



FCC RADIO TEST REPORT

Applicant : Delta Electronics Incorporated
Address : 3, Tungyuan Road Chungli Industrial Zone Taoyuan
County 32063, Taoyuan Taiwan
Equipment : OPS computer
Model No. : VKA-K1
Trade Name : Vivitek
FCC ID : H79-VKA-K1

I HEREBY CERTIFY THAT :

The sample was received on Oct. 09, 2019 and the testing was carried out on Oct. 29, 2019 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





CONTENTS

- 1. Summary of Test Procedure and Test Results 5
 - 1.1. Applicable Standards 5
- 2. Test Configuration of Equipment under Test 6
 - 2.1. Feature of Equipment under Test..... 6
 - 2.2. Carrier Frequency of Channels 6
 - 2.3. Test Mode and Test Software 7
 - 2.4. Description of Test System..... 8
 - 2.5. General Information of Test..... 9
 - 2.6. Measurement Uncertainty 10
- 3. Test Equipment and Ancillaries Used for Tests 11
- 4. Antenna Requirements..... 13
 - 4.1. Standard Applicable 13
 - 4.2. Antenna Construction and Directional Gain..... 13
- 5. Test of AC Power Line Conducted Emission 14
 - 5.1. Test Limit 14
 - 5.2. Test Procedures 14
 - 5.3. Typical Test Setup 15
 - 5.4. Test Result and Data 16
 - 5.5. Test Photographs 20
- 6. Test of Spurious Emission (Radiated) 21
 - 6.1. Test Limit 21
 - 6.2. Test Procedures 21
 - 6.3. Typical Test Setup 22
 - 6.4. Test Result and Data (9kHz ~ 30MHz)..... 23
 - 6.5. Test Result and Data (30MHz ~ 1GHz)..... 23
 - 6.6. Test Result and Data (1GHz ~ 40GHz)..... 25
 - 6.7. Restricted Bands of Operation 55
 - 6.8. Test Photographs (30MHz ~ 1GHz)..... 56
 - 6.9. Test Photographs (1GHz ~ 40GHz)..... 57
- 7. On Time, Duty Cycle and Measurement methods 58
 - 7.1. Test Limit 58
 - 7.2. Test Procedure 58
 - 7.3. Test Setup Layout 58
 - 7.4. Test Result and Data 58
 - 7.5. Measurement Methods 58
- 8. 6dB Bandwidth & 99% Bandwidth..... 60
 - 8.1. Test Limit 60
 - 8.2. Test Procedure 60
 - 8.3. Test Setup Layout 60
 - 8.4. Test Result and Data (6dB Bandwidth) 61
 - 8.5. Test Result and Data (99% Bandwidth) 62
- 9. 26dB Bandwidth & 99% Bandwidth..... 71
 - 9.1. Test Limit 71



- 9.2. Test Procedure 71
- 9.3. Test Setup Layout 71
- 9.4. Test Result and Data 71
- 10. Average Power 76
 - 10.1. Test Limit 76
 - 10.2. Test Procedure 77
 - 10.3. Test Setup Layout 77
 - 10.4. Test Result and Data 78
- 11. PPSD 80
 - 11.1. Test Limit 80
 - 11.2. Test Procedure 80
 - 11.3. Test Setup Layout 80
 - 11.4. Test Result and Data 81
- 12. Frequency Stability 91
 - 12.1. Test Procedure 91
 - 12.2. Test Setup Layout 91
 - 12.3. Test Result and Data 92
- 13. Automatically Discontinue Transmission 93
 - 13.1. Limit of Automatically Discontinue Transmission 93
 - 13.2. Test Result of Automatically Discontinue Transmission 93



History of this test report

Report No.	Issue Date	Description
TEDL1910097	Oct. 31, 2019	Original

Report Type		Description
<input checked="" type="checkbox"/>	Original report	NA
<input type="checkbox"/>	Derivative Report	NA



1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E §15.407

KDB789033

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)	Output and PPSD	Pass
15.407(g)	Frequency Stability	Pass
15.407(c)	Automatically Discontinue Transmission	Pass
2.1091	Radio Frequency Exposure	Pass

*The lab has lowered the uncertainty risk of test equipment, environment, and staff technicians according to ISO-IEC17025. Therefore we define test result as compliant when it complies with the standard without further evaluation of test result uncertainty.



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Frequency Range	802.11a/n/ac: 5150-5250MHz, 5725-5850MHz
Modulation	802.11b: CCK, DQPSK, DBPSK 802.11a/g: 64-QAM,16-QAM, QPSK, BPSK 802.11n: 64-QAM,16-QAM, QPSK, BPSK 802.11ac: 256-QAM,64-QAM,16-QAM, QPSK, BPSK
Wireless Data Rate	802.11b: 1, 2 ,5.5,11Mbps 802.11a/g: 6,9,12,18,24,36,48,54Mbps 802.11n: HT20 reach up to144.4Mbps, HT40 reach up to300Mbps 802.11ac: VHT20 reach up to173.3Mbps, VHT40 reach up to400Mbps, VHT80 reach up to 866.7Mbps

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 LCD monitor, Adapter and Mouse.
An executive program, " RFTestTool.apk" under Android was executed to transmit and receive data via WLAN.
- c. 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)
5	802.11ac VHT20 (13Mbps)
6	802.11ac VHT40 (27Mbps)
7	802.11ac VHT80 (58.5Mbps)
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)
2	802.11ac VHT20 (6.5Mbps)
3	802.11ac VHT40 (13.5Mbps)
4	802.11ac VHT80 (29.3Mbps)
5	802.11ac VHT20 (13Mbps)
6	802.11ac VHT40 (27Mbps)
7	802.11ac VHT80 (58.5Mbps)
caused "Test Mode 1" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz for 1TX) & Conducted measurement	
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 1~4" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz for 2TX) & Conducted measurement	
Test Mode	Operating Description
1	802.11ac VHT20 (13Mbps)
2	802.11ac VHT40 (27Mbps)
3	802.11ac VHT80 (58.5Mbps)
caused "Test Mode 1~3" generated the worst case, they were reported as the final data.	



2.4. Description of Test System

Device	Manufacturer	Model No.	Description
LCD monitor	DELL	U2713HMT	Power Cable, Unshielding, 1.7m
Adapter	APD	DA-60A12	Power Cable, Unshielding, 1.7m
Mouse	DELL	G0K02XYK	N/A

**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, 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.	

Test Item	Test Site	Tested Date	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2019/10/21	22°C / 63%	Nick Guan
Radiated Emissions	3M01-NK	2019/10/20	26°C / 51%	Nick Guan
AC Power Line Conducted Emission	CON01-NK	2019/10/24	25°C / 48%	Nick Guan



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	±1.2oC
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**

Test Item	Radiated Emissions				
Test Site	Semi Anechoic Room(3M02-NK)				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Bilog Antenna	Schwarzbeck	VULB9168	275	2019/09/24	2020/09/23
Active Loop Antenna	EMCO	6507	40855	2019/05/24	2020/05/23
Horn Antenna	EMCO	3115	31589	2019/04/01	2020/03/31
Horn Antenna	EMCO	3116	31974	2019/09/17	2020/09/16
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2019/05/14	2020/05/13
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2019/03/28	2020/03/27
Preamplifier	EM Electronics corp.	EM330	60660	2019/03/11	2020/03/10
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2019/09/20	2020/09/19
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Cable-3in1(30 M-1G)	HARBOUR INDUSTRIES	LL142	CCE1316	2019/09/20	2020/09/19
Cable-0.5m(1G-40G)	Rapidtek	40GHZ 50CM	38MS-38MS50314	2019/04/09	2020/04/08
Cable-3m(1G-40G)	Rapidtek	40GHZ 300CM	38MS-38MS300314	2019/04/09	2020/04/08
Cable-8m(1G-40G)	Rapidtek	40GHZ 800CM	38MS-38MS800314	2019/04/10	2020/04/09
E3	AUDIX	v8.2014-8-6	RK-000529	NA	NA

Test Item	RF Conducted				
Test Site	RFCON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100047	2019/03/28	2020/03/27
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Attenuator	KEYSIGHT	8491B	MY39250703	2019/09/12	2020/09/11
TEMP & HUMIDITY CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2019/08/28	2020/08/27
Power Sensor	Anritsu	MA2411B	1207295	2019/04/11	2020/04/10



Test Item	AC Power Line Conducted Emission				
Test Site	CON02-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	100821	2019/09/16	2020/09/15
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-740	2019/05/22	2020/05/21
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101933	2019/09/11	2020/09/10
Cable-6m(9k~300M)	NA	CFD300-NL	NA	2019/03/28	2020/03/27
E3	AUDIX	v8.2014-8-6	RK-000536	NA	NA



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	Dipole Antenna
Antenna Gain	2400MHz-2500MHz: ANT A: 1.86 dBi ; ANT B: 1.86 dBi 5150MHz-5250MHz: ANT A: 0.40 dBi ; ANT B: 0.40 dBi 5725MHz-5850MHz: ANT A: 0.11 dBi ; ANT B: 0.11 dBi

2412-2462MHz
For Power directional gain= $G_{ant}= 1.86$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 4.87 (dBi)
5150MHz -5250MHz
For Power directional gain= $G_{ant}=0.40$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 3.41 (dBi)
5725MHz -5850MHz
For Power directional gain= $G_{ant}= 0.11$ dBi For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2 / N_{ANT}]$ = 3.12 (dBi)



5. Test of AC Power Line Conducted Emission

5.1. Test Limit

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

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

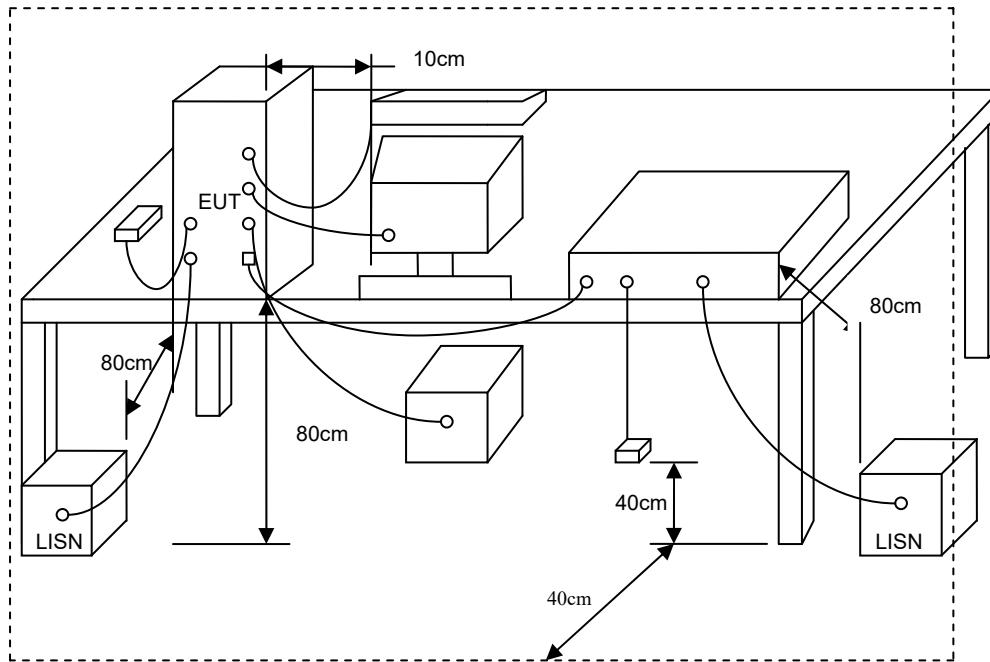
*Decreases with the logarithm of the frequency.

5.2. Test Procedures

- 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.



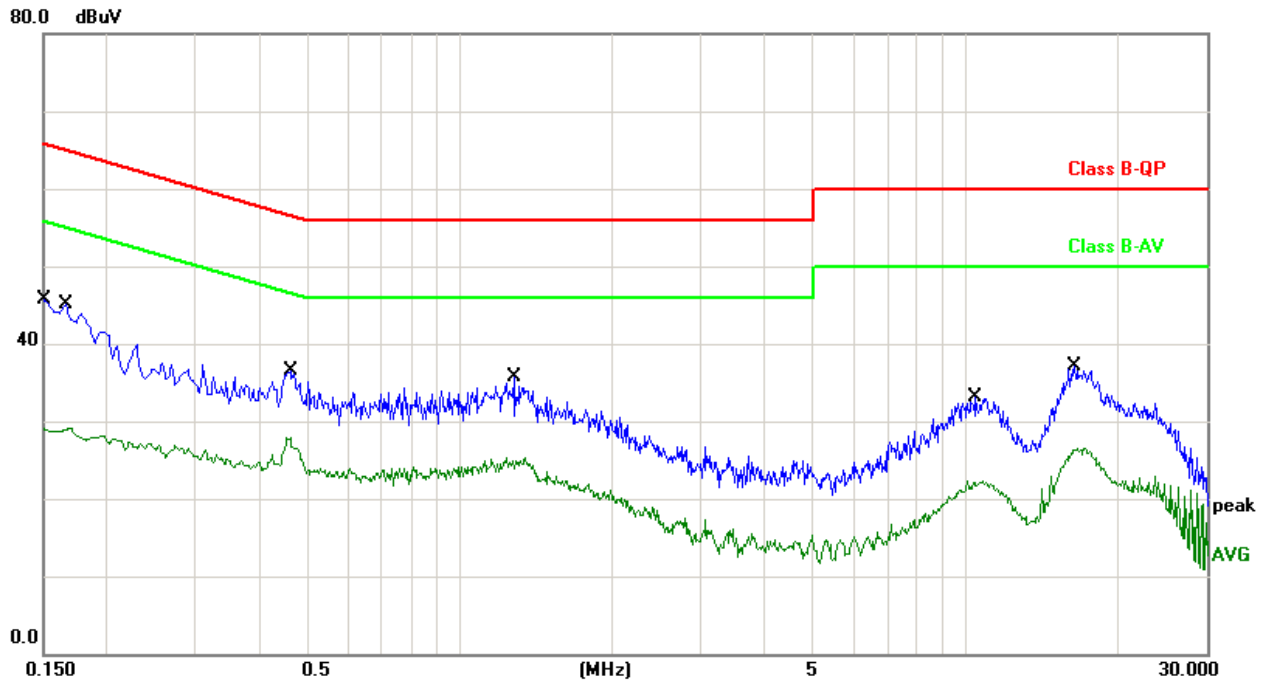
5.3. Typical Test Setup





5.4. Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: Mode 1, Band 1	Temperature	: 26 °C
Test date	: Oct. 21, 2019	Humidity	: 48 %

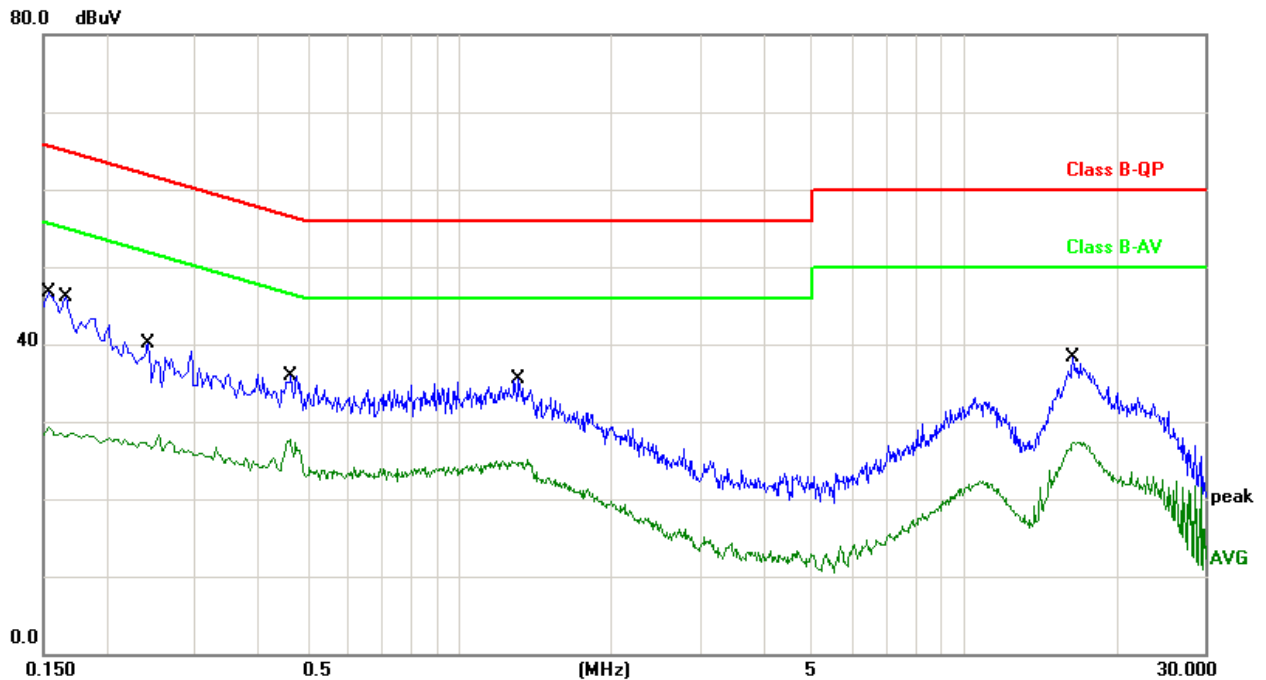


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.06	28.94	39.00	65.99	-26.99	QP
2	0.1500	10.06	18.65	28.71	55.99	-27.28	AVG
3	0.1660	10.06	27.04	37.10	65.15	-28.05	QP
4	0.1660	10.06	18.28	28.34	55.15	-26.81	AVG
5	0.4620	9.91	21.95	31.86	56.66	-24.80	QP
6	0.4620	9.91	17.81	27.72	46.66	-18.94	AVG
7	1.2780	10.39	19.34	29.73	56.00	-26.27	QP
8	1.2780	10.39	14.12	24.51	46.00	-21.49	AVG
9	10.4540	10.30	16.29	26.59	60.00	-33.41	QP
10	10.4540	10.30	10.96	21.26	50.00	-28.74	AVG
11	16.4740	10.42	21.22	31.64	60.00	-28.36	QP
12	16.4740	10.42	15.94	26.36	50.00	-23.64	AVG

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	: 26 °C
Test date	: Oct. 21, 2019	Humidity	: 48 %

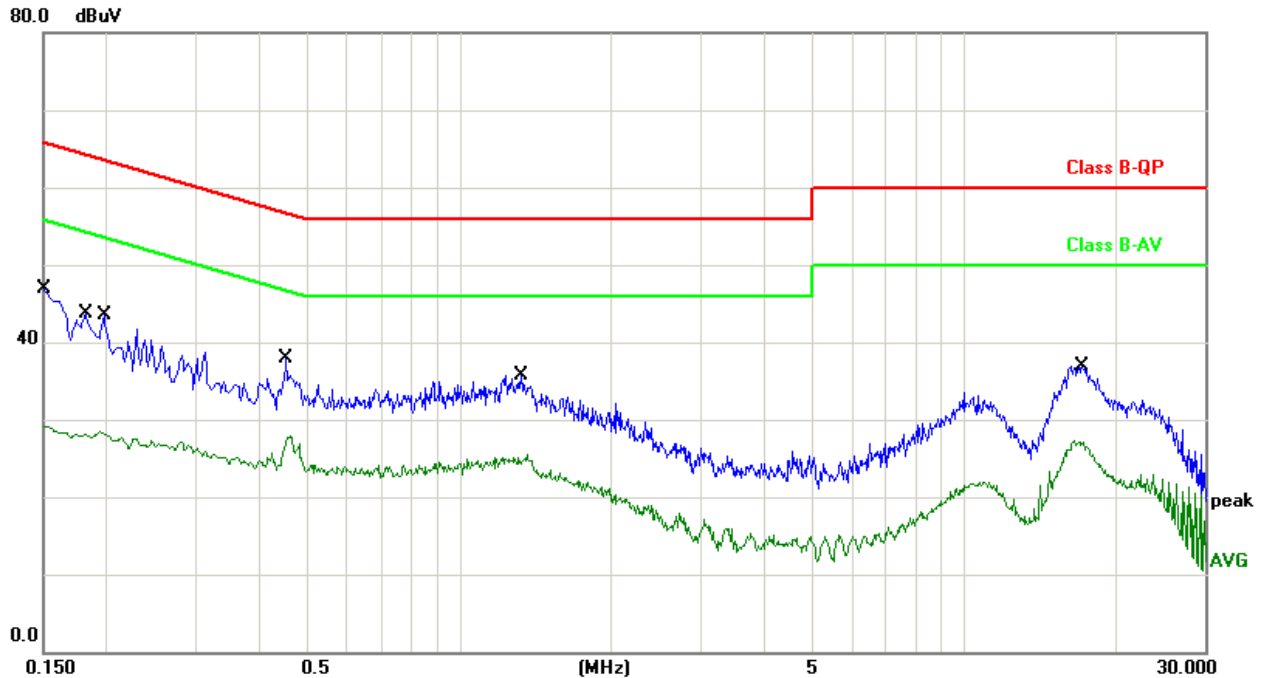


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	10.06	28.77	38.83	65.78	-26.95	QP
2	0.1539	10.06	18.60	28.66	55.78	-27.12	AVG
3	0.1660	10.06	27.28	37.34	65.15	-27.81	QP
4	0.1660	10.06	18.38	28.44	55.15	-26.71	AVG
5	0.2420	10.04	22.83	32.87	62.02	-29.15	QP
6	0.2420	10.04	16.84	26.88	52.02	-25.14	AVG
7	0.4660	9.91	20.92	30.83	56.58	-25.75	QP
8	0.4660	9.91	16.53	26.44	46.58	-20.14	AVG
9	1.3099	10.14	19.22	29.36	56.00	-26.64	QP
10	1.3099	10.14	14.07	24.21	46.00	-21.79	AVG
11	16.4740	10.42	21.81	32.23	60.00	-27.77	QP
12	16.4740	10.42	16.48	26.90	50.00	-23.10	AVG

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	: 26 °C
Test date	: Oct. 21, 2019	Humidity	: 48 %

