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FCC RADIO TEST REPORT

Applicant's company	**Wistron NeWeb Corporation**
Applicant Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C.
FCC ID	**NKR-DHURW32**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308,Taiwan,R.O.C.

Product Name	802.11 abgn + BT module
Brand Name	WNC
Model No.	DHUR-W32
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5350 MHz / 5470 ~ 5725 MHz / 5725 ~ 5850 MHz
Received Date	Jul. 13, 2016
Final Test Date	Aug. 17, 2016
Submission Type	Original Equipment

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a 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 C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r03, KDB662911 D01 v02r01, ET Docket No. 13–49; FCC 16–24.**

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

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR671331AB	Rev. 01	Initial issue of report	Sep. 12, 2017

1. VERIFICATION OF COMPLIANCE

Product Name	:	802.11 abgn + BT module
Brand Name	:	WNC
Model No.	:	DHUR-W32
Applicant	:	Wistron NeWeb 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. 13, 2016 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.

Cliff Chang
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**
4.1	15.207	AC Power Line Conducted Emissions	Complies
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies
4.4	15.407(a)	Maximum Conducted Output Power	Complies
4.5	15.407(a)	Power Spectral Density	Complies
4.6	15.407(b)	Radiated Emissions	Complies
4.7	15.407(b)	Band Edge Emissions	Complies
4.8	15.407(g)	Frequency Stability	Complies
4.9	15.203	Antenna Requirements	Complies

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	IEEE 802.11a: OFDM IEEE 802.11n: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n: see the below table
Frequency Range	5150 ~ 5350 MHz / 5470 ~ 5725 MHz / 5725 ~ 5850 MHz
Channel Number	25 for 20MHz bandwidth ; 12 for 40MHz bandwidth
Channel Bandwidth (99%)	Band 1: IEEE 802.11a: 18.41 MHz IEEE 802.11n MCS0 (HT20): 17.89 MHz IEEE 802.11n MCS0 (HT40): 37.34 MHz Band 2: IEEE 802.11a: 17.19 MHz IEEE 802.11n MCS0 (HT20): 18.06 MHz IEEE 802.11n MCS0 (HT40): 39.22 MHz Band 3: IEEE 802.11a: 24.49 MHz IEEE 802.11n MCS0 (HT20): 19.28 MHz IEEE 802.11n MCS0 (HT40): 36.76 MHz Band 4: IEEE 802.11a: 28.65 MHz IEEE 802.11n MCS0 (HT20): 26.05 MHz IEEE 802.11n MCS0 (HT40): 36.90 MHz

Maximum Conducted Output Power	Band 1: IEEE 802.11a: 21.47 dBm IEEE 802.11n MCS0 (HT20): 21.56 dBm IEEE 802.11n MCS0 (HT40): 21.77 dBm Band 2: IEEE 802.11a: 21.48 dBm IEEE 802.11n MCS0 (HT20): 21.52 dBm IEEE 802.11n MCS0 (HT40): 21.96 dBm Band 3: IEEE 802.11a: 21.41 dBm IEEE 802.11n MCS0 (HT20): 21.45 dBm IEEE 802.11n MCS0 (HT40): 23.45 dBm Band 4: IEEE 802.11a: 22.44 dBm IEEE 802.11n MCS0 (HT20): 22.89 dBm IEEE 802.11n MCS0 (HT40): 22.04 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

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
Operate Condition	☒ Indoor	☐ Outdoor

Antenna and Bandwidth

Antenna	Two (TX)	
Bandwidth Mode	20 MHz	40 MHz
IEEE 802.11a	V	X
IEEE 802.11n	V	V

IEEE 11n Spec.

Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS
802.11n (HT20)	2	MCS0-15
802.11n (HT40)	2	MCS0-15
Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT supports HT20 and HT40. Note 2: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n		

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand	Part Number	Antenna Type	Connector	Gain (dBi)	
					WLAN 2.4GHz	WLAN 5GHz
1	WNC	3ADHUBW69S2-111	PIFA Antenna	N/A	2.04	4.95
2	WNC	3ADHUAW08S1-111	PIFA Antenna	N/A	2.37	6.52
Ant.	**Brand**	**Part Number**	**Antenna Type**	**Connector**	**Gain (dBi)**	
					Bluetooth	
3	WNC	81.EEW15.GM3	PIFA Antenna	I-PEX	-1.39	
4	WNC	81.EEW15.GM4	PIFA Antenna	I-PEX	-1.99	

Note: The EUT has four antennas.

For WLAN function (2TX/2RX):

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

Ant. 1 and Ant. 2 could transmit/receive simultaneously.

For Bluetooth function (1TX/1RX):

Because Ant. 3 and Ant. 4 are the same type antennas, only the higher gain antenna “Ant. 3” was tested and recorded in the report.

3.4. Table for Carrier Frequencies

The EUT has two bandwidth system.

For 20MHz bandwidth systems, use Channel 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 144, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 54, 62, 102, 110, 118, 126, 134, 142, 151, 159.

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
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	54	5270 MHz	62	5310 MHz
	56	5280 MHz	64	5320 MHz
5470~5725 MHz Band 3	100	5500 MHz	124	5620 MHz
	102	5510 MHz	126	5630 MHz
	104	5520 MHz	128	5640 MHz
	108	5540 MHz	132	5660 MHz
	110	5550 MHz	134	5670 MHz
	112	5560 MHz	136	5680 MHz
	116	5580 MHz	140	5700 MHz
	118	5590 MHz	142	5710 MHz
	120	5600 MHz	144	5720 MHz
5725~5850 MHz Band 4	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz	-	-

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Ant.
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1-4	6Mbps	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT20	Band 1-4	MCS0	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT40	Band 1-4	MCS0	38/46/54/62/102/110/134/ 142/151/159	1+2
Power Spectral Density	11a/BPSK	Band 1-4	6Mbps	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT20	Band 1-4	MCS0	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT40	Band 1-4	MCS0	38/46/54/62/102/110/134/ 142/151/159	1+2
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1-4	6Mbps	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT20	Band 1-4	MCS0	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT40	Band 1-4	MCS0	38/46/54/62/102/110/134/ 142/151/159	1+2
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	144/149/157/165	1+2
	11n HT20	Band 4	MCS0	144/149/157/165	1+2
	11n HT40	Band 4	MCS0	142/151/159	1+2
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1-4	6Mbps	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT20	Band 1-4	MCS0	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT40	Band 1-4	MCS0	38/46/54/62/102/110/134/ 142/151/159	1+2
Band Edge Emission	11a/BPSK	Band 1-4	6Mbps	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT20	Band 1-4	MCS0	36/40/48/52/60/64/100/116 /140/144/149/157/165	1+2
	11n HT40	Band 1-4	MCS0	38/46/54/62/102/110/134/ 142/151/159	1+2

Frequency Stability	20 MHz	Band 1-4	-	40/60/116/157	1
	40 MHz	Band 1-4	-	38/62/110/151	1

The following test modes were performed for all tests:

For AC Power Line Conducted Emissions test:

Mode 1. 2.4GHz WLAN function + Bluetooth function

Mode 2. 5GHz WLAN function + Bluetooth function

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

For Radiated Emissions below 1GHz test:

Mode 1. EUT Y axis - 2.4GHz WLAN function + Bluetooth function

Mode 2. EUT Z axis - 2.4GHz WLAN function + Bluetooth function

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

Mode 3. EUT Y axis - 5GHz WLAN function + Bluetooth function

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

For Radiated Emissions above1GHz test:

The EUT was performed at X axis, Y axis and Z axis position for Radiated Emissions above1GHz test, and the worst case was found at X axis. So the measurement will follow this same test configuration.

For Radiated Emission Co-location test:

Mode 1. EUT Y axis - 2.4GHz WLAN function + Bluetooth function

Mode 2. EUT Z axis - 2.4GHz WLAN function + Bluetooth function

Mode 3. EUT Y axis - 5GHz WLAN function + Bluetooth function

Mode 4. EUT Z axis - 5GHz WLAN function + Bluetooth function

Mode 2 and Mode 4 are worst test result among Mode 1~4, and the test result of those two modes are selected to record in the test report.

For Co-location MPE and Radiated Emission Co-location test:

The EUT could be applied with 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function; therefore Co-location Maximum Permissible Exposure (Please refer to FA671331) and Radiated Emission Co-location (please refer to Appendix B) tests are added for simultaneously transmit between 2.4GHz WLAN function, 5GHz WLAN function and Bluetooth function.

3.6. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Designation No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	TW0006	IC 4086D	-
CO02-CB	Conduction	Hsin Chu	TW0006	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB (below 1GHz)

Support Unit	Brand	Model	FCC ID
WLAN AP	Netgear	R7500	PY314300288
Earphone	e-Power	S90W	N/A
NB	DELL	E4300	DoC
Mouse	Logitech	M-U0026	DoC
BT Speaker	MARUS	MSK06C-RD	DoC
Flash disk3.0	Silicon Power	B06	DoC

For Test Site No: 03CH01-CB (above1GHz) and TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC

For Test Site No: CO02-CB

Support Unit	Brand	Model	FCC ID
AP Router	Planex	GW-AP54SGX	KA220030603014-1
NB	DELL	E4300	DoC
Earphone	SHYARO CHI	MIC-04	DoC
Flash disk3.0	ADATA	C103	DoC
BT Speaker	MARUS	MSK06C-RD	DoC

3.8. Table for Parameters of Test Software Setting

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Software Version	MT7662UQA V1.0.3.14												
Mode	Test Frequency (MHz)												
	NCB: 20MHz												
	5180 MHz	5200 MHz	5240 MHz	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz	5720 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	33/2E	3D/38	2D/2F	3C/3B	3C/3B	2E/2F	2A/2F	27/3C	28/25	23/2D	35/3F	35/3F	3F/3F
802.11n MCS0 HT20	32/2E	3C/38	2F/2E	3C/3B	3C/3E	30/34	2D/31	36/3C	23/2D	23/2D	37/3F	39/3F	38/3F

Mode	NCB: 40MHz									
802.11n MCS0 HT40	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz	5710 MHz	5755 MHz	5795 MHz
	26/23	30/2E	34/34	22/23	1B/1E	2D/2F	25/2B	33/3A	30/37	3B/3F

3.9. EUT Operation during Test

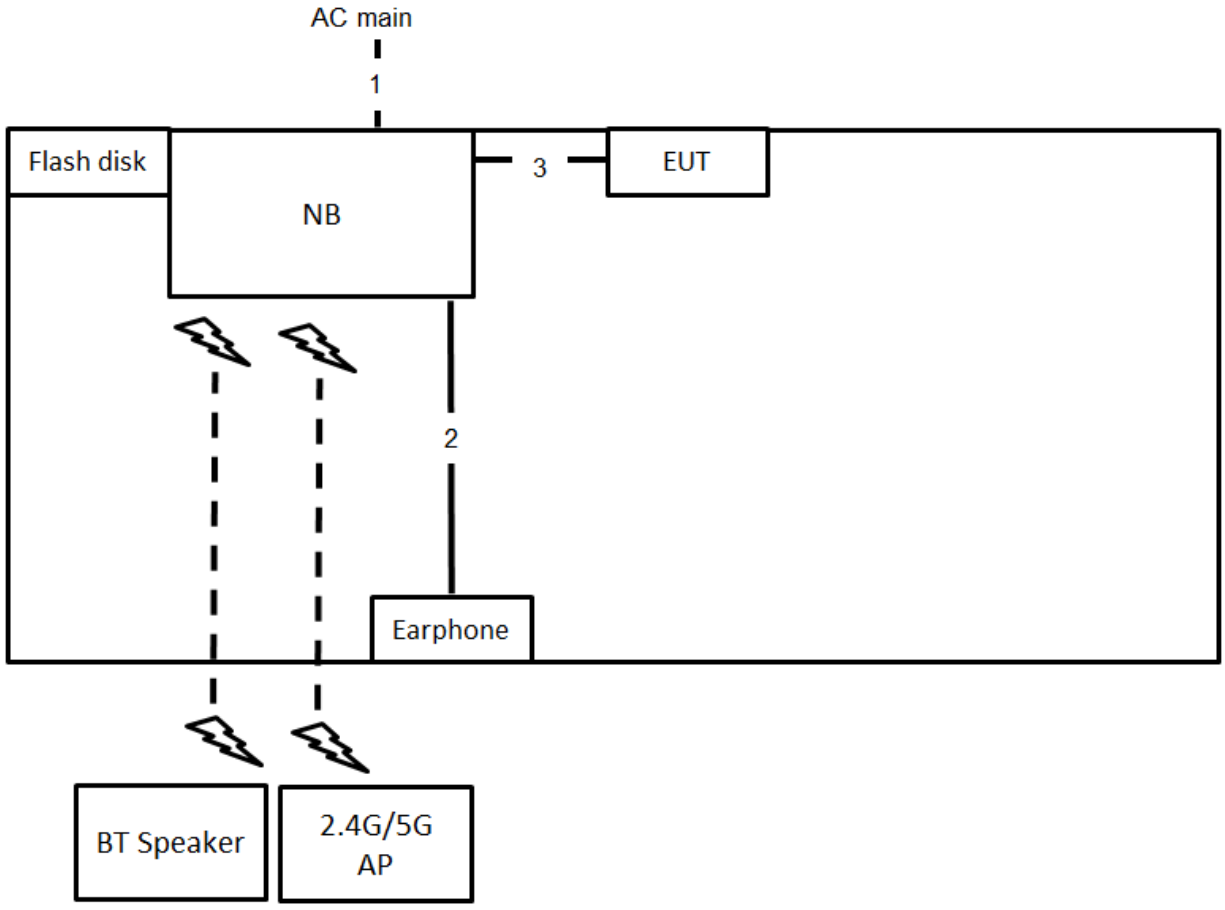
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.440	1.458	98.77	0.05	0.01
802.11n MCS0 HT20	1.350	1.362	99.12	0.04	0.01
802.11n MCS0 HT40	0.640	0.680	94.12	0.26	1.56

3.11. Test Configurations

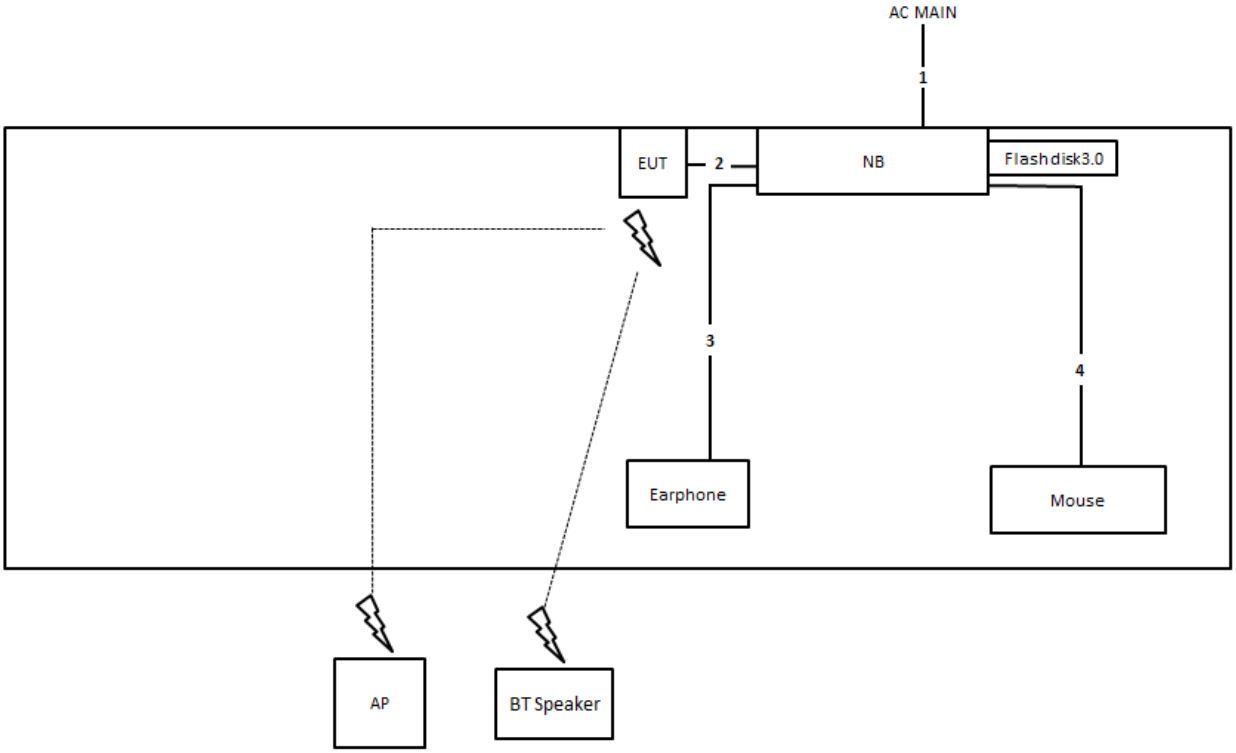
3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	2.6m
2	Audio cable	No	1.1m
3	USB cable	No	0.7m

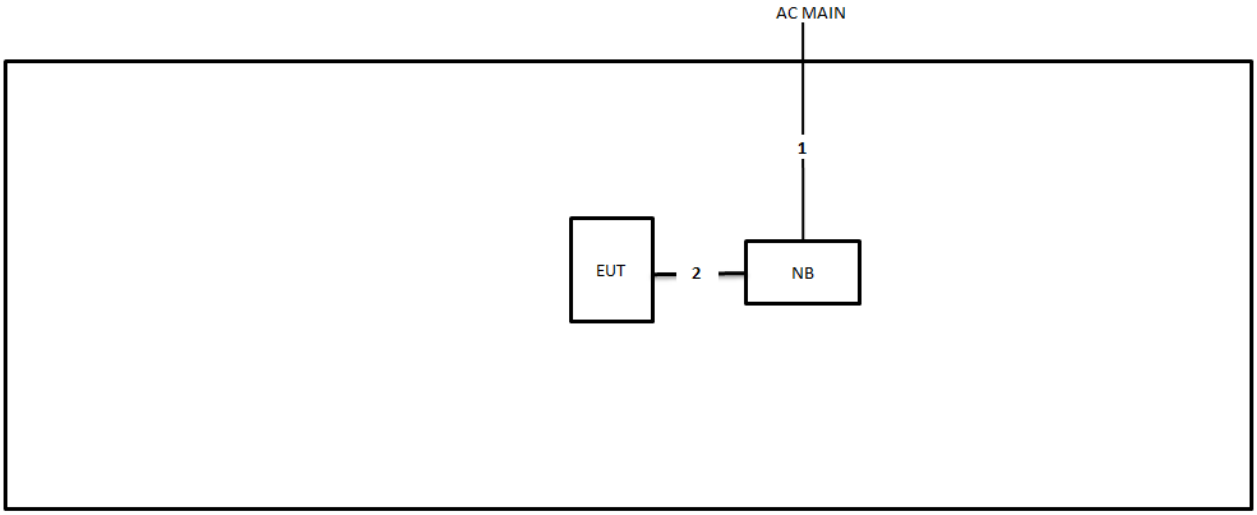
3.11.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	USB cable	Yes	0.1m
3	Audio cable	No	1.4m
4	USB cable	Yes	1.8m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	Power cable	No	1.5m
2	USB cable	Yes	0.1m

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

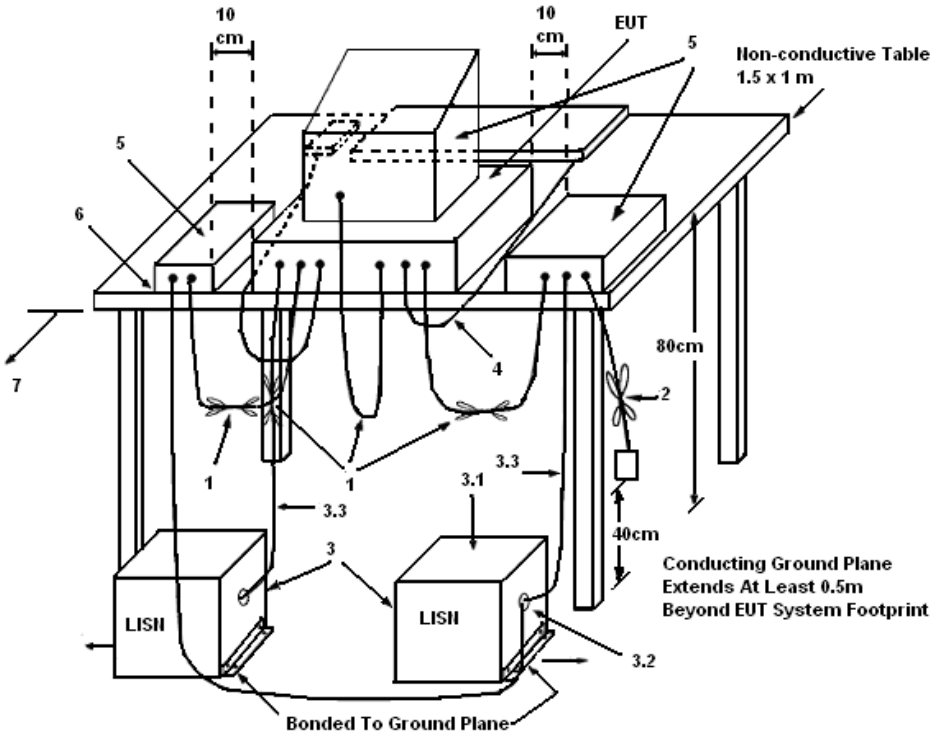
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

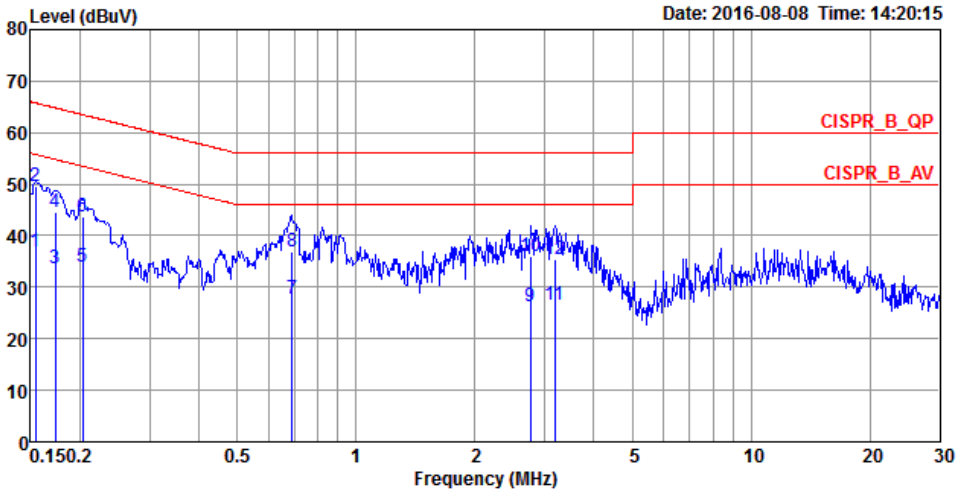
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

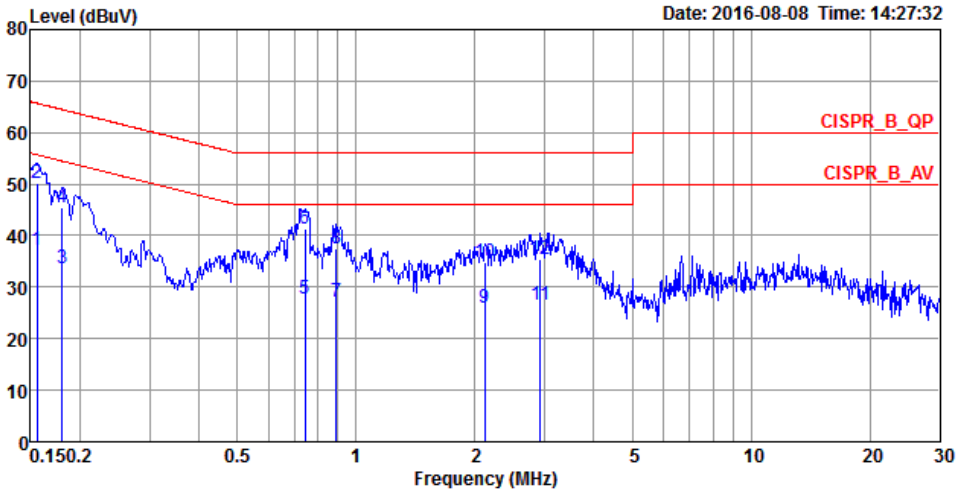
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	23°C	Humidity	62%
Test Engineer	Ryo Fan	Phase	Line
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1540	36.95	-18.83	55.78	26.83	9.96	0.16	Average	LINE
2	0.1540	49.58	-16.20	65.78	39.46	9.96	0.16	QP	LINE
3	0.1731	33.74	-21.07	54.81	23.62	9.96	0.16	Average	LINE
4	0.1731	44.63	-20.18	64.81	34.51	9.96	0.16	QP	LINE
5	0.2029	34.04	-19.45	53.49	23.91	9.95	0.18	Average	LINE
6	0.2029	43.67	-19.82	63.49	33.54	9.95	0.18	QP	LINE
7	0.6893	27.64	-18.36	46.00	17.42	10.03	0.19	Average	LINE
8	0.6893	36.95	-19.05	56.00	26.73	10.03	0.19	QP	LINE
9	2.7648	26.32	-19.68	46.00	15.94	10.09	0.29	Average	LINE
10	2.7648	35.90	-20.10	56.00	25.52	10.09	0.29	QP	LINE
11	3.1900	26.64	-19.36	46.00	16.24	10.10	0.30	Average	LINE
12	3.1900	35.45	-20.55	56.00	25.05	10.10	0.30	QP	LINE

Temperature	23°C	Humidity	62%
Test Engineer	Ryo Fan	Phase	Neutral
Configuration	Normal Link	Test Mode	Mode 1



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1557	37.29	-18.40	55.69	27.17	9.96	0.16	Average	NEUTRAL
2	0.1557	50.20	-15.49	65.69	40.08	9.96	0.16	QP	NEUTRAL
3	0.1806	33.79	-20.67	54.46	23.65	9.96	0.18	Average	NEUTRAL
4	0.1806	45.46	-19.00	64.46	35.32	9.96	0.18	QP	NEUTRAL
5	0.7430	27.82	-18.18	46.00	17.66	9.97	0.19	Average	NEUTRAL
6	0.7430	41.23	-14.77	56.00	31.07	9.97	0.19	QP	NEUTRAL
7	0.8897	27.25	-18.75	46.00	17.09	9.97	0.19	Average	NEUTRAL
8	0.8897	37.53	-18.47	56.00	27.37	9.97	0.19	QP	NEUTRAL
9	2.1213	25.91	-20.09	46.00	15.66	9.99	0.26	Average	NEUTRAL
10	2.1213	34.84	-21.16	56.00	24.59	9.99	0.26	QP	NEUTRAL
11	2.9307	26.67	-19.33	46.00	16.37	10.01	0.29	Average	NEUTRAL
12	2.9307	35.55	-20.45	56.00	25.25	10.01	0.29	QP	NEUTRAL

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

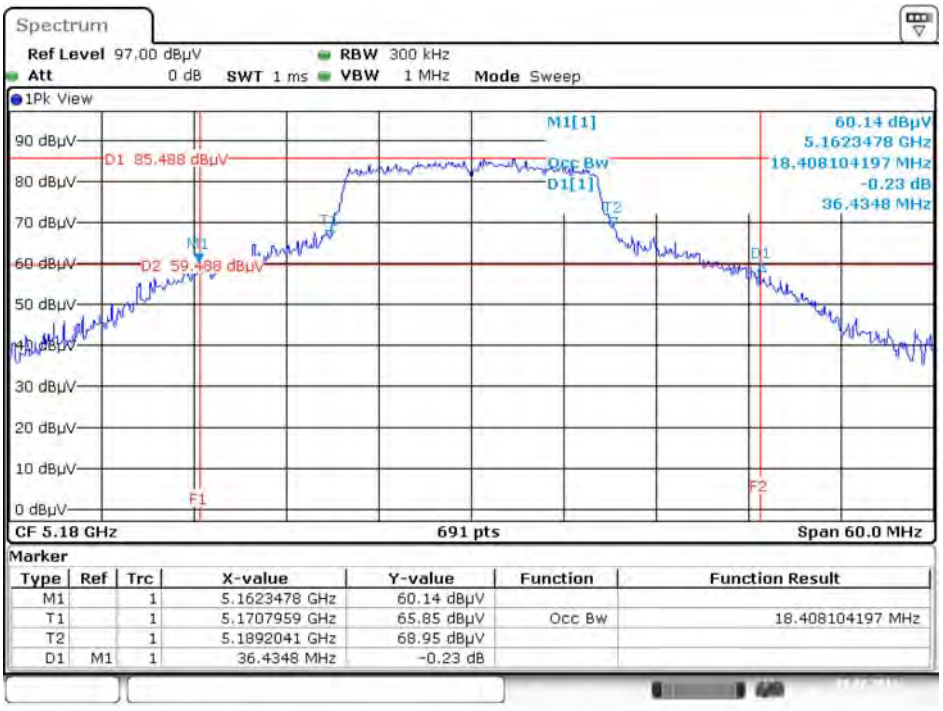
Temperature	25°C	Humidity	56%
Test Engineer	Gary Chu		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	36.44	18.41
	5200 MHz	29.83	17.11
	5240 MHz	33.57	18.41
	5260 MHz	30.44	17.02
	5300 MHz	22.44	16.85
	5320 MHz	27.39	17.19
	5500 MHz	29.30	16.93
	5580 MHz	39.57	24.49
	5700 MHz	30.00	17.28
	5745 MHz	42.44	26.83
	5785 MHz	40.35	26.05
	5825 MHz	43.30	28.65
802.11n MCS0 HT20	5180 MHz	24.70	17.80
	5200 MHz	26.78	17.89
	5240 MHz	25.57	17.89
	5260 MHz	32.17	18.06
	5300 MHz	21.74	17.89
	5320 MHz	28.87	17.97
	5500 MHz	24.70	17.89
	5580 MHz	25.39	17.97
	5700 MHz	36.87	19.28
	5745 MHz	34.78	18.41
	5785 MHz	42.35	26.05
	5825 MHz	34.96	18.41
802.11n MCS0 HT40	5190 MHz	41.30	36.61
	5230 MHz	70.87	37.34
	5270 MHz	80.29	39.22
	5310 MHz	41.88	36.32
	5510 MHz	41.74	36.32
	5550 MHz	56.96	36.76
	5670 MHz	59.42	36.76
	5755 MHz	57.97	36.90
	5795 MHz	56.52	36.90

Straddle Channel

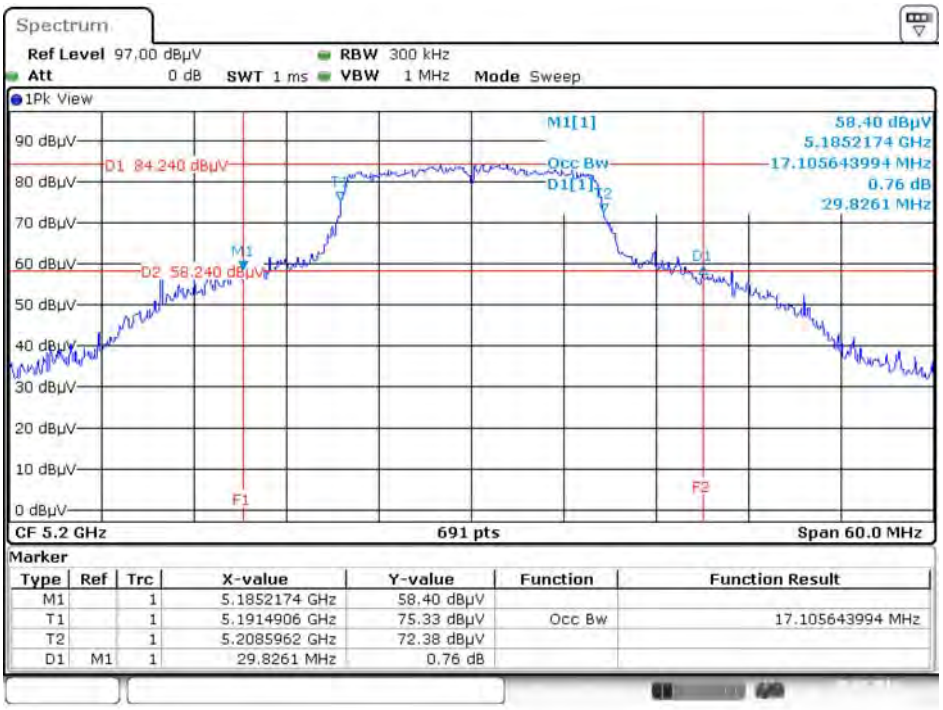
Mode	Frequency	26dB BW (MHz)	99% OBW (MHz)	26dB BW F1 (MHz)	99% OBW T1 (MHz)	UNII 2C 26dB BW (MHz)	UNII 3 26dB BW (MHz)	UNII 2C 99% BW (MHz)	UNII 3 99% BW (MHz)
802.11a	5720 MHz	42.96	28.39	5698.09	5705.76	26.91	16.04	19.24	9.15
802.11n MCS0 HT20	5720 MHz	46.52	29.96	5696.52	5705.15	28.48	18.04	19.85	10.11
802.11n MCS0 HT40	5710 MHz	49.13	36.76	5685.07	5691.77	39.93	9.20	33.23	3.52

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5180 MHz



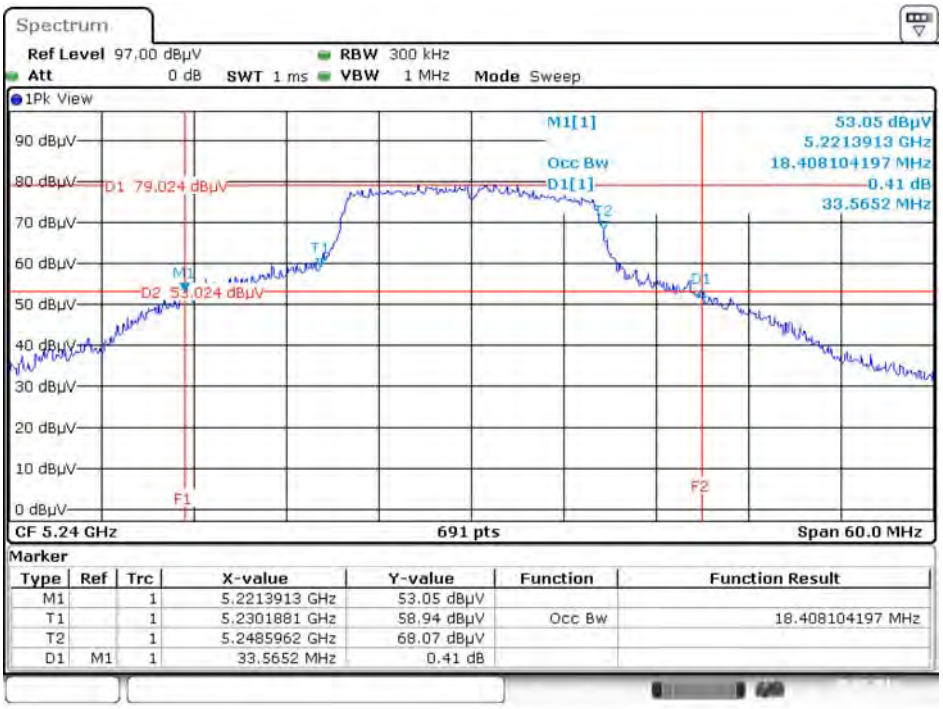
Date: 29.JUL.2016 14:03:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5200 MHz



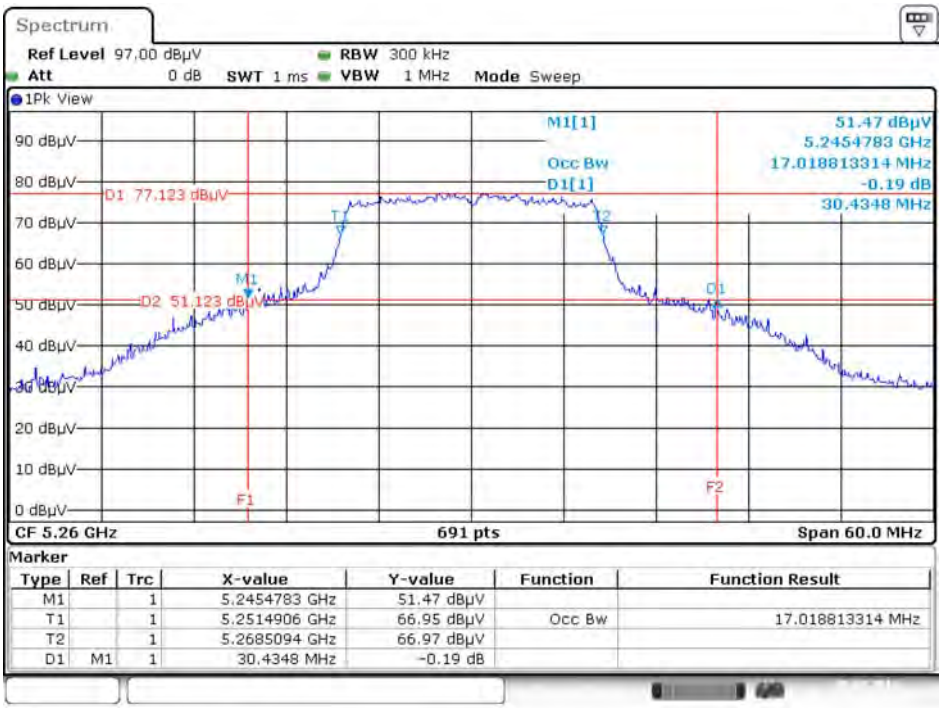
Date: 29.JUL.2016 14:05:03

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5240 MHz



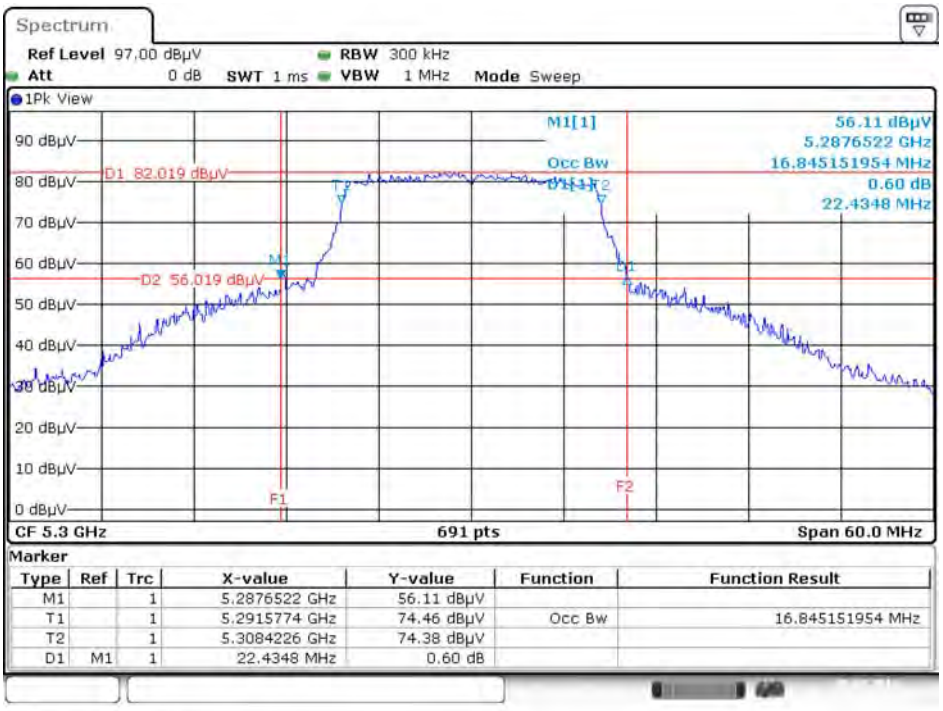
Date: 29.JUL.2016 14:06:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5260 MHz



