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FCC RADIO TEST REPORT

Applicant's company	**Sony Corporation**
Applicant Address	1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan
FCC ID	**AK8SVF13NA1EL**
Manufacturer's company	**Sony Corporation**
Manufacturer Address	1-7-1 Konan, Minato-ku, Tokyo 108-0075, Japan

Product Name	Personal Computer
Brand Name	SONY
Model No.	SVF13NA1EL
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Received Date	Jul. 26, 2013
Final Test Date	Oct. 17, 2013
Submission Type	Original Equipment
Operating Mode	Client (without radar detection function)

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a/ac (5150 ~ 5350MHz / 5470 ~ 5725MHz) of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2009**, **47 CFR FCC Part 15 Subpart E, KDB 789033 D01 v01r03, KDB 662911 D01 v02, KDB644545 D01v01r01, KDB644545 D02v01**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR372647AD	Rev. 01	Initial issue of report	Oct. 14, 2013
FR372647AD	Rev. 02	Added NFC function and re-test AC Power Line Conducted Emissions and Radiated Emissions (30MHz ~ 1GHz)	Oct. 17, 2013

Certificate No.: CB10210064

1. CERTIFICATE OF COMPLIANCE

Product Name	:	Personal Computer
Brand Name	:	SONY
Model No.	:	SVF13NA1EL
Applicant	:	Sony Corporation
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 Jul. 26, 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

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	12.19 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	3.04 dB
4.4	15.407(a)	Power Spectral Density	Complies	3.49 dB
4.5	15.407(a)	Peak Excursion	Complies	1.78 dB
4.6	15.407(b)	Radiated Emissions	Complies	3.15 dB
4.7	15.407(b)	Band Edge Emissions	Complies	6.51 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 / ac

Items	Description
Product Type	WLAN (1TX/2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter and battery
Modulation	see the below table for IEEE 802.11n/ac
Data Modulation	For 802.11n: OFDM (BPSK / QPSK / 16QAM / 64QAM) For 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n/ac
Frequency Range	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	17 for 20MHz bandwidth ; 8 for 40MHz bandwidth 4 for 80MHz bandwidth
Channel Band Width (99%)	Band 1: 802.11n MCS0 (20MHz): 18.24 MHz ; 802.11n MCS8 (20MHz): 18.24 MHz ; 802.11n MCS0 (40MHz): 36.48 MHz ; 802.11n MCS8 (40MHz): 36.48 MHz ; 802.11ac MCS0/Nss1 (80MHz): 75.52 MHz; 802.11ac MCS0/Nss2 (80MHz): 74.88 MHz Band 2: 802.11n MCS0 (20MHz): 18.40 MHz ; 802.11n MCS8 (20MHz): 18.24 MHz ; 802.11n MCS0 (40MHz): 36.48 MHz ; 802.11n MCS8 (40MHz): 36.16 MHz ; 802.11ac MCS0/Nss1 (80MHz): 75.52 MHz; 802.11ac MCS0/Nss2 (80MHz): 75.60 MHz Band 3: 802.11n MCS0 (20MHz): 18.40 MHz ; 802.11n MCS8 (20MHz): 18.24 MHz ; 802.11n MCS0 (40MHz): 36.48 MHz ; 802.11n MCS8 (40MHz): 36.16 MHz ; 802.11ac MCS0/Nss1 (80MHz): 75.52 MHz; 802.11ac MCS0/Nss2 (80MHz): 75.60 MHz

Maximum Conducted Output Power	Band 1: 802.11n MCS0 (20MHz): 13.81 dBm ; 802.11n MCS8 (20MHz): 13.96 dBm ; 802.11n MCS0 (40MHz): 13.72 dBm ; 802.11n MCS8 (40MHz): 13.86 dBm ; 802.11ac MCS0/Nss1 (80MHz): 7.88 dBm ; 802.11ac MCS0/Nss2 (80MHz): 9.42 dBm Band 2: 802.11n MCS0 (20MHz): 14.45 dBm ; 802.11n MCS8 (20MHz): 14.41 dBm ; 802.11n MCS0 (40MHz): 10.87 dBm ; 802.11n MCS8 (40MHz): 11.81 dBm ; 802.11ac MCS0/Nss1 (80MHz): 9.91 dBm ; 802.11ac MCS0/Nss2 (80MHz): 10.47 dBm Band 3: 802.11n MCS0 (20MHz): 14.86 dBm ; 802.11n MCS8 (20MHz): 14.94 dBm ; 802.11n MCS0 (40MHz): 14.91 dBm ; 802.11n MCS8 (40MHz): 14.90 dBm ; 802.11ac MCS0/Nss1 (80MHz): 12.45 dBm ; 802.11ac MCS0/Nss2 (80MHz): 14.81 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (1TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From power adapter and battery
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	5150 ~ 5350MHz / 5470 ~ 5725MHz
Channel Number	17
Channel Band Width (99%)	Band 1: 17.28 MHz ; Band 2: 17.28 MHz ; Band 3: 17.44 MHz
Maximum Conducted Output Power	Band 1: 13.86 dBm ; Band 2: 14.48 dBm ; Band 3: 14.91 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Antenna and Band width

Antenna	Single (TX)			Two (TX)		
Band width Mode	20 MHz	40 MHz	80MHz	20 MHz	40 MHz	80MHz
IEEE 802.11a	V	X	X	X	X	X
IEEE 802.11n	V	V	X	V	V	X
IEEE 802.11ac	X	X	V	X	X	V

IEEE 11n / ac Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	1,2	MCS 0-15
802.11n (HT40)	1,2	MCS 0-15
802.11ac (VHT80)	1,2	MCS 0-9/Nss1-2
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT80. Note 3: Modulation modes consist of below configuration: 11a: IEEE 802.11a, HT20/HT40: IEEE 802.11n, VHT80: IEEE 802.11ac		

3.2. Accessories

Power	Brand	Model	Rating
Adapter	SONY	VGP-AC19V73	Input: 100-240Vac, 50/60Hz, 1.0A Output1: 19.5Vdc, 2.0A Output2: 5.0Vdc, 1.0A
LITHIUM ION BATTERY	SONY	VGP-BPS41	11.25Vdc, 3140mAh

3.3. Table for Filed Antenna

Ant.	Brand	Model Name	P/N	Antenna Type	Connector	Gain (dBi)	
						2.4GHz	5GHz
1	VAIO	IRX-7660(B)	PANT13A00002-9-xx	PIFA Antenna	I-PEX	1.82	1.07
2	VAIO	IRX-7660(B)	PANT13A00002-9-xx	PIFA Antenna	I-PEX	-1.42	0.18

Note:

For IEEE 802.11abg mode (1TX, 2RX):

Both Chain 1 and Chain 2 can be used as transmitting/receiving antenna, but only one of them is used as transmitting antenna.

Both Chain 1 and Chain 2 could receive simultaneously.

The EUT supports the antenna with TX diversity function.

Chain 2 generated the worst case than Chain 1, so it is tested and recorded in the report.

For IEEE 802.11n/ac mode (1TX/2TX, 2RX):

The EUT can support 1TX and 2TX functions.

For 1TX, 2RX

Both Chain 1 and Chain 2 can be used as transmitting/receiving antenna, but only one of them is used as transmitting antenna.

Both Chain 1 and Chain 2 could receive simultaneously.

The EUT supports the antenna with TX diversity function.

Chain 2 generated the worst case than Chain 1, so it is tested and recorded in the report.

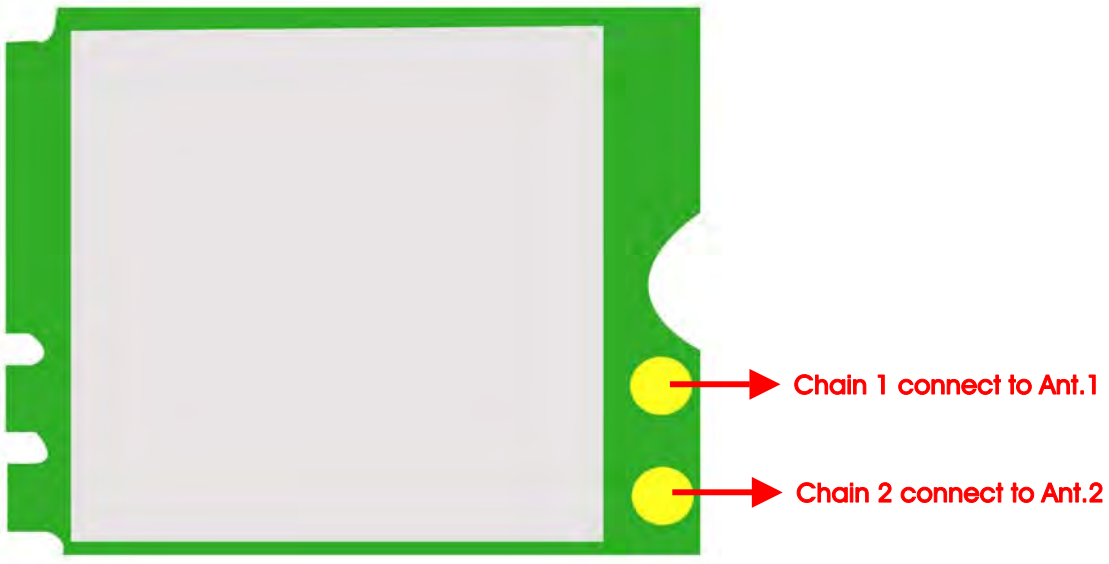
For 2TX, 2RX

Both Chain 1 and Chain 2 can be used as transmitting/receiving antenna.

Both Chain 1 and Chain 2 could transmit/receive simultaneously.

For Bluetooth mode (1TX, 1RX):

Only Chain 2 can be use as transmitting/receiving antenna.



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 132, 136, 140, 144.

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 134, 142.

For 80MHz bandwidth systems, use Channel 42, 58, 106, 138

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
	42	5210 MHz	-	-
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
	58	5290 MHz	-	-
5470~5725 MHz Band 3	100	5500 MHz	132	5660 MHz
	102	5510 MHz	134	5670 MHz
	104	5520 MHz	136	5680 MHz
	106	5530 MHz	138	5690 MHz
	108	5540 MHz	140	5700 MHz
	110	5550 MHz	142	5710 MHz
	112	5560 MHz	144	5720 MHz
	116	5580 MHz	-	-

3.5. Table for Product Information

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

3.6. 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.

Test Items	Mode		Data Rate	Channel	Chain
AC Power Conducted Emission	CTX		-	-	-
Max. Conducted Output Power	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1+2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1+2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1+2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2
Power Spectral Density	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1+2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1+2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1+2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2

26dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1&2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1&2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1&2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2
Peak Excursion	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1+2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1+2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1+2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2

Radiated Emission Below 1GHz	CTX		-	-	-
Radiated Emission Above 1GHz	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1+2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1+2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1+2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2
Band Edge Emission	11n 20MHz	Band 1-3	MCS0	36/40/48/52/60/64 /100/116/140/144	2
			MCS8	36/40/48/52/60/64 /100/116/140/144	1+2
	11n 40MHz	Band 1-3	MCS0	38/46/54/62/ 102/110/134/142	2
			MCS8	38/46/54/62/ 102/110/134/142	1+2
	11ac 80MHz	Band 1-3	MCS0/Nss1	42/58/106/138	2
			MCS0/Nss2	42/58/106/138	1+2
	11a/BPSK	Band 1-3	6Mbps	36/40/48/52/60/64 /100/116/140/144	2
Frequency Stability	Un-modulation		-	40/60/100	N/A

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. EUT (CTX) with 2.4GHz WLAN, BT and NFC function

Mode 2. EUT (CTX) with 5GHz WLAN, BT and NFC function

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

For Radiated Emission test:

The EUT for Radiated emission test was performed at stand, laptop and slate mode and the worst-case was found at slate mode. So the measurement will follow this same test configuration.

For below 1GHz:

Mode 1: EUT (CTX) with 2.4GHz WLAN, BT and NFC function – Slate Mode

Mode 2: EUT (CTX) with 5GHz WLAN, BT and NFC function – Slate Mode

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

For Above 1GHz:

Mode 1: EUT (CTX) – Slate Mode

<For Co-location Test>:

The EUT could be applied with 2.4GHz/5GHz WLAN function and Bluetooth function and share common antenna; therefore Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz/5GHz WLAN function and Bluetooth function.

Mode 1: EUT (CTX) with 2.4GHz WLAN and BT function – Slate Mode

Mode 2: EUT (CTX) with 5GHz WLAN and BT function – Slate Mode

3.7. Table for Testing Locations

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	-	-	-
TH01-HY	OVEN Room	Hwa Ya	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).Please refer section 6 for Test Site Address.

3.8. Table for Supporting Units

For AC Power Conducted Emissions and Radiated Emissions Below 1GHz

Support Unit	Brand	Model	FCC ID
RFID Card	-	-	-

For Radiated Emissions Above 1GHz

N/A

3.9. 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.

For 1TX

Power Parameters of IEEE 802.11n MCS0 20MHz

Test Software Version	DRTU , version 1.6.4-726									
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
MCS0 20MHz	26	29	29	29.5	29.5	26	25.5	29.5	25.5	31

Power Parameters of IEEE 802.11n MCS0 40MHz

Test Software Version	DRTU , version 1.6.4-726							
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS0 40MHz	23.5	29	23	25	23	29.5	30	31

Parameters of IEEE 802.11ac MCS0/Nss1 80MHz

Test Software Version	DRTU , version 1.6.4-726			
Frequency	5210 MHz	5290 MHz	5530 MHz	5690 MHz
MCS0/Nss1 80MHz	23	24.5	20.5	28

Power Parameters of IEEE 802.11a

Test Software Version	DRTU , version 1.6.4-726									
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
802.11a	26	29	29	29.5	29.5	26	25.5	29.5	25.5	31

For 2TX

Power Parameters of IEEE 802.11n MCS8 20MHz

Test Software Version	DRTU , version 1.6.4-726									
Frequency	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz
MCS8 20MHz	27/28.5	27.5/28.5	27/28.5	28/29	28/29	27.5/28	25.5/25	29.5/29.5	26/26.5	30/30.5

Power Parameters of IEEE 802.11n MCS8 40MHz

Test Software Version	DRTU , version 1.6.4-726							
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz
MCS8 40MHz	22.5/23.5	27.5/29	23.5/24.5	25/26	23/22.5	29.5/29.5	29.5/29.5	30/30.5

Parameters of IEEE 802.11ac MCS0/Nss2 80MHz

Test Software Version	DRTU , version 1.6.4-726			
Frequency	5210 MHz	5290 MHz	5530 MHz	5690 MHz
MCS0/Nss2 80MHz	22.5/24	24/24.5	22/21.5	30.5/30.5

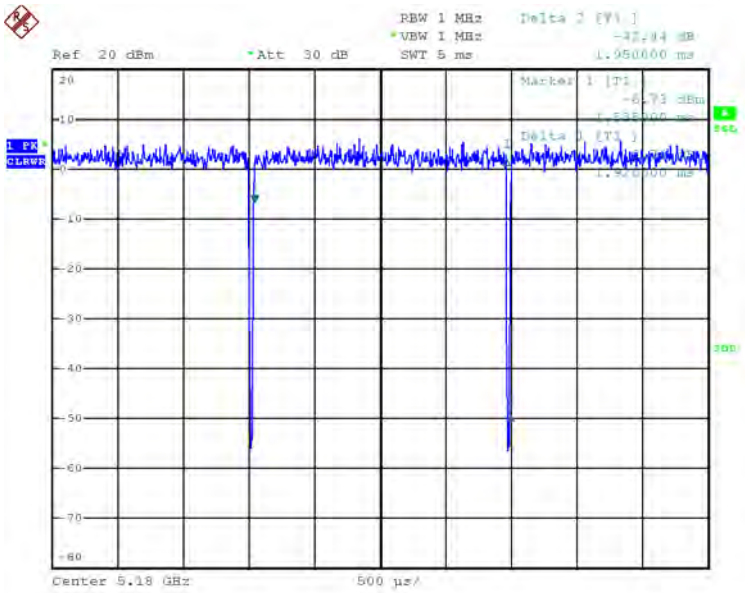
3.10. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

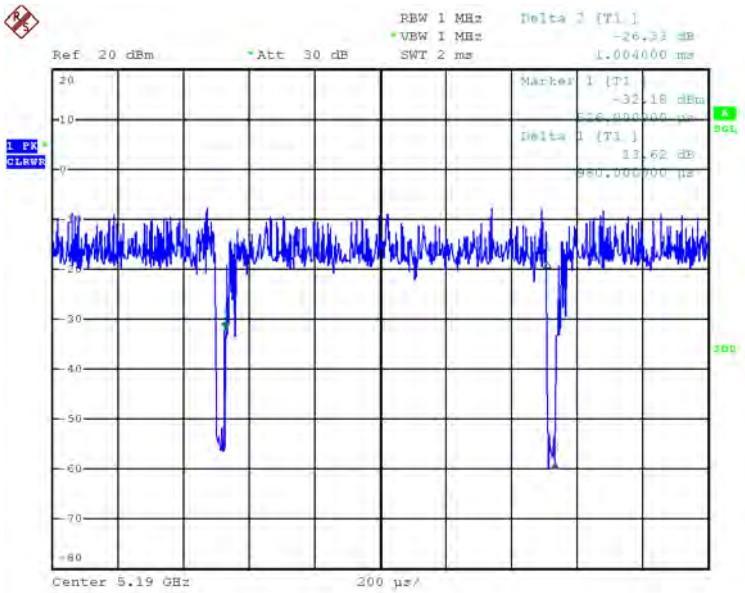
3.11. Duty Cycle

For 1TX

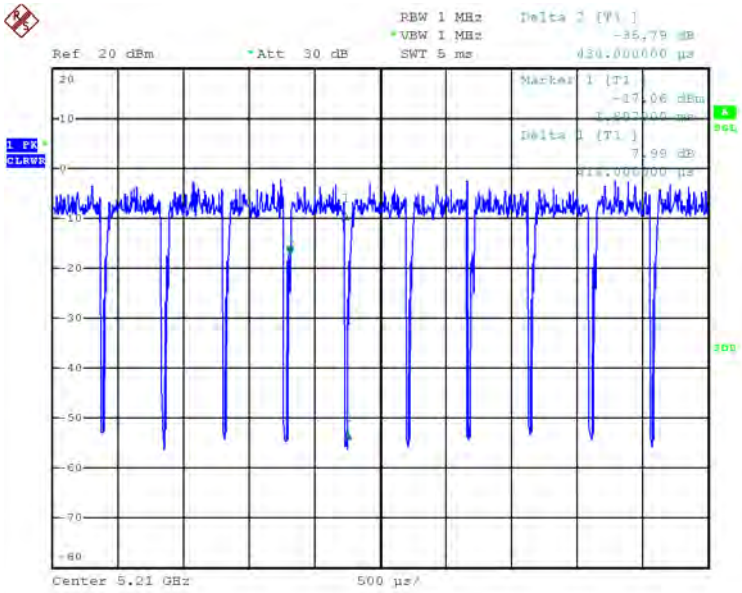
IEEE 802.11n MCS0 20MHz



IEEE 802.11n MCS0 40MHz



IEEE 802.11ac MCS0/Nss1 80MHz



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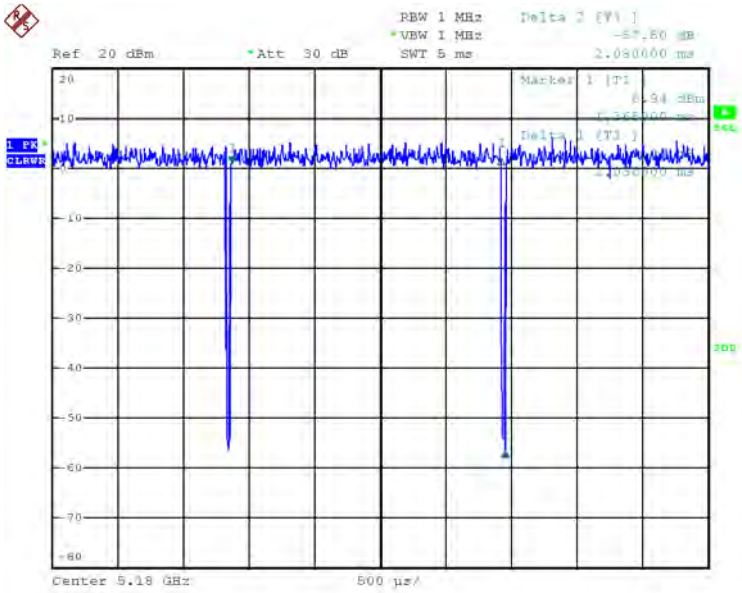
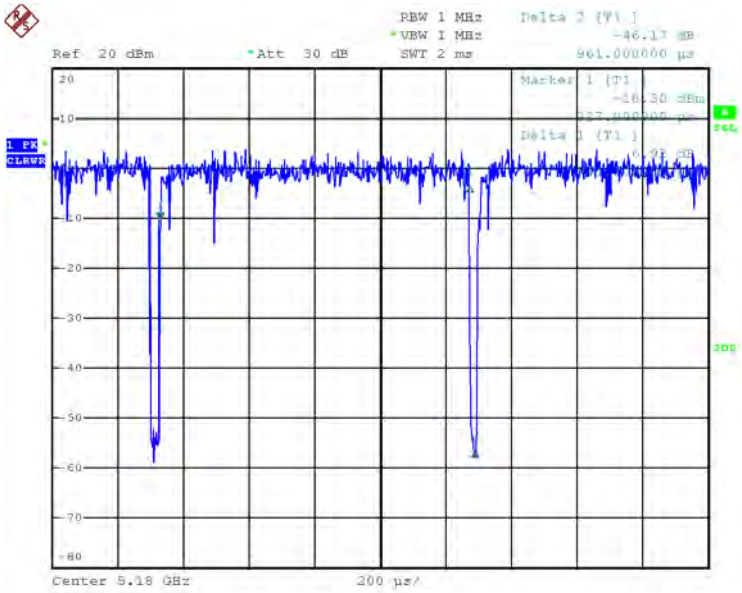
IEEE 802.11a



Date: 2.OCT.2013 23:47:35

For 2TX

IEEE 802.11n MCS8 20MHz



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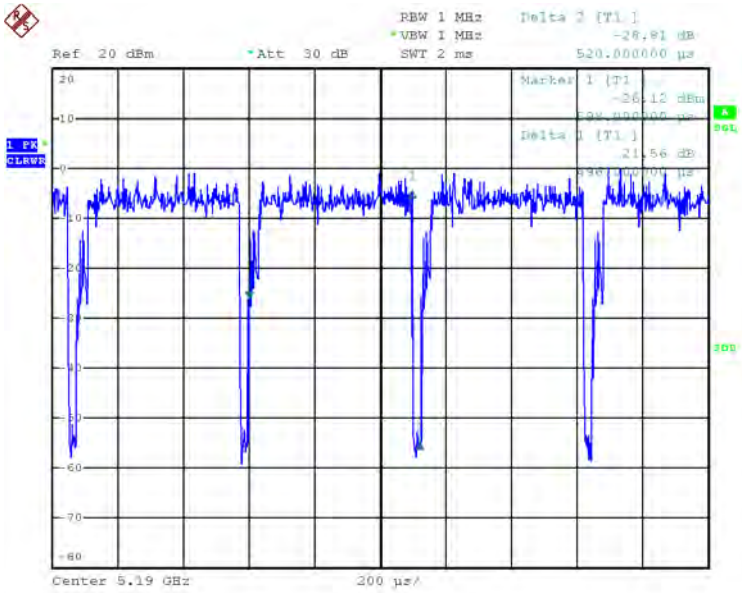
IEEE 802.11n MCS8 40MHz



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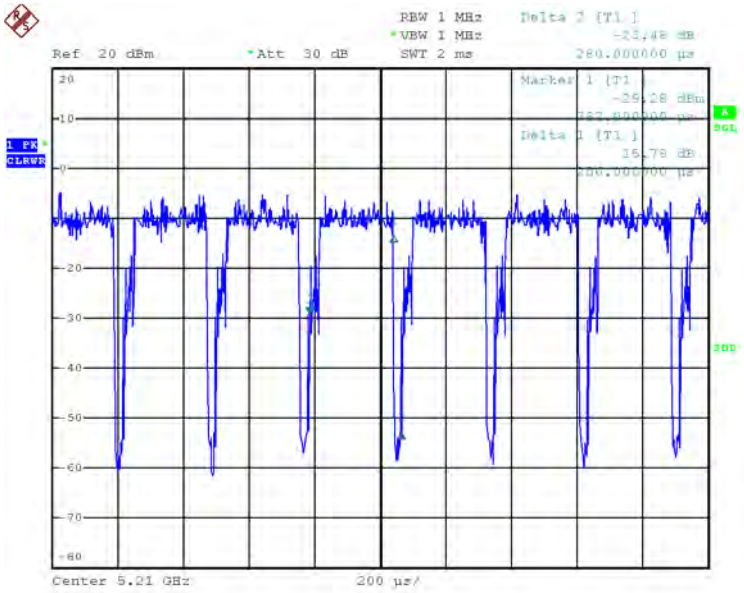
IEEE 802.11ac MCS0/Nss2 80MHz



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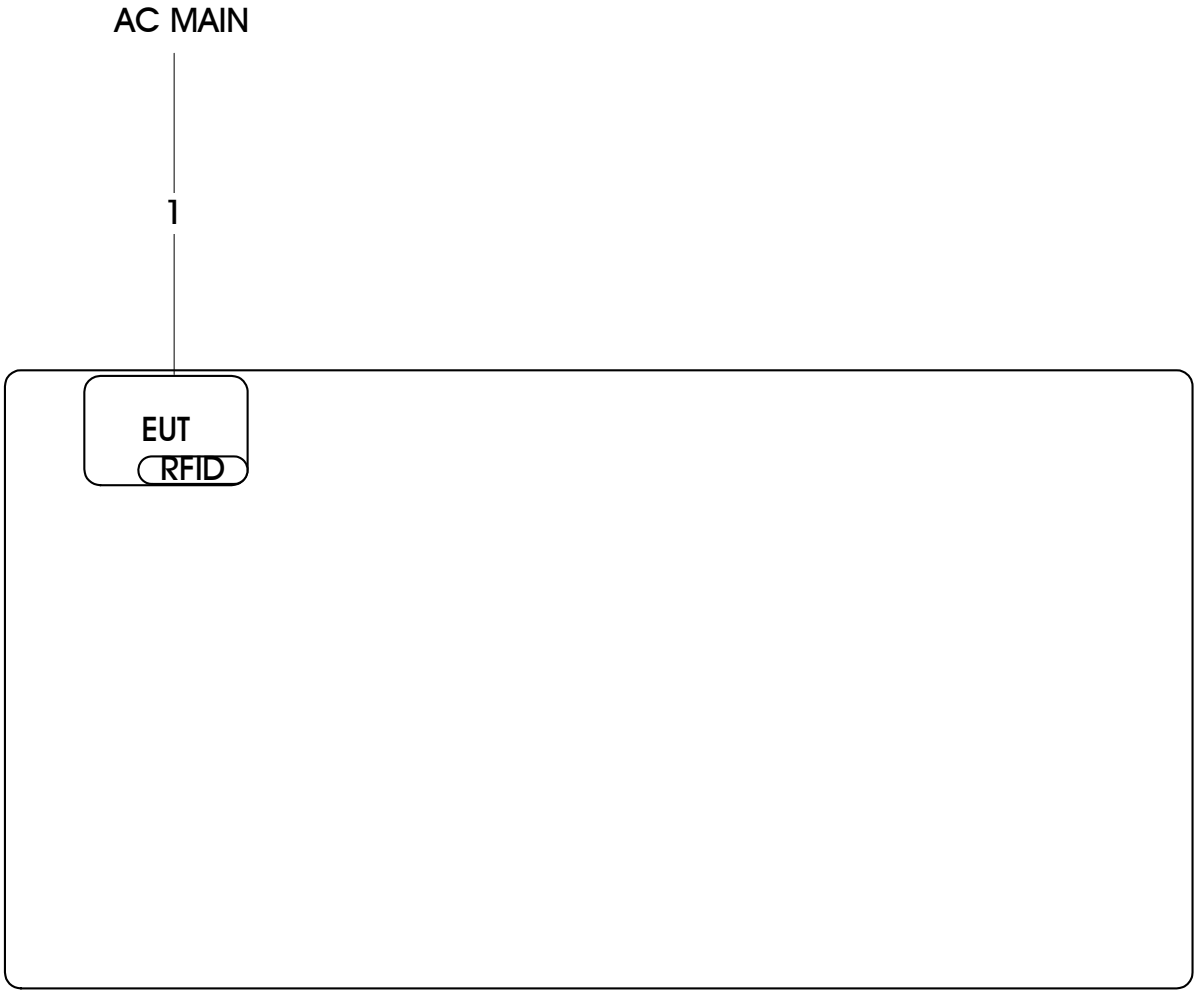
3.12. Test Configurations

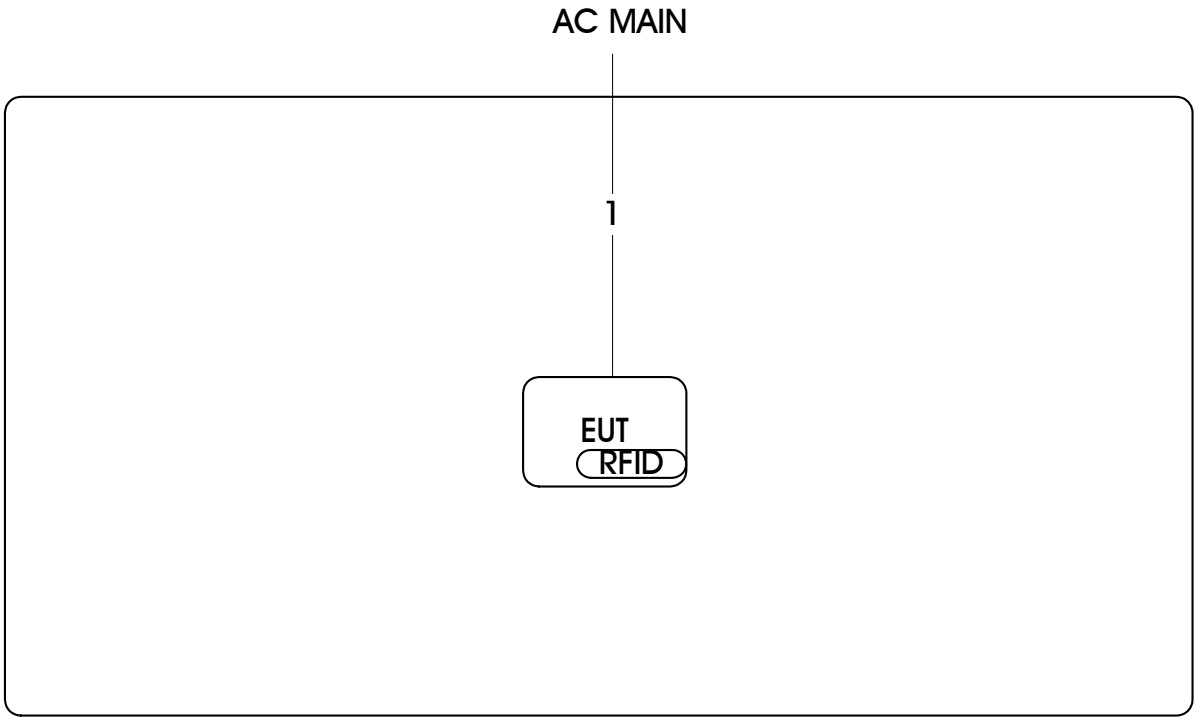
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length(m)	Remark
1	Power Cable	No	2.6m	-

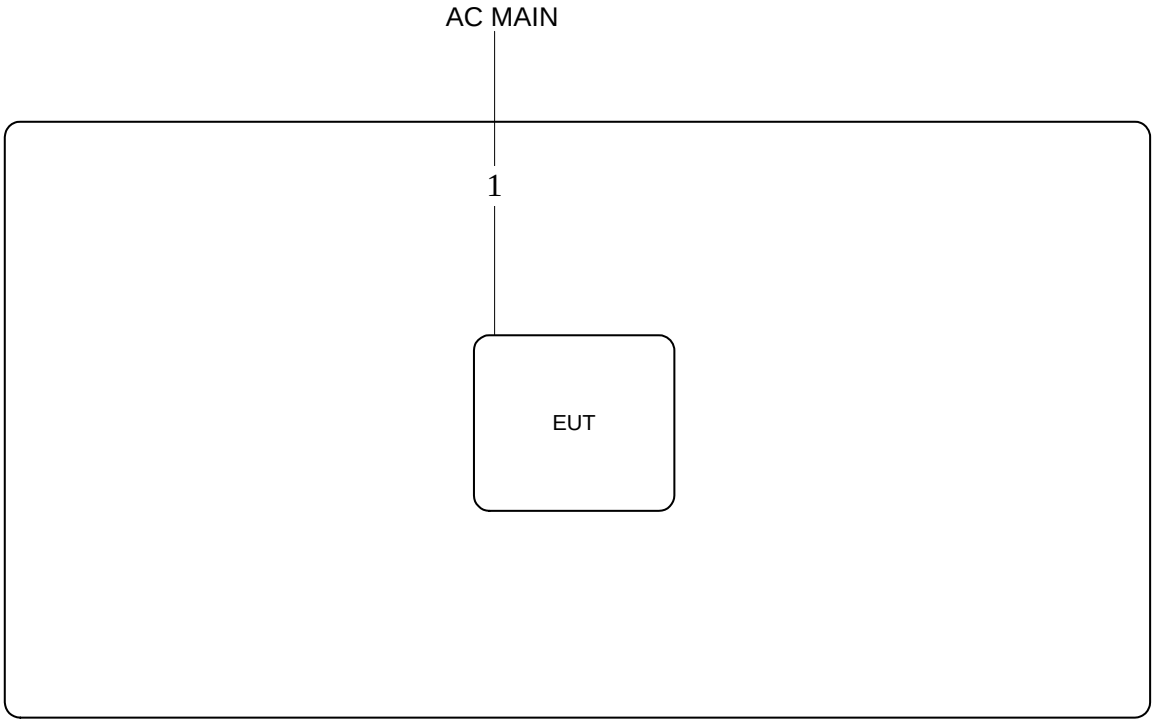
3.12.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length(m)	Remark
1	Power Cable	No	2.6m	-

Test Configuration: above 1GHz



Item	Connection	Shielded	Length(m)	Remark
1	Power Cable	No	2.6m	-

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

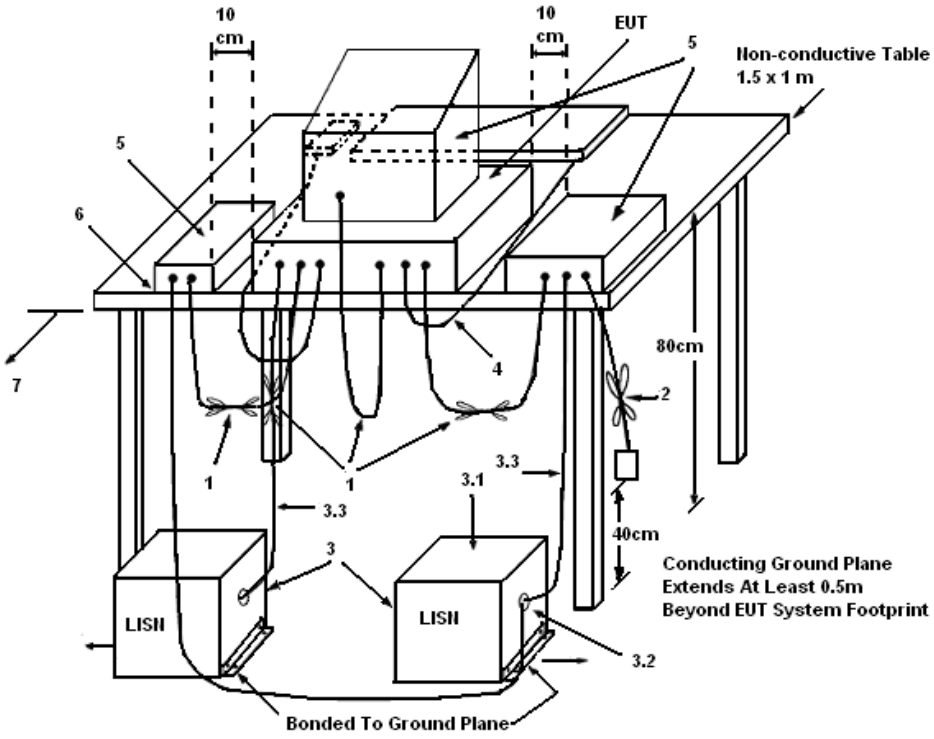
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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 C63.10. 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

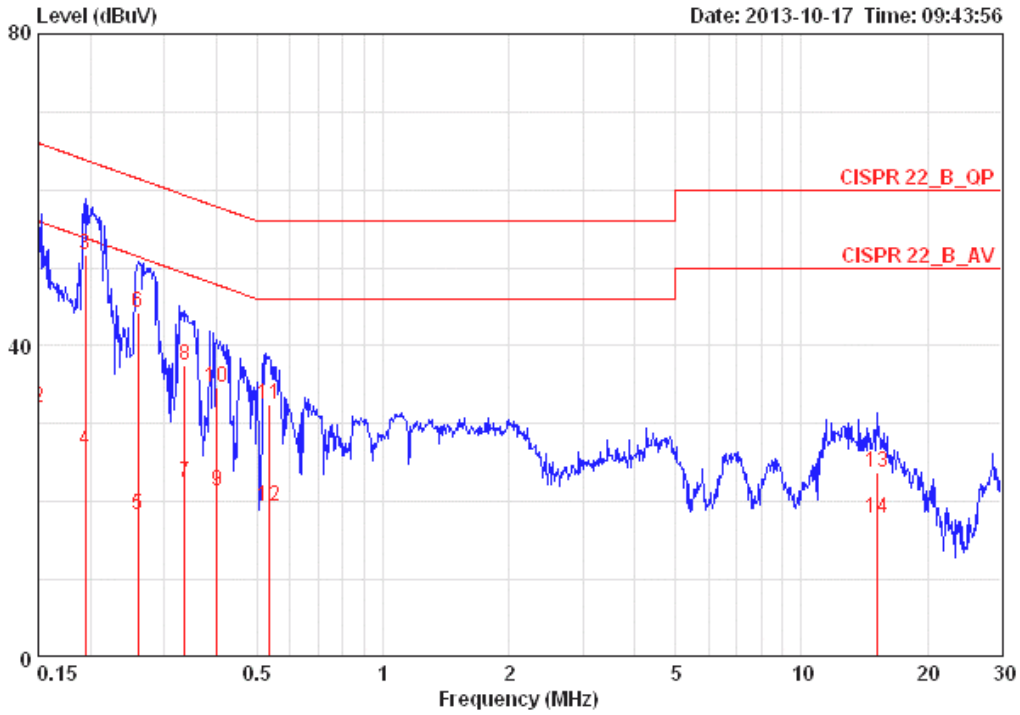
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

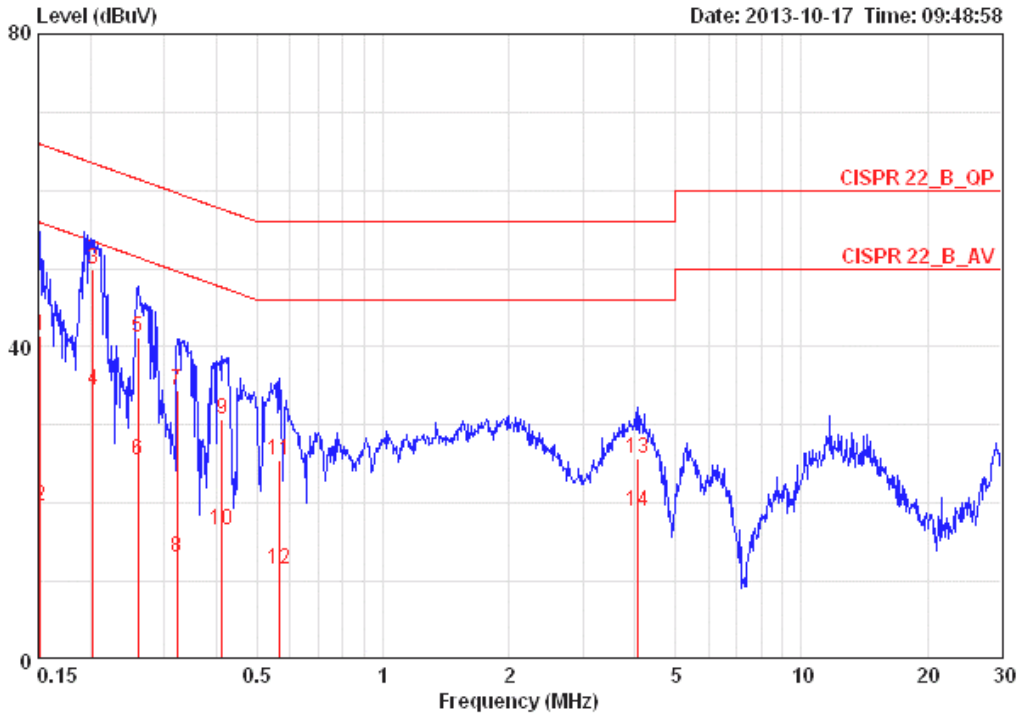
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	48%
Test Engineer	Sin Chang	Phase	Line
Configuration	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	0.15000	47.32	-18.68	66.00	46.99	0.15	0.18	LINE	QP
2	0.15000	32.09	-23.91	56.00	31.76	0.15	0.18	LINE	AVERAGE
3 @	0.19447	51.66	-12.19	63.84	51.31	0.15	0.20	LINE	QP
4	0.19447	26.66	-27.19	53.84	26.31	0.15	0.20	LINE	AVERAGE
5	0.26026	18.33	-33.09	51.42	17.98	0.15	0.20	LINE	AVERAGE
6	0.26026	44.24	-17.18	61.42	43.89	0.15	0.20	LINE	QP
7	0.33562	22.51	-26.80	49.31	22.16	0.15	0.20	LINE	AVERAGE
8	0.33562	37.50	-21.81	59.31	37.15	0.15	0.20	LINE	QP
9	0.40187	21.47	-26.34	47.81	21.12	0.15	0.20	LINE	AVERAGE
10	0.40187	34.73	-23.08	57.81	34.38	0.15	0.20	LINE	QP
11	0.53498	32.50	-23.50	56.00	32.15	0.15	0.20	LINE	QP
12	0.53498	19.38	-26.62	46.00	19.03	0.15	0.20	LINE	AVERAGE
13	15.146	23.73	-36.27	60.00	22.83	0.49	0.41	LINE	QP
14	15.146	17.82	-32.18	50.00	16.92	0.49	0.41	LINE	AVERAGE

