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FCC RADIO TEST REPORT

Applicant's company	**PEGATRON CORPORATION**
Applicant Address	5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 11259, Taiwan
FCC ID	**VUI-LSPX-PT1**
Manufacturer's company	**PEGATRON CORPORATION**
Manufacturer Address	5F., NO. 76, LIGONG ST., BEITOU DISTRICT, TAIPEI CITY 11259, Taiwan

Product Name	Moule
Brand Name	SONY
Model No.	LSPX-PT1
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Jul. 27, 2015
Final Test Date	Aug. 21, 2015
Submission Type	Original Equipment

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a of the product.

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

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

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01, 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
FR580519	Rev. 01	Initial issue of report	Sep. 30, 2015

1. VERIFICATION OF COMPLIANCE

Product Name	:	Moule
Brand Name	:	SONY
Model No.	:	LSPX-PT1
Applicant	:	PEGATRON CORPORATION
Test Rule Part(s)	:	47 CFR FCC Part 15 Subpart E § 15.407

Sporton International as requested by the applicant to evaluate the EMC performance of the product sample received on Jul. 27, 2015 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	5.44 dB
4.2	15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	Complies	-
4.3	15.407(e)	6dB Spectrum Bandwidth	Complies	-
4.4	15.407(a)	Maximum Conducted Output Power	Complies	10.05 dB
4.5	15.407(a)	Power Spectral Density	Complies	9.45 dB
4.6	15.407(b)	Radiated Emissions	Complies	0.06 dB
4.7	15.407(b)	Band Edge Emissions	Complies	0.11 dB
4.8	15.407(g)	Frequency Stability	Complies	-
4.9	15.203	Antenna Requirements	Complies	-

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	IEEE 802.11a: WLAN (1TX, 1RX) IEEE 802.11n: WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From AC Power
Modulation	IEEE 802.11a: OFDM IEEE 802.11n: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth
Channel Band Width (99%)	Band 1: IEEE 802.11a: 19.44 MHz IEEE 802.11n MCS0 (HT20): 18.72 MHz IEEE 802.11n MCS0 (HT40): 39.40 MHz Band 4: IEEE 802.11a: 18.12MHz IEEE 802.11n MCS0 (HT20): 18.36 MHz IEEE 802.11n MCS0 (HT40): 39.60 MHz
Maximum Conducted Output Power	Band 1: IEEE 802.11a: 18.55dBm IEEE 802.11n MCS0 (HT20): 18.88 dBm IEEE 802.11n MCS0 (HT40): 19.95 dBm Band 4: IEEE 802.11a: 13.54 dBm IEEE 802.11n MCS0 (HT20): 13.76 dBm IEEE 802.11n MCS0 (HT40): 15.74 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	☒ Without beamforming
Operating Mode	☐ Outdoor access point	
	☒ Indoor access point	
	☐ Fixed point-to-point access points	
	☐ Mobile and portable client devices	

Antenna and Band width

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

IEEE 11n Spec.

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

3.2. Accessories

N/A

3.3. Table for Filed Antenna

Ant.	Brand Holder	P/N	Antenna Type	Connector	Gain (dBi)
1	HL TECHNOLOGY GROUP LIMITED	-	Printed Antenna	N/A	4.894
2	HL TECHNOLOGY GROUP LIMITED	290-30363	PIFA Antenna	I-PEX	4.850

Note: The EUT has two antennas.

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

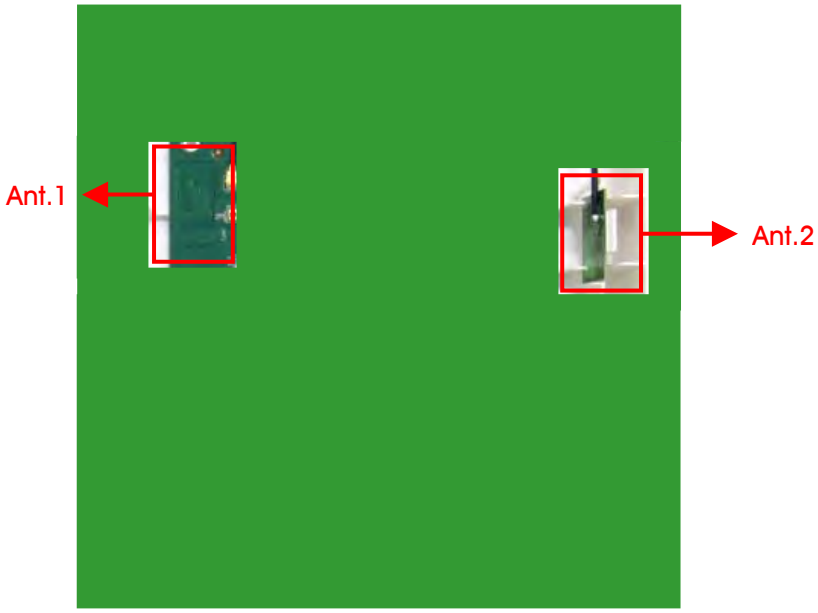
The EUT supports the antenna with TX and RX diversity functions.

Both Ant. 1 and Ant. 2 support transmit and receive functions, but only one of them will be used at one time.

The Ant. 2 generated the worst case, so it was selected to test and record in the report.

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

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



3.4. Table for Carrier Frequencies

There are three bandwidth systems.

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	CTX		-	-	-
Max. Conducted Output Power	11a/BPSK	Band 1,4	6Mbps	36/40/48 /149/157/165	2
	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
Power Spectral Density	11a/BPSK	Band 1,4	6Mbps	36/40/48 /149/157/165	2
	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
26dB Spectrum Bandwidth & 99% Occupied Bandwidth Measurement	11a/BPSK	Band 1,4	6Mbps	36/40/48 /149/157/165	2
	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
6dB Spectrum Bandwidth Measurement	11a/BPSK	Band 4	6Mbps	36/40/48 /149/157/165	2
	11n HT20	Band 4	MCS0	149/157/165	1+2
	11n HT40	Band 4	MCS0	151/159	1+2
Radiated Emission Below 1GHz	CTX		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1,4	6Mbps	36/40/48 /149/157/165	2
	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
Band Edge Emission	11a/BPSK	Band 1,4	6Mbps	36/40/48 /149/157/165	2
	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
Frequency Stability	20 MHz	Band 1,4	-	40 /157	2
	40 MHz	Band 1,4	-	38 /151	2

Note 1: The EUT can only use laying position.

Note 2: The Adapter is for measurement only, would not be marketed.

The Adapter information as below:

Power	Brand	Model
Adapter	Sony	LSPX-AC5V2

3.6. Table for Testing Locations

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

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

3.7. Table for Supporting Units

For Test Site No: 03CH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
Adapter	SONY	LSPX-AC5V2	N/A

For Test Site No: CO01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E6430	DoC
Adapter	SONY	LSPX-AC5V2	N/A

For Test Site No: TH01-CB

Support Unit	Brand	Model	FCC ID
NB	DELL	E4300	DoC
Adapter	SONY	LSPX-AC5V2	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.

Test Software Version	ART2-GUI VER2.3					
Mode	Test Frequency (MHz)					
	NCB: 20MHz					
	5180 MHz	5200 MHz	5240 MHz	5745 MHz	5785 MHz	5825 MHz
802.11a	16.5	19	20.5	15	14	13.5
802.11n MCS0 HT20	15.5	15.5	17	13	13	13
Mode	NCB: 40MHz					
802.11n MCS0 HT40	5190 MHz		5230 MHz	5755 MHz		5795 MHz
	13		18.5	11		15

3.9. EUT Operation during Test

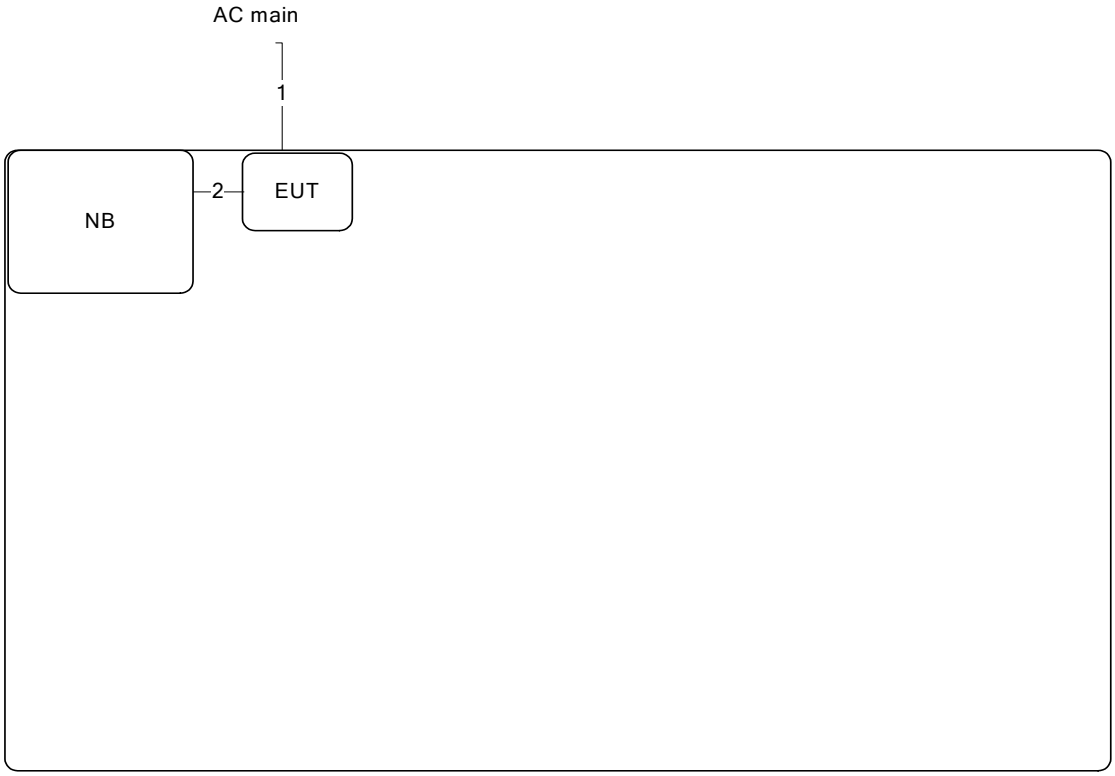
The EUT was programmed to be in continuously transmitting mode.

3.10. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.019	2.059	98.05%	0.09	0.01
802.11n MCS0 HT20	1.864	1.900	98.11%	0.08	0.01
802.11n MCS0 HT40	0.889	0.933	95.22%	0.21	1.13

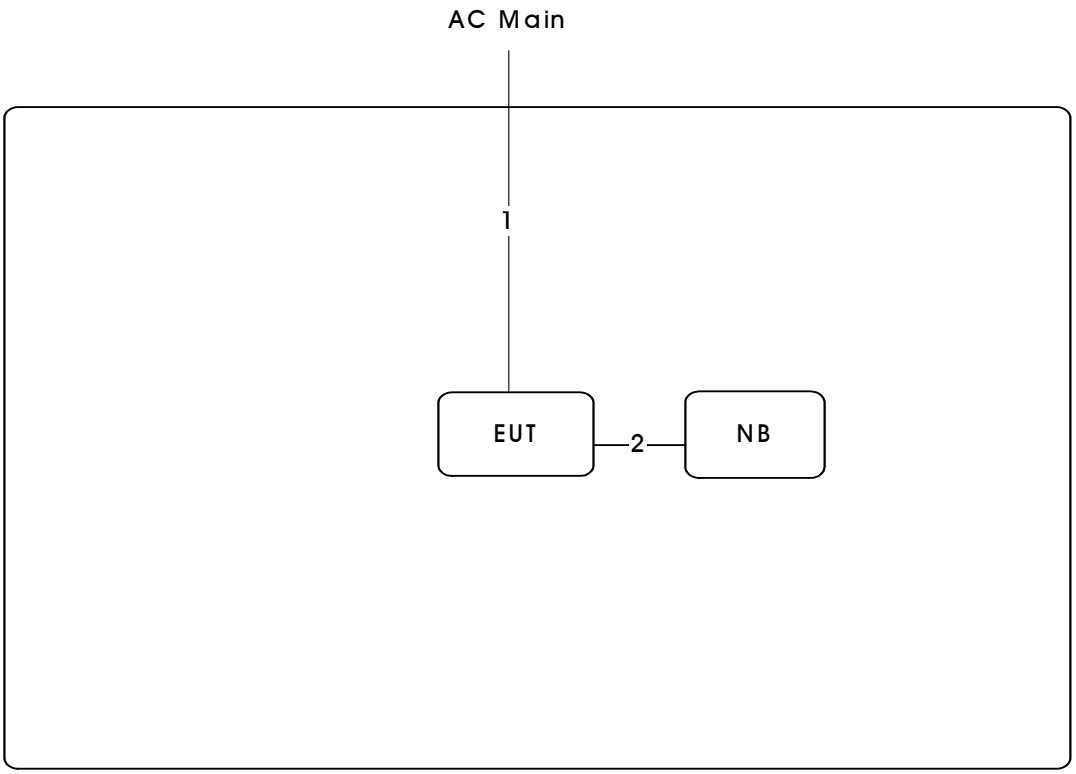
3.11. Test Configurations

3.11.1. AC Power Line Conduction Emissions Test Configuration



Item	Connection	Shielded	Length
1	Power cable	No	2.2m
2	Console cable	Yes	0.1m

3.11.2. Radiation Emissions Test Configuration



Item	Connection	Shielded	Length(m)
1	RJ-45 cable	No	2.2m
2	Console cable	No	0.1m

4. TEST RESULT

4.1. AC Power Line Conducted Emissions Measurement

4.1.1. Limit

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

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

4.1.2. Measuring Instruments and Setting

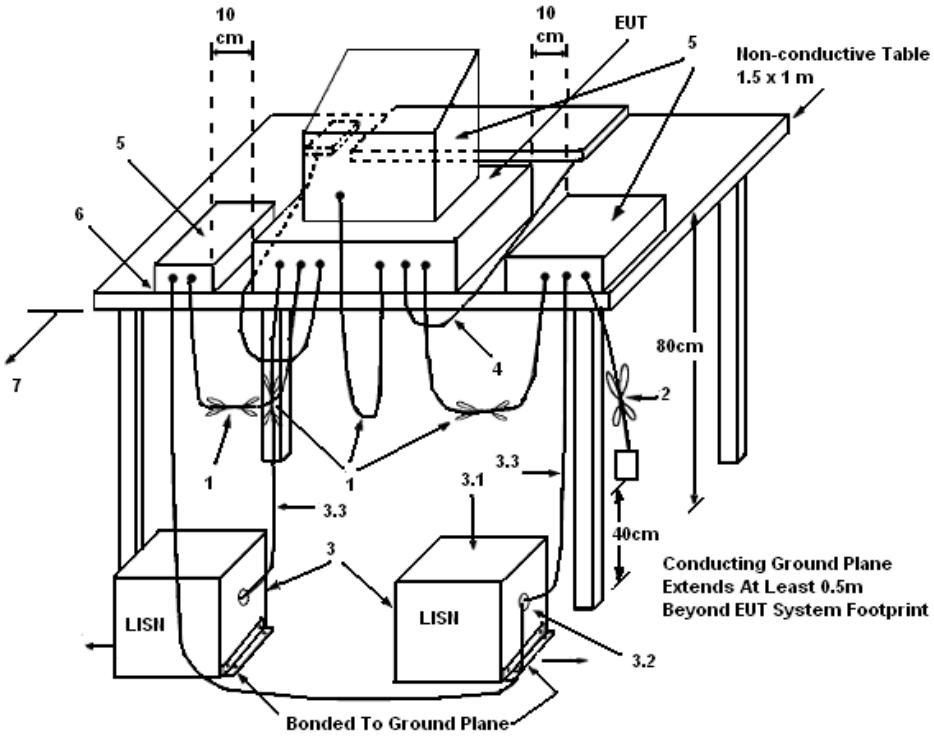
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

