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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	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jun. 12, 2014
Final Test Date	Aug. 06, 2014
Submission Type	Original Equipment
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 D02 v01 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
FR461329AB	Rev. 01	Initial issue of report	Nov. 28, 2014
FR461329AB	Rev. 02	Removing Band 2 and Band 3	Jan. 16, 2015

Certificate No.: CB10308297

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(e)	6dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	7.84 dB
4.5	15.407(a)	Power Spectral Density	Complies	8.10 dB
4.6	15.407(b)	Radiated Emissions	Complies	2.07 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.15 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

IEEE 802.11n

Items	Description
Product Type	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	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth
Channel Band Width (99%)	<For Non-Beamforming Mode> Band 1: MCS0 (HT20): 18.58 MHz ; MCS0 (HT40): 36.66 MHz Band 4: MCS0 (HT20): 17.69 MHz ; MCS0 (HT40): 35.76 MHz <For Beamforming Mode> Band 1: MCS0 (HT20): 18.58 MHz ; MCS0 (HT40): 36.80 MHz Band 4: MCS0 (HT20): 17.92 MHz ; MCS0 (HT40): 36.48 MHz
Maximum Conducted Output Power	<For Non-Beamforming Mode> Band 1: MCS0 (HT20): 21.22 dBm ; MCS0 (HT40): 20.73 dBm Band 4: MCS0 (HT20): 21.04 dBm ; MCS0 (HT40): 20.73 dBm <For Beamforming Mode> Band 1: MCS0 (HT20): 21.22 dBm ; MCS0 (HT40): 20.73 dBm Band 4: MCS0 (HT20): 21.04 dBm ; MCS0 (HT40): 20.00 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	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9
Channel Band Width (99%)	<For Non-Beamforming Mode> Band 1: 17.30 MHz ; Band 4: 16.47 MHz <For Beamforming Mode> Band 1: 17.17 MHz ; Band 4: 16.53MHz
Maximum Conducted Output Power	<For Non-Beamforming Mode> Band 1: 21.26 dBm ; Band 4: 21.25 dBm <For Beamforming Mode> Band 1: 21.26 dBm ; Band 4: 21.22 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
Beamforming Function	☒ With beamforming for 802.11g/n in 2.4GHz and 802.11a/n in 5GHz	☐ Without beamforming
Band 1 Information	☒ Point-to-multipoint	☐ Fixed point-to-point
	☒ Indoor	
	☐ Outdoor	

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.

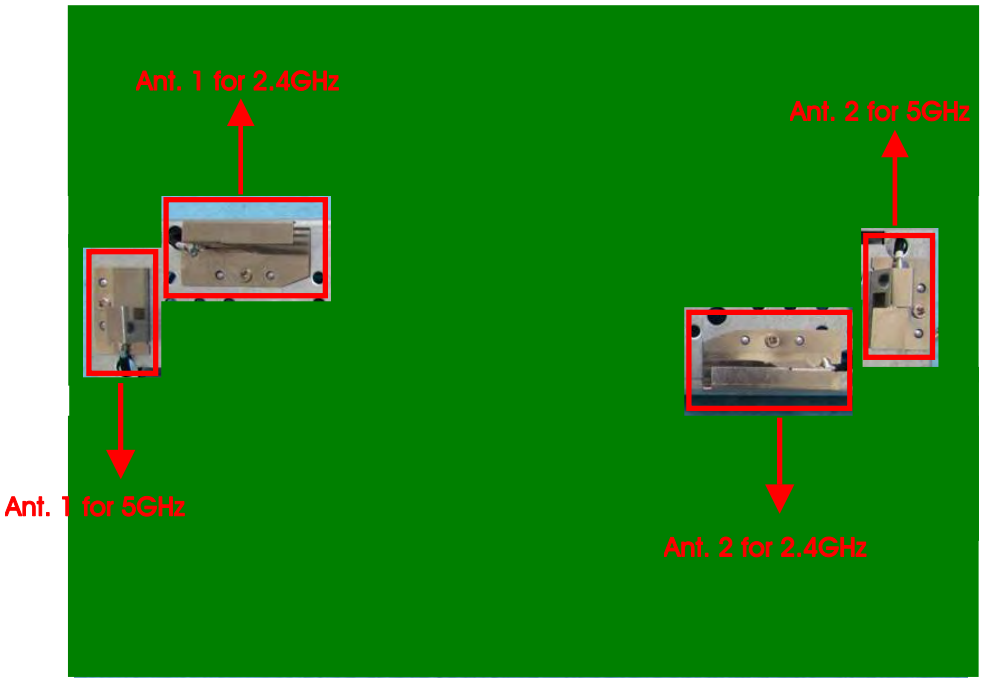
Ant. 1 and Ant. 2 could transmit/receive simultaneously.

<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 36, 40, 44, 48, 149, 153, 157, 161, 165.

For 40MHz bandwidth systems, use Channel 38, 46, 151, 159.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
5725~5850 MHz Band 4	149	5745 MHz	159	5795 MHz
	151	5755 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz	-	-

3.5. Table for Test Modes

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

Test Items	Mode		Data Rate	Channel	Ant.
AC Power Conducted Emission	Normal Link		-	-	-
Max. Conducted Output Power	11n HT20	Band 1&4	MCS0	36/40/48/ 149/157/165	1+2
	11n HT40	Band 1&4	MCS0	38/46/ 151/159	1+2
	11a/BPSK	Band 1&4	6Mbps	36/40/48 /149/157/165	1+2
Power Spectral Density	11n HT20	Band 1&4	MCS0	36/40/48/ 149/157/165	1+2
	11n HT40	Band 1&4	MCS0	38/46/ 151/159	1+2
	11a/BPSK	Band 1&4	6Mbps	36/40/48 /149/157/165	1+2
26dB&6dB Spectrum Bandwidth 99% Occupied Bandwidth Measurement	11n HT20	Band 1&4	MCS0	36/40/48/ 149/157/165	1+2
	11n HT40	Band 1&4	MCS0	38/46/ 151/159	1+2
	11a/BPSK	Band 1&4	6Mbps	36/40/48 /149/157/165	1+2
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11n HT20	Band 1&4	MCS0	36/40/48/ 149/157/165	1+2
	11n HT40	Band 1&4	MCS0	38/46/ 151/159	1+2
	11a/BPSK	Band 1&4	6Mbps	36/40/48 /149/157/165	1+2
Band Edge Emission	11n HT20	Band 1&4	MCS0	36/40/48/ 149/157/165	1+2
	11n HT40	Band 1&4	MCS0	38/46/ 151/159	1+2
	11a/BPSK	Band 1&4	6Mbps	36/40/48 /149/157/165	1+2
Frequency Stability	Un-modulation		-	40	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 Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: 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

3.8. Table for Parameters of Test Software Setting

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

<For Non-Beamforming Mode>

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	18	18.5	18.5	18.5	19	19

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	ART2-GUI Version : 2.3			
Frequency	5190 MHz	5230 MHz	5755 MHz	5795 MHz
MCS0 HT40	16.5	18	18	18.5

Power Parameters of IEEE 802.11a

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	18	18.5	18.5	19	19	19

<For Beamforming Mode>

Power Parameters of IEEE 802.11n MCS0 HT20

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
MCS0 HT20	11.5	18.5	18.5	17.5	19	18.5

Power Parameters of IEEE 802.11n MCS0 HT40

Test Software Version	ART2-GUI Version : 2.3			
Frequency	5190 MHz	5230 MHz	5755 MHz	5795 MHz
MCS0 HT40	15	18	15	18

Power Parameters of IEEE 802.11a

Test Software Version	ART2-GUI Version : 2.3					
Frequency	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	17.5	18.5	18.5	18.5	19	18.5

3.9. 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.

3.10. Duty Cycle

<For Non-Beamforming Mode>

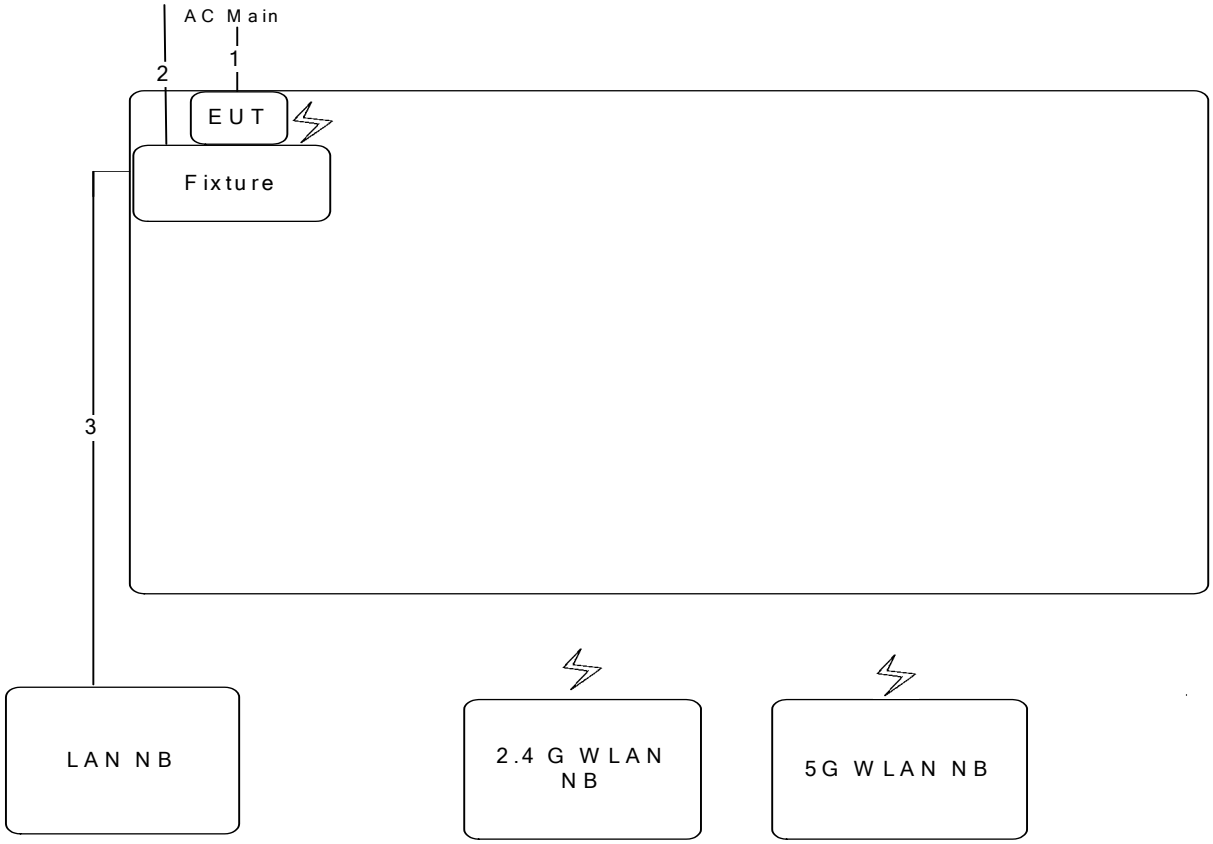
Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11n MCS0 HT20	1.266	1.306	96.93%	0.14	0.79
802.11n MCS0 HT40	0.632	0.660	95.75%	0.19	1.58
802.11a	1.354	1.386	97.69%	0.10	0.74

<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

3.11.Test Configurations

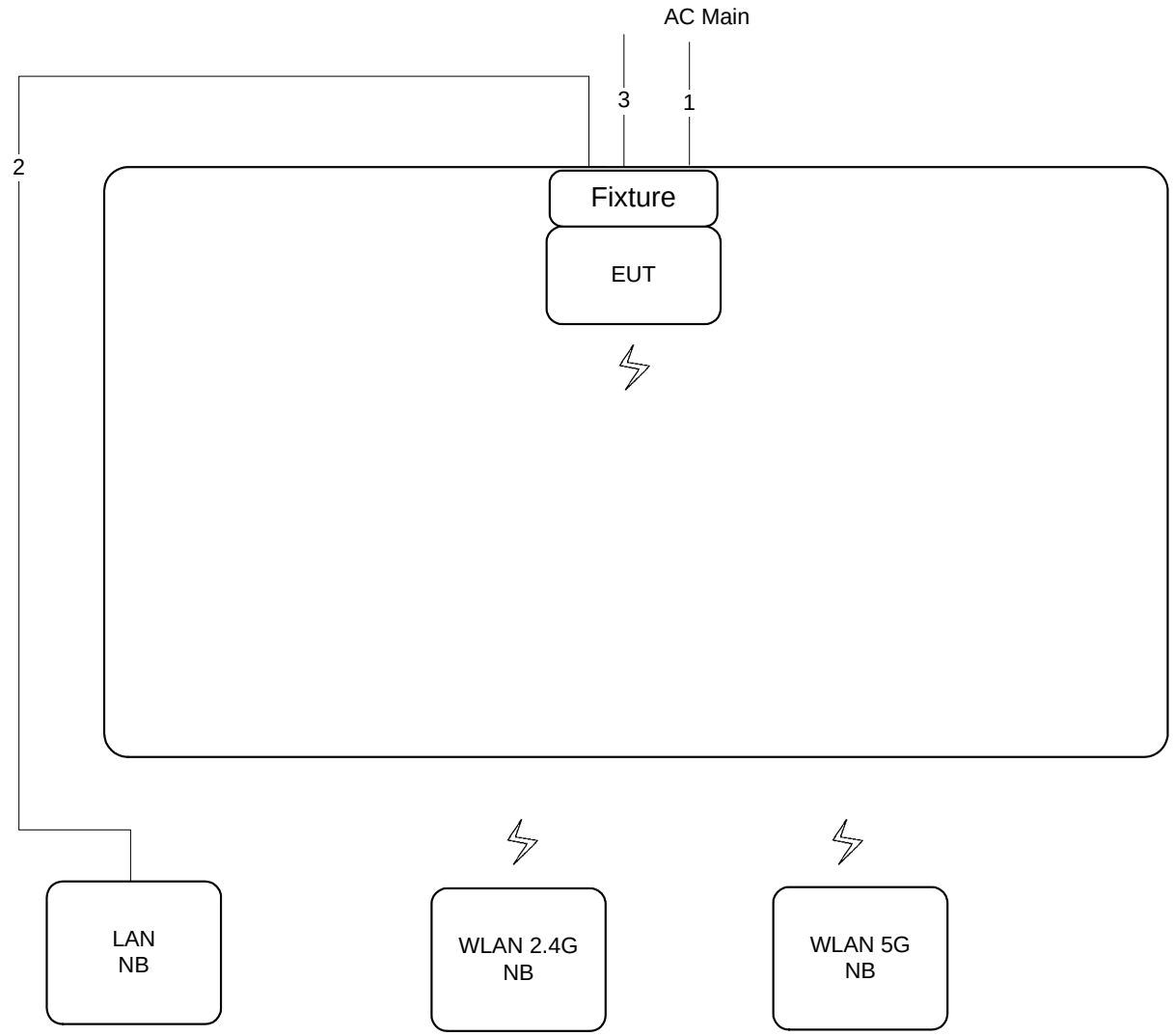
3.11.1. AC Power Line Conduction Emissions Test Configuration



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

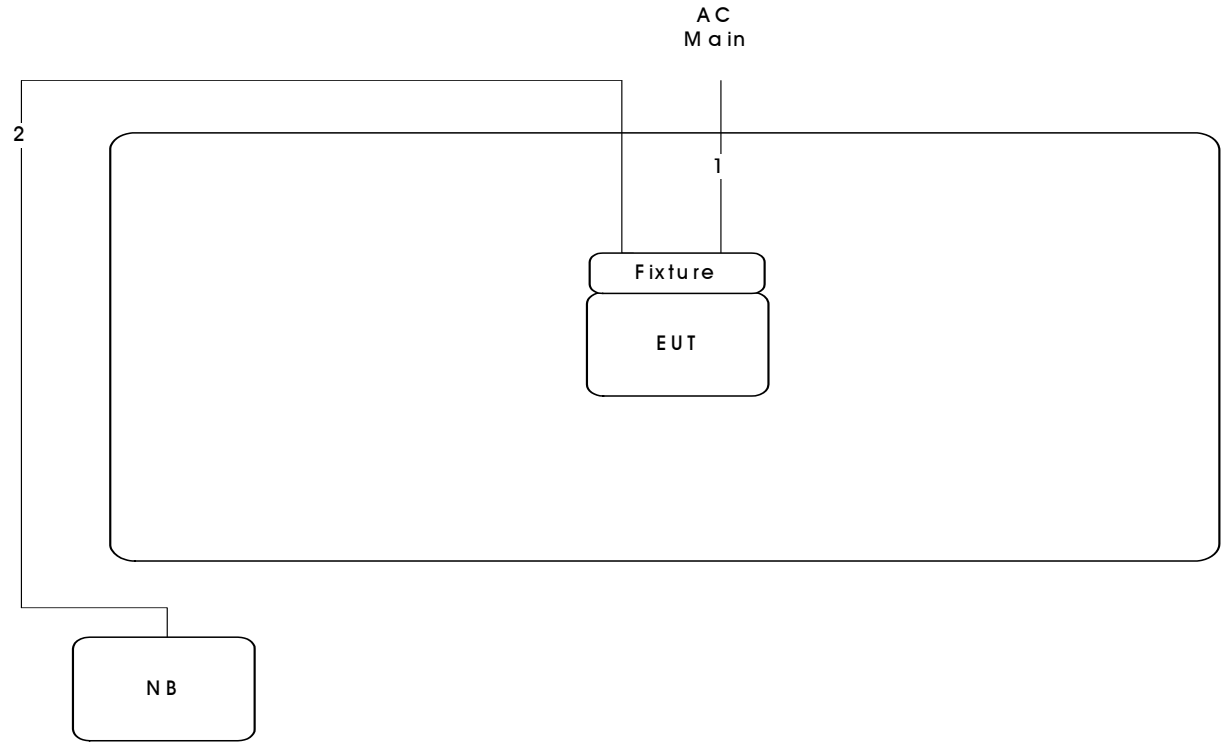
3.11.2. Radiation Emissions Test Configuration

