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检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant	ADTRAN, Inc.
FCC ID	HDC6304W
Product	EPON RG ONU
Model	6304W
Report No.	RXA1704-0118RF06R2
Issue Date	January 11, 2018

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2016)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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TABLE OF CONTENT

1. Test Laboratory	4
1.1. Notes of the test report.....	4
1.2. Test facility	4
1.3. Testing Location	5
2. General Description of Equipment under Test.....	6
3. Test Information	7
4. Test Configuration	8
5. Test Case Results	9
5.1. Occupied Bandwidth	9
5.2. Average Power Output –Conducted.....	20
5.3. Frequency Stability.....	24
5.4. Power Spectral Density	27
5.5. Unwanted Emission	47
5.6. Conducted Emission	141
6. Main Test Instruments	143
ANNEX A: EUT Appearance and Test Setup	144
A.1 EUT Appearance	144
A.2 Test Setup	146

Summary of measurement results

Number	Summary of measurements of results	Clause in FCC rules	Verdict
1	Average conducted output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Maximum power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b)	PASS
6	Conducted Emissions	15.207	PASS
Date of Testing: May 16, 2017 ~ September 13, 2017			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by any government agencies.

1.2. Test facility

CNAS (accreditation number: L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-10766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.



1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
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2. General Description of Equipment under Test

Client Information

Applicant	ADTRAN, Inc.
Applicant address	901 Explorer Blvd, Huntsville AL 35806
Agent	ubiQuoss, Inc.
Agent Address	83,Saneop-ro 155beon-gil, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea,16648
Manufacturer	Shenzhen Gongjin Electronics Co.,Ltd.
Manufacturer address	B116,B118,A211-A213,B201-B213,A311-A313,B411-413,BF08-09 Nanshan Medical Instrument Industry Park,1019# Nanhai Road, Nanshan District, Shenzhen, Guangdong, 518067, P.R.China

General information

EUT Description	
Model:	6304W
Tested Device Code:	0118S01
Hardware Version:	V01
Software Version:	V1.4
Power Supply:	AC Power Supply
Antenna Type:	Internal Antenna
Antenna Gain:	ANT1:3 dBi ANT2:3 dBi ANT3:3 dBi
Directional Gain:	3 dBi
Additional Beamforming Gain:	0 dB
Test Mode:	U-NII-1(5150MHz-5250MHz) U-NII-3(5725MHz-5850MHz)
Modulation Type:	802.11a/n (HT20/HT40) : OFDM 802.11ac (HT20/HT40/HT80): OFDM
Max. Conducted Power	20.47 dBm
Operating Frequency Range(s)	U-NII-1: 5150-5250MHz U-NII-3: 5725-5850MHz
EUT Accessory	
Adapter	Manufacture: Shenzhen Gongjin Electronics Co.,Ltd. Model : S24B72-120A200-C4
Note: The information of the EUT is declared by the manufacturer.	



3. Test Information

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR47 Part 15E (2016) Unlicensed National Information Infrastructure Devices

ANSI C63.10 (2013)

789033 D02 General UNII Test Procedures New Rules v01r04

KDB 662911 D01 Multiple Transmitter Output v02r01

4. Test Configuration

Test Mode

The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Band	Data Rate			
	Antenna 1	Antenna 2	Antenna 3	MIMO
802.11a	6 Mbps	6 Mbps	6 Mbps	/
802.11n HT20	MCS0	MCS0	MCS0	MCS16
802.11n HT40	MCS0	MCS0	MCS0	MCS16
802.11ac HT20	MCS0	MCS0	MCS0	MCS16
802.11ac HT40	MCS0	MCS0	MCS0	MCS16
802.11ac HT80	MCS0	MCS0	MCS0	MCS16

The worst case Antenna mode for each of the following tests for Wi-Fi:

Test Cases	Antenna 1	Antenna 2	Antenna 3	MIMO
Average conducted output power	802.11a	802.11a	802.11a	802.11n HT20/40 802.11ac HT20/40/80
Occupied bandwidth	--	--	802.11a	802.11n HT20/40 802.11ac HT20/40/80
Frequency stability	--	--	802.11a	--
Power Spectral Density	802.11a	802.11a	802.11a	802.11n HT20/40 802.11ac HT20/40/80
Unwanted Emissions	--	--	802.11a	802.11n HT20/40 802.11ac HT20/40/80
Conducted Emissions	--	--	802.11a	802.11n HT20/40 802.11ac HT20/40/80
Note: "O": test all bands				

5. Test Case Results

5.1. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

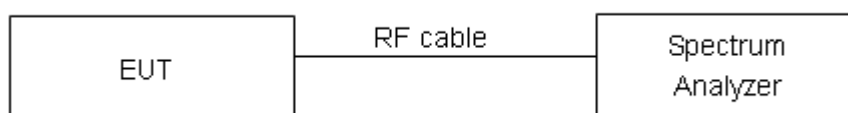
For U-NII-1, set RBW $\approx 1\%$ OCB kHz, VBW $\geq 3 \times$ RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW $\geq 3 \times$ RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument

Test Setup



Limits

No specific occupied bandwidth requirements.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

Test Results:
U-NII-1
Antenna 3

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5180	16.505	20.25	500	PASS
	5220	16.489	20.13	500	PASS
	5240	16.494	20.18	500	PASS

MIMO U-NII-1

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11n HT20	5180	17.745	20.96	500	PASS
	5200	17.720	20.65	500	PASS
	5240	17.734	20.63	500	PASS
802.11n HT40	5190	36.330	39.63	500	PASS
	5230	36.294	39.64	500	PASS
802.11ac HT20	5180	17.747	20.66	500	PASS
	5220	17.773	20.76	500	PASS
	5240	17.772	20.82	500	PASS
802.11ac HT40	5190	36.318	39.50	500	PASS
	5230	36.276	39.33	500	PASS
802.11ac HT80	5210	75.614	80.34	500	PASS

**U-NII-3****Antenna 3**

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5745	16.693	16.40	500	PASS
	5785	16.682	16.36	500	PASS
	5825	16.682	16.38	500	PASS

MIMO

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11n HT20	5745	17.720	17.73	500	PASS
	5785	17.781	17.70	500	PASS
	5825	17.769	17.72	500	PASS
802.11n HT40	5755	36.394	36.39	500	PASS
	5795	36.456	36.47	500	PASS
802.11ac HT20	5745	17.721	17.67	500	PASS
	5785	17.733	17.67	500	PASS
	5825	17.749	17.72	500	PASS
802.11ac HT40	5755	36.375	36.48	500	PASS
	5795	36.369	36.45	500	PASS
802.11ac HT80	5775	75.654	75.78	500	PASS



U-NII-1

Antenna 3

U-NII-1, 802.11a

Carrier frequency (MHz): 5180



U-NII-1, 802.11a

Carrier frequency (MHz): 5200



U-NII-1, 802.11a

Carrier frequency (MHz):5240



MIMO

U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5180



U-NII-1, 802.11n HT40

Carrier frequency (MHz): 5190



U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5200



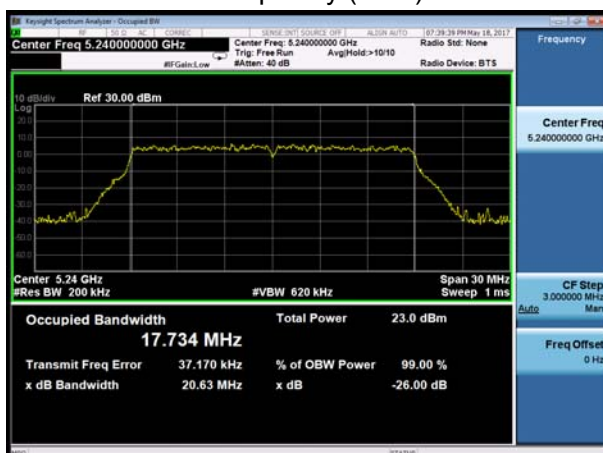
U-NII-1, 802.11n HT40

Carrier frequency (MHz): 5230

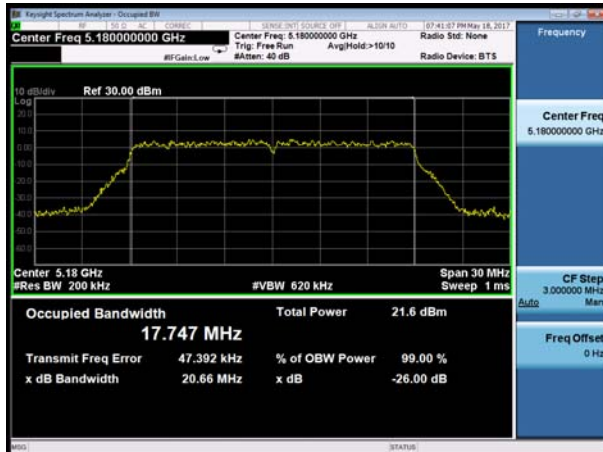


U-NII-1, 802.11n HT20

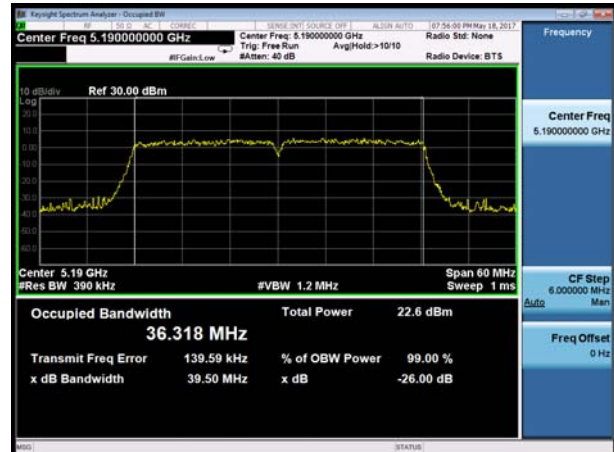
Carrier frequency (MHz): 5240



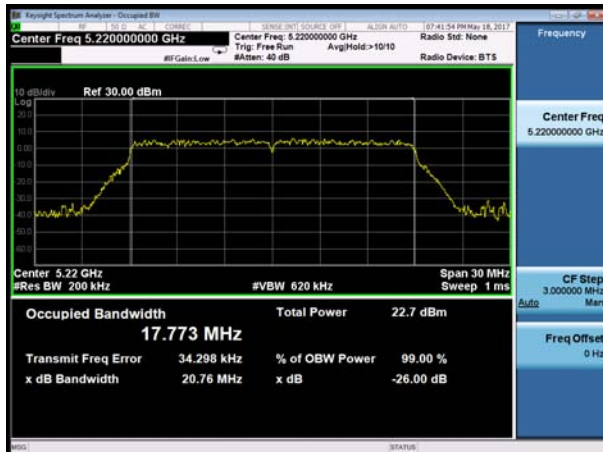
U-NII-1, 802.11ac HT20
Carrier frequency (MHz): 5180



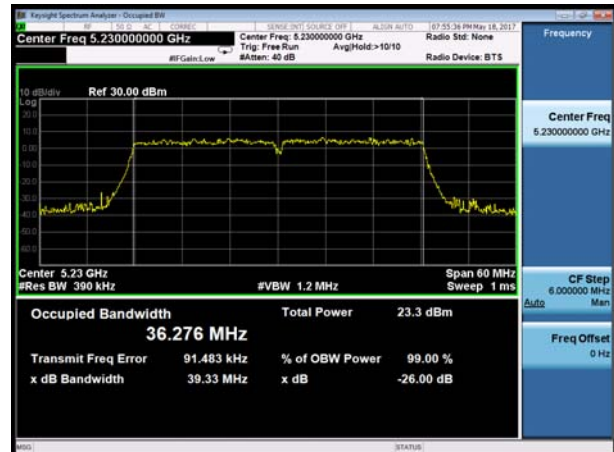
U-NII-1, 802.11ac HT40
Carrier frequency (MHz): 5190



U-NII-1, 802.11ac HT20
Carrier frequency (MHz): 5220



U-NII-1, 802.11ac HT40
Carrier frequency (MHz): 5230



U-NII-1, 802.11ac HT20
Carrier frequency (MHz): 5240



U-NII-1, 802.11ac HT80
Carrier frequency (MHz): 5210





U-NII-3

Antenna 3

99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745



Minimum 6 dB bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785



U-NII-3, 802.11a

Carrier frequency (MHz): 5785



U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11a

Carrier frequency (MHz): 5825





U-NII-3

MIMO- 99% bandwidth

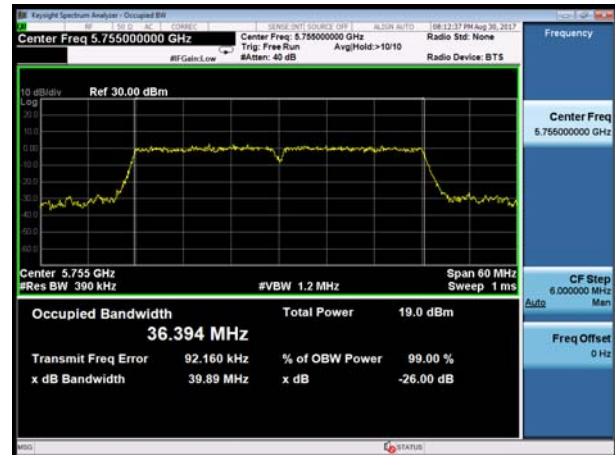
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755



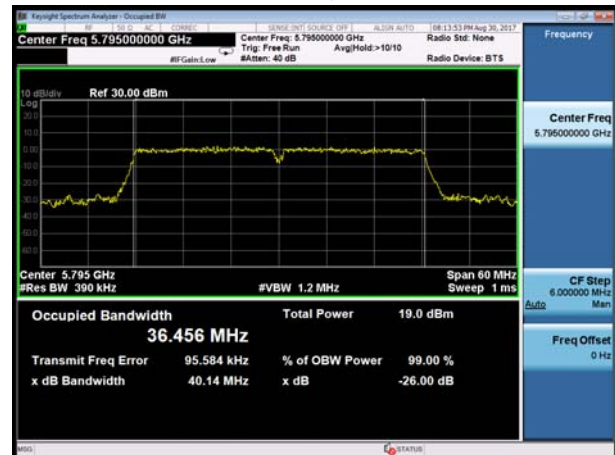
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

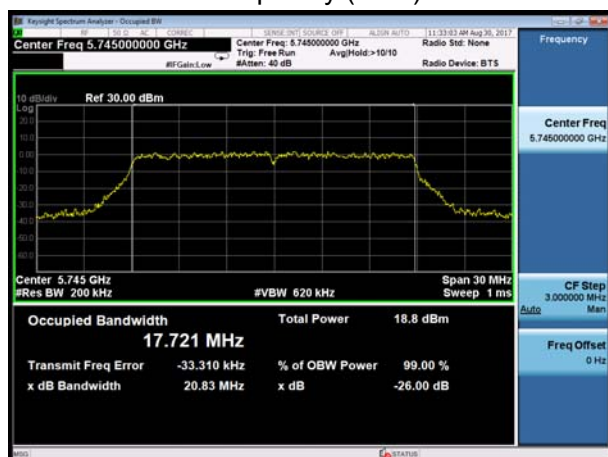


U-NII-3, 802.11n HT20

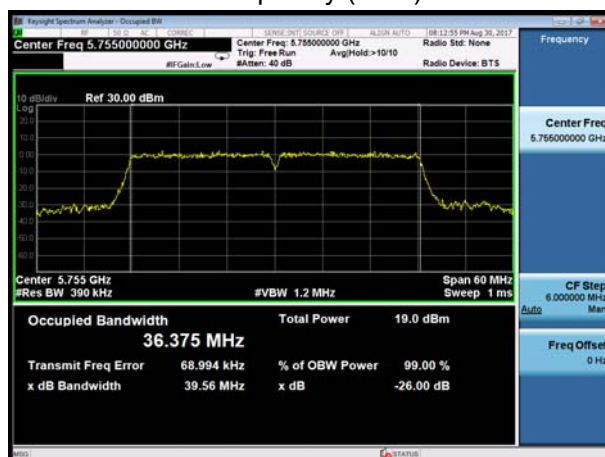
Carrier frequency (MHz): 5825



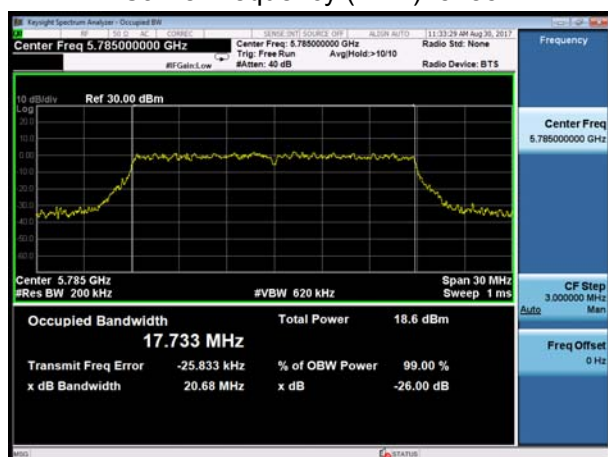
U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5745



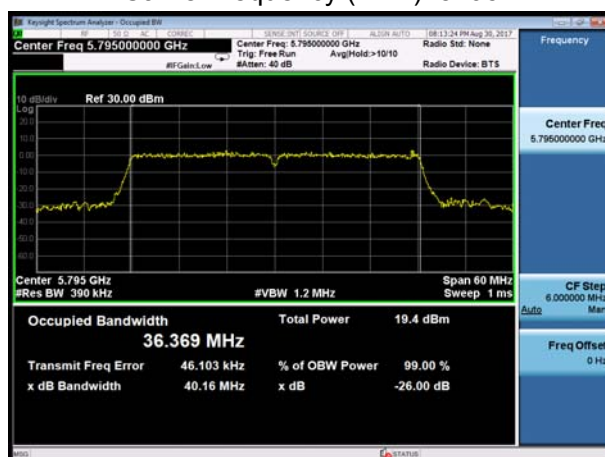
U-NII-3, 802.11ac HT40
Carrier frequency (MHz): 5755



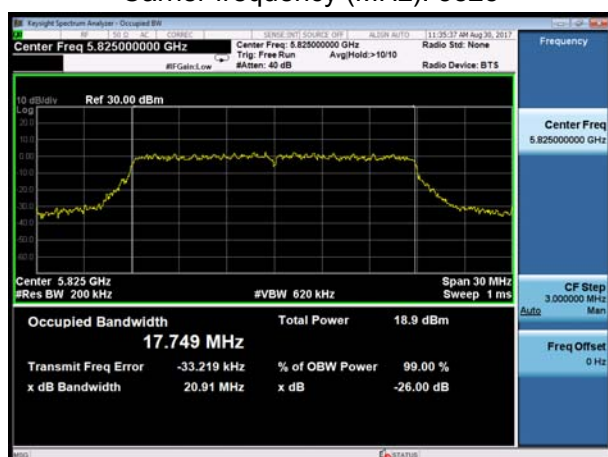
U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5785



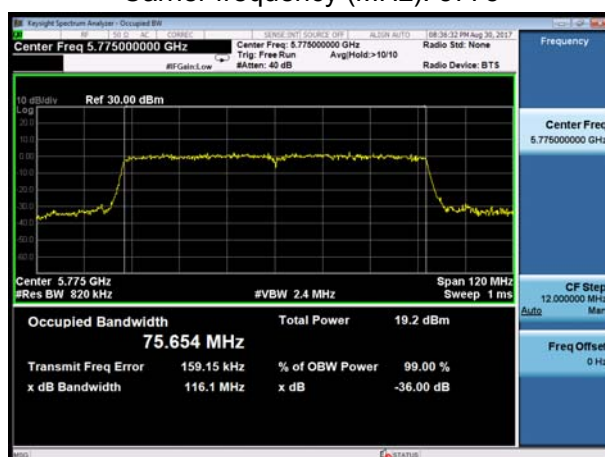
U-NII-3, 802.11ac HT40
Carrier frequency (MHz): 5795



U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5825



U-NII-3, 802.11ac HT80
Carrier frequency (MHz): 5775



**MIMO-Minimum 6 dB bandwidth**

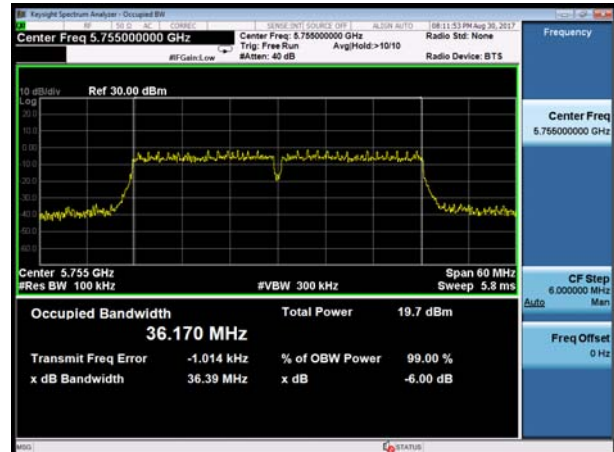
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785



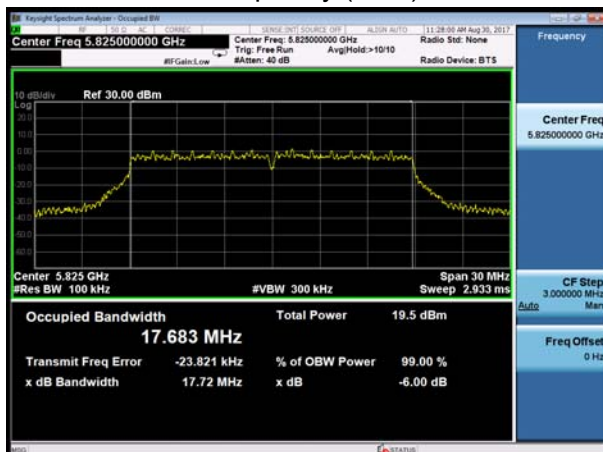
U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

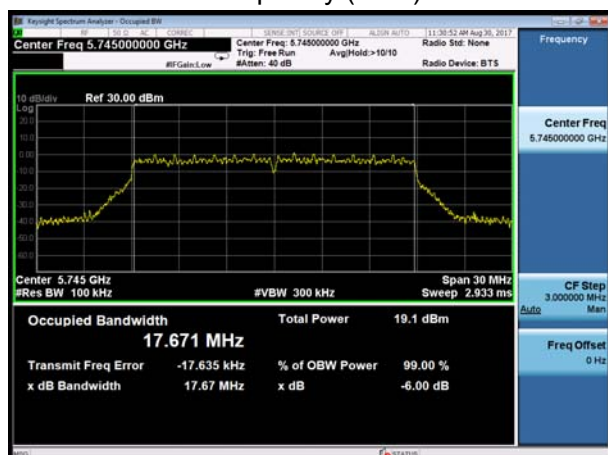


U-NII-3, 802.11n HT20

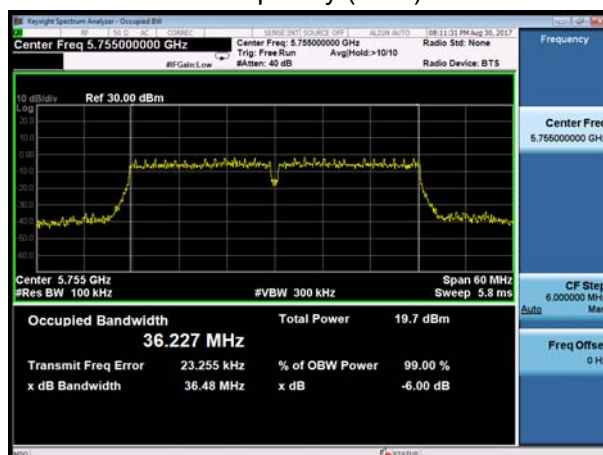
Carrier frequency (MHz): 5825



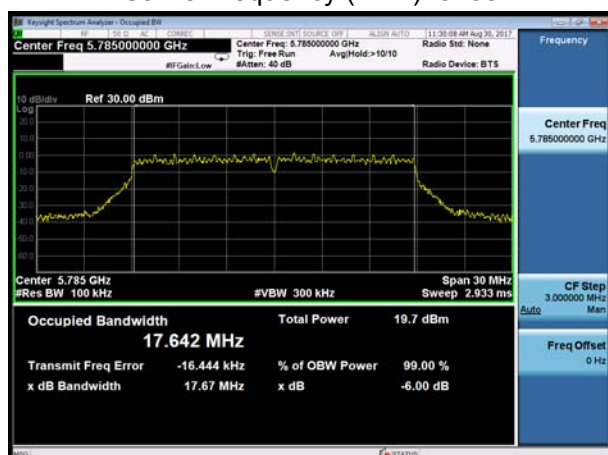
U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5745



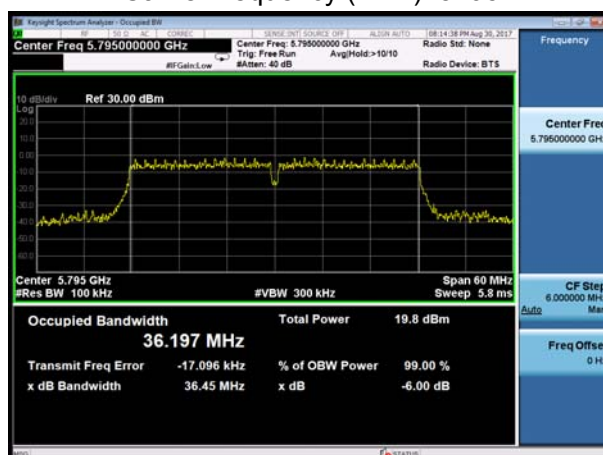
U-NII-3, 802.11ac HT40
Carrier frequency (MHz): 5755



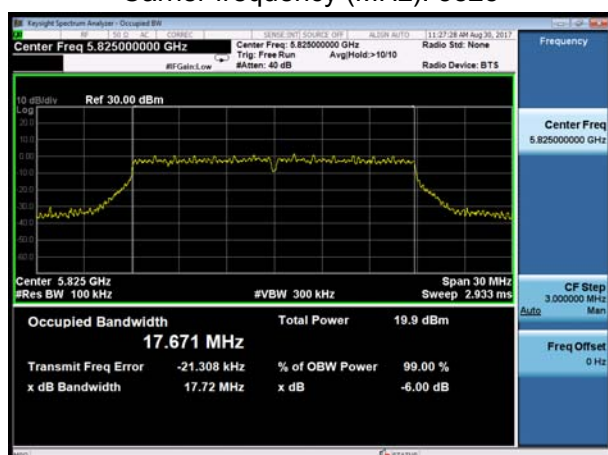
U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5785



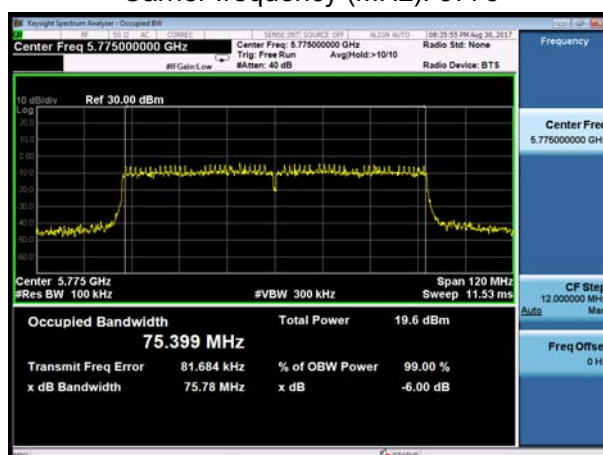
U-NII-3, 802.11ac HT40
Carrier frequency (MHz): 5795



U-NII-3, 802.11ac HT20
Carrier frequency (MHz): 5825



U-NII-3, 802.11ac HT80
Carrier frequency (MHz): 5775



5.2. Average Power Output –Conducted

Ambient condition

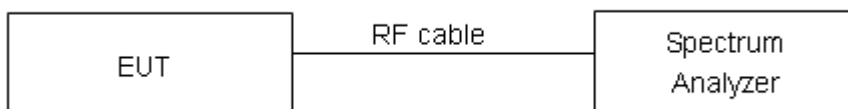
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the average power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum average Conducted Output Power Level Method in KDB789033 for this test.

The conducted Power is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test Setup



Limits

Rule FCC Part 15.407(a)(1)(2)(3)

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. 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.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. 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.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

Test Results

Single Antenna Power Index									
Packet Type	Antenna 1			Antenna 2			Antenna 3		
	CH36	CH44	CH48	CH36	CH44	CH48	CH36	CH44	CH48
802.11a	16	16	16	16	16	16	16	16	16

MIMO Antenna Power Index									
Packet Type	Antenna 1			Antenna 2			Antenna 3		
	CH36	CH44	CH48	CH36	CH44	CH48	CH36	CH44	CH48
802.11n HT20	16	16	16	16	16	16	16	16	16
802.11ac HT20	16	16	16	16	16	16	16	16	16
Packet Type	CH38	CH46	/	CH38	CH46	/	CH38	CH46	/
802.11n HT40	14	16	/	14	16	/	14	16	/
802.11ac HT40	14	16	/	14	16	/	16	16	/
Packet Type	CH42	/	/	CH42	/	/	CH42	/	/
802.11ac HT80	16	/	/	16	/	/	14	/	/

Single Antenna Power Index									
Packet Type	Antenna 1			Antenna 2			Antenna 3		
	CH149	CH157	CH165	CH149	CH157	CH165	CH149	CH157	CH165
802.11a	16	16	16	16	16	16	16	16	16

MIMO Antenna Power Index									
Packet Type	Antenna 1			Antenna 2			Antenna 3		
	CH149	CH157	CH165	CH149	CH157	CH165	CH149	CH157	CH165
802.11n HT20	16	16	16	16	16	16	16	16	16
802.11ac HT20	16	16	16	16	16	16	16	16	16
Packet Type	CH151	CH159	/	CH151	CH159	/	CH151	CH159	/
802.11n HT40	16	16	/	16	16	/	16	16	/
802.11ac HT40	16	16	/	16	16	/	16	16	/
Packet Type	CH155	/	/	CH155	/	/	CH155	/	/
802.11ac HT80	16	/	/	16	/	/	14	/	/

**Test results****U-NII-1**

Network Standards	Channel/ Frequency (MHz)	Output Power (dBm)								Limit (dBm)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Total Power			
		(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(mW)	(dBm)		
U-NII-1 802.11a	36/5180	14.45	27.86	14.42	27.67	14.49	28.12	84.10	19.25	24	PASS
	44/5220	15.50	35.48	14.83	30.41	15.37	34.43	104.35	20.18	24	PASS
	48/5240	15.88	38.73	15.34	34.20	15.61	36.39	111.51	20.47	24	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)})$.

