

FCC RADIO TEST REPORT

According to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment : 802.11 abgn(1X1)+Bluetooth(2.1)module
Brand Name : DT Research Inc.
Model No. : DT430
Filing Type : New Application
Applicant : Summit Data Communications,Inc.
Manufacturer : 526 South Main St. Suite 805 Akron, OH 44311
FCC ID : TWG-SDCMSD40NBT
Received Date : May 30, 2012
Final Test Date : Aug. 20, 2012

Statement

Test result included is only for the printed antenna 802.11a/n (5150~5350MHz; 5470~5725MHz) of the product.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.4-2009** and **47 CFR FCC Part 15 Subpart E**.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



SPORTON International Inc.

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

Table of Contents

1 SUMMARY OF THE TEST RESULT	2
2 GENERAL INFORMATION.....	3
2.1 Product Details.....	3
2.2 Accessories.....	3
2.3 Table for Filed Antenna.....	4
2.4 Table for Carrier Frequencies	5
2.5 Table for Test Modes	6
2.6 Table for Testing Locations.....	6
2.7 Table for Supporting Units	6
2.8 EUT Operation during Test	6
2.9 Test Configuration.....	7
3 TEST RESULT	9
3.1 AC Power Line Conducted Emissions Measurement	9
3.2 Radiated Emissions Measurement	13
3.3 Band Edge and Fundamental Emissions Measurement.....	57
3.4 Antenna Requirements	64
4 LIST OF MEASURING EQUIPMENTS.....	65
5 TEST LOCATION.....	66
6 TAF CERTIFICATE OF ACCREDITATION.....	67
APPENDIX A. TEST PHOTOS	A1 ~ A6
APPENDIX B. PHOTOGRAPHS OF EUT	B1 ~ B26

History of This Test Report

Original Issue Date: Aug. 28, 2012

Report No.: FR260551AN

- No additional attachment.
 - Additional attachment were issued as following record:

CERTIFICATE OF COMPLIANCE

According to

47 CFR FCC Part 15 Subpart E § 15.407

Equipment : 802.11 abgn(1X1)+Bluetooth(2.1)module

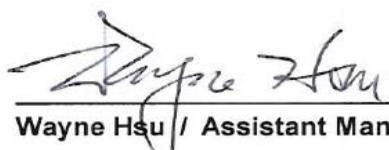
Brand Name : DT Research Inc.

Model No. : DT430

Applicant : Summit Data Communications, Inc.

526 South Main St. Suite 805 Akron, OH 44311

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on May 30, 2012 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.



Wayne Hsu / Assistant Manager

SPORTON International Inc.

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

1 SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	15.207	AC Power Line Conducted Emissions	Complies	7.35 dB
-	15.407(a)	26dB Spectrum Bandwidth	Complies	-
-	15.407(a)	Maximum Conducted Output Power	Complies	-
-	15.407(a)	Power Spectral Density	Complies	-
-	15.407(a)	Peak Excursion	Complies	-
3.2	15.407(b)	Radiated Emissions	Complies	3.06 dB
3.3	15.407(b)	Band Edge Emissions	Complies	1.14 dB
-	15.407(g)	Frequency Stability	Complies	-
3.4	15.203	Antenna Requirements	Complies	-

Note: Standard clause 15.407(a) have been done module test by Summit / SDC-MSD40NBT.

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Conducted Output Power	±0.5dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
Peak Excursion	±0.5dB	Confidence levels of 95%
26dB Spectrum Bandwidth / Frequency Stability	$\pm 8.5 \times 10^{-8}$	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7°C	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%

2 GENERAL INFORMATION

2.1 Product Details

Only the radio detail of IEEE 802.11a/n is shown in this report. For more detailed features description, please refer to the manufacturer's specifications or user's manual.

Items	Description
Power Type	From 5V adapter
Modulation	OFDM for IEEE 802.11a
Data Rate (Mbps)	See the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Frequency Range	5150~5350MHz; 5470~5725MHz

IEEE 802.11n Modulation Scheme

MCS	Spatial	Modulation	Coding Rate	Data rate(Mbps)
Index	Streams	Type	Type	20 MHz channel 800nsGI
0	1	BPSK	1/2	6.5
1	1	QPSK	1/2	13
2	1	QPSK	3/4	19.5
3	1	16-QAM	1/2	26
4	1	16-QAM	3/4	39
5	1	64-QAM	2/3	52
6	1	64-QAM	3/4	58.5
7	1	64-QAM	5/6	65

Symbol	Explanation
NSS	Number of spatial streams
R	Code rate
NBPSC	Number of coded bits per single carrier
NCBPS	Number of coded bits per symbol
NDBPS	Number of data bits per symbol
GI	guard interval

2.2 Accessories

Accessories Information				
AC Adapter	Brand Name	L.T.E.	Model Name	LTE18W-S1
		I/P: 100-240Vac, 50/60Hz, 0.5A; O/P: 5Vdc 3A, MAX:15W		

Note: Regarding to more detail and other information, please refer to user manual.

2.3 Table for Filed Antenna

Antenna Category (Ant. Cat.)															
Transmitter Outputs & Receiver Inputs Information															
Modulation		Transmitter Outputs			Receiver Inputs		Transmitter Output Signals								
802.11a		1		1		-		-							
802.11n HT20		1		1		-		-							
Antenna General Information															
Antenna Port (Total 2 Port)				1(TX/RX)											
Maximum RF Output Power Level (PL)				1											
Transmit Chains Power Distribution				<input checked="" type="checkbox"/> symmetrical distribution <input type="checkbox"/> asymmetrical distribution											
Ant. No.	PL	Ant. Port [Ant No. X connect to Ant. Port Y]	Ant. Cat.	Ant. Type	Brand	Model	G _{ANT} (dBi)	DG (dBi) [correlated] N _{TX} = 1	DG (dBi) [uncorrelated] N _{TX} = 2						
1	1	1	Integral	PCB	--	--	4.57	N/A	4.57						

Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) = $G_{ANT} + 10 \log(N)$ dBi
All transmit signals are completely uncorrelated, Directional Gain (DG)= G_{ANT}

Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows:
Any transmit signals are correlated, Directional Gain (DG) =
 $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi
All transmit signals are completely uncorrelated, Directional Gain (DG) =
 $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10})^N]$ dBi

2.4 Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency (20MHz)	Channel No.	Frequency (40MHz)
5150~5250 MHz Band 1	36	5180 MHz	38	5190 MHz
	40	5200 MHz	46	5230 MHz
	44	5220 MHz	-	-
	48	5240 MHz	-	-
Frequency Band	Channel No.	Frequency (20MHz)	Channel No.	Frequency (40MHz)
5250~5350 MHz Band 2	52	5260 MHz	54	5270 MHz
	56	5280 MHz	62	5310 MHz
	60	5300 MHz	-	-
	64	5320 MHz	-	-
Frequency Band	Channel No.	Frequency (20MHz)	Frequency (40MHz)	
5470~5725 MHz Band 3	100	5500 MHz		
	104	5520 MHz		
	108	5540 MHz		
	112	5560 MHz		
	116	5580 MHz		
	132	5660 MHz		
	136	5680 MHz		
	140	5700 MHz		
Channel No.	Frequency (40MHz)			
102	5510 MHz			
110	5550 MHz			
134	5670 MHz			

2.5 Table for Test Modes

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on the entire possible Configuration for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
AC Power Conducted Emission Radiated Emission Below 1GHz	Transmitting Mode	Auto	-
Radiated Emission Above 1GHz	11a Band 1~2/BPSK	6Mbps	36/40/48/52/60 /64/100/116/140
	11n Band 1~2/BPSK MCS 0 (20MHz)	13Mbps	36/40/48/52/60 /64/100/116/140
Band Edge Emission	11a Band 1~2/BPSK	6Mbps	36/40/48/52/60 /64/100/116/140
	11n Band 1~2/BPSK MCS 0 (20MHz)	13Mbps	36/40/48/52/60 /64/100/116/140

2.6 Table for Testing Locations

Test Site No.	Site Category	Location
CO04-HY	Conduction	Hwa Ya
03CH02-HY	SAC	Hwa Ya

Semi Anechoic Chamber (SAC).

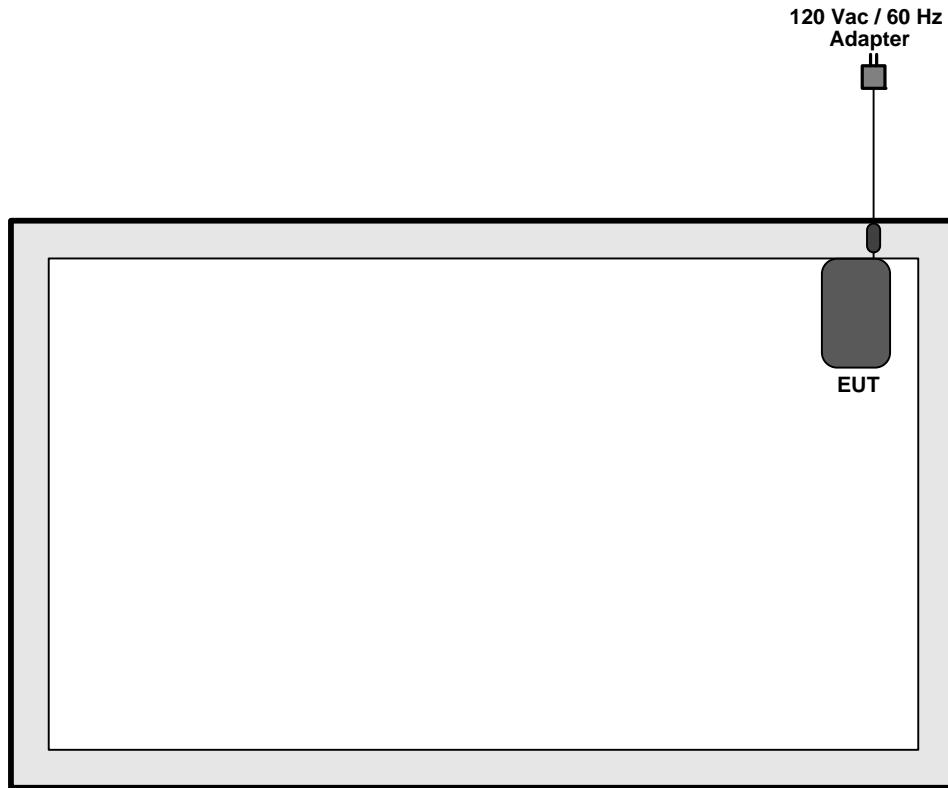
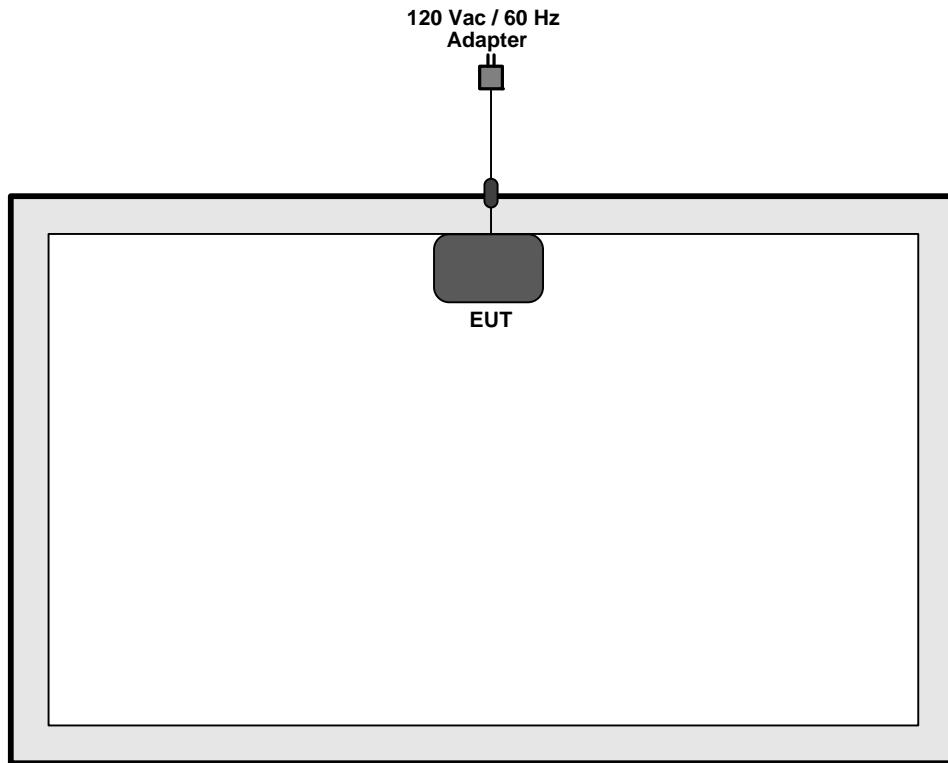
2.7 Table for Supporting Units

The EUT was tested alone.

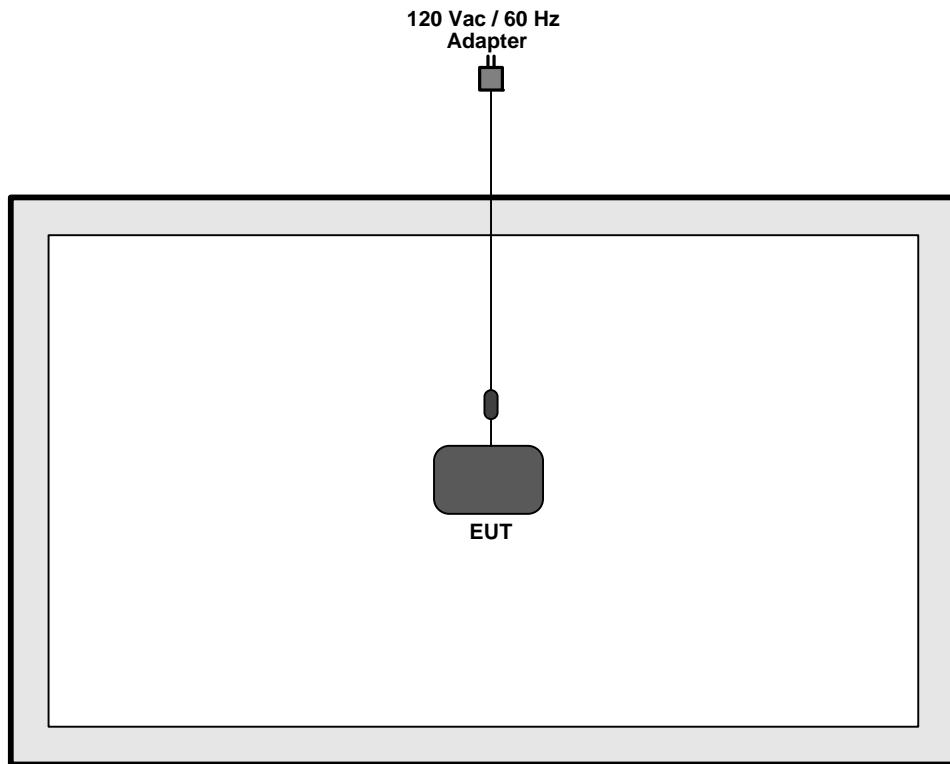
2.8 EUT Operation during Test

The program was executed as follows:

- Executed "sru-CE-ARM" to keep transmitting signals at fixed frequency.

2.9 Test Configuration**For conducted emissions****For radiated emissions 9kHz~1GHz**

For radiated emissions above 1GHz



3 TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For this product which is designed to be connected to the 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 below limits table.

Class B

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2 Measuring Instruments and Setting

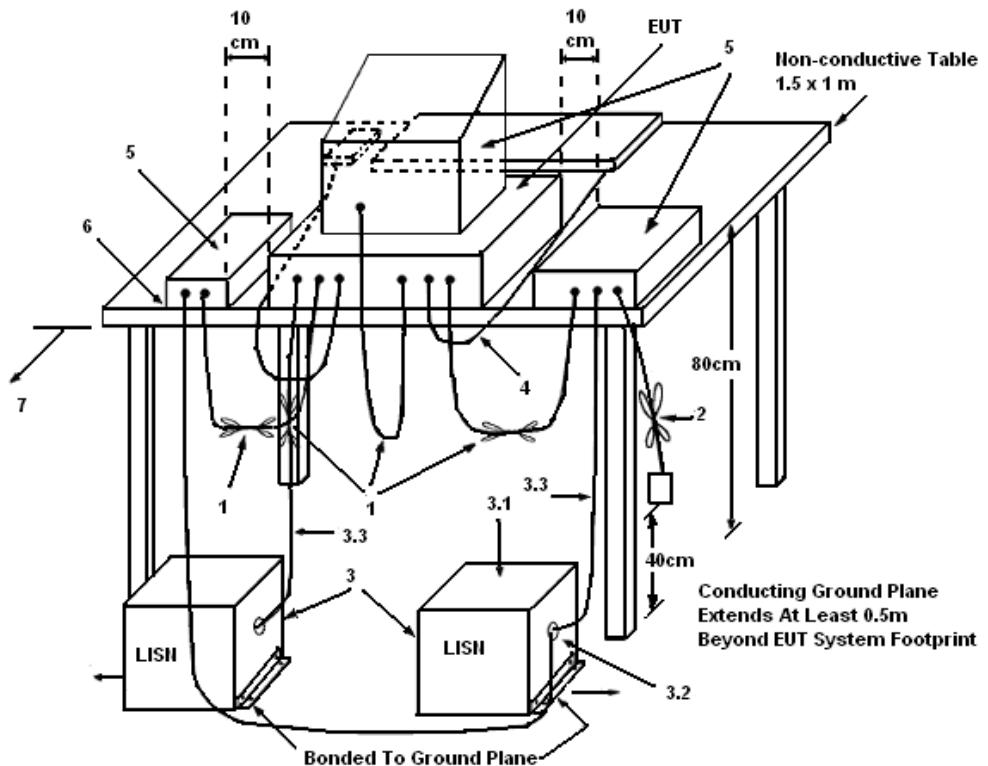
Please refer to section 4 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.1.3 Test Procedures

1. The EUT was warmed up for 15 minutes before testing started.
2. The EUT was placed on a desk 0.8 meters height from the metal ground plane and 0.4 meter from the conducting wall of the shielding room and it was kept at least 0.8 meters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connect to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The CISPR states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

3.1.4 Test Setup Layout



LEGEND:

- (1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- (2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- (3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.
 - (3.1) All other equipment powered from additional LISN(s).
 - (3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
 - (3.3) LISN at least 80 cm from nearest part of EUT chassis.
- (4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
- (5) Non-EUT components of EUT system being tested.
- (6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
- (7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

3.1.5 Test Deviation

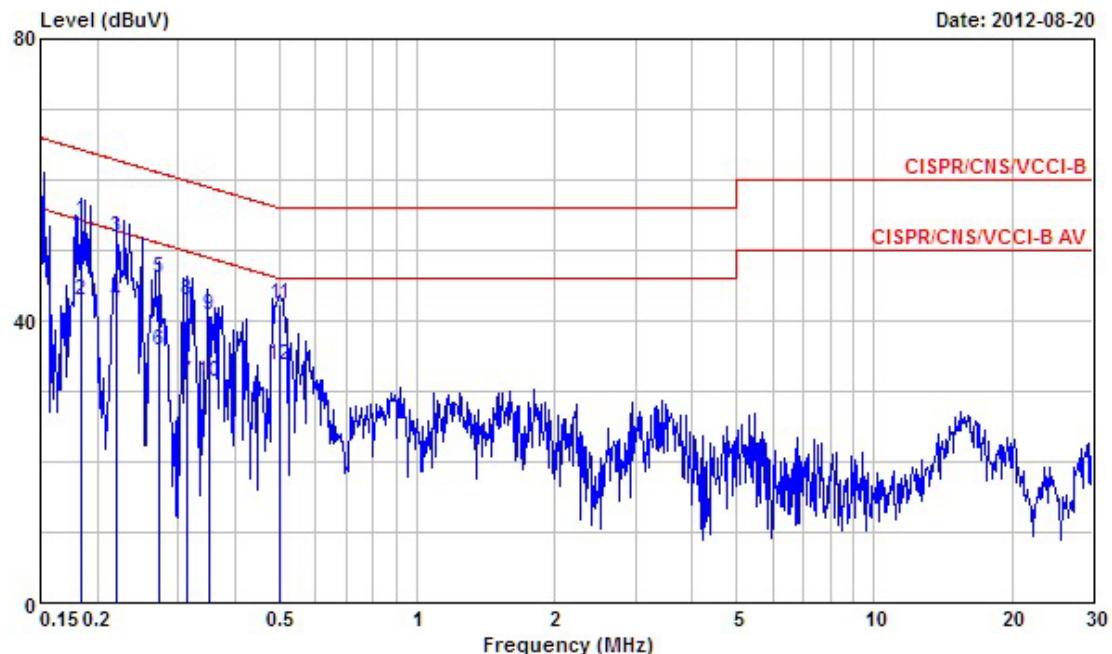
There is no deviation with the original standard.

