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FCC RADIO TEST REPORT

Applicant's company	**Accton Technology Corporation**
Applicant Addrec	No. 1, Creation Rd. III, Science-based Industrial Park Hsin Chu 30077, Taiwan R.O.C.
FCC ID	**HED-ML6035G3**
Manufacturer's company	**Accton Technology Corporation**
Manufacturer Address	No. 1, Creation Rd. III, Science-based Industrial Park Hsin Chu 30077, Taiwan R.O.C.

Product Name	Metrolinq Outdoor 60GHz PtMP + 5 GHz
Brand Name	IgniteNet
Model No.	ML-60-30-18
Test Rule Part(s)	47 CFR FCC Part 15 Subpart E § 15.407
Test Freq. Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Received Date	Mar. 10, 2016
Final Test Date	Sep. 02, 2016
Submission Type	Class II Change

Statement

Test result included is for the IEEE 802.11n and IEEE 802.11a/ac of the product.
The test result in this report refers exclusively to the presented test model / sample.
Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.
The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in **ANSI C63.10-2013**, **47 CFR FCC Part 15 Subpart E, KDB789033 D02 v01r03, KDB662911 D01 v02r01, KDB644545 D03 v01, ET Docket No. 13–49; FCC 16–24.**
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
FR5N2614-11	Rev. 01	Initial issue of report	Sep. 14, 2016
FR5N2614-11	Rev. 02	Changing Equipment Name to “Metrolinq Outdoor 60GHz PtMP + 5 GHz” from “Metrolinq Outdoor 60GHz PTP + 5 GHz”	Sep. 21, 2016

1. VERIFICATION OF COMPLIANCE

Product Name	:	Metrolinq Outdoor 60GHz PtMP + 5 GHz
Brand Name	:	IgniteNet
Model No.	:	ML-60-30-18
Applicant	:	Accton Technology 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 Mar. 10, 2016 would like to declare that the tested sample has been evaluated and found to be in compliance with the tested rule parts. The data recorded as well as the test configuration specified is true and accurate for showing the sample's EMC nature.

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**
4.1	15.407(b)	Radiated Emissions	Complies
4.2	15.407(b)	Band Edge Emissions	Complies
4.3	15.203	Antenna Requirements	Complies

3. GENERAL INFORMATION

3.1. Product Details

Items	Description
Product Type	WLAN (2TX, 2RX)
Radio Type	Intentional Transceiver
Power Type	From PoE
Modulation	IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	IEEE 802.11a/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) IEEE 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)
Data Rate (Mbps)	IEEE 802.11a: OFDM (6/9/12/18/24/36/48/54) IEEE 802.11n/ac: see the below table
Frequency Range	5150 ~ 5250 MHz / 5725 ~ 5850 MHz
Channel Number	9 for 20MHz bandwidth ; 4 for 40MHz bandwidth 2 for 80MHz bandwidth
Carrier Frequencies	Please refer to section 3.4
Antenna	Please refer to section 3.3

Note 1: This device contains transmitter 60GHz module FCC ID: HED-ML60MDSB

Note 2: WLAN and 60G do not work at the same time.

Items	Description			
Communication Mode	☒	IP Based (Load Based)	☐	Frame Based
Beamforming Function	☐	With beamforming	☒	Without beamforming
Operate Condition	☐	Indoor	☒	Outdoor

Antenna and Bandwidth

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

IEEE 11n/ac Spec.

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

3.2. Accessories

N/A

3.3. Table for Filed Antenna

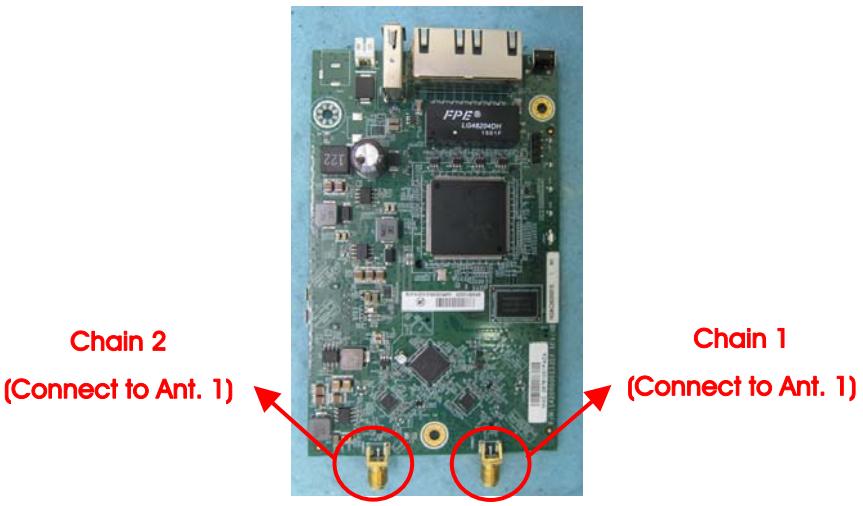
Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	
					Band 1	Band 4
1	Accton	120G00000156A	Dish Ant.	N/A	9.7	12.4

Note:

For IEEE 802.11a/n/ac Mode (2TX/2RX)

Chain 1 and Chain 2 can be use as transmitting antenna

Chain 1 and Chain 2 can be used as receiving antennas.



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.

For 80MHz bandwidth systems, use Channel 42, 155.

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	38	5190 MHz	46	5230 MHz
	40	5200 MHz	48	5240 MHz
	42	5210 MHz	-	-
5725~5850 MHz Band 4	149	5745 MHz	157	5785 MHz
	151	5755 MHz	159	5795 MHz
	153	5765 MHz	161	5805 MHz
	155	5775 MHz	165	5825 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	Chain
Radiated Emission Below 1GHz	Normal Link		-	-	-
Radiated Emission Above 1GHz	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2
Band Edge Emission	11a/BPSK	Band 1&4	6Mbps	36/40/48/149/157/165	1+2
	11ac VHT20	Band 1&4	MCS0/Nss1	36/40/48/149/157/165	1+2
	11ac VHT40	Band 1&4	MCS0/Nss1	38/46/151/159	1+2
	11ac VHT80	Band 1&4	MCS0/Nss1	42/155	1+2

Note 1: VHT20/VHT40 covers HT20/HT40, due to same modulation. The power setting for 802.11n HT20 and HT40 are the same or lower than 802.11ac VHT20 and VHT40.

Note 2: The EUT can used at Y-axis only.

Note 3: The power of EUT is supplied by PoE. But the PoE is for measurement only, and it would not be marketed.

Equipment	Brand Name	Model Name
PoE	GME	GME241DA-240100G

The following test modes were performed for all tests:

For Radiated Emission test<below 1GHz>:

Mode 1: Normal Link - Place EUT in Y axis - 5GHz

For Radiated Emission test<above 1GHz>:

Mode 1: CTX - Place EUT in Y axis - 5GHz

3.6. Table for Testing Locations

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

Semi Anechoic Chamber (SAC).

3.7. Table for Class II Change

This product is an extension of original one reported under Sporton project number: FR5N2614-03

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding a model no.: ML-60-30-18 2. Adding an antenna (P/N: 120G00000156A) for model no.: ML-60-30-18 use. 3. Changing Equipment Name to "Metrolinq Outdoor 60GHz PtMP + 5 GHz" from "Metrolinq Outdoor 60GHz PTP + 5 GHz" for model no.: ML-60-30-18 use.	1. Radiated Emissions 2. Band Edge Emissions

Note: Above tests will be based on original output power to re-test.

3.8. Table for Supporting Units

For Test Site No: 03CH01-CB

<below 1GHz>

Support Unit	Brand	Model	FCC ID
Notebook*3	DELL	E4300	DoC
Voltage and current device	HUA	85C1-50V	DoC
Flash disk3.0	Silicon Power	B06	DoC
PoE	GME	GME241DA-240100G	DoC

<above 1GHz>

Support Unit	Brand	Model	FCC ID
Notebook	DELL	E4300	DoC
PoE	GME	GME241DA-240100G	DoC

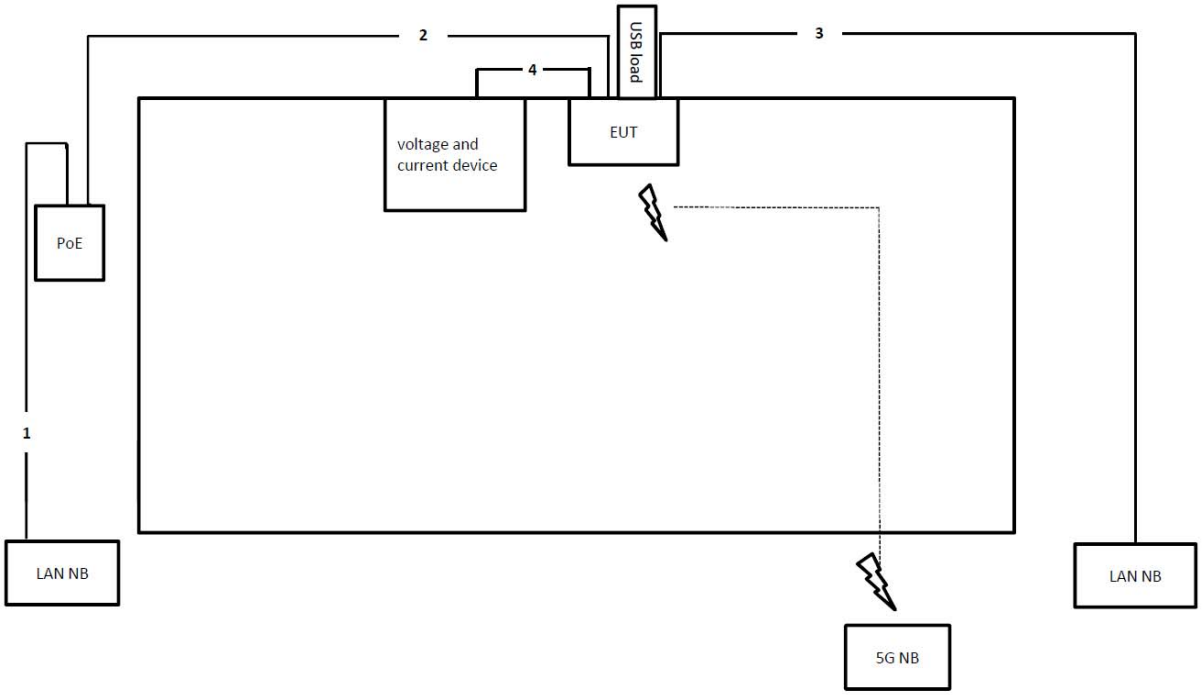
3.9. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.10. Test Configurations

