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FCC RADIO TEST REPORT

Applicant's company	**Cisco Systems Inc.**
Applicant Address	125 West Tasman Drive San Jose, CA 95134-1706
FCC ID	**LDKASA-AP702**
Manufacturer's company	**Wistron NeWeb Corporation**
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308 Taiwan

Product Name	ASA 5506-X WiFi Internal Module
Brand Name	CISCO
Model No.	ASA5506-AP702
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5250 ~ 5350 MHz / 5470 ~ 5725 MHz
Received Date	Jun. 12, 2014
Final Test Date	Aug. 06, 2014
Submission Type	Class III Change
Operating Mode	Master

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 C63.10-2009**, **47 CFR FCC Part 15 Subpart E, KDB789033 D01 v01r04 and KDB662911 D01 v02r01**

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

Testing Laboratory
1190

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR461329AC	Rev. 01	Initial issue of report	Jan. 16, 2015

Certificate No.: CB10401155

1. CERTIFICATE OF COMPLIANCE

Product Name	:	**ASA 5506-X WiFi Internal Module**
Brand Name	:	**CISCO**
Model No.	:	**ASA5506-AP702**
Applicant	:	**Cisco Systems Inc.**
Test Rule Part(s)	:	**47 CFR FCC Part 15 Subpart E § 15.407**

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jun. 12, 2014 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

Sam Chen
SPORTON INTERNATIONAL INC.

2. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart E				
Part	**Rule Section**	**Description of Test**	**Result**	**Under Limit**
4.1	15.207	AC Power Line Conducted Emissions	Complies	11.98 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(a)	Maximum Conducted Output Power	Complies	1.65 dB
4.4	15.407(a)	Power Spectral Density	Complies	2.02 dB
4.5	15.407(b)	Radiated Emissions	Complies	1.40 dB
4.6	15.407(b)	Band Edge Emissions	Complies	0.01 dB
4.7	15.407(g)	Frequency Stability	Complies	-
4.8	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	see the below table for IEEE 802.11n
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	see the below table for IEEE 802.11n
Frequency Range	5250 ~ 5350 MHz / 5470 ~ 5725 MHz
Channel Number	12 for 20MHz bandwidth ; 5 for 40MHz bandwidth
Channel Band Width (99%)	<For Non-Beamforming Mode> Band 2: MCS0 (HT20): 18.58 MHz ; MCS0 (HT40): 36.66 MHz Band 3: MCS0 (HT20): 18.46 MHz ; MCS0 (HT40): 36.66 MHz <For Beamforming Mode> Band 2: MCS0 (HT20): 18.58 MHz ; MCS0 (HT40): 36.66 MHz Band 3: MCS0 (HT20): 18.56 MHz ; MCS0 (HT40): 37.12 MHz
Maximum Conducted Output Power	<For Non-Beamforming Mode> Band 2: MCS0 (HT20): 20.85 dBm ; MCS0 (HT40): 20.96 dBm Band 3: MCS0 (HT20): 21.30 dBm ; MCS0 (HT40): 21.45 dBm <For Beamforming Mode> Band 2: MCS0 (HT20): 20.76 dBm ; MCS0 (HT40): 20.96 dBm Band 3: MCS0 (HT20): 21.30 dBm ; MCS0 (HT40): 21.45 dBm
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

IEEE 802.11a

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From host system
Modulation	OFDM for IEEE 802.11a
Data Modulation	OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	OFDM (6/9/12/18/24/36/48/54)
Frequency Range	5250 ~ 5350 MHz / 5470 ~ 5725 MHz
Channel Number	12
Channel Band Width (99%)	<For Non-Beamforming Mode> Band 2: 17.17 MHz ; Band 3: 17.17 MHz <For Beamforming Mode> Band 2: 17.28 MHz ; Band 3: 17.28 MHz
Maximum Conducted Output Power	<For Non-Beamforming Mode> Band 2: 20.91 dBm ; Band 3: 21.38 dBm <For Beamforming Mode> Band 2: 20.87 dBm ; Band 3: 21.38 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 for 802.11g/n in 2.4GHz and 802.11a/n in 5GHz	☐ Without beamforming

Antenna and Band width

Antenna	Two (TX)	
Band width 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 support 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

Band	Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
2.4G	1	WNC	EAAH-N32	PIFA Antenna	I-PEX	2.97
	2	WNC	EAAH-N32	PIFA Antenna	I-PEX	2.97
5G	1	WNC	EAAH-N32	PIFA Antenna	I-PEX	3.89
	2	WNC	EAAH-N32	PIFA Antenna	I-PEX	3.89

Note: Beamforming Gain=10*Log(2)=3.01dBi

<For 2.4GHz Band>

For IEEE 802.11b/g/n mode (2TX/2RX)

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

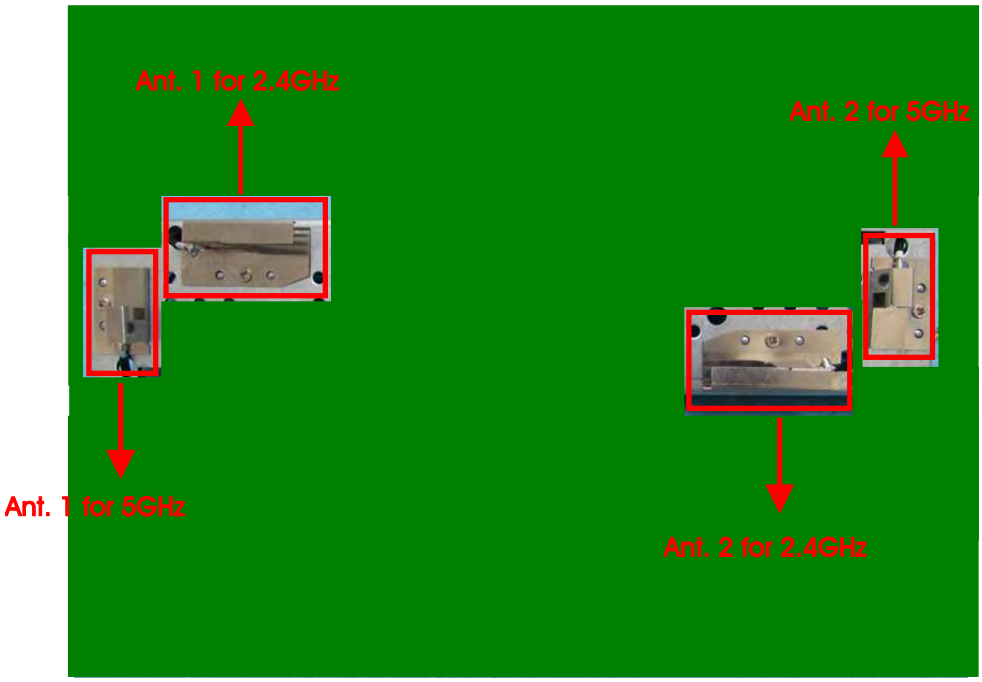
Ant. 1 and Ant. 2 could transmit/receive simultaneously.

<For 5GHz Band>

For IEEE 802.11a/n mode (2TX/2RX)

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

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



3.4. Table for Carrier Frequencies

The EUT has two bandwidth system.

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

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

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

3.5. Table for Test Modes

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

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

Note: There are two modes of EUT, one is beamforming mode, and the other is non-beamforming mode for 802.11g/n in 2.4GHz and 802.11a/n in 5GHz, Beamforming mode and non-beamforming mode has been test and record in this test report.

The following test modes were performed for all tests:

For Conducted Emission test:

Mode 1. Normal Link

For Radiated Emission test:

Mode 1. Normal Link - EUT laying

Mode 2. Normal Link - EUT standing

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

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

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

3.6. Table for Class III Change

This product is an extension of original one reported under Sporton project number: FR461329AB
Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
Add Band 2 and Band 3 (5250~5350 MHz, 5470~5725 MHz) for this device.	1. AC Power Line Conducted Emissions 2. 26dB Spectrum Bandwidth and 99% Occupied Bandwidth 3. Maximum Conducted Output Power 4. Power Spectral Density 5. Radiated Emissions 6. Band Edge Emissions 7. Frequency Stability 8. Co-location MPE 9. Radiated Emission Co-location

3.7. Table for Testing Locations

Test Site Location					
Address:	No.8, Lane 724, Bo-ai St., Jhubei City, Hsinchu County 302, Taiwan, R.O.C.				
TEL:	886-3-656-9065				
FAX:	886-3-656-9085				
Test Site No.	**Site Category**	**Location**	**FCC Reg. No.**	**IC File No.**	**VCCI Reg. No**
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
CO01-CB	Conduction	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

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

3.8. Table for Supporting Units

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
NB	DELL	E6430	DoC
Fixture	Kenton	55RNAA77.DG2	N/A

For Test Site No: 03CH01-CB <Below 1GHz>

Support Unit	Brand	Model	FCC ID
NB	DELL	M1340	DoC
NB	DELL	E6430	DoC
NB	DELL	D420	DoC
Fixture	Kenton	55RNAA77.DG2	N/A

For Test Site No: 03CH01-CB <Above 1GHz>

Support Unit	Brand	Model	FCC ID
NB	DELL	M1340	DoC
Fixture	Kenton	55RNAA77.DG2	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6220	DoC
Fixture	Kenton	55RNAA77.DG2	N/A

3.9. Table for Parameters of Test Software Setting

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

<For Non-Beamforming Mode>

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
MCS0 HT20	18	18	18	18.5	19	17.5

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	ART2-GUI Version : 2.3				
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0 HT40	18	17.5	15	19	19

Power Parameters of IEEE 802.11a

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
802.11a	18	18	18	18.5	19	18.5

<For Beamforming Mode>

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
MCS0 HT20	18	18	11.5	16.5	19	15

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	ART2-GUI Version : 2.3				
Frequency	5270 MHz	5310 MHz	5510 MHz	5550 MHz	5670 MHz
MCS0 HT40	18	13.5	13	19	17

Power Parameters of IEEE 802.11a

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5260 MHz	5300 MHz	5320 MHz	5500 MHz	5580 MHz	5700 MHz
802.11a	18	18	17.5	18	19	16

3.10. EUT Operation during Test

<For Non-Beamforming Mode>

The EUT was programmed to be in continuously transmitting mode.

<For Beamforming Mode>

For conducted mode in Output power and power density:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*log(2)=3.01dBi as worse case in beamforming mode.

For radiated mode in bandedge and other spurious emission:

The EUT was programmed to be in continuously transmitting mode.

The measured result was added array gain 10*Log(2)=3.01dBi as worse case in beamforming mode.

3.11. Duty Cycle

<For Non-Beamforming Mode>

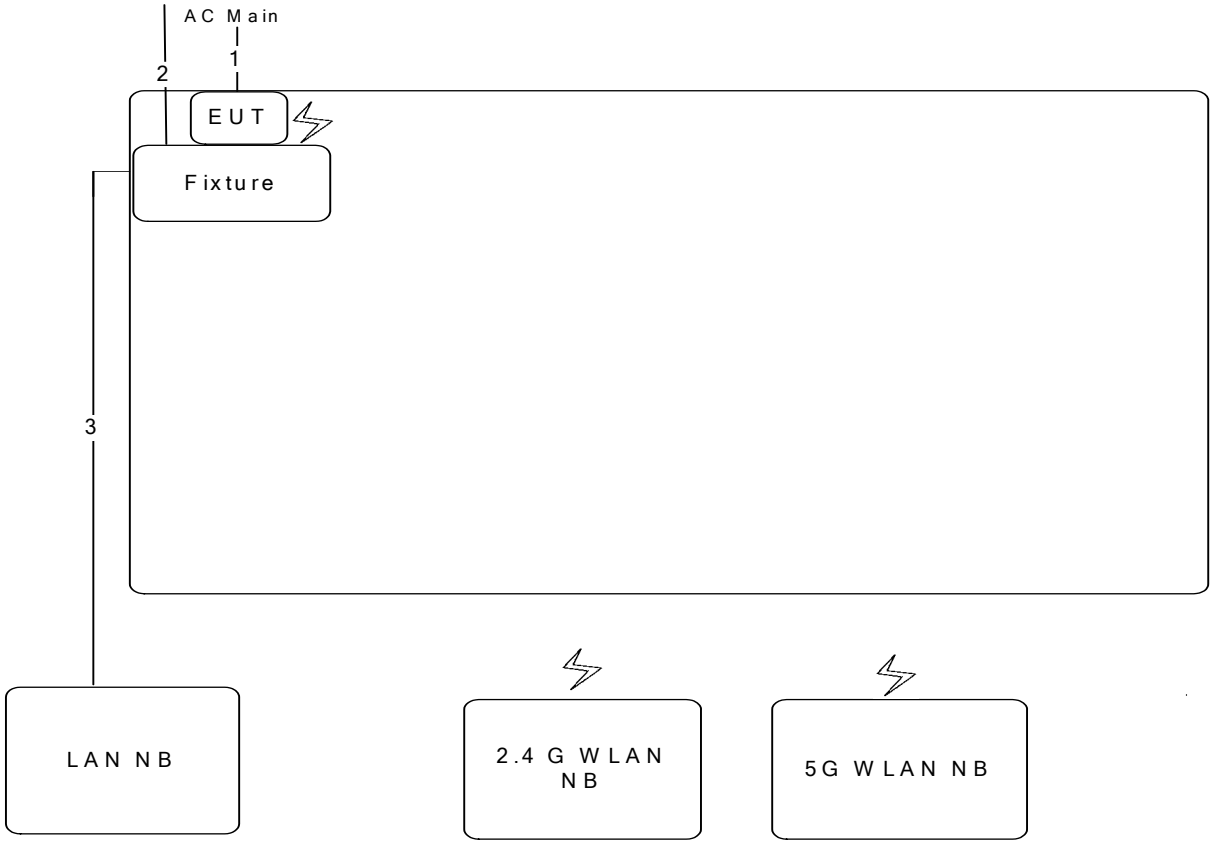
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1.266	1.306	96.93%	0.14	0.79
802.11n MCS0 HT40	0.632	0.660	95.75%	0.19	1.58
802.11a	1.354	1.386	97.69%	0.10	0.74

<For Beamforming Mode>

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1.266	1.306	96.93%	0.14	0.79
802.11n MCS0 HT40	0.632	0.660	95.75%	0.19	1.58
802.11a	1.354	1.386	97.69%	0.10	0.74

3.12. Test Configurations

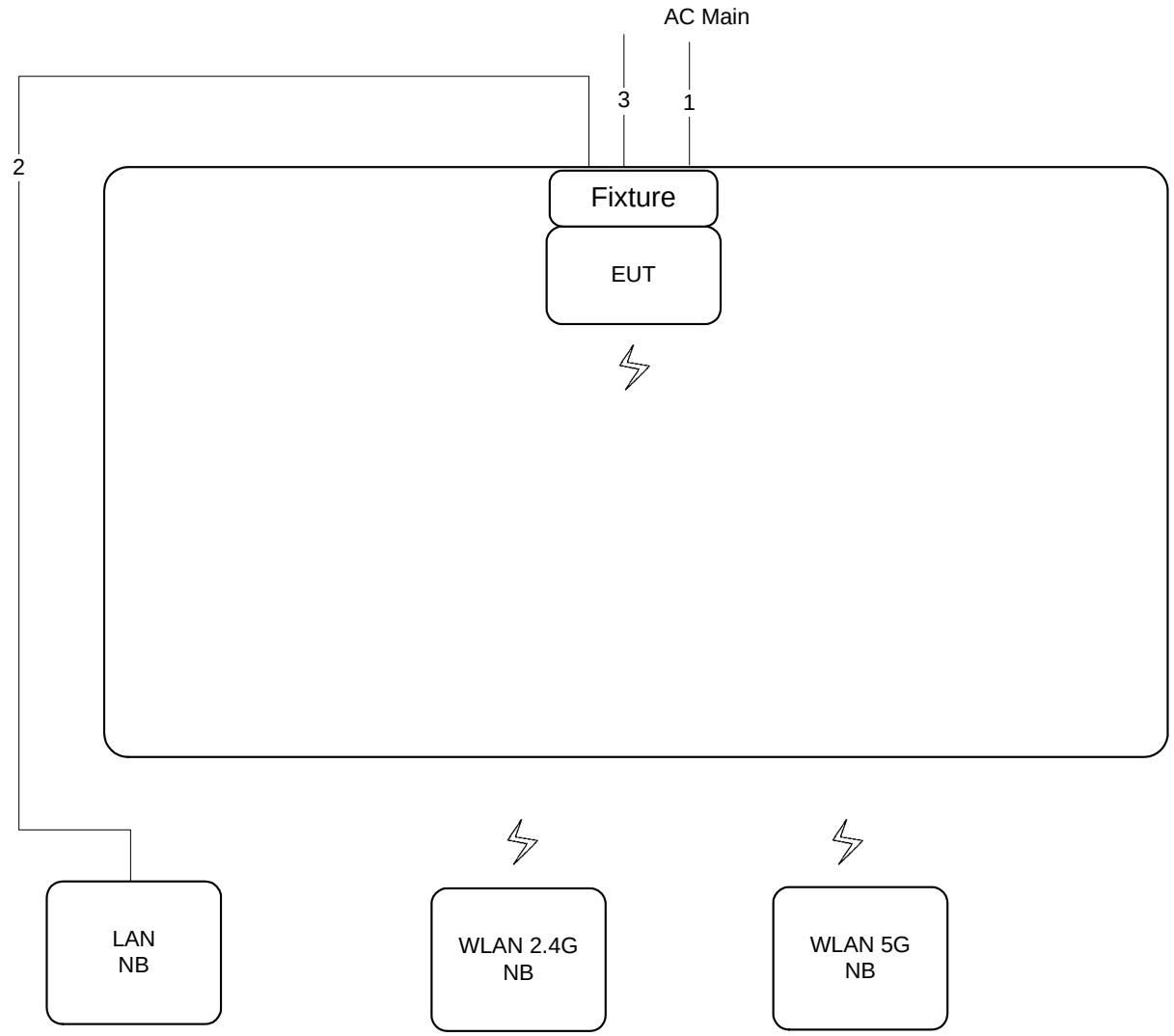
3.12.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length(m)
1	Power cable	No	1.8m
2	RJ-45 to RS-232 cable	No	1.5m
3	RJ-45 cable	No	10m

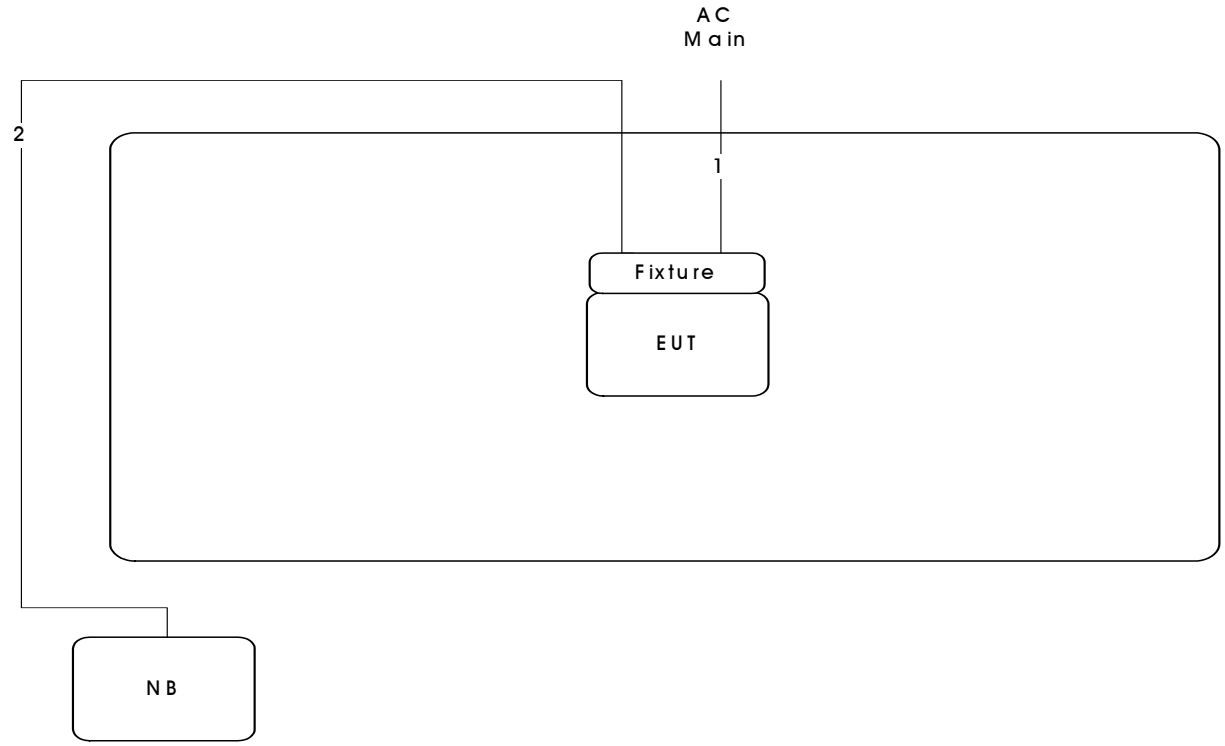
3.12.2. Radiation Emissions Test Configuration

Test Configuration: 30MHz~1GHz



Item	Connection	Shielded	Length(m)
1	Power cable	No	3m
2	RJ-45 cable	No	10m
3	RJ-45 to RS-232 cable	No	1.5m

Test Configuration: above 1GHz



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

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

For this product that is designed to connect to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

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

4.1.2. Measuring Instruments and Setting

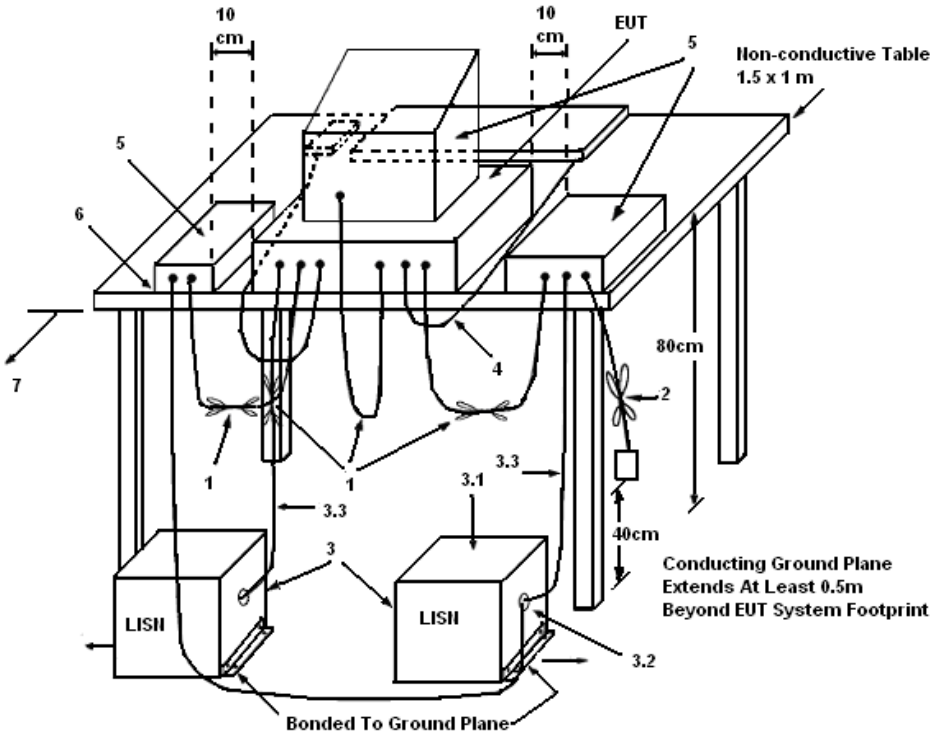
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

4.1.4. Test Setup Layout



LEGEND:

(1) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

(2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

(3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference ground plane.

