RF TEST REPORT

Applicant	Honeywell (Beijing)Technology solution Lab. Co
FCC ID	HS9-DC6000WF01
Product	Lyric D6 Pro Ductless Controller
Model	DC6000WF1001
Report No.	RXA1711-0396RF03R1
Issue Date	January 25, 2018

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2017)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Xianqing Li

Performed by: Xianqing Li

Kai Xu

Approved by: Kai Xu

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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: December 27, 2017 ~January 14, 2018			

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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.

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 (Designation number: CN1179, Test Firm Registration Number: 446626)

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.

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1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
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Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

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2. General Description of Equipment under Test

Client Information

Applicant	Honeywell(Beijing) Technology Solutions Lab Co
Applicant address	A1 Building, C&W Industry Zone, No.14, Jiuxianqiao Rd, Chaoyang District, Beijing, China
Manufacturer	Honeywell(Beijing) Technology Solutions Lab Co
Manufacturer address	A1 Building, C&W Industry Zone, No.14, Jiuxianqiao Rd, Chaoyang District, Beijing, China

General information

EUT Description	
Model	DC6000WF1001
IMEI	1747LBB00282
Hardware Version	Rev 5
Software Version	SDK5
Power Supply	AC adapter
Antenna Type	Internal Antenna
Antenna Gain	Antenna 1: 3.8 dBi Antenna 2: 3.8 dBi
Directional Gain	The manufacturer declared the EUT transmit with one antenna at the same time.
additional beamforming gain	0 dB
Test Mode(s)	U-NII-1(5150MHz-5250MHz) U-NII-2A(5250MHz-5350MHz) U-NII-2C(5470MHz-5725MHz without 5600MHz -5650MHz) U-NII-3(5725MHz-5850MHz)
Modulation Type	802.11a/n (HT20/HT40) : OFDM
Max. Conducted Power	14.38dBm
Operating Frequency Range(s)	U-NII-1: 5150-5250MHz U-NII-2A:5250-5350MHz U-NII-2C:5470-5725MHz (without 5600MHz -5650MHz) U-NII-3: 5725-5850MHz
EUT Accessory	
Adapter	Manufacture: I.T.E POWER SUPPLY. Model: SAW06C-050-1000UB
USB Extend	190cm Cable, Shielded
Note: The information of the EUT is declared by the manufacturer.	

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3. Applied Standards

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

FCC CFR47 Part 15E (2017) Unlicensed National Information Infrastructure Devices

ANSI C63.10 (2013)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

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4. Test Configuration

Test Mode

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**
802.11a	6 Mbps	6 Mbps
802.11n HT20	MCS0	MCS0
802.11n HT40	MCS0	MCS0

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

Test Cases	Antenna 1	Antenna 2
Average conducted output power	O	O
Occupied bandwidth	--	O
Frequency stability	--	802.11a
Power Spectral Density	O	O
Unwanted Emissions	--	O
Conducted Emissions	--	O
Note：“O”: test all bands		

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Wireless Technology and Frequency Range

Wireless Technology		Bandwidth	Channel	Frequency
Wi-Fi	U-NII-1	20 MHz	36	5180MHz
			40	5200MHz
			44	5220MHz
			48	5240MHz
		40 MHz	38	5190MHz
			46	5230MHz
	U-NII-2A	20 MHz	52	5260MHz
			56	5280MHz
			60	5300MHz
			64	5320MHz
		40 MHz	54	5270MHz
			62	5310MHz
	U-NII-2C	20 MHz	100	5500MHz
			104	5520MHz
			108	5540MHz
			112	5560MHz
			116	5580MHz
			132	5660MHz
			136	5680MHz
			140	5700MHz
		40 MHz	102	5510MHz
			110	5550MHz
			118	5590MHz
			134	5670MHz
	U-NII-3	20 MHz	149	5745MHz
			157	5785MHz
			165	5825MHz
		40 MHz	151	5755MHz
			159	5795MHz
Does this device support TPC Function? ☐Yes ☒No				
Does this device support TDWR Band? ☐Yes ☒No				

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5. Test Case Results

5.1. Occupied Bandwidth

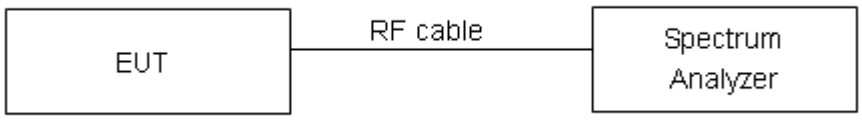
Ambient condition

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 ≈1% OCB kHz, VBW ≥ 3 × 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 ≥ 3 × 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

Rule FCC Part §15.407(e)
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

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.

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Test Results: Antenna 2

U-NII-1

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5180	16.673	21.20	500	PASS
	5200	16.637	21.19	500	PASS
	5240	16.632	21.08	500	PASS
802.11n HT20	5180	17.705	21.31	500	PASS
	5200	17.745	21.38	500	PASS
	5240	17.754	21.11	500	PASS
802.11n HT40	5190	36.192	39.72	500	PASS
	5230	36.212	39.72	500	PASS

U-NII-2A

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5260	16.655	21.18	500	PASS
	5300	16.614	20.93	500	PASS
	5320	16.624	20.96	500	PASS
802.11n HT20	5260	17.749	21.19	500	PASS
	5300	17.798	21.38	500	PASS
	5320	17.730	21.18	500	PASS
802.11n HT40	5270	36.191	39.66	500	PASS
	5310	36.165	39.71	500	PASS

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U-NII-2C

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5500	16.627	21.12	500	PASS
	5580	16.634	21.15	500	PASS
	5700	16.654	21.20	500	PASS
802.11n HT20	5500	16.662	21.14	500	PASS
	5580	17.755	21.58	500	PASS
	5700	17.749	21.67	500	PASS
802.11n HT40	5510	36.215	39.80	500	PASS
	5550	36.244	39.63	500	PASS
	5670	36.211	39.66	500	PASS

U-NII-3

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5745	16.666	16.31	500	PASS
	5785	16.618	16.33	500	PASS
	5825	16.635	15.15	500	PASS
802.11n HT20	5745	17.724	16.41	500	PASS
	5785	17.712	17.59	500	PASS
	5825	17.789	17.16	500	PASS
802.11n HT40	5755	36.193	35.84	500	PASS
	5795	36.252	35.96	500	PASS

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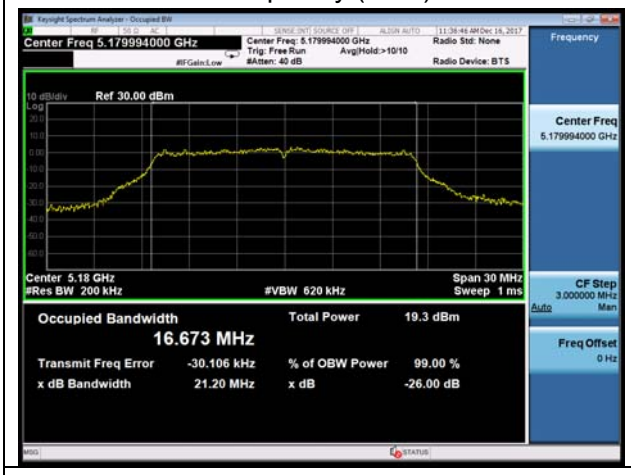
Antenna 2

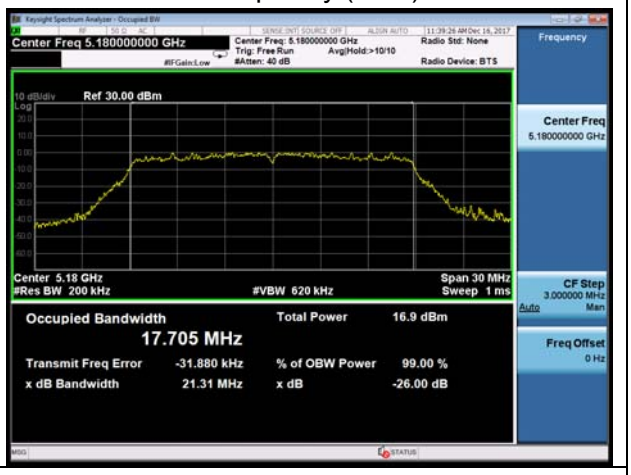
U-NII-1, 802.11a

Carrier frequency (MHz): 5180



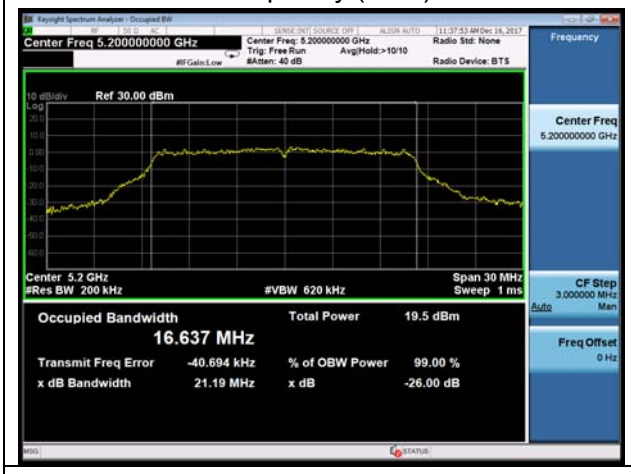
U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5180



U-NII-1, 802.11a

Carrier frequency (MHz): 5200



U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5200

U-NII-1, 802.11a

Carrier frequency (MHz):5240

U-NII-1, 802.11n HT20

Carrier frequency (MHz):5240

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U-NII-1, 802.11n HT40 Carrier frequency (MHz): 5190	U-NII-1, 802.11n HT40 Carrier frequency (MHz): 5230

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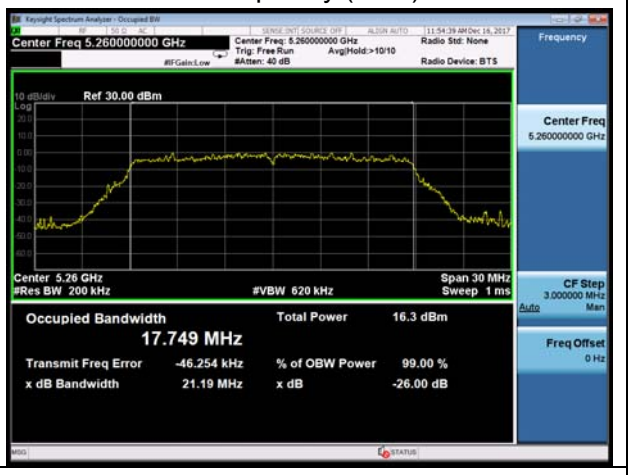
U-NII-2A

U-NII-2A, 802.11a

Carrier frequency (MHz): 5260

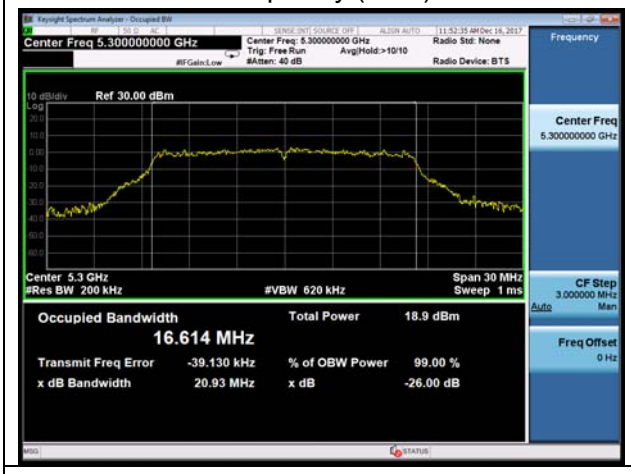
U-NII-2A, 802.11n HT20

Carrier frequency (MHz): 5260



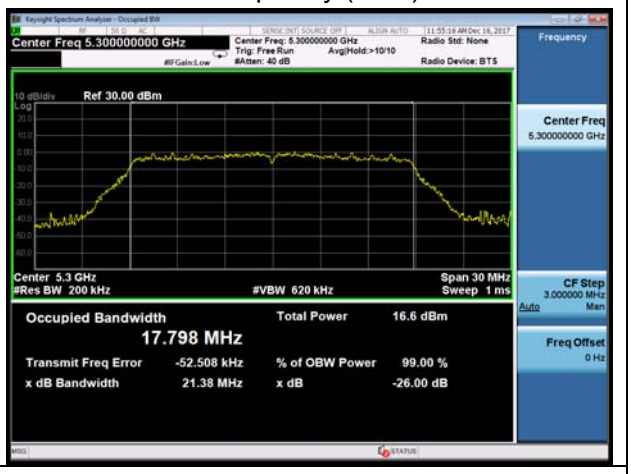
U-NII-2A, 802.11a

Carrier frequency (MHz): 5300



U-NII-2A, 802.11n HT20

Carrier frequency (MHz): 5300



U-NII-2A, 802.11a

Carrier frequency (MHz):5320

U-NII-2A, 802.11n HT20

Carrier frequency (MHz):5320

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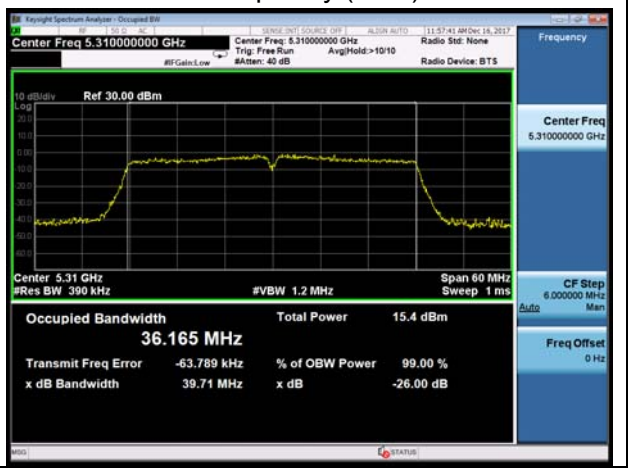
U-NII-2A, 802.11n HT40 Carrier frequency (MHz): 5270	U-NII-2A, 802.11n HT40 Carrier frequency (MHz): 5310
	

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U-NII-2C

U-NII-2C, 802.11a

Carrier frequency (MHz): 5500

U-NII-2C, 802.11n HT20

Carrier frequency (MHz): 5500

U-NII-2C, 802.11a

Carrier frequency (MHz): 5580

U-NII-2C, 802.11n HT20

Carrier frequency (MHz): 5580

U-NII-2C, 802.11a

Carrier frequency (MHz):5700

U-NII-2C, 802.11n HT20

Carrier frequency (MHz):5700

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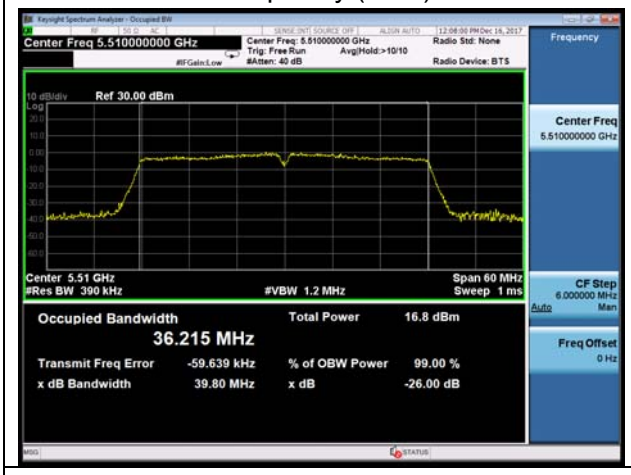
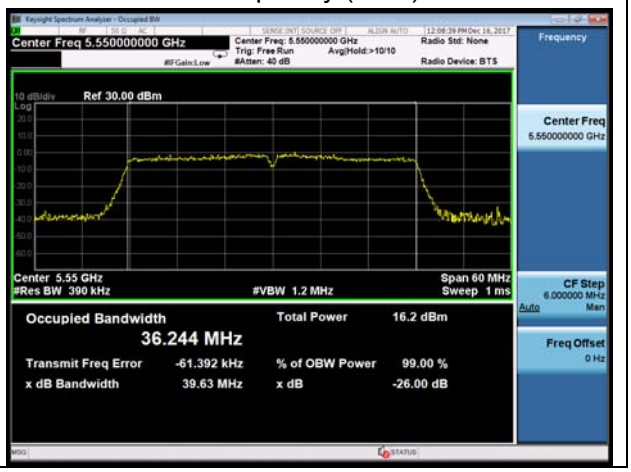
U-NII-2C, 802.11n HT40

Carrier frequency (MHz): 5510



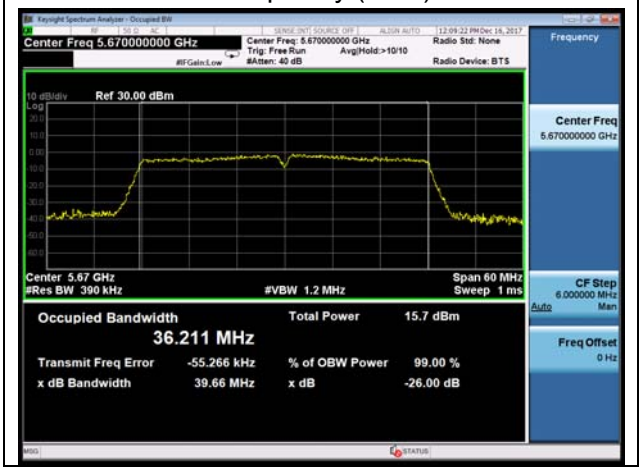
U-NII-2C, 802.11n HT40

Carrier frequency (MHz): 5550



U-NII-2C, 802.11n HT40

Carrier frequency (MHz): 5670



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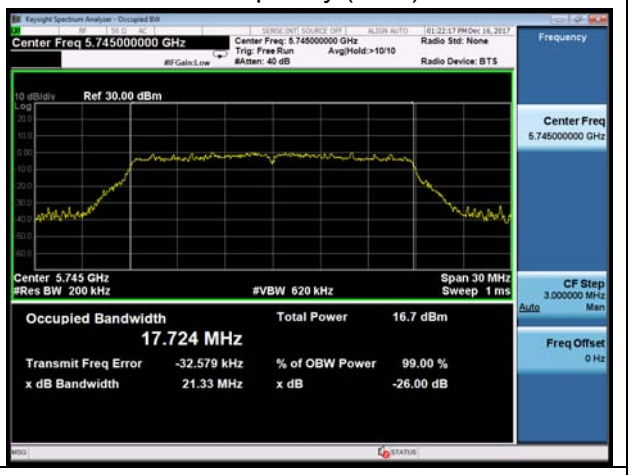
U-NII-3 99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

U-NII-3, 802.11a

Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825

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U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5755	U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5795

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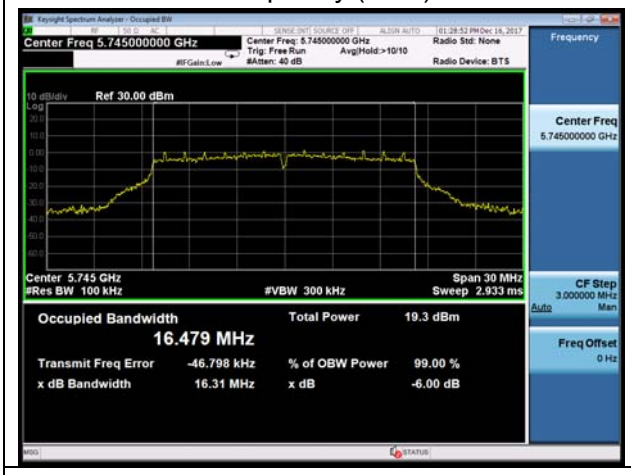
U-NII-3 Minimum 6 dB bandwidth

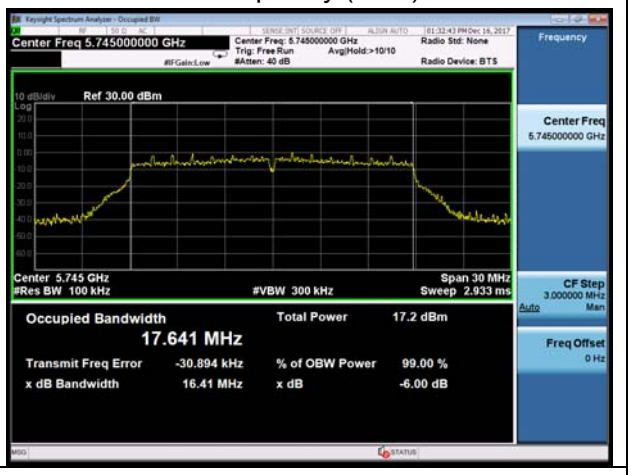
U-NII-3, 802.11a

Carrier frequency (MHz): 5745



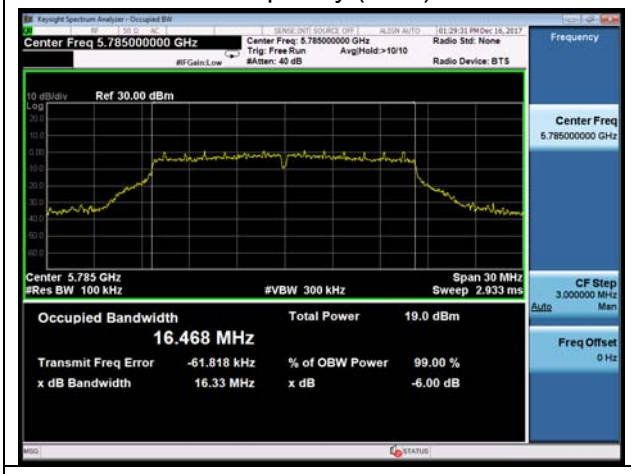
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

Carrier frequency (MHz): 5785

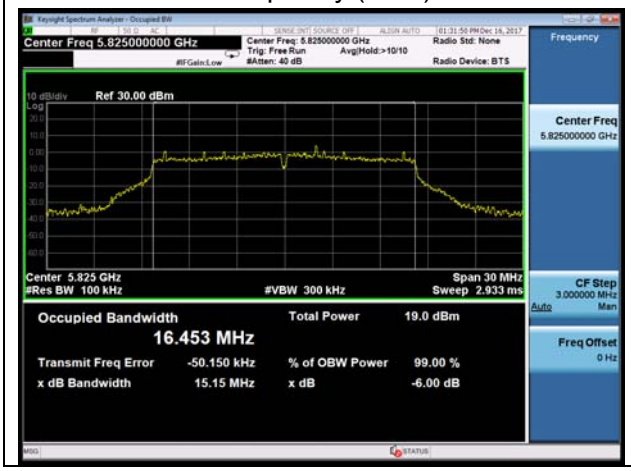


U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5825

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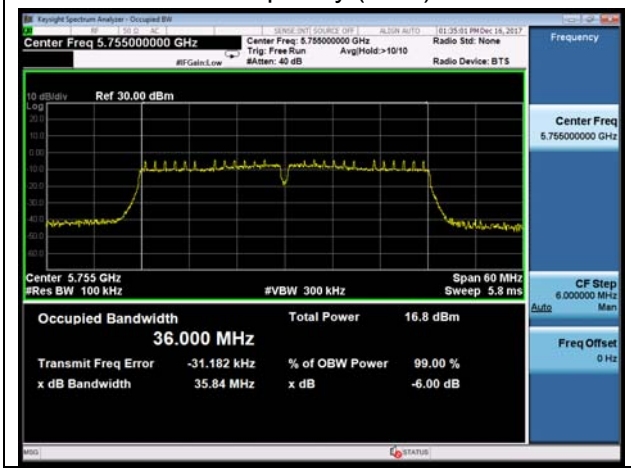
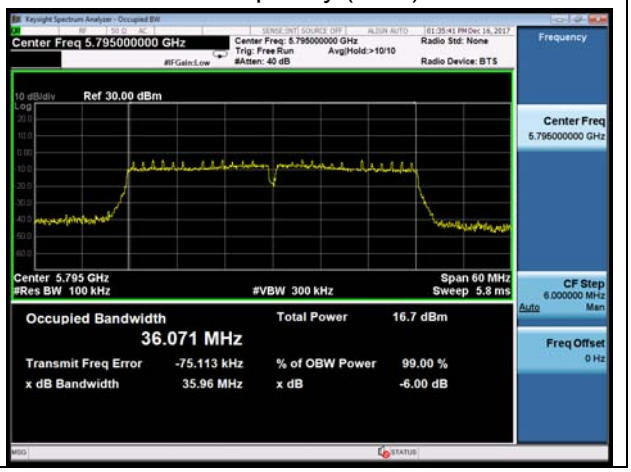
U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5755	U-NII-3, 802.11n HT40 Carrier frequency (MHz): 5795
	

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5.2. Average Power Output –Conducted

Ambient condition

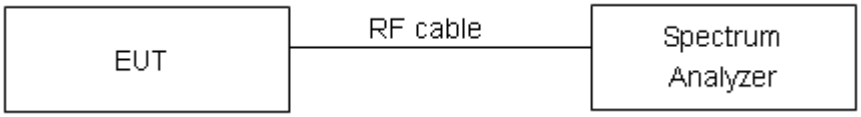
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to spectrum analyzer 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 manufacturer declared the EUT transmit with one antenna at the same time.