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

4.1.3. Test Procedures

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

4.1.4. Test Setup Layout



LEGEND:

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

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

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

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

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

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

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

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

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

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

4.1.5. Test Deviation

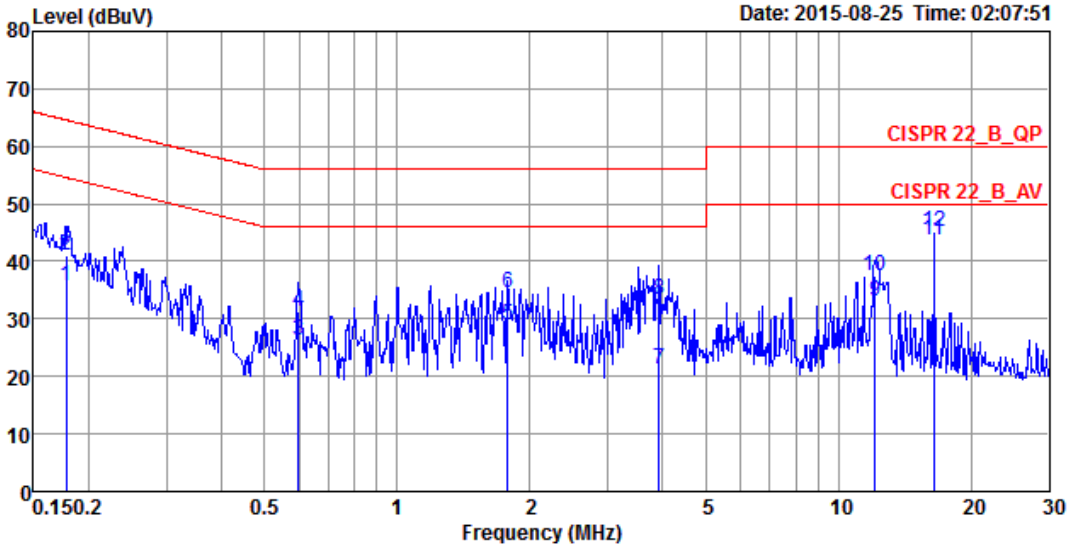
There is no deviation with the original standard.

4.1.6. EUT Operation during Test

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

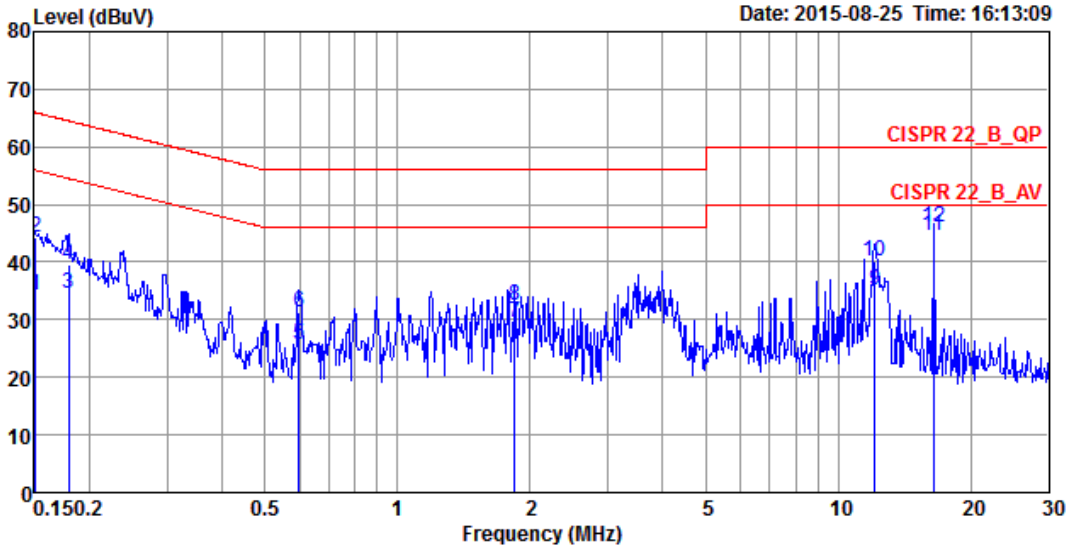
4.1.7. Results of AC Power Line Conducted Emissions Measurement

Temperature	25°C	Humidity	61%
Test Engineer	Edison Lin	Phase	Line
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1777	35.59	-19.00	54.59	25.64	9.93	0.02	LINE	Average
2	0.1777	40.91	-23.68	64.59	30.96	9.93	0.02	LINE	QP
3	0.5979	26.29	-19.71	46.00	16.31	9.94	0.04	LINE	Average
4	0.5979	31.25	-24.75	56.00	21.27	9.94	0.04	LINE	QP
5	1.7810	29.03	-16.97	46.00	18.98	9.99	0.06	LINE	Average
6	1.7810	34.41	-21.59	56.00	24.36	9.99	0.06	LINE	QP
7	3.9222	21.27	-24.73	46.00	11.18	10.02	0.07	LINE	Average
8	3.9222	33.25	-22.75	56.00	23.16	10.02	0.07	LINE	QP
9	12.1079	33.11	-16.89	50.00	22.61	10.25	0.25	LINE	Average
10	12.1079	37.61	-22.39	60.00	27.11	10.25	0.25	LINE	QP
11	16.4636	43.66	-6.34	50.00	33.03	10.37	0.26	LINE	Average
12	16.4636	45.20	-14.80	60.00	34.57	10.37	0.26	LINE	QP

Temperature	25°C	Humidity	61%
Test Engineer	Edison Lin	Phase	Neutral
Configuration	CTX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Pol/Phase	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1508	34.25	-21.71	55.96	24.45	9.78	0.02	NEUTRAL	Average
2	0.1508	44.39	-21.57	65.96	34.59	9.78	0.02	NEUTRAL	QP
3	0.1796	34.46	-20.04	54.50	24.65	9.79	0.02	NEUTRAL	Average
4	0.1796	39.56	-24.94	64.50	29.75	9.79	0.02	NEUTRAL	QP
5	0.5979	25.76	-20.24	46.00	15.92	9.80	0.04	NEUTRAL	Average
6	0.5979	31.31	-24.69	56.00	21.47	9.80	0.04	NEUTRAL	QP
7	1.8483	29.49	-16.51	46.00	19.59	9.84	0.06	NEUTRAL	Average
8	1.8483	32.41	-23.59	56.00	22.51	9.84	0.06	NEUTRAL	QP
9	12.1085	35.20	-14.80	50.00	24.89	10.06	0.25	NEUTRAL	Average
10	12.1085	40.24	-19.76	60.00	29.93	10.06	0.25	NEUTRAL	QP
11	16.4636	44.56	-5.44	50.00	34.17	10.13	0.26	NEUTRAL	Average
12	16.4636	46.09	-13.91	60.00	35.70	10.13	0.26	NEUTRAL	QP

Note:

Level = Read Level + LISN Factor + Cable Loss.

4.2. 26dB Bandwidth and 99% Occupied Bandwidth Measurement

4.2.1. Limit

No restriction limits.

4.2.2. Measuring Instruments and Setting

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

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

4.2.3. Test Procedures

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

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

4.2.4. Test Setup Layout

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

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

4.2.5. Test Deviation

There is no deviation with the original standard.

4.2.6. EUT Operation during Test

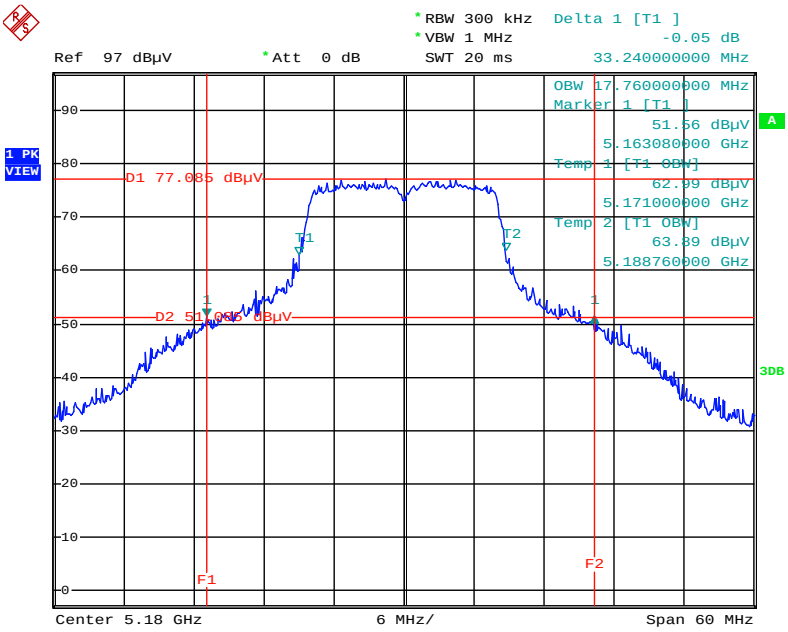
The EUT was programmed to be in continuously transmitting mode.

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

Temperature	20°C	Humidity	45%
Test Engineer	Eddie Weng		

Mode	Frequency	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180 MHz	33.24	17.76
	5200 MHz	35.88	18.84
	5240 MHz	34.56	19.44
	5745 MHz	33.72	18.12
	5785 MHz	30.24	17.64
	5825 MHz	28.80	17.40
802.11n MCS0 HT20	5180 MHz	33.72	18.72
	5200 MHz	32.04	18.60
	5240 MHz	30.96	18.60
	5745 MHz	25.68	18.36
	5785 MHz	25.56	18.36
	5825 MHz	28.20	18.36
802.11n MCS0 HT40	5190 MHz	51.00	37.40
	5230 MHz	77.80	39.40
	5755 MHz	48.20	37.40
	5795 MHz	79.40	39.60

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



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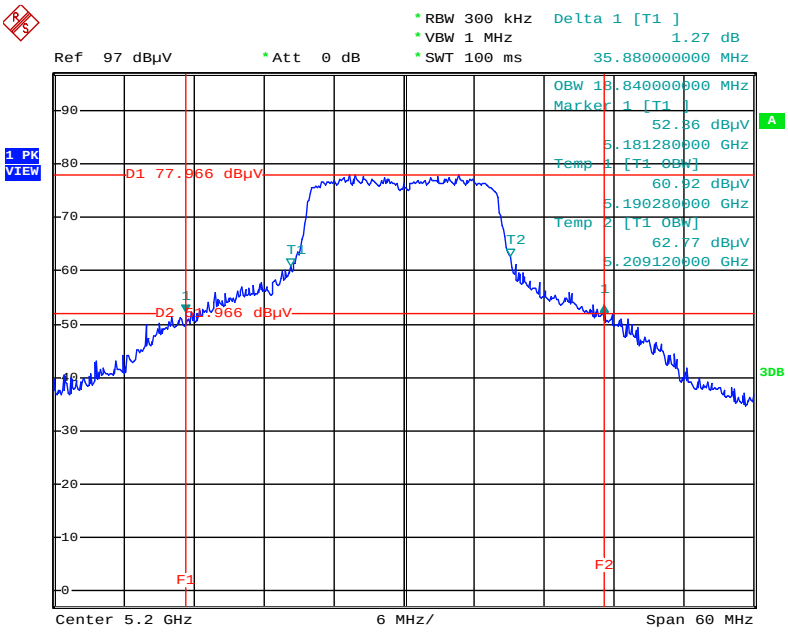
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 2 / 5200 MHz