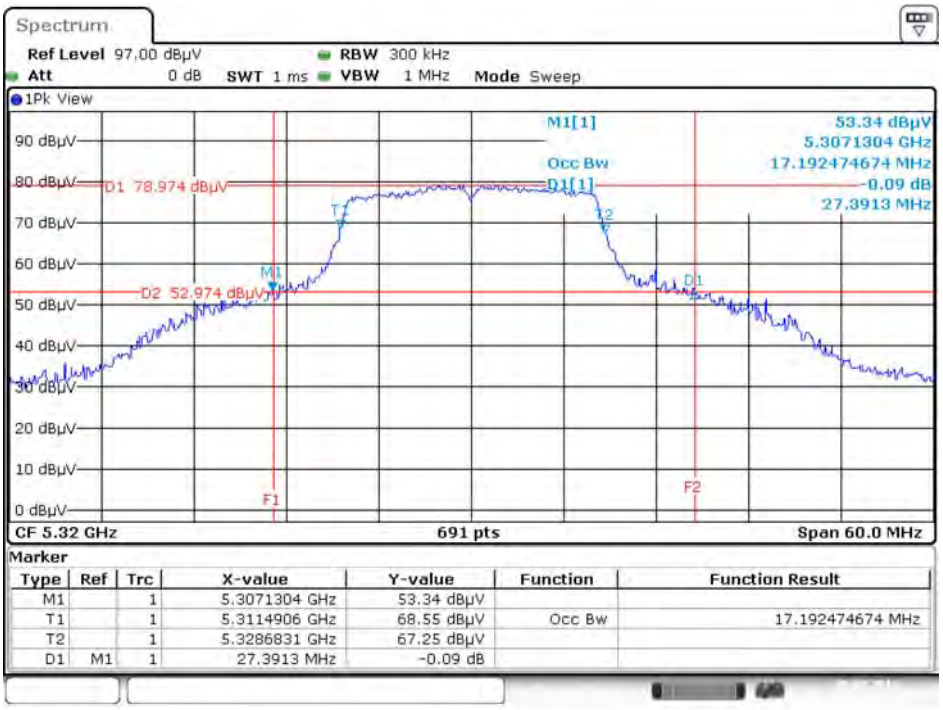
Date: 29.JUL.2016 14:07:20

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5300 MHz



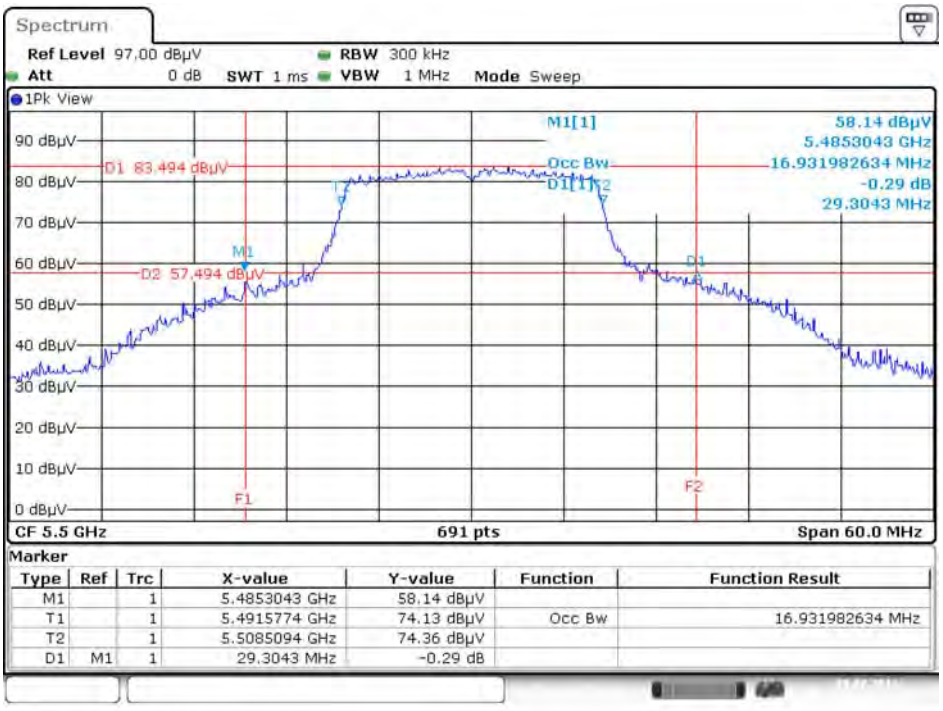
Date: 29.JUL.2016 14:08:12

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5320 MHz



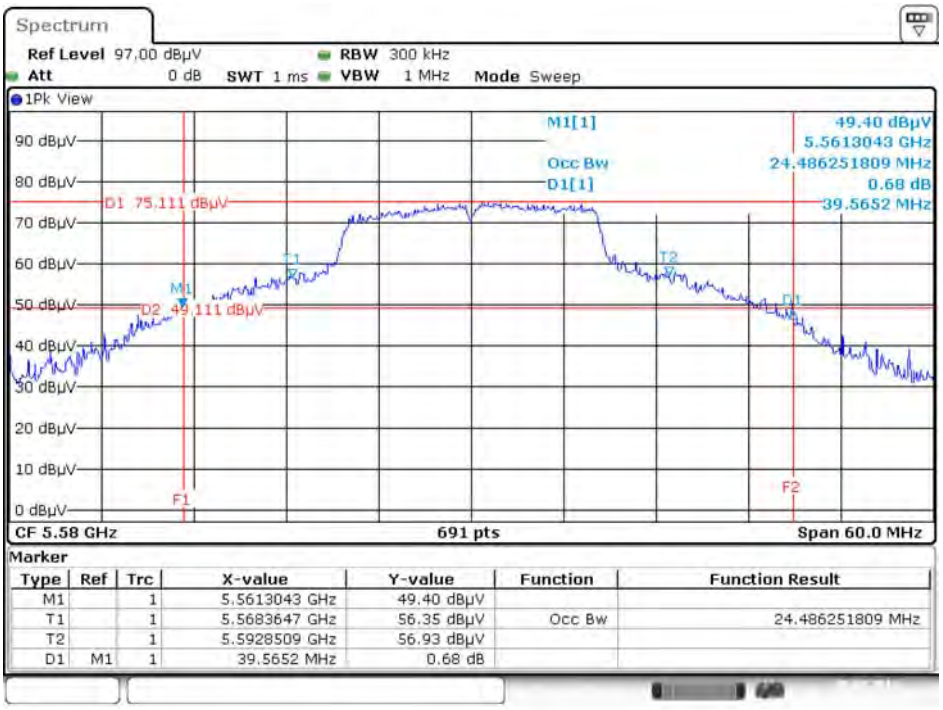
Date: 29.JUL.2016 14:09:04

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5500 MHz



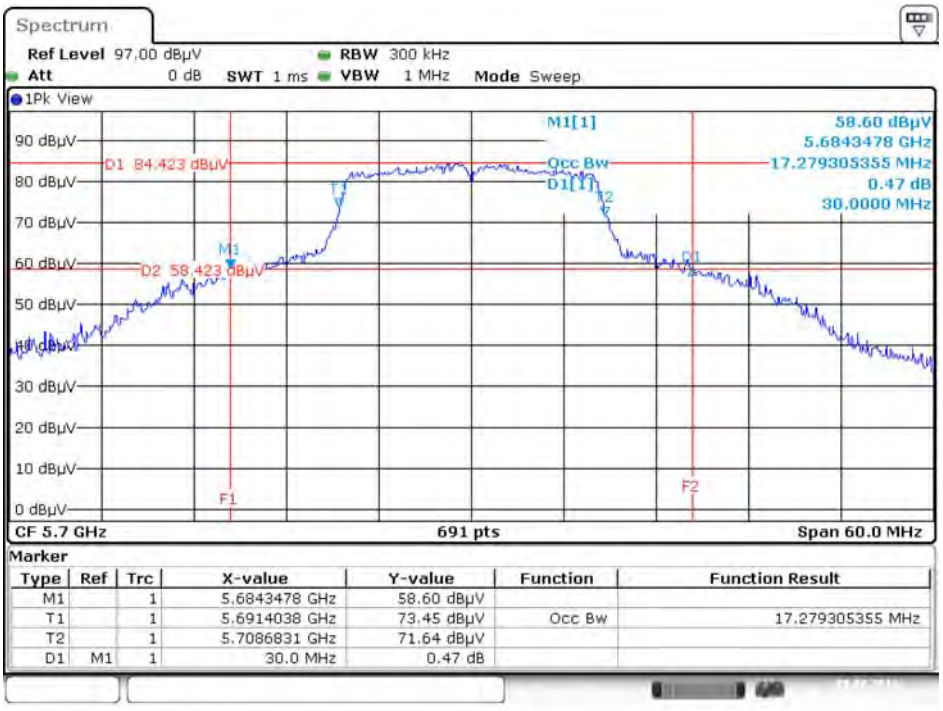
Date: 29.JUL.2016 14:10:00

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5580 MHz



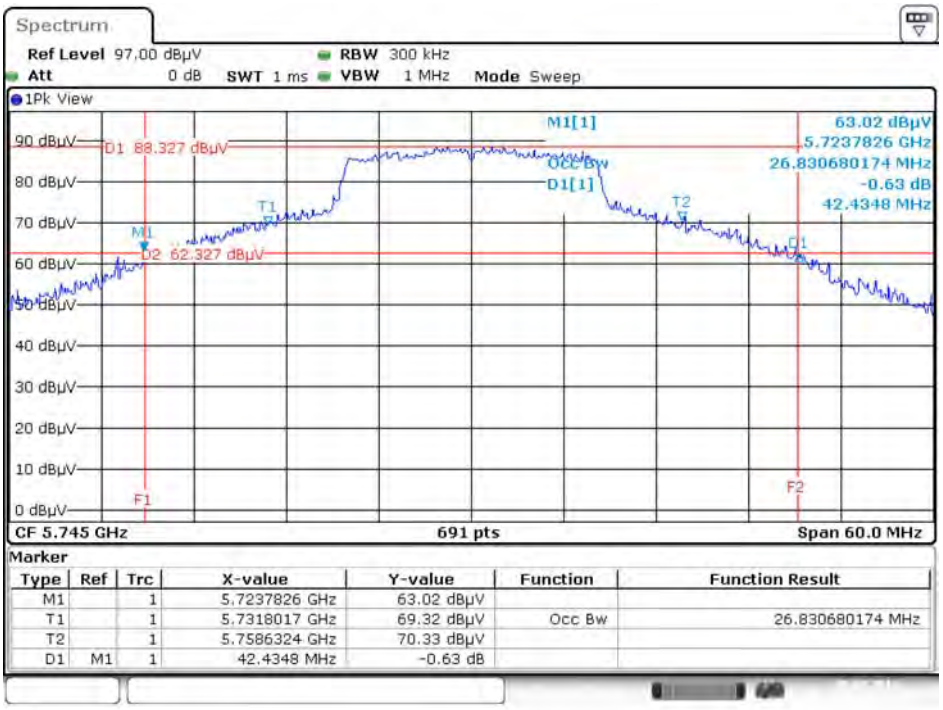
Date: 29.JUL.2016 14:10:56

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5700 MHz



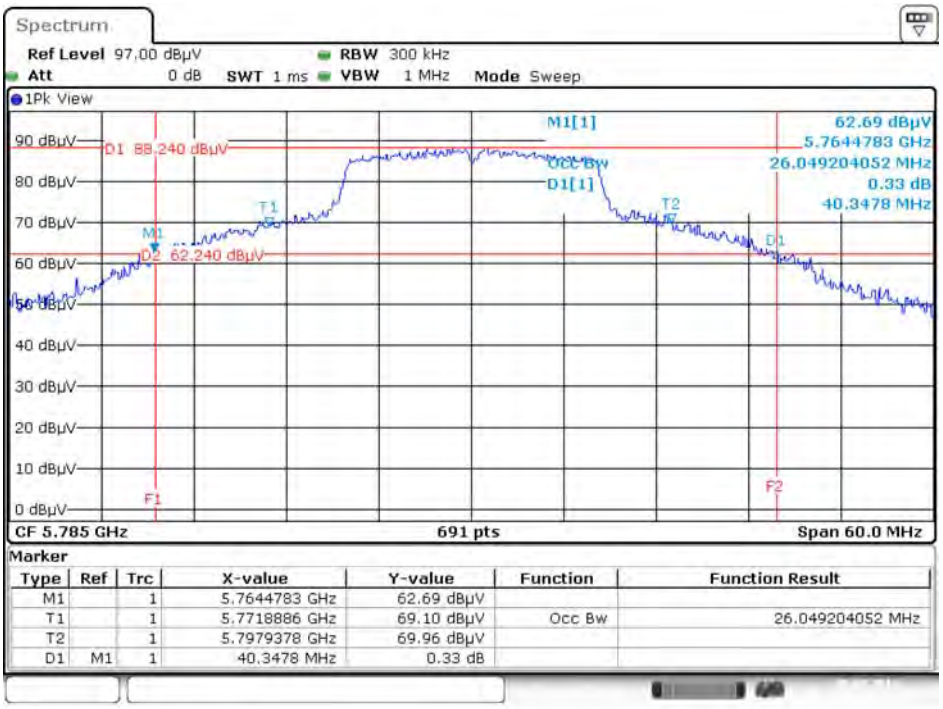
Date: 29.JUL.2016 14:11:45

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz



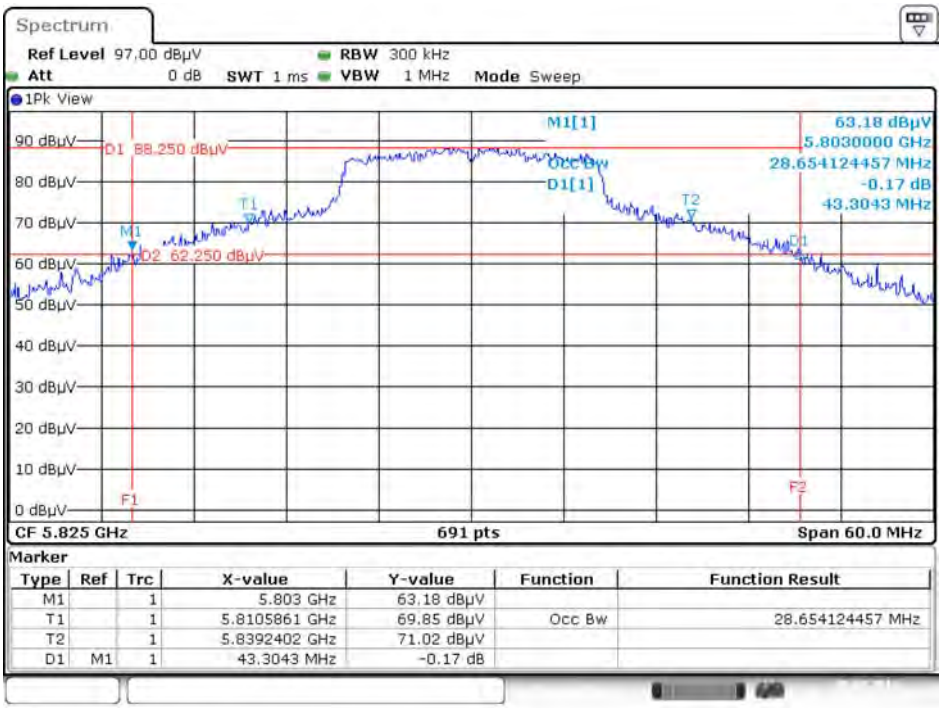
Date: 29.JUL.2016 14:17:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5785 MHz



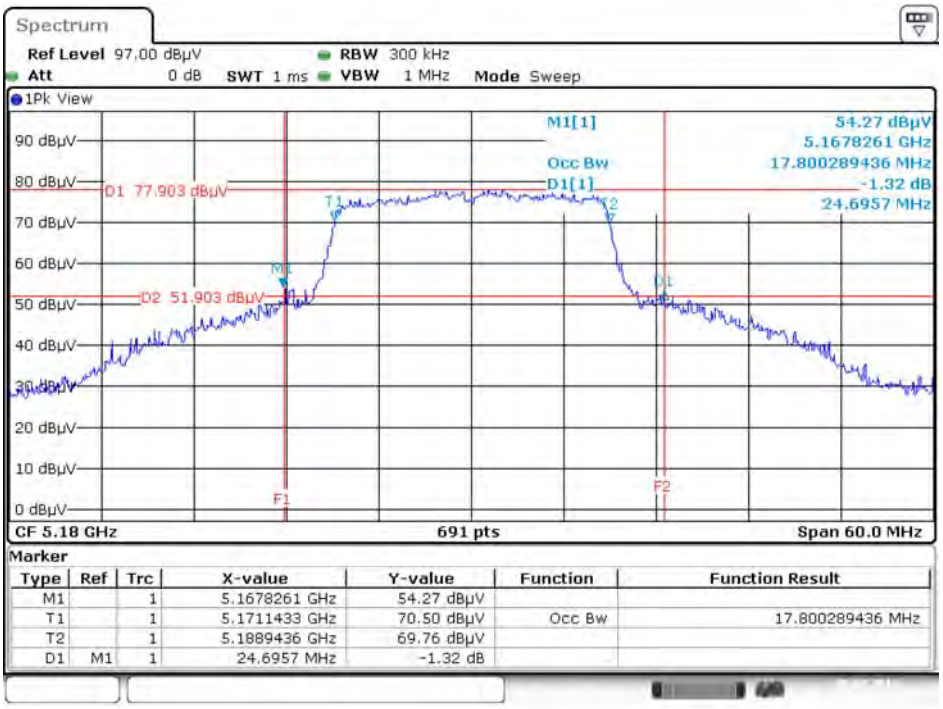
Date: 29.JUL.2016 14:20:16

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz



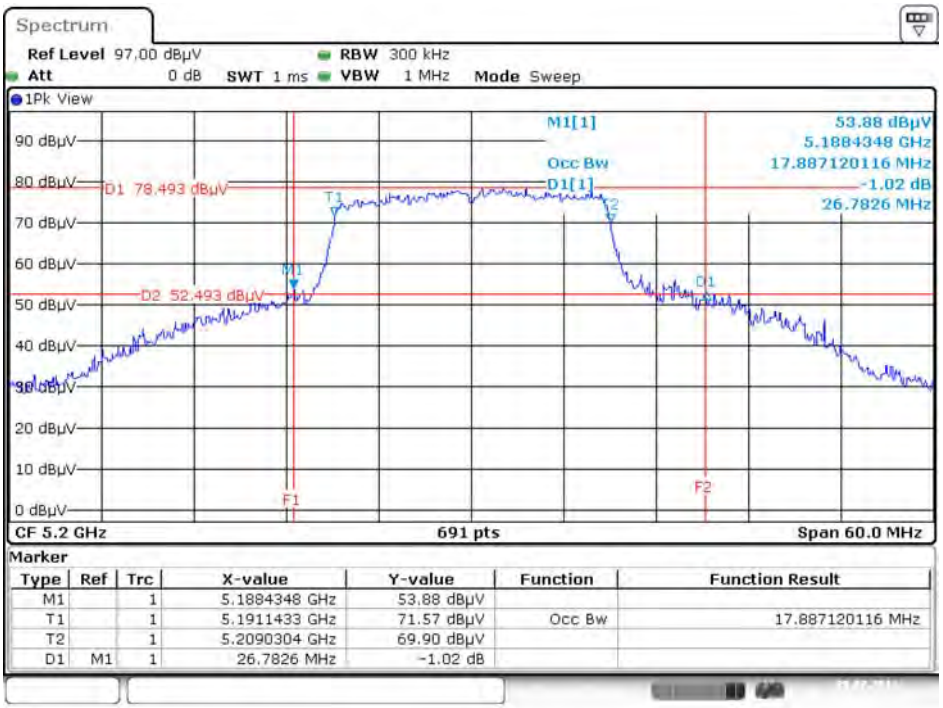
Date: 29.JUL.2016 14:22:18

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5180 MHz



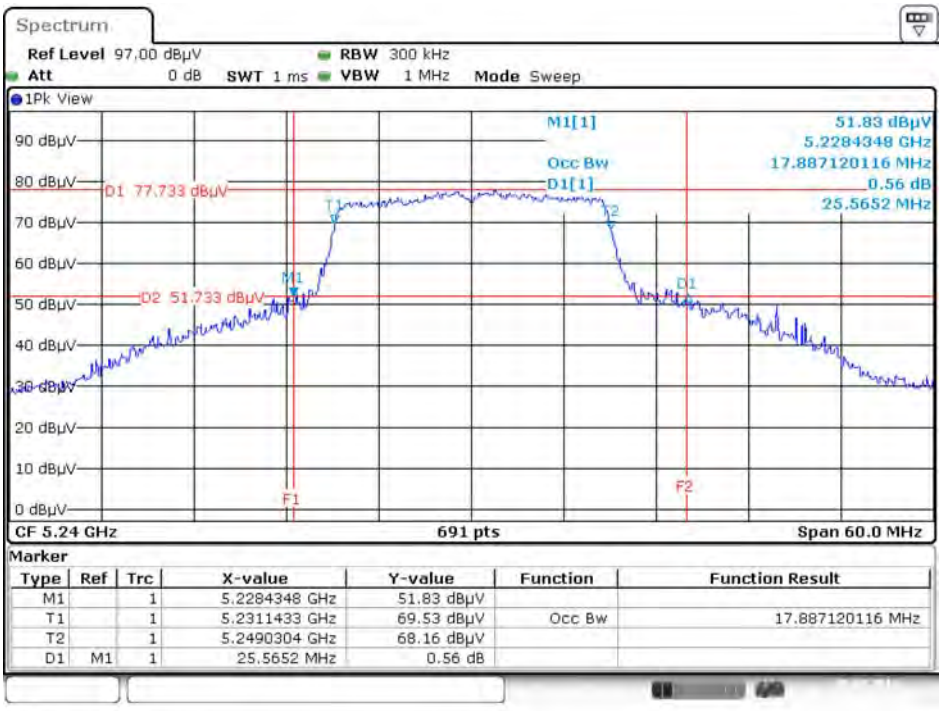
Date: 29.JUL.2016 14:24:26

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5200 MHz



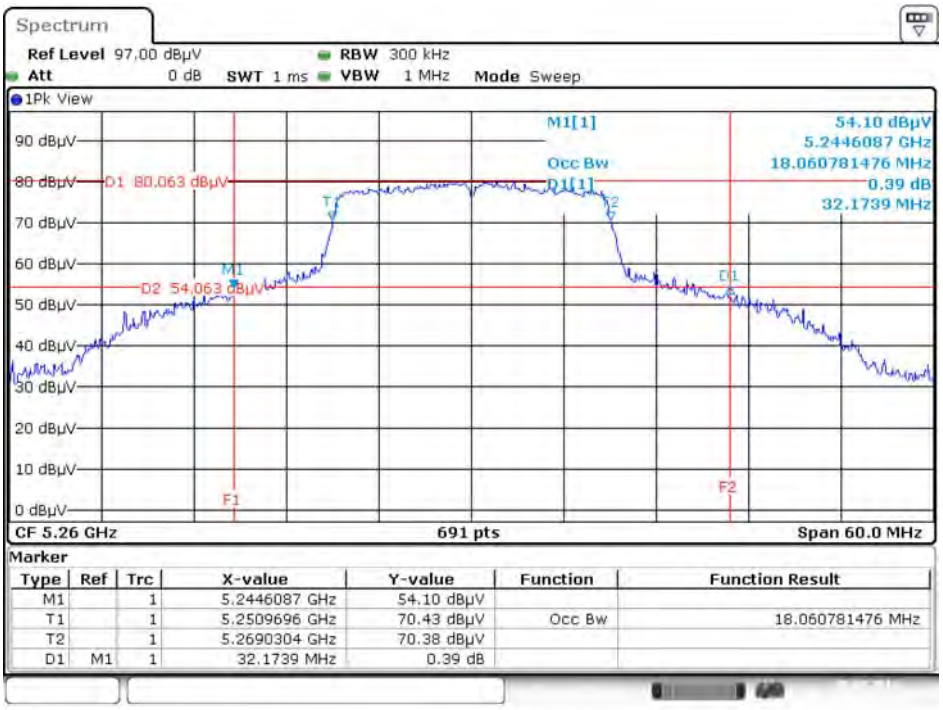
Date: 29.JUL.2016 14:26:31

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5240 MHz



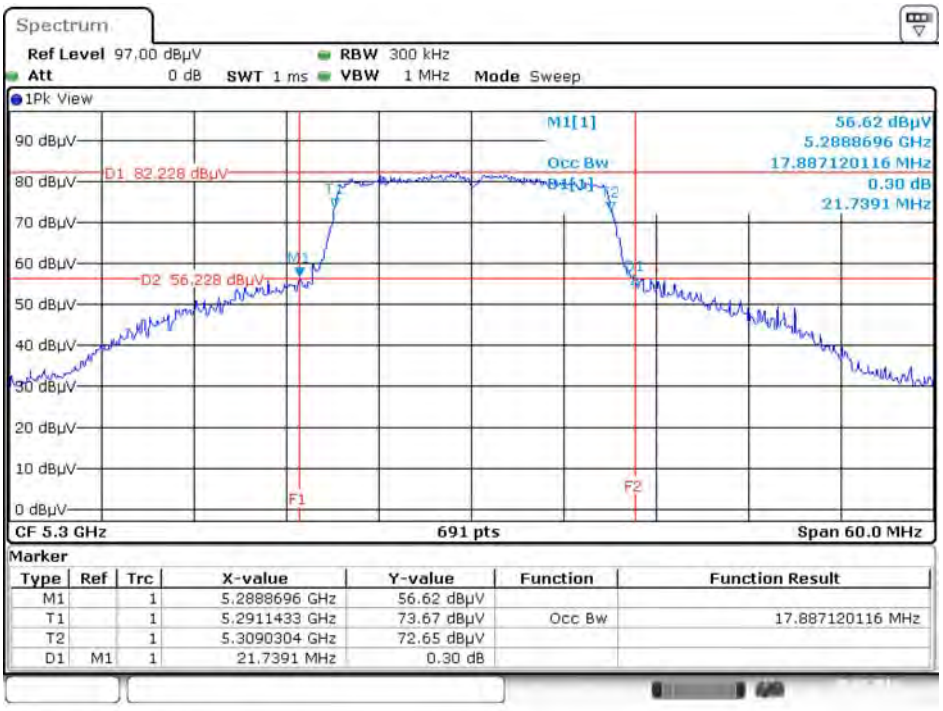
Date: 29.JUL.2016 14:27:29

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



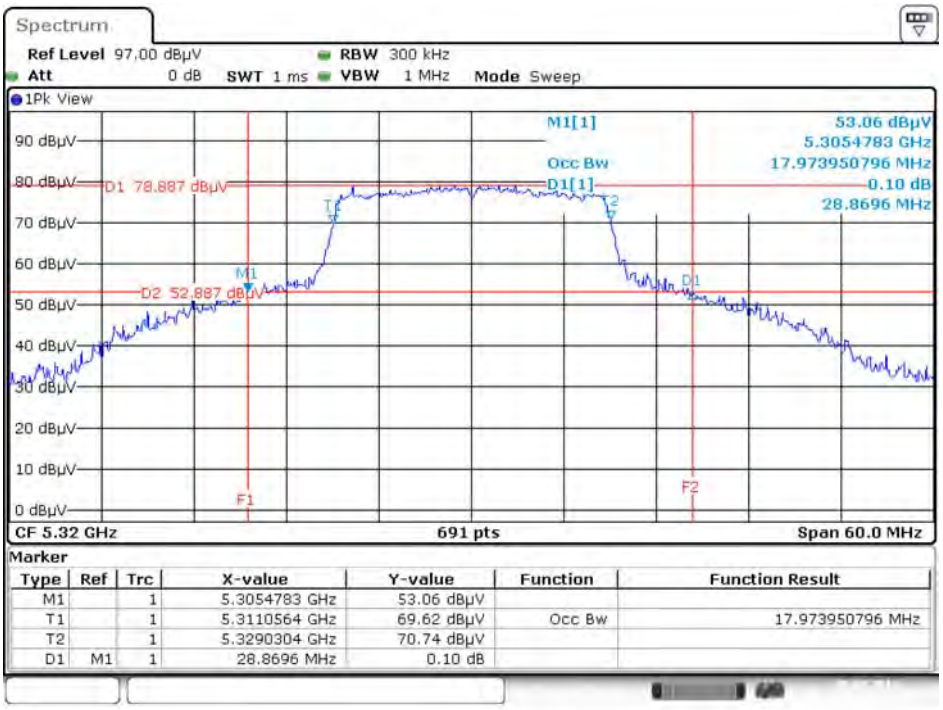
Date: 29.JUL.2016 14:32:48

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



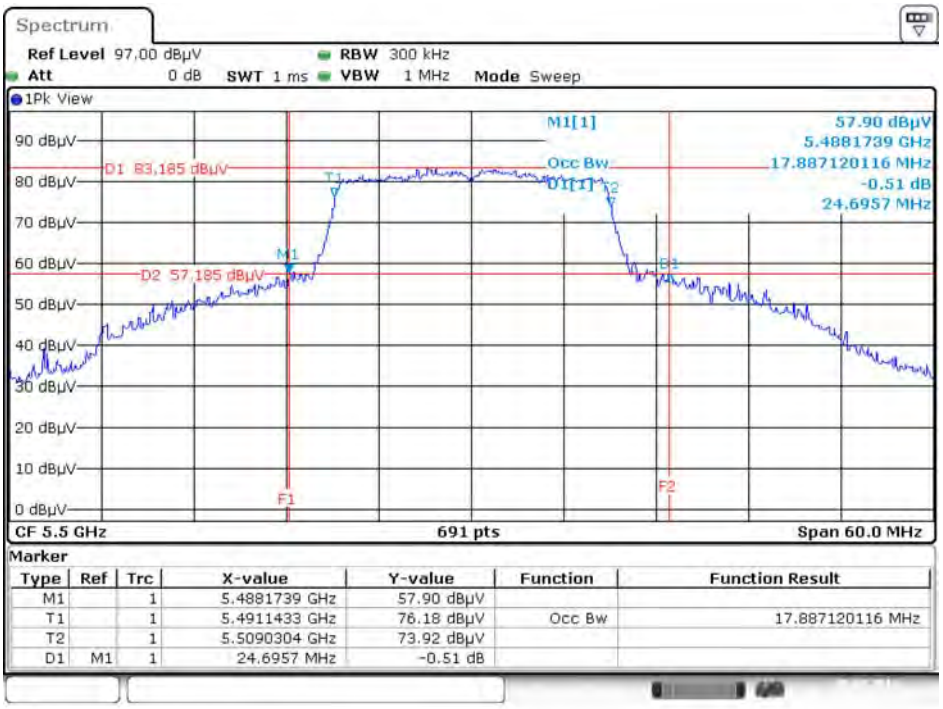
Date: 29.JUL.2016 14:38:37

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



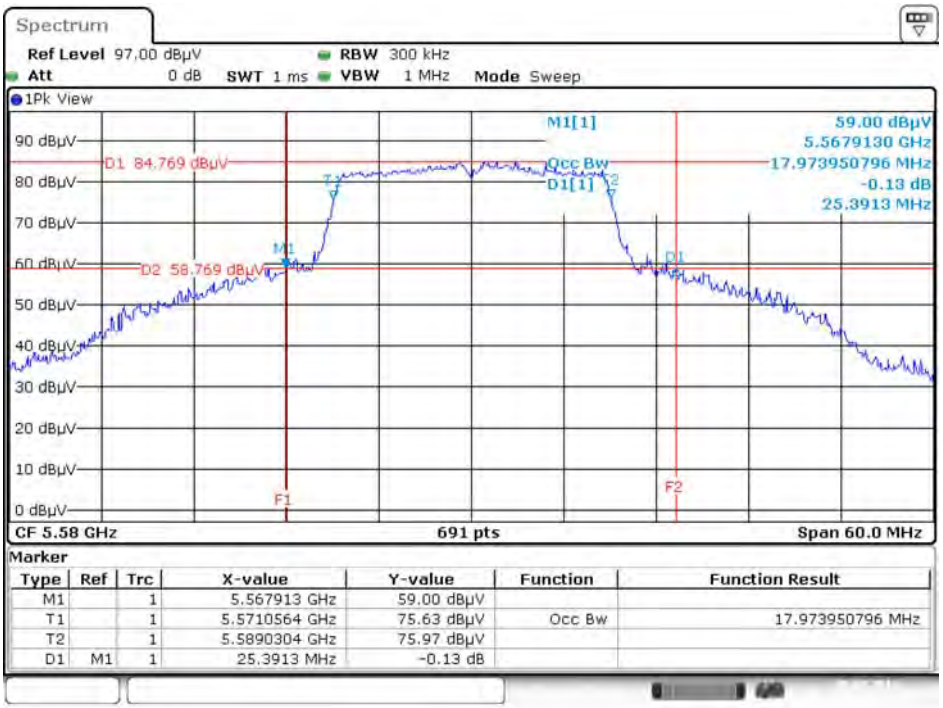
Date: 29.JUL.2016 14:39:39

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



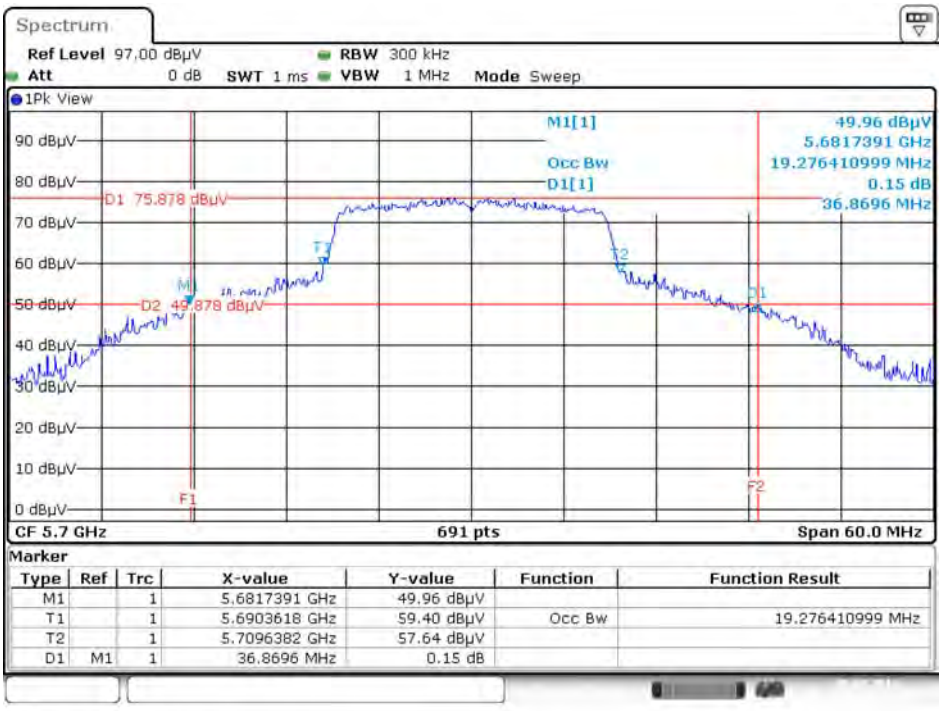
Date: 29.JUL.2016 14:41:03

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



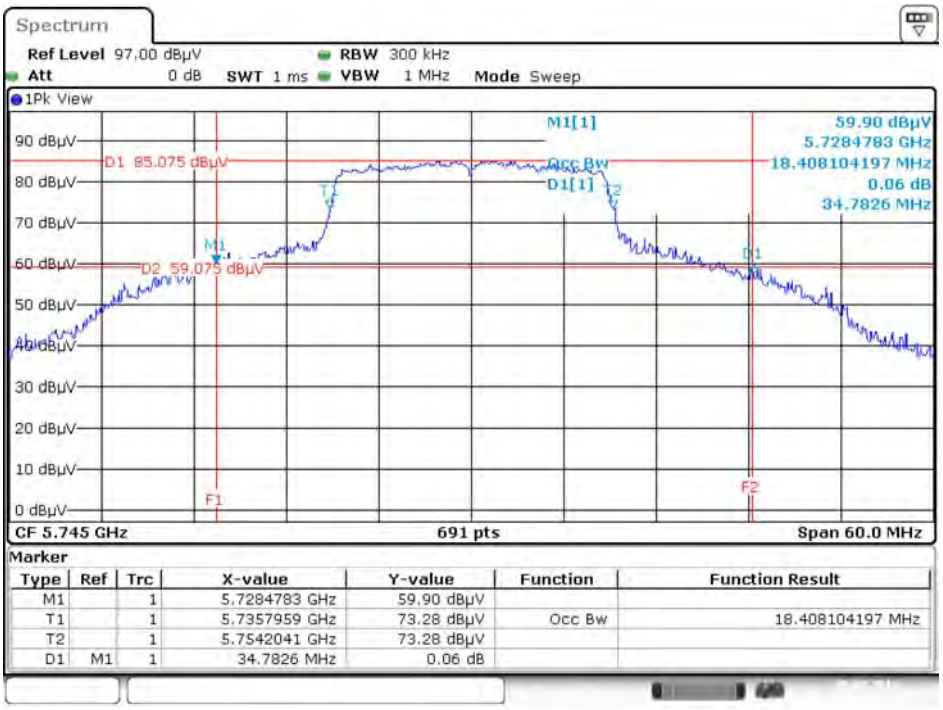
Date: 29.JUL.2016 14:43:07

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



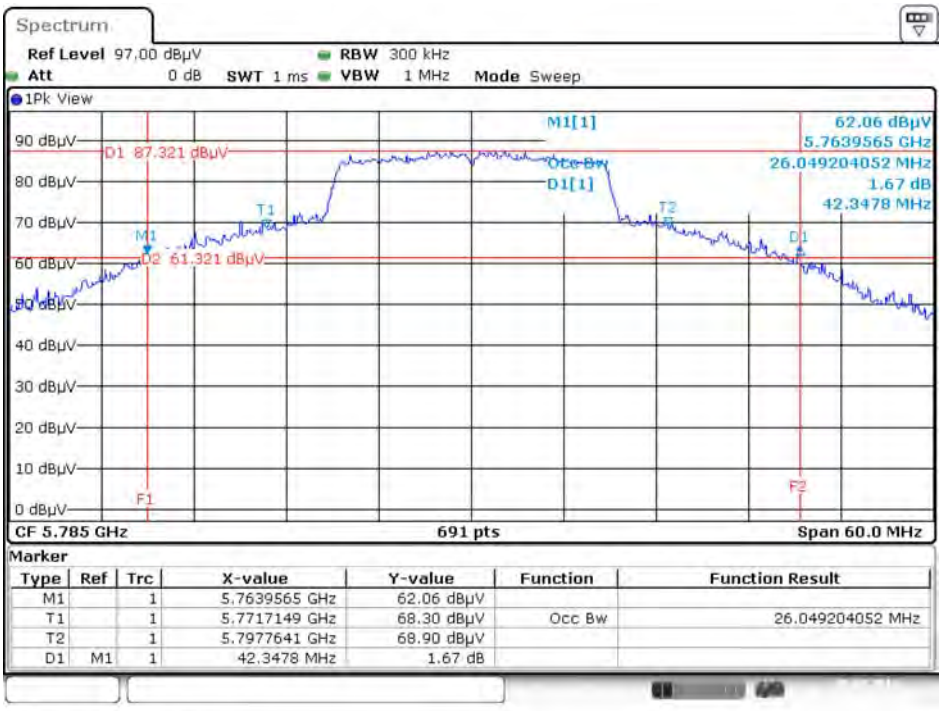
Date: 29.JUL.2016 14:43:55

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5745 MHz



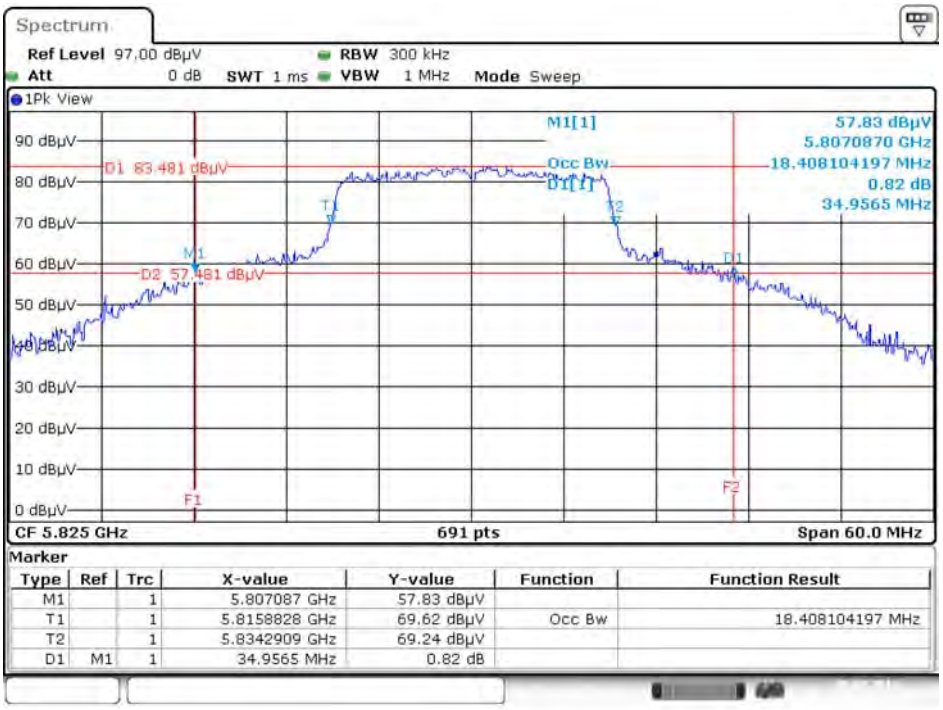
Date: 29.JUL.2016 14:45:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5785 MHz