(3.1) All other equipment powered from additional LISN(s).

(3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.

(3.3) LISN at least 80 cm from nearest part of EUT chassis.

(4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

(5) Non-EUT components of EUT system being tested.

(6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.

(7) Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.

4.1.5. Test Deviation

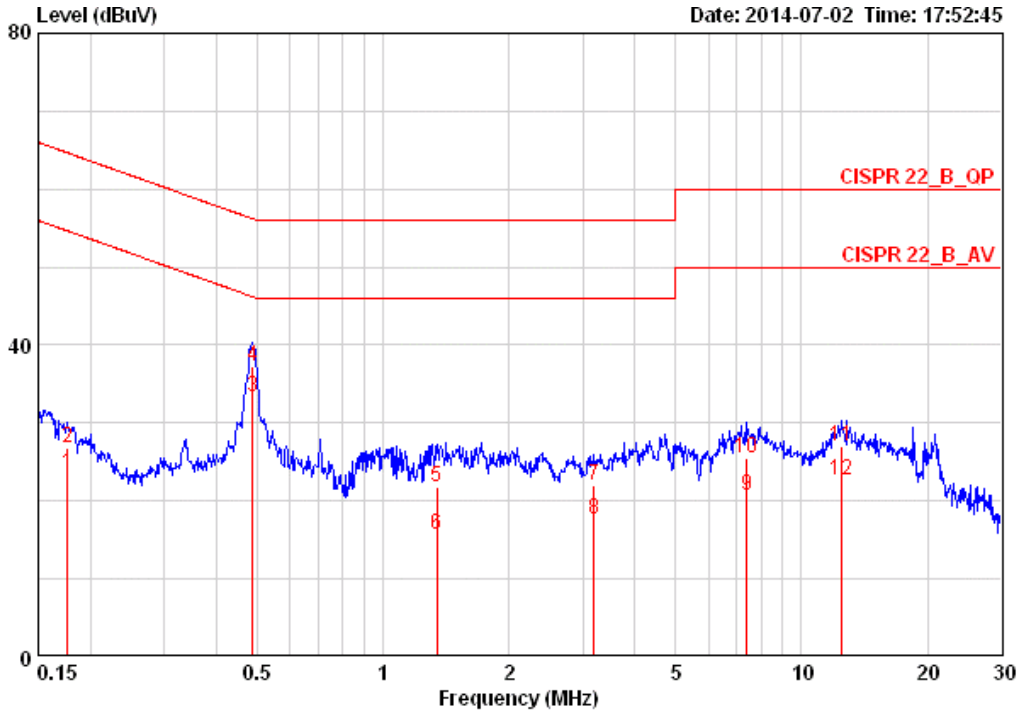
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

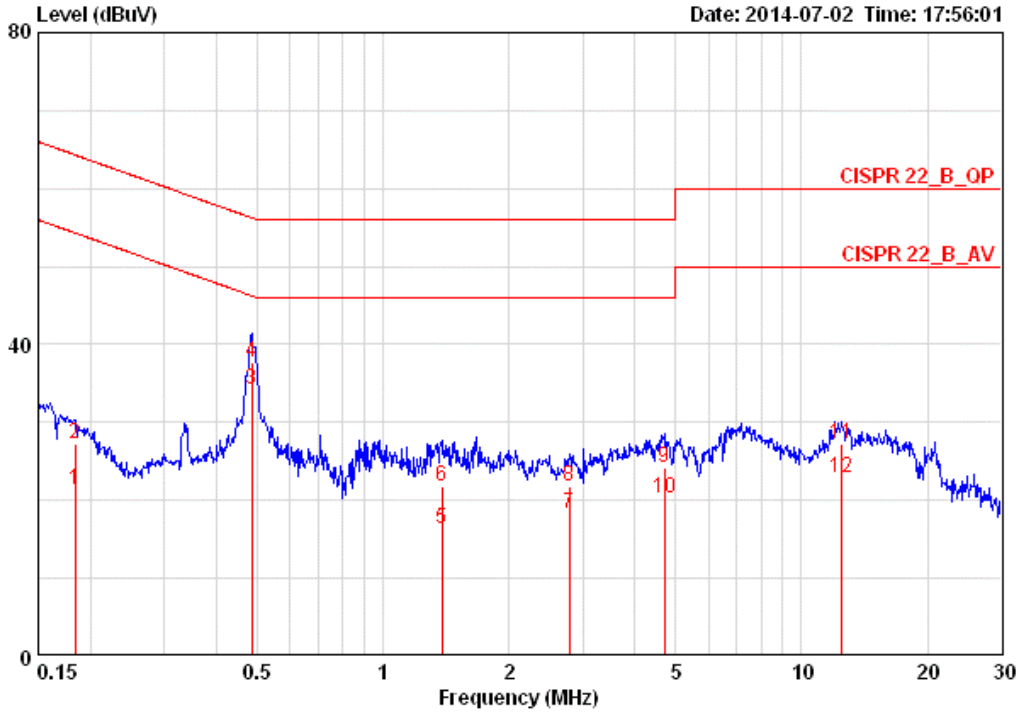
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	55%
Test Engineer	Parody Lin	Phase	Line
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.17584	23.50	-31.18	54.68	0.08	23.26	0.16	LINE	AVERAGE
2	0.17584	26.79	-37.89	64.68	0.08	26.55	0.16	LINE	QP
3 @	0.48890	33.25	-12.94	46.19	0.08	32.98	0.18	LINE	AVERAGE
4	0.48890	37.32	-18.87	56.19	0.08	37.05	0.18	LINE	QP
5	1.345	21.89	-34.11	56.00	0.10	21.57	0.22	LINE	QP
6	1.345	15.65	-30.35	46.00	0.10	15.33	0.22	LINE	AVERAGE
7	3.190	21.94	-34.06	56.00	0.14	21.52	0.28	LINE	QP
8	3.190	17.56	-28.44	46.00	0.14	17.14	0.28	LINE	AVERAGE
9	7.407	20.71	-29.29	50.00	0.21	20.14	0.36	LINE	AVERAGE
10	7.407	25.40	-34.60	60.00	0.21	24.83	0.36	LINE	QP
11	12.516	27.00	-33.00	60.00	0.29	26.31	0.41	LINE	QP
12	12.516	22.65	-27.35	50.00	0.29	21.96	0.41	LINE	AVERAGE

Temperature	24°C	Humidity	55%
Test Engineer	Parody Lin	Phase	Neutral
Configuration	Normal Link		



	Freq	Level	Over Limit	Limit Line	LISN Factor	Read Level	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dB	dBuV	dB		
1	0.18346	21.35	-32.97	54.33	0.08	21.11	0.16	NEUTRAL	AVERAGE
2	0.18346	27.31	-37.01	64.33	0.08	27.07	0.16	NEUTRAL	QP
3 @	0.48632	34.25	-11.98	46.23	0.09	33.98	0.18	NEUTRAL	AVERAGE
4	0.48632	37.76	-18.47	56.23	0.09	37.49	0.18	NEUTRAL	QP
5	1.381	16.37	-29.63	46.00	0.10	16.04	0.22	NEUTRAL	AVERAGE
6	1.381	21.72	-34.28	56.00	0.10	21.39	0.22	NEUTRAL	QP
7	2.794	18.21	-27.79	46.00	0.14	17.80	0.27	NEUTRAL	AVERAGE
8	2.794	21.87	-34.13	56.00	0.14	21.46	0.27	NEUTRAL	QP
9	4.696	24.22	-31.78	56.00	0.17	23.73	0.31	NEUTRAL	QP
10	4.696	20.24	-25.76	46.00	0.17	19.75	0.31	NEUTRAL	AVERAGE
11	12.516	27.22	-32.78	60.00	0.28	26.53	0.41	NEUTRAL	QP
12	12.516	22.92	-27.08	50.00	0.28	22.23	0.41	NEUTRAL	AVERAGE

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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 4.5.4.

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

<For Non-Beamforming Mode>

Temperature	26℃	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	23.71	18.58
60	5300 MHz	23.71	18.58
64	5320 MHz	23.71	18.58
100	5500 MHz	23.84	18.46
116	5580 MHz	22.94	18.20
140	5700 MHz	22.82	18.07

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

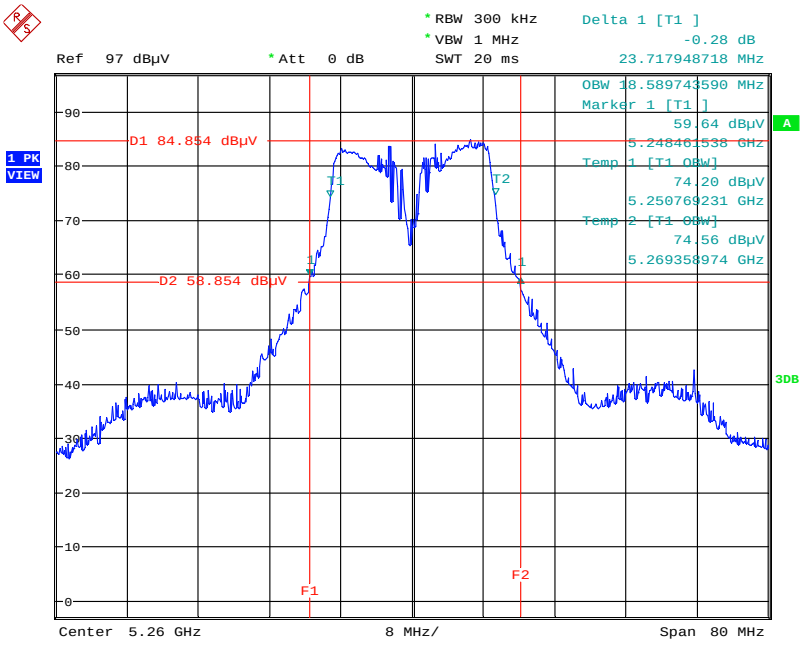
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	44.10	36.66
62	5310 MHz	44.10	36.66
102	5510 MHz	43.33	36.66
110	5550 MHz	43.33	36.66
134	5670 MHz	42.82	36.41

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a

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

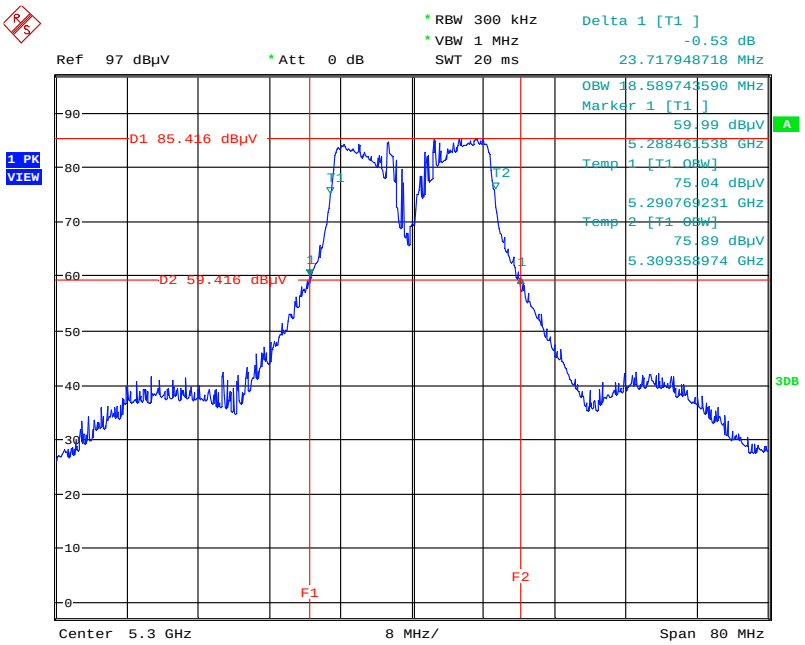
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	22.05	17.17
60	5300 MHz	22.05	17.17
64	5320 MHz	22.05	17.17
100	5500 MHz	22.56	17.17
116	5580 MHz	22.30	17.17
140	5700 MHz	21.79	17.05

