



FCC RADIO TEST REPORT

Applicant : ViewSonic Corporation

Address : 10 Pointe Dr. Suite 200. Brea, CA 92821, USA

Equipment : RF Module

Model No. : VS17803

Trade Name : ViewSonic

FCC ID : GSS-VS17337

I HEREBY CERTIFY THAT :

The sample was received on Apr. 24, 2019 and the testing was completed on June. 03, 2019 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory





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History of this test report

Report No.	Issue Date	Description
TEFE1904199	June. 06, 2019	Original



1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E §15.407

First R&O 14-30

KDB662911

KDB789033

KDB644545

FCC Rule	Description of Test	Result
15.203	Antenna Requirement	PASS
15.207(a)	AC Power Line Conducted Emission	PASS
15.407(b) 15.209	Radiated Spurious Emission	PASS
15.407(a)	26 dB & Occupied Bandwidth	PASS
15.407	6 dB Bandwidth	PASS
15.407 (a) & (a)(3)	Average Power	PASS
15.407(a)	Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
2.1091	Radio Frequency Exposure	PASS

*The principle of judgment is made according to the laboratory's reporting control and measurement uncertainty standard procedures.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(DEFD1801064).



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Frequency Range	BT / BLE: 2400-2483.5MHz 802.11b/g/n/ac: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5725-5850MHz
Modulation Type	BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK 802.11b: CCK, DQPSK, DBPSK 802.11g/n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM
Modulation Technology	DSSS, OFDM, FHSS, DTS
Data Rate	BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80
Antenna Type	FPC Antenna
Antenna Gain	2400-2480MHz: 2.1dBi For BT/BLE For WLAN: 2400-2483.5MHz: 2.1dBi 5150-5250MHz: 2.2dBi 5725-5850MHz: 2.2dBi



2.2. Carrier Frequency of Channels

Band: 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: 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 C63.10.
- b. The complete test system included remote workstation and EUT for RF test. The remote workstation included Notebook.
An executive program, "RTL11ac_8821CU_USB v0.22_20170519" under WIN 7 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)
caused "Test Mode 4" generated the worst case, it was reported as the final data.	
Radiation Emissions (30MHz ~ 1GHz)	
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 4" generated the worst case, they were reported as the final data.	
Radiation Emissions (1GHz ~ 40GHz)	
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.	

2.4. Description of Test System

RF Conducted				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Radiated Emissions				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
AC Power Line Conducted Emission				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	DELL	Latitude E5470	N/A	Adapter / 1.8m / NS



2.5. General Information of Test

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

Test Item	Test Site	Tested Date	Environmental Conditions	Tested By
RF Conducted	RFCON01-NK	2019/06/03	24°C / 61%	Vic Yeh
Radiated Emissions	3M02-NK	2019/05/31	23°C / 51%	Spree Yeh
RF Conduction	CON01-NK	2019/05/31	22°C / 43%	Spree Yeh

**2.6. Measurement Uncertainty**

Measurement Item	Uncertainty
Radiated Spurious Emission(9KHz~30MHz)	±3.405dB
Radiated Spurious Emission(30MHz~1GHz)	±5.326dB
Radiated Spurious Emission(1GHz~40GHz)	±5.011dB
6dB Bandwidth	±4.407%
26dB Bandwidth	±4.459%
Occupied Bandwidth	±4.403%
Peak Output Power(Conducted Power Meter)	±1.31dB
Power Spectral Density	±2.106dB
Duty Cycle	±0.17%
Frequency Stability	±156.543Hz
Temperature	±1.2°C
Humidity	±2.7%



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	2018/09/17	2019/09/16
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	2018/09/07	2019/09/06
EMI Receiver	ROHDE & SCHWARZ	ESCI	101423	2018/06/11	2019/06/10
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 40	100219	2018/07/03	2019/07/02
Preamplifier	EM Electronics corp.	EM330	60660	2019/03/11	2020/03/10
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2018/09/18	2019/09/17
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Cable-3in1(30M-1G)	HARBOUR INDUSTRIES	LL142	CCE1316	2018/09/12	2019/09/11
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	100219	2018/07/03	2019/07/02
Bluetooth Tester	ROHDE & SCHWARZ	CBT	101133	2019/04/07	2020/04/06
Attenuator	KEYSIGHT	8491B	MY39250705	2018/09/04	2019/09/03
TEMP & HUMIDITY CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2018/08/30	2019/08/29
Power Sensor	Anritsu	MA2411B	1207295	2019/04/11	2020/04/10

Test Item	AC Power Line Conducted Emission				
Test Site	CON01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
EMI Receiver	ROHDE & SCHWARZ	ESCI	100821	2018/9/12	2019/09/11
Line Impedance Stabilization Network	Schwarzbeck	NSLK 8127	8127-740	2018/6/13	2019/06/12
Pulse Limiter	ROHDE & SCHWARZ	ESH3-Z2	101933	2018/9/4	2019/09/03
E3	AUDIX	v8.2014-8-6	RK-000531	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	FPC Antenna
Antenna Gain	2400-2483.5MHz: 2.1dBi 5150MHz-5250MHz: 2.2dBi 5725MHz -5850MHz: 2.2dBi

2400-2483.5MHz
For Power directional gain= G_{ant} = 2.1 dBi
For PSD directional gain = G_{ant} = 2.1 dBi
5150MHz -5250MHz
For Power directional gain= G_{ant} = 2.2 dBi
For PSD directional gain = G_{ant} = 2.2 dBi
5725MHz -5850MHz
For Power directional gain= G_{ant} = 2.2 dBi
For PSD directional gain = G_{ant} = 2.2 dBi



5. Test of AC Power Line Conducted Emission

5.1. Test Limit

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

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

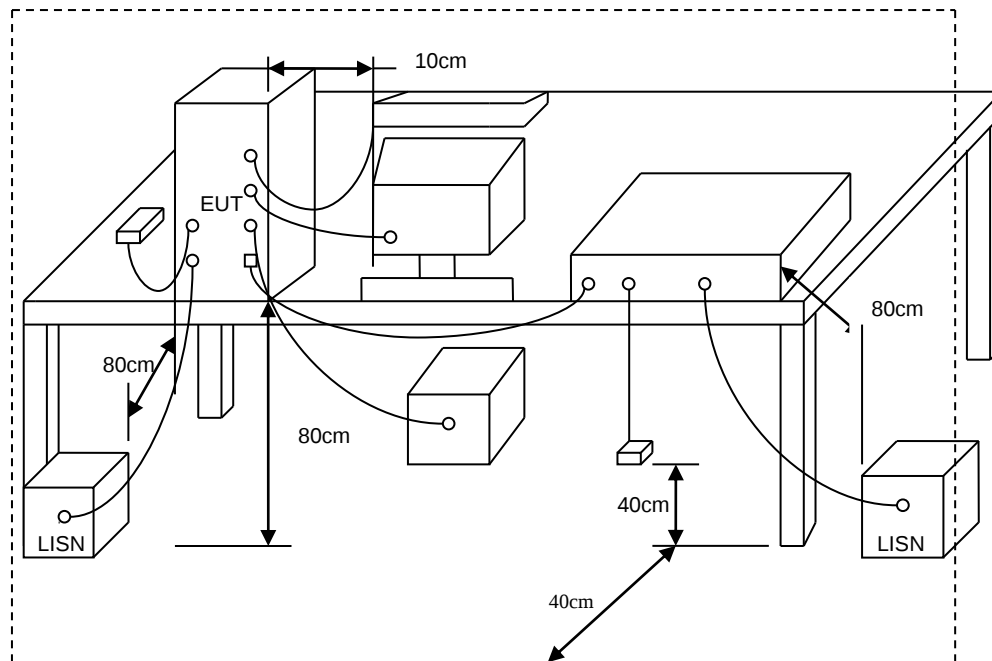
*Decreases with the logarithm of the frequency.

5.2. Test Procedures

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



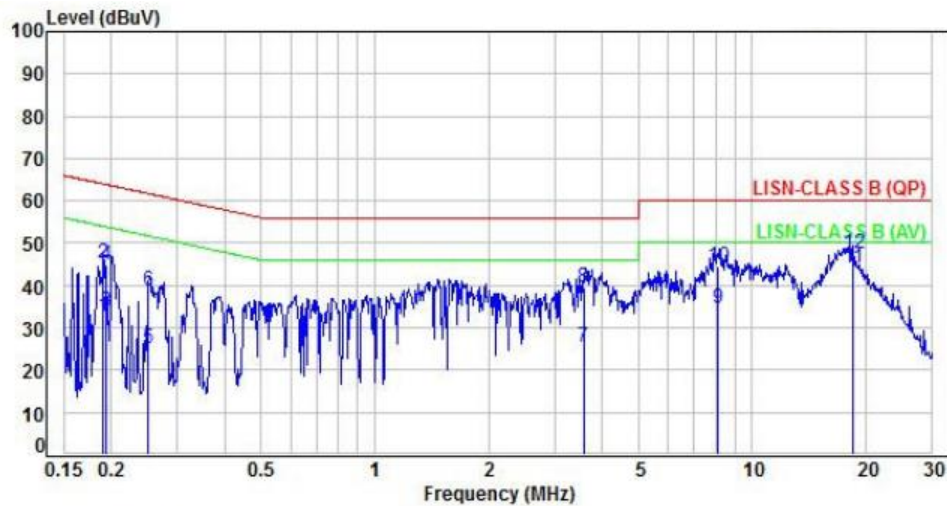
5.3. Typical Test Setup





5.4. Test Result and Data

Power	: DC 5V from system	Pol/Phase	: LINE
Test Mode	: Mode 4, Band1		



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.19	9.92	22.72	32.64	54.06	-21.42	Average	P
2	0.19	9.92	35.43	45.35	64.06	-18.71	QP	P
3	0.19	9.92	23.84	33.76	53.83	-20.07	Average	P
4	0.19	9.92	34.98	44.90	63.83	-18.93	QP	P
5	0.25	9.92	15.10	25.02	51.73	-26.71	Average	P
6	0.25	9.92	28.90	38.82	61.73	-22.91	QP	P
7	3.57	10.08	15.37	25.45	46.00	-20.55	Average	P
8	3.57	10.08	29.57	39.65	56.00	-16.35	QP	P
9	8.08	10.22	24.23	34.45	50.00	-15.55	Average	P
10	8.08	10.22	34.30	44.52	60.00	-15.48	QP	P
11	18.49	10.55	33.47	44.02	50.00	-5.98	Average	P
12	18.49	10.55	37.07	47.62	60.00	-12.38	QP	P

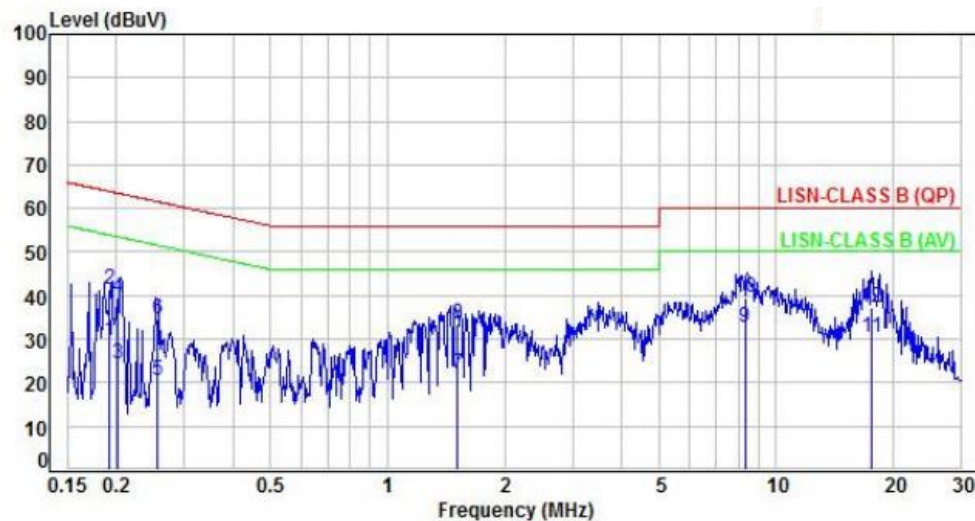
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: DC 5V from system	Pol/Phase	: NEUTRAL
Test Mode	: Mode 4, Band1		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.19	9.95	19.90	29.85	53.93	-24.08	Average	P
2	0.19	9.95	31.66	41.61	63.93	-22.32	QP	P
3	0.20	9.95	14.20	24.15	53.51	-29.36	Average	P
4	0.20	9.95	29.43	39.38	63.51	-24.13	QP	P
5	0.25	9.95	10.75	20.70	51.61	-30.91	Average	P
6	0.25	9.95	24.50	34.45	61.61	-27.16	QP	P
7	1.51	10.00	11.94	21.94	46.00	-24.06	Average	P
8	1.51	10.00	23.58	33.58	56.00	-22.42	QP	P
9	8.31	10.25	22.32	32.57	50.00	-17.43	Average	P
10	8.31	10.25	29.44	39.69	60.00	-20.31	QP	P
11	17.54	10.57	19.69	30.26	50.00	-19.74	Average	P
12	17.54	10.57	26.63	37.20	60.00	-22.80	QP	P

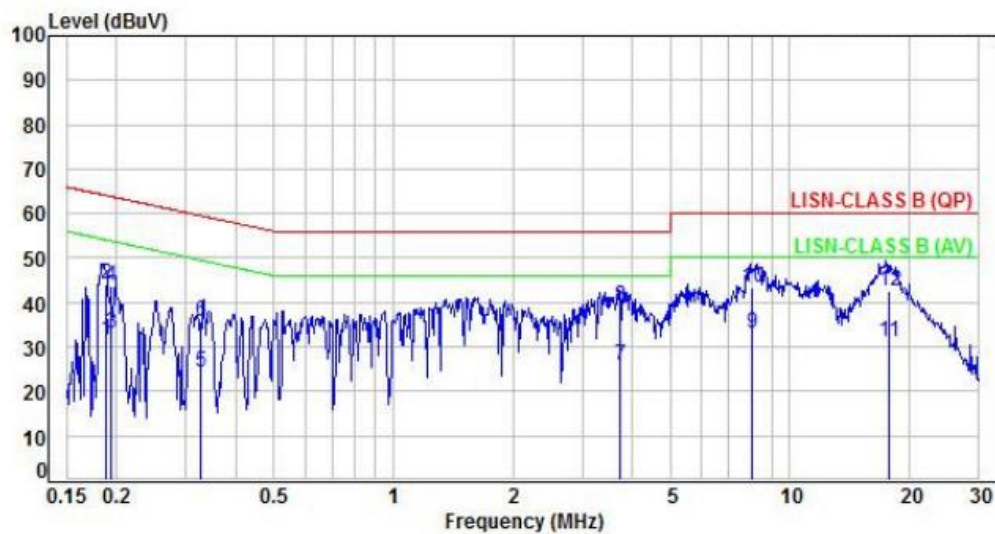
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: DC 5V from system	Pol/Phase	: LINE
Test Mode	: Mode 4, Band4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV)	Limit (dBUV)	Margin (dB)	Detector	P/F
1	0.19	9.92	21.57	31.49	54.10	-22.61	Average	P
2	0.19	9.92	34.35	44.27	64.10	-19.83	QP	P
3	0.19	9.92	23.26	33.18	53.84	-20.66	Average	P
4	0.19	9.92	33.94	43.86	63.84	-19.98	QP	P
5	0.33	9.94	14.37	24.31	49.55	-25.24	Average	P
6	0.33	9.94	25.73	35.67	59.55	-23.88	QP	P
7	3.72	10.09	15.69	25.78	46.00	-20.22	Average	P
8	3.72	10.09	29.07	39.16	56.00	-16.84	QP	P
9	8.03	10.22	22.85	33.07	50.00	-16.93	Average	P
10	8.03	10.22	33.31	43.53	60.00	-16.47	QP	P
11	17.75	10.54	20.68	31.22	50.00	-18.78	Average	P
12	17.75	10.54	32.13	42.67	60.00	-17.33	QP	P

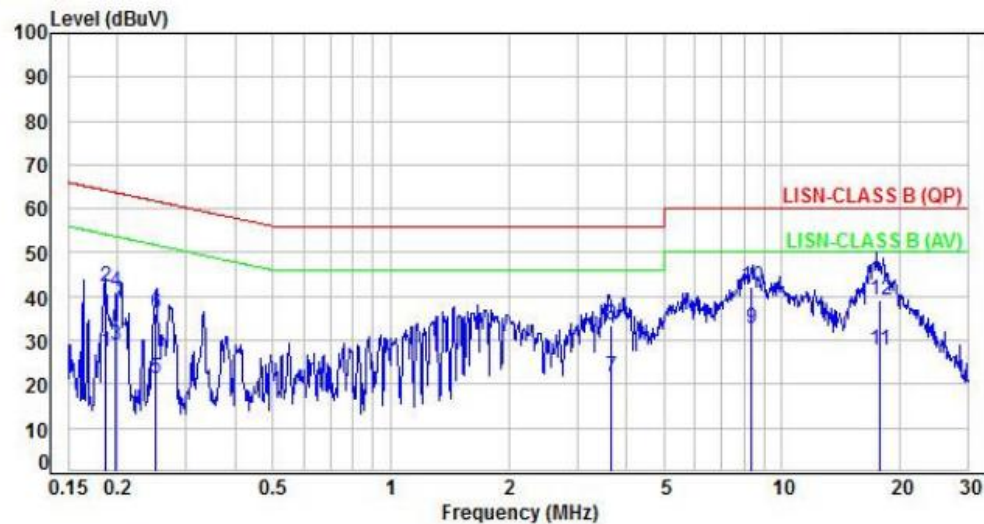
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



Power	: DC 5V from system	Pol/Phase	: NEUTRAL
Test Mode	: Mode 4, Band4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.19	9.95	17.39	27.34	54.18	-26.84	Average	P
2	0.19	9.95	32.37	42.32	64.18	-21.86	QP	P
3	0.20	9.95	19.09	29.04	53.67	-24.63	Average	P
4	0.20	9.95	31.10	41.05	63.67	-22.62	QP	P
5	0.25	9.95	11.18	21.13	51.76	-30.63	Average	P
6	0.25	9.95	26.24	36.19	61.76	-25.57	QP	P
7	3.65	10.10	11.75	21.85	46.00	-24.15	Average	P
8	3.65	10.10	23.46	33.56	56.00	-22.44	QP	P
9	8.35	10.25	22.30	32.55	50.00	-17.45	Average	P
10	8.35	10.25	32.04	42.29	60.00	-17.71	QP	P
11	17.74	10.57	17.29	27.86	50.00	-22.14	Average	P
12	17.74	10.57	28.45	39.02	60.00	-20.98	QP	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



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.

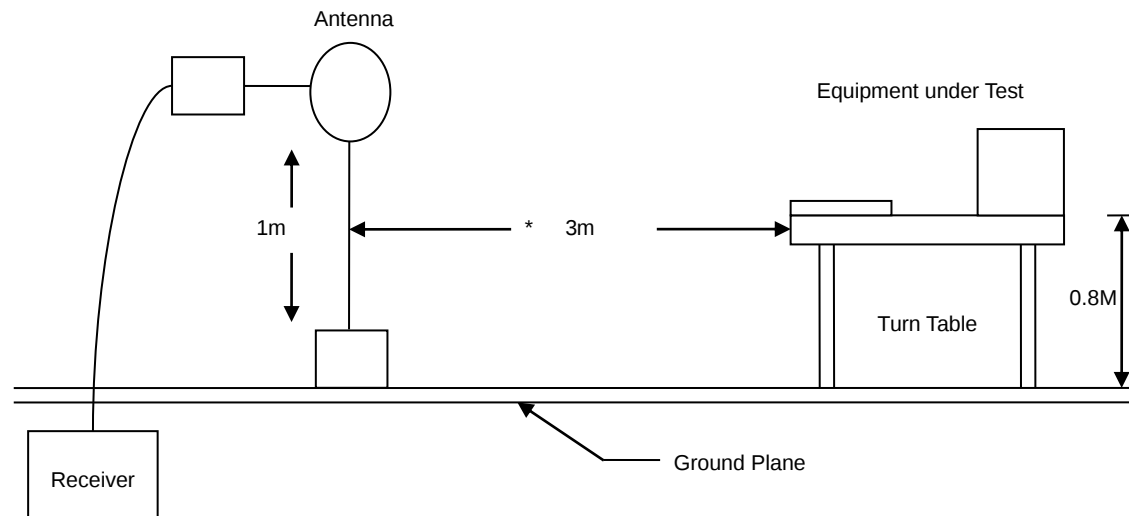
6.2. Test Procedures

- 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.