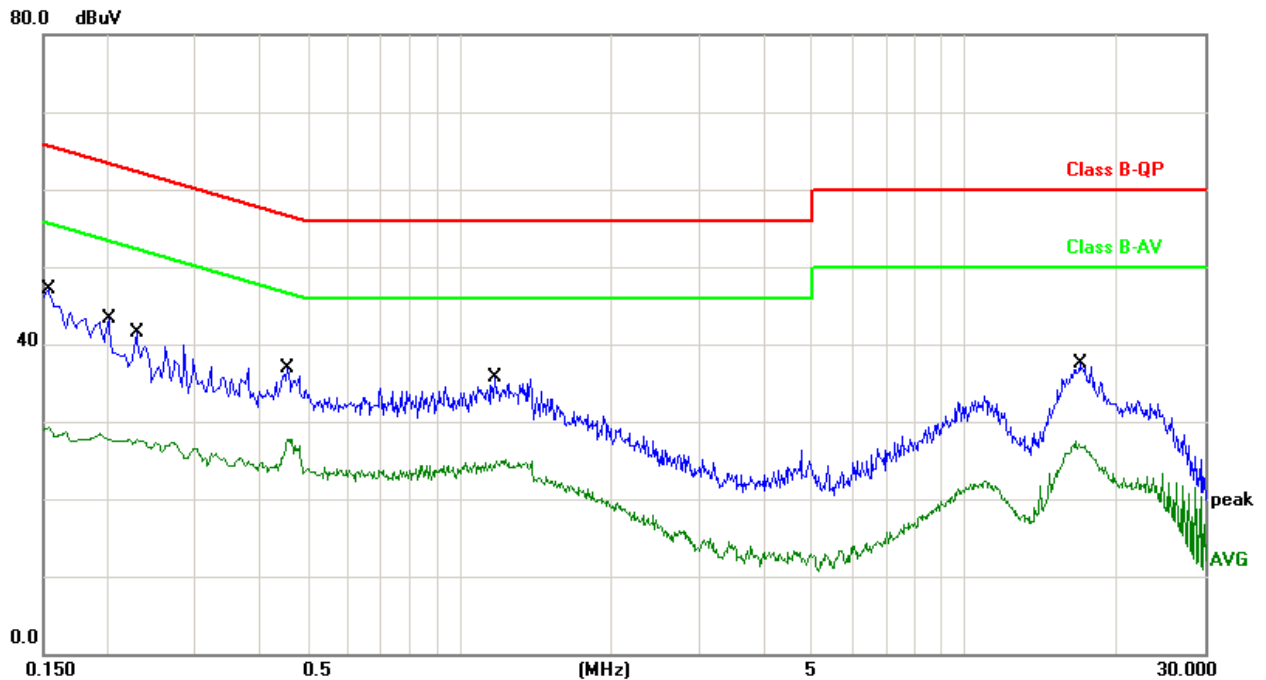


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.06	29.26	39.32	65.99	-26.67	QP
2	0.1500	10.06	18.75	28.81	55.99	-27.18	AVG
3	0.1819	10.06	25.46	35.52	64.39	-28.87	QP
4	0.1819	10.06	17.85	27.91	54.39	-26.48	AVG
5	0.1980	10.06	24.22	34.28	63.69	-29.41	QP
6	0.1980	10.06	17.80	27.86	53.69	-25.83	AVG
7	0.4540	9.92	21.55	31.47	56.80	-25.33	QP
8	0.4540	9.92	17.37	27.29	46.80	-19.51	AVG
9	1.3300	10.44	19.24	29.68	56.00	-26.32	QP
10	1.3300	10.44	14.03	24.47	46.00	-21.53	AVG
11	17.1180	10.44	20.88	31.32	60.00	-28.68	QP
12	17.1180	10.44	15.67	26.11	50.00	-23.89	AVG

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	: 26 °C
Test date	: Oct. 21, 2019	Humidity	: 48 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1539	10.06	28.93	38.99	65.78	-26.79	QP
2	0.1539	10.06	18.61	28.67	55.78	-27.11	AVG
3	0.2020	10.06	24.21	34.27	63.52	-29.25	QP
4	0.2020	10.06	17.50	27.56	53.52	-25.96	AVG
5	0.2300	10.04	22.94	32.98	62.45	-29.47	QP
6	0.2300	10.04	17.03	27.07	52.45	-25.38	AVG
7	0.4580	9.91	22.09	32.00	56.73	-24.73	QP
8	0.4580	9.91	17.74	27.65	46.73	-19.08	AVG
9	1.1740	10.14	18.82	28.96	56.00	-27.04	QP
10	1.1740	10.14	13.81	23.95	46.00	-22.05	AVG
11	17.0140	10.44	21.01	31.45	60.00	-28.55	QP
12	17.0140	10.44	15.64	26.08	50.00	-23.92	AVG

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

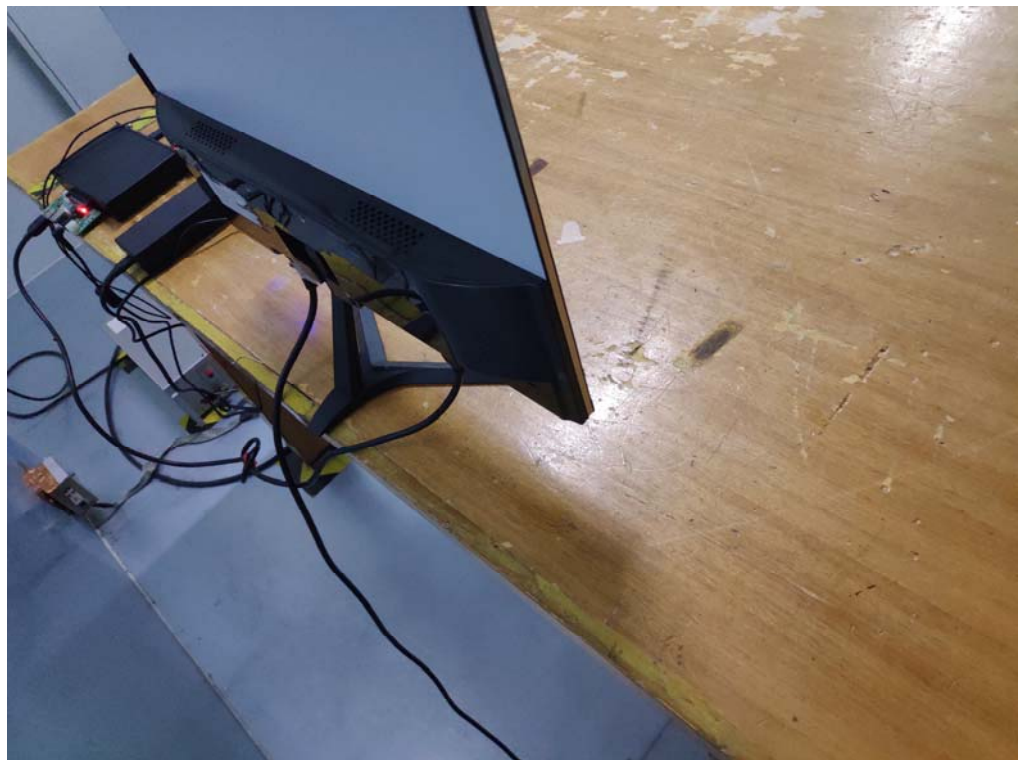


5.5. Test Photographs

Front View



Rear View





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.

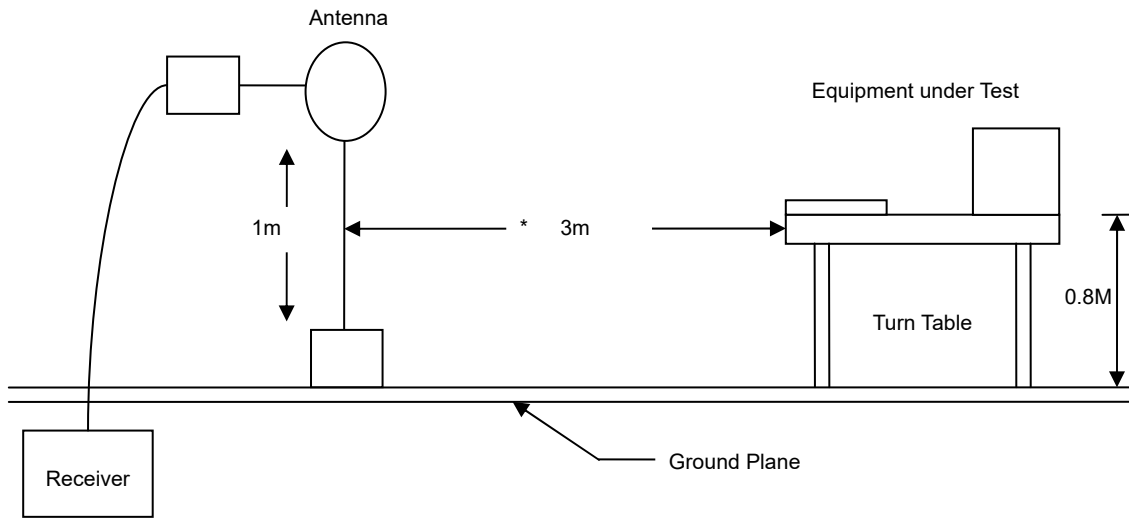
6.2. Test Procedures

- 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.

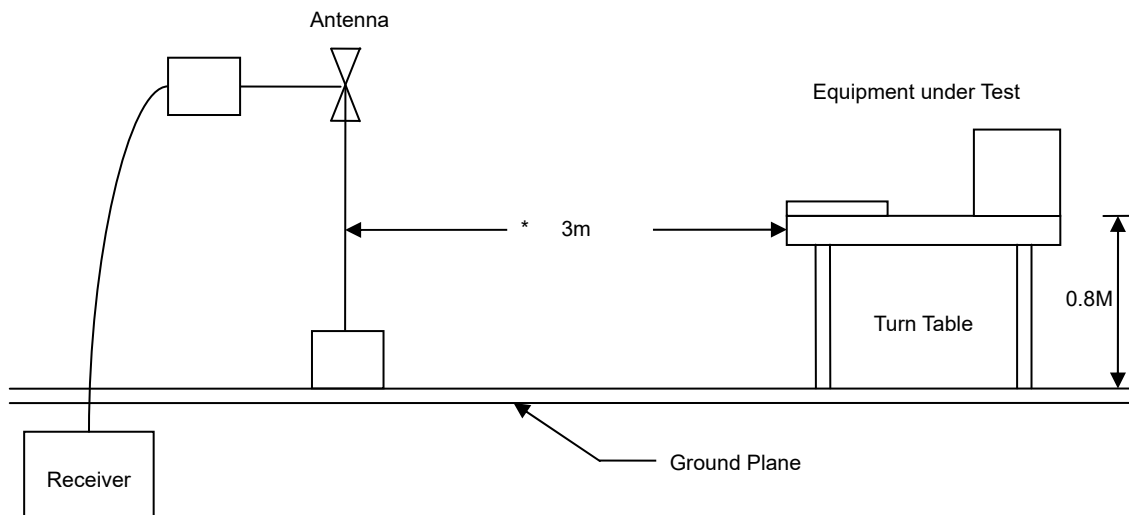


6.3. Typical Test Setup

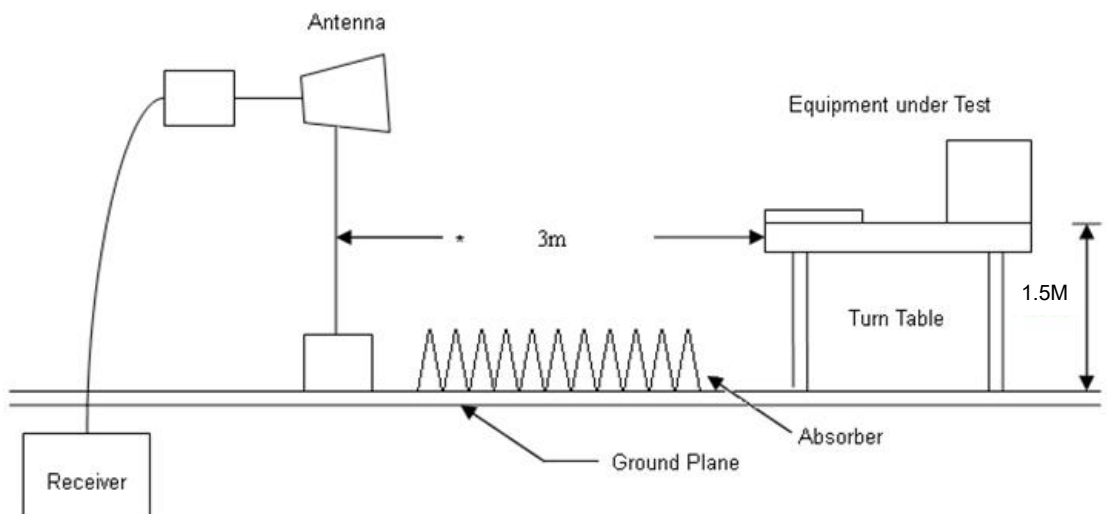
Below 30MHz test setup



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/60Hz	Temperature	: 24 °C
Test Mode	: Mode 1, Band 1	Humidity	: 54 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Correct Factor (dB)	Reading level (dBuV)	Measure Level (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)	Detector mode (PK/QP)	AntPol. H/V
125.0600	-10.55	45.62	35.07	43.50	-8.43	peak	H
216.2400	-9.04	41.54	32.50	46.00	-13.50	peak	H
250.1900	-6.29	44.51	38.22	46.00	-7.78	peak	H
400.5400	-6.43	41.28	34.85	46.00	-11.15	peak	H
625.5800	-2.37	36.11	33.74	46.00	-12.26	peak	H
875.8400	1.87	34.59	36.46	46.00	-9.54	peak	H
54.2500	-17.38	48.97	31.59	40.00	-8.41	peak	V
71.7099	-17.20	48.52	31.32	40.00	-8.68	peak	V
125.0600	-10.55	45.32	34.77	43.50	-8.73	peak	V
217.2100	-7.93	35.72	27.79	46.00	-18.21	peak	V
480.0800	-1.92	31.18	29.26	46.00	-16.74	peak	V
625.5800	-2.37	36.29	33.92	46.00	-12.08	peak	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 24 °C
Test Mode	: Mode 1, Band 2	Humidity	: 54 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Correct Factor (dB)	Reading level (dBuV)	Measure Level (dBuV/m)	Limit 3m (dBuV/m)	Safe Margin (dB)	Detector mode (PK/QP)	AntPol. H/V
125.0600	-10.55	46.95	36.40	43.50	-7.10	peak	H
217.2100	-8.93	37.92	28.99	46.00	-17.01	peak	H
250.1900	-6.29	44.52	38.23	46.00	-7.77	peak	H
400.5400	-6.43	42.36	35.93	46.00	-10.07	peak	H
625.5800	-2.37	36.52	34.15	46.00	-11.85	peak	H
875.8400	1.87	33.47	35.34	46.00	-10.66	peak	H
58.1300	-18.03	48.58	30.55	40.00	-9.45	peak	V
70.7400	-17.52	48.46	30.94	40.00	-9.06	peak	V
125.0600	-10.55	45.26	34.71	43.50	-8.79	peak	V
228.8500	-7.57	35.81	28.24	46.00	-17.76	peak	V
459.7100	-3.75	31.19	27.44	46.00	-18.56	peak	V
625.5800	-2.37	37.62	35.25	46.00	-10.75	peak	V