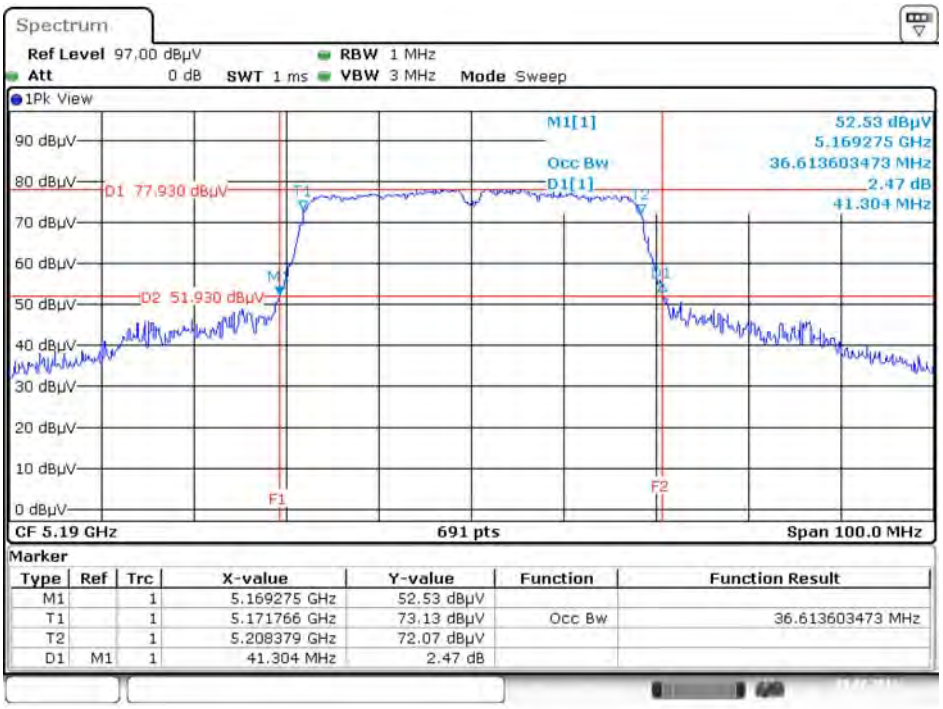
Date: 29.JUL.2016 14:47:15

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5825 MHz



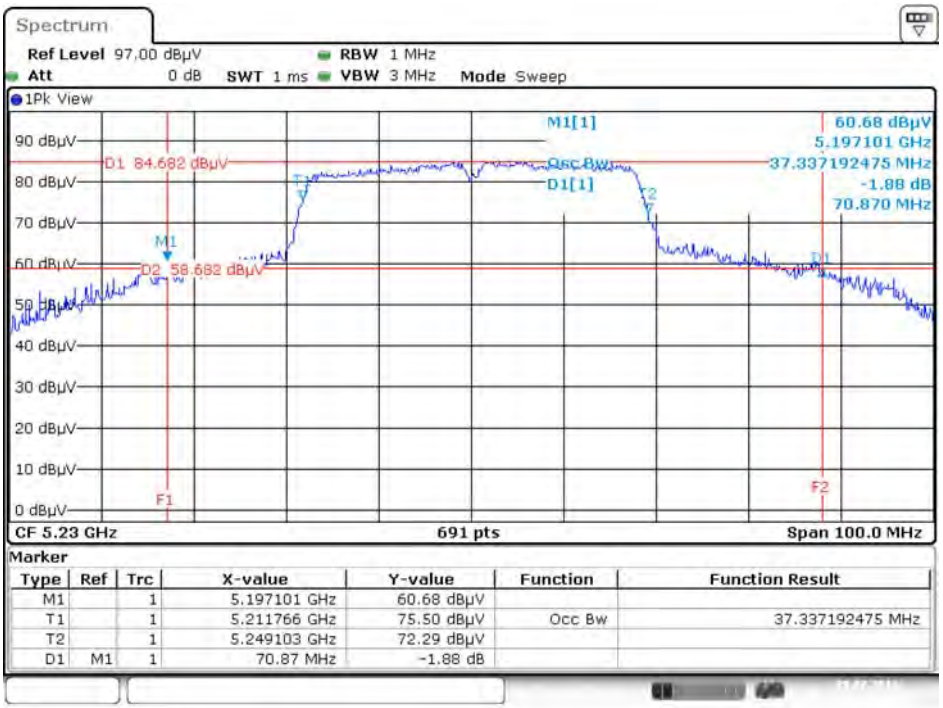
Date: 29.JUL.2016 14:51:44

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5190 MHz



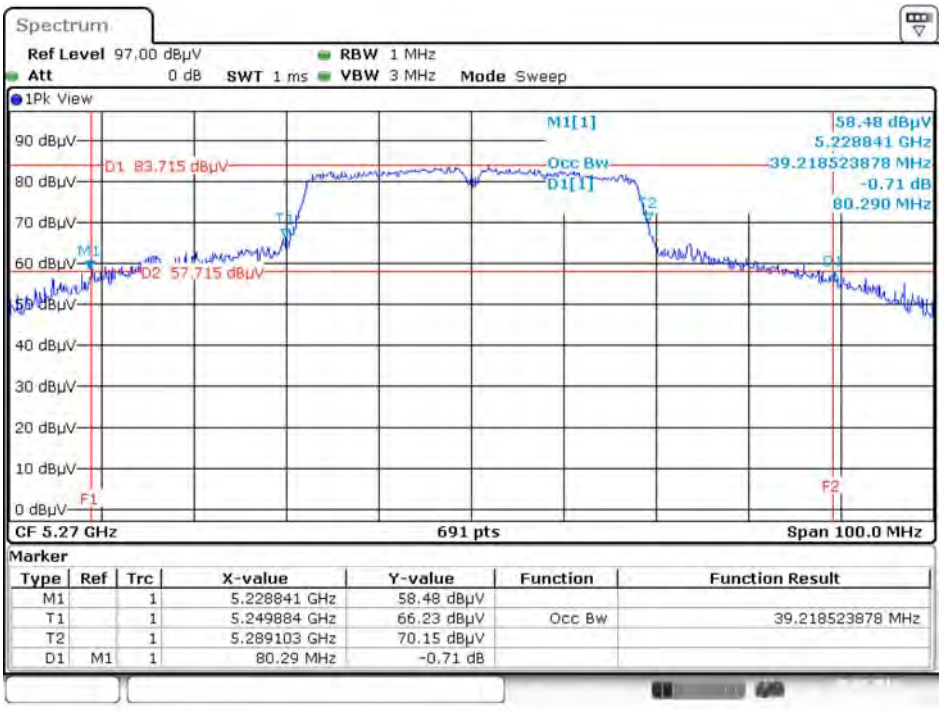
Date: 29.JUL.2016 14:57:06

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5230 MHz



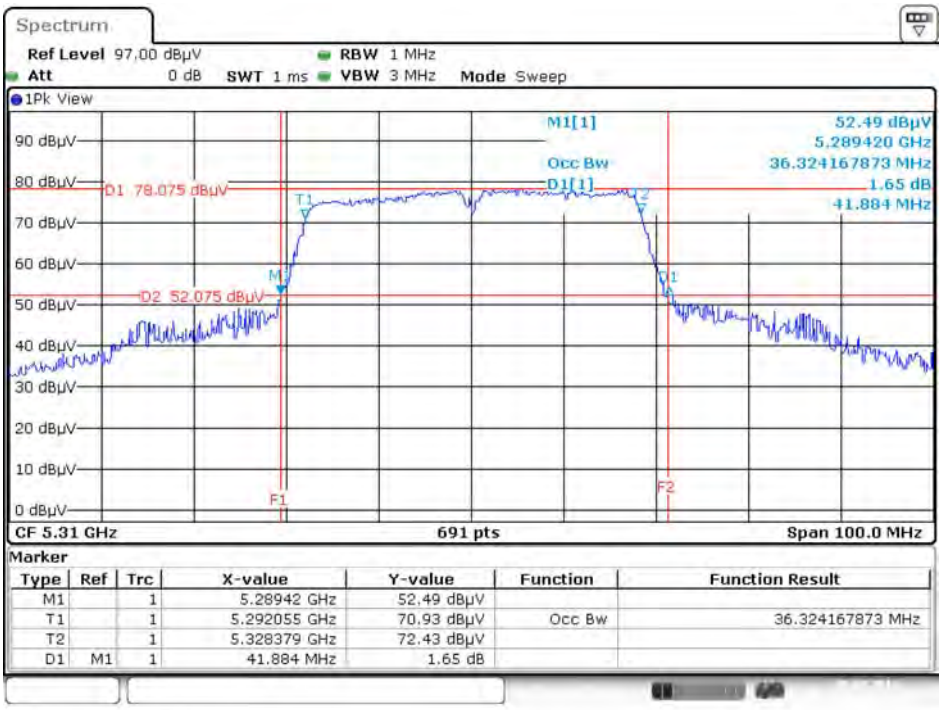
Date: 29.JUL.2016 14:59:00

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



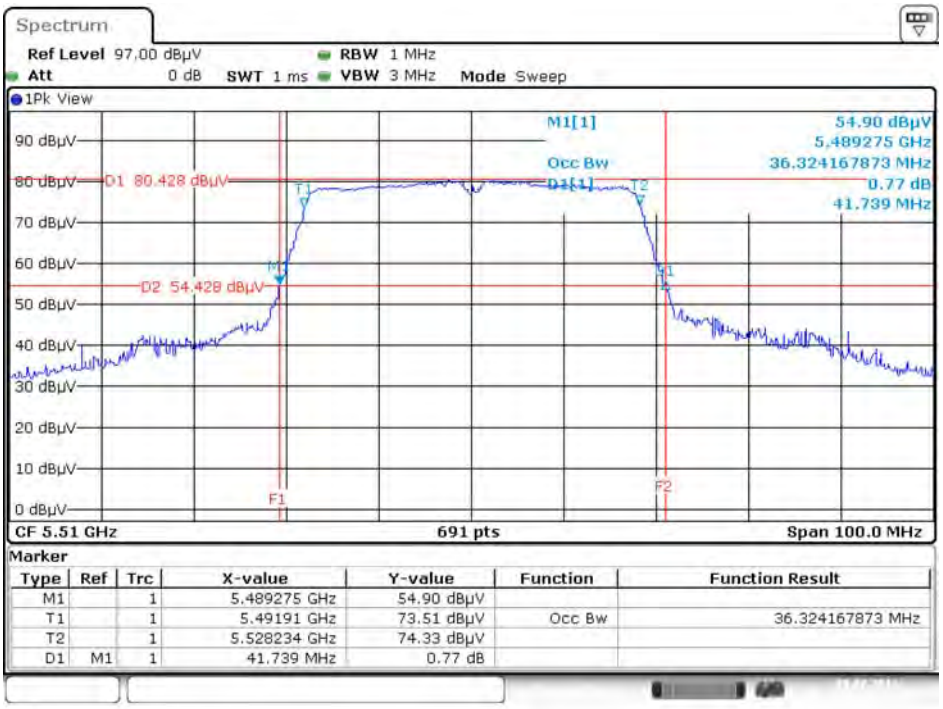
Date: 29.JUL.2016 15:00:20

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



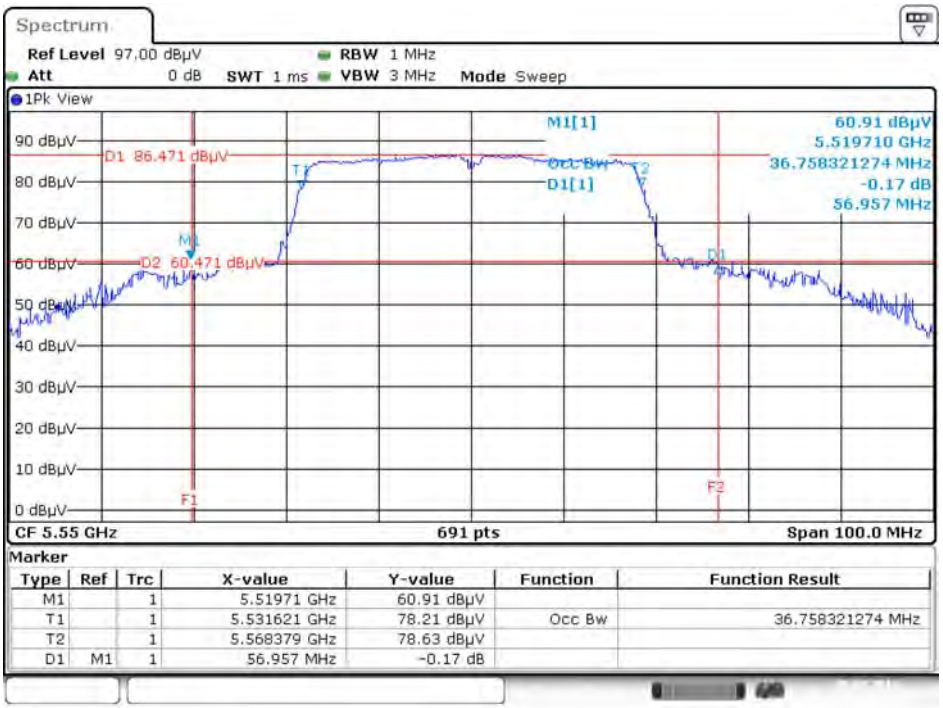
Date: 29.JUL.2016 15:01:42

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



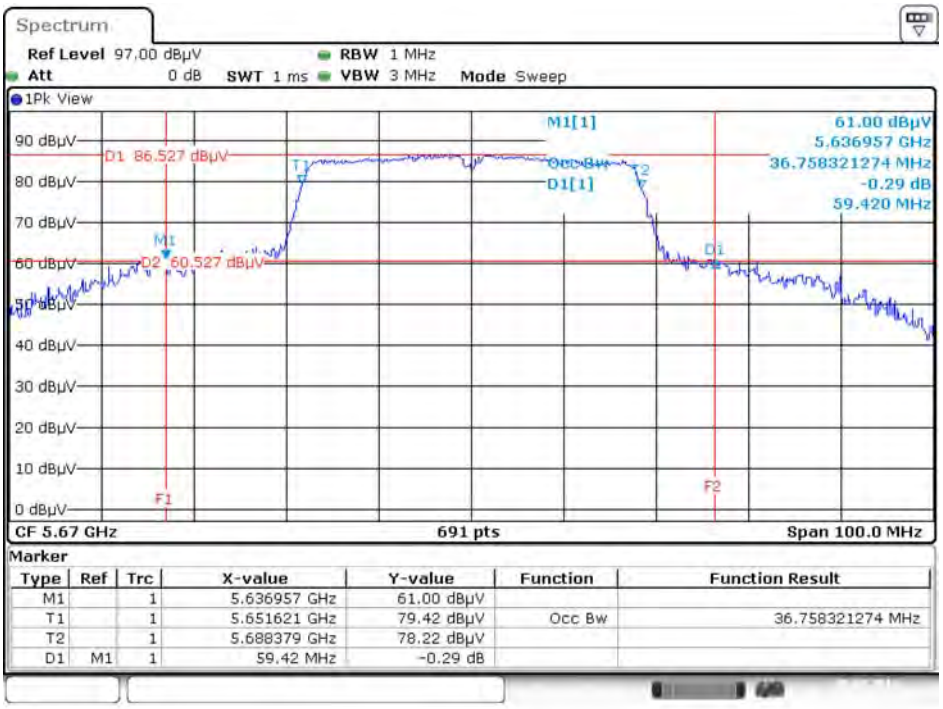
Date: 29.JUL.2016 15:03:28

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



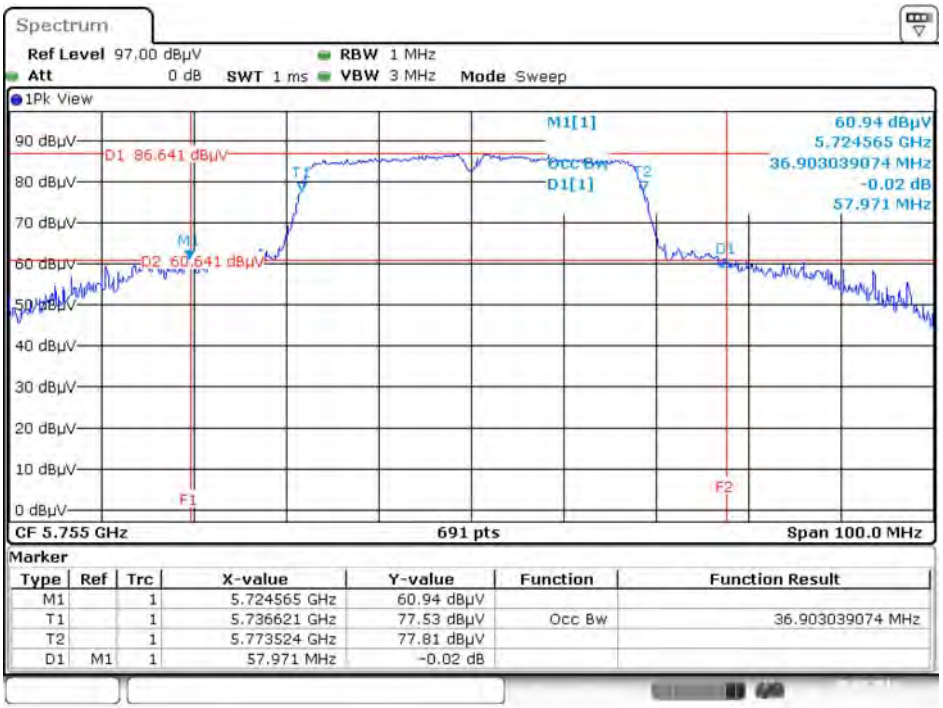
Date: 29.JUL.2016 15:05:21

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



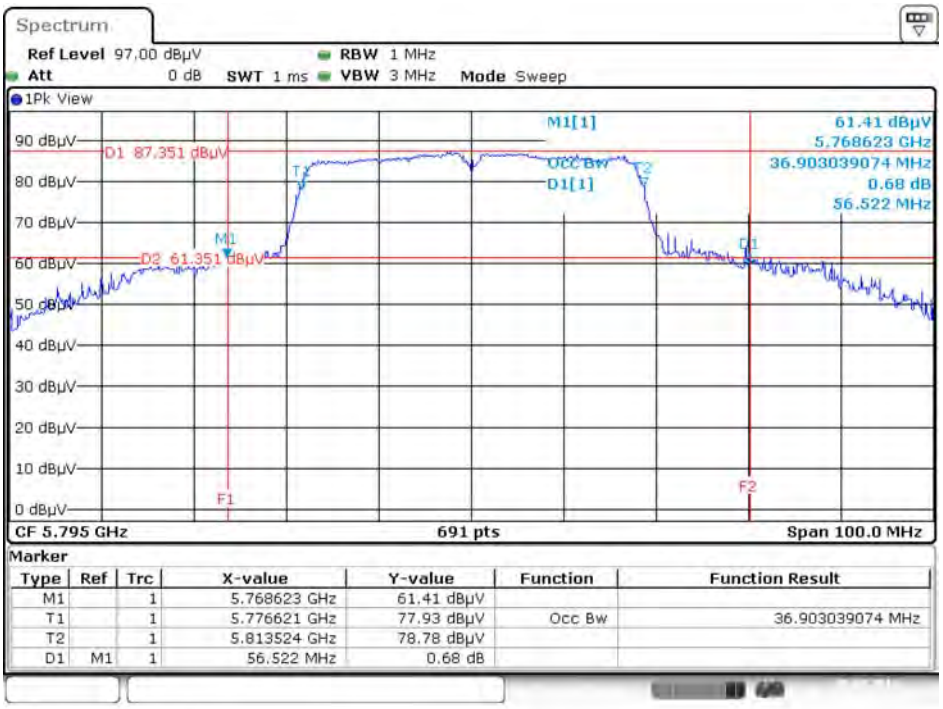
Date: 29.JUL.2016 15:06:36

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5755 MHz



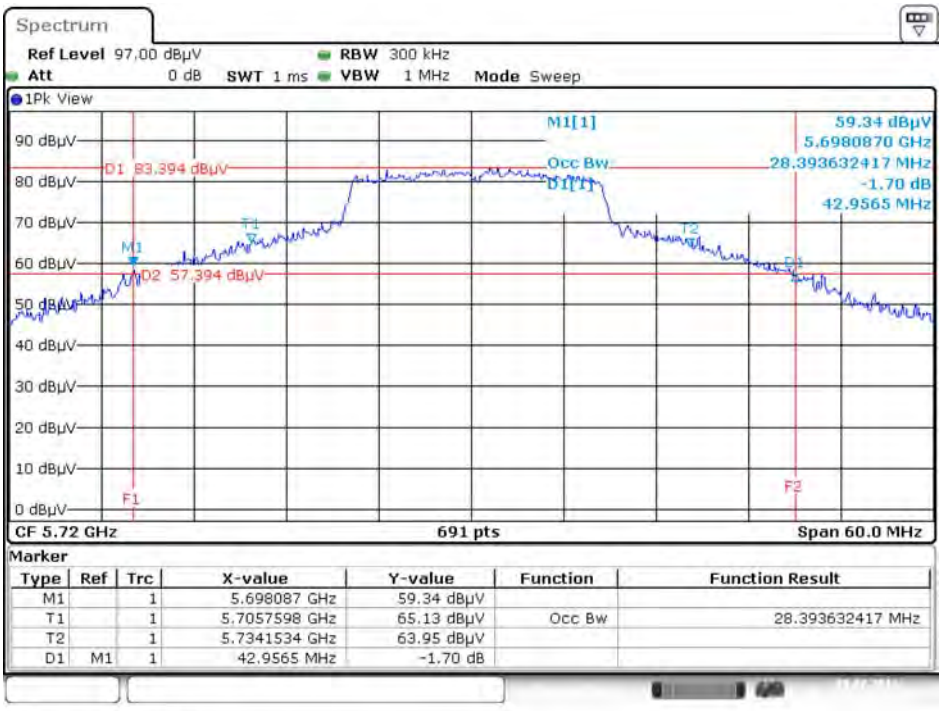
Date: 29.JUL.2016 15:09:34

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2/ 5795 MHz



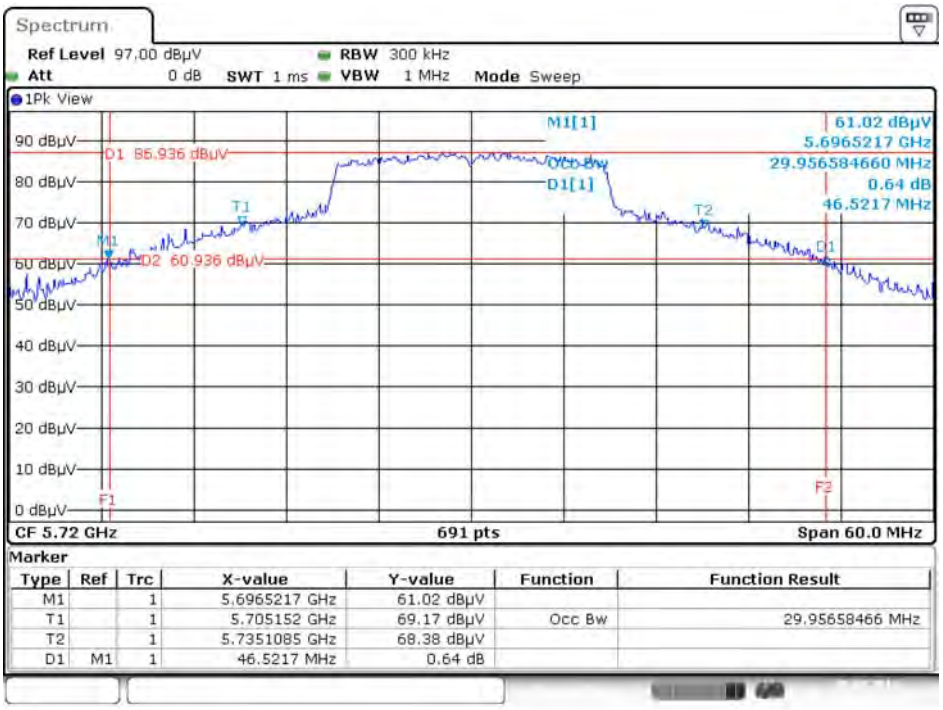
Straddle Channel

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5720 MHz



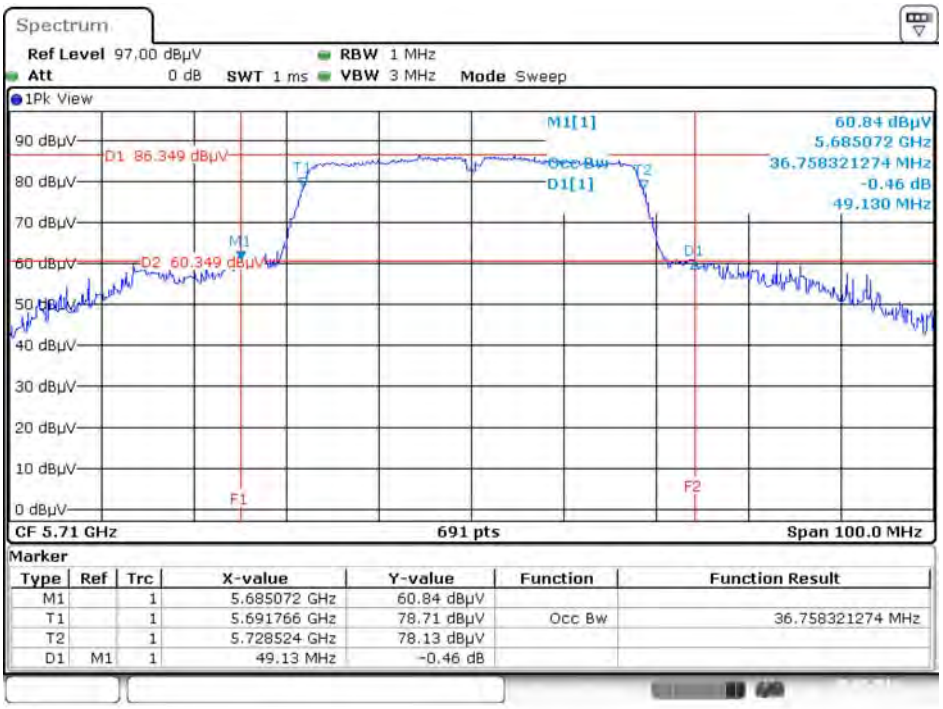
Date: 29.JUL.2016 16:27:22

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5720 MHz



Date: 29.JUL.2016 16:35:39

26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5710 MHz



4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

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 spectrum analyzer.

6dB Spectrum Bandwidth	
Spectrum Parameters	**Setting**
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	100kHz
VBW	≥ 3 x RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

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 6dB Spectrum Bandwidth

Temperature	25°C	Humidity	56%
Test Engineer	Gary Chu		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.41	500	Complies
	5785 MHz	16.46	500	Complies
	5825 MHz	16.35	500	Complies
802.11n MCS0 HT20	5745 MHz	17.33	500	Complies
	5785 MHz	17.22	500	Complies
	5825 MHz	17.33	500	Complies
802.11n MCS0 HT40	5755 MHz	35.13	500	Complies
	5795 MHz	33.74	500	Complies

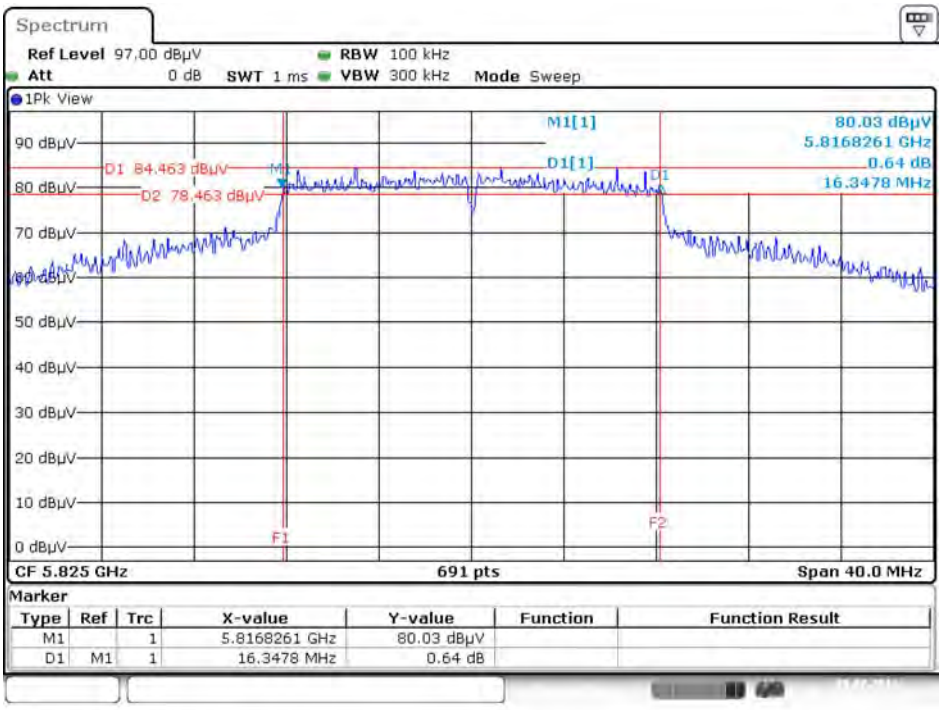
Straddle Channel

Mode	Frequency	6dB BW (MHz)	6dB BW M1 (MHz)	UNII 3 BW (MHz)	Min. Limit (kHz)	Test Result
802.11a	5720 MHz	15.94	5712.17	3.12	500	Complies
802.11n MCS0 HT20	5720 MHz	16.70	5711.42	3.12	500	Complies
802.11n MCS0 HT40	5710 MHz	35.25	5692.38	2.62	500	Complies

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

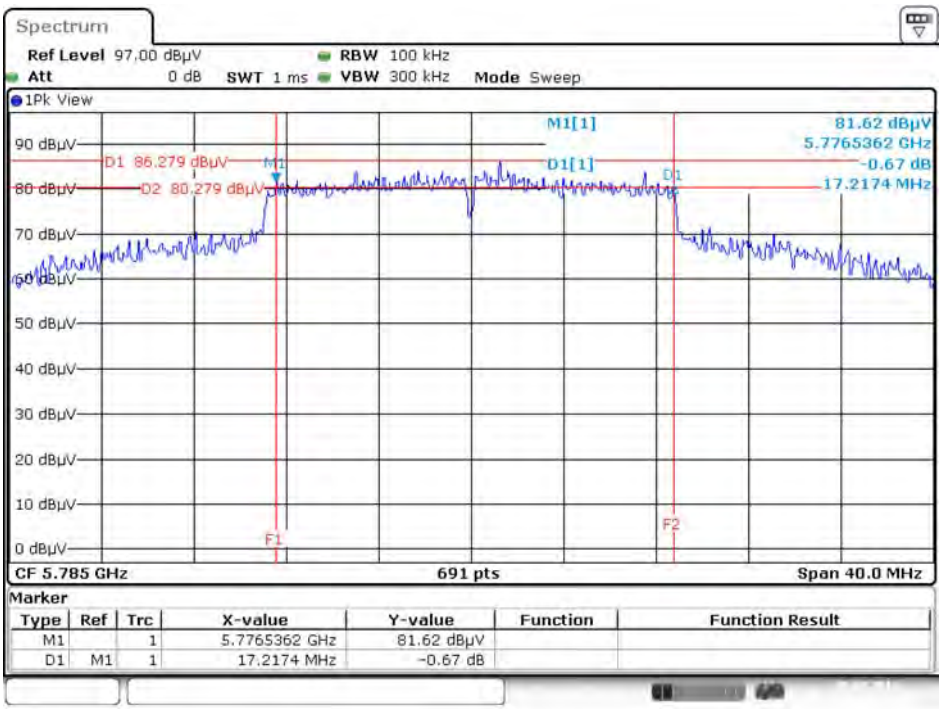
For plots, only the channel with worse result was shown.

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz



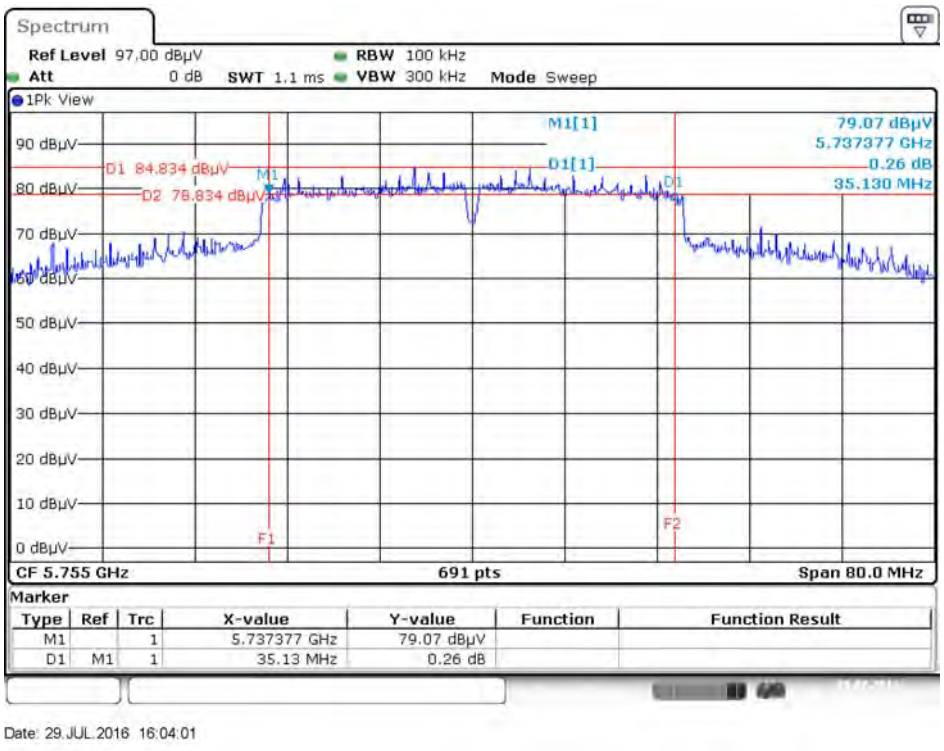
Date: 29.JUL.2016 16:08:51

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5785 MHz



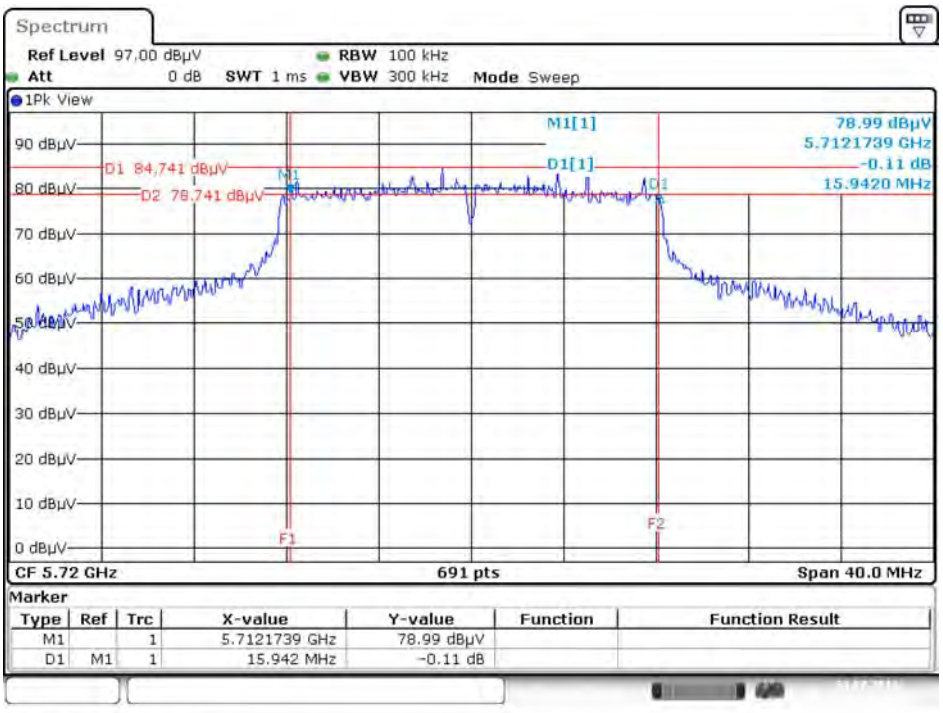
Date: 29.JUL.2016 15:56:13

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5755 MHz



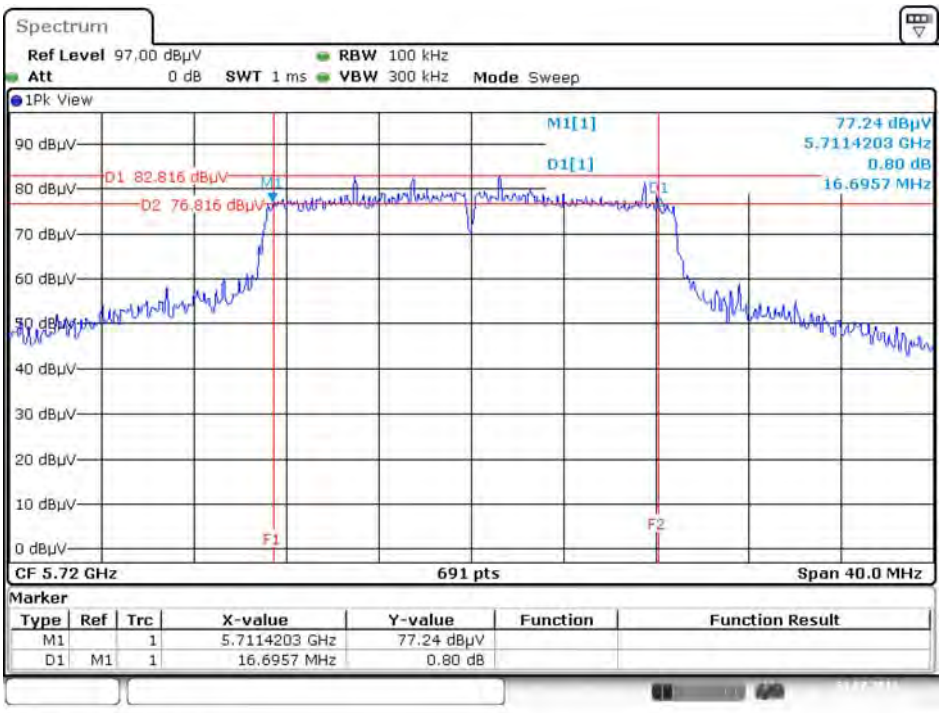
Straddle Channel

6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5720 MHz



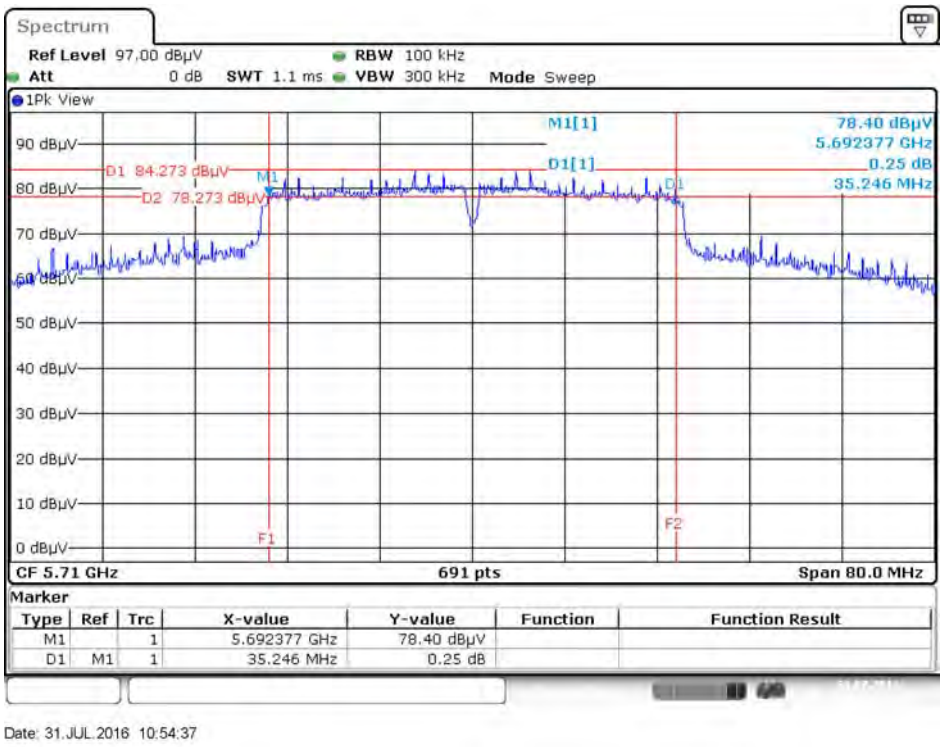
Date: 31.JUL.2016 10:52:00

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5720 MHz



Date: 31.JUL.2016 10:53:03

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5710 MHz



4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band			Limit
☒	5.15~5.25 GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
	☐	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	☒	Client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (23.98dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

☒	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (23.98dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☒	5.470-5.725 GHz	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

4.4.2. Measuring Instruments and Setting

For straddle channel:

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 count 100
Sweep Time	Auto

For other channel:

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

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

4.4.3. Test Procedures

For other channel:

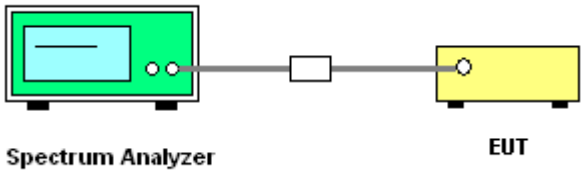
The transmitter output (antenna port) was connected to the spectrum analyzer.