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 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. 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.

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Test Results

Band	T_{on} (ms)	$T_{(on+off)}$ (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11a	2.06	2.17	0.95	0.21
802.11n HT20	1.92	2.02	0.95	0.23
802.11n HT40	0.94	1.04	0.91	0.42

Single Antenna Power Index						
Packet Type	Antenna 1			Antenna 2		
	CH36	CH40	CH48	CH36	CH40	CH48
802.11a	15	15	15	15	15	15
802.11n HT20	13	13	13	13	13	13
Packet Type	**CH36**	**CH40**	**/**	**CH36**	**CH40**	**/**
802.11n HT40	12	12	/	12	12	/

Network Standards		Channel/Frequency (MHz)	B=26 dB bandwidth (MHz)	Limit 11 dBm + 10 log B (dBm)	Final Limit(dBm)
U-NII-2A	802.11a	52/5260	21.18	24.26 >24	24
		60/5300	20.93	24.21 >24	24
		64/5320	20.96	24.21 >24	24
	802.11n HT20	52/5260	21.19	24.26 >24	24
		60/5300	21.38	24.30 >24	24
		64/5320	21.18	24.26 >24	24
	802.11n HT40	54/5270	39.66	26.98 >24	24
		62/5310	39.17	26.93 >24	24
U-NII-2C	802.11a	100/5500	21.12	24.25 >24	24
		116/5580	21.15	24.25 >24	24
		140/5700	21.20	24.26 >24	24
	802.11n HT20	100/5500	21.14	24.25 >24	24
		116/5580	21.58	24.34 >24	24
		140/5700	21.67	24.36 >24	24
	802.11n HT40	102/5510	39.80	27.00 >24	24
		110/5550	39.63	26.98 >24	24
		134/5670	39.66	26.98 >24	24
Note: 250mW=24dBm					

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Test results

Note: Output Power=Read Value+Duty cycle correction factor

Antenna 1

U-NII-1

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	36/5180	12.27	12.48	24.00	PASS
	40/5200	11.92	12.13	24.00	PASS
	48/5240	11.75	11.96	24.00	PASS
802.11n HT20	36/5180	9.71	9.94	24.00	PASS
	40/5200	10.10	10.33	24.00	PASS
	48/5240	9.88	10.11	24.00	PASS
802.11n HT40	38/5190	8.90	9.32	24.00	PASS
	46/5230	8.32	8.74	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

U-NII-2a

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	52/5260	12.08	12.29	24.00	PASS
	60/5300	11.45	11.66	24.00	PASS
	64/5320	11.27	11.48	24.00	PASS
802.11n HT20	52/5260	9.60	9.83	24.00	PASS
	60/5300	8.97	9.20	24.00	PASS
	64/5320	8.74	8.97	24.00	PASS
802.11n HT40	54/5270	7.80	8.22	24.00	PASS
	62/5310	7.23	7.65	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

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U-NII-2c

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	100/5500	11.26	11.47	24.00	PASS
	116/5580	11.04	11.25	24.00	PASS
	140/5700	10.22	10.43	24.00	PASS
802.11n HT20	100/5500	8.69	8.92	24.00	PASS
	116/5580	8.77	9.00	24.00	PASS
	140/5700	8.04	8.27	24.00	PASS
802.11n HT40	102/5510	7.79	8.21	24.00	PASS
	110/5550	7.77	8.19	24.00	PASS
	134/5670	6.77	7.19	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

U-NII-3

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	149/5745	10.65	10.86	30	PASS
	157/5785	11.09	11.30	30	PASS
	165/5825	10.77	10.98	30	PASS
802.11n HT20	149/5745	8.28	8.51	30	PASS
	157/5785	8.66	8.89	30	PASS
	165/5825	8.60	8.83	30	PASS
802.11n HT40	151/5755	7.44	7.86	30	PASS
	159/5795	7.53	7.95	30	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

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Antenna 2

U-NII-1

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	36/5180	13.58	13.79	24.00	PASS
	40/5200	13.89	14.10	24.00	PASS
	48/5240	13.99	14.20	24.00	PASS
802.11n HT20	36/5180	11.49	11.72	24.00	PASS
	40/5200	11.59	11.82	24.00	PASS
	48/5240	11.62	11.85	24.00	PASS
802.11n HT40	38/5190	9.99	10.41	24.00	PASS
	46/5230	10.31	10.73	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

U-NII-2a

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	52/5260	13.65	13.86	24.00	PASS
	60/5300	13.70	13.91	24.00	PASS
	64/5320	13.70	13.91	24.00	PASS
802.11n HT20	52/5260	11.26	11.49	24.00	PASS
	60/5300	11.21	11.44	24.00	PASS
	64/5320	11.47	11.70	24.00	PASS
802.11n HT40	54/5270	9.39	9.81	24.00	PASS
	62/5310	9.42	9.84	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

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U-NII-2c

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	100/5500	14.17	14.38	24.00	PASS
	116/5580	13.83	14.04	24.00	PASS
	140/5700	12.80	13.01	24.00	PASS
802.11n HT20	100/5500	11.80	12.03	24.00	PASS
	116/5580	11.63	11.86	24.00	PASS
	140/5700	10.65	10.88	24.00	PASS
802.11n HT40	102/5510	10.65	11.07	24.00	PASS
	110/5550	10.61	11.03	24.00	PASS
	134/5670	9.90	10.32	24.00	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

U-NII-3

Network Standards	Channel/ Frequency (MHz)	Read Value (dBm)	Output Power (dBm)	Limit (dBm)	Conclusion
802.11a	149/5745	13.84	14.05	30	PASS
	157/5785	13.64	13.85	30	PASS
	165/5825	13.48	13.69	30	PASS
802.11n HT20	149/5745	11.35	11.58	30	PASS
	157/5785	11.27	11.50	30	PASS
	165/5825	11.40	11.63	30	PASS
802.11n HT40	151/5755	10.34	10.76	30	PASS
	159/5795	10.17	10.59	30	PASS
Note: Output Power=Read Value+Duty cycle correction factor					

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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 that 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.

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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= 936Hz

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Test Results

Antenna 2

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
5.00	-20	5200.003298	5199.998508	5199.990913	5199.982988
5.00	-10	5200.003847	5199.988508	5199.990391	5199.976037
5.00	0	5199.996152	5199.982589	5199.981443	5199.967439
5.00	10	5199.990286	5199.978212	5199.973405	5199.958986
5.00	20	5199.989249	5199.975209	5199.969971	5199.958973
5.00	30	5199.982857	5199.966402	5199.967607	5199.958459
5.00	40	5199.972919	5199.959339	5199.959674	5199.950296
5.00	50	5199.964265	5199.954732	5199.956668	5199.942221
4.75	20	5199.954757	5199.947310	5199.952442	5199.941720
5.25	20	5199.946582	5199.943295	5199.943991	5199.939560
MHz		-0.053418	-0.056705	-0.056009	-0.060440
PPM		-10.272669	-10.904820	-10.770866	-11.622985

Voltage (V)	Temperature (°C)	U-NII-2A Test Results			
		5300MHz			
		1min	2min	5min	10min
5.00	-20	5299.999302	5299.997451	5299.995435	5299.992651
5.00	-10	5299.993477	5299.989987	5299.987275	5299.983110
5.00	0	5299.989670	5299.988146	5299.980455	5299.976018
5.00	10	5299.987311	5299.985008	5299.978680	5299.969144
5.00	20	5299.981823	5299.976689	5299.972985	5299.968958
5.00	30	5299.975597	5299.974785	5299.968825	5299.962408
5.00	40	5299.975287	5299.971533	5299.960614	5299.959086
5.00	50	5299.973605	5299.962642	5299.950740	5299.954465
4.75	20	5299.964664	5299.961495	5299.941854	5299.950481
5.25	20	5299.956537	5299.959434	5299.938260	5299.948064
MHz		-0.043463	-0.040566	-0.061740	-0.051936
PPM		-8.200504	-7.653917	-11.649031	-9.799282

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Voltage (V)	Temperature (°C)	U-NII-2C Test Results			
		5580MHz			
		1min	2min	5min	10min
5.00	-20	5579.992553	5579.988942	5579.979490	5579.975999
5.00	-10	5579.984655	5579.985771	5579.978412	5579.971327
5.00	0	5579.975177	5579.979479	5579.969513	5579.965903
5.00	10	5579.968334	5579.972631	5579.966769	5579.962713
5.00	20	5579.962105	5579.966376	5579.962598	5579.962012
5.00	30	5579.952369	5579.962572	5579.956353	5579.959194
5.00	40	5579.952321	5579.955897	5579.946980	5579.949433
5.00	50	5579.949695	5579.952876	5579.944712	5579.948456
4.75	20	5579.945178	5579.951538	5579.939136	5579.943812
5.25	20	5579.944941	5579.942080	5579.938935	5579.936384
MHz		-0.055059	-0.057920	-0.061065	-0.063616
PPM		-9.867214	-10.379975	-10.943466	-11.400663

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
5.00	-20	5784.990472	5784.987622	5784.987186	5784.980814
5.00	-10	5784.984167	5784.986554	5784.977344	5784.973084
5.00	0	5784.980164	5784.985103	5784.973715	5784.965618
5.00	10	5784.970930	5784.978007	5784.972656	5784.957054
5.00	20	5784.967961	5784.975533	5784.970253	5784.947656
5.00	30	5784.961327	5784.971583	5784.960923	5784.945554
5.00	40	5784.959750	5784.964951	5784.959131	5784.942897
5.00	50	5784.952459	5784.955374	5784.950245	5784.939911
4.75	20	5784.948954	5784.953814	5784.943390	5784.932989
5.25	20	5784.943993	5784.947671	5784.941602	5784.932174
MHz		-0.056007	-0.052329	-0.058398	-0.067826
PPM		-9.681335	-9.045709	-10.094714	-11.724412

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5.4. Power Spectral Density

Ambient condition

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

Method of Measurement

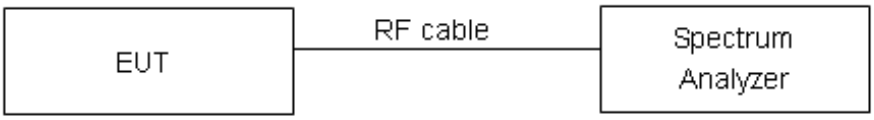
The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 500 kHz, VBW =1.5MHz for the band 5.725-5.85 GHz

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 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 5.25-5.35 GHz and 5.47-5.725 GHz bands, 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 power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmittingantennas 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	11dBm/MHz
5.25-5.35 GHz and 5.47-5.725 GHz	11dBm/MHz
5725-5850	30dBm/500kHz

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Measurement Uncertainty

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

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Test Results:

Note: Power Spectral Density =Read Value+Duty cycle correction factor

Antenna 1

U-NII-1

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	2.12	2.33	11	PASS
	40	2.07	2.28	11	PASS
	48	1.75	1.96	11	PASS
802.11n HT20	36	-0.22	0.01	11	PASS
	40	-0.48	-0.25	11	PASS
	48	-0.64	-0.41	11	PASS
802.11n HT40	38	-4.76	-4.34	11	PASS
	46	-5.39	-4.97	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-2A

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	52	1.76	1.97	11	PASS
	60	0.93	1.14	11	PASS
	64	0.79	1.00	11	PASS
802.11n HT20	52	-0.70	-0.47	11	PASS
	60	-1.28	-1.05	11	PASS
	64	-1.98	-1.75	11	PASS
802.11n HT40	54	-5.56	-5.14	11	PASS
	62	-5.93	-5.51	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

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U-NII-2C

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	100	0.98	1.20	11	PASS
	116	0.64	0.85	11	PASS
	140	-0.36	-0.14	11	PASS
802.11n HT20	100	-1.80	-1.57	11	PASS
	116	-2.09	-1.86	11	PASS
	140	-2.60	-2.37	11	PASS
802.11n HT40	102	-5.43	-5.01	11	PASS
	110	-6.10	-5.68	11	PASS
	134	-7.12	-6.70	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-3

Network Standards	Channel Number	Read Value (dBm/500kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	149	-2.42	-2.20	30	PASS
	157	-3.20	-2.99	30	PASS
	165	-2.68	-2.47	30	PASS
802.11n HT20	149	-5.01	-4.78	30	PASS
	157	-5.32	-5.09	30	PASS
	165	-5.56	-5.33	30	PASS
802.11n HT40	151	-9.46	-9.04	30	PASS
	159	-9.76	-9.34	30	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

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Antenna 2

U-NII-1

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	3.46	3.68	11	PASS
	40	3.40	3.61	11	PASS
	48	3.63	3.84	11	PASS
802.11n HT20	36	1.03	1.26	11	PASS
	40	1.16	1.39	11	PASS
	48	1.14	1.37	11	PASS
802.11n HT40	38	-3.45	-3.03	11	PASS
	46	-3.12	-2.70	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-2A

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	52	3.16	3.38	11	PASS
	60	3.52	3.73	11	PASS
	64	3.39	3.60	11	PASS
802.11n HT20	52	0.76	0.99	11	PASS
	60	0.58	0.81	11	PASS
	64	0.51	0.74	11	PASS
802.11n HT40	54	-4.12	-3.70	11	PASS
	62	-3.96	-3.54	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

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U-NII-2C

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	100	1.49	1.70	11	PASS
	116	3.35	3.57	11	PASS
	140	2.52	2.73	11	PASS
802.11n HT20	100	1.49	1.72	11	PASS
	116	0.91	1.14	11	PASS
	140	0.01	0.24	11	PASS
802.11n HT40	102	-2.53	-2.11	11	PASS
	110	-2.98	-2.56	11	PASS
	134	-3.80	-3.38	11	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

U-NII-3

Network Standards	Channel Number	Read Value (dBm/500kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	149	-0.85	-0.64	30	PASS
	157	-0.92	-0.71	30	PASS
	165	-1.10	-0.88	30	PASS
802.11n HT20	149	-3.50	-3.27	30	PASS
	157	-3.50	-3.27	30	PASS
	165	-3.73	-3.50	30	PASS
802.11n HT40	151	-6.89	-6.47	30	PASS
	159	-7.65	-7.23	30	PASS
Note: Power Spectral Density =Read Value+Duty cycle correction factor					

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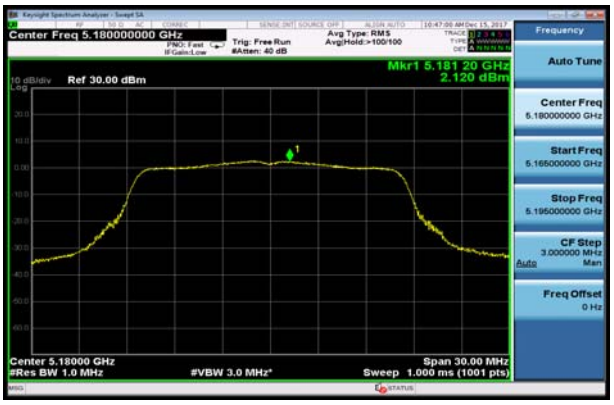
Antenna 1

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



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

U-NII-1, 802.11a, Channel No.: 40

U-NII-1, 802.11n HT20, Channel No.: 40

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

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

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

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

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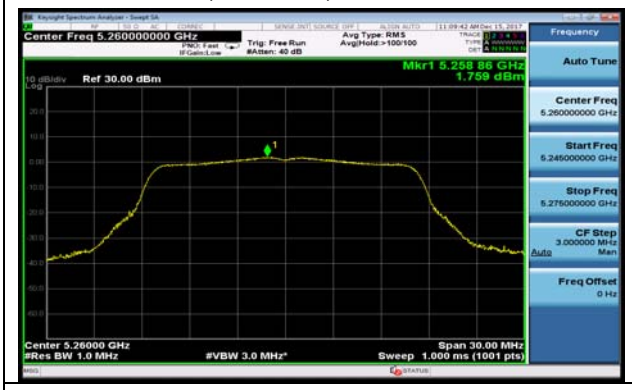
U-NII-2A, 802.11a, Channel No.: 52



U-NII-2A, 802.11n HT20, Channel No.: 52

U-NII-2A, 802.11a, Channel No.: 60

U-NII-2A, 802.11n HT20, Channel No.: 60

U-NII-2A, 802.11a, Channel No.: 64

U-NII-2A, 802.11n HT20, Channel No.: 64

U-NII-2A, 802.11n HT40, Channel No.: 54

U-NII-2A, 802.11n HT40, Channel No.: 62

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U-NII-2C, 802.11a, Channel No.: 100

U-NII-2C, 802.11n HT20, Channel No.: 100

U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

U-NII-2C, 802.11a, Channel No.: 140

U-NII-2C, 802.11n HT20, Channel No.: 140

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U-NII-2C, 802.11n HT40, Channel No.: 102

U-NII-2C, 802.11n HT40, Channel No.: 110

U-NII-2C, 802.11n HT40, Channel No.: 134

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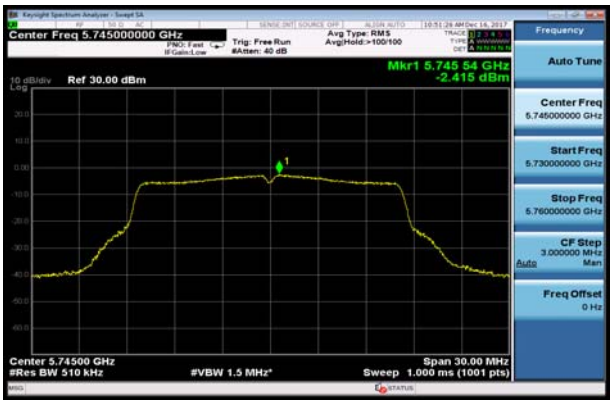
U-NII-3, 802.11a, Channel No.: 149

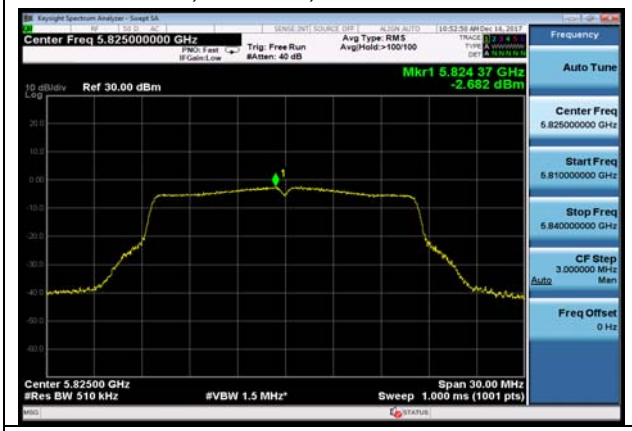


U-NII-3, 802.11n HT20, Channel No.: 149

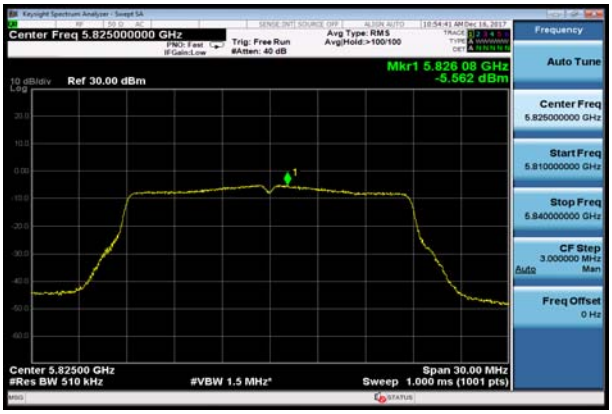
U-NII-3, 802.11a, Channel No.: 157

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

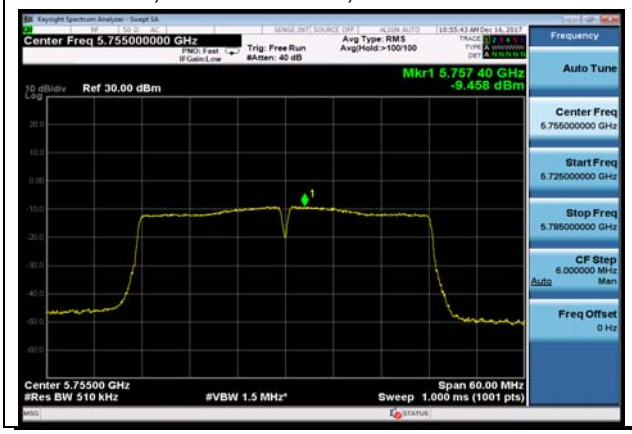
U-NII-3, 802.11a, Channel No.: 165



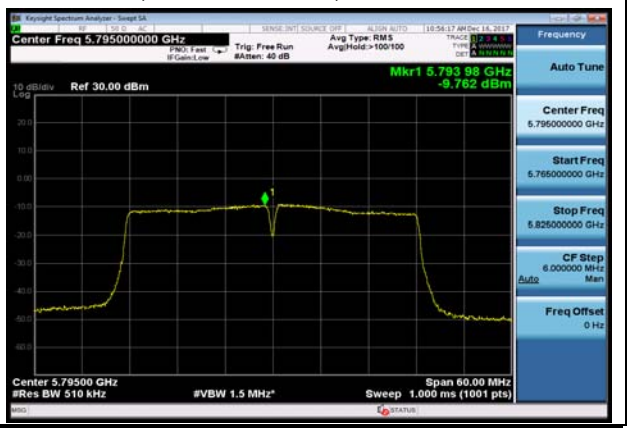
U-NII-3, 802.11n HT20, Channel No.: 165



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



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



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Antenna 2

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

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

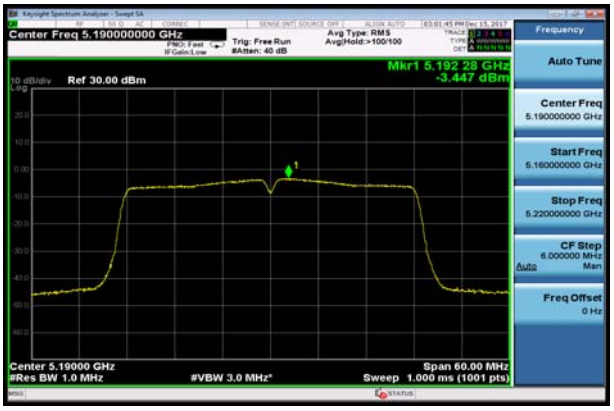
U-NII-1, 802.11a, Channel No.: 40

U-NII-1, 802.11n HT20, Channel No.: 40

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

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

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



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

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U-NII-2A, 802.11a, Channel No.: 52