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/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH36(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	38.65	40.38	74.00	-33.62	peak	H
5150.000	1.73	27.93	29.66	54.00	-24.34	AVG	H
10360.000	12.85	32.33	45.18	68.20	-23.02	peak	H
15540.000	25.25	28.02	53.27	74.00	-20.73	peak	H
15540.000	25.25	15.84	41.09	54.00	-12.91	AVG	H
5150.000	1.73	62.17	63.90	74.00	-10.10	peak	V
5150.000	1.73	47.64	49.37	54.00	-4.63	AVG	V
10360.000	12.85	33.69	46.54	68.20	-21.66	peak	V
15540.000	25.25	29.11	54.36	74.00	-19.64	peak	V
15540.000	25.25	16.92	42.17	54.00	-11.83	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH44(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	38.62	40.35	74.00	-33.65	peak	H
5150.000	1.73	28.14	29.87	54.00	-24.13	AVG	H
5350.000	1.89	38.67	40.56	74.00	-33.44	peak	H
5350.000	1.89	28.13	30.02	54.00	-23.98	AVG	H
10440.000	13.03	32.75	45.78	68.20	-22.42	peak	H
15660.000	25.30	28.09	53.39	74.00	-20.61	peak	H
15660.000	25.30	15.94	41.24	54.00	-12.76	AVG	H
5150.000	1.73	38.86	40.59	74.00	-33.41	peak	V
5150.000	1.73	28.19	29.92	54.00	-24.08	AVG	V
5350.000	1.89	38.84	40.73	74.00	-33.27	peak	V
5350.000	1.89	28.20	30.09	54.00	-23.91	AVG	V
10440.000	13.03	33.72	46.75	68.20	-21.45	peak	V
15660.000	25.30	29.30	54.60	74.00	-19.40	peak	V
15660.000	25.30	17.08	42.38	54.00	-11.62	AVG	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH48(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5350.000	1.89	38.32	40.21	74.00	-33.79	peak	H
5350.000	1.89	27.88	29.77	54.00	-24.23	AVG	H
10480.000	13.12	32.59	45.71	68.20	-22.49	peak	H
15720.000	25.33	28.35	53.68	74.00	-20.32	peak	H
15720.000	25.33	16.41	41.74	54.00	-12.26	AVG	H
5350.000	1.89	38.91	40.80	74.00	-33.20	peak	V
5350.000	1.89	27.78	29.67	54.00	-24.33	AVG	V
10480.000	13.12	33.41	46.53	68.20	-21.67	peak	V
15720.000	25.33	29.30	54.63	74.00	-19.37	peak	V
15720.000	25.33	17.05	42.38	54.00	-11.62	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH149(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.96	42.35	68.20	-25.85	peak	H
5700.000	2.52	40.24	42.76	105.20	-62.44	peak	H
5720.000	2.57	38.86	41.43	110.80	-69.37	peak	H
5725.000	2.58	42.22	44.80	122.20	-77.40	peak	H
11490.000	15.84	31.51	47.35	74.00	-26.65	peak	H
11490.000	15.84	19.28	35.12	54.00	-18.88	AVG	H
17235.000	30.26	23.01	53.27	68.20	-14.93	peak	H
5650.000	2.39	39.16	41.55	68.20	-26.65	peak	V
5700.000	2.52	39.66	42.18	105.20	-63.02	peak	V
5720.000	2.57	42.23	44.80	110.80	-66.00	peak	V
5725.000	2.58	46.94	49.52	122.20	-72.68	peak	V
11490.000	15.84	31.95	47.79	74.00	-26.21	peak	V
11490.000	15.84	19.57	35.41	54.00	-18.59	AVG	V
17235.000	30.26	24.27	54.53	68.20	-13.67	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH157(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.17	41.56	68.20	-26.64	peak	H
5700.000	2.52	38.66	41.18	105.20	-64.02	peak	H
5720.000	2.57	39.73	42.30	110.80	-68.50	peak	H
5725.000	2.58	40.21	42.79	122.20	-79.41	peak	H
5850.000	2.89	39.54	42.43	122.20	-79.77	peak	H
5855.000	2.90	39.61	42.51	110.80	-68.29	peak	H
5875.000	2.95	39.45	42.40	105.20	-62.80	peak	H
5925.000	3.07	39.30	42.37	68.20	-25.83	peak	H
11570.000	16.00	31.20	47.20	74.00	-26.80	peak	H
11570.000	16.00	19.38	35.38	54.00	-18.62	AVG	H
17355.000	30.74	22.98	53.72	68.20	-14.48	peak	H
5650.000	2.39	39.24	41.63	68.20	-26.57	peak	V
5700.000	2.52	40.01	42.53	105.20	-62.67	peak	V
5720.000	2.57	40.53	43.10	110.80	-67.70	peak	V
5725.000	2.58	40.01	42.59	122.20	-79.61	peak	V
5850.000	2.89	39.89	42.78	122.20	-79.42	peak	V
5855.000	2.90	39.72	42.62	110.80	-68.18	peak	V
5875.000	2.95	39.54	42.49	105.20	-62.71	peak	V
5925.000	3.07	39.31	42.38	68.20	-25.82	peak	V
11570.000	16.00	31.96	47.96	74.00	-26.04	peak	V
11570.000	16.00	19.48	35.48	54.00	-18.52	AVG	V
17355.000	30.74	23.93	54.67	68.20	-13.53	peak	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH165(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5850.000	2.89	40.16	43.05	122.20	-79.15	peak	H
5855.000	2.90	39.37	42.27	110.80	-68.53	peak	H
5875.000	2.95	39.05	42.00	105.20	-63.20	peak	H
5925.000	3.07	38.60	41.67	68.20	-26.53	peak	H
11650.000	16.16	31.15	47.31	74.00	-26.69	peak	H
11650.000	16.16	19.23	35.39	54.00	-18.61	AVG	H
17475.000	31.21	22.87	54.08	68.20	-14.12	peak	H
5850.000	2.89	39.54	42.43	122.20	-79.77	peak	V
5855.000	2.90	39.42	42.32	110.80	-68.48	peak	V
5875.000	2.95	38.81	41.76	105.20	-63.44	peak	V
5925.000	3.07	39.40	42.47	68.20	-25.73	peak	V
11650.000	16.16	31.94	48.10	74.00	-25.90	peak	V
11650.000	16.16	19.48	35.64	54.00	-18.36	AVG	V
17475.000	31.21	23.71	54.92	68.20	-13.28	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH36(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	40.39	42.12	74.00	-31.88	peak	H
5150.000	1.73	28.57	30.30	54.00	-23.70	AVG	H
10360.000	12.85	32.42	45.27	68.20	-22.93	peak	H
15540.000	25.25	28.04	53.29	74.00	-20.71	peak	H
15540.000	25.25	15.90	41.15	54.00	-12.85	AVG	H
5150.000	1.73	60.31	62.04	74.00	-11.96	peak	V
5150.000	1.73	46.56	48.29	54.00	-5.71	AVG	V
10360.000	12.85	33.90	46.75	68.20	-21.45	peak	V
15540.000	25.25	29.48	54.73	74.00	-19.27	peak	V
15540.000	25.25	16.96	42.21	54.00	-11.79	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH44(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	38.56	40.29	74.00	-33.71	peak	H
5150.000	1.73	28.15	29.88	54.00	-24.12	AVG	H
5350.000	1.89	38.62	40.51	74.00	-33.49	peak	H
5350.000	1.89	28.04	29.93	54.00	-24.07	AVG	H
10440.000	13.03	32.79	45.82	68.20	-22.38	peak	H
15660.000	25.30	28.13	53.43	74.00	-20.57	peak	H
15660.000	25.30	16.09	41.39	54.00	-12.61	AVG	H
5150.000	1.73	38.69	40.42	74.00	-33.58	peak	V
5150.000	1.73	28.10	29.83	54.00	-24.17	AVG	V
5350.000	1.89	38.72	40.61	74.00	-33.39	peak	V
5350.000	1.89	28.06	29.95	54.00	-24.05	AVG	V
10440.000	13.03	33.77	46.80	68.20	-21.40	peak	V
15660.000	25.30	29.47	54.77	74.00	-19.23	peak	V
15660.000	25.30	17.13	42.43	54.00	-11.57	AVG	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH48(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5350.000	1.89	38.40	40.29	74.00	-33.71	peak	H
5350.000	1.89	27.94	29.83	54.00	-24.17	AVG	H
10480.000	13.12	32.52	45.64	68.20	-22.56	peak	H
15720.000	25.33	28.24	53.57	74.00	-20.43	peak	H
15720.000	25.33	16.28	41.61	54.00	-12.39	AVG	H
5350.000	1.89	39.24	41.13	74.00	-32.87	peak	V
5350.000	1.89	27.96	29.85	54.00	-24.15	AVG	V
10480.000	13.12	33.47	46.59	68.20	-21.61	peak	V
15720.000	25.33	29.33	54.66	74.00	-19.34	peak	V
15720.000	25.33	16.99	42.32	54.00	-11.68	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH149(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	38.62	41.01	68.20	-27.19	peak	H
5700.000	2.52	39.86	42.38	105.20	-62.82	peak	H
5720.000	2.57	40.06	42.63	110.80	-68.17	peak	H
5725.000	2.58	44.76	47.34	122.20	-74.86	peak	H
11490.000	15.84	31.55	47.39	74.00	-26.61	peak	H
11490.000	15.84	19.36	35.20	54.00	-18.80	AVG	H
17235.000	30.26	23.15	53.41	68.20	-14.79	peak	H
5650.000	2.39	39.10	41.49	68.20	-26.71	peak	V
5700.000	2.52	39.87	42.39	105.20	-62.81	peak	V
5720.000	2.57	40.60	43.17	110.80	-67.63	peak	V
5725.000	2.58	48.35	50.93	122.20	-71.27	peak	V
11490.000	15.84	32.01	47.85	74.00	-26.15	peak	V
11490.000	15.84	19.65	35.49	54.00	-18.51	AVG	V
17235.000	30.26	24.21	54.47	68.20	-13.73	peak	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH157(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.24	41.63	68.20	-26.57	peak	H
5700.000	2.52	38.77	41.29	105.20	-63.91	peak	H
5720.000	2.57	39.62	42.19	110.80	-68.61	peak	H
5725.000	2.58	40.05	42.63	122.20	-79.57	peak	H
5850.000	2.89	39.62	42.51	122.20	-79.69	peak	H
5855.000	2.90	39.84	42.74	110.80	-68.06	peak	H
5875.000	2.95	39.44	42.39	105.20	-62.81	peak	H
5925.000	3.07	39.37	42.44	68.20	-25.76	peak	H
11570.000	16.00	21.54	37.54	74.00	-36.46	peak	H
11570.000	16.00	19.22	35.22	54.00	-18.78	AVG	H
17355.000	30.74	22.86	53.60	68.20	-14.60	peak	H
5650.000	2.39	39.66	42.05	68.20	-26.15	peak	V
5700.000	2.52	39.86	42.38	105.20	-62.82	peak	V
5720.000	2.57	40.09	42.66	110.80	-68.14	peak	V
5725.000	2.58	40.54	43.12	122.20	-79.08	peak	V
5850.000	2.89	39.92	42.81	122.20	-79.39	peak	V
5855.000	2.90	39.47	42.37	110.80	-68.43	peak	V
5875.000	2.95	39.56	42.51	105.20	-62.69	peak	V
5925.000	3.07	39.45	42.52	68.20	-25.68	peak	V
11570.000	16.00	31.89	47.89	74.00	-26.11	peak	V
11570.000	16.00	19.36	35.36	54.00	-18.64	AVG	V
17355.000	30.74	23.75	54.49	68.20	-13.71	peak	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH165(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5850.000	2.89	39.11	42.00	122.20	-80.20	peak	H
5855.000	2.90	39.21	42.11	110.80	-68.69	peak	H
5875.000	2.95	39.60	42.55	105.20	-62.65	peak	H
5925.000	3.07	39.56	42.63	68.20	-25.57	peak	H
11650.000	16.16	31.27	47.43	74.00	-26.57	peak	H
11650.000	16.16	19.25	35.41	54.00	-18.59	AVG	H
17475.000	31.21	23.04	54.25	68.20	-13.95	peak	H
5850.000	2.89	41.86	44.75	122.20	-77.45	peak	V
5855.000	2.90	40.17	43.07	110.80	-67.73	peak	V
5875.000	2.95	39.63	42.58	105.20	-62.62	peak	V
5925.000	3.07	38.63	41.70	68.20	-26.50	peak	V
11650.000	16.16	31.78	47.94	74.00	-26.06	peak	V
11650.000	16.16	19.55	35.71	54.00	-18.29	AVG	V
17475.000	31.21	23.62	54.83	68.20	-13.37	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH38(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	43.83	45.56	74.00	-28.44	peak	H
5150.000	1.73	29.79	31.52	54.00	-22.48	AVG	H
10380.000	12.89	32.98	45.87	68.20	-22.33	peak	H
15570.000	25.26	28.46	53.72	74.00	-20.28	peak	H
15570.000	25.26	16.01	41.27	54.00	-12.73	AVG	H
5150.000	1.73	61.79	63.52	74.00	-10.48	peak	V
5150.000	1.73	48.48	50.21	54.00	-3.79	AVG	V
10380.000	12.89	33.53	46.42	68.20	-21.78	peak	V
15570.000	25.26	29.13	54.39	74.00	-19.61	peak	V
15570.000	25.26	16.81	42.07	54.00	-11.93	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH46(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5350.000	1.89	38.79	40.68	74.00	-33.32	peak	H
5350.000	1.89	28.26	30.15	54.00	-23.85	AVG	H
10460.000	13.07	32.67	45.74	68.20	-22.46	peak	H
15690.000	25.32	28.29	53.61	74.00	-20.39	peak	H
15690.000	25.32	15.87	41.19	54.00	-12.81	AVG	H
5350.000	1.89	40.49	42.38	74.00	-31.62	peak	V
5350.000	1.89	28.30	30.19	54.00	-23.81	AVG	V
10460.000	13.07	33.48	46.55	68.20	-21.65	peak	V
15690.000	25.32	29.15	54.47	74.00	-19.53	peak	V
15690.000	25.32	16.98	42.30	54.00	-11.70	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH151(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	38.96	41.35	68.20	-26.85	peak	H
5700.000	2.52	40.30	42.82	105.20	-62.38	peak	H
5720.000	2.57	47.65	50.22	110.80	-60.58	peak	H
5725.000	2.58	46.17	48.75	122.20	-73.45	peak	H
11510.000	15.88	31.64	47.52	74.00	-26.48	peak	H
11510.000	15.88	18.93	34.81	54.00	-19.19	AVG	H
17265.000	30.38	23.23	53.61	68.20	-14.59	peak	H
5650.000	2.39	40.14	42.53	68.20	-25.67	peak	V
5700.000	2.52	40.72	43.24	105.20	-61.96	peak	V
5720.000	2.57	50.37	52.94	110.80	-57.86	peak	V
5725.000	2.58	51.37	53.95	122.20	-68.25	peak	V
11510.000	15.88	32.17	48.05	74.00	-25.95	peak	V
11510.000	15.88	20.05	35.93	54.00	-18.07	AVG	V
17265.000	30.38	24.53	54.91	68.20	-13.29	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH159(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5850.000	2.89	40.37	43.26	122.20	-78.94	peak	H
5855.000	2.90	39.72	42.62	110.80	-68.18	peak	H
5875.000	2.95	39.24	42.19	105.20	-63.01	peak	H
5925.000	3.07	39.06	42.13	68.20	-26.07	peak	H
11590.000	16.04	31.36	47.40	74.00	-26.60	peak	H
11590.000	16.04	19.52	35.56	54.00	-18.44	AVG	H
17385.000	30.85	22.79	53.64	68.20	-14.56	peak	H
5850.000	2.89	39.52	42.41	122.20	-79.79	peak	V
5855.000	2.90	39.44	42.34	110.80	-68.46	peak	V
5875.000	2.95	40.04	42.99	105.20	-62.21	peak	V
5925.000	3.07	38.56	41.63	68.20	-26.57	peak	V
11590.000	16.04	31.92	47.96	74.00	-26.04	peak	V
11590.000	16.04	19.67	35.71	54.00	-18.29	AVG	V
17385.000	30.85	24.02	54.87	68.20	-13.33	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 4, CH42(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	40.30	42.03	74.00	-31.97	peak	H
5150.000	1.73	28.34	30.07	54.00	-23.93	AVG	H
5350.000	1.89	39.37	41.26	74.00	-32.74	peak	H
5350.000	1.89	28.08	29.97	54.00	-24.03	AVG	H
10420.000	12.98	32.94	45.92	68.20	-22.28	peak	H
15630.000	25.29	28.30	53.59	74.00	-20.41	peak	H
15630.000	25.29	15.98	41.27	54.00	-12.73	AVG	H
5150.000	1.73	60.44	62.17	74.00	-11.83	peak	V
5150.000	1.73	48.25	49.98	54.00	-4.02	AVG	V
5350.000	1.89	40.71	42.60	74.00	-31.40	peak	V
5350.000	1.89	28.25	30.14	54.00	-23.86	AVG	V
10420.000	12.98	33.73	46.71	68.20	-21.49	peak	V
15630.000	25.29	29.59	54.88	74.00	-19.12	peak	V
15630.000	25.29	17.10	42.39	54.00	-11.61	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 4, CH155(1TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	40.87	43.26	68.20	-24.94	peak	H
5700.000	2.52	45.44	47.96	105.20	-57.24	peak	H
5720.000	2.57	46.72	49.29	110.80	-61.51	peak	H
5725.000	2.58	46.16	48.74	122.20	-73.46	peak	H
5850.000	2.89	44.78	47.67	122.20	-74.53	peak	H
5855.000	2.90	43.07	45.97	110.80	-64.83	peak	H
5875.000	2.95	41.97	44.92	105.20	-60.28	peak	H
5925.000	3.07	38.62	41.69	68.20	-26.51	peak	H
11550.000	15.96	31.53	47.49	74.00	-26.51	peak	H
11550.000	15.96	18.61	34.57	54.00	-19.43	AVG	H
17325.000	30.62	23.04	53.66	68.20	-14.54	peak	H
5650.000	2.39	40.87	43.26	68.20	-24.94	peak	V
5700.000	2.52	50.12	52.64	105.20	-52.56	peak	V
5720.000	2.57	51.58	54.15	110.80	-56.65	peak	V
5725.000	2.58	51.22	53.80	122.20	-68.40	peak	V
5850.000	2.89	48.61	51.50	122.20	-70.70	peak	V
5855.000	2.90	47.01	49.91	110.80	-60.89	peak	V
5875.000	2.95	44.44	47.39	105.20	-57.81	peak	V
5925.000	3.07	39.11	42.18	68.20	-26.02	peak	V
11550.000	15.96	32.01	47.97	74.00	-26.03	peak	V
11550.000	15.96	18.92	34.88	54.00	-19.12	AVG	V
17325.000	30.62	24.25	54.87	68.20	-13.33	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH36(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	40.80	42.53	74.00	-31.47	peak	H
5150.000	1.73	28.47	30.20	54.00	-23.80	AVG	H
10360.000	12.85	32.52	45.37	68.20	-22.83	peak	H
15540.000	25.25	28.20	53.45	74.00	-20.55	peak	H
15540.000	25.25	15.91	41.16	54.00	-12.84	AVG	H
5150.000	1.73	62.92	64.65	74.00	-9.35	peak	V
5150.000	1.73	48.70	50.43	54.00	-3.57	AVG	V
10360.000	12.85	33.96	46.81	68.20	-21.39	peak	V
15540.000	25.25	29.26	54.51	74.00	-19.49	peak	V
15540.000	25.25	16.99	42.24	54.00	-11.76	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH44(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	38.58	40.31	74.00	-33.69	peak	H
5150.000	1.73	28.12	29.85	54.00	-24.15	AVG	H
5350.000	1.89	38.53	40.42	74.00	-33.58	peak	H
5350.000	1.89	27.99	29.88	54.00	-24.12	AVG	H
10440.000	13.03	32.88	45.91	68.20	-22.29	peak	H
15660.000	25.30	28.18	53.48	74.00	-20.52	peak	H
15660.000	25.30	16.03	41.33	54.00	-12.67	AVG	H
5150.000	1.73	38.66	40.39	74.00	-33.61	peak	V
5150.000	1.73	28.22	29.95	54.00	-24.05	AVG	V
5350.000	1.89	38.79	40.68	74.00	-33.32	peak	V
5350.000	1.89	28.12	30.01	54.00	-23.99	AVG	V
10440.000	13.03	33.79	46.82	68.20	-21.38	peak	V
15660.000	25.30	29.42	54.72	74.00	-19.28	peak	V
15660.000	25.30	17.20	42.50	54.00	-11.50	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH48(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5350.000	1.89	38.39	40.28	74.00	-33.72	peak	H
5350.000	1.89	27.92	29.81	54.00	-24.19	AVG	H
10480.000	13.12	32.51	45.63	68.20	-22.57	peak	H
15720.000	25.33	28.31	53.64	74.00	-20.36	peak	H
15720.000	25.33	16.04	41.37	54.00	-12.63	AVG	H
5350.000	1.89	38.85	40.74	74.00	-33.26	peak	V
5350.000	1.89	27.93	29.82	54.00	-24.18	AVG	V
10480.000	13.12	33.66	46.78	68.20	-21.42	peak	V
15720.000	25.33	29.26	54.59	74.00	-19.41	peak	V
15720.000	25.33	17.11	42.44	54.00	-11.56	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH149(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.40	41.79	68.20	-26.41	peak	H
5700.000	2.52	39.77	42.29	105.20	-62.91	peak	H
5720.000	2.57	40.09	42.66	110.80	-68.14	peak	H
5725.000	2.58	46.47	49.05	122.20	-73.15	peak	H
11490.000	15.84	31.67	47.51	74.00	-26.49	peak	H
11490.000	15.84	19.43	35.27	54.00	-18.73	AVG	H
17235.000	30.26	23.42	53.68	68.20	-14.52	peak	H
5650.000	2.39	38.87	41.26	68.20	-26.94	peak	V
5700.000	2.52	41.70	44.22	105.20	-60.98	peak	V
5720.000	2.57	41.93	44.50	110.80	-66.30	peak	V
5725.000	2.58	53.73	56.31	122.20	-65.89	peak	V
11490.000	15.84	32.05	47.89	74.00	-26.11	peak	V
11490.000	15.84	19.62	35.46	54.00	-18.54	AVG	V
17235.000	30.26	24.15	54.41	68.20	-13.79	peak	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH157(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	38.93	41.32	68.20	-26.88	peak	H
5700.000	2.52	39.53	42.05	105.20	-63.15	peak	H
5720.000	2.57	39.94	42.51	110.80	-68.29	peak	H
5725.000	2.58	40.06	42.64	122.20	-79.56	peak	H
5850.000	2.89	39.59	42.48	122.20	-79.72	peak	H
5855.000	2.90	39.53	42.43	110.80	-68.37	peak	H
5875.000	2.95	39.64	42.59	105.20	-62.61	peak	H
5925.000	3.07	39.45	42.52	68.20	-25.68	peak	H
11570.000	16.00	31.33	47.33	74.00	-26.67	peak	H
11570.000	16.00	19.91	35.91	54.00	-18.09	AVG	H
17355.000	30.74	23.08	53.82	68.20	-14.38	peak	H
5650.000	2.39	39.53	41.92	68.20	-26.28	peak	V
5700.000	2.52	39.73	42.25	105.20	-62.95	peak	V
5720.000	2.57	40.27	42.84	110.80	-67.96	peak	V
5725.000	2.58	40.43	43.01	122.20	-79.19	peak	V
5850.000	2.89	39.94	42.83	122.20	-79.37	peak	V
5855.000	2.90	40.25	43.15	110.80	-67.65	peak	V
5875.000	2.95	39.63	42.58	105.20	-62.62	peak	V
5925.000	3.07	39.72	42.79	68.20	-25.41	peak	V
11570.000	16.00	32.17	48.17	74.00	-25.83	peak	V
11570.000	16.00	19.70	35.70	54.00	-18.30	AVG	V
17355.000	30.74	23.81	54.55	68.20	-13.65	peak	V

Note: Level = Reading + Factor
 Margin = Level – Limit
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 1, CH165(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5850.000	2.89	39.52	42.41	122.20	-79.79	peak	H
5855.000	2.90	41.00	43.90	110.80	-66.90	peak	H
5875.000	2.95	39.29	42.24	105.20	-62.96	peak	H
5925.000	3.07	40.26	43.33	68.20	-24.87	peak	H
11650.000	16.16	31.24	47.40	74.00	-26.60	peak	H
11650.000	16.16	19.35	35.51	54.00	-18.49	AVG	H
17475.000	31.21	22.66	53.87	68.20	-14.33	peak	H
5850.000	2.89	50.01	52.90	122.20	-69.30	peak	V
5855.000	2.90	39.97	42.87	110.80	-67.93	peak	V
5875.000	2.95	39.11	42.06	105.20	-63.14	peak	V
5925.000	3.07	39.10	42.17	68.20	-26.03	peak	V
11650.000	16.16	32.08	48.24	74.00	-25.76	peak	V
11650.000	16.16	19.63	35.79	54.00	-18.21	AVG	V
17475.000	31.21	23.60	54.81	68.20	-13.39	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH38(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	63.10	64.83	74.00	-9.17	peak	H
5150.000	1.73	49.56	51.29	54.00	-2.71	AVG	H
10380.000	12.89	33.02	45.91	68.20	-22.29	peak	H
15570.000	25.26	28.50	53.76	74.00	-20.24	peak	H
15570.000	25.26	16.13	41.39	54.00	-12.61	AVG	H
5150.000	1.73	45.98	47.71	74.00	-26.29	peak	V
5150.000	1.73	32.56	34.29	54.00	-19.71	AVG	V
10380.000	12.89	33.43	46.32	68.20	-21.88	peak	V
15570.000	25.26	29.19	54.45	74.00	-19.55	peak	V
15570.000	25.26	16.85	42.11	54.00	-11.89	AVG	V

Note: Level = Reading + Factor

Margin = Level – Limit

Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH46(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5350.000	1.89	38.64	40.53	74.00	-33.47	peak	H
5350.000	1.89	28.13	30.02	54.00	-23.98	AVG	H
10460.000	13.07	32.56	45.63	68.20	-22.57	peak	H
15690.000	25.32	28.47	53.79	74.00	-20.21	peak	H
15690.000	25.32	15.95	41.27	54.00	-12.73	AVG	H
5350.000	1.89	40.76	42.65	74.00	-31.35	peak	V
5350.000	1.89	28.32	30.21	54.00	-23.79	AVG	V
10460.000	13.07	33.60	46.67	68.20	-21.53	peak	V
15690.000	25.32	29.21	54.53	74.00	-19.47	peak	V
15690.000	25.32	16.82	42.14	54.00	-11.86	AVG	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH151(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.96	42.35	68.20	-25.85	peak	H
5700.000	2.52	41.14	43.66	105.20	-61.54	peak	H
5720.000	2.57	51.19	53.76	110.80	-57.04	peak	H
5725.000	2.58	48.79	51.37	122.20	-70.83	peak	H
11510.000	15.88	31.53	47.41	74.00	-26.59	peak	H
11510.000	15.88	18.99	34.87	54.00	-19.13	AVG	H
17265.000	30.38	23.28	53.66	68.20	-14.54	peak	H
5650.000	2.39	39.07	41.46	68.20	-26.74	peak	V
5700.000	2.52	44.32	46.84	105.20	-58.36	peak	V
5720.000	2.57	56.84	59.41	110.80	-51.39	peak	V
5725.000	2.58	55.88	58.46	122.20	-63.74	peak	V
11510.000	15.88	32.04	47.92	74.00	-26.08	peak	V
11510.000	15.88	19.85	35.73	54.00	-18.27	AVG	V
17265.000	30.38	24.57	54.95	68.20	-13.25	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 2, CH159(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5850.000	2.89	39.39	42.28	122.20	-79.92	peak	H
5855.000	2.90	39.79	42.69	110.80	-68.11	peak	H
5875.000	2.95	39.05	42.00	105.20	-63.20	peak	H
5925.000	3.07	39.27	42.34	68.20	-25.86	peak	H
11590.000	16.04	31.28	47.32	74.00	-26.68	peak	H
11590.000	16.04	19.57	35.61	54.00	-18.39	AVG	H
17385.000	30.85	22.91	53.76	68.20	-14.44	peak	H
5850.000	2.89	42.18	45.07	122.20	-77.13	peak	V
5855.000	2.90	41.68	44.58	110.80	-66.22	peak	V
5875.000	2.95	40.03	42.98	105.20	-62.22	peak	V
5925.000	3.07	39.21	42.28	68.20	-25.92	peak	V
11590.000	16.04	31.79	47.83	74.00	-26.17	peak	V
11590.000	16.04	19.45	35.49	54.00	-18.51	AVG	V
17385.000	30.85	23.74	54.59	68.20	-13.61	peak	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH42(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5150.000	1.73	46.82	48.55	74.00	-25.45	peak	H
5150.000	1.73	34.19	35.92	54.00	-18.08	AVG	H
5350.000	1.89	39.97	41.86	74.00	-32.14	peak	H
5350.000	1.89	28.35	30.24	54.00	-23.76	AVG	H
10420.000	12.98	32.85	45.83	68.20	-22.37	peak	H
15630.000	25.29	28.07	53.36	74.00	-20.64	peak	H
15630.000	25.29	15.89	41.18	54.00	-12.82	AVG	H
5150.000	1.73	62.16	63.89	74.00	-10.11	peak	V
5150.000	1.73	49.69	51.42	54.00	-2.58	AVG	V
5350.000	1.89	48.54	50.43	74.00	-23.57	peak	V
5350.000	1.89	35.73	37.62	54.00	-16.38	AVG	V
10420.000	12.98	33.62	46.60	68.20	-21.60	peak	V
15630.000	25.29	29.62	54.91	74.00	-19.09	peak	V
15630.000	25.29	17.01	42.30	54.00	-11.70	AVG	V

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V/60Hz	Temperature	: 26 °C
Test Mode	: Mode 3, CH155(2TX)	Humidity	: 48 %
Test date	: Oct. 21, 2019		

Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector mode (PK/AVG)	AntPol. H/V
5650.000	2.39	39.93	42.32	68.20	-25.88	peak	H
5700.000	2.52	45.14	47.66	105.20	-57.54	peak	H
5720.000	2.57	47.22	49.79	110.80	-61.01	peak	H
5725.000	2.58	46.55	49.13	122.20	-73.07	peak	H
5850.000	2.89	40.17	43.06	122.20	-79.14	peak	H
5855.000	2.90	40.53	43.43	110.80	-67.37	peak	H
5875.000	2.95	40.39	43.34	105.20	-61.86	peak	H
5925.000	3.07	39.76	42.83	68.20	-25.37	peak	H
11550.000	15.96	31.43	47.39	74.00	-26.61	peak	H
11550.000	15.96	18.65	34.61	54.00	-19.39	AVG	H
17325.000	30.62	22.92	53.54	68.20	-14.66	peak	H
5650.000	2.39	40.87	43.26	68.20	-24.94	peak	V
5700.000	2.52	50.12	52.64	105.20	-52.56	peak	V
5720.000	2.57	51.58	54.15	110.80	-56.65	peak	V
5725.000	2.58	51.22	53.80	122.20	-68.40	peak	V
5850.000	2.89	48.61	51.50	122.20	-70.70	peak	V
5855.000	2.90	47.01	49.91	110.80	-60.89	peak	V
5875.000	2.95	44.44	47.39	105.20	-57.81	peak	V
5925.000	3.07	39.11	42.18	68.20	-26.02	peak	V
11550.000	15.96	32.05	48.01	74.00	-25.99	peak	V
11550.000	15.96	19.16	35.12	54.00	-18.88	AVG	V
17325.000	30.62	24.31	54.93	68.20	-13.27	peak	V

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:

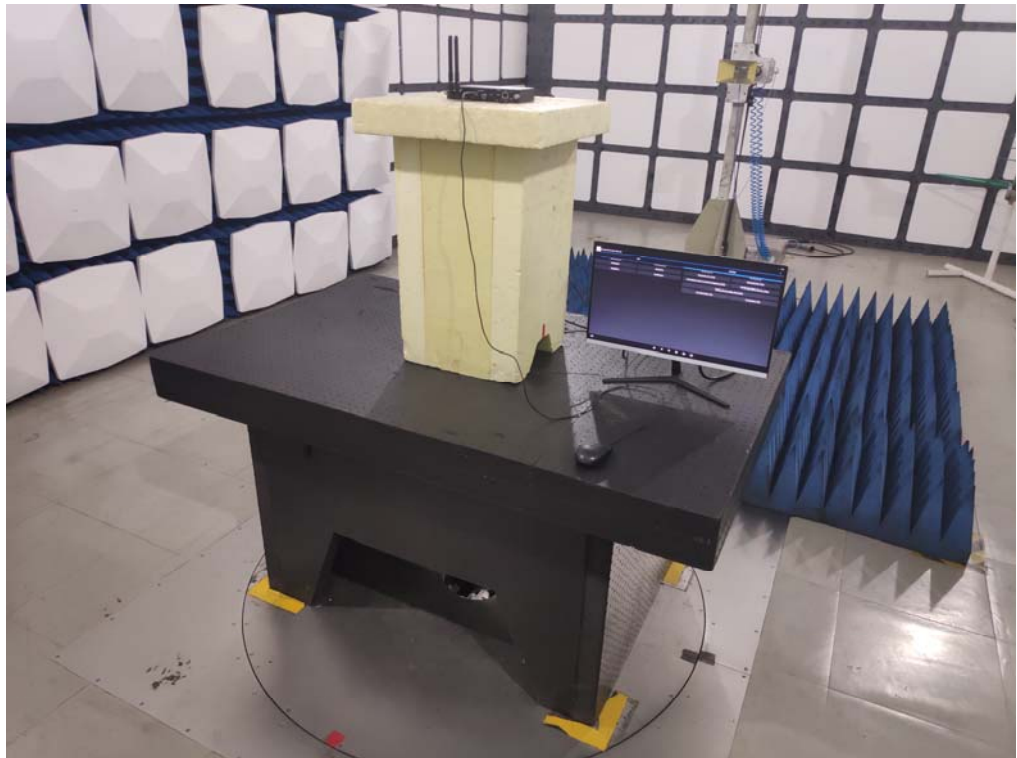
MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	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



6.8. Test Photographs (30MHz ~ 1GHz)

Front View





6.9. Test Photographs (1GHz ~ 40GHz)

Front View





7. On Time, Duty Cycle and Measurement methods

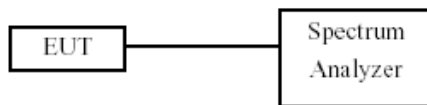
7.1. Test Limit

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: 24°C

Humidity: 56%

Test Date: Oct. 25, 2019

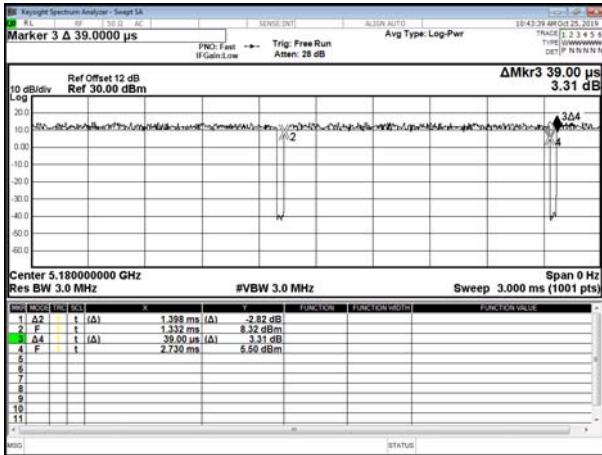
Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)	Duty Cycle correction Factor (dB)
802.11a	1.398	1.437	97.29%	0.12
802.11n HT20	1.311	1.350	97.11%	0.13
802.11n HT40	0.650	0.688	94.48%	0.25
802.11ac VHT20	1.317	1.356	97.12%	0.13
802.11ac VHT40	0.658	0.693	94.95%	0.23
802.11ac VHT80	0.326	0.363	89.81%	0.47

7.5. Measurement Methods

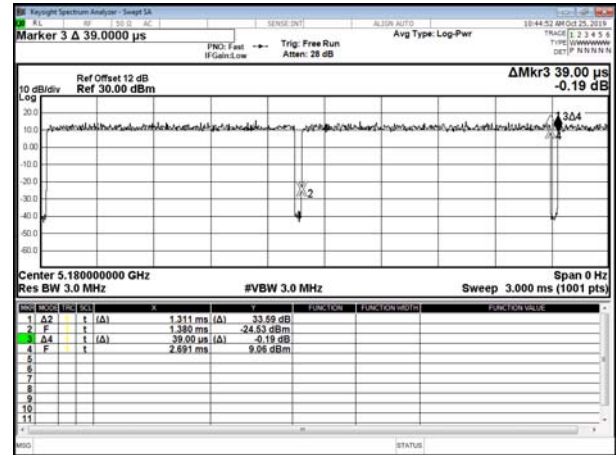
26 dB and 6dB Emission BW	KDB 789033 D02 v02r01, Section C
99% Occupied BW	KDB 789033 D02 v02r01, Section D
Conducted Output Power	KDB 789033 D02 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02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



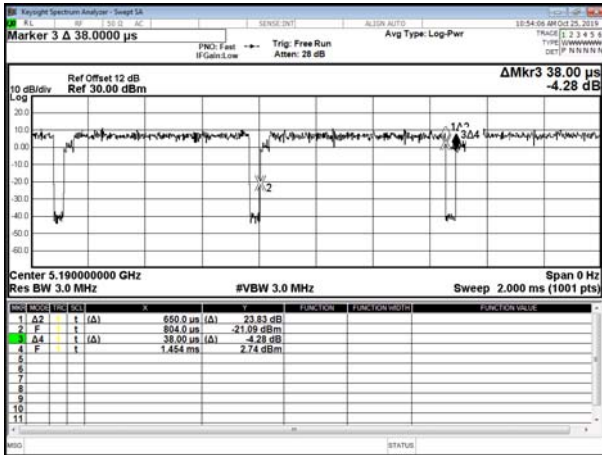
Modulation Standard: 802.11a (6Mbps)



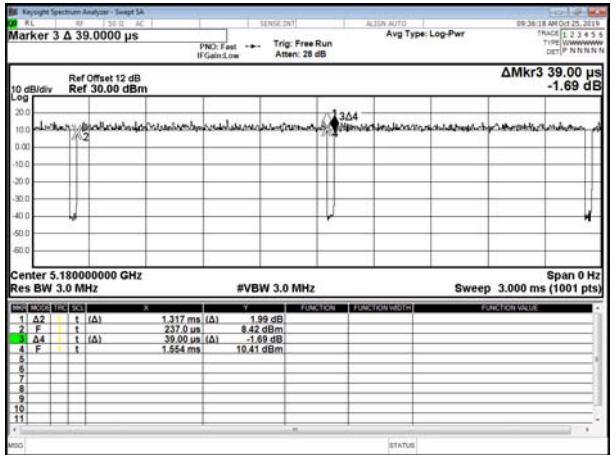
Modulation Standard: 802.11n HT20 (6.5Mbps)



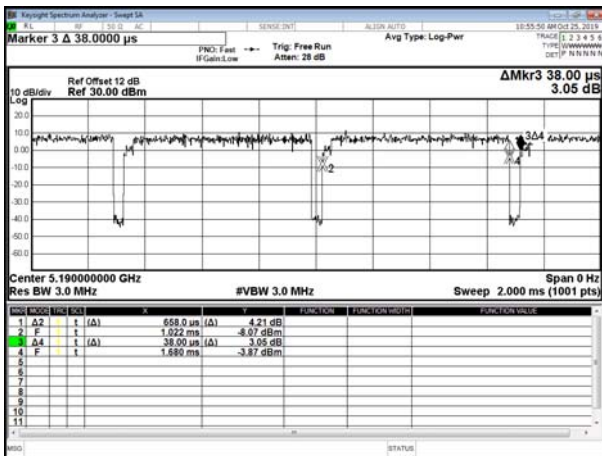
Modulation Standard: 802.11n HT40 (13.5Mbps)



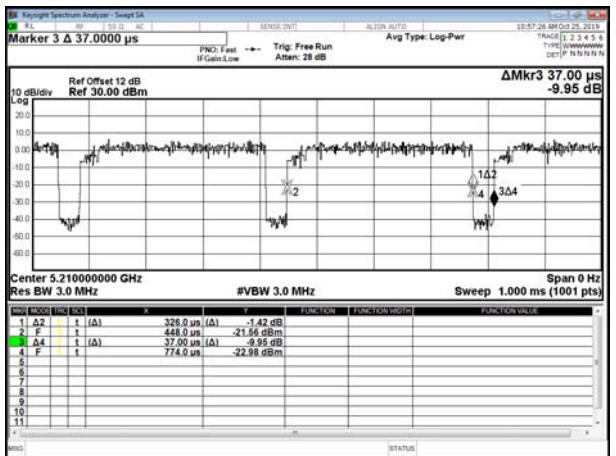
Modulation Standard: 802.11ac VHT20 (29.3Mbps)



Modulation Standard: 802.11ac VHT40 (13.5Mbps)



Modulation Standard: 802.11ac VHT80 (29.3Mbps)





8. 6dB Bandwidth & 99% Bandwidth

8.1. Test Limit

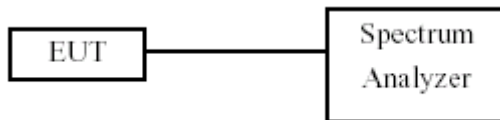
FCC §15.407

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 to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

8.3. Test Setup Layout



**8.4. Test Result and Data (6dB Bandwidth)**

Temperature: 24°C

Humidity: 56%

Test Date: Oct. 25, 2019

In the 5.8G Band**For 1TX**

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT B		
802.11a	149	5745	16.40		0.50
	157	5785	16.40		0.50
	165	5825	16.46		0.50
802.11ac VHT20	149	5745	17.64		0.50
	157	5785	17.62		0.50
	165	5825	17.62		0.50
802.11ac VHT40	155	5755	36.15		0.50
	159	5795	36.35		0.50
802.11ac VHT80	155	5775	75.33		0.50

For 2TX

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT A	ANT B	
802.11ac VHT20	149	5745	17.62	17.63	0.50
	157	5785	17.65	17.64	0.50
	165	5825	17.66	17.65	0.50
802.11ac VHT40	155	5755	36.01	36.31	0.50
	159	5795	36.40	36.36	0.50
802.11ac VHT80	155	5775	75.55	75.27	0.50



8.5. Test Result and Data (99% Bandwidth)

Temperature: 24°C

Humidity: 56%

Test Date: Oct. 25, 2019

In the 5.8G Band

For1TX

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT B	
802.11a	149	5745	16.898	
	157	5785	16.913	
	165	5825	16.834	
802.11ac VHT20	149	5745	17.994	
	157	5785	17.881	
	165	5825	18.009	
802.11ac VHT40	155	5755	36.338	
	159	5795	36.356	
802.11ac VHT80	155	5775	75.614	

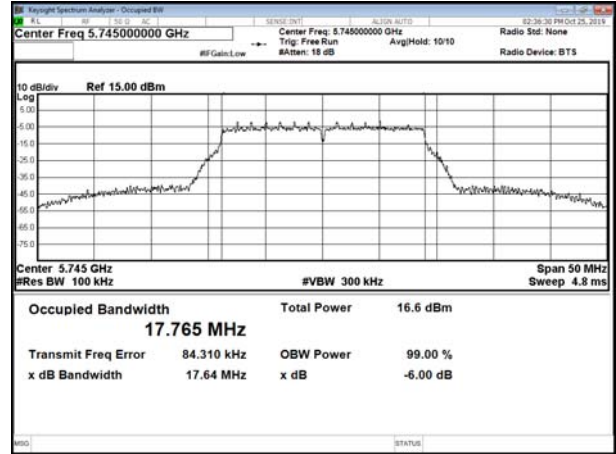
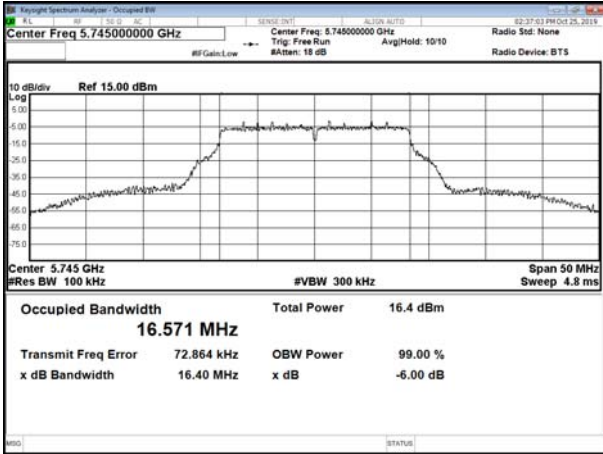
For2TX

Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)	
			ANT A	ANT B
802.11ac VHT20	149	5745	17.960	17.945
	157	5785	17.981	17.927
	165	5825	18.005	17.955
802.11ac VHT40	155	5755	36.339	36.330
	159	5795	36.318	36.347
802.11ac VHT80	155	5775	75.706	75.634



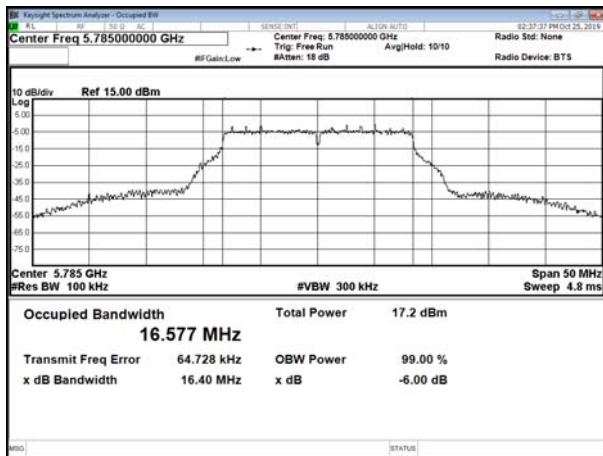
6dB Bandwidth
For 1TX
Modulation Standard: 802.11a (6Mbps)
CH149

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



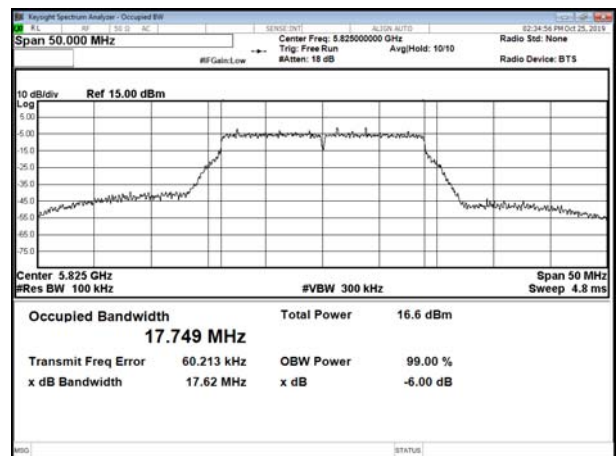
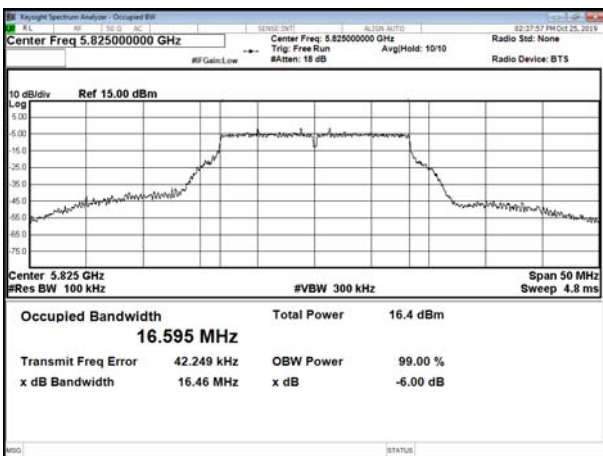
CH157

CH157



CH165

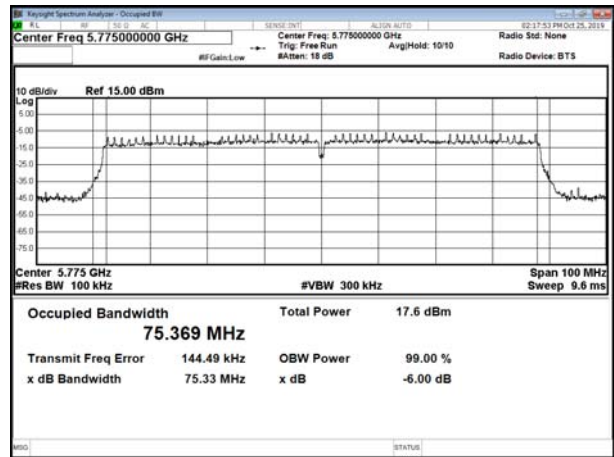
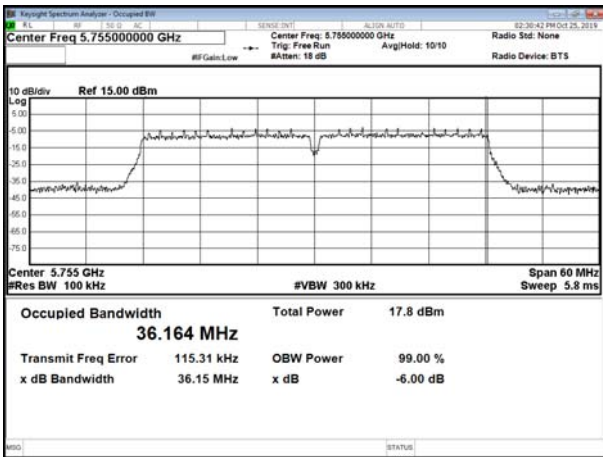
CH165



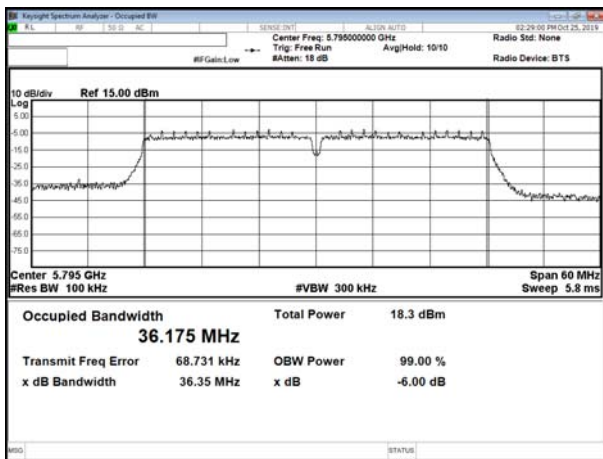


Modulation Standard: 802.11ac, VHT40 (13.5Mbps) CH151

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

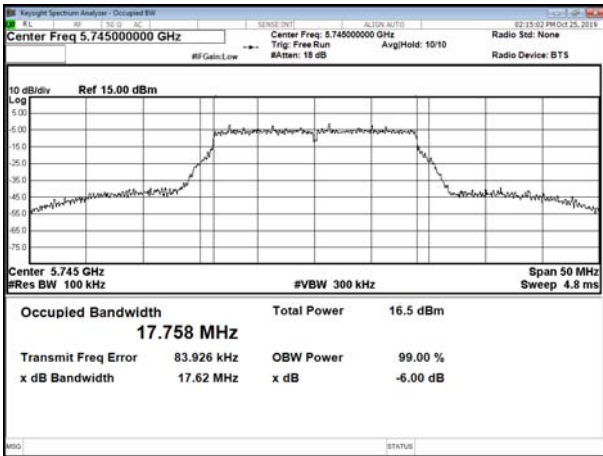


CH159

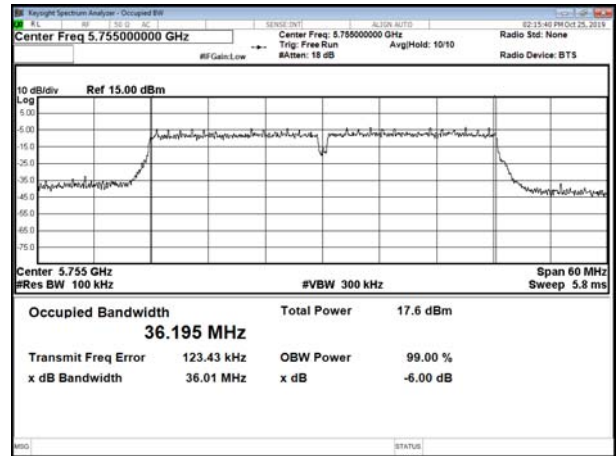




For 2TX , Ant A
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149



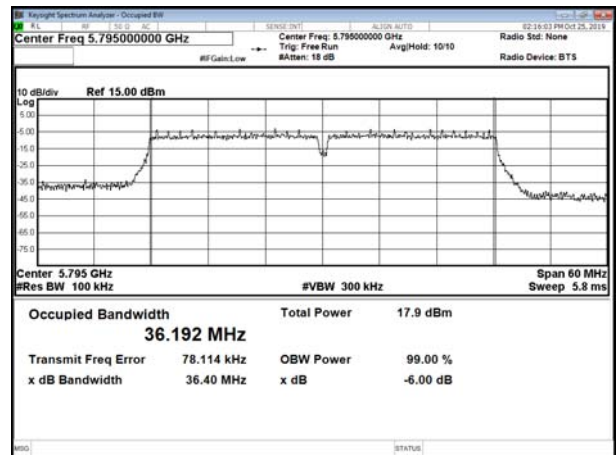
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

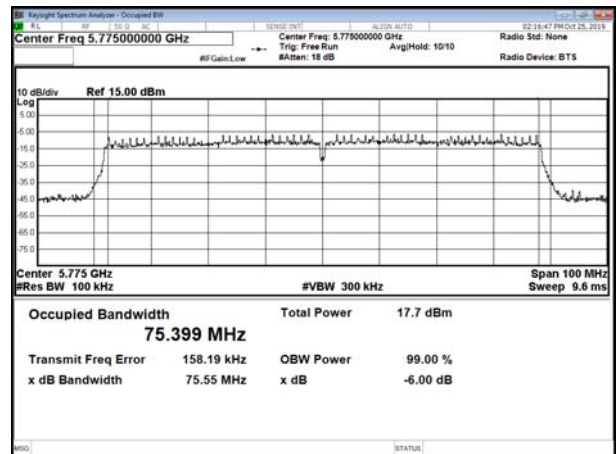
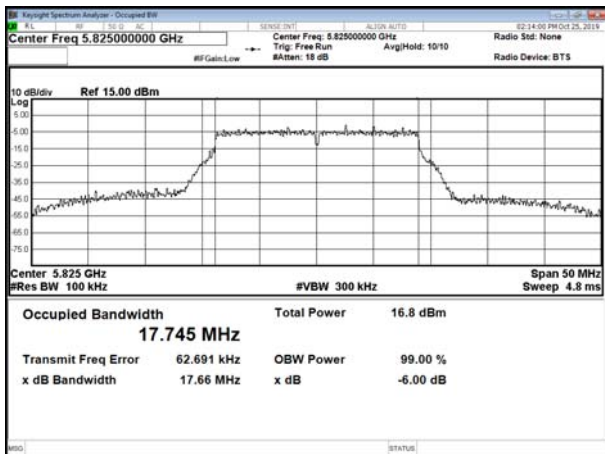


CH159



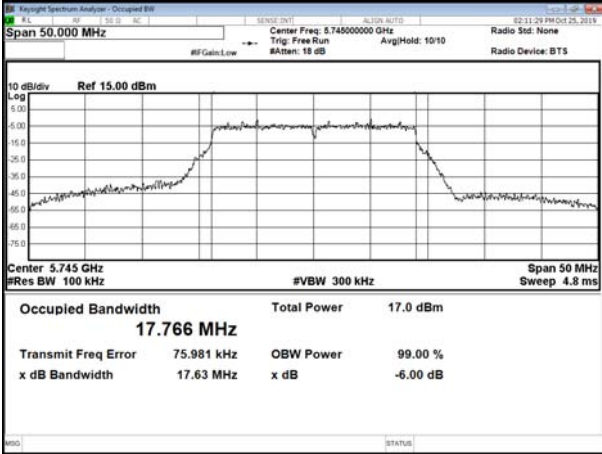
Modulation Standard: 802.11ac,VHT80 (58.5Mbps)
CH155