2. The manufacturer declared the transmitter output signals is CDD mode And $N_{ss}=3$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = $G_{ANT} + \text{Array Gain} = 3 + 0 = 3$ dBi < 6 dBi. So the power limit is 24dBm.

U-NII-3

Network Standards	Channel/ Frequency (MHz)	Output Power (dBm)								Limit (dBm)	Conclusion
		Antenna 1		Antenna 2		Antenna 3		Total Power			
		(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(mW)	(dBm)		
U-NII-3 802.11a	149/5745	11.92	15.56	11.51	14.16	11.98	15.78	45.49	16.58	30	PASS
	157/5785	12.21	16.63	11.85	15.31	12.03	15.96	47.90	16.80	30	PASS
	165/5825	12.13	16.33	11.77	15.03	12.21	16.63	48.00	16.81	30	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)})$.

2. The manufacturer declared the transmitter output signals is CDD mode And $N_{ss}=3$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = $G_{ANT} + \text{Array Gain} = 3 + 0 = 3$ dBi < 6 dBi. So the power limit is 30dBm.

**MIMO**

Network Standards		Channel/ Frequency (MHz)	Output Power								Limit (dBm)	Conclusion
			ANT1		ANT2		ANT3		Total Power			
			(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(mW)	(dBm)		
U-NII-1	802.11n HT20	36/5180	14.07	25.53	13.29	21.33	13.91	24.60	71.46	18.54	30.00	PASS
		44/5220	15.01	31.70	14.58	28.71	15.11	32.43	92.84	19.68	30.00	PASS
		48/5240	15.50	35.48	14.69	29.44	15.18	32.96	97.89	19.91	30.00	PASS
	802.11n HT40	38/5190	11.72	14.86	10.45	11.09	14.34	27.16	53.12	17.25	30.00	PASS
		46/5230	15.09	32.28	14.79	30.13	15.37	34.43	96.85	19.86	30.00	PASS
	802.11ac HT20	36/5180	13.81	24.04	13.24	21.09	13.84	24.21	69.34	18.41	30.00	PASS
		44/5220	14.91	30.97	14.21	26.36	14.85	30.55	87.89	19.44	30.00	PASS
		48/5240	15.15	32.73	14.47	27.99	15.04	31.92	92.64	19.67	30.00	PASS
	802.11ac HT40	38/5190	11.23	13.27	10.58	11.43	14.37	27.35	52.06	17.16	30.00	PASS
		46/5230	15.19	33.04	14.46	27.93	15.04	31.92	92.88	19.68	30.00	PASS
	802.11ac HT80	42/5210	14.14	25.94	13.62	23.01	10.84	12.13	61.09	17.86	30.00	PASS
U-NII-3	802.11n HT20	149/5745	11.85	15.31	10.99	12.56	11.77	15.03	55.07	16.32	30.00	PASS
		157/5785	12.04	16.00	11.55	14.29	11.99	15.81	54.71	16.64	30.00	PASS
		165/5825	12.03	15.96	11.43	13.90	11.78	15.07	46.95	16.52	30.00	PASS
	802.11n HT40	151/5755	12.24	16.75	11.65	14.62	11.95	15.67	47.04	16.72	30.00	PASS
		159/5795	12.30	16.98	11.99	15.81	12.26	16.83	49.62	16.96	30.00	PASS
	802.11ac HT20	149/5745	11.78	15.07	11.04	12.71	11.70	14.79	42.56	16.29	30.00	PASS
		157/5785	11.98	15.78	11.42	13.87	11.96	15.70	45.35	16.57	30.00	PASS
		165/5825	11.97	15.74	11.45	13.96	11.93	15.60	45.30	16.56	30.00	PASS
	802.11ac HT40	151/5755	12.31	17.02	11.71	14.83	12.00	15.85	47.70	16.78	30.00	PASS
		159/5795	12.52	17.86	12.03	15.96	12.21	16.63	50.46	17.03	30.00	PASS
	802.11ac HT80	155/5775	11.98	15.78	11.79	15.10	11.95	15.67	46.54	16.68	30.00	PASS

Note: 1. For Total Power, according to KDB 662911 D01 Multiple Transmitter Output v02r01 1),

The Total Power = $10\log(10^{(\text{Power antenna1 in dBm}/10)} + 10^{(\text{Power antenna2 in dBm}/10)} + 10^{(\text{Power antenna3 in dBm}/10)})$.

2. The manufacturer declared the transmitter output signals is CDD mode And $N_{ss}=3$. According to KDB 662911 D01

Multiple Transmitter Output v02r01 2)f(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$,

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

So directional gain = $G_{ANT} + \text{Array Gain} = 3 + 0 = 3 \text{ dBi} < 6 \text{ dBi}$. So the power limit is 30dBm.

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies specified in 5.6.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more than 10 C, and allow the temperature inside the chamber to stabilize.

j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15 C to +25

C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.

- b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
- c) Measure the frequency at each of the frequencies specified in 5.6.
- d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

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.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936\text{Hz}$

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
12.0	-20	5199.993966	5199.990963	5199.984073	5199.981780
12.0	-10	5199.989639	5199.983117	5199.977178	5199.974535
12.0	0	5199.980869	5199.982299	5199.968418	5199.972880
12.0	10	5199.973857	5199.980743	5199.959126	5199.972500
12.0	20	5199.968299	5199.980009	5199.949671	5199.963443
12.0	30	5199.963504	5199.977756	5199.944609	5199.961903
12.0	40	5199.953979	5199.974929	5199.943247	5199.952367
12.0	50	5199.947527	5199.965496	5199.937694	5199.945742
11.0	20	5199.940108	5199.965482	5199.930386	5199.945709
13.0	20	5199.935542	5199.961837	5199.920535	5199.940223
MHz		-0.064458	-0.038163	-0.079465	-0.059777
PPM		-12.395809	-7.339088	-15.281652	-11.495508

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
5.00	-20	5784.997621	5784.988988	5784.983755	5784.982184
5.00	-10	5784.992949	5784.983774	5784.977531	5784.980213
5.00	0	5784.988494	5784.980517	5784.975447	5784.977761
5.00	10	5784.983645	5784.973126	5784.975439	5784.977183
5.00	20	5784.982037	5784.967235	5784.966174	5784.975754
5.00	30	5784.974677	5784.961318	5784.964976	5784.971425
5.00	40	5784.967742	5784.955545	5784.962735	5784.968803
5.00	50	5784.959877	5784.952054	5784.960728	5784.964652
4.75	20	5784.958744	5784.943587	5784.957636	5784.958953
5.25	20	5784.952702	5784.93996	5784.950963	5784.952877
MHz		-0.04729816	-0.060040111	-0.04903686	-0.047122522
PPM		-8.175999965	-10.37858445	-8.47655308	-8.145639147

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

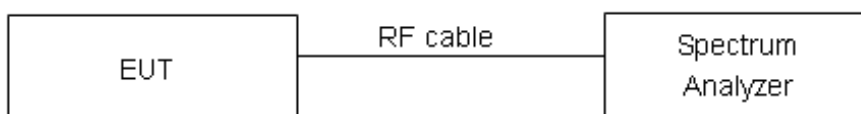
Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 1 MHz, VBW =3MHz for the band 5.150-5.250 GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2) / Part 15.407(a)(3)

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. 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.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. 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 Bands/MHz	Limits
5150-5250	17dBm/MHz
5725-5850	30dBm/500kHz

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.75\text{dB}$.

**Test Results:****U-NII-1**

Network Standards		Channel Number	Power Spectral Density								Limit (dBm /MHz)	Conclusion
			Antenna 1		Antenna 2		Antenna 3		Total PSD			
			(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(mW/ MHz)	(dBm / MHz)		
802.11a	U-NII-1	36	3.276	2.126	2.724	1.872	2.772	1.893	5.892	7.702	17	PASS
		40	4.096	2.568	4.157	2.604	4.324	2.706	7.879	8.965	17	PASS
		48	5.044	3.194	4.012	2.519	4.727	2.970	8.683	9.387	17	PASS

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})})$

2. The manufacturer declared the transmitter output signals is CDD mode. And $N_{ss}=3$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$, For power spectral density (PSD) measurements on all devices, Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB=0.

So directional gain = $G_{ANT} + \text{Array Gain} = 3+0=3$ dBi < 6dBi. So the power limit is 17dBm

U-NII-3

Network Standards		Channel Number	Power Spectral Density								Limit (dBm /MHz)	Conclusion
			Antenna 1		Antenna 2		Antenna 3		Total PSD			
			(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(mW/ MHz)	(dBm / MHz)		
802.11a	U-NII-3	149	-2.025	0.63	-2.839	0.52	-1.533	0.70	1.85	2.67	30	PASS
		157	-2.281	0.59	-2.534	0.56	-1.879	0.65	1.80	2.55	30	PASS
		165	-2.002	0.63	-2.172	0.61	-1.484	0.71	1.95	2.90	30	PASS

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10\log(10^{(\text{PSD antenna1 in dBm/10})} + 10^{(\text{PSD antenna2 in dBm/10})} + 10^{(\text{PSD antenna3 in dBm/10})})$

2. The manufacturer declared the transmitter output signals is CDD mode. And $N_{ss}=3$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$, For power spectral density (PSD) measurements on all devices, Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB=0.

So directional gain = $G_{ANT} + \text{Array Gain} = 3+0=3$ dBi < 6dBi. So the power limit is 30dBm

**MIMO****U-NII-1**

Network Standards		Channel Number	Power Spectral Density								Limit (dBm /MHz)	Conclusion
			ANT1		ANT2		ANT3		Total PSD			
			(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(mW/ MHz)	(dBm / MHz)		
802.11n HT20	U-NII-1	36	2.324	1.708	1.908	1.552	2.549	1.798	5.058	7.040	17	PASS
		44	3.579	2.280	3.265	2.121	3.681	2.334	6.735	8.283	17	PASS
		48	4.769	2.998	3.296	2.136	4.300	2.692	7.826	8.935	17	PASS
802.11n HT40	U-NII-1	38	-3.720	0.425	-3.480	0.449	0.250	1.059	1.933	2.861	17	PASS
		46	0.692	1.173	0.245	1.058	1.596	1.444	3.675	5.652	17	PASS
802.11ac HT20	U-NII-1	36	2.172	1.649	1.503	1.414	2.105	1.624	4.686	6.708	17	PASS
		44	3.581	2.281	2.969	1.981	3.705	2.347	6.609	8.201	17	PASS
		48	4.033	2.531	3.331	2.153	4.029	2.529	7.213	8.581	17	PASS
802.11ac HT40	U-NII-1	38	-3.900	0.407	-3.130	0.486	-0.310	0.931	1.825	2.612	17	PASS
		46	0.655	1.163	0.410	1.099	1.596	1.444	3.706	5.689	17	PASS
802.11ac HT80	U-NII-1	42	-2.720	0.535	-3.060	0.494	-6.010	0.251	1.279	1.070	17	PASS

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a), the power spectral density = $10 \log(10^{(PSD \text{ antenna1 in dBm}/10)} + 10^{(PSD \text{ antenna2 in dBm}/10)} + 10^{(PSD \text{ antenna3 in dBm}/10)})$

2. The manufacturer declared the transmitter output signals is CDD mode. And $N_{ss}=3$. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$, For power spectral density (PSD) measurements on all devices, Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB=0.

So directional gain = $G_{ANT} + \text{Array Gain} = 3 + 0 = 3$ dBi < 6dBi. So the power limit is 17dBm

Network Standards		Channel Number	Power Spectral Density								Limit (dBm /MHz)	Conclusion
			ANT1		ANT2		ANT3		Total PSD			
			(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(dBm / MHz)	(mW/ MHz)	(mW/ MHz)	(dBm / MHz)		
802.11n HT20	U-NII-3	149	-2.26	0.59	-3.01	0.50	-2.34	0.58	1.68	2.25	30	PASS
		157	-1.87	0.65	-3.01	0.50	-2.34	0.58	1.73	2.39	30	PASS
		165	-2.62	0.55	-2.27	0.59	-2.28	0.59	1.73	2.38	30	PASS
802.11n HT40	U-NII-3	151	-4.46	0.36	-5.90	0.26	-5.73	0.27	0.88	-0.55	30	PASS
		159	-4.20	0.38	-5.00	0.32	-5.56	0.28	0.97	-0.11	30	PASS
802.11ac HT20	U-NII-3	149	-2.97	0.50	-3.41	0.46	-3.13	0.49	1.45	1.61	30	PASS
		157	-2.24	0.60	-2.90	0.51	-2.36	0.58	1.69	2.28	30	PASS
		165	-2.52	0.56	-2.43	0.57	-2.91	0.51	1.64	2.16	30	PASS
802.11ac HT40	U-NII-3	151	-5.00	0.32	-5.63	0.27	-4.99	0.32	0.91	-0.43	30	PASS
		159	-5.17	0.30	-5.53	0.28	-4.97	0.32	0.90	-0.44	30	PASS
802.11ac HT80	U-NII-3	155	-8.88	0.13	-8.89	0.13	-8.49	0.14	0.40	-3.98	30	PASS

Note: 1. For Total PSD, according to KDB 662911 D01 Multiple Transmitter Output v02r01 2)a),the power spectral density= $10\log(10^{(PSD \text{ antenna1 in dBm}/10)}+10^{(PSD \text{ antenna2 in dBm}/10)}+10^{(PSD \text{ antenna3 in dBm}/10)})$

2. The manufacturer declared the transmitter output signals is CDD mode. And N_{ss}=3. According to KDB 662911 D01 Multiple Transmitter Output v02r01 2)f)(i): If all antennas have the same gain, Directional gain = G_{ANT} + Array Gain, For power spectral density (PSD) measurements on all devices, Array Gain = 10 log(N_{ANT}/N_{SS}) dB=0.

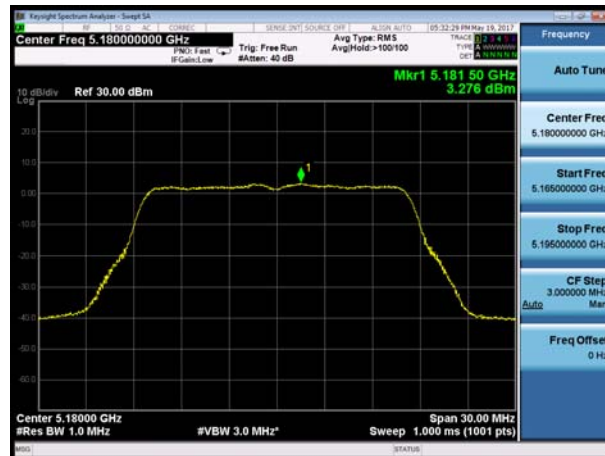
So directional gain = G_{ANT} + Array Gain =3+0=3 dBi<6dBi. So the power limit is 30dBm



