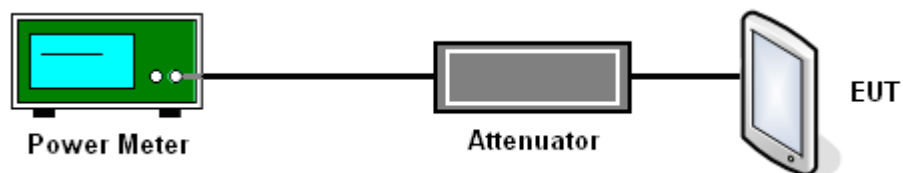
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the power meter by a low loss cable.
3. Measure the power by power meter.

3.2.4 Test Setup





3.2.5 Test Result of Output Power

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	23.76	30	Pass
06	2437	21.40	30	Pass
11	2462	20.33	30	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11g Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.16	30	Pass
06	2437	24.17	30	Pass
11	2462	24.12	30	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	24.01	30	Pass
06	2437	24.16	30	Pass
11	2462	23.49	30	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11a Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	24.62	30	Pass
157	5785	24.28	30	Pass
165	5825	24.40	30	Pass

Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured Output Power (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	24.64	30	Pass
157	5785	24.33	30	Pass
165	5825	24.41	30	Pass



3.3 Band Edges Measurement

3.3.1 Limit of Band Edges

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. 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.

3.3.2 Measuring Instruments

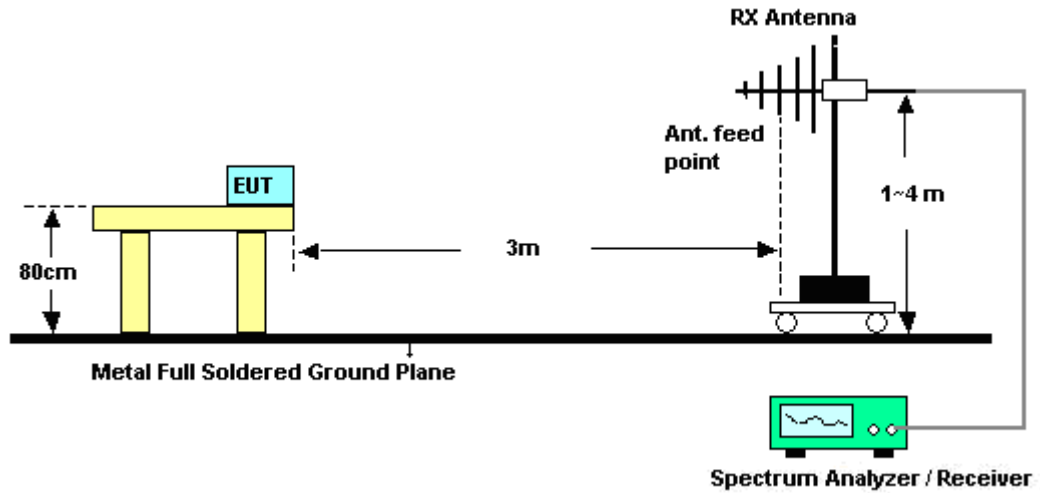
See list of measuring instruments of this test report.

3.3.3 Test Procedures

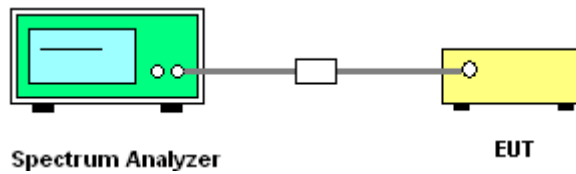
1. The testing follows the guidelines in ANSI C63.4-2003 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Conducted emission test: Set RBW = 100 kHz, Video bandwidth (VBW) > RBW. Band edge emissions must be at least 20 dB below the highest emission level within the authorized band as measured with a 100 kHz RBW. Note: If the output power of this device was measured by power meter, the attenuation under this paragraph shall be 30 dB instead of 20 dB.
3. Radiated emission test: Apply to band edge emissions that fall in the restricted bands listed in FCC Section 15.205. The maximum permitted average field strength is listed in FCC Section 15.209. A pre-amp is necessary for this measurement. For measurements above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep=Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation as in FCC Section 15.35(b) and (c).

3.3.4 Test Setup

<Radiated Band Edges>



<Conducted Band Edges>





3.3.5 Test Result of Radiated Band Edges

Test Mode :	Mode 1	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	61.79	-12.21	74	57.55	32.06	6.03	33.85	101	169	Peak
2390	52.45	-1.55	54	48.21	32.06	6.03	33.85	101	169	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	54.48	-19.52	74	50.24	32.06	6.03	33.85	180	292	Peak
2390	45.05	-8.95	54	40.81	32.06	6.03	33.85	180	292	Average

Test Mode :	Mode 3	Temperature :	24~25°C
Test Band :	802.11b	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2488.22	60.21	-13.79	74	55.73	32.2	6.18	33.9	100	158	Peak
2488.22	52.66	-1.34	54	48.18	32.2	6.18	33.9	100	158	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2487.65	53.03	-20.97	74	48.55	32.2	6.18	33.9	102	289	Peak
2487.65	45.02	-8.98	54	40.54	32.2	6.18	33.9	102	289	Average



Test Mode :	Mode 4	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	72.59	-1.41	74	68.35	32.06	6.03	33.85	102	167	Peak
2389.61	51.4	-2.6	54	47.16	32.06	6.03	33.85	102	167	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2390	67.36	-6.64	74	63.12	32.06	6.03	33.85	104	285	Peak
2390	45.28	-8.72	54	41.04	32.06	6.03	33.85	104	285	Average

Test Mode :	Mode 6	Temperature :	24~25°C
Test Band :	802.11g	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	72.61	-1.39	74	68.15	32.18	6.18	33.9	100	157	Peak
2483.5	52.78	-1.22	54	48.32	32.18	6.18	33.9	100	157	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	62.75	-11.25	74	58.29	32.18	6.18	33.9	103	288	Peak
2483.5	42.66	-11.34	54	38.2	32.18	6.18	33.9	103	288	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	01	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.61	70.73	-3.27	74	66.49	32.06	6.03	33.85	102	167	Peak
2389.61	52.16	-1.84	54	47.92	32.06	6.03	33.85	102	167	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2389.99	64.14	-9.86	74	59.9	32.06	6.03	33.85	100	70	Peak
2389.99	44.15	-9.85	54	39.91	32.06	6.03	33.85	100	70	Average

Test Mode :	Mode 9	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	11	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.5	70.32	-3.68	74	65.86	32.18	6.18	33.9	100	140	Peak
2483.5	52.78	-1.22	54	48.32	32.18	6.18	33.9	100	140	Average

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
2483.85	57.92	-16.08	74	53.46	32.18	6.18	33.9	103	289	Peak
2483.85	41.49	-12.51	54	37.03	32.18	6.18	33.9	103	289	Average



Test Mode :	Mode 10	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	50~51%
Test Channel :	149	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	88.51	-8.43	96.94	76.96	34.81	9.92	33.18	101	245	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	88.83	-6.8	95.63	77.28	34.81	9.92	33.18	130	277	Peak

Test Mode :	Mode 12	Temperature :	24~25°C
Test Band :	802.11a	Relative Humidity :	50~51%
Test Channel :	165	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	86.39	-11.01	97.4	74.86	34.98	9.87	33.32	100	243	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	86.24	-10	96.24	74.71	34.98	9.87	33.32	100	206	Peak



Test Mode :	Mode 13	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	149	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	89.21	-6.81	96.02	77.66	34.81	9.92	33.18	100	308	Peak

ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5725	89.09	-6.54	95.63	77.54	34.81	9.92	33.18	133	274	Peak

Test Mode :	Mode 15	Temperature :	24~25°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	50~51%
Test Channel :	165	Test Engineer :	Ivan Chiang

ANTENNA POLARITY : HORIZONTAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	83.4	-12.73	96.13	71.87	34.98	9.87	33.32	100	244	Peak

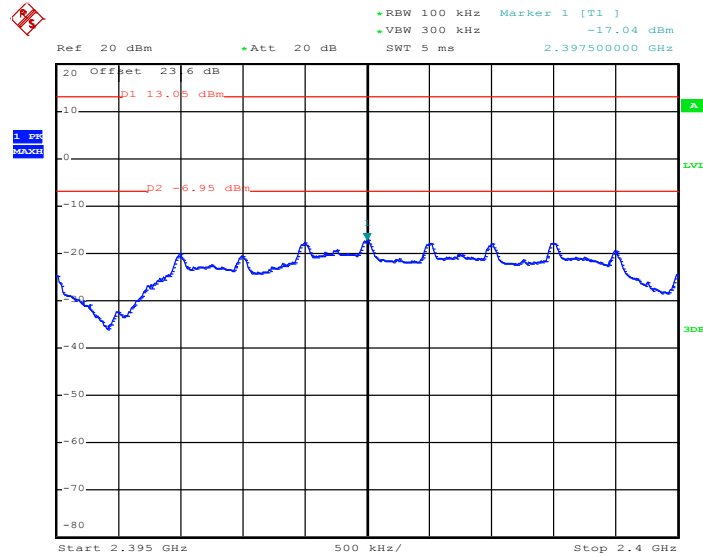
ANTENNA POLARITY : VERTICAL										
Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
5850	82.8	-11.8	94.6	71.27	34.98	9.87	33.32	100	208	Peak



3.3.6 Test Result of Conducted Band Edges

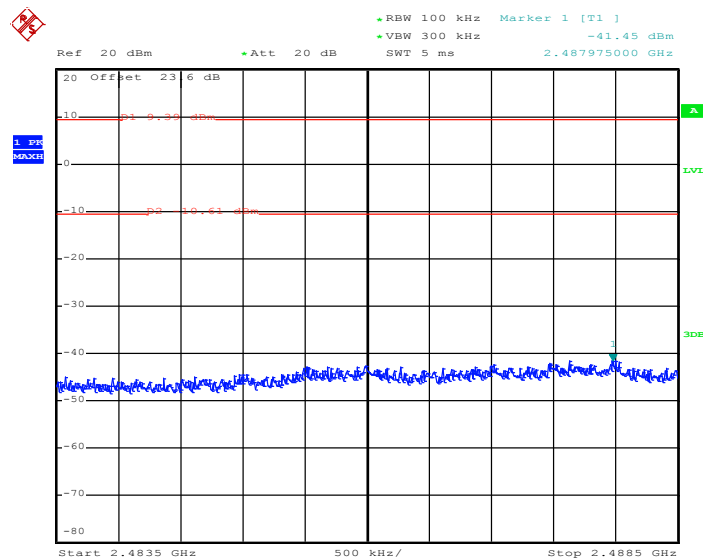
Test Mode :	Mode 1 and 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11b Channel 01



Date: 30.OCT.2011 14:08:04

High Band Edge Plot on 802.11b Channel 11

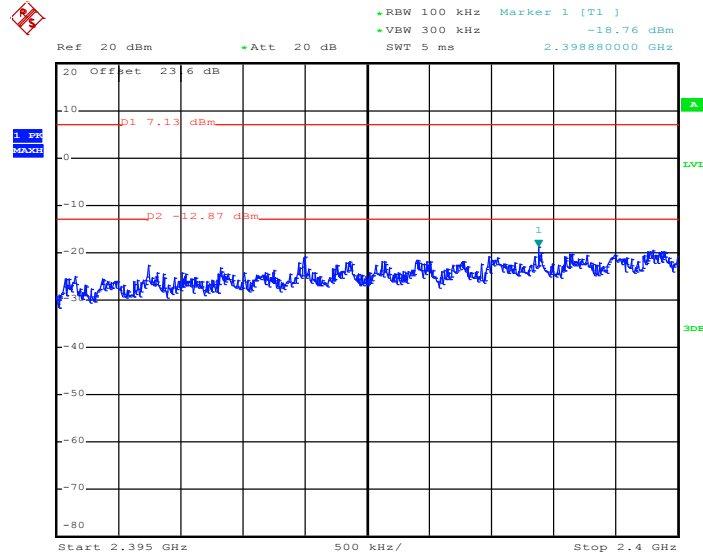


Date: 30.OCT.2011 13:41:50



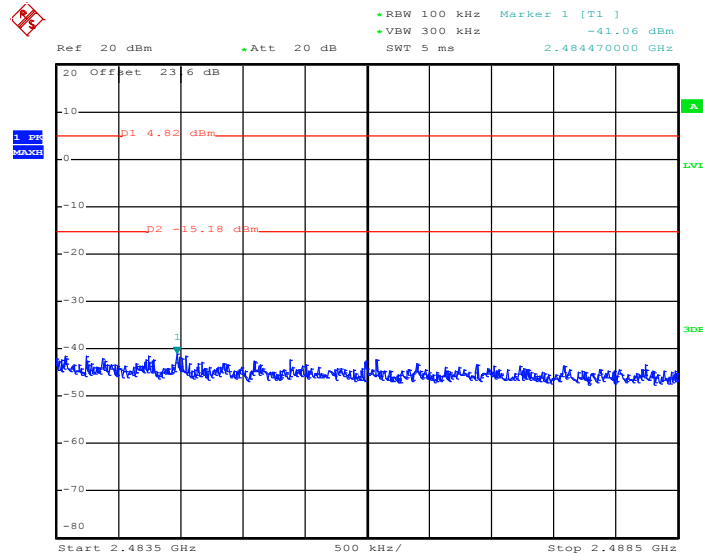
Test Mode :	Mode 4 and 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11g Channel 01



Date: 30.OCT.2011 15:13:29

High Band Edge Plot on 802.11g Channel 11

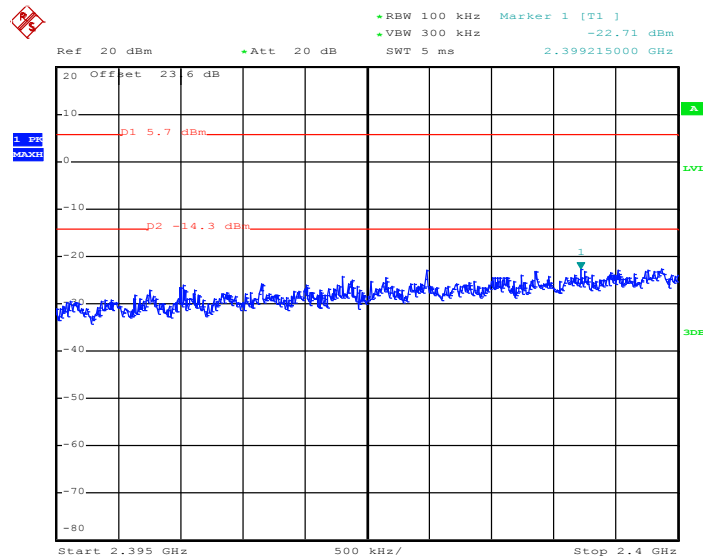


Date: 30.OCT.2011 15:10:01



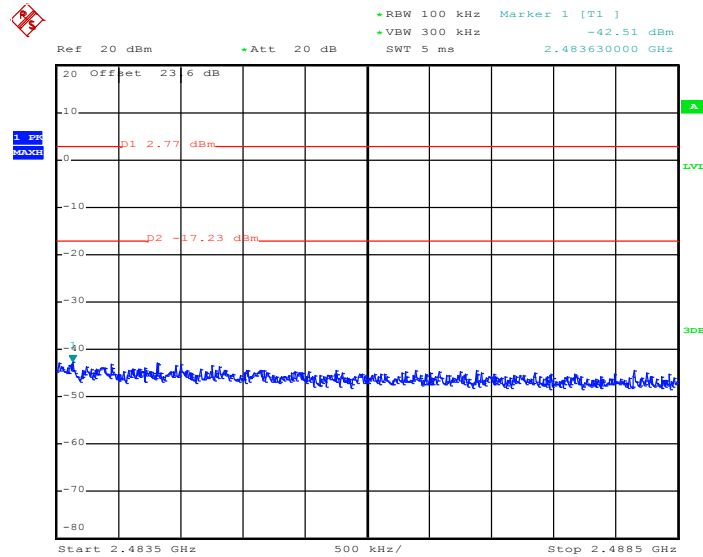
Test Mode :	Mode 7 and 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	01 and 11	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11n Channel 01