U-NII-2A, 802.11n HT20, Channel No.: 52

U-NII-2A, 802.11a, Channel No.: 60

U-NII-2A, 802.11n HT20, Channel No.: 60

U-NII-2A, 802.11a, Channel No.: 64

U-NII-2A, 802.11n HT20, Channel No.: 64

U-NII-2A, 802.11n HT40, Channel No.: 54

U-NII-2A, 802.11n HT40, Channel No.: 62

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U-NII-2C, 802.11a, Channel No.: 100

U-NII-2C, 802.11n HT20, Channel No.: 100

U-NII-2C, 802.11a, Channel No.: 116

U-NII-2C, 802.11n HT20, Channel No.: 116

U-NII-2C, 802.11a, Channel No.: 140

U-NII-2C, 802.11n HT20, Channel No.: 140

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U-NII-2C, 802.11n HT40, Channel No.: 102

U-NII-2C, 802.11n HT40, Channel No.: 110

U-NII-2C, 802.11n HT40, Channel No.: 134

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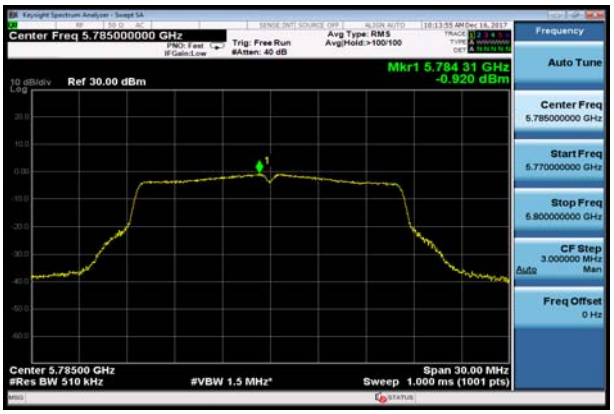
U-NII-3, 802.11a, Channel No.: 149

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

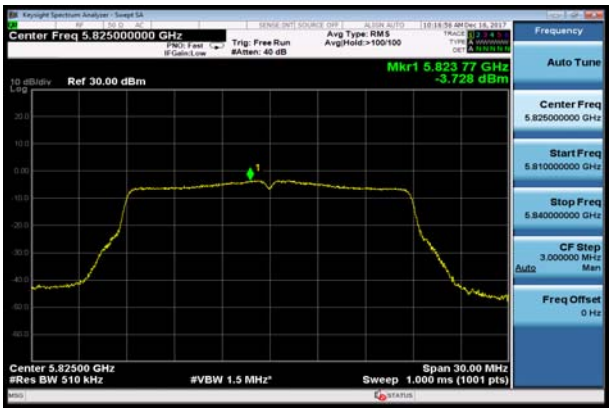
U-NII-3, 802.11a, Channel No.: 157



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

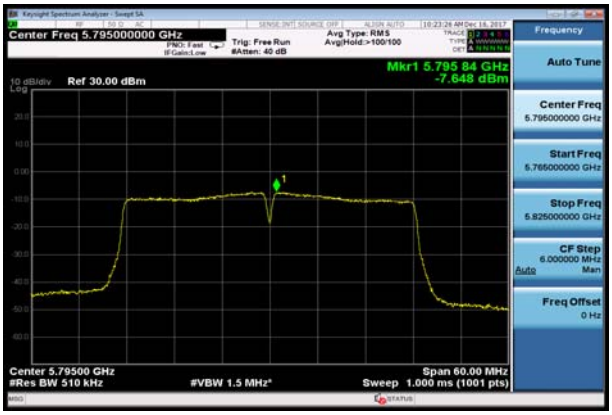
U-NII-3, 802.11a, Channel No.: 165

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



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

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



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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.

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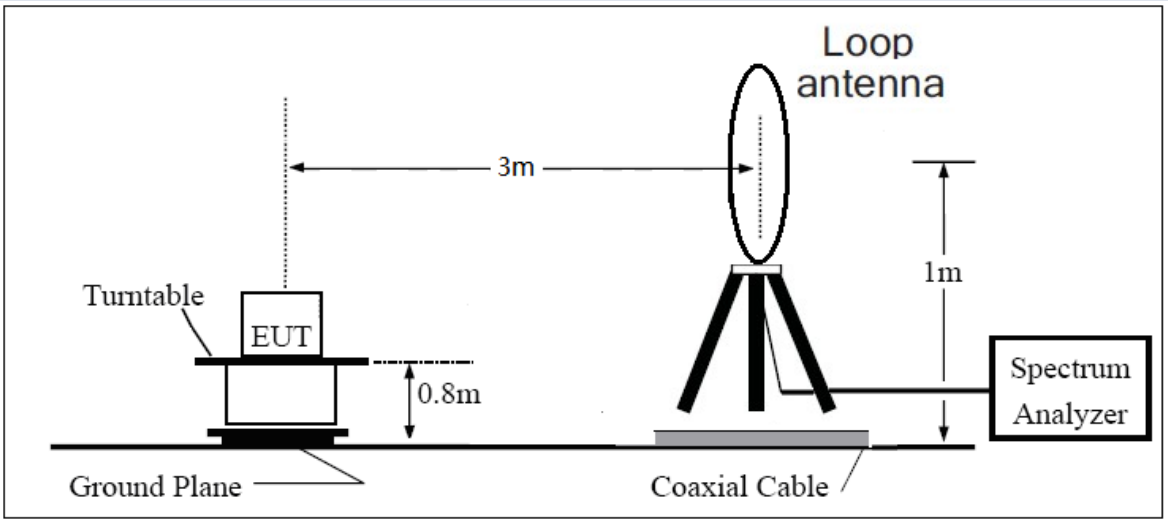
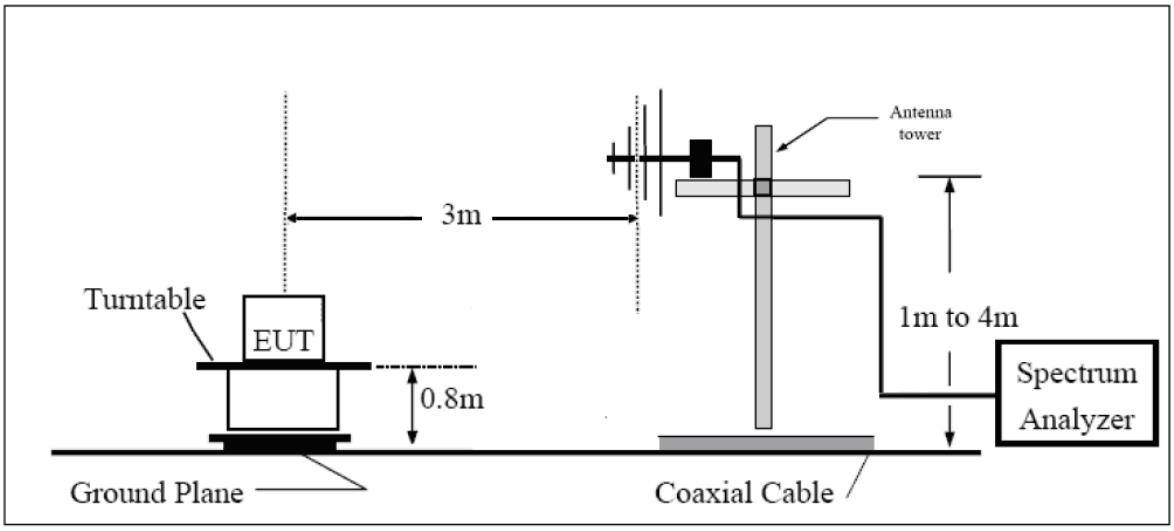
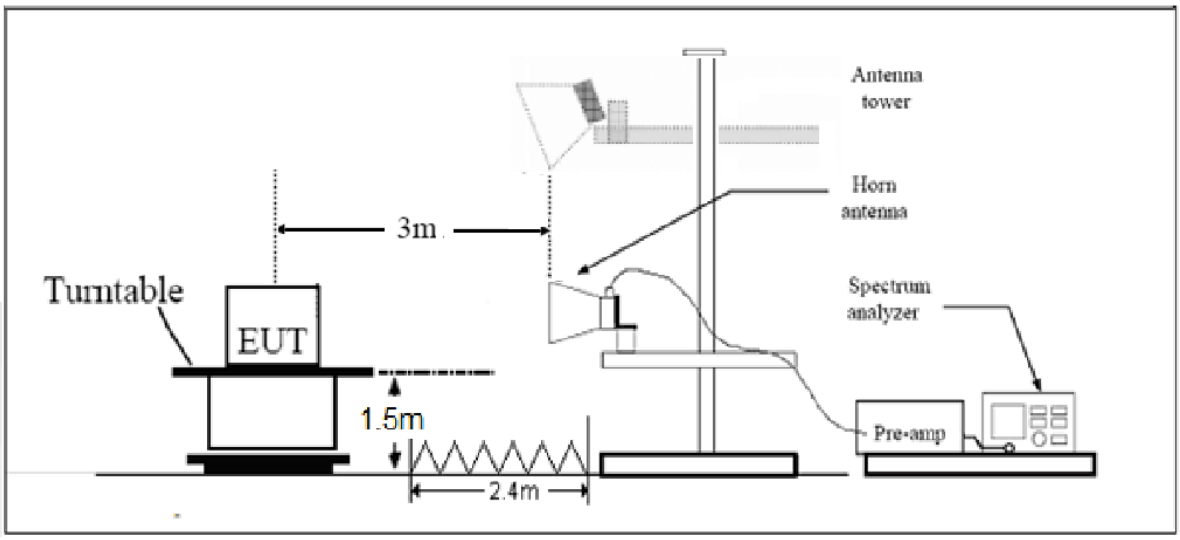
9KHz~~~30MHz



30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

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Limits

(1) 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.

(2) 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).

(3) 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(68.2dBμV/m).

(4) 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(68.2dBμV/m).

Note: the following formula is used to convert the EIRP to field strength

§1、E[dBμV/m] = EIRP[dBm] - 20 log(d[meters]) + 104.77, where E = field strength and

d = distance at which field strength limit is specified in the rules;

§2、E[dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters

(5) 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

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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

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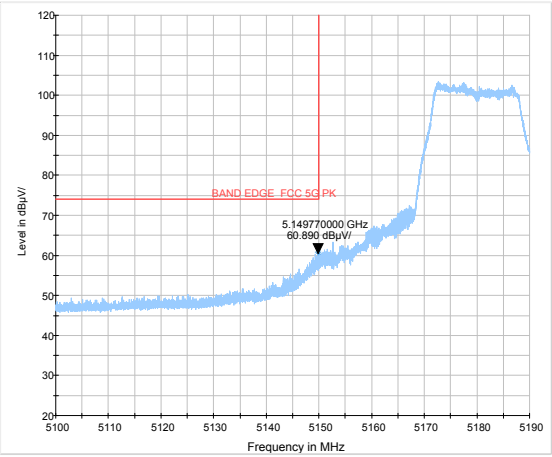
Test Results:

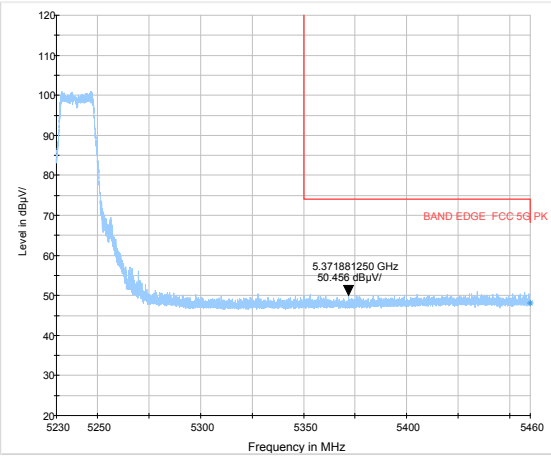
The signal beyond the limit is carrier.

U-NII-1

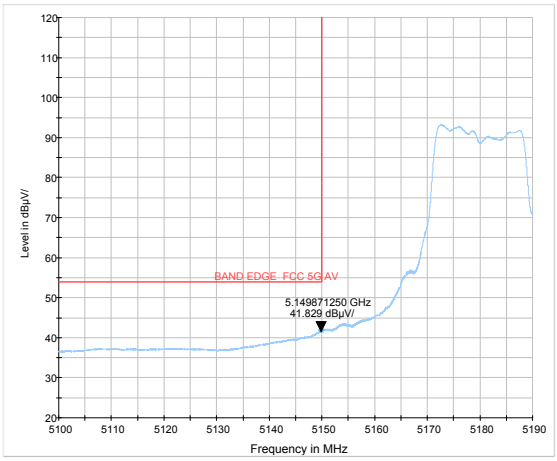
802.11a-Channel 36: Peak



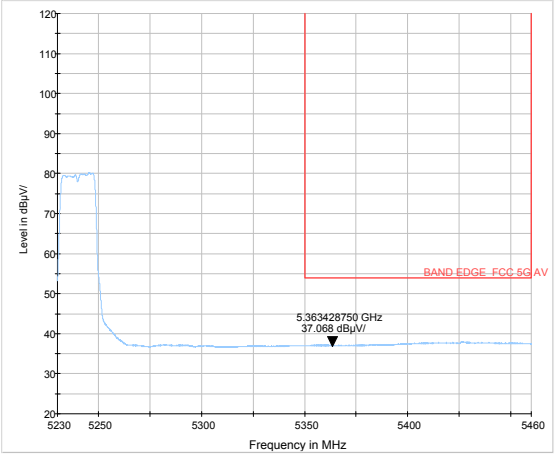
802.11a-Channel 48: Peak



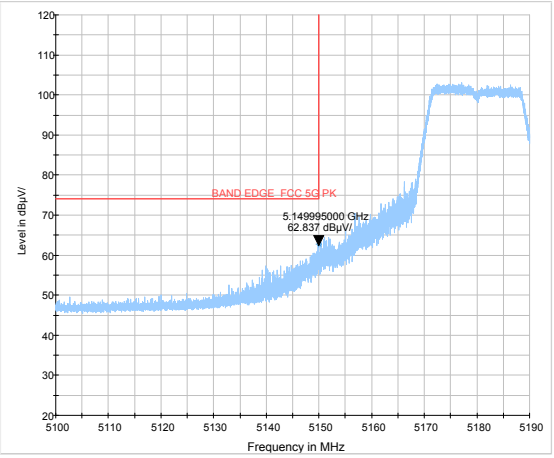
802.11a-Channel 36: Average



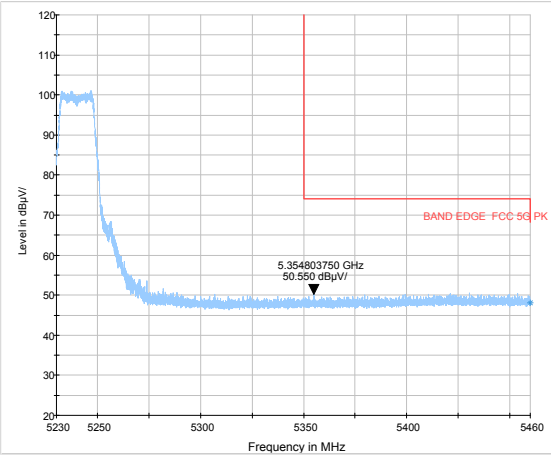
802.11a-Channel 48: Average



802.11n HT20-Channel 36: Peak



802.11n HT20-Channel 48: Peak



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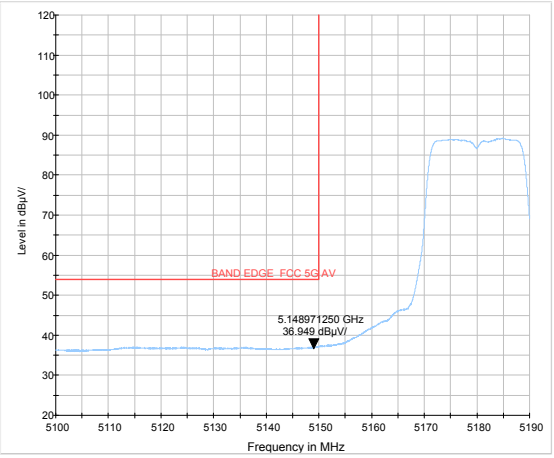
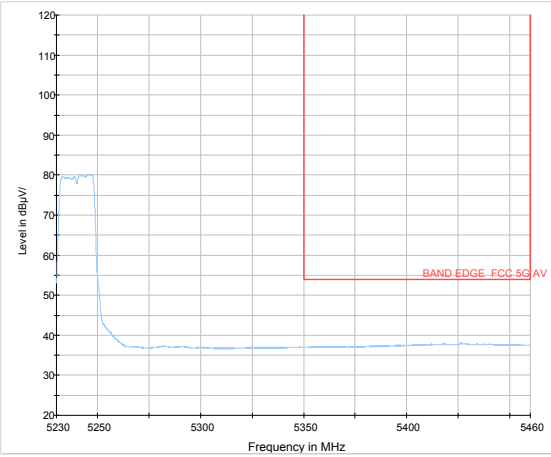
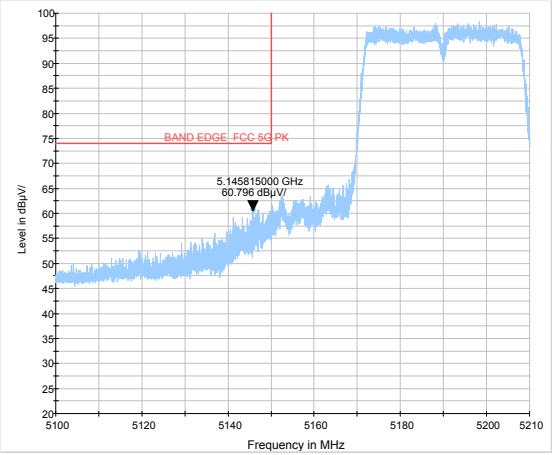
802.11n HT20-Channel 36: Average



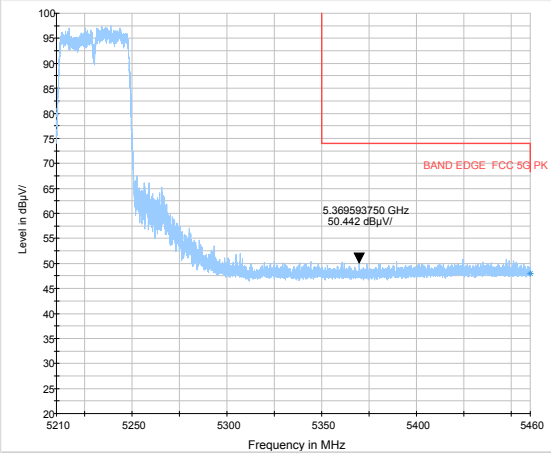
802.11n HT20-Channel 48: Average



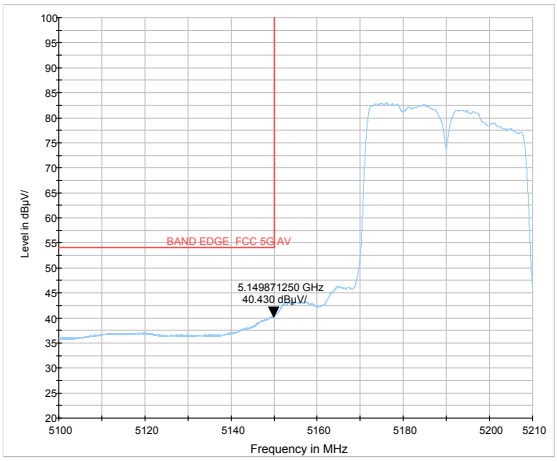
802.11n HT40-Channel 38: Peak



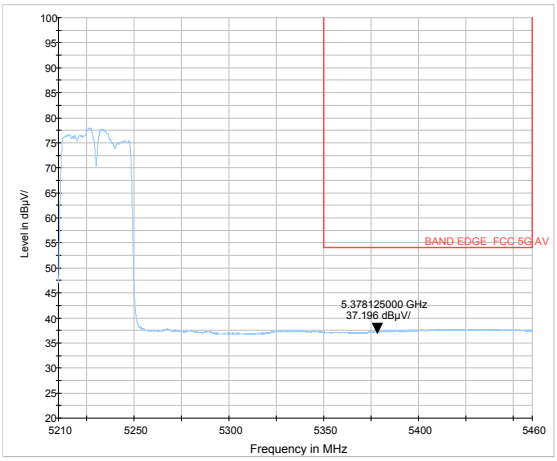
802.11n HT40-Channel 46: Peak



802.11n HT40-Channel 38: Average



802.11n HT40-Channel 46: Average



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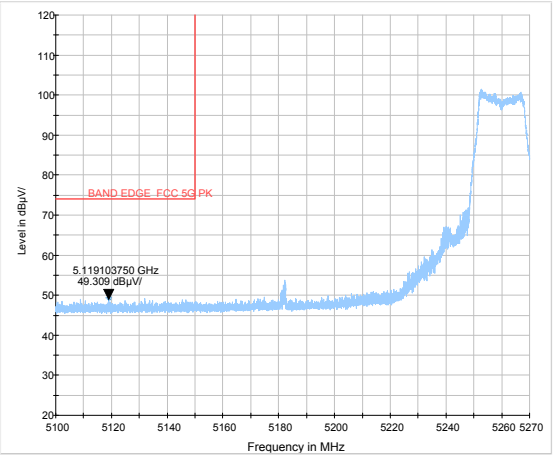
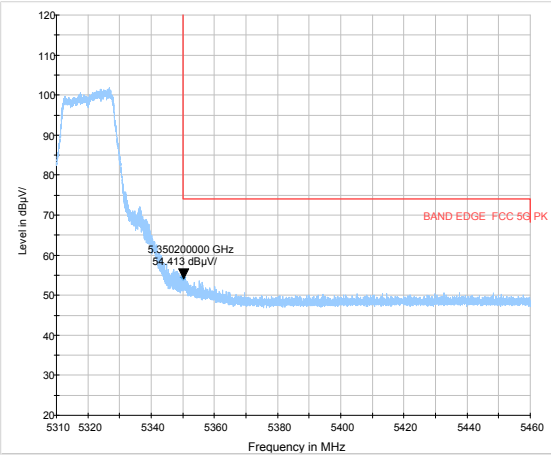
U-NII-2A