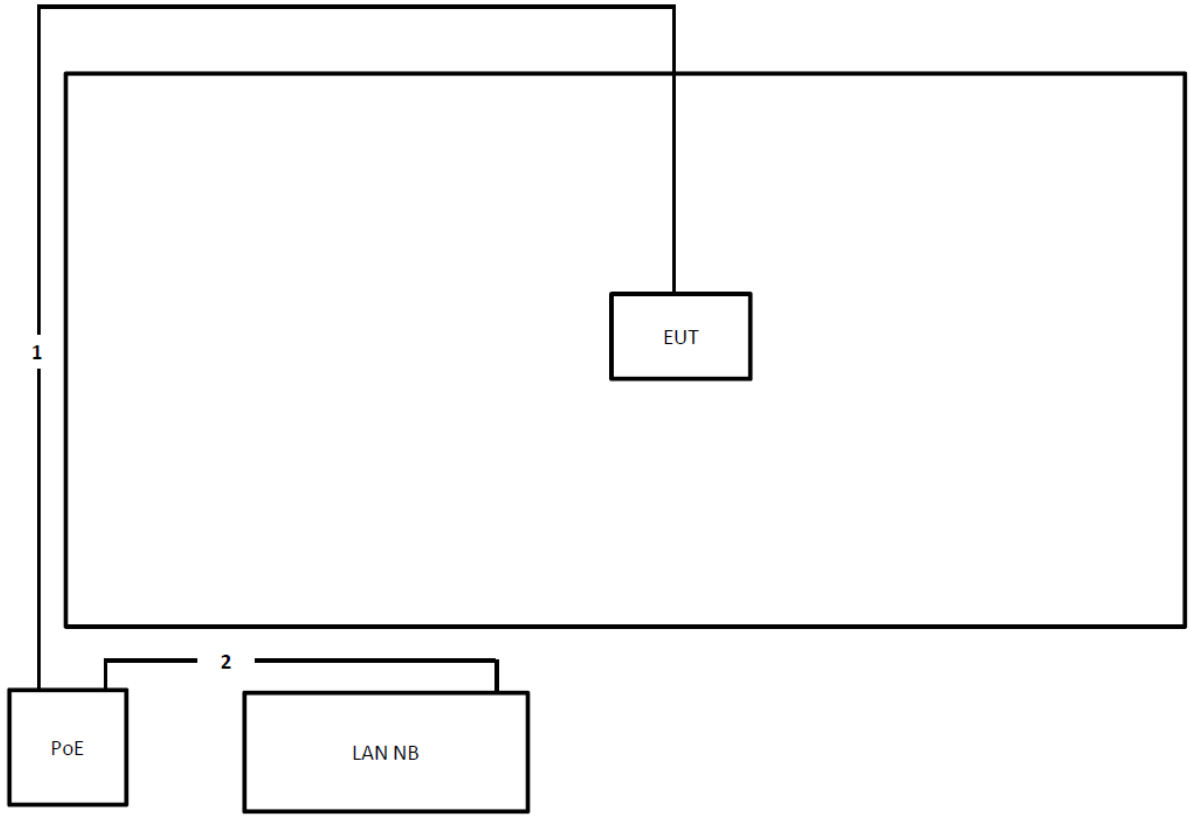
3.10.1. Radiation Emissions Test Configuration

Test Configuration: 30MHz ~1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	1.5m
2	RJ-45 cable	No	10m
3	RJ-45 cable	No	10m
4	Console cable	No	0.4m

Test Configuration: above 1GHz



Item	Connection	Shielded	Length
1	RJ-45 cable	No	10m
2	RJ-45 cable	No	1.5m

4. TEST RESULT

4.1. Radiated Emissions Measurement

4.1.1. 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 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.1.2. 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

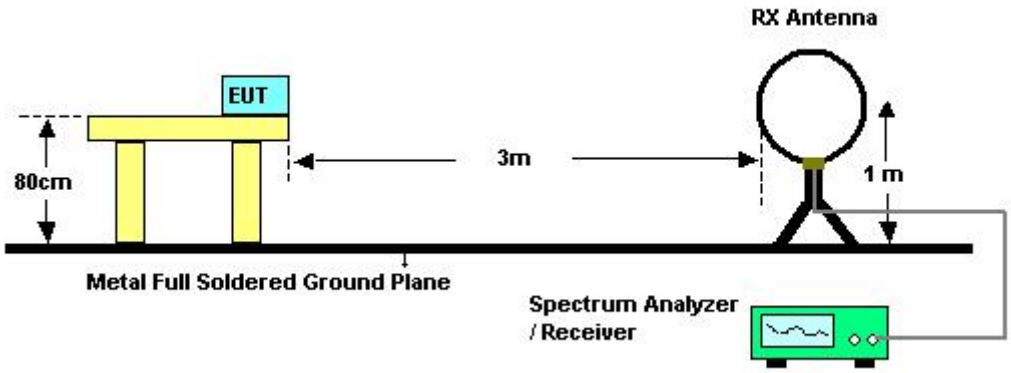
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RBW 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RBW 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RBW 120kHz for QP

4.1.3. Test Procedures

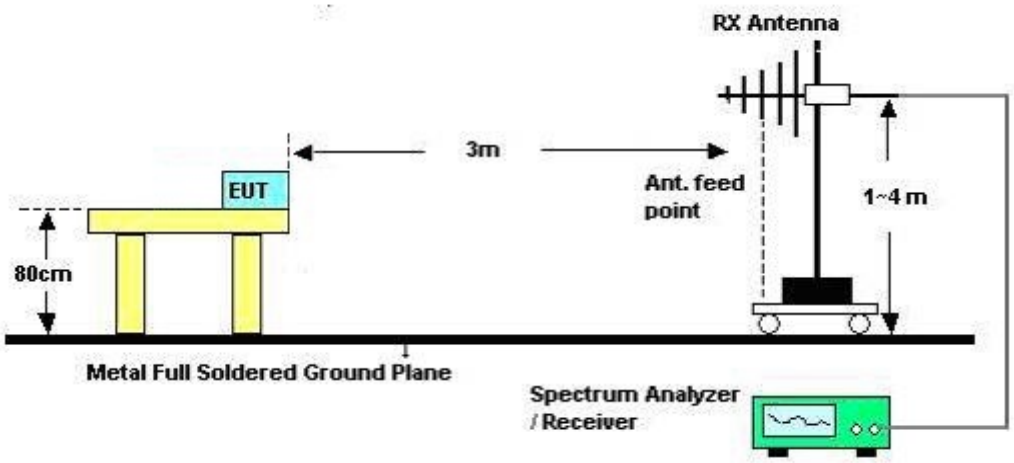
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 1m & 3m far away from the turntable.
2. Power on the EUT and all the supporting 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.

4.1.4. Test Setup Layout

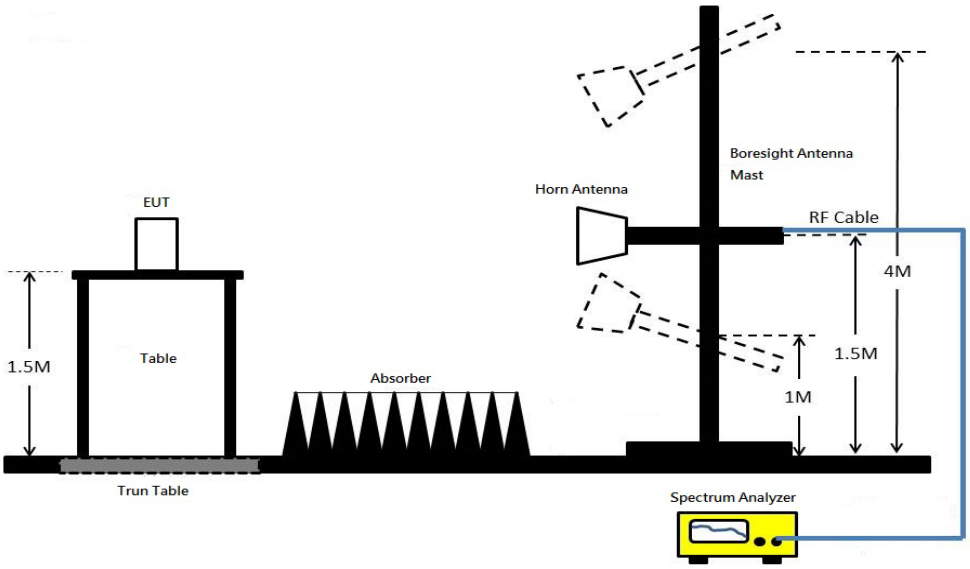
For Radiated Emissions: 9kHz ~30MHz



For Radiated Emissions: 30MHz~1GHz



For Radiated Emissions: Above 1GHz



4.1.5. Test Deviation

There is no deviation with the original standard.

4.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	Normal Link
Test Date	Aug. 15, 2016		

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.

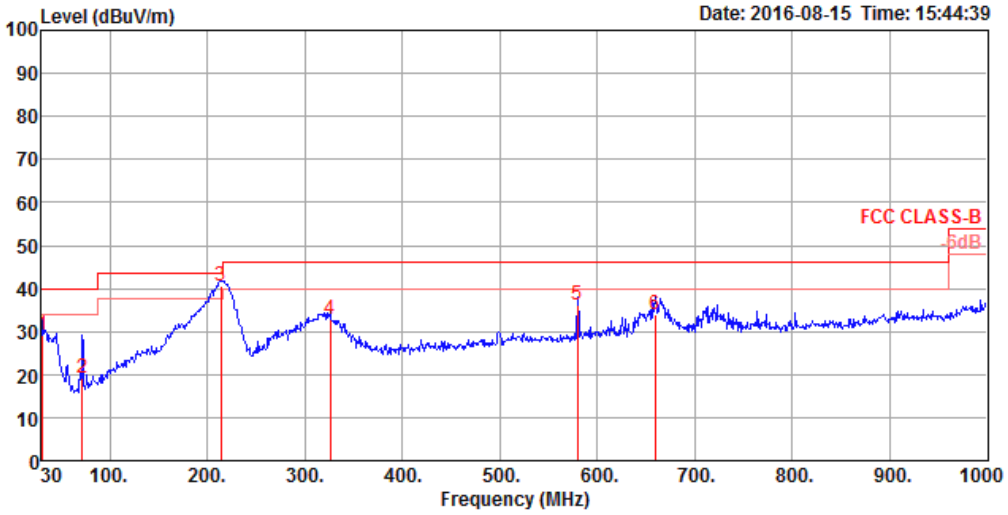
Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

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

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

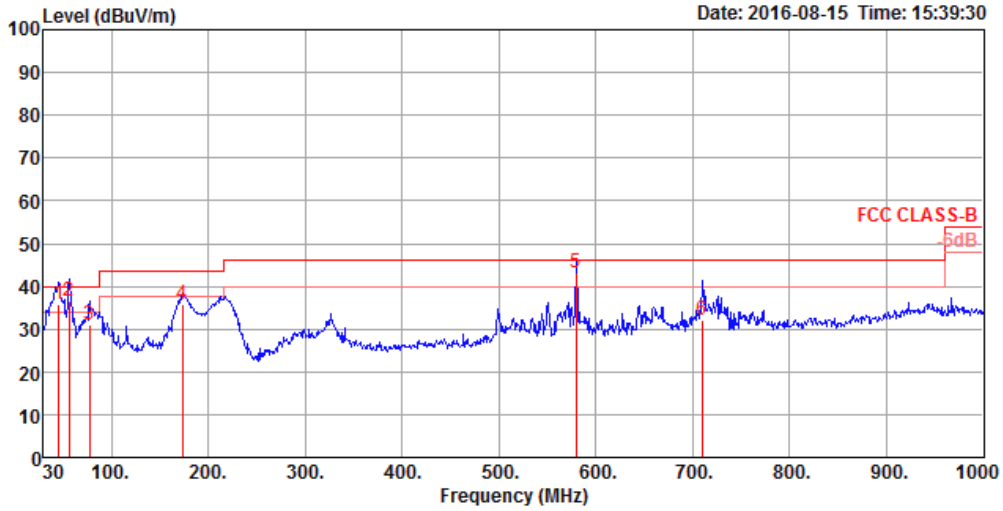
Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	Normal Link