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



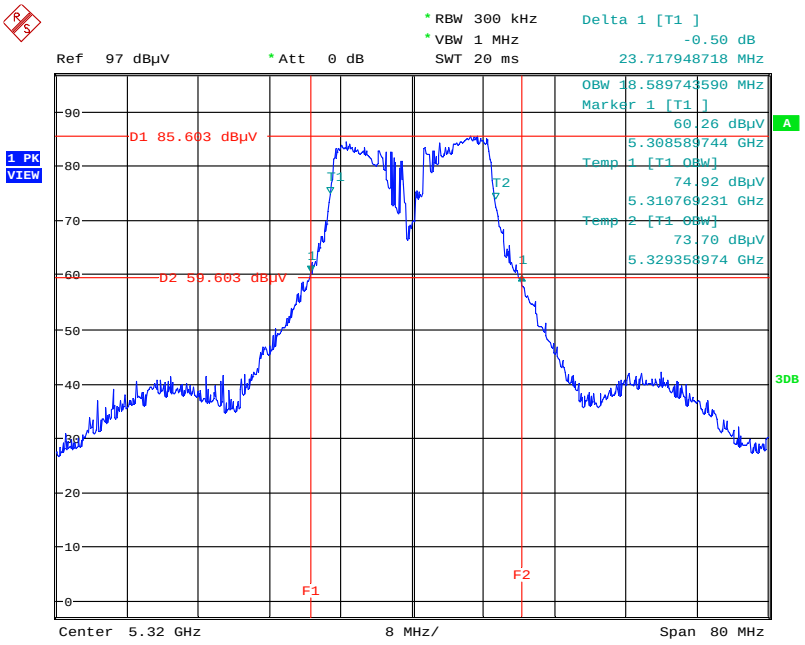
Date: 30.JUN.2014 21:15:58

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



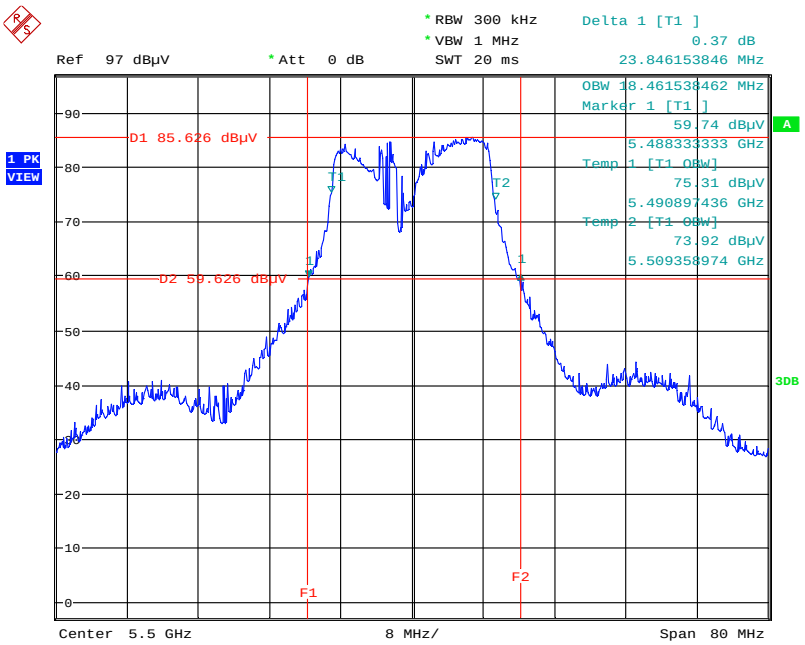
Date: 30.JUN.2014 21:16:19

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



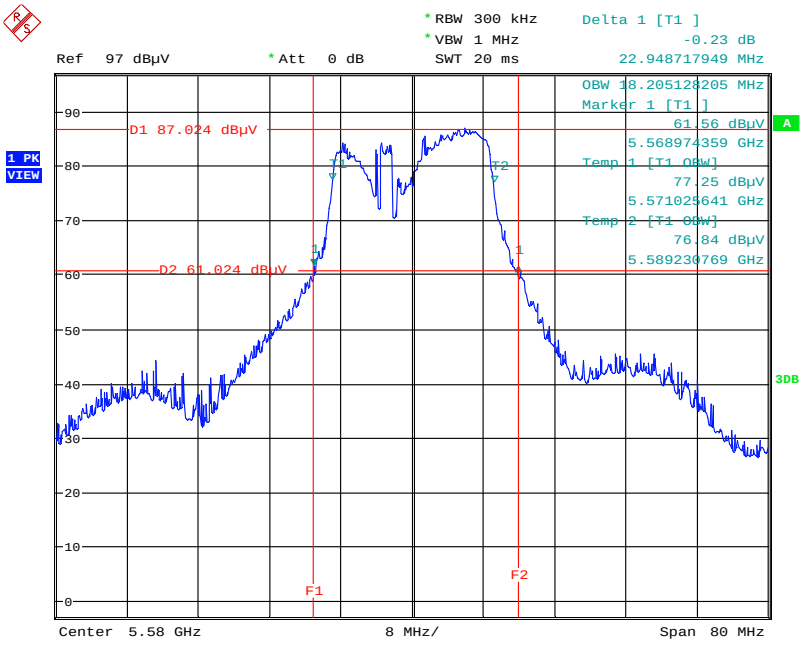
Date: 30.JUN.2014 21:16:37

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



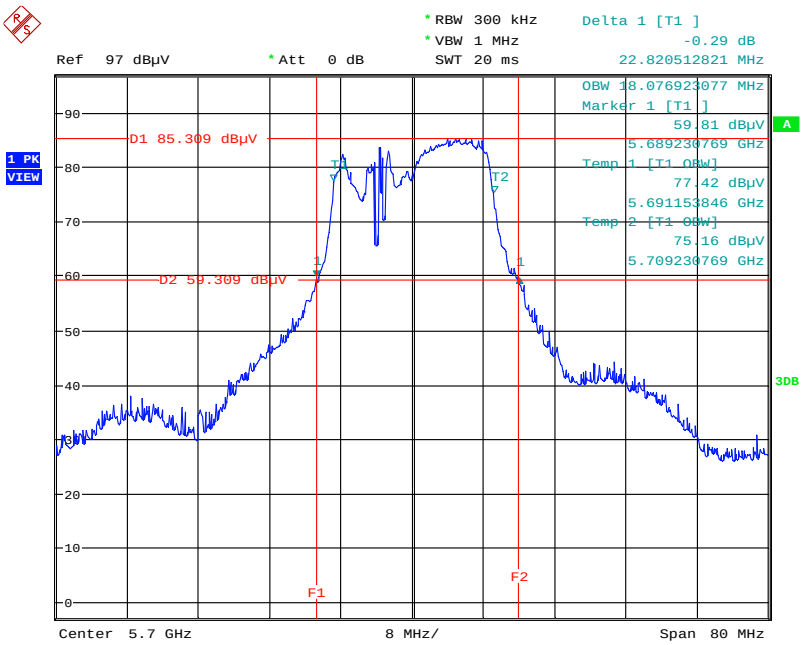
Date: 30.JUN.2014 21:17:11

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



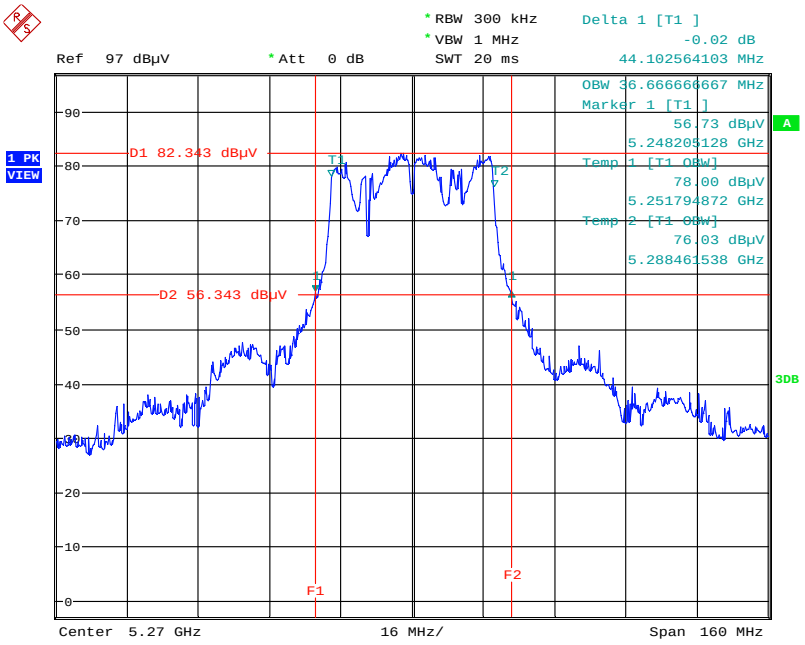
Date: 30.JUN.2014 21:17:36

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



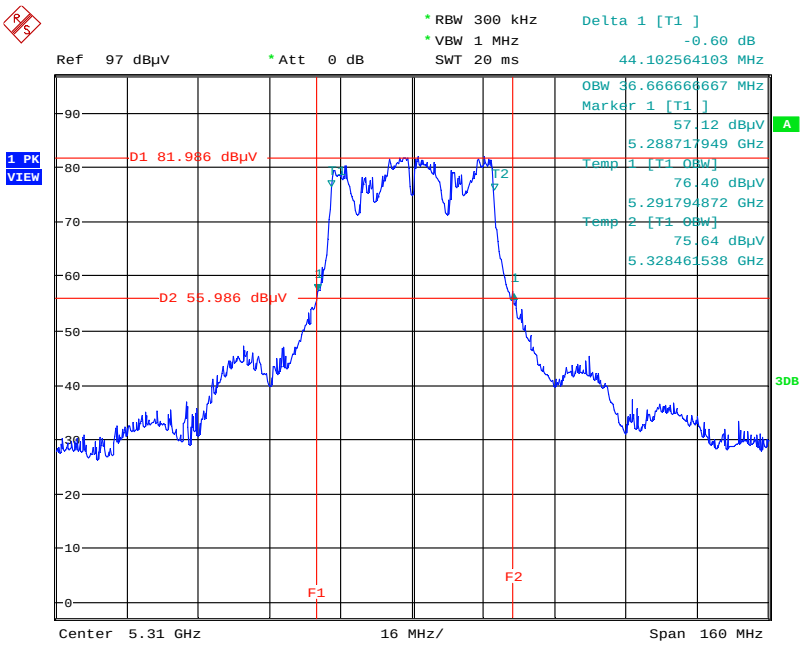
Date: 30.JUN.2014 21:18:22

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



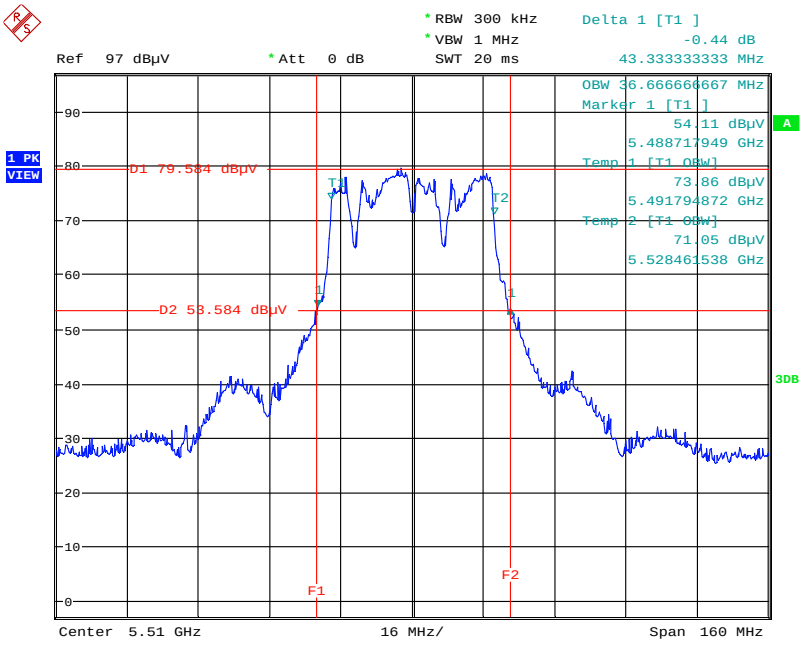
Date: 30.JUN.2014 21:45:34

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



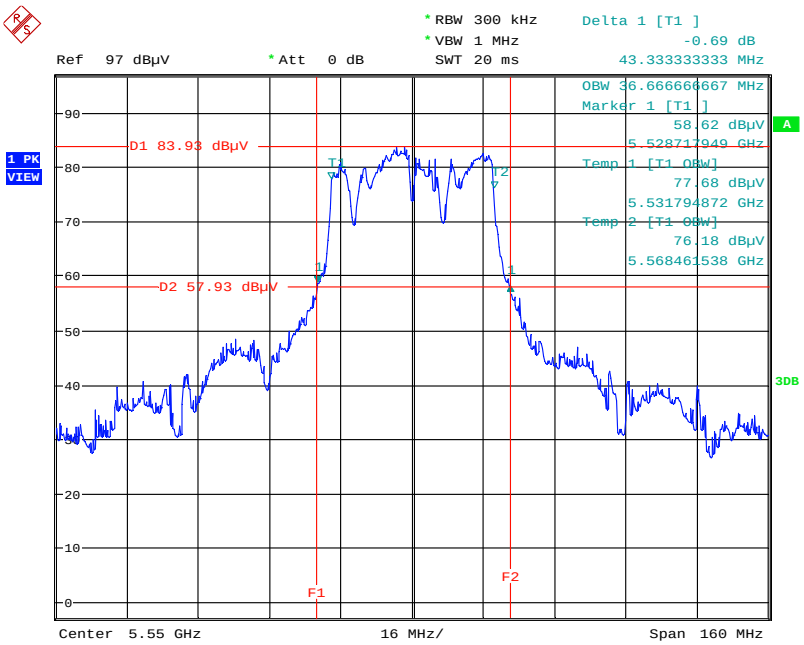
Date: 30.JUN.2014 21:45:55

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



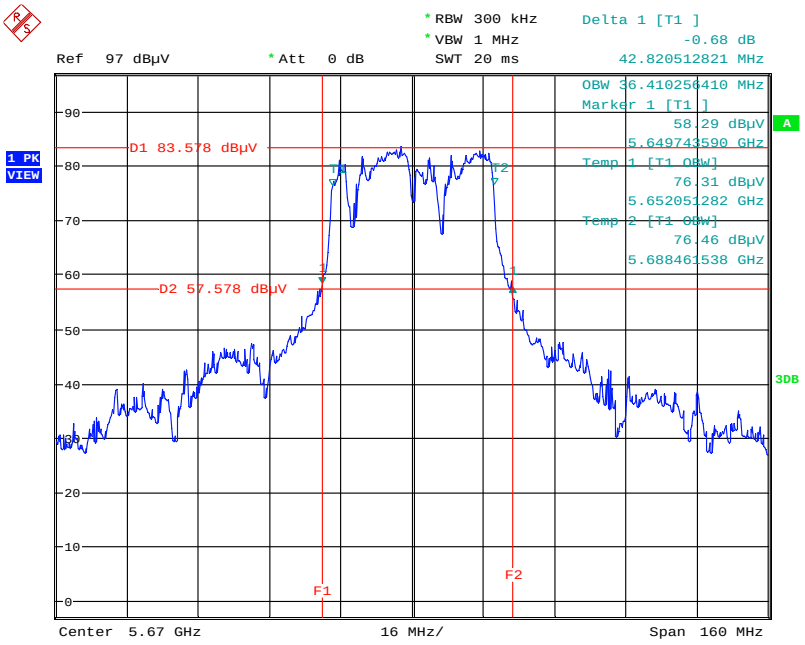
Date: 30.JUN.2014 21:46:26

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



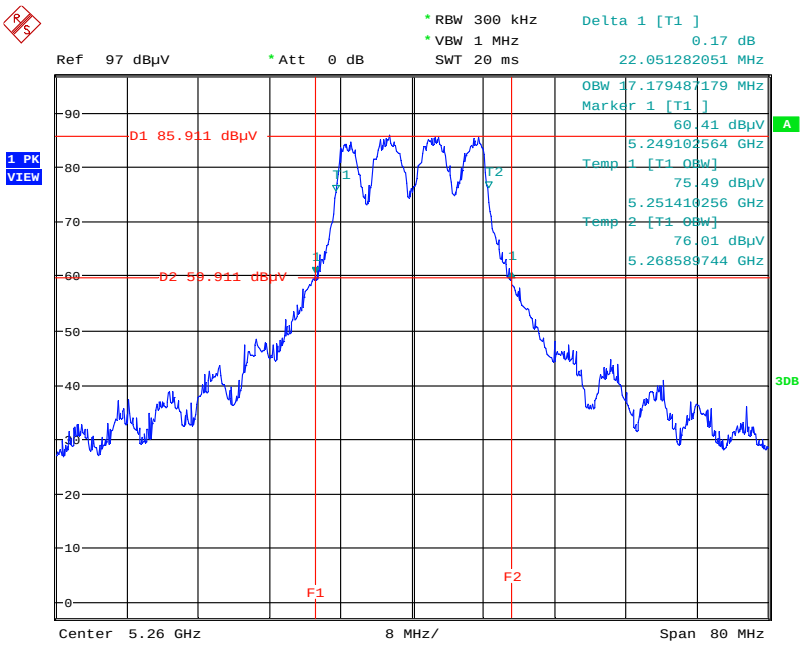
Date: 30.JUN.2014 21:46:51

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



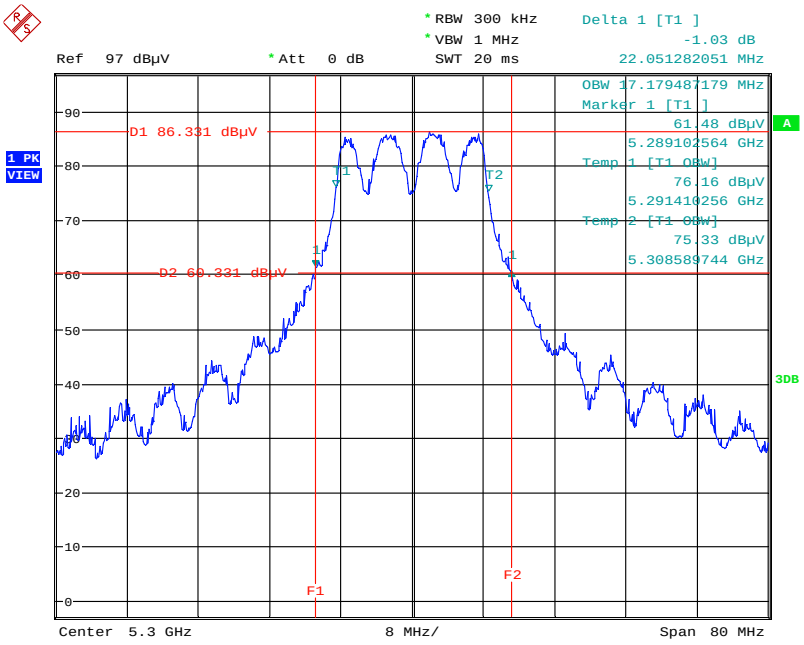
Date: 30.JUN.2014 21:47:09

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



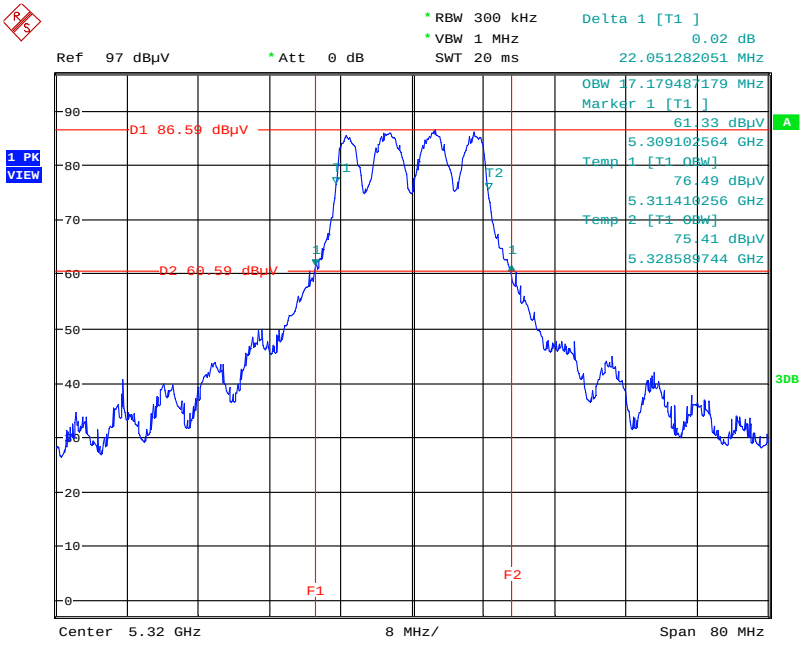
Date: 30.JUN.2014 21:07:46

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



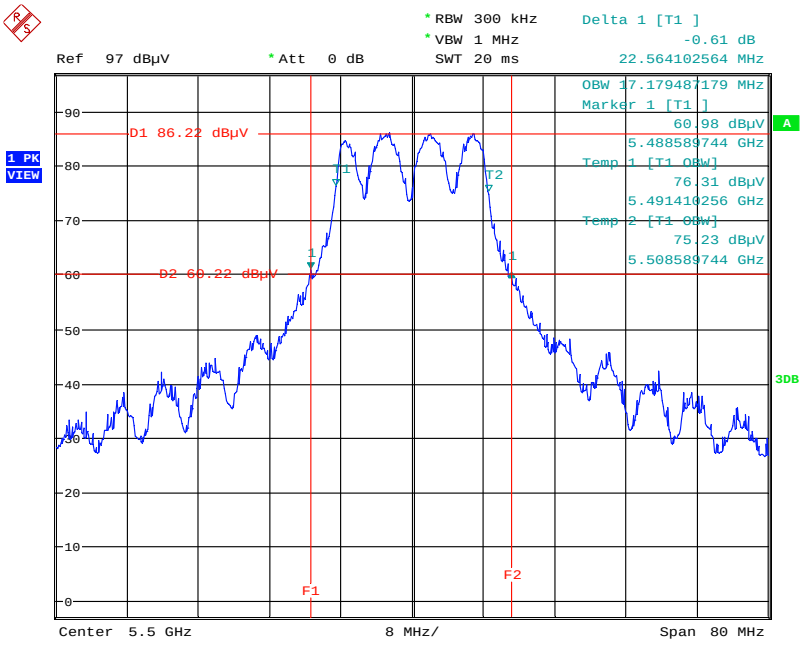
Date: 30.JUN.2014 21:08:31

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



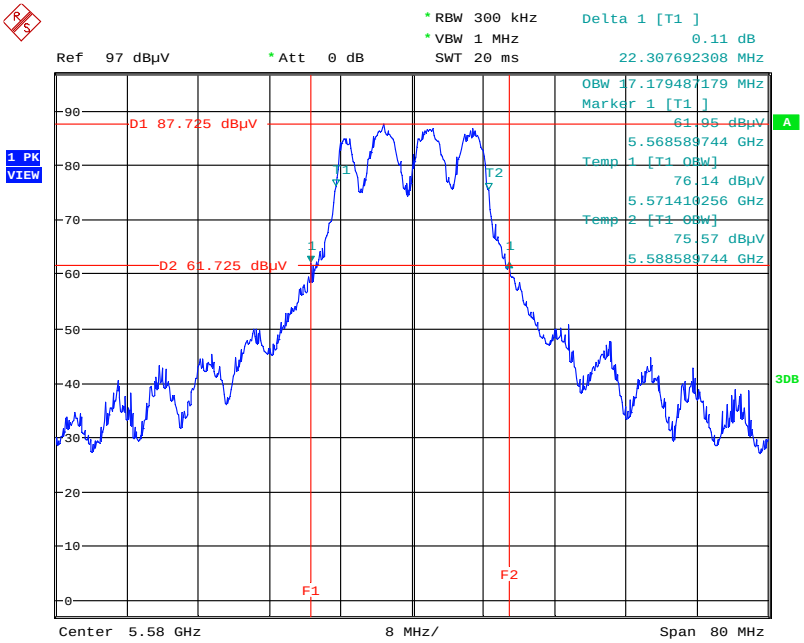
Date: 30.JUN.2014 21:09:19

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



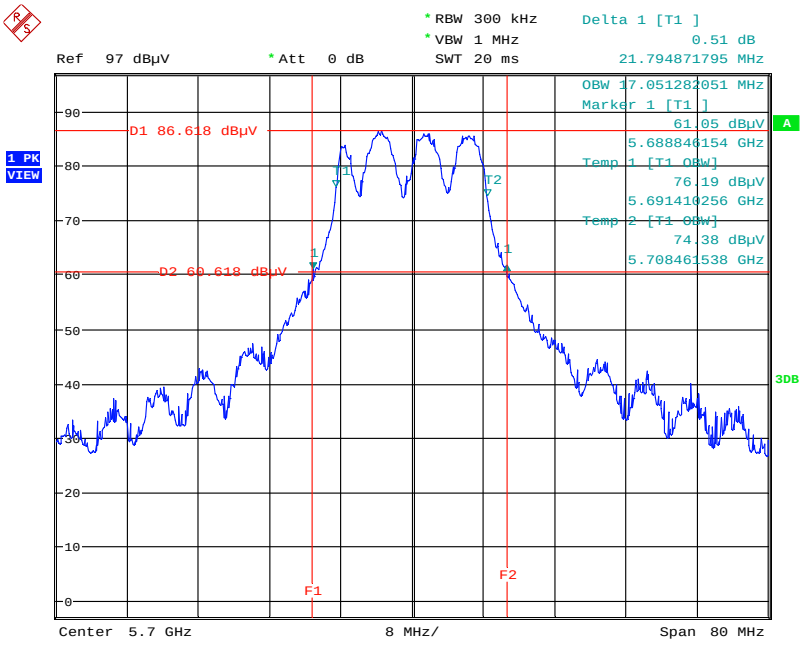
Date: 30.JUN.2014 21:10:08

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



Date: 30.JUN.2014 21:10:29

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



Date: 30.JUN.2014 21:13:12

<For Beamforming Mode>

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n

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

Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	23.71	18.58
60	5300 MHz	23.71	18.58
64	5320 MHz	22.88	18.40
100	5500 MHz	23.68	18.56
116	5580 MHz	22.94	18.20
140	5700 MHz	23.04	18.56

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

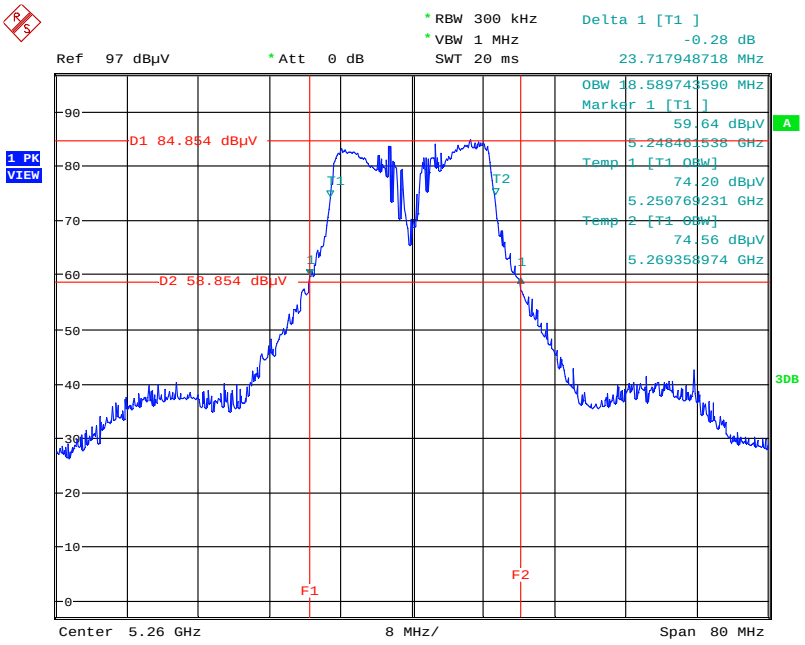
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
54	5270 MHz	44.10	36.66
62	5310 MHz	43.84	36.48
102	5510 MHz	43.20	37.12
110	5550 MHz	43.33	36.66
134	5670 MHz	45.76	37.12