3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in transmitting mode.

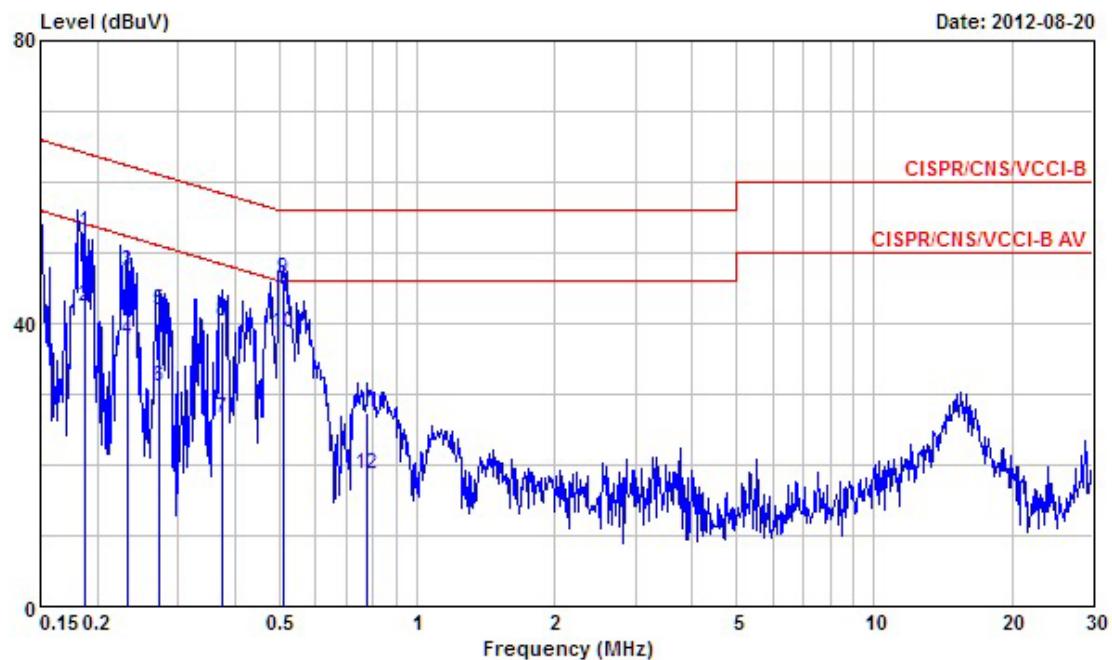
3.1.7 Results of AC Power Line Conducted Emissions Measurement

Final Test Date	Aug. 20, 2012	Test Site No.	CO04-HY
Temperature	26.1°C	Humidity	49%
Test Engineer	Bill	Configuration	Transmitting Mode

Line

Source: Line Conducted Emissions

Freq	Level	Over Limit	Limit Line	Read LISN		Cable Loss	Remark
				dBuV	Factor		
MHz	dBuV	dB					
1 0.1844300	54.23	-10.05	64.28	53.65	0.23	0.35 QP	
2 0.1844300	42.79	-11.49	54.28	42.21	0.23	0.35 Average	
3 0.2208340	51.91	-10.88	62.79	51.36	0.23	0.32 QP	
4 0.2208340	42.51	-10.28	52.79	41.96	0.23	0.32 Average	
5 0.2729650	45.99	-15.04	61.03	45.41	0.23	0.35 QP	
6 0.2729650	35.82	-15.21	51.03	35.24	0.23	0.35 Average	
7 0.3132810	31.20	-18.68	49.88	30.61	0.22	0.37 Average	
8 0.3132810	42.85	-17.03	59.88	42.26	0.22	0.37 QP	
9 0.3503010	40.74	-18.22	58.96	40.14	0.22	0.38 QP	
10 0.3503010	31.34	-17.62	48.96	30.74	0.22	0.38 Average	
11 0.5020260	42.30	-13.70	56.00	41.70	0.22	0.38 QP	
12 0.5020260	33.65	-12.35	46.00	33.05	0.22	0.38 Average	

Neutral

Freq	Level	Over Limit	Limit	Read Line	LISN	Cable	Remark
					dBuV	dB	
MHz					dBuV	dB	
1	0.1873850	53.01	-11.14	64.15	52.56	0.11	0.34 QP
2	0.1873850	42.45	-11.70	54.15	42.00	0.11	0.34 Average
3	0.2328500	47.34	-15.01	62.35	46.91	0.11	0.32 QP
4	0.2328500	37.66	-14.69	52.35	37.23	0.11	0.32 Average
5	0.2729650	41.94	-19.09	61.03	41.48	0.11	0.35 QP
6	0.2729650	31.06	-19.97	51.03	30.60	0.11	0.35 Average
7	0.3751190	26.54	-21.85	48.39	26.05	0.10	0.39 Average
8	0.3751190	40.26	-18.13	58.39	39.77	0.10	0.39 QP
9	0.5080260	46.27	-9.73	56.00	45.80	0.10	0.37 QP
10	0.5080260	38.65	-7.35	46.00	38.18	0.10	0.37 Average
11	0.7793120	27.33	-28.67	56.00	26.89	0.11	0.33 QP
12	0.7793120	18.59	-27.41	46.00	18.15	0.11	0.33 Average

Note: Level = Read Level + LISN Factor + Cable Loss.

3.2 Radiated Emissions Measurement

3.2.1 Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

3.2.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz z for peak

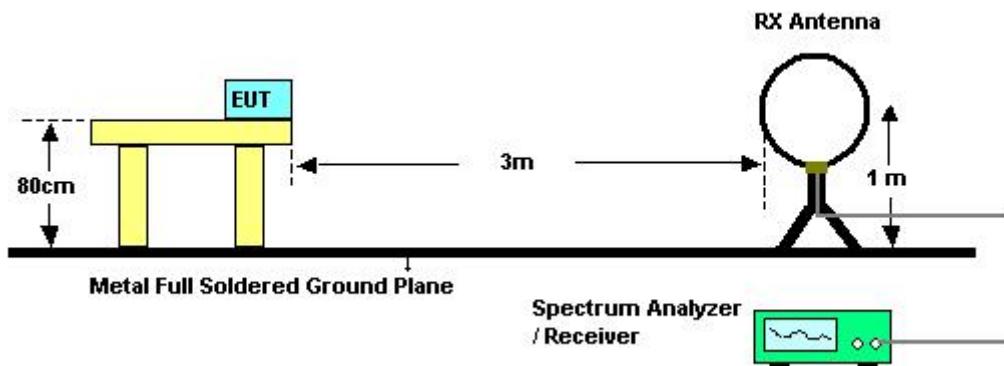
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.3 Test Procedures

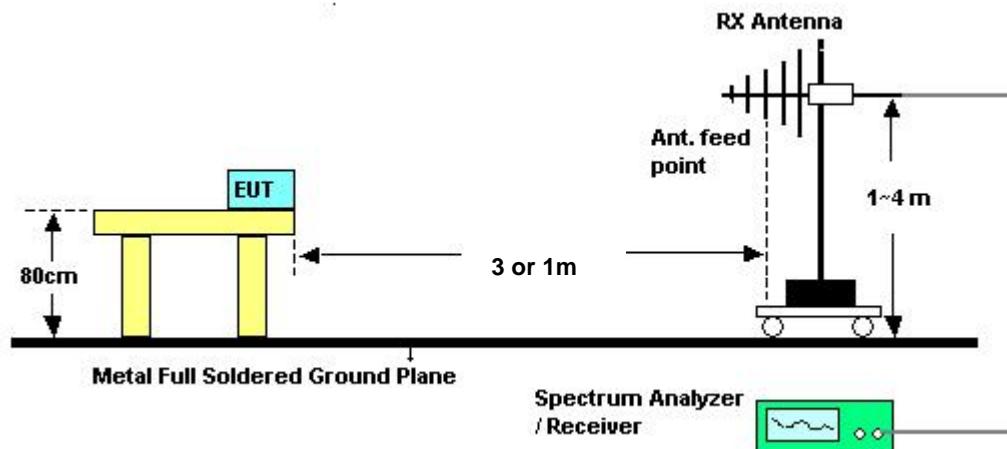
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.2.4 Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 5GHz 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);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Results of Radiated Emissions (9kHz~30MHz)

Final Test Date	Aug. 08, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao		

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

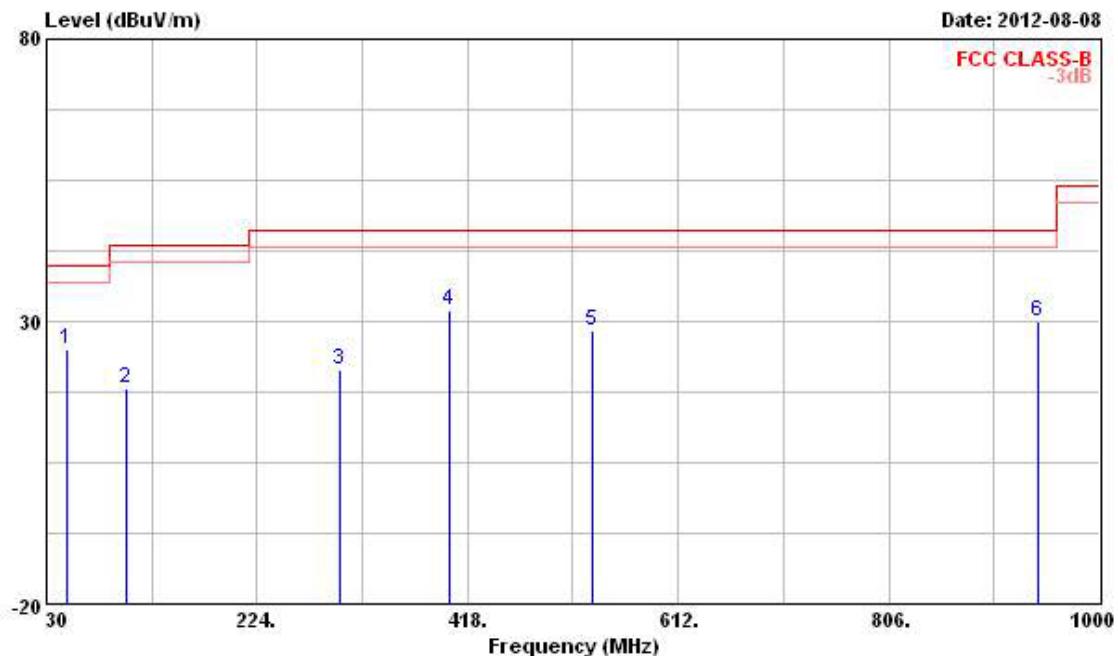
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

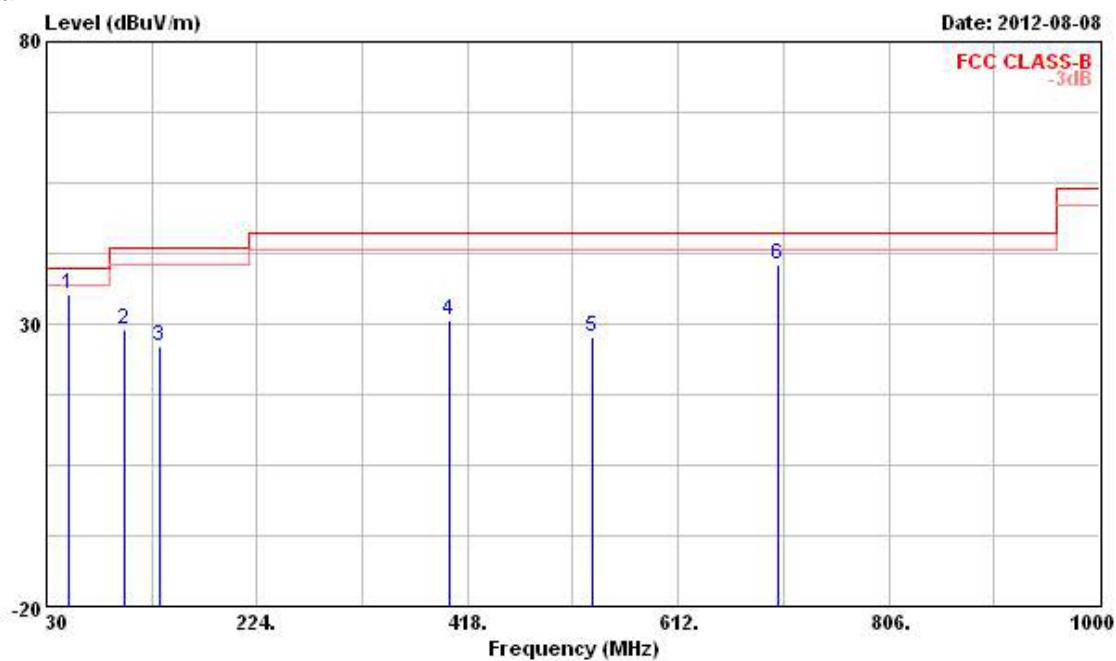
Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

3.2.8 Results of Radiated Emissions (30MHz~1GHz)

Final Test Date	Aug. 08, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 116

Horizontal

Freq	Level	Over Limit	Limit Line	Read		Ant Pos	Table Pos		
				Intenna Level	Factor				
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 48.430	25.17	-14.83	40.00	41.53	10.34	1.16	27.86	Peak	---
2 102.750	18.19	-25.31	43.50	32.81	11.53	1.69	27.84	Peak	---
3 299.660	21.45	-24.55	46.00	31.95	13.70	2.96	27.16	Peak	---
4 400.540	32.11	-13.89	46.00	41.32	15.27	3.40	27.88	Peak	---
5 532.460	28.27	-17.73	46.00	34.49	18.21	3.97	28.40	Peak	---
6 943.740	29.95	-16.05	46.00	30.78	21.11	5.50	27.44	Peak	---

Vertical

Freq	Level	Over Limit	Limit Line	Read	Antenna Level	Cable Factor	Preamp Loss	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 51.340	35.29	-4.71	40.00	52.77	9.16	1.21	27.85	Peak	---	---
2 @ 101.780	28.85	-14.65	43.50	43.60	11.41	1.68	27.84	Peak	---	---
3 @ 133.790	26.05	-17.45	43.50	39.33	12.49	1.93	27.70	Peak	---	---
4 @ 400.540	30.54	-15.46	46.00	39.75	15.27	3.40	27.88	Peak	---	---
5 @ 532.460	27.80	-18.20	46.00	34.02	18.21	3.97	28.40	Peak	---	---
6 @ 704.150	40.52	-5.48	46.00	45.32	18.92	4.55	28.27	Peak	---	---

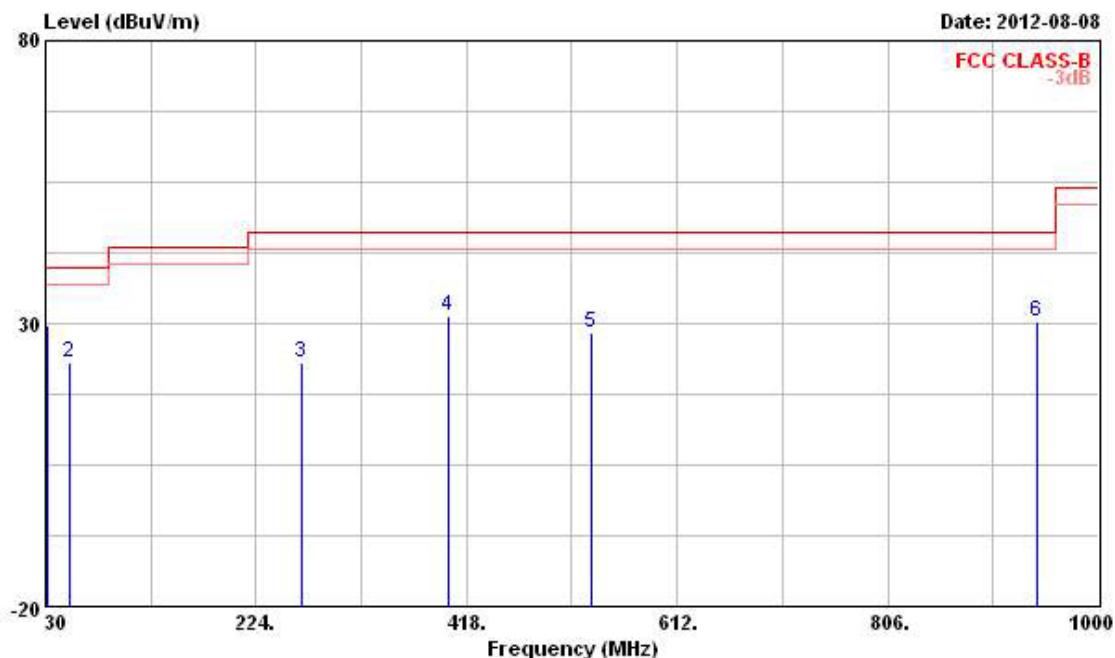
Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

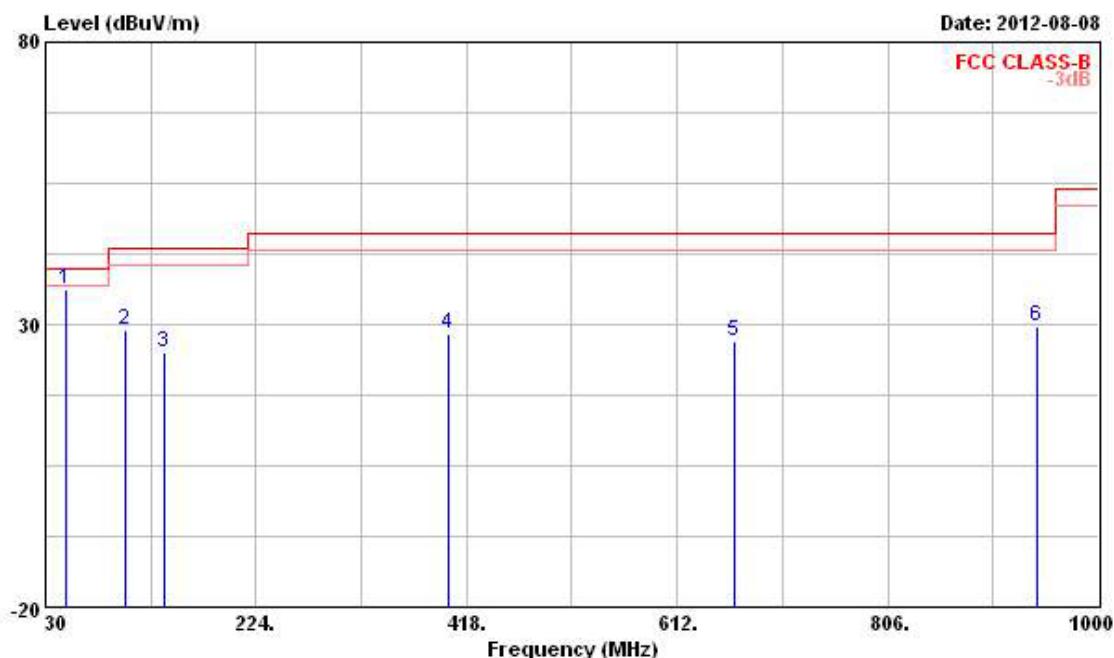
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