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

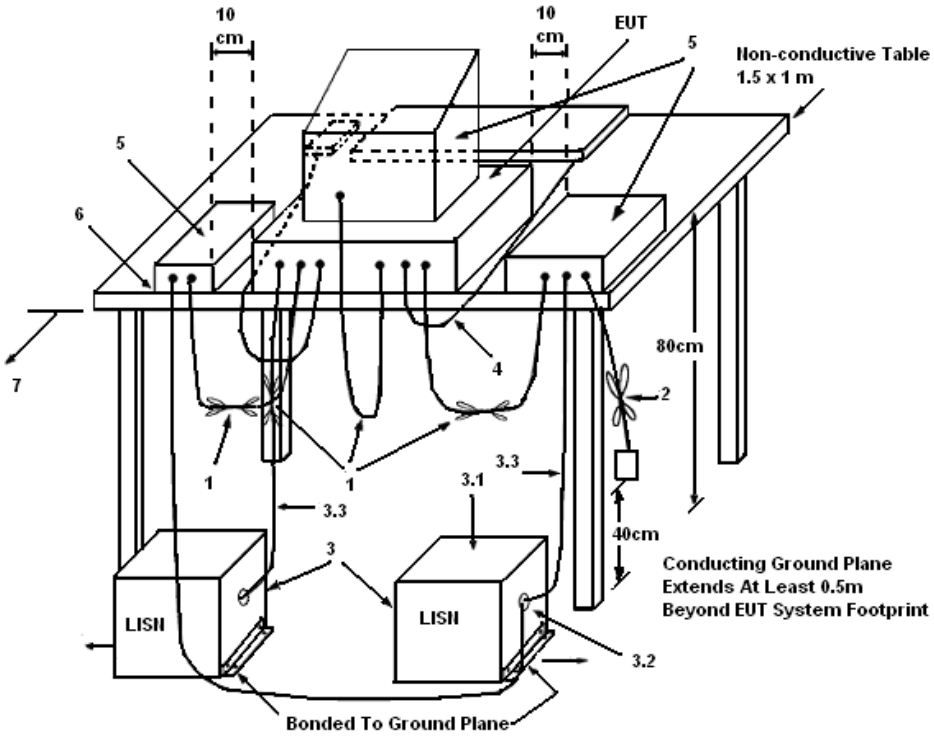
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

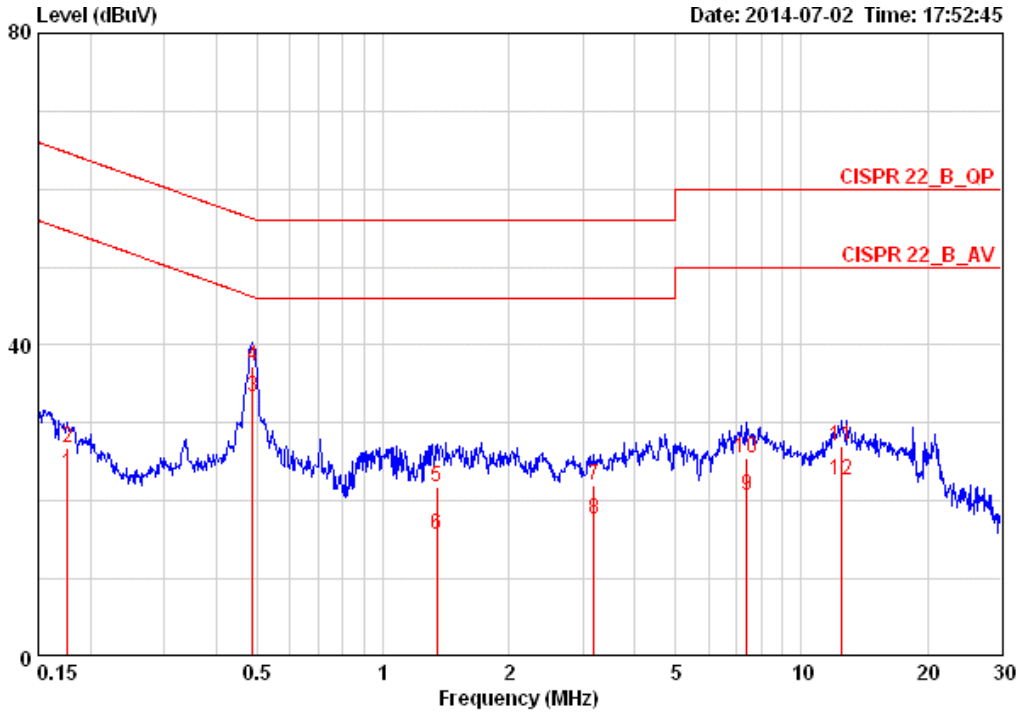
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

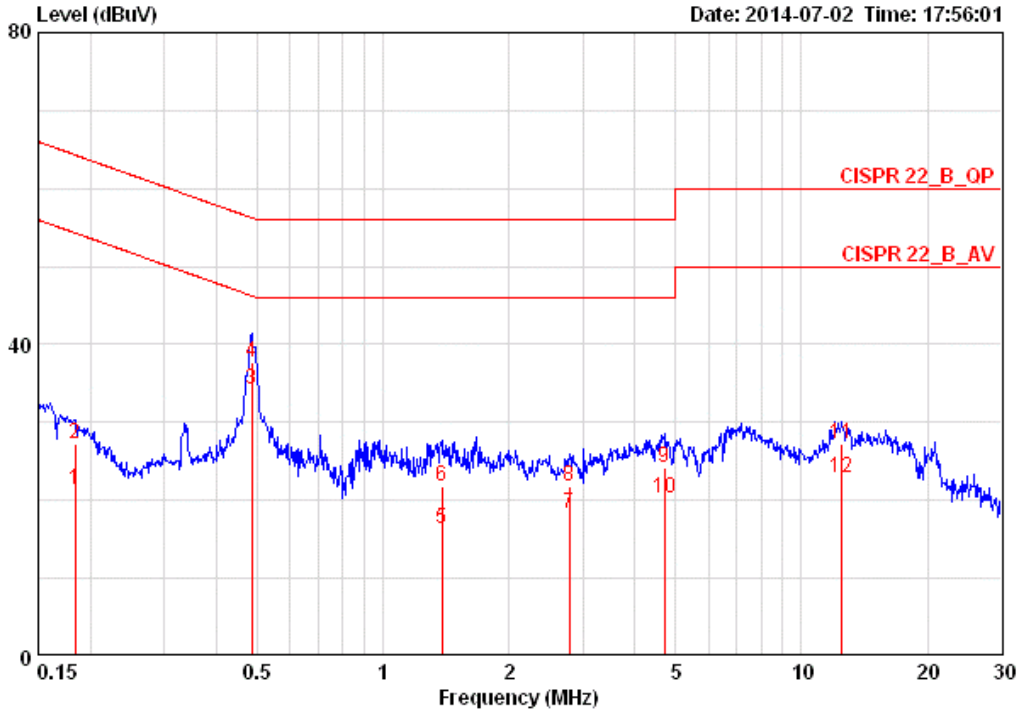
4.1.7. Results of AC Power Line Conducted Emissions Measurement

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 4.6.4.

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

<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)
36	5180 MHz	24.10	18.58
40	5200 MHz	24.35	18.58
48	5240 MHz	23.58	18.58

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

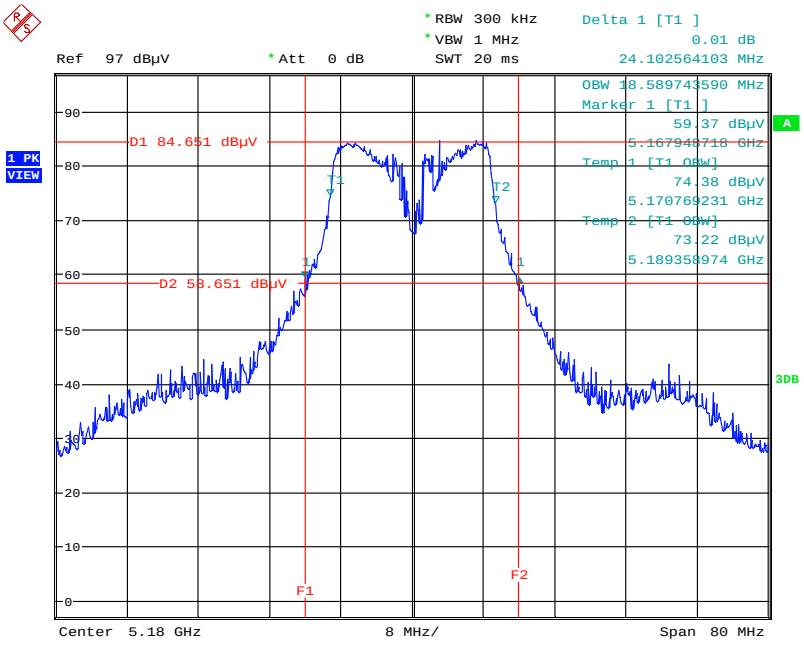
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	43.59	36.66
46	5230 MHz	44.10	36.66

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

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

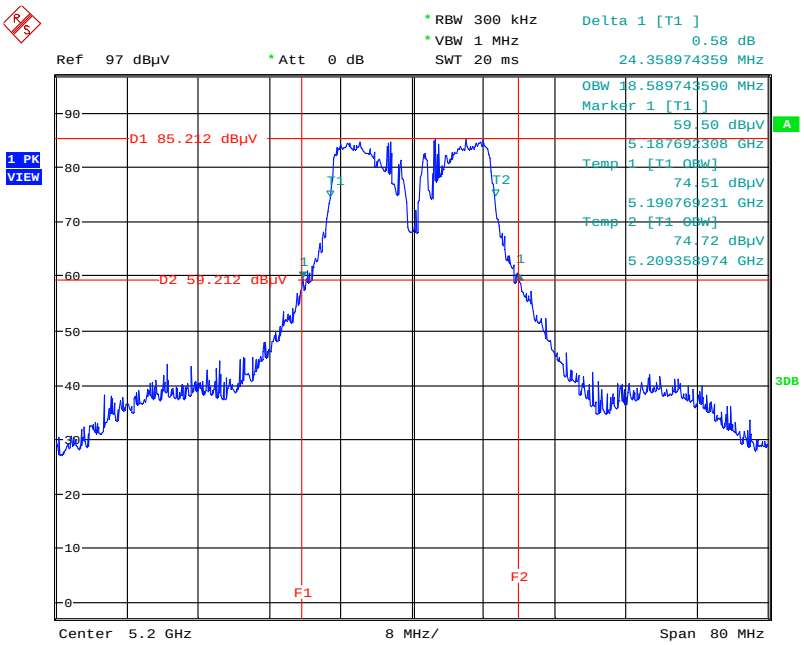
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	22.17	17.30
40	5200 MHz	22.05	17.17
48	5240 MHz	22.05	17.17