Date: 30.OCT.2011 15:16:21

High Band Edge Plot on 802.11n Channel 11

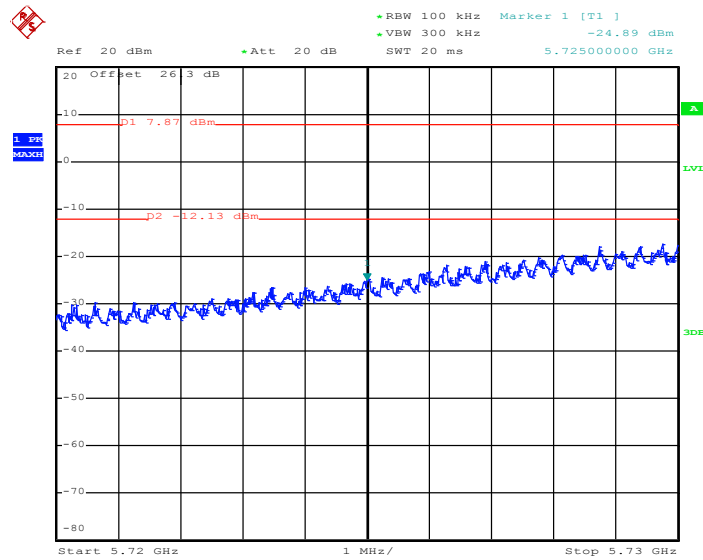


Date: 30.OCT.2011 15:21:17



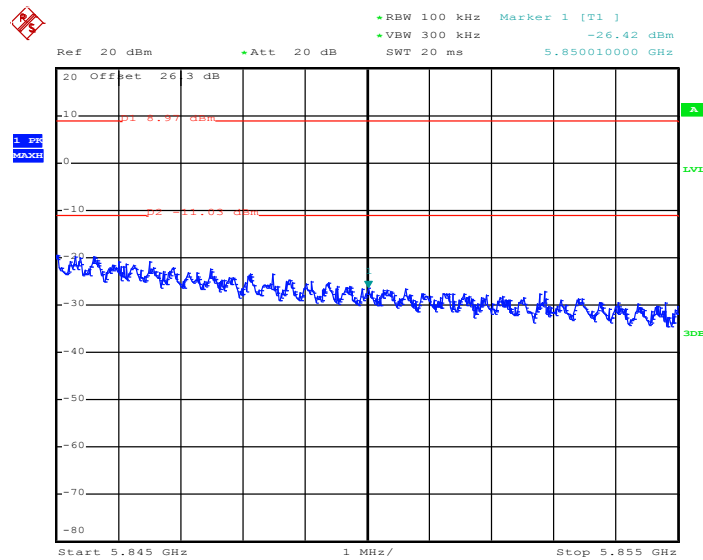
Test Mode :	Mode 10 and 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	51~54%
Test Channel :	149 and 165	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11a Channel 149



Date: 30.OCT.2011 15:46:58

High Band Edge Plot on 802.11a Channel 165

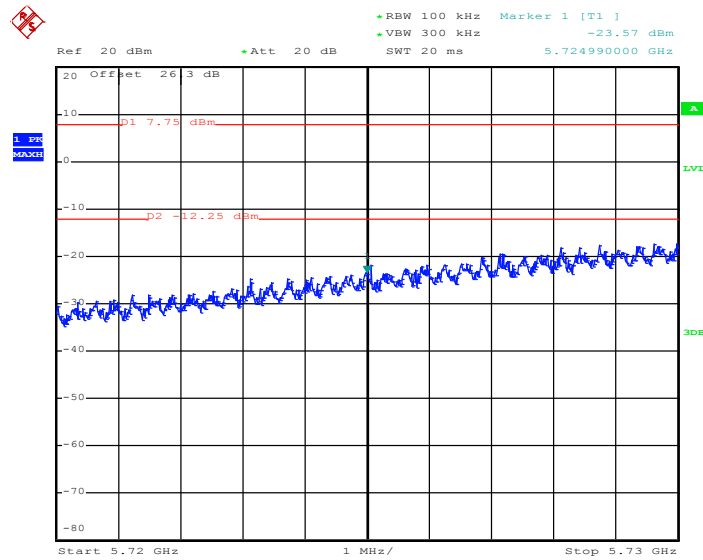


Date: 30.OCT.2011 15:50:29



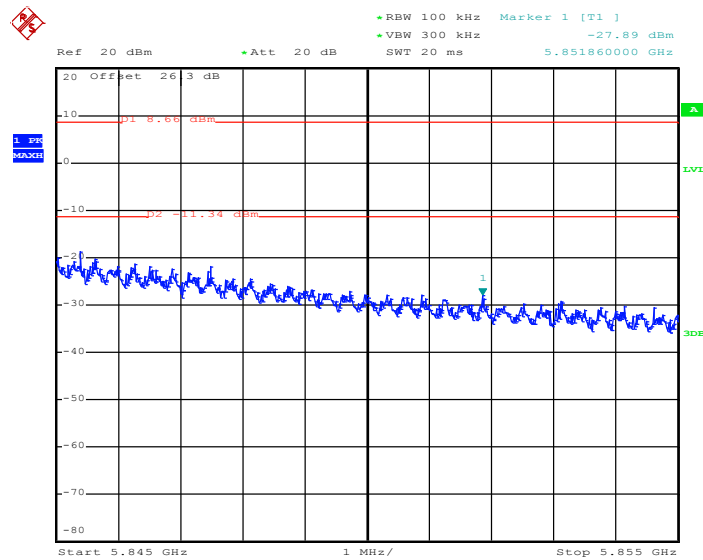
Test Mode :	Mode 13 and 15	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	149 and 165	Test Engineer :	Hank Yu

Low Band Edge Plot on 802.11n Channel 149



Date: 30.OCT.2011 15:33:57

High Band Edge Plot on 802.11n Channel 165



Date: 30.OCT.2011 15:36:44

3.4 Spurious Emission Measurement

3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

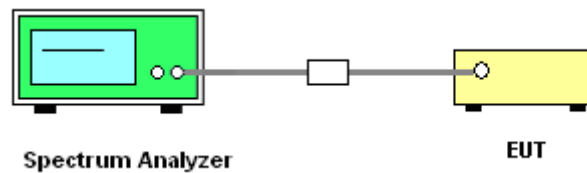
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

3.4.4 Test Setup

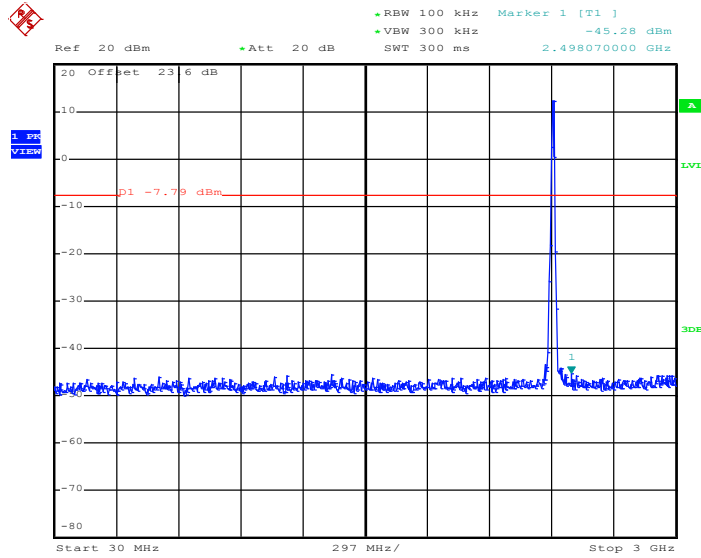




3.4.5 Test Result

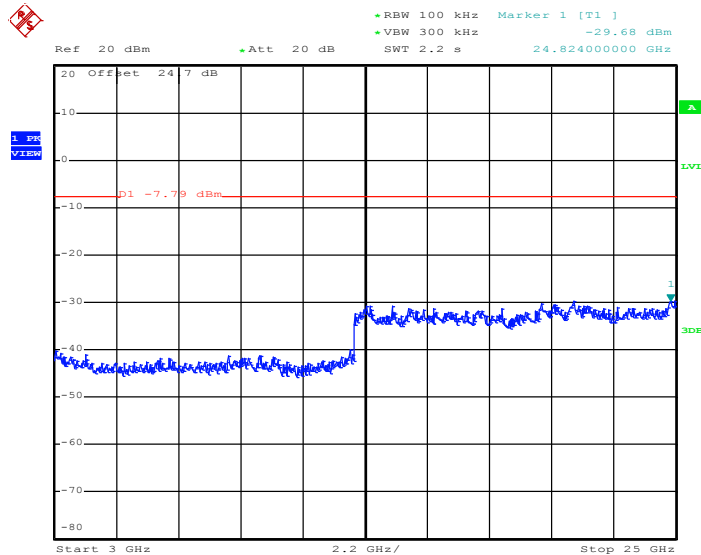
Test Mode :	Mode 1	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 14:08:50

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

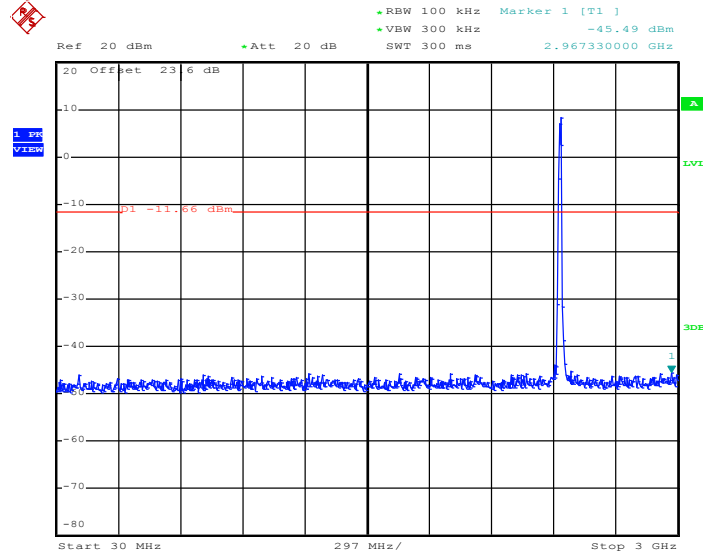


Date: 30.OCT.2011 14:09:07



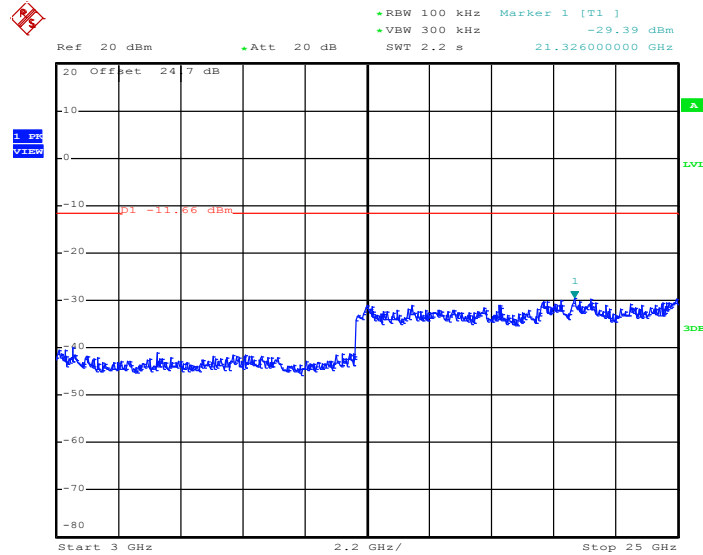
Test Mode :	Mode 2	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 13:54:56

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

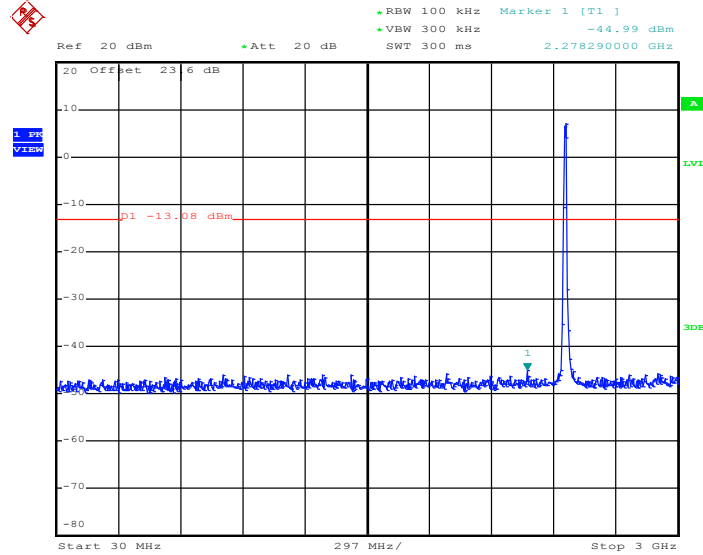


Date: 30.OCT.2011 13:55:13



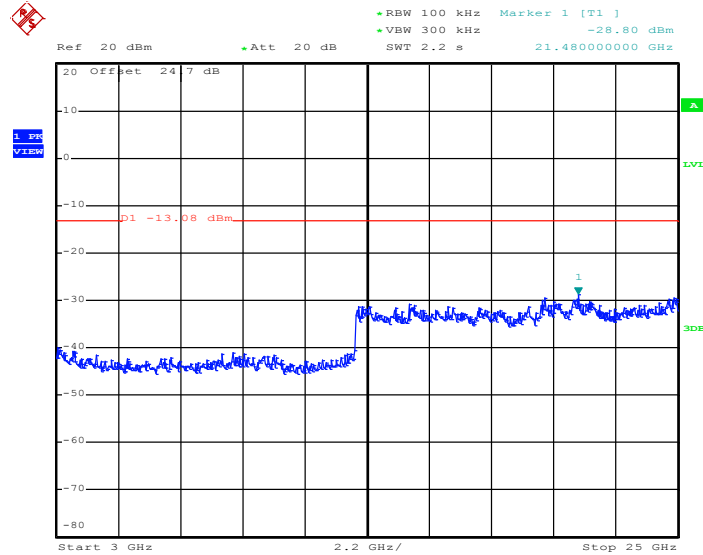
Test Mode :	Mode 3	Temperature :	24~26°C
Test Band :	802.11b	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 13:42:36

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

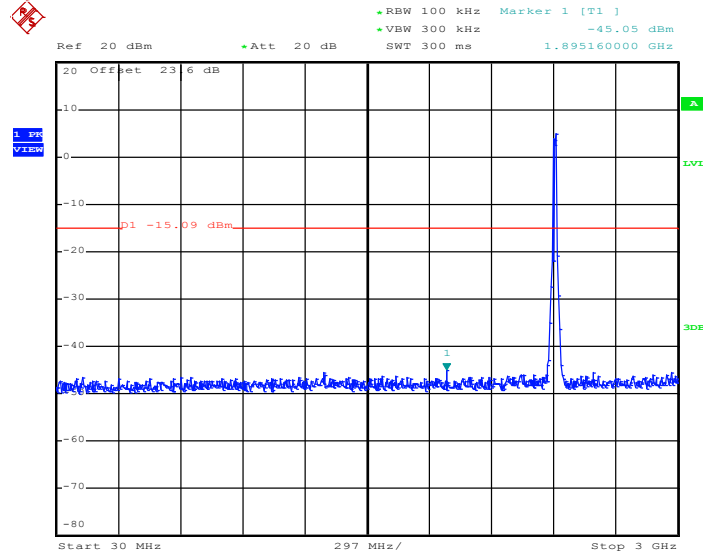


Date: 30.OCT.2011 13:42:53



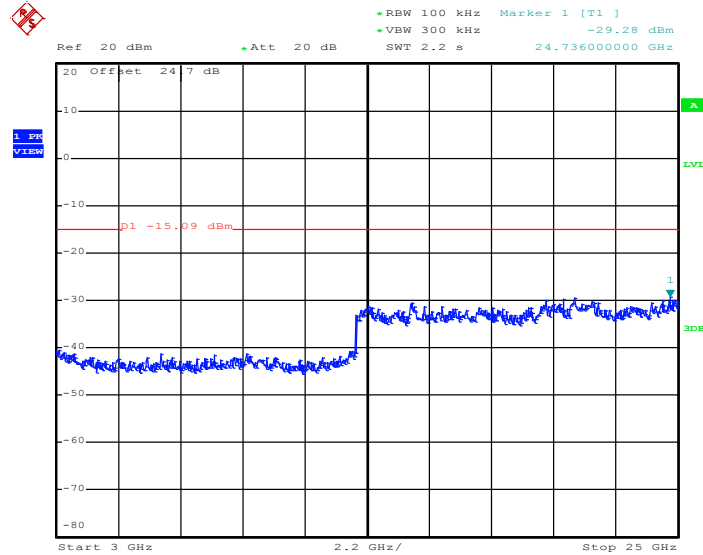
Test Mode :	Mode 4	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 12:56:48

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

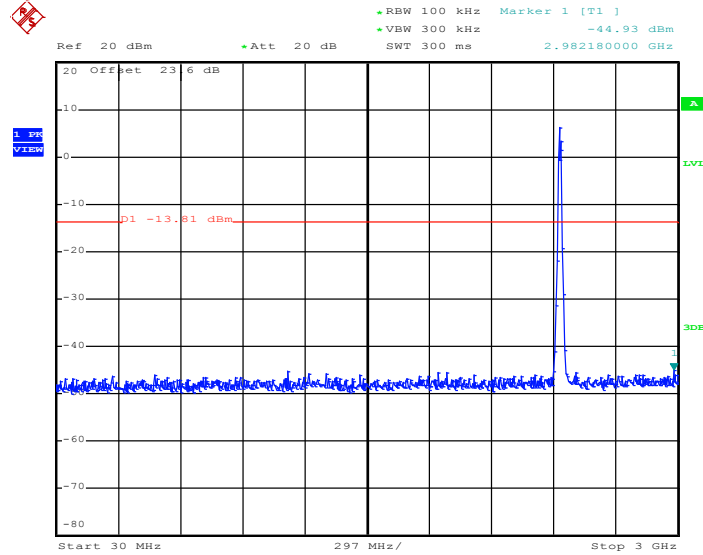


Date: 30.OCT.2011 12:57:05



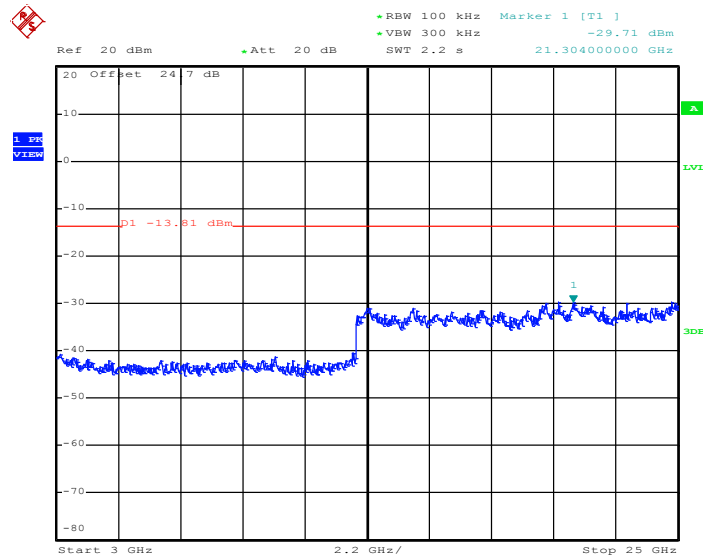
Test Mode :	Mode 5	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 11:55:34