Temperature	24°C	Humidity	48%
Test Engineer	Sin Chang	Phase	Neutral
Configuration	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	0.15160	41.32	-24.59	65.91	41.07	0.07	0.18	NEUTRAL	QP
2	0.15160	19.57	-36.34	55.91	19.32	0.07	0.18	NEUTRAL	AVERAGE
3 @	0.20289	49.90	-13.59	63.49	49.63	0.07	0.20	NEUTRAL	QP
4	0.20289	34.34	-19.15	53.49	34.07	0.07	0.20	NEUTRAL	AVERAGE
5	0.26026	41.23	-20.19	61.42	40.96	0.07	0.20	NEUTRAL	QP
6	0.26026	25.48	-25.94	51.42	25.21	0.07	0.20	NEUTRAL	AVERAGE
7	0.32169	34.55	-25.11	59.66	34.28	0.07	0.20	NEUTRAL	QP
8	0.32169	13.01	-36.65	49.66	12.74	0.07	0.20	NEUTRAL	AVERAGE
9	0.41266	30.82	-26.77	57.59	30.55	0.07	0.20	NEUTRAL	QP
10	0.41266	16.66	-30.93	47.59	16.39	0.07	0.20	NEUTRAL	AVERAGE
11	0.56409	25.43	-30.57	56.00	25.16	0.07	0.20	NEUTRAL	QP
12	0.56409	11.51	-34.49	46.00	11.24	0.07	0.20	NEUTRAL	AVERAGE
13	4.070	25.75	-30.25	56.00	25.32	0.13	0.30	NEUTRAL	QP
14	4.070	19.00	-27.00	46.00	18.57	0.13	0.30	NEUTRAL	AVERAGE

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

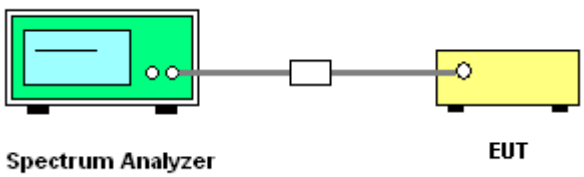
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

1. The transmitter output (antenna port) was connected 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



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	25°C	Humidity	60%
Test Engineer	Kenneth Haung Nick Peng	Configurations	IEEE 802.11n/ac

For 1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 2

Channel	Frequency	Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)
36	5180 MHz	24.96	18.24
40	5200 MHz	25.76	18.24
48	5240 MHz	24.64	18.24
52	5260 MHz	26.08	18.40
60	5300 MHz	25.92	18.40
64	5320 MHz	24.80	18.24
100	5500 MHz	24.80	18.24
116	5580 MHz	25.92	18.24
140	5700 MHz	25.76	18.24
144	5720 MHz	25.60	18.40

Configuration IEEE 802.11n MCS0 40MHz / Chain 2

Channel	Frequency	Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)
38	5190 MHz	42.56	36.48
46	5230 MHz	42.24	36.48
54	5270 MHz	41.28	36.48
62	5310 MHz	40.64	36.16
102	5510 MHz	41.28	36.48
110	5550 MHz	42.24	36.16
134	5670 MHz	42.24	36.16
142	5710 MHz	45.12	36.48

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2

Channel	Frequency	Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)
42	5210 MHz	79.36	75.52
58	5290 MHz	79.36	75.52
106	5530 MHz	79.36	75.52
138	5690 MHz	78.72	75.52

For 2TX

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 & Chain 2

Channel	Frequency	Chain 1		Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)	26 dB BW (MHz)	99% OBW (MHz)
36	5180 MHz	27.20	18.24	25.12	18.08
40	5200 MHz	25.60	18.24	24.48	18.08
48	5240 MHz	23.68	18.24	25.12	18.08
52	5260 MHz	25.44	18.24	24.96	18.24
60	5300 MHz	24.00	18.40	25.12	18.24
64	5320 MHz	25.12	18.24	23.84	18.08
100	5500 MHz	26.72	18.24	24.64	17.92
116	5580 MHz	25.12	18.24	24.80	18.08
140	5700 MHz	25.76	18.40	25.60	18.08
144	5720 MHz	25.60	18.24	25.44	18.08

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 & Chain 2

Channel	Frequency	Chain 1		Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)	26 dB BW (MHz)	99% OBW (MHz)
38	5190 MHz	41.28	36.16	41.92	36.48
46	5230 MHz	40.32	36.16	40.00	36.16
54	5270 MHz	40.96	36.16	40.00	35.84
62	5310 MHz	40.96	36.16	40.32	36.16
102	5510 MHz	41.28	36.16	40.96	36.16
110	5550 MHz	40.96	36.16	40.96	35.84
134	5670 MHz	41.28	36.16	40.96	36.16
142	5710 MHz	42.56	36.16	41.60	35.84

Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 & Chain 2

Channel	Frequency	Chain 1		Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)	26 dB BW (MHz)	99% OBW (MHz)
42	5210 MHz	80.64	74.88	80.64	74.88
58	5290 MHz	80.64	74.88	80.64	75.60
106	5530 MHz	80.64	74.88	80.64	74.88
138	5690 MHz	80.64	75.60	81.36	75.60

Temperature	25°C	Humidity	60%
Test Engineer	Kenneth Haung	Configurations	IEEE 802.11a

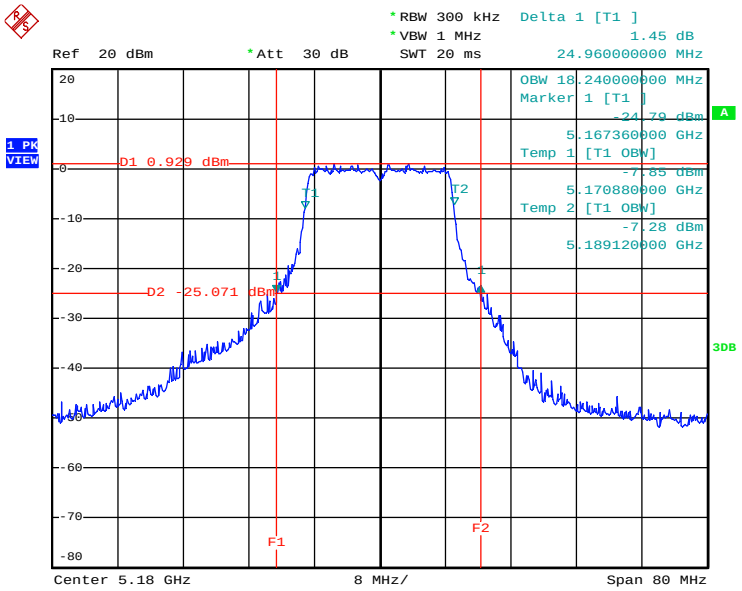
For 1TX

Configuration IEEE 802.11a / Chain 2

Channel	Frequency	Chain 2	
		26 dB BW (MHz)	99% OBW (MHz)
36	5180 MHz	24.64	17.12
40	5200 MHz	25.44	17.28
48	5240 MHz	24.48	17.12
52	5260 MHz	25.76	17.28
60	5300 MHz	24.80	17.28
64	5320 MHz	23.20	16.96
100	5500 MHz	24.00	17.28
116	5580 MHz	25.28	17.28
140	5700 MHz	24.16	17.12
144	5720 MHz	26.40	17.44

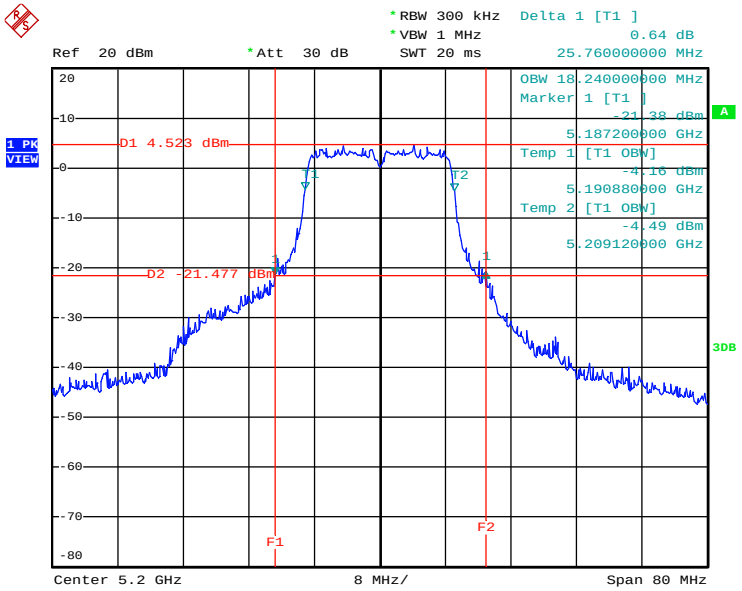
For 1TX

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5180 MHz



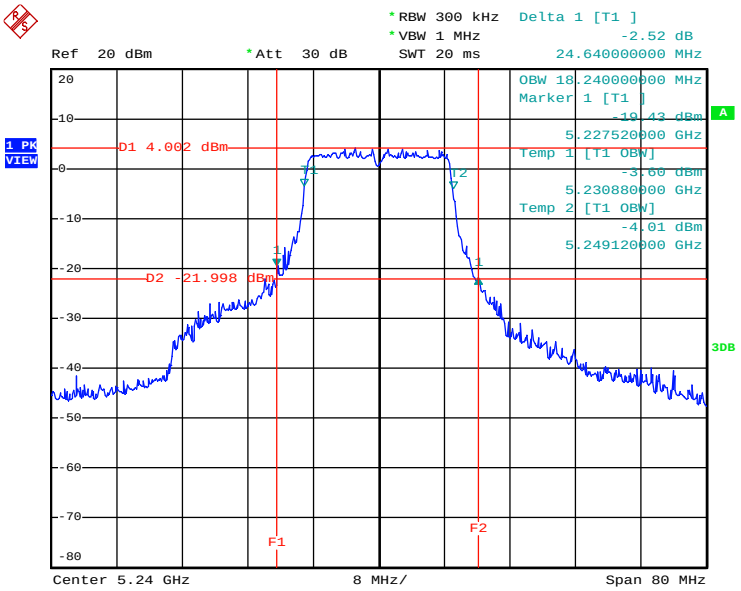
Date: 2.OCT.2013 18:37:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5200 MHz



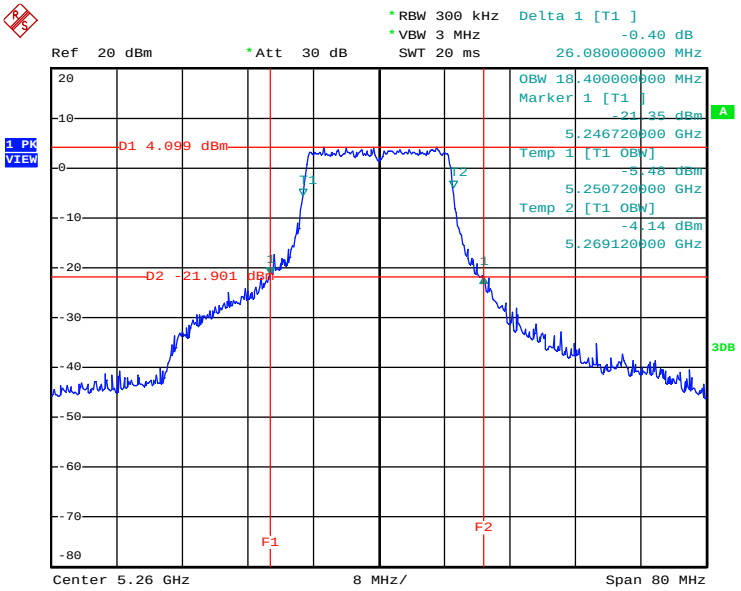
Date: 2.OCT.2013 18:37:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5240 MHz



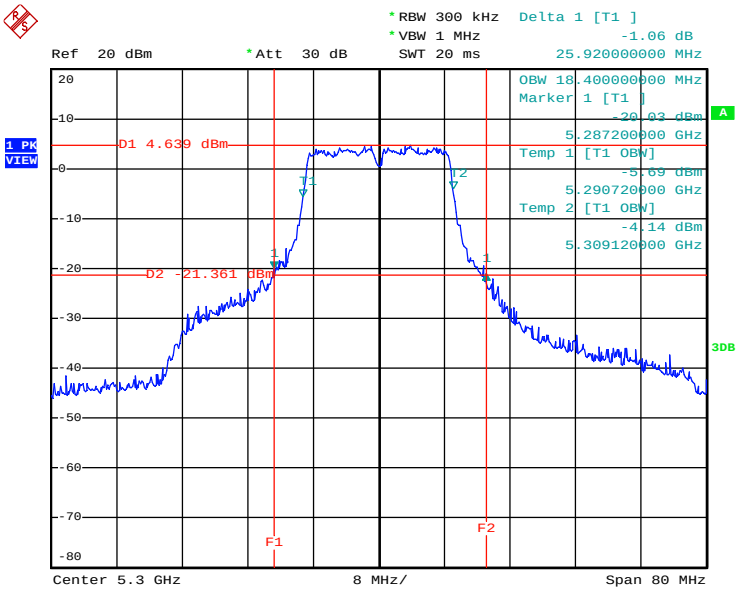
Date: 2.OCT.2013 18:38:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5260 MHz



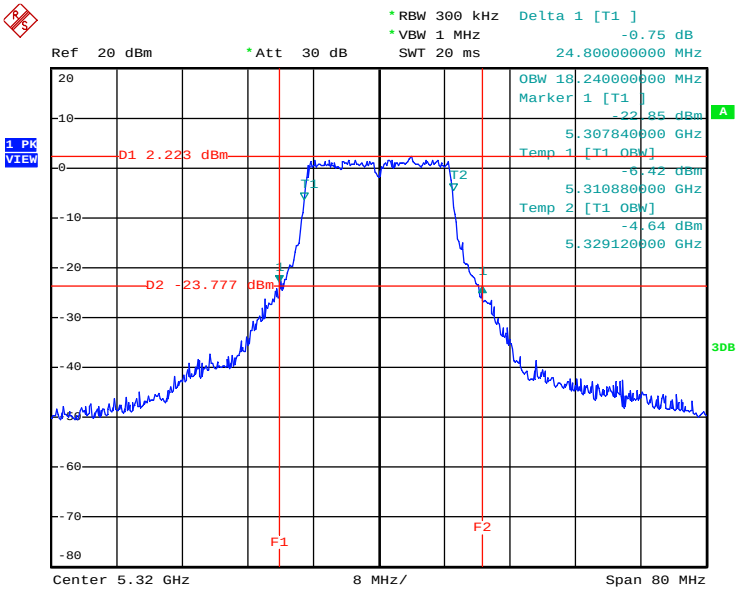
Date: 2.OCT.2013 18:38:35

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5300 MHz



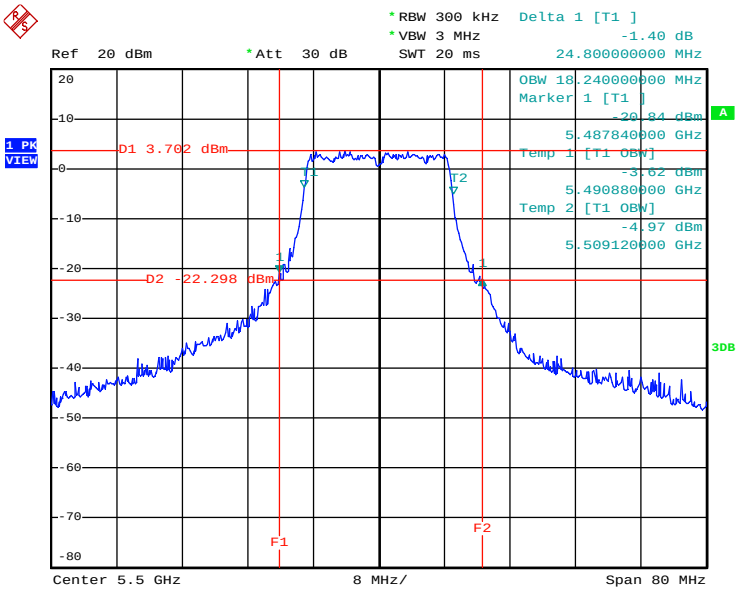
Date: 2.OCT.2013 18:39:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5320 MHz



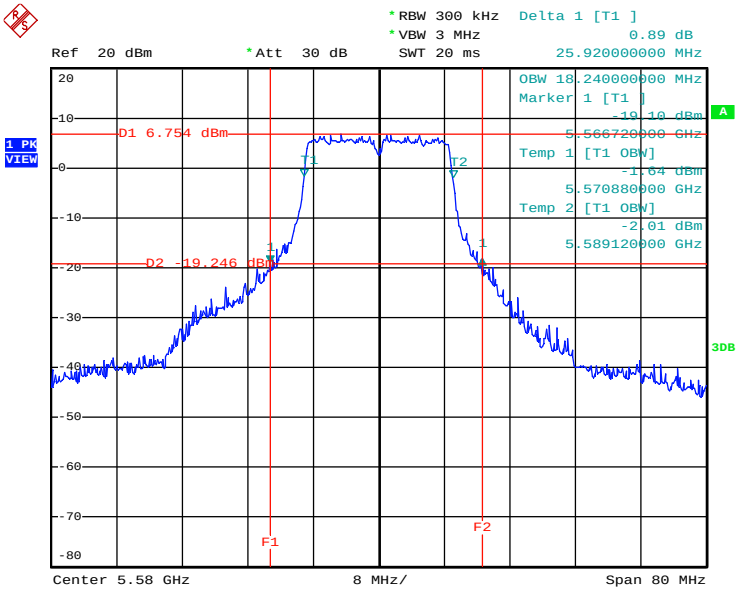
Date: 2.OCT.2013 18:39:32

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5500 MHz



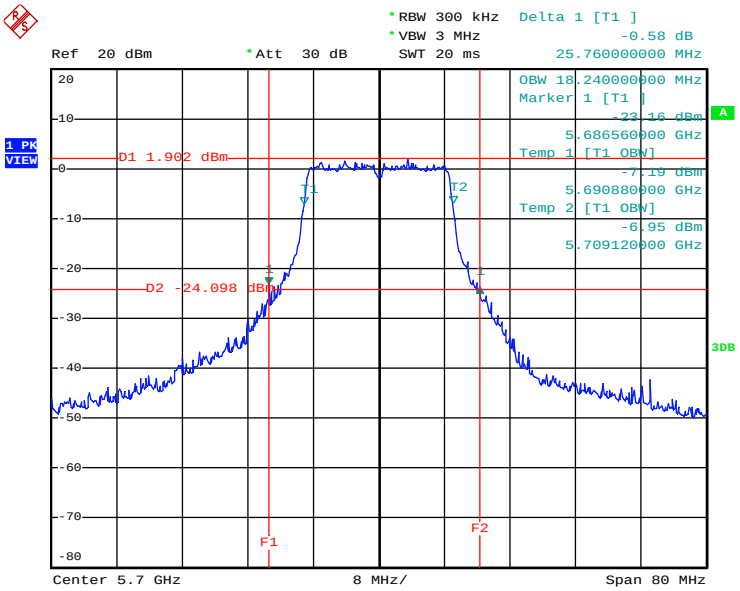
Date: 2.OCT.2013 18:40:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5580 MHz



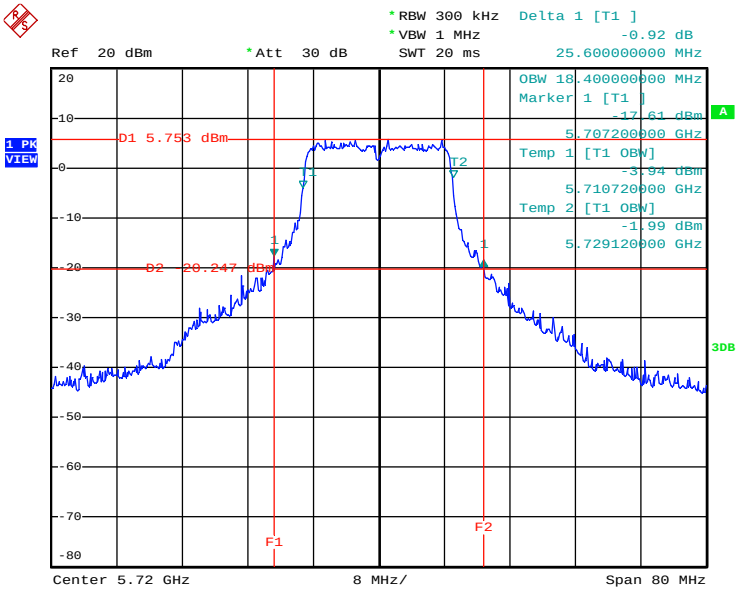
Date: 2.OCT.2013 18:40:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5700 MHz



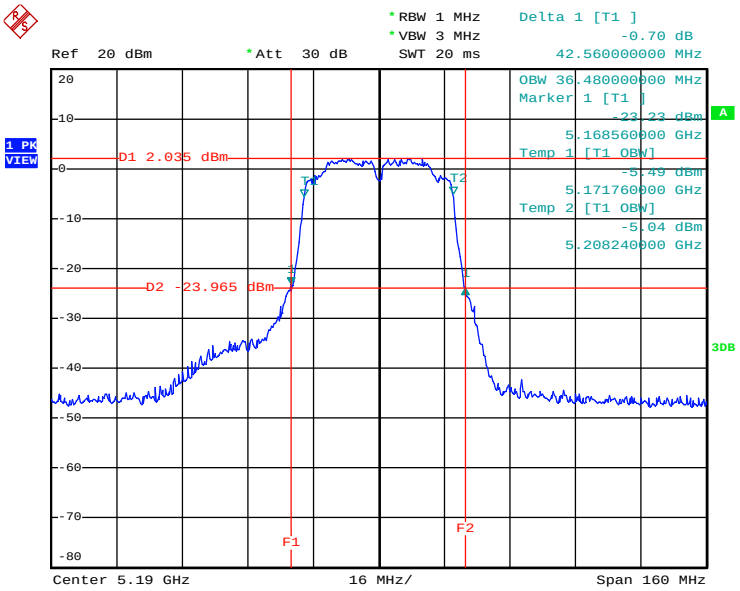
Date: 2.OCT.2013 18:41:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5720 MHz



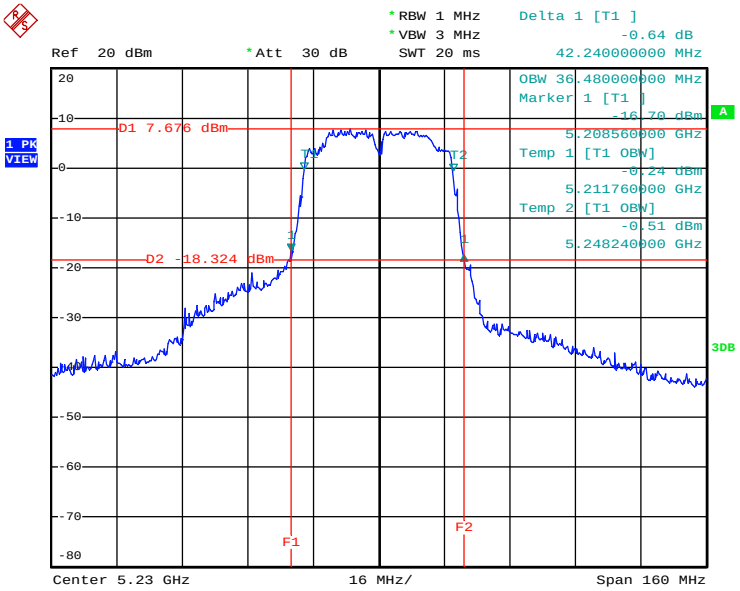
Date: 2.OCT.2013 18:41:49

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5190 MHz



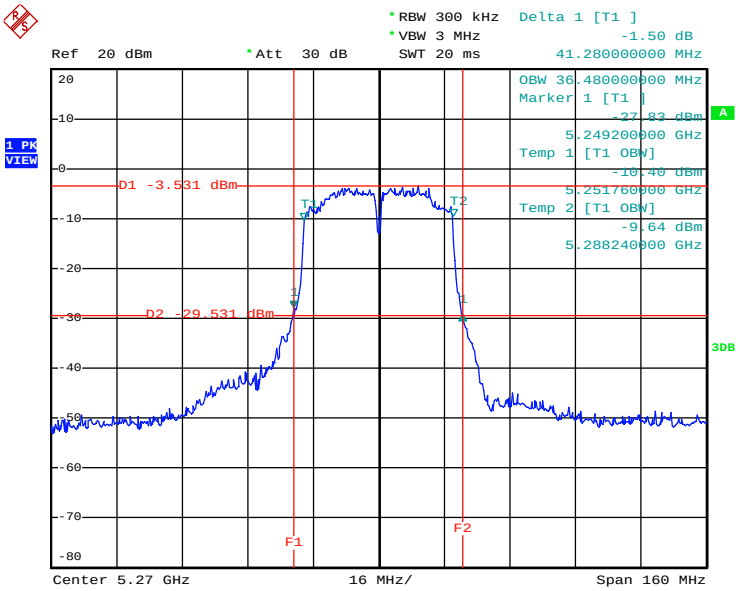
Date: 2.OCT.2013 18:42:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5230 MHz



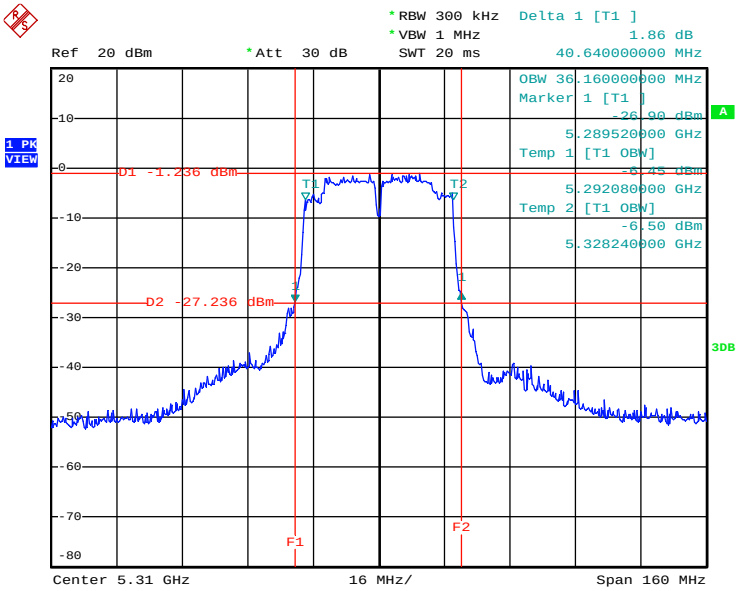
Date: 2.OCT.2013 18:43:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5270 MHz



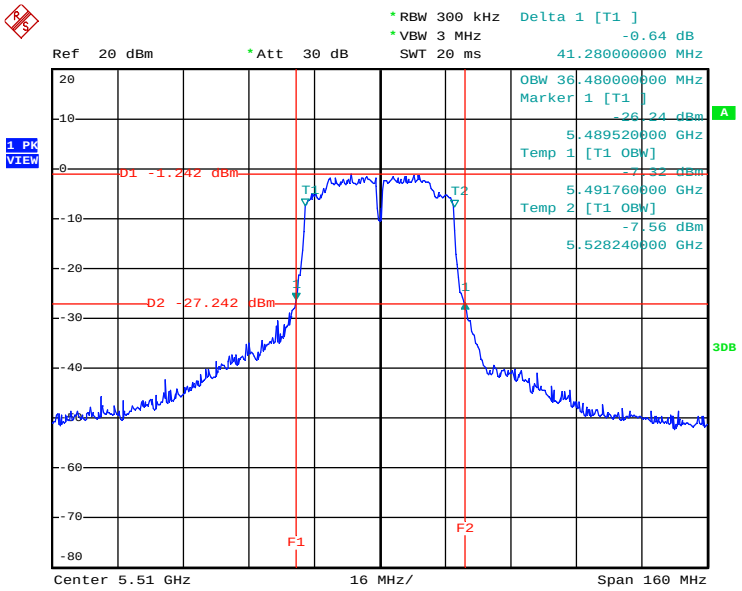
Date: 2.OCT.2013 18:43:38

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5310 MHz



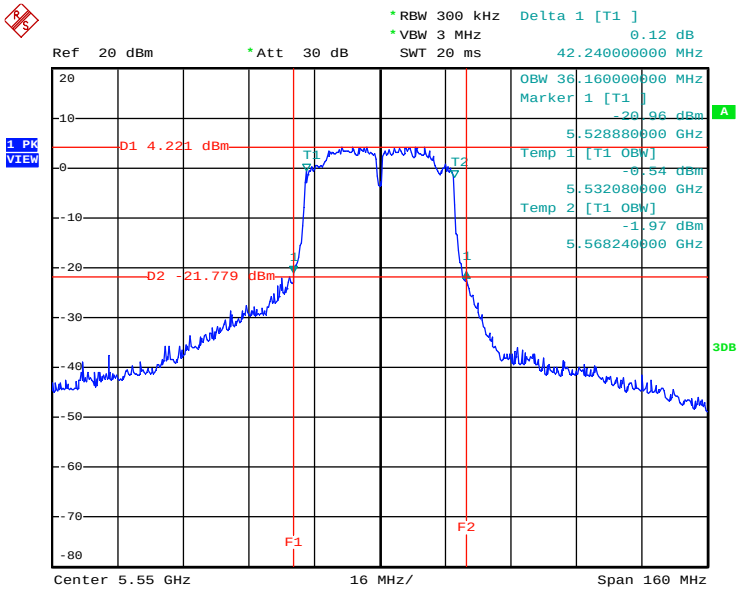
Date: 2.OCT.2013 18:44:07

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5510 MHz



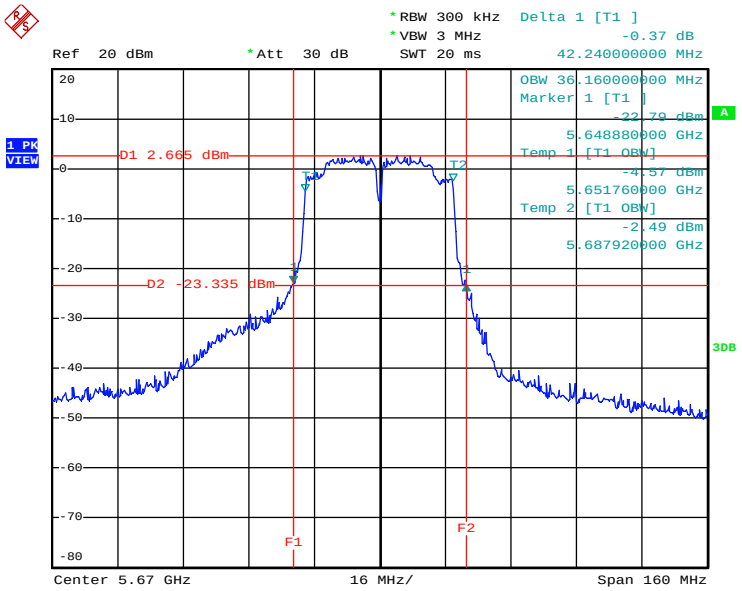
Date: 2.OCT.2013 18:44:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5550 MHz



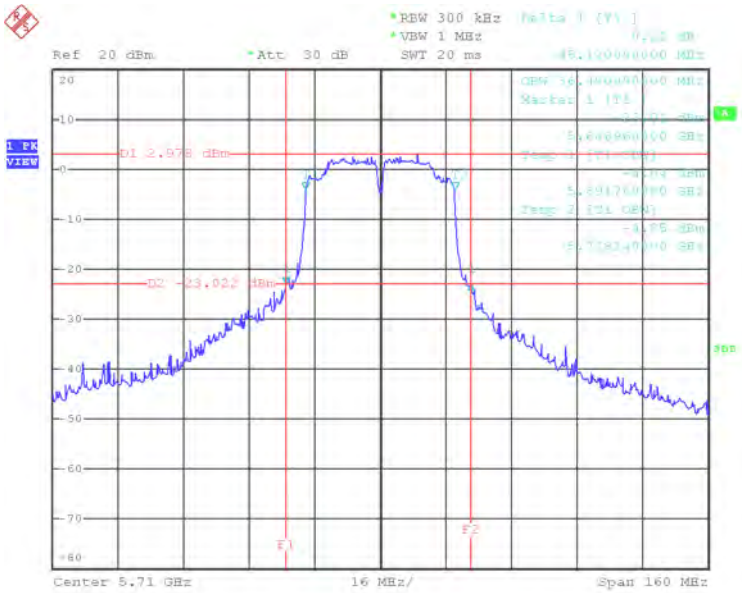
Date: 2.OCT.2013 18:45:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5670 MHz



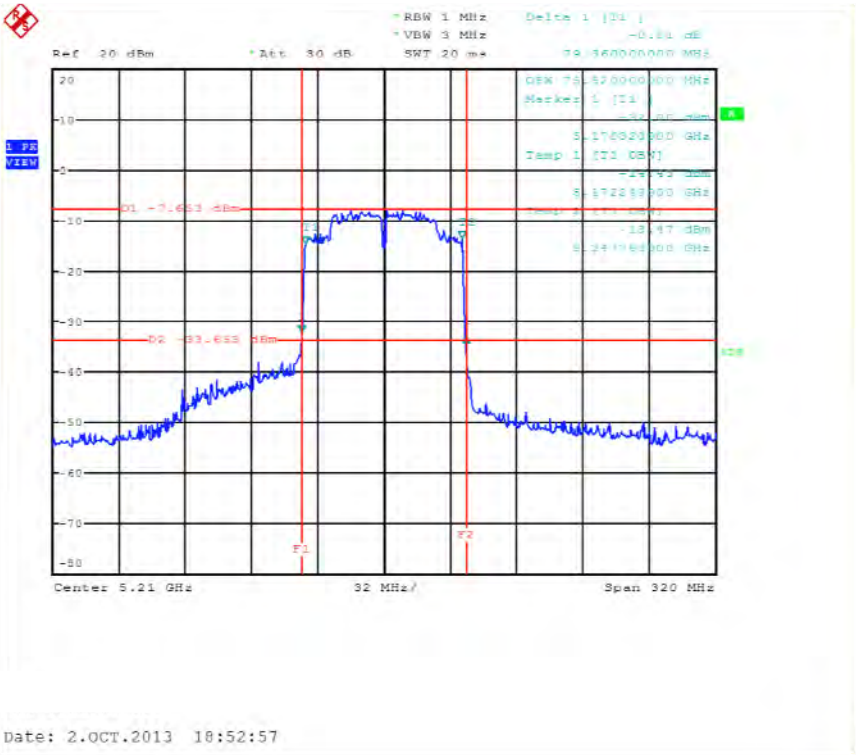
Date: 2.OCT.2013 18:45:41

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5710 MHz

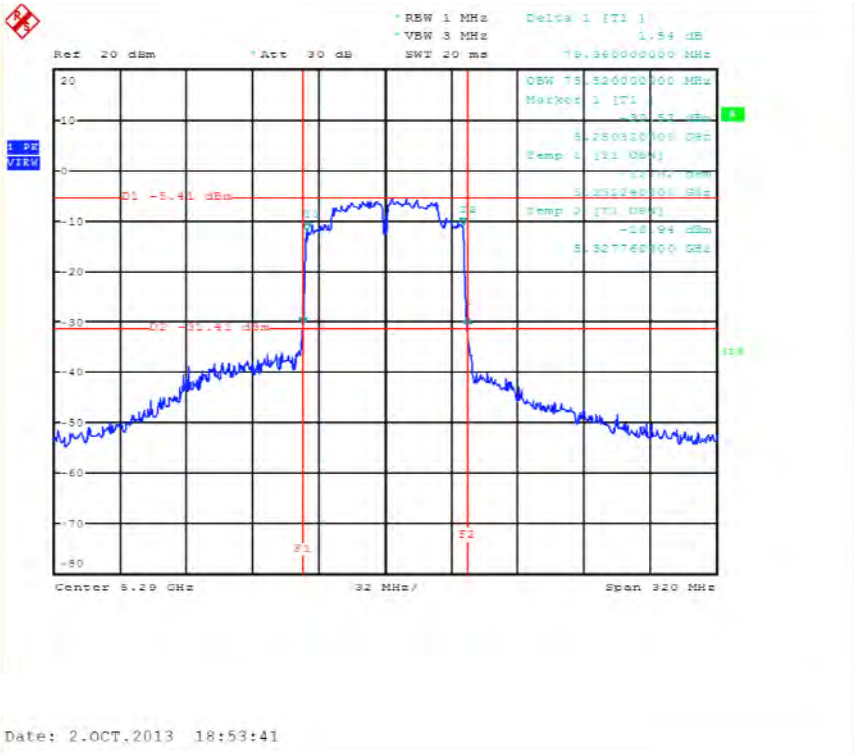


Date: 2.OCT.2013 19:02:21

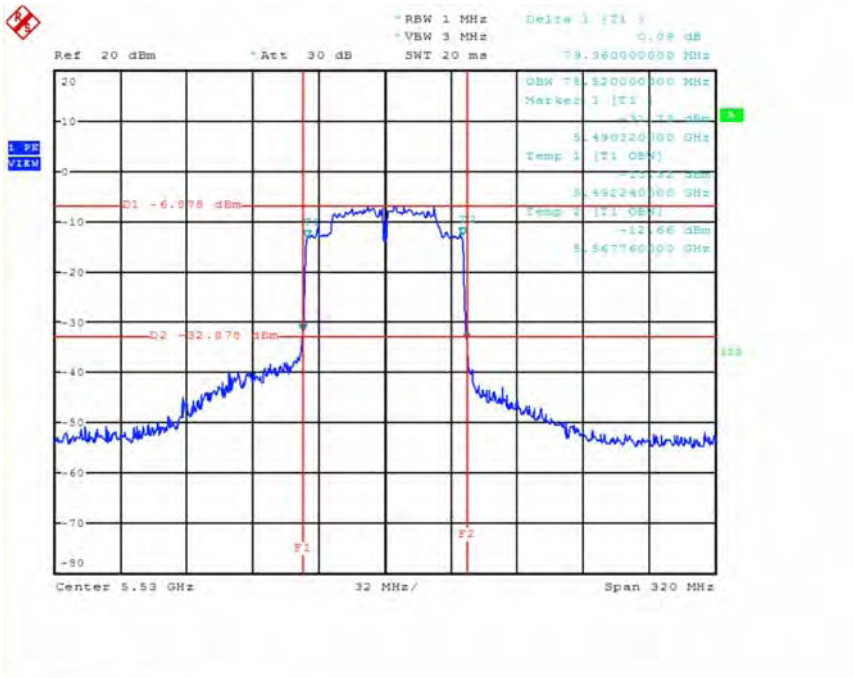
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5210 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5290 MHz

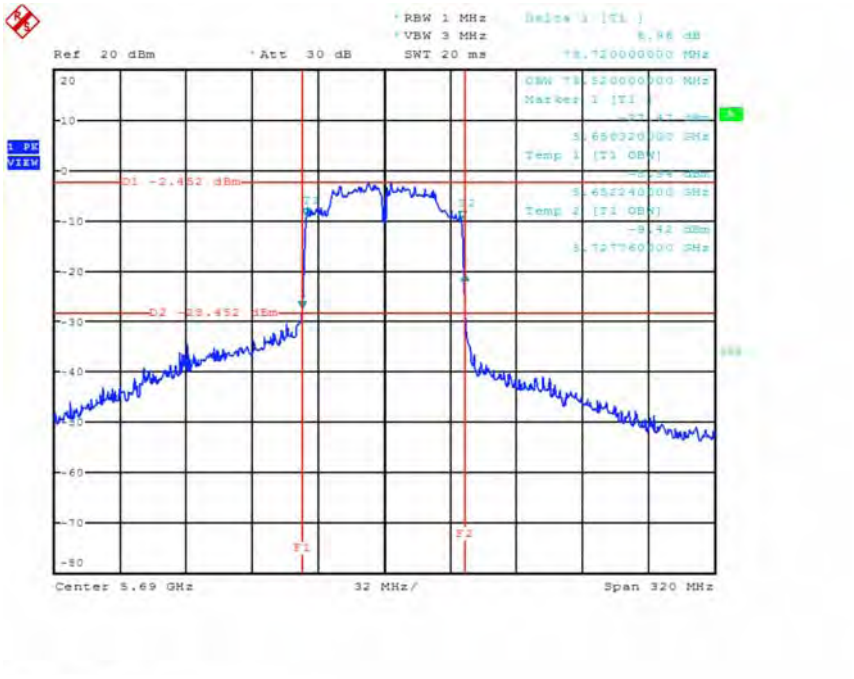


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5530 MHz



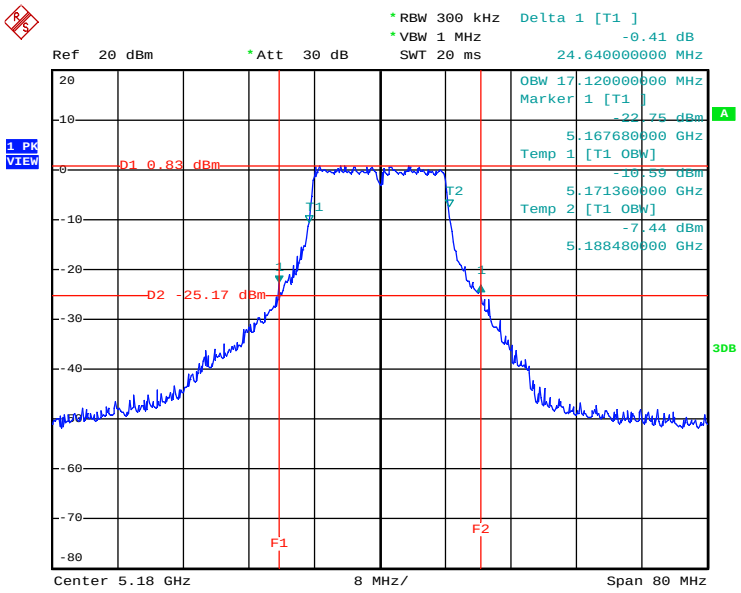
Date: 2.OCT.2013 18:54:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5690 MHz



