

10.6 Test data for 802.11n_HT40 RLAN Mode

10.6.1 Test data for Antenna 0

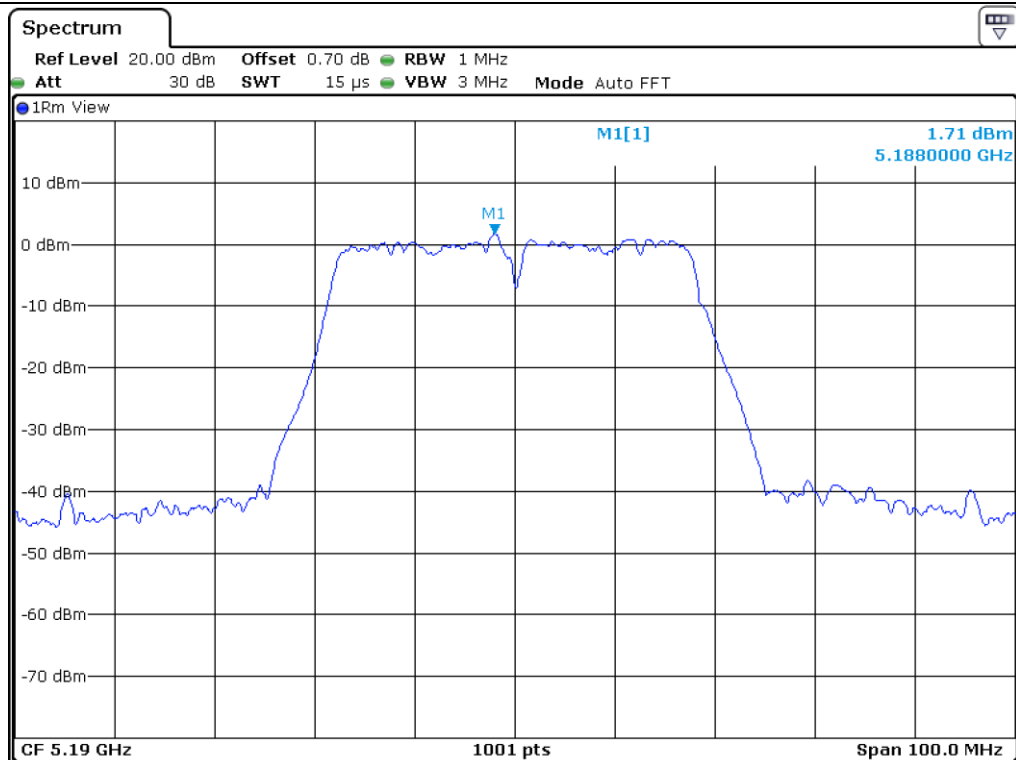
- . Test Date : February 05, 2018 ~ February 09, 2018
- . Operating condition : Highest Output Power Transmitting Mode
- . Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	1.71	17.00	15.29
	High	5 230.00	1.74	17.00	15.26
5 725 ~ 5 850	Low	5 755.00	-2.18	30.00	32.18
	High	5 795.00	-2.18	30.00	32.18

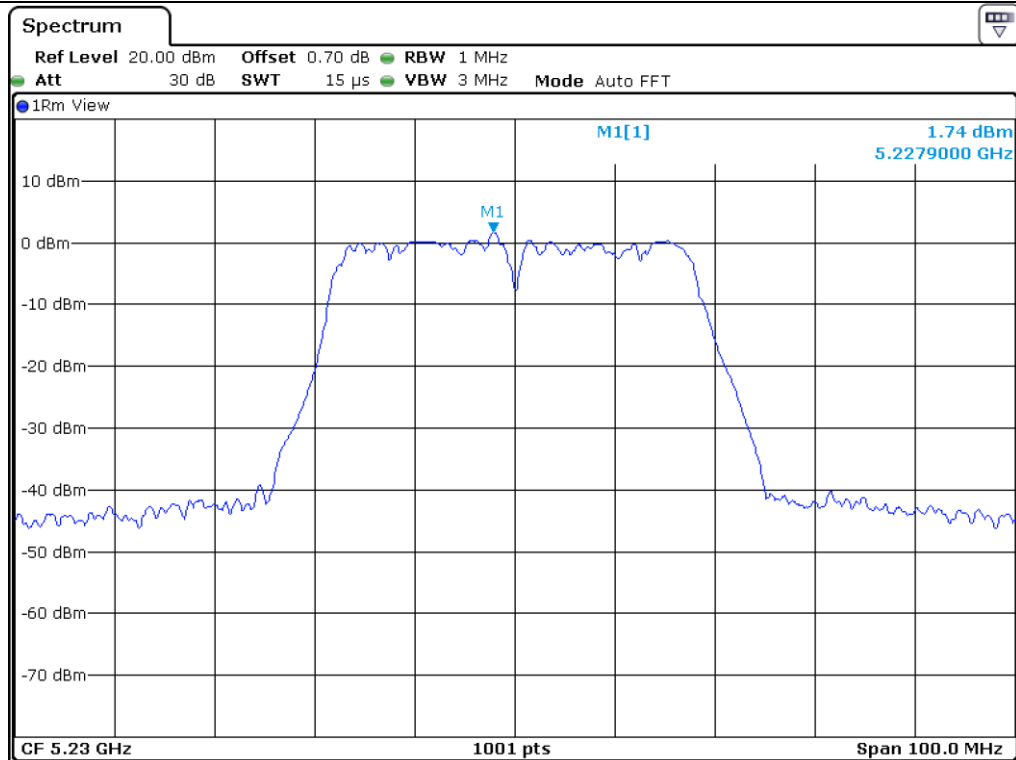
Remark: See next page for measurement data.



Tested by: Hyung-Kwon, Oh / Engineer



Low Channel (5 190 MHz)



High Channel (5 230 MHz)

10.6.2 Test data for Antenna 1

-. Test Date : July 19, 2017

-. Operating condition : Highest Output Power Transmitting Mode

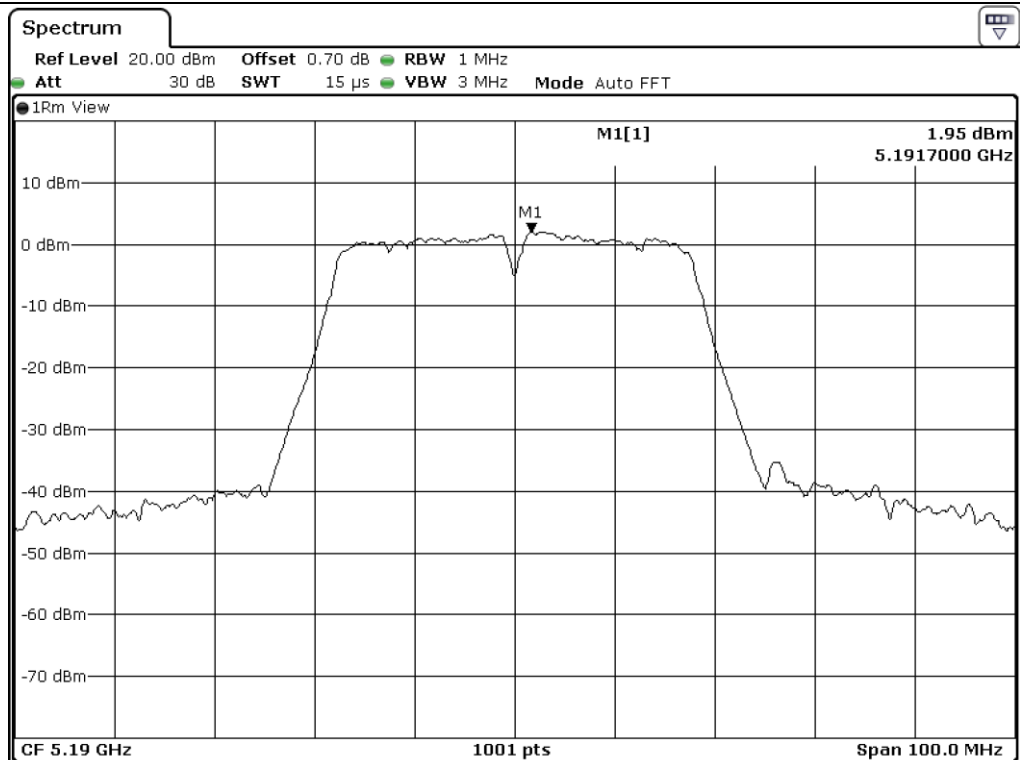
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	1.95	17.00	15.05
	High	5 230.00	1.78	17.00	15.22
5 725 ~ 5 850	Low	5 755.00	-2.08	30.00	32.08
	High	5 795.00	-2.10	30.00	32.10

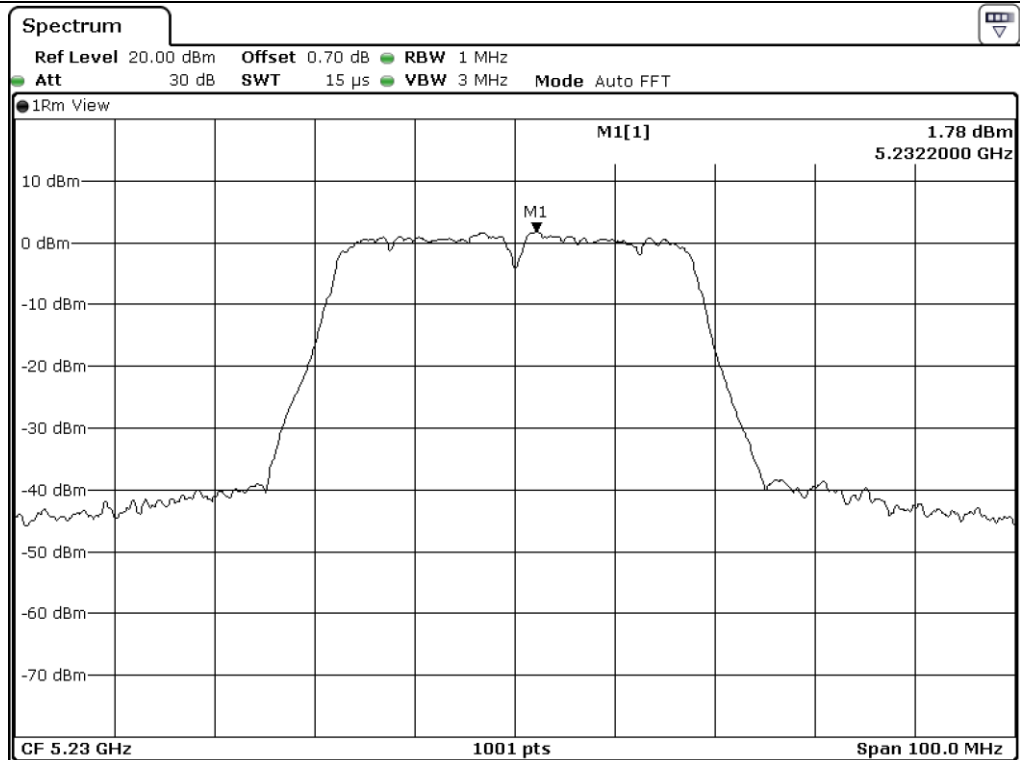
Remark: See next page for measurement data.



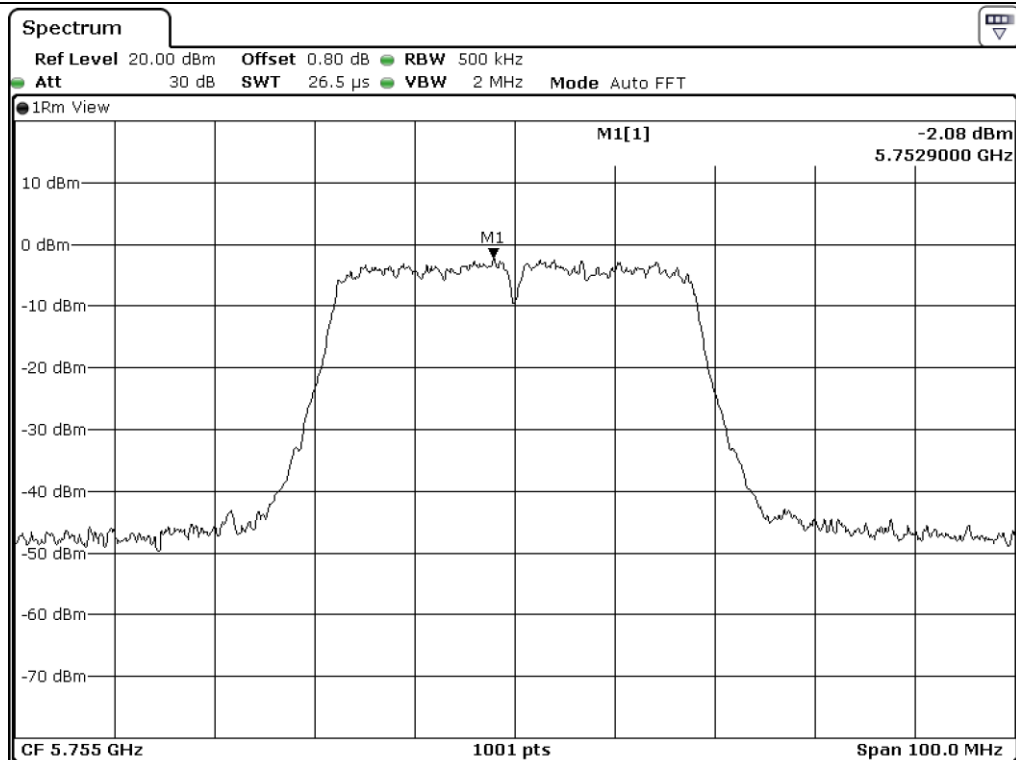
Tested by: Hyung-Kwon, Oh / Engineer



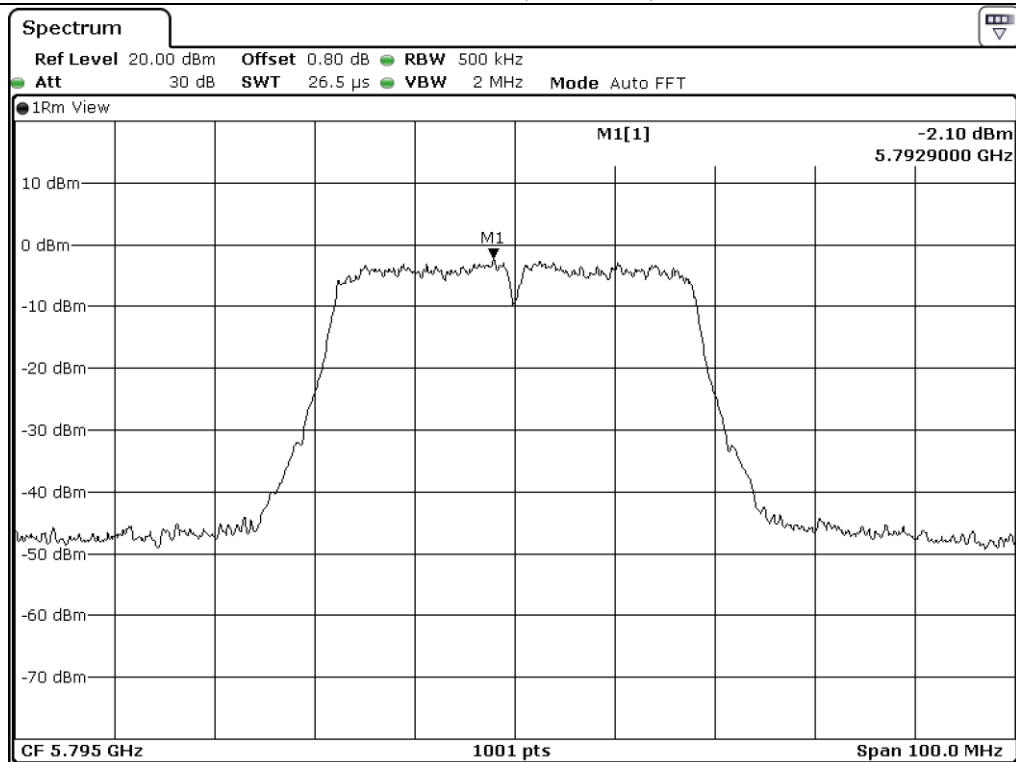
Low Channel (5 190 MHz)



High Channel (5 230 MHz)



Low Channel (5 755 MHz)



High Channel (5 795 MHz)

10.6.3 Test data for Multiple Transmit

- Test Date : February 05, 2018 ~ February 09, 2018
- Operating condition : Highest Output Power Transmitting Mode
- Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Low	5 190.00	4.84	17.00	12.16
	High	5 230.00	4.77	17.00	12.23
5 725 ~ 5 850	Low	5 755.00	0.88	30.00	29.12
	High	5 795.00	0.87	30.00	29.13

Remark 1 : Margin = Limit – Measured value

Remark 2 : Calculated Power Density = $10\log(10^{(\text{Antenna0 Power Density}/10)} + 10^{(\text{Antenna1 Power Density}/10)})$



Tested by: Hyung-Kwon, Oh / Assistant Manager

10.7 Test data for 802.11ac_HT80 RLAN Mode

10.7.1 Test data for Antenna 0

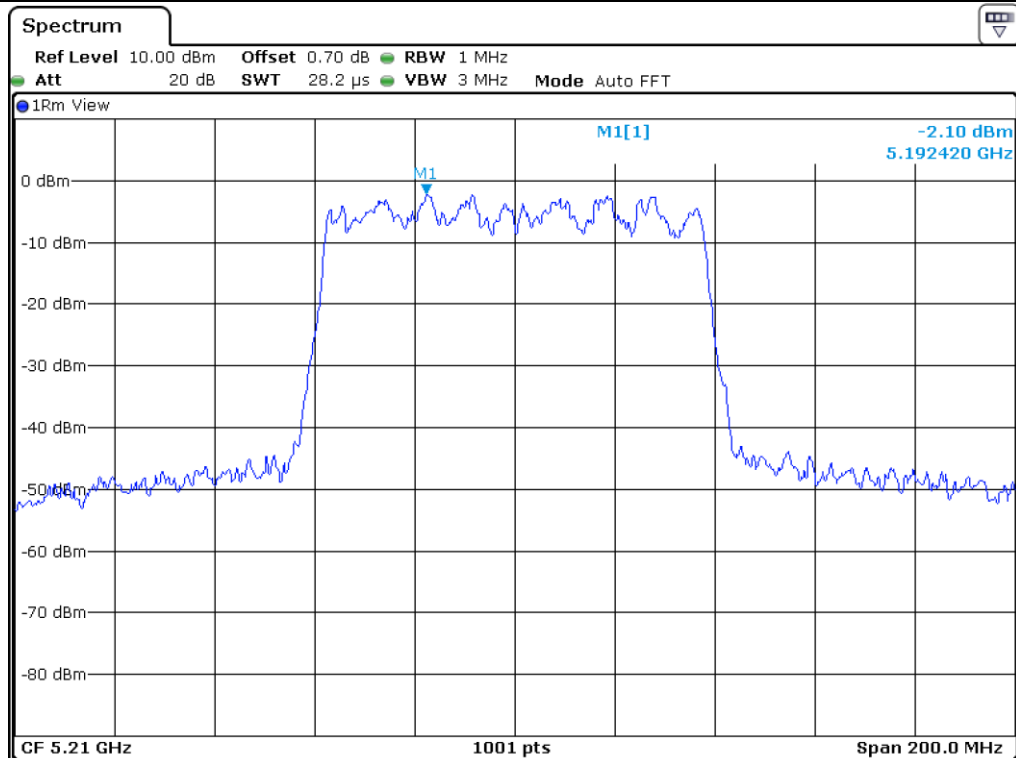
- . Test Date : February 05, 2018 ~ February 09, 2018
- . Operating condition : Highest Output Power Transmitting Mode
- . Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	-2.10	17.00	19.10
5 725 ~ 5 850	Middle	5 775.00	-4.68	30.00	34.68

