SPORTON International Inc.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

FCC RADIO TEST REPORT

Applicant's company	**Cisco Systems, Inc.**
Applicant Address	170 West Tasman Drive, San Jose, CA 95134 USA
FCC ID	**UDX-60027010**
Manufacturer's company	**Cisco Systems, Inc.**
Manufacturer Address	170 West Tasman Drive, San Jose, CA 95134 USA

Product Name	Wireless 802.11 abgn AP
Brand Name	Cisco
Model No.	MR26-HW
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Nov. 14, 2013
Final Test Date	Feb. 07, 2014
Submission Type	Class II Change
Operating Mode	Master

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a (5250 ~ 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 C63.4-2003**, **47 CFR FCC Part 15 Subpart E, KDB 789033 D01 v01r03, KDB 662911 D01 v02r01**.

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

TAF
Testing Laboratory
1190

Table of Contents

1. CERTIFICATE OF COMPLIANCE 1
2. SUMMARY OF THE TEST RESULT 2
3. GENERAL INFORMATION 3
3.1. Product Details 3
3.2. Accessories 5
3.3. Table for Filed Antenna 6
3.4. Table for Carrier Frequencies 7
3.5. Table for Test Modes 8
3.6. Table for Testing Locations 10
3.7. Table for Supporting Units 11
3.8. Table for Parameters of Test Software Setting 11
3.9. EUT Operation during Test 12
3.10. Duty Cycle 13
3.11. Test Configurations 17
4. TEST RESULT 20
4.1. AC Power Line Conducted Emissions Measurement 20
4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement 24
4.3. Maximum Conducted Output Power Measurement 45
4.4. Power Spectral Density Measurement 48
4.5. Peak Excursion Measurement 58
4.6. Radiated Emissions Measurement 69
4.7. Band Edge Emissions Measurement 110
4.8. Frequency Stability Measurement 124
4.9. Antenna Requirements 127
5. LIST OF MEASURING EQUIPMENTS 128
6. MEASUREMENT UNCERTAINTY 130
APPENDIX A. TEST PHOTOS ..... A1 ~ A6
APPENDIX B. MAXIMUM PERMISSIBLE EXPOSURE ..... B1 ~ B4
APPENDIX C. RADIATED EMISSION CO-LOCATION REPORT ..... C1 ~ C5

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR3N1492-01	Rev. 01	Initial issue of report	Feb. 20, 2014

Certificate No.: CB10302063

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Wireless 802.11 abgn AP
Brand Name	:	Cisco
Model No.	:	MR26-HW
Applicant	:	Cisco Systems, Inc.
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Nov. 14, 2013 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.

Sam Chen

SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	Rule Section	Description of Test	Result	Under Limit
4.1	15.207	AC Power Line Conducted Emissions	Complies	9.54 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	0.04 dB
4.4	15.407(a)	Power Spectral Density	Complies	0.02 dB
4.5	15.407(a)	Peak Excursion	Complies	3.19 dB
4.6	15.407(b)	Radiated Emissions	Complies	4.02 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.08 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	Radio 2: WLAN (3TX, 3RX) Radio 3: WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter or PoE
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	12 for 20MHz bandwidth ; 5 for 40MHz bandwidth
Channel Band Width (99%)	Radio 2 Band 2: MCS0 (HT20): 18.56 MHz ; MCS0 (HT40): 36.80 MHz Band 3: MCS0 (HT20): 18.08 MHz ; MCS0 (HT40): 36.80 MHz Radio 3 Band 2: MCS0 (HT20): 34.88 MHz ; MCS0 (HT40): 45.12 MHz Band 3: MCS0 (HT20): 33.12 MHz ; MCS0 (HT40): 45.44 MHz
Maximum Conducted Output Power	Radio 2 Band 2: MCS0 (HT20): 22.41 dBm ; MCS0 (HT40): 23.73 dBm Band 3: MCS0 (HT20): 22.20 dBm ; MCS0 (HT40): 23.96 dBm Radio 3 Band 2: MCS0 (HT20): 22.88 dBm ; MCS0 (HT40): 19.07 dBm Band 3: MCS0 (HT20): 22.01 dBm ; MCS0 (HT40): 18.43 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	Radio 2: WLAN (1TX, 3RX) Radio 3: WLAN (1TX, 1RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter or PoE
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5250 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	12
Channel Band Width (99%)	Radio 2 Band 2: 31.36 MHz ; Band 3: 36.16 MHz Radio 3 Band 2: 33.76 MHz ; Band 3: 32 MHz
Maximum Conducted Output Power	Radio 2 Band 2: 23.41 dBm ; Band 3: 23.85 dBm Radio 3 Band 2: 22.89 dBm ; Band 3: 21.95 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note:

The EUT has three radio devices, the information as following table:

Radio Device	Function	Antenna
1	2.4G	4 + 5 + 6
2	5G	1 + 2 + 3
3	2.4G + 5G	7

Items	Description	
Communication Mode	☒ IP Based (Load Based)	☐ Frame Based
TPC Function	☒ With TPC	☐ Without TPC
Weather Band (5600~5650MHz)	☐ With 5600~5650MHz	☒ Without 5600~5650MHz
Beamforming Function	☐ With beamforming	☒ Without beamforming

Antenna and Band width

Antenna	Single (TX)		Three (TX)	
Band width Mode	20 MHz	40 MHz	20 MHz	40 MHz
IEEE 802.11a	V	X	X	X
IEEE 802.11n (Radio2)	X	X	V	V
IEEE 802.11n (Radio3)	V	V	X	X

IEEE 11n Spec.

Radio Device	Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
1	802.11n (HT20)	3	MCS 0-23
2	802.11n (HT20)	3	MCS 0-23
	802.11n (HT40)	3	MCS 0-23
3	802.11n (HT20)	1	MCS 0-7
	802.11n (HT40)	1	MCS 0-7
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Radio 1 only supports HT20, Radio 2/3 supports HT20 and HT40. Note 2: Modulation modes consist of below configuration: 11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n			

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Chain	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		
						2.4GHz	5GHz B2	5GHz B3
1	1	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	-	3.78	3.51
2	2	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	-	3.78	3.51
3	3	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	-	3.78	3.51
4	4	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	2.9	-	-
5	5	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	2.9	-	-
6	6	WNC	81EAAH15.G39	PIFA Antenna	I-PEX	2.9	-	-
7	7	WNC	81EAAH15.G40	PIFA Antenna	I-PEX	4.84	5.97	5.97

Note: The EUT has seven antennas.

Radio 1:

For 2.4G

For IEEE 802.11b/g mode (1TX/3RX)

Only Chain 4 can be used as transmitting antenna.

Chain 4, Chain 5 and Chain 6 could receive simultaneously.

For IEEE 802.11n mode (3TX/3RX)

Chain 4, Chain 5 and Chain 6 can be used as transmitting/receiving antenna simultaneously.

Radio 2:

For 5G

For IEEE 802.11a mode (1TX/3RX)

Only Chain 1 can be used as transmitting antenna.

Chain 1, Chain 2 and Chain 3 could receive simultaneously.

For IEEE 802.11n mode (3TX/3RX)

Chain 1, Chain 2 and Chain 3 can be used as transmitting/receiving antenna simultaneously.

Radio 3:

For 2.4G

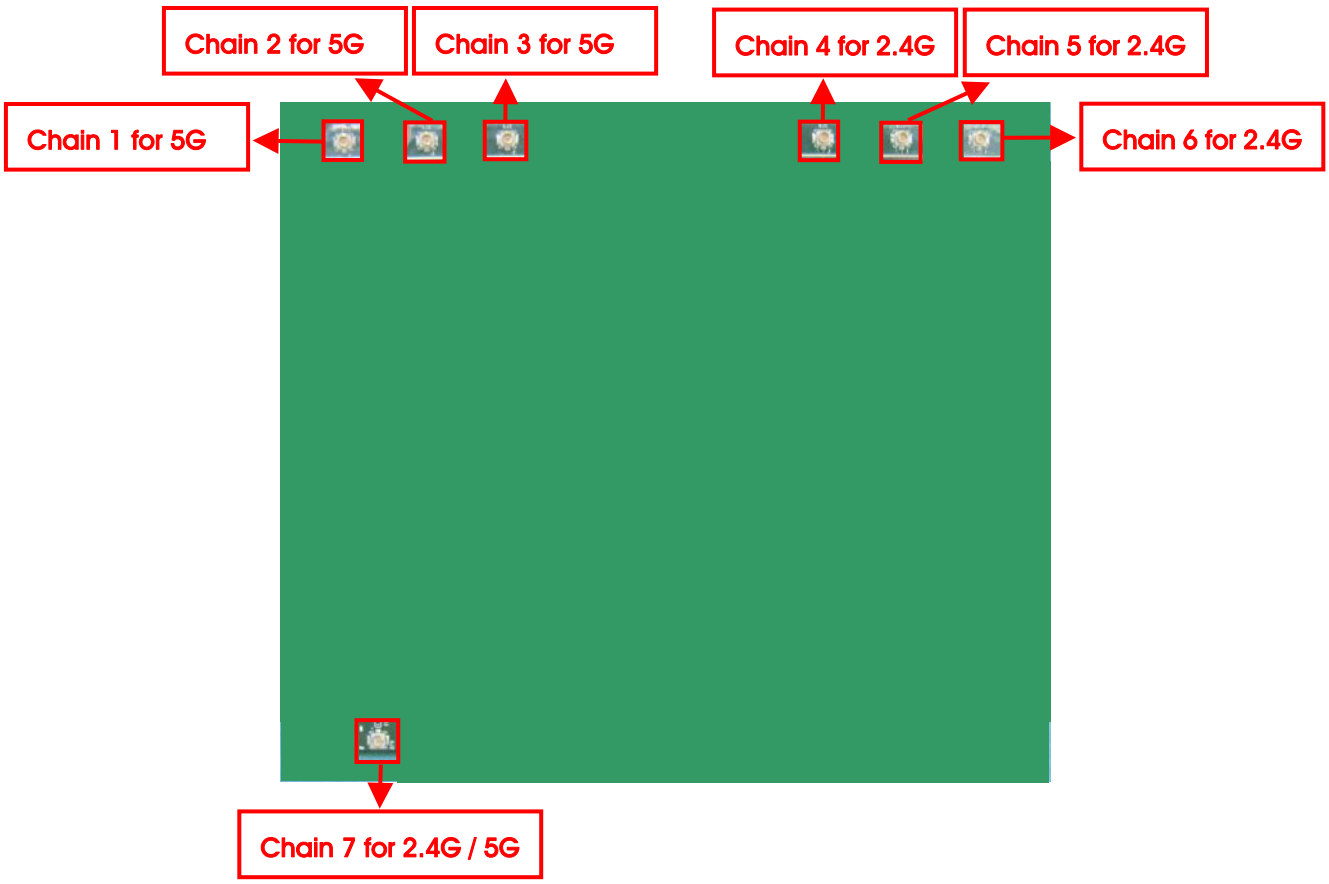
For IEEE 802.11b/g/n mode (1TX/1RX)

Only Chain 7 can be used as transmitting/receiving antenna.

For 5G

For IEEE 802.11a/n mode (1TX/1RX)

Only Chain 7 can be used as transmitting/receiving antenna.



3.4. Table for Carrier Frequencies

The EUT has two bandwidth system.

For 20MHz bandwidth systems, use Channel 52, 56, 60, 64, 100, 104, 108, 112, 116, 132, 136, 140.

For 40MHz bandwidth systems, use Channel 54, 62, 102, 110, 134.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
5470~5725 MHz Band 3	100	5500 MHz	116	5580 MHz
	102	5510 MHz	132	5660 MHz
	104	5520 MHz	134	5670 MHz
	108	5540 MHz	136	5680 MHz
	110	5550 MHz	140	5700 MHz
	112	5560 MHz	-	-

3.5. 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 all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Radio 2:

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
Power Spectral Density	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/ 102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/ 102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
Peak Excursion	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
Band Edge Emission	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	1+2+3
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	1+2+3
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	1
Frequency Stability	Un-modulation		-	60/100	N/A

Radio 3:

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	7
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
Power Spectral Density	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
	11n HT40	Band 2-3	MCS0	54/62/ 102/110/134	7
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
26dB Spectrum Bandwidth	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
99% Occupied Bandwidth	11n HT40	Band 2-3	MCS0	54/62/ 102/110/134	7
Measurement	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
Peak Excursion	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	7
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
Radiated Emission Below 1GHz	Normal Link		-	-	
Radiated Emission Above 1GHz	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	7
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
Band Edge Emission	11n HT20	Band 2-3	MCS0	52/60/64/100/116/140	7
	11n HT40	Band 2-3	MCS0	54/62/102/110/134	7
	11a/BPSK	Band 2-3	6Mbps	52/60/64/100/116/140	7
Frequency Stability	Un-modulation		-	60/100	N/A

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function) with Adapter

Mode 2. EUT (Radio 1 + Radio 2 + Radio 3 for 5G function) with Adapter

Mode 3. EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function) with PoE

Mode 4. EUT (Radio 1 + Radio 2 + Radio 3 for 5G function) with PoE

Mode 1 is the worst case, so it was selected to record in this test report.

For Radiated Emission test below 1GHz:

Mode 1. Laying of EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function) with Adapter

Mode 2. Stand of EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function) with Adapter

Mode 2 has been evaluated to be the worst case among Mode 1~2, thus measurement for Mode 3 will follow this same test mode.

Mode 3. Stand of EUT (Radio 1 + Radio 2 + Radio 3 for 5G function) with Adapter

Mode 2 has been evaluated to be the worst case among Mode 1~3, thus measurement for Mode 4 will follow this same test mode.

Mode 4. Stand of EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function) with PoE

Mode 4 generated the worst test result, so it was recorded in this report.

For Radiated Emission test above1GHz:

Mode 1. Laying of EUT (Radio 2)

Mode 2. Stand of EUT (Radio 2)

Mode 3. Laying of EUT (Radio 3)

Mode 4. Stand of EUT (Radio 3)

Mode 2 and Mode 3 are the worst case, so there were selected to record in this test report.

For Co-location test:

Mode 1. EUT (Radio 1 + Radio 2 + Radio 3 for 2.4G function)

Mode 2. EUT (Radio 1 + Radio 2 + Radio 3 for 5G function)

For MPE and Co-location Test:

The EUT could be applied with 2.4GHz WLAN function and 5GHz WLAN function; therefore Maximum Permissible Exposure (Please refer to Appendix B) and Co-location (please refer to Appendix C) tests are added for simultaneously transmit between 2.4GHz (Radio 1)+5GHz (Radio 2)+2.4GHz (Radio 3) and 2.4GHz (Radio 1)+5GHz (Radio 2)+5GHz (Radio 3) function.

3.6. Table for Testing Locations

Test Site Location					
Address:	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				
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB (For Below 1G) and CO01-CB

Support Unit	Brand	Model	FCC ID
NB*4	DELL	E6430	DoC
AC Adapter	Powertron Electronics Corp	PA1015-2HE	N/A
PoE	Meraki	POE20U-560	N/A

For Test Site No: 03CH01-CB (For Above 1G) and TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
AC Adapter	Powertron Electronics Corp	PA1015-2HE	N/A
PoE	Meraki	POE20U-560	N/A

3.8. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. 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.

Radio 2:

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	Mtool 2.0.0.8					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
MCS0 HT20	66	70	69	64	63	61

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	Mtool 2.0.0.8				
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0 HT40	80	46	50	76	70

Power Parameters of IEEE 802.11a

Test Software Version	Mtool 2.0.0.8					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
802.11a	100	94	76	72	95	58

Radio 3:

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	Mtool 2.0.0.8					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
MCS0 HT20	80	73	71	71	80	68

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	Mtool 2.0.0.8				
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0 HT40	73	48	50	74	72

Power Parameters of IEEE 802.11a

Test Software Version	Mtool 2.0.0.8					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
802.11a	80	73	73	73	80	73

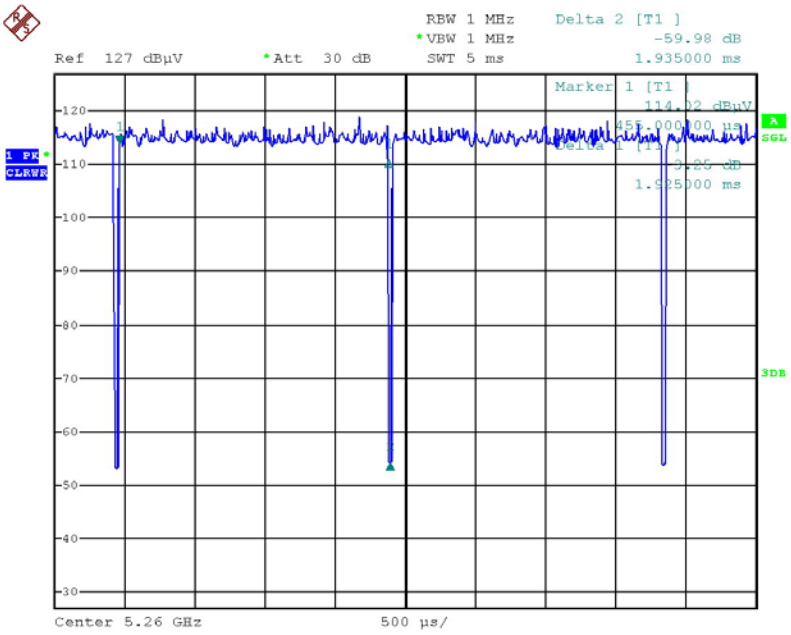
3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

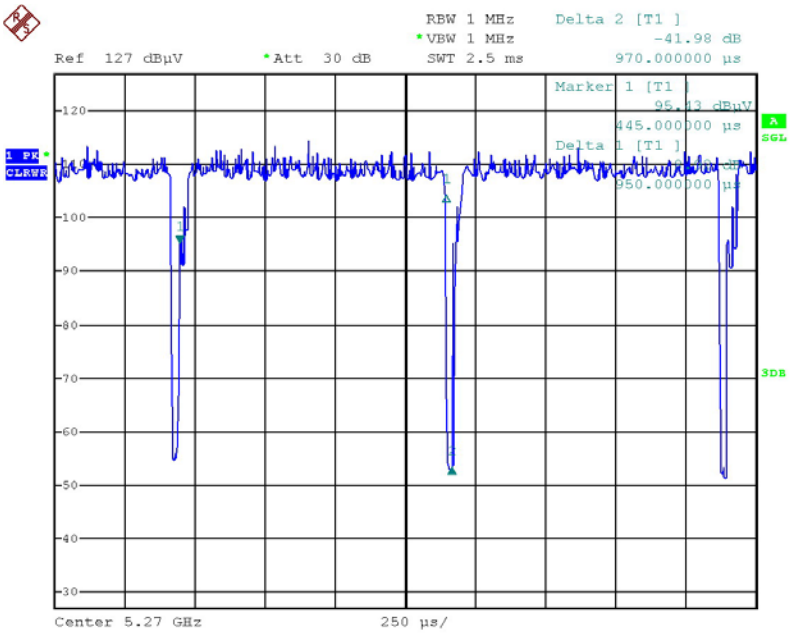
Radio 2:

IEEE 802.11n MCS0 HT20



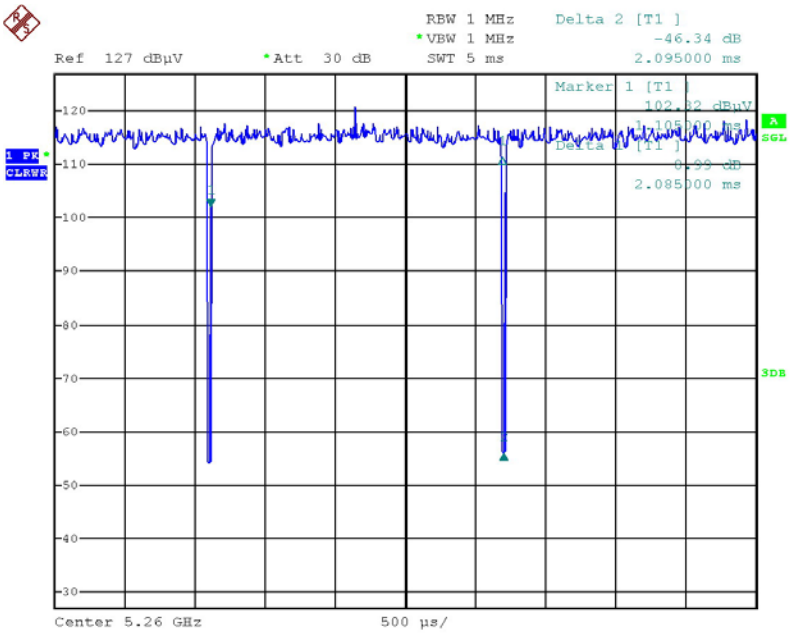
Date: 3.JAN.2014 21:37:50

IEEE 802.11n MCS0 HT40



Date: 3.JAN.2014 21:36:29

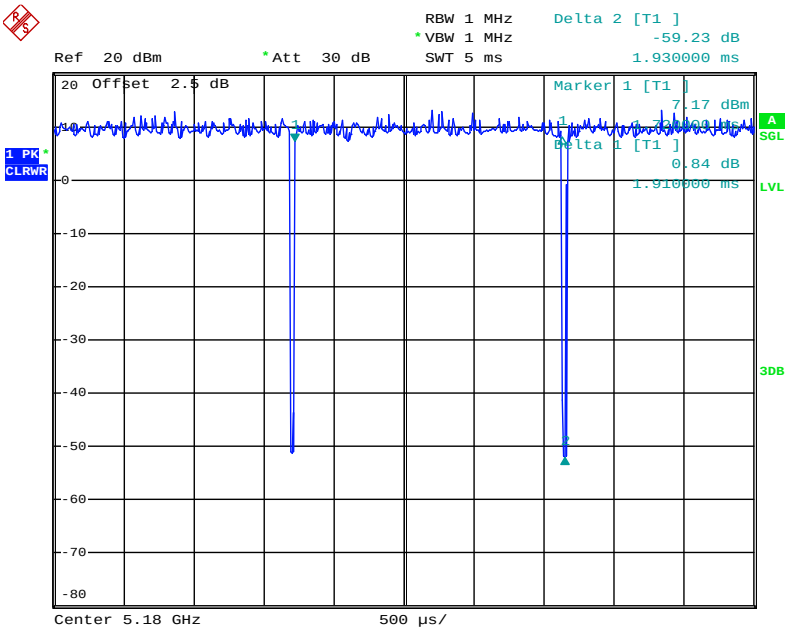
IEEE 802.11a



Date: 3.JAN.2014 21:38:45

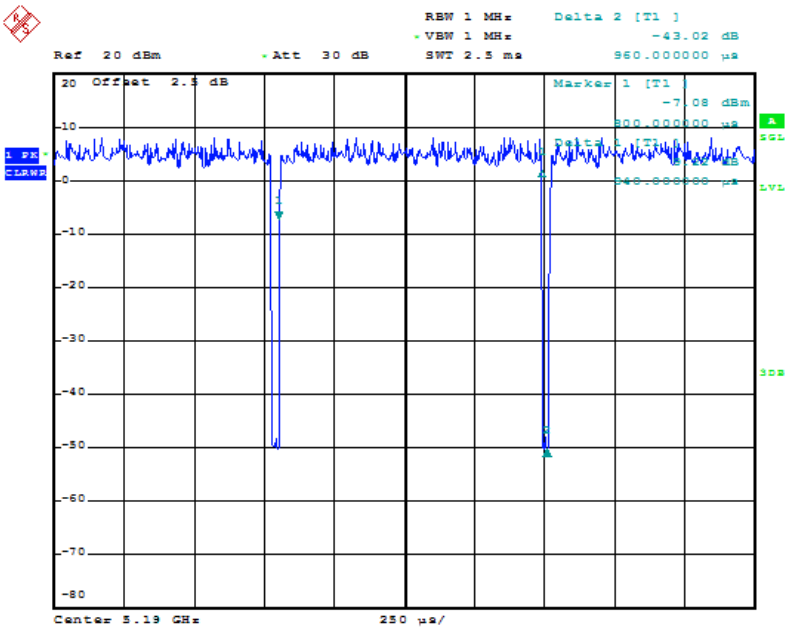
Radio 3:

IEEE 802.11n MCS0 HT20



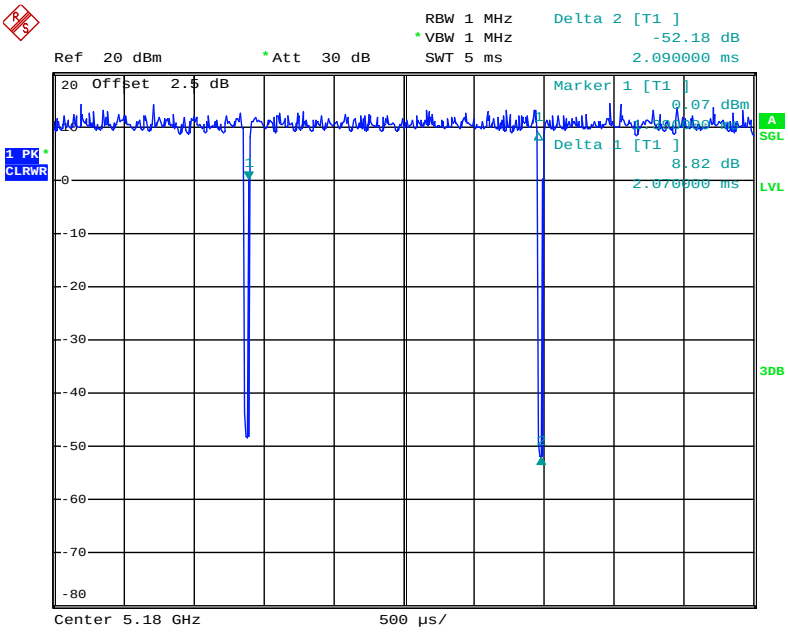
Date: 6.DEC.2013 06:34:14

IEEE 802.11n MCS0 HT40



Date: 6.DEC.2013 06:28:11

IEEE 802.11a

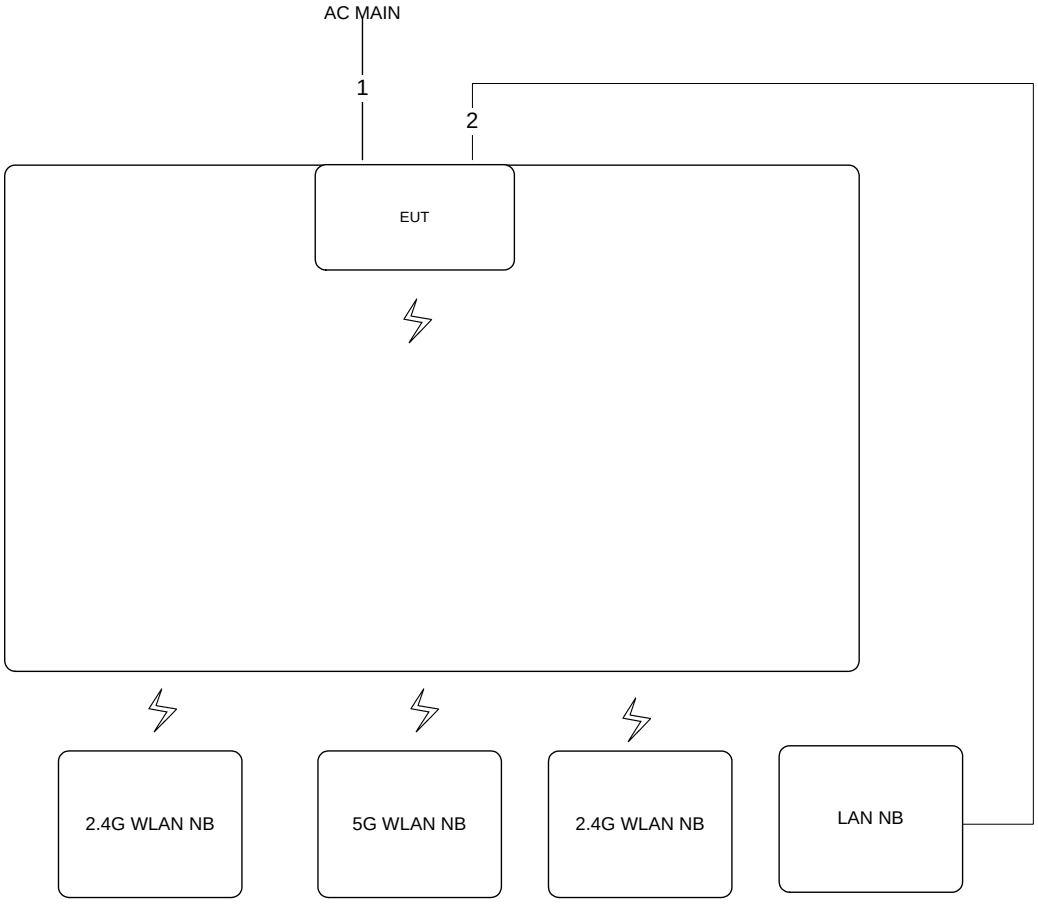


Date: 6.DEC.2013 06:33:04

3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration

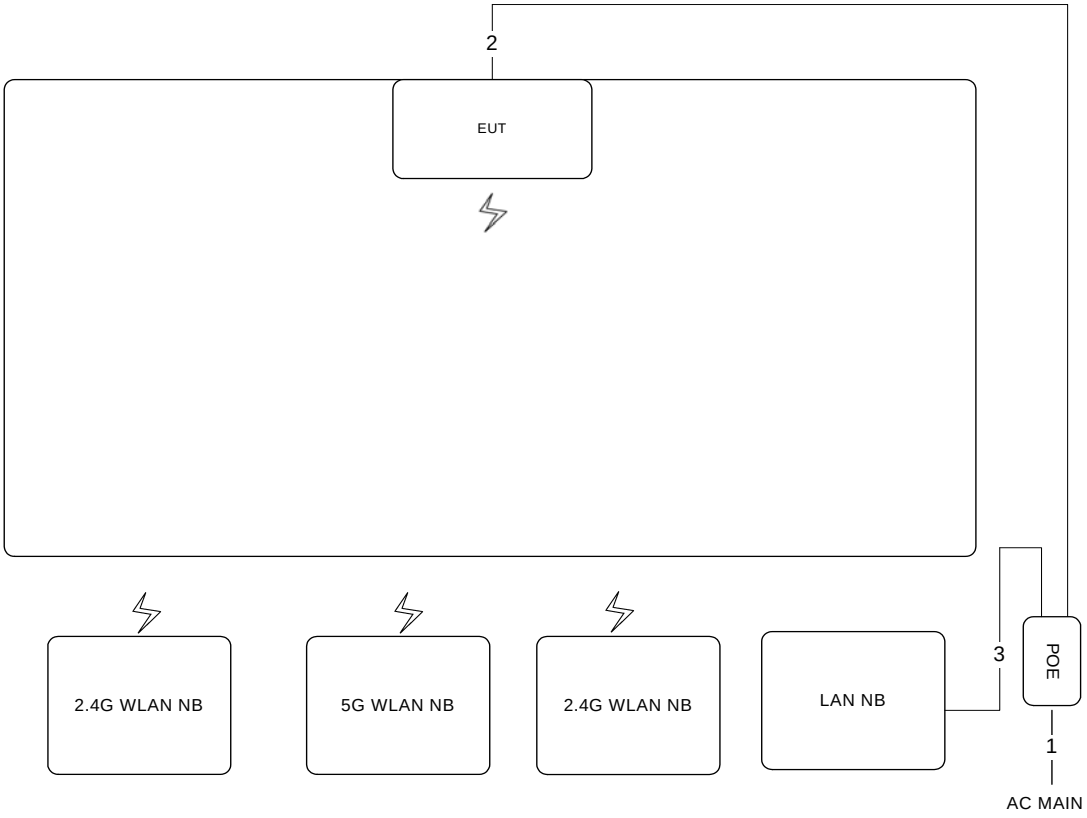
Test Mode: Mode 1



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m

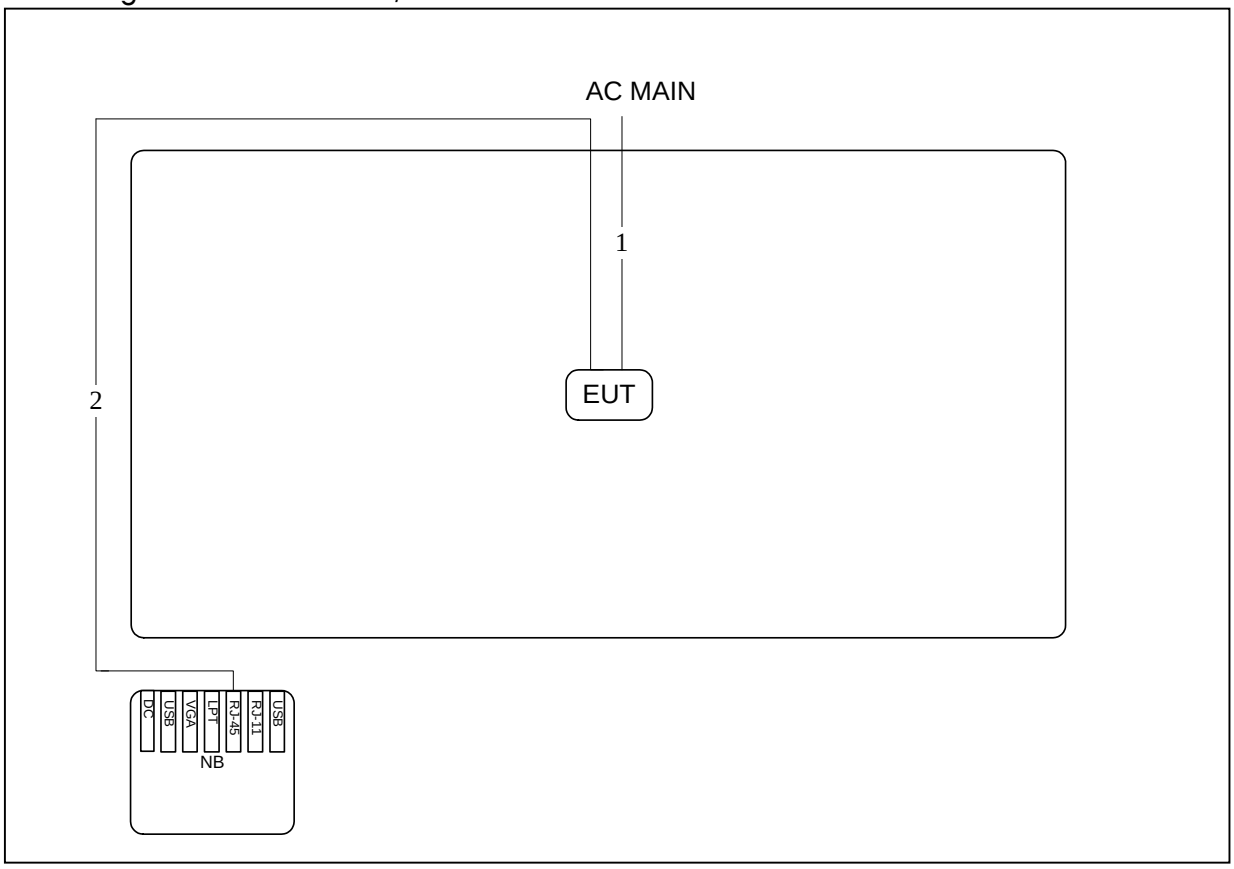
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz / Test Mode: Mode 4



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	1m

Test Configuration: above 1GHz / Mode 2 ~ Mode 3



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	RJ-45 cable	No	10m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect 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.

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

4.1.2. Measuring Instruments and Setting

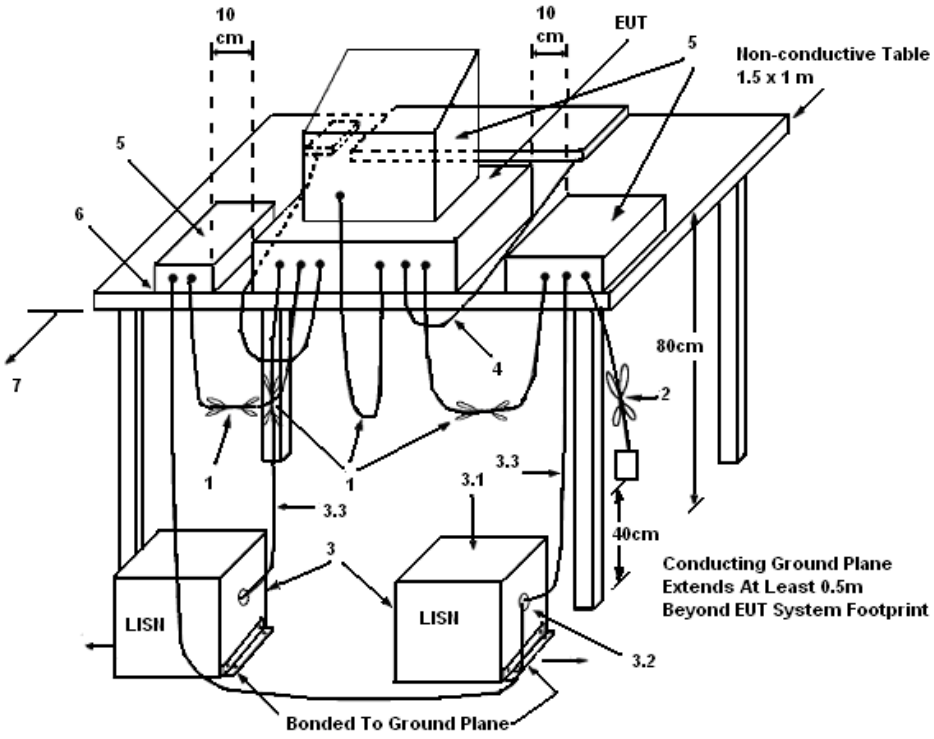
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. 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.

4.1.5. Test Deviation

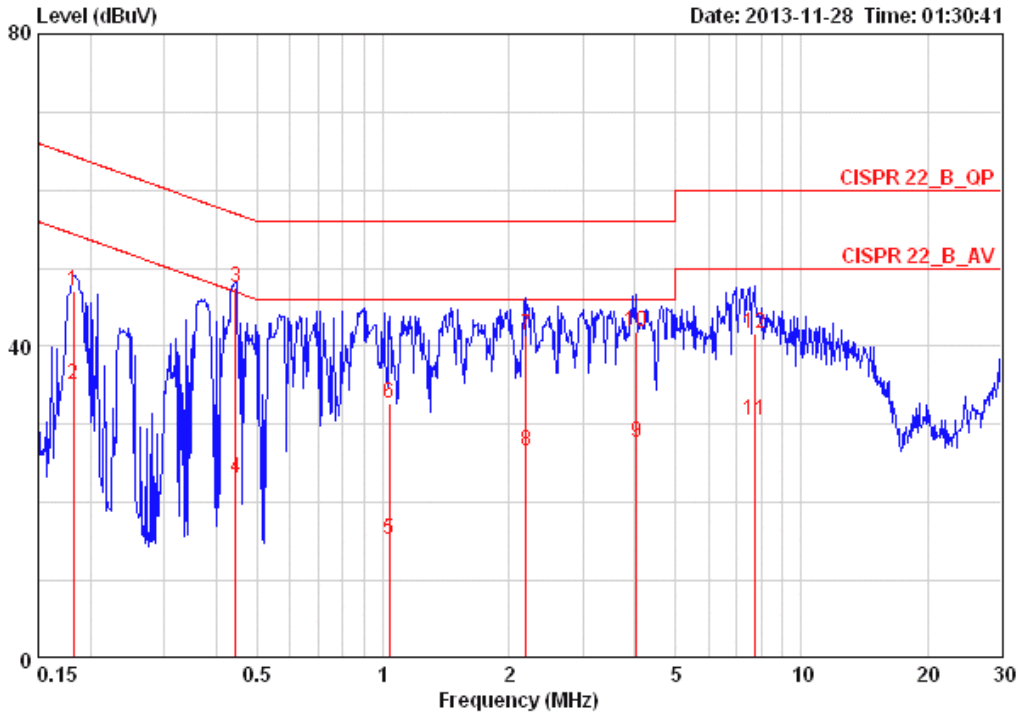
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.

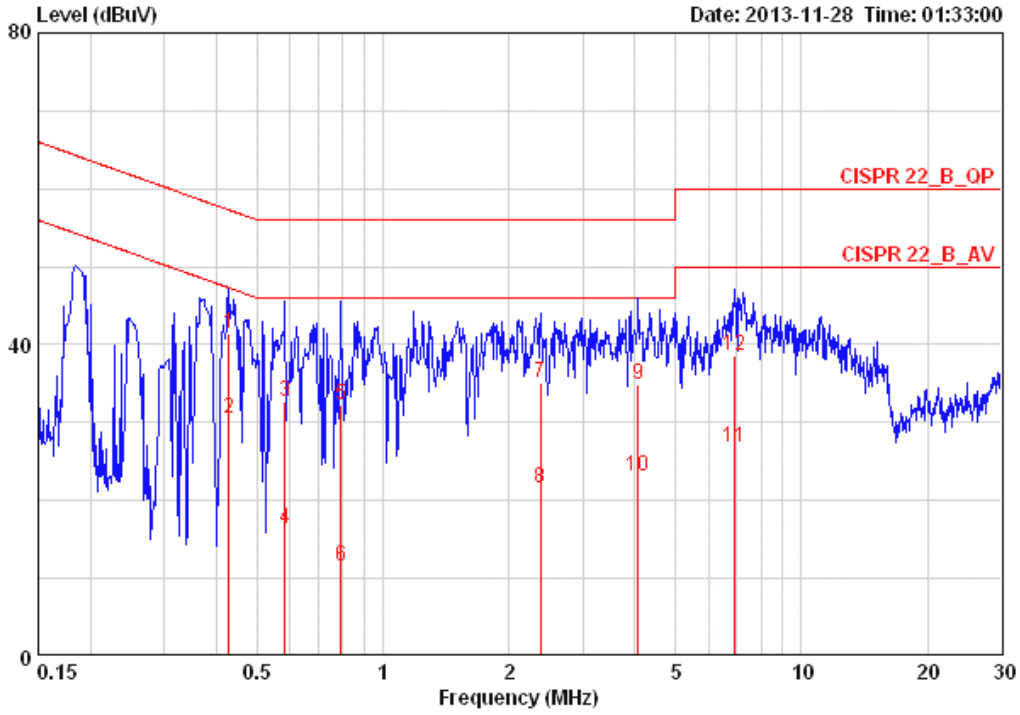
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	54%
Test Engineer	Hank Yang	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.18249	47.02	-17.35	64.37	46.68	0.15	0.19	LINE	QP
2	0.18249	35.04	-19.33	54.37	34.70	0.15	0.19	LINE	AVERAGE
3	0.44443	47.44	-9.54	56.98	47.09	0.15	0.20	LINE	QP
4	0.44443	23.07	-23.91	46.98	22.72	0.15	0.20	LINE	AVERAGE
5	1.037	15.29	-30.71	46.00	14.93	0.16	0.20	LINE	AVERAGE
6	1.037	32.66	-23.34	56.00	32.30	0.16	0.20	LINE	QP
7	2.201	41.46	-14.54	56.00	41.03	0.20	0.23	LINE	QP
8	2.201	26.57	-19.43	46.00	26.14	0.20	0.23	LINE	AVERAGE
9	4.027	27.67	-18.33	46.00	27.09	0.28	0.30	LINE	AVERAGE
10	4.027	41.80	-14.20	56.00	41.22	0.28	0.30	LINE	QP
11	7.728	30.45	-19.55	50.00	29.81	0.34	0.30	LINE	AVERAGE
12	7.728	41.69	-18.31	60.00	41.05	0.34	0.30	LINE	QP

Temperature	25°C	Humidity	54%
Test Engineer	Hank Yang	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.42825	41.45	-15.84	57.29	41.18	0.07	0.20	NEUTRAL	QP
2	0.42825	30.51	-16.78	47.29	30.24	0.07	0.20	NEUTRAL	AVERAGE
3	0.58231	32.75	-23.25	56.00	32.48	0.07	0.20	NEUTRAL	QP
4	0.58231	16.40	-29.60	46.00	16.13	0.07	0.20	NEUTRAL	AVERAGE
5	0.79180	32.22	-23.78	56.00	31.94	0.08	0.20	NEUTRAL	QP
6	0.79180	11.56	-34.44	46.00	11.28	0.08	0.20	NEUTRAL	AVERAGE
7	2.384	35.07	-20.93	56.00	34.72	0.11	0.24	NEUTRAL	QP
8	2.384	21.47	-24.53	46.00	21.12	0.11	0.24	NEUTRAL	AVERAGE
9	4.070	34.98	-21.02	56.00	34.55	0.13	0.30	NEUTRAL	QP
10	4.070	23.01	-22.99	46.00	22.58	0.13	0.30	NEUTRAL	AVERAGE
11	6.914	26.83	-23.17	50.00	26.33	0.20	0.30	NEUTRAL	AVERAGE
12	6.914	38.56	-21.44	60.00	38.06	0.20	0.30	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

26dB Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth	
Spectrum Parameters	**Setting**
Span	1.5 times to 5.0 times the OBW
RBW	1 % to 5 % of the OBW
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold

4.2.3. Test Procedures

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.2.4. Test Setup Layout

For Radiated 26dB Bandwidth and 99% Occupied Bandwidth Measurement:

This test setup layout is the same as that shown in section 4.6.4.

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of 26dB Bandwidth and 99% Occupied Bandwidth

Temperature	24°C	Humidity	60%
Test Engineer	David Tseng	Configurations	IEEE 802.11a/n

Radio 2:

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	27.36	18.40
60	5300 MHz	30.08	18.40
64	5320 MHz	27.04	18.56
100	5500 MHz	26.24	18.08
116	5580 MHz	27.84	17.92
140	5700 MHz	26.24	17.92

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	50.56	36.80
62	5310 MHz	39.04	36.80
102	5510 MHz	39.04	36.80
110	5550 MHz	57.28	36.80
134	5670 MHz	38.72	36.48

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	43.04	28.16
60	5300 MHz	45.28	31.36
64	5320 MHz	36.96	18.40
100	5500 MHz	36.80	18.72
116	5580 MHz	48.96	36.16
140	5700 MHz	26.88	17.44

Temperature	24℃	Humidity	60%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a/n

Radio 3:

Configuration IEEE 802.11n MCS0 HT20 / Chain 7

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	47.04	34.88
60	5300 MHz	37.28	18.56
64	5320 MHz	33.60	18.24
100	5500 MHz	35.20	18.24
116	5580 MHz	45.28	33.12
140	5700 MHz	31.52	18.08

Configuration IEEE 802.11n MCS0 HT40 / Chain 7

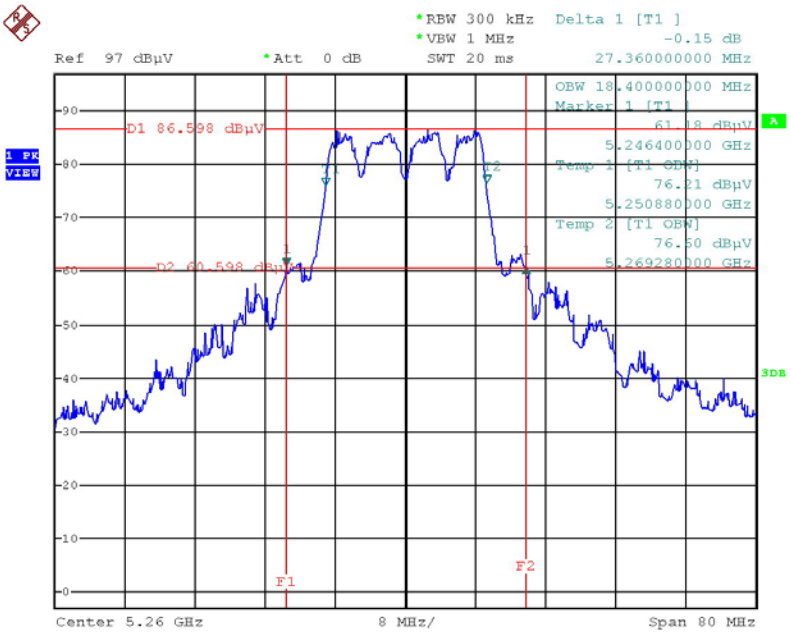
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	88.64	45.12
62	5310 MHz	39.36	36.48
102	5510 MHz	39.36	36.48
110	5550 MHz	88.32	45.44
134	5670 MHz	84.80	43.20

Configuration IEEE 802.11a / Chain 7

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	45.76	33.76
60	5300 MHz	34.24	18.08
64	5320 MHz	33.76	17.60
100	5500 MHz	34.88	17.60
116	5580 MHz	44.80	32.00
140	5700 MHz	33.12	17.76

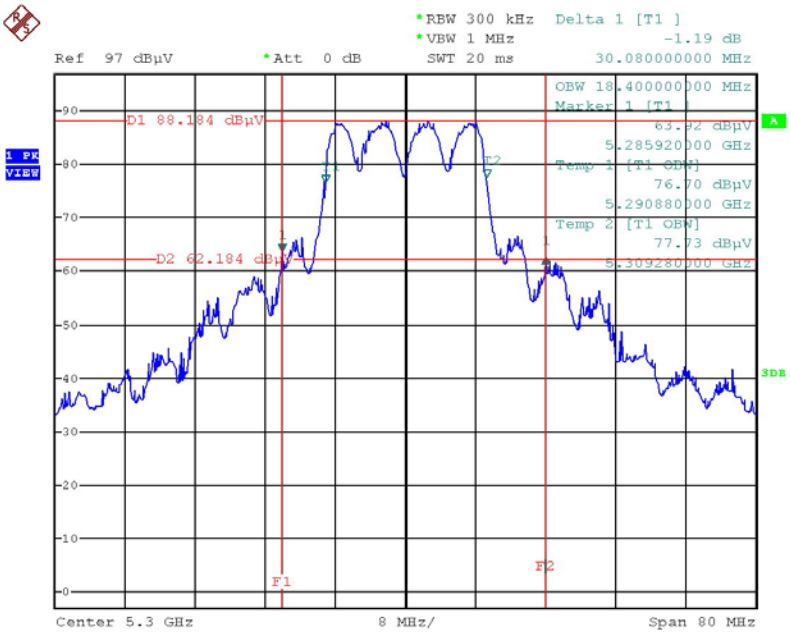
Radio 2:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5260 MHz



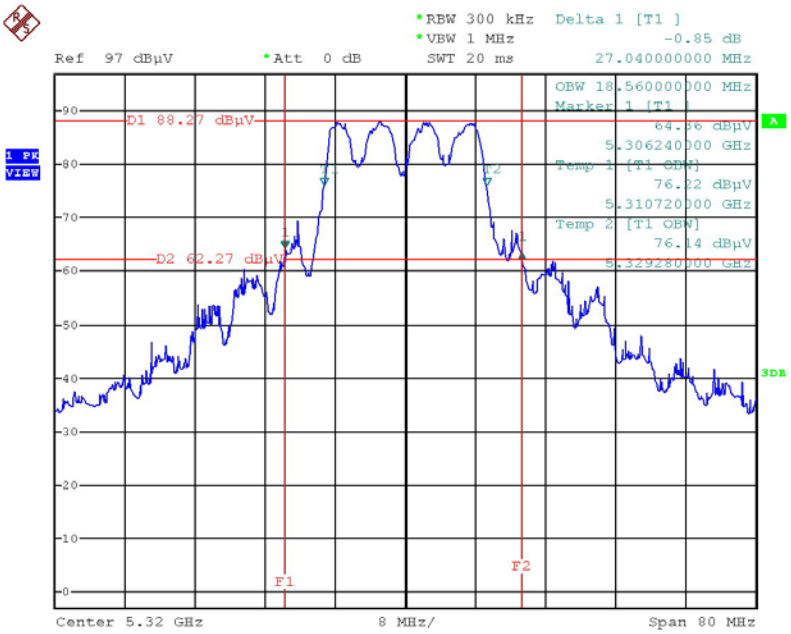
Date: 3.JAN.2014 20:31:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5300 MHz



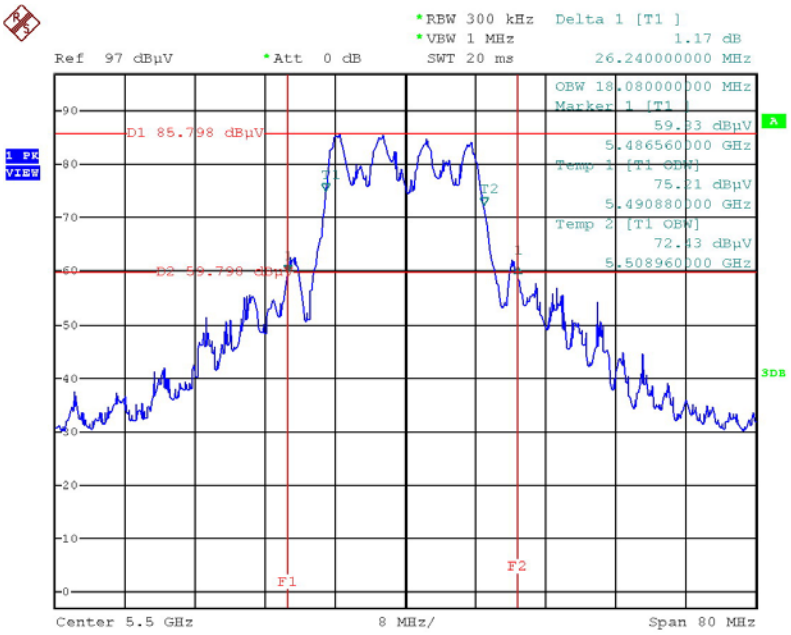
Date: 3.JAN.2014 20:32:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5320 MHz



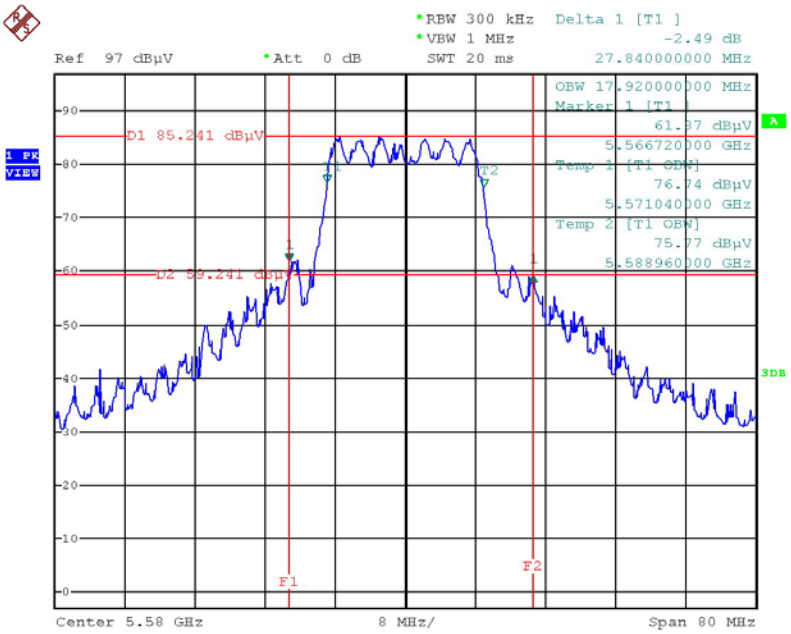
Date: 3.JAN.2014 20:33:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5500 MHz



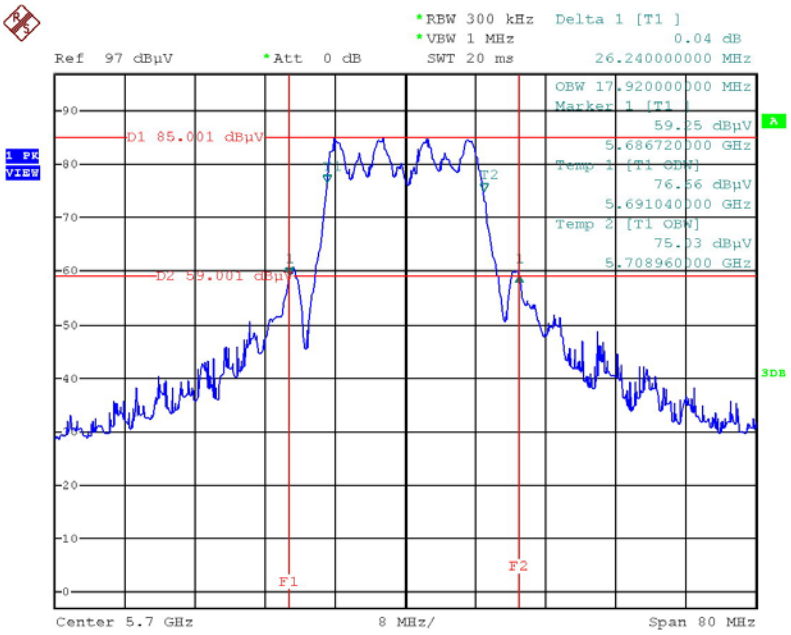
Date: 3.JAN.2014 20:34:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5580 MHz



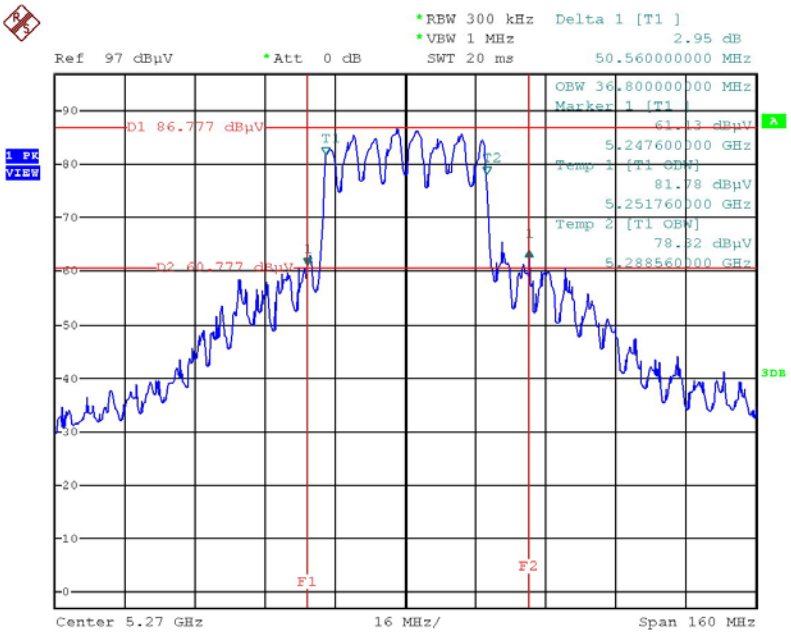
Date: 3.JAN.2014 20:34:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5700 MHz