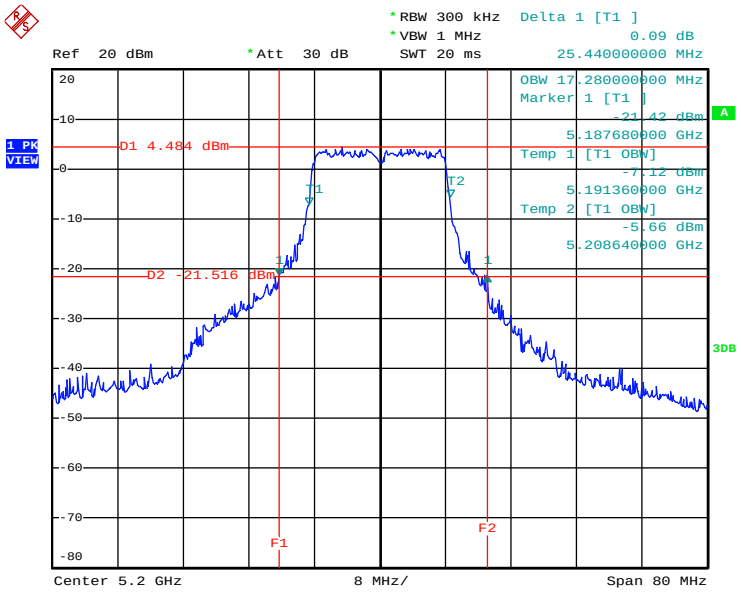
Date: 2.OCT.2013 18:56:48

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5180 MHz



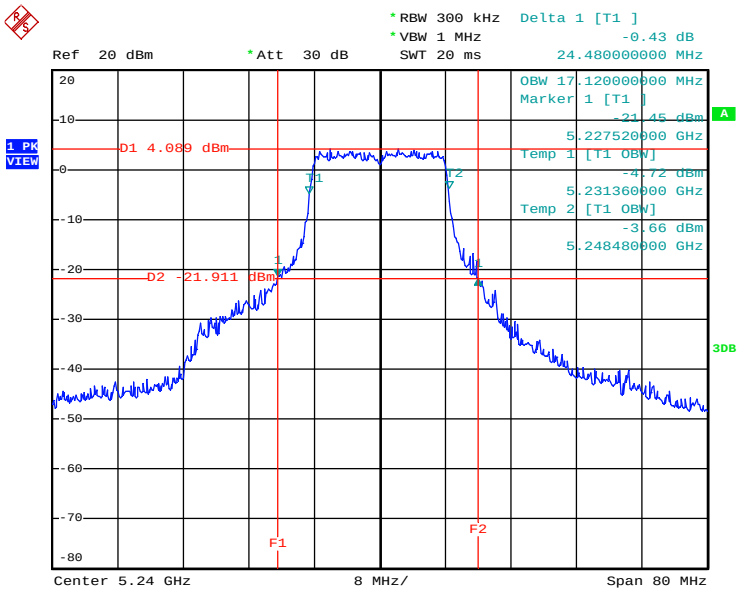
Date: 2.OCT.2013 18:29:59

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5200 MHz



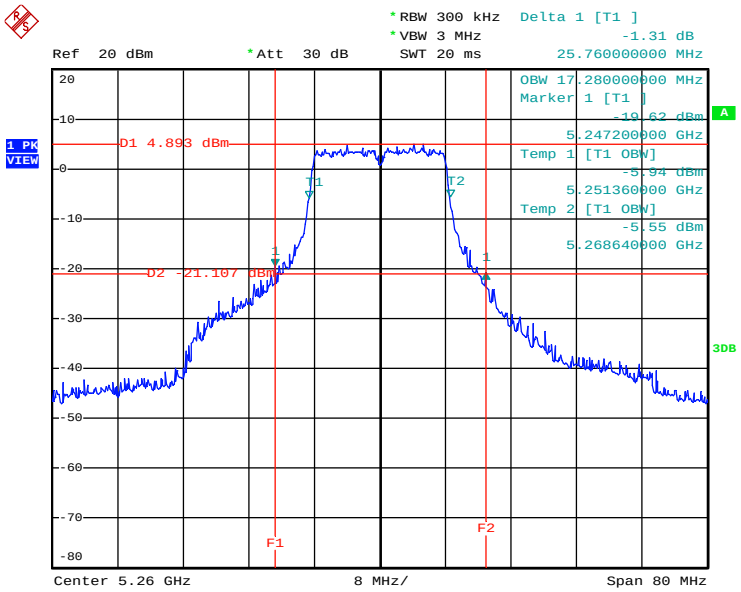
Date: 2.OCT.2013 18:31:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5240 MHz



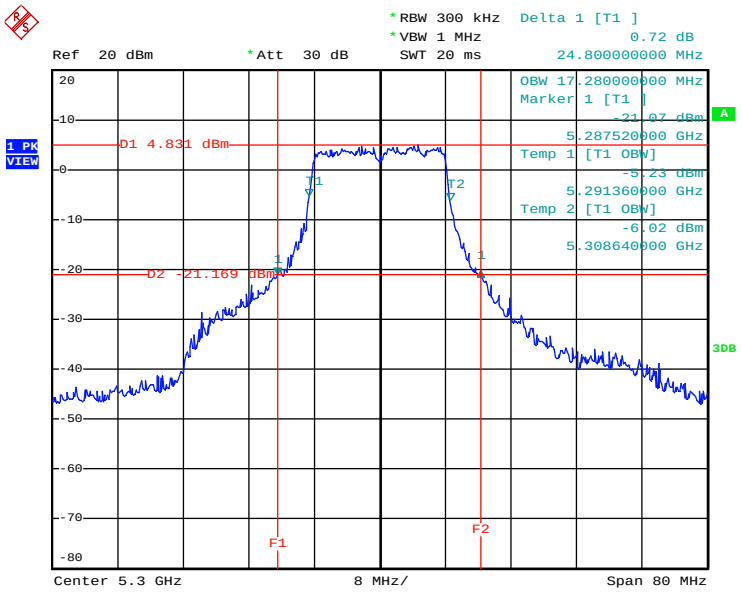
Date: 2.OCT.2013 18:31:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5260 MHz



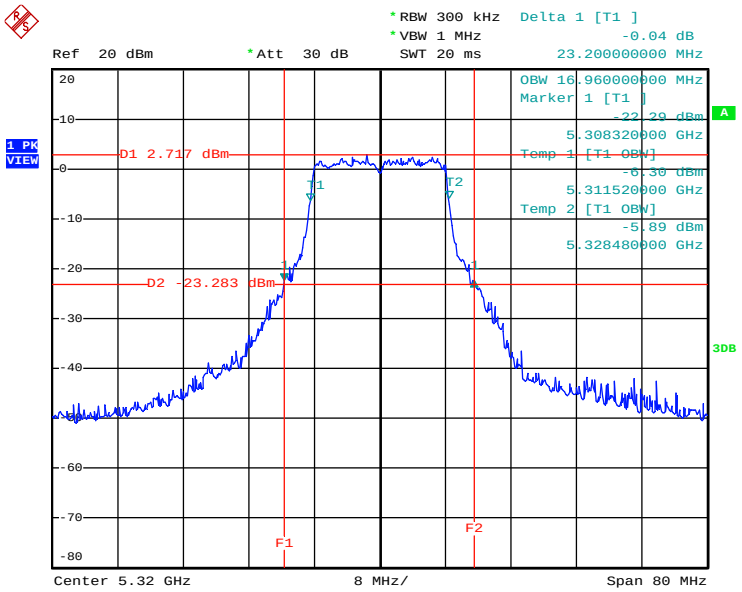
Date: 2.OCT.2013 18:32:08

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5300 MHz



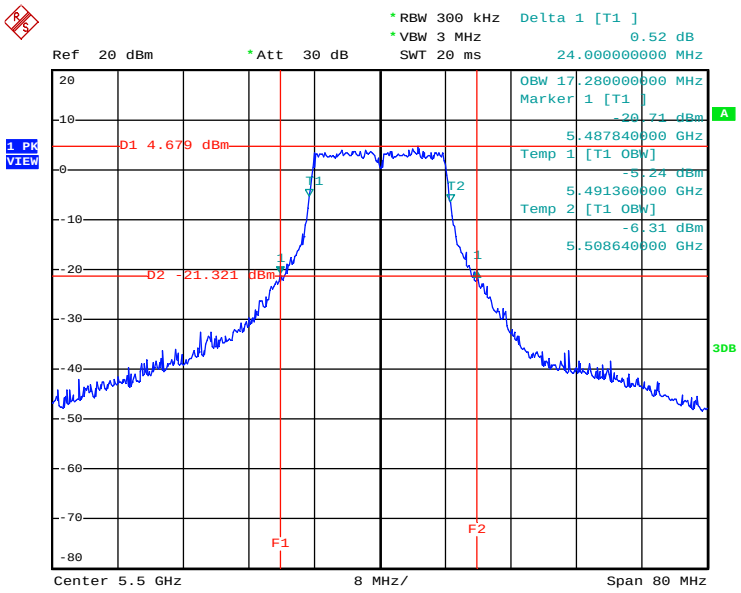
Date: 2.OCT.2013 18:32:40

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5320 MHz



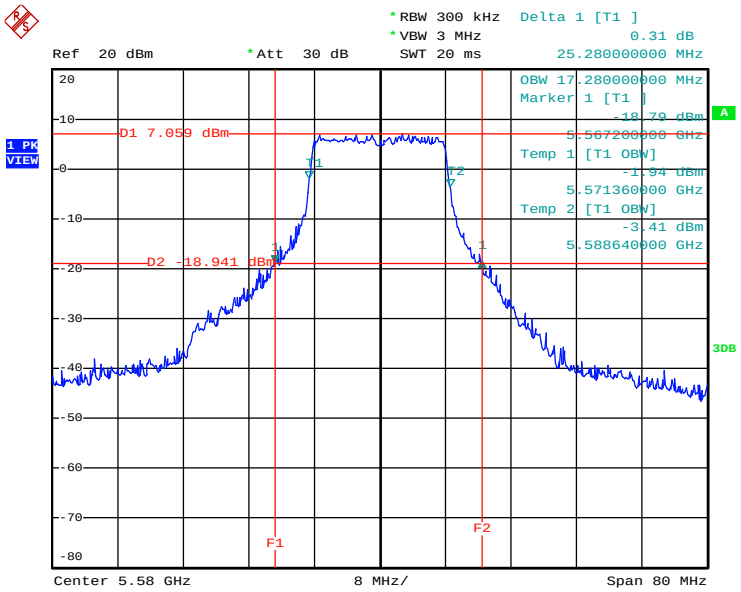
Date: 2.OCT.2013 18:33:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5500 MHz



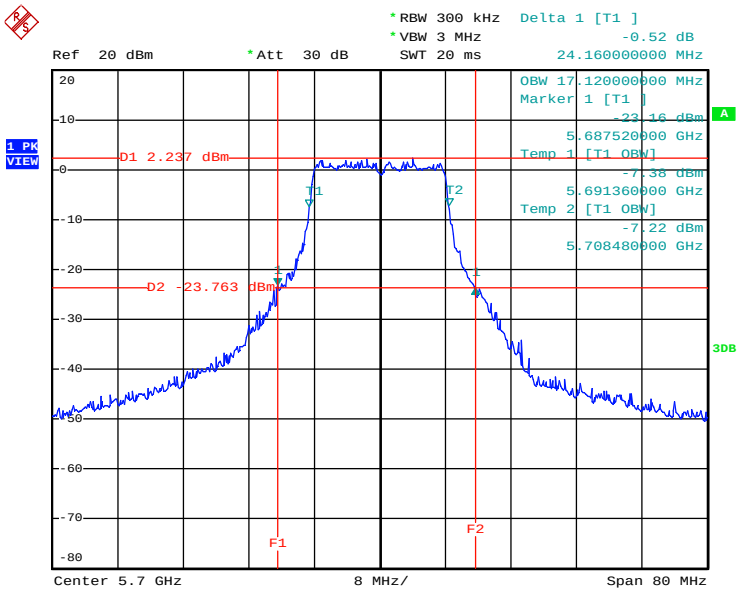
Date: 2.OCT.2013 18:33:58

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5580 MHz



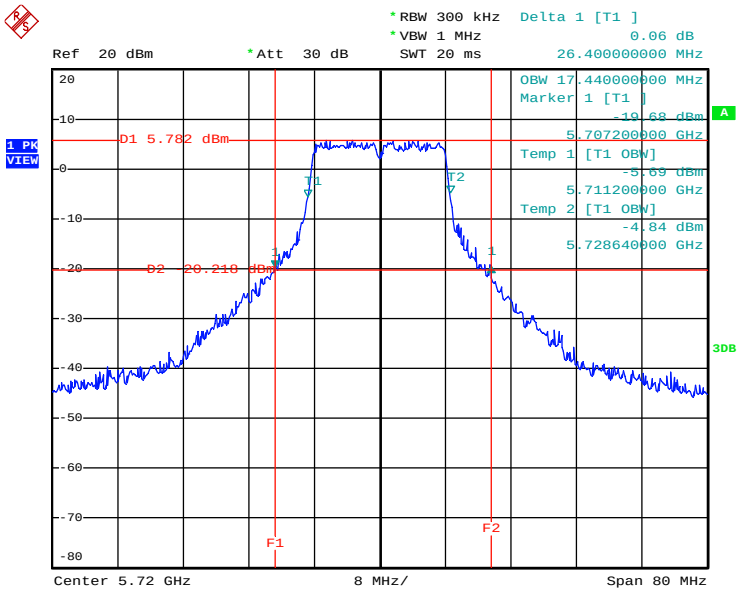
Date: 2.OCT.2013 18:34:29

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5700 MHz



Date: 2.OCT.2013 18:35:05

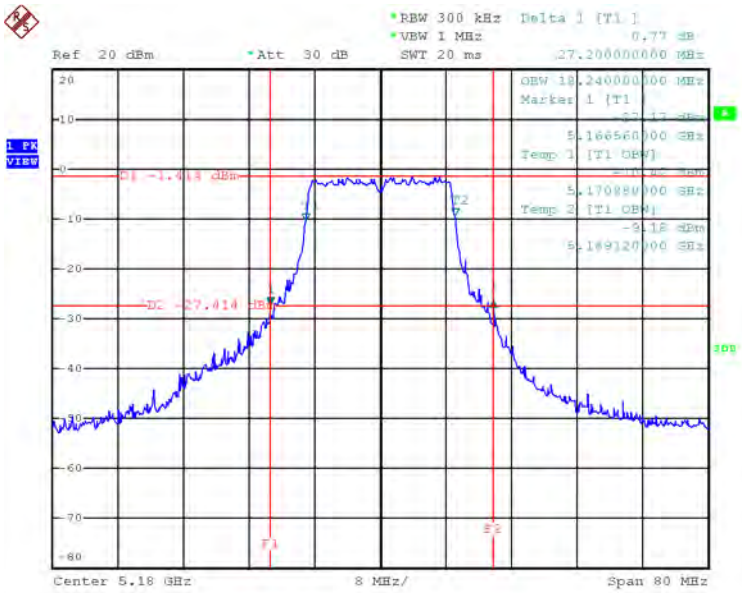
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Chain 2 / 5720 MHz



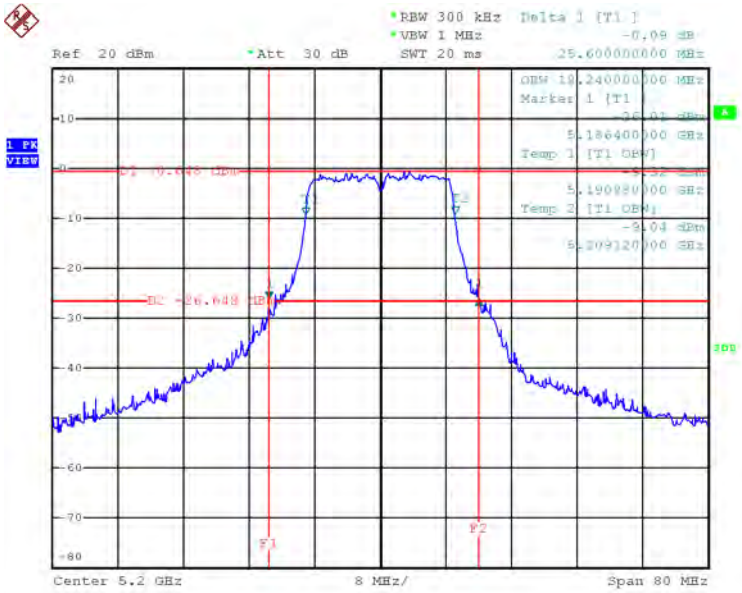
Date: 2.OCT.2013 18:35:41

For 2TX

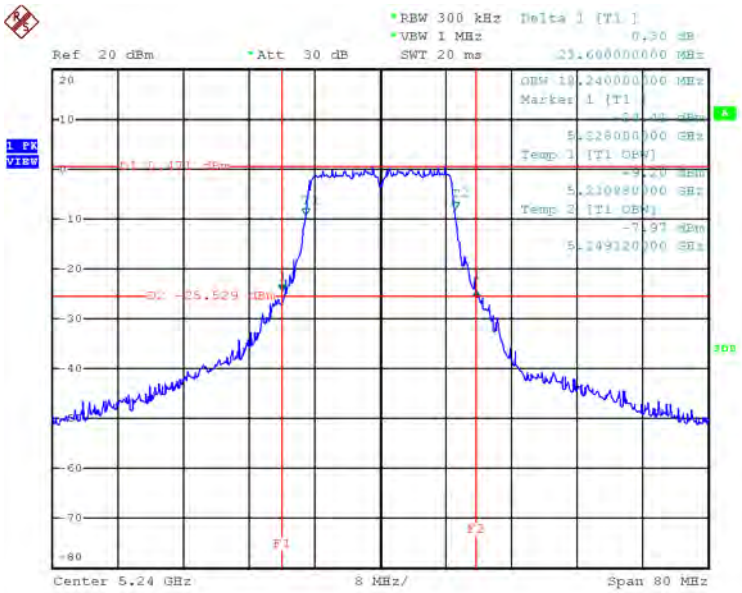
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5180 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5200 MHz

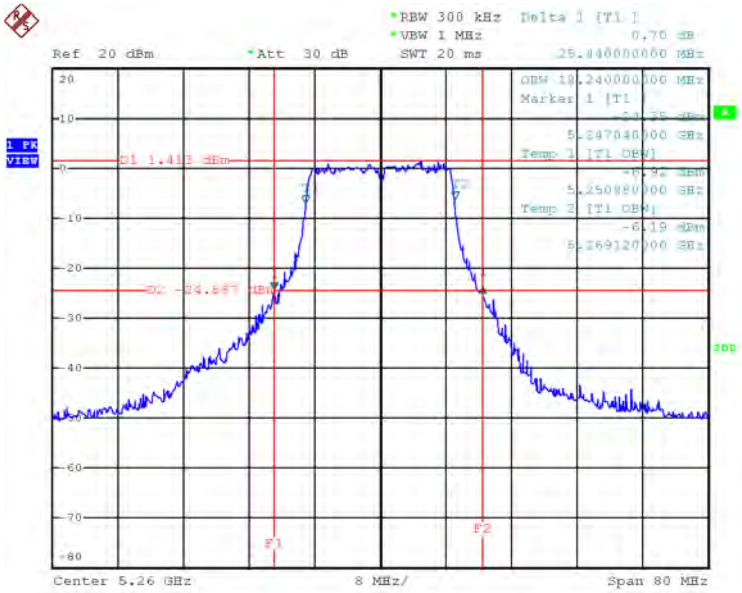


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5240 MHz



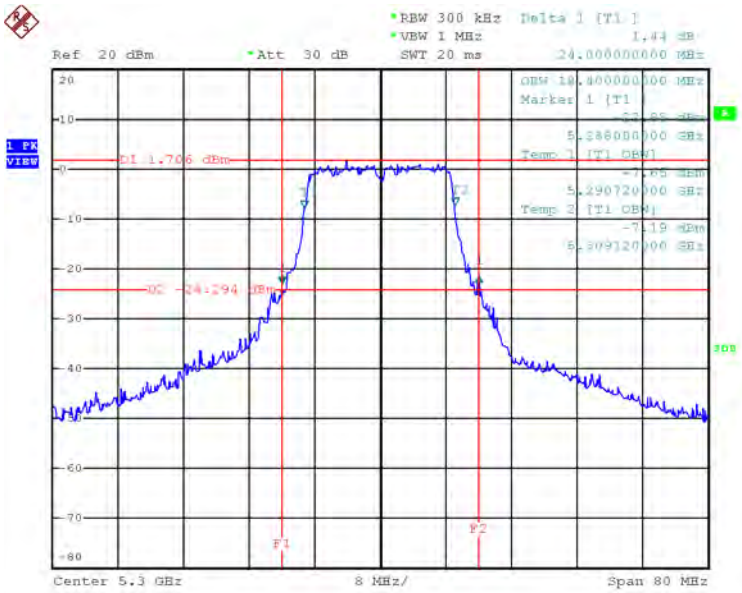
Date: 4.OCT.2013 00:14:41

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5260 MHz



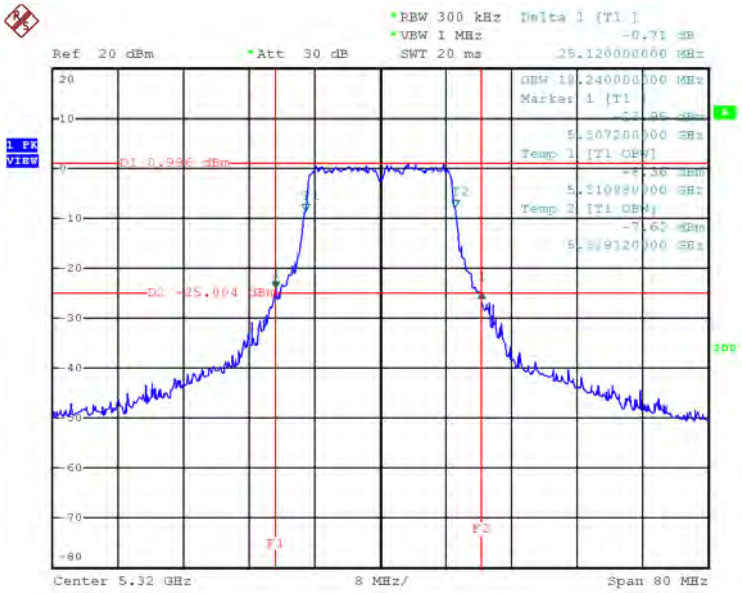
Date: 4.OCT.2013 00:16:05

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5300 MHz



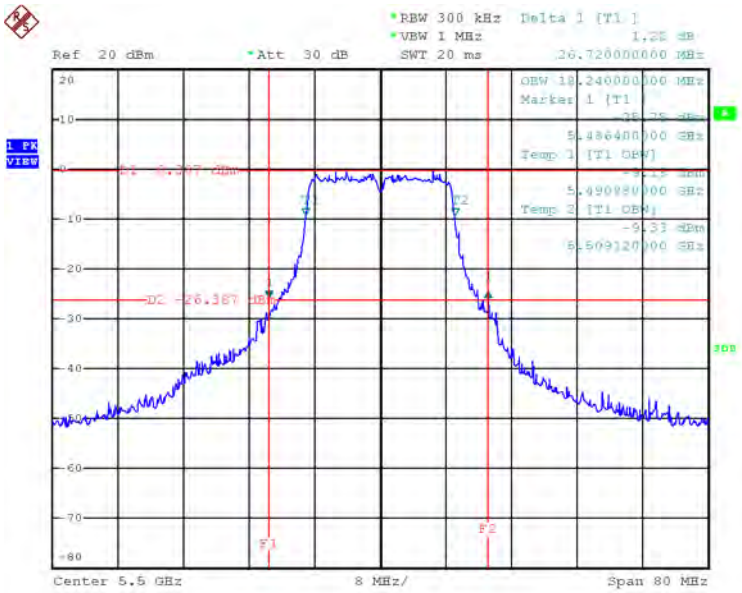
Date: 4.OCT.2013 00:16:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5320 MHz

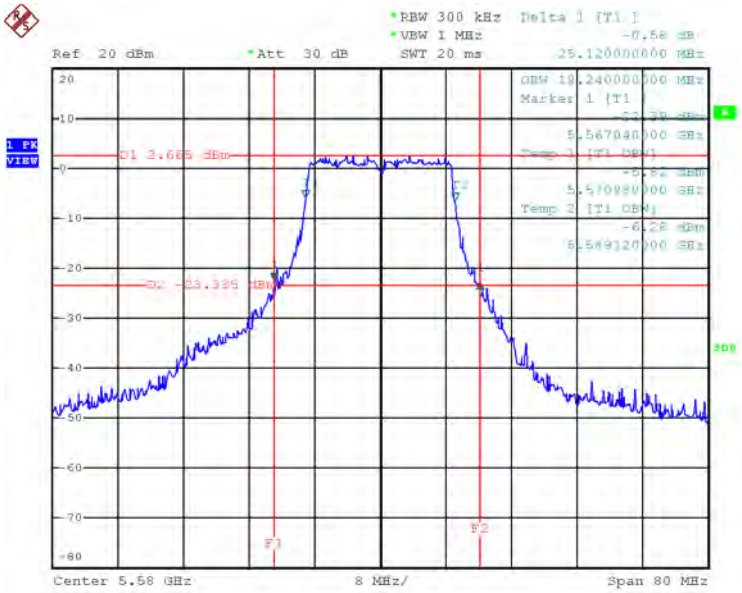


Date: 4.OCT.2013 00:18:02

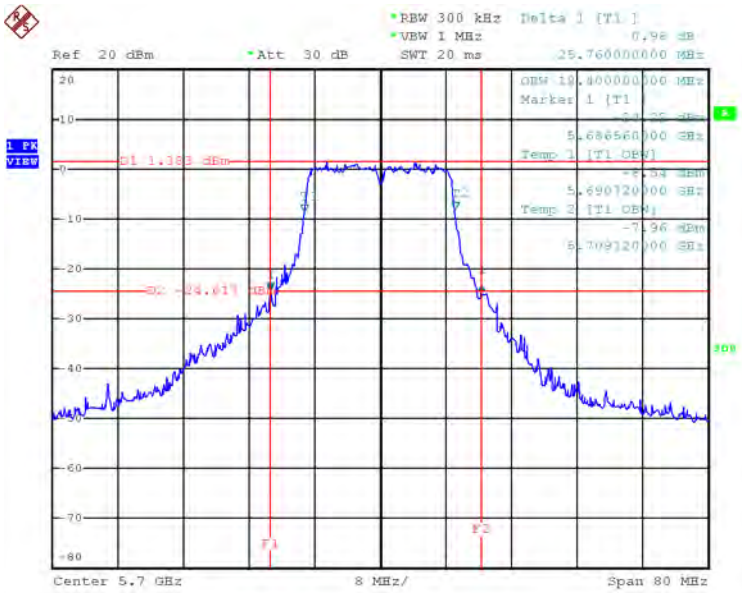
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5500 MHz



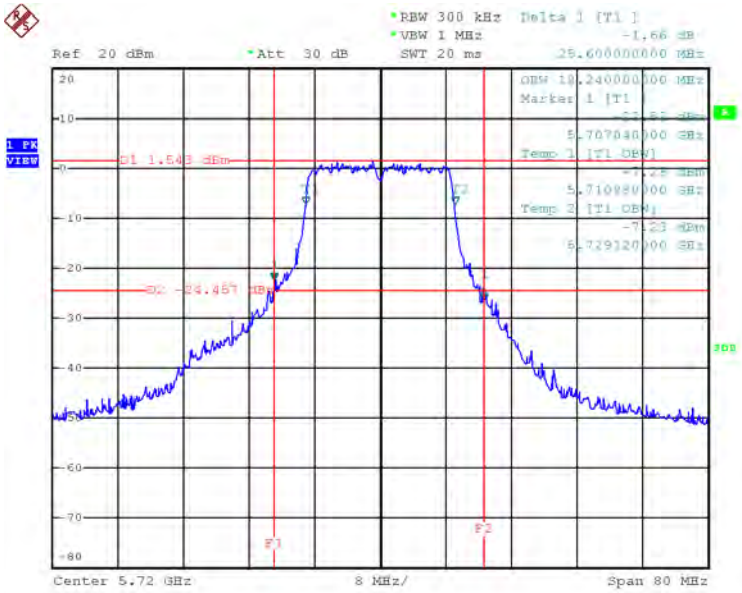
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5580 MHz



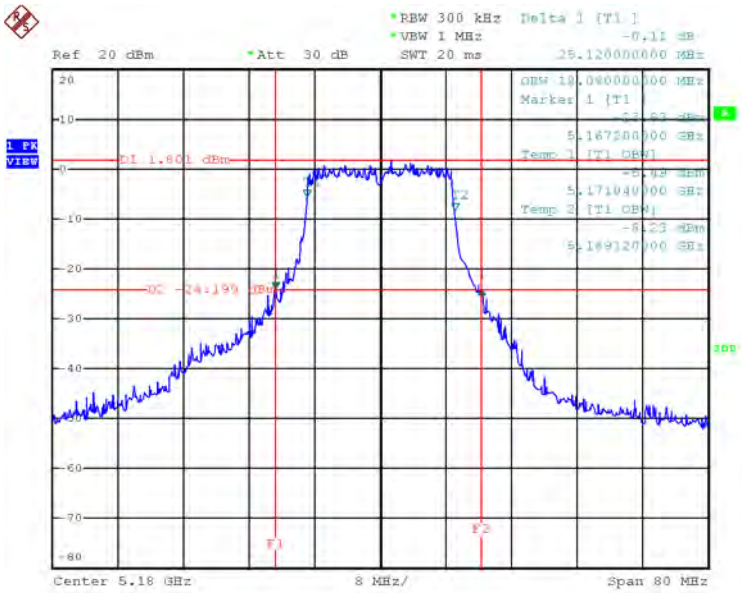
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5700 MHz



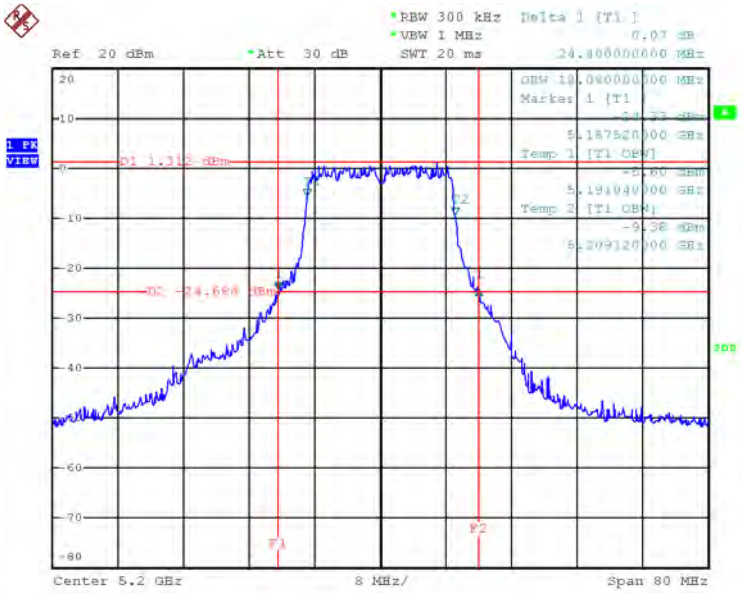
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 / 5720 MHz



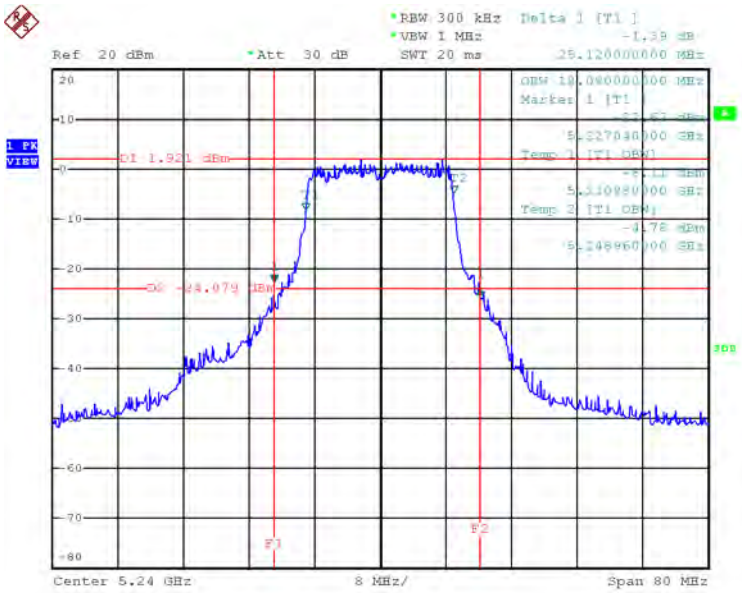
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5180 MHz



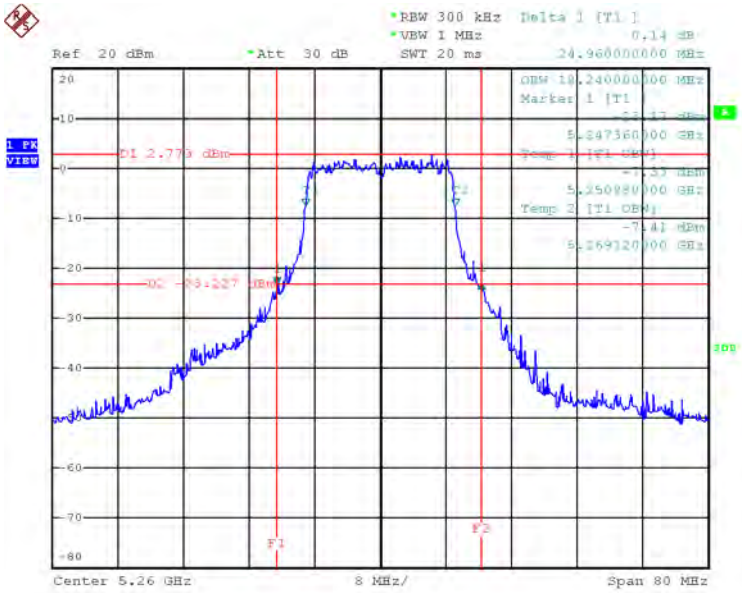
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5200 MHz



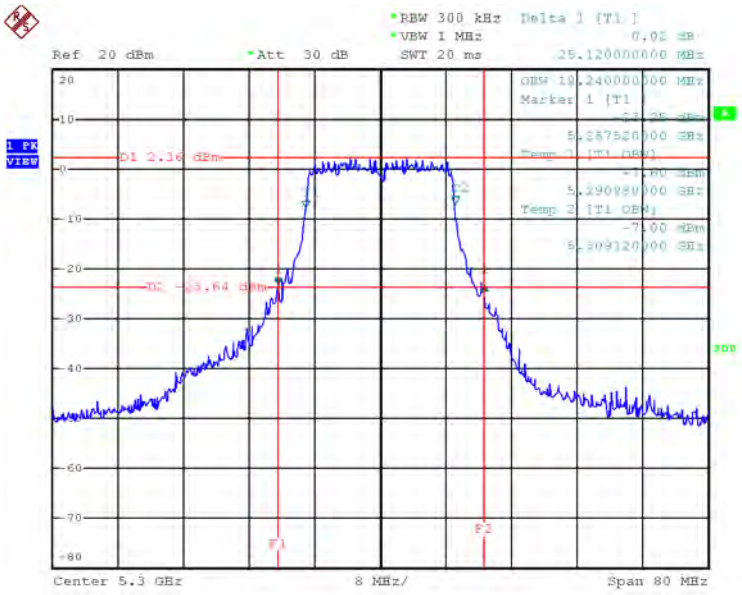
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5240 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5260 MHz

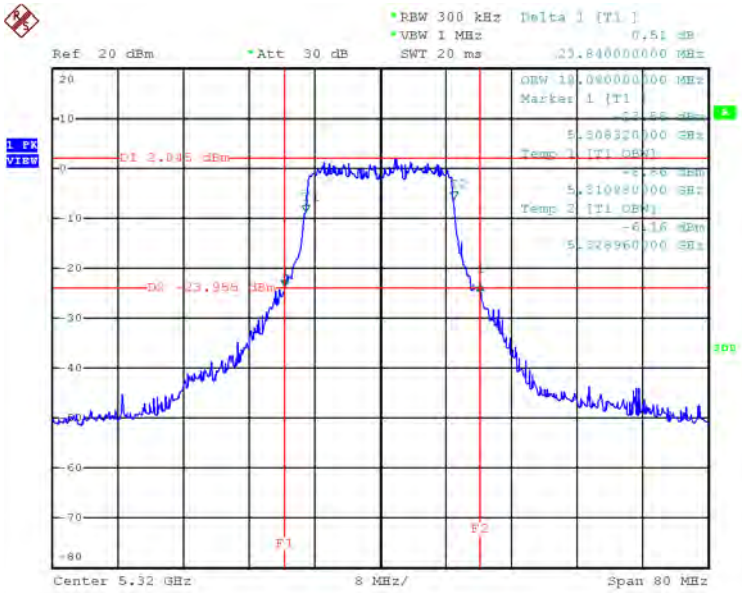


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5300 MHz



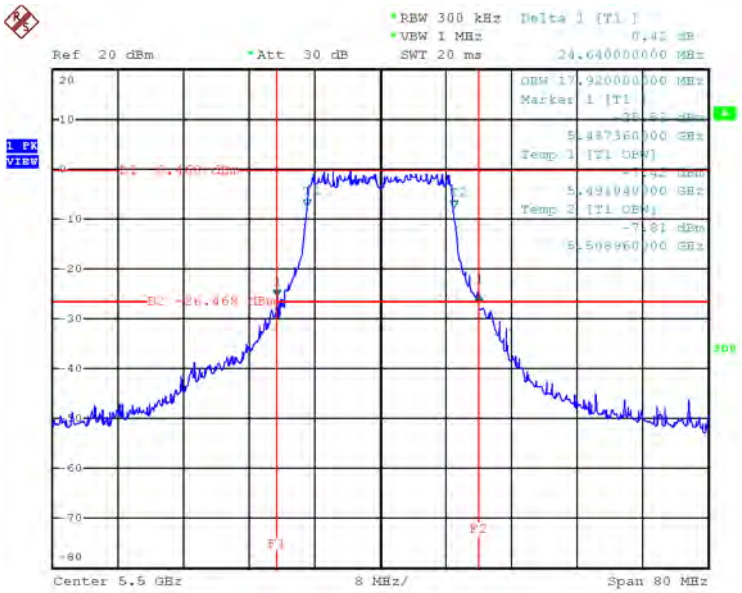
Date: 4.OCT.2013 00:59:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5320 MHz