U-NII-1

Antenna 1

U-NII-1, 802.11a, Channel No.: 36

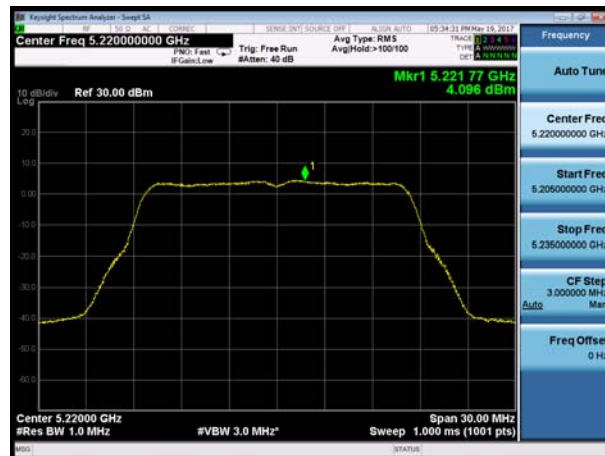


Antenna 2

U-NII-1, 802.11a, Channel No.: 36



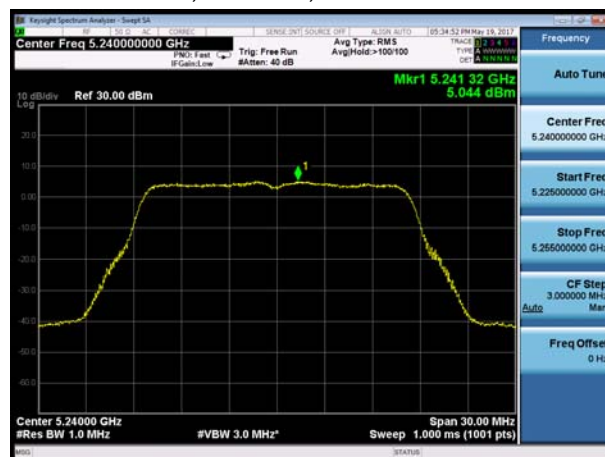
U-NII-1, 802.11a, Channel No.: 44



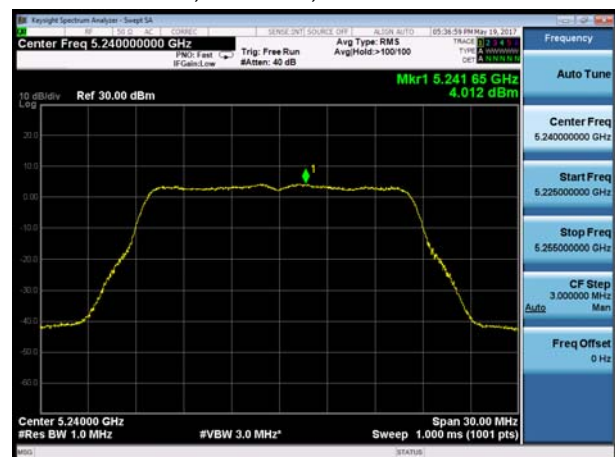
U-NII-1, 802.11a, Channel No.: 44



U-NII-1, 802.11a, Channel No.: 48



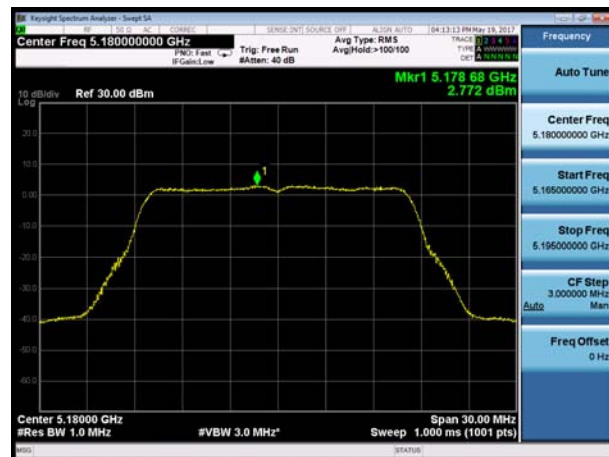
U-NII-1, 802.11a, Channel No.: 48





Antenna 3

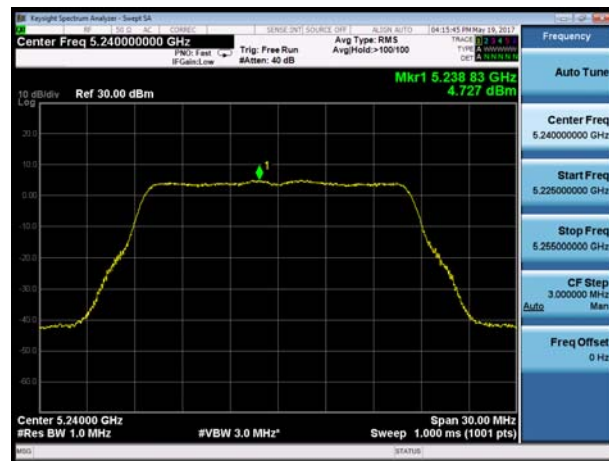
U-NII-1, 802.11a, Channel No.: 36



U-NII-1, 802.11a, Channel No.: 44



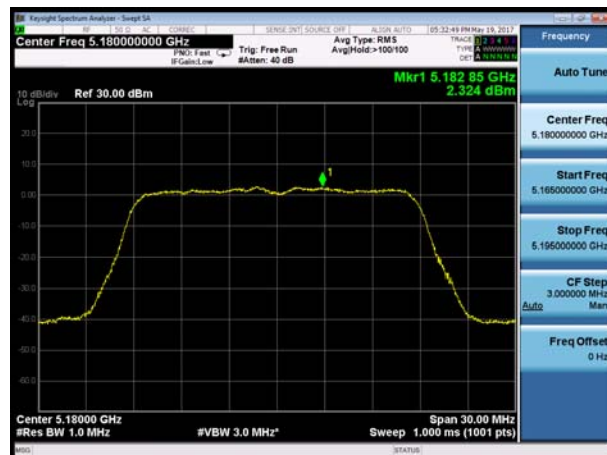
U-NII-1, 802.11a, Channel No.: 48





MIMO Antenna 1

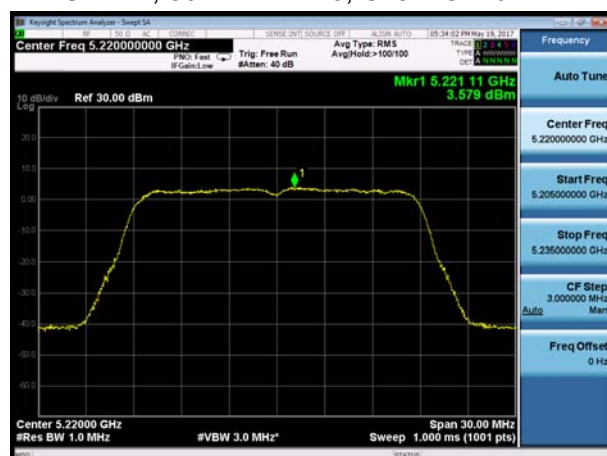
U-NII-1, 802.11n HT20, Channel No.: 36



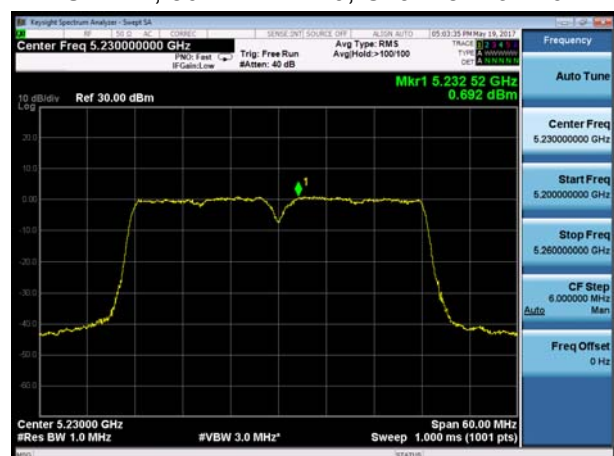
U-NII-1, 802.11n HT40, Channel No.: 38



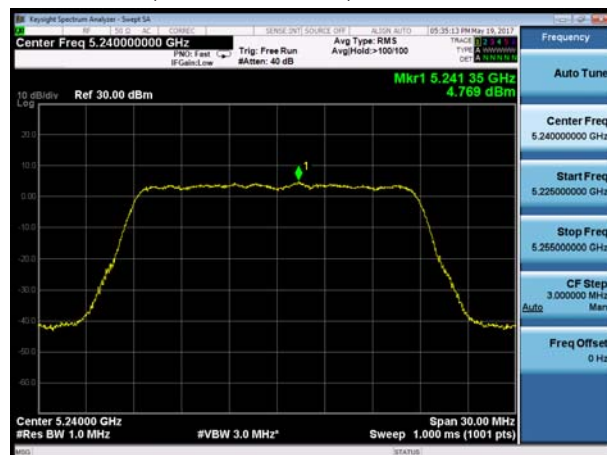
U-NII-1, 802.11n HT20, Channel No.: 44



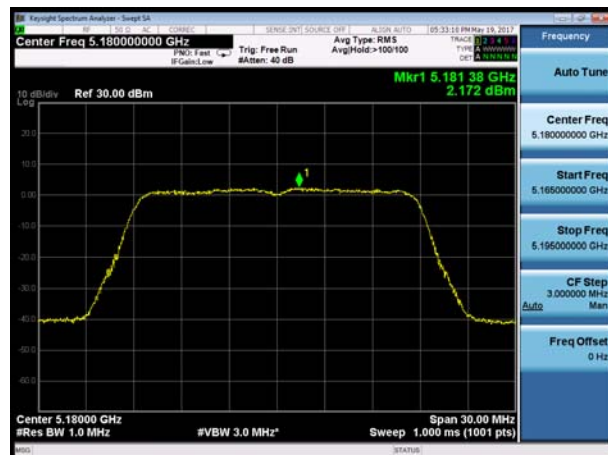
U-NII-1, 802.11n HT40, Channel No.: 46



U-NII-1, 802.11n HT20, Channel No.: 48



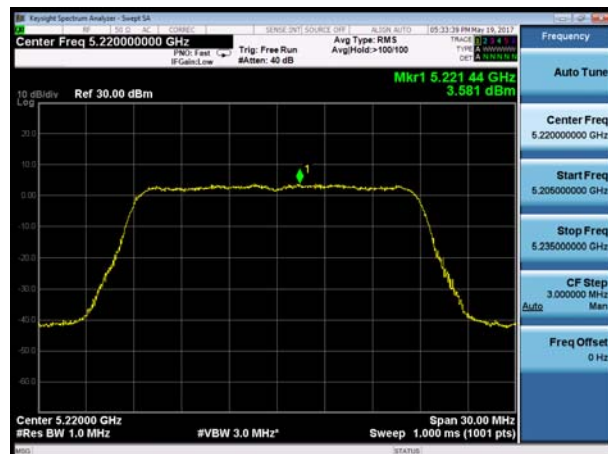
U-NII-1, 802.11ac HT20, Channel No.: 36



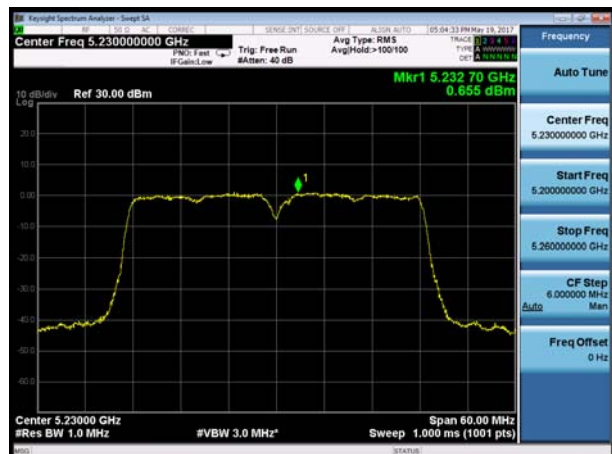
U-NII-1, 802.11ac HT40, Channel No.: 38



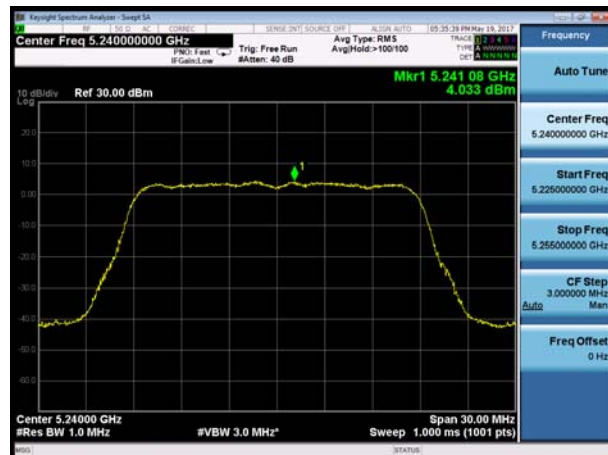
U-NII-1, 802.11ac HT20, Channel No.: 44



U-NII-1, 802.11ac HT40, Channel No.: 46



U-NII-1, 802.11ac HT20, Channel No.: 48



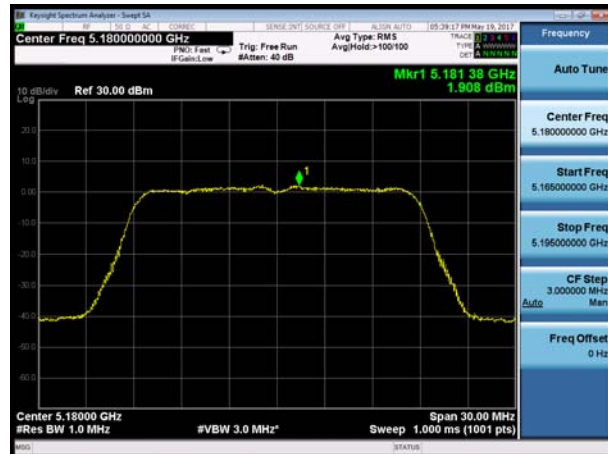
U-NII-1, 802.11ac HT80, Channel No.: 42





MIMO Antenna 2

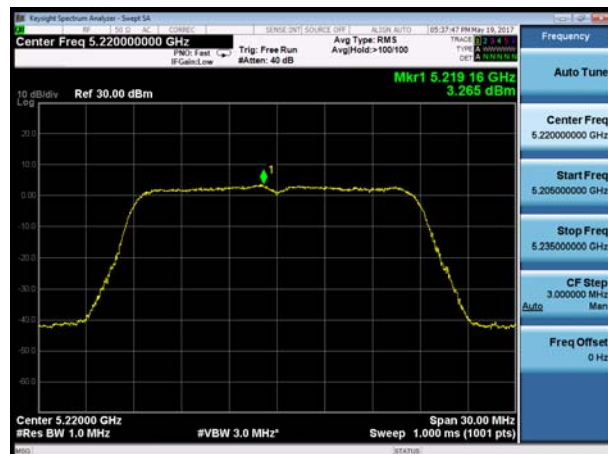
U-NII-1, 802.11n HT20, Channel No.: 36



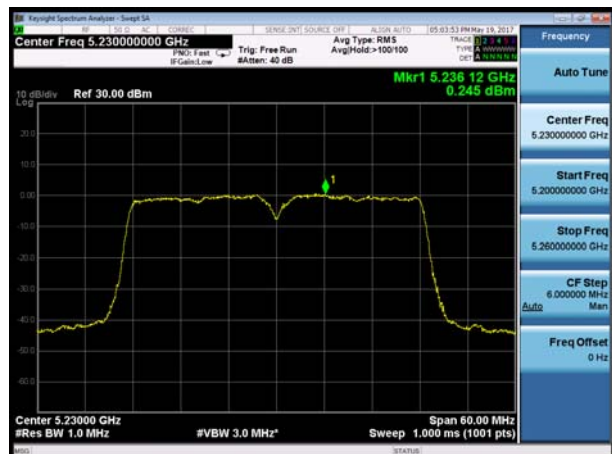
U-NII-1, 802.11n HT40, Channel No.: 38



U-NII-1, 802.11n HT20, Channel No.: 44



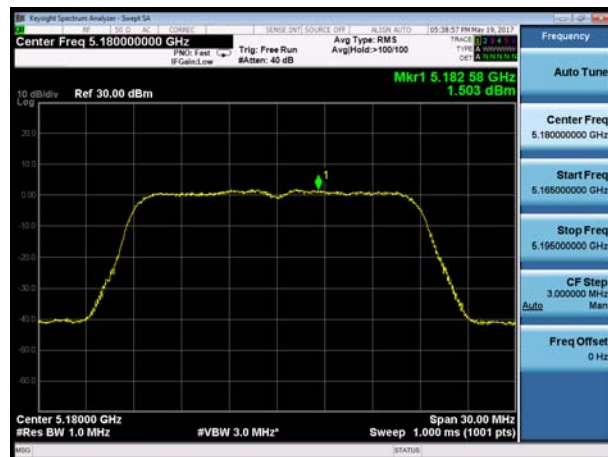
U-NII-1, 802.11n HT40, Channel No.: 46



U-NII-1, 802.11n HT20, Channel No.: 48



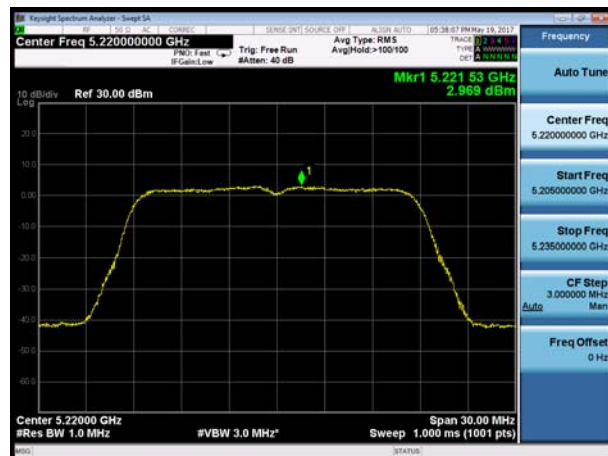
U-NII-1, 802.11ac HT20, Channel No.: 36



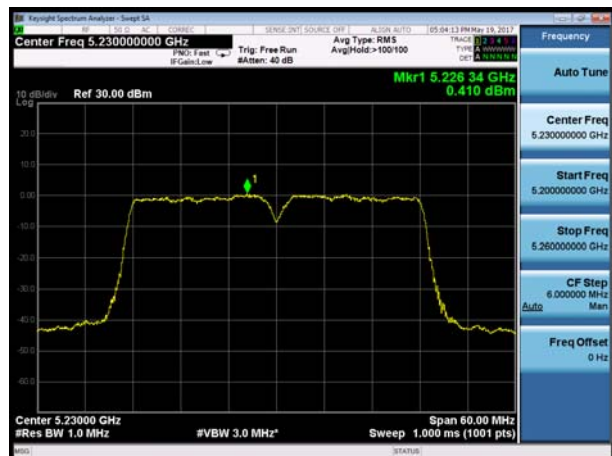
U-NII-1, 802.11ac HT40, Channel No.: 38



U-NII-1, 802.11ac HT20, Channel No.: 44



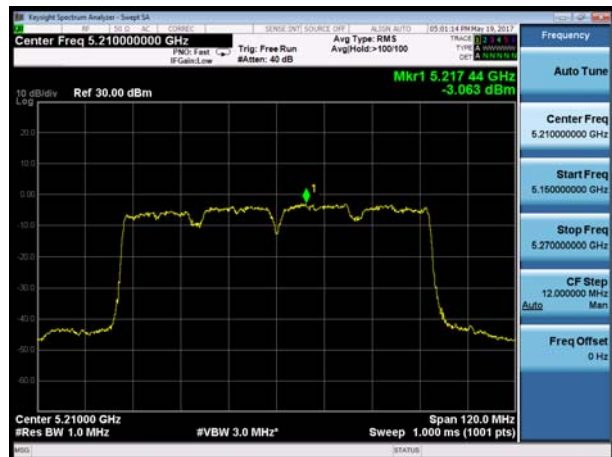
U-NII-1, 802.11ac HT40, Channel No.: 46



U-NII-1, 802.11ac HT20, Channel No.: 48



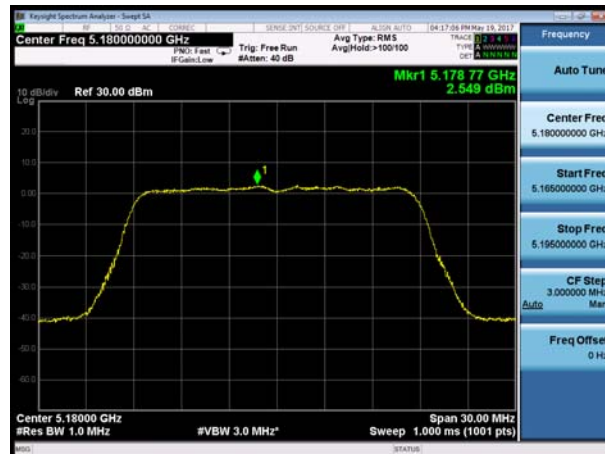
U-NII-1, 802.11ac HT80, Channel No.: 42



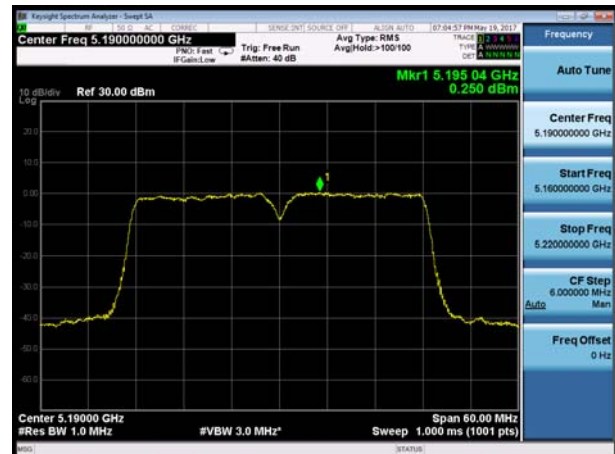


MIMO Antenna 3

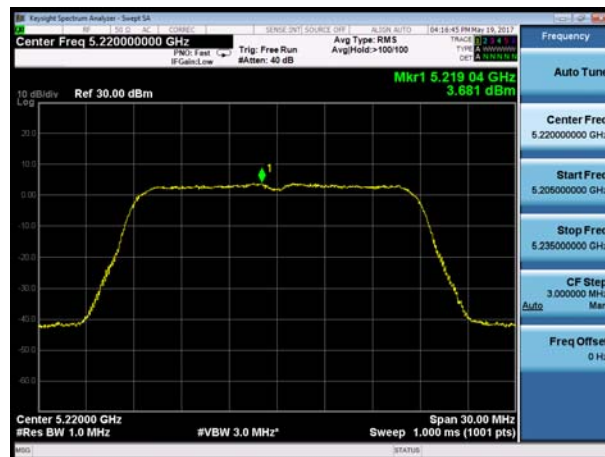
U-NII-1, 802.11n HT20, Channel No.: 36



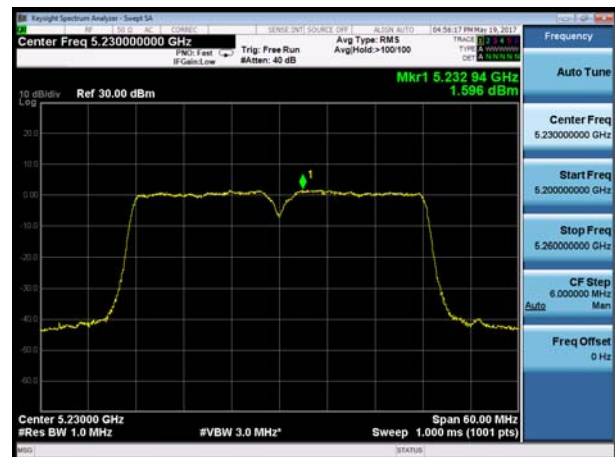
U-NII-1, 802.11n HT40, Channel No.: 38



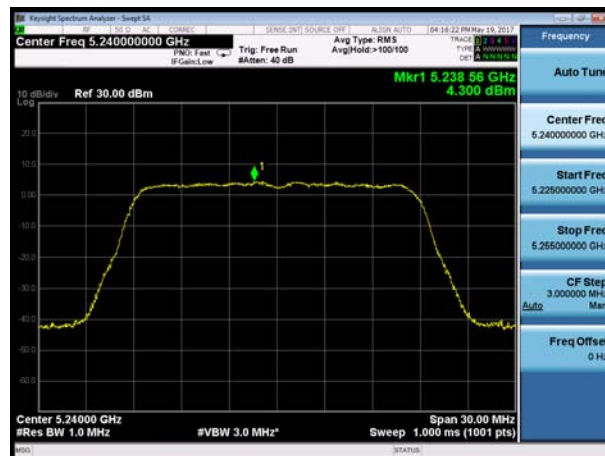
U-NII-1, 802.11n HT20, Channel No.: 44



U-NII-1, 802.11n HT40, Channel No.: 46



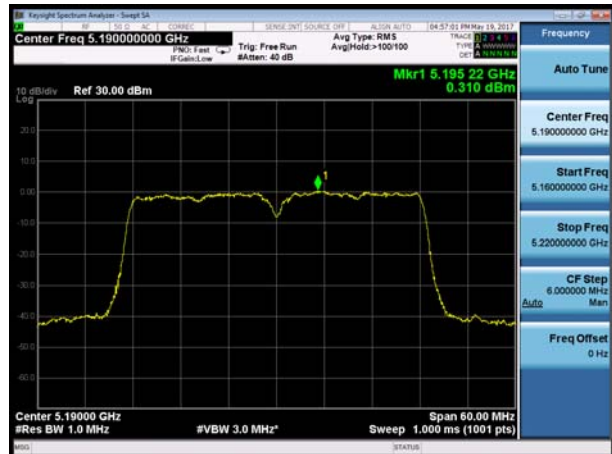
U-NII-1, 802.11n HT20, Channel No.: 48



U-NII-1, 802.11ac HT20, Channel No.: 36



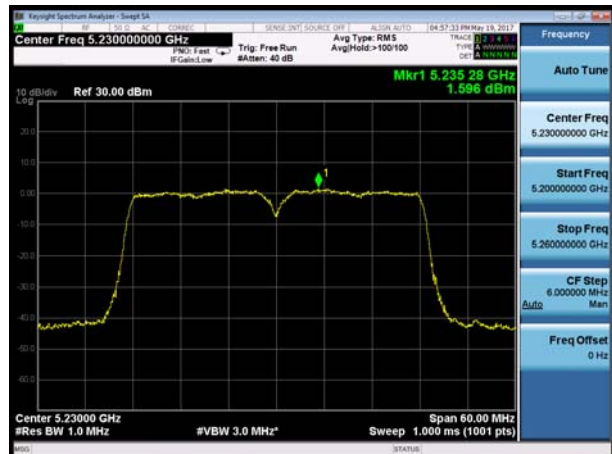
U-NII-1, 802.11ac HT40, Channel No.: 38



U-NII-1, 802.11ac HT20, Channel No.: 44



U-NII-1, 802.11ac HT40, Channel No.: 46



U-NII-1, 802.11ac HT20, Channel No.: 48



U-NII-1, 802.11ac HT80, Channel No.: 42





U-NII-3

SISO Antenna 1

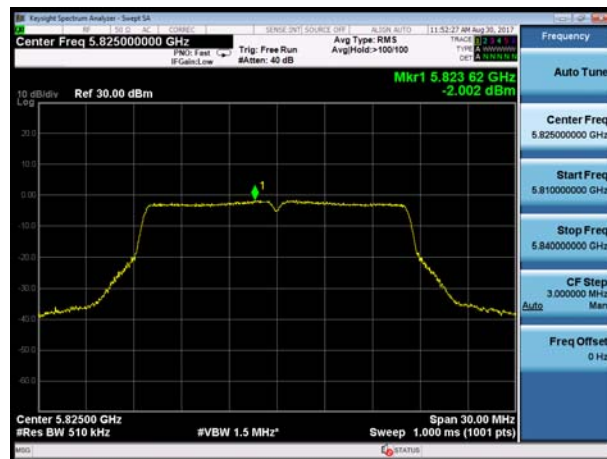
U-NII-3, 802.11a, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157

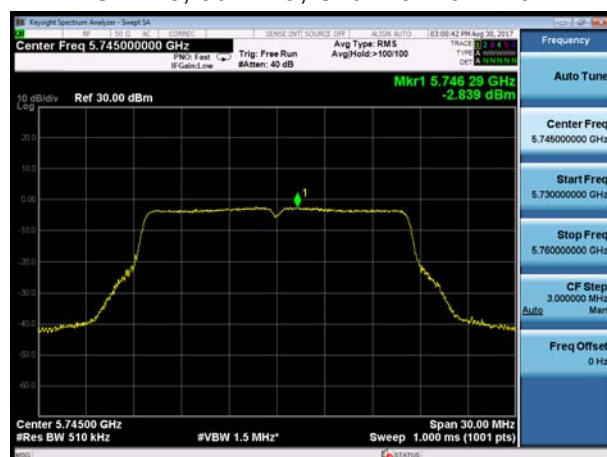


U-NII-3, 802.11a, Channel No.: 165

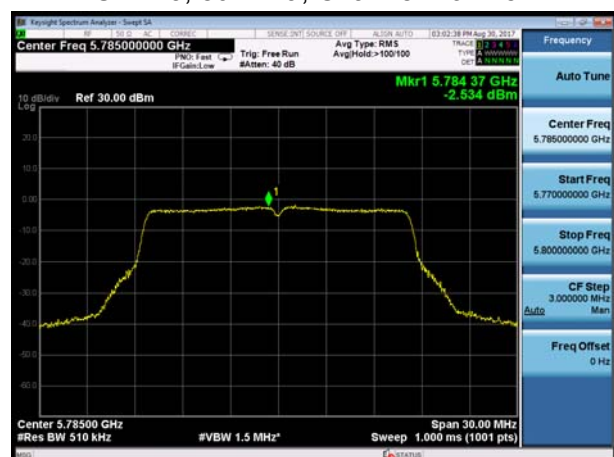


SISO Antenna 2

U-NII-3, 802.11a, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157



U-NII-3, 802.11a, Channel No.: 165



SISO Antenna 3

U-NII-3, 802.11a, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157



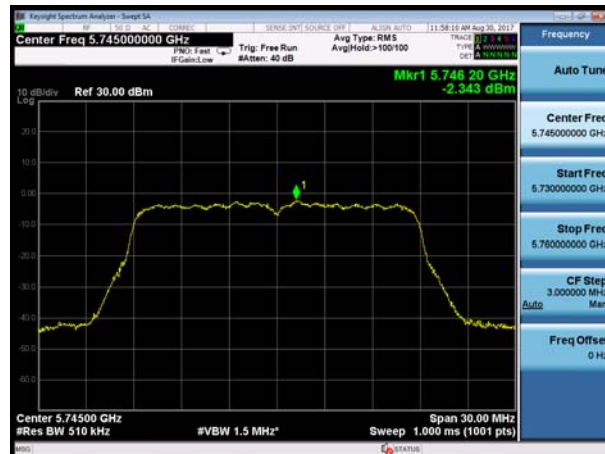
U-NII-3, 802.11a, Channel No.: 165



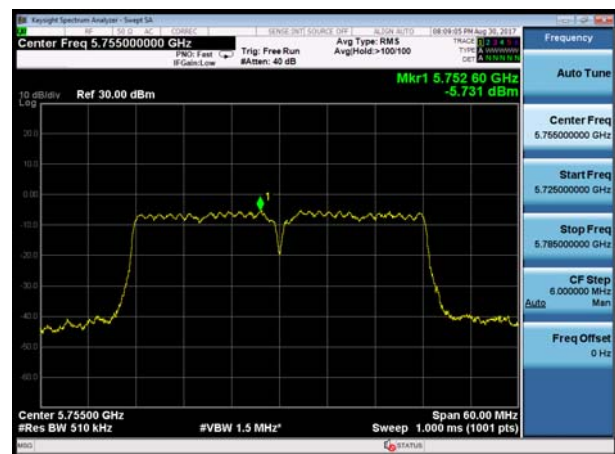


MIMO Antenna 1

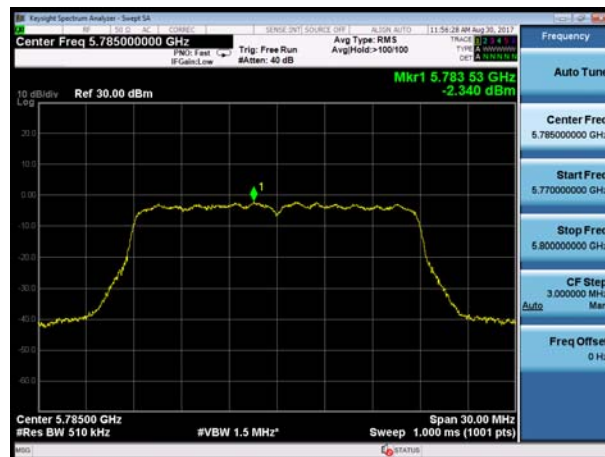
U-NII-3, 802.11n HT20, Channel No.: 149



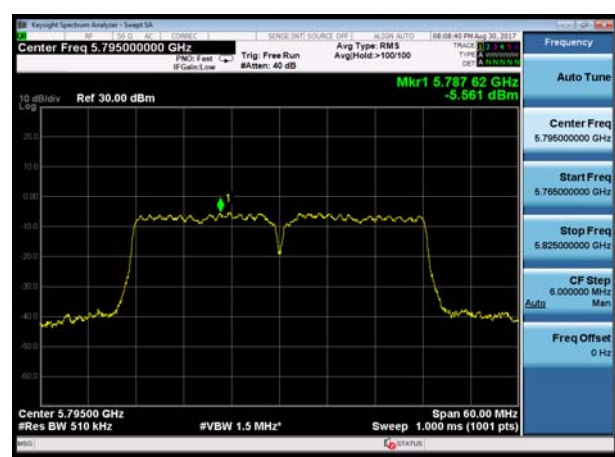
U-NII-3, 802.11n HT40, Channel No.: 151



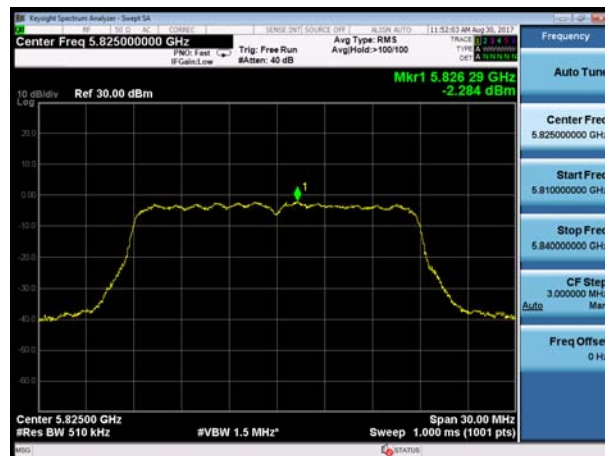
U-NII-3, 802.11n HT20, Channel No.: 157



U-NII-3, 802.11n HT40, Channel No.: 159



U-NII-3, 802.11n HT20, Channel No.: 165

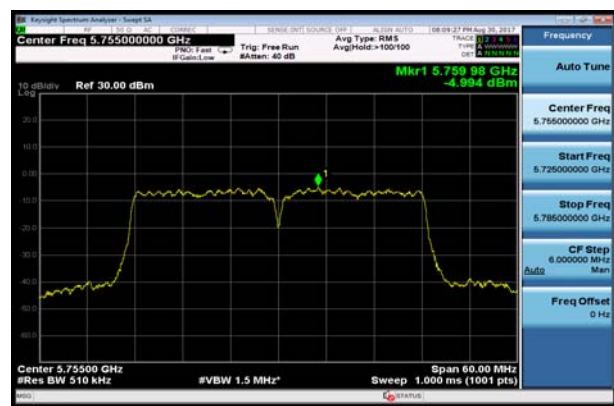




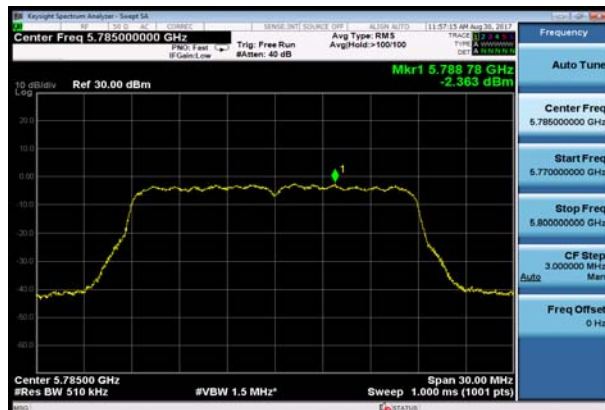
U-NII-3, 802.11ac HT20, Channel No.: 149



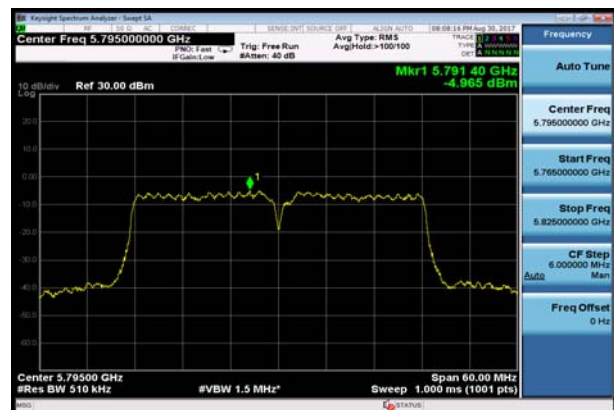
U-NII-3, 802.11ac HT40, Channel No.: 151



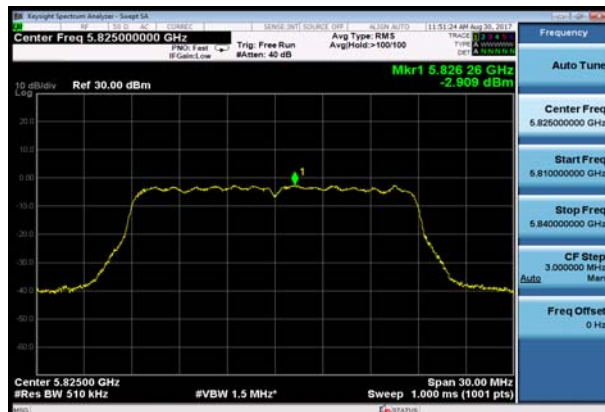
U-NII-3, 802.11ac HT20, Channel No.: 157



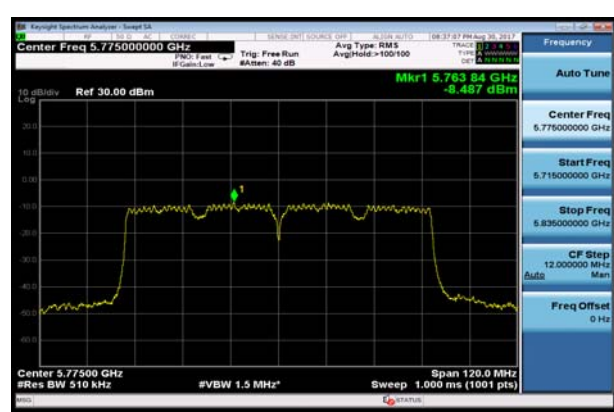
U-NII-3, 802.11ac HT40, Channel No.: 159



U-NII-3, 802.11ac HT20, Channel No.: 165



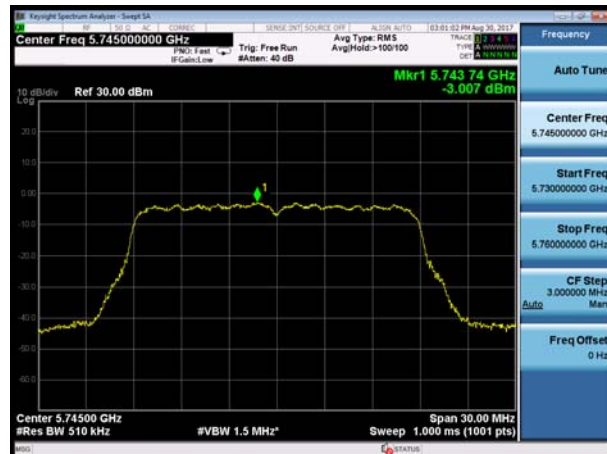
U-NII-3, 802.11ac HT80, Channel No.: 155



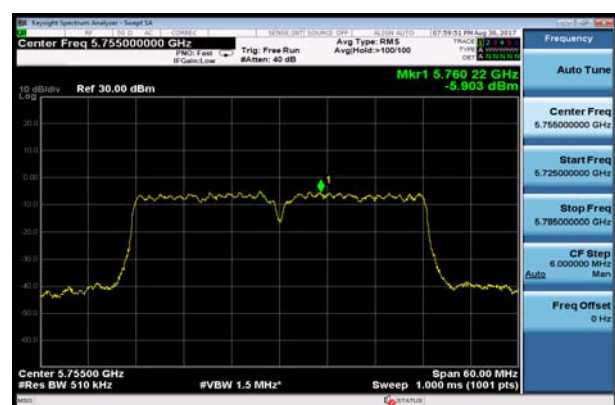


MIMO Antenna 2

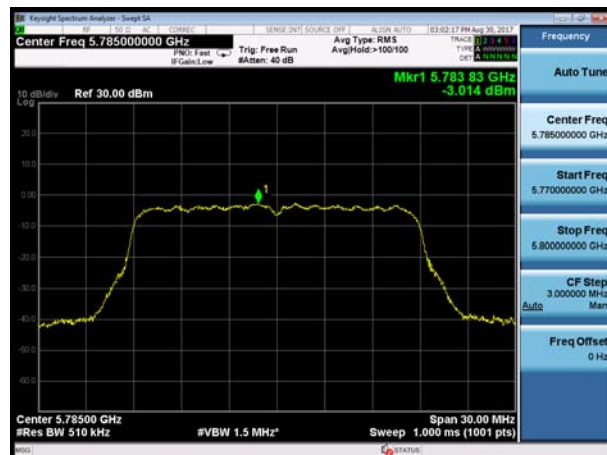
U-NII-3, 802.11n HT20, Channel No.: 149



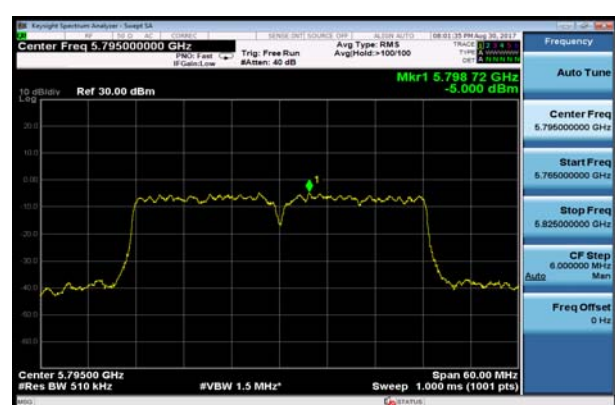
U-NII-3, 802.11n HT40, Channel No.: 151



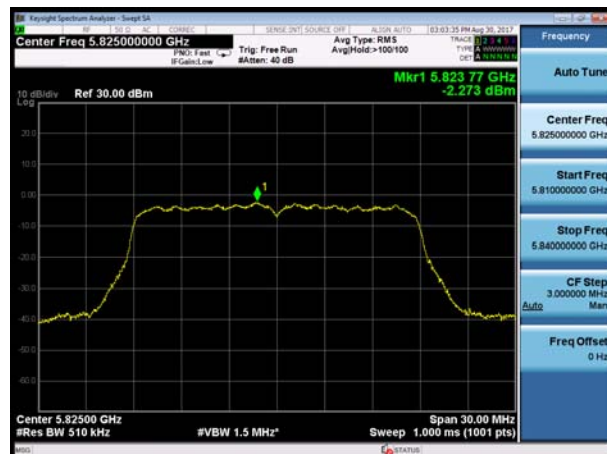
U-NII-3, 802.11n HT20, Channel No.: 157



U-NII-3, 802.11n HT40, Channel No.: 159



U-NII-3, 802.11n HT20, Channel No.: 165

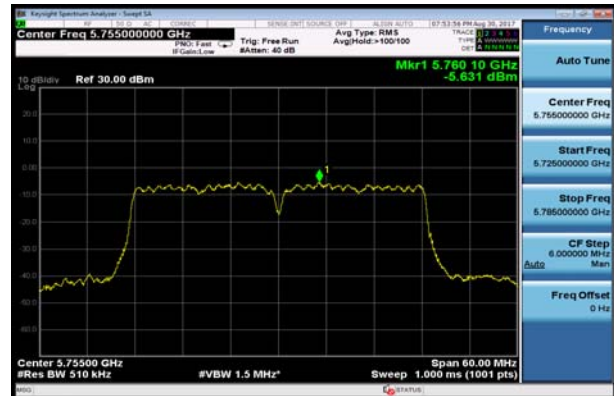




U-NII-3, 802.11ac HT20, Channel No.: 149



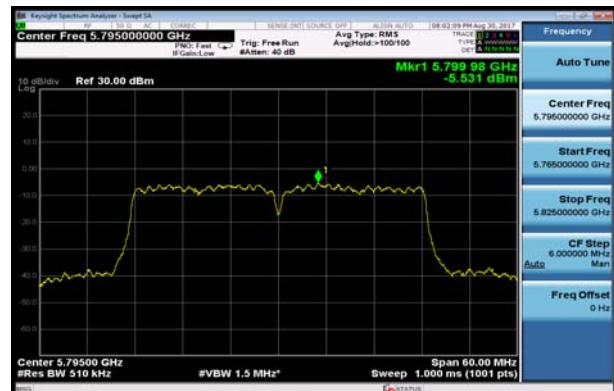
U-NII-3, 802.11ac HT40, Channel No.: 151