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a

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

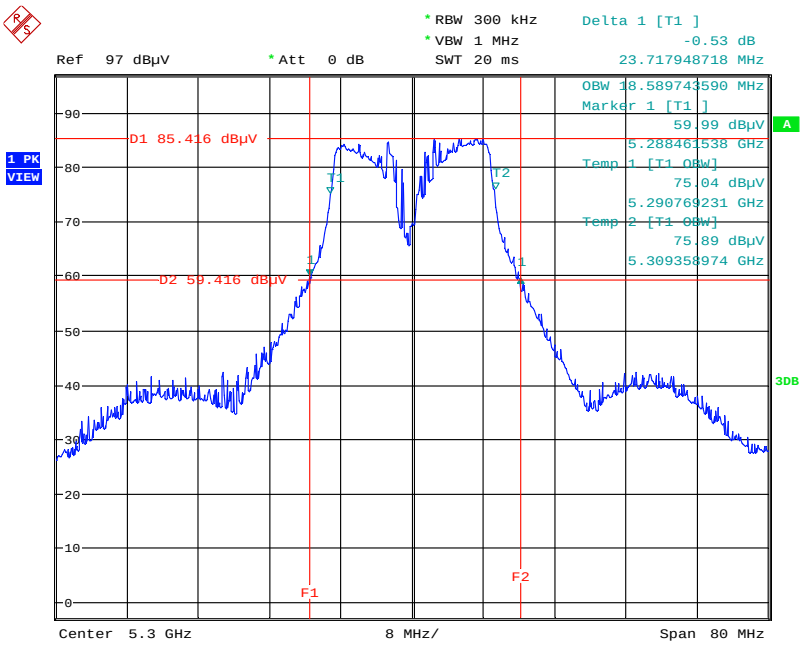
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
52	5260 MHz	22.05	17.17
60	5300 MHz	22.05	17.17
64	5320 MHz	21.92	17.28
100	5500 MHz	22.88	17.12
116	5580 MHz	22.30	17.17
140	5700 MHz	21.92	17.28