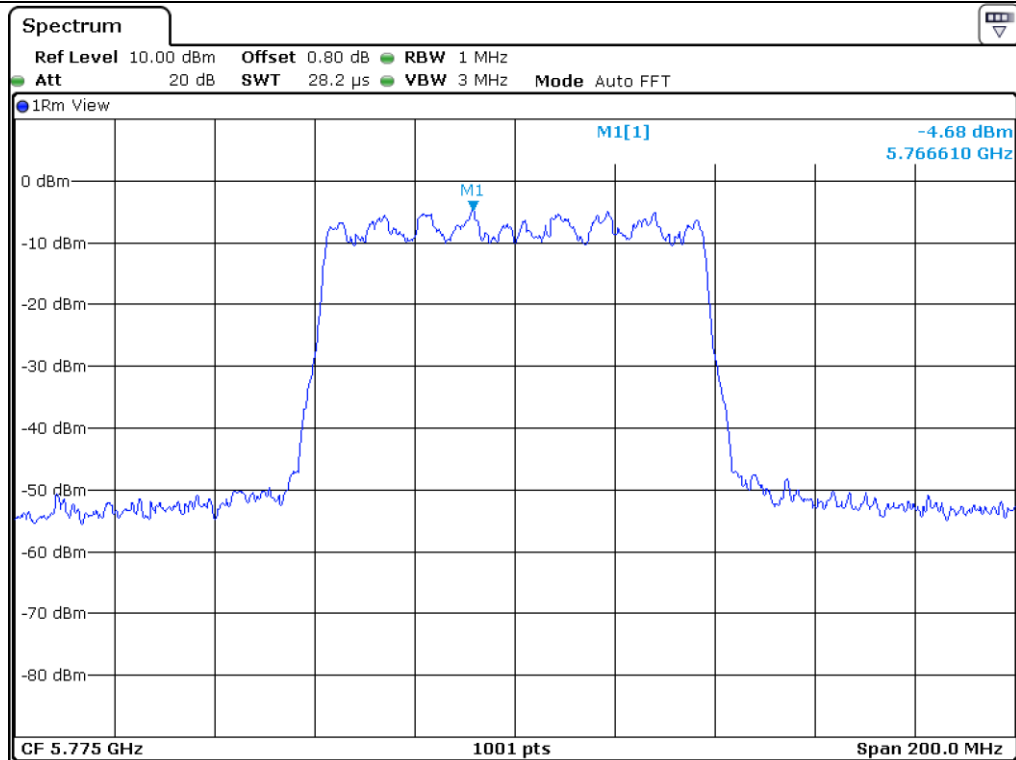
Remark: See next page for measurement data.



Tested by: Hyung-Kwon, Oh / Engineer



Middle Channel (5 210 MHz)



Middle Channel (5 775 MHz)

10.7.2 Test data for Antenna 1

-. Test Date : July 19, 2017

-. Operating condition : Highest Output Power Transmitting Mode

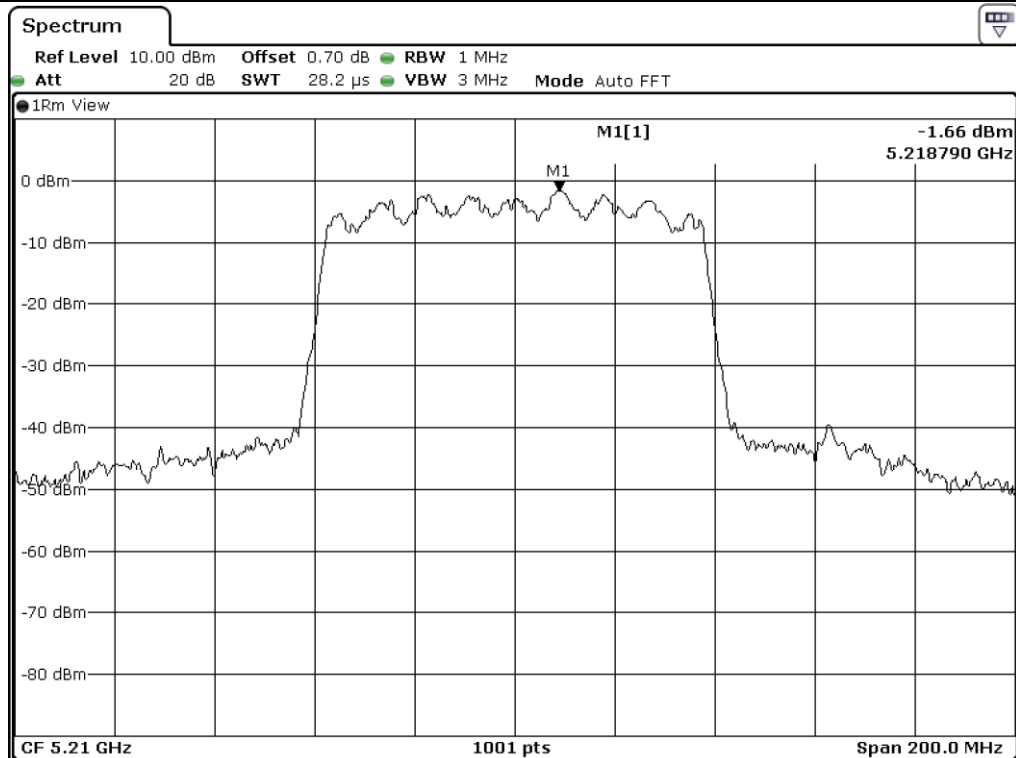
-. Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	-1.66	17.00	18.66
5 725 ~ 5 850	Middle	5 775.00	-5.82	30.00	35.82

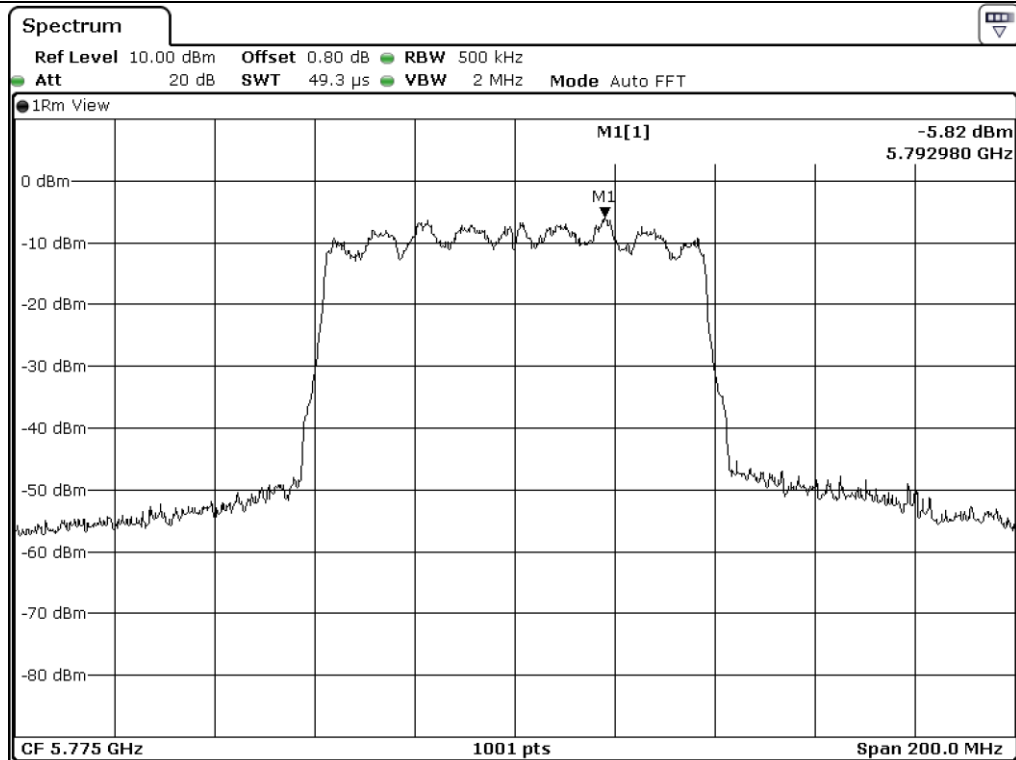
Remark: See next page for measurement data.



Tested by: Hyung-Kwon, Oh / Engineer



Middle Channel (5 210 MHz)



Middle Channel (5 775 MHz)

10.7.3 Test data for Multiple Transmit

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Operating condition : Highest Output Power Transmitting Mode
- . Test Result : Pass

FREQUENCY RANGE (MHz)	CHANNEL	FREQUENCY (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
5 150 ~ 5 250	Middle	5 210.00	1.14	17.00	15.86
5 725 ~ 5 850	Middle	5 775.00	-2.20	30.00	32.20

Remark 1 : Margin = Limit – Measured value

Remark 2 : Calculated Power Density = $10\log(10^{(\text{Antenna0 Power Density}/10)} + 10^{(\text{Antenna1 Power Density}/10)})$



Tested by: Hyung-Kwon, Oh / Engineer

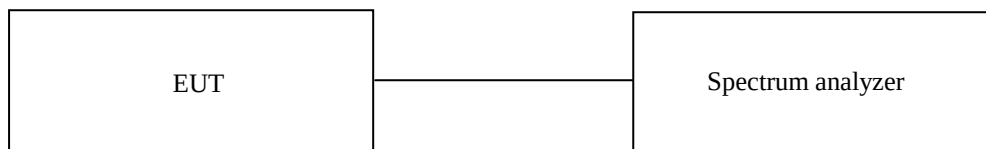
11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

11.1 Operating environment

Temperature : 22 °C
Relative humidity : 41 % R.H.

11.2 Test set-up

Turn EUT off and set chamber temperature to -20 °C and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 °C step from -20 °C to +50 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.



11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	SSE-43CI-A	Samkun Tech	Humidity Chamber	60712	Apr. 06, 2017 (1Y)
■ -	DRP-305DN	DIGITAL Elec.	DC Power supply	4030195	Sep. 01, 2017 (1Y)

All test equipment used is calibrated on a regular basis.

11.4 Test Data for U-NII-1

-. Test Date : July 18, 2017

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 180 000 000	5 179 982 720	-17.280
-10		5 179 981 567	-18.433
0		5 179 981 406	-18.594
10		5 179 980 761	-19.239
20		5 179 980 142	-19.858
30		5 179 978 328	-21.672
40		5 179 976 957	-23.043
50		5 179 974 145	-25.855
-20	5 220 000 000	5 219 982 477	-17.523
-10		5 219 981 974	-18.026
0		5 219 981 360	-18.640
10		5 219 980 544	-19.456
20		5 219 980 154	-19.846
30		5 219 978 766	-21.234
40		5 219 977 765	-22.235
50		5 219 974 913	-25.087
-20	5 240 000 000	5 239 982 703	-17.297
-10		5 239 981 545	-18.455
0		5 239 981 131	-18.869
10		5 239 980 571	-19.429
20		5 239 980 289	-19.711
30		5 239 979 382	-20.618
40		5 239 976 059	-23.941
50		5 239 975 157	-24.843

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)

Tested by: Hyung-Kwon, Oh / Assistant Manager

11.5 Test Data for U-NII-3

-. Test Date : July 18, 2017

-. Result : Pass

Temperature (°C)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
-20	5 745 000 000	5 744 982 078	-17.922
-10		5 744 981 870	-18.130
0		5 744 981 246	-18.754
10		5 744 980 956	-19.044
20		5 744 980 243	-19.757
30		5 744 978 045	-21.955
40		5 744 977 943	-22.057
50		5 744 974 244	-25.756
-20	5 785 000 000	5 784 982 980	-17.020
-10		5 784 981 718	-18.282
0		5 784 981 233	-18.767
10		5 784 980 960	-19.040
20		5 784 980 373	-19.627
30		5 784 978 856	-21.144
40		5 784 977 894	-22.106
50		5 784 974 492	-25.508
-20	5 825 000 000	5 824 982 975	-17.025
-10		5 824 981 987	-18.013
0		5 824 981 363	-18.637
10		5 824 980 763	-19.237
20		5 824 980 008	-19.992
30		5 824 979 523	-20.477
40		5 824 977 553	-22.447
50		5 824 974 080	-25.920

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.

Four measurements in total are made.(ANSI C63.10-2013)



Tested by: Hyung-Kwon, Oh / Assistant Manager

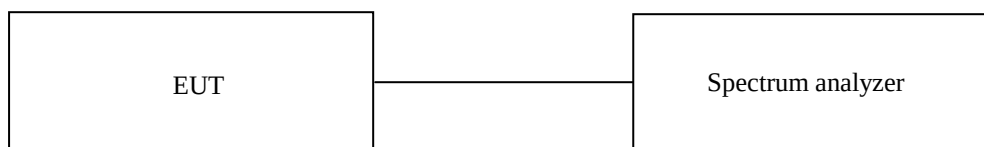
12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

12.1 Operating environment

Temperature : 22 °C
Relative humidity : 41 % R.H.

12.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 115 % of the nominal value and then was reduced to 85 % of nominal voltage. The output frequency was recorded at each step.



12.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	DRP-305DN	DIGITAL Elec.	DC Power supply	4030195	Sep. 01, 2017 (1Y)

All test equipment used is calibrated on a regular basis.

12.4 Test Data for U-NII-1

-. Test Date : July 18, 2017

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
2.81	5 180 000 000	5 179 978 905	-21.095
3.30		5 179 976 848	-23.152
3.80		5 179 975 241	-24.759
2.81	5 220 000 000	5 219 979 211	-20.789
3.30		5 219 977 702	-22.298
3.80		5 219 975 157	-24.843
2.81	5 240 000 000	5 239 979 289	-20.711
3.30		5 239 976 543	-23.457
3.80		5 239 976 495	-23.505

12.5 Test Data for U-NII-3

-. Test Date : July 18, 2017

-. Result : Pass

Voltage (VDC)	Carrier Freq. (Hz)	Measured Freq. (Hz)	Frequency Error (kHz)
2.81	5 745 000 000	5 744 978 039	-21.961
3.30		5 744 977 689	-22.311
3.80		5 744 975 220	-24.780
2.81	5 785 000 000	5 784 978 009	-21.991
3.30		5 784 976 715	-23.285
3.80		5 784 976 417	-23.583
2.81	5 825 000 000	5 824 979 629	-20.371
3.30		5 824 977 825	-22.175
3.80		5 824 975 185	-24.815



Tested by: Hyung-Kwon, Oh / Assistant Manager

13. RADIATED SPURIOUS EMISSIONS

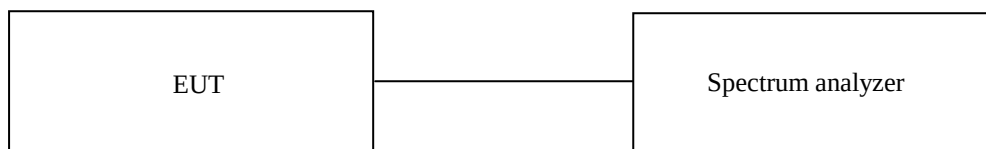
13.1 Operating environment

Temperature : 22 °C
Relative humidity : 41 % R.H.

13.2 Test set-up for conducted measurement

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 40 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



13.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	ESCI	Rohde & Schwarz	Test Receiver	101012	Oct. 27, 2017 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2017 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Sep. 01, 2017 (1Y)
■ -	DT3000-3t	Innco System	Turn Table	DT3000/093	N/A
■ -	MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-421	Apr. 15, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	May 26, 2017 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Dec. 04, 2017 (2Y)
■ -	HFH2-Z2	Rohde & Schwarz	Loop Antenna	879285/26	Dec. 09, 2016 (2Y)
■ -	SCU40A	Rohde & Schwarz	Signal Conditioning unit	100436	Apr. 04, 2017 (1Y)

All test equipment used is calibrated on a regular basis.

13.4 Test data for Antenna 0 (UANZZZWHA002)

13.4.1 Test data for Below 30 MHz

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- . Frequency range : 9 kHz ~ 30 MHz
- . Measurement distance : 3 m
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dB μ V)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dB μ V/m)	Limits (dB μ V/m)	Margin (dB)
It was not observed any emissions from the EUT.									



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.2 Test data for 30 MHz ~ 1 000 MHz

13.4.2.1 Test data for Frequency U-NII-1

Humidity Level : 44 % R.H.

Temperature: 21 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

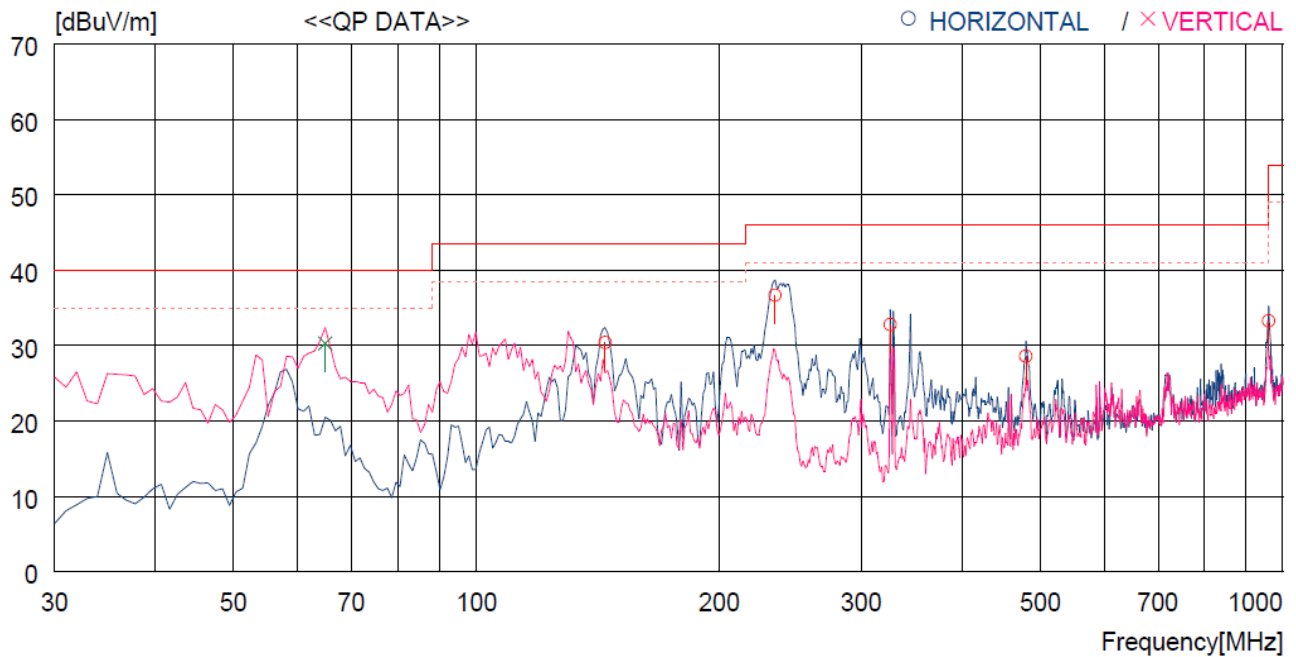
Result : PASSED

EUT : 802.11 a/b/g/n/ac WiFi Module

Date: February 05, 2018 ~ February 09, 2018

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	144.460	52.7	7.8	2.8	32.9	30.4	43.5	13.1	100	112
2	234.670	54.5	11.8	3.5	33.1	36.7	46.0	9.3	100	112
3	325.850	47.8	13.9	4.2	33.1	32.8	46.0	13.2	100	112
4	480.081	40.0	16.8	5.1	33.3	28.6	46.0	17.4	100	128
5	960.217	36.1	22.0	7.2	32.0	33.3	54.0	20.7	100	135
----- Vertical -----										
6	64.920	50.0	11.5	1.9	33.1	30.3	40.0	9.7	100	152

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.2.2 Test data for Frequency U-NII-3

Humidity Level : 44 % R.H.