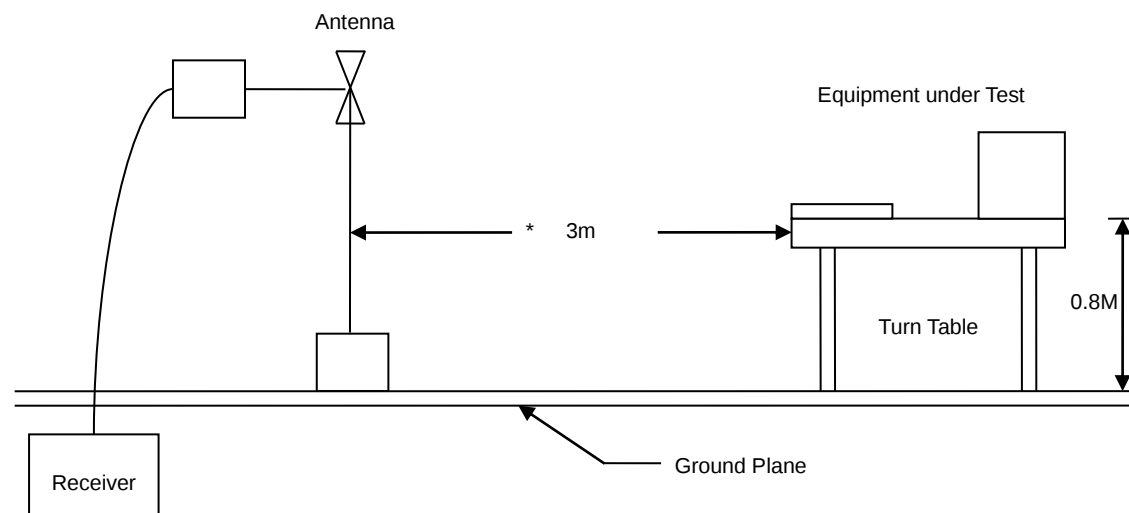


6.3. Typical Test Setup

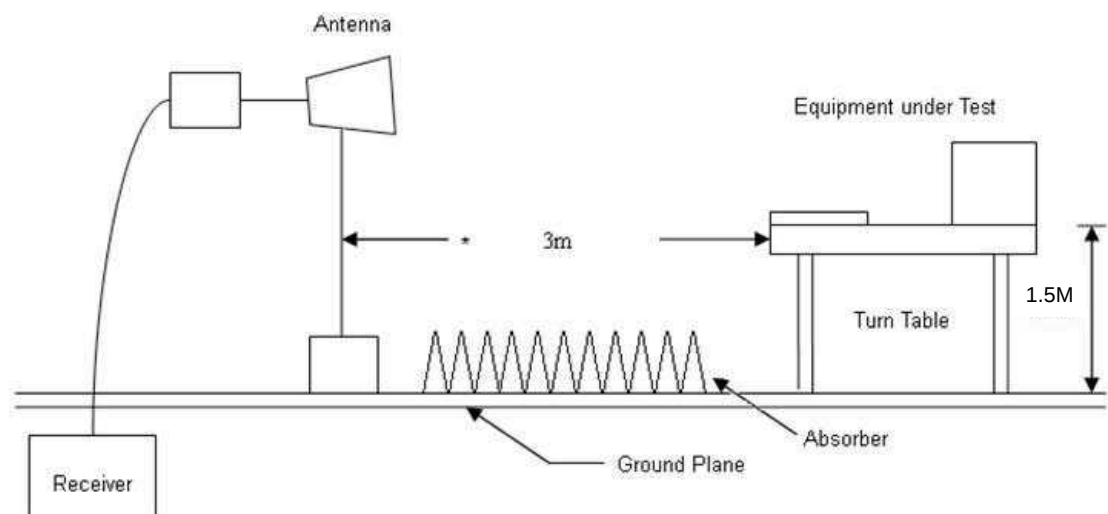
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



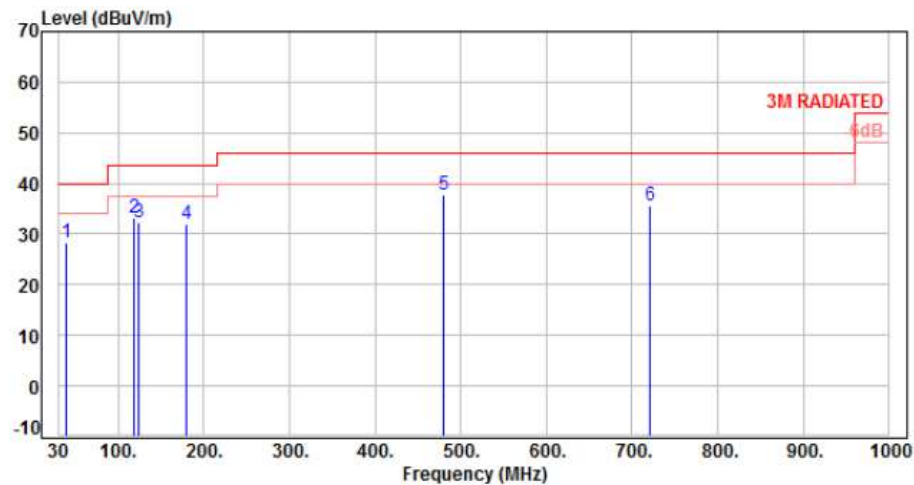


6.4. Test Result and Data (9kHz ~ 30MHz)

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

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

Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, Band 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	38.73	-9.81	38.25	28.44	40.00	-11.56	Peak	400	0	P
2	119.24	-11.93	45.11	33.18	43.50	-10.32	Peak	400	0	P
3	124.09	-11.44	43.64	32.20	43.50	-11.30	Peak	400	0	P
4	179.38	-10.85	42.91	32.06	43.50	-11.44	Peak	400	0	P
5	480.08	-4.28	42.13	37.85	46.00	-8.15	Peak	400	0	P
6	720.64	0.00	35.51	35.51	46.00	-10.49	Peak	400	0	P

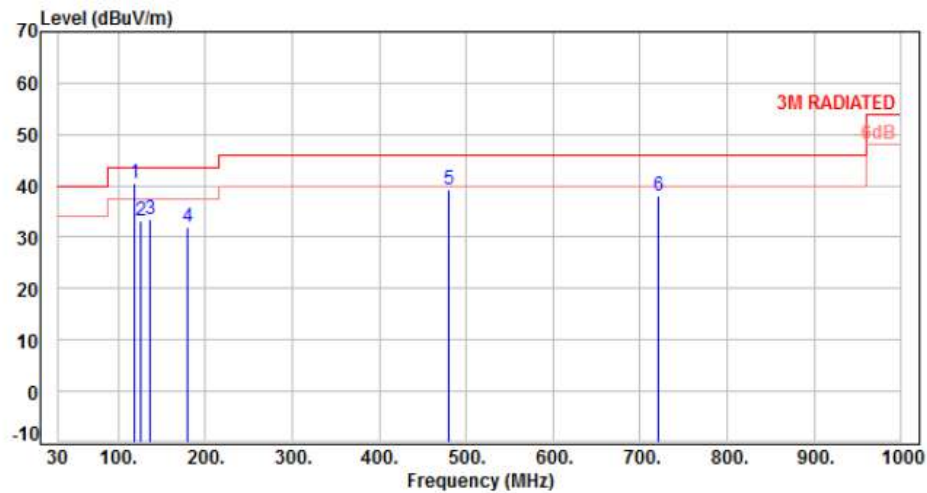
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, Band 1		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	119.24	-11.93	52.30	40.37	43.50	-3.13	Peak	100	0	P
2	125.06	-11.34	44.52	33.18	43.50	-10.32	QP	166	30	P
3	135.73	-10.23	43.70	33.47	43.50	-10.03	QP	158	19	P
4	179.38	-10.85	42.74	31.89	43.50	-11.61	QP	107	352	P
5	480.08	-4.28	43.57	39.29	46.00	-6.71	Peak	100	0	P
6	721.61	0.02	38.14	38.16	46.00	-7.84	Peak	100	0	P

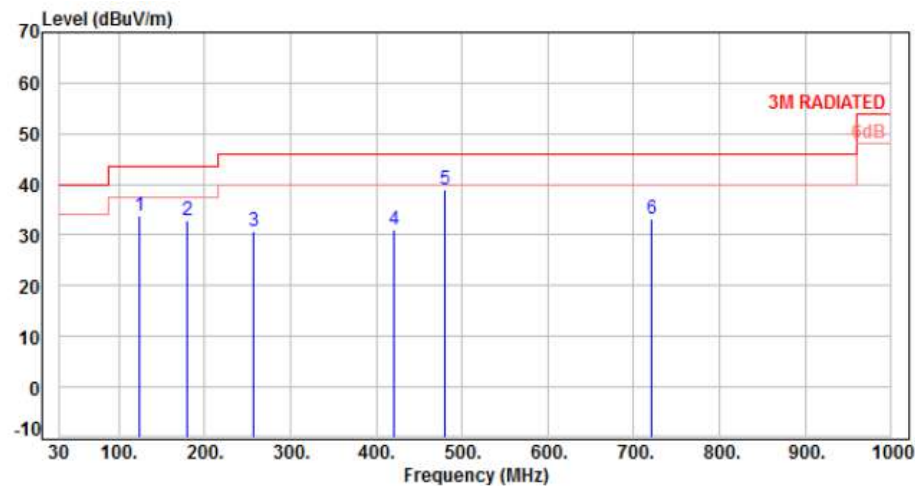
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, Band 4		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	123.12	-11.54	45.37	33.83	43.50	-9.67	Peak	400	0	P
2	179.38	-10.85	43.61	32.76	43.50	-10.74	Peak	400	0	P
3	256.98	-10.10	40.71	30.61	46.00	-15.39	Peak	400	0	P
4	419.94	-5.48	36.66	31.18	46.00	-14.82	Peak	400	0	P
5	480.08	-4.28	43.19	38.91	46.00	-7.09	Peak	400	0	P
6	721.61	0.02	33.02	33.04	46.00	-12.96	Peak	400	0	P

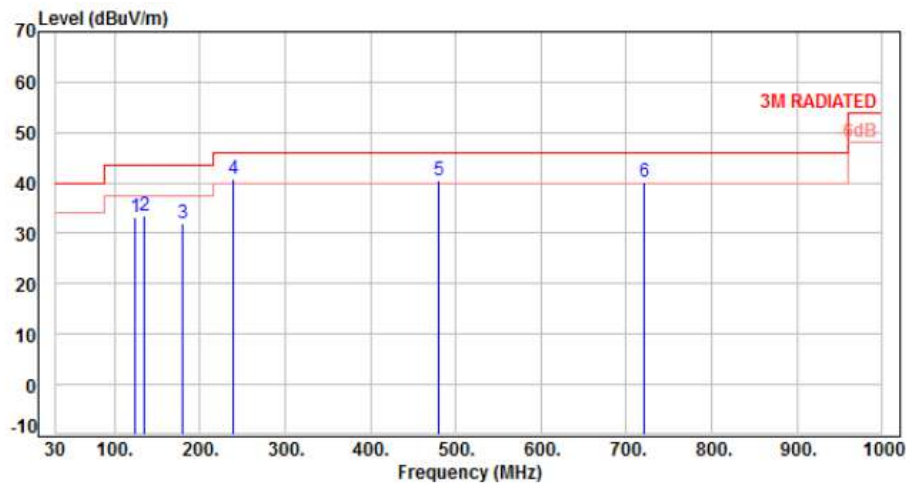
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, Band 4		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	123.12	-11.54	44.59	33.05	43.50	-10.45	QP	165	26	P
2	134.76	-10.29	43.71	33.42	43.50	-10.08	QP	157	42	P
3	179.38	-10.85	42.93	32.08	43.50	-11.42	QP	112	314	P
4	239.52	-10.74	51.47	40.73	46.00	-5.27	Peak	100	0	P
5	480.08	-4.28	44.66	40.38	46.00	-5.62	Peak	100	0	P
6	721.61	0.02	40.30	40.32	46.00	-5.68	Peak	100	0	P

Note: Level=Reading+Factor

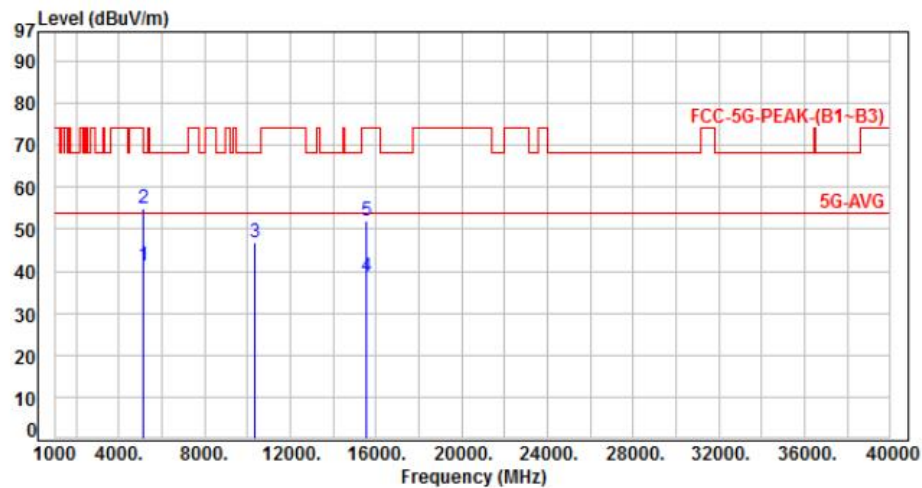
Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



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

Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, Band 1, CH36		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.30	41.44	54.00	-12.56	Average	378	341	P
2	5150.00	-5.86	60.70	54.84	74.00	-19.16	Peak	378	341	P
3	10360.00	2.36	44.30	46.66	68.20	-21.54	Peak	368	15	P
4	15540.00	8.79	30.12	38.91	54.00	-15.09	Average	100	84	P
5	15540.00	8.79	43.25	52.04	74.00	-21.96	Peak	100	84	P

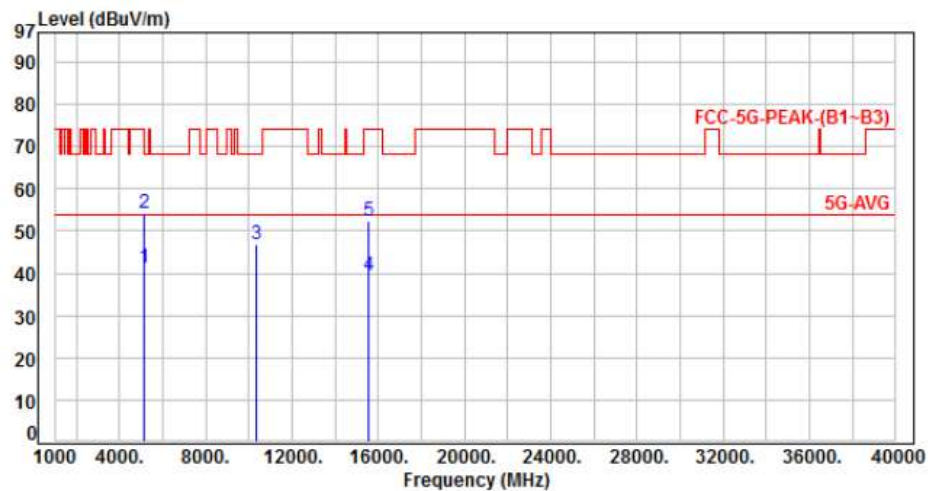
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 1, CH36		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.20	41.34	54.00	-12.66	Average	390	307	P
2	5150.00	-5.86	60.10	54.24	74.00	-19.76	Peak	390	307	P
3	10360.00	2.36	44.50	46.86	68.20	-21.34	Peak	400	302	P
4	15540.00	8.79	30.50	39.29	54.00	-14.71	Average	100	311	P
5	15540.00	8.79	43.40	52.19	74.00	-21.81	Peak	100	311	P

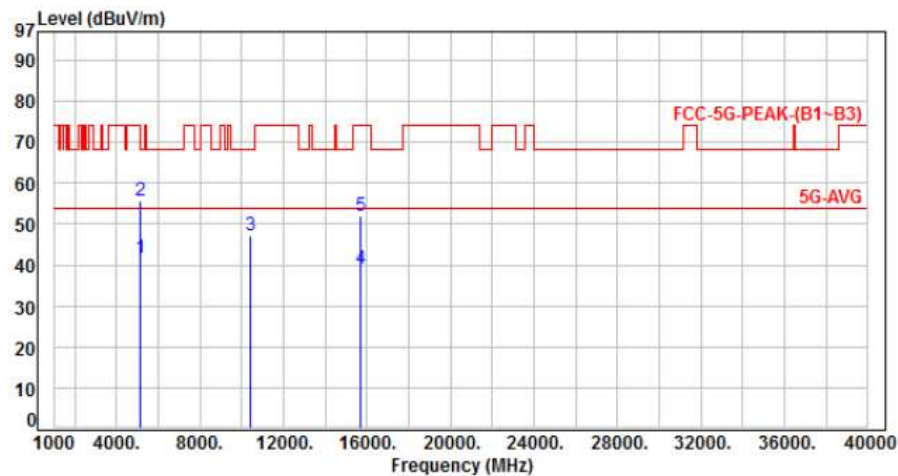
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 1, CH44		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.58	41.72	54.00	-12.28	Average	377	351	P
2	5150.00	-5.86	61.50	55.64	74.00	-18.36	Peak	377	351	P
3	10440.00	2.49	44.70	47.19	68.20	-21.01	Peak	380	12	P
4	15660.00	8.49	30.62	39.11	54.00	-14.89	Average	117	58	P
5	15660.00	8.49	43.64	52.13	74.00	-21.87	Peak	117	58	P

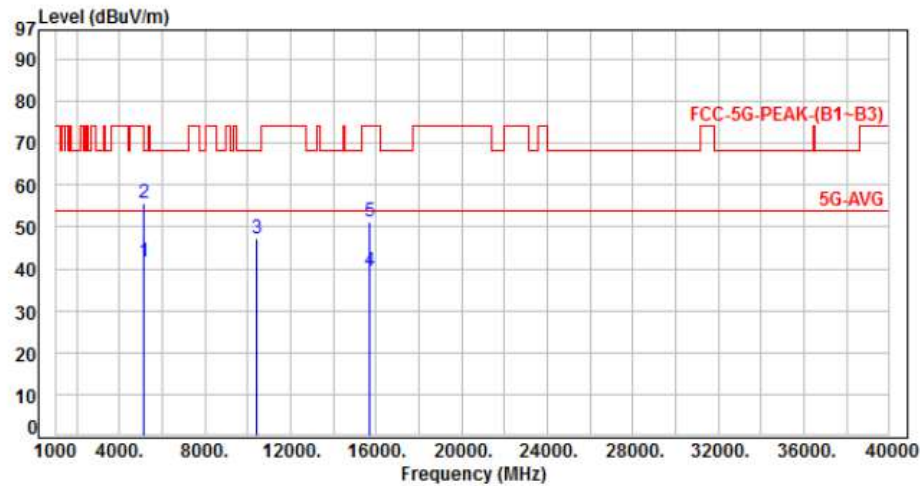
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 1, CH44		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.55	41.69	54.00	-12.31	Average	386	325	P
2	5150.00	-5.86	61.40	55.54	74.00	-18.46	Peak	386	325	P
3	10440.00	2.49	44.81	47.30	68.20	-20.90	Peak	395	321	P
4	15660.00	8.49	30.84	39.33	54.00	-14.67	Average	100	351	P
5	15660.00	8.49	42.77	51.26	74.00	-22.74	Peak	100	351	P

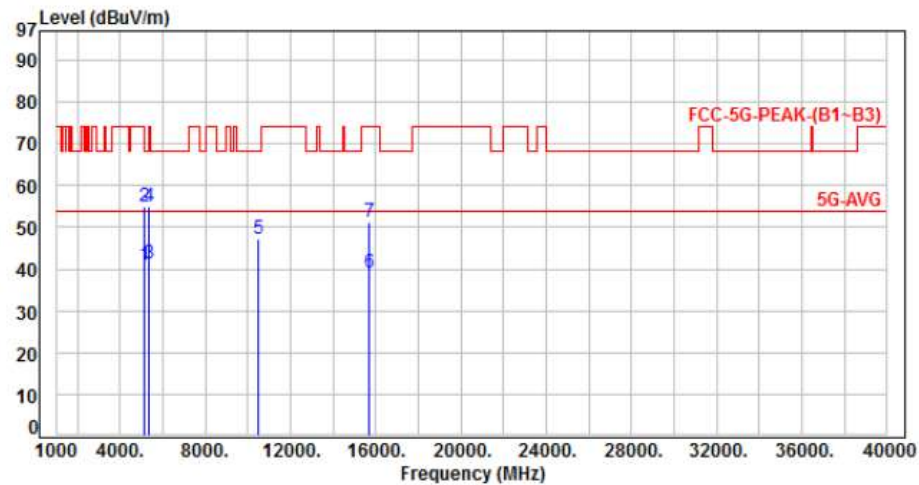
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 1, CH48		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.85	40.99	54.00	-13.01	Average	358	349	P
2	5150.00	-5.86	60.88	55.02	74.00	-18.98	Peak	358	349	P
3	5350.00	-5.50	46.81	41.31	54.00	-12.69	Average	358	349	P
4	5350.00	-5.50	60.46	54.96	74.00	-19.04	Peak	358	349	P
5	10480.00	2.58	44.74	47.32	68.20	-20.88	Peak	377	20	P
6	15720.00	8.50	30.69	39.19	54.00	-14.81	Average	100	55	P
7	15720.00	8.50	42.85	51.35	74.00	-22.65	Peak	100	55	P

