FCC RADIO TEST REPORT

Applicant	:	TRENDnet, Inc.
Address	:	20675 Manhattan Place, Torrance, CA 90501 U.S.A.
Equipment	:	AC2200 Tri-Band PoE+ Indoor Wireless Access Point
Model No.	:	TEW-826DAP
Trade Name	:	TRENDnet
FCC ID	:	XU8TEW826DAP

I HEREBY CERTIFY THAT :

The sample was received on Jul. 07, 2018 and the testing was carried out on Aug. 03, 2018 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass 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:

Cerpass Technology Corporation Test Laboratory

CONTENTS

History of this test report

Report No.	Issue Date	Description
TEFE1805300	Aug. 22, 2018	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	Pass
15.407	6 dB Bandwidth	Pass
15.407 (a) & (a)(3)	Average Power	Pass
15.407(a)	Maximum Power Spectral Density	Pass
15.407(g)	Frequency Stability	Pass
15.407(c)	Automatically Discontinue Transmission	Pass
2.1091	Radio Frequency Exposure	Pass

2. Test Configuration of Equipment under Test

2.1. Feature of Equipment and Model Description

Equipment	AC2200 Tri-Band PoE+ Indoor Wireless Access Point
Model No.	TEW-826DAP
Brand Name	TRENDnet
Product Description	Please refer to User's Manual.
Connecting I/O Port(s)	Please refer to User's Manual.
AC ADAPTER	Adapter Brand: APD Model No.: WA-24Q12R I/P: AC 100-240V~, 50-60Hz, 0.7A MAX. ; O/P: DC 12V, 2.0A
PoE	48Vdc/0.67A
Memo	1.0R
Frequency Range	802.11b/g/n: 2400~2483.5 MHz 802.11a/n/ac: 5150~5250 MHz, 5725~5850 MHz
Modulation Type	OFDM, DSSS
Data Rate	2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40, VHT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	PIFA Antenna
Antenna Gain	2.4GHz: ANT A: 4.85 dBi ; ANT B: 4.4 dBi 5150MHz-5250MHz: ANT A: 4.18 dBi ; ANT B: 4.81 dBi 5725MHz-5850MHz: ANT A: 4.9 dBi ; ANT B: 4.18 dBi

Note: For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.2. Carrier Frequency of Channels

Band 1: 5150MHz-5250MHz

802.11a, 802.11n HT20, 802.11ac VHT20

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

802.11n HT40, 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, 802.11n HT20, 802.11ac VHT20

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

802.11n HT40, 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. The complete test system included remote workstation and EUT for RF test. The remote workstation included Notebook.
c. An executive program, "QDART:39.1" under WIN 8 was executed to transmit and receive data via WLAN.
d. The following test modes were performed for the test:

Conducted Emissions from the AC mains power ports	
Test Mode	Operating Description
1	802.11a (6Mbps)
2	802.11ac VHT20 (6.5Mbps)
3	802.11ac VHT40 (13.5Mbps)
4	802.11ac VHT80 (29.3Mbps)
caused "Test Mode 1" generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
Test Mode	Operating Description
1	802.11a (6Mbps), Power from Adapter
2	802.11ac VHT20 (6.5Mbps), Power from Adapter
3	802.11ac VHT40 (13.5Mbps), Power from Adapter
4	802.11ac VHT80 (29.3Mbps), Power from Adapter
5	802.11a (6Mbps), Power from PoE
6	802.11ac VHT20 (6.5Mbps), Power from PoE
7	802.11ac VHT40 (13.5Mbps), Power from PoE
8	802.11ac VHT80 (29.3Mbps), Power from PoE
caused "Test Mode 1,5" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz)	
Test Mode	Operating Description
1	802.11a (6Mbps), Power from Adapter
2	802.11ac VHT20 (6.5Mbps), Power from Adapter
3	802.11ac VHT40 (13.5Mbps), Power from Adapter
4	802.11ac VHT80 (29.3Mbps), Power from Adapter
caused "Test Mode 1~4" generated the worst case, they were reported as the final data.	

Note: 1. Non-Beamforming was used for the test result.
2. The Thermal Pad of P300K was the worst case, so it was used for the test result.

2.4. Description of Test System

Device	Manufacturer	Model No.	Description
Remote workstation			
Notebook	DELL	LatitudeE5450/5450	Power Cable, Unshielding, 1.8m

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	Uncertainty
Radiated Spurious Emission(9KHz~30MHz)	±5.007dB
Radiated Spurious Emission(30MHz~1GHz)	±5.157dB
Radiated Spurious Emission(1GHz~18GHz)	±6.383dB
Radiated Spurious Emission(18GHz~40GHz)	±6.648dB
Conducted Spurious Emission	±1.253dB
6dB Bandwidth	±6.89%
Power Spectral Density	±0.630dB
26 dB Occupied Bandwidth	±6.10%
Frequency Stability	±375KHz
Channel Frequencies Separation	±6.10%
20dB Bandwidth	±6.12%
Dwell Time	±1.34%
Peak Output Power(Conducted Power Meter)	±0.86dB
Temperature	±1.2℃
Humidity	±2.7%
Channel Move Time	±4.53%
Channel Closing Transmission Time	±6.61%
Threshold	±0.631dB
Non occupancy period	±1.17%

3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100821	2017/09/08	2018/09/07
LISN	Schwarzbeck	NSLK 8127	8127-568	2018/02/26	2019/02/25
Pulse Limiter	R&S	ESH3-Z2	101934	2018/02/22	2019/02/21
Bilog Antenna	Schwarzbeck	VULB9168	275	2017/08/31	2018/08/30
Active Loop Antenna	EMCO	6507	40855	2018/05/22	2019/05/21
Horn Antenna	EMCO	3115	31601	2017/09/11	2018/09/10
Horn Antenna	EMCO	3116	31970	2018/03/23	2019/03/22
Preamplifier	EM	EM330	60658	2017/09/08	2018/09/07
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2017/09/20	2018/09/19
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2017/11/10	2018/11/09
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2018/04/10	2019/04/09
Spectrum Analyzer	R&S	FSP40	100219	2018/07/03	2019/07/02
BLUETOOTH TESTER	R&S	CBT	101133	2018/04/02	2019/04/01
Attenuator	KEYSIGHT	8491B	MY39250705	2017/09/04	2018/09/03
Rotary Attenuator	Agilent	8495B	MY42146680	2018/03/29	2019/03/28
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2017/09/04	2018/09/03
Series Power Meter	Anritsu	ML2495A	1224005	2018/03/23	2019/03/22
Power Sensor	Anritsu	MA2411B	1207295	2018/03/23	2019/03/22
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	V3.0.0.0	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A

4. Antenna Requirements

4.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2. Antenna Construction and Directional Gain

Antenna Type	PIFA Antenna
Antenna Gain	2.4GHz: ANT A: 4.85 dBi ; ANT B: 4.4 dBi 5150MHz-5250MHz: ANT A: 4.18 dBi ; ANT B: 4.81 dBi 5725MHz-5850MHz: ANT A: 4.9 dBi ; ANT B: 4.18 dBi

(Non-Beamforming)

2412-2462MHz
For Power directional gain= G_{ant}= 4.85 dBi For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.64 (dBi)
5150MHz -5250MHz
For Power directional gain= G_{ant}= 4.81 dBi For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.51 (dBi)
5725MHz -5850MHz
For Power directional gain= G_{ant}= 4.9 dBi For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.56 (dBi)

(Beamforming)

2412-2462MHz
For Power directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.64 dBi For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.64 (dBi)
5150MHz -5250MHz
For Power directional gain= 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.51 (dBi) For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT]= 7.51 (dBi)
5725MHz -5850MHz
For Power directional gain= 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT] = 7.56 (dBi) For PSD directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ /NANT]= 7.56 (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.

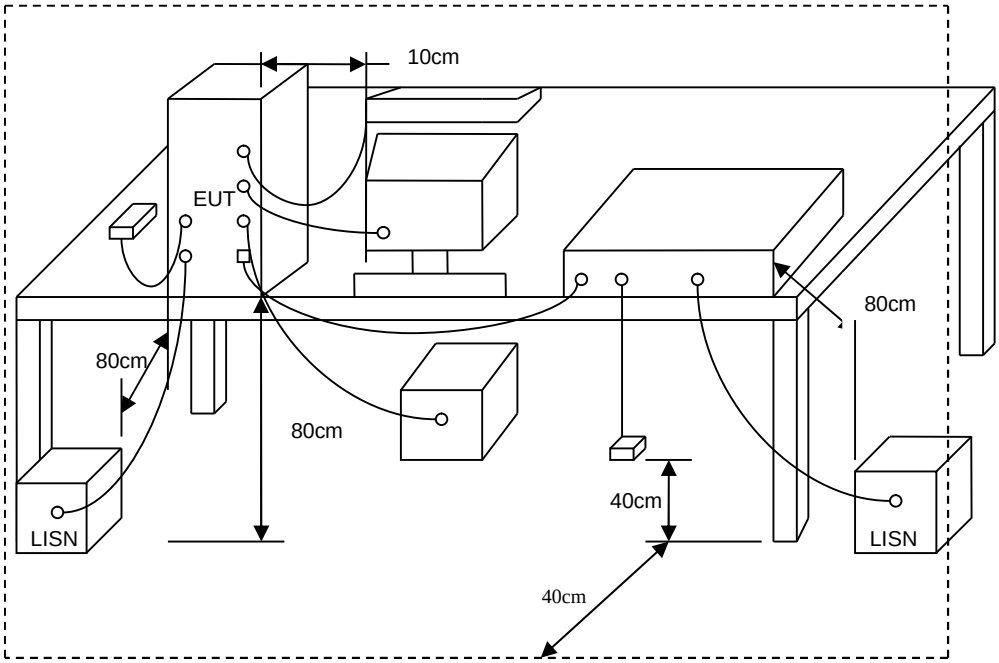
Frequency (MHz)	Quasi Peak (dBμV)	Average (dBμV)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2. Test Procedures

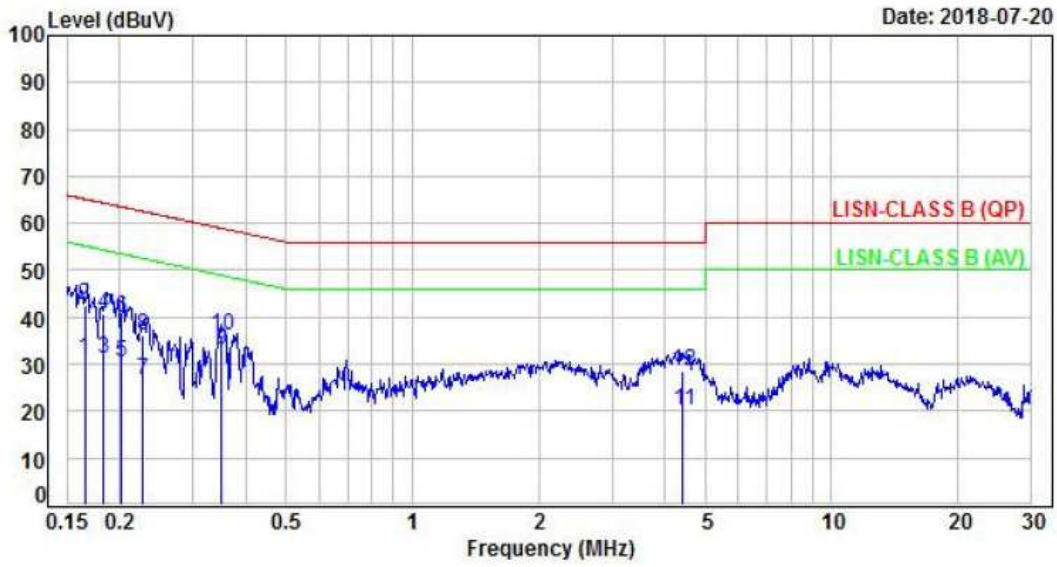
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. 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

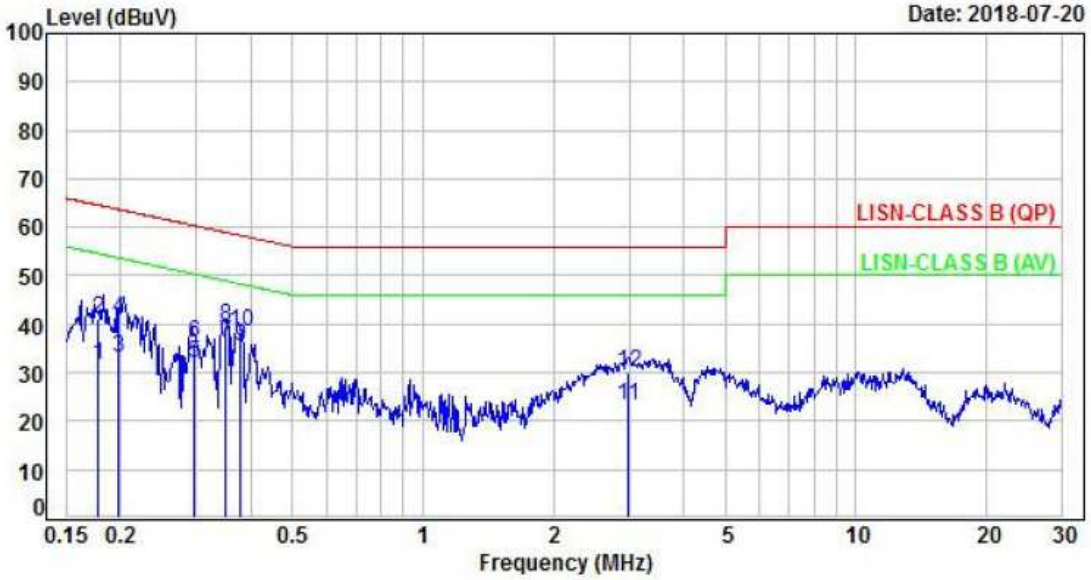
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 1, Band 1	Temperature	:	20 °C
Test Date	:	Jul. 20, 2018	Humidity	:	40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.17	9.70	21.56	31.26	55.21	-23.95	Average	P
2	0.17	9.70	32.78	42.48	65.21	-22.73	QP	P
3	0.18	9.69	21.48	31.17	54.37	-23.20	Average	P
4	0.18	9.69	30.83	40.52	64.37	-23.85	QP	P
5	0.20	9.69	20.61	30.30	53.51	-23.21	Average	P
6	0.20	9.69	30.07	39.76	63.51	-23.75	QP	P
7	0.23	9.69	16.76	26.45	52.57	-26.12	Average	P
8	0.23	9.69	26.26	35.95	62.57	-26.62	QP	P
9	0.35	9.70	23.42	33.12	48.93	-15.81	Average	P
10	0.35	9.70	26.54	36.24	58.93	-22.69	QP	P
11	4.43	9.85	10.20	20.05	46.00	-25.95	Average	P
12	4.43	9.85	18.52	28.37	56.00	-27.63	QP	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator

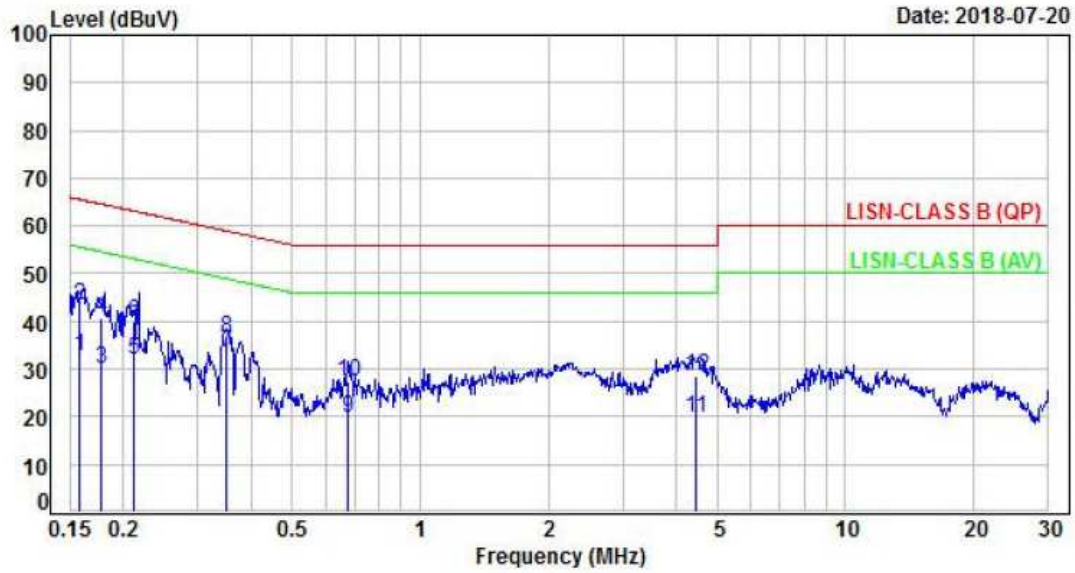
Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 1, Band 1	Temperature	:	20 °C
Test Date	:	Jul. 20, 2018	Humidity	:	40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.18	9.70	22.01	31.71	54.58	-22.87	Average	P
2	0.18	9.70	31.46	41.16	64.58	-23.42	QP	P
3	0.20	9.70	23.43	33.13	53.66	-20.53	Average	P
4	0.20	9.70	31.25	40.95	63.66	-22.71	QP	P
5	0.30	9.69	22.18	31.87	50.34	-18.47	Average	P
6	0.30	9.69	26.53	36.22	60.34	-24.12	QP	P
7	0.35	9.70	26.51	36.21	48.98	-12.77	Average	P
8	0.35	9.70	29.81	39.51	58.98	-19.47	QP	P
9	0.38	9.70	25.68	35.38	48.29	-12.91	Average	P
10	0.38	9.70	28.69	38.39	58.29	-19.90	QP	P
11	2.97	9.83	13.23	23.06	46.00	-22.94	Average	P
12	2.97	9.83	20.05	29.88	56.00	-26.12	QP	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator

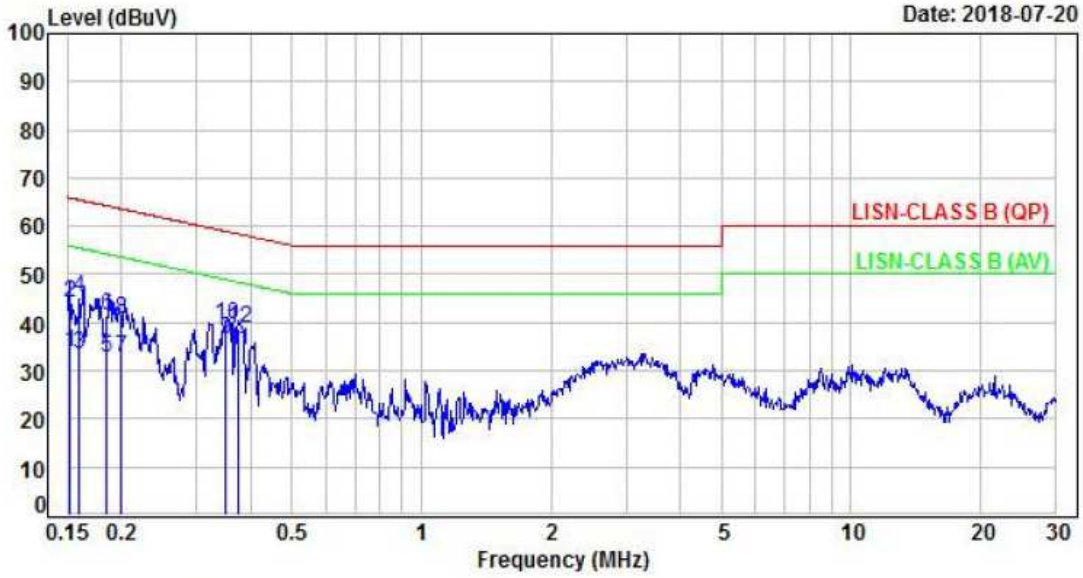
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 1, Band 4	Temperature	:	20 °C
Test Date	:	Jul. 20, 2018	Humidity	:	40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.16	9.70	22.96	32.66	55.57	-22.91	Average	P
2	0.16	9.70	33.52	43.22	65.57	-22.35	QP	P
3	0.18	9.69	20.33	30.02	54.62	-24.60	Average	P
4	0.18	9.69	31.05	40.74	64.62	-23.88	QP	P
5	0.21	9.69	22.25	31.94	53.16	-21.22	Average	P
6	0.21	9.69	30.15	39.84	63.16	-23.32	QP	P
7	0.35	9.70	23.74	33.44	48.95	-15.51	Average	P
8	0.35	9.70	26.73	36.43	58.95	-22.52	QP	P
9	0.68	9.71	10.24	19.95	46.00	-26.05	Average	P
10	0.68	9.71	17.76	27.47	56.00	-28.53	QP	P
11	4.44	9.85	9.92	19.77	46.00	-26.23	Average	P
12	4.44	9.85	18.49	28.34	56.00	-27.66	QP	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	:	Jul. 20, 2018	Humidity	:	40 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.15	9.70	24.32	34.02	55.93	-21.91	Average	P
2	0.15	9.70	34.24	43.94	65.93	-21.99	QP	P
3	0.16	9.70	23.94	33.64	55.47	-21.83	Average	P
4	0.16	9.70	35.48	45.18	65.47	-20.29	QP	P
5	0.18	9.70	22.91	32.61	54.28	-21.67	Average	P
6	0.18	9.70	31.76	41.46	64.28	-22.82	QP	P
7	0.20	9.70	22.96	32.66	53.62	-20.96	Average	P
8	0.20	9.70	30.84	40.54	63.62	-23.08	QP	P
9	0.35	9.70	26.68	36.38	48.97	-12.59	Average	P
10	0.35	9.70	29.80	39.50	58.97	-19.47	QP	P
11	0.37	9.70	24.39	34.09	48.41	-14.32	Average	P
12	0.37	9.70	29.12	38.82	58.41	-19.59	QP	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.

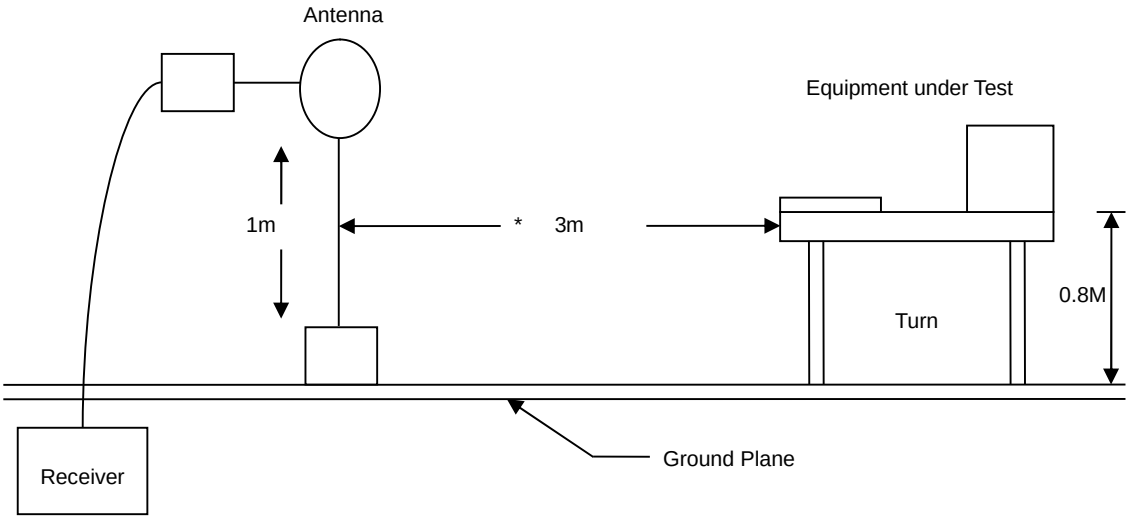
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

6.2. Test Procedures

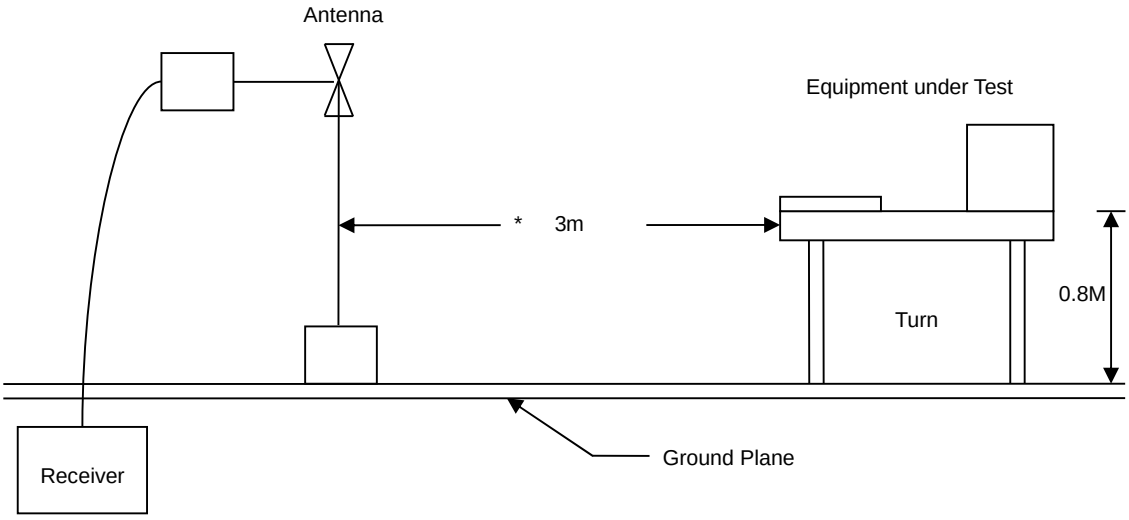
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna 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

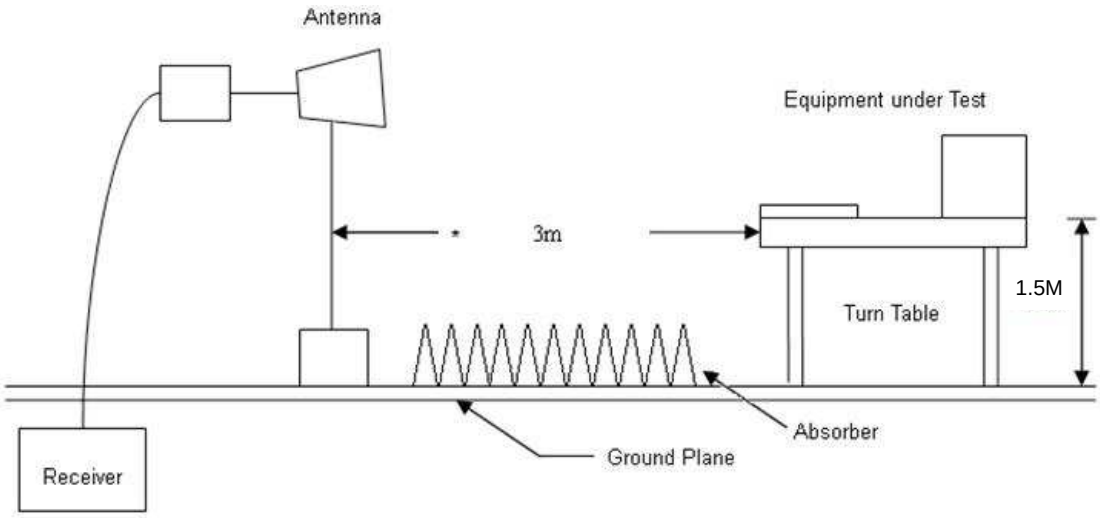
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

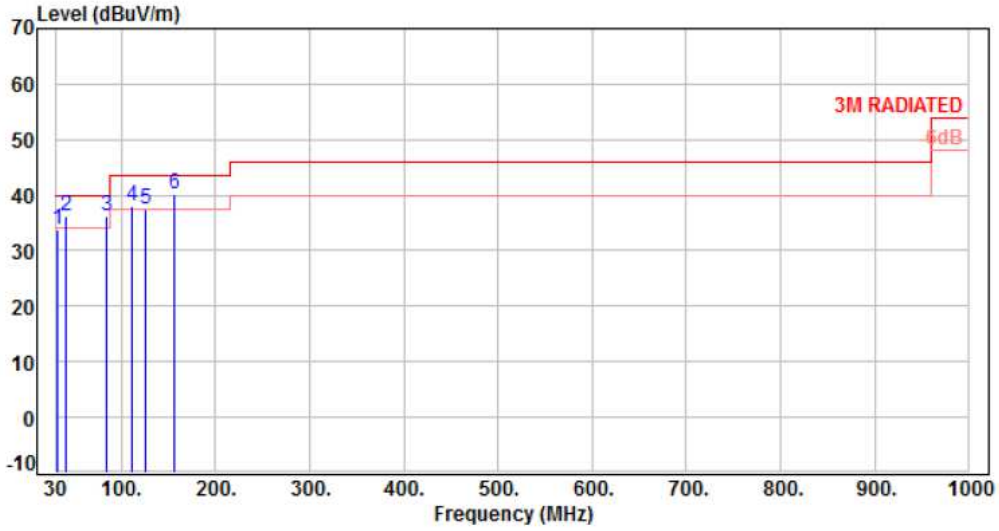


6.4. Test Result and Data (9kHz ~ 30MHz)

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

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

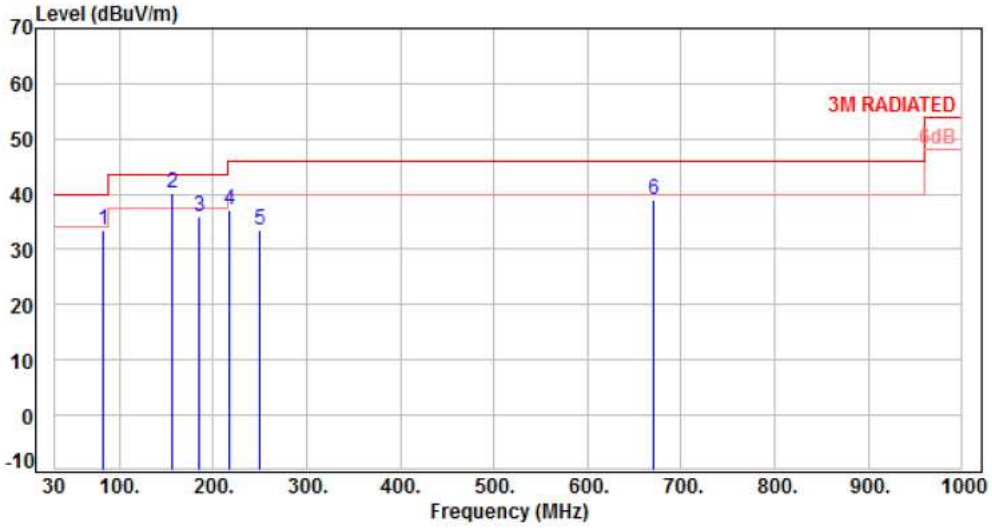
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	32.91	-11.64	45.32	33.68	40.00	-6.32	QP	100	182	P
2	41.64	-11.01	47.13	36.12	40.00	-3.88	QP	100	144	P
3	84.32	-15.85	52.19	36.34	40.00	-3.66	Peak	400	0	P
4	111.48	-14.08	52.21	38.13	43.50	-5.37	Peak	400	0	P
5	125.06	-12.88	50.23	37.35	43.50	-6.15	Peak	400	0	P
6	156.10	-10.93	51.13	40.20	43.50	-3.30	QP	100	17	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