CH165

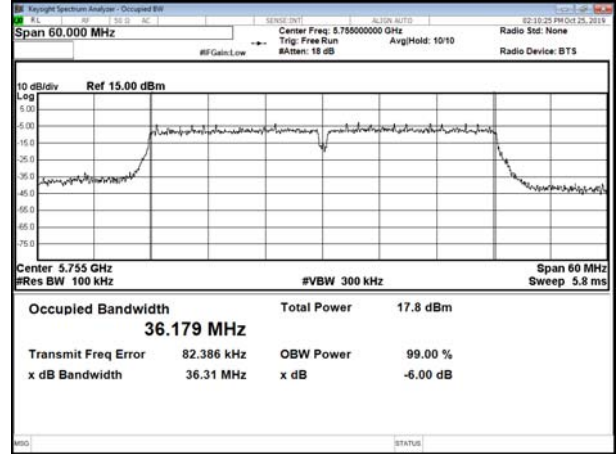




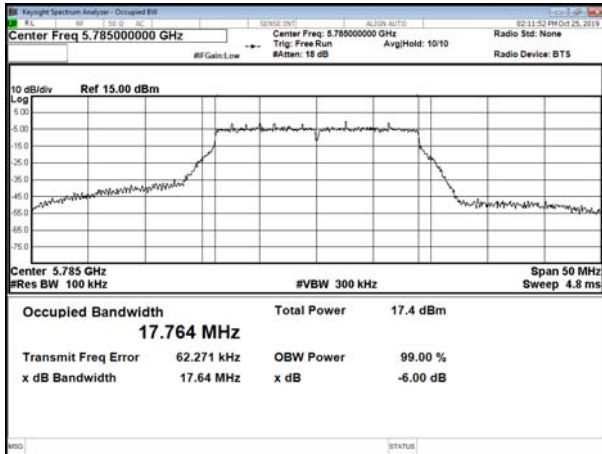
For 2TX , Ant B
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149



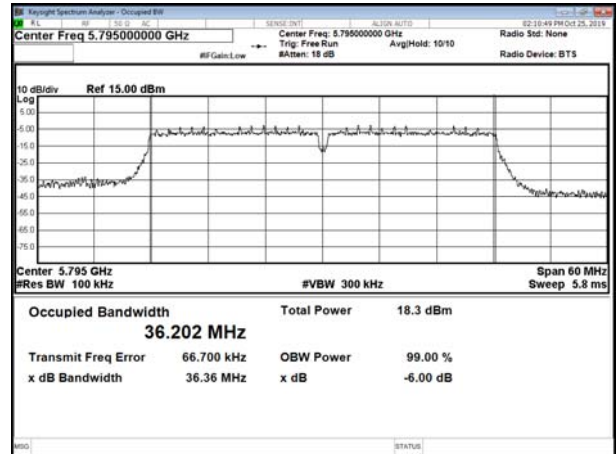
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

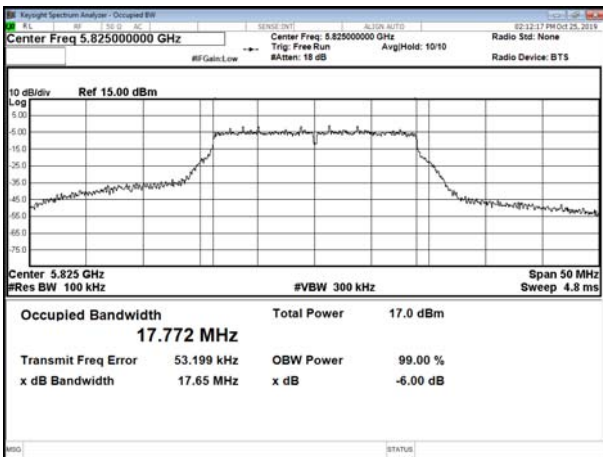


CH159

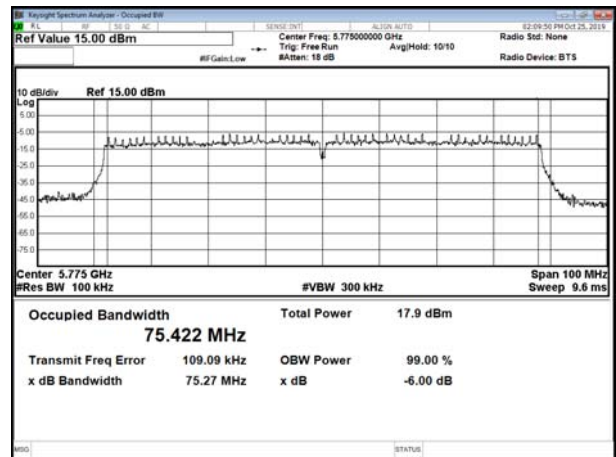


Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH165



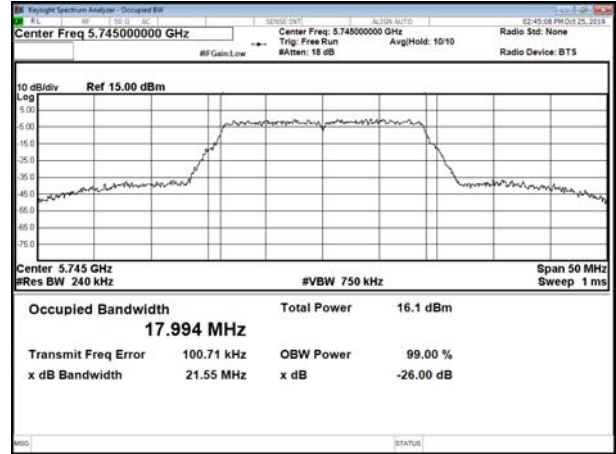
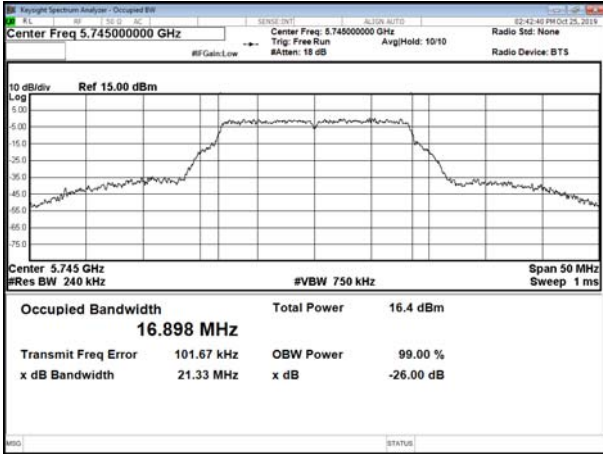
CH155





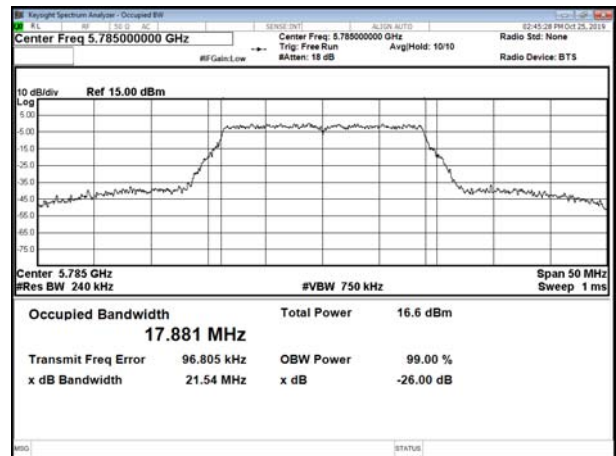
99% Bandwidth
For 1TX
Modulation Standard: 802.11a (6Mbps)
CH149

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



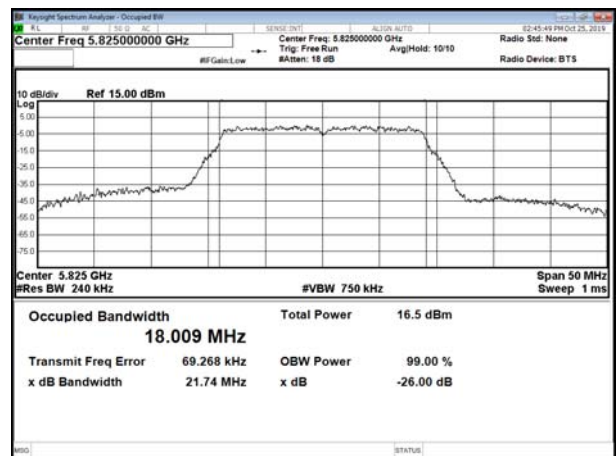
CH157

CH157



CH165

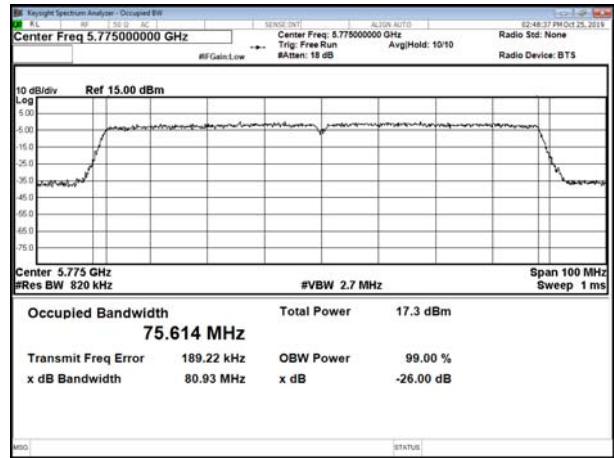
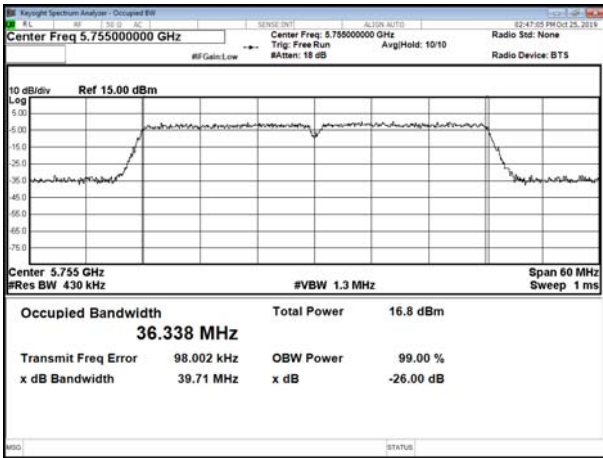
CH165



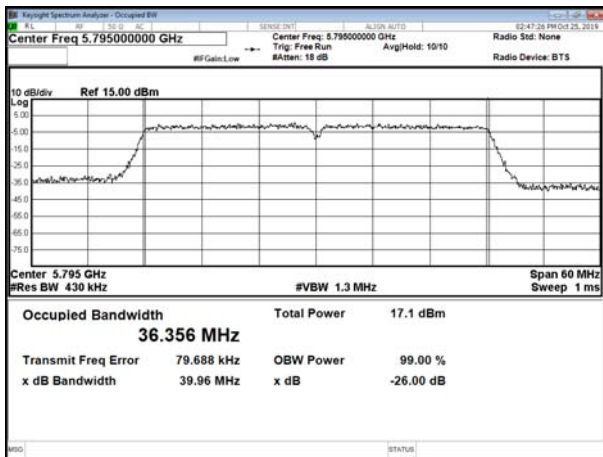


Modulation Standard: 802.11ac, VHT40 (13.5Mbps) CH151

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

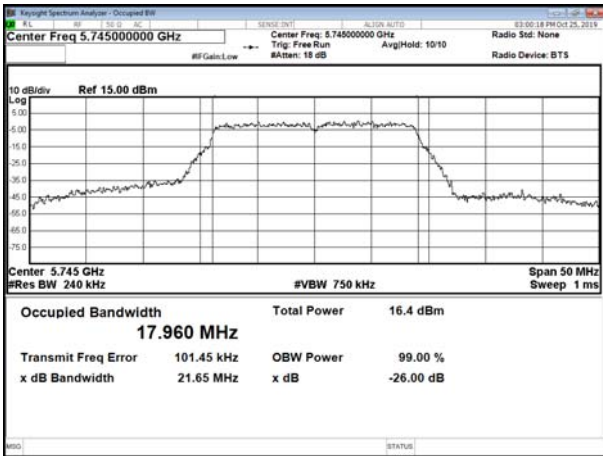


CH159

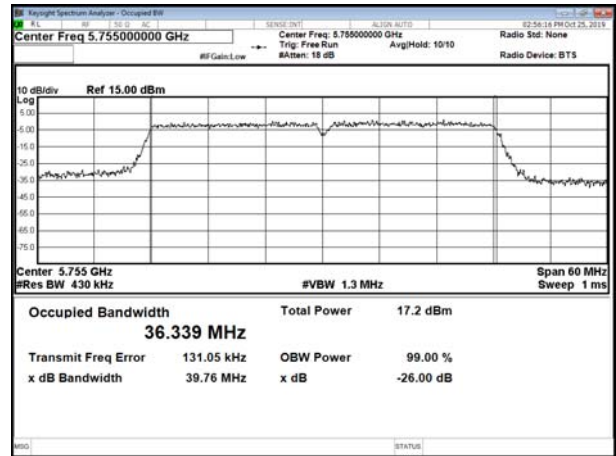




For 2TX , Ant A
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149



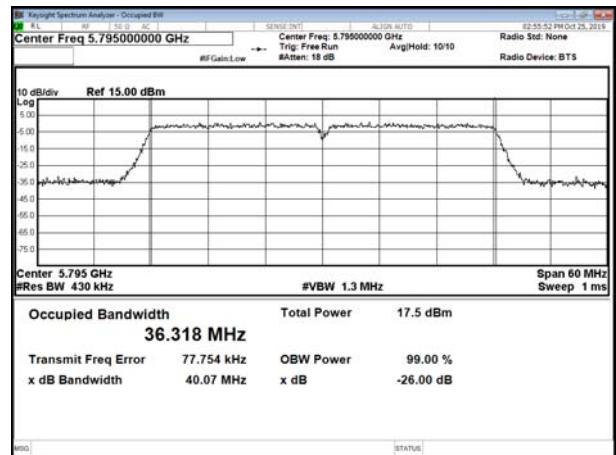
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

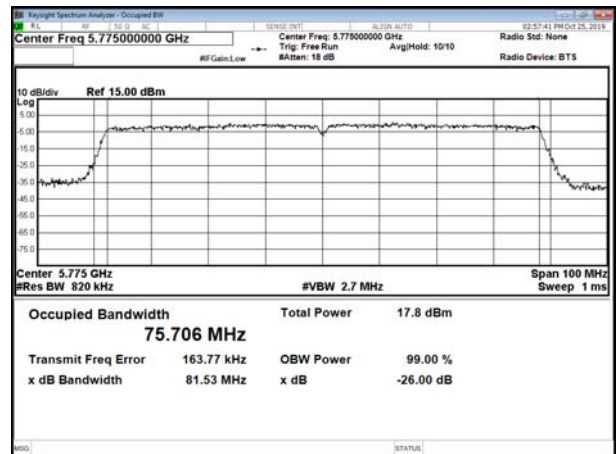
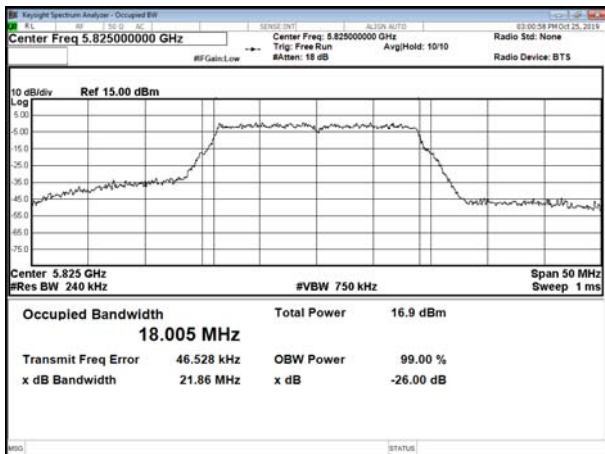


CH159



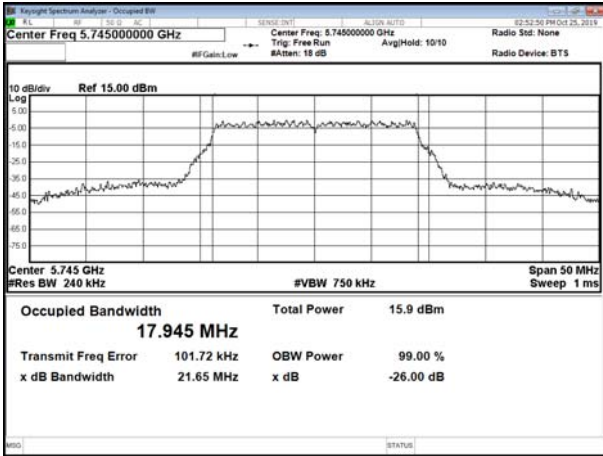
Modulation Standard: 802.11ac,VHT80 (58.5Mbps)
CH155

CH165

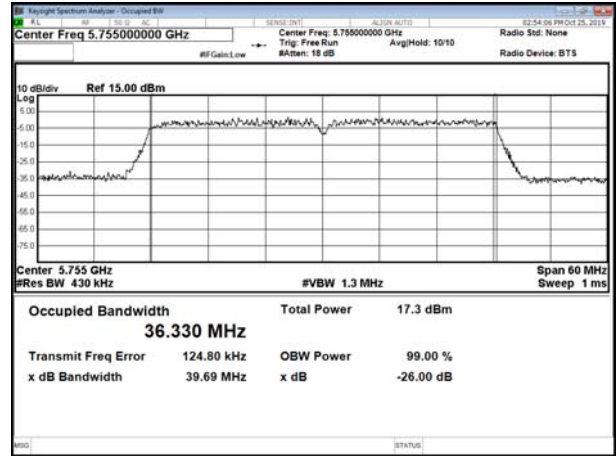




For 2TX , Ant B
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149



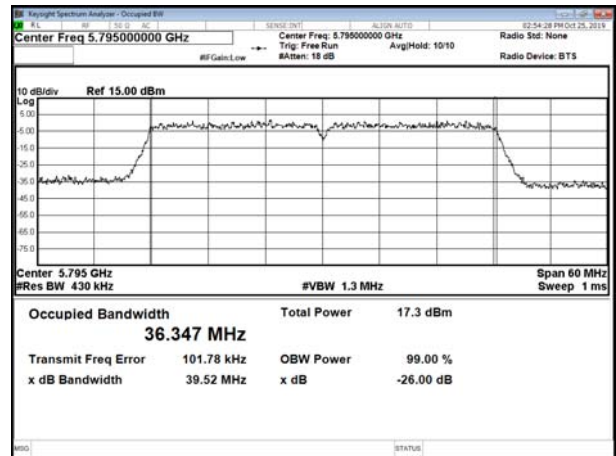
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

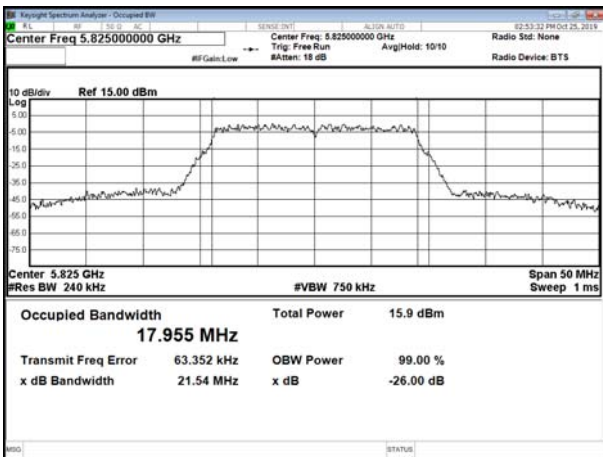


CH159

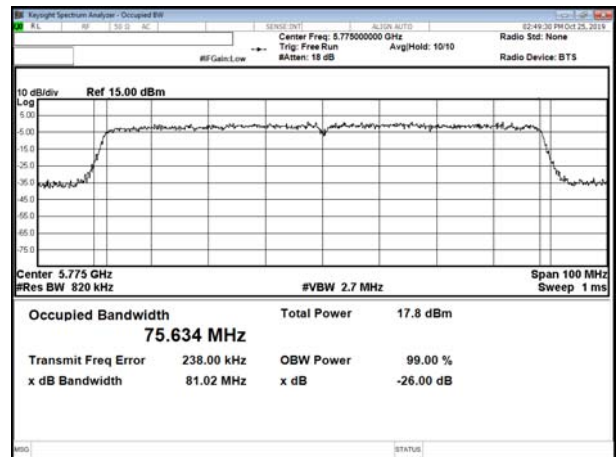


Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH165



CH155





9. 26dB Bandwidth & 99% Bandwidth

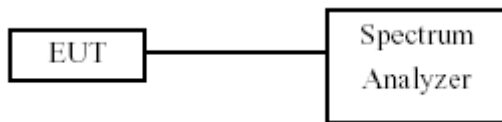
9.1. Test Limit

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

Temperature: 24°C

Humidity: 56%

Test Date: Oct. 25, 2019

In the 5.2G Band

For 1TX

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
			ANT B	ANT B	ANT B	ANT B
802.11a	36	5180	21.41		16.899	
	44	5220	21.61		16.845	
	48	5240	21.61		16.904	
802.11ac VHT20	36	5180	21.86		17.945	
	44	5220	21.74		18.028	
	48	5240	21.51		18.051	
802.11ac VHT40	38	5190	40.09		36.325	
	46	5230	40.23		36.351	
802.11ac VHT80	42	5210	80.83		75.769	

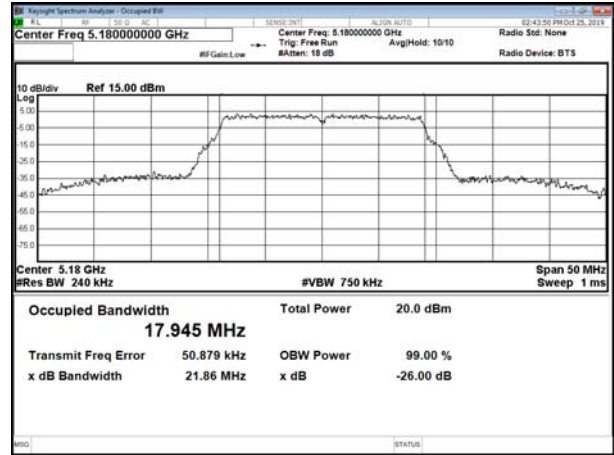
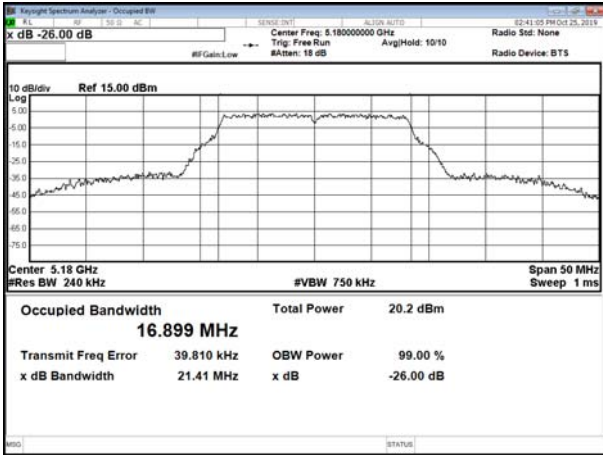
For 2TX