Final Test Date	Aug. 08, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 116 (20MHz)

Horizontal

Freq	Level	Over Limit	Limit	Read		Ant Pos	Table Pos	
				Line	Antenna Factor			
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB
1 31.940	29.58	-10.42	40.00	41.12	15.48	0.92	27.94	Peak
2 52.310	23.10	-16.90	40.00	40.79	8.94	1.22	27.85	Peak
3 265.710	23.03	-22.97	46.00	34.22	13.22	2.84	27.25	Peak
4 400.540	31.44	-14.56	46.00	40.65	15.27	3.40	27.88	Peak
5 533.430	28.32	-17.68	46.00	34.51	18.24	3.97	28.40	Peak
6 943.740	30.22	-15.78	46.00	31.05	21.11	5.50	27.44	Peak

Vertical

Freq	Level	Over Limit		Read	Antenna	Cable	Preamp	Ant	Table
		Line	Limit						
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 @ 48.430	36.11	-3.89	40.00	52.47	10.34	1.16	27.86	Peak	---
2 102.750	29.08	-14.42	43.50	43.70	11.53	1.69	27.84	Peak	---
3 139.610	24.94	-18.56	43.50	38.59	12.03	2.00	27.68	Peak	---
4 400.540	28.38	-17.62	46.00	37.59	15.27	3.40	27.88	Peak	---
5 665.350	26.96	-19.04	46.00	31.55	19.31	4.44	28.34	Peak	---
6 943.740	29.79	-16.21	46.00	30.62	21.11	5.50	27.44	Peak	---

Note:

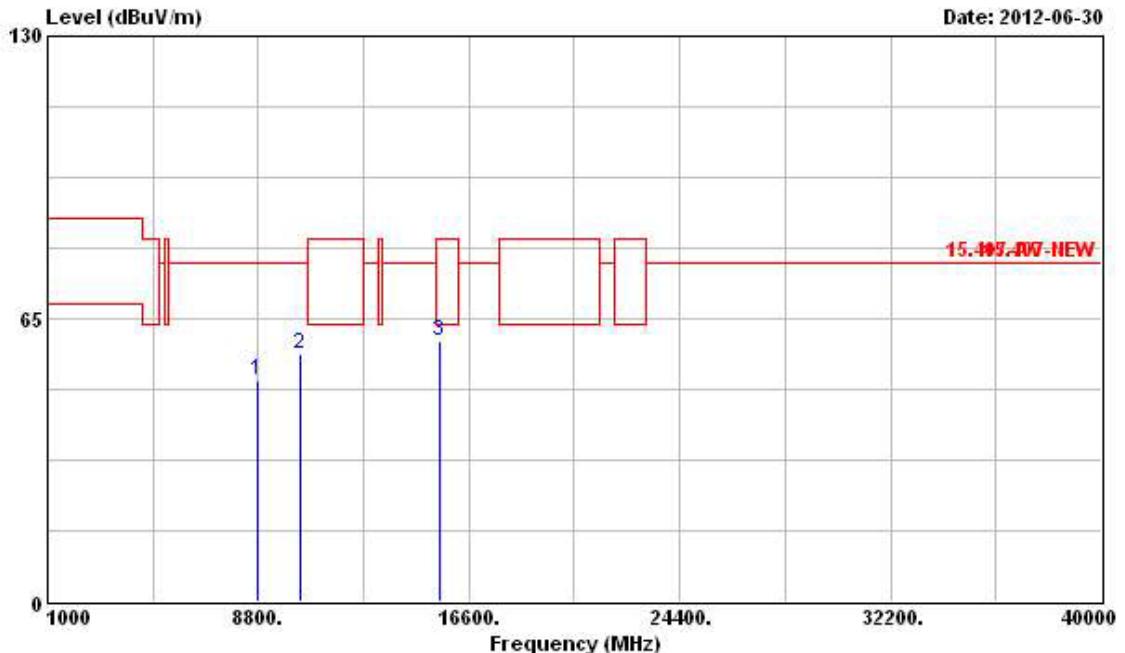
The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

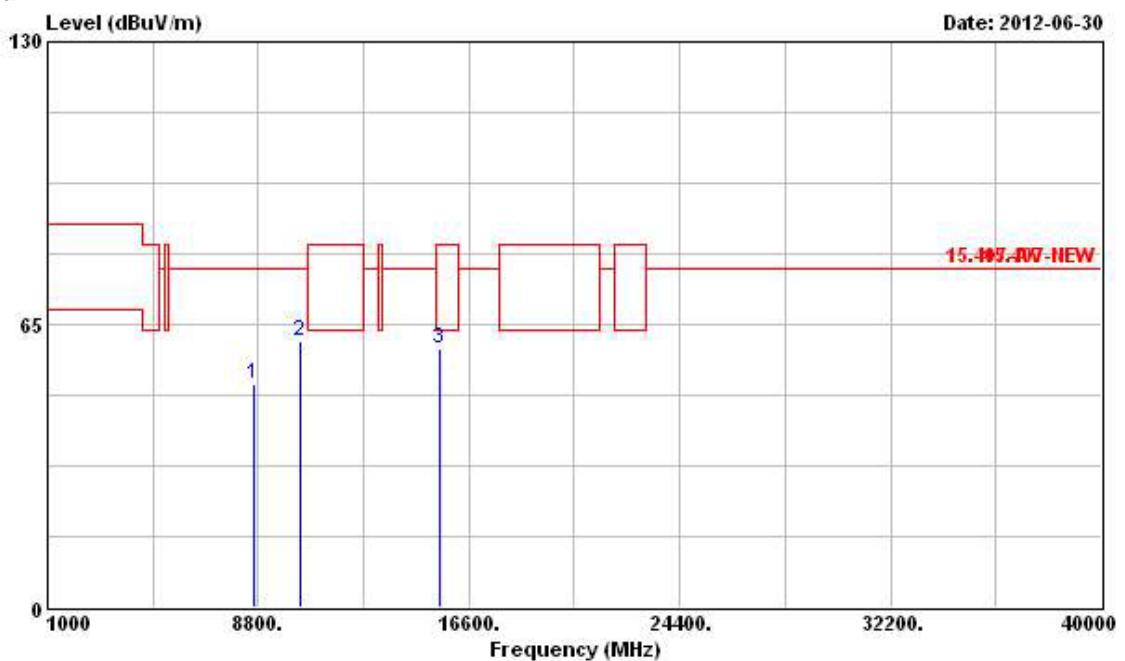
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

3.2.9 Results for Radiated Emissions (1GHz~40GHz)

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 36

Horizontal

Freq	Level	Over Limit	Limit	Read		Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
				Line	Level Factor						
MHz	dBuV/m		dB	dBuV/m		dBuV	dB/m	dB	dB	cm	deg
1 8749.000	50.95	-26.89	77.84	41.87	38.30	6.06	35.28	Peak	---	---	---
2 10360.000	57.08	-20.76	77.84	45.57	40.02	6.71	35.22	Peak	---	---	---
3 @15540.000	59.94	-3.60	63.54	43.71	42.81	8.45	35.03	PK	---	---	---

Vertical

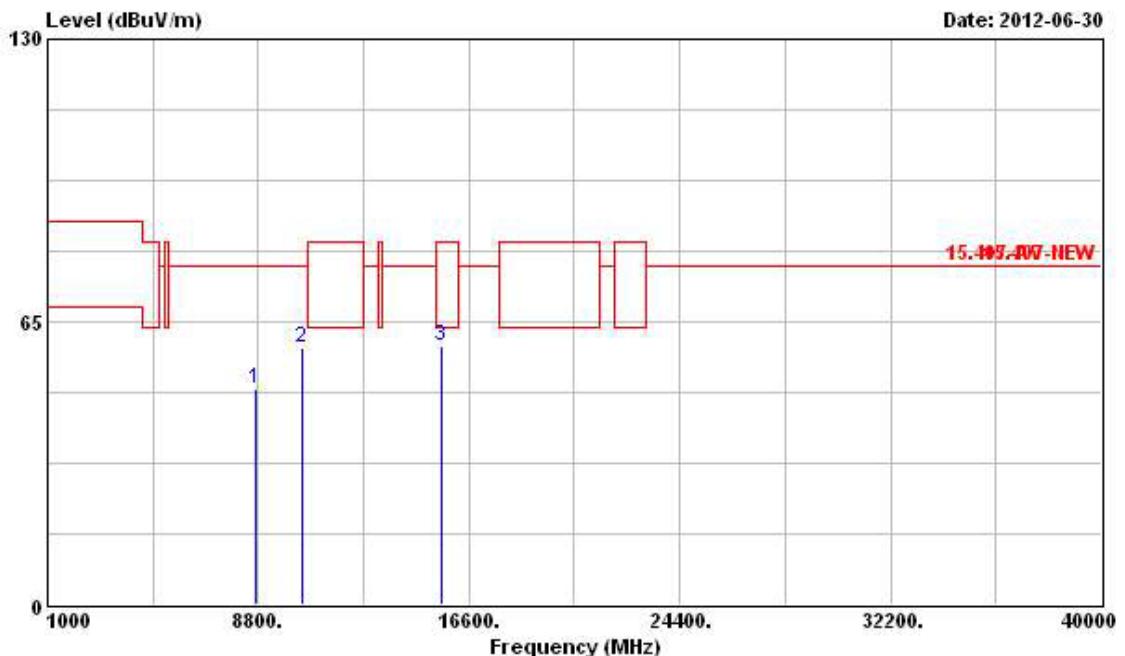
Freq	Level	Over Limit	Line	Antenna		Cable Preamp		Ant Pos	Table Pos
				Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8650.000	51.28	-26.56	77.84	42.15	38.38	6.01	35.26	Peak	---
2 10360.000	61.18	-16.66	77.84	49.67	40.02	6.71	35.22	Peak	---
3 @15540.000	59.55	-3.99	63.54	43.32	42.81	8.45	35.03	PK	---

FCC TEST REPORT

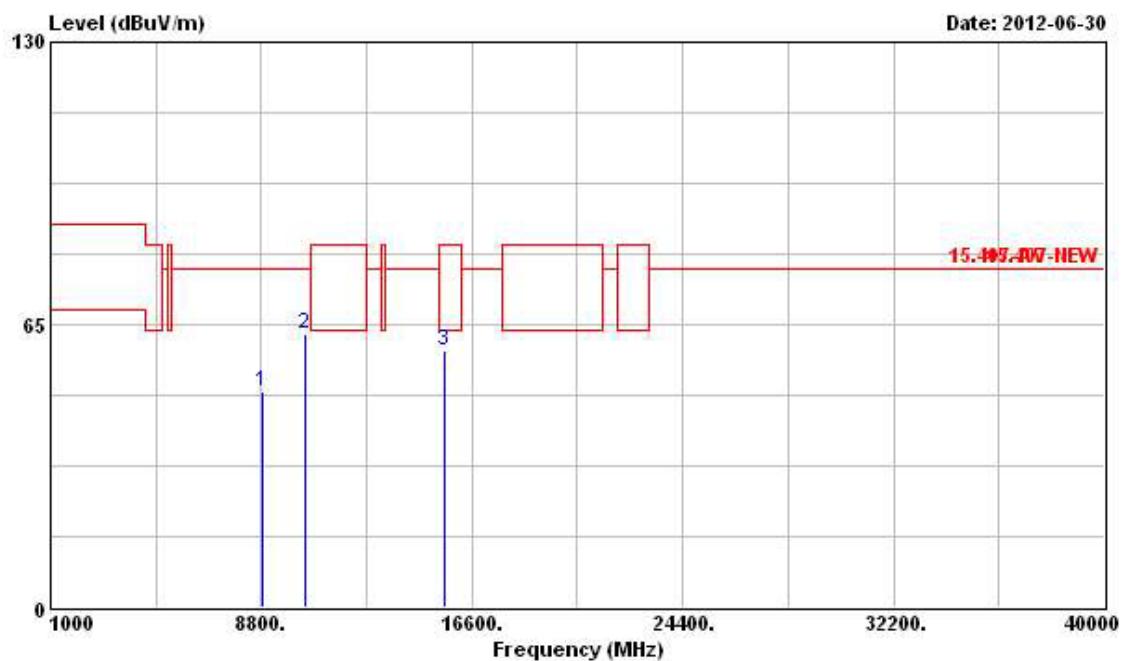
Report No. : FR260551AN

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 40

Horizontal

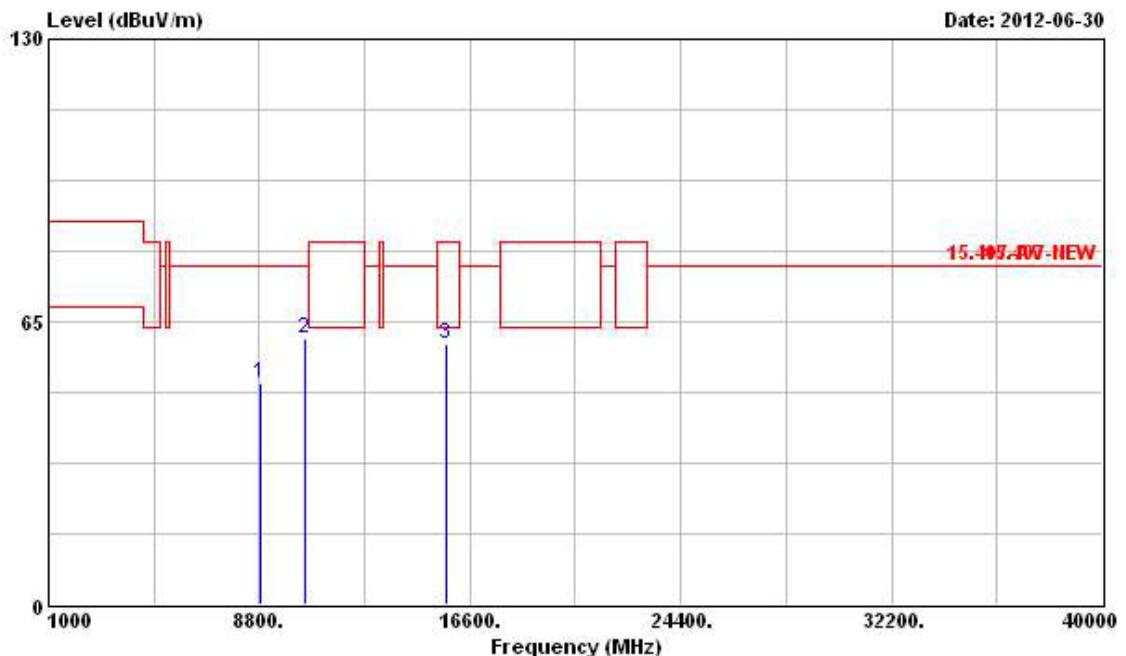


Freq	Level	Over Limit		ReadAntenna		Cable Preamp		Remark	Ant Pos	Table Pos	
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		
1	8683.000	49.59	-28.25	77.84	40.49	38.35	6.02	35.27	Peak	---	---
2	10400.000	59.17	-18.67	77.84	47.56	40.04	6.75	35.18	Peak	---	---
3	@15600.000	59.42	-4.12	63.54	43.25	42.82	8.45	35.10	PK	---	---

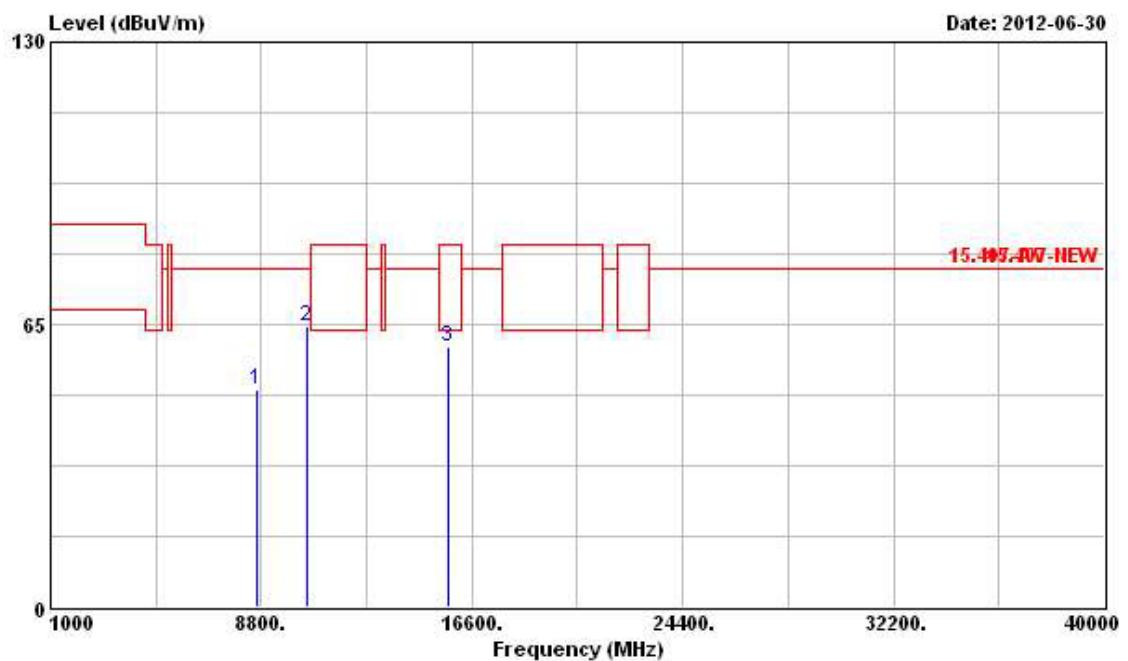
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8815.000	49.50	-28.34	77.84	40.46	38.25	6.08	35.29	Peak	---	---
2 10400.000	62.87	-14.97	77.84	51.26	40.04	6.75	35.18	Peak	---	---
3 @15600.000	59.13	-4.41	63.54	42.96	42.82	8.45	35.10	PK	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 48

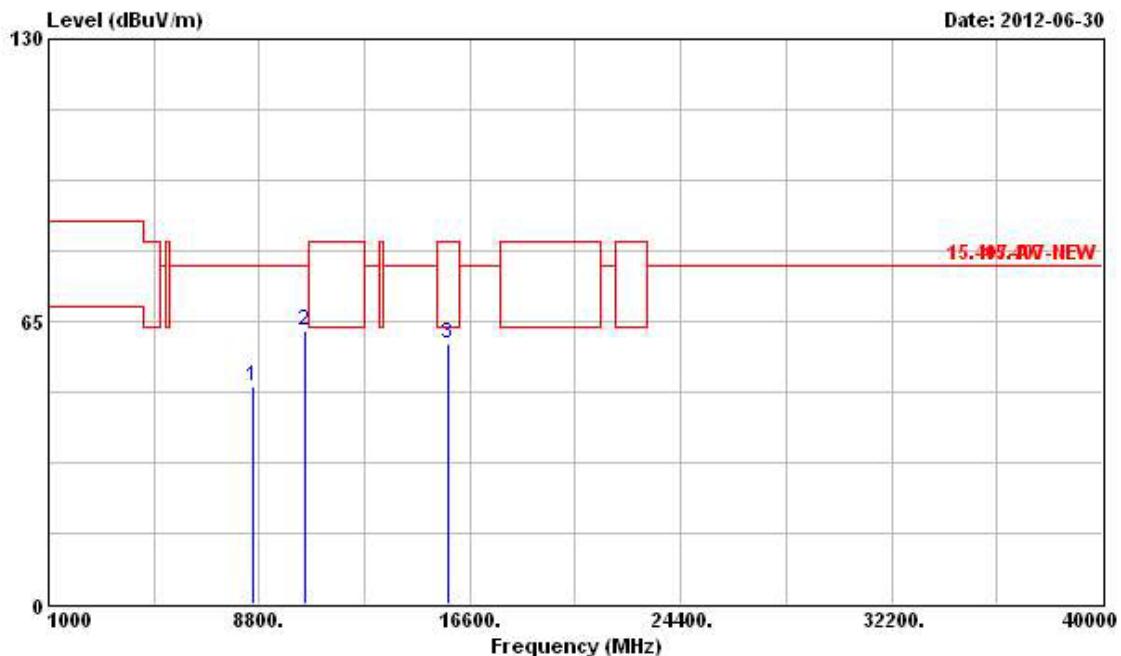
Horizontal

Freq	Level	Over Limit	Limit Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8870.000	50.79	-27.05	77.84	41.77	38.21	6.11	35.30	Peak	---	---
2 10480.000	61.03	-16.81	77.84	49.24	40.09	6.82	35.12	Peak	---	---
3 @15720.000	59.87	-3.67	63.54	43.77	42.84	8.46	35.20	PK	---	---