Horizontal



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.97	29.33	40.00	-10.67	36.10	0.50	25.13	32.40	150	357	QP	HORIZONTAL
2	71.71	19.29	40.00	-20.71	37.93	0.73	13.03	32.40	100	130	QP	HORIZONTAL
3	214.30	40.47	43.50	-3.03	54.74	1.26	16.79	32.32	150	166	QP	HORIZONTAL
4	325.85	32.78	46.00	-13.22	42.79	1.55	20.73	32.29	100	342	QP	HORIZONTAL
5	579.99	36.00	46.00	-10.00	41.14	2.09	25.17	32.40	200	10	QP	HORIZONTAL
6	659.53	33.84	46.00	-12.16	37.95	2.21	26.06	32.38	150	347	QP	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	45.52	35.87	40.00	-4.13	50.80	0.60	16.88	32.41	100	3	QP	VERTICAL
2	56.19	36.59	40.00	-3.41	54.20	0.66	14.14	32.41	100	26	QP	VERTICAL
3	77.53	31.10	40.00	-8.90	49.30	0.77	13.43	32.40	150	167	QP	VERTICAL
4	173.56	35.91	43.50	-7.59	50.70	1.14	16.41	32.34	100	359	QP	VERTICAL
5	579.99	42.99	46.00	-3.01	48.13	2.09	25.17	32.40	100	350	QP	VERTICAL
6	709.97	32.06	46.00	-13.94	36.12	2.29	26.00	32.35	100	360	QP	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.

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 36 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.04	44.90	74.00	-29.10	33.68	7.70	38.16	34.64	135	347	Peak	HORIZONTAL
2	15536.04	44.21	54.00	-9.79	32.99	7.70	38.16	34.64	135	347	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15535.00	54.71	74.00	-19.29	43.49	7.70	38.16	34.64	209	327	Peak	VERTICAL
2	15535.00	43.99	54.00	-10.01	32.77	7.70	38.16	34.64	209	327	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 40 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15600.36	44.16	54.00	-9.84	32.88	7.73	38.23	34.68	116	36	Average	HORIZONTAL
2	15605.68	57.51	74.00	-16.49	46.17	7.73	38.29	34.68	116	36	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15590.92	56.84	74.00	-17.16	45.56	7.73	38.23	34.68	157	326	Peak	VERTICAL
2	15593.00	44.18	54.00	-9.82	32.90	7.73	38.23	34.68	157	326	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 48 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15716.48	56.63	74.00	-17.37	45.24	7.78	38.42	34.81	163	263	Peak	HORIZONTAL
2	15718.46	44.11	54.00	-9.89	32.72	7.78	38.42	34.81	163	263	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15716.08	43.96	54.00	-10.04	32.57	7.78	38.42	34.81	144	80	Average	VERTICAL
2	15718.70	58.36	74.00	-15.64	46.97	7.78	38.42	34.81	144	80	Peak	VERTICAL

Temperature	24℃	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11490.00	44.25	54.00	-9.75	34.10	6.27	38.50	34.62	141	309	Average	HORIZONTAL
2	11490.11	54.20	74.00	-19.80	44.05	6.27	38.50	34.62	141	309	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11489.88	54.42	74.00	-19.58	44.27	6.27	38.50	34.62	107	351	Peak	VERTICAL
2	11490.00	44.31	54.00	-9.69	34.16	6.27	38.50	34.62	107	351	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 157 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11525.13	52.68	74.00	-21.32	42.51	6.29	38.51	34.63	134	199	Peak	HORIZONTAL
2	11532.60	39.60	54.00	-14.40	29.43	6.29	38.51	34.63	134	199	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11525.30	53.36	74.00	-20.64	43.19	6.29	38.51	34.63	148	137	Peak	VERTICAL
2	11525.90	39.55	54.00	-14.45	29.38	6.29	38.51	34.63	148	137	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 165 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11565.67	52.19	74.00	-21.81	42.00	6.31	38.53	34.65	154	238	Peak	HORIZONTAL
2	11570.91	38.90	54.00	-15.10	28.71	6.31	38.53	34.65	154	238	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11573.75	39.14	54.00	-14.86	28.95	6.31	38.53	34.65	178	216	Average	VERTICAL
2	11574.78	52.37	74.00	-21.63	42.18	6.31	38.53	34.65	178	216	Peak	VERTICAL

Temperature	24℃	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15542.18	54.25	74.00	-19.75	43.02	7.71	38.16	34.64	132	14	Peak	HORIZONTAL
2	15543.49	41.28	54.00	-12.72	30.05	7.71	38.16	34.64	132	14	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15539.46	41.27	54.00	-12.73	30.04	7.71	38.16	34.64	120	139	Average	VERTICAL
2	15542.68	55.27	74.00	-18.73	44.04	7.71	38.16	34.64	120	139	Peak	VERTICAL

Temperature	24℃	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 40 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15599.05	55.09	74.00	-18.91	43.81	7.73	38.23	34.68	140	173	Peak	HORIZONTAL
2	15600.75	40.93	54.00	-13.07	29.59	7.73	38.29	34.68	140	173	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15601.55	54.22	74.00	-19.78	42.88	7.73	38.29	34.68	142	210	Peak	VERTICAL
2	15604.73	41.35	54.00	-12.65	30.01	7.73	38.29	34.68	142	210	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 48 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15718.24	41.62	54.00	-12.38	30.23	7.78	38.42	34.81	169	276	Average	HORIZONTAL
2	15721.68	55.26	74.00	-18.74	43.87	7.78	38.42	34.81	169	276	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15715.10	54.82	74.00	-19.18	43.43	7.78	38.42	34.81	183	325	Peak	VERTICAL
2	15716.49	41.63	54.00	-12.37	30.24	7.78	38.42	34.81	183	325	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11489.79	54.00	74.00	-20.00	43.85	6.27	38.50	34.62	139	309	Peak	HORIZONTAL
2	11489.95	43.90	54.00	-10.10	33.75	6.27	38.50	34.62	139	309	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11490.03	53.62	74.00	-20.38	43.47	6.27	38.50	34.62	107	352	Peak	VERTICAL
2	11490.06	43.64	54.00	-10.36	33.49	6.27	38.50	34.62	107	352	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 157 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11569.90	52.93	74.00	-21.07	42.74	6.31	38.53	34.65	103	290	Peak	HORIZONTAL
2	11570.02	41.41	54.00	-12.59	31.22	6.31	38.53	34.65	103	290	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11569.98	42.93	54.00	-11.07	32.74	6.31	38.53	34.65	102	352	Average	VERTICAL
2	11570.10	54.17	74.00	-19.83	43.98	6.31	38.53	34.65	102	352	Peak	VERTICAL

Temperature	24℃	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 165 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11650.00	41.89	54.00	-12.11	31.68	6.34	38.55	34.68	100	288	Average	HORIZONTAL
2	11650.03	53.99	74.00	-20.01	43.78	6.34	38.55	34.68	100	288	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11649.86	53.52	74.00	-20.48	43.31	6.34	38.55	34.68	100	353	Peak	VERTICAL
2	11649.98	43.38	54.00	-10.62	33.17	6.34	38.55	34.68	100	353	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15567.55	41.04	54.00	-12.96	29.77	7.72	38.23	34.68	124	178	Average	HORIZONTAL
2	15572.10	54.07	74.00	-19.93	42.80	7.72	38.23	34.68	124	178	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15568.73	41.05	54.00	-12.95	29.78	7.72	38.23	34.68	135	214	Average	VERTICAL
2	15573.73	53.39	74.00	-20.61	42.12	7.72	38.23	34.68	135	214	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 46 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15688.78	55.31	74.00	-18.69	43.96	7.77	38.35	34.77	156	291	Peak	HORIZONTAL
2	15691.11	41.47	54.00	-12.53	30.05	7.77	38.42	34.77	156	291	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	15691.78	41.71	54.00	-12.29	30.29	7.77	38.42	34.77	143	334	Average	VERTICAL
2	15694.87	54.86	74.00	-19.14	43.44	7.77	38.42	34.77	143	334	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11509.92	53.32	74.00	-20.68	43.17	6.28	38.50	34.63	140	308	Peak	HORIZONTAL
2	11510.03	44.39	54.00	-9.61	34.24	6.28	38.50	34.63	140	308	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11509.95	43.77	54.00	-10.23	33.62	6.28	38.50	34.63	101	350	Average	VERTICAL
2	11510.05	52.82	74.00	-21.18	42.67	6.28	38.50	34.63	101	350	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 159 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11589.98	41.87	54.00	-12.13	31.67	6.32	38.54	34.66	102	288	Average	HORIZONTAL
2	11590.26	52.95	74.00	-21.05	42.75	6.32	38.54	34.66	102	288	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11590.05	43.16	54.00	-10.84	32.96	6.32	38.54	34.66	100	352	Average	VERTICAL
2	11590.19	52.82	74.00	-21.18	42.62	6.32	38.54	34.66	100	352	Peak	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	16798.01	43.68	54.00	-10.32	29.37	7.63	40.86	34.18	161	229	Average	HORIZONTAL
2	16798.81	56.40	74.00	-17.60	42.09	7.63	40.86	34.18	161	229	Peak	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	16798.06	56.56	74.00	-17.44	42.25	7.63	40.86	34.18	138	295	Peak	VERTICAL
2	16804.04	43.76	54.00	-10.24	29.45	7.63	40.86	34.18	138	295	Average	VERTICAL

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 155 / Chain 1 + Chain 2
Test Date	Sep. 02, 2016		

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11542.05	52.25	74.00	-21.75	42.07	6.30	38.51	34.63	119	286	Peak	HORIZONTAL
2	11550.00	41.61	54.00	-12.39	31.45	6.30	38.51	34.65	119	286	Average	HORIZONTAL

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	11549.87	52.39	74.00	-21.61	42.23	6.30	38.51	34.65	106	350	Peak	VERTICAL
2	11550.00	42.85	54.00	-11.15	32.69	6.30	38.51	34.65	106	350	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.

4.2. Band Edge Emissions Measurement

4.2.1. 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 5.725-5.85 GHz band: all emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

In addition, In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.2.2. 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.

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

4.2.3. Test Procedures

The test procedure is the same as section 4.1.3.

4.2.4. Test Setup Layout

This test setup layout is the same as that shown in section 4.1.4.

4.2.5. Test Deviation

There is no deviation with the original standard.