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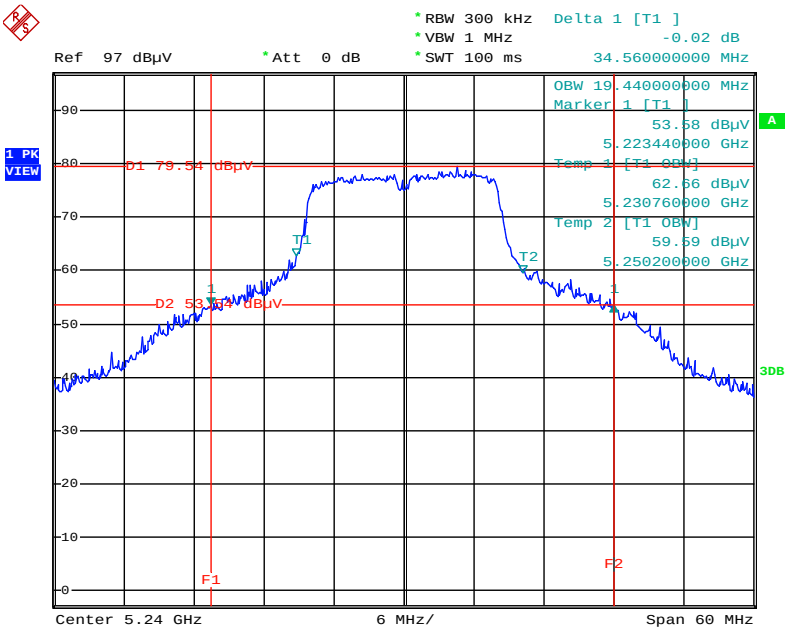
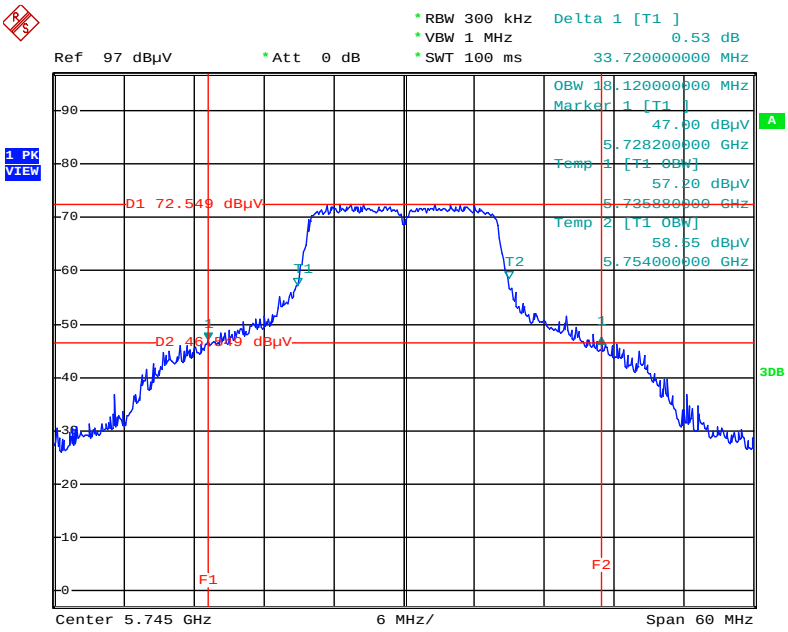
26dB Bandwidth and 99% Occupied Bandwidth Plot on Configuration IEEE 802.11a / Ant. 2 / 5240 MHz