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



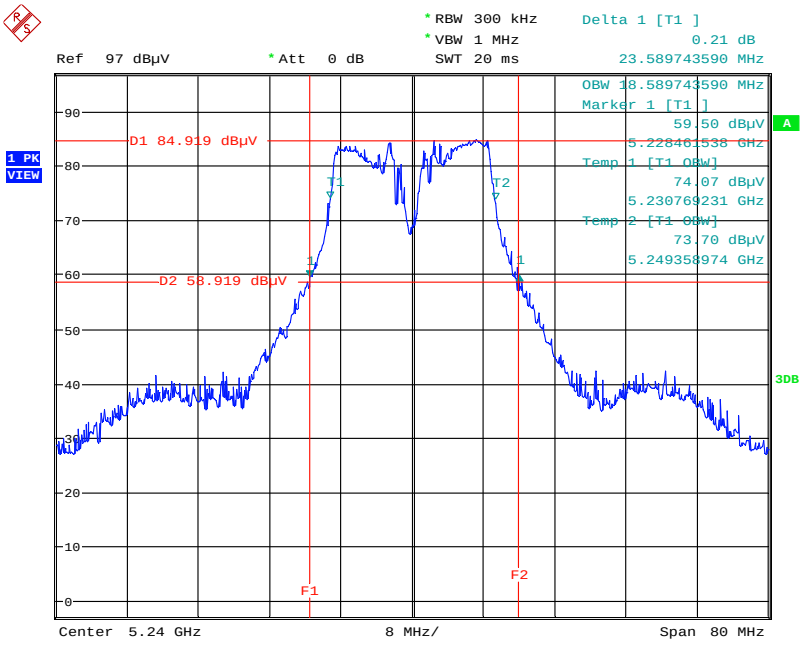
Date: 30.JUN.2014 21:14:43

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



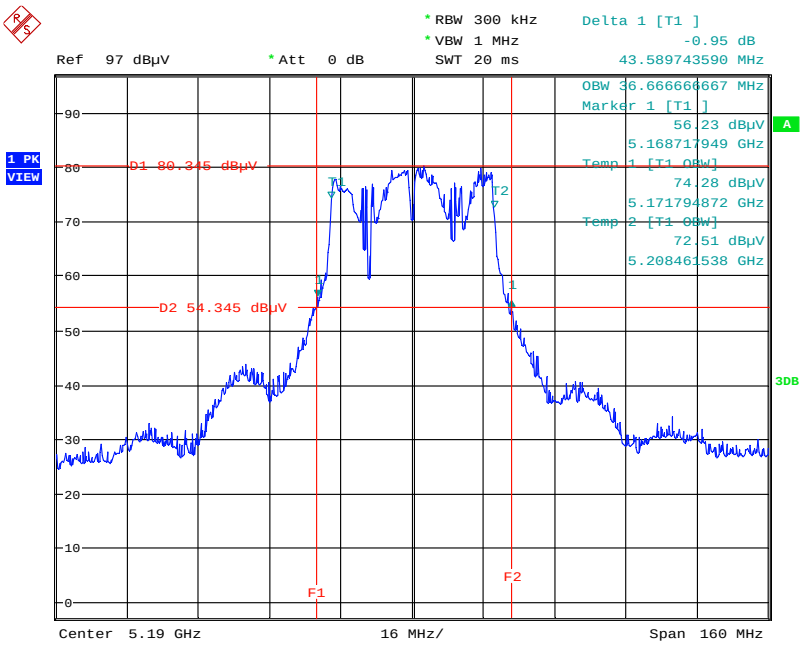
Date: 30.JUN.2014 21:15:05

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



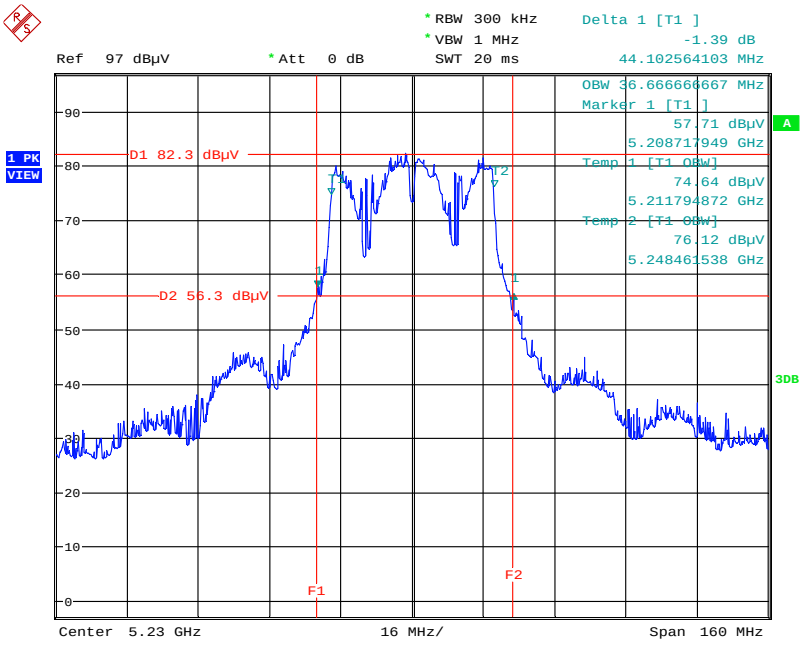
Date: 30.JUN.2014 21:15:30

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



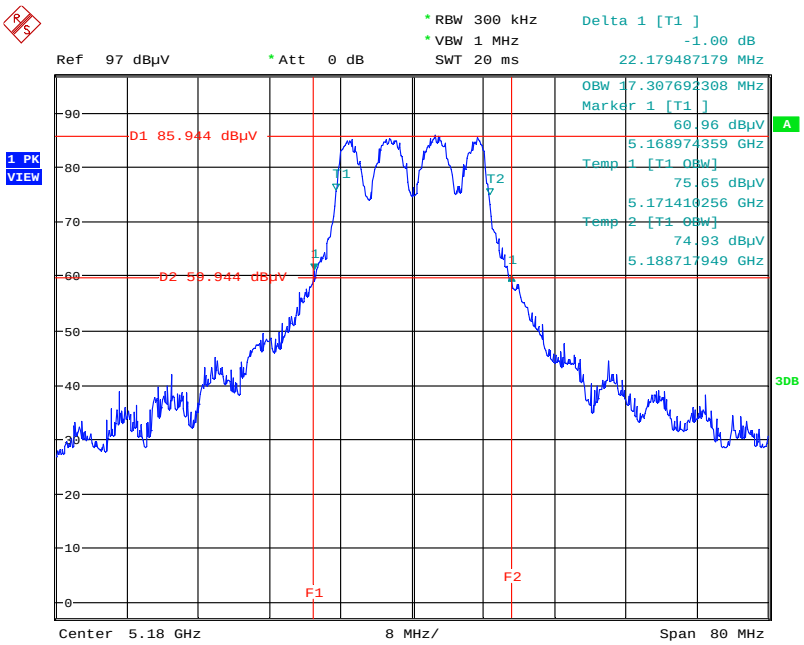
Date: 30.JUN.2014 21:44:43

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



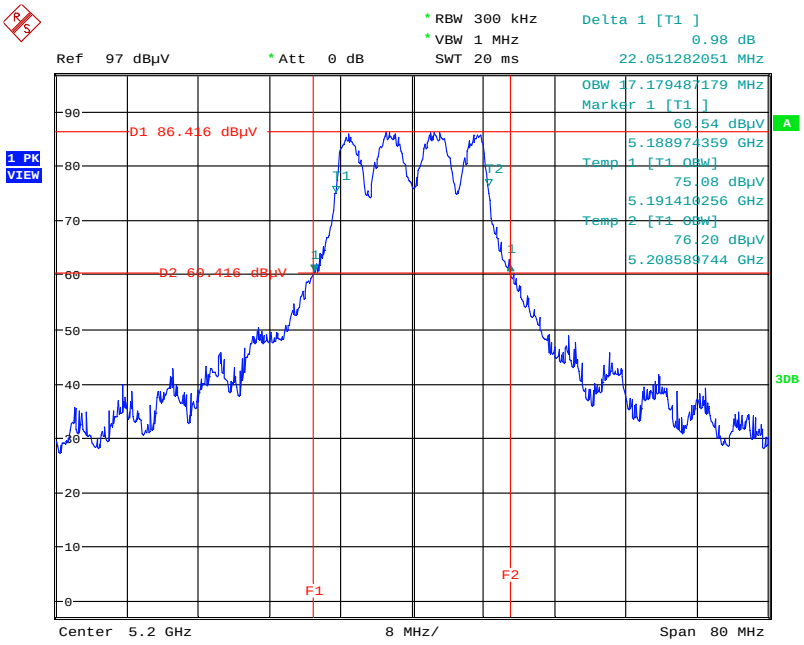
Date: 30.JUN.2014 21:45:13

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



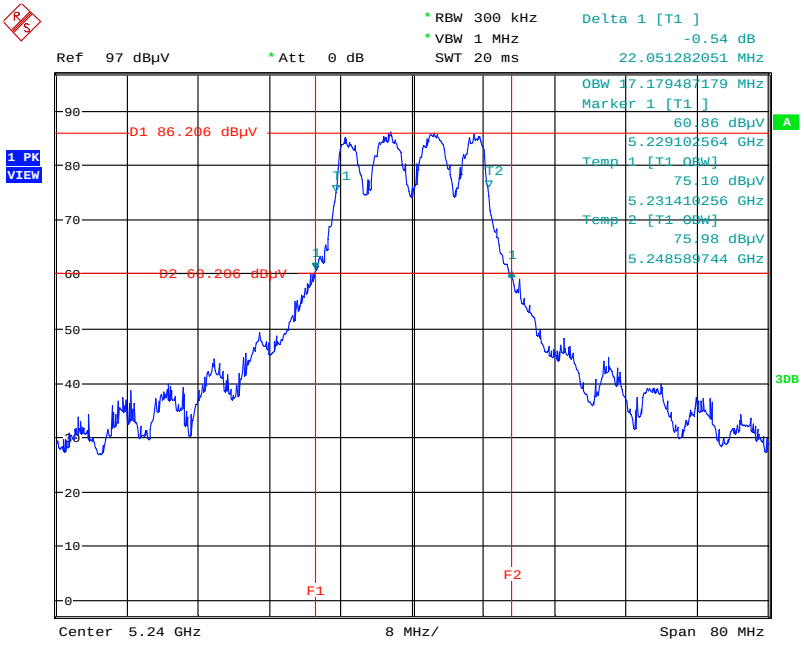
Date: 30.JUN.2014 20:59:51

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



Date: 30.JUN.2014 21:01:08

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



Date: 30.JUN.2014 21:01:51

<For 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)
36	5180 MHz	22.88	18.24
40	5200 MHz	24.35	18.58
48	5240 MHz	23.58	18.58

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

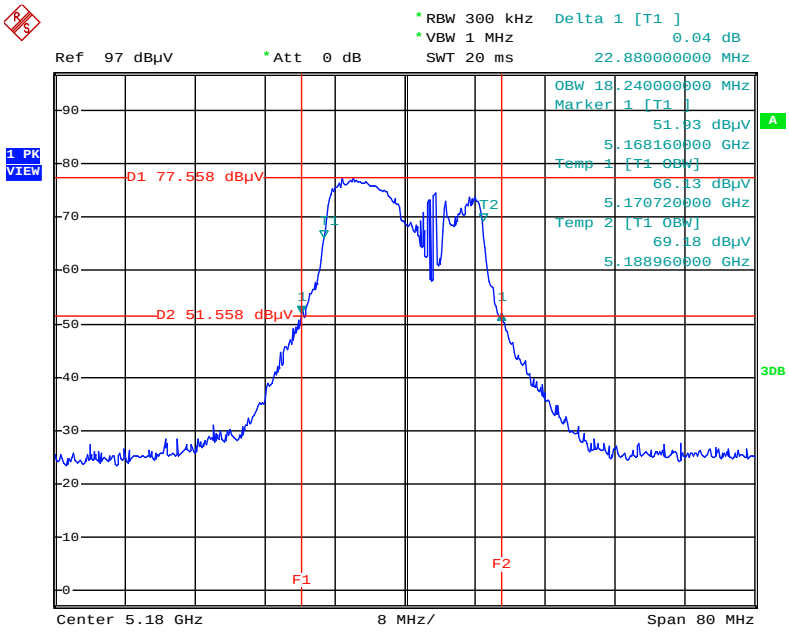
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
38	5190 MHz	42.56	36.80
46	5230 MHz	44.10	36.66

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

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

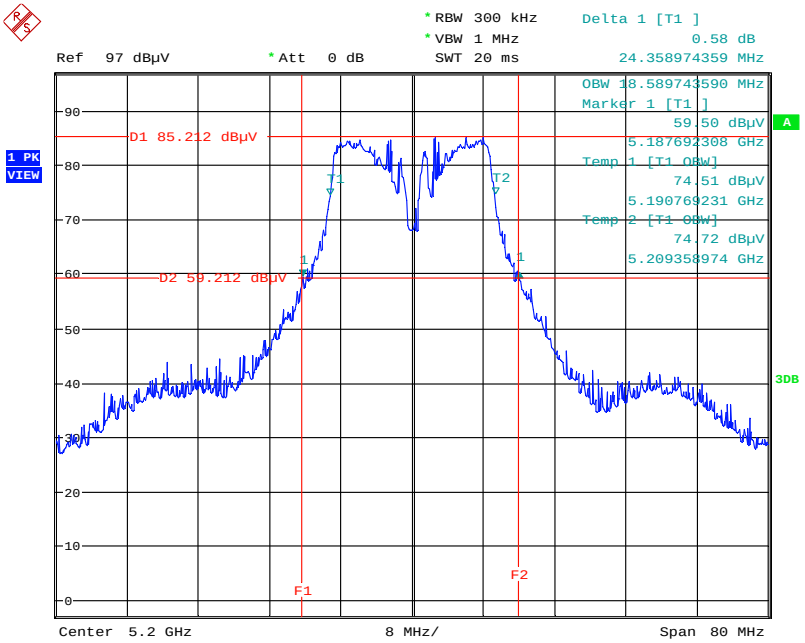
Channel	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
36	5180 MHz	21.76	17.12
40	5200 MHz	22.05	17.17
48	5240 MHz	22.05	17.17

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



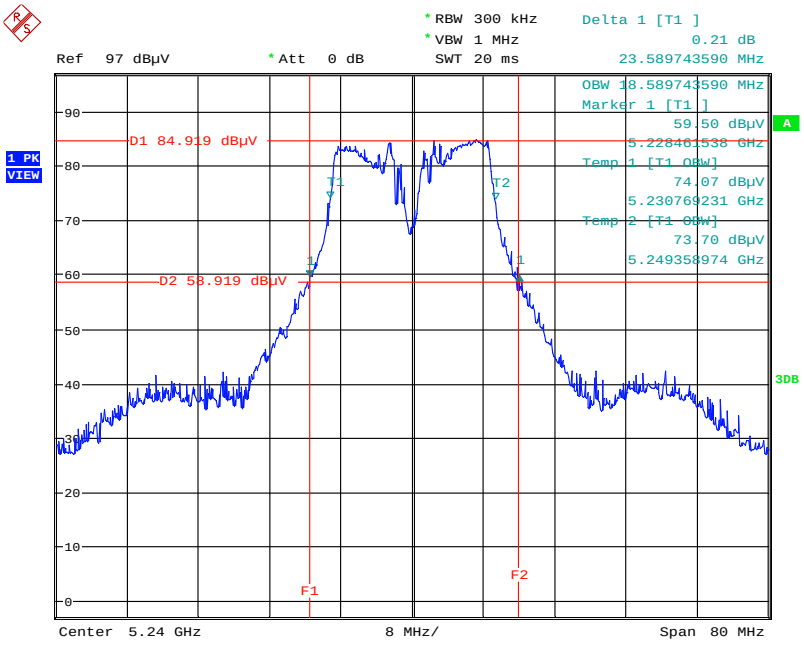
Date: 6.AUG.2014 11:40:40

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



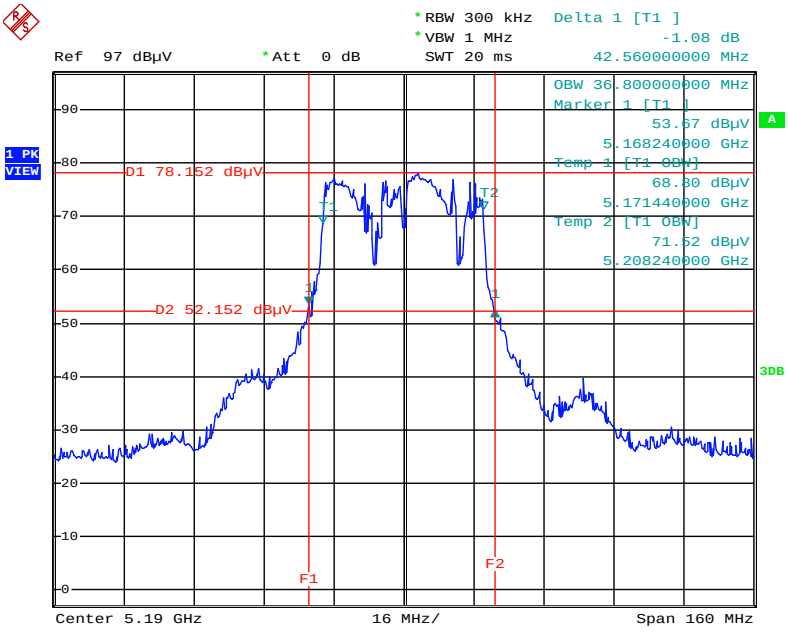
Date: 30.JUN.2014 21:15:05

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



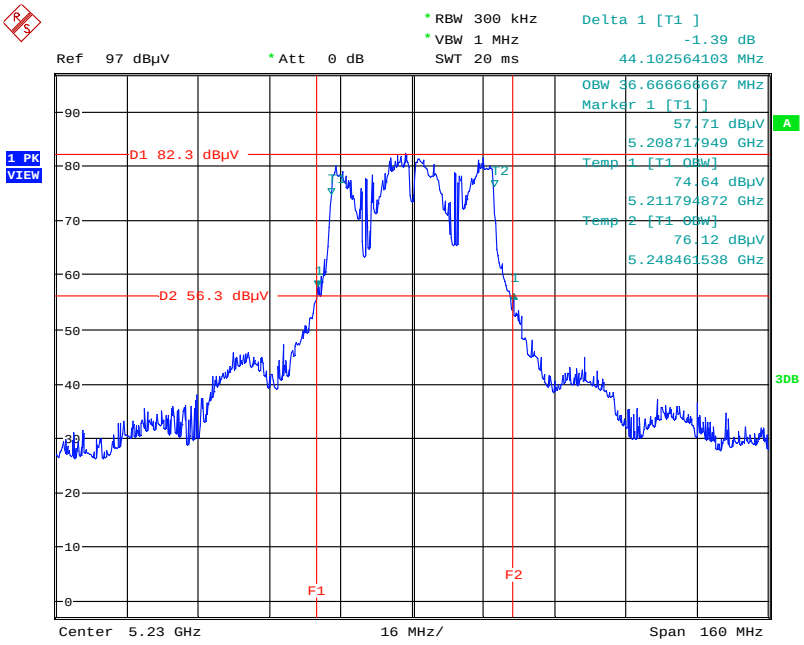
Date: 30.JUN.2014 21:15:30

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



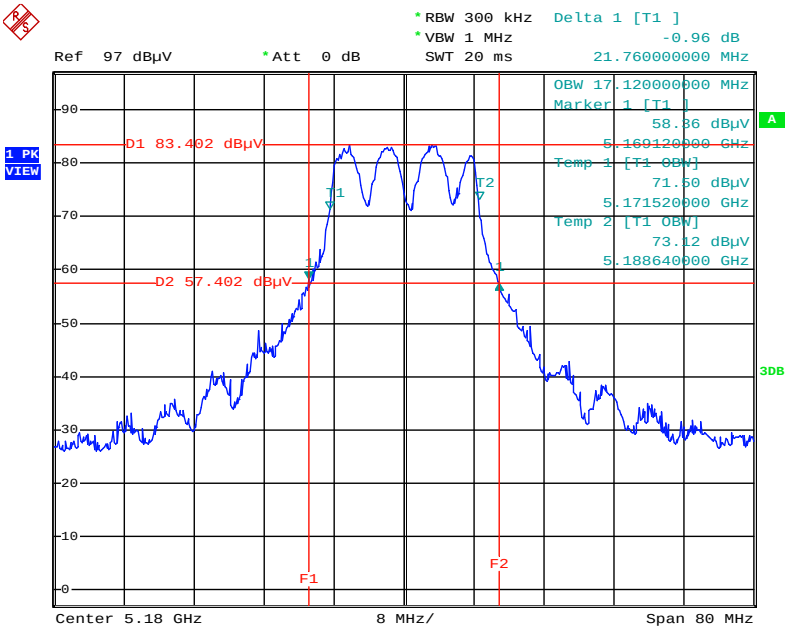
Date: 6.AUG.2014 12:23:27

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



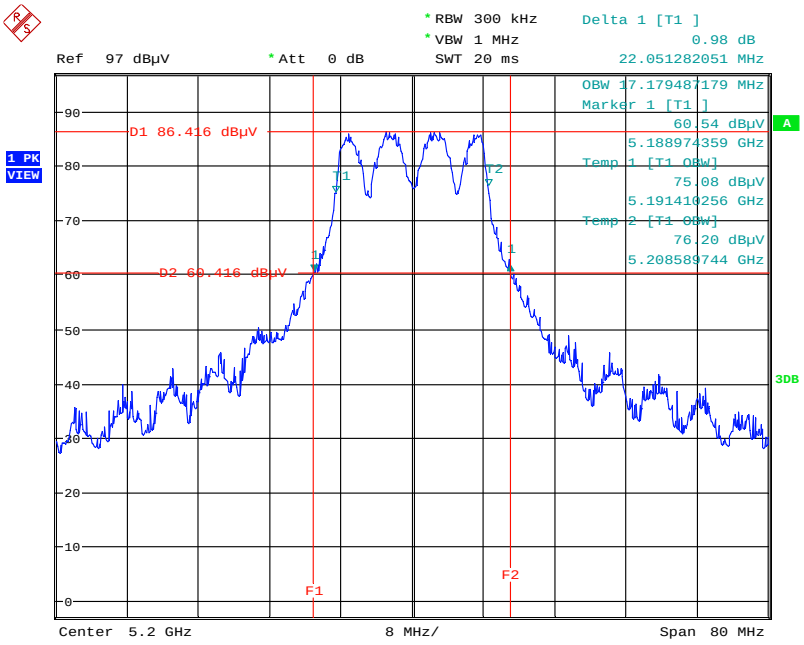
Date: 30.JUN.2014 21:45:13

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



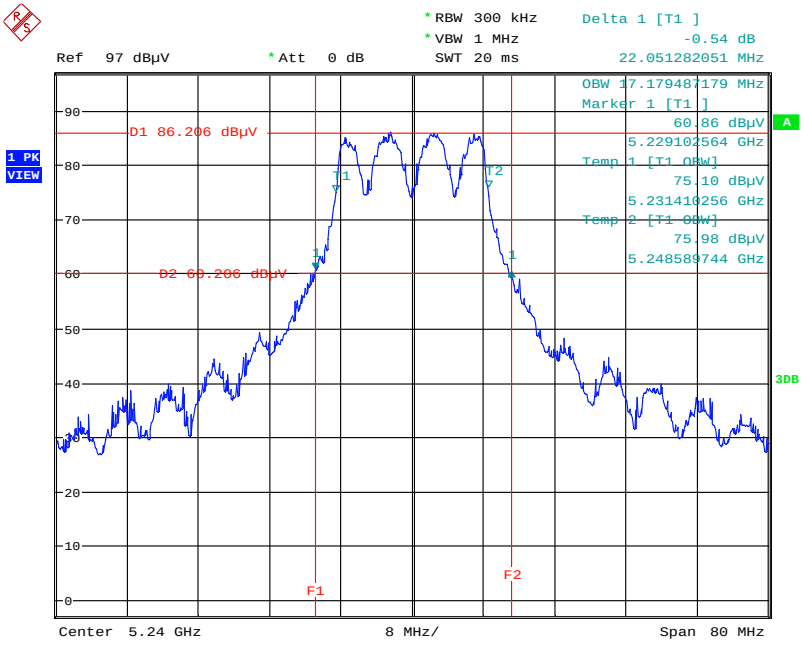
Date: 6.AUG.2014 11:29:59

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



Date: 30.JUN.2014 21:01:08

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



Date: 30.JUN.2014 21:01:51

4.3. 6dB Spectrum Bandwidth and 99% Occupied Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RBW	approximately 1% of the emission bandwidth
VBW	VBW > RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (C) Emission Bandwidth.
3. Multiple antenna system was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. Measured the spectrum width with power higher than 6dB below carrier.

4.3.4. Test Setup Layout

For Radiated 6dB Bandwidth Measurement:

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

4.3.5. Test Deviation

There is no deviation with the original standard.