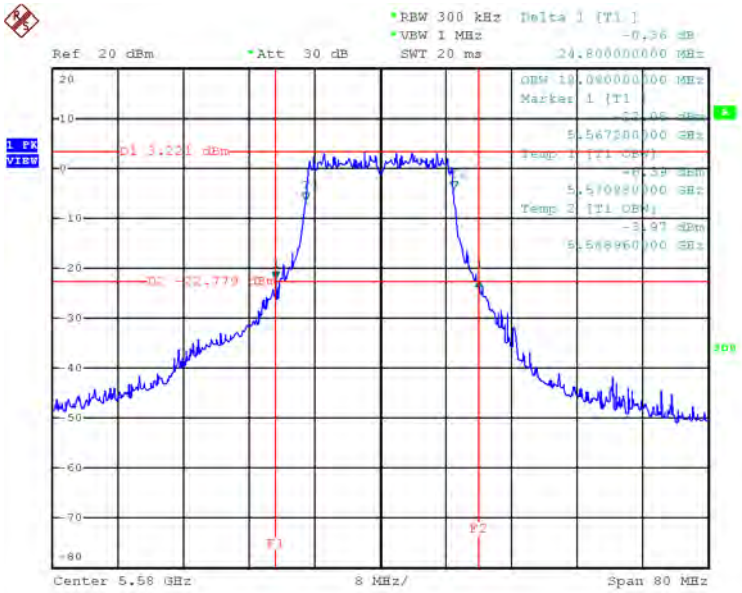
Date: 4.OCT.2013 01:00:25

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5500 MHz



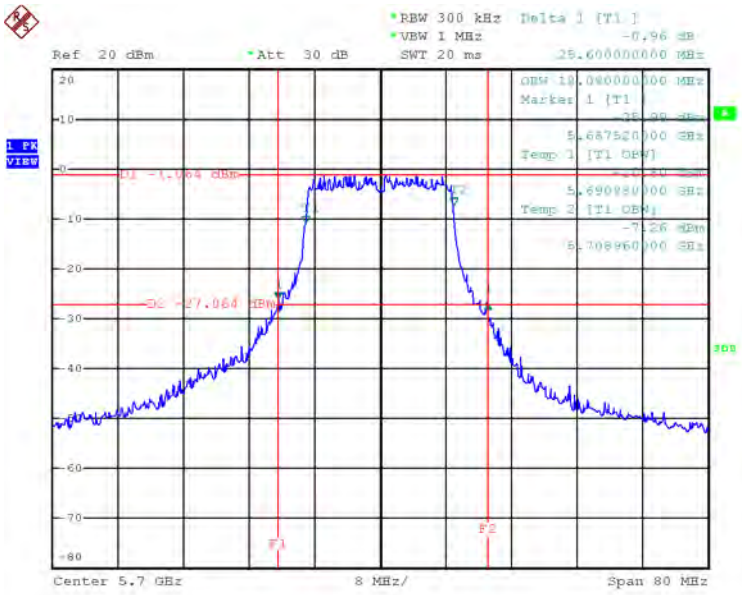
Date: 4.OCT.2013 01:01:24

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5580 MHz

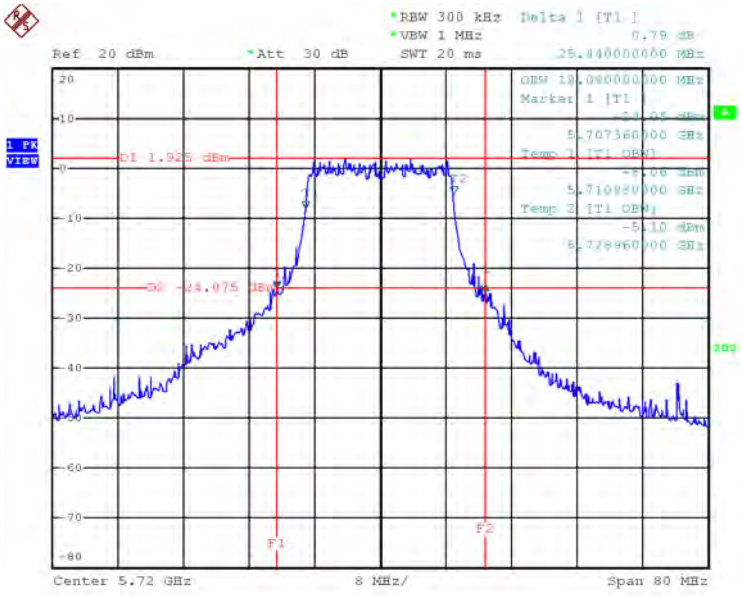


Date: 4.OCT.2013 01:02:17

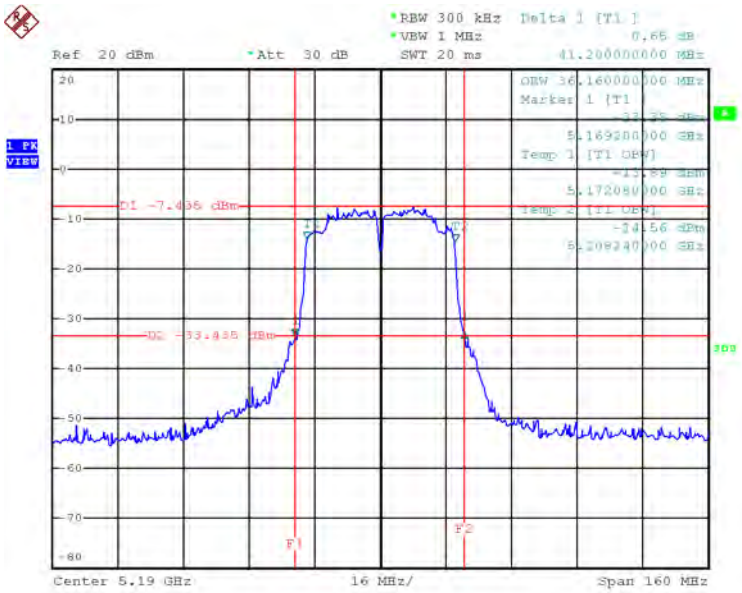
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5700 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 2 / 5720 MHz

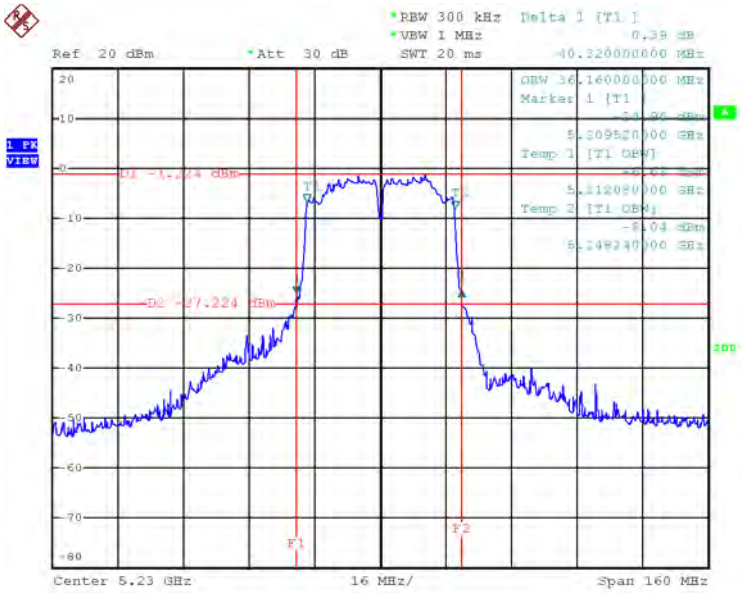


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5190 MHz



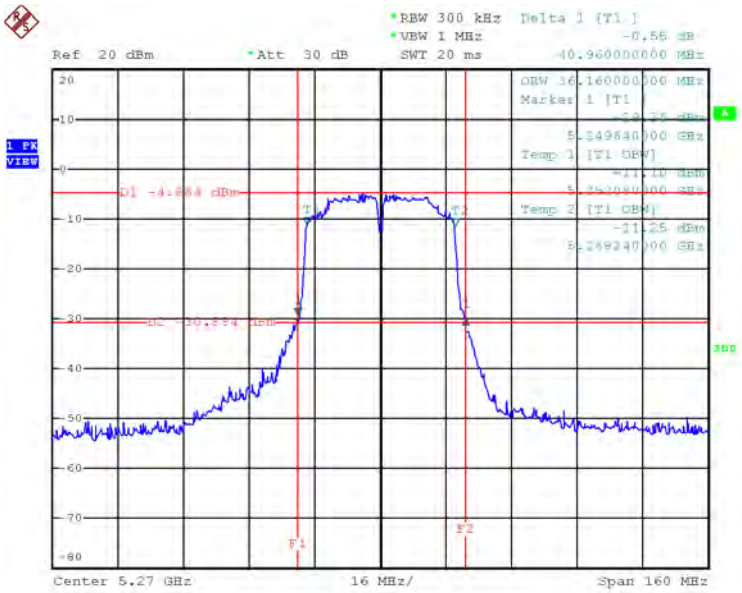
Date: 4.OCT.2013 00:35:14

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5230 MHz



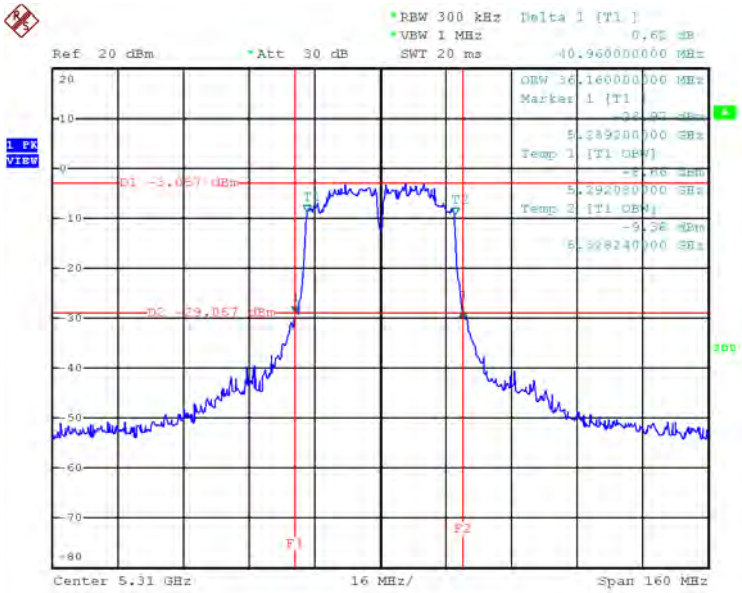
Date: 4.OCT.2013 00:36:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5270 MHz



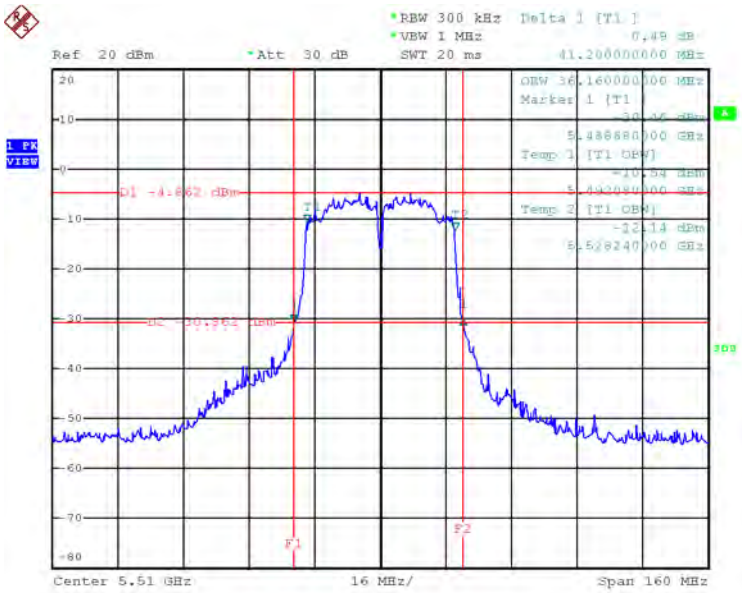
Date: 4.OCT.2013 00:37:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5310 MHz



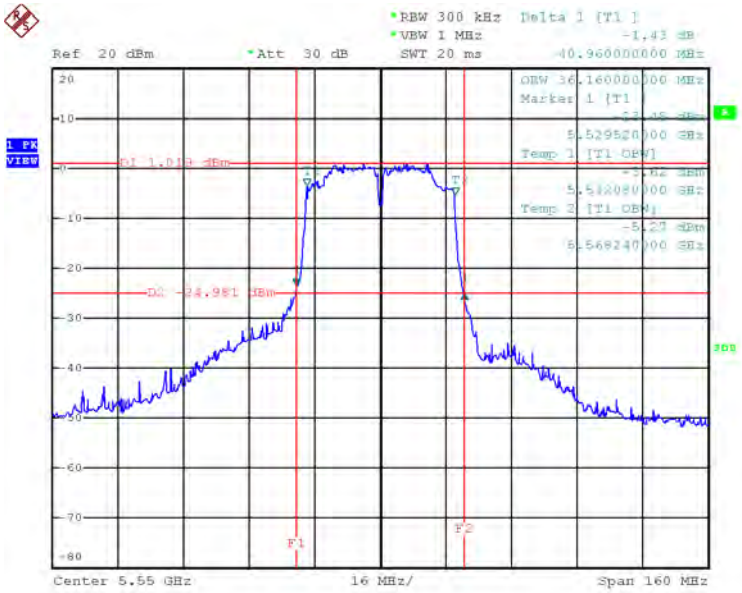
Date: 4.OCT.2013 00:39:10

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5510 MHz



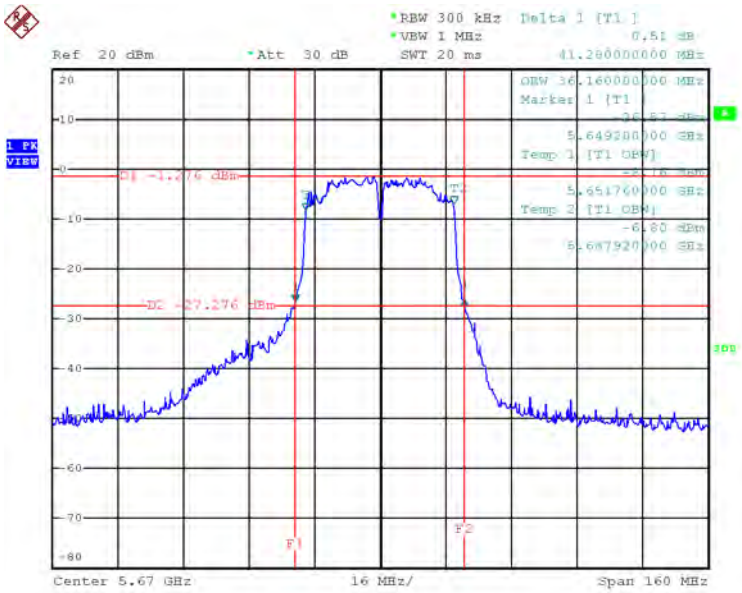
Date: 4.OCT.2013 00:40:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5550 MHz



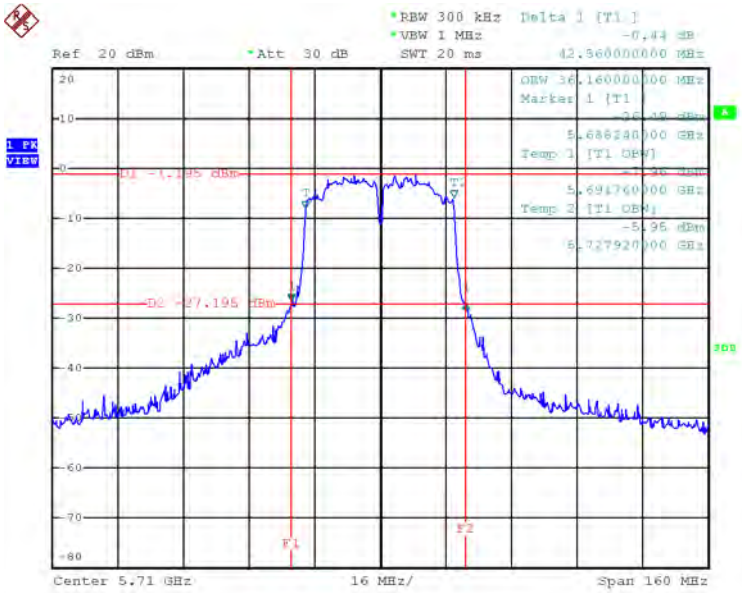
Date: 4.OCT.2013 00:41:27

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5670 MHz



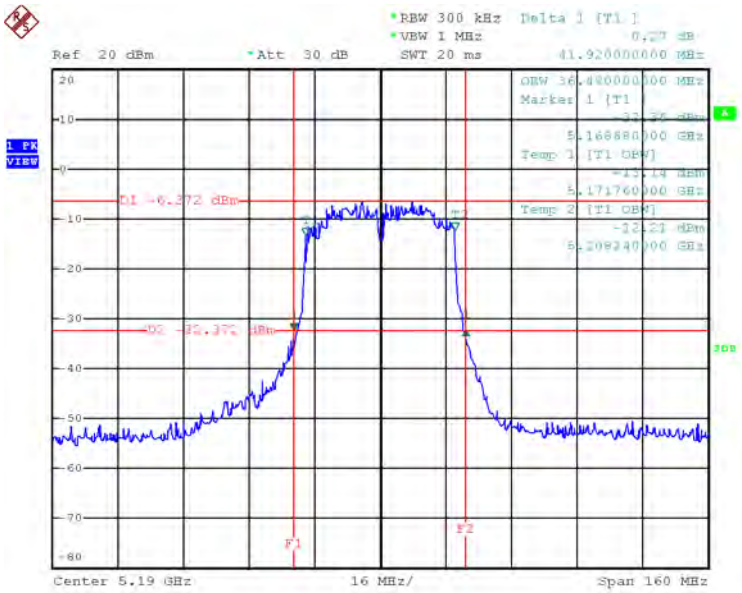
Date: 4.OCT.2013 00:43:42

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 / 5710 MHz



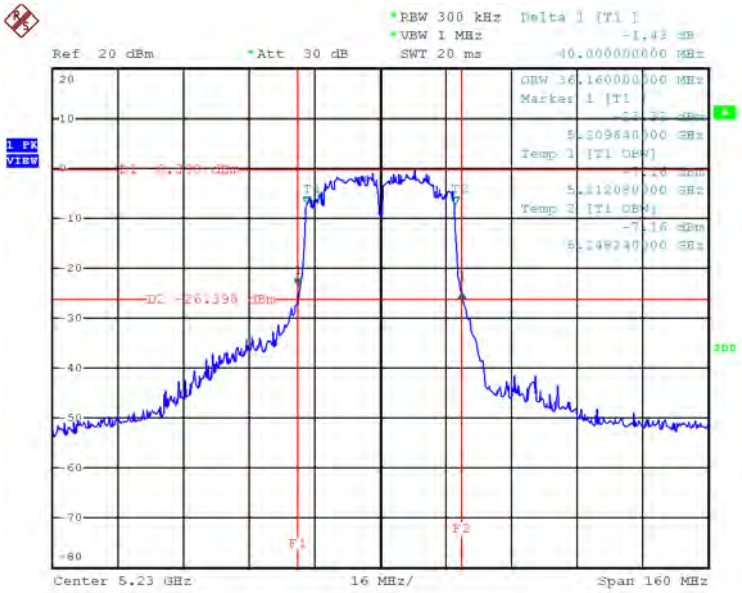
Date: 4.OCT.2013 00:44:53

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5190 MHz



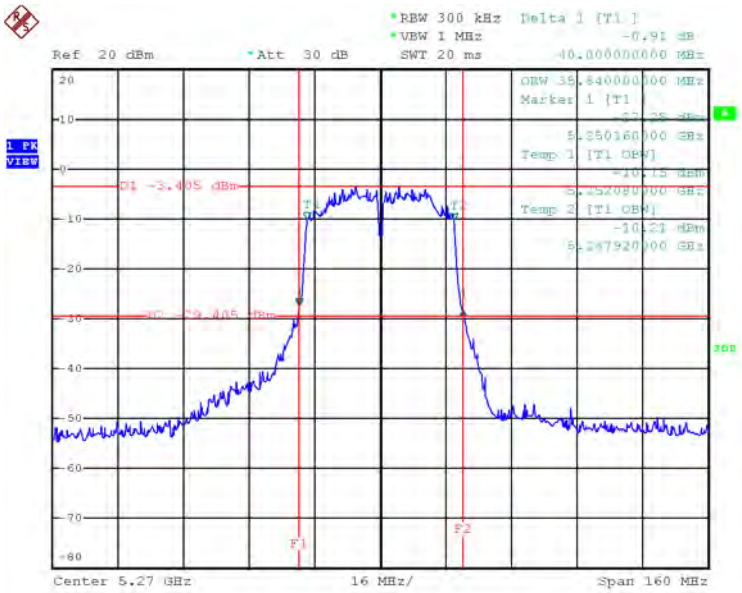
Date: 4.OCT.2013 01:07:23

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5230 MHz



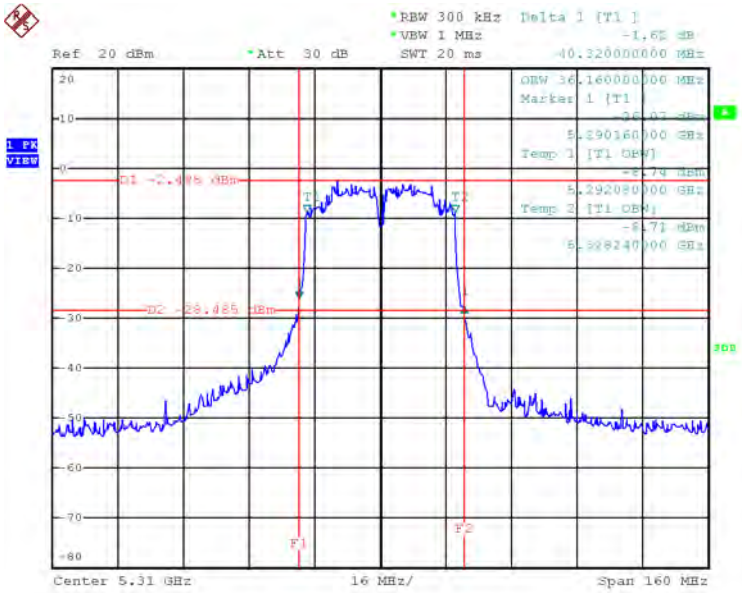
Date: 4.OCT.2013 01:08:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5270 MHz



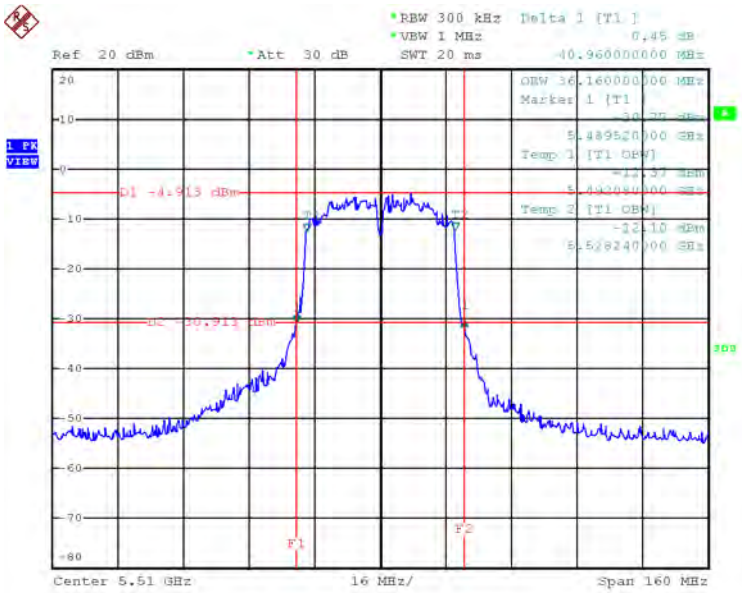
Date: 4.OCT.2013 01:09:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5310 MHz

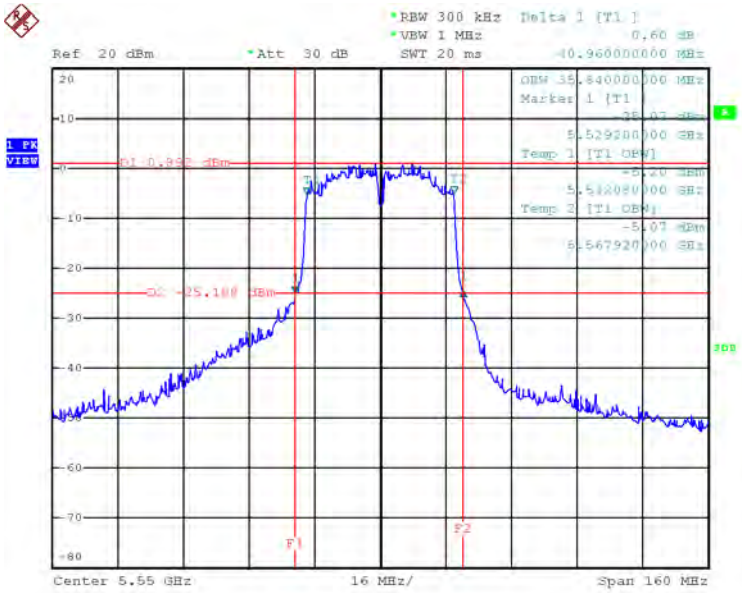


Date: 4.OCT.2013 01:10:37

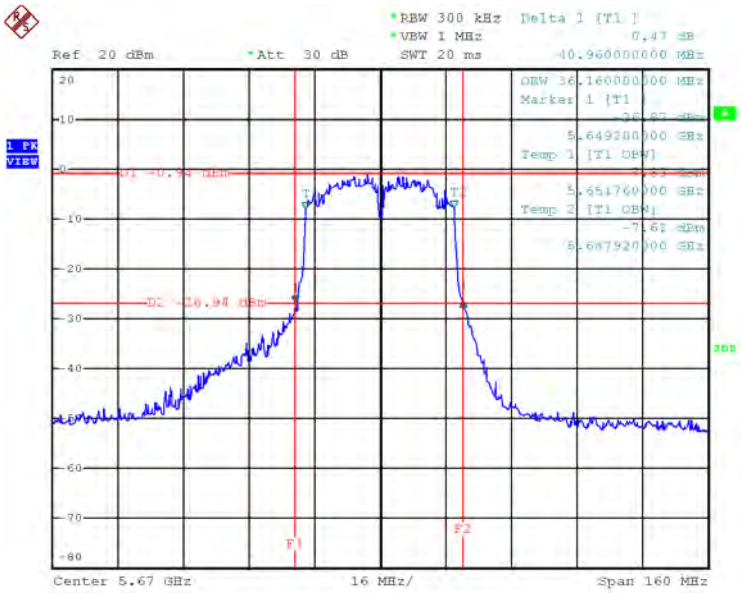
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5510 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5550 MHz

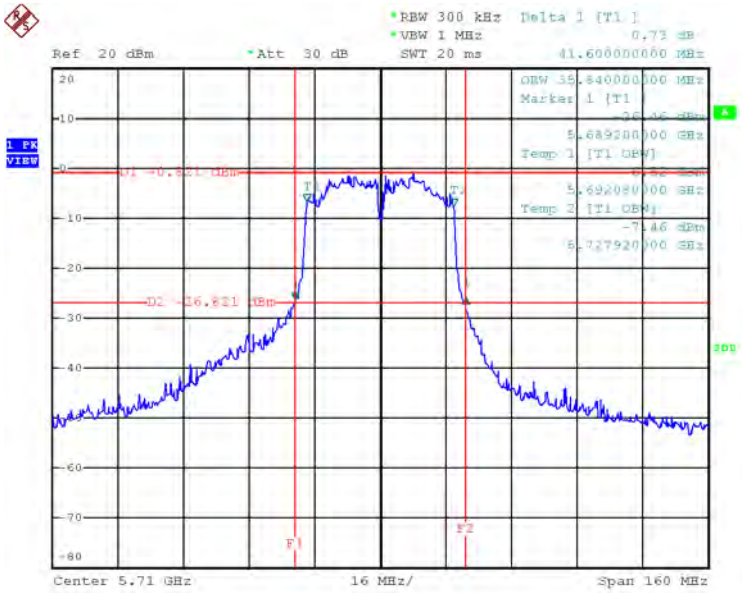


26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5670 MHz



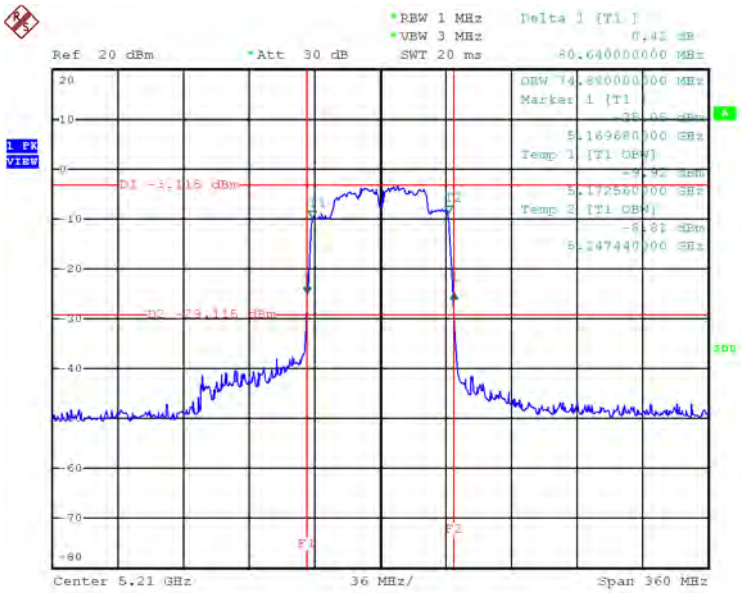
Date: 4.OCT.2013 01:13:50

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 2 / 5710 MHz



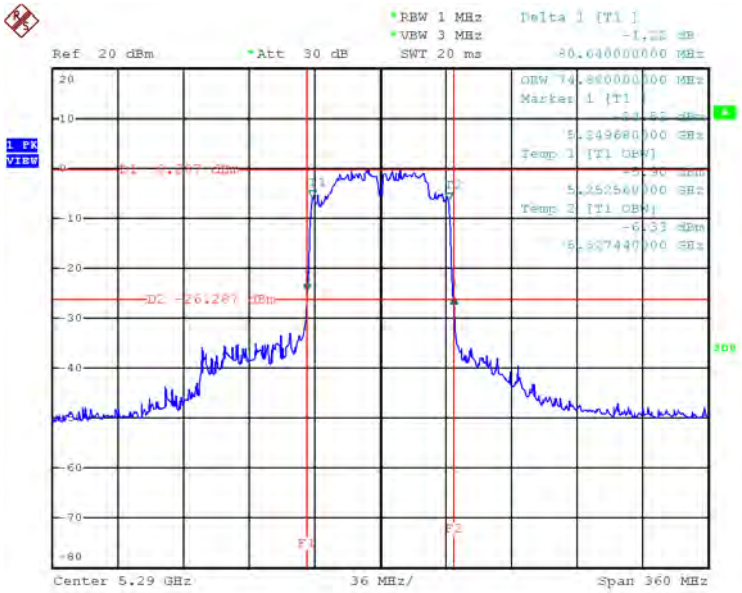
Date: 4.OCT.2013 01:14:44

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 / 5210 MHz



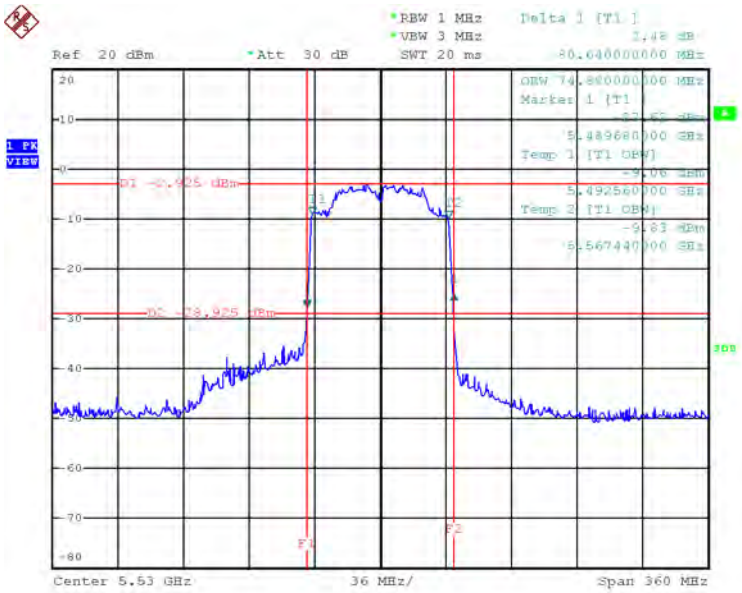
Date: 4.OCT.2013 00:46:55

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 / 5290 MHz



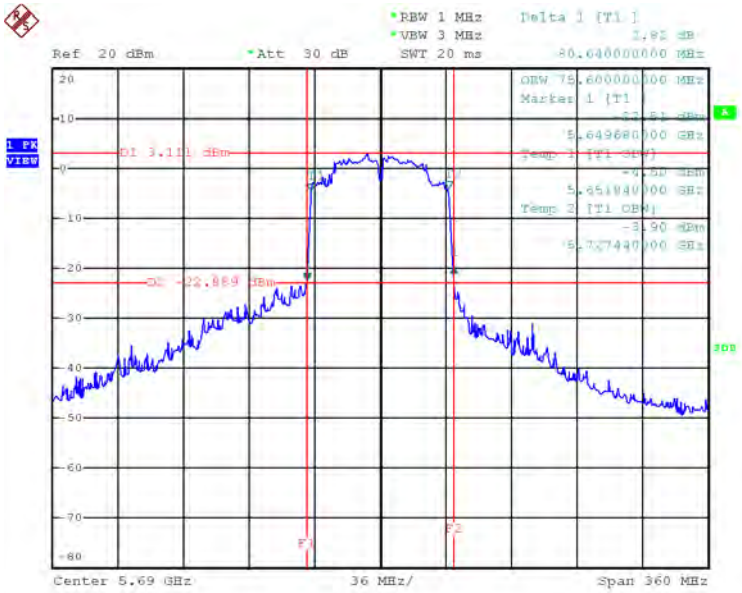
Date: 4.OCT.2013 00:47:51

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 / 5530 MHz



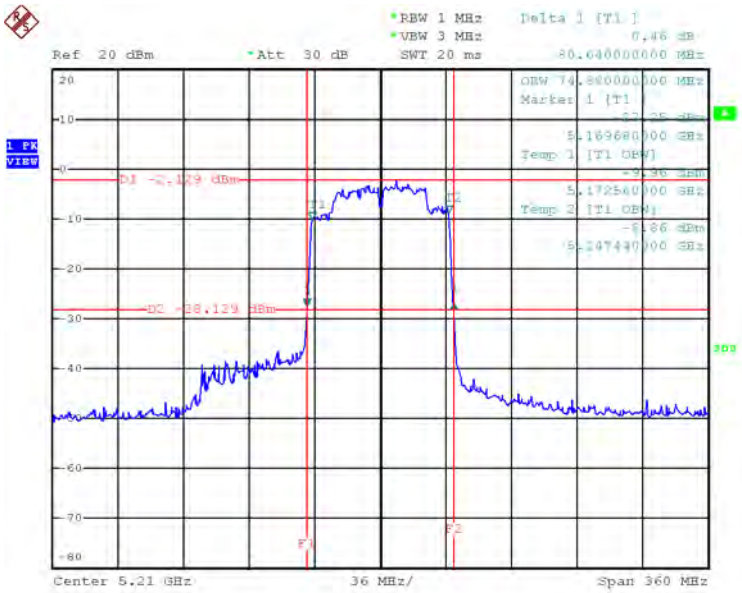
Date: 4.OCT.2013 00:48:54

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 / 5690 MHz



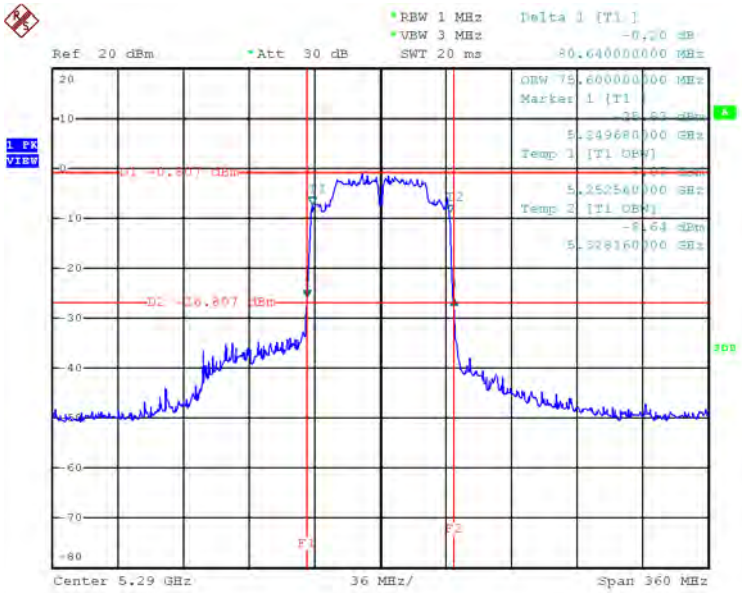
Date: 4.OCT.2013 00:49:47

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 2 / 5210 MHz



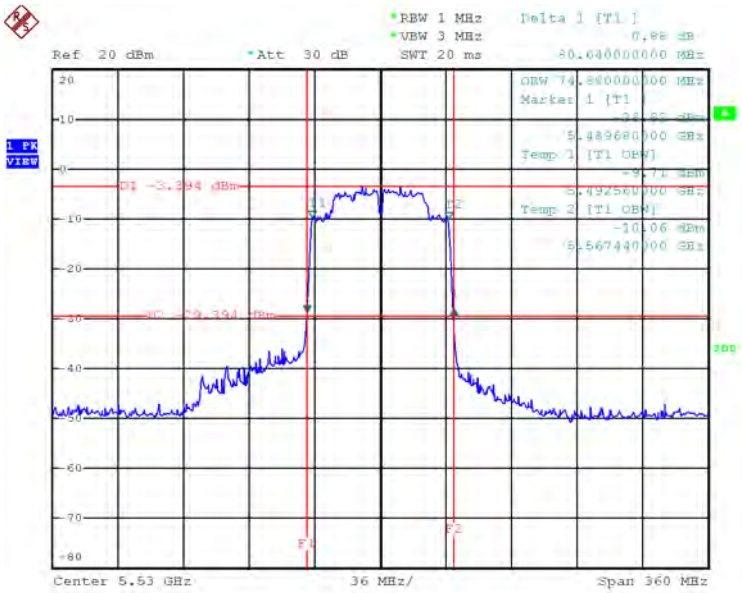
Date: 4.OCT.2013 01:16:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 2 / 5290 MHz

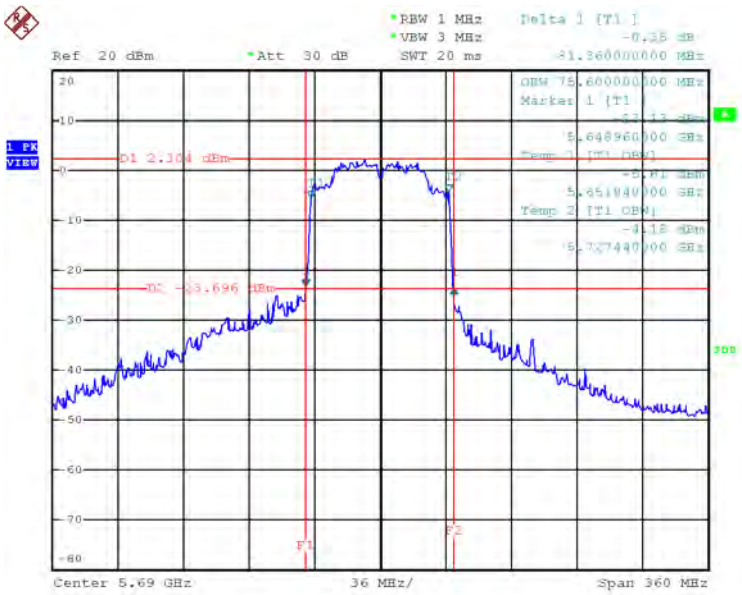


Date: 4.OCT.2013 01:17:09

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 2 / 5530 MHz



26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 2 / 5690 MHz



4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW (17dBm) or 4 dBm + 10log B, where B is the 26 dB emissions 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.

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

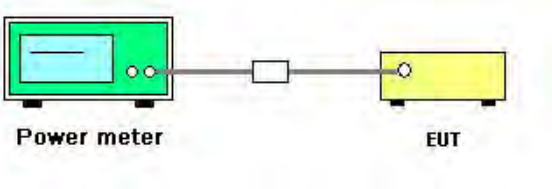
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

Power Meter Parameter	Setting
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 v02 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	25°C	Humidity	60%
Test Engineer	Kenneth Haung Nick Peng	Configurations	IEEE 802.11n/ac
Test Date	Oct. 02, 2013		

For 1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	10.93	17.00	Complies
40	5200 MHz	13.72	17.00	Complies
48	5240 MHz	13.81	17.00	Complies
52	5260 MHz	14.45	24.00	Complies
60	5300 MHz	14.44	24.00	Complies
64	5320 MHz	11.83	24.00	Complies
100	5500 MHz	11.81	24.00	Complies
116	5580 MHz	14.85	24.00	Complies
140	5700 MHz	10.78	24.00	Complies
144	5720 MHz	14.86	24.00	Complies

Configuration IEEE 802.11n MCS0 40MHz / Chain 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
38	5190 MHz	8.75	17.00	Complies
46	5230 MHz	13.72	17.00	Complies
54	5270 MHz	8.76	24.00	Complies
62	5310 MHz	10.87	24.00	Complies
102	5510 MHz	9.43	24.00	Complies
110	5550 MHz	14.91	24.00	Complies
134	5670 MHz	14.45	24.00	Complies
142	5710 MHz	14.91	24.00	Complies

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
42	5210 MHz	7.88	17.00	Complies
58	5290 MHz	9.91	24.00	Complies
106	5530 MHz	6.79	24.00	Complies
138	5690 MHz	12.45	24.00	Complies

For 2TX

Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
36	5180 MHz	10.49	10.46	13.49	17.00	Complies
40	5200 MHz	10.95	10.94	13.96	17.00	Complies
48	5240 MHz	10.82	10.86	13.85	17.00	Complies
52	5260 MHz	11.35	11.43	14.40	24.00	Complies
60	5300 MHz	11.33	11.47	14.41	24.00	Complies
64	5320 MHz	10.75	10.87	13.82	24.00	Complies
100	5500 MHz	8.93	8.84	11.90	24.00	Complies
116	5580 MHz	11.89	11.96	14.94	24.00	Complies
140	5700 MHz	8.72	8.97	11.86	24.00	Complies
144	5720 MHz	11.88	11.91	14.91	24.00	Complies

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
38	5190 MHz	6.44	6.38	9.42	17.00	Complies
46	5230 MHz	10.74	10.95	13.86	17.00	Complies
54	5270 MHz	7.42	7.45	10.45	24.00	Complies
62	5310 MHz	8.73	8.87	11.81	24.00	Complies
102	5510 MHz	6.48	6.44	9.47	24.00	Complies
110	5550 MHz	11.84	11.89	14.88	24.00	Complies
134	5670 MHz	11.38	11.33	14.37	24.00	Complies
142	5710 MHz	11.87	11.90	14.90	24.00	Complies

Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 + Chain 2

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Chain 1	Chain 2	Total		
42	5210 MHz	6.33	6.48	9.42	17.00	Complies
58	5290 MHz	7.48	7.44	10.47	24.00	Complies
106	5530 MHz	4.96	4.76	7.87	24.00	Complies
138	5690 MHz	11.85	11.75	14.81	24.00	Complies

Temperature	25°C	Humidity	60%
Test Engineer	Kenneth Haung	Configurations	IEEE 802.11a
Test Date	Oct. 02, 2013		

For 1TX

Configuration IEEE 802.11a / Chain 2

Channel	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
36	5180 MHz	10.96	17.00	Complies
40	5200 MHz	13.75	17.00	Complies
48	5240 MHz	13.86	17.00	Complies
52	5260 MHz	14.42	24.00	Complies
60	5300 MHz	14.48	24.00	Complies
64	5320 MHz	11.76	24.00	Complies
100	5500 MHz	11.83	24.00	Complies
116	5580 MHz	14.90	24.00	Complies
140	5700 MHz	10.85	24.00	Complies
144	5720 MHz	14.91	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)
5.15~5.25 GHz	4
5.25-5.35 GHz	11
5.470-5.725 GHz	11

4.4.2. Measuring Instruments and Setting

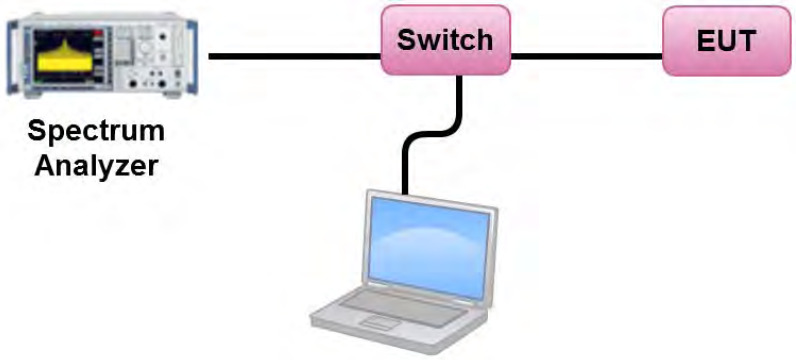
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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 v02 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	25℃	Humidity	60%
Test Engineer	Kenneth Haung Nick Peng	Configurations	IEEE 802.11n/ac
Test Date	Oct. 02, 2013		

For 1TX

Configuration IEEE 802.11n MCS0 20MHz / Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-2.81	4.00	Complies
40	5200 MHz	-0.09	4.00	Complies
48	5240 MHz	-0.26	4.00	Complies
52	5260 MHz	0.13	11.00	Complies
60	5300 MHz	0.62	11.00	Complies
64	5320 MHz	-1.78	11.00	Complies
100	5500 MHz	-0.43	11.00	Complies
116	5580 MHz	2.44	11.00	Complies
140	5700 MHz	-2.68	11.00	Complies
144	5720 MHz	1.39	11.00	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =0.18dBi <6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11n MCS0 40MHz / Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-7.68	4.00	Complies
46	5230 MHz	-2.37	4.00	Complies
54	5270 MHz	-7.89	11.00	Complies
62	5310 MHz	-5.37	11.00	Complies
102	5510 MHz	-5.19	11.00	Complies
110	5550 MHz	0.49	11.00	Complies
134	5670 MHz	-1.08	11.00	Complies
142	5710 MHz	-0.54	11.00	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =0.18dBi <6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-10.81	4.00	Complies
58	5290 MHz	-9.20	11.00	Complies
106	5530 MHz	-10.39	11.00	Complies
138	5690 MHz	-5.28	11.00	Complies

Note: Directional gain=$G_{ANT}+10\log(N_{ANT}/Nss)$ =0.18dBi <6dBi, so the limit doesn't reduce.