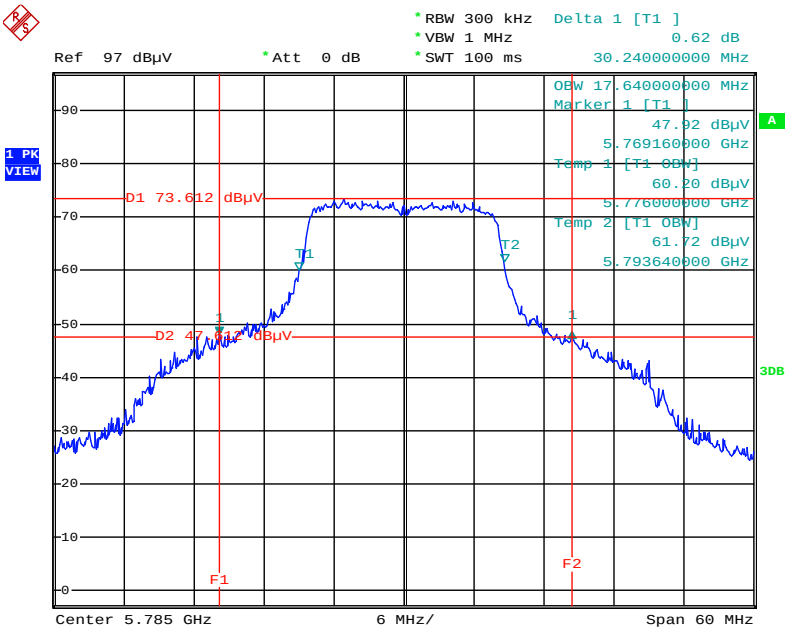
Date: 21.AUG.2015 11:50:50

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



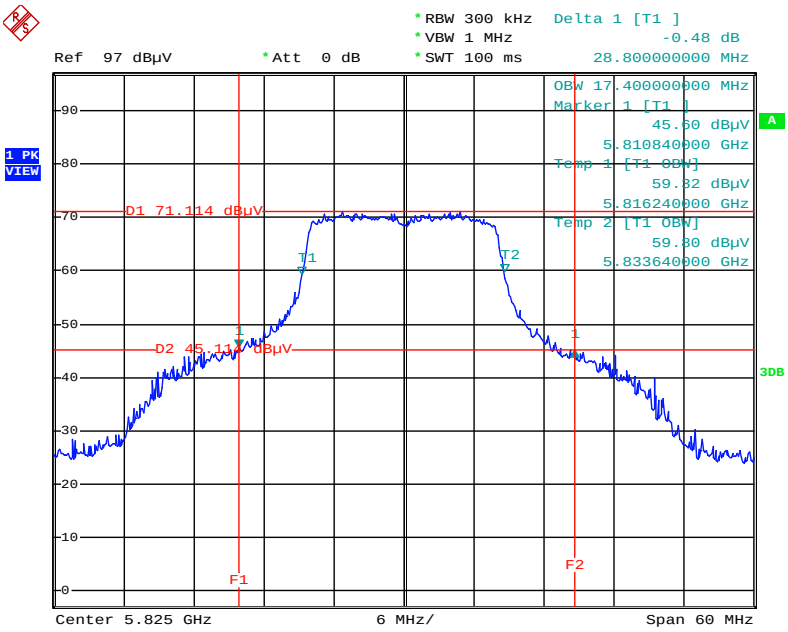
Date: 21.AUG.2015 11:51:56

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



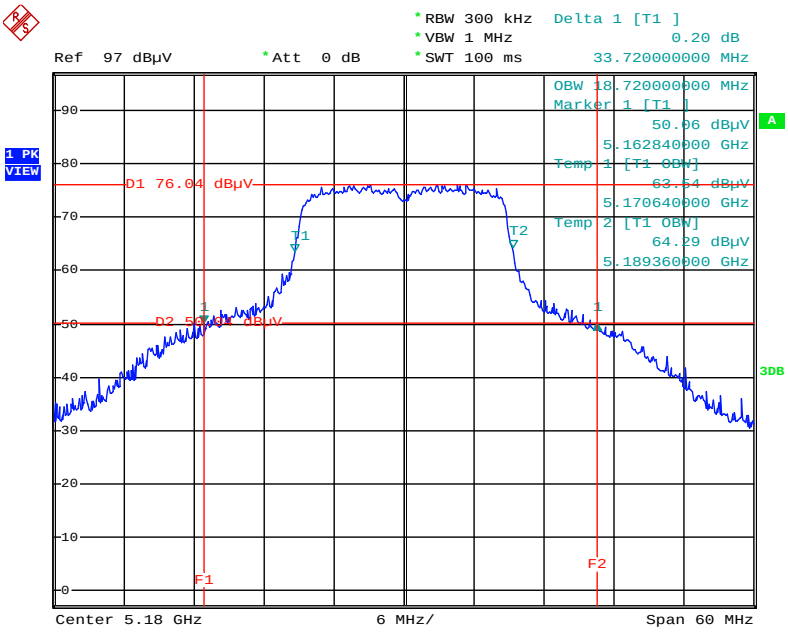
Date: 21.AUG.2015 11:53:07

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



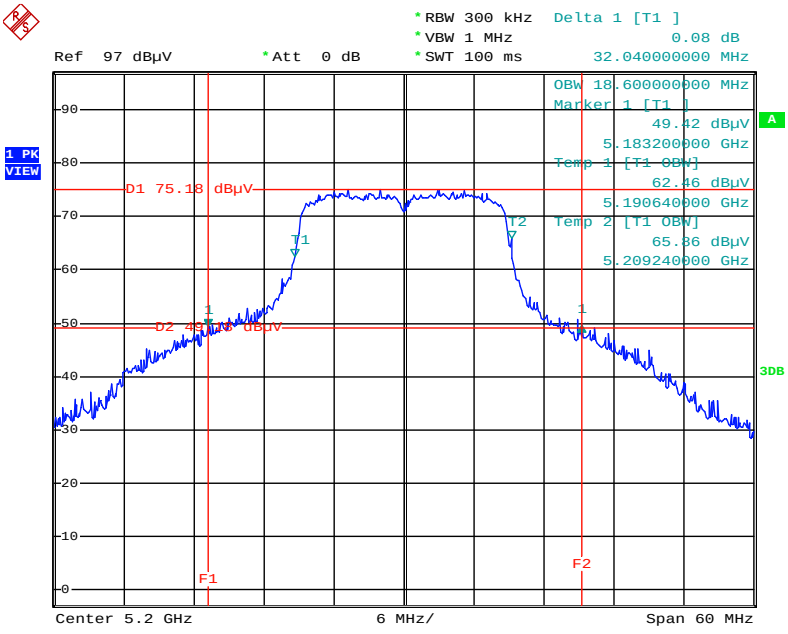
Date: 21.AUG.2015 11:53:52

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



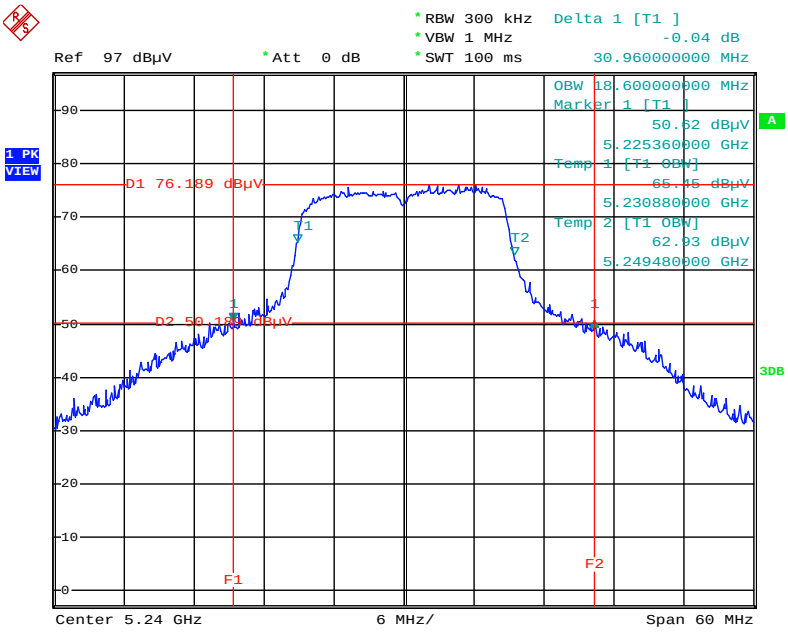
Date: 21.AUG.2015 13:35:57

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



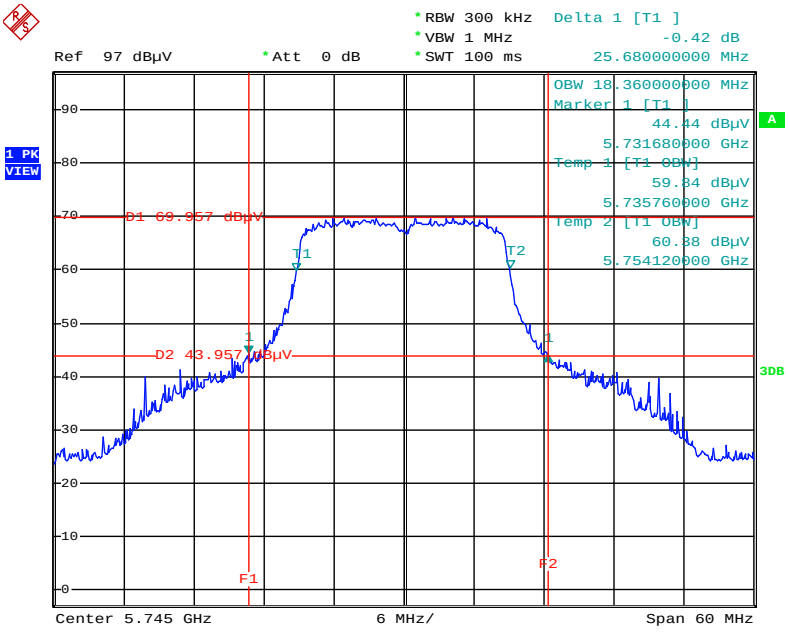
Date: 21.AUG.2015 13:36:57

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



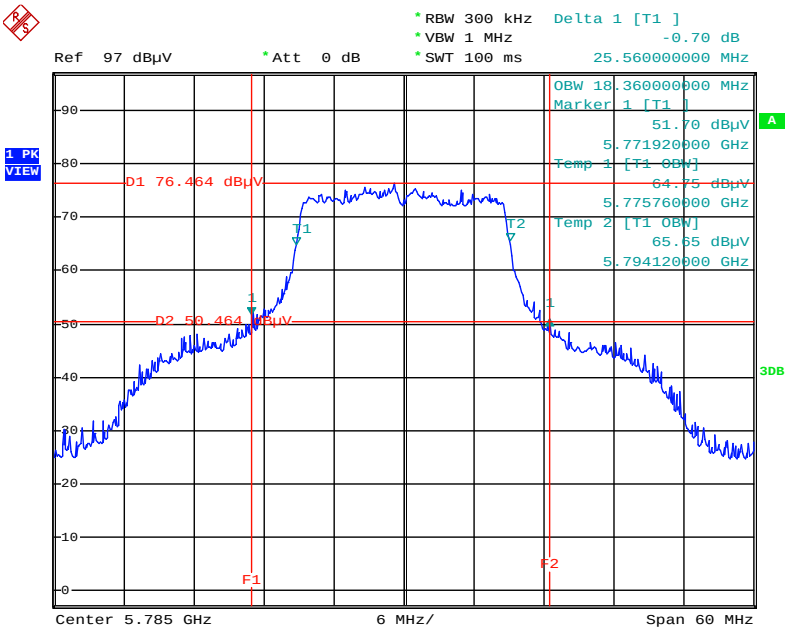
Date: 21.AUG.2015 13:37:44

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



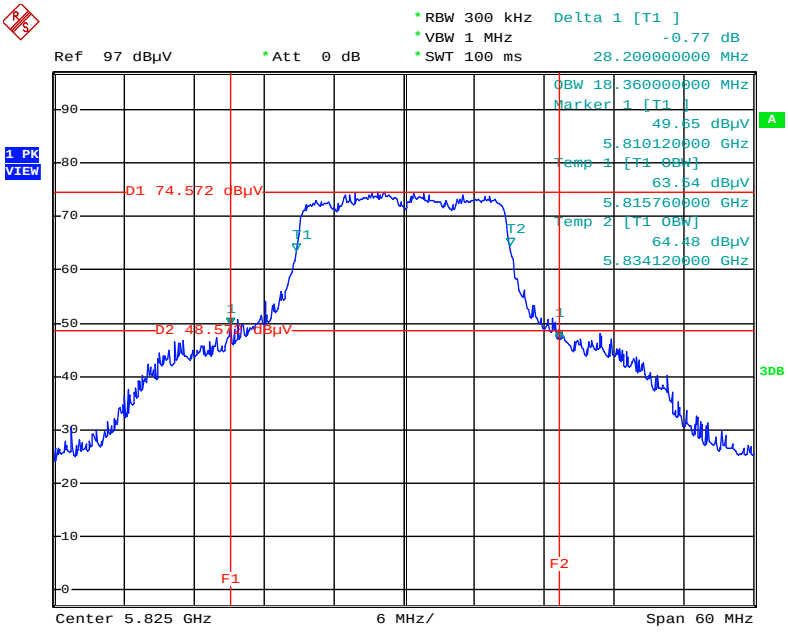
Date: 21.AUG.2015 13:38:42

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



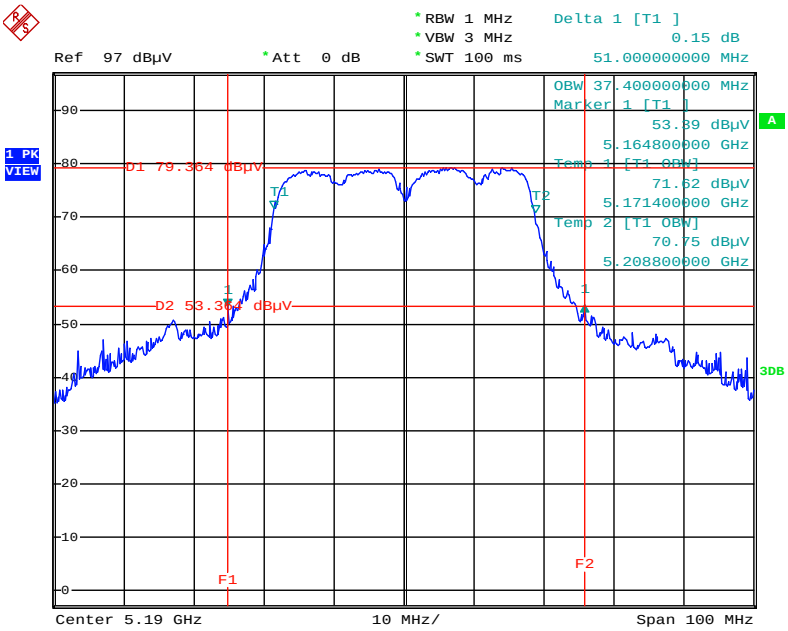
Date: 21.AUG.2015 13:41:33

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



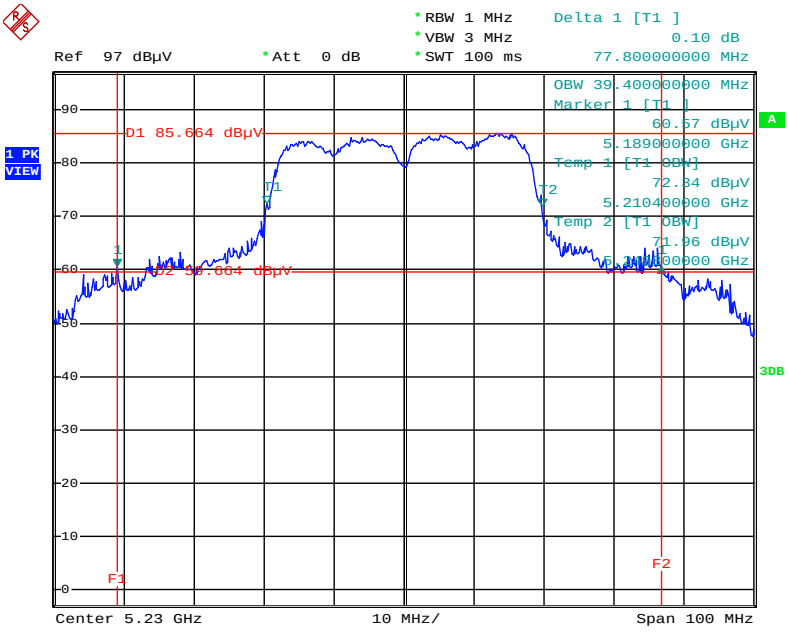
Date: 21.AUG.2015 13:42:20

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



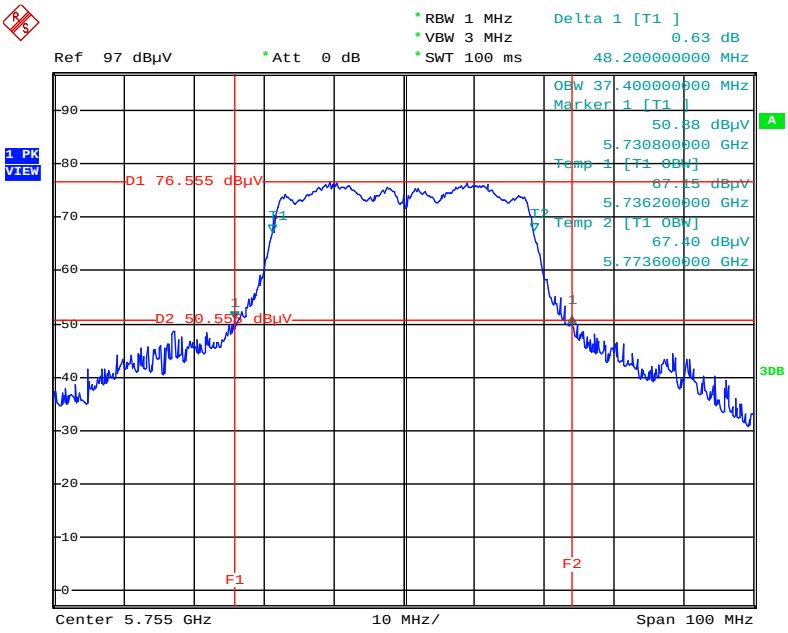
Date: 21.AUG.2015 13:45:12

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



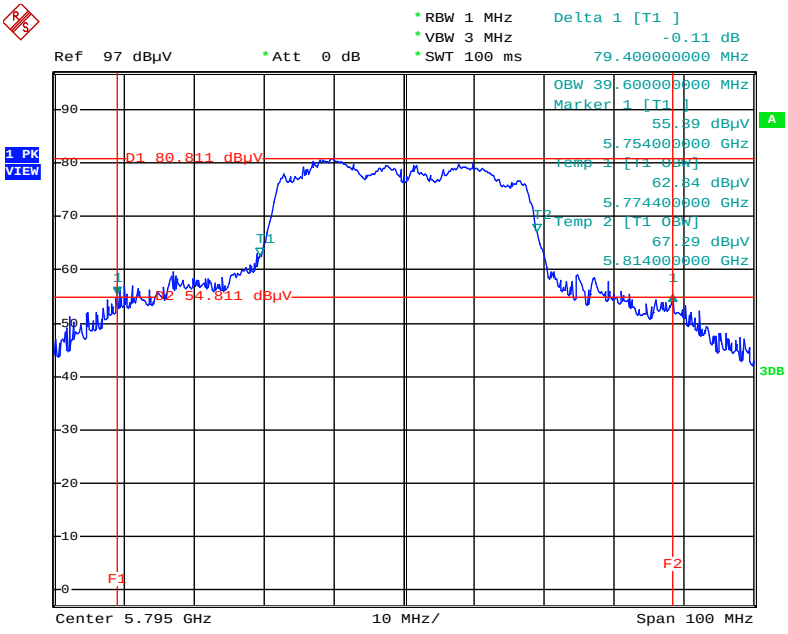
Date: 21.AUG.2015 13:46:21

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



Date: 21.AUG.2015 13:47:10

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



Date: 21.AUG.2015 13:48:11

4.3. 6dB Spectrum Bandwidth Measurement

4.3.1. Limit

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

4.3.2. Measuring Instruments and Setting

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

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

4.3.3. Test Procedures

For Radiated 6dB Bandwidth Measurement:

1. The transmitter was radiated to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with KDB789033 D02 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

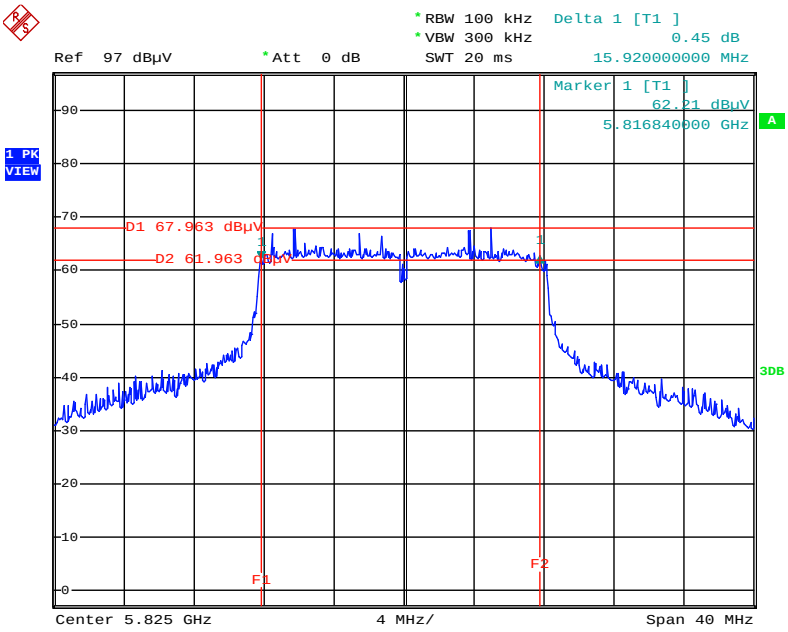
Temperature	20°C	Humidity	45%
Test Engineer	Eddie Weng		

Mode	Frequency	6dB Bandwidth (MHz)	Min. Limit (kHz)	Test Result
802.11a	5745 MHz	16.24	500	Complies
	5785 MHz	16.00	500	Complies
	5825 MHz	15.92	500	Complies
802.11n MCS0 HT20	5745 MHz	17.04	500	Complies
	5785 MHz	14.56	500	Complies
	5825 MHz	17.28	500	Complies
802.11n MCS0 HT40	5755 MHz	35.52	500	Complies
	5795 MHz	34.88	500	Complies

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

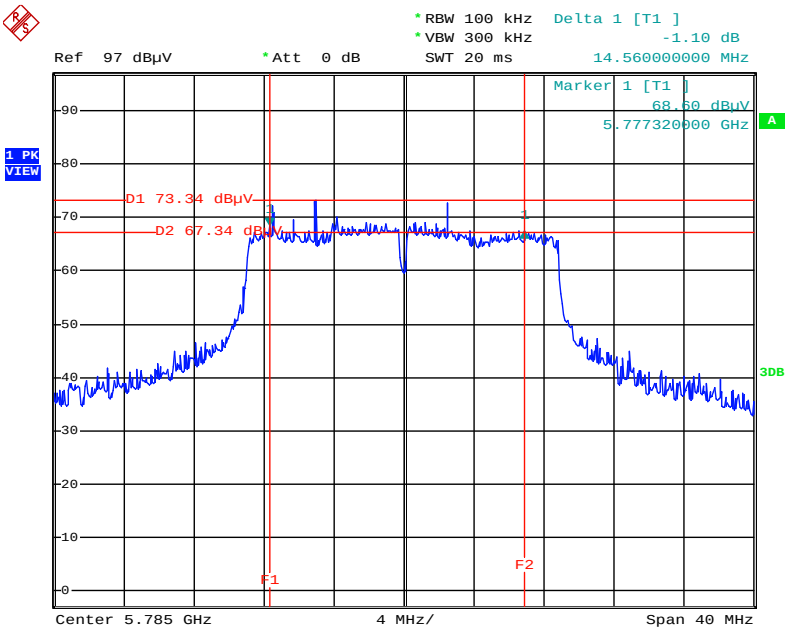
For plots, only the channel with worse result was shown.