4.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.3.7. Test Result of 6dB Spectrum Bandwidth and 99% Occupied Bandwidth

<For Non-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	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.60	17.69	500	Complies
157	5785 MHz	16.60	17.37	500	Complies
165	5825 MHz	16.66	17.50	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	35.64	35.76	500	Complies
159	5795 MHz	35.25	35.76	500	Complies

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

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	15.00	16.28	500	Complies
157	5785 MHz	15.64	16.28	500	Complies
165	5825 MHz	15.76	16.47	500	Complies

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

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	17.60	17.92	500	Complies
157	5785 MHz	16.60	17.37	500	Complies
165	5825 MHz	17.60	17.84	500	Complies

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

Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
151	5755 MHz	36.16	36.48	500	Complies
159	5795 MHz	33.92	36.48	500	Complies

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

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

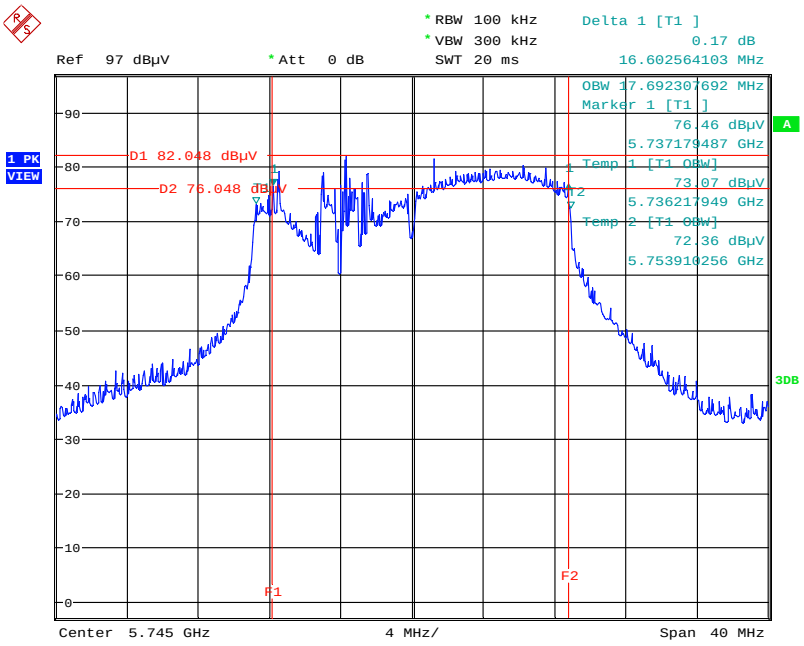
Channel	Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Min. Limit (kHz)	Test Result
149	5745 MHz	16.32	16.64	500	Complies
157	5785 MHz	15.64	16.28	500	Complies
165	5825 MHz	16.32	16.56	500	Complies

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

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

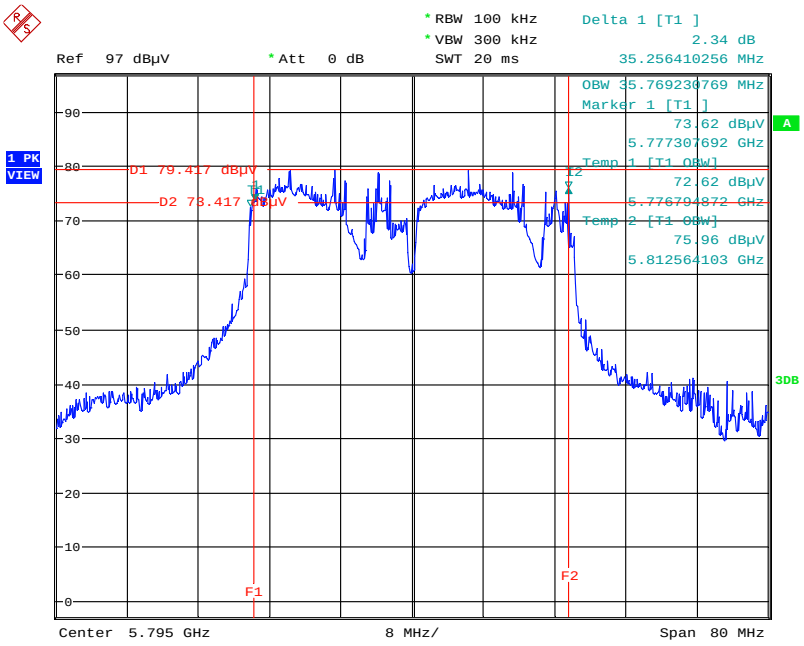
<For Non-Beamforming Mode>

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5745 MHz



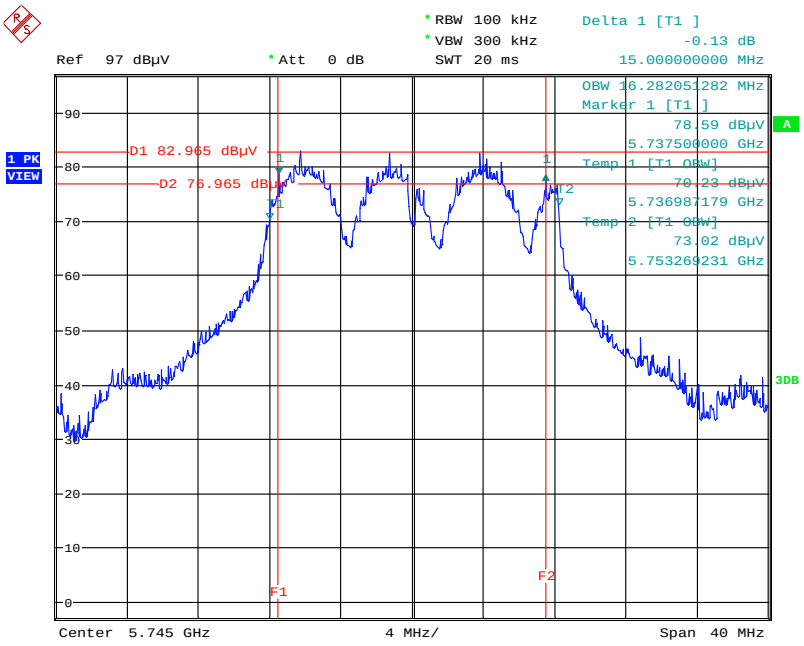
Date: 30.JUN.2014 20:55:38

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5795MHz



Date: 30.JUN.2014 20:58:34

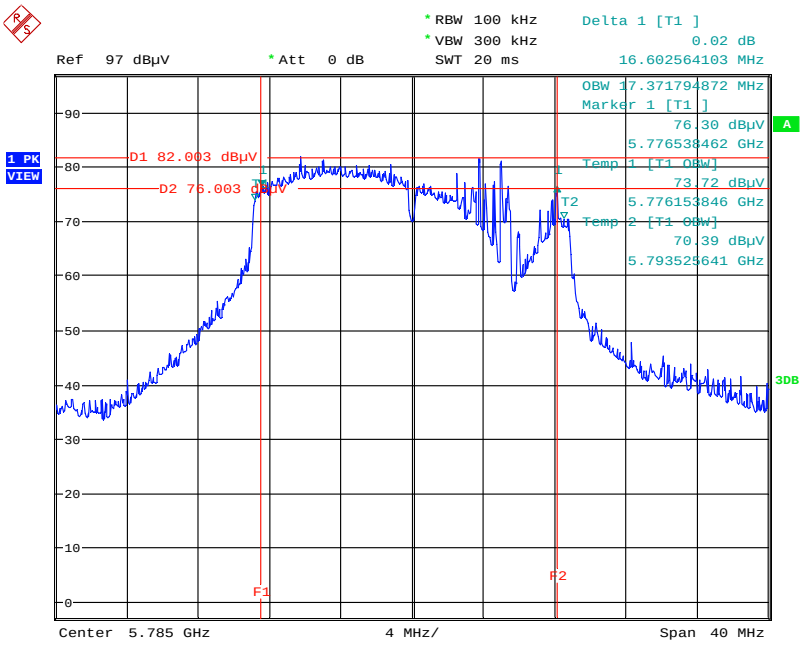
6 dB Bandwidth Plot on Configuration IEEE 802.11a / Ant. 1 + Ant. 2 / 5745 MHz



Date: 30.JUN.2014 20:53:15

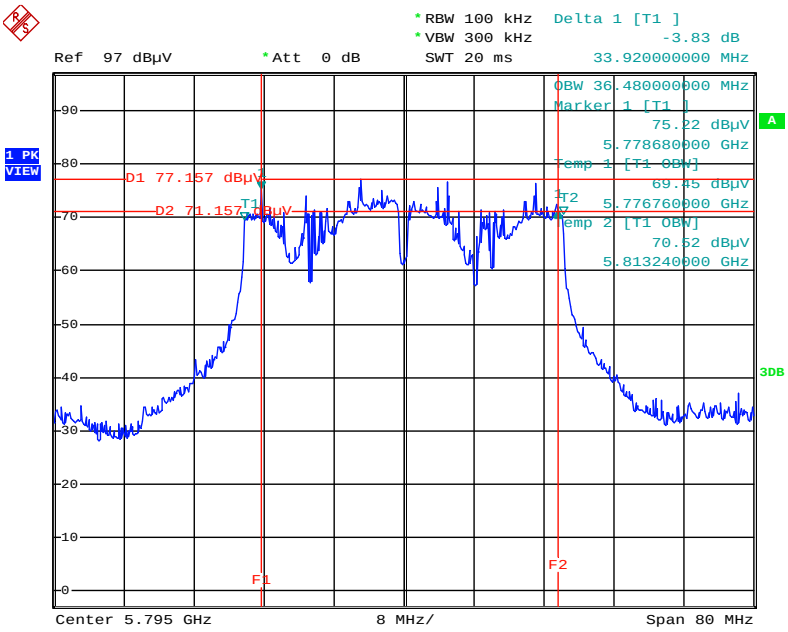
<For Beamforming Mode>

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



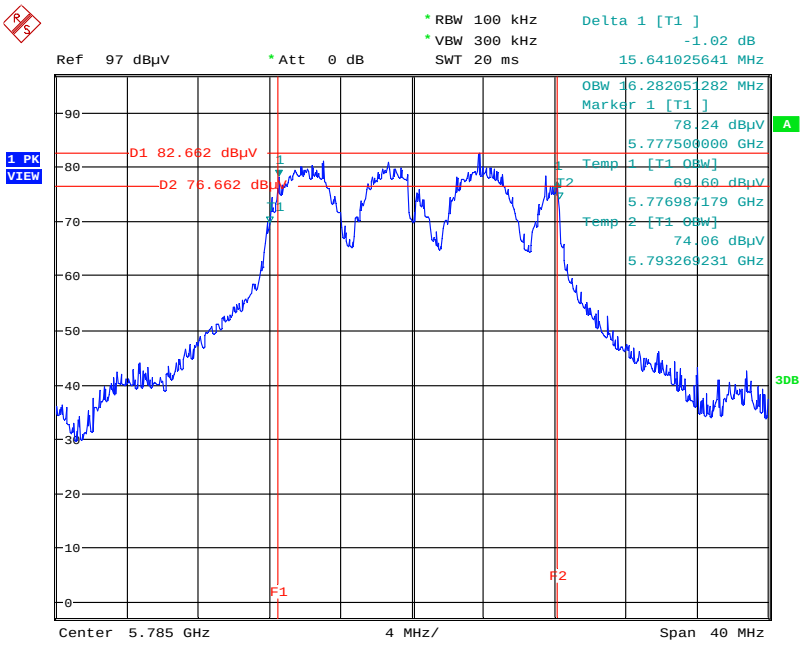
Date: 30.JUN.2014 20:56:08

6 dB Bandwidth Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5795MHz



Date: 6.AUG.2014 17:55:14

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



Date: 30.JUN.2014 20:53:40

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

For the band 5.15~5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725~5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

4.4.2. Measuring Instruments and Setting

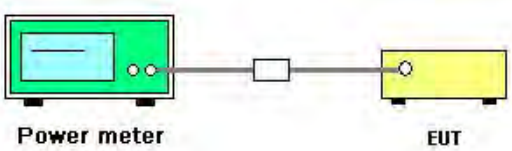
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

4.4.3. Test Procedures

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 D02 v01 for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - section (E) Maximum conducted output power =>3. Measurement using a Power Meter (PM) =>b) Method PM-G (Measurement using a gated RF average power meter).
3. Multiple antenna systems was performed in accordance with KDB662911 D01 v02r01 Emissions Testing of Transmitters with Multiple Outputs in the Same Band.
4. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.

4.4.4. Test Setup Layout



4.4.5. Test Deviation

There is no deviation with the original standard.

4.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.4.7. Test Result of Maximum Conducted Output Power

<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		
36	5180 MHz	17.76	17.93	20.86	30.00	Complies
40	5200 MHz	18.43	17.98	21.22	30.00	Complies
48	5240 MHz	18.23	17.85	21.05	30.00	Complies
149	5745 MHz	17.28	17.31	20.31	30.00	Complies
157	5785 MHz	17.82	18.23	21.04	30.00	Complies
165	5825 MHz	17.79	18.15	20.98	30.00	Complies

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
38	5190 MHz	16.22	16.14	19.19	30.00	Complies
46	5230 MHz	17.68	17.75	20.73	30.00	Complies
151	5755 MHz	17.93	17.21	20.60	30.00	Complies
159	5795 MHz	17.58	17.86	20.73	30.00	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		
36	5180 MHz	18.23	17.95	21.10	30.00	Complies
40	5200 MHz	18.53	17.94	21.26	30.00	Complies
48	5240 MHz	18.32	17.97	21.16	30.00	Complies
149	5745 MHz	17.96	18.51	21.25	30.00	Complies
157	5785 MHz	17.95	18.46	21.22	30.00	Complies
165	5825 MHz	17.91	18.32	21.13	30.00	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		
36	5180 MHz	11.66	11.36	14.52	29.10	Complies
40	5200 MHz	18.43	17.98	21.22	29.10	Complies
48	5240 MHz	18.23	17.85	21.05	29.10	Complies
149	5745 MHz	17.33	16.91	20.14	29.10	Complies
157	5785 MHz	17.82	18.23	21.04	29.10	Complies
165	5825 MHz	17.12	17.77	20.47	29.10	Complies

Band1/4-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 =30-(6.9-6)=29.10dBm

Configuration IEEE 802.11n MCS0 HT40

Channel	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
38	5190 MHz	15.37	15.02	18.21	29.10	Complies
46	5230 MHz	17.68	17.75	20.73	29.10	Complies
151	5755 MHz	14.81	14.56	17.70	29.10	Complies
159	5795 MHz	16.74	17.23	20.00	29.10	Complies

Band1/4-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 =30-(6.9-6)=29.10dBm

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		
36	5180 MHz	17.32	17.77	20.56	29.10	Complies
40	5200 MHz	18.53	17.94	21.26	29.10	Complies
48	5240 MHz	18.32	17.97	21.16	29.10	Complies
149	5745 MHz	17.49	18.00	20.76	29.10	Complies
157	5785 MHz	17.95	18.46	21.22	29.10	Complies
165	5825 MHz	17.35	17.91	20.65	29.10	Complies

Band1/4-Note: $DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left\{ \sum_{k=1}^{N_{SS}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =6.9dBi > 6dBi,So Power Limit =30-(6.9-6)=29.10dBm

4.5. Power Spectral Density Measurement

4.5.1. 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 4.4.1.

Frequency Range	Power Spectral Density limit (dBm/MHz)
5.15~5.25 GHz	17
5.725~5.85 GHz	30 dBm/500kHz

4.5.2. Measuring Instruments and Setting

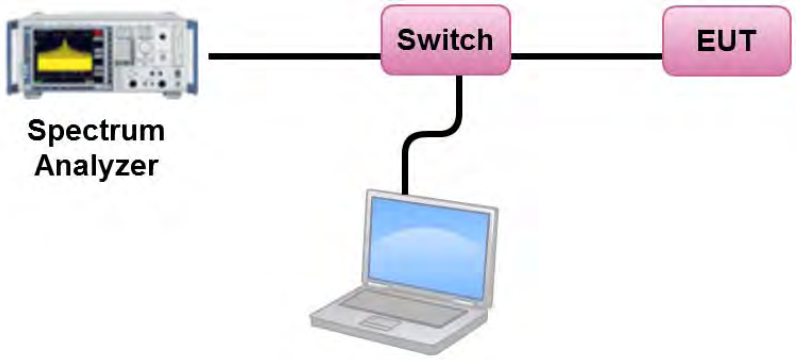
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 v01 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.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

<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
36	5180 MHz	7.45	16.10	Complies
40	5200 MHz	7.98	16.10	Complies
48	5240 MHz	7.54	16.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band1 Limit =17-(6.9-6)=16.10dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-8.56	-8.20	-5.37	22.22	16.85	29.10	Complies
157	5785 MHz	-8.13	-7.78	-4.94	22.22	17.28	29.10	Complies
165	5825 MHz	-8.20	-7.96	-5.07	22.22	17.15	29.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band4 Limit =30-(6.9-6)=29.10dBm/MHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	2.99	16.10	Complies
46	5230 MHz	4.34	16.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band1 Limit =17-(6.9-6)=16.10dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-12.12	-12.00	-9.05	22.22	13.17	29.10	Complies
159	5795 MHz	-12.44	-11.62	-9.00	22.22	13.22	29.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band4 Limit =30-(6.9-6)=29.10dBm/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
36	5180 MHz	7.78	16.10	Complies
40	5200 MHz	8.00	16.10	Complies
48	5240 MHz	7.77	16.10	Complies

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

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-8.14	-7.55	-4.82	22.22	17.40	29.10	Complies
157	5785 MHz	-8.10	-7.75	-4.91	22.22	17.31	29.10	Complies
165	5825 MHz	-8.03	-7.51	-4.75	22.22	17.47	29.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{AGG}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band4 Limit =30-(6.9-6)=29.10dBm/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
36	5180 MHz	0.52	16.10	Complies
40	5200 MHz	7.98	16.10	Complies
48	5240 MHz	7.54	16.10	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 Band1 Limit =17-(6.9-6)=16.10dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-9.63	-9.92	-6.76	22.22	15.46	29.10	Complies
157	5785 MHz	-8.13	-7.78	-4.94	22.22	17.28	29.10	Complies
165	5825 MHz	-9.44	-8.24	-5.79	22.22	16.43	29.10	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 Band4 Limit =30-(6.9-6)=29.10dBm/500kHz

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

Channel	Frequency	Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	1.44	16.10	Complies
46	5230 MHz	4.34	16.10	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 Band1 Limit =17-(6.9-6)=16.10dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
151	5755 MHz	-14.75	-14.94	-11.83	22.22	10.39	29.10	Complies
159	5795 MHz	-10.64	-12.09	-8.29	22.22	13.93	29.10	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 Band4 Limit =30-(6.9-6)=29.10dBm/500kHz