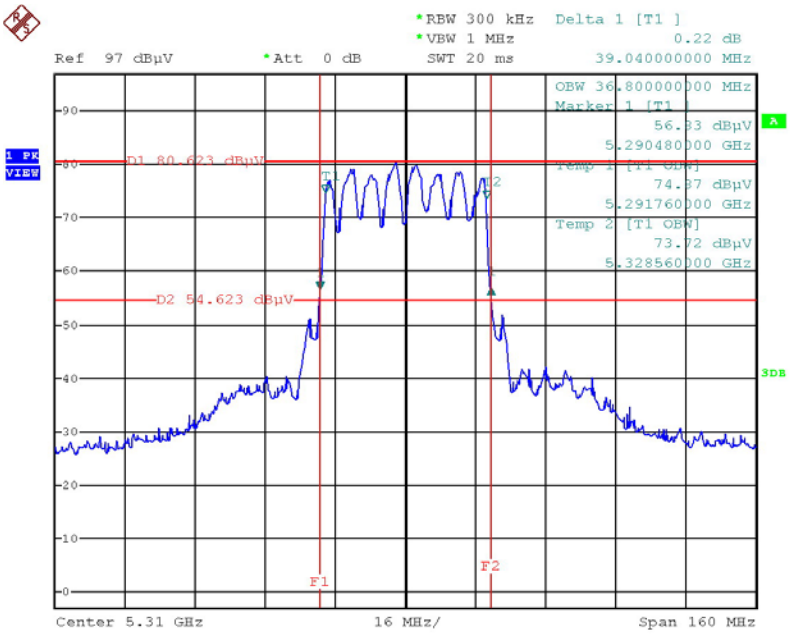
Date: 3.JAN.2014 20:35:29

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5270 MHz



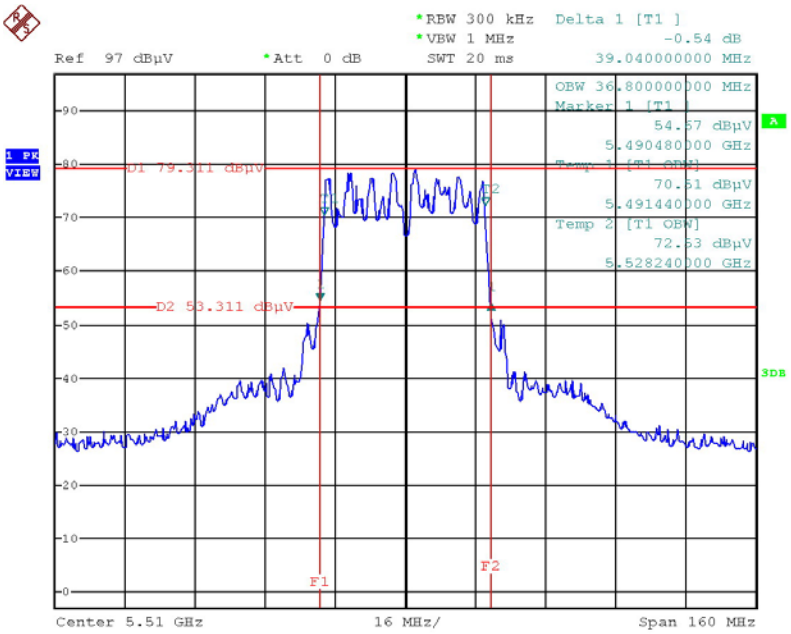
Date: 3.JAN.2014 20:36:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5310 MHz



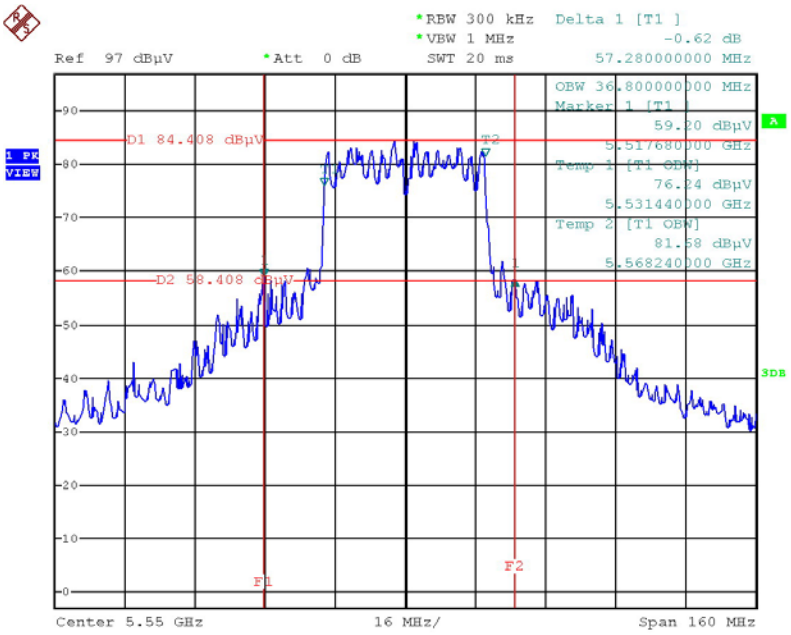
Date: 3.JAN.2014 20:37:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5510 MHz



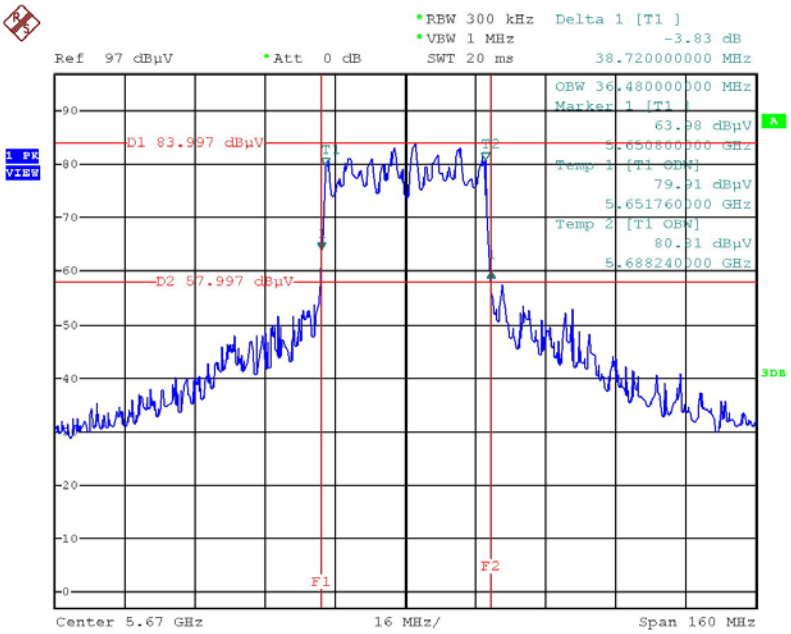
Date: 3.JAN.2014 20:40:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5550 MHz



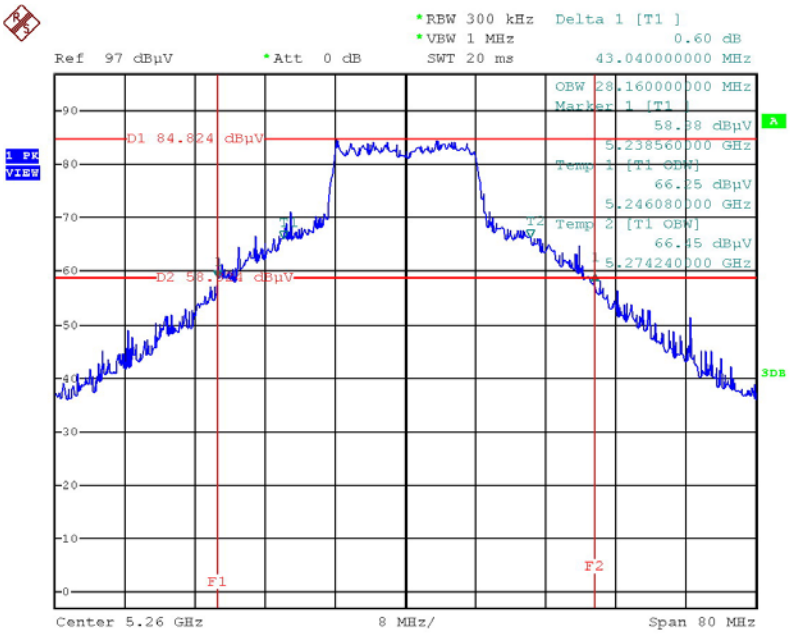
Date: 3.JAN.2014 20:41:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5670 MHz



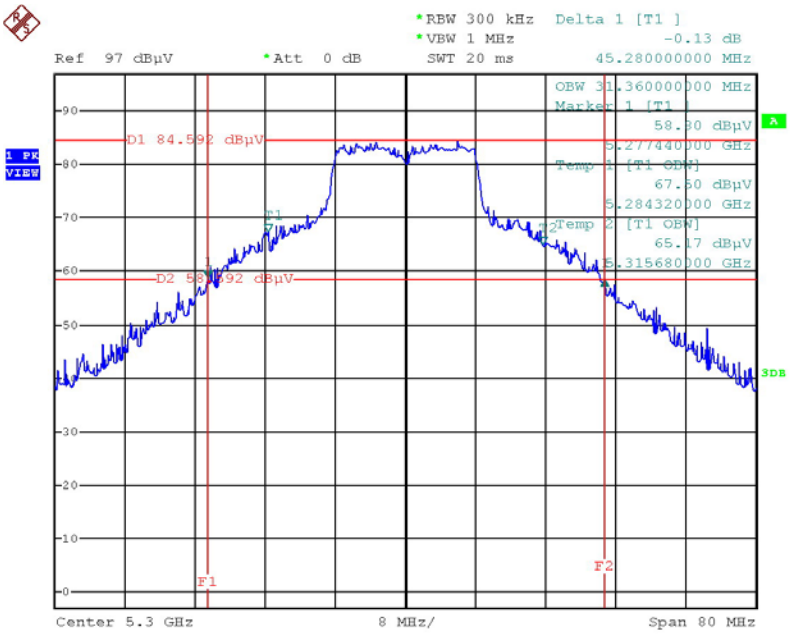
Date: 3.JAN.2014 20:42:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5260 MHz



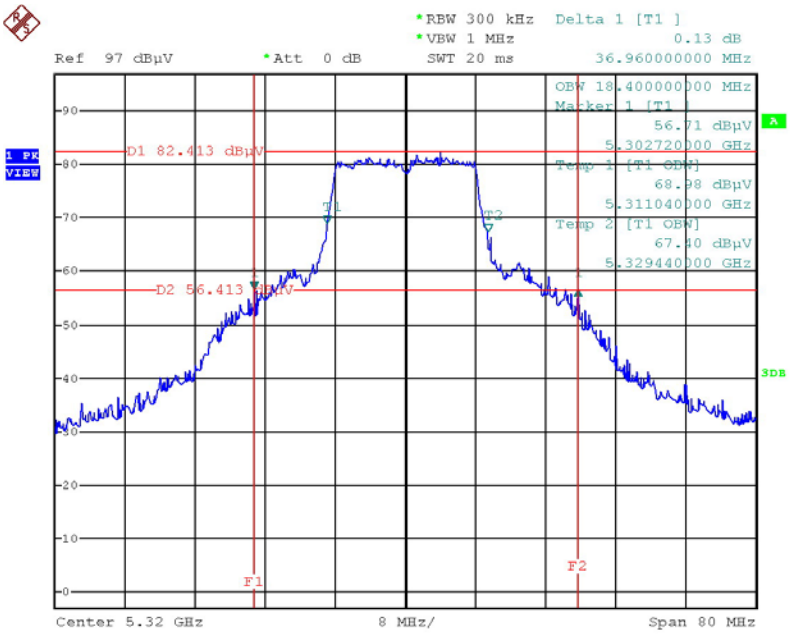
Date: 3.JAN.2014 20:24:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5300 MHz



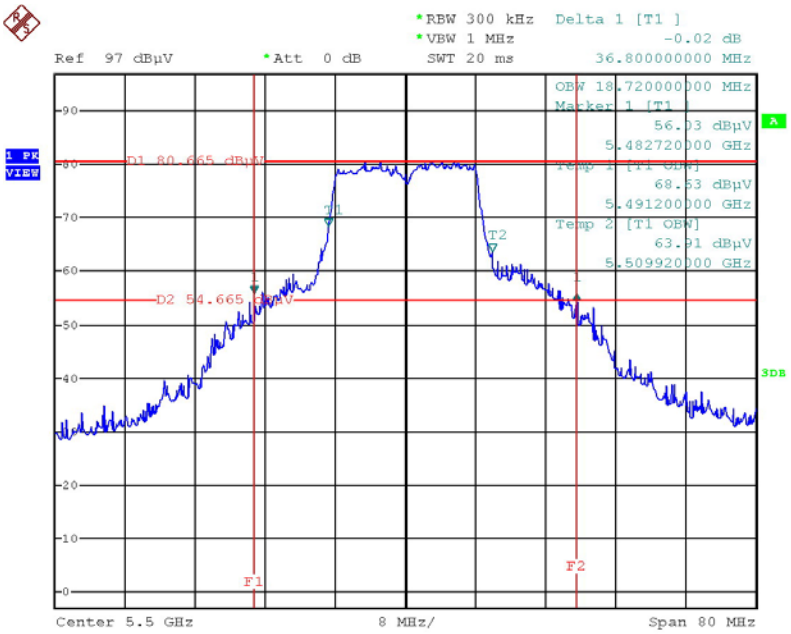
Date: 3.JAN.2014 20:25:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5320 MHz



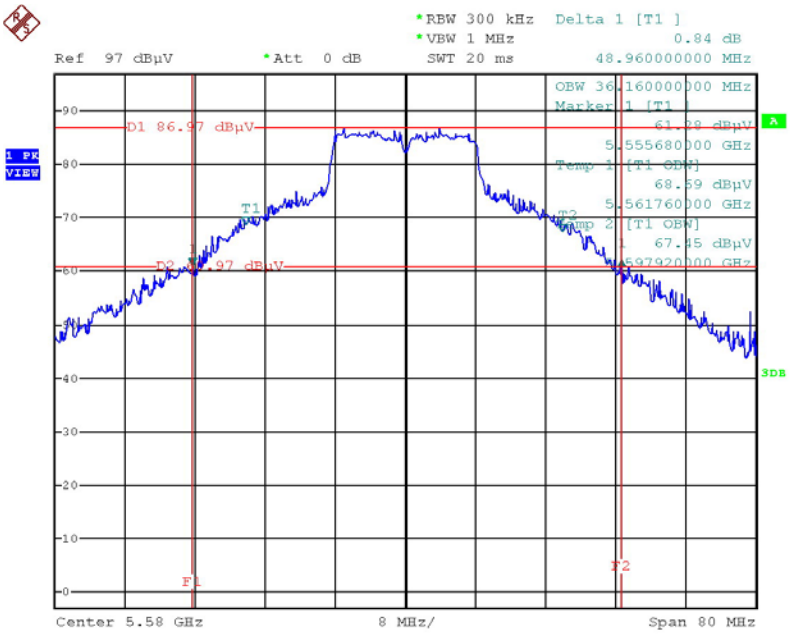
Date: 3.JAN.2014 20:26:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5500 MHz



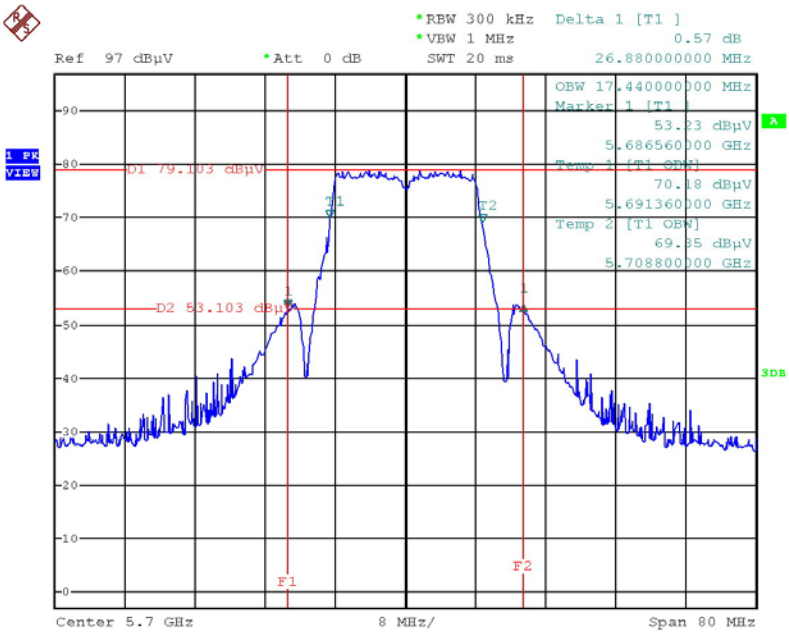
Date: 3.JAN.2014 20:28:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5580 MHz



Date: 3.JAN.2014 20:28:59

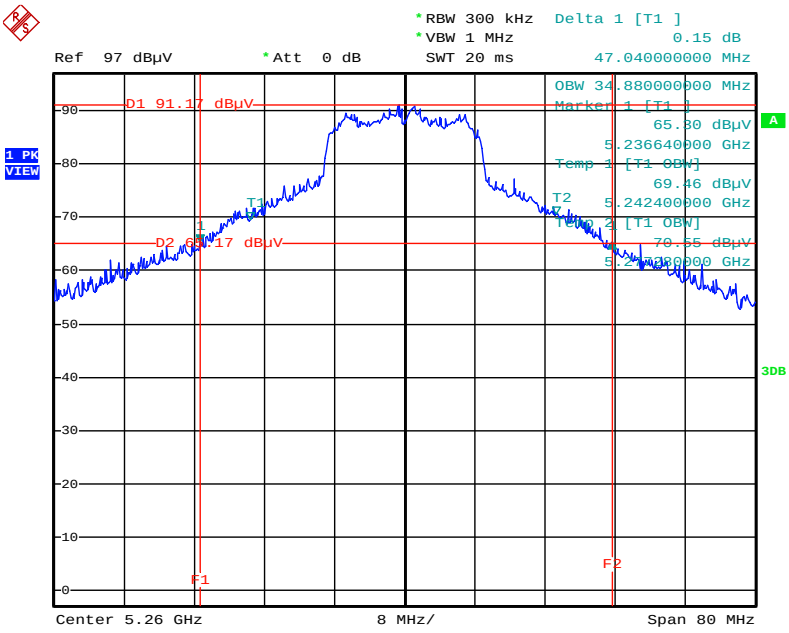
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 1 / 5700 MHz



Date: 3.JAN.2014 20:29:54

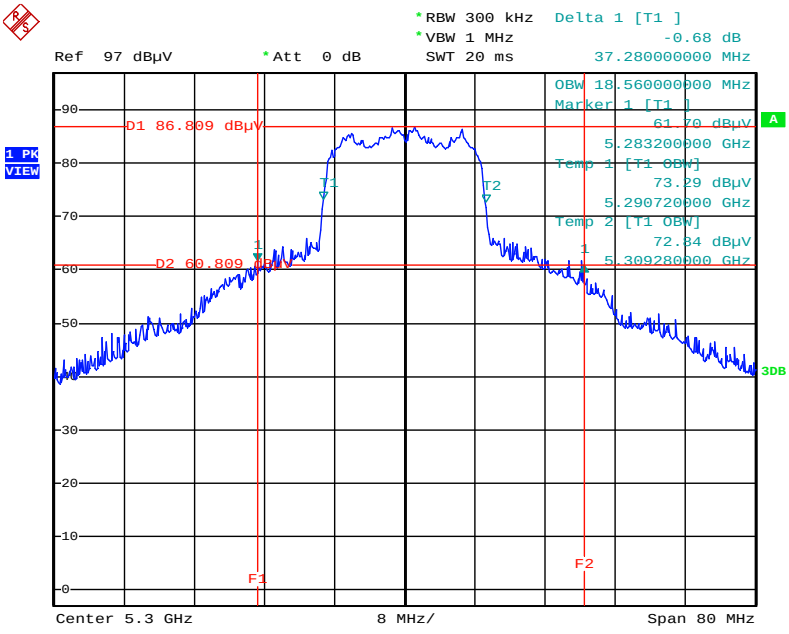
Radio 3:

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5260 MHz



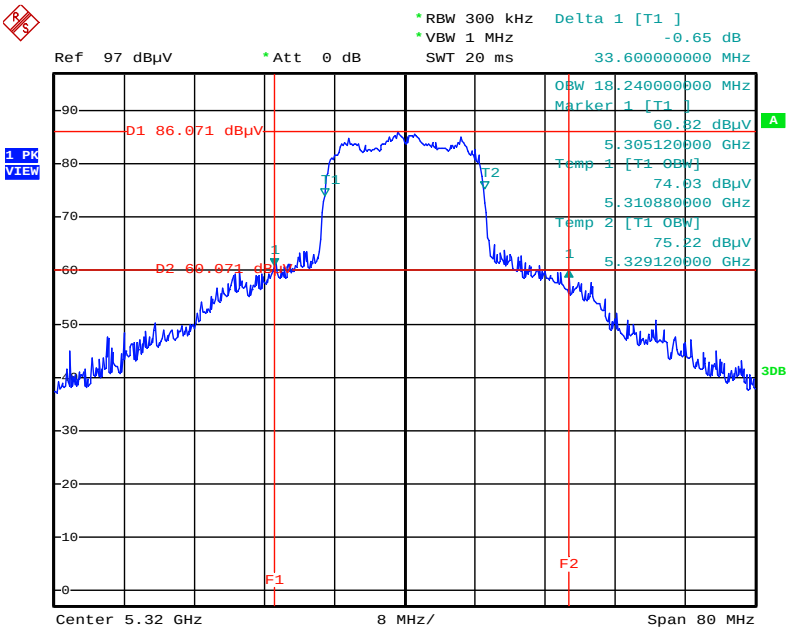
Date: 7.FEB.2014 18:42:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5300 MHz



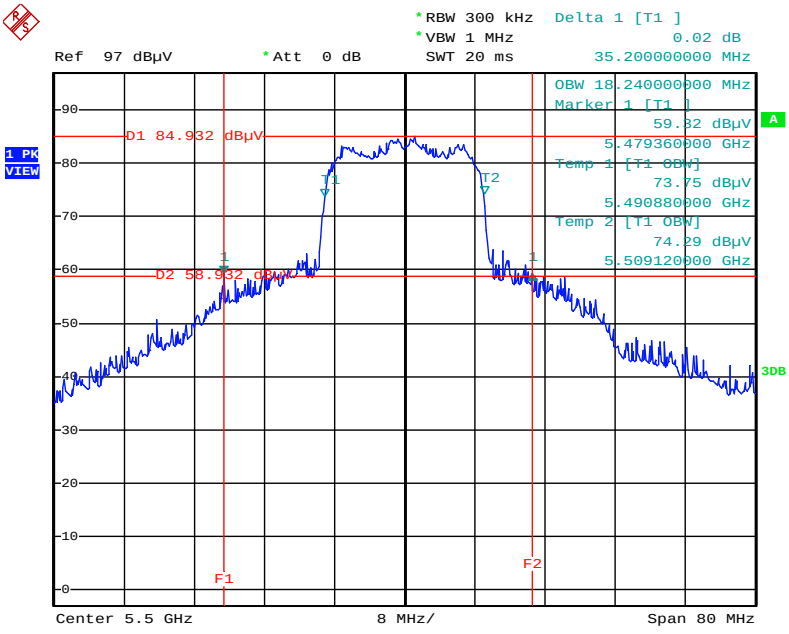
Date: 7.FEB.2014 18:41:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5320 MHz



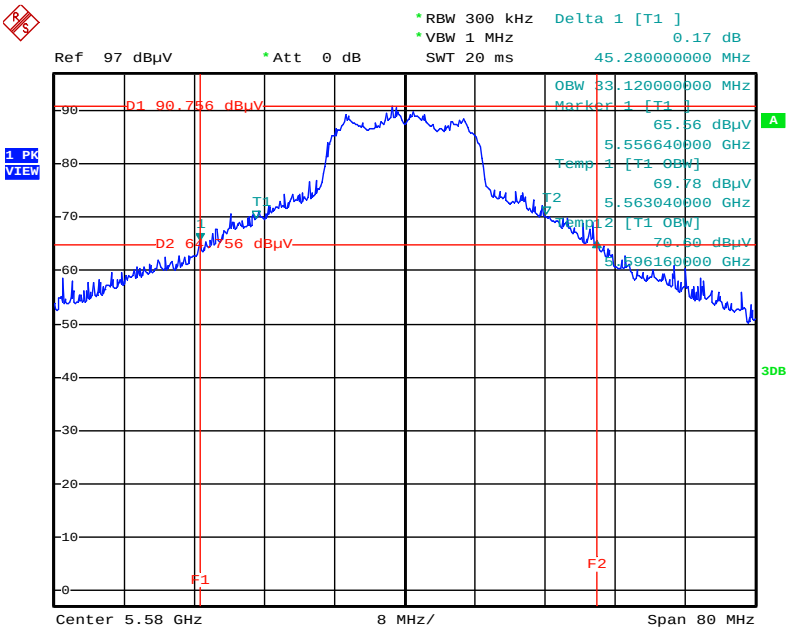
Date: 7.FEB.2014 18:40:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5500 MHz



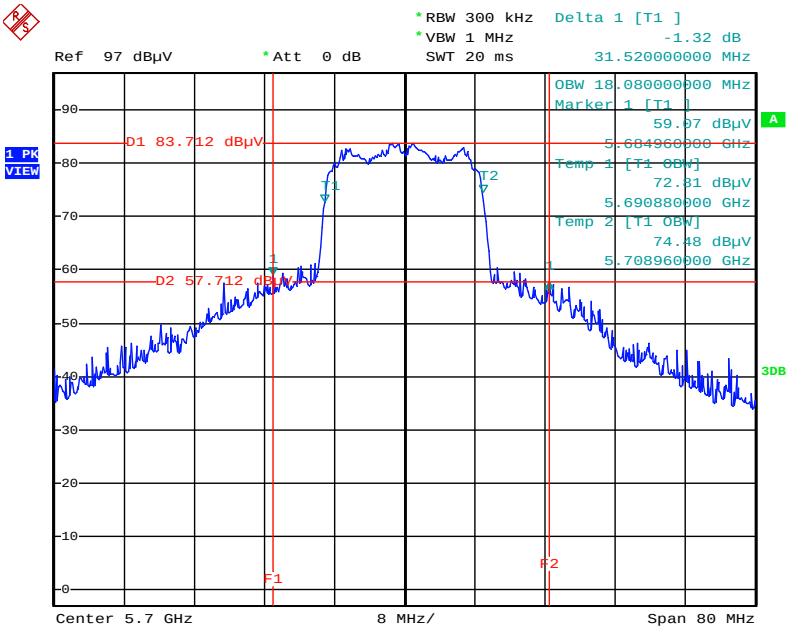
Date: 7.FEB.2014 18:40:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5580 MHz



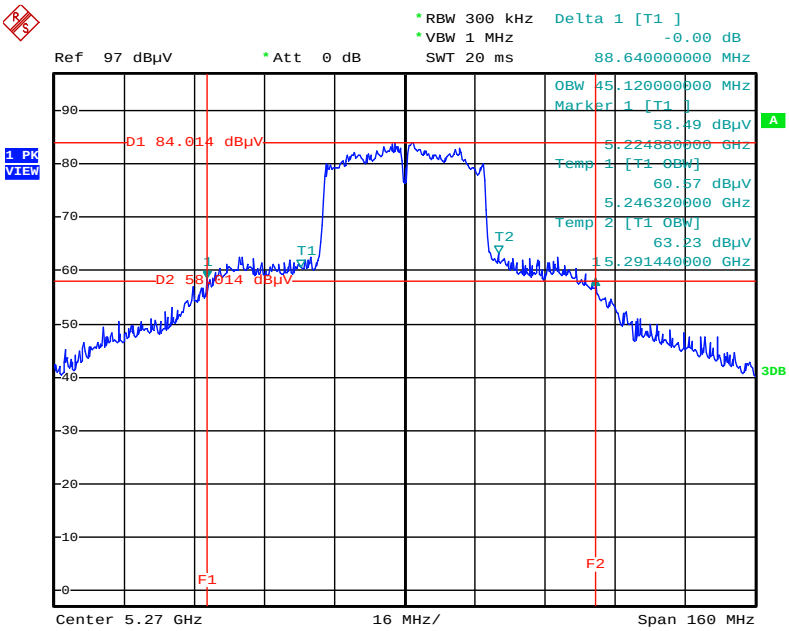
Date: 7.FEB.2014 18:39:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5700 MHz



