TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart E (Section 15.407)**
Report No.:	RFBAOZ-WTW-P22061106-3
FCC ID:	2ABLK-GS2128G
Product:	GigaSpire BLAST u4g
Brand:	Calix
Model No.:	u4g GS2128G
Received Date:	2022/7/28
Test Date:	2022/8/7 ~ 2022/8/31
Issued Date:	2022/10/27
Applicant:	Calix Inc.
Address:	1035 N. McDowell Blvd. Petaluma, CA94954 U.S.A.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

Approved by: _____ , **Date:** 2022/10/27

May Chen / Manager

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Prepared by : Cherry Chuo / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBAOZ-WTW-P22061106-3	Original release.	2022/10/27

1 Certificate

Product:	GigaSpire BLAST u4g
Brand:	Calix
Test Model:	u4g GS2128G
Sample Status:	Engineering sample
Applicant:	Calix Inc.
Test Date:	2022/8/7 ~ 2022/8/31
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407)
Measurement procedure:	ANSI C63.10-2013 KDB 291074 D02 EMC Measurement v01 KDB 789033 D02 General UNII Test Procedure New Rules v02r01 KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(3)	Power Spectral Density	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -10.22 dB at 0.15000 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.6 dB at 52.59, 63.04 MHz
15.407(b) (5) 15.407(b) (8)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 5645.41 MHz
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.403	Operational restrictions U-NII 4 devices	-	Declaration by applicant.
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.4 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 dB
	18 GHz ~ 40 GHz	5.3 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	GigaSpire BLAST u4g
Brand	Calix
Test Model	u4g GS2128G
Status of EUT	Engineering sample
Power Supply Rating	Refer to Note
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7 Mbps 802.11ax: up to 1201.0 Mbps
Operating Frequency	5845 ~ 5885 MHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 3 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1
Output Power	**CDD Mode:** EIRP: 2103.778 mW (33.23 dBm) **Beamforming Mode:** EIRP: 3741.106 mW (35.73 dBm)
EUT Category	Indoor access point

Note:

1. The EUT uses following accessories.

AC Adapter 1		
Brand	Model	Specification
AMIGO	AMS157-1202500FU	AC Input : 100-240V~50/60Hz 1A DC Output : 12V, 2.5A DC Output Cable : 1.5m, unshielded Plug : US
AC Adapter 2		
Brand	Model	Specification
MOSO	MSS-V2500WR120-030E1-US	AC Input : 100-240V~50/60Hz 1A max DC Output : 12V, 2.5A DC Output Cable : 1.5m, unshielded Plug : US

2. There are WLAN (2.4 GHz) and WLAN (5 GHz) technology used for the EUT.

3. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna NO.	Model	Brand	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type	*Cable Length(cm)
1	290-20509	HONGBO	3.6	2400-2500	Dipole	ipex(MHF)	10
2	290-20510	HONGBO	4.8	2400-2500	Dipole	ipex(MHF)	31.5
3	RFPCA341221IM5B901	PSA	4.45	5150-5925	Monopole	ipex(MHF)	21.5
4	RFPCA341218IM5B901	PSA	4.46	5150-5925	Monopole	ipex(MHF)	18

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	**TX & RX Configuration**	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX

Note:
1. All of modulation mode support beamforming function except 802.11a modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), 802.11ac mode for 20 MHz (40 MHz, 80 MHz) and 802.11ax mode for 20 MHz (40 MHz, 80 MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

For U-NII-4

3 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency
*169	5845 MHz	173	5865 MHz	177	5885 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
*167	5835 MHz	175	5875 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
*171	5855 MHz

Note: * U-NII-3 & -4 span channels.

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. The AC Adapter has the following models: AMS157-1202500FU/ MSS-V2500WR120-030E1-US. Pre-scan these models of AC Adapters and find the worst case as a representative test condition. 2. EUT can be used in the following ways: Lying/ Wall Mount. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	1. AC Adapter Worst Condition: AMS157-1202500FU 2. Lying/ Wall Mount Worst Condition: Lying 3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

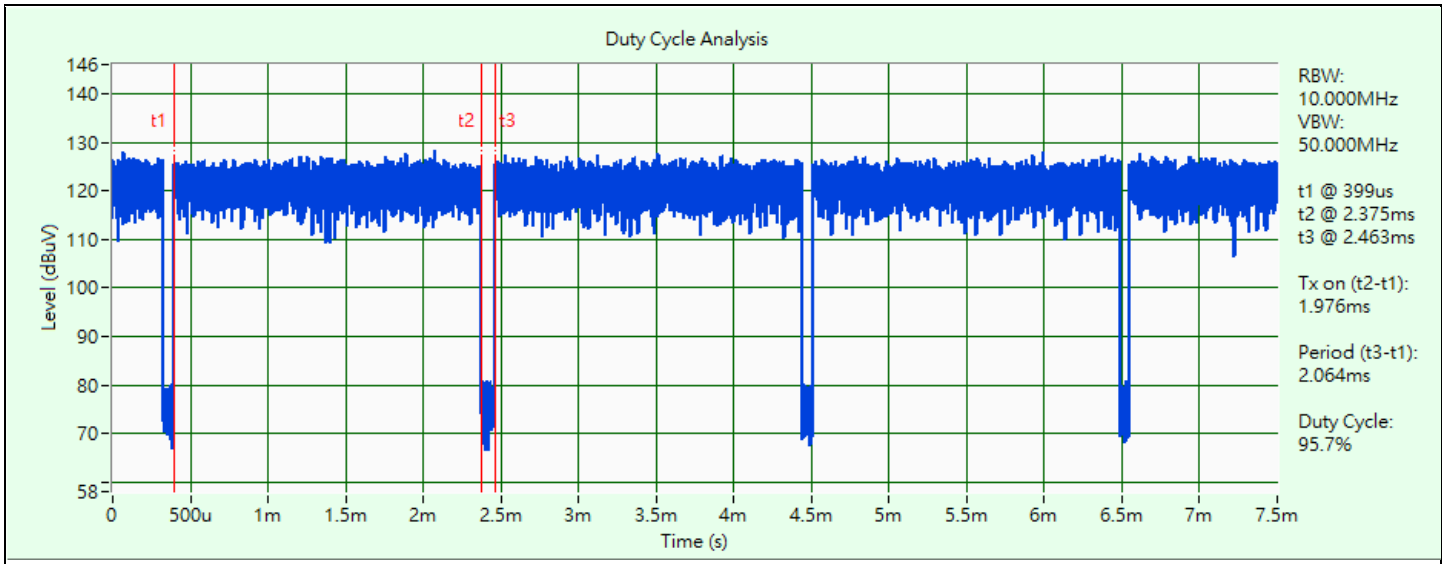
Note: Partial RU (resource unit) configurations not supported.

Following channel(s) was (were) selected for the final test as listed below:

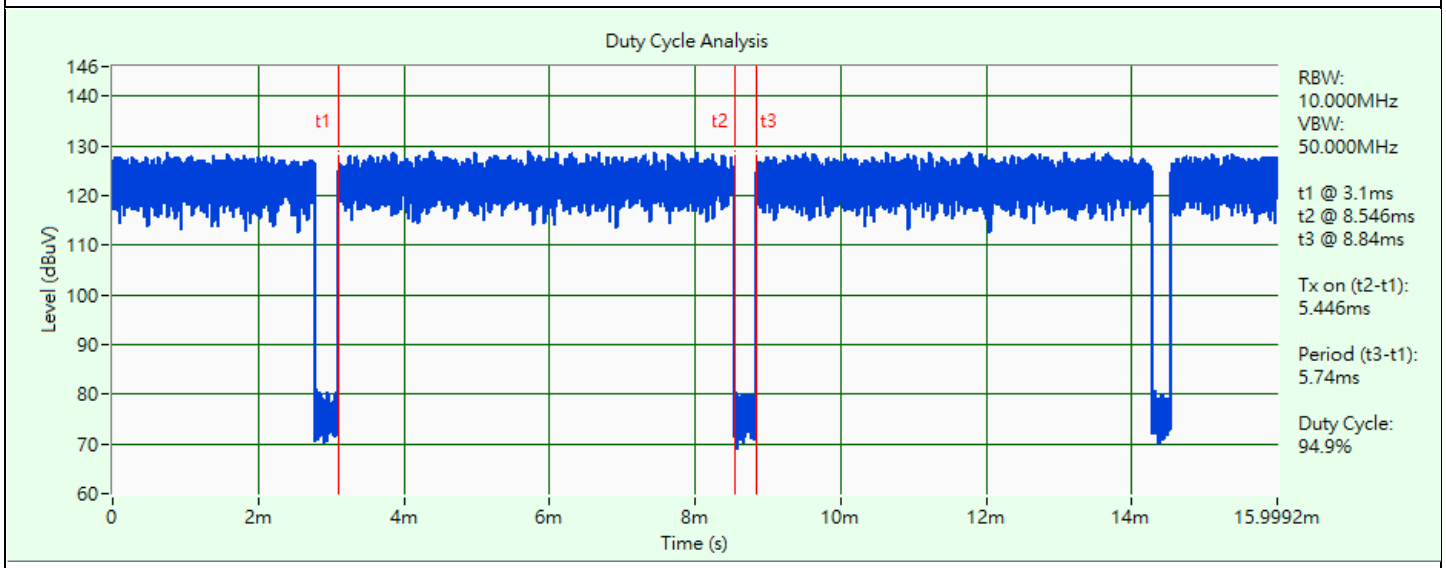
Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
	802.11ac (VHT20)	CDD & Beamforming	169, 173, 177	BPSK	MCS0
	802.11ac (VHT40)	CDD & Beamforming	167, 175	BPSK	MCS0
	802.11ac (VHT80)	CDD & Beamforming	171	BPSK	MCS0
	802.11ax (HE20)	CDD & Beamforming	169, 173, 177	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	167, 175	BPSK	MCS0
	802.11ax (HE80)	CDD & Beamforming	171	BPSK	MCS0
Power Spectral Density / 6 dB Bandwidth	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
	802.11ax (HE20)	CDD	169, 173, 177	BPSK	MCS0
	802.11ax (HE40)	CDD	167, 175	BPSK	MCS0
	802.11ax (HE80)	CDD	171	BPSK	MCS0
Frequency Stability	802.11a	CDD	173	un-modulation	-
AC Power Conducted Emissions	802.11ax (HE40)	CDD	175	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ax (HE40)	CDD	175	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	CDD	169, 173, 177	BPSK	6Mb/s
	802.11ax (HE20)	CDD	169, 173, 177	BPSK	MCS0
	802.11ax (HE40)	CDD	167, 175	BPSK	MCS0
	802.11ax (HE80)	CDD	171	BPSK	MCS0