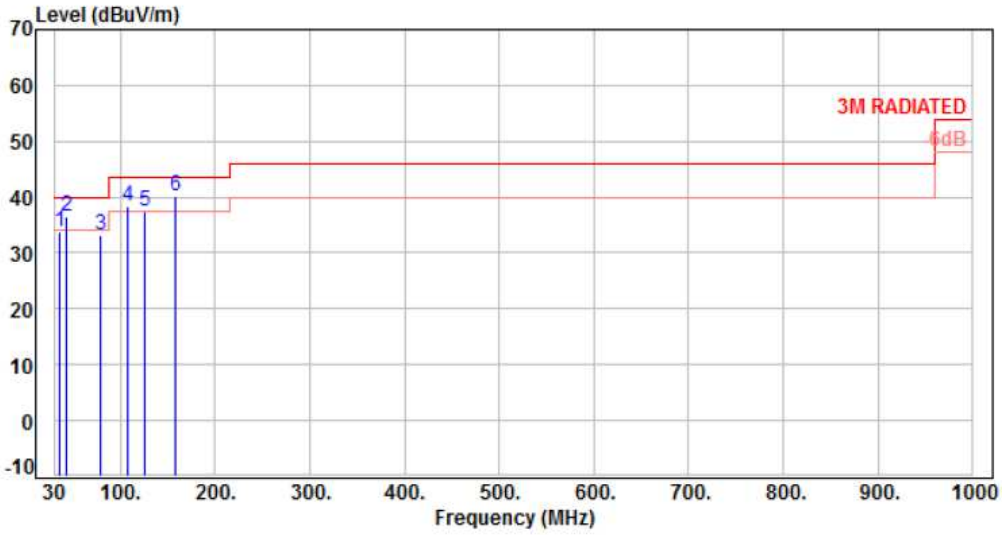
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	83.35	-15.71	49.27	33.56	40.00	-6.44	Peak	100	0	P
2	156.10	-10.93	51.12	40.19	43.50	-3.31	QP	147	132	P
3	184.23	-12.44	48.26	35.82	43.50	-7.68	Peak	100	0	P
4	217.21	-12.90	49.94	37.04	46.00	-8.96	Peak	100	0	P
5	250.19	-11.64	45.17	33.53	46.00	-12.47	Peak	100	0	P
6	671.17	-1.81	40.66	38.85	46.00	-7.15	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

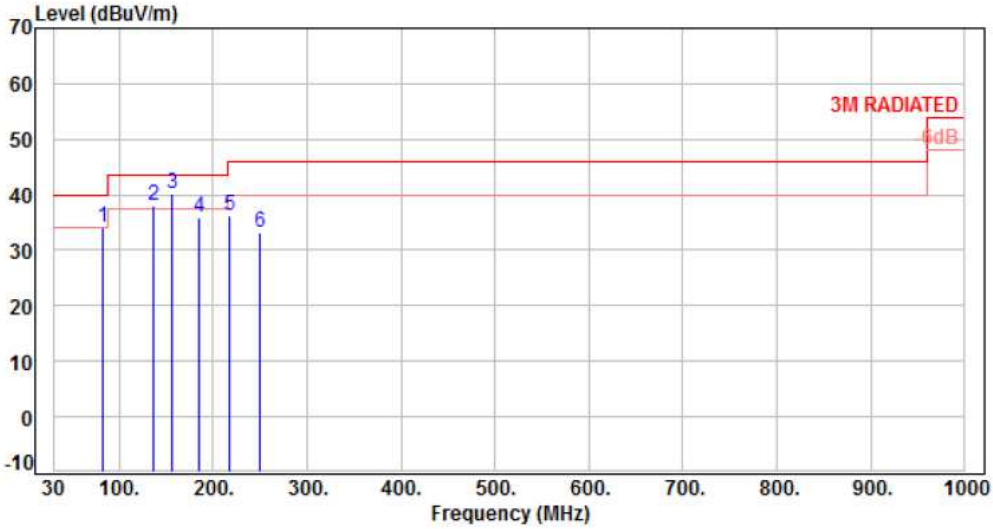
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	35.82	-11.55	45.33	33.78	40.00	-6.22	QP	100	182	P
2	43.58	-10.86	47.31	36.45	40.00	-3.55	QP	100	144	P
3	79.47	-15.08	48.30	33.22	40.00	-6.78	QP	100	23	P
4	107.60	-14.62	52.92	38.30	43.50	-5.20	Peak	400	0	P
5	125.06	-12.88	50.37	37.49	43.50	-6.01	Peak	400	0	P
6	158.04	-10.88	51.10	40.22	43.50	-3.28	QP	100	15	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

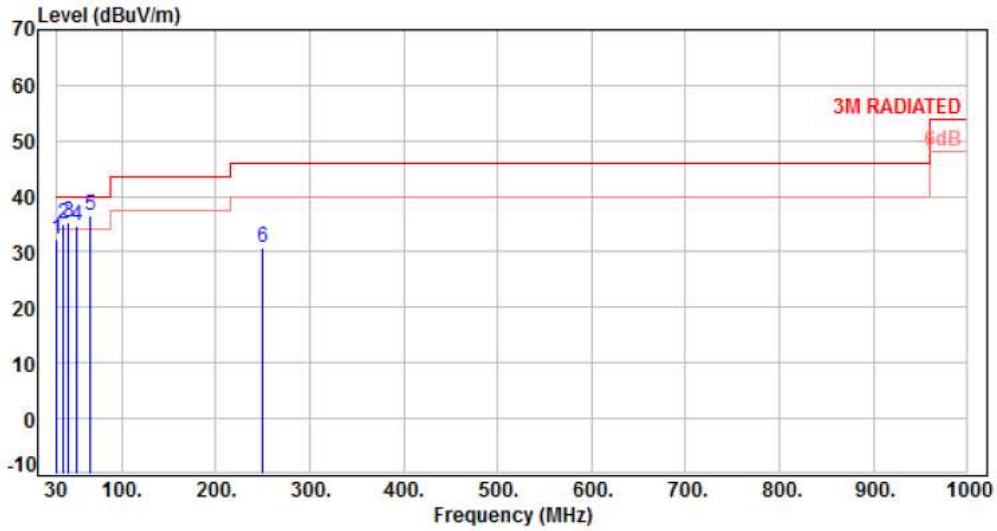
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	83.35	-15.71	49.92	34.21	40.00	-5.79	Peak	100	0	P
2	135.73	-11.81	49.89	38.08	43.50	-5.42	Peak	100	0	P
3	156.10	-10.93	51.02	40.09	43.50	-3.41	QP	151	135	P
4	184.23	-12.44	48.43	35.99	43.50	-7.51	Peak	100	0	P
5	217.21	-12.90	49.27	36.37	46.00	-9.63	Peak	100	0	P
6	250.19	-11.64	44.69	33.05	46.00	-12.95	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

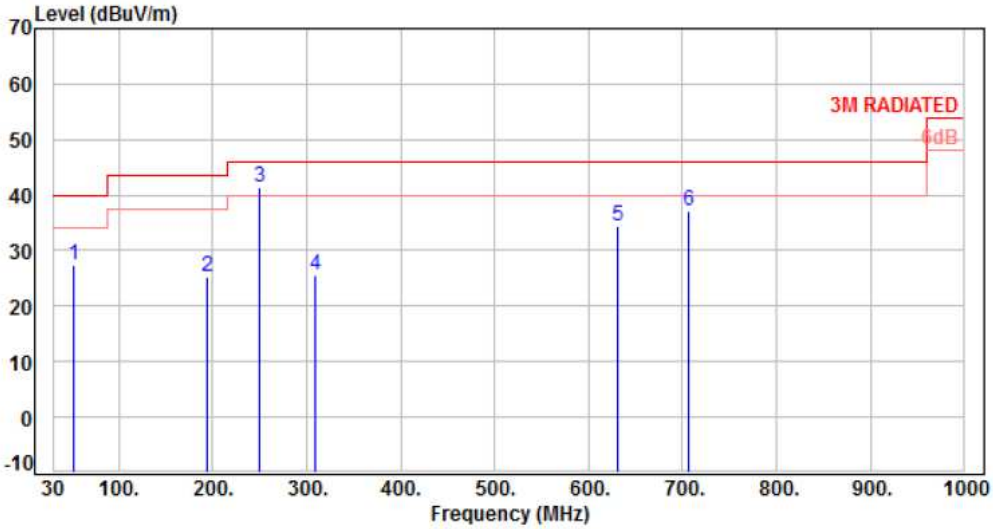
Power	:	PoE	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-11.65	43.90	32.25	40.00	-7.75	QP	100	350	P
2	36.79	-11.44	46.59	35.15	40.00	-4.85	QP	100	299	P
3	43.58	-10.86	46.10	35.24	40.00	-4.76	QP	100	292	P
4	51.34	-10.69	45.33	34.64	40.00	-5.36	QP	100	337	P
5	65.89	-12.21	48.79	36.58	40.00	-3.42	Peak	400	0	P
6	250.19	-11.64	42.37	30.73	46.00	-15.27	Peak	400	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

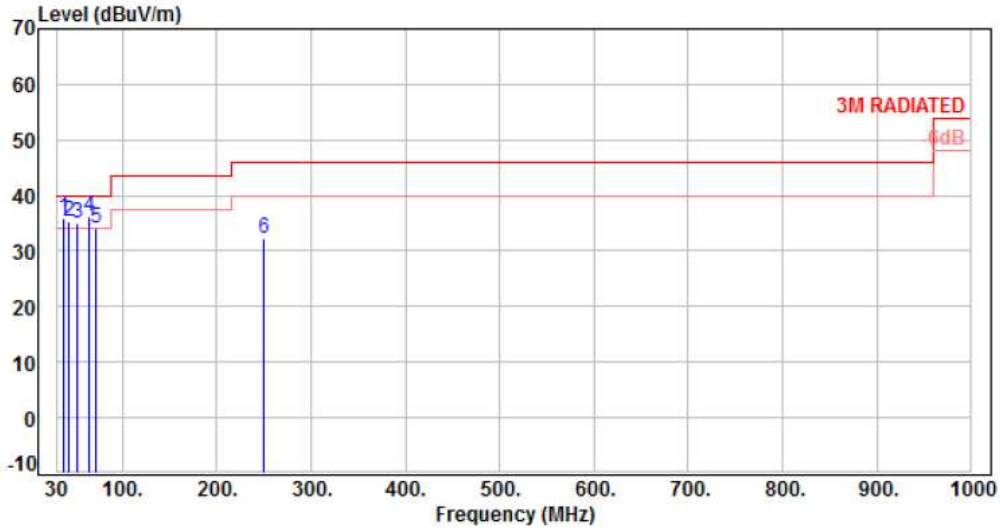
Power	:	PoE	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	51.34	-10.69	38.14	27.45	40.00	-12.55	Peak	100	0	P
2	193.93	-12.95	38.27	25.32	43.50	-18.18	Peak	100	0	P
3	250.19	-11.64	53.16	41.52	46.00	-4.48	Peak	100	0	P
4	308.39	-9.65	35.26	25.61	46.00	-20.39	Peak	100	0	P
5	631.40	-2.41	36.70	34.29	46.00	-11.71	Peak	100	0	P
6	706.09	-1.19	38.30	37.11	46.00	-8.89	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

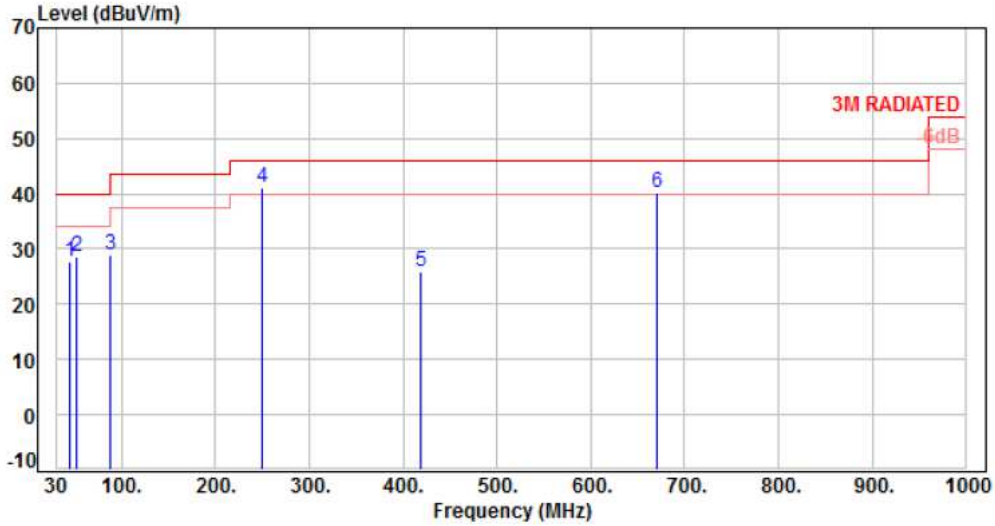
Power	:	PoE	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 5, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	36.88	-11.44	47.22	35.78	40.00	-4.22	QP	100	278	P
2	43.62	-10.86	46.11	35.25	40.00	-4.75	QP	100	293	P
3	51.52	-10.70	45.66	34.96	40.00	-5.04	QP	100	336	P
4	65.10	-12.07	48.24	36.17	40.00	-3.83	Peak	400	0	P
5	72.54	-13.48	47.65	34.17	40.00	-5.83	Peak	400	0	P
6	250.22	-11.64	43.85	32.21	46.00	-13.79	Peak	400	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	PoE	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 5, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %

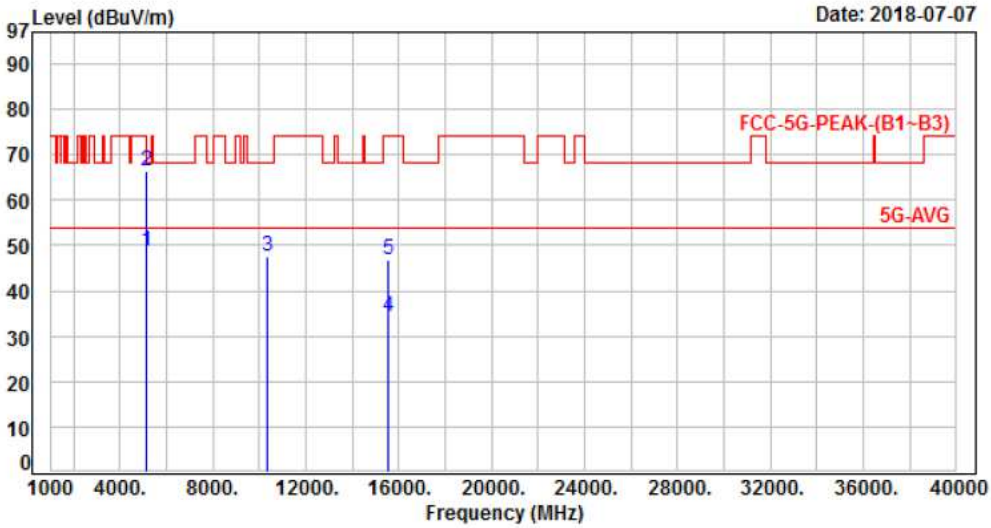


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	44.63	-10.79	38.51	27.72	40.00	-12.28	Peak	100	0	P
2	51.66	-10.71	39.24	28.53	40.00	-11.47	Peak	100	0	P
3	88.51	-16.47	45.46	28.99	43.50	-14.51	Peak	100	0	P
4	250.11	-11.64	52.67	41.03	46.00	-4.97	Peak	100	0	P
5	418.63	-6.62	32.66	26.04	46.00	-19.96	Peak	100	0	P
6	671.00	-1.82	41.89	40.07	46.00	-5.93	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)

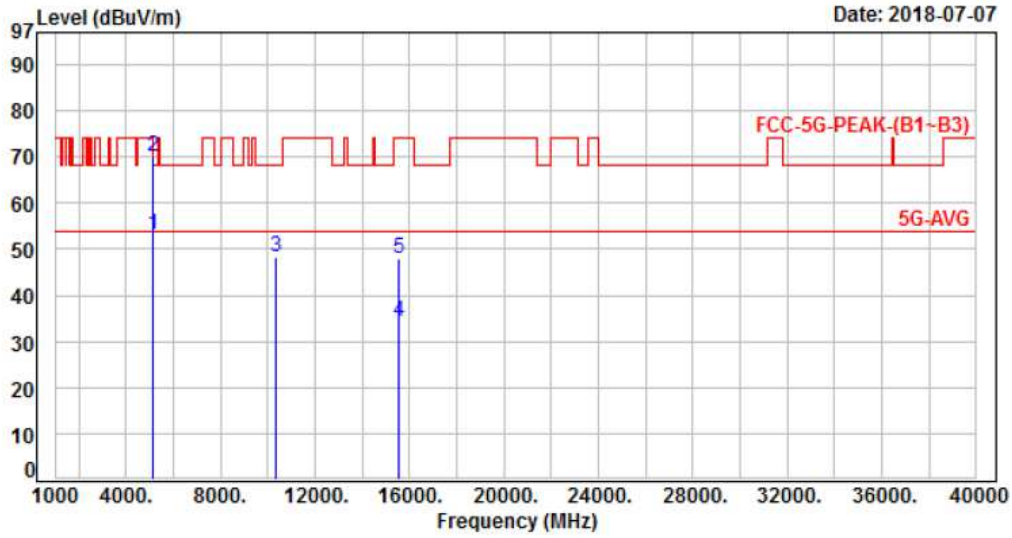
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH36, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	56.76	48.75	54.00	-5.25	Average	380	360	P
2	5150.00	-8.01	74.24	66.23	74.00	-7.77	Peak	380	360	P
3	10360.00	-0.89	48.55	47.66	68.20	-20.54	Peak	100	350	P
4	15540.00	4.33	29.86	34.19	54.00	-19.81	Average	100	100	P
5	15540.00	4.33	42.37	46.70	74.00	-27.30	Peak	100	100	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

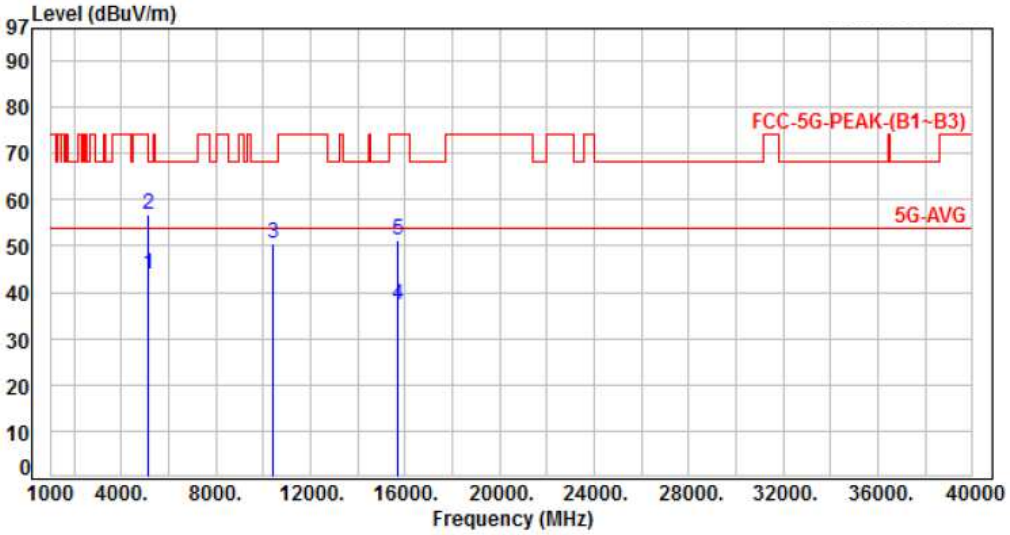
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH36, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	61.00	52.99	54.00	-1.01	Average	186	287	P
2	5150.00	-8.01	78.05	70.04	74.00	-3.96	Peak	186	287	P
3	10360.00	-0.89	49.21	48.32	68.20	-19.88	Peak	100	78	P
4	15540.00	4.33	30.04	34.37	54.00	-19.63	Average	100	360	P
5	15540.00	4.33	43.75	48.08	74.00	-25.92	Peak	100	360	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

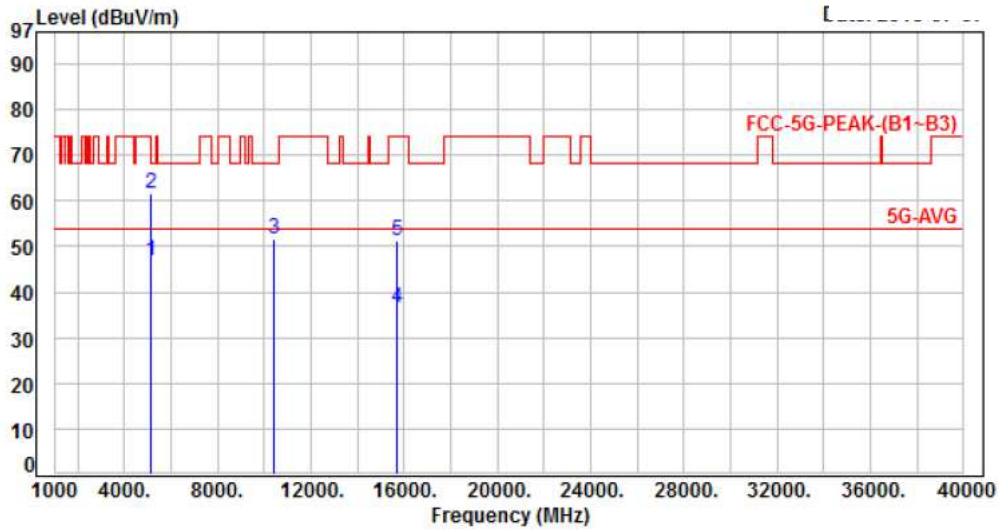
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH44, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.06	44.05	54.00	-9.95	Average	325	325	P
2	5150.00	-8.01	64.93	56.92	74.00	-17.08	Peak	325	325	P
3	10440.00	-0.82	51.20	50.38	68.20	-17.82	Peak	100	315	P
4	15660.00	4.39	32.75	37.14	54.00	-16.86	Average	204	315	P
5	15660.00	4.39	46.74	51.13	74.00	-22.87	Peak	204	315	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

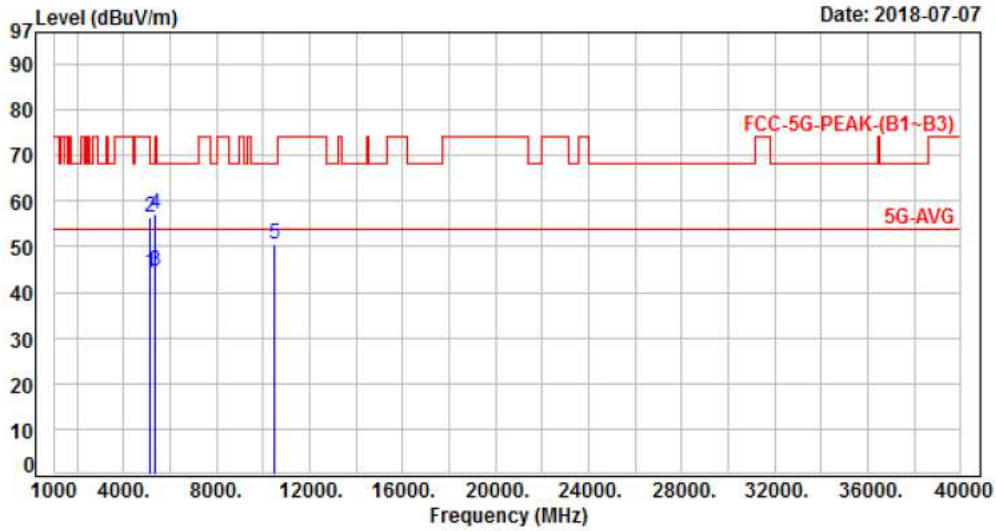
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH44, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	54.99	46.98	54.00	-7.02	Average	396	280	P
2	5150.00	-8.01	69.51	61.50	74.00	-12.50	Peak	396	280	P
3	10440.00	-0.82	52.36	51.54	68.20	-16.66	Peak	100	70	P
4	15660.00	4.39	32.27	36.66	54.00	-17.34	Average	296	5	P
5	15660.00	4.39	47.06	51.45	74.00	-22.55	Peak	296	5	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

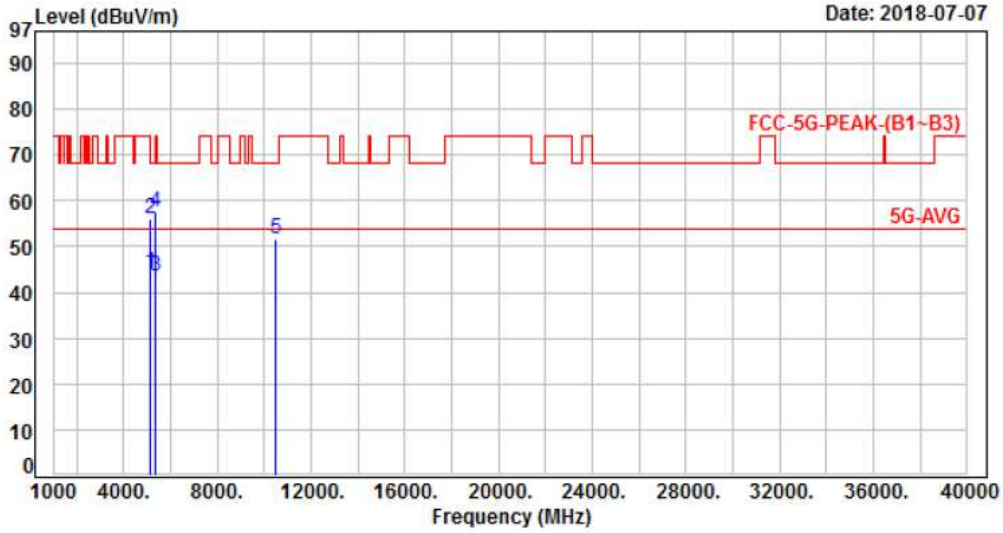
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH48, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.09	44.08	54.00	-9.92	Average	308	325	P
2	5150.00	-8.01	64.54	56.53	74.00	-17.47	Peak	308	325	P
3	5350.00	-7.67	52.18	44.51	54.00	-9.49	Average	308	325	P
4	5350.00	-7.67	64.68	57.01	74.00	-16.99	Peak	308	325	P
5	10480.00	-0.78	51.31	50.53	68.20	-17.67	Peak	191	317	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

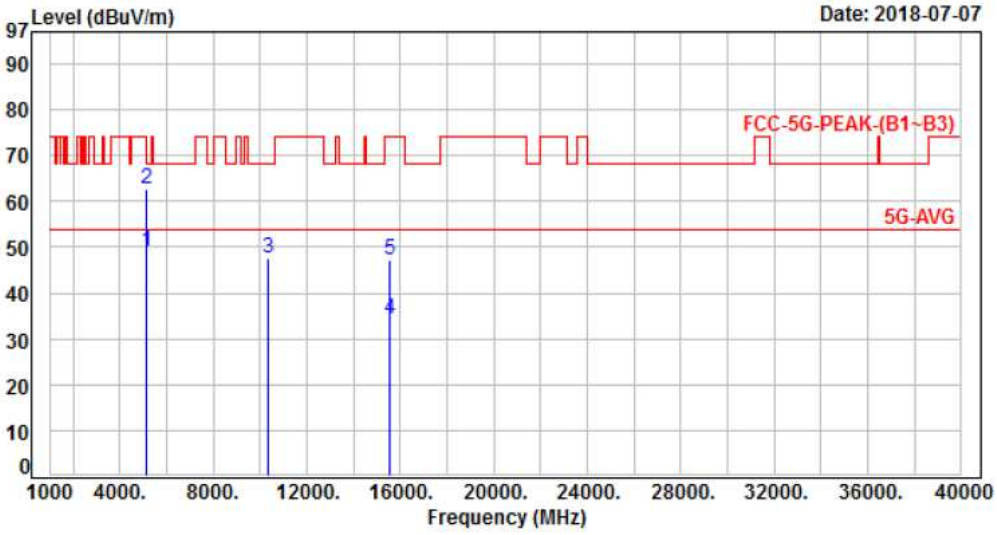
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH48, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.13	44.12	54.00	-9.88	Average	204	285	P
2	5150.00	-8.01	64.24	56.23	74.00	-17.77	Peak	204	285	P
3	5350.00	-7.67	51.02	43.35	54.00	-10.65	Average	204	285	P
4	5350.00	-7.67	65.04	57.37	74.00	-16.63	Peak	204	285	P
5	10480.00	-0.78	52.52	51.74	68.20	-16.46	Peak	100	73	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

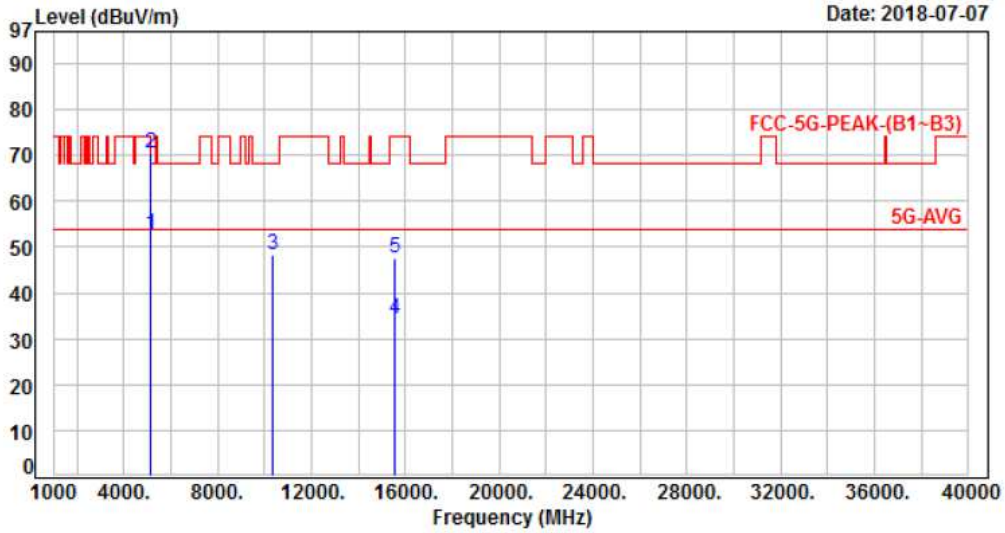
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH36, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	57.12	49.11	54.00	-4.89	Average	396	320	P
2	5150.00	-8.01	70.62	62.61	74.00	-11.39	Peak	396	320	P
3	10360.00	-0.89	48.31	47.42	68.20	-20.78	Peak	100	350	P
4	15540.00	4.33	30.10	34.43	54.00	-19.57	Average	100	100	P
5	15540.00	4.33	42.71	47.04	74.00	-26.96	Peak	100	100	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