Temperature: 21 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

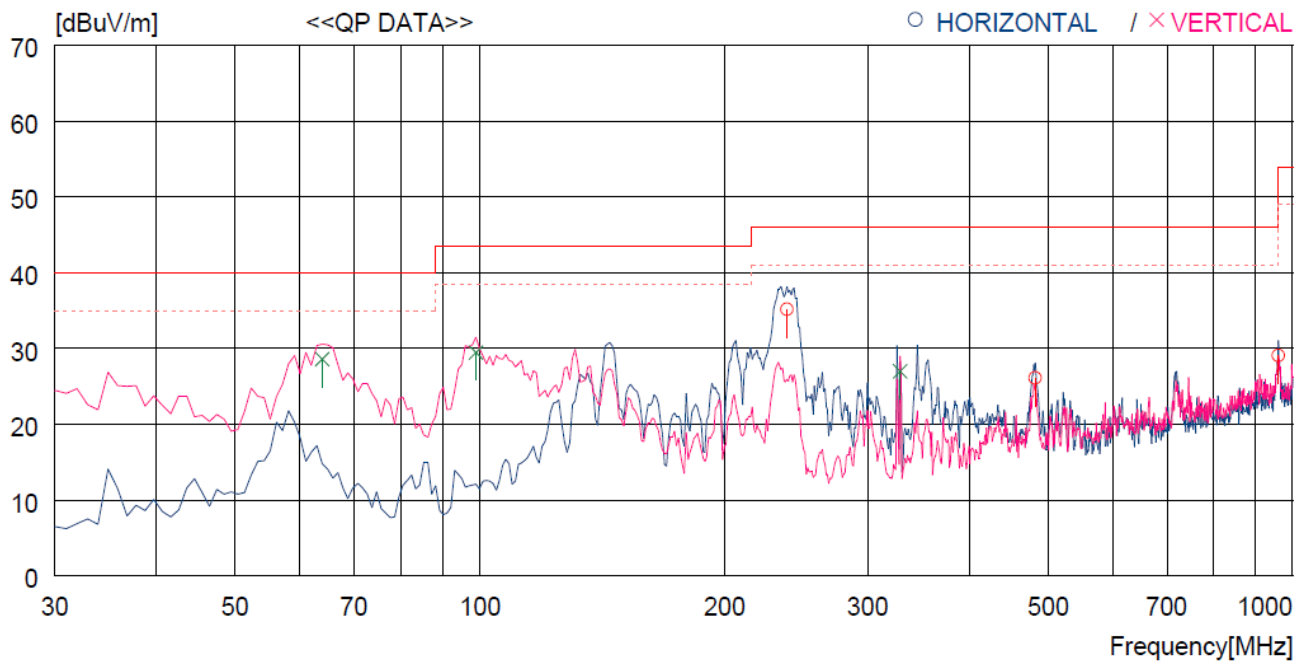
Result : PASSED

EUT : 802.11 a/b/g/n/ac WiFi Module

Date: February 05, 2018 ~ February 09, 2018

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	238.550	52.8	11.9	3.6	33.1	35.2	46.0	10.8	100	187
2	482.021	37.5	16.8	5.1	33.3	26.1	46.0	19.9	100	204
3	960.217	31.9	22.0	7.2	32.0	29.1	54.0	24.9	100	236
----- Vertical -----										
4	63.950	47.9	11.9	1.9	33.1	28.6	40.0	11.4	100	171
5	98.870	48.4	11.7	2.4	33.0	29.5	43.5	14.0	100	193
6	328.760	41.9	14.0	4.2	33.1	27.0	46.0	19.0	100	160

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3 Test data for Above 1 GHz

13.4.3.1 Test data for Frequency U-NII-1

13.4.3.1.1 Test data for 802.11a RLAN Mode

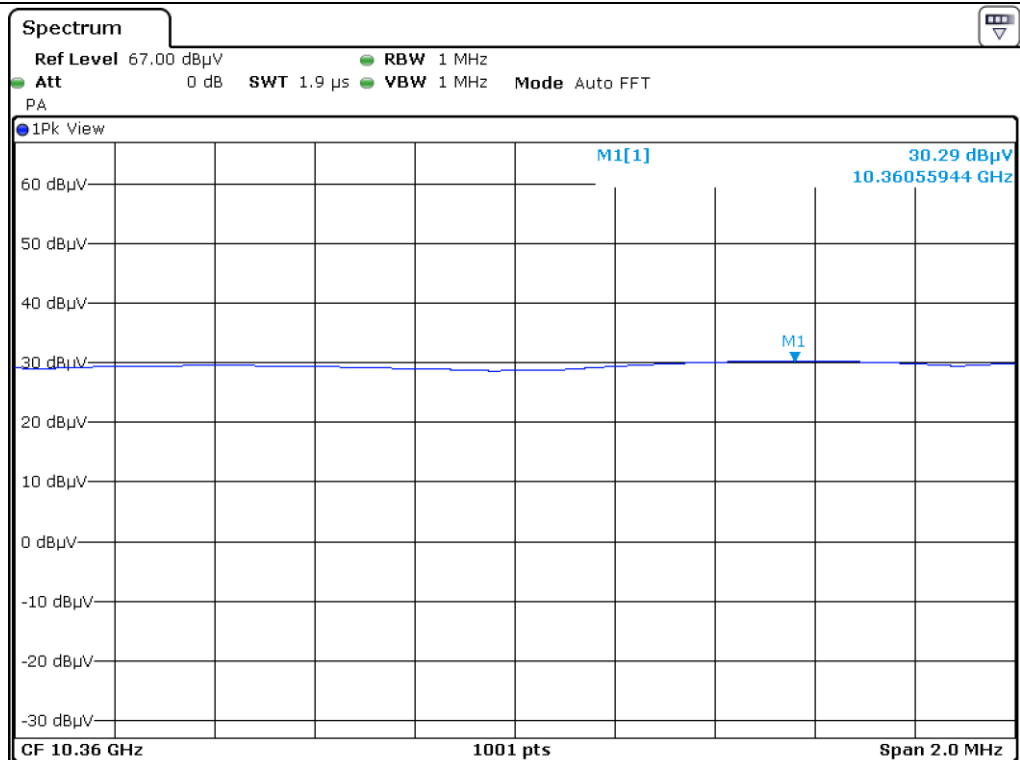
- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Frequency range : 1 GHz ~ 40 GHz
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 360.00	30.29	Peak	H	39.66	26.38	34.74	61.59	68.20	6.61
	29.41	Peak	V				60.71	68.20	7.49
Middle Channel									
10 440.00	30.28	Peak	H	39.84	26.74	34.76	62.10	68.20	6.10
	29.37	Peak	V				61.19	68.20	7.01
High Channel									
10 480.00	31.14	Peak	H	40.02	27.09	34.77	63.48	68.20	4.72
	29.47	Peak	V				61.81	68.20	6.39

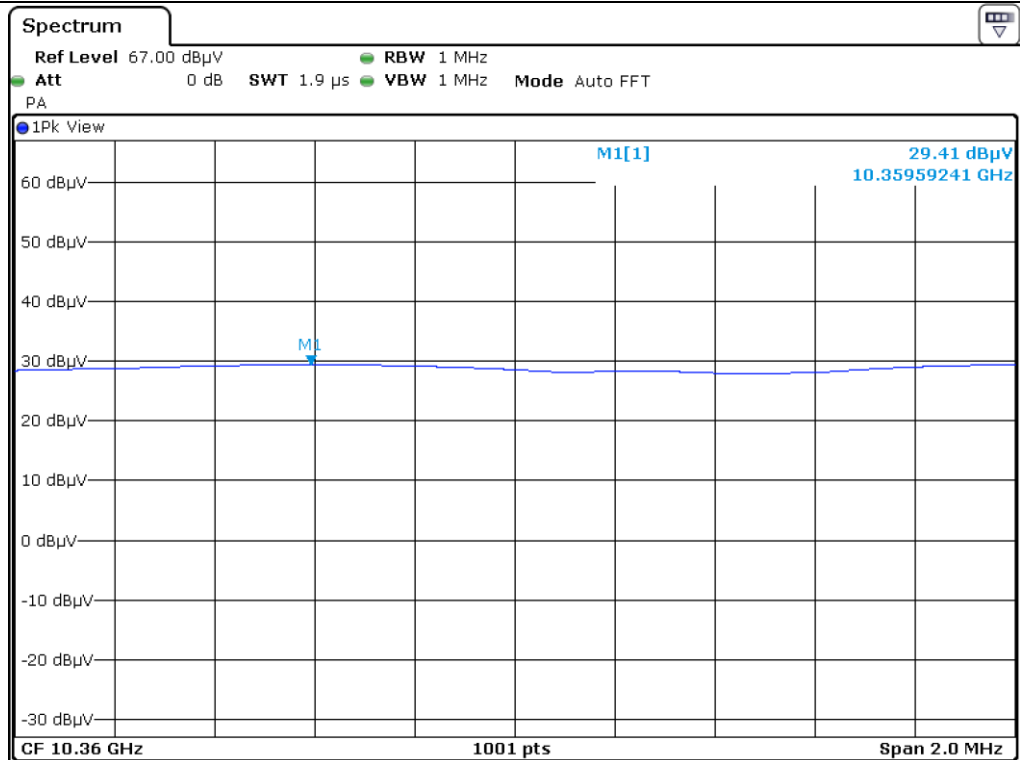
Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

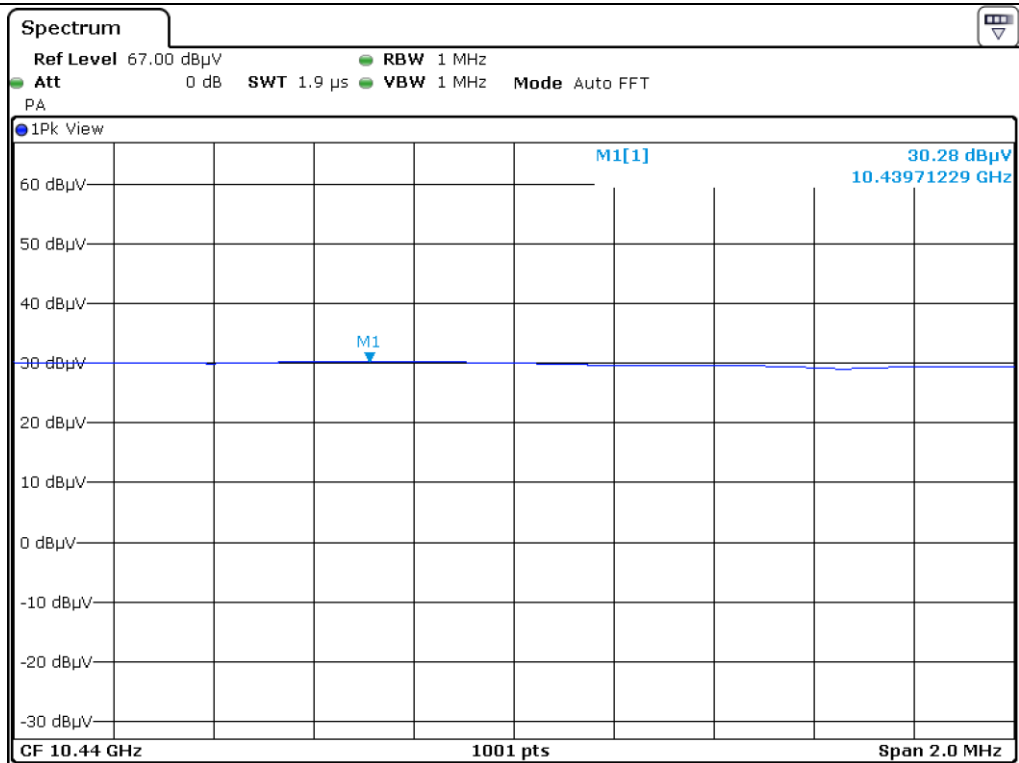

Tested by: Hyung-Kwon, Oh / Assistant Manager



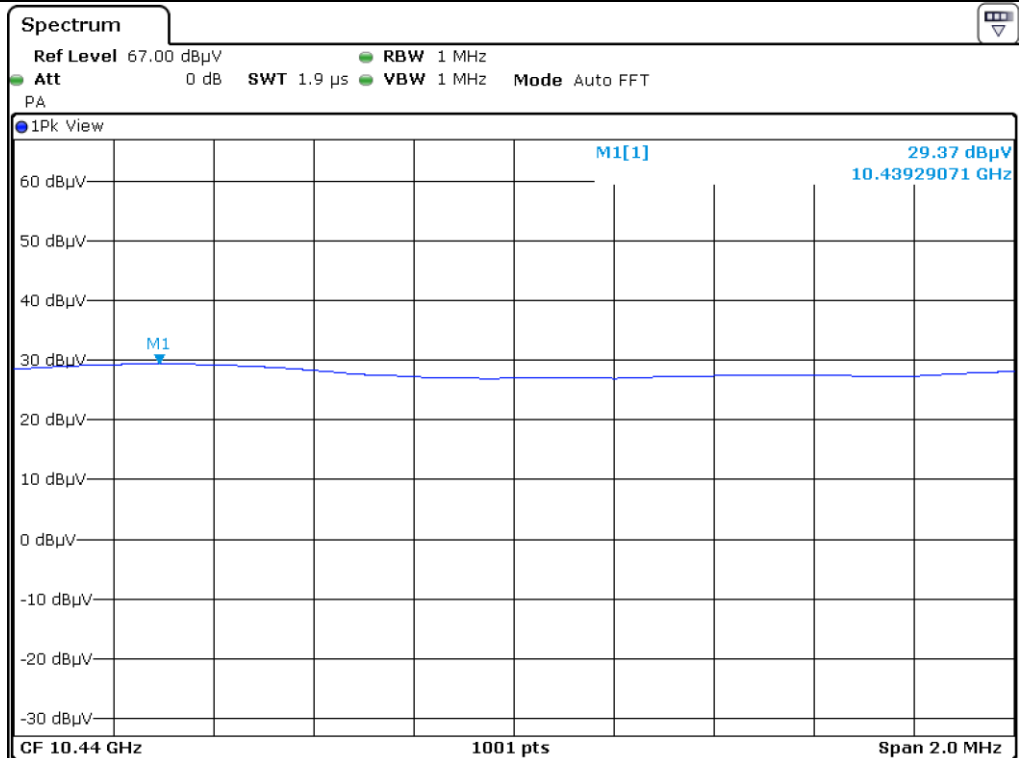
Low Channel_Peak_H



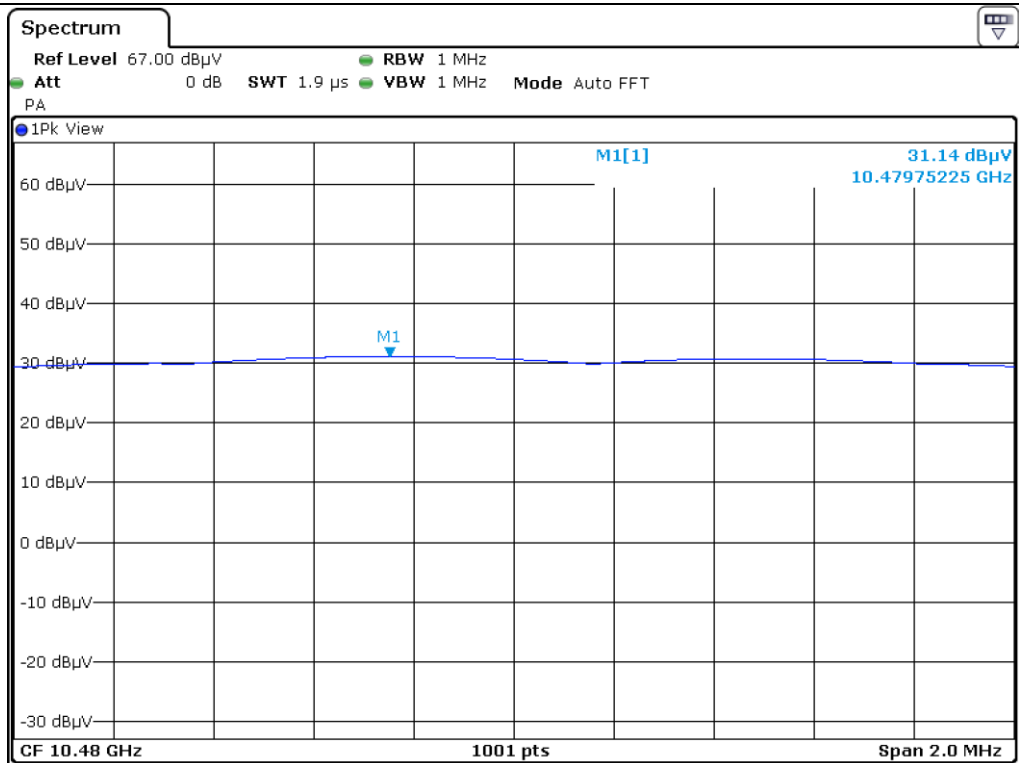
Low Channel_Peak_V



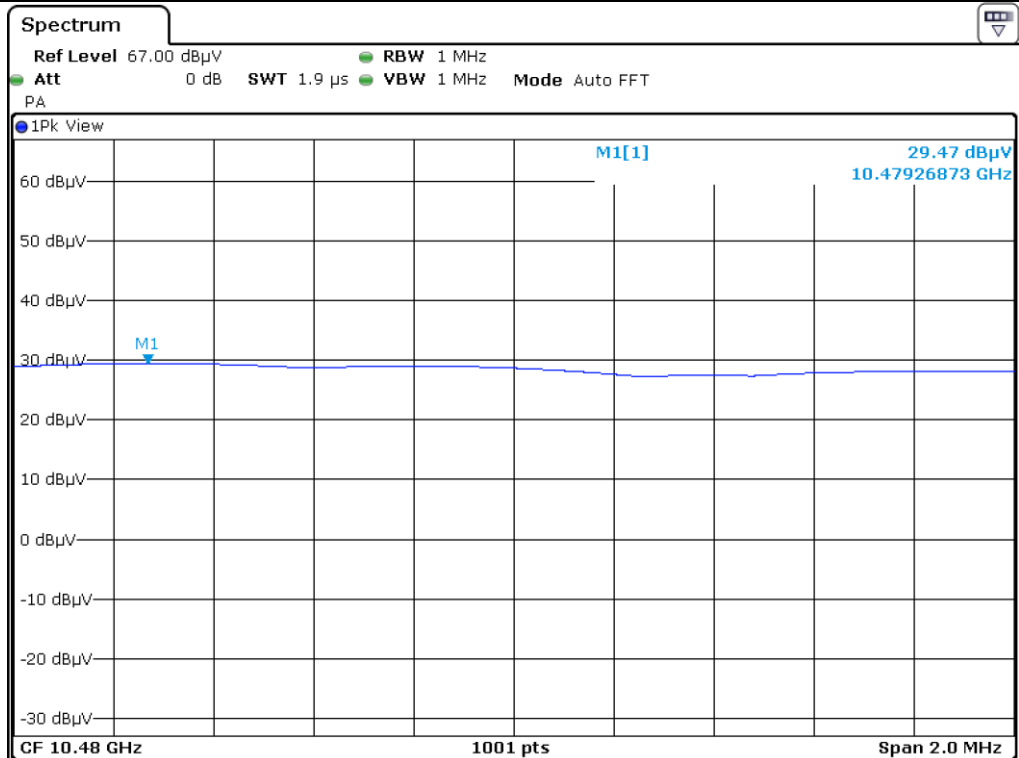
Middle Channel_Peak_H



Middle Channel_Peak_V



High Channel_Peak_H



High Channel_Peak_V

13.4.3.1.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Frequency range : 1 GHz ~ 40 GHz
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 360.00	31.42	Peak	H	39.66	26.38	34.74	62.72	68.20	5.48
	30.14	Peak	V				61.44	68.20	6.76
Middle Channel									
10 400.00	29.74	Peak	H	39.84	26.74	34.76	61.56	68.20	6.64
	30.65	Peak	V				62.47	68.20	5.73
High Channel									
10 480.00	29.27	Peak	H	40.02	27.09	34.77	61.61	68.20	6.59
	30.55	Peak	V				62.89	68.20	5.31