For straddle channel:

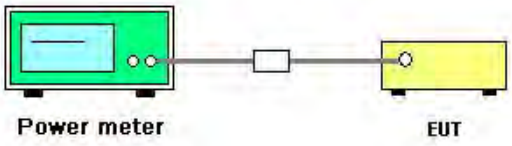
1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems,add every result of the values by mathematic formula.

4.4.4. Test Setup Layout

For straddle channel:



For other channel:



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 Maximum Conducted Output Power

Temperature	25°C	Humidity	56%
Test Engineer	Gary Chu	Test Date	Jul. 29, 2016~Aug. 13, 2016

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11a	5180 MHz	18.41	18.51	21.47	23.46	Complies
	5200 MHz	18.56	18.32	21.45	23.46	Complies
	5240 MHz	18.08	18.05	21.08	23.46	Complies
	5260 MHz	18.50	18.38	21.45	23.46	Complies
	5300 MHz	18.51	18.42	21.48	23.46	Complies
	5320 MHz	18.32	18.09	21.22	23.46	Complies
	5500 MHz	17.95	18.01	20.99	23.46	Complies
	5580 MHz	18.35	18.45	21.41	23.46	Complies
	5700 MHz	17.00	17.21	20.12	23.46	Complies
	5745 MHz	19.22	19.43	22.34	29.48	Complies
	5785 MHz	18.88	19.22	22.06	29.48	Complies
	5825 MHz	19.21	19.64	22.44	29.48	Complies
802.11n MCS0 HT20	5180 MHz	18.43	18.67	21.56	23.46	Complies
	5200 MHz	18.64	18.32	21.49	23.46	Complies
	5240 MHz	17.42	17.63	20.54	23.46	Complies
	5260 MHz	18.71	18.29	21.52	23.46	Complies
	5300 MHz	18.53	18.46	21.51	23.46	Complies
	5320 MHz	18.59	18.12	21.37	23.46	Complies
	5500 MHz	18.16	18.16	21.17	23.46	Complies
	5580 MHz	18.19	18.67	21.45	23.46	Complies
	5700 MHz	16.11	16.33	19.23	23.46	Complies
	5745 MHz	19.69	19.98	22.85	29.48	Complies
	5785 MHz	19.29	19.74	22.53	29.48	Complies
	5825 MHz	19.77	19.98	22.89	29.48	Complies

Note: Max. antenna gain=6.52dBi >6dBi.

5GHz band 1~3 power limit= 23.98 – (6.52 – 6) = 23.46dBm.

5GHz band 4 power limit= 30 – (6.52 – 6) = 29.48dBm.

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11n MCS0 HT40	5190 MHz	15.24	15.4	18.33	23.46	Complies
	5230 MHz	18.69	18.83	21.77	23.46	Complies
	5270 MHz	18.76	19.13	21.96	23.46	Complies
	5310 MHz	14.54	14.86	17.71	23.46	Complies
	5510 MHz	11.40	11.86	14.65	23.46	Complies
	5550 MHz	18.46	18.48	21.48	23.46	Complies
	5670 MHz	15.95	16.15	19.06	23.46	Complies
	5755 MHz	18.29	18.69	21.50	29.48	Complies
	5795 MHz	18.81	19.23	22.04	29.48	Complies

Note: Max. antenna gain=6.52dBi >6dBi.

5GHz band 1~3 power limit= 23.98 – (6.52 – 6) = 23.46dBm.

5GHz band 4 power limit= 30 – (6.52 – 6) = 29.48dBm.

Straddle Channel

Mode	Frequency	Conducted Power (dBm)			Max. Power Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11a	5720 MHz (UNII 2C)	16.90	17.00	19.96	23.46	Complies
	5720 MHz (UNII 3)	10.60	9.09	12.92	29.48	Complies
802.11n MCS0 HT20	5720 MHz (UNII 2C)	17.41	17.56	20.50	23.46	Complies
	5720 MHz (UNII 3)	11.57	11.79	14.69	29.48	Complies
802.11n MCS0 HT40	5710 MHz (UNII 2C)	20.61	20.26	23.45	23.46	Complies
	5710 MHz (UNII 3)	9.84	9.57	12.72	29.48	Complies

Note: Max. antenna gain=6.52dBi >6dBi.

(UNII 2C) power limit= 23.98 – (6.52 – 6) = 23.46dBm.

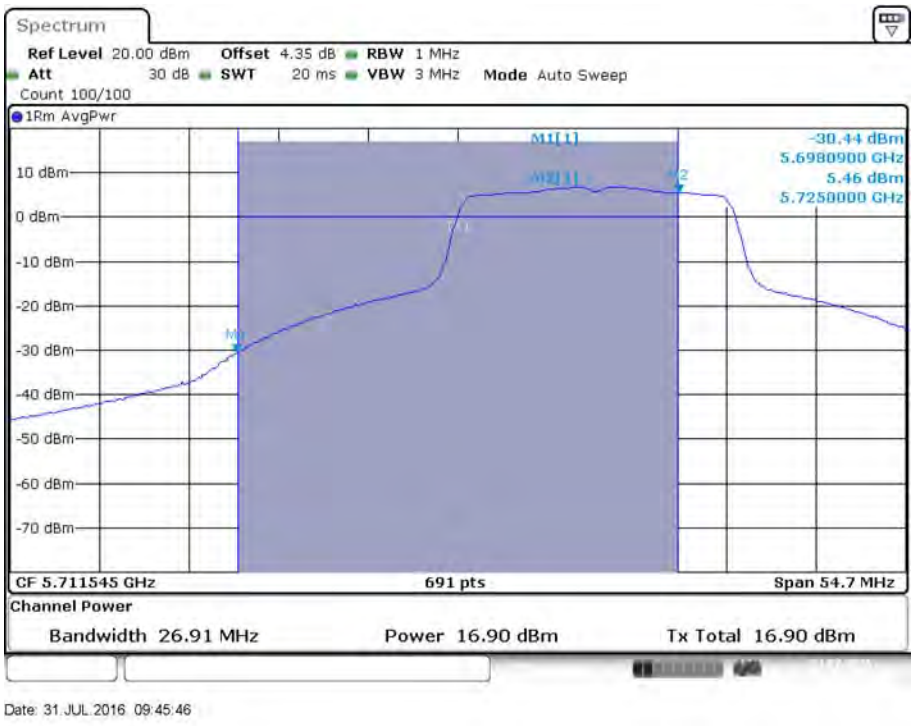
(UNII 3) power limit= 30 – (6.52 – 6) = 29.48dBm.

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

For plots, only the straddle channel result was shown.

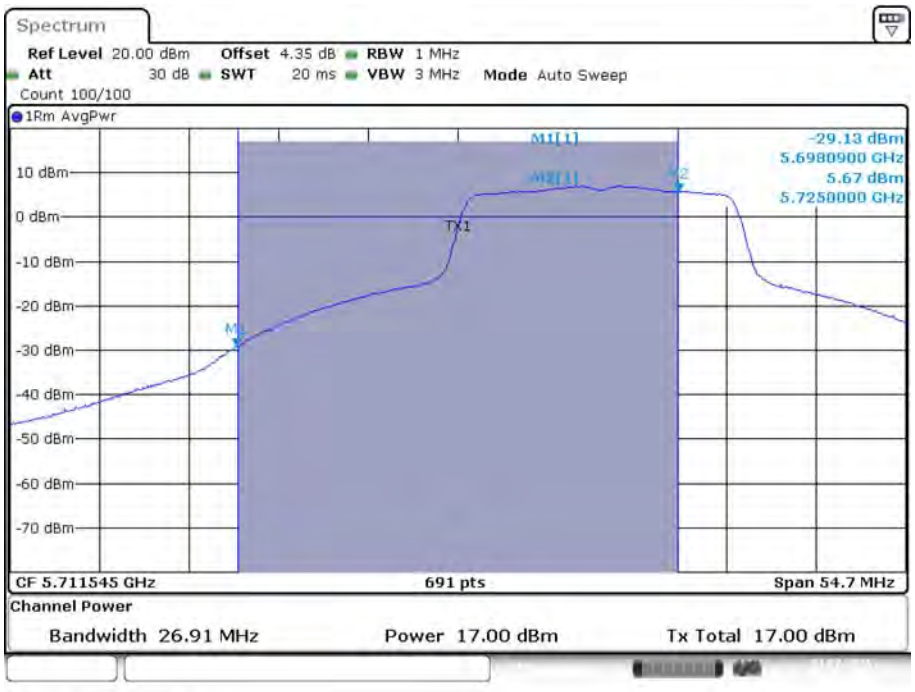
Straddle Channel

Conducted Output Power Plot on Configuration IEEE 802.11a / Ant. 1 / 5720 MHz (UNII 2C)



Date: 31.JUL.2016 09:45:46

Conducted Output Power Plot on Configuration IEEE 802.11a / Ant. 2 / 5720 MHz (UNII 2C)

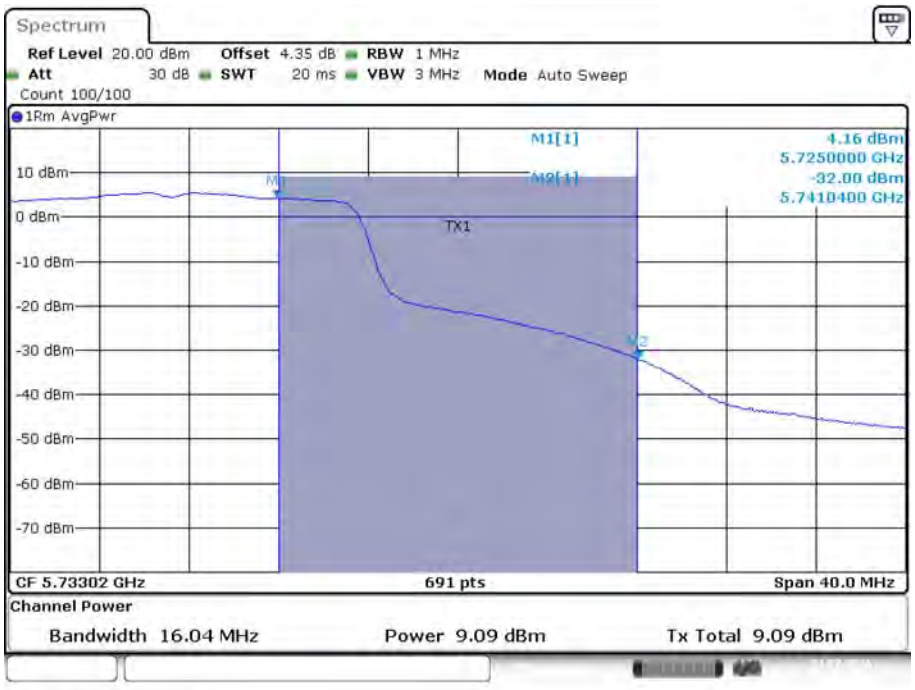


Date: 31.JUL.2016 09:37:40

Conducted Output Power Plot on Configuration IEEE 802.11a / Ant. 1 / 5720 MHz (UNII 3)

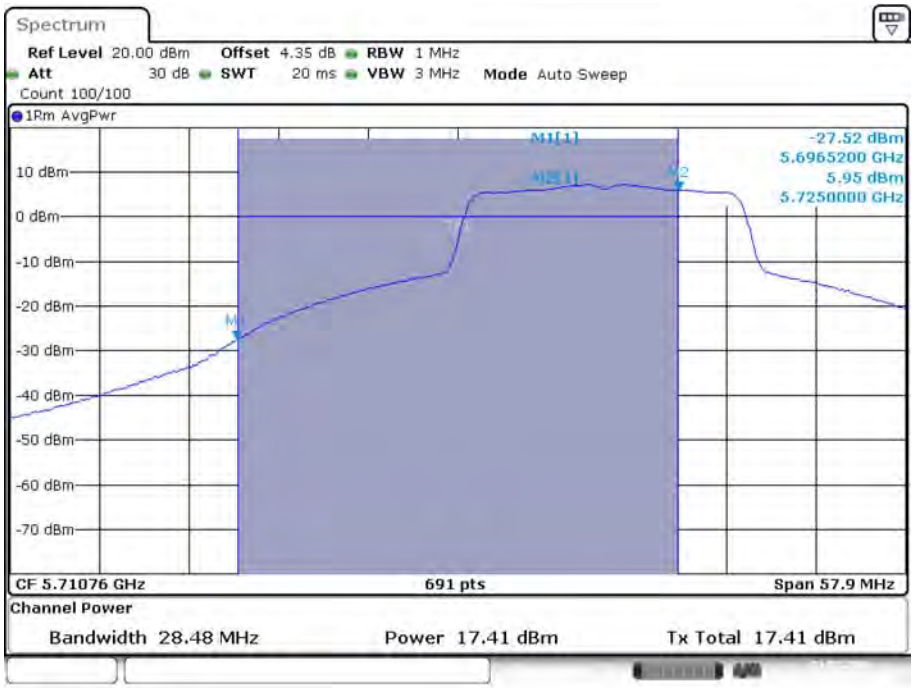
Date: 31.JUL.2016 09:37:44

Conducted Output Power Plot on Configuration IEEE 802.11a / Ant. 2 / 5720 MHz (UNII 3)



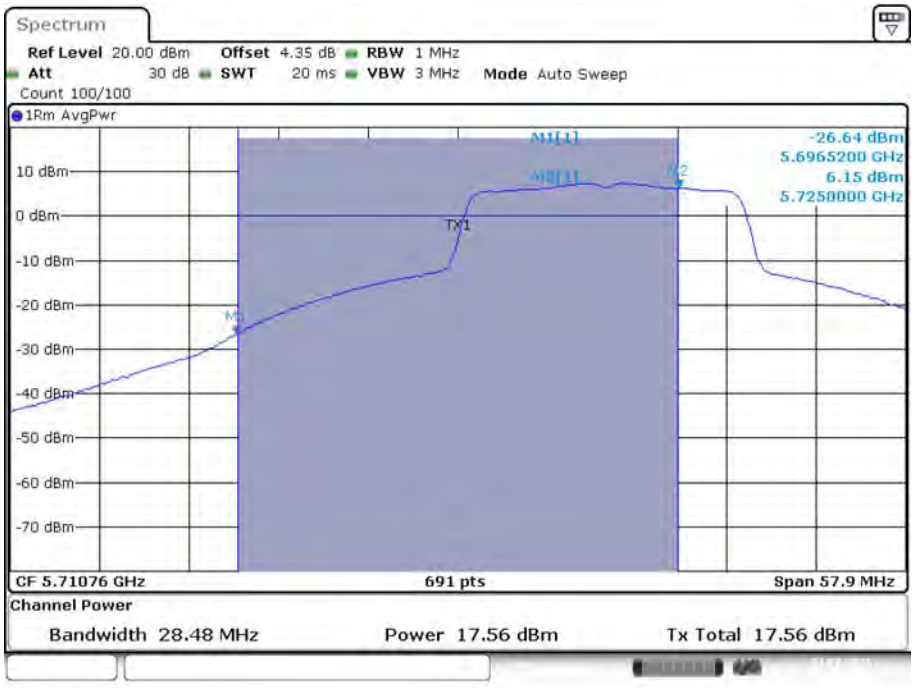
Date: 31.JUL.2016 09:37:37

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 / 5720 MHz (UNII 2C)



Date: 31.JUL.2016 09:59:38

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 2 / 5720 MHz (UNII 2C)

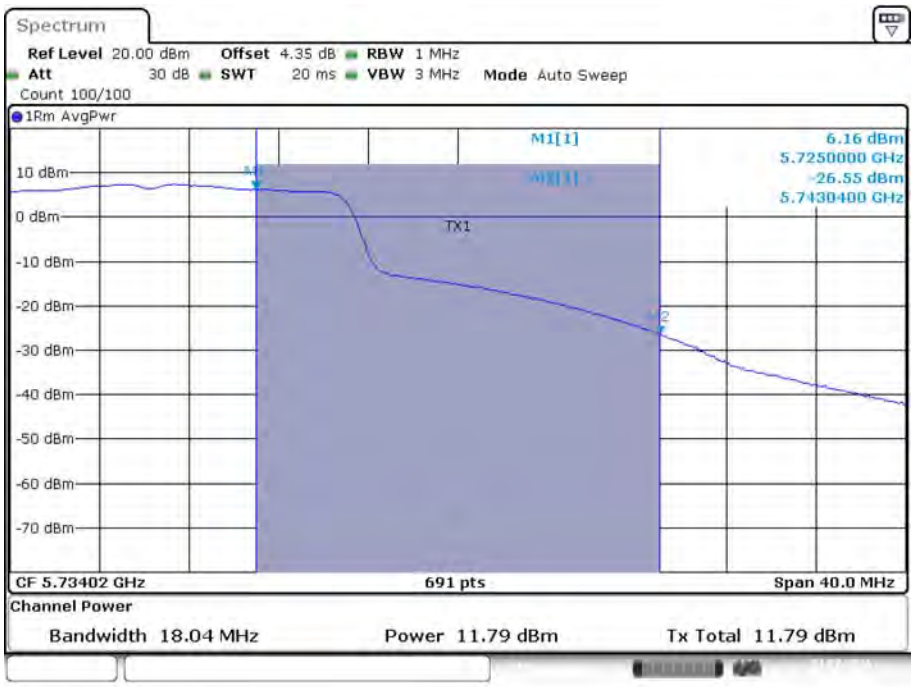


Date: 31.JUL.2016 09:59:45

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 / 5720 MHz (UNII 3)

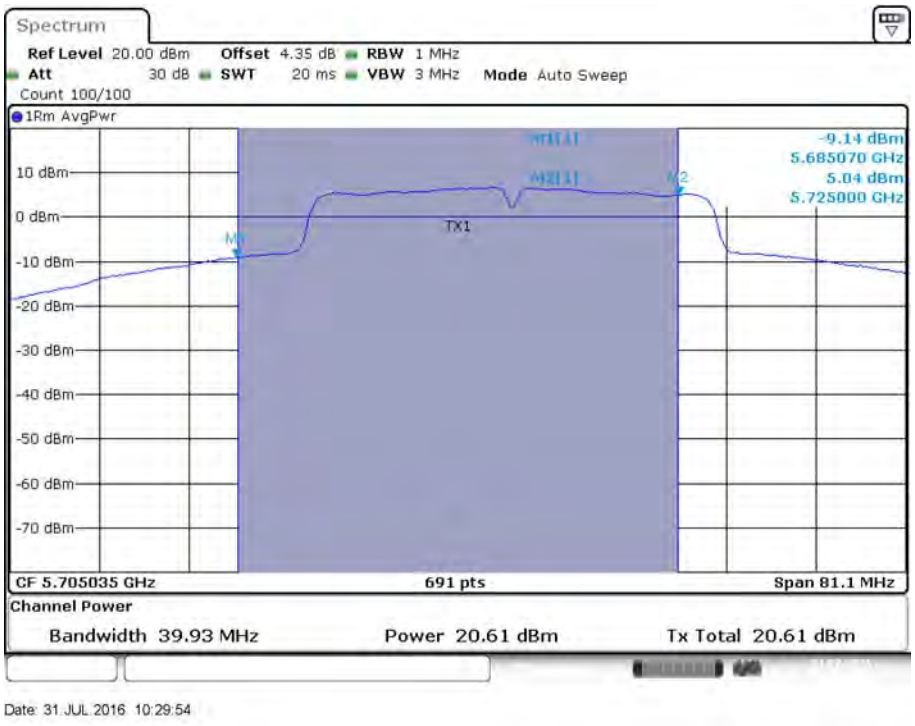
Date: 31.JUL.2016 09:59:41

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 2 / 5720 MHz (UNII 3)



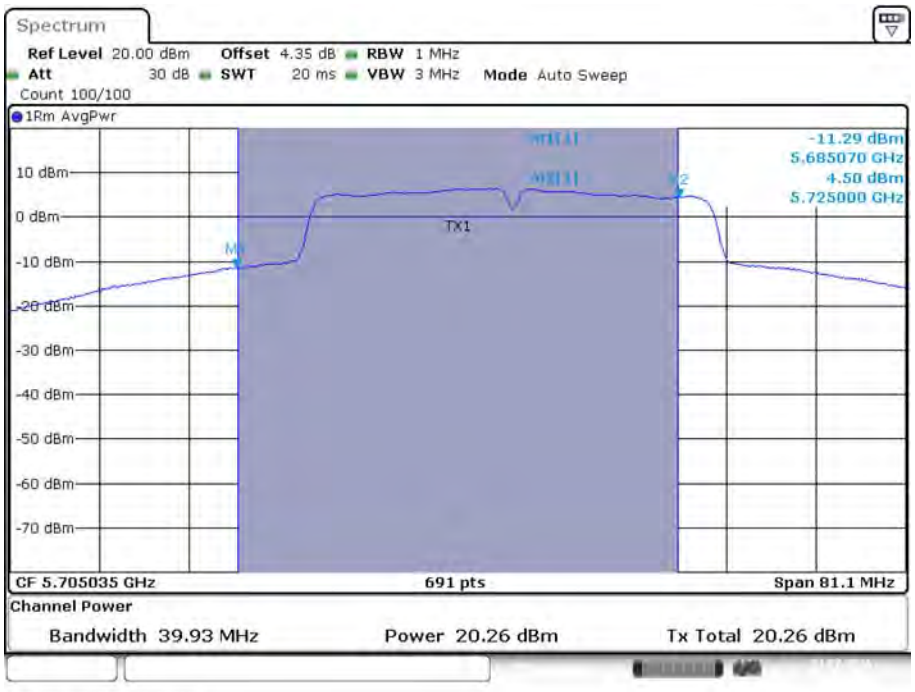
Date: 31.JUL.2016 09:59:48

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 / 5710 MHz (UNII 2C)



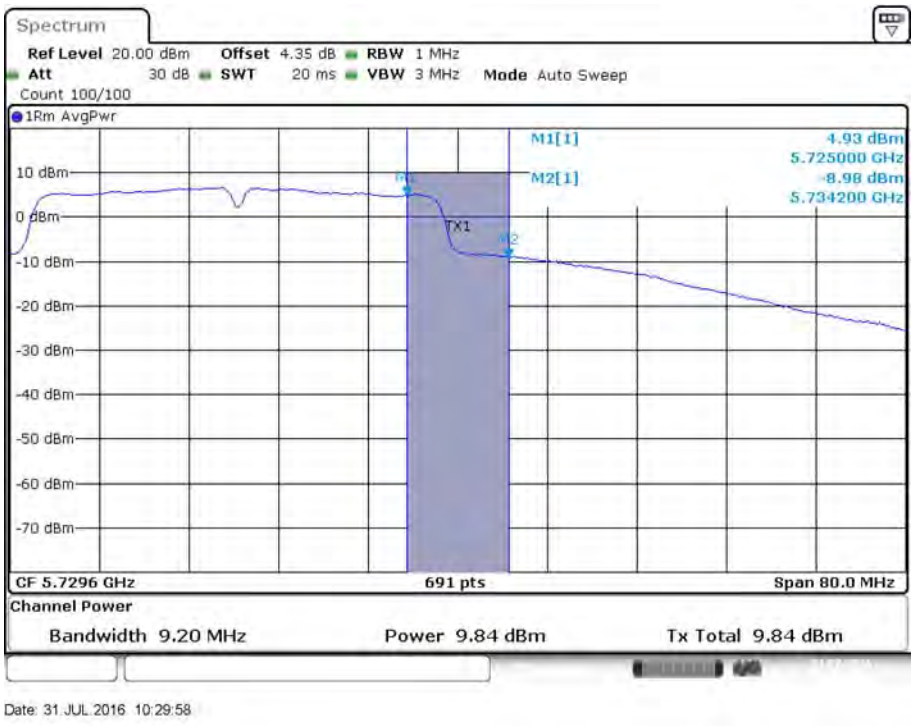
Date: 31.JUL.2016 10:29:54

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 2 / 5710 MHz (UNII 2C)



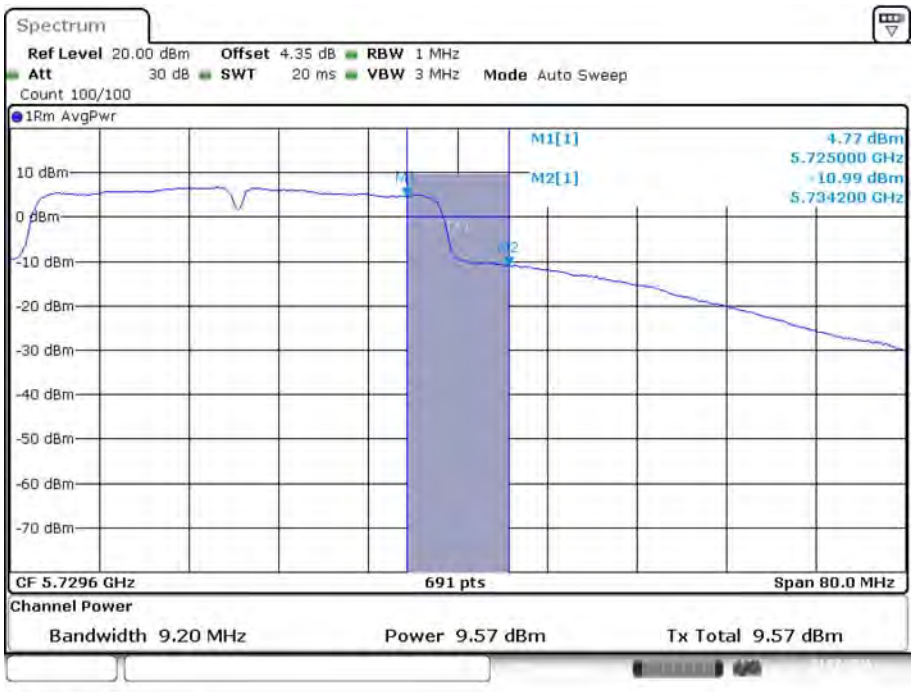
Date: 31.JUL.2016 10:41:26

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 / 5710 MHz (UNII 3)



Date: 31.JUL.2016 10:29:58

Conducted Output Power Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 2 / 5710 MHz (UNII 3)



Date: 31.JUL.2016 10:30:05

4.5. Power Spectral Density Measurement

4.5.1. Limit

The following table is power spectral density limits and decrease power density limit rule refer to section 4.4.1.

Frequency Band			Limit
☒	5.15~5.25 GHz		
	Operating Mode		
	☐	Outdoor access point	17 dBm/MHz
	☐	Indoor access point	17 dBm/MHz
	☐	Fixed point-to-point access points	17 dBm/MHz
	☒	Client devices	11 dBm/MHz
☒	5.25-5.35 GHz		11 dBm/MHz
☒	5.470-5.725 GHz		11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

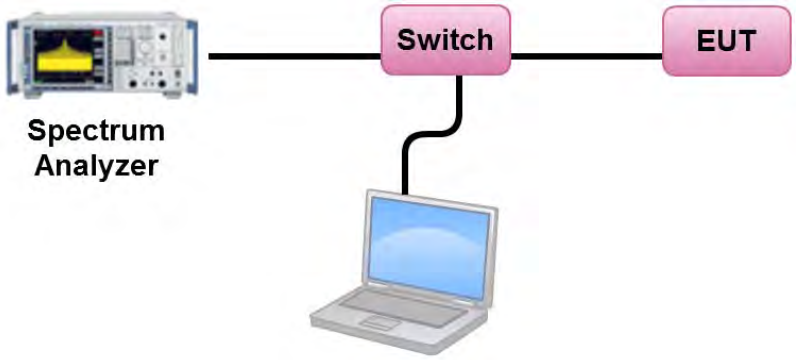
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RBW	1000 kHz
VBW	3000 kHz
Detector	RMS
Trace	AVERAGE
Sweep Time	Auto
Trace Average	100 times
Note: If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.	

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01r03 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (F) Maximum Power Spectral Density (PSD).
3. Multiple antenna systems was performed in accordance KDB662911 D01 v02r01 in-Band Power Spectral Density (PSD) Measurements and sum the spectra across the outputs.
4. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



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 Power Spectral Density

Temperature	25°C	Humidity	56%
Test Engineer	Gary Chu	Test Date	Jul. 29, 2016~Aug. 13, 2016

Configuration IEEE 802.11a / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	7.96	8.22	Complies
40	5200 MHz	8.17	8.22	Complies
48	5240 MHz	8.07	8.22	Complies
52	5260 MHz	8.08	8.22	Complies
60	5300 MHz	8.09	8.22	Complies
64	5320 MHz	8.00	8.22	Complies
100	5500 MHz	8.04	8.22	Complies
116	5580 MHz	8.01	8.22	Complies
140	5700 MHz	6.68	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	8.82	-3.01	5.81	27.22	Complies
157	5785 MHz	8.61	-3.01	5.60	27.22	Complies
165	5825 MHz	9.20	-3.01	6.19	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	8.10	8.22	Complies
40	5200 MHz	8.06	8.22	Complies
48	5240 MHz	7.05	8.22	Complies
52	5260 MHz	8.17	8.22	Complies
60	5300 MHz	8.15	8.22	Complies
64	5320 MHz	8.01	8.22	Complies
100	5500 MHz	8.13	8.22	Complies
116	5580 MHz	8.03	8.22	Complies
140	5700 MHz	5.93	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	9.43	-3.01	6.42	27.22	Complies
157	5785 MHz	9.21	-3.01	6.20	27.22	Complies
165	5825 MHz	9.65	-3.01	6.64	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	1.93	8.22	Complies
46	5230 MHz	5.51	8.22	Complies
54	5270 MHz	5.55	8.22	Complies
62	5310 MHz	1.68	8.22	Complies
102	5510 MHz	-1.26	8.22	Complies
110	5550 MHz	5.24	8.22	Complies
134	5670 MHz	2.67	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	5.11	-3.01	2.10	27.22	Complies
159	5795 MHz	5.78	-3.01	2.77	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

Straddle Channel

Configuration IEEE 802.11a / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	7.89	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	6.55	-3.01	3.54	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
144	5720 MHz (UNII 2C)	8.20	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
144	5720 MHz (UNII 3)	6.93	-3.01	3.92	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
142	5710 MHz (UNII 2C)	8.07	8.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=11 – (8.78 – 6)=8.22dBm/MHz.

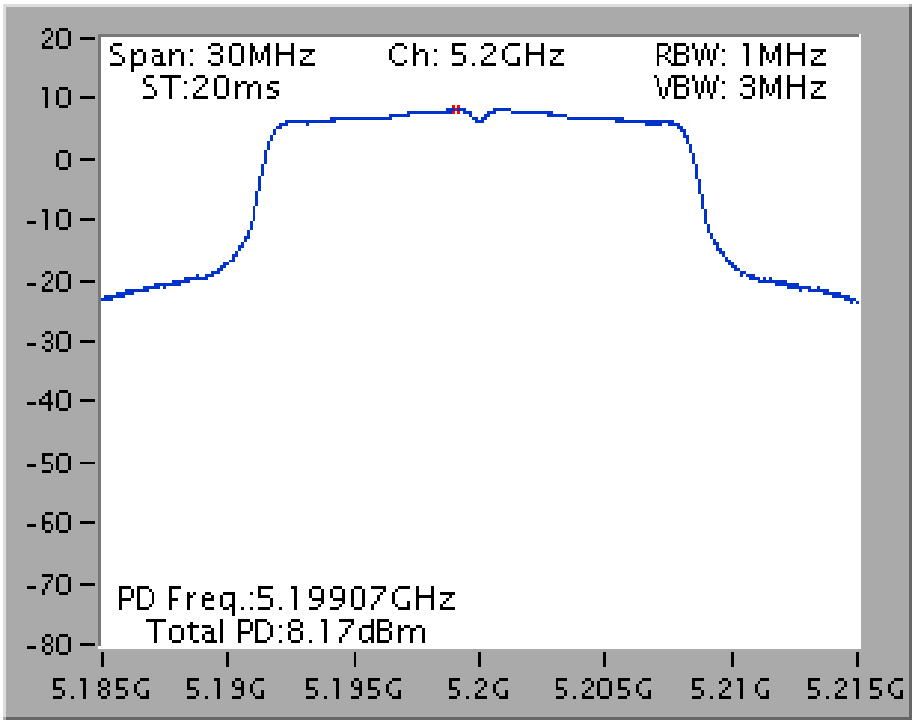
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
142	5710 MHz (UNII 3)	6.36	-3.01	3.35	27.22	Complies

Note: $Directional\,Gain = 10\log\left[\frac{\sum_{j=1}^{Nss}\left\{\sum_{K=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ = 8.78dBi >6dBi, so limit=30 – (8.78 – 6)=27.22dBm/500kHz.

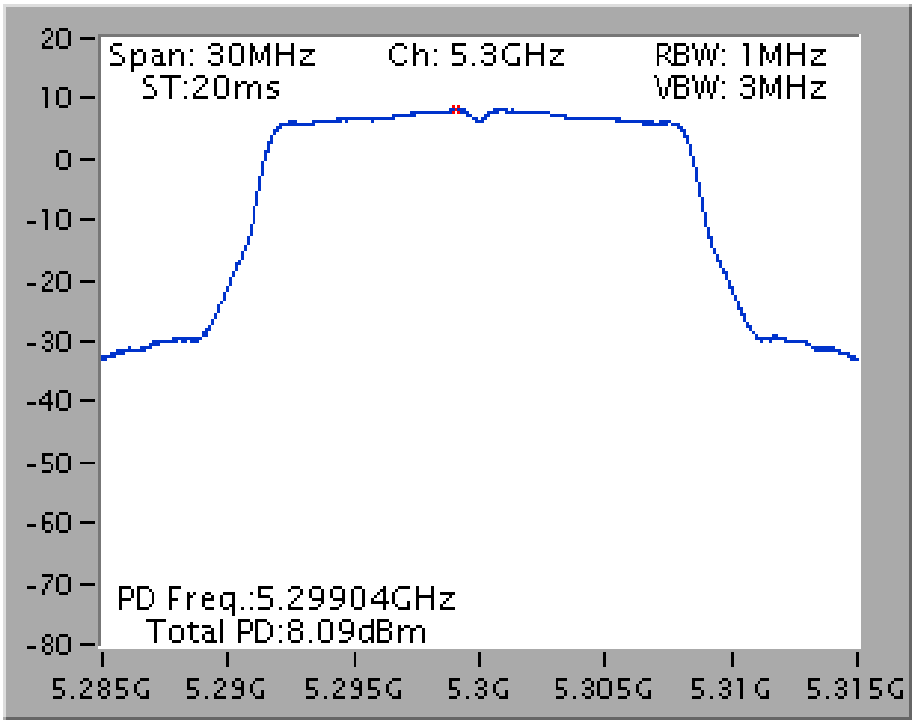
Note: All the test values were listed in the report.

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

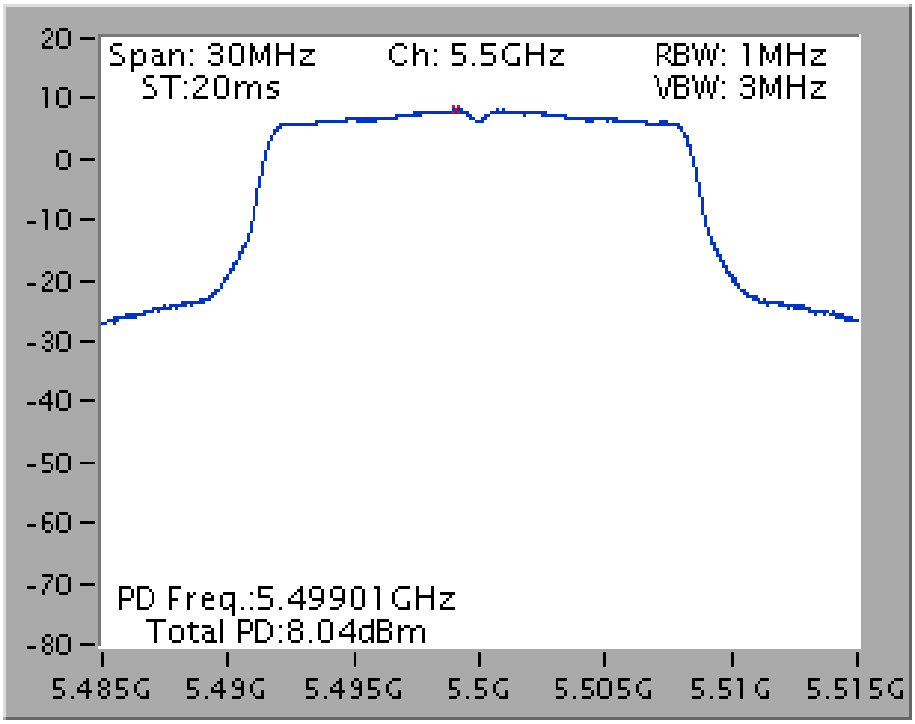
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5200 MHz



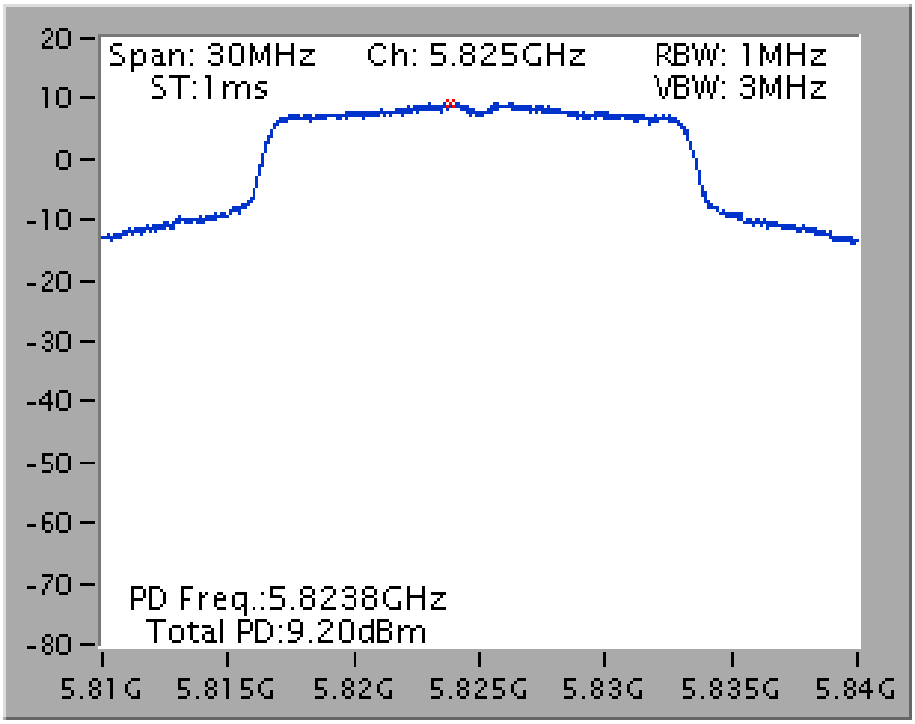
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5300 MHz



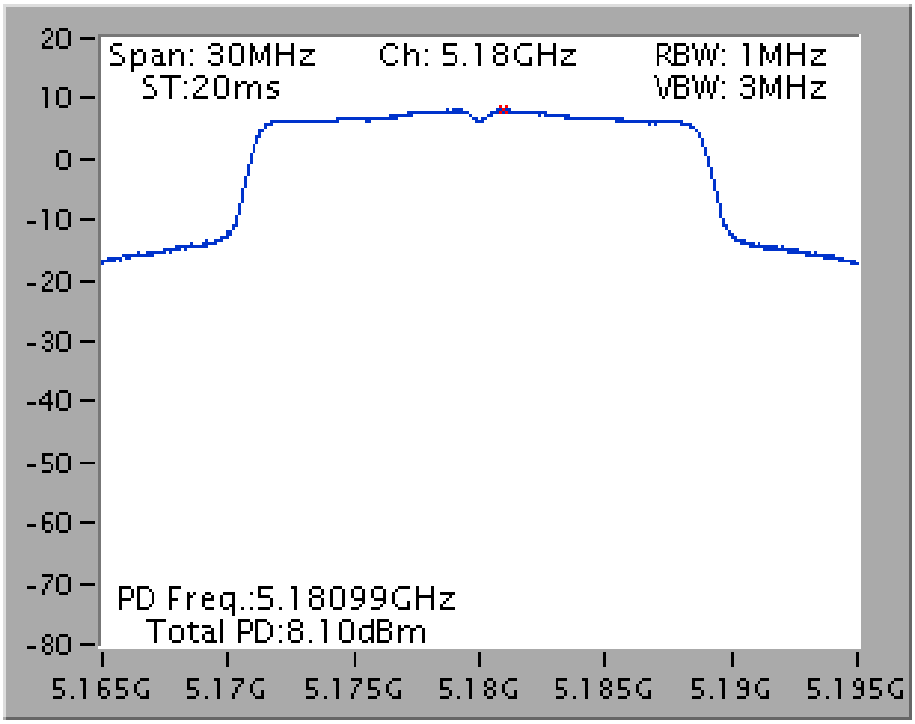
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5500 MHz