3.5 Duty Cycle of Test Signal

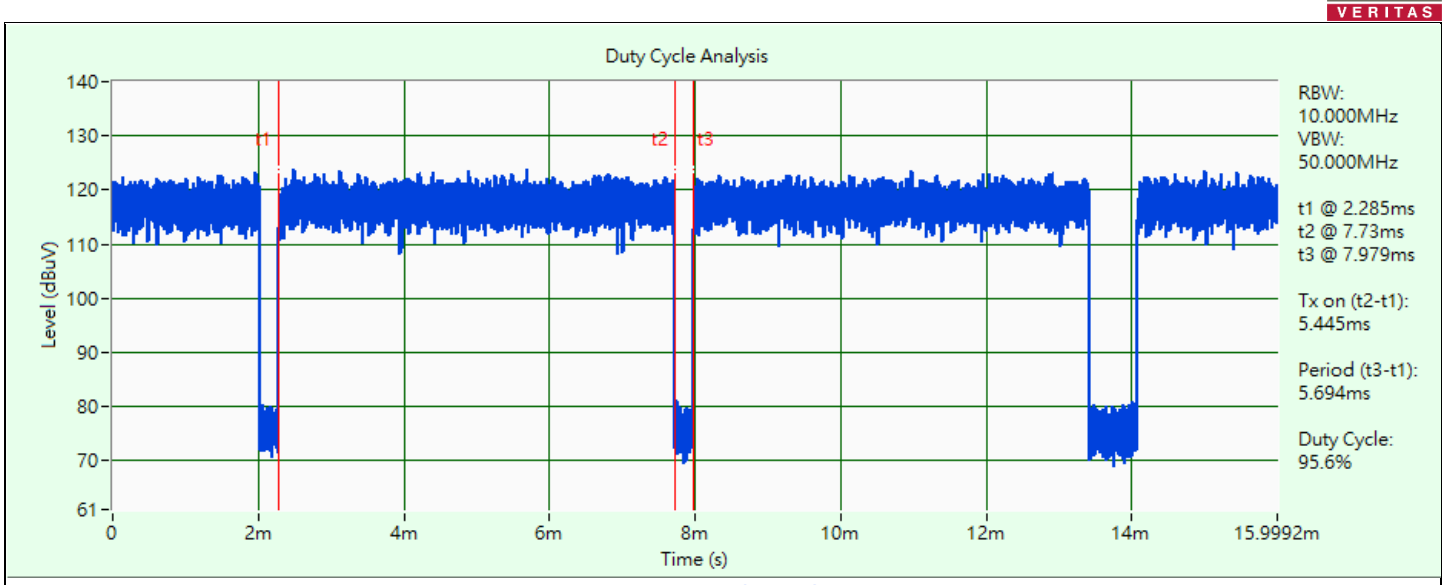
802.11a: Duty cycle = 1.976 ms / 2.064 ms x 100% = 95.7%, duty factor = 10 * log (1/Duty cycle) = 0.19 dB
802.11ax (HE20): Duty cycle = 5.446 ms / 5.74 ms x 100% = 94.9%, duty factor = 10 * log (1/Duty cycle) = 0.23 dB
802.11ax (HE40): Duty cycle = 5.445 ms / 5.694 ms x 100% = 95.6%, duty factor = 10 * log (1/Duty cycle) = 0.19 dB
802.11ax (HE80): Duty cycle = 5.445 ms / 5.703 ms x 100% = 95.5%, duty factor = 10 * log (1/Duty cycle) = 0.20 dB



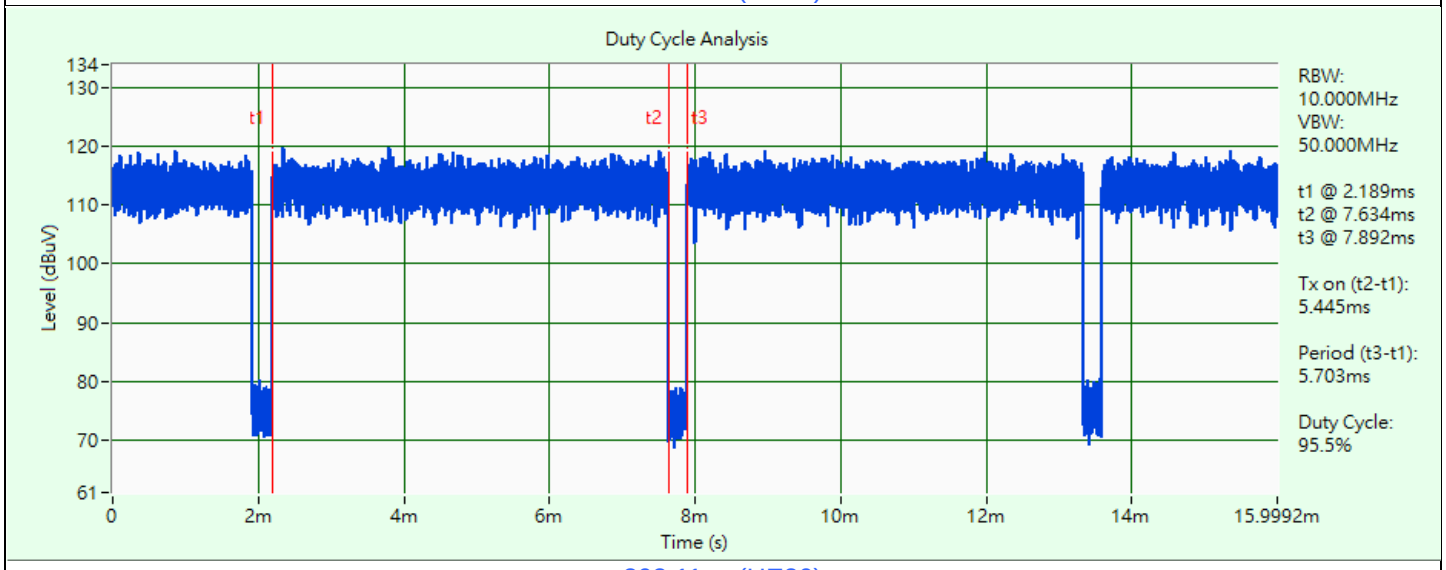
802.11a



802.11ax (HE20)



802.11ax (HE40)

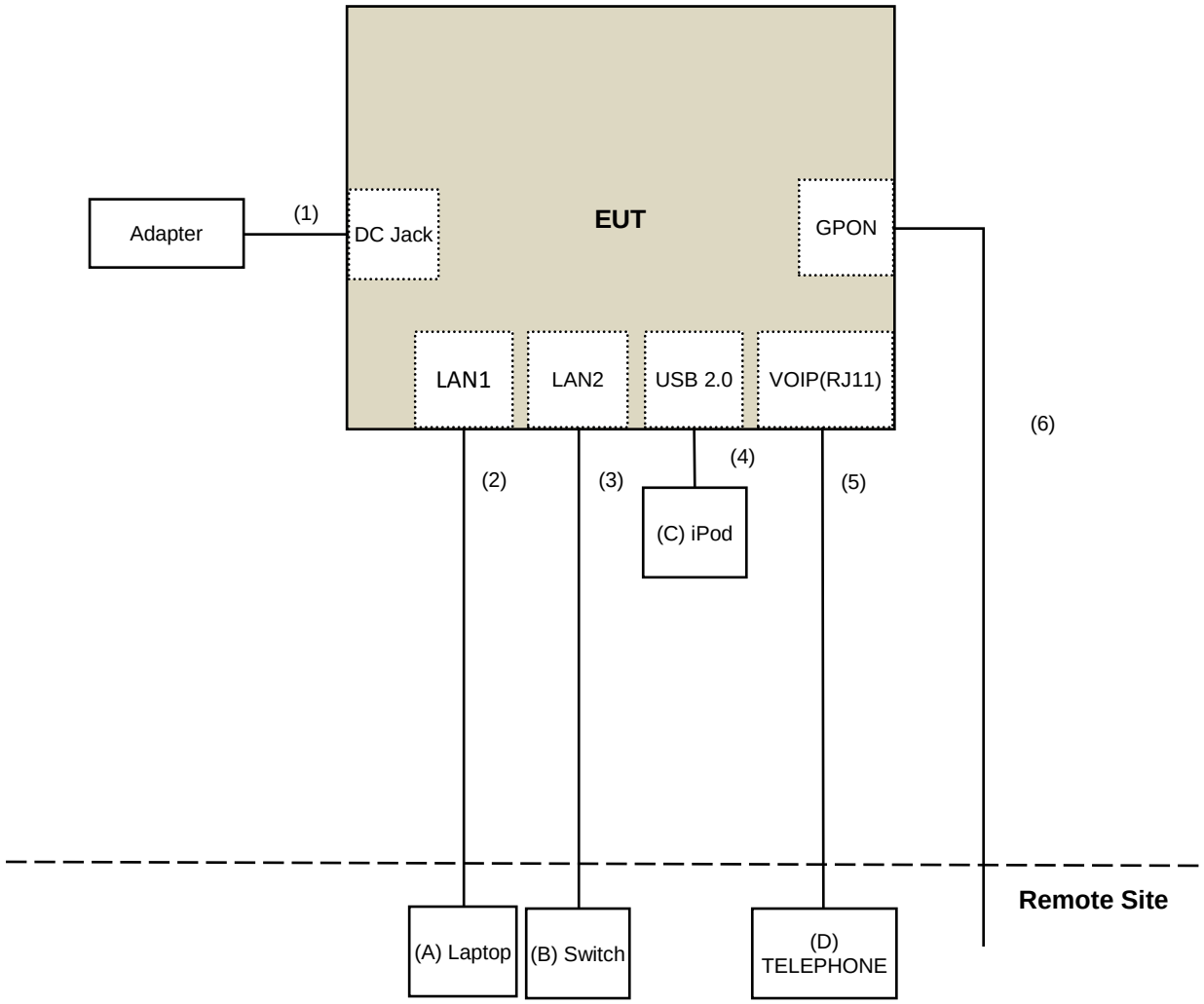


802.11ax (HE80)

3.6 Test Program Used and Operation Descriptions

Controlling software (qdart_conn.win.1.0_installer_00093.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	20U5S01X00 L14	PF-28LKK7	N/A	Supplied by applicant
B	Switch	D-Link	DGS-1005D	DR8WC92000523	N/A	Supplied by applicant
C	iPod	Apple	MD778TA/A	CC4JL03FF4T1	N/A	Supplied by applicant
D	TELEPHONE	ROMEO	TE-812	97280903	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.5	No	0	Supplied by applicant
2	RJ45 Cable	1	10	No	0	Provided by Lab
3	RJ45 Cable	1	10	No	0	Provided by Lab
4	USB Cable	1	0.12	Yes	0	Provided by Lab
5	RJ11 Cable	1	10	No	0	Provided by Lab
6	Fiber Cable	1	10	No	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Power Meter Anritsu	ML2495A	1529002	2022/6/22	2023/6/21
Pulse Power Sensor Anritsu	MA2411B	1726434	2022/6/22	2023/6/21
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	101516	2022/3/7	2023/3/6

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/8/31

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	101516	2022/3/7	2023/3/6

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/8/31

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
AC Power Source GOOD WILL	6905S	1991551	N/A	N/A
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	101516	2022/3/7	2023/3/6
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	2022/1/14	2023/1/13
True RMS Clamp Meter Fluke	325	31130711WS	2022/6/9	2023/6/8

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/8/31

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohms Terminator	50	3	2021/10/27	2022/10/26
Fixed attenuator STI	STI02-2200-10	005	2022/8/24	2023/8/23
LISN R&S	ESH3-Z5	848773/004	2021/10/29	2022/10/28
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2022/8/24	2023/8/23
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	847124/029	2021/10/13	2022/10/12

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2022/8/26

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2021/9/23	2022/9/22
LOOP ANTENNA Electro-Metrics	EM-6879	264	2022/3/18	2023/3/17
Pre_Amplifier Agilent	8447D	2944A10636	2022/3/19	2023/3/18
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2021/10/19	2022/10/18
RF Coaxial Cable COMMATE/PEWC	8D	966-3-2	2022/2/26	2023/2/25
		966-3-3	2022/2/26	2023/2/25
		966-4-1	2022/3/8	2023/3/7
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/1/6	2023/1/5
		LOOPCAB-002	2022/1/6	2023/1/5
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2022/4/26	2023/4/25
Test Receiver KEYSIGHT	N9038A	MY59050100	2022/6/20	2023/6/19
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-361	2021/10/26	2022/10/25

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/8/26

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	N/A	N/A
Fix tool for Boresight antenna tower BV	FBA-01	FBA_SIP01	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9170	9170-739	2021/11/14	2022/11/13
	BBHA9120-D	9120D-406	2021/11/14	2022/11/13
Pre_Amplifier EMCI	EMC12630SE	980384	2022/1/10	2023/1/9
	EMC184045SE	980387	2022/1/10	2023/1/9
RF Cable EMCI	EMC104-SM-SM-6000	210201	2022/5/10	2023/5/9
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2022/1/10	2023/1/9
RF Coaxial Cable EMCI	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
	EMC104-SM-SM-1500	180504	2022/4/25	2023/4/24
	EMC104-SM-SM-2000	180601	2022/6/6	2023/6/5
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer KEYSIGHT	N9030B	MY57142938	2022/4/26	2023/4/25
Test Receiver KEYSIGHT	N9038A	MY59050100	2022/6/20	2023/6/19

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/8/7 ~ 2022/8/25

5 Limits of Test Items

5.1 RF Output Power

Device Category	Limit (Max Average Power)
Indoor access point	EIRP 36 dBm
Subordinate device	EIRP 36 dBm
Client device	EIRP 30 dBm
Note: For all U-NII-4 and U-NII-3 & -4 span channels shall met above EIRP values.	