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3.1.3 Test data for 802.11n_HT40 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 380.00	31.52	Peak	H	39.93	26.88	34.74	63.59	68.20	4.61
	30.08	Peak	V				62.15	68.20	6.05
High Channel									
10 460.00	29.76	Peak	H	40.02	27.05	34.76	62.07	68.20	6.13
	30.71	Peak	V				63.01	68.20	5.19

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3.1.4 Test data for 802.11ac_HT80 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel									
10 420.00	29.45	Peak	H	39.98	26.97	34.76	61.64	68.20	6.56
	30.29	Peak	V				62.48	68.20	5.72

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3.2 Test data for Frequency U-NII-3

13.4.3.2.1 Test data for 802.11a RLAN Mode

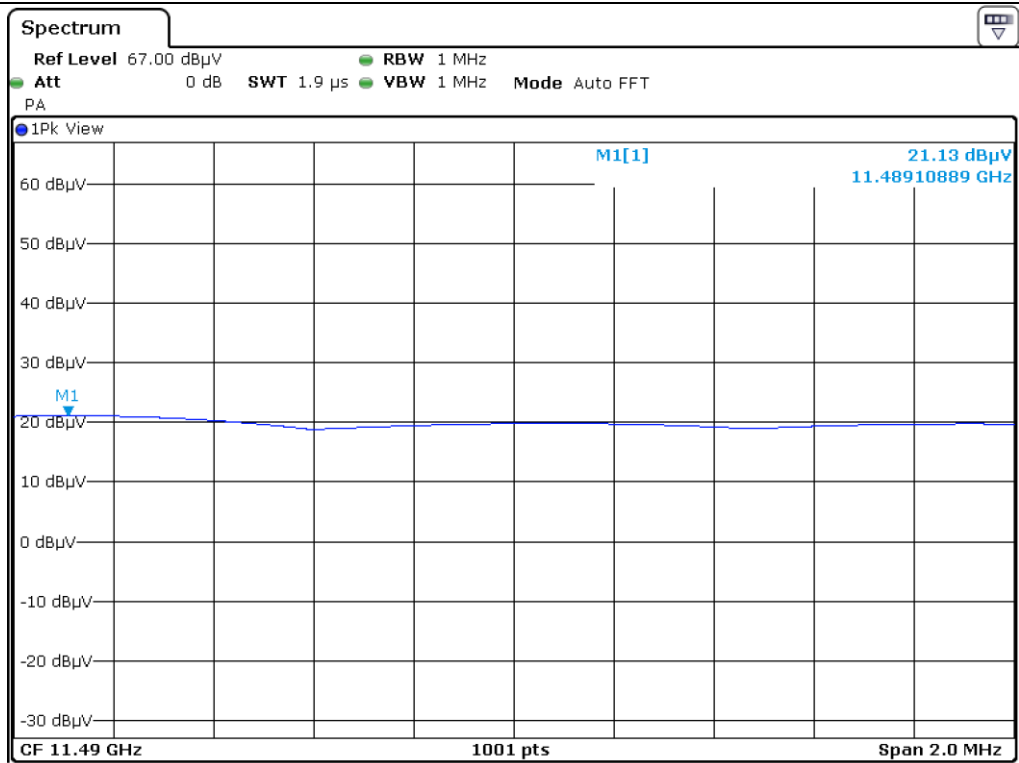
- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	21.13	Peak	H	40.07	28.32	33.75	55.77	73.98	18.21
	15.76	Average	H				50.40	53.98	3.58
	19.03	Peak	V				53.67	73.98	20.31
	14.97	Average	V				49.61	53.98	4.37
Middle Channel									
11 570.00	20.01	Peak	H	39.78	28.94	33.64	55.09	73.98	18.89
	15.50	Average	H				50.58	53.98	3.40
	19.55	Peak	V				54.63	73.98	19.35
	14.72	Average	V				49.80	53.98	4.18
High Channel									
11 650.00	20.02	Peak	H	39.49	29.56	33.61	55.46	73.98	18.52
	15.88	Average	H				51.32	53.98	2.66
	19.53	Peak	V				54.97	73.98	19.01
	15.89	Average	V				51.33	53.98	2.65

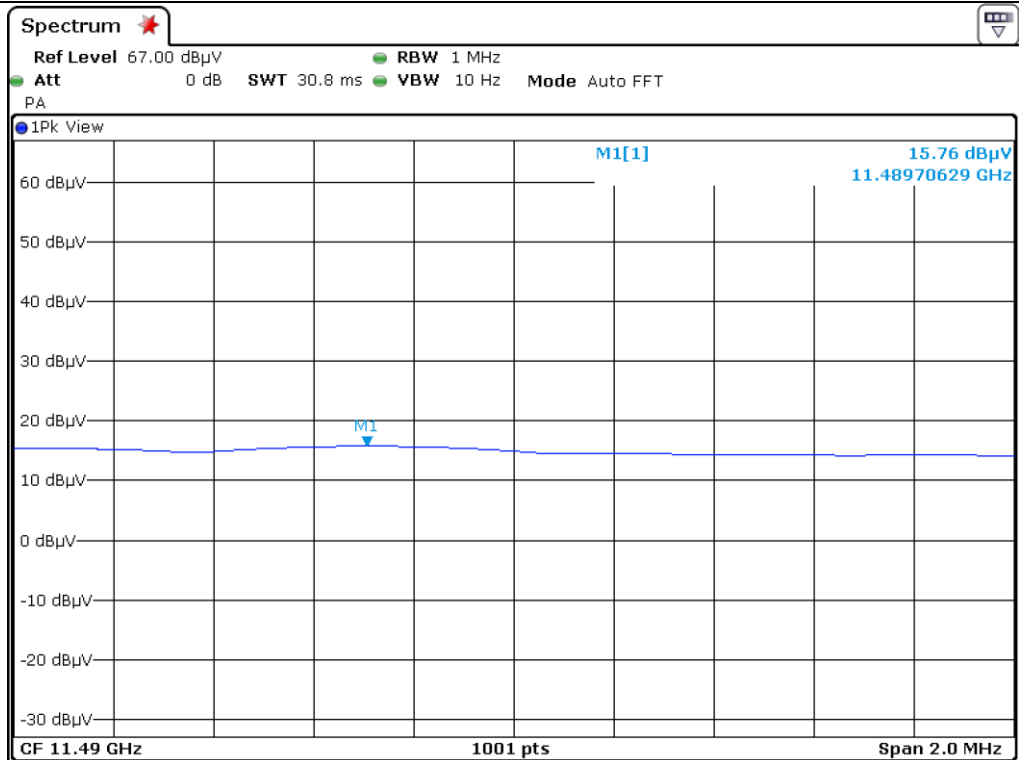
Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

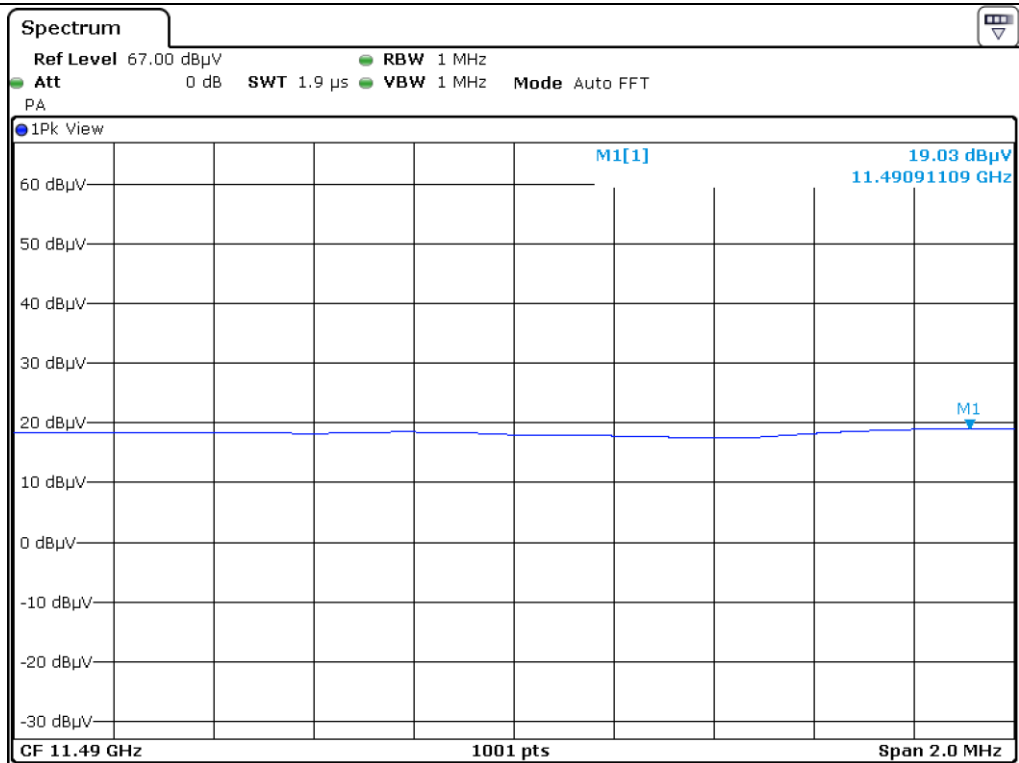
Tested by: Hyung-Kwon, Oh / Assistant Manager