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
			ANT A	ANT B	ANT A	ANT B
802.11ac VHT20	36	5180	21.65	21.53	17.969	17.980
	44	5220	21.55	21.52	18.022	17.952
	48	5240	21.50	21.60	18.043	17.974
802.11ac VHT40	38	5190	39.90	39.66	36.303	36.319
	46	5230	39.91	39.31	36.291	36.244
802.11ac VHT80	42	5210	81.78	81.59	75.677	75.714



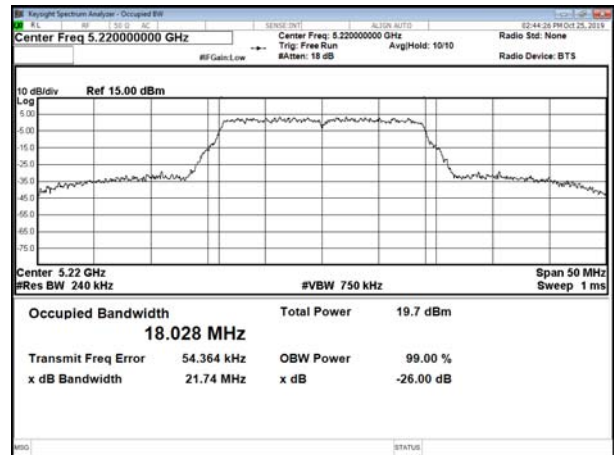
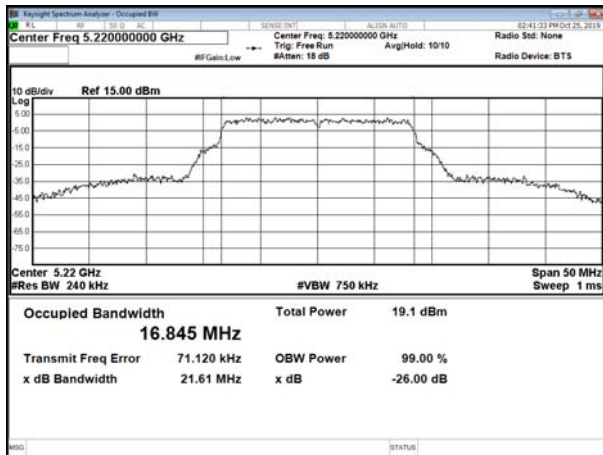
26dB Bandwidth & 99% Bandwidth
5.2G Band:
For 1TX
Modulation Standard: 802.11a (6Mbps)
CH36

802.11ac VHT20 (6.5Mbps)
CH36



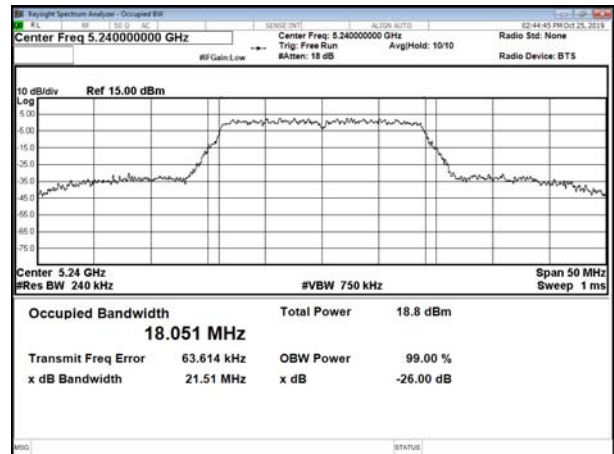
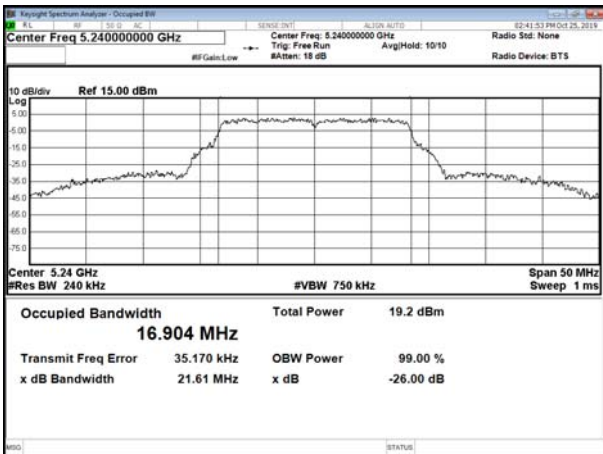
CH44

CH44



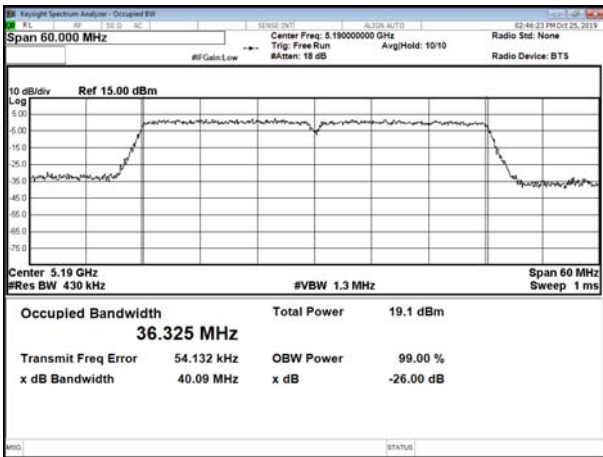
CH48

CH48

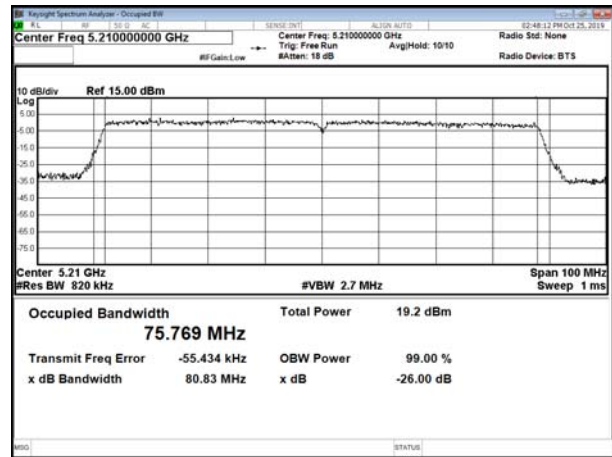




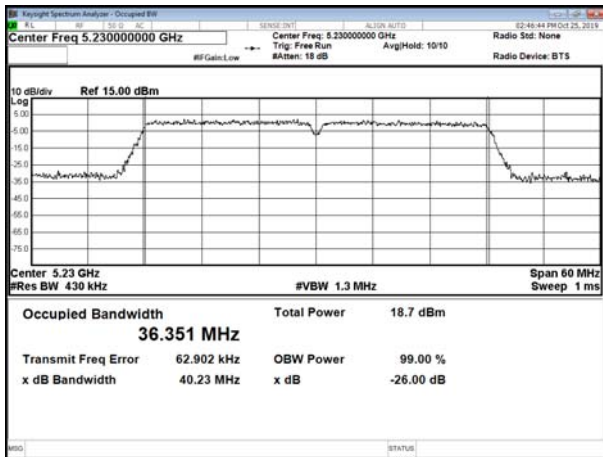
Modulation Standard: 802.11ac VHT40 (13.5Mbps) CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps) CH42



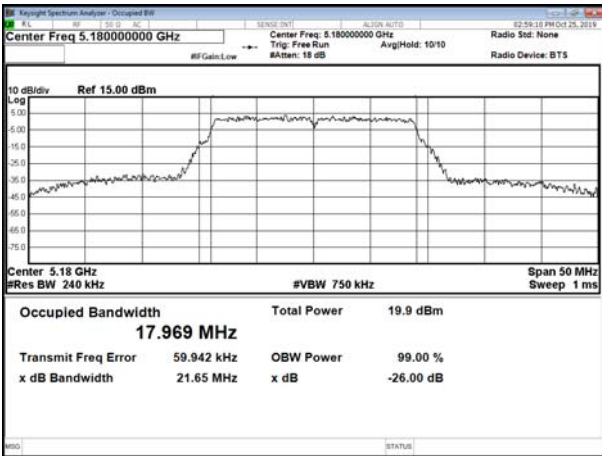
CH46



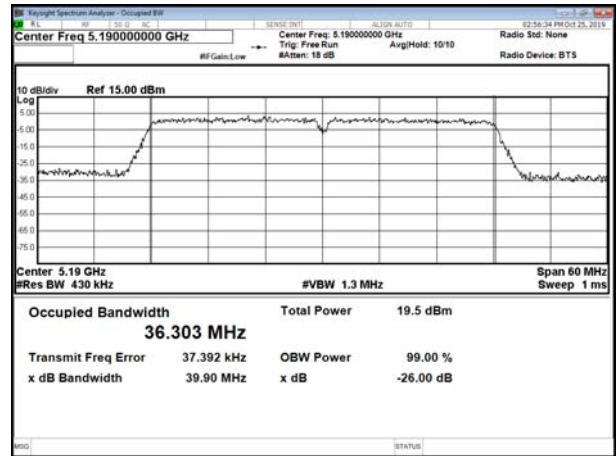


For 2TX , Ant A

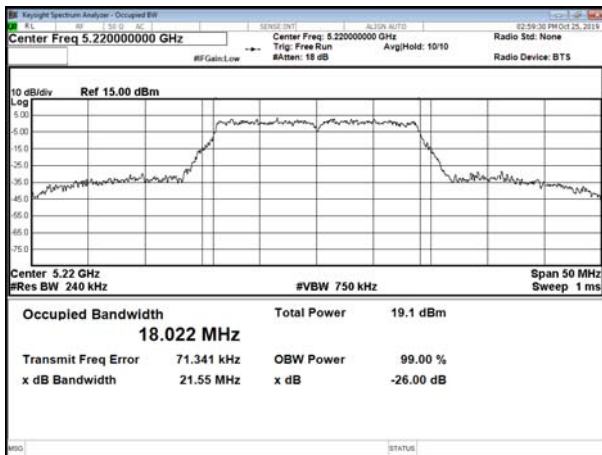
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH36



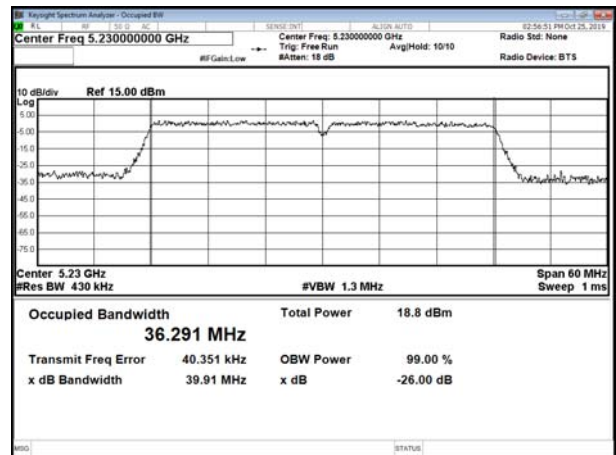
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH38



CH44

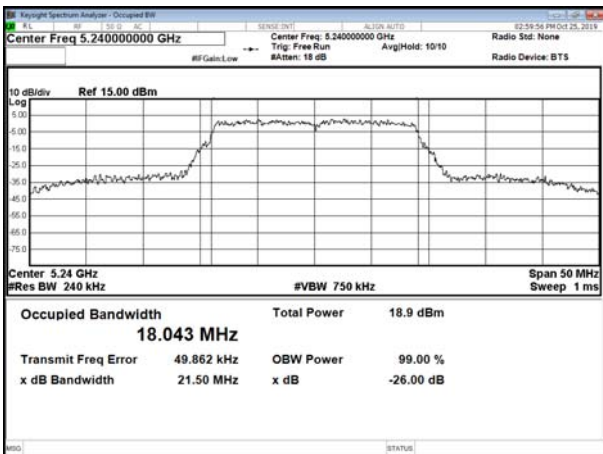


CH46

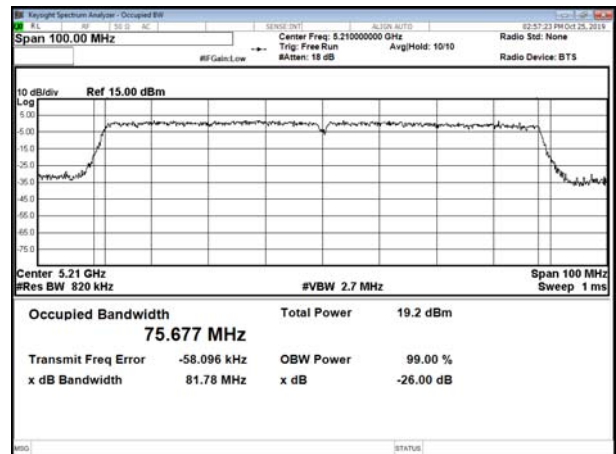


Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH48



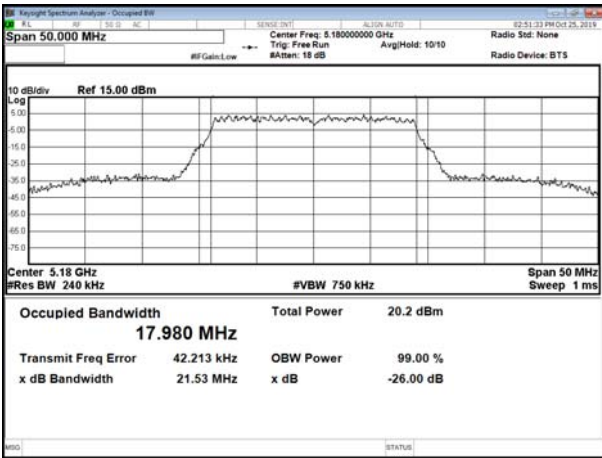
CH42



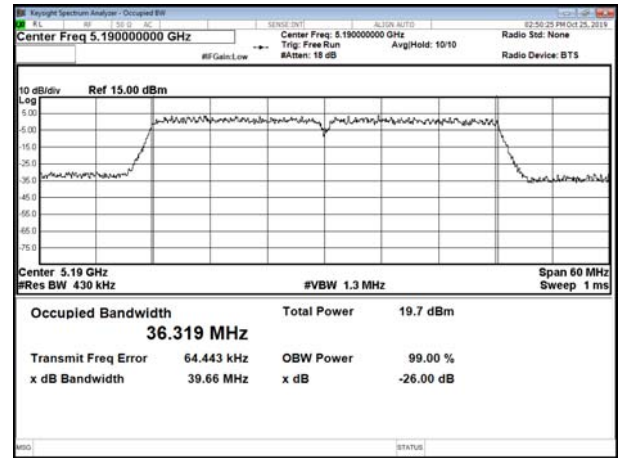


For 2TX , Ant B

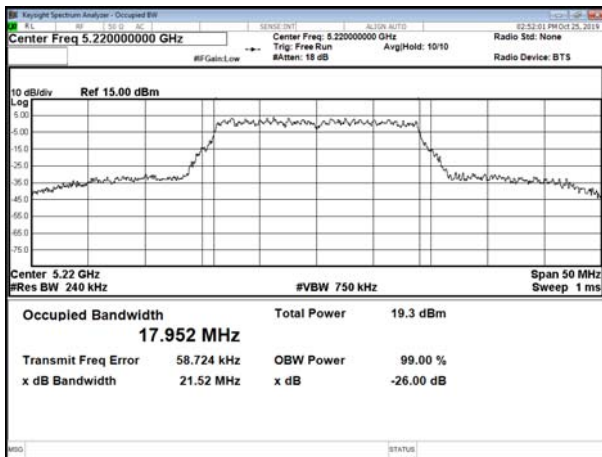
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH36



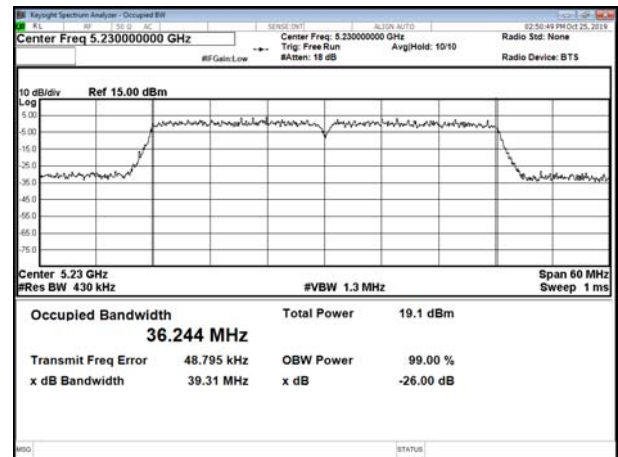
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH38



CH44

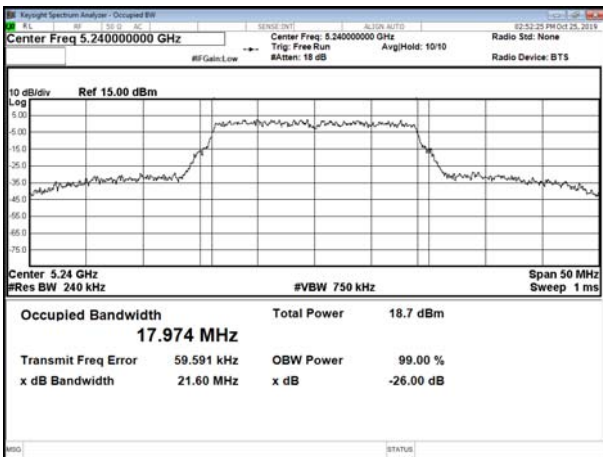


CH46

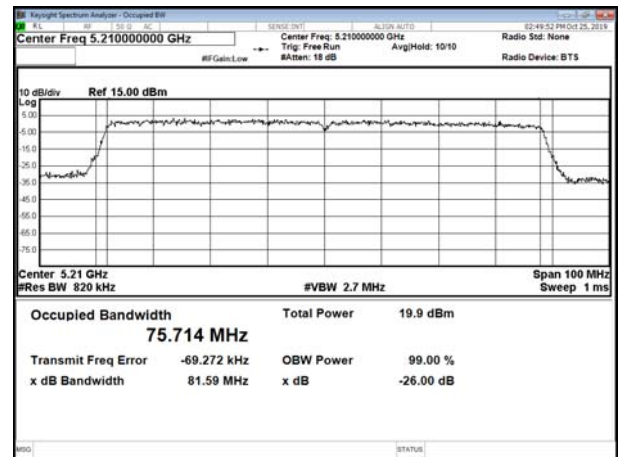


Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH48



CH42





10. Average Power

10.1. Test Limit

Output Power:

Frequency Band	Limit	
<input checked="" type="checkbox"/> 5.15~5.25GHz		
	Operating Mode	
<input type="checkbox"/>	Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed 125 mW (21 dBm).
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.
<input checked="" type="checkbox"/>	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.



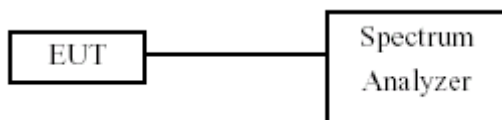
Frequency Band		Limit
<input type="checkbox"/>	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater 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.
<input type="checkbox"/>	5.470-5.725 GHz	
<input checked="" type="checkbox"/>	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: 24°C
 Test Date: Oct. 25, 2019

Humidity: 56%

In the 5.2G Band**For 1TX**

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	36	5180	13.70	13.70	13.70	23.442	24.00
	44	5220	13.10	13.10	13.10	20.417	24.00
	48	5240	12.89	12.89	12.89	19.454	24.00
802.11an HT20	36	5180	13.68	13.68	13.68	23.335	24.00
	44	5220	13.04	13.04	13.04	20.137	24.00
	48	5240	12.72	12.72	12.72	18.707	24.00
802.11an HT40	38	5190	12.89	12.89	12.89	19.454	24.00
	46	5230	12.46	12.46	12.46	17.620	24.00
802.11ac VHT20	36	5180	13.75	13.75	13.75	23.714	24.00
	44	5220	13.16	13.16	13.16	20.701	24.00
	48	5240	12.80	12.80	12.80	19.055	24.00
802.11ac VHT40	38	5190	12.98	12.98	12.98	19.861	24.00
	46	5230	12.51	12.51	12.51	17.824	24.00
802.11ac VHT80	42	5210	12.72	12.72	12.72	18.707	24.00

For 2TX

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B			
802.11an HT20	36	5180	13.54	13.62	16.59	45.604	24.00
	44	5220	12.88	12.91	15.91	38.994	24.00
	48	5240	12.57	12.63	15.61	36.392	24.00
802.11an HT40	38	5190	12.70	12.74	15.73	37.411	24.00
	46	5230	12.31	12.35	15.34	34.198	24.00
802.11ac VHT20	36	5180	13.35	13.72	16.55	45.186	24.00
	44	5220	12.82	12.89	15.87	38.637	24.00
	48	5240	12.57	12.78	15.69	37.068	24.00
802.11ac VHT40	38	5190	12.81	12.85	15.84	38.371	24.00
	46	5230	12.35	12.40	15.39	34.594	24.00
802.11ac VHT80	42	5210	12.43	12.52	15.49	35.400	24.00



In the 5.8G Band

For 1TX

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B			
802.11a	149	5745		9.47	9.47	8.851	30.00
	157	5785		10.19	10.19	10.447	30.00
	165	5825		10.22	10.22	10.520	30.00
802.11an HT20	149	5745		9.43	9.43	8.770	30.00
	157	5785		9.87	9.87	9.705	30.00
	165	5825		10.03	10.03	10.069	30.00
802.11an HT40	151	5755		10.14	10.14	10.328	30.00
	159	5795		10.80	10.80	12.023	30.00
802.11ac VHT20	149	5745		9.50	9.50	8.913	30.00
	157	5785		9.94	9.94	9.863	30.00
	165	5825		10.12	10.12	10.280	30.00
802.11ac VHT40	151	5755		10.22	10.22	10.520	30.00
	159	5795		10.87	10.87	12.218	30.00
802.11ac VHT80	155	5775		10.52	10.52	11.272	30.00

For 2TX

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B			
802.11an HT20	149	5745	9.35	9.36	12.37	17.258	30.00
	157	5785	9.68	9.73	12.72	18.707	30.00
	165	5825	9.88	9.94	12.92	19.588	30.00
802.11an HT40	151	5755	9.95	10.01	12.99	19.907	30.00
	159	5795	10.72	10.72	13.73	23.605	30.00
802.11ac VHT20	149	5745	9.02	9.22	12.13	16.331	30.00
	157	5785	9.77	9.87	12.83	19.187	30.00
	165	5825	9.66	9.72	12.70	18.621	30.00
802.11ac VHT40	151	5755	9.97	10.18	13.09	20.370	30.00
	159	5795	10.42	10.61	13.53	22.542	30.00
802.11ac VHT80	155	5775	9.67	9.75	12.72	18.707	30.00



11. PPSD

11.1. Test Limit

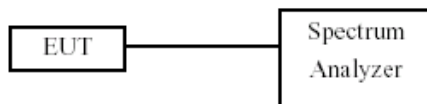
PSD:

Frequency Band		Limit
<input checked="" type="checkbox"/>	5.15~5.25GHz	
	Operating Mode	
<input type="checkbox"/>	Outdoor access point	17 dBm/MHz
<input type="checkbox"/>	Indoor access point	17 dBm/MHz
<input type="checkbox"/>	Fixed point-to-point access points	17 dBm/MHz
<input checked="" type="checkbox"/>	Mobile and portable client devices	11 dBm/MHz
<input type="checkbox"/>	5.25~5.35 GHz	11 dBm/MHz
<input type="checkbox"/>	5.470-5.725 GHz	11 dBm/MHz
<input checked="" type="checkbox"/>	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: 24°C

Humidity: 56%

Test Date: Oct. 25, 2019

In the 5.2G Band**For 1TX**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT B					
802.11a	36	5180	2.126		2.126	0.12	2.246	11.00
	44	5220	1.488		1.488	0.12	1.608	11.00
	48	5240	1.176		1.176	0.12	1.296	11.00
802.11ac VHT20	36	5180	1.696		1.696	0.13	1.826	11.00
	44	5220	1.115		1.115	0.13	1.245	11.00
	48	5240	0.920		0.920	0.13	1.050	11.00
802.11ac VHT40	38	5190	-1.613		-1.613	0.23	-1.383	11.00
	46	5230	-2.189		-2.189	0.23	-1.959	11.00
802.11ac VHT80	42	5210	-5.620		-5.620	0.47	-5.150	11.00

For 2X

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A	ANT B				
802.11ac VHT20	36	5180	2.209	1.961	5.10	0.13	5.23	11.00
	44	5220	1.526	1.325	4.44	0.13	4.57	11.00
	48	5240	1.115	1.070	4.10	0.13	4.23	11.00
802.11ac VHT40	38	5190	-1.249	-1.417	1.68	0.23	1.91	11.00
	46	5230	-1.848	-2.082	1.05	0.23	1.28	11.00
802.11ac VHT80	42	5210	-5.202	-5.333	-2.26	0.47	-1.79	11.00

**In the 5.8G Band****For 1TX**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	10log(500K Hz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
			ANT A						
802.11a	149	5745	-1.678		-1.678	0.12	-3.01	-4.568	30.00
	157	5785	-1.302		-1.302	0.12	-3.01	-4.192	30.00
	165	5825	-1.628		-1.628	0.12	-3.01	-4.518	30.00
802.11ac VHT20	149	5745	-2.008		-2.008	0.13	-3.01	-4.888	30.00
	157	5785	-1.651		-1.651	0.13	-3.01	-4.531	30.00
	165	5825	-2.142		-2.142	0.13	-3.01	-5.022	30.00
802.11ac VHT40	155	5755	-4.083		-4.083	0.23	-3.01	-6.863	30.00
	159	5795	-3.996		-3.996	0.23	-3.01	-6.776	30.00
802.11ac VHT80	155	5775	-7.589		-7.589	0.47	-3.01	-10.129	30.00

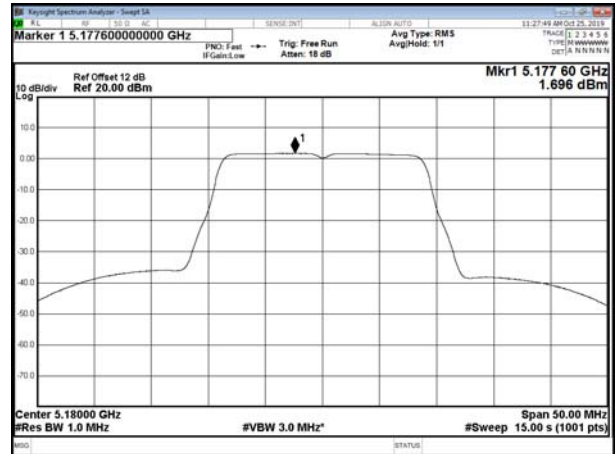
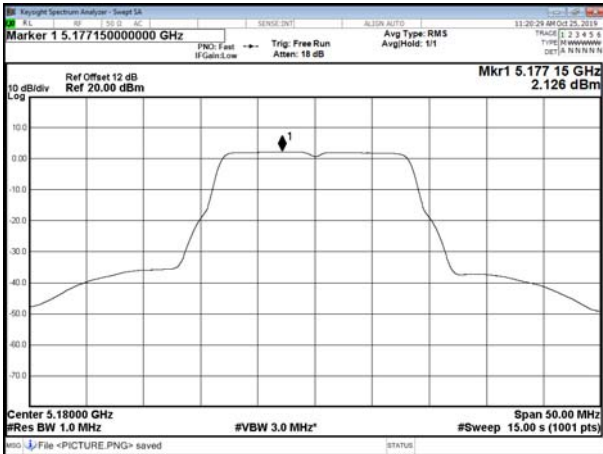
For 2TX

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	10log(500K Hz/RBW) CF (dB)	Total Corr'd PPSD (dBm/500kHz)	PPSD Limit (dBm/500kHz)
			ANT A	ANT B					
802.11ac VHT20	149	5745	-1.243	-2.021	1.40	0.13	-3.01	-1.48	30.00
	157	5785	-1.026	-1.564	1.72	0.13	-3.01	-1.16	30.00
	165	5825	-1.664	-1.950	1.21	0.13	-3.01	-1.67	30.00
802.11ac VHT40	155	5755	-3.351	-4.149	-0.72	0.23	-3.01	-3.50	30.00
	159	5795	-3.526	-4.053	-0.77	0.23	-3.01	-3.55	30.00
802.11ac VHT80	155	5775	-7.093	-7.411	-4.24	0.47	-3.01	-6.78	30.00



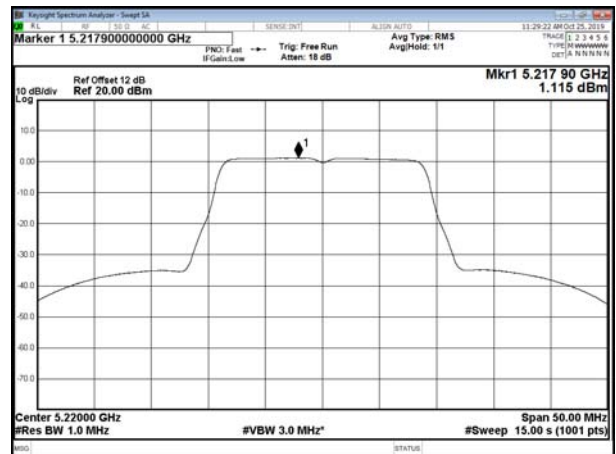
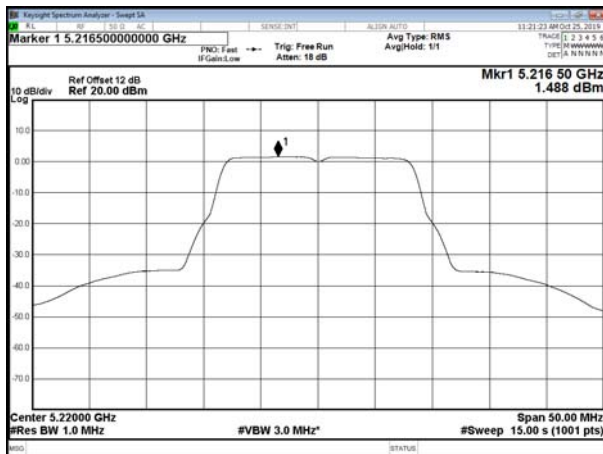
5.2G Band:
For 1TX
Modulation Standard: 802.11a (6Mbps)
CH36

802.11ac VHT20 (6.5Mbps)
CH36



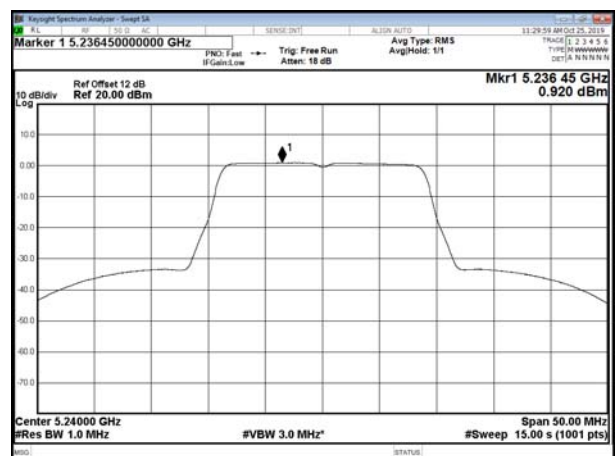
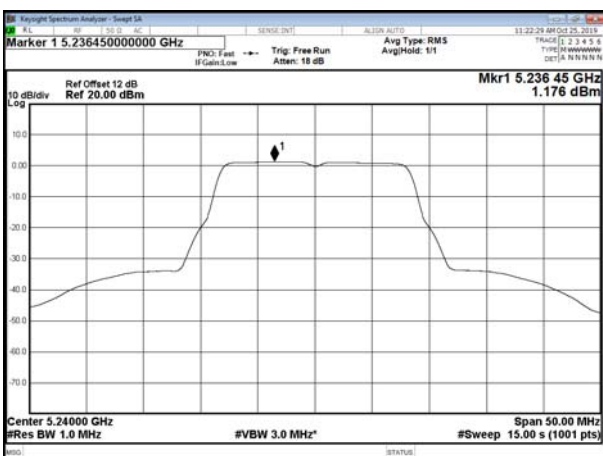
CH44

CH44



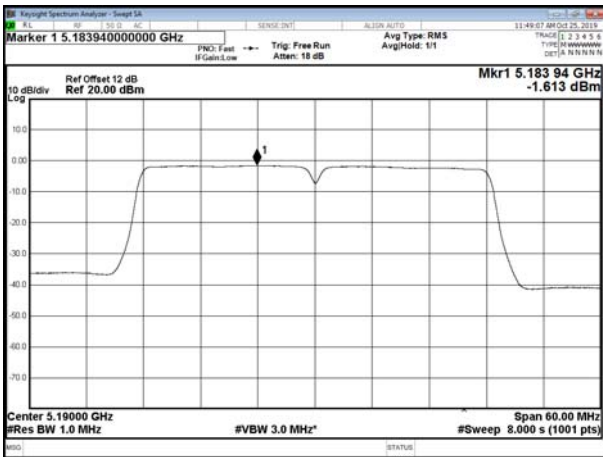
CH48

CH48

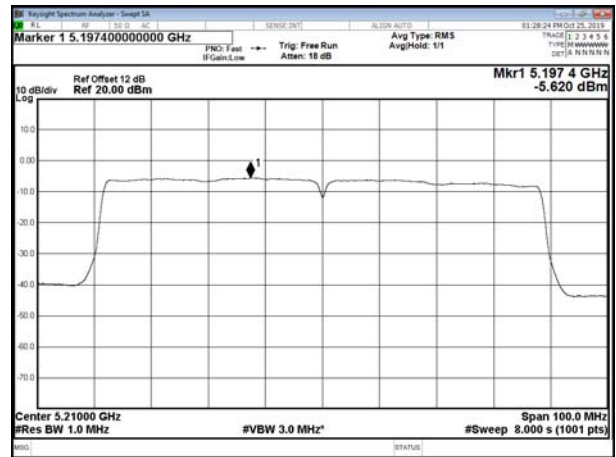




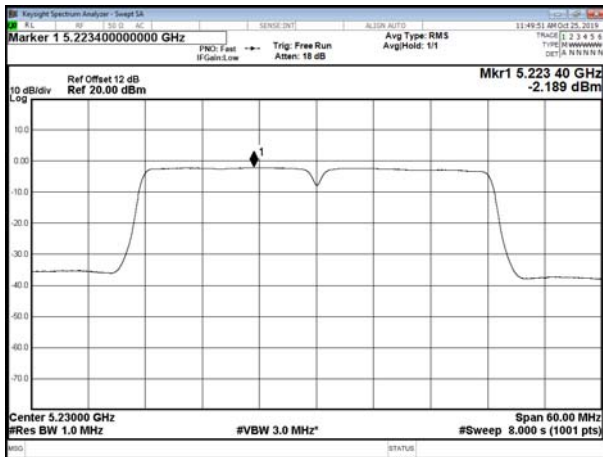
Modulation Standard: 802.11ac VHT40 (13.5Mbps)
CH38



Modulation Standard: 802.11ac VHT80 (29.3Mbps)
CH42



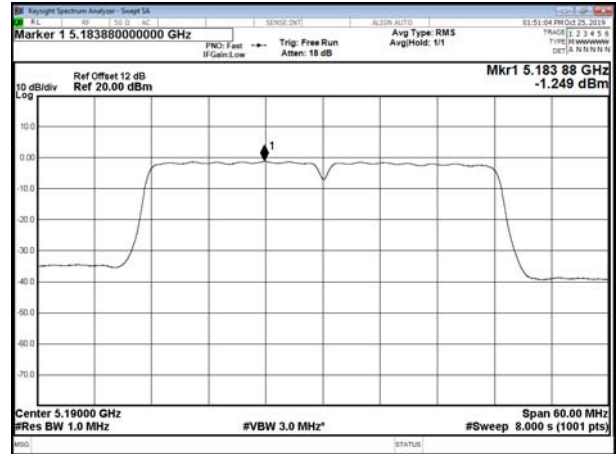
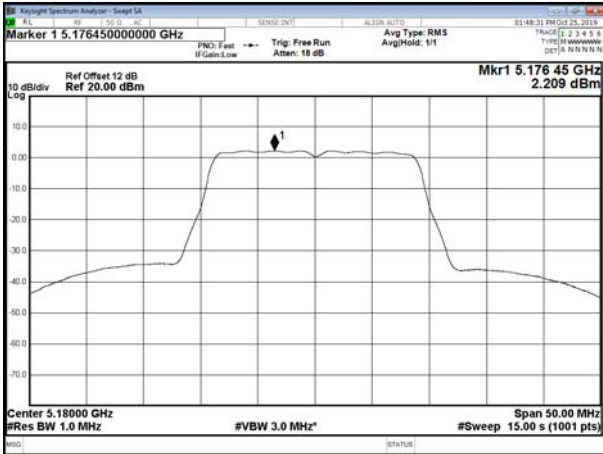
CH46





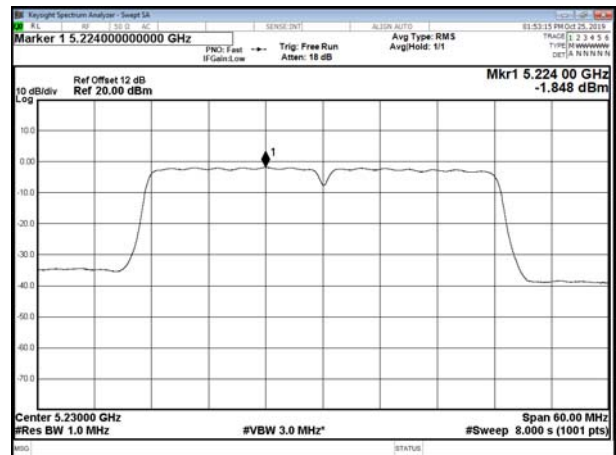
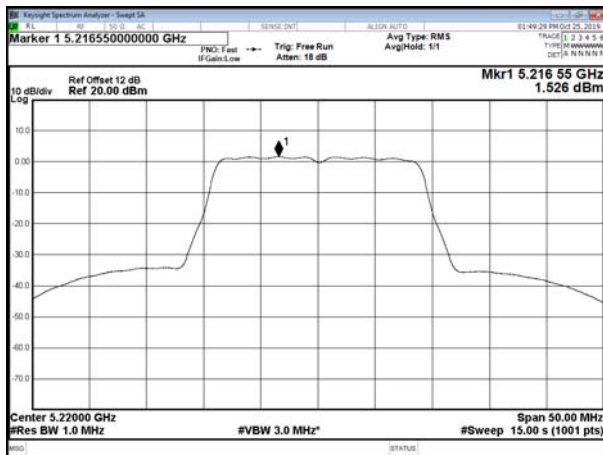
For 2TX , Ant A
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH36

Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH38



CH44

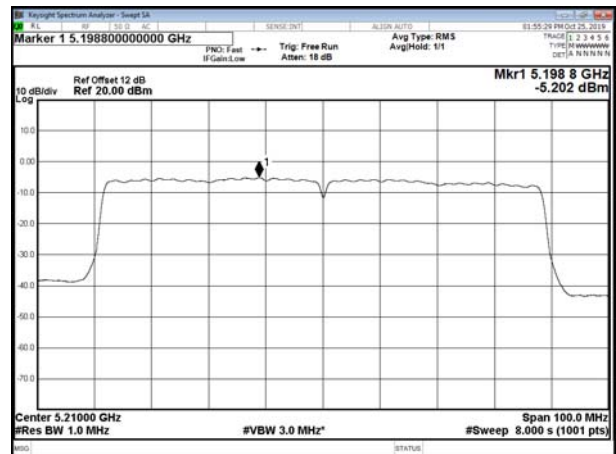
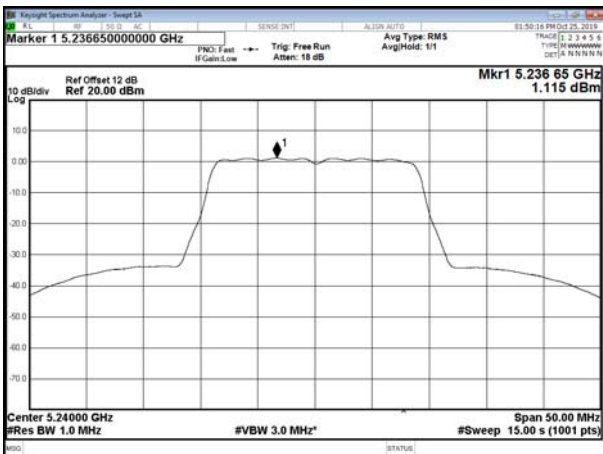
CH46



Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH48

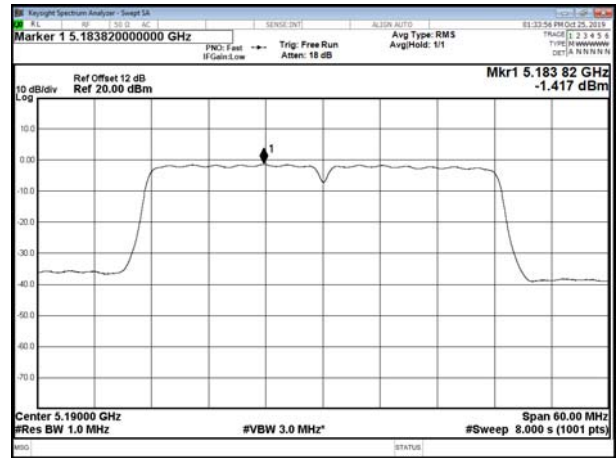
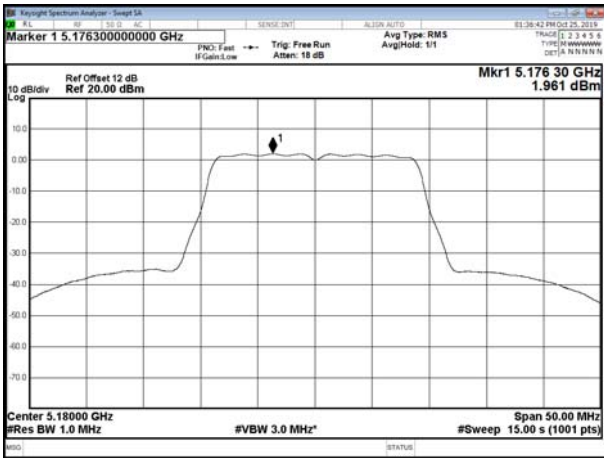
CH42





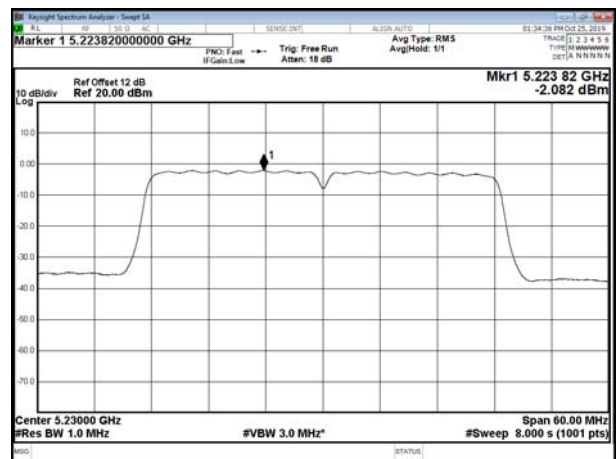
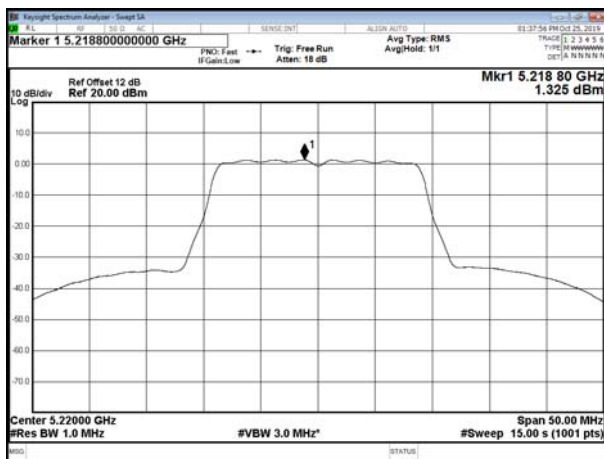
For 2TX , Ant B
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH36

Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH38



CH44

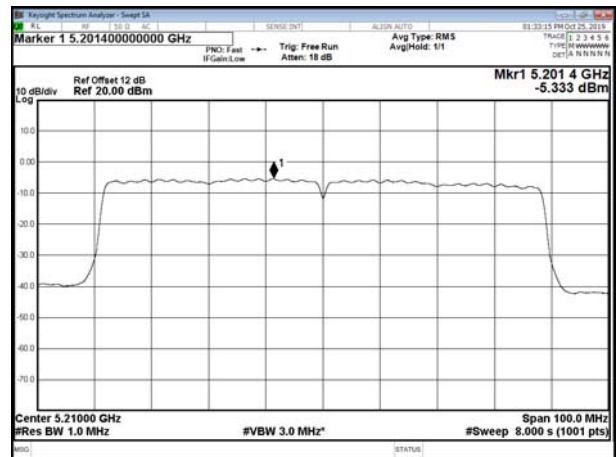
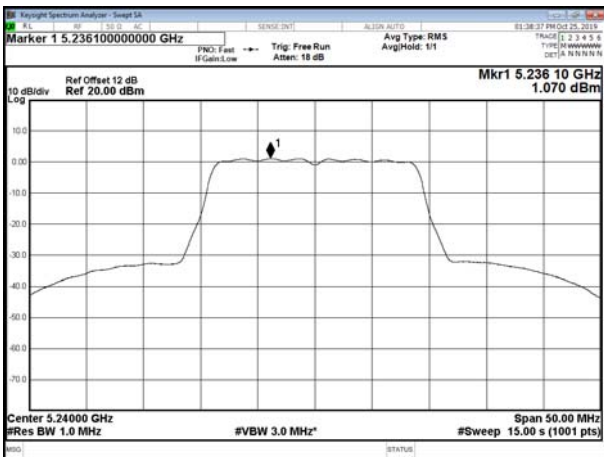
CH46



Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH48

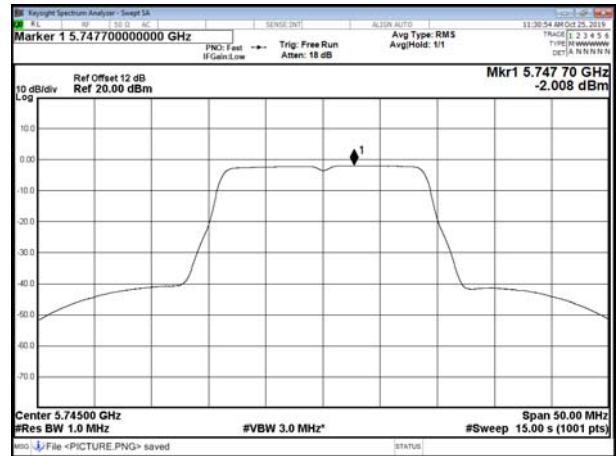
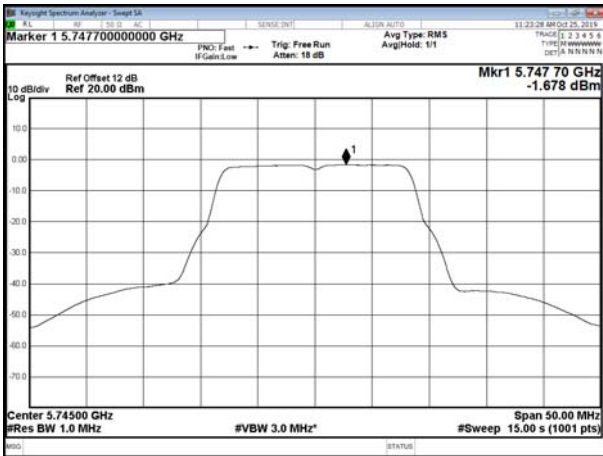
CH42





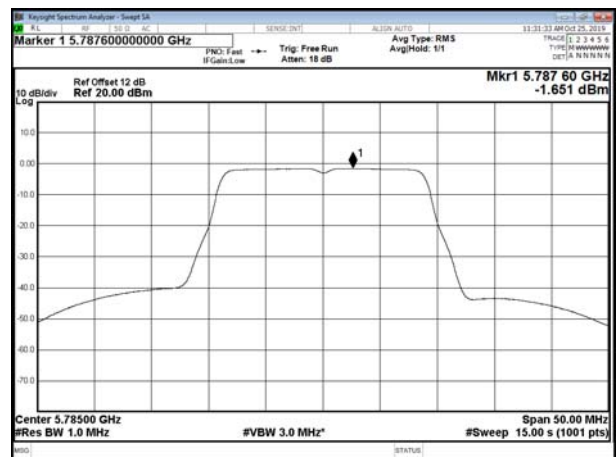
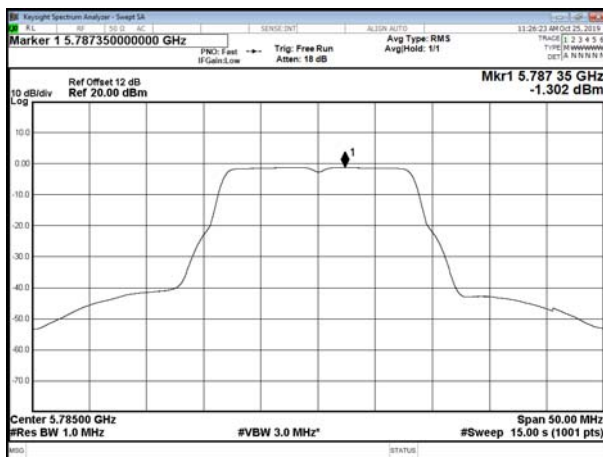
5.8G Band:
For 1TX
Modulation Standard: 802.11a (6Mbps)
CH149

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



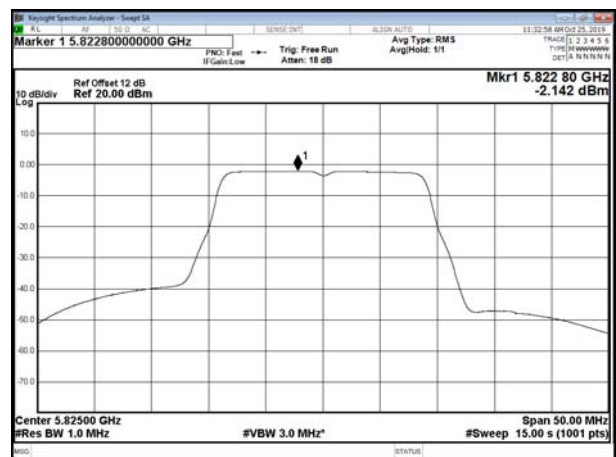
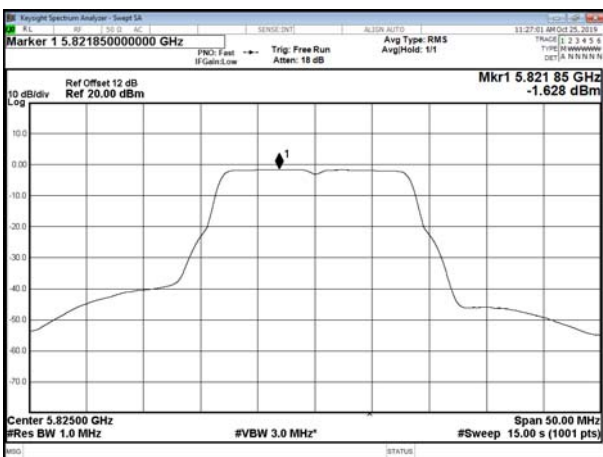
CH157

CH157



CH165

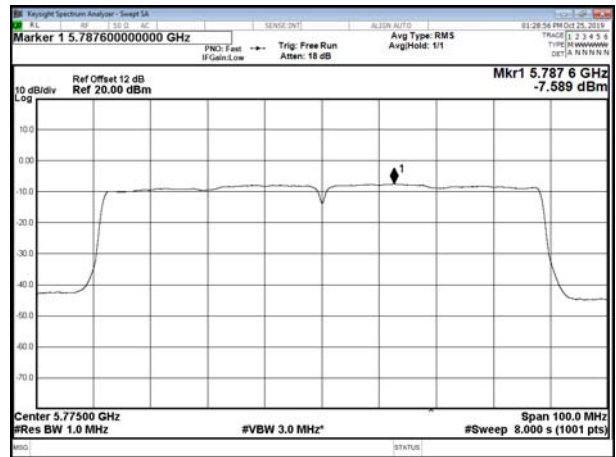
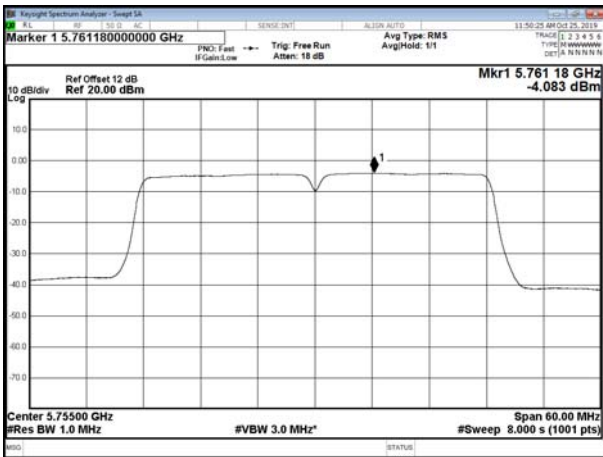
CH165



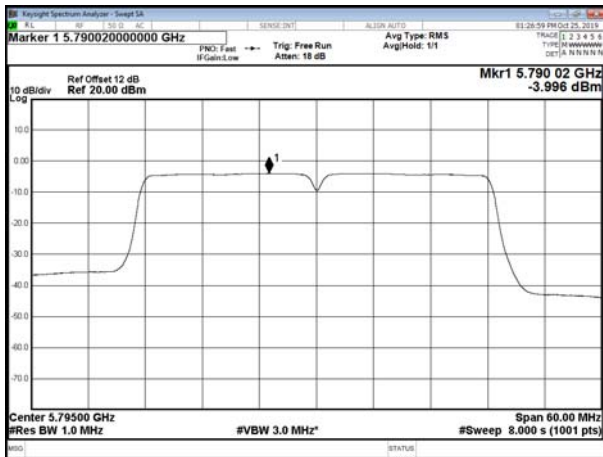


Modulation Standard: 802.11ac, VHT40 (13.5Mbps)
CH151

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



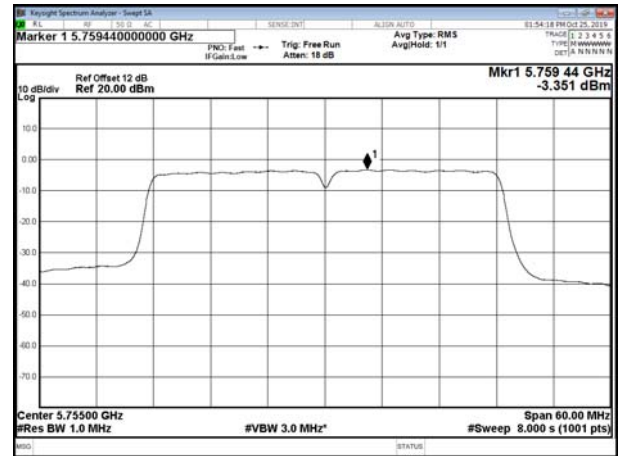
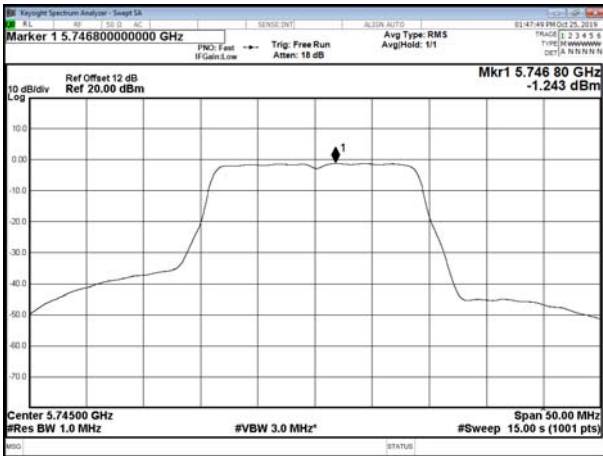
CH159





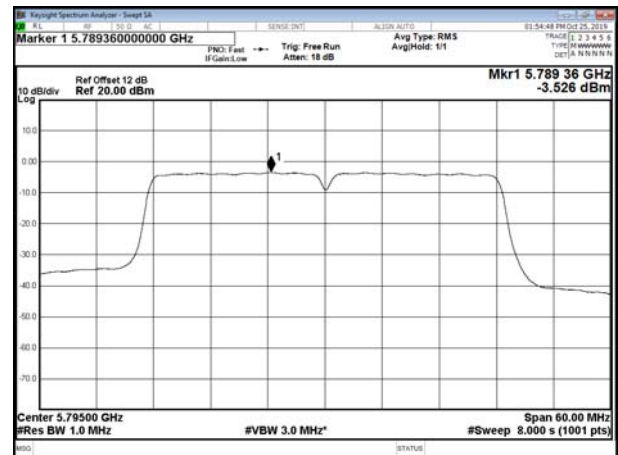
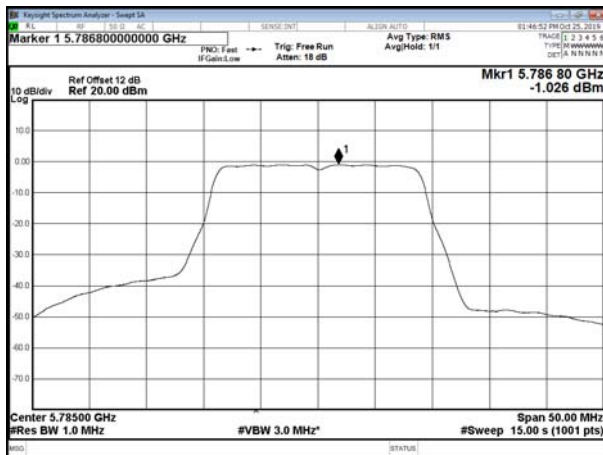
For 2TX , Ant A
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149

Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

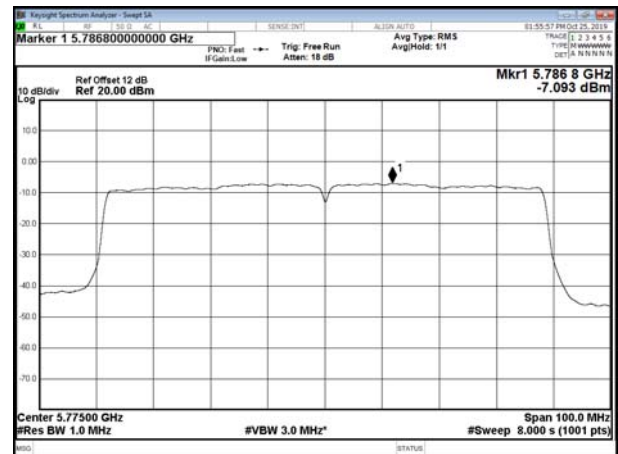
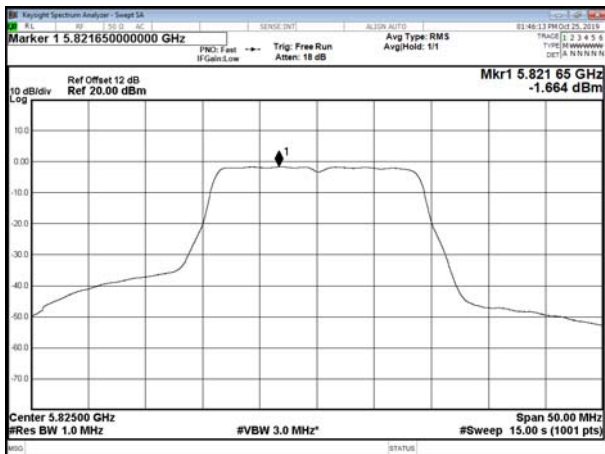
CH159



Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

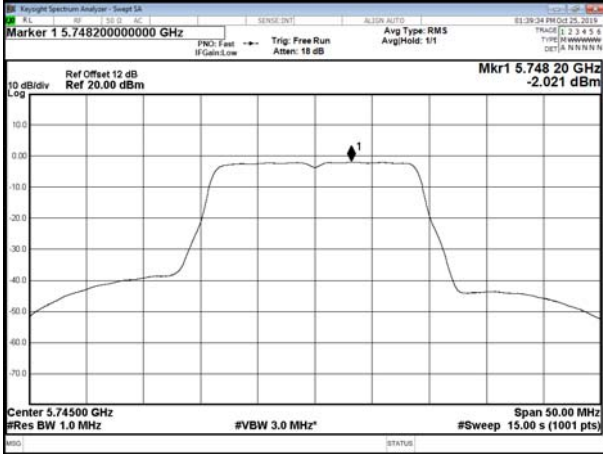
CH165

CH155

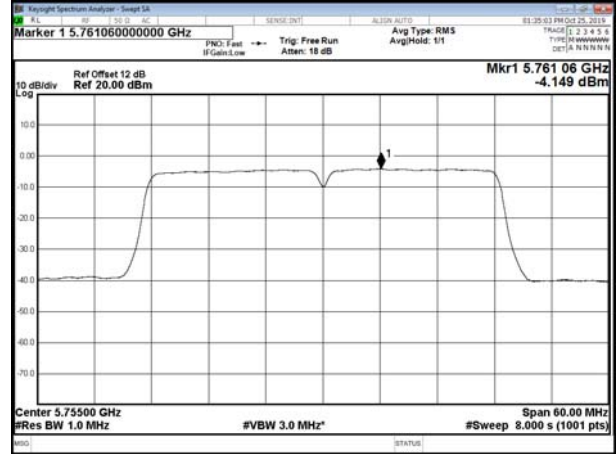




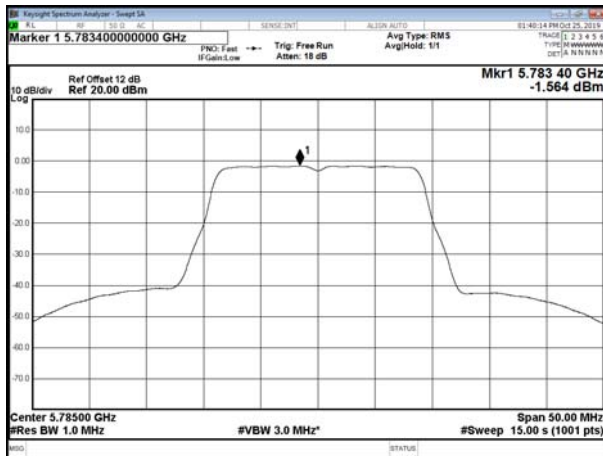
For 2TX , Ant B
Modulation Standard: 802.11ac,VHT20 (13Mbps)
CH149



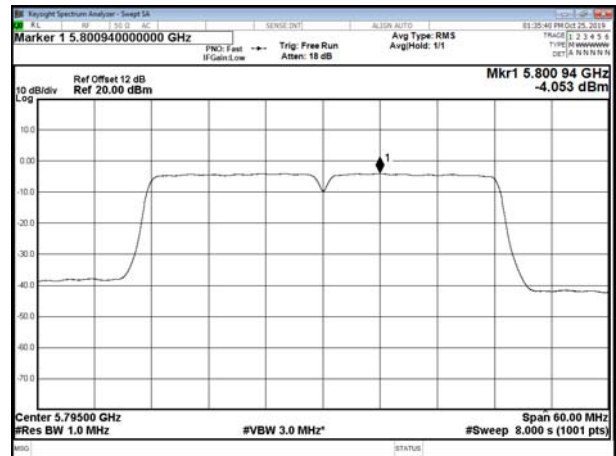
Modulation Standard: 802.11ac,VHT40 (27Mbps)
CH151



CH157

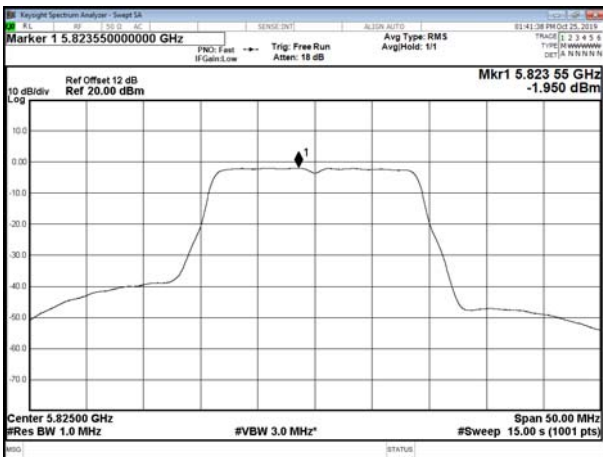


CH159

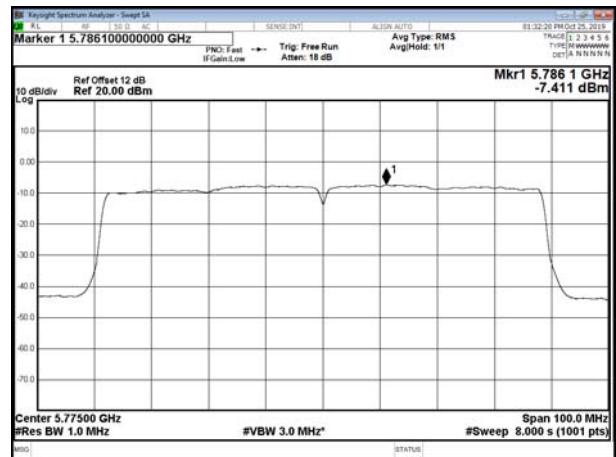


Modulation Standard: 802.11ac,VHT80 (58.5Mbps)

CH165



CH155



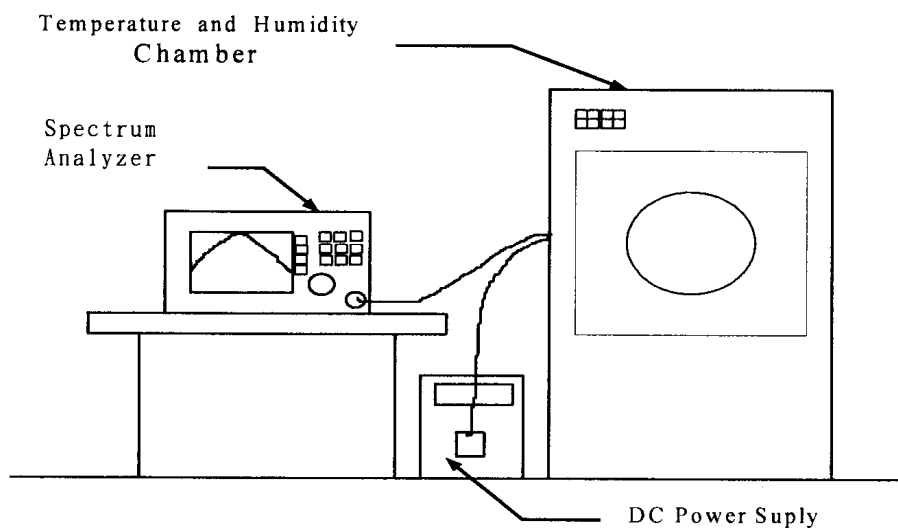


12. Frequency Stability

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: 24°C

Humidity: 58%

Test Date: Oct. 21, 2019

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
60	10.20	5180.0753	0.001454	5180.0774	0.001494	5180.0789	0.015232
	12.00	5180.0752	0.001452	5180.0775	0.001496	5180.0788	0.015212
	13.80	5180.0754	0.001456	5180.0773	0.001492	5180.0788	0.015212
50	10.20	5180.0734	0.001417	5180.0762	0.001471	5180.0780	0.015058
	12.00	5180.0738	0.001425	5180.0765	0.001477	5180.0782	0.015097
	13.80	5180.0733	0.001415	5180.0763	0.001473	5180.0780	0.015058
40	10.20	5180.0566	0.001093	5180.0568	0.001097	5180.0575	0.011100
	12.00	5180.0565	0.001091	5180.0569	0.001098	5180.0577	0.011139
	13.80	5180.0565	0.001091	5180.0568	0.001097	5180.0574	0.011081
30	10.20	5180.0560	0.001081	5180.0565	0.001091	5180.0572	0.011042
	12.00	5180.0560	0.001081	5180.0566	0.001093	5180.0574	0.011081
	13.80	5180.0562	0.001085	5180.0563	0.001087	5180.0575	0.011100
20	10.20	5180.0554	0.001069	5180.0555	0.001071	5180.0562	0.010849
	12.00	5180.0555	0.001071	5180.0556	0.001073	5180.0563	0.010869
	13.80	5180.0555	0.001071	5180.0555	0.001071	5180.0560	0.010811
10	10.20	5180.0422	0.000815	5180.0436	0.000842	5180.0440	0.008494
	12.00	5180.0426	0.000822	5180.0435	0.000840	5180.0444	0.008571
	13.80	5180.0432	0.000834	5180.0435	0.000840	5180.0442	0.008533
0	10.20	5180.0242	0.000467	5180.0250	0.000483	5180.0256	0.004942
	12.00	5180.0246	0.000475	5180.0252	0.000486	5180.0254	0.004903
	13.80	5180.0245	0.000473	5180.0252	0.000486	5180.0254	0.004903

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.