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

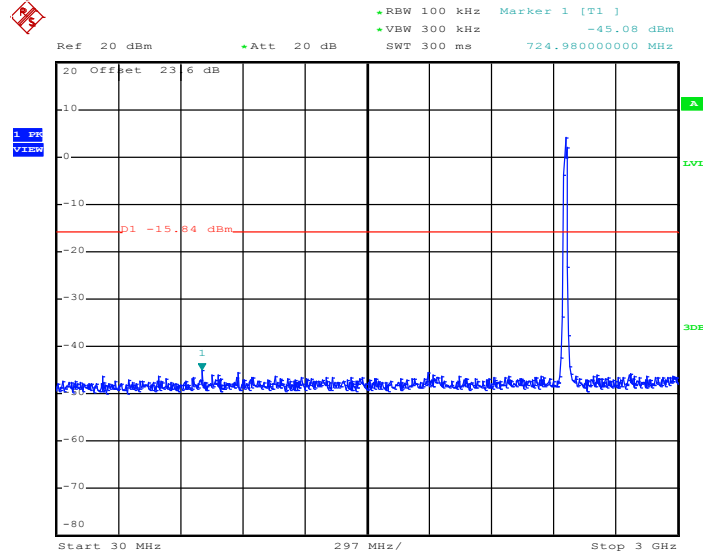


Date: 30.OCT.2011 11:55:51



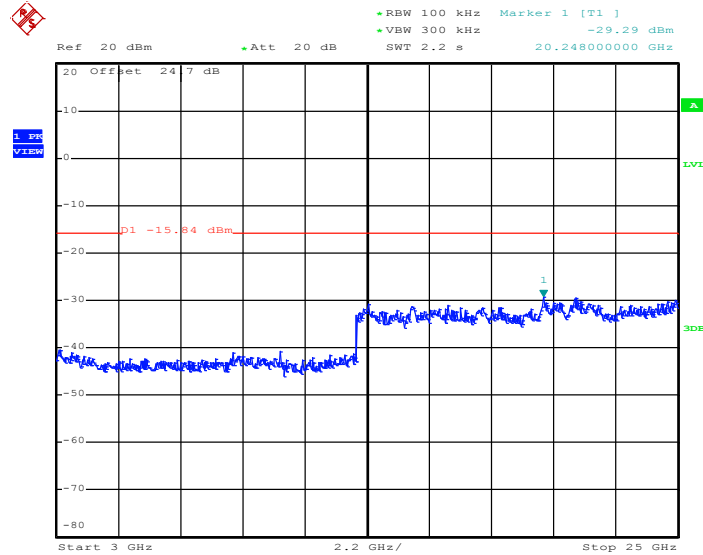
Test Mode :	Mode 6	Temperature :	24~26°C
Test Band :	802.11g	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 12:21:36

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

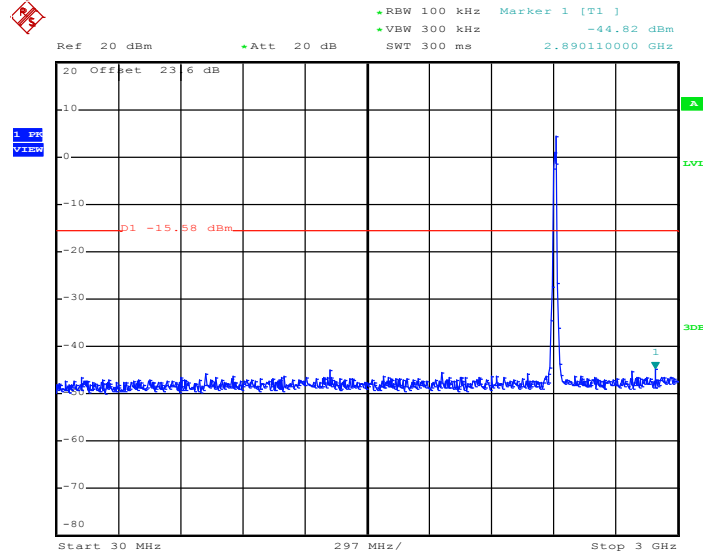


Date: 30.OCT.2011 12:21:53



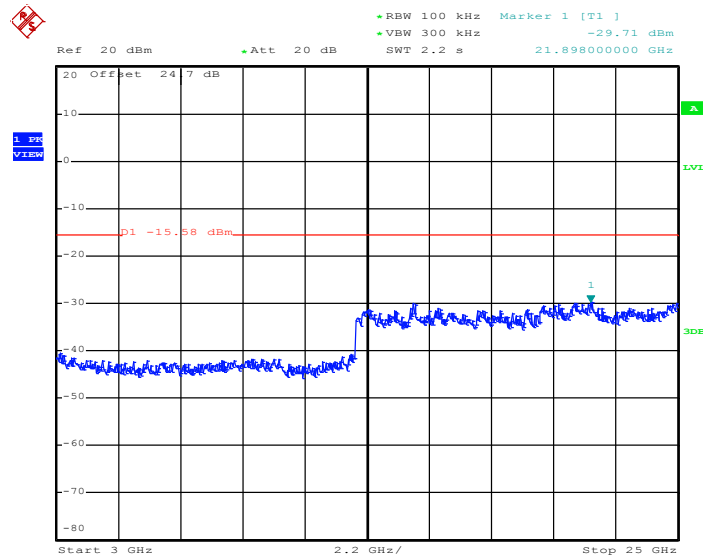
Test Mode :	Mode 7	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 13:12:11

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

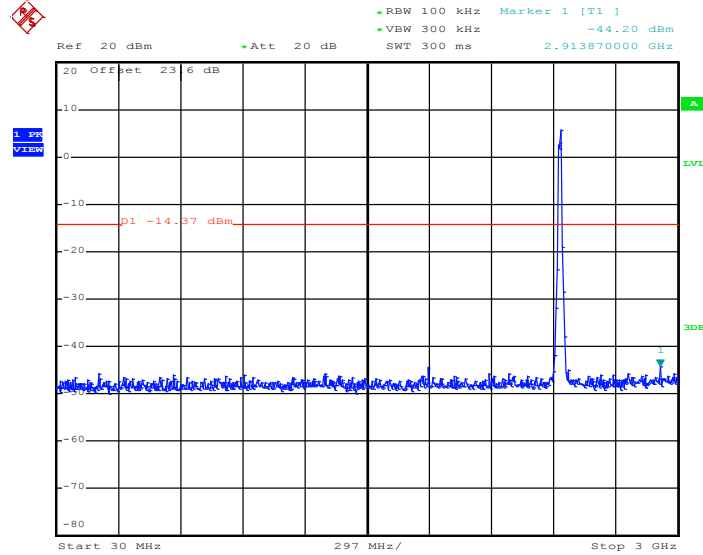


Date: 30.OCT.2011 13:12:28



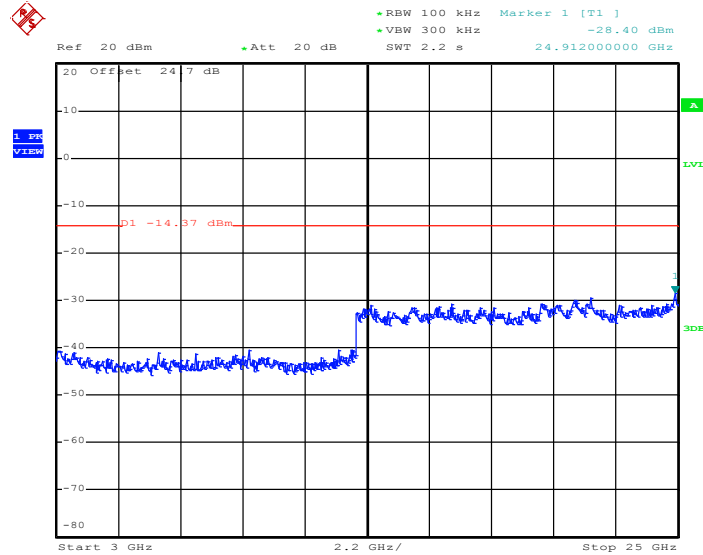
Test Mode :	Mode 8	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 11:52:14

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

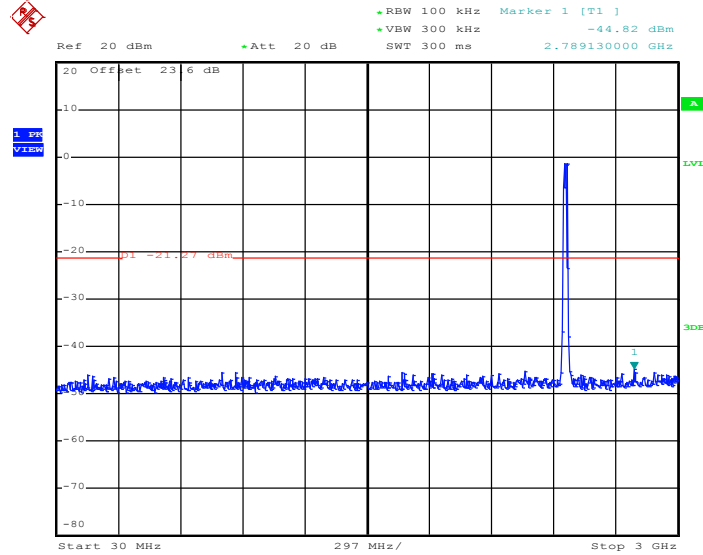


Date: 30.OCT.2011 11:52:31



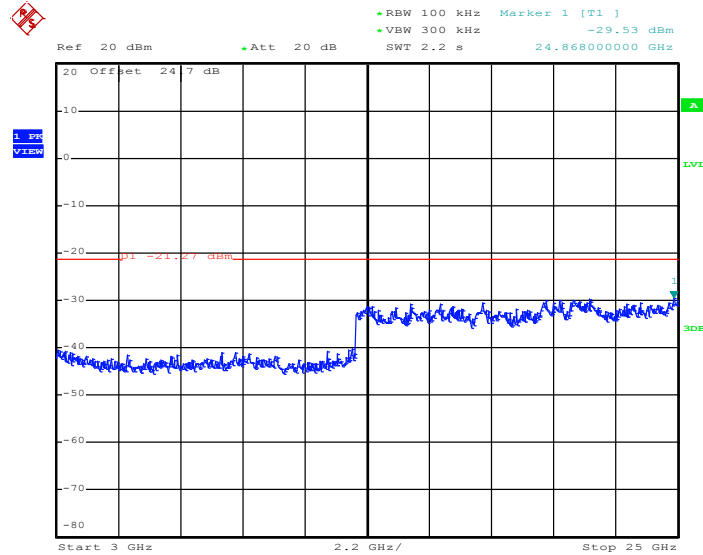
Test Mode :	Mode 9	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 3 GHz



Date: 30.OCT.2011 12:45:04

Conducted Spurious Emission Plot between 3 GHz ~ 25 GHz

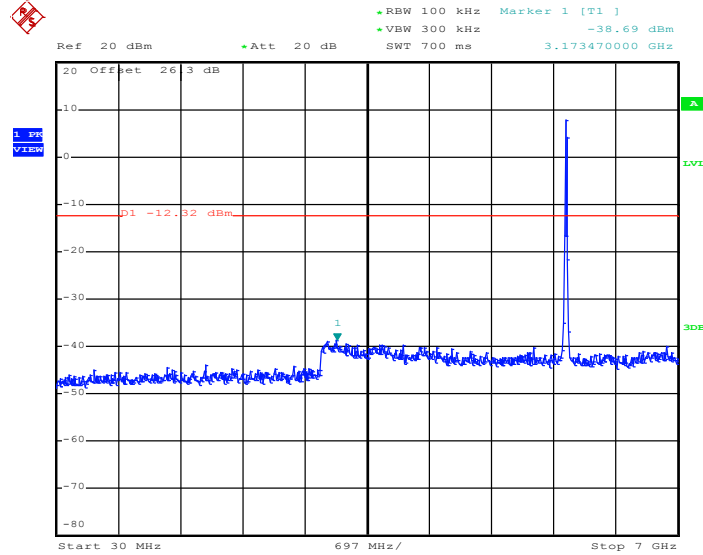


Date: 30.OCT.2011 12:45:21



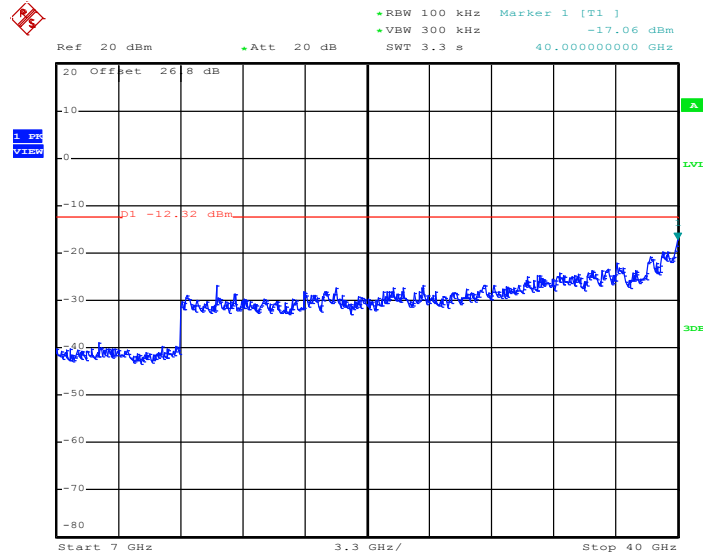
Test Mode :	Mode 10	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	51~54%
Test Channel :	149	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:47:44

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

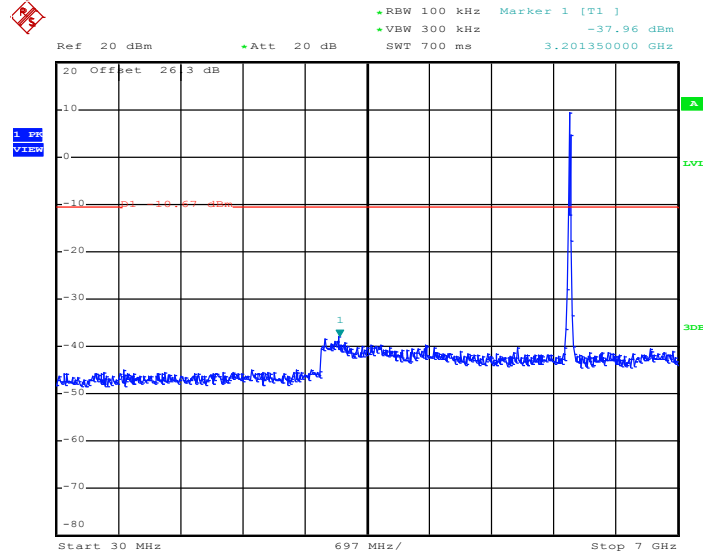


Date: 30.OCT.2011 15:48:01



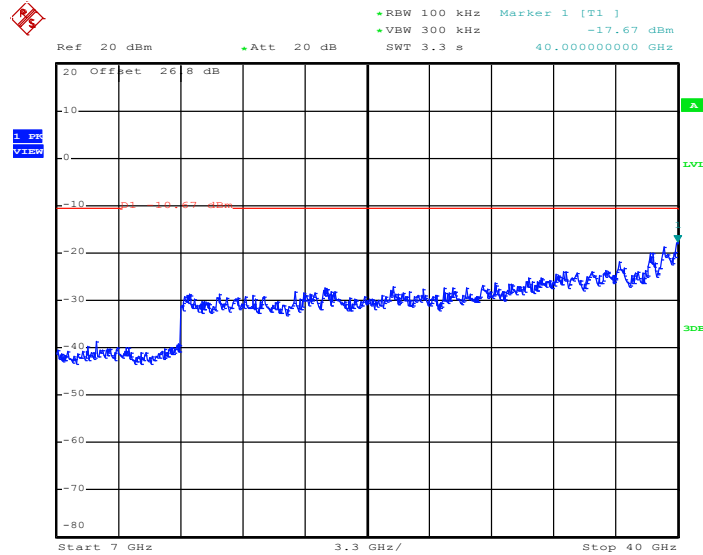
Test Mode :	Mode 11	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	51~54%
Test Channel :	157	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:44:21