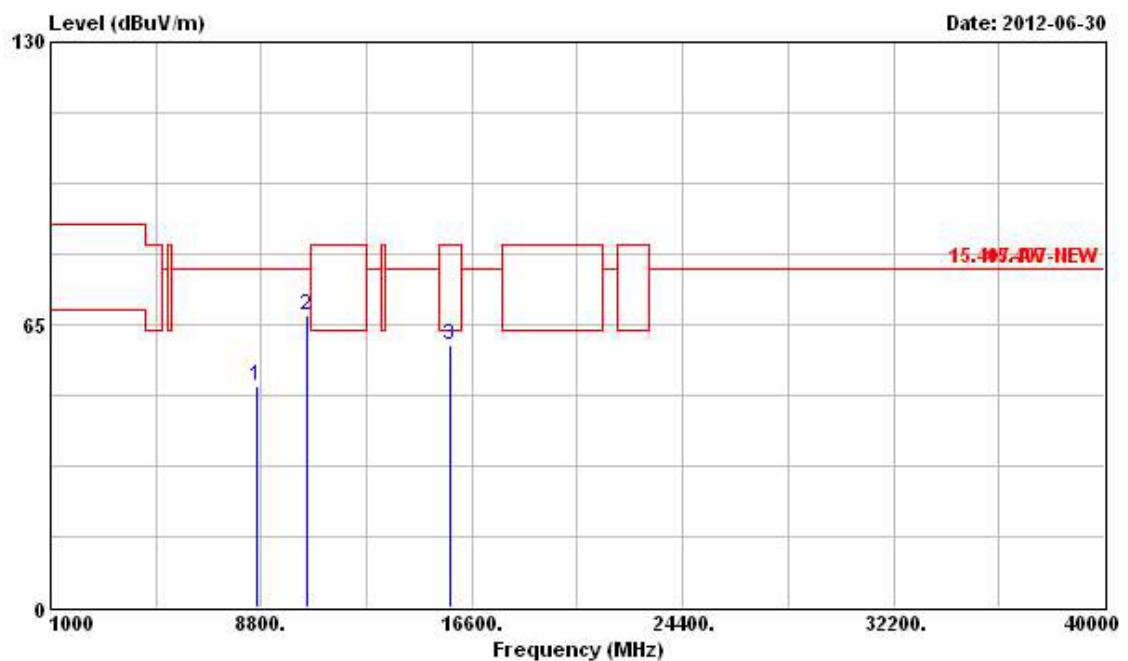
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Preamp			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8650.000	49.95	-27.89	77.84	40.82	38.38	6.01	35.26	Peak	---	---
2 10480.000	64.49	-13.35	77.84	52.70	40.09	6.82	35.12	Peak	---	---
3 @15720.000	60.08	-3.46	63.54	43.98	42.84	8.46	35.20	PK	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 52

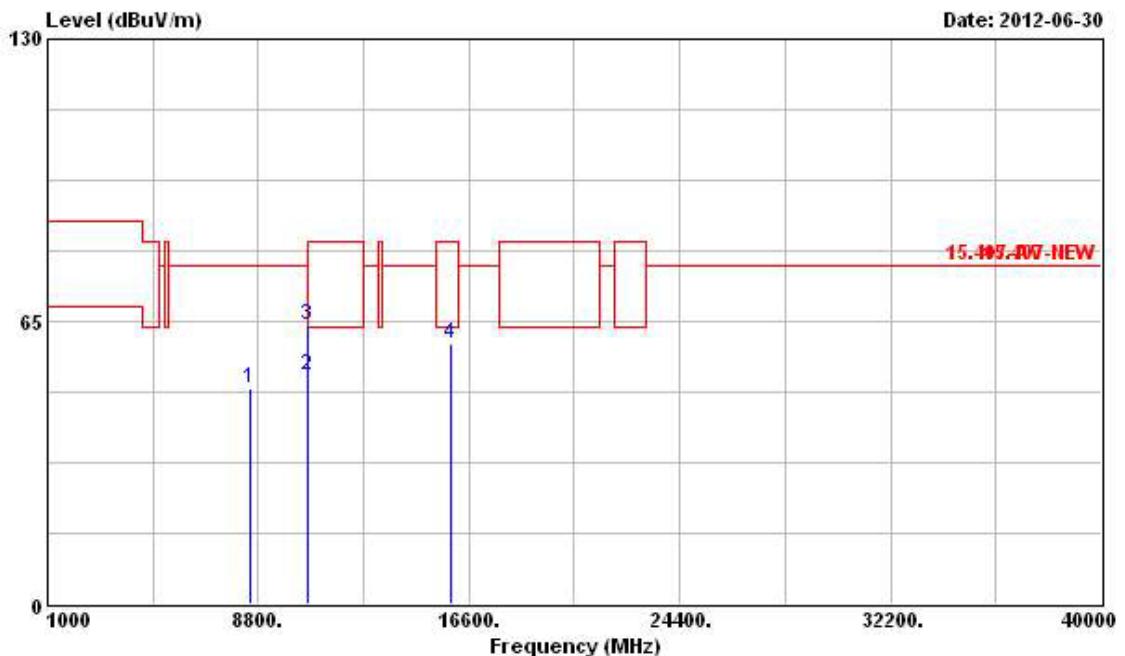
Horizontal

Freq	Level	Over Limit	Limit Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8551.000	50.19	-27.65	77.84	41.01	38.46	5.97	35.25	Peak	---	---
2 10520.000	63.02	-14.82	77.84	51.16	40.11	6.85	35.10	Peak	---	---
3 @15780.000	59.76	-3.78	63.54	43.72	42.86	8.46	35.28	PK	---	---

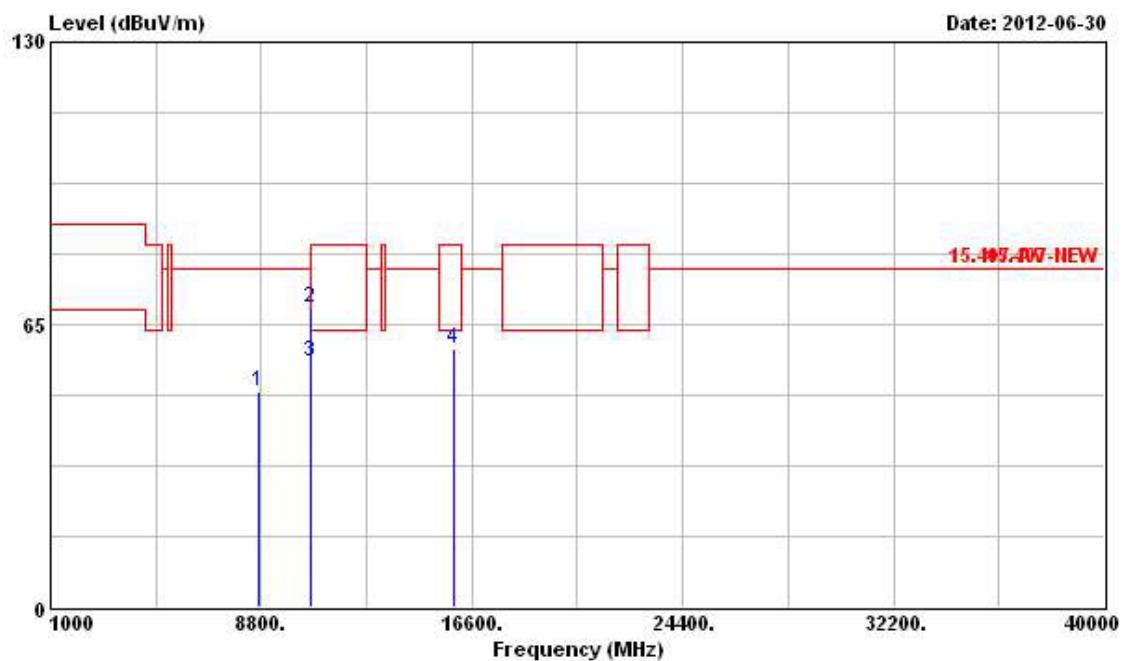
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8650.000	50.87	-26.97	77.84	41.74	38.38	6.01	35.26	Peak	---	---
2 10520.000	67.31	-10.53	77.84	55.45	40.11	6.85	35.10	Peak	---	---
3 @15780.000	60.34	-3.20	63.54	44.30	42.86	8.46	35.28	PK	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 60

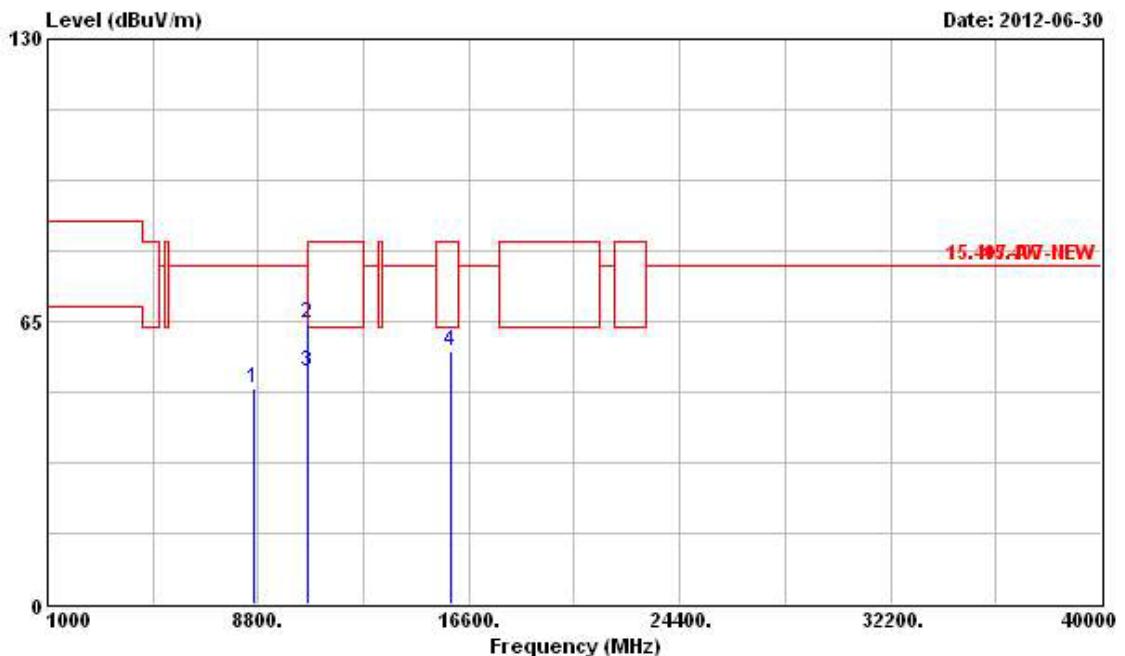
Horizontal

Freq	Level	Over Limit	Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8529.000	49.68	-28.16	77.84	40.49	38.47	5.96	35.24	Peak	---	---
2 10600.010	52.58	-10.96	63.54	40.56	40.16	6.90	35.04	Average	---	---
3 10600.010	64.20	-19.34	83.54	52.18	40.16	6.90	35.04	Peak	---	---
4 15900.000	59.67	-23.87	83.54	43.70	42.88	8.47	35.38	PK	---	---

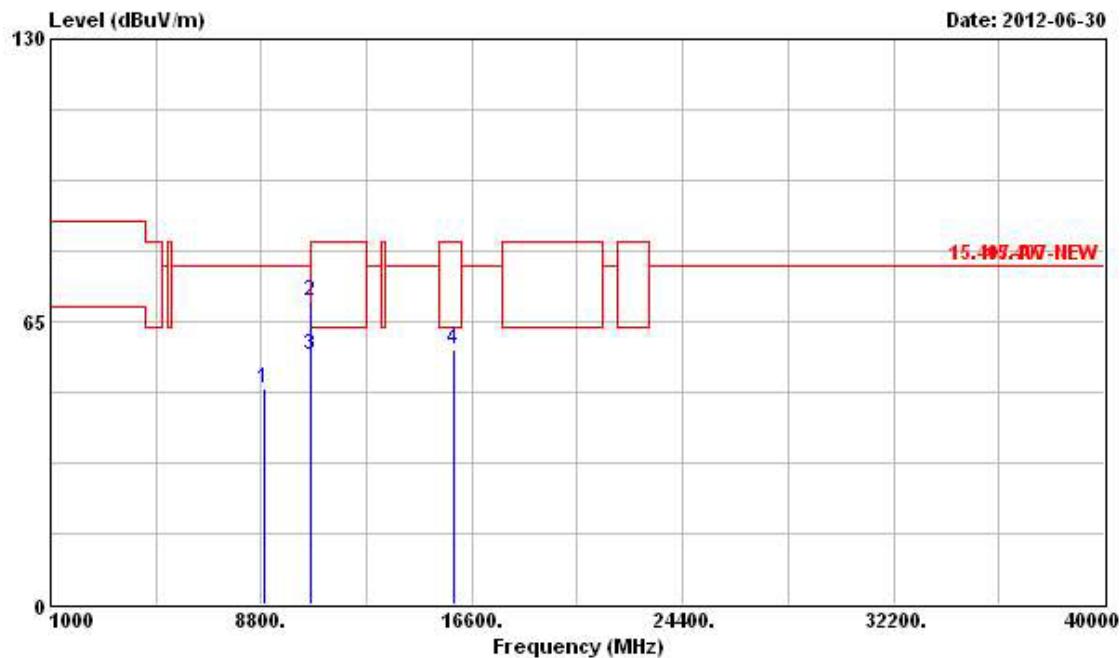
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Preamp			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8738.000	49.65	-28.19	77.84	40.58	38.31	6.04	35.28	Peak	---	---
2 10600.010	68.82	-14.72	83.54	56.80	40.16	6.90	35.04	Peak	---	---
3 @10600.010	56.45	-7.09	63.54	44.43	40.16	6.90	35.04	Average	---	---
4 15900.000	59.27	-24.27	83.54	43.30	42.88	8.47	35.38	PK	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 64

Horizontal

Freq	Level	Over Limit	Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8628.000	49.48	-28.36	77.84	40.34	38.39	6.01	35.26	Peak	---	---
2 10640.000	64.77	-18.77	83.54	52.66	40.18	6.93	35.00	Peak	---	---
3 10640.000	53.40	-10.14	63.54	41.29	40.18	6.93	35.00	Average	---	---
4 @15960.000	58.26	-5.28	63.54	42.35	42.89	8.47	35.45	PK	---	---

Vertical

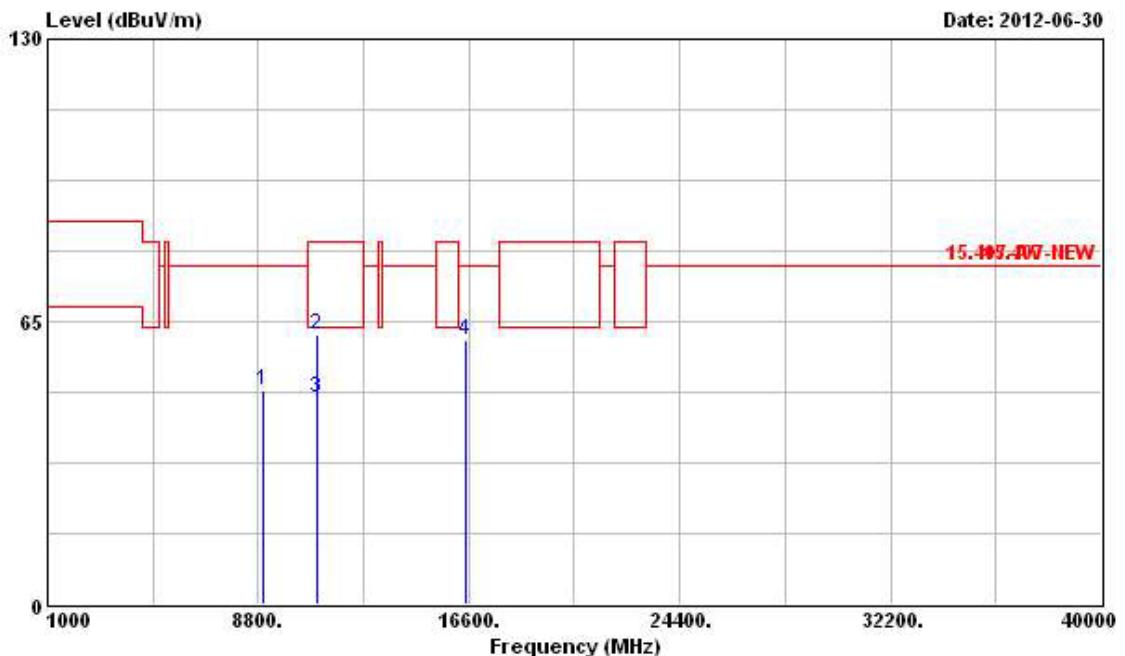
Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8903.000	49.66	-28.18	77.84	40.65	38.18	6.13	35.30	Peak	---	---
2 10640.000	69.79	-13.75	83.54	57.68	40.18	6.93	35.00	Peak	---	---
3 10640.000	57.14	-6.40	63.54	45.03	40.18	6.93	35.00	Average	---	---
4 @15960.000	58.77	-4.77	63.54	42.86	42.89	8.47	35.45	PK	---	---