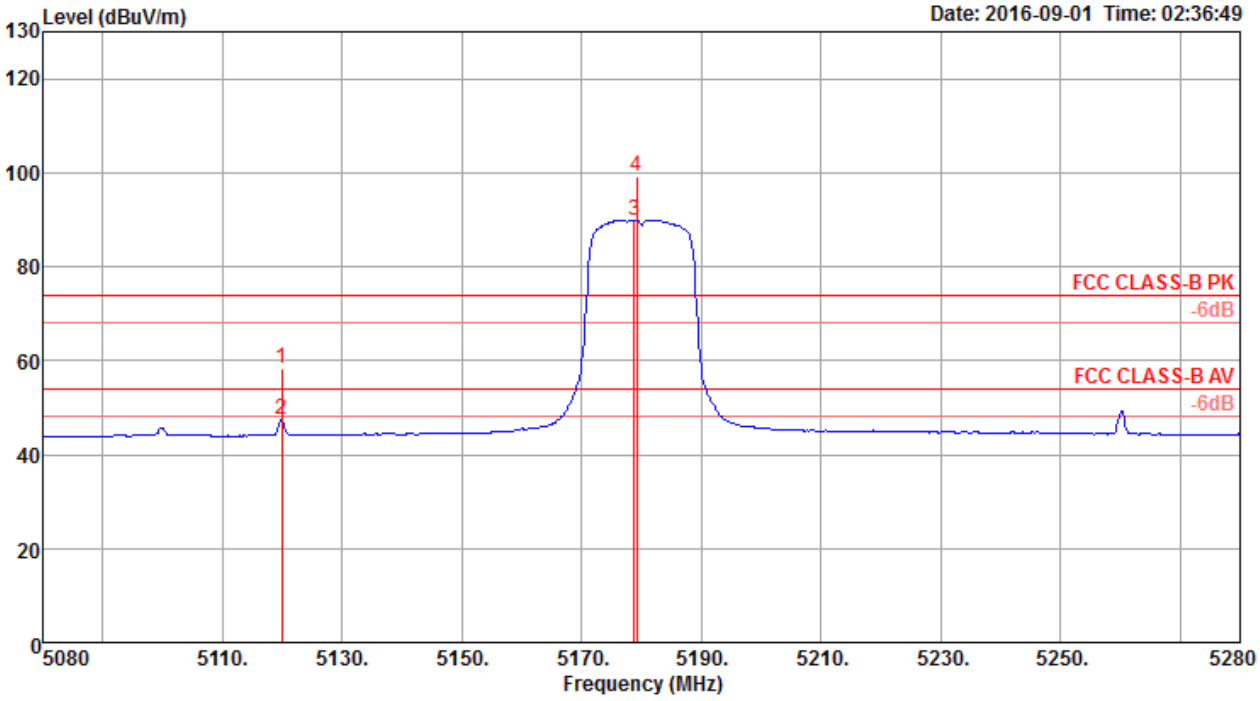
4.2.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

4.2.7. Test Result of Band Edge and Fundamental Emissions

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 36, 40, 48 / Chain 1 + Chain 2

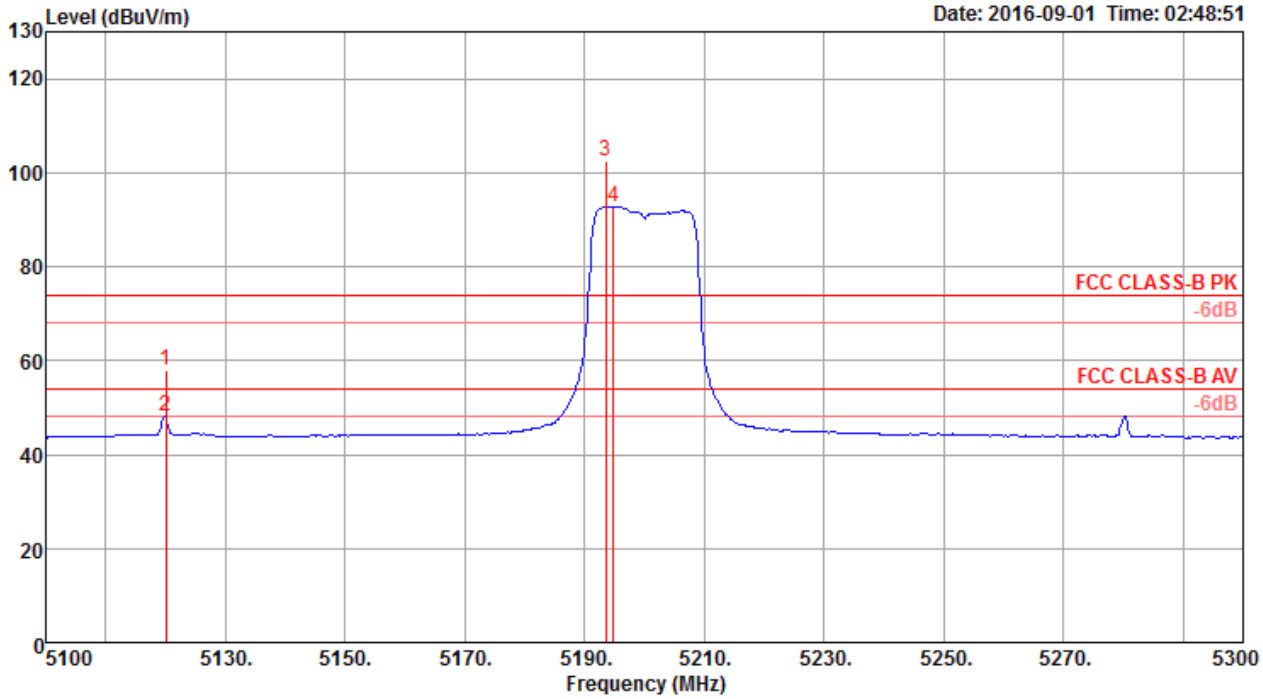
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	58.26	74.00	-15.74	55.16	4.30	33.27	34.47	149	354	Peak	VERTICAL
2	5120.00	47.49	54.00	-6.51	44.39	4.30	33.27	34.47	149	354	Average	VERTICAL
3 @	5178.80	89.91			86.69	4.34	33.35	34.47	149	354	Average	VERTICAL
4 @	5179.20	99.09			95.87	4.34	33.35	34.47	149	354	Peak	VERTICAL

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

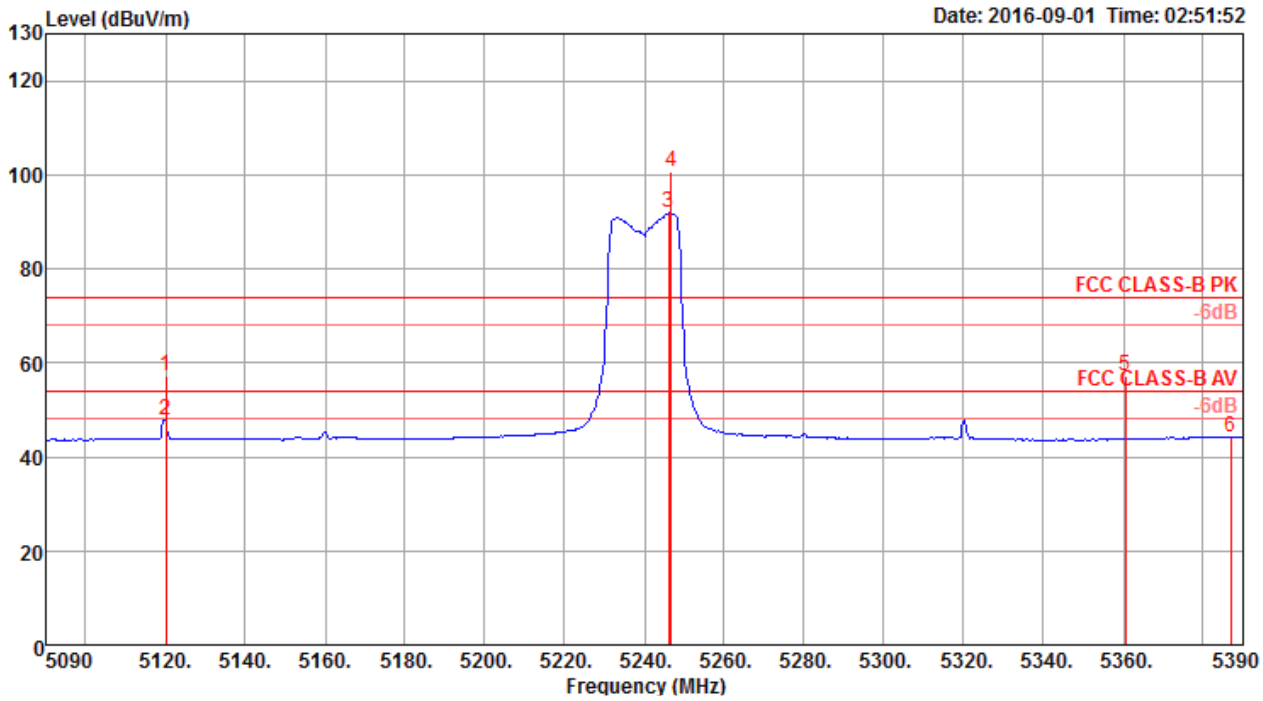
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	57.86	74.00	-16.14	54.76	4.30	33.27	34.47	143	12	Peak	VERTICAL
2	5120.00	48.02	54.00	-5.98	44.92	4.30	33.27	34.47	143	12	Average	VERTICAL
3 @	5193.60	102.50			99.23	4.36	33.38	34.47	143	12	Peak	VERTICAL
4 @	5194.80	92.76			89.49	4.36	33.38	34.47	143	12	Average	VERTICAL