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

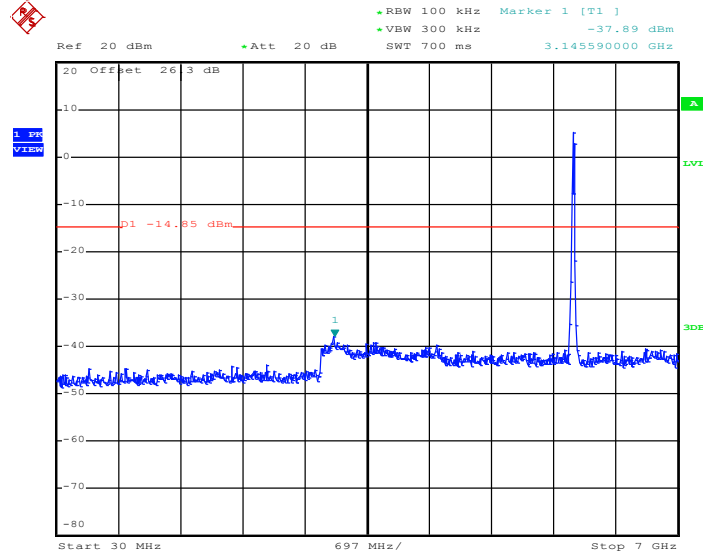


Date: 30.OCT.2011 15:44:38



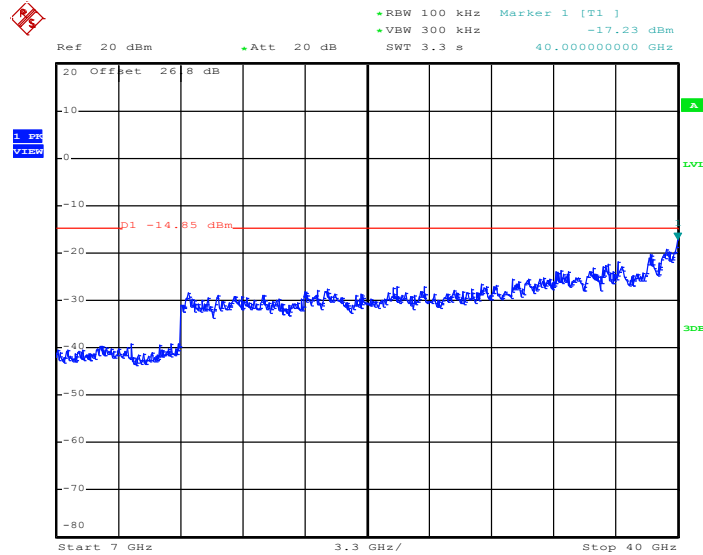
Test Mode :	Mode 12	Temperature :	24~26°C
Test Band :	802.11a	Relative Humidity :	51~54%
Test Channel :	165	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:51:15

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

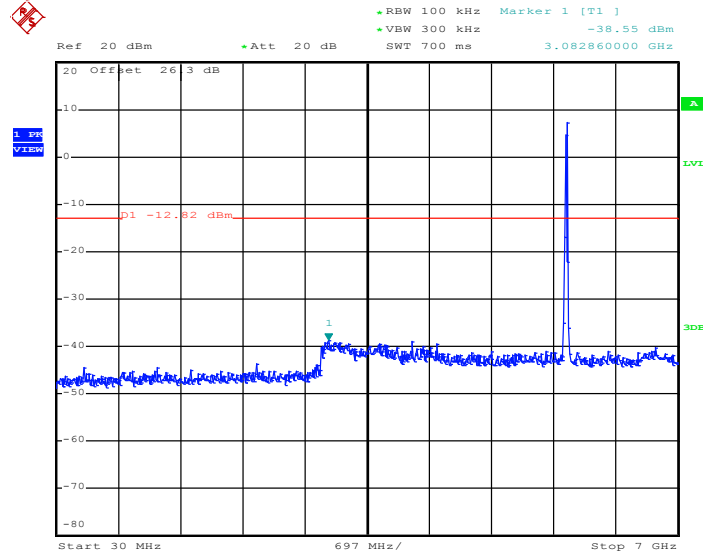


Date: 30.OCT.2011 15:51:32



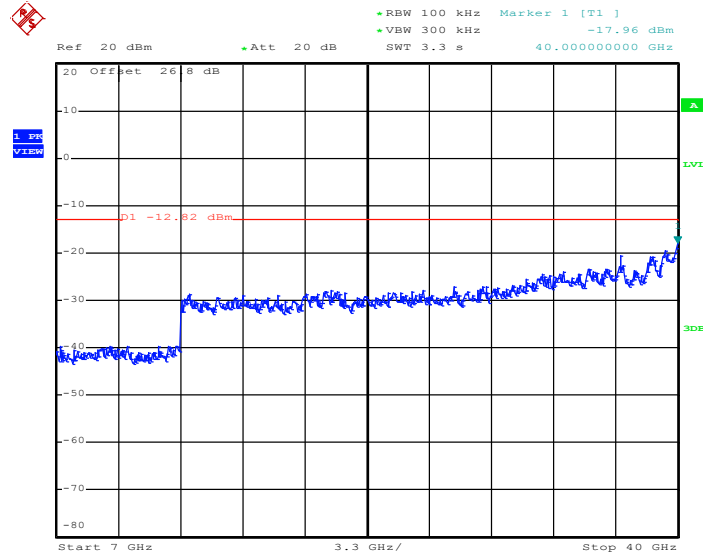
Test Mode :	Mode 13	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	149	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:34:44

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

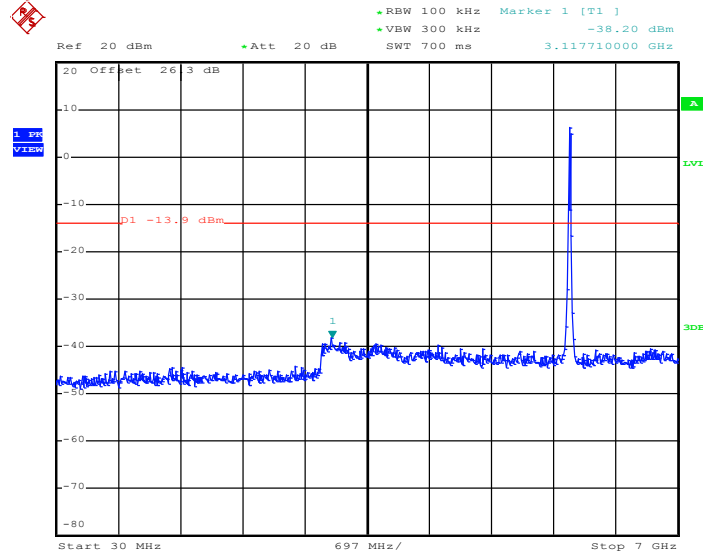


Date: 30.OCT.2011 15:35:01



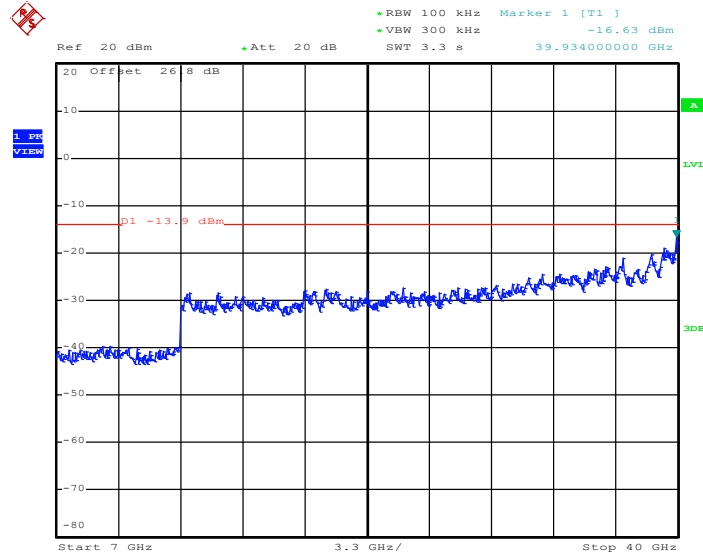
Test Mode :	Mode 14	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	157	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:40:28

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz

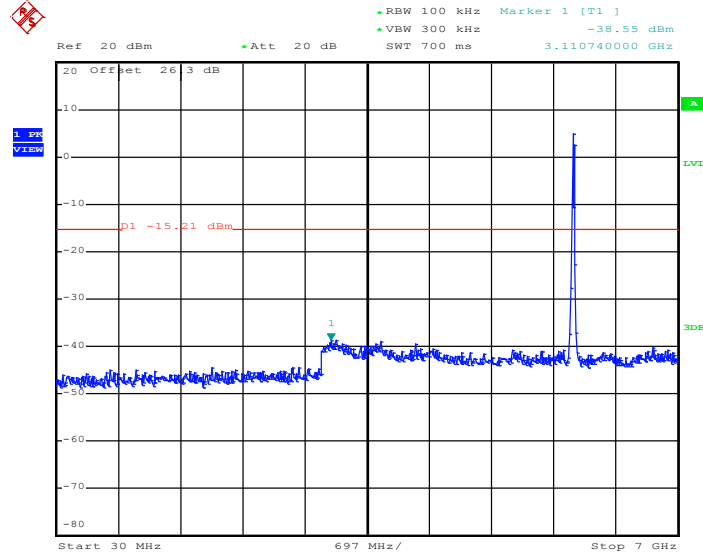


Date: 30.OCT.2011 15:40:45



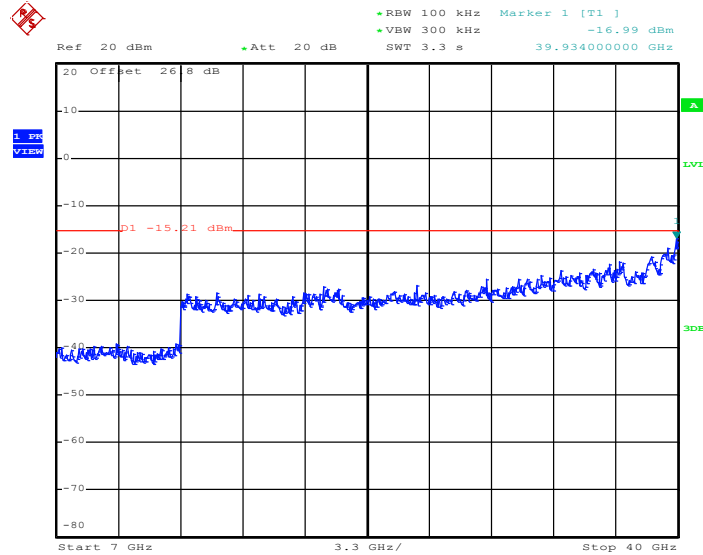
Test Mode :	Mode 15	Temperature :	24~26°C
Test Band :	802.11n (BW 20MHz)	Relative Humidity :	51~54%
Test Channel :	165	Test Engineer :	Hank Yu

Conducted Spurious Emission Plot between 30MHz ~ 7 GHz



Date: 30.OCT.2011 15:37:30

Conducted Spurious Emission Plot between 7 GHz ~ 40 GHz



Date: 30.OCT.2011 15:37:47

3.5 Power Spectral Density Measurement

3.5.1 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.

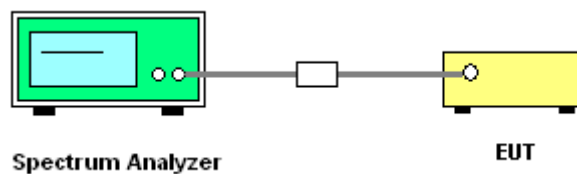
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Take the measured data from spectrum analyzer.

3.5.4 Test Setup



3.5.5 Test Result of Power Spectral Density

Test Mode :	Mode 1, 2, 3	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11b Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	0.30	8	Pass
06	2437	-2.31	8	Pass
11	2462	-3.44	8	Pass

Test Mode :	Mode 4, 5, 6	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11g Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-9.04	8	Pass
06	2437	-6.66	8	Pass
11	2462	-9.11	8	Pass

Test Mode :	Mode 7, 8, 9	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
01	2412	-8.15	8	Pass
06	2437	-6.45	8	Pass
11	2462	-11.06	8	Pass



Test Mode :	Mode 10, 11, 12	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11a Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-6.23	8	Pass
157	5785	-4.95	8	Pass
165	5825	-5.25	8	Pass

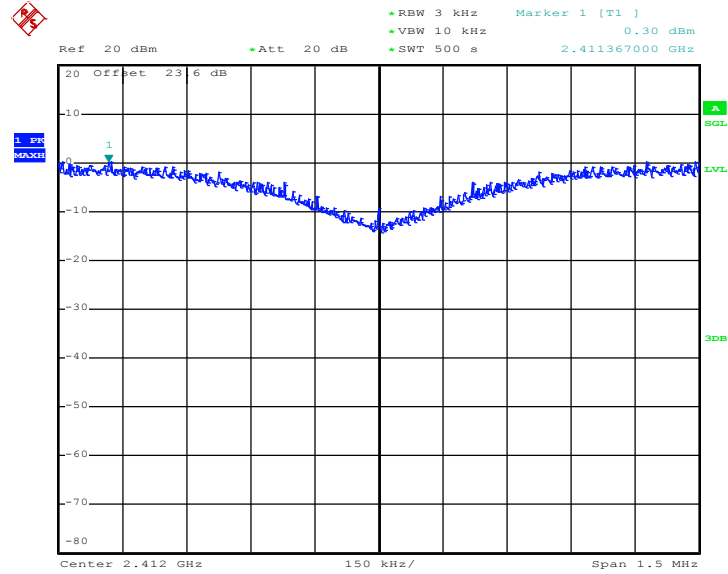
Test Mode :	Mode 13, 14, 15	Temperature :	24~26°C
Test Engineer :	Hank Yu	Relative Humidity :	51~54%

Channel	Frequency (MHz)	802.11n (BW 20MHz) Measured PSD (dBm)	Max. Limits (dBm)	Pass/Fail
149	5745	-5.89	8	Pass
157	5785	-4.24	8	Pass
165	5825	-4.73	8	Pass



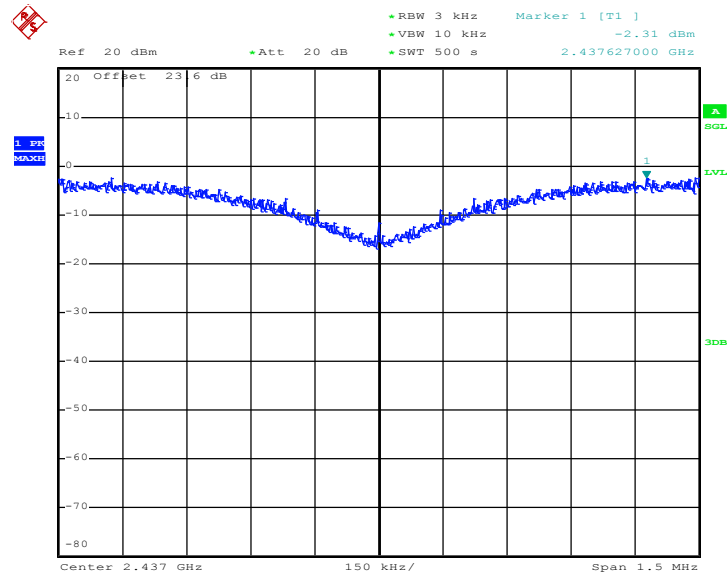
3.5.6 Test Result of Power Spectral Density Plots

