



FCC RADIO TEST REPORT

Applicant : ELO TOUCH SOLUTIONS, INC.
Address : 670 N Mccarthy Blvd, Suite 100, MILPITAS,
CA 95035, United States
Equipment : Computer Box
Model No. : ELO-KIT-EloView-Engine
Trade Name : ELO
FCC ID. : RBWENGINE

I HEREBY CERTIFY THAT :

The sample was received on Nov. 13, 2017 and the testing was carried out on Nov. 16, 2017 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Assistant Manager

Tested by:

Spree Yei / Engineer

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory



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History of this test report

Report No.	Issue Date	Description
TEFE1708268	Dec. 05, 2017	Original



1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E §15.407

First R&O 14-30

KDB662911

KDB789033

KDB644545

FCC Rule	Description of Test	Result
15.203	Antenna Requirement	Pass
15.207(a)	AC Power Line Conducted Emission	Pass
15.407(b) 15.209	Radiated Spurious Emission	Pass
15.407(a)	26 dB Occupied Bandwidth	N/A
15.407	6 dB Bandwidth	Pass
15.407 (a) & (a)(3)	Average Power	Pass
15.407(a)	Output and PPSD	Pass



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment

Modulation Type	DSSS, OFDM, FHSS, GFSK, 8DPSK
Frequency Range	802.11b/g/n: 2412-2462MHz 802.11a/an: 5150-5250MHz, 5725-5850MHz BT: 2402~2480MHz BLE: 2402~2480MHz
Data Rate	WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS7, VHT20/40/80 BT: GFSK: 1Mbps $\pi/4$ -DQPSK: 2Mbps 8DPSK: 3Mbps BLE: GFSK: 1Mbps
Antenna Type/gain	2.4G: PCB Antenna / 3.68dBi 5G: PCB Antenna / 3.69dBi BT / BLE: PCB Antenna / 3.68dBi

Note:

1. For a more detailed features please refer to the User's Manual.

2.2. Carrier Frequency of Channels

Band 1: 5150MHz-5250MHz

802.11a, 802.11an HT 20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*36	5180	*44	5220
40	5200	*48	5240

802.11an HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*38	5190	*46	5230

802.11ac VHT80

Channel	Frequency(MHz)
*42	5210

Band 4: 5725MHz -5850MHz

802.11a, 802.11an HT20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*149	5745	161	5805
153	5765	*165	5825
*157	5785		

802.11an HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*151	5755	*159	5795

802.11ac VHT80

Channel	Frequency(MHz)
*155	5775

Note: Channels remarked * are selected to perform test.



2.3. Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. An executive program, "QRCT:3.0.230.0" under WIN 7 was executed to transmit and receive data via WLAN.
- c. The following test modes were performed for the test:
 - Test Mode 1: 802.11a (6Mbps)
 - Test Mode 2: 802.11an HT20 (6.5Mbps)
 - Test Mode 3: 802.11an HT40 (MCS0Mbps)
 - Test Mode 4: 802.11ac VHT20 (6.5Mbps)
 - Test Mode 5: 802.11ac VHT40 (13.5Mbps)
 - Test Mode 6: 802.11ac VHT80 (29.3Mbps)

For conduction test, caused "Test Mode 1" generated the worst case, it was reported as the final data.

For radiation test (below 1GHz), caused "Test Mode 1" generated the worst case, it was reported as the final data.

For radiation test (above 1GHz), caused "Test Mode 1, 4, 5, 6" generated the worst case, they were reported as the final data.

2.4. Description of Test System

The EUT was tested alone. No support devices are needed for testing.



2.5. General Information of Test

Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582	
	FCC	TW1079, TW1061, TW1439
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

2.6. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	Line / Neutral	±2.9076 dB
Radiated Emission	9 kHz ~ 25,000 MHz	Vertical / Horizontal	±0.948 dB
Spurious Emission (Conducted)	-	-	±4.011 dB
Maximum Peak and Average Output Power	-	-	±0.322 dB
Power Spectral Density	-	-	±0.322 dB
Bandwidth	-	-	74.224Hz
Frequency Error	-	-	±78.539Hz
Temperature	-	-	±1.20C
Humidity	-	-	±2.7%



3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2017/03/07	2018/03/06
LISN	Schwarzbeck	NSLK 8127	8127-568	2017/02/15	2018/02/14
Pulse Limiter	R&S	ESH3-Z2	101934	2017/02/14	2018/02/13
Bilog Antenna	Schwarzbeck	VULB9168	369	2017/03/15	2018/03/14
Active Loop Antenna	EMCO	6507	40855	2017/05/15	2018/05/14
Horn Antenna	EMCO	3115	31589	2017/02/18	2018/02/17
Horn Antenna	EMCO	3116	31970	2017/03/29	2018/03/28
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2017/03/17	2018/03/16
Preamplifier	EM	EM330	60660	2017/02/25	2018/02/24
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2017/09/20	2018/09/19
Preamplifier	Agilent	8449B	3008A01954	2017/02/09	2018/02/08
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2017/11/10	2018/11/09
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2017/03/17	2018/03/16
Spectrum Analyzer	R&S	FSP40	100219	2017/07/01	2018/06/30
Bluetooth Tester	R&S	CBT	101133	2017/03/10	2018/03/09
Attenuator	KEYSIGHT	8491B	MY39250703	2017/03/07	2018/03/06
Rotary Attenuator	Agilent	8495B	MY42146680	2017/03/13	2018/03/12
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2017/09/04	2018/09/03
Series Power Meter	Anritsu	ML2495A	1224005	2017/03/01	2018/02/28
Power Sensor	Anritsu	MA2411B	1207295	2017/03/01	2018/02/28
Cable	HUBER SUHNER	SUCOFLEX 102	28422/2	2017/02/25	2018/02/24
Cable	HUBER SUHNER	SUCOFLEX 102	28418/2	2017/02/25	2018/02/24
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	v2.0.0.1	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A



4. Antenna Requirements

4.1. Antenna Construction and Directional Gain

PCB antenna, 3.69 dBi

For Power directional gain= G_{ant} = 3.69 dBi

For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$
= 3.69 (dBi)



5. Test of AC Power Line Conducted Emission

5.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

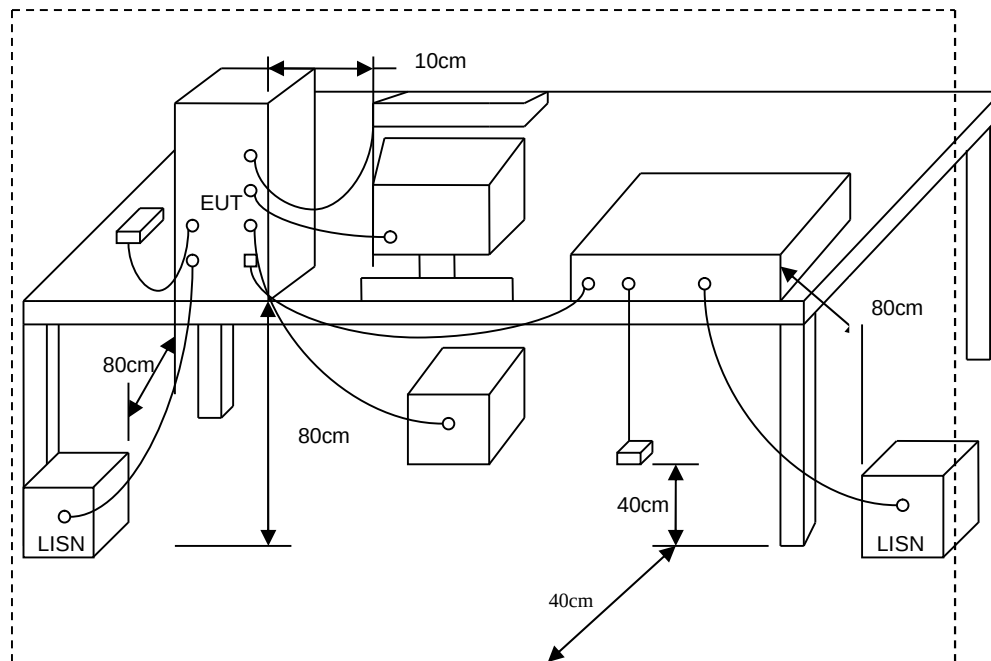
*Decreases with the logarithm of the frequency.

5.2. Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



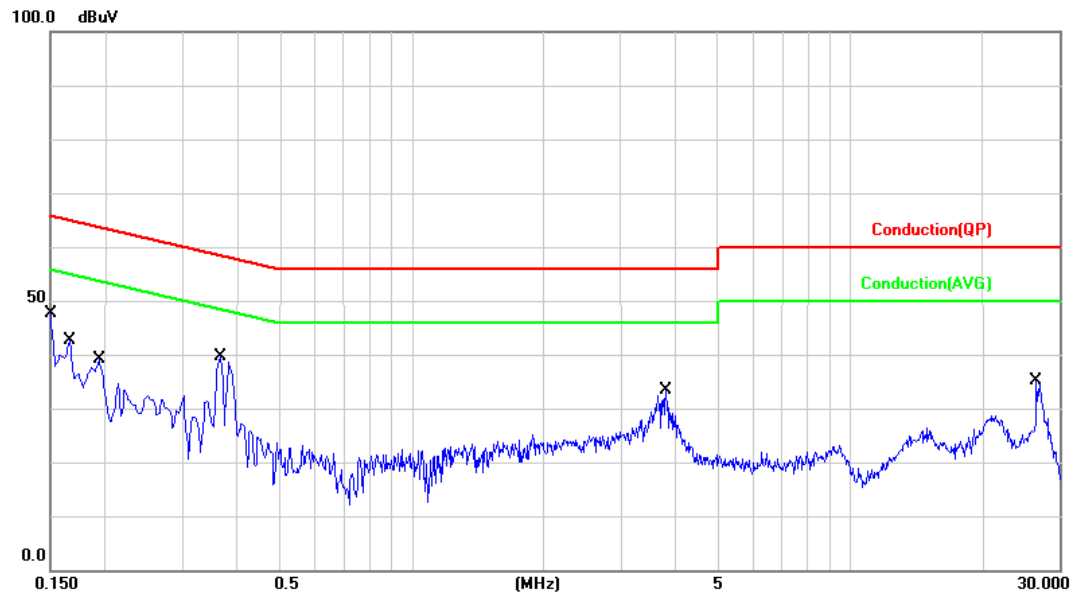
5.3. Typical Test Setup





5.4. Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: Mode 1, Band 1	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1499	9.91	10.28	20.19	66.00	-45.81	QP	P
2	0.1499	9.91	7.02	16.93	56.00	-39.07	AVG	P
3	0.1660	9.91	28.90	38.81	65.15	-26.34	QP	P
4	0.1660	9.91	21.63	31.54	55.15	-23.61	AVG	P
5	0.1940	9.91	24.55	34.46	63.86	-29.40	QP	P
6	0.1940	9.91	15.71	25.62	53.86	-28.24	AVG	P
7	0.3660	9.93	28.96	38.89	58.59	-19.70	QP	P
8	0.3660	9.93	24.62	34.55	48.59	-14.04	AVG	P
9	3.8180	10.08	18.12	28.20	56.00	-27.80	QP	P
10	3.8180	10.08	8.49	18.57	46.00	-27.43	AVG	P
11	26.6220	10.57	23.19	33.76	60.00	-26.24	QP	P
12	26.6220	10.57	20.42	30.99	50.00	-19.01	AVG	P

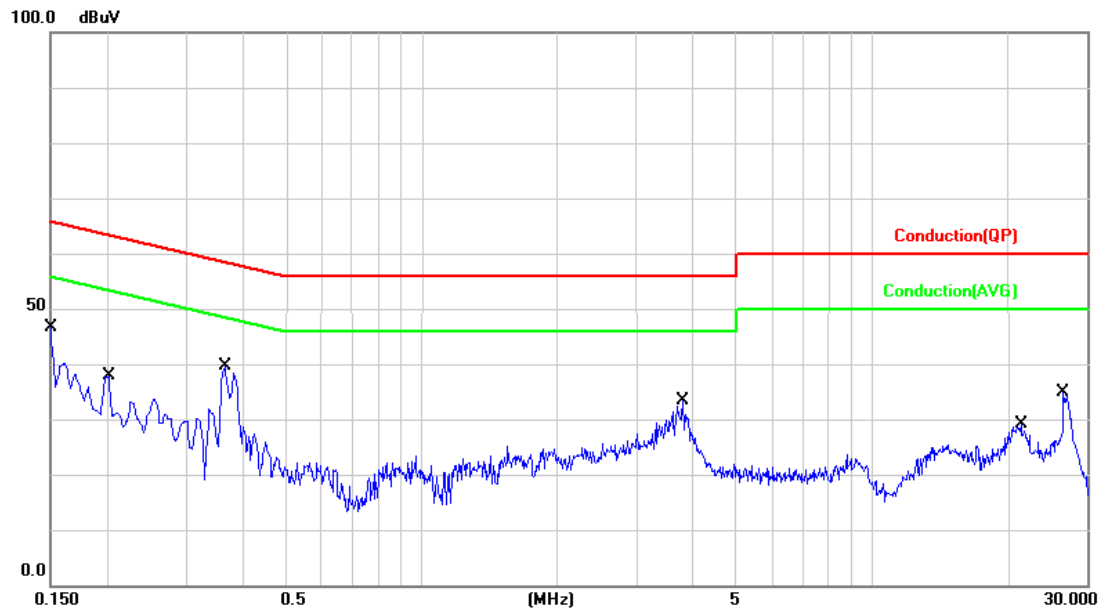
Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: Mode 1, Band 1	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.91	32.80	42.71	65.99	-23.28	QP	P
2	0.1500	9.91	24.70	34.61	55.99	-21.38	AVG	P
3	0.2020	9.91	23.74	33.65	63.52	-29.87	QP	P
4	0.2020	9.91	14.56	24.47	53.52	-29.05	AVG	P
5	0.3660	9.93	28.99	38.92	58.59	-19.67	QP	P
6	0.3660	9.93	24.63	34.56	48.59	-14.03	AVG	P
7	3.8140	10.09	17.98	28.07	56.00	-27.93	QP	P
8	3.8140	10.09	8.73	18.82	46.00	-27.18	AVG	P
9	21.3900	10.47	13.16	23.63	60.00	-36.37	QP	P
10	21.3900	10.47	7.33	17.80	50.00	-32.20	AVG	P
11	26.6220	10.57	21.99	32.56	60.00	-27.44	QP	P
12	26.6220	10.57	19.05	29.62	50.00	-20.38	AVG	P

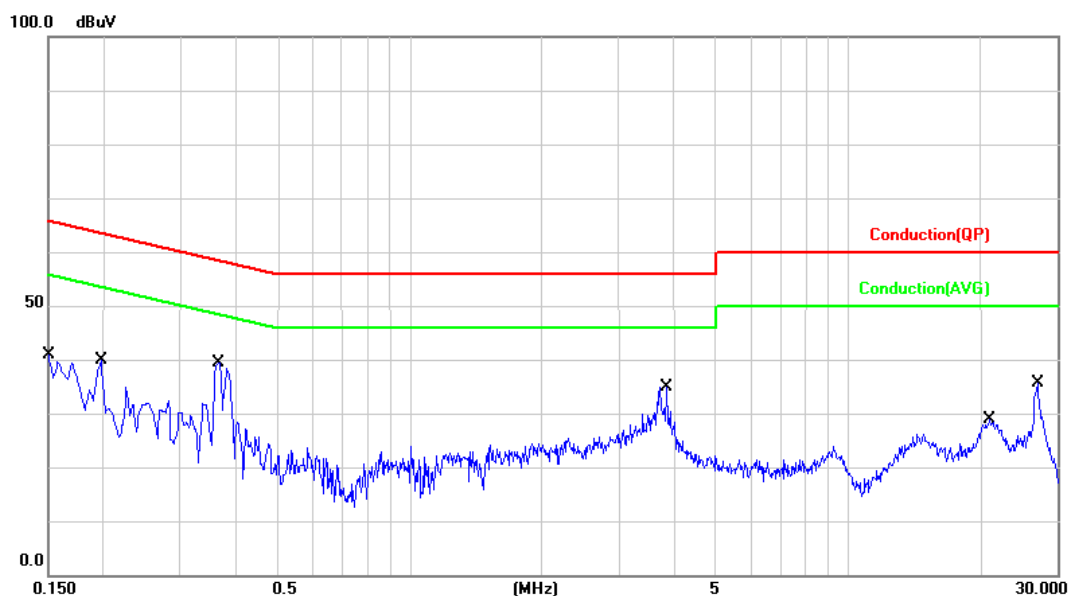
Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: Mode 1, Band 4	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.91	32.57	42.48	65.99	-23.51	QP	P
2	0.1500	9.91	24.64	34.55	55.99	-21.44	AVG	P
3	0.1980	9.91	23.42	33.33	63.69	-30.36	QP	P
4	0.1980	9.91	15.09	25.00	53.69	-28.69	AVG	P
5	0.3660	9.93	29.00	38.93	58.59	-19.66	QP	P
6	0.3660	9.93	24.50	34.43	48.59	-14.16	AVG	P
7	3.8620	10.08	17.55	27.63	56.00	-28.37	QP	P
8	3.8620	10.08	8.51	18.59	46.00	-27.41	AVG	P
9	21.1420	10.47	12.89	23.36	60.00	-36.64	QP	P
10	21.1420	10.47	7.28	17.75	50.00	-32.25	AVG	P
11	27.0220	10.57	18.78	29.35	60.00	-30.65	QP	P
12	27.0220	10.57	11.63	22.20	50.00	-27.80	AVG	P

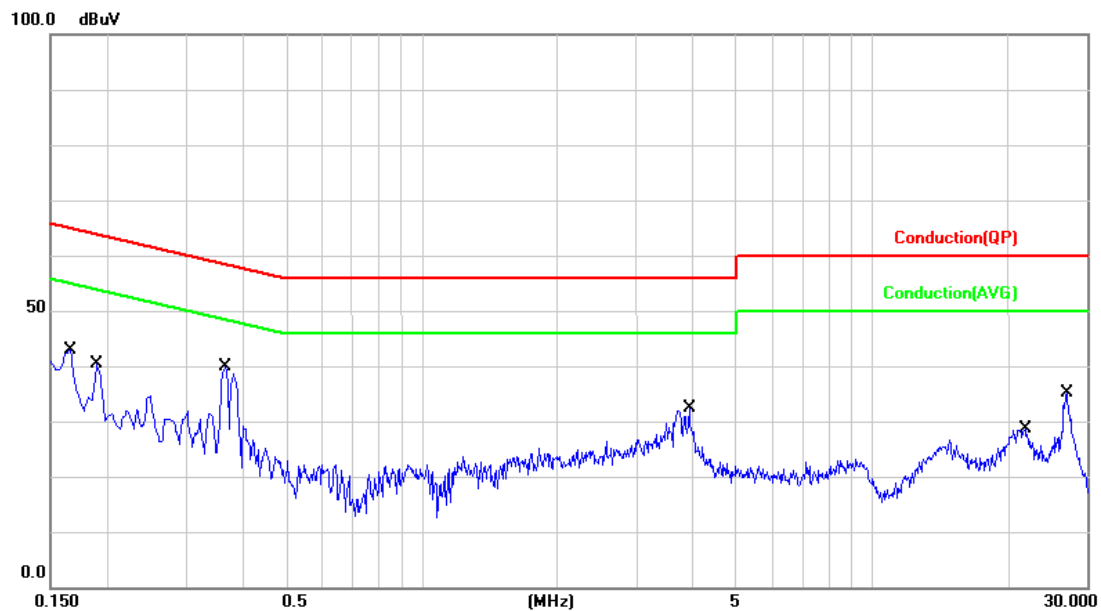
Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: Mode 1, Band 4	Temperature	: 20 °C
Test date	: Nov. 16, 2017	Humidity	: 58 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1660	9.91	28.66	38.57	65.15	-26.58	QP	P
2	0.1660	9.91	21.68	31.59	55.15	-23.56	AVG	P
3	0.1900	9.91	25.88	35.79	64.03	-28.24	QP	P
4	0.1900	9.91	17.36	27.27	54.03	-26.76	AVG	P
5	0.3660	9.93	29.01	38.94	58.59	-19.65	QP	P
6	0.3660	9.93	24.52	34.45	48.59	-14.14	AVG	P
7	3.9260	10.09	15.85	25.94	56.00	-30.06	QP	P
8	3.9260	10.09	8.16	18.25	46.00	-27.75	AVG	P
9	21.9260	10.48	12.20	22.68	60.00	-37.32	QP	P
10	21.9260	10.48	6.42	16.90	50.00	-33.10	AVG	P
11	27.0420	10.57	19.76	30.33	60.00	-29.67	QP	P
12	27.0420	10.57	12.11	22.68	50.00	-27.32	AVG	P

Note: Level = Reading + Factor

Margin = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator



6. Test of Spurious Emission (Radiated)

6.1. Test Limit

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) 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.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) 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 25MHz 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 27dBm/MHz at the band edge.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

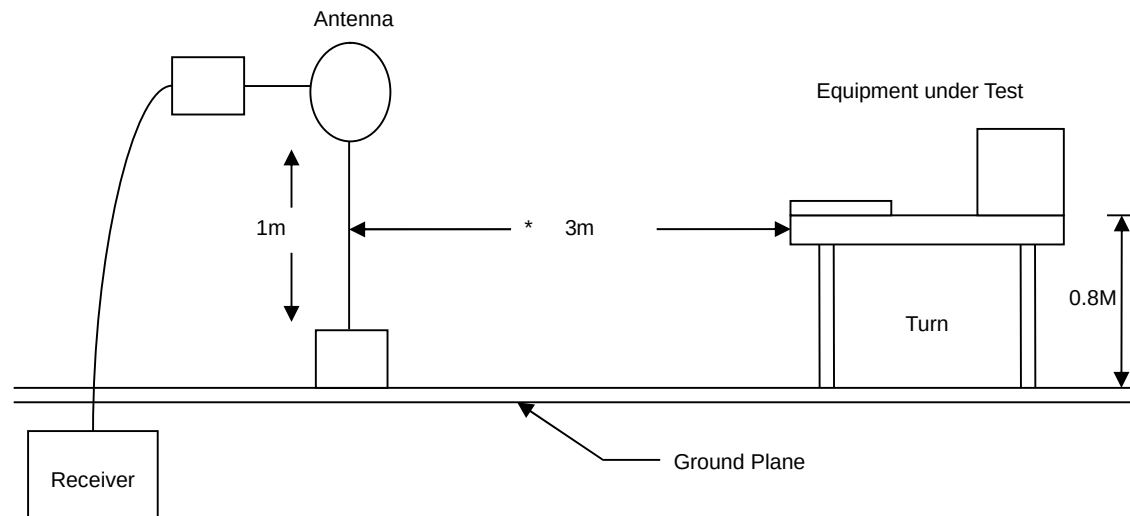
6.2. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the 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 and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission 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.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