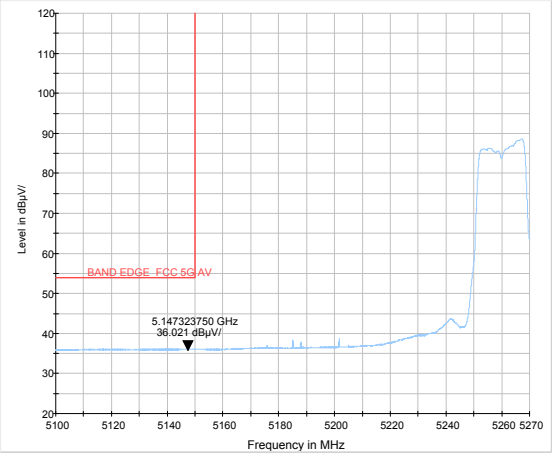
802.11a-Channel 52: Peak



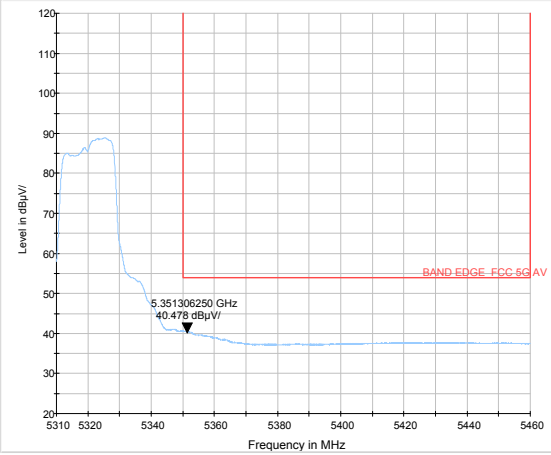
802.11a-Channel 64: Peak



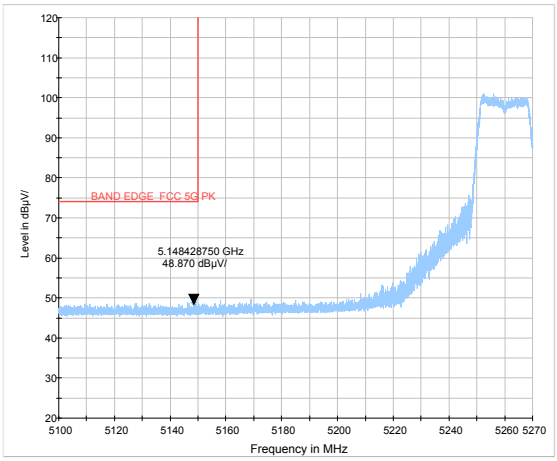
802.11a-Channel 52: Average



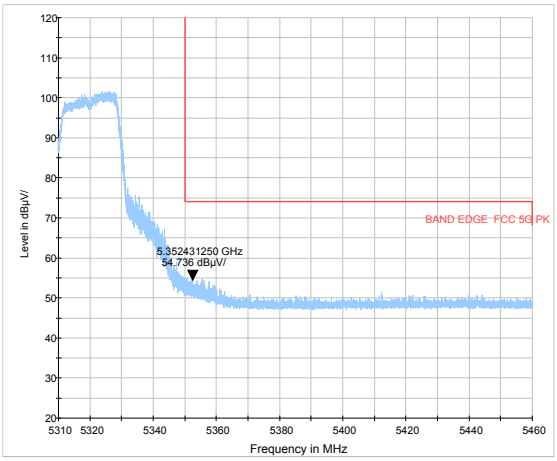
802.11a-Channel 64: Average



802.11n HT20-Channel 52: Peak



802.11n HT20-Channel 64: Peak



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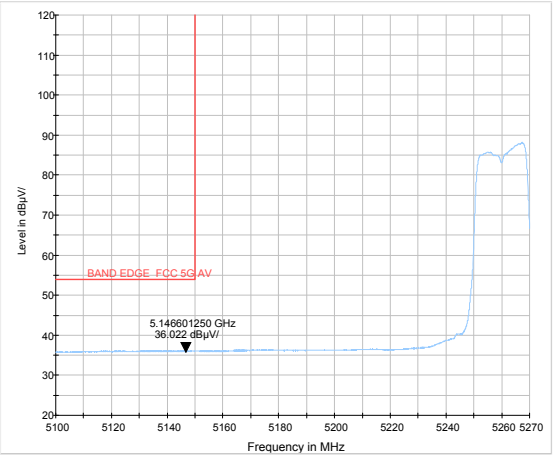
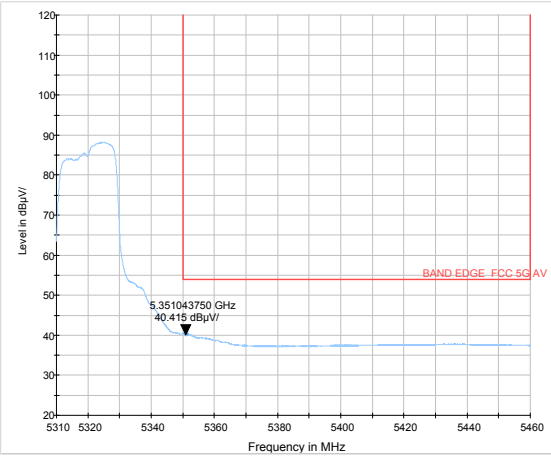
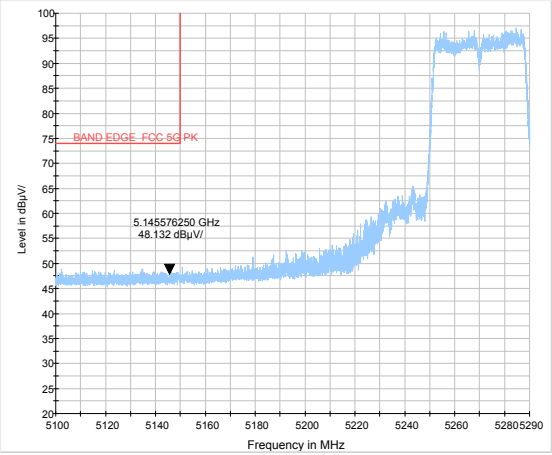
802.11n HT20-Channel 52: Average



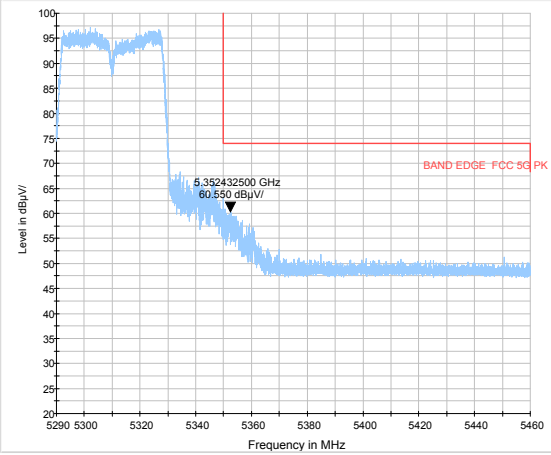
802.11n HT20-Channel 64: Average



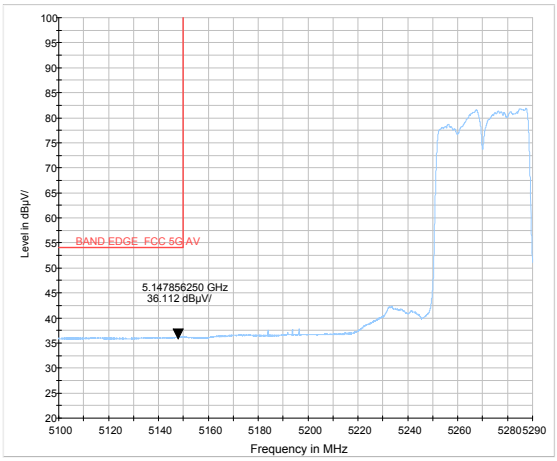
802.11n HT40-Channel 54: Peak



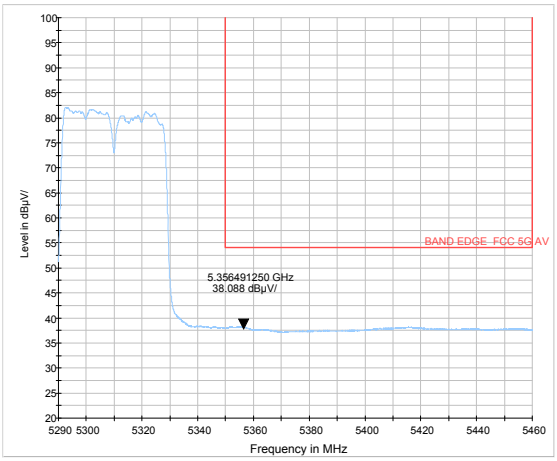
802.11n HT40-Channel 62: Peak



802.11n HT40-Channel 54: Average



802.11n HT40-Channel 62: Average



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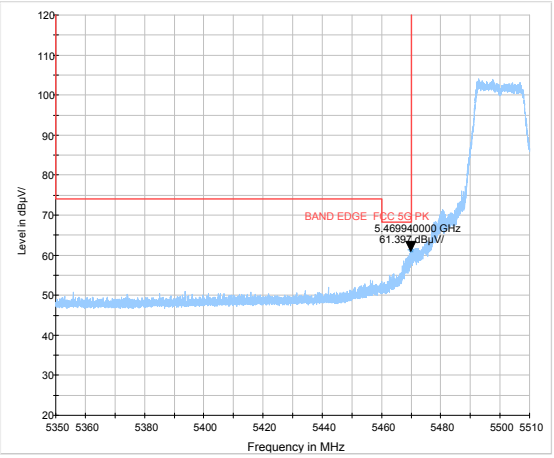
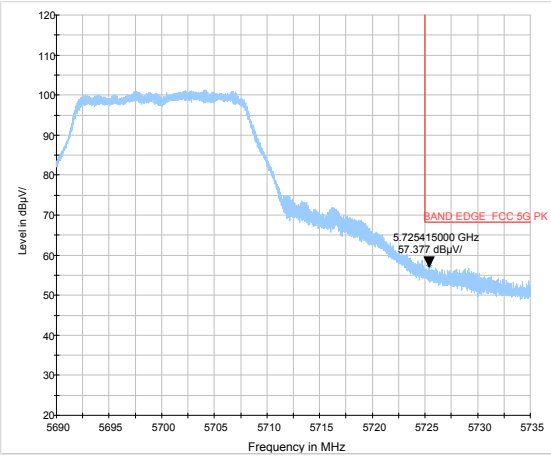
U-NII-2C

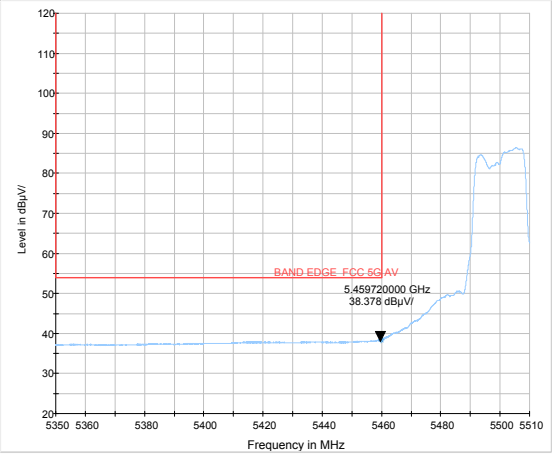
802.11a-Channel 100: Peak



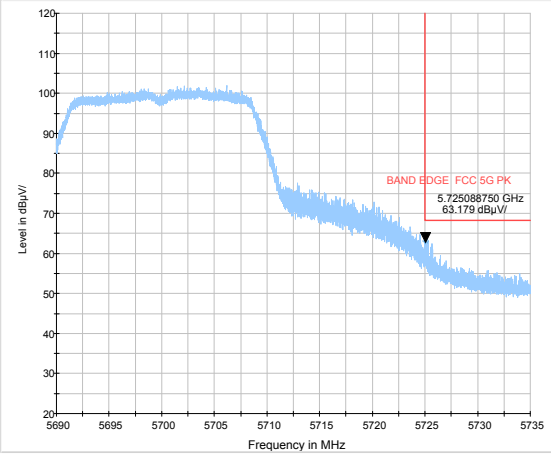
802.11a-Channel 140: Peak



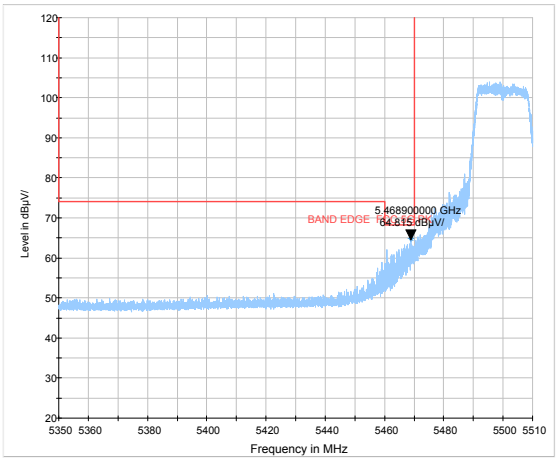
802.11a-Channel 100: Average



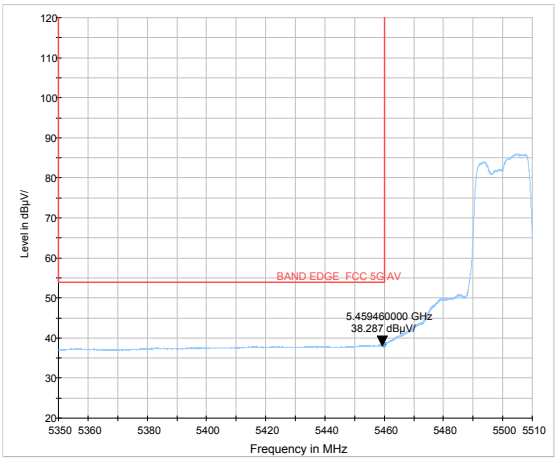
802.11n HT20-Channel 140: Peak



802.11n HT20-Channel 100: Peak



802.11n HT20-Channel 100: Average



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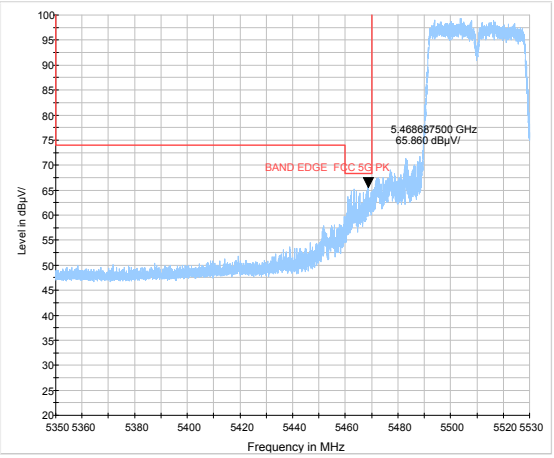
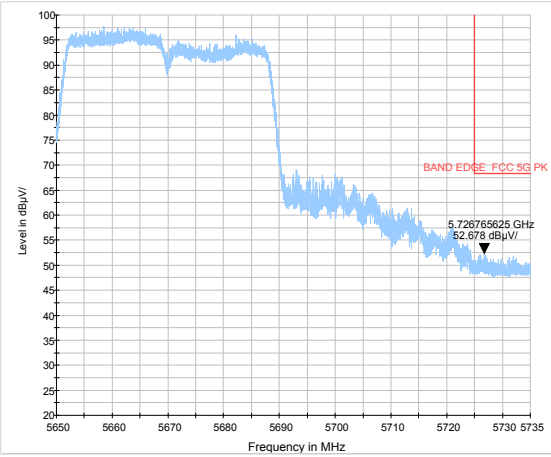
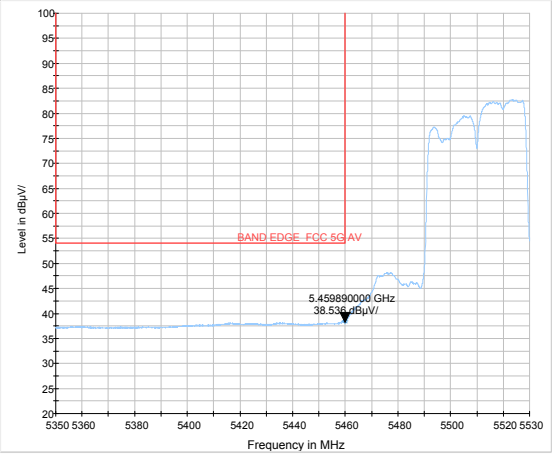
802.11n HT40-Channel 102: Peak



802.11n HT40-Channel 134: Peak



802.11n HT40-Channel 102: Average



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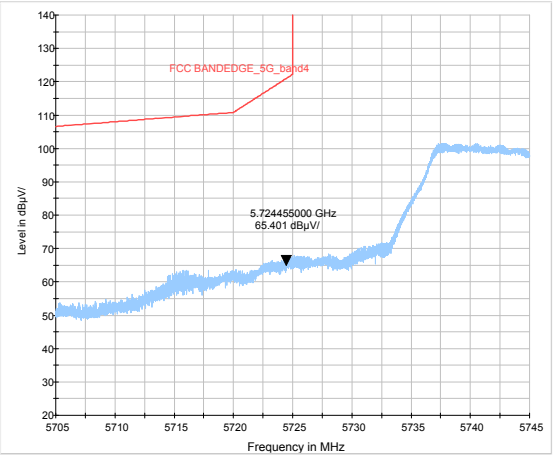
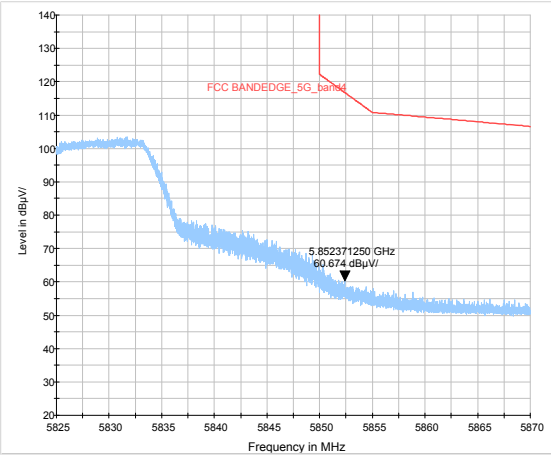
U-NII-3

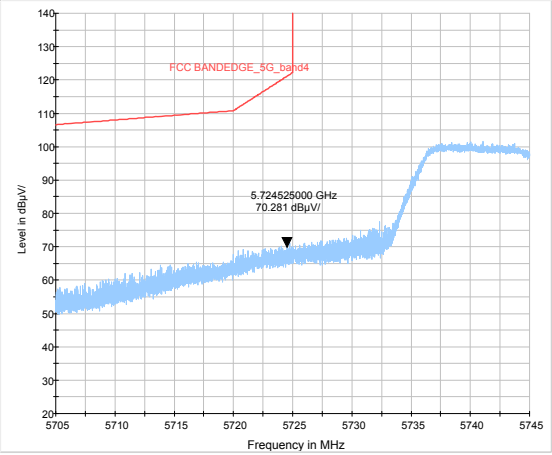
802.11a-Channel 149: Peak



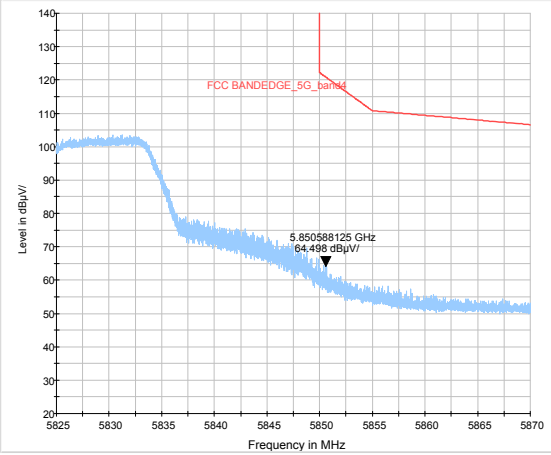
802.11a-Channel 165: Peak



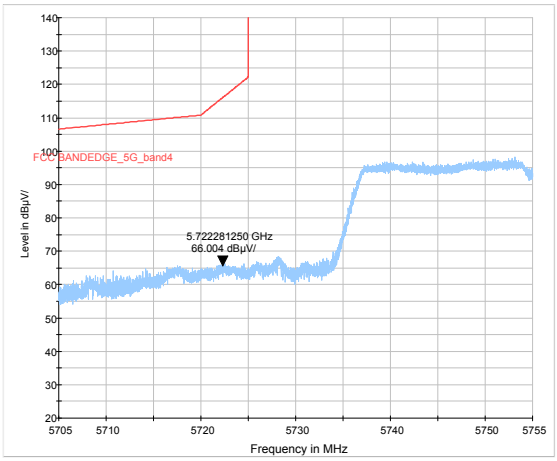
802.11n HT20-Channel 149: Peak



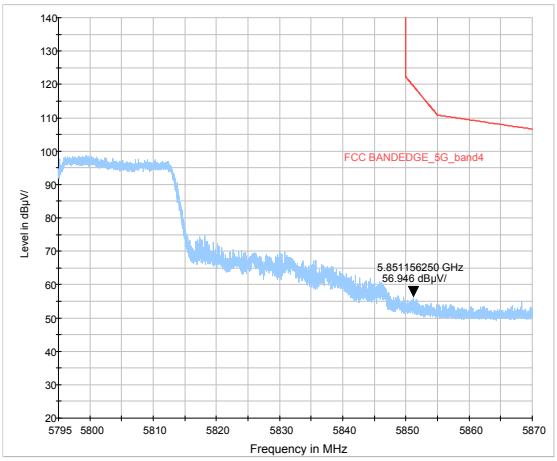
802.11n HT20-Channel 165: Peak



802.11n HT40-Channel 151: Peak



802.11n HT40-Channel 159: Peak



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Result of RE

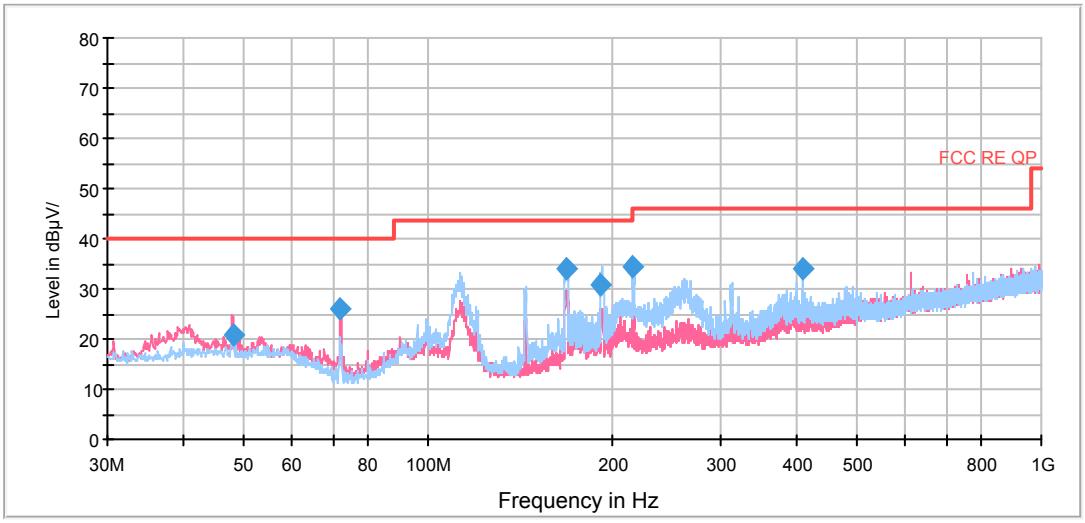
Test result

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, 802.11n(HT20), Channel 116 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)	Reading value (dBuV/m)	Height (cm)	Polarization	Azimuth (deg)	Correct Factor (dB)	Margin (dB)	Limit (dBuV/m)
48.065000	20.6	7.6	100.0	V	154.0	13.0	19.4	40.0
71.992500	26.0	17.4	100.0	V	0.0	8.6	14.0	40.0
167.982500	33.8	23.4	200.0	H	289.0	10.4	9.7	43.5
191.630000	30.7	19.0	100.0	H	279.0	11.7	12.8	43.5
216.077500	34.6	21.9	100.0	H	31.0	12.7	11.4	46.0
407.411250	34.0	15.7	100.0	H	139.0	18.3	12.0	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