Mode 1 : PSD Plot on 802.11b Channel 01



Date: 30.OCT.2011 14:33:32

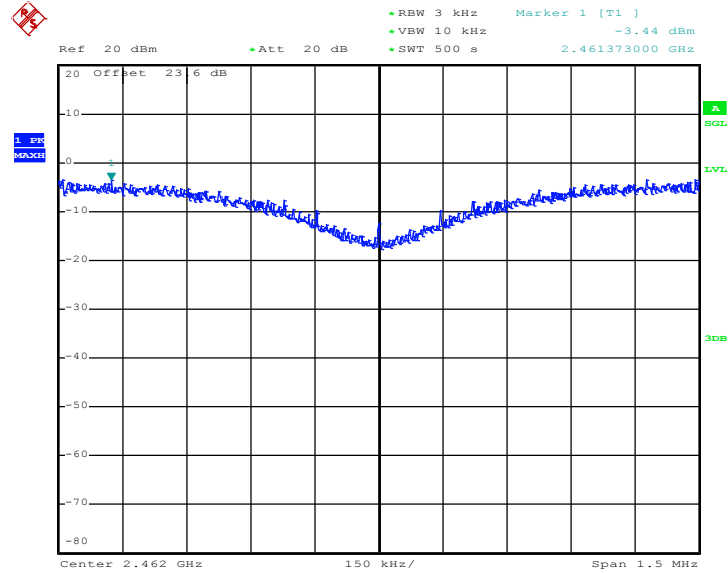
Mode 2 : PSD Plot on 802.11b Channel 06



Date: 30.OCT.2011 14:05:32

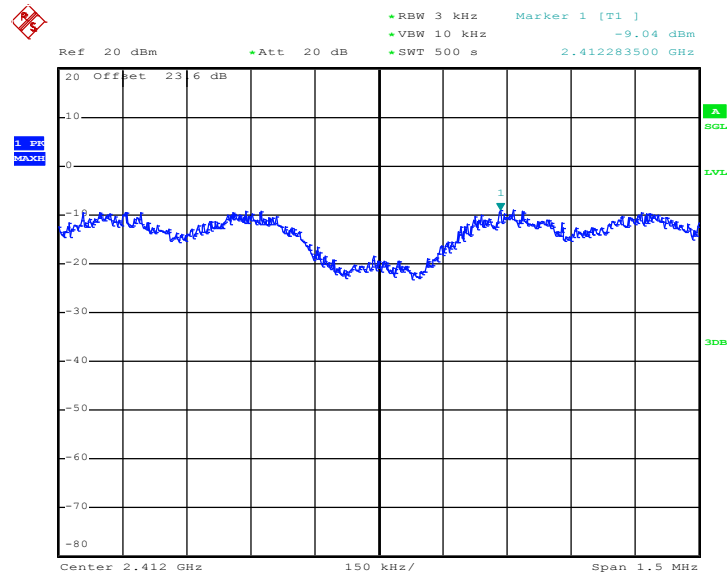


Mode 3 : PSD Plot on 802.11b Channel 11



Date: 30.OCT.2011 13:51:45

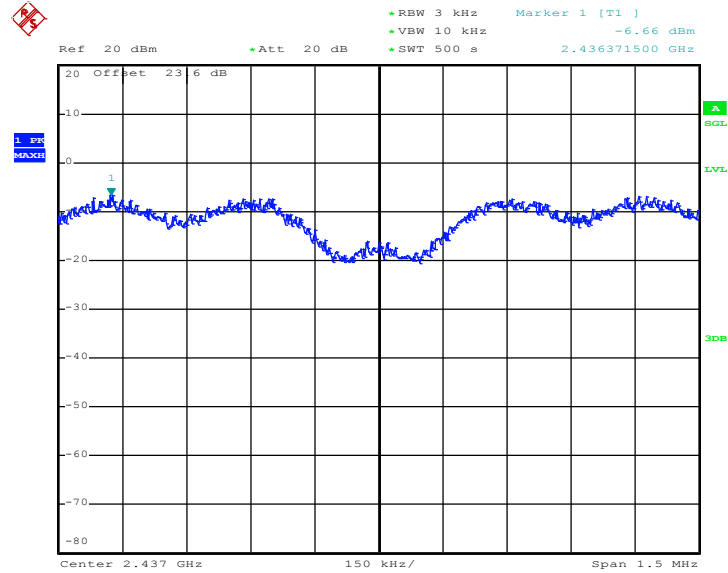
Mode 4 : PSD Plot on 802.11g Channel 01



Date: 30.OCT.2011 12:56:27

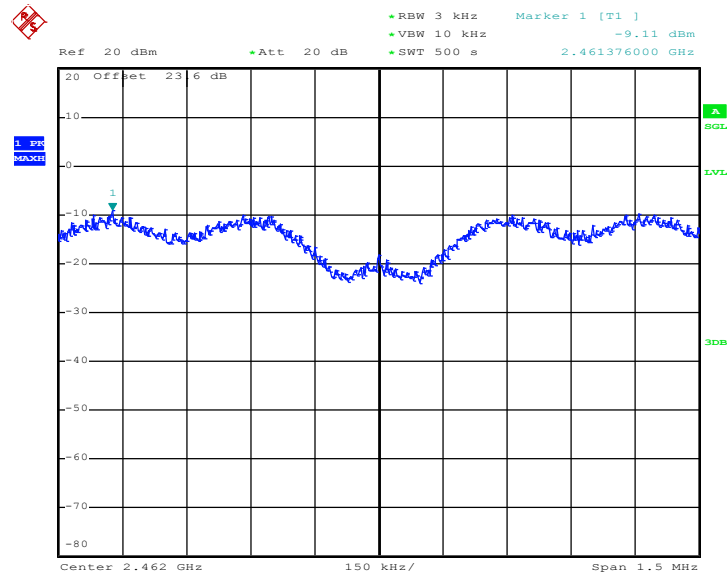


Mode 5 : PSD Plot on 802.11g Channel 06



Date: 30.OCT.2011 12:04:29

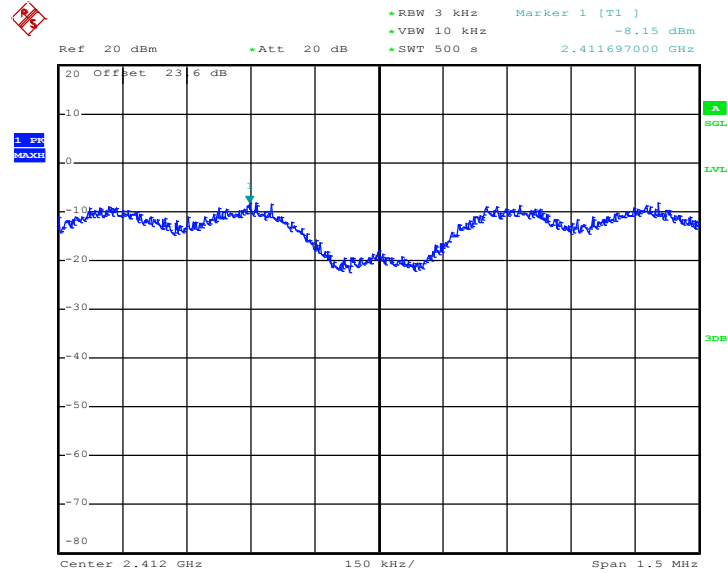
Mode 6 : PSD Plot on 802.11g Channel 11



Date: 30.OCT.2011 12:21:15

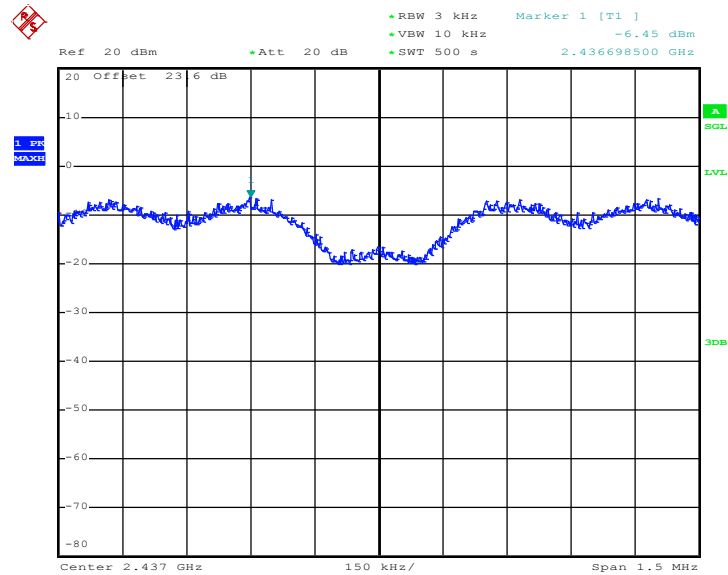


Mode 7 : PSD Plot on 802.11n Channel 01



Date: 30.OCT.2011 13:22:22

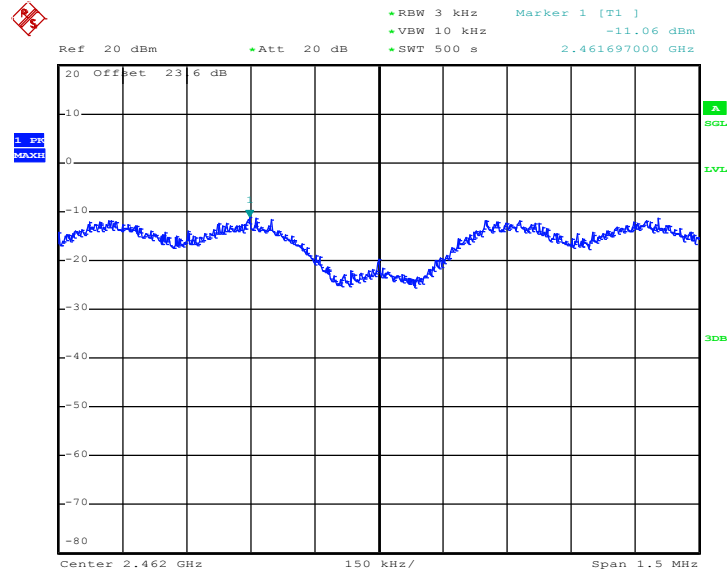
Mode 8 : PSD Plot on 802.11n Channel 06



Date: 30.OCT.2011 11:51:53

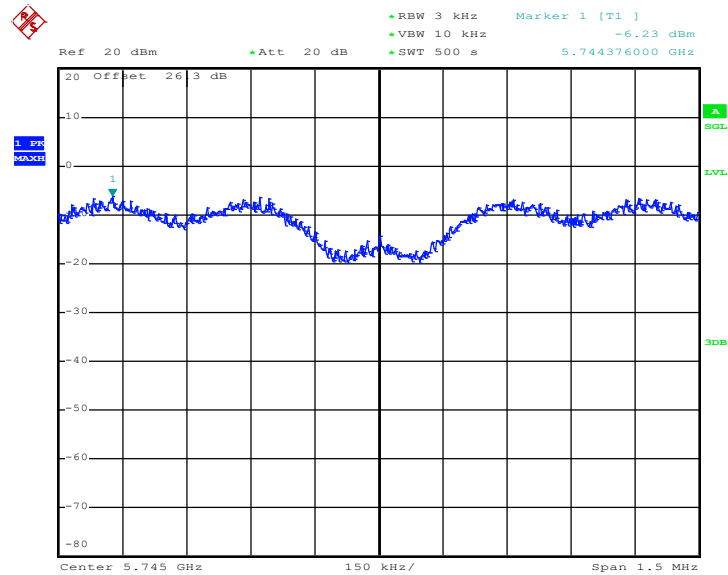


Mode 9 : PSD Plot on 802.11n Channel 11



Date: 30.OCT.2011 12:44:43

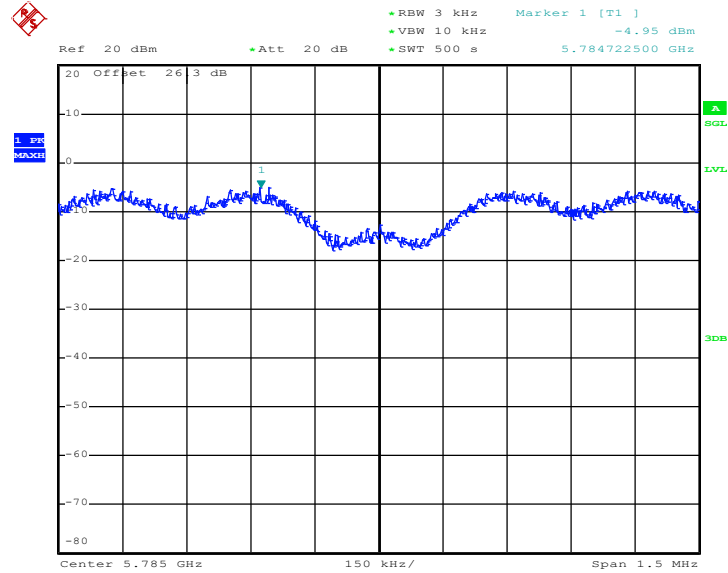
Mode 10: PSD Plot on 802.11a Channel 149



Date: 30.OCT.2011 16:52:14

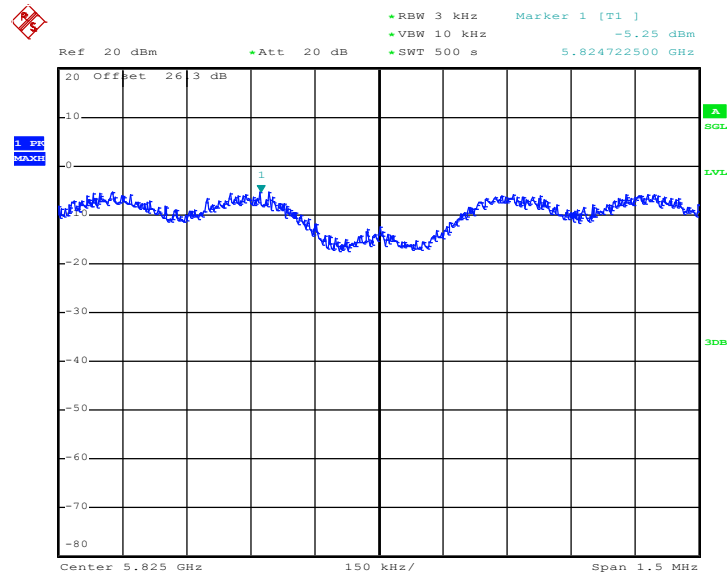


Mode 11: PSD Plot on 802.11a Channel 157



Date: 30.OCT.2011 16:16:20

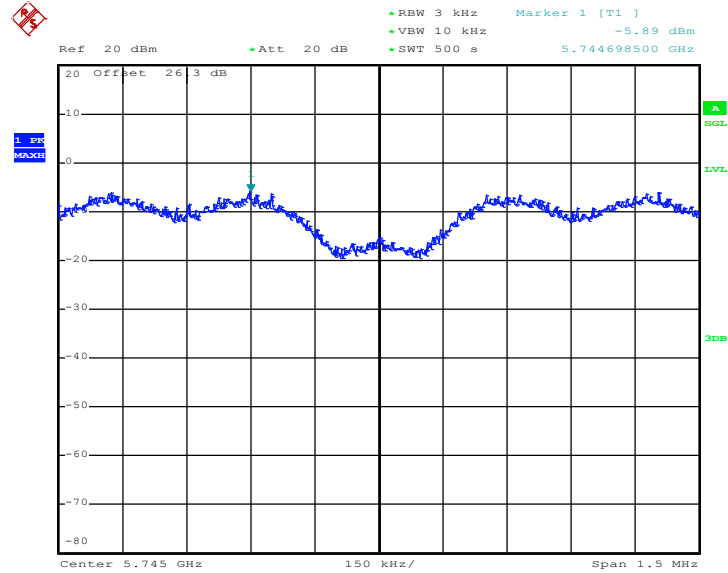
Mode 12: PSD Plot on 802.11a Channel 165



Date: 30.OCT.2011 16:00:14

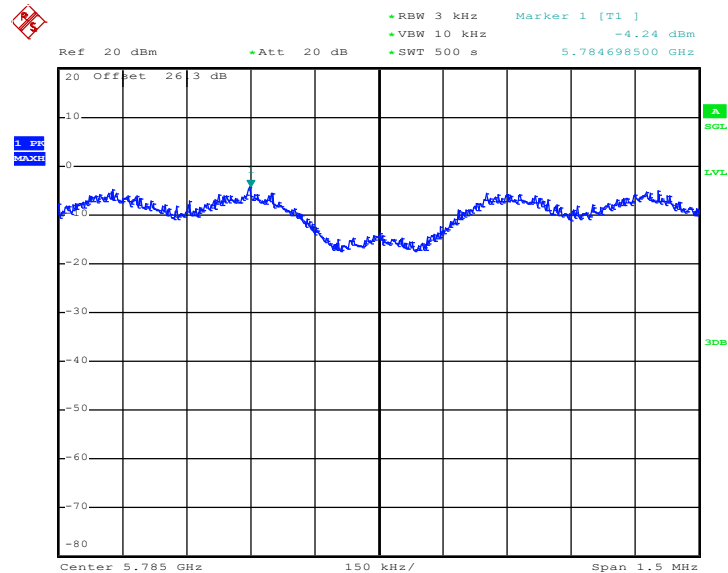


Mode 13: PSD Plot on 802.11n Channel 149



Date: 30.OCT.2011 16:43:08

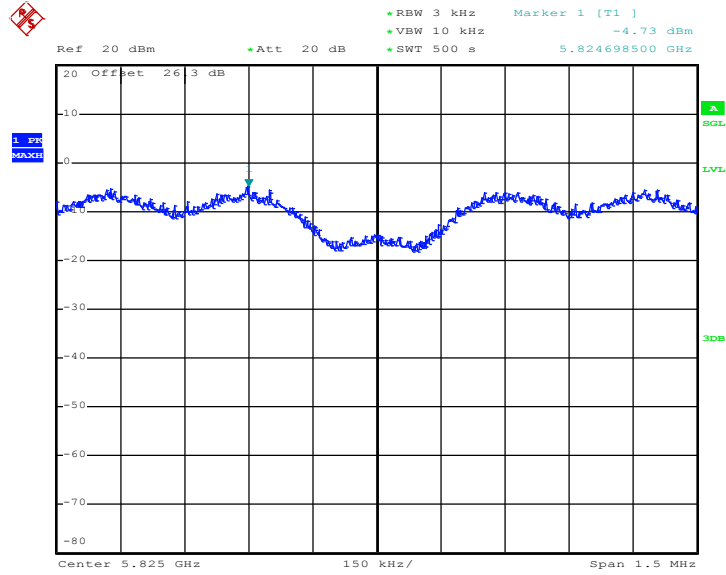
Mode 14: PSD Plot on 802.11n Channel 157