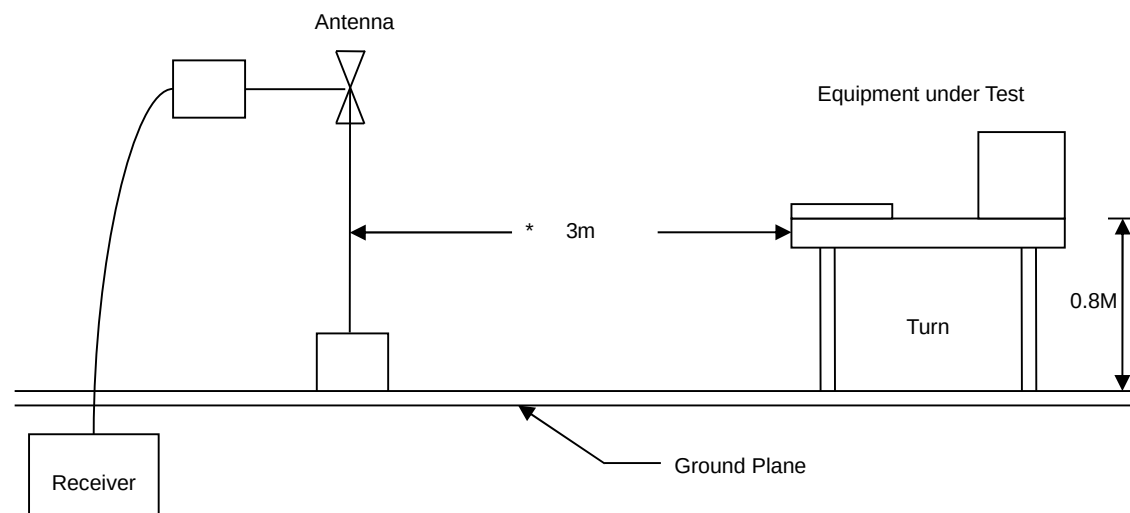


6.3. Typical Test Setup

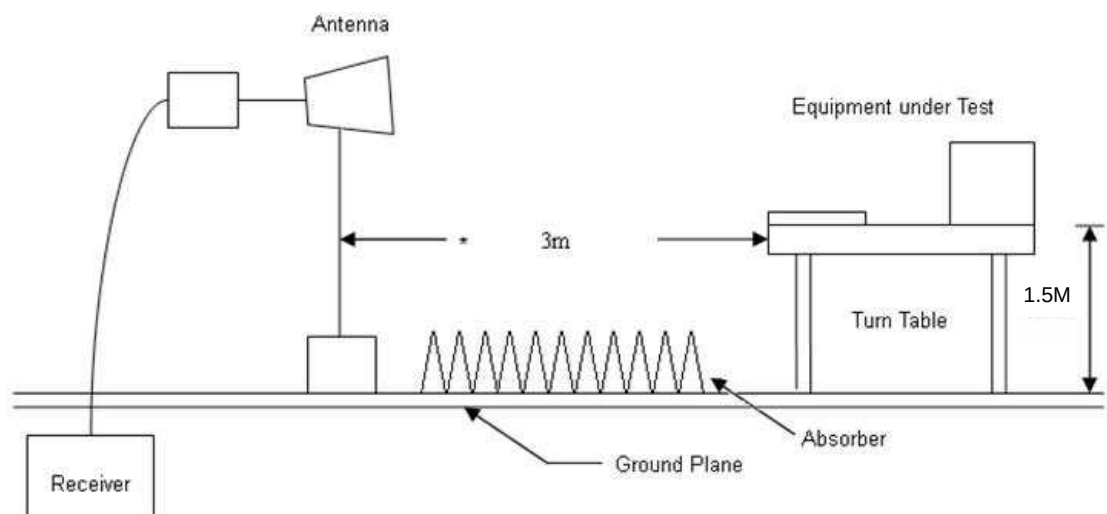
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



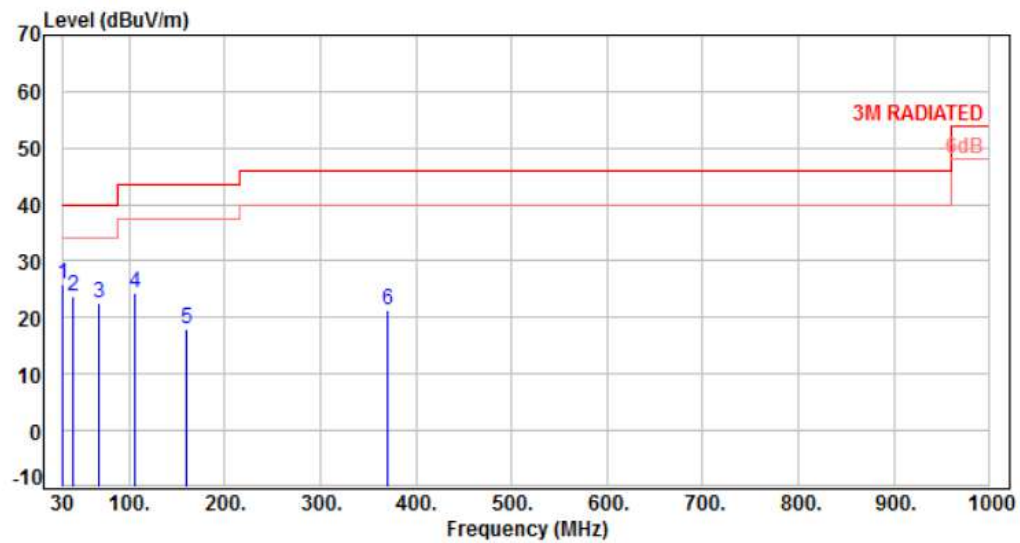


6.4. Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5. Test Result and Data (30MHz ~ 1GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 1	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-10.92	36.88	25.96	40.00	-14.04	Peak	400	0	P
2	40.67	-10.30	34.12	23.82	40.00	-16.18	Peak	400	0	P
3	67.83	-11.62	34.06	22.44	40.00	-17.56	Peak	400	0	P
4	106.63	-13.88	38.11	24.23	43.50	-19.27	Peak	400	0	P
5	159.98	-9.83	27.80	17.97	43.50	-25.53	Peak	400	0	P
6	369.50	-6.90	28.35	21.45	46.00	-24.55	Peak	400	0	P

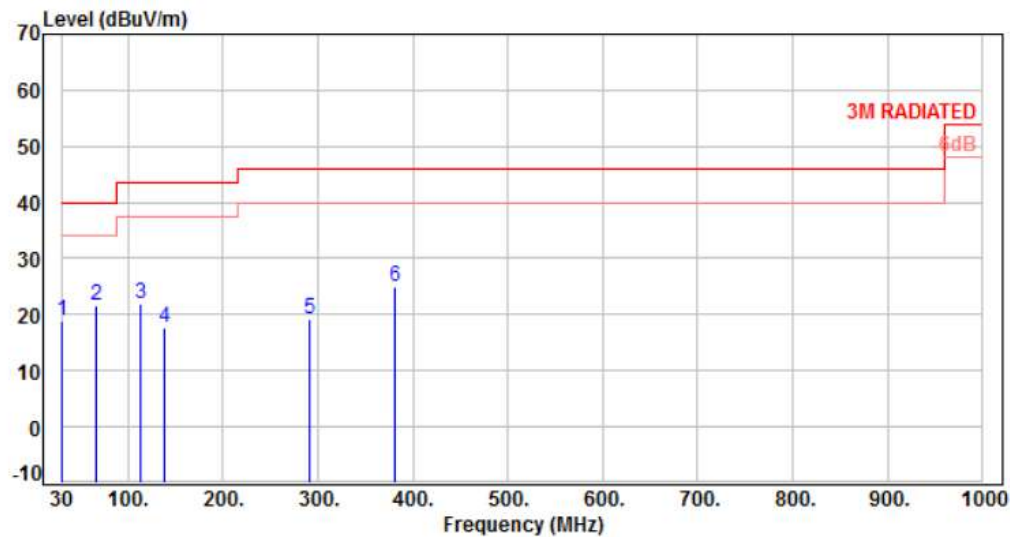
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, Band 1	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-10.92	29.74	18.82	40.00	-21.18	Peak	100	0	P
2	66.86	-11.44	32.94	21.50	40.00	-18.50	Peak	100	0	P
3	112.45	-13.09	35.03	21.94	43.50	-21.56	Peak	100	0	P
4	138.64	-10.48	28.21	17.73	43.50	-25.77	Peak	100	0	P
5	290.93	-9.11	28.41	19.30	46.00	-26.70	Peak	100	0	P
6	381.14	-6.56	31.44	24.88	46.00	-21.12	Peak	100	0	P

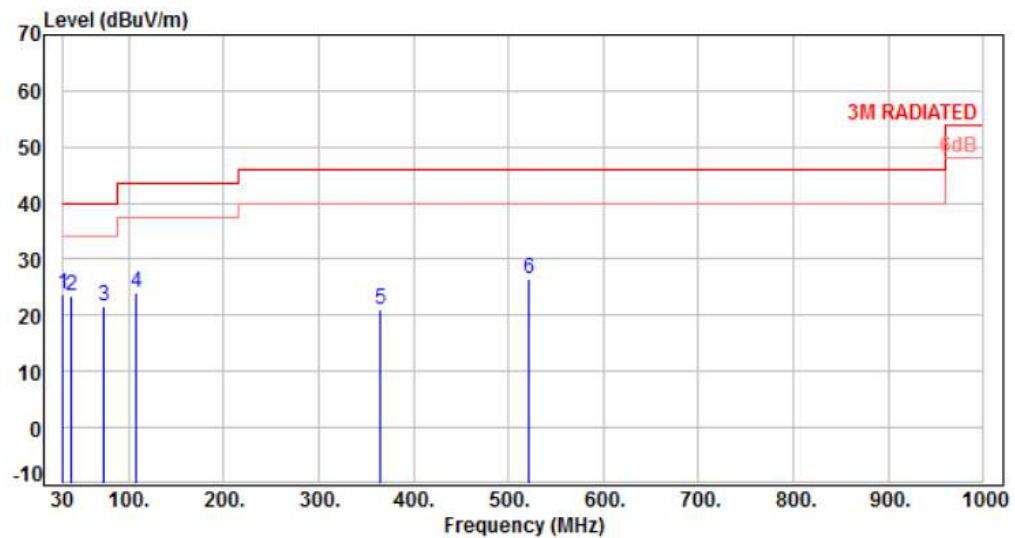
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 4	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-10.92	34.80	23.88	40.00	-16.12	Peak	400	0	P
2	39.70	-10.38	33.89	23.51	40.00	-16.49	Peak	400	0	P
3	73.65	-12.81	34.60	21.79	40.00	-18.21	Peak	400	0	P
4	107.60	-13.72	37.82	24.10	43.50	-19.40	Peak	400	0	P
5	365.62	-7.02	28.11	21.09	46.00	-24.91	Peak	400	0	P
6	521.79	-3.50	30.04	26.54	46.00	-19.46	Peak	400	0	P

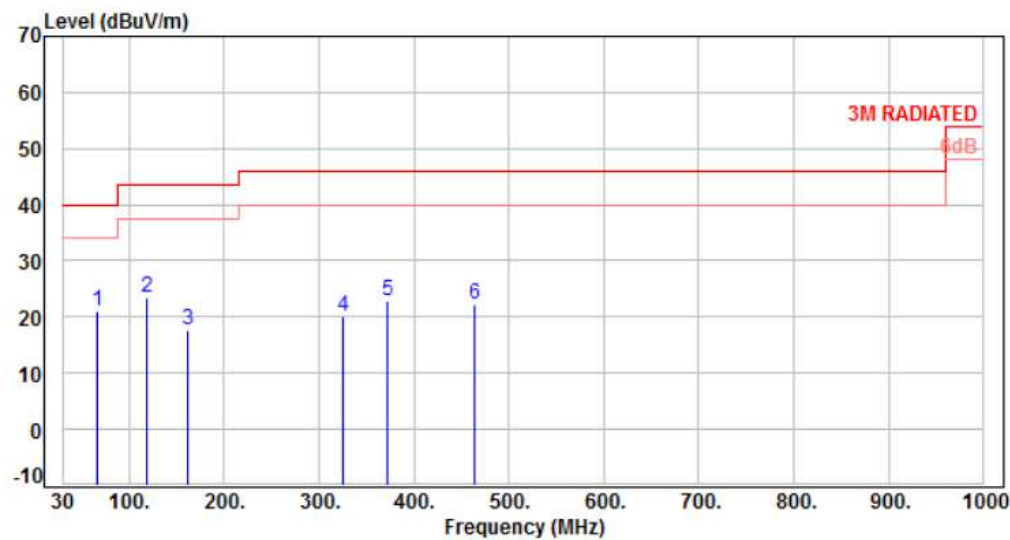
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, Band 4	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	66.86	-11.44	32.55	21.11	40.00	-18.89	Peak	100	0	P
2	118.27	-12.58	35.90	23.32	43.50	-20.18	Peak	100	0	P
3	160.95	-9.86	27.51	17.65	43.50	-25.85	Peak	100	0	P
4	324.88	-8.15	28.32	20.17	46.00	-25.83	Peak	100	0	P
5	371.44	-6.85	29.78	22.93	46.00	-23.07	Peak	100	0	P
6	463.59	-4.53	26.69	22.16	46.00	-23.84	Peak	100	0	P

Note: Level=Reading+Factor

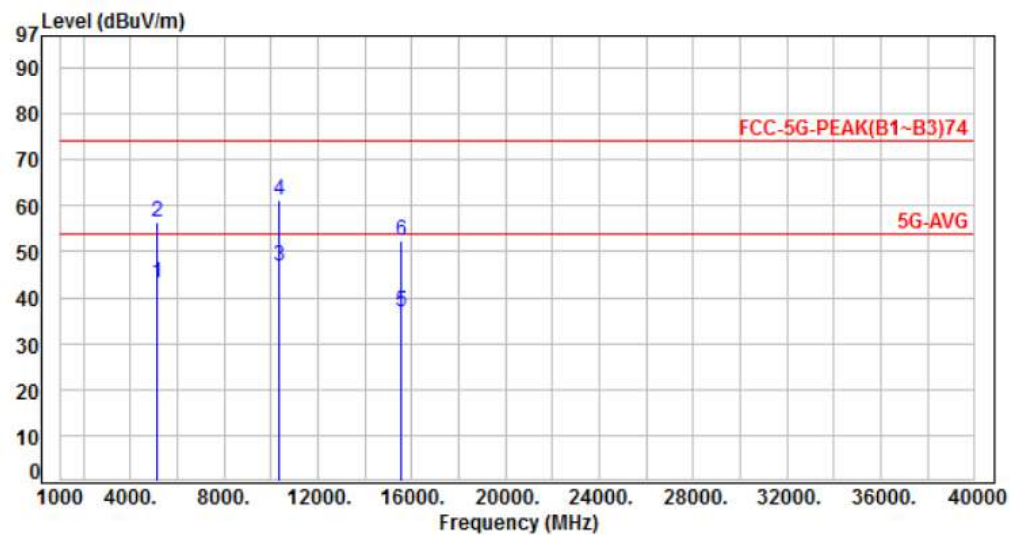
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6.6. Test Result and Data (1GHz ~ 40GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH36	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	55.70	43.10	54.00	-10.90	Average	332	52	P
2	5150.00	-12.60	69.20	56.60	74.00	-17.40	Peak	332	52	P
3	10360.00	-7.50	54.30	46.80	54.00	-7.20	Average	100	20	P
4	10360.00	-7.50	68.80	61.30	74.00	-12.70	Peak	100	20	P
5	15540.00	-3.76	40.50	36.74	54.00	-17.26	Average	100	60	P
6	15540.00	-3.76	56.20	52.44	74.00	-21.56	Peak	100	60	P

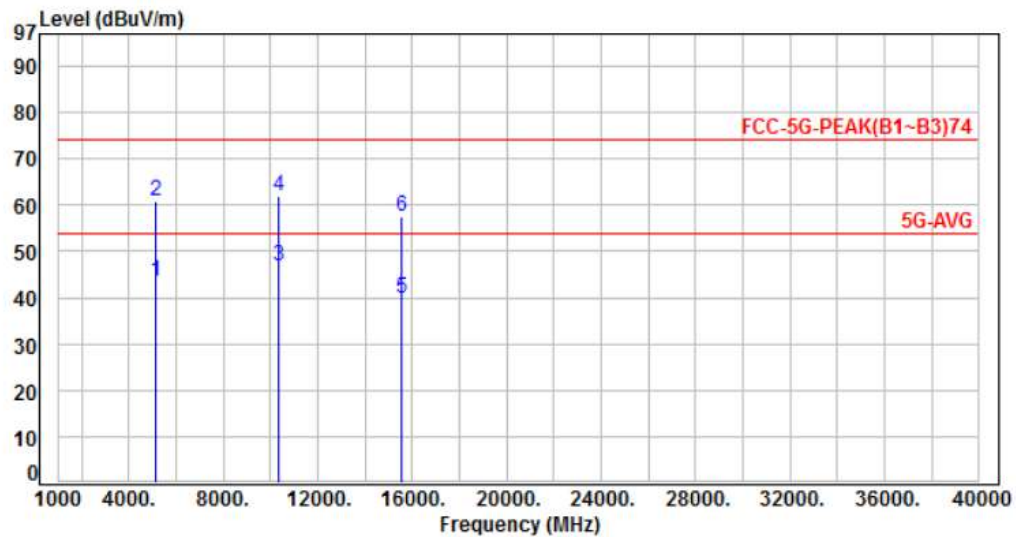
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH36	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	56.20	43.60	54.00	-10.40	Average	330	332	P
2	5150.00	-12.60	73.30	60.70	74.00	-13.30	Peak	330	332	P
3	10360.00	-7.50	54.32	46.82	54.00	-7.18	Average	100	292	P
4	10360.00	-7.50	69.50	62.00	74.00	-12.00	Peak	100	292	P
5	15540.00	-3.76	43.60	39.84	54.00	-14.16	Average	100	0	P
6	15540.00	-3.76	61.20	57.44	74.00	-16.56	Peak	100	0	P

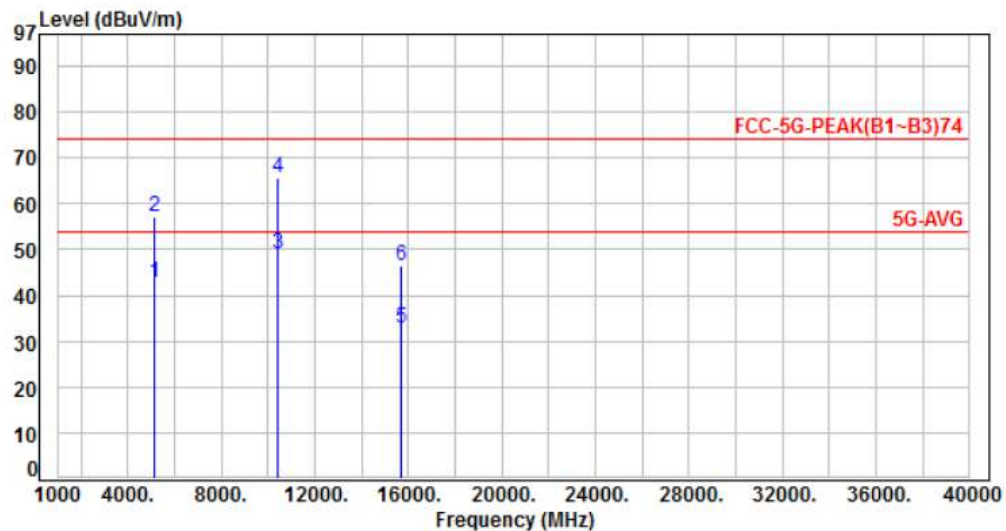
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH44	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	55.41	42.81	54.00	-11.19	Average	367	290	P
2	5150.00	-12.60	69.80	57.20	74.00	-16.80	Peak	367	290	P
3	10440.00	-7.45	56.50	49.05	54.00	-4.95	Average	100	20	P
4	10440.00	-7.45	73.20	65.75	74.00	-8.25	Peak	100	20	P
5	15660.00	-3.74	36.66	32.92	54.00	-21.08	Average	100	60	P
6	15660.00	-3.74	50.20	46.46	74.00	-27.54	Peak	100	60	P

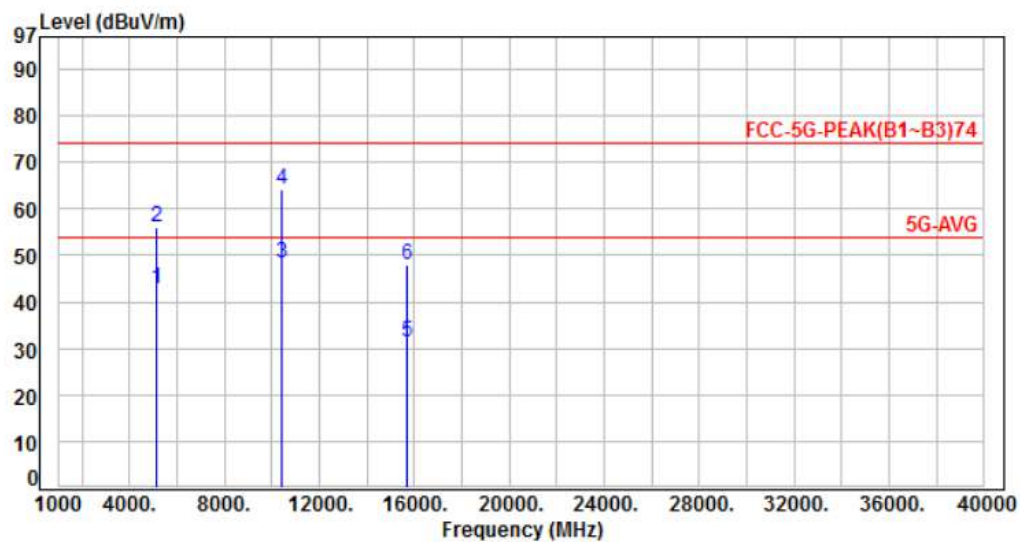
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH44	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	55.41	42.81	54.00	-11.19	Average	400	340	P
2	5150.00	-12.60	68.80	56.20	74.00	-17.80	Peak	400	340	P
3	10440.00	-7.45	55.75	48.30	54.00	-5.70	Average	100	281	P
4	10440.00	-7.45	71.80	64.35	74.00	-9.65	Peak	100	281	P
5	15660.00	-3.74	35.20	31.46	54.00	-22.54	Average	100	360	P
6	15660.00	-3.74	51.70	47.96	74.00	-26.04	Peak	100	360	P