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
36	5180 MHz	6.56	16.10	Complies
40	5200 MHz	8.00	16.10	Complies
48	5240 MHz	7.77	16.10	Complies

Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band1 Limit =17-(6.9-6)=16.10dBm/MHz

Channel	Frequency	Power Density (dBm/3kHz)			BWCF factor	Total Power Density	Power Density Limit	Result
		Ant. 1	Ant. 2	Total	3kHz to 500kHz	dBm/500kHz		
149	5745 MHz	-6.69	-8.37	-4.44	22.22	17.78	29.10	Complies
157	5785 MHz	-8.10	-7.75	-4.91	22.22	17.31	29.10	Complies
165	5825 MHz	-9.43	-7.77	-5.51	22.22	16.71	29.10	Complies

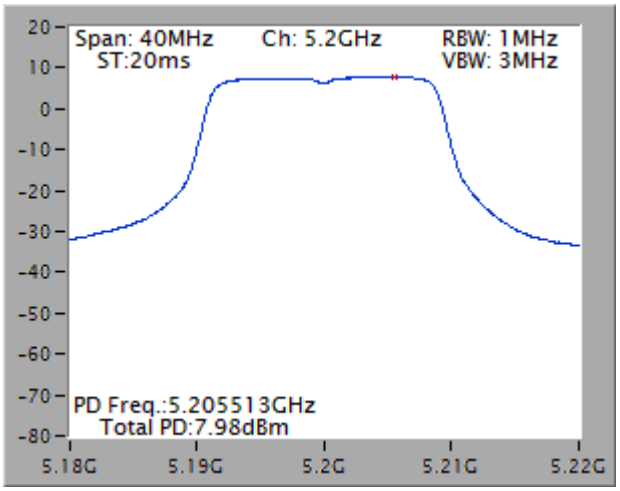
Note: $DirectionalGain = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{ANT}}\left\{\sum_{k=1}^{N_{ANT}} g_{j,k}\right\}^2}{N_{ANT}}\right]$ =6.9dBi > 6dBi,So Band4 Limit =30-(6.9-6)=29.10dBm/500kHz

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

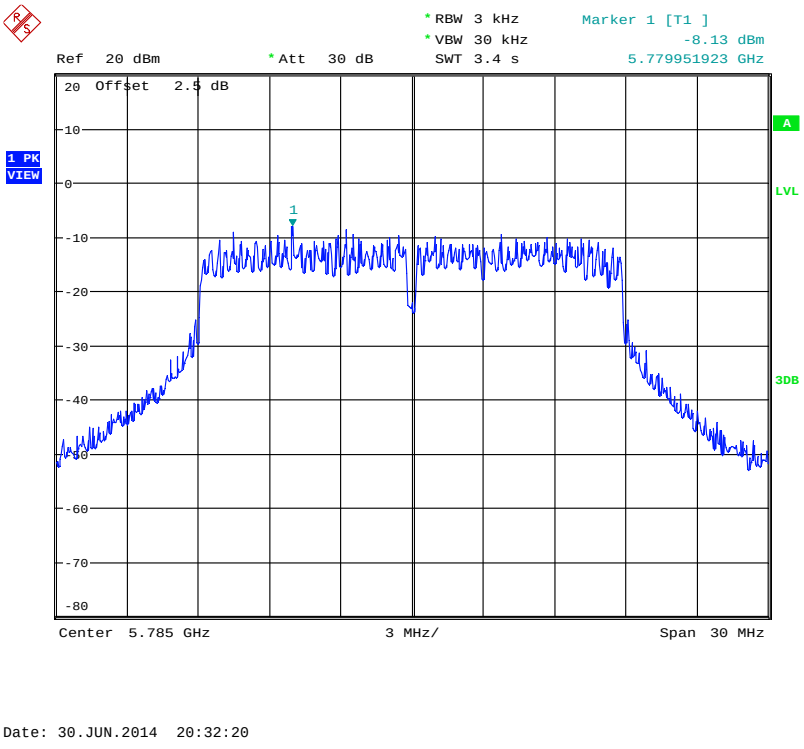
For plots, only the channel with worse result was shown.

<For Non-Beamforming Mode>

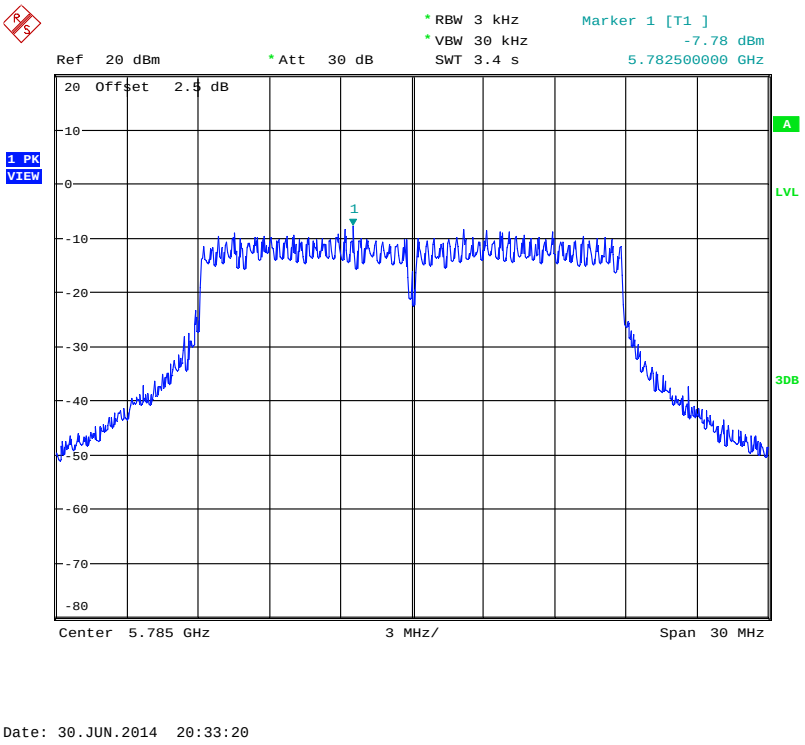
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5200 MHz



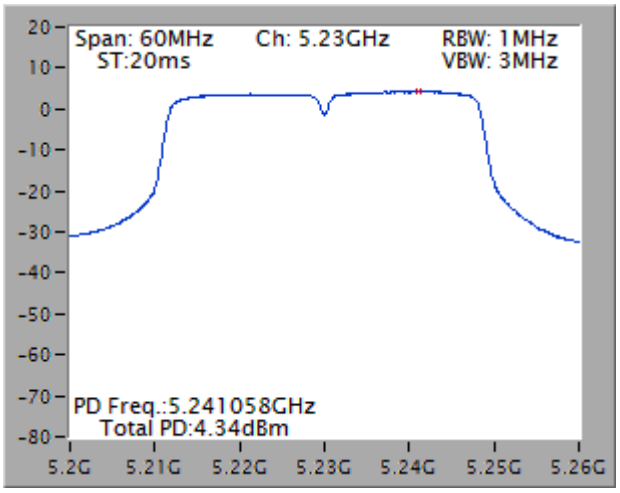
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 / 5785 MHz



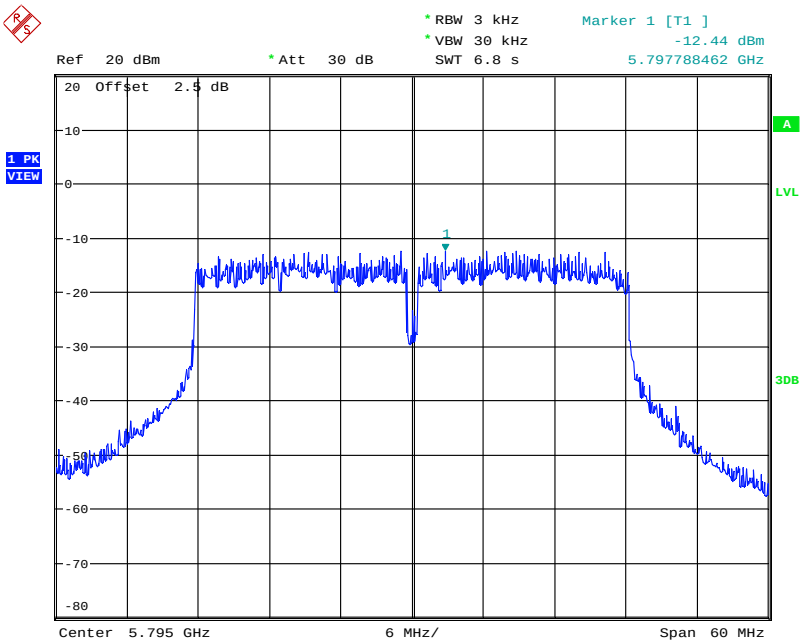
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 2 / 5785 MHz