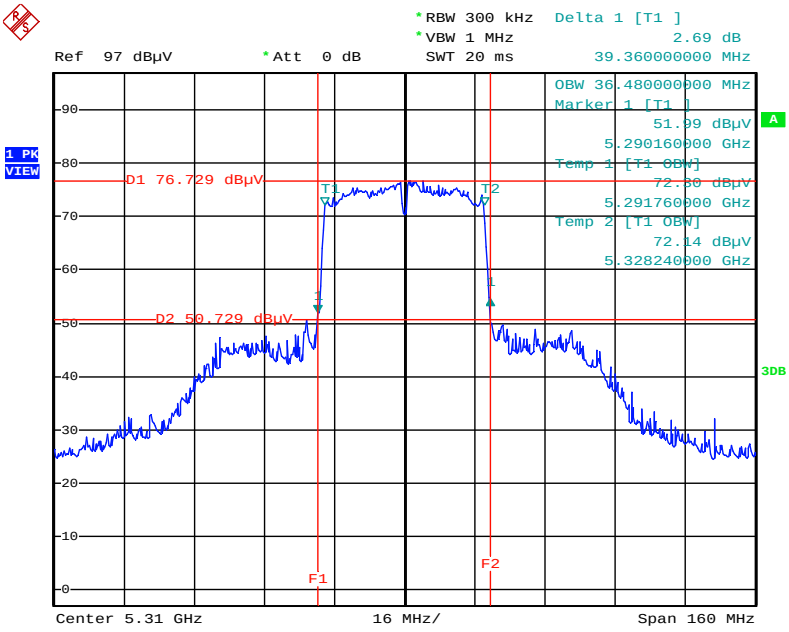
Date: 7.FEB.2014 18:38:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5270 MHz



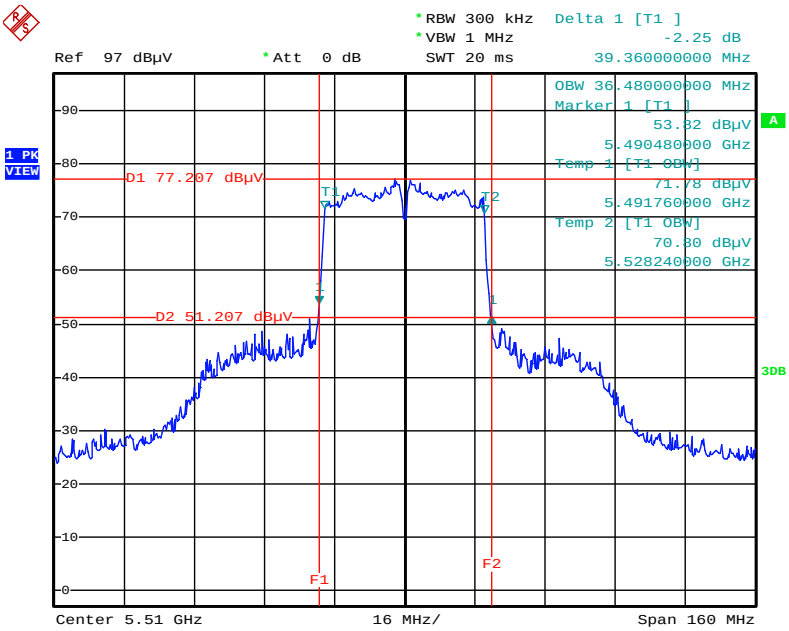
Date: 7.FEB.2014 18:42:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5310 MHz



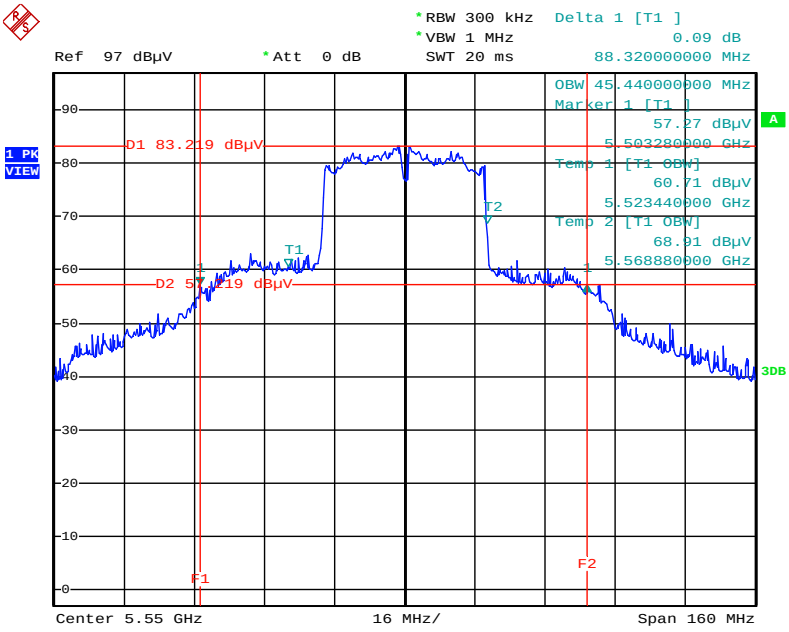
Date: 7.FEB.2014 18:43:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5510 MHz



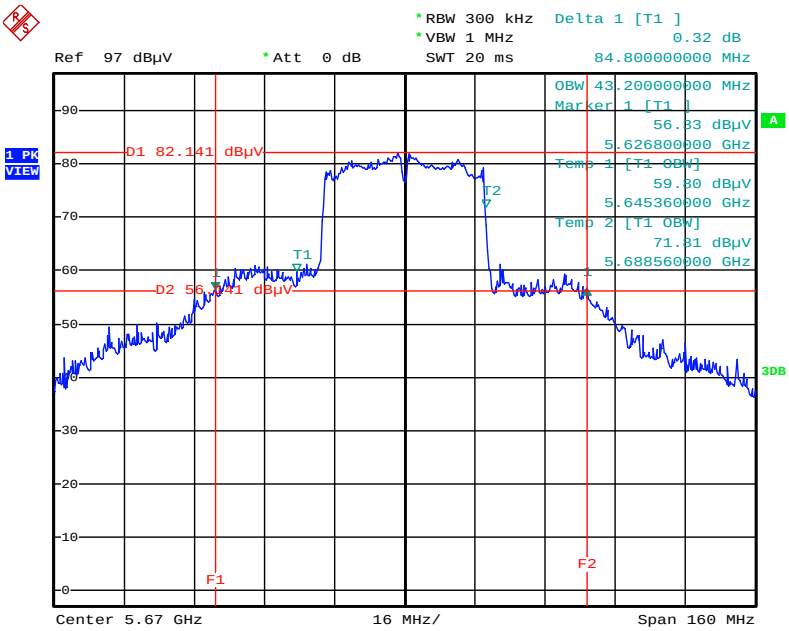
Date: 7.FEB.2014 18:44:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5550 MHz



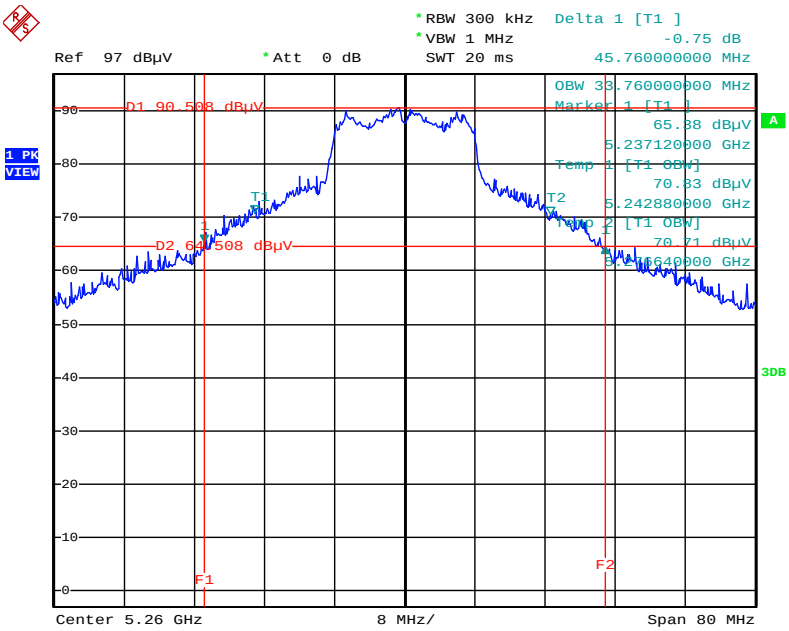
Date: 7.FEB.2014 18:44:43

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5670 MHz



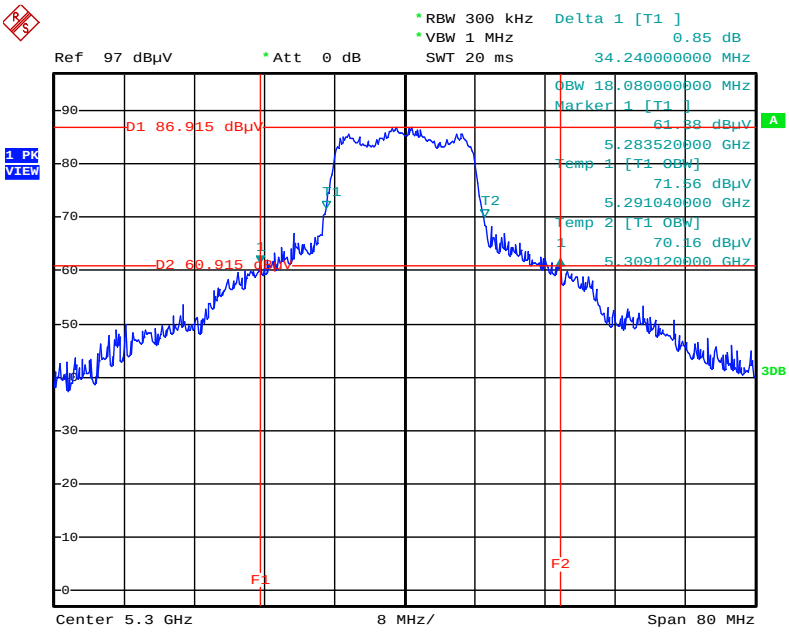
Date: 7.FEB.2014 18:45:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5260 MHz



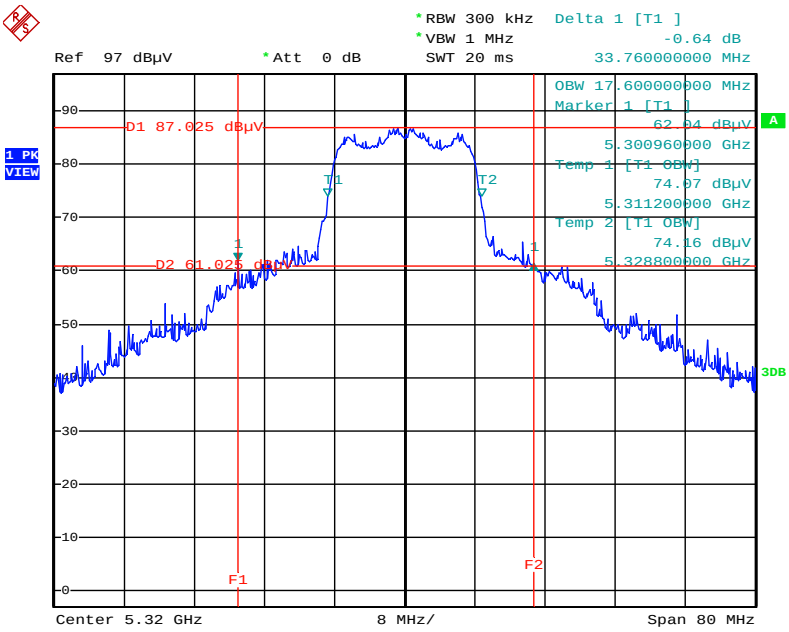
Date: 7.FEB.2014 18:32:52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5300 MHz



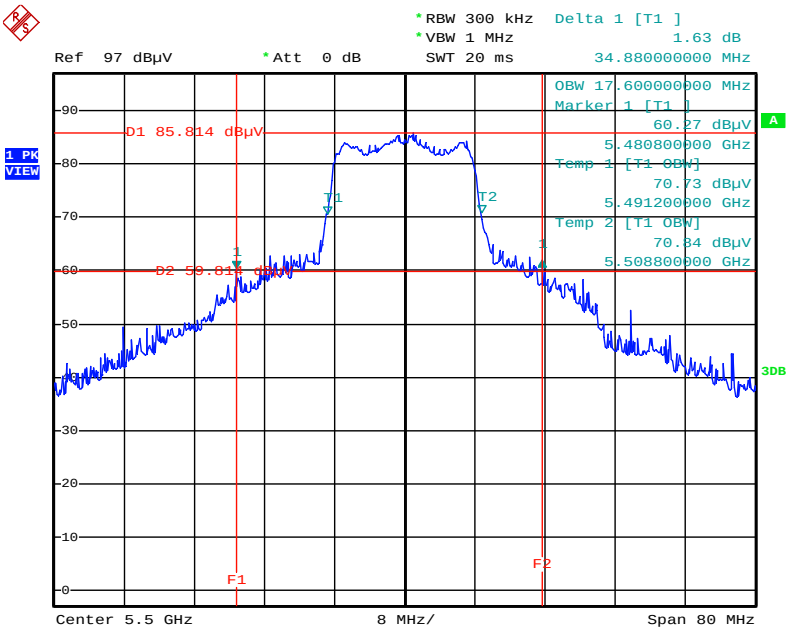
Date: 7.FEB.2014 18:34:21

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5320 MHz



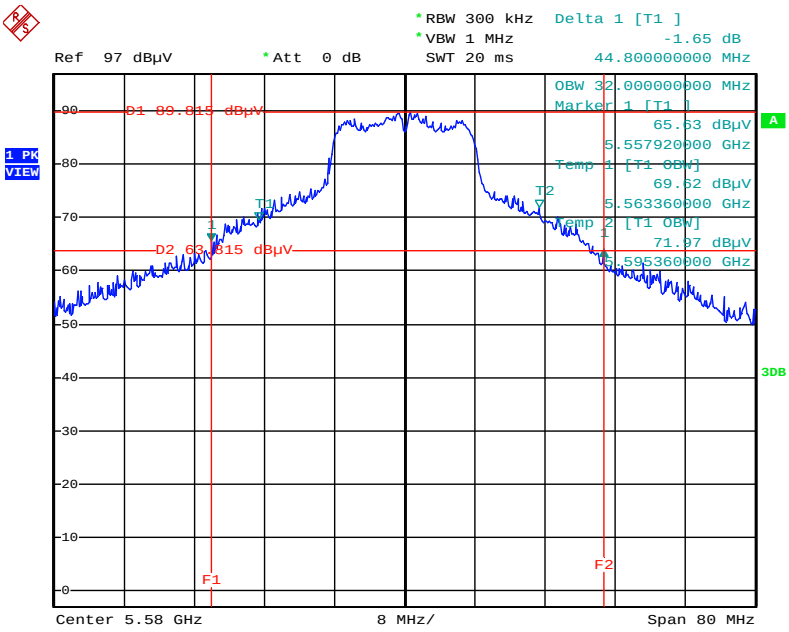
Date: 7.FEB.2014 18:34:57

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5500 MHz



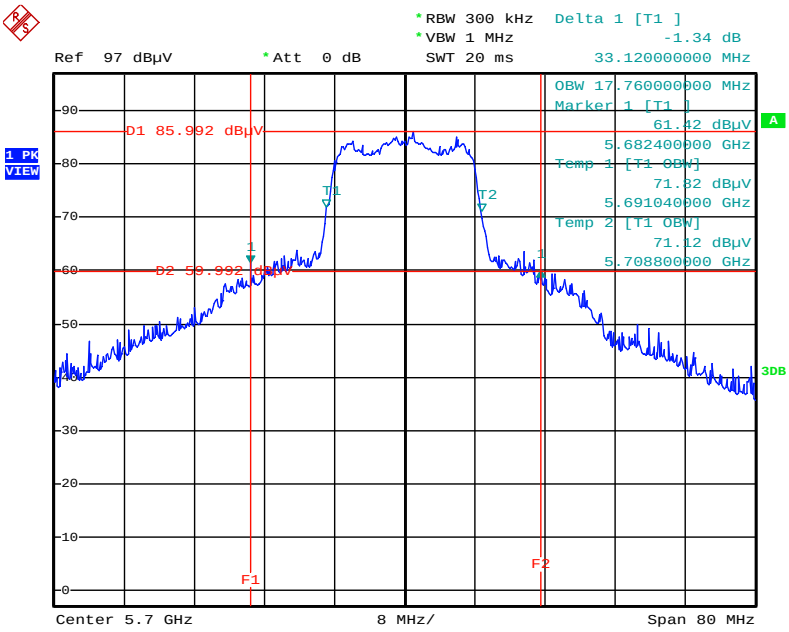
Date: 7.FEB.2014 18:35:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5580 MHz



Date: 7.FEB.2014 18:36:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 7 / 5700 MHz



Date: 7.FEB.2014 18:37:09

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the 5.25-5.35 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3.2. Measuring Instruments and Setting

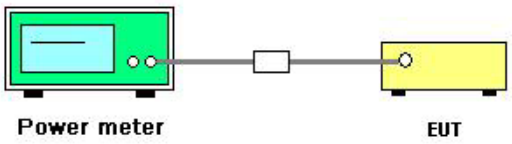
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
Bandwidth	50MHz bandwidth is greater than the EUT emission bandwidth
Detector	AVERAGE

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB 789033 D01 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (E) Maximum conducted output power =>(3) Method PM (Measurement using an RF average power meter) Multiple antenna systems was performed in accordance with KDB 662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
3. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

Temperature	24°C	Humidity	60%
Test Engineer	David Tseng	Configurations	IEEE 802.11a/n
Test Date	Jan. 03, 2014		

Radio 2:

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
52	5260 MHz	16.58	16.32	17.18	21.48	24.00	Complies
60	5300 MHz	17.22	17.43	18.21	22.41	24.00	Complies
64	5320 MHz	17.16	17.45	17.96	22.31	24.00	Complies
100	5500 MHz	17.07	16.96	17.43	21.93	24.00	Complies
116	5580 MHz	17.38	17.25	17.65	22.20	24.00	Complies
140	5700 MHz	16.68	16.46	16.67	21.38	24.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Conducted Power (dBm)				Max. Limit (dBm)	Result
		Chain 1	Chain 2	Chain 3	Total		
54	5270 MHz	18.47	18.65	19.65	23.73	24.00	Complies
62	5310 MHz	10.92	11.47	11.59	16.11	24.00	Complies
102	5510 MHz	12.98	13.48	13.38	18.06	24.00	Complies
110	5550 MHz	18.98	19.15	19.42	23.96	24.00	Complies
134	5670 MHz	17.41	17.99	18.06	22.60	24.00	Complies

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
52	5260 MHz	23.41	24.00	Complies
60	5300 MHz	21.98	24.00	Complies
64	5320 MHz	18.81	24.00	Complies
100	5500 MHz	18.87	24.00	Complies
116	5580 MHz	23.85	24.00	Complies
140	5700 MHz	15.89	24.00	Complies

Temperature	24°C	Humidity	60%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a/n
Test Date	Feb. 07, 2014		

Radio 3:

Configuration IEEE 802.11n MCS0 HT20 / Chain 7

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
52	5260 MHz	22.88	24.00	Complies
60	5300 MHz	19.23	24.00	Complies
64	5320 MHz	18.63	24.00	Complies
100	5500 MHz	17.89	24.00	Complies
116	5580 MHz	22.01	24.00	Complies
140	5700 MHz	17.15	24.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 7

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
54	5270 MHz	19.07	24.00	Complies
62	5310 MHz	12.79	24.00	Complies
102	5510 MHz	12.58	24.00	Complies
110	5550 MHz	18.43	24.00	Complies
134	5670 MHz	18.23	24.00	Complies

Configuration IEEE 802.11a / Chain 7

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
52	5260 MHz	22.89	24.00	Complies
60	5300 MHz	19.25	24.00	Complies
64	5320 MHz	19.19	24.00	Complies
100	5500 MHz	18.22	24.00	Complies
116	5580 MHz	21.95	24.00	Complies
140	5700 MHz	18.56	24.00	Complies

4.4. Power Spectral Density Measurement

4.4.1. Limit

The power spectral density is defined as the highest level of power in dBm per MHz generated by the transmitter within the power envelope. The following table is power spectral density limits and decrease power density limit rule refer to section 4.3.1.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.25-5.35 GHz	11
5.470-5.725 GHz	11

4.4.2. Measuring Instruments and Setting

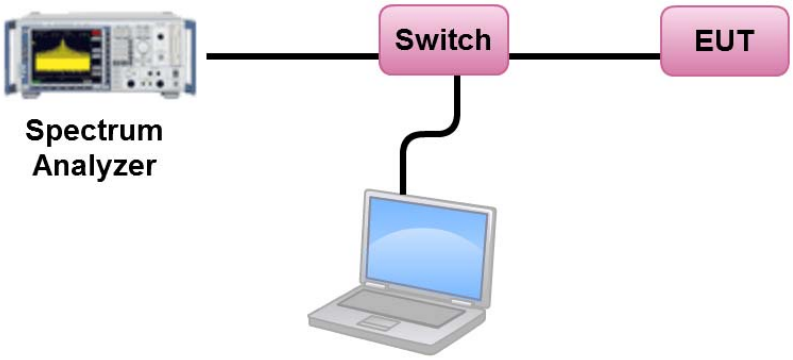
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB 789033 D01 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E,section (C) Maximum conducted output power => (d) Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).
3. Multiple antenna systems was performed in accordance KDB 662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

Temperature	24°C	Humidity	60%
Test Engineer	David Tseng	Configurations	IEEE 802.11a/n
Test Date	Jan. 03, 2014		

Radio 2:

Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	8.41	8.45	Complies
60	5300 MHz	8.22	8.45	Complies
64	5320 MHz	8.28	8.45	Complies
100	5500 MHz	8.57	8.72	Complies
116	5580 MHz	8.70	8.72	Complies
140	5700 MHz	7.81	8.72	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =8.55dBi >6dBi,So Band2 Limit =11-(8.55-6)=8.45dBm/MHz

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =8.28dBi >6dBi,So Band3 Limit =11-(8.28-6)=8.72dBm/MHz

Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	7.56	8.45	Complies
62	5310 MHz	-0.31	8.45	Complies
102	5510 MHz	1.97	8.72	Complies
110	5550 MHz	7.91	8.72	Complies
134	5670 MHz	6.21	8.72	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =8.55dBi >6dBi,So Band2 Limit =11-(8.55-6)=8.45dBm/MHz

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =8.28dBi >6dBi,So Band3 Limit =11-(8.28-6)=8.72dBm/MHz

Configuration IEEE 802.11a / Chain 1

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	8.87	11.00	Complies
60	5300 MHz	7.25	11.00	Complies
64	5320 MHz	3.73	11.00	Complies
100	5500 MHz	3.93	11.00	Complies
116	5580 MHz	8.81	11.00	Complies
140	5700 MHz	0.62	11.00	Complies

Temperature	24°C	Humidity	60%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a/n
Test Date	Feb. 07, 2014		

Radio 3:

Configuration IEEE 802.11n MCS0 HT20 / Chain 7

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.72	11.00	Complies
60	5300 MHz	6.99	11.00	Complies
64	5320 MHz	6.50	11.00	Complies
100	5500 MHz	6.68	11.00	Complies
116	5580 MHz	10.10	11.00	Complies
140	5700 MHz	4.99	11.00	Complies

Configuration IEEE 802.11n MCS0 HT40 / Chain 7

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	3.81	11.00	Complies
62	5310 MHz	-2.22	11.00	Complies
102	5510 MHz	-1.28	11.00	Complies
110	5550 MHz	4.11	11.00	Complies
134	5670 MHz	2.88	11.00	Complies

Configuration IEEE 802.11a / Chain 7

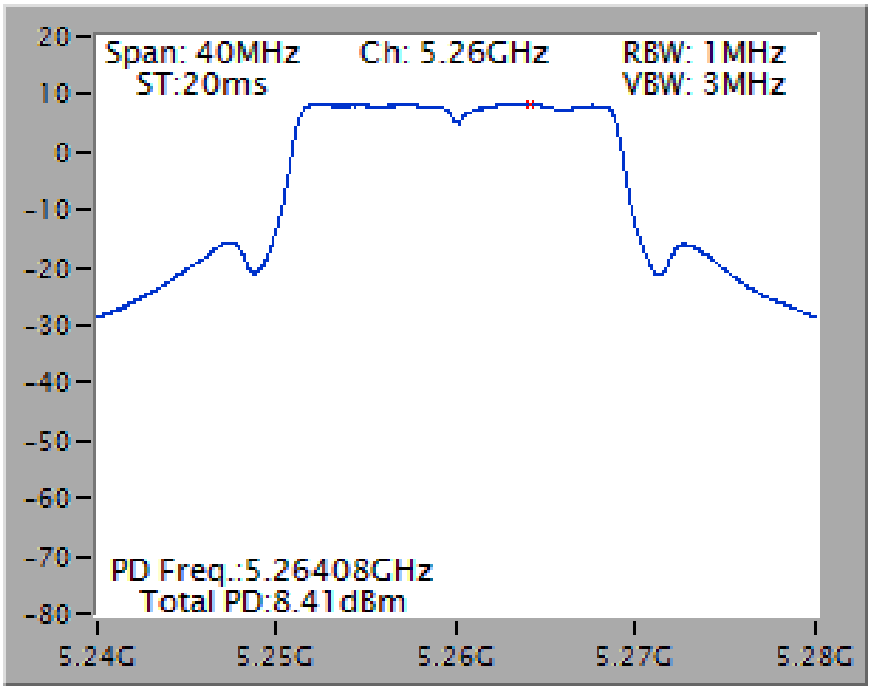
Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	10.83	11.00	Complies
60	5300 MHz	7.19	11.00	Complies
64	5320 MHz	7.27	11.00	Complies
100	5500 MHz	7.37	11.00	Complies
116	5580 MHz	10.23	11.00	Complies
140	5700 MHz	6.39	11.00	Complies

Note: All the test values were listed in the report.

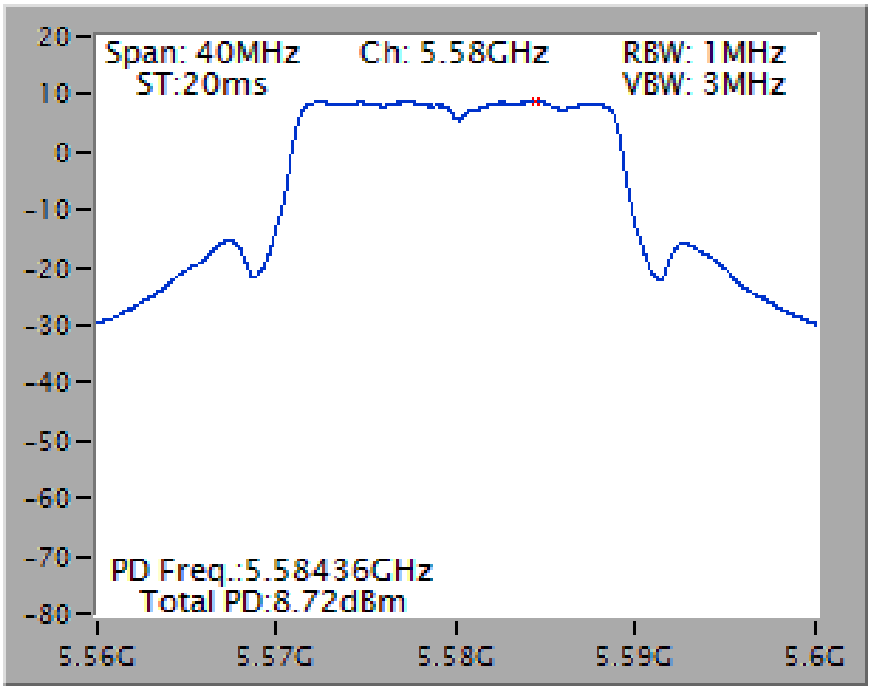
For plots, only the channel with worse result was shown.