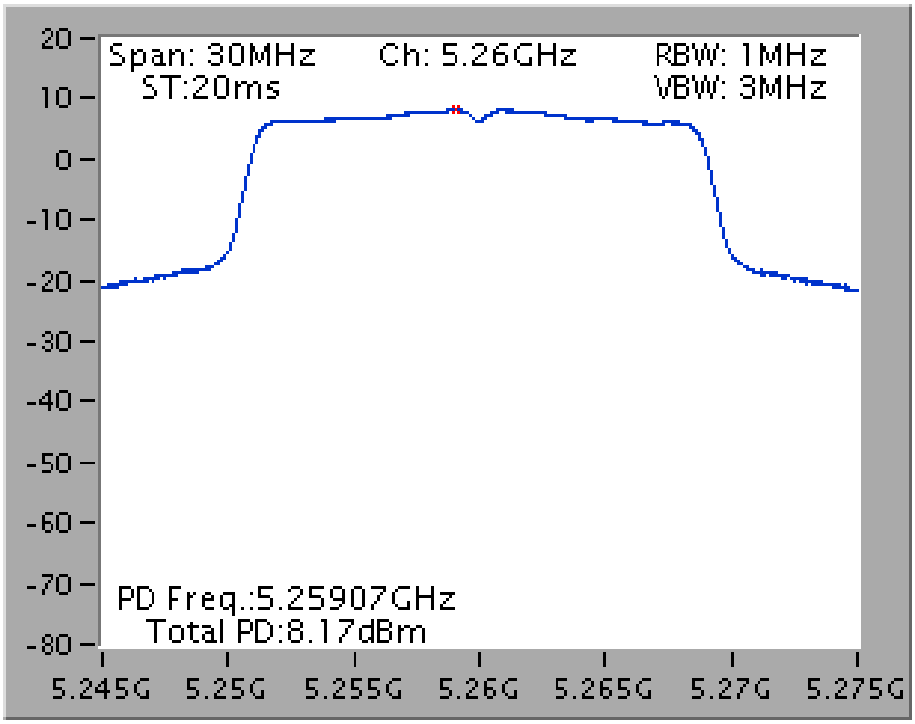
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5825 MHz



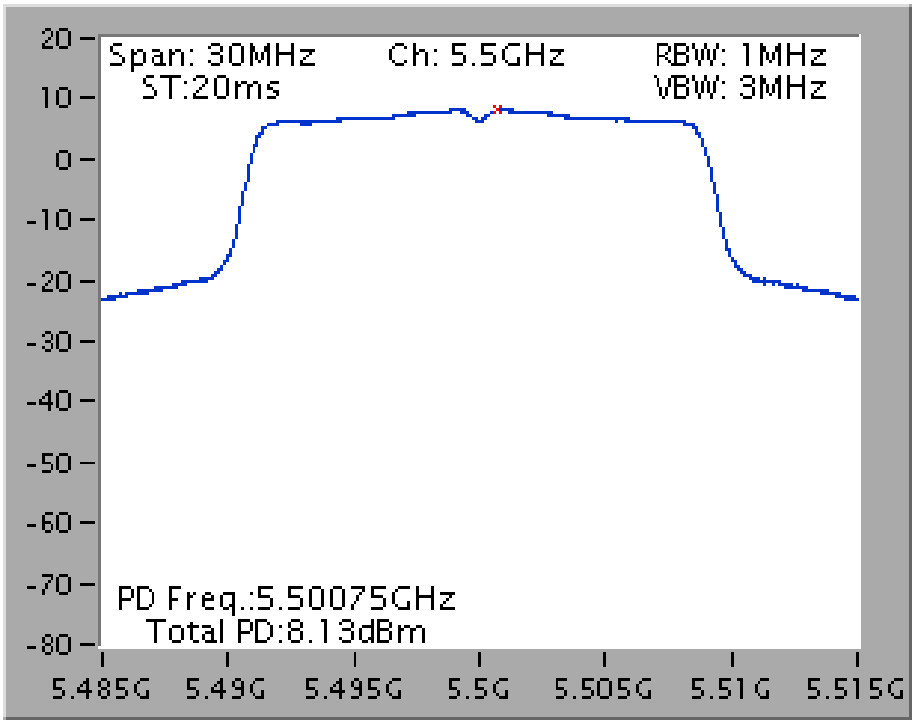
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5180 MHz



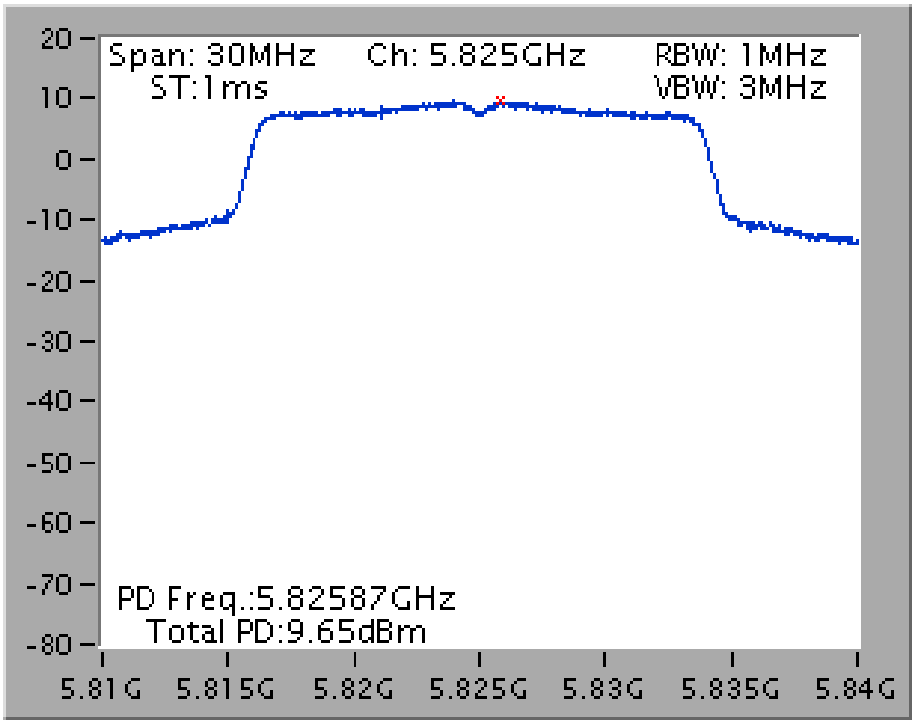
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5260 MHz



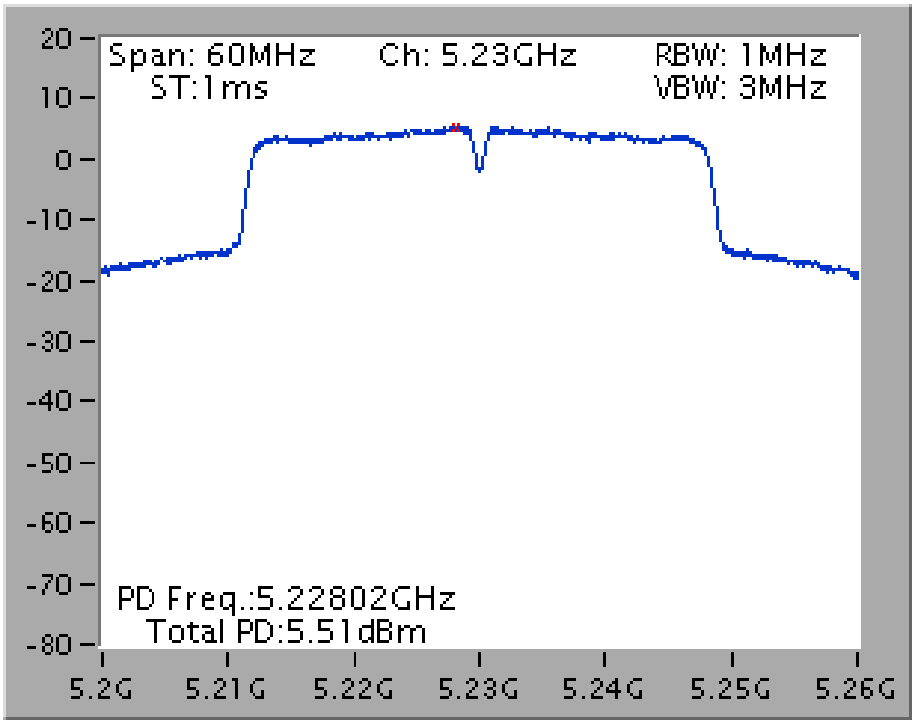
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5500 MHz



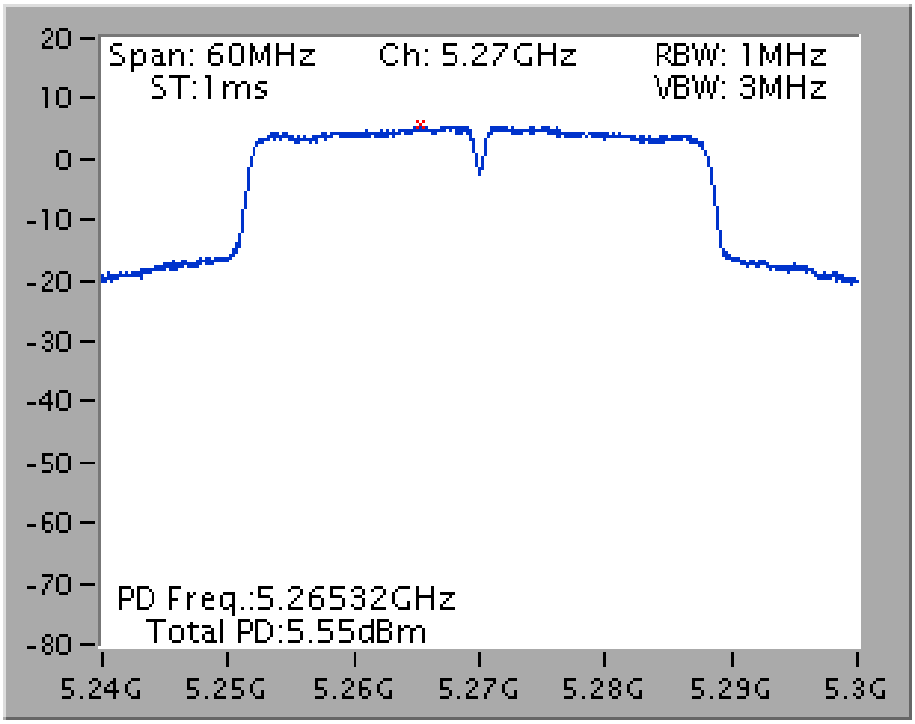
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5825 MHz



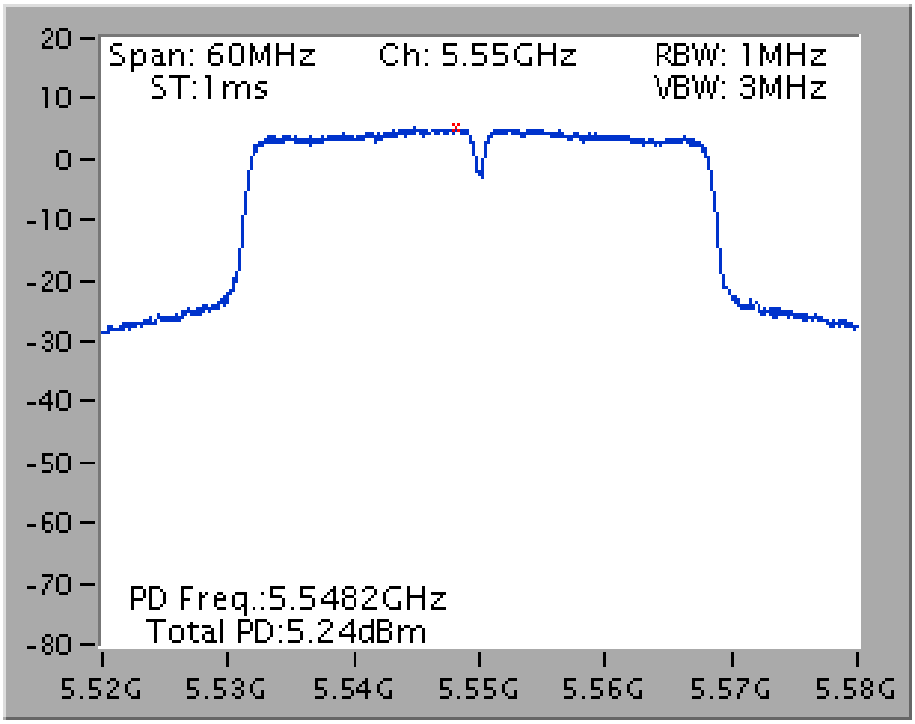
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5230 MHz



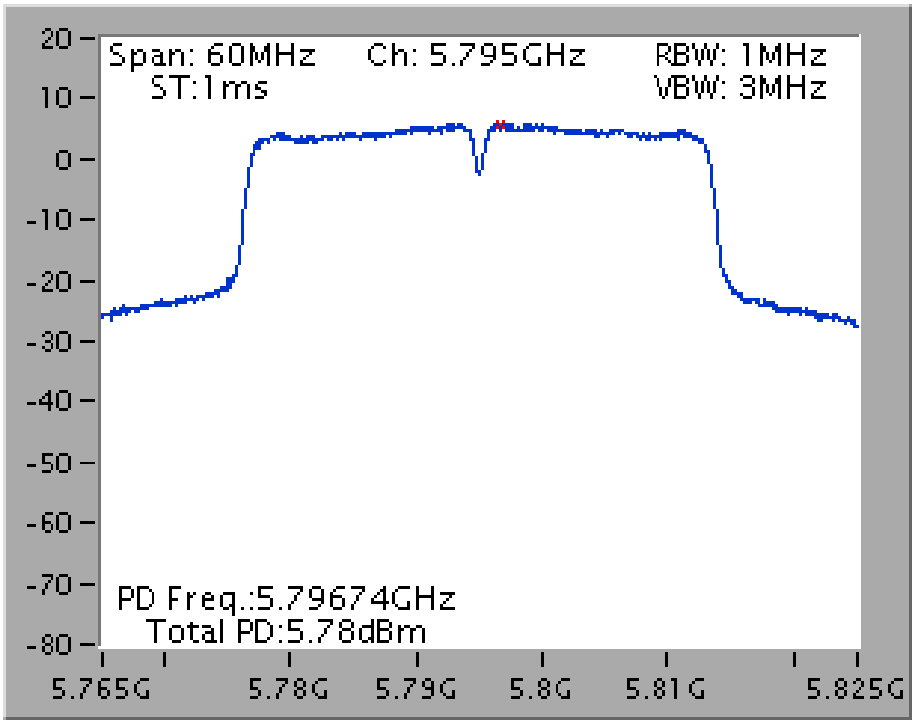
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5270 MHz



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

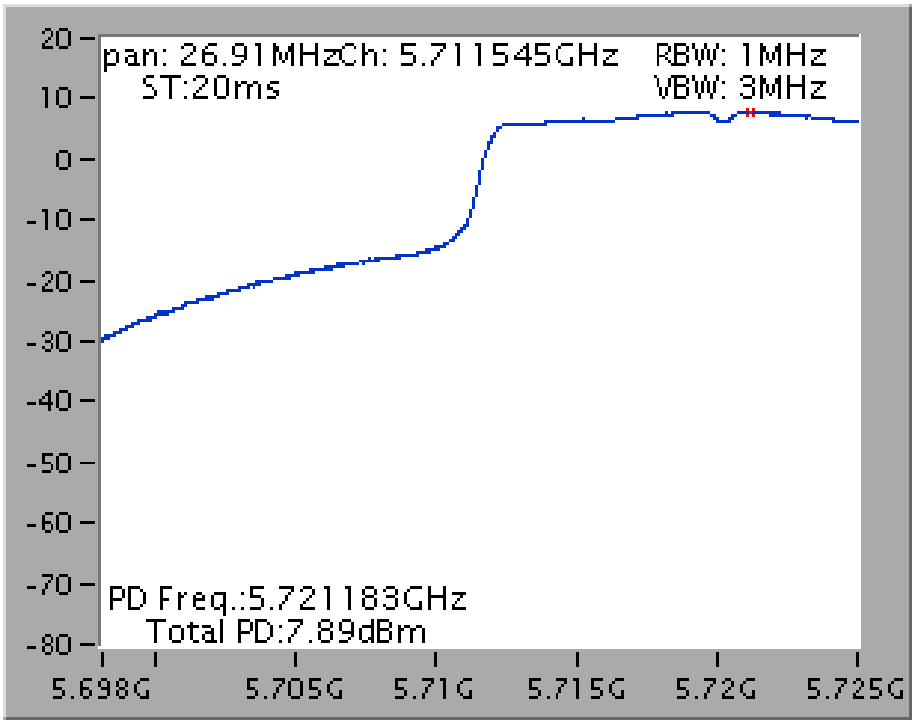


Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5795 MHz

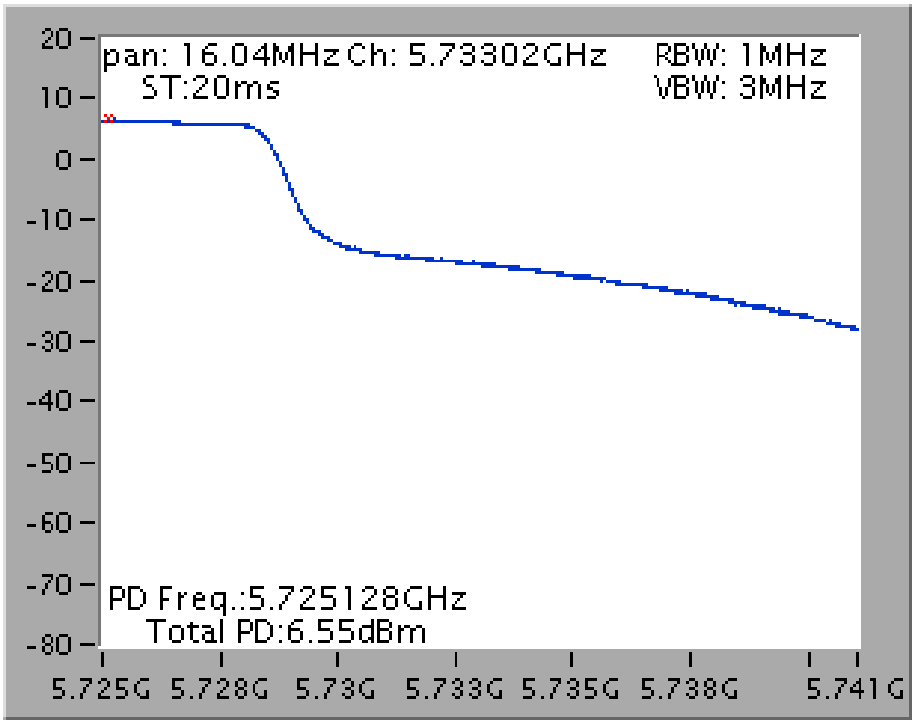


Straddle Channel

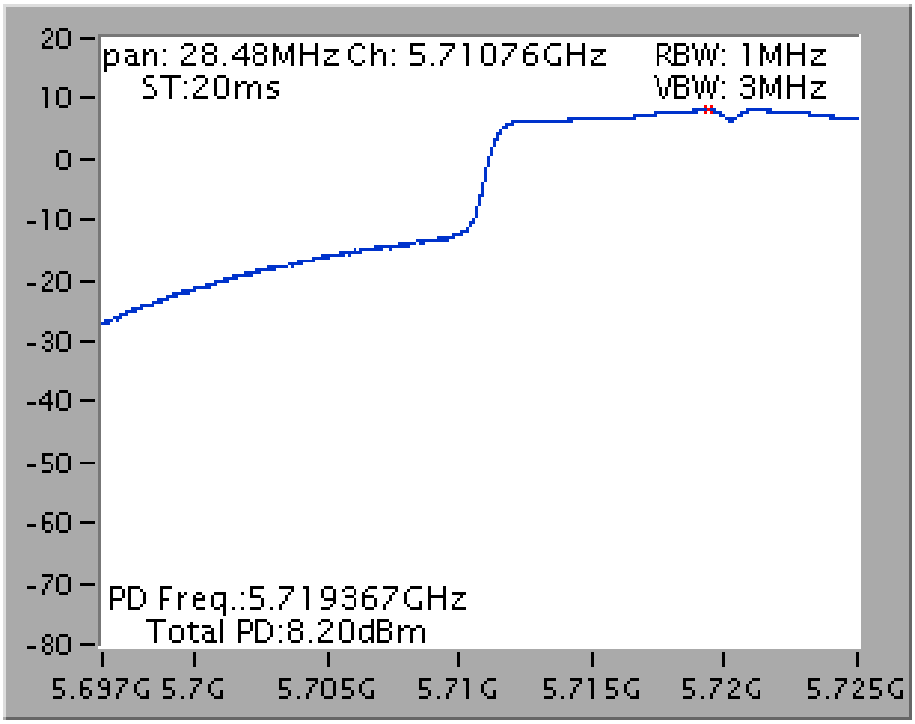
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5720 MHz (UNII 2C)



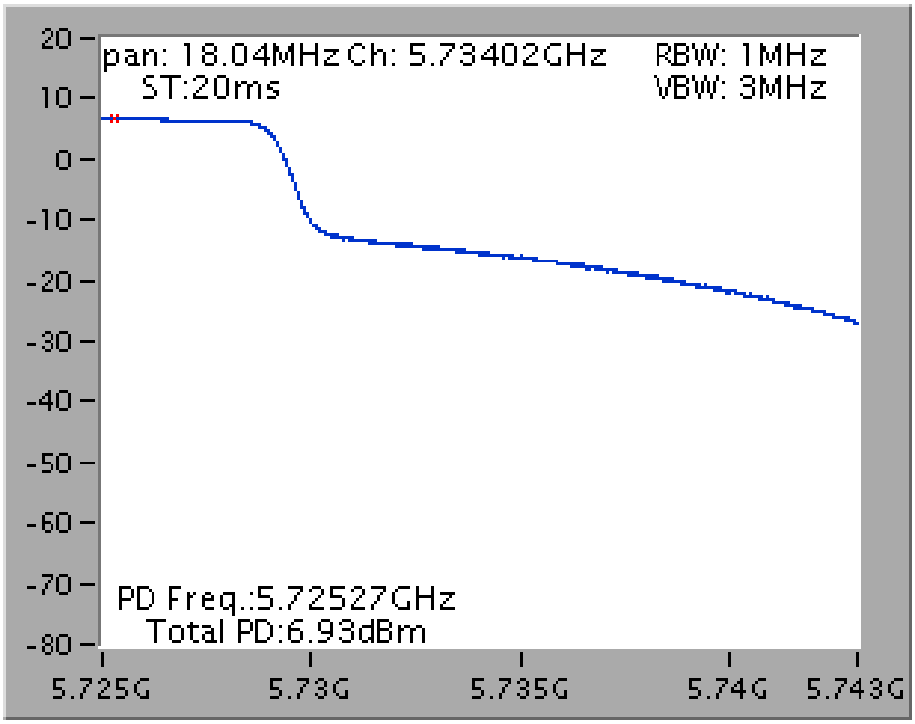
Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5720 MHz (UNII 3)



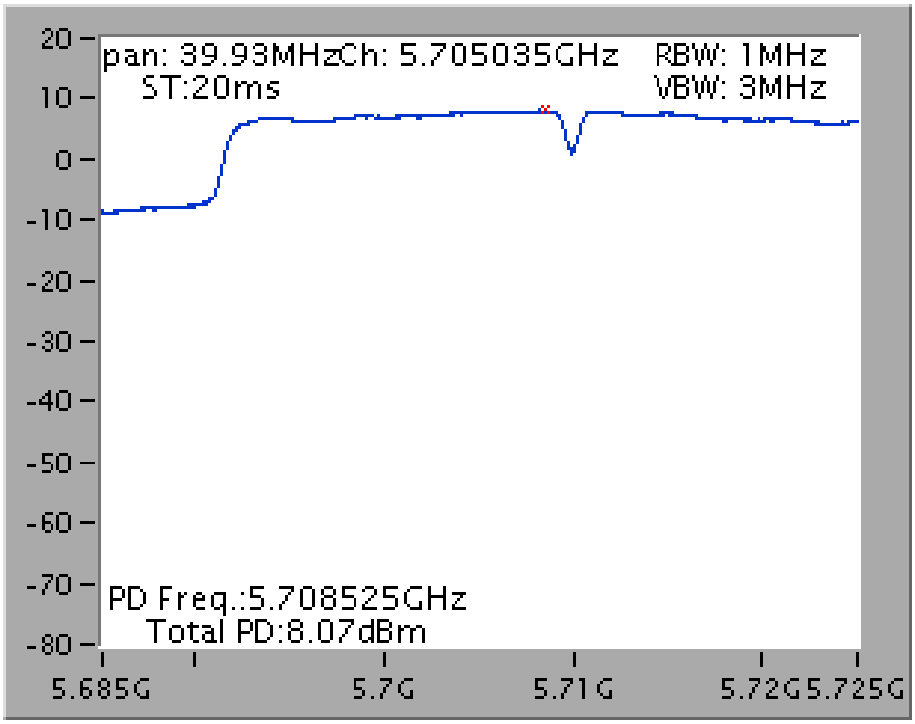
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5720 MHz (UNII 2C)



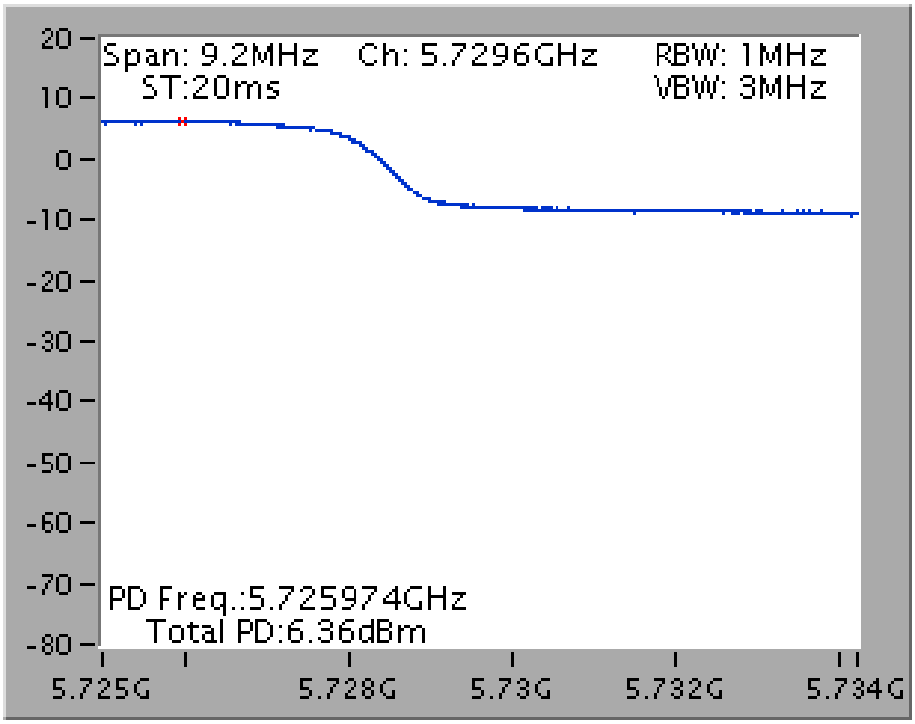
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5720 MHz (UNII 3)



Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5710 MHz (UNII 2C)



Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5710 MHz (UNII 3)



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 an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

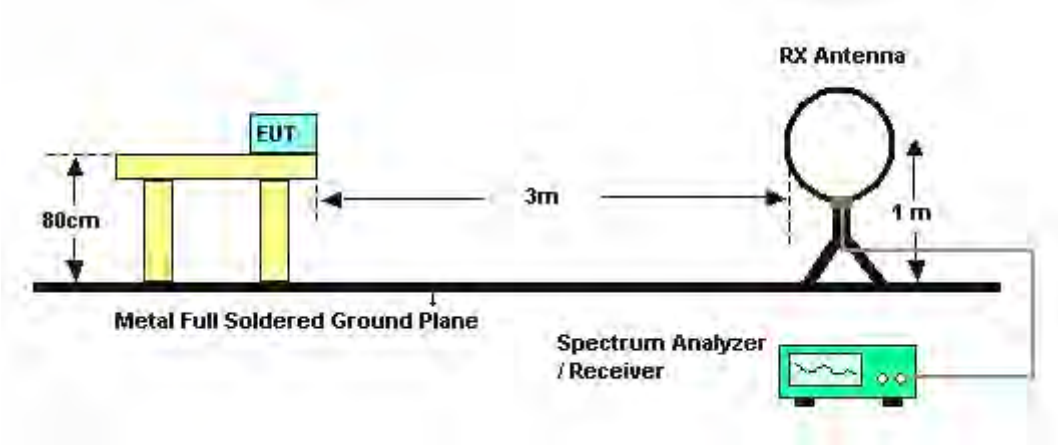
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

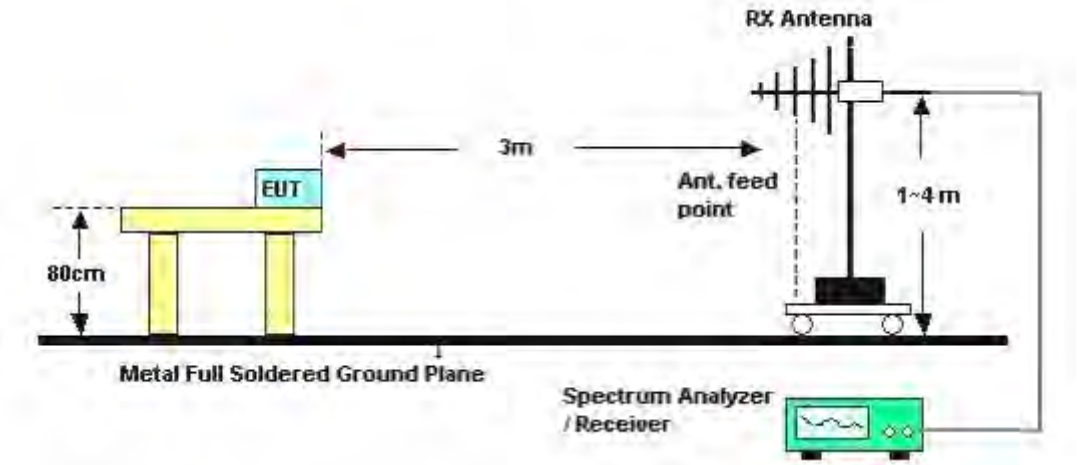
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting 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 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. 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.
8. 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.
9. 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

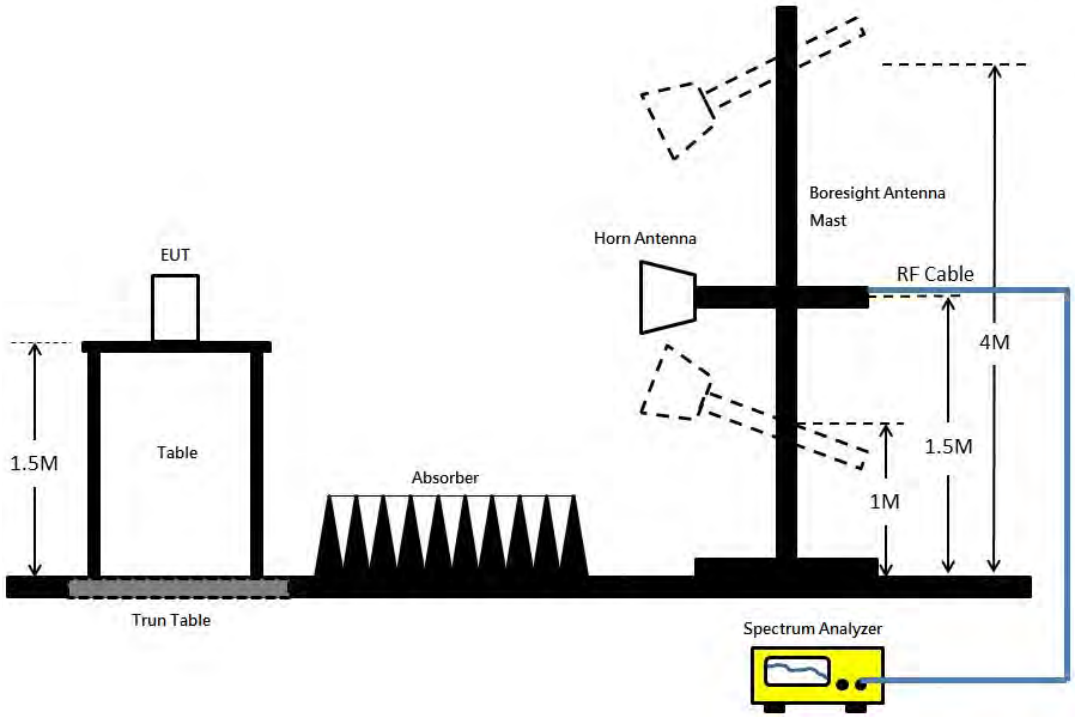
For Radiated Emissions: 9kHz ~30MHz



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	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	Normal Link
Test Date	Aug. 01, 2016	Test Mode	Mode 1

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.

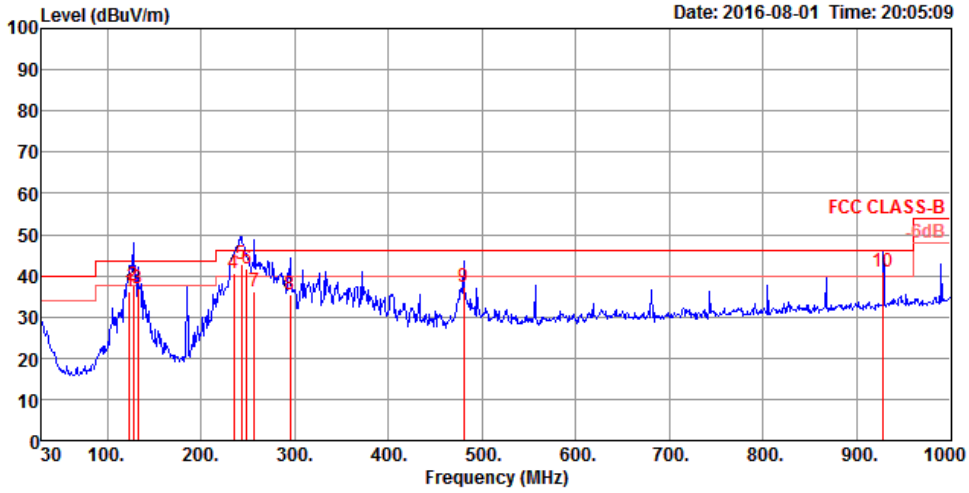
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

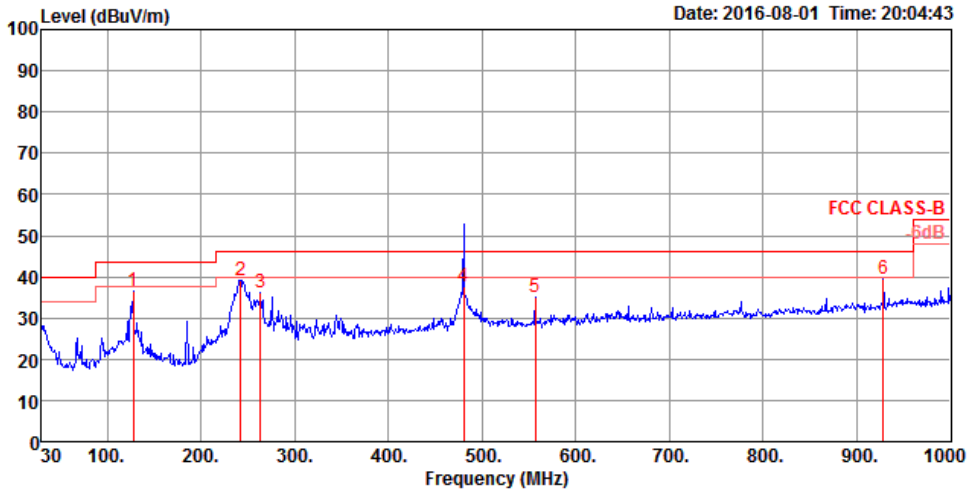
Temperature	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	124.09	36.33	43.50	-7.17	48.77	0.96	18.97	32.37	100	192	QP	HORIZONTAL
2	127.97	37.76	43.50	-5.74	50.30	0.98	18.85	32.37	200	167	QP	HORIZONTAL
3	132.82	36.96	43.50	-6.54	49.71	0.99	18.63	32.37	200	148	QP	HORIZONTAL
4	234.67	40.53	46.00	-5.47	53.58	1.31	17.95	32.31	150	164	QP	HORIZONTAL
5	243.40	42.95	46.00	-3.05	55.30	1.33	18.63	32.31	150	156	QP	HORIZONTAL
6	249.22	41.85	46.00	-4.15	53.77	1.34	19.04	32.30	100	149	QP	HORIZONTAL
7	256.98	36.04	46.00	-9.96	47.30	1.36	19.68	32.30	150	142	QP	HORIZONTAL
8	294.81	35.38	46.00	-10.62	46.29	1.47	19.90	32.28	100	128	QP	HORIZONTAL
9	480.08	37.26	46.00	-8.74	44.00	1.90	23.71	32.35	200	3	QP	HORIZONTAL
10	928.22	40.85	46.00	-5.15	41.74	2.63	27.94	31.46	100	88	QP	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	127.97	36.44	43.50	-7.06	48.98	0.98	18.85	32.37	200	103	Peak	VERTICAL
2	242.43	39.17	46.00	-6.83	51.58	1.32	18.58	32.31	200	90	Peak	VERTICAL
3	263.77	36.08	46.00	-9.92	47.21	1.38	19.79	32.30	150	110	Peak	VERTICAL
4	480.08	37.76	46.00	-8.24	44.50	1.90	23.71	32.35	100	216	QP	VERTICAL
5	556.71	35.08	46.00	-10.92	40.55	2.04	24.88	32.39	100	272	Peak	VERTICAL
6	928.22	39.63	46.00	-6.37	40.52	2.63	27.94	31.46	100	239	Peak	VERTICAL

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)

Temperature	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.22	46.69	54.00	-7.31	32.06	11.73	38.25	35.35	101	91	Average	HORIZONTAL
2	15538.48	59.79	74.00	-14.21	45.16	11.73	38.25	35.35	101	91	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.06	46.20	54.00	-7.80	31.57	11.73	38.25	35.35	142	169	Average	VERTICAL
2	15544.54	59.18	74.00	-14.82	44.55	11.73	38.25	35.35	142	169	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10395.04	43.44	54.00	-10.56	28.72	9.96	39.59	34.83	201	218	Average	HORIZONTAL
2	10395.10	56.35	74.00	-17.65	41.63	9.96	39.59	34.83	201	218	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10399.64	56.60	74.00	-17.40	41.90	9.96	39.59	34.85	140	112	Peak	VERTICAL
2	10400.66	43.55	54.00	-10.45	28.85	9.96	39.59	34.85	140	112	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15716.96	45.80	54.00	-8.20	31.35	11.80	38.03	35.38	109	161	Average	HORIZONTAL
2	15720.72	59.81	74.00	-14.19	45.36	11.80	38.03	35.38	109	161	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15720.16	58.95	74.00	-15.05	44.50	11.80	38.03	35.38	144	245	Peak	VERTICAL
2	15720.86	45.81	54.00	-8.19	31.36	11.80	38.03	35.38	144	245	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15777.02	45.54	54.00	-8.46	31.14	11.82	37.97	35.39	141	212	Average	HORIZONTAL
2	15778.00	58.67	74.00	-15.33	44.27	11.82	37.97	35.39	141	212	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15777.80	59.90	74.00	-14.10	45.50	11.82	37.97	35.39	103	127	Peak	VERTICAL
2	15780.50	47.12	54.00	-6.88	32.72	11.82	37.97	35.39	103	127	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10596.28	44.67	54.00	-9.33	29.68	10.07	39.88	34.96	111	120	Average	HORIZONTAL
2	10599.64	57.54	74.00	-16.46	42.55	10.07	39.88	34.96	111	120	Peak	HORIZONTAL
3	15896.48	46.06	54.00	-7.94	31.78	11.87	37.81	35.40	150	208	Average	HORIZONTAL
4	15902.58	58.60	74.00	-15.40	44.32	11.87	37.81	35.40	150	208	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10603.28	57.76	74.00	-16.24	42.77	10.07	39.88	34.96	158	201	Peak	VERTICAL
2	10604.92	44.55	54.00	-9.45	29.57	10.07	39.88	34.97	158	201	Average	VERTICAL
3	15900.00	46.09	54.00	-7.91	31.81	11.87	37.81	35.40	139	250	Average	VERTICAL
4	15901.22	58.84	74.00	-15.16	44.56	11.87	37.81	35.40	139	250	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10638.90	57.24	74.00	-16.76	42.25	10.08	39.90	34.99	183	224	Peak	HORIZONTAL
2	10643.86	44.35	54.00	-9.65	29.36	10.08	39.90	34.99	183	224	Average	HORIZONTAL
3	15955.92	59.29	74.00	-14.71	45.06	11.89	37.75	35.41	156	278	Peak	HORIZONTAL
4	15964.94	46.33	54.00	-7.67	32.10	11.89	37.75	35.41	156	278	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10635.48	44.64	54.00	-9.36	29.63	10.08	39.90	34.97	239	243	Average	VERTICAL
2	10640.96	57.47	74.00	-16.53	42.48	10.08	39.90	34.99	239	243	Peak	VERTICAL
3	15955.56	46.43	54.00	-7.57	32.20	11.89	37.75	35.41	192	210	Average	VERTICAL
4	15958.24	59.56	74.00	-14.44	45.33	11.89	37.75	35.41	192	210	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10995.08	44.09	54.00	-9.91	28.84	10.25	40.17	35.17	105	174	Average	HORIZONTAL
2	11003.24	56.84	74.00	-17.16	41.54	10.27	40.20	35.17	105	174	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10995.68	56.65	74.00	-17.35	41.40	10.25	40.17	35.17	141	94	Peak	VERTICAL
2	10997.96	43.97	54.00	-10.03	28.67	10.27	40.20	35.17	141	94	Average	VERTICAL