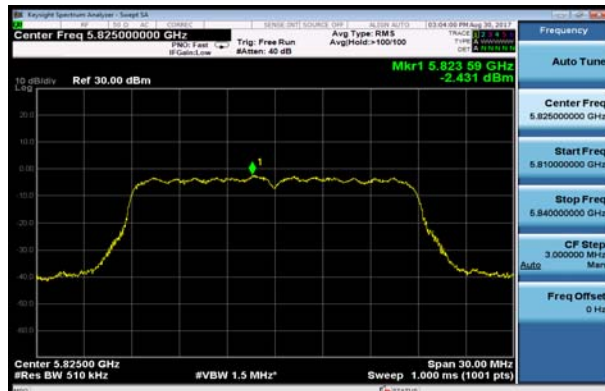
U-NII-3, 802.11ac HT20, Channel No.: 157



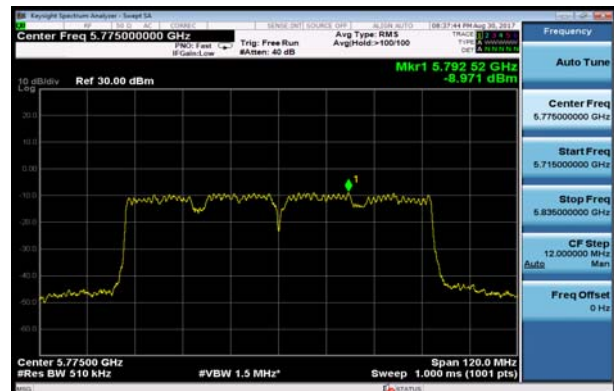
U-NII-3, 802.11ac HT40, Channel No.: 159



U-NII-3, 802.11ac HT20, Channel No.: 165



U-NII-3, 802.11ac HT80, Channel No.: 155



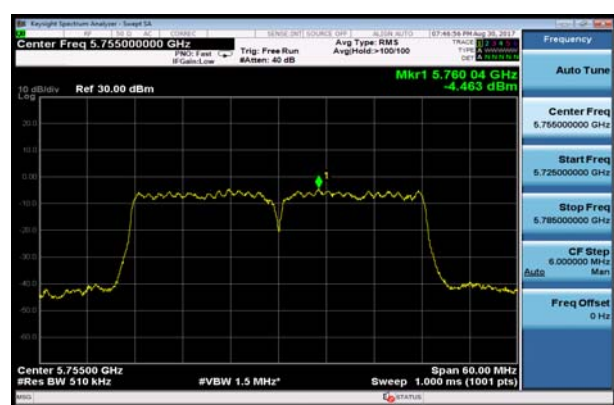


MIMO Antenna 3

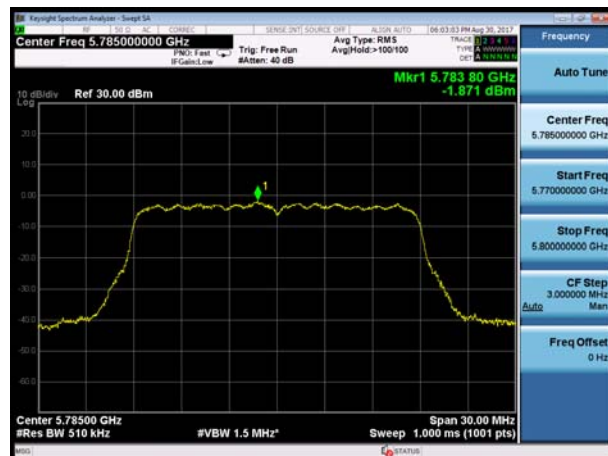
U-NII-3, 802.11n HT20, Channel No.: 149



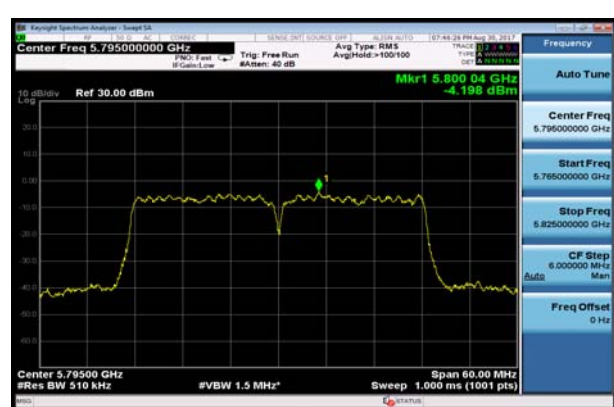
U-NII-3, 802.11n HT40, Channel No.: 151



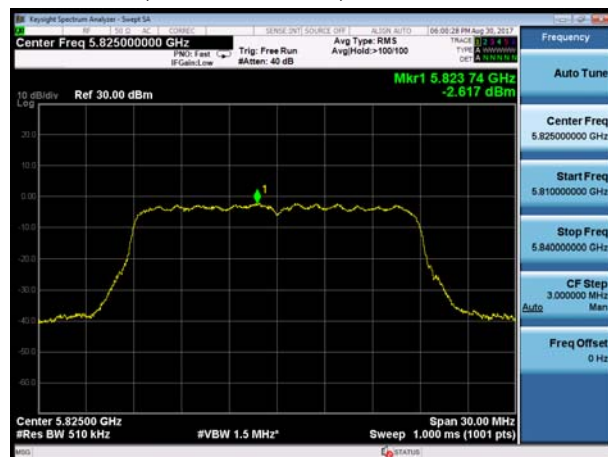
U-NII-3, 802.11n HT20, Channel No.: 157



U-NII-3, 802.11n HT40, Channel No.: 159



U-NII-3, 802.11n HT20, Channel No.: 165



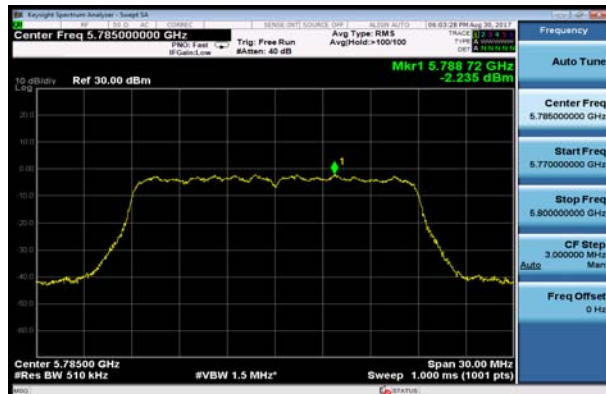
U-NII-3, 802.11ac HT20, Channel No.: 149



U-NII-3, 802.11ac HT40, Channel No.: 151



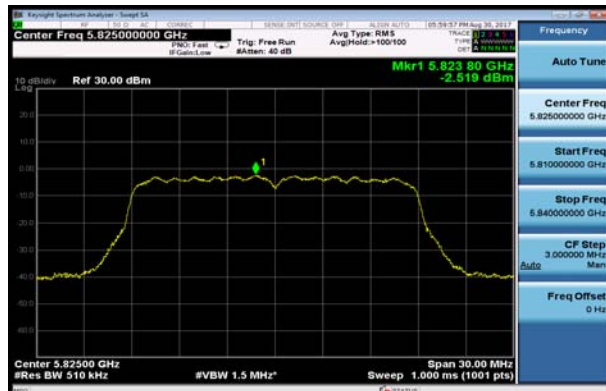
U-NII-3, 802.11ac HT20, Channel No.: 157



U-NII-3, 802.11ac HT40, Channel No.: 159



U-NII-3, 802.11ac HT20, Channel No.: 165



U-NII-3, 802.11ac HT80, Channel No.: 155



5.5. Unwanted Emission

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration. Sweep the whole frequency band range from 9kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz (detector: Peak):

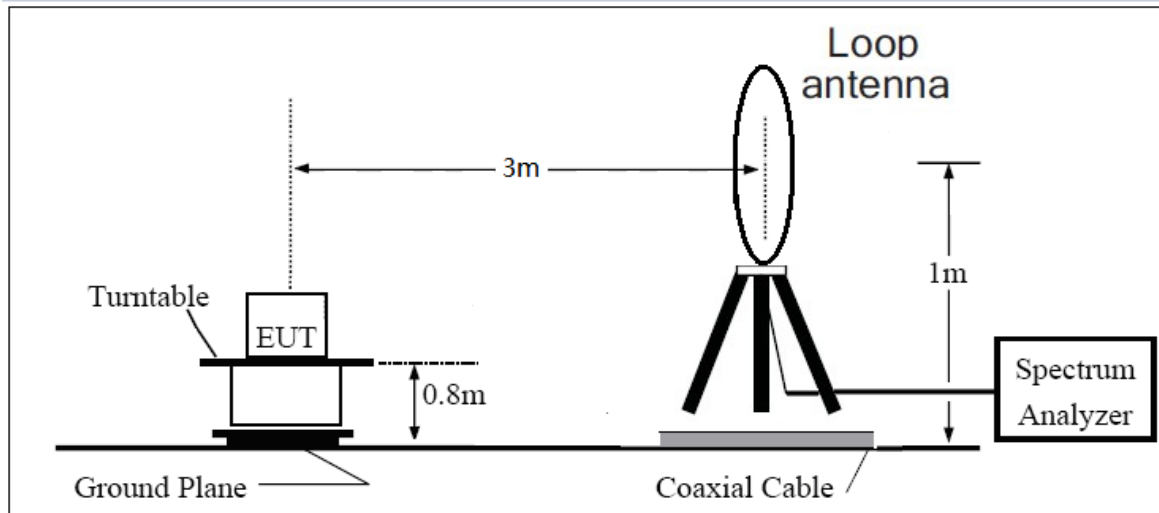
(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

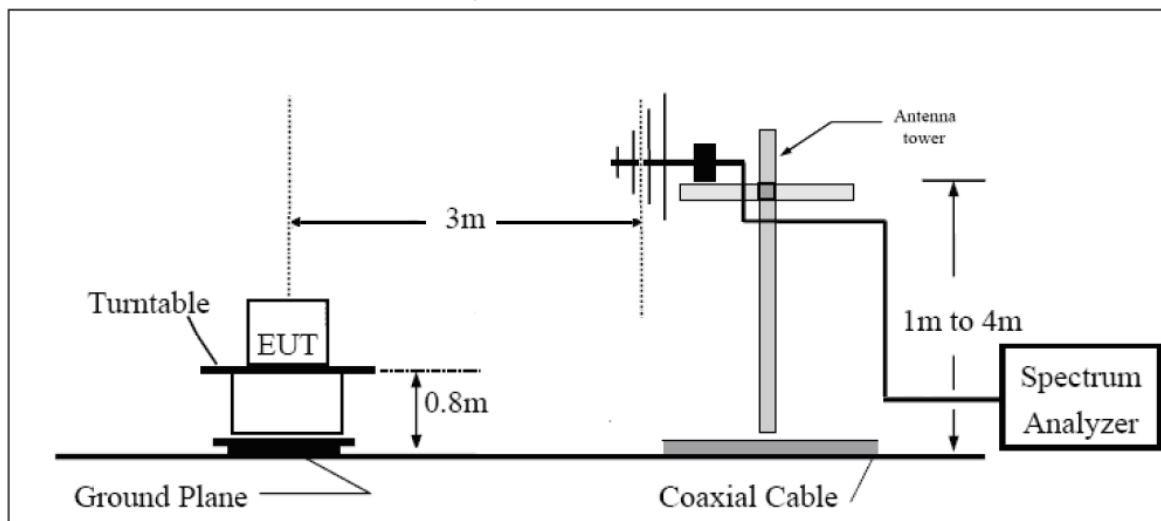
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

The test is in transmitting mode.

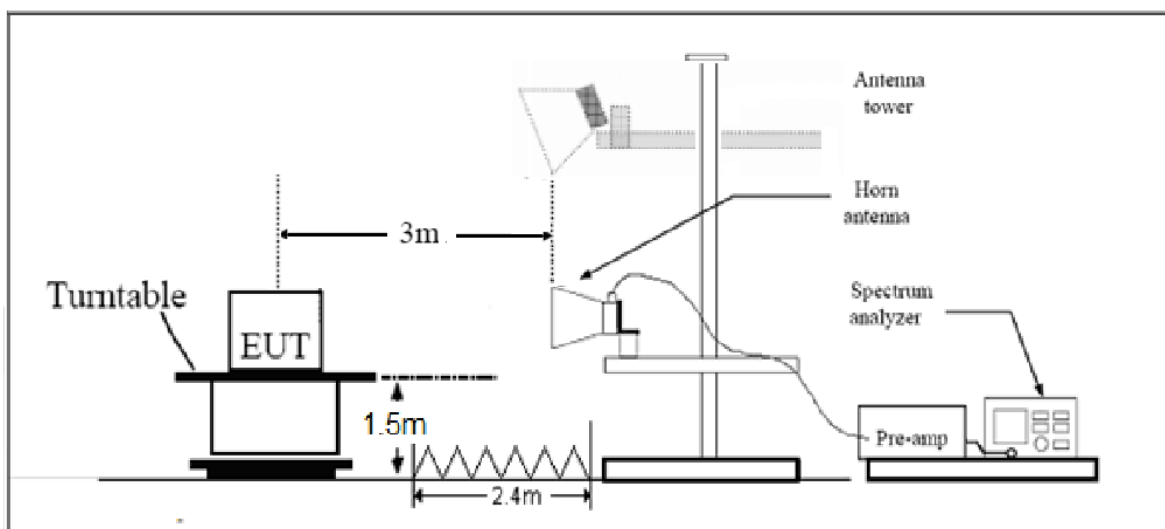
9KHz~~~30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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(68.2dBμV/m).
- (2) For transmitters operating in the 5725-5850 MHz 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 25 MHz 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 27 dBm/MHz at the band edge.
- (3) Unwanted spurious emissions fallen in restricted bands per FCC Part15.205 shall comply with the general field strength limits set forth in § 15.209 as below table.

Frequency of emission (MHz)	Field strength(uV/m)	Field strength(dBuV/m)
0.009–0.490	2400/F(kHz)	/
0.490–1.705	24000/F(kHz)	/
1.705–30.0	30	/
30-88	100	40
88-216	150	43.5
216-960	200	46
Above960	500	54

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$.

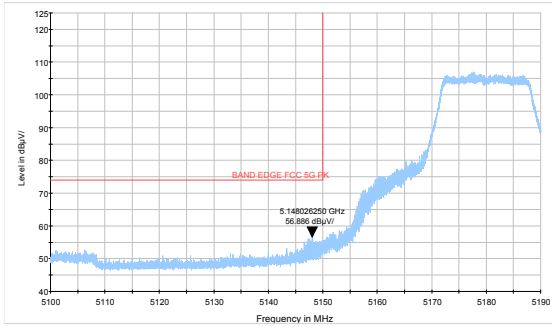
Frequency	Uncertainty
9KHz-30MHz	3.55 dB
30MHz-200MHz	4.19 dB
200MHz-1GHz	3.63 dB
1GHz-26.5G	3.68 dB
26.5G-40GHz	4.76dB



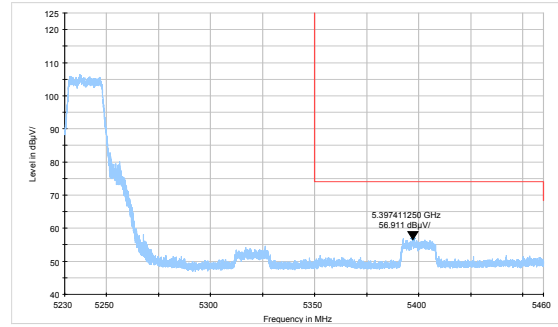
Test Results: The signal beyond the limit is carrier.