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



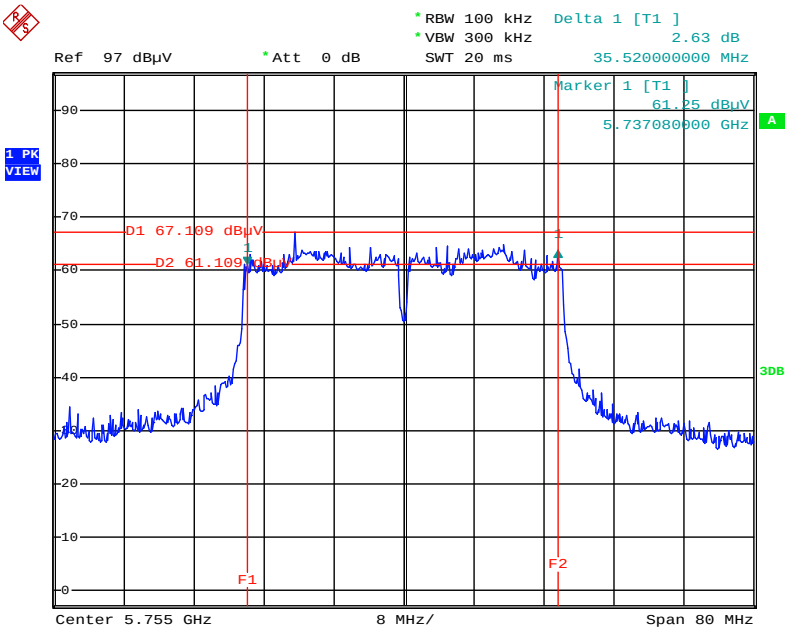
Date: 21.AUG.2015 13:59:46

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



Date: 21.AUG.2015 14:03:51

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



Date: 21.AUG.2015 14:05:22

4.4. Maximum Conducted Output Power Measurement

4.4.1. Limit

Frequency Band			Limit
☒	5.15~5.25 GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
	☒	Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	☐	Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
	☐	Mobile and portable client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

☒	5.725~5.85 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

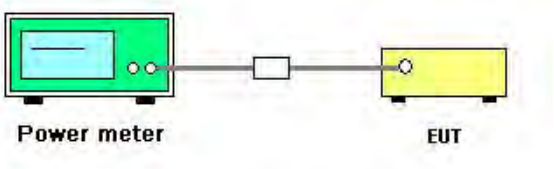
Please refer to section 5 of equipments list in this report. The following table is the setting of the power meter.

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

Temperature	20°C	Humidity	45%
Test Engineer	Eddie Weng	Test Date	Aug. 21, 2015

Mode	Frequency	Conducted Power (dBm)	Max. Limit (dBm)	Result
		Ant. 2		
802.11a	5180 MHz	16.71	30.00	Complies
	5200 MHz	17.94	30.00	Complies
	5240 MHz	18.55	30.00	Complies
	5745 MHz	13.54	30.00	Complies
	5785 MHz	12.48	30.00	Complies
	5825 MHz	11.75	30.00	Complies

Mode	Frequency	Conducted Power (dBm)			Max. Limit (dBm)	Result
		Ant. 1	Ant. 2	Total		
802.11n MCS0 HT20	5180 MHz	14.58	15.72	18.20	30.00	Complies
	5200 MHz	14.62	15.77	18.24	30.00	Complies
	5240 MHz	16.21	15.49	18.88	30.00	Complies
	5745 MHz	10.21	11.23	13.76	30.00	Complies
	5785 MHz	10.24	11.18	13.75	30.00	Complies
	5825 MHz	10.23	11.02	13.65	30.00	Complies
802.11n MCS0 HT40	5190 MHz	10.66	11.37	14.04	30.00	Complies
	5230 MHz	17.11	16.77	19.95	30.00	Complies
	5755 MHz	8.05	9.46	11.82	30.00	Complies
	5795 MHz	12.01	13.35	15.74	30.00	Complies

4.5. Power Spectral Density Measurement

4.5.1. Limit

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

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

4.5.2. Measuring Instruments and Setting

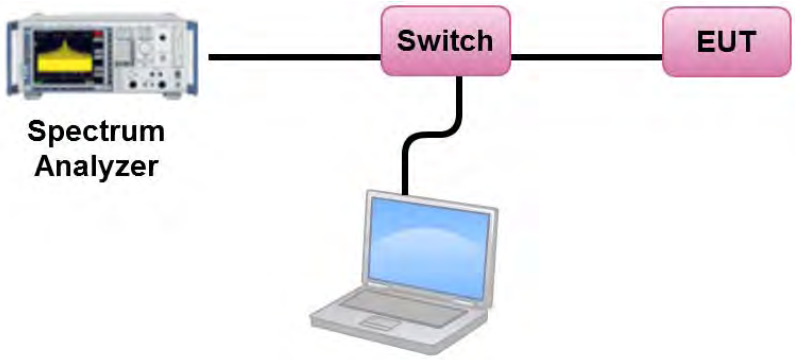
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.5.3. Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. Test was performed in accordance with KDB789033 D02 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.
5. For 5.725~5.85 GHz, the measured result of PSD level must add 10log(500kHz/RBW) and the final result should ≤ 30 dBm.

4.5.4. Test Setup Layout



4.5.5. Test Deviation

There is no deviation with the original standard.

4.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.5.7. Test Result of Power Spectral Density

Temperature	20°C	Humidity	45%
Test Engineer	Eddie Weng	Test Date	Aug. 21, 2015

Configuration IEEE 802.11a / Ant. 2

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	3.67	17.00	Complies
40	5200 MHz	4.86	17.00	Complies
48	5240 MHz	5.50	17.00	Complies

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	0.27	-3.01	-2.74	30.00	Complies
157	5785 MHz	-0.55	-3.01	-3.56	30.00	Complies
165	5825 MHz	-1.64	-3.01	-4.65	30.00	Complies

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
36	5180 MHz	4.97	15.12	Complies
40	5200 MHz	5.24	15.12	Complies
48	5240 MHz	5.67	15.12	Complies

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.88dBi, so limit= 17-(7.88-6)= 15.12dBm/MHz

Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
149	5745 MHz	0.60	-3.01	-2.41	28.12	Complies
157	5785 MHz	0.75	-3.01	-2.26	28.12	Complies
165	5825 MHz	0.26	-3.01	-2.75	28.12	Complies

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.88dBi, so limit= 30-(7.88-6)= 28.12 dBm/500kHz

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

Channel	Frequency	Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Result
38	5190 MHz	-2.11	15.12	Complies
46	5230 MHz	3.73	15.12	Complies

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.88dBi, so limit= 17-(7.88-6)= 15.12dBm/MHz

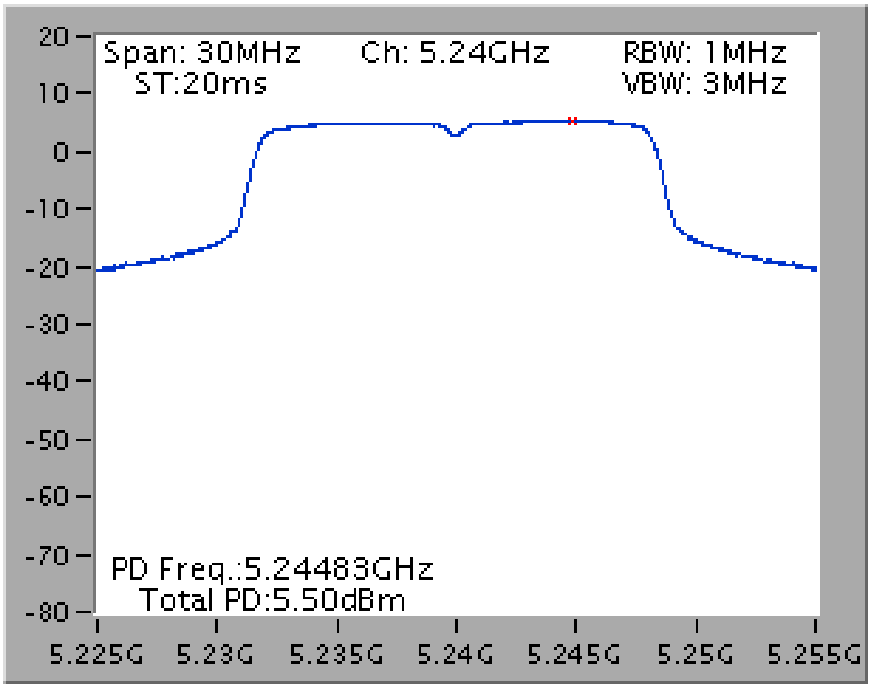
Channel	Frequency	Power Density (dBm/MHz)	10log(500kHz/RBW) Factor (dB)	Power Density (dBm/500kHz)	Power Density Limit (dBm/500kHz)	Result
151	5755 MHz	-4.64	-3.01	-7.65	28.12	Complies
159	5795 MHz	-0.66	-3.01	-3.67	28.12	Complies

Note: $Directional Gain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$ =7.88dBi, so limit= 30-(7.88-6)= 28.12 dBm/500kHz

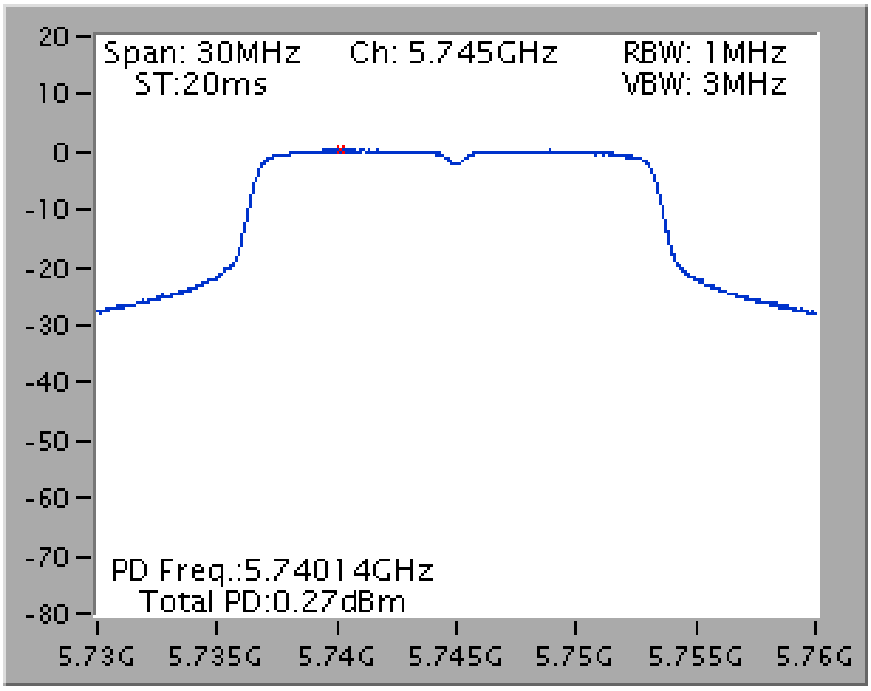
Note: All the test values were listed in the report.

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

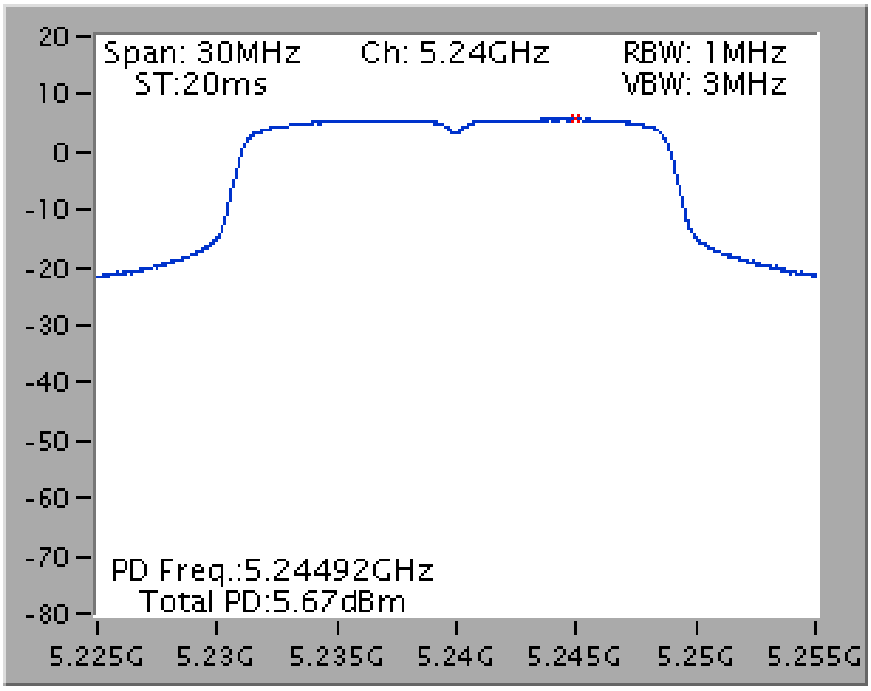
Power Density Plot on Configuration IEEE 802.11a / Ant. 2 / 5240 MHz



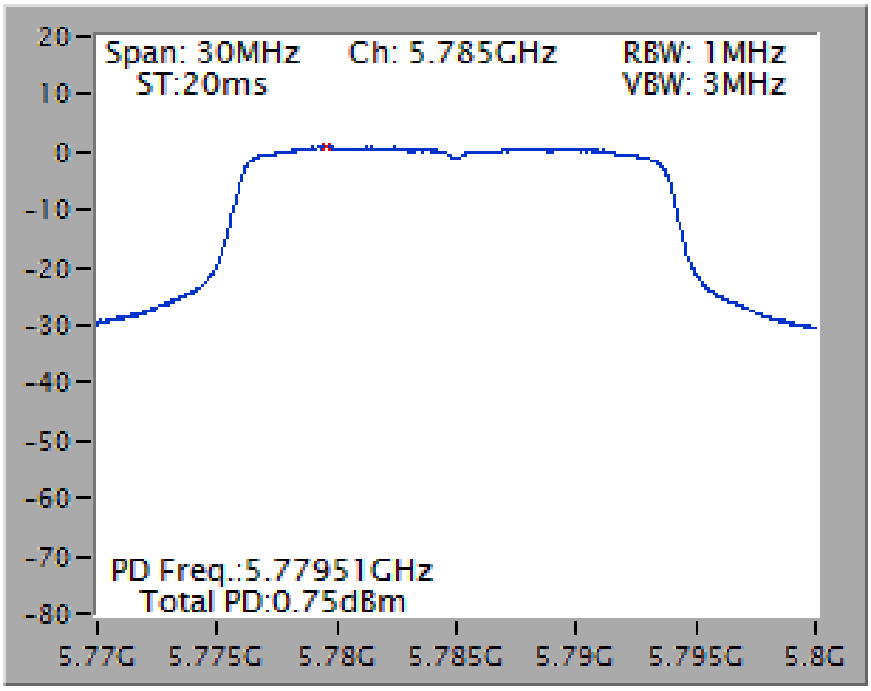
Power Density Plot on Configuration IEEE 802.11a / Ant. 2 / 5745 MHz