Per KDB 662911 Method of conducted output power measurement 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 $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

5.2 Power Spectral Density

Device Category	Limit
Indoor access point	EIRP 20 dBm/MHz
Subordinate device	EIRP 20 dBm/MHz
Client device	EIRP 14 dBm/MHz
Note: For all U-NII-4 and U-NII-3 & -4 span channels shall met above EIRP values.	

5.3 6 dB Bandwidth

Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.4 Frequency Stability

The frequency of the carrier signal shall be maintained within band of operation.

5.5 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.6 Unwanted Emissions below 1 GHz

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.7 Unwanted Emissions above 1 GHz

(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of −7 dBm/MHz at or above 5.925 GHz.

(ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

(iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

Note:

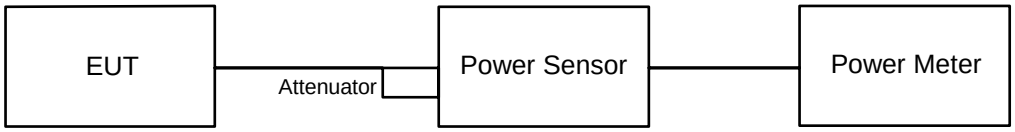
The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/m, where P is the eirp (Watts).

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

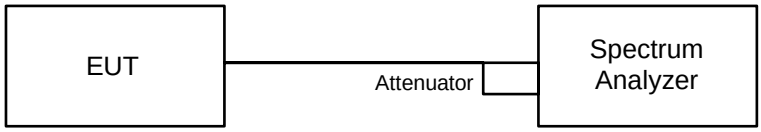


6.1.2 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup



6.2.2 Test Procedure

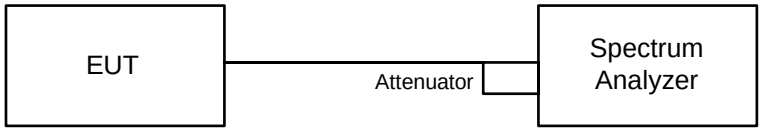
For specified measurement bandwidth 1 MHz:

Method SA-2

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
c. Scale the observed power level to an equivalent value in 1 MHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(1 MHz/300 kHz)
d. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
e. Sweep time = auto, trigger set to “free run”.
f. Trace average at least 100 traces in power averaging mode.
g. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
h. Record the max value and add 10 log (1/duty cycle).

6.3 6 dB Bandwidth

6.3.1 Test Setup

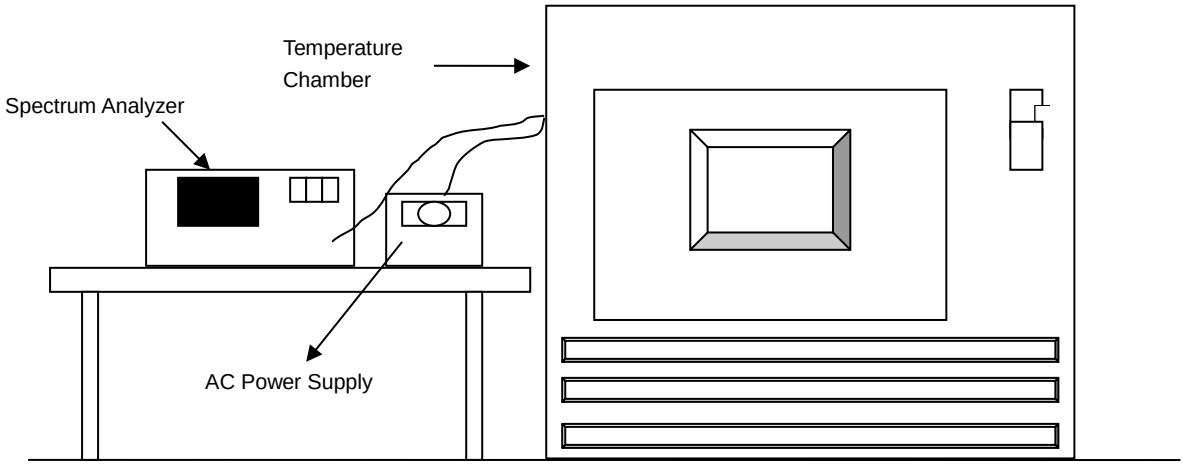


6.3.2 Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Frequency Stability

6.4.1 Test Setup

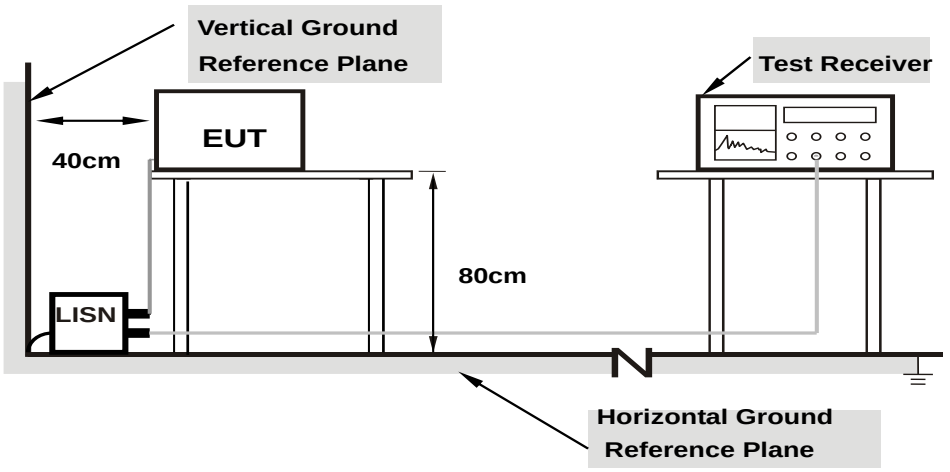


6.4.2 Test Procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

6.5 AC Power Conducted Emissions

6.5.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.5.2 Test Procedure

a. The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

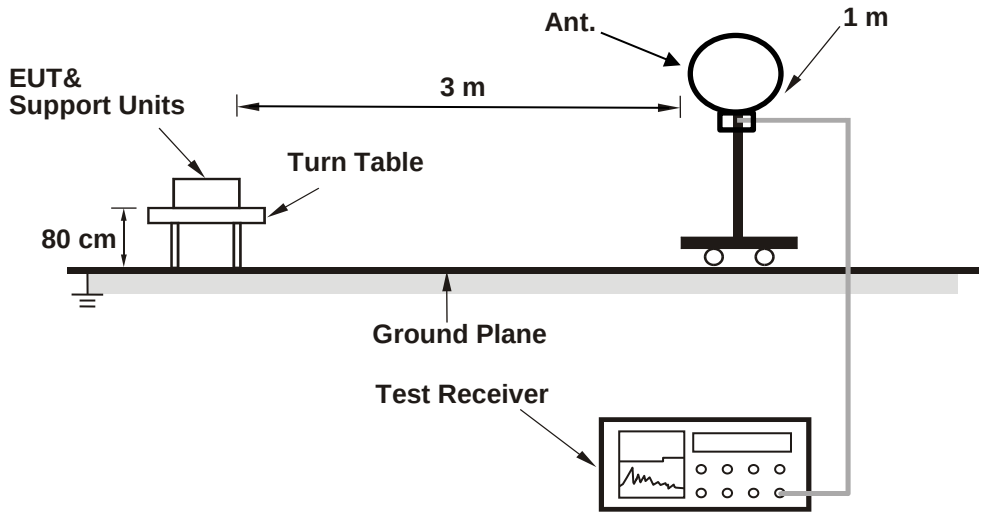
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

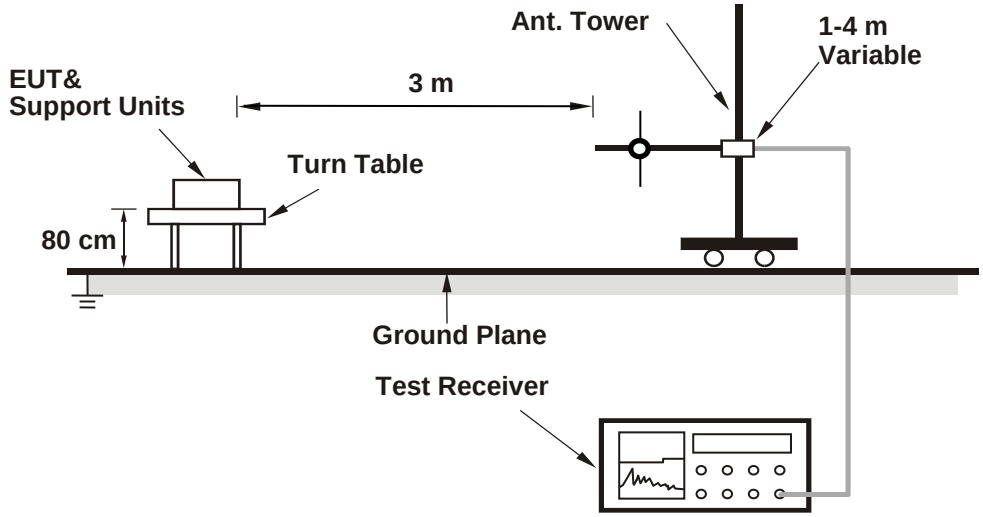
6.6 Unwanted Emissions below 1 GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