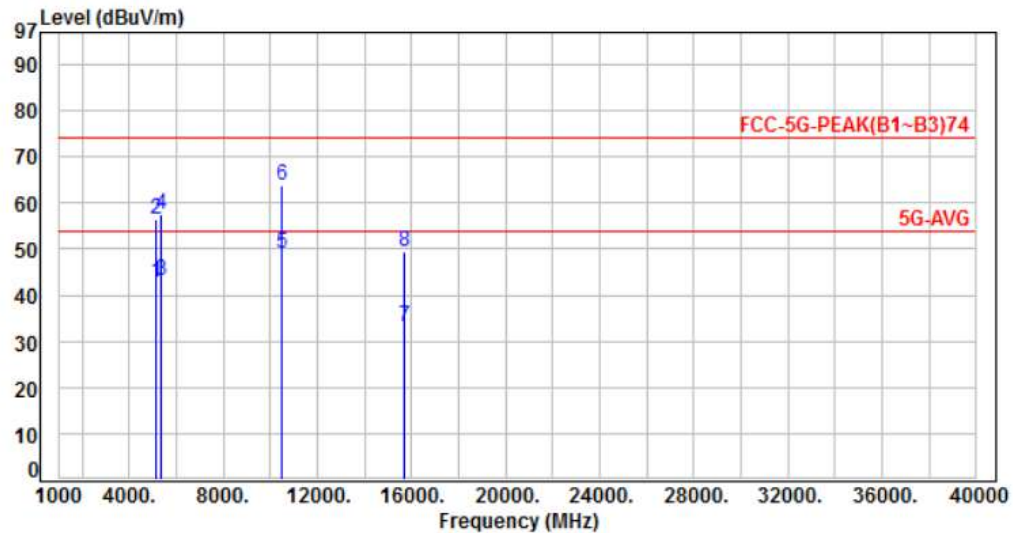
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH48	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	55.50	42.90	54.00	-11.10	Average	333	330	P
2	5150.00	-12.60	69.00	56.40	74.00	-17.60	Peak	333	330	P
3	5350.00	-12.33	55.66	43.33	54.00	-10.67	Average	333	330	P
4	5350.00	-12.33	69.80	57.47	74.00	-16.53	Peak	333	330	P
5	10480.00	-7.43	56.40	48.97	54.00	-5.03	Average	100	290	P
6	10480.00	-7.43	71.20	63.77	74.00	-10.23	Peak	100	290	P
7	15720.00	-3.73	36.90	33.17	54.00	-20.83	Average	100	0	P
8	15720.00	-3.73	53.20	49.47	74.00	-24.53	Peak	100	0	P

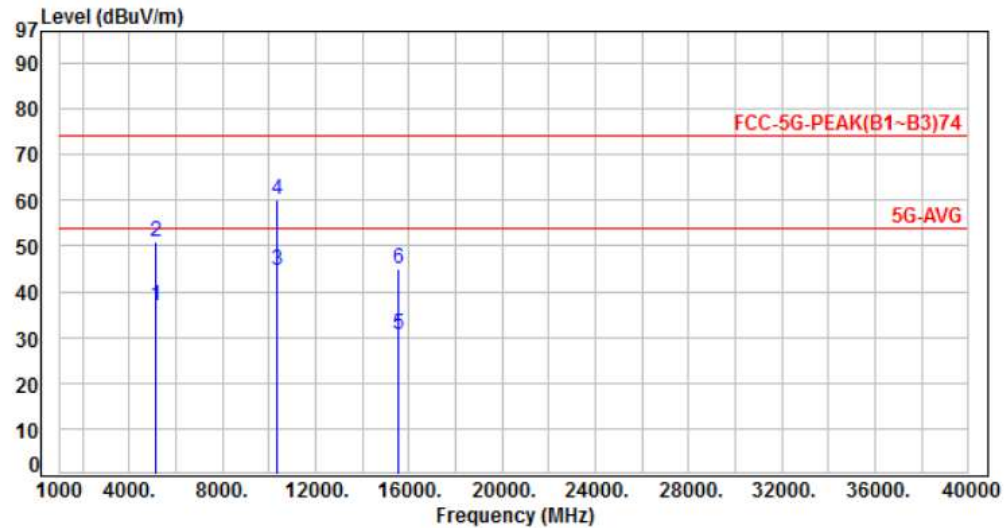
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH48	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	49.52	36.92	54.00	-17.08	Average	396	304	P
2	5150.00	-12.60	63.60	51.00	74.00	-23.00	Peak	396	304	P
3	10360.00	-7.50	52.00	44.50	54.00	-9.50	Average	100	19	P
4	10360.00	-7.50	67.52	60.02	74.00	-13.98	Peak	100	19	P
5	15540.00	-3.76	34.20	30.44	54.00	-23.56	Average	100	61	P
6	15540.00	-3.76	48.90	45.14	74.00	-28.86	Peak	100	61	P

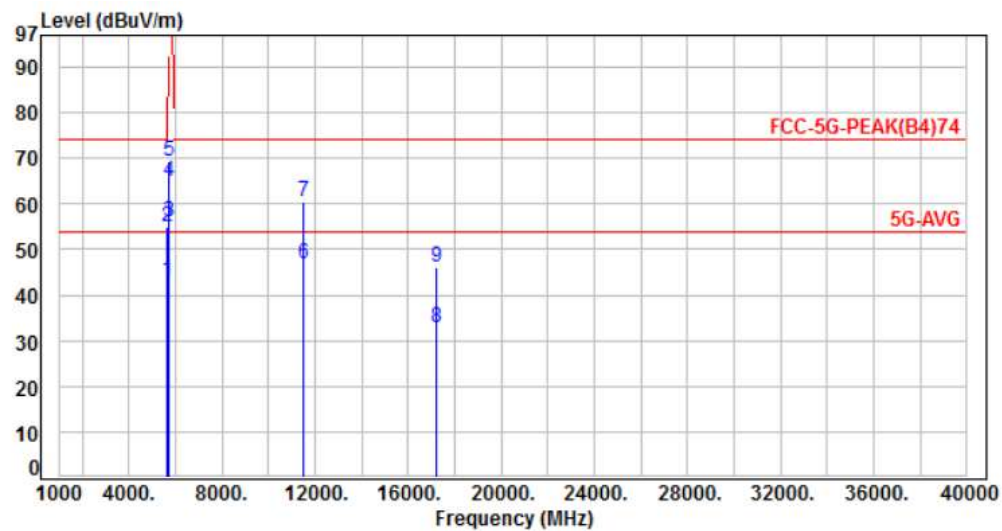
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH149	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.40	43.24	54.00	-10.76	Average	400	326	P
2	5650.00	-12.16	67.10	54.94	74.00	-19.06	Peak	400	326	P
3	5700.00	-12.17	68.37	56.20	105.20	-49.00	Peak	400	326	P
4	5720.00	-12.18	76.98	64.80	110.80	-46.00	Peak	400	326	P
5	5725.00	-12.18	81.51	69.33	122.20	-52.87	Peak	400	326	P
6	11490.00	-6.17	53.09	46.92	54.00	-7.08	Average	100	289	P
7	11490.00	-6.17	66.59	60.42	74.00	-13.58	Peak	100	289	P
8	17235.00	1.38	31.28	32.66	54.00	-21.34	Average	106	348	P
9	17235.00	1.38	44.63	46.01	74.00	-27.99	Peak	106	348	P

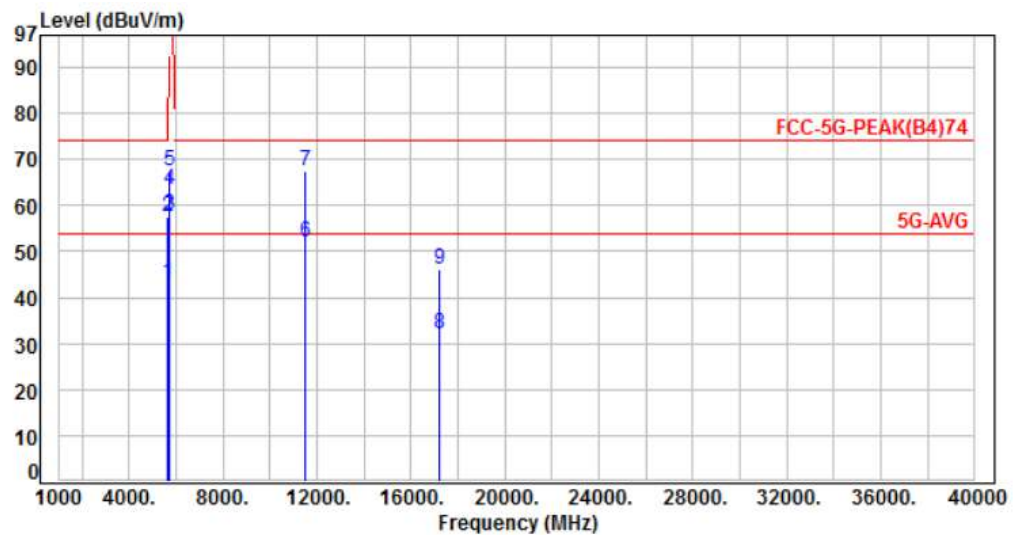
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH149	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.40	43.24	54.00	-10.76	Average	400	60	P
2	5650.00	-12.16	69.60	57.44	74.00	-16.56	Peak	400	60	P
3	5700.00	-12.17	70.10	57.93	105.20	-47.27	Peak	400	60	P
4	5720.00	-12.18	75.71	63.53	110.80	-47.27	Peak	400	60	P
5	5725.00	-12.18	79.61	67.43	122.20	-54.77	Peak	400	60	P
6	11490.00	-6.17	58.19	52.02	54.00	-1.98	Average	100	343	P
7	11490.00	-6.17	73.69	67.52	74.00	-6.48	Peak	100	343	P
8	17235.00	1.38	30.81	32.19	54.00	-21.81	Average	100	55	P
9	17235.00	1.38	44.79	46.17	74.00	-27.83	Peak	100	55	P

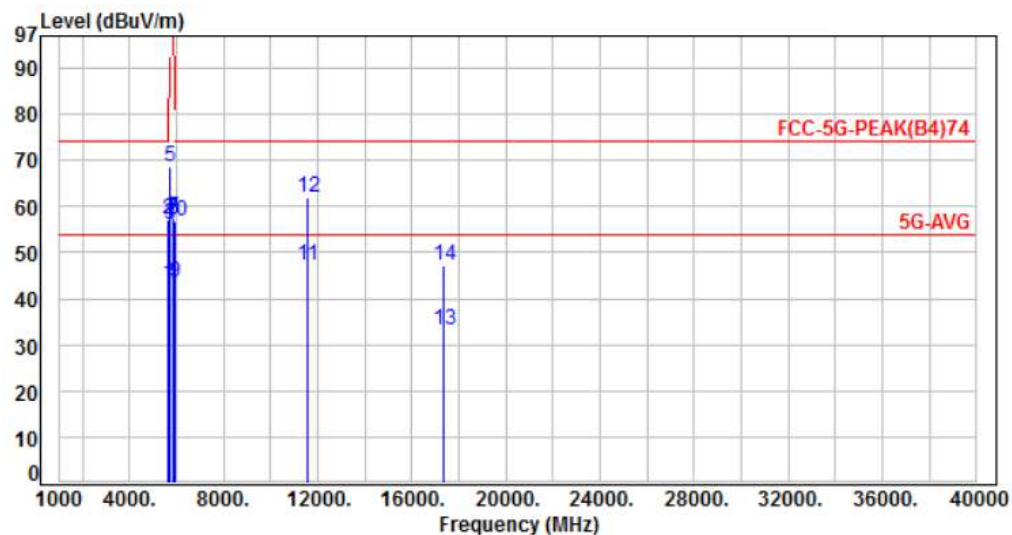
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH157	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.30	43.14	54.00	-10.86	Average	389	280	P
2	5650.00	-12.16	69.30	57.14	74.00	-16.86	Peak	389	280	P
3	5700.00	-12.17	68.30	56.13	105.20	-49.07	Peak	389	280	P
4	5720.00	-12.18	68.54	56.36	110.80	-54.44	Peak	389	280	P
5	5725.00	-12.18	80.78	68.60	122.20	-53.60	Peak	389	280	P
6	5850.00	-12.19	69.20	57.01	122.20	-65.19	Peak	389	280	P
7	5855.00	-12.19	69.67	57.48	110.80	-53.32	Peak	389	280	P
8	5875.00	-12.20	69.41	57.21	105.20	-47.99	Peak	389	280	P
9	5925.00	-12.20	55.80	43.60	54.00	-10.40	Average	389	280	P
10	5925.00	-12.20	69.10	56.90	74.00	-17.10	Peak	389	280	P
11	11570.00	-6.13	53.20	47.07	54.00	-6.93	Average	100	19	P
12	11570.00	-6.13	68.20	62.07	74.00	-11.93	Peak	100	19	P
13	17355.00	2.01	31.02	33.03	54.00	-20.97	Average	100	66	P
14	17355.00	2.01	45.03	47.04	74.00	-26.96	Peak	100	66	P

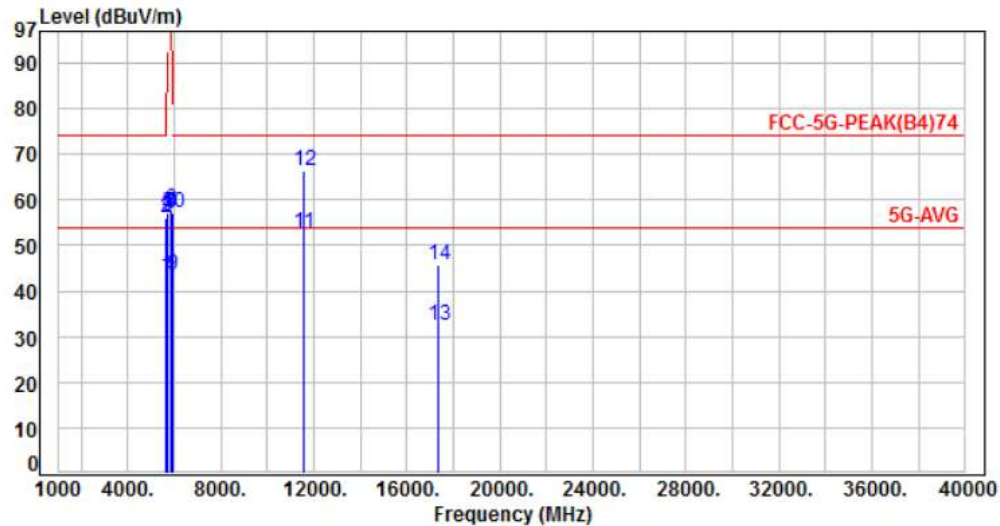
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH157	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.30	43.14	54.00	-10.86	Average	287	27	P
2	5650.00	-12.16	68.20	56.04	74.00	-17.96	Peak	287	27	P
3	5700.00	-12.17	68.50	56.33	105.20	-48.87	Peak	287	27	P
4	5720.00	-12.18	68.91	56.73	110.80	-54.07	Peak	287	27	P
5	5725.00	-12.18	69.31	57.13	122.20	-65.07	Peak	287	27	P
6	5850.00	-12.19	70.20	58.01	122.20	-64.19	Peak	287	27	P
7	5855.00	-12.19	69.50	57.31	110.80	-53.49	Peak	287	27	P
8	5875.00	-12.20	69.21	57.01	105.20	-48.19	Peak	287	27	P
9	5925.00	-12.20	55.80	43.60	54.00	-10.40	Average	287	27	P
10	5925.00	-12.20	69.30	57.10	74.00	-16.90	Peak	287	27	P
11	11570.00	-6.13	58.80	52.67	54.00	-1.33	Average	100	339	P
12	11570.00	-6.13	72.60	66.47	74.00	-7.53	Peak	100	339	P
13	17355.00	2.01	30.50	32.51	54.00	-21.49	Average	105	344	P
14	17355.00	2.01	43.70	45.71	74.00	-28.29	Peak	105	344	P

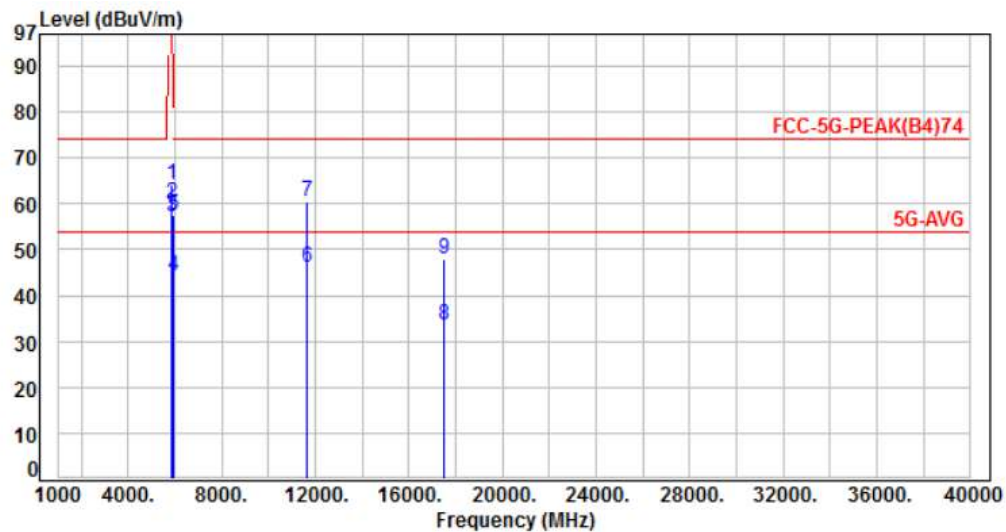
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH165	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-12.19	76.40	64.21	122.20	-57.99	Peak	381	52	P
2	5855.00	-12.19	72.20	60.01	110.80	-50.79	Peak	381	52	P
3	5875.00	-12.20	69.31	57.11	105.20	-48.09	Peak	381	52	P
4	5925.00	-12.20	56.30	44.10	54.00	-9.90	Average	381	52	P
5	5925.00	-12.20	69.90	57.70	74.00	-16.30	Peak	381	52	P
6	11650.00	-6.11	52.10	45.99	54.00	-8.01	Average	100	17	P
7	11650.00	-6.11	66.70	60.59	74.00	-13.41	Peak	100	17	P
8	17475.00	2.63	30.96	33.59	54.00	-20.41	Average	100	51	P
9	17475.00	2.63	45.30	47.93	74.00	-26.07	Peak	100	51	P

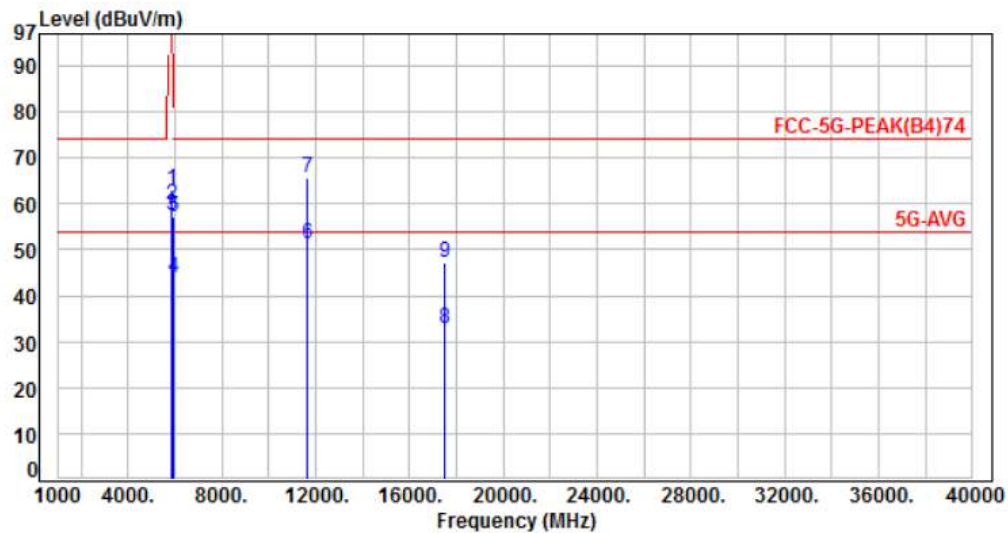
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH165	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-12.19	75.20	63.01	122.20	-59.19	Peak	385	322	P
2	5855.00	-12.19	71.80	59.61	110.80	-51.19	Peak	385	322	P
3	5875.00	-12.20	69.81	57.61	105.20	-47.59	Peak	385	322	P
4	5925.00	-12.20	56.10	43.90	54.00	-10.10	Average	385	322	P
5	5925.00	-12.20	69.20	57.00	74.00	-17.00	Peak	385	322	P
6	11650.00	-6.11	57.55	51.44	54.00	-2.56	Average	106	338	P
7	11650.00	-6.11	71.60	65.49	74.00	-8.51	Peak	106	338	P
8	17475.00	2.63	30.30	32.93	54.00	-21.07	Average	100	350	P
9	17475.00	2.63	44.51	47.14	74.00	-26.86	Peak	100	350	P