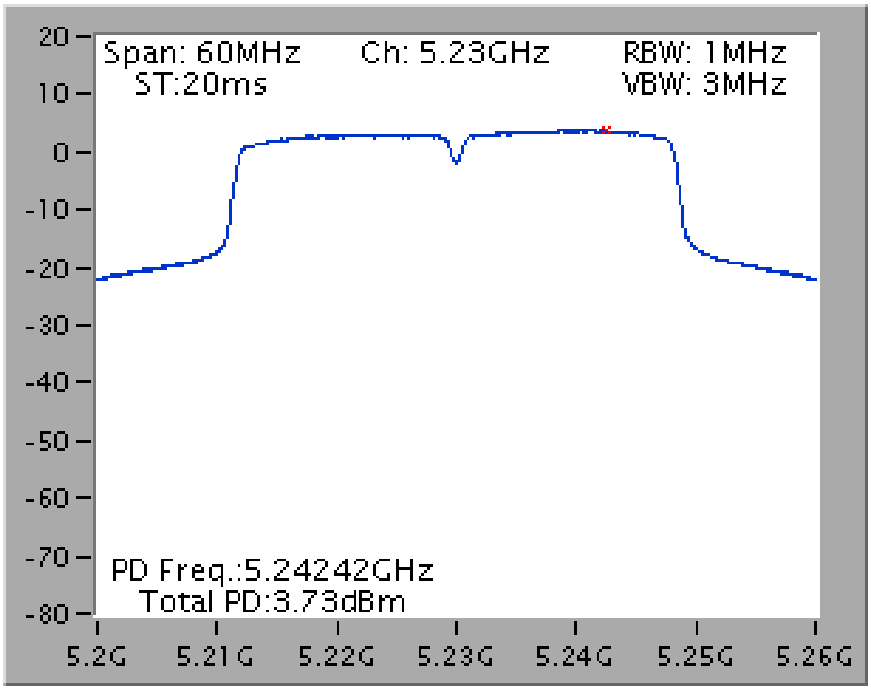
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5240 MHz



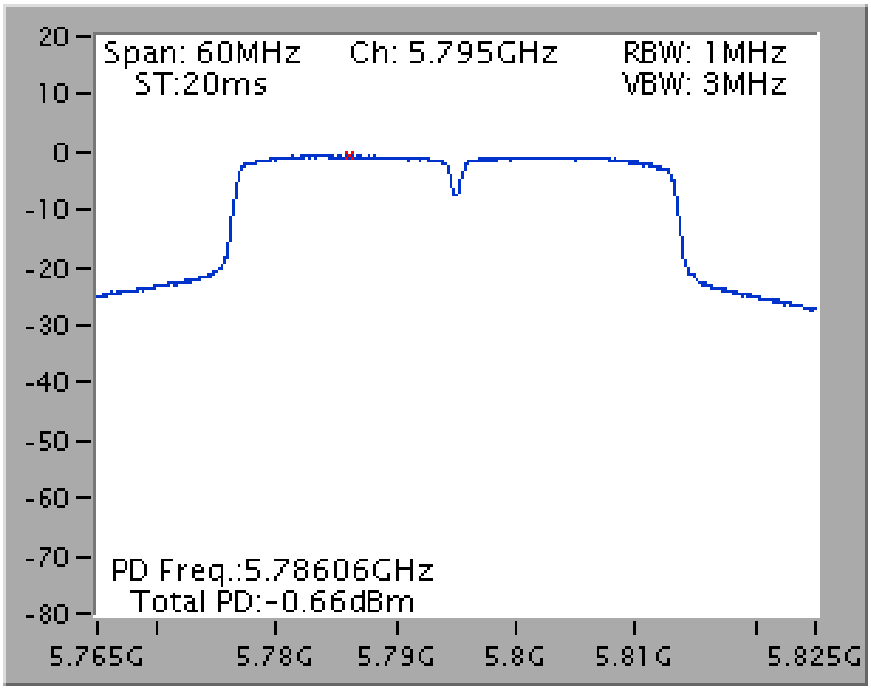
Power Density Plot on Configuration IEEE 802.11n MCS0 HT20 / Ant. 1 + Ant. 2 / 5785 MHz



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 + Ant. 2 / 5795 MHz



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 5.15-5.25 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

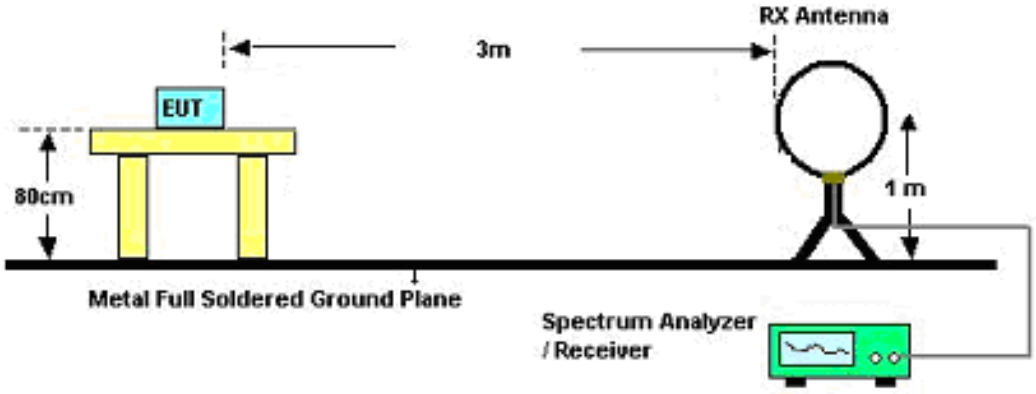
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.6.3. Test Procedures

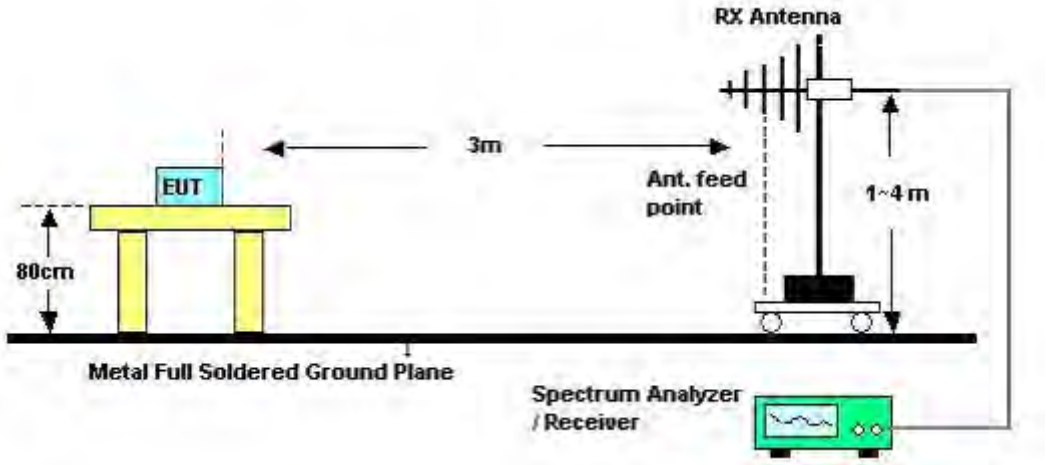
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 1/T VBW for average reading in spectrum analyzer.
7. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.6.4. Test Setup Layout

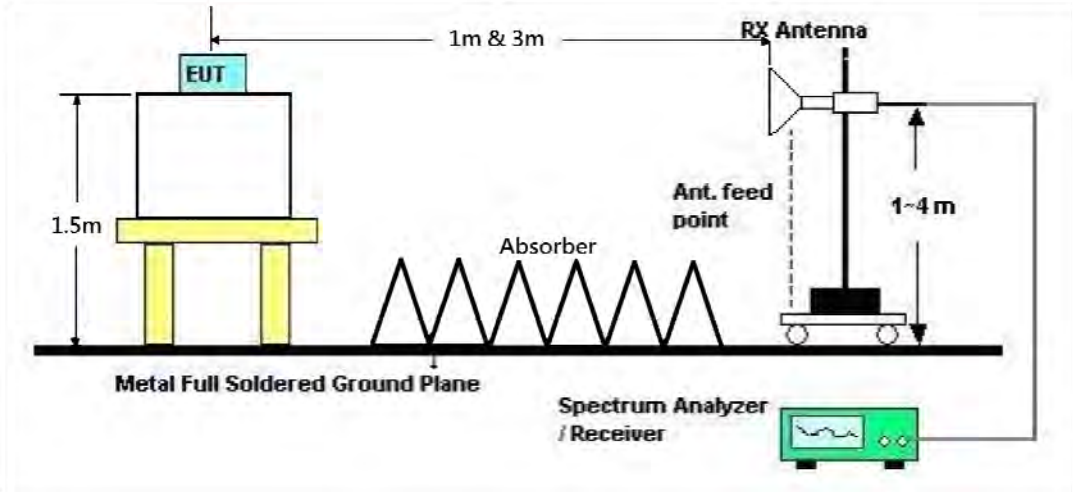
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.6.5. Test Deviation

There is no deviation with the original standard.

4.6.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	CTX
Test Date	Aug. 20, 2015		

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

Note:

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

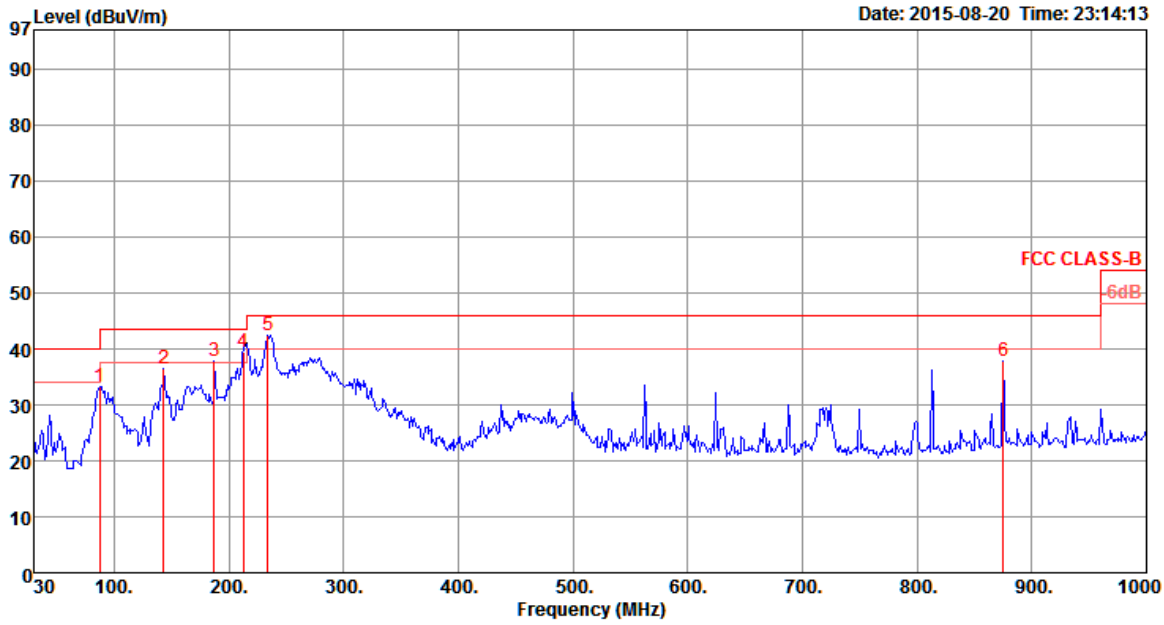
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

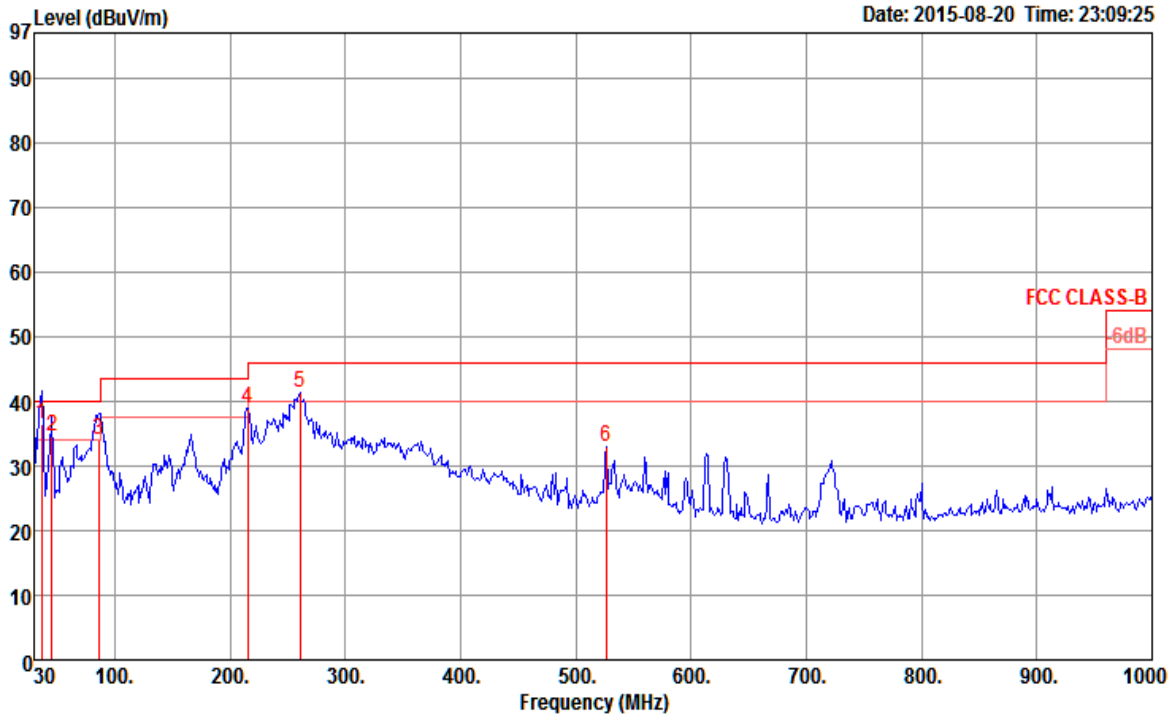
Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	CTX