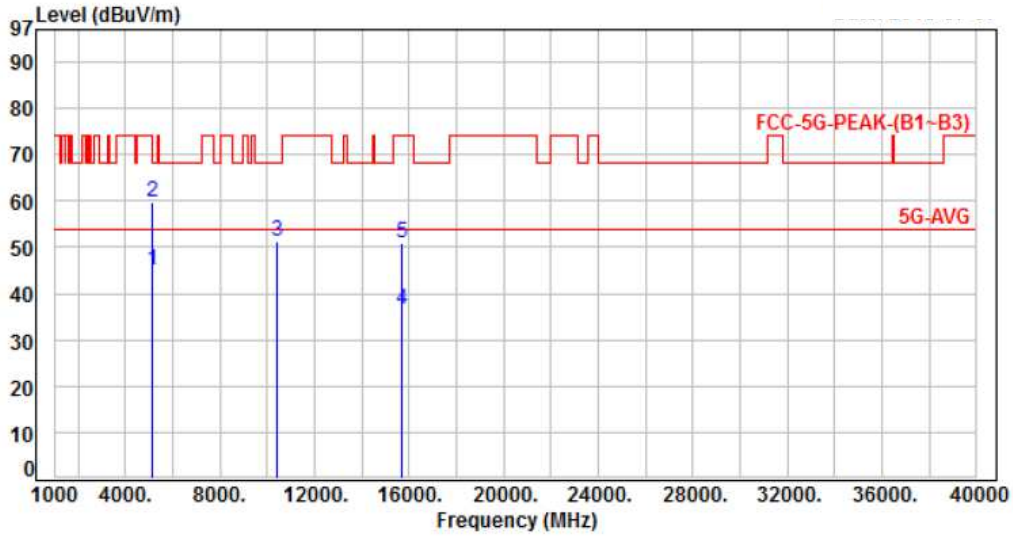
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH36, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	60.62	52.61	54.00	-1.39	Average	157	287	P
2	5150.00	-8.01	78.58	70.57	74.00	-3.43	Peak	157	287	P
3	10360.00	-0.89	49.27	48.38	68.20	-19.82	Peak	100	72	P
4	15540.00	4.33	30.10	34.43	54.00	-19.57	Average	100	358	P
5	15540.00	4.33	43.12	47.45	74.00	-26.55	Peak	100	358	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

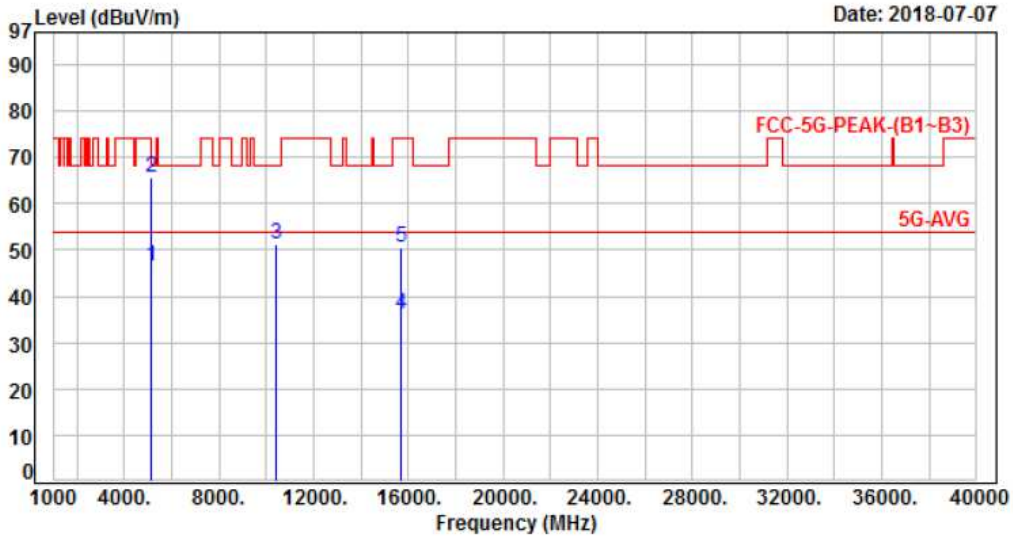
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH44, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.83	44.82	54.00	-9.18	Average	100	323	P
2	5150.00	-8.01	67.63	59.62	74.00	-14.38	Peak	100	323	P
3	10440.00	-0.82	52.16	51.34	68.20	-16.86	Peak	100	311	P
4	15660.00	4.39	31.97	36.36	54.00	-17.64	Average	205	315	P
5	15660.00	4.39	46.63	51.02	74.00	-22.98	Peak	205	315	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

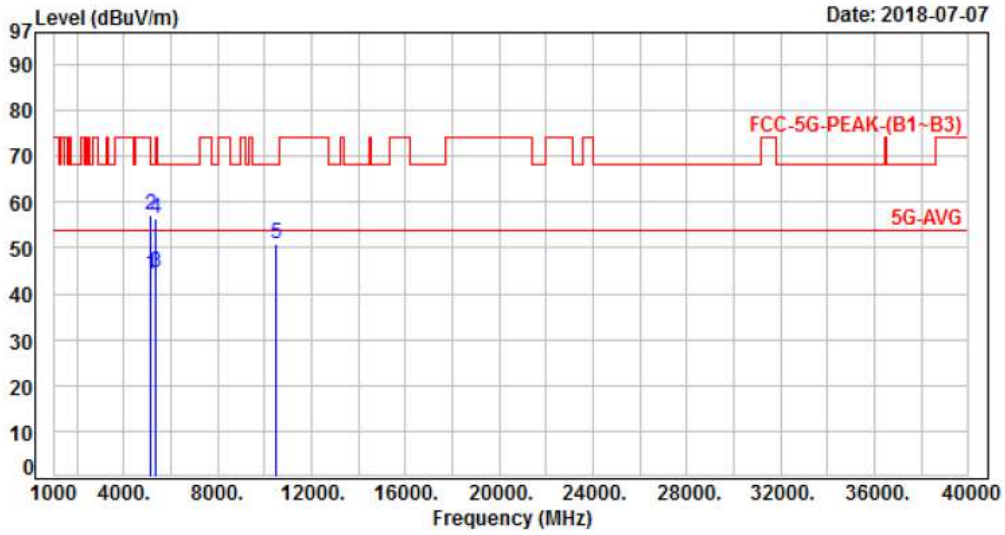
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH44, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	54.64	46.63	54.00	-7.37	Average	100	284	P
2	5150.00	-8.01	73.58	65.57	74.00	-8.43	Peak	100	284	P
3	10440.00	-0.82	51.93	51.11	68.20	-17.09	Peak	100	72	P
4	15660.00	4.39	31.89	36.28	54.00	-17.72	Average	320	5	P
5	15660.00	4.39	46.19	50.58	74.00	-23.42	Peak	320	5	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

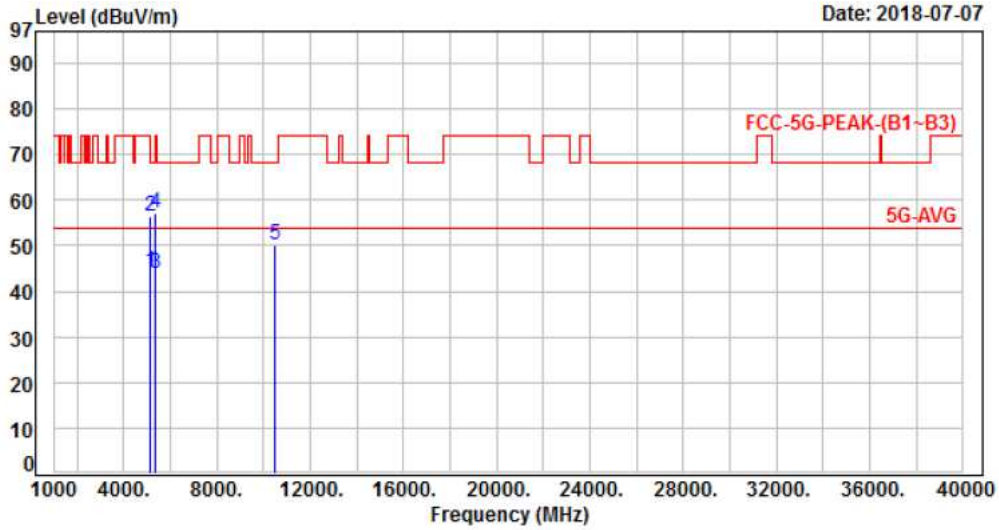
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH48, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.36	44.35	54.00	-9.65	Average	310	325	P
2	5150.00	-8.01	65.18	57.17	74.00	-16.83	Peak	310	325	P
3	5350.00	-7.67	52.34	44.67	54.00	-9.33	Average	310	325	P
4	5350.00	-7.67	64.20	56.53	74.00	-17.47	Peak	310	325	P
5	10480.00	-0.78	51.82	51.04	68.20	-17.16	Peak	190	317	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

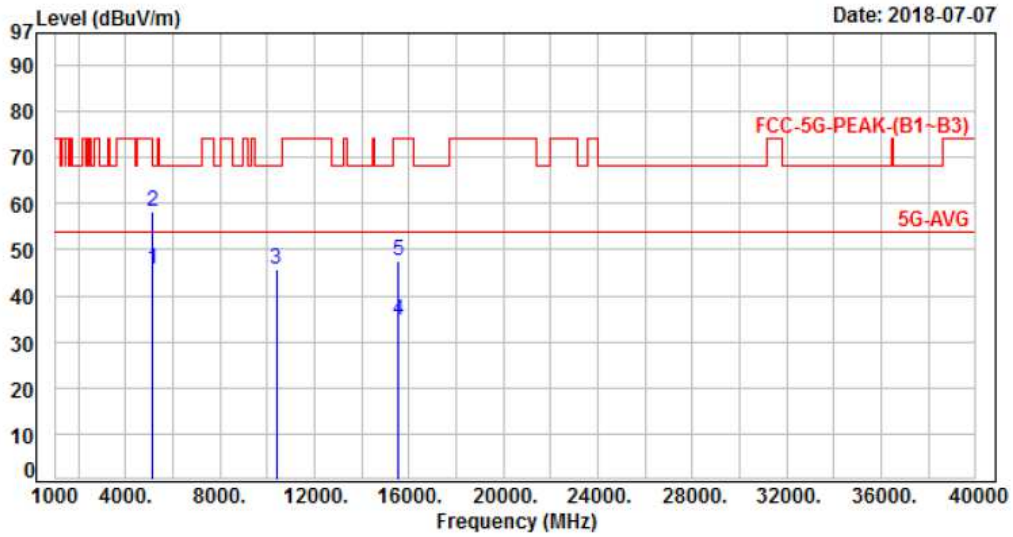
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH48, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	52.10	44.09	54.00	-9.91	Average	100	295	P
2	5150.00	-8.01	64.52	56.51	74.00	-17.49	Peak	100	295	P
3	5350.00	-7.67	51.42	43.75	54.00	-10.25	Average	100	295	P
4	5350.00	-7.67	64.79	57.12	74.00	-16.88	Peak	100	295	P
5	10480.00	-0.78	50.96	50.18	68.20	-18.02	Peak	100	72	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

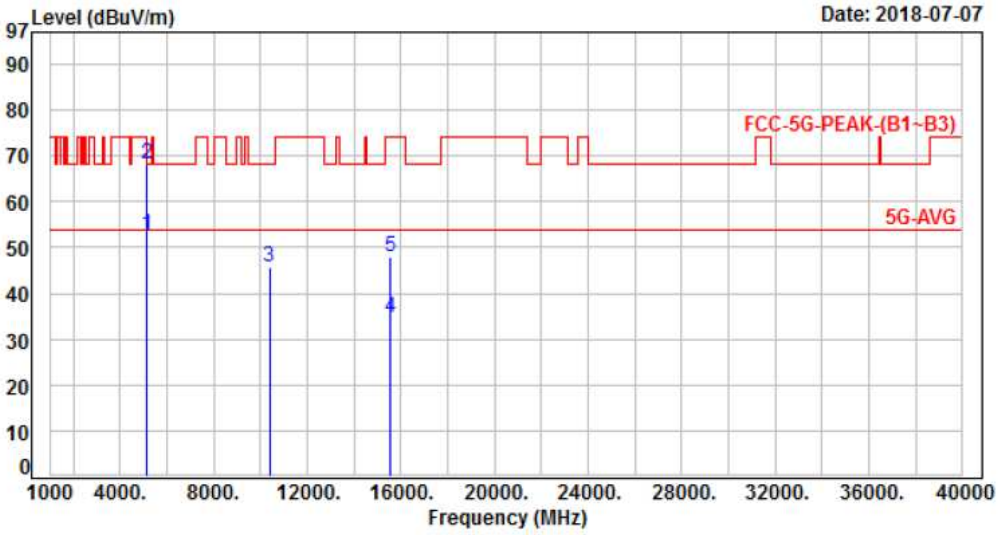
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH38, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	53.89	45.88	54.00	-8.12	Average	400	345	P
2	5150.00	-8.01	66.15	58.14	74.00	-15.86	Peak	400	345	P
3	10380.00	-0.87	46.73	45.86	68.20	-22.34	Peak	100	349	P
4	15570.00	4.34	30.31	34.65	54.00	-19.35	Average	100	100	P
5	15570.00	4.34	43.19	47.53	74.00	-26.47	Peak	100	100	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

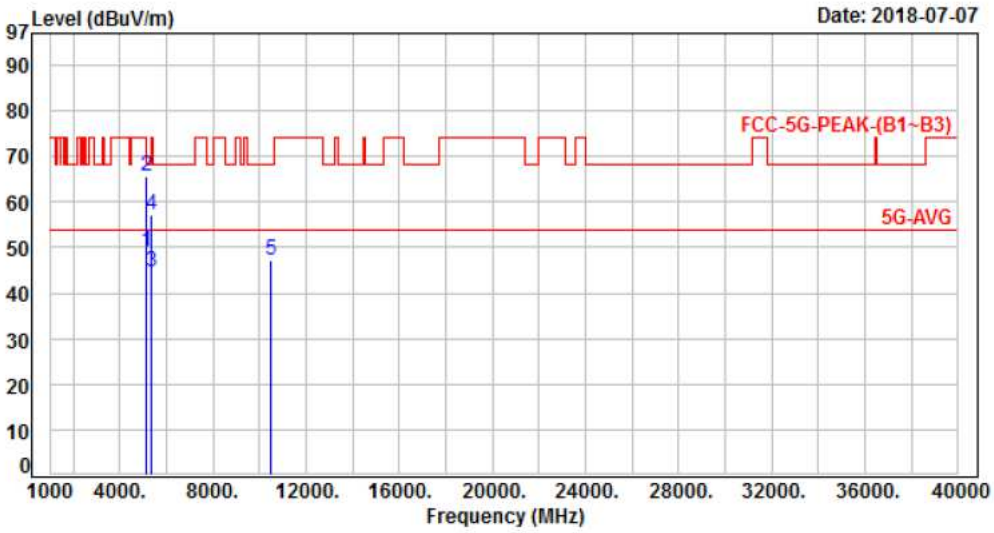
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH38, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	60.84	52.83	54.00	-1.17	Average	198	286	P
2	5150.00	-8.01	76.29	68.28	74.00	-5.72	Peak	198	286	P
3	10380.00	-0.87	46.44	45.57	68.20	-22.63	Peak	100	112	P
4	15570.00	4.34	30.26	34.60	54.00	-19.40	Average	100	360	P
5	15570.00	4.34	43.56	47.90	74.00	-26.10	Peak	100	360	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

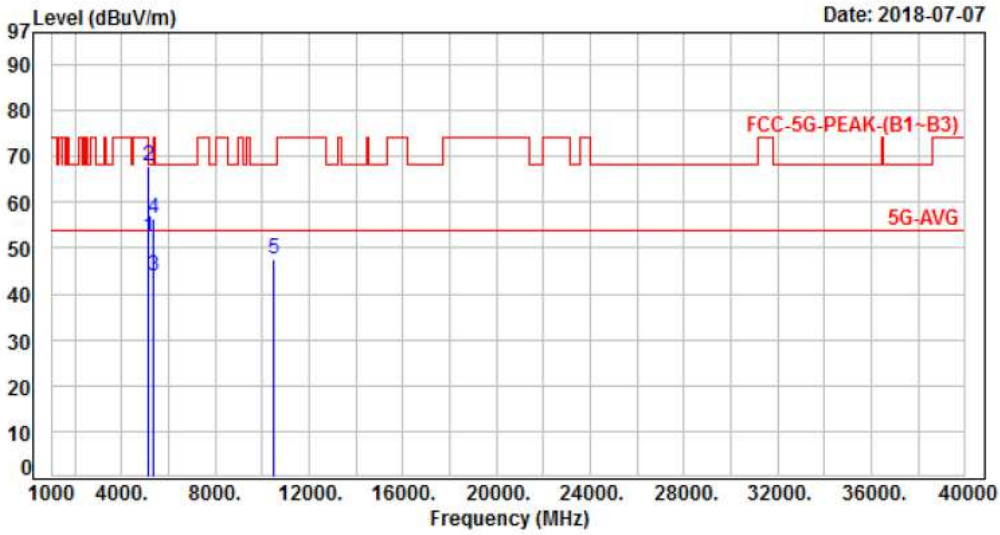
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH46, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	57.19	49.18	54.00	-4.82	Average	400	347	P
2	5150.00	-8.01	73.65	65.64	74.00	-8.36	Peak	400	347	P
3	5350.00	-7.67	52.21	44.54	54.00	-9.46	Average	400	347	P
4	5350.00	-7.67	64.89	57.22	74.00	-16.78	Peak	400	347	P
5	10460.00	-0.81	47.86	47.05	68.20	-21.15	Peak	100	345	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

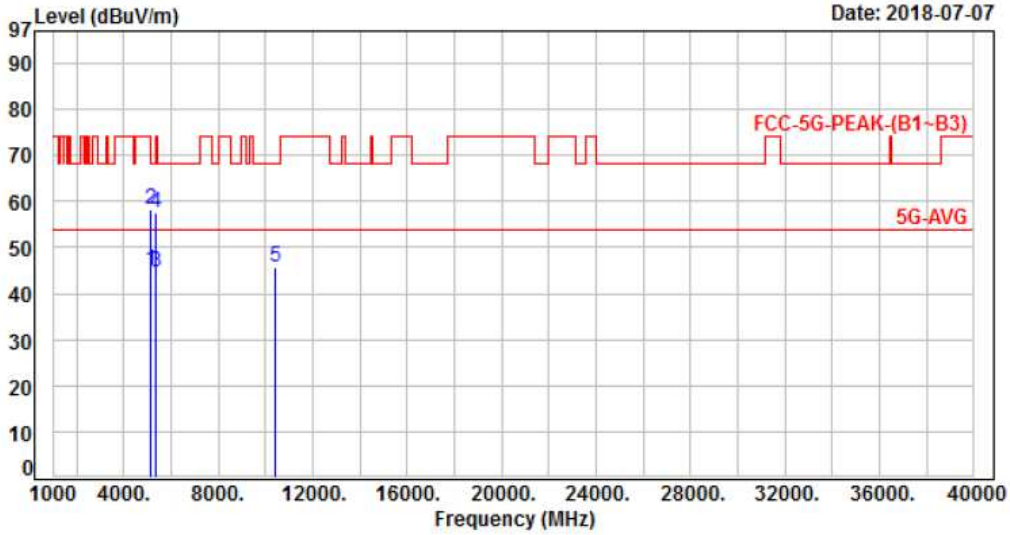
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH46, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	60.54	52.53	54.00	-1.47	Average	354	285	P
2	5150.00	-8.01	75.89	67.88	74.00	-6.12	Peak	354	285	P
3	5350.00	-7.67	51.56	43.89	54.00	-10.11	Average	354	285	P
4	5350.00	-7.67	64.18	56.51	74.00	-17.49	Peak	354	285	P
5	10460.00	-0.81	48.57	47.76	68.20	-20.44	Peak	100	70	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

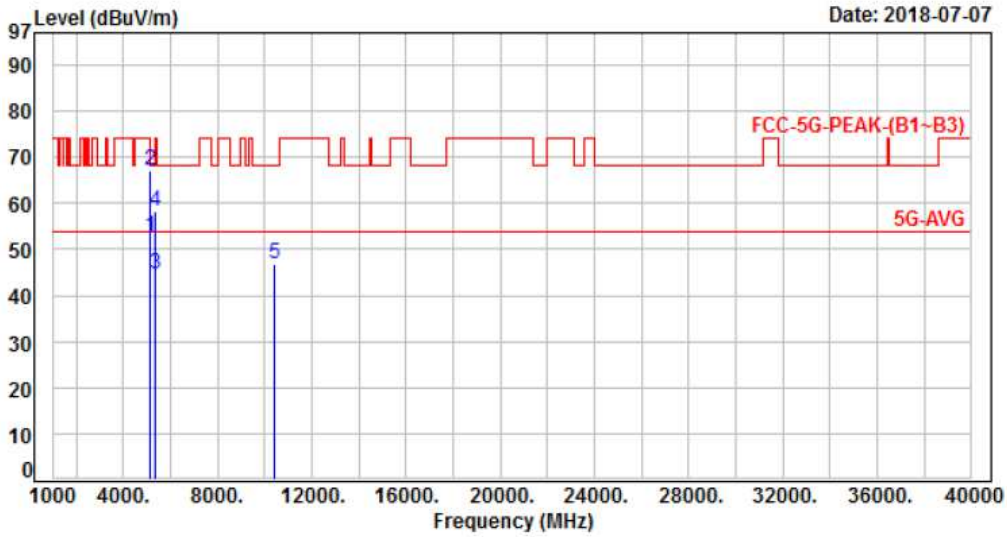
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH42, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	53.16	45.15	54.00	-8.85	Average	400	360	P
2	5150.00	-8.01	66.40	58.39	74.00	-15.61	Peak	400	360	P
3	5350.00	-7.67	52.45	44.78	54.00	-9.22	Average	400	360	P
4	5350.00	-7.67	65.05	57.38	74.00	-16.62	Peak	400	360	P
5	10420.00	-0.84	46.68	45.84	68.20	-22.36	Peak	100	346	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

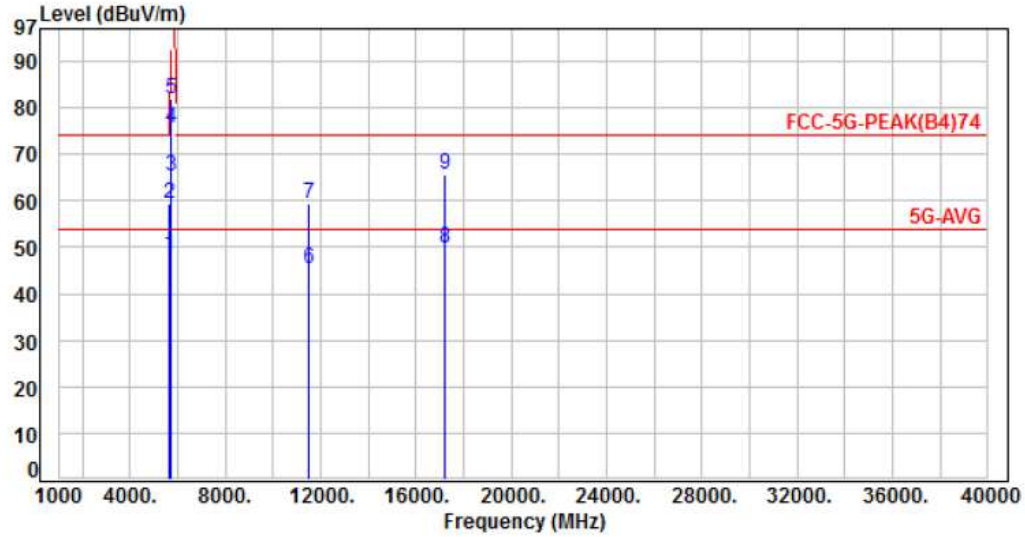
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH42, Band 1	Temperature	:	23 °C
Test Date	:	Jul. 07, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-8.01	60.60	52.59	54.00	-1.41	Average	212	285	P
2	5150.00	-8.01	75.00	66.99	74.00	-7.01	Peak	212	285	P
3	5350.00	-7.67	52.18	44.51	54.00	-9.49	Average	212	285	P
4	5350.00	-7.67	65.88	58.21	74.00	-15.79	Peak	212	285	P
5	10420.00	-0.84	47.50	46.66	68.20	-21.54	Peak	71	100	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

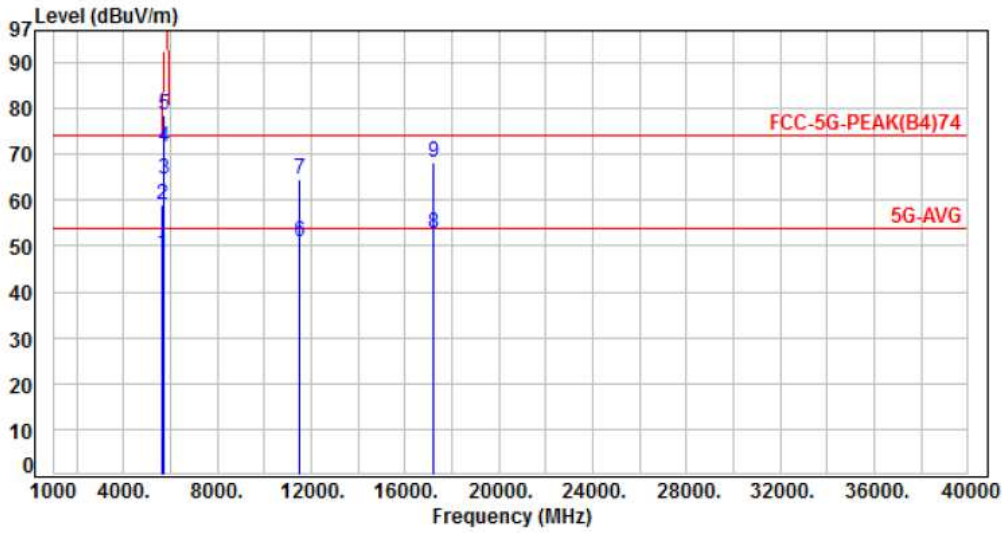
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH149, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.61	48.24	54.00	-5.76	Average	385	360	P
2	5650.00	-7.37	66.83	59.46	74.00	-14.54	Peak	385	360	P
3	5700.00	-7.35	72.54	65.19	105.20	-40.01	Peak	385	360	P
4	5720.00	-7.35	82.94	75.59	110.80	-35.21	Peak	385	360	P
5	5725.00	-7.35	89.38	82.03	122.20	-40.17	Peak	385	360	P
6	11490.00	0.78	44.44	45.22	54.00	-8.78	Average	373	331	P
7	11490.00	0.78	58.74	59.52	74.00	-14.48	Peak	373	331	P
8	17235.00	9.95	39.75	49.70	54.00	-4.30	Average	102	294	P
9	17235.00	9.95	55.83	65.78	74.00	-8.22	Peak	102	294	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

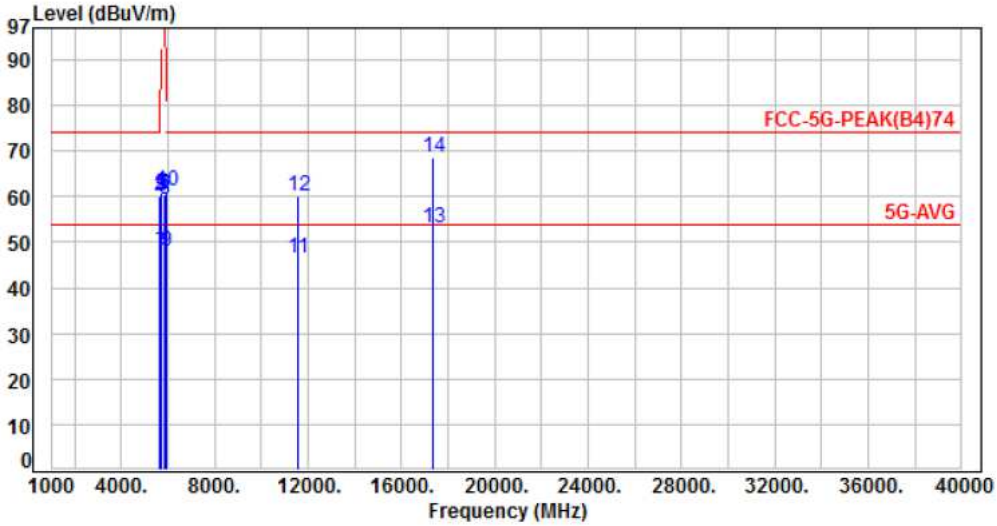
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH149, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.76	48.39	54.00	-5.61	Average	109	73	P
2	5650.00	-7.37	66.20	58.83	74.00	-15.17	Peak	109	73	P
3	5700.00	-7.35	71.80	64.45	105.20	-40.75	Peak	109	73	P
4	5720.00	-7.35	78.82	71.47	110.80	-39.33	Peak	109	73	P
5	5725.00	-7.35	86.07	78.72	122.20	-43.48	Peak	109	73	P
6	11490.00	0.78	50.29	51.07	54.00	-2.93	Average	197	35	P
7	11490.00	0.78	63.74	64.52	74.00	-9.48	Peak	197	35	P
8	17235.00	9.95	42.63	52.58	54.00	-1.42	Average	106	275	P
9	17235.00	9.95	58.14	68.09	74.00	-5.91	Peak	106	275	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

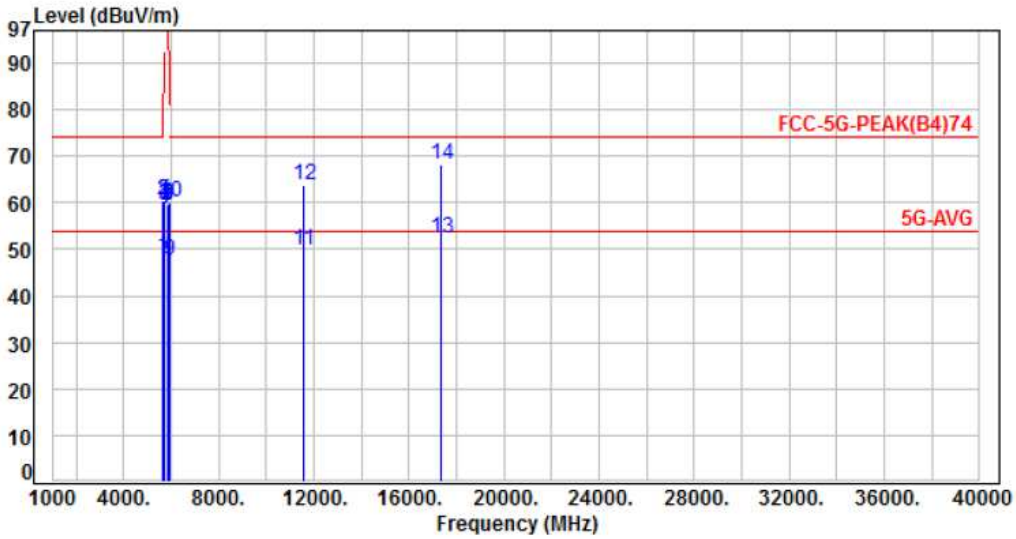
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH157, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.82	48.45	54.00	-5.55	Average	383	360	P
2	5650.00	-7.37	67.36	59.99	74.00	-14.01	Peak	383	360	P
3	5700.00	-7.35	67.33	59.98	105.20	-45.22	Peak	383	360	P
4	5720.00	-7.35	68.34	60.99	110.80	-49.81	Peak	383	360	P
5	5725.00	-7.35	67.71	60.36	122.20	-61.84	Peak	383	360	P
6	5850.00	-7.30	67.86	60.56	122.20	-61.64	Peak	383	360	P
7	5855.00	-7.30	67.40	60.10	110.80	-50.70	Peak	383	360	P
8	5875.00	-7.30	66.67	59.37	105.20	-45.83	Peak	383	360	P
9	5925.00	-7.28	55.27	47.99	54.00	-6.01	Average	383	360	P
10	5925.00	-7.28	68.44	61.16	74.00	-12.84	Peak	383	360	P
11	11570.00	0.85	45.61	46.46	54.00	-7.54	Average	364	329	P
12	11570.00	0.85	59.24	60.09	74.00	-13.91	Peak	364	329	P
13	17355.00	10.63	42.54	53.17	54.00	-0.83	Average	192	173	P
14	17355.00	10.63	57.79	68.42	74.00	-5.58	Peak	192	173	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