For Radiated emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

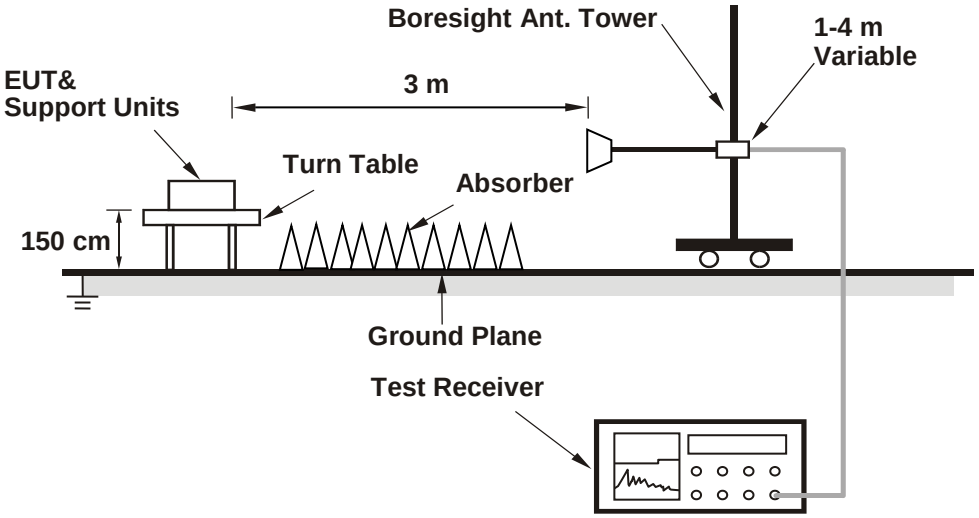
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10 Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Ko

802.11a CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	22.34	22.48	348.407	25.42	4.46	972.747	29.88	36	Pass
173	5865	22.26	22.63	351.499	25.46	4.46	981.748	29.92	36	Pass
177	5885	22.37	22.51	350.822	25.45	4.46	979.49	29.91	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ac (VHT20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	22.09	22.29	331.242	25.20	4.46	924.698	29.66	36	Pass
173	5865	22.04	22.45	335.748	25.26	4.46	937.562	29.72	36	Pass
177	5885	21.95	22.58	337.809	25.29	4.46	944.061	29.75	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ac (VHT40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
167	5835	25.24	25.57	694.774	28.42	4.46	1940.886	32.88	36	Pass
175	5875	25.38	25.60	708.222	28.50	4.46	1976.97	32.96	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ac (VHT80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
171	5855	22.79	23.03	391.017	25.92	4.46	1091.44	30.38	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	22.34	22.53	350.456	25.45	4.46	979.49	29.91	36	Pass
173	5865	22.27	22.65	352.733	25.47	4.46	984.011	29.93	36	Pass
177	5885	22.18	22.79	355.304	25.51	4.46	993.116	29.97	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
167	5835	25.53	25.84	740.98	28.70	4.46	2070.141	33.16	36	Pass
175	5875	25.62	25.89	752.904	28.77	4.46	2103.778	33.23	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ax (HE80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Maximum Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
171	5855	23.02	23.27	412.772	26.16	4.46	1153.453	30.62	36	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.46 dBi

802.11ac (VHT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	22.09	22.29	331.242	25.20	7.47	1849.269	32.67	36	Pass
173	5865	22.04	22.45	335.748	25.26	7.47	1874.995	32.73	36	Pass
177	5885	21.95	22.58	337.809	25.29	7.47	1887.991	32.76	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

802.11ac (VHT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
167	5835	24.77	25.11	624.256	27.95	7.47	3483.373	35.42	36	Pass
175	5875	24.92	25.08	632.563	28.01	7.47	3531.832	35.48	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

802.11ac (VHT80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
171	5855	22.79	23.03	391.017	25.92	7.47	2182.73	33.39	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
169	5845	22.34	22.53	350.456	25.45	7.47	1958.845	32.92	36	Pass
173	5865	22.27	22.65	352.733	25.47	7.47	1967.886	32.94	36	Pass
177	5885	22.18	22.79	355.304	25.51	7.47	1986.095	32.98	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
167	5835	25.01	25.37	661.307	28.20	7.47	3689.776	35.67	36	Pass
175	5875	25.08	25.42	670.444	28.26	7.47	3741.106	35.73	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Directional Gain (dBi)	EIRP (mW)	EIRP (dBm)	EIRP Limit (dBm)	Test Result
		Chain 0	Chain 1							
171	5855	23.02	23.27	412.772	26.16	7.47	2306.747	33.63	36	Pass

Notes:

1. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
2. The directional gain is 7.47 dBi

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Ko

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1							
169	5845	4.26	3.82	7.06	0.19	12.48	7.47	19.95	20	Pass
173	5865	3.90	4.25	7.09	0.19	12.51	7.47	19.98	20	Pass
177	5885	4.01	4.12	7.08	0.19	12.50	7.47	19.97	20	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 7.47 dBi

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1							
169	5845	3.51	3.34	6.44	0.23	11.90	7.47	19.37	20	Pass
173	5865	3.46	3.46	6.47	0.23	11.93	7.47	19.4	20	Pass
177	5885	3.48	3.58	6.54	0.23	12.00	7.47	19.47	20	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 7.47 dBi

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1							
167	5835	3.89	3.18	6.56	0.19	11.98	7.47	19.45	20	Pass
175	5875	2.39	2.53	5.47	0.19	10.89	7.47	18.36	20	Pass

Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 7.47 dBi

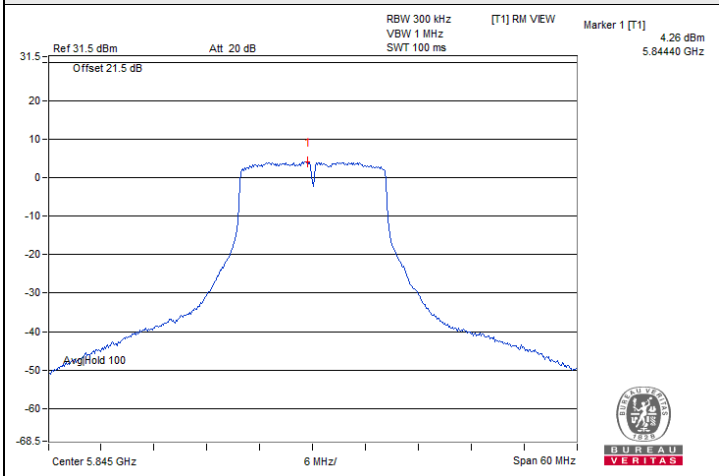
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Total PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/MHz)	Directional Gain (dBi)	EIRP PSD (dBm/MHz)	EIRP PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1							
171	5855	-1.10	-1.22	1.85	0.2	7.28	7.47	14.75	20	Pass

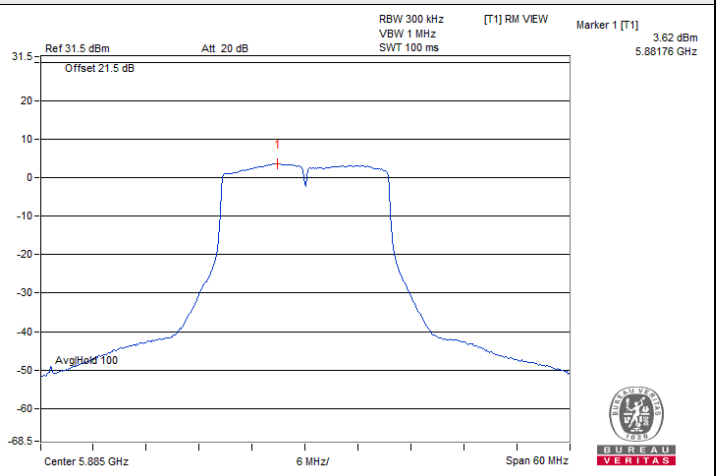
Notes:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2]
3. The directional gain is 7.47 dBi

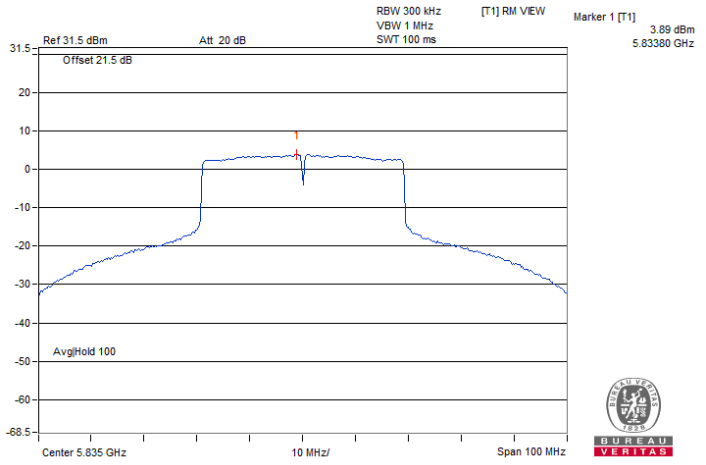
Spectrum Plot of Maximum Value



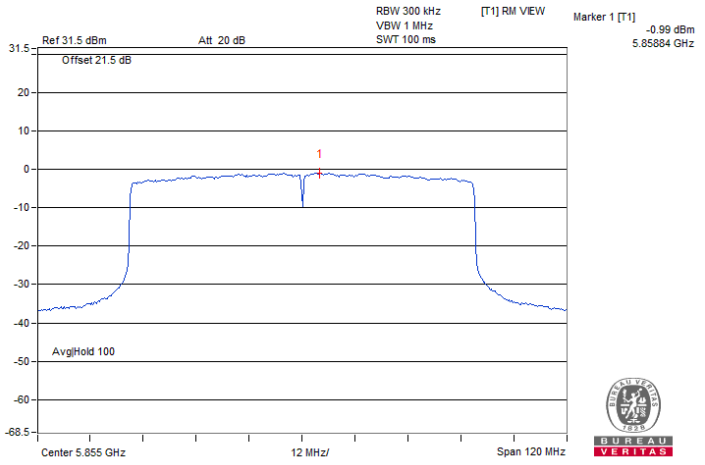
802.11a / Chain0 : CH 169



802.11ax (HE20) / Chain1 : CH 177



802.11ax (HE40) / Chain0 : CH 167



802.11ax (HE80) / Chain0 : CH 171

7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Ko

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
169	5845	16.31	15.91	0.5	Pass
173	5865	16.04	16.29	0.5	Pass
177	5885	15.07	16.30	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
169	5845	17.81	18.67	0.5	Pass
173	5865	18.09	17.92	0.5	Pass
177	5885	17.54	15.79	0.5	Pass

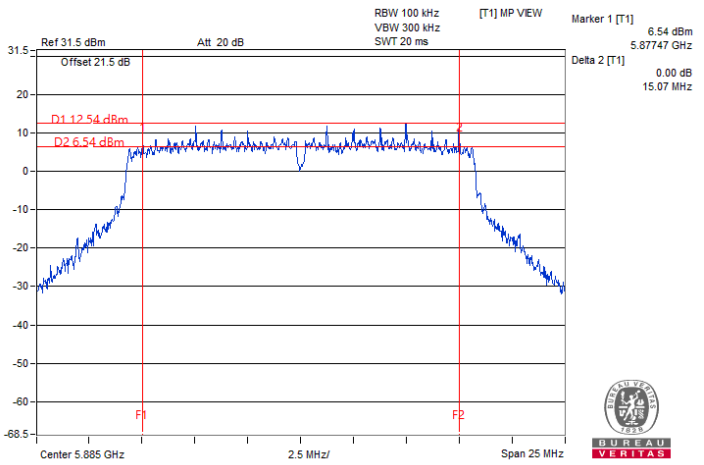
802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
167	5835	37.73	37.99	0.5	Pass
175	5875	37.86	38.03	0.5	Pass