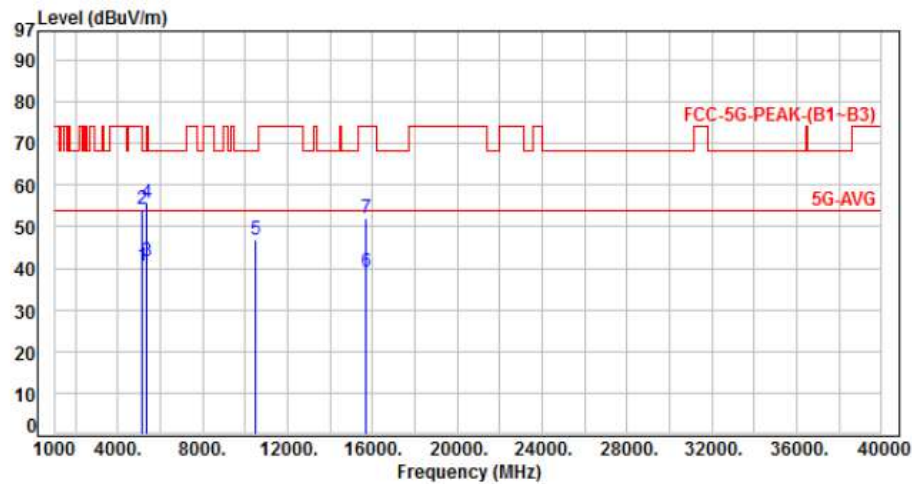
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 1, CH48		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.58	40.72	54.00	-13.28	Average	369	345	P
2	5150.00	-5.86	60.22	54.36	74.00	-19.64	Peak	369	345	P
3	5350.00	-5.50	47.34	41.84	54.00	-12.16	Average	369	345	P
4	5350.00	-5.50	61.30	55.80	74.00	-18.20	Peak	369	345	P
5	10480.00	2.58	44.22	46.80	68.20	-21.40	Peak	384	360	P
6	15720.00	8.50	30.77	39.27	54.00	-14.73	Average	100	318	P
7	15720.00	8.50	43.35	51.85	74.00	-22.15	Peak	100	318	P

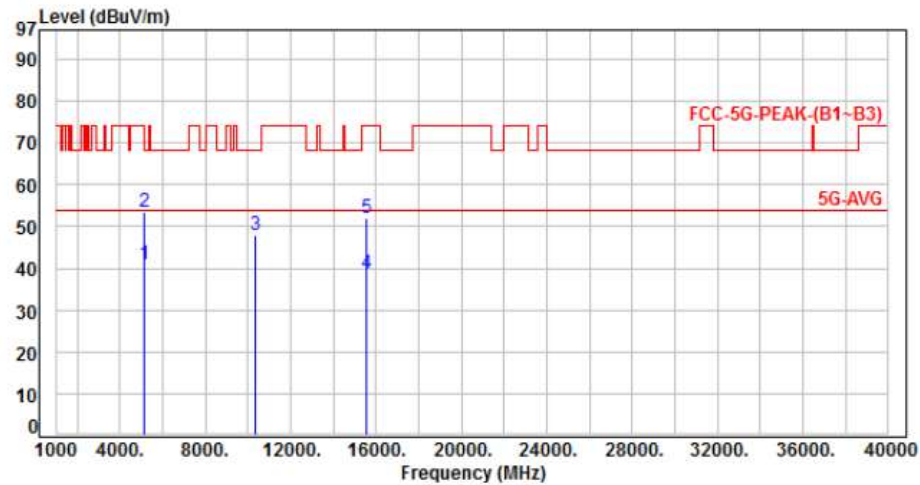
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, Band 1, CH36		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.80	40.94	54.00	-13.06	Average	379	351	P
2	5150.00	-5.86	59.22	53.36	74.00	-20.64	Peak	379	351	P
3	10360.00	2.36	45.44	47.80	68.20	-20.40	Peak	398	23	P
4	15540.00	8.79	29.88	38.67	54.00	-15.33	Average	100	73	P
5	15540.00	8.79	43.36	52.15	74.00	-21.85	Peak	100	73	P

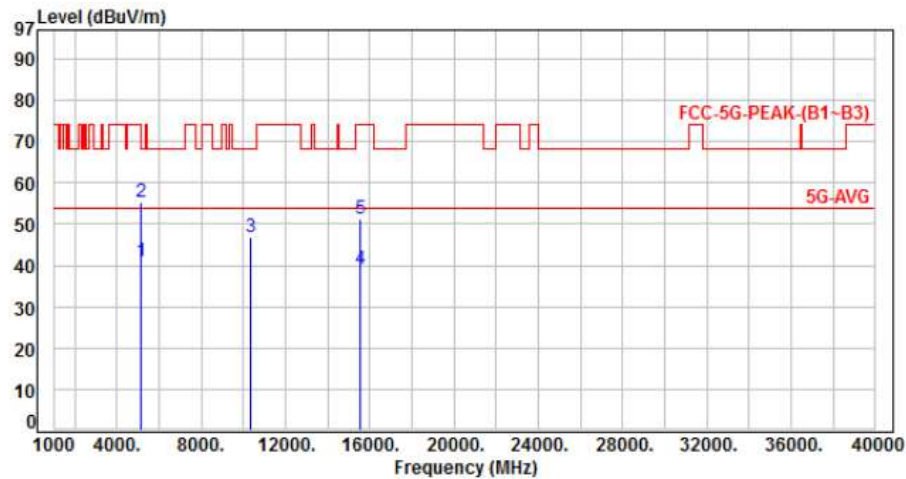
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 1, CH36		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.85	40.99	54.00	-13.01	Average	400	313	P
2	5150.00	-5.86	61.30	55.44	74.00	-18.56	Peak	400	313	P
3	10360.00	2.36	44.49	46.85	68.20	-21.35	Peak	366	351	P
4	15540.00	8.79	30.30	39.09	54.00	-14.91	Average	100	298	P
5	15540.00	8.79	42.47	51.26	74.00	-22.74	Peak	100	298	P

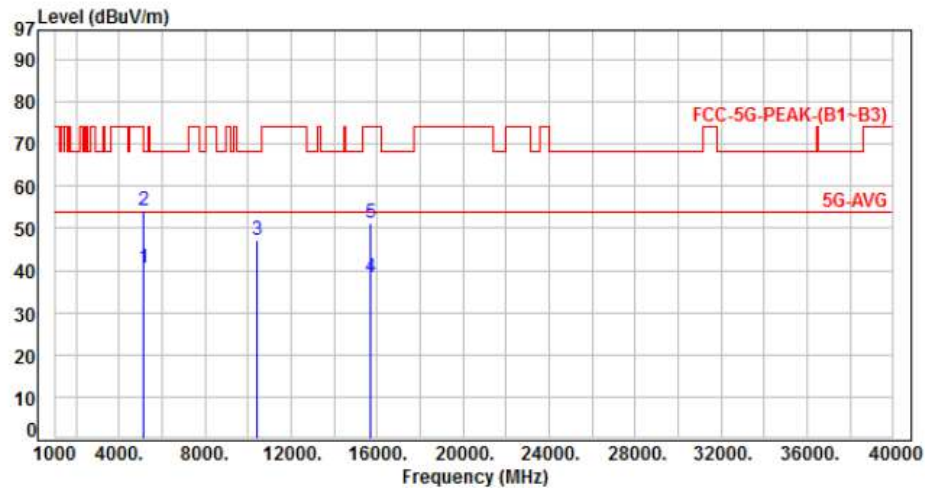
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, Band 1, CH44		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.36	40.50	54.00	-13.50	Average	378	349	P
2	5150.00	-5.86	60.25	54.39	74.00	-19.61	Peak	378	349	P
3	10440.00	2.49	44.75	47.24	68.20	-20.96	Peak	382	26	P
4	15660.00	8.49	29.75	38.24	54.00	-15.76	Average	100	58	P
5	15660.00	8.49	42.87	51.36	74.00	-22.64	Peak	100	58	P

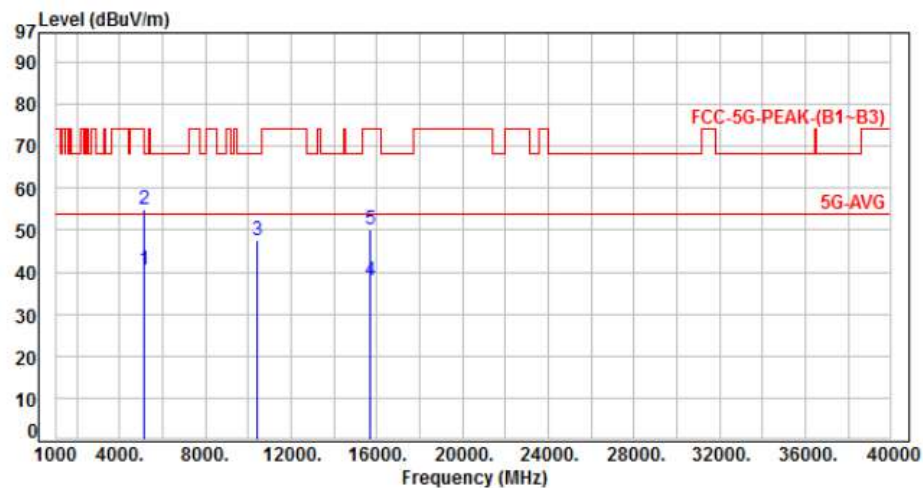
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 1, CH44		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.55	40.69	54.00	-13.31	Average	385	336	P
2	5150.00	-5.86	60.78	54.92	74.00	-19.08	Peak	385	336	P
3	10440.00	2.49	45.10	47.59	68.20	-20.61	Peak	356	360	P
4	15660.00	8.49	29.66	38.15	54.00	-15.85	Average	100	321	P
5	15660.00	8.49	41.57	50.06	74.00	-23.94	Peak	100	321	P

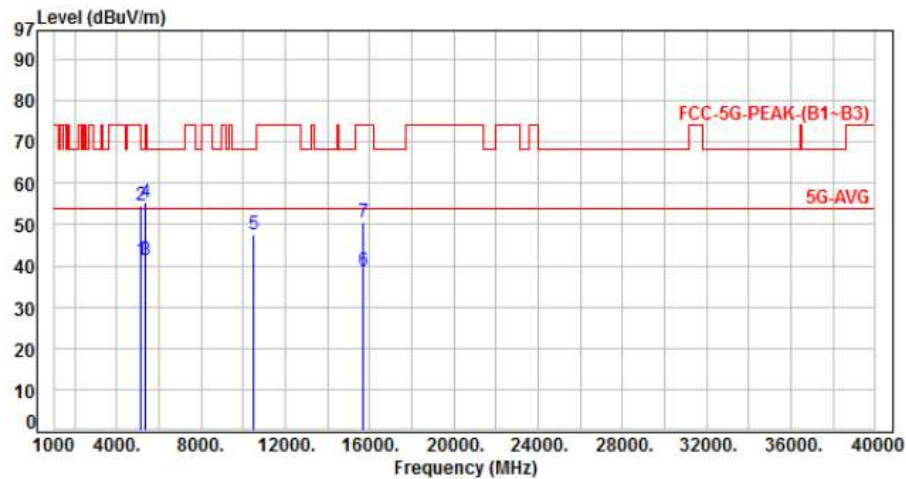
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, Band 1, CH48		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.22	41.36	54.00	-12.64	Average	376	355	P
2	5150.00	-5.86	60.49	54.63	74.00	-19.37	Peak	376	355	P
3	5350.00	-5.50	46.92	41.42	54.00	-12.58	Average	376	355	P
4	5350.00	-5.50	60.88	55.38	74.00	-18.62	Peak	376	355	P
5	10480.00	2.58	45.05	47.63	68.20	-20.57	Peak	384	33	P
6	15720.00	8.50	30.32	38.82	54.00	-15.18	Average	100	78	P
7	15720.00	8.50	42.15	50.65	74.00	-23.35	Peak	100	78	P

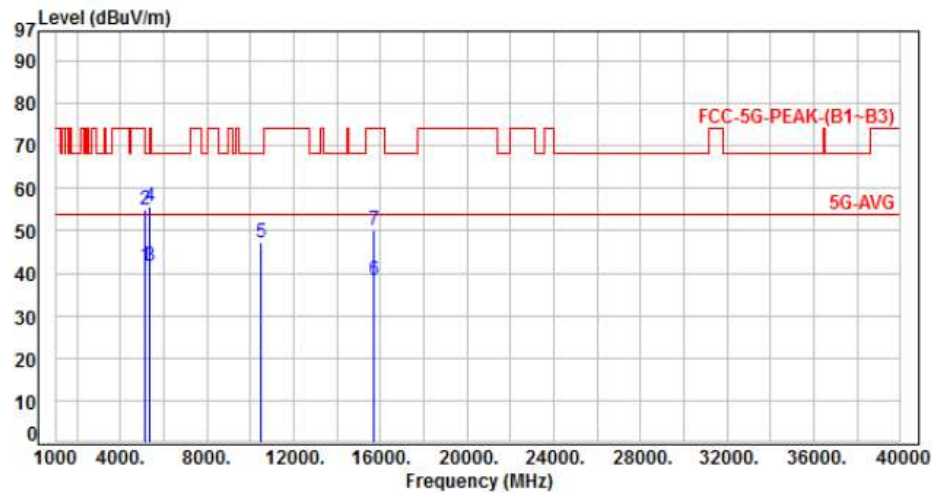
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 1, CH48		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.46	41.60	54.00	-12.40	Average	400	347	P
2	5150.00	-5.86	60.84	54.98	74.00	-19.02	Peak	400	347	P
3	5350.00	-5.50	47.16	41.66	54.00	-12.34	Average	400	347	P
4	5350.00	-5.50	61.03	55.53	74.00	-18.47	Peak	400	347	P
5	10480.00	2.58	44.77	47.35	68.20	-20.85	Peak	361	328	P
6	15720.00	8.50	29.73	38.23	54.00	-15.77	Average	100	351	P
7	15720.00	8.50	41.51	50.01	74.00	-23.99	Peak	100	351	P

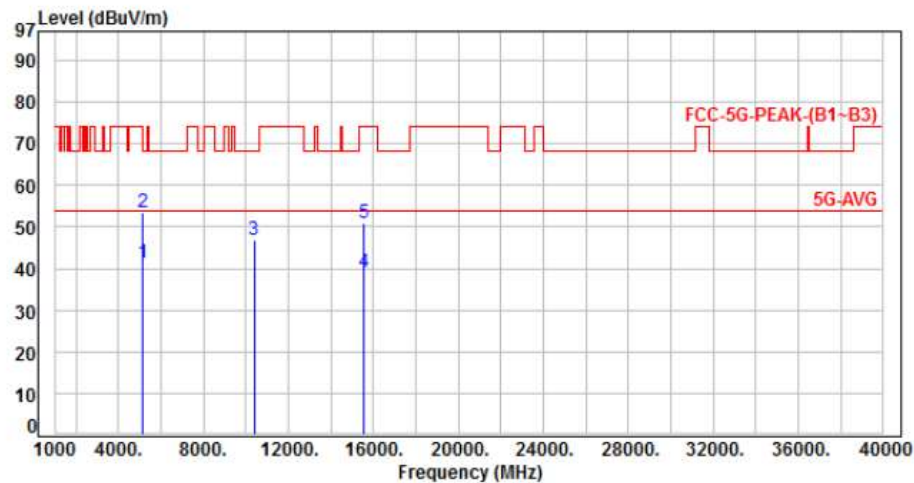
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, Band 1, CH38		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.35	41.49	54.00	-12.51	Average	378	360	P
2	5150.00	-5.86	59.24	53.38	74.00	-20.62	Peak	378	360	P
3	10380.00	2.37	44.63	47.00	68.20	-21.20	Peak	355	15	P
4	15570.00	8.66	30.53	39.19	54.00	-14.81	Average	100	87	P
5	15570.00	8.66	42.35	51.01	74.00	-22.99	Peak	100	87	P

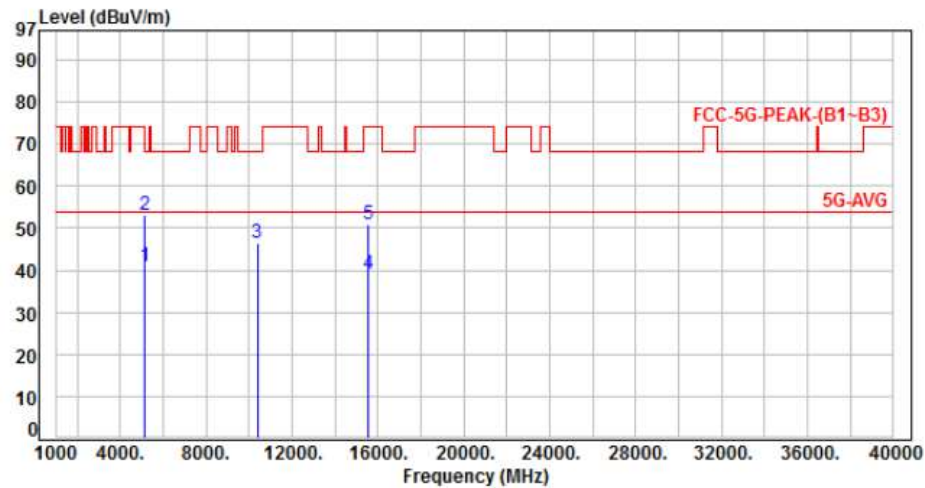
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, Band 1, CH38		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.82	40.96	54.00	-13.04	Average	341	300	P
2	5150.00	-5.86	58.99	53.13	74.00	-20.87	Peak	341	300	P
3	10380.00	2.37	44.11	46.48	68.20	-21.72	Peak	352	336	P
4	15570.00	8.66	30.42	39.08	54.00	-14.92	Average	100	302	P
5	15570.00	8.66	42.20	50.86	74.00	-23.14	Peak	100	302	P

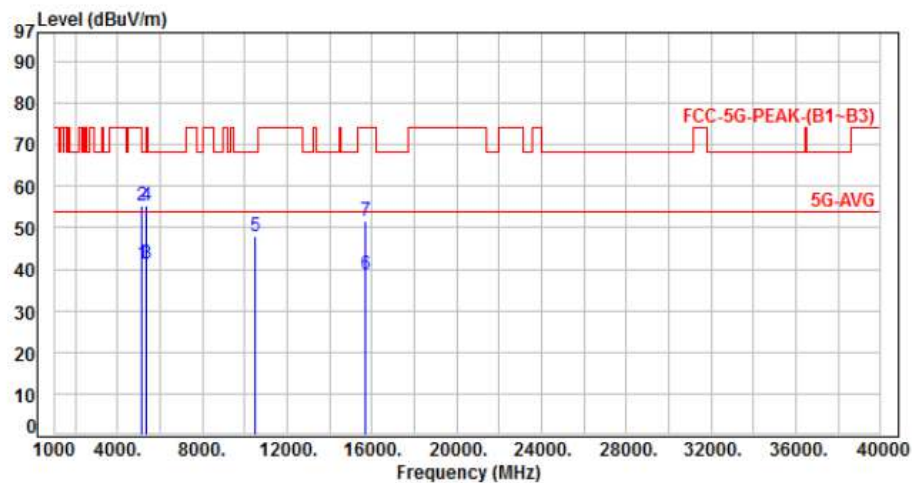
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, Band 1, CH46		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.11	41.25	54.00	-12.75	Average	359	360	P
2	5150.00	-5.86	61.24	55.38	74.00	-18.62	Peak	359	360	P
3	5350.00	-5.50	46.87	41.37	54.00	-12.63	Average	359	360	P
4	5350.00	-5.50	60.67	55.17	74.00	-18.83	Peak	359	360	P
5	10460.00	2.53	45.26	47.79	68.20	-20.41	Peak	400	13	P
6	15690.00	8.47	30.25	38.72	54.00	-15.28	Average	100	67	P
7	15690.00	8.47	43.12	51.59	74.00	-22.41	Peak	100	67	P