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



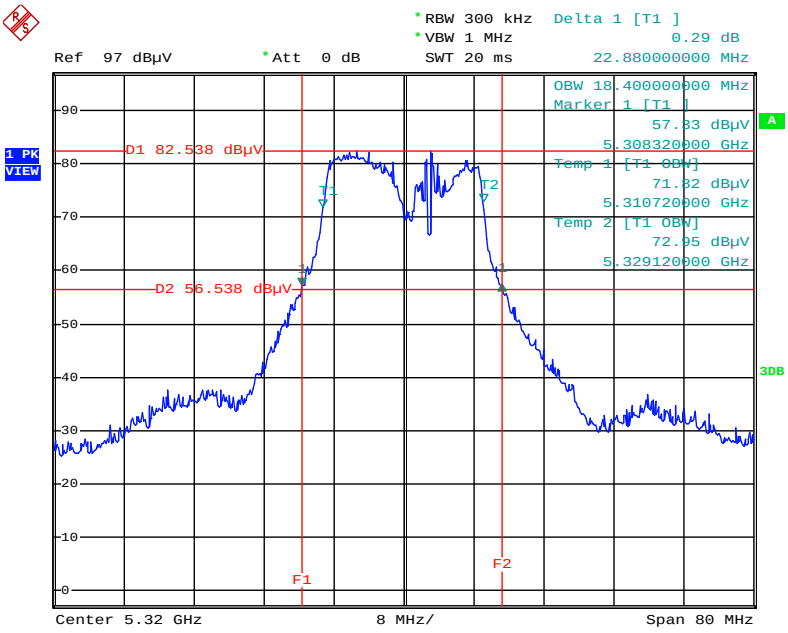
Date: 30.JUN.2014 21:15:58

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



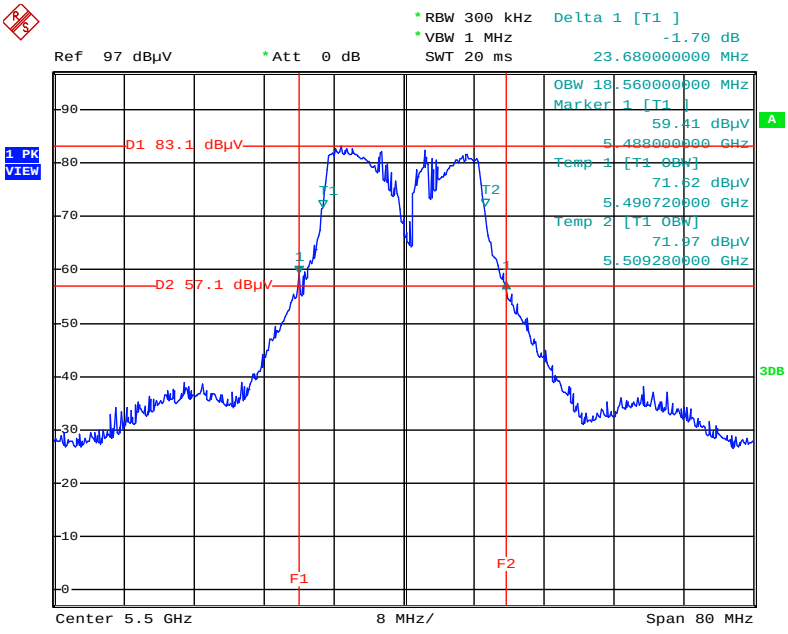
Date: 30.JUN.2014 21:16:19

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



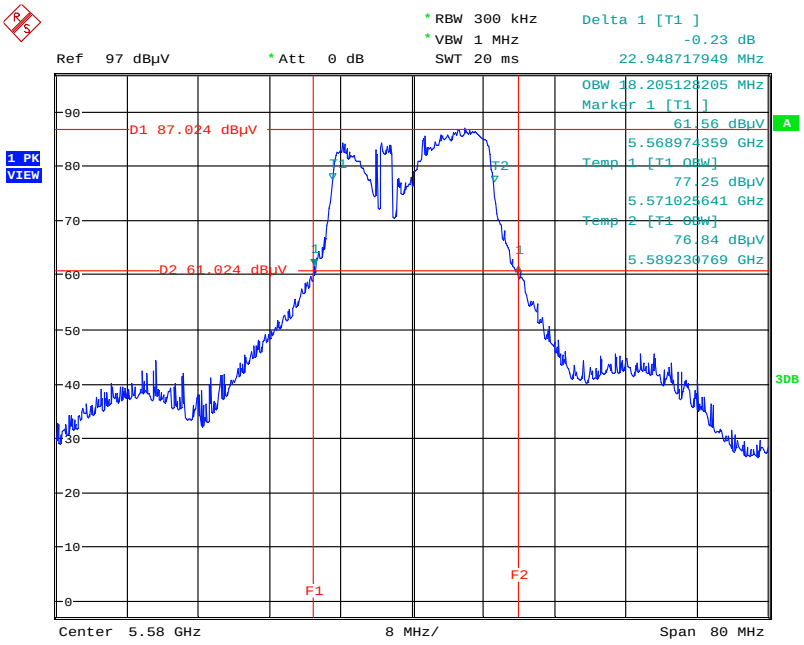
Date: 6.AUG.2014 12:19:10

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



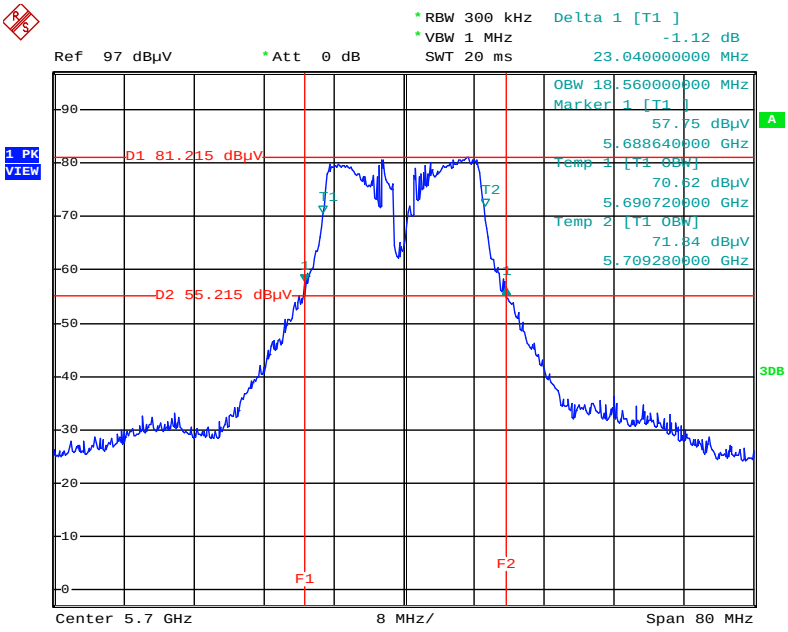
Date: 6.AUG.2014 12:19:55

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



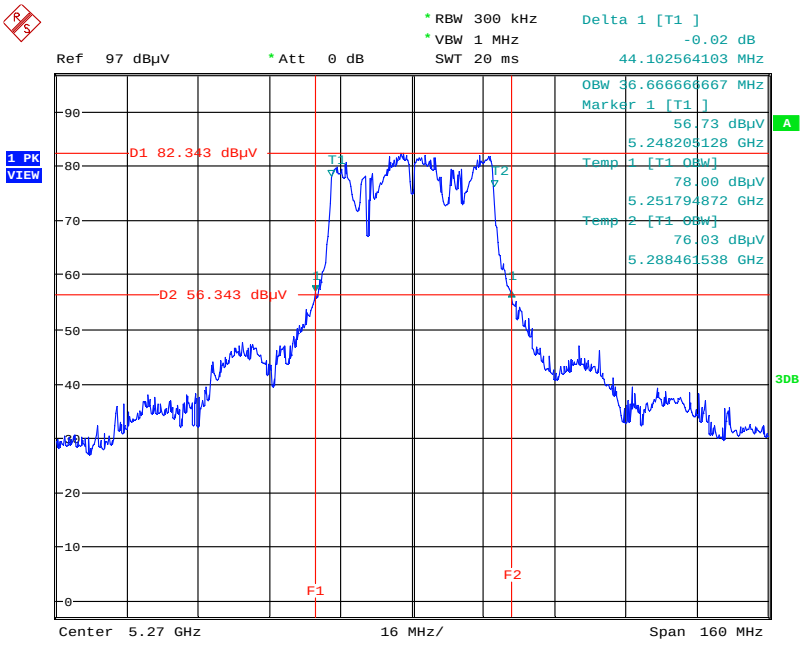
Date: 30.JUN.2014 21:17:36

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



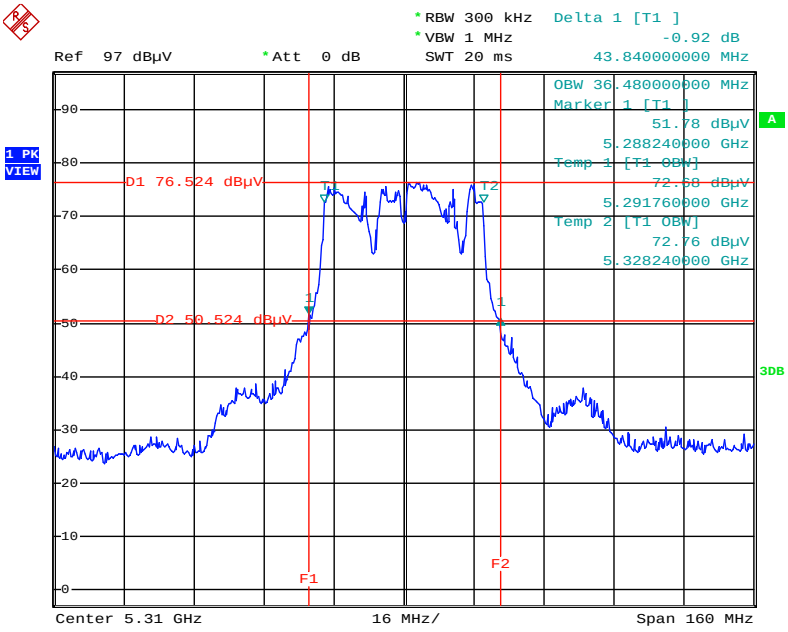
Date: 6.AUG.2014 12:21:44

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



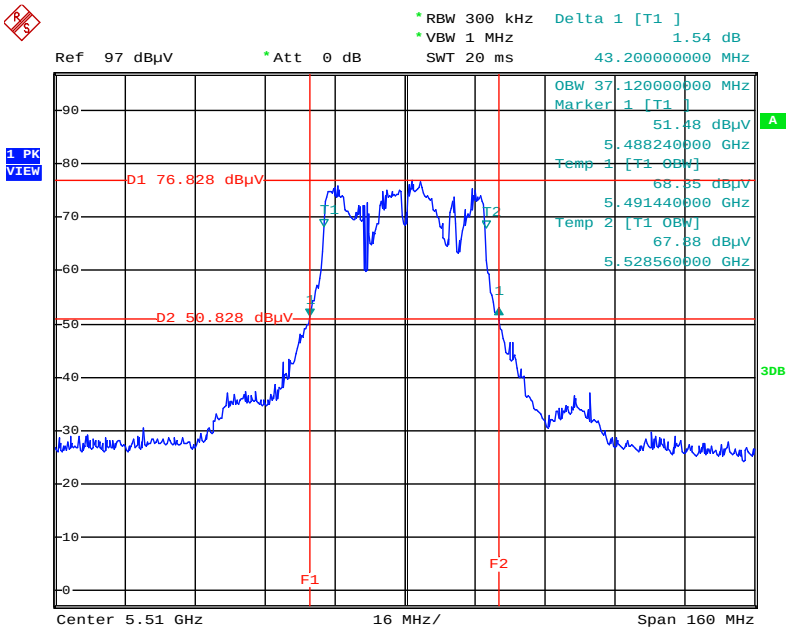
Date: 30.JUN.2014 21:45:34

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



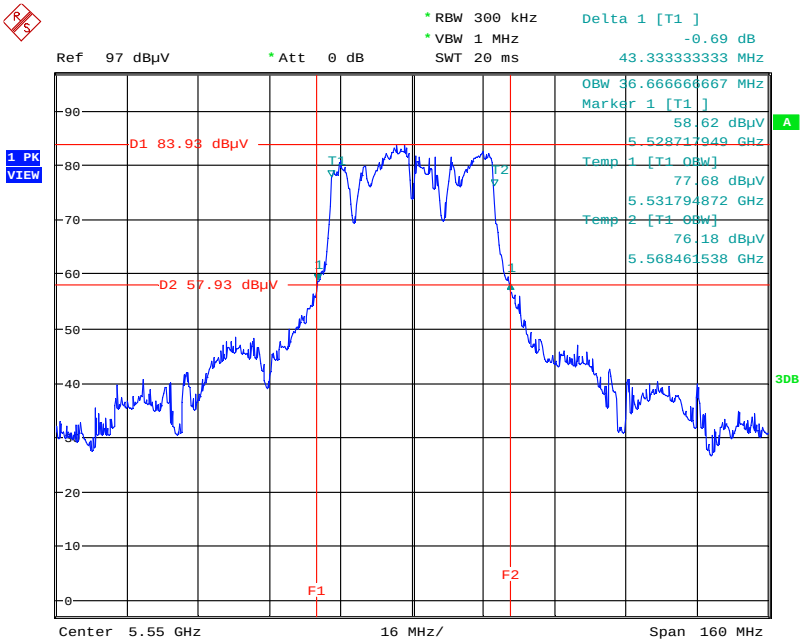
Date: 6.AUG.2014 12:25:39

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



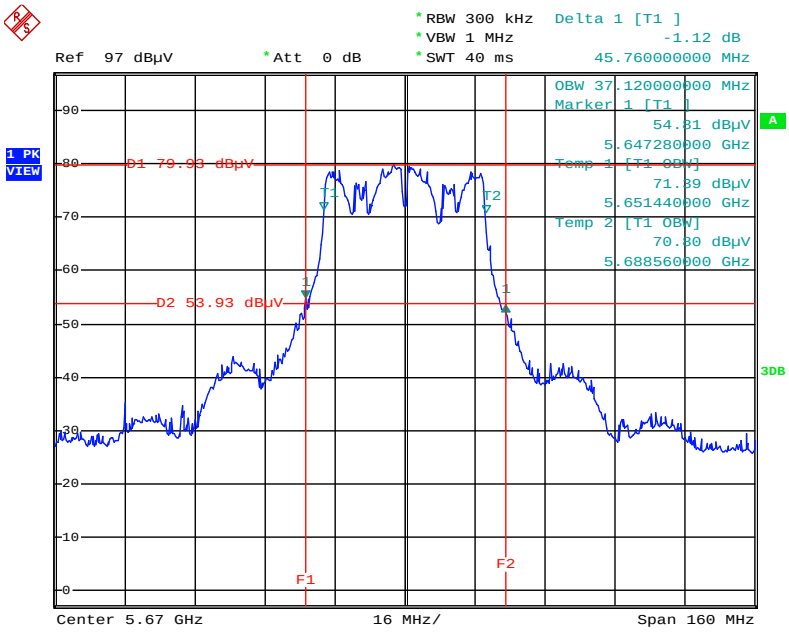
Date: 6.AUG.2014 12:26:42

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



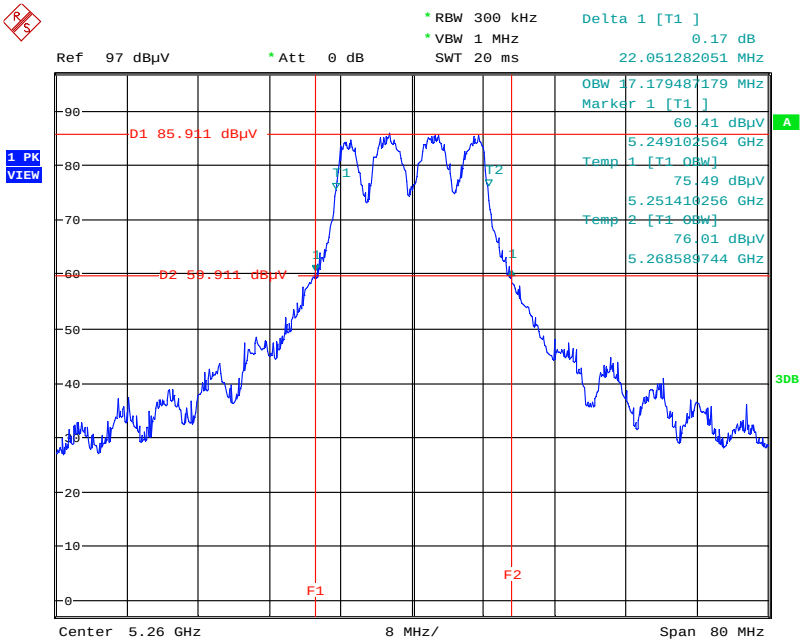
Date: 30.JUN.2014 21:46:51

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



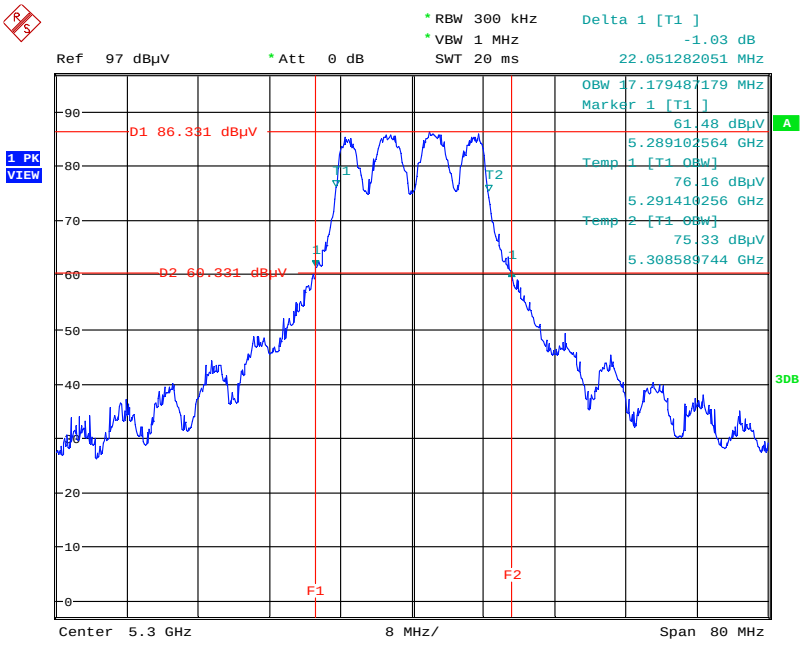
Date: 6.AUG.2014 12:34:01

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



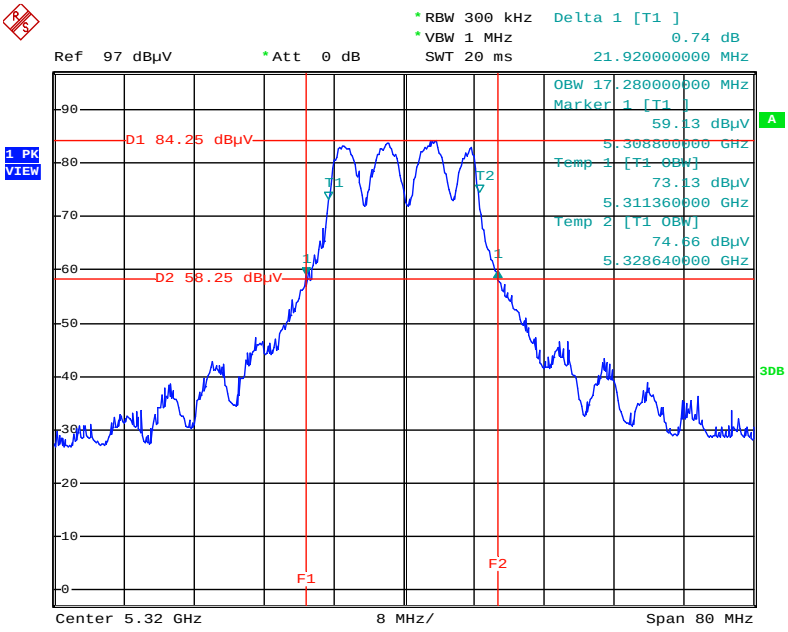
Date: 30.JUN.2014 21:07:46

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



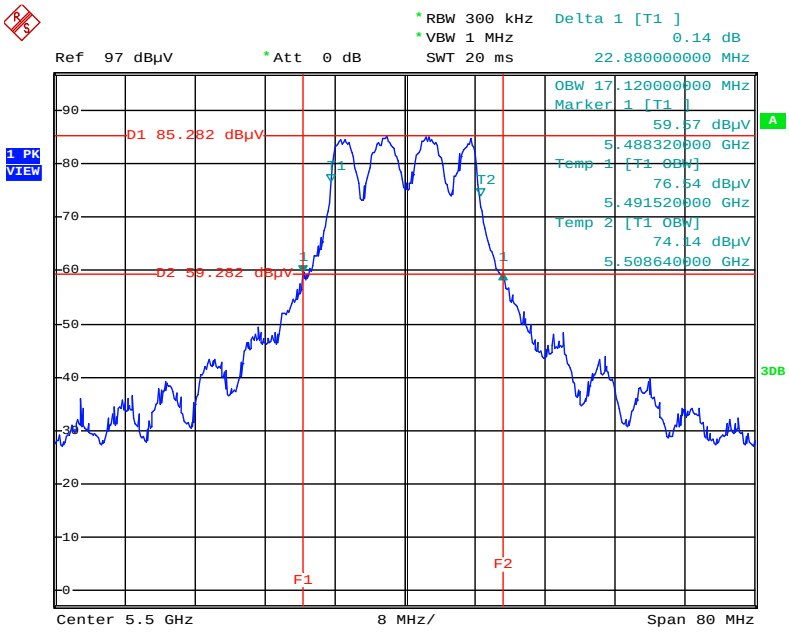
Date: 30.JUN.2014 21:08:31

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



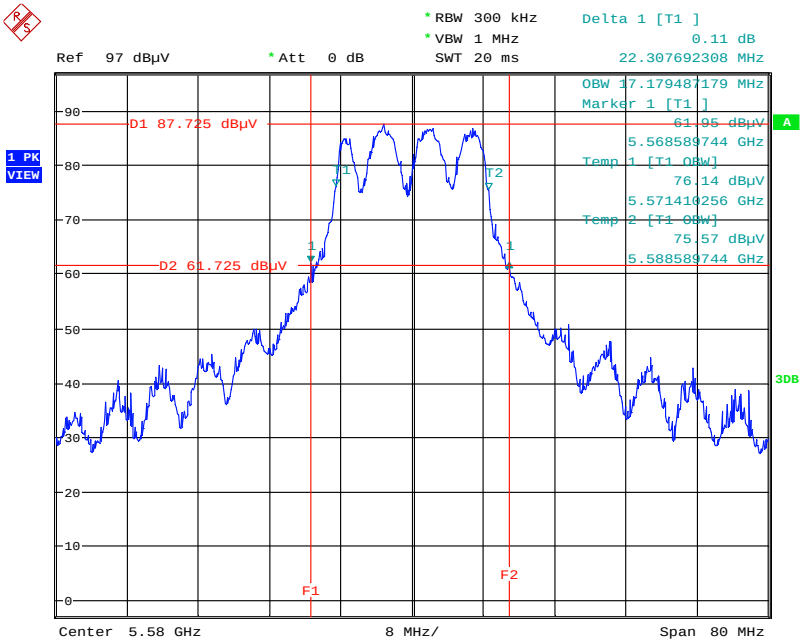
Date: 6.AUG.2014 11:35:05

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



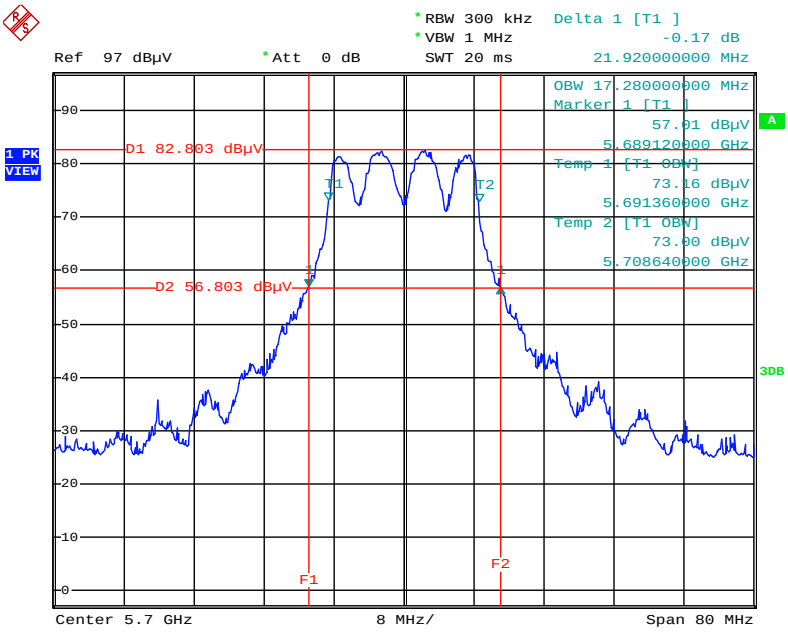
Date: 6.AUG.2014 11:36:31

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



Date: 30.JUN.2014 21:10:29

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



Date: 6.AUG.2014 11:38:10

4.3. Maximum Conducted Output Power Measurement

4.3.1. Limit

For the 5.25-5.35 GHz and 5.470-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 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.

4.3.2. Measuring Instruments and Setting

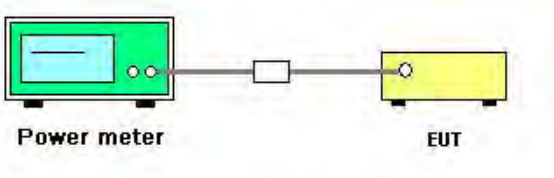
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D01 v01r04 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.

4.3.4. Test Setup Layout



4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of Maximum Conducted Output Power

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n
Test Date	Jun. 30, 2014		

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
52	5260 MHz	17.66	17.63	20.66	24.00	Complies
60	5300 MHz	17.95	17.55	20.76	24.00	Complies
64	5320 MHz	18.03	17.64	20.85	24.00	Complies
100	5500 MHz	18.41	17.51	20.99	24.00	Complies
116	5580 MHz	18.93	17.55	21.30	24.00	Complies
140	5700 MHz	17.53	16.28	19.96	24.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
54	5270 MHz	18.13	17.76	20.96	24.00	Complies
62	5310 MHz	17.68	17.25	20.48	24.00	Complies
102	5510 MHz	14.63	14.54	17.60	24.00	Complies
110	5550 MHz	19.14	17.61	21.45	24.00	Complies
134	5670 MHz	17.82	17.77	20.81	24.00	Complies

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a
Test Date	Jun. 30, 2014		

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
52	5260 MHz	17.93	17.65	20.80	24.00	Complies
60	5300 MHz	18.07	17.63	20.87	24.00	Complies
64	5320 MHz	18.09	17.71	20.91	24.00	Complies
100	5500 MHz	18.45	17.53	21.02	24.00	Complies
116	5580 MHz	19.05	17.56	21.38	24.00	Complies
140	5700 MHz	17.82	17.64	20.74	24.00	Complies

<For Beamforming Mode>

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng / Kenneth Huang	Configurations	IEEE 802.11n
Test Date	Aug. 05, 2014~Aug. 06, 2014		

Configuration IEEE 802.11n MCS0 HT20

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
52	5260 MHz	17.66	17.63	20.66	23.10	Complies
60	5300 MHz	17.95	17.55	20.76	23.10	Complies
64	5320 MHz	15.71	16.12	18.93	23.10	Complies
100	5500 MHz	16.41	16.63	19.53	23.10	Complies
116	5580 MHz	18.93	17.55	21.30	23.10	Complies
140	5700 MHz	14.99	15.23	18.12	23.10	Complies

Band2/3-Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Power Limit =24-(6.9-6)=23.10dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
54	5270 MHz	18.13	17.76	20.96	23.10	Complies
62	5310 MHz	13.60	13.86	16.74	23.10	Complies
102	5510 MHz	12.48	12.88	15.69	23.10	Complies
110	5550 MHz	19.14	17.61	21.45	23.10	Complies
134	5670 MHz	17.13	16.32	19.75	23.10	Complies

Band2/3-Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Power Limit =24-(6.9-6)=23.10dBm

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng / Kenneth Huang	Configurations	IEEE 802.11a
Test Date	Aug. 05, 2014~Aug. 06, 2014		

Configuration IEEE 802.11a

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
52	5260 MHz	17.93	17.65	20.80	23.10	Complies
60	5300 MHz	18.07	17.63	20.87	23.10	Complies
64	5320 MHz	17.22	17.37	20.31	23.10	Complies
100	5500 MHz	17.62	17.45	20.55	23.10	Complies
116	5580 MHz	19.05	17.56	21.38	23.10	Complies
140	5700 MHz	15.77	15.58	18.69	23.10	Complies

Band2/3-Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Power Limit =24-(6.9-6)=23.10dBm

4.4. Power Spectral Density Measurement

4.4.1. Limit

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

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

4.4.2. Measuring Instruments and Setting

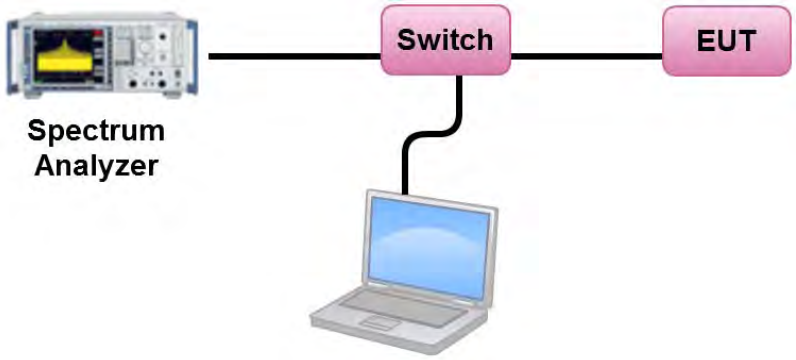
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D01 v01r04 (Band 2+Band 3) 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 (a) Measure and sum the spectra across the outputs.
4. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Power Spectral Density

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11n
Test Date	Jun. 30, 2014		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	7.12	10.10	Complies
60	5300 MHz	7.41	10.10	Complies
64	5320 MHz	7.42	10.10	Complies
100	5500 MHz	7.47	10.10	Complies
116	5580 MHz	7.95	10.10	Complies
140	5700 MHz	6.66	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sch}}\left\{\sum_{k=1}^{N_{SSG}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =11-(6.9-6)=10.10dBm/MHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sch}}\left\{\sum_{k=1}^{N_{SSG}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	4.40	10.10	Complies
62	5310 MHz	3.90	10.10	Complies
102	5510 MHz	1.16	10.10	Complies
110	5550 MHz	5.06	10.10	Complies
134	5670 MHz	4.51	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sch}}\left\{\sum_{k=1}^{N_{SSG}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =11-(6.9-6)=10.10dBm/MHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{Sch}}\left\{\sum_{k=1}^{N_{SSG}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng	Configurations	IEEE 802.11a
Test Date	Jun. 30, 2014		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	7.44	10.10	Complies
60	5300 MHz	7.53	10.10	Complies
64	5320 MHz	7.52	10.10	Complies
100	5500 MHz	7.55	10.10	Complies
116	5580 MHz	8.08	10.10	Complies
140	5700 MHz	7.46	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =11-(6.9-6)=10.10dBm/MHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

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

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

<For Beamforming Mode>

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng / Kenneth Huang	Configurations	IEEE 802.11n
Test Date	Aug. 05, 2014~Aug. 06, 2014		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	7.12	10.10	Complies
60	5300 MHz	7.41	10.10	Complies
64	5320 MHz	5.17	10.10	Complies
100	5500 MHz	5.66	10.10	Complies
116	5580 MHz	7.95	10.10	Complies
140	5700 MHz	3.90	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =17-(6.9-6)=16.10dBm/MHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
54	5270 MHz	4.40	10.10	Complies
62	5310 MHz	0.13	10.10	Complies
102	5510 MHz	-1.27	10.10	Complies
110	5550 MHz	5.06	10.10	Complies
134	5670 MHz	3.32	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =17-(6.9-6)=16.10dBm/MHz

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

Temperature	26°C	Humidity	53%
Test Engineer	Benson Peng / Kenneth Huang	Configurations	IEEE 802.11a
Test Date	Aug. 05, 2014~Aug. 06, 2014		

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
52	5260 MHz	7.44	10.10	Complies
60	5300 MHz	7.53	10.10	Complies
64	5320 MHz	6.94	10.10	Complies
100	5500 MHz	7.35	10.10	Complies
116	5580 MHz	8.08	10.10	Complies
140	5700 MHz	5.29	10.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band2 Limit =17-(6.9-6)=16.10dBm/MHz

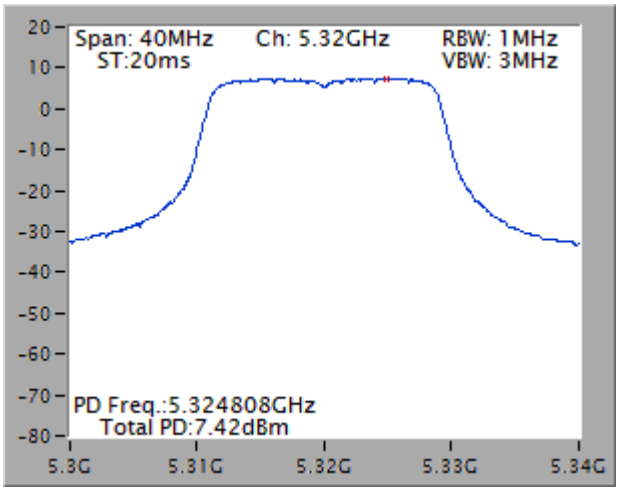
Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}\left\{\sum_{k=1} g_{j,k}\right\}}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band3 Limit =11-(6.9-6)=10.10dBm/MHz

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

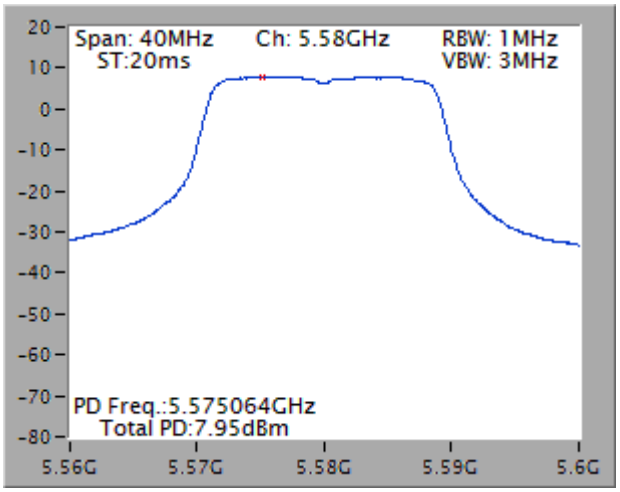
For plots, only the channel with worse result was shown.

<For Non-Beamforming Mode>

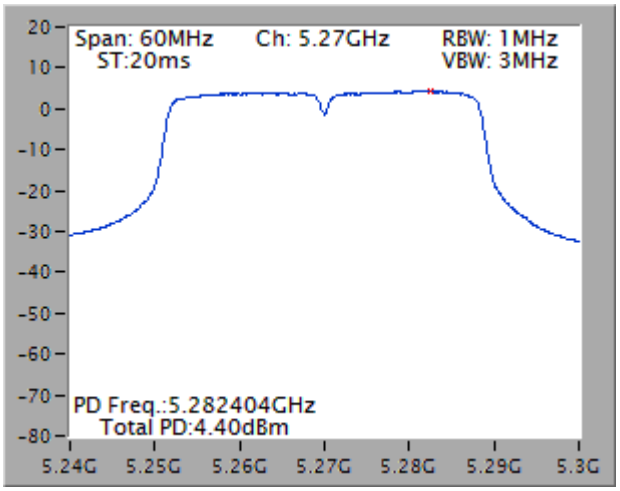
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5320 MHz



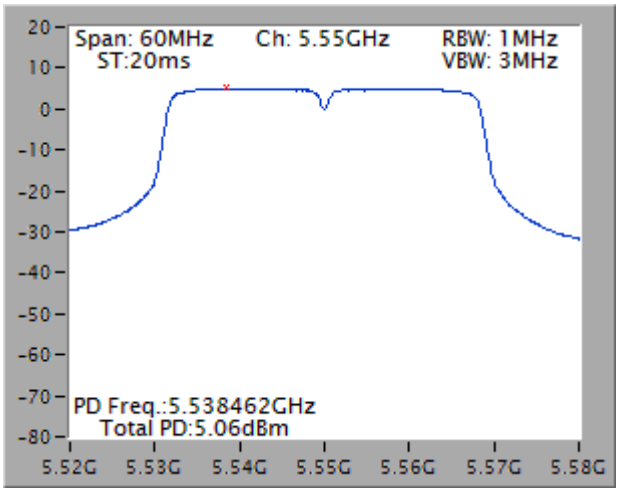
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5580 MHz



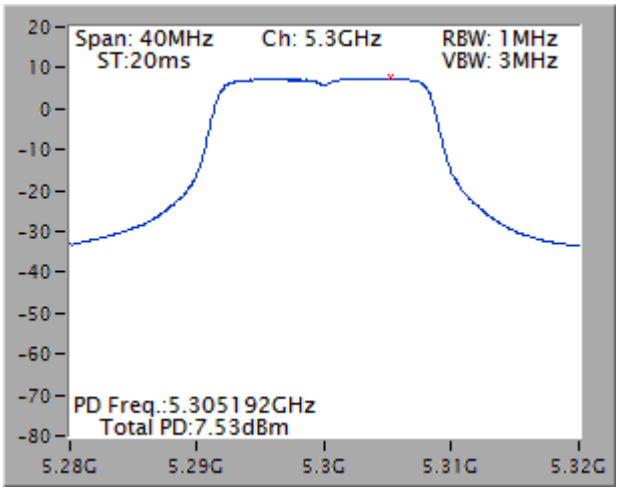
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5270 MHz



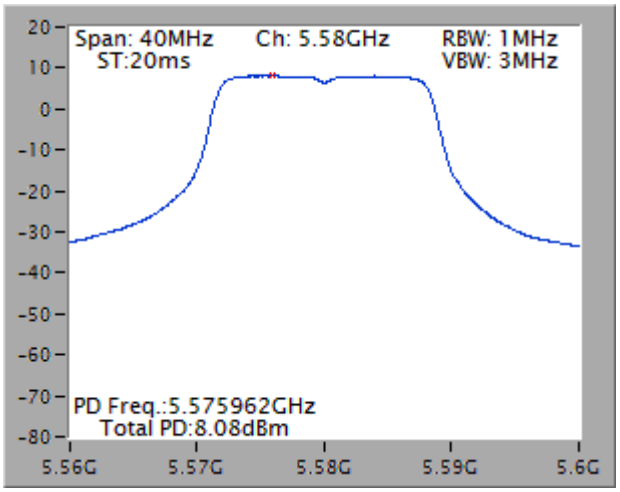
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5550 MHz



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

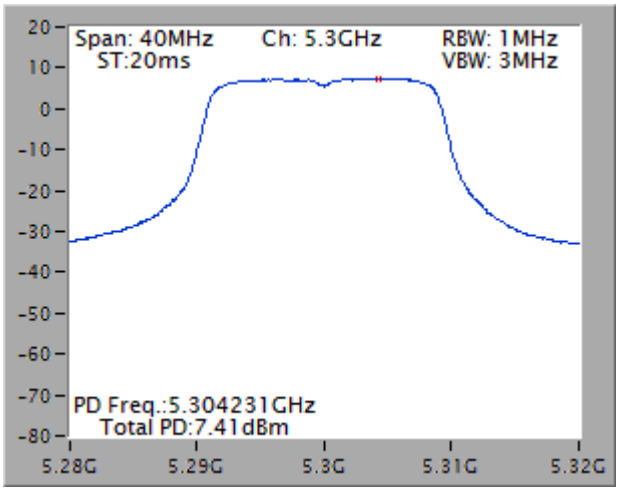


Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5580 MHz

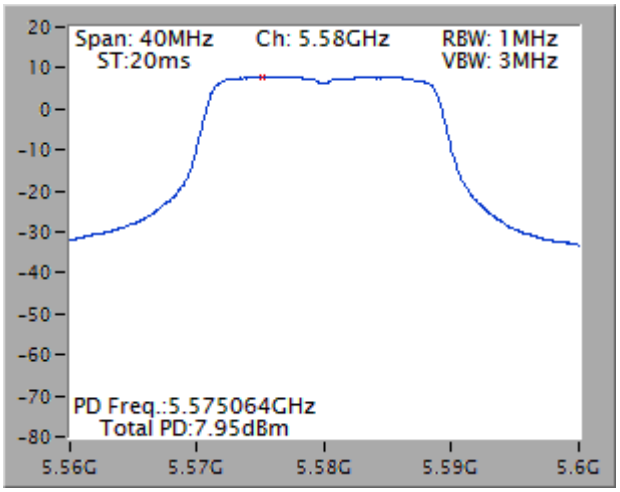


<For Beamforming Mode>

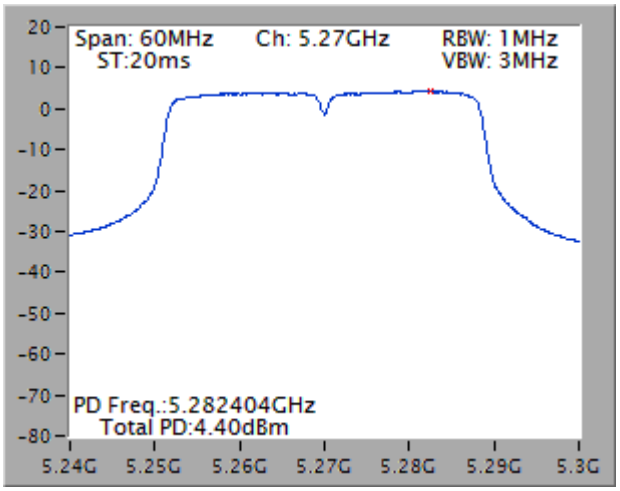
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5300 MHz