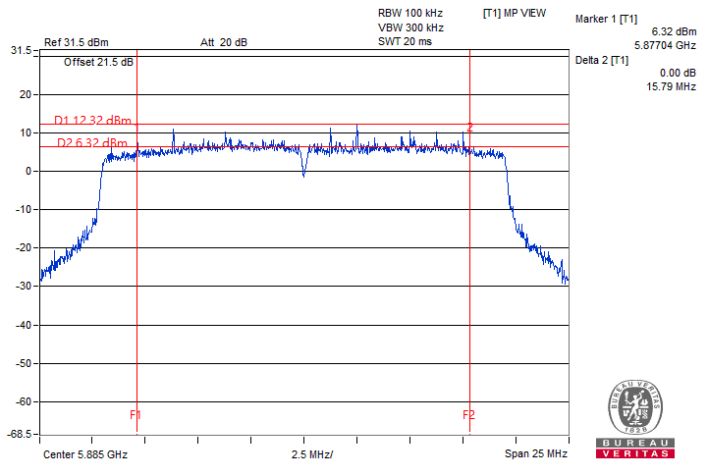
802.11ax (HE80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
171	5855	77.41	76.88	0.5	Pass

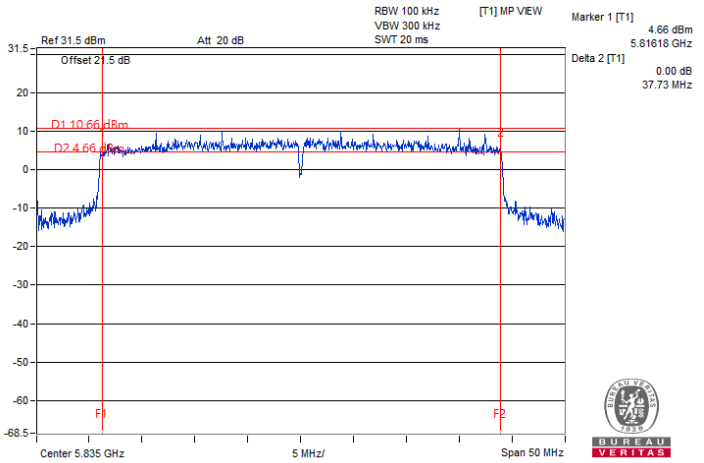
Spectrum Plot of Minimum Value



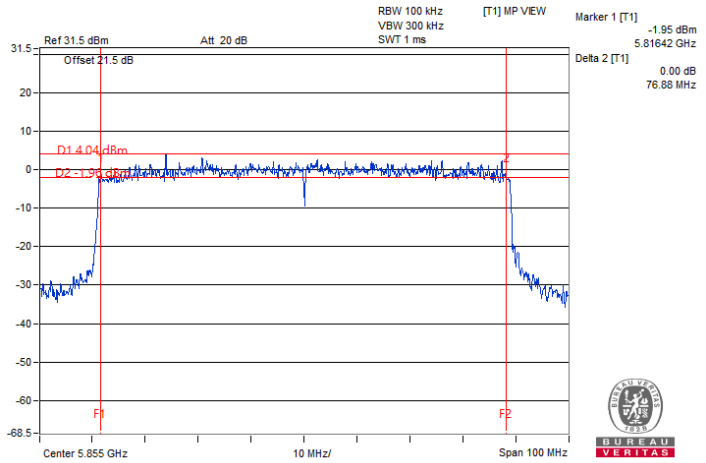
802.11a / Chain0 : CH 177



802.11ax (HE20) / Chain1 : CH 177



802.11ax (HE40) / Chain0 : CH 167



802.11ax (HE80) / Chain1 : CH 171

7.4 Frequency Stability

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Kevin Ko

802.11a

Frequency Stability Versus Temp.									
Operating Frequency: 5865 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
40	120	5864.977	Pass	5864.9781	Pass	5864.9775	Pass	5864.9765	Pass
30	120	5865.0041	Pass	5865.0005	Pass	5865.0027	Pass	5865.002	Pass
20	120	5864.993	Pass	5864.9882	Pass	5864.9882	Pass	5864.9896	Pass
10	120	5864.9957	Pass	5864.9949	Pass	5864.9957	Pass	5864.9991	Pass
0	120	5864.974	Pass	5864.9699	Pass	5864.9704	Pass	5864.9707	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5865 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result	Measured Frequency (MHz)	Test Result
20	138	5864.9909	Pass	5864.9927	Pass	5864.9918	Pass	5864.9959	Pass
	120	5864.993	Pass	5864.9882	Pass	5864.9882	Pass	5864.9896	Pass
	102	5864.9935	Pass	5864.9958	Pass	5864.9932	Pass	5864.9937	Pass

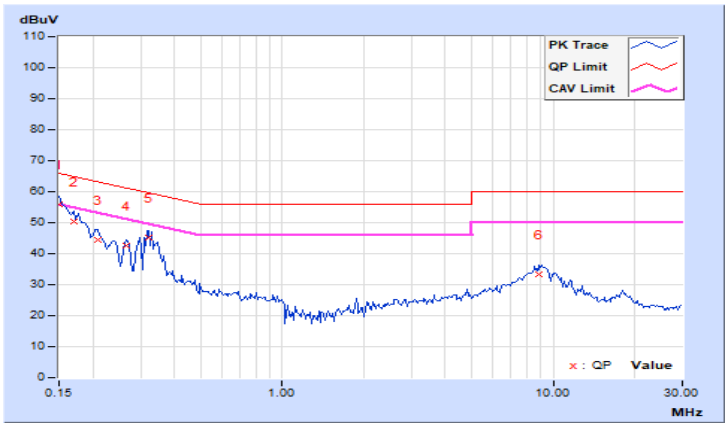
7.5 AC Power Conducted Emissions

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Ryan Du		

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	**0.15000**	**9.95**	**45.83**	**30.41**	**55.78**	**40.36**	**66.00**	**56.00**	**-10.22**	**-15.64**
2	0.16953	9.95	40.37	24.73	50.32	34.68	64.98	54.98	-14.66	-20.30
3	0.20859	9.96	34.44	21.23	44.40	31.19	63.26	53.26	-18.86	-22.07
4	0.26719	9.96	32.50	27.64	42.46	37.60	61.20	51.20	-18.74	-13.60
5	0.32188	9.96	35.16	26.81	45.12	36.77	59.66	49.66	-14.54	-12.89
6	8.83594	10.53	22.76	17.19	33.29	27.72	60.00	50.00	-26.71	-22.28

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

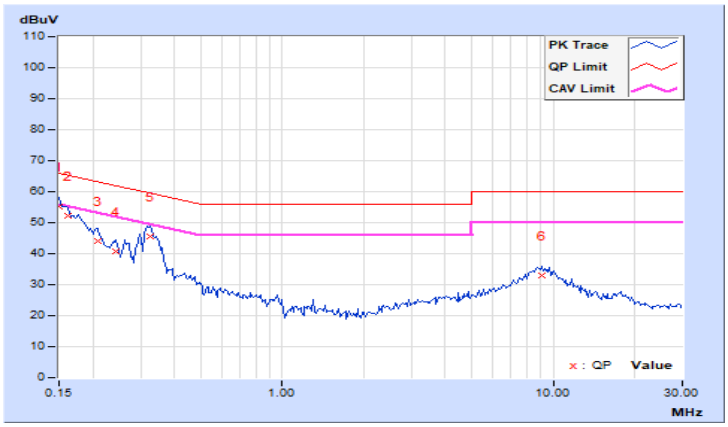


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Ryan Du		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15000	9.95	45.28	28.99	55.23	38.94	66.00	56.00	-10.77	-17.06
2	0.16172	9.95	42.24	25.00	52.19	34.95	65.38	55.38	-13.19	-20.43
3	0.20859	9.96	33.98	20.88	43.94	30.84	63.26	53.26	-19.32	-22.42
4	0.24375	9.96	30.64	19.48	40.60	29.44	61.97	51.97	-21.37	-22.53
5	0.32578	9.96	35.61	26.30	45.57	36.26	59.56	49.56	-13.99	-13.30
6	9.07813	10.48	22.62	16.72	33.10	27.20	60.00	50.00	-26.90	-22.80

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



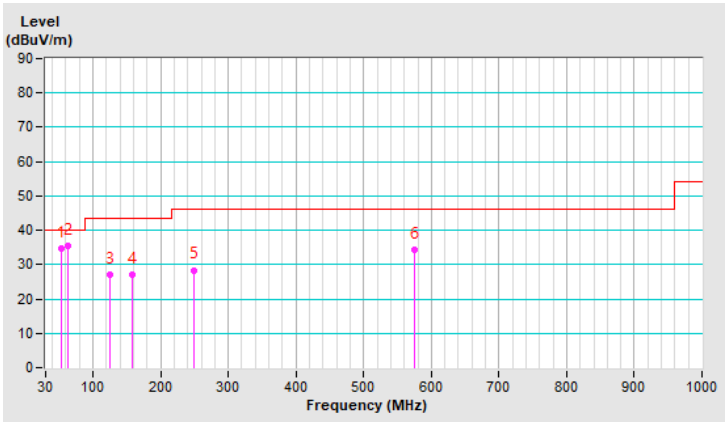
7.6 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	53.33	34.6 QP	40.0	-5.4	1.00 H	47	43.0	-8.4
2	**63.04**	**35.4 QP**	**40.0**	**-4.6**	**1.50 H**	**177**	**44.8**	**-9.4**
3	125.01	27.1 QP	43.5	-16.4	2.00 H	286	36.7	-9.6
4	157.48	27.2 QP	43.5	-16.3	1.50 H	147	35.4	-8.2
5	250.02	28.4 QP	46.0	-17.6	1.50 H	63	38.0	-9.6
6	576.02	34.3 QP	46.0	-11.7	1.50 H	341	35.4	-1.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

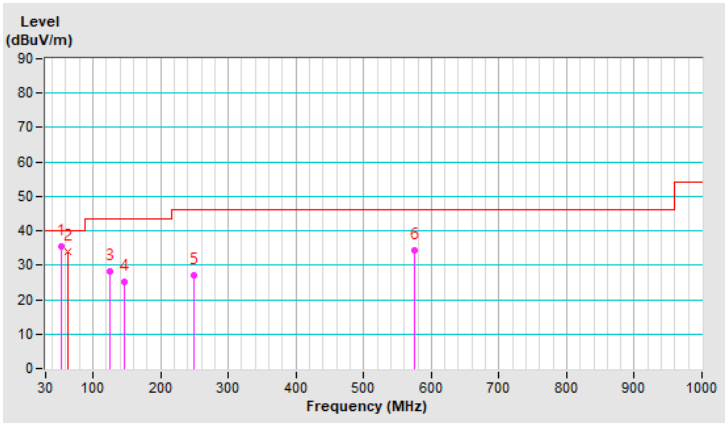


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	**52.59**	**35.4 QP**	**40.0**	**-4.6**	**1.50 V**	**176**	**43.7**	**-8.3**
2	63.89	34.0 QP	40.0	-6.0	1.01 V	263	43.3	-9.3
3	125.03	28.2 QP	43.5	-15.3	1.50 V	58	37.8	-9.6
4	147.03	25.1 QP	43.5	-18.4	1.00 V	142	33.0	-7.9
5	250.05	27.1 QP	46.0	-18.9	2.00 V	298	36.7	-9.6
6	576.02	34.2 QP	46.0	-11.8	1.50 V	353	35.3	-1.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