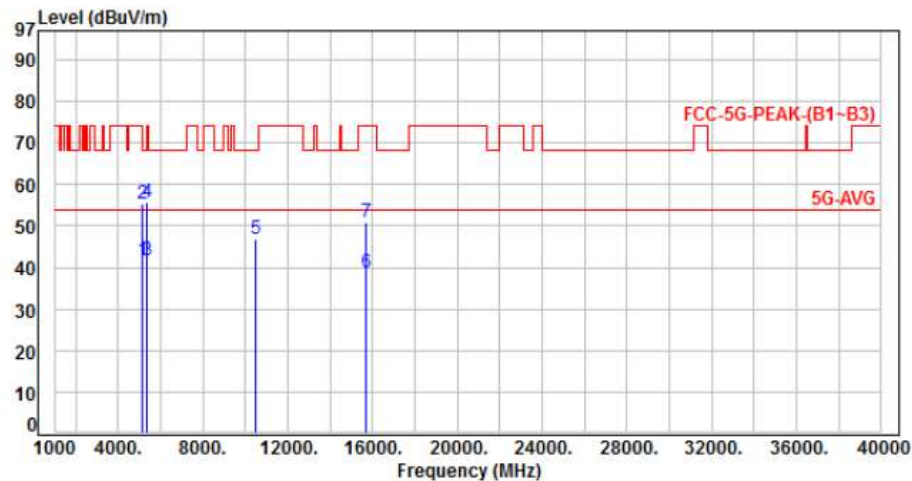
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, Band 1, CH46		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.46	41.60	54.00	-12.40	Average	335	317	P
2	5150.00	-5.86	61.25	55.39	74.00	-18.61	Peak	335	317	P
3	5350.00	-5.50	47.08	41.58	54.00	-12.42	Average	335	317	P
4	5350.00	-5.50	61.36	55.86	74.00	-18.14	Peak	335	317	P
5	10460.00	2.53	44.25	46.78	68.20	-21.42	Peak	358	346	P
6	15690.00	8.47	30.37	38.84	54.00	-15.16	Average	100	308	P
7	15690.00	8.47	42.51	50.98	74.00	-23.02	Peak	100	308	P

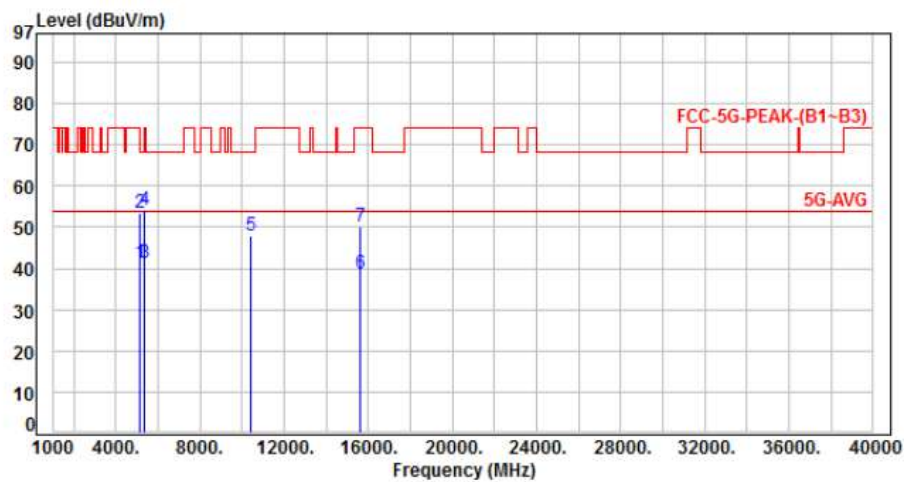
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, Band 1, CH42		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	47.12	41.26	54.00	-12.74	Average	356	348	P
2	5150.00	-5.86	59.36	53.50	74.00	-20.50	Peak	356	348	P
3	5350.00	-5.50	46.88	41.38	54.00	-12.62	Average	356	348	P
4	5350.00	-5.50	59.87	54.37	74.00	-19.63	Peak	356	348	P
5	10420.00	2.43	45.36	47.79	68.20	-20.41	Peak	377	14	P
6	15630.00	8.50	30.26	38.76	54.00	-15.24	Average	100	84	P
7	15630.00	8.50	41.52	50.02	74.00	-23.98	Peak	100	84	P

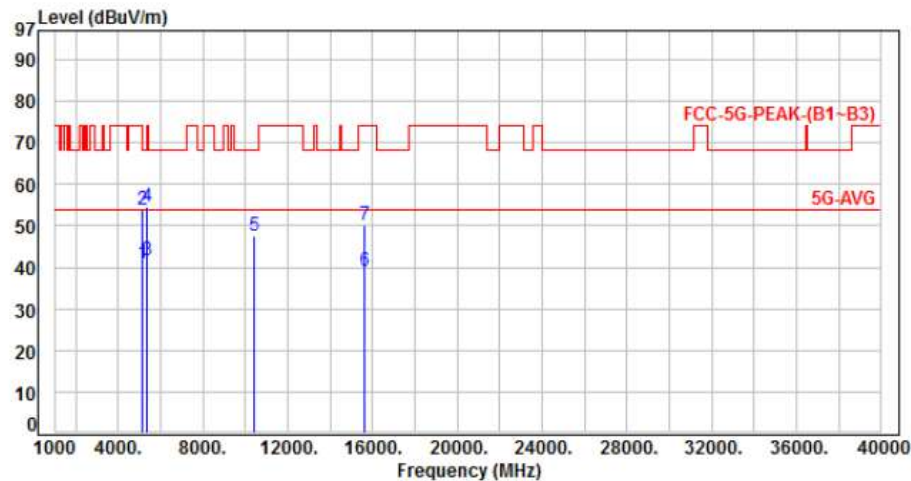
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, Band 1, CH42		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-5.86	46.95	41.09	54.00	-12.91	Average	320	354	P
2	5150.00	-5.86	59.78	53.92	74.00	-20.08	Peak	320	354	P
3	5350.00	-5.50	47.23	41.73	54.00	-12.27	Average	320	354	P
4	5350.00	-5.50	60.21	54.71	74.00	-19.29	Peak	320	354	P
5	10420.00	2.43	45.14	47.57	68.20	-20.63	Peak	359	346	P
6	15630.00	8.50	30.57	39.07	54.00	-14.93	Average	100	321	P
7	15630.00	8.50	41.52	50.02	74.00	-23.98	Peak	100	321	P

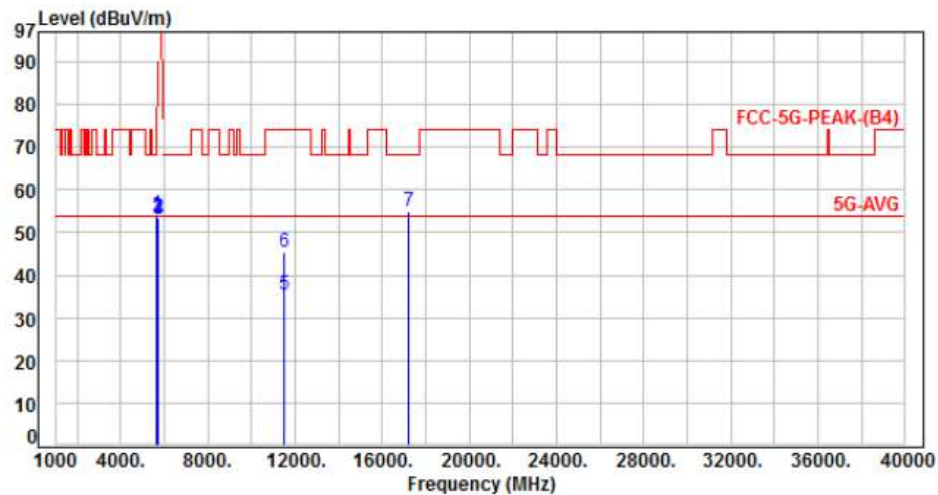
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 4, CH149		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.70	54.34	68.20	-13.86	Peak	320	10	P
2	5700.00	-5.46	58.90	53.44	105.20	-51.76	Peak	320	10	P
3	5720.00	-5.47	58.70	53.23	110.80	-57.57	Peak	320	10	P
4	5725.00	-5.46	58.52	53.06	122.20	-69.14	Peak	320	10	P
5	11490.00	3.91	31.50	35.41	54.00	-18.59	Average	162	14	P
6	11490.00	3.91	41.60	45.51	74.00	-28.49	Peak	162	14	P
7	17235.00	14.91	40.20	55.11	68.20	-13.09	Peak	100	95	P

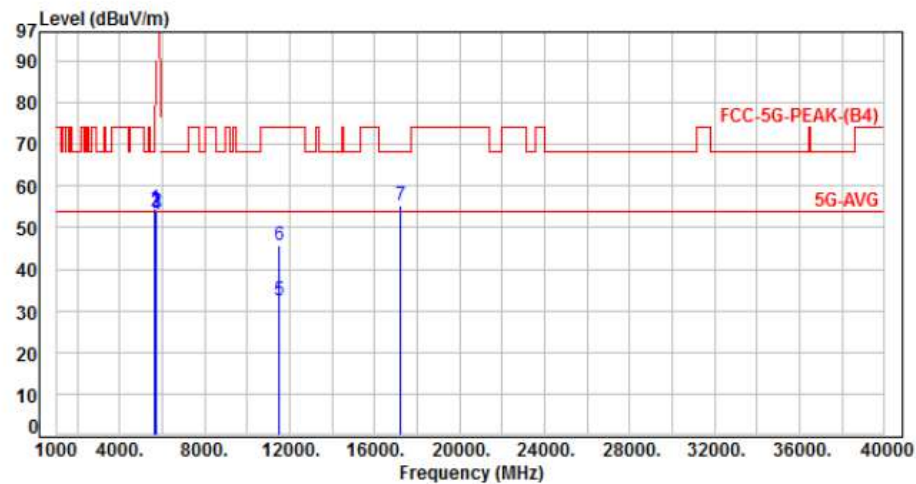
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 4, CH149		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.90	54.54	68.20	-13.66	Peak	385	304	P
2	5700.00	-5.46	59.40	53.94	105.20	-51.26	Peak	385	304	P
3	5720.00	-5.47	58.97	53.50	110.80	-57.30	Peak	385	304	P
4	5725.00	-5.46	58.44	52.98	122.20	-69.22	Peak	385	304	P
5	11490.00	3.91	28.65	32.56	54.00	-21.44	Average	122	20	P
6	11490.00	3.91	41.81	45.72	74.00	-28.28	Peak	122	20	P
7	17235.00	14.91	40.53	55.44	68.20	-12.76	Peak	100	285	P

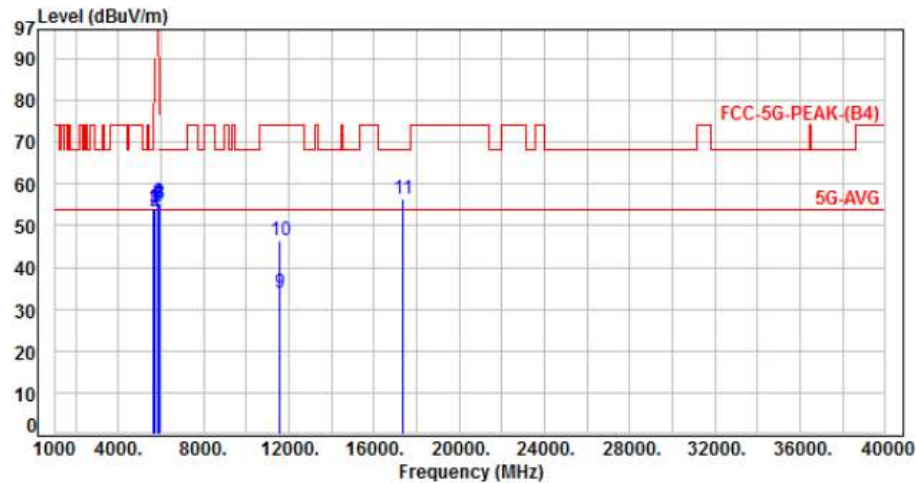
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, Band 4, CH157		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.60	54.24	68.20	-13.96	Peak	351	348	P
2	5700.00	-5.46	58.96	53.50	105.20	-51.70	Peak	351	348	P
3	5720.00	-5.47	59.51	54.04	110.80	-56.76	Peak	351	348	P
4	5725.00	-5.46	59.44	53.98	122.20	-68.22	Peak	351	348	P
5	5850.00	-5.36	60.10	54.74	122.20	-67.46	Peak	351	348	P
6	5855.00	-5.33	61.19	55.86	110.80	-54.94	Peak	351	348	P
7	5875.00	-5.26	60.30	55.04	105.20	-50.16	Peak	351	348	P
8	5925.00	-5.15	60.52	55.37	68.20	-12.83	Peak	351	348	P
9	11570.00	4.26	29.68	33.94	54.00	-20.06	Average	148	57	P
10	11570.00	4.26	42.35	46.61	74.00	-27.39	Peak	148	57	P
11	17355.00	15.64	40.85	56.49	68.20	-11.71	Peak	100	93	P

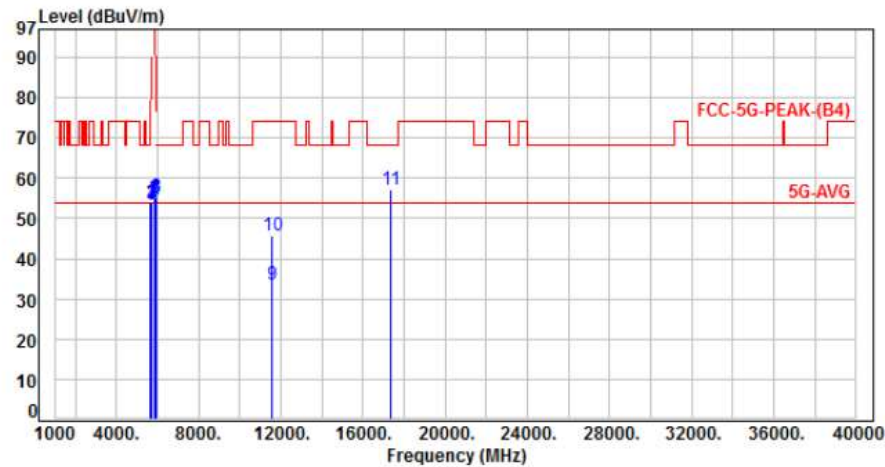
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 4, CH157		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.40	54.04	68.20	-14.16	Peak	372	306	P
2	5700.00	-5.46	59.23	53.77	105.20	-51.43	Peak	372	306	P
3	5720.00	-5.47	58.97	53.50	110.80	-57.30	Peak	372	306	P
4	5725.00	-5.46	59.12	53.66	122.20	-68.54	Peak	372	306	P
5	5850.00	-5.36	60.40	55.04	122.20	-67.16	Peak	372	306	P
6	5855.00	-5.33	59.63	54.30	110.80	-56.50	Peak	372	306	P
7	5875.00	-5.26	59.70	54.44	105.20	-50.76	Peak	372	306	P
8	5925.00	-5.15	60.40	55.25	68.20	-12.95	Peak	372	306	P
9	11570.00	4.26	29.31	33.57	54.00	-20.43	Average	105	33	P
10	11570.00	4.26	41.62	45.88	74.00	-28.12	Peak	105	33	P
11	17355.00	15.64	41.63	57.27	68.20	-10.93	Peak	100	326	P

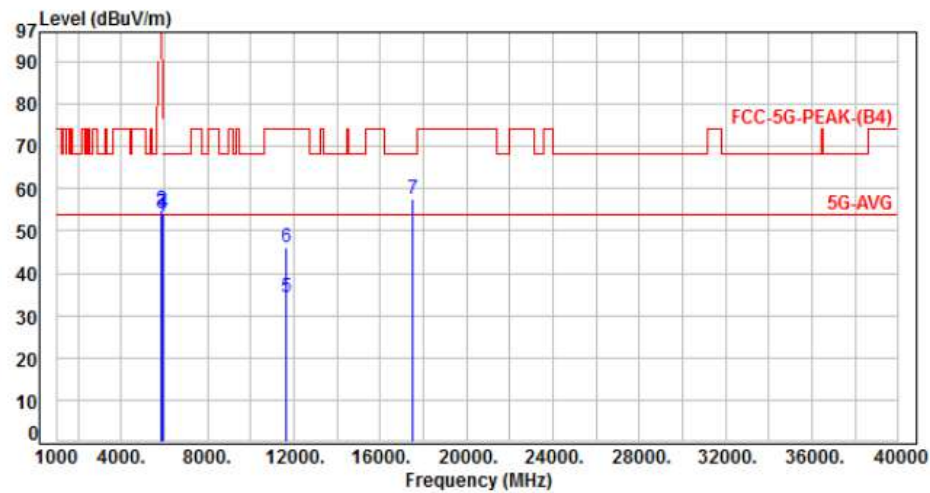
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, Band 4, CH165		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.36	58.76	53.40	122.20	-68.80	Peak	356	344	P
2	5855.00	-5.33	60.13	54.80	110.80	-56.00	Peak	356	344	P
3	5875.00	-5.26	59.30	54.04	105.20	-51.16	Peak	356	344	P
4	5925.00	-5.15	59.49	54.34	68.20	-13.86	Peak	356	344	P
5	11650.00	4.47	29.85	34.32	54.00	-19.68	Average	146	37	P
6	11650.00	4.47	41.52	45.99	74.00	-28.01	Peak	146	37	P
7	17475.00	16.59	40.91	57.50	68.20	-10.70	Peak	100	65	P

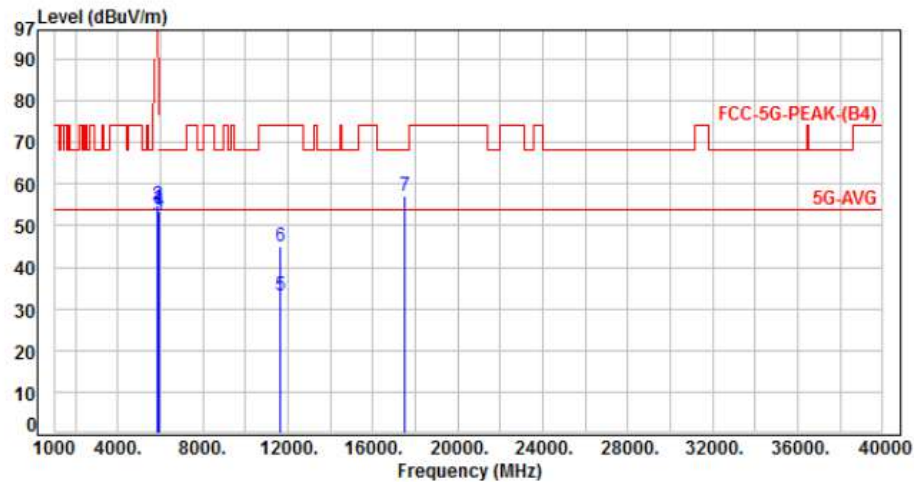
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, Band 4, CH165		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.36	59.75	54.39	122.20	-67.81	Peak	381	310	P
2	5855.00	-5.33	60.29	54.96	110.80	-55.84	Peak	381	310	P
3	5875.00	-5.26	57.61	52.35	105.20	-52.85	Peak	381	310	P
4	5925.00	-5.15	58.70	53.55	68.20	-14.65	Peak	381	310	P
5	11650.00	4.47	28.73	33.20	54.00	-20.80	Average	114	82	P
6	11650.00	4.47	40.53	45.00	74.00	-29.00	Peak	114	82	P
7	17475.00	16.59	40.62	57.21	68.20	-10.99	Peak	100	300	P

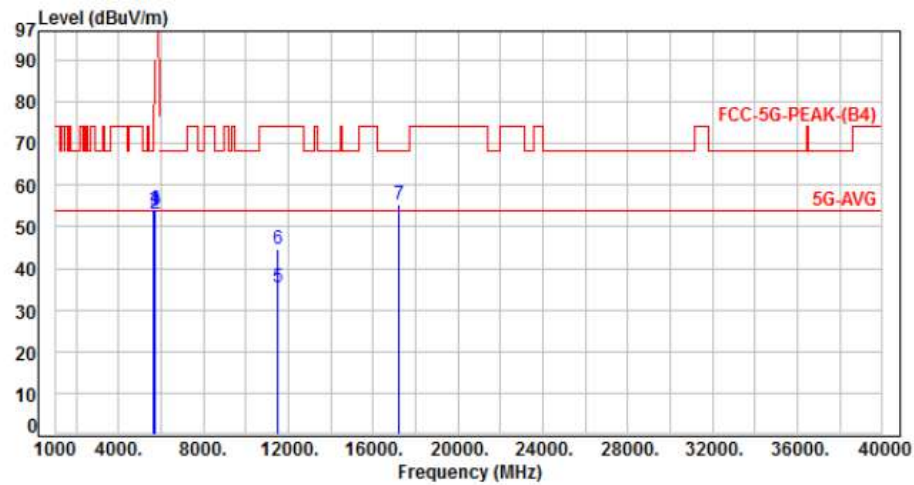
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, Band 4, CH149		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.71	54.35	68.20	-13.85	Peak	338	24	P
2	5700.00	-5.46	58.68	53.22	105.20	-51.98	Peak	338	24	P
3	5720.00	-5.47	59.34	53.87	110.80	-56.93	Peak	338	24	P
4	5725.00	-5.46	59.60	54.14	122.20	-68.06	Peak	338	24	P
5	11490.00	3.91	31.66	35.57	54.00	-18.43	Average	170	16	P
6	11490.00	3.91	40.88	44.79	74.00	-29.21	Peak	170	16	P
7	17235.00	14.91	40.58	55.49	68.20	-12.71	Peak	100	72	P