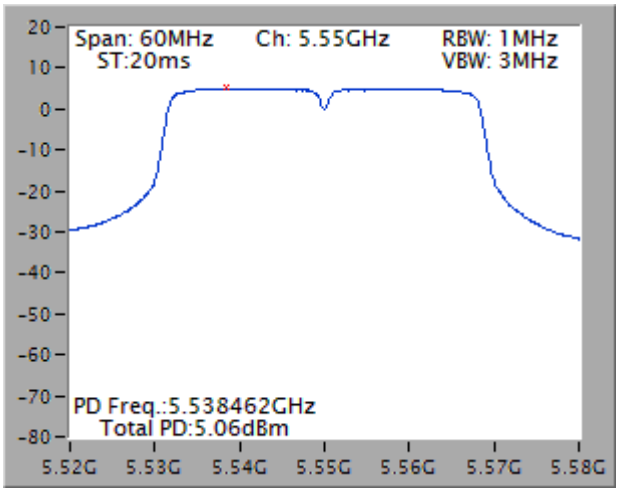
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5580 MHz



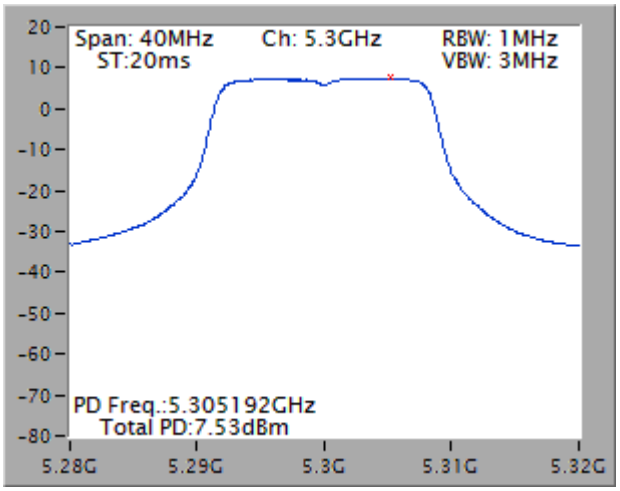
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5270 MHz



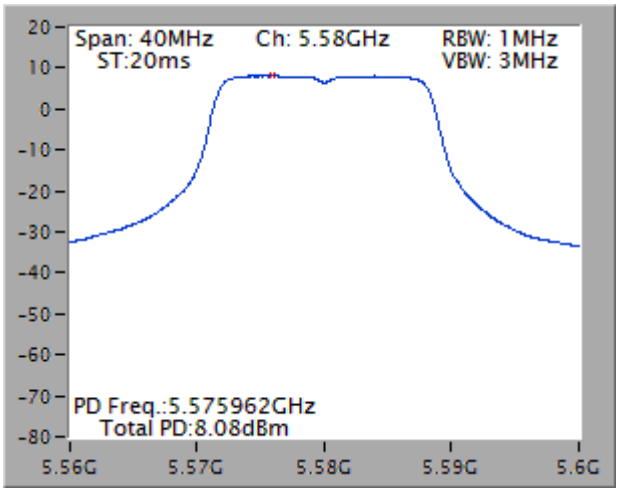
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5550 MHz



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



Power Density Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5580 MHz



4.5. Radiated Emissions Measurement

4.5.1. Limit

For transmitters operating in the 5.25-5.35 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.

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

4.5.2. 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

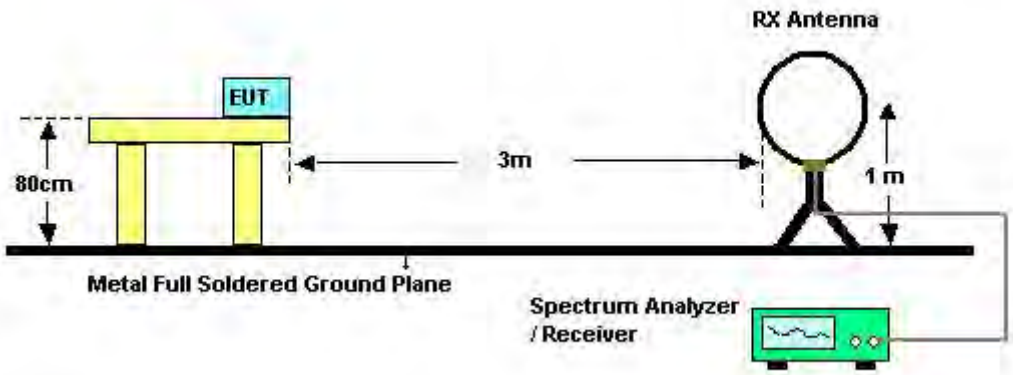
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.5.3. Test Procedures

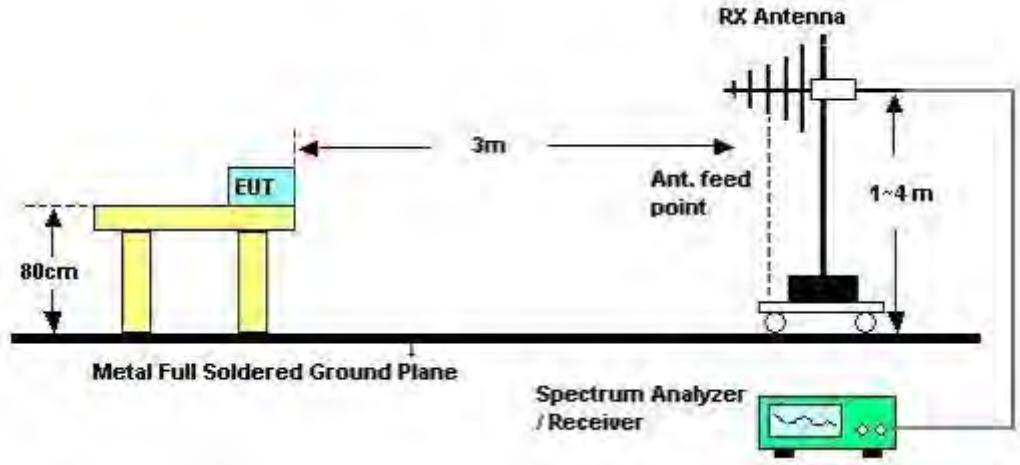
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 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.

4.5.4. Test Setup Layout

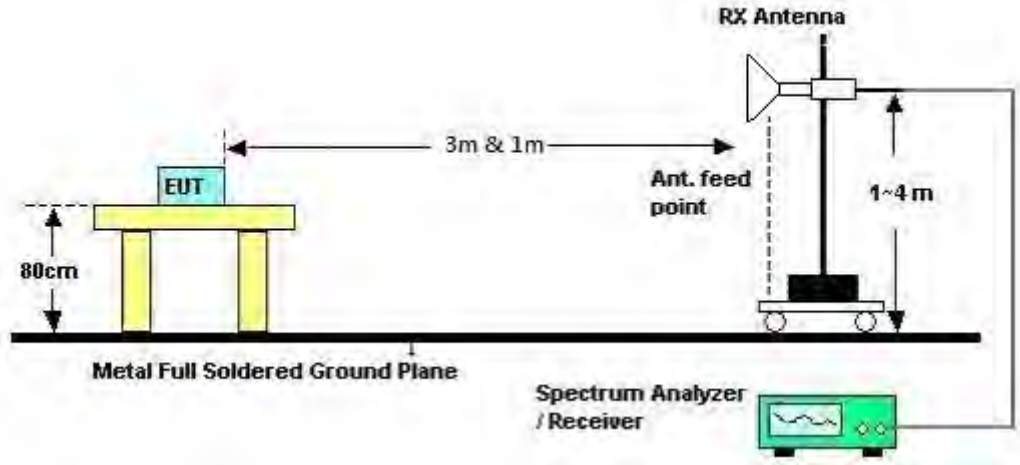
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

For Non-beamforming mode:

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode:

The EUT was programmed to be in beamforming transmitting mode.

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	Normal Link
Test Date	Jul. 04, 2014	Test Mode	Mode 1

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

Note:

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

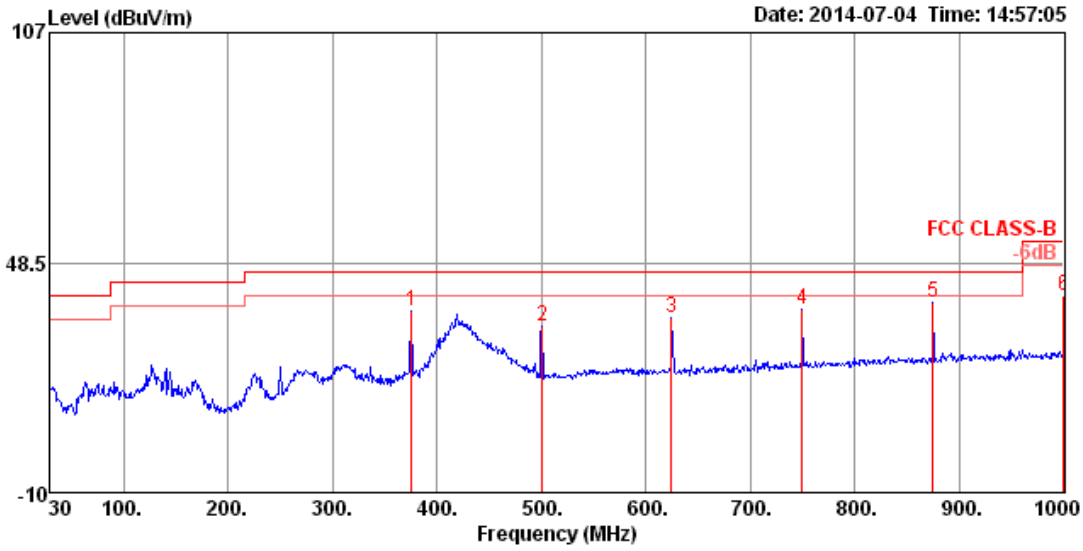
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

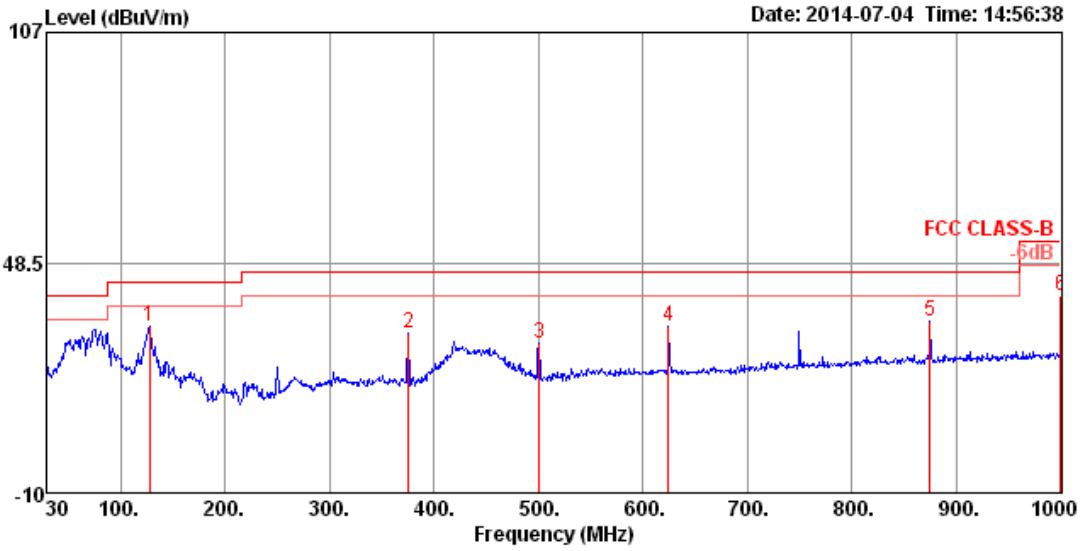
Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	Normal Link
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	375.32	36.02	46.00	-9.98	50.08	2.44	14.93	31.43	100	271	HORIZONTAL	Peak
2	500.45	32.13	46.00	-13.87	43.80	2.82	16.92	31.41	200	212	HORIZONTAL	Peak
3	624.61	34.38	46.00	-11.62	43.99	3.18	18.61	31.40	150	108	HORIZONTAL	Peak
4	749.74	36.59	46.00	-9.41	44.74	3.53	19.69	31.37	125	101	HORIZONTAL	Peak
5	874.87	38.51	46.00	-7.49	45.53	3.89	20.24	31.15	100	198	HORIZONTAL	Peak
6	1000.00	40.05	54.00	-13.95	45.58	4.21	21.44	31.18	150	184	HORIZONTAL	Peak

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	127.97	32.23	43.50	-11.27	50.76	1.35	11.69	31.57	100	277	VERTICAL	Peak
2	375.32	30.50	46.00	-15.50	44.56	2.44	14.93	31.43	200	118	VERTICAL	Peak
3	500.45	28.15	46.00	-17.85	39.82	2.82	16.92	31.41	100	170	VERTICAL	Peak
4	624.61	32.32	46.00	-13.68	41.93	3.18	18.61	31.40	200	172	VERTICAL	Peak
5	874.87	33.73	46.00	-12.27	40.75	3.89	20.24	31.15	150	12	VERTICAL	Peak
6	1000.00	39.94	54.00	-14.06	45.47	4.21	21.44	31.18	125	354	VERTICAL	Peak

Note:

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

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

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

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

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10519.52	41.79	54.00	-12.21	29.43	8.42	38.80	34.86	163	29	HORIZONTAL	Average
2	10519.55	53.09	74.00	-20.91	40.73	8.42	38.80	34.86	163	29	HORIZONTAL	Peak
3	15772.71	43.95	54.00	-10.05	29.71	10.35	38.70	34.81	100	222	HORIZONTAL	Average
4	15793.80	54.51	74.00	-19.49	40.25	10.35	38.74	34.83	100	222	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10511.42	40.05	54.00	-13.95	27.69	8.42	38.80	34.86	100	99	VERTICAL	Average
2	10529.69	50.70	74.00	-23.30	38.33	8.43	38.80	34.86	100	99	VERTICAL	Peak
3	15770.22	55.12	74.00	-18.88	40.87	10.35	38.70	34.80	100	163	VERTICAL	Peak
4	15771.84	44.01	54.00	-9.99	29.76	10.35	38.70	34.80	100	163	VERTICAL	Average

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10597.36	54.75	74.00	-19.25	42.23	8.47	38.91	34.86	156	332	HORIZONTAL	Peak
2	10598.95	42.63	54.00	-11.37	30.11	8.47	38.91	34.86	156	332	HORIZONTAL	Average
3	15899.46	43.82	54.00	-10.18	29.61	10.35	38.82	34.96	100	166	HORIZONTAL	Average
4	15901.02	54.53	74.00	-19.47	40.33	10.35	38.82	34.97	100	166	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10585.27	50.29	74.00	-23.71	37.81	8.46	38.88	34.86	100	171	VERTICAL	Peak
2	10603.81	41.49	54.00	-12.51	28.97	8.47	38.91	34.86	100	171	VERTICAL	Average
3	15885.57	54.51	74.00	-19.49	40.29	10.35	38.82	34.95	100	34	VERTICAL	Peak
4	15893.31	43.61	54.00	-10.39	29.40	10.35	38.82	34.96	100	34	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10641.65	42.22	54.00	-11.78	29.63	8.50	38.95	34.86	148	332	HORIZONTAL	Average
2	10644.59	55.32	74.00	-18.68	42.73	8.50	38.95	34.86	148	332	HORIZONTAL	Peak
3	15954.15	54.98	74.00	-19.02	40.81	10.34	38.86	35.03	100	219	HORIZONTAL	Peak
4	15964.95	43.54	54.00	-10.46	29.39	10.34	38.86	35.05	100	219	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10636.07	39.65	54.00	-14.35	27.07	8.49	38.95	34.86	100	142	VERTICAL	Average
2	10651.31	51.14	74.00	-22.86	38.55	8.50	38.95	34.86	100	142	VERTICAL	Peak
3	15956.49	55.15	74.00	-18.85	40.99	10.34	38.86	35.04	100	293	VERTICAL	Peak
4	15963.12	43.63	54.00	-10.37	29.47	10.34	38.86	35.04	100	293	VERTICAL	Average

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10632.20	51.05	74.00	-22.95	38.47	8.49	38.95	34.86	100	222	HORIZONTAL	Peak
2	10654.43	38.55	54.00	-15.45	25.92	8.50	38.99	34.86	100	222	HORIZONTAL	Average
3	15948.66	54.99	74.00	-19.01	40.82	10.34	38.86	35.03	100	80	HORIZONTAL	Peak
4	15975.00	42.50	54.00	-11.50	28.32	10.34	38.90	35.06	100	80	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10637.39	50.92	74.00	-23.08	38.34	8.49	38.95	34.86	100	113	VERTICAL	Peak
2	10652.00	39.29	54.00	-14.71	26.70	8.50	38.95	34.86	100	113	VERTICAL	Average
3	15970.71	42.68	54.00	-11.32	28.49	10.34	38.90	35.05	100	230	VERTICAL	Average
4	15974.16	54.87	74.00	-19.13	40.69	10.34	38.90	35.06	100	230	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11161.38	51.47	74.00	-22.53	38.38	8.84	39.10	34.85	100	297	HORIZONTAL	Peak
2	11163.75	41.33	54.00	-12.67	28.24	8.84	39.10	34.85	100	297	HORIZONTAL	Average
3	16750.32	45.82	54.00	-8.18	29.65	10.75	40.30	34.88	100	165	HORIZONTAL	Average
4	16750.92	57.01	74.00	-16.99	40.84	10.75	40.30	34.88	100	165	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11167.68	51.45	74.00	-22.55	38.36	8.84	39.10	34.85	100	178	VERTICAL	Peak
2	11173.77	40.20	54.00	-13.80	27.10	8.85	39.10	34.85	100	178	VERTICAL	Average
3	16744.17	57.43	74.00	-16.57	41.28	10.74	40.30	34.89	100	239	VERTICAL	Peak
4	16748.13	45.76	54.00	-8.24	29.59	10.75	40.30	34.88	100	239	VERTICAL	Average

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11400.33	57.74	74.00	-16.26	44.47	9.02	39.10	34.85	133	23	HORIZONTAL	Peak
2	11400.84	45.26	54.00	-8.74	31.99	9.02	39.10	34.85	133	23	HORIZONTAL	Average
3	17089.38	47.67	54.00	-6.33	30.14	10.90	41.42	34.79	100	182	HORIZONTAL	Average
4	17091.72	58.82	74.00	-15.18	41.29	10.90	41.42	34.79	100	182	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11394.51	52.13	74.00	-21.87	38.86	9.02	39.10	34.85	100	160	VERTICAL	Peak
2	11399.22	41.58	54.00	-12.42	28.31	9.02	39.10	34.85	100	160	VERTICAL	Average
3	17086.53	58.42	74.00	-15.58	40.89	10.90	41.42	34.79	100	273	VERTICAL	Peak
4	17091.72	47.61	54.00	-6.39	30.08	10.90	41.42	34.79	100	273	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10531.45	51.71	74.00	-22.29	39.30	8.43	38.84	34.86	150	267	HORIZONTAL	Peak
2	10540.18	41.37	54.00	-12.63	28.96	8.43	38.84	34.86	150	267	HORIZONTAL	Average
3	15801.93	43.87	54.00	-10.13	29.62	10.35	38.74	34.84	100	322	HORIZONTAL	Average
4	15816.42	56.78	74.00	-17.22	42.55	10.35	38.74	34.86	100	322	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10540.39	40.26	54.00	-13.74	27.85	8.43	38.84	34.86	100	116	VERTICAL	Average
2	10551.10	51.22	74.00	-22.78	38.80	8.44	38.84	34.86	100	116	VERTICAL	Peak
3	15812.67	54.62	74.00	-19.38	40.39	10.35	38.74	34.86	100	191	VERTICAL	Peak
4	15821.37	44.06	54.00	-9.94	29.84	10.35	38.74	34.87	100	191	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11nMCS0 HT40 CH 62 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10614.57	39.09	54.00	-14.91	26.56	8.48	38.91	34.86	100	217	HORIZONTAL	Average
2	10617.24	50.98	74.00	-23.02	38.45	8.48	38.91	34.86	100	217	HORIZONTAL	Peak
3	15916.68	43.51	54.00	-10.49	29.34	10.34	38.82	34.99	100	99	HORIZONTAL	Average
4	15922.47	54.38	74.00	-19.62	40.17	10.34	38.86	34.99	100	99	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10605.18	39.74	54.00	-14.26	27.22	8.47	38.91	34.86	100	270	VERTICAL	Average
2	10615.92	50.56	74.00	-23.44	38.03	8.48	38.91	34.86	100	270	VERTICAL	Peak
3	15937.71	55.25	74.00	-18.75	41.06	10.34	38.86	35.01	100	188	VERTICAL	Peak
4	15939.27	42.42	54.00	-11.58	28.23	10.34	38.86	35.01	100	188	VERTICAL	Average