Radio 2:

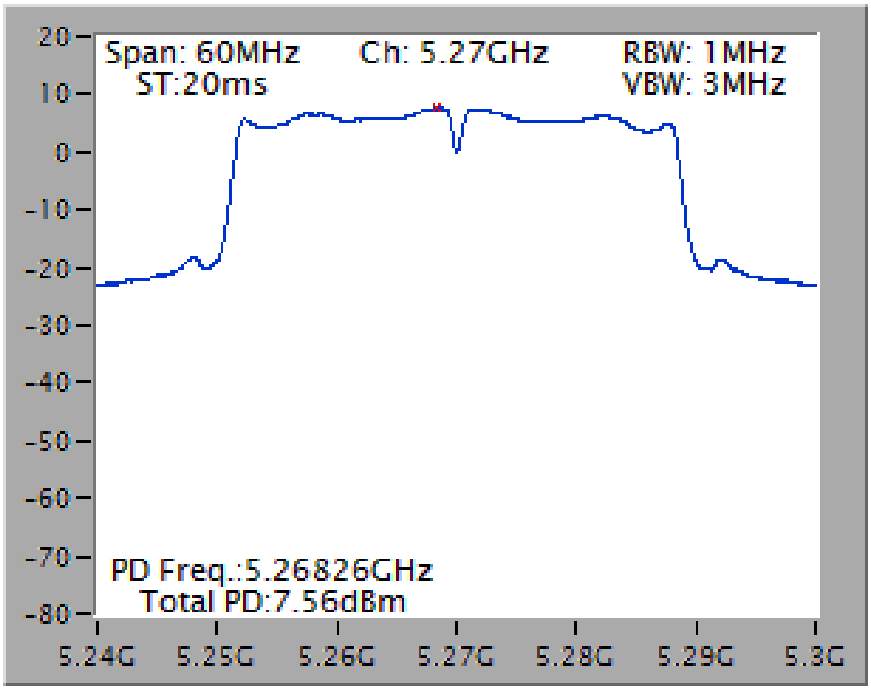
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5260 MHz



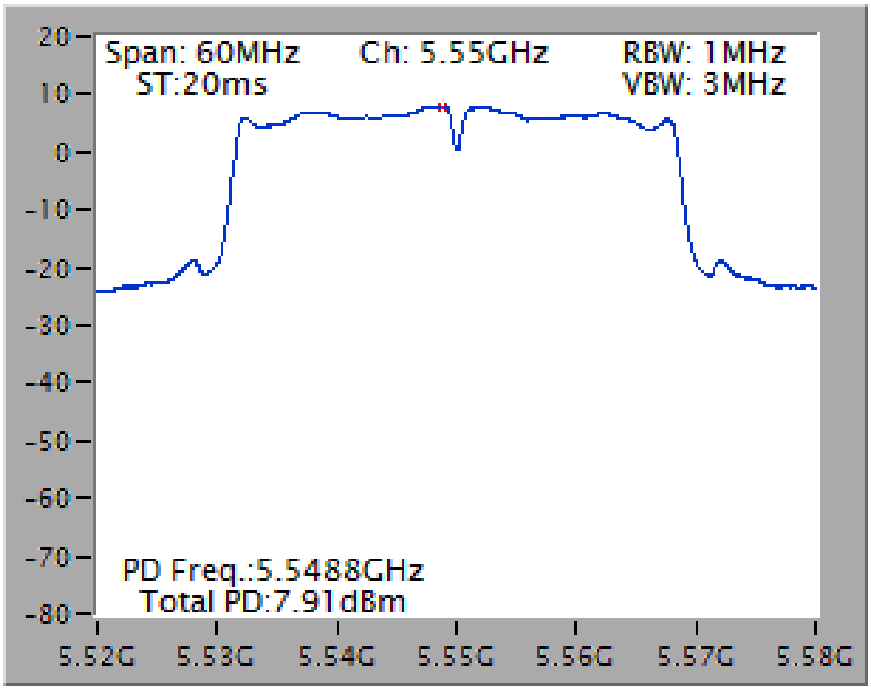
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 1 + Chain 2 + Chain 3 / 5580 MHz



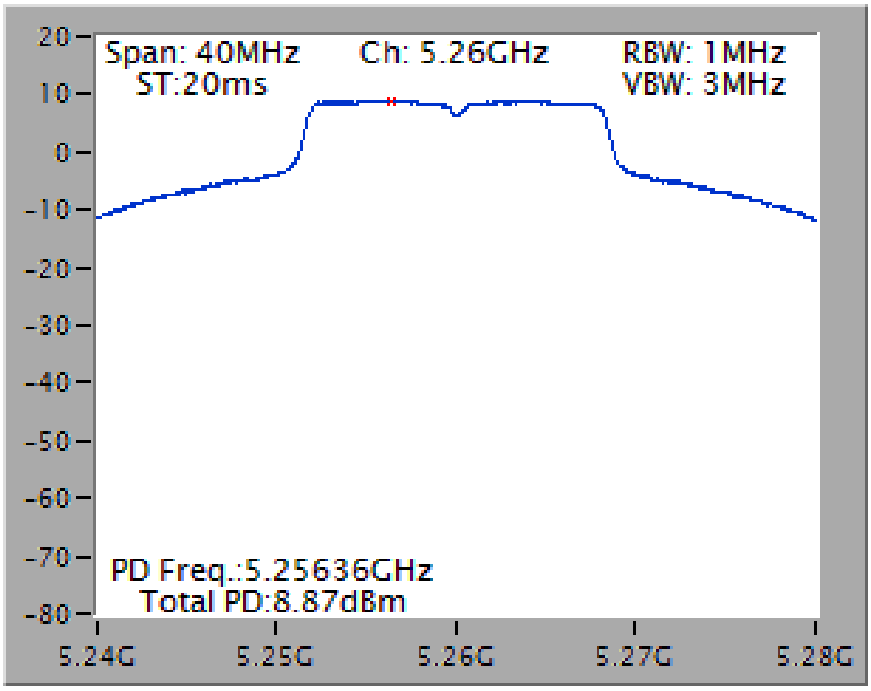
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5270 MHz



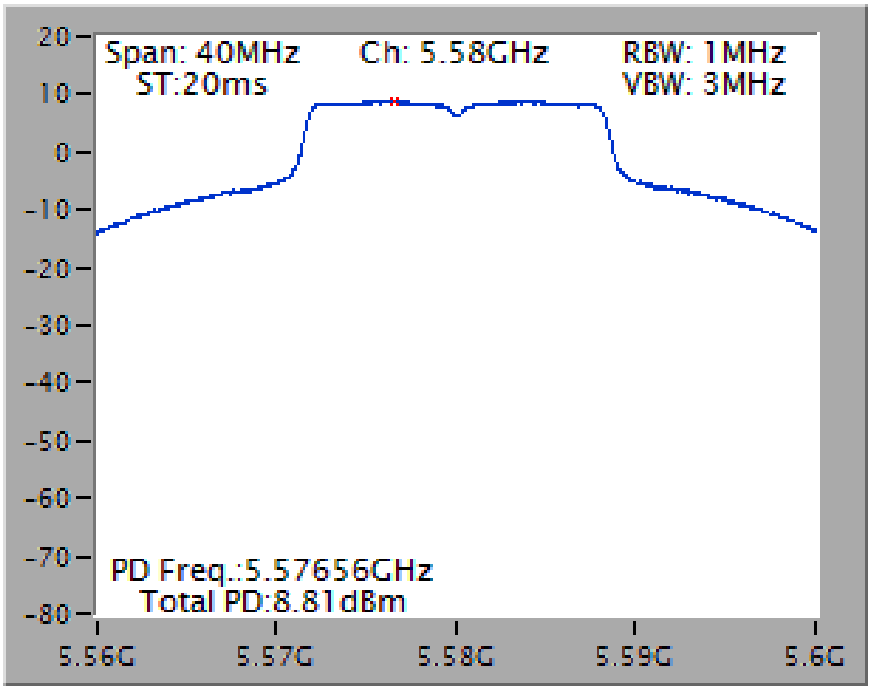
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 1 + Chain 2 + Chain 3 / 5550 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5260 MHz

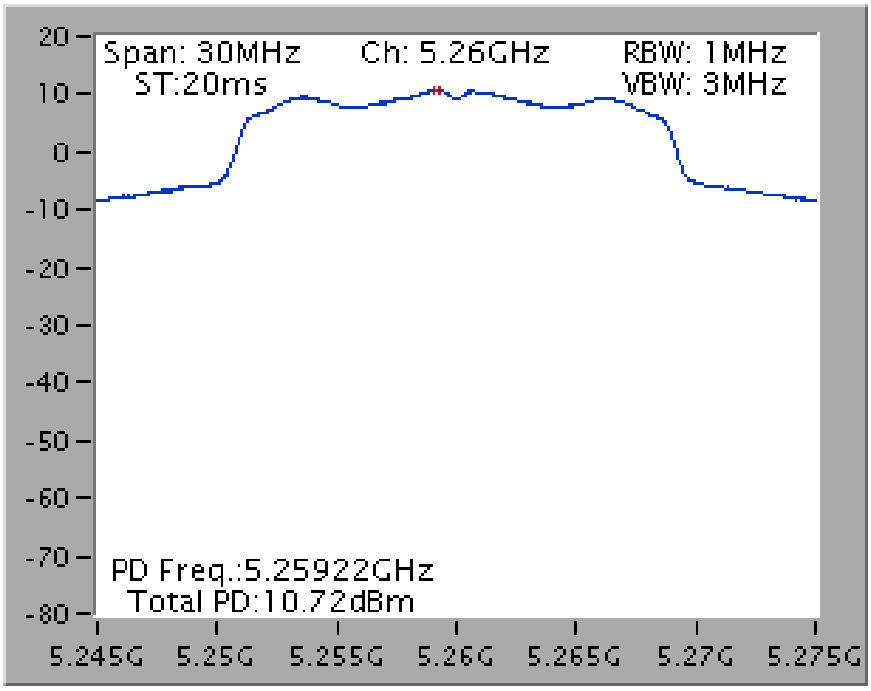


Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5580 MHz

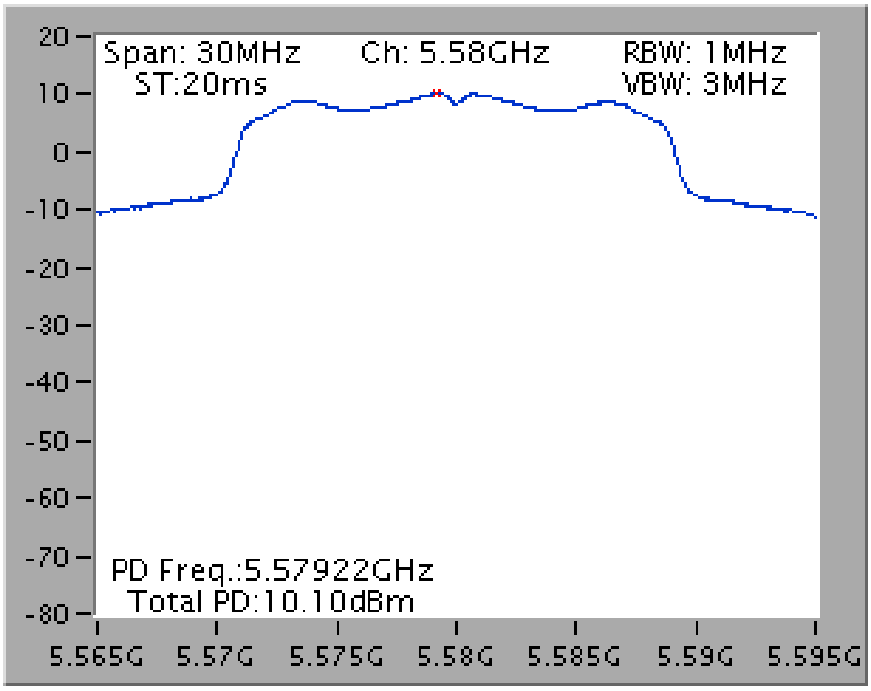


Radio 3:

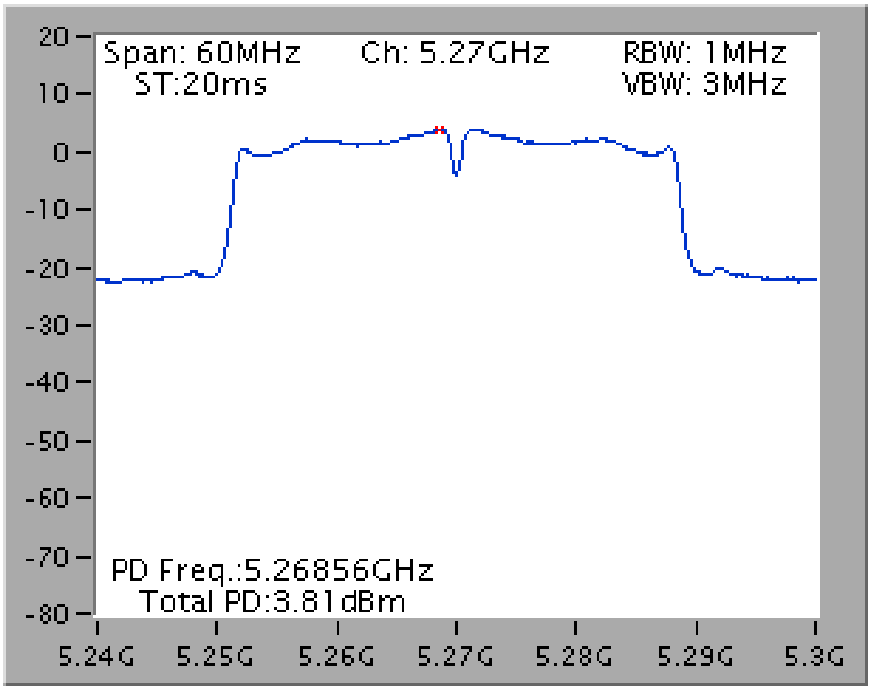
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5260 MHz



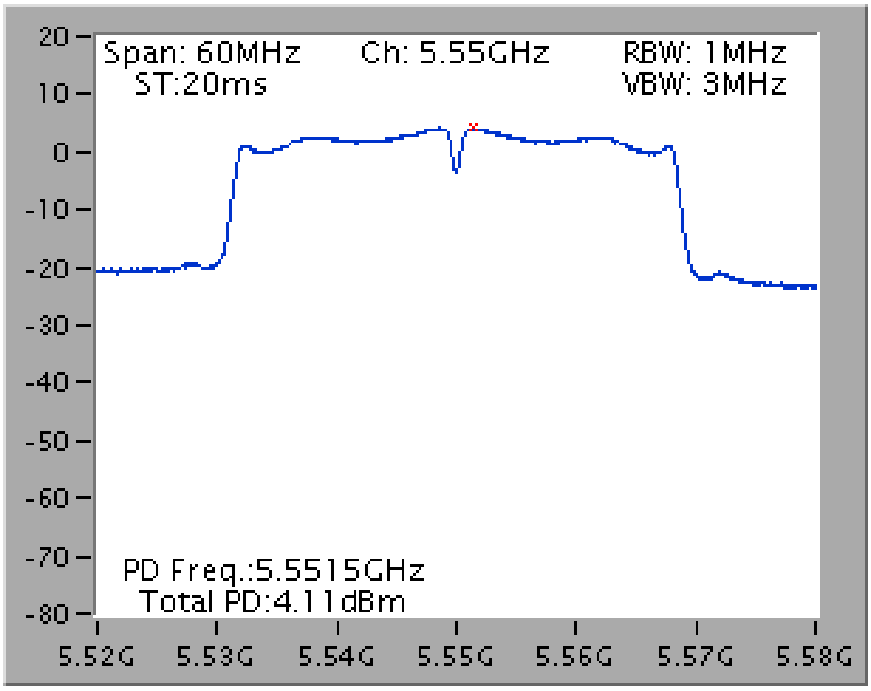
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Chain 7 / 5580 MHz



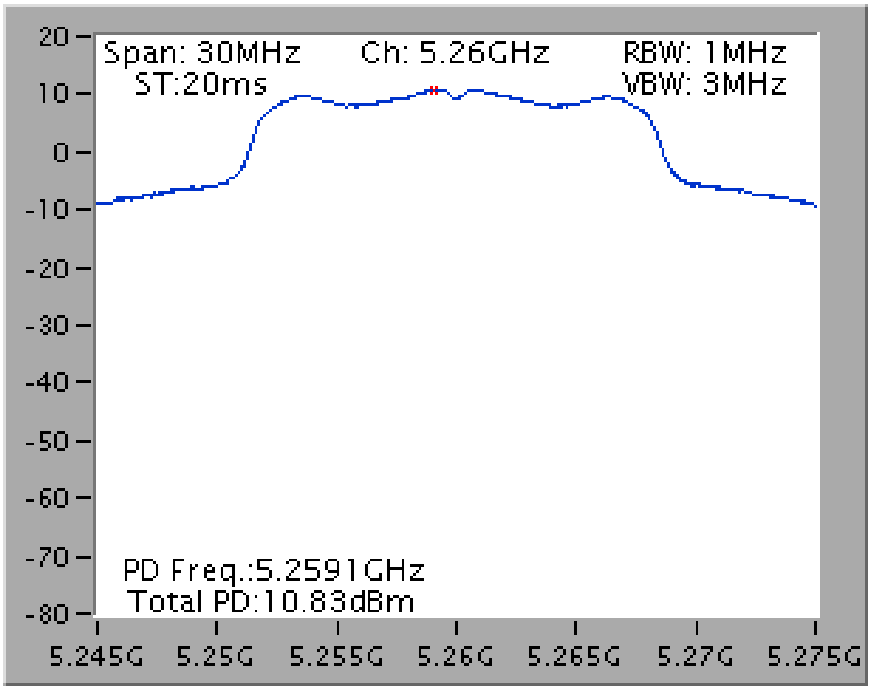
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5270 MHz



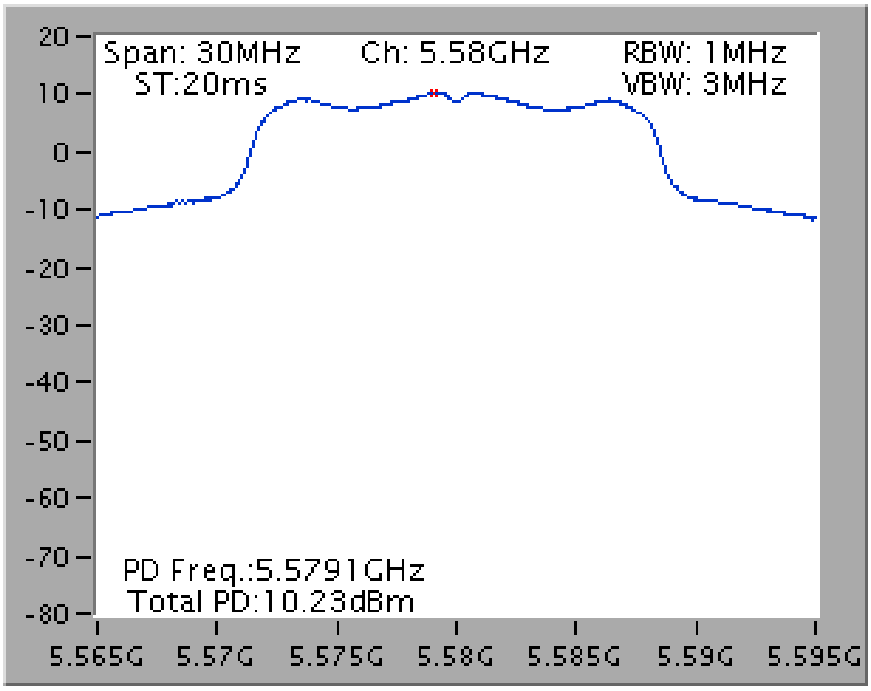
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Chain 7 / 5550 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 7 / 5260 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 7 / 5580 MHz



4.5. Peak Excursion Measurement

4.5.1. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.

4.5.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1MHz (Peak Trace) / 1MHz (Average Trace)
VBW	≥ 3MHz (Peak Trace) / ≥ 3MHz (Average Trace)
Detector	Peak (Peak Trace) / RMS (Average Trace)
Trace	Trace: Max hold (Peak Trace) / Trace Average Sweep Count 100 (Average Trace)
Sweep Time	AUTO

4.5.3. Test Procedures

1. Trace A, Set RBW =1MHz, VBW = 3MHz, Span >26dB bandwidth, Max. hold.
2. Delta Mark trace A Maximum frequency and trace B same frequency.
3. Repeat the above procedure until measurements for all frequencies were complete.
4. Testing each modulation mode on a single channel in single operating band at single output port. All signal types need test (DSSS, OFDM). All modulation types need test (BPSK, QPSK, 16-QAM, 64-QAM). All bandwidth modes need test.

4.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.4.4.

4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Peak Excursion

Temperature	24°C	Humidity	60%
Test Engineer	David Tseng	Configurations	IEEE 802.11a/n

Radio 2:

Configuration IEEE 802.11n HT20 / Chain 1 + Chain 2 + Chain 3

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5300MHz	8.48	13	Complies
QPSK (MCS1)	5300MHz	8.66	13	Complies
16QAM (MCS3)	5300MHz	9.31	13	Complies
64QAM (MCS5)	5300MHz	9.50	13	Complies
BPSK (MCS0)	5580MHz	8.61	13	Complies
QPSK (MCS1)	5580MHz	9.12	13	Complies
16QAM (MCS3)	5580MHz	9.26	13	Complies
64QAM (MCS5)	5580MHz	9.40	13	Complies

Configuration IEEE 802.11n HT40 / Chain 1 + Chain 2 + Chain 3

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5270MHz	8.62	13	Complies
QPSK (MCS1)	5270MHz	8.34	13	Complies
16QAM (MCS3)	5270MHz	8.97	13	Complies
64QAM (MCS5)	5270MHz	9.13	13	Complies
BPSK (MCS0)	5550MHz	8.41	13	Complies
QPSK (MCS1)	5550MHz	8.46	13	Complies
16QAM (MCS3)	5550MHz	8.77	13	Complies
64QAM (MCS5)	5550MHz	9.47	13	Complies

Configuration IEEE 802.11a / Chain 1

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (6Mbps)	5260MHz	9.66	13	Complies
QPSK (12Mbps)	5260MHz	8.57	13	Complies
16QAM (24Mbps)	5260MHz	8.88	13	Complies
64QAM (48Mbps)	5260MHz	9.48	13	Complies
BPSK (6Mbps)	5580MHz	9.81	13	Complies
QPSK (12Mbps)	5580MHz	8.73	13	Complies
16QAM (24Mbps)	5580MHz	9.42	13	Complies
64QAM (48Mbps)	5580MHz	9.22	13	Complies

Temperature	24°C	Humidity	60%
Test Engineer	Wen Chao	Configurations	IEEE 802.11a/n

Radio 3:

Configuration IEEE 802.11n HT20 / Chain 7

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5260MHz	8.82	13	Complies
QPSK (MCS1)	5260MHz	8.32	13	Complies
16QAM (MCS3)	5260MHz	9.21	13	Complies
64QAM (MCS5)	5260MHz	9.17	13	Complies
BPSK (MCS0)	5580MHz	8.31	13	Complies
QPSK (MCS1)	5580MHz	8.04	13	Complies
16QAM (MCS3)	5580MHz	8.66	13	Complies
64QAM (MCS5)	5580MHz	8.97	13	Complies

Configuration IEEE 802.11n HT40 / Chain 7

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (MCS0)	5270MHz	8.56	13	Complies
QPSK (MCS1)	5270MHz	8.72	13	Complies
16QAM (MCS3)	5270MHz	9.09	13	Complies
64QAM (MCS5)	5270MHz	9.20	13	Complies
BPSK (MCS0)	5550MHz	8.60	13	Complies
QPSK (MCS1)	5550MHz	8.41	13	Complies
16QAM (MCS3)	5550MHz	9.09	13	Complies
64QAM (MCS5)	5550MHz	9.77	13	Complies

Configuration IEEE 802.11a / Chain 7

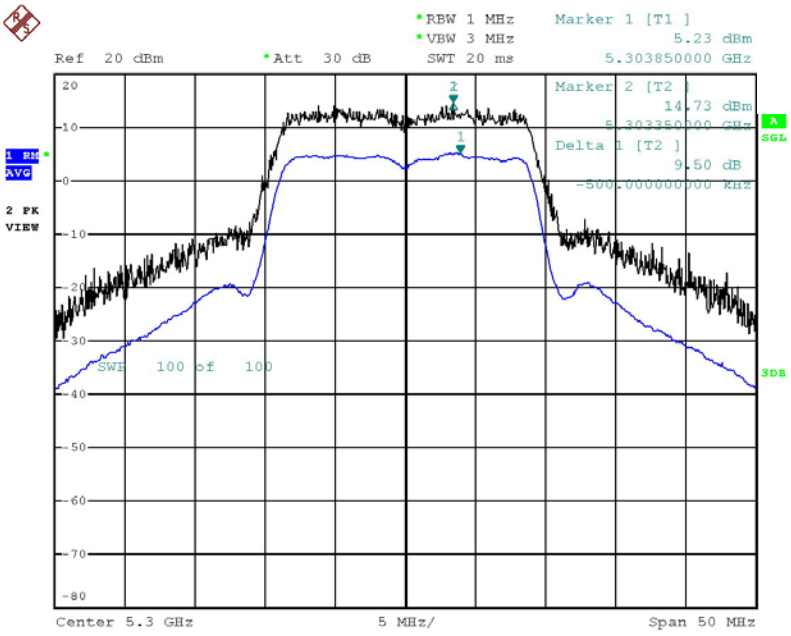
Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BPSK (6Mbps)	5260MHz	8.88	13	Complies
QPSK (12Mbps)	5260MHz	8.38	13	Complies
16QAM (24Mbps)	5260MHz	8.35	13	Complies
64QAM (48Mbps)	5260MHz	8.32	13	Complies
BPSK (6Mbps)	5580MHz	8.37	13	Complies
QPSK (12Mbps)	5580MHz	8.25	13	Complies
16QAM (24Mbps)	5580MHz	9.13	13	Complies
64QAM (48Mbps)	5580MHz	9.30	13	Complies

Note: All the test values were listed in the report.

For plots, only the modulation with worse result was shown.