U-NII-1

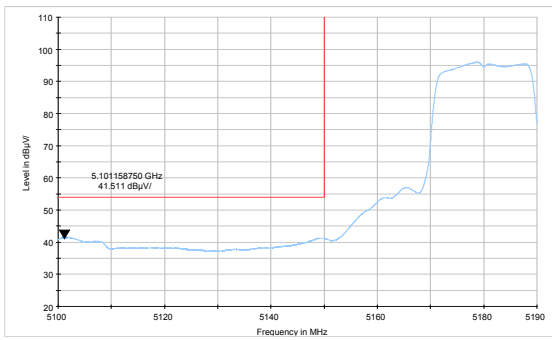
802.11a-Channel 36: Peak



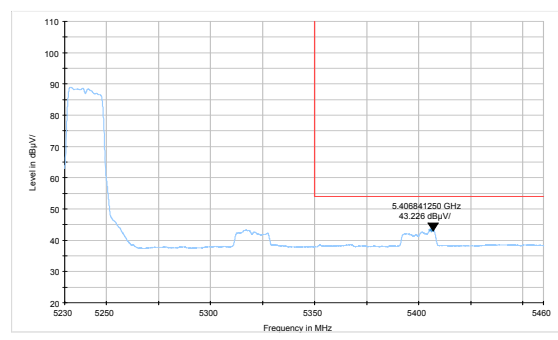
802.11a-Channel 48: Peak



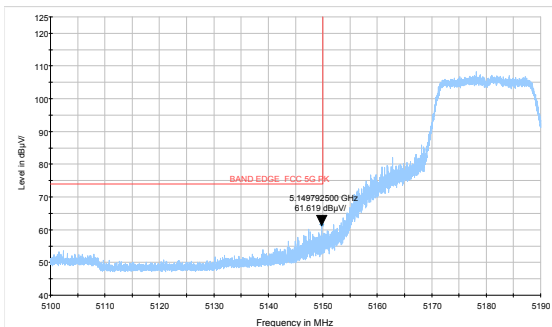
802.11a-Channel 36: Average



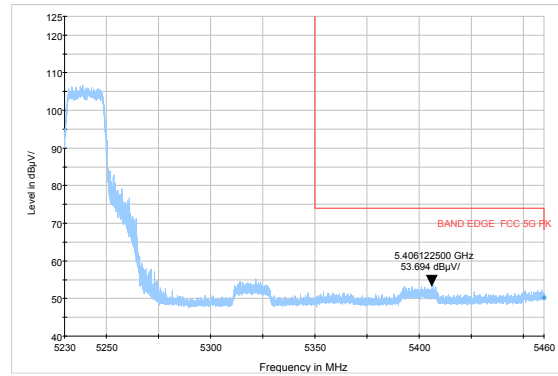
802.11a-Channel 48: Average



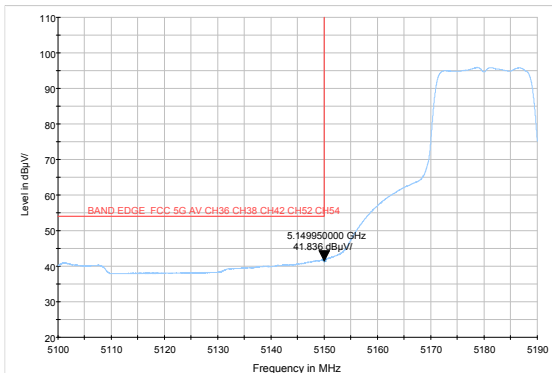
802.11n HT20-Channel 36: Peak



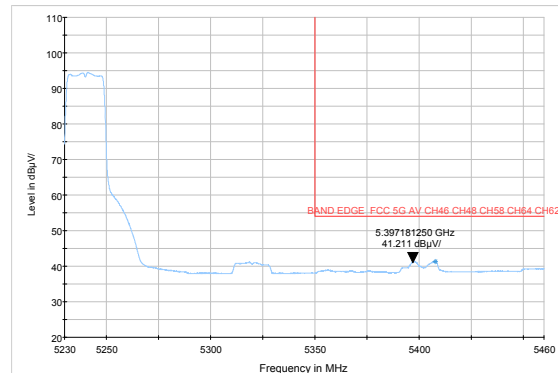
802.11n HT20-Channel 48: Peak



802.11n HT20-Channel 36: Average

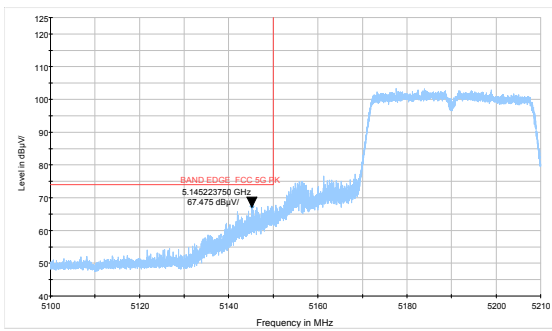


802.11n HT20-Channel 48: Average

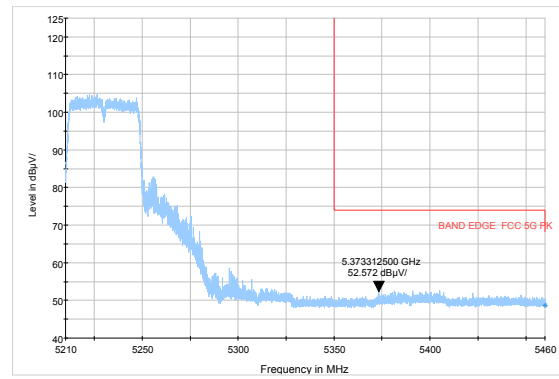




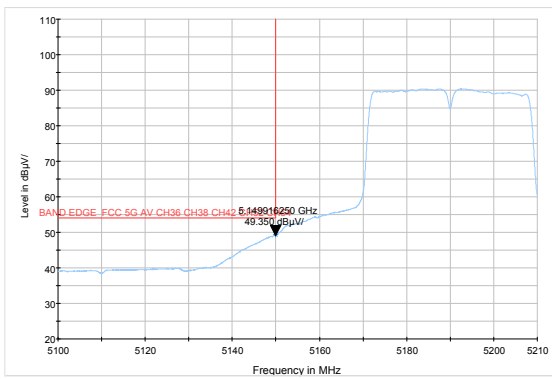
802.11n HT40-Channel 38: Peak



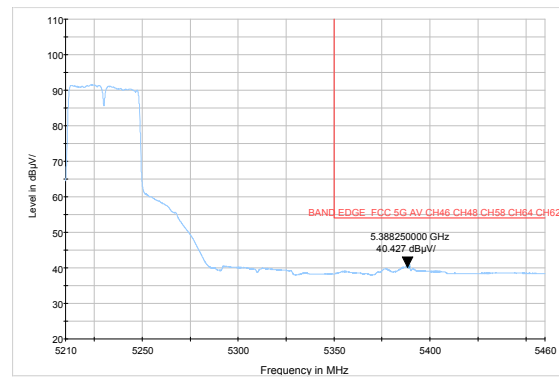
802.11n HT40-Channel 46: Peak



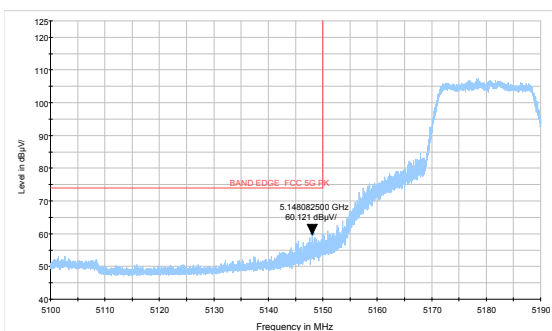
802.11n HT40-Channel 38: Average



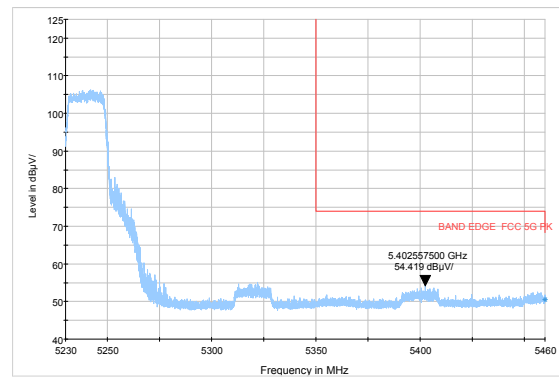
802.11n HT40-Channel 46: Average



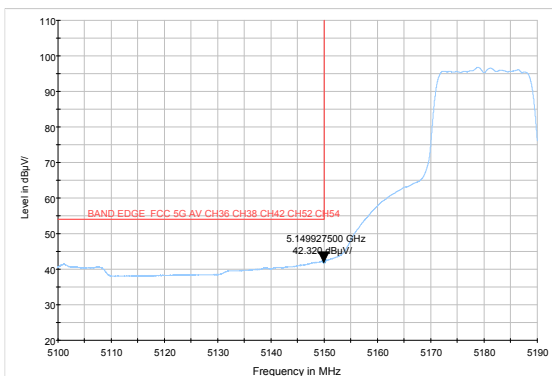
802.11ac HT20 -Channel 36: Peak



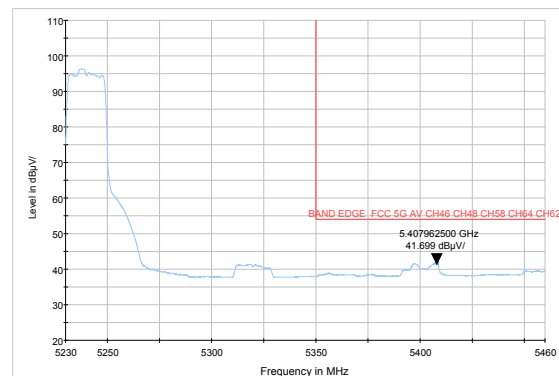
802.11ac HT20 -Channel 48: Peak



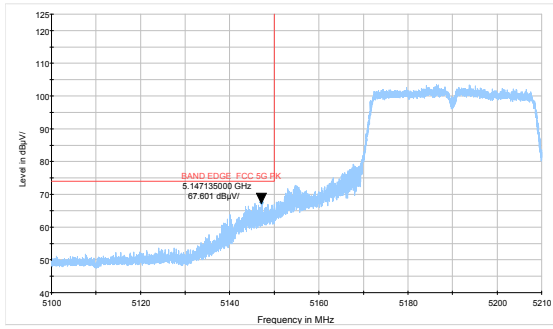
802.11ac HT20-Channel 36: Average



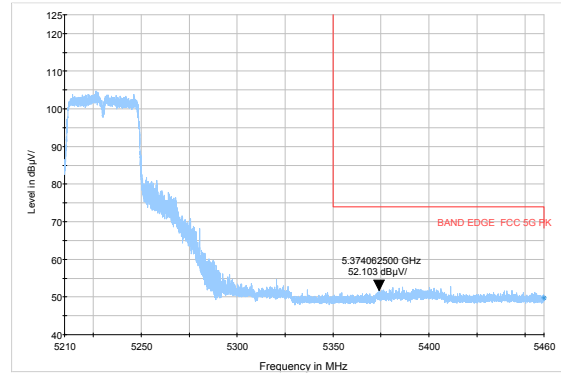
802.11ac HT20 -Channel 48: Average



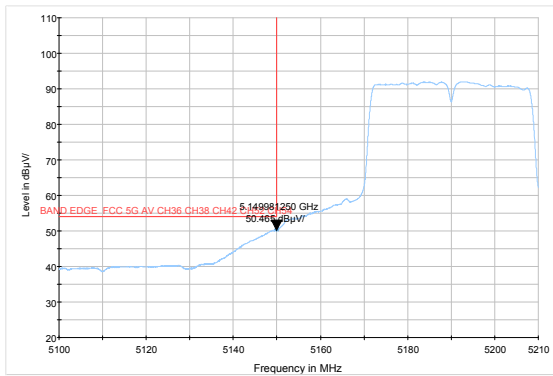
802.11ac HT40-Channel 38: Peak



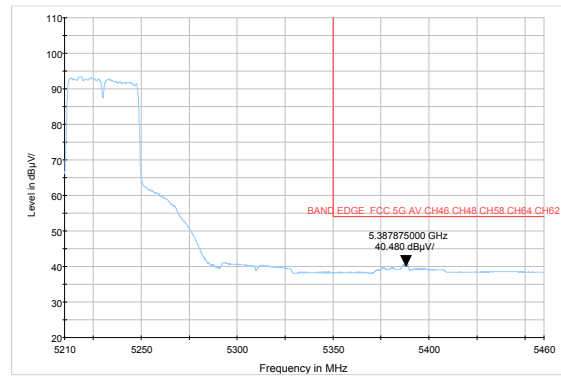
802.11ac HT40-Channel 46: Peak



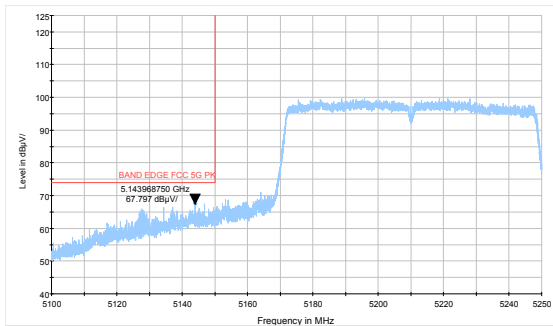
802.11ac HT40-Channel 38: Average



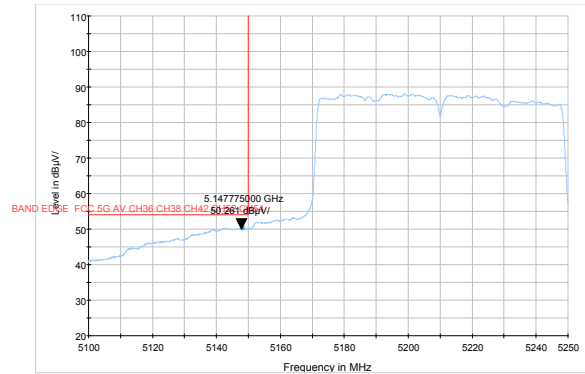
802.11ac HT40-Channel 46: Average



802.11ac HT80 -Channel 42: Peak



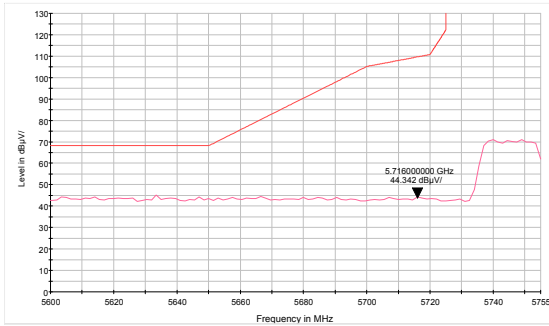
802.11ac HT80- Channel 42: Average



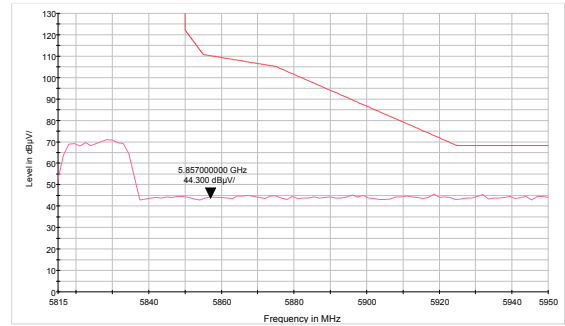


U-NII-3

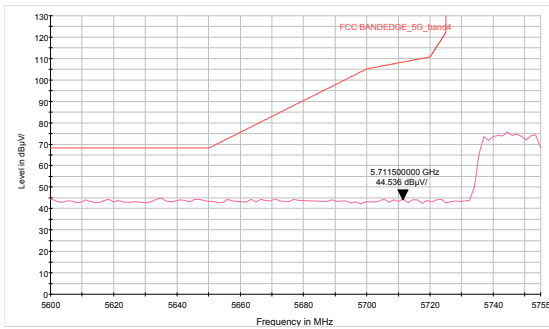
802.11a-Channel 149: Peak



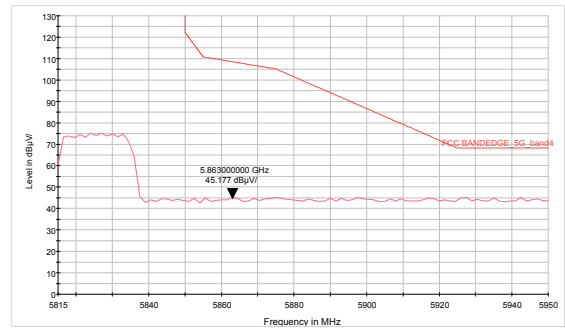
802.11a-Channel 165: Peak



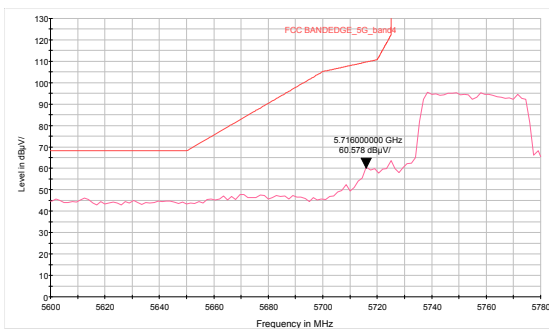
802.11n HT20-Channel 149: Peak



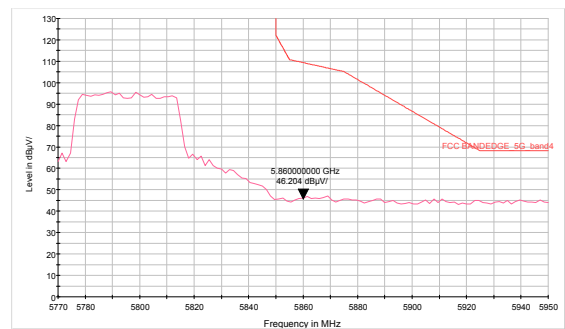
802.11n HT20-Channel 165: Peak



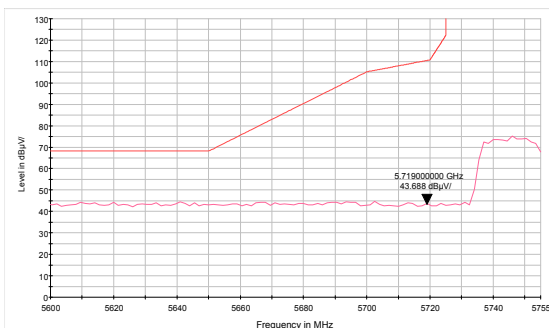
802.11n HT40-Channel 151: Peak



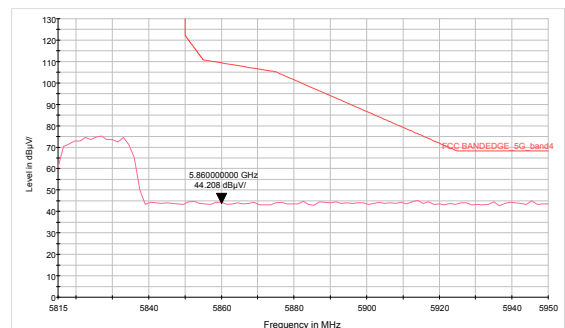
802.11n HT40-Channel 159: Peak



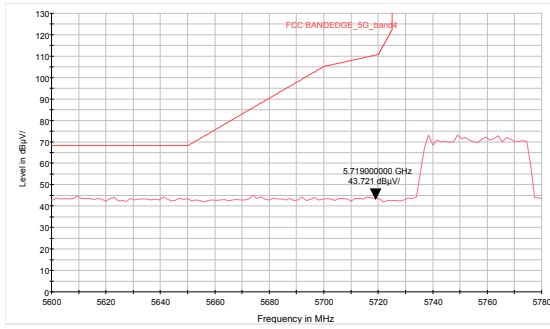
802.11ac HT20-Channel 149: Peak



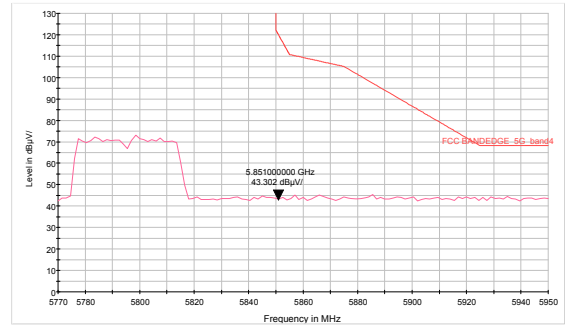
802.11ac HT20-Channel 165: Peak



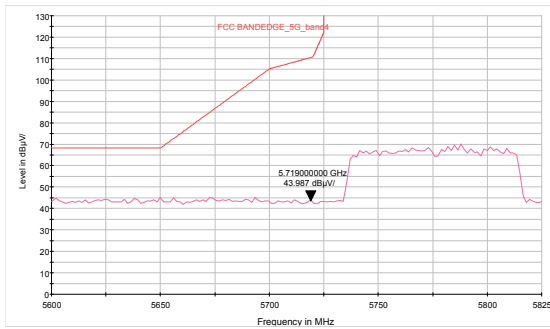
802.11ac HT40-Channel 151: Peak



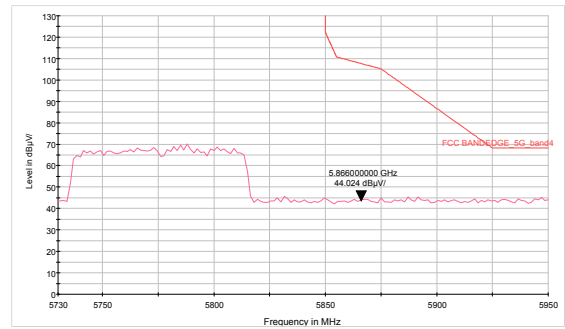
802.11ac HT40-Channel 159: Peak



802.11ac HT80- Channel 155: Peak



802.11ac HT80- Channel 155: Peak



Result of RE

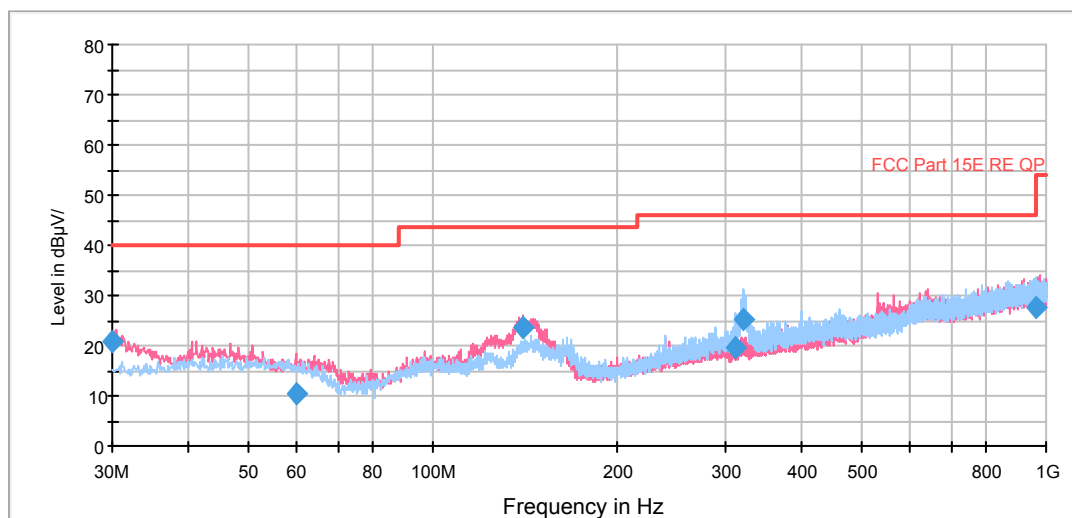
Test result

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, and 9KHz-30MHz, the emissions more than 20 dB below the permissible value are not reported.

During the test, the Radiates Emission from 30MHz to 1GHz was performed in all modes with all channels, 802.11a, Channel 36 are selected as the worst condition. The test data of the worst-case condition was recorded in this report.

Continuous TX mode:

FCC RE 0.03-1GHz QP Class B



Radiates Emission from 30MHz to 1GHz

Frequency (MHz)	Quasi-Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
30.000000	21.0	100.0	V	222.0	8.9	12.1	19.0	40.0
59.947500	10.3	113.0	V	20.0	-2.3	12.6	29.7	40.0
139.937500	23.6	100.0	V	266.0	14.6	9.0	19.9	43.5
310.892500	19.7	100.0	H	236.0	4.0	15.7	26.3	46.0
321.641250	25.1	100.0	H	239.0	9.0	16.1	20.9	46.0
959.983750	27.5	100.0	H	22.0	0.1	27.4	18.5	46.0

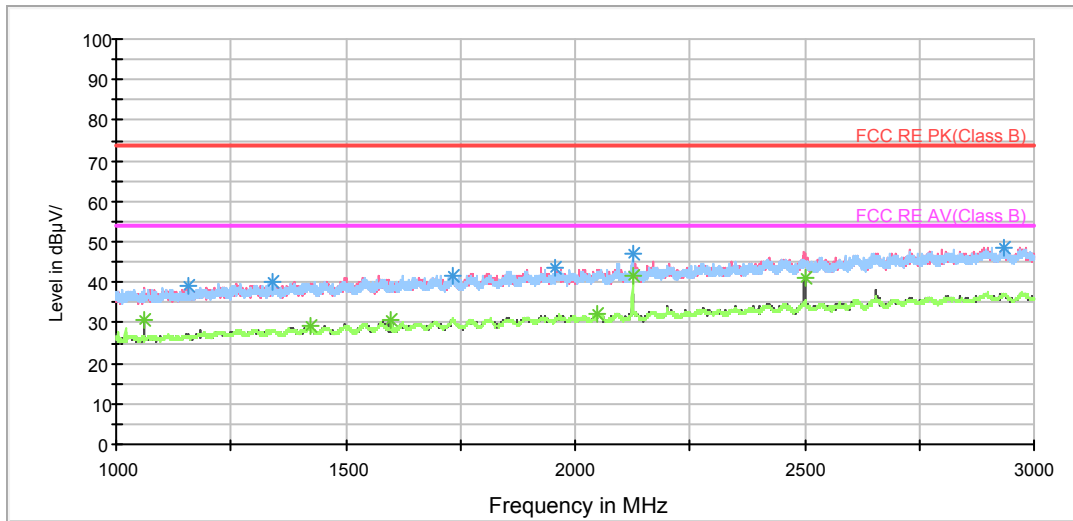
Remark: 1. Quasi-Peak = Reading value + Correction factor

2. Correction Factor = Antenna factor+ Insertion loss(cable loss+amplifier gain)

3. Margin = Limit – Quasi-Peak

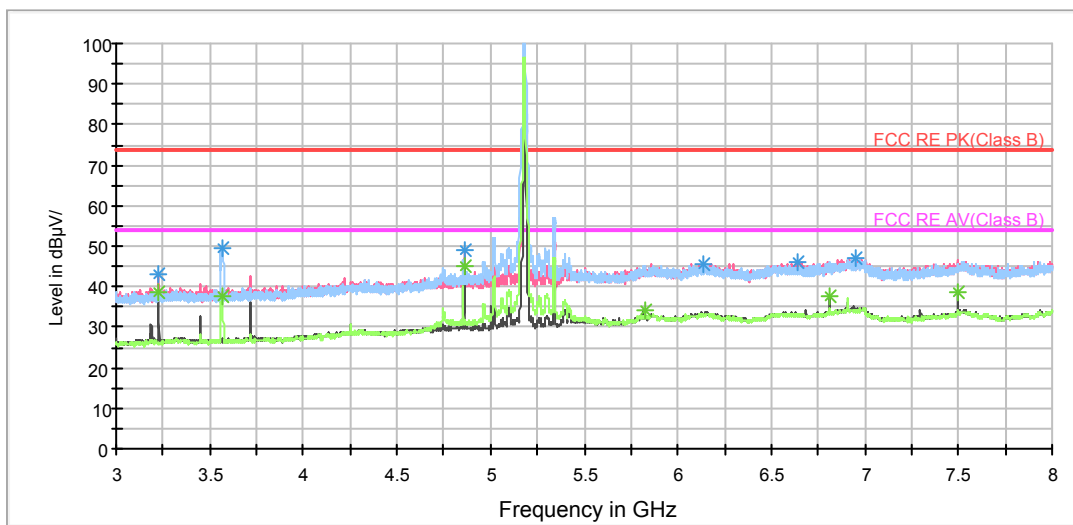
802.11a CH36

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

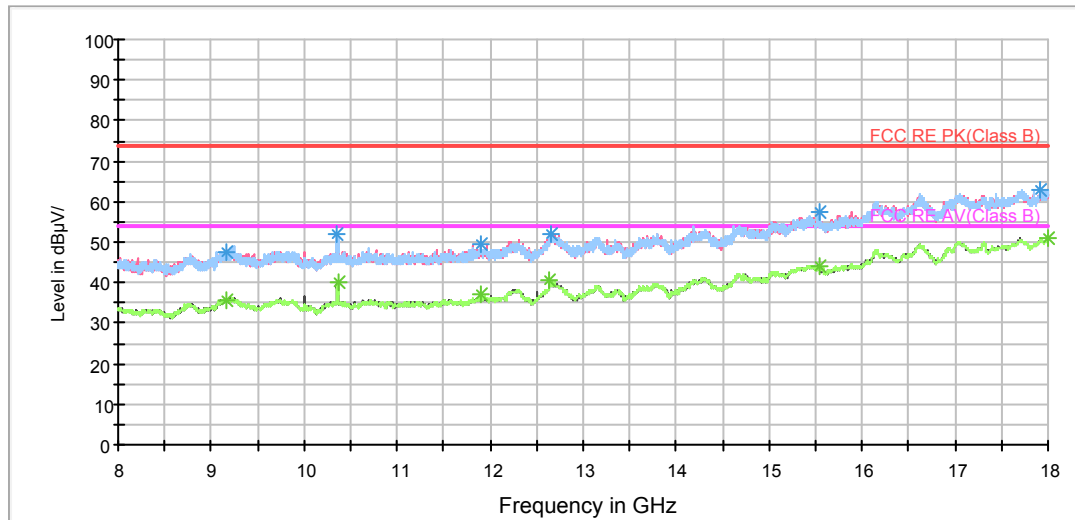
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

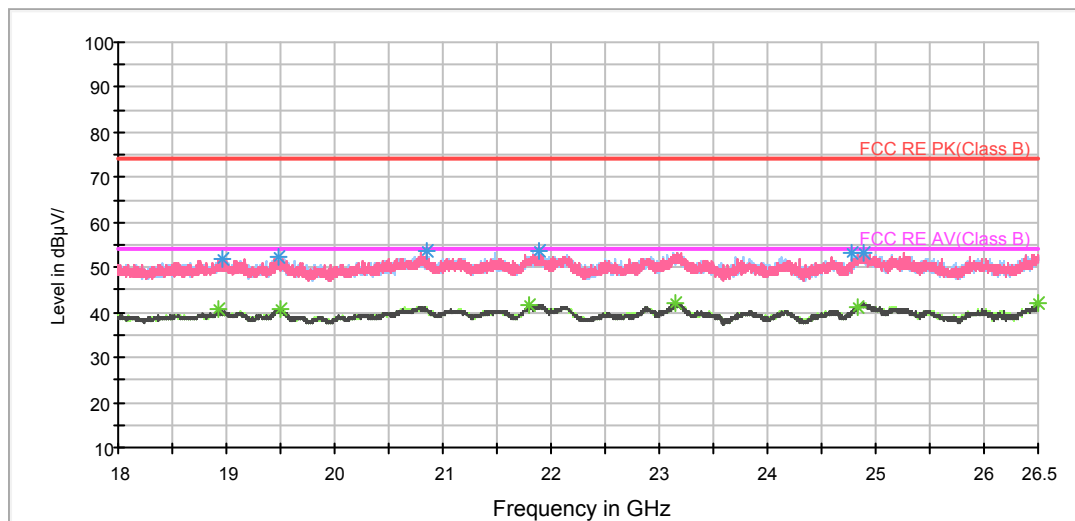
Radiates Emission from 3GHz to 8GHz

RE 3-18GHz PK+AV



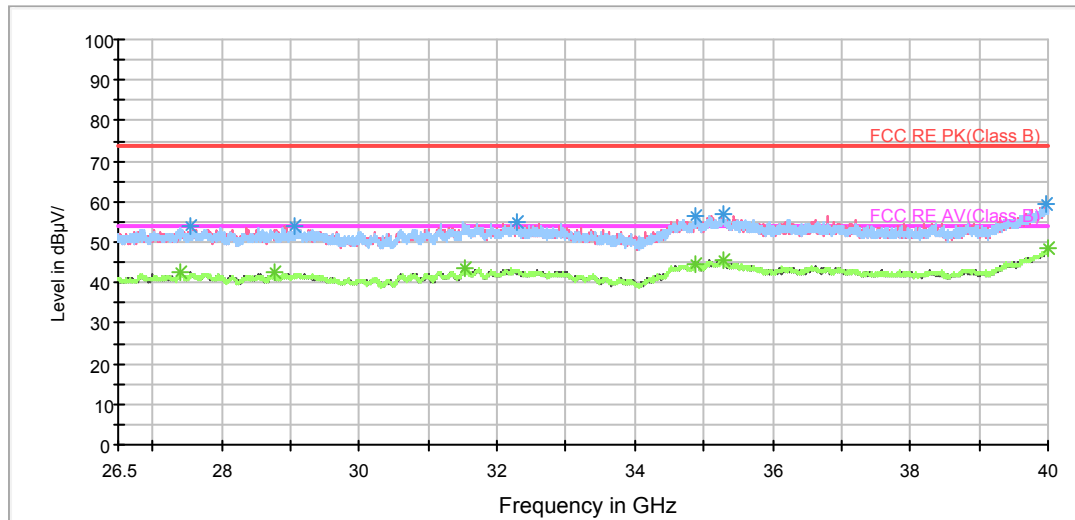
Radiates Emission from 8GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3229.375000	42.9	200.0	V	2.0	45.6	-2.7	31.1	74
3568.125000	49.6	101.0	H	79.0	51.8	-2.2	24.4	74
4860.625000	49.2	101.0	V	150.0	47.5	1.7	24.8	74
6131.875000	45.6	200.0	V	191.0	40.2	5.4	28.4	74
6640.000000	45.9	200.0	V	0.0	40.4	5.5	28.1	74
6945.625000	46.9	101.0	H	0.0	40.8	6.1	27.1	74

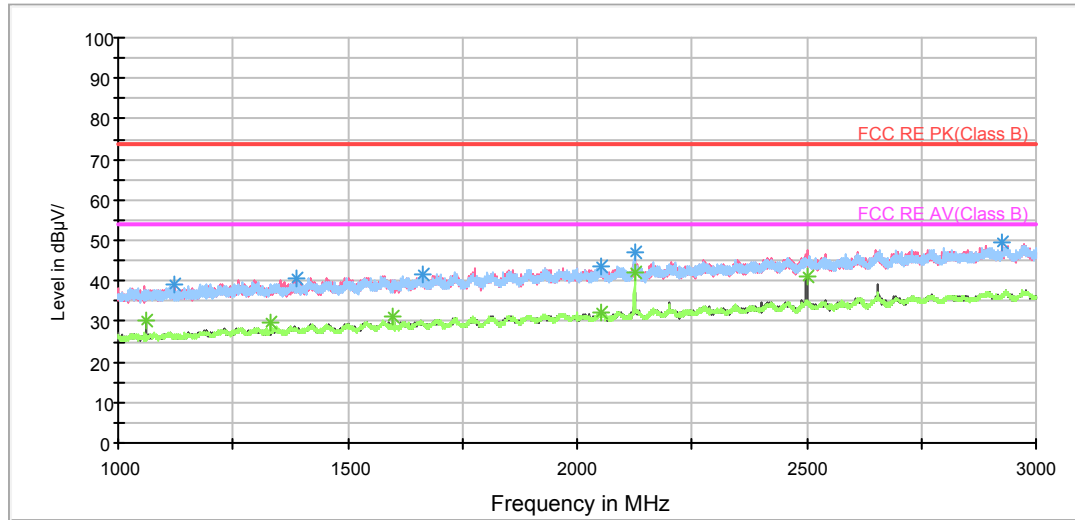
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3228.750000	38.8	200.0	V	2.0	41.5	-2.7	15.2	54
3566.250000	37.6	101.0	H	79.0	39.8	-2.2	16.4	54
4860.625000	45.1	101.0	V	150.0	43.4	1.7	8.9	54
5827.500000	34.3	200.0	H	277.0	29.8	4.5	19.7	54
6812.500000	37.5	200.0	V	44.0	31.7	5.8	16.5	54
7500.000000	38.8	200.0	V	276.0	31.9	6.9	15.2	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

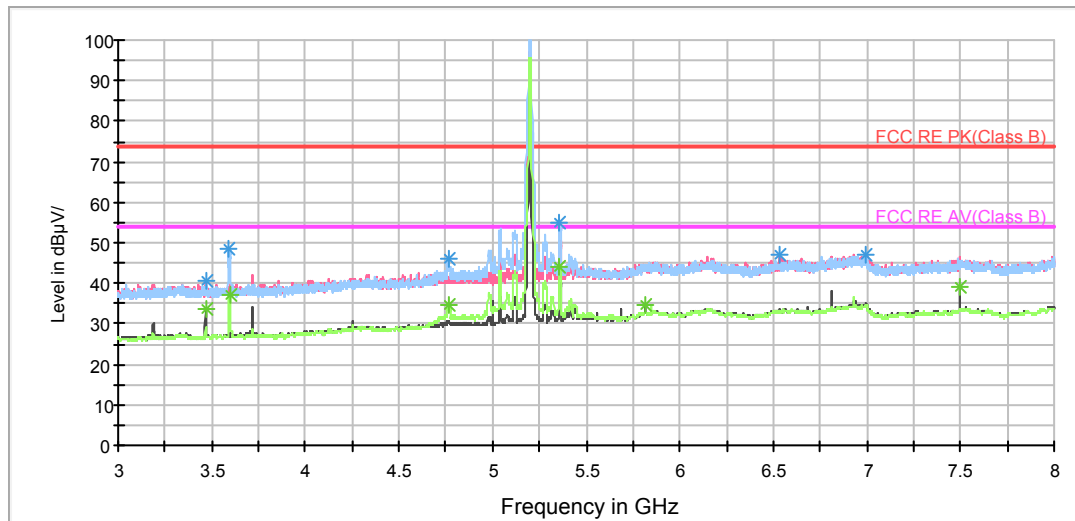
802.11a CH40

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

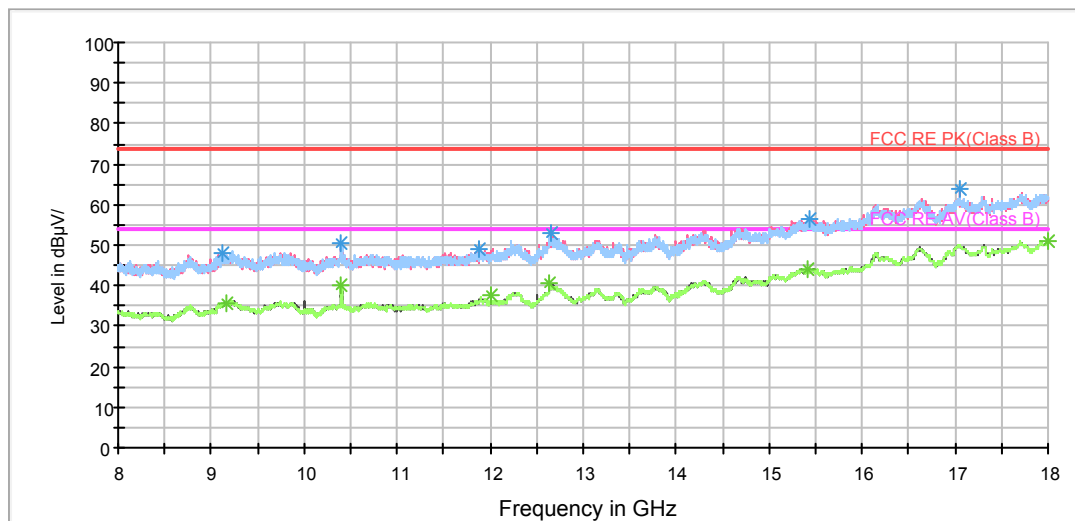
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