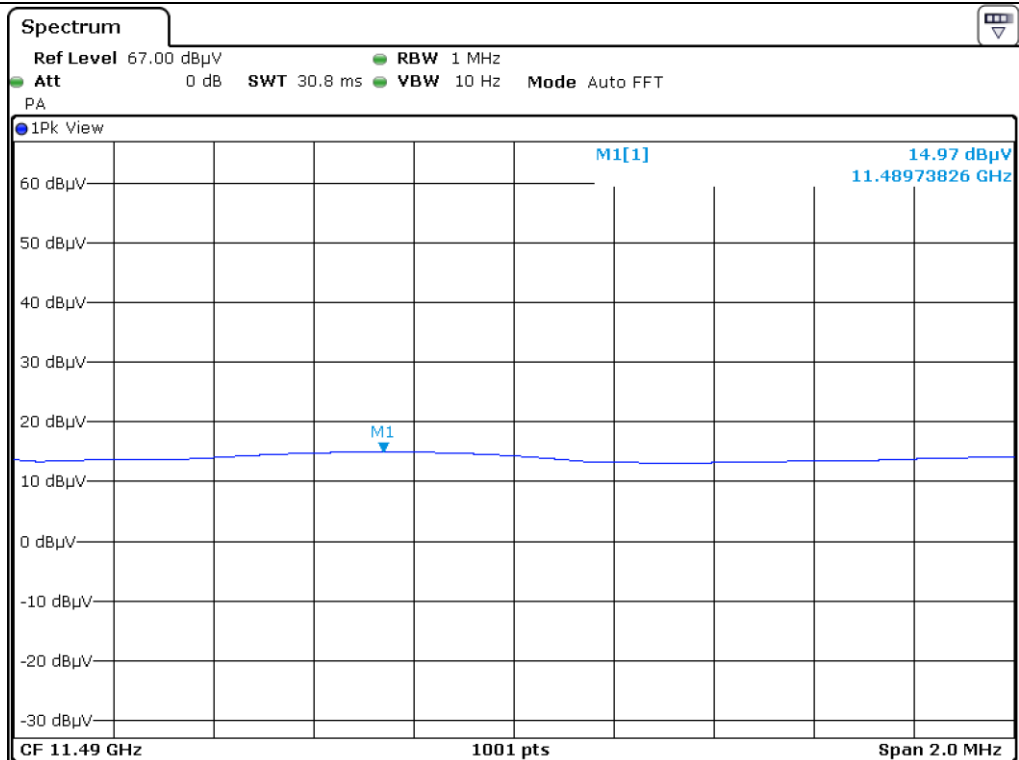
Low Channel_Peak_H



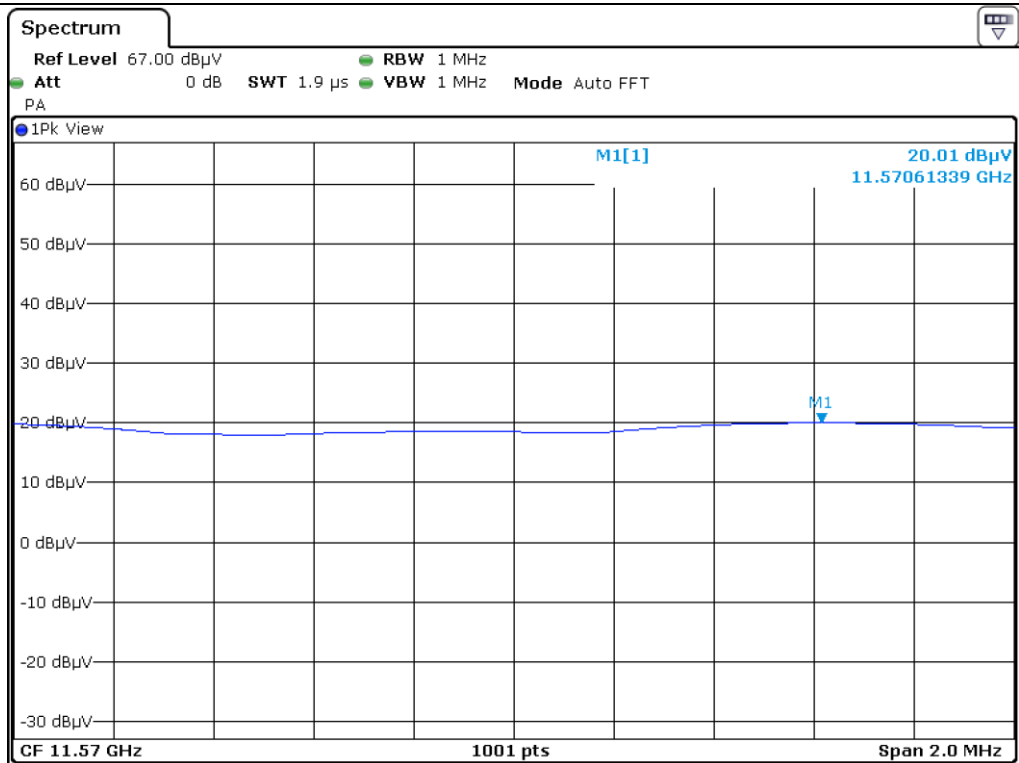
Low Channel_Average_H



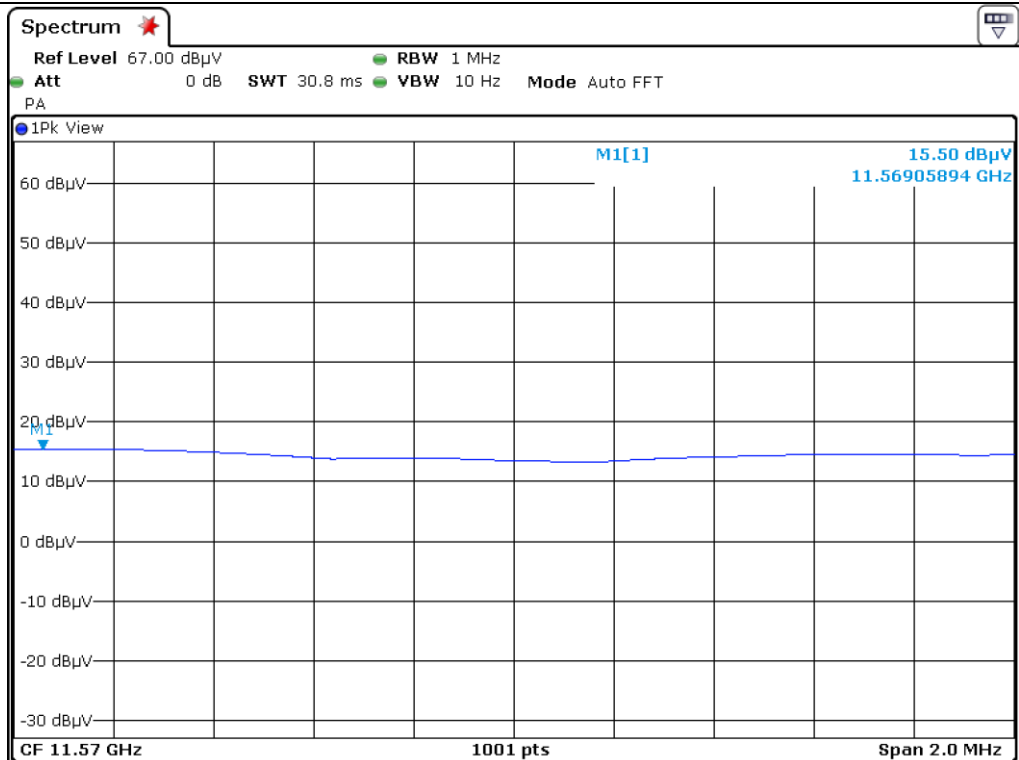
Low Channel_Peak_V



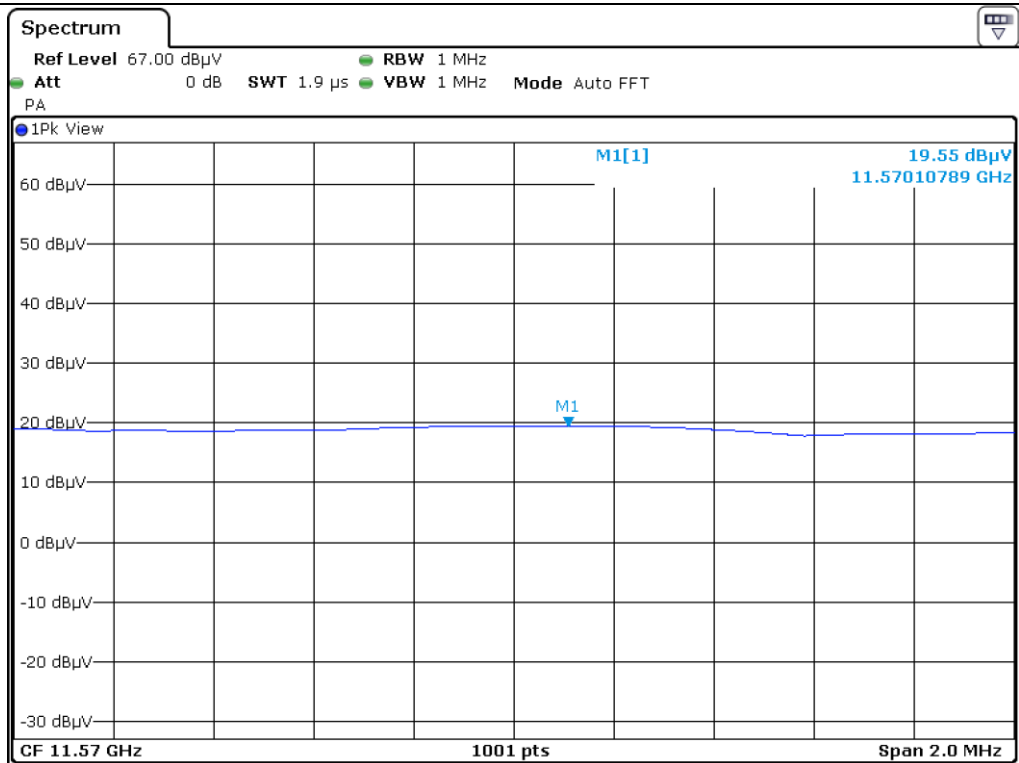
Low Channel_Average_V



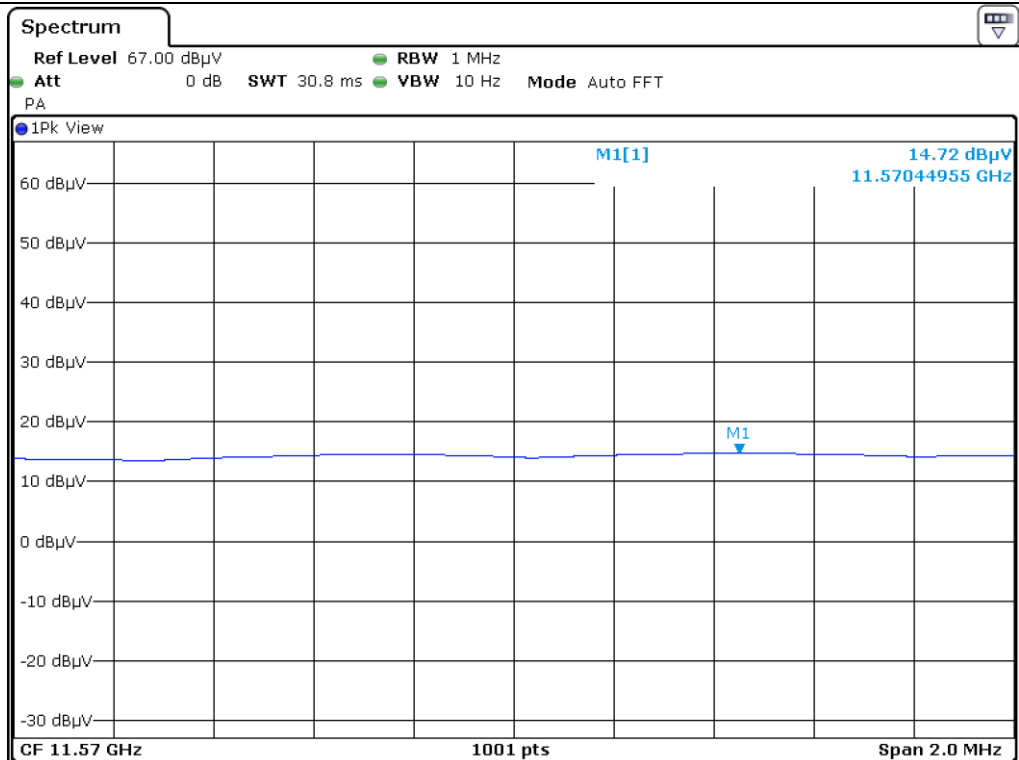
Middle Channel_Peak_H



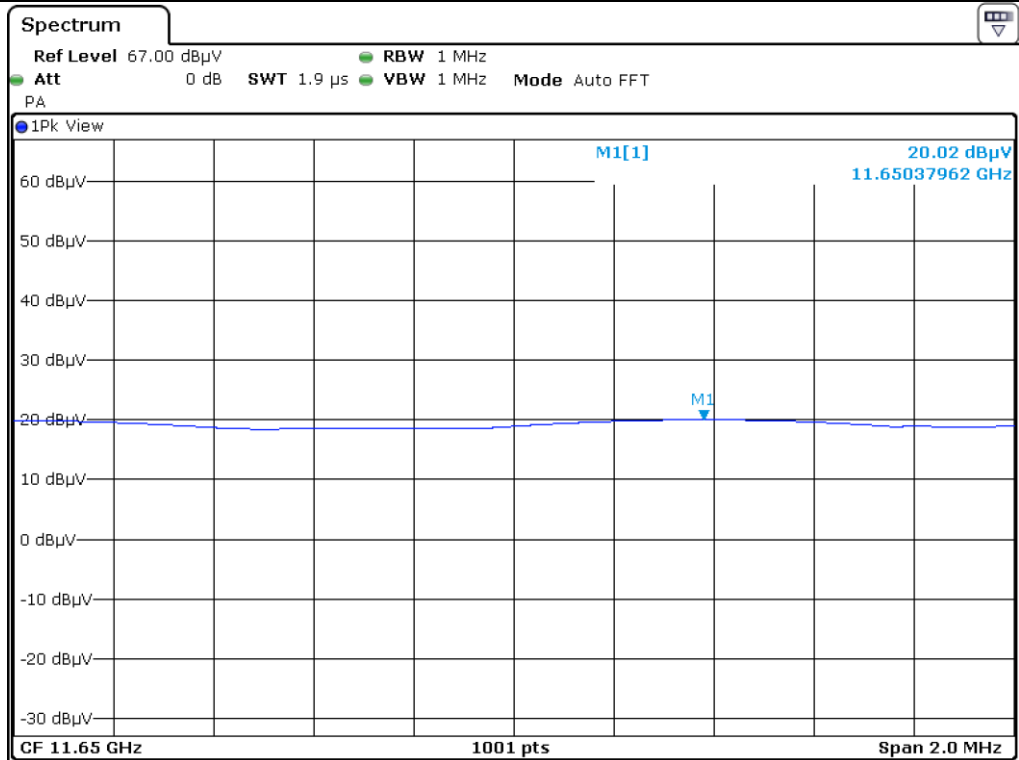
Middle Channel_Average_H



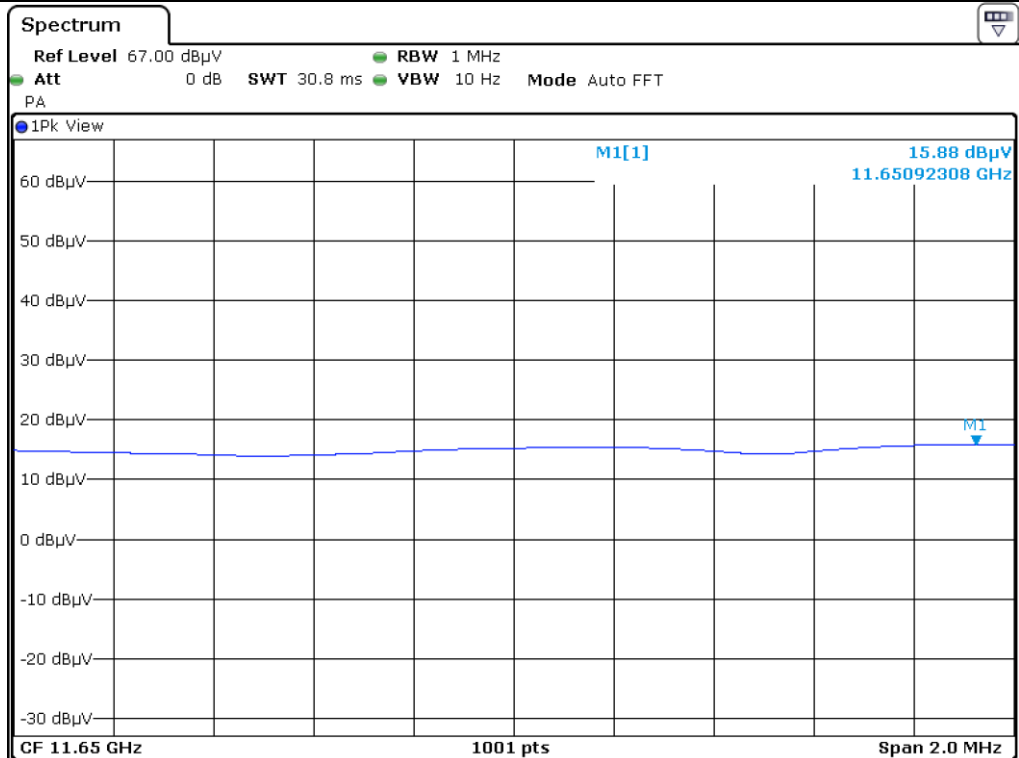
Middle Channel_Peak_V



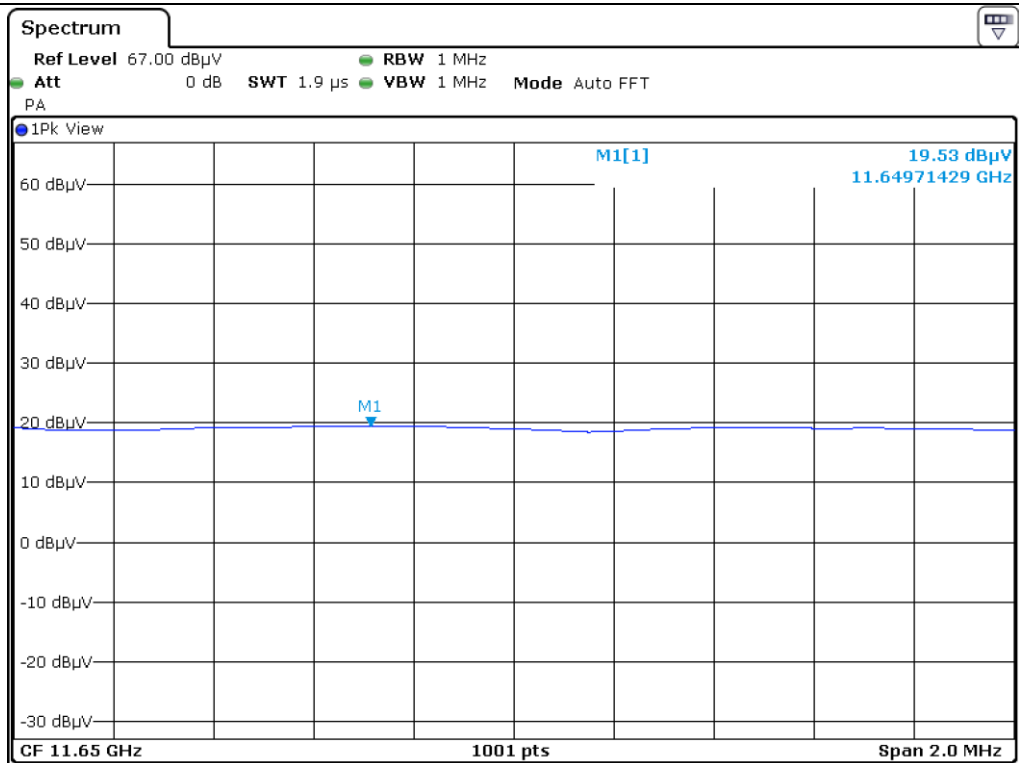
Middle Channel_Average_V



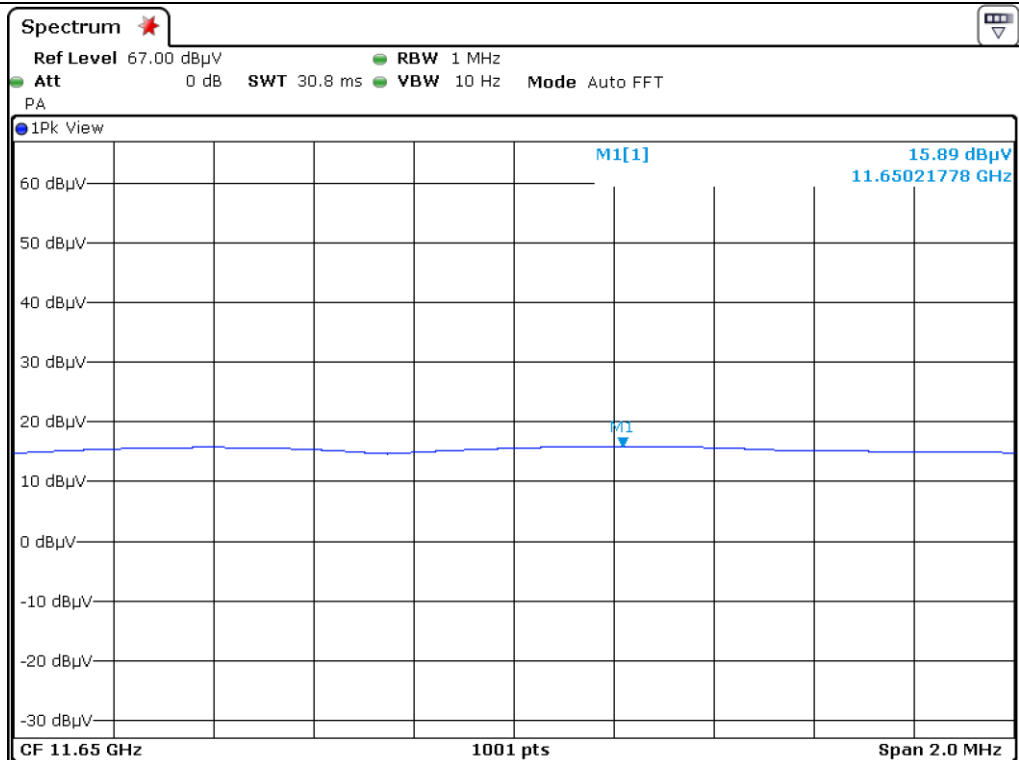
High Channel_Peak_H



High Channel_Average_H



High Channel_Peak_V



High Channel_Average_V

13.4.3.2.2 Test data for 802.11n_HT20 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	22.42	Peak	H	40.07	28.32	33.75	57.06	73.98	16.92
	13.27	Average	H				47.91	53.98	6.07
	21.33	Peak	V				55.97	73.98	18.01
	14.68	Average	V				49.32	53.98	4.66
Middle Channel									
11 570.00	20.64	Peak	H	39.78	28.94	33.64	55.72	73.98	18.26
	15.47	Average	H				50.55	53.98	3.43
	21.69	Peak	V				56.77	73.98	17.21
	15.05	Average	V				50.13	53.98	3.85
High Channel									
11 650.00	20.74	Peak	H	39.49	29.56	33.61	56.18	73.98	17.80
	15.34	Average	H				50.78	53.98	3.20
	21.07	Peak	V				56.51	73.98	17.47
	13.42	Average	V				48.86	53.98	5.12

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3.2.3 Test data for 802.11n_HT40 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 510.00	20.42	Peak	H	39.78	28.94	33.63	55.51	73.98	18.47
	15.74	Average	H				50.83	53.98	3.15
	21.08	Peak	V				56.17	73.98	17.81
	15.26	Average	V				50.35	53.98	3.63
High Channel									
11 590.00	19.48	Peak	H	39.66	29.19	33.62	54.71	73.98	19.27
	15.24	Average	H				50.47	53.98	3.51
	21.63	Peak	V				56.86	73.98	17.12
	14.17	Average	V				49.40	53.98	4.58

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.4.3.2.4 Test data for 802.11ac_HT80 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel									
11 550.00	20.72	Peak	H	39.78	28.94	33.63	55.81	73.98	18.17
	15.34	Average	H				50.43	53.98	3.55
	21.64	Peak	V				56.73	73.98	17.25
	15.96	Average	V				51.05	53.98	2.93

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)


Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5 Test data for Antenna 0 (UANZZZWHA003)

13.5.1 Test data for Below 30 MHz

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- Frequency range : 9 kHz ~ 30 MHz
- Measurement distance : 3 m
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
It was not observed any emissions from the EUT.									



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.2 Test data for 30 MHz ~ 1 000 MHz

13.5.2.1 Test data for Frequency U-NII-1

Humidity Level : 44 % R.H.

Temperature: 21 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

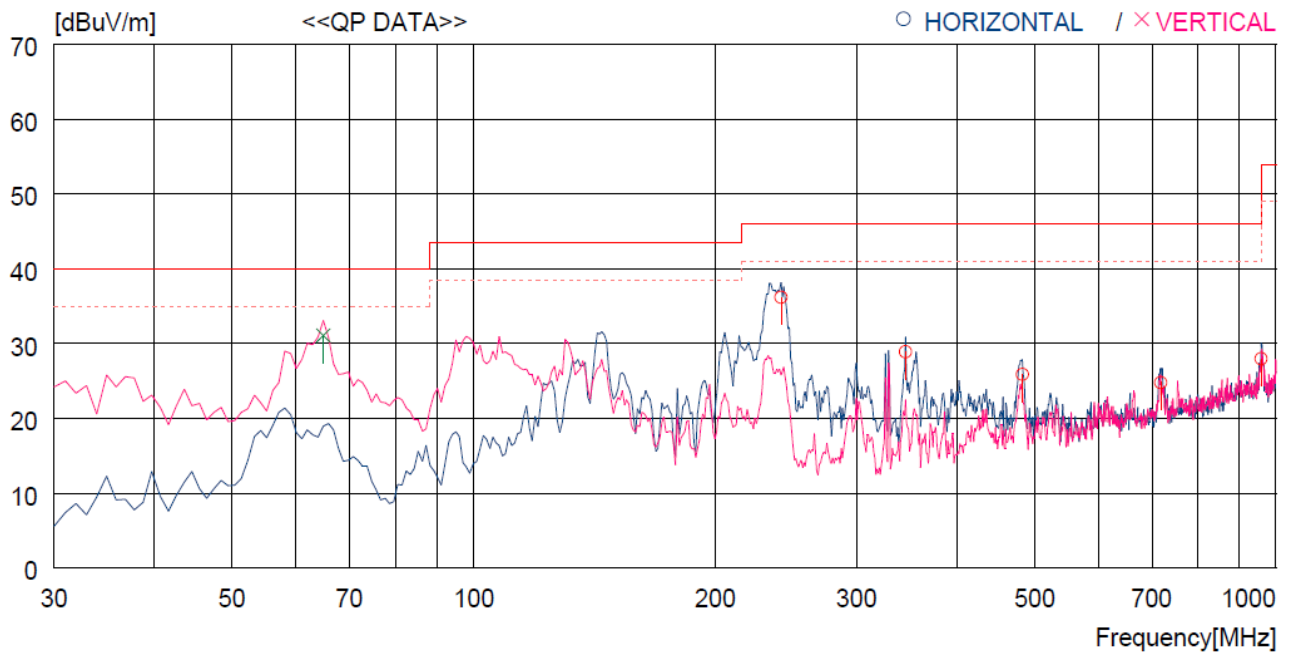
Result : PASSED

EUT : 802.11 a/b/g/n/ac WiFi Module

Date: February 05, 2018 ~ February 09, 2018

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ	READING	ANT	LOSS	GAIN	RESULT	LIMIT	MARGIN	ANTENNA	TABLE
	[MHz]	QP	FACTOR	[dB]	[dB]	[dBuV/m]	[dBuV/m]	[dB]	[cm]	[DEG]
----- Horizontal -----										
1	241.460	53.6	12.1	3.6	33.1	36.2	46.0	9.8	100	192
2	345.250	42.7	15.0	4.3	33.1	28.9	46.0	17.1	100	343
3	482.991	37.3	16.8	5.1	33.3	25.9	46.0	20.1	100	208
4	718.694	32.6	19.5	6.2	33.5	24.8	46.0	21.2	100	222
5	958.277	30.8	22.0	7.2	32.0	28.0	46.0	18.0	100	192
----- Vertical -----										
6	64.920	50.8	11.5	1.9	33.1	31.1	40.0	8.9	100	170

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.2.2 Test data for Frequency U-NII-3

Humidity Level : 44 % R.H.