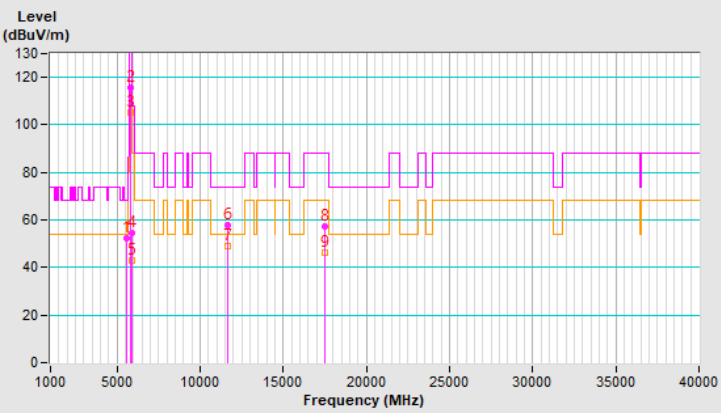
7.7 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11a	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5594.70	52.5 PK	68.2	-15.7	1.12 H	220	47.6	4.9
2	*5845.00	115.5 PK			1.12 H	220	110.2	5.3
3	*5845.00	105.4 AV			1.12 H	220	100.1	5.3
4	#5927.72	54.4 PK	108.2	-53.8	1.12 H	220	48.9	5.5
5	#5927.72	43.0 AV	88.2	-45.2	1.12 H	220	37.5	5.5
6	11690.00	57.9 PK	74.0	-16.1	3.37 H	113	43.1	14.8
7	11690.00	48.8 AV	54.0	-5.2	3.37 H	113	34.0	14.8
8	#17535.00	57.1 PK	88.2	-31.1	1.78 H	204	37.8	19.3
9	#17535.00	46.2 AV	68.2	-22.0	1.78 H	204	26.9	19.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

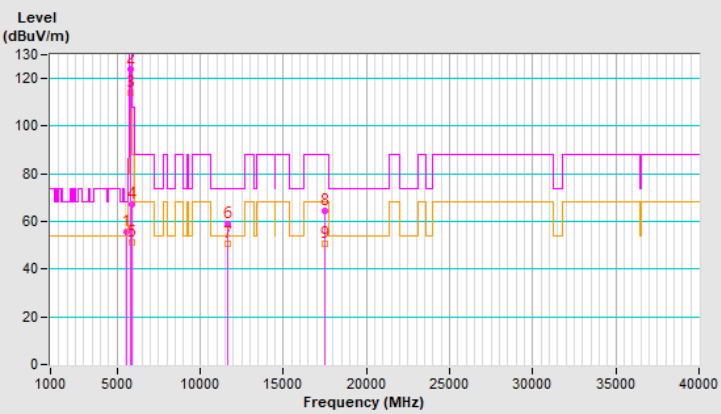


RF Mode	TX 802.11a	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5568.13	55.4 PK	68.2	-12.8	2.27 V	161	50.6	4.8
2	*5845.00	123.7 PK			2.27 V	161	118.4	5.3
3	*5845.00	114.0 AV			2.27 V	161	108.7	5.3
4	#5897.67	67.1 PK	128.2	-61.1	2.27 V	161	61.6	5.5
5	#5897.67	51.0 AV	108.2	-57.2	2.27 V	161	45.5	5.5
6	11690.00	59.1 PK	74.0	-14.9	2.65 V	135	44.3	14.8
7	11690.00	50.6 AV	54.0	-3.4	2.65 V	135	35.8	14.8
8	#17535.00	64.6 PK	88.2	-23.6	2.34 V	58	45.3	19.3
9	#17535.00	50.8 AV	68.2	-17.4	2.34 V	58	31.5	19.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

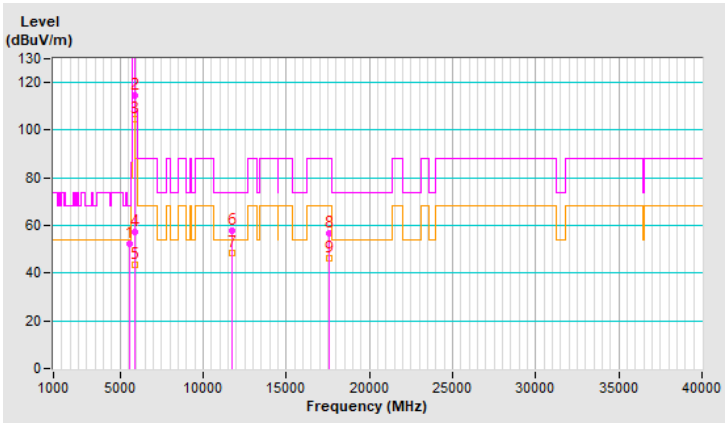


RF Mode	TX 802.11a	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5595.93	52.3 PK	68.2	-15.9	1.72 H	224	47.4	4.9
2	*5865.00	114.5 PK			1.72 H	224	109.1	5.4
3	*5865.00	104.6 AV			1.72 H	224	99.2	5.4
4	#5925.00	57.3 PK	108.2	-50.9	1.72 H	224	51.8	5.5
5	#5925.00	43.7 AV	88.2	-44.5	1.72 H	224	38.2	5.5
6	11730.00	57.6 PK	74.0	-16.4	3.41 H	127	42.8	14.8
7	11730.00	48.4 AV	54.0	-5.6	3.41 H	127	33.6	14.8
8	#17595.00	56.9 PK	88.2	-31.3	1.75 H	205	37.1	19.8
9	#17595.00	46.2 AV	68.2	-22.0	1.75 H	205	26.4	19.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

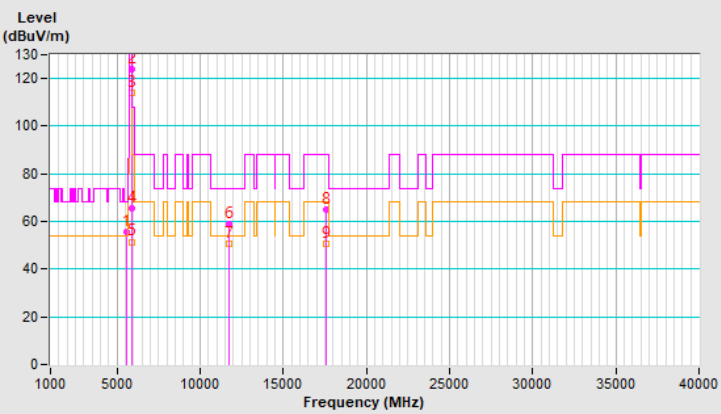


RF Mode	TX 802.11a	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5567.84	55.7 PK	68.2	-12.5	2.21 V	146	50.9	4.8
2	*5865.00	123.9 PK			2.21 V	146	118.5	5.4
3	*5865.00	114.1 AV			2.21 V	146	108.7	5.4
4	#5927.37	65.5 PK	108.2	-42.7	2.21 V	146	60.0	5.5
5	#5927.37	51.5 AV	88.2	-36.7	2.21 V	146	46.0	5.5
6	11730.00	59.0 PK	74.0	-15.0	2.67 V	128	44.2	14.8
7	11730.00	50.8 AV	54.0	-3.2	2.67 V	128	36.0	14.8
8	#17595.00	64.8 PK	88.2	-23.4	2.32 V	45	45.0	19.8
9	#17595.00	50.8 AV	68.2	-17.4	2.32 V	45	31.0	19.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

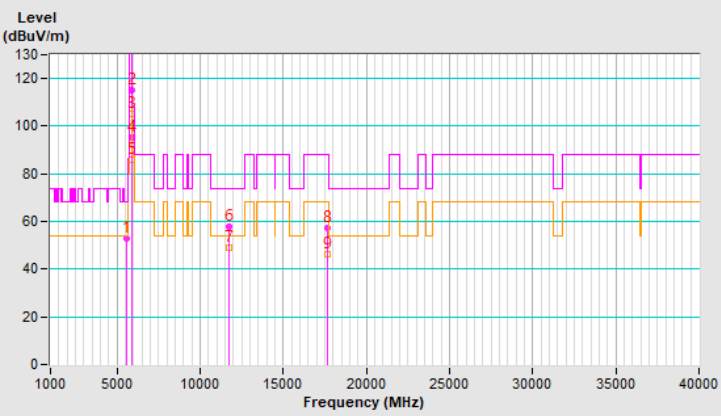


RF Mode	TX 802.11a	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5566.98	53.0 PK	68.2	-15.2	2.07 H	223	48.2	4.8
2	*5885.00	115.2 PK			2.07 H	223	109.8	5.4
3	*5885.00	105.0 AV			2.07 H	223	99.6	5.4
4	#5895.00	95.5 PK	130.2	-34.7	2.07 H	223	90.0	5.5
5	#5895.00	85.8 AV	110.2	-24.4	2.07 H	223	80.3	5.5
6	11770.00	58.0 PK	74.0	-16.0	3.42 H	125	43.2	14.8
7	11770.00	48.8 AV	54.0	-5.2	3.42 H	125	34.0	14.8
8	#17655.00	57.1 PK	88.2	-31.1	1.83 H	202	36.9	20.2
9	#17655.00	46.0 AV	68.2	-22.2	1.83 H	202	25.8	20.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

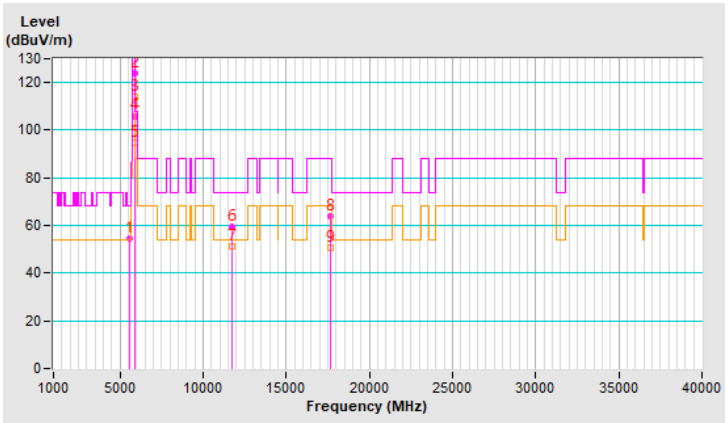


RF Mode	TX 802.11a	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 510 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5567.83	54.5 PK	68.2	-13.7	2.22 V	145	49.7	4.8
2	*5885.00	123.8 PK			2.22 V	145	118.4	5.4
3	*5885.00	113.9 AV			2.22 V	145	108.5	5.4
4	#5895.00	106.0 PK	130.2	-24.2	2.22 V	145	100.5	5.5
5	#5895.00	94.6 AV	110.2	-15.6	2.22 V	145	89.1	5.5
6	11770.00	59.6 PK	74.0	-14.4	2.68 V	146	44.8	14.8
7	11770.00	51.0 AV	54.0	-3.0	2.68 V	146	36.2	14.8
8	#17655.00	64.1 PK	88.2	-24.1	2.35 V	57	43.9	20.2
9	#17655.00	50.5 AV	68.2	-17.7	2.35 V	57	30.3	20.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