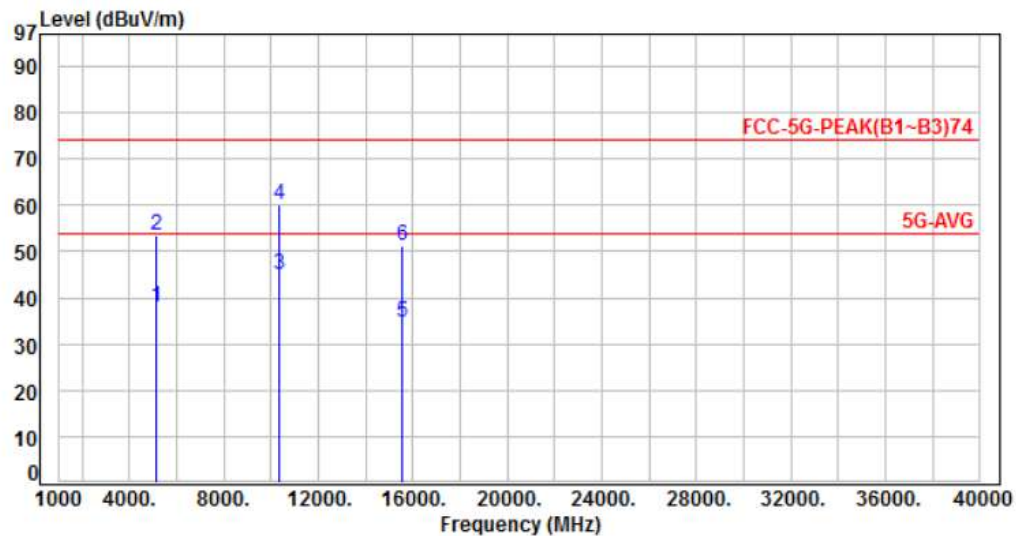
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH36	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	50.41	37.81	54.00	-16.19	Average	321	326	P
2	5150.00	-12.60	66.20	53.60	74.00	-20.40	Peak	321	326	P
3	10360.00	-7.50	52.40	44.90	54.00	-9.10	Average	100	280	P
4	10360.00	-7.50	67.60	60.10	74.00	-13.90	Peak	100	280	P
5	15540.00	-3.76	38.44	34.68	54.00	-19.32	Average	100	360	P
6	15540.00	-3.76	55.20	51.44	74.00	-22.56	Peak	100	360	P

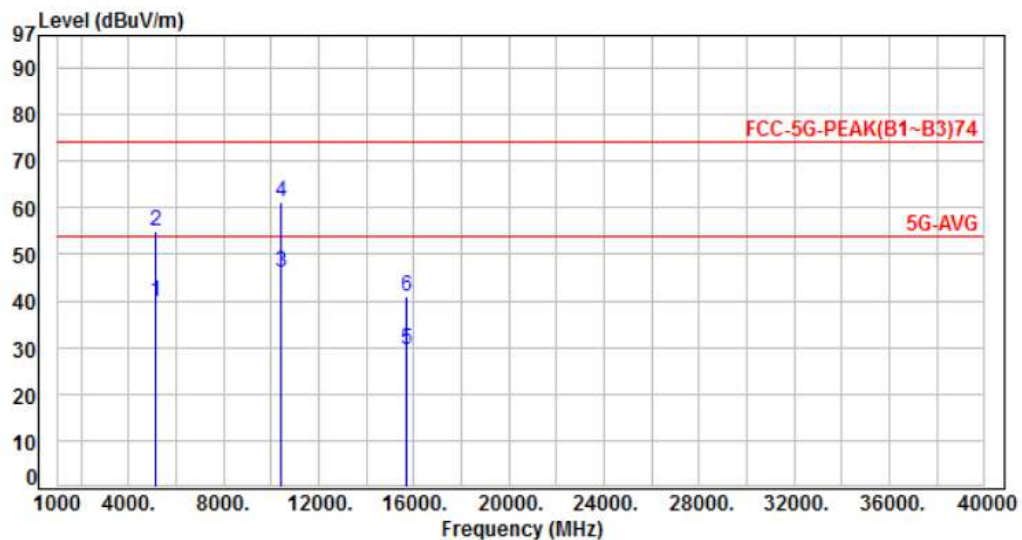
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH36	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	52.41	39.81	54.00	-14.19	Average	386	38	P
2	5150.00	-12.60	67.50	54.90	74.00	-19.10	Peak	386	38	P
3	10440.00	-7.45	53.52	46.07	54.00	-7.93	Average	100	21	P
4	10440.00	-7.45	68.60	61.15	74.00	-12.85	Peak	100	21	P
5	15660.00	-3.74	33.22	29.48	54.00	-24.52	Average	100	351	P
6	15660.00	-3.74	44.80	41.06	74.00	-32.94	Peak	100	351	P

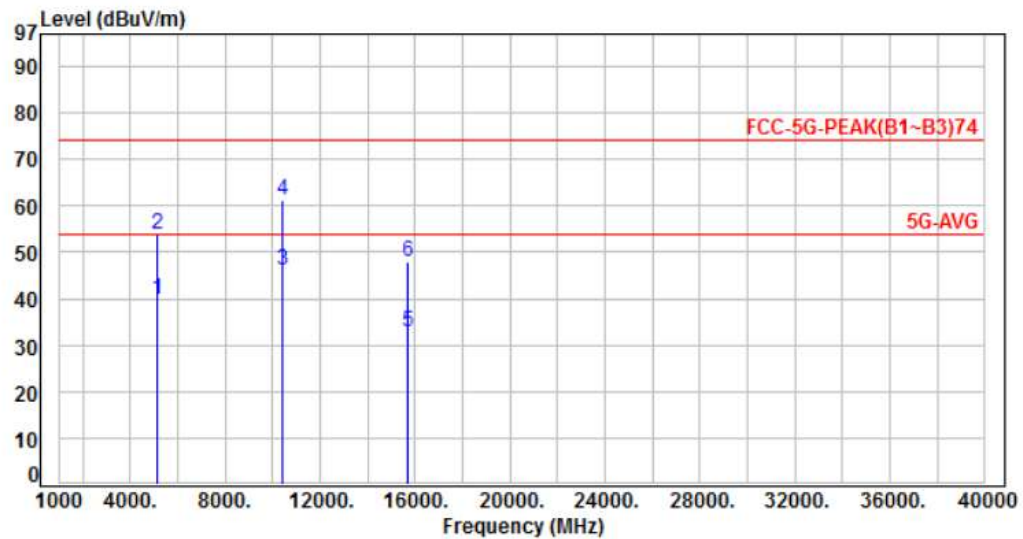
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH44	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	52.55	39.95	54.00	-14.05	Average	400	340	P
2	5150.00	-12.60	66.50	53.90	74.00	-20.10	Peak	400	340	P
3	10440.00	-7.45	53.40	45.95	54.00	-8.05	Average	100	291	P
4	10440.00	-7.45	68.60	61.15	74.00	-12.85	Peak	100	291	P
5	15660.00	-3.74	36.63	32.89	54.00	-21.11	Average	100	0	P
6	15660.00	-3.74	51.60	47.86	74.00	-26.14	Peak	100	0	P

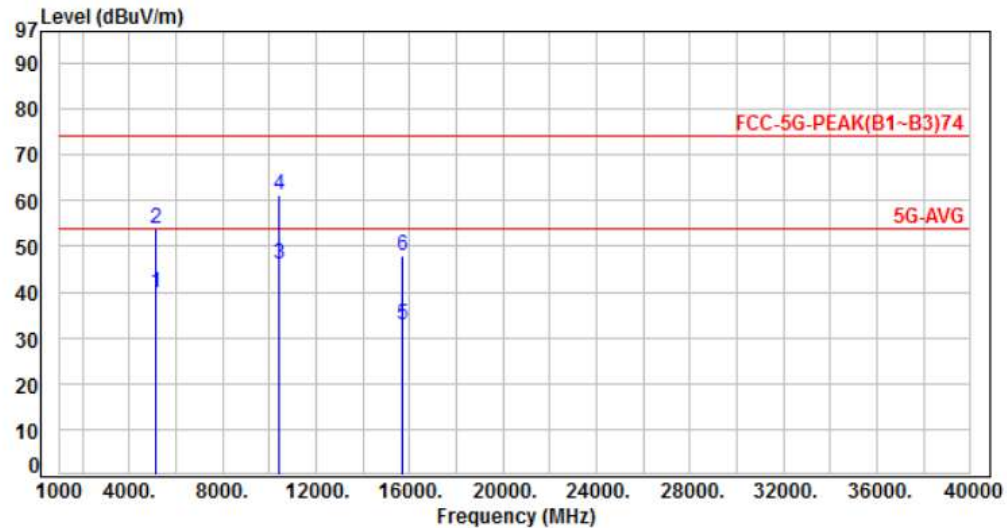
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH44	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	52.55	39.95	54.00	-14.05	Average	400	340	P
2	5150.00	-12.60	66.50	53.90	74.00	-20.10	Peak	400	340	P
3	10440.00	-7.45	53.40	45.95	54.00	-8.05	Average	100	291	P
4	10440.00	-7.45	68.60	61.15	74.00	-12.85	Peak	100	291	P
5	15660.00	-3.74	36.63	32.89	54.00	-21.11	Average	100	0	P
6	15660.00	-3.74	51.60	47.86	74.00	-26.14	Peak	100	0	P

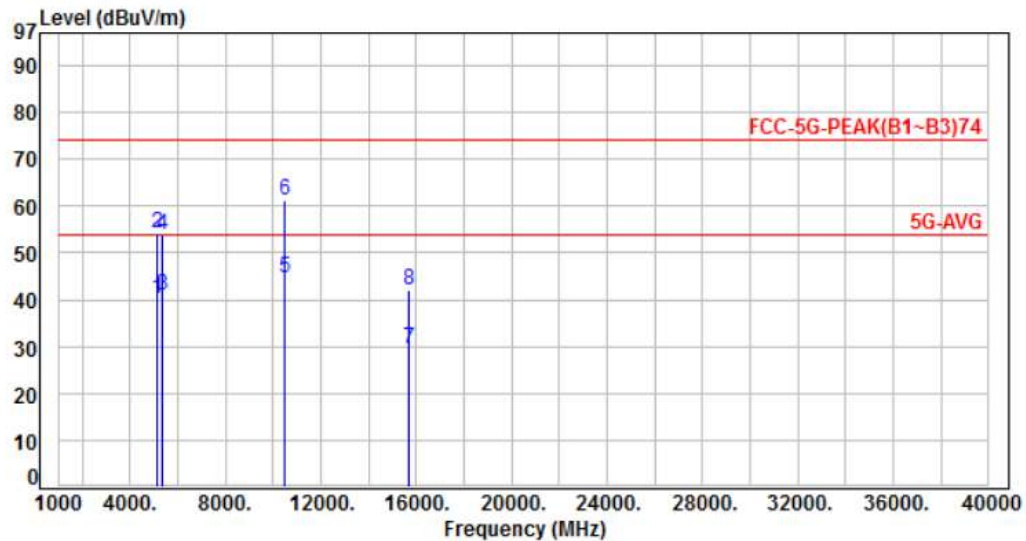
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH48	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	52.80	40.20	54.00	-13.80	Average	327	40	P
2	5150.00	-12.60	66.70	54.10	74.00	-19.90	Peak	327	40	P
3	5350.00	-12.33	53.19	40.86	54.00	-13.14	Average	327	40	P
4	5350.00	-12.33	66.30	53.97	74.00	-20.03	Peak	327	40	P
5	10480.00	-7.43	52.10	44.67	54.00	-9.33	Average	100	23	P
6	10480.00	-7.43	68.50	61.07	74.00	-12.93	Peak	100	23	P
7	15720.00	-3.73	33.30	29.57	54.00	-24.43	Average	100	66	P
8	15720.00	-3.73	45.80	42.07	74.00	-31.93	Peak	100	66	P

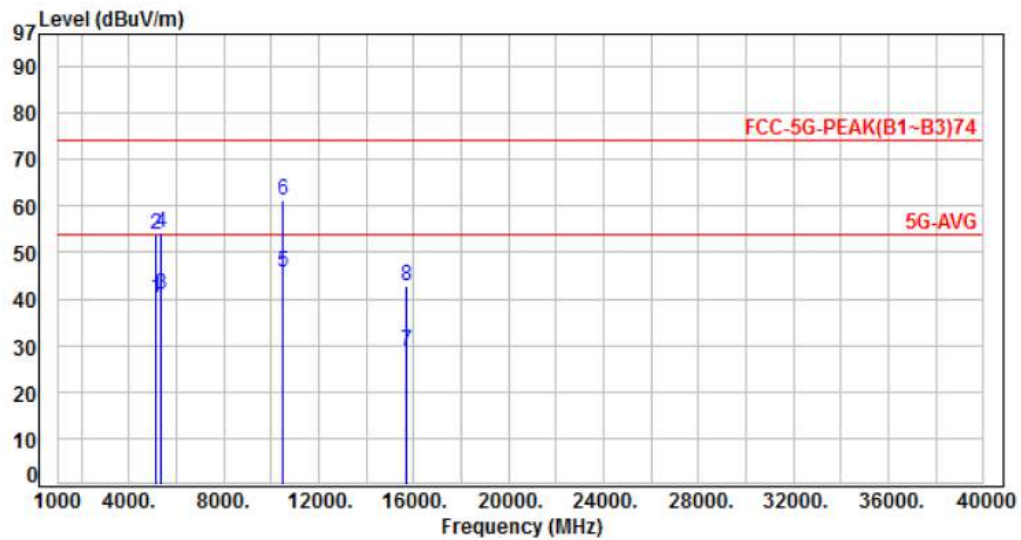
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH48	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	52.95	40.35	54.00	-13.65	Average	400	333	P
2	5150.00	-12.60	66.50	53.90	74.00	-20.10	Peak	400	333	P
3	5350.00	-12.33	53.30	40.97	54.00	-13.03	Average	400	333	P
4	5350.00	-12.33	66.69	54.36	74.00	-19.64	Peak	400	333	P
5	10480.00	-7.43	53.00	45.57	54.00	-8.43	Average	100	290	P
6	10480.00	-7.43	68.50	61.07	74.00	-12.93	Peak	100	290	P
7	15720.00	-3.73	32.50	28.77	54.00	-25.23	Average	110	360	P
8	15720.00	-3.73	46.50	42.77	74.00	-31.23	Peak	110	360	P

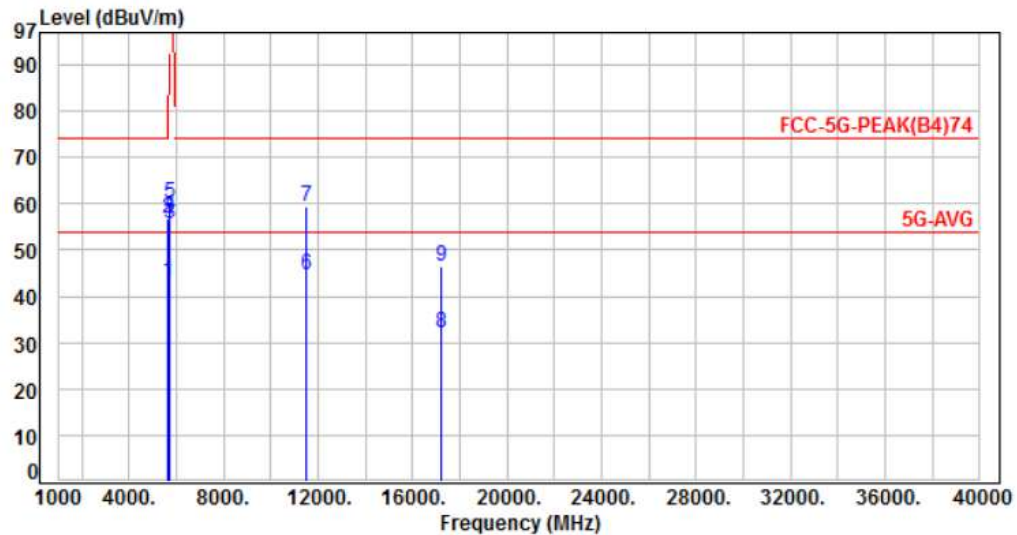
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH149	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.40	43.24	54.00	-10.76	Average	400	60	P
2	5650.00	-12.16	68.90	56.74	74.00	-17.26	Peak	400	60	P
3	5700.00	-12.17	67.70	55.53	105.20	-49.67	Peak	400	60	P
4	5720.00	-12.18	69.61	57.43	110.80	-53.37	Peak	400	60	P
5	5725.00	-12.18	72.21	60.03	122.20	-62.17	Peak	400	60	P
6	11490.00	-6.17	50.79	44.62	54.00	-9.38	Average	100	24	P
7	11490.00	-6.17	65.69	59.52	74.00	-14.48	Peak	100	24	P
8	17235.00	1.38	30.89	32.27	54.00	-21.73	Average	103	360	P
9	17235.00	1.38	45.11	46.49	74.00	-27.51	Peak	103	360	P

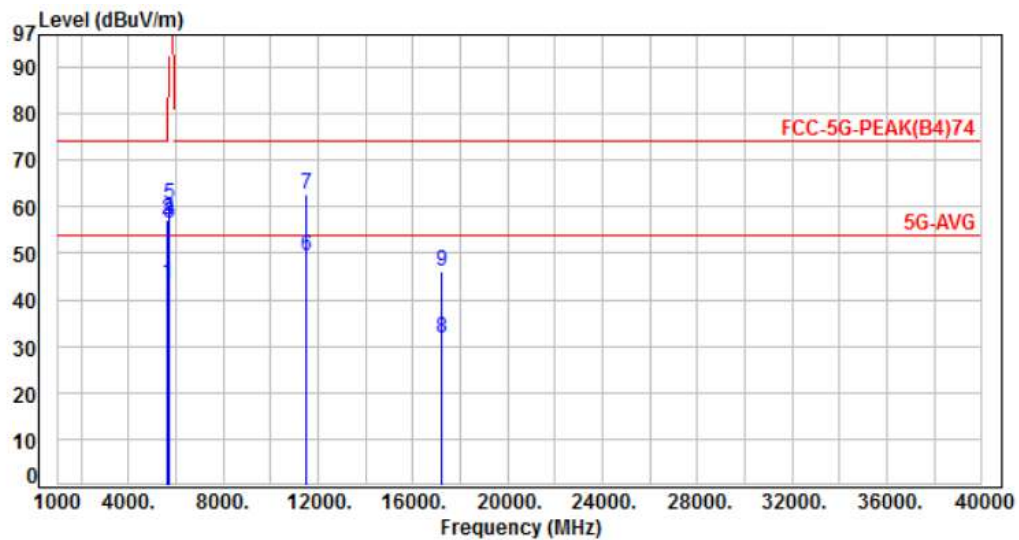
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH149	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.60	43.44	54.00	-10.56	Average	374	327	P
2	5650.00	-12.16	69.50	57.34	74.00	-16.66	Peak	374	327	P
3	5700.00	-12.17	68.50	56.33	105.20	-48.87	Peak	374	327	P
4	5720.00	-12.18	69.21	57.03	110.80	-53.77	Peak	374	327	P
5	5725.00	-12.18	72.51	60.33	122.20	-61.87	Peak	374	327	P
6	11490.00	-6.17	55.49	49.32	54.00	-4.68	Average	100	339	P
7	11490.00	-6.17	68.99	62.82	74.00	-11.18	Peak	100	339	P
8	17235.00	1.38	30.21	31.59	54.00	-22.41	Average	105	65	P
9	17235.00	1.38	44.71	46.09	74.00	-27.91	Peak	105	65	P

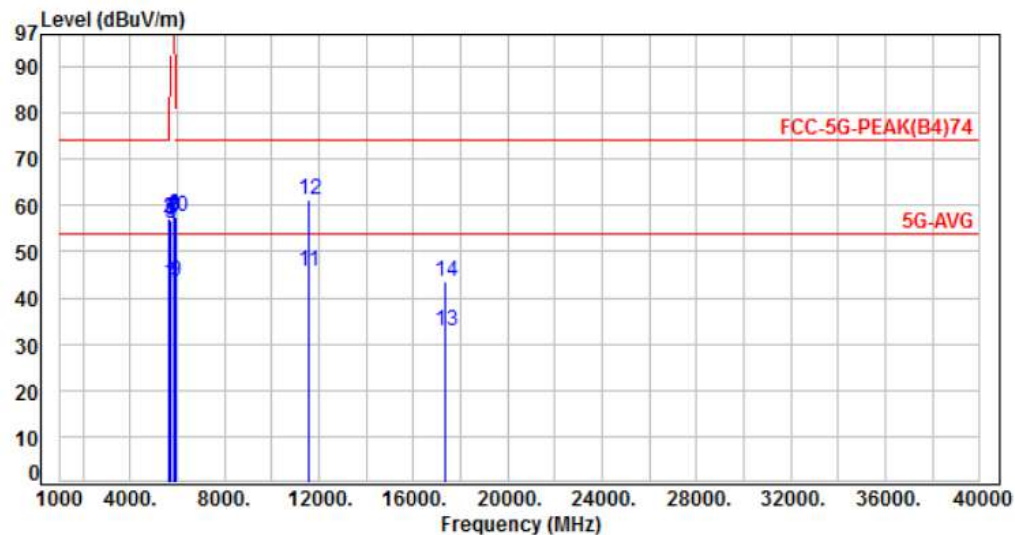
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH157	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.20	43.04	54.00	-10.96	Average	349	51	P
2	5650.00	-12.16	69.20	57.04	74.00	-16.96	Peak	349	51	P
3	5700.00	-12.17	68.20	56.03	105.20	-49.17	Peak	349	51	P
4	5720.00	-12.18	68.51	56.33	110.80	-54.47	Peak	349	51	P
5	5725.00	-12.18	68.91	56.73	122.20	-65.47	Peak	349	51	P
6	5850.00	-12.19	70.10	57.91	122.20	-64.29	Peak	349	51	P
7	5855.00	-12.19	69.30	57.11	110.80	-53.69	Peak	349	51	P
8	5875.00	-12.20	69.61	57.41	105.20	-47.79	Peak	349	51	P
9	5925.00	-12.20	55.80	43.60	54.00	-10.40	Average	349	51	P
10	5925.00	-12.20	69.70	57.50	74.00	-16.50	Peak	349	51	P
11	11570.00	-6.13	51.90	45.77	54.00	-8.23	Average	100	21	P
12	11570.00	-6.13	67.20	61.07	74.00	-12.93	Peak	100	21	P
13	17355.00	2.01	30.86	32.87	54.00	-21.13	Average	100	51	P
14	17355.00	2.01	41.66	43.67	74.00	-30.33	Peak	100	51	P