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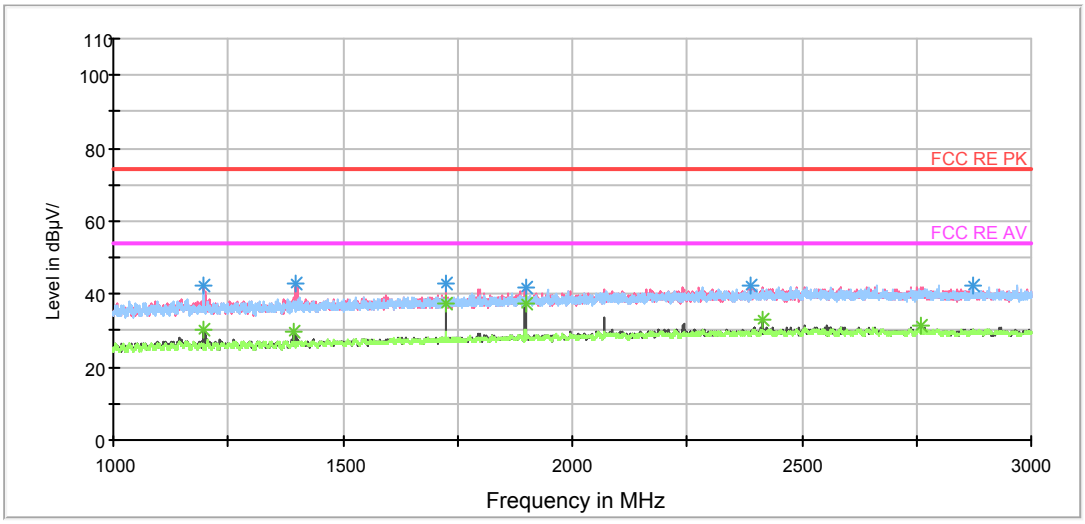
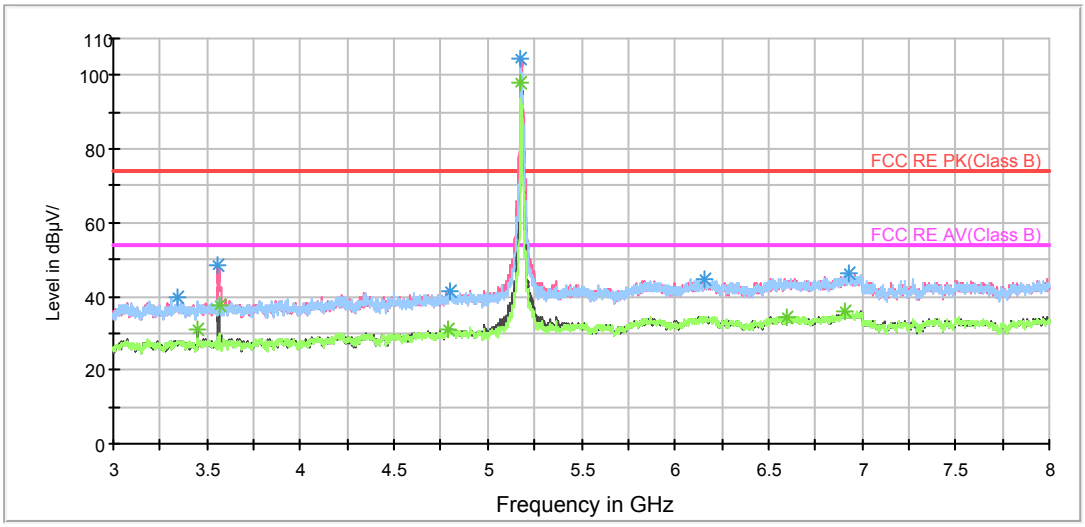
802.11a CH36

FCC RE 1G-3GHz PK+AV Class B



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

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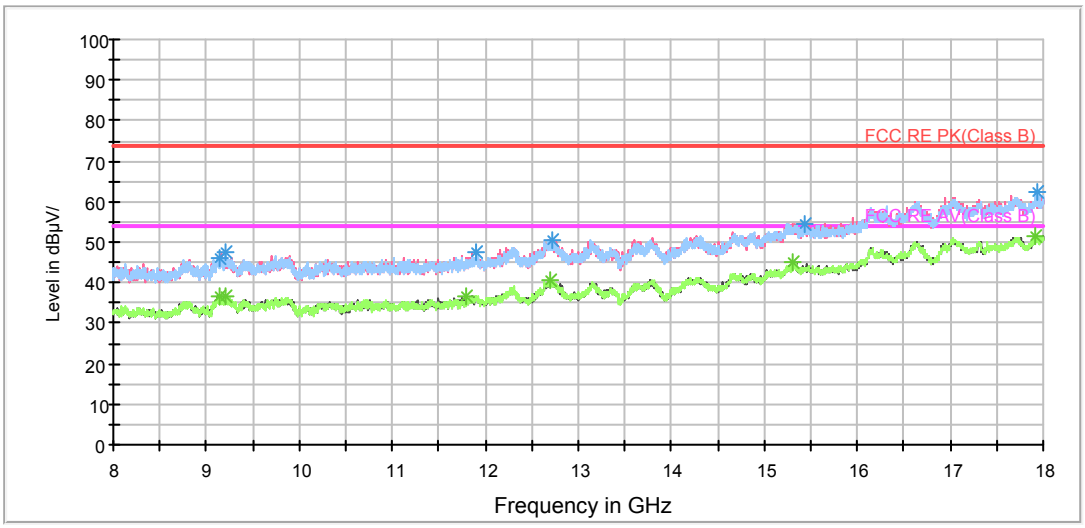
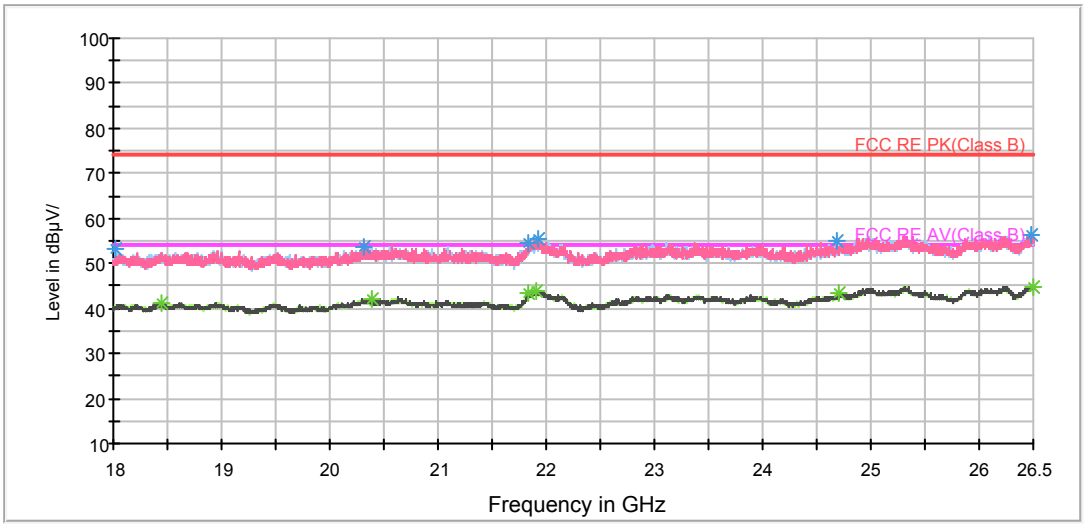
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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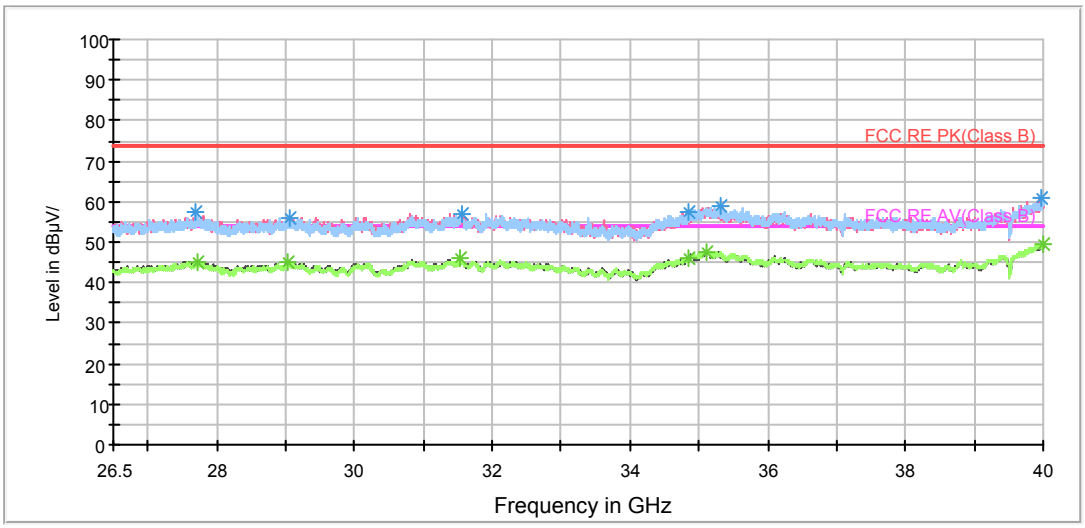
BELL RE 26.5-40GHz PK+AV



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)
3343.125000	39.6	200.0	H	353.0	42.0	-2.4	34.4	74
3556.250000	48.7	200.0	V	296.0	50.8	-2.1	25.3	74
4798.125000	41.2	200.0	V	167.0	39.9	1.3	32.8	74
6163.125000	44.9	200.0	V	53.0	39.3	5.6	29.1	74
6933.750000	46.1	200.0	H	194.0	39.9	6.2	27.9	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)
3453.125000	30.8	100.0	V	279.0	33.0	-2.2	23.2	54
3566.250000	37.4	200.0	V	296.0	39.6	-2.2	16.6	54
4792.500000	31.1	200.0	H	194.0	29.9	1.2	22.9	54
6602.500000	34.6	100.0	V	0.0	28.9	5.7	19.4	54
6906.875000	35.8	200.0	H	353.0	29.5	6.3	18.2	54

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

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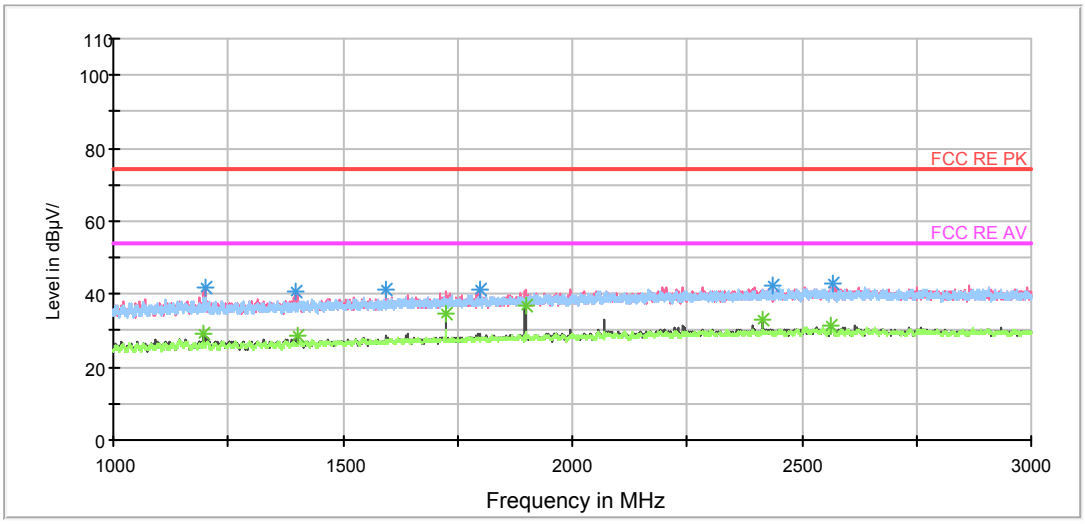
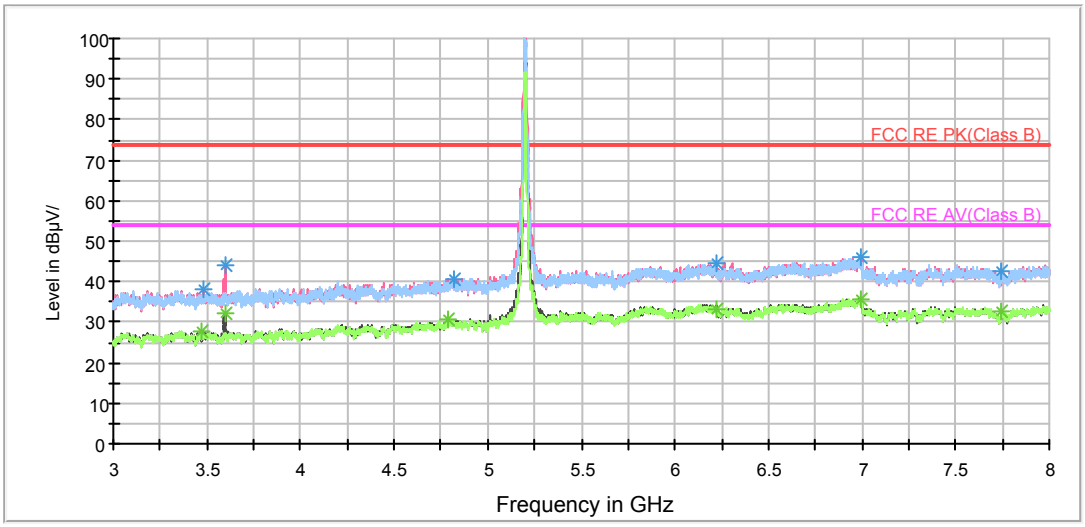
802.11a CH40

FCC RE 1G-3GHz PK+AV Class B



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

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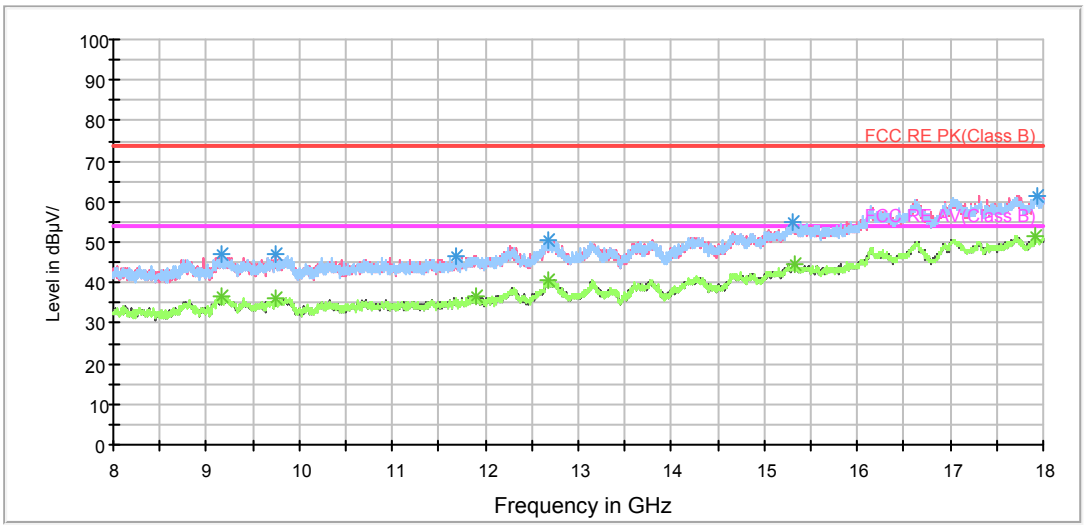
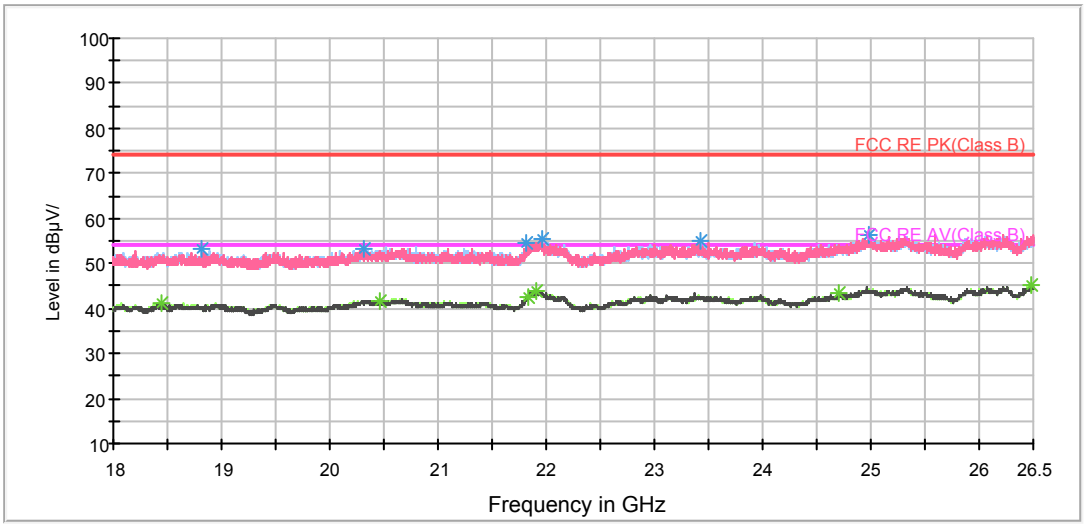
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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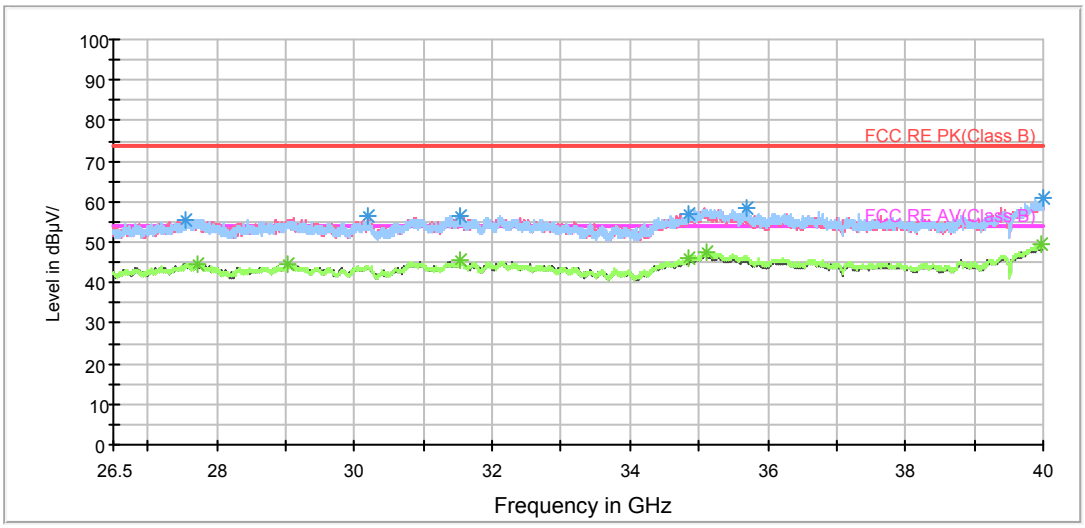
BELL RE 26.5-40GHz PK+AV



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)
3485.000000	38.0	200.0	V	0.0	40.0	-2.0	36.0	74
3600.625000	43.9	200.0	V	282.0	46.1	-2.2	30.1	74
4818.125000	40.8	200.0	V	15.0	39.5	1.3	33.2	74
6221.250000	44.6	100.0	V	298.0	39.2	5.4	29.4	74
6990.625000	46.2	100.0	H	166.0	39.7	6.5	27.8	74
7744.375000	42.6	100.0	H	0.0	35.6	7.0	31.4	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	27.9	200.0	V	8.0	30.0	-2.1	26.1	54
3598.125000	32.0	200.0	V	307.0	34.2	-2.2	22.0	54
4791.250000	30.4	100.0	V	135.0	29.2	1.2	23.6	54
6221.250000	33.0	100.0	V	298.0	27.6	5.4	21.0	54
6991.250000	35.9	100.0	V	235.0	29.4	6.5	18.1	54
7748.125000	32.6	200.0	H	136.0	25.6	7.0	21.4	54

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

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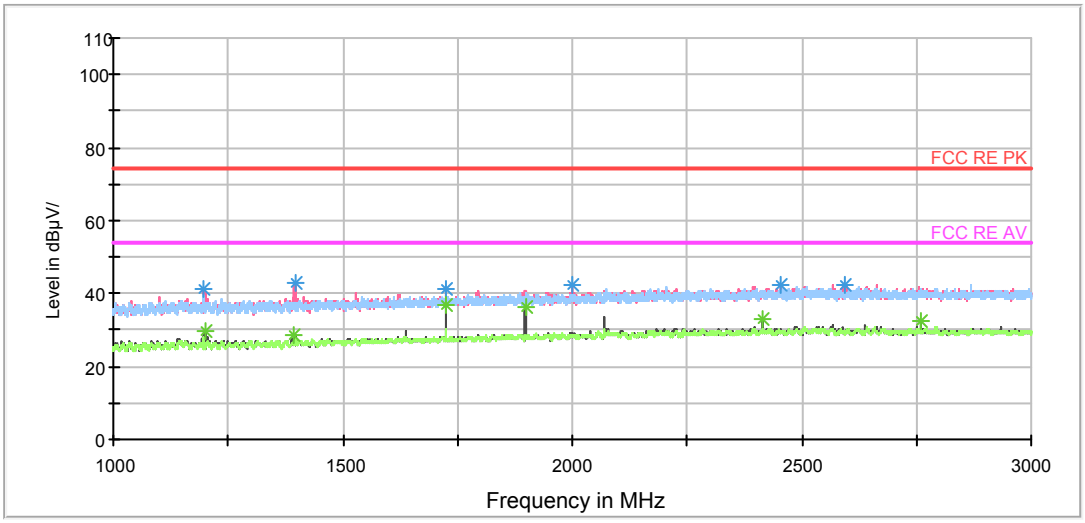
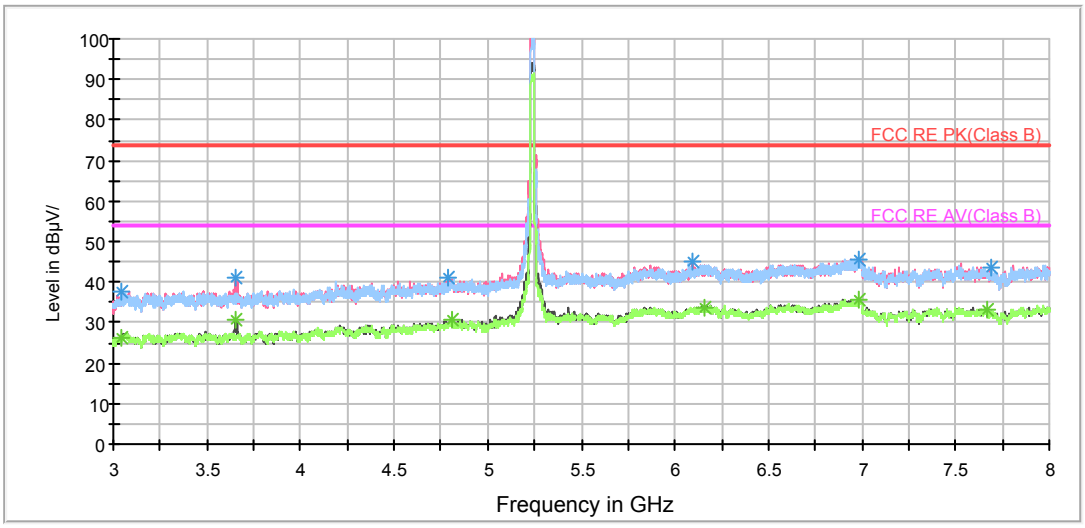
802.11a CH48