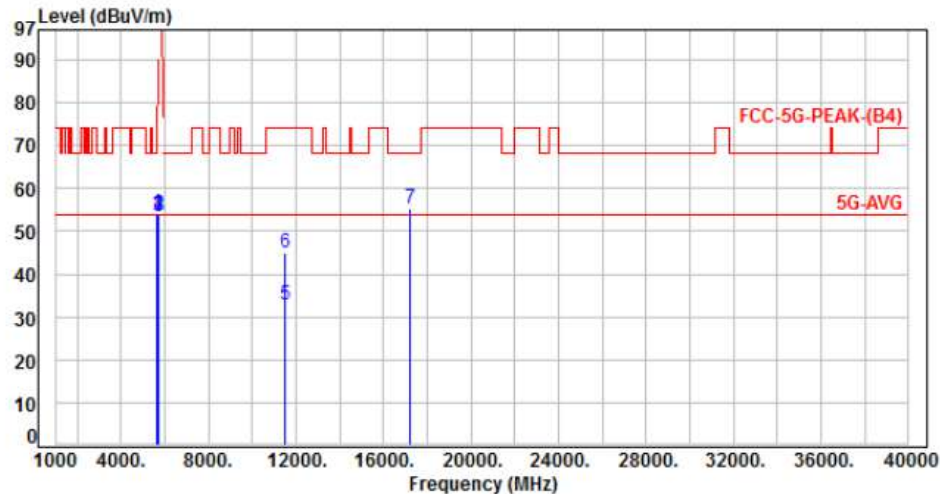
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 4, CH149		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.52	54.16	68.20	-14.04	Peak	352	310	P
2	5700.00	-5.46	59.41	53.95	105.20	-51.25	Peak	352	310	P
3	5720.00	-5.47	59.00	53.53	110.80	-57.27	Peak	352	310	P
4	5725.00	-5.46	59.49	54.03	122.20	-68.17	Peak	352	310	P
5	11490.00	3.91	29.02	32.93	54.00	-21.07	Average	142	66	P
6	11490.00	3.91	41.15	45.06	74.00	-28.94	Peak	142	66	P
7	17235.00	14.91	40.44	55.35	68.20	-12.85	Peak	100	349	P

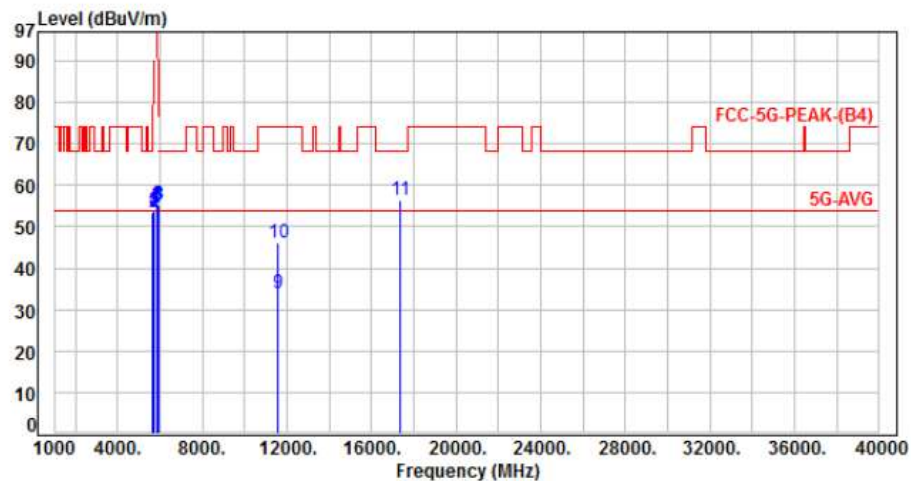
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, Band 4, CH157		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	58.99	53.63	68.20	-14.57	Peak	348	359	P
2	5700.00	-5.46	58.92	53.46	105.20	-51.74	Peak	348	359	P
3	5720.00	-5.47	59.45	53.98	110.80	-56.82	Peak	348	359	P
4	5725.00	-5.46	59.36	53.90	122.20	-68.30	Peak	348	359	P
5	5850.00	-5.36	60.23	54.87	122.20	-67.33	Peak	348	359	P
6	5855.00	-5.33	60.59	55.26	110.80	-55.54	Peak	348	359	P
7	5875.00	-5.26	59.87	54.61	105.20	-50.59	Peak	348	359	P
8	5925.00	-5.15	60.39	55.24	68.20	-12.96	Peak	348	359	P
9	11570.00	4.26	29.77	34.03	54.00	-19.97	Average	150	66	P
10	11570.00	4.26	41.87	46.13	74.00	-27.87	Peak	150	66	P
11	17355.00	15.64	40.69	56.33	68.20	-11.87	Peak	100	102	P

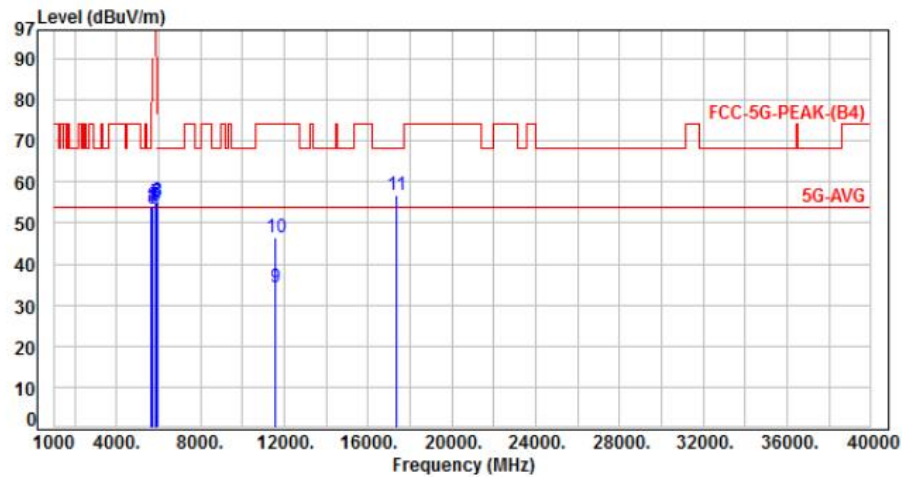
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 4, CH157		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.36	54.00	68.20	-14.20	Peak	380	312	P
2	5700.00	-5.46	59.81	54.35	105.20	-50.85	Peak	380	312	P
3	5720.00	-5.47	58.92	53.45	110.80	-57.35	Peak	380	312	P
4	5725.00	-5.46	59.63	54.17	122.20	-68.03	Peak	380	312	P
5	5850.00	-5.36	60.32	54.96	122.20	-67.24	Peak	380	312	P
6	5855.00	-5.33	59.62	54.29	110.80	-56.51	Peak	380	312	P
7	5875.00	-5.26	60.14	54.88	105.20	-50.32	Peak	380	312	P
8	5925.00	-5.15	60.54	55.39	68.20	-12.81	Peak	380	312	P
9	11570.00	4.26	30.22	34.48	54.00	-19.52	Average	163	52	P
10	11570.00	4.26	42.12	46.38	74.00	-27.62	Peak	163	52	P
11	17355.00	15.64	41.02	56.66	68.20	-11.54	Peak	163	52	P

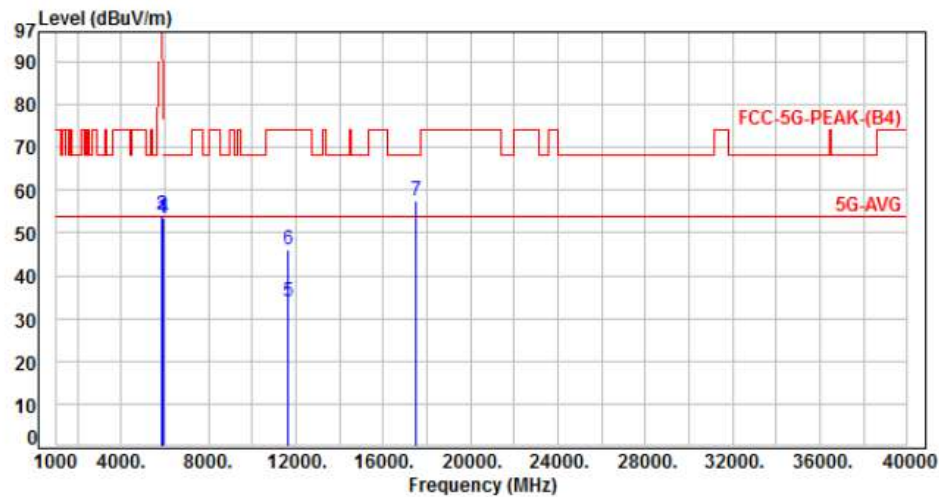
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 2, Band 4, CH165		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.36	58.87	53.51	122.20	-68.69	Peak	355	360	P
2	5855.00	-5.33	59.65	54.32	110.80	-56.48	Peak	355	360	P
3	5875.00	-5.26	59.54	54.28	105.20	-50.92	Peak	355	360	P
4	5925.00	-5.15	58.79	53.64	68.20	-14.56	Peak	355	360	P
5	11650.00	4.47	29.42	33.89	54.00	-20.11	Average	132	50	P
6	11650.00	4.47	41.66	46.13	74.00	-27.87	Peak	132	50	P
7	17475.00	16.59	41.04	57.63	68.20	-10.57	Peak	100	86	P

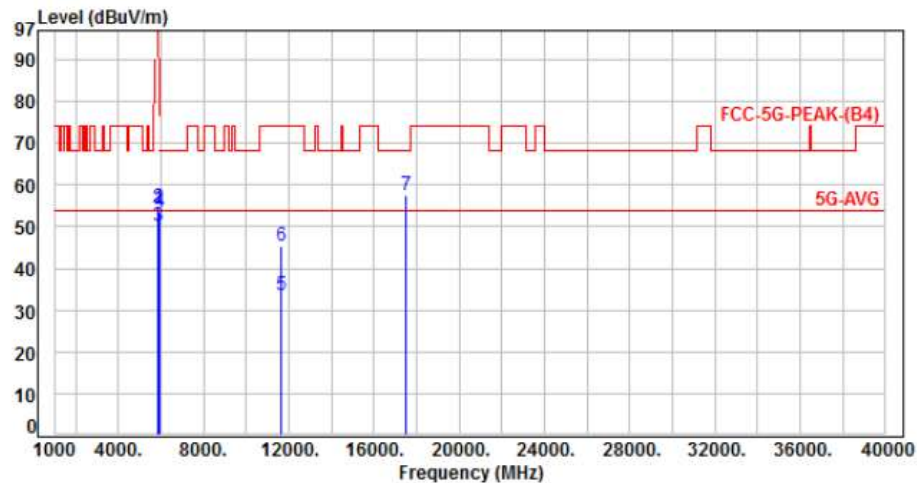
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, Band 4, CH165		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.36	59.63	54.27	122.20	-67.93	Peak	374	300	P
2	5855.00	-5.33	59.87	54.54	110.80	-56.26	Peak	374	300	P
3	5875.00	-5.26	55.59	50.33	105.20	-54.87	Peak	374	300	P
4	5925.00	-5.15	58.47	53.32	68.20	-14.88	Peak	374	300	P
5	11650.00	4.47	28.96	33.43	54.00	-20.57	Average	100	73	P
6	11650.00	4.47	40.82	45.29	74.00	-28.71	Peak	100	73	P
7	17475.00	16.59	41.02	57.61	68.20	-10.59	Peak	100	324	P

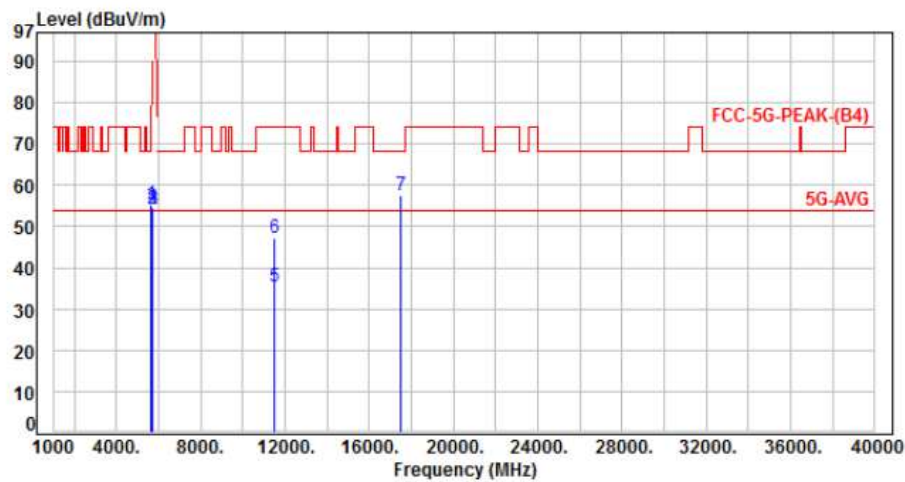
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, Band 4, CH151		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	60.55	55.19	68.20	-13.01	Peak	389	305	P
2	5700.00	-5.46	59.67	54.21	105.20	-50.99	Peak	389	305	P
3	5720.00	-5.47	59.61	54.14	110.80	-56.66	Peak	389	305	P
4	5725.00	-5.46	59.99	54.53	122.20	-67.67	Peak	389	305	P
5	11510.00	3.98	31.33	35.31	54.00	-18.69	Average	162	24	P
6	11510.00	3.98	43.21	47.19	74.00	-26.81	Peak	162	24	P
7	17475.00	16.59	41.02	57.61	68.20	-10.59	Peak	100	59	P

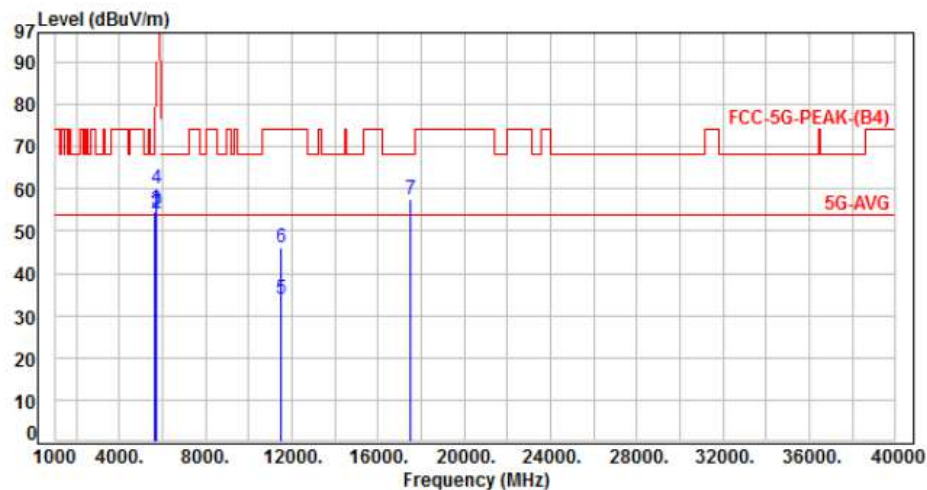
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, Band 4, CH151		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	60.11	54.75	68.20	-13.45	Peak	377	293	P
2	5700.00	-5.46	59.85	54.39	105.20	-50.81	Peak	377	293	P
3	5720.00	-5.47	60.51	55.04	110.80	-55.76	Peak	377	293	P
4	5725.00	-5.46	65.49	60.03	122.20	-62.17	Peak	377	293	P
5	11510.00	3.98	30.03	34.01	54.00	-19.99	Average	105	99	P
6	11510.00	3.98	41.98	45.96	74.00	-28.04	Peak	105	99	P
7	17475.00	16.59	40.83	57.42	68.20	-10.78	Peak	105	311	P

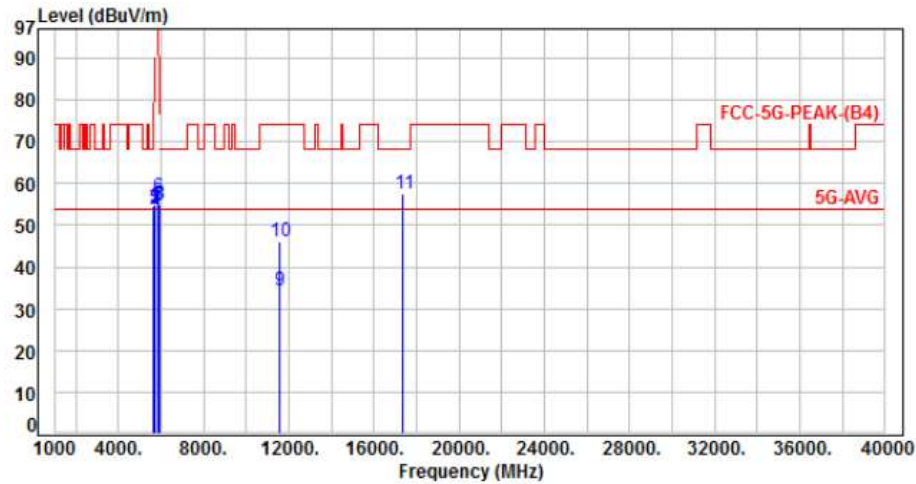
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 3, Band 4, CH159		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.99	54.63	68.20	-13.57	Peak	348	330	P
2	5700.00	-5.46	59.20	53.74	105.20	-51.46	Peak	348	330	P
3	5720.00	-5.47	59.68	54.21	110.80	-56.59	Peak	348	330	P
4	5725.00	-5.46	60.26	54.80	122.20	-67.40	Peak	348	330	P
5	5850.00	-5.36	60.11	54.75	122.20	-67.45	Peak	348	330	P
6	5855.00	-5.33	62.23	56.90	110.80	-53.90	Peak	348	330	P
7	5875.00	-5.26	59.88	54.62	105.20	-50.58	Peak	348	330	P
8	5925.00	-5.15	60.03	54.88	68.20	-13.32	Peak	348	330	P
9	11590.00	4.34	30.12	34.46	54.00	-19.54	Average	152	65	P
10	11590.00	4.34	41.69	46.03	74.00	-27.97	Peak	152	65	P
11	17385.00	15.86	41.58	57.44	68.20	-10.76	Peak	100	76	P

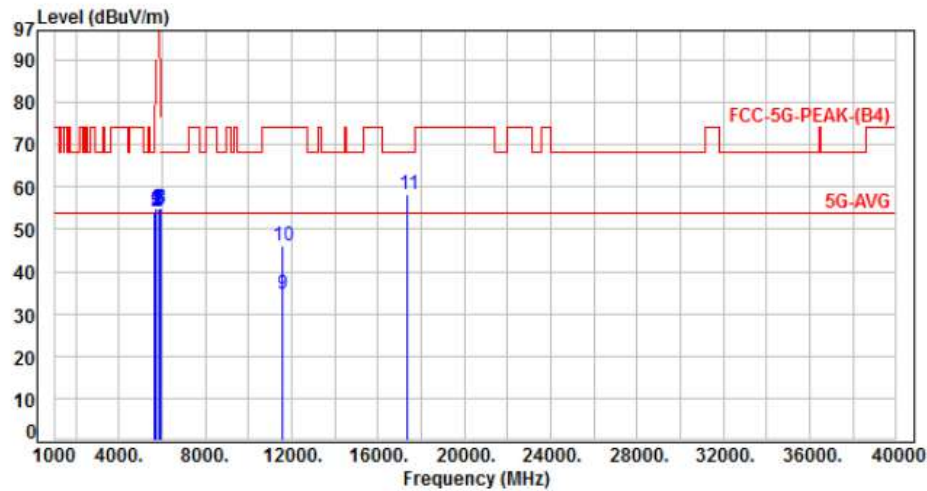
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, Band 4, CH159		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.76	54.40	68.20	-13.80	Peak	381	325	P
2	5700.00	-5.46	59.64	54.18	105.20	-51.02	Peak	381	325	P
3	5720.00	-5.47	60.23	54.76	110.80	-56.04	Peak	381	325	P
4	5725.00	-5.46	60.41	54.95	122.20	-67.25	Peak	381	325	P
5	5850.00	-5.36	59.88	54.52	122.20	-67.68	Peak	381	325	P
6	5855.00	-5.33	59.72	54.39	110.80	-56.41	Peak	381	325	P
7	5875.00	-5.26	60.03	54.77	105.20	-50.43	Peak	381	325	P
8	5925.00	-5.15	60.12	54.97	68.20	-13.23	Peak	381	325	P
9	11590.00	4.34	30.22	34.56	54.00	-19.44	Average	109	46	P
10	11590.00	4.34	41.78	46.12	74.00	-27.88	Peak	109	46	P
11	17385.00	15.86	42.32	58.18	68.20	-10.02	Peak	100	345	P