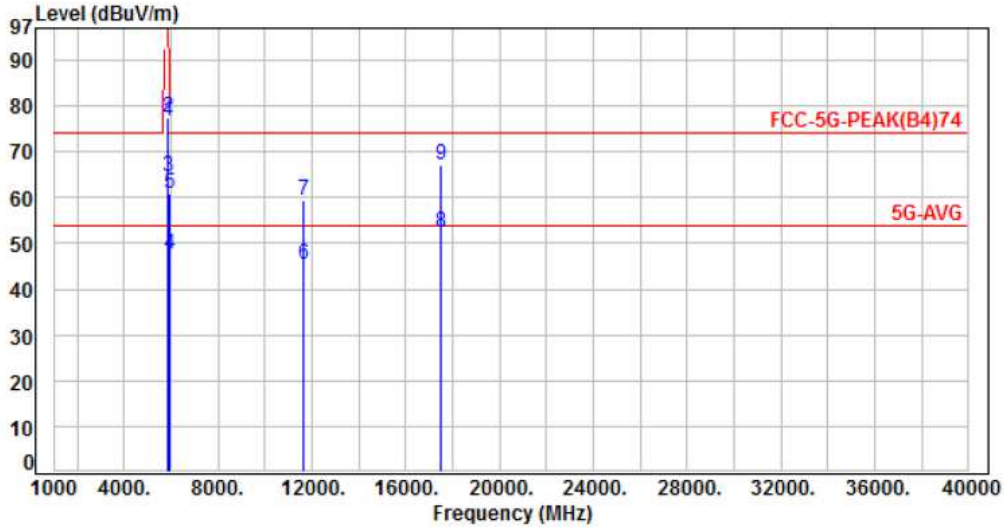
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH157, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.56	48.19	54.00	-5.81	Average	112	76	P
2	5650.00	-7.37	67.91	60.54	74.00	-13.46	Peak	112	76	P
3	5700.00	-7.35	66.75	59.40	105.20	-45.80	Peak	112	76	P
4	5720.00	-7.35	66.44	59.09	110.80	-51.71	Peak	112	76	P
5	5725.00	-7.35	67.99	60.64	122.20	-61.56	Peak	112	76	P
6	5850.00	-7.30	66.94	59.64	122.20	-62.56	Peak	112	76	P
7	5855.00	-7.30	66.10	58.80	110.80	-52.00	Peak	112	76	P
8	5875.00	-7.30	66.79	59.49	105.20	-45.71	Peak	112	76	P
9	5925.00	-7.28	55.02	47.74	54.00	-6.26	Average	112	76	P
10	5925.00	-7.28	67.35	60.07	74.00	-13.93	Peak	112	76	P
11	11570.00	0.85	48.95	49.80	54.00	-4.20	Average	183	38	P
12	11570.00	0.85	62.93	63.78	74.00	-10.22	Peak	183	38	P
13	17355.00	10.63	41.91	52.54	54.00	-1.46	Average	206	287	P
14	17355.00	10.63	57.73	68.36	74.00	-5.64	Peak	206	287	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

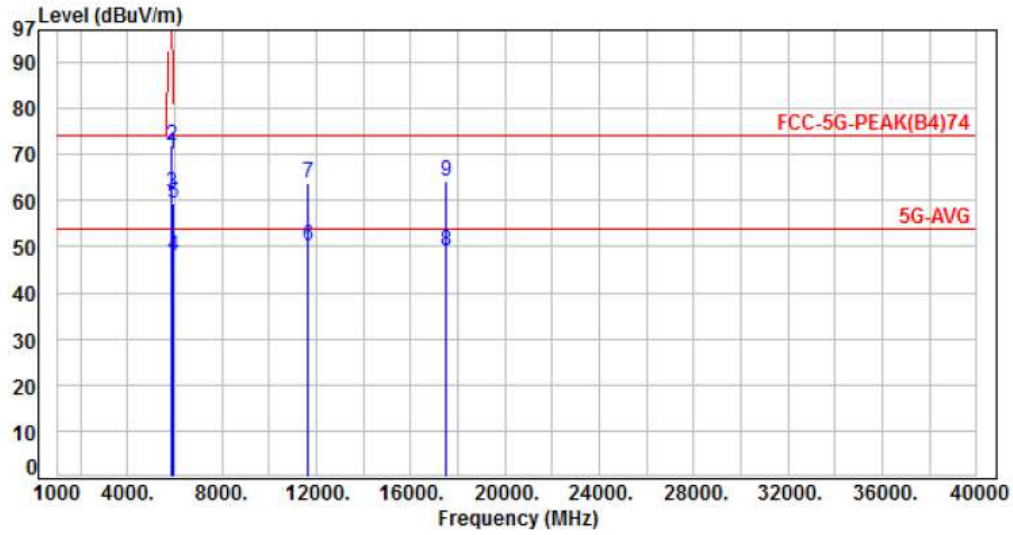
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH165, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-7.30	84.10	76.80	122.20	-45.40	Peak	378	360	P
2	5855.00	-7.30	84.57	77.27	110.80	-33.53	Peak	378	360	P
3	5875.00	-7.30	71.88	64.58	105.20	-40.62	Peak	378	360	P
4	5925.00	-7.28	54.84	47.56	54.00	-6.44	Average	378	360	P
5	5925.00	-7.28	67.98	60.70	74.00	-13.30	Peak	378	360	P
6	11650.00	0.91	44.30	45.21	54.00	-8.79	Average	375	326	P
7	11650.00	0.91	58.39	59.30	74.00	-14.70	Peak	375	326	P
8	17475.00	11.29	41.25	52.54	54.00	-1.46	Average	202	190	P
9	17475.00	11.29	55.73	67.02	74.00	-6.98	Peak	202	190	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

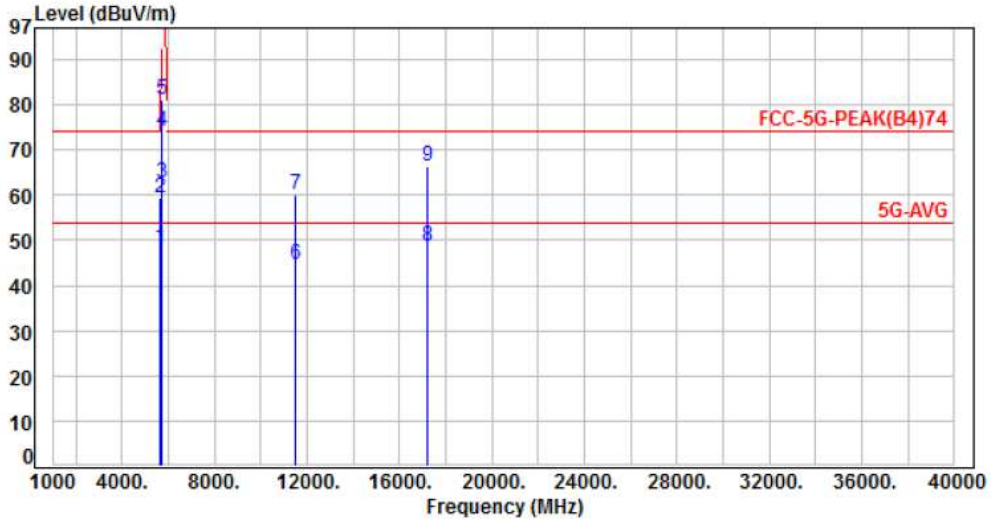
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH165, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-7.30	77.36	70.06	122.20	-52.14	Peak	108	82	P
2	5855.00	-7.30	79.26	71.96	110.80	-38.84	Peak	108	82	P
3	5875.00	-7.30	68.95	61.65	105.20	-43.55	Peak	108	82	P
4	5925.00	-7.28	55.18	47.90	54.00	-6.10	Average	108	82	P
5	5925.00	-7.28	66.79	59.51	74.00	-14.49	Peak	108	82	P
6	11650.00	0.91	49.11	50.02	54.00	-3.98	Average	197	33	P
7	11650.00	0.91	62.83	63.74	74.00	-10.26	Peak	197	33	P
8	17475.00	11.29	37.91	49.20	54.00	-4.80	Average	192	304	P
9	17475.00	11.29	52.92	64.21	74.00	-9.79	Peak	192	304	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

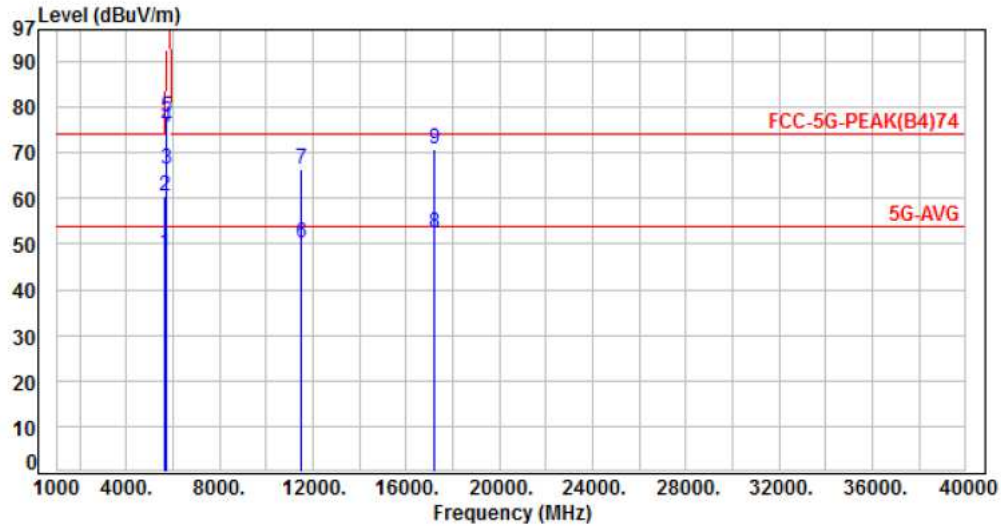
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH149, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.66	48.29	54.00	-5.71	Average	374	359	P
2	5650.00	-7.37	66.81	59.44	74.00	-14.56	Peak	374	359	P
3	5700.00	-7.35	69.92	62.57	105.20	-42.63	Peak	374	359	P
4	5720.00	-7.35	81.53	74.18	110.80	-36.62	Peak	374	359	P
5	5725.00	-7.35	88.57	81.22	122.20	-40.98	Peak	374	359	P
6	11490.00	0.78	43.88	44.66	54.00	-9.34	Average	203	360	P
7	11490.00	0.78	59.25	60.03	74.00	-13.97	Peak	203	360	P
8	17235.00	9.95	38.63	48.58	54.00	-5.42	Average	134	293	P
9	17235.00	9.95	56.39	66.34	74.00	-7.66	Peak	134	293	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

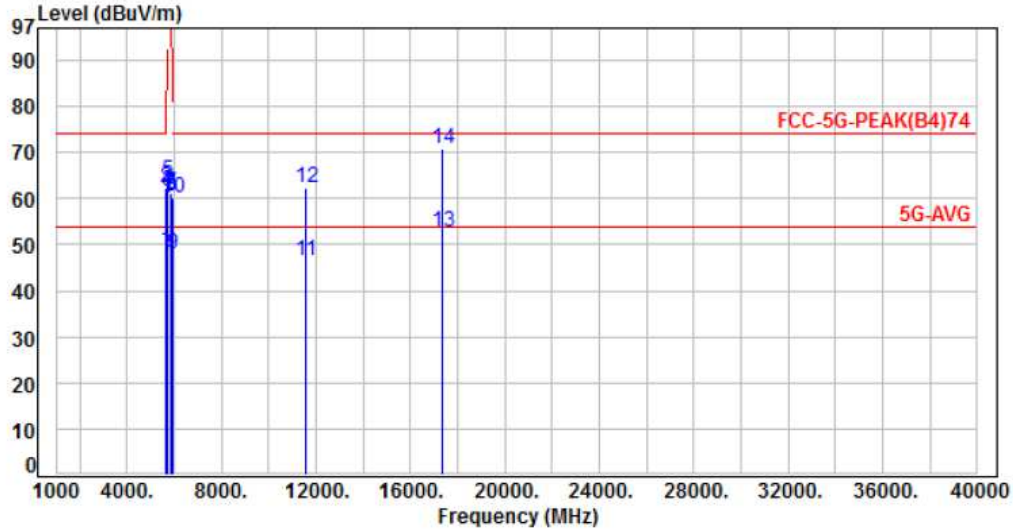
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH149, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.46	48.09	54.00	-5.91	Average	106	78	P
2	5650.00	-7.37	67.92	60.55	74.00	-13.45	Peak	106	78	P
3	5700.00	-7.35	73.69	66.34	105.20	-38.86	Peak	106	78	P
4	5720.00	-7.35	82.98	75.63	110.80	-35.17	Peak	106	78	P
5	5725.00	-7.35	85.33	77.98	122.20	-44.22	Peak	106	78	P
6	11490.00	0.78	49.52	50.30	54.00	-3.70	Average	156	282	P
7	11490.00	0.78	65.67	66.45	74.00	-7.55	Peak	156	282	P
8	17235.00	9.95	42.59	52.54	54.00	-1.46	Average	100	274	P
9	17235.00	9.95	60.87	70.82	74.00	-3.18	Peak	100	274	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

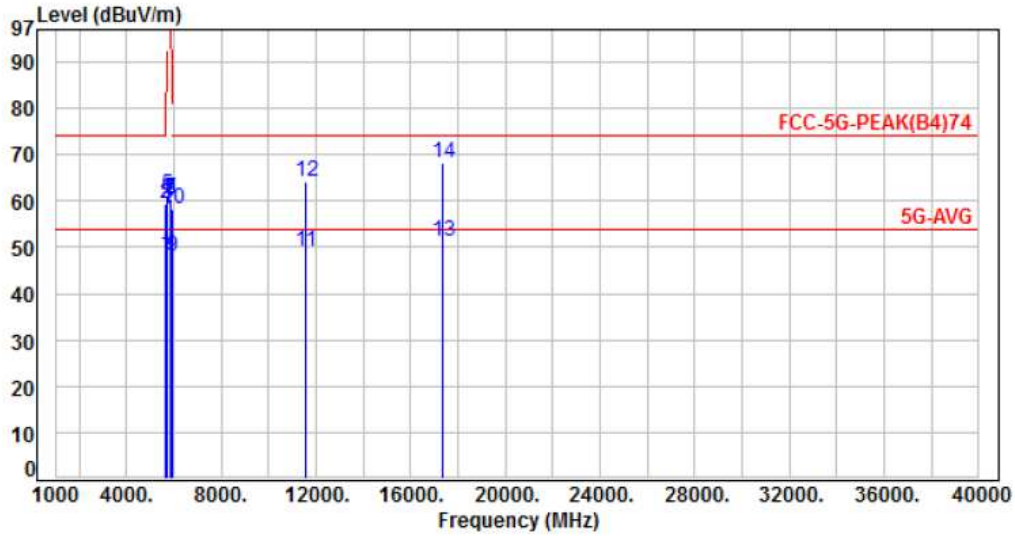
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH157, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.97	48.60	54.00	-5.40	Average	384	359	P
2	5650.00	-7.37	69.74	62.37	74.00	-11.63	Peak	384	359	P
3	5700.00	-7.35	68.83	61.48	105.20	-43.72	Peak	384	359	P
4	5720.00	-7.35	69.22	61.87	110.80	-48.93	Peak	384	359	P
5	5725.00	-7.35	71.25	63.90	122.20	-58.30	Peak	384	359	P
6	5850.00	-7.30	68.27	60.97	122.20	-61.23	Peak	384	359	P
7	5855.00	-7.30	68.34	61.04	110.80	-49.76	Peak	384	359	P
8	5875.00	-7.30	67.94	60.64	105.20	-44.56	Peak	384	359	P
9	5925.00	-7.28	55.38	48.10	54.00	-5.90	Average	384	359	P
10	5925.00	-7.28	67.44	60.16	74.00	-13.84	Peak	384	359	P
11	11570.00	0.85	45.64	46.49	54.00	-7.51	Average	363	329	P
12	11570.00	0.85	61.44	62.29	74.00	-11.71	Peak	363	329	P
13	17355.00	10.63	42.17	52.80	54.00	-1.20	Average	115	174	P
14	17355.00	10.63	60.32	70.95	74.00	-3.05	Peak	115	174	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

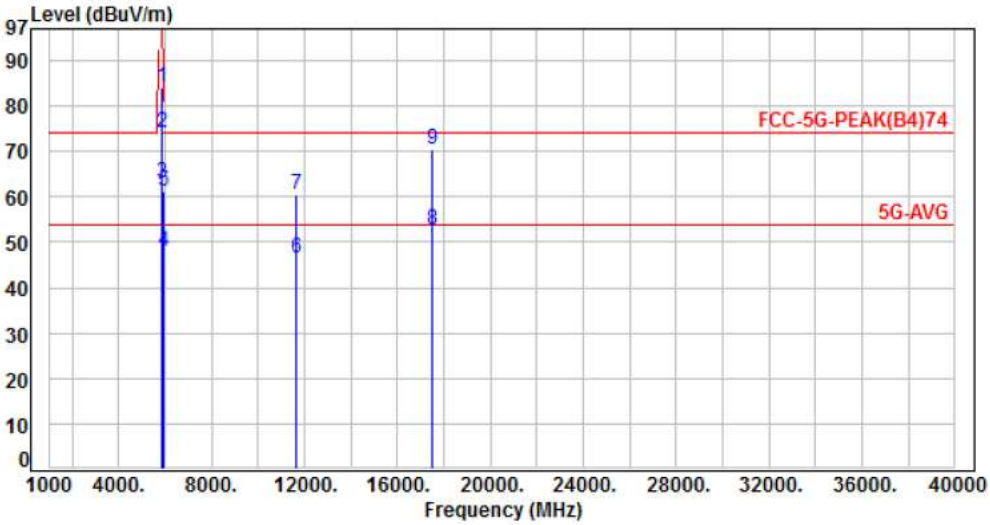
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH157, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.74	48.37	54.00	-5.63	Average	108	72	P
2	5650.00	-7.37	66.76	59.39	74.00	-14.61	Peak	108	72	P
3	5700.00	-7.35	66.91	59.56	105.20	-45.64	Peak	108	72	P
4	5720.00	-7.35	67.93	60.58	110.80	-50.22	Peak	108	72	P
5	5725.00	-7.35	68.50	61.15	122.20	-61.05	Peak	108	72	P
6	5850.00	-7.30	67.91	60.61	122.20	-61.59	Peak	108	72	P
7	5855.00	-7.30	67.72	60.42	110.80	-50.38	Peak	108	72	P
8	5875.00	-7.30	67.39	60.09	105.20	-45.11	Peak	108	72	P
9	5925.00	-7.28	55.12	47.84	54.00	-6.16	Average	108	72	P
10	5925.00	-7.28	65.64	58.36	74.00	-15.64	Peak	108	72	P
11	11570.00	0.85	48.12	48.97	54.00	-5.03	Average	172	281	P
12	11570.00	0.85	63.24	64.09	74.00	-9.91	Peak	172	281	P
13	17355.00	10.63	40.67	51.30	54.00	-2.70	Average	279	275	P
14	17355.00	10.63	57.68	68.31	74.00	-5.69	Peak	279	275	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

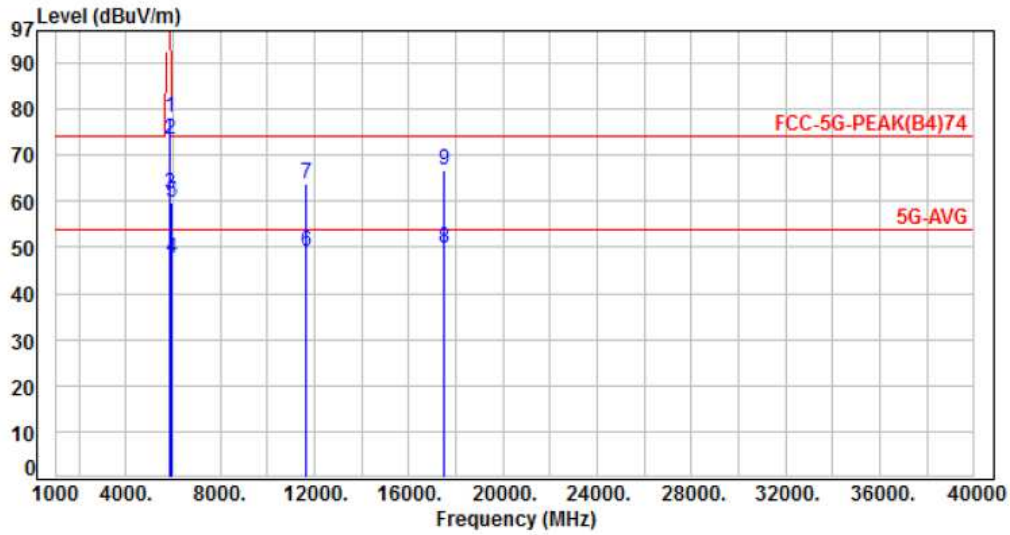
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH165, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-7.30	91.29	83.99	122.20	-38.21	Peak	381	360	P
2	5855.00	-7.30	81.39	74.09	110.80	-36.71	Peak	381	360	P
3	5875.00	-7.30	70.31	63.01	105.20	-42.19	Peak	381	360	P
4	5925.00	-7.28	55.12	47.84	54.00	-6.16	Average	381	360	P
5	5925.00	-7.28	68.32	61.04	74.00	-12.96	Peak	381	360	P
6	11650.00	0.91	45.53	46.44	54.00	-7.56	Average	365	329	P
7	11650.00	0.91	59.64	60.55	74.00	-13.45	Peak	365	329	P
8	17475.00	11.29	41.31	52.60	54.00	-1.40	Average	364	170	P
9	17475.00	11.29	59.19	70.48	74.00	-3.52	Peak	364	170	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

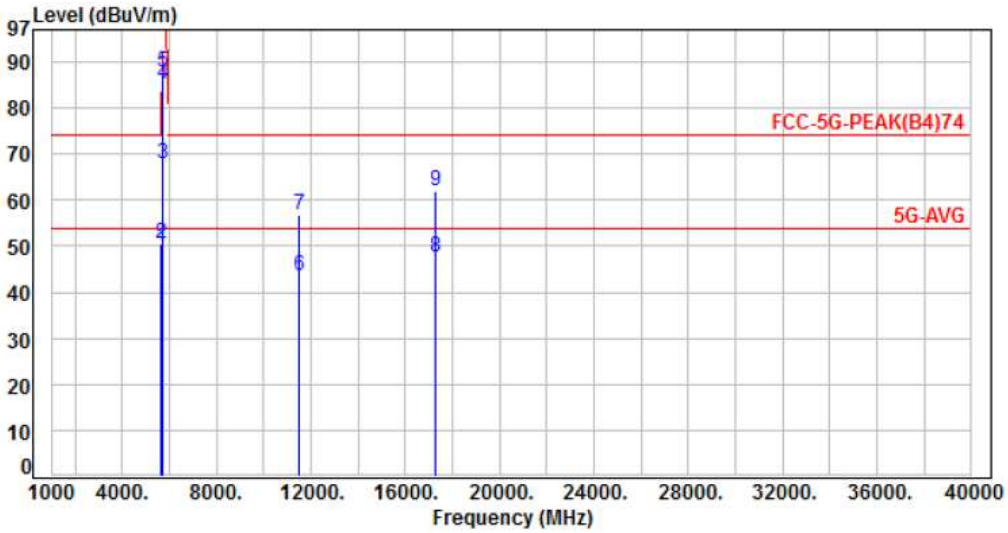
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH165, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-7.30	85.67	78.37	122.20	-43.83	Peak	106	74	P
2	5855.00	-7.30	80.79	73.49	110.80	-37.31	Peak	106	74	P
3	5875.00	-7.30	68.79	61.49	105.20	-43.71	Peak	106	74	P
4	5925.00	-7.28	54.94	47.66	54.00	-6.34	Average	106	74	P
5	5925.00	-7.28	67.13	59.85	74.00	-14.15	Peak	106	74	P
6	11650.00	0.91	48.25	49.16	54.00	-4.84	Average	191	36	P
7	11650.00	0.91	62.90	63.81	74.00	-10.19	Peak	191	36	P
8	17475.00	11.29	38.59	49.88	54.00	-4.12	Average	192	303	P
9	17475.00	11.29	55.51	66.80	74.00	-7.20	Peak	192	303	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

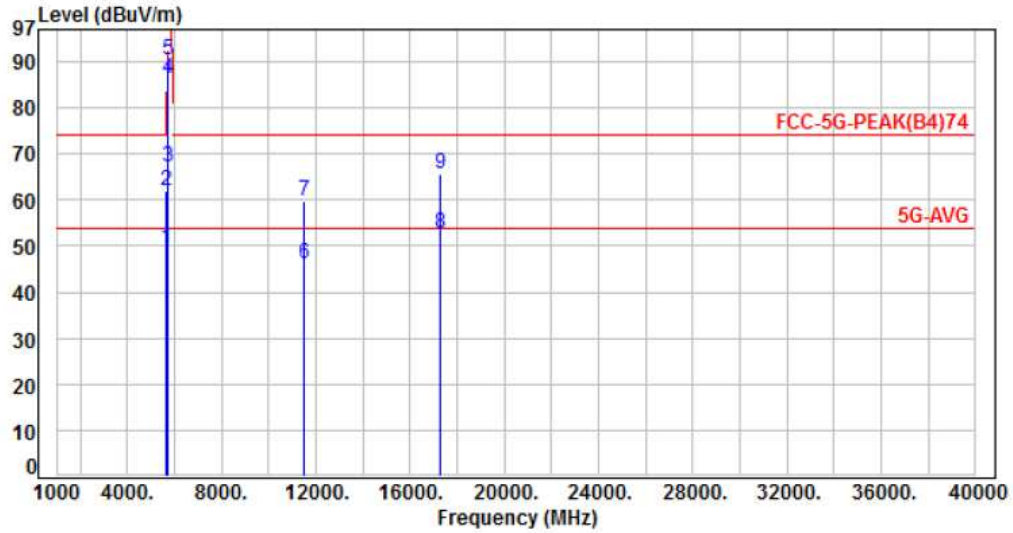
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH151, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	57.04	49.67	54.00	-4.33	Average	298	360	P
2	5650.00	-7.37	57.82	50.45	74.00	-23.55	Peak	298	360	P
3	5700.00	-7.35	75.35	68.00	105.20	-37.20	Peak	298	360	P
4	5720.00	-7.35	92.39	85.04	110.80	-25.76	Peak	298	360	P
5	5725.00	-7.35	95.11	87.76	122.20	-34.44	Peak	298	360	P
6	11510.00	0.81	42.82	43.63	54.00	-10.37	Average	380	330	P
7	11510.00	0.81	56.13	56.94	74.00	-17.06	Peak	380	330	P
8	17265.00	10.12	37.59	47.71	54.00	-6.29	Average	113	174	P
9	17265.00	10.12	51.84	61.96	74.00	-12.04	Peak	113	174	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

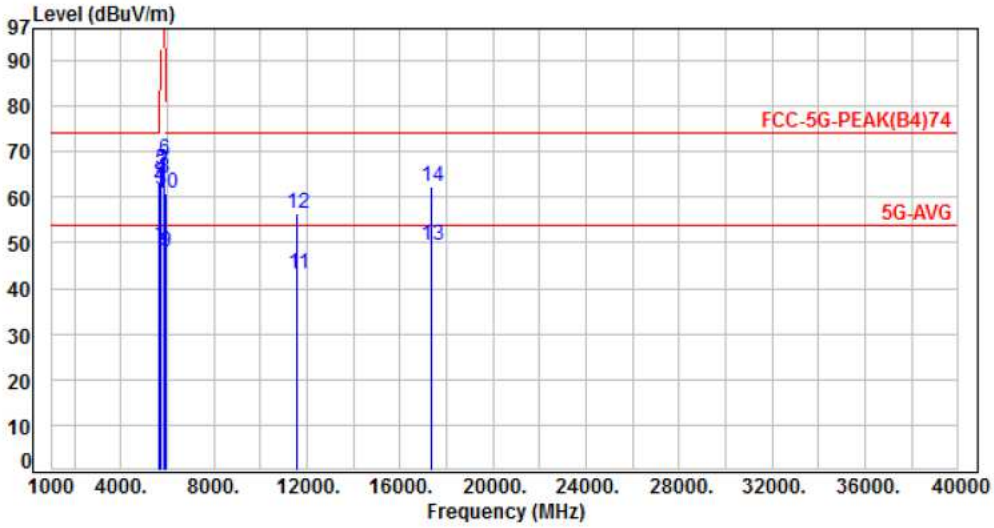
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH151, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	56.92	49.55	54.00	-4.45	Average	119	73	P
2	5650.00	-7.37	69.33	61.96	74.00	-12.04	Peak	119	73	P
3	5700.00	-7.35	74.32	66.97	105.20	-38.23	Peak	119	73	P
4	5720.00	-7.35	93.52	86.17	110.80	-24.63	Peak	119	73	P
5	5725.00	-7.35	97.65	90.30	122.20	-31.90	Peak	119	73	P
6	11510.00	0.81	45.15	45.96	54.00	-8.04	Average	158	280	P
7	11510.00	0.81	58.93	59.74	74.00	-14.26	Peak	158	280	P
8	17265.00	10.12	42.63	52.75	54.00	-1.25	Average	109	275	P
9	17265.00	10.12	55.65	65.77	74.00	-8.23	Peak	109	275	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