FCC RE 1G-3GHz PK+AV Class B



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

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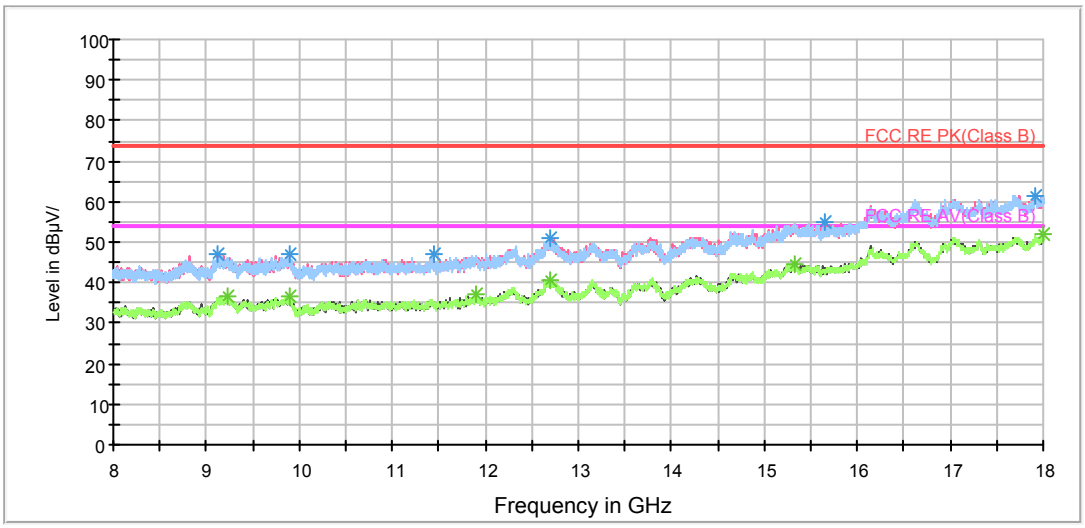
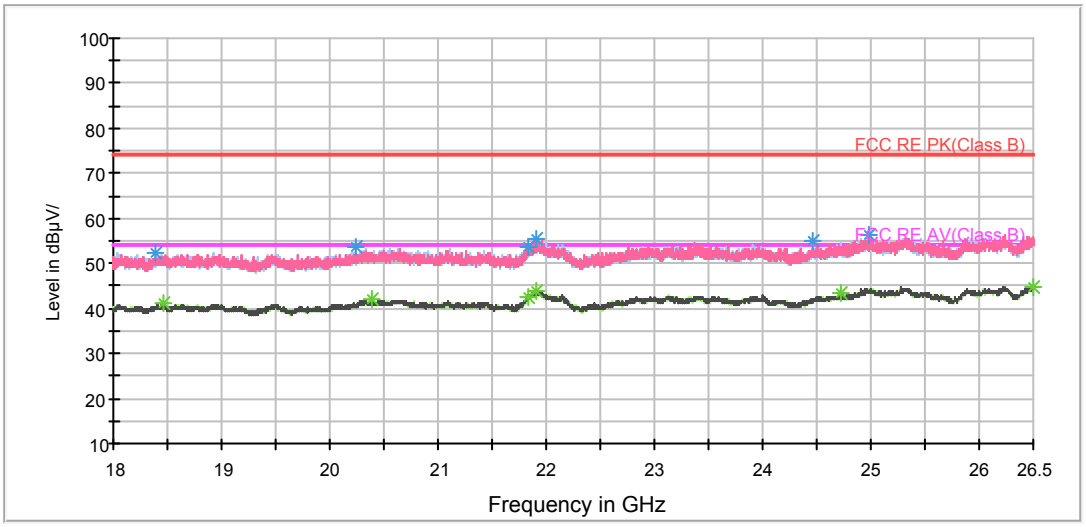
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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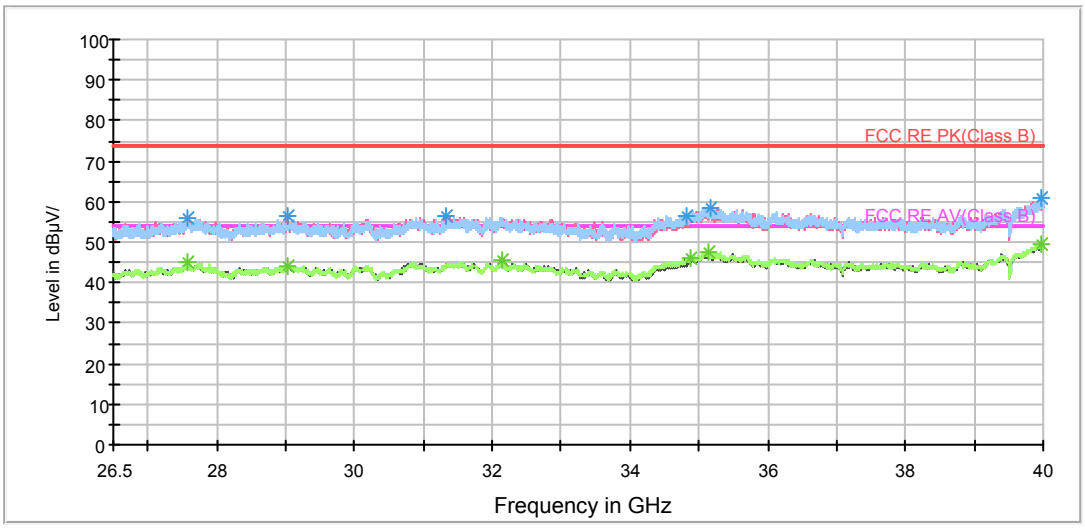
BELL RE 26.5-40GHz PK+AV



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)
3044.375000	37.8	100.0	H	158.0	41.0	-3.2	36.2	74
3655.625000	41.0	200.0	V	314.0	42.9	-1.9	33.0	74
4793.125000	41.0	200.0	V	62.0	39.8	1.2	33.0	74
6093.750000	44.9	200.0	V	0.0	39.8	5.1	29.1	74
6986.250000	45.8	100.0	V	296.0	39.4	6.4	28.2	74
7687.500000	43.8	100.0	V	327.0	37.1	6.7	30.2	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)
3044.375000	26.4	100.0	H	158.0	29.6	-3.2	27.6	54
3655.625000	30.9	200.0	V	314.0	32.8	-1.9	23.1	54
4808.750000	30.6	200.0	H	0.0	29.3	1.3	23.4	54
6154.375000	33.9	100.0	V	146.0	28.3	5.6	20.1	54
6985.000000	35.7	200.0	H	0.0	29.3	6.4	18.3	54
7663.125000	33.2	100.0	V	0.0	26.4	6.8	20.8	54

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

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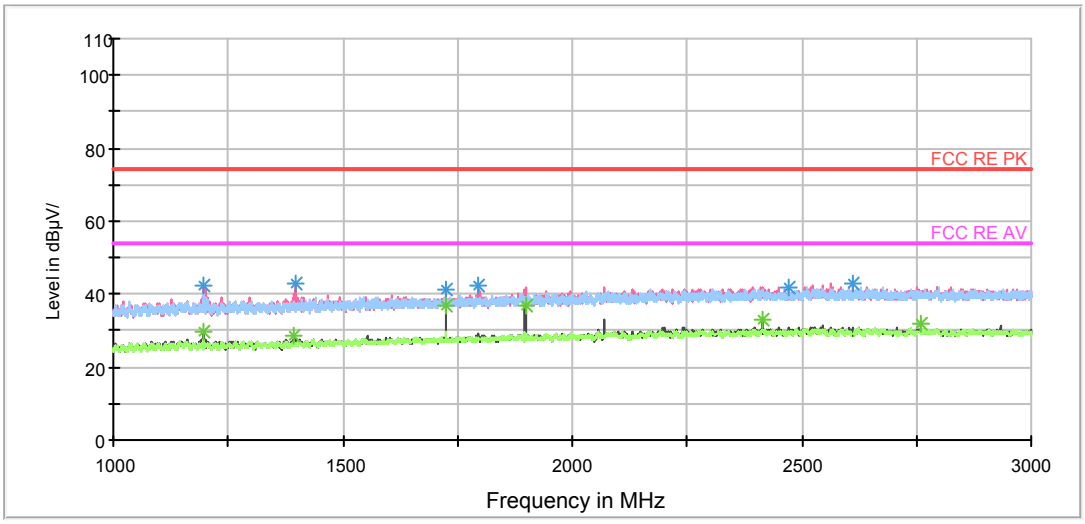
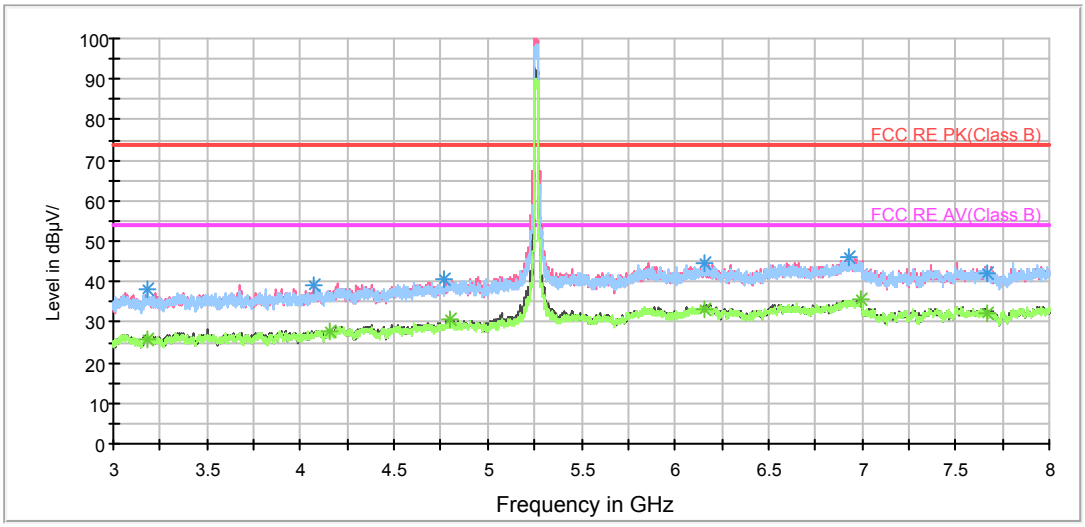
802.11a CH52

FCC RE 1G-3GHz PK+AV Class B



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

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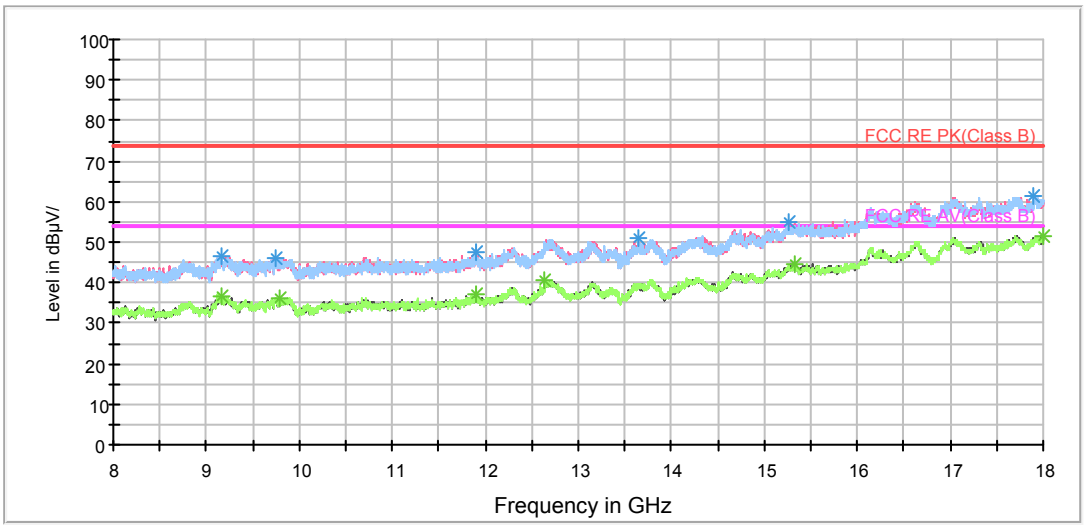
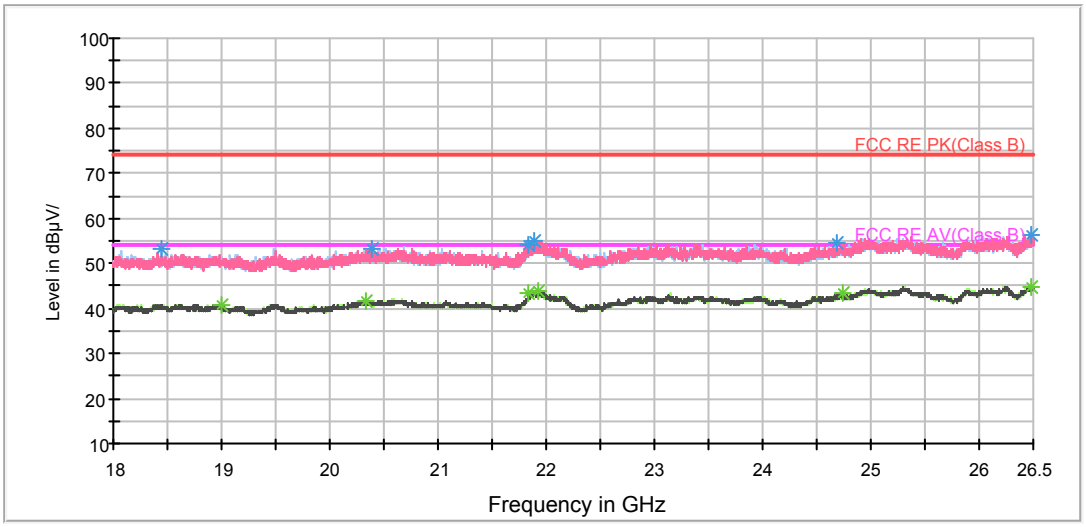
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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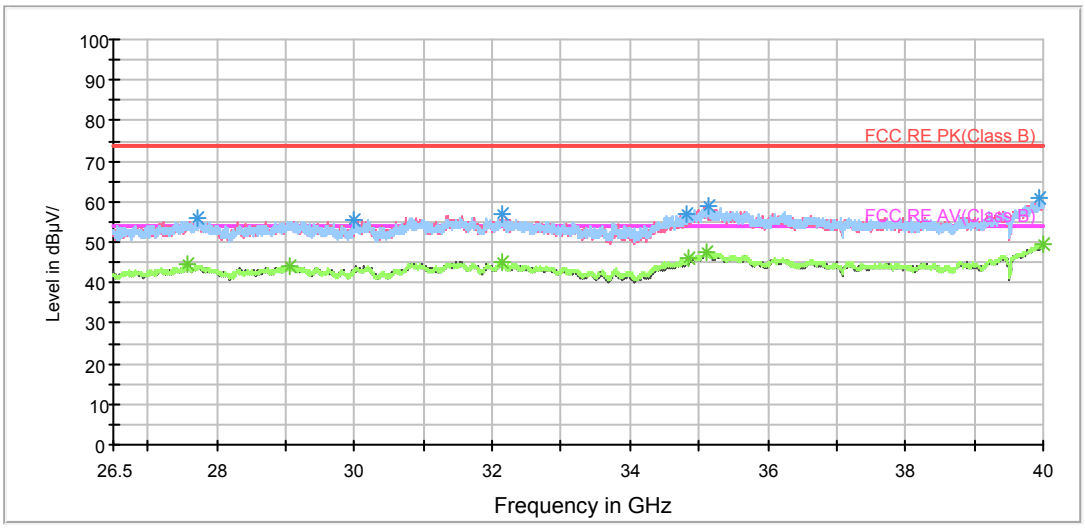
BELL RE 26.5-40GHz PK+AV



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)
3182.500000	38.1	200.0	H	14.0	41.0	-2.9	35.9	74
4071.250000	39.0	200.0	V	136.0	40.0	-1.0	35.0	74
4771.875000	40.6	200.0	V	350.0	39.5	1.1	33.4	74
6155.000000	44.6	200.0	V	326.0	39.0	5.6	29.4	74
6925.625000	45.9	200.0	V	145.0	39.7	6.2	28.1	74
7670.625000	41.8	200.0	V	302.0	35.1	6.7	32.2	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)
3182.500000	25.8	200.0	H	14.0	28.7	-2.9	28.2	54
4152.500000	28.0	200.0	V	273.0	28.1	-0.1	26.0	54
4799.375000	30.5	200.0	V	326.0	29.2	1.3	23.5	54
6155.000000	33.2	200.0	V	326.0	27.6	5.6	20.8	54
6991.875000	35.4	200.0	V	111.0	28.9	6.5	18.6	54
7664.375000	32.3	200.0	V	257.0	25.5	6.8	21.7	54

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

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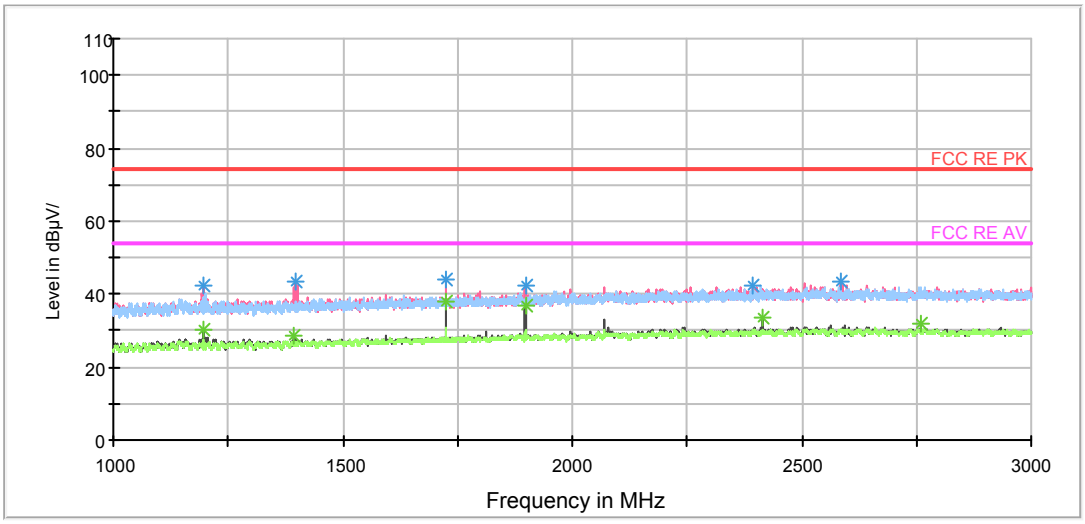
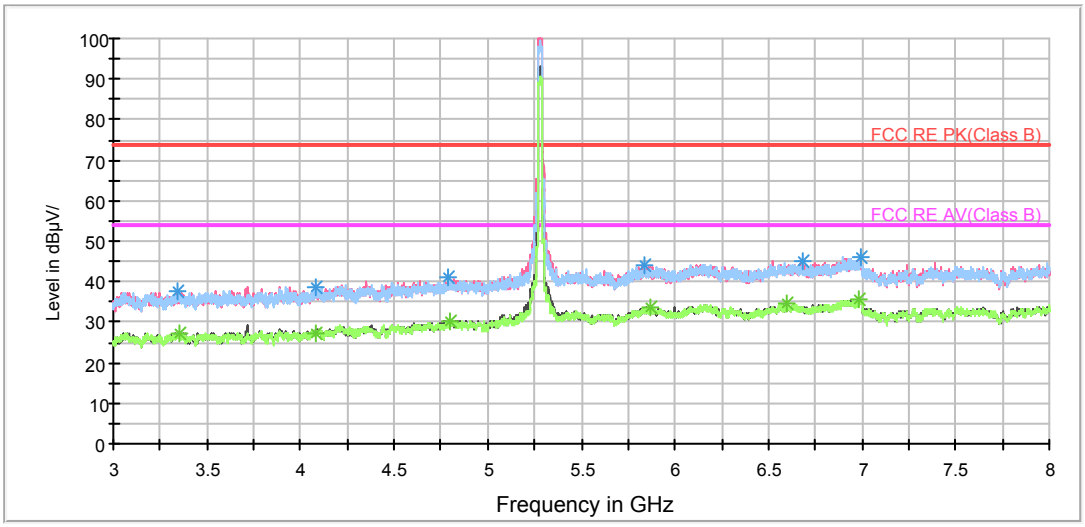
802.11a CH56