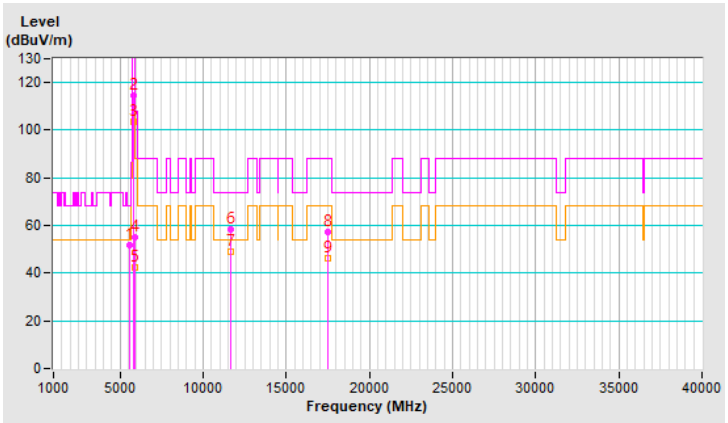


RF Mode	TX 802.11ax (HE20)	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5556.70	51.9 PK	68.2	-16.3	2.03 H	223	47.1	4.8
2	*5845.00	114.6 PK			2.03 H	223	109.3	5.3
3	*5845.00	103.6 AV			2.03 H	223	98.3	5.3
4	#5932.11	55.0 PK	108.2	-53.2	2.03 H	223	49.5	5.5
5	#5932.11	42.5 AV	88.2	-45.7	2.03 H	223	37.0	5.5
6	11690.00	58.2 PK	74.0	-15.8	3.31 H	102	43.4	14.8
7	11690.00	49.1 AV	54.0	-4.9	3.31 H	102	34.3	14.8
8	#17535.00	57.4 PK	88.2	-30.8	1.74 H	192	38.1	19.3
9	#17535.00	46.5 AV	68.2	-21.7	1.74 H	192	27.2	19.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

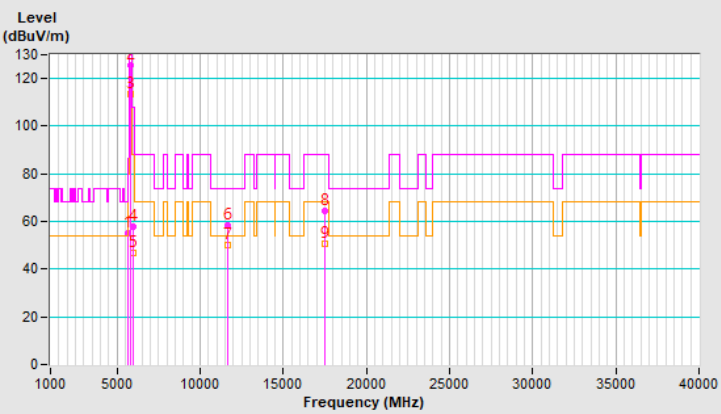


RF Mode	TX 802.11ax (HE20)	Channel	CH 169：5845 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5649.24	55.0 PK	68.2	-13.2	2.31 V	172	50.1	4.9
2	*5845.00	125.6 PK			2.31 V	172	120.3	5.3
3	*5845.00	113.6 AV			2.31 V	172	108.3	5.3
4	#5937.19	58.0 PK	108.2	-50.2	2.31 V	172	52.5	5.5
5	#5937.19	46.9 AV	88.2	-41.3	2.31 V	172	41.4	5.5
6	11690.00	58.6 PK	74.0	-15.4	2.60 V	127	43.8	14.8
7	11690.00	50.3 AV	54.0	-3.7	2.60 V	127	35.5	14.8
8	#17535.00	64.3 PK	88.2	-23.9	2.29 V	59	45.0	19.3
9	#17535.00	50.5 AV	68.2	-17.7	2.29 V	59	31.2	19.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

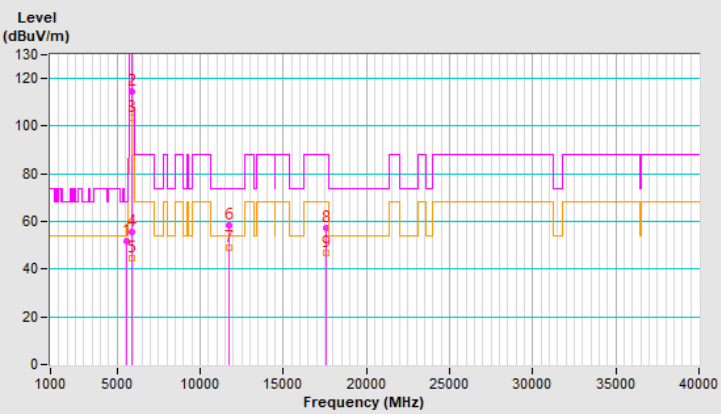


RF Mode	TX 802.11ax (HE20)	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5591.37	51.9 PK	68.2	-16.3	1.70 H	220	47.0	4.9
2	*5865.00	114.4 PK			1.70 H	220	109.0	5.4
3	*5865.00	103.4 AV			1.70 H	220	98.0	5.4
4	#5925.37	55.4 PK	108.2	-52.8	1.70 H	220	49.9	5.5
5	#5925.37	44.5 AV	88.2	-43.7	1.70 H	220	39.0	5.5
6	11730.00	58.5 PK	74.0	-15.5	3.39 H	104	43.7	14.8
7	11730.00	49.2 AV	54.0	-4.8	3.39 H	104	34.4	14.8
8	#17595.00	57.5 PK	88.2	-30.7	1.72 H	196	37.7	19.8
9	#17595.00	46.7 AV	68.2	-21.5	1.72 H	196	26.9	19.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

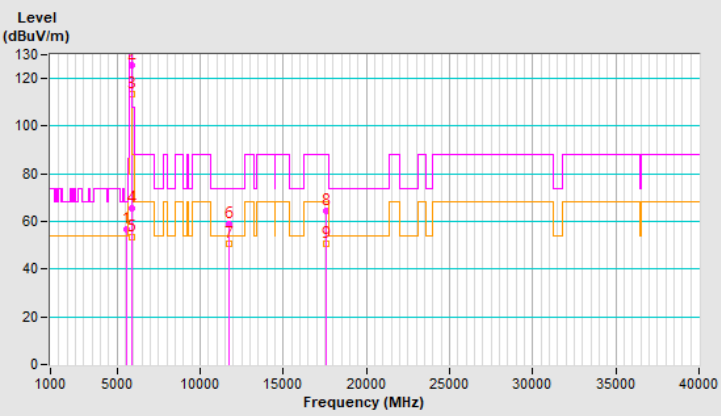


RF Mode	TX 802.11ax (HE20)	Channel	CH 173：5865 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5612.77	56.5 PK	68.2	-11.7	2.29 V	176	51.6	4.9
2	*5865.00	125.4 PK			2.29 V	176	120.0	5.4
3	*5865.00	113.3 AV			2.29 V	176	107.9	5.4
4	#5927.09	65.3 PK	108.2	-42.9	2.29 V	176	59.8	5.5
5	#5927.09	53.4 AV	88.2	-34.8	2.29 V	176	47.9	5.5
6	11730.00	58.9 PK	74.0	-15.1	2.63 V	149	44.1	14.8
7	11730.00	50.6 AV	54.0	-3.4	2.63 V	149	35.8	14.8
8	#17595.00	64.5 PK	88.2	-23.7	2.32 V	67	44.7	19.8
9	#17595.00	50.6 AV	68.2	-17.6	2.32 V	67	30.8	19.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

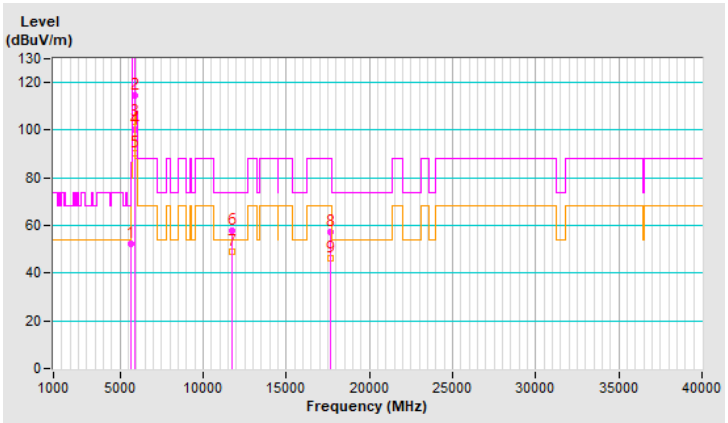


RF Mode	TX 802.11ax (HE20)	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5625.03	52.3 PK	68.2	-15.9	2.08 H	232	47.4	4.9
2	*5885.00	114.5 PK			2.08 H	232	109.1	5.4
3	*5885.00	103.5 AV			2.08 H	232	98.1	5.4
4	#5895.00	100.1 PK	130.2	-30.1	2.08 H	232	94.6	5.5
5	#5895.00	90.3 AV	110.2	-19.9	2.08 H	232	84.8	5.5
6	11770.00	57.8 PK	74.0	-16.2	3.37 H	125	43.0	14.8
7	11770.00	48.9 AV	54.0	-5.1	3.37 H	125	34.1	14.8
8	#17655.00	57.1 PK	88.2	-31.1	1.74 H	215	36.9	20.2
9	#17655.00	46.0 AV	68.2	-22.2	1.74 H	215	25.8	20.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

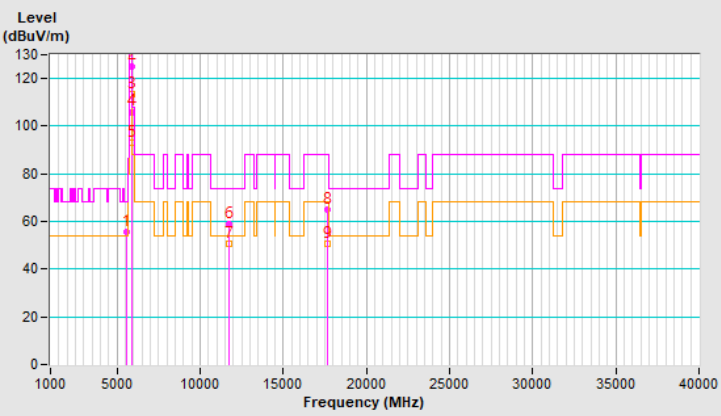


RF Mode	TX 802.11ax (HE20)	Channel	CH 177：5885 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5567.83	55.4 PK	68.2	-12.8	2.16 V	188	50.6	4.8
2	*5885.00	125.3 PK			2.16 V	188	119.9	5.4
3	*5885.00	113.5 AV			2.16 V	188	108.1	5.4
4	#5895.00	106.0 PK	130.2	-24.2	2.16 V	188	100.5	5.5
5	#5895.00	93.1 AV	110.2	-17.1	2.16 V	188	87.6	5.5
6	11770.00	58.7 PK	74.0	-15.3	2.69 V	137	43.9	14.8
7	11770.00	50.5 AV	54.0	-3.5	2.69 V	137	35.7	14.8
8	#17655.00	64.9 PK	88.2	-23.3	2.39 V	64	44.7	20.2
9	#17655.00	50.9 AV	68.2	-17.3	2.39 V	64	30.7	20.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