For 2TX

Configuration IEEE 802.11n MCS8 20 MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	0.34	4.00	Complies
40	5200 MHz	0.51	4.00	Complies
48	5240 MHz	0.34	4.00	Complies
52	5260 MHz	1.20	11.00	Complies
60	5300 MHz	1.17	11.00	Complies
64	5320 MHz	1.01	11.00	Complies
100	5500 MHz	-0.58	11.00	Complies
116	5580 MHz	2.05	11.00	Complies
140	5700 MHz	-1.36	11.00	Complies
144	5720 MHz	1.34	11.00	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =0.65dBi <6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-7.45	4.00	Complies
46	5230 MHz	-1.94	4.00	Complies
54	5270 MHz	-5.53	11.00	Complies
62	5310 MHz	-4.05	11.00	Complies
102	5510 MHz	-6.27	11.00	Complies
110	5550 MHz	-0.47	11.00	Complies
134	5670 MHz	-1.90	11.00	Complies
142	5710 MHz	-1.03	11.00	Complies

Note: Directional gain=G_{ANT}+10log(N_{ANT}/Nss) =0.65dBi <6dBi, so the limit doesn't reduce.

Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 + Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
42	5210 MHz	-10.35	4.00	Complies
58	5290 MHz	-8.62	11.00	Complies
106	5530 MHz	-9.97	11.00	Complies
138	5690 MHz	-3.65	11.00	Complies

Note: Directional gain=$G_{ANT}+10\log(N_{ANT}/Nss)$ =0.65dBi <6dBi, so the limit doesn't reduce.

Temperature	25°C	Humidity	60%
Test Engineer	Kenneth Haung	Configurations	IEEE 802.11a
Test Date	Oct. 02, 2013		

For 1TX

Configuration IEEE 802.11a / Chain 2

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	-2.61	4.00	Complies
40	5200 MHz	0.37	4.00	Complies
48	5240 MHz	0.46	4.00	Complies
52	5260 MHz	0.86	11.00	Complies
60	5300 MHz	1.21	11.00	Complies
64	5320 MHz	-1.48	11.00	Complies
100	5500 MHz	0.28	11.00	Complies
116	5580 MHz	2.71	11.00	Complies
140	5700 MHz	-1.95	11.00	Complies
144	5720 MHz	2.21	11.00	Complies

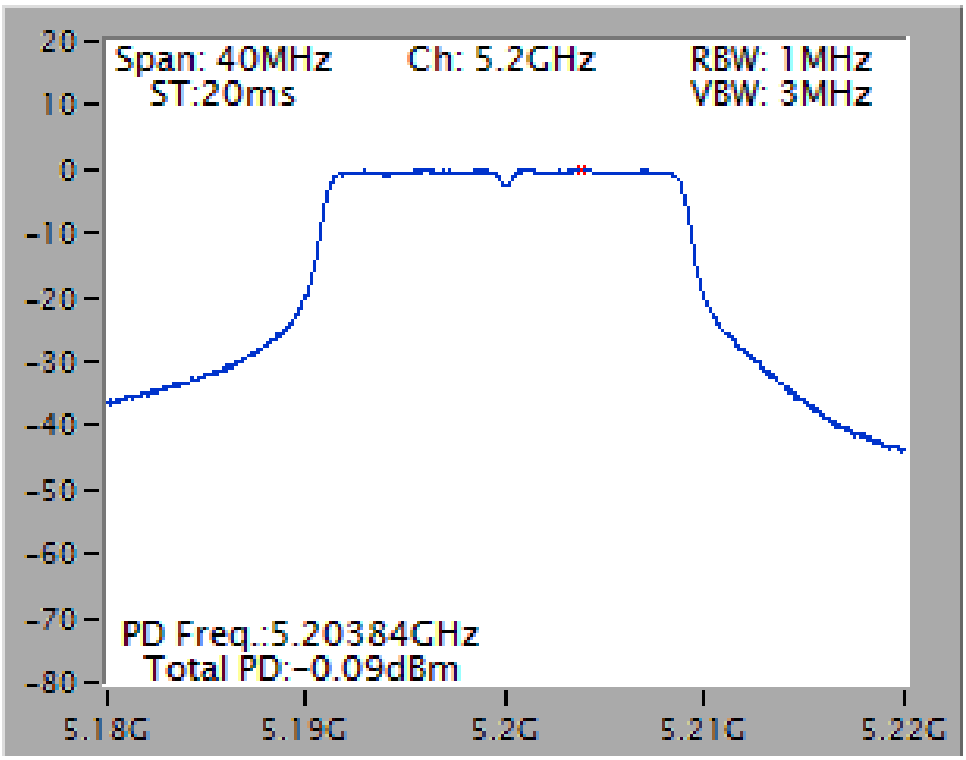
Note: Directional gain=$G_{ANT}+10\log(N_{ANT}/Nss)$ =0.18dBi <6dBi, so the limit doesn't reduce.

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

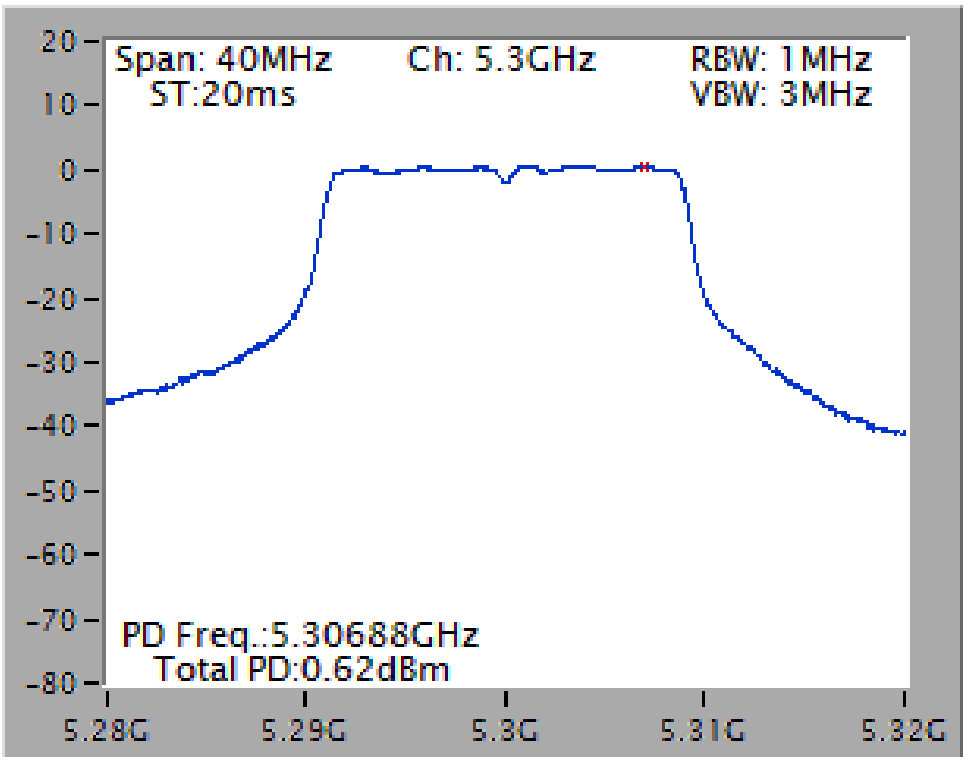
For plots, only the channel with worse result was shown.

For 1TX

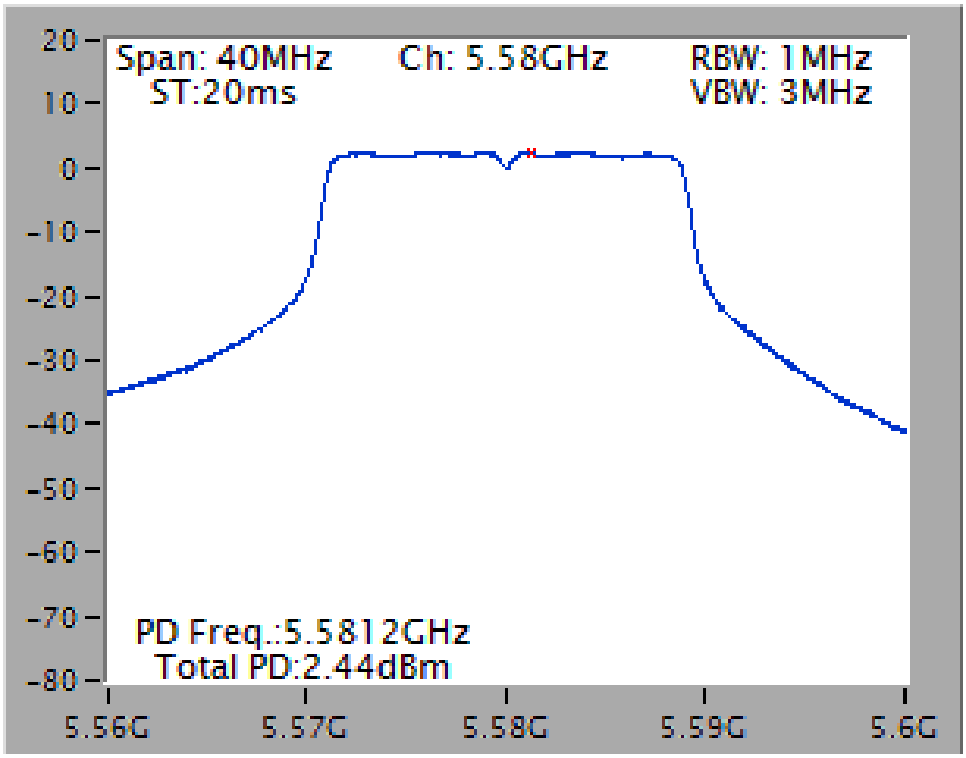
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5200 MHz



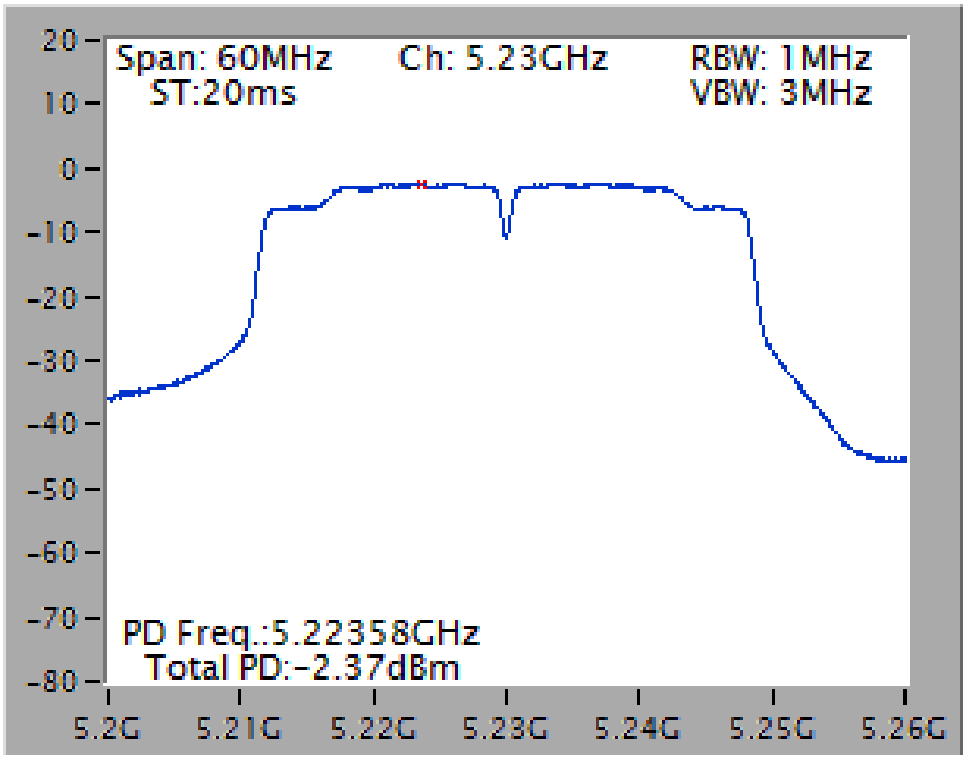
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5300 MHz



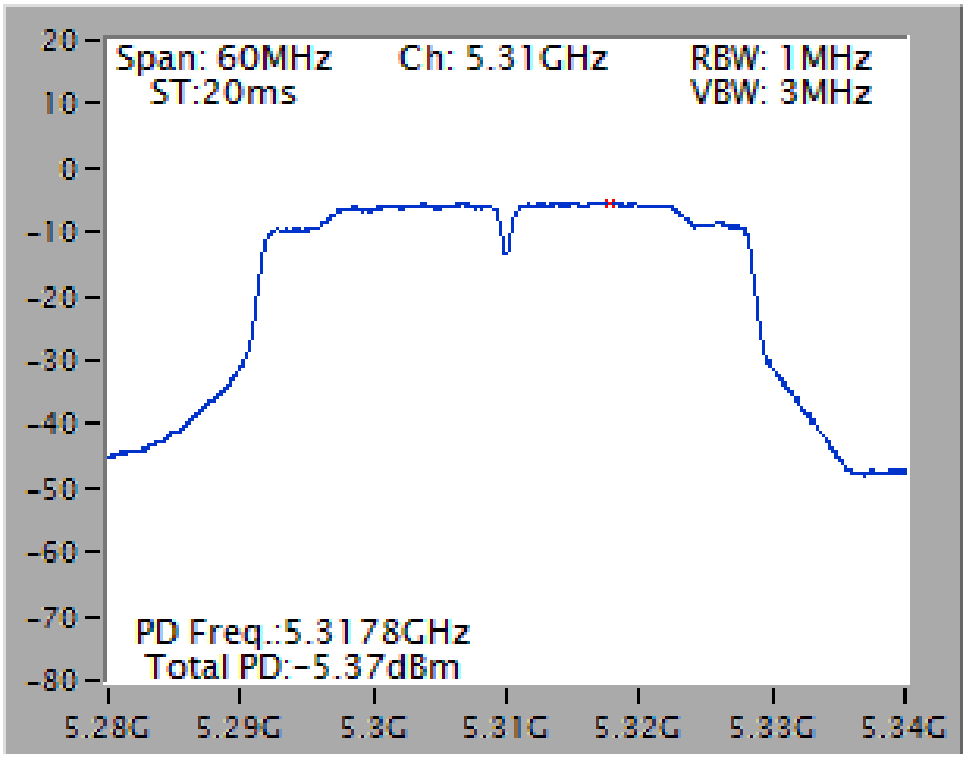
Power Density Plot on Configuration IEEE 802.11n MCS0 20MHz / Chain 2 / 5580 MHz



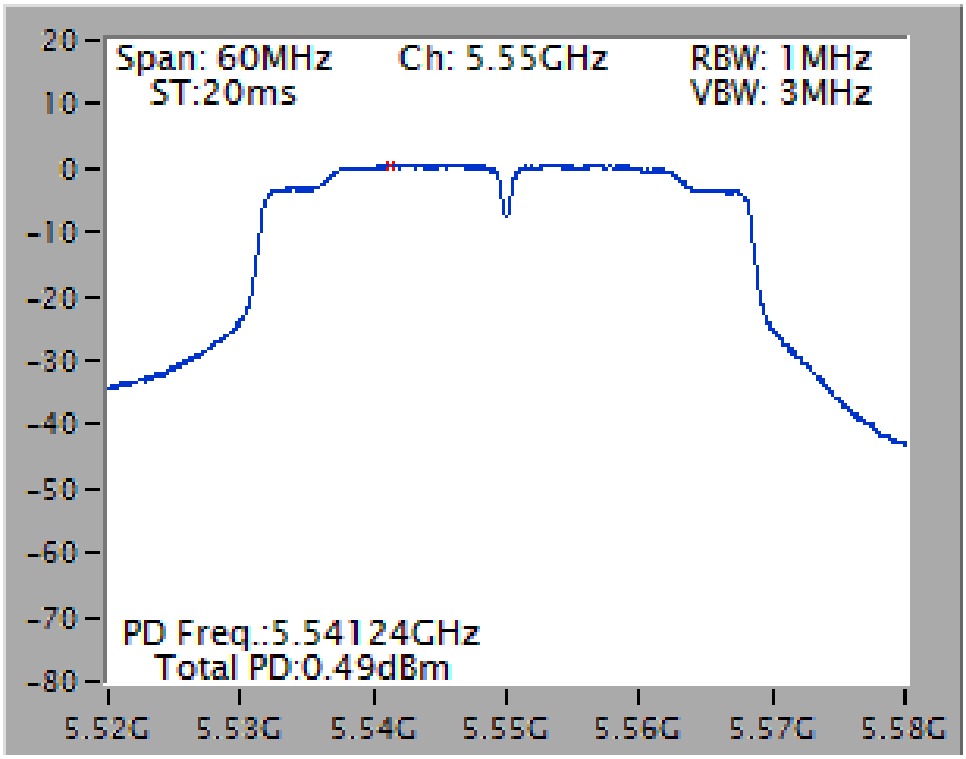
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5230 MHz



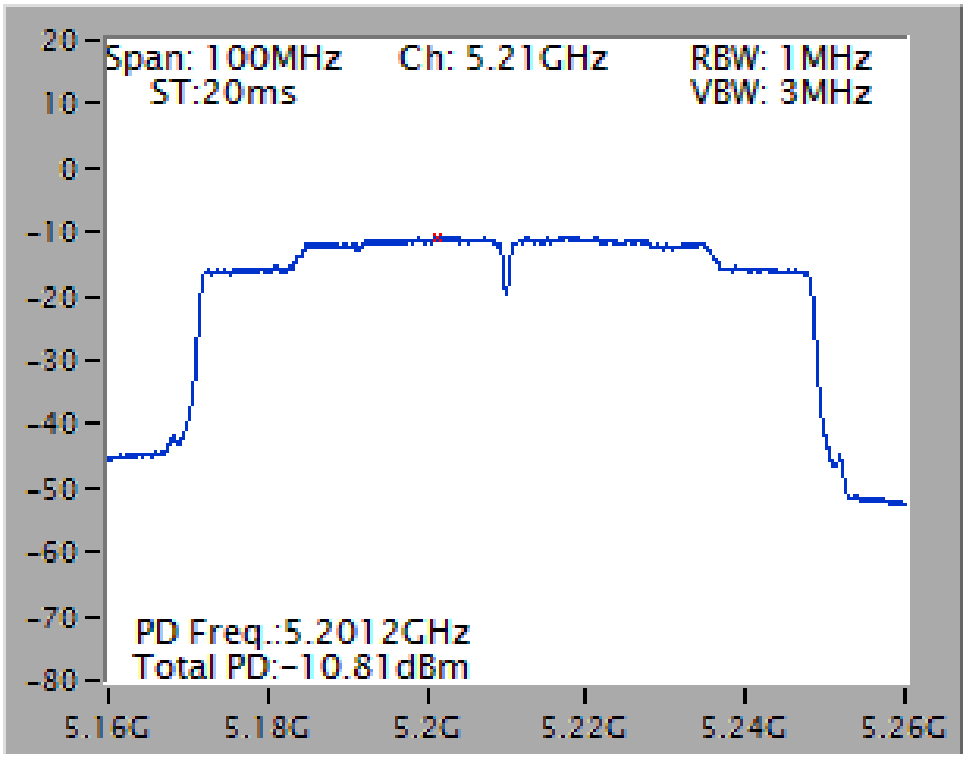
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5310 MHz



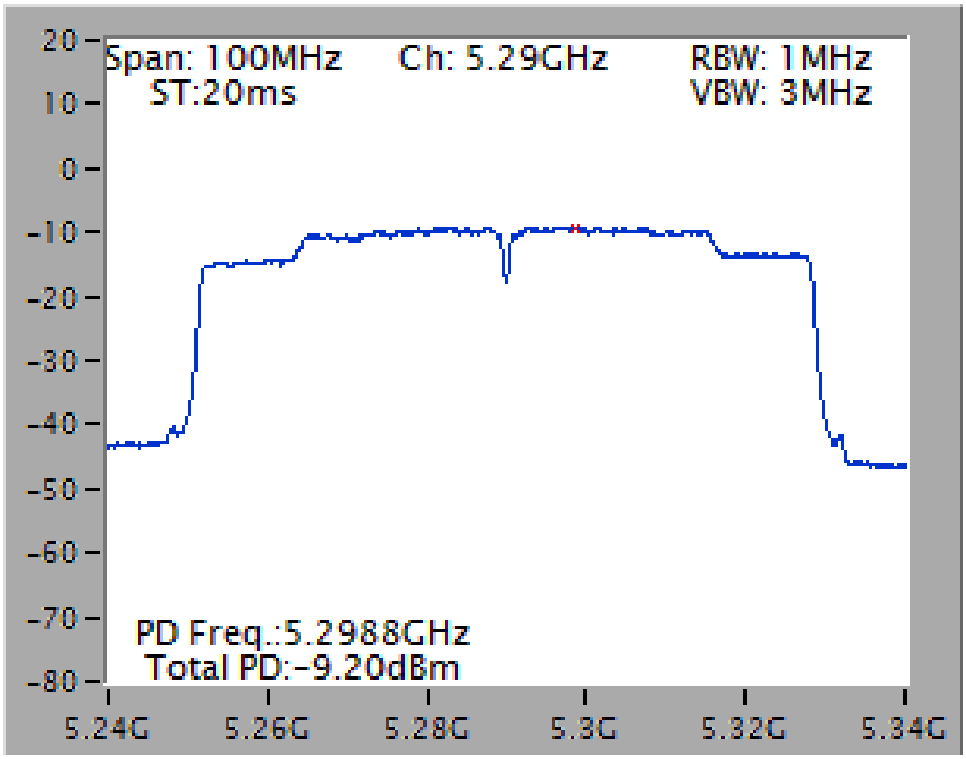
Power Density Plot on Configuration IEEE 802.11n MCS0 40MHz / Chain 2 / 5550 MHz



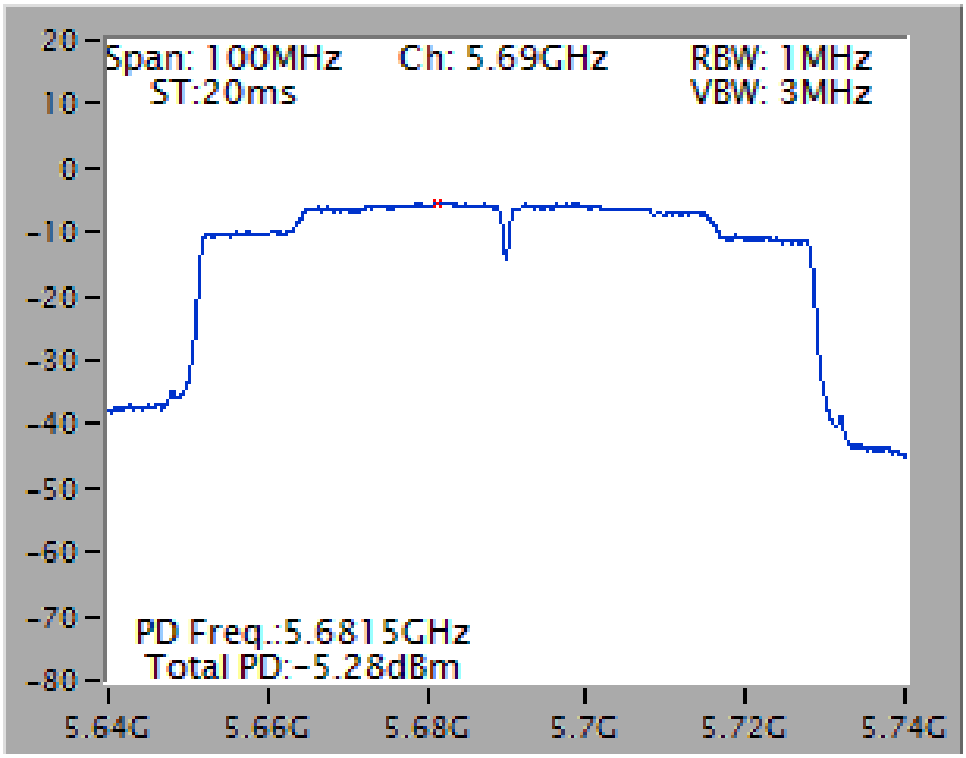
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5210 MHz



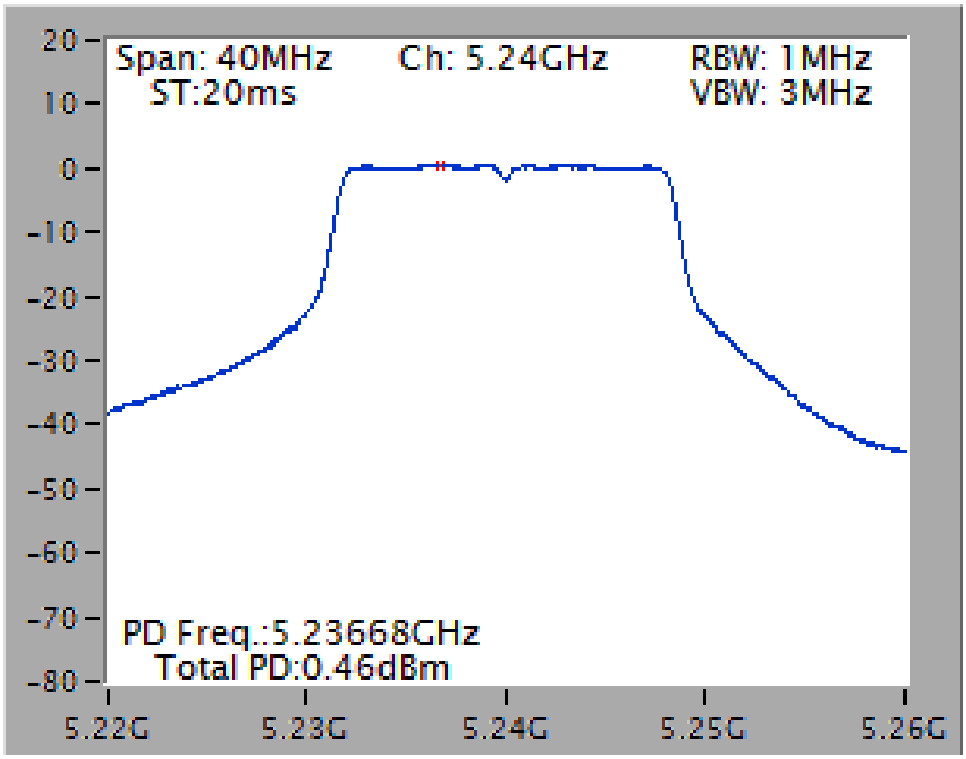
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5290 MHz



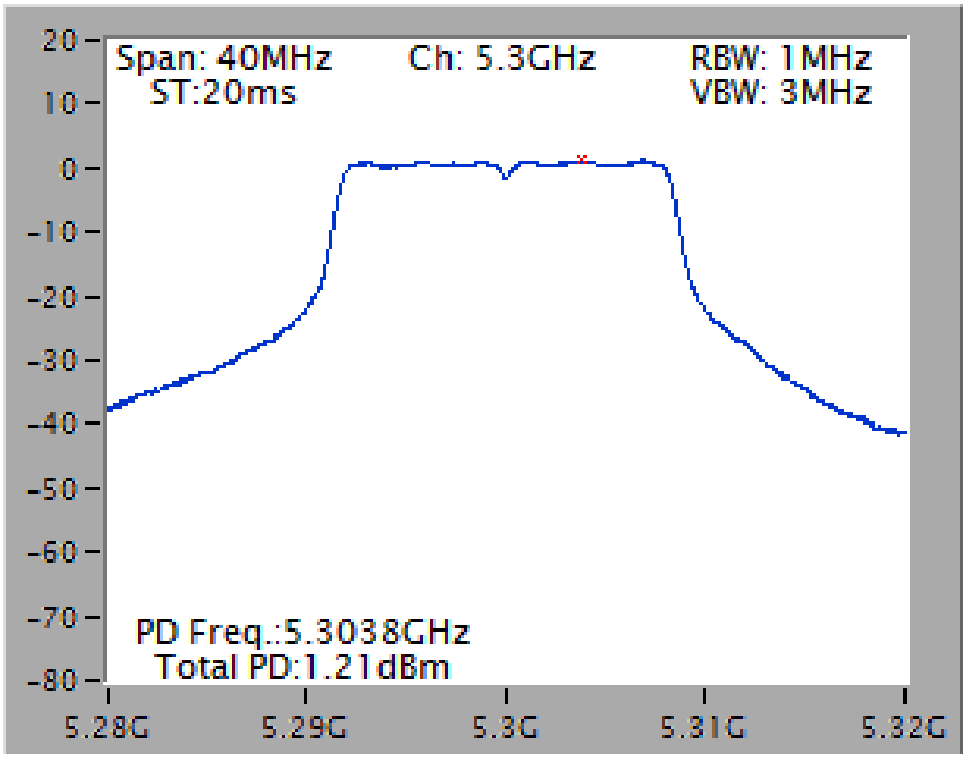
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss1 80MHz / Chain 2 / 5690 MHz



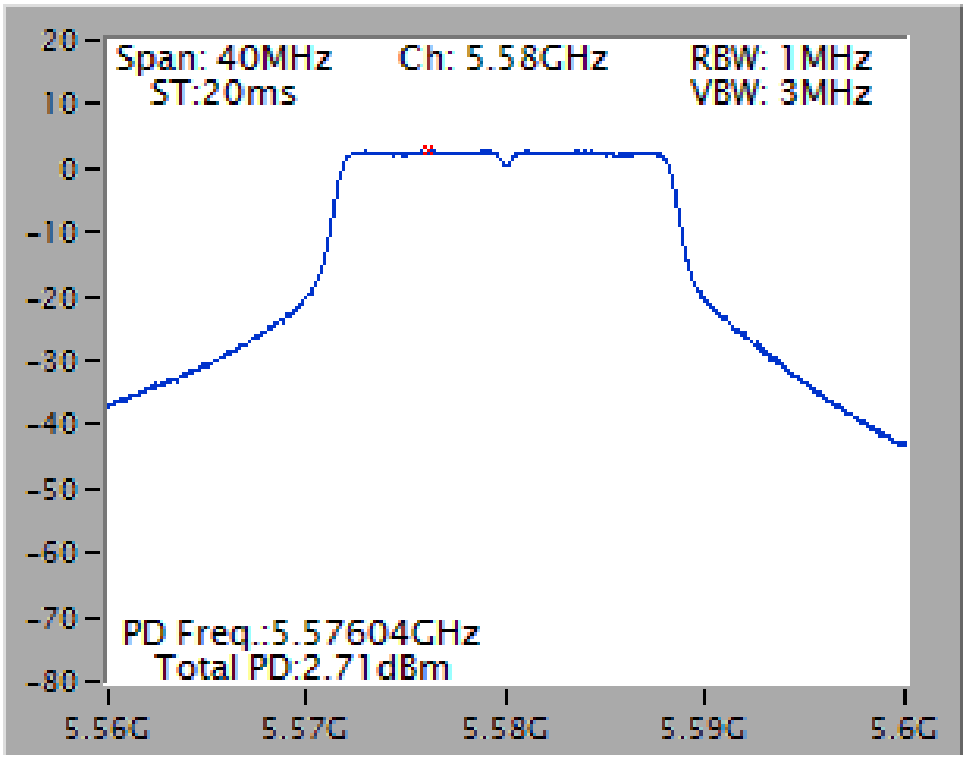
Power Density Plot on Configuration IEEE 802.11a / Chain 2 / 5240 MHz



Power Density Plot on Configuration IEEE 802.11a / Chain 2 / 5300 MHz

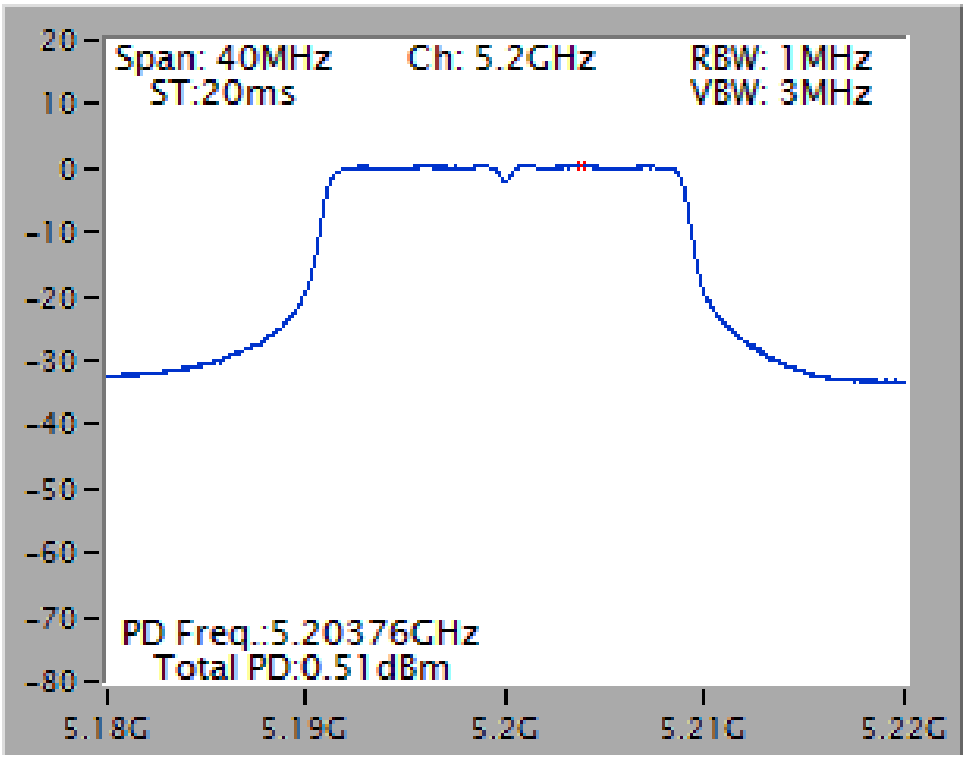


Power Density Plot on Configuration IEEE 802.11a / Chain 1 / 5580 MHz

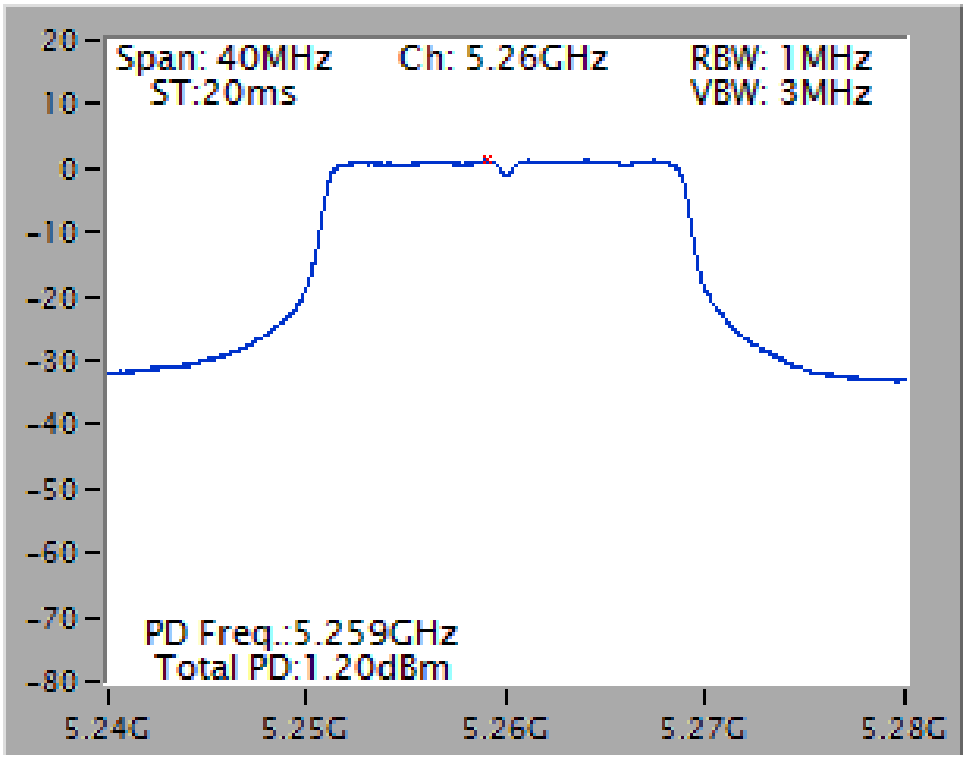


For 2TX

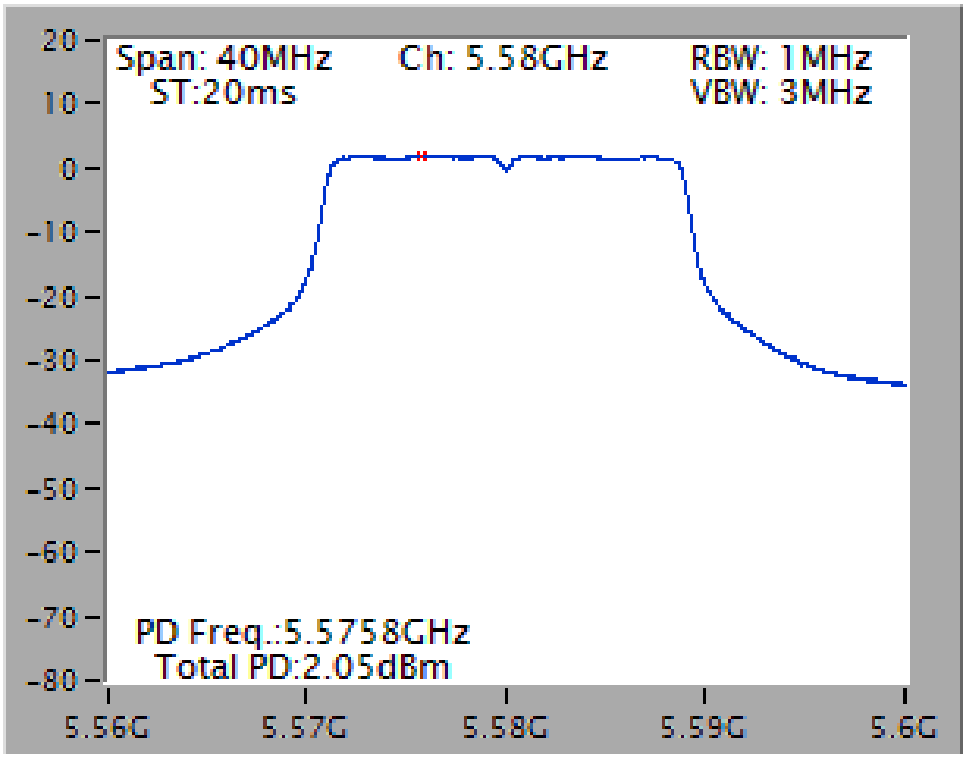
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5200 MHz