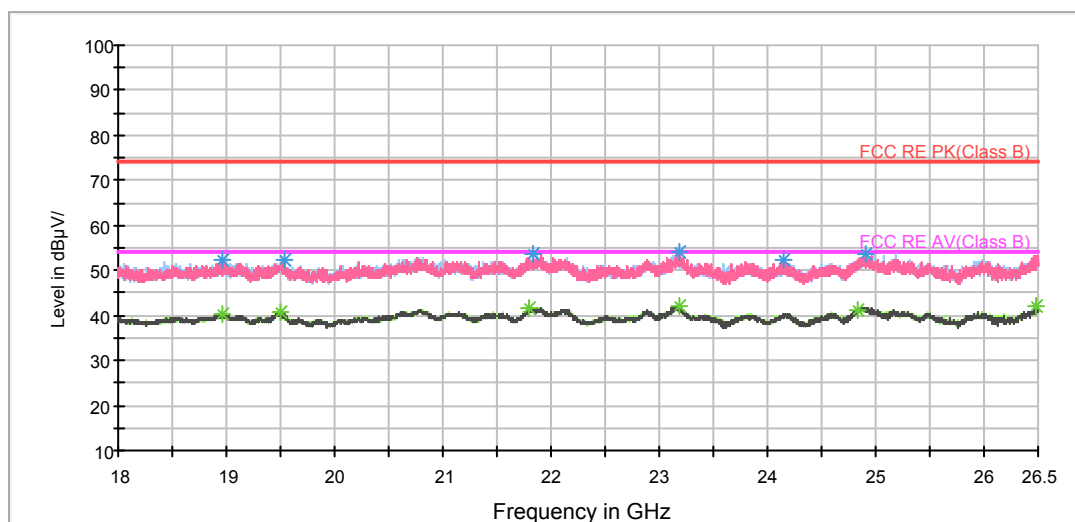
Radiates Emission from 3GHz to 8Hz

RE 3-18GHz PK+AV

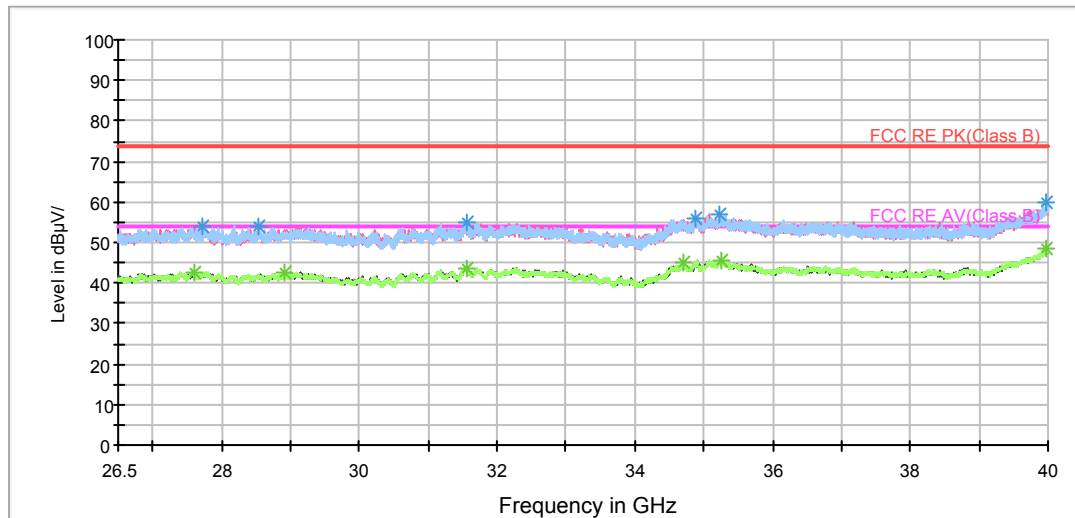


Radiates Emission from 8Hz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3466.250000	40.5	205.0	V	158.0	42.6	-2.1	33.5	74
3592.500000	48.7	104.0	H	145.0	51.0	-2.3	25.3	74
4766.875000	46.2	205.0	H	172.0	45.1	1.1	27.8	74
5357.500000	55.0	104.0	H	124.0	52.7	2.3	19.0	74
6530.000000	46.9	205.0	V	96.0	41.5	5.4	27.1	74
6995.000000	47.2	205.0	V	201.0	40.7	6.5	26.8	74

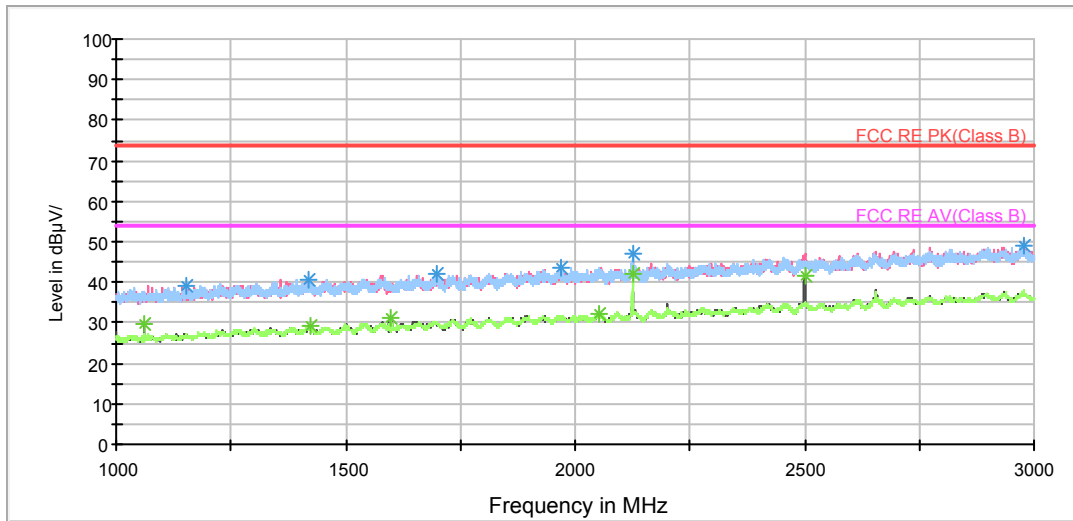
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3466.250000	33.5	205.0	V	158.0	35.6	-2.1	20.5	54
3594.375000	37.3	104.0	H	145.0	39.6	-2.3	16.7	54
4766.250000	34.8	104.0	H	145.0	33.7	1.1	19.2	54
5357.500000	44.2	104.0	H	124.0	41.9	2.3	9.8	54
5812.500000	34.6	205.0	V	74.0	30.2	4.4	19.4	54
7500.000000	39.2	205.0	V	265.0	32.3	6.9	14.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

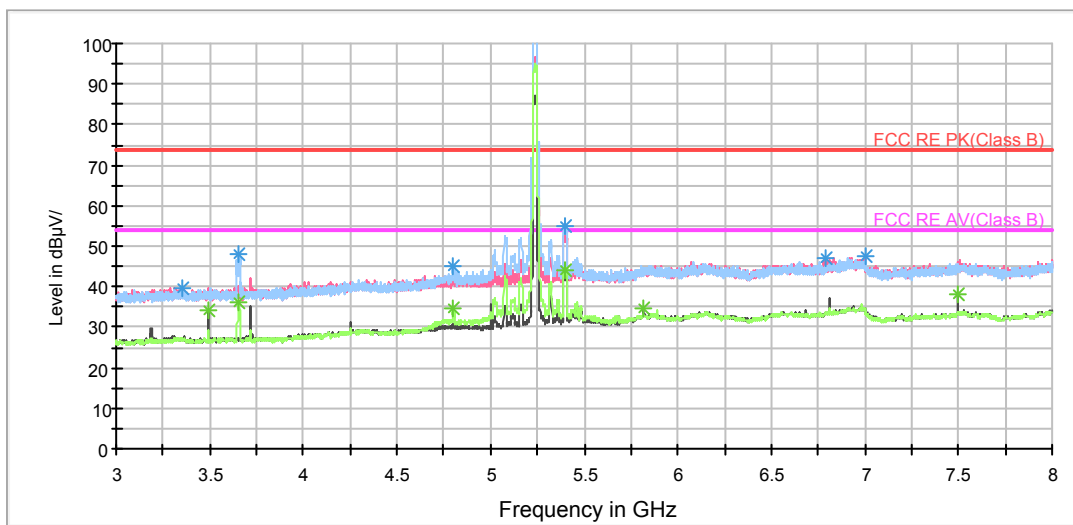
802.11a CH48

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

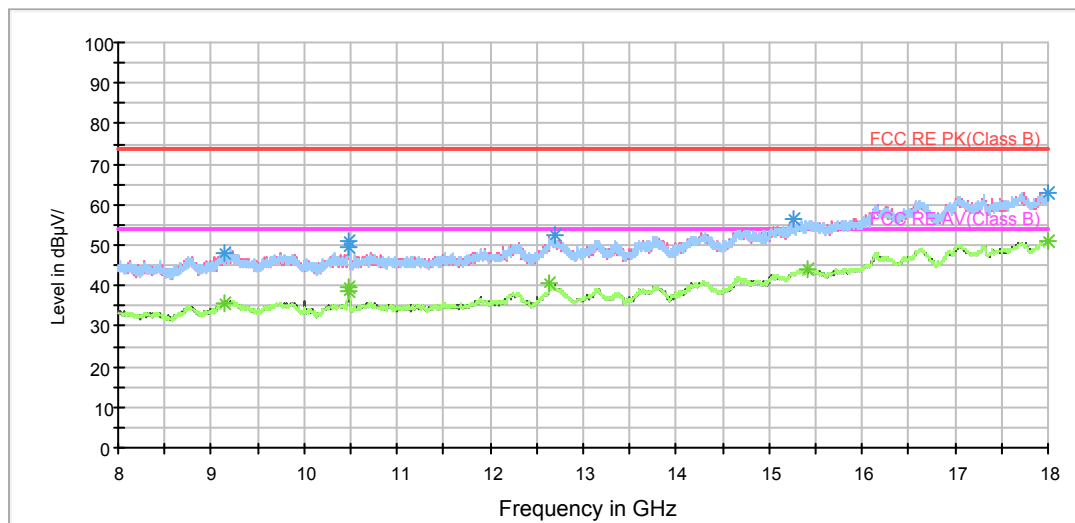
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

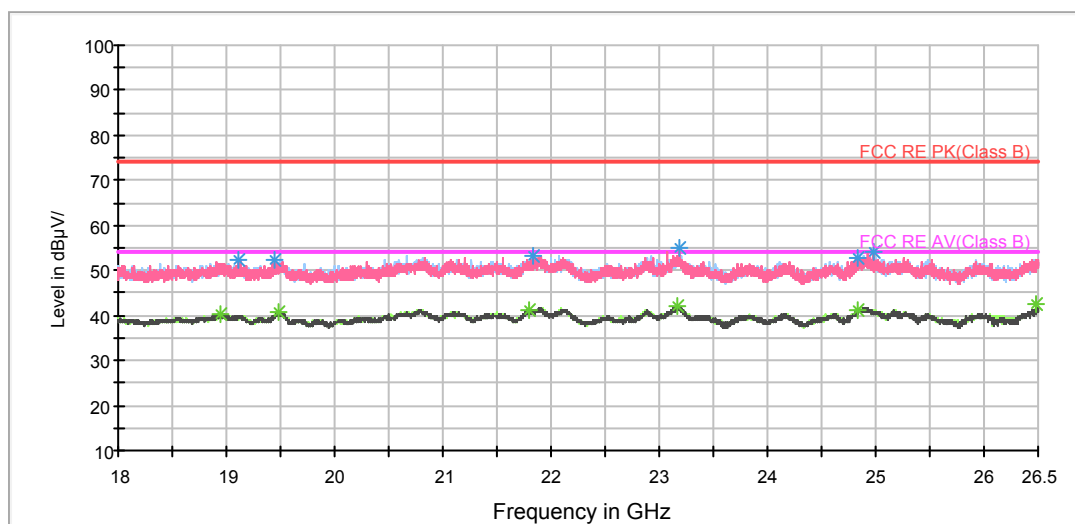
Radiates Emission from 3GHz to 8Hz

RE 3-18GHz PK+AV

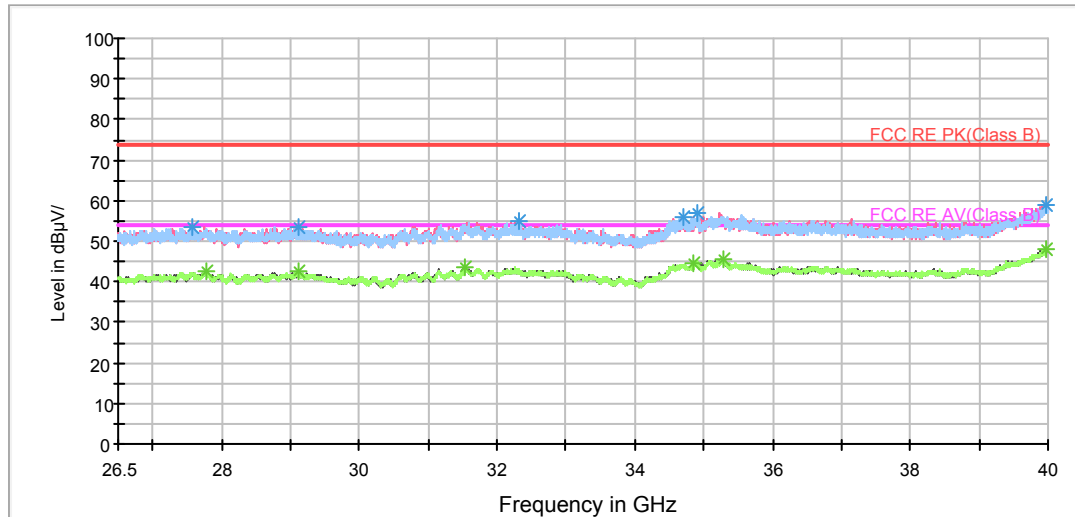


Radiates Emission from 8GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3353.750000	39.7	205.0	V	0.0	42.0	-2.3	34.3	74
3655.000000	48.1	105.0	H	124.0	50.0	-1.9	25.9	74
4803.125000	45.2	105.0	H	146.0	43.9	1.3	28.8	74
5396.250000	54.8	105.0	H	124.0	52.3	2.5	19.2	74
6793.125000	46.8	205.0	V	46.0	41.1	5.7	27.2	74
7000.000000	47.4	205.0	V	0.0	40.8	6.6	26.6	74

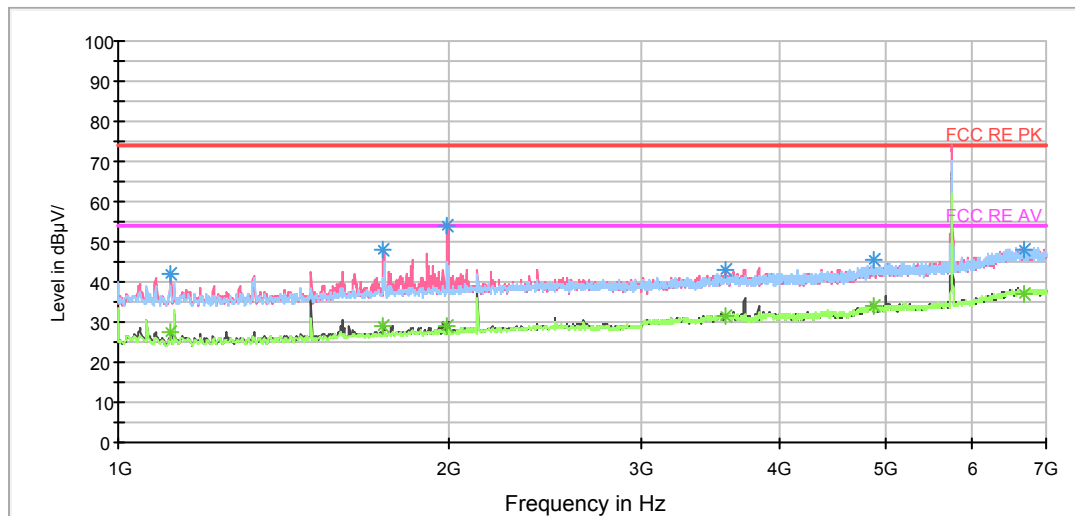
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3493.125000	34.0	205.0	V	191.0	36.1	-2.1	20.0	54
3655.000000	36.1	105.0	H	124.0	38.0	-1.9	17.9	54
4803.125000	34.9	105.0	H	146.0	33.6	1.3	19.1	54
5393.125000	44.2	105.0	H	124.0	41.8	2.4	9.8	54
5812.500000	34.4	205.0	V	46.0	30.0	4.4	19.6	54
7500.000000	38.3	205.0	V	276.0	31.4	6.9	15.7	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

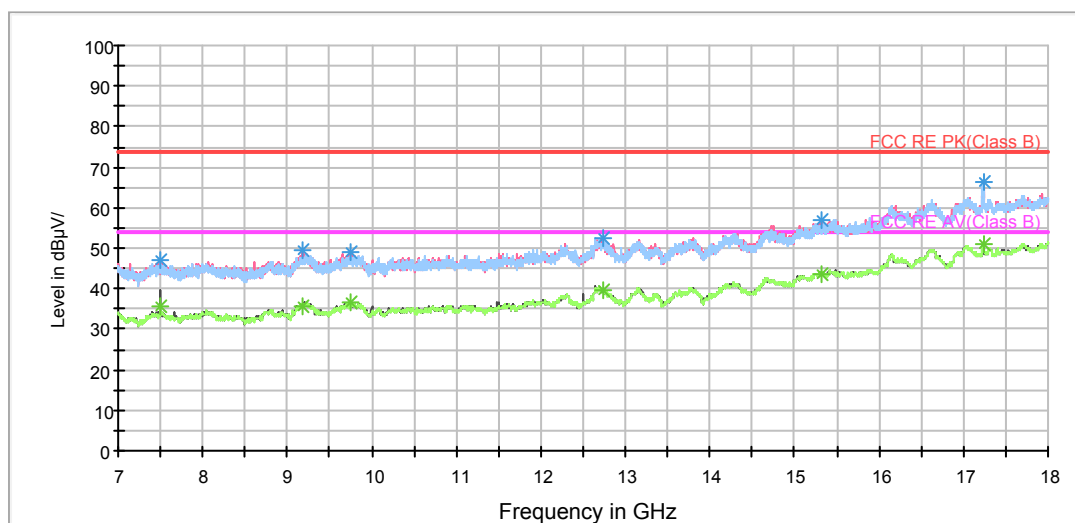
802.11a CH149

RE 1G-7GHz PK+AV Class B



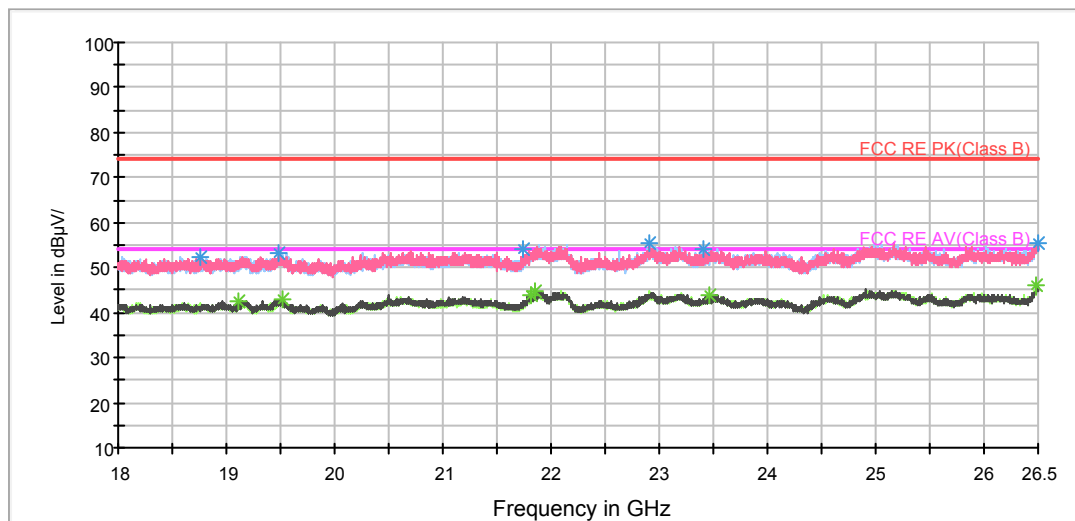
Radiates Emission from 1GHz to 7GHz
Note: The signal beyond the limit is carrier.

RE 3-18GHz PK+AV



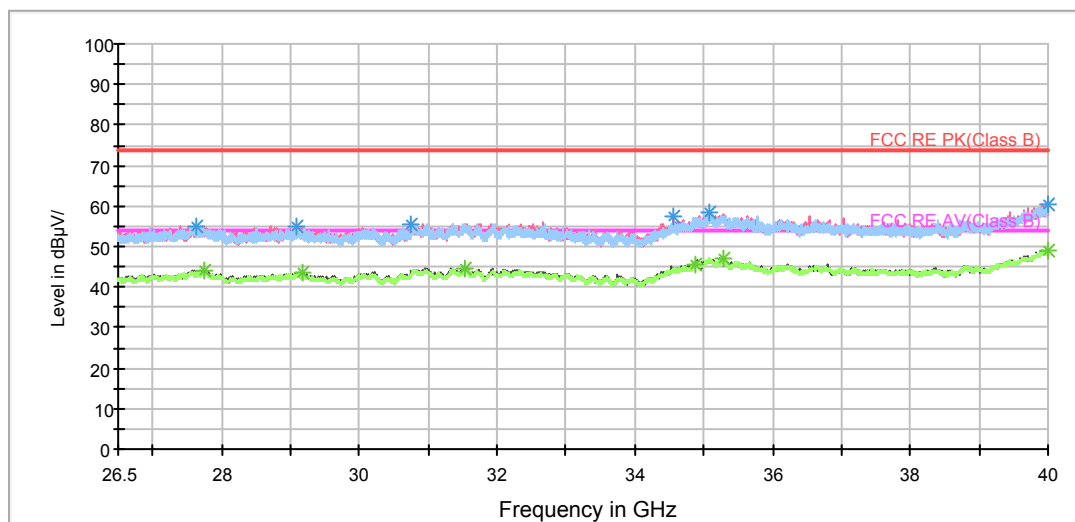
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1117.000000	42.2	100.0	V	0.0	50.0	-7.8	31.8	74
1744.000000	48.2	100.0	V	185.0	53.9	-5.7	25.8	74
1993.000000	54.0	100.0	V	298.0	58.8	-4.8	20.0	74
3577.000000	42.9	100.0	V	172.0	42.8	0.1	31.1	74
4876.000000	45.3	100.0	H	265.0	40.3	5.0	28.7	74
6688.000000	48.2	100.0	V	0.0	38.0	10.2	25.8	74

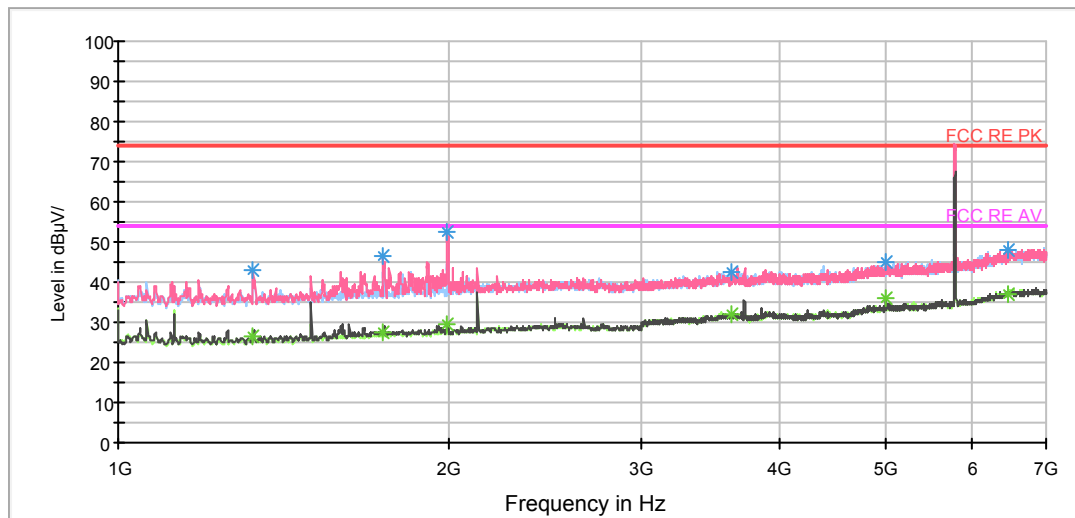
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1117.000000	27.3	100.0	V	0.0	35.1	-7.8	26.7	54
1744.000000	28.8	100.0	V	185.0	34.5	-5.7	25.2	54
1993.000000	29.2	100.0	V	298.0	34.0	-4.8	24.8	54
3577.000000	31.5	100.0	V	172.0	31.4	0.1	22.5	54
4876.000000	33.9	100.0	H	265.0	28.9	5.0	20.1	54
6688.000000	37.2	100.0	V	0.0	27.0	10.2	16.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

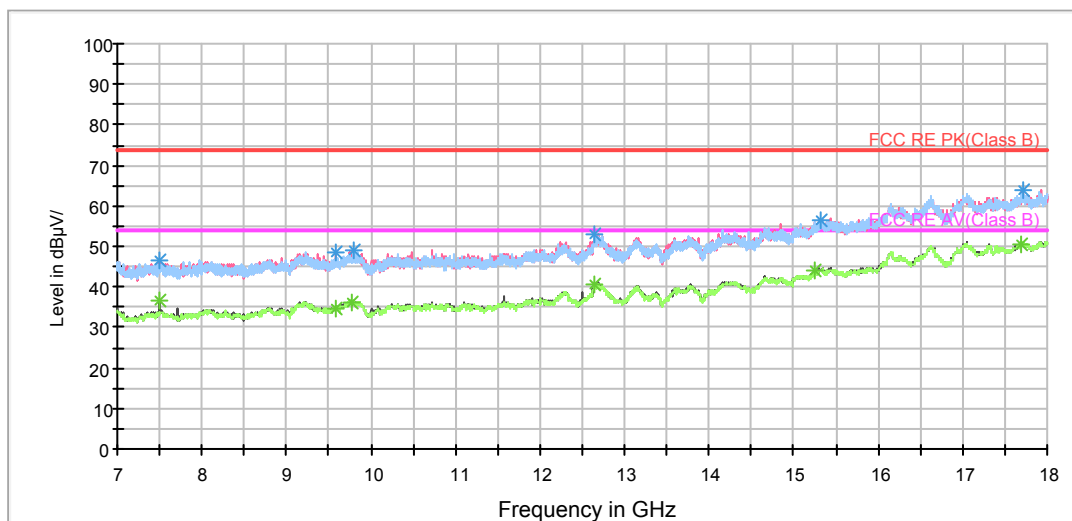
802.11a CH157

RE 1G-7GHz PK+AV Class B



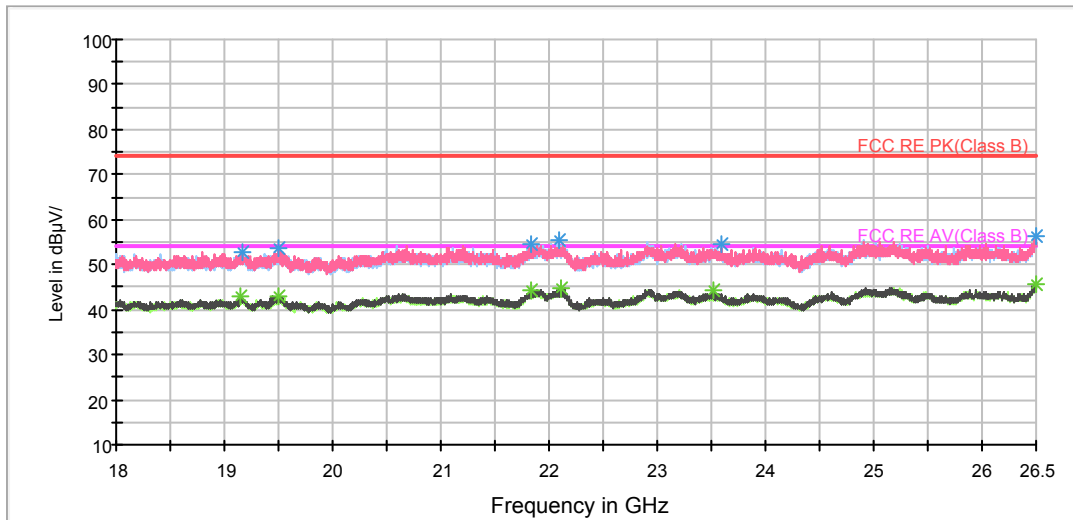
Radiates Emission from 1GHz to 7GHz
Note: The signal beyond the limit is carrier.