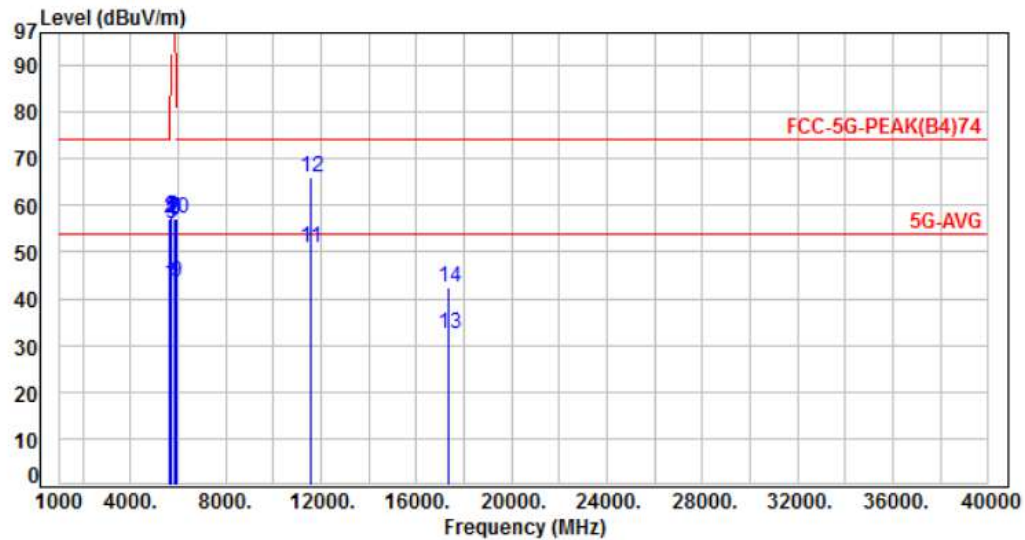
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH157	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	55.22	43.06	54.00	-10.94	Average	334	320	P
2	5650.00	-12.16	69.20	57.04	74.00	-16.96	Peak	334	320	P
3	5700.00	-12.17	68.20	56.03	105.20	-49.17	Peak	334	320	P
4	5720.00	-12.18	68.51	56.33	110.80	-54.47	Peak	334	320	P
5	5725.00	-12.18	69.61	57.43	122.20	-64.77	Peak	334	320	P
6	5850.00	-12.19	69.30	57.11	122.20	-65.09	Peak	334	320	P
7	5855.00	-12.19	69.40	57.21	110.80	-53.59	Peak	334	320	P
8	5875.00	-12.20	69.11	56.91	105.20	-48.29	Peak	334	320	P
9	5925.00	-12.20	55.70	43.50	54.00	-10.50	Average	334	320	P
10	5925.00	-12.20	69.30	57.10	74.00	-16.90	Peak	334	320	P
11	11570.00	-6.13	57.10	50.97	54.00	-3.03	Average	100	340	P
12	11570.00	-6.13	72.20	66.07	74.00	-7.93	Peak	100	340	P
13	17355.00	2.01	30.52	32.53	54.00	-21.47	Average	104	357	P
14	17355.00	2.01	40.33	42.34	74.00	-31.66	Peak	104	357	P

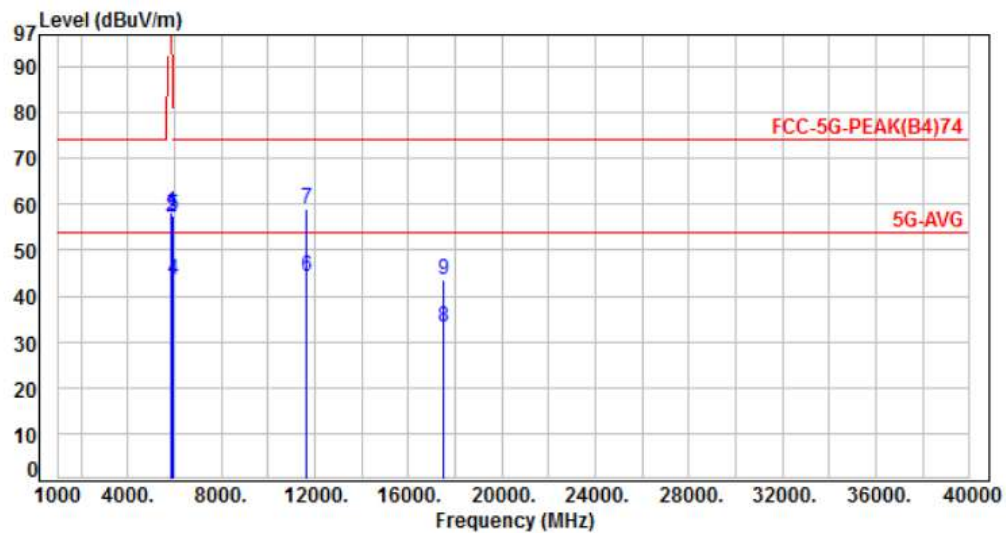
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, CH165	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-12.19	70.50	58.31	122.20	-63.89	Peak	347	52	P
2	5855.00	-12.19	69.20	57.01	110.80	-53.79	Peak	347	52	P
3	5875.00	-12.20	69.31	57.11	105.20	-48.09	Peak	347	52	P
4	5925.00	-12.20	55.90	43.70	54.00	-10.30	Average	347	52	P
5	5925.00	-12.20	69.70	57.50	74.00	-16.50	Peak	347	52	P
6	11650.00	-6.11	50.40	44.29	54.00	-9.71	Average	100	17	P
7	11650.00	-6.11	65.30	59.19	74.00	-14.81	Peak	100	17	P
8	17475.00	2.63	30.68	33.31	54.00	-20.69	Average	107	321	P
9	17475.00	2.63	40.88	43.51	74.00	-30.49	Peak	107	321	P

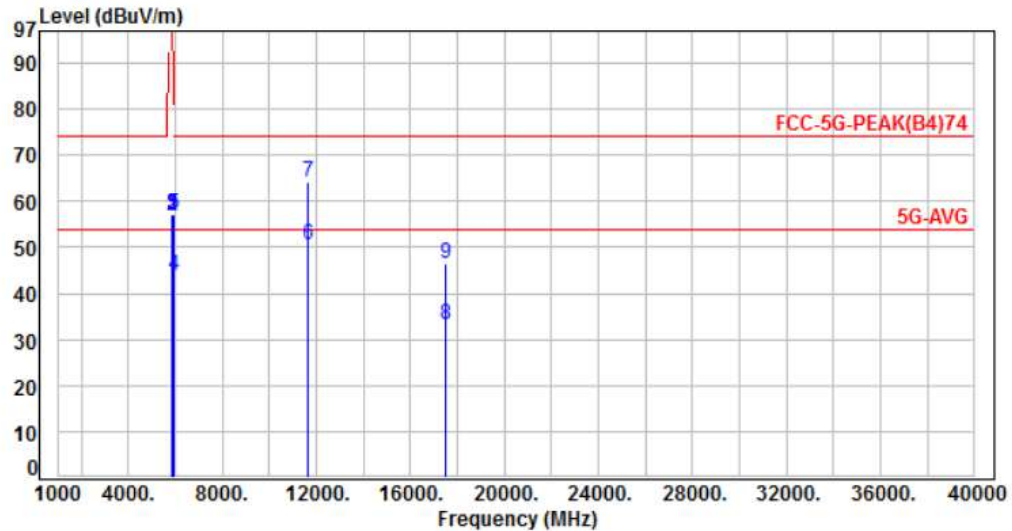
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 4, CH165	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-12.19	69.30	57.11	122.20	-65.09	Peak	367	317	P
2	5855.00	-12.19	69.10	56.91	110.80	-53.89	Peak	367	317	P
3	5875.00	-12.20	69.51	57.31	105.20	-47.89	Peak	367	317	P
4	5925.00	-12.20	56.10	43.90	54.00	-10.10	Average	367	317	P
5	5925.00	-12.20	69.20	57.00	74.00	-17.00	Peak	367	317	P
6	11650.00	-6.11	56.50	50.39	54.00	-3.61	Average	100	336	P
7	11650.00	-6.11	70.20	64.09	74.00	-9.91	Peak	100	336	P
8	17475.00	2.63	30.55	33.18	54.00	-20.82	Average	105	350	P
9	17475.00	2.63	43.70	46.33	74.00	-27.67	Peak	105	350	P

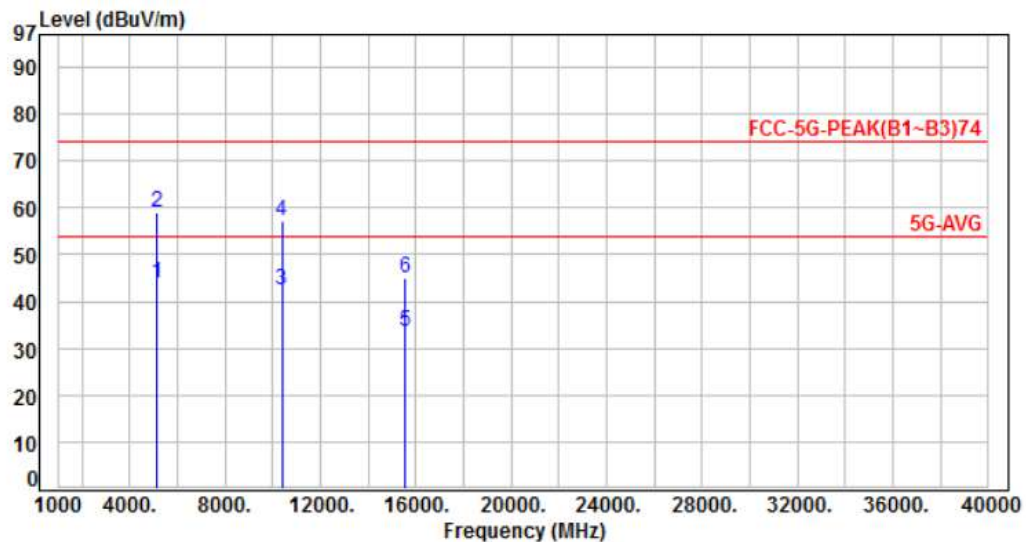
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH38	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	56.50	43.90	54.00	-10.10	Average	355	53	P
2	5150.00	-12.60	71.50	58.90	74.00	-15.10	Peak	355	53	P
3	10380.00	-7.48	49.99	42.51	54.00	-11.49	Average	103	19	P
4	10380.00	-7.48	64.49	57.01	74.00	-16.99	Peak	103	19	P
5	15570.00	-3.76	37.30	33.54	54.00	-20.46	Average	100	351	P
6	15570.00	-3.76	48.90	45.14	74.00	-28.86	Peak	100	351	P

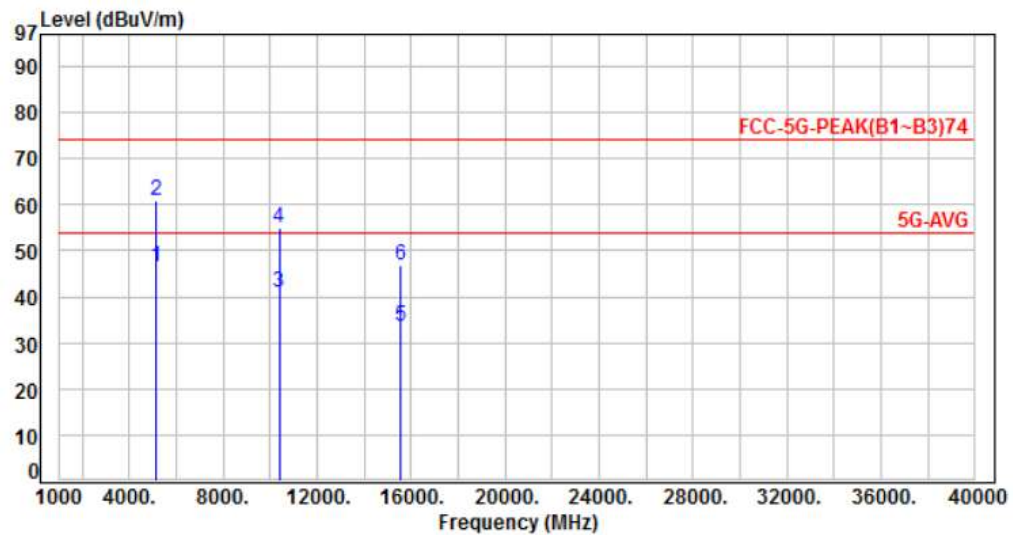
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH38	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	59.00	46.40	54.00	-7.60	Average	365	333	P
2	5150.00	-12.60	73.50	60.90	74.00	-13.10	Peak	365	333	P
3	10380.00	-7.48	48.49	41.01	54.00	-12.99	Average	108	293	P
4	10380.00	-7.48	62.59	55.11	74.00	-18.89	Peak	108	293	P
5	15570.00	-3.76	37.30	33.54	54.00	-20.46	Average	100	0	P
6	15570.00	-3.76	50.50	46.74	74.00	-27.26	Peak	100	0	P

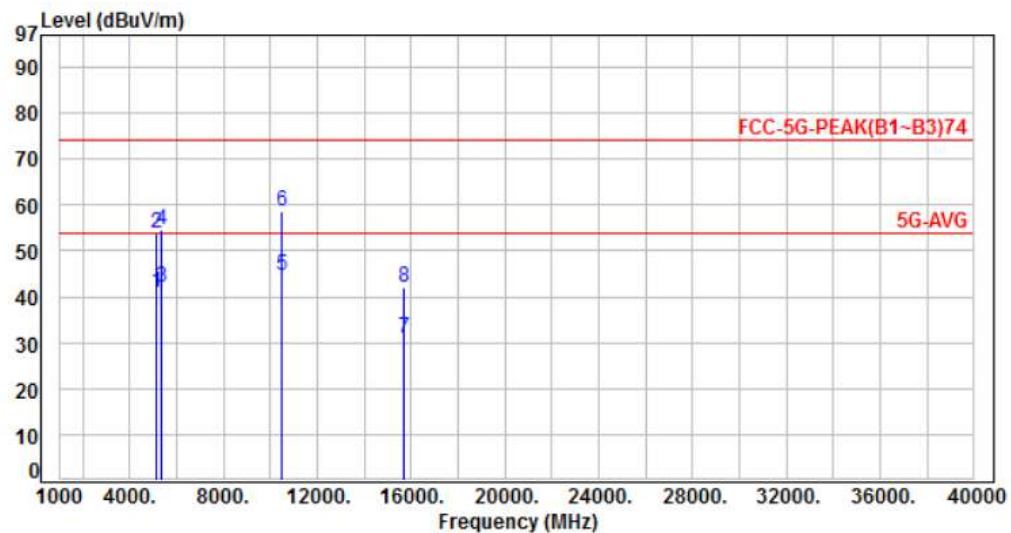
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH46	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	53.55	40.95	54.00	-13.05	Average	386	42	P
2	5150.00	-12.60	66.50	53.90	74.00	-20.10	Peak	386	42	P
3	5350.00	-12.33	54.19	41.86	54.00	-12.14	Average	386	42	P
4	5350.00	-12.33	66.89	54.56	74.00	-19.44	Peak	386	42	P
5	10460.00	-7.44	52.20	44.76	54.00	-9.24	Average	100	20	P
6	10460.00	-7.44	66.10	58.66	74.00	-15.34	Peak	100	20	P
7	15690.00	-3.73	34.77	31.04	54.00	-22.96	Average	103	335	P
8	15690.00	-3.73	45.61	41.88	74.00	-32.12	Peak	103	335	P

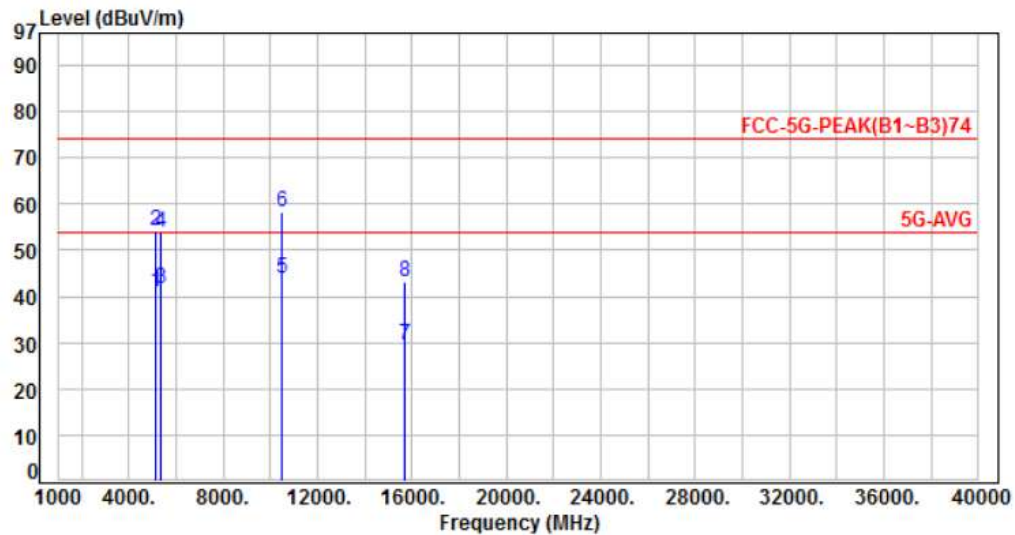
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH46	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	53.43	40.83	54.00	-13.17	Average	400	335	P
2	5150.00	-12.60	66.70	54.10	74.00	-19.90	Peak	400	335	P
3	5350.00	-12.33	53.89	41.56	54.00	-12.44	Average	400	335	P
4	5350.00	-12.33	66.19	53.86	74.00	-20.14	Peak	400	335	P
5	10460.00	-7.44	51.50	44.06	54.00	-9.94	Average	104	293	P
6	10460.00	-7.44	65.70	58.26	74.00	-15.74	Peak	104	293	P
7	15690.00	-3.73	33.30	29.57	54.00	-24.43	Average	100	24	P
8	15690.00	-3.73	46.70	42.97	74.00	-31.03	Peak	100	24	P

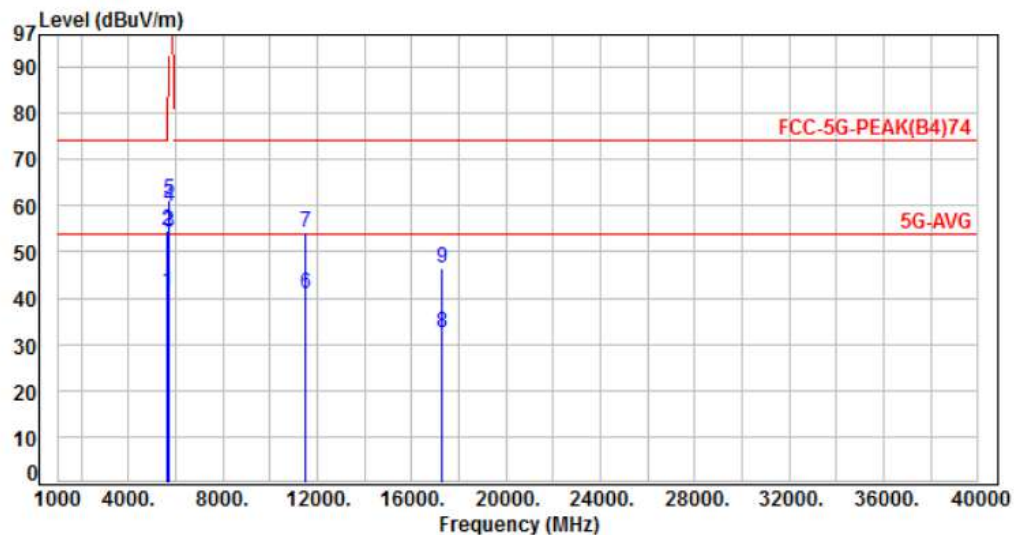
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH151	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	53.44	41.28	54.00	-12.72	Average	400	60	P
2	5650.00	-12.16	66.60	54.44	74.00	-19.56	Peak	400	60	P
3	5700.00	-12.17	66.40	54.23	105.20	-50.97	Peak	400	60	P
4	5720.00	-12.18	72.11	59.93	110.80	-50.87	Peak	400	60	P
5	5725.00	-12.18	73.41	61.23	122.20	-60.97	Peak	400	60	P
6	11510.00	-6.16	47.10	40.94	54.00	-13.06	Average	100	292	P
7	11510.00	-6.16	60.40	54.24	74.00	-19.76	Peak	100	292	P
8	17265.00	1.54	31.02	32.56	54.00	-21.44	Average	106	51	P
9	17265.00	1.54	44.92	46.46	74.00	-27.54	Peak	106	51	P

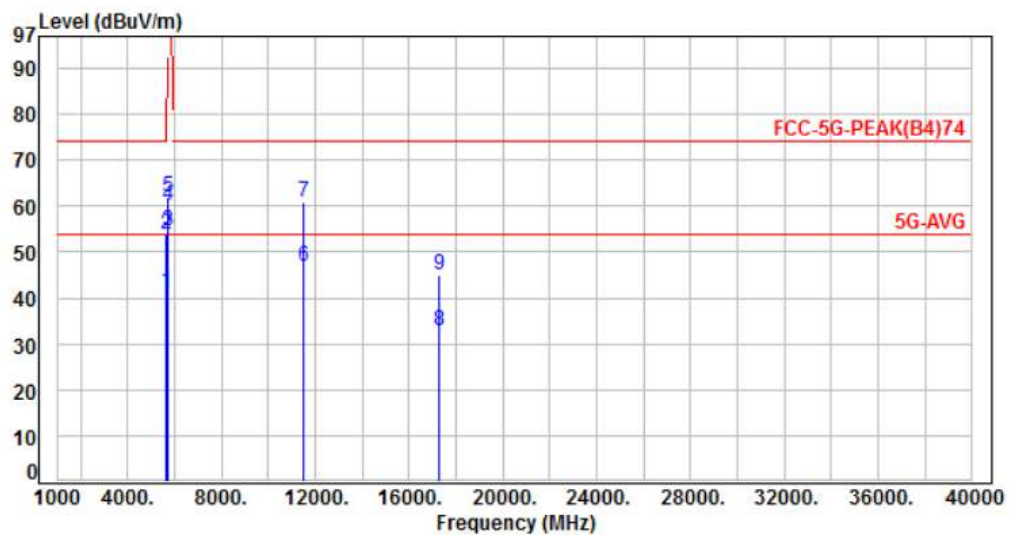
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH151	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	53.30	41.14	54.00	-12.86	Average	396	319	P
2	5650.00	-12.16	66.10	53.94	74.00	-20.06	Peak	396	319	P
3	5700.00	-12.17	66.58	54.41	105.20	-50.79	Peak	396	319	P
4	5720.00	-12.18	72.31	60.13	110.80	-50.67	Peak	396	319	P
5	5725.00	-12.18	74.31	62.13	122.20	-60.07	Peak	396	319	P
6	11510.00	-6.16	53.10	46.94	54.00	-7.06	Average	100	339	P
7	11510.00	-6.16	66.83	60.67	74.00	-13.33	Peak	100	339	P
8	17265.00	1.54	31.20	32.74	54.00	-21.26	Average	100	345	P
9	17265.00	1.54	43.51	45.05	74.00	-28.95	Peak	100	345	P