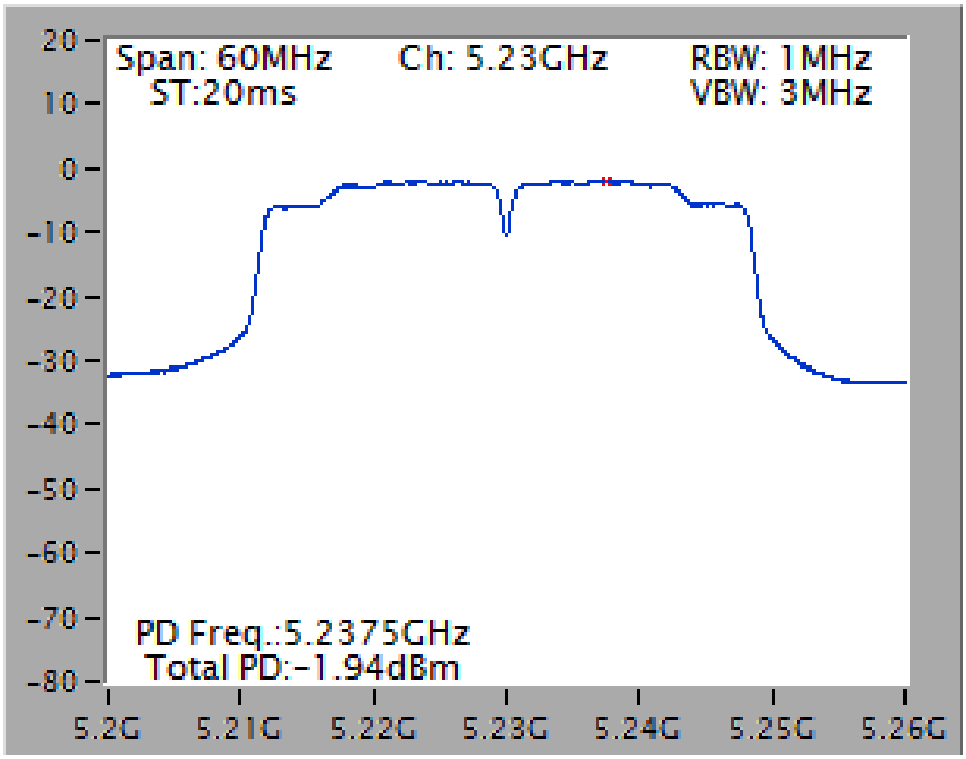
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5260 MHz



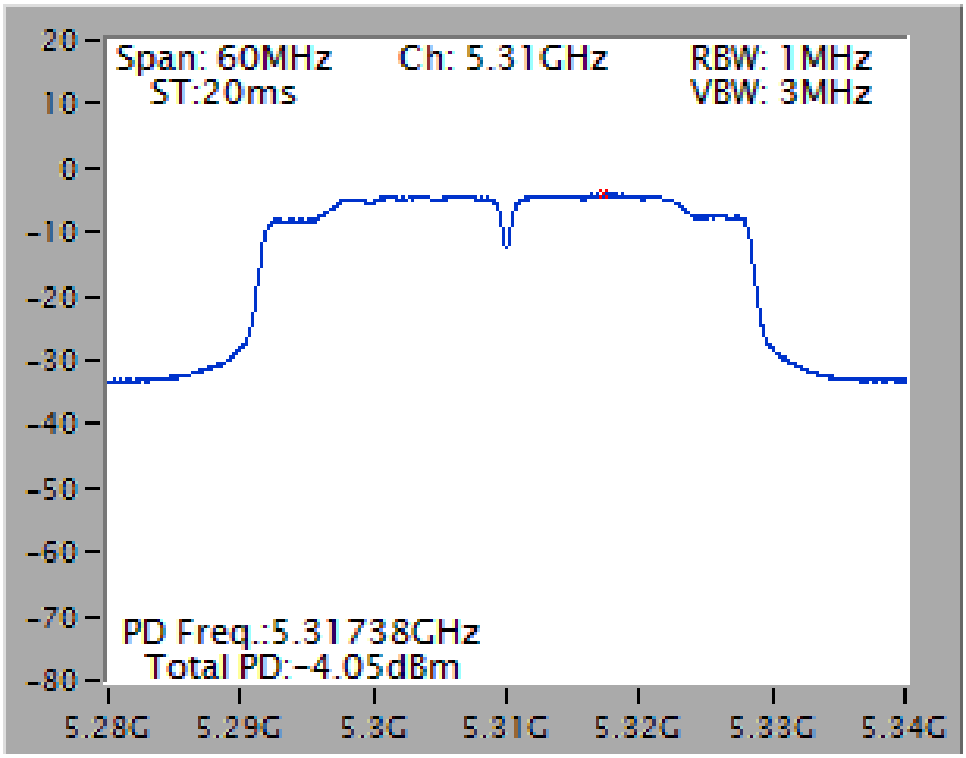
Power Density Plot on Configuration IEEE 802.11n MCS8 20MHz / Chain 1 + Chain 2 / 5580 MHz



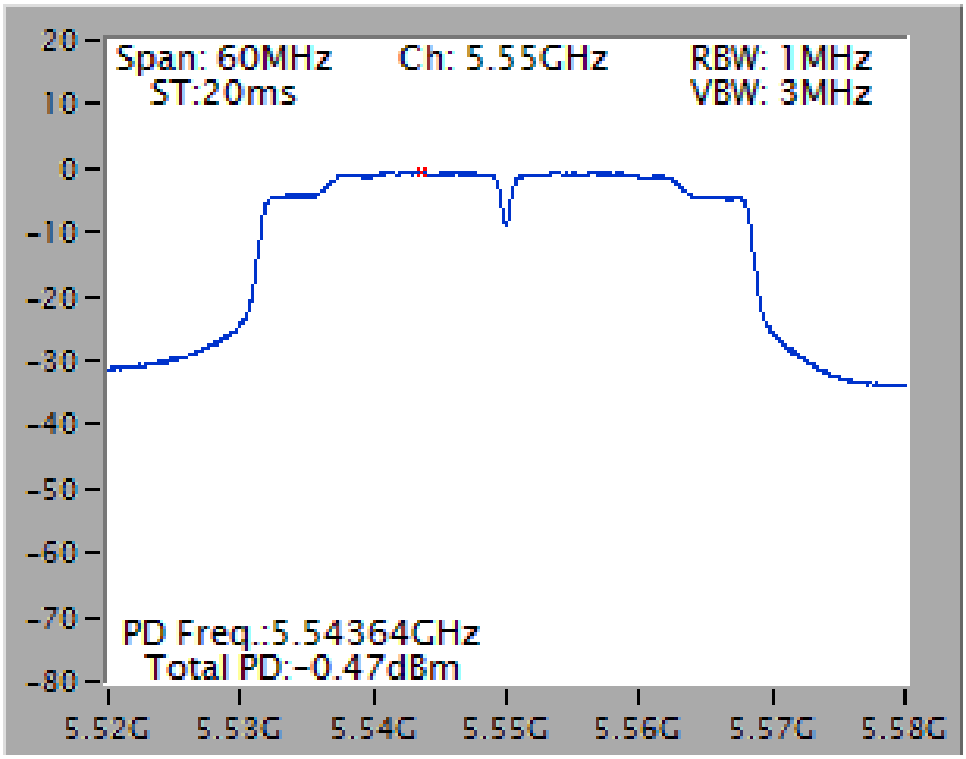
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5230 MHz



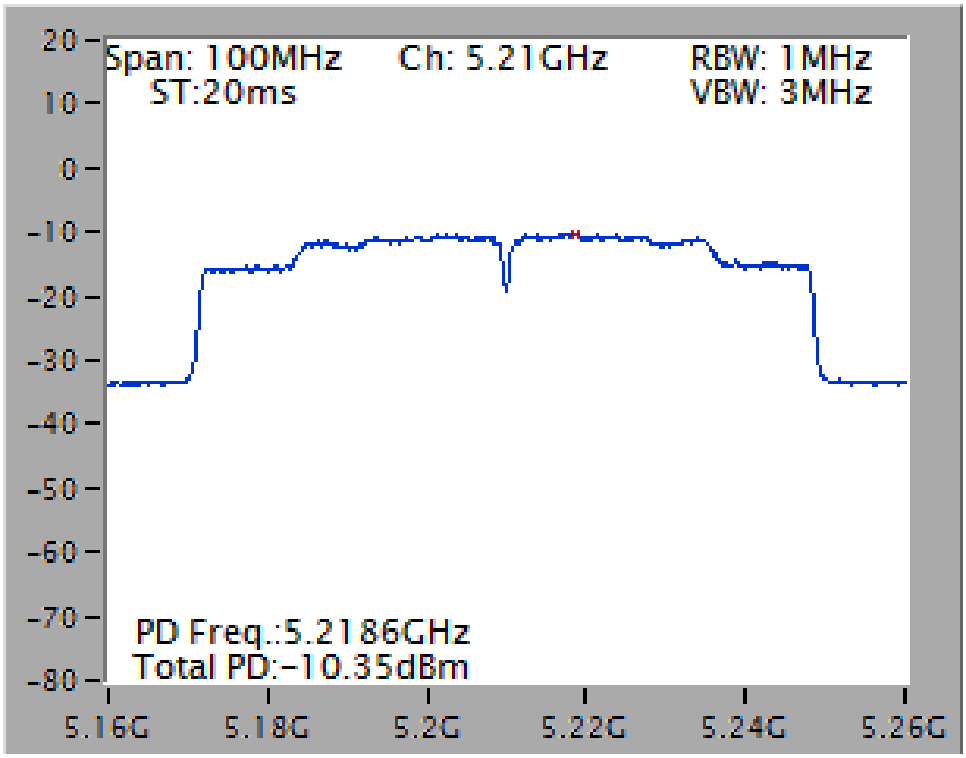
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5310 MHz



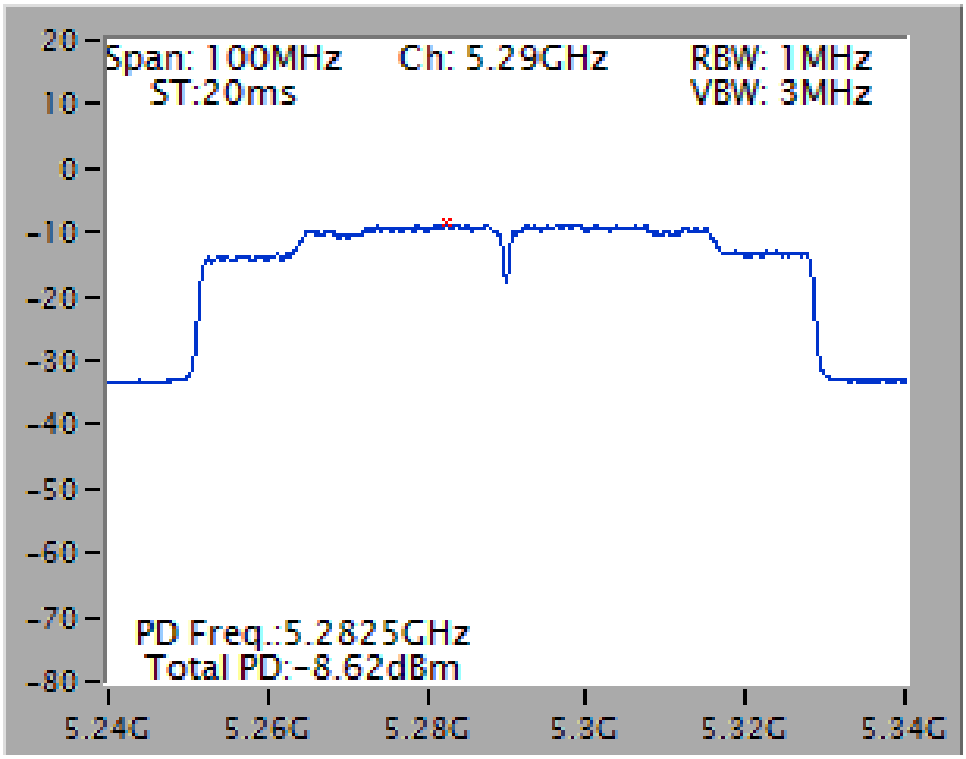
Power Density Plot on Configuration IEEE 802.11n MCS8 40MHz / Chain 1 + Chain 2 / 5550 MHz



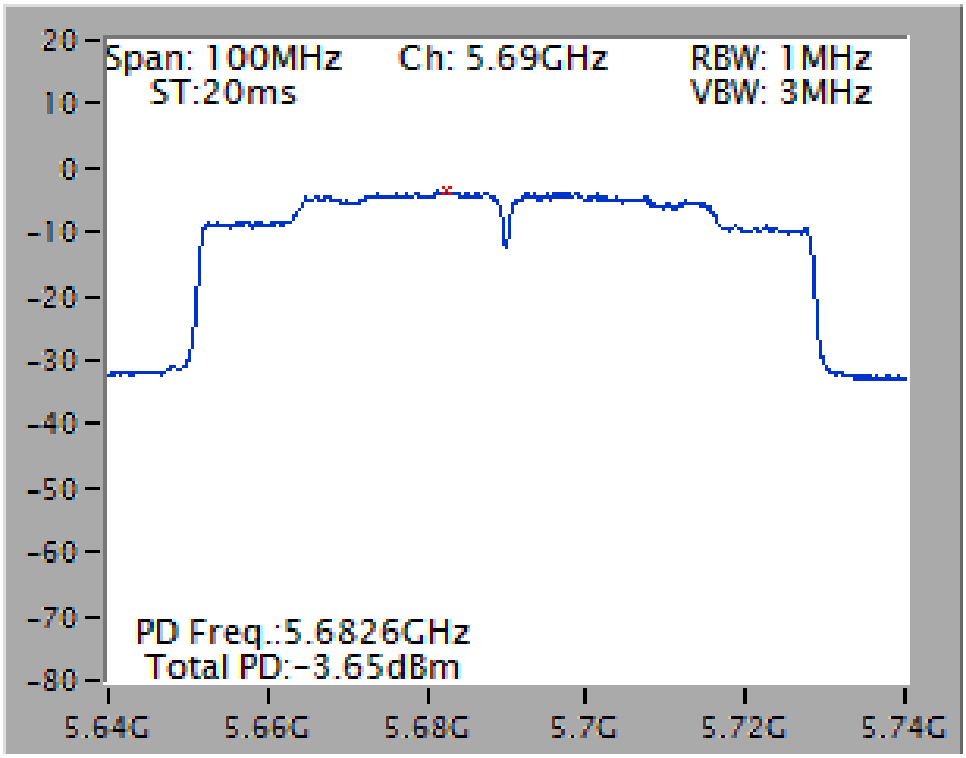
Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 + Chain 2 / 5210 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 + Chain 2 / 5290 MHz



Power Density Plot on Configuration IEEE 802.11ac MCS0/Nss2 80MHz / Chain 1 + Chain 2 / 5690 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, 256-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	25℃ 24.2℃	Humidity	60% 61%
Test Engineer	Kenneth Haung Nick Peng Ian Tu	Configurations	IEEE 802.11n/ac

For 1TX

Configuration IEEE 802.11n 20MHz / Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS0)	5240MHz	9.30	13	Complies
QPSK(MCS1)	5240MHz	9.20	13	Complies
16QAM(MCS3)	5240MHz	9.30	13	Complies
64QAM(MCS5)	5240MHz	10.34	13	Complies
BSPK(MCS0)	5260MHz	9.19	13	Complies
QPSK(MCS1)	5260MHz	9.20	13	Complies
16QAM(MCS3)	5260MHz	9.22	13	Complies
64QAM(MCS5)	5260MHz	9.24	13	Complies
BSPK(MCS0)	5720MHz	9.28	13	Complies
QPSK(MCS1)	5720MHz	9.36	13	Complies
16QAM(MCS3)	5720MHz	9.99	13	Complies
64QAM(MCS5)	5720MHz	10.07	13	Complies

Configuration IEEE 802.11n 40MHz / Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS0)	5230MHz	9.15	13	Complies
QPSK(MCS1)	5230MHz	9.65	13	Complies
16QAM(MCS3)	5230MHz	9.69	13	Complies
64QAM(MCS5)	5230MHz	9.75	13	Complies
BSPK(MCS0)	5310MHz	8.43	13	Complies
QPSK(MCS1)	5310MHz	9.05	13	Complies
16QAM(MCS3)	5310MHz	9.84	13	Complies
64QAM(MCS5)	5310MHz	10.57	13	Complies
BSPK(MCS0)	5550MHz	9.14	13	Complies
QPSK(MCS1)	5550MHz	9.58	13	Complies
16QAM(MCS3)	5550MHz	9.28	13	Complies
64QAM(MCS5)	5550MHz	10.34	13	Complies

Configuration IEEE 802.11ac 80MHz / Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS0)	5210MHz	8.74	13	Complies
QPSK(MCS1)	5210MHz	8.99	13	Complies
16QAM(MCS3)	5210MHz	9.44	13	Complies
64QAM(MCS5)	5210MHz	10.10	13	Complies
256QAM(MCS8)	5210MHz	10.14	13	Complies
BSPK(MCS0)	5290MHz	8.65	13	Complies
QPSK(MCS1)	5290MHz	9.24	13	Complies
16QAM(MCS3)	5290MHz	9.66	13	Complies
64QAM(MCS5)	5290MHz	9.35	13	Complies
256QAM(MCS8)	5290MHz	10.69	13	Complies
BSPK(MCS0)	5690MHz	9.50	13	Complies
QPSK(MCS1)	5690MHz	8.54	13	Complies
16QAM(MCS3)	5690MHz	9.29	13	Complies
64QAM(MCS5)	5690MHz	9.73	13	Complies
256QAM(MCS8)	5690MHz	9.87	13	Complies

For 2TX

Configuration IEEE 802.11n 20MHz / Chain 1 + Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS8)	5200MHz	9.01	13	Complies
QPSK(MCS9)	5200MHz	9.60	13	Complies
16QAM(MCS11)	5200MHz	9.19	13	Complies
64QAM(MCS13)	5200MHz	9.61	13	Complies
BSPK(MCS8)	5300MHz	9.59	13	Complies
QPSK(MCS9)	5300MHz	9.77	13	Complies
16QAM(MCS11)	5300MHz	9.95	13	Complies
64QAM(MCS13)	5300MHz	9.72	13	Complies
BSPK(MCS8)	5580MHz	9.81	13	Complies
QPSK(MCS9)	5580MHz	9.90	13	Complies
16QAM(MCS11)	5580MHz	9.61	13	Complies
64QAM(MCS13)	5580MHz	10.00	13	Complies

Configuration IEEE 802.11n 40MHz / Chain 1 + Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS8)	5230MHz	10.07	13	Complies
QPSK(MCS9)	5230MHz	9.22	13	Complies
16QAM(MCS11)	5230MHz	9.48	13	Complies
64QAM(MCS13)	5230MHz	10.06	13	Complies
BSPK(MCS8)	5310MHz	9.68	13	Complies
QPSK(MCS9)	5310MHz	9.49	13	Complies
16QAM(MCS11)	5310MHz	10.13	13	Complies
64QAM(MCS13)	5310MHz	10.24	13	Complies
BSPK(MCS8)	5710MHz	9.32	13	Complies
QPSK(MCS9)	5710MHz	9.44	13	Complies
16QAM(MCS11)	5710MHz	9.89	13	Complies
64QAM(MCS13)	5710MHz	10.64	13	Complies

Configuration IEEE 802.11ac 80MHz / Chain 1 + Chain 2

Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(MCS0)	5210MHz	9.30	13	Complies
QPSK(MCS1)	5210MHz	9.10	13	Complies
16QAM(MCS3)	5210MHz	9.84	13	Complies
64QAM(MCS5)	5210MHz	10.36	13	Complies
256QAM(MCS8)	5210MHz	8.91	13	Complies
BSPK(MCS0)	5290MHz	9.78	13	Complies
QPSK(MCS1)	5290MHz	8.93	13	Complies
16QAM(MCS3)	5290MHz	10.09	13	Complies
64QAM(MCS5)	5290MHz	10.38	13	Complies
256QAM(MCS8)	5290MHz	11.22	13	Complies
BSPK(MCS0)	5690MHz	9.28	13	Complies
QPSK(MCS1)	5690MHz	9.04	13	Complies
16QAM(MCS3)	5690MHz	9.66	13	Complies
64QAM(MCS5)	5690MHz	10.07	13	Complies
256QAM(MCS8)	5690MHz	9.68	13	Complies

Temperature	25°C	Humidity	60%
Test Engineer	Kenneth Haung	Configurations	IEEE 802.11a

Configuration IEEE 802.11a / Chain 2

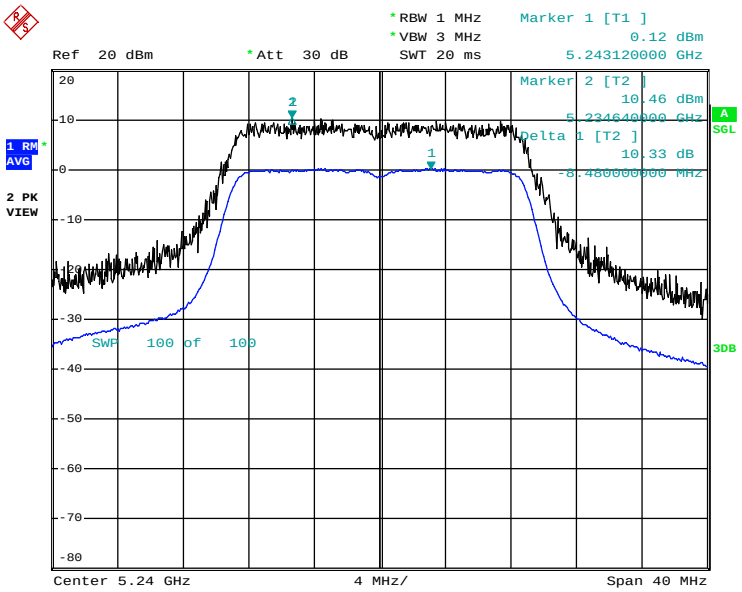
Modulation	Frequency	Peak Excursion (dB)	Max. Limit (dB)	Result
BSPK(6Mbps)	5240MHz	8.50	13	Complies
QPSK(12Mbps)	5240MHz	9.13	13	Complies
16QAM(24Mbps)	5240MHz	9.62	13	Complies
64QAM(48Mbps)	5240MHz	10.15	13	Complies
BSPK(6Mbps)	5300MHz	9.01	13	Complies
QPSK(12Mbps)	5300MHz	9.72	13	Complies
16QAM(24Mbps)	5300MHz	9.86	13	Complies
64QAM(48Mbps)	5300MHz	9.98	13	Complies
BSPK(6Mbps)	5720MHz	9.16	13	Complies
QPSK(12Mbps)	5720MHz	9.70	13	Complies
16QAM(24Mbps)	5720MHz	10.09	13	Complies
64QAM(48Mbps)	5720MHz	10.13	13	Complies

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

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

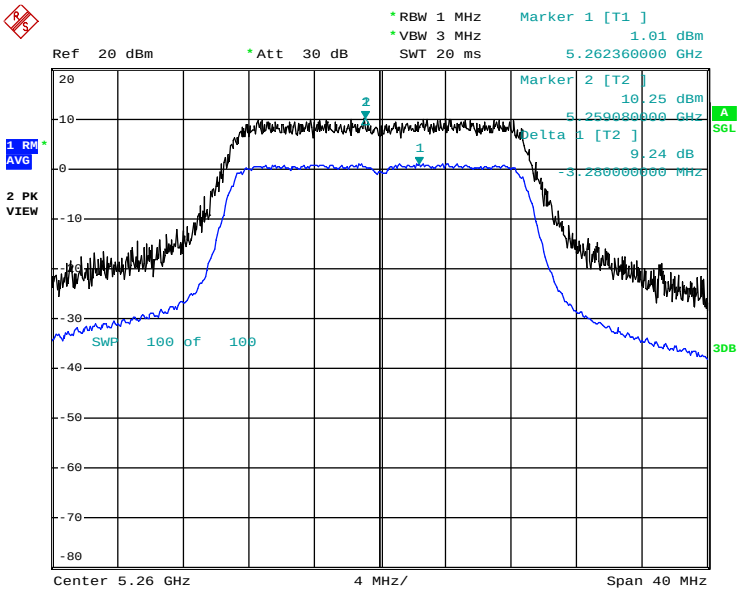
For 1TX

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 2 / 64QAM (MCS5) / 5240 MHz



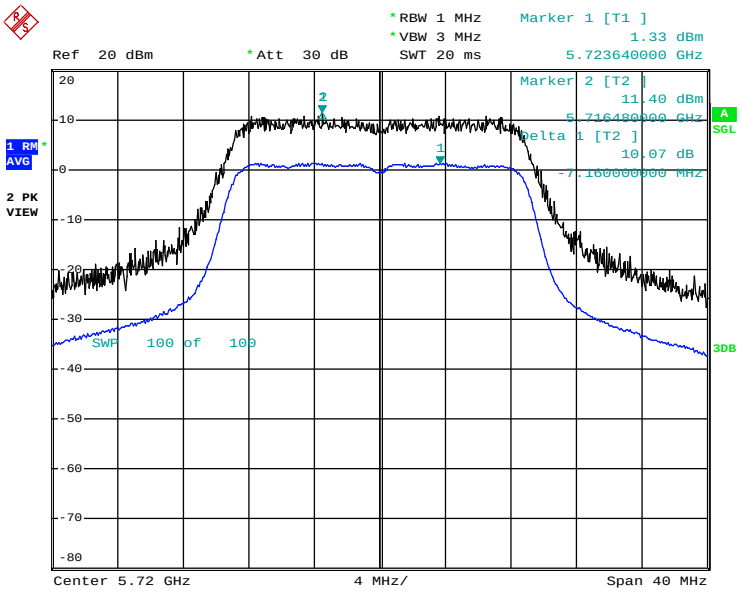
Date: 2.OCT.2013 21:51:09

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 2 / 64QAM (MCS5) / 5260 MHz



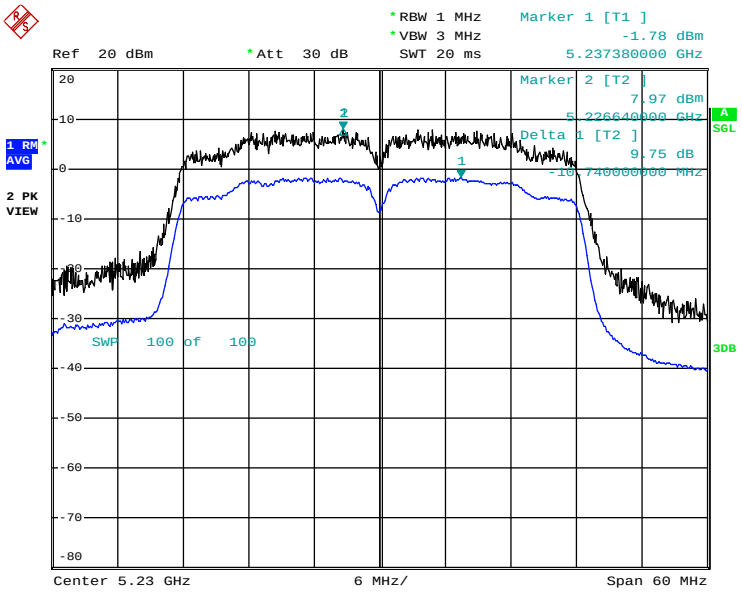
Date: 2.OCT.2013 21:57:12

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 2 / 64QAM (MCS5) / 5720 MHz



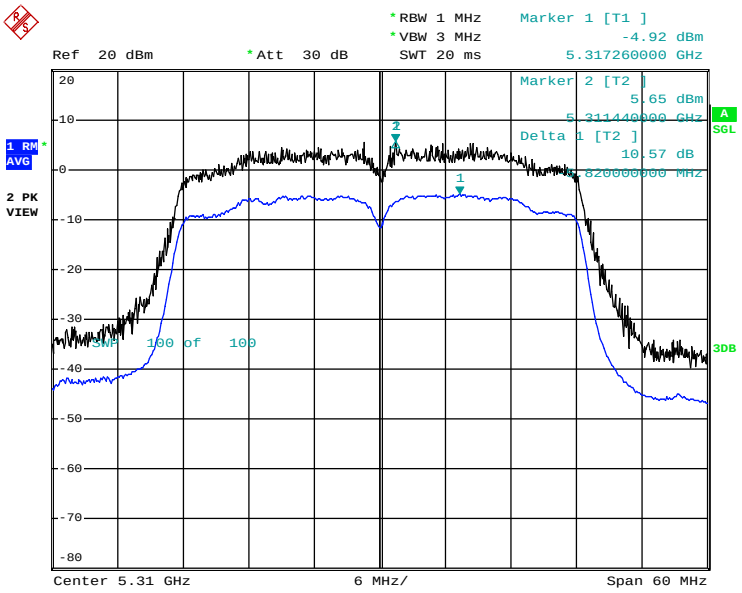
Date: 2.OCT.2013 22:40:11

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 2 / 64QAM (MCS5) / 5230 MHz



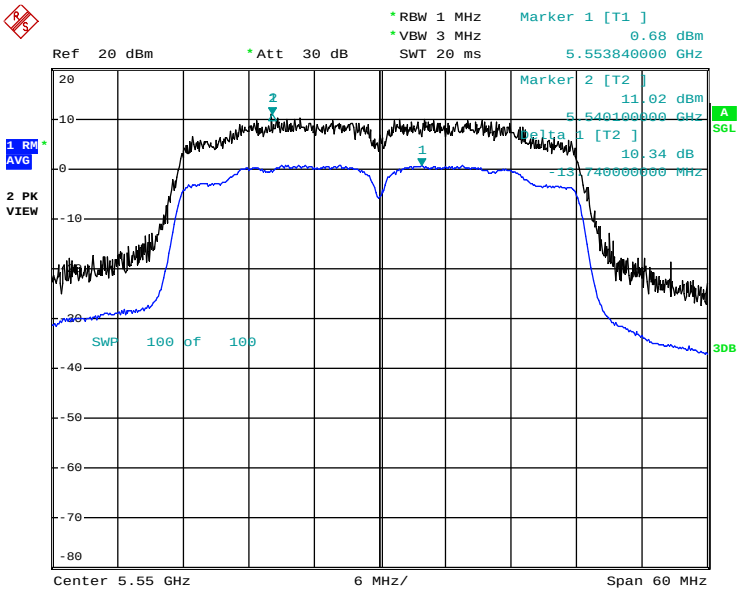
Date: 2.OCT.2013 22:06:50

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 2 / 64QAM (MCS5) / 5310 MHz



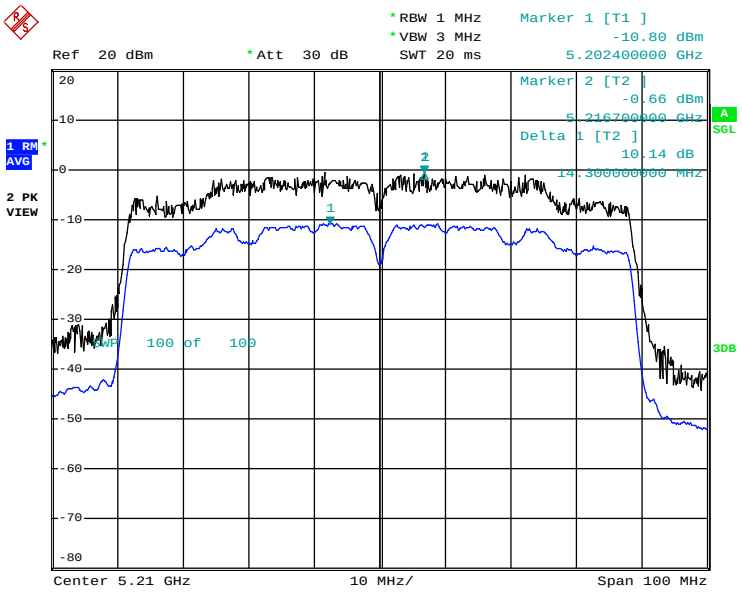
Date: 2.OCT.2013 22:11:18

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 2 / 64QAM (MCS5) / 5550 MHz



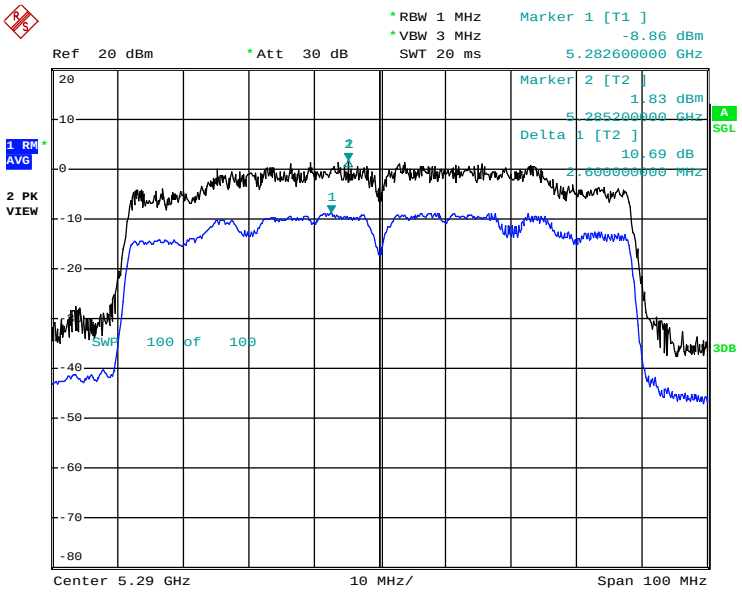
Date: 2.OCT.2013 22:45:25

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 2 / 256QAM (MCS8) / 5210 MHz



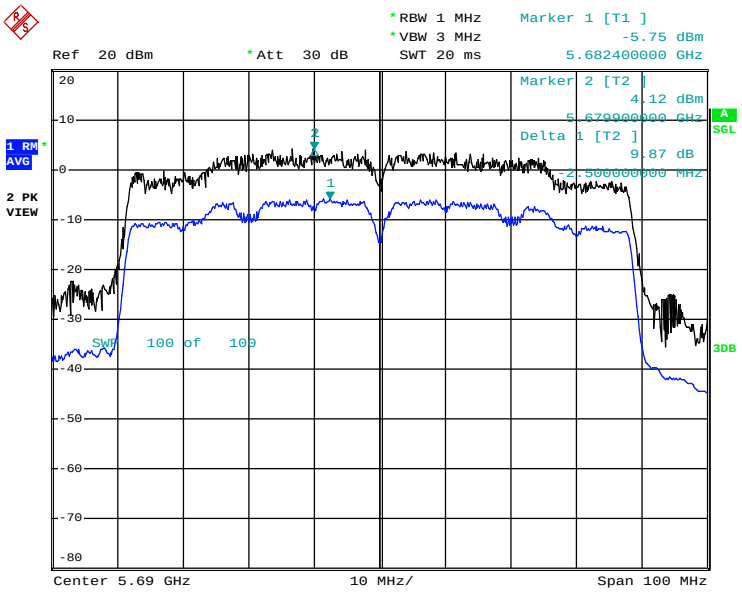
Date: 2.OCT.2013 22:19:49

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 2 / 256QAM (MCS8) / 5290 MHz



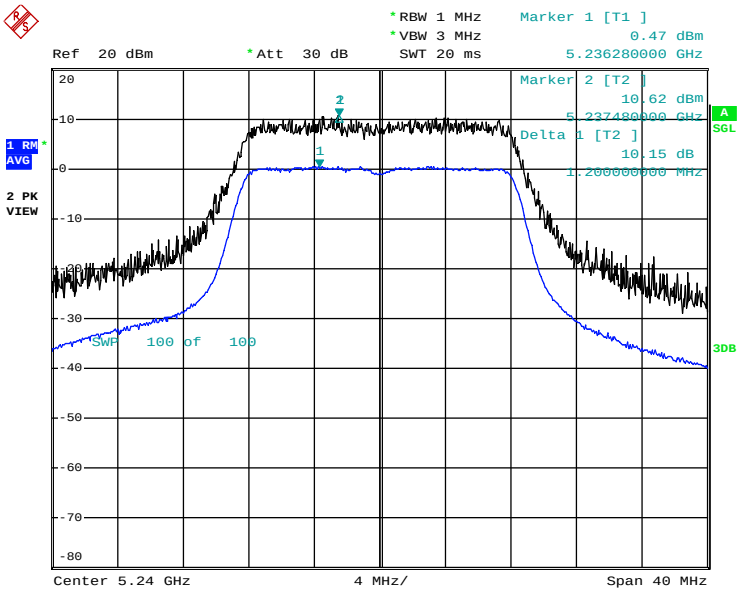
Date: 2.OCT.2013 22:29:20

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 2 / 256QAM (MCS8) / 5690 MHz



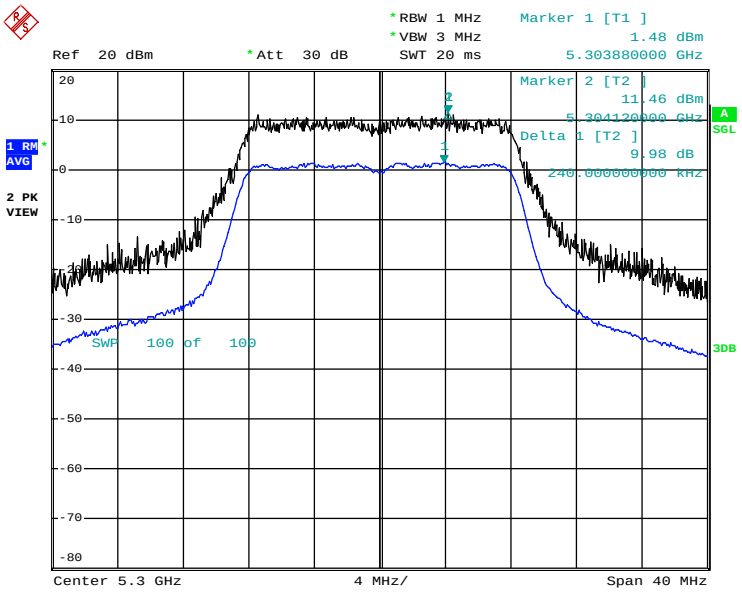
Date: 2.OCT.2013 22:51:12

Peak Excursion Plot on Configuration IEEE 802.11a / Chain 2 / 64QAM (48Mbps) / 5240 MHz



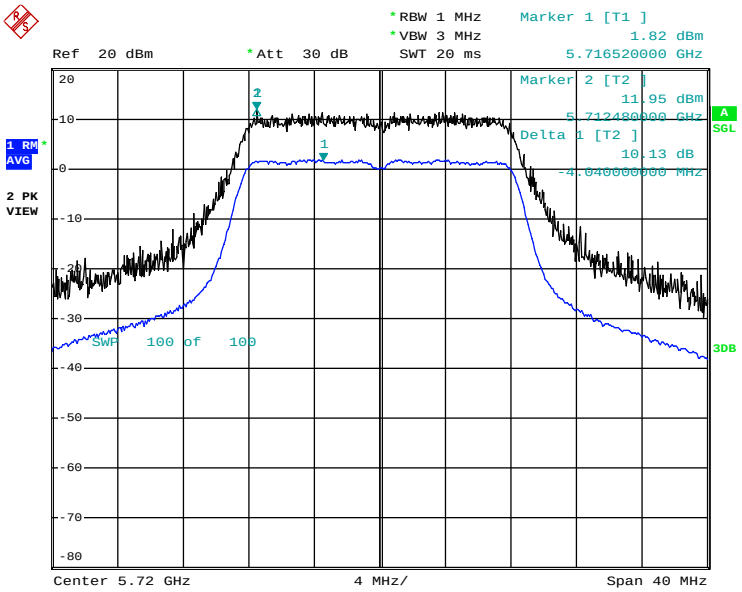
Date: 2.OCT.2013 20:22:01

Peak Excursion Plot on Configuration IEEE 802.11a / Chain 2 / 64QAM (48Mbps) / 5300 MHz



Date: 2.OCT.2013 20:23:03

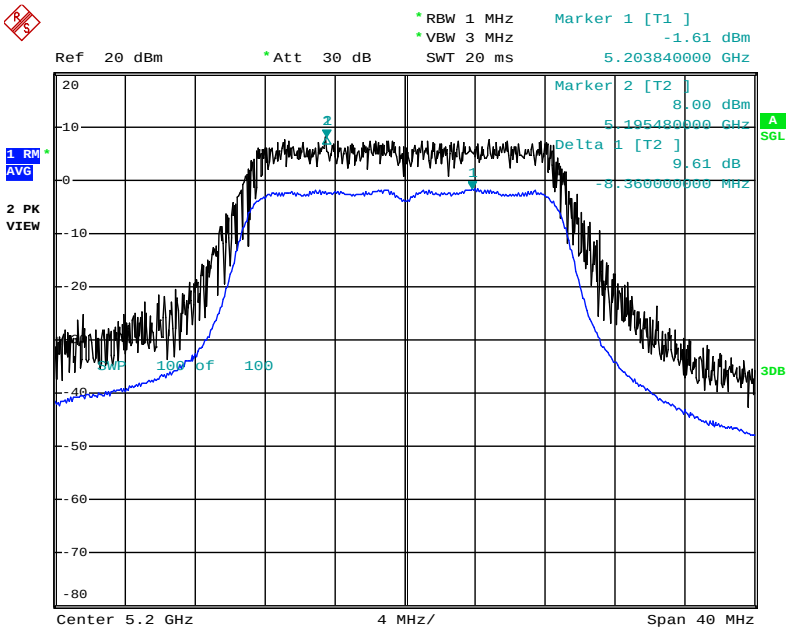
Peak Excursion Plot on Configuration IEEE 802.11a / Chain 2 / 64QAM (48Mbps) / 5720 MHz



Date: 2.OCT.2013 20:27:21

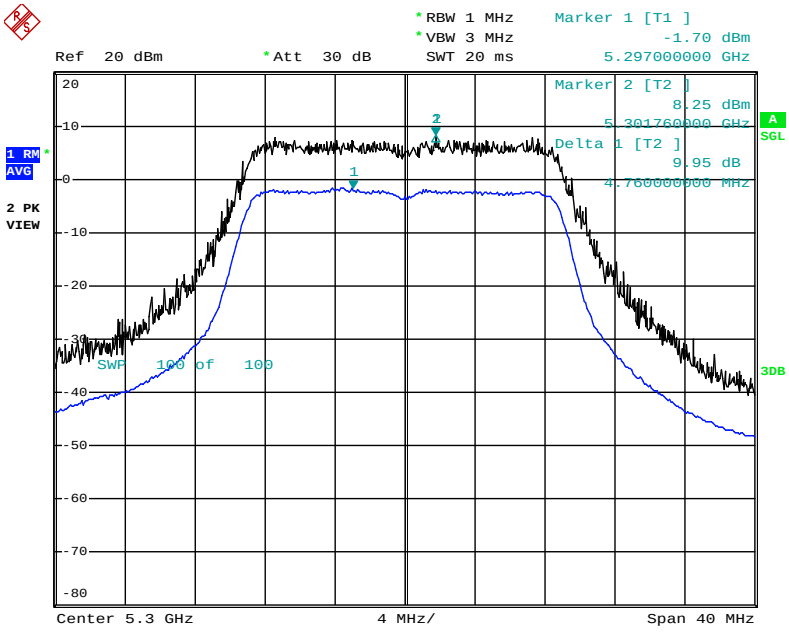
For 2TX

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 1 + Chain 2 / 64QAM (MCS13) / 5200 MHz