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	87.23	33.34	40.00	-6.66	53.19	0.81	8.66	29.32	360	150	Peak	HORIZONTAL
2	143.49	36.53	43.50	-6.97	52.83	1.01	11.77	29.08	360	150	Peak	HORIZONTAL
3	187.14	37.86	43.50	-5.64	55.80	1.15	9.80	28.89	360	150	Peak	HORIZONTAL
4	212.36	39.39	43.50	-4.11	56.33	1.21	10.62	28.77	245	184	QP	HORIZONTAL
5	233.70	42.36	46.00	-3.64	58.09	1.27	11.66	28.66	360	150	Peak	HORIZONTAL
6	874.87	37.69	46.00	-8.31	42.10	2.38	21.35	28.14	360	150	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	36.79	36.55	40.00	-3.45	49.89	0.60	15.56	29.50	56	144	QP	VERTICAL
2	45.52	34.50	40.00	-5.50	52.82	0.60	10.55	29.47	96	87	QP	VERTICAL
3	86.26	34.16	40.00	-5.84	54.20	0.80	8.48	29.32	149	175	QP	VERTICAL
4	215.27	39.01	43.50	-4.49	55.90	1.22	10.65	28.76	0	150	Peak	VERTICAL
5	260.86	41.44	46.00	-4.56	54.96	1.34	13.67	28.53	0	150	Peak	VERTICAL
6	526.64	32.89	46.00	-13.11	41.92	1.87	18.43	29.33	0	150	Peak	VERTICAL

Note:

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

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

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

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

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36 / Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10359.13	67.94	68.20	-0.26	58.25	6.13	38.67	35.11	97	112	Peak	HORIZONTAL
2	15538.77	56.04	74.00	-17.96	44.94	7.56	38.16	34.62	46	139	Peak	HORIZONTAL
3	15545.86	42.88	54.00	-11.12	31.75	7.56	38.19	34.62	46	139	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10360.80	68.12	68.20	-0.08	58.43	6.13	38.67	35.11	213	113	Peak	VERTICAL
2	15539.86	46.31	54.00	-7.69	35.21	7.56	38.16	34.62	229	121	Average	VERTICAL
3	15543.98	60.65	74.00	-13.35	49.52	7.56	38.19	34.62	229	121	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 40 / Ant. 2
Test Date	Aug. 20, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10401.74	61.54	68.20	-6.66	51.78	6.14	38.70	35.08	103	103	Peak	HORIZONTAL
2	15603.04	43.55	54.00	-10.45	32.37	7.58	38.29	34.69	306	103	Average	HORIZONTAL
3	15607.67	55.95	74.00	-18.05	44.77	7.58	38.29	34.69	306	103	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10400.14	68.10	68.20	-0.10	58.34	6.14	38.70	35.08	218	109	Peak	VERTICAL
2	15600.00	48.83	54.00	-5.17	37.65	7.58	38.29	34.69	227	117	Average	VERTICAL
3	15603.76	62.33	74.00	-11.67	51.15	7.58	38.29	34.69	227	117	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 48 / Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10482.32	67.85	68.20	-0.35	57.93	6.16	38.78	35.02	97	113	Peak	HORIZONTAL
2	15719.28	55.98	74.00	-18.02	44.64	7.62	38.50	34.78	313	113	Peak	HORIZONTAL
3	15720.87	43.53	54.00	-10.47	32.19	7.62	38.50	34.78	313	113	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10480.29	68.14	68.20	-0.06	58.22	6.16	38.78	35.02	216	117	Peak	VERTICAL
2	15718.05	65.19	74.00	-8.81	53.85	7.62	38.50	34.78	228	119	Peak	VERTICAL
3	15723.76	49.72	54.00	-4.28	38.38	7.62	38.50	34.78	228	119	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149 / Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.00	48.16	54.00	-5.84	37.55	6.53	38.70	34.62	250	102	Average	HORIZONTAL
2	11491.27	62.84	74.00	-11.16	52.23	6.53	38.70	34.62	250	102	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11490.78	50.38	54.00	-3.62	39.77	6.53	38.70	34.62	225	108	Average	VERTICAL
2	11492.29	67.71	74.00	-6.29	57.10	6.53	38.70	34.62	225	108	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 157 / Ant. 2
Test Date	Aug. 20, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11569.06	48.13	54.00	-5.87	37.51	6.55	38.71	34.64	152	100	Average	HORIZONTAL
2	11569.35	62.41	74.00	-11.59	51.79	6.55	38.71	34.64	152	100	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11569.06	68.65	74.00	-5.35	58.03	6.55	38.71	34.64	226	115	Peak	VERTICAL
2	11569.28	53.85	54.00	-0.15	43.23	6.55	38.71	34.64	226	115	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 165 / Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11649.48	50.49	54.00	-3.51	39.88	6.56	38.73	34.68	262	103	Average	HORIZONTAL
2	11651.53	67.20	74.00	-6.80	56.59	6.56	38.73	34.68	262	103	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11648.87	53.57	54.00	-0.43	42.96	6.56	38.73	34.68	224	111	Average	VERTICAL
2	11649.02	71.07	74.00	-2.93	60.46	6.56	38.73	34.68	224	111	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 36 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10357.90	68.12	68.20	-0.08	58.45	6.13	38.65	35.11	97	118	Peak	HORIZONTAL
2	15532.55	55.59	74.00	-18.41	44.49	7.56	38.16	34.62	41	246	Peak	HORIZONTAL
3	15540.14	42.62	54.00	-11.38	31.52	7.56	38.16	34.62	41	246	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10358.77	67.98	68.20	-0.22	58.29	6.13	38.67	35.11	70	117	Peak	VERTICAL
2	15540.07	45.39	54.00	-8.61	34.29	7.56	38.16	34.62	266	130	Average	VERTICAL
3	15545.21	58.61	74.00	-15.39	47.48	7.56	38.19	34.62	266	130	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 40 / Ant. 1 + Ant. 2
Test Date	Aug. 20, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10401.45	60.38	68.20	-7.82	50.62	6.14	38.70	35.08	221	105	Peak	HORIZONTAL
2	15587.48	42.56	54.00	-11.44	31.40	7.57	38.26	34.67	193	118	Average	HORIZONTAL
3	15616.42	56.16	74.00	-17.84	44.94	7.59	38.32	34.69	193	118	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10400.36	67.97	68.20	-0.23	58.21	6.14	38.70	35.08	218	109	Peak	VERTICAL
2	15599.78	42.60	54.00	-11.40	31.42	7.58	38.29	34.69	76	111	Average	VERTICAL
3	15603.40	56.99	74.00	-17.01	45.81	7.58	38.29	34.69	76	111	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 48 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10480.58	66.21	68.20	-1.99	56.29	6.16	38.78	35.02	228	114	Peak	HORIZONTAL
2	15740.62	55.99	74.00	-18.01	44.63	7.63	38.53	34.80	298	162	Peak	HORIZONTAL
3	15744.82	42.69	54.00	-11.31	31.33	7.63	38.53	34.80	298	162	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10484.12	67.64	68.20	-0.56	57.72	6.16	38.78	35.02	66	112	Peak	VERTICAL
2	15718.92	42.78	54.00	-11.22	31.44	7.62	38.50	34.78	327	128	Average	VERTICAL
3	15732.30	56.53	74.00	-17.47	45.17	7.63	38.53	34.80	327	128	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 149 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11489.42	61.59	74.00	-12.41	50.98	6.53	38.70	34.62	253	104	Peak	HORIZONTAL
2	11491.23	46.41	54.00	-7.59	35.80	6.53	38.70	34.62	253	104	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11489.78	65.11	74.00	-8.89	54.50	6.53	38.70	34.62	200	101	Peak	VERTICAL
2	11491.23	46.63	54.00	-7.37	36.02	6.53	38.70	34.62	200	101	Average	VERTICAL

Temperature	24℃	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 157 / Ant. 1 + Ant. 2
Test Date	Aug. 20, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11570.29	47.68	54.00	-6.32	37.07	6.55	38.71	34.65	223	111	Average	HORIZONTAL
2	11572.89	62.59	74.00	-11.41	51.98	6.55	38.71	34.65	223	111	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11572.89	53.70	54.00	-0.30	43.09	6.55	38.71	34.65	224	117	Average	VERTICAL
2	11575.57	67.03	74.00	-6.97	56.42	6.55	38.71	34.65	224	117	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 165 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.36	50.45	54.00	-3.55	39.84	6.56	38.73	34.68	258	112	Average	HORIZONTAL
2	11653.47	65.10	74.00	-8.90	54.49	6.56	38.73	34.68	258	112	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11650.65	69.42	74.00	-4.58	58.81	6.56	38.73	34.68	202	102	Peak	VERTICAL
2	11651.59	53.73	54.00	-0.27	43.12	6.56	38.73	34.68	202	102	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 38 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15581.50	40.93	54.00	-13.07	29.77	7.57	38.26	34.67	92	110	Average	HORIZONTAL
2	15592.58	54.74	74.00	-19.26	43.58	7.57	38.26	34.67	92	110	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	15554.59	55.31	74.00	-18.69	44.20	7.56	38.19	34.64	297	138	Peak	VERTICAL
2	15558.21	41.47	54.00	-12.53	30.36	7.56	38.19	34.64	297	138	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 46 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10457.68	65.03	68.20	-3.17	55.17	6.15	38.75	35.04	97	122	Peak	HORIZONTAL
2	15721.98	56.11	74.00	-17.89	44.77	7.62	38.50	34.78	156	148	Peak	HORIZONTAL
3	15735.73	42.63	54.00	-11.37	31.27	7.63	38.53	34.80	156	148	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	10461.45	67.68	68.20	-0.52	57.79	6.16	38.77	35.04	246	102	Peak	VERTICAL
2	15694.63	42.53	54.00	-11.47	31.23	7.61	38.44	34.75	228	136	Average	VERTICAL
3	15697.24	56.98	74.00	-17.02	45.64	7.62	38.47	34.75	228	136	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 151 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11478.02	40.01	54.00	-13.99	29.40	6.53	38.70	34.62	194	101	Average	HORIZONTAL
2	11550.09	53.01	74.00	-20.99	42.39	6.55	38.71	34.64	194	101	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11510.14	55.89	74.00	-18.11	45.27	6.54	38.70	34.62	226	114	Peak	VERTICAL
2	11511.74	43.31	54.00	-10.69	32.69	6.54	38.70	34.62	226	114	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 159 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11589.28	64.25	74.00	-9.75	53.63	6.55	38.72	34.65	261	112	Peak	HORIZONTAL
2	11591.88	51.21	54.00	-2.79	40.59	6.55	38.72	34.65	261	112	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	11592.46	69.96	74.00	-4.04	59.34	6.55	38.72	34.65	228	111	Peak	VERTICAL
2	11592.60	53.92	54.00	-0.08	43.30	6.55	38.72	34.65	228	111	Average	VERTICAL

Note:

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

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

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

4.7. Band Edge Emissions Measurement

4.7.1. Limit

For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.25 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.

4.7.4. Test Setup Layout

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

4.7.5. Test Deviation

There is no deviation with the original standard.