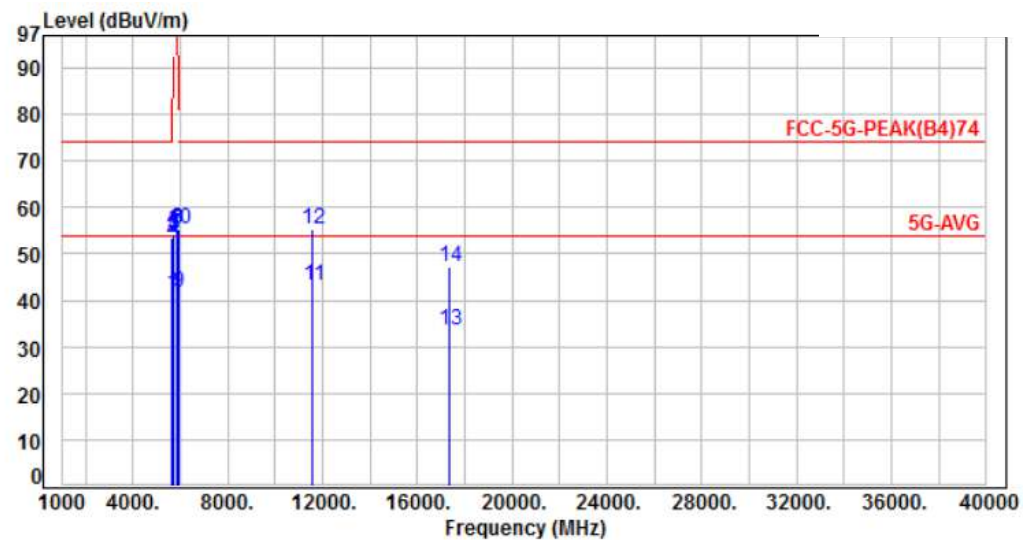
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, CH159	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	53.50	41.34	54.00	-12.66	Average	400	59	P
2	5650.00	-12.16	65.60	53.44	74.00	-20.56	Peak	400	59	P
3	5700.00	-12.17	65.90	53.73	105.20	-51.47	Peak	400	59	P
4	5720.00	-12.18	65.99	53.81	110.80	-56.99	Peak	400	59	P
5	5725.00	-12.18	66.51	54.33	122.20	-67.87	Peak	400	59	P
6	5850.00	-12.19	67.50	55.31	122.20	-66.89	Peak	400	59	P
7	5855.00	-12.19	67.20	55.01	110.80	-55.79	Peak	400	59	P
8	5875.00	-12.20	67.71	55.51	105.20	-49.69	Peak	400	59	P
9	5925.00	-12.20	53.80	41.60	54.00	-12.40	Average	400	59	P
10	5925.00	-12.20	67.40	55.20	74.00	-18.80	Peak	400	59	P
11	11590.00	-6.13	49.20	43.07	54.00	-10.93	Average	100	20	P
12	11590.00	-6.13	61.50	55.37	74.00	-18.63	Peak	100	20	P
13	17385.00	2.16	31.54	33.70	54.00	-20.30	Average	100	61	P
14	17385.00	2.16	45.21	47.37	74.00	-26.63	Peak	100	61	P

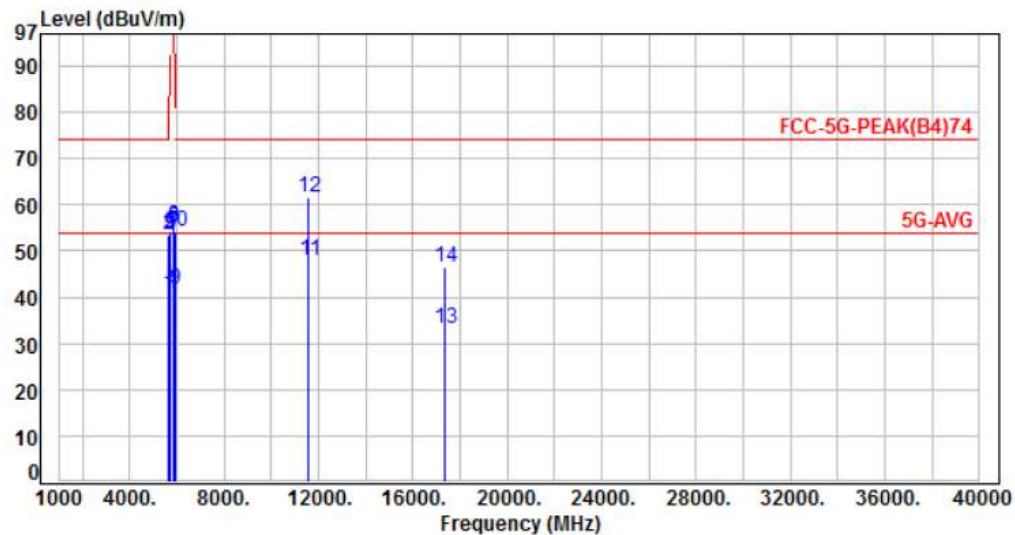
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH159	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	52.80	40.64	54.00	-13.36	Average	375	323	P
2	5650.00	-12.16	65.70	53.54	74.00	-20.46	Peak	375	323	P
3	5700.00	-12.17	65.80	53.63	105.20	-51.57	Peak	375	323	P
4	5720.00	-12.18	66.31	54.13	110.80	-56.67	Peak	375	323	P
5	5725.00	-12.18	66.11	53.93	122.20	-68.27	Peak	375	323	P
6	5850.00	-12.19	67.20	55.01	122.20	-67.19	Peak	375	323	P
7	5855.00	-12.19	66.40	54.21	110.80	-56.59	Peak	375	323	P
8	5875.00	-12.20	67.41	55.21	105.20	-49.99	Peak	375	323	P
9	5925.00	-12.20	53.80	41.60	54.00	-12.40	Average	375	323	P
10	5925.00	-12.20	66.30	54.10	74.00	-19.90	Peak	375	323	P
11	11590.00	-6.13	54.20	48.07	54.00	-5.93	Average	100	340	P
12	11590.00	-6.13	67.60	61.47	74.00	-12.53	Peak	100	340	P
13	17385.00	2.16	30.92	33.08	54.00	-20.92	Average	105	351	P
14	17385.00	2.16	44.30	46.46	74.00	-27.54	Peak	105	351	P

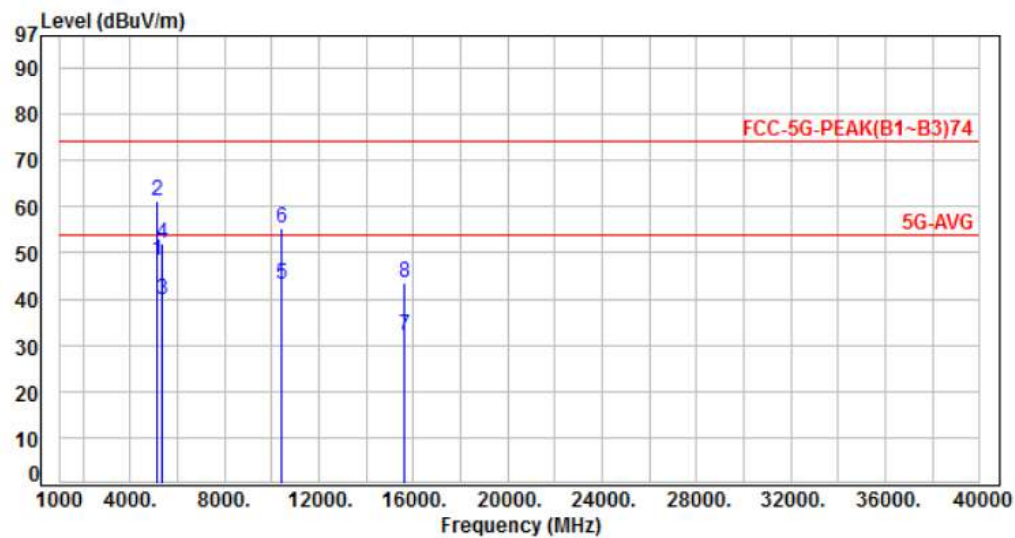
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH42	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	60.91	48.31	54.00	-5.69	Average	398	41	P
2	5150.00	-12.60	73.70	61.10	74.00	-12.90	Peak	398	41	P
3	5350.00	-12.33	52.30	39.97	54.00	-14.03	Average	398	41	P
4	5350.00	-12.33	64.19	51.86	74.00	-22.14	Peak	398	41	P
5	10420.00	-7.47	50.61	43.14	54.00	-10.86	Average	100	20	P
6	10420.00	-7.47	62.89	55.42	74.00	-18.58	Peak	100	20	P
7	15630.00	-3.74	35.80	32.06	54.00	-21.94	Average	105	27	P
8	15630.00	-3.74	47.35	43.61	74.00	-30.39	Peak	105	27	P

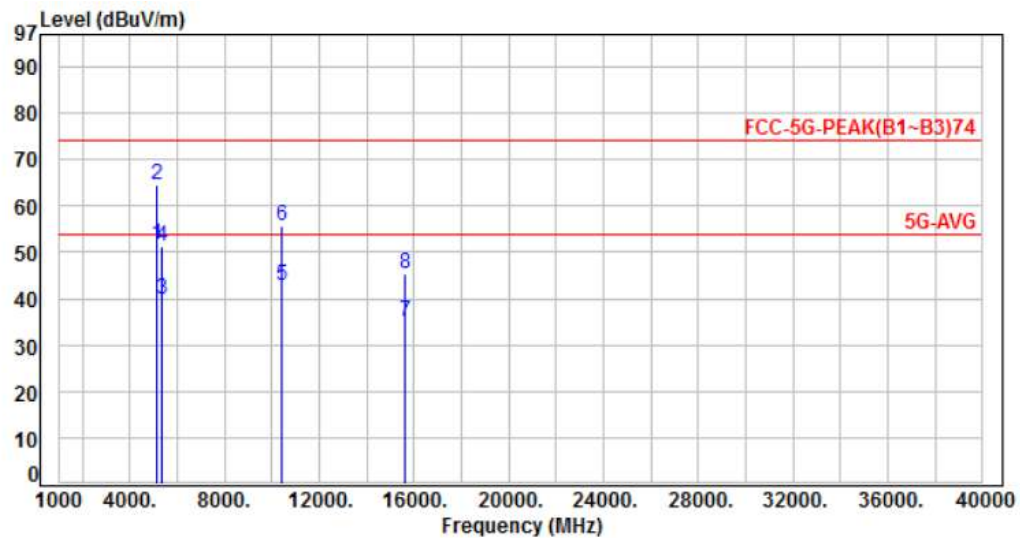
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH42	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-12.60	64.20	51.60	54.00	-2.40	Average	388	334	P
2	5150.00	-12.60	77.00	64.40	74.00	-9.60	Peak	388	334	P
3	5350.00	-12.33	52.30	39.97	54.00	-14.03	Average	388	334	P
4	5350.00	-12.33	63.52	51.19	74.00	-22.81	Peak	388	334	P
5	10420.00	-7.47	50.31	42.84	54.00	-11.16	Average	100	290	P
6	10420.00	-7.47	63.21	55.74	74.00	-18.26	Peak	100	290	P
7	15630.00	-3.74	38.60	34.86	54.00	-19.14	Average	100	355	P
8	15630.00	-3.74	49.20	45.46	74.00	-28.54	Peak	100	355	P

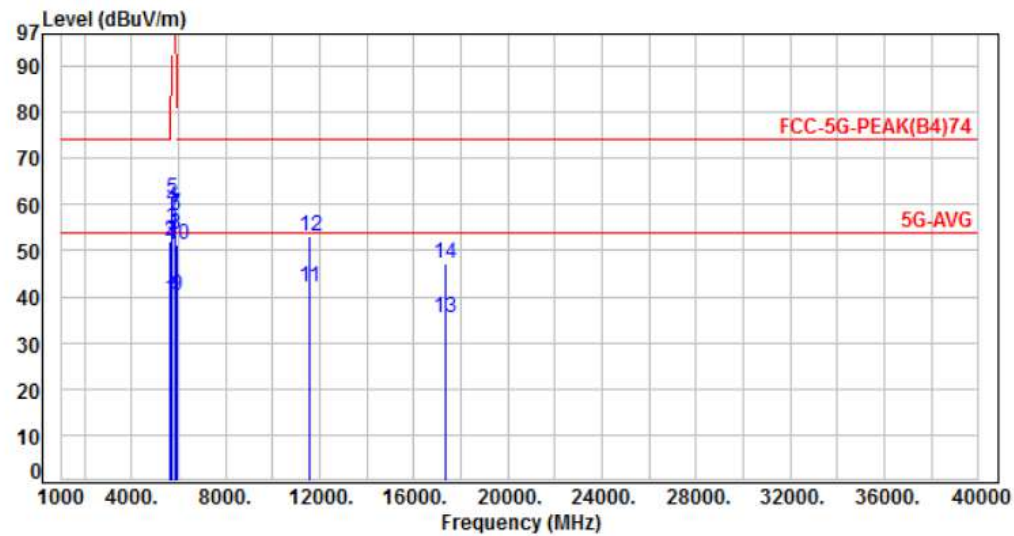
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH155	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	51.80	39.64	54.00	-14.36	Average	370	63	P
2	5650.00	-12.16	64.20	52.04	74.00	-21.96	Peak	370	63	P
3	5700.00	-12.17	66.80	54.63	105.20	-50.57	Peak	370	63	P
4	5720.00	-12.18	71.61	59.43	110.80	-51.37	Peak	370	63	P
5	5725.00	-12.18	73.31	61.13	122.20	-61.07	Peak	370	63	P
6	5850.00	-12.19	69.80	57.61	122.20	-64.59	Peak	370	63	P
7	5855.00	-12.19	70.20	58.01	110.80	-52.79	Peak	370	63	P
8	5875.00	-12.20	65.71	53.51	105.20	-51.69	Peak	370	63	P
9	5925.00	-12.20	52.30	40.10	54.00	-13.90	Average	370	63	P
10	5925.00	-12.20	63.50	51.30	74.00	-22.70	Peak	370	63	P
11	11550.00	-6.14	48.30	42.16	54.00	-11.84	Average	100	22	P
12	11550.00	-6.14	59.30	53.16	74.00	-20.84	Peak	100	22	P
13	17325.00	1.85	33.50	35.35	54.00	-18.65	Average	104	332	P
14	17325.00	1.85	45.30	47.15	74.00	-26.85	Peak	104	332	P

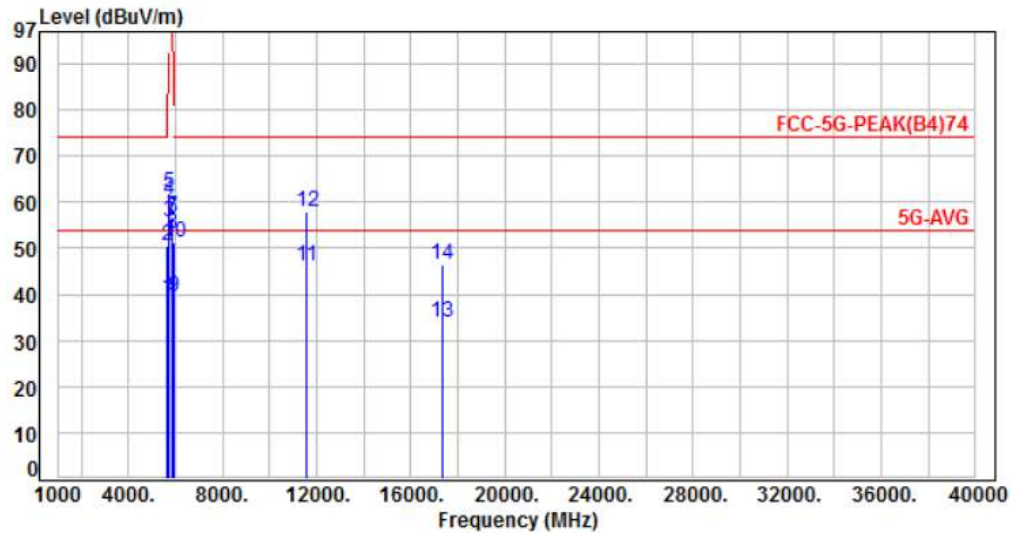
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH155	Temperature	: 23 °C
Test Date	: Nov. 13, 2017	Humidity	: 65 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-12.16	51.20	39.04	54.00	-14.96	Average	398	325	P
2	5650.00	-12.16	62.60	50.44	74.00	-23.56	Peak	398	325	P
3	5700.00	-12.17	67.80	55.63	105.20	-49.57	Peak	398	325	P
4	5720.00	-12.18	72.51	60.33	110.80	-50.47	Peak	398	325	P
5	5725.00	-12.18	74.21	62.03	122.20	-60.17	Peak	398	325	P
6	5850.00	-12.19	68.60	56.41	122.20	-65.79	Peak	398	325	P
7	5855.00	-12.19	68.90	56.71	110.80	-54.09	Peak	398	325	P
8	5875.00	-12.20	65.21	53.01	105.20	-52.19	Peak	398	325	P
9	5925.00	-12.20	51.70	39.50	54.00	-14.50	Average	398	325	P
10	5925.00	-12.20	63.30	51.10	74.00	-22.90	Peak	398	325	P
11	11550.00	-6.14	52.30	46.16	54.00	-7.84	Average	100	333	P
12	11550.00	-6.14	64.00	57.86	74.00	-16.14	Peak	100	333	P
13	17325.00	1.85	32.20	34.05	54.00	-19.95	Average	107	160	P
14	17325.00	1.85	44.52	46.37	74.00	-27.63	Peak	107	160	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6.7. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



7. On Time, Duty Cycle and Measurement methods

7.1. Test Limit

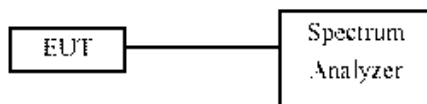
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

7.3. Test Setup Layout



7.4. Test Result and Data

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

Humidity : 67%

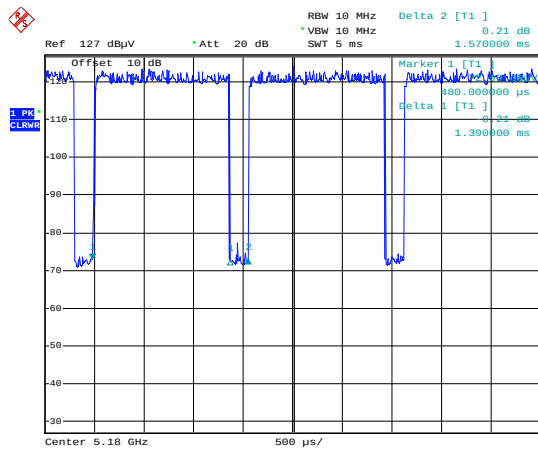
Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)	1/T Minimum VBW(Hz)	Duty Cycle correction Factor (dB)
802.11a	1.39	1.57	88.54%	719.42	0.53
802.11ac VHT20	1.00	1.19	84.51%	996.02	0.73
802.11ac VHT40	0.50	0.70	71.43%	2000.00	1.46
802.11ac VHT80	0.25	0.45	55.56%	4000.00	2.55

7.5. Measurement Methods

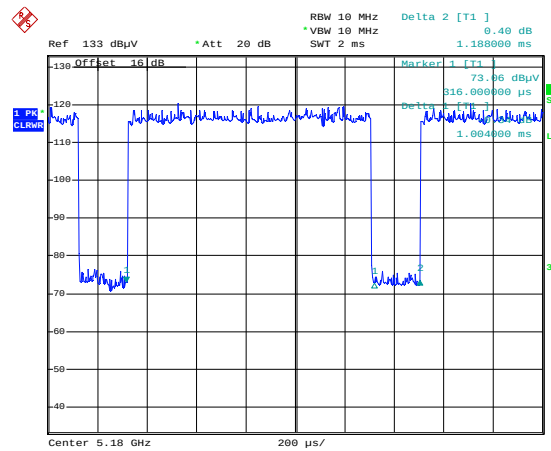
26 dB and 6dB Emission BW	KDB 789033 D02 v01, Section C
99% Occupied BW	KDB 789033 D02 v01, Section D
Conducted Output Power	KDB 789033 D02 v01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02 v01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 D02 v01, Sections G and H



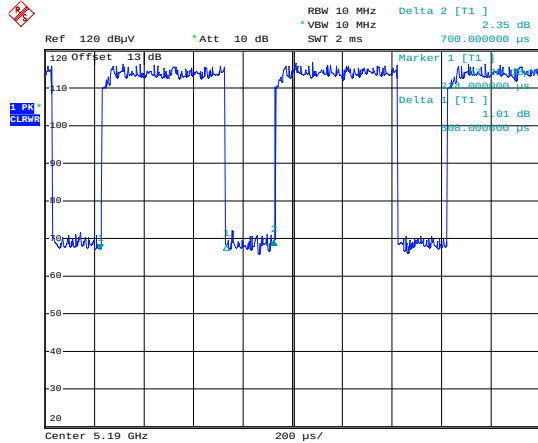
Modulation Standard: 802.11a (6Mbps)