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

Channel 48

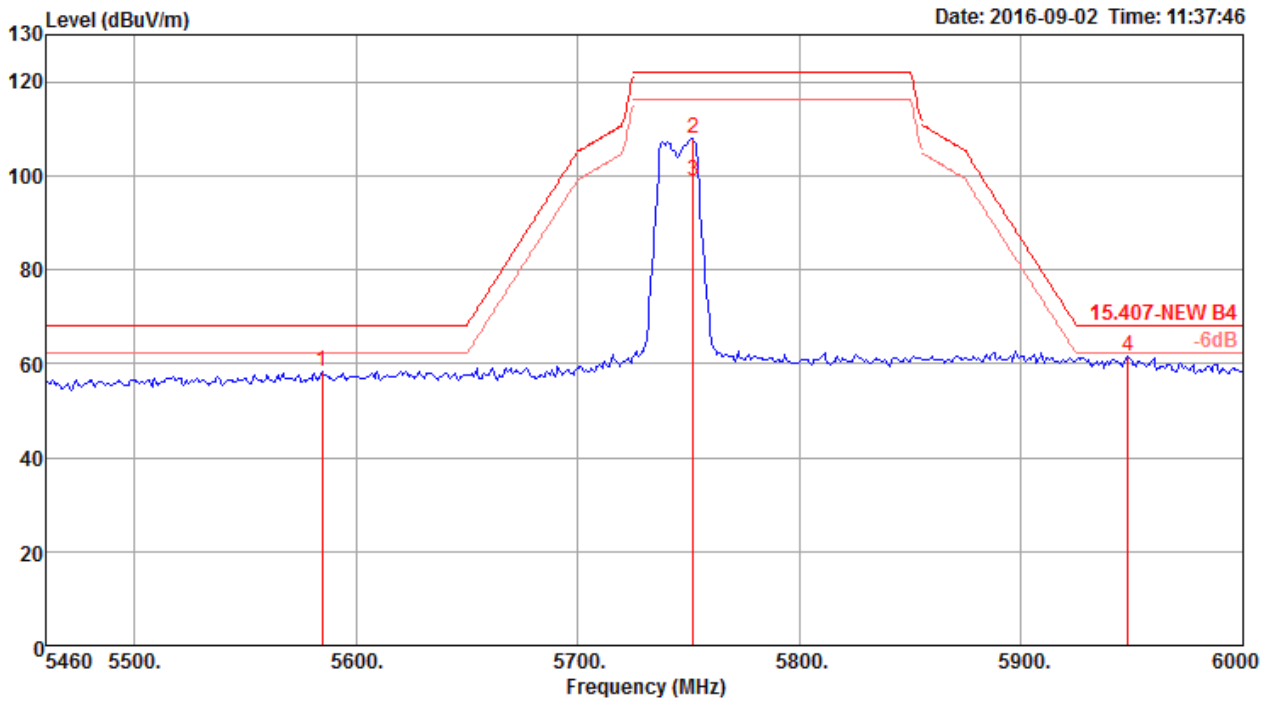


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	57.25	74.00	-16.75	54.15	4.30	33.27	34.47	153	359	Peak	VERTICAL
2	5120.00	47.94	54.00	-6.06	44.84	4.30	33.27	34.47	153	359	Average	VERTICAL
3 @	5246.00	91.83			88.48	4.38	33.44	34.47	153	359	Average	VERTICAL
4 @	5246.60	100.80			97.45	4.38	33.44	34.47	153	359	Peak	VERTICAL
5	5360.60	57.39	74.00	-16.61	53.81	4.44	33.61	34.47	153	359	Peak	VERTICAL
6	5387.00	44.32	54.00	-9.68	40.69	4.45	33.65	34.47	153	359	Average	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11a CH 149, 157, 165 / Chain 1 + Chain 2

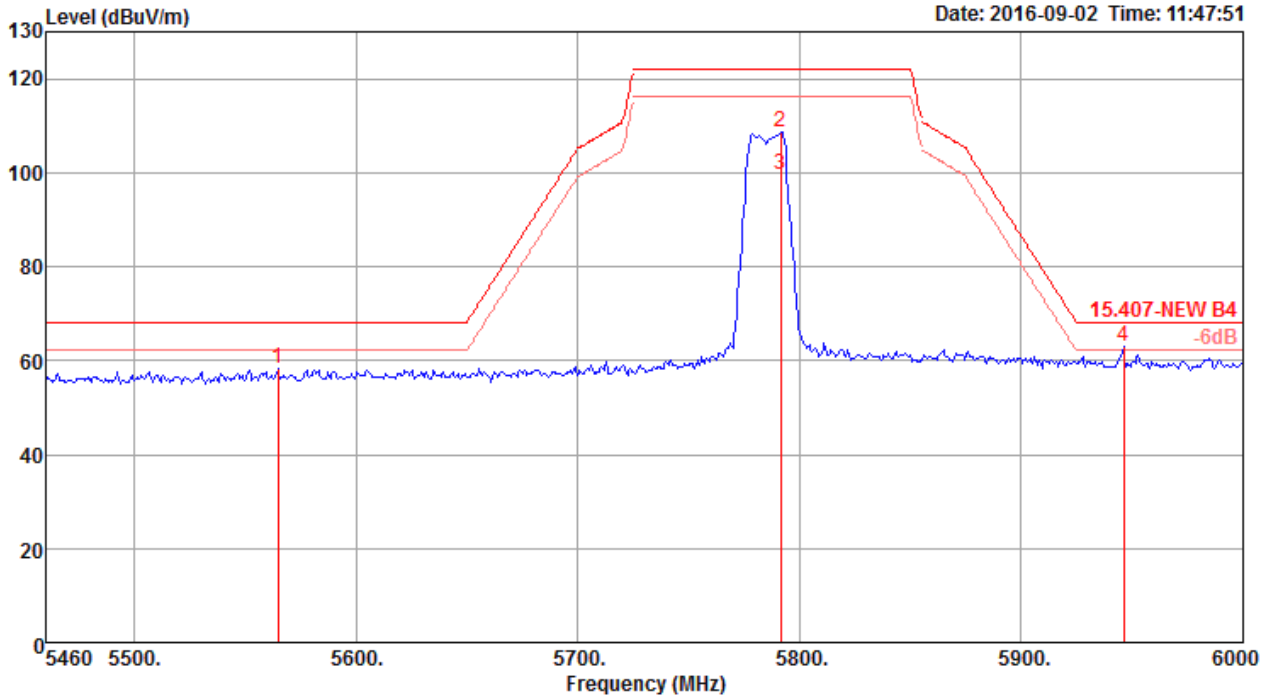
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5584.64	58.44	68.20	-9.76	54.57	4.31	34.05	34.49	190	353	Peak	HORIZONTAL
2	5752.20	107.90			103.29	4.58	34.55	34.52	190	353	Peak	HORIZONTAL
3	5752.20	98.78			94.17	4.58	34.55	34.52	190	353	Average	HORIZONTAL
4	5948.08	61.41	68.20	-6.79	56.16	4.66	35.15	34.56	190	353	Peak	HORIZONTAL

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

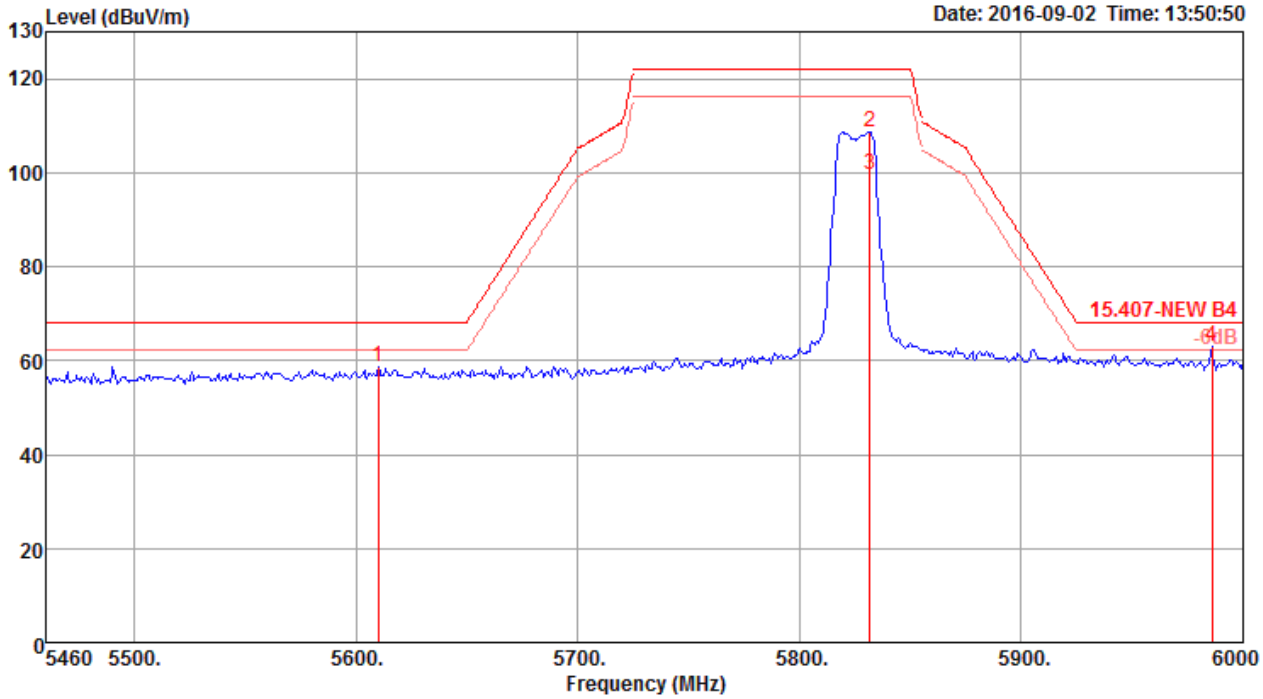
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5564.76	58.13	68.20	-10.07	54.28	4.33	34.00	34.48	185	2	Peak	VERTICAL
2	5791.56	108.61			103.79	4.65	34.70	34.53	185	2	Peak	VERTICAL
3	5791.56	99.61			94.79	4.65	34.70	34.53	185	2	Average	VERTICAL
4	5946.00	63.02	68.20	-5.18	57.77	4.66	35.15	34.56	185	2	Peak	VERTICAL

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

Channel 165

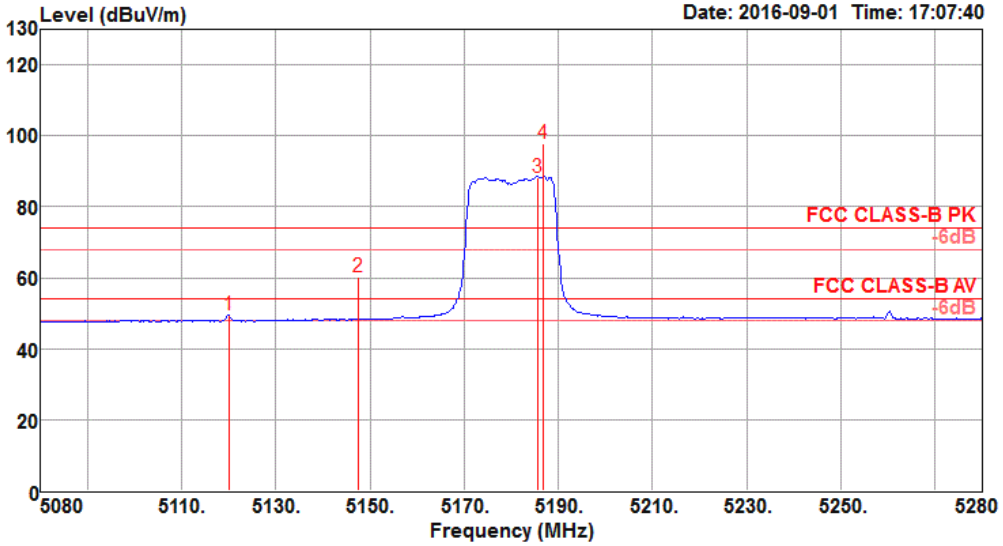


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5610.12	58.63	68.20	-9.57	54.65	4.32	34.15	34.49	184	2	Peak	VERTICAL
2	5831.52	108.62			103.69	4.67	34.80	34.54	184	2	Peak	VERTICAL
3	5831.52	99.63			94.70	4.67	34.80	34.54	184	2	Average	VERTICAL
4	5985.96	63.16	68.20	-5.04	57.82	4.66	35.25	34.57	184	2	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 36, 40, 48 / Chain 1 + Chain 2