Temperature	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11157.80	44.32	54.00	-9.68	29.03	10.35	40.13	35.19	165	305	Average	HORIZONTAL
2	11159.40	57.14	74.00	-16.86	41.85	10.35	40.13	35.19	165	305	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11162.84	44.47	54.00	-9.53	29.18	10.35	40.13	35.19	100	282	Average	VERTICAL
2	11163.08	57.60	74.00	-16.40	42.31	10.35	40.13	35.19	100	282	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11401.80	58.18	74.00	-15.82	42.91	10.45	40.04	35.22	182	76	Peak	HORIZONTAL
2	11401.90	44.81	54.00	-9.19	29.54	10.45	40.04	35.22	182	76	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11398.44	57.96	74.00	-16.04	42.69	10.45	40.04	35.22	142	153	Peak	VERTICAL
2	11398.62	44.83	54.00	-9.17	29.56	10.45	40.04	35.22	142	153	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11487.74	56.84	74.00	-17.16	41.57	10.50	40.00	35.23	140	48	Peak	HORIZONTAL
2	11488.48	44.21	54.00	-9.79	28.94	10.50	40.00	35.23	140	48	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11487.78	58.05	74.00	-15.95	42.78	10.50	40.00	35.23	182	128	Peak	VERTICAL
2	11494.48	44.12	54.00	-9.88	28.85	10.50	40.00	35.23	182	128	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11566.96	43.82	54.00	-10.18	28.65	10.53	39.87	35.23	172	107	Average	HORIZONTAL
2	11573.36	57.44	74.00	-16.56	42.27	10.53	39.87	35.23	172	107	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11568.46	56.71	74.00	-17.29	41.54	10.53	39.87	35.23	212	90	Peak	VERTICAL
2	11573.90	44.46	54.00	-9.54	29.29	10.53	39.87	35.23	212	90	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11649.84	57.55	74.00	-16.45	42.48	10.56	39.73	35.22	136	145	Peak	HORIZONTAL
2	11653.18	43.58	54.00	-10.42	28.55	10.58	39.67	35.22	136	145	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11646.12	56.37	74.00	-17.63	41.30	10.56	39.73	35.22	102	237	Peak	VERTICAL
2	11654.14	43.40	54.00	-10.60	28.37	10.58	39.67	35.22	102	237	Average	VERTICAL

Temperature	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.46	59.98	74.00	-14.02	45.35	11.73	38.25	35.35	182	223	Peak	HORIZONTAL
2	15537.52	46.48	54.00	-7.52	31.85	11.73	38.25	35.35	182	223	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15543.60	46.99	54.00	-7.01	32.36	11.73	38.25	35.35	225	124	Average	VERTICAL
2	15544.76	59.37	74.00	-14.63	44.74	11.73	38.25	35.35	225	124	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 40 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15775.94	45.65	54.00	-8.35	31.25	11.82	37.97	35.39	177	152	Average	HORIZONTAL
2	15782.08	58.36	74.00	-15.64	43.99	11.84	37.92	35.39	177	152	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15776.78	45.68	54.00	-8.32	31.28	11.82	37.97	35.39	135	241	Average	VERTICAL
2	15783.24	58.72	74.00	-15.28	44.35	11.84	37.92	35.39	135	241	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 48 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15777.06	46.66	54.00	-7.34	32.26	11.82	37.97	35.39	150	198	Average	HORIZONTAL
2	15783.80	58.38	74.00	-15.62	44.01	11.84	37.92	35.39	150	198	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15782.34	45.66	54.00	-8.34	31.29	11.84	37.92	35.39	101	287	Average	VERTICAL
2	15782.58	58.05	74.00	-15.95	43.68	11.84	37.92	35.39	101	287	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15249.76	47.60	54.00	-6.40	31.83	11.62	39.44	35.29	138	228	Average	HORIZONTAL
2	15257.64	60.56	74.00	-13.44	44.80	11.62	39.44	35.30	138	228	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15250.04	61.19	74.00	-12.81	45.42	11.62	39.44	35.29	178	149	Peak	VERTICAL
2	15250.26	47.46	54.00	-6.54	31.69	11.62	39.44	35.29	178	149	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10602.30	44.16	54.00	-9.84	29.17	10.07	39.88	34.96	141	260	Average	HORIZONTAL
2	10604.66	57.04	74.00	-16.96	42.06	10.07	39.88	34.97	141	260	Peak	HORIZONTAL
3	15897.50	46.23	54.00	-7.77	31.95	11.87	37.81	35.40	114	301	Average	HORIZONTAL
4	15900.04	59.07	74.00	-14.93	44.79	11.87	37.81	35.40	114	301	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10599.98	44.68	54.00	-9.32	29.69	10.07	39.88	34.96	101	244	Average	VERTICAL
2	10600.96	58.00	74.00	-16.00	43.01	10.07	39.88	34.96	101	244	Peak	VERTICAL
3	15901.96	46.06	54.00	-7.94	31.78	11.87	37.81	35.40	112	297	Average	VERTICAL
4	15903.80	59.39	74.00	-14.61	45.11	11.87	37.81	35.40	112	297	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10635.60	44.68	54.00	-9.32	29.67	10.08	39.90	34.97	147	220	Average	HORIZONTAL
2	10643.98	57.92	74.00	-16.08	42.93	10.08	39.90	34.99	147	220	Peak	HORIZONTAL
3	15963.32	59.62	74.00	-14.38	45.39	11.89	37.75	35.41	242	24	Peak	HORIZONTAL
4	15964.08	46.51	54.00	-7.49	32.28	11.89	37.75	35.41	242	24	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10638.22	44.57	54.00	-9.43	29.56	10.08	39.90	34.97	191	159	Average	VERTICAL
2	10644.56	57.78	74.00	-16.22	42.79	10.08	39.90	34.99	191	159	Peak	VERTICAL
3	15956.26	46.70	54.00	-7.30	32.47	11.89	37.75	35.41	202	79	Average	VERTICAL
4	15958.28	60.15	74.00	-13.85	45.92	11.89	37.75	35.41	202	79	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10996.48	44.18	54.00	-9.82	28.88	10.27	40.20	35.17	138	240	Average	HORIZONTAL
2	11003.08	57.34	74.00	-16.66	42.04	10.27	40.20	35.17	138	240	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10995.52	44.19	54.00	-9.81	28.94	10.25	40.17	35.17	100	307	Average	VERTICAL
2	10999.98	56.59	74.00	-17.41	41.29	10.27	40.20	35.17	100	307	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11157.26	44.76	54.00	-9.24	29.47	10.35	40.13	35.19	205	208	Average	HORIZONTAL
2	11163.80	58.14	74.00	-15.86	42.85	10.35	40.13	35.19	205	208	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11157.42	44.61	54.00	-9.39	29.32	10.35	40.13	35.19	196	176	Average	VERTICAL
2	11159.46	57.40	74.00	-16.60	42.11	10.35	40.13	35.19	196	176	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11401.10	45.13	54.00	-8.87	29.86	10.45	40.04	35.22	158	99	Average	HORIZONTAL
2	11404.16	57.82	74.00	-16.18	42.55	10.45	40.04	35.22	158	99	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11397.62	45.09	54.00	-8.91	29.82	10.45	40.04	35.22	171	116	Average	VERTICAL
2	11403.10	58.17	74.00	-15.83	42.90	10.45	40.04	35.22	171	116	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11480.00	47.85	54.00	-6.15	32.59	10.48	40.01	35.23	122	191	Average	HORIZONTAL
2	11480.00	57.38	74.00	-16.62	42.12	10.48	40.01	35.23	122	191	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11488.61	58.77	74.00	-15.23	43.50	10.50	40.00	35.23	158	273	Peak	VERTICAL
2	11489.10	48.14	54.00	-5.86	32.87	10.50	40.00	35.23	158	273	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11569.82	60.72	74.00	-13.28	45.55	10.53	39.87	35.23	138	186	Peak	HORIZONTAL
2	11569.86	48.92	54.00	-5.08	33.75	10.53	39.87	35.23	138	186	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11570.02	58.54	74.00	-15.46	43.37	10.53	39.87	35.23	175	355	Peak	VERTICAL
2	11570.03	49.52	54.00	-4.48	34.35	10.53	39.87	35.23	175	355	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11650.32	47.99	54.00	-6.01	32.92	10.56	39.73	35.22	142	154	Average	HORIZONTAL
2	11656.40	60.02	74.00	-13.98	44.99	10.58	39.67	35.22	142	154	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11649.44	48.04	54.00	-5.96	32.97	10.56	39.73	35.22	101	89	Average	VERTICAL
2	11649.68	60.47	74.00	-13.53	45.40	10.56	39.73	35.22	101	89	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15573.36	46.07	54.00	-7.93	31.49	11.75	38.19	35.36	117	192	Average	HORIZONTAL
2	15576.92	58.52	74.00	-15.48	43.94	11.75	38.19	35.36	117	192	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15574.12	46.09	54.00	-7.91	31.51	11.75	38.19	35.36	190	206	Average	VERTICAL
2	15578.52	59.46	74.00	-14.54	44.88	11.75	38.19	35.36	190	206	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 46 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15686.36	45.80	54.00	-8.20	31.31	11.78	38.08	35.37	117	198	Average	HORIZONTAL
2	15692.04	58.82	74.00	-15.18	44.36	11.80	38.03	35.37	117	198	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15684.48	45.81	54.00	-8.19	31.32	11.78	38.08	35.37	162	136	Average	VERTICAL
2	15693.08	58.62	74.00	-15.38	44.16	11.80	38.03	35.37	162	136	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15816.12	45.38	54.00	-8.62	31.02	11.84	37.92	35.40	189	121	Average	HORIZONTAL
2	15816.60	59.06	74.00	-14.94	44.70	11.84	37.92	35.40	189	121	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15801.68	45.56	54.00	-8.44	31.19	11.84	37.92	35.39	160	187	Average	VERTICAL
2	15818.68	57.81	74.00	-16.19	43.45	11.84	37.92	35.40	160	187	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11nMCS0 HT40 CH 62 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10622.12	56.86	74.00	-17.14	41.85	10.08	39.90	34.97	142	206	Peak	HORIZONTAL
2	10624.24	44.56	54.00	-9.44	29.55	10.08	39.90	34.97	142	206	Average	HORIZONTAL
3	15935.56	59.24	74.00	-14.76	45.01	11.89	37.75	35.41	169	251	Peak	HORIZONTAL
4	15936.60	46.42	54.00	-7.58	32.19	11.89	37.75	35.41	169	251	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10628.32	58.16	74.00	-15.84	43.15	10.08	39.90	34.97	104	126	Peak	VERTICAL
2	10629.88	44.76	54.00	-9.24	29.75	10.08	39.90	34.97	104	126	Average	VERTICAL
3	15931.36	59.15	74.00	-14.85	44.92	11.89	37.75	35.41	119	167	Peak	VERTICAL
4	15939.36	46.45	54.00	-7.55	32.22	11.89	37.75	35.41	119	167	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11026.20	44.20	54.00	-9.80	28.90	10.27	40.20	35.17	209	168	Average	HORIZONTAL
2	11027.56	56.68	74.00	-17.32	41.38	10.27	40.20	35.17	209	168	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11020.88	44.05	54.00	-9.95	28.75	10.27	40.20	35.17	169	231	Average	VERTICAL
2	11027.08	56.66	74.00	-17.34	41.36	10.27	40.20	35.17	169	231	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 110 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11095.76	44.62	54.00	-9.38	29.33	10.31	40.16	35.18	118	285	Average	HORIZONTAL
2	11096.76	57.49	74.00	-16.51	42.20	10.31	40.16	35.18	118	285	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11097.06	57.73	74.00	-16.27	42.44	10.31	40.16	35.18	124	207	Peak	VERTICAL
2	11097.92	44.80	54.00	-9.20	29.51	10.31	40.16	35.18	124	207	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 134 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11415.06	45.00	54.00	-9.00	29.73	10.45	40.04	35.22	193	218	Average	HORIZONTAL
2	11417.92	58.19	74.00	-15.81	42.91	10.47	40.03	35.22	193	218	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11420.86	58.11	74.00	-15.89	42.83	10.47	40.03	35.22	146	164	Peak	VERTICAL
2	11423.12	44.82	54.00	-9.18	29.54	10.47	40.03	35.22	146	164	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11509.72	57.83	74.00	-16.17	42.56	10.50	40.00	35.23	206	255	Peak	HORIZONTAL
2	11514.92	44.43	54.00	-9.57	29.16	10.50	40.00	35.23	206	255	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11506.58	44.28	54.00	-9.72	29.01	10.50	40.00	35.23	160	195	Average	VERTICAL
2	11513.74	57.39	74.00	-16.61	42.12	10.50	40.00	35.23	160	195	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11586.70	57.20	74.00	-16.80	42.07	10.55	39.80	35.22	105	121	Peak	HORIZONTAL
2	11591.14	44.33	54.00	-9.67	29.20	10.55	39.80	35.22	105	121	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11585.40	44.20	54.00	-9.80	29.07	10.55	39.80	35.22	134	75	Average	VERTICAL
2	11587.30	57.57	74.00	-16.43	42.44	10.55	39.80	35.22	134	75	Peak	VERTICAL

Straddle Channel

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 144 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11438.20	44.48	54.00	-9.52	29.21	10.47	40.03	35.23	193	30	Average	HORIZONTAL
2	11441.98	57.73	74.00	-16.27	42.46	10.47	40.03	35.23	193	30	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11440.42	44.70	54.00	-9.30	29.43	10.47	40.03	35.23	159	106	Average	VERTICAL
2	11442.00	58.41	74.00	-15.59	43.14	10.47	40.03	35.23	159	106	Peak	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 144 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11435.06	60.17	74.00	-13.83	44.90	10.47	40.03	35.23	141	166	Peak	HORIZONTAL
2	11435.14	46.83	54.00	-7.17	31.56	10.47	40.03	35.23	141	166	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11439.80	59.46	74.00	-14.54	44.19	10.47	40.03	35.23	170	92	Peak	VERTICAL
2	11442.64	46.92	54.00	-7.08	31.65	10.47	40.03	35.23	170	92	Average	VERTICAL

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 142 / Ant. 1 + Ant. 2
Test Date	Jul. 27, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11417.86	45.06	54.00	-8.94	29.78	10.47	40.03	35.22	150	155	Average	HORIZONTAL
2	11422.14	59.24	74.00	-14.76	43.96	10.47	40.03	35.22	150	155	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11420.20	45.02	54.00	-8.98	29.74	10.47	40.03	35.22	123	139	Average	VERTICAL
2	11424.12	58.07	74.00	-15.93	42.79	10.47	40.03	35.22	123	139	Peak	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 an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.470-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for Peak

4.7.3. Test Procedures

The test procedure is the same as section 4.6.3.

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.

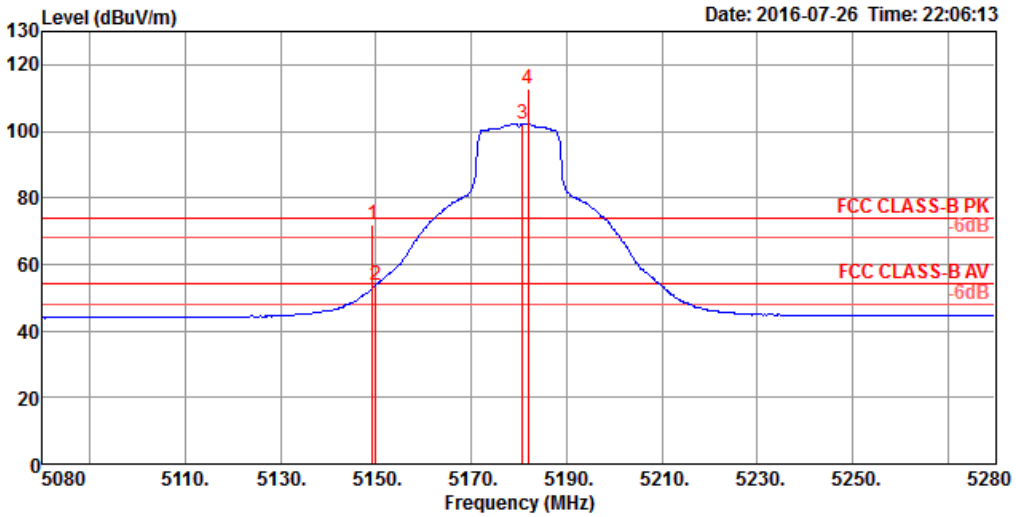
4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2

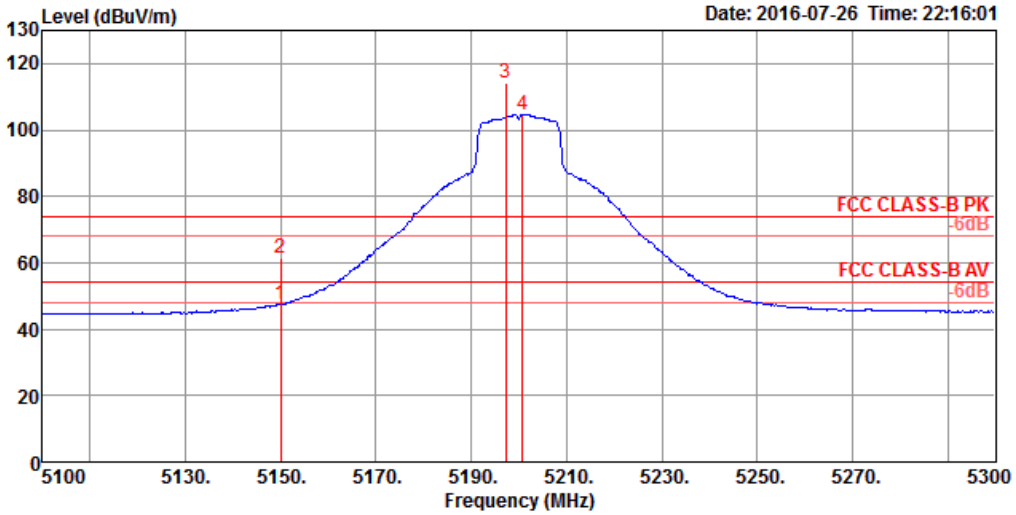
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.20	71.86	74.00	-2.14	66.77	6.51	31.52	32.94	100	317	Peak	HORIZONTAL
2	5150.00	53.91	54.00	-0.09	48.82	6.51	31.52	32.94	100	317	Average	HORIZONTAL
3 0	5180.80	102.33			97.19	6.53	31.55	32.94	100	317	Average	HORIZONTAL
4 0	5182.00	112.49			107.35	6.53	31.55	32.94	100	317	Peak	HORIZONTAL

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

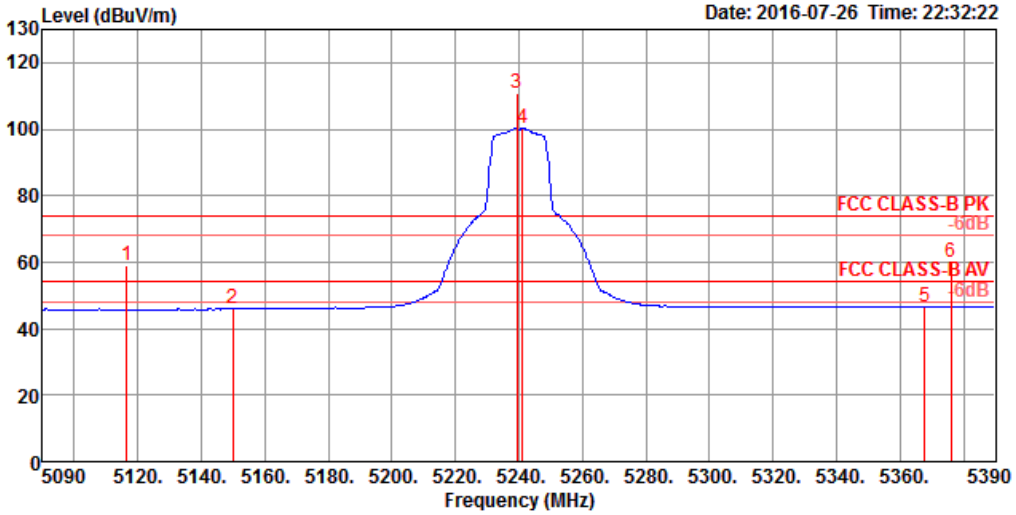
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5150.00	47.49	54.00	-6.51	42.40	6.51	31.52	32.94	101	318	Average	HORIZONTAL
2	5150.00	61.48	74.00	-12.52	56.39	6.51	31.52	32.94	101	318	Peak	HORIZONTAL
3 0	5197.20	114.21			109.05	6.54	31.56	32.94	101	318	Peak	HORIZONTAL
4 0	5200.80	104.61			99.45	6.54	31.56	32.94	101	318	Average	HORIZONTAL

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

Channel 48

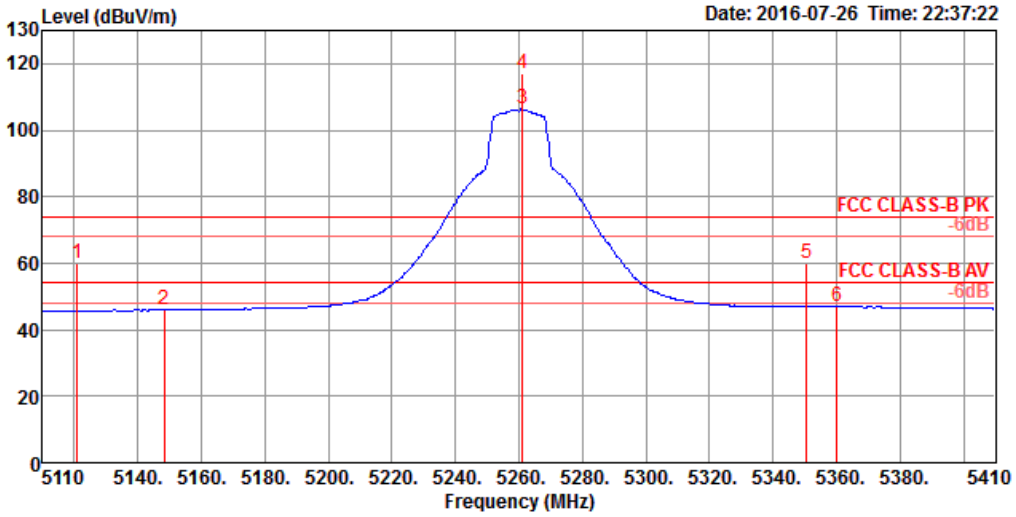


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5116.40	59.12	74.00	-14.88	54.08	6.48	31.50	32.94	101	360	Peak	VERTICAL
2	5150.00	45.83	54.00	-8.17	40.74	6.51	31.52	32.94	101	360	Average	VERTICAL
3 0	5239.40	110.91			105.69	6.57	31.59	32.94	101	360	Peak	VERTICAL
4 0	5241.20	100.17			94.95	6.57	31.59	32.94	101	360	Average	VERTICAL
5	5367.80	46.70	54.00	-7.30	41.27	6.67	31.69	32.93	101	360	Average	VERTICAL
6	5376.20	59.84	74.00	-14.16	54.39	6.68	31.70	32.93	101	360	Peak	VERTICAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 52, 60, 64 / Ant. 1 + Ant. 2

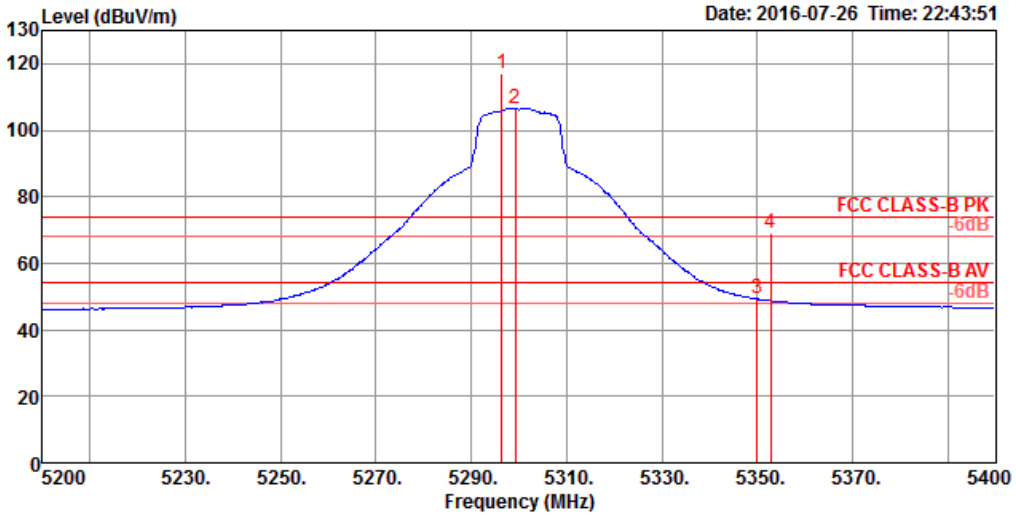
Channel 52



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.80	59.87	74.00	-14.13	54.83	6.48	31.50	32.94	101	317	Peak	HORIZONTAL
2	5148.40	45.97	54.00	-8.03	40.88	6.51	31.52	32.94	101	317	Average	HORIZONTAL
3 0	5261.20	106.36			101.09	6.59	31.61	32.93	101	317	Average	HORIZONTAL
4 0	5261.20	117.11			111.84	6.59	31.61	32.93	101	317	Peak	HORIZONTAL
5	5350.60	59.89	74.00	-14.11	54.48	6.66	31.68	32.93	101	317	Peak	HORIZONTAL
6	5360.20	46.94	54.00	-7.06	41.51	6.67	31.69	32.93	101	317	Average	HORIZONTAL

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

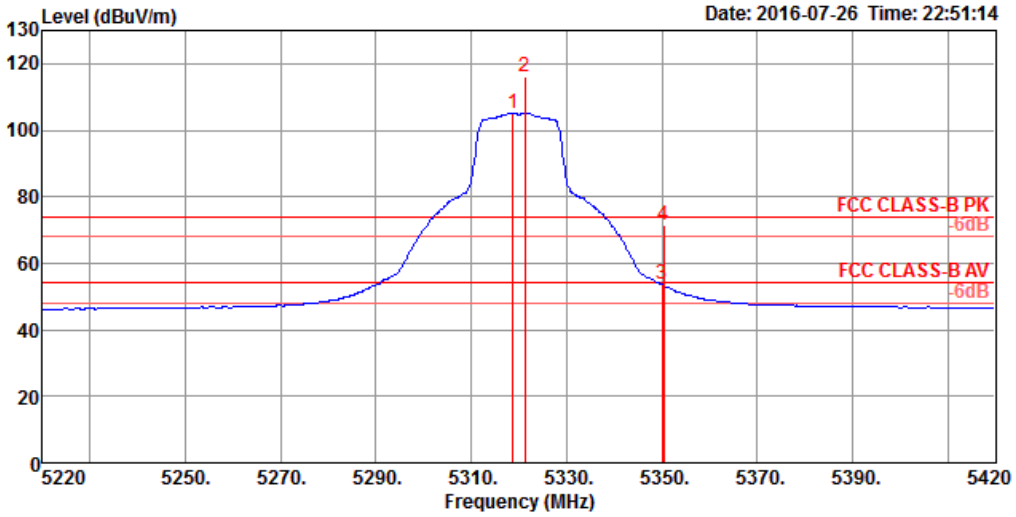
Channel 60



		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5296.40	117.21			111.88	6.62	31.64	32.93	104	316	Peak	HORIZONTAL
2	0	5299.20	106.70			101.37	6.62	31.64	32.93	104	316	Average	HORIZONTAL
3		5350.00	49.25	54.00	-4.75	43.84	6.66	31.68	32.93	104	316	Average	HORIZONTAL
4		5352.80	69.23	74.00	-4.77	63.82	6.66	31.68	32.93	104	316	Peak	HORIZONTAL

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

Channel 64

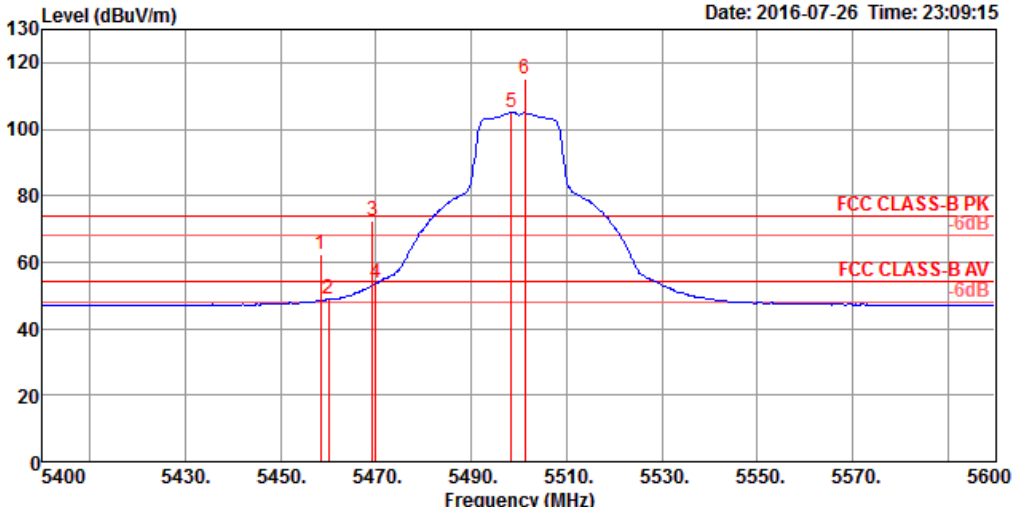


		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5318.80	105.26			99.91	6.63	31.65	32.93	100	314	Average	HORIZONTAL
2	0	5321.20	115.99			110.64	6.63	31.65	32.93	100	314	Peak	HORIZONTAL
3		5350.00	53.56	54.00	-0.44	48.15	6.66	31.68	32.93	100	314	Average	HORIZONTAL
4		5350.40	71.59	74.00	-2.41	66.18	6.66	31.68	32.93	100	314	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 100, 116, 140 / Ant. 1 + Ant. 2

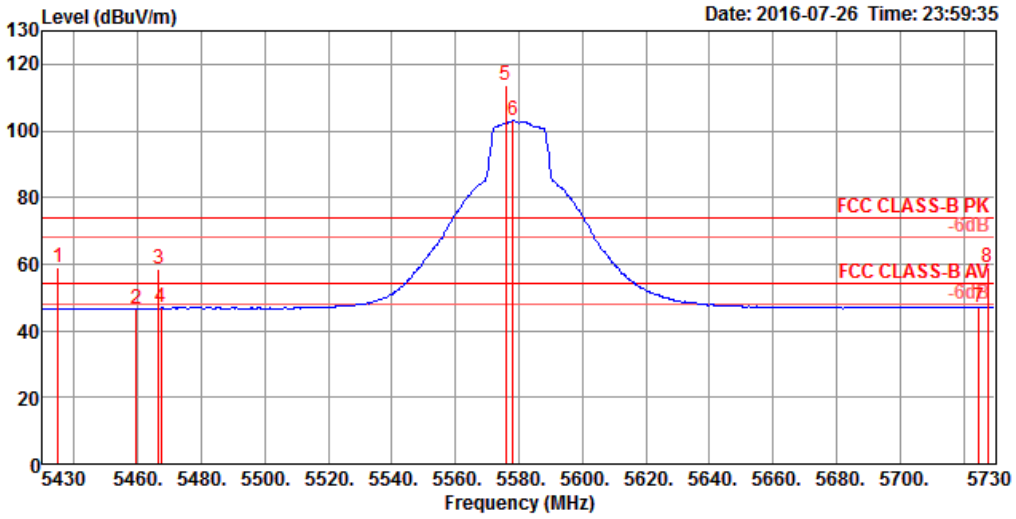
Channel 100



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5458.40	62.24	74.00	-11.76	56.67	6.73	31.76	32.92	100	313	Peak	HORIZONTAL
2	5460.00	48.80	54.00	-5.20	43.23	6.73	31.76	32.92	100	313	Average	HORIZONTAL
3	5469.20	72.33	74.00	-1.67	66.73	6.74	31.78	32.92	100	313	Peak	HORIZONTAL
4	5470.00	53.60	54.00	-0.40	48.00	6.74	31.78	32.92	100	313	Average	HORIZONTAL
5 0	5498.40	105.02			99.38	6.76	31.80	32.92	100	313	Average	HORIZONTAL
6 0	5501.20	115.15			109.51	6.76	31.80	32.92	100	313	Peak	HORIZONTAL

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

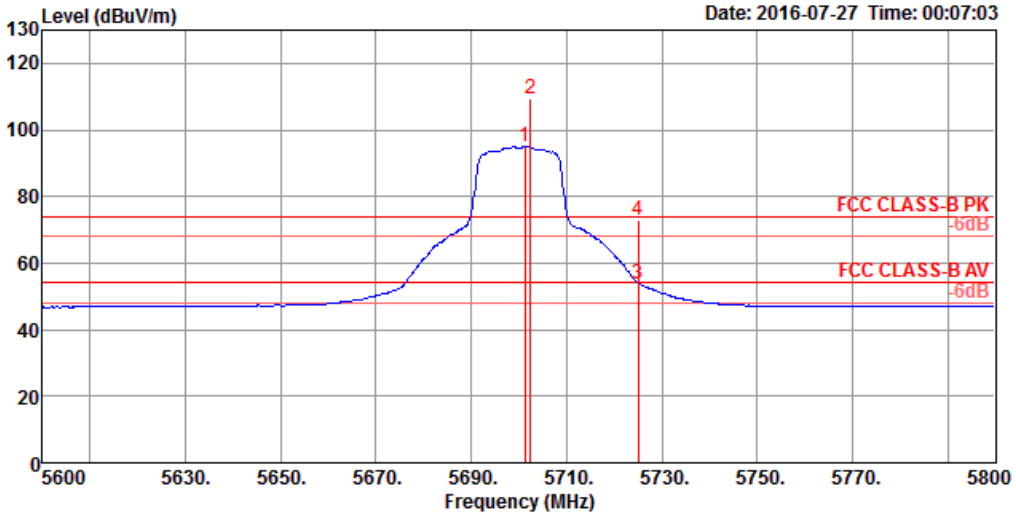
Channel 116



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5434.80	58.79	74.00	-15.21	53.24	6.72	31.75	32.92	101	332	Peak	VERTICAL
2	5459.40	46.67	54.00	-7.33	41.10	6.73	31.76	32.92	101	332	Average	VERTICAL
3	5466.40	58.55	74.00	-15.45	52.95	6.74	31.78	32.92	101	332	Peak	VERTICAL
4	5467.20	46.79	54.00	-7.21	41.19	6.74	31.78	32.92	101	332	Average	VERTICAL
5 0	5575.80	113.66			107.90	6.81	31.90	32.95	101	332	Peak	VERTICAL
6 0	5578.20	102.95			97.20	6.81	31.90	32.96	101	332	Average	VERTICAL
7	5725.00	46.93	54.00	-7.07	40.92	6.93	32.08	33.00	101	332	Average	VERTICAL
8	5727.60	59.22	74.00	-14.78	53.22	6.93	32.08	33.01	101	332	Peak	VERTICAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

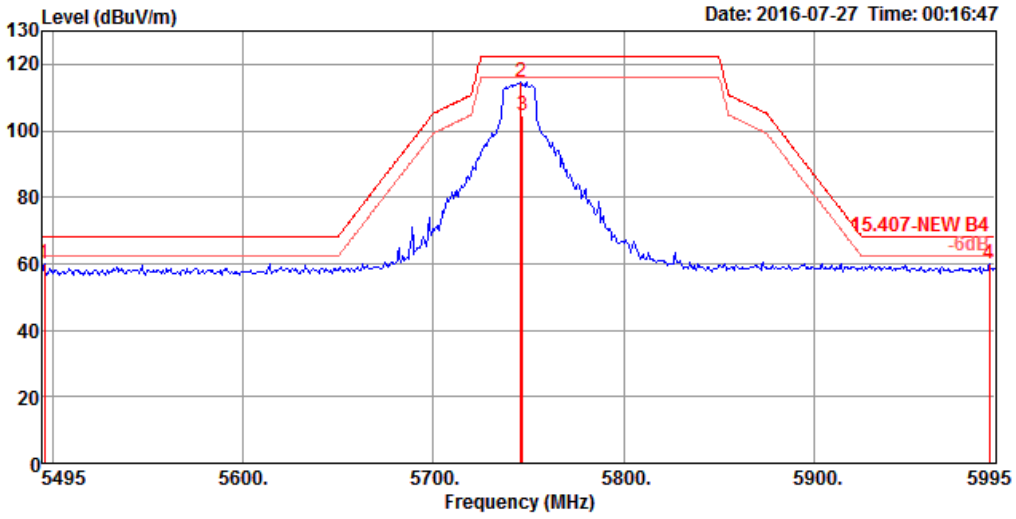


		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5701.20	94.80			88.86	6.90	32.04	33.00	100	1	Average	VERTICAL
2	0	5702.40	109.49			103.55	6.90	32.04	33.00	100	1	Peak	VERTICAL
3		5725.00	53.81	54.00	-0.19	47.80	6.93	32.08	33.00	100	1	Average	VERTICAL
4		5725.00	72.99	74.00	-1.01	66.98	6.93	32.08	33.00	100	1	Peak	VERTICAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2

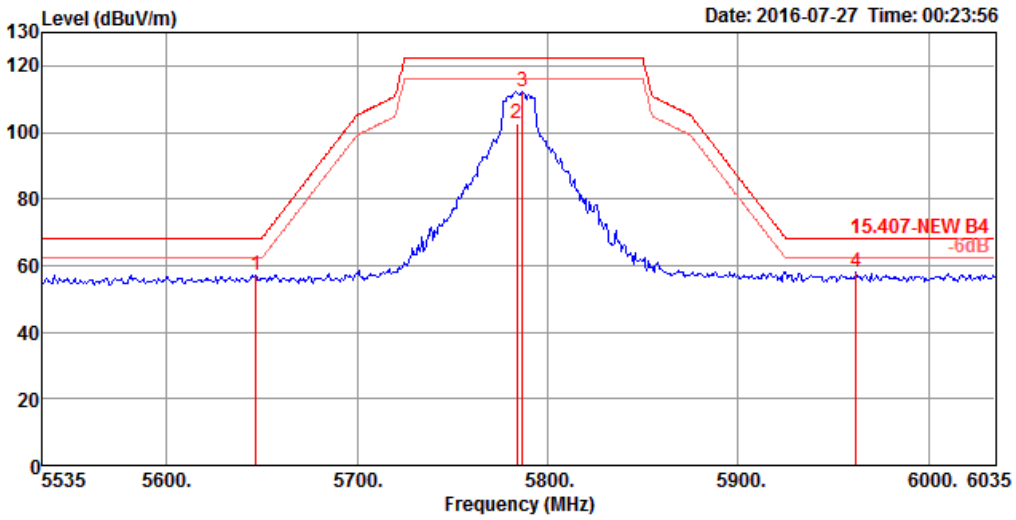
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5496.00	59.92	68.20	-8.28	54.28	6.76	31.80	32.92	100	296	Peak	HORIZONTAL
2	5746.00	114.74			108.72	6.94	32.10	33.02	100	296	Peak	HORIZONTAL
3	5747.00	104.49			98.47	6.94	32.10	33.02	100	296	Average	HORIZONTAL
4	5992.00	60.01	68.20	-8.19	53.69	7.04	32.38	33.10	100	296	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