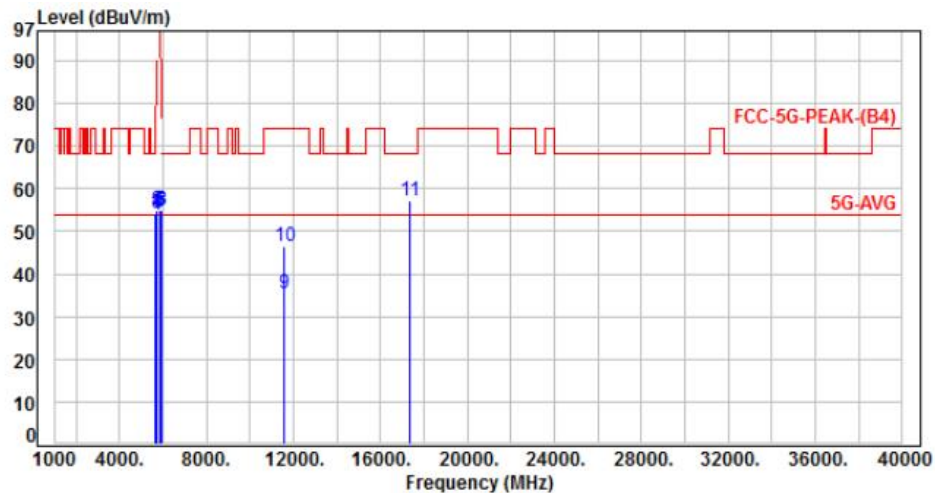
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: DC 5V from system	Pol/Phase	: VERTICAL
Test Mode	: Mode 4, Band 4, CH155		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	59.48	54.12	68.20	-14.08	Peak	350	358	P
2	5700.00	-5.46	60.36	54.90	105.20	-50.30	Peak	350	358	P
3	5720.00	-5.47	59.85	54.38	110.80	-56.42	Peak	350	358	P
4	5725.00	-5.46	59.96	54.50	122.20	-67.70	Peak	350	358	P
5	5850.00	-5.36	60.12	54.76	122.20	-67.44	Peak	350	358	P
6	5855.00	-5.33	60.19	54.86	110.80	-55.94	Peak	350	358	P
7	5875.00	-5.26	58.98	53.72	105.20	-51.48	Peak	350	358	P
8	5925.00	-5.15	60.28	55.13	68.20	-13.07	Peak	350	358	P
9	11550.00	4.16	31.32	35.48	54.00	-18.52	Average	152	47	P
10	11550.00	4.16	42.21	46.37	74.00	-27.63	Peak	152	47	P
11	17325.00	15.43	41.58	57.01	68.20	-11.19	Peak	100	61	P

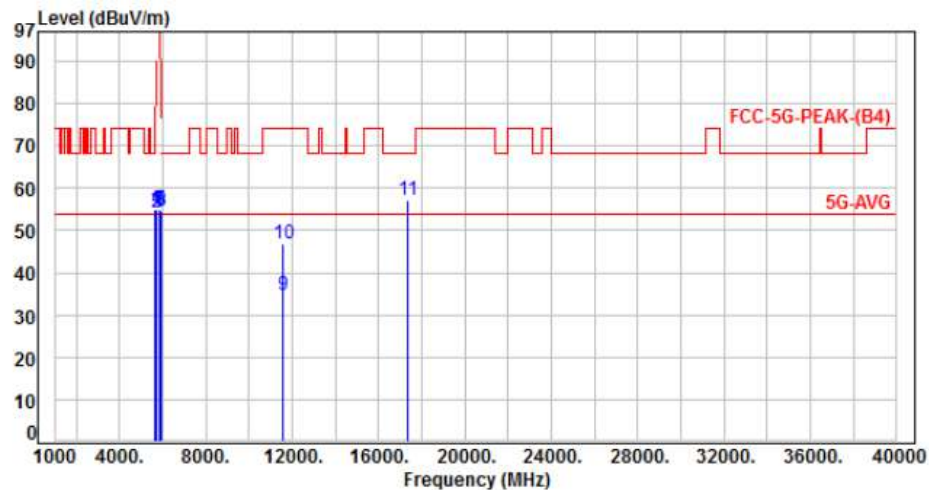
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	DC 5V from system	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, Band 4, CH155		:	



No.	Frequency (MHz)	Factor (dB)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.36	60.24	54.88	68.20	-13.32	Peak	384	307	P
2	5700.00	-5.46	59.55	54.09	105.20	-51.11	Peak	384	307	P
3	5720.00	-5.47	59.68	54.21	110.80	-56.59	Peak	384	307	P
4	5725.00	-5.46	60.36	54.90	122.20	-67.30	Peak	384	307	P
5	5850.00	-5.36	60.44	55.08	122.20	-67.12	Peak	384	307	P
6	5855.00	-5.33	60.31	54.98	110.80	-55.82	Peak	384	307	P
7	5875.00	-5.26	60.11	54.85	105.20	-50.35	Peak	384	307	P
8	5925.00	-5.15	59.87	54.72	68.20	-13.48	Peak	384	307	P
9	11550.00	4.16	30.61	34.77	54.00	-19.23	Average	102	91	P
10	11550.00	4.16	42.57	46.73	74.00	-27.27	Peak	102	91	P
11	17325.00	15.43	41.66	57.09	68.20	-11.11	Peak	100	325	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



6.7. Restricted Bands of Operation

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

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

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



7. On Time, Duty Cycle and Measurement methods

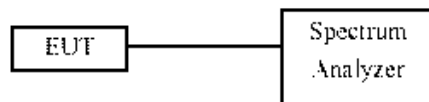
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

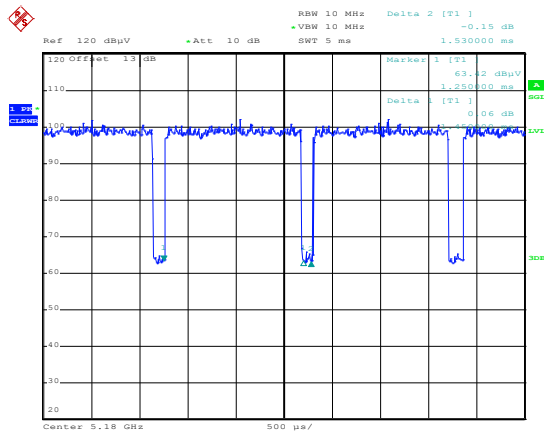
Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)
802.11a	1.45	1.53	94.77%
802.11ac VHT20	1.35	1.42	95.07%
802.11ac VHT40	0.68	1.41	48.23%
802.11ac VHT80	0.37	1.41	26.10%

7.5. Measurement Methods

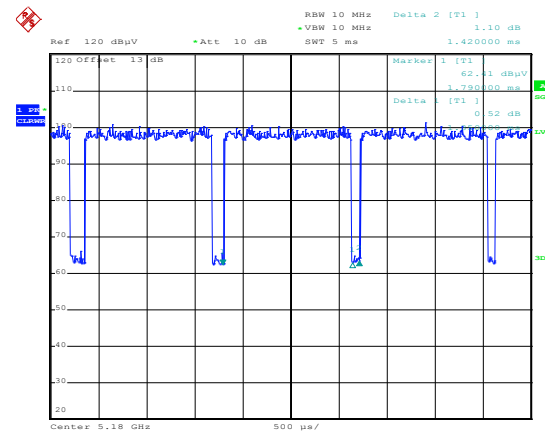
26 dB and 6dB Emission BW	KDB 789033 D02 v02r01, Section C
99% Occupied BW	KDB 789033 D02 v02r01, Section D
Conducted Output Power	KDB 789033 D02 v02r01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v02r01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02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



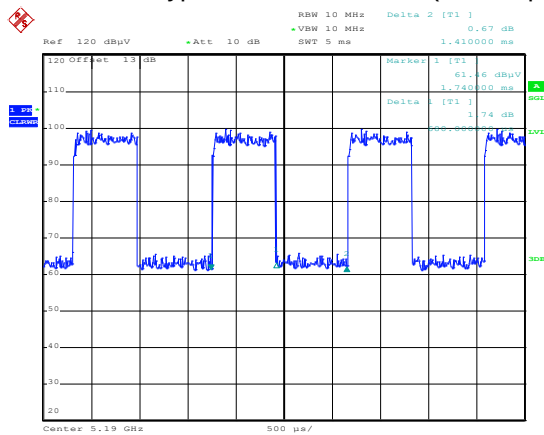
Modulation Type: 802.11a (6Mbps)



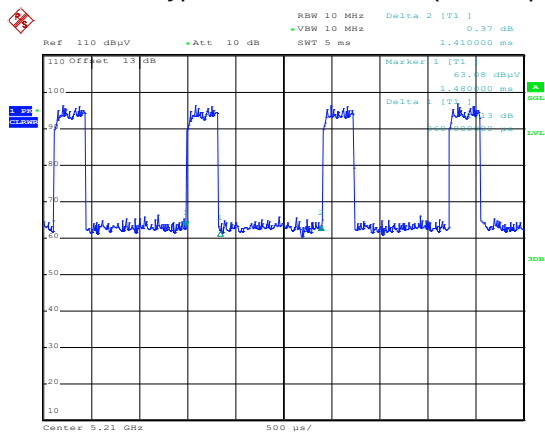
Modulation Type: 802.11ac VHT20 (6.5Mbps)



Modulation Type: 802.11ac VHT40 (13.5Mbps)



Modulation Type: 802.11ac VHT80 (29.3Mbps)





8. 6dB Bandwidth & 99% Occupied Bandwidth

8.1. Test Limit

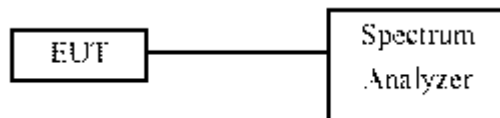
FCC §15.407

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)

In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)
802.11a	149	5745	16.40	0.50
	157	5785	16.30	0.50
	165	5825	16.40	0.50
802.11ac VHT20	149	5745	17.50	0.50
	157	5785	17.30	0.50
	165	5825	17.10	0.50
802.11ac VHT40	151	5755	36.00	0.50
	159	5795	35.60	0.50
802.11ac VHT80	155	5775	75.52	0.50



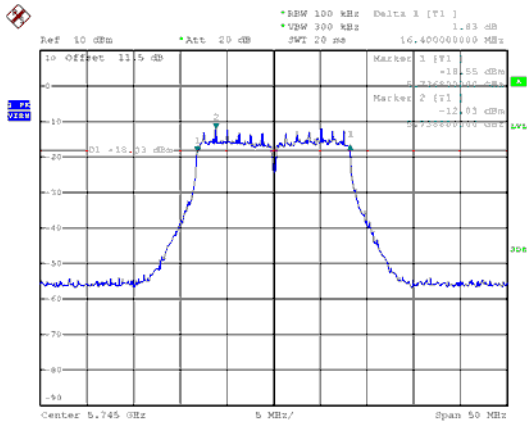
8.5. Test Result and Data (99% Occupied Bandwidth)

In the 5.8G Band

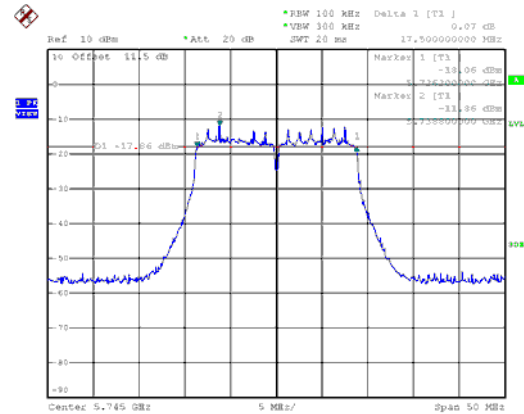
Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)
802.11a	149	5745	16.80
	157	5785	16.80
	165	5825	16.80
802.11ac VHT20	149	5745	17.90
	157	5785	17.90
	165	5825	17.80
802.11ac VHT40	151	5755	36.60
	159	5795	36.60
802.11ac VHT80	155	5775	75.52



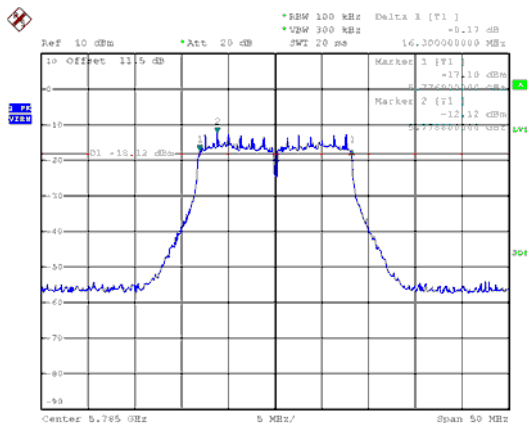
6dB Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



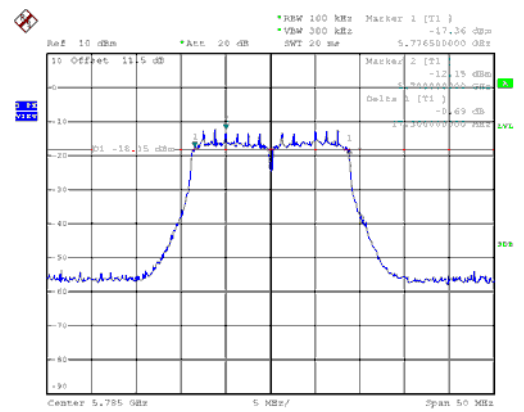
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



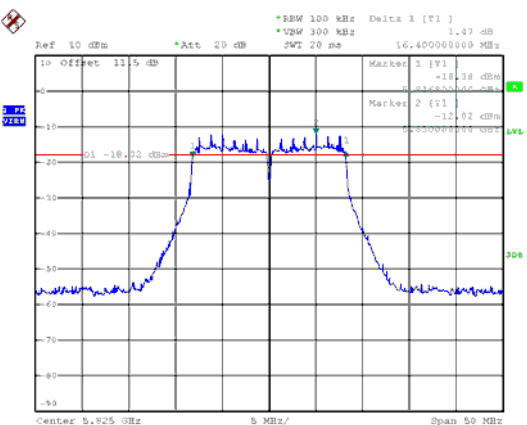
CH157



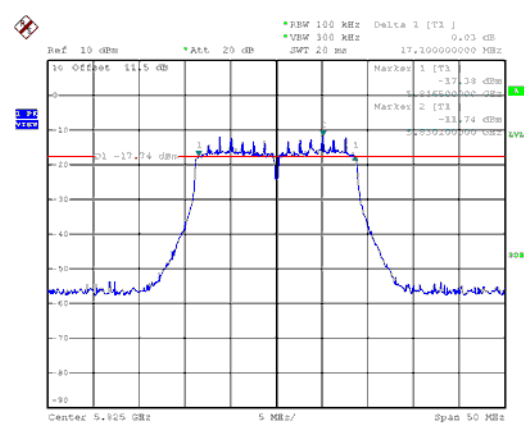
CH157



CH165



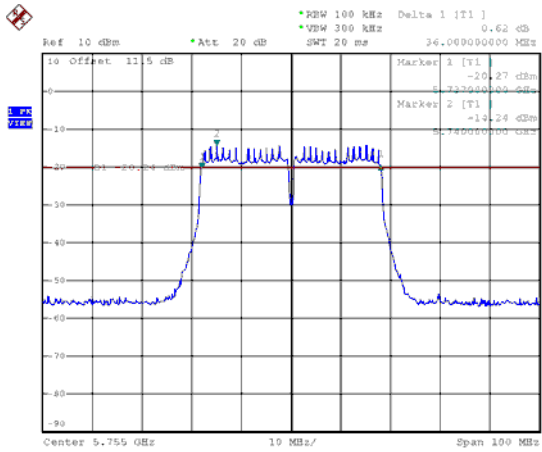
CH165



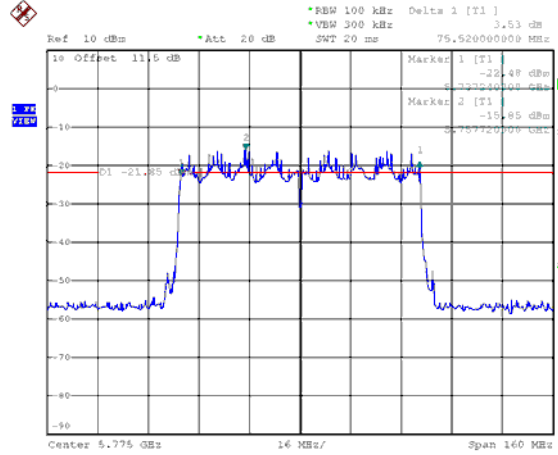


6dB Bandwidth

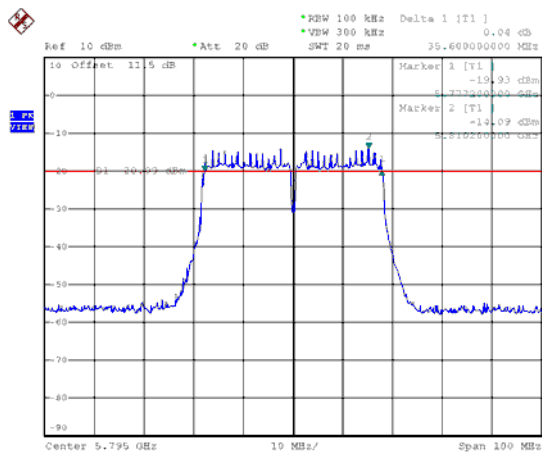
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151



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

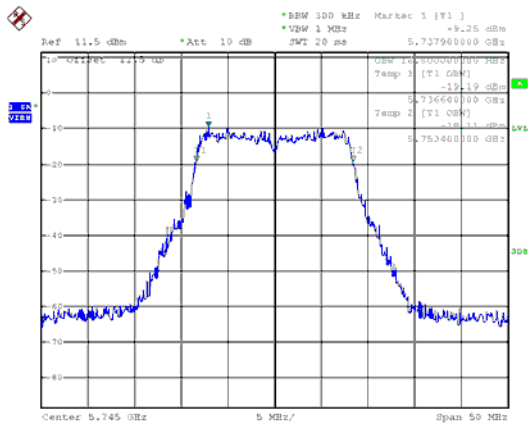


CH159

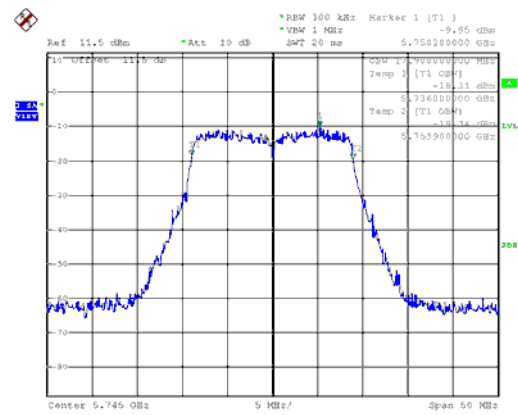




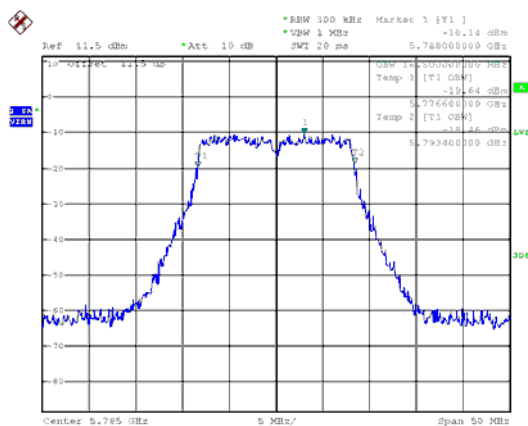
99% Occupied Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



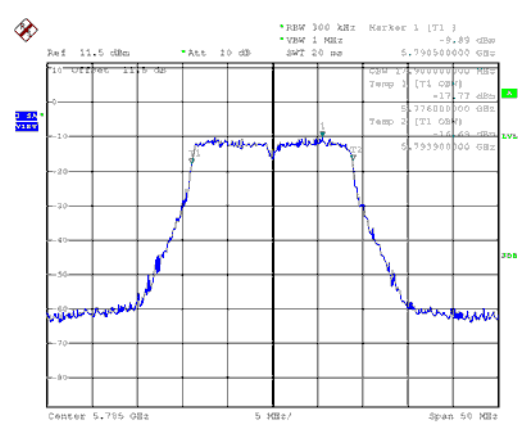
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