RE 3-18GHz PK+AV



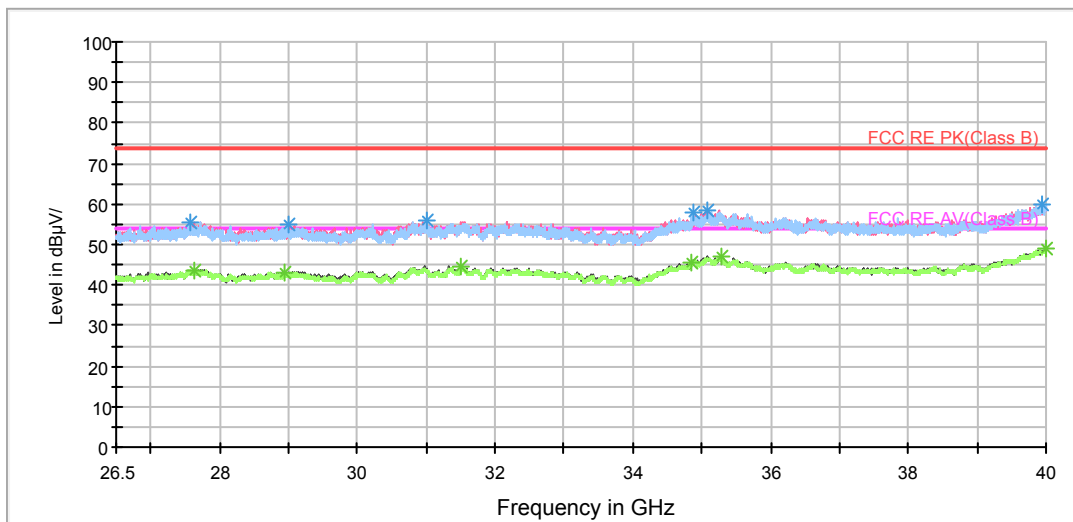
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1327.000000	43.2	100.0	V	155.0	50.4	-7.2	30.8	74
1742.500000	46.3	100.0	V	38.0	52.0	-5.7	27.7	74
1994.500000	52.5	100.0	V	286.0	57.3	-4.8	21.5	74
3613.000000	42.5	100.0	V	253.0	42.2	0.3	31.5	74
5000.500000	44.9	100.0	V	188.0	39.5	5.4	29.1	74
6449.500000	48.0	100.0	V	275.0	38.1	9.9	26.0	74

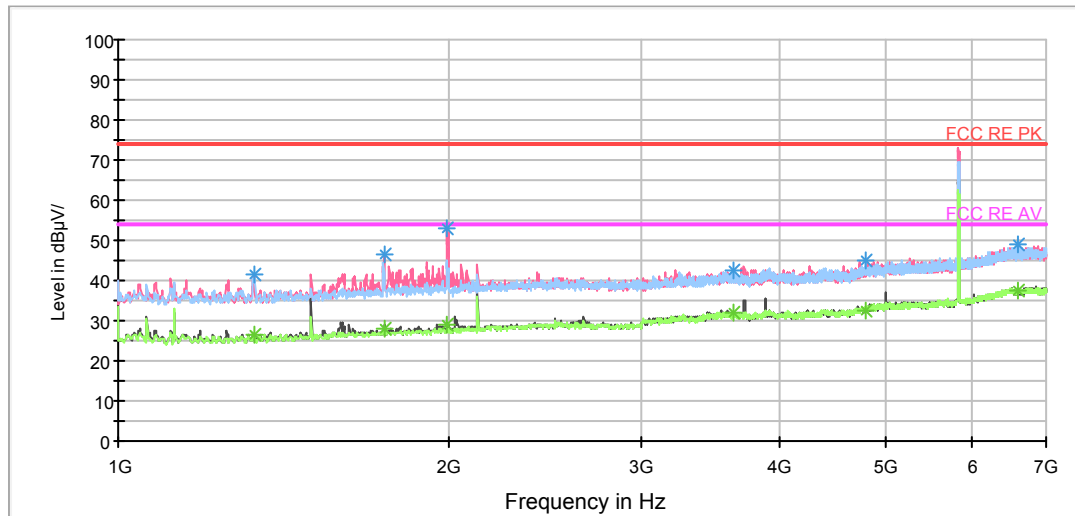
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1327.000000	26.6	100.0	V	155.0	33.8	-7.2	27.4	54
1742.500000	27.4	100.0	V	38.0	33.1	-5.7	26.6	54
1994.500000	29.5	100.0	V	286.0	34.3	-4.8	24.5	54
3613.000000	31.8	100.0	V	253.0	31.5	0.3	22.2	54
5000.500000	35.8	100.0	V	188.0	30.4	5.4	18.2	54
6449.500000	37.0	100.0	V	275.0	27.1	9.9	17.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

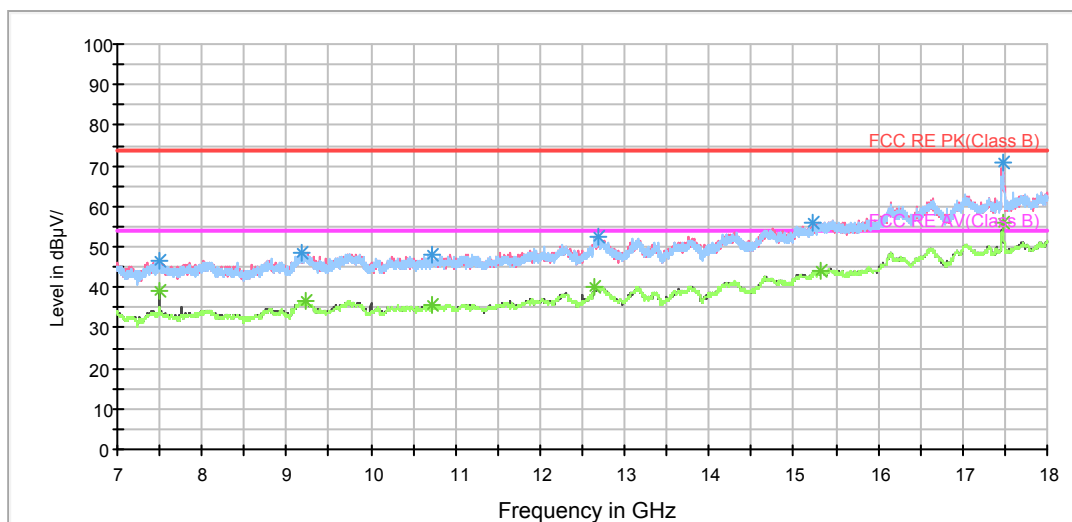
802.11a CH165

RE 1G-7GHz PK+AV Class B



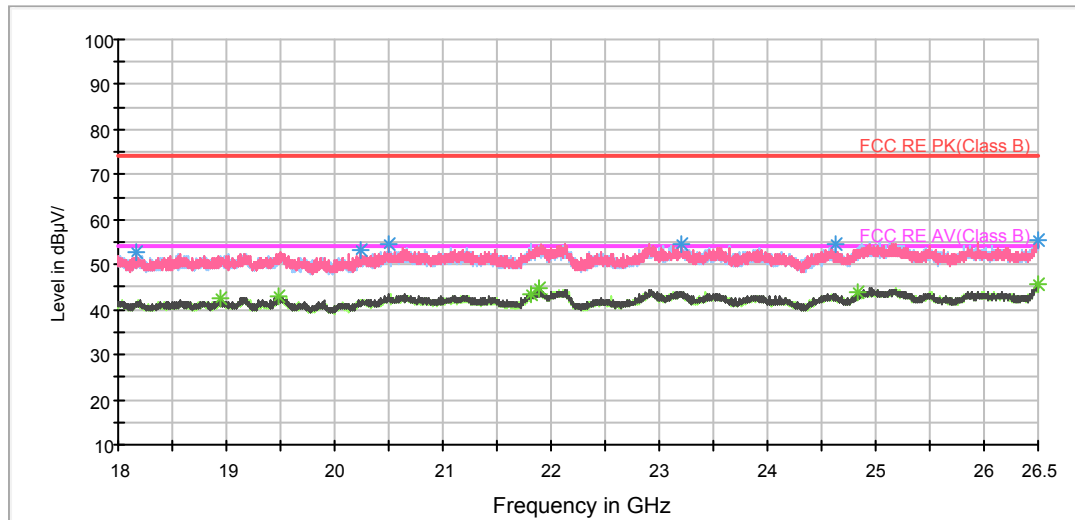
Radiates Emission from 1GHz to 7GHz
Note: The signal beyond the limit is carrier.

RE 3-18GHz PK+AV



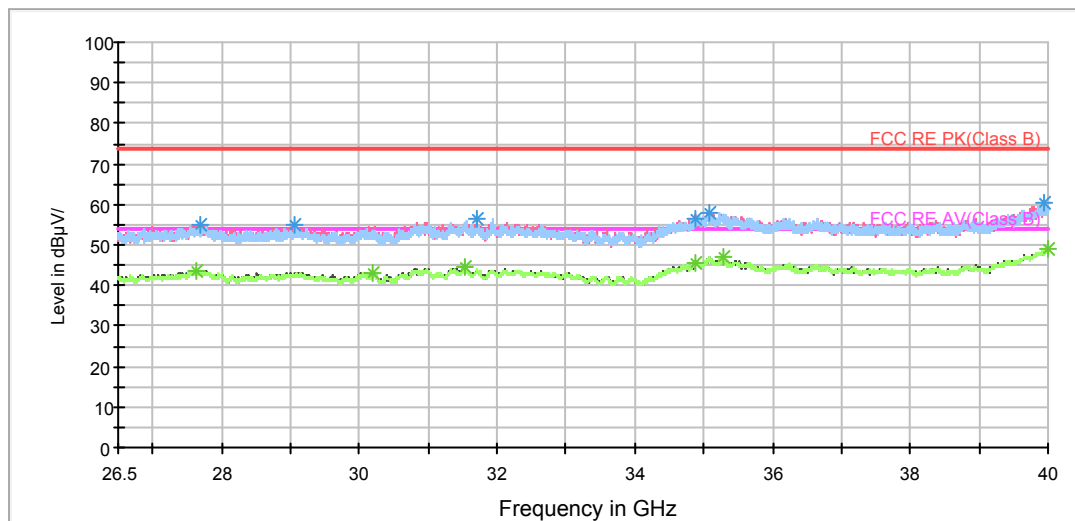
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1330.000000	41.5	100.0	V	171.0	48.7	-7.2	32.5	74
1745.500000	46.6	100.0	V	171.0	52.3	-5.7	27.4	74
1993.000000	52.8	100.0	V	299.0	57.6	-4.8	21.2	74
3632.500000	42.3	100.0	H	0.0	42.0	0.3	31.7	74
4793.500000	44.8	100.0	H	59.0	40.1	4.7	29.2	74
6604.000000	49.1	100.0	H	0.0	38.9	10.2	24.9	74

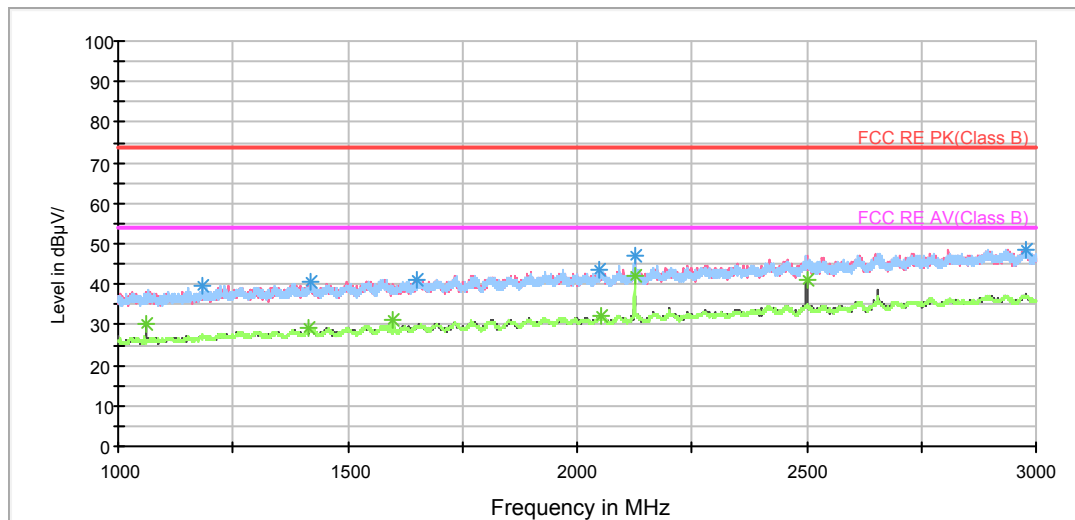
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1330.000000	26.4	100.0	V	171.0	33.6	-7.2	27.6	54
1745.500000	28.1	100.0	V	171.0	33.8	-5.7	25.9	54
1993.000000	29.0	100.0	V	299.0	33.8	-4.8	25.0	54
3632.500000	31.8	100.0	H	0.0	31.5	0.3	22.2	54
4793.500000	32.5	100.0	H	59.0	27.8	4.7	21.5	54
6604.000000	37.5	100.0	H	0.0	27.3	10.2	16.5	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

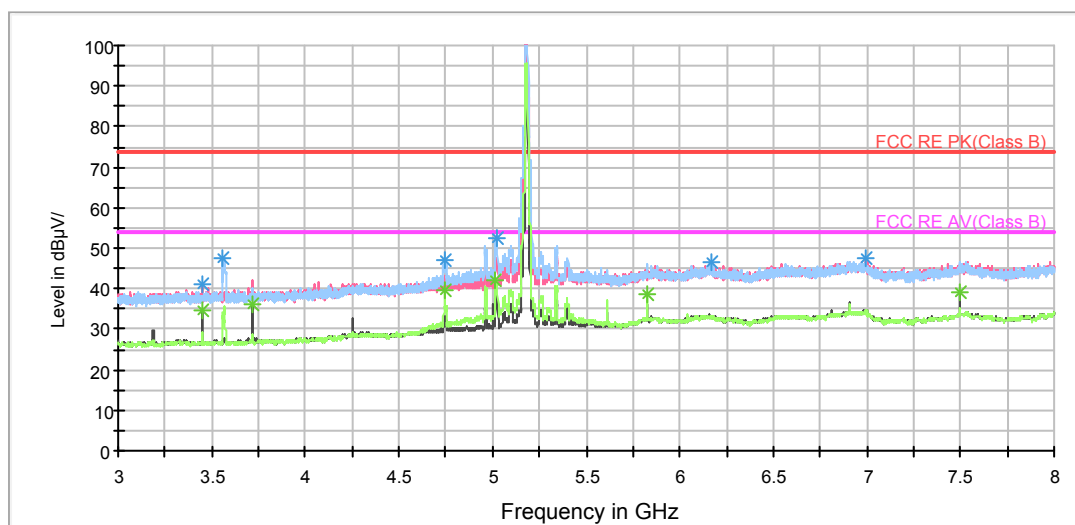
802.11n (HT20) CH36

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

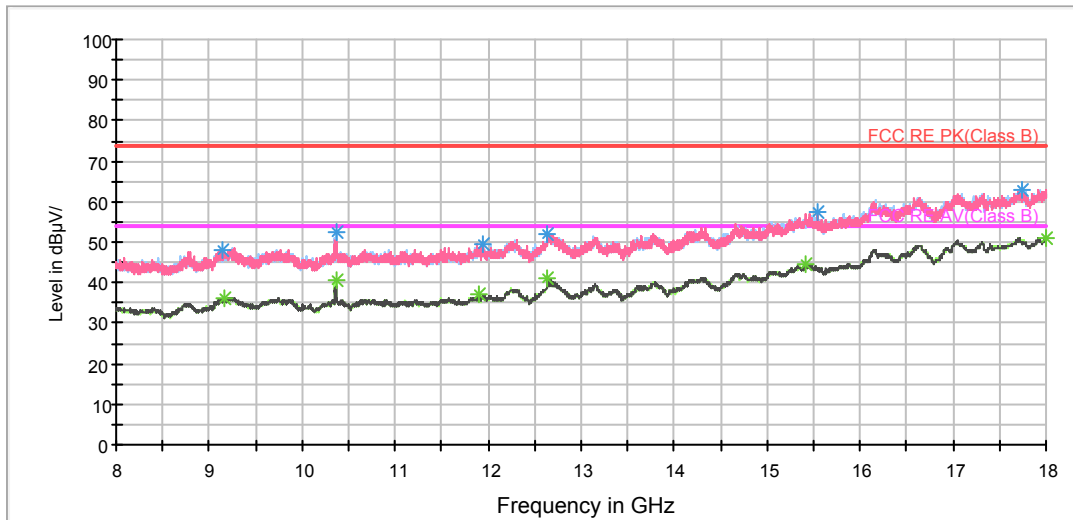
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

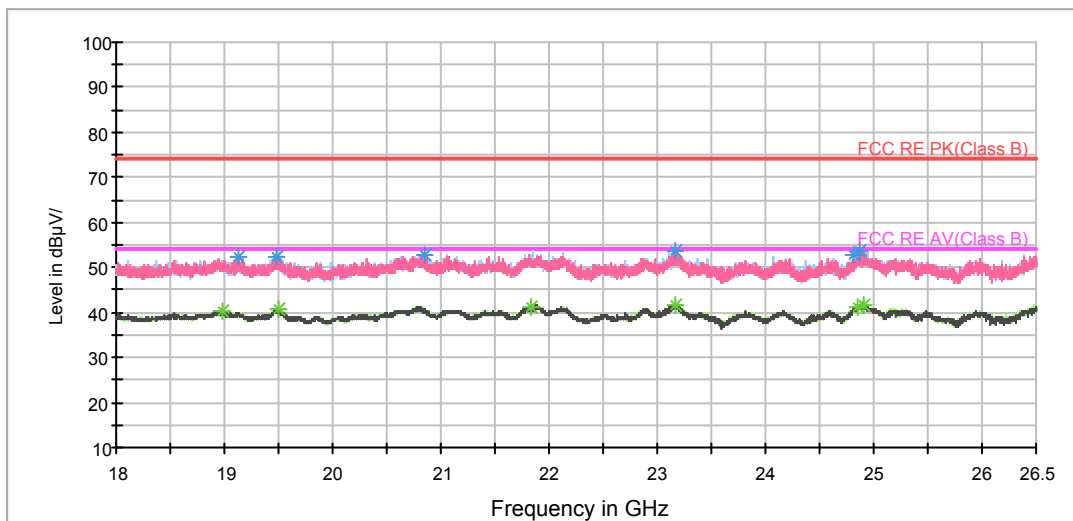
Radiates Emission from 3GHz to 8GHz

RE 3-18GHz PK+AV

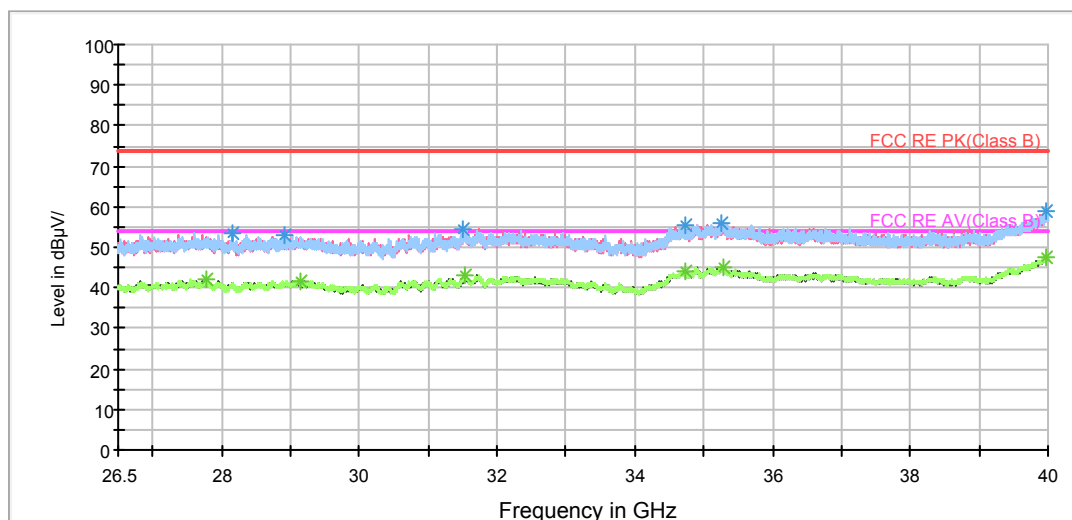


Radiates Emission from 8GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3453.125000	41.3	225.0	V	189.0	43.5	-2.2	32.7	74
3561.875000	47.4	225.0	H	213.0	49.5	-2.1	26.6	74
4748.750000	47.0	125.0	H	296.0	46.0	1.0	27.0	74
5021.875000	52.7	125.0	H	168.0	51.1	1.6	21.3	74
6167.500000	46.4	125.0	H	168.0	40.8	5.6	27.6	74
6996.875000	47.8	125.0	V	191.0	41.3	6.5	26.2	74

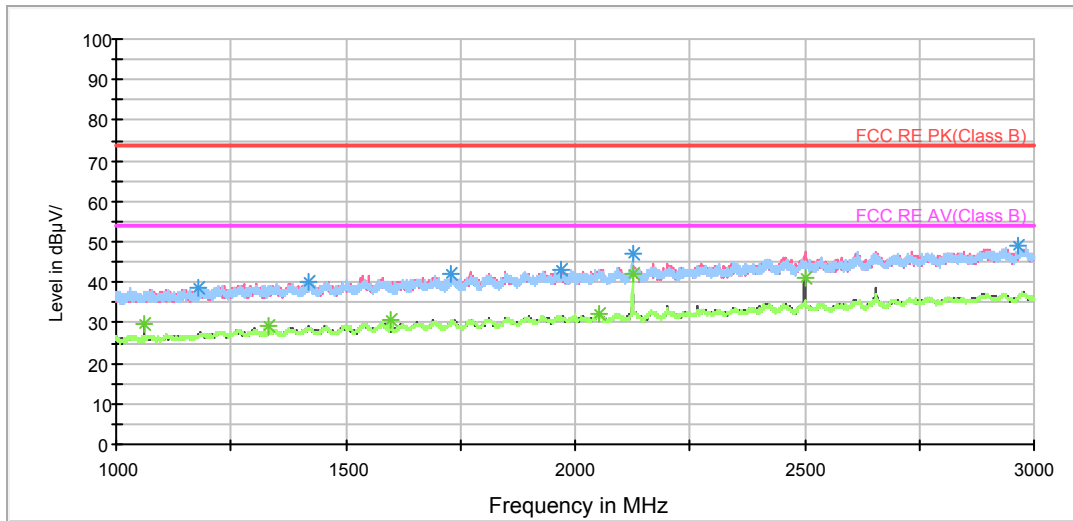
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3453.125000	34.4	225.0	V	189.0	36.6	-2.2	19.6	54
3718.750000	35.9	225.0	V	210.0	37.5	-1.6	18.1	54
4748.125000	39.8	125.0	H	296.0	38.9	0.9	14.2	54
5016.875000	42.3	125.0	H	168.0	40.7	1.6	11.7	54
5827.500000	38.6	125.0	H	319.0	34.1	4.5	15.4	54
7500.000000	39.0	225.0	V	274.0	32.1	6.9	15.0	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

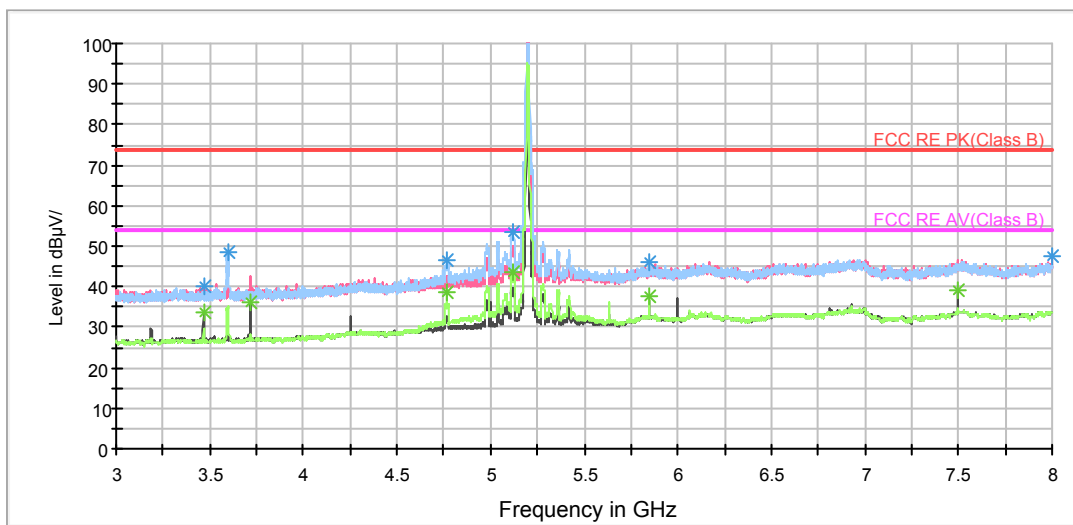
802.11n (HT20) CH40

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

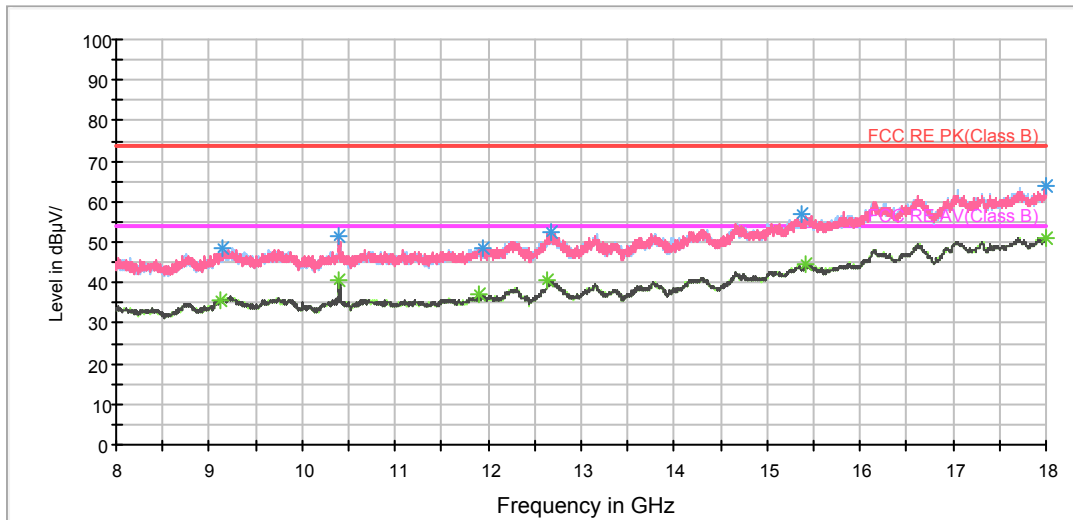
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

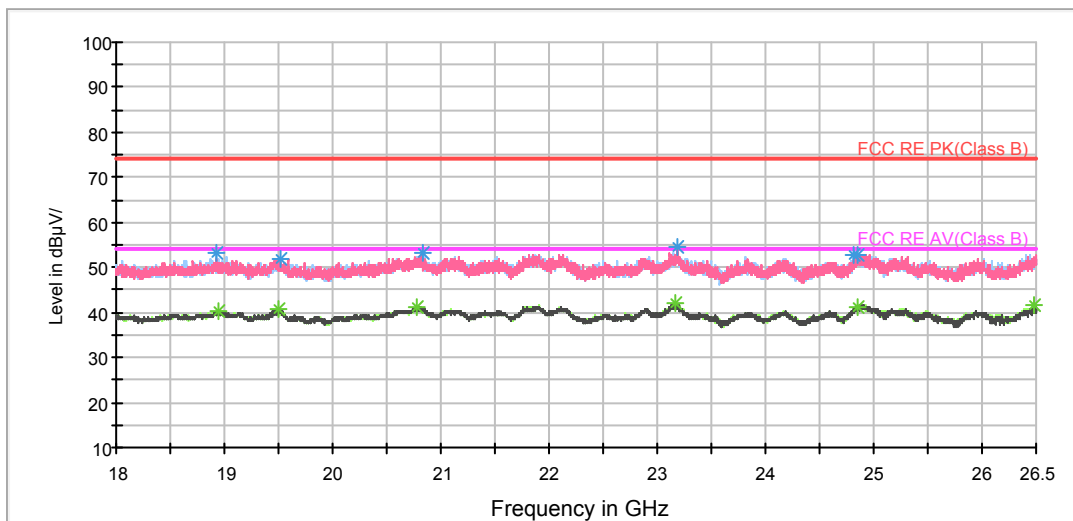
Radiates Emission from 3GHz to 8GHz

RE 3-18GHz PK+AV

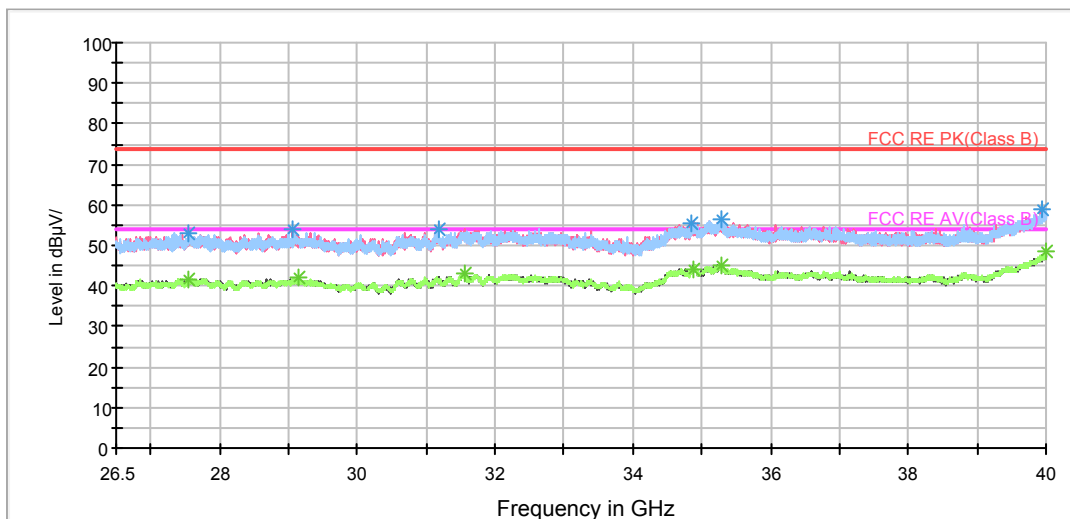


Radiates Emission from 8GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3466.250000	40.2	225.0	V	170.0	42.3	-2.1	33.8	74
3595.625000	48.5	225.0	H	213.0	50.8	-2.3	25.5	74
4766.875000	46.5	125.0	H	296.0	45.4	1.1	27.5	74
5118.125000	53.2	125.0	H	189.0	51.4	1.8	20.8	74
5850.000000	45.9	125.0	H	320.0	41.2	4.7	28.1	74
8000.000000	47.4	225.0	V	128.0	40.1	7.3	26.6	74

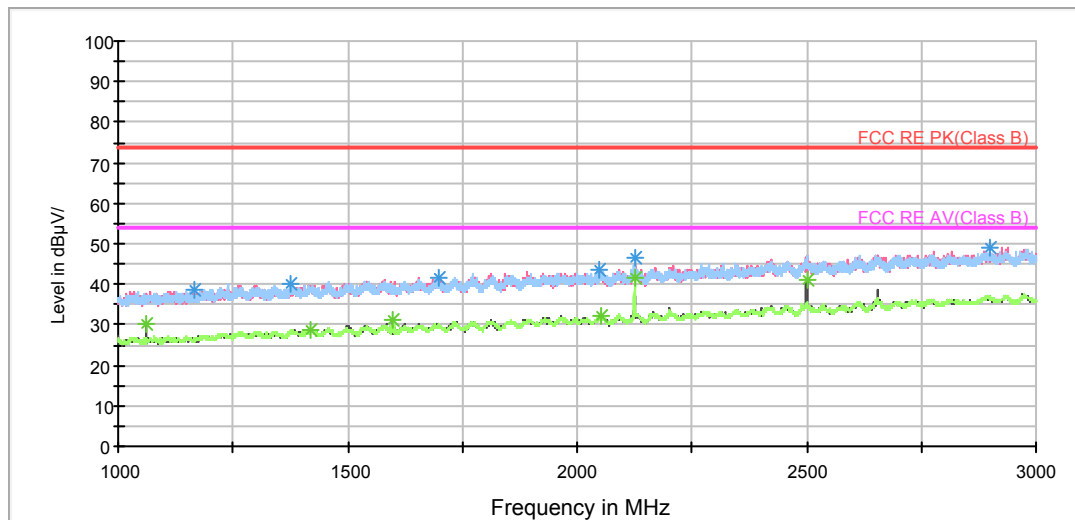
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3466.250000	33.8	225.0	V	170.0	35.9	-2.1	20.2	54
3718.750000	35.9	225.0	V	211.0	37.5	-1.6	18.1	54
4766.875000	38.5	125.0	H	296.0	37.4	1.1	15.5	54
5118.125000	43.7	125.0	H	189.0	41.9	1.8	10.3	54
5850.000000	37.6	125.0	H	320.0	32.9	4.7	16.4	54
7500.000000	39.3	225.0	V	275.0	32.4	6.9	14.7	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

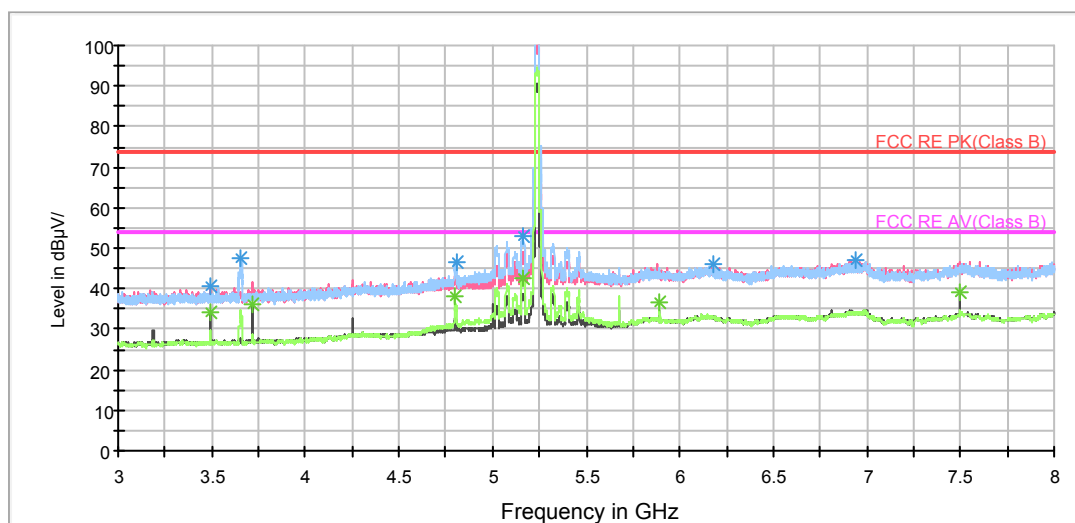
802.11n (HT20) CH48

RE 1G-3GHz PK+AV



Radiates Emission from 1GHz to 3GHz

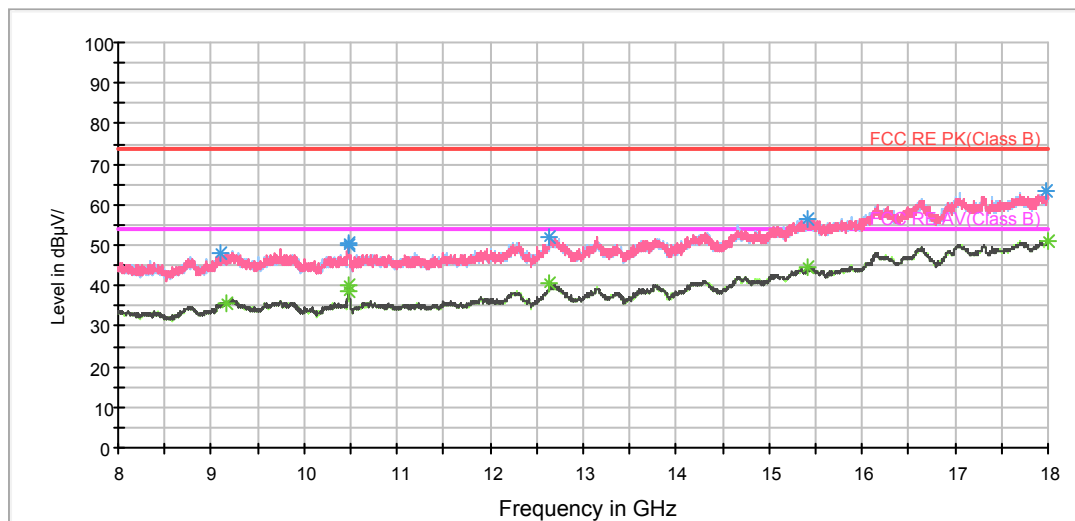
RE 3-18GHz PK+AV



Note: The signal beyond the limit is carrier.