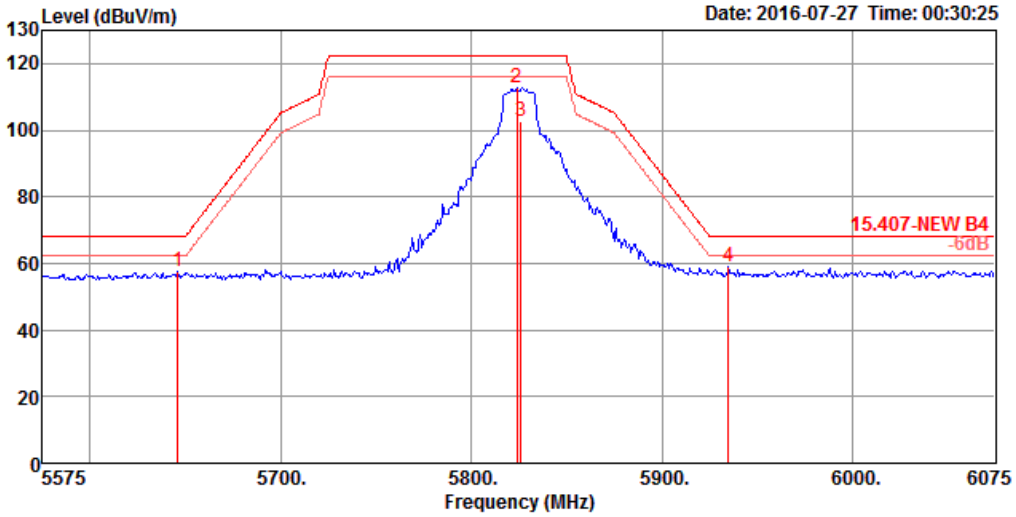
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5647.00	57.12	68.20	-11.08	51.26	6.86	31.98	32.98	100	296	Peak	HORIZONTAL
2	5784.00	102.53			96.45	6.97	32.14	33.03	100	296	Average	HORIZONTAL
3	5787.00	112.45			106.37	6.97	32.14	33.03	100	296	Peak	HORIZONTAL
4	5962.00	58.09	68.20	-10.11	51.79	7.04	32.36	33.10	100	296	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

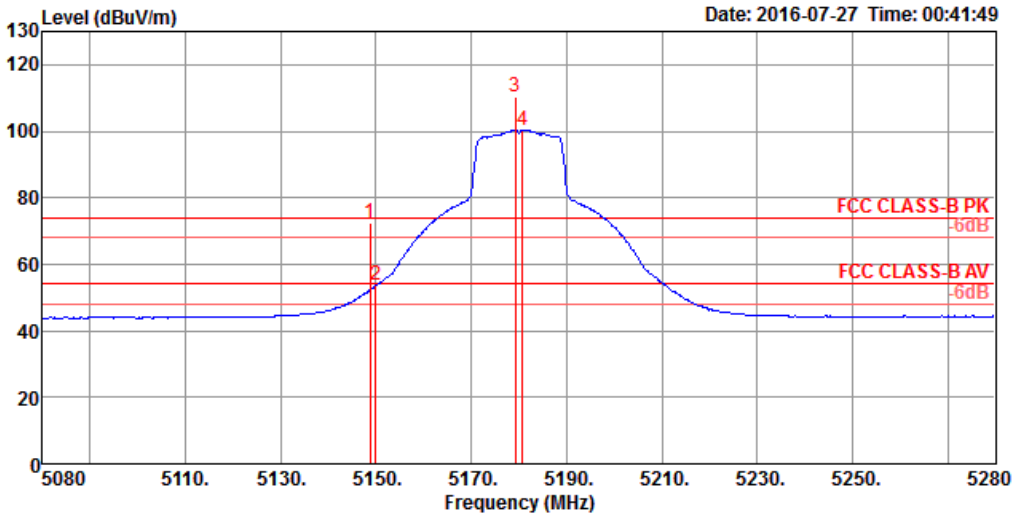


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5646.00	57.74	68.20	-10.46	51.88	6.86	31.98	32.98	100	294	Peak	HORIZONTAL
2	5824.00	112.76			106.62	6.99	32.20	33.05	100	294	Peak	HORIZONTAL
3	5826.00	102.54			96.40	6.99	32.20	33.05	100	294	Average	HORIZONTAL
4	5935.00	59.24	68.20	-8.96	52.97	7.03	32.32	33.08	100	294	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36, 40, 48 / Ant. 1 + Ant. 2

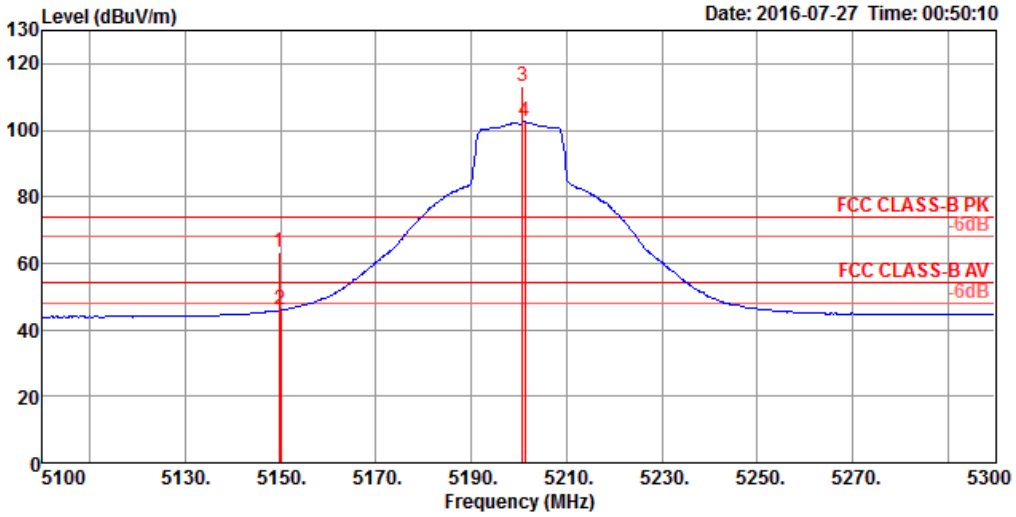
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.80	72.67	74.00	-1.33	67.58	6.51	31.52	32.94	107	260	Peak	HORIZONTAL
2	5150.00	53.60	54.00	-0.40	48.51	6.51	31.52	32.94	107	260	Average	HORIZONTAL
3 0	5179.20	110.36			105.22	6.53	31.55	32.94	107	260	Peak	HORIZONTAL
4 0	5180.80	100.29			95.15	6.53	31.55	32.94	107	260	Average	HORIZONTAL

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

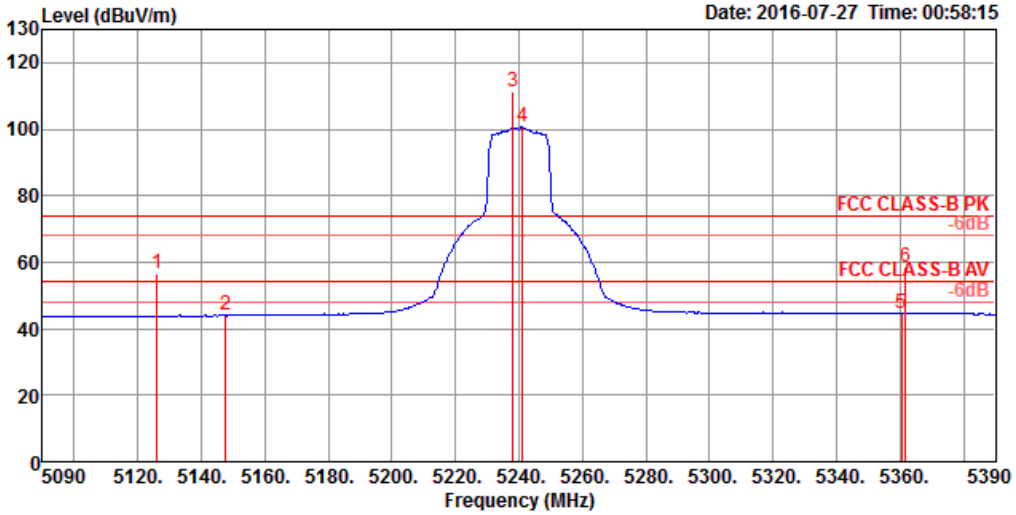
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.60	63.52	74.00	-10.48	58.43	6.51	31.52	32.94	100	314	Peak	HORIZONTAL
2	5150.00	45.84	54.00	-8.16	40.75	6.51	31.52	32.94	100	314	Average	HORIZONTAL
3 0	5200.80	113.20			108.04	6.54	31.56	32.94	100	314	Peak	HORIZONTAL
4 0	5201.20	102.44			97.28	6.54	31.56	32.94	100	314	Average	HORIZONTAL

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

Channel 48

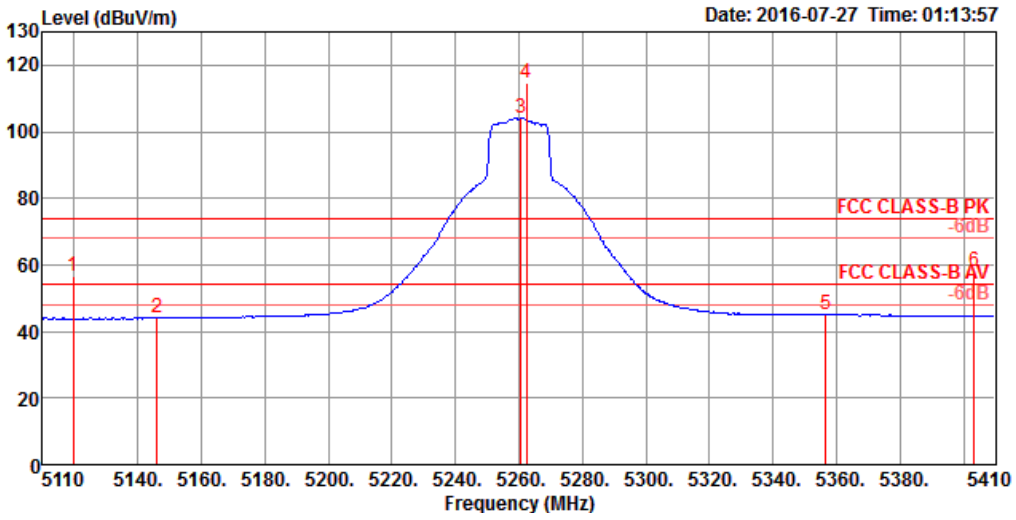


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5126.00	56.40	74.00	-17.60	51.36	6.48	31.50	32.94	102	317	Peak	HORIZONTAL
2	5147.60	43.95	54.00	-10.05	38.86	6.51	31.52	32.94	102	317	Average	HORIZONTAL
3 0	5238.20	111.51			106.29	6.57	31.59	32.94	102	317	Peak	HORIZONTAL
4 0	5241.20	100.61			95.39	6.57	31.59	32.94	102	317	Average	HORIZONTAL
5	5360.60	44.75	54.00	-9.25	39.32	6.67	31.69	32.93	102	317	Average	HORIZONTAL
6	5361.80	58.38	74.00	-15.62	52.95	6.67	31.69	32.93	102	317	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52, 60, 64 / Ant. 1 + Ant. 2

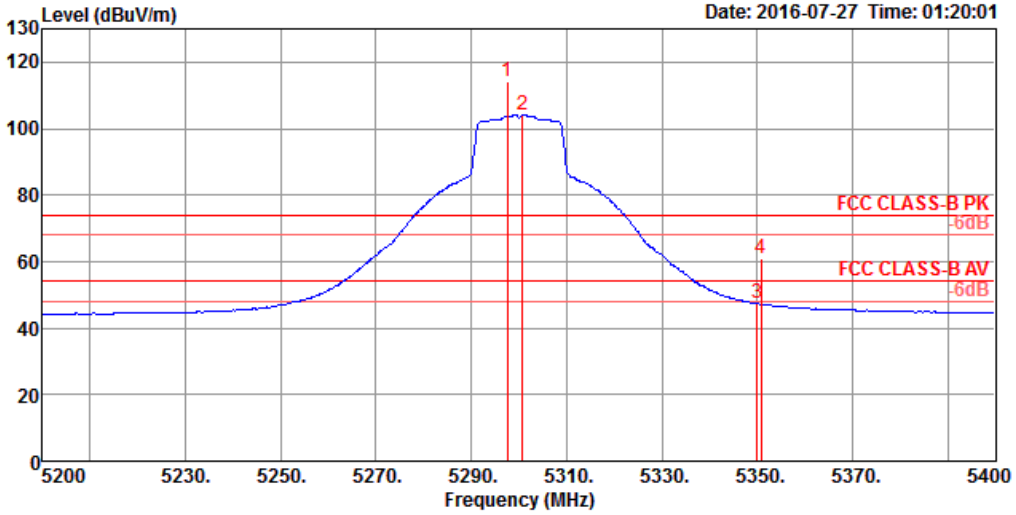
Channel 52



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5119.60	56.70	74.00	-17.30	51.66	6.48	31.50	32.94	100	314	Peak	HORIZONTAL
2	5146.00	44.10	54.00	-9.90	39.01	6.51	31.52	32.94	100	314	Average	HORIZONTAL
3 0	5260.60	104.26			98.99	6.59	31.61	32.93	100	314	Average	HORIZONTAL
4 0	5262.40	114.84			109.55	6.60	31.62	32.93	100	314	Peak	HORIZONTAL
5	5356.60	45.08	54.00	-8.92	39.65	6.67	31.69	32.93	100	314	Average	HORIZONTAL
6	5403.40	58.20	74.00	-15.80	52.70	6.70	31.73	32.93	100	314	Peak	HORIZONTAL

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

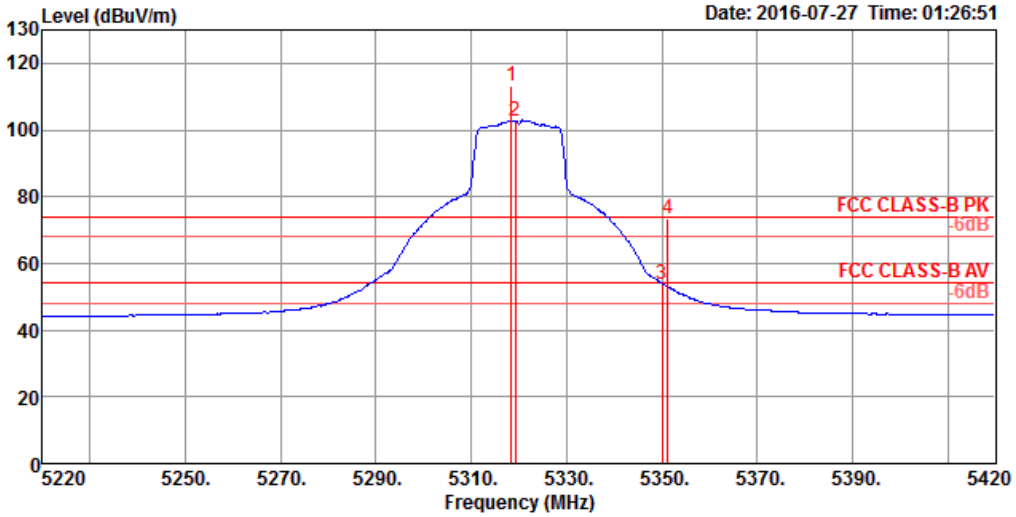
Channel 60



		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5297.60	114.26			108.93	6.62	31.64	32.93	100	315	Peak	HORIZONTAL
2	0	5300.80	103.98			98.65	6.62	31.64	32.93	100	315	Average	HORIZONTAL
3		5350.00	47.51	54.00	-6.49	42.10	6.66	31.68	32.93	100	315	Average	HORIZONTAL
4		5350.80	61.02	74.00	-12.98	55.61	6.66	31.68	32.93	100	315	Peak	HORIZONTAL

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

Channel 64

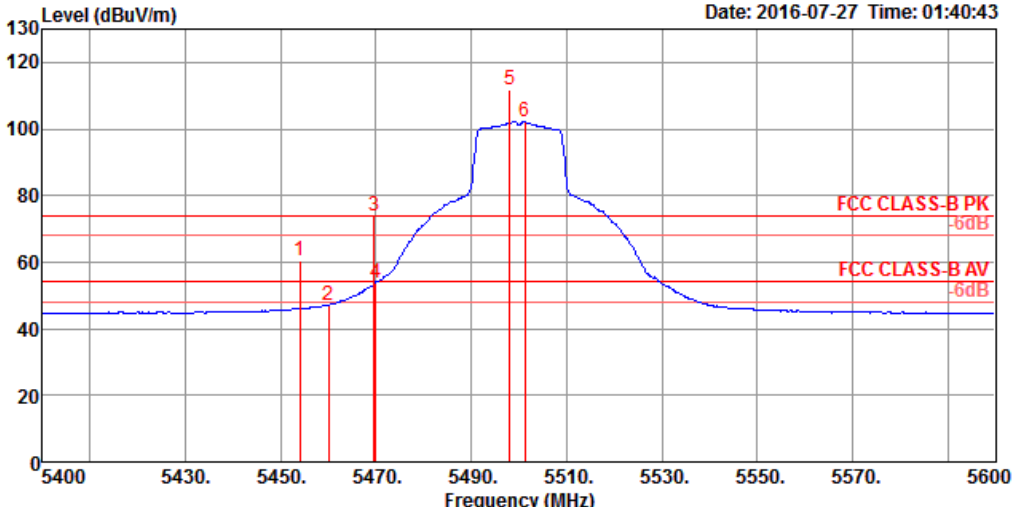


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 0	5318.40	113.31			107.96	6.63	31.65	32.93	103	313	Peak	HORIZONTAL
2 0	5319.20	102.88			97.53	6.63	31.65	32.93	103	313	Average	HORIZONTAL
3	5350.00	53.94	54.00	-0.06	48.53	6.66	31.68	32.93	103	313	Average	HORIZONTAL
4	5351.20	73.48	74.00	-0.52	68.07	6.66	31.68	32.93	103	313	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100, 116, 140 / Ant. 1 + Ant. 2

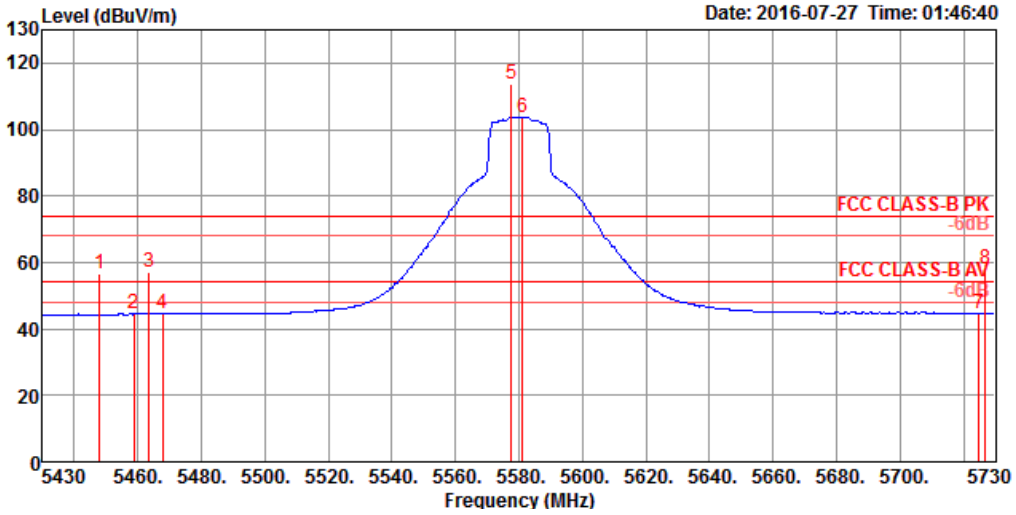
Channel 100



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5454.00	60.50	74.00	-13.50	54.93	6.73	31.76	32.92	103	317	Peak	HORIZONTAL
2	5460.00	47.13	54.00	-6.87	41.56	6.73	31.76	32.92	103	317	Average	HORIZONTAL
3	5469.60	73.66	74.00	-0.34	68.06	6.74	31.78	32.92	103	317	Peak	HORIZONTAL
4	5470.00	53.94	54.00	-0.06	48.34	6.74	31.78	32.92	103	317	Average	HORIZONTAL
5 0	5498.00	111.96			06.32	6.76	31.80	32.92	103	317	Peak	HORIZONTAL
6 0	5501.20	102.14			96.50	6.76	31.80	32.92	103	317	Average	HORIZONTAL

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

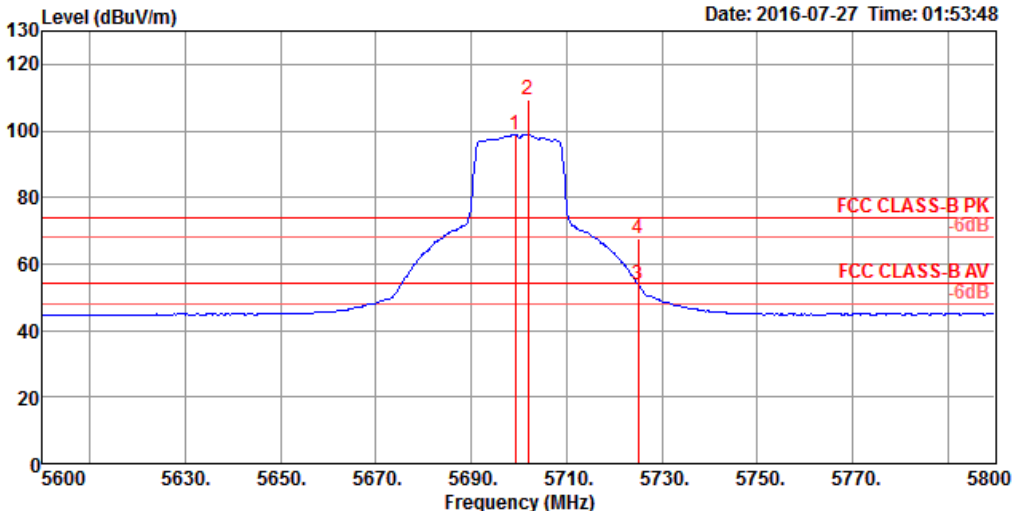
Channel 116



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5448.00	56.84	74.00	-17.16	51.27	6.73	31.76	32.92	101	315	Peak	HORIZONTAL
2	5458.80	44.44	54.00	-9.56	38.87	6.73	31.76	32.92	101	315	Average	HORIZONTAL
3	5463.60	57.08	74.00	-16.92	51.48	6.74	31.78	32.92	101	315	Peak	HORIZONTAL
4	5467.80	44.69	54.00	-9.31	39.09	6.74	31.78	32.92	101	315	Average	HORIZONTAL
5 0	5577.60	113.54			107.78	6.81	31.90	32.95	101	315	Peak	HORIZONTAL
6 0	5581.20	103.84			98.09	6.81	31.90	32.96	101	315	Average	HORIZONTAL
7	5725.00	44.74	54.00	-9.26	38.73	6.93	32.08	33.00	101	315	Average	HORIZONTAL
8	5727.00	57.92	74.00	-16.08	51.92	6.93	32.08	33.01	101	315	Peak	HORIZONTAL

Item 5, 6 are the fundamental frequency at 5580 MHz.

Channel 140

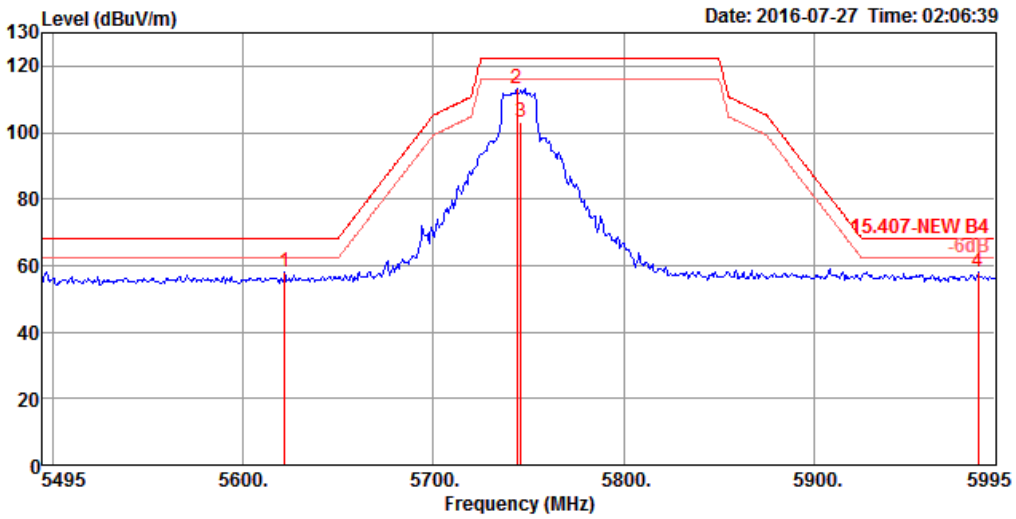


		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5699.20	98.93			92.99	6.90	32.04	33.00	103	313	Average	HORIZONTAL
2	0	5702.00	109.39			103.45	6.90	32.04	33.00	103	313	Peak	HORIZONTAL
3		5725.00	53.54	54.00	-0.46	47.53	6.93	32.08	33.00	103	313	Average	HORIZONTAL
4		5725.00	67.52	74.00	-6.48	61.51	6.93	32.08	33.00	103	313	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149, 157, 165 / Ant. 1 + Ant. 2

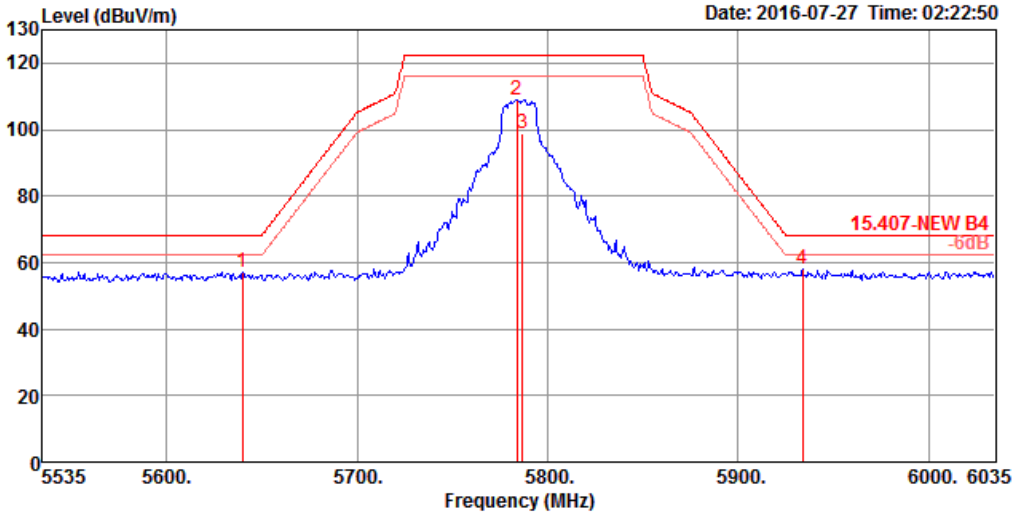
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5622.00	58.02	68.20	-10.18	52.22	6.83	31.94	32.97	102	315	Peak	HORIZONTAL
2	5744.00	113.13			107.10	6.94	32.10	33.01	102	315	Peak	HORIZONTAL
3	5746.00	103.00			96.98	6.94	32.10	33.02	102	315	Average	HORIZONTAL
4	5986.00	57.94	68.20	-10.26	51.62	7.04	32.38	33.10	102	315	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5745 MHz.

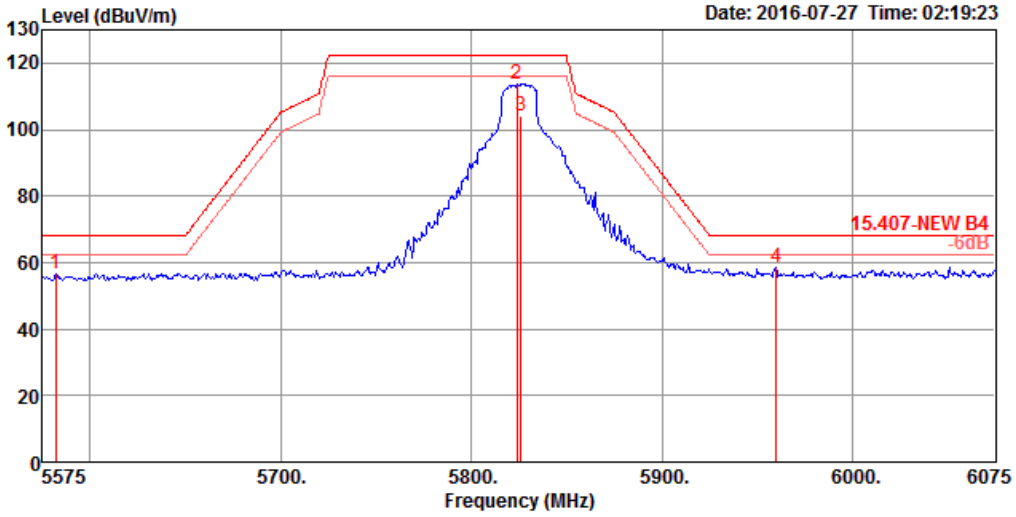
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5640.00	57.27	68.20	-10.93	51.44	6.85	31.96	32.98	111	2	Peak	VERTICAL
2	5784.00	109.04			102.96	6.97	32.14	33.03	111	2	Peak	VERTICAL
3	5787.00	98.93			92.85	6.97	32.14	33.03	111	2	Average	VERTICAL
4	5934.00	58.06	68.20	-10.14	51.79	7.03	32.32	33.08	111	2	Peak	VERTICAL

Item 2, 3 are the fundamental frequency at 5785 MHz.

Channel 165

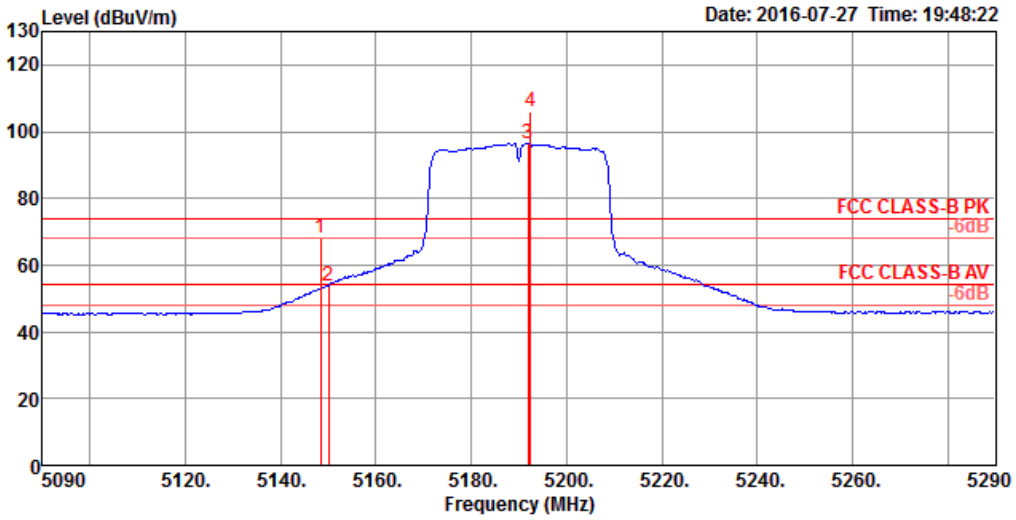


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5582.00	56.68	68.20	-11.52	50.93	6.81	31.90	32.96	103	312	Peak	HORIZONTAL
2	5824.00	113.81			107.67	6.99	32.20	33.05	103	312	Peak	HORIZONTAL
3	5826.00	104.18			98.04	6.99	32.20	33.05	103	312	Average	HORIZONTAL
4	5960.00	58.71	68.20	-9.49	52.41	7.04	32.36	33.10	103	312	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5825 MHz.

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38, 46 / Ant. 1 + Ant. 2

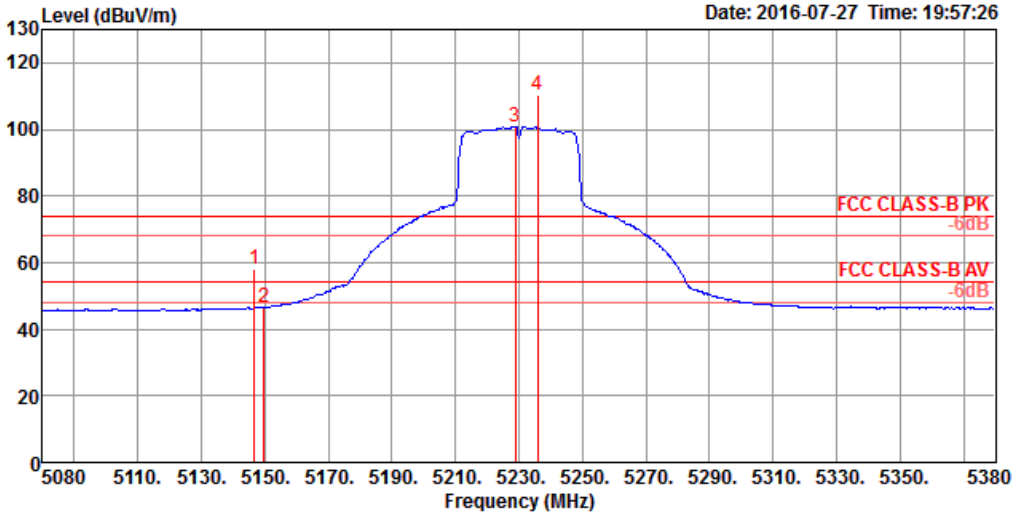
Channel 38



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.40	67.93	74.00	-6.07	62.84	6.51	31.52	32.94	105	254	Peak	HORIZONTAL
2	5150.00	53.71	54.00	-0.29	48.62	6.51	31.52	32.94	105	254	Average	HORIZONTAL
3 0	5192.00	96.32			91.16	6.54	31.56	32.94	105	254	Average	HORIZONTAL
4 0	5192.40	105.90			100.74	6.54	31.56	32.94	105	254	Peak	HORIZONTAL

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

Channel 46

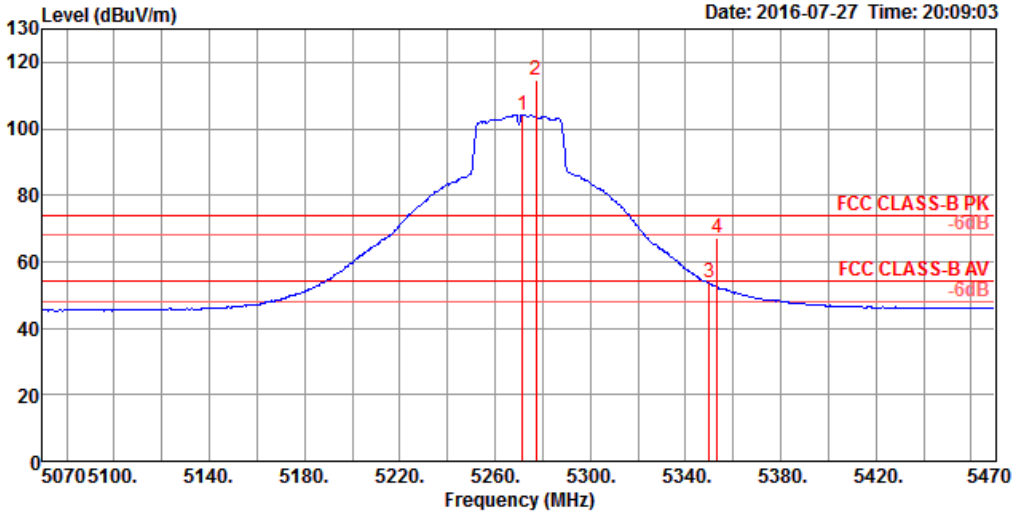


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5146.60	57.86	74.00	-16.14	52.77	6.51	31.52	32.94	102	313	Peak	HORIZONTAL
2	5149.60	46.67	54.00	-7.33	41.58	6.51	31.52	32.94	102	313	Average	HORIZONTAL
3 0	5228.80	100.62			95.42	6.56	31.58	32.94	102	313	Average	HORIZONTAL
4 0	5236.00	110.36			105.14	6.57	31.59	32.94	102	313	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54, 62 / Ant. 1 + Ant. 2

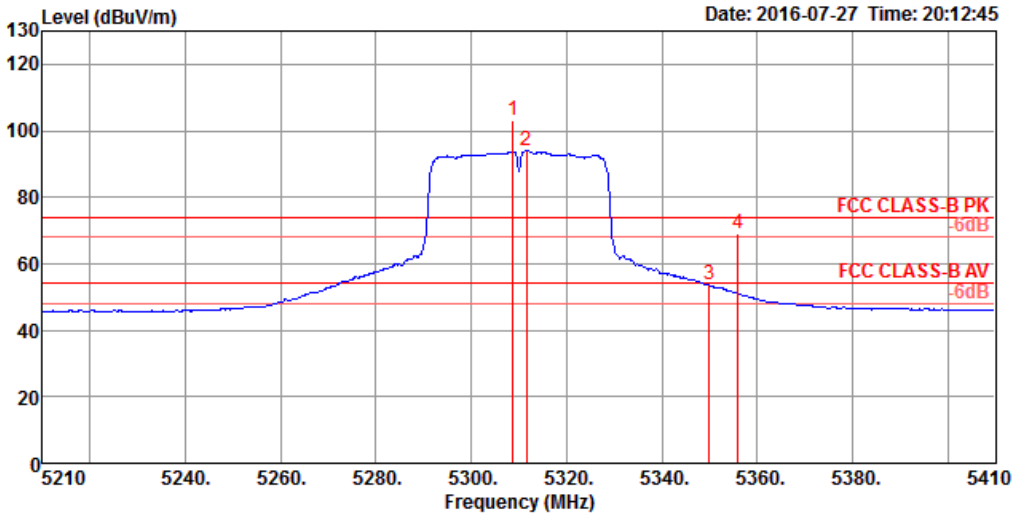
Channel 54



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 0	5271.60	104.26			98.97	6.60	31.62	32.93	100	314	Average	HORIZONTAL
2 0	5277.20	114.47			109.18	6.60	31.62	32.93	100	314	Peak	HORIZONTAL
3	5350.00	53.60	54.00	-0.40	48.19	6.66	31.68	32.93	100	314	Average	HORIZONTAL
4	5353.20	67.18	74.00	-6.82	61.77	6.66	31.68	32.93	100	314	Peak	HORIZONTAL

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

Channel 62

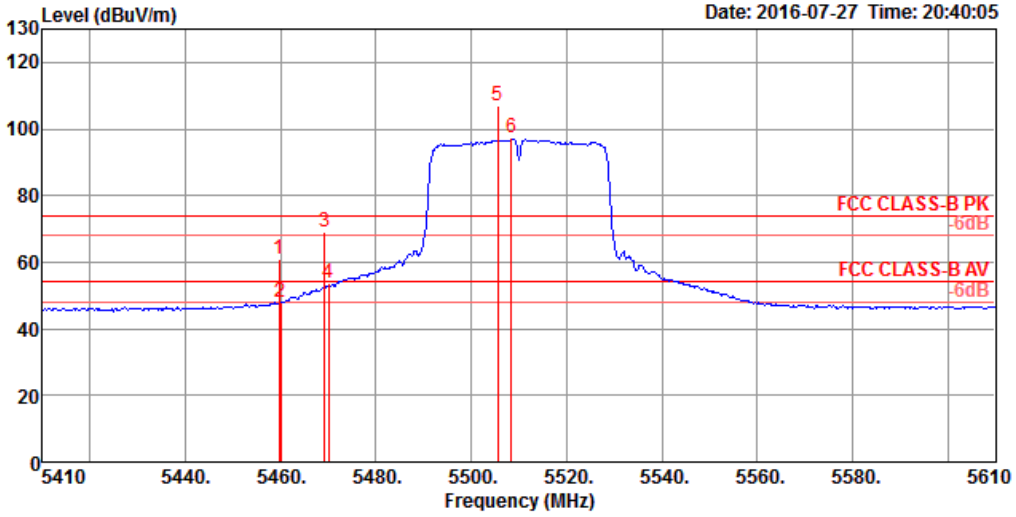


		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5308.80	103.23			97.88	6.63	31.65	32.93	101	316	Peak	HORIZONTAL
2	0	5311.60	93.93			88.58	6.63	31.65	32.93	101	316	Average	HORIZONTAL
3		5350.00	53.56	54.00	-0.44	48.15	6.66	31.68	32.93	101	316	Average	HORIZONTAL
4		5356.00	69.15	74.00	-4.85	63.72	6.67	31.69	32.93	101	316	Peak	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102, 110, 134 / Ant. 1 + Ant. 2