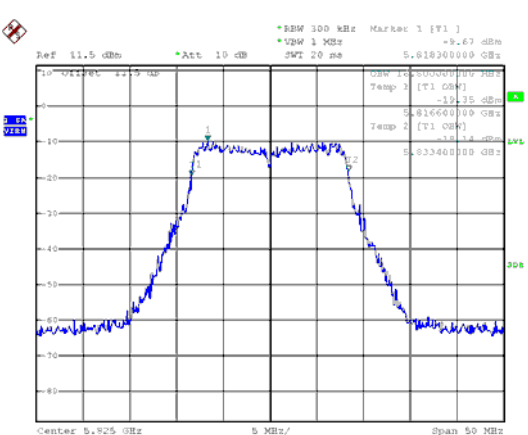
CH157



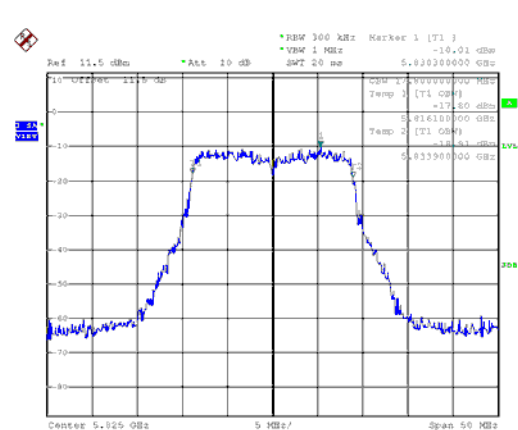
CH157



CH165

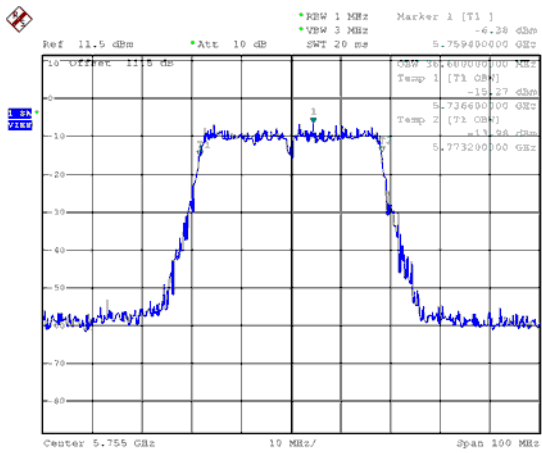


CH165

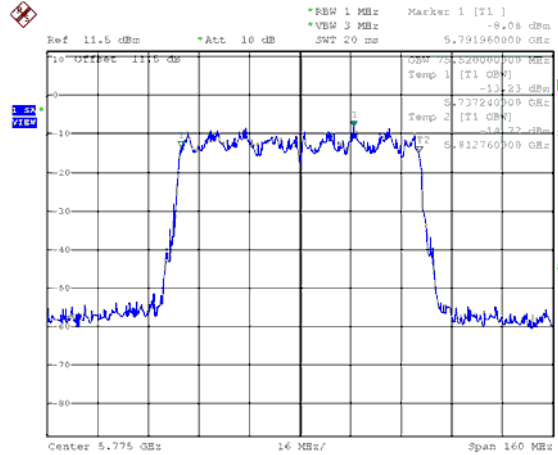




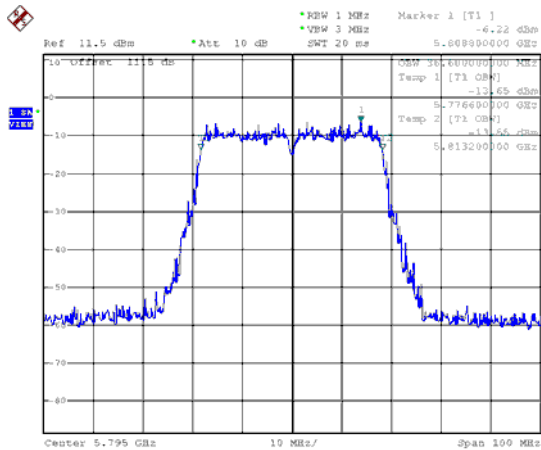
99% Occupied Bandwidth
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151



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



CH159





9. 26dB Bandwidth & 99% Occupied Bandwidth

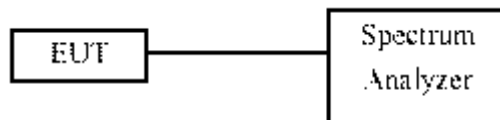
9.1. Test Limit

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 $\geq 3 \times$ RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data (26dB Bandwidth)

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a	36	5180	21.80
	44	5220	21.70
	48	5240	21.70
802.11ac VHT20	36	5180	22.30
	44	5220	22.40
	48	5240	22.20
802.11ac VHT40	38	5190	44.00
	46	5230	44.20
802.11ac VHT80	42	5210	81.92



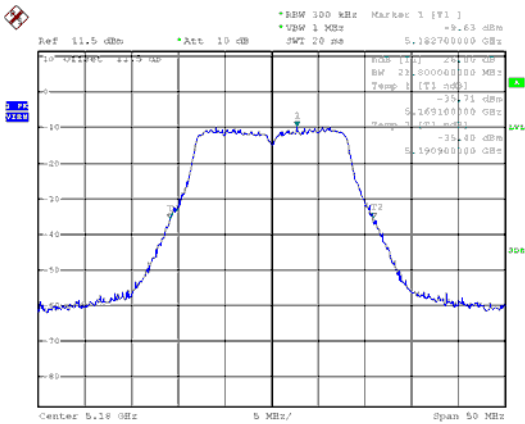
9.5. Test Result and Data (99% Occupied Bandwidth)

In the 5.2G Band

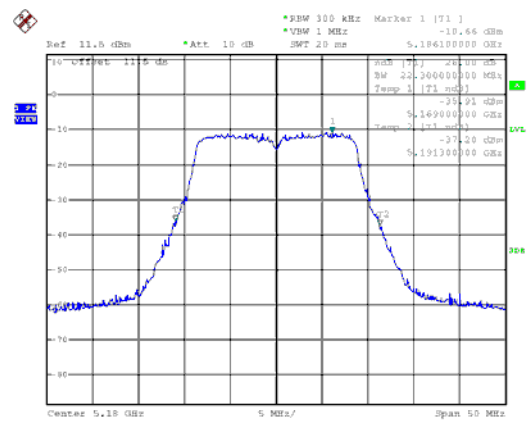
Modulation Type	Channel	Frequency (MHz)	99% Bandwidth (MHz)
802.11a	36	5180	16.80
	44	5220	16.90
	48	5240	16.90
802.11ac VHT20	36	5180	17.80
	44	5220	17.80
	48	5240	17.80
802.11ac VHT40	38	5190	36.60
	46	5230	36.80
802.11ac VHT80	42	5210	75.84



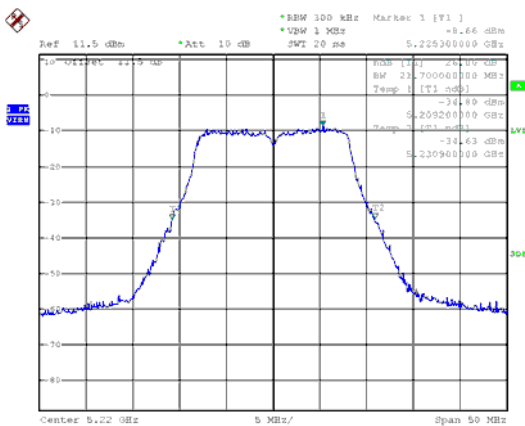
26dB Bandwidth Band 1
Modulation Type: 802.11a (6Mbps)
CH36



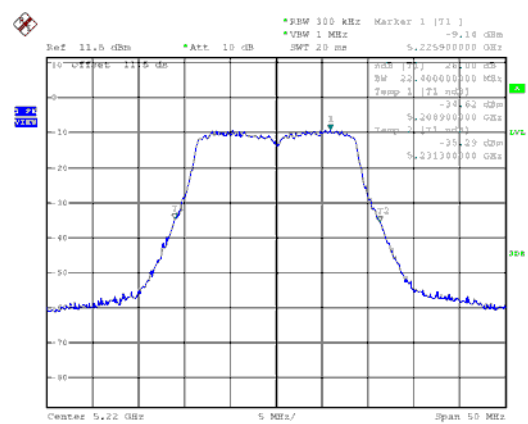
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



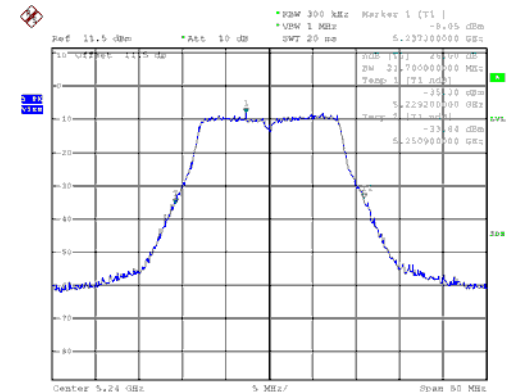
CH44



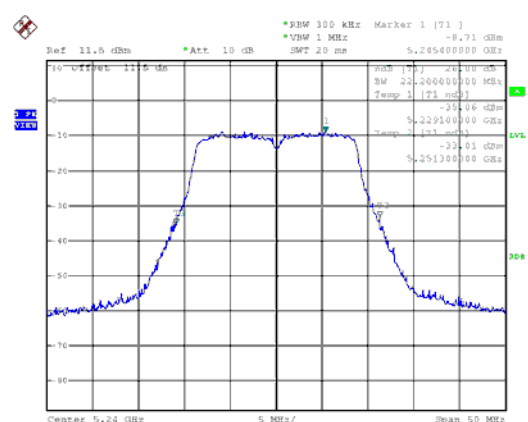
CH44



CH48

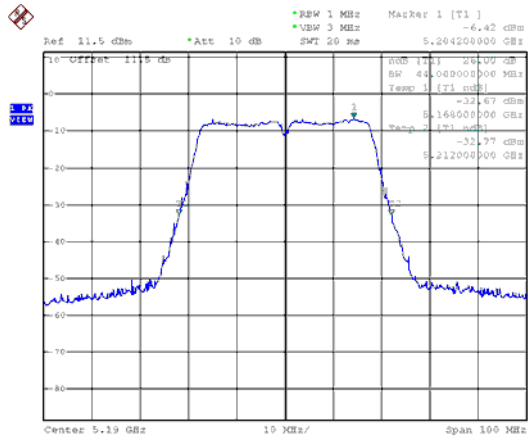


CH48

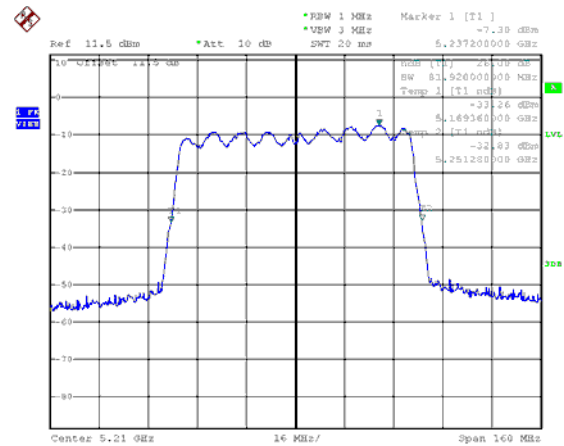




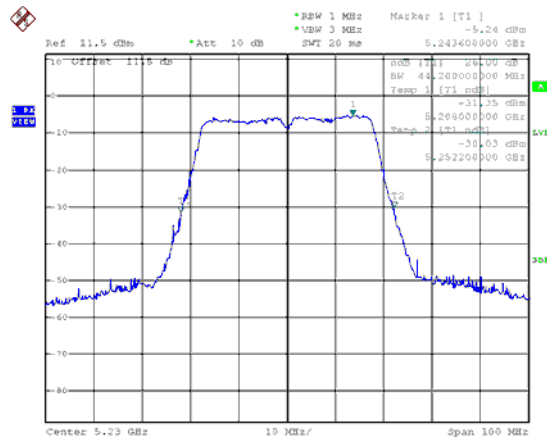
26dB Bandwidth Band 1
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42

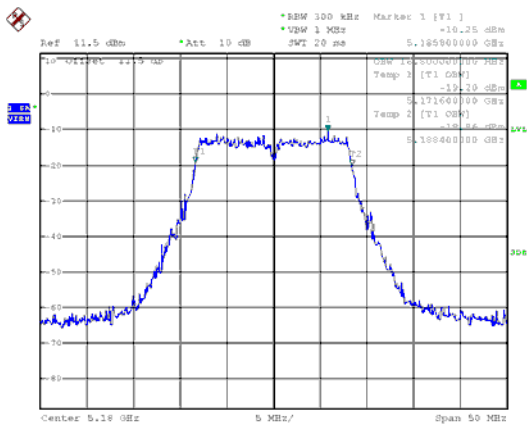


CH46

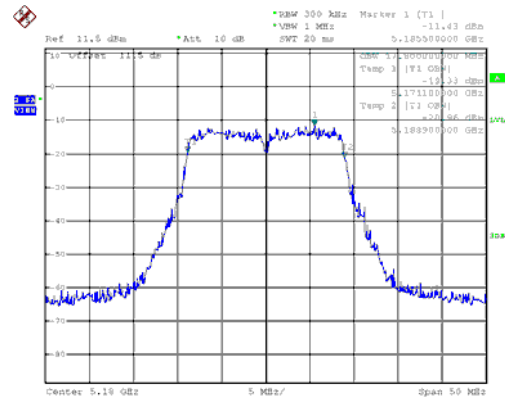




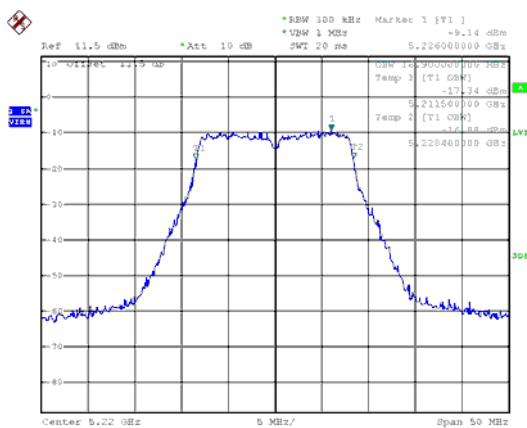
99% Bandwidth Band 1
Modulation Type: 802.11a (6Mbps)
CH36



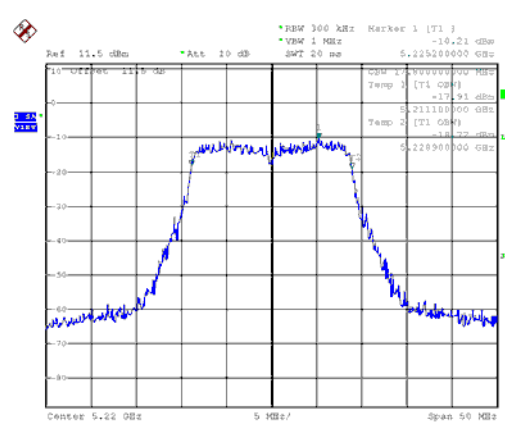
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



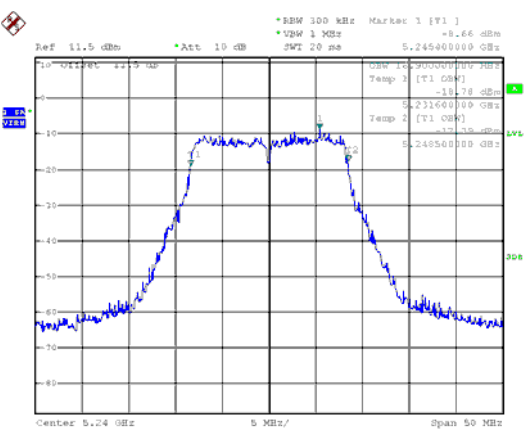
CH44



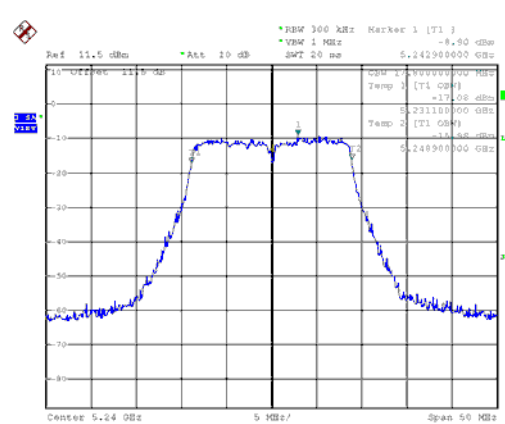
CH44



CH48



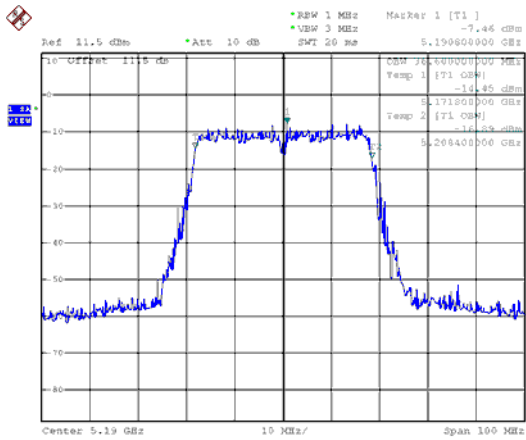
CH48



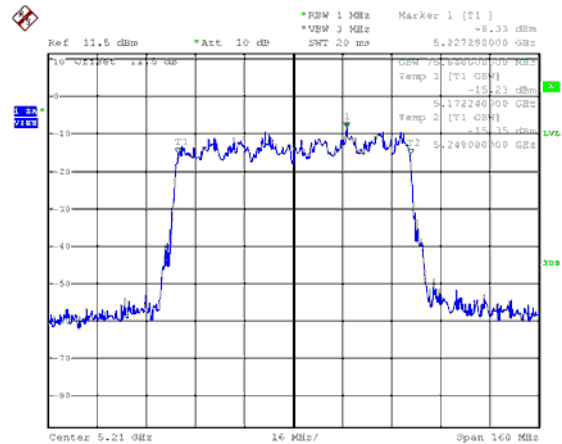


99% Bandwidth Band 1

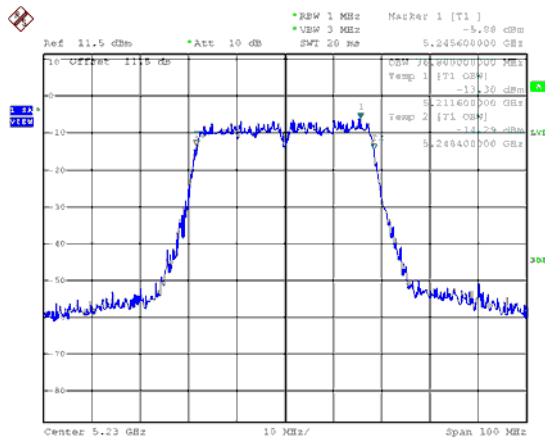
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42



CH46





10. Average Power

10.1. Test Limit

Output Power:

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



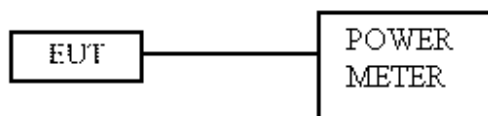
Frequency Band		Limit
☐	5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used,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

10.2.Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 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

In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
802.11a (6Mbps)	36	5180	-1.87	-1.87	0.650	24.00
	44	5220	-1.03	-1.03	0.789	24.00
	48	5240	-0.61	-0.61	0.869	24.00
802.11an HT20 (MCS0)	36	5180	-2.21	-2.21	0.601	24.00
	44	5220	-1.13	-1.13	0.771	24.00
	48	5240	-1.13	-1.13	0.771	24.00
802.11an HT40 (MCS0)	38	5190	-1.61	-1.61	0.690	24.00
	46	5230	-0.65	-0.65	0.861	24.00
802.11ac VHT20 (NSS1-MCS0)	36	5180	-1.83	-1.83	0.656	24.00
	44	5220	-0.86	-0.86	0.820	24.00
	48	5240	-0.57	-0.57	0.877	24.00
802.11ac VHT40 (NSS1-MCS0)	38	5190	-1.52	-1.52	0.705	24.00
	46	5230	-0.46	-0.46	0.899	24.00
802.11ac VHT80 (NSS1-MCS0)	42	5210	-0.14	-0.14	0.968	24.00

In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)	Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
802.11a (6Mbps)	149	5745	-1.91	-1.91	0.644	30.00
	157	5785	-1.61	-1.61	0.690	30.00
	165	5825	-2.26	-2.26	0.594	30.00
802.11an HT20 (MCS0)	149	5745	-1.85	-1.85	0.653	30.00
	157	5785	-2.82	-2.82	0.522	30.00
	165	5825	-2.72	-2.72	0.535	30.00
802.11an HT40 (MCS0)	151	5755	-1.98	-1.98	0.634	30.00
	159	5795	-2.34	-2.34	0.583	30.00
802.11ac VHT20 (NSS1-MCS0)	149	5745	-1.62	-1.62	0.689	30.00
	157	5785	-2.46	-2.46	0.568	30.00
	165	5825	-2.64	-2.64	0.545	30.00
802.11ac VHT40 (NSS1-MCS0)	151	5755	-1.64	-1.64	0.685	30.00
	159	5795	-2.12	-2.12	0.614	30.00
802.11ac VHT80 (NSS1-MCS0)	155	5775	-1.13	-1.13	0.771	30.00