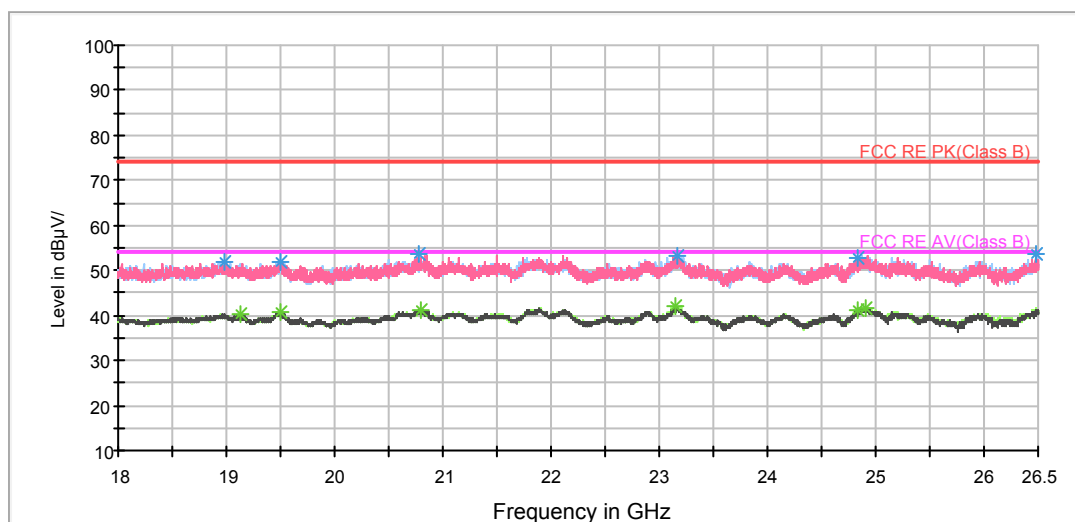
Radiates Emission from 3GHz to 8GHz

RE 3-18GHz PK+AV



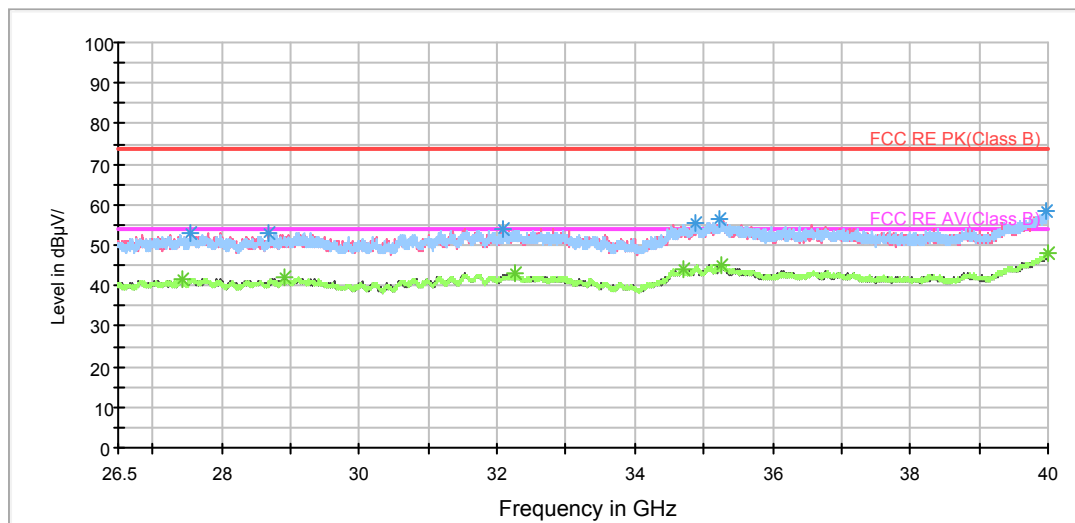
Radiates Emission from 8GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3493.125000	40.6	125.0	V	232.0	42.7	-2.1	33.4	74
3655.000000	47.4	225.0	H	213.0	49.3	-1.9	26.6	74
4805.000000	46.7	125.0	H	253.0	45.4	1.3	27.3	74
5163.125000	53.2	125.0	H	167.0	51.2	2.0	20.8	74
6180.000000	45.9	125.0	H	1.0	40.6	5.3	28.1	74
6935.625000	46.9	225.0	H	318.0	40.8	6.1	27.1	74

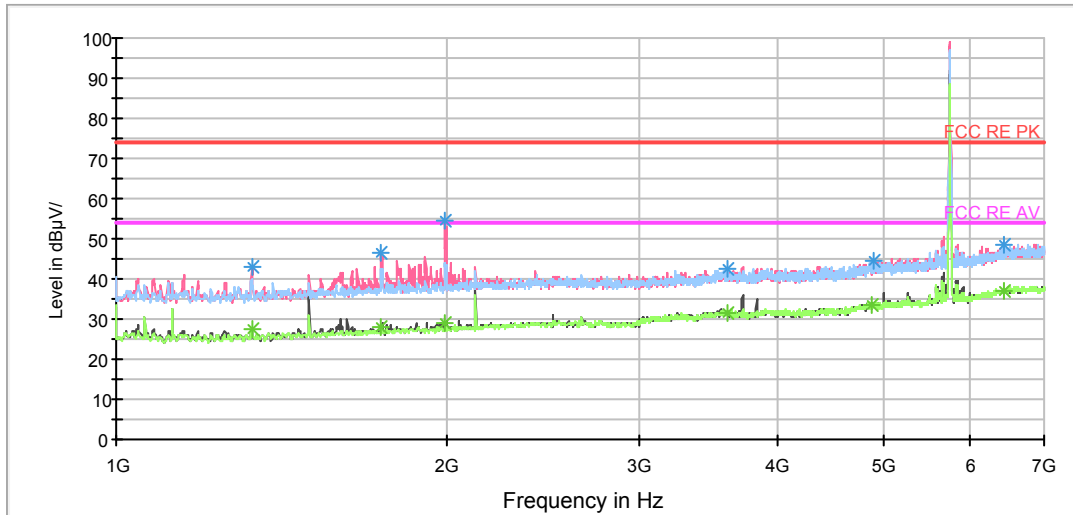
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
3493.125000	34.1	225.0	V	212.0	36.2	-2.1	19.9	54
3718.750000	35.9	225.0	V	212.0	37.5	-1.6	18.1	54
4803.125000	38.1	125.0	H	253.0	36.8	1.3	15.9	54
5161.250000	42.6	125.0	H	188.0	40.6	2.0	11.4	54
5895.000000	36.4	125.0	H	275.0	31.5	4.9	17.6	54
7500.000000	39.2	225.0	V	275.0	32.3	6.9	14.8	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

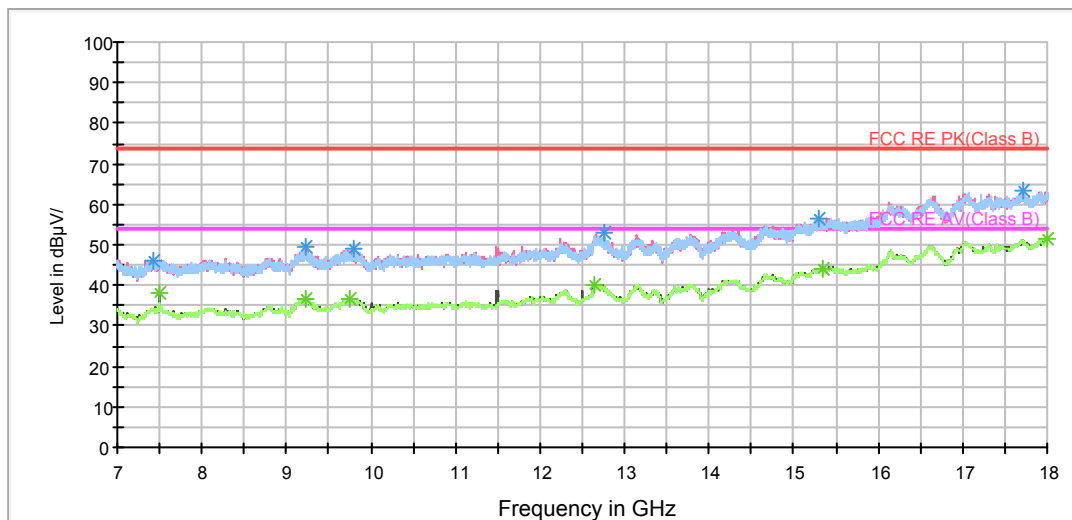
802.11n (HT20) CH149

RE 1G-7GHz PK+AV Class B



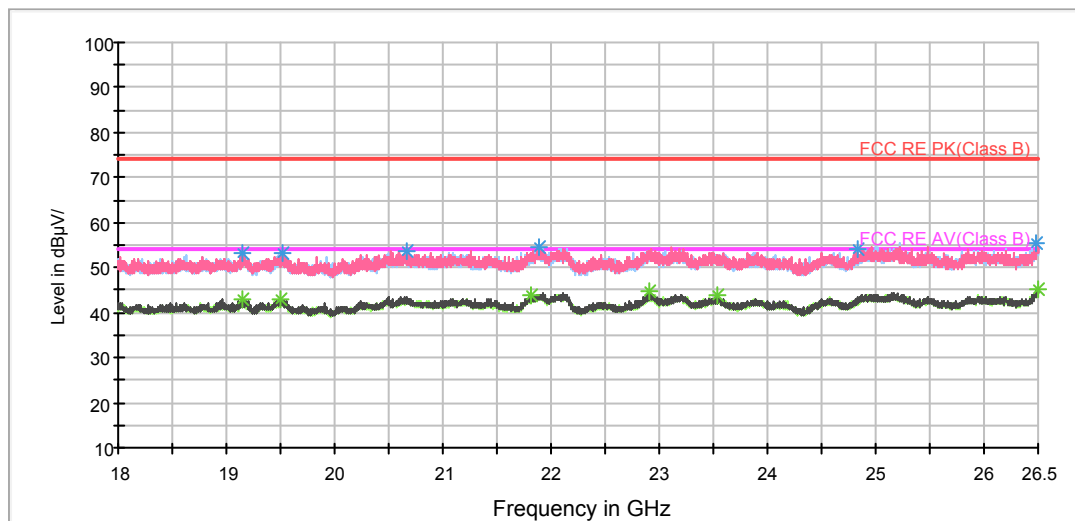
Note: The signal beyond the limit is carrier.
Radiates Emission from 1GHz to 7GHz

RE 3-18GHz PK+AV



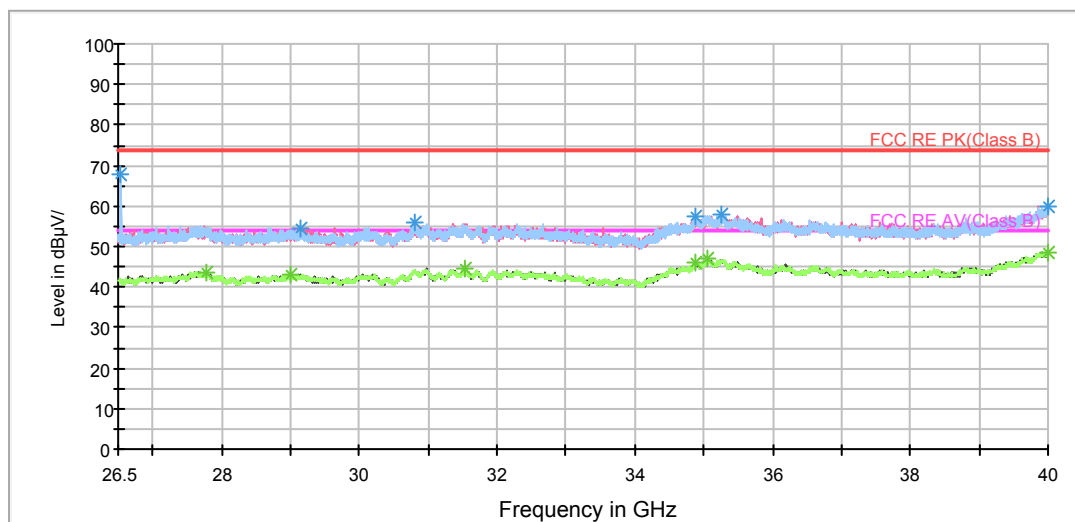
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	42.9	100.0	V	173.0	50.1	-7.2	31.1	74
1742.500000	46.6	100.0	V	184.0	52.3	-5.7	27.4	74
1991.500000	54.5	100.0	V	298.0	59.3	-4.8	19.5	74
3610.000000	42.4	100.0	V	226.0	42.2	0.2	31.6	74
4895.500000	44.6	100.0	H	275.0	39.6	5.0	29.4	74
6434.500000	48.4	100.0	H	58.0	38.6	9.8	25.6	74

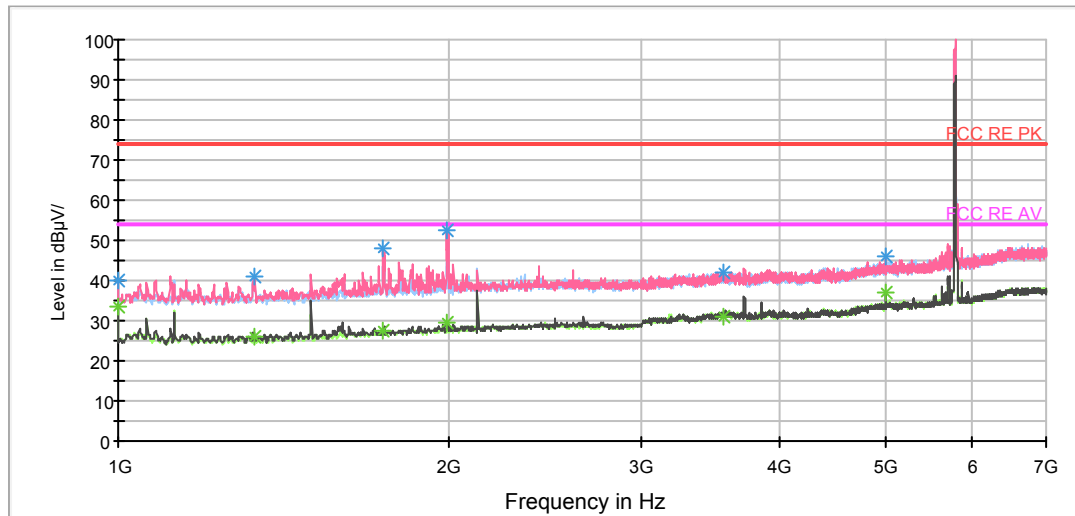
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1328.500000	27.5	100.0	V	173.0	34.7	-7.2	26.5	54
1742.500000	28.0	100.0	V	184.0	33.7	-5.7	26.0	54
1991.500000	28.9	100.0	V	298.0	33.7	-4.8	25.1	54
3610.000000	31.7	100.0	V	226.0	31.5	0.2	22.3	54
4873.000000	33.5	100.0	H	28.0	28.5	5.0	20.5	54
6434.500000	36.9	100.0	H	58.0	27.1	9.8	17.1	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11n (HT20) CH157

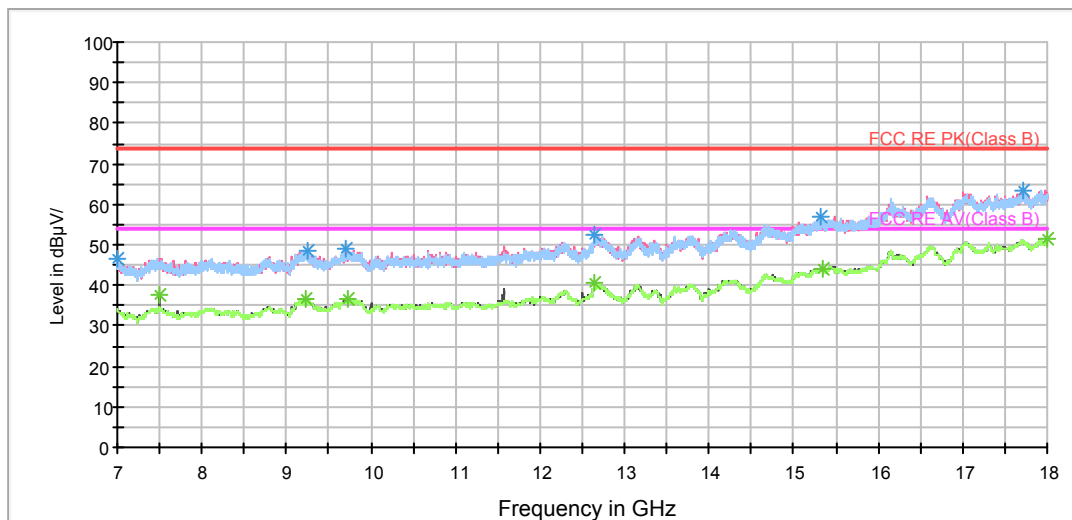
RE 1G-7GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

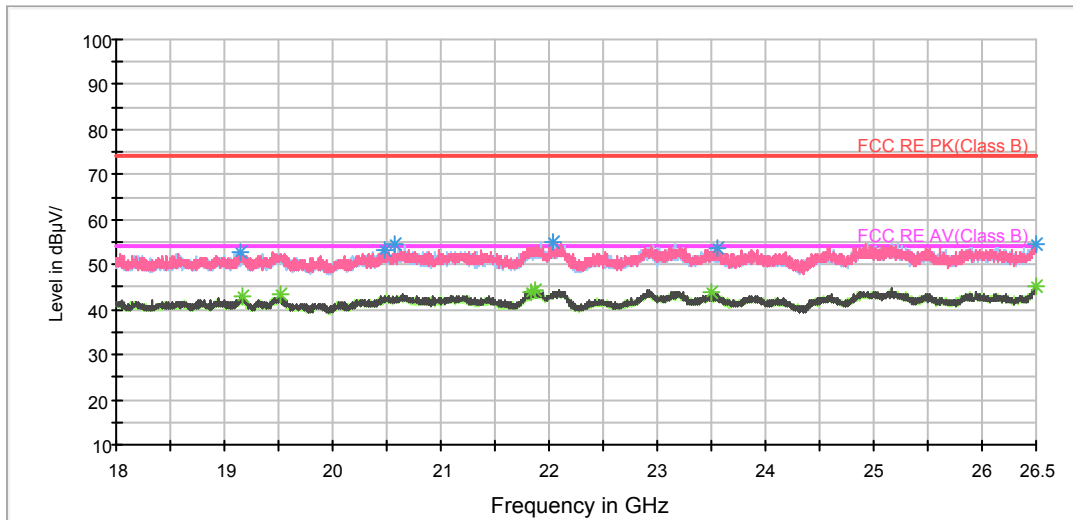
Radiates Emission from 1GHz to 7GHz

RE 3-18GHz PK+AV



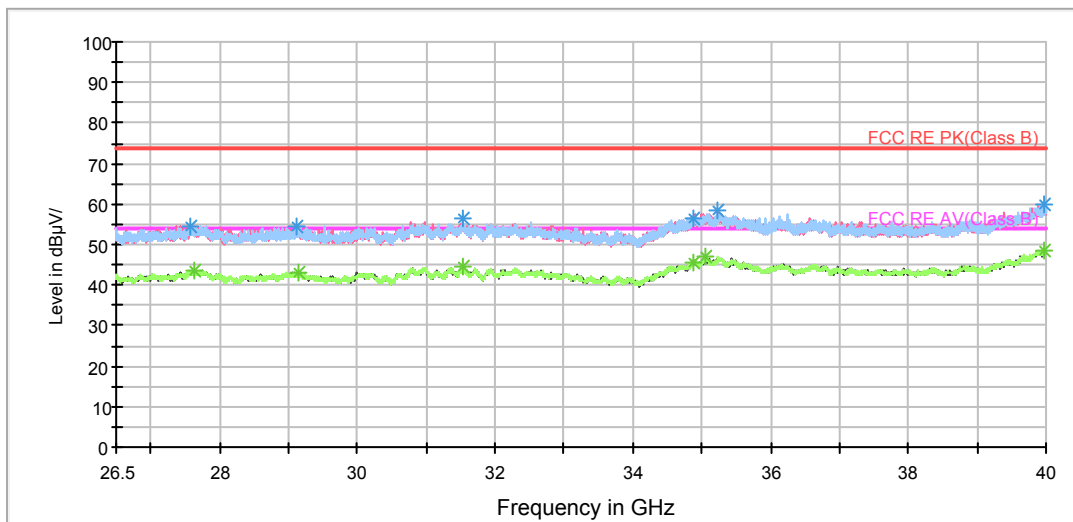
Radiates Emission from 7GHz to 18GHz

RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

BELL RE 26.5-40GHz PK+AV



Radiates Emission from 26.5GHz to 40GHz

Frequency (MHz)	Peak (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1000.000000	39.9	100.0	H	0.0	48.1	-8.2	34.1	74
1328.500000	41.2	100.0	H	304.0	48.4	-7.2	32.8	74
1742.500000	47.9	100.0	V	4.0	53.6	-5.7	26.1	74
1994.500000	52.5	100.0	V	262.0	57.3	-4.8	21.5	74
3557.500000	42.2	100.0	H	285.0	42.2	0.0	31.8	74
5000.500000	45.8	100.0	V	188.0	40.4	5.4	28.2	74

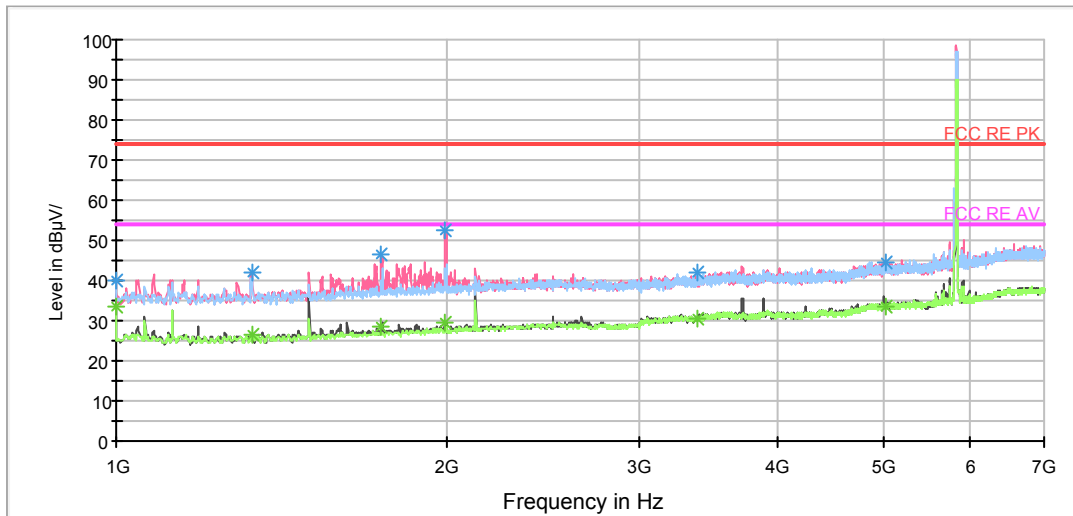
Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

Frequency (MHz)	Average (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Reading value (dBuV/m)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
1000.000000	33.7	100.0	H	0.0	41.9	-8.2	20.3	54
1328.500000	26.2	100.0	H	304.0	33.4	-7.2	27.8	54
1742.500000	27.6	100.0	V	4.0	33.3	-5.7	26.4	54
1994.500000	29.4	100.0	V	262.0	34.2	-4.8	24.6	54
3557.500000	31.1	100.0	H	285.0	31.1	0.0	22.9	54
5000.500000	36.8	100.0	V	188.0	31.4	5.4	17.2	54

Remark: 1. Correction Factor = Antenna factor+ Insertion loss (cable loss + amplifier gain)

802.11n (HT20) CH165

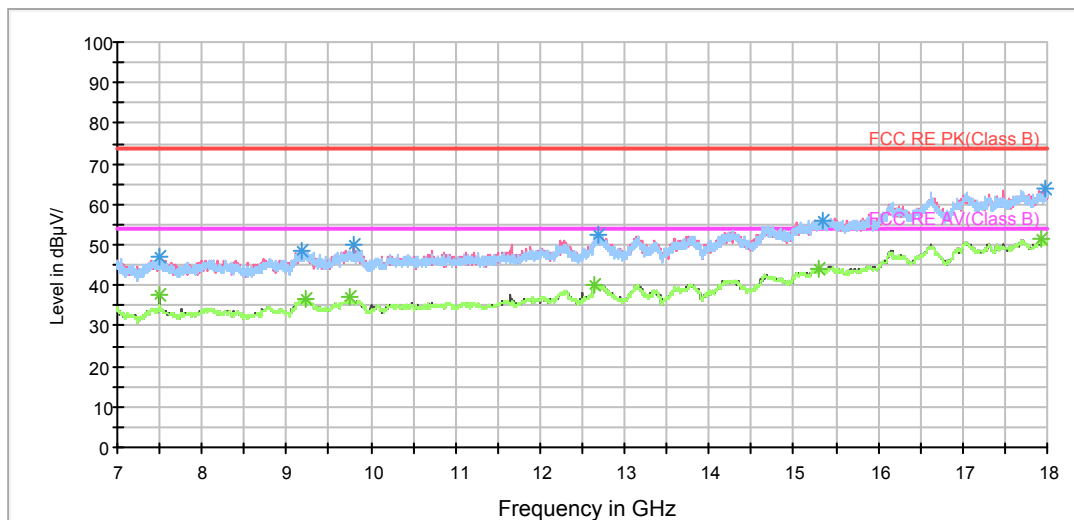
RE 1G-7GHz PK+AV Class B



Note: The signal beyond the limit is carrier.

Radiates Emission from 1GHz to 7GHz

RE 3-18GHz PK+AV



Radiates Emission from 7GHz to 18GHz