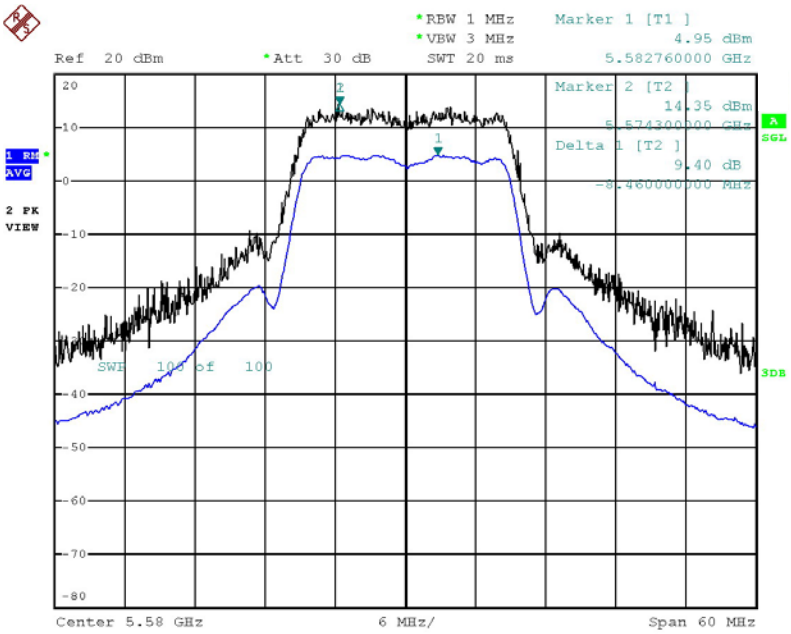
Radio 2:

Peak Excursion Plot on Configuration IEEE 802.11n HT20 / Chain 1 + Chain 2 + Chain 3 / 64QAM(MCS5) / 5300 MHz



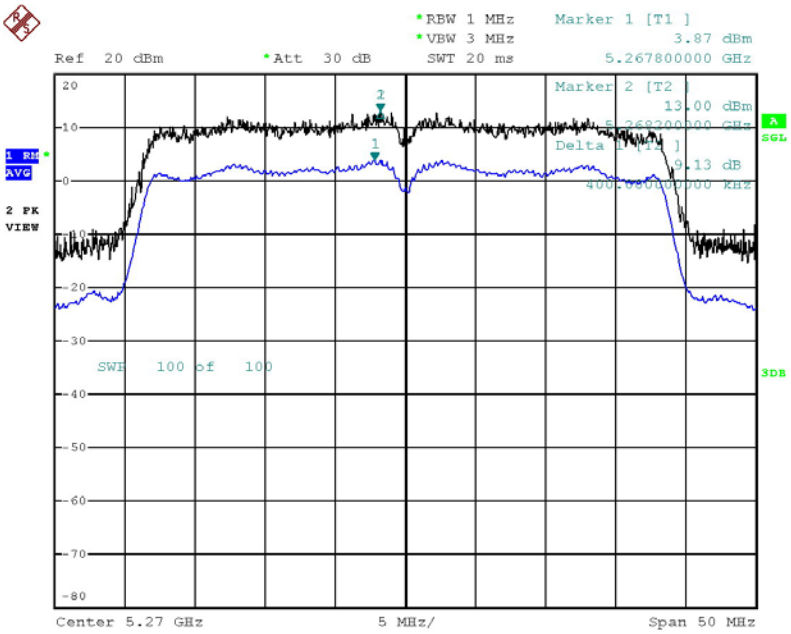
Date: 3.JAN.2014 21:19:18

Peak Excursion Plot on Configuration IEEE 802.11n HT20 / Chain 1 + Chain 2 + Chain 3 / 64QAM(MCS5) / 5580 MHz



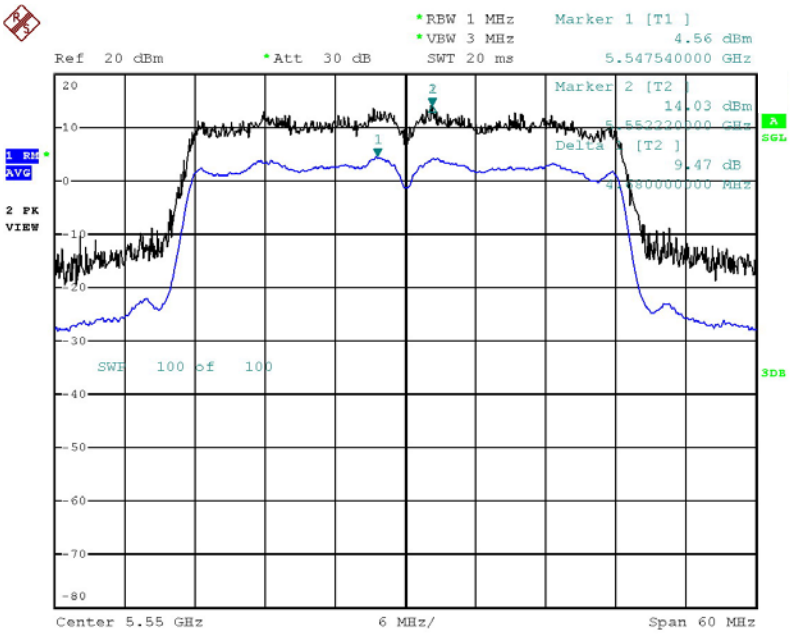
Date: 3.JAN.2014 21:22:04

Peak Excursion Plot on Configuration IEEE 802.11n HT40 / Chain 1 + Chain 2 + Chain 3 / 64QAM(MCS5) / 5270 MHz



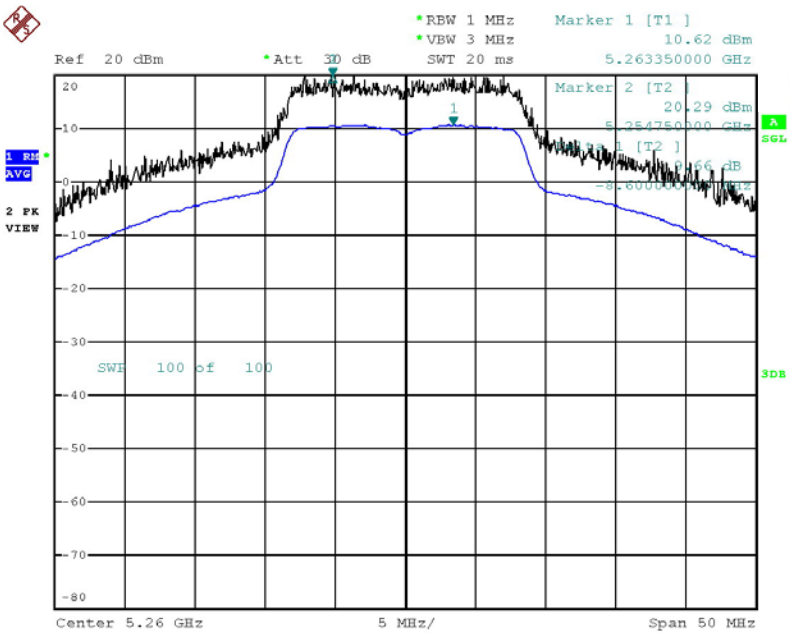
Date: 3.JAN.2014 21:29:49

Peak Excursion Plot on Configuration IEEE 802.11n HT40 / Chain 1 + Chain 2 + Chain 3 / 64QAM(MCS5) / 5550 MHz



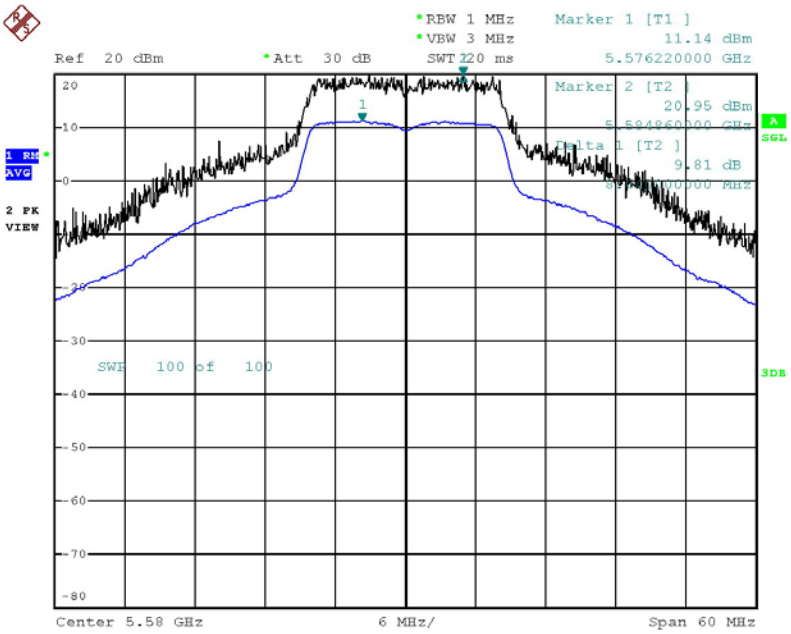
Date: 3.JAN.2014 21:33:52

Peak Excursion Plot on Configuration IEEE 802.11a / Chain 1 / BPSK (6Mbps) / 5260 MHz



Date: 3.JAN.2014 21:02:01

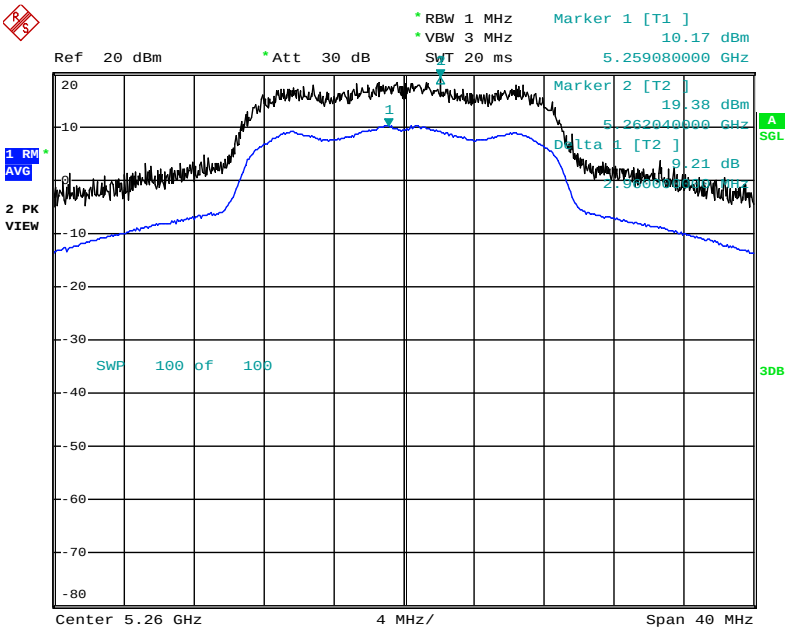
Peak Excursion Plot on Configuration IEEE 802.11a / Chain 1 / BSPK(6Mbps) / 5580 MHz



Date: 3.JAN.2014 21:08:36

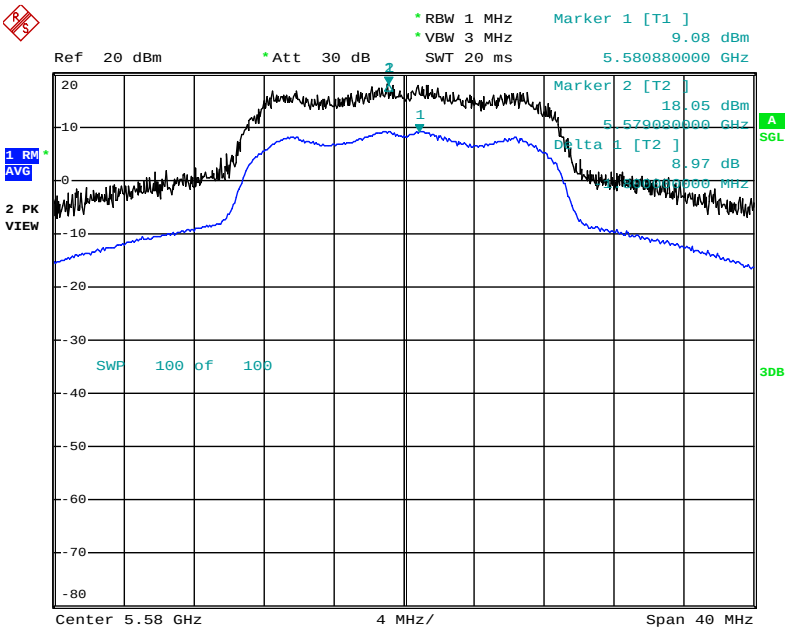
Radio 3:

Peak Excursion Plot on Configuration IEEE 802.11n HT20 / Chain 7 / 16QAM(MCS3) / 5260 MHz



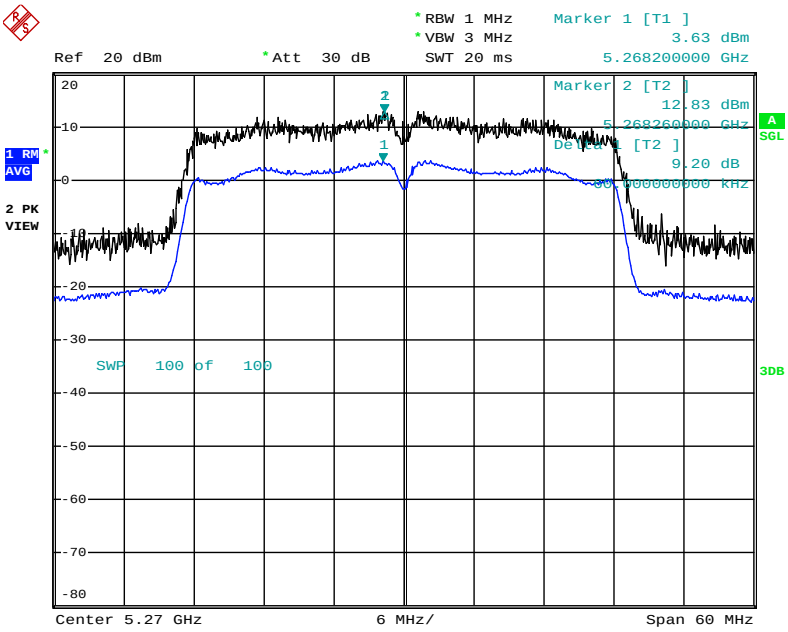
Date: 7.FEB.2014 19:28:35

Peak Excursion Plot on Configuration IEEE 802.11n HT20 / Chain 7 / 64QAM(MCS5) / 5580 MHz



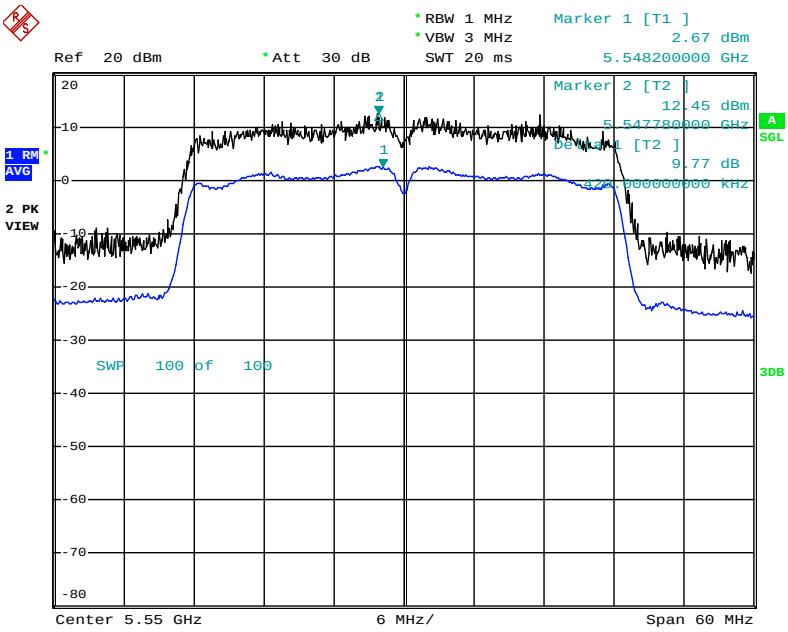
Date: 7.FEB.2014 19:30:04

Peak Excursion Plot on Configuration IEEE 802.11n HT40 / Chain 7 / 64QAM(MCS5) / 5270 MHz



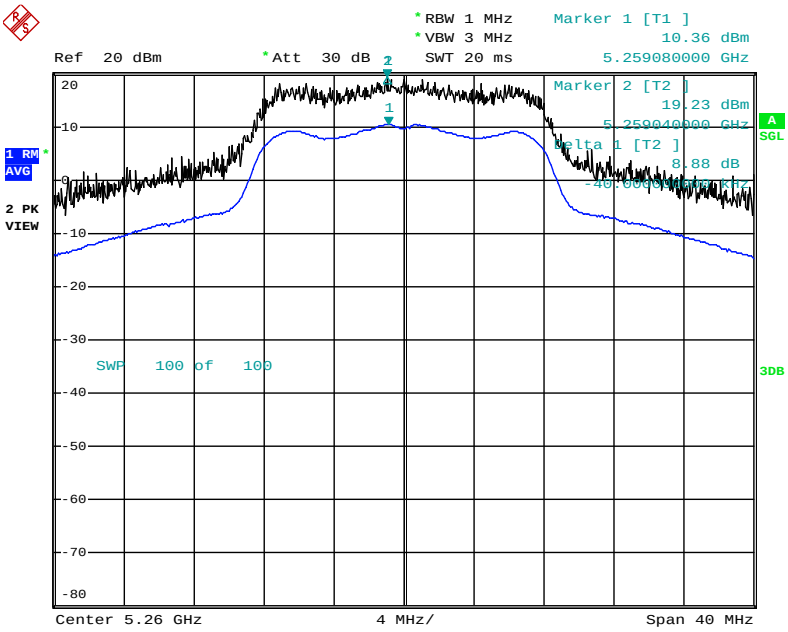
Date: 7.FEB.2014 19:34:28

Peak Excursion Plot on Configuration IEEE 802.11n HT40 / Chain 7 / 64QAM(MCS5) / 5550 MHz



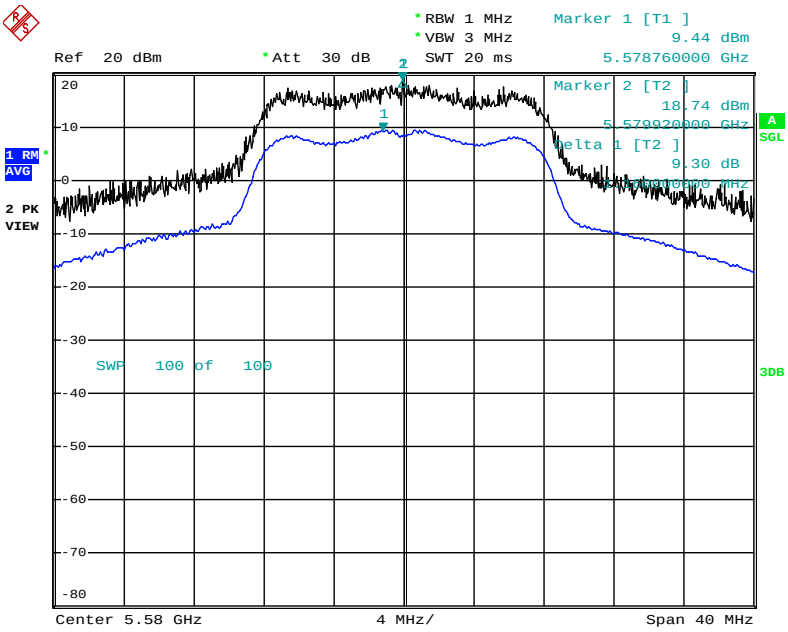
Date: 7.FEB.2014 19:35:18

Peak Excursion Plot on Configuration IEEE 802.11a / Chain 7 / BPSK (6Mbps) / 5260 MHz



Date: 7.FEB.2014 19:16:48

Peak Excursion Plot on Configuration IEEE 802.11a / Chain 7 / 64QAM(48Mbps) / 5580 MHz



Date: 7.FEB.2014 19:24:24

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/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

4.6.2. Measuring Instruments and Setting

Please refer to section 5 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
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

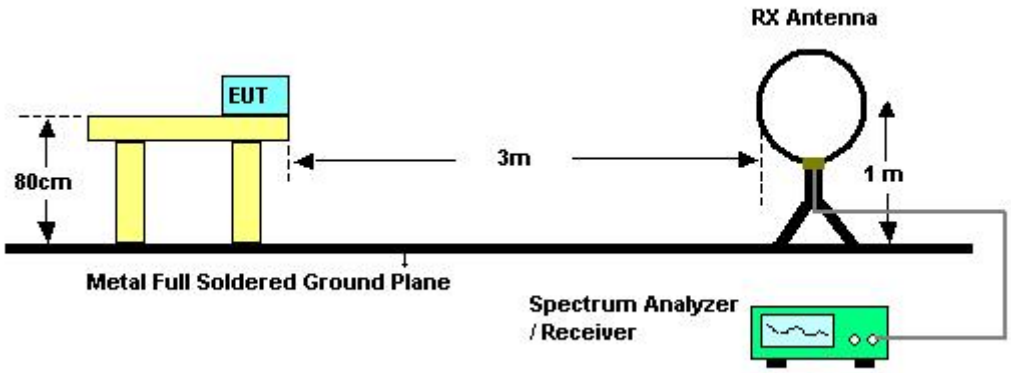
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

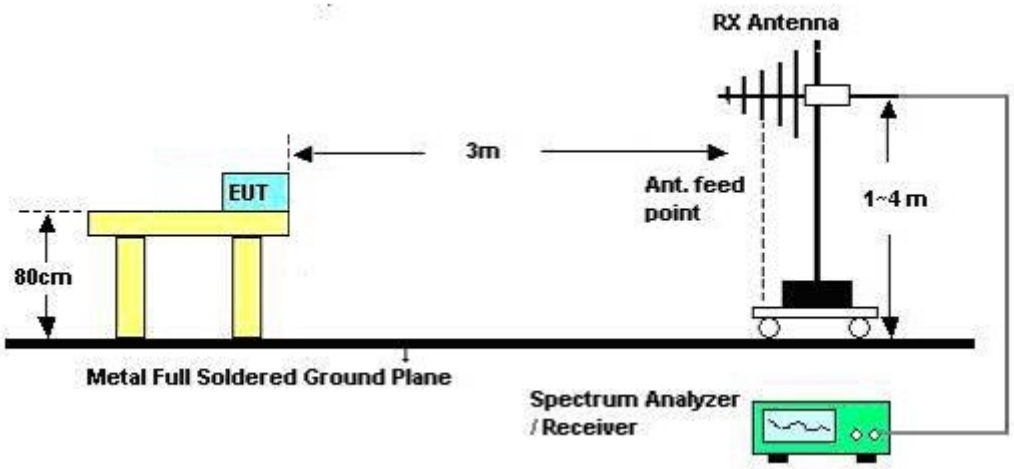
1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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.

4.6.4. Test Setup Layout

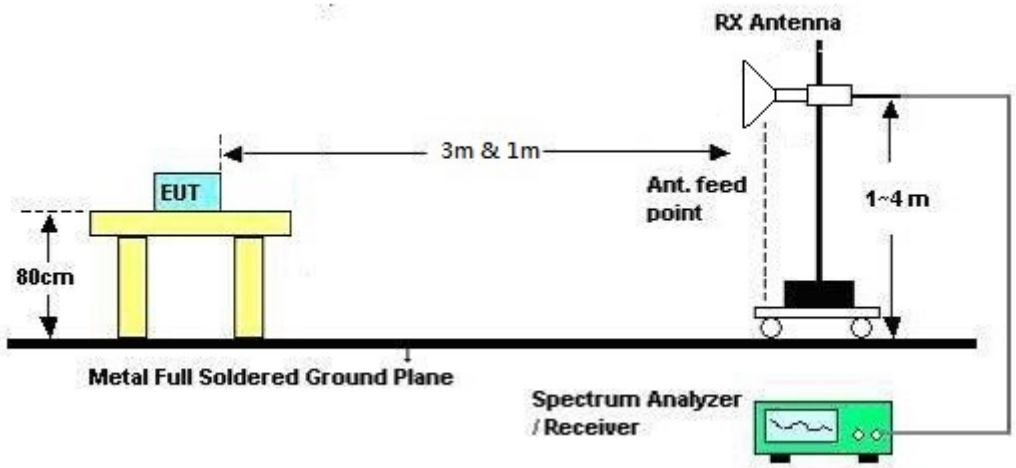
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.6.7. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	Normal Link
Test Date	Dec. 19, 2013		

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.

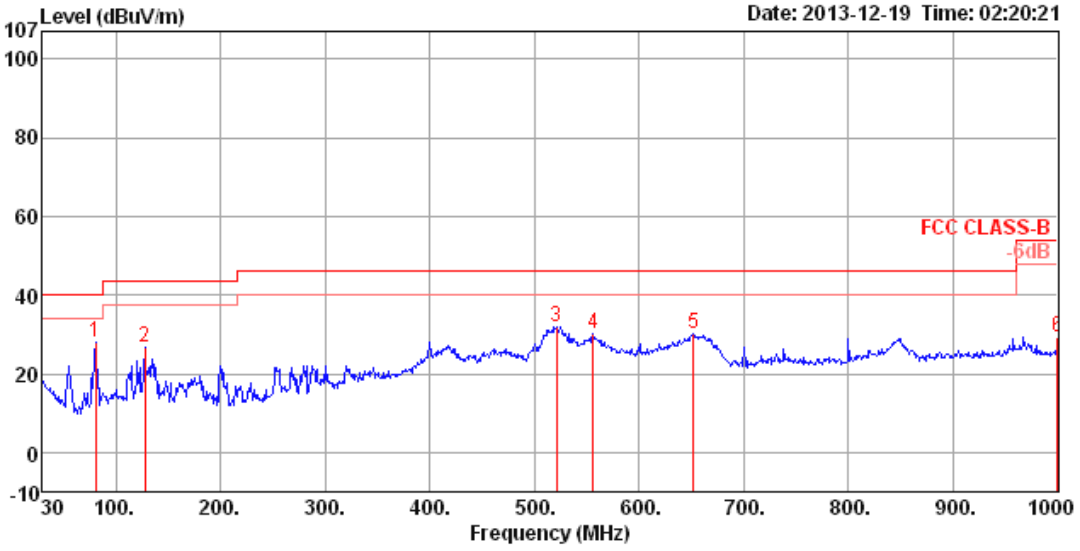
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

4.6.8. Results of Radiated Emissions (30MHz~1GHz)

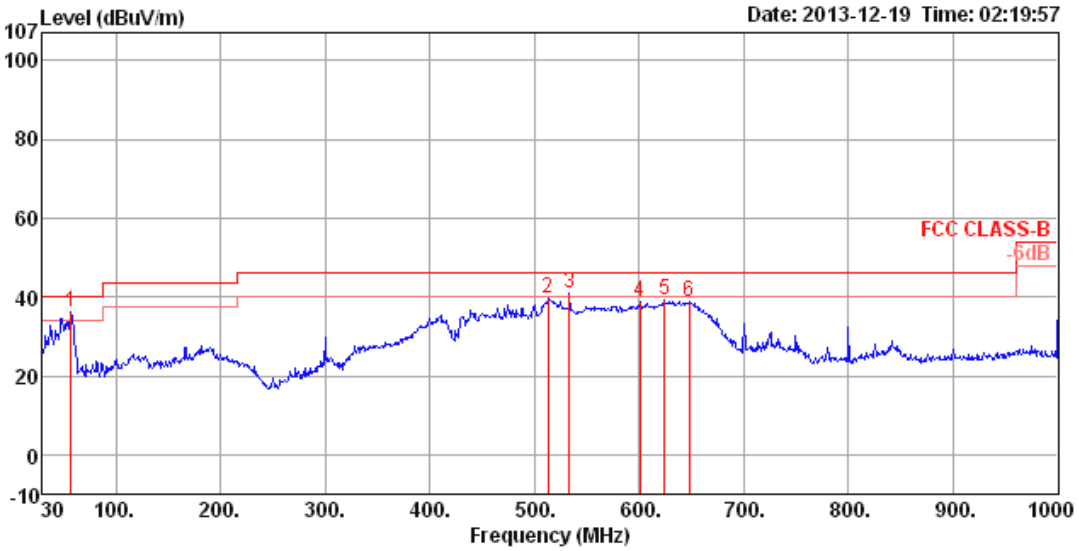
Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	Normal Link
Test Mode	Mode 4		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	80.44	27.99	40.00	-12.01	51.84	1.04	6.83	31.72	150	303	HORIZONTAL	Peak
2	127.97	26.53	43.50	-16.97	45.06	1.35	11.69	31.57	100	156	HORIZONTAL	Peak
3	520.82	31.87	46.00	-14.13	43.04	2.88	17.36	31.41	150	166	HORIZONTAL	Peak
4	555.74	29.99	46.00	-16.01	39.86	2.94	18.46	31.27	100	310	HORIZONTAL	Peak
5	651.77	30.05	46.00	-15.95	39.39	3.26	18.84	31.44	200	300	HORIZONTAL	Peak
6	1000.00	29.25	54.00	-24.75	34.78	4.21	21.44	31.18	125	183	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	57.16	35.98	40.00	-4.02	61.37	0.88	5.51	31.78	100	78	VERTICAL	Peak
2	513.06	39.46	46.00	-6.54	50.74	2.85	17.28	31.41	125	21	VERTICAL	Peak
3	533.43	41.05	46.00	-4.95	51.81	2.90	17.72	31.38	125	179	VERTICAL	Peak
4	600.36	38.97	46.00	-7.03	48.64	3.12	18.45	31.24	100	168	VERTICAL	Peak
5	624.61	39.32	46.00	-6.68	48.93	3.18	18.61	31.40	100	357	VERTICAL	Peak
6	647.89	38.82	46.00	-7.18	48.21	3.24	18.81	31.44	100	344	VERTICAL	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.