Temperature: 21 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

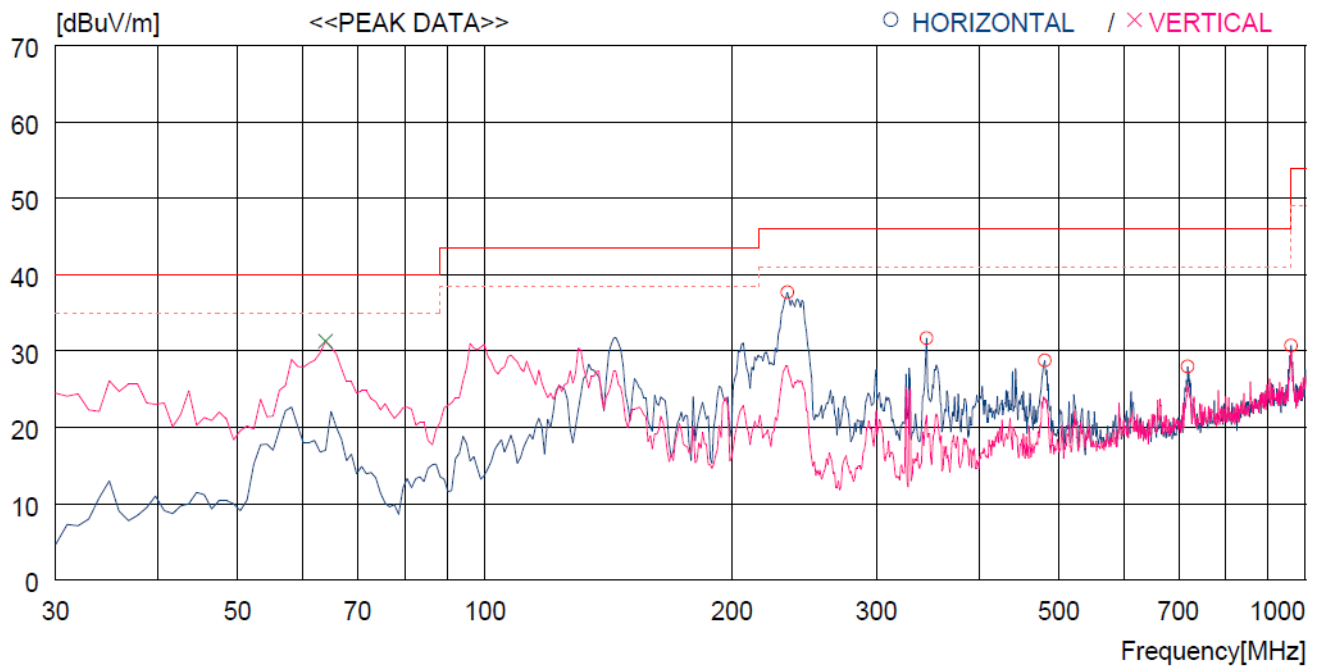
Result : PASSED

EUT : 802.11 a/b/g/n/ac WiFi Module

Date: February 05, 2018 ~ February 09, 2018

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	233.700	55.6	11.7	3.5	33.1	37.7	46.0	8.3	100	197
2	345.250	45.5	15.0	4.3	33.1	31.7	46.0	14.3	100	203
3	481.051	40.2	16.8	5.1	33.3	28.8	46.0	17.2	100	197
4	718.694	35.8	19.5	6.2	33.5	28.0	46.0	18	100	197
5	960.217	33.5	22.0	7.2	32.0	30.7	54.0	23.3	100	197
----- Vertical -----										
6	63.950	50.6	11.9	1.9	33.1	31.3	40.0	8.7	100	180

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3 Test data for Above 1 GHz

13.5.3.1 Test data for Frequency U-NII-1

13.5.3.1.1 Test data for 802.11a RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Frequency range : 1 GHz ~ 40 GHz
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 360.00	31.27	Peak	H	39.66	26.38	34.74	62.57	68.20	5.63
	30.42	Peak	V				61.72	68.20	6.48
Middle Channel									
10 440.00	31.24	Peak	H	39.84	26.74	34.76	63.06	68.20	5.14
	30.84	Peak	V				62.66	68.20	5.54
High Channel									
10 480.00	30.58	Peak	H	40.02	27.09	34.77	62.92	68.20	5.28
	28.14	Peak	V				60.48	68.20	7.72

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.1.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Frequency range : 1 GHz ~ 40 GHz
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 360.00	30.27	Peak	H	39.66	26.38	34.74	61.57	68.20	6.63
	31.41	Peak	V				62.71	68.20	5.49
Middle Channel									
10 400.00	30.67	Peak	H	39.84	26.74	34.76	62.49	68.20	5.71
	29.14	Peak	V				60.96	68.20	7.24
High Channel									
10 480.00	30.47	Peak	H	40.02	27.09	34.77	62.81	68.20	5.39
	29.27	Peak	V				61.61	68.20	6.59

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.1.3 Test data for 802.11n_HT40 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Frequency range : 1 GHz ~ 40 GHz
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
10 380.00	30.24	Peak	H	39.93	26.88	34.74	62.31	68.20	5.89
	29.77	Peak	V				61.84	68.20	6.36
High Channel									
10 460.00	30.17	Peak	H	40.02	27.05	34.76	62.48	68.20	5.72
	31.40	Peak	V				63.70	68.20	4.50

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)


Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.1.4 Test data for 802.11ac_HT80 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel									
10 420.00	30.24	Peak	H	39.98	26.97	34.76	62.43	68.20	5.77
	29.17	Peak	V				61.36	68.20	6.84

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.2 Test data for Frequency U-NII-3

13.5.3.2.1 Test data for 802.11a RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	20.47	Peak	H	40.07	28.32	33.75	55.11	73.98	18.87
	16.22	Average	H				50.86	53.98	3.12
	18.97	Peak	V				53.61	73.98	20.37
	15.42	Average	V				50.06	53.98	3.92
Middle Channel									
11 570.00	19.44	Peak	H	39.78	28.94	33.64	54.52	73.98	19.46
	16.85	Average	H				51.93	53.98	2.05
	18.42	Peak	V				53.50	73.98	20.48
	15.29	Average	V				50.37	53.98	3.61
High Channel									
11 650.00	19.06	Peak	H	39.49	29.56	33.61	54.50	73.98	19.48
	16.33	Average	H				51.77	53.98	2.21
	20.48	Peak	V				55.92	73.98	18.06
	14.12	Average	V				49.56	53.98	4.42

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.2.2 Test data for 802.11n_HT20 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 490.00	21.27	Peak	H	40.07	28.32	33.75	55.91	73.98	18.07
	14.95	Average	H				49.59	53.98	4.39
	20.36	Peak	V				55.00	73.98	18.98
	15.64	Average	V				50.28	53.98	3.70
Middle Channel									
11 570.00	19.43	Peak	H	39.78	28.94	33.64	54.51	73.98	19.47
	16.83	Average	H				51.91	53.98	2.07
	20.32	Peak	V				55.40	73.98	18.58
	14.29	Average	V				49.37	53.98	4.61
High Channel									
11 650.00	19.68	Peak	H	39.49	29.56	33.61	55.12	73.98	18.86
	14.52	Average	H				49.96	53.98	4.02
	20.09	Peak	V				55.53	73.98	18.45
	14.61	Average	V				50.05	53.98	3.93

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.2.3 Test data for 802.11n_HT40 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
11 510.00	21.32	Peak	H	39.78	28.94	33.63	56.41	73.98	17.57
	14.07	Average	H				49.16	53.98	4.82
	20.83	Peak	V				55.92	73.98	18.06
	14.00	Average	V				49.09	53.98	4.89
High Channel									
11 590.00	20.47	Peak	H	39.66	29.19	33.62	55.70	73.98	18.28
	14.55	Average	H				49.78	53.98	4.20
	20.27	Peak	V				55.50	73.98	18.48
	15.36	Average	V				50.59	53.98	3.39

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

13.5.3.2.4 Test data for 802.11ac_HT80 RLAN Mode

- Test Date : February 05, 2018 ~ February 09, 2018
- Resolution bandwidth : 1 MHz for Peak and Average Mode
- Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- Frequency range : 1 GHz ~ 40 GHz
- Measurement distance : 3 m
- Duty Cycle : > 98 %
- Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Middle Channel									
11 550.00	19.74	Peak	H	39.78	28.94	33.63	54.83	73.98	19.15
	14.98	Average	H				50.07	53.98	3.91
	20.05	Peak	V				55.14	73.98	18.84
	14.62	Average	V				49.71	53.98	4.27

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

14.1 Operating environment

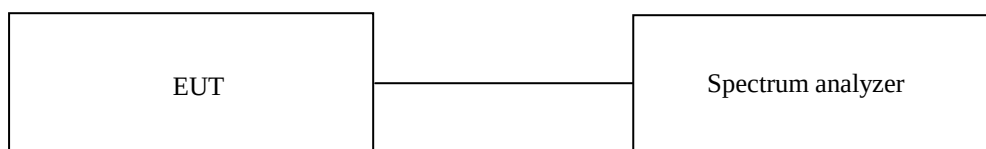
Temperature : 21 °C

Relative humidity : 44 % R.H.

14.2 Test set-up for conducted measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable above the ground plane.

The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.



14.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Apr. 05, 2017 (1Y)
■ -	ESCI	Rohde & Schwarz	Test Receiver	101012	Oct. 27, 2017 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2017 (1Y)
■ -	BBV9718	Schwarzbeck	Amplifier	310	Sep. 01, 2017 (1Y)
■ -	DT3000	Innco System	Turn Table	930611	N/A
■ -	MA4000-EP	Innco System	Antenna Master	3320611	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-421	Apr. 15, 2016 (2Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	May 26, 2017 (2Y)
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Dec. 04, 2017 (2Y)

All test equipment used is calibrated on a regular basis.

14.4 Test data for Antenna 0 (UANZZZWHA002)

14.4.1 Test data for Frequency U-NII-1

14.4.1.1 Test data for 802.11a RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	42.99	Peak	H	31.28	12.65	36.01	50.91	74.00	23.09
	30.62	Average	H				38.54	54.00	15.46
	43.62	Peak	V				51.54	74.00	22.46
	30.40	Average	V				38.32	54.00	15.68

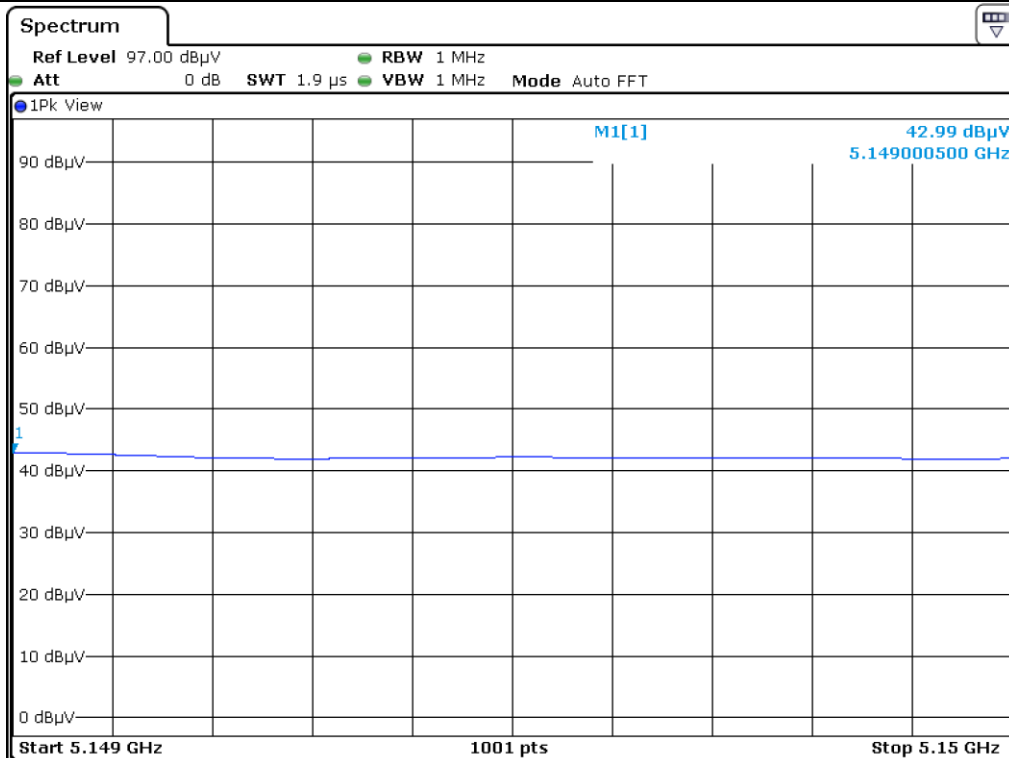
Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

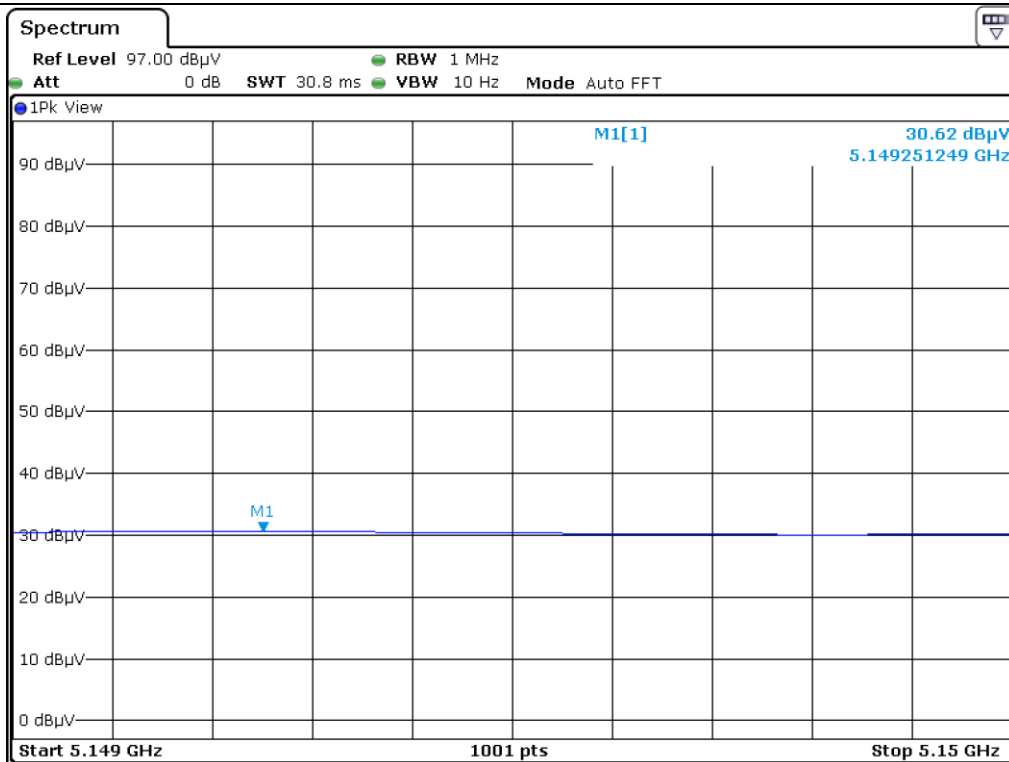
Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



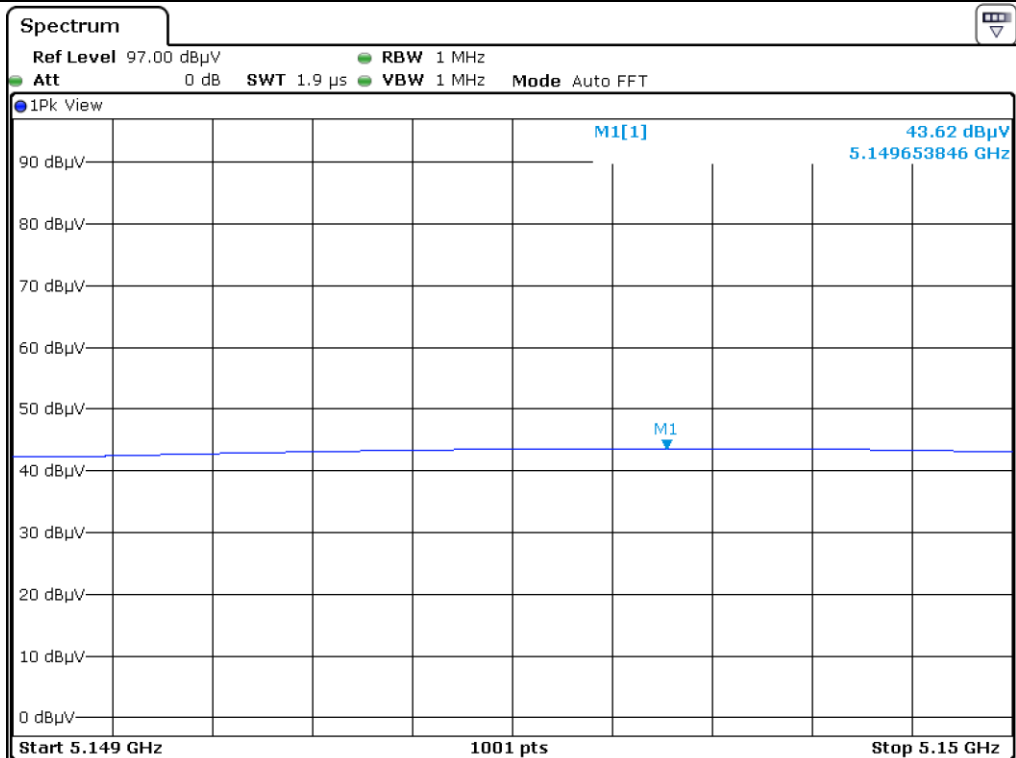
Tested by: Hyung-Kwon, Oh / Assistant Manager