FCC TEST REPORT

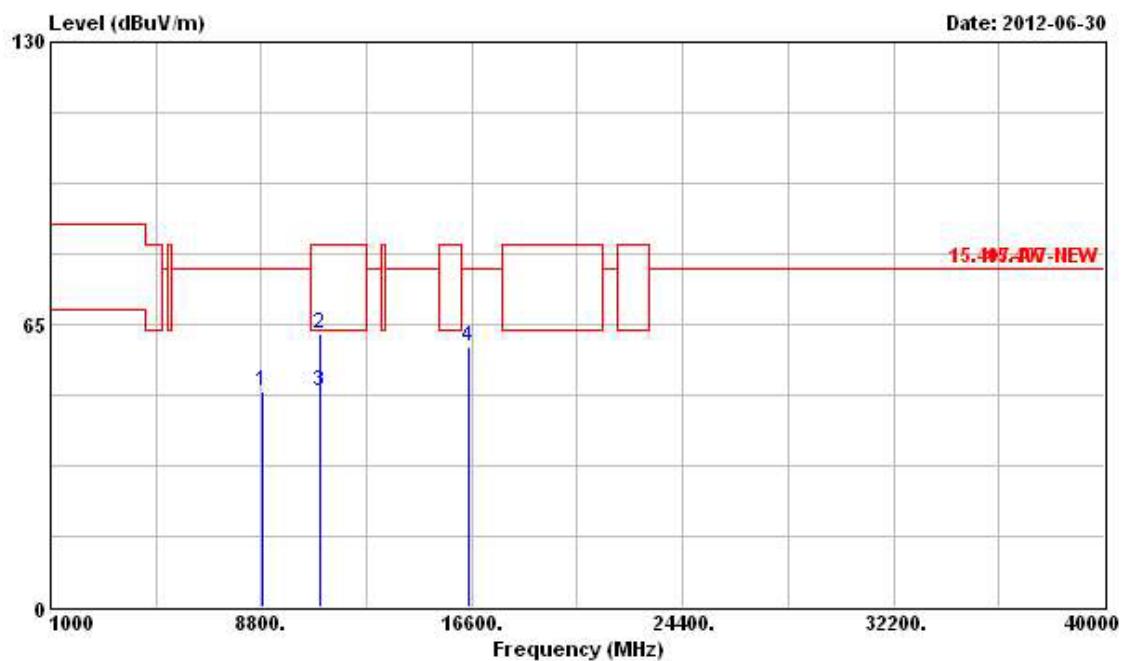
Report No. : FR260551AN

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 100

Horizontal

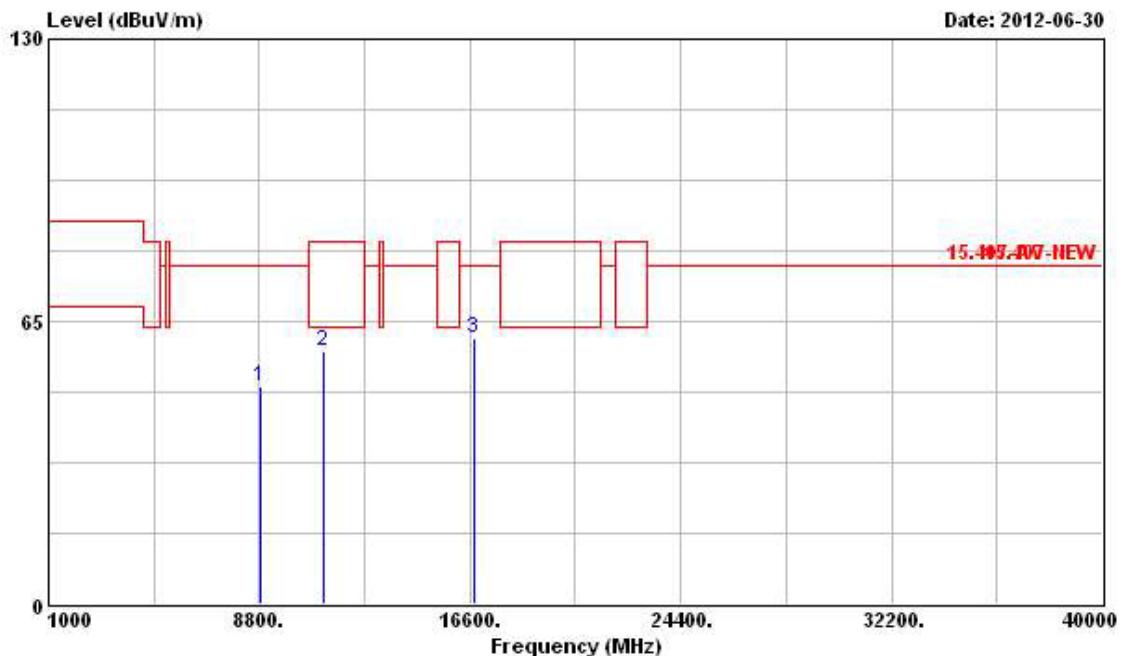


Freq	Level	Over Limit		ReadAntenna		Cable Preamp		Remark	Ant Pos	Table Pos	
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		
1	8980.000	49.28	-28.56	77.84	40.31	38.13	6.16	35.32	Peak	---	---
2	10993.000	62.00	-21.54	83.54	49.15	40.40	7.17	34.72	Peak	---	---
3	10993.000	47.56	-15.98	63.54	34.71	40.40	7.17	34.72	Average	---	---
4	16500.000	60.82	-17.02	77.84	44.07	43.50	8.24	34.99	Peak	---	---

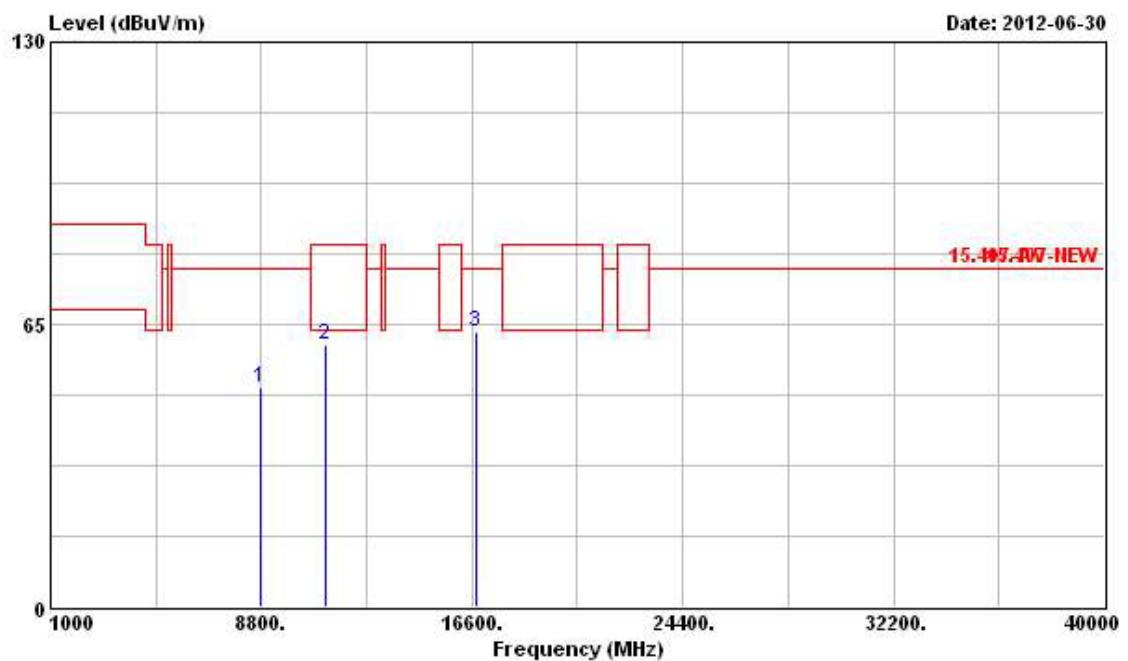
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8815.000	49.79	-28.05	77.84	40.75	38.25	6.08	35.29	Peak	---	---
2 11000.000	62.83	-20.71	83.54	49.98	40.40	7.17	34.72	Peak	---	---
3 11000.000	49.71	-13.83	63.54	36.86	40.40	7.17	34.72	Average	---	---
4 16500.000	60.01	-17.83	77.84	43.26	43.50	8.24	34.99	Peak	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 116

Horizontal

Freq	Level	Over Limit	Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8859.000	49.96	-27.88	77.84	40.93	38.22	6.11	35.30	Peak	---	---
2 @11116.000	57.95	-5.59	63.54	45.24	40.47	6.96	34.72	PK	---	---
3 16740.000	61.11	-16.73	77.84	43.55	43.60	8.47	34.51	Peak	---	---

Vertical

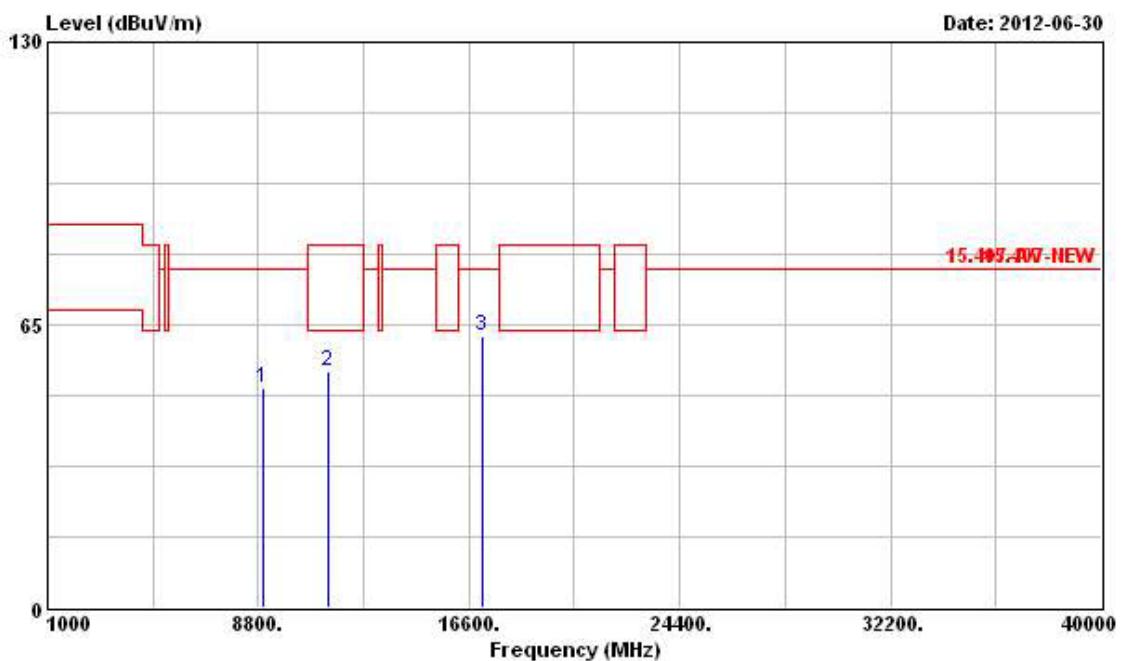
Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Preamp			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8760.000	50.59	-27.25	77.84	41.51	38.30	6.06	35.28	Peak	---	---
2 111160.000	60.38	-3.16	63.54	47.67	40.47	6.96	34.72	PK	---	---
3 16740.000	63.08	-14.76	77.84	45.52	43.60	8.47	34.51	Peak	---	---

FCC TEST REPORT

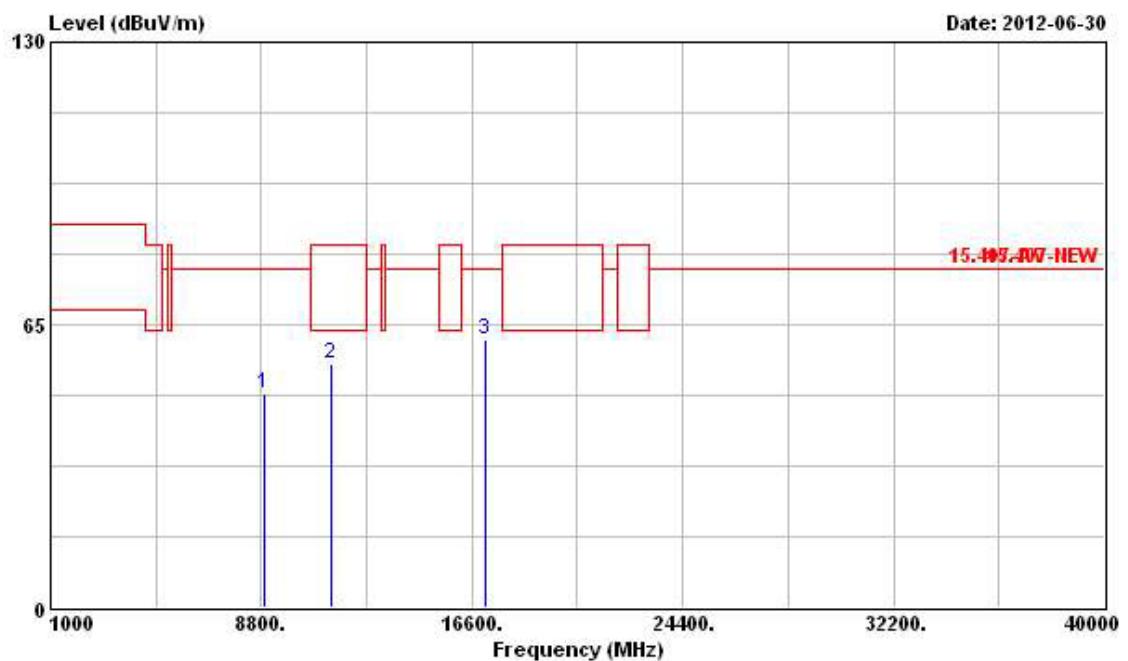
Report No. : FR260551AN

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11a Ch. 140

Horizontal



Freq	Level	Over Limit		ReadAntenna		Cable Preamp		Ant Pos	Table Pos		
		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		
1	8958.000	50.57	-27.27	77.84	41.60	38.14	6.14	35.31	Peak	---	---
2	11400.000	54.44	-9.10	63.54	41.89	40.56	6.71	34.72	PK	---	---
3	17100.000	62.52	-15.32	77.84	44.25	43.64	8.61	33.98	Peak	---	---

Vertical

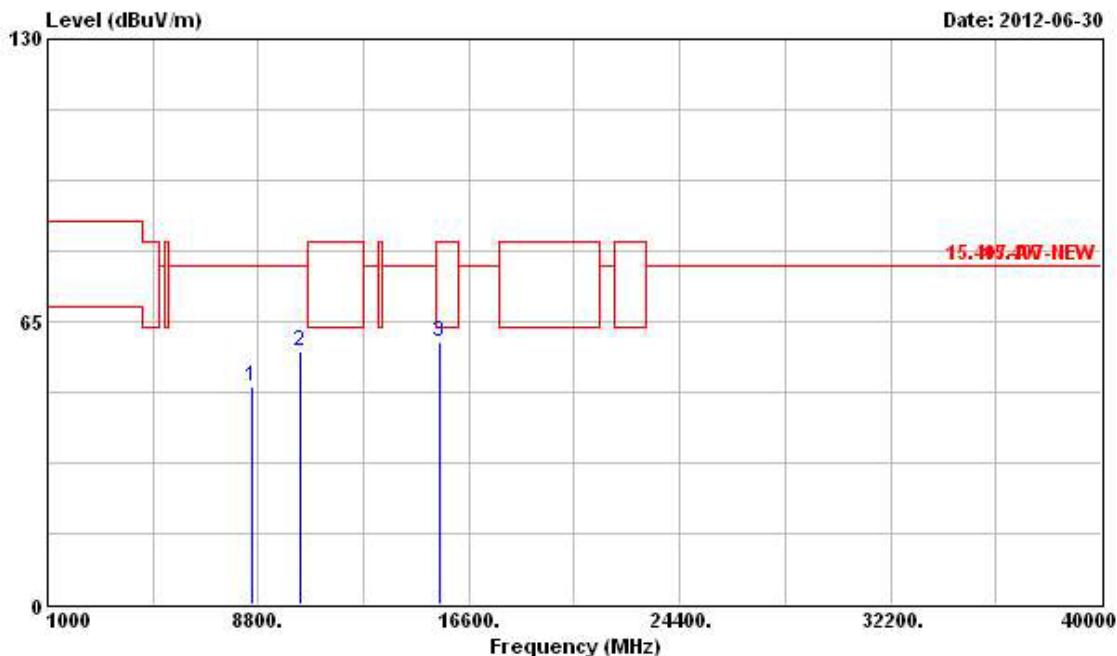
Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Preamp			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8914.000	49.33	-28.51	77.84	40.33	38.17	6.13	35.30	Peak	---	---
2 11400.000	55.98	-7.56	63.54	43.43	40.56	6.71	34.72	PK	---	---
3 17100.000	61.51	-16.33	77.84	43.24	43.64	8.61	33.98	Peak	---	---

FCC TEST REPORT

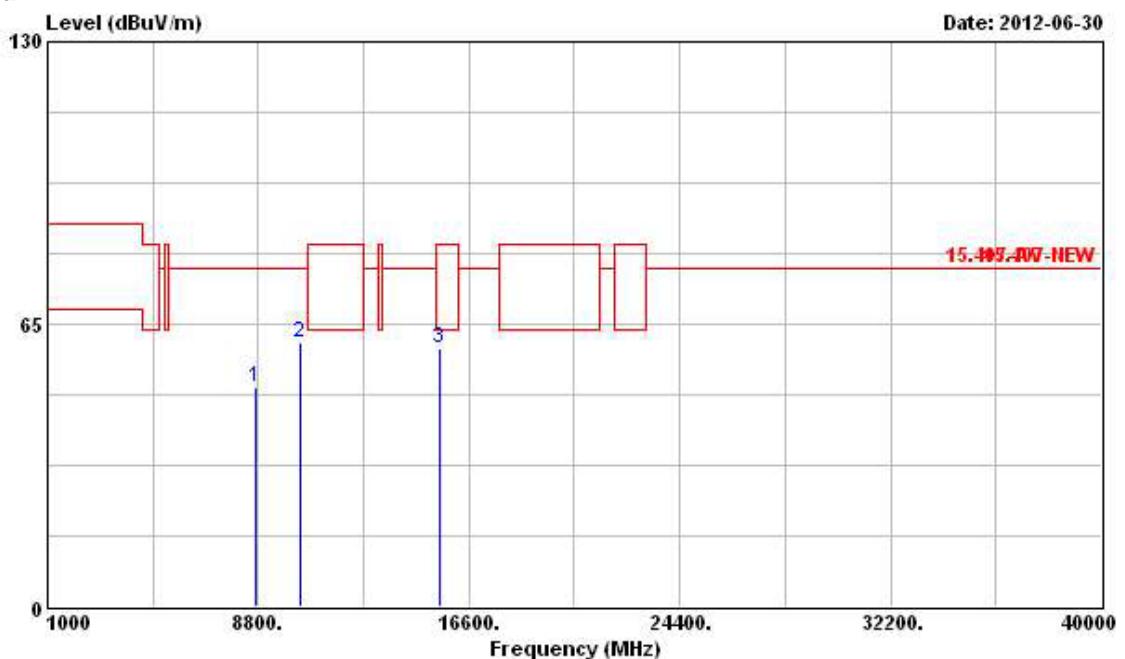
Report No. : FR260551AN

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 36 (20MHz)

Horizontal

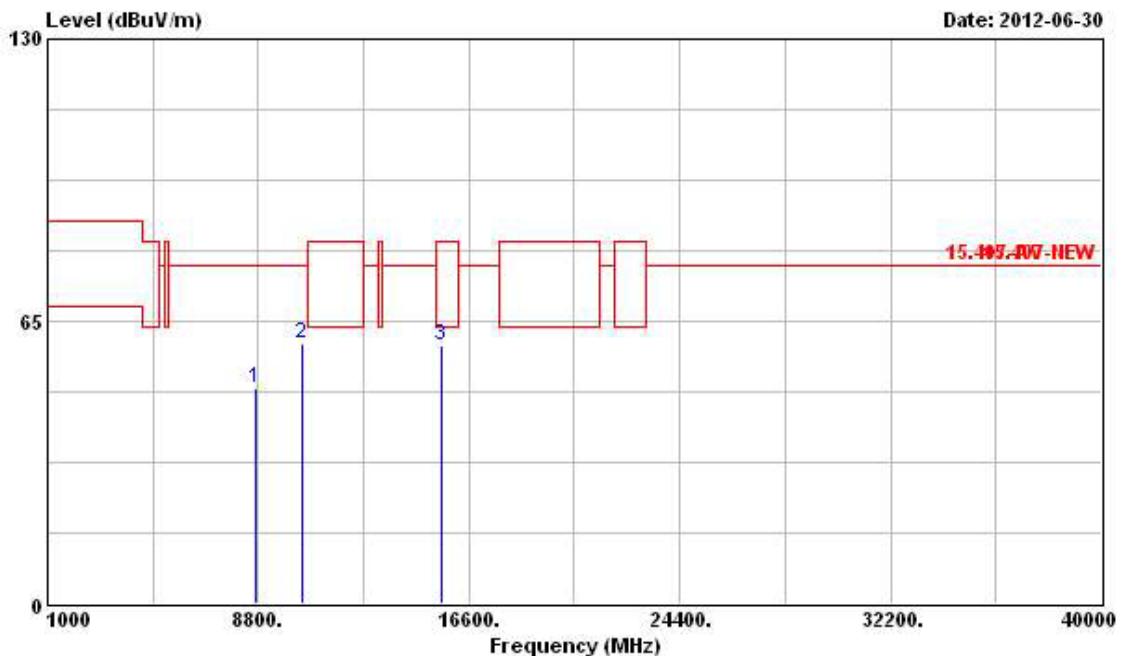


Freq	Level	Over Limit		ReadAntenna		Cable Preamp		Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8573.000	49.98	-27.86	77.84	40.81	38.45	5.97	35.25	Peak	---
2 10360.000	57.95	-19.89	77.84	46.44	40.02	6.71	35.22	Peak	---
3 @15540.000	60.48	-3.06	63.54	44.25	42.81	8.45	35.03	PK	---