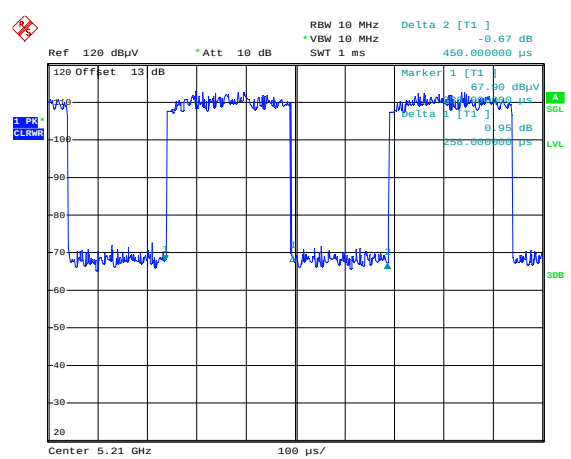
Modulation Standard: 802.11ac VHT20 (6.5Mbps)



Modulation Standard: 802.11ac VHT40 (13.5Mbps)



Modulation Standard: 802.11ac VHT80 (29.3Mbps)





8. 6dB Bandwidth

8.1. Test Limit

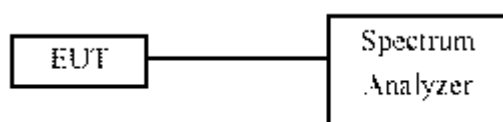
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

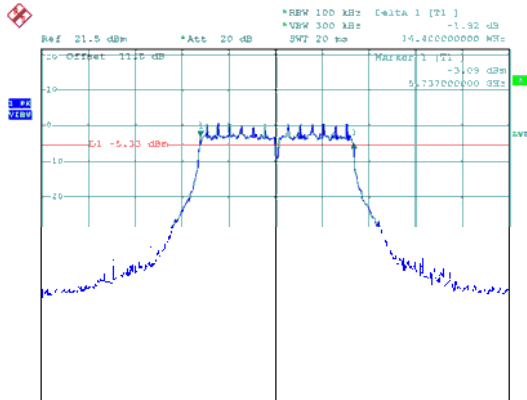
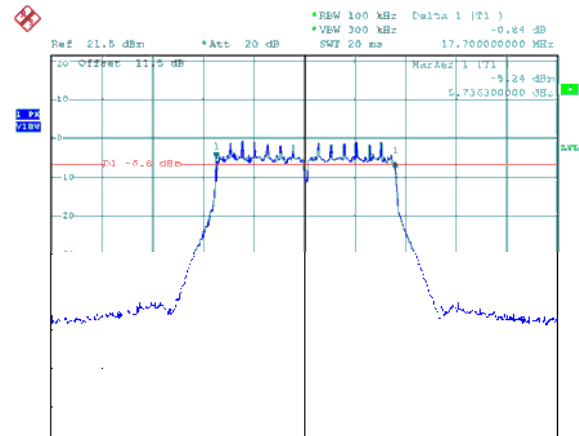
Humidity : 67%

In the 5.8G Band

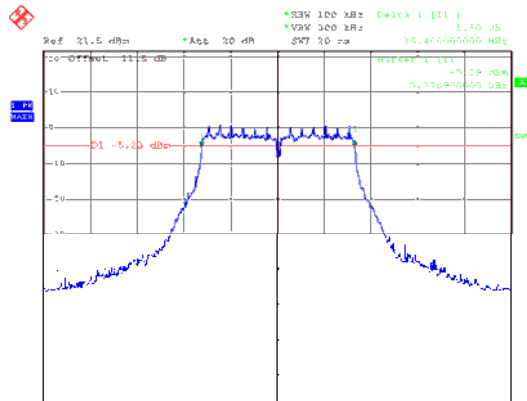
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
802.11a	149	5745	16.40	0.50
	157	5785	16.40	0.50
	165	5825	16.40	0.50
802.11ac VHT20	149	5745	17.70	0.50
	157	5785	17.60	0.50
	165	5825	17.60	0.50
802.11ac VHT40	151	5755	35.40	0.50
	159	5795	35.40	0.50
802.11ac VHT80	155	5775	75.20	0.50



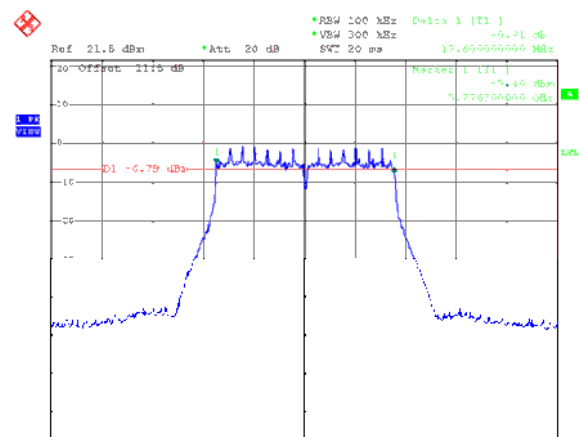
6dB Bandwidth

Modulation Standard: 802.11a (6Mbps)
CH149Modulation Standard: 802.11ac, VHT20 (6.5Mbps)
CH149

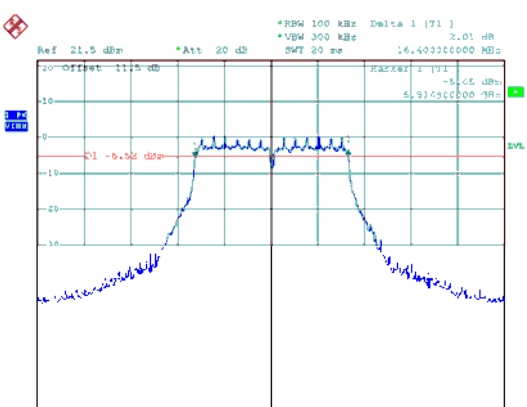
CH157



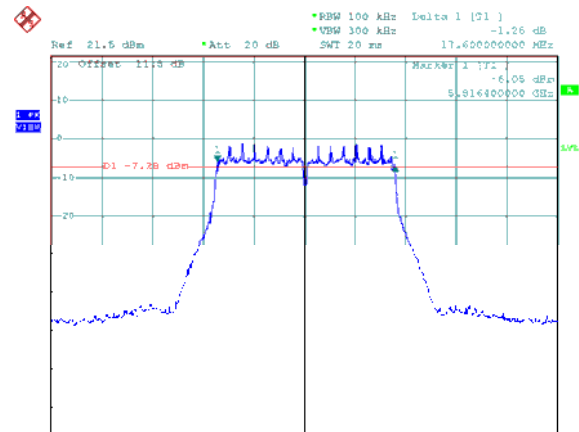
CH157



CH165

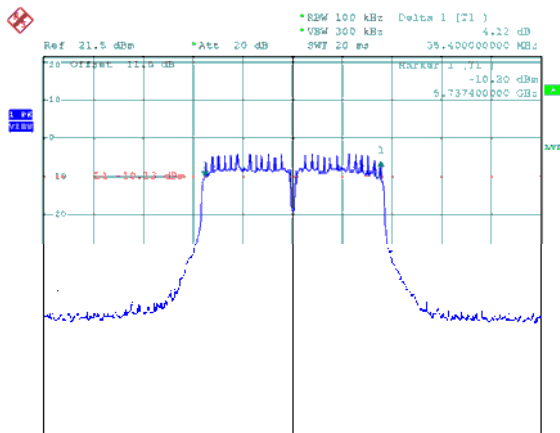


CH165

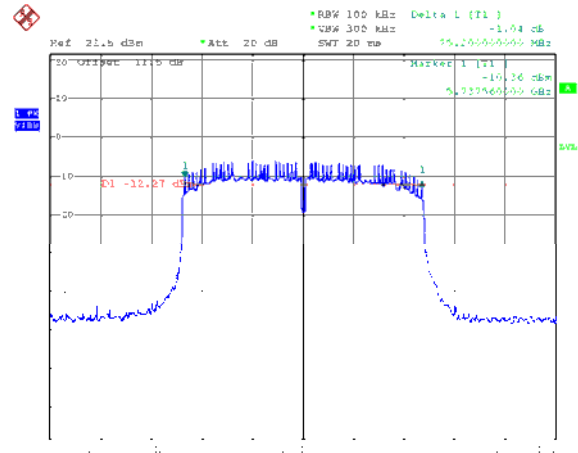




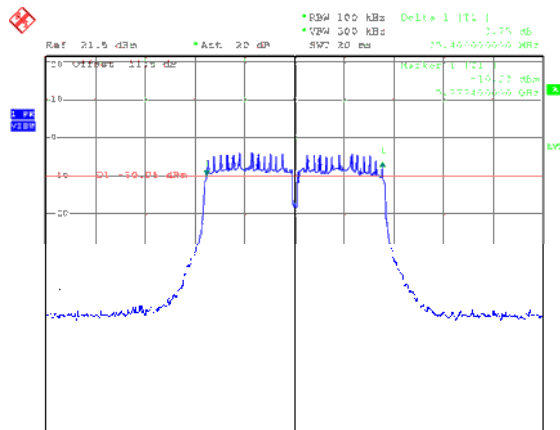
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)
CH155



CH159





9. 26dB Bandwidth and 99% Bandwidth

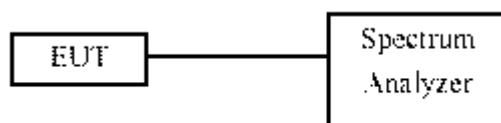
9.1. Test Limit

For the 26dB BW on U-NII B1, the width are striding across beyond 5350MHz which by rule, DFS requirement is subject to applying. Alternatively, 99% BW to ensure BW are not beyond 5350MHz can be demonstrating the exclusion of DFS testing

9.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

Humidity : 67%

In the 5.2G Band

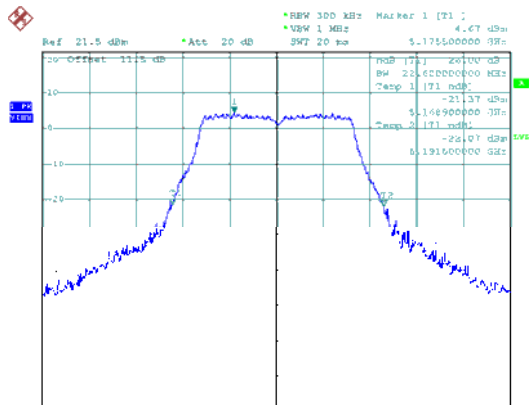
Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	36	5180	22.60
	44	5220	22.30
	48	5240	22.20
802.11ac VHT20	36	5180	22.50
	44	5220	22.60
	48	5240	22.50
802.11ac VHT40	38	5190	45.00
	46	5230	44.80
802.11ac VHT80	42	5210	85.44

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)
802.11a	36	5180	17.10
	44	5220	17.00
	48	5240	17.10
802.11ac VHT20	36	5180	18.10
	44	5220	18.10
	48	5240	18.00
802.11ac VHT40	38	5190	36.40
	46	5230	36.60
802.11ac VHT80	42	5210	75.20

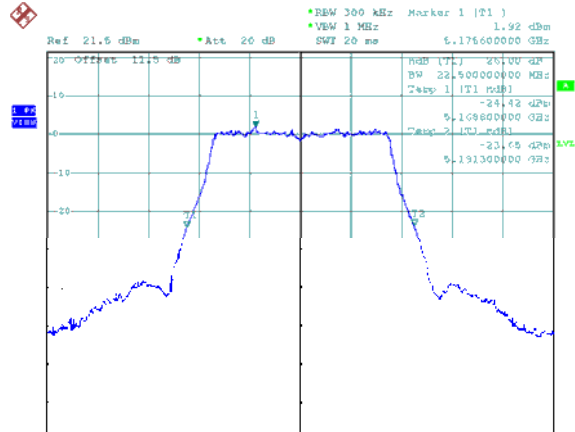


26dB Bandwidth

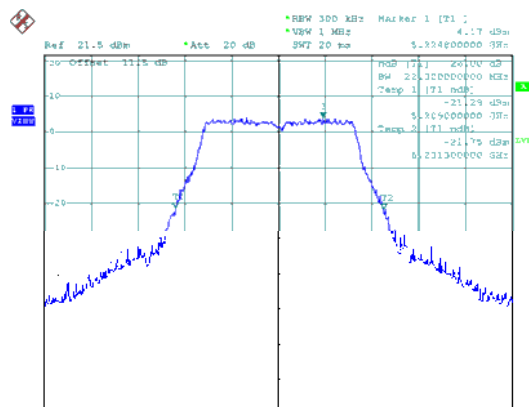
Modulation Standard: 802.11a (6Mbps)
CH36



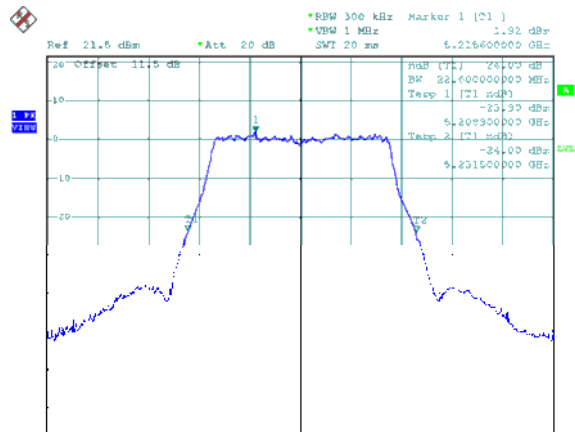
802.11ac VHT20 (6.5Mbps)
CH36



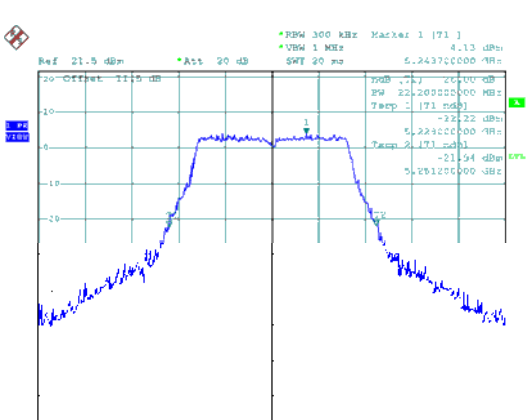
CH44



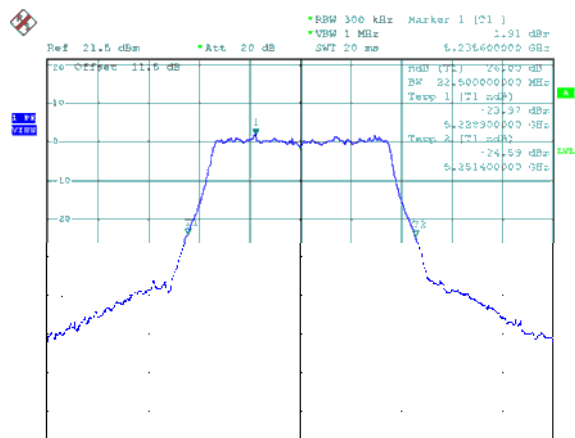
CH44



CH48

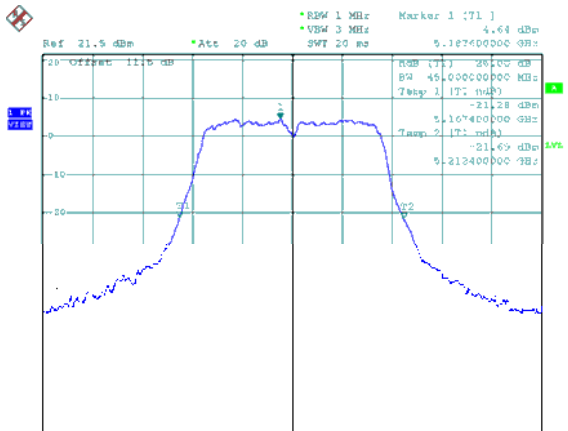


CH48

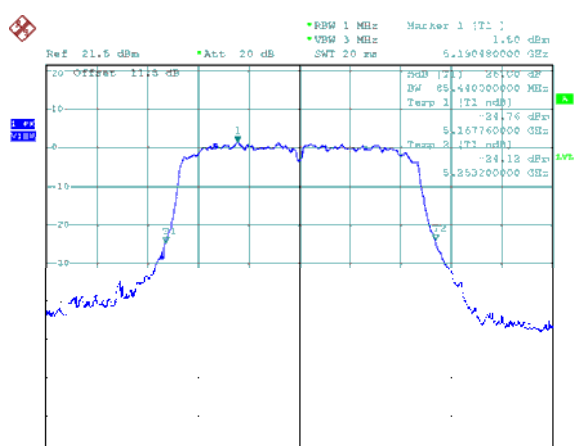




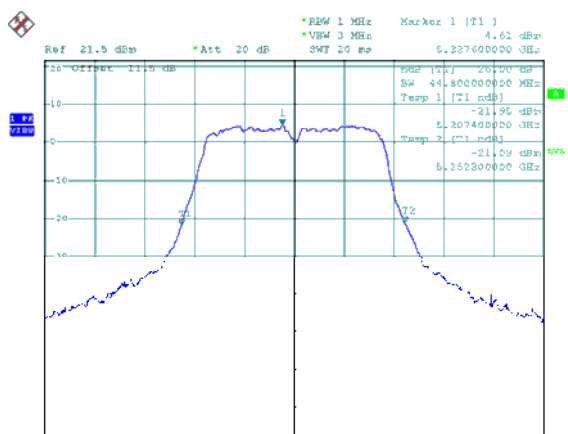
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42

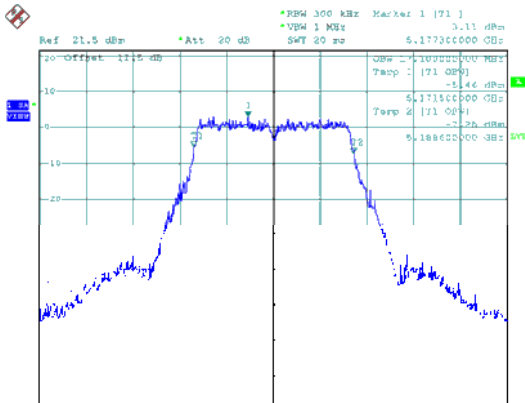


CH46



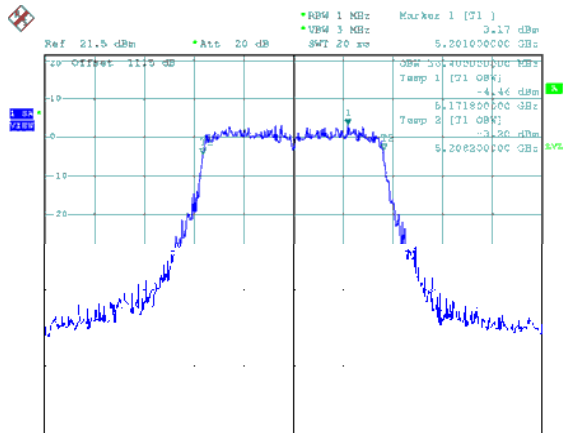


99% Bandwidth

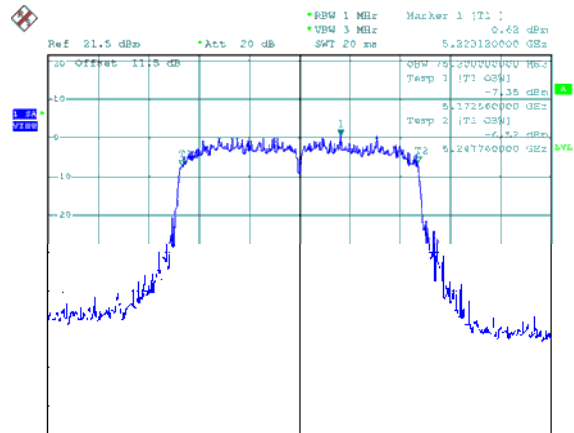
Modulation Standard: 802.11a (6Mbps)
CH36



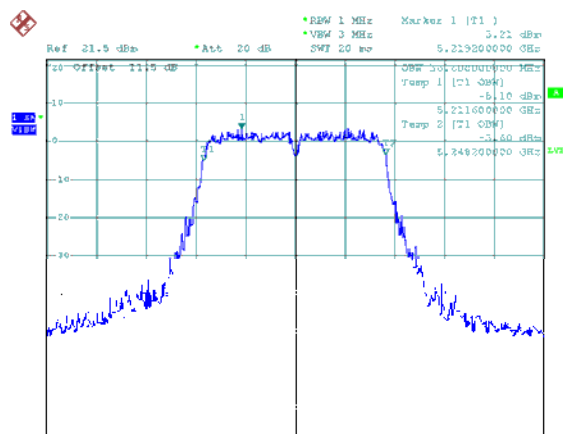
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



CH46





10. Average Power

10.1. Test Limit

Output Power:

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



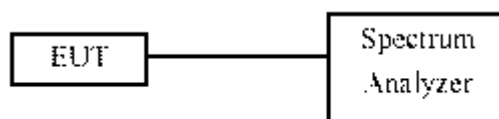
Frequency Band		Limit
☐	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
☐	5.470-5.725 GHz	
☒	5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

10.2.Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

10.3.Test Setup Layout





10.4. Test Result and Data

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

Humidity : 67%

In the 5.2G Band

Modulation Type	CH	Freq. (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
802.11a	36	5180	12.13	12.13	16.33	24.00
	44	5220	12.29	12.29	16.94	24.00
	48	5240	12.23	12.23	16.71	24.00
802.11an HT20	36	5180	10.5	10.50	11.22	24.00
	44	5220	10.42	10.42	11.02	24.00
	48	5240	10.4	10.40	10.96	24.00
802.11an HT40	38	5190	10.39	10.39	10.94	24.00
	46	5230	10.4	10.40	10.96	24.00
802.11ac VHT20	36	5180	10.51	10.51	11.25	24.00
	44	5220	10.46	10.46	11.12	24.00
	48	5240	10.45	10.45	11.09	24.00
802.11ac VHT40	38	5190	10.52	10.52	11.27	24.00
	46	5230	10.48	10.48	11.17	24.00
802.11ac VHT80	42	5210	10.38	10.38	10.91	24.00