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

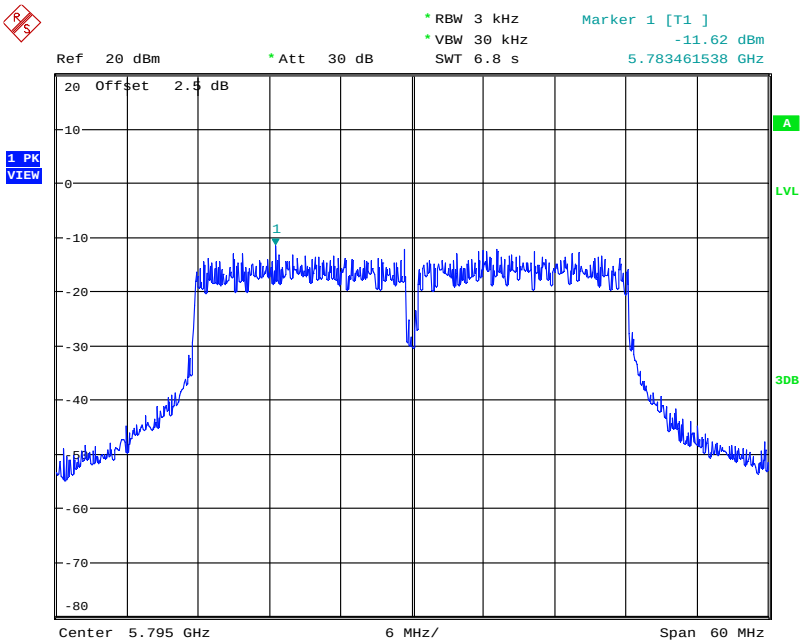


Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 / 5795 MHz



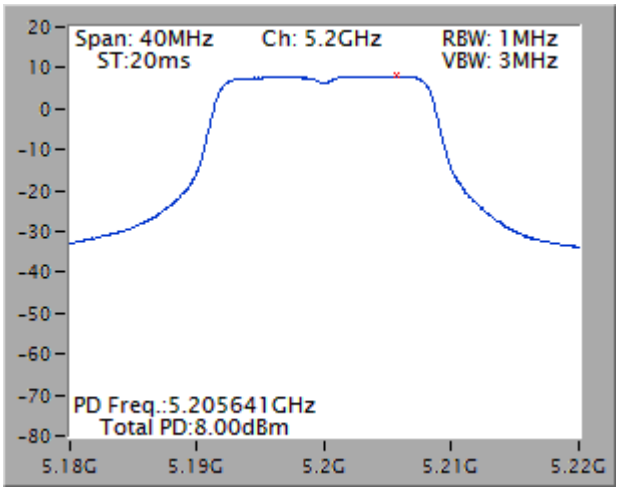
Date: 30.JUN.2014 20:42:18

Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 2 / 5755 MHz

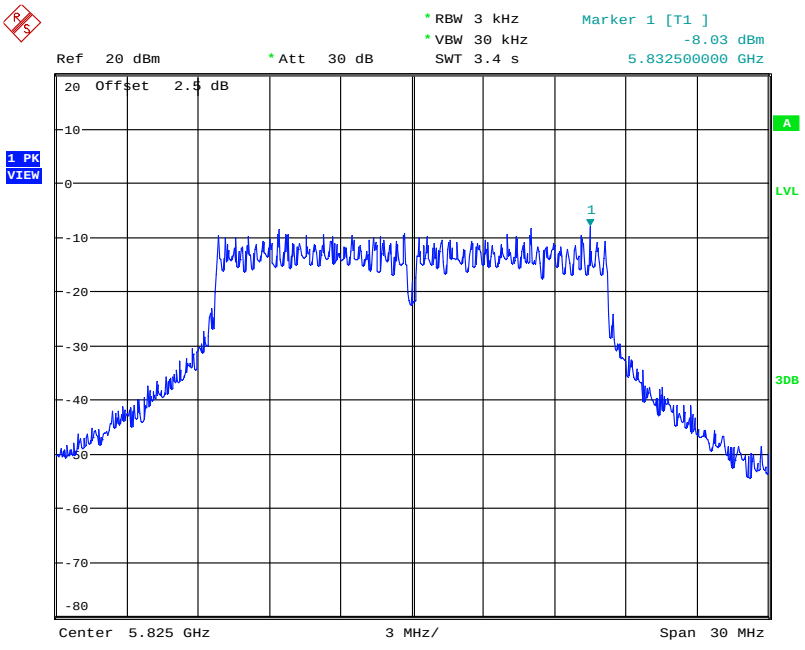


Date: 30.JUN.2014 20:38:37

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

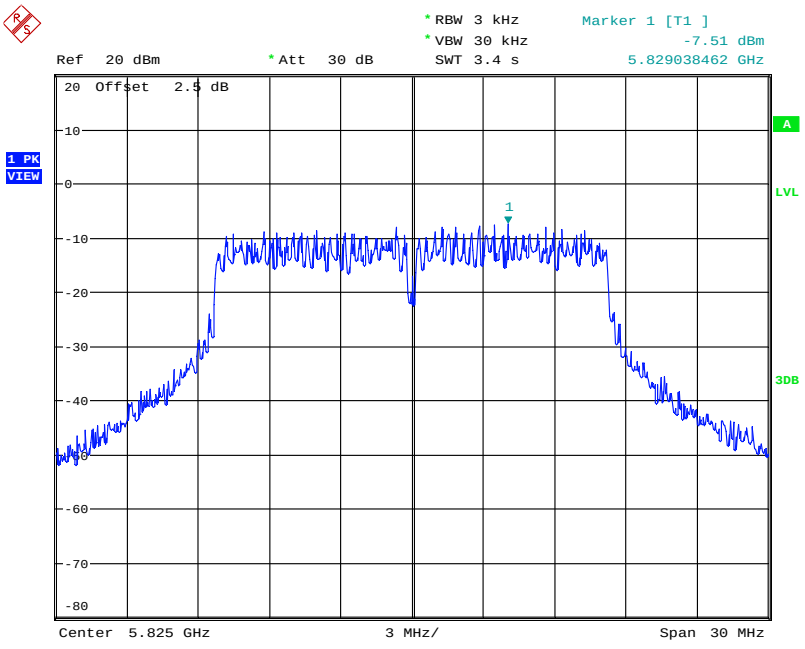


Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5825 MHz



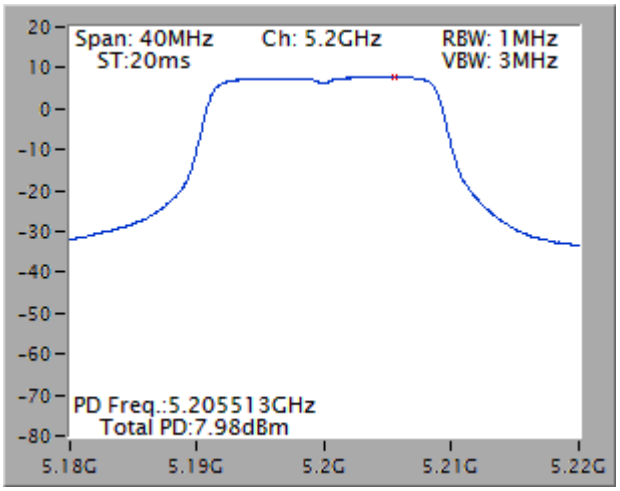
Date: 30.JUN.2014 20:25:34

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

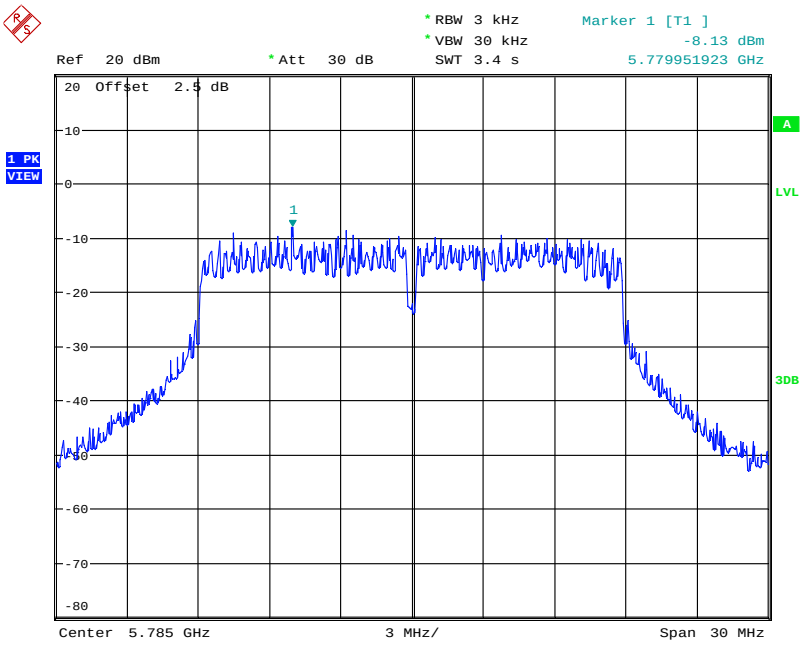


<For Beamforming Mode>

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5200 MHz

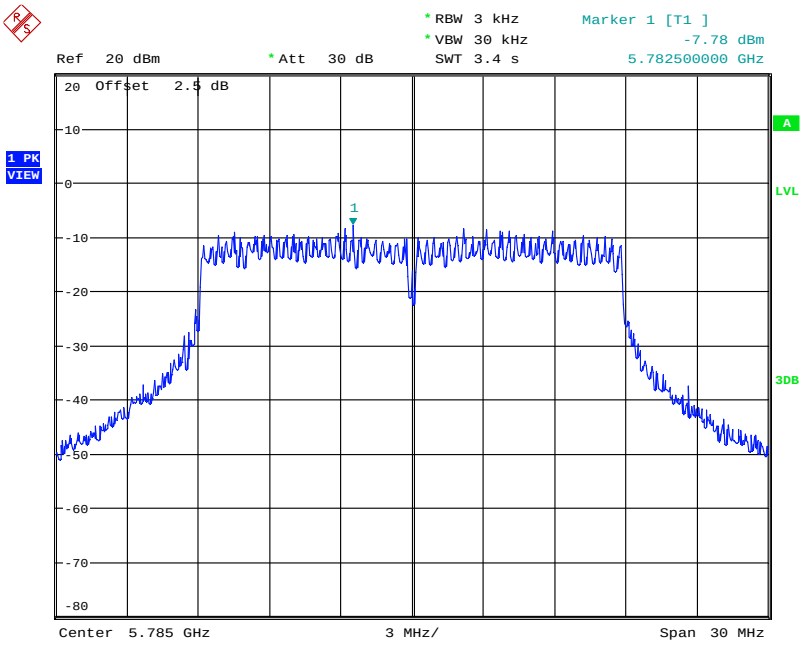


Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 / 5785 MHz



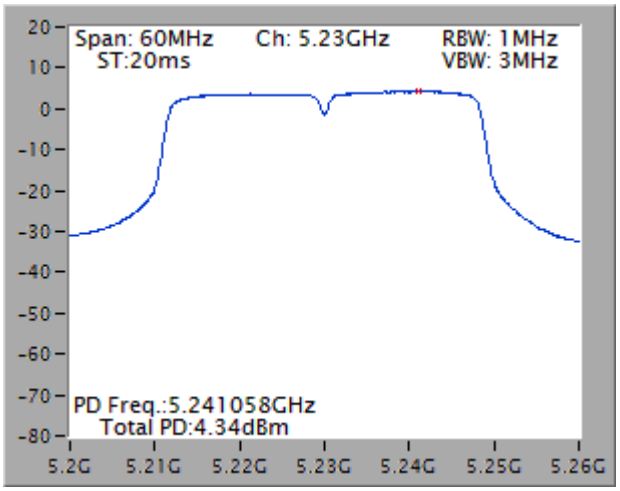
Date: 30.JUN.2014 20:32:20

Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 2 / 5785 MHz

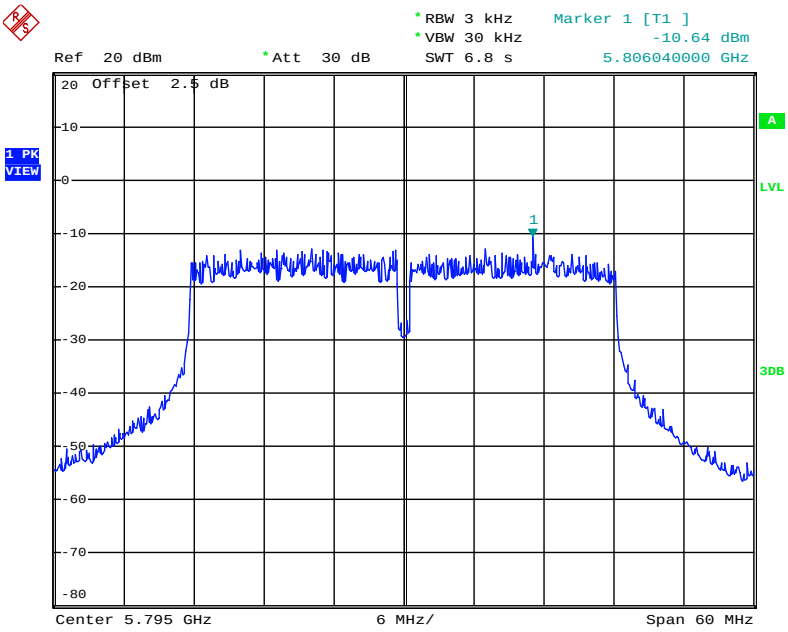


Date: 30.JUN.2014 20:33:20

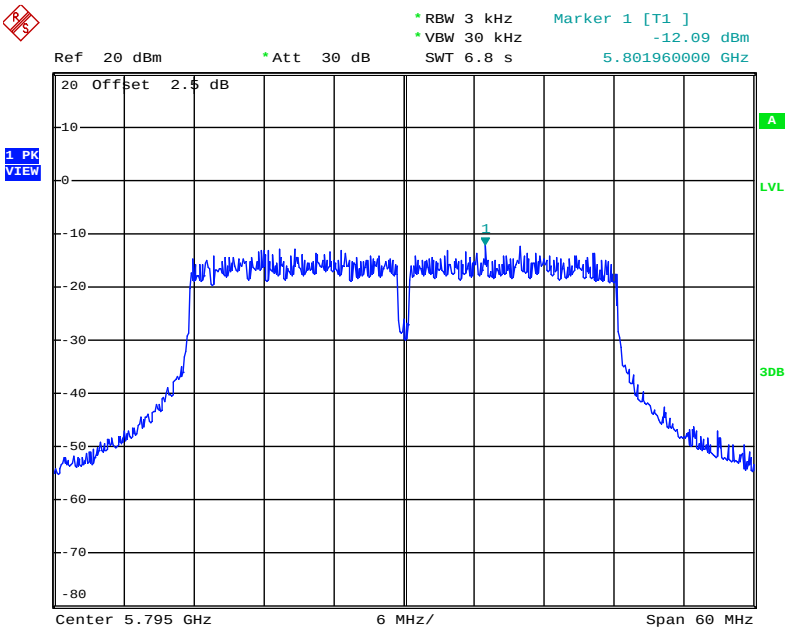
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 + Ant. 2 / 5230 MHz



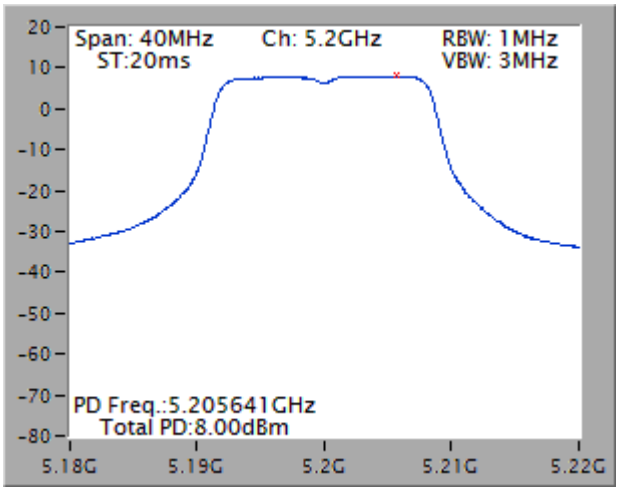
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 1 / 5795 MHz



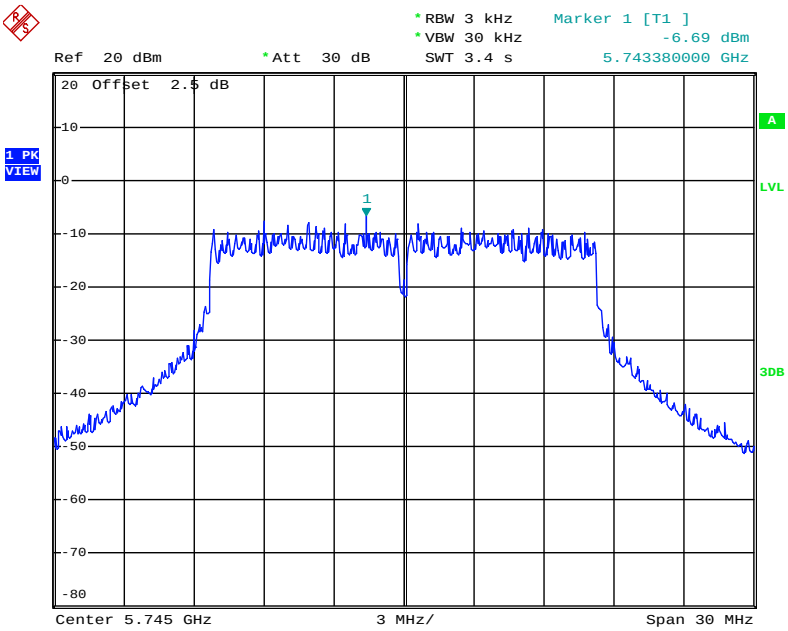
Power Density Plot on Configuration IEEE 802.11n MCS0 HT40 / Ant. 2 / 5755 MHz



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

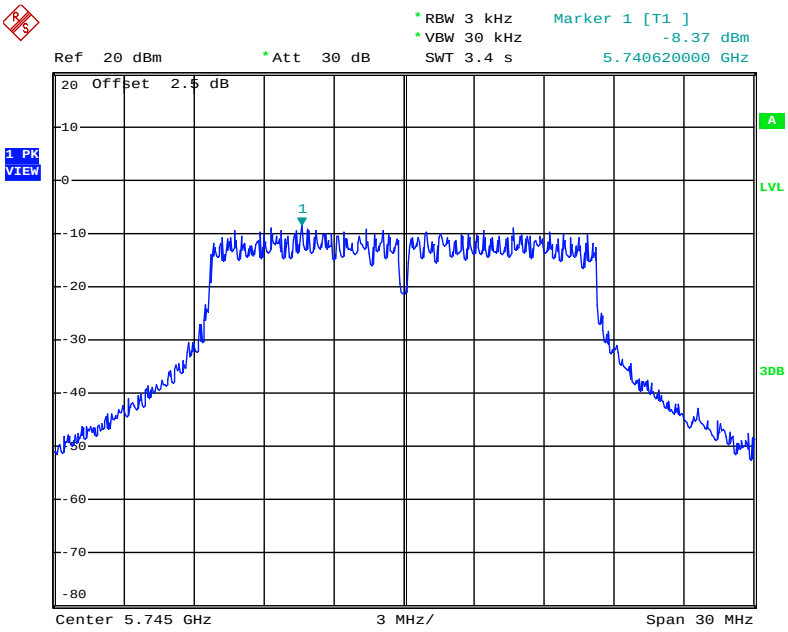


Power Density Plot on Configuration IEEE 802.11a / Ant. 1 / 5745 MHz



Date: 6.AUG.2014 12:39:47

Power Density Plot on Configuration IEEE 802.11a / Ant. 2 / 5745 MHz



Date: 6.AUG.2014 12:40:49

4.6. Radiated Emissions Measurement

4.6.1. Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

For transmitters operating in the 5.725-5.85 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions 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 spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	40 GHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for peak

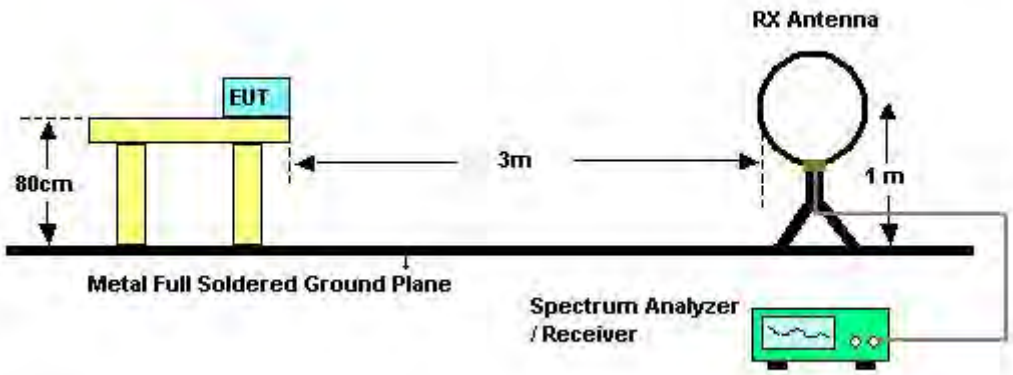
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

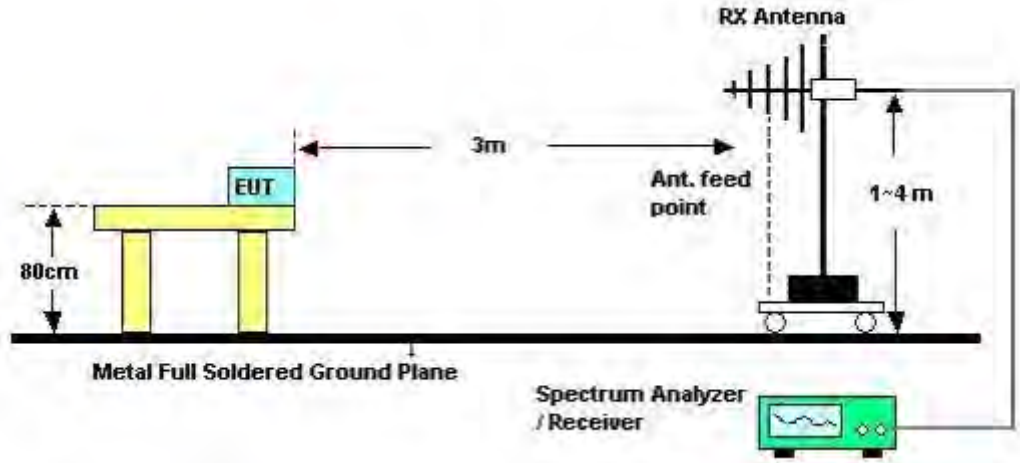
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting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

4.6.4. Test Setup Layout

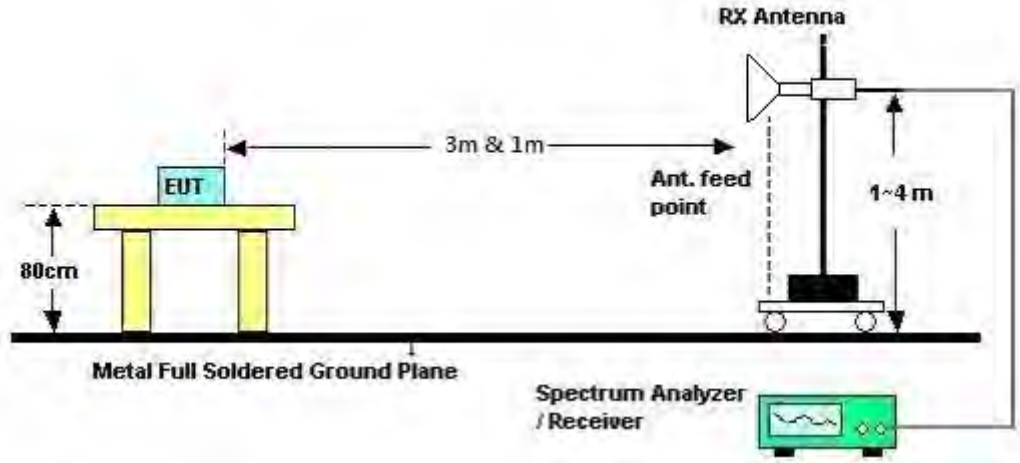
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

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. 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.

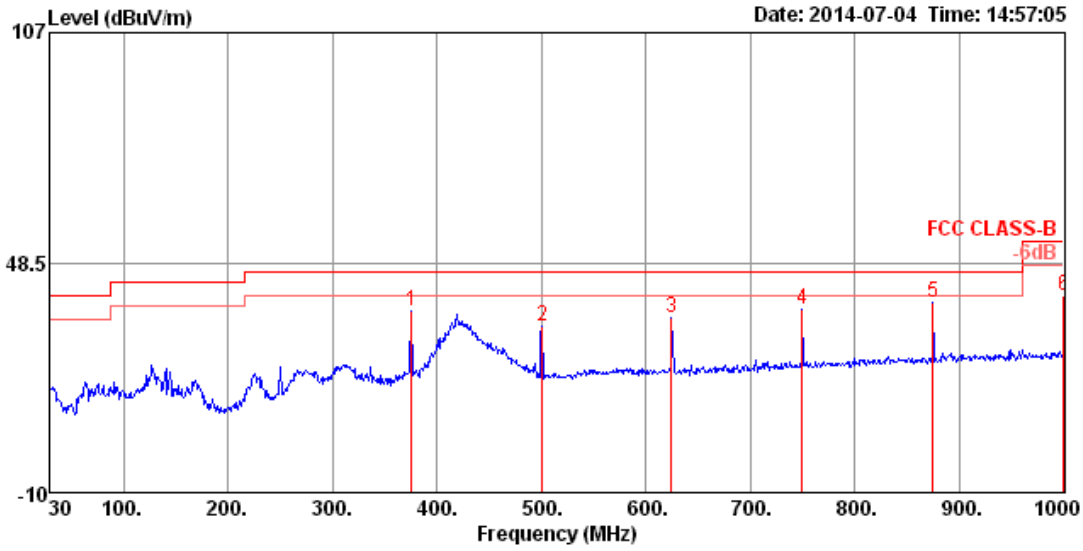
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

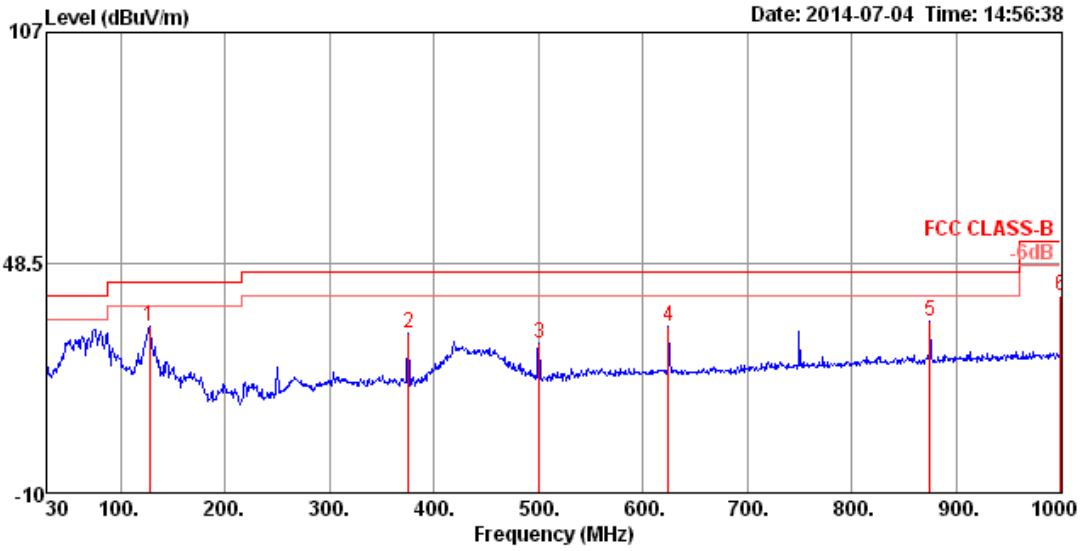
Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	Normal Link
Test Mode	Mode 1		

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.