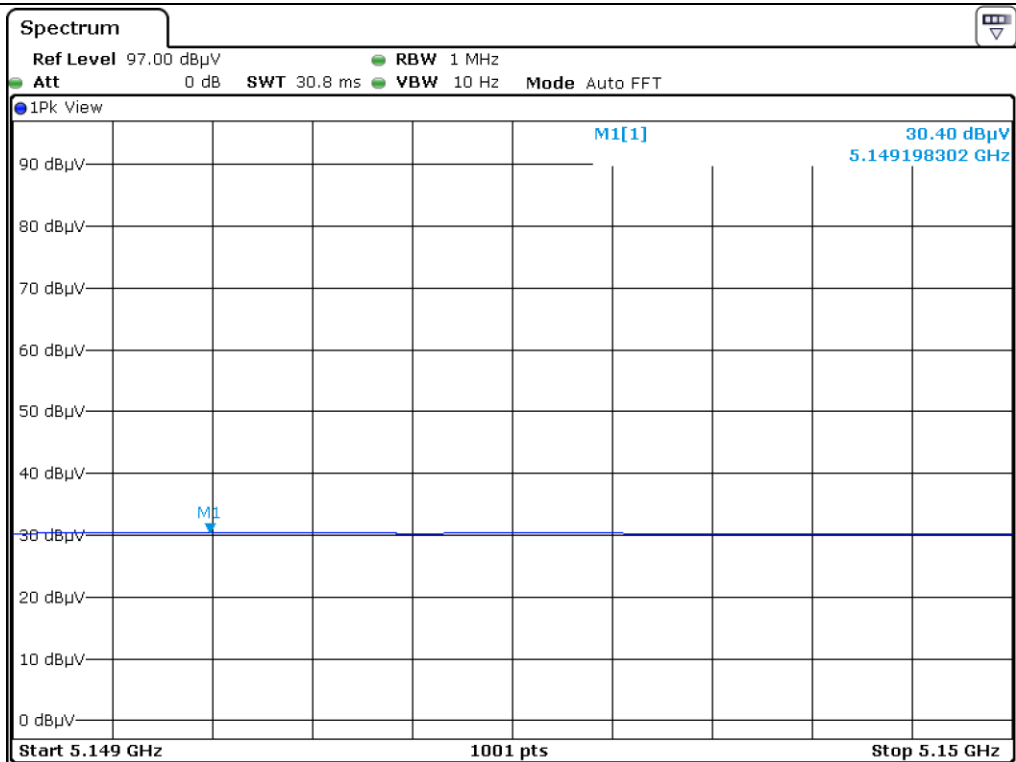
Low Channel_Peak_H



Low Channel_Average_H



Low Channel_Peak_V



Low Channel_Average_V

14.4.1.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	39.15	Peak	H	31.28	12.65	36.01	47.07	74.00	26.93
	34.27	Average	H				42.19	54.00	11.81
	36.14	Peak	V				44.06	74.00	29.94
	33.62	Average	V				41.54	54.00	12.46

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.4.1.3 Test data for 802.11n_HT40 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	40.68	Peak	H	31.28	12.65	36.01	48.60	74.00	25.40
	37.52	Average	H				45.44	54.00	8.56
	37.33	Peak	V				45.25	74.00	28.75
	36.17	Average	V				44.09	54.00	9.91

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.4.1.4 Test data for 802.11ac_HT80 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	44.78	Peak	H	31.28	12.65	36.01	52.70	74.00	21.30
	39.52	Average	H				47.44	54.00	6.56
	40.27	Peak	V				48.19	74.00	25.81
	39.14	Average	V				47.06	54.00	6.94

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.4.2 Test data for Frequency U-NII-3

14.4.2.1 Test data for 802.11a RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	41.88	Peak	H	32.17	12.09	35.59	50.55	124.38	73.83
	41.92	Peak	V				50.59	124.38	73.79
5 715.00	42.52	Peak	H				51.19	111.58	60.39
	42.33	Peak	V				51.00	111.58	60.58
High Channel									
5 850.00	40.81	Peak	H	32.17	12.09	35.43	49.64	124.38	74.74
	41.33	Peak	V				50.16	124.38	74.22
5 860.00	41.45	Peak	H				50.28	111.58	61.30
	41.62	Peak	V				50.45	111.58	61.13

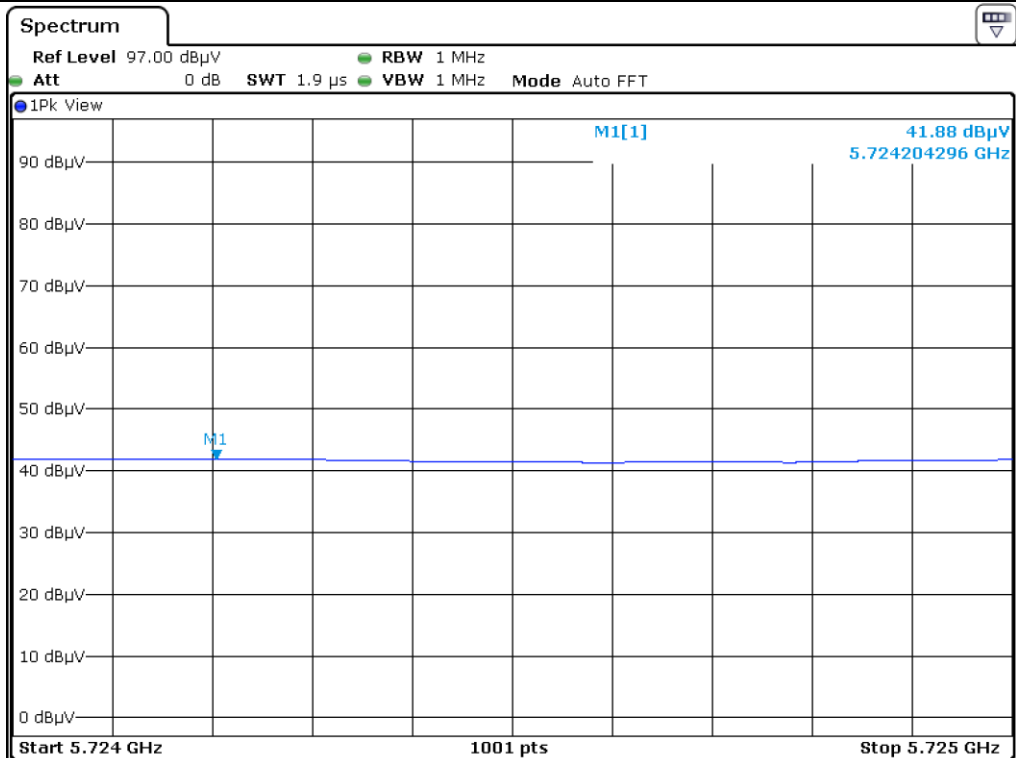
Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

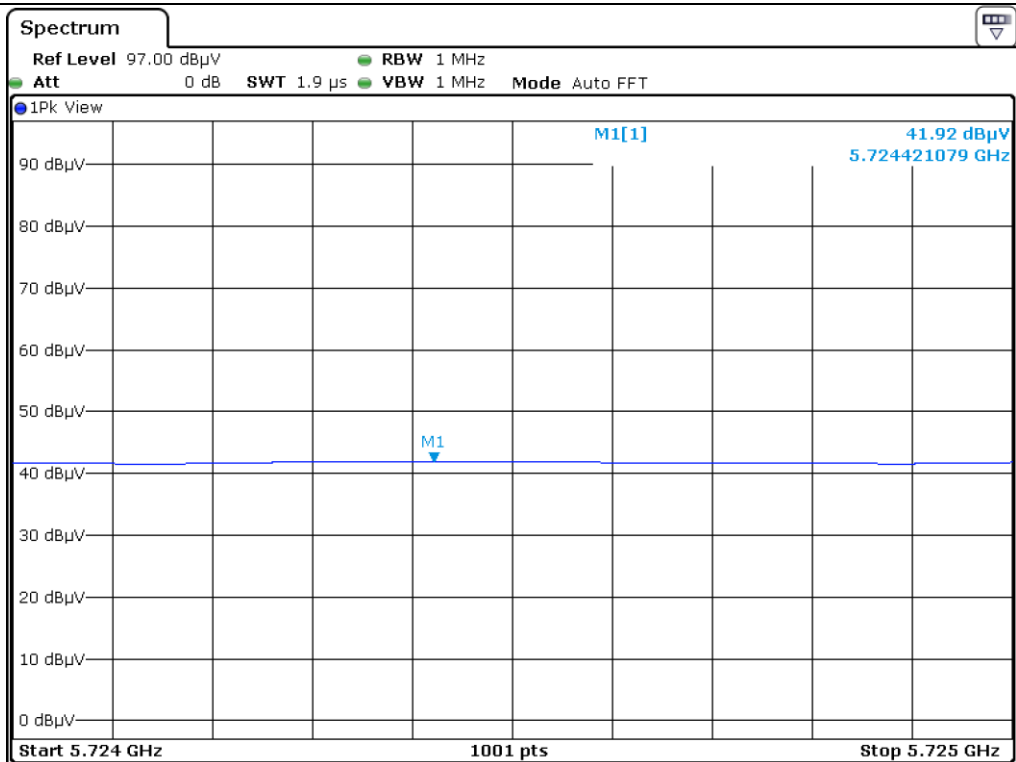
Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



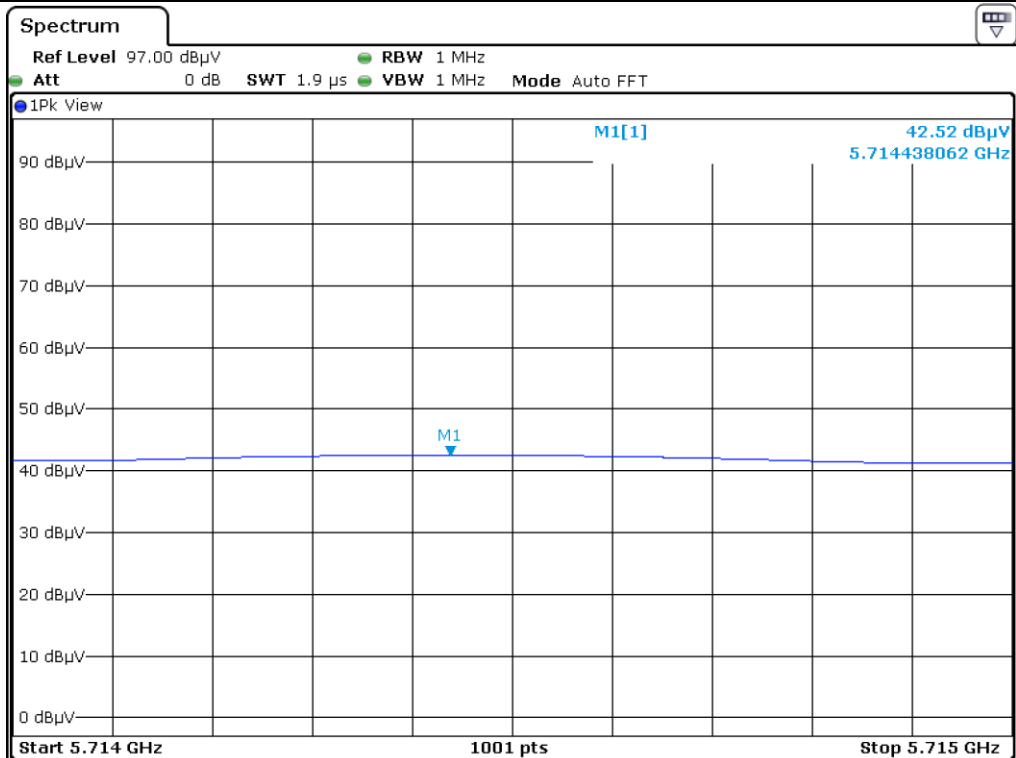
Tested by: Hyung-Kwon, Oh / Assistant Manager