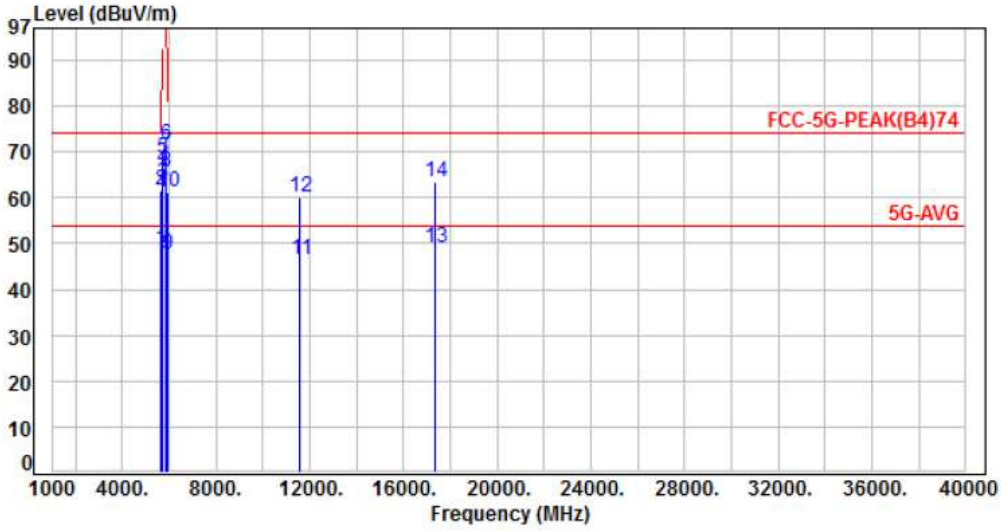
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH159, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	56.90	49.53	54.00	-4.47	Average	156	360	P
2	5650.00	-7.37	70.57	63.20	74.00	-10.80	Peak	156	360	P
3	5700.00	-7.35	68.96	61.61	105.20	-43.59	Peak	156	360	P
4	5720.00	-7.35	71.44	64.09	110.80	-46.71	Peak	156	360	P
5	5725.00	-7.35	73.32	65.97	122.20	-56.23	Peak	156	360	P
6	5850.00	-7.30	75.63	68.33	122.20	-53.87	Peak	156	360	P
7	5855.00	-7.30	73.11	65.81	110.80	-44.99	Peak	156	360	P
8	5875.00	-7.30	71.66	64.36	105.20	-40.84	Peak	156	360	P
9	5925.00	-7.28	55.30	48.02	54.00	-5.98	Average	156	360	P
10	5925.00	-7.28	67.95	60.67	74.00	-13.33	Peak	156	360	P
11	11590.00	0.86	42.32	43.18	54.00	-10.82	Average	293	320	P
12	11590.00	0.86	55.68	56.54	74.00	-17.46	Peak	293	320	P
13	17385.00	10.79	38.81	49.60	54.00	-4.40	Average	196	188	P
14	17385.00	10.79	51.43	62.22	74.00	-11.78	Peak	196	188	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

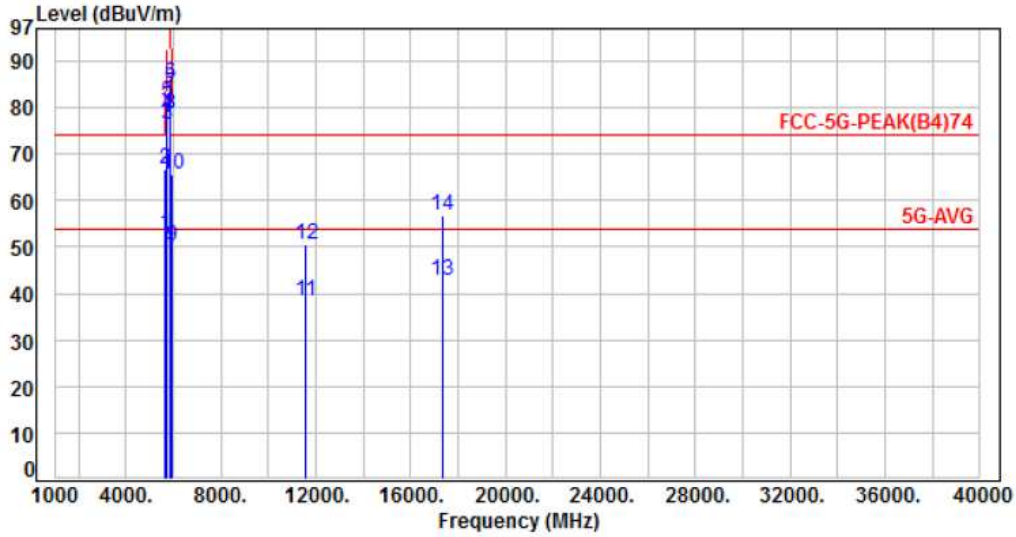
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH159, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	55.94	48.57	54.00	-5.43	Average	133	76	P
2	5650.00	-7.37	68.93	61.56	74.00	-12.44	Peak	133	76	P
3	5700.00	-7.35	70.45	63.10	105.20	-42.10	Peak	133	76	P
4	5720.00	-7.35	73.88	66.53	110.80	-44.27	Peak	133	76	P
5	5725.00	-7.35	75.94	68.59	122.20	-53.61	Peak	133	76	P
6	5850.00	-7.30	78.83	71.53	122.20	-50.67	Peak	133	76	P
7	5855.00	-7.30	76.91	69.61	110.80	-41.19	Peak	133	76	P
8	5875.00	-7.30	72.81	65.51	105.20	-39.69	Peak	133	76	P
9	5925.00	-7.28	54.85	47.57	54.00	-6.43	Average	133	76	P
10	5925.00	-7.28	68.35	61.07	74.00	-12.93	Peak	133	76	P
11	11590.00	0.86	45.48	46.34	54.00	-7.66	Average	149	277	P
12	11590.00	0.86	59.22	60.08	74.00	-13.92	Peak	149	277	P
13	17385.00	10.79	38.18	48.97	54.00	-5.03	Average	100	303	P
14	17385.00	10.79	52.64	63.43	74.00	-10.57	Peak	100	303	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

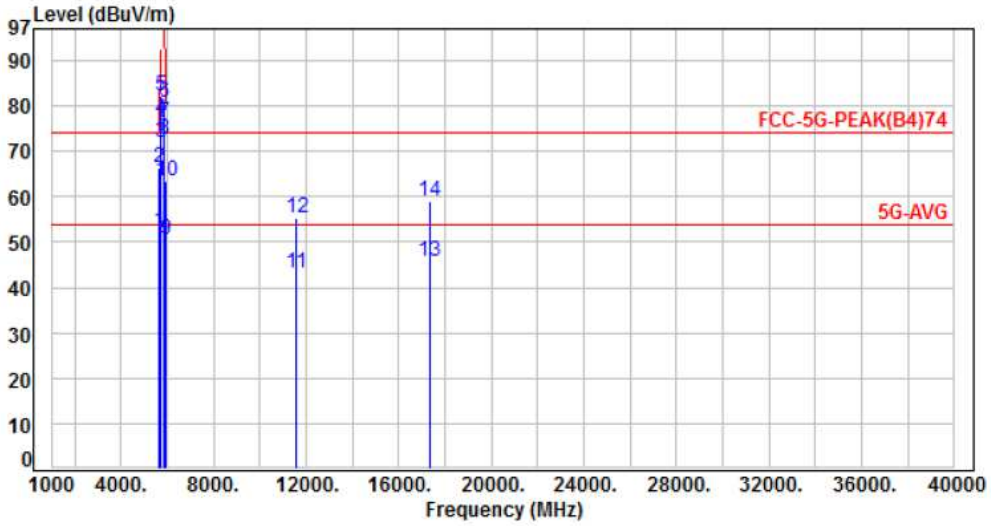
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH155, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	60.19	52.82	54.00	-1.18	Average	391	360	P
2	5650.00	-7.37	74.25	66.88	74.00	-7.12	Peak	391	360	P
3	5700.00	-7.35	83.59	76.24	105.20	-28.96	Peak	391	360	P
4	5720.00	-7.35	85.60	78.25	110.80	-32.55	Peak	391	360	P
5	5725.00	-7.35	88.54	81.19	122.20	-41.01	Peak	391	360	P
6	5850.00	-7.30	92.64	85.34	122.20	-36.86	Peak	391	360	P
7	5855.00	-7.30	90.35	83.05	110.80	-27.75	Peak	391	360	P
8	5875.00	-7.30	85.94	78.64	105.20	-26.56	Peak	391	360	P
9	5925.00	-7.28	57.51	50.23	54.00	-3.77	Average	391	360	P
10	5925.00	-7.28	73.00	65.72	74.00	-8.28	Peak	391	360	P
11	11550.00	0.84	37.34	38.18	54.00	-15.82	Average	380	330	P
12	11550.00	0.84	49.59	50.43	74.00	-23.57	Peak	380	330	P
13	17325.00	10.45	32.22	42.67	54.00	-11.33	Average	113	174	P
14	17325.00	10.45	46.35	56.80	74.00	-17.20	Peak	113	174	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, CH155, Band 4	Temperature	:	23 °C
Test Date	:	Jul. 14, 2018	Humidity	:	61 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-7.37	59.69	52.32	54.00	-1.68	Average	109	73	P
2	5650.00	-7.37	73.60	66.23	74.00	-7.77	Peak	109	73	P
3	5700.00	-7.35	79.30	71.95	105.20	-33.25	Peak	109	73	P
4	5720.00	-7.35	84.60	77.25	110.80	-33.55	Peak	109	73	P
5	5725.00	-7.35	89.72	82.37	122.20	-39.83	Peak	109	73	P
6	5850.00	-7.30	88.06	80.76	122.20	-41.44	Peak	109	73	P
7	5855.00	-7.30	83.49	76.19	110.80	-34.61	Peak	109	73	P
8	5875.00	-7.30	80.09	72.79	105.20	-32.41	Peak	109	73	P
9	5925.00	-7.28	57.85	50.57	54.00	-3.43	Average	109	73	P
10	5925.00	-7.28	70.57	63.29	74.00	-10.71	Peak	109	73	P
11	11550.00	0.84	42.22	43.06	54.00	-10.94	Average	158	280	P
12	11550.00	0.84	54.54	55.38	74.00	-18.62	Peak	158	280	P
13	17325.00	10.45	35.17	45.62	54.00	-8.38	Average	282	275	P
14	17325.00	10.45	48.52	58.97	74.00	-15.03	Peak	282	275	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

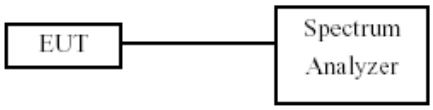
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

Temperature: 22°C Humidity: 64%

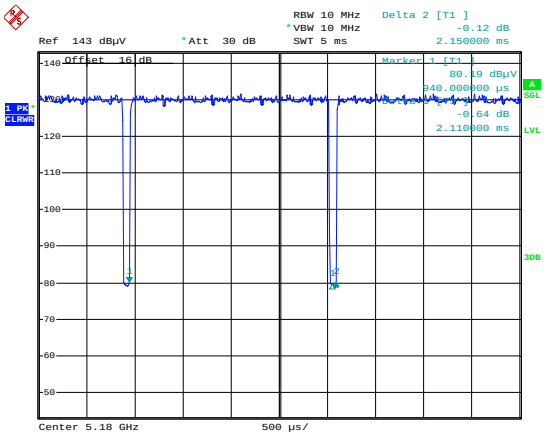
Test Date: Aug. 03, 2018

Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11a	2.11	2.15	98.14%
802.11ac VHT20	5.06	5.10	99.22%
802.11ac VHT40	2.51	2.56	98.05%
802.11ac VHT80	1.18	1.24	95.15%

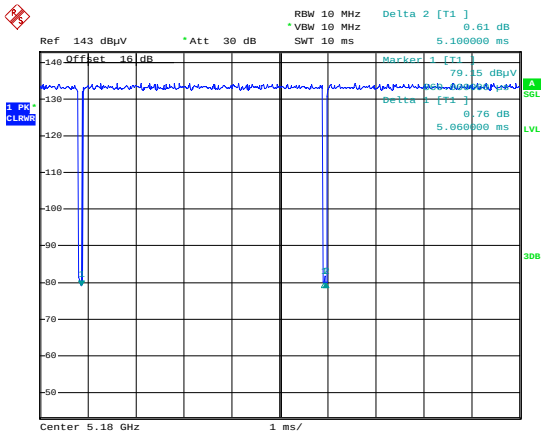
7.5. Measurement Methods

26 dB and 6dB Emission BW	KDB 789033 D02 v02r01, Section C
99% Occupied BW	KDB 789033 D02 v02r01, Section D
Conducted Output Power	KDB 789033 D02 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02 v02r01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 D02 v02r01, Sections G and H

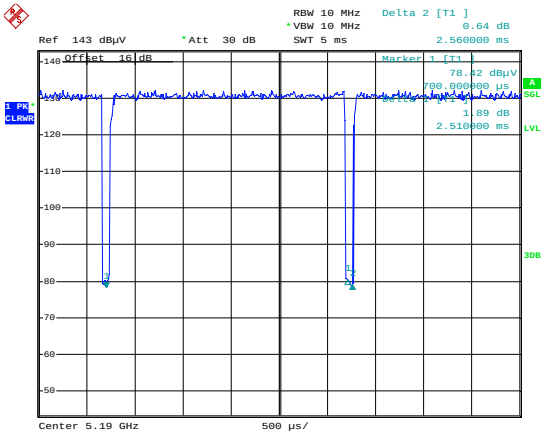
Modulation Standard: 802.11a (6Mbps)



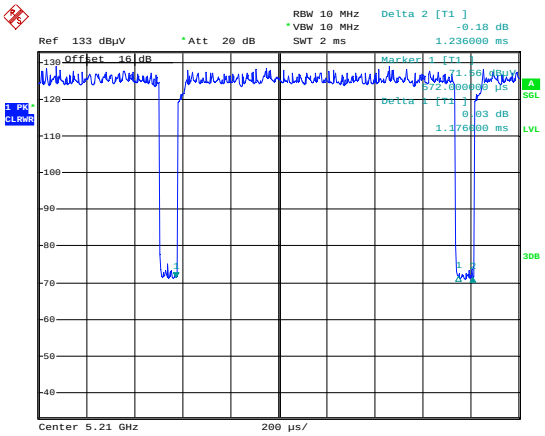
Modulation Standard: 802.11ac VHT20 (6.5Mbps)



Modulation Standard: 802.11ac VHT40 (13.5Mbps)



Modulation Standard: 802.11ac VHT80 (29.3Mbps)



8. 6dB Bandwidth & 99% Bandwidth

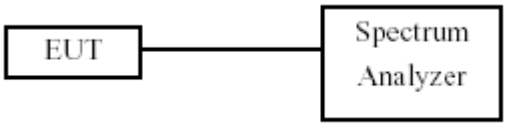
8.1. Test Limit

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 to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data (6dB Bandwidth)

Temperature: 22°C Humidity: 64%
Test Date: Aug. 03, 2018

In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT A	ANT B	
802.11a	149	5745	16.30	16.30	0.50
	157	5785	16.30	16.40	0.50
	165	5825	16.40	16.40	0.50
802.11ac VHT20	149	5745	16.50	16.80	0.50
	157	5785	16.50	17.60	0.50
	165	5825	17.60	17.60	0.50
802.11ac VHT40	151	5755	35.20	35.20	0.50
	159	5795	34.00	35.20	0.50
802.11ac VHT80	155	5775	76.00	76.00	0.50

8.5. Test Result and Data (99% Bandwidth)

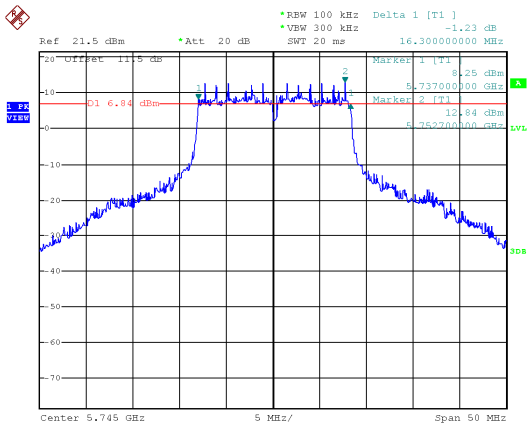
Temperature: 22°C Humidity: 64%

Test Date: Aug. 03, 2018

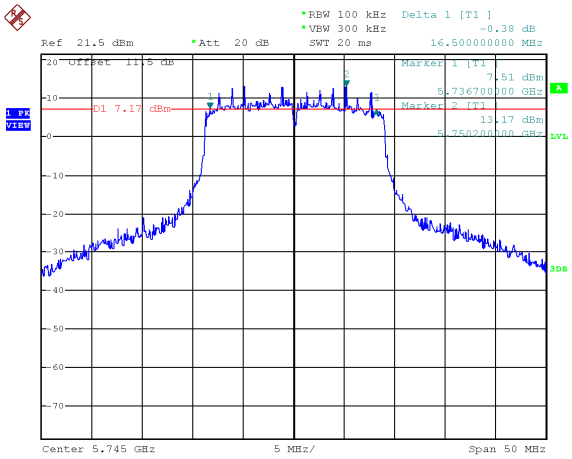
In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT A	ANT B
802.11a	149	5745	16.60	16.90
	157	5785	16.80	16.80
	165	5825	16.60	16.70
802.11ac VHT20	149	5745	17.70	17.70
	157	5785	17.80	18.10
	165	5825	17.90	18.00
802.11ac VHT40	151	5755	36.40	36.60
	159	5795	36.20	37.00
802.11ac VHT80	155	5775	76.40	76.00

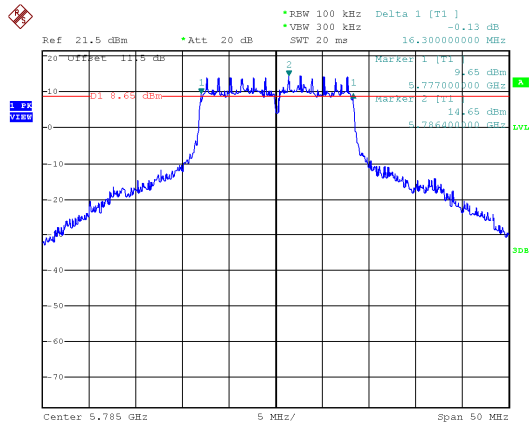
6dB Bandwidth
ANT A
Modulation Standard: 802.11a (6Mbps)
CH149



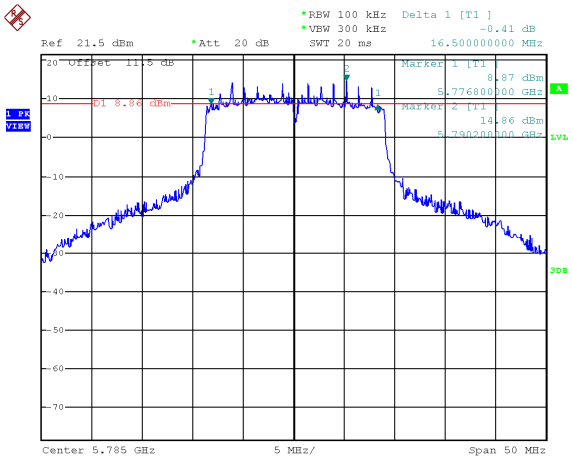
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)
CH149



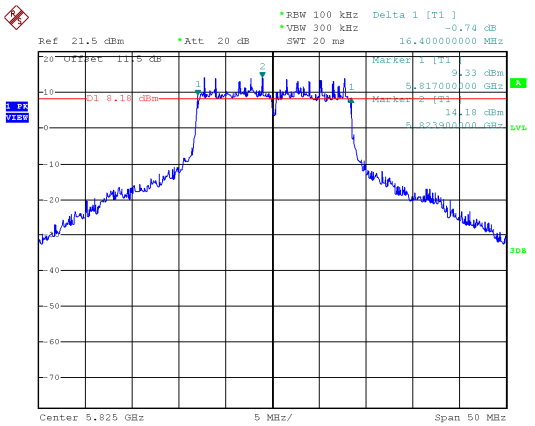
CH157



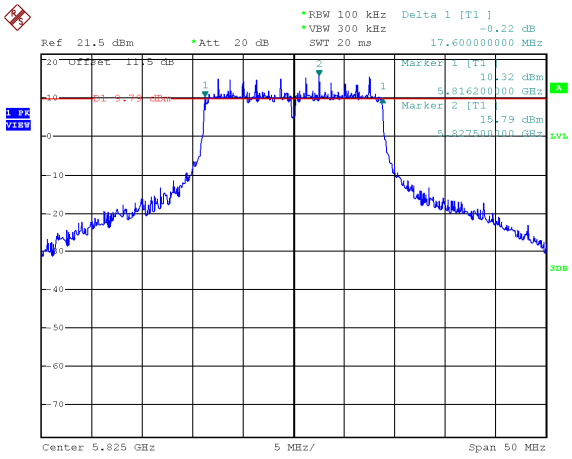
CH157



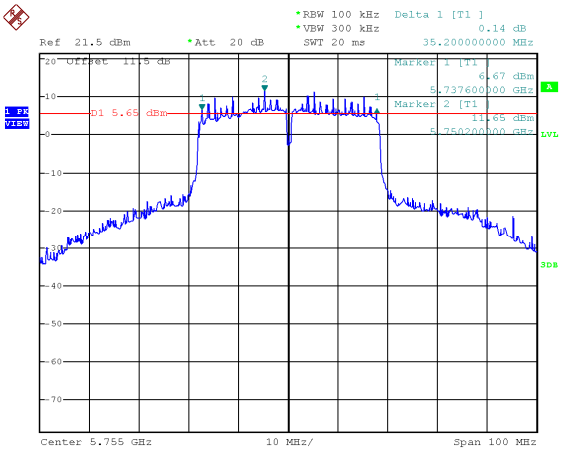
CH165



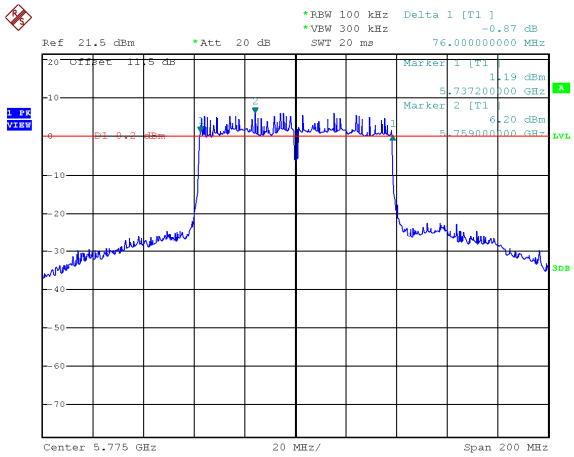
CH165



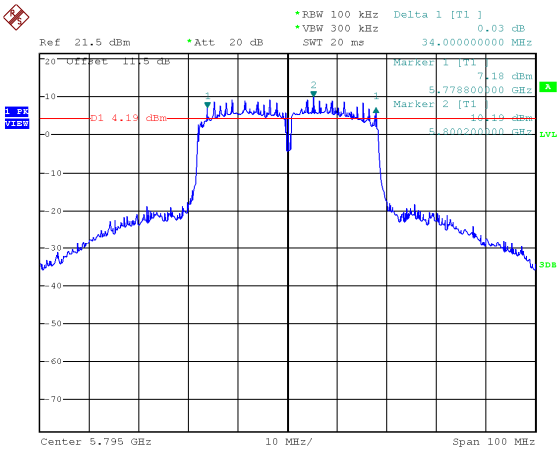
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151



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



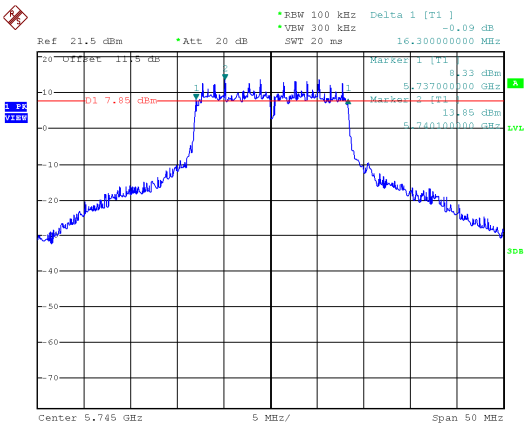
CH159



ANT B

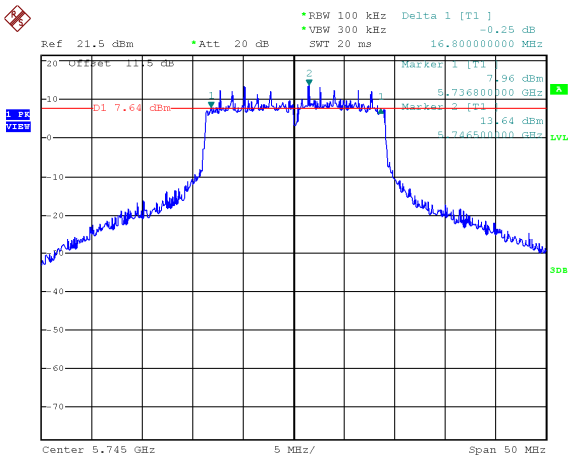
Modulation Standard: 802.11a (6Mbps)

CH149

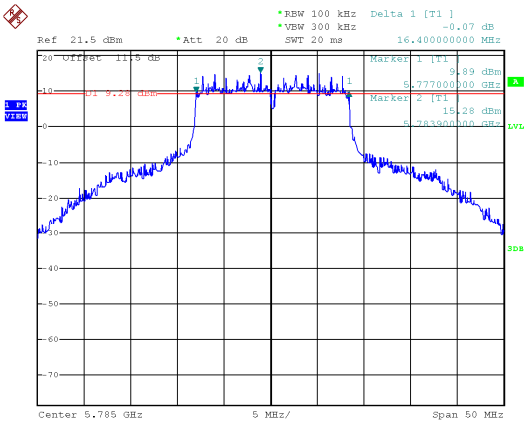


Modulation Standard: 802.11ac, VHT20 (6.5Mbps)

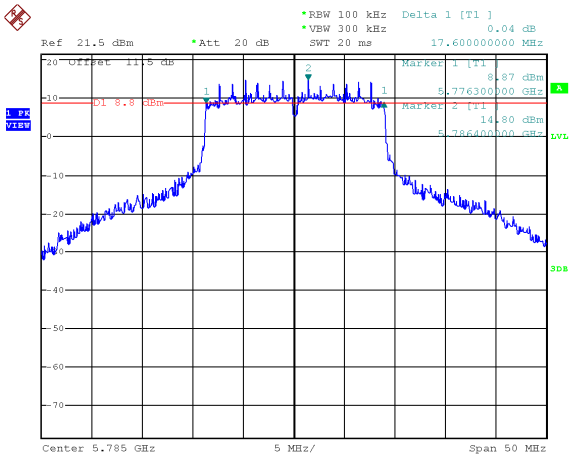
CH149



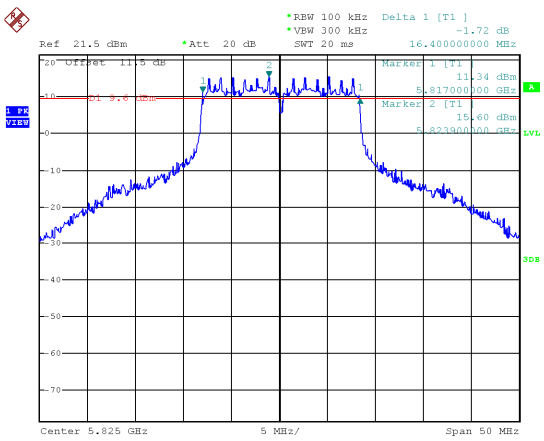
CH157



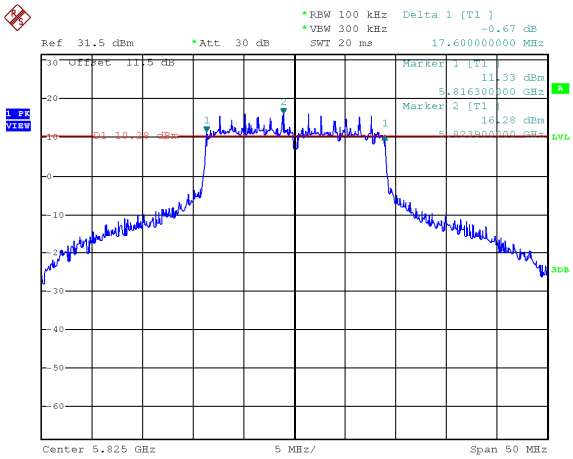
CH157



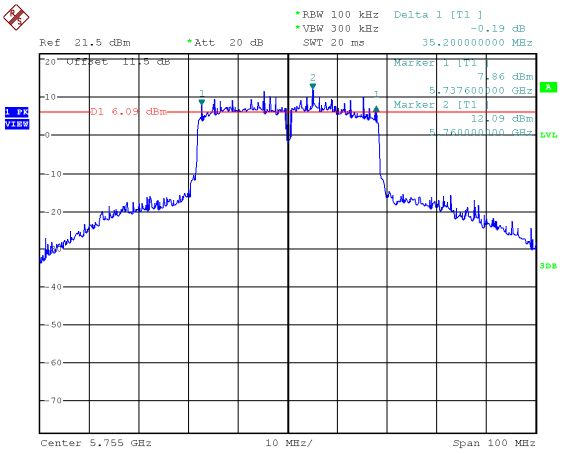
CH165



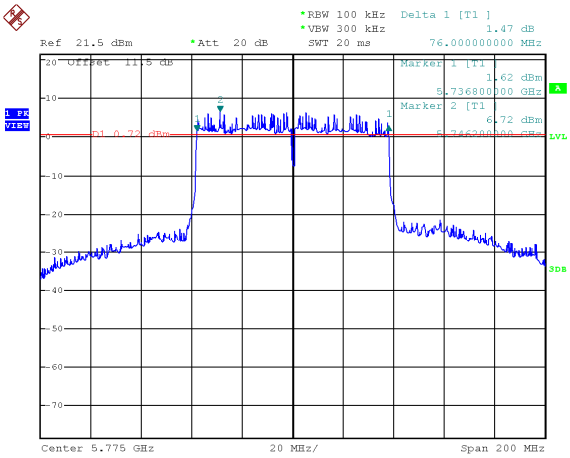
CH165



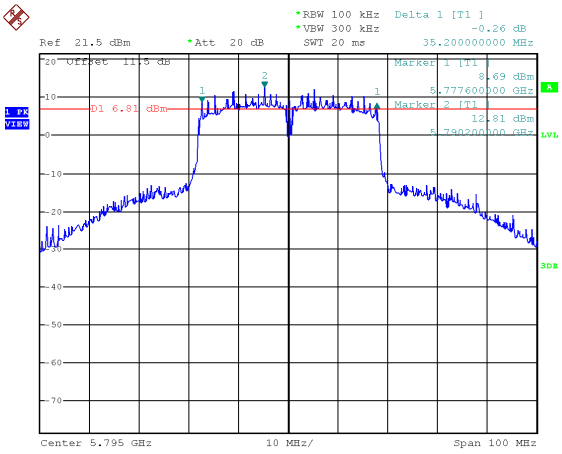
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151