4.6.9. 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 36 / 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	15529.41	45.09	54.00	-8.91	30.44	10.37	38.78	34.50	100	187	HORIZONTAL	Average
2	15531.33	56.01	74.00	-17.99	41.36	10.37	38.78	34.50	100	187	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	15540.00	45.00	54.00	-9.00	30.36	10.37	38.78	34.51	100	254	VERTICAL	Average
2	15550.80	55.78	74.00	-18.22	41.16	10.37	38.78	34.53	100	254	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 40 / 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	15589.29	45.02	54.00	-8.98	30.47	10.36	38.77	34.58	100	254	HORIZONTAL	Average
2	15613.98	55.37	74.00	-18.63	40.87	10.36	38.75	34.61	100	254	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	15597.87	55.82	74.00	-18.18	41.28	10.36	38.77	34.59	100	171	VERTICAL	Peak
2	15598.11	44.81	54.00	-9.19	30.27	10.36	38.77	34.59	100	171	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 48 / 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	15709.44	55.35	74.00	-18.65	41.00	10.36	38.72	34.73	100	236	HORIZONTAL	Peak
2	15716.88	44.09	54.00	-9.91	29.75	10.36	38.72	34.74	100	236	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	15708.54	43.95	54.00	-10.05	29.60	10.36	38.72	34.73	100	310	VERTICAL	Average
2	15732.69	54.93	74.00	-19.07	40.61	10.36	38.72	34.76	100	310	VERTICAL	Peak

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / 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	11491.50	57.25	74.00	-16.75	43.91	9.09	39.10	34.85	100	296	HORIZONTAL	Peak
2	11496.09	46.58	54.00	-7.42	33.23	9.10	39.10	34.85	100	296	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	11484.93	56.97	74.00	-17.03	43.63	9.09	39.10	34.85	100	232	VERTICAL	Peak
2	11487.24	45.59	54.00	-8.41	32.25	9.09	39.10	34.85	100	232	VERTICAL	Average

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / 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	11568.77	60.43	74.00	-13.57	47.16	9.11	39.01	34.85	141	4	HORIZONTAL	Peak
2	11568.95	47.09	54.00	-6.91	33.82	9.11	39.01	34.85	141	4	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	11566.70	44.16	54.00	-9.84	30.89	9.11	39.01	34.85	100	211	VERTICAL	Average
2	11566.94	53.41	74.00	-20.59	40.14	9.11	39.01	34.85	100	211	VERTICAL	Peak

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / 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	11649.01	47.42	54.00	-6.58	34.23	9.11	38.93	34.85	149	14	HORIZONTAL	Average
2	11649.43	59.01	74.00	-14.99	45.82	9.11	38.93	34.85	149	14	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	11646.64	53.15	74.00	-20.85	39.96	9.11	38.93	34.85	100	202	VERTICAL	Peak
2	11649.70	44.72	54.00	-9.28	31.53	9.11	38.93	34.85	100	202	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38 / 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	15573.03	44.99	54.00	-9.01	30.41	10.37	38.77	34.56	100	124	HORIZONTAL	Average
2	15582.48	56.42	74.00	-17.58	41.86	10.36	38.77	34.57	100	124	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	15560.58	55.31	74.00	-18.69	40.71	10.37	38.77	34.54	100	279	VERTICAL	Peak
2	15575.97	44.94	54.00	-9.06	30.37	10.36	38.77	34.56	100	279	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 46 / 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	15679.35	44.67	54.00	-9.33	30.27	10.36	38.73	34.69	100	156	HORIZONTAL	Average
2	15680.37	55.30	74.00	-18.70	40.90	10.36	38.73	34.69	100	156	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	15678.93	44.63	54.00	-9.37	30.23	10.36	38.73	34.69	100	197	VERTICAL	Average
2	15692.34	56.03	74.00	-17.97	41.66	10.36	38.72	34.71	100	197	VERTICAL	Peak

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / 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	11507.64	56.82	74.00	-17.18	43.47	9.10	39.10	34.85	137	15	HORIZONTAL	Peak
2	11509.20	44.35	54.00	-9.65	31.00	9.10	39.10	34.85	137	15	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	11500.96	53.91	74.00	-20.09	40.56	9.10	39.10	34.85	100	239	VERTICAL	Peak
2	11505.28	43.20	54.00	-10.80	29.85	9.10	39.10	34.85	100	239	VERTICAL	Average

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / 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	11590.52	55.11	74.00	-18.89	41.88	9.11	38.97	34.85	183	21	HORIZONTAL	Peak
2	11591.12	45.99	54.00	-8.01	32.76	9.11	38.97	34.85	183	21	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	11583.60	53.50	74.00	-20.50	40.27	9.11	38.97	34.85	100	235	VERTICAL	Peak
2	11586.48	43.48	54.00	-10.52	30.25	9.11	38.97	34.85	100	235	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36 / 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	15538.74	55.49	74.00	-18.51	40.85	10.37	38.78	34.51	100	356	HORIZONTAL	Peak
2	15553.62	44.83	54.00	-9.17	30.21	10.37	38.78	34.53	100	356	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	15539.25	45.06	54.00	-8.94	30.42	10.37	38.78	34.51	100	138	VERTICAL	Average
2	15552.57	55.53	74.00	-18.47	40.91	10.37	38.78	34.53	100	138	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 40 / 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	15590.22	45.11	54.00	-8.89	30.56	10.36	38.77	34.58	100	188	HORIZONTAL	Average
2	15605.10	55.34	74.00	-18.66	40.83	10.36	38.75	34.60	100	188	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	15597.48	55.62	74.00	-18.38	41.08	10.36	38.77	34.59	100	258	VERTICAL	Peak
2	15602.07	45.01	54.00	-8.99	30.49	10.36	38.75	34.59	100	258	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 48 / 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	15706.02	44.24	54.00	-9.76	29.88	10.36	38.72	34.72	100	77	HORIZONTAL	Average
2	15710.58	55.57	74.00	-18.43	41.22	10.36	38.72	34.73	100	77	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	15709.62	44.11	54.00	-9.89	29.76	10.36	38.72	34.73	100	262	VERTICAL	Average
2	15722.55	54.49	74.00	-19.51	40.15	10.36	38.72	34.74	100	262	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 149 / 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	11486.46	57.63	74.00	-16.37	44.29	9.09	39.10	34.85	169	18	HORIZONTAL	Peak
2	11491.62	46.11	54.00	-7.89	32.77	9.09	39.10	34.85	169	18	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	11489.10	43.60	54.00	-10.40	30.26	9.09	39.10	34.85	181	346	VERTICAL	Average
2	11489.22	55.85	74.00	-18.15	42.51	9.09	39.10	34.85	181	346	VERTICAL	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 157 / 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	11569.52	59.99	74.00	-14.01	46.72	9.11	39.01	34.85	142	24	HORIZONTAL	Peak
2	11569.73	47.53	54.00	-6.47	34.26	9.11	39.01	34.85	142	24	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	11568.17	56.75	74.00	-17.25	43.48	9.11	39.01	34.85	150	342	VERTICAL	Peak
2	11572.55	44.76	54.00	-9.24	31.49	9.11	39.01	34.85	150	342	VERTICAL	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 165 / 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	11649.94	48.38	54.00	-5.62	35.19	9.11	38.93	34.85	134	350	HORIZONTAL	Average
2	11655.43	61.86	74.00	-12.14	48.71	9.11	38.89	34.85	134	350	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	11645.08	58.02	74.00	-15.98	44.83	9.11	38.93	34.85	141	4	VERTICAL	Peak
2	11649.88	46.34	54.00	-7.66	33.15	9.11	38.93	34.85	141	4	VERTICAL	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.

<For Beamforming Mode>

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36 / 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	15533.21	45.57	54.00	-8.43	33.84	7.85	38.67	34.79	HORIZONTAL	100	89	Average
2	15535.87	57.88	74.00	-16.12	46.15	7.85	38.67	34.79	HORIZONTAL	100	89	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	15537.44	44.81	54.00	-9.19	33.08	7.85	38.67	34.79	VERTICAL	100	269	Average
2	15547.15	57.37	74.00	-16.63	45.64	7.86	38.66	34.79	VERTICAL	100	269	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 40 / 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	15590.74	58.88	74.00	-15.12	47.21	7.87	38.63	34.83	HORIZONTAL	100	325	Peak
2	15599.36	45.42	54.00	-8.58	33.78	7.88	38.62	34.86	HORIZONTAL	100	325	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	15600.87	44.50	54.00	-9.50	32.86	7.88	38.62	34.86	VERTICAL	100	38	Average
2	15603.81	58.51	74.00	-15.49	46.87	7.88	38.62	34.86	VERTICAL	100	38	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 48 / 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	15710.13	58.46	74.00	-15.54	46.96	7.91	38.53	34.94	HORIZONTAL	100	333	Peak
2	15717.28	45.95	54.00	-8.05	34.45	7.92	38.52	34.94	HORIZONTAL	100	333	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	15714.46	44.52	54.00	-9.48	33.02	7.92	38.52	34.94	VERTICAL	100	295	Average
2	15717.15	57.98	74.00	-16.02	46.48	7.92	38.52	34.94	VERTICAL	100	295	Peak

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / 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	11488.46	64.73	74.00	-9.27	54.51	6.74	38.30	34.82	HORIZONTAL	144	17	Peak
2	11488.62	50.66	54.00	-3.34	40.44	6.74	38.30	34.82	HORIZONTAL	144	17	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	11486.67	45.60	54.00	-8.40	35.38	6.74	38.30	34.82	VERTICAL	100	360	Average
2	11488.56	58.17	74.00	-15.83	47.95	6.74	38.30	34.82	VERTICAL	100	360	Peak

Temperature	24℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / 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	11568.69	51.93	54.00	-2.07	41.67	6.77	38.33	34.84	HORIZONTAL	140	7	Average
2	11571.73	64.64	74.00	-9.36	54.39	6.77	38.33	34.85	HORIZONTAL	140	7	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	11566.31	60.78	74.00	-13.22	50.52	6.77	38.33	34.84	VERTICAL	100	18	Peak
2	11567.44	47.07	54.00	-6.93	36.81	6.77	38.33	34.84	VERTICAL	100	18	Average

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / 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	11650.13	51.21	54.00	-2.79	40.92	6.80	38.36	34.87	HORIZONTAL	143	15	Average
2	11651.25	65.40	74.00	-8.60	55.11	6.80	38.36	34.87	HORIZONTAL	143	15	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	11646.03	46.78	54.00	-7.22	36.48	6.80	38.36	34.86	VERTICAL	100	28	Average
2	11646.96	60.39	74.00	-13.61	50.10	6.80	38.36	34.87	VERTICAL	100	28	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38 / 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	15565.16	44.87	54.00	-9.13	33.18	7.86	38.64	34.81	HORIZONTAL	100	357	Average
2	15579.10	57.92	74.00	-16.08	46.25	7.87	38.63	34.83	HORIZONTAL	100	357	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	15575.93	57.69	74.00	-16.31	46.02	7.86	38.64	34.83	VERTICAL	100	124	Peak
2	15577.60	44.91	54.00	-9.09	33.24	7.87	38.63	34.83	VERTICAL	100	124	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 46 / 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	15685.77	57.48	74.00	-16.52	45.95	7.90	38.55	34.92	HORIZONTAL	100	278	Peak
2	15696.35	44.75	54.00	-9.25	33.22	7.90	38.55	34.92	HORIZONTAL	100	278	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	15690.54	57.58	74.00	-16.42	46.05	7.90	38.55	34.92	VERTICAL	100	43	Peak
2	15696.41	44.68	54.00	-9.32	33.15	7.90	38.55	34.92	VERTICAL	100	43	Average

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / 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	11506.28	45.60	54.00	-8.40	35.37	6.75	38.30	34.82	HORIZONTAL	139	11	Average
2	11506.60	57.94	74.00	-16.06	47.71	6.75	38.30	34.82	HORIZONTAL	139	11	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	11508.01	43.56	54.00	-10.44	33.33	6.75	38.30	34.82	VERTICAL	100	352	Average
2	11519.20	55.94	74.00	-18.06	45.70	6.76	38.31	34.83	VERTICAL	100	352	Peak

Temperature	24°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / 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	11584.55	47.80	54.00	-6.20	37.54	6.78	38.33	34.85	HORIZONTAL	144	356	Average
2	11586.15	61.15	74.00	-12.85	50.89	6.78	38.33	34.85	HORIZONTAL	144	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	11584.95	45.64	54.00	-8.36	35.38	6.78	38.33	34.85	VERTICAL	100	349	Average
2	11585.27	58.01	74.00	-15.99	47.75	6.78	38.33	34.85	VERTICAL	100	349	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36 / 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	15537.72	46.00	54.00	-8.00	34.27	7.85	38.67	34.79	HORIZONTAL	100	38	Average
2	15541.35	58.29	74.00	-15.71	46.56	7.85	38.67	34.79	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	15538.33	44.81	54.00	-9.19	33.08	7.85	38.67	34.79	VERTICAL	100	278	Average
2	15548.49	57.92	74.00	-16.08	46.21	7.86	38.66	34.81	VERTICAL	100	278	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 40 / 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	15606.15	45.51	54.00	-8.49	33.87	7.88	38.62	34.86	HORIZONTAL	100	134	Average
2	15608.75	58.28	74.00	-15.72	46.64	7.88	38.62	34.86	HORIZONTAL	100	134	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	15602.50	57.55	74.00	-16.45	45.91	7.88	38.62	34.86	VERTICAL	100	298	Peak
2	15606.12	44.67	54.00	-9.33	33.03	7.88	38.62	34.86	VERTICAL	100	298	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 48 / 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	15719.07	45.18	54.00	-8.82	33.68	7.92	38.52	34.94	HORIZONTAL	100	219	Average
2	15723.97	57.24	74.00	-16.76	45.74	7.92	38.52	34.94	HORIZONTAL	100	219	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	15728.46	44.48	54.00	-9.52	33.00	7.92	38.52	34.96	VERTICAL	100	348	Average
2	15728.53	58.13	74.00	-15.87	46.65	7.92	38.52	34.96	VERTICAL	100	348	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 149 / 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	11488.81	51.12	54.00	-2.88	40.90	6.74	38.30	34.82	HORIZONTAL	142	11	Average
2	11488.97	65.06	74.00	-8.94	54.84	6.74	38.30	34.82	HORIZONTAL	142	11	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	11489.29	60.41	74.00	-13.59	50.19	6.74	38.30	34.82	VERTICAL	180	38	Peak
2	11490.16	47.73	54.00	-6.27	37.51	6.74	38.30	34.82	VERTICAL	180	38	Average

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 157 / 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	11567.47	50.38	54.00	-3.62	40.12	6.77	38.33	34.84	HORIZONTAL	148	332	Average
2	11567.53	63.48	74.00	-10.52	53.22	6.77	38.33	34.84	HORIZONTAL	148	332	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	11568.49	48.47	54.00	-5.53	38.21	6.77	38.33	34.84	VERTICAL	100	340	Average
2	11573.81	62.18	74.00	-11.82	51.93	6.77	38.33	34.85	VERTICAL	100	340	Peak

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 165 / 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	11650.48	49.51	54.00	-4.49	39.22	6.80	38.36	34.87	HORIZONTAL	131	340	Average
2	11651.03	63.12	74.00	-10.88	52.83	6.80	38.36	34.87	HORIZONTAL	131	340	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	11648.40	61.36	74.00	-12.64	51.07	6.80	38.36	34.87	VERTICAL	100	357	Peak
2	11648.91	48.24	54.00	-5.76	37.95	6.80	38.36	34.87	VERTICAL	127	357	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.

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

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

For transmitters operating in the 5.725-5.85 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions 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

4.7.2. Measuring Instruments and Setting

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

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 1/T for Average
RBW / VBW (Emission in non-restricted band)	1MHz / 3MHz for Peak

4.7.3. Test Procedures

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

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

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.