11. Power Spectral Density

11.1. Test Limit

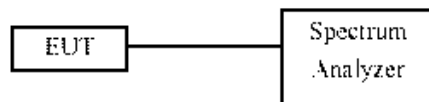
PSD:

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

11.2. Test Procedure

Reference to KDB789033 D02 General UNII Test Procedures New Rules v02r01

11.3. Test Setup Layout





11.4. Test Result and Data

In the 5.2G Band

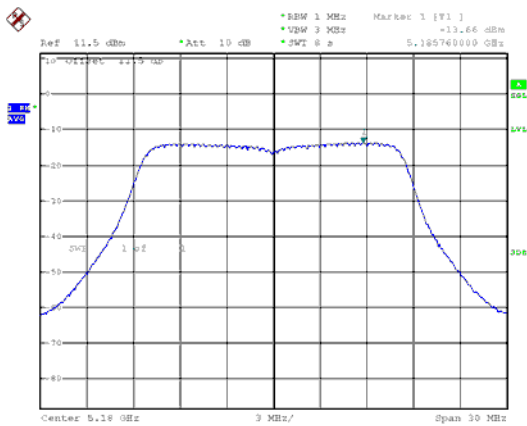
Modulation Type	CH	Freq. (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PSD (dBm/MHz)	PSD Limit (dBm/MHz)
802.11a	36	5180	-13.66	-13.66	0.23	-13.43	11.00
	44	5220	-12.43	-12.43	0.23	-12.20	11.00
	48	5240	-11.52	-11.52	0.23	-11.29	11.00
802.11ac VHT20	36	5180	-13.48	-13.48	0.22	-13.26	11.00
	44	5220	-12.30	-12.30	0.22	-12.08	11.00
	48	5240	-11.63	-11.63	0.22	-11.41	11.00
802.11ac VHT40	38	5190	-17.90	-17.90	3.17	-14.73	11.00
	46	5230	-16.51	-16.51	3.17	-13.34	11.00
802.11ac VHT80	42	5210	-21.79	-21.79	5.83	-15.96	11.00

In the 5.8G Band

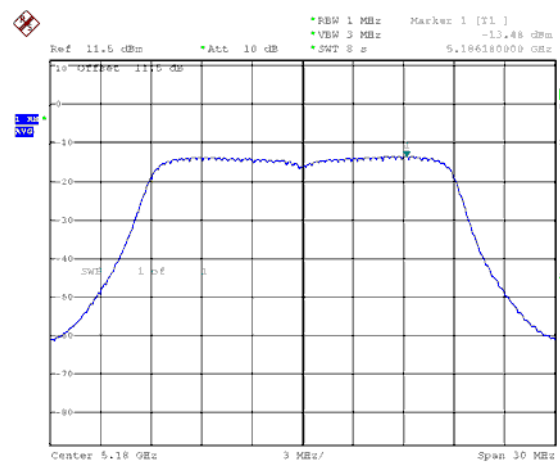
Modulation Type	CH	Freq. (MHz)	Meas PSD (dBm/MHz)	Sum chain (dBm)	Duty Cycle CF(dB)	10log(500KHz /RBW) CF (dB)	Total Corr'd PSD (dBm/ 500kHz)	PSD Limit (dBm/ 500kHz)
802.11a	149	5745	-12.77	-12.77	0.23	-3.01	-15.55	30.00
	157	5785	-12.65	-12.65	0.23	-3.01	-15.43	30.00
	165	5825	-12.56	-12.56	0.23	-3.01	-15.34	30.00
802.11ac VHT20	149	5745	-12.53	-12.53	0.22	-3.01	-15.32	30.00
	157	5785	-12.63	-12.63	0.22	-3.01	-15.42	30.00
	165	5825	-12.64	-12.64	0.22	-3.01	-15.43	30.00
802.11ac VHT40	151	5755	-17.14	-17.14	3.17	-3.01	-16.98	30.00
	159	5795	-17.22	-17.22	3.17	-3.01	-17.06	30.00
802.11ac VHT80	155	5775	-22.20	-22.20	5.83	-3.01	-19.38	30.00



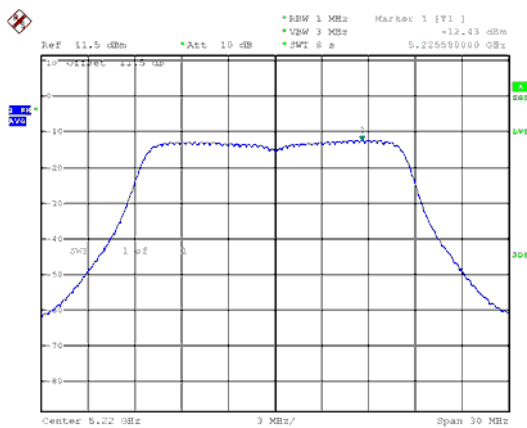
Band 1
Modulation Type: 802.11a (6Mbps)
CH36



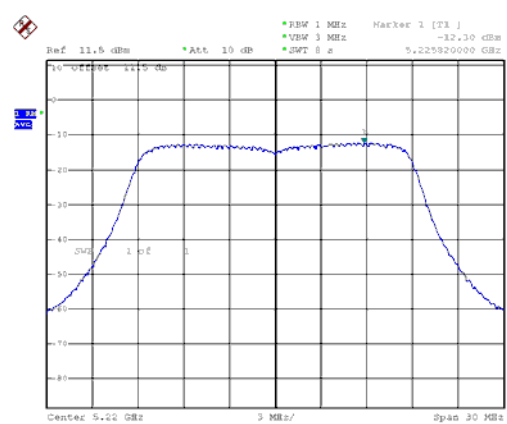
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



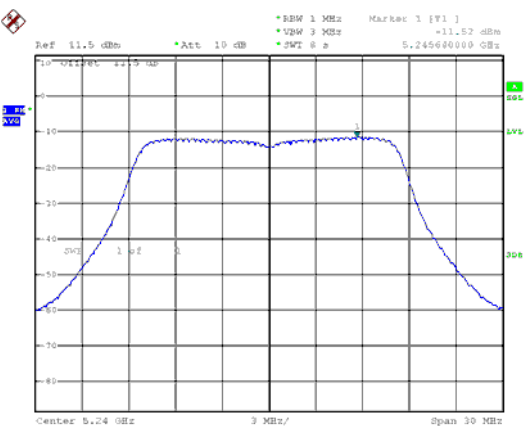
CH44



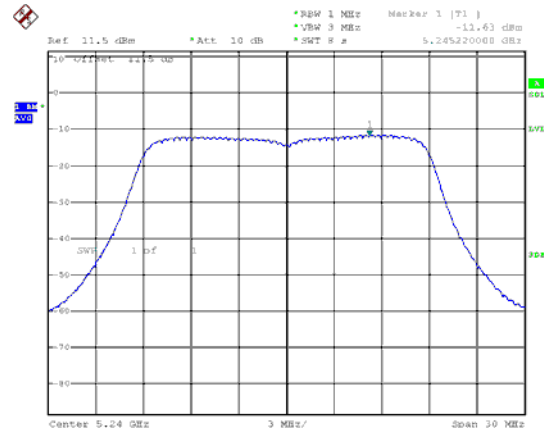
CH44



CH48



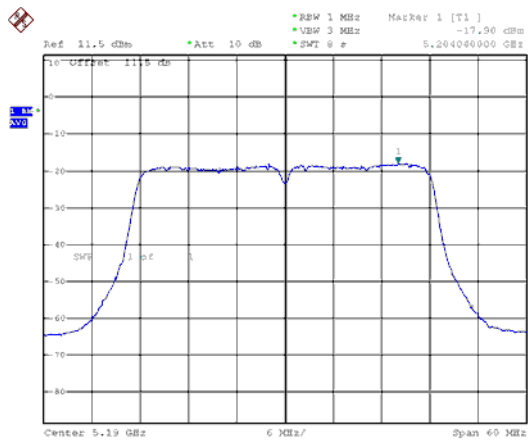
CH48



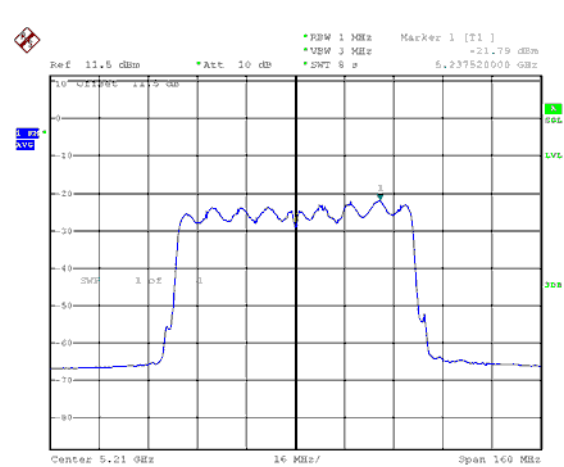


Band 1

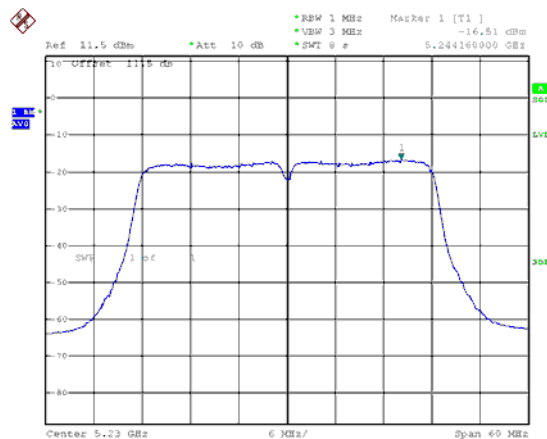
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42

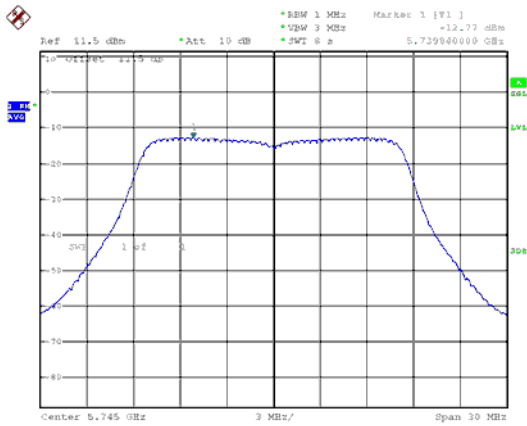


CH46

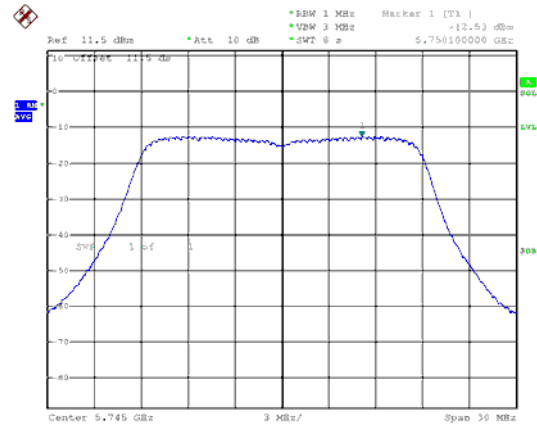




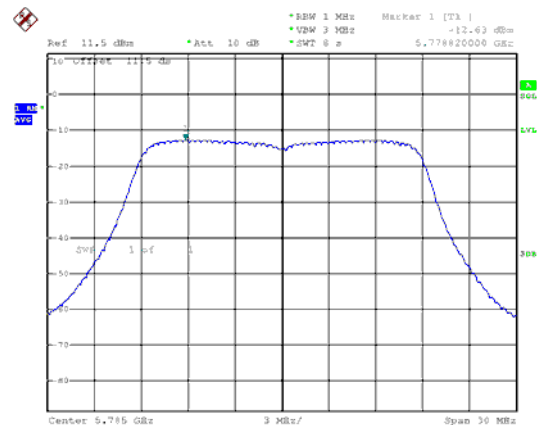
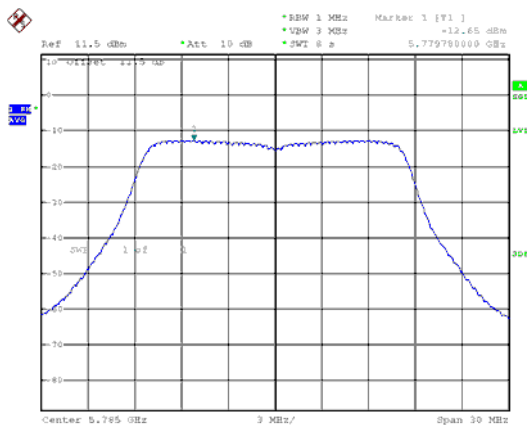
Band 4
Modulation Type: 802.11a (6Mbps)
CH149



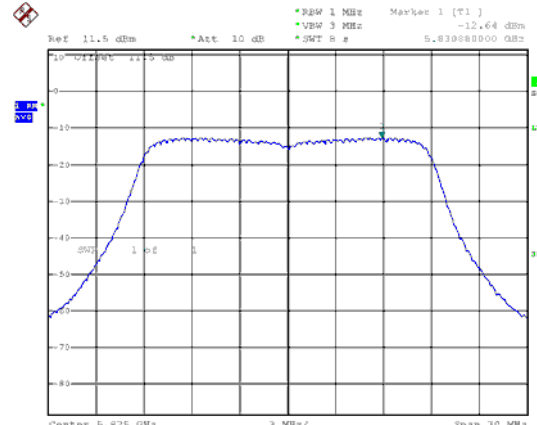
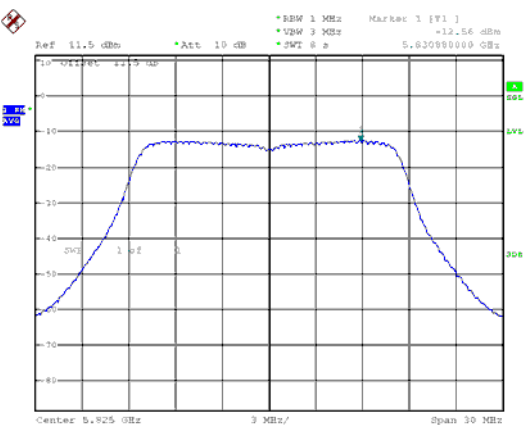
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH149



CH157

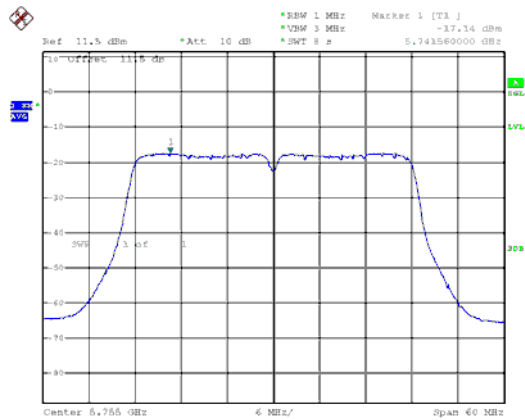


CH165

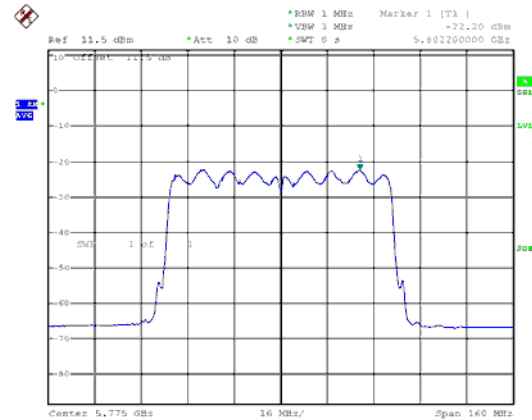




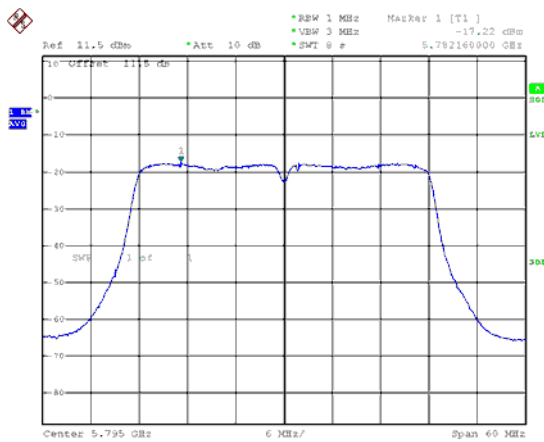
Band 4
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH151



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH155



CH159



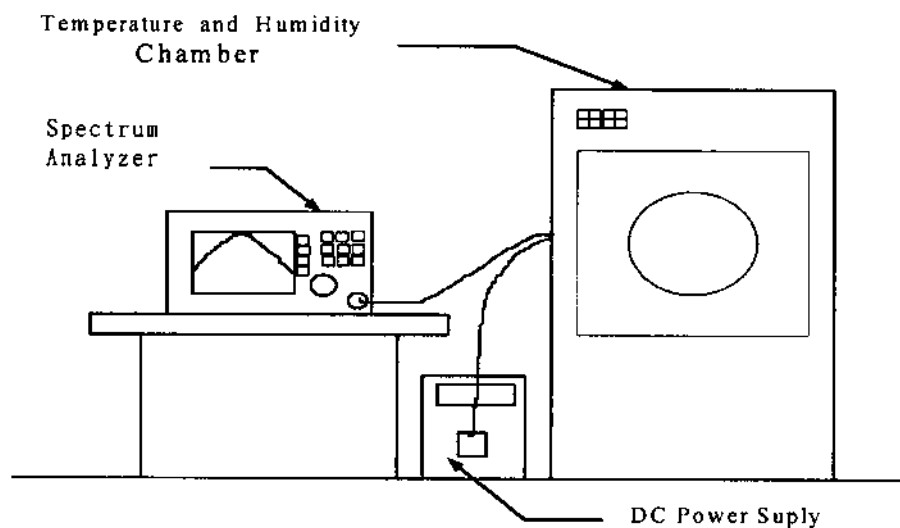


12. Frequency Stability

12.1. Test Procedure

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

12.2. Test Setup Layout



**12.3. Test Result and Data**

Operating frequency: 5180 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	102	5179.9244	-0.001459	5180.0707	0.001364	5179.9843	-0.000304
	120	5179.9297	-0.001357	5180.0099	0.000190	5180.0917	0.001770
	138	5180.0720	0.001390	5179.9456	-0.001051	5179.9974	-0.000050
40	102	5179.9740	-0.000502	5179.9225	-0.001496	5179.9160	-0.001621
	120	5179.9909	-0.000175	5179.9740	-0.000502	5179.9758	-0.000467
	138	5179.9933	-0.000128	5179.9518	-0.000931	5180.0137	0.000264
30	102	5180.0262	0.000507	5179.9015	-0.001901	5179.9820	-0.000347
	120	5179.9424	-0.001113	5180.0743	0.001434	5179.9155	-0.001632
	138	5179.9627	-0.000719	5179.9345	-0.001265	5180.0352	0.000680
20	102	5180.0965	0.001864	5179.9959	-0.000079	5179.9235	-0.001477
	120	5179.9029	-0.001875	5180.0610	0.001177	5180.0223	0.000430
	138	5179.9232	-0.001483	5179.9122	-0.001696	5180.0646	0.001246
10	102	5180.0791	0.001527	5180.0861	0.001661	5179.9167	-0.001609
	120	5179.9990	-0.000019	5179.9048	-0.001838	5179.9538	-0.000891
	138	5180.0612	0.001182	5180.0502	0.000969	5180.0470	0.000908
0	102	5179.9980	-0.000039	5180.0665	0.001283	5180.0316	0.000611
	120	5180.0101	0.000194	5180.0104	0.000201	5179.9474	-0.001015
	138	5179.9163	-0.001616	5180.0421	0.000813	5179.9228	-0.001490
-10	102	5179.9377	-0.001203	5180.0495	0.000955	5180.0720	0.001390
	120	5179.9967	-0.000064	5179.9567	-0.000836	5179.9613	-0.000746
	138	5179.9447	-0.001067	5179.9101	-0.001735	5179.9360	-0.001235
-20	102	5179.9613	-0.000748	5180.0784	0.001513	5179.9462	-0.001038
	120	5179.9273	-0.001403	5179.9936	-0.000124	5180.0471	0.000908
	138	5179.9868	-0.000255	5180.0775	0.001497	5180.0220	0.000425
-30	102	5180.0229	0.000442	5179.9681	-0.000616	5179.9642	-0.000691
	120	5180.0373	0.000721	5180.0857	0.001654	5180.0733	0.001416
	138	5179.9464	-0.001034	5179.9531	-0.000906	5180.0574	0.001108

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.