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

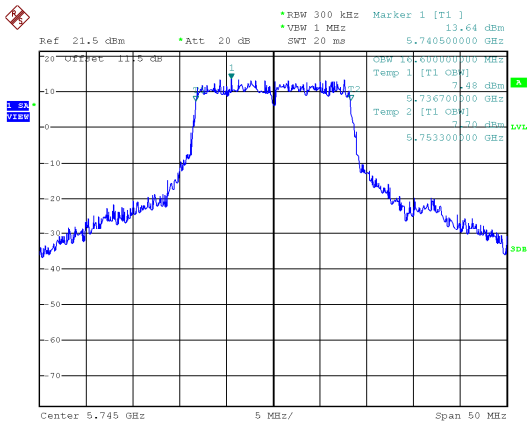


CH159

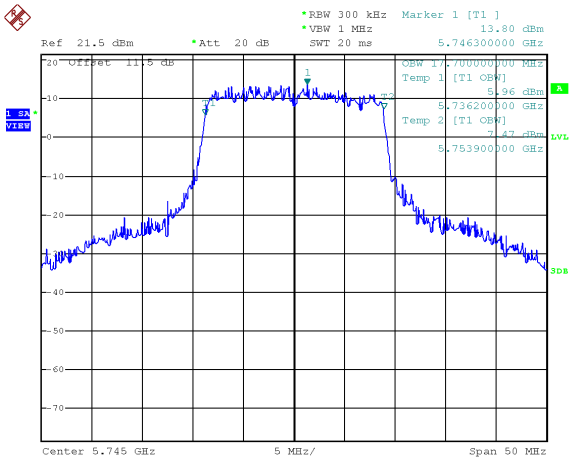


99% Bandwidth
ANT A

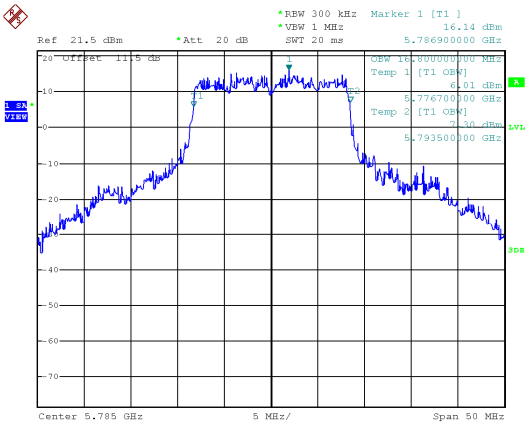
Modulation Standard: 802.11a (6Mbps)
CH149



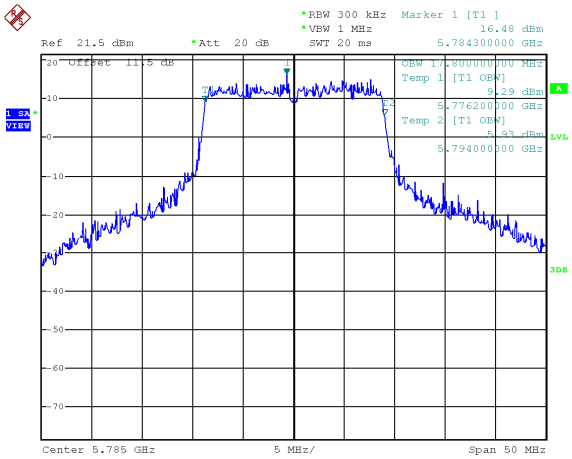
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)
CH149



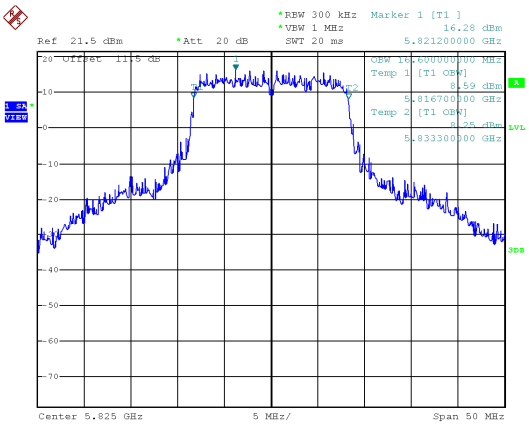
CH157



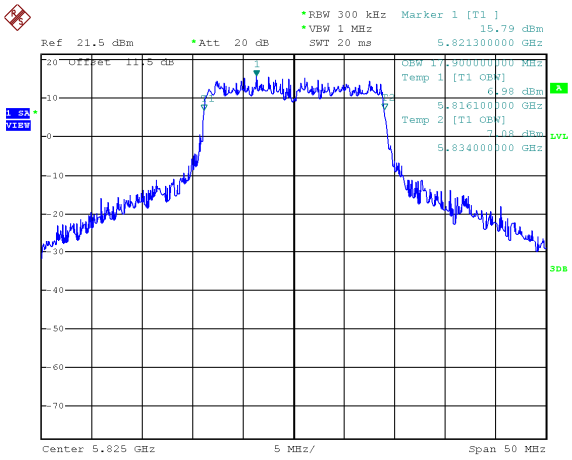
CH157



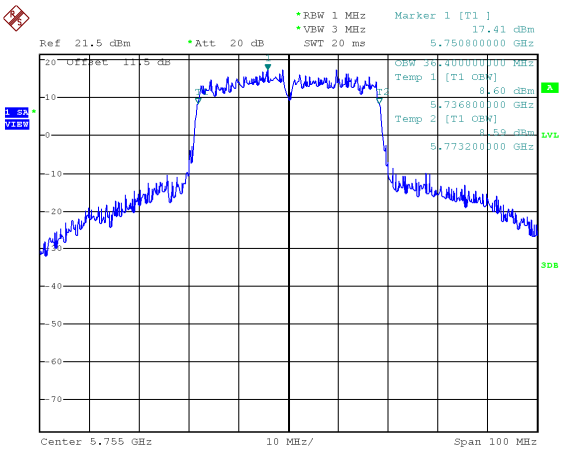
CH165



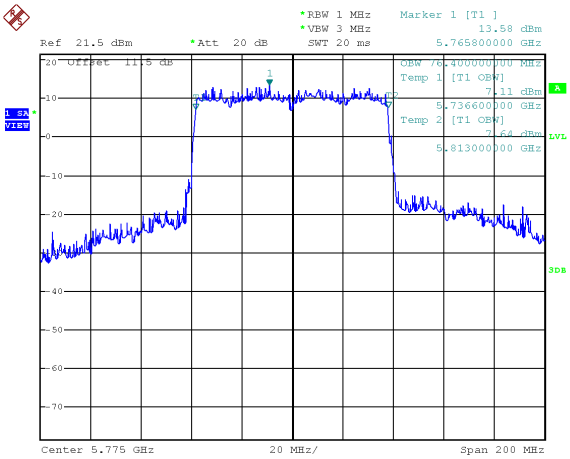
CH165



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



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



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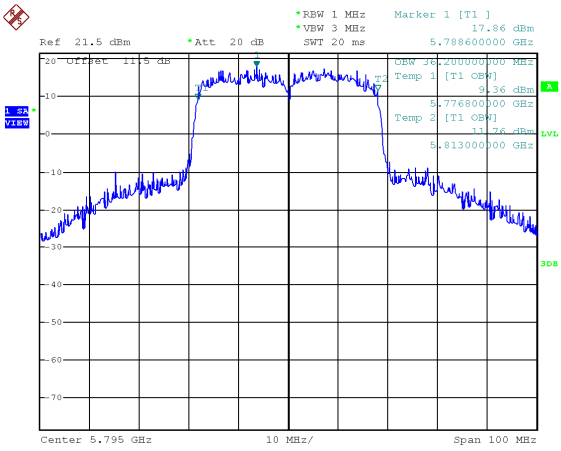
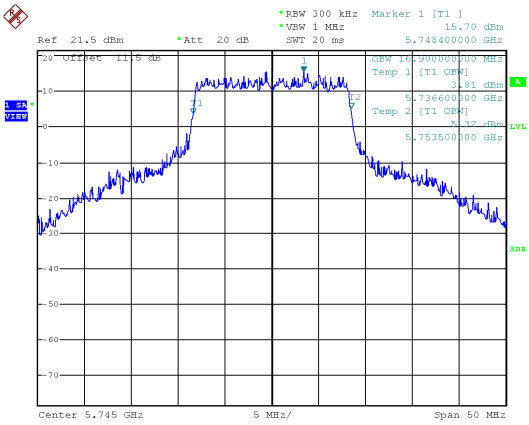


ANT B

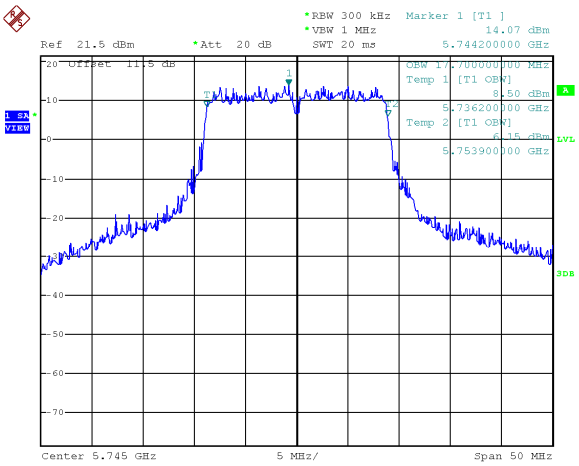
Modulation Standard: 802.11a (6Mbps)

CH149

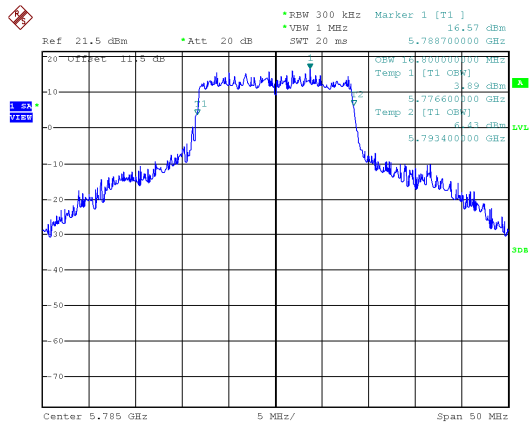


Modulation Standard: 802.11ac, VHT20 (6.5Mbps)

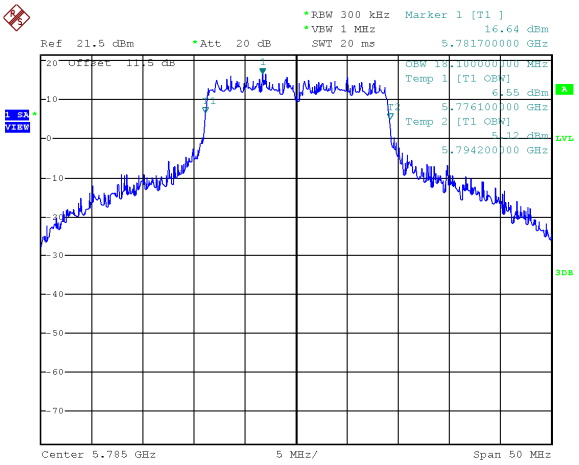
CH149



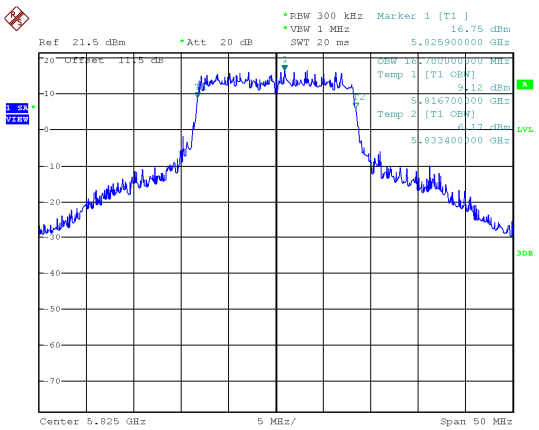
CH157



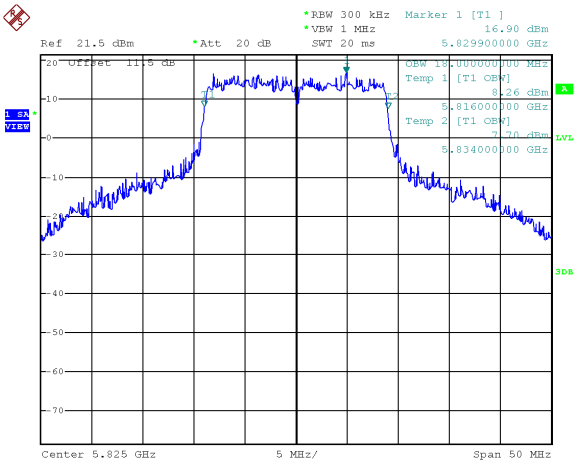
CH157



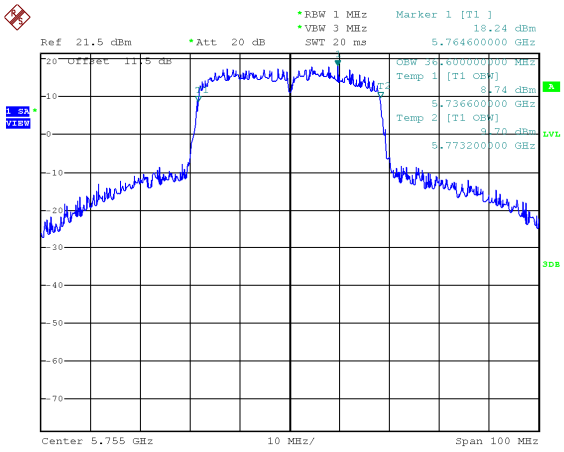
CH165



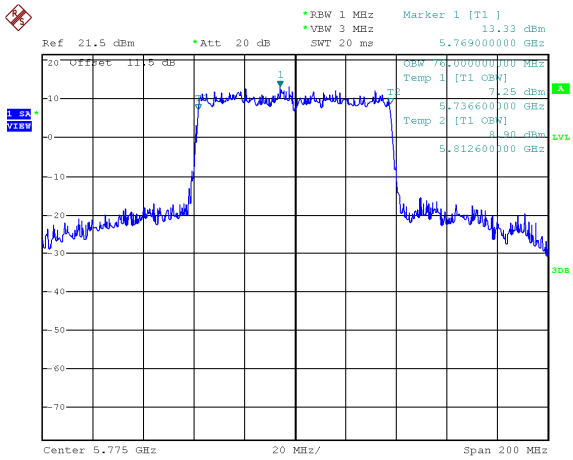
CH165



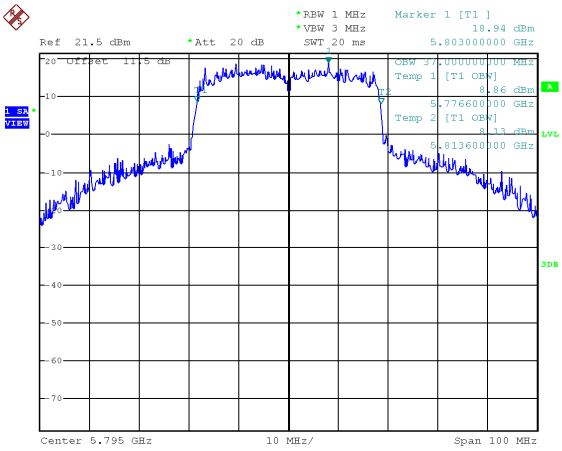
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151



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



CH159



9. 26dB Bandwidth & 99% Bandwidth

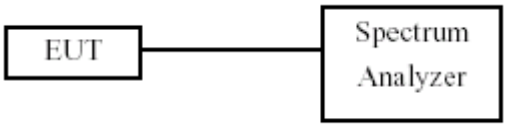
9.1. Test Limit

None; for reporting purposes only.

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 >= 3 x RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data (26dB Bandwidth)

Temperature: 22°C Humidity: 64%
Test Date: Aug. 03, 2018

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT A	ANT B
802.11a	36	5180	19.50	19.20
	44	5220	19.60	19.30
	48	5240	19.70	19.40
802.11ac VHT20	36	5180	20.50	20.30
	44	5220	20.70	20.80
	48	5240	20.70	20.60
802.11ac VHT40	38	5190	40.80	41.00
	46	5230	45.20	44.20
802.11ac VHT80	42	5210	83.60	83.60

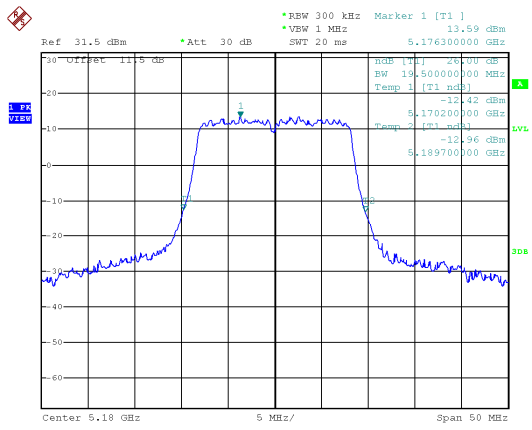
9.5. Test Result and Data (99% Bandwidth)

Temperature: 22°C Humidity: 64%
Test Date: Aug. 03, 2018

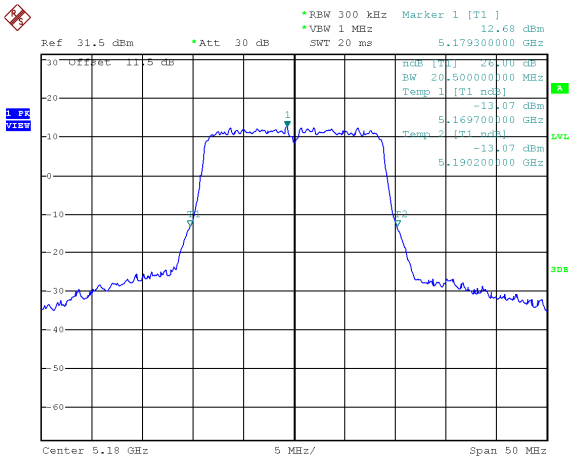
In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT A	ANT B
802.11a	36	5180	16.50	16.50
	44	5220	16.50	16.50
	48	5240	16.50	16.50
802.11ac VHT20	36	5180	17.70	17.70
	44	5220	17.70	17.70
	48	5240	17.70	17.70
802.11ac VHT40	38	5190	37.40	37.00
	46	5230	36.40	36.40
802.11ac VHT80	42	5210	76.00	76.00

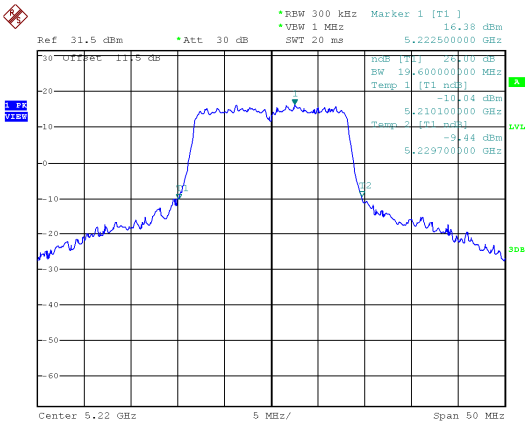
26dB Bandwidth
ANT A
Modulation Standard: 802.11a (6Mbps)
CH36



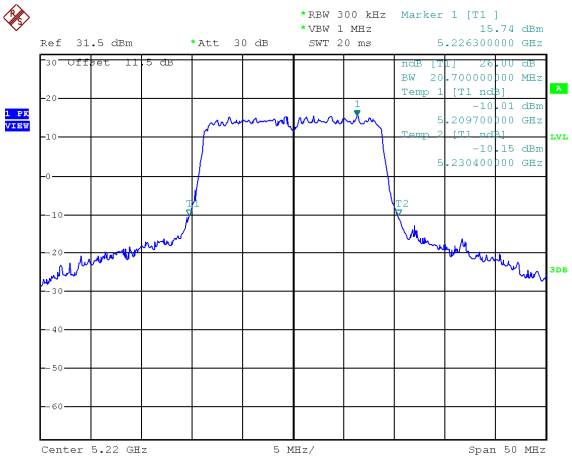
802.11ac VHT20 (6.5Mbps)
CH36



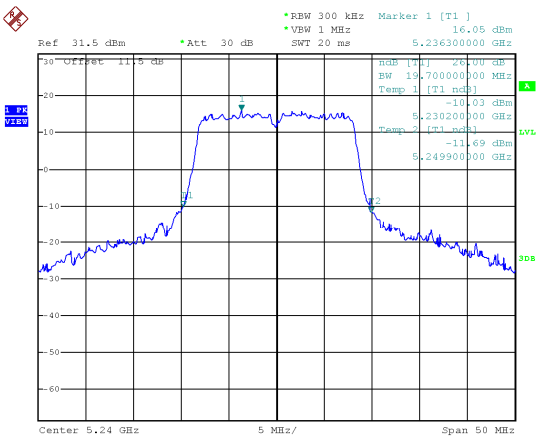
CH44



CH44



CH48



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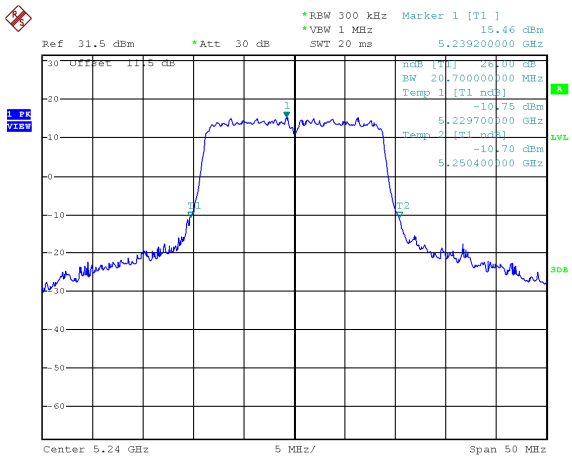
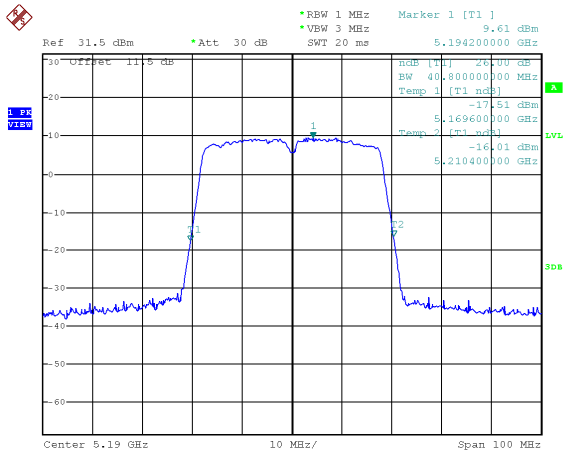
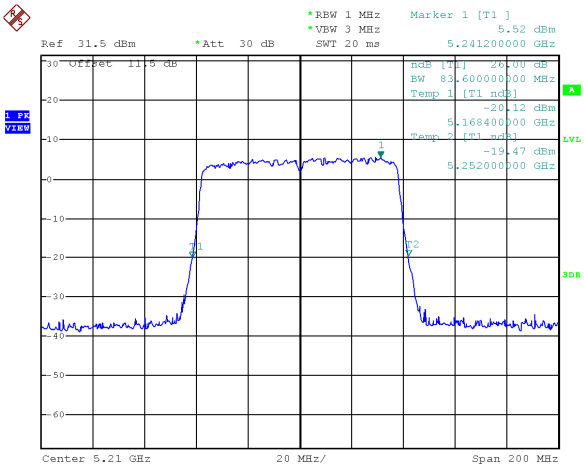


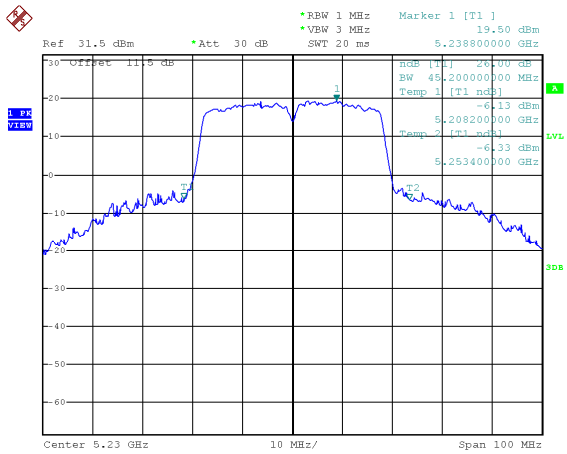
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



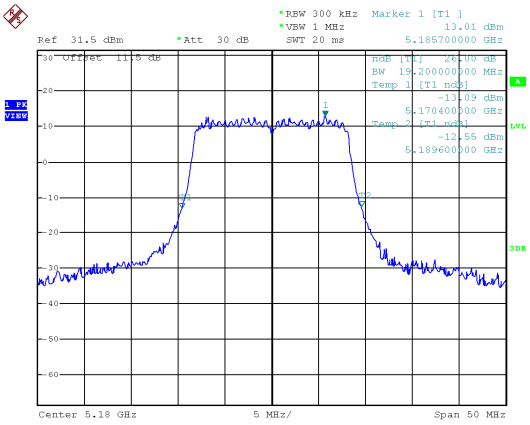
CH46



ANT B

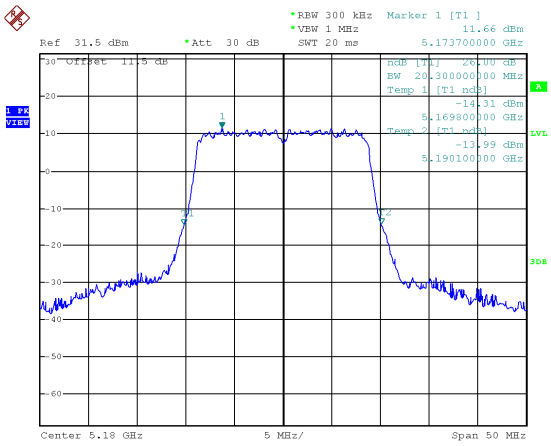
Modulation Standard: 802.11a (6Mbps)

CH36



802.11ac VHT20 (6.5Mbps)

CH36



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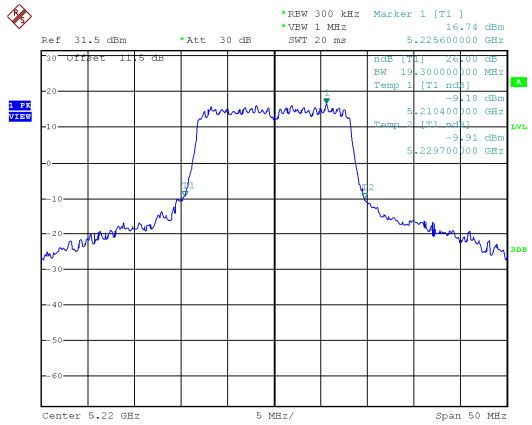

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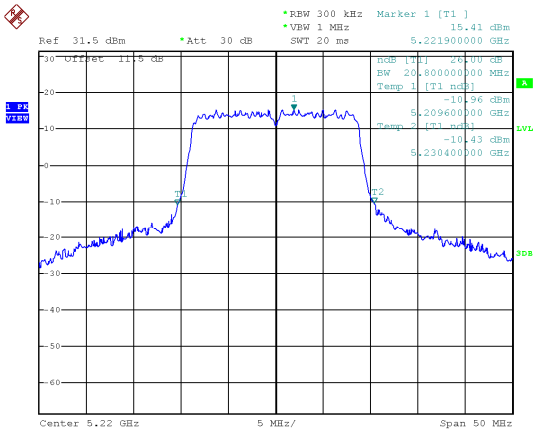
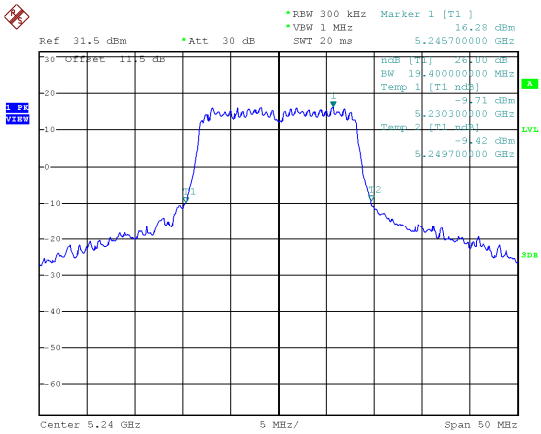


CH48



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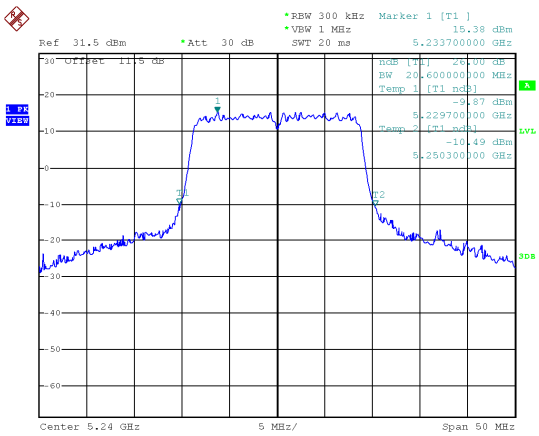
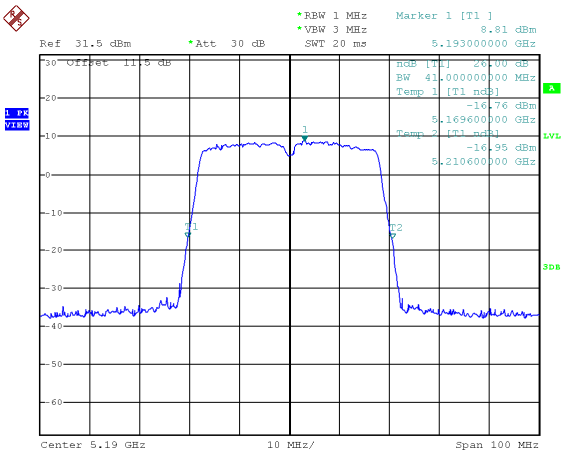
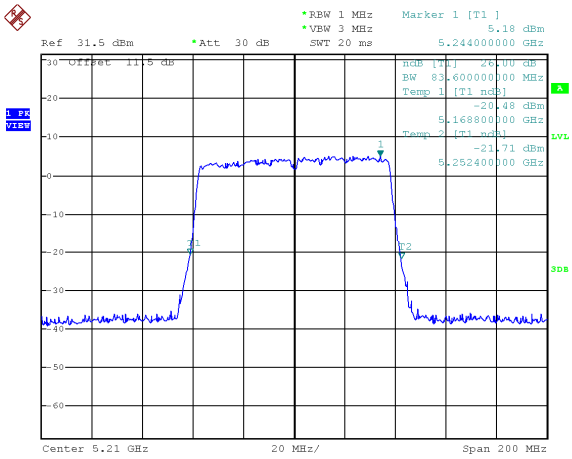


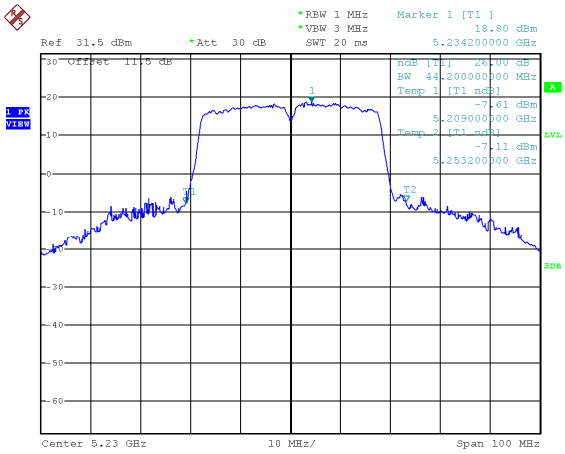
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