FCC RE 1G-3GHz PK+AV Class B



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

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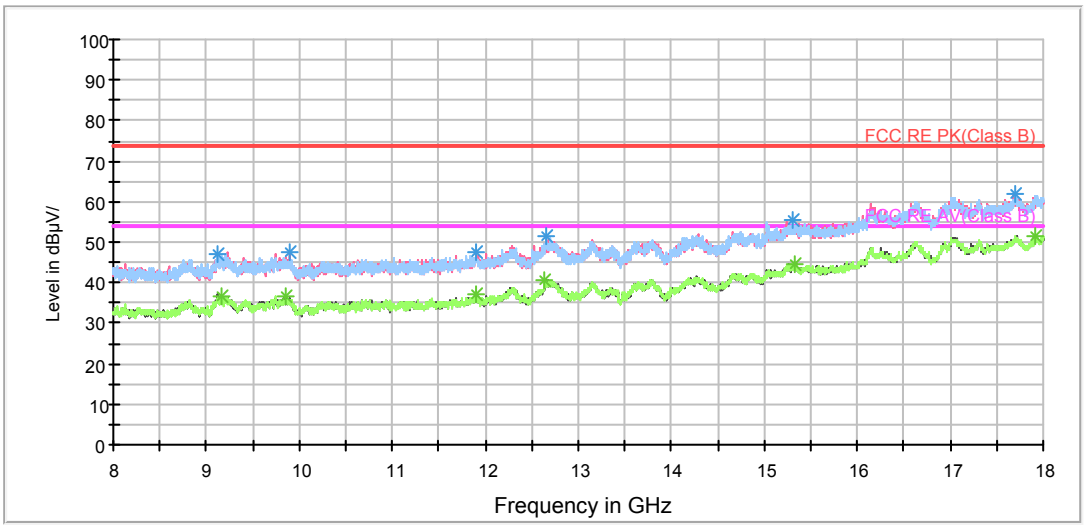
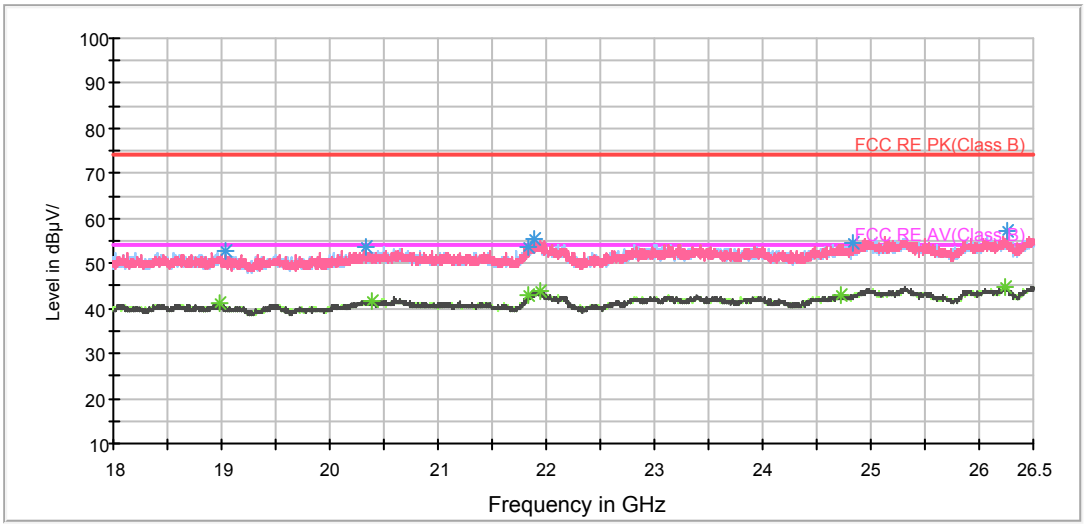
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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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)
3342.500000	37.7	100.0	V	146.0	40.1	-2.4	36.3	74
4083.750000	38.8	100.0	V	171.0	39.7	-0.9	35.2	74
4793.125000	41.1	200.0	V	78.0	39.9	1.2	32.9	74
5841.875000	43.9	200.0	H	0.0	39.4	4.5	30.1	74
6681.250000	45.0	200.0	V	0.0	39.5	5.5	29.0	74
6998.125000	45.9	100.0	V	136.0	39.4	6.5	28.1	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)
3350.000000	27.5	100.0	H	51.0	29.8	-2.3	26.5	54
4083.750000	27.1	100.0	V	171.0	28.0	-0.9	26.9	54
4796.250000	30.4	100.0	V	78.0	29.2	1.2	23.6	54
5873.125000	33.6	200.0	V	0.0	28.7	4.9	20.4	54
6594.375000	34.5	100.0	V	178.0	28.9	5.6	19.5	54
6985.625000	35.4	200.0	V	23.0	29.0	6.4	18.6	54

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

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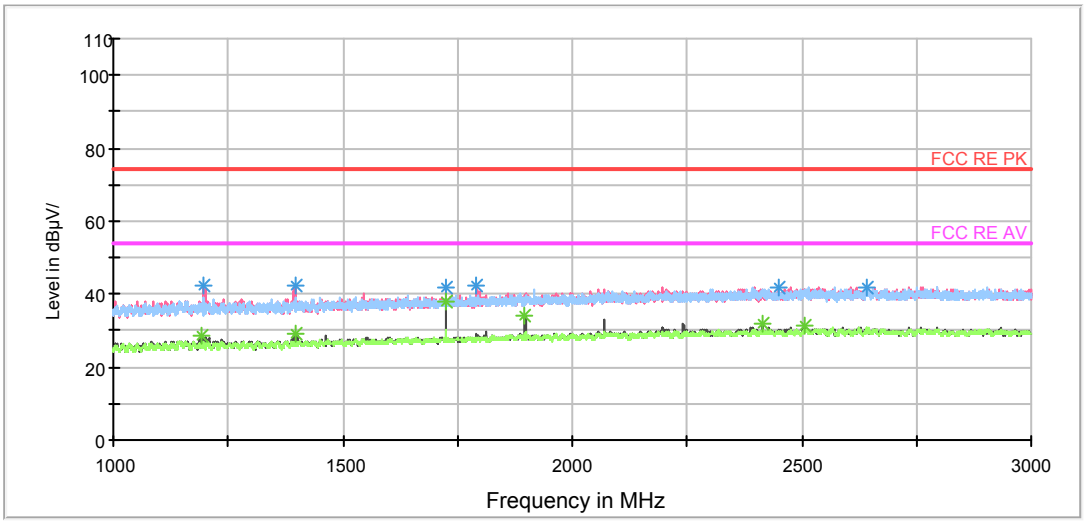
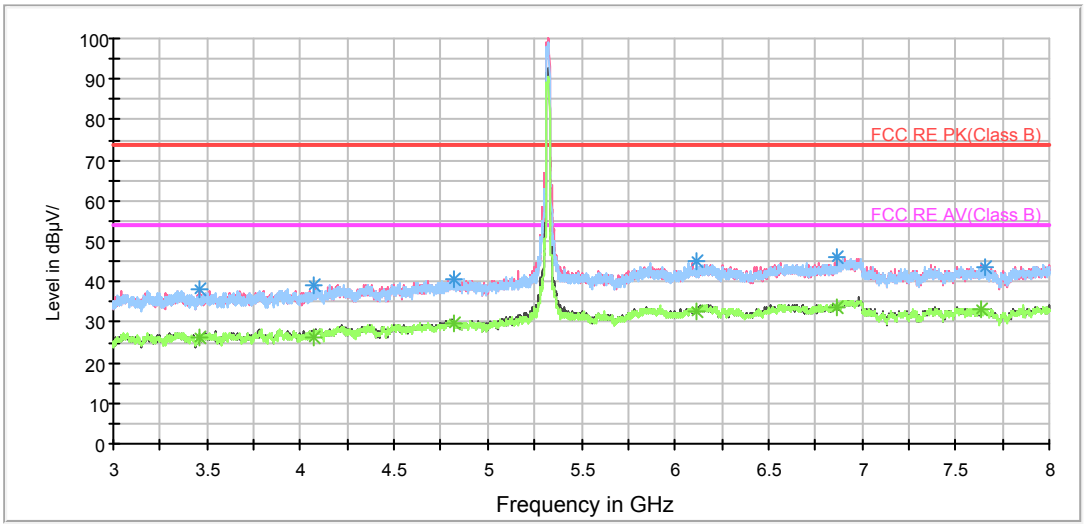
802.11a CH64

FCC RE 1G-3GHz PK+AV Class B



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

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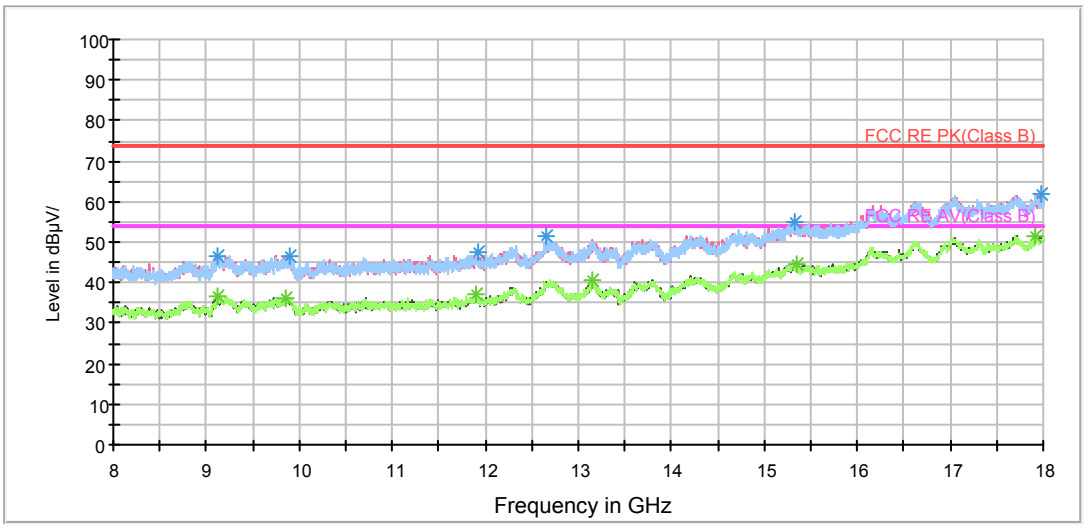
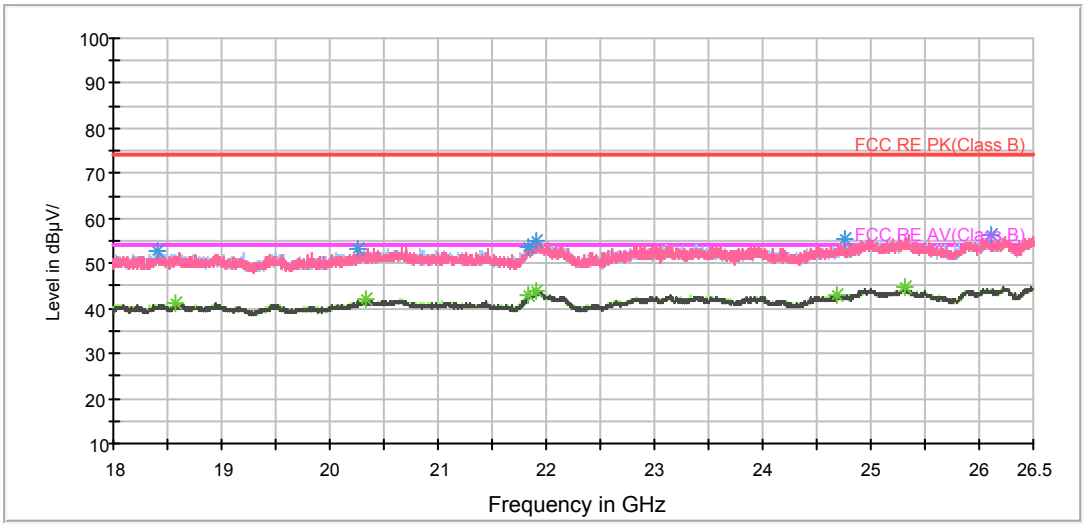
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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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)
3463.750000	37.9	200.0	V	50.0	40.0	-2.1	36.1	74
4073.750000	39.1	200.0	H	0.0	40.0	-0.9	34.9	74
4820.625000	40.8	100.0	H	108.0	39.5	1.3	33.2	74
6120.625000	45.1	100.0	H	131.0	39.7	5.4	28.9	74
6868.125000	46.1	200.0	V	74.0	40.2	5.9	27.9	74
7655.625000	43.6	200.0	H	151.0	36.7	6.9	30.4	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)
3463.750000	26.1	200.0	V	50.0	28.2	-2.1	27.9	54
4073.750000	26.5	200.0	H	0.0	27.4	-0.9	27.5	54
4820.625000	29.5	100.0	H	108.0	28.2	1.3	24.5	54
6120.625000	32.6	100.0	H	131.0	27.2	5.4	21.4	54
6868.125000	33.4	200.0	V	74.0	27.5	5.9	20.6	54
7633.125000	33.2	100.0	H	269.0	26.3	6.9	20.8	54

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

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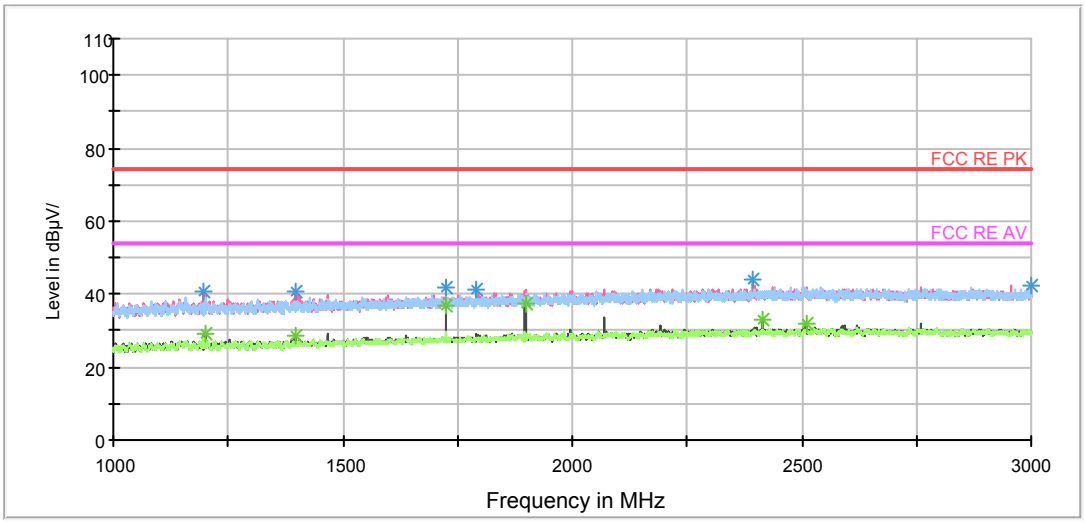
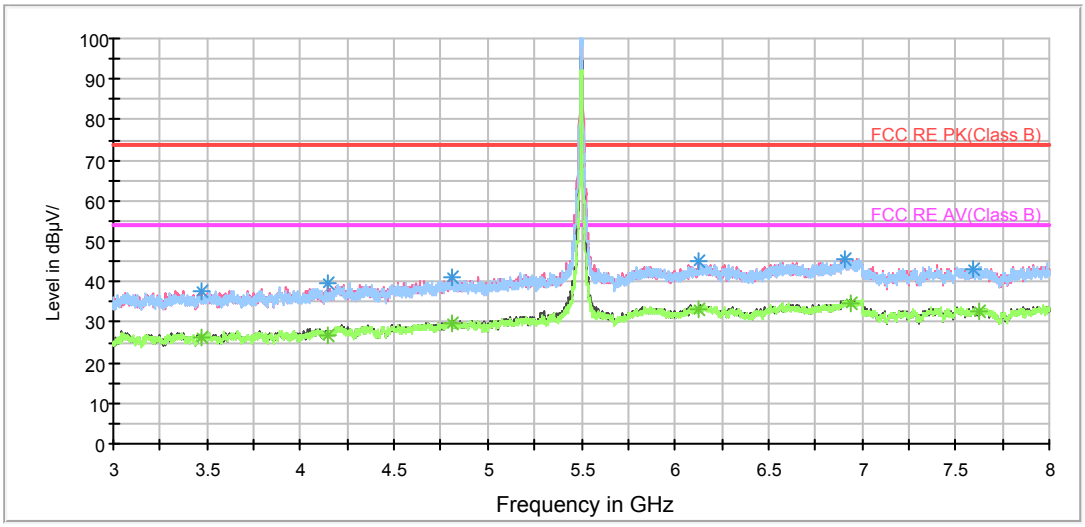
802.11a CH100

FCC RE 1G-3GHz PK+AV Class B



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

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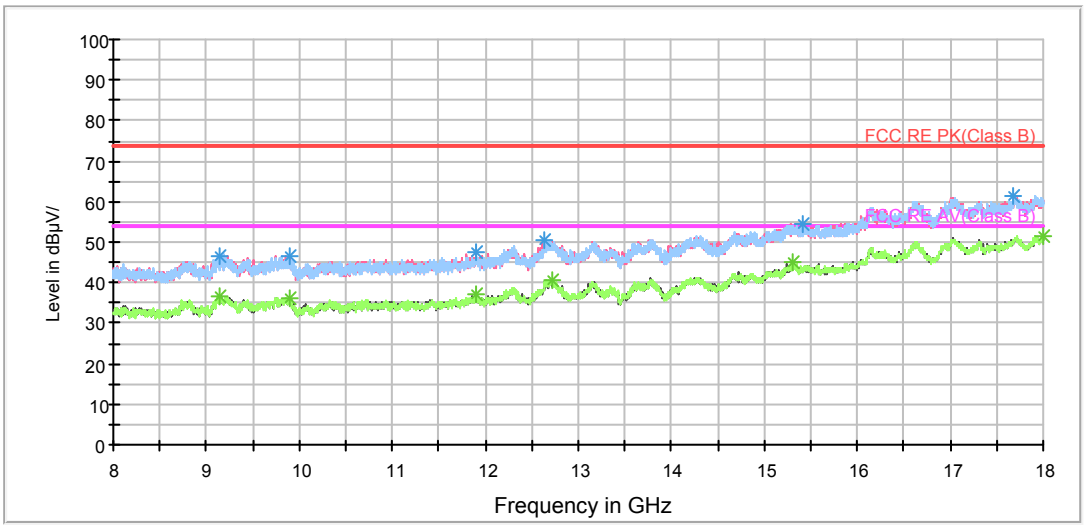
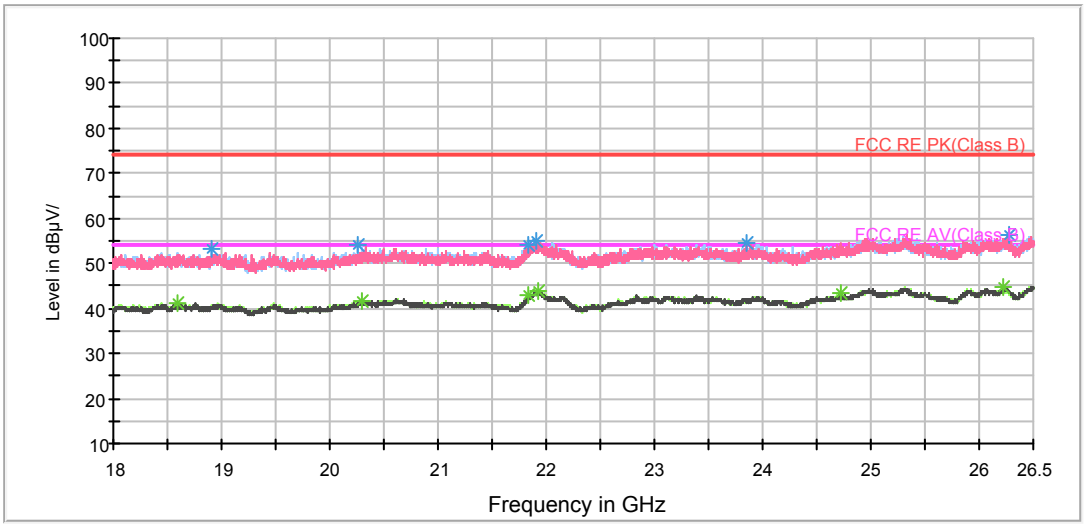
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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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)
3473.125000	37.8	100.0	V	297.0	39.9	-2.1	36.2	74
4145.000000	39.4	100.0	V	0.0	39.6	-0.2	34.6	74
4813.125000	41.0	100.0	H	52.0	39.7	1.3	33.0	74
6128.125000	44.8	200.0	V	108.0	39.4	5.4	29.2	74
6908.125000	45.7	200.0	H	102.0	39.5	6.2	28.3	74
7588.750000	43.2	100.0	H	115.0	36.1	7.1	30.8	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)
3473.125000	26.1	100.0	V	297.0	28.2	-2.1	27.9	54
4145.000000	26.6	100.0	V	0.0	26.8	-0.2	27.4	54
4813.125000	29.8	100.0	H	52.0	28.5	1.3	24.2	54
6128.125000	33.0	200.0	V	108.0	27.6	5.4	21.0	54
6943.125000	34.8	100.0	H	138.0	28.7	6.1	19.2	54
7628.750000	32.5	100.0	H	281.0	25.7	6.8	21.5	54

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

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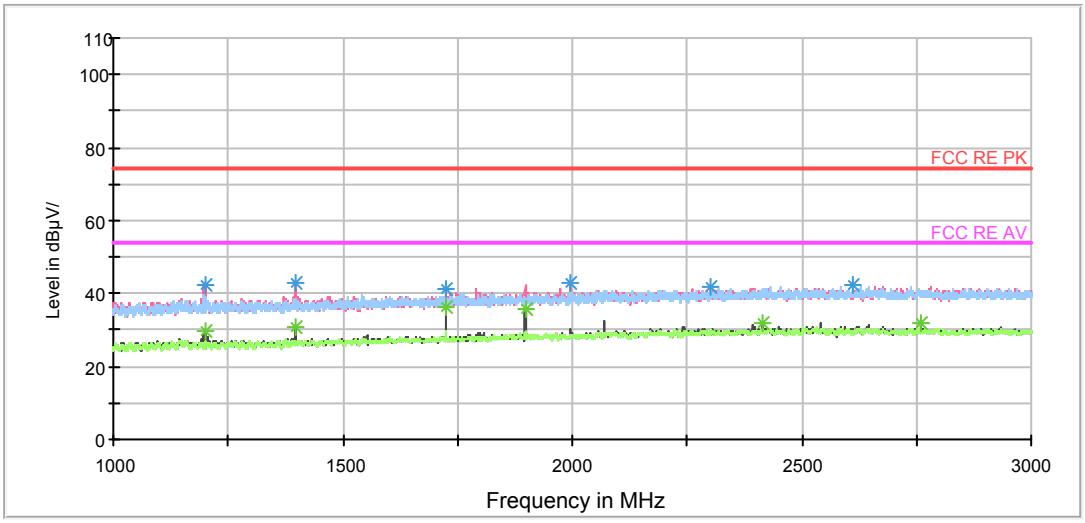
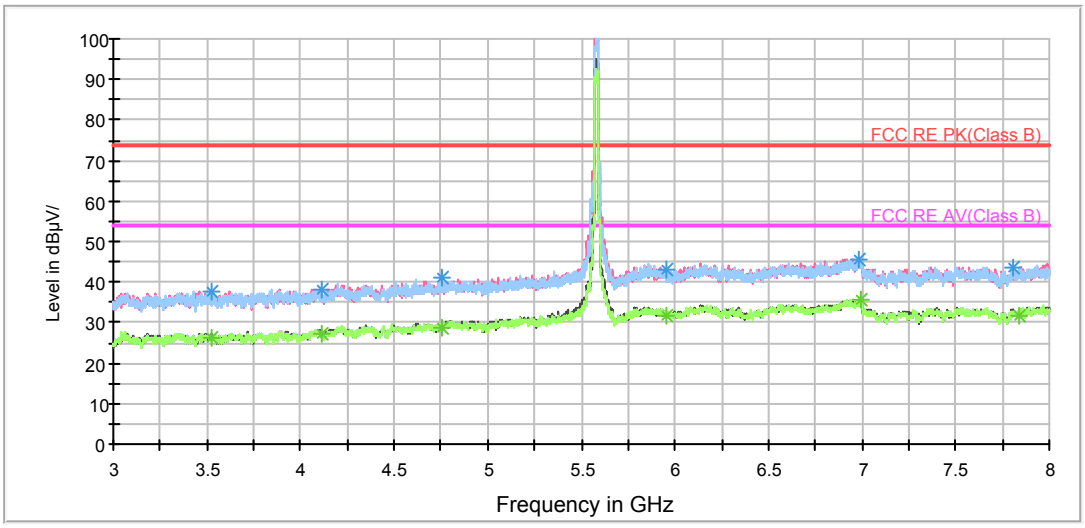
802.11a CH116