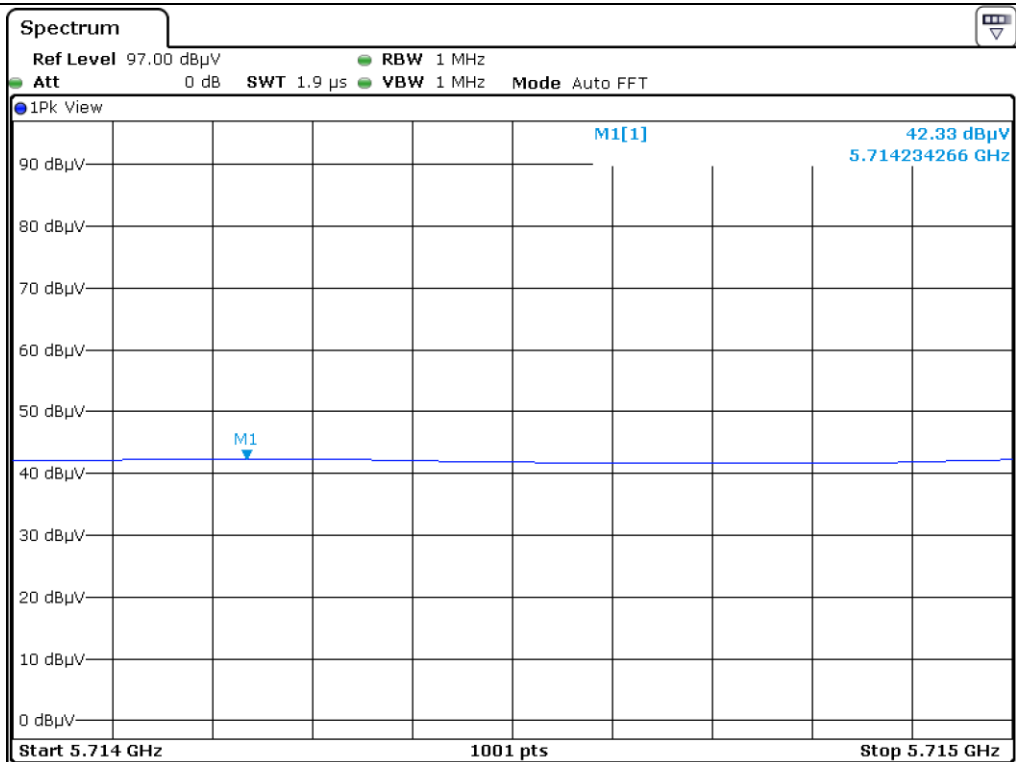
Low Channel_Peak_H



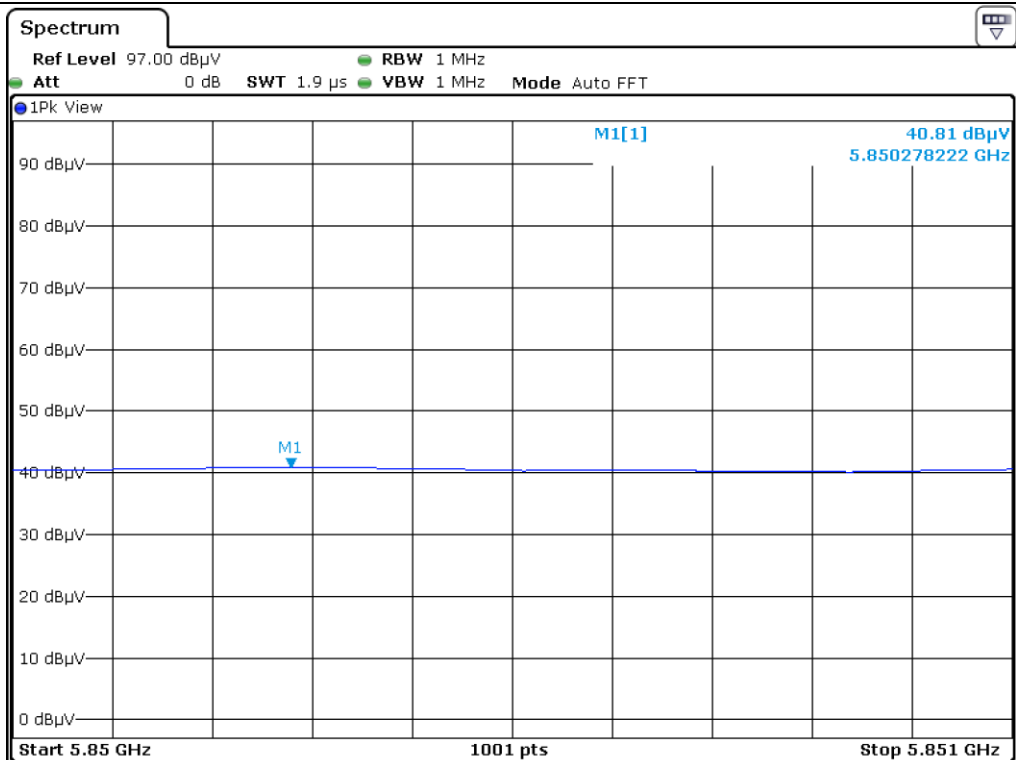
Low Channel_Peak_V



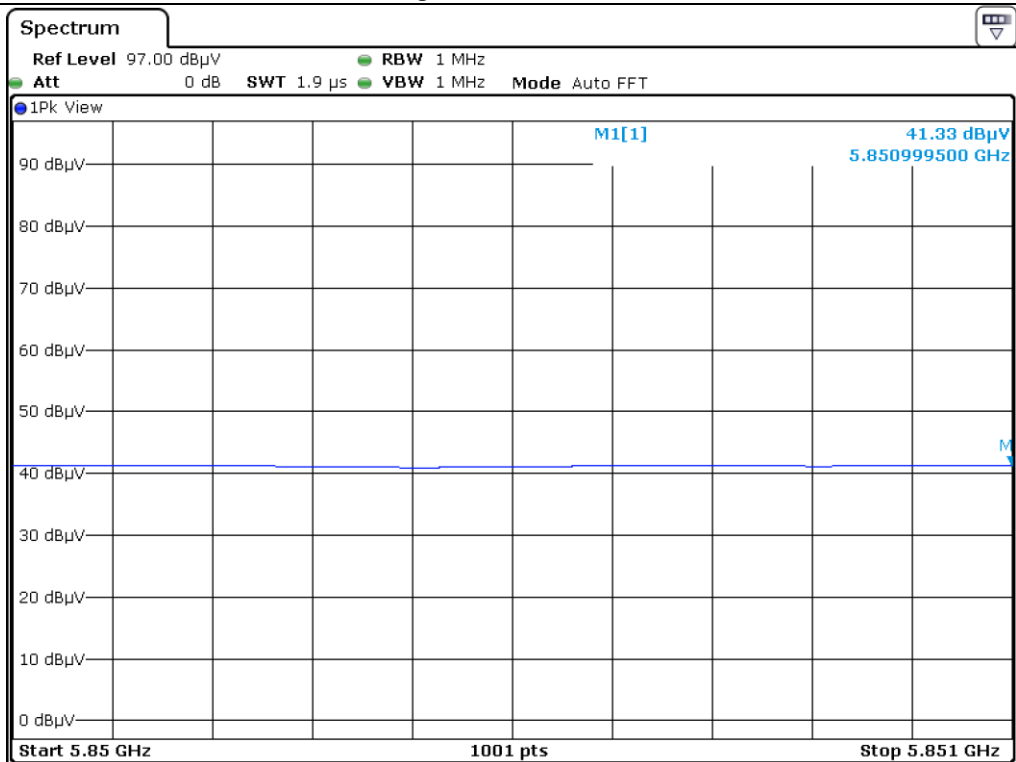
Low Channel_Peak_H



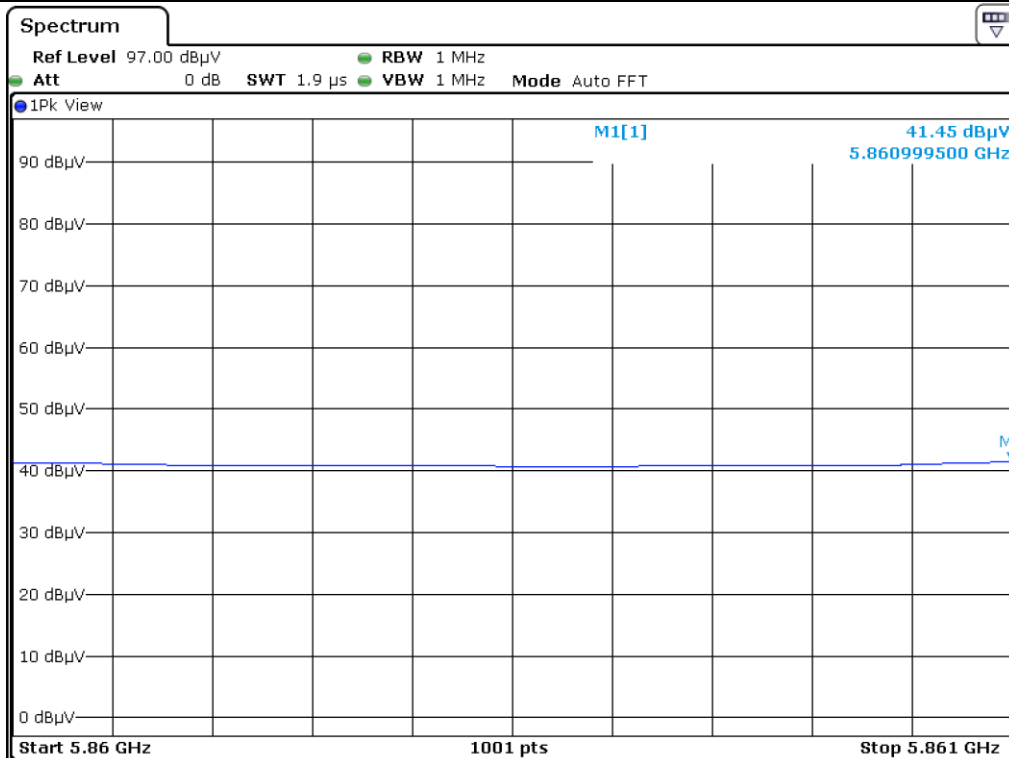
Low Channel_Peak_V



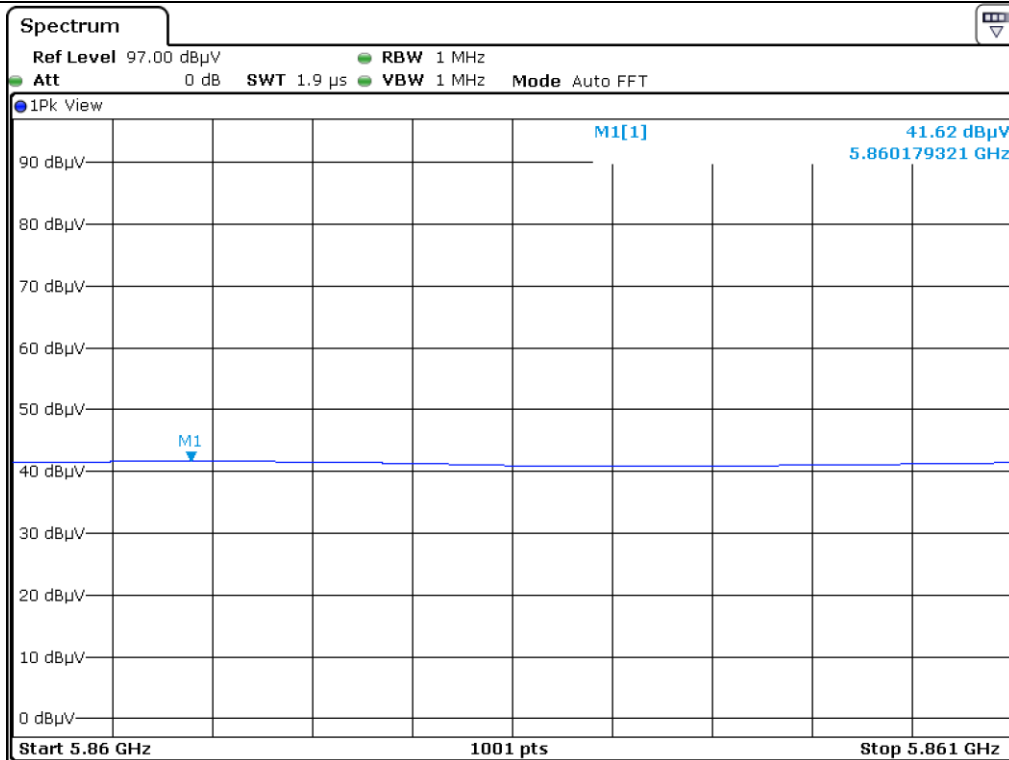
High Channel_Peak_H



High Channel_Peak_V



High Channel_Peak_H



High Channel_Peak_V

14.4.2.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	41.54	Peak	H	32.17	12.09	35.59	50.21	124.38	74.17
	40.08	Peak	V				48.75	124.38	75.63
5 715.00	40.84	Peak	H				49.51	111.58	62.07
	39.75	Peak	V				48.42	111.58	63.16
High Channel									
5 850.00	41.28	Peak	H	32.17	12.09	35.43	50.11	124.38	74.27
	39.23	Peak	V				48.06	124.38	76.32
5 860.00	39.84	Peak	H				48.67	111.58	62.91
	40.86	Peak	V				49.69	111.58	61.89

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.4.2.3 Test data for 802.11n_HT40 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	40.22	Peak	H	32.17	12.09	35.59	48.89	124.38	75.49
	41.27	Peak	V				49.94	124.38	74.44
5 715.00	39.57	Peak	H				48.24	111.58	63.34
	40.62	Peak	V				49.29	111.58	62.29
High Channel									
5 850.00	42.74	Peak	H	32.17	12.09	35.43	51.57	124.38	72.81
	43.17	Peak	V				52.00	124.38	72.38
5 860.00	40.06	Peak	H				48.89	111.58	62.69
	39.62	Peak	V				48.45	111.58	63.13

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.4.2.4 Test data for 802.11ac_HT80 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	41.95	Peak	H	32.17	12.09	35.59	50.62	124.38	73.76
	40.84	Peak	V				49.51	124.38	74.87
5 715.00	42.69	Peak	H				51.36	111.58	60.22
	42.15	Peak	V				50.82	111.58	60.76
High Channel									
5 850.00	43.17	Peak	H	32.17	12.09	35.43	52.00	124.38	72.38
	43.62	Peak	V				52.45	124.38	71.93
5 860.00	42.42	Peak	H				51.25	111.58	60.33
	43.56	Peak	V				52.39	111.58	59.19

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5 Test data for Antenna 0 (UANZZZWHA003)

14.5.1 Test data for Frequency U-NII-1

14.5.1.1 Test data for 802.11a RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	41.84	Peak	H	31.28	12.65	36.01	49.76	74.00	24.24
	32.54	Average	H				40.46	54.00	13.54
	42.18	Peak	V				50.10	74.00	23.90
	32.14	Average	V				40.06	54.00	13.94

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.1.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	40.28	Peak	H	31.28	12.65	36.01	48.20	74.00	25.80
	36.19	Average	H				44.11	54.00	9.89
	37.16	Peak	V				45.08	74.00	28.92
	35.27	Average	V				43.19	54.00	10.81

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.1.3 Test data for 802.11n_HT40 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	38.54	Peak	H	31.28	12.65	36.01	46.46	74.00	27.54
	38.67	Average	H				46.59	54.00	7.41
	35.21	Peak	V				43.13	74.00	30.87
	38.63	Average	V				46.55	54.00	7.45

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.1.4 Test data for 802.11ac_HT80 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
5 150.00	42.46	Peak	H	31.28	12.65	36.01	50.38	74.00	23.62
	41.08	Average	H				49.00	54.00	5.00
	41.82	Peak	V				49.74	74.00	24.26
	40.61	Average	V				48.53	54.00	5.47

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.2 Test data for Frequency U-NII-3

14.5.2.1 Test data for 802.11a RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	42.51	Peak	H	32.17	12.09	35.59	51.18	124.38	73.20
	43.27	Peak	V				51.94	124.38	72.44
5 715.00	41.36	Peak	H				50.03	111.58	61.55
	40.28	Peak	V				48.95	111.58	62.63
High Channel									
5 850.00	42.74	Peak	H	32.17	12.09	35.43	51.57	124.38	72.81
	43.21	Peak	V				52.04	124.38	72.34
5 860.00	40.07	Peak	H				48.90	111.58	62.68
	40.56	Peak	V				49.39	111.58	62.19

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.2.2 Test data for 802.11n_HT20 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	40.81	Peak	H	32.17	12.09	35.59	49.48	124.38	74.90
	41.35	Peak	V				50.02	124.38	74.36
5 715.00	42.08	Peak	H				50.75	111.58	60.83
	40.19	Peak	V				48.86	111.58	62.72
High Channel									
5 850.00	42.37	Peak	H	32.17	12.09	35.43	51.20	124.38	73.18
	40.83	Peak	V				49.66	124.38	74.72
5 860.00	41.22	Peak	H				50.05	111.58	61.53
	39.17	Peak	V				48.00	111.58	63.58

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.2.3 Test data for 802.11n_HT40 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	42.16	Peak	H	32.17	12.09	35.59	50.83	124.38	73.55
	40.17	Peak	V				48.84	124.38	75.54
5 715.00	40.25	Peak	H				48.92	111.58	62.66
	39.24	Peak	V				47.91	111.58	63.67
High Channel									
5 850.00	41.02	Peak	H	32.17	12.09	35.43	49.85	124.38	74.53
	42.39	Peak	V				51.22	124.38	73.16
5 860.00	41.57	Peak	H				50.40	111.58	61.18
	40.24	Peak	V				49.07	111.58	62.51

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

14.5.2.4 Test data for 802.11ac_HT80 RLAN Mode

- . Test Date : February 05, 2018 ~ February 09, 2018
- . Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
100 kHz for Peak Mode for the emissions outside restricted band
- . Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- . Measurement distance : 3 m
- . Duty Cycle : > 98 %
- . Result : Pass

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
Low Channel									
5 725.00	40.36	Peak	H	32.17	12.09	35.59	49.03	124.38	75.35
	39.23	Peak	V				47.90	124.38	76.48
5 715.00	41.09	Peak	H				49.76	111.58	61.82
	41.83	Peak	V				50.50	111.58	61.08
High Channel									
5 850.00	42.57	Peak	H	32.17	12.09	35.43	51.40	124.38	72.98
	42.63	Peak	V				51.46	124.38	72.92
5 860.00	41.45	Peak	H				50.28	111.58	61.30
	42.65	Peak	V				51.48	111.58	60.10

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)



Tested by: Hyung-Kwon, Oh / Assistant Manager

15. CONDUCTED EMISSION TEST

15.1 Operating environment

Temperature : (24 ~ 25) °C
Relative humidity : (42 ~ 43) % R.H.

15.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μ H + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

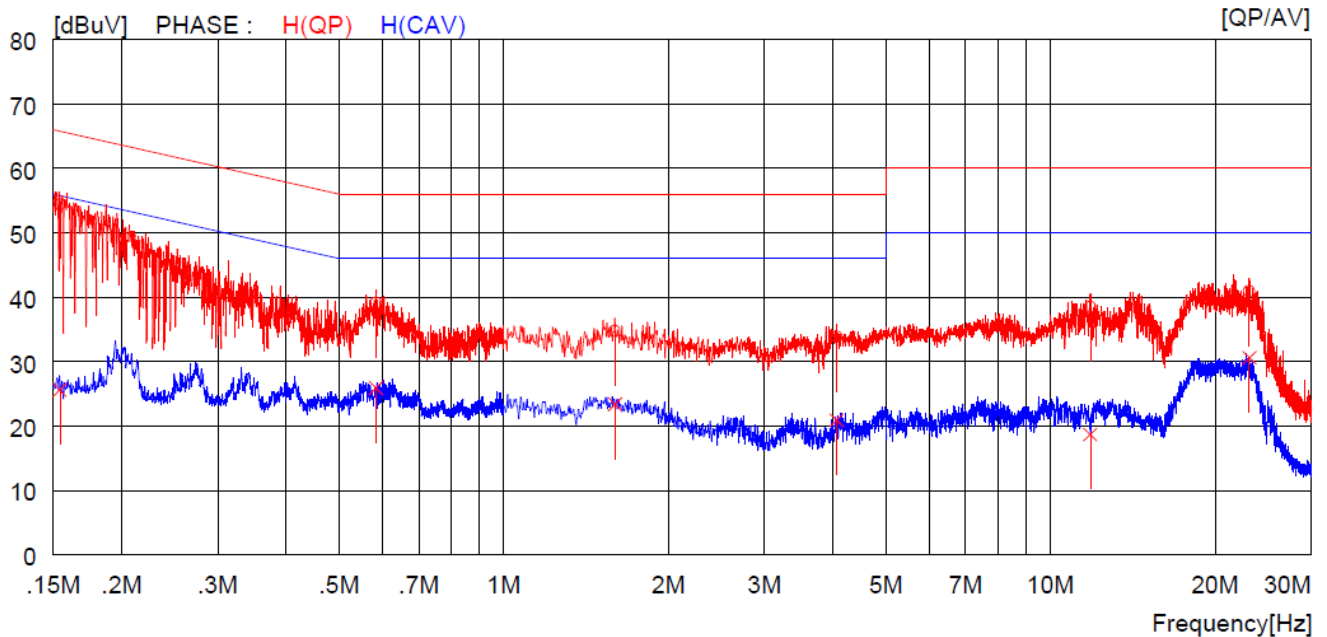
15.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal. (Interval)
■ -	ESPI	Rohde & Schwarz	Test Receiver	101012	Oct. 27, 2017 (1Y)
□ -	ESHS10	Rohde & Schwarz	Test Receiver	834467/007	Apr. 05, 2017 (1Y)
□ -	NSLK8128	Schwarzbeck	AMN	8128-216	Apr. 06, 2017 (1Y)
■ -	NSLK8126	Schwarzbeck	AMN	8126-404	Apr. 05, 2017 (1Y)
□ -	3825/2	EMCO	AMN	9109-1869	Apr. 06, 2017 (1Y)
■ -	3825/2	EMCO	AMN	9109-1867	Apr. 06, 2017 (1Y)

All test equipment used is calibrated on a regular basis.

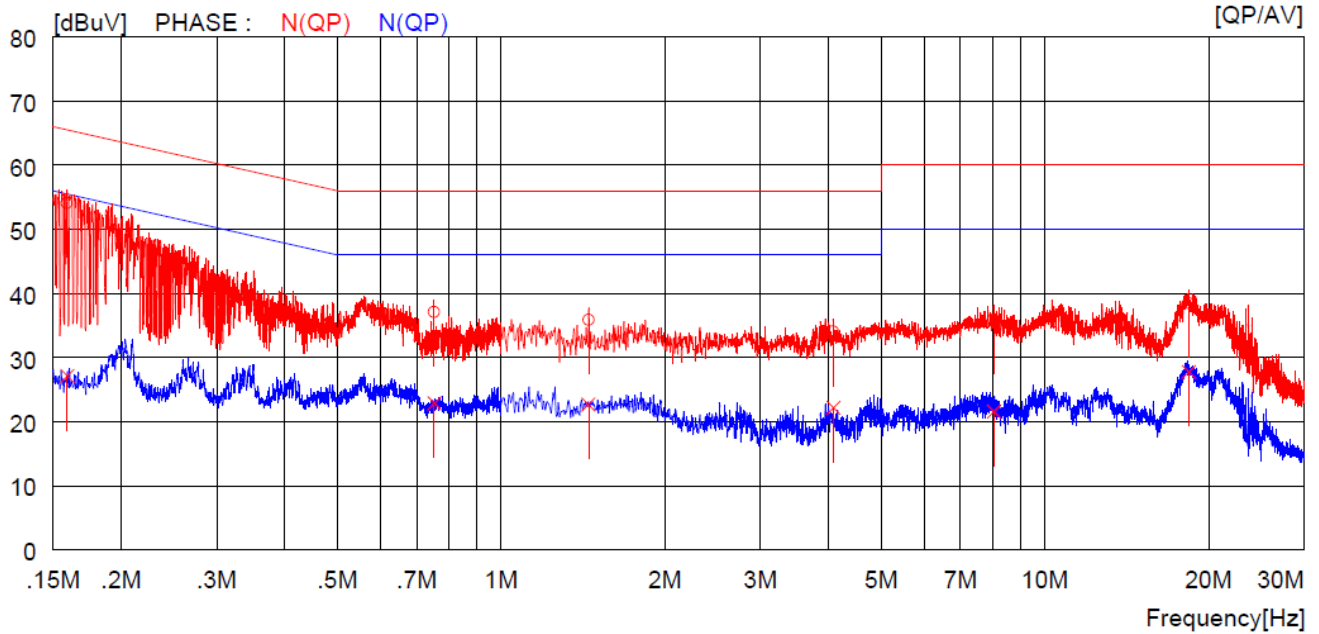
15.4 Test data

- . Test Date : July 19, 2017
- . Resolution bandwidth : 9 kHz
- . Frequency range : 0.15 MHz ~ 30 MHz
- . Tested Line : HOT LINE
- . Antenna 0 (UANZZZWHA002, UANZZZWHA003), Antenna 1 and Multiple transmit tested, but the worst data were recorded.



NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15400	44.4	----	10.0	54.4	----	65.8	----	11.4	----	H (QP)
2	0.58400	29.0	----	10.1	39.1	----	56.0	----	16.9	----	H (QP)
3	1.59600	24.7	----	10.1	34.8	----	56.0	----	21.2	----	H (QP)
4	4.06400	23.6	----	10.2	33.8	----	56.0	----	22.2	----	H (QP)
5	11.82000	28.1	----	10.4	38.5	----	60.0	----	21.5	----	H (QP)
6	23.13000	30.1	----	10.8	40.9	----	60.0	----	19.1	----	H (QP)
7	0.15400	----	15.6	10.0	----	25.6	----	55.8	----	30.2	H (CAV)
8	0.58400	----	15.8	10.1	----	25.9	----	46.0	----	20.1	H (CAV)
9	1.59600	----	13.3	10.1	----	23.4	----	46.0	----	22.6	H (CAV)
10	4.06400	----	10.7	10.2	----	20.9	----	46.0	----	25.1	H (CAV)
11	11.82000	----	8.3	10.4	----	18.7	----	50.0	----	31.3	H (CAV)
12	23.13000	----	19.8	10.8	----	30.6	----	50.0	----	19.4	H (CAV)

-. Tested Line : NEUTRAL LINE



NO	FREQ [MHz]	READING		C. FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.15900	44.1	----	10.0	54.1	----	65.5	----	11.4	----	N (QP)
2	0.75300	27.0	----	10.1	37.1	----	56.0	----	18.9	----	N (QP)
3	1.44800	25.8	----	10.1	35.9	----	56.0	----	20.1	----	N (QP)
4	4.08400	23.8	----	10.2	34.0	----	56.0	----	22.0	----	N (QP)
5	8.05500	25.7	----	10.3	36.0	----	60.0	----	24.0	----	N (QP)
6	18.38000	27.8	----	10.7	38.5	----	60.0	----	21.5	----	N (QP)
7	0.15900	----	17.1	10.0	----	27.1	----	55.5	----	28.4	N (CAV)
8	0.75300	----	12.8	10.1	----	22.9	----	46.0	----	23.1	N (CAV)
9	1.44800	----	12.6	10.1	----	22.7	----	46.0	----	23.3	N (CAV)
10	4.08400	----	12.0	10.2	----	22.2	----	46.0	----	23.8	N (CAV)
11	8.05500	----	11.3	10.3	----	21.6	----	50.0	----	28.4	N (CAV)
12	18.38000	----	17.1	10.7	----	27.8	----	50.0	----	22.2	N (CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

Tested by: Hyung-Kwon, Oh / Assistant Manager