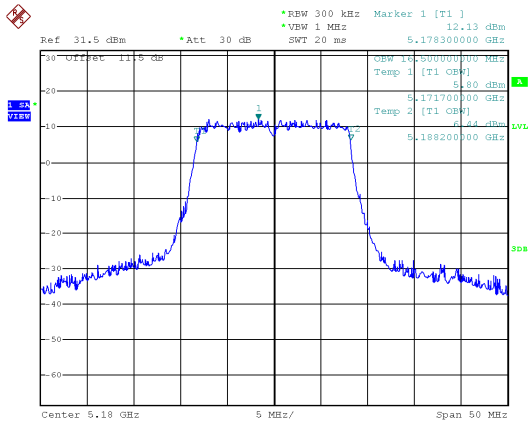
Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



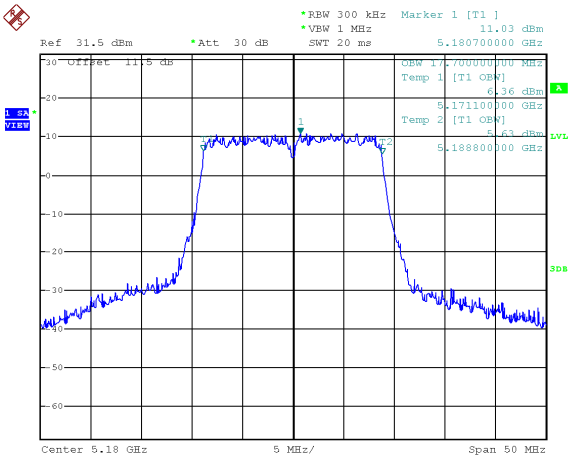
CH46



99% Bandwidth
ANT A
Modulation Standard: 802.11a (6Mbps)
CH36



802.11ac VHT20 (6.5Mbps)
CH36



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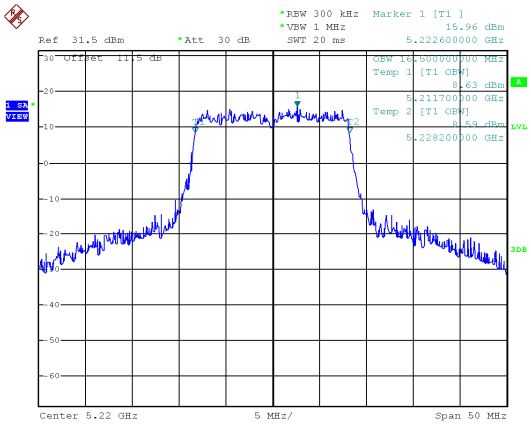

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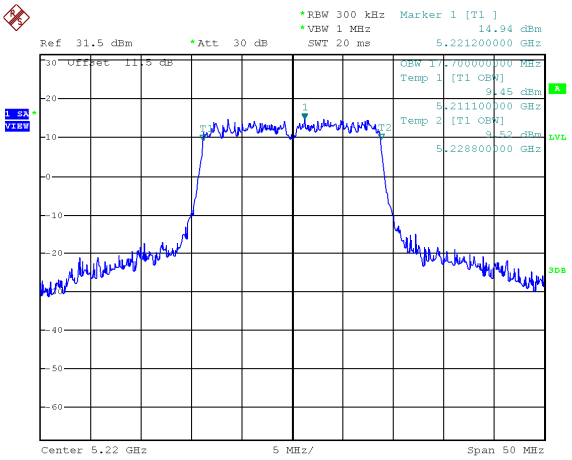

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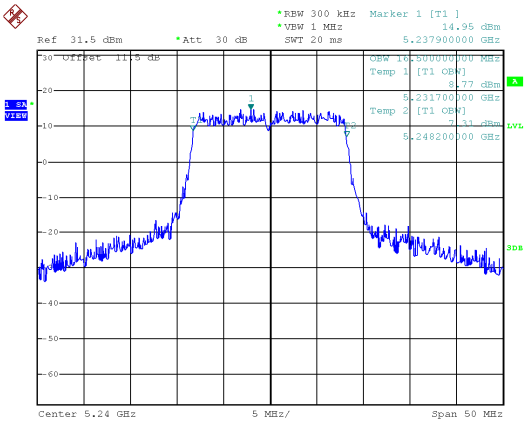
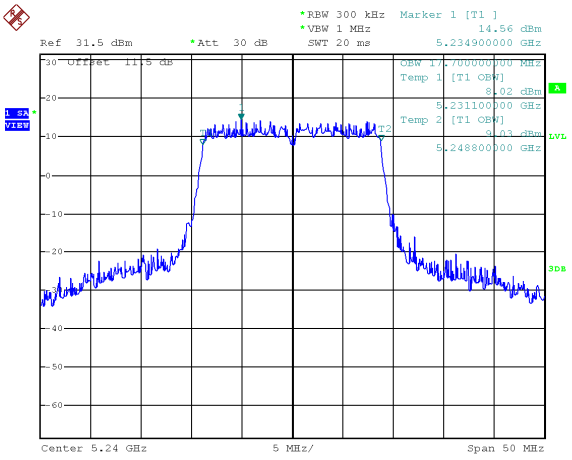
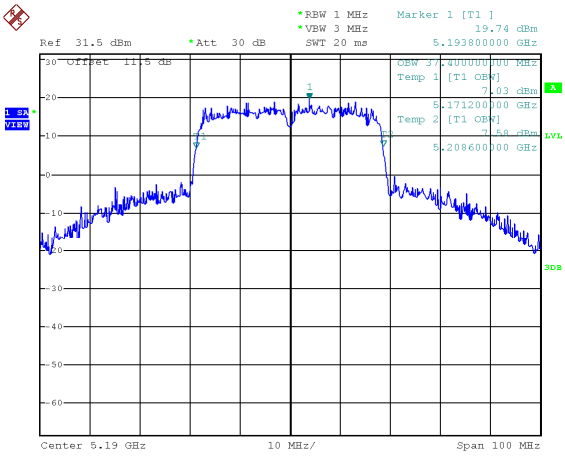


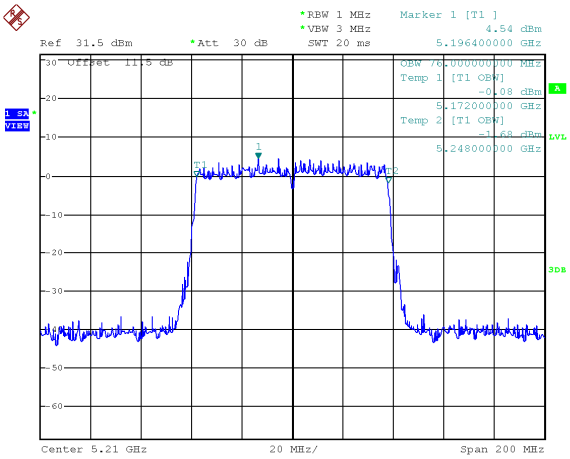
CH48



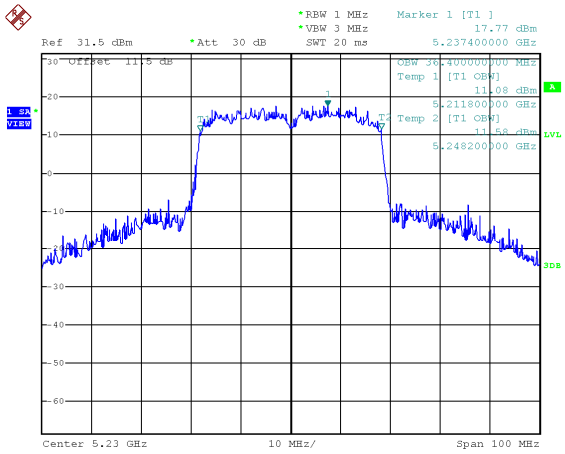
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



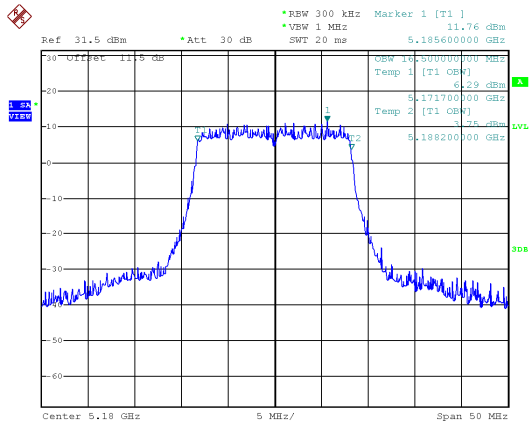
CH46



ANT B

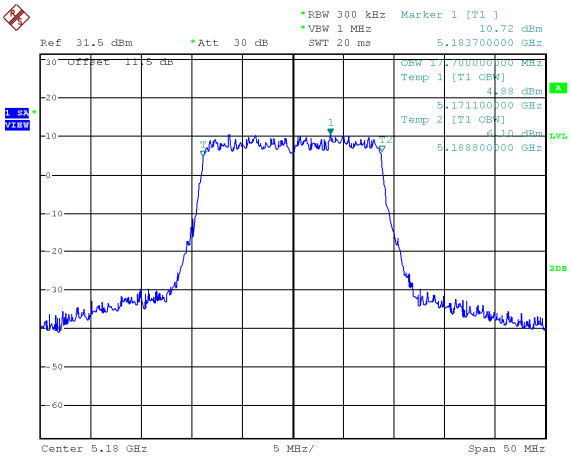
Modulation Standard: 802.11a (6Mbps)

CH36



802.11ac VHT20 (6.5Mbps)

CH36



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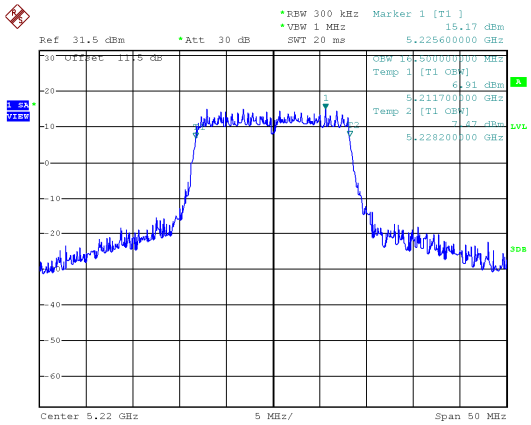

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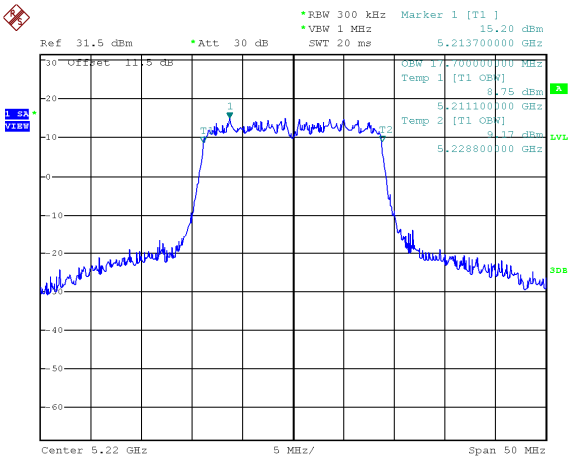

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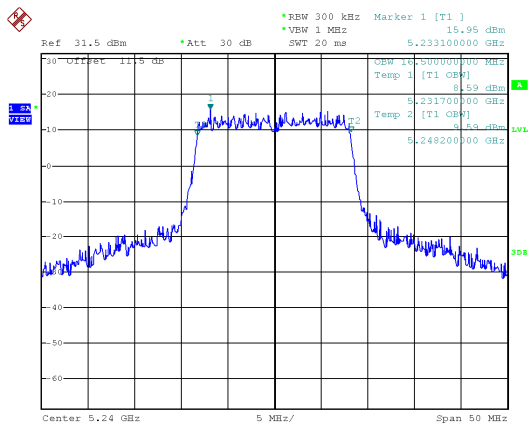

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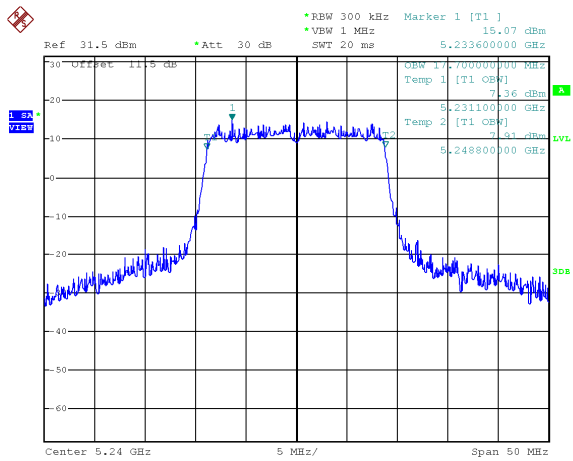
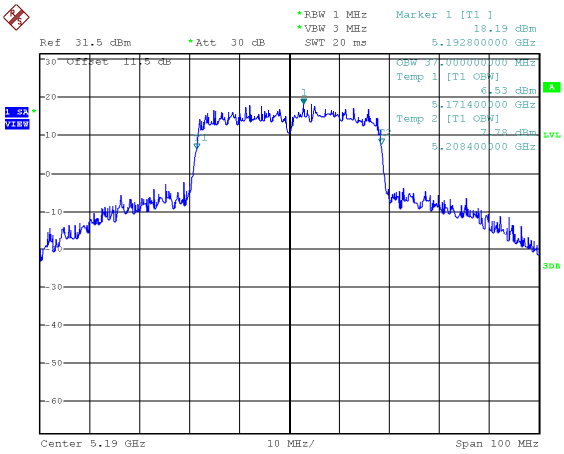
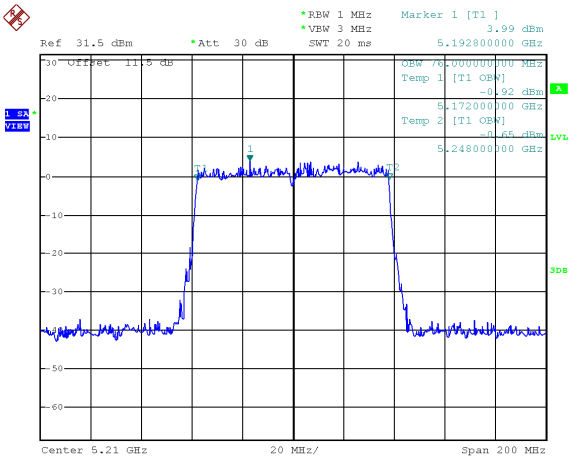


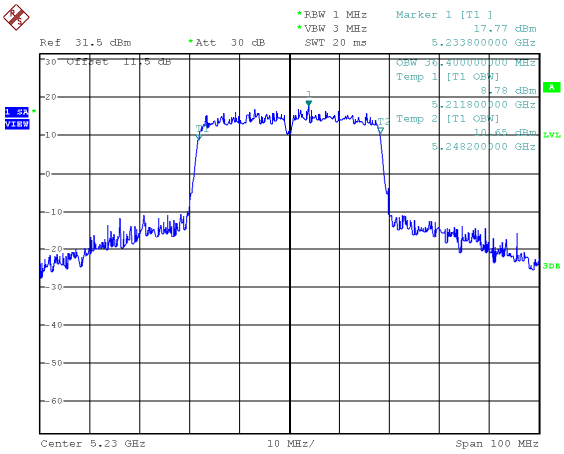
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



CH46



10. Average Power

10.1. Test Limit

Output Power:

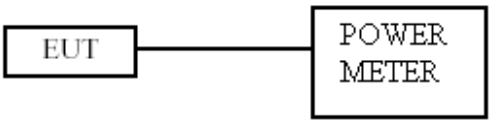
Frequency Band			Limit
☒	5.15~5.25GHz		
	Operating Mode		
	☐	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi 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 exceed125 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

Temperature: 22°C Humidity: 64%
Test Date: Aug. 03, 2018 Test Mode: Non-Beamforming

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (mW)	Total Power dBm)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	36	5180	20.56	19.98	213.303	23.29	30.00
	44	5220	23.52	23.21	434.317	26.38	30.00
	48	5240	23.07	23.03	403.678	26.06	30.00
802.11an HT20	36	5180	19.90	19.41	185.021	22.67	30.00
	44	5220	23.49	23.20	432.287	26.36	30.00
	48	5240	23.08	23.04	404.608	26.07	30.00
802.11an HT40	38	5190	14.52	14.12	54.137	17.33	30.00
	46	5230	23.75	23.46	458.957	26.62	30.00
802.11ac VHT20	36	5180	19.92	19.46	186.483	22.71	30.00
	44	5220	23.51	23.24	435.251	26.39	30.00
	48	5240	23.11	23.06	406.946	26.10	30.00
802.11ac VHT40	38	5190	14.53	14.15	54.381	17.35	30.00
	46	5230	23.77	23.48	461.075	26.64	30.00
802.11ac VHT80	42	5210	13.44	13.22	43.069	16.34	30.00

In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (mW)	Total Power dBm)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	149	5745	23.19	23.49	431.806	26.35	30.00
	157	5785	24.60	25.10	611.997	27.87	30.00
	165	5825	25.08	25.45	672.859	28.28	30.00
802.11an HT20	149	5745	23.20	23.72	444.435	26.48	30.00
	157	5785	24.34	24.86	577.840	27.62	30.00
	165	5825	25.00	25.78	694.670	28.42	30.00
802.11an HT40	151	5755	23.80	24.63	530.286	27.25	30.00
	159	5795	23.15	24.50	488.376	26.89	30.00
802.11ac VHT20	149	5745	23.21	23.76	447.095	26.50	30.00
	157	5785	24.36	24.90	581.927	27.65	30.00
	165	5825	25.10	25.80	703.783	28.47	30.00
802.11ac VHT40	151	5755	23.81	24.66	532.852	27.27	30.00
	159	5795	23.17	24.52	490.631	26.91	30.00
802.11ac VHT80	155	5775	22.46	22.82	367.623	25.65	30.00

Temperature: 22°C Humidity: 64%
Test Date: Aug. 03, 2018 Test Mode: Beamforming

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (mW)	Total Power dBm)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	36	5180	17.55	16.97	106.659	20.28	28.49
	44	5220	20.51	20.20	217.173	23.37	28.49
	48	5240	20.06	20.02	201.853	23.05	28.49
802.11an HT20	36	5180	16.89	16.40	92.517	19.66	28.49
	44	5220	20.48	20.19	216.158	23.35	28.49
	48	5240	20.07	20.03	202.318	23.06	28.49
802.11an HT40	38	5190	11.51	11.11	27.070	14.32	28.49
	46	5230	20.74	20.45	229.494	23.61	28.49
802.11ac VHT20	36	5180	16.91	16.45	93.248	19.70	28.49
	44	5220	20.50	20.23	217.641	23.38	28.49
	48	5240	20.10	20.05	203.487	23.09	28.49
802.11ac VHT40	38	5190	11.52	11.14	27.192	14.34	28.49
	46	5230	20.76	20.47	230.554	23.63	28.49
802.11ac VHT80	42	5210	10.43	10.21	21.536	13.33	28.49

In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (mW)	Total Power dBm)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	149	5745	20.18	20.48	215.918	23.34	28.44
	157	5785	21.59	22.09	306.020	24.86	28.44
	165	5825	22.07	22.44	336.453	25.27	28.44
802.11an HT20	149	5745	20.19	20.71	222.233	23.47	28.44
	157	5785	21.33	21.85	288.940	24.61	28.44
	165	5825	21.99	22.77	347.359	25.41	28.44
802.11an HT40	151	5755	20.79	21.62	265.161	24.24	28.44
	159	5795	20.14	21.49	244.205	23.88	28.44
802.11ac VHT20	149	5745	20.20	20.75	223.563	23.49	28.44
	157	5785	21.35	21.89	290.984	24.64	28.44
	165	5825	22.09	22.79	351.916	25.46	28.44
802.11ac VHT40	151	5755	20.80	21.65	266.444	24.26	28.44
	159	5795	20.16	21.51	245.332	23.90	28.44
802.11ac VHT80	155	5775	19.45	19.81	183.824	22.64	28.44

11. Maximum Power Spectral Density

11.1.Test Limit

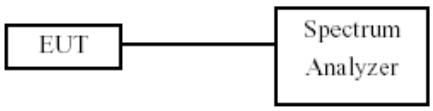
PSD:

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
☐	5.250~5.350 GHz		11 dBm/MHz
☐	5.470~5.725 GHz		11 dBm/MHz
☒	5.725~5.85 GHz		30 dBm/500kHz

11.2.Test Procedure

Reference to KDB789033 D02 General UNII Test Procedures New Rules v02r01

11.3.Test Setup Layout



11.4. Test Result and Data

Temperature: 22°C Humidity: 64%

Test Date: Aug. 03, 2018

In the 5.2G Band

Modulation Type	CH	Freq. (MHz)	Meas PSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PSD (dBm/MHz)	PSD Limit (dBm/MHz)
			ANT A	ANT B				
802.11a	36	5180	9.34	8.46	11.93	0.00	11.93	15.49
	44	5220	12.64	12.23	15.45	0.00	15.45	15.49
	48	5240	12.40	12.09	15.26	0.00	15.26	15.49
802.11ac VHT20	36	5180	8.65	7.95	11.32	0.00	11.32	15.49
	44	5220	12.42	12.08	15.26	0.00	15.26	15.49
	48	5240	12.11	12.02	15.08	0.00	15.08	15.49
802.11ac VHT40	38	5190	0.52	-0.30	3.14	0.00	3.14	15.49
	46	5230	10.21	9.48	12.87	0.00	12.87	15.49
802.11ac VHT80	42	5210	-3.73	-4.35	-1.02	0.22	-0.80	15.49

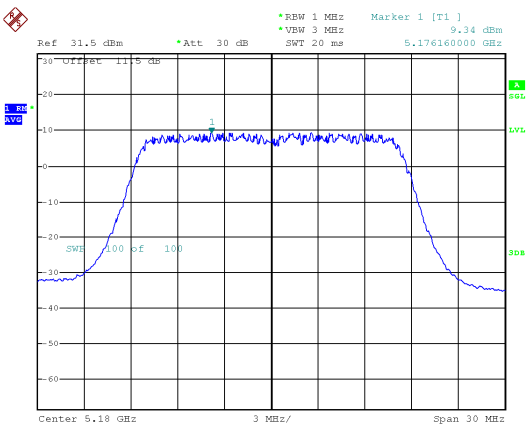
In the 5.8G Band

Modulation Type	CH	Freq. (MHz)	Meas PSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	10log(500KHz/RBW) CF (dB)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)
			ANT A	ANT B					
802.11a	149	5745	11.63	12.11	14.89	0.00	-3.01	11.88	28.44
	157	5785	13.50	13.81	16.67	0.00	-3.01	13.66	28.44
	165	5825	13.79	14.29	17.06	0.00	-3.01	14.05	28.44
802.11ac VHT20	149	5745	11.55	12.08	14.83	0.00	-3.01	11.82	28.44
	157	5785	13.25	13.59	16.43	0.00	-3.01	13.42	28.44
	165	5825	12.51	14.11	16.39	0.00	-3.01	13.38	28.44
802.11ac VHT40	155	5755	10.06	10.32	13.20	0.00	-3.01	10.19	28.44
	159	5795	10.27	10.89	13.60	0.00	-3.01	10.59	28.44
802.11ac VHT80	155	5775	5.39	5.52	8.47	0.22	-3.01	5.68	28.44

5.2G Band 1, ANT A

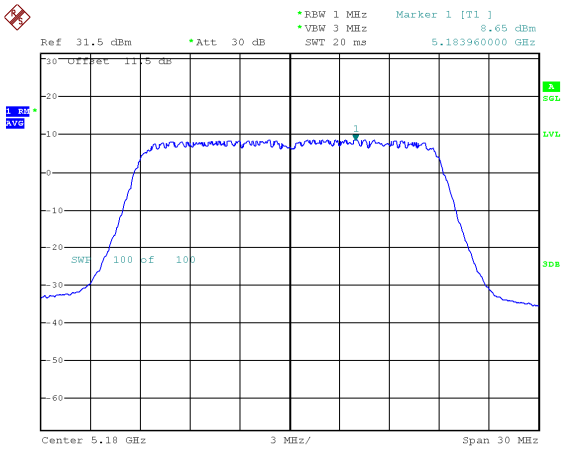
Modulation Standard: 802.11a (6Mbps)

CH36

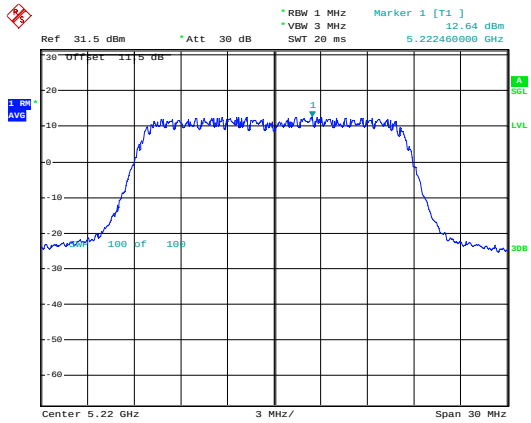


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

CH36



CH44



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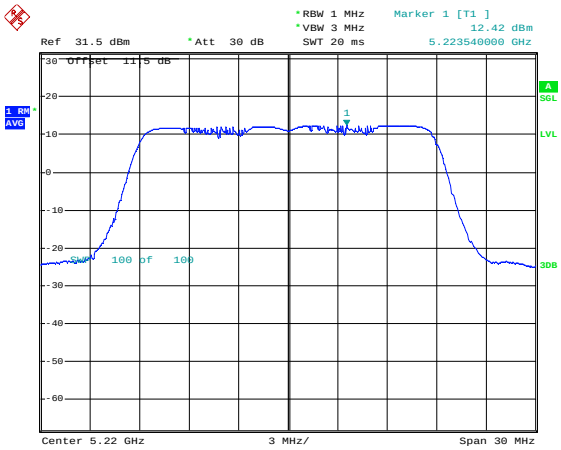
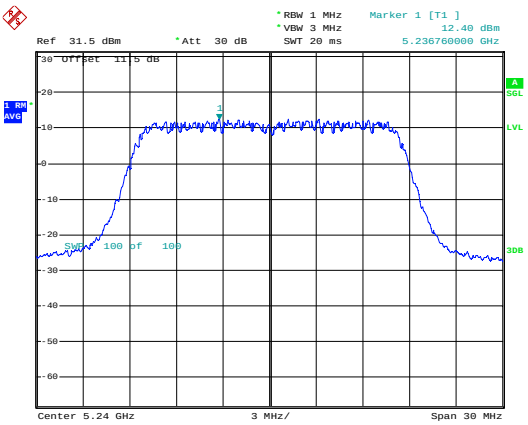
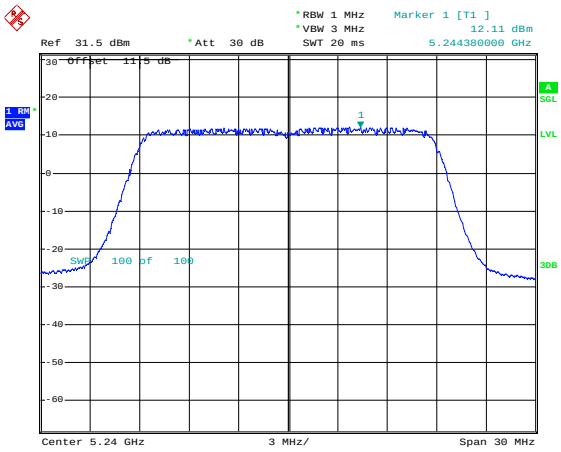


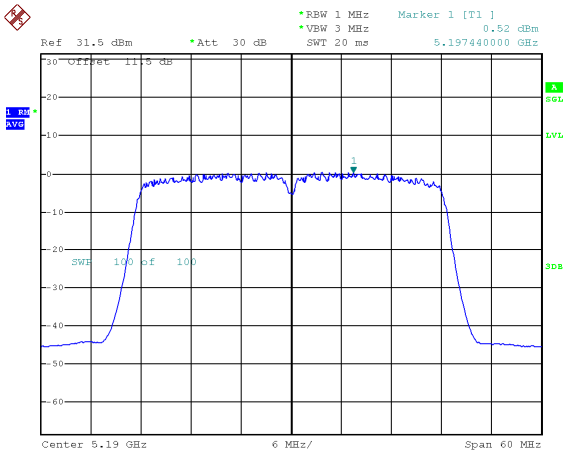
CH48



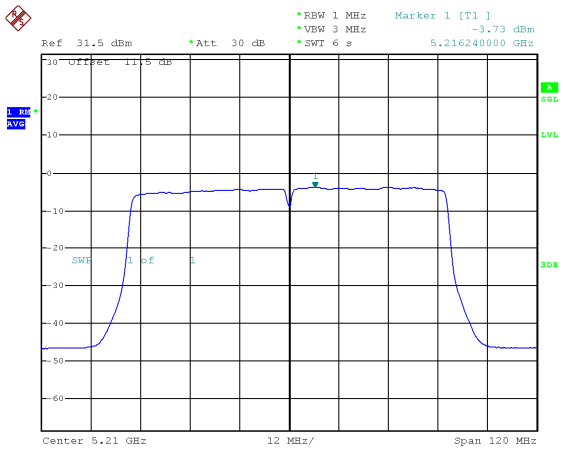
CH48



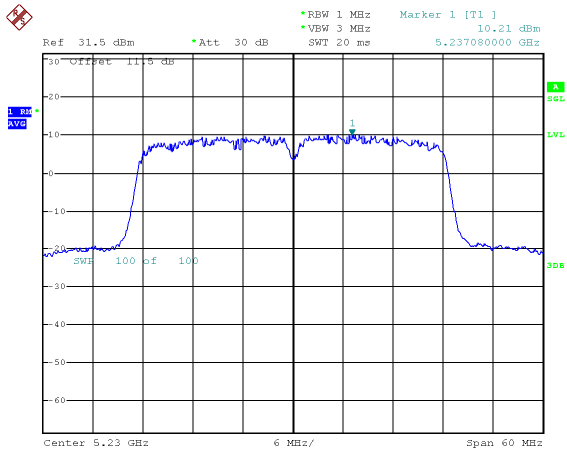
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



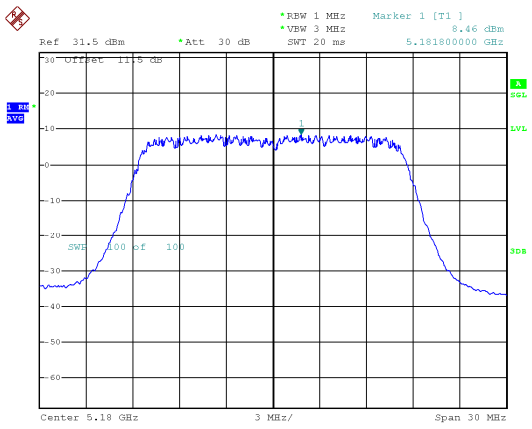
CH46



5.2G Band 1, ANT B

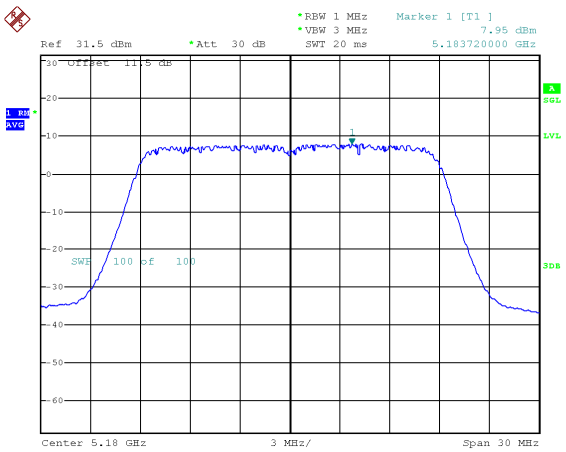
Modulation Standard: 802.11a (6Mbps)