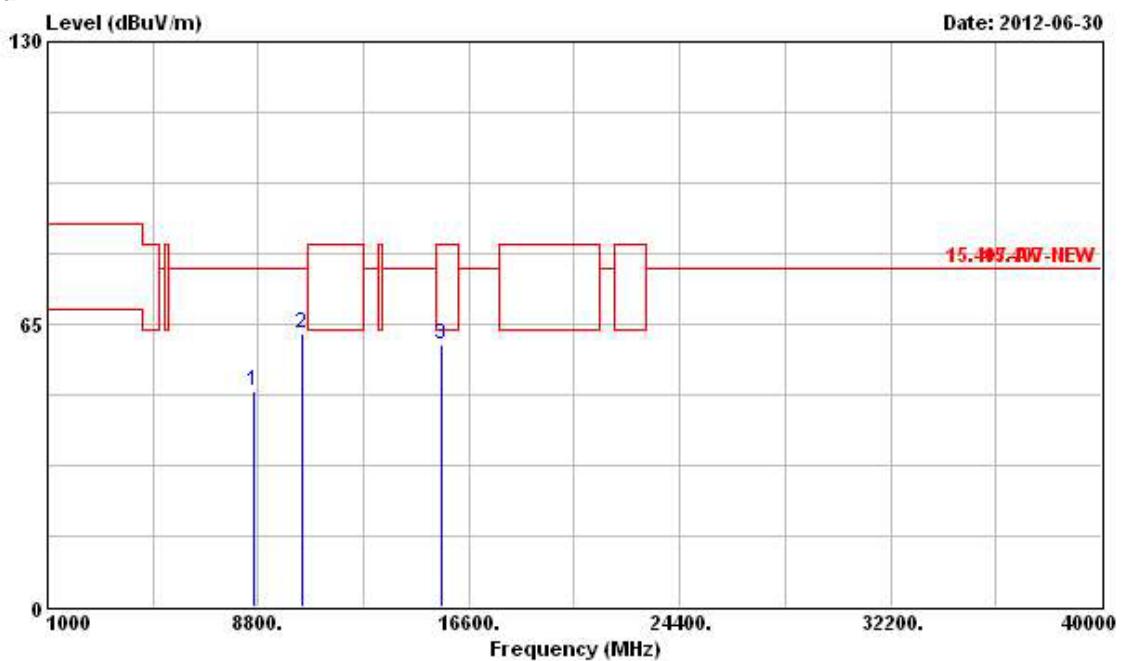
Vertical

Freq	Level	Over Limit	Line	Antenna		Cable Preamp		Ant Pos	Table Pos
				Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8683.000	50.49	-27.35	77.84	41.39	38.35	6.02	35.27	Peak	---
2 10360.000	60.69	-17.15	77.84	49.18	40.02	6.71	35.22	Peak	---
3 @15540.000	59.58	-3.96	63.54	43.35	42.81	8.45	35.03	PK	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 40 (20MHz)

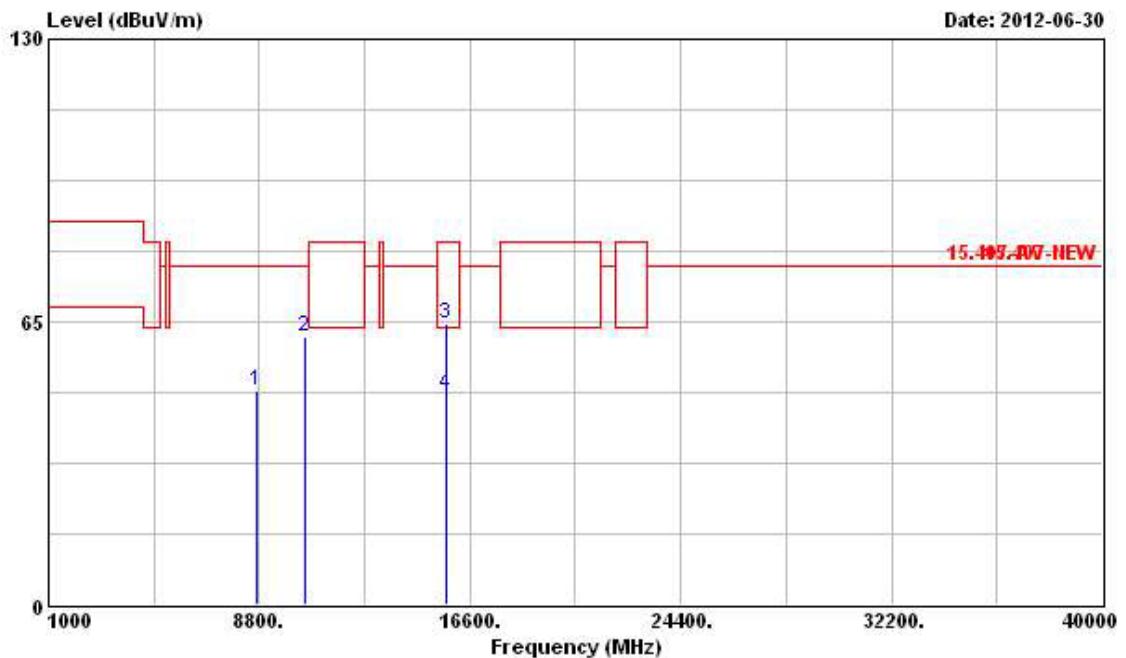
Horizontal

Freq	Level	Over Limit	Limit Line	ReadAntenna		Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				dB	dBuV/m					
MHz	dBuV/m	dB	dBuV/m	dB	dBuV/m	dB	dB	cm	deg	
1 8738.000	49.63	-28.21	77.84	40.56	38.31	6.04	35.28	Peak	---	---
2 10400.000	59.95	-17.89	77.84	48.34	40.04	6.75	35.18	Peak	---	---
3 @15600.000	59.48	-4.06	63.54	43.31	42.82	8.45	35.10	PK	---	---

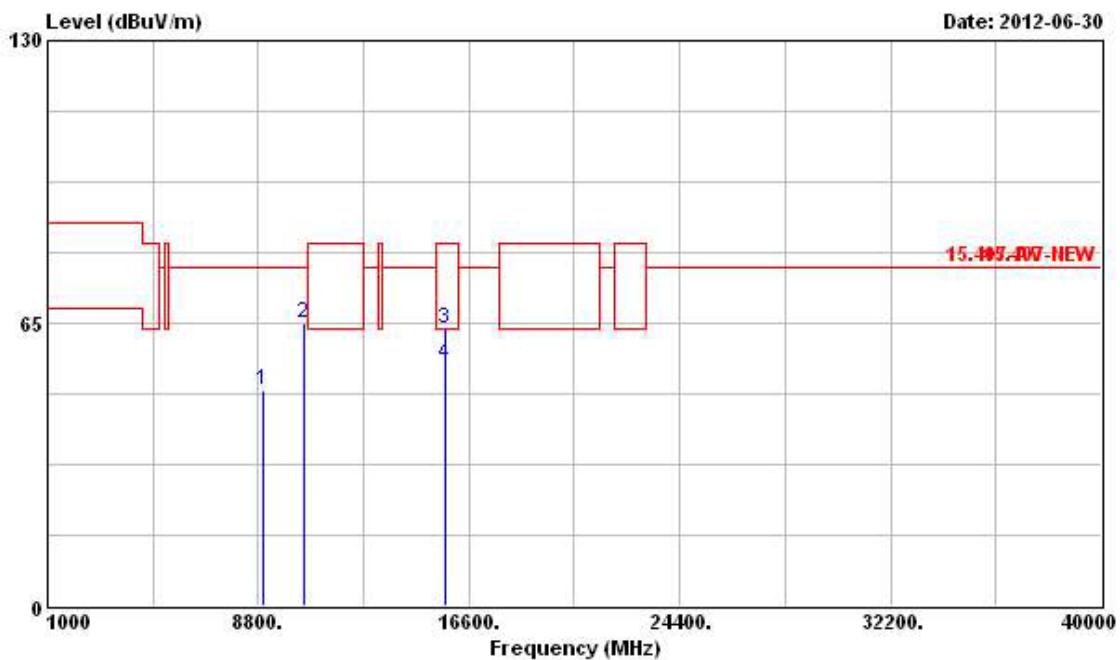
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant Pos	Table Pos
		Line	Line	Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8650.000	49.80	-28.04	77.84	40.67	38.38	6.01	35.26	Peak	---
2 10400.000	63.01	-14.83	77.84	51.40	40.04	6.75	35.18	Peak	---
3 @15600.000	60.27	-3.27	63.54	44.10	42.82	8.45	35.10	PK	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 48 (20MHz)

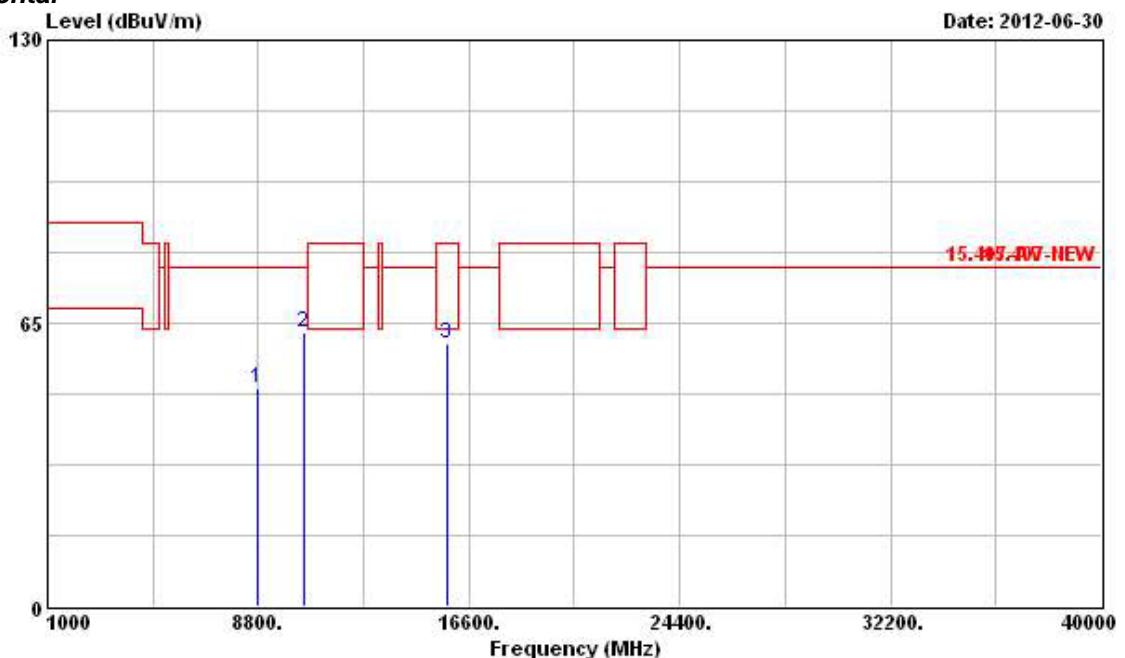
Horizontal

Freq	Level	Over Limit	Limit Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8738.000	49.33	-28.51	77.84	40.26	38.31	6.04	35.28	Peak	---	---
2 10480.000	61.54	-16.30	77.84	49.75	40.09	6.82	35.12	Peak	---	---
3 15720.000	64.76	-18.78	83.54	48.66	42.84	8.46	35.20	Peak	---	---
4 15720.000	48.20	-15.34	63.54	32.10	42.84	8.46	35.20	Average	---	---

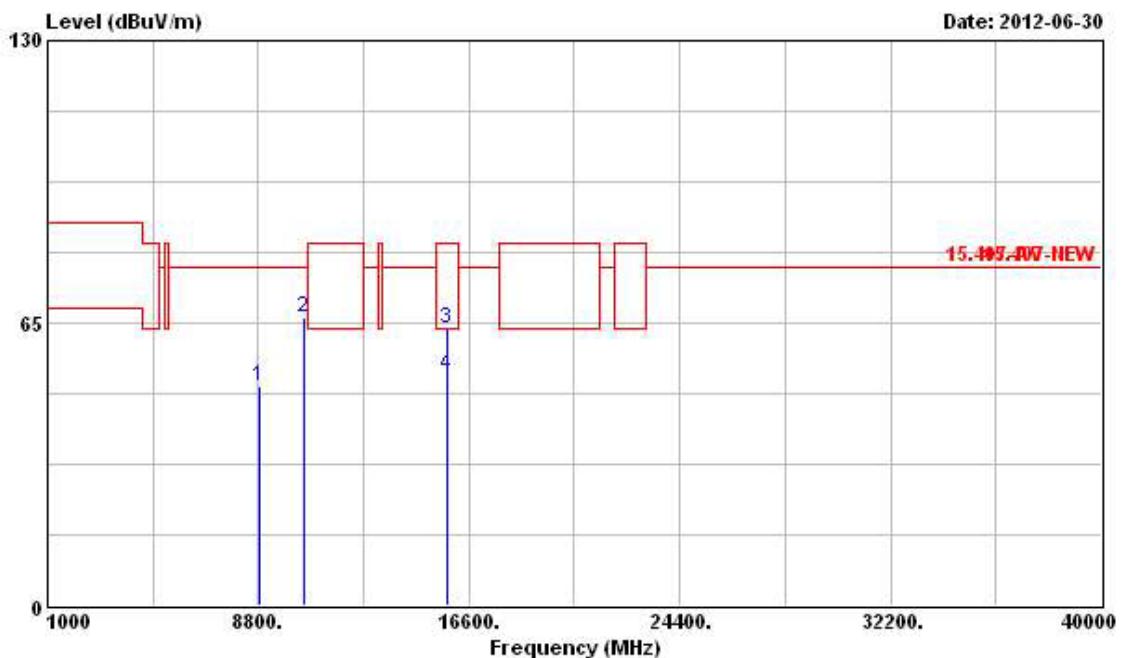
Vertical

Freq	Level	Over Limit	Limit Line	Read		Ant Pos	Table Pos		
				Antenna Factor	Cable Loss Factor				
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8980.000	49.78	-28.06	77.84	40.81	38.13	6.16	35.32	Peak	---
2 10480.000	64.92	-12.92	77.84	53.13	40.09	6.82	35.12	Peak	---
3 15720.000	63.76	-19.78	83.54	47.66	42.84	8.46	35.20	Peak	---
4 15720.000	55.59	-7.95	63.54	39.49	42.84	8.46	35.20	Average	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 52 (20MHz)

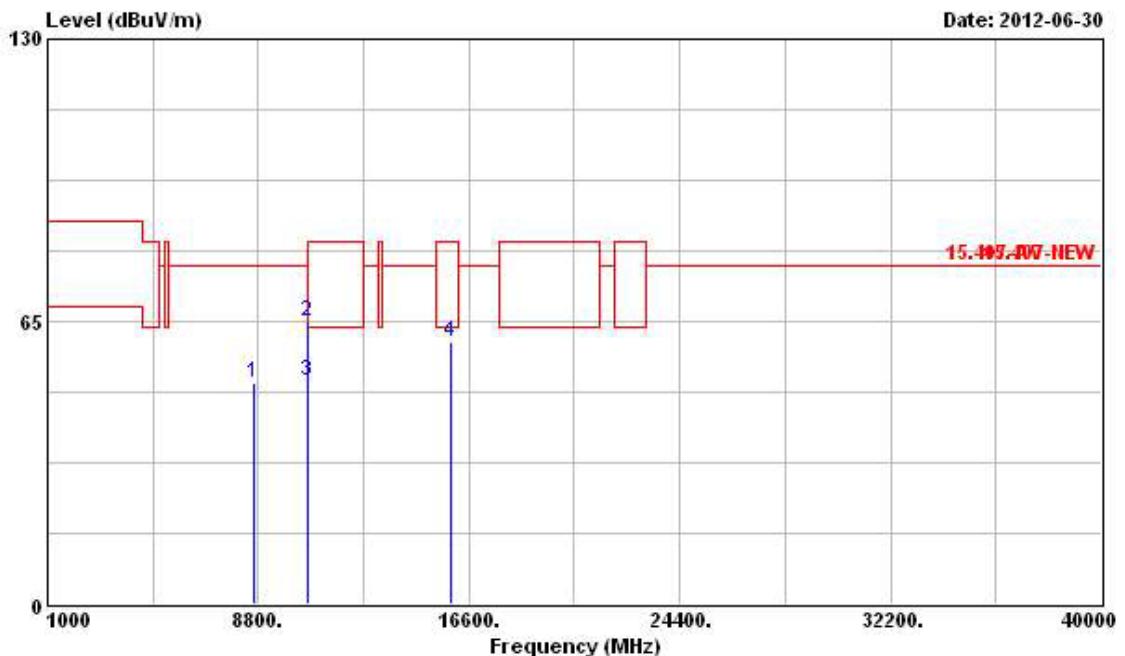
Horizontal

Freq	Level	Over Limit	Limit	Read		Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
				Line	Level Factor						
MHz	dBuV/m		dB	dBuV/m		dBuV	dB/m	dB	dB	cm	deg
1 8793.000	50.21	-27.63	77.84	41.15	38.27	6.08	35.29	Peak		---	---
2 10520.000	63.05	-14.79	77.84	51.19	40.11	6.85	35.10	Peak		---	---
3 @15780.000	60.10	-3.44	63.54	44.06	42.86	8.46	35.28	PK		---	---

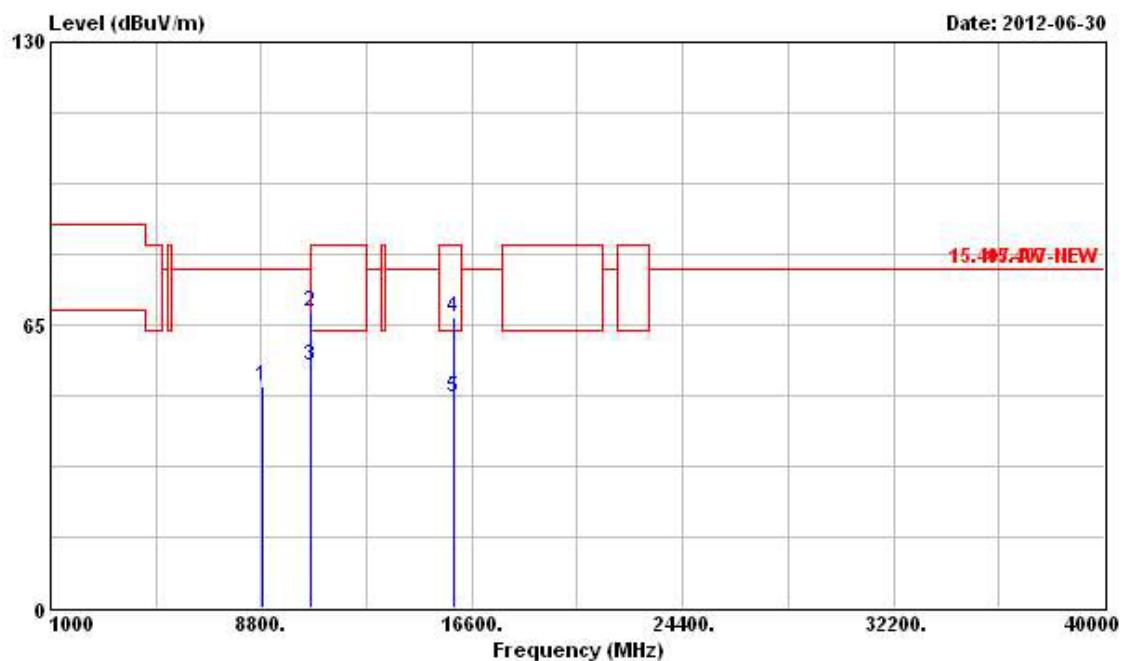
Vertical

Freq	Level	Over Limit	Limit Line	Read		Ant Pos	Table Pos			
				Antenna Factor	Cable Loss Factor					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 8837.000	50.44	-27.40	77.84	41.41	38.23	6.09	35.29	Peak	---	---
2 10520.000	66.23	-11.61	77.84	54.37	40.11	6.85	35.10	Peak	---	---
3 15780.000	63.88	-19.66	83.54	47.84	42.86	8.46	35.28	Peak	---	---
4 15780.000	52.83	-10.71	63.54	36.79	42.86	8.46	35.28	Average	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 60 (20MHz)