4.7.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.7.7. Test Result of Band Edge and Fundamental Emissions

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 36, 40, 48 / Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.86	68.15	74.00	-5.85	65.09	4.26	33.27	34.47	322	135	Peak	VERTICAL
2	5150.00	48.21	54.00	-5.79	45.15	4.26	33.27	34.47	322	135	Average	VERTICAL
3	5182.03	108.30			105.17	4.27	33.33	34.47	322	135	Peak	VERTICAL
4	5183.76	96.76			93.63	4.27	33.33	34.47	322	135	Average	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5148.26	60.93	74.00	-13.07	57.87	4.26	33.27	34.47	295	103	Peak	VERTICAL
2	5149.71	45.01	54.00	-8.99	41.95	4.26	33.27	34.47	295	103	Average	VERTICAL
3	5203.76	100.95			97.78	4.28	33.36	34.47	295	103	Average	VERTICAL
4	5204.34	110.65			107.48	4.28	33.36	34.47	295	103	Peak	VERTICAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Pol/Phase	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5142.89	41.94	54.00	-12.06	37.60	5.51	33.17	34.34	124	264	HORIZONTAL	Average
2	5144.49	54.13	74.00	-19.87	49.79	5.51	33.17	34.34	124	264	HORIZONTAL	Peak
3	5244.81	95.01			90.45	5.55	33.34	34.33	124	264	HORIZONTAL	Average
4	5245.13	106.22			101.66	5.55	33.34	34.33	124	264	HORIZONTAL	Peak

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

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11a CH 149, 157, 165 / Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

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	5715.00	63.26	68.20	-4.94	57.32	5.85	34.45	34.36	147	275	VERTICAL	Peak
2	5724.49	78.05	78.20	-0.15	72.06	5.85	34.50	34.36	147	275	VERTICAL	Peak
3	5740.19	93.94			87.88	5.87	34.55	34.36	147	275	VERTICAL	Average
4	5742.60	105.11			99.05	5.87	34.55	34.36	147	275	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.42	57.74	68.20	-10.46	53.24	4.49	34.52	34.51	259	114	Peak	HORIZONTAL
2	5723.26	59.06	78.20	-19.14	54.50	4.50	34.57	34.51	259	114	Peak	HORIZONTAL
3	5778.92	92.04			87.32	4.52	34.73	34.53	259	114	Average	HORIZONTAL
4	5781.82	102.17			97.45	4.52	34.73	34.53	259	114	Peak	HORIZONTAL
5	5850.00	58.33	78.20	-19.87	53.40	4.54	34.93	34.54	259	114	Peak	HORIZONTAL
6	5860.00	59.25	68.20	-8.95	54.25	4.55	34.99	34.54	259	114	Peak	HORIZONTAL

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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5819.50	93.96			89.08	4.53	34.88	34.53	266	104	Average	VERTICAL
2	5820.08	104.77			99.89	4.53	34.88	34.53	266	104	Peak	VERTICAL
3	5850.43	66.35	78.20	-11.85	61.42	4.54	34.93	34.54	266	104	Peak	VERTICAL
4	5860.00	43.27	54.00	-10.73	38.27	4.55	34.99	34.54	266	104	Average	VERTICAL
5	5865.21	56.98	74.00	-17.02	51.98	4.55	34.99	34.54	266	104	Peak	VERTICAL

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

Temperature	24℃	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 36, 40, 48 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

Channel 36

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5149.86	66.53	74.00	-7.47	63.47	4.26	33.27	34.47	245	110	Peak	VERTICAL
2	5150.00	48.53	54.00	-5.47	45.47	4.26	33.27	34.47	245	110	Average	VERTICAL
3	5174.21	96.35			93.22	4.27	33.33	34.47	245	110	Average	VERTICAL
4	5176.53	108.28			105.15	4.27	33.33	34.47	245	110	Peak	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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5148.26	56.40	74.00	-17.60	53.34	4.26	33.27	34.47	263	103	Peak	HORIZONTAL
2	5149.42	44.34	54.00	-9.66	41.28	4.26	33.27	34.47	263	103	Average	HORIZONTAL
3	5201.45	106.91			103.74	4.28	33.36	34.47	263	103	Peak	HORIZONTAL
4	5204.34	97.45			94.28	4.28	33.36	34.47	263	103	Average	HORIZONTAL

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

Channel 48

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5146.53	56.46	74.00	-17.54	53.40	4.26	33.27	34.47	245	133	Peak	VERTICAL
2	5150.00	43.25	54.00	-10.75	40.19	4.26	33.27	34.47	245	133	Average	VERTICAL
3	5244.78	110.10			106.82	4.30	33.45	34.47	245	133	Peak	VERTICAL
4	5246.08	99.48			96.20	4.30	33.45	34.47	245	133	Average	VERTICAL
5	5350.00	44.15	54.00	-9.85	40.64	4.35	33.63	34.47	245	133	Average	VERTICAL
6	5350.43	57.98	74.00	-16.02	54.47	4.35	33.63	34.47	245	133	Peak	VERTICAL

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

Temperature	24℃	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT20 CH 149, 157, 165 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

Channel 149

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.80	45.59	74.00	-28.41	41.09	4.49	34.52	34.51	275	100	Peak	VERTICAL
2	5714.13	63.16	74.00	-10.84	58.66	4.49	34.52	34.51	275	100	Peak	VERTICAL
3	5724.42	78.09	78.20	-0.11	73.53	4.50	34.57	34.51	275	100	Average	VERTICAL
4	5746.59	95.60			91.00	4.50	34.62	34.52	275	100	Average	VERTICAL
5	5747.46	107.19			102.59	4.50	34.62	34.52	275	100	Peak	VERTICAL

Item 4, 5 are the fundamental frequency at 5745 MHz.

Channel 157

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5712.68	58.18	68.20	-10.02	53.68	4.49	34.52	34.51	134	102	Peak	HORIZONTAL
2	5724.71	57.53	78.20	-20.67	52.97	4.50	34.57	34.51	134	102	Peak	HORIZONTAL
3	5780.95	89.81			85.09	4.52	34.73	34.53	134	102	Average	HORIZONTAL
4	5781.53	99.96			95.24	4.52	34.73	34.53	134	102	Peak	HORIZONTAL
5	5851.16	59.37	78.20	-18.83	54.44	4.54	34.93	34.54	134	102	Peak	HORIZONTAL
6	5862.89	59.50	68.20	-8.70	54.50	4.55	34.99	34.54	134	102	Peak	HORIZONTAL

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	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5828.76	94.43			89.55	4.53	34.88	34.53	272	110	Average	VERTICAL
2	5829.63	105.99			101.11	4.53	34.88	34.53	272	110	Peak	VERTICAL
3	5850.00	62.97	78.20	-15.23	58.04	4.54	34.93	34.54	272	110	Peak	VERTICAL
4	5860.00	59.79	74.00	-14.21	54.79	4.55	34.99	34.54	272	110	Peak	VERTICAL
5	5860.14	45.12	54.00	-8.88	40.12	4.55	34.99	34.54	272	110	Average	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 38, 46 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

Channel 38

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5148.26	69.57	74.00	-4.43	66.51	4.26	33.27	34.47	239	109	Peak	VERTICAL
2	5150.00	52.64	54.00	-1.36	49.58	4.26	33.27	34.47	239	109	Average	VERTICAL
3	5195.79	100.53			97.36	4.28	33.36	34.47	239	109	Peak	VERTICAL
4	5195.79	91.55			88.38	4.28	33.36	34.47	239	109	Average	VERTICAL

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

Channel 46

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5146.24	59.04	74.00	-14.96	55.98	4.26	33.27	34.47	276	117	Peak	VERTICAL
2	5150.00	45.84	54.00	-8.16	42.78	4.26	33.27	34.47	276	117	Average	VERTICAL
3	5238.10	98.09			94.84	4.30	33.42	34.47	276	117	Average	VERTICAL
4	5238.39	107.64			104.39	4.30	33.42	34.47	276	117	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Gary Chu	Configurations	IEEE 802.11n MCS0 HT40 CH 151, 159 / Ant. 1 + Ant. 2
Test Date	Aug. 05, 2015~Aug. 20, 2015		

Channel 151

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5714.42	69.62	74.00	-4.38	65.12	4.49	34.52	34.51	277	100	Peak	VERTICAL
2	5715.00	53.27	54.00	-0.73	48.77	4.49	34.52	34.51	277	100	Average	VERTICAL
3	5722.68	74.77	78.20	-3.43	70.21	4.50	34.57	34.51	277	100	Peak	VERTICAL
4	5746.61	92.27			87.67	4.50	34.62	34.52	277	100	Average	VERTICAL
5	5748.34	102.08			97.48	4.50	34.62	34.52	277	100	Peak	VERTICAL

Item 4, 5 are the fundamental frequency at 5755 MHz.

Channel 159

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	T/Pos	A/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	deg	cm		
1	5711.24	58.85	74.00	-15.15	54.35	4.49	34.52	34.51	272	103	Peak	VERTICAL
2	5714.71	44.86	54.00	-9.14	40.36	4.49	34.52	34.51	272	103	Average	VERTICAL
3	5722.11	63.47	78.20	-14.73	58.91	4.50	34.57	34.51	272	103	Peak	VERTICAL
4	5786.32	93.17			88.40	4.52	34.78	34.53	272	103	Average	VERTICAL
5	5800.79	105.55			100.78	4.52	34.78	34.53	272	103	Peak	VERTICAL
6	5850.29	65.75	78.20	-12.45	60.82	4.54	34.93	34.54	272	103	Peak	VERTICAL
7	5860.29	46.41	54.00	-7.59	41.41	4.55	34.99	34.54	272	103	Average	VERTICAL
8	5860.58	63.46	74.00	-10.54	58.46	4.55	34.99	34.54	272	103	Peak	VERTICAL

Item 4, 5 are the fundamental frequency at 5795 MHz.

Note:

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

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

4.8. Frequency Stability Measurement

4.8.1. Limit

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

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

4.8.2. Measuring Instruments and Setting

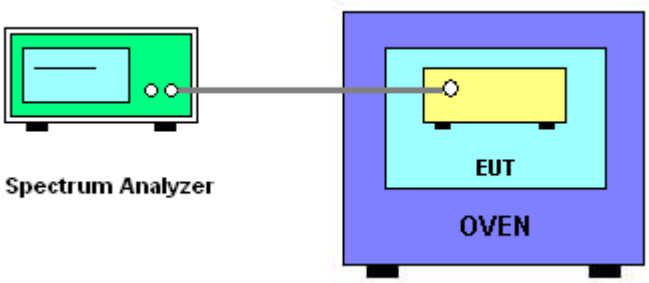
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

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

4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc × 10^6 ppm and the limit is less than ±20ppm (IEEE 802.11nspecification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is 0°C~60°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	45%
Test Engineer	Eddie Weng	Test Date	Aug. 21, 2015

Mode: 20 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5199.9724	5199.9642	5199.9921	5199.9662
110.00	5199.9854	5199.9785	5199.9652	5199.9647
93.50	5199.9766	5199.9866	5199.9588	5199.9762
Max. Deviation (MHz)	0.0276	0.0358	0.0412	0.0353
Max. Deviation (ppm)	5.31	6.88	7.92	6.79
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5200 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5199.9884	5199.9880	5199.9887	5199.9880
10	5199.9886	5199.9882	5199.9888	5199.9882
20	5199.9890	5199.9882	5199.9887	5199.9883
30	5199.9886	5199.9887	5199.9890	5199.9886
40	5199.9840	5199.9882	5199.9878	5199.9878
50	5199.9760	5199.9876	5199.9872	5199.9874
60	5199.9700	5199.9868	5199.9868	5199.9864
Max. Deviation (MHz)	0.0300	0.0132	0.0132	0.0136
Max. Deviation (ppm)	5.77	2.54	2.54	2.62
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5784.9712	5784.9722	5784.9720	5784.9730
110.00	5784.9755	5784.9741	5784.9744	5784.9752
93.50	5784.9742	5784.9750	5784.9749	5784.9750
Max. Deviation (MHz)	0.0288	0.0278	0.0280	0.0270
Max. Deviation (ppm)	4.98	4.81	4.84	4.67
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5785 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5784.9722	5784.9731	5784.9733	5784.9733
10	5784.9722	5784.9729	5784.9734	5784.9734
20	5784.9730	5784.9733	5784.9733	5784.9730
30	5784.9727	5784.9731	5784.9730	5784.9737
40	5784.9720	5784.9722	5784.9716	5784.9728
50	5784.9714	5784.9704	5784.9712	5784.9716
60	5784.9704	5784.9688	5784.9698	5784.9702
Max. Deviation (MHz)	0.0296	0.0312	0.0302	0.0298
Max. Deviation (ppm)	5.12	5.39	5.22	5.15
Result	Complies			

Mode: 40 MHz / Ant. 2

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5189.9764	5189.9750	5189.9756	5189.9754
110.00	5189.9769	5189.9755	5189.9755	5189.9757
93.50	5189.9770	5189.9754	5189.9755	5189.9759
Max. Deviation (MHz)	0.0236	0.0250	0.0245	0.0246
Max. Deviation (ppm)	4.55	4.82	4.72	4.74
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5190 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5189.9766	5189.9762	5189.9768	5189.9663
10	5189.9766	5189.9763	5189.9766	5189.9766
20	5189.9764	5189.9765	5189.9768	5189.9764
30	5189.9763	5189.9764	5189.9767	5189.9762
40	5189.9744	5189.9754	5189.9700	5189.9754
50	5189.9728	5189.9728	5189.9694	5189.9736
60	5189.9698	5189.9712	5189.9688	5189.9704
Max. Deviation (MHz)	0.0302	0.0288	0.0312	0.0337
Max. Deviation (ppm)	5.82	5.55	6.01	6.49
Result	Complies			

Voltage vs. Frequency Stability

Voltage	Measurement Frequency (MHz)			
(V)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5754.9744	5754.9744	5754.9746	5754.9743
110.00	5754.9742	5754.9744	5754.9745	5754.9742
93.50	5754.9743	5754.9746	5754.9744	5754.9746
Max. Deviation (MHz)	0.0258	0.0256	0.0256	0.0258
Max. Deviation (ppm)	4.48	4.45	4.45	4.48
Result	Complies			

Temperature vs. Frequency Stability

Temperature	Measurement Frequency (MHz)			
(°C)	5755 MHz			
	0 Minute	2 Minute	5 Minute	10 Minute
0	5754.9741	5754.9740	5754.9741	5754.9742
10	5754.9742	5754.9743	5754.9745	5754.9743
20	5754.9742	5754.9744	5754.9745	5754.9742
30	5754.9745	5754.9745	5754.9746	5754.9747
40	5754.9732	5754.9736	5754.9742	5754.9728
50	5754.9724	5754.9728	5754.9730	5754.9718
60	5754.9702	5754.9714	5754.9718	5754.9706
Max. Deviation (MHz)	0.0298	0.0286	0.0282	0.0294
Max. Deviation (ppm)	5.18	4.97	4.90	5.11
Result	Complies			

4.9. Antenna Requirements

4.9.1. Limit

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

4.9.2. Antenna Connector Construction

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

5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Test Receiver	R&S	ESCS 30	100355	9kHz ~ 2.75GHz	Apr. 22, 2015	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16-2	04083	150kHz ~ 100MHz	Dec. 02, 2014	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 02, 2014	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	Dec. 03, 2014	Conduction (CO01-CB)
Software	Audix	E3	5.410e	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	May 06, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 12, 2015*	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 28, 2014	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Feb. 24, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 25, 2014	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 06, 2014	Radiation (03CH01-CB)
EMI Receiver	Agilent	N9038A	MY52260123	9kHz ~ 8.4GHz	Jan. 21, 2015	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	1 GHz ~ 40 GHz	Nov. 15, 2014	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSP40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 15, 2014	Conducted (TH01-CB)

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 03, 2014	Conducted (TH01-CB)

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

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

NCR means Non-Calibration required.

6. MEASUREMENT UNCERTAINTY

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%