4.7.7. Test Result of Band Edge and Fundamental Emissions

<For Non-Beamforming Mode>

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36, 40, 48 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 36

	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	5149.04	72.24	74.00	-1.76	69.38	4.34	33.14	34.62	Peak	262	163	HORIZONTAL
2	5150.00	51.43	54.00	-2.57	48.57	4.34	33.14	34.62	Average	262	163	HORIZONTAL
3	5173.59	100.11			97.18	4.36	33.19	34.62	Average	262	163	HORIZONTAL
4	5175.83	111.48			108.55	4.36	33.19	34.62	Peak	262	163	HORIZONTAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5130.13	56.73	74.00	-17.27	53.91	4.33	33.11	34.62	Peak	260	163	HORIZONTAL
2	5150.00	43.33	54.00	-10.67	40.47	4.34	33.14	34.62	Average	260	163	HORIZONTAL
3	5193.59	100.81			97.84	4.37	33.22	34.62	Average	260	163	HORIZONTAL
4	5193.91	112.47			109.50	4.37	33.22	34.62	Peak	260	163	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5113.94	54.92	74.00	-19.08	52.13	4.32	33.09	34.62	Peak	187	100	VERTICAL
2	5150.00	40.78	54.00	-13.22	37.92	4.34	33.14	34.62	Average	187	100	VERTICAL
3	5240.96	108.63			105.59	4.39	33.27	34.62	Peak	187	100	VERTICAL
4	5241.92	95.92			92.84	4.40	33.30	34.62	Average	187	100	VERTICAL
5	5366.35	59.03	74.00	-14.97	55.68	4.48	33.49	34.62	Peak	187	100	VERTICAL
6	5368.75	45.36	54.00	-8.64	42.01	4.48	33.49	34.62	Average	187	100	VERTICAL

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149, 157, 165 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 149

	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	5714.20	67.98	68.20	-0.22	62.83	6.34	34.16	35.35	148	286	HORIZONTAL	Peak
2	5725.00	72.51	78.20	-5.69	67.32	6.35	34.18	35.34	148	286	HORIZONTAL	Peak
3	5748.60	110.36			105.11	6.37	34.20	35.32	148	286	HORIZONTAL	Peak
4	5750.00	100.72			95.47	6.37	34.20	35.32	148	286	HORIZONTAL	Average

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5714.00	63.16	68.20	-5.04	58.01	6.34	34.16	35.35	151	254	HORIZONTAL	Peak
2	5725.00	60.57	78.20	-17.63	55.38	6.35	34.18	35.34	151	254	HORIZONTAL	Peak
3	5779.50	101.92			96.49	6.39	34.33	35.29	151	254	HORIZONTAL	Average
4	5780.00	112.43			107.00	6.39	34.33	35.29	151	254	HORIZONTAL	Peak
5	5850.00	62.70	78.20	-15.50	56.90	6.43	34.60	35.23	151	254	HORIZONTAL	Peak
6	5860.50	62.37	68.20	-5.83	56.48	6.44	34.67	35.22	151	254	HORIZONTAL	Peak

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5820.40	100.18			94.56	6.41	34.47	35.26	100	254	HORIZONTAL	Average
2	5821.40	110.01			104.38	6.42	34.47	35.26	100	254	HORIZONTAL	Peak
3	5850.20	73.13	78.20	-5.07	67.33	6.43	34.60	35.23	100	254	HORIZONTAL	Peak
4	5860.00	65.94	68.20	-2.26	60.05	6.44	34.67	35.22	100	254	HORIZONTAL	Peak

Item 3, 4 are the fundamental frequency at 5825 MHz.

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38, 46 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 38

	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	5150.00	53.78	54.00	-0.22	50.18	5.99	33.02	35.41	100	276	HORIZONTAL	Average
2	5150.00	66.64	74.00	-7.36	63.04	5.99	33.02	35.41	100	276	HORIZONTAL	Peak
3	5201.20	94.82			91.18	6.02	33.05	35.43	100	276	HORIZONTAL	Average
4	5202.40	105.75			102.10	6.02	33.06	35.43	100	276	HORIZONTAL	Peak

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5148.60	59.37	74.00	-14.63	55.77	5.99	33.02	35.41	100	21	VERTICAL	Peak
2	5150.00	46.10	54.00	-7.90	42.50	5.99	33.02	35.41	100	21	VERTICAL	Average
3	5236.80	96.55			92.86	6.05	33.09	35.45	100	21	VERTICAL	Average
4	5237.60	107.27			103.58	6.05	33.09	35.45	100	21	VERTICAL	Peak

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151, 159 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 151

	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	5715.00	67.97	68.20	-0.23	62.81	6.35	34.16	35.35	151	268	HORIZONTAL	Peak
2	5725.00	71.67	78.20	-6.53	66.48	6.35	34.18	35.34	151	268	HORIZONTAL	Peak
3	5751.00	109.86			104.61	6.37	34.20	35.32	151	268	HORIZONTAL	Peak
4	5758.00	97.52			92.19	6.37	34.27	35.31	151	268	HORIZONTAL	Average

Item 3, 4 are the fundamental frequency at 5755 MHz.

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5783.50	96.31			90.88	6.39	34.33	35.29	100	288	HORIZONTAL	Average
2	5806.00	107.55			101.94	6.41	34.47	35.27	100	288	HORIZONTAL	Peak
3	5852.00	68.75	78.20	-9.45	62.94	6.44	34.60	35.23	100	288	HORIZONTAL	Peak
4	5861.50	67.29	68.20	-0.91	61.40	6.44	34.67	35.22	100	288	HORIZONTAL	Peak

Item 1, 2 are the fundamental frequency at 5795 MHz.

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 36

	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	5149.04	64.56	74.00	-9.44	61.70	4.34	33.14	34.62	Peak	326	103	VERTICAL
2	5150.00	45.62	54.00	-8.38	42.76	4.34	33.14	34.62	Average	326	103	VERTICAL
3	5174.71	97.24			94.31	4.36	33.19	34.62	Average	326	103	VERTICAL
4	5184.01	108.53			105.60	4.36	33.19	34.62	Peak	326	103	VERTICAL

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5147.12	70.05	74.00	-3.95	67.19	4.34	33.14	34.62	Peak	260	165	HORIZONTAL
2	5150.00	52.20	54.00	-1.80	49.34	4.34	33.14	34.62	Average	260	165	HORIZONTAL
3	5175.51	113.93			111.00	4.36	33.19	34.62	Peak	260	165	HORIZONTAL
4	5185.77	102.27			99.34	4.36	33.19	34.62	Average	260	165	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		deg	cm	
1	5119.71	44.45	54.00	-9.55	41.66	4.32	33.09	34.62	Average	261	162	HORIZONTAL
2	5140.39	56.18	74.00	-17.82	53.32	4.34	33.14	34.62	Peak	261	162	HORIZONTAL
3	5238.08	113.67			110.63	4.39	33.27	34.62	Peak	261	162	HORIZONTAL
4	5243.37	101.61			98.53	4.40	33.30	34.62	Average	261	162	HORIZONTAL
5	5350.00	45.32	54.00	-8.68	42.01	4.47	33.46	34.62	Average	261	162	HORIZONTAL
6	5353.37	58.87	74.00	-15.13	55.56	4.47	33.46	34.62	Peak	261	162	HORIZONTAL

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2
Test Date	Jul. 24, 2014		

Channel 149

	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	5713.00	65.68	68.20	-2.52	60.53	6.34	34.16	35.35	100	0	VERTICAL	Peak
2	5723.50	64.98	78.20	-13.22	59.79	6.35	34.18	35.34	100	0	VERTICAL	Peak
3	5739.00	98.34			93.11	6.36	34.20	35.33	100	0	VERTICAL	Average
4	5739.00	108.63			103.40	6.36	34.20	35.33	100	0	VERTICAL	Peak

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5715.00	62.83	68.20	-5.37	57.67	6.35	34.16	35.35	148	288	HORIZONTAL	Peak
2	5725.00	59.61	78.20	-18.59	54.42	6.35	34.18	35.34	148	288	HORIZONTAL	Peak
3	5781.50	101.40			95.97	6.39	34.33	35.29	148	288	HORIZONTAL	Average
4	5782.50	111.00			105.57	6.39	34.33	35.29	148	288	HORIZONTAL	Peak
5	5850.00	60.41	78.20	-17.79	54.61	6.43	34.60	35.23	148	288	HORIZONTAL	Peak
6	5860.00	61.27	68.20	-6.93	55.38	6.44	34.67	35.22	148	288	HORIZONTAL	Peak

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5819.00	98.75			93.13	6.41	34.47	35.26	100	0	VERTICAL	Average
2	5819.00	108.21			102.59	6.41	34.47	35.26	100	0	VERTICAL	Peak
3	5853.50	64.49	78.20	-13.71	58.68	6.44	34.60	35.23	100	0	VERTICAL	Peak
4	5860.00	64.21	68.20	-3.99	58.32	6.44	34.67	35.22	100	0	VERTICAL	Peak

Item 1, 2 are the fundamental frequency at 5825 MHz.

Note:

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

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

<For Beamforming Mode>

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 36, 40, 48 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 36

	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	4999.36	48.26	54.00	-5.74	45.74	4.24	32.90	34.62	VERTICAL	156	294	Average
2	5139.58	59.48	74.00	-14.52	56.62	4.34	33.14	34.62	VERTICAL	156	294	Peak
3	5185.61	100.21			97.28	4.36	33.19	34.62	VERTICAL	156	294	Average
4	5186.41	108.33			105.40	4.36	33.19	34.62	VERTICAL	156	294	Peak
5	5400.48	62.64	74.00	-11.36	59.22	4.50	33.54	34.62	VERTICAL	156	294	Peak
6	5400.48	53.80	54.00	-0.20	50.38	4.50	33.54	34.62	VERTICAL	156	294	Average

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5127.89	48.35	54.00	-5.65	45.53	4.33	33.11	34.62	HORIZONTAL	157	294	Average
2	5128.85	60.63	74.00	-13.37	57.81	4.33	33.11	34.62	HORIZONTAL	157	294	Peak
3	5193.27	115.11			112.14	4.37	33.22	34.62	HORIZONTAL	157	294	Peak
4	5193.75	107.20			104.23	4.37	33.22	34.62	HORIZONTAL	157	294	Average

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5119.71	48.97	54.00	-5.03	46.18	4.32	33.09	34.62	HORIZONTAL	152	289	Average
2	5147.60	59.06	74.00	-14.94	56.20	4.34	33.14	34.62	HORIZONTAL	152	289	Peak
3	5233.75	105.54			102.50	4.39	33.27	34.62	HORIZONTAL	152	289	Average
4	5234.23	114.44			111.40	4.39	33.27	34.62	HORIZONTAL	152	289	Peak

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT20 CH 149, 157, 165 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 149

	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	5712.76	68.01	68.20	-0.19	63.65	4.71	34.32	34.67	HORIZONTAL	153	72	Peak
2	5725.00	76.80	78.20	-1.40	72.38	4.72	34.37	34.67	HORIZONTAL	153	72	Peak
3	5747.89	118.40			113.92	4.73	34.42	34.67	HORIZONTAL	153	72	Peak
4	5749.49	108.67			104.19	4.73	34.42	34.67	HORIZONTAL	153	72	Average

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	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	5699.62	64.35	68.20	-3.85	60.04	4.70	34.27	34.66	HORIZONTAL	154	254	Peak
2	5725.00	59.01	78.20	-19.19	54.59	4.72	34.37	34.67	HORIZONTAL	154	254	Peak
3	5780.19	117.97			113.37	4.75	34.53	34.68	HORIZONTAL	154	254	Peak
4	5780.67	107.64			103.04	4.75	34.53	34.68	HORIZONTAL	154	254	Average
5	5850.00	59.40	78.20	-18.80	54.57	4.80	34.73	34.70	HORIZONTAL	154	254	Peak
6	5860.00	59.62	68.20	-8.58	54.72	4.81	34.79	34.70	HORIZONTAL	154	254	Peak

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	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	5831.73	106.88			102.10	4.79	34.68	34.69	HORIZONTAL	152	280	Average
2	5832.05	116.49			111.71	4.79	34.68	34.69	HORIZONTAL	152	280	Peak
3	5853.85	76.27	78.20	-1.93	71.37	4.81	34.79	34.70	HORIZONTAL	152	280	Peak
4	5860.00	67.59	68.20	-0.61	62.69	4.81	34.79	34.70	HORIZONTAL	152	280	Peak

Item 1, 2 are the fundamental frequency at 5825 MHz.

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 38, 46 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 38

	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	5146.80	66.32	74.00	-7.68	63.46	4.34	33.14	34.62	HORIZONTAL	100	276	Peak
2	5150.00	53.47	54.00	-0.53	50.61	4.34	33.14	34.62	HORIZONTAL	100	276	Average
3	5182.63	103.40			100.47	4.36	33.19	34.62	HORIZONTAL	100	276	Peak
4	5184.55	94.07			91.14	4.36	33.19	34.62	HORIZONTAL	100	276	Average

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5148.72	60.31	74.00	-13.69	57.45	4.34	33.14	34.62	HORIZONTAL	100	262	Peak
2	5149.68	48.44	54.00	-5.56	45.58	4.34	33.14	34.62	HORIZONTAL	100	262	Average
3	5238.01	97.44			94.40	4.39	33.27	34.62	HORIZONTAL	100	262	Average
4	5245.71	107.44			104.36	4.40	33.30	34.62	HORIZONTAL	100	262	Peak

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

Temperature	26°C	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11n MCS0 HT40 CH 151, 159 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 151

	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	5707.79	67.28	68.20	-0.92	62.92	4.71	34.32	34.67	HORIZONTAL	159	287	Peak
2	5725.00	76.51	78.20	-1.69	72.09	4.72	34.37	34.67	HORIZONTAL	159	287	Peak
3	5742.98	102.60			98.12	4.73	34.42	34.67	HORIZONTAL	159	287	Average
4	5743.78	112.34			107.86	4.73	34.42	34.67	HORIZONTAL	159	287	Peak

Item 3, 4 are the fundamental frequency at 5755 MHz.

Channel 159

	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	5782.98	104.51			99.92	4.75	34.53	34.69	HORIZONTAL	154	287	Average
2	5784.58	114.61			110.02	4.75	34.53	34.69	HORIZONTAL	154	287	Peak
3	5857.21	69.76	78.20	-8.44	64.86	4.81	34.79	34.70	HORIZONTAL	154	287	Peak
4	5860.00	67.81	68.20	-0.39	62.91	4.81	34.79	34.70	HORIZONTAL	154	287	Peak

Item 1, 2 are the fundamental frequency at 5795 MHz.

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 36

	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	5149.36	70.45	74.00	-3.55	67.59	4.34	33.14	34.62	VERTICAL	156	270	Peak
2	5150.00	53.85	54.00	-0.15	50.99	4.34	33.14	34.62	VERTICAL	156	270	Average
3	5175.51	114.61			111.68	4.36	33.19	34.62	VERTICAL	156	270	Peak
4	5185.13	106.83			103.90	4.36	33.19	34.62	VERTICAL	156	270	Average

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

Channel 40

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5140.71	59.56	74.00	-14.44	56.70	4.34	33.14	34.62	VERTICAL	106	5	Peak
2	5150.00	47.88	54.00	-6.12	45.02	4.34	33.14	34.62	VERTICAL	106	5	Average
3	5201.92	106.22			103.25	4.37	33.22	34.62	VERTICAL	106	5	Average
4	5203.21	114.42			111.45	4.37	33.22	34.62	VERTICAL	106	5	Peak

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	Pol/Phase	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB		cm	deg	
1	5132.69	58.74	74.00	-15.26	55.92	4.33	33.11	34.62	HORIZONTAL	156	82	Peak
2	5150.00	46.00	54.00	-8.00	43.14	4.34	33.14	34.62	HORIZONTAL	156	82	Average
3	5234.23	113.08			110.04	4.39	33.27	34.62	HORIZONTAL	156	82	Peak
4	5234.23	104.06			101.02	4.39	33.27	34.62	HORIZONTAL	156	82	Average
5	5350.00	59.80	74.00	-14.20	56.49	4.47	33.46	34.62	HORIZONTAL	156	82	Peak
6	5360.10	50.85	54.00	-3.15	47.54	4.47	33.46	34.62	HORIZONTAL	156	82	Average

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

Temperature	26℃	Humidity	68%
Test Engineer	YC Chen	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 1 + Ant. 2
Test Date	Jul. 28, 2014		

Channel 149

	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	5713.72	67.98	68.20	-0.22	63.62	4.71	34.32	34.67	HORIZONTAL	100	286	Peak
2	5725.00	73.51	78.20	-4.69	69.09	4.72	34.37	34.67	HORIZONTAL	100	286	Peak
3	5750.13	107.09			102.61	4.73	34.42	34.67	HORIZONTAL	100	286	Average
4	5750.45	117.07			112.59	4.73	34.42	34.67	HORIZONTAL	100	286	Peak

Item 3, 4 are the fundamental frequency at 5745 MHz.

Channel 157

	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	5704.42	64.49	68.20	-3.71	60.12	4.71	34.32	34.66	HORIZONTAL	155	296	Peak
2	5725.00	60.19	78.20	-18.01	55.77	4.72	34.37	34.67	HORIZONTAL	155	296	Peak
3	5789.33	118.92			114.27	4.76	34.58	34.69	HORIZONTAL	155	296	Peak
4	5789.33	108.96			104.31	4.76	34.58	34.69	HORIZONTAL	155	296	Average
5	5850.00	59.86	78.20	-18.34	55.03	4.80	34.73	34.70	HORIZONTAL	155	296	Peak
6	5863.85	61.85	68.20	-6.35	56.95	4.81	34.79	34.70	HORIZONTAL	155	296	Peak

Item 3, 4 are the fundamental frequency at 5785 MHz.

Channel 165

	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	5829.81	107.92			103.14	4.79	34.68	34.69	HORIZONTAL	158	282	Average
2	5830.13	117.78			113.00	4.79	34.68	34.69	HORIZONTAL	158	282	Peak
3	5850.00	75.85	78.20	-2.35	71.02	4.80	34.73	34.70	HORIZONTAL	158	282	Peak
4	5860.00	67.88	68.20	-0.32	62.98	4.81	34.79	34.70	HORIZONTAL	158	282	Peak

Item 1, 2 are the fundamental frequency at 5825 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

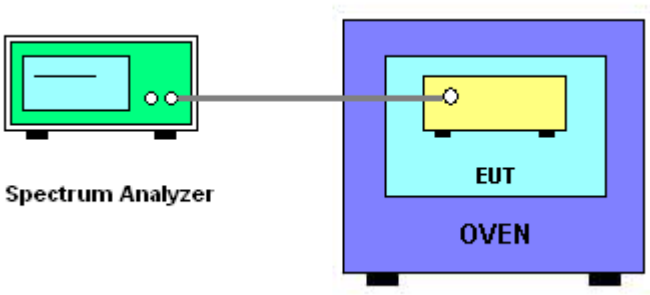
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

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

4.8.4. Test Setup Layout



4.8.5. Test Deviation

There is no deviation with the original standard.

4.8.6. EUT Operation during Test

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

4.8.7. Test Result of Frequency Stability

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

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)
(V)	5200 MHz
126.50	5199.9862
110.00	5199.9864
93.50	5199.9864
Max. Deviation (MHz)	0.013800
Max. Deviation (ppm)	2.65

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)
(°C)	5200 MHz
0	5199.9860
10	5199.9864
20	5199.9864
30	5199.9870
40	5199.9868
Max. Deviation (MHz)	0.014000
Max. Deviation (ppm)	2.69

4.9. Antenna Requirements

4.9.1. Limit

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

4.9.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9 kHz ~ 2.75 GHz	Apr. 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%