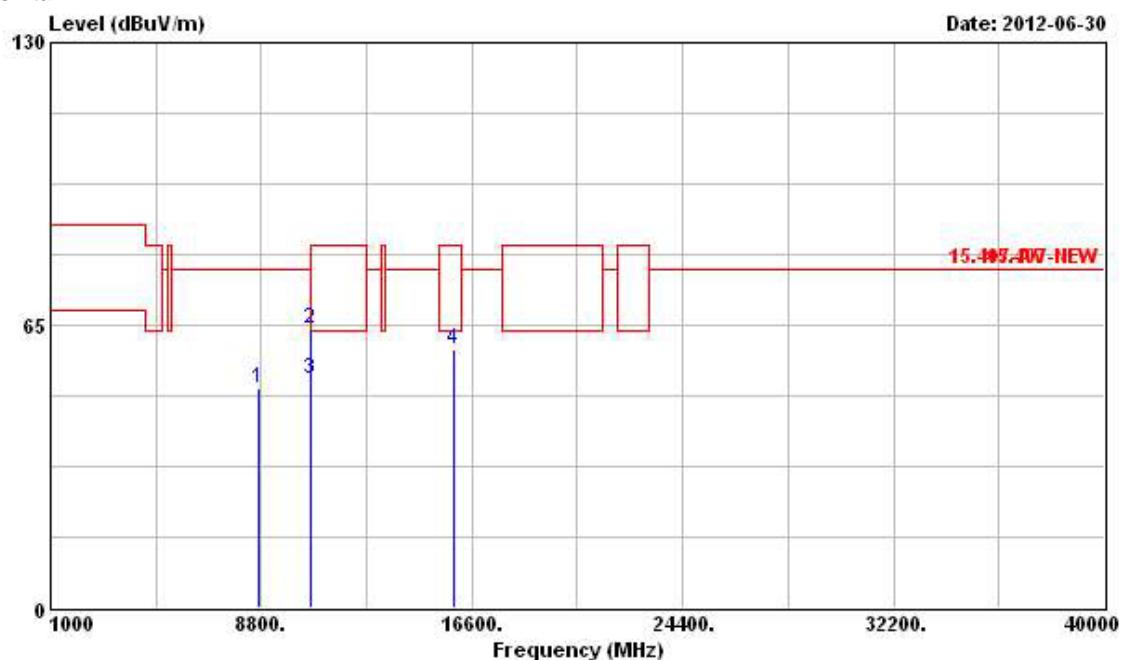
Horizontal

Freq	Level	Over Limit	Limit Line	Read		Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	
1	8617.000	50.82	-27.02	77.84	41.68	38.41	5.99	35.26	Peak	---	---
2	10600.010	64.85	-18.69	83.54	52.83	40.16	6.90	35.04	Peak	---	---
3	10600.010	51.39	-12.15	63.54	39.37	40.16	6.90	35.04	Average	---	---
4	@15900.000	60.13	-3.41	63.54	44.16	42.88	8.47	35.38	PK	---	---

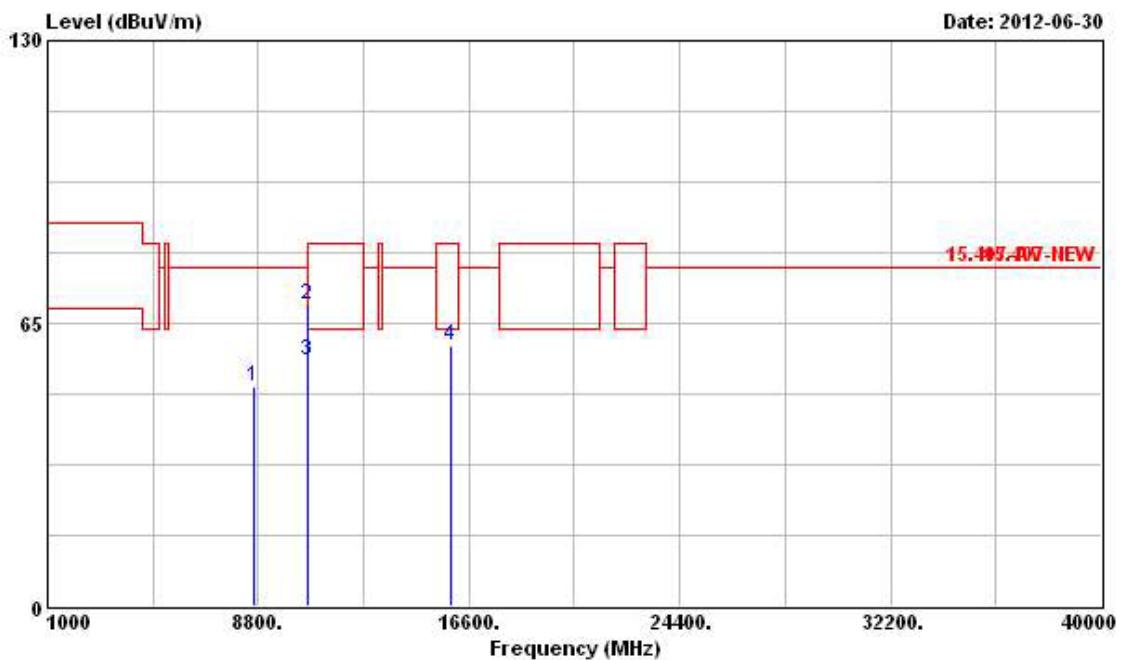
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor		Pos	Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8837.000	50.99	-26.85	77.84	41.96	38.23	6.09	35.29	Peak	---	---
2 10600.010	67.99	-15.55	83.54	55.97	40.16	6.90	35.04	Peak	---	---
3 10600.010	55.47	-8.07	63.54	43.45	40.16	6.90	35.04	Average	---	---
4 15900.000	66.79	-16.75	83.54	50.82	42.88	8.47	35.38	Peak	---	---
5 15900.000	48.33	-15.21	63.54	32.36	42.88	8.47	35.38	Average	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 64 (20MHz)

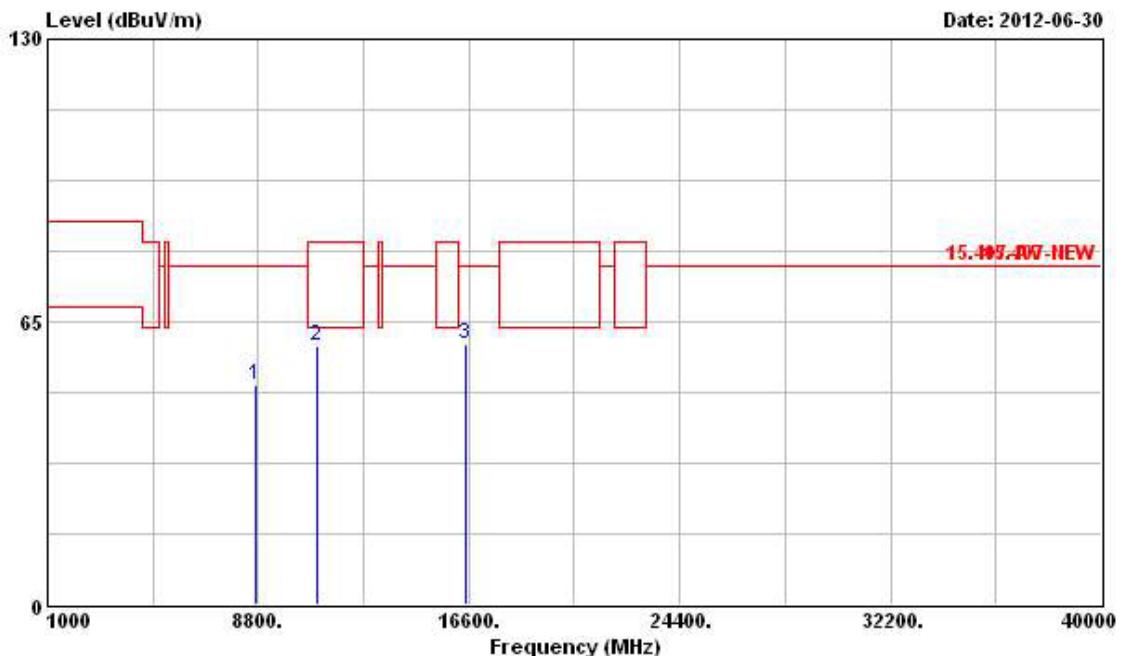
Horizontal

Freq	Level	Over Limit	Limit	Read		Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
				Line	Level Factor						
MHz	dBuV/m		dB	dBuV/m		dBuV	dB/m	dB	dB	cm	deg
1 8738.000	50.66	-27.18	77.84	41.59	38.31	6.04	35.28	Peak		---	---
2 10640.000	64.23	-19.31	83.54	52.12	40.18	6.93	35.00	Peak		---	---
3 10640.000	52.41	-11.13	63.54	40.30	40.18	6.93	35.00	Average		---	---
4 @15960.000	59.60	-3.94	63.54	43.69	42.89	8.47	35.45	PK		---	---

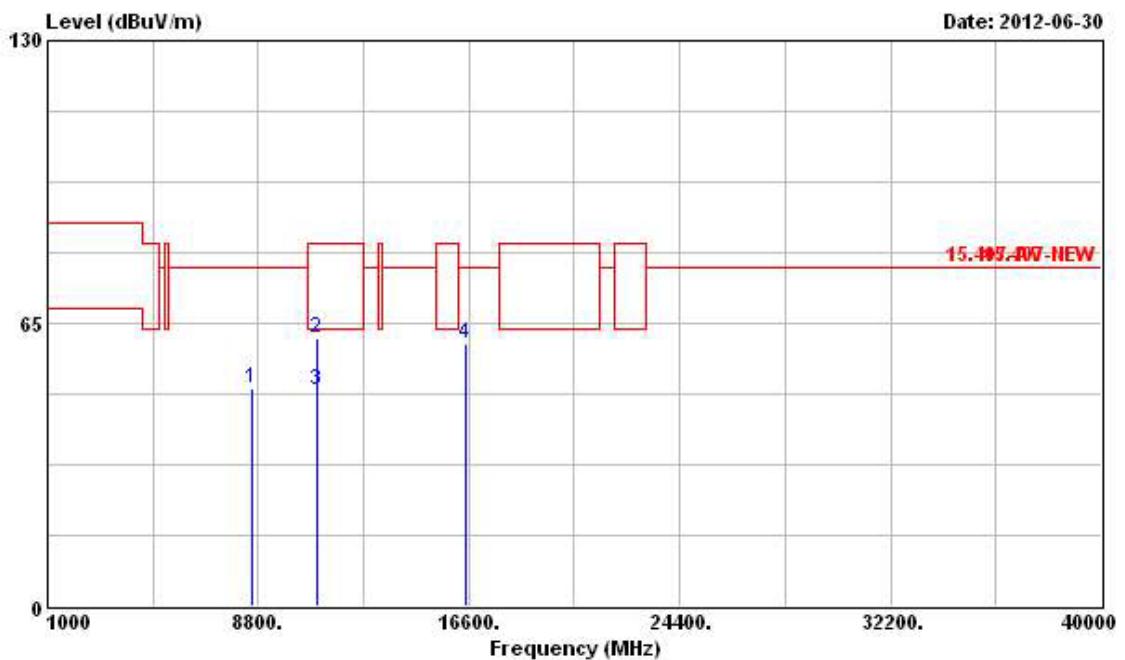
Vertical

Freq	Level	Over Limit	Line	Read		Antenna Factor	Cable Preamp		Ant Pos	Table Pos
				dB	dBuV/m		dB	dBuV/m		
MHz	dBuV/m								cm	deg
1 8650.000	50.58	-27.26	77.84	41.45	38.38	6.01	35.26	Peak	---	---
2 10640.000	69.30	-14.24	83.54	57.19	40.18	6.93	35.00	Peak	---	---
3 10640.000	56.31	-7.23	63.54	44.20	40.18	6.93	35.00	Average	---	---
4 @15960.000	59.82	-3.72	63.54	43.91	42.89	8.47	35.45	PK	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 100 (20MHz)

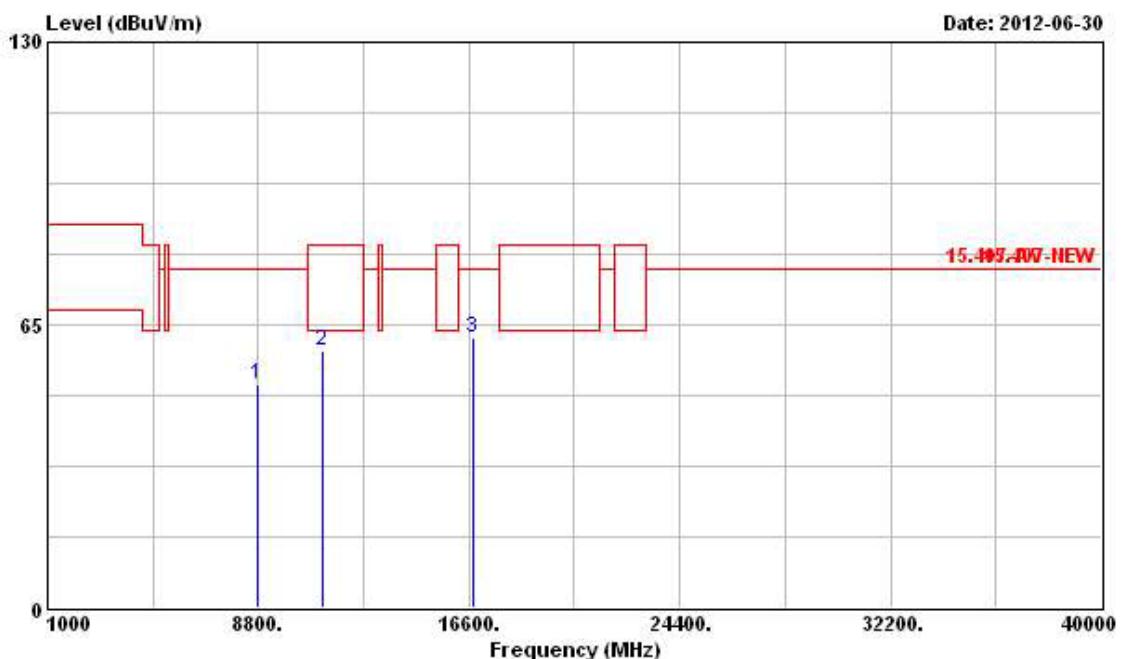
Horizontal

Freq	Level	Over Limit	Limit Line	Read Antenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8694.000	50.64	-27.20	77.84	41.55	38.34	6.02	35.27	Peak	---	---
2 @11100.000	59.59	-3.95	63.54	46.74	40.40	7.17	34.72	PK	---	---
3 16500.000	59.69	-18.15	77.84	42.94	43.50	8.24	34.99	Peak	---	---

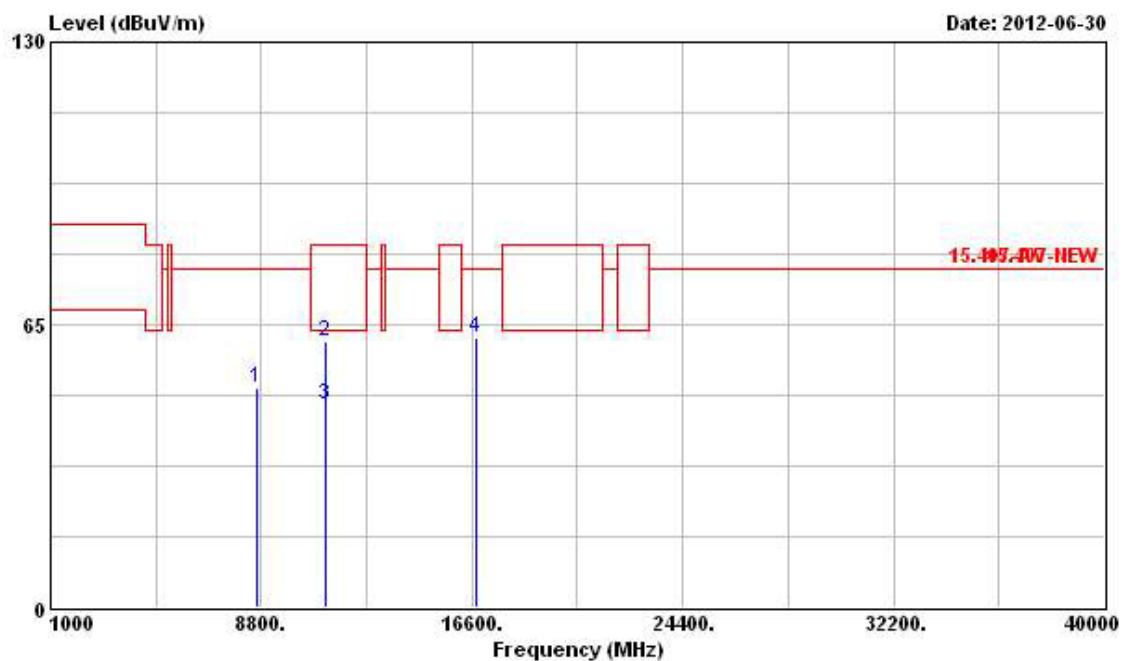
Vertical

Freq	Level	Over Limit	Line	Read		Antenna Factor	Cable Preamp		Ant Pos	Table Pos
				dB	dBuV/m		dB	dBuV/m		
MHz	dBuV/m								cm	deg
1 8562.000	50.16	-27.68	77.84	40.99	38.45	5.97	35.25	Peak	---	---
2 11000.000	61.77	-21.77	83.54	48.92	40.40	7.17	34.72	Peak	---	---
3 11000.000	49.44	-14.10	63.54	36.59	40.40	7.17	34.72	Average	---	---
4 16500.000	60.32	-17.52	77.84	43.57	43.50	8.24	34.99	Peak	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 116 (20MHz)

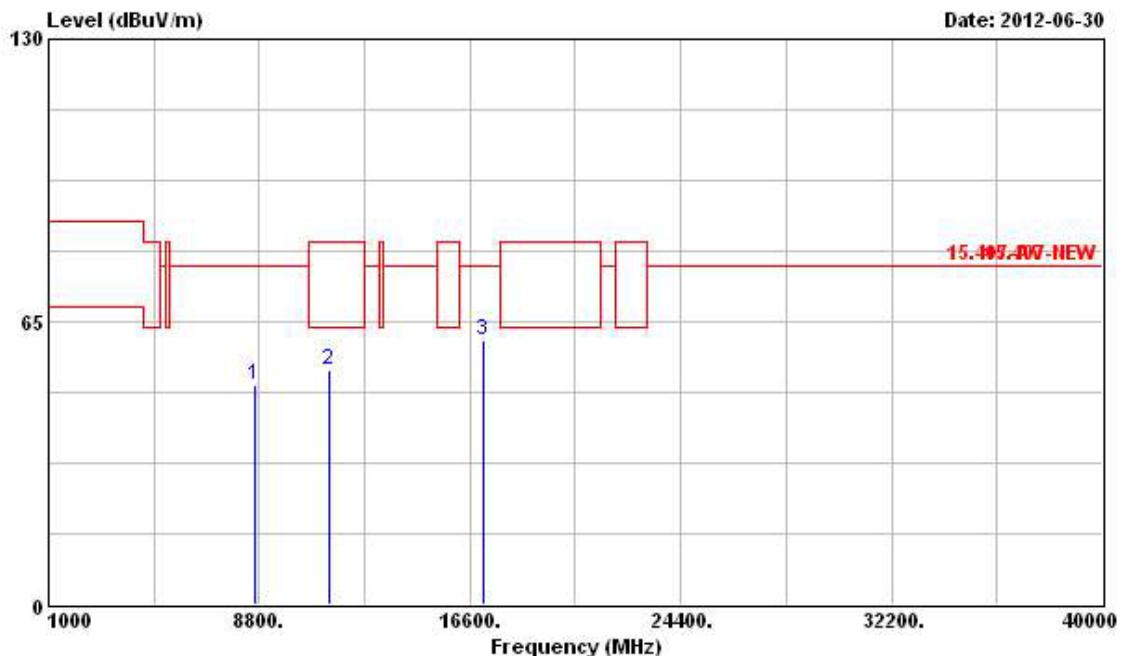
Horizontal

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor		
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8749.000	51.13	-26.71	77.84	42.05	38.30	6.06	35.28 Peak	---	---
2 @11116.000	58.84	-4.70	63.54	46.13	40.47	6.96	34.72 PK	---	---
3 16740.000	62.06	-15.78	77.84	44.50	43.60	8.47	34.51 Peak	---	---