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11026.33	42.91	54.00	-11.09	29.93	8.73	39.10	34.85	100	260	HORIZONTAL	Average
2	11028.94	52.47	74.00	-21.53	39.49	8.73	39.10	34.85	100	260	HORIZONTAL	Peak
3	16532.19	56.05	74.00	-17.95	40.54	10.63	39.82	34.94	100	172	HORIZONTAL	Peak
4	16532.64	45.40	54.00	-8.60	29.89	10.63	39.82	34.94	100	172	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11028.19	51.82	74.00	-22.18	38.84	8.73	39.10	34.85	100	307	VERTICAL	Peak
2	11030.29	41.38	54.00	-12.62	28.40	8.73	39.10	34.85	100	307	VERTICAL	Average
3	16525.68	55.26	74.00	-18.74	39.88	10.63	39.70	34.95	100	236	VERTICAL	Peak
4	16532.10	45.22	54.00	-8.78	29.71	10.63	39.82	34.94	100	236	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 110 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11103.63	58.01	74.00	-15.99	44.97	8.79	39.10	34.85	166	27	HORIZONTAL	Peak
2	11105.85	46.28	54.00	-7.72	33.24	8.79	39.10	34.85	166	27	HORIZONTAL	Average
3	16636.14	56.25	74.00	-17.75	40.42	10.69	40.06	34.92	100	256	HORIZONTAL	Peak
4	16640.97	45.94	54.00	-8.06	30.10	10.69	40.06	34.91	100	256	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11094.24	41.90	54.00	-12.10	28.87	8.78	39.10	34.85	100	133	VERTICAL	Average
2	11110.26	52.20	74.00	-21.80	39.15	8.80	39.10	34.85	100	133	VERTICAL	Peak
3	16635.75	45.77	54.00	-8.23	29.94	10.69	40.06	34.92	100	214	VERTICAL	Average
4	16638.42	56.79	74.00	-17.21	40.95	10.69	40.06	34.91	100	214	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 134 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11352.40	52.92	74.00	-21.08	39.68	8.99	39.10	34.85	100	233	HORIZONTAL	Peak
2	11373.40	41.40	54.00	-12.60	28.15	9.00	39.10	34.85	100	233	HORIZONTAL	Average
3	17015.30	57.82	74.00	-16.18	40.49	10.88	41.26	34.81	100	133	HORIZONTAL	Peak
4	17036.80	47.55	54.00	-6.45	30.20	10.89	41.26	34.80	100	133	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11319.80	52.52	74.00	-21.48	39.31	8.96	39.10	34.85	100	288	VERTICAL	Peak
2	11385.70	41.29	54.00	-12.71	28.03	9.01	39.10	34.85	100	288	VERTICAL	Average
3	17043.80	47.51	54.00	-6.49	30.16	10.89	41.26	34.80	100	203	VERTICAL	Average
4	17046.40	58.78	74.00	-15.22	41.43	10.89	41.26	34.80	100	203	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10520.33	41.38	54.00	-12.62	29.02	8.42	38.80	34.86	100	348	HORIZONTAL	Average
2	10520.57	52.08	74.00	-21.92	39.72	8.42	38.80	34.86	100	348	HORIZONTAL	Peak
3	15771.00	54.54	74.00	-19.46	40.29	10.35	38.70	34.80	100	203	HORIZONTAL	Peak
4	15790.29	44.35	54.00	-9.65	30.09	10.35	38.74	34.83	100	203	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10505.69	50.54	74.00	-23.46	38.19	8.41	38.80	34.86	100	265	VERTICAL	Peak
2	10513.76	40.19	54.00	-13.81	27.83	8.42	38.80	34.86	100	265	VERTICAL	Average
3	15779.13	54.66	74.00	-19.34	40.42	10.35	38.70	34.81	100	191	VERTICAL	Peak
4	15780.84	44.08	54.00	-9.92	29.85	10.35	38.70	34.82	100	191	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10593.43	51.62	74.00	-22.38	39.10	8.47	38.91	34.86	100	96	HORIZONTAL	Peak
2	10597.54	39.99	54.00	-14.01	27.47	8.47	38.91	34.86	100	96	HORIZONTAL	Average
3	15894.78	43.89	54.00	-10.11	29.68	10.35	38.82	34.96	100	312	HORIZONTAL	Average
4	15904.62	54.83	74.00	-19.17	40.63	10.35	38.82	34.97	100	312	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10587.40	50.46	74.00	-23.54	37.98	8.46	38.88	34.86	100	151	VERTICAL	Peak
2	10604.29	39.98	54.00	-14.02	27.46	8.47	38.91	34.86	100	151	VERTICAL	Average
3	15885.51	43.90	54.00	-10.10	29.68	10.35	38.82	34.95	100	251	VERTICAL	Average
4	15903.66	55.39	74.00	-18.61	41.19	10.35	38.82	34.97	100	251	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10635.38	51.75	74.00	-22.25	39.17	8.49	38.95	34.86	100	151	HORIZONTAL	Peak
2	10654.31	38.66	54.00	-15.34	26.03	8.50	38.99	34.86	100	151	HORIZONTAL	Average
3	15969.81	43.69	54.00	-10.31	29.50	10.34	38.90	35.05	100	243	HORIZONTAL	Average
4	15971.79	55.52	74.00	-18.48	41.33	10.34	38.90	35.05	100	243	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10652.15	51.03	74.00	-22.97	38.44	8.50	38.95	34.86	100	222	VERTICAL	Peak
2	10652.69	39.60	54.00	-14.40	26.97	8.50	38.99	34.86	100	222	VERTICAL	Average
3	15945.99	43.72	54.00	-10.28	29.54	10.34	38.86	35.02	100	131	VERTICAL	Average
4	15951.36	55.42	74.00	-18.58	41.25	10.34	38.86	35.03	100	131	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11001.62	47.04	54.00	-6.96	34.08	8.71	39.10	34.85	148	348	HORIZONTAL	Average
2	11002.13	59.42	74.00	-14.58	46.46	8.71	39.10	34.85	148	348	HORIZONTAL	Peak
3	16501.35	56.74	74.00	-17.26	41.38	10.61	39.70	34.95	100	99	HORIZONTAL	Peak
4	16508.76	45.43	54.00	-8.57	30.06	10.62	39.70	34.95	100	99	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	10999.91	57.93	74.00	-16.07	44.97	8.71	39.10	34.85	122	38	VERTICAL	Peak
2	11000.12	45.34	54.00	-8.66	32.38	8.71	39.10	34.85	122	38	VERTICAL	Average
3	16486.50	44.30	54.00	-9.70	28.95	10.61	39.70	34.96	100	160	VERTICAL	Average
4	16503.45	56.48	74.00	-17.52	41.11	10.62	39.70	34.95	100	160	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11161.50	49.16	54.00	-4.84	36.07	8.84	39.10	34.85	162	12	HORIZONTAL	Average
2	11161.98	61.88	74.00	-12.12	48.79	8.84	39.10	34.85	162	12	HORIZONTAL	Peak
3	16736.19	57.32	74.00	-16.68	41.17	10.74	40.30	34.89	100	180	HORIZONTAL	Peak
4	16752.69	46.00	54.00	-8.00	29.83	10.75	40.30	34.88	100	180	HORIZONTAL	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11157.51	58.11	74.00	-15.89	45.03	8.83	39.10	34.85	143	326	VERTICAL	Peak
2	11161.56	46.44	54.00	-7.56	33.35	8.84	39.10	34.85	143	326	VERTICAL	Average
3	16743.00	56.80	74.00	-17.20	40.65	10.74	40.30	34.89	100	274	VERTICAL	Peak
4	16746.78	45.94	54.00	-8.06	29.77	10.75	40.30	34.88	100	274	VERTICAL	Average

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11397.60	46.82	54.00	-7.18	33.55	9.02	39.10	34.85	158	19	HORIZONTAL	Average
2	11403.12	58.66	74.00	-15.34	45.38	9.03	39.10	34.85	158	19	HORIZONTAL	Peak
3	17085.57	46.70	54.00	-7.30	29.18	10.89	41.42	34.79	100	252	HORIZONTAL	Average
4	17090.61	59.16	74.00	-14.84	41.63	10.90	41.42	34.79	100	252	HORIZONTAL	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11401.47	56.72	74.00	-17.28	43.45	9.02	39.10	34.85	100	336	VERTICAL	Peak
2	11401.80	44.39	54.00	-9.61	31.12	9.02	39.10	34.85	100	336	VERTICAL	Average
3	17088.51	47.60	54.00	-6.40	30.07	10.90	41.42	34.79	100	278	VERTICAL	Average
4	17099.22	57.87	74.00	-16.13	40.34	10.90	41.42	34.79	100	278	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15774.68	45.68	54.00	-8.32	34.26	7.93	38.48	34.99	HORIZONTAL	100	35	Average
2	15780.61	57.85	74.00	-16.15	46.45	7.93	38.48	35.01	HORIZONTAL	100	35	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15771.41	57.45	74.00	-16.55	46.03	7.93	38.48	34.99	VERTICAL	100	351	Peak
2	15783.85	44.42	54.00	-9.58	33.02	7.94	38.47	35.01	VERTICAL	100	351	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15902.72	45.77	54.00	-8.23	34.51	7.98	38.37	35.09	HORIZONTAL	100	38	Average
2	15908.40	58.64	74.00	-15.36	47.41	7.98	38.37	35.12	HORIZONTAL	100	38	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15899.52	44.67	54.00	-9.33	33.41	7.97	38.38	35.09	VERTICAL	100	293	Average
2	15903.40	56.84	74.00	-17.16	45.58	7.98	38.37	35.09	VERTICAL	100	293	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10636.44	57.56	74.00	-16.44	47.68	6.59	38.37	35.08	HORIZONTAL	100	359	Peak
2	10641.19	45.27	54.00	-8.73	35.39	6.59	38.37	35.08	HORIZONTAL	100	359	Average
3	15952.50	57.28	74.00	-16.72	46.09	8.00	38.33	35.14	HORIZONTAL	100	287	Peak
4	15965.61	44.72	54.00	-9.28	33.55	8.00	38.33	35.16	HORIZONTAL	100	287	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10640.54	43.98	54.00	-10.02	34.10	6.59	38.37	35.08	VERTICAL	100	0	Average
2	10641.03	56.53	74.00	-17.47	46.65	6.59	38.37	35.08	VERTICAL	100	0	Peak
3	15963.49	57.05	74.00	-16.95	45.88	8.00	38.33	35.16	VERTICAL	100	29	Peak
4	15969.49	44.49	54.00	-9.51	33.34	8.00	38.31	35.16	VERTICAL	100	29	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11004.33	65.26	74.00	-8.74	55.31	6.46	38.30	34.81	HORIZONTAL	167	4	Peak
2	11004.33	51.65	54.00	-2.35	41.70	6.46	38.30	34.81	HORIZONTAL	167	4	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11004.94	47.42	54.00	-6.58	37.46	6.47	38.30	34.81	VERTICAL	100	356	Average
2	11007.37	60.40	74.00	-13.60	50.44	6.47	38.30	34.81	VERTICAL	100	356	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11162.79	52.60	54.00	-1.40	42.55	6.56	38.30	34.81	HORIZONTAL	168	10	Average
2	11163.11	68.37	74.00	-5.63	58.32	6.56	38.30	34.81	HORIZONTAL	168	10	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11163.37	49.66	54.00	-4.34	39.61	6.56	38.30	34.81	VERTICAL	100	344	Average
2	11163.72	62.01	74.00	-11.99	51.96	6.56	38.30	34.81	VERTICAL	100	344	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11402.05	44.38	54.00	-9.62	34.21	6.69	38.30	34.82	HORIZONTAL	100	230	Average
2	11404.94	55.08	74.00	-18.92	44.91	6.69	38.30	34.82	HORIZONTAL	100	230	Peak
3	17092.56	62.16	74.00	-11.84	46.66	8.07	41.42	33.99	HORIZONTAL	100	198	Peak
4	17100.48	48.88	54.00	-5.12	33.38	8.07	41.42	33.99	HORIZONTAL	100	198	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11401.19	43.58	54.00	-10.42	33.41	6.69	38.30	34.82	VERTICAL	100	319	Average
2	11404.42	56.13	74.00	-17.87	45.96	6.69	38.30	34.82	VERTICAL	100	319	Peak
3	17090.35	47.87	54.00	-6.13	32.41	8.07	41.38	33.99	VERTICAL	100	175	Average
4	17100.45	61.17	74.00	-12.83	45.67	8.07	41.42	33.99	VERTICAL	100	175	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15803.43	56.97	74.00	-17.03	45.60	7.95	38.45	35.03	HORIZONTAL	100	279	Peak
2	15805.16	44.35	54.00	-9.65	32.98	7.95	38.45	35.03	HORIZONTAL	100	279	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	15803.21	44.41	54.00	-9.59	33.04	7.95	38.45	35.03	VERTICAL	100	301	Average
2	15818.97	57.22	74.00	-16.78	45.86	7.95	38.44	35.03	VERTICAL	100	301	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11nMCS0 HT40 CH 62 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10628.17	42.85	54.00	-11.15	32.95	6.60	38.38	35.08	HORIZONTAL	100	28	Average
2	10628.46	56.31	74.00	-17.69	46.41	6.60	38.38	35.08	HORIZONTAL	100	28	Peak
3	15920.54	44.52	54.00	-9.48	33.29	7.99	38.36	35.12	HORIZONTAL	100	147	Average
4	15934.74	57.50	74.00	-16.50	46.31	7.99	38.34	35.14	HORIZONTAL	100	147	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10620.22	56.91	74.00	-17.09	47.03	6.60	38.38	35.10	VERTICAL	100	343	Peak
2	10622.15	43.02	54.00	-10.98	33.14	6.60	38.38	35.10	VERTICAL	100	343	Average
3	15931.31	44.48	54.00	-9.52	33.27	7.99	38.36	35.14	VERTICAL	100	236	Average
4	15938.65	57.23	74.00	-16.77	46.04	7.99	38.34	35.14	VERTICAL	100	236	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11013.24	57.94	74.00	-16.06	47.98	6.47	38.30	34.81	HORIZONTAL	100	45	Peak
2	11014.49	44.64	54.00	-9.36	34.68	6.47	38.30	34.81	HORIZONTAL	100	45	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11017.37	56.22	74.00	-17.78	46.26	6.47	38.30	34.81	VERTICAL	100	359	Peak
2	11027.21	44.01	54.00	-9.99	34.04	6.48	38.30	34.81	VERTICAL	100	359	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 110 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11102.18	51.14	54.00	-2.86	41.13	6.52	38.30	34.81	HORIZONTAL	168	9	Average
2	11104.78	64.52	74.00	-9.48	54.51	6.52	38.30	34.81	HORIZONTAL	168	9	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11092.82	61.38	74.00	-12.62	51.37	6.52	38.30	34.81	VERTICAL	100	1	Peak
2	11107.72	48.34	54.00	-5.66	38.32	6.53	38.30	34.81	VERTICAL	100	1	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 134 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11336.41	59.53	74.00	-14.47	49.40	6.65	38.30	34.82	HORIZONTAL	166	32	Peak
2	11345.35	47.21	54.00	-6.79	37.07	6.66	38.30	34.82	HORIZONTAL	166	32	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11333.37	43.52	54.00	-10.48	33.39	6.65	38.30	34.82	VERTICAL	100	23	Average
2	11338.65	55.86	74.00	-18.14	45.73	6.65	38.30	34.82	VERTICAL	100	23	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10519.23	57.46	74.00	-16.54	47.61	6.63	38.40	35.18	HORIZONTAL	100	317	Peak
2	10519.65	46.88	54.00	-7.12	37.03	6.63	38.40	35.18	HORIZONTAL	100	317	Average
3	15777.24	44.54	54.00	-9.46	33.12	7.93	38.48	34.99	HORIZONTAL	100	356	Average
4	15784.10	57.33	74.00	-16.67	45.93	7.94	38.47	35.01	HORIZONTAL	100	356	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10520.38	46.64	54.00	-7.36	36.79	6.63	38.40	35.18	VERTICAL	100	15	Average
2	10520.74	58.26	74.00	-15.74	48.41	6.63	38.40	35.18	VERTICAL	100	15	Peak
3	15776.63	57.64	74.00	-16.36	46.22	7.93	38.48	34.99	VERTICAL	100	314	Peak
4	15789.84	44.46	54.00	-9.54	33.06	7.94	38.47	35.01	VERTICAL	100	314	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 60 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10602.12	45.73	54.00	-8.27	35.85	6.60	38.38	35.10	HORIZONTAL	100	35	Average
2	10605.58	57.39	74.00	-16.61	47.51	6.60	38.38	35.10	HORIZONTAL	100	35	Peak
3	15897.12	44.76	54.00	-9.24	33.50	7.97	38.38	35.09	HORIZONTAL	100	0	Average
4	15901.76	57.37	74.00	-16.63	46.11	7.98	38.37	35.09	HORIZONTAL	100	0	Peak

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10596.35	54.52	74.00	-19.48	44.65	6.61	38.38	35.12	VERTICAL	100	69	Peak
2	10599.81	42.80	54.00	-11.20	32.94	6.60	38.38	35.12	VERTICAL	100	69	Average
3	15903.91	44.69	54.00	-9.31	33.43	7.98	38.37	35.09	VERTICAL	100	269	Average
4	15906.67	57.80	74.00	-16.20	46.57	7.98	38.37	35.12	VERTICAL	100	269	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 64 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10640.45	46.64	54.00	-7.36	36.76	6.59	38.37	35.08	HORIZONTAL	100	343	Average
2	10641.25	58.86	74.00	-15.14	48.98	6.59	38.37	35.08	HORIZONTAL	100	343	Peak
3	15963.85	57.49	74.00	-16.51	46.32	8.00	38.33	35.16	HORIZONTAL	100	258	Peak
4	15969.23	44.41	54.00	-9.59	33.26	8.00	38.31	35.16	HORIZONTAL	100	258	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	10640.48	44.51	54.00	-9.49	34.63	6.59	38.37	35.08	VERTICAL	100	236	Average
2	10647.85	56.64	74.00	-17.36	46.77	6.58	38.37	35.08	VERTICAL	100	236	Peak
3	15958.88	56.49	74.00	-17.51	45.32	8.00	38.33	35.16	VERTICAL	100	112	Peak
4	15967.85	44.65	54.00	-9.35	33.48	8.00	38.33	35.16	VERTICAL	100	112	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11002.02	64.47	74.00	-9.53	54.52	6.46	38.30	34.81	HORIZONTAL	100	360	Peak
2	11002.15	51.11	54.00	-2.89	41.16	6.46	38.30	34.81	HORIZONTAL	100	360	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11001.28	64.06	74.00	-9.94	54.11	6.46	38.30	34.81	VERTICAL	100	336	Peak
2	11001.31	50.22	54.00	-3.78	40.27	6.46	38.30	34.81	VERTICAL	100	336	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 116 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11156.12	63.80	74.00	-10.20	53.76	6.55	38.30	34.81	HORIZONTAL	105	336	Peak
2	11161.51	51.80	54.00	-2.20	41.75	6.56	38.30	34.81	HORIZONTAL	105	336	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11162.05	50.43	54.00	-3.57	40.38	6.56	38.30	34.81	VERTICAL	100	8	Average
2	11162.21	63.34	74.00	-10.66	53.29	6.56	38.30	34.81	VERTICAL	100	8	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 140 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11398.08	60.61	74.00	-13.39	50.44	6.69	38.30	34.82	HORIZONTAL	100	360	Peak
2	11403.14	48.39	54.00	-5.61	38.22	6.69	38.30	34.82	HORIZONTAL	100	360	Average

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	11398.53	57.60	74.00	-16.40	47.43	6.69	38.30	34.82	VERTICAL	100	16	Peak
2	11399.36	45.18	54.00	-8.82	35.01	6.69	38.30	34.82	VERTICAL	100	16	Average

Note:

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

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

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

4.6. Band Edge Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.25-5.35 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.

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 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

4.6.3. Test Procedures

1. The test procedure is the same as section 4.5.3, only the frequency range investigated is limited to 100MHz around bandedges.

4.6.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.5.4.

4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

For Non-beamforming mode

The EUT was programmed to be in continuously transmitting mode.

For beamforming mode

The EUT was programmed to be in beamforming transmitting mode.