4.6.9. Results for Radiated Emissions (1GHz~40GHz)

Radio 2:

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 52 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15782.73	49.05	74.00	-24.95	36.04	10.80	37.75	35.54	Peak	100	214	HORIZONTAL
2	15782.83	39.70	54.00	-14.30	26.69	10.80	37.75	35.54	Average	100	214	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15782.83	49.22	74.00	-24.78	36.21	10.80	37.75	35.54	Peak	100	351	VERTICAL
2	15783.33	39.63	54.00	-14.37	26.62	10.80	37.75	35.54	Average	100	351	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 60 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10600.33	40.64	54.00	-13.36	27.24	8.64	39.90	35.14	Average	100	184	HORIZONTAL
2	10600.33	51.48	74.00	-22.52	38.08	8.64	39.90	35.14	Peak	100	184	HORIZONTAL
3	15895.08	39.60	54.00	-14.40	26.72	10.81	37.59	35.52	Average	100	208	HORIZONTAL
4	15895.08	52.95	74.00	-21.05	40.07	10.81	37.59	35.52	Peak	100	208	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10601.96	40.88	54.00	-13.12	27.46	8.64	39.90	35.12	Average	100	233	VERTICAL
2	10607.13	53.39	74.00	-20.61	39.97	8.64	39.90	35.12	Peak	100	233	VERTICAL
3	15901.72	49.08	74.00	-24.92	36.23	10.81	37.56	35.52	Peak	100	128	VERTICAL
4	15901.78	39.58	54.00	-14.42	26.73	10.81	37.56	35.52	Average	100	128	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 64 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10636.09	39.35	54.00	-14.65	25.92	8.66	39.86	35.09	Average	100	208	HORIZONTAL
2	10636.09	52.35	74.00	-21.65	38.92	8.66	39.86	35.09	Peak	100	208	HORIZONTAL
3	15957.10	49.62	74.00	-24.38	36.83	10.82	37.48	35.51	Peak	100	251	HORIZONTAL
4	15957.42	39.53	54.00	-14.47	26.74	10.82	37.48	35.51	Average	100	251	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10637.06	50.43	74.00	-23.57	37.00	8.66	39.86	35.09	Peak	100	158	VERTICAL
2	10637.46	41.30	54.00	-12.70	27.87	8.66	39.86	35.09	Average	100	158	VERTICAL
3	15957.42	39.23	54.00	-14.77	26.44	10.82	37.48	35.51	Average	100	174	VERTICAL
4	15957.42	48.71	74.00	-25.29	35.92	10.82	37.48	35.51	Peak	100	174	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 100 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11002.62	51.36	74.00	-22.64	37.73	8.93	39.50	34.80	Peak	100	236	HORIZONTAL
2	11002.85	40.96	54.00	-13.04	27.33	8.93	39.50	34.80	Average	100	236	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10996.63	53.16	74.00	-20.84	39.53	8.93	39.50	34.80	Peak	100	165	VERTICAL
2	10998.54	41.21	54.00	-12.79	27.58	8.93	39.50	34.80	Average	100	165	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 116 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11159.49	41.64	54.00	-12.36	27.99	9.04	39.50	34.89	Average	100	146	HORIZONTAL
2	11159.49	48.78	74.00	-25.22	35.13	9.04	39.50	34.89	Peak	100	146	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11155.67	53.08	74.00	-20.92	39.44	9.03	39.50	34.89	Peak	100	71	VERTICAL
2	11160.63	42.33	54.00	-11.67	28.68	9.04	39.50	34.89	Average	100	71	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 140 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11399.33	47.02	74.00	-26.98	33.37	9.19	39.50	35.04	Peak	100	154	HORIZONTAL
2	11399.63	40.28	54.00	-13.72	26.63	9.19	39.50	35.04	Average	100	154	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11402.90	49.33	74.00	-24.67	35.68	9.19	39.50	35.04	Peak	100	47	VERTICAL
2	11403.12	40.33	54.00	-13.67	26.68	9.19	39.50	35.04	Average	100	47	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 54 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15810.21	39.28	54.00	-14.72	26.30	10.80	37.72	35.54	Average	100	150	HORIZONTAL
2	15810.21	47.63	74.00	-26.37	34.65	10.80	37.72	35.54	Peak	100	150	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15811.78	49.50	74.00	-24.50	36.54	10.80	37.69	35.53	Peak	100	229	VERTICAL
2	15812.19	39.65	54.00	-14.35	26.69	10.80	37.69	35.53	Average	100	229	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11nMCS0 HT40 CH 62 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10621.61	49.89	74.00	-24.11	36.48	8.65	39.88	35.12	Peak	100	90	HORIZONTAL
2	10621.86	40.92	54.00	-13.08	27.51	8.65	39.88	35.12	Average	100	90	HORIZONTAL
3	15959.55	47.41	74.00	-26.59	34.62	10.82	37.48	35.51	Peak	100	183	HORIZONTAL
4	15959.68	39.53	54.00	-14.47	26.74	10.82	37.48	35.51	Average	100	183	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10621.61	49.89	74.00	-24.11	36.48	8.65	39.88	35.12	Peak	100	210	VERTICAL
2	10622.78	41.02	54.00	-12.98	27.61	8.65	39.88	35.12	Average	100	210	VERTICAL
3	15961.18	39.29	54.00	-14.71	26.50	10.82	37.48	35.51	Average	100	154	VERTICAL
4	15961.18	49.82	74.00	-24.18	37.03	10.82	37.48	35.51	Peak	100	154	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 102 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11020.96	40.89	54.00	-13.11	27.26	8.94	39.50	34.81	Average	100	154	HORIZONTAL
2	11020.96	53.18	74.00	-20.82	39.55	8.94	39.50	34.81	Peak	100	154	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11021.91	51.16	74.00	-22.84	37.52	8.95	39.50	34.81	Peak	100	70	VERTICAL
2	11021.99	41.08	54.00	-12.92	27.44	8.95	39.50	34.81	Average	100	70	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 110 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11099.26	41.12	54.00	-12.88	27.49	8.99	39.50	34.86	Average	100	48	HORIZONTAL
2	11100.33	51.65	74.00	-22.35	38.02	8.99	39.50	34.86	Peak	100	48	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11097.70	41.12	54.00	-12.88	27.49	8.99	39.50	34.86	Average	100	113	VERTICAL
2	11098.01	50.94	74.00	-23.06	37.31	8.99	39.50	34.86	Peak	100	113	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 134 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11339.84	49.47	74.00	-24.53	35.82	9.14	39.50	34.99	Peak	100	139	HORIZONTAL
2	11339.88	40.17	54.00	-13.83	26.52	9.14	39.50	34.99	Average	100	139	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11339.23	52.45	74.00	-21.55	38.80	9.14	39.50	34.99	Peak	100	92	VERTICAL
2	11341.87	40.04	54.00	-13.96	26.39	9.14	39.50	34.99	Average	100	92	VERTICAL

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.

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 52 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15776.02	43.37	74.00	-30.63	30.34	10.80	37.77	35.54	Peak	120	81	HORIZONTAL
2	15785.82	31.85	54.00	-22.15	18.84	10.80	37.75	35.54	Average	120	81	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15770.06	51.40	74.00	-22.60	38.37	10.80	37.77	35.54	Peak	100	310	VERTICAL
2	15782.12	33.52	54.00	-20.48	20.51	10.80	37.75	35.54	Average	100	310	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 60 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10590.82	37.14	54.00	-16.86	23.75	8.62	39.91	35.14	Average	100	164	HORIZONTAL
2	10590.82	50.94	74.00	-23.06	37.55	8.62	39.91	35.14	Peak	100	164	HORIZONTAL
3	15899.40	31.33	54.00	-22.67	18.48	10.81	37.56	35.52	Average	100	250	HORIZONTAL
4	15899.48	41.78	74.00	-32.22	28.93	10.81	37.56	35.52	Peak	100	250	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10603.02	36.12	54.00	-17.88	22.70	8.64	39.90	35.12	Average	100	223	VERTICAL
2	10603.24	49.17	74.00	-24.83	35.75	8.64	39.90	35.12	Peak	100	223	VERTICAL
3	15905.68	31.21	54.00	-22.79	18.36	10.81	37.56	35.52	Average	100	150	VERTICAL
4	15905.68	39.62	74.00	-34.38	26.77	10.81	37.56	35.52	Peak	100	150	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 64 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10641.38	40.90	54.00	-13.10	27.47	8.66	39.86	35.09	Average	100	360	HORIZONTAL
2	10645.24	52.77	74.00	-21.23	39.34	8.66	39.86	35.09	Peak	100	360	HORIZONTAL
3	15960.58	50.57	74.00	-23.43	37.78	10.82	37.48	35.51	Peak	100	106	HORIZONTAL
4	15964.56	39.46	54.00	-14.54	26.70	10.82	37.45	35.51	Average	100	106	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10639.78	35.15	54.00	-18.85	21.72	8.66	39.86	35.09	Average	100	74	VERTICAL
2	10640.26	49.49	74.00	-24.51	36.06	8.66	39.86	35.09	Peak	100	74	VERTICAL
3	15956.18	49.56	74.00	-24.44	36.77	10.82	37.48	35.51	Peak	100	202	VERTICAL
4	15957.54	30.88	54.00	-23.12	18.09	10.82	37.48	35.51	Average	100	202	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 100 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10995.04	41.23	54.00	-12.77	27.60	8.93	39.50	34.80	Average	100	154	HORIZONTAL
2	10998.12	53.71	74.00	-20.29	40.08	8.93	39.50	34.80	Peak	100	154	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10991.48	41.67	54.00	-12.33	28.04	8.93	39.50	34.80	Average	100	66	VERTICAL
2	10995.92	52.80	74.00	-21.20	39.17	8.93	39.50	34.80	Peak	100	66	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 116 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11158.28	52.33	74.00	-21.67	38.68	9.04	39.50	34.89	Peak	100	285	HORIZONTAL
2	11158.50	41.07	54.00	-12.93	27.42	9.04	39.50	34.89	Average	100	285	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11158.50	53.81	74.00	-20.19	40.16	9.04	39.50	34.89	Peak	100	215	VERTICAL
2	11166.44	40.91	54.00	-13.09	27.27	9.04	39.50	34.90	Average	100	215	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 140 / Chain 1
Test Date	Dec. 31, 2013	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11400.44	51.57	74.00	-22.43	37.92	9.19	39.50	35.04	Peak	100	248	HORIZONTAL
2	11400.86	40.47	54.00	-13.53	26.82	9.19	39.50	35.04	Average	100	248	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11400.85	49.91	74.00	-24.09	36.26	9.19	39.50	35.04	Peak	100	124	VERTICAL
2	11401.55	40.41	54.00	-13.59	26.76	9.19	39.50	35.04	Average	100	124	VERTICAL

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.

Radio 3:

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 52 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15781.28	53.90	74.00	-20.10	40.89	10.80	37.75	35.54	Peak	100	111	HORIZONTAL
2	15781.40	41.29	54.00	-12.71	28.28	10.80	37.75	35.54	Average	100	111	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15780.96	54.71	74.00	-19.29	41.70	10.80	37.75	35.54	Peak	100	119	VERTICAL
2	15781.46	41.81	54.00	-12.19	28.80	10.80	37.75	35.54	Average	100	119	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 60 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10601.23	41.03	54.00	-12.97	27.63	8.64	39.90	35.14	Average	100	90	HORIZONTAL
2	10601.23	53.79	74.00	-20.21	40.39	8.64	39.90	35.14	Peak	100	90	HORIZONTAL
3	15900.53	54.05	74.00	-19.95	41.20	10.81	37.56	35.52	Peak	100	129	HORIZONTAL
4	15901.02	41.51	54.00	-12.49	28.66	10.81	37.56	35.52	Average	100	129	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10600.54	54.58	74.00	-19.42	41.18	8.64	39.90	35.14	Peak	100	183	VERTICAL
2	10602.21	42.30	54.00	-11.70	28.88	8.64	39.90	35.12	Average	100	183	VERTICAL
3	15900.22	53.77	74.00	-20.23	40.92	10.81	37.56	35.52	Peak	100	129	VERTICAL
4	15900.67	41.15	54.00	-12.85	28.30	10.81	37.56	35.52	Average	100	129	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 64 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10639.56	53.28	74.00	-20.72	39.85	8.66	39.86	35.09	Peak	100	204	HORIZONTAL
2	10640.63	40.63	54.00	-13.37	27.20	8.66	39.86	35.09	Average	100	204	HORIZONTAL
3	15961.56	54.85	74.00	-19.15	42.06	10.82	37.48	35.51	Peak	100	296	HORIZONTAL
4	15962.41	41.25	54.00	-12.75	28.46	10.82	37.48	35.51	Average	100	296	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10637.87	54.11	74.00	-19.89	40.68	8.66	39.86	35.09	Peak	100	201	VERTICAL
2	10640.72	41.46	54.00	-12.54	28.03	8.66	39.86	35.09	Average	100	201	VERTICAL
3	15960.77	54.18	74.00	-19.82	41.39	10.82	37.48	35.51	Peak	100	259	VERTICAL
4	15961.62	41.37	54.00	-12.63	28.58	10.82	37.48	35.51	Average	100	259	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 100 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10997.70	42.12	54.00	-11.88	28.49	8.93	39.50	34.80	Average	100	357	HORIZONTAL
2	10998.97	53.06	74.00	-20.94	39.43	8.93	39.50	34.80	Peak	100	357	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10999.23	57.11	74.00	-16.89	43.48	8.93	39.50	34.80	Peak	168	161	VERTICAL
2	11000.98	43.97	54.00	-10.03	30.34	8.93	39.50	34.80	Average	168	161	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 116 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11158.72	45.66	54.00	-8.34	32.01	9.04	39.50	34.89	Average	161	313	HORIZONTAL
2	11161.90	58.82	74.00	-15.18	45.17	9.04	39.50	34.89	Peak	161	313	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11158.33	56.26	74.00	-17.74	42.61	9.04	39.50	34.89	Peak	127	160	VERTICAL
2	11158.74	45.16	54.00	-8.84	31.51	9.04	39.50	34.89	Average	127	160	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 140 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11401.12	52.44	74.00	-21.56	38.79	9.19	39.50	35.04	Peak	100	147	HORIZONTAL
2	11402.38	40.11	54.00	-13.89	26.46	9.19	39.50	35.04	Average	100	147	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11402.38	53.23	74.00	-20.77	39.58	9.19	39.50	35.04	Peak	100	132	VERTICAL
2	11402.88	40.06	54.00	-13.94	26.41	9.19	39.50	35.04	Average	100	132	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 54 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15807.14	53.72	74.00	-20.28	40.74	10.80	37.72	35.54	Peak	100	81	HORIZONTAL
2	15807.46	41.56	54.00	-12.44	28.58	10.80	37.72	35.54	Average	100	81	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15806.88	41.67	54.00	-12.33	28.69	10.80	37.72	35.54	Average	100	213	VERTICAL
2	15810.64	53.30	74.00	-20.70	40.35	10.80	37.69	35.54	Peak	100	213	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11nMCS0 HT40 CH 62 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10616.64	53.32	74.00	-20.68	39.91	8.65	39.88	35.12	Peak	100	218	HORIZONTAL
2	10621.70	40.50	54.00	-13.50	27.09	8.65	39.88	35.12	Average	100	218	HORIZONTAL
3	15929.38	54.85	74.00	-19.15	42.02	10.81	37.53	35.51	Peak	100	218	HORIZONTAL
4	15932.48	41.61	54.00	-12.39	28.80	10.81	37.51	35.51	Average	100	218	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10617.80	40.35	54.00	-13.65	26.94	8.65	39.88	35.12	Average	100	208	VERTICAL
2	10621.58	53.34	74.00	-20.66	39.93	8.65	39.88	35.12	Peak	100	208	VERTICAL
3	15927.28	54.50	74.00	-19.50	41.67	10.81	37.53	35.51	Peak	100	100	VERTICAL
4	15932.22	41.47	54.00	-12.53	28.66	10.81	37.51	35.51	Average	100	100	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 102 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11015.20	53.23	74.00	-20.77	39.60	8.94	39.50	34.81	Peak	100	102	HORIZONTAL
2	11023.60	40.79	54.00	-13.21	27.15	8.95	39.50	34.81	Average	100	102	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11021.82	53.80	74.00	-20.20	40.16	8.95	39.50	34.81	Peak	100	213	VERTICAL
2	11023.60	41.01	54.00	-12.99	27.37	8.95	39.50	34.81	Average	100	213	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 110 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11100.38	43.48	54.00	-10.52	29.85	8.99	39.50	34.86	Average	100	208	HORIZONTAL
2	11104.74	53.78	74.00	-20.22	40.15	8.99	39.50	34.86	Peak	100	208	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11095.30	41.14	54.00	-12.86	27.51	8.99	39.50	34.86	Average	100	219	VERTICAL
2	11101.42	53.84	74.00	-20.16	40.21	8.99	39.50	34.86	Peak	100	219	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 134 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11338.61	53.96	74.00	-20.04	40.31	9.14	39.50	34.99	Peak	100	190	HORIZONTAL
2	11339.98	41.21	54.00	-12.79	27.56	9.14	39.50	34.99	Average	100	190	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11340.82	41.47	54.00	-12.53	27.82	9.14	39.50	34.99	Average	100	101	VERTICAL
2	11341.18	54.62	74.00	-19.38	40.97	9.14	39.50	34.99	Peak	100	101	VERTICAL

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.

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 52 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15783.60	56.77	74.00	-17.23	43.76	10.80	37.75	35.54	Peak	100	337	HORIZONTAL
2	15788.24	43.16	54.00	-10.84	30.15	10.80	37.75	35.54	Average	100	337	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15782.52	56.48	74.00	-17.52	43.47	10.80	37.75	35.54	Peak	120	181	VERTICAL
2	15787.16	43.65	54.00	-10.35	30.64	10.80	37.75	35.54	Average	120	181	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 60 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10600.34	54.07	74.00	-19.93	40.67	8.64	39.90	35.14	Peak	100	252	HORIZONTAL
2	10600.63	40.99	54.00	-13.01	27.59	8.64	39.90	35.14	Average	100	252	HORIZONTAL
3	15897.73	54.67	74.00	-19.33	41.82	10.81	37.56	35.52	Peak	100	280	HORIZONTAL
4	15900.28	42.19	54.00	-11.81	29.34	10.81	37.56	35.52	Average	100	280	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10600.00	54.64	74.00	-19.36	41.24	8.64	39.90	35.14	Peak	100	179	VERTICAL
2	10600.33	42.17	54.00	-11.83	28.77	8.64	39.90	35.14	Average	100	179	VERTICAL
3	15900.05	54.14	74.00	-19.86	41.29	10.81	37.56	35.52	Peak	100	257	VERTICAL
4	15900.87	41.93	54.00	-12.07	29.08	10.81	37.56	35.52	Average	100	257	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 64 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10637.88	53.45	74.00	-20.55	40.02	8.66	39.86	35.09	Peak	100	118	HORIZONTAL
2	10638.76	42.32	54.00	-11.68	28.89	8.66	39.86	35.09	Average	100	118	HORIZONTAL
3	15959.81	55.13	74.00	-18.87	42.34	10.82	37.48	35.51	Peak	100	219	HORIZONTAL
4	15961.96	41.65	54.00	-12.35	28.86	10.82	37.48	35.51	Average	100	219	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10640.16	53.95	74.00	-20.05	40.52	8.66	39.86	35.09	Peak	100	132	VERTICAL
2	10640.45	41.06	54.00	-12.94	27.63	8.66	39.86	35.09	Average	100	132	VERTICAL
3	15961.31	41.67	54.00	-12.33	28.88	10.82	37.48	35.51	Average	100	159	VERTICAL
4	15961.38	54.48	74.00	-19.52	41.69	10.82	37.48	35.51	Peak	100	159	VERTICAL

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 100 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10997.76	41.09	54.00	-12.91	27.46	8.93	39.50	34.80	Average	100	115	HORIZONTAL
2	11001.92	54.34	74.00	-19.66	40.71	8.93	39.50	34.80	Peak	100	115	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11000.73	55.17	74.00	-18.83	41.54	8.93	39.50	34.80	Peak	100	227	VERTICAL
2	11001.07	41.73	54.00	-12.27	28.10	8.93	39.50	34.80	Average	100	227	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 116 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11159.21	55.29	74.00	-18.71	41.64	9.04	39.50	34.89	Peak	100	264	HORIZONTAL
2	11160.98	41.65	54.00	-12.35	28.00	9.04	39.50	34.89	Average	100	264	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11158.84	44.54	54.00	-9.46	30.89	9.04	39.50	34.89	Average	100	186	VERTICAL
2	11161.06	57.65	74.00	-16.35	44.00	9.04	39.50	34.89	Peak	100	186	VERTICAL

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 140 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11399.77	42.26	54.00	-11.74	28.61	9.19	39.50	35.04	Average	100	192	HORIZONTAL
2	11400.90	53.57	74.00	-20.43	39.92	9.19	39.50	35.04	Peak	100	192	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11398.22	53.03	74.00	-20.97	39.38	9.19	39.50	35.04	Peak	100	278	VERTICAL
2	11399.59	40.39	54.00	-13.61	26.74	9.19	39.50	35.04	Average	100	278	VERTICAL

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.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.25-5.35 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.470-5.725 GHz band shall not exceed a -27dBm peak limit or average 54dBuV/m and peak 74dBuV/m limits. For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz (78.3dBuV/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

4.7.2. Measuring Instruments and Setting

Please refer to section 5 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
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for Peak

4.7.3. Test Procedures

1. The test procedure is the same as section 4.6.3, only the frequency range investigated is limited to 100MHz around bandedges.

4.7.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.6.4.

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Radio 2:

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 52, 60, 64 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5146.40	53.02	54.00	-0.98	12.88	6.13	34.01	0.00	Average	113	70	HORIZONTAL
2	5146.40	65.68	74.00	-8.32	25.54	6.13	34.01	0.00	Peak	113	70	HORIZONTAL
3	5256.70	111.26			70.84	6.20	34.22	0.00	Average	113	70	HORIZONTAL
4	5261.20	119.17			78.74	6.21	34.22	0.00	Peak	113	70	HORIZONTAL
5	5351.50	50.50	54.00	-3.50	9.82	6.26	34.42	0.00	Average	113	70	HORIZONTAL
6	5351.50	59.26	74.00	-14.74	18.58	6.26	34.42	0.00	Peak	113	70	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5296.80	104.60			64.05	6.23	34.32	0.00	Average	100	329	VERTICAL
2	5297.20	115.14			74.59	6.23	34.32	0.00	Peak	100	329	VERTICAL
3	5351.60	48.53	54.00	-5.47	7.85	6.26	34.42	0.00	Average	100	329	VERTICAL
4	5352.20	61.26	74.00	-12.74	20.58	6.26	34.42	0.00	Peak	100	329	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5312.10	116.73			76.17	6.24	34.32	0.00	Peak	114	65	HORIZONTAL
2	5316.60	105.20			64.60	6.24	34.36	0.00	Average	114	65	HORIZONTAL
3	5351.50	53.72	54.00	-0.28	13.04	6.26	34.42	0.00	Average	114	65	HORIZONTAL
4	5354.60	67.37	74.00	-6.63	26.69	6.26	34.42	0.00	Peak	114	65	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 100, 140 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	49.65	54.00	-4.35	8.69	6.33	34.63	0.00	Average	112	308	HORIZONTAL
2	5460.00	61.87	74.00	-12.13	20.91	6.33	34.63	0.00	Peak	112	308	HORIZONTAL
3	5467.40	73.16	74.00	-0.84	32.15	6.34	34.67	0.00	Peak	112	308	HORIZONTAL
4	5467.50	53.60	54.00	-0.40	12.59	6.34	34.67	0.00	Average	112	308	HORIZONTAL
5	5502.70	106.24			65.17	6.36	34.71	0.00	Average	112	308	HORIZONTAL
6	5507.50	116.49			75.42	6.36	34.71	0.00	Peak	112	308	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5706.50	105.65			64.34	6.44	34.87	0.00	Average	118	57	HORIZONTAL
2	5706.80	115.17			73.86	6.44	34.87	0.00	Peak	118	57	HORIZONTAL
3	5726.10	70.34	74.00	-3.66	29.00	6.45	34.89	0.00	Peak	118	57	HORIZONTAL
4	5726.30	53.63	54.00	-0.37	12.29	6.45	34.89	0.00	Average	118	57	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 54, 62 / / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5256.60	106.95			66.53	6.20	34.22	0.00	Average	111	66	HORIZONTAL
2	5271.20	118.25			77.79	6.21	34.25	0.00	Peak	111	66	HORIZONTAL
3	5351.60	53.88	54.00	-0.12	13.20	6.26	34.42	0.00	Average	111	66	HORIZONTAL
4	5352.20	68.69	74.00	-5.31	28.01	6.26	34.42	0.00	Peak	111	66	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5296.60	96.73			56.21	6.23	34.29	0.00	Average	107	69	HORIZONTAL
2	5297.00	107.85			67.30	6.23	34.32	0.00	Peak	107	69	HORIZONTAL
3	5350.00	64.74	74.00	-9.26	24.06	6.26	34.42	0.00	Peak	107	69	HORIZONTAL
4	5351.40	53.91	54.00	-0.09	13.23	6.26	34.42	0.00	Average	107	69	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 102, 110, 134 / Chain 1 + Chain 2 + Chain 3
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5457.80	59.28	74.00	-14.72	18.32	6.33	34.63	0.00	Peak	115	304	HORIZONTAL
2	5460.00	48.79	54.00	-5.21	7.83	6.33	34.63	0.00	Average	115	304	HORIZONTAL
3	5470.00	53.78	54.00	-0.22	12.77	6.34	34.67	0.00	Average	115	304	HORIZONTAL
4	5470.00	65.40	74.00	-8.60	24.39	6.34	34.67	0.00	Peak	115	304	HORIZONTAL
5	5507.80	99.12			58.05	6.36	34.71	0.00	Average	115	304	HORIZONTAL
6	5508.20	110.27			69.20	6.36	34.71	0.00	Peak	115	304	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5457.90	52.72	54.00	-1.28	11.76	6.33	34.63	0.00	Average	126	303	HORIZONTAL
2	5457.90	65.15	74.00	-8.85	24.19	6.33	34.63	0.00	Peak	126	303	HORIZONTAL
3	5461.90	69.41	74.00	-4.59	28.45	6.33	34.63	0.00	Peak	126	303	HORIZONTAL
4	5467.60	53.90	54.00	-0.10	12.89	6.34	34.67	0.00	Average	126	303	HORIZONTAL
5	5547.90	105.79			64.67	6.38	34.74	0.00	Average	126	303	HORIZONTAL
6	5547.90	117.53			76.41	6.38	34.74	0.00	Peak	126	303	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5666.80	114.07			72.81	6.43	34.83	0.00	Peak	100	53	HORIZONTAL
2	5671.80	103.66			62.38	6.43	34.85	0.00	Average	100	53	HORIZONTAL
3	5726.80	53.78	54.00	-0.22	12.44	6.45	34.89	0.00	Average	100	53	HORIZONTAL
4	5726.80	70.66	74.00	-3.34	29.32	6.45	34.89	0.00	Peak	100	53	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Note:

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

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

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 1
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5135.00	53.56	54.00	-0.44	13.46	6.12	33.98	0.00	Average	116	300	HORIZONTAL
2	5146.10	66.27	74.00	-7.73	26.13	6.13	34.01	0.00	Peak	116	300	HORIZONTAL
3	5256.70	105.89			65.47	6.20	34.22	0.00	Average	116	300	HORIZONTAL
4	5262.70	114.38			73.92	6.21	34.25	0.00	Peak	116	300	HORIZONTAL
5	5350.00	51.96	54.00	-2.04	11.28	6.26	34.42	0.00	Average	116	300	HORIZONTAL
6	5354.50	62.90	74.00	-11.10	22.22	6.26	34.42	0.00	Peak	116	300	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5303.80	102.74			62.19	6.23	34.32	0.00	Average	100	337	VERTICAL
2	5305.20	112.99			72.44	6.23	34.32	0.00	Peak	100	337	VERTICAL
3	5350.00	53.56	54.00	-0.44	12.88	6.26	34.42	0.00	Average	100	337	VERTICAL
4	5358.00	65.56	74.00	-8.44	24.88	6.26	34.42	0.00	Peak	100	337	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5324.00	98.20			57.60	6.24	34.36	0.00	Average	100	350	VERTICAL
2	5326.50	109.62			69.02	6.24	34.36	0.00	Peak	100	350	VERTICAL
3	5350.00	53.66	54.00	-0.34	12.98	6.26	34.42	0.00	Average	100	350	VERTICAL
4	5350.20	67.42	74.00	-6.58	26.74	6.26	34.42	0.00	Peak	100	350	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 100, 140 / Chain 1
Test Date	Dec. 30, 2013	Test Mode	Mode 2

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5458.90	62.50	74.00	-11.50	21.54	6.33	34.63	0.00	Peak	102	304	HORIZONTAL
2	5460.00	52.26	54.00	-1.74	11.30	6.33	34.63	0.00	Average	102	304	HORIZONTAL
3	5469.60	67.79	74.00	-6.21	26.78	6.34	34.67	0.00	Peak	102	304	HORIZONTAL
4	5470.00	53.90	54.00	-0.10	12.89	6.34	34.67	0.00	Average	102	304	HORIZONTAL
5	5497.50	111.04			69.98	6.36	34.70	0.00	Peak	102	304	HORIZONTAL
6	5503.40	100.73			59.66	6.36	34.71	0.00	Average	102	304	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5695.20	110.59			69.30	6.43	34.86	0.00	Peak	112	64	HORIZONTAL
2	5703.60	100.54			59.24	6.44	34.86	0.00	Average	112	64	HORIZONTAL
3	5725.00	53.68	54.00	-0.32	12.34	6.45	34.89	0.00	Average	112	64	HORIZONTAL
4	5725.60	68.77	74.00	-5.23	27.43	6.45	34.89	0.00	Peak	112	64	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Note:

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

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

Radio 3:

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 52, 60, 64 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5148.20	59.33	74.00	-14.67	19.19	6.13	34.01	0.00	Peak	101	217	VERTICAL
2	5150.00	42.37	54.00	-11.63	2.23	6.13	34.01	0.00	Average	101	217	VERTICAL
3	5258.80	103.40			62.97	6.21	34.22	0.00	Average	101	217	VERTICAL
4	5259.40	114.63			74.20	6.21	34.22	0.00	Peak	101	217	VERTICAL
5	5350.00	45.37	54.00	-8.63	4.69	6.26	34.42	0.00	Average	101	217	VERTICAL
6	5350.60	65.02	74.00	-8.98	24.34	6.26	34.42	0.00	Peak	101	217	VERTICAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5300.00	110.51			69.96	6.23	34.32	0.00	Peak	100	217	VERTICAL
2	5300.80	99.72			59.17	6.23	34.32	0.00	Average	100	217	VERTICAL
3	5350.00	45.09	54.00	-8.91	4.41	6.26	34.42	0.00	Average	100	217	VERTICAL
4	5359.20	63.29	74.00	-10.71	22.61	6.26	34.42	0.00	Peak	100	217	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5320.60	109.26			68.66	6.24	34.36	0.00	Peak	115	218	VERTICAL
2	5321.00	98.31			57.71	6.24	34.36	0.00	Average	115	218	VERTICAL
3	5350.00	53.05	54.00	-0.95	12.37	6.26	34.42	0.00	Average	115	218	VERTICAL
4	5351.60	73.75	74.00	-0.25	33.07	6.26	34.42	0.00	Peak	115	218	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT20 CH 100, 140 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5458.00	68.29	74.00	-5.71	27.33	6.33	34.63	0.00	Peak	123	209	VERTICAL
2	5460.00	47.56	54.00	-6.44	6.60	6.33	34.63	0.00	Average	123	209	VERTICAL
3	5469.20	73.88	74.00	-0.12	32.87	6.34	34.67	0.00	Peak	123	209	VERTICAL
4	5470.00	53.25	54.00	-0.75	12.24	6.34	34.67	0.00	Average	123	209	VERTICAL
5	5499.20	98.41			57.35	6.36	34.70	0.00	Average	123	209	VERTICAL
6	5502.00	108.97			67.90	6.36	34.71	0.00	Peak	123	209	VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5699.40	107.70			66.41	6.43	34.86	0.00	Peak	149	38	VERTICAL
2	5700.60	96.43			55.13	6.44	34.86	0.00	Average	149	38	VERTICAL
3	5725.00	53.90	54.00	-0.10	12.56	6.45	34.89	0.00	Average	149	38	VERTICAL
4	5728.40	73.01	74.00	-0.99	31.67	6.45	34.89	0.00	Peak	149	38	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 54, 62 / / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5268.40	96.04			55.58	6.21	34.25	0.00	Average	130	222	VERTICAL
2	5268.40	107.55			67.09	6.21	34.25	0.00	Peak	130	222	VERTICAL
3	5350.00	47.47	54.00	-6.53	6.79	6.26	34.42	0.00	Average	130	222	VERTICAL
4	5350.40	66.00	74.00	-8.00	25.32	6.26	34.42	0.00	Peak	130	222	VERTICAL

Item 1, 2 are the fundamental frequency at 5270 MHz.