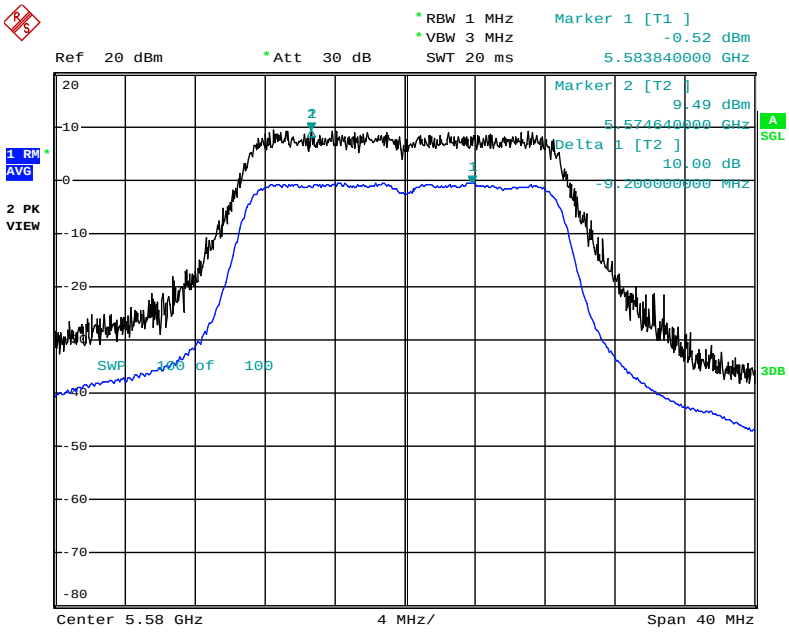
Date: 11.OCT.2013 15:20:17

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 1 + Chain 2 / 16QAM (MCS11) / 5300 MHz



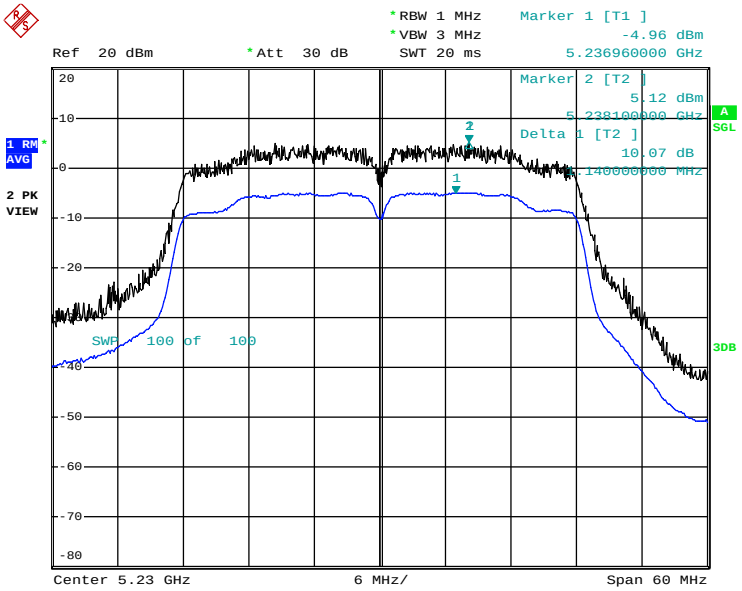
Date: 11.OCT.2013 15:21:30

Peak Excursion Plot on Configuration IEEE 802.11n 20MHz / Chain 1 + Chain 2 / 64QAM (MCS13) / 5580 MHz



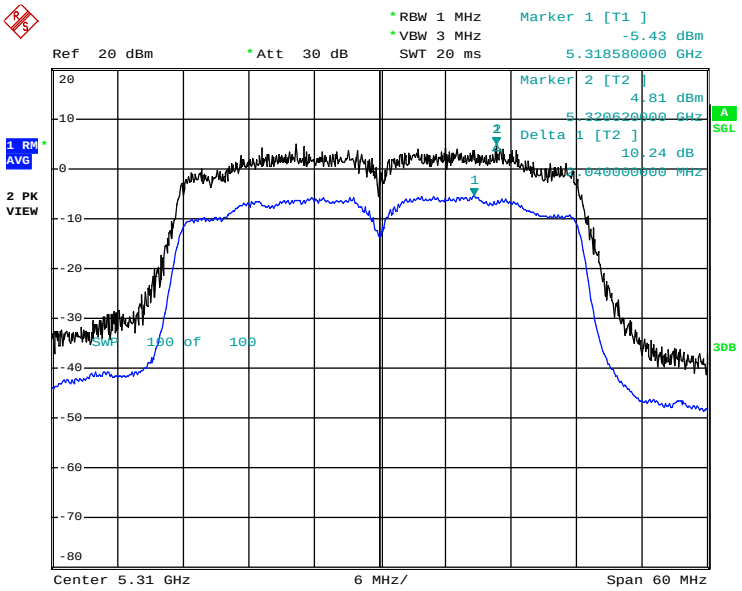
Date: 11.OCT.2013 15:10:41

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 1 + Chain 2 / BSPK (MCS8) / 5230 MHz



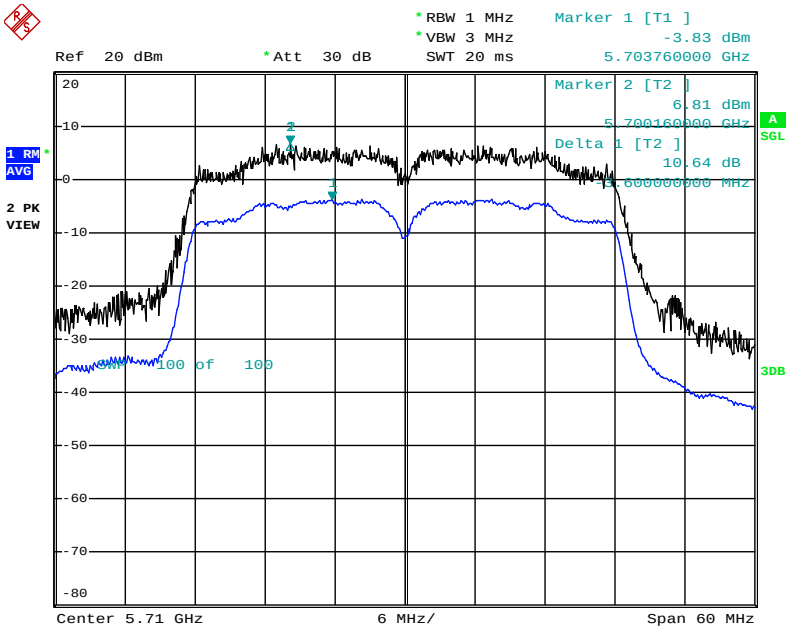
Date: 3.OCT.2013 12:48:34

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 1 + Chain 2 / 64QAM (MCS13) / 5310 MHz



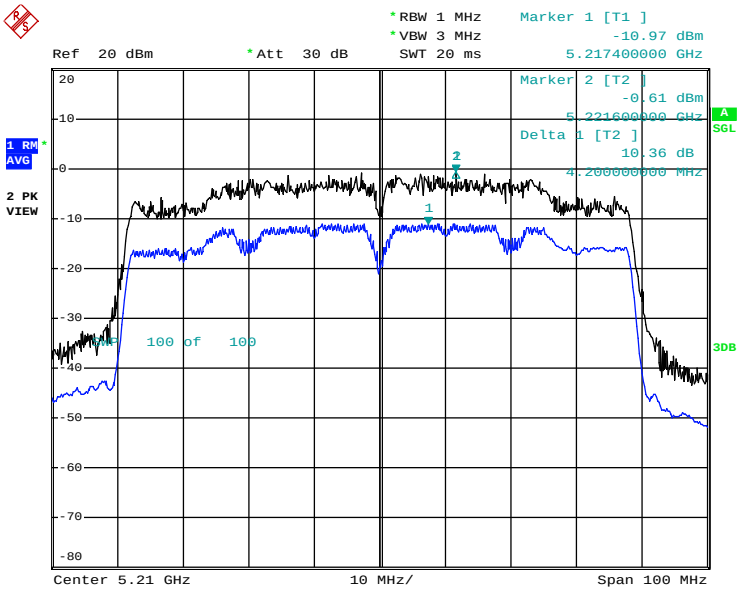
Date: 3.OCT.2013 12:54:43

Peak Excursion Plot on Configuration IEEE 802.11n 40MHz / Chain 1 + Chain 2 / 64QAM (MCS13) / 5710 MHz



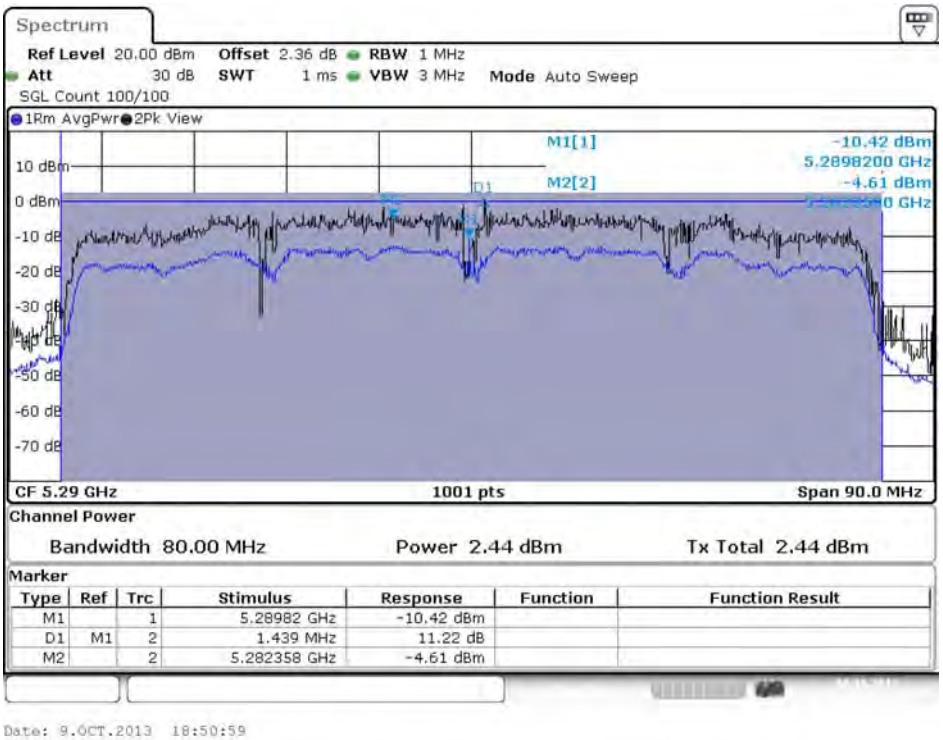
Date: 11.OCT.2013 15:12:00

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 1 + Chain 2 / 64QAM (MCS5) / 5210 MHz



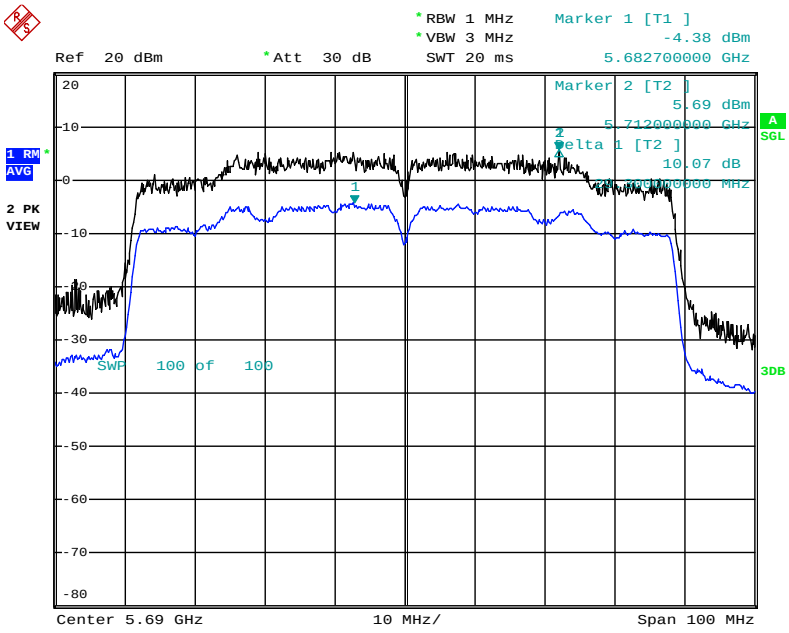
Date: 3.OCT.2013 13:02:33

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 1 + Chain 2 / 256QAM (MCS8) / 5290 MHz



Date: 9.OCT.2013 18:50:59

Peak Excursion Plot on Configuration IEEE 802.11ac 80MHz / Chain 1 + Chain 2 / 64QAM (MCS5) / 5690 MHz



Date: 11.OCT.2013 15:04:23

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed 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. 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

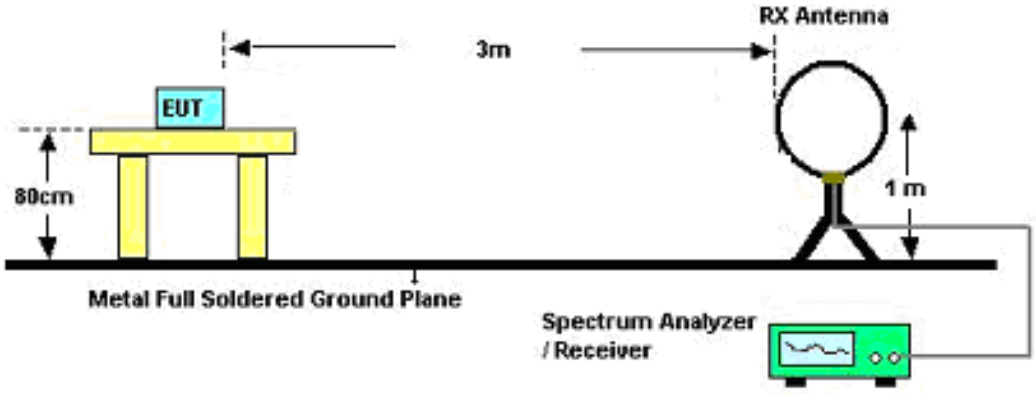
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

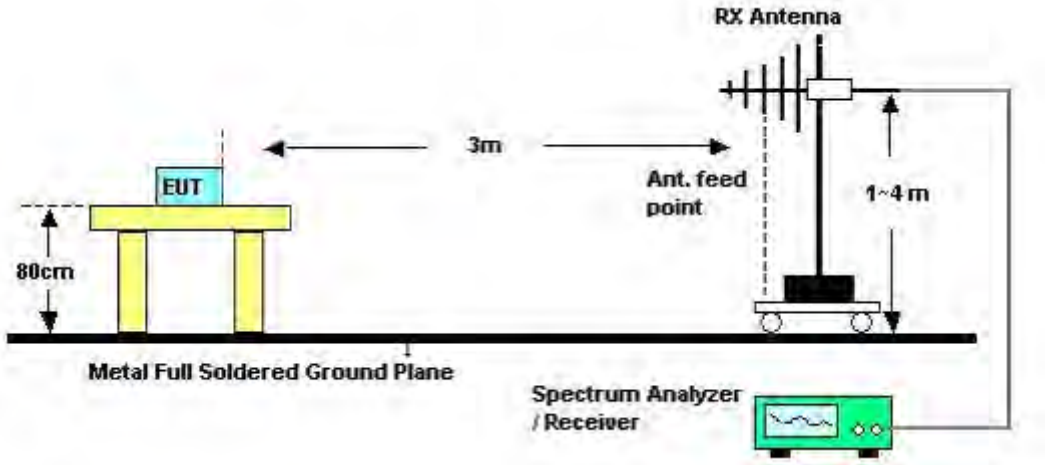
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting 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

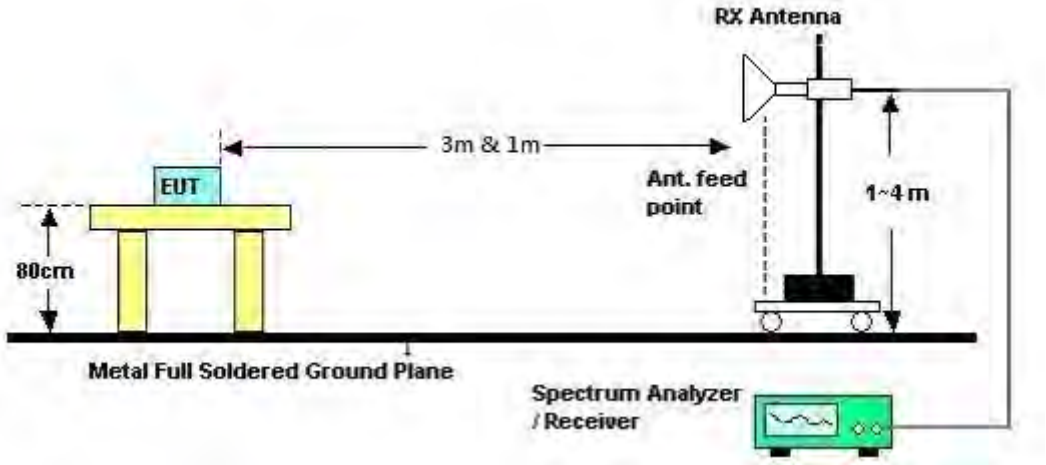
For Radiated Emissions: 9kHz ~30MHz



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	40%
Test Engineer	YC Chen	Test Date	Oct. 16, 2013
Configurations	Mode 1 / CTX		

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.

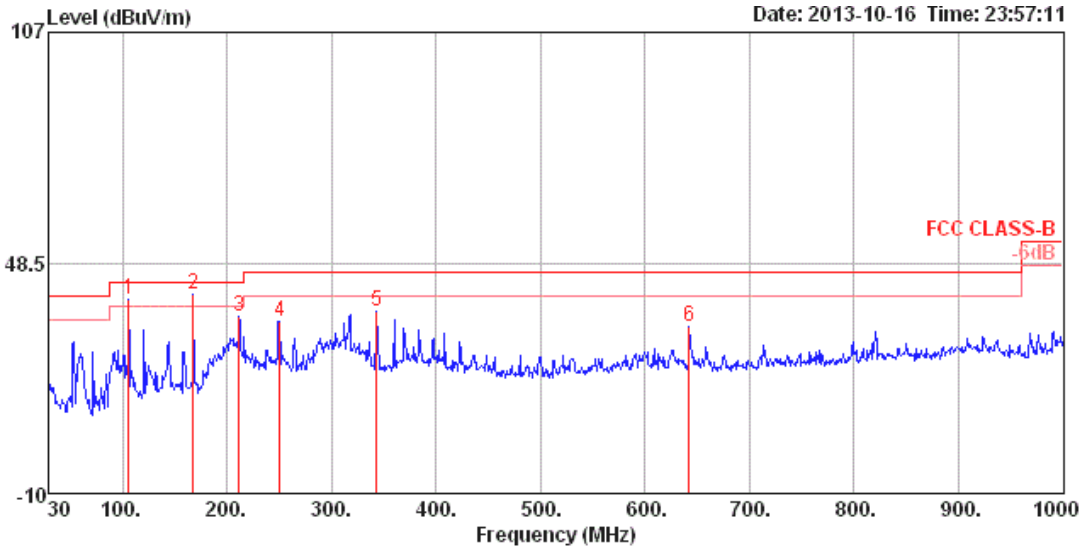
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

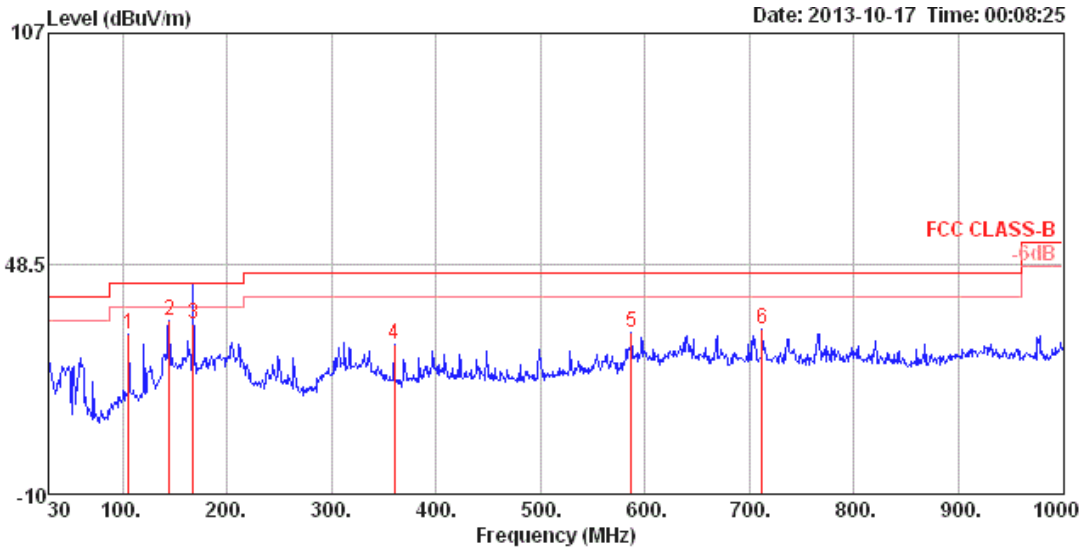
Temperature	25°C	Humidity	40%
Test Engineer	YC Chen	Configurations	Mode 1 / CTX

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	105.66	39.42	43.50	-4.08	58.74	1.22	11.03	31.57	300	276	HORIZONTAL	Peak
2	167.74	40.35	43.50	-3.15	61.06	1.57	9.25	31.53	200	309	HORIZONTAL	Peak
3	211.39	34.91	43.50	-8.59	56.11	1.78	8.44	31.42	200	131	HORIZONTAL	Peak
4	250.19	33.63	46.00	-12.37	51.31	1.90	11.91	31.49	200	155	HORIZONTAL	Peak
5	343.31	36.21	46.00	-9.79	51.20	2.30	14.06	31.35	100	53	HORIZONTAL	Peak
6	642.07	32.12	46.00	-13.88	41.68	3.21	18.68	31.45	100	152	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	105.66	30.57	43.50	-12.93	49.89	1.22	11.03	31.57	100	230	VERTICAL	Peak
2	144.46	34.07	43.50	-9.43	53.67	1.43	10.51	31.54	100	131	VERTICAL	Peak
3	167.74	33.16	43.50	-10.34	53.87	1.57	9.25	31.53	100	167	VERTICAL	QP
4	359.80	28.11	46.00	-17.89	42.43	2.35	14.66	31.33	100	198	VERTICAL	Peak
5	586.78	30.96	46.00	-15.04	40.75	3.07	18.34	31.20	100	135	VERTICAL	Peak
6	711.91	31.89	46.00	-14.11	40.59	3.43	19.14	31.27	100	185	VERTICAL	Peak

Note:

The amplitude of spurious emissions which are attenuated by more than 20 dB 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)

For 1TX

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 36 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15471.60	42.72	54.00	-11.28	29.26	10.76	38.28	35.58	Average	100	70	HORIZONTAL
2	15472.24	57.05	74.00	-16.95	43.59	10.76	38.28	35.58	Peak	100	70	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	15470.00	42.73	54.00	-11.27	29.27	10.76	38.28	35.58	Average	100	282	VERTICAL
2	15479.12	57.22	74.00	-16.78	43.75	10.77	38.28	35.58	Peak	100	282	VERTICAL

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 40 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15595.96	41.99	54.00	-12.01	28.75	10.78	38.04	35.58	Average	100	161	HORIZONTAL
2	15599.00	56.61	74.00	-17.39	43.37	10.78	38.04	35.58	Peak	100	161	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	15591.56	56.41	74.00	-17.59	43.17	10.78	38.04	35.58	Peak	100	270	VERTICAL
2	15593.48	41.95	54.00	-12.05	28.71	10.78	38.04	35.58	Average	100	270	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 48 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15720.24	42.41	54.00	-11.59	29.33	10.79	37.85	35.56	Average	100	170	HORIZONTAL
2	15720.80	56.53	74.00	-17.47	43.45	10.79	37.85	35.56	Peak	100	170	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	15715.28	57.61	74.00	-16.39	44.53	10.79	37.85	35.56	Peak	100	302	VERTICAL
2	15730.00	42.69	54.00	-11.31	29.63	10.79	37.83	35.56	Average	100	302	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 52 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15779.60	42.81	54.00	-11.19	29.80	10.80	37.75	35.54	Average	100	215	HORIZONTAL
2	15787.32	57.92	74.00	-16.08	44.91	10.80	37.75	35.54	Peak	100	215	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	15787.48	58.26	74.00	-15.74	45.25	10.80	37.75	35.54	Peak	100	327	VERTICAL
2	15787.52	43.29	54.00	-10.71	30.28	10.80	37.75	35.54	Average	100	327	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 60 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10598.64	53.73	74.00	-20.27	40.33	8.64	39.90	35.14	Peak	100	297	HORIZONTAL
2	10599.40	39.84	54.00	-14.16	26.44	8.64	39.90	35.14	Average	100	297	HORIZONTAL
3	15897.28	57.75	74.00	-16.25	44.90	10.81	37.56	35.52	Peak	100	146	HORIZONTAL
4	15908.64	43.29	54.00	-10.71	30.44	10.81	37.56	35.52	Average	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	10590.12	40.12	54.00	-13.88	26.73	8.62	39.91	35.14	Average	100	136	VERTICAL
2	10594.40	54.34	74.00	-19.66	40.95	8.62	39.91	35.14	Peak	100	136	VERTICAL
3	15894.84	43.43	54.00	-10.57	30.55	10.81	37.59	35.52	Average	100	234	VERTICAL
4	15902.52	57.83	74.00	-16.17	44.98	10.81	37.56	35.52	Peak	100	234	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 64 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10455.36	54.24	74.00	-19.76	41.02	8.55	39.91	35.24	Peak	100	283	HORIZONTAL
2	10459.20	39.58	54.00	-14.42	26.36	8.55	39.91	35.24	Average	100	283	HORIZONTAL
3	15685.84	56.58	74.00	-17.42	43.44	10.79	37.91	35.56	Peak	100	61	HORIZONTAL
4	15699.56	42.17	54.00	-11.83	29.06	10.79	37.88	35.56	Average	100	61	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	10453.44	54.26	74.00	-19.74	41.04	8.55	39.91	35.24	Peak	100	40	VERTICAL
2	10455.24	39.78	54.00	-14.22	26.56	8.55	39.91	35.24	Average	100	40	VERTICAL
3	15693.48	56.69	74.00	-17.31	43.58	10.79	37.88	35.56	Peak	100	208	VERTICAL
4	15700.00	42.22	54.00	-11.78	29.11	10.79	37.88	35.56	Average	100	208	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 100 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	16503.36	44.28	54.00	-9.72	29.05	11.58	38.73	35.08	Average	100	81	HORIZONTAL
2	16504.00	58.48	74.00	-15.52	43.17	11.58	38.79	35.06	Peak	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	16502.40	44.30	74.00	-29.70	29.07	11.58	38.73	35.08	Peak	100	255	VERTICAL
2	16504.24	58.86	74.00	-15.14	43.55	11.58	38.79	35.06	Peak	100	255	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 116 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11152.60	39.89	54.00	-14.11	26.25	9.03	39.50	34.89	Average	100	248	HORIZONTAL
2	11169.60	54.11	74.00	-19.89	40.47	9.04	39.50	34.90	Peak	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	11154.96	39.85	54.00	-14.15	26.21	9.03	39.50	34.89	Average	100	121	VERTICAL
2	11163.92	53.76	74.00	-20.24	40.12	9.04	39.50	34.90	Peak	100	121	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 140 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11395.06	40.36	54.00	-13.64	26.72	9.18	39.50	35.04	Average	100	238	HORIZONTAL
2	11396.96	55.40	74.00	-18.60	41.75	9.19	39.50	35.04	Peak	100	238	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	11395.02	54.20	74.00	-19.80	40.56	9.18	39.50	35.04	Peak	100	90	VERTICAL
2	11395.06	40.35	54.00	-13.65	26.71	9.18	39.50	35.04	Average	100	90	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 20MHz CH 144 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11437.36	54.37	74.00	-19.63	40.72	9.21	39.50	35.06	Peak	100	236	HORIZONTAL
2	11443.88	40.55	54.00	-13.45	26.90	9.21	39.50	35.06	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	11435.90	41.29	54.00	-12.71	27.64	9.21	39.50	35.06	Average	100	120	VERTICAL
2	11436.82	54.74	74.00	-19.26	41.09	9.21	39.50	35.06	Peak	100	120	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 38 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15574.60	55.73	74.00	-18.27	42.46	10.78	38.07	35.58	Peak	100	250	HORIZONTAL
2	15574.68	41.85	54.00	-12.15	28.58	10.78	38.07	35.58	Average	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	15567.76	55.71	74.00	-18.29	42.42	10.78	38.09	35.58	Peak	100	99	VERTICAL
2	15574.06	41.83	54.00	-12.17	28.56	10.78	38.07	35.58	Average	100	99	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 46 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15687.32	56.42	74.00	-17.58	43.28	10.79	37.91	35.56	Peak	100	146	HORIZONTAL
2	15694.34	42.23	54.00	-11.77	29.12	10.79	37.88	35.56	Average	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	15691.72	42.20	54.00	-11.80	29.09	10.79	37.88	35.56	Average	100	104	VERTICAL
2	15692.18	56.96	74.00	-17.04	43.85	10.79	37.88	35.56	Peak	100	104	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 54 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15806.84	43.27	54.00	-10.73	30.29	10.80	37.72	35.54	Average	100	148	HORIZONTAL
2	15809.46	57.33	74.00	-16.67	44.35	10.80	37.72	35.54	Peak	100	148	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	15806.66	43.29	54.00	-10.71	30.31	10.80	37.72	35.54	Average	100	209	VERTICAL
2	15810.38	57.79	74.00	-16.21	44.84	10.80	37.69	35.54	Peak	100	209	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 62 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10616.34	54.09	74.00	-19.91	40.68	8.65	39.88	35.12	Peak	100	30	HORIZONTAL
2	10620.02	41.11	54.00	-12.89	27.70	8.65	39.88	35.12	Average	100	30	HORIZONTAL
3	15932.76	43.41	54.00	-10.59	30.60	10.81	37.51	35.51	Average	100	280	HORIZONTAL
4	15934.54	58.16	74.00	-15.84	45.35	10.81	37.51	35.51	Peak	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	10619.98	54.24	74.00	-19.76	40.83	8.65	39.88	35.12	Peak	100	191	VERTICAL
2	10622.88	40.06	54.00	-13.94	26.65	8.65	39.88	35.12	Average	100	191	VERTICAL
3	15926.42	57.96	74.00	-16.04	45.13	10.81	37.53	35.51	Peak	100	181	VERTICAL
4	15933.48	43.30	54.00	-10.70	30.49	10.81	37.51	35.51	Average	100	181	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 102 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11024.02	53.87	74.00	-20.13	40.23	8.95	39.50	34.81	Peak	100	296	HORIZONTAL
2	11024.08	39.69	54.00	-14.31	26.05	8.95	39.50	34.81	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	11016.64	53.61	74.00	-20.39	39.98	8.94	39.50	34.81	Peak	100	146	VERTICAL
2	11019.24	39.50	54.00	-14.50	25.87	8.94	39.50	34.81	Average	100	146	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 110 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11101.24	40.56	54.00	-13.44	26.93	8.99	39.50	34.86	Average	100	222	HORIZONTAL
2	11101.36	54.70	74.00	-19.30	41.07	8.99	39.50	34.86	Peak	100	222	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	11098.56	40.35	54.00	-13.65	26.72	8.99	39.50	34.86	Average	100	108	VERTICAL
2	11100.20	54.62	74.00	-19.38	40.99	8.99	39.50	34.86	Peak	100	108	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 134 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11339.18	53.76	74.00	-20.24	40.11	9.14	39.50	34.99	Peak	100	230	HORIZONTAL
2	11339.52	39.83	54.00	-14.17	26.18	9.14	39.50	34.99	Average	100	230	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	11340.06	39.82	54.00	-14.18	26.17	9.14	39.50	34.99	Average	100	122	VERTICAL
2	11340.06	52.77	74.00	-21.23	39.12	9.14	39.50	34.99	Peak	100	122	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 40MHz CH 142 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11419.60	40.01	54.00	-13.99	26.37	9.20	39.50	35.06	Average	100	219	HORIZONTAL
2	11419.76	53.54	74.00	-20.46	39.90	9.20	39.50	35.06	Peak	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	11412.84	53.78	74.00	-20.22	40.12	9.20	39.50	35.04	Peak	100	194	VERTICAL
2	11419.36	40.12	54.00	-13.88	26.48	9.20	39.50	35.06	Average	100	194	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 42 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15629.80	42.11	54.00	-11.89	28.91	10.78	37.99	35.57	Average	100	200	HORIZONTAL
2	15631.94	55.89	74.00	-18.11	42.69	10.78	37.99	35.57	Peak	100	200	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	15629.22	56.09	74.00	-17.91	42.89	10.78	37.99	35.57	Peak	100	161	VERTICAL
2	15630.16	41.86	54.00	-12.14	28.66	10.78	37.99	35.57	Average	100	161	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 58 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15869.52	58.41	74.00	-15.59	45.52	10.81	37.61	35.53	Peak	100	132	HORIZONTAL
2	15870.11	43.22	54.00	-10.78	30.33	10.81	37.61	35.53	Average	100	132	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	15870.24	43.31	54.00	-10.69	30.42	10.81	37.61	35.53	Average	100	19	VERTICAL
2	15870.43	57.28	74.00	-16.72	44.39	10.81	37.61	35.53	Peak	100	19	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 106 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11058.80	40.47	54.00	-13.53	26.83	8.97	39.50	34.83	Average	100	163	HORIZONTAL
2	11060.60	53.61	74.00	-20.39	39.97	8.97	39.50	34.83	Peak	100	163	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	11059.64	54.70	74.00	-19.30	41.06	8.97	39.50	34.83	Peak	100	104	VERTICAL
2	11059.66	40.27	54.00	-13.73	26.63	8.97	39.50	34.83	Average	100	104	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 138 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11377.64	54.58	74.00	-19.42	40.94	9.16	39.50	35.02	Peak	105	211	HORIZONTAL
2	11381.26	40.61	54.00	-13.39	26.95	9.18	39.50	35.02	Average	105	211	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	11380.44	40.50	54.00	-13.50	26.84	9.18	39.50	35.02	Average	100	137	VERTICAL
2	11381.70	54.87	74.00	-19.13	41.21	9.18	39.50	35.02	Peak	100	137	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	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15537.36	41.91	54.00	-12.09	28.58	10.77	38.15	35.59	Average	100	298	HORIZONTAL
2	15540.76	55.24	74.00	-18.76	41.94	10.77	38.12	35.59	Peak	100	298	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	15533.08	42.06	54.00	-11.94	28.73	10.77	38.15	35.59	Average	100	88	VERTICAL
2	15547.16	56.21	74.00	-17.79	42.90	10.78	38.12	35.59	Peak	100	88	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 40 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15590.52	57.79	74.00	-16.21	44.55	10.78	38.04	35.58	Peak	100	122	HORIZONTAL
2	15593.24	42.02	54.00	-11.98	28.78	10.78	38.04	35.58	Average	100	122	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	15595.88	41.98	54.00	-12.02	28.74	10.78	38.04	35.58	Average	100	255	VERTICAL
2	15599.48	55.96	74.00	-18.04	42.72	10.78	38.04	35.58	Peak	100	255	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 48 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15771.24	55.64	74.00	-18.36	42.61	10.80	37.77	35.54	Peak	100	150	HORIZONTAL
2	15789.52	41.96	54.00	-12.04	28.95	10.80	37.75	35.54	Average	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	15770.60	41.30	54.00	-12.70	28.27	10.80	37.77	35.54	Average	100	47	VERTICAL
2	15777.20	56.38	74.00	-17.62	43.37	10.80	37.75	35.54	Peak	100	47	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	15778.48	57.47	74.00	-16.53	44.46	10.80	37.75	35.54	Peak	100	182	HORIZONTAL
2	15787.52	43.40	54.00	-10.60	30.39	10.80	37.75	35.54	Average	100	182	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	15775.20	57.56	74.00	-16.44	44.53	10.80	37.77	35.54	Peak	100	256	VERTICAL
2	15787.60	43.47	54.00	-10.53	30.46	10.80	37.75	35.54	Average	100	256	VERTICAL

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 60 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10601.56	54.48	74.00	-19.52	41.06	8.64	39.90	35.12	Peak	100	186	HORIZONTAL
2	10609.64	40.74	54.00	-13.26	27.32	8.64	39.90	35.12	Average	100	186	HORIZONTAL
3	15891.96	57.66	74.00	-16.34	44.78	10.81	37.59	35.52	Peak	100	24	HORIZONTAL
4	15895.12	43.34	54.00	-10.66	30.46	10.81	37.59	35.52	Average	100	24	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	10592.76	40.23	54.00	-13.77	26.84	8.62	39.91	35.14	Average	100	87	VERTICAL
2	10596.68	54.10	74.00	-19.90	40.70	8.64	39.90	35.14	Peak	100	87	VERTICAL
3	15903.28	57.34	74.00	-16.66	44.49	10.81	37.56	35.52	Peak	100	206	VERTICAL
4	15905.88	43.35	54.00	-10.65	30.50	10.81	37.56	35.52	Average	100	206	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 64 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10450.00	39.83	54.00	-14.17	26.61	8.55	39.91	35.24	Average	100	163	HORIZONTAL
2	10455.96	54.18	74.00	-19.82	40.96	8.55	39.91	35.24	Peak	100	163	HORIZONTAL
3	15689.68	56.90	74.00	-17.10	43.76	10.79	37.91	35.56	Peak	100	332	HORIZONTAL
4	15696.96	41.54	54.00	-12.46	28.43	10.79	37.88	35.56	Average	100	332	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	10450.00	39.85	54.00	-14.15	26.63	8.55	39.91	35.24	Average	100	328	VERTICAL
2	10457.20	54.82	74.00	-19.18	41.60	8.55	39.91	35.24	Peak	100	328	VERTICAL
3	15692.28	55.99	74.00	-18.01	42.88	10.79	37.88	35.56	Peak	100	251	VERTICAL
4	15699.64	42.19	54.00	-11.81	29.08	10.79	37.88	35.56	Average	100	251	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	10995.16	54.83	74.00	-19.17	41.20	8.93	39.50	34.80	Peak	100	75	HORIZONTAL
2	10999.16	39.89	54.00	-14.11	26.26	8.93	39.50	34.80	Average	100	75	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	10998.96	54.13	74.00	-19.87	40.50	8.93	39.50	34.80	Peak	100	309	VERTICAL
2	10999.24	39.98	54.00	-14.02	26.35	8.93	39.50	34.80	Average	100	309	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 116 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11152.32	39.86	54.00	-14.14	26.22	9.03	39.50	34.89	Average	100	87	HORIZONTAL
2	11163.44	54.30	74.00	-19.70	40.66	9.04	39.50	34.90	Peak	100	87	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	11154.64	39.91	54.00	-14.09	26.27	9.03	39.50	34.89	Average	100	225	VERTICAL
2	11167.84	54.28	74.00	-19.72	40.64	9.04	39.50	34.90	Peak	100	225	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 140 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11390.76	55.03	74.00	-18.97	41.37	9.18	39.50	35.02	Peak	100	75	HORIZONTAL
2	11392.12	40.39	54.00	-13.61	26.73	9.18	39.50	35.02	Average	100	75	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	11391.40	54.91	74.00	-19.09	41.25	9.18	39.50	35.02	Peak	100	268	VERTICAL
2	11397.40	40.37	54.00	-13.63	26.72	9.19	39.50	35.04	Average	100	268	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 144 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	11449.00	55.28	74.00	-18.72	41.63	9.22	39.50	35.07	Peak	100	118	HORIZONTAL
2	11449.16	40.58	54.00	-13.42	26.93	9.22	39.50	35.07	Average	100	118	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	11440.92	55.49	74.00	-18.51	41.84	9.21	39.50	35.06	Peak	100	262	VERTICAL
2	11446.40	40.22	54.00	-13.78	26.58	9.21	39.50	35.07	Average	100	259	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.