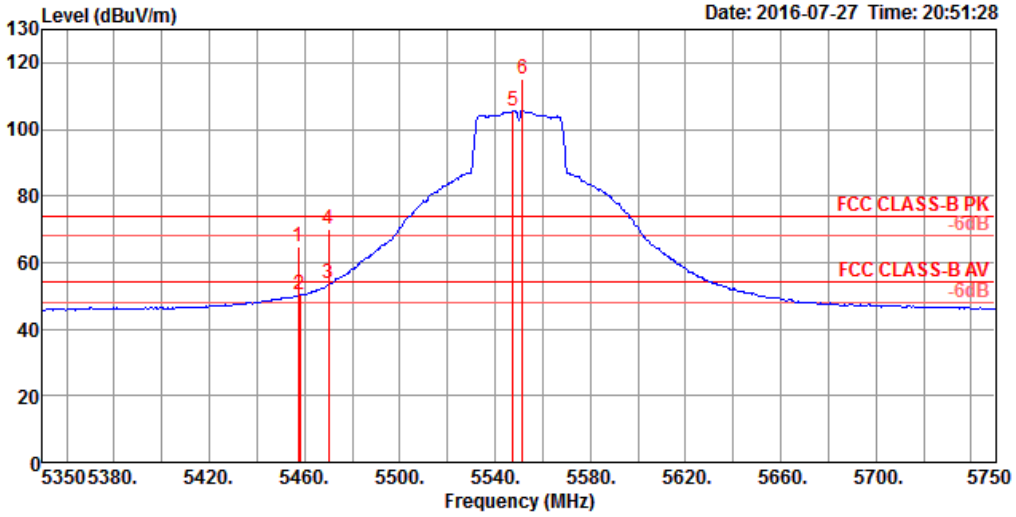
Channel 102



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5459.60	60.90	74.00	-13.10	55.33	6.73	31.76	32.92	100	317	Peak	HORIZONTAL
2	5460.00	48.11	54.00	-5.89	42.54	6.73	31.76	32.92	100	317	Average	HORIZONTAL
3	5469.20	68.86	74.00	-5.14	63.26	6.74	31.78	32.92	100	317	Peak	HORIZONTAL
4	5470.00	53.52	54.00	-0.48	47.92	6.74	31.78	32.92	100	317	Average	HORIZONTAL
5 0	5505.60	107.13			101.50	6.76	31.80	32.93	100	317	Peak	HORIZONTAL
6 0	5508.40	97.40			91.77	6.76	31.80	32.93	100	317	Average	HORIZONTAL

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

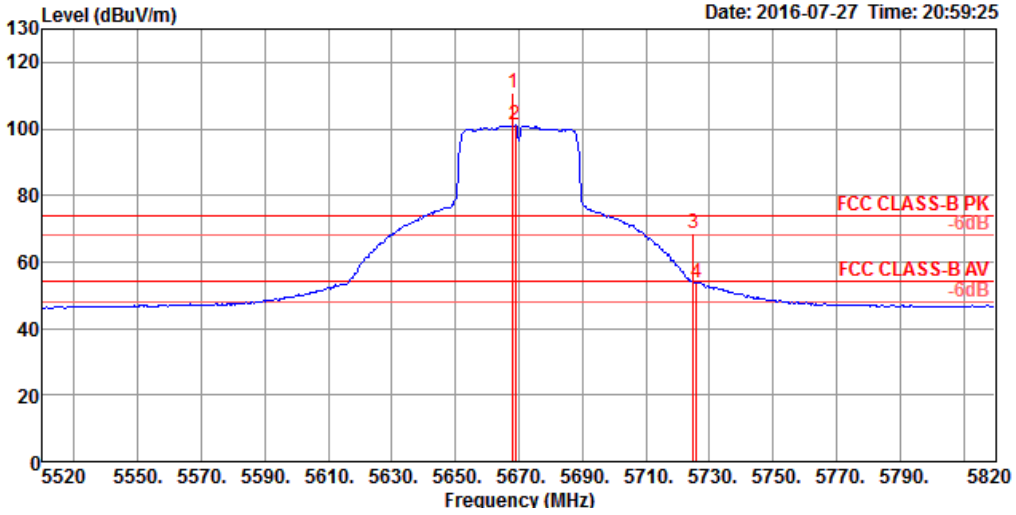
Channel 110



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5457.20	64.93	74.00	-9.07	59.36	6.73	31.76	32.92	100	315	Peak	HORIZONTAL
2	5458.00	50.35	54.00	-3.65	44.78	6.73	31.76	32.92	100	315	Average	HORIZONTAL
3	5470.00	53.52	54.00	-0.48	47.92	6.74	31.78	32.92	100	315	Average	HORIZONTAL
4	5470.00	70.21	74.00	-3.79	64.61	6.74	31.78	32.92	100	315	Peak	HORIZONTAL
5 0	5547.60	105.42			99.71	6.79	31.86	32.94	100	315	Average	HORIZONTAL
6 0	5551.60	115.19			109.48	6.79	31.86	32.94	100	315	Peak	HORIZONTAL

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

Channel 134

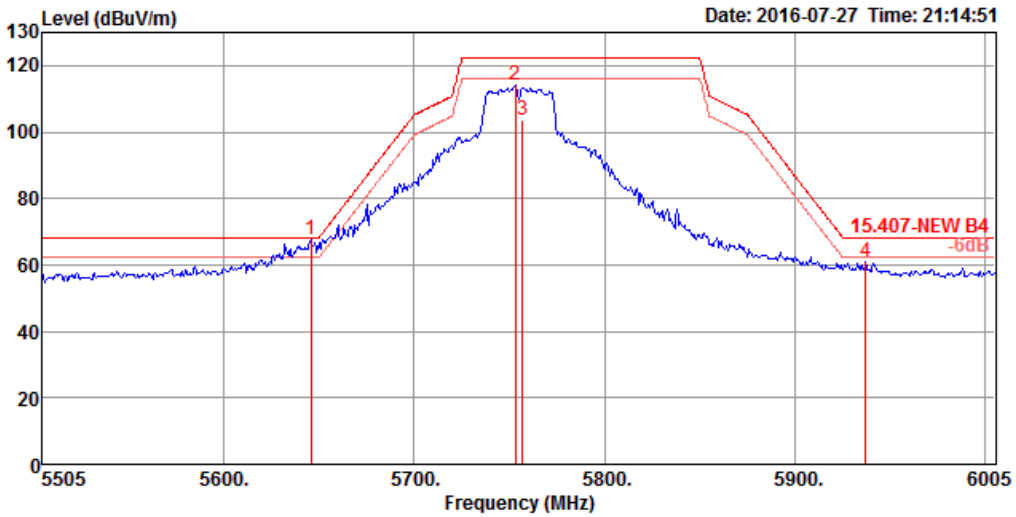


		Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	0	5668.20	110.81			104.92	6.87	32.00	32.98	100	313	Peak	HORIZONTAL
2	0	5668.80	101.03			95.14	6.87	32.00	32.98	100	313	Average	HORIZONTAL
3		5725.00	68.70	74.00	-5.30	62.69	6.93	32.08	33.00	100	313	Peak	HORIZONTAL
4		5725.80	53.87	54.00	-0.13	47.86	6.93	32.08	33.00	100	313	Average	HORIZONTAL

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

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151, 159 / Ant. 1 + Ant. 2

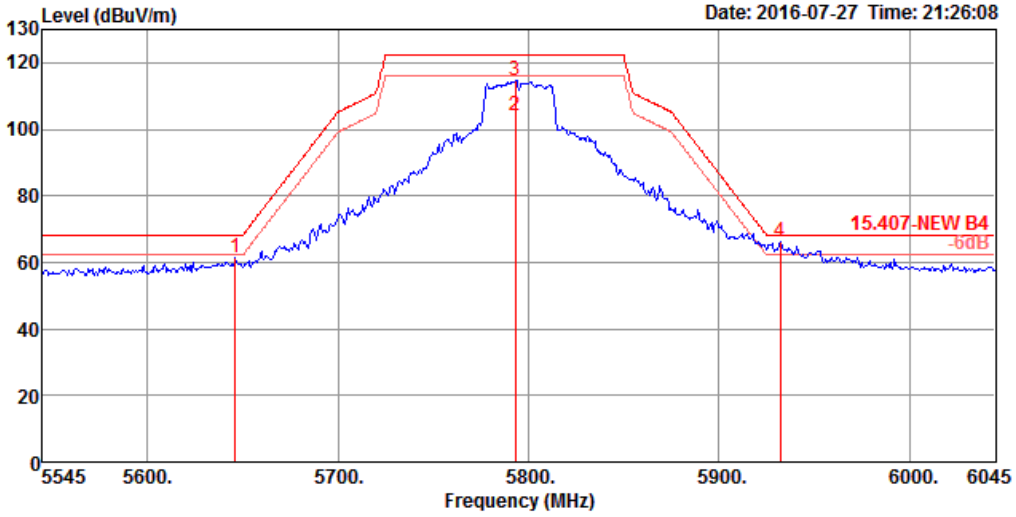
Channel 151



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5646.00	67.85	68.20	-0.35	61.99	6.86	31.98	32.98	102	313	Peak	HORIZONTAL
2	5753.00	114.29			108.27	6.94	32.10	33.02	102	313	Peak	HORIZONTAL
3	5757.00	103.55			97.50	6.95	32.12	33.02	102	313	Average	HORIZONTAL
4	5937.00	61.06	68.20	-7.14	54.80	7.03	32.32	33.09	102	313	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5755 MHz.

Channel 159



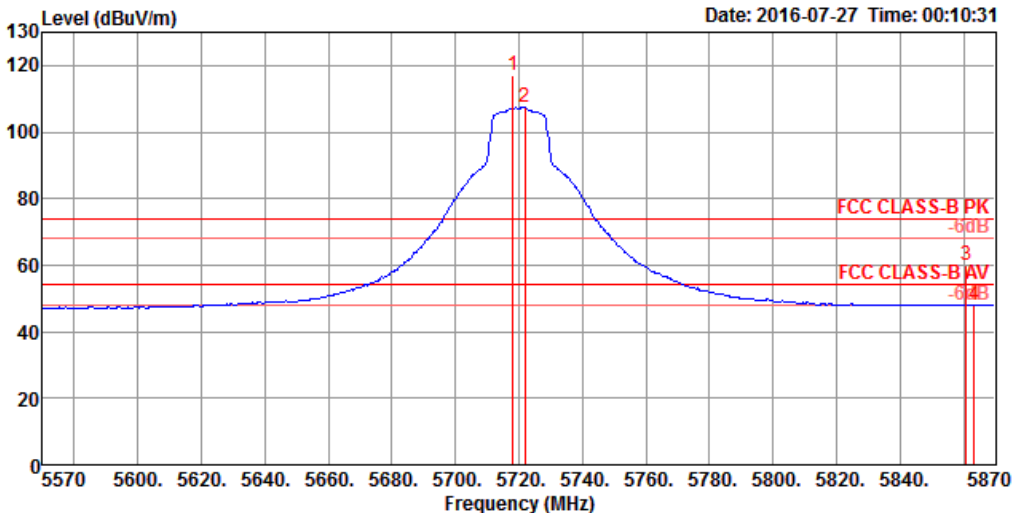
	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5646.00	61.19	68.20	-7.01	55.33	6.86	31.98	32.98	100	312	Peak	HORIZONTAL
2	5793.00	104.13			98.02	6.98	32.16	33.03	100	312	Average	HORIZONTAL
3	5793.00	114.85			108.74	6.98	32.16	33.03	100	312	Peak	HORIZONTAL
4	5932.00	66.32	68.20	-1.88	60.05	7.03	32.32	33.08	100	312	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5795 MHz.

Straddle Channel

Temperature	22.2°C	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11a CH 144 / Ant. 1 + Ant. 2

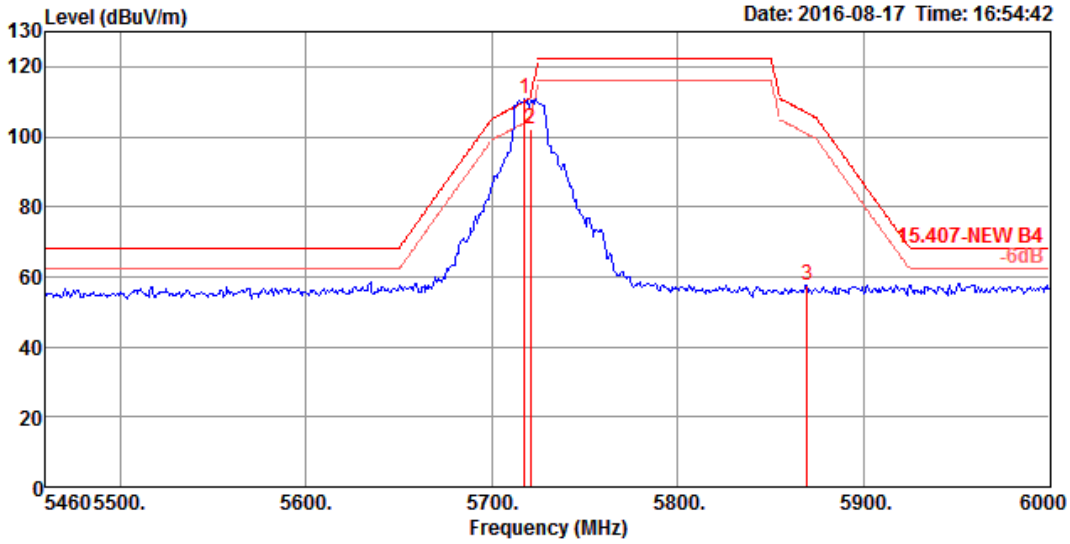
Channel 144 (UNII 2C)



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 0	5718.20	116.96			110.99	6.91	32.06	33.00	100	313	Peak	HORIZONTAL
2 0	5721.80	107.32			101.35	6.91	32.06	33.00	100	313	Average	HORIZONTAL
3	5861.00	60.09	74.00	-13.91	53.91	7.00	32.24	33.06	100	313	Peak	HORIZONTAL
4	5863.40	48.15	54.00	-5.85	41.97	7.00	32.24	33.06	100	313	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5720 MHz.

Channel 144 (UNII 3)

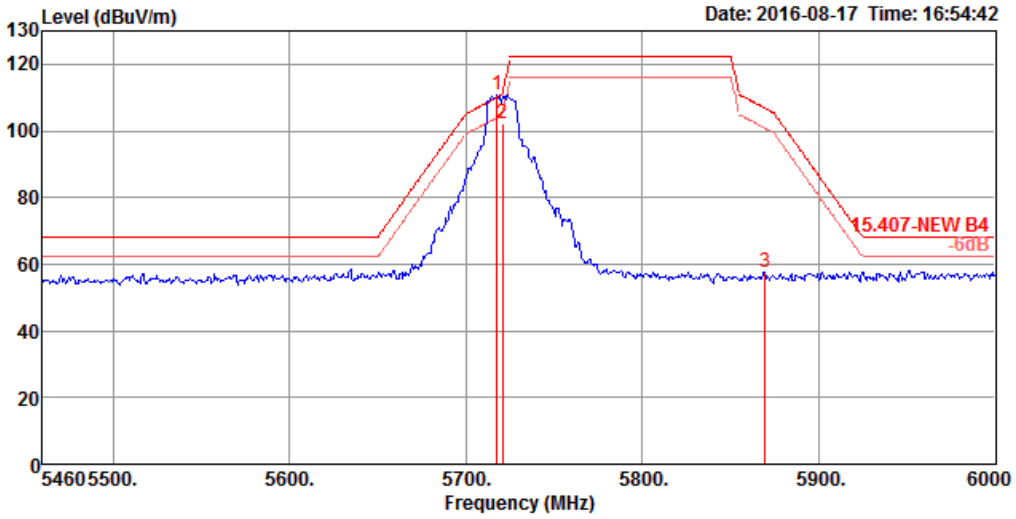


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5717.40	110.98			105.01	6.91	33.00	32.06	VERTICAL	276	286	Peak
2	5720.87	102.01			96.04	6.91	33.00	32.06	VERTICAL	276	286	Average
3	5869.40	57.56	106.77	-49.21	51.38	7.00	33.06	32.24	VERTICAL	276	286	Peak

Item 1, 2 are the fundamental frequency at 5720 MHz.

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 144 / Ant. 1 + Ant. 2

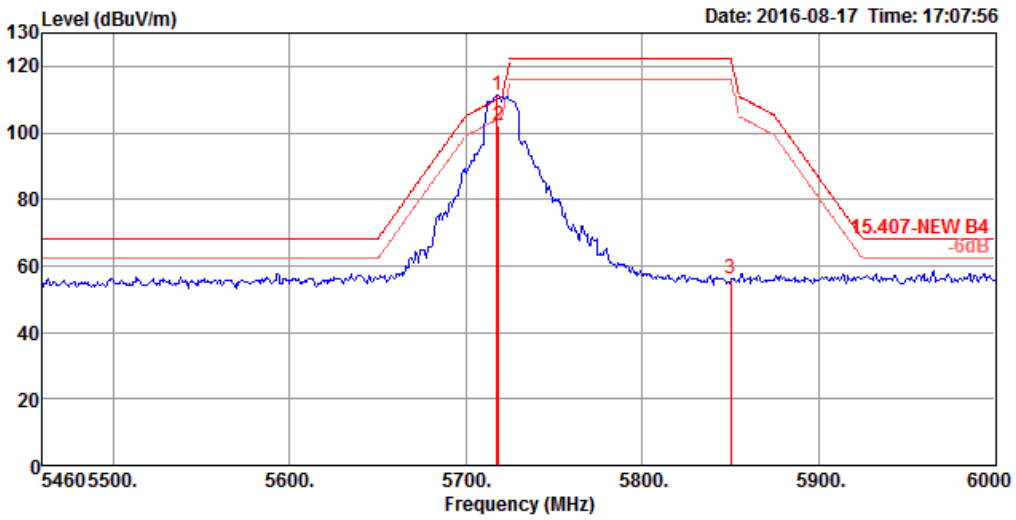
Channel 144 (UNII 2C)



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5717.40	110.98			105.01	6.91	33.00	32.06	VERTICAL	276	286	Peak
2	5720.87	102.01			96.04	6.91	33.00	32.06	VERTICAL	276	286	Average
3	5869.40	57.56	106.77	-49.21	51.38	7.00	33.06	32.24	VERTICAL	276	286	Peak

Item 1, 2 are the fundamental frequency at 5720 MHz.

Channel 144 (UNII 3)

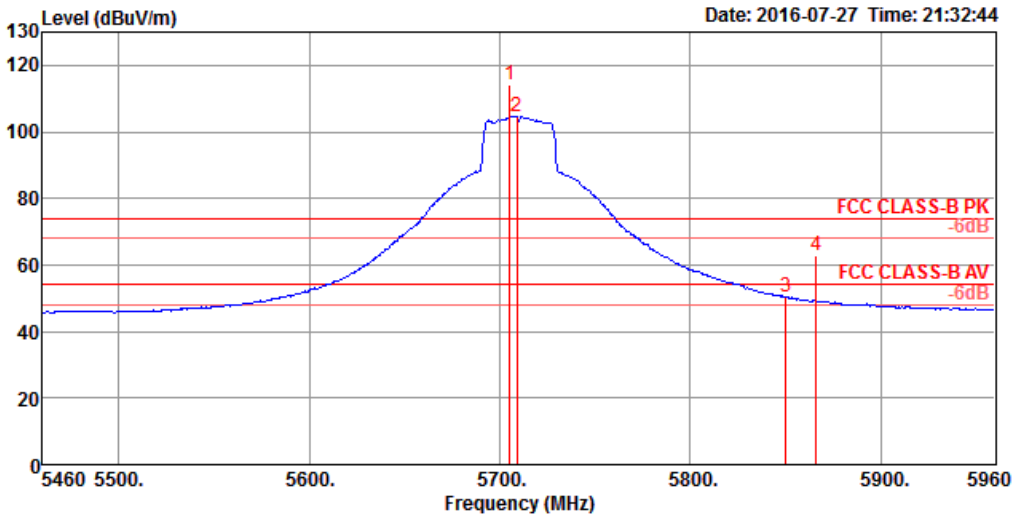


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5717.40	111.38			105.41	6.91	33.00	32.06	VERTICAL	85	299	Peak
2	5718.26	102.29			96.32	6.91	33.00	32.06	VERTICAL	85	299	Average
3	5850.00	56.31	122.20	-65.89	50.14	7.00	33.05	32.22	VERTICAL	85	299	Peak

Item 1, 2 are the fundamental frequency at 5720 MHz.

Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 142 / Ant. 1 + Ant. 2

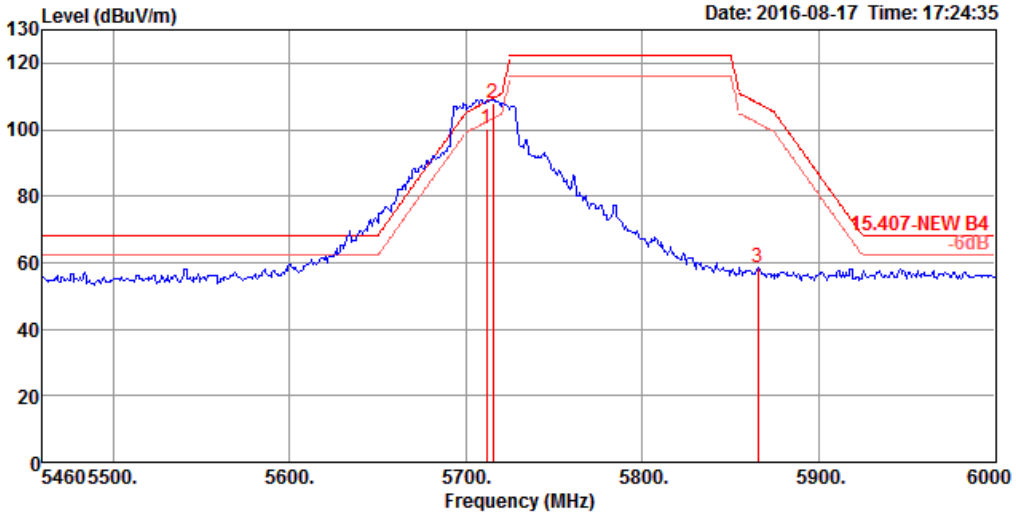
Channel 142 (UNII 2C)



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1 0	5705.00	114.24			108.30	6.90	32.04	33.00	100	314	Peak	HORIZONTAL
2 0	5709.00	104.69			98.72	6.91	32.06	33.00	100	314	Average	HORIZONTAL
3	5850.00	50.32	54.00	-3.68	44.15	7.00	32.22	33.05	100	314	Average	HORIZONTAL
4	5866.00	62.87	74.00	-11.13	56.69	7.00	32.24	33.06	100	314	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 5710 MHz.

Channel 142 (UNII 3)



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Pol/Phase	T/Pos	A/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	5711.74	100.10			94.13	6.91	33.00	32.06	VERTICAL	83	314	Average
2	5715.21	107.82			101.85	6.91	33.00	32.06	VERTICAL	83	314	Peak
3	5865.40	58.51	107.89	-49.38	52.33	7.00	33.06	32.24	VERTICAL	83	314	Peak

Item 1, 2 are the fundamental frequency at 5710 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

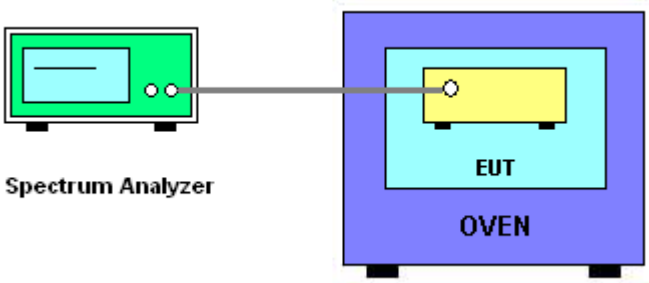
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is -30°C~50°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	56%
Test Engineer	Gary Chu	Test Date	Jul. 29, 2016~Aug. 13, 2016

Mode: 20 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5200.0579	5200.0569	5200.0564	5200.0561
110.00	5200.0575	5200.0569	5200.0560	5200.0554
93.50	5200.0573	5200.0566	5200.0563	5200.0560
Max. Deviation (MHz)	0.0579	0.0569	0.0564	0.0561
Max. Deviation (ppm)	11.13	10.94	10.85	10.79
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5200.0637	5200.0629	5200.0621	5200.0612
-20	5200.0623	5200.0616	5200.0608	5200.0607
-10	5200.0606	5200.0599	5200.0598	5200.0596
0	5200.0586	5200.0580	5200.0574	5200.0567
10	5200.0576	5200.0570	5200.0563	5200.0558
20	5200.0575	5200.0569	5200.0561	5200.0560
30	5200.0518	5200.0508	5200.0499	5200.0492
40	5200.0510	5200.0501	5200.0497	5200.0487
50	5200.0490	5200.0480	5200.0472	5200.0470
Max. Deviation (MHz)	0.0637	0.0629	0.0621	0.0612
Max. Deviation (ppm)	12.25	12.10	11.94	11.77
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5300 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5300.0443	5300.0442	5300.0435	5300.0431
110.00	5300.0435	5300.0425	5300.0419	5300.0418
93.50	5300.0426	5300.0416	5300.0413	5300.0411
Max. Deviation (MHz)	0.0443	0.0442	0.0435	0.0431
Max. Deviation (ppm)	8.36	8.34	8.21	8.13
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5300 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5300.0515	5300.0506	5300.0500	5300.0490
-20	5300.0498	5300.0492	5300.0491	5300.0488
-10	5300.0481	5300.0472	5300.0468	5300.0460
0	5300.0464	5300.0462	5300.0461	5300.0457
10	5300.0447	5300.0438	5300.0432	5300.0424
20	5300.0435	5300.0432	5300.0424	5300.0423
30	5300.0428	5300.0419	5300.0416	5300.0410
40	5300.0420	5300.0416	5300.0414	5300.0413
50	5300.0406	5300.0404	5300.0403	5300.0393
Max. Deviation (MHz)	0.0515	0.0506	0.0500	0.0490
Max. Deviation (ppm)	9.72	9.55	9.43	9.25
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5580 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5580.0588	5580.0587	5580.0585	5580.0580
110.00	5580.0580	5580.0579	5580.0577	5580.0575
93.50	5580.0576	5580.0568	5580.0564	5580.0561
Max. Deviation (MHz)	0.0588	0.0587	0.0585	0.0580
Max. Deviation (ppm)	10.54	10.52	10.48	10.39
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5580 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5580.0521	5580.0513	5580.0512	5580.0511
-20	5580.0527	5580.0524	5580.0516	5580.0511
-10	5580.0536	5580.0527	5580.0517	5580.0513
0	5580.0551	5580.0543	5580.0533	5580.0528
10	5580.0566	5580.0563	5580.0562	5580.0552
20	5580.0580	5580.0577	5580.0573	5580.0566
30	5580.0610	5580.0601	5580.0599	5580.0598
40	5580.0628	5580.0621	5580.0620	5580.0619
50	5580.0646	5580.0639	5580.0634	5580.0627
Max. Deviation (MHz)	0.0646	0.0639	0.0634	0.0627
Max. Deviation (ppm)	11.58	11.45	11.36	11.24
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5785.0155	5785.0151	5785.0144	5785.0138
110.00	5785.0145	5785.0138	5785.0130	5785.0122
93.50	5785.0137	5785.0132	5785.0122	5785.0117
Max. Deviation (MHz)	0.0155	0.0151	0.0144	0.0138
Max. Deviation (ppm)	2.68	2.61	2.49	2.39
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5785.0119	5785.0116	5785.0108	5785.0098
-20	5785.0123	5785.0116	5785.0111	5785.0105
-10	5785.0138	5785.0134	5785.0133	5785.0129
0	5785.0140	5785.0134	5785.0126	5785.0116
10	5785.0141	5785.0135	5785.0127	5785.0125
20	5785.0145	5785.0139	5785.0135	5785.0129
30	5785.0178	5785.0170	5785.0161	5785.0160
40	5785.0196	5785.0195	5785.0186	5785.0183
50	5785.0203	5785.0194	5785.0188	5785.0187
Max. Deviation (MHz)	0.0203	0.0195	0.0188	0.0187
Max. Deviation (ppm)	3.51	3.37	3.25	3.23
Result	Complies			

Mode: 40 MHz / Ant. 1

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5190.0874	5190.0869	5190.0862	5190.0861
110.00	5190.0870	5190.0861	5190.0858	5190.0848
93.50	5190.0863	5190.0854	5190.0849	5190.0842
Max. Deviation (MHz)	0.0874	0.0869	0.0862	0.0861
Max. Deviation (ppm)	16.84	16.74	16.61	16.59
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5190.0916	5190.0914	5190.0905	5190.0899
-20	5190.0907	5190.0904	5190.0894	5190.0888
-10	5190.0889	5190.0880	5190.0870	5190.0866
0	5190.0887	5190.0879	5190.0871	5190.0865
10	5190.0876	5190.0870	5190.0863	5190.0854
20	5190.0870	5190.0866	5190.0861	5190.0851
30	5190.0840	5190.0831	5190.0830	5190.0822
40	5190.0823	5190.0814	5190.0810	5190.0800
50	5190.0816	5190.0811	5190.0806	5190.0802
Max. Deviation (MHz)	0.0916	0.0914	0.0905	0.0899
Max. Deviation (ppm)	17.65	17.61	17.44	17.32
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5310 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5310.0880	5310.0878	5310.0871	5310.0867
110.00	5310.0870	5310.0864	5310.0855	5310.0848
93.50	5310.0869	5310.0865	5310.0857	5310.0854
Max. Deviation (MHz)	0.0880	0.0878	0.0871	0.0867
Max. Deviation (ppm)	16.57	16.53	16.40	16.33
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5310 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5310.0924	5310.0914	5310.0911	5310.0909
-20	5310.0906	5310.0898	5310.0895	5310.0891
-10	5310.0904	5310.0902	5310.0894	5310.0890
0	5310.0886	5310.0879	5310.0873	5310.0864
10	5310.0877	5310.0874	5310.0871	5310.0866
20	5310.0870	5310.0861	5310.0851	5310.0843
30	5310.0830	5310.0829	5310.0827	5310.0823
40	5310.0826	5310.0822	5310.0812	5310.0809
50	5310.0811	5310.0807	5310.0805	5310.0804
Max. Deviation (MHz)	0.0924	0.0914	0.0911	0.0909
Max. Deviation (ppm)	17.40	17.21	17.16	17.12
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5550 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5550.0445	5550.0442	5550.0441	5550.0434
110.00	5550.0435	5550.0429	5550.0421	5550.0419
93.50	5550.0430	5550.0428	5550.0418	5550.0412
Max. Deviation (MHz)	0.0445	0.0442	0.0441	0.0434
Max. Deviation (ppm)	8.02	7.96	7.95	7.82
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5550 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5550.0373	5550.0367	5550.0357	5550.0351
-20	5550.0377	5550.0367	5550.0366	5550.0359
-10	5550.0397	5550.0394	5550.0385	5550.0381
0	5550.0408	5550.0405	5550.0399	5550.0397
10	5550.0424	5550.0421	5550.0416	5550.0409
20	5550.0435	5550.0426	5550.0416	5550.0411
30	5550.0479	5550.0475	5550.0471	5550.0463
40	5550.0499	5550.0493	5550.0489	5550.0487
50	5550.0504	5550.0503	5550.0494	5550.0485
Max. Deviation (MHz)	0.0504	0.0503	0.0494	0.0487
Max. Deviation (ppm)	9.08	9.06	8.90	8.77
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5755.0442	5755.0436	5755.0430	5755.0421
110.00	5755.0435	5755.0429	5755.0426	5755.0422
93.50	5755.0433	5755.0432	5755.0424	5755.0416
Max. Deviation (MHz)	0.0442	0.0436	0.0430	0.0422
Max. Deviation (ppm)	7.68	7.58	7.47	7.33
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
-30	5755.0392	5755.0389	5755.0382	5755.0374
-20	5755.0404	5755.0403	5755.0395	5755.0389
-10	5755.0406	5755.0397	5755.0392	5755.0382
0	5755.0410	5755.0405	5755.0401	5755.0394
10	5755.0429	5755.0426	5755.0419	5755.0416
20	5755.0435	5755.0433	5755.0431	5755.0422
30	5755.0439	5755.0430	5755.0429	5755.0419
40	5755.0454	5755.0451	5755.0448	5755.0443
50	5755.0463	5755.0460	5755.0453	5755.0443
Max. Deviation (MHz)	0.0463	0.0460	0.0453	0.0443
Max. Deviation (ppm)	8.05	7.99	7.87	7.70
Result	Complies			

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
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 16, 2015	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 13, 2015	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Jan. 18, 2016	Conduction (CO02-CB)
COND Cable	Woken	Cable	01	0.15MHz ~ 30MHz	Dec. 01, 2015	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F	9561-F073	9kHz ~ 30MHz	Sep. 30, 2015	Conduction (CO02-CB)
Bilog Antenna	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 09, 2015	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

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

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

N.C.R. means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

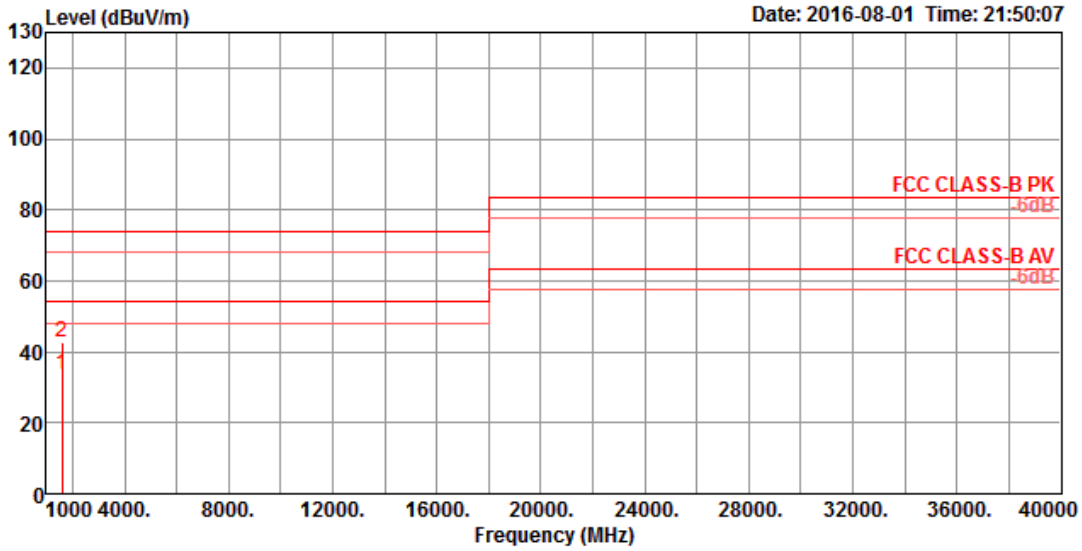
Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74×10^{-8}	Confidence levels of 95%
Frequency Stability	6.06×10^{-8}	Confidence levels of 95%

Appendix B. Radiated Emission Co-location Report

1. Results of Radiated Emissions for Co-located

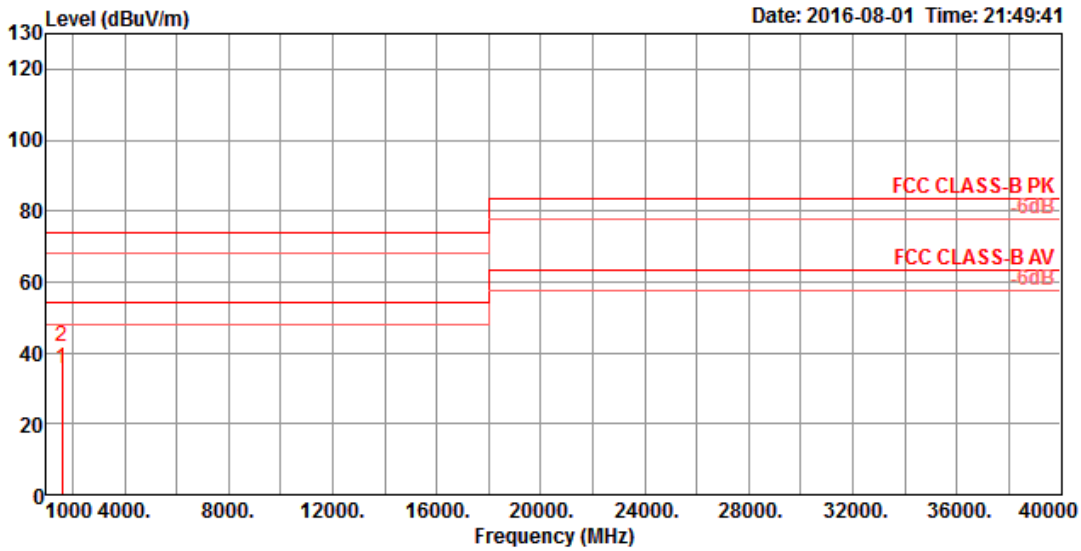
Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	2.4GHz WLAN + Bluetooth
Test Mode	Mode 2. EUT Z axis - 2.4GHz WLAN function + Bluetooth function		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1608.76	33.62	54.00	-20.38	36.30	4.56	25.59	32.83	113	78	Average	HORIZONTAL
2	1609.00	42.92	74.00	-31.08	45.58	4.57	25.60	32.83	113	78	Peak	HORIZONTAL

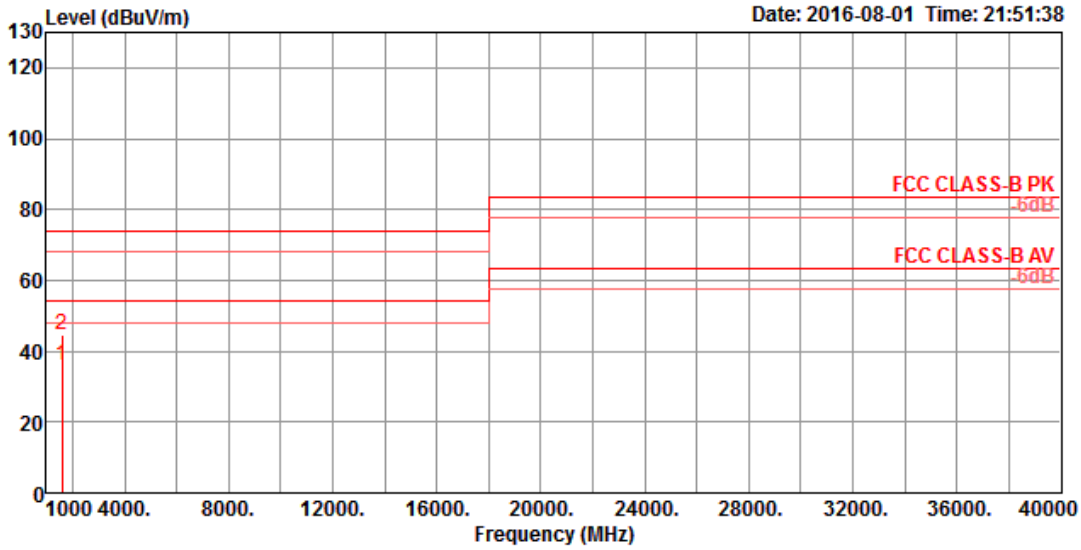
Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1608.92	35.62	54.00	-18.38	38.28	4.57	25.60	32.83	103	221	Average	VERTICAL
2	1609.06	41.78	74.00	-32.22	44.44	4.57	25.60	32.83	103	221	Peak	VERTICAL

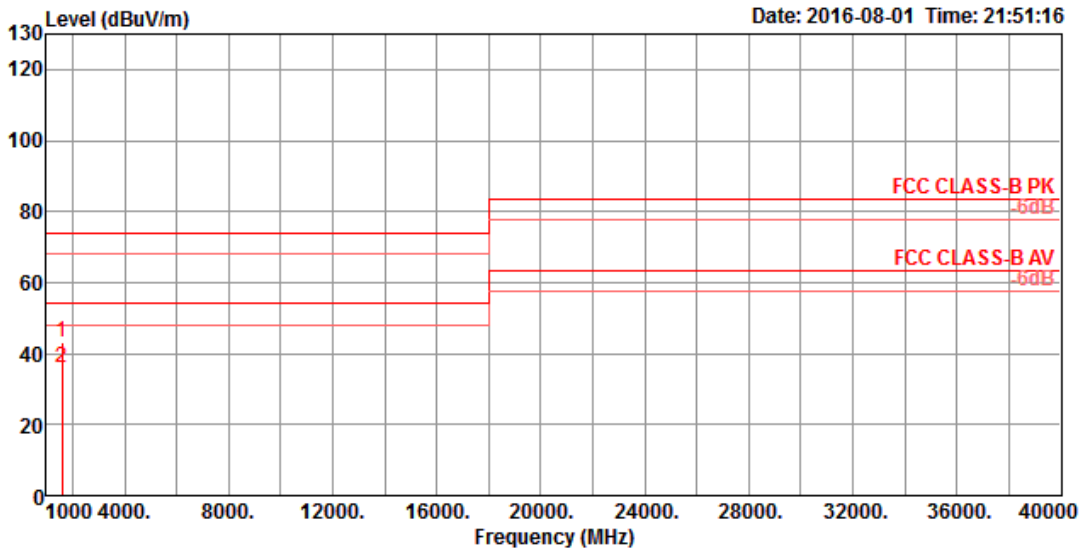
Temperature	22.2℃	Humidity	51%
Test Engineer	John Tang, Zero Chen	Configurations	5GHz WLAN + Bluetooth
Test Mode	Mode 4. EUT Z axis - 5GHz WLAN function + Bluetooth function		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1608.86	35.83	54.00	-18.17	38.49	4.57	25.60	32.83	115	321	Average	HORIZONTAL
2	1609.04	44.62	74.00	-29.38	47.28	4.57	25.60	32.83	115	321	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1608.60	43.18	74.00	-30.82	45.86	4.56	25.59	32.83	104	278	Peak	VERTICAL
2	1608.86	35.78	54.00	-18.22	38.44	4.57	25.60	32.83	104	278	Average	VERTICAL