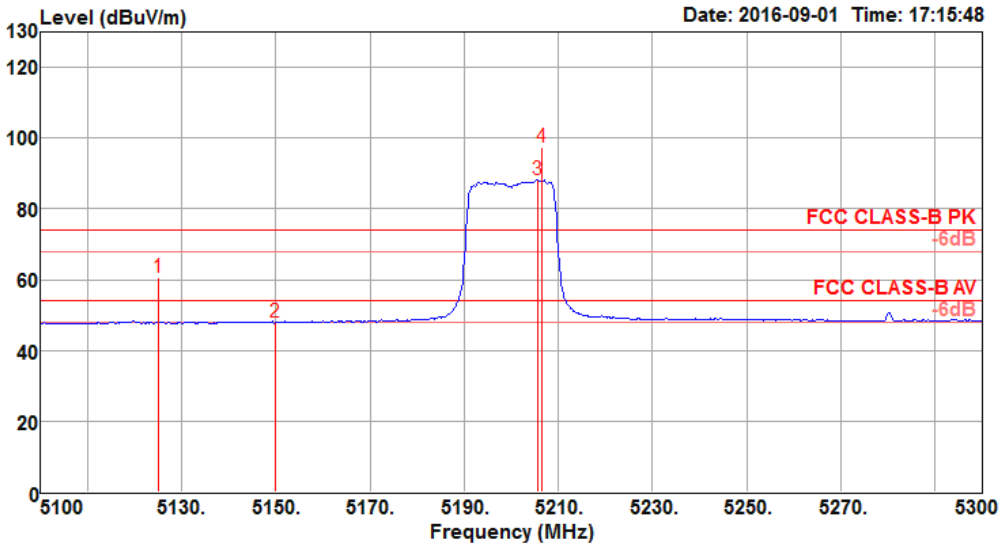
Channel 36



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	49.32	54.00	-4.68	41.92	7.48	34.82	34.90	122	353	Average	VERTICAL
2	5147.60	60.31	74.00	-13.69	52.89	7.48	34.85	34.91	122	353	Peak	VERTICAL
3 @	5185.60	88.05			80.60	7.48	34.88	34.91	122	353	Average	VERTICAL
4 @	5186.80	97.64			90.17	7.48	34.90	34.91	122	353	Peak	VERTICAL

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

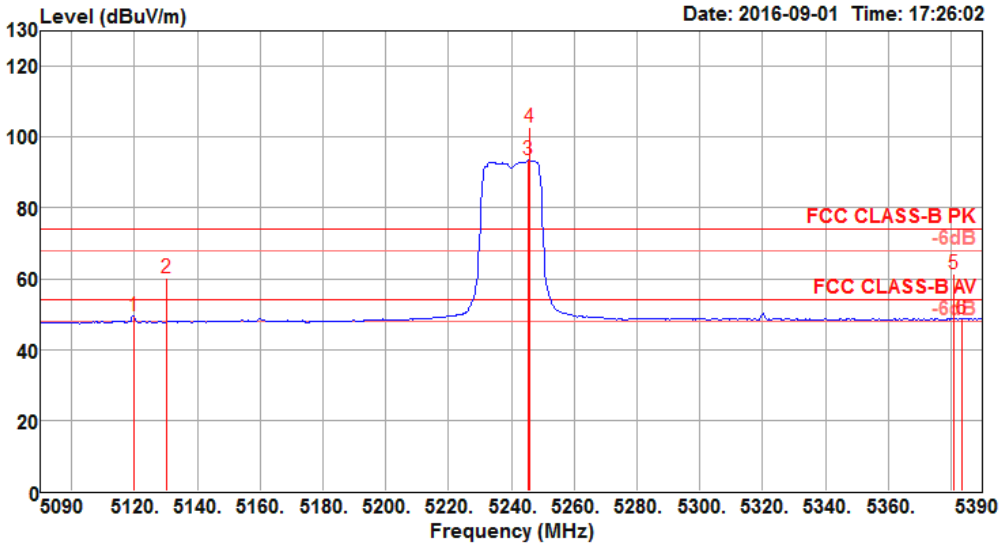
Channel 40



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5125.20	60.60	74.00	-13.40	53.20	7.48	34.82	34.90	110	19	Peak	VERTICAL
2	5150.00	47.88	54.00	-6.12	40.46	7.48	34.85	34.91	110	19	Average	VERTICAL
3 @	5205.60	88.12			80.63	7.49	34.91	34.91	110	19	Average	VERTICAL
4 @	5206.40	97.36			89.87	7.49	34.91	34.91	110	19	Peak	VERTICAL

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

Channel 48

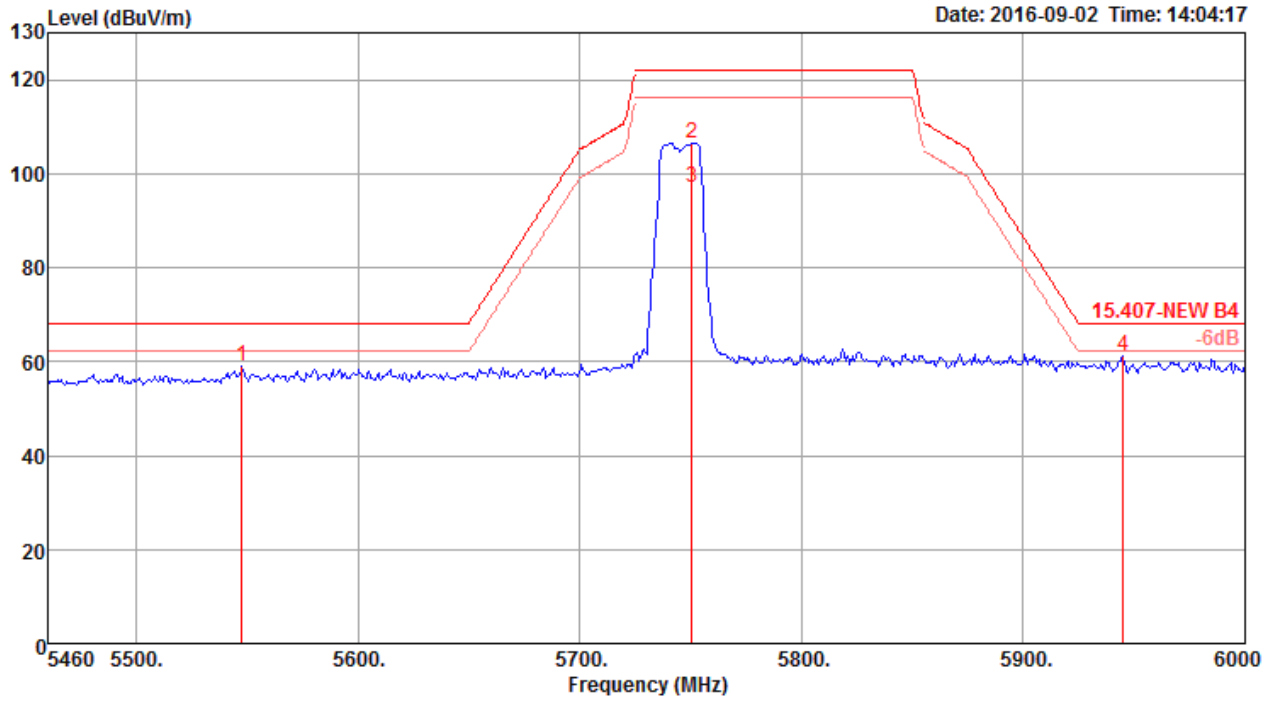


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	49.56	54.00	-4.44	42.16	7.48	34.82	34.90	115	16	Average	VERTICAL
2	5130.20	60.25	74.00	-13.75	52.84	7.48	34.84	34.91	115	16	Peak	VERTICAL
3 @	5245.40	93.47			85.94	7.50	34.94	34.91	115	16	Average	VERTICAL
4 @	5246.00	102.64			95.11	7.50	34.94	34.91	115	16	Peak	VERTICAL
5	5381.00	61.45	74.00	-12.55	53.72	7.57	35.08	34.92	115	16	Peak	VERTICAL
6	5383.40	48.81	54.00	-5.19	41.08	7.57	35.08	34.92	115	16	Average	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT20 CH 149, 157, 165 / Chain 1 + Chain 2

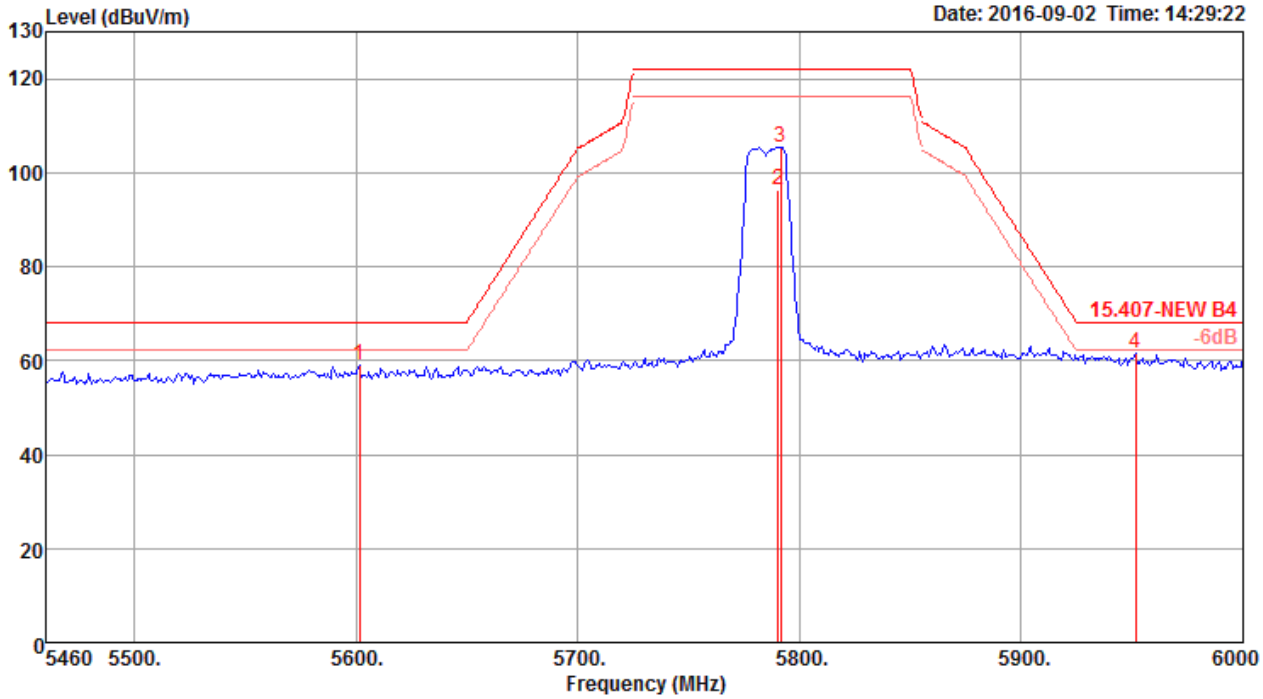
Channel 149



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5547.48	58.97	68.20	-9.23	55.16	4.34	33.95	34.48	179	0	Peak	VERTICAL
2	5750.52	106.50			101.89	4.58	34.55	34.52	179	0	Peak	VERTICAL
3	5750.52	97.19			92.58	4.58	34.55	34.52	179	0	Average	VERTICAL
4	5944.92	61.19	68.20	-7.01	55.94	4.66	35.15	34.56	179	0	Peak	VERTICAL