4.6.7. Test Result of Band Edge and Fundamental Emissions

<For Non-Beamforming Mode>

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52, 60, 64 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5119.71	54.47	74.00	-19.53	51.68	4.32	33.09	34.62	Peak	315	169	HORIZONTAL
2	5119.71	43.00	54.00	-11.00	40.21	4.32	33.09	34.62	Average	315	169	HORIZONTAL
3	5263.37	112.05			108.92	4.42	33.33	34.62	Peak	315	169	HORIZONTAL
4	5263.37	99.99			96.86	4.42	33.33	34.62	Average	315	169	HORIZONTAL
5	5351.44	57.43	74.00	-16.57	54.12	4.47	33.46	34.62	Peak	315	169	HORIZONTAL
6	5400.48	45.72	54.00	-8.28	42.30	4.50	33.54	34.62	Average	315	169	HORIZONTAL

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

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5293.59	101.76			98.56	4.44	33.38	34.62	Average	310	165	HORIZONTAL
2	5294.87	113.31			110.11	4.44	33.38	34.62	Peak	310	165	HORIZONTAL
3	5351.92	58.93	74.00	-15.07	55.62	4.47	33.46	34.62	Peak	310	165	HORIZONTAL
4	5382.37	46.90	54.00	-7.10	43.52	4.49	33.51	34.62	Average	310	165	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	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5314.87	99.83			96.59	4.45	33.41	34.62	Average	277	159	HORIZONTAL
2	5316.80	111.74			108.50	4.45	33.41	34.62	Peak	277	159	HORIZONTAL
3	5350.00	52.16	54.00	-1.84	48.85	4.47	33.46	34.62	Average	277	159	HORIZONTAL
4	5352.89	69.14	74.00	-4.86	65.83	4.47	33.46	34.62	Peak	277	159	HORIZONTAL

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100, 116, 140 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5456.15	63.72	74.00	-10.28	60.18	4.54	33.62	34.62	Peak	291	157	HORIZONTAL
2	5460.00	48.07	54.00	-5.93	44.53	4.54	33.62	34.62	Average	291	157	HORIZONTAL
3	5469.68	69.94	74.00	-4.06	66.36	4.55	33.65	34.62	Peak	291	157	HORIZONTAL
4	5470.00	53.03	54.00	-0.97	49.45	4.55	33.65	34.62	Average	291	157	HORIZONTAL
5	5505.45	102.39			98.75	4.57	33.70	34.63	Average	291	157	HORIZONTAL
6	5507.05	114.13			110.49	4.57	33.70	34.63	Peak	291	157	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	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5399.68	48.17	54.00	-5.83	44.75	4.50	33.54	34.62	Average	273	154	HORIZONTAL
2	5399.90	59.29	74.00	-14.71	55.87	4.50	33.54	34.62	Peak	273	154	HORIZONTAL
3	5467.60	58.27	74.00	-15.73	54.69	4.55	33.65	34.62	Peak	273	154	HORIZONTAL
4	5470.00	45.34	54.00	-8.66	41.76	4.55	33.65	34.62	Average	273	154	HORIZONTAL
5	5576.80	102.25			98.36	4.62	33.91	34.64	Average	273	154	HORIZONTAL
6	5577.60	114.14			110.25	4.62	33.91	34.64	Peak	273	154	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	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5704.81	112.56			108.20	4.71	34.32	34.67	Peak	288	159	HORIZONTAL
2	5705.13	101.03			96.67	4.71	34.32	34.67	Average	288	159	HORIZONTAL
3	5725.00	53.53	54.00	-0.47	49.11	4.72	34.37	34.67	Average	288	159	HORIZONTAL
4	5726.92	71.62	74.00	-2.38	67.20	4.72	34.37	34.67	Peak	288	159	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54, 62 / / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5272.80	94.79			91.03	6.07	33.15	35.46	100	273	HORIZONTAL	Average
2	5285.80	107.39			103.58	6.07	33.20	35.46	100	273	HORIZONTAL	Peak
3	5359.60	60.82	74.00	-13.18	56.74	6.12	33.45	35.49	100	273	HORIZONTAL	Peak
4	5359.80	48.95	54.00	-5.05	44.87	6.12	33.45	35.49	100	273	HORIZONTAL	Average

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	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5321.80	95.27			91.35	6.10	33.30	35.48	100	290	HORIZONTAL	Average
2	5321.80	105.32			101.40	6.10	33.30	35.48	100	290	HORIZONTAL	Peak
3	5358.00	53.99	54.00	-0.01	49.91	6.12	33.45	35.49	100	290	HORIZONTAL	Average
4	5359.60	66.20	74.00	-7.80	62.12	6.12	33.45	35.49	100	290	HORIZONTAL	Peak

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102, 110, 134 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	47.87	54.00	-6.13	43.47	6.18	33.75	35.53	100	287	HORIZONTAL	Average
2	5460.00	61.47	74.00	-12.53	57.07	6.18	33.75	35.53	100	287	HORIZONTAL	Peak
3	5469.60	53.79	54.00	-0.21	49.34	6.18	33.80	35.53	100	287	HORIZONTAL	Average
4	5470.00	68.72	74.00	-5.28	64.27	6.18	33.80	35.53	100	287	HORIZONTAL	Peak
5	5505.80	104.31			99.74	6.20	33.90	35.53	100	287	HORIZONTAL	Peak
6	5507.80	92.72			88.14	6.21	33.90	35.53	100	287	HORIZONTAL	Average

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	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5460.00	47.86	54.00	-6.14	43.46	6.18	33.75	35.53	153	286	HORIZONTAL	Average
2	5460.00	60.10	74.00	-13.90	55.70	6.18	33.75	35.53	153	286	HORIZONTAL	Peak
3	5470.00	47.95	54.00	-6.05	43.50	6.18	33.80	35.53	153	286	HORIZONTAL	Average
4	5470.00	62.39	74.00	-11.61	57.94	6.18	33.80	35.53	153	286	HORIZONTAL	Peak
5	5537.00	98.03			93.37	6.23	33.94	35.51	153	286	HORIZONTAL	Average
6	5556.00	109.62			104.91	6.24	33.96	35.49	153	286	HORIZONTAL	Peak

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	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5665.80	97.77			92.75	6.31	34.10	35.39	151	291	HORIZONTAL	Average
2	5667.00	108.50			103.48	6.31	34.10	35.39	151	291	HORIZONTAL	Peak
3	5725.00	52.42	54.00	-1.58	47.23	6.35	34.18	35.34	151	291	HORIZONTAL	Average
4	5729.60	68.90	74.00	-5.10	63.70	6.36	34.18	35.34	151	291	HORIZONTAL	Peak

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52, 60, 64 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5119.71	44.24	54.00	-9.76	41.45	4.32	33.09	34.62	Average	274	153	HORIZONTAL
2	5137.50	55.86	74.00	-18.14	53.04	4.33	33.11	34.62	Peak	274	153	HORIZONTAL
3	5262.89	112.79			109.66	4.42	33.33	34.62	Peak	274	153	HORIZONTAL
4	5262.89	100.71			97.58	4.42	33.33	34.62	Average	274	153	HORIZONTAL
5	5350.00	44.93	54.00	-9.07	41.62	4.47	33.46	34.62	Average	274	153	HORIZONTAL
6	5352.40	59.22	74.00	-14.78	55.91	4.47	33.46	34.62	Peak	274	153	HORIZONTAL

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

Channel 60

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5150.00	41.77	54.00	-12.23	38.91	4.34	33.14	34.62	Average	310	169	HORIZONTAL
2	5296.15	113.76			110.56	4.44	33.38	34.62	Peak	310	169	HORIZONTAL
3	5296.15	101.14			97.94	4.44	33.38	34.62	Average	310	169	HORIZONTAL
4	5367.31	58.98	74.00	-15.02	55.63	4.48	33.49	34.62	Peak	310	169	HORIZONTAL
5	5373.08	45.81	54.00	-8.19	42.46	4.48	33.49	34.62	Average	310	169	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5300 MHz.

Channel 64

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5321.28	102.29			99.05	4.45	33.41	34.62	Average	310	161	HORIZONTAL
2	5325.45	113.49			110.25	4.45	33.41	34.62	Peak	310	161	HORIZONTAL
3	5350.64	51.70	54.00	-2.30	48.39	4.47	33.46	34.62	Average	310	161	HORIZONTAL
4	5351.28	69.57	74.00	-4.43	66.26	4.47	33.46	34.62	Peak	310	161	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100, 116, 140 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5459.68	65.14	74.00	-8.86	61.60	4.54	33.62	34.62	Peak	287	156	HORIZONTAL
2	5459.68	47.19	54.00	-6.81	43.65	4.54	33.62	34.62	Average	287	156	HORIZONTAL
3	5469.68	68.50	74.00	-5.50	64.92	4.55	33.65	34.62	Peak	287	156	HORIZONTAL
4	5470.00	52.40	54.00	-1.60	48.82	4.55	33.65	34.62	Average	287	156	HORIZONTAL
5	5494.23	114.43			110.82	4.56	33.67	34.62	Peak	287	156	HORIZONTAL
6	5494.55	103.06			99.45	4.56	33.67	34.62	Average	287	156	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	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5399.90	59.04	74.00	-14.96	55.62	4.50	33.54	34.62	Peak	306	164	HORIZONTAL
2	5399.90	47.86	54.00	-6.14	44.44	4.50	33.54	34.62	Average	306	164	HORIZONTAL
3	5451.57	58.91	74.00	-15.09	55.37	4.54	33.62	34.62	Peak	306	164	HORIZONTAL
4	5470.00	45.35	54.00	-8.65	41.77	4.55	33.65	34.62	Average	306	164	HORIZONTAL
5	5586.41	113.20			109.25	4.63	33.96	34.64	Peak	306	164	HORIZONTAL
6	5586.41	102.03			98.08	4.63	33.96	34.64	Average	306	164	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	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5693.91	101.60			97.29	4.70	34.27	34.66	Average	285	158	HORIZONTAL
2	5699.36	113.39			109.08	4.70	34.27	34.66	Peak	285	158	HORIZONTAL
3	5725.00	72.95	74.00	-1.05	68.53	4.72	34.37	34.67	Peak	285	158	HORIZONTAL
4	5725.00	53.60	54.00	-0.40	49.18	4.72	34.37	34.67	Average	285	158	HORIZONTAL

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

<For Beamforming Mode>

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 52, 60, 64 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5143.75	58.35	74.00	-15.65	55.49	4.34	33.14	34.62	HORIZONTAL	150	258	Peak
2	5150.00	46.06	54.00	-7.94	43.20	4.34	33.14	34.62	HORIZONTAL	150	258	Average
3	5262.40	114.71			111.58	4.42	33.33	34.62	HORIZONTAL	150	258	Peak
4	5262.40	105.18			102.05	4.42	33.33	34.62	HORIZONTAL	150	258	Average
5	5399.52	62.50	74.00	-11.50	59.08	4.50	33.54	34.62	HORIZONTAL	150	258	Peak
6	5400.48	51.47	54.00	-2.53	48.05	4.50	33.54	34.62	HORIZONTAL	150	258	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5305.45	102.68			99.48	4.44	33.38	34.62	HORIZONTAL	140	323	Average
2	5305.77	112.61			109.41	4.44	33.38	34.62	HORIZONTAL	140	323	Peak
3	5360.26	59.06	74.00	-14.94	55.75	4.47	33.46	34.62	HORIZONTAL	140	323	Peak
4	5360.26	48.30	54.00	-5.70	44.99	4.47	33.46	34.62	HORIZONTAL	140	323	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5315.51	105.02			101.78	4.45	33.41	34.62	HORIZONTAL	159	277	Average
2	5316.47	114.87			111.63	4.45	33.41	34.62	HORIZONTAL	159	277	Peak
3	5350.00	66.53	74.00	-7.47	63.22	4.47	33.46	34.62	HORIZONTAL	159	277	Peak
4	5350.00	53.32	54.00	-0.68	50.01	4.47	33.46	34.62	HORIZONTAL	159	277	Average

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 100, 116, 140 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5440.13	50.81	54.00	-3.19	47.31	4.53	33.59	34.62	HORIZONTAL	157	291	Average
2	5460.00	62.38	74.00	-11.62	58.84	4.54	33.62	34.62	HORIZONTAL	157	291	Peak
3	5469.04	69.31	74.00	-4.69	65.73	4.55	33.65	34.62	HORIZONTAL	157	291	Peak
4	5470.00	53.98	54.00	-0.02	50.40	4.55	33.65	34.62	HORIZONTAL	157	291	Average
5	5505.77	115.32			111.68	4.57	33.70	34.63	HORIZONTAL	157	291	Peak
6	5506.09	106.66			103.02	4.57	33.70	34.63	HORIZONTAL	157	291	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5439.97	51.83	54.00	-2.17	48.33	4.53	33.59	34.62	HORIZONTAL	154	273	Average
2	5453.59	62.44	74.00	-11.56	58.90	4.54	33.62	34.62	HORIZONTAL	154	273	Peak
3	5465.99	63.16	74.00	-10.84	59.58	4.55	33.65	34.62	HORIZONTAL	154	273	Peak
4	5470.00	49.88	54.00	-4.12	46.30	4.55	33.65	34.62	HORIZONTAL	154	273	Average
5	5575.19	115.81			111.92	4.62	33.91	34.64	HORIZONTAL	154	273	Peak
6	5575.19	107.51			103.62	4.62	33.91	34.64	HORIZONTAL	154	273	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5705.45	104.18			99.82	4.71	34.32	34.67	HORIZONTAL	159	288	Average
2	5706.09	113.29			108.93	4.71	34.32	34.67	HORIZONTAL	159	288	Peak
3	5725.00	53.66	54.00	-0.34	49.24	4.72	34.37	34.67	HORIZONTAL	159	288	Average
4	5725.32	69.50	74.00	-4.50	65.08	4.72	34.37	34.67	HORIZONTAL	159	288	Peak

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 54, 62 / / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 54

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5285.71	109.62			106.46	4.43	33.35	34.62	HORIZONTAL	100	273	Peak
2	5286.35	99.14			95.98	4.43	33.35	34.62	HORIZONTAL	100	273	Average
3	5350.96	62.03	74.00	-11.97	58.72	4.47	33.46	34.62	HORIZONTAL	100	273	Peak
4	5359.94	52.01	54.00	-1.99	48.70	4.47	33.46	34.62	HORIZONTAL	100	273	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5322.82	105.89			102.65	4.45	33.41	34.62	HORIZONTAL	100	290	Peak
2	5323.46	96.65			93.41	4.45	33.41	34.62	HORIZONTAL	100	290	Average
3	5350.00	53.71	54.00	-0.29	50.40	4.47	33.46	34.62	HORIZONTAL	100	290	Average
4	5352.89	65.85	74.00	-8.15	62.54	4.47	33.46	34.62	HORIZONTAL	100	290	Peak

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 102, 110, 134 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 102

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	62.63	74.00	-11.37	59.09	4.54	33.62	34.62	HORIZONTAL	100	287	Peak
2	5460.00	51.33	54.00	-2.67	47.79	4.54	33.62	34.62	HORIZONTAL	100	287	Average
3	5468.72	67.90	74.00	-6.10	64.32	4.55	33.65	34.62	HORIZONTAL	100	287	Peak
4	5470.00	53.47	54.00	-0.53	49.89	4.55	33.65	34.62	HORIZONTAL	100	287	Average
5	5500.39	98.75			95.10	4.57	33.70	34.62	HORIZONTAL	100	287	Average
6	5501.99	108.56			104.92	4.57	33.70	34.63	HORIZONTAL	100	287	Peak

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5459.36	64.03	74.00	-9.97	60.49	4.54	33.62	34.62	HORIZONTAL	161	300	Peak
2	5460.00	51.17	54.00	-2.83	47.63	4.54	33.62	34.62	HORIZONTAL	161	300	Average
3	5468.72	65.28	74.00	-8.72	61.70	4.55	33.65	34.62	HORIZONTAL	161	300	Peak
4	5470.00	51.37	54.00	-2.63	47.79	4.55	33.65	34.62	HORIZONTAL	161	300	Average
5	5537.50	115.94			112.18	4.59	33.80	34.63	HORIZONTAL	161	300	Peak
6	5537.82	105.83			102.07	4.59	33.80	34.63	HORIZONTAL	161	300	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5665.83	102.58			98.40	4.67	34.17	34.66	HORIZONTAL	160	300	Average
2	5667.12	112.17			107.93	4.68	34.22	34.66	HORIZONTAL	160	300	Peak
3	5725.00	68.03	74.00	-5.97	63.61	4.72	34.37	34.67	HORIZONTAL	160	300	Peak
4	5725.00	53.88	54.00	-0.12	49.46	4.72	34.37	34.67	HORIZONTAL	160	300	Average

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 52, 60, 64 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 52

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5039.42	47.98	54.00	-6.02	45.35	4.27	32.98	34.62	HORIZONTAL	153	293	Average
2	5047.44	57.90	74.00	-16.10	55.27	4.27	32.98	34.62	HORIZONTAL	153	293	Peak
3	5263.21	114.50			111.37	4.42	33.33	34.62	HORIZONTAL	153	293	Peak
4	5263.21	106.27			103.14	4.42	33.33	34.62	HORIZONTAL	153	293	Average
5	5426.92	62.32	74.00	-11.68	58.85	4.52	33.57	34.62	HORIZONTAL	153	293	Peak
6	5440.55	51.95	54.00	-2.05	48.45	4.53	33.59	34.62	HORIZONTAL	153	293	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5294.23	104.69			101.49	4.44	33.38	34.62	HORIZONTAL	158	72	Average
2	5303.85	113.84			110.64	4.44	33.38	34.62	HORIZONTAL	158	72	Peak
3	5382.69	62.22	74.00	-11.78	58.84	4.49	33.51	34.62	HORIZONTAL	158	72	Peak
4	5440.39	50.63	54.00	-3.37	47.13	4.53	33.59	34.62	HORIZONTAL	158	72	Average

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	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5320.96	105.44			102.20	4.45	33.41	34.62	HORIZONTAL	152	276	Average
2	5325.77	114.16			110.92	4.45	33.41	34.62	HORIZONTAL	152	276	Peak
3	5350.32	68.82	74.00	-5.18	65.51	4.47	33.46	34.62	HORIZONTAL	152	276	Peak
4	5350.36	53.95	54.00	-0.05	50.64	4.47	33.46	34.62	HORIZONTAL	152	276	Average

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 100, 116, 140 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 100

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5439.81	50.57	54.00	-3.43	47.07	4.53	33.59	34.62	HORIZONTAL	156	267	Average
2	5460.00	63.94	74.00	-10.06	60.40	4.54	33.62	34.62	HORIZONTAL	156	267	Peak
3	5470.00	68.17			64.59	4.55	33.65	34.62	HORIZONTAL	156	267	Peak
4	5470.00	53.49			49.91	4.55	33.65	34.62	HORIZONTAL	156	267	Average
5	5496.47	115.02	74.00	41.02	111.41	4.56	33.67	34.62	HORIZONTAL	156	267	Peak
6	5496.47	107.07	54.00	53.07	103.46	4.56	33.67	34.62	HORIZONTAL	156	267	Average

Item 3, 4 are the fundamental frequency at 5500 MHz.

Channel 116

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5460.00	48.27	54.00	-5.73	44.73	4.54	33.62	34.62	HORIZONTAL	197	69	Average
2	5460.80	61.04	74.00	-12.96	57.50	4.54	33.62	34.62	HORIZONTAL	197	69	Peak
3	5575.99	106.88			102.99	4.62	33.91	34.64	HORIZONTAL	197	69	Average
4	5581.60	114.95			111.00	4.63	33.96	34.64	HORIZONTAL	197	69	Peak

Item 3, 4 are the fundamental frequency at 5580 MHz.

Channel 140

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5696.15	105.24			100.93	4.70	34.27	34.66	HORIZONTAL	142	68	Average
2	5705.77	114.73			110.37	4.71	34.32	34.67	HORIZONTAL	142	68	Peak
3	5725.32	67.65	74.00	-6.35	63.23	4.72	34.37	34.67	HORIZONTAL	142	68	Peak
4	5725.96	53.44	54.00	-0.56	49.02	4.72	34.37	34.67	HORIZONTAL	142	68	Average

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

Note:

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

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

4.7. Frequency Stability Measurement

4.7.1. 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).

4.7.2. Measuring Instruments and Setting

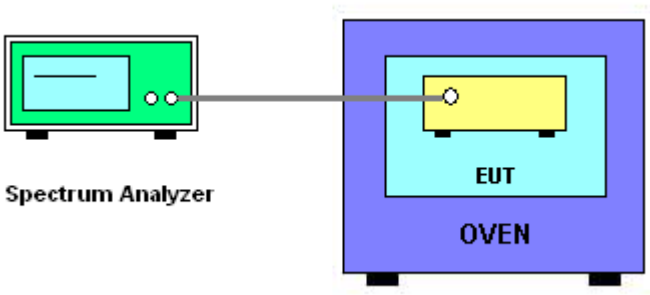
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout



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 un-modulation transmitting mode.

4.7.7. Test Result of Frequency Stability

Temperature	20°C	Humidity	53%
Test Engineer	Benson Peng	Test Date	Jun. 30, 2014

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)	
(V)	5300 MHz	5500 MHz
126.50	5299.9868	5499.9860
110.00	5299.9870	5499.9862
93.50	5299.9874	5499.9866
Max. Deviation (MHz)	0.013200	0.014000
Max. Deviation (ppm)	2.49	2.55

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)	
(°C)	5300 MHz	5500 MHz
0	5299.9864	5499.9856
10	5299.9862	5499.9860
20	5299.9870	5499.9862
30	5299.9872	5499.9866
40	5299.9876	5499.9868
Max. Deviation (MHz)	0.013800	0.014400
Max. Deviation (ppm)	2.60	2.62

4.8. Antenna Requirements

4.8.1. 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.

4.8.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9 kHz ~ 2.75 GHz	Apr. 23, 2014	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150 kHz ~ 100 MHz	Nov. 23, 2013	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 11, 2013	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150 kHz ~ 30 MHz	Dec. 04, 2013	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 26, 2014	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9 kHz - 30 MHz	Nov. 05, 2012*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 01, 2013	Radiation (03CH01-CB)
Horn Antenna	SCHWARZBEAK	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Dec. 17, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 12, 2013	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Dec. 16, 2013	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Oct. 23, 2013	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100019	9kHz~40GHz	Dec. 02, 2013	Radiation (03CH01-CB)
EMI Test Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8GHz	Dec. 12, 2013	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R.	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R.	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 17, 2013	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9kHz~40GHz	Nov. 29, 2013	Conducted (TH01-CB)
Signal analyzer	Agilent	N9010A	MY52220519	10Hz~44GHz	Dec. 11, 2013	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 03, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 17, 2013	Conducted (TH01-CB)

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

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

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

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

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.4 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%