In the 5.8G Band

Modulation Type	CH	Freq. (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
802.11a	149	5745	12.3	12.30	16.98	30.00
	157	5785	12.26	12.26	16.83	30.00
	165	5825	12.19	12.19	16.56	30.00
802.11an HT20	149	5745	10.72	10.72	11.80	30.00
	157	5785	10.76	10.76	11.91	30.00
	165	5825	10.5	10.50	11.22	30.00
802.11an HT40	151	5755	10.4	10.40	10.96	30.00
	159	5795	10.32	10.32	10.76	30.00
802.11ac VHT20	149	5745	10.77	10.77	11.94	30.00
	157	5785	10.81	10.81	12.05	30.00
	165	5825	10.55	10.55	11.35	30.00
802.11ac VHT40	151	5755	10.43	10.43	11.04	30.00
	159	5795	10.35	10.35	10.84	30.00
802.11ac VHT80	155	5775	10.74	10.74	11.86	30.00



11. PPSD

11.1. Test Limit

PSD:

Frequency Band		Limit
☒	5.15~5.25GHz	
	Operating Mode	
☐	Outdoor access point	17 dBm/MHz
☐	Indoor access point	17 dBm/MHz
☐	Fixed point-to-point access points	17 dBm/MHz
☒	Client devices	11 dBm/MHz
☐	5.725~5.85 GHz	11 dBm/MHz
☐	5.470-5.725 GHz	11 dBm/MHz
☒	5.725~5.85 GHz	30 dBm/500kHz

11.2. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was Measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

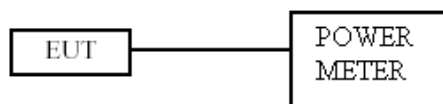
802.11an (BW≤40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

11.3. Test Setup Layout





11.4. Test Result and Data

Test Result : PASS
Test Date : Nov. 16, 2017

Temperature : 22°C
Humidity : 67%

In the 5.2G Band

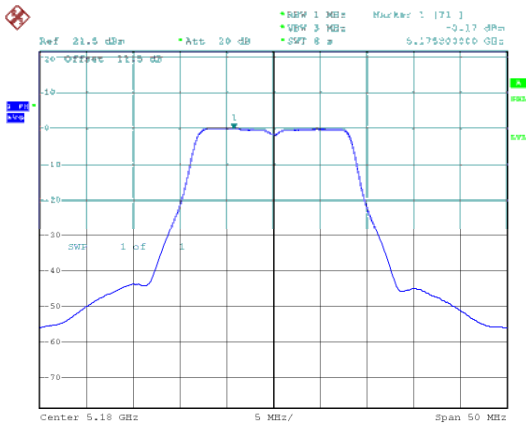
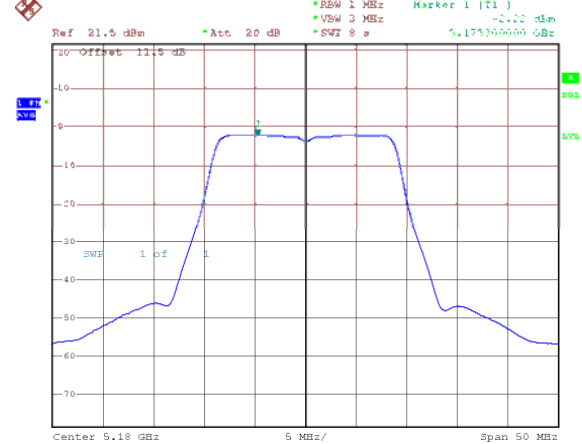
Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
802.11a	36	5180	-0.17	-0.17	0.53	0.36	11.00
	44	5220	-0.13	-0.13	0.53	0.40	11.00
	48	5240	-0.09	-0.09	0.53	0.44	11.00
802.11ac VHT20	36	5180	-2.22	-2.22	0.73	-1.49	11.00
	44	5220	-2.31	-2.31	0.73	-1.58	11.00
	48	5240	-2.25	-2.25	0.73	-1.52	11.00
802.11ac VHT40	38	5190	-5.74	-5.74	1.46	-4.28	11.00
	46	5230	-5.78	-5.78	1.46	-4.32	11.00
802.11ac VHT80	42	5210	-9.73	-9.73	2.55	-7.18	11.00

In the 5.8G Band

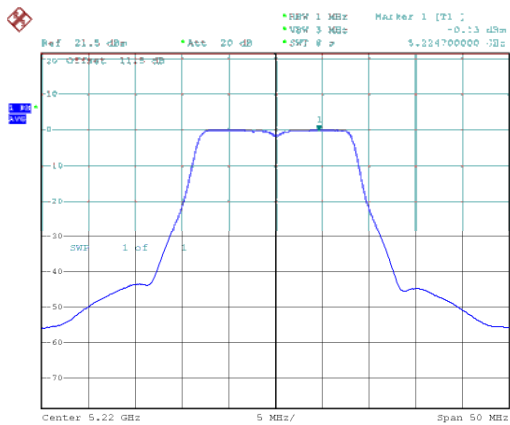
Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	10log (500KHz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
802.11a	149	5745	-0.29	-0.29	0.53	-3.01	-2.77	30.00
	157	5785	-0.49	-0.49	0.53	-3.01	-2.97	30.00
	165	5825	-0.62	-0.62	0.53	-3.01	-3.10	30.00
802.11ac VHT20	149	5745	-2.13	-2.13	0.73	-3.01	-4.41	30.00
	157	5785	-2.31	-2.31	0.73	-3.01	-4.59	30.00
	165	5825	-2.57	-2.57	0.73	-3.01	-4.85	30.00
802.11ac VHT40	151	5755	-5.91	-5.91	1.46	-3.01	-7.46	30.00
	159	5795	-6.04	-6.04	1.46	-3.01	-7.59	30.00
802.11ac VHT80	155	5775	-9.55	-9.55	2.55	-3.01	-10.01	30.00



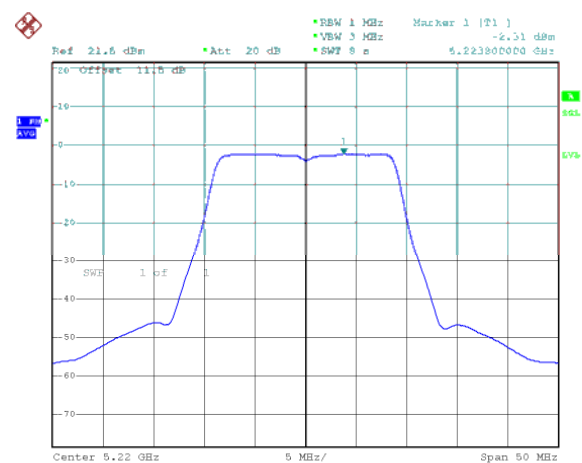
5.2G Band

Modulation Standard: 802.11a (6Mbps)
CH36Modulation Standard: 802.11ac VHT20 (6.5Mbps)
CH36

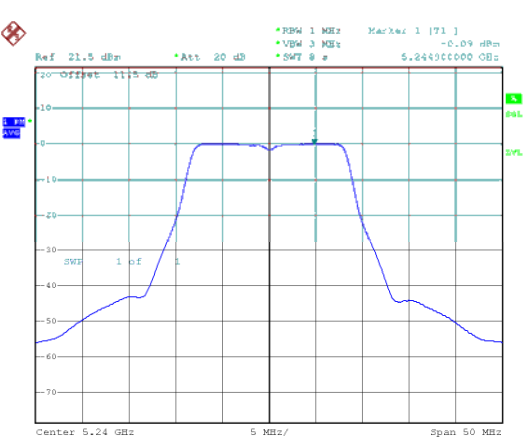
CH44



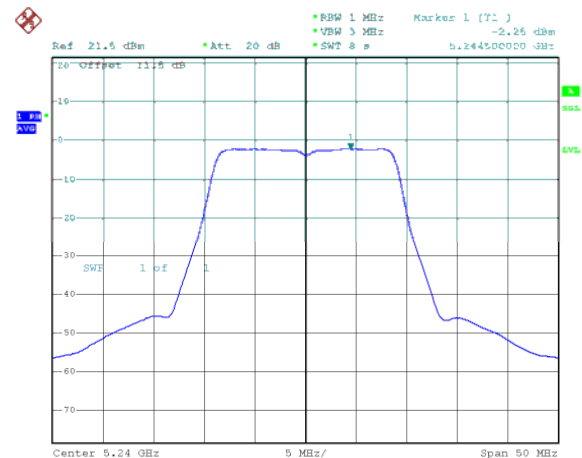
CH44



CH48

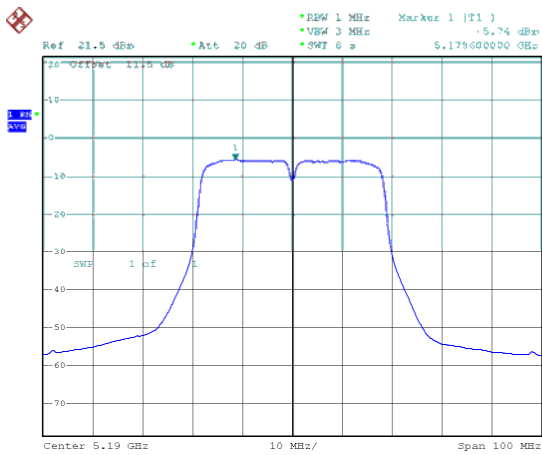


CH48

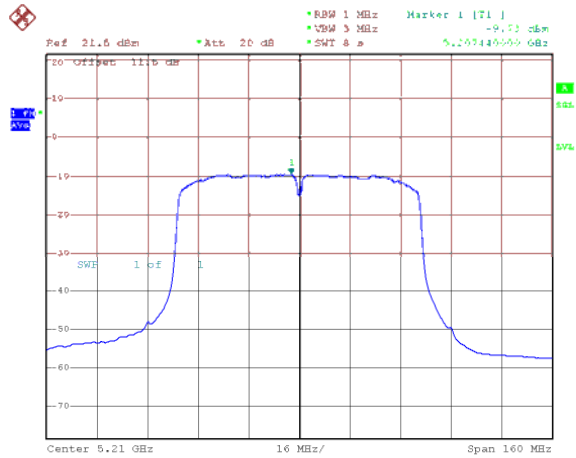




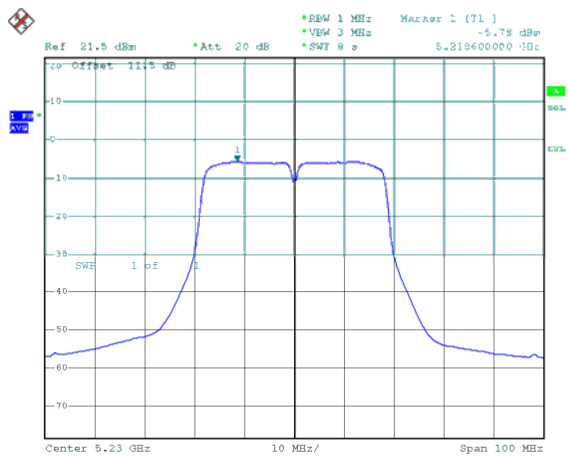
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



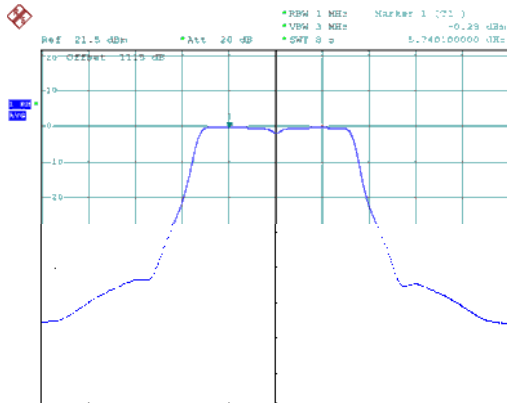
CH46



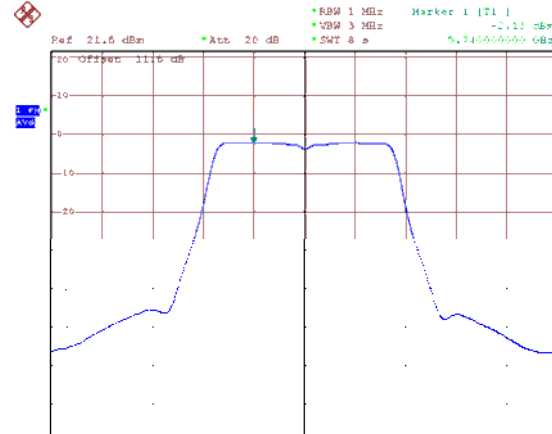


5.8G Band

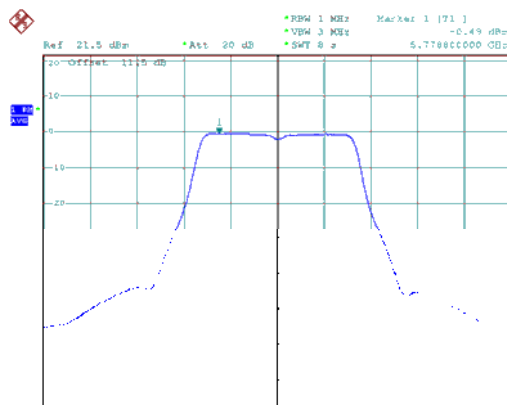
Modulation Standard: 802.11a (6Mbps)
CH149



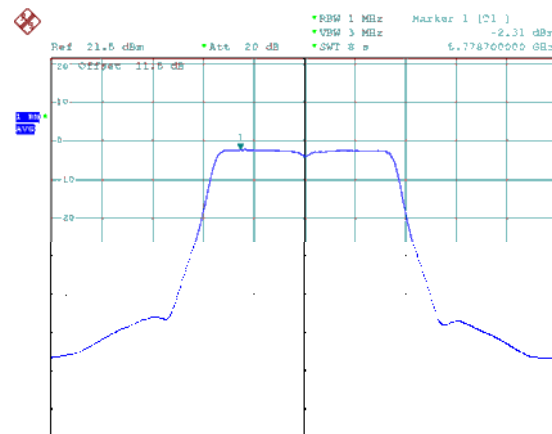
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)
CH149



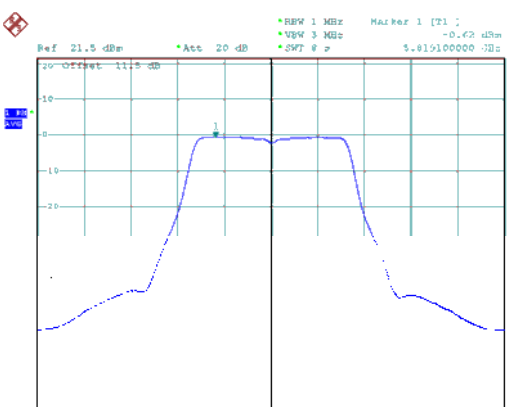
CH157



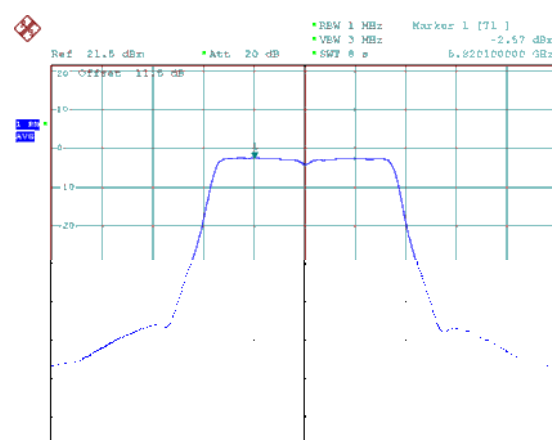
CH157



CH165

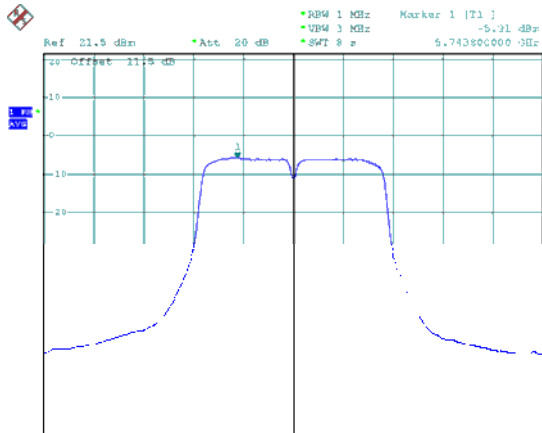


CH165

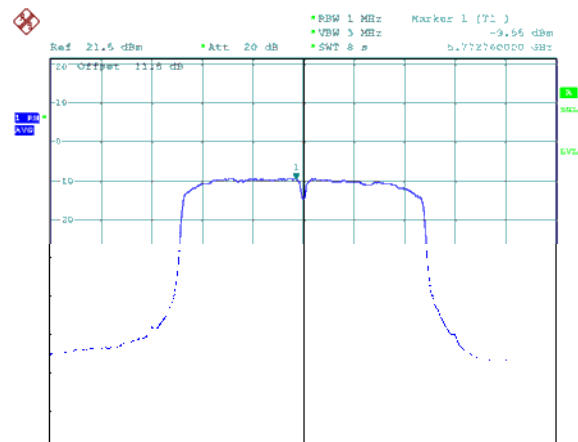




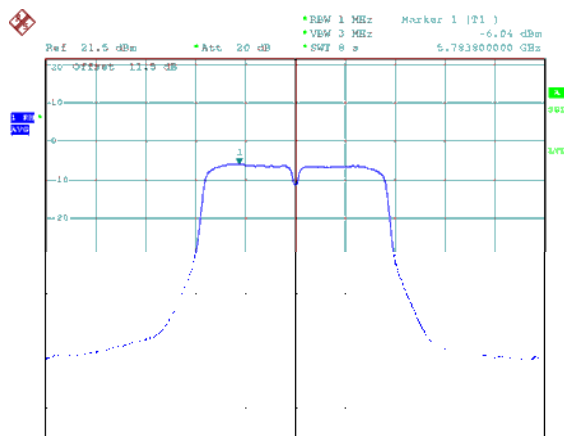
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)
CH155



CH159



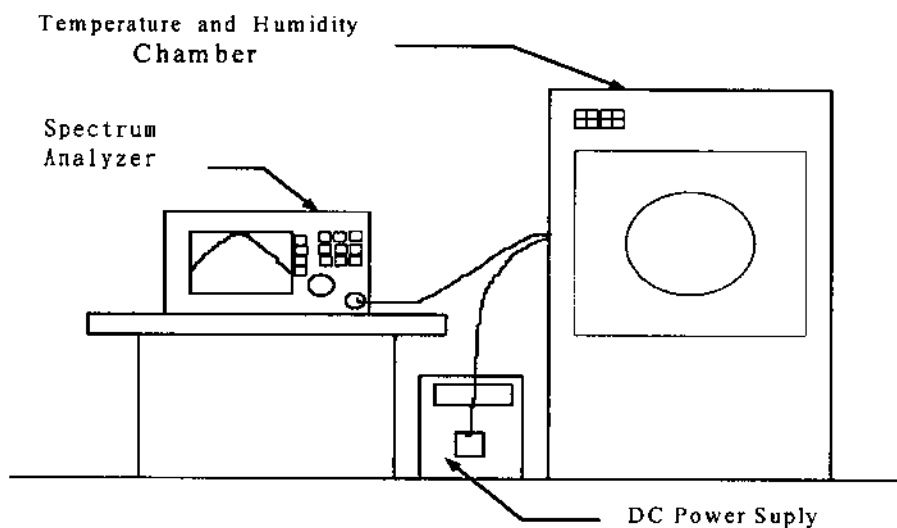


12. Frequency Stability

12.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

12.2. Test Setup Layout



**12.3. Test Result and Data**

Test Result : PASS

Temperature : 22°C

Test Date : Nov. 16, 2017

Humidity : 67%

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	102	5180.0745	0.001438	5180.0611	0.001179	5180.0097	0.001868
	120	5180.0236	0.000455	5179.9283	-0.001385	5179.9410	-0.011398
	138	5180.0092	0.000178	5180.0079	0.000153	5180.0877	0.016927
40	102	5179.9367	-0.001222	5179.9674	-0.000630	5180.0001	0.000010
	120	5180.0667	0.001287	5180.0808	0.001559	5180.0738	0.014255
	138	5180.0638	0.001231	5180.0893	0.001724	5180.0215	0.004146
30	102	5180.0715	0.001380	5180.0747	0.001443	5180.0114	0.002201
	120	5180.0270	0.000522	5179.9674	-0.000629	5180.0085	0.001640
	138	5180.0478	0.000922	5179.9120	-0.001699	5179.9964	-0.000701
20	102	5179.9865	-0.000261	5179.9031	-0.001870	5180.0776	0.014984
	120	5179.9034	-0.001866	5180.0874	0.001687	5180.0722	0.013941
	138	5179.9537	-0.000895	5179.9527	-0.000913	5180.0589	0.011377
10	102	5180.0230	0.000443	5180.0590	0.001140	5179.9956	-0.000844
	120	5179.9152	-0.001638	5179.9838	-0.000312	5179.9324	-0.013048
	138	5179.9204	-0.001536	5179.9787	-0.000412	5180.0093	0.001799
0	102	5179.9828	-0.000332	5180.0716	0.001381	5179.9462	-0.010380
	120	5179.9485	-0.000994	5180.0834	0.001610	5179.9986	-0.000263
	138	5180.0569	0.001098	5180.0542	0.001046	5179.9043	-0.018481
-10	102	5180.0014	0.000028	5180.0492	0.000950	5180.0447	0.008624
	120	5180.0790	0.001526	5180.0734	0.001417	5179.9532	-0.009041
	138	5179.9862	-0.000266	5180.0335	0.000647	5179.9687	-0.006043
-20	102	5179.9529	-0.000908	5179.9064	-0.001807	5179.9961	-0.000757
	120	5179.9234	-0.001478	5179.9307	-0.001339	5179.9201	-0.015415
	138	5179.9946	-0.000104	5179.9278	-0.001394	5180.0963	0.018588
-30	102	5180.0909	0.001754	5180.0809	0.001561	5180.0873	0.016845
	120	5179.9281	-0.001388	5180.0737	0.001423	5179.9248	-0.014509
	138	5179.9749	-0.000485	5180.0113	0.000218	5179.9010	-0.019104

Limit:

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.