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

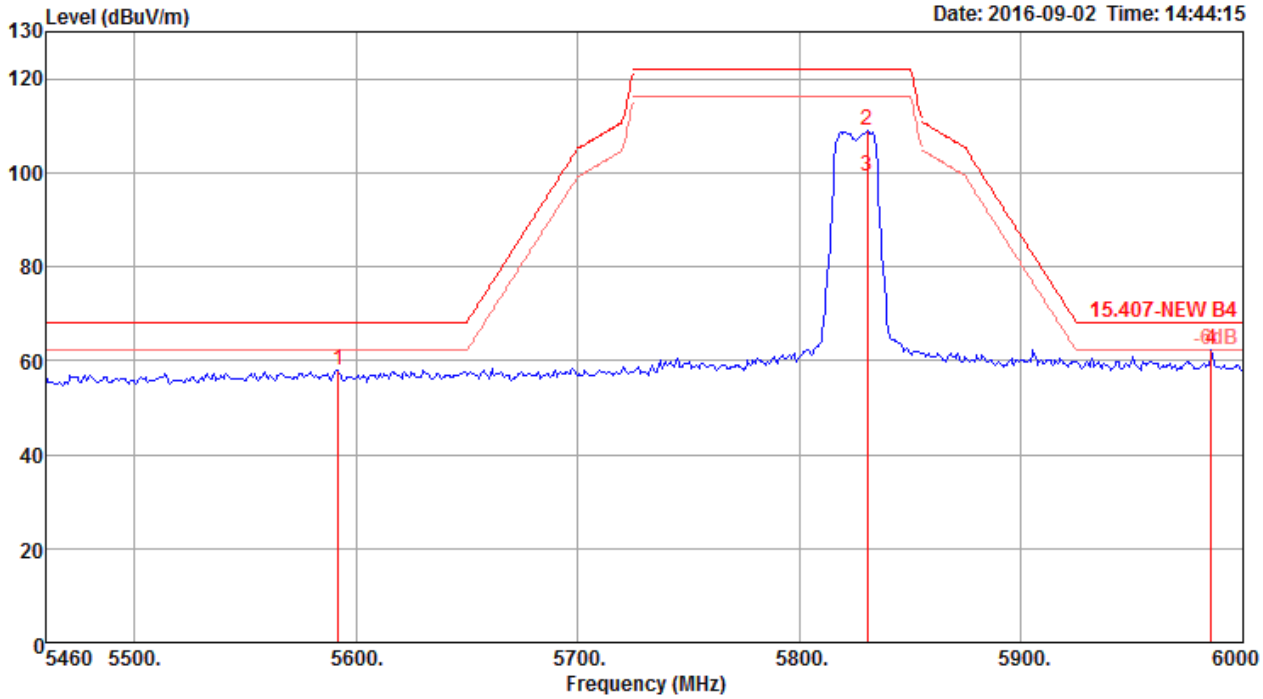
Channel 157



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5601.48	58.92	68.20	-9.28	55.01	4.30	34.10	34.49	180	352	Peak	HORIZONTAL
2	5790.48	96.35			91.53	4.65	34.70	34.53	180	352	Average	HORIZONTAL
3	5791.56	105.50			100.68	4.65	34.70	34.53	180	352	Peak	HORIZONTAL
4	5951.40	61.41	68.20	-6.79	56.16	4.66	35.15	34.56	180	352	Peak	HORIZONTAL

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

Channel 165

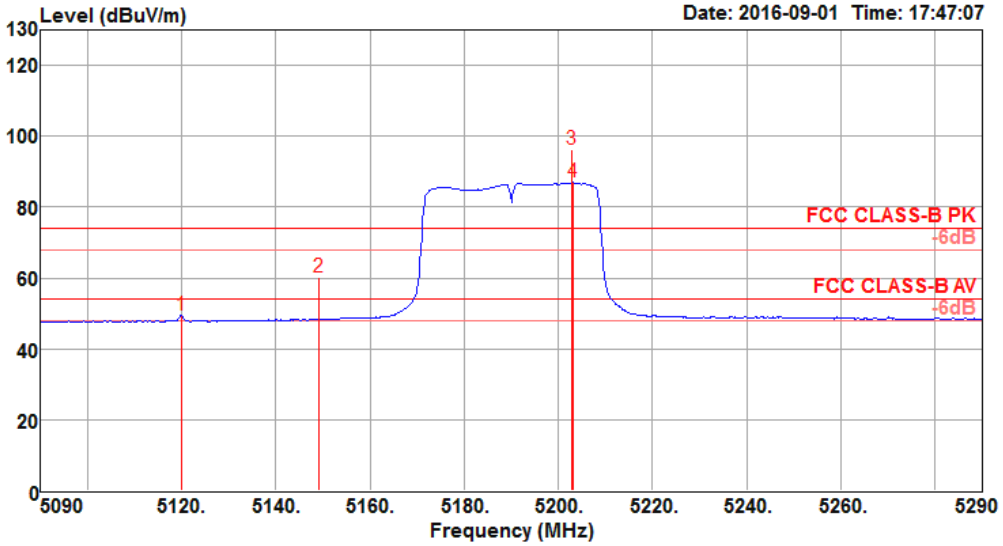


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5591.90	58.02	68.20	-10.18	54.10	4.31	34.10	34.49	179	2	Peak	VERTICAL
2	5830.60	108.91			103.98	4.67	34.80	34.54	179	2	Peak	VERTICAL
3	5830.60	99.30			94.37	4.67	34.80	34.54	179	2	Average	VERTICAL
4	5985.70	62.24	68.20	-5.96	56.90	4.66	35.25	34.57	179	2	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 38, 46 / Chain 1 + Chain 2

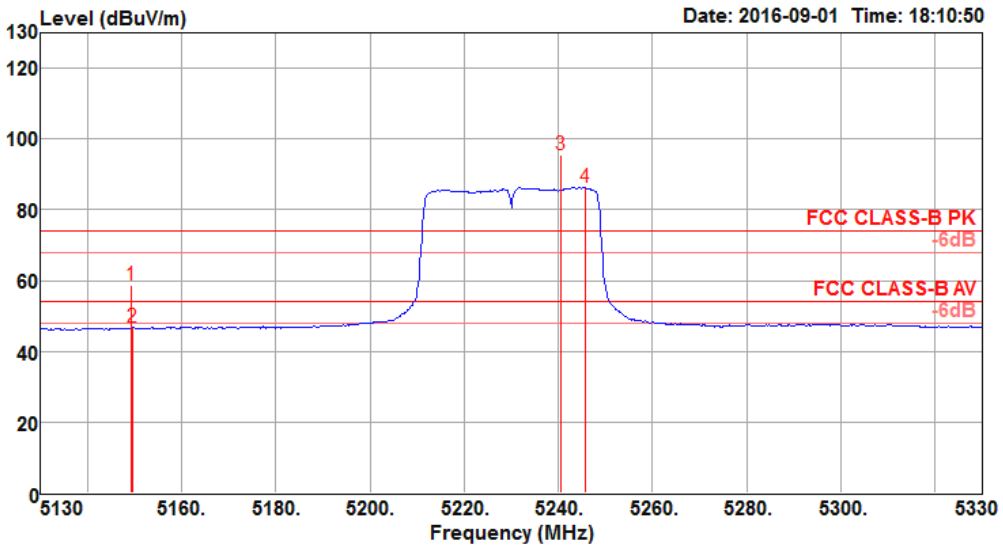
Channel 38



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	49.41	54.00	-4.59	42.01	7.48	34.82	34.90	114	14	Average	VERTICAL
2	5149.20	60.21	74.00	-13.79	52.79	7.48	34.85	34.91	114	14	Peak	VERTICAL
3 @	5202.80	96.29			88.80	7.49	34.91	34.91	114	14	Peak	VERTICAL
4 @	5203.20	86.89			79.40	7.49	34.91	34.91	114	14	Average	VERTICAL

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

Channel 46

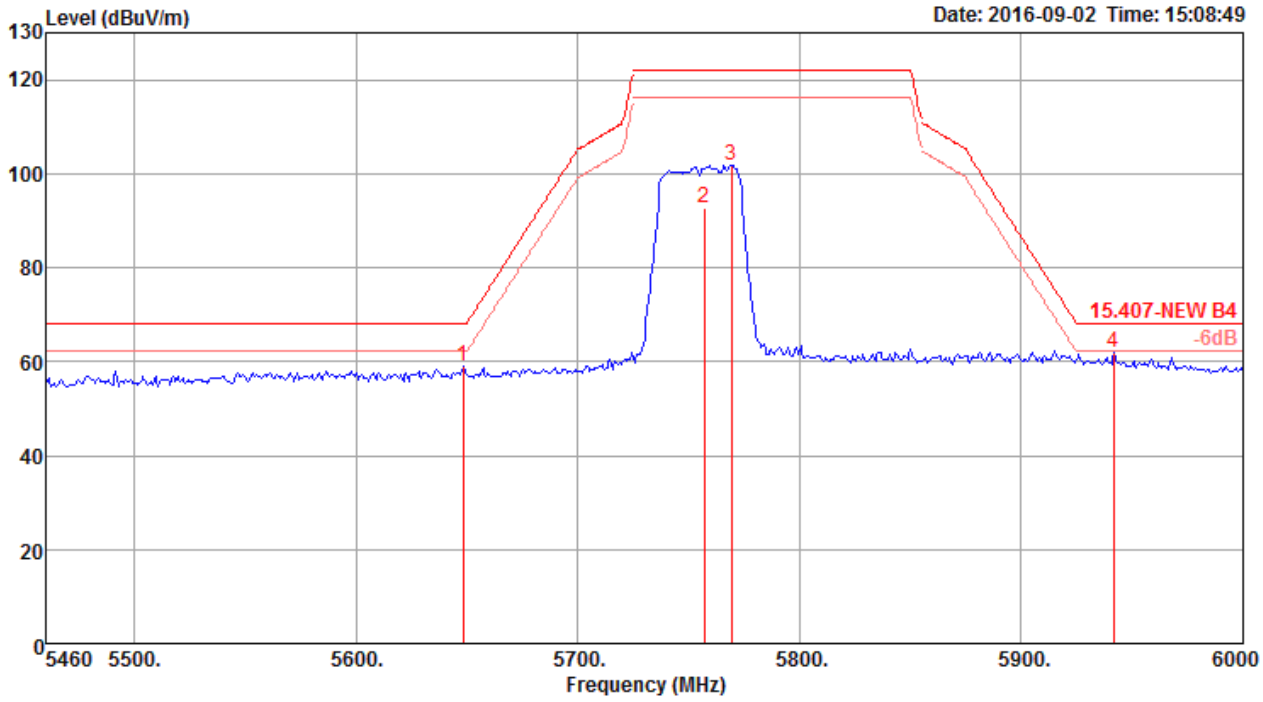


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5149.20	58.60	74.00	-15.40	51.18	7.48	34.85	34.91	114	16	Peak	VERTICAL
2	5149.60	46.92	54.00	-7.08	39.50	7.48	34.85	34.91	114	16	Average	VERTICAL
3 @	5240.40	95.66			88.13	7.50	34.94	34.91	114	16	Peak	VERTICAL
4 @	5245.60	86.29			78.76	7.50	34.94	34.91	114	16	Average	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT40 CH 151, 159 / Chain 1 + Chain 2