FCC RE 1G-3GHz PK+AV Class B



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

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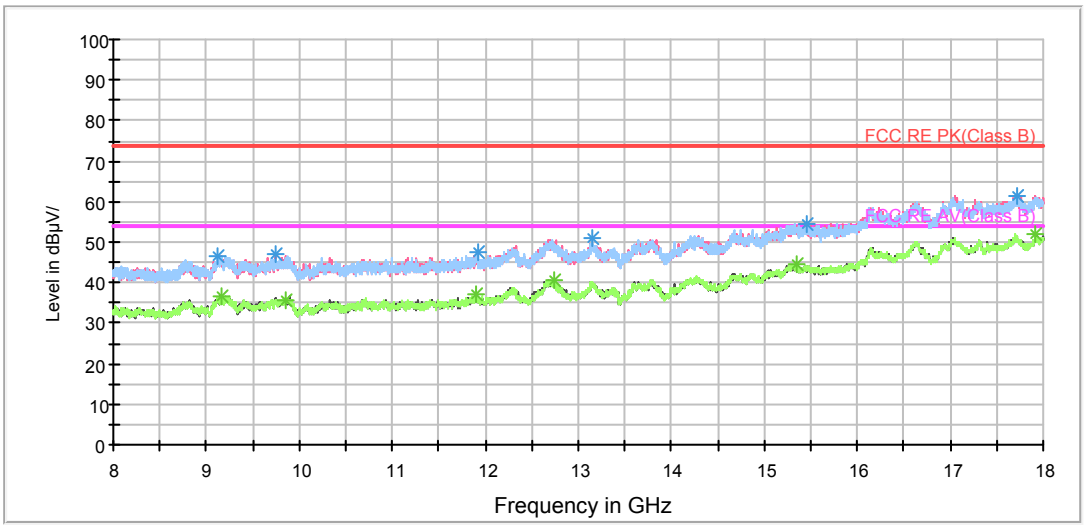
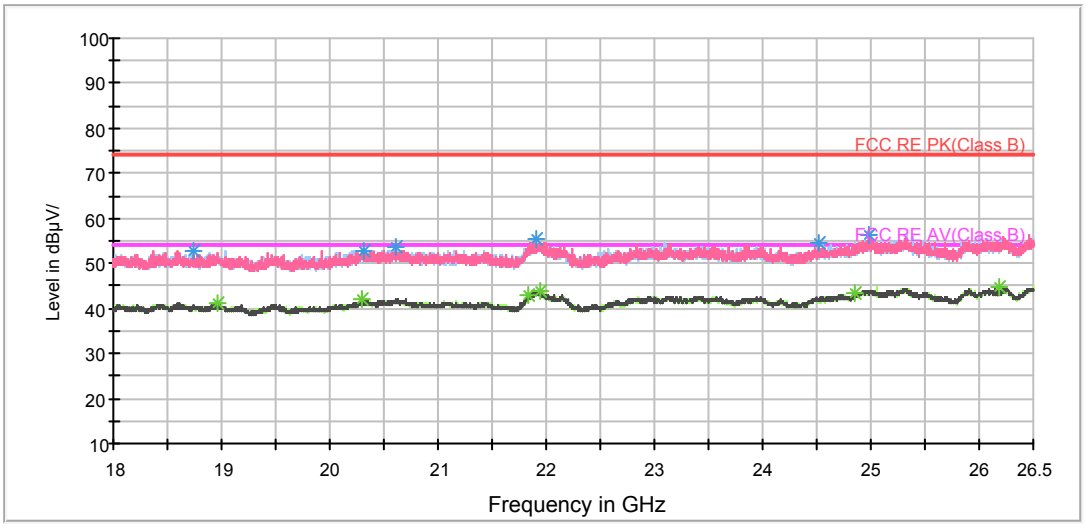
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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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)
3525.625000	37.6	100.0	H	14.0	39.6	-2.0	36.4	74
4111.875000	38.2	100.0	H	22.0	38.9	-0.7	35.8	74
4754.375000	40.9	100.0	V	270.0	39.9	1.0	33.1	74
5956.250000	43.0	100.0	V	350.0	38.3	4.7	31.0	74
6981.875000	45.4	100.0	V	318.0	39.0	6.4	28.6	74
7805.000000	43.3	100.0	H	14.0	36.3	7.0	30.7	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)
3525.625000	26.1	100.0	H	14.0	28.1	-2.0	27.9	54
4111.875000	27.2	100.0	H	22.0	27.9	-0.7	26.8	54
4754.375000	28.7	100.0	V	270.0	27.7	1.0	25.3	54
5956.250000	31.7	100.0	V	350.0	27.0	4.7	22.3	54
6989.375000	35.9	100.0	H	69.0	29.5	6.4	18.1	54
7839.375000	31.8	100.0	H	194.0	24.8	7.0	22.2	54

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

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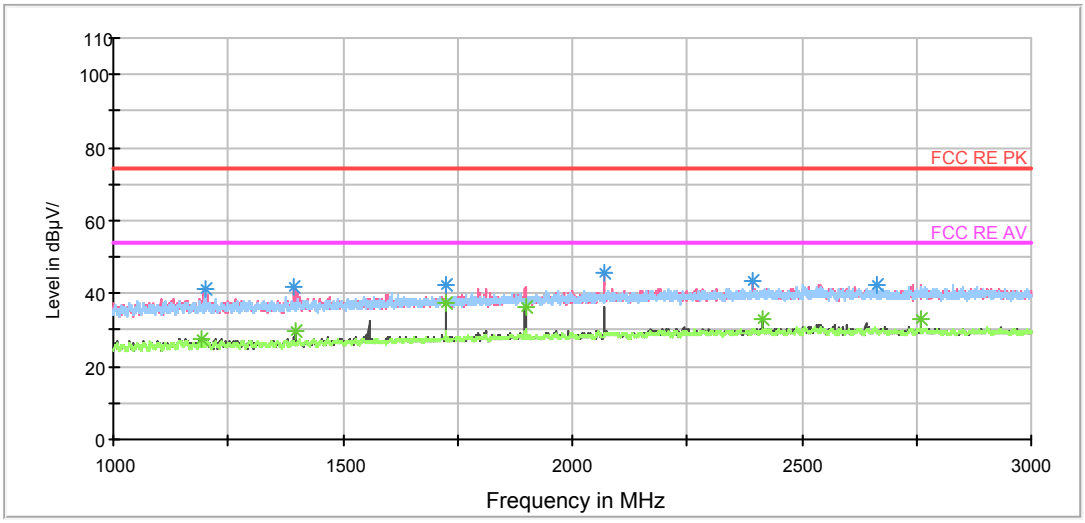
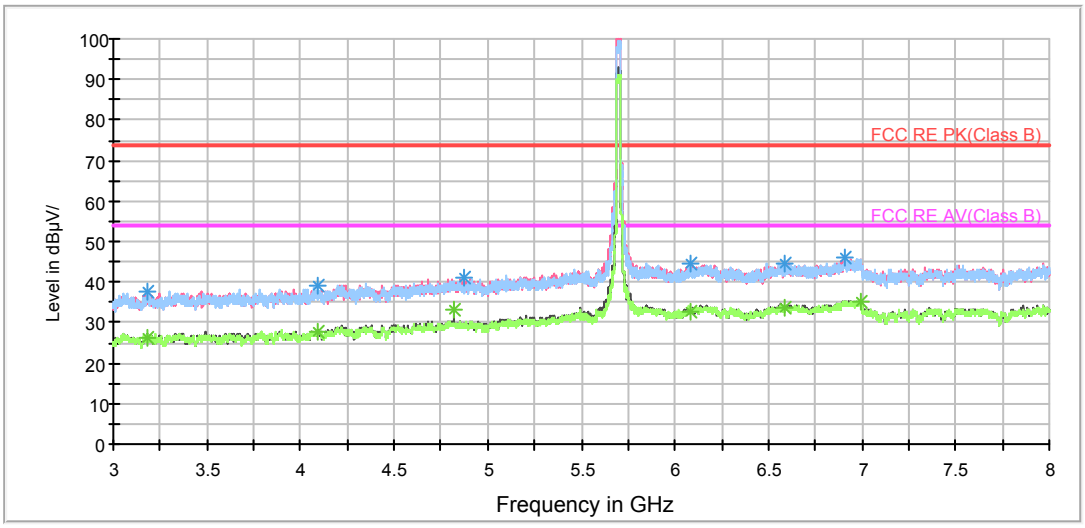
FCC RE 1G-3GHz PK+AV Class B



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

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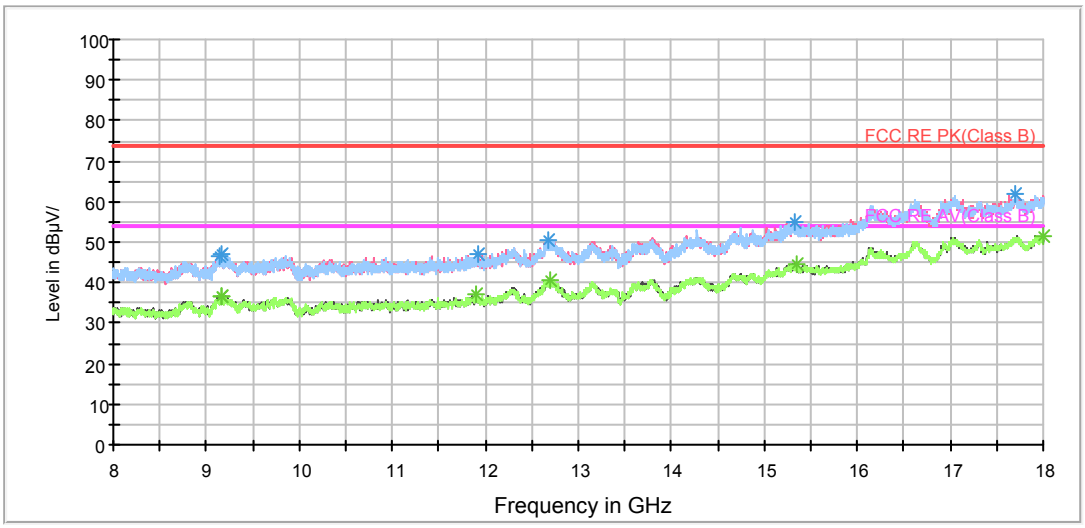
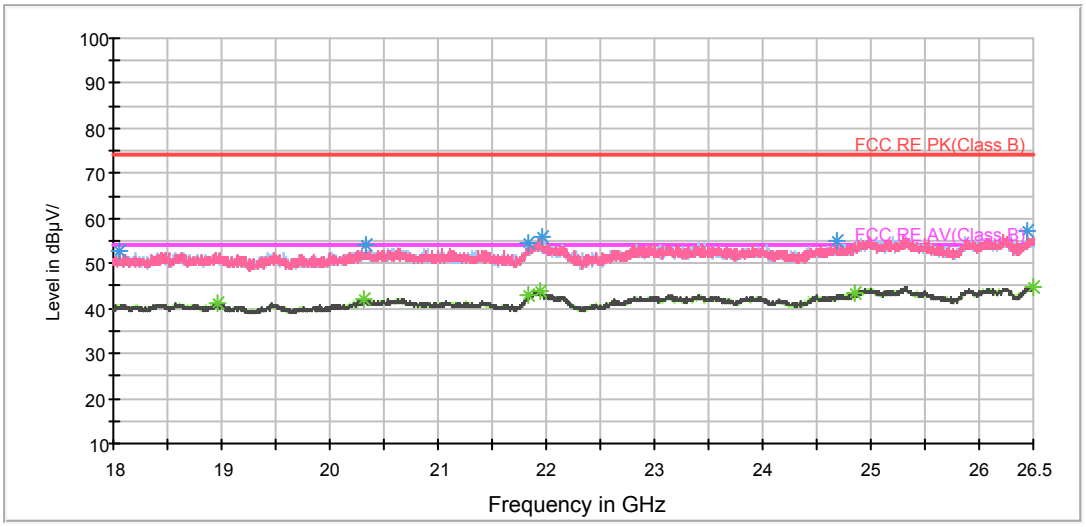
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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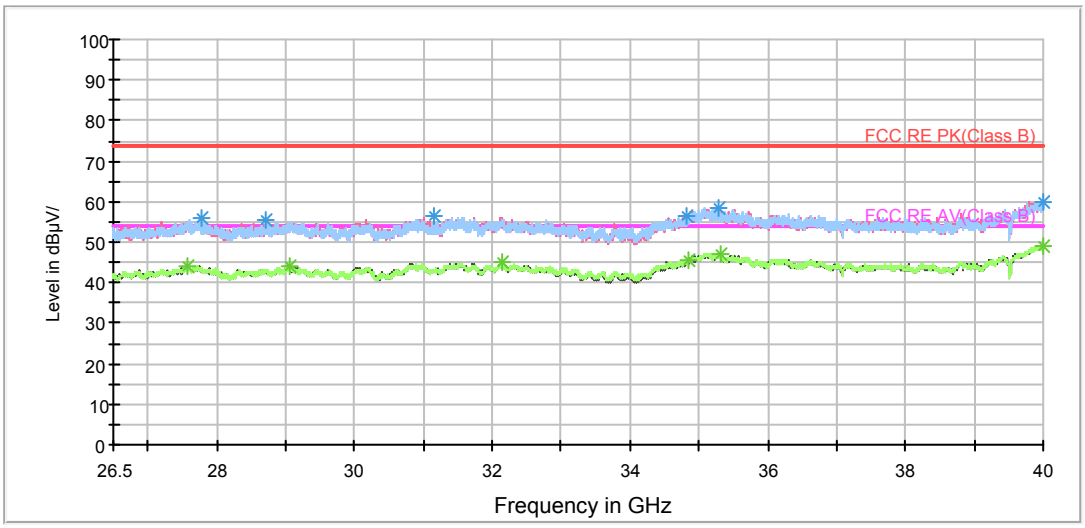
BELL RE 26.5-40GHz PK+AV



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)
3182.500000	37.9	100.0	V	291.0	40.8	-2.9	36.1	74
4091.250000	39.2	100.0	H	47.0	40.1	-0.9	34.8	74
4868.750000	40.9	200.0	V	53.0	39.2	1.7	33.1	74
6087.500000	44.4	100.0	H	173.0	39.2	5.2	29.6	74
6588.750000	44.7	100.0	H	118.0	39.1	5.6	29.3	74
6906.875000	46.0	100.0	H	7.0	39.7	6.3	28.0	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)
3182.500000	26.2	100.0	V	291.0	29.1	-2.9	27.8	54
4091.250000	27.6	100.0	H	47.0	28.5	-0.9	26.4	54
4823.750000	33.0	100.0	V	88.0	31.6	1.4	21.0	54
6087.500000	32.5	100.0	H	173.0	27.3	5.2	21.5	54
6588.750000	33.5	100.0	H	118.0	27.9	5.6	20.5	54
6994.375000	35.4	100.0	H	134.0	28.9	6.5	18.6	54

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

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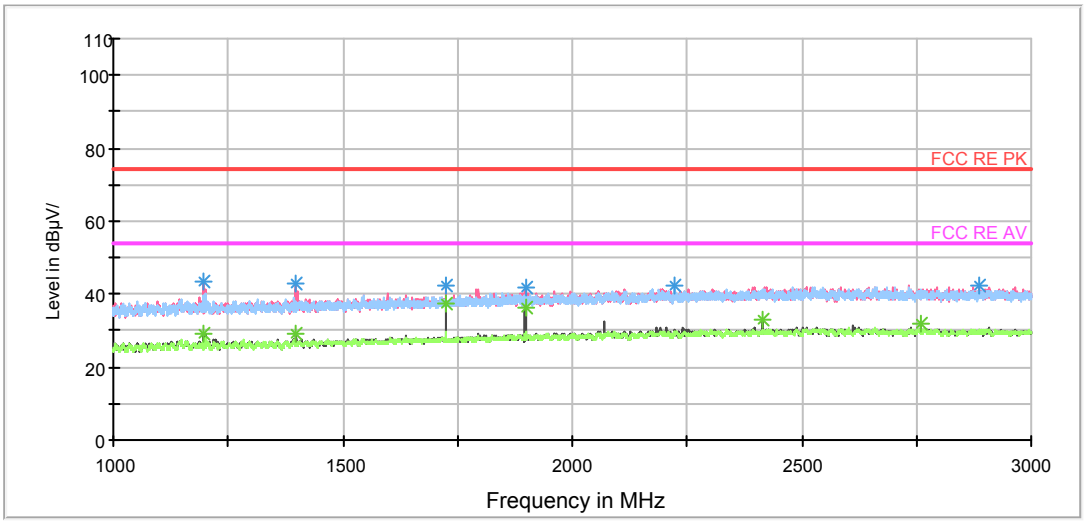
FCC RE 1G-3GHz PK+AV Class B



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

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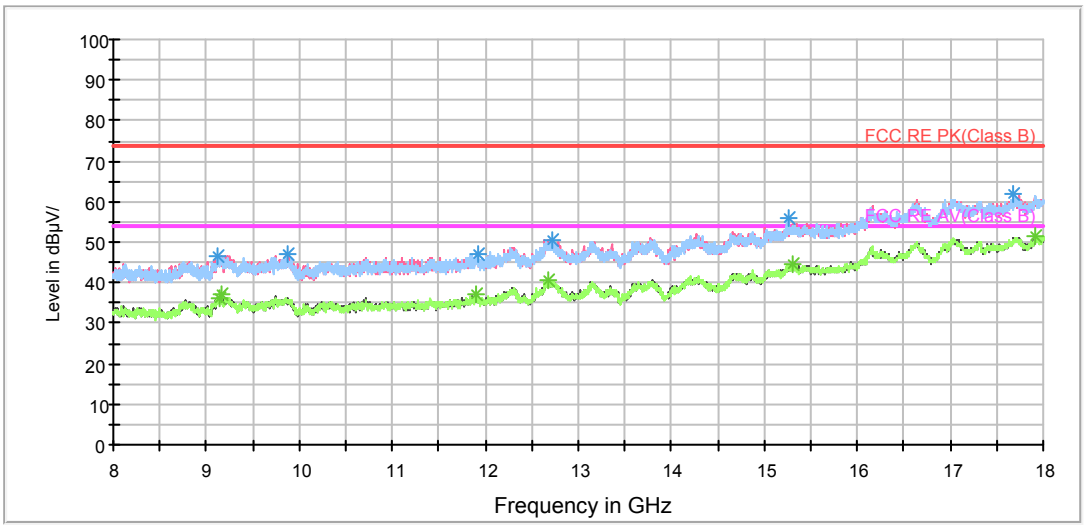
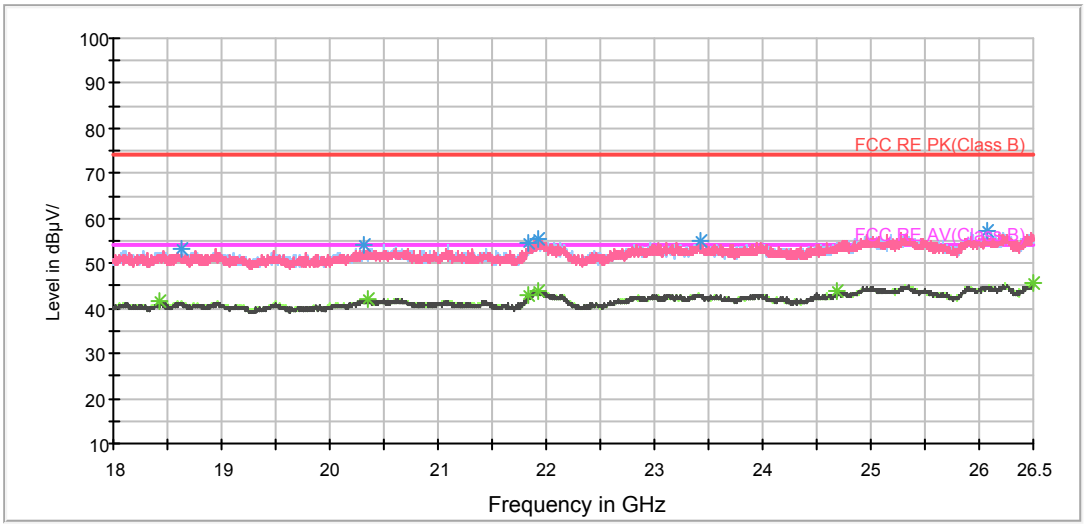
RE 3-18GHz PK+AV



Radiates Emission from 8GHz to 18GHz

BELL_RE 18-26.5GHz PK+AV



Radiates Emission from 18GHz to 26.5GHz

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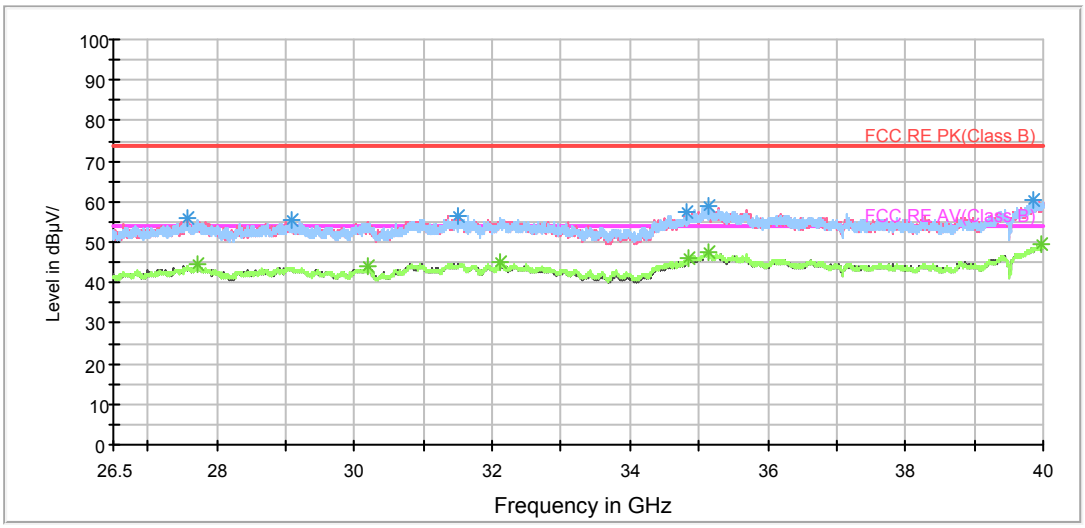
BELL RE 26.5-40GHz PK+AV



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)
3491.875000	38.0	100.0	V	261.0	40.1	-2.1	36.0	74
4150.625000	38.9	100.0	V	301.0	39.0	-0.1	35.1	74
4825.000000	40.6	200.0	V	1.0	39.2	1.4	33.4	74
6138.125000	44.3	200.0	V	95.0	38.9	5.4	29.7	74
6998.125000	46.5	100.0	V	0.0	40.0	6.5	27.5	74
7657.500000	43.6	100.0	V	174.0	36.8	6.8	30.4	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)
3491.875000	26.0	100.0	V	261.0	28.1	-2.1	28.0	54
4150.625000	27.5	100.0	V	301.0	27.6	-0.1	26.5	54
4835.625000	28.9	100.0	H	65.0	27.4	1.5	25.1	54
6160.000000	33.7	100.0	V	292.0	28.0	5.7	20.3	54
6998.125000	34.6	100.0	V	0.0	28.1	6.5	19.4	54
7657.500000	32.2	100.0	V	174.0	25.4	6.8	21.8	54

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

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