Channel 62

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5306.80	101.15			60.60	6.23	34.32	0.00	Peak	100	217	VERTICAL
2	5308.00	89.47			48.92	6.23	34.32	0.00	Average	100	217	VERTICAL
3	5350.00	53.90	54.00	-0.10	13.22	6.26	34.42	0.00	Average	100	217	VERTICAL
4	5354.00	70.07	74.00	-3.93	29.39	6.26	34.42	0.00	Peak	100	217	VERTICAL

Item 1, 2 are the fundamental frequency at 5310 MHz.

Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 HT40 CH 102, 110, 134 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	46.86	54.00	-7.14	5.90	6.33	34.63	0.00	Average	123	210	VERTICAL
2	5460.00	61.78	74.00	-12.22	20.82	6.33	34.63	0.00	Peak	123	210	VERTICAL
3	5469.60	70.33	74.00	-3.67	29.32	6.34	34.67	0.00	Peak	123	210	VERTICAL
4	5470.00	53.29	54.00	-0.71	12.28	6.34	34.67	0.00	Average	123	210	VERTICAL
5	5508.40	90.48			49.41	6.36	34.71	0.00	Average	123	210	VERTICAL
6	5512.40	101.60			60.53	6.36	34.71	0.00	Peak	123	210	VERTICAL

Item 5, 6 are the fundamental frequency at 5510 MHz.

Channel 110

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	45.36	54.00	-8.64	4.40	6.33	34.63	0.00	Average	124	210	VERTICAL
2	5460.00	64.20	74.00	-9.80	23.24	6.33	34.63	0.00	Peak	124	210	VERTICAL
3	5468.40	66.57	74.00	-7.43	25.56	6.34	34.67	0.00	Peak	124	210	VERTICAL
4	5470.00	46.52	54.00	-7.48	5.51	6.34	34.67	0.00	Average	124	210	VERTICAL
5	5548.00	106.03			64.91	6.38	34.74	0.00	Peak	124	210	VERTICAL
6	5548.40	94.00			52.88	6.38	34.74	0.00	Average	124	210	VERTICAL

Item 5, 6 are the fundamental frequency at 5550 MHz.

Channel 134

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5664.00	103.65			62.40	6.42	34.83	0.00	Peak	167	76	HORIZONTAL
2	5668.40	92.43			51.17	6.43	34.83	0.00	Average	167	76	HORIZONTAL
3	5725.00	53.92	54.00	-0.08	12.58	6.45	34.89	0.00	Average	167	76	HORIZONTAL
4	5726.20	71.33	74.00	-2.67	29.99	6.45	34.89	0.00	Peak	167	76	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5670 MHz.

Note:

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

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

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 52, 60, 64 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5150.00	42.43	54.00	-11.57	2.29	6.13	34.01	0.00	Average	102	218	VERTICAL
2	5150.00	58.60	74.00	-15.40	18.46	6.13	34.01	0.00	Peak	102	218	VERTICAL
3	5258.80	114.95			74.52	6.21	34.22	0.00	Peak	102	218	VERTICAL
4	5259.40	104.07			63.64	6.21	34.22	0.00	Average	102	218	VERTICAL
5	5350.00	46.14	54.00	-7.86	5.46	6.26	34.42	0.00	Average	102	218	VERTICAL
6	5350.60	65.83	74.00	-8.17	25.15	6.26	34.42	0.00	Peak	102	218	VERTICAL

Item 3, 4 are the fundamental frequency at 5260 MHz.

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5298.80	111.27			70.72	6.23	34.32	0.00	Peak	100	217	VERTICAL
2	5300.80	100.67			60.12	6.23	34.32	0.00	Average	100	217	VERTICAL
3	5350.00	45.92	54.00	-8.08	5.24	6.26	34.42	0.00	Average	100	217	VERTICAL
4	5352.40	63.82	74.00	-10.18	23.14	6.26	34.42	0.00	Peak	100	217	VERTICAL

Item 1, 2 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5320.80	99.36			58.76	6.24	34.36	0.00	Average	116	217	VERTICAL
2	5321.00	111.37			70.77	6.24	34.36	0.00	Peak	116	217	VERTICAL
3	5350.00	53.73	54.00	-0.27	13.05	6.26	34.42	0.00	Average	116	217	VERTICAL
4	5351.20	73.58	74.00	-0.42	32.90	6.26	34.42	0.00	Peak	116	217	VERTICAL

Item 1, 2 are the fundamental frequency at 5320 MHz.

Temperature	25℃	Humidity	54%
Test Engineer	James Chou	Configurations	IEEE 802.11a CH 100, 140 / Chain 7
Test Date	Jan. 01, 2014	Test Mode	Mode 3

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	48.59	54.00	-5.41	7.63	6.33	34.63	0.00	Average	125	208	VERTICAL
2	5460.00	67.58	74.00	-6.42	26.62	6.33	34.63	0.00	Peak	125	208	VERTICAL
3	5469.20	72.53	74.00	-1.47	31.52	6.34	34.67	0.00	Peak	125	208	VERTICAL
4	5470.00	53.69	54.00	-0.31	12.68	6.34	34.67	0.00	Average	125	208	VERTICAL
5	5499.20	98.73			57.67	6.36	34.70	0.00	Average	125	208	VERTICAL
6	5499.60	109.06			68.00	6.36	34.70	0.00	Peak	125	208	VERTICAL

Item 5, 6 are the fundamental frequency at 5500 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	A/Pos	T/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5700.80	97.28			55.98	6.44	34.86	0.00	Average	135	39	VERTICAL
2	5706.60	108.97			67.66	6.44	34.87	0.00	Peak	135	39	VERTICAL
3	5725.00	53.25	54.00	-0.75	11.91	6.45	34.89	0.00	Average	135	39	VERTICAL
4	5728.80	72.72	74.00	-1.28	31.38	6.45	34.89	0.00	Peak	135	39	VERTICAL

Item 1, 2 are the fundamental frequency at 5700 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification).

4.8.2. Measuring Instruments and Setting

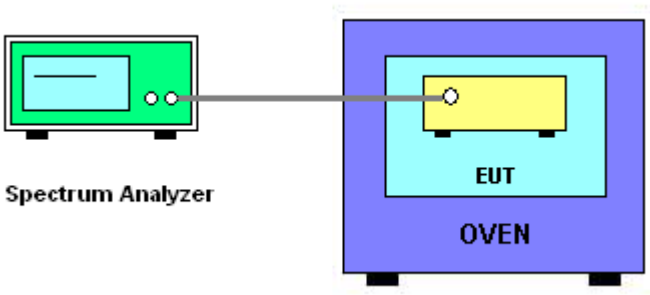
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is 0°C~40°C.

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

4.8.7. Test Result of Frequency Stability

Temperature	24°C	Humidity	60%
Test Engineer	David Tseng	Test Date	Jan. 03, 2014

Radio 2:

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5300 MHz	5500 MHz
126.50	5299.9742	5499.9772
110.00	5299.9748	5499.9772
93.50	5299.9648	5499.9768
Max. Deviation (MHz)	**0.035200**	**0.023200**
Max. Deviation (ppm)	**6.64**	**4.22**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5300 MHz	5500 MHz
0	5299.9634	5499.9774
10	5299.9640	5499.9725
20	5299.9748	5499.9772
30	5300.0147	5500.0048
40	5300.0098	5500.0132
Max. Deviation (MHz)	**0.036600**	**0.027500**
Max. Deviation (ppm)	**6.9057**	**5.00**

Temperature	24°C	Humidity	60%
Test Engineer	Wen Chao	Test Date	Feb. 07, 2014

Radio 3:

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5300 MHz	5500 MHz
126.50	5299.9746	5499.9774
110.00	5299.9748	5499.9774
93.50	5299.9648	5499.9772
Max. Deviation (MHz)	**0.035200**	**0.022800**
Max. Deviation (ppm)	**6.64**	**4.15**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5300 MHz	5500 MHz
0	5299.9450	5499.9776
10	5299.9750	5499.9776
20	5299.9748	5499.9774
30	5299.9748	5499.9772
40	5299.9746	5499.9772
Max. Deviation (MHz)	**0.055000**	**0.022800**
Max. Deviation (ppm)	**10.3774**	**4.15**

4.9. Antenna Requirements

4.9.1. 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. Further, this requirement does not apply to intentional radiators that must be professionally installed.

4.9.2. Antenna Connector Construction

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9 kHz ~ 2.75 GHz	Apr. 12, 2013	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150 kHz ~ 100 MHz	Nov. 23, 2013	Conduction (CO01-CB)
Arifical Mains Network	Schwarzbeck	NSLK 8127	8127647	9 kHz ~ 30 MHz	Nov. 23, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150 kHz ~ 30 MHz	Dec. 04, 2012	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	-	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Apr. 16, 2013	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170c	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO 2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 04, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 17, 2013	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	0917223	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1035008	300MHz~40GHz	Sep. 18, 2013	Conducted (TH01-CB)

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

"*" Calibration Interval of instruments listed above is two years.

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	0.026	dB	normal(k=2)	0.013
Cable loss	0.002	dB	normal(k=2)	0.001
AMN/LISN specification	1.200	dB	normal(k=2)	0.600
Mismatch Receiver VSWR 1= AMN/LISN VSWR 2=	-0.080	dB	U-shaped	0.060
Combined standard uncertainty Uc(y)				1.2
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				2.4

Uncertainty of Radiated Emission Measurement (30MHz ~ 1,000MHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.173	dB	K=1	0.086
Cable loss	±0.174	dB	K=2	0.087
Antenna gain	±0.169	dB	K=2	0.084
Site imperfection	±0.433	dB	Triangular	0.214
Pre-amplifier gain	±0.366	dB	K=2	0.183
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.778
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.555

Uncertainty of Radiated Emission Measurement (1GHz ~ 18GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.191	dB	K=1	0.095
Cable loss	±0.169	dB	K=2	0.084
Antenna gain	±0.191	dB	K=2	0.096
Site imperfection	±0.582	dB	Triangular	0.291
Pre-amplifier gain	±0.304	dB	K=2	0.152
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.839
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.678

Uncertainty of Radiated Emission Measurement (18GHz ~ 40GHz)

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Receiver reading	±0.186	dB	K=1	0.093
Cable loss	±0.167	dB	K=2	0.083
Antenna gain	±0.190	dB	K=2	0.095
Site imperfection	±0.488	dB	Triangular	0.244
Pre-amplifier gain	±0.269	dB	K=2	0.134
Transmitter antenna	±1.200	dB	Rectangular	0.600
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				1.771
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				3.541

Uncertainty of Conducted Emission Measurement

Contribution	Uncertainty of x_i			$u(x_i)$
	Value	Unit	Probability Distribution k	
Cable loss	±0.038	dB	K=2	0.019
Attenuator	±0.047	dB	K=2	0.024
Power Meter specification	±0.300	dB	Triangular	0.150
Power Sensor specification	±0.300	dB	Rectangular	0.150
Signal generator	±0.461	dB	Rectangular	0.231
Mismatch	±0.080	dB	U-shape	0.040
Spectrum analyzer	±0.500	dB	Rectangular	0.250
Combined standard uncertainty Uc(y)				0.863
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)				1.726

Appendix A. Test Photos

1. Photographs of Conducted Emissions Test Configuration

Test Mode: Mode 1

FRONT VIEW

REAR VIEW

2. Photographs of Radiated Emissions Test Configuration

Test Configuration: 9kHz ~30MHz / Mode 4

FRONT VIEW

REAR VIEW

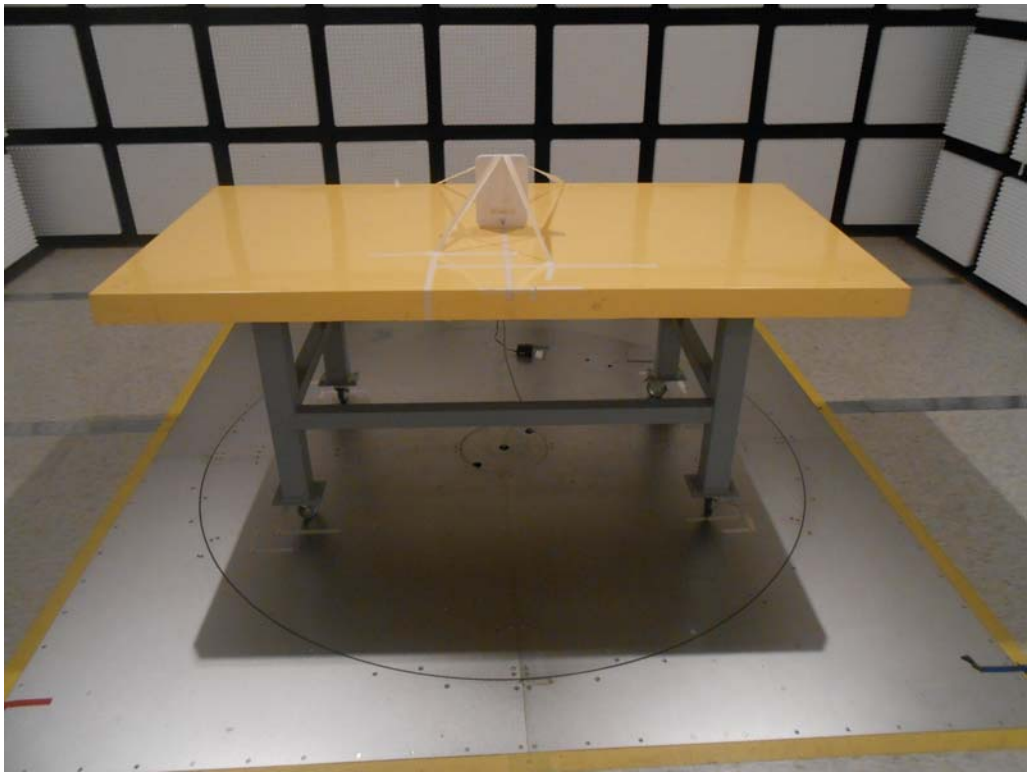
Test Configuration: 30MHz~1GHz / Test Mode: Mode 4

FRONT VIEW

REAR VIEW

Test Configuration: Above 1GHz / Test Mode: Mode 2

FRONT VIEW



REAR VIEW

Test Configuration: Above 1GHz / Test Mode: Mode 3

FRONT VIEW

REAR VIEW

Appendix B. Maximum Permissible Exposure

1. Maximum Permissible Exposure

1.1. Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm²)	Averaging Time |E|², |H|² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

1.2. MPE Calculation Method

E (V/m) = $\frac{\sqrt{30 \times P \times G}}{d}$ Power Density: *Pd* (W/m²) = $\frac{E^2}{377}$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

Pd = $\frac{30 \times P \times G}{377 \times d^2}$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

1.3. Calculated Result and Limit

Radio 1:

For 2.4GHz Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11n MCS0 20MHz: 25.85 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
2.90	1.9498	25.8465	384.2830	0.149143	1	Complies

Radio 2:

For 5GHz UNII Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11n MCS0 40MHz: 23.73 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
3.78	2.3878	23.7263	235.8468	0.112093	1	Complies

For 5GHz ISM Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11n MCS0 20MHz: 27.97 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
3.78	2.3878	27.9670	626.1870	0.297615	1	Complies

Radio 3:

For 2.4GHz Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11b: 21.98 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
4.84	3.0479	21.9800	157.7611	0.095708	1	Complies

For 5GHz UNII Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11a: 22.89 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
5.97	3.9537	22.8900	194.5360	0.153091	1	Complies

For 5GHz ISM Band:

Antenna Type : PIFA Antenna

Max Conducted Power for IEEE 802.11n MCS0 20MHz: 22.66 dBm

Antenna Gain (dBi)	Antenna Gain (numeric)	Average Output Power (dBm)	Average Output Power (mW)	Power Density (S) (mW/cm²)	Limit of Power Density (S) (mW/cm²)	Test Result
5.97	3.9537	22.6600	184.5015	0.145195	1	Complies

CONCULSION:

Both of the WLAN 2.4GHz (Radio 1)+5GHz (Radio 2)+2.4GHz (Radio 3) and WLAN 2.4GHz (Radio 1)+5GHz (Radio 2)+5GHz (Radio 3) function can transmit simultaneously, the formula of calculatedthe MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ...etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz (Radio 1)+5GHz (Radio 2)+2.4GHz (Radio 3):

Therefore, the worst-case situation is 0.149143 / 1 + 0.297615 / 1 + 0.095708 / 1 = 0.542466, which is less than “1”. This confirmed that the device comply with FCC 1.1310 MPE limit.

WLAN 2.4GHz (Radio 1)+5GHz (Radio 2)+5GHz (Radio 3):

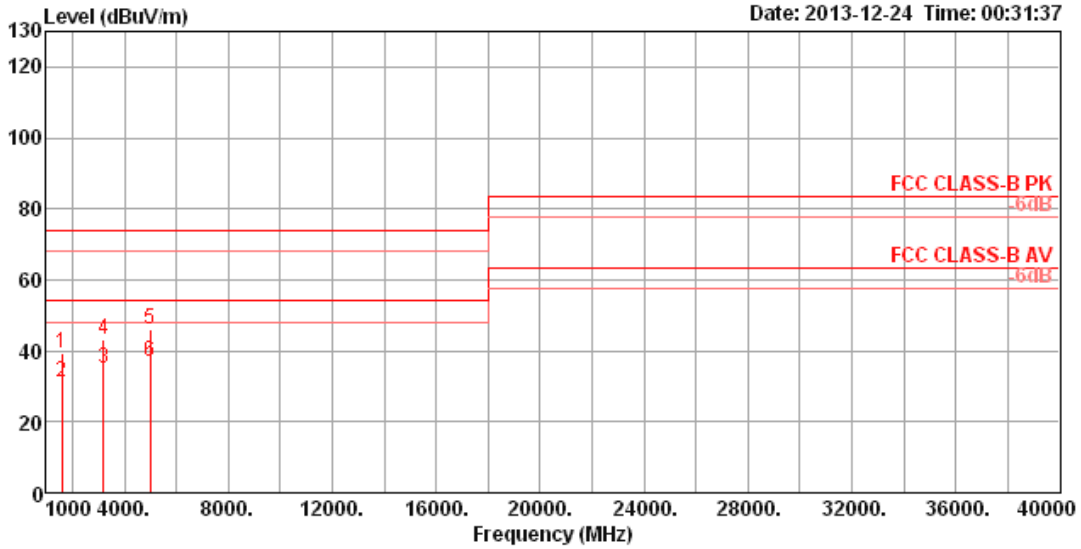
Therefore, the worst-case situation is 0.149143 / 1 + 0.297615 / 1 + 0.153091 / 1 = 0.599849, which is less than “1”. This confirmed that the device comply with FCC 1.1310 MPE limit.

Appendix C. Co-location

1. Results of Radiated Emissions for Co-located

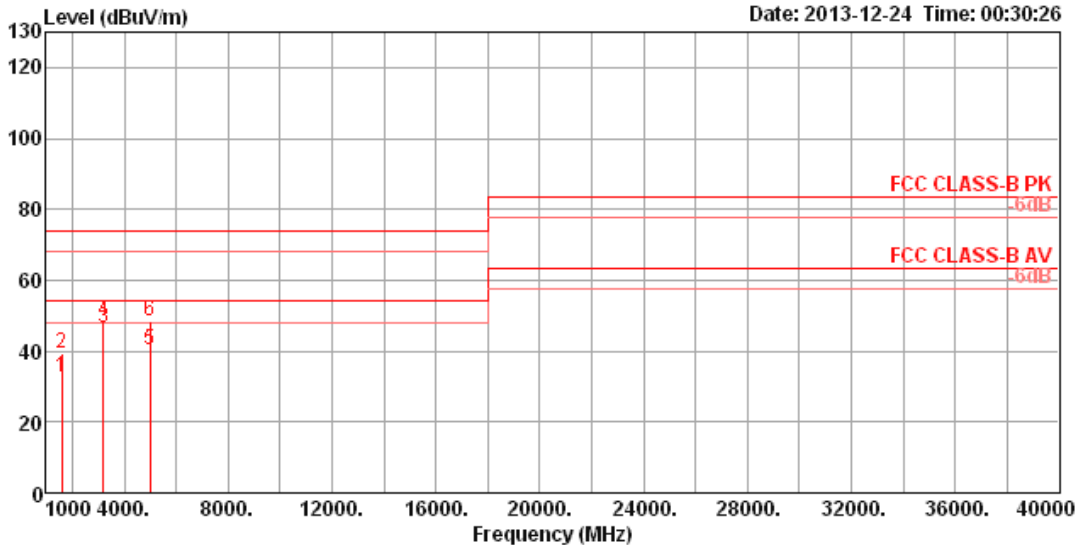
Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 for 2.4G function

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1599.77	39.45	74.00	-34.55	47.71	2.97	25.66	36.89	111	268	HORIZONTAL	Peak
2	1600.19	31.07	54.00	-22.93	39.33	2.97	25.66	36.89	111	268	HORIZONTAL	Average
3	3200.00	35.08	54.00	-18.92	36.77	4.35	29.91	35.95	100	172	HORIZONTAL	Average
4	3200.12	43.04	74.00	-30.96	44.73	4.35	29.91	35.95	100	172	HORIZONTAL	Peak
5	4999.84	46.07	74.00	-27.93	42.63	5.90	32.90	35.36	100	244	HORIZONTAL	Peak
6	5000.04	36.75	54.00	-17.25	33.31	5.90	32.90	35.36	100	244	HORIZONTAL	Average

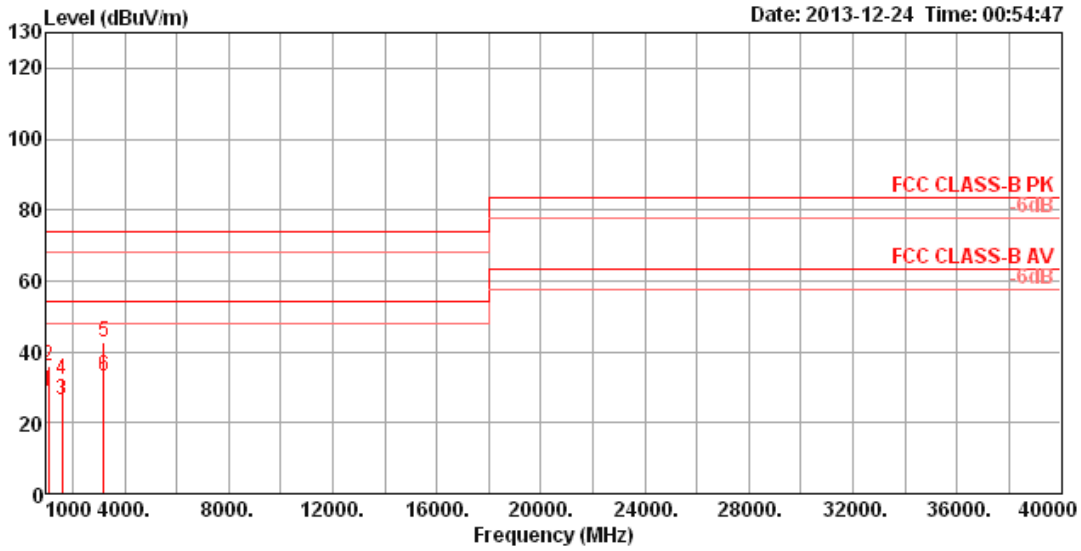
Vertial



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1600.08	32.74	54.00	-21.26	41.00	2.97	25.66	36.89	111	325	VERTICAL	Average
2	1600.10	39.35	74.00	-34.65	47.61	2.97	25.66	36.89	111	325	VERTICAL	Peak
3	3200.00	46.55	54.00	-7.45	48.24	4.35	29.91	35.95	100	354	VERTICAL	Average
4	3200.12	48.44	74.00	-25.56	50.13	4.35	29.91	35.95	100	354	VERTICAL	Peak
5	5000.01	40.28	54.00	-13.72	36.84	5.90	32.90	35.36	100	19	VERTICAL	Average
6	5000.04	48.50	74.00	-25.50	45.06	5.90	32.90	35.36	100	19	VERTICAL	Peak

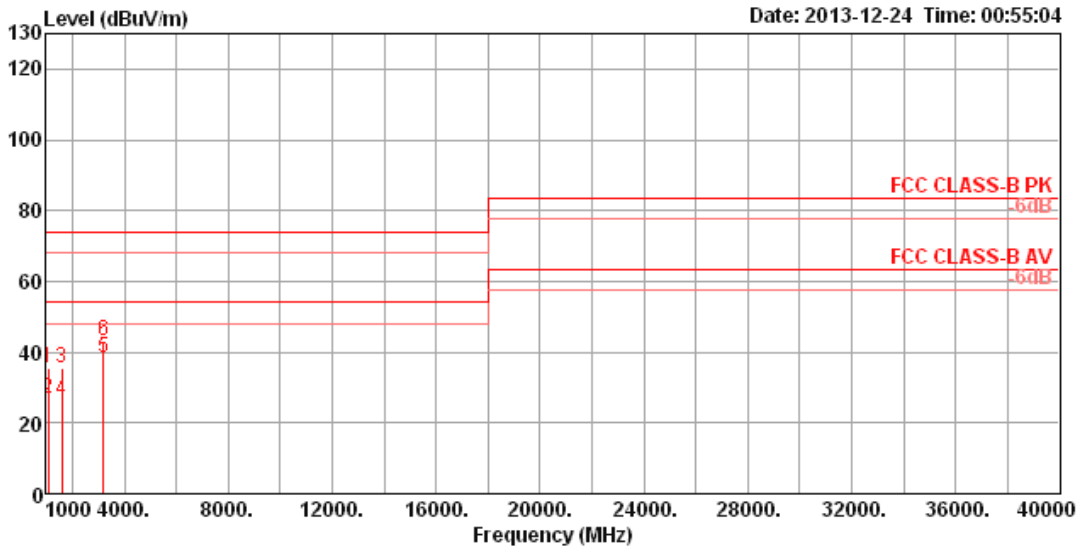
Temperature	25°C	Humidity	54%
Test Engineer	James Chou	Configurations	Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 for 5G function

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1062.32	28.79	54.00	-25.21	40.73	2.35	23.75	38.04	100	206	HORIZONTAL	Average
2	1062.58	35.84	74.00	-38.16	47.78	2.35	23.75	38.04	100	206	HORIZONTAL	Peak
3	1600.00	26.49	54.00	-27.51	34.75	2.97	25.66	36.89	100	276	HORIZONTAL	Average
4	1600.82	31.92	74.00	-42.08	40.17	2.98	25.66	36.89	100	276	HORIZONTAL	Peak
5	3199.78	42.87	74.00	-31.13	44.56	4.35	29.91	35.95	100	169	HORIZONTAL	Peak
6	3199.99	33.33	54.00	-20.67	35.02	4.35	29.91	35.95	100	169	HORIZONTAL	Average

Vertial



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1062.05	35.45	74.00	-38.55	47.39	2.35	23.75	38.04	100	122	VERTICAL	Peak
2	1062.32	26.71	54.00	-27.29	38.65	2.35	23.75	38.04	100	122	VERTICAL	Average
3	1599.85	35.48	74.00	-38.52	43.74	2.97	25.66	36.89	100	328	VERTICAL	Peak
4	1599.89	26.33	54.00	-27.67	34.59	2.97	25.66	36.89	100	328	VERTICAL	Average
5	3199.99	38.41	54.00	-15.59	40.10	4.35	29.91	35.95	100	346	VERTICAL	Average
6	3200.98	43.34	74.00	-30.66	45.00	4.35	29.94	35.95	100	346	VERTICAL	Peak