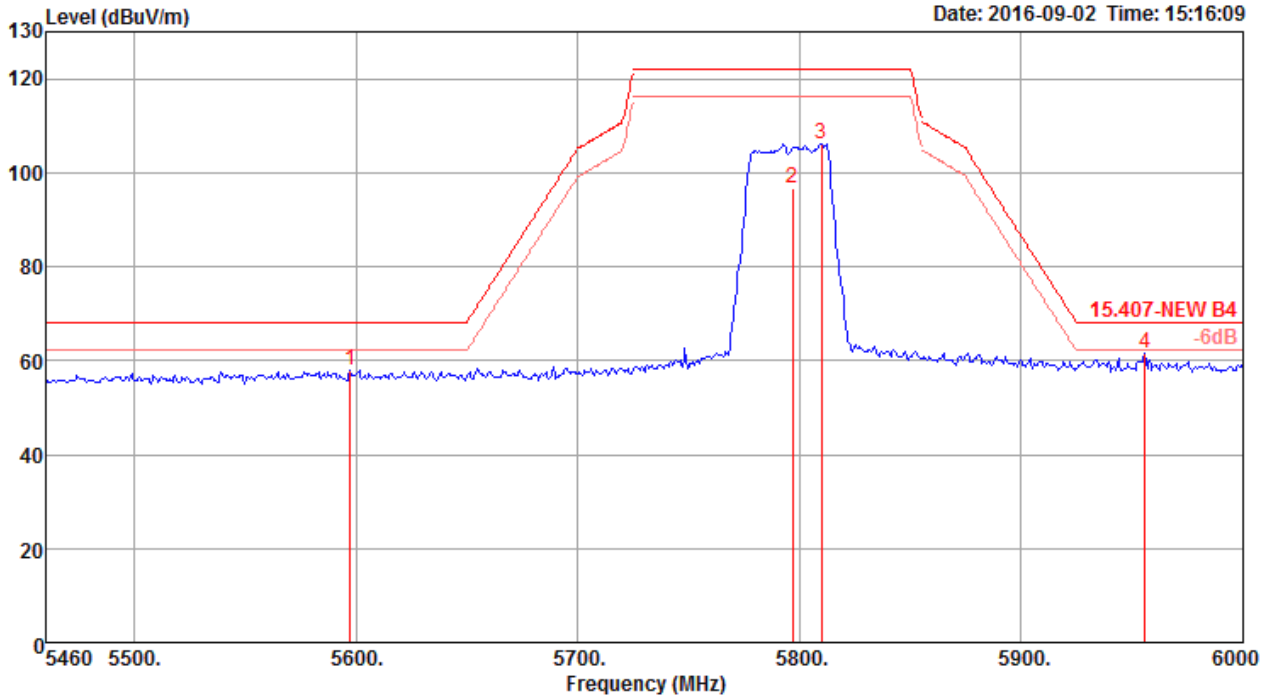
Channel 151



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5648.32	58.86	68.20	-9.34	54.72	4.39	34.25	34.50	182	356	Peak	HORIZONTAL
2	5756.96	92.70			88.03	4.59	34.60	34.52	182	356	Average	HORIZONTAL
3	5769.28	101.92			97.24	4.61	34.60	34.53	182	356	Peak	HORIZONTAL
4	5941.76	62.05	68.20	-6.15	56.80	4.66	35.15	34.56	182	356	Peak	HORIZONTAL

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

Channel 159

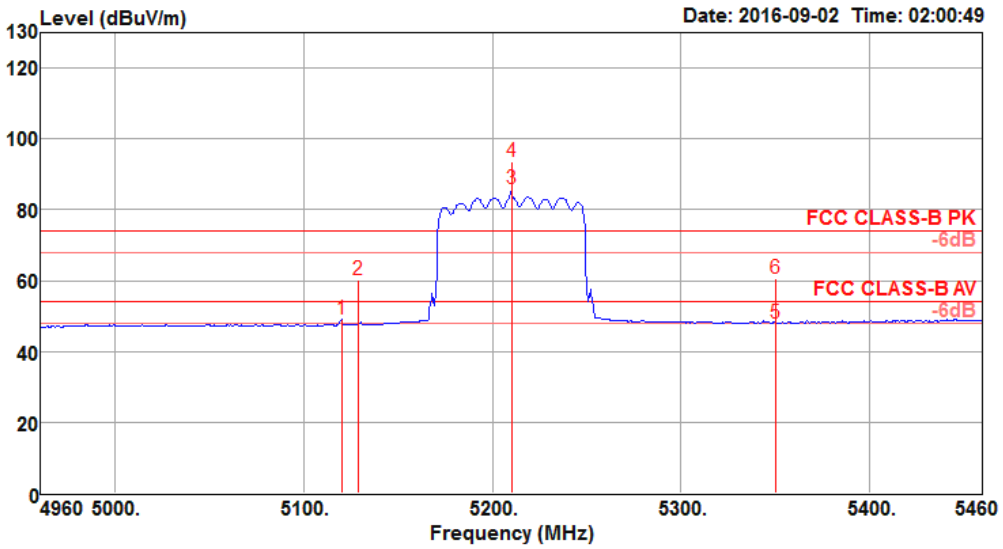


	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5597.16	57.78	68.20	-10.42	53.87	4.30	34.10	34.49	179	360	Peak	VERTICAL
2	5796.96	96.76			91.93	4.66	34.70	34.53	179	360	Average	VERTICAL
3	5809.92	106.24			101.35	4.67	34.75	34.53	179	360	Peak	VERTICAL
4	5955.72	61.48	68.20	-6.72	56.23	4.66	35.15	34.56	179	360	Peak	VERTICAL

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

Temperature	24°C	Humidity	55%
Test Engineer	Kenneth Huang	Configurations	IEEE 802.11ac MCS0/Nss1 VHT80 CH 42, 155 / Chain 1 + Chain 2

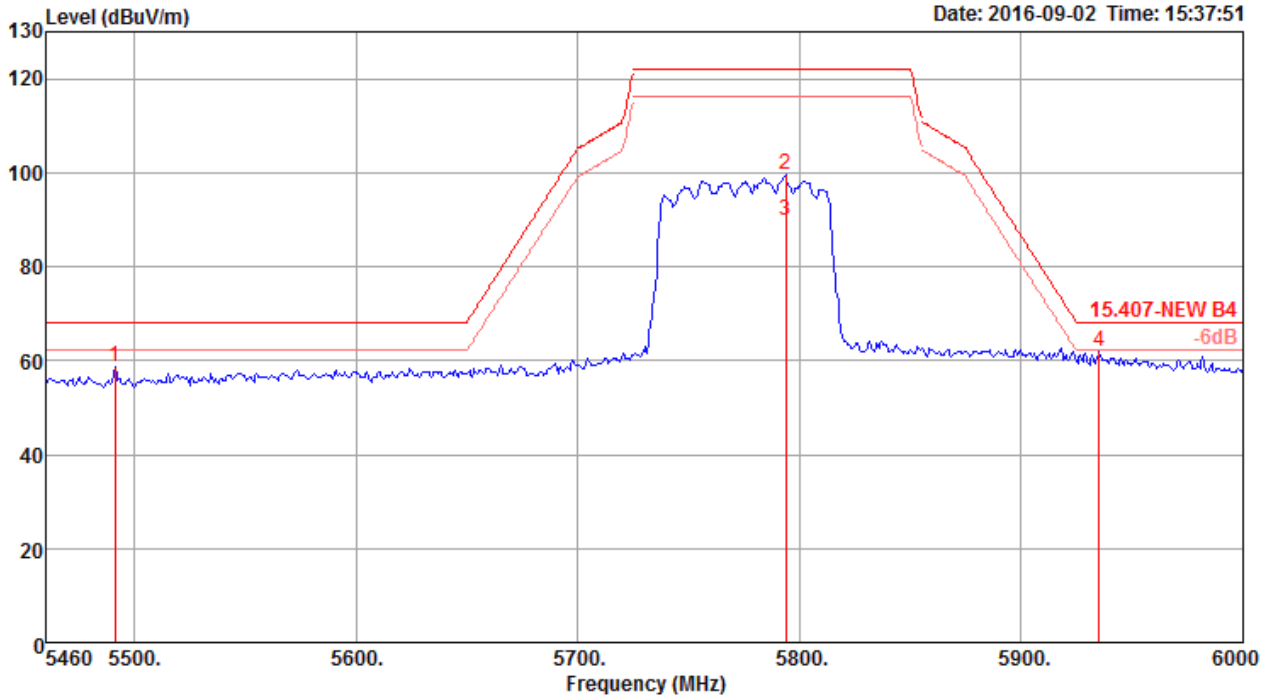
Channel 42



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5120.00	49.06	54.00	-4.94	41.66	7.48	34.82	34.90	101	15	Average	VERTICAL
2	5129.00	60.39	74.00	-13.61	52.98	7.48	34.84	34.91	101	15	Peak	VERTICAL
3 @	5210.00	86.09			78.60	7.49	34.91	34.91	101	15	Average	VERTICAL
4 @	5210.00	93.70			86.21	7.49	34.91	34.91	101	15	Peak	VERTICAL
5	5350.00	48.05	54.00	-5.95	40.35	7.56	35.05	34.91	101	15	Average	VERTICAL
6	5350.00	60.66	74.00	-13.34	52.96	7.56	35.05	34.91	101	15	Peak	VERTICAL

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

Channel 155



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	5491.32	58.61	68.20	-9.59	54.91	4.39	33.78	34.47	182	352	Peak	HORIZONTAL
2	5793.72	99.55			94.72	4.66	34.70	34.53	182	352	Peak	HORIZONTAL
3	5793.72	89.68			84.85	4.66	34.70	34.53	182	352	Average	HORIZONTAL
4	5935.20	62.05	68.20	-6.15	56.85	4.66	35.10	34.56	182	352	Peak	HORIZONTAL

Item 2, 3 are the fundamental frequency at 5775 MHz.

Note:

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

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

4.3. Antenna Requirements

4.3.1. 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.

4.3.2. 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
BILOG ANTENNA	TESEQ	CBL6112D	37880	20MHz ~ 2GHz	Sep. 03, 2015	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Mar. 15, 2016	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 18, 2016	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Nov. 13, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 16, 2016	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz ~ 1 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
Test Software	Audix	E3	6.2009-I0-7	N/A	N/A	Radiation (03CH01-CB)

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

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

6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
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%