Date: 30.OCT.2011 16:25:20



Mode 15: PSD Plot on 802.11n Channel 165



Date: 30.OCT.2011 16:34:10

3.6 AC Conducted Emission Measurement

3.6.1 Limit of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

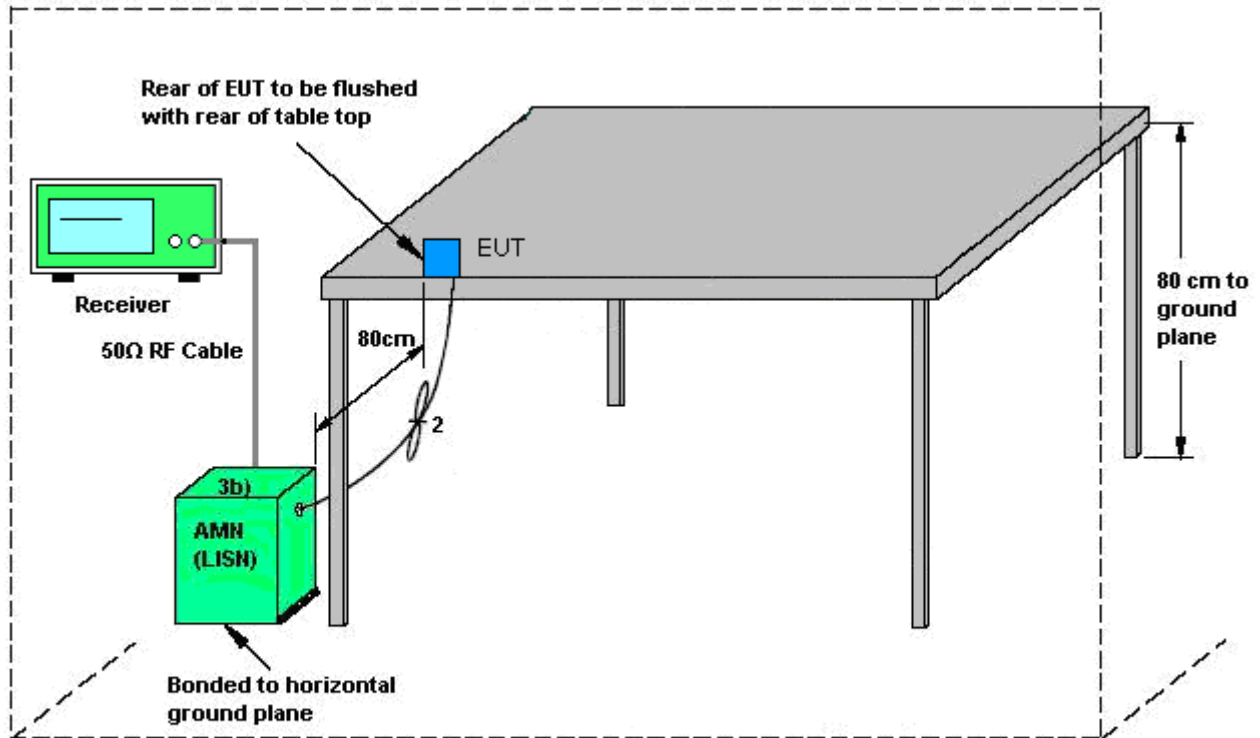
3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

3.6.3 Test Procedures

4. The testing follows the guidelines in ANSI C63.4-2003.
5. 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.
6. Connect EUT to the power mains through a line impedance stabilization network (LISN).
7. All the support units are connecting to the other LISN.
8. The LISN provides 50 ohm coupling impedance for the measuring instrument.
9. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
10. Both sides of AC line were checked for maximum conducted interference.
11. The frequency range from 150 kHz to 30 MHz was searched.
12. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

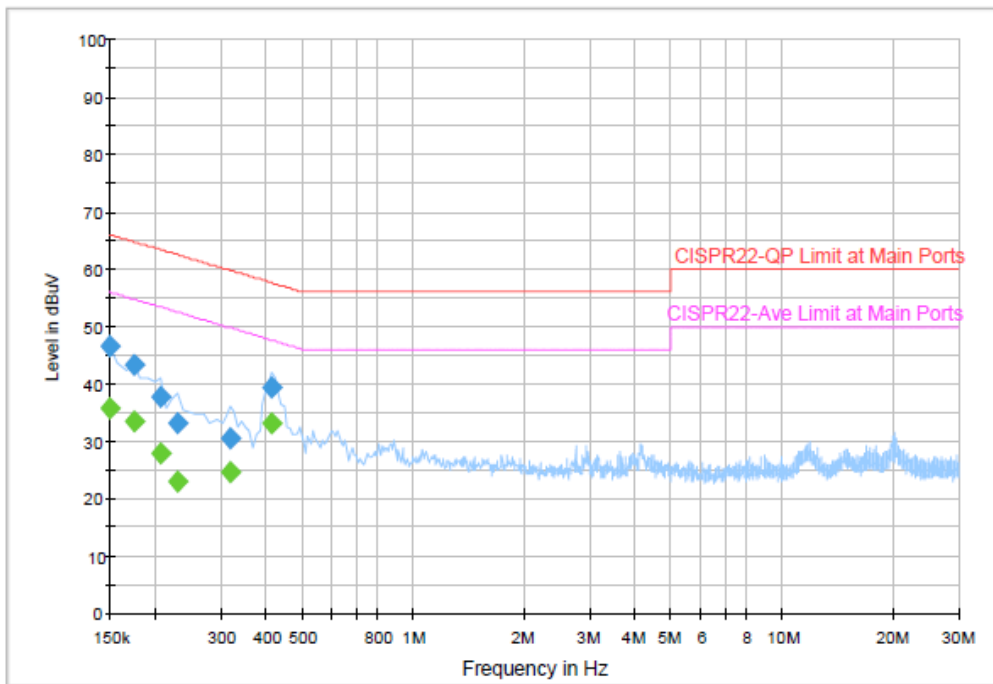
3.6.4 Test Setup



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

3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	:		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



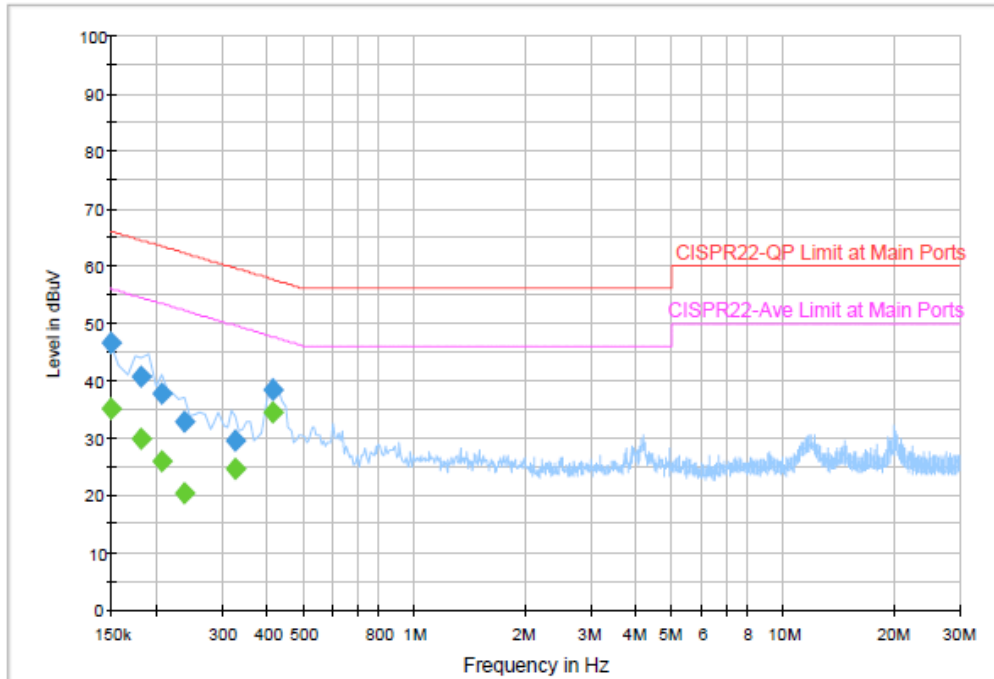
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	46.7	Off	L1	19.4	19.3	66.0
0.174000	43.4	Off	L1	19.4	21.4	64.8
0.206000	37.7	Off	L1	19.4	25.7	63.4
0.230000	33.2	Off	L1	19.4	29.2	62.4
0.318000	30.6	Off	L1	19.4	29.2	59.8
0.414000	39.2	Off	L1	19.5	18.4	57.6

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	35.8	Off	L1	19.4	20.2	56.0
0.174000	33.4	Off	L1	19.4	21.4	54.8
0.206000	28.0	Off	L1	19.4	25.4	53.4
0.230000	22.9	Off	L1	19.4	29.5	52.4
0.318000	24.5	Off	L1	19.4	25.3	49.8
0.414000	33.1	Off	L1	19.5	14.5	47.6

Test Mode :	Mode 1	Temperature :	20~22°C
Test Engineer :	Novic Chiang	Relative Humidity :	40~42%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	:		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	46.5	Off	N	19.4	19.5	66.0
0.182000	40.8	Off	N	19.4	23.6	64.4
0.206000	37.8	Off	N	19.4	25.6	63.4
0.238000	32.7	Off	N	19.4	29.5	62.2
0.326000	29.6	Off	N	19.4	30.0	59.6
0.414000	38.4	Off	N	19.5	19.2	57.6

Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	35.1	Off	N	19.4	20.9	56.0
0.182000	29.9	Off	N	19.4	24.5	54.4
0.206000	25.8	Off	N	19.4	27.6	53.4
0.238000	20.3	Off	N	19.4	31.9	52.2
0.326000	24.6	Off	N	19.4	25.0	49.6
0.414000	34.3	Off	N	19.5	13.3	47.6

3.7 Radiated Emission Measurement

3.7.1 Limit of Radiated Emission

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

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

3.7.2 Measuring Instruments

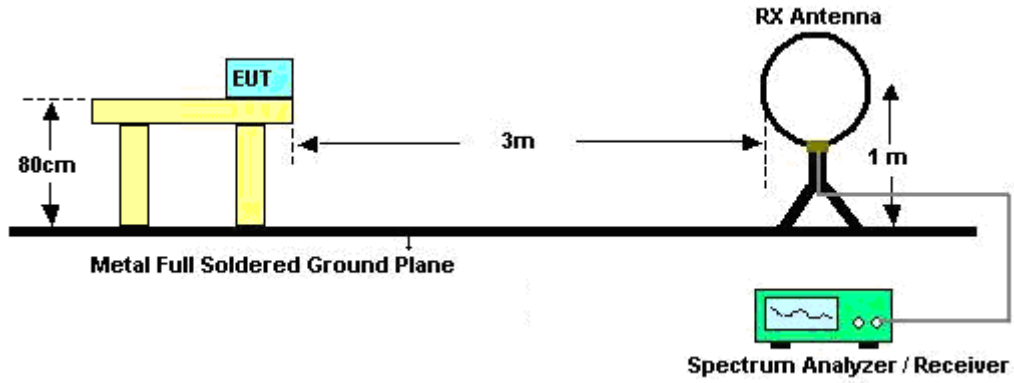
See list of measuring instruments of this test report.

3.7.3 Test Procedures

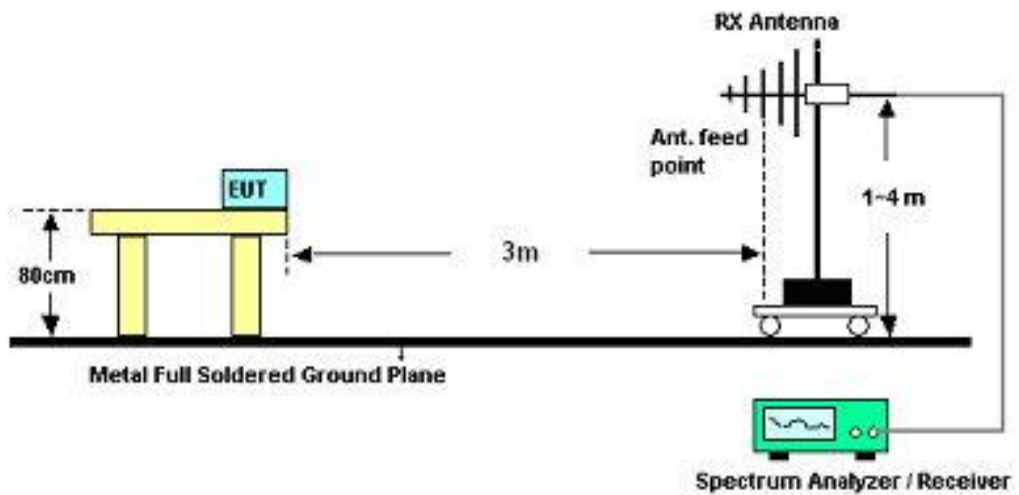
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
 - (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold.
 - (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
 Distance extrapolation factor = $20 \log(\text{specific distance [3m]} / \text{test distance [1m]})$ (dB)
3. Follow the guidelines in ANSI C63.4-2003 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

3.7.4 Test Setup

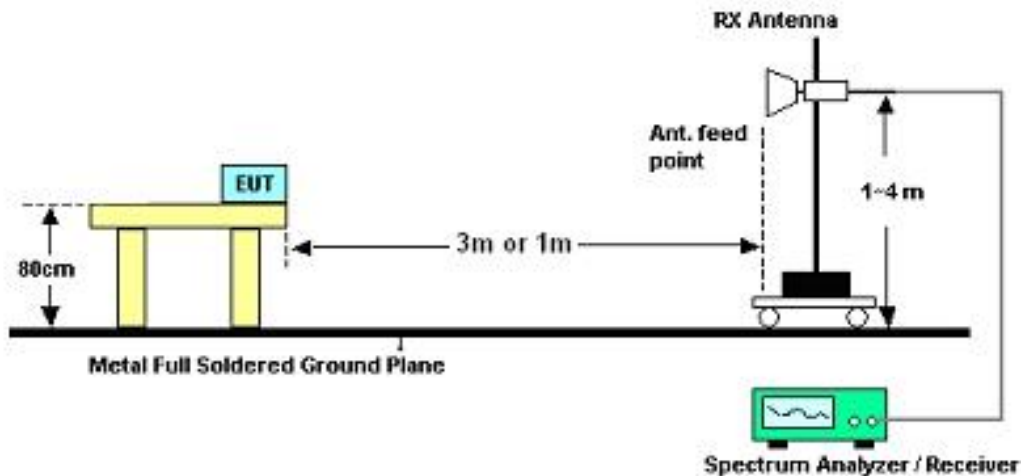
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

Test Engineer :	Ivan Chiang	Temperature :	24~25°C
		Relative Humidity :	50~51%

Frequency	Measurement Distance	Field Strength	Antenna Factor	Distance Factor	Limit Distance	Field Strength at Limit Distance (30m)	Limit (30m)
(MHz)	(m)	(dBuV/m)	(dB/m)	(dB/decade)	(m)	(dBuV/m)	(dBuV/m)
26	3	9.82	19.70	40	30	-30.18	29.54

Note:

- In accordance with 15.33 (a): For each frequency at which a measurement is made at only one distance, the square of an inverse linear distance extrapolation factor (40 dB/decade) is applied.
 Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB);
 Limit line = specific limits (dBuV) + distance extrapolation factor.
- The field strength measured is direct conversion of all parameters (antenna factor and distance extrapolation factor) and loaded into the spectrum.
- For example 1:
 Field Strength at 3m=10 (dBuV/m)
 Field Strength at 30m= $10 - 40 \cdot \log(30\text{m}/3\text{m}) = -30$ (dBuV/m)
 For example 2:
 Field Strength at 10m=10 (dBuV/m)
 Field Strength at 30m= $10 - 40 \cdot \log(30\text{m}/10\text{m}) = -9.08$ (dBuV/m)



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

Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.83	-20.17	40	34.7	16.04	0.55	31.46	-	-	Peak
129.09	18.62	-24.88	43.5	37.48	11.57	1.14	31.57	-	-	Peak
238.98	25.62	-20.38	46	43.67	11.85	1.52	31.42	-	-	Peak
548.5	21.37	-24.63	46	30.82	18.98	2.55	30.98	-	-	Peak
719.3	27.79	-18.21	46	34.37	21.2	2.99	30.77	100	114	Peak
819.4	26.74	-19.26	46	31.55	22.7	3.19	30.7	-	-	Peak
2390	61.79	-12.21	74	57.55	32.06	6.03	33.85	101	169	Peak
2390	52.45	-1.55	54	48.21	32.06	6.03	33.85	101	169	Average
2412	116.15	-	-	111.87	32.08	6.07	33.87	101	169	Peak
2412	112.23	-	-	107.95	32.08	6.07	33.87	101	169	Average
2484	44.34	-9.66	54	39.88	32.18	6.18	33.9	101	169	Average
2484	55.85	-18.15	74	51.39	32.18	6.18	33.9	101	169	Peak