CH36

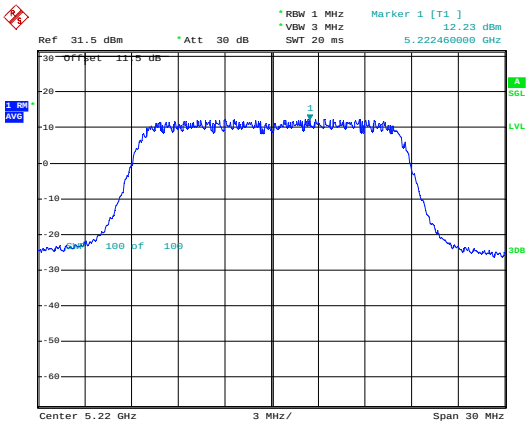


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

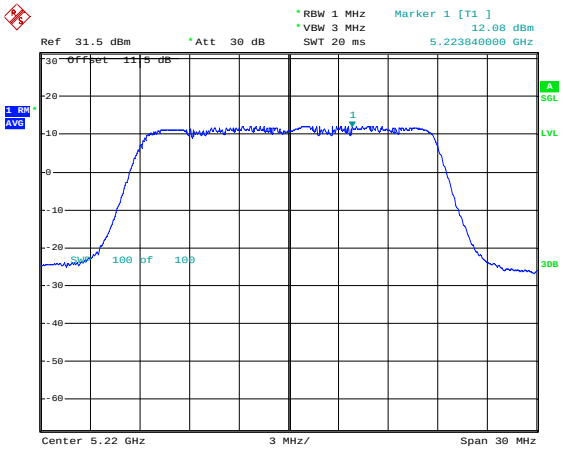
CH36



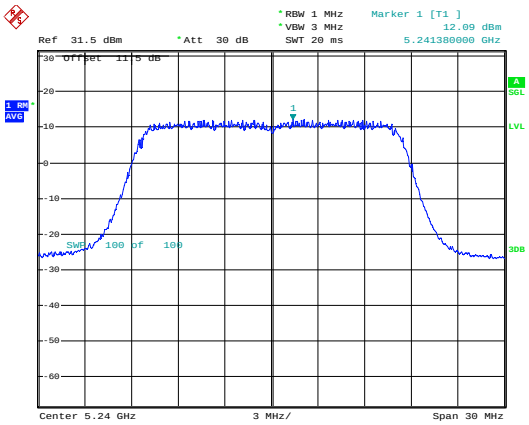
CH44



CH44



CH48



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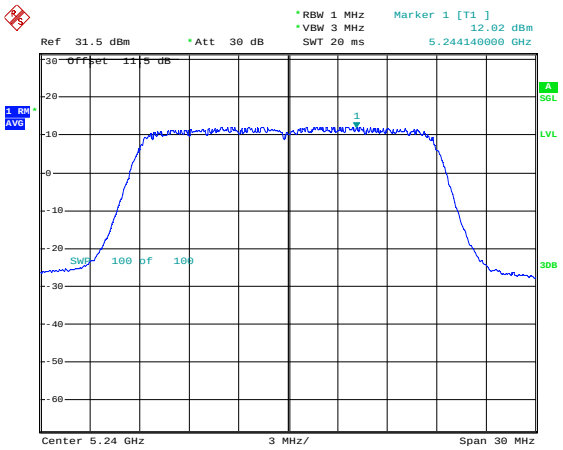
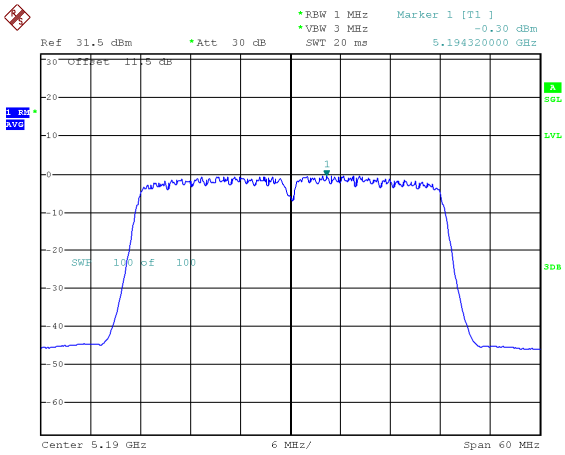
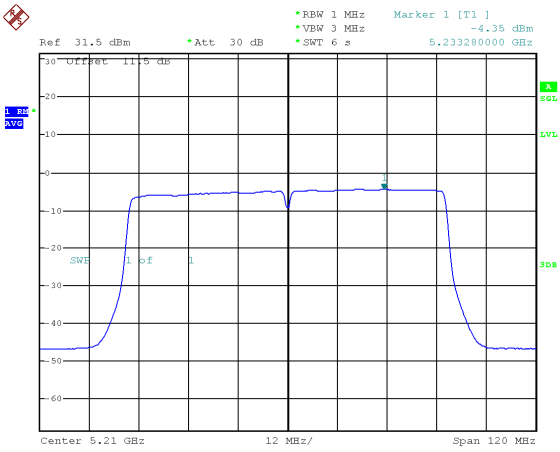


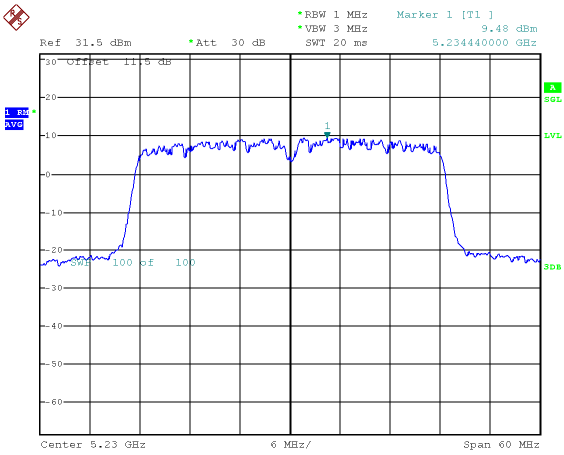
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



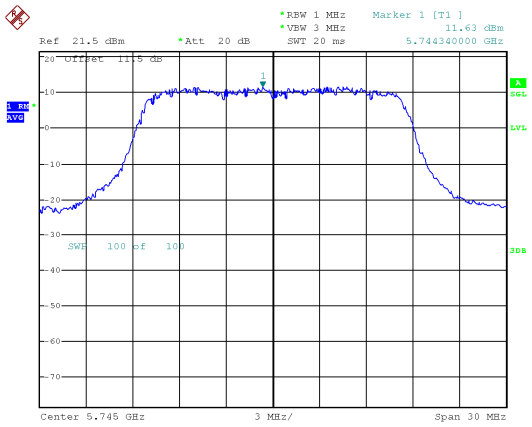
CH46



5.8G Band 4, ANT A

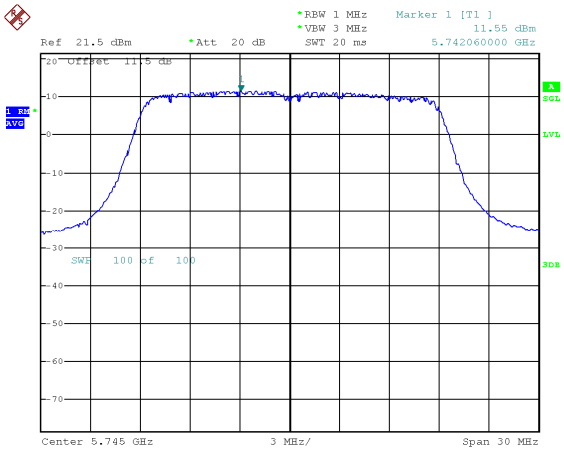
Modulation Standard: 802.11a (6Mbps)

CH149

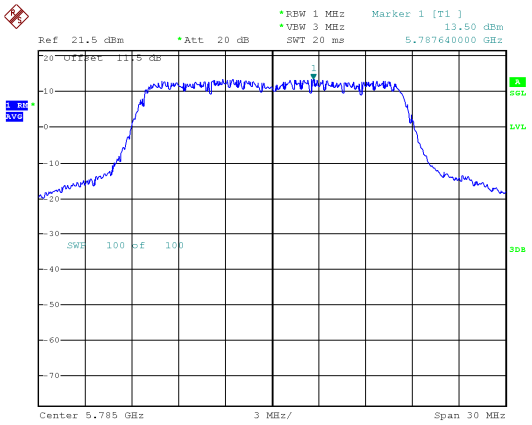


Modulation Standard: 802.11ac VHT20 (6.5Mbps)

CH149



CH157



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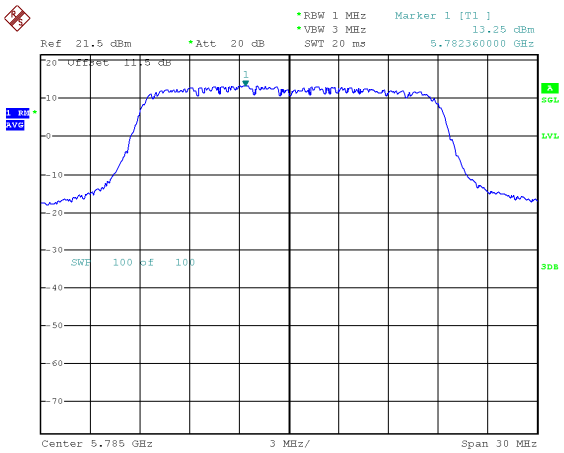

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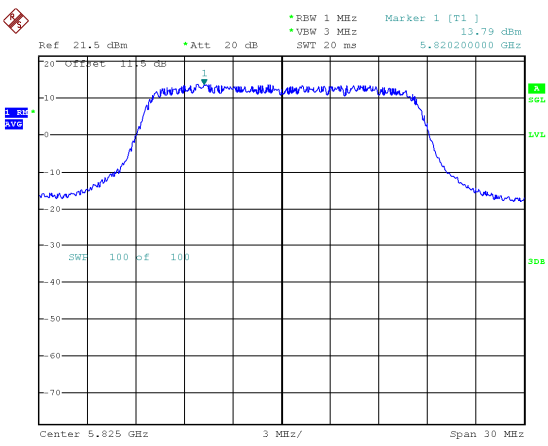

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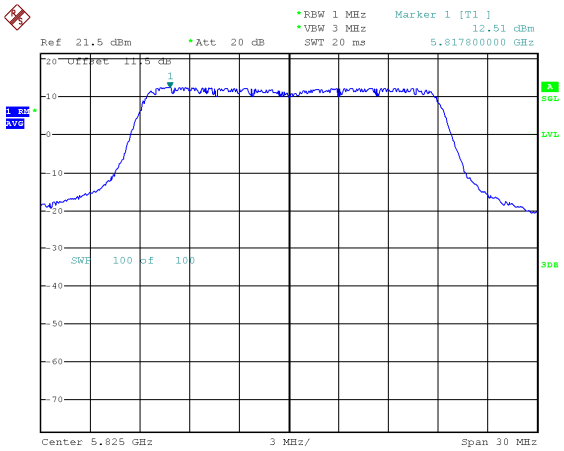
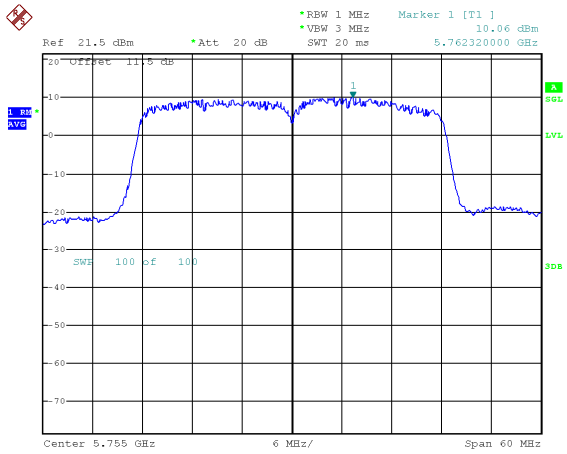
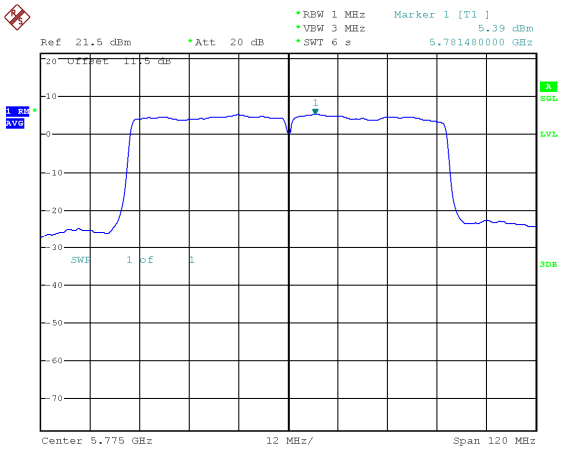


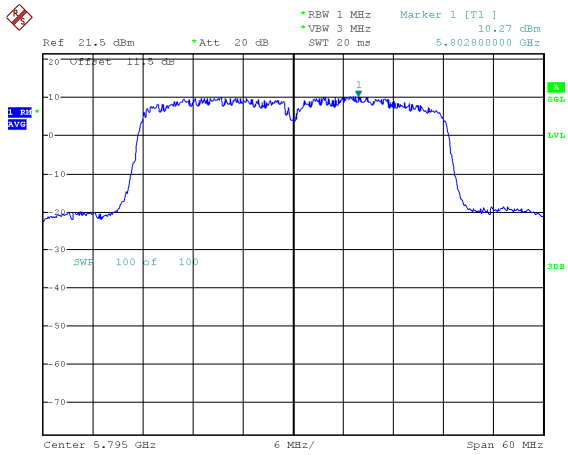
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH151



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH155



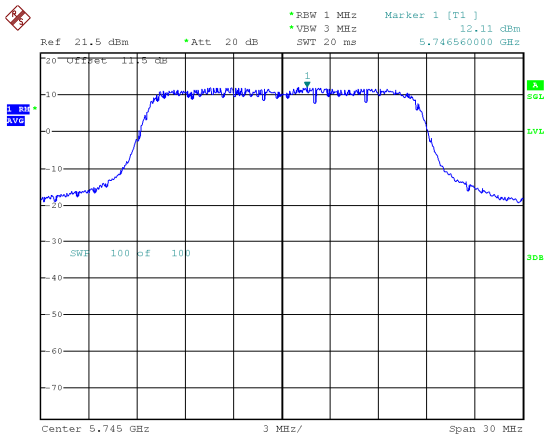
CH159



5.8G Band 4, ANT B

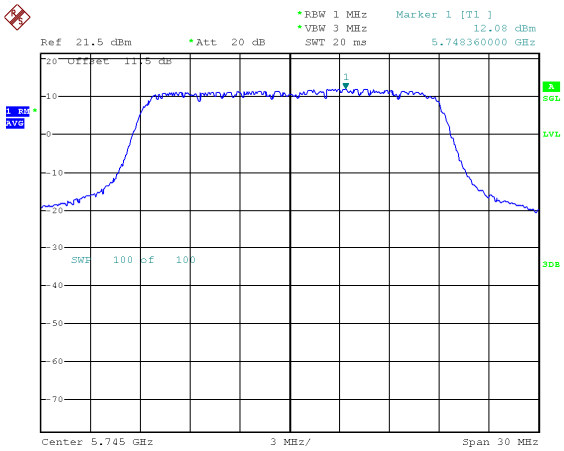
Modulation Standard: 802.11a (6Mbps)

CH149



Modulation Standard: 802.11ac VHT20 (6.5Mbps)

CH149



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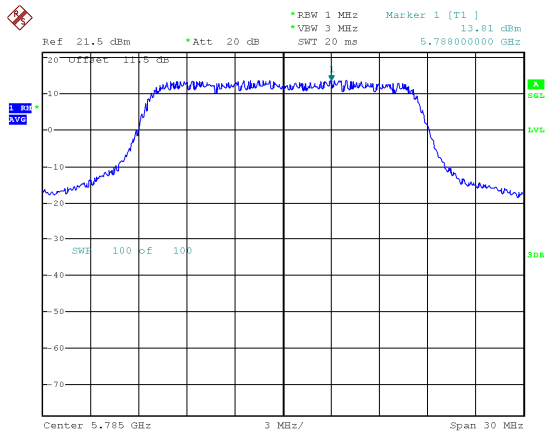

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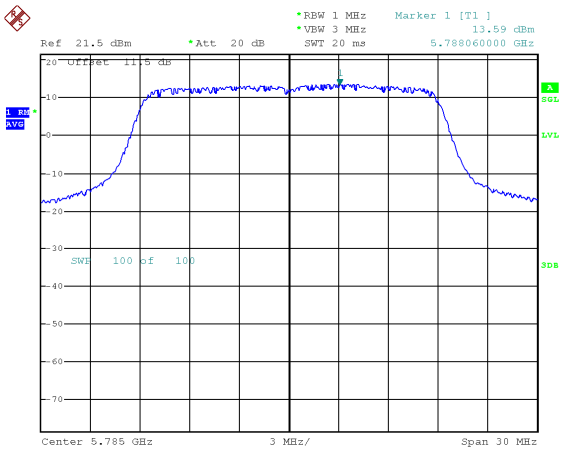

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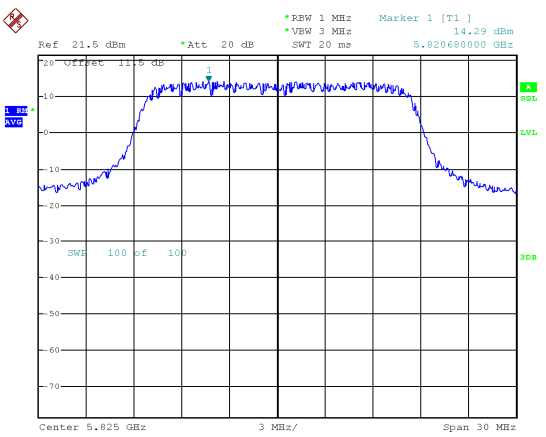

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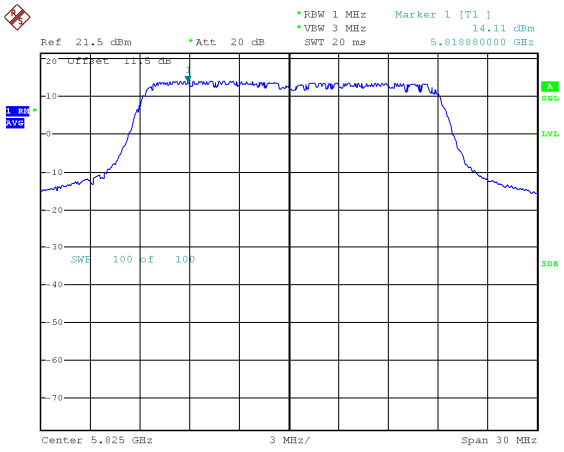
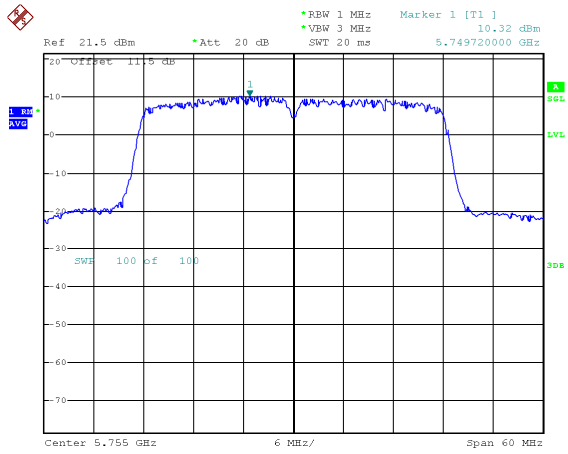
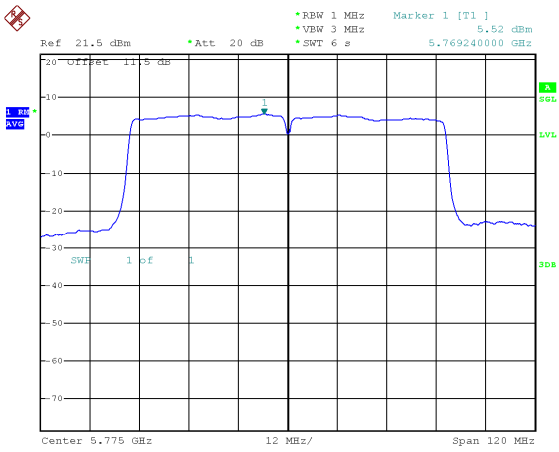


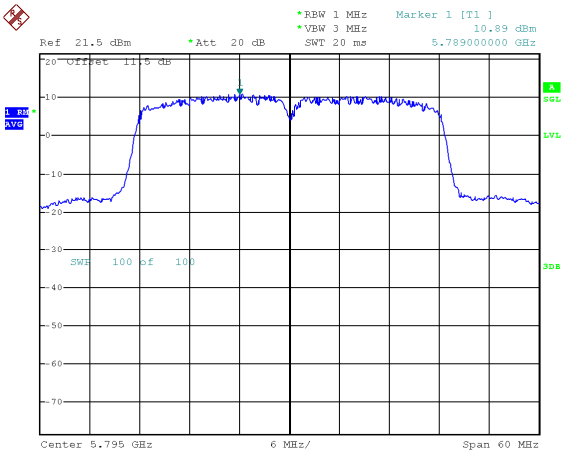
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH151



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH155



CH159

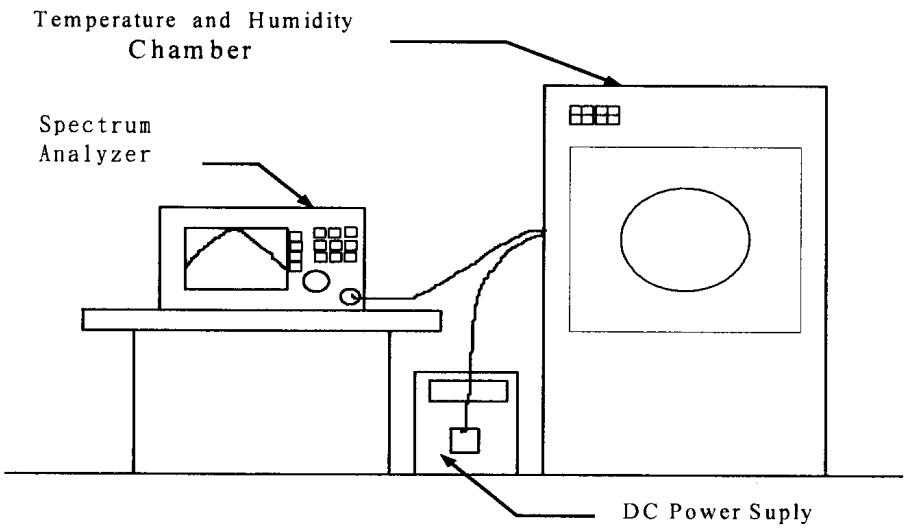


12. Frequency Stability

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

Temperature: 22°C Humidity: 64%

Test Date: Aug. 03, 2018

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(℃)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	102	5179.9094	-0.001749	5180.0809	0.001561	5180.0239	0.000461
	120	5179.9223	-0.001499	5179.9854	-0.000282	5180.0801	0.001547
	138	5180.0079	0.000153	5180.0796	0.001537	5180.0526	0.001016
40	102	5180.0839	0.001620	5180.0193	0.000373	5180.0658	0.001270
	120	5179.9426	-0.001108	5180.0849	0.001639	5180.0780	0.001505
	138	5180.0608	0.001174	5179.9335	-0.001283	5180.0064	0.000124
30	102	5180.0672	0.001297	5179.9736	-0.000510	5179.9265	-0.001419
	120	5180.0913	0.001762	5179.9015	-0.001901	5179.9136	-0.001669
	138	5180.0713	0.001377	5180.0201	0.000388	5180.0313	0.000605
20	102	5180.0320	0.000618	5180.0185	0.000356	5180.0692	0.001335
	120	5179.9145	-0.001650	5179.9112	-0.001715	5179.9464	-0.001035
	138	5180.0031	0.000060	5180.0384	0.000742	5179.9035	-0.001863
10	102	5180.0896	0.001730	5180.0663	0.001280	5179.9653	-0.000669
	120	5180.0870	0.001680	5179.9305	-0.001341	5180.0320	0.000617
	138	5179.9383	-0.001192	5180.0187	0.000361	5180.0344	0.000663
0	102	5179.9599	-0.000774	5180.0780	0.001505	5180.0725	0.001400
	120	5180.0686	0.001325	5180.0782	0.001509	5180.0652	0.001258
	138	5180.0320	0.000618	5179.9369	-0.001219	5180.0646	0.001247
-10	102	5180.0387	0.000748	5179.9404	-0.001151	5180.0754	0.001455
	120	5179.9156	-0.001630	5179.9855	-0.000280	5179.9271	-0.001407
	138	5180.0613	0.001183	5179.9315	-0.001322	5180.0089	0.000172
-20	102	5179.9428	-0.001105	5179.9941	-0.000114	5180.0503	0.000971
	120	5179.9904	-0.000185	5179.9920	-0.000154	5180.0258	0.000499
	138	5179.9670	-0.000637	5180.0638	0.001231	5179.9714	-0.000553
-30	102	5180.0295	0.000570	5179.9642	-0.000692	5179.9341	-0.001272
	120	5179.9899	-0.000195	5180.0561	0.001084	5179.9595	-0.000782
	138	5180.0902	0.001741	5180.0405	0.000782	5180.0620	0.001198

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.

13. Automatically Discontinue Transmission

13.1. Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

13.2. Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

14. Radio Frequency Exposure

14.1. Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in

FCC Part 2 (Section 2.1091)

KDB 447498

14.2. EUT Specification

Frequency band (Operating)	☒ WLAN: 2412MHz ~ 2462MHz ☒ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☒ WLAN: 5725MHz ~ 5850MHz ☐ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: 1. The maximum output power is 28.47dBm (703.783mW) at 5825MHz (with numeric 4.81 antenna gain.) 2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance. 3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.	

14.3. Test Results

No non-compliance noted.

14.4.Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

Where E = Field strength in Volts / meter

P = Power in Watts
G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ **Equation 1**

Where d = Distance in cm
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

14.5.Maximum Permissible Exposure

Max. output power	Non-Beamforming Band: 5150MHz ~ 5250MHz 802.11a: 26.38 dBm (434.317mW) 802.11an HT20: 26.36 dBm (432.287mW) 802.11an HT40: 26.62 dBm (458.957mW) 802.11ac VHT20: 26.39 dBm (435.251mW) 802.11ac VHT40: 26.64 dBm (461.075mW) 802.11ac VHT80: 16.34 dBm (43.069mW) Band: 5725MHz ~ 5850MHz 802.11a: 28.28 dBm (672.859mW) 802.11an HT20: 28.42 dBm (694.670mW) 802.11an HT40: 27.25 dBm (530.286mW) 802.11ac VHT20: 28.47 dBm (703.783mW) 802.11ac VHT40: 27.27 dBm (532.852mW) 802.11ac VHT80: 25.65 dBm (367.623mW) Beamforming Band: 5150MHz ~ 5250MHz 802.11a: 23.37 dBm (217.173mW) 802.11an HT20: 23.35 dBm (216.158mW) 802.11an HT40: 23.61 dBm (229.494mW) 802.11ac VHT20: 23.38 dBm (217.641mW) 802.11ac VHT40: 23.63 dBm (230.554mW) 802.11ac VHT80: 13.33 dBm (21.536mW) Band: 5725MHz ~ 5850MHz 802.11a: 25.27 dBm (336.453mW) 802.11an HT20: 25.41 dBm (347.359mW) 802.11an HT40: 24.24 dBm (265.161mW) 802.11ac VHT20: 25.46 dBm (351.916mW) 802.11ac VHT40: 24.26 dBm (266.444mW) 802.11ac VHT80: 22.64 dBm (183.824mW)
Antenna gain (Max)	5150MHz-5250MHz: ANT A: 4.18 dBi ; ANT B: 4.81 dBi 5725MHz-5850MHz: ANT A: 4.9 dBi ; ANT B: 4.18 dBi

Maximum Permissible Exposure (Non-Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11a	5150-5250	26.38	4.81	25	0.1674	1
802.11a	5725-5850	28.28	4.9	25	0.2647	1
802.11an HT20	5150-5250	26.36	4.81	25	0.1666	1
802.11an HT20	5725-5850	28.42	4.9	25	0.2733	1
802.11an HT40	5150-5250	26.62	4.81	25	0.1769	1
802.11an HT40	5725-5850	27.25	4.9	25	0.2087	1
802.11ac VHT20	5150-5250	26.39	4.81	25	0.1677	1
802.11ac VHT20	5725-5850	28.47	4.9	25	0.2769	1
802.11ac VHT40	5150-5250	26.64	4.81	25	0.1777	1
802.11ac VHT40	5725-5850	27.27	4.9	25	0.2097	1
802.11ac VHT80	5150-5250	16.34	4.81	25	0.0166	1
802.11ac VHT80	5725-5850	25.65	4.9	25	0.1446	1

Maximum Permissible Exposure (Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11a	5150-5250	23.37	7.51	25	0.1559	1
802.11a	5725-5850	25.27	7.56	25	0.2442	1
802.11an HT20	5150-5250	23.35	7.51	25	0.1551	1
802.11an HT20	5725-5850	25.41	7.56	25	0.2522	1
802.11an HT40	5150-5250	23.61	7.51	25	0.1647	1
802.11an HT40	5725-5850	24.24	7.56	25	0.1925	1
802.11ac VHT20	5150-5250	23.38	7.51	25	0.1562	1
802.11ac VHT20	5725-5850	25.46	7.56	25	0.2555	1
802.11ac VHT40	5150-5250	23.63	7.51	25	0.1655	1
802.11ac VHT40	5725-5850	24.26	7.56	25	0.1934	1
802.11ac VHT80	5150-5250	13.33	7.51	25	0.0155	1
802.11ac VHT80	5725-5850	22.64	7.56	25	0.1334	1

Maximum Permissible Exposure (Co-location)

(Non-Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
VHT20	2412-2462	27.56	4.85	25	0.2220
802.11ac VHT40	5150-5250	26.64	4.81	25	0.1777
802.11ac VHT20	5725-5850	28.47	4.9	25	0.2769
Co-location Total					0.6766
Maximum Permissible Exposure Limit					1

(Beamforming)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
VHT20	2412-2462	24.55	7.64	25	0.2110
802.11ac VHT40	5150-5250	23.63	7.51	25	0.1655
802.11ac VHT20	5725-5850	25.46	7.56	25	0.2555
Co-location Total					0.632
Maximum Permissible Exposure Limit					1