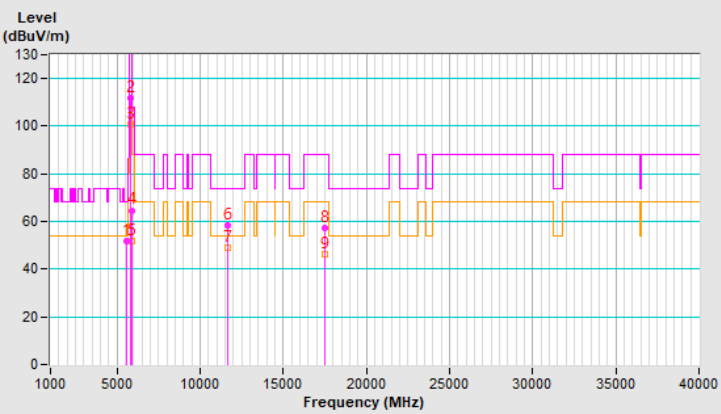


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 167：5835 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	#5607.19	52.0 PK	68.2	-16.2	1.95 H	217	47.0	5.0
2	*5835.00	111.9 PK			1.95 H	217	106.6	5.3
3	*5835.00	100.6 AV			1.95 H	217	95.3	5.3
4	#5926.27	64.7 PK	108.2	-43.5	1.95 H	217	59.2	5.5
5	#5926.27	51.8 AV	88.2	-36.4	1.95 H	217	46.3	5.5
6	11670.00	58.2 PK	74.0	-15.8	3.40 H	98	43.2	15.0
7	11670.00	48.9 AV	54.0	-5.1	3.40 H	98	33.9	15.0
8	#17505.00	57.4 PK	88.2	-30.8	1.83 H	189	38.2	19.2
9	#17505.00	46.3 AV	68.2	-21.9	1.83 H	189	27.1	19.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

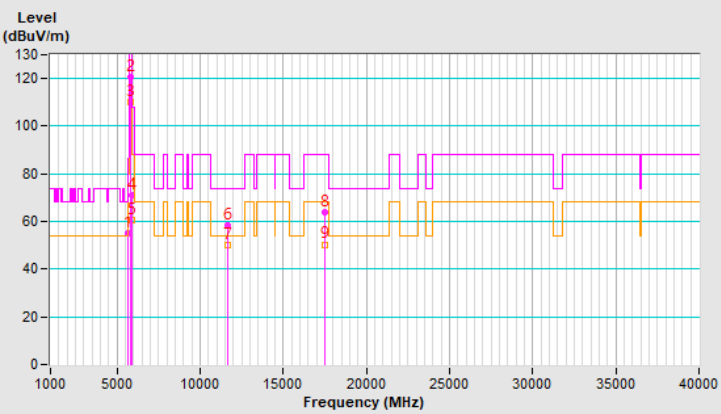


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 167：5835 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	#5637.84	55.3 PK	68.2	-12.9	2.21 V	204	50.4	4.9
2	*5835.00	120.7 PK			2.21 V	204	115.4	5.3
3	*5835.00	110.3 AV			2.21 V	204	105.0	5.3
4	#5928.54	71.2 PK	108.2	-37.0	2.21 V	204	65.7	5.5
5	#5928.54	60.5 AV	88.2	-27.7	2.21 V	204	55.0	5.5
6	11670.00	58.5 PK	74.0	-15.5	2.61 V	135	43.5	15.0
7	11670.00	50.2 AV	54.0	-3.8	2.61 V	135	35.2	15.0
8	#17505.00	64.1 PK	88.2	-24.1	2.34 V	47	44.9	19.2
9	#17505.00	50.4 AV	68.2	-17.8	2.34 V	47	31.2	19.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

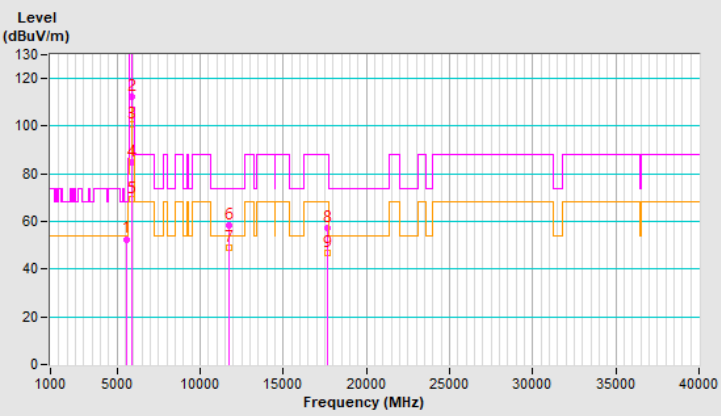


RF Mode	TX 802.11ax (HE40)	Channel	CH 175：5875 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5590.37	52.6 PK	68.2	-15.6	1.98 H	238	47.7	4.9
2	*5875.00	112.3 PK			1.98 H	238	106.9	5.4
3	*5875.00	101.0 AV			1.98 H	238	95.6	5.4
4	#5925.00	84.6 PK	108.2	-23.6	1.98 H	238	79.1	5.5
5	#5925.00	69.6 AV	88.2	-18.6	1.98 H	238	64.1	5.5
6	11750.00	58.4 PK	74.0	-15.6	3.32 H	123	43.5	14.9
7	11750.00	49.1 AV	54.0	-4.9	3.32 H	123	34.2	14.9
8	#17625.00	57.5 PK	88.2	-30.7	1.78 H	213	37.6	19.9
9	#17625.00	46.7 AV	68.2	-21.5	1.78 H	213	26.8	19.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

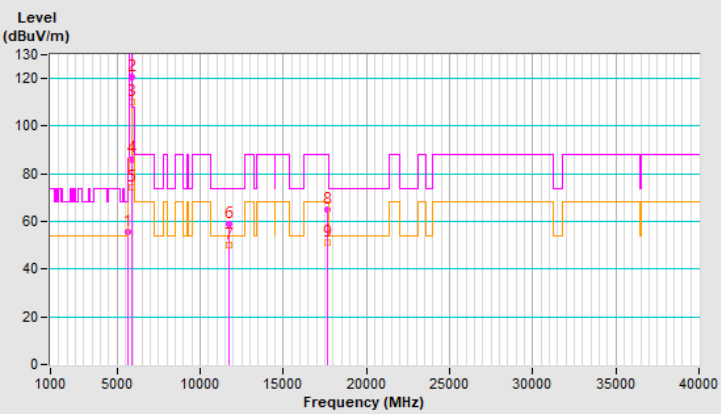


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 175：5875 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	#5650.00	55.4 PK	68.2	-12.8	2.13 V	193	50.5	4.9
2	*5875.00	120.5 PK			2.13 V	193	115.1	5.4
3	*5875.00	110.2 AV			2.13 V	193	104.8	5.4
4	#5925.00	86.2 PK	108.2	-22.0	2.13 V	193	80.7	5.5
5	#5925.00	74.4 AV	88.2	-13.8	2.13 V	193	68.9	5.5
6	11750.00	59.0 PK	74.0	-15.0	2.62 V	150	44.1	14.9
7	11750.00	50.3 AV	54.0	-3.7	2.62 V	150	35.4	14.9
8	#17625.00	65.0 PK	88.2	-23.2	2.30 V	43	45.1	19.9
9	#17625.00	51.1 AV	68.2	-17.1	2.30 V	43	31.2	19.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

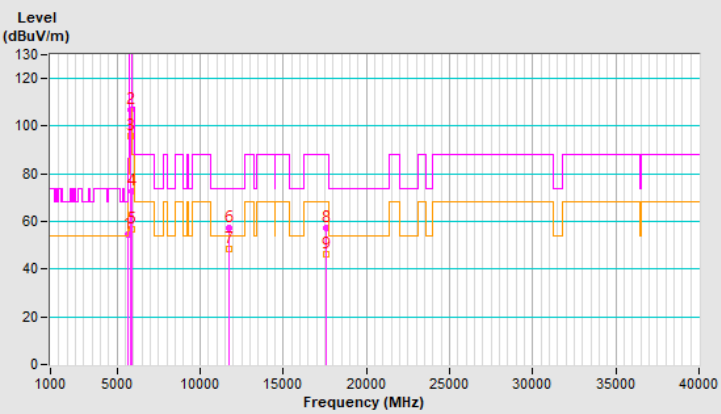


RF Mode	TX 802.11ax (HE80)	Channel	CH 171：5855 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5634.22	54.5 PK	68.2	-13.7	1.68 H	223	49.6	4.9
2	*5855.00	106.6 PK			1.68 H	223	101.2	5.4
3	*5855.00	95.6 AV			1.68 H	223	90.2	5.4
4	#5927.98	72.9 PK	108.2	-35.3	1.68 H	223	67.4	5.5
5	#5927.98	56.9 AV	88.2	-31.3	1.68 H	223	51.4	5.5
6	11710.00	57.4 PK	74.0	-16.6	3.43 H	103	42.5	14.9
7	11710.00	48.5 AV	54.0	-5.5	3.43 H	103	33.6	14.9
8	#17565.00	57.5 PK	88.2	-30.7	1.74 H	193	37.9	19.6
9	#17565.00	46.4 AV	68.2	-21.8	1.74 H	193	26.8	19.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

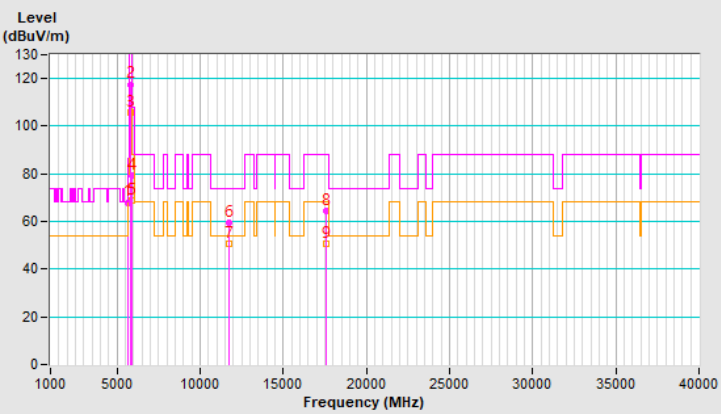


RF Mode	TX 802.11ax (HE80)	**Channel**	CH 171：5855 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 200 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	**#5645.41**	**68.0 PK**	**68.2**	**-0.2**	**2.18 V**	**188**	**63.1**	**4.9**
2	*5855.00	117.6 PK			2.18 V	188	112.2	5.4
3	*5855.00	105.8 AV			2.18 V	188	100.4	5.4
4	#5927.53	79.1 PK	108.2	-29.1	2.18 V	188	73.6	5.5
5	#5927.53	68.7 AV	88.2	-19.5	2.18 V	188	63.2	5.5
6	11710.00	59.4 PK	74.0	-14.6	2.63 V	135	44.5	14.9
7	11710.00	50.7 AV	54.0	-3.3	2.63 V	135	35.8	14.9
8	#17565.00	64.2 PK	88.2	-24.0	2.38 V	71	44.6	19.6
9	#17565.00	50.6 AV	68.2	-17.6	2.38 V	71	31.0	19.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

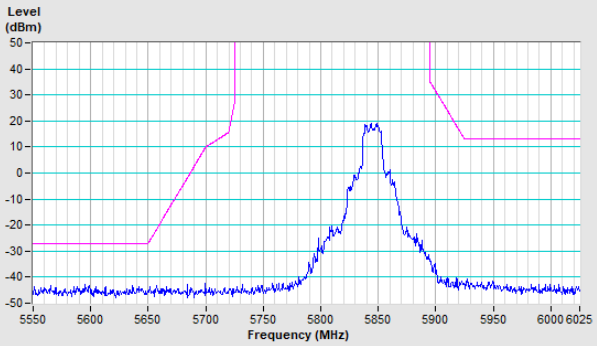


Plot of Band Edge