Test Mode :	Mode 1	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	20.51	-19.49	40	35.16	16.27	0.54	31.46	-	-	Peak
118.29	20.96	-22.54	43.5	40.07	11.36	1.09	31.56	-	-	Peak
278.13	14.56	-31.44	46	31.15	13.12	1.64	31.35	-	-	Peak
511.4	24.68	-21.32	46	34.87	18.39	2.47	31.05	-	-	Peak
716.5	25.14	-20.86	46	31.79	21.15	2.98	30.78	-	-	Peak
819.4	27.79	-18.21	46	32.6	22.7	3.19	30.7	122	119	Peak
2390	54.48	-19.52	74	50.24	32.06	6.03	33.85	180	292	Peak
2390	45.05	-8.95	54	40.81	32.06	6.03	33.85	180	292	Average
2412	109.22	-	-	104.94	32.08	6.07	33.87	180	292	Peak
2412	104.26	-	-	99.98	32.08	6.07	33.87	180	292	Average
2486	36.93	-17.07	54	32.47	32.18	6.18	33.9	180	292	Average
2486	49.74	-24.26	74	45.28	32.18	6.18	33.9	180	292	Peak



Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30	20.39	-19.61	40	34.81	16.51	0.53	31.46	-	-	Peak
118.29	15.37	-28.13	43.5	34.48	11.36	1.09	31.56	-	-	Peak
240.33	24.98	-21.02	46	42.89	11.98	1.53	31.42	-	-	Peak
365.8	19.51	-26.49	46	33.19	15.51	2.07	31.26	-	-	Peak
721.4	22.54	-23.46	46	29.09	21.23	2.99	30.77	-	-	Peak
925.8	26.51	-19.49	46	29.78	23.96	3.4	30.63	123	224	Peak
2390	52.83	-21.17	74	48.59	32.06	6.03	33.85	102	166	Peak
2390	42.03	-11.97	54	37.79	32.06	6.03	33.85	102	166	Average
2437	114.22	-	-	109.86	32.13	6.11	33.88	102	166	Peak
2437	110.36	-	-	106	32.13	6.11	33.88	102	166	Average
2486	55.93	-18.07	74	51.47	32.18	6.18	33.9	102	166	Peak
2486	45.63	-8.37	54	41.17	32.18	6.18	33.9	102	166	Average
4874	43.64	-30.36	74	59.45	34.1	9.13	59.04	100	0	Peak
9748	45.82	-48.4	94.22	56.76	36.76	11.94	59.64	100	0	Peak
12185	49.04	-24.96	74	53.82	39.01	13.49	57.28	100	0	Peak



Test Mode :	Mode 2	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 2437 MHz is Fundamental Signals which can be ignored. 2. 9748 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	19.41	-20.59	40	34.06	16.27	0.54	31.46	-	-	Peak
118.29	20.19	-23.31	43.5	39.3	11.36	1.09	31.56	-	-	Peak
223.05	16.45	-29.55	46	35.71	10.75	1.44	31.45	-	-	Peak
511.4	23.43	-22.57	46	33.62	18.39	2.47	31.05	-	-	Peak
827.8	25.67	-20.33	46	30.38	22.79	3.21	30.71	-	-	Peak
956.6	26.65	-19.35	46	29.41	24.34	3.47	30.57	100	256	Peak
2356	46.5	-27.5	74	42.37	32.01	5.95	33.83	100	296	Peak
2356	33.06	-20.94	54	28.93	32.01	5.95	33.83	100	296	Average
2437	104.56	-	-	100.2	32.13	6.11	33.88	100	296	Peak
2437	100.73	-	-	96.37	32.13	6.11	33.88	100	296	Average
2486	37.83	-16.17	54	33.37	32.18	6.18	33.9	100	296	Average
2486	48.82	-25.18	74	44.36	32.18	6.18	33.9	100	296	Peak
9748	47.94	-36.62	84.56	58.88	36.76	11.94	59.64	100	0	Peak
12185	50.06	-23.94	74	54.84	39.01	13.49	57.28	100	0	Peak



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	19.58	-20.42	40	34.45	16.04	0.55	31.46	-	-	Peak
107.49	17.43	-26.07	43.5	37.49	10.45	1.04	31.55	-	-	Peak
237.9	23.11	-22.89	46	41.24	11.78	1.52	31.43	-	-	Peak
526.1	21.53	-24.47	46	31.43	18.62	2.5	31.02	-	-	Peak
819.4	25.9	-20.1	46	30.71	22.7	3.19	30.7	-	-	Peak
937.7	27.87	-18.13	46	30.93	24.11	3.43	30.6	100	235	Peak
2318	49.93	-24.07	74	45.87	31.96	5.92	33.82	100	158	Peak
2318	37.77	-16.23	54	33.71	31.96	5.92	33.82	100	158	Average
2462	113.22	-	-	108.82	32.15	6.14	33.89	100	158	Peak
2462	109.58	-	-	105.18	32.15	6.14	33.89	100	158	Average
2488.22	60.21	-13.79	74	55.73	32.2	6.18	33.9	100	158	Peak
2488.22	52.66	-1.34	54	48.18	32.2	6.18	33.9	100	158	Average



Test Mode :	Mode 3	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 2462 MHz is Fundamental Signals which can be ignored. 2. 9848 MHz is not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	19.11	-20.89	40	34.22	15.8	0.56	31.47	-	-	Peak
118.29	20.08	-23.42	43.5	39.19	11.36	1.09	31.56	-	-	Peak
237.09	14.57	-31.43	46	32.78	11.71	1.51	31.43	-	-	Peak
511.4	25.09	-20.91	46	35.28	18.39	2.47	31.05	-	-	Peak
716.5	26.29	-19.71	46	32.94	21.15	2.98	30.78	-	-	Peak
819.4	28.13	-17.87	46	32.94	22.7	3.19	30.7	100	221	Peak
2310	45.09	-28.91	74	41.06	31.93	5.92	33.82	102	289	Peak
2310	32.08	-21.92	54	28.05	31.93	5.92	33.82	102	289	Average
2462	107.59	-	-	103.19	32.15	6.14	33.89	102	289	Peak
2462	103.77	-	-	99.37	32.15	6.14	33.89	102	289	Average
2487.65	53.03	-20.97	74	48.55	32.2	6.18	33.9	102	289	Peak
2487.65	45.02	-8.98	54	40.54	32.2	6.18	33.9	102	289	Average
9848	48.16	-39.43	87.59	59.03	36.88	11.88	59.63	100	0	Peak



Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	20.63	-19.37	40	35.74	15.8	0.56	31.47	-	-	Peak
129.09	17.28	-26.22	43.5	36.14	11.57	1.14	31.57	-	-	Peak
242.22	22.78	-23.22	46	40.55	12.12	1.53	31.42	-	-	Peak
436.5	21.42	-24.58	46	33.11	17.17	2.27	31.13	-	-	Peak
713.7	24.9	-21.1	46	31.62	21.1	2.97	30.79	-	-	Peak
925.8	27.19	-18.81	46	30.46	23.96	3.4	30.63	100	222	Peak
2389.61	72.59	-1.41	74	68.35	32.06	6.03	33.85	102	167	Peak
2389.61	51.4	-2.6	54	47.16	32.06	6.03	33.85	102	167	Average
2412	114.03	-	-	109.75	32.08	6.07	33.87	102	167	Peak
2412	104.54	-	-	100.26	32.08	6.07	33.87	102	167	Average
2494	40.88	-13.12	54	36.4	32.2	6.18	33.9	102	167	Average
2494	53.29	-20.71	74	48.81	32.2	6.18	33.9	102	167	Peak



Test Mode :	Mode 4	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.94	-20.06	40	34.81	16.04	0.55	31.46	-	-	Peak
118.02	19.81	-23.69	43.5	38.92	11.36	1.09	31.56	-	-	Peak
240.06	18.66	-27.34	46	36.57	11.98	1.53	31.42	-	-	Peak
511.4	22.08	-23.92	46	32.27	18.39	2.47	31.05	-	-	Peak
654.9	25.42	-20.58	46	33.06	20.38	2.85	30.87	-	-	Peak
948.9	27.17	-18.83	46	30.04	24.24	3.46	30.57	100	301	Peak
2390	67.36	-6.64	74	63.12	32.06	6.03	33.85	104	285	Peak
2390	45.28	-8.72	54	41.04	32.06	6.03	33.85	104	285	Average
2412	105.69	-	-	101.41	32.08	6.07	33.87	104	285	Peak
2412	96.05	-	-	91.77	32.08	6.07	33.87	104	285	Average
2500	35.35	-18.65	54	30.87	32.2	6.18	33.9	104	285	Average
2500	47.1	-26.9	74	42.62	32.2	6.18	33.9	104	285	Peak



Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	19.76	-20.24	40	34.87	15.8	0.56	31.47	100	125	Peak
118.29	14.73	-28.77	43.5	33.84	11.36	1.09	31.56	-	-	Peak
235.74	20.63	-25.37	46	38.91	11.64	1.51	31.43	-	-	Peak
498.1	21.07	-24.93	46	31.5	18.2	2.44	31.07	-	-	Peak
819.4	25.22	-20.78	46	30.03	22.7	3.19	30.7	-	-	Peak
995.1	29.31	-24.69	54	31.55	24.83	3.51	30.58	-	-	Peak
2388	54.69	-19.31	74	50.45	32.06	6.03	33.85	100	167	Peak
2388	40.86	-13.14	54	36.62	32.06	6.03	33.85	100	167	Average
2437	115.26	-	-	110.9	32.13	6.11	33.88	100	167	Peak
2437	105.53	-	-	101.17	32.13	6.11	33.88	100	167	Average
2484	56.4	-17.6	74	51.94	32.18	6.18	33.9	100	167	Peak
2484	43.47	-10.53	54	39.01	32.18	6.18	33.9	100	167	Average



Test Mode :	Mode 5	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20.34	-19.66	40	35.21	16.04	0.55	31.46	-	-	Peak
118.29	19	-24.5	43.5	38.11	11.36	1.09	31.56	-	-	Peak
281.1	15.31	-30.69	46	31.85	13.17	1.64	31.35	-	-	Peak
511.4	24.33	-21.67	46	34.52	18.39	2.47	31.05	-	-	Peak
665.4	27.91	-18.09	46	35.39	20.5	2.87	30.85	100	156	Peak
951	26.82	-19.18	46	29.66	24.27	3.46	30.57	-	-	Peak
2388	51.37	-22.63	74	47.13	32.06	6.03	33.85	103	285	Peak
2388	35.12	-18.88	54	30.88	32.06	6.03	33.85	103	285	Average
2437	108.19	-	-	103.83	32.13	6.11	33.88	103	285	Peak
2437	98.41	-	-	94.05	32.13	6.11	33.88	103	285	Average
2484	51.03	-22.97	74	46.57	32.18	6.18	33.9	103	285	Peak
2484	36.76	-17.24	54	32.3	32.18	6.18	33.9	103	285	Average



Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.62	19.72	-20.28	40	34.59	16.04	0.55	31.46	-	-	Peak
129.09	15.24	-28.26	43.5	34.1	11.57	1.14	31.57	-	-	Peak
240.33	22.73	-23.27	46	40.64	11.98	1.53	31.42	-	-	Peak
425.3	21.07	-24.93	46	32.99	16.99	2.23	31.14	-	-	Peak
819.4	24.71	-21.29	46	29.52	22.7	3.19	30.7	-	-	Peak
937	26.86	-19.14	46	29.94	24.09	3.43	30.6	100	129	Peak
2388	50.11	-23.89	74	45.87	32.06	6.03	33.85	100	157	Peak
2388	34.49	-19.51	54	30.25	32.06	6.03	33.85	100	157	Average
2462	113.36	-	-	108.96	32.15	6.14	33.89	100	157	Peak
2462	102.82	-	-	98.42	32.15	6.14	33.89	100	157	Average
2483.5	52.78	-1.22	54	48.32	32.18	6.18	33.9	100	157	Average
2483.5	72.61	-1.39	74	68.15	32.18	6.18	33.9	100	157	Peak



Test Mode :	Mode 6	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	20.24	-19.76	40	34.89	16.27	0.54	31.46	100	114	Peak
118.29	19.53	-23.97	43.5	38.64	11.36	1.09	31.56	-	-	Peak
220.62	15.16	-30.84	46	34.58	10.61	1.43	31.46	-	-	Peak
511.4	24.59	-21.41	46	34.78	18.39	2.47	31.05	-	-	Peak
663.3	25.75	-20.25	46	33.26	20.48	2.87	30.86	-	-	Peak
937	26.1	-19.9	46	29.18	24.09	3.43	30.6	-	-	Peak
2390	45.3	-28.7	74	41.06	32.06	6.03	33.85	103	288	Peak
2390	33.37	-20.63	54	29.13	32.06	6.03	33.85	103	288	Average
2462	109.25	-	-	104.85	32.15	6.14	33.89	103	288	Peak
2462	98.55	-	-	94.15	32.15	6.14	33.89	103	288	Average
2483.5	62.75	-11.25	74	58.29	32.18	6.18	33.9	103	288	Peak
2483.5	42.66	-11.34	54	38.2	32.18	6.18	33.9	103	288	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	20.35	-19.65	40	35	16.27	0.54	31.46	100	147	Peak
129.09	16.86	-26.64	43.5	35.72	11.57	1.14	31.57	-	-	Peak
245.73	21.55	-24.45	46	39.11	12.33	1.53	31.42	-	-	Peak
528.2	21.86	-24.14	46	31.71	18.66	2.51	31.02	-	-	Peak
819.4	25.47	-20.53	46	30.28	22.7	3.19	30.7	-	-	Peak
973.4	26.99	-27.01	54	29.52	24.56	3.48	30.57	-	-	Peak
2389.61	52.16	-1.84	54	47.92	32.06	6.03	33.85	102	167	Average
2389.61	70.73	-3.27	74	66.49	32.06	6.03	33.85	102	167	Peak
2412	101.36	-	-	97.08	32.08	6.07	33.87	102	167	Average
2412	112.81	-	-	108.53	32.08	6.07	33.87	102	167	Peak
2492	53.25	-20.75	74	48.77	32.2	6.18	33.9	102	167	Peak
2492	41.96	-12.04	54	37.48	32.2	6.18	33.9	102	167	Average



Test Mode :	Mode 7	Temperature :	24~25°C
Test Channel :	01	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2412 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.78	-20.22	40	34.65	16.04	0.55	31.46	-	-	Peak
118.29	17.2	-26.3	43.5	36.31	11.36	1.09	31.56	-	-	Peak
240.33	15.89	-30.11	46	33.8	11.98	1.53	31.42	-	-	Peak
511.4	24.51	-21.49	46	34.7	18.39	2.47	31.05	-	-	Peak
668.2	25.86	-20.14	46	33.3	20.53	2.88	30.85	-	-	Peak
819.4	26.62	-19.38	46	31.43	22.7	3.19	30.7	100	128	Peak
2389.99	64.14	-9.86	74	59.9	32.06	6.03	33.85	100	70	Peak
2389.99	44.15	-9.85	54	39.91	32.06	6.03	33.85	100	70	Average
2412	105.38	-	-	101.1	32.08	6.07	33.87	100	70	Peak
2412	94.73	-	-	90.45	32.08	6.07	33.87	100	70	Average
2492	35.32	-18.68	54	30.84	32.2	6.18	33.9	100	70	Average
2492	47.62	-26.38	74	43.14	32.2	6.18	33.9	100	70	Peak



Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.24	19.52	-20.48	40	34.63	15.8	0.56	31.47	-	-	Peak
129.09	16.93	-26.57	43.5	35.79	11.57	1.14	31.57	-	-	Peak
238.98	23.98	-22.02	46	42.03	11.85	1.52	31.42	-	-	Peak
511.4	21.09	-24.91	46	31.28	18.39	2.47	31.05	-	-	Peak
665.4	23.69	-22.31	46	31.17	20.5	2.87	30.85	-	-	Peak
937.7	26.93	-19.07	46	29.99	24.11	3.43	30.6	100	287	Peak
2388	54.52	-19.48	74	50.28	32.06	6.03	33.85	102	162	Peak
2388	40.86	-13.14	54	36.62	32.06	6.03	33.85	102	162	Average
2437	105.71	-	-	101.35	32.13	6.11	33.88	102	162	Average
2437	115.45	-	-	111.09	32.13	6.11	33.88	102	162	Peak
2484	58.58	-15.42	74	54.12	32.18	6.18	33.9	102	162	Peak
2484	44.22	-9.78	54	39.76	32.18	6.18	33.9	102	162	Average



Test Mode :	Mode 8	Temperature :	24~25°C
Test Channel :	06	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2437 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	20.38	-19.62	40	35.49	15.8	0.56	31.47	-	-	Peak
118.29	19.36	-24.14	43.5	38.47	11.36	1.09	31.56	-	-	Peak
282.18	16.57	-29.43	46	33.08	13.18	1.65	31.34	-	-	Peak
511.4	24.5	-21.5	46	34.69	18.39	2.47	31.05	-	-	Peak
716.5	25.83	-20.17	46	32.48	21.15	2.98	30.78	-	-	Peak
929.3	26.88	-19.12	46	30.09	24	3.41	30.62	100	149	Peak
2390	48.3	-25.7	74	44.06	32.06	6.03	33.85	100	69	Peak
2390	34.18	-19.82	54	29.94	32.06	6.03	33.85	100	69	Average
2437	106.85	-	-	102.49	32.13	6.11	33.88	100	69	Peak
2437	97.09	-	-	92.73	32.13	6.11	33.88	100	69	Average
2486	49.59	-24.41	74	45.13	32.18	6.18	33.9	100	69	Peak
2486	36.18	-17.82	54	31.72	32.18	6.18	33.9	100	69	Average



Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.16	19.59	-20.41	40	34.46	16.04	0.55	31.46	-	-	Peak
119.1	14.71	-28.79	43.5	33.72	11.45	1.1	31.56	-	-	Peak
240.33	26.44	-19.56	46	44.35	11.98	1.53	31.42	100	226	Peak
556.2	21.06	-24.94	46	30.38	19.08	2.57	30.97	-	-	Peak
814.5	24.23	-21.77	46	29.1	22.64	3.18	30.69	-	-	Peak
988.1	26.35	-27.65	54	28.69	24.74	3.5	30.58	-	-	Peak
2374	50.2	-23.8	74	46.02	32.03	5.99	33.84	100	140	Peak
2374	37.62	-16.38	54	33.44	32.03	5.99	33.84	100	140	Average
2462	110.59	-	-	106.19	32.15	6.14	33.89	100	140	Peak
2462	100.82	-	-	96.42	32.15	6.14	33.89	100	140	Average
2483.5	70.32	-3.68	74	65.86	32.18	6.18	33.9	100	140	Peak
2483.5	52.78	-1.22	54	48.32	32.18	6.18	33.9	100	140	Average



Test Mode :	Mode 9	Temperature :	24~25°C
Test Channel :	11	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	2462 MHz is Fundamental Signals which can be ignored.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	19.69	-20.31	40	34.8	15.8	0.56	31.47	-	-	Peak
118.02	18.85	-24.65	43.5	37.96	11.36	1.09	31.56	-	-	Peak
285.69	14.93	-31.07	46	31.35	13.24	1.67	31.33	-	-	Peak
511.4	24.43	-21.57	46	34.62	18.39	2.47	31.05	-	-	Peak
663.3	30.38	-15.62	46	37.89	20.48	2.87	30.86	100	186	Peak
945.4	26.25	-19.75	46	29.18	24.2	3.45	30.58	-	-	Peak
2374	45.07	-28.93	74	40.89	32.03	5.99	33.84	103	289	Peak
2374	32.61	-21.39	54	28.43	32.03	5.99	33.84	103	289	Average
2462	106.32	-	-	101.92	32.15	6.14	33.89	103	289	Peak
2462	96.14	-	-	91.74	32.15	6.14	33.89	103	289	Average
2483.85	57.92	-16.08	74	53.46	32.18	6.18	33.9	103	289	Peak
2483.85	41.49	-12.51	54	37.03	32.18	6.18	33.9	103	289	Average



Test Mode :	Mode 10	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.66	-20.34	40	34.53	16.04	0.55	31.46	-	-	Peak
129.09	13.65	-29.85	43.5	32.51	11.57	1.14	31.57	-	-	Peak
241.41	23.47	-22.53	46	41.31	12.05	1.53	31.42	-	-	Peak
475	19.24	-26.76	46	30.12	17.81	2.37	31.06	-	-	Peak
761.3	23.58	-22.42	46	29.34	21.86	3.08	30.7	-	-	Peak
925.8	26.21	-19.79	46	29.48	23.96	3.4	30.63	120	205	Peak
5725	88.51	-8.43	96.94	76.96	34.81	9.92	33.18	101	245	Peak
5745	116.94	-	-	105.4	34.84	9.91	33.21	101	245	Peak
5745	105.71	-	-	94.17	34.84	9.91	33.21	101	245	Average
5850	55.55	-41.39	96.94	44.02	34.98	9.87	33.32	101	245	Peak



Test Mode :	Mode 10	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.78	18.67	-21.33	40	34	15.57	0.57	31.47	-	-	Peak
118.02	19.28	-24.22	43.5	38.39	11.36	1.09	31.56	-	-	Peak
220.89	14.34	-31.66	46	33.76	10.61	1.43	31.46	-	-	Peak
511.4	24.89	-21.11	46	35.08	18.39	2.47	31.05	130	174	Peak
716.5	23.72	-22.28	46	30.37	21.15	2.98	30.78	-	-	Peak
970.6	26.5	-27.5	54	29.07	24.52	3.48	30.57	-	-	Peak
5725	88.83	-6.8	95.63	77.28	34.81	9.92	33.18	130	277	Peak
5745	115.63	-	-	104.09	34.84	9.91	33.21	130	277	Peak
5745	106.73	-	-	95.19	34.84	9.91	33.21	130	277	Average
5850	55.26	-40.37	95.63	43.73	34.98	9.87	33.32	130	277	Peak



Test Mode :	Mode 11	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	19.63	-20.37	40	34.5	16.04	0.55	31.46	-	-	Peak
159.33	14.33	-29.17	43.5	34.18	10.45	1.22	31.52	-	-	Peak
236.01	17.5	-28.5	46	35.78	11.64	1.51	31.43	-	-	Peak
430.9	20.81	-25.19	46	32.62	17.07	2.25	31.13	-	-	Peak
839	25.56	-20.44	46	30.12	22.92	3.24	30.72	-	-	Peak
940.5	27.09	-18.91	46	30.1	24.14	3.44	30.59	100	187	Peak
5725	66.56	-31.88	98.44	55.01	34.81	9.92	33.18	100	308	Peak
5785	118.44	-	-	106.9	34.91	9.89	33.26	100	308	Peak
5785	106.84	-	-	95.28	34.89	9.9	33.23	100	308	Average
5850	61.41	-37.03	98.44	49.88	34.98	9.87	33.32	100	308	Peak



Test Mode :	Mode 11	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.7	20.08	-19.92	40	35.19	15.8	0.56	31.47	-	-	Peak
118.02	19.33	-24.17	43.5	38.44	11.36	1.09	31.56	-	-	Peak
221.7	15.37	-30.63	46	34.72	10.68	1.43	31.46	-	-	Peak
511.4	24.74	-21.26	46	34.93	18.39	2.47	31.05	-	-	Peak
836.9	25.79	-20.21	46	30.37	22.9	3.24	30.72	-	-	Peak
940.5	26.57	-19.43	46	29.58	24.14	3.44	30.59	100	257	Peak
5725	65.13	-32.28	97.41	53.58	34.81	9.92	33.18	120	276	Peak
5785	117.41	-	-	105.85	34.89	9.9	33.23	120	276	Peak
5785	107.93	-	-	96.37	34.89	9.9	33.23	120	276	Average
5850	63.32	-34.09	97.41	51.79	34.98	9.87	33.32	120	276	Peak



Test Mode :	Mode 12	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
33.51	19.22	-20.78	40	34.55	15.57	0.57	31.47	-	-	Peak
160.14	14.49	-29.01	43.5	34.41	10.38	1.22	31.52	-	-	Peak
240.33	23.23	-22.77	46	41.14	11.98	1.53	31.42	-	-	Peak
438.6	20.26	-25.74	46	31.91	17.2	2.27	31.12	-	-	Peak
738.9	24.72	-21.28	46	30.92	21.5	3.03	30.73	-	-	Peak
920.9	27.23	-18.77	46	30.6	23.89	3.39	30.65	100	186	Peak
5725	55.85	-41.55	97.4	44.3	34.81	9.92	33.18	100	243	Peak
5825	117.4	-	-	105.85	34.96	9.88	33.29	100	243	Peak
5825	106.83	-	-	95.28	34.96	9.88	33.29	100	243	Average
5850	86.39	-11.01	97.4	74.86	34.98	9.87	33.32	100	243	Peak



Test Mode :	Mode 12	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	20.03	-19.97	40	34.45	16.51	0.53	31.46	-	-	Peak
178.77	11.32	-32.18	43.5	32.42	9.18	1.25	31.53	-	-	Peak
221.7	14.62	-31.38	46	33.97	10.68	1.43	31.46	-	-	Peak
511.4	24.73	-21.27	46	34.92	18.39	2.47	31.05	-	-	Peak
716.5	24.46	-21.54	46	31.11	21.15	2.98	30.78	-	-	Peak
923	26.48	-19.52	46	29.8	23.92	3.4	30.64	100	132	Peak
5725	55.67	-40.57	96.24	44.12	34.81	9.92	33.18	100	206	Peak
5825	116.24	-	-	104.69	34.96	9.88	33.29	100	206	Peak
5825	105.56	-	-	94.01	34.96	9.88	33.29	100	206	Average
5850	86.24	-10	96.24	74.71	34.98	9.87	33.32	100	206	Peak



Test Mode :	Mode 13	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
32.97	19.22	-20.78	40	34.33	15.8	0.56	31.47	-	-	Peak
213.33	14.62	-28.88	43.5	34.65	10.06	1.38	31.47	-	-	Peak
246.81	19.41	-26.59	46	36.83	12.46	1.53	31.41	-	-	Peak
719.3	29.3	-16.7	46	35.88	21.2	2.99	30.77	100	156	Peak
822.2	26.73	-19.27	46	31.5	22.73	3.2	30.7	-	-	Peak
942.6	26.5	-19.5	46	29.48	24.17	3.44	30.59	-	-	Peak
5725	89.21	-6.81	96.02	77.66	34.81	9.92	33.18	100	308	Peak
5745	116.02	-	-	104.48	34.84	9.91	33.21	100	308	Peak
5745	104.8	-	-	93.26	34.84	9.91	33.21	100	308	Average
5850	55.02	-41	96.02	43.49	34.98	9.87	33.32	100	308	Peak



Test Mode :	Mode 13	Temperature :	24~25°C
Test Channel :	149	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5745 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.27	19.85	-20.15	40	34.27	16.51	0.53	31.46	-	-	Peak
129.09	19.11	-24.39	43.5	37.97	11.57	1.14	31.57	-	-	Peak
238.17	15.07	-30.93	46	33.12	11.85	1.52	31.42	-	-	Peak
511.4	24.9	-21.1	46	35.09	18.39	2.47	31.05	-	-	Peak
716.5	24.88	-21.12	46	31.53	21.15	2.98	30.78	-	-	Peak
937	27	-19	46	30.08	24.09	3.43	30.6	100	176	Peak
5725	89.09	-6.54	95.63	77.54	34.81	9.92	33.18	133	274	Peak
5745	115.63	-	-	104.09	34.84	9.91	33.21	133	274	Peak
5745	106.38	-	-	94.84	34.84	9.91	33.21	133	274	Average
5850	55.37	-40.26	95.63	43.84	34.98	9.87	33.32	133	274	Peak



Test Mode :	Mode 14	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20.11	-19.89	40	34.98	16.04	0.55	31.46	-	-	Peak
118.02	14.61	-28.89	43.5	33.72	11.36	1.09	31.56	-	-	Peak
240.06	21.42	-24.58	46	39.33	11.98	1.53	31.42	-	-	Peak
438.6	19.62	-26.38	46	31.27	17.2	2.27	31.12	-	-	Peak
873.3	26.27	-19.73	46	30.38	23.31	3.3	30.72	-	-	Peak
937.7	27.24	-18.76	46	30.3	24.11	3.43	30.6	100	158	Peak
5725	67.07	-29.85	96.92	55.52	34.81	9.92	33.18	100	308	Peak
5785	116.92	-	-	105.38	34.91	9.89	33.26	100	308	Peak
5785	106.57	-	-	95.01	34.89	9.9	33.23	100	308	Average
5850	62.34	-34.58	96.92	50.81	34.98	9.87	33.32	100	308	Peak



Test Mode :	Mode 14	Temperature :	24~25°C
Test Channel :	157	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5785 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.81	19.65	-20.35	40	34.3	16.27	0.54	31.46	-	-	Peak
118.29	19.45	-24.05	43.5	38.56	11.36	1.09	31.56	-	-	Peak
272.46	14.29	-31.71	46	30.98	13.03	1.64	31.36	-	-	Peak
511.4	24.61	-21.39	46	34.8	18.39	2.47	31.05	-	-	Peak
615	23.58	-22.42	46	31.83	19.93	2.73	30.91	-	-	Peak
928.6	26.24	-19.76	46	29.47	23.98	3.41	30.62	124	158	Peak
5725	65.67	-30.79	96.46	54.12	34.81	9.92	33.18	112	206	Peak
5785	116.46	-	-	104.9	34.89	9.9	33.23	112	206	Peak
5785	106.35	-	-	94.79	34.89	9.9	33.23	112	206	Average
5850	61.27	-35.19	96.46	49.74	34.98	9.87	33.32	112	206	Peak



Test Mode :	Mode 15	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Horizontal
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
30.54	20.29	-19.71	40	34.94	16.27	0.54	31.46	100	147	Peak
129.09	17.07	-26.43	43.5	35.93	11.57	1.14	31.57	-	-	Peak
241.41	23.47	-22.53	46	41.31	12.05	1.53	31.42	-	-	Peak
564.6	21.69	-24.31	46	30.84	19.22	2.59	30.96	-	-	Peak
719.3	25.28	-20.72	46	31.86	21.2	2.99	30.77	-	-	Peak
987.4	26.49	-27.51	54	28.84	24.73	3.5	30.58	-	-	Peak
5725	55.17	-40.96	96.13	43.62	34.81	9.92	33.18	100	244	Peak
5825	116.13	-	-	104.58	34.96	9.88	33.29	100	244	Peak
5825	105.6	-	-	94.05	34.96	9.88	33.29	100	244	Average
5850	83.4	-12.73	96.13	71.87	34.98	9.87	33.32	100	244	Peak



Test Mode :	Mode 15	Temperature :	24~25°C
Test Channel :	165	Relative Humidity :	50~51%
Test Engineer :	Ivan Chiang	Polarization :	Vertical
Remark :	1. 5825 MHz is Fundamental Signals which can be ignored. 2. 5725 and 5850 MHz are not within a restricted band.		

Frequency (MHz)	Level (dBuV/m)	Over Limit (dB)	Limit Line (dBuV/m)	Read Level (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Remark
31.89	20.09	-19.91	40	34.96	16.04	0.55	31.46	-	-	Peak
118.29	19.83	-23.67	43.5	38.94	11.36	1.09	31.56	-	-	Peak
241.14	15.75	-30.25	46	33.59	12.05	1.53	31.42	-	-	Peak
511.4	25.2	-20.8	46	35.39	18.39	2.47	31.05	-	-	Peak
819.4	26.66	-19.34	46	31.47	22.7	3.19	30.7	-	-	Peak
954.5	27.03	-18.97	46	29.82	24.32	3.46	30.57	100	138	Peak
5725	55.32	-39.28	94.6	43.77	34.81	9.92	33.18	100	208	Peak
5825	114.6	-	-	103.05	34.96	9.88	33.29	100	208	Peak
5825	104.3	-	-	92.75	34.96	9.88	33.29	100	208	Average
5850	82.8	-11.8	94.6	71.27	34.98	9.87	33.32	100	208	Peak



3.8 Antenna Requirements

3.8.1 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.

3.8.2 Antenna Connected Construction

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

3.8.3 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	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
Power Meter	Agilent	E4416A	GB41292344	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Sensor	Agilent	E9327A	US40441548	N/A	Feb. 18, 2011	Feb. 17, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receive	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 03, 2010	Dec. 02, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 01, 2010	Nov. 30, 2011	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2726	30MHz ~ 1GHz	Oct. 22, 2011	Oct. 21, 2012	Radiation (03CH07-HY)
Spectrum Analyzer	R&S	FSP30	101067	9KHz ~ 30GHz	Dec. 03, 2010	Dec. 02, 2011	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 10, 2011	Aug. 09, 2012	Radiation (03CH07-HY)
Pre Amplifier	Agilent	8449B	3008A02362	1GHz~ 26.5GHz	Dec. 06, 2010	Dec. 05, 2011	Radiation (03CH07-HY)
Pre Amplifier	COM-POWER	PA-103A	161241	10-1000MHz.32 dB.GAIN	Mar. 29, 2011	Mar. 28, 2012	Radiation (03CH07-HY)
EMI TEST RECEIVER	R&S	ESCI 7	100724	9kHz~7GHz	Aug. 22, 2011	Aug. 21, 2012	Radiation (03CH07-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Feb. 21, 2011	Feb. 20, 2012	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 29, 2010	Jul. 28, 2012	Radiation (03CH07-HY)

5 Uncertainty of Evaluation

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
Combined Standard Uncertainty $U_c(y)$	1.13		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.26		

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

Contribution	Uncertainty of X_i		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.41	Normal (k=2)	0.21
Antenna Factor Calibration	0.83	Normal (k=2)	0.42
Cable Loss Calibration	0.25	Normal (k=2)	0.13
Pre-Amplifier Gain Calibration	0.27	Normal (k=2)	0.14
RCV/SPA Specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site Imperfection	1.43	Rectangular	0.83
Mismatch	+0.39 / -0.41	U-Shape	0.28
Combined Standard Uncertainty $U_c(y)$	1.27		
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.54		



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

Contribution	Uncertainty of X_i		$u(X_i)$	C_i	$C_i * u(X_i)$
	dB	Probability Distribution			
Receiver Reading	±0.10	Normal (k=2)	0.10	1	0.10
Antenna Factor Calibration	±1.70	Normal (k=2)	0.85	1	0.85
Cable Loss Calibration	±0.50	Normal (k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site Imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\Gamma_1 = 0.197$ Antenna VSWR $\Gamma_2 = 0.194$ Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$	+0.34 / -0.35	U-Shape	0.244	1	0.244
Combined Standard Uncertainty $U_c(y)$	2.36				
Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	4.72				



Appendix A. Photographs of EUT

Please refer to Sporton report number EP1O2207 as below.