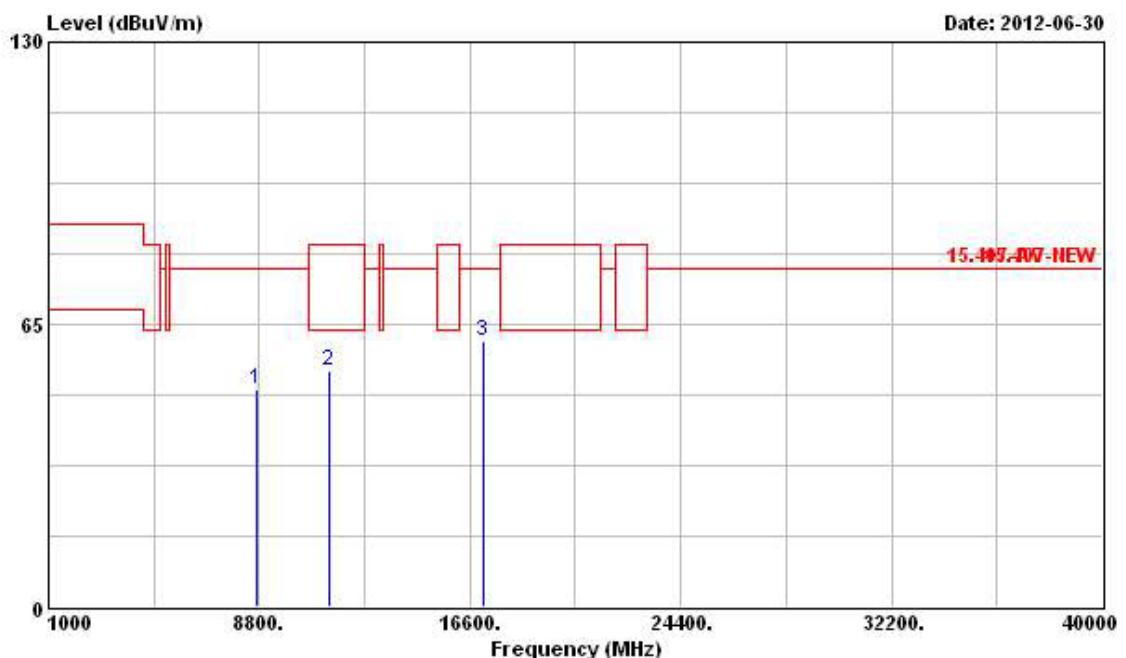
Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant Pos	Table Pos
		Limit	Line	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8617.000	50.53	-27.31	77.84	41.39	38.41	5.99	35.26	Peak	---	---
2 11160.000	61.10	-22.44	83.54	48.39	40.47	6.96	34.72	Peak	---	---
3 11160.000	46.56	-16.98	63.54	33.85	40.47	6.96	34.72	Average	---	---
4 16740.000	62.12	-15.72	77.84	44.56	43.60	8.47	34.51	Peak	---	---

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 140 (20MHz)

Horizontal

Freq	Level	Over Limit	Line	Read	Antenna	Cable	Preamp	Remark	Ant	Table
									Pos	Pos
MHz	dBuV/m		dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1 8650.000	50.54	-27.30	77.84	41.41	38.38	6.01	35.26	Peak	---	---
2 11400.000	53.70	-9.84	63.54	41.15	40.56	6.71	34.72	PK	---	---
3 17100.000	60.79	-17.05	77.84	42.52	43.64	8.61	33.98	Peak	---	---

Vertical

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor		Pos	Pos
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 8738.000	50.14	-27.70	77.84	41.07	38.31	6.04	35.28	Peak	---	---
2 11400.000	54.26	-9.28	63.54	41.71	40.56	6.71	34.72	PK	---	---
3 17100.000	61.08	-16.76	77.84	42.81	43.64	8.61	33.98	Peak	---	---

Note:

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1m.

Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

3.3 Band Edge and Fundamental Emissions Measurement

3.3.1 Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz (68.3dBuV/m at 3m). In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

3.3.2 Measuring Instruments and Setting

Please refer to section 4 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1 MHz /1 MHz for Peak

3.3.3 Test Procedures

1. The test procedure is the same as section 3.6.3, only the frequency range investigated is limited to 100MHz around band edges.
2. In case the emission is fail due to the used RB/VB is too wide, marker-delta method of FCC Public Notice DA00-705 will be followed.

3.3.4 Test Setup Layout

This test setup layout is the same as that shown in section 3.6.4.

3.3.5 Test Deviation

There is no deviation with the original standard.

3.3.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.3.7 Test Result of Band Edge and Fundamental Emissions

Final Test Date	Jun. 30, 2012			Test Site No.	03CH02-HY		
Temperature	24.6°C			Humidity	61%		
Test Engineer	Hsiao			Configuration	802.11a Ch. 36, 40, 48		

Channel 36

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5101.000	58.37	-5.17	63.54	17.46	36.14	4.77	0.00	Average	---	---
2 @ 5180.700	103.45			62.39	36.26	4.80	0.00	Average	---	---
1 @ 5140.600	72.16	-11.38	83.54	31.17	36.21	4.78	0.00	Peak	---	---
2 @ 5179.800	114.43			73.37	36.26	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5116.200	58.37	-5.17	63.54	17.43	36.16	4.78	0.00	Average	---	---
2 @ 5200.500	103.62			62.53	36.28	4.81	0.00	Average	---	---
3 @ 5361.300	61.31	-2.23	63.54	19.93	36.51	4.87	0.00	Average	---	---
1 @ 5128.200	71.12	-12.42	83.54	30.15	36.19	4.78	0.00	Peak	---	---
2 @ 5200.200	115.64			74.55	36.28	4.81	0.00	Peak	---	---
3 @ 5361.300	73.68	-9.86	83.54	32.30	36.51	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5106.600	58.23	-5.31	63.54	17.30	36.16	4.77	0.00	Average	---	---
2 @ 5241.000	104.45			63.30	36.33	4.82	0.00	Average	---	---
3 @ 5399.400	60.30	-3.24	63.54	18.86	36.56	4.88	0.00	Average	---	---
1 @ 5122.200	71.43	-12.11	83.54	30.49	36.16	4.78	0.00	Peak	---	---
2 @ 5239.800	115.91			74.76	36.33	4.82	0.00	Peak	---	---
3 @ 5397.000	72.90	-10.64	83.54	31.46	36.56	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Jun. 30, 2012			Test Site No.	03CH02-HY		
Temperature	24.6°C			Humidity	61%		
Test Engineer	Hsiao			Configuration	802.11a Ch. 52, 60, 64		

Channel 52

Freq	Level	Over Limit	Line	ReadAntenna		Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				Level	Factor					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5103.300	58.31	-5.23	63.54	17.40	36.14	4.77	0.00	Average	---	---
2 @ 5259.000	106.64			65.45	36.37	4.82	0.00	Average	---	---
3 @ 5352.600	58.81	-4.73	63.54	17.45	36.49	4.87	0.00	Average	---	---
1 @ 5117.400	70.71	-12.83	83.54	29.77	36.16	4.78	0.00	Peak	---	---
2 @ 5261.400	117.37			76.18	36.37	4.82	0.00	Peak	---	---
3 @ 5397.300	71.16	-12.38	83.54	29.72	36.56	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 60

Freq	Level	Over Limit	Line	ReadAntenna		Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				Level	Factor					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5141.400	58.40	-5.14	63.54	17.41	36.21	4.78	0.00	Average	---	---
2 @ 5301.300	106.15			64.89	36.42	4.84	0.00	Average	---	---
3 @ 5379.300	58.91	-4.63	63.54	17.50	36.54	4.87	0.00	Average	---	---
1 @ 5136.900	71.74	-11.80	83.54	30.77	36.19	4.78	0.00	Peak	---	---
2 @ 5302.500	116.51			75.25	36.42	4.84	0.00	Peak	---	---
3 @ 5373.000	71.80	-11.74	83.54	30.42	36.51	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 64

Freq	Level	Over Limit	Line	ReadAntenna		Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
				Level	Factor					
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5321.130	104.45			63.16	36.44	4.85	0.00	Average	---	---
2 @ 5350.000	60.94	-2.60	63.54	19.58	36.49	4.87	0.00	Average	---	---
1 @ 5319.940	116.47			75.18	36.44	4.85	0.00	Peak	---	---
2 @ 5350.250	76.44	-7.10	83.54	35.08	36.49	4.87	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Jun. 30, 2012				Test Site No.	03CH02-HY		
Temperature	24.6°C				Humidity	61%		
Test Engineer	Hsiao				Configuration	802.11a Ch. 100, 116, 140		

Channel 100

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5441.120	57.77	-5.77	63.54	16.26	36.61	4.90	0.00 Average	---	---
2 @	5501.280	101.81	-----	-----	60.20	36.70	4.91	0.00 Average	---	---
1	5443.040	70.67	-12.87	83.54	29.16	36.61	4.90	0.00 Peak	---	---
2 @	5500.960	113.01	-----	-----	71.40	36.70	4.91	0.00 Peak	---	---

The item 2 is fundamental emissions.

Channel 116

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5430.640	57.76	-5.78	63.54	16.25	36.61	4.90	0.00 Average	---	---
2 @	5579.120	102.62	-----	-----	60.89	36.78	4.95	0.00 Average	---	---
3	5739.440	59.62	-18.22	77.84	17.56	36.99	5.07	0.00 Average	---	---
1	5434.480	71.72	-11.82	83.54	30.21	36.61	4.90	0.00 Peak	---	---
2 @	5578.160	112.72	-----	-----	70.99	36.78	4.95	0.00 Peak	---	---
3 @	5729.200	72.66	-5.18	77.84	30.65	36.97	5.04	0.00 Peak	---	---

The item 2 is fundamental emissions.

Channel 140

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Level	Factor	Cable	Loss			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5698.820	101.12	-----	-----	59.17	36.93	5.02	0.00 Average	---	---
2	5725.000	59.51	-18.33	77.84	17.50	36.97	5.04	0.00 Average	---	---
1 @	5700.920	112.03	-----	-----	70.04	36.95	5.04	0.00 Peak	---	---
2 @	5725.220	73.83	-4.01	77.84	31.82	36.97	5.04	0.00 Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Jun. 30, 2012				Test Site No.	03CH02-HY		
Temperature	24.6°C				Humidity	61%		
Test Engineer	Hsiao				Configuration	802.11n Ch. 36, 40, 48 (20MHz)		

Channel 36

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5150.000	57.94	-5.60	63.54	16.95	36.21	4.78	0.00	Average	---	---
2 @ 5181.400	100.66			59.60	36.26	4.80	0.00	Average	---	---
1 @ 5113.500	71.47	-12.07	83.54	30.54	36.16	4.77	0.00	Peak	---	---
2 @ 5182.300	111.67			70.61	36.26	4.80	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 40

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5125.800	58.13	-5.41	63.54	17.16	36.19	4.78	0.00	Average	---	---
2 @ 5199.000	101.41			60.32	36.28	4.81	0.00	Average	---	---
3 @ 5361.300	59.51	-4.03	63.54	18.13	36.51	4.87	0.00	Average	---	---
1 @ 5110.500	71.29	-12.25	83.54	30.36	36.16	4.77	0.00	Peak	---	---
2 @ 5201.400	111.69			70.60	36.28	4.81	0.00	Peak	---	---
3 @ 5361.000	71.43	-12.11	83.54	30.05	36.51	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 48

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5126.100	57.98	-5.56	63.54	17.01	36.19	4.78	0.00	Average	---	---
2 @ 5241.300	101.59			60.44	36.33	4.82	0.00	Average	---	---
3 @ 5399.400	59.59	-3.95	63.54	18.15	36.56	4.88	0.00	Average	---	---
1 @ 5110.200	70.95	-12.59	83.54	30.02	36.16	4.77	0.00	Peak	---	---
2 @ 5239.800	112.39			71.24	36.33	4.82	0.00	Peak	---	---
3 @ 5399.400	72.25	-11.29	83.54	30.81	36.56	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Final Test Date	Jun. 30, 2012	Test Site No.	03CH02-HY
Temperature	24.6°C	Humidity	61%
Test Engineer	Hsiao	Configuration	802.11n Ch. 52, 60, 64 (20MHz)

Channel 52

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Factor	Loss	Factor	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5103.000	58.14	-5.40	63.54	17.23	36.14	4.77	0.00	Average	---	---
2 @ 5259.000	105.90			64.71	36.37	4.82	0.00	Average	---	---
3 @ 5356.500	58.61	-4.93	63.54	17.25	36.49	4.87	0.00	Average	---	---
1 @ 5106.600	70.95	-12.59	83.54	30.02	36.16	4.77	0.00	Peak	---	---
2 @ 5259.000	116.11			74.92	36.37	4.82	0.00	Peak	---	---
3 @ 5388.900	71.32	-12.22	83.54	29.90	36.54	4.88	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 60

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Factor	Loss	Factor	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5141.400	58.19	-5.35	63.54	17.20	36.21	4.78	0.00	Average	---	---
2 @ 5301.000	105.55			64.29	36.42	4.84	0.00	Average	---	---
3 @ 5350.000	58.75	-4.79	63.54	17.39	36.49	4.87	0.00	Average	---	---
1 @ 5146.200	70.98	-12.56	83.54	29.99	36.21	4.78	0.00	Peak	---	---
2 @ 5301.000	115.90			74.64	36.42	4.84	0.00	Peak	---	---
3 @ 5380.500	71.93	-11.61	83.54	30.52	36.54	4.87	0.00	Peak	---	---

The item 2 is fundamental emissions.

Channel 64

Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
		Line	Level	Factor	Loss	Factor	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @ 5321.060	103.72			62.43	36.44	4.85	0.00	Average	---	---
2 @ 5350.000	61.38	-2.16	63.54	20.02	36.49	4.87	0.00	Average	---	---
1 @ 5320.010	114.59			73.30	36.44	4.85	0.00	Peak	---	---
2 @ 5350.530	76.33	-7.21	83.54	34.97	36.49	4.87	0.00	Peak	---	---

The item 1 is fundamental emissions.

Final Test Date	Jun. 30, 2012				Test Site No.	03CH02-HY		
Temperature	24.6°C				Humidity	61%		
Test Engineer	Hsiao				Configuration	802.11n Ch. 100, 116, 140 (20MHz)		

Channel 100

Freq	Level	Over Limit		Read Antenna		Cable Preamp		Remark	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5458.640	57.73	-5.81	63.54	16.20	36.63	4.90	0.00 Average	---	---
2 @	5501.280	100.87			59.26	36.70	4.91	0.00 Average	---	---
1	5450.000	70.43	-13.11	83.54	28.90	36.63	4.90	0.00 Peak	---	---
2 @	5501.600	111.75			70.14	36.70	4.91	0.00 Peak	---	---

The item 2 is fundamental emissions.

Channel 116

Freq	Level	Over Limit		Read Antenna		Cable Preamp		Remark	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	5430.960	57.73	-5.81	63.54	16.22	36.61	4.90	0.00 Average	---	---
2 @	5578.160	101.73			60.00	36.78	4.95	0.00 Average	---	---
3	5738.160	59.49	-18.35	77.84	17.46	36.99	5.04	0.00 Average	---	---
1	5432.240	71.08	-12.46	83.54	29.57	36.61	4.90	0.00 Peak	---	---
2 @	5581.680	112.69			70.94	36.80	4.95	0.00 Peak	---	---
3	5733.040	71.95	-5.89	77.84	29.94	36.97	5.04	0.00 Peak	---	---

The item 2 is fundamental emissions.

Channel 140

Freq	Level	Over Limit		Read Antenna		Cable Preamp		Remark	Ant Pos	Table Pos
		Line	Limit	Level	Factor	Loss	Factor			
MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1 @	5699.060	101.98			60.03	36.93	5.02	0.00 Average	---	---
2	5725.000	60.78	-17.06	77.84	18.77	36.97	5.04	0.00 Average	---	---
1 @	5699.720	112.76			70.79	36.93	5.04	0.00 Peak	---	---
2 @	5725.400	76.70	-1.14	77.84	34.69	36.97	5.04	0.00 Peak	---	---

The item 1 is fundamental emissions.

3.4 Antenna Requirements

3.4.1 Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

3.4.2 Antenna Connector Construction

Please refer to section 2.3 in this test report; antenna connector complied with the requirements.

4 LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 23, 2012	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Feb. 08, 2012	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz ~ 30MHz	Apr. 20, 2012	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	CB049	9kHz ~ 30MHz	Apr. 25, 2012	Conduction (CO04-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9kHz ~ 40GHz	Sep. 01, 2011	Radiation (03CH02-HY)
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	May 10, 2012	Radiation (03CH02-HY)
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May. 10, 2012	Radiation (03CH02-HY)
Amplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	Aug. 08, 2011	Radiation (03CH02-HY)
Horn Antenna	ETS-LINDGREN	3117	00091920	1GHz ~ 18GHz	Nov. 15, 2011	Radiation (03CH02-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz ~ 1GHz	Nov. 11, 2011	Radiation (03CH02-HY)
RF Cable-high	SUHNER	SUCOFLEX106	03CH02-HY	1GHz ~ 40GHz	Mar. 06, 2012	Radiation (03CH02-HY)
Bilog Antenna	SCHAFFNER	CBL61128	2723	30MHz ~ 2GHz	Oct. 22, 2011	Radiation (03CH02-HY)
Turn Table	HD	DS 420	420/649/00	0~ 360 degree	N/A	Radiation (03CH02-HY)
Antenna Mast	HD	MA 240	240/559/00	1 ~ 4 m	N/A	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is one year.

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Loop Antenna	R&S	HFH2-Z2	860004/001	9 kHz - 30 MHz	Sep. 09, 2010*	Radiation (03CH02-HY)

Note: Calibration Interval of instruments listed above is two year.

5 TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei 221, Taiwan, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
LINKOU	ADD : No. 30-2, Dingfu Vil., Linkou Dist., New Taipei City 244, Taiwan, R.O.C. TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei 114, Taiwan, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei 235, Taiwan, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

6 TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-120405

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria : ISO/IEC 17025:2005
Accreditation Number : 1190
Originally Accredited : December 15, 2003
Effective Period : January 10, 2010 to January 09, 2013
Accredited Scope : Testing Field, see described in the Appendix
Specific Accreditation Program : Accreditation Program for Designated Testing Laboratory
for Commodities Inspection
Accreditation Program for Telecommunication Equipment
Testing Laboratory
Accreditation Program for BSMI Mutual Recognition
Arrangement with Foreign Authorities

Jay-San Chen
President, Taiwan Accreditation Foundation
Date: April 05, 2012

P1, total 24 pages