For 2TX

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 36 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15539.16	41.69	54.00	-12.31	28.39	10.77	38.12	35.59	Average	100	315	HORIZONTAL
2	15539.24	55.65	74.00	-18.35	42.35	10.77	38.12	35.59	Peak	100	315	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	15540.44	41.63	54.00	-12.37	28.33	10.77	38.12	35.59	Average	100	197	VERTICAL
2	15540.50	55.12	74.00	-18.88	41.82	10.77	38.12	35.59	Peak	100	197	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 40 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15599.38	42.01	54.00	-11.99	28.77	10.78	38.04	35.58	Average	100	273	HORIZONTAL
2	15599.58	55.39	74.00	-18.61	42.15	10.78	38.04	35.58	Peak	100	273	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	15598.96	42.06	54.00	-11.94	28.82	10.78	38.04	35.58	Average	100	117	VERTICAL
2	15599.20	55.66	74.00	-18.34	42.42	10.78	38.04	35.58	Peak	100	117	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 48 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15721.30	56.27	74.00	-17.73	43.19	10.79	37.85	35.56	Peak	100	317	HORIZONTAL
2	15721.62	42.42	54.00	-11.58	29.34	10.79	37.85	35.56	Average	100	317	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	15719.02	42.45	54.00	-11.55	29.37	10.79	37.85	35.56	Average	100	91	VERTICAL
2	15719.92	56.03	74.00	-17.97	42.95	10.79	37.85	35.56	Peak	100	91	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 52 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15779.60	56.72	74.00	-17.28	43.71	10.80	37.75	35.54	Peak	100	289	HORIZONTAL
2	15779.80	42.74	54.00	-11.26	29.73	10.80	37.75	35.54	Average	100	289	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	15780.36	42.88	54.00	-11.12	29.87	10.80	37.75	35.54	Average	100	116	VERTICAL
2	15780.58	57.08	74.00	-16.92	44.07	10.80	37.75	35.54	Peak	100	116	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 60 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	10599.82	52.91	74.00	-21.09	39.51	8.64	39.90	35.14	Peak	100	227	HORIZONTAL
2	10600.34	39.47	54.00	-14.53	26.07	8.64	39.90	35.14	Average	100	227	HORIZONTAL
3	15900.12	56.02	74.00	-17.98	43.17	10.81	37.56	35.52	Peak	100	73	HORIZONTAL
4	15900.64	42.95	54.00	-11.05	30.10	10.81	37.56	35.52	Average	100	73	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	10599.22	39.58	54.00	-14.42	26.18	8.64	39.90	35.14	Average	100	44	VERTICAL
2	10599.74	53.64	74.00	-20.36	40.24	8.64	39.90	35.14	Peak	100	44	VERTICAL
3	15899.80	42.79	54.00	-11.21	29.94	10.81	37.56	35.52	Average	100	262	VERTICAL
4	15901.02	57.05	74.00	-16.95	44.20	10.81	37.56	35.52	Peak	100	262	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 64 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	10460.10	53.34	74.00	-20.66	40.09	8.55	39.94	35.24	Peak	100	265	HORIZONTAL
2	10460.12	39.43	54.00	-14.57	26.18	8.55	39.94	35.24	Average	100	265	HORIZONTAL
3	15689.44	41.77	54.00	-12.23	28.63	10.79	37.91	35.56	Average	100	340	HORIZONTAL
4	15690.20	56.05	74.00	-17.95	42.91	10.79	37.91	35.56	Peak	100	340	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	10459.98	39.46	54.00	-14.54	26.21	8.55	39.94	35.24	Average	100	202	VERTICAL
2	10460.16	52.39	74.00	-21.61	39.14	8.55	39.94	35.24	Peak	100	202	VERTICAL
3	15689.32	41.81	74.00	-32.19	28.67	10.79	37.91	35.56	Peak	100	117	VERTICAL
4	15689.38	57.19	74.00	-16.81	44.05	10.79	37.91	35.56	Peak	100	117	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 100 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11000.20	52.76	74.00	-21.24	39.13	8.93	39.50	34.80	Peak	100	250	HORIZONTAL
2	11004.56	39.74	54.00	-14.26	26.10	8.94	39.50	34.80	Average	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	10999.32	39.53	54.00	-14.47	25.90	8.93	39.50	34.80	Average	100	98	VERTICAL
2	10999.68	52.95	74.00	-21.05	39.32	8.93	39.50	34.80	Peak	100	98	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 116 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11157.89	39.89	54.00	-14.11	26.24	9.04	39.50	34.89	Average	100	226	HORIZONTAL
2	11158.77	54.88	74.00	-19.12	41.23	9.04	39.50	34.89	Peak	100	226	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	11160.12	53.26	74.00	-20.74	39.61	9.04	39.50	34.89	Peak	100	40	VERTICAL
2	11160.17	39.90	54.00	-14.10	26.25	9.04	39.50	34.89	Average	100	40	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 140 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11400.11	53.59	74.00	-20.41	39.94	9.19	39.50	35.04	Peak	100	234	HORIZONTAL
2	11400.13	40.06	54.00	-13.94	26.41	9.19	39.50	35.04	Average	100	234	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	11399.90	40.05	54.00	-13.95	26.40	9.19	39.50	35.04	Average	100	19	VERTICAL
2	11399.93	54.50	74.00	-19.50	40.85	9.19	39.50	35.04	Peak	100	19	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 144 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11440.46	54.30	74.00	-19.70	40.65	9.21	39.50	35.06	Peak	100	182	HORIZONTAL
2	11441.15	40.48	54.00	-13.52	26.83	9.21	39.50	35.06	Average	100	182	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	11438.45	40.30	54.00	-13.70	26.65	9.21	39.50	35.06	Average	100	283	VERTICAL
2	11438.65	54.82	74.00	-19.18	41.17	9.21	39.50	35.06	Peak	100	283	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 38 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15650.36	55.90	74.00	-18.10	42.72	10.79	37.96	35.57	Peak	100	289	HORIZONTAL
2	15650.96	42.21	54.00	-11.79	29.03	10.79	37.96	35.57	Average	100	289	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	15649.78	41.98	54.00	-12.02	28.80	10.79	37.96	35.57	Average	100	98	VERTICAL
2	15649.92	55.85	74.00	-18.15	42.67	10.79	37.96	35.57	Peak	100	98	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 46 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15688.12	56.15	74.00	-17.85	43.01	10.79	37.91	35.56	Peak	100	246	HORIZONTAL
2	15691.66	42.12	54.00	-11.88	29.01	10.79	37.88	35.56	Average	100	246	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	15693.84	56.01	74.00	-17.99	42.90	10.79	37.88	35.56	Peak	100	114	VERTICAL
2	15694.28	42.66	54.00	-11.34	29.55	10.79	37.88	35.56	Average	100	114	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 54 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15806.78	42.97	54.00	-11.03	29.99	10.80	37.72	35.54	Average	100	316	HORIZONTAL
2	15808.60	57.43	74.00	-16.57	44.45	10.80	37.72	35.54	Peak	100	316	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	15806.66	43.04	54.00	-10.96	30.06	10.80	37.72	35.54	Average	100	115	VERTICAL
2	15806.92	57.03	74.00	-16.97	44.05	10.80	37.72	35.54	Peak	100	115	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 62 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	10619.46	53.85	74.00	-20.15	40.44	8.65	39.88	35.12	Peak	100	130	HORIZONTAL
2	10623.82	39.99	54.00	-14.01	26.58	8.65	39.88	35.12	Average	100	130	HORIZONTAL
3	15929.18	42.98	54.00	-11.02	30.15	10.81	37.53	35.51	Average	100	271	HORIZONTAL
4	15929.42	56.59	74.00	-17.41	43.76	10.81	37.53	35.51	Peak	100	271	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	10620.14	40.07	54.00	-13.93	26.66	8.65	39.88	35.12	Average	100	151	VERTICAL
2	10621.54	54.45	74.00	-19.55	41.04	8.65	39.88	35.12	Peak	100	151	VERTICAL
3	15929.42	43.09	54.00	-10.91	30.26	10.81	37.53	35.51	Average	100	352	VERTICAL
4	15929.54	57.68	74.00	-16.32	44.85	10.81	37.53	35.51	Peak	100	352	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 102 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11019.90	39.58	54.00	-14.42	25.95	8.94	39.50	34.81	Average	100	177	HORIZONTAL
2	11020.20	53.08	74.00	-20.92	39.45	8.94	39.50	34.81	Peak	100	177	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	11019.48	53.48	74.00	-20.52	39.85	8.94	39.50	34.81	Peak	100	36	VERTICAL
2	11019.64	39.48	54.00	-14.52	25.85	8.94	39.50	34.81	Average	100	36	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 110 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11098.58	40.63	54.00	-13.37	27.00	8.99	39.50	34.86	Average	100	325	HORIZONTAL
2	11098.70	54.24	74.00	-19.76	40.61	8.99	39.50	34.86	Peak	100	325	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	11100.16	40.47	54.00	-13.53	26.84	8.99	39.50	34.86	Average	100	192	VERTICAL
2	11100.28	53.24	74.00	-20.76	39.61	8.99	39.50	34.86	Peak	100	192	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 134 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11338.68	54.11	74.00	-19.89	40.46	9.14	39.50	34.99	Peak	100	243	HORIZONTAL
2	11339.18	39.54	54.00	-14.46	25.89	9.14	39.50	34.99	Average	100	243	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	11336.18	39.72	54.00	-14.28	26.07	9.14	39.50	34.99	Average	100	127	VERTICAL
2	11339.14	53.78	74.00	-20.22	40.13	9.14	39.50	34.99	Peak	100	127	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 142 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11420.96	54.41	74.00	-19.59	40.77	9.20	39.50	35.06	Peak	100	272	HORIZONTAL
2	11424.84	40.97	54.00	-13.03	27.33	9.20	39.50	35.06	Average	100	272	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	11419.40	54.08	74.00	-19.92	40.44	9.20	39.50	35.06	Peak	100	38	VERTICAL
2	11419.72	39.80	54.00	-14.20	26.16	9.20	39.50	35.06	Average	100	38	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 42 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15617.24	39.50	54.00	-14.50	26.28	10.78	38.01	35.57	Average	100	183	HORIZONTAL
2	15627.64	54.07	74.00	-19.93	40.87	10.78	37.99	35.57	Peak	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	15624.68	39.37	54.00	-14.63	26.17	10.78	37.99	35.57	Average	100	279	VERTICAL
2	15630.00	52.44	74.00	-21.56	39.24	10.78	37.99	35.57	Peak	100	279	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 58 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	15880.46	54.86	74.00	-19.14	41.99	10.81	37.59	35.53	Peak	100	251	HORIZONTAL
2	15881.56	40.35	54.00	-13.65	27.48	10.81	37.59	35.53	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	15878.88	40.32	54.00	-13.68	27.45	10.81	37.59	35.53	Average	100	91	VERTICAL
2	15880.24	54.16	74.00	-19.84	41.29	10.81	37.59	35.53	Peak	100	91	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 106 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11059.98	53.23	74.00	-20.77	39.59	8.97	39.50	34.83	Peak	100	78	HORIZONTAL
2	11062.40	40.10	54.00	-13.90	26.47	8.97	39.50	34.84	Average	100	78	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	11059.28	53.78	74.00	-20.22	40.14	8.97	39.50	34.83	Peak	100	233	VERTICAL
2	11062.60	40.11	54.00	-13.89	26.48	8.97	39.50	34.84	Average	100	233	VERTICAL

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 138 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	11380.46	40.36	54.00	-13.64	26.70	9.18	39.50	35.02	Average	100	227	HORIZONTAL
2	11380.48	54.09	74.00	-19.91	40.43	9.18	39.50	35.02	Peak	100	227	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	11382.50	54.57	74.00	-19.43	40.91	9.18	39.50	35.02	Peak	100	335	VERTICAL
2	11383.88	40.51	54.00	-13.49	26.85	9.18	39.50	35.02	Average	100	335	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 5.15-5.35 GHz band: all emissions outside of the 5.15-5.35 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. 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

For 1TX

Temperature	25°C	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 20MHz CH 36, 40, 48 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

Channel 36

	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	5148.60	57.86	74.00	-16.14	17.72	6.13	34.01	0.00	Peak	112	276	VERTICAL
2	5150.00	43.63	54.00	-10.37	3.49	6.13	34.01	0.00	Average	112	276	VERTICAL
3	5178.20	100.06			59.83	6.15	34.08	0.00	Peak	112	276	VERTICAL
4	5181.20	88.36			48.13	6.15	34.08	0.00	Average	112	276	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

	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	5146.80	57.14			17.00	6.13	34.01	0.00	Peak	111	277	VERTICAL
2	5150.00	42.97			2.83	6.13	34.01	0.00	Average	111	277	VERTICAL
3	5150.00	42.97	74.00	-31.03	2.83	6.13	34.01	0.00	Peak	111	277	VERTICAL
4	5192.80	89.61	54.00	35.61	49.37	6.16	34.08	0.00	Average	111	277	VERTICAL

Item 1, 2 are the fundamental frequency at 5200 MHz.

Channel 48

	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	5138.60	55.51	74.00	-18.49	15.41	6.12	33.98	0.00	Peak	100	3	HORIZONTAL
2	5150.00	42.32	54.00	-11.68	2.18	6.13	34.01	0.00	Average	100	3	HORIZONTAL
3	5243.00	101.11			60.73	6.20	34.18	0.00	Peak	100	3	HORIZONTAL
4	5244.20	90.20			49.82	6.20	34.18	0.00	Average	100	3	HORIZONTAL
5	5350.00	42.43	54.00	-11.57	1.75	6.26	34.42	0.00	Average	100	3	HORIZONTAL
6	5350.00	54.52	74.00	-19.48	13.84	6.26	34.42	0.00	Peak	100	3	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	25°C	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 20MHz CH 52, 60, 64 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	5132.00	55.04	74.00	-18.96	14.94	6.12	33.98	0.00	Peak	100	3	HORIZONTAL
2	5150.00	42.24	54.00	-11.76	2.10	6.13	34.01	0.00	Average	100	3	HORIZONTAL
3	5257.00	91.92			51.50	6.20	34.22	0.00	Average	100	3	HORIZONTAL
4	5257.60	103.23			62.81	6.20	34.22	0.00	Peak	100	3	HORIZONTAL
5	5350.00	42.45	54.00	-11.55	1.77	6.26	34.42	0.00	Average	100	3	HORIZONTAL
6	5373.40	56.18	74.00	-17.82	15.45	6.27	34.46	0.00	Peak	100	3	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	5304.00	92.58			52.03	6.23	34.32	0.00	Average	102	352	VERTICAL
2	5304.40	103.43			62.88	6.23	34.32	0.00	Peak	102	352	VERTICAL
3	5350.00	43.28	54.00	-10.72	2.60	6.26	34.42	0.00	Average	102	352	VERTICAL
4	5350.00	55.27	74.00	-18.73	14.59	6.26	34.42	0.00	Peak	102	352	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	5312.80	89.35			48.79	6.24	34.32	0.00	Average	100	343	VERTICAL
2	5314.80	99.86			59.26	6.24	34.36	0.00	Peak	100	343	VERTICAL
3	5350.00	43.78	54.00	-10.22	3.10	6.26	34.42	0.00	Average	100	343	VERTICAL
4	5350.80	56.25	74.00	-17.75	15.57	6.26	34.42	0.00	Peak	100	343	VERTICAL

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

Temperature	25°C	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 20MHz CH 100, 140 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	5450.40	56.60	74.00	-17.40	15.64	6.33	34.63	0.00	Peak	100	347	VERTICAL
2	5460.00	43.82	54.00	-10.18	2.86	6.33	34.63	0.00	Average	100	347	VERTICAL
3	5464.80	59.17	74.00	-14.83	18.20	6.34	34.63	0.00	Peak	100	347	VERTICAL
4	5470.00	45.11	54.00	-8.89	4.10	6.34	34.67	0.00	Average	100	347	VERTICAL
5	5492.80	89.99			48.94	6.35	34.70	0.00	Average	100	347	VERTICAL
6	5494.40	100.86			59.81	6.35	34.70	0.00	Peak	100	347	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	5696.00	85.44			44.15	6.43	34.86	0.00	Average	112	354	HORIZONTAL
2	5696.00	96.15			54.86	6.43	34.86	0.00	Peak	112	354	HORIZONTAL
3	5725.00	43.98	54.00	-10.02	2.64	6.45	34.89	0.00	Average	112	354	HORIZONTAL
4	5725.80	55.97	74.00	-18.03	14.63	6.45	34.89	0.00	Peak	112	354	HORIZONTAL

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

Temperature	25°C	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 40MHz CH 38, 46 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

Channel 38

	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	5148.00	58.04	74.00	-15.96	17.90	6.13	34.01	0.00	Peak	100	208	VERTICAL
2	5150.00	45.05	54.00	-8.95	4.91	6.13	34.01	0.00	Average	100	208	VERTICAL
3	5180.80	93.62			53.39	6.15	34.08	0.00	Peak	100	208	VERTICAL
4	5183.60	82.61			42.38	6.15	34.08	0.00	Average	100	208	VERTICAL

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

	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	5144.80	55.91	74.00	-18.09	15.77	6.13	34.01	0.00	Peak	100	209	VERTICAL
2	5150.00	43.42	54.00	-10.58	3.28	6.13	34.01	0.00	Average	100	209	VERTICAL
3	5222.80	87.90			47.58	6.17	34.15	0.00	Average	100	209	VERTICAL
4	5234.40	99.58			59.22	6.18	34.18	0.00	Peak	100	209	VERTICAL

Item 3, 4 are the fundamental frequency at 5230 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 40MHz CH 54, 62 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	5261.60	82.38			41.95	6.21	34.22	0.00	Average	103	4	VERTICAL
2	5276.40	93.88			53.41	6.22	34.25	0.00	Peak	103	4	VERTICAL
3	5350.00	42.56	54.00	-11.44	1.88	6.26	34.42	0.00	Average	103	4	VERTICAL
4	5350.40	54.44	74.00	-19.56	13.76	6.26	34.42	0.00	Peak	103	4	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	86.17			45.62	6.23	34.32	0.00	Average	101	2	VERTICAL
2	5320.40	97.59			56.99	6.24	34.36	0.00	Peak	101	2	VERTICAL
3	5350.00	45.53	54.00	-8.47	4.85	6.26	34.42	0.00	Average	101	2	VERTICAL
4	5350.00	59.13	74.00	-14.87	18.45	6.26	34.42	0.00	Peak	101	2	VERTICAL

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

Temperature	25°C	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11n MCS0 40MHz CH 102, 110, 134 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

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	5457.60	57.04	74.00	-16.96	16.08	6.33	34.63	0.00	Peak	100	26	VERTICAL
2	5460.00	44.63	54.00	-9.37	3.67	6.33	34.63	0.00	Average	100	26	VERTICAL
3	5469.60	58.50	74.00	-15.50	17.49	6.34	34.67	0.00	Peak	100	26	VERTICAL
4	5470.00	46.37	54.00	-7.63	5.36	6.34	34.67	0.00	Average	100	26	VERTICAL
5	5502.40	96.17			55.10	6.36	34.71	0.00	Peak	100	26	VERTICAL
6	5503.60	84.70			43.63	6.36	34.71	0.00	Average	100	26	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	5456.00	56.96	74.00	-17.04	16.00	6.33	34.63	0.00	Peak	100	348	VERTICAL
2	5460.00	44.32	54.00	-9.68	3.36	6.33	34.63	0.00	Average	100	348	VERTICAL
3	5464.40	58.26	74.00	-15.74	17.29	6.34	34.63	0.00	Peak	100	348	VERTICAL
4	5470.00	44.95	54.00	-9.05	3.94	6.34	34.67	0.00	Average	100	348	VERTICAL
5	5553.20	89.28			48.15	6.38	34.75	0.00	Average	100	348	VERTICAL
6	5560.40	100.55			59.42	6.38	34.75	0.00	Peak	100	348	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	5659.20	98.39			57.14	6.42	34.83	0.00	Peak	113	10	HORIZONTAL
2	5661.20	86.96			45.71	6.42	34.83	0.00	Average	113	10	HORIZONTAL
3	5725.00	43.66	54.00	-10.34	2.32	6.45	34.89	0.00	Average	113	10	HORIZONTAL
4	5725.80	56.07	74.00	-17.93	14.73	6.45	34.89	0.00	Peak	113	10	HORIZONTAL

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

Temperature	25℃	Humidity	57%
Test Engineer	James Chou	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 42, 58 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

Channel 42

	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	5140.00	60.24	74.00	-13.76	20.13	6.13	33.98	0.00	Peak	100	353	HORIZONTAL
2	5142.00	46.75	54.00	-7.25	6.64	6.13	33.98	0.00	Average	100	353	HORIZONTAL
3	5185.00	76.93			36.70	6.15	34.08	0.00	Average	100	353	HORIZONTAL
4	5187.00	88.54			48.31	6.15	34.08	0.00	Peak	100	353	HORIZONTAL
5	5350.00	42.45	54.00	-11.55	1.77	6.26	34.42	0.00	Average	100	353	HORIZONTAL
6	5359.00	54.70	74.00	-19.30	14.02	6.26	34.42	0.00	Peak	100	353	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 58

	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	42.14	54.00	-11.86	2.00	6.13	34.01	0.00	Average	101	3	VERTICAL
2	5150.00	54.96	74.00	-19.04	14.82	6.13	34.01	0.00	Peak	101	3	VERTICAL
3	5306.00	81.27			40.72	6.23	34.32	0.00	Average	101	3	VERTICAL
4	5309.00	93.80			53.25	6.23	34.32	0.00	Peak	101	3	VERTICAL
5	5350.00	46.59	54.00	-7.41	5.91	6.26	34.42	0.00	Average	101	3	VERTICAL
6	5350.00	59.78	74.00	-14.22	19.10	6.26	34.42	0.00	Peak	101	3	VERTICAL

Item 3, 4 are the fundamental frequency at 5290 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss1 80MHz CH 106, 138 / 1TX / Chain 2
Test Date	Sep. 30, 2013		

Channel 106

	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	45.86	54.00	-8.14	4.90	6.33	34.63	0.00	Average	100	26	VERTICAL
2	5460.00	59.41	74.00	-14.59	18.45	6.33	34.63	0.00	Peak	100	26	VERTICAL
3	5463.00	46.19	54.00	-7.81	5.22	6.34	34.63	0.00	Average	100	26	VERTICAL
4	5465.00	59.34			18.37	6.34	34.63	0.00	Peak	100	26	VERTICAL
5	5506.00	77.33			36.26	6.36	34.71	0.00	Average	100	26	VERTICAL
6	5725.00	43.30	54.00	-10.70	1.96	6.45	34.89	0.00	Average	100	26	VERTICAL
7	5725.00	54.89	74.00	-19.11	13.55	6.45	34.89	0.00	Peak	100	26	VERTICAL

Item 4, 5 are the fundamental frequency at 5530 MHz.

Channel 138

	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	5666.00	82.51			41.26	6.42	34.83	0.00	Average	105	341	VERTICAL
2	5667.00	93.86			52.60	6.43	34.83	0.00	Peak	105	341	VERTICAL
3	5825.00	43.43	54.00	-10.57	1.98	6.48	34.97	0.00	Average	105	341	VERTICAL
4	5825.00	55.89	74.00	-18.11	14.44	6.48	34.97	0.00	Peak	105	341	VERTICAL

Item 1, 2 are the fundamental frequency at 5690 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	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 36, 40, 48 / 1TX / Chain 2
Test Date	Sep. 29, 2013		

Channel 36

	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	5149.40	62.78	74.00	-11.22	25.68	3.43	33.67	0.00	Peak	112	320	VERTICAL
2	5150.00	43.57	54.00	-10.43	6.47	3.43	33.67	0.00	Average	112	320	VERTICAL
3	5175.80	85.75			48.61	3.44	33.70	0.00	Average	112	320	VERTICAL
4	5178.20	102.68			65.51	3.44	33.73	0.00	Peak	112	320	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

	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	43.95	54.00	-10.05	6.85	3.43	33.67	0.00	Average	100	321	VERTICAL
2	5150.00	60.71	74.00	-13.29	23.61	3.43	33.67	0.00	Peak	100	321	VERTICAL
3	5204.00	89.86			52.65	3.45	33.76	0.00	Average	100	321	VERTICAL
4	5204.00	103.86			66.65	3.45	33.76	0.00	Peak	100	321	VERTICAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

	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	5142.20	57.05	74.00	-16.95	19.98	3.43	33.64	0.00	Peak	100	321	VERTICAL
2	5150.00	42.83	54.00	-11.17	5.73	3.43	33.67	0.00	Average	100	321	VERTICAL
3	5243.60	102.83			65.55	3.46	33.82	0.00	Peak	100	321	VERTICAL
4	5246.60	89.31			52.00	3.46	33.85	0.00	Average	100	321	VERTICAL
5	5353.00	43.51	54.00	-10.49	5.99	3.49	34.03	0.00	Average	100	321	VERTICAL
6	5353.00	58.83	74.00	-15.17	21.31	3.49	34.03	0.00	Peak	100	321	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 52, 60, 64 / 1TX / Chain 2
Test Date	Sep. 29, 2013		

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	5254.80	99.04			61.73	3.46	33.85	0.00	Peak	101	187	HORIZONTAL
2	5258.80	87.47			50.16	3.46	33.85	0.00	Average	101	187	HORIZONTAL
3	5353.60	58.46	74.00	-15.54	20.94	3.49	34.03	0.00	Peak	101	187	HORIZONTAL
4	5355.20	43.20	54.00	-10.80	5.68	3.49	34.03	0.00	Average	101	187	HORIZONTAL

Item 1, 2 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	5301.20	90.37			52.95	3.48	33.94	0.00	Average	100	321	VERTICAL
2	5302.80	103.23			65.81	3.48	33.94	0.00	Peak	100	321	VERTICAL
3	5354.80	59.26	74.00	-14.74	21.74	3.49	34.03	0.00	Peak	100	321	VERTICAL
4	5374.00	43.34	54.00	-10.66	5.78	3.50	34.06	0.00	Average	100	321	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	5323.40	103.44			65.98	3.49	33.97	0.00	Peak	104	212	VERTICAL
2	5324.00	88.28			50.82	3.49	33.97	0.00	Average	104	212	VERTICAL
3	5350.20	43.26	54.00	-10.74	5.74	3.49	34.03	0.00	Average	104	212	VERTICAL
4	5353.00	57.90	74.00	-16.10	20.38	3.49	34.03	0.00	Peak	104	212	VERTICAL

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

Temperature	25℃	Humidity	57%
Test Engineer	Serway Li	Configurations	IEEE 802.11a CH 100, 140 / 1TX / Chain 2
Test Date	Sep. 29, 2013		

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	5459.00	63.97	74.00	-10.03	26.24	3.52	34.21	0.00	Peak	100	151	VERTICAL
2	5460.00	43.48	54.00	-10.52	5.75	3.52	34.21	0.00	Average	100	151	VERTICAL
3	5469.80	63.12	74.00	-10.88	25.36	3.52	34.24	0.00	Peak	100	151	VERTICAL
4	5470.00	43.71	54.00	-10.29	5.95	3.52	34.24	0.00	Average	100	151	VERTICAL
5	5494.60	104.75			66.96	3.53	34.26	0.00	Peak	100	151	VERTICAL
6	5498.80	87.92			50.13	3.53	34.26	0.00	Average	100	151	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	5693.00	87.70			49.77	3.59	34.34	0.00	Average	100	206	VERTICAL
2	5693.00	102.72			64.79	3.59	34.34	0.00	Peak	100	206	VERTICAL
3	5725.00	42.79	54.00	-11.21	4.85	3.60	34.34	0.00	Average	100	206	VERTICAL
4	5725.60	61.79	74.00	-12.21	23.85	3.60	34.34	0.00	Peak	100	206	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

For 2TX

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 36, 40, 48 / 2TX / Chain 1 + Chain 2
Test Date	Sep. 30, 2013~Oct. 01, 2013		

Channel 36

	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	5147.00	57.04	74.00	-16.96	16.90	6.13	34.01	0.00	Peak	100	42	VERTICAL
2	5150.00	43.70	54.00	-10.30	3.56	6.13	34.01	0.00	Average	100	42	VERTICAL
3	5182.80	99.61			59.38	6.15	34.08	0.00	Peak	100	42	VERTICAL
4	5187.20	87.38			47.15	6.15	34.08	0.00	Average	100	42	VERTICAL

Item 3, 4 are the fundamental frequency at 5180 MHz.

Channel 40

	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	5142.00	55.21	74.00	-18.79	15.10	6.13	33.98	0.00	Peak	102	0	VERTICAL
2	5150.00	42.27	54.00	-11.73	2.13	6.13	34.01	0.00	Average	102	0	VERTICAL
3	5205.20	102.44			62.17	6.16	34.11	0.00	Peak	102	0	VERTICAL
4	5207.20	89.79			49.52	6.16	34.11	0.00	Average	102	0	VERTICAL

Item 3, 4 are the fundamental frequency at 5200 MHz.

Channel 48

	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	42.06	54.00	-11.94	1.92	6.13	34.01	0.00	Average	102	358	VERTICAL
2	5150.00	52.55	74.00	-21.45	12.41	6.13	34.01	0.00	Peak	102	358	VERTICAL
3	5235.20	91.23			50.87	6.18	34.18	0.00	Average	102	358	VERTICAL
4	5239.40	102.55			62.19	6.18	34.18	0.00	Peak	102	358	VERTICAL
5	5350.00	42.54	54.00	-11.46	1.86	6.26	34.42	0.00	Average	102	358	VERTICAL
6	5356.60	56.08	74.00	-17.92	15.40	6.26	34.42	0.00	Peak	102	358	VERTICAL

Item 3, 4 are the fundamental frequency at 5240 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 52, 60, 64 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	5147.00	55.18	74.00	-18.82	15.04	6.13	34.01	0.00	Peak	103	357	VERTICAL
2	5147.60	42.07	54.00	-11.93	1.93	6.13	34.01	0.00	Average	103	357	VERTICAL
3	5258.80	91.29			50.86	6.21	34.22	0.00	Average	103	357	VERTICAL
4	5259.40	103.46			63.03	6.21	34.22	0.00	Peak	103	357	VERTICAL
5	5350.00	42.78	54.00	-11.22	2.10	6.26	34.42	0.00	Average	103	357	VERTICAL
6	5356.00	55.00	74.00	-19.00	14.32	6.26	34.42	0.00	Peak	103	357	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	5296.40	91.25			50.73	6.23	34.29	0.00	Average	102	355	VERTICAL
2	5305.20	103.95			63.40	6.23	34.32	0.00	Peak	102	355	VERTICAL
3	5350.00	43.12	54.00	-10.88	2.44	6.26	34.42	0.00	Average	102	355	VERTICAL
4	5353.60	55.82	74.00	-18.18	15.14	6.26	34.42	0.00	Peak	102	355	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	5312.80	89.48			48.92	6.24	34.32	0.00	Average	100	355	VERTICAL
2	5324.00	101.40			60.80	6.24	34.36	0.00	Peak	100	355	VERTICAL
3	5350.00	44.12	54.00	-9.88	3.44	6.26	34.42	0.00	Average	100	355	VERTICAL
4	5357.60	56.86	74.00	-17.14	16.18	6.26	34.42	0.00	Peak	100	355	VERTICAL

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

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 20MHz CH 100, 140 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	5459.00	57.86	74.00	-16.14	16.90	6.33	34.63	0.00	Peak	100	346	VERTICAL
2	5460.00	43.97	54.00	-10.03	3.01	6.33	34.63	0.00	Average	100	346	VERTICAL
3	5470.00	45.22	54.00	-8.78	4.21	6.34	34.67	0.00	Average	100	346	VERTICAL
4	5470.00	60.09	74.00	-13.91	19.08	6.34	34.67	0.00	Peak	100	346	VERTICAL
5	5498.80	91.68			50.62	6.36	34.70	0.00	Average	100	346	VERTICAL
6	5502.00	103.78			62.71	6.36	34.71	0.00	Peak	100	346	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	101.84			60.54	6.44	34.86	0.00	Peak	106	337	VERTICAL
2	5704.00	88.71			47.41	6.44	34.86	0.00	Average	106	337	VERTICAL
3	5725.00	45.52	54.00	-8.48	4.18	6.45	34.89	0.00	Average	106	337	VERTICAL
4	5725.00	57.13	74.00	-16.87	15.79	6.45	34.89	0.00	Peak	106	337	VERTICAL

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

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 38, 46 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

Channel 38

	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	5149.80	56.32	74.00	-17.68	16.18	6.13	34.01	0.00	Peak	100	209	VERTICAL
2	5150.00	43.58	54.00	-10.42	3.44	6.13	34.01	0.00	Average	100	209	VERTICAL
3	5181.60	80.68			40.45	6.15	34.08	0.00	Average	100	209	VERTICAL
4	5185.60	95.31			55.08	6.15	34.08	0.00	Peak	100	209	VERTICAL

Item 3, 4 are the fundamental frequency at 5190 MHz.

Channel 46

	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	5146.00	55.71	74.00	-18.29	15.57	6.13	34.01	0.00	Peak	100	4	HORIZONTAL
2	5150.00	42.34	54.00	-11.66	2.20	6.13	34.01	0.00	Average	100	4	HORIZONTAL
3	5238.80	83.05			42.69	6.18	34.18	0.00	Average	100	4	HORIZONTAL
4	5242.00	96.67			56.29	6.20	34.18	0.00	Peak	100	4	HORIZONTAL

Item 3, 4 are the fundamental frequency at 5230 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 54, 62 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	5148.80	54.86	74.00	-19.14	14.72	6.13	34.01	0.00	Peak	102	325	VERTICAL
2	5150.00	42.00	54.00	-12.00	1.86	6.13	34.01	0.00	Average	102	325	VERTICAL
3	5259.20	97.54			57.11	6.21	34.22	0.00	Peak	102	325	VERTICAL
4	5264.00	84.32			43.86	6.21	34.25	0.00	Average	102	325	VERTICAL
5	5350.00	42.56	54.00	-11.44	1.88	6.26	34.42	0.00	Average	102	325	VERTICAL
6	5354.80	55.56	74.00	-18.44	14.88	6.26	34.42	0.00	Peak	102	325	VERTICAL

Item 3, 4 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	5306.40	83.13			42.58	6.23	34.32	0.00	Average	100	16	VERTICAL
2	5308.80	95.99			55.44	6.23	34.32	0.00	Peak	100	16	VERTICAL
3	5350.00	43.21	54.00	-10.79	2.53	6.26	34.42	0.00	Average	100	16	VERTICAL
4	5350.80	55.89	74.00	-18.11	15.21	6.26	34.42	0.00	Peak	100	16	VERTICAL

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

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS8 40MHz CH 102, 134 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

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	44.23	54.00	-9.77	3.27	6.33	34.63	0.00	Average	100	348	VERTICAL
2	5460.00	55.13	74.00	-18.87	14.17	6.33	34.63	0.00	Peak	100	348	VERTICAL
3	5469.60	60.78	74.00	-13.22	19.77	6.34	34.67	0.00	Peak	100	348	VERTICAL
4	5470.00	46.50	54.00	-7.50	5.49	6.34	34.67	0.00	Average	100	348	VERTICAL
5	5501.00	85.79			44.73	6.36	34.70	0.00	Average	100	348	VERTICAL
6	5505.20	99.36			58.29	6.36	34.71	0.00	Peak	100	348	VERTICAL

Item 5, 6 are the fundamental frequency at 5510 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	5665.20	102.24			60.99	6.42	34.83	0.00	Peak	107	341	VERTICAL
2	5666.80	88.47			47.21	6.43	34.83	0.00	Average	107	341	VERTICAL
3	5725.00	43.81	54.00	-10.19	2.47	6.45	34.89	0.00	Average	107	341	VERTICAL
4	5730.60	57.35	74.00	-16.65	16.01	6.45	34.89	0.00	Peak	107	341	VERTICAL

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

Temperature	25°C	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 42, 58 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

Channel 42

	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	5125.00	57.22	74.00	-16.78	17.16	6.12	33.94	0.00	Peak	114	258	VERTICAL
2	5150.00	43.64	54.00	-10.36	3.50	6.13	34.01	0.00	Average	114	258	VERTICAL
3	5216.00	90.97			50.65	6.17	34.15	0.00	Peak	114	258	VERTICAL
4	5221.00	76.79			36.47	6.17	34.15	0.00	Average	114	258	VERTICAL
5	5350.00	42.36	54.00	-11.64	1.68	6.26	34.42	0.00	Average	114	258	VERTICAL
6	5350.00	54.95	74.00	-19.05	14.27	6.26	34.42	0.00	Peak	114	258	VERTICAL

Item 3, 4 are the fundamental frequency at 5210 MHz.

Channel 58

	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	5146.00	54.38	74.00	-19.62	14.24	6.13	34.01	0.00	Peak	100	360	VERTICAL
2	5150.00	41.96	54.00	-12.04	1.82	6.13	34.01	0.00	Average	100	360	VERTICAL
3	5294.00	80.94			40.42	6.23	34.29	0.00	Average	100	360	VERTICAL
4	5296.00	94.25			53.73	6.23	34.29	0.00	Peak	100	360	VERTICAL
5	5350.00	44.76	54.00	-9.24	4.08	6.26	34.42	0.00	Average	100	360	VERTICAL
6	5350.00	56.97	74.00	-17.03	16.29	6.26	34.42	0.00	Peak	100	360	VERTICAL

Item 3, 4 are the fundamental frequency at 5290 MHz.

Temperature	25℃	Humidity	57%
Test Engineer	YC Chen	Configurations	IEEE 802.11ac MCS0/Nss2 80MHz CH 106, 138 / 2TX / Chain 1 + Chain 2
Test Date	Oct. 01, 2013		

Channel 106

	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	5444.00	59.93	74.00	-14.07	19.01	6.32	34.60	0.00	Peak	100	348	VERTICAL
2	5460.00	46.14	54.00	-7.86	5.18	6.33	34.63	0.00	Average	100	348	VERTICAL
3	5463.00	60.82	74.00	-13.18	19.85	6.34	34.63	0.00	Peak	100	348	VERTICAL
4	5469.00	47.49	54.00	-6.51	6.48	6.34	34.67	0.00	Average	100	348	VERTICAL
5	5514.00	93.88			52.80	6.37	34.71	0.00	Peak	100	348	VERTICAL
6	5525.00	79.19			38.09	6.37	34.73	0.00	Average	100	348	VERTICAL
7	5725.00	43.27	54.00	-10.73	1.93	6.45	34.89	0.00	Average	100	348	VERTICAL
8	5731.00	55.13	74.00	-18.87	13.79	6.45	34.89	0.00	Peak	100	348	VERTICAL

Item 5, 6 are the fundamental frequency at 5530 MHz.

Channel 138

	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	5702.00	98.33			57.03	6.44	34.86	0.00	Peak	107	339	VERTICAL
2	5705.00	83.65			42.35	6.44	34.86	0.00	Average	107	339	VERTICAL
3	5825.00	43.56	54.00	-10.44	2.11	6.48	34.97	0.00	Average	107	339	VERTICAL
4	5825.00	55.29	74.00	-18.71	13.84	6.48	34.97	0.00	Peak	107	339	VERTICAL

Item 1, 2 are the fundamental frequency at 5690 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

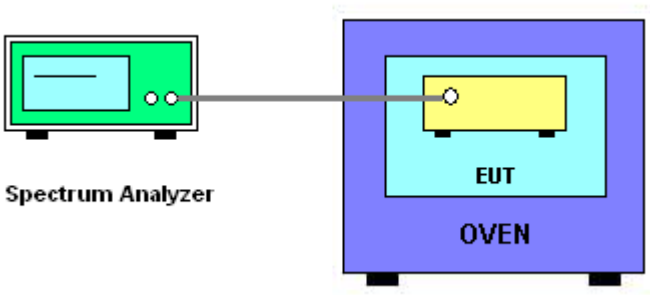
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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~55°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	25°C	Humidity	60%
Test Engineer	Kenneth Haung Nick Peng	Test Date	Oct. 02, 2013

For 1TX

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)		
(V)	5200 MHz	5300 MHz	5500 MHz
126.50	5199.9825	5299.9818	5499.9852
110.00	5199.9823	5299.9814	5499.9808
93.50	5199.9820	5299.9810	5499.9806
Max. Deviation (MHz)	**0.018000**	**0.019000**	**0.019400**
Max. Deviation (ppm)	**3.46**	**3.58**	**3.53**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)		
(°C)	5200 MHz	5300 MHz	5500 MHz
0	5199.9855	5299.9845	5499.9822
10	5199.9840	5299.9832	5499.9812
20	5199.9823	5299.9814	5499.9808
30	5199.9822	5299.9810	5499.9806
40	5199.9818	5299.9808	5499.9805
55	5199.9815	5299.9807	5499.9799
Max. Deviation (MHz)	**0.018500**	**0.019300**	**0.020100**
Max. Deviation (ppm)	**3.56**	**3.6415**	**3.65**

For 2TX

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)		
(V)	5200 MHz	5300 MHz	5500 MHz
126.50	5199.9829	5299.9818	5499.9809
110.00	5199.9823	5299.9814	5499.9808
93.50	5199.9820	5299.9811	5499.9806
Max. Deviation (MHz)	**0.018000**	**0.018900**	**0.019400**
Max. Deviation (ppm)	**3.46**	**3.57**	**3.53**

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)		
(°C)	5200 MHz	5300 MHz	5500 MHz
0	5200.0222	5300.0220	5500.0022
10	5200.0220	5300.0220	5500.0020
20	5199.9823	5299.9814	5499.9808
30	5199.9840	5299.9828	5499.9820
40	5199.9855	5299.9855	5499.9840
55	5199.9892	5299.9874	5499.9845
Max. Deviation (MHz)	**0.022200**	**0.022000**	**0.019200**
Max. Deviation (ppm)	**4.27**	**4.15**	**3.49**

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	100377	9kHz ~ 2.75GHz	Oct. 23, 2012	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Nov. 26, 2012	Conduction (CO01-CB)
V- LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Jul. 17, 2013	Conduction (CO01-CB)
Impulsbegrenzer Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz~30MHz	Feb. 21, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	0.15MHz~30MHz	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. 27, 2012	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2012	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2012	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26.5GHz ~ 40GHz	Jul. 30, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100056	9kHz~40GHz	Nov. 16, 2012	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 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	CO2000	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. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2012	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 18, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 19, 2012	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2012	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)
Spectrum Analyzer	R&S	FSP 40	100305	9kHz~40GHz	Mar. 20, 2013	Conducted (TH01-HY)
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 16, 2013	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100℃	Nov. 21, 2012	Conducted (TH01-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 27, 2013	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	Feb. 02, 2013	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	Feb. 02, 2013	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	30MHz ~ 26.5GHz	Dec. 04, 2012	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	30MHz ~ 26.5GHz	Dec. 04, 2012	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 19, 2013	Conducted (TH01-HY)

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. TEST LOCATION

SHIJR	ADD	:	6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C.
	TEL	:	886-2-2696-2468
	FAX	:	886-2-2696-2255
HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.
	TEL	:	886-3-327-3456
	FAX	:	886-3-318-0055
LINKOU	ADD	:	No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C
	TEL	:	886-2-2601-1640
	FAX	:	886-2-2601-1695
DUNGHU	ADD	:	No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C.
	TEL	:	886-2-2631-4739
	FAX	:	886-2-2631-9740
JUNGHE	ADD	:	7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C.
	TEL	:	886-2-8227-2020
	FAX	:	886-2-8227-2626
NEIHU	ADD	:	4Fl., No. 339, Hsin Hu 2nd Rd., Taipei 114, Taiwan, R.O.C.
	TEL	:	886-2-2794-8886
	FAX	:	886-2-2794-9777
JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.
	TEL	:	886-3-656-9065
	FAX	:	886-3-656-9085

7. 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

Uncertainty of Conducted Emission Measurement

Emission bandwidth, 6dB bandwidth	±1.42 %
RF output power, conducted	±0.63 dB
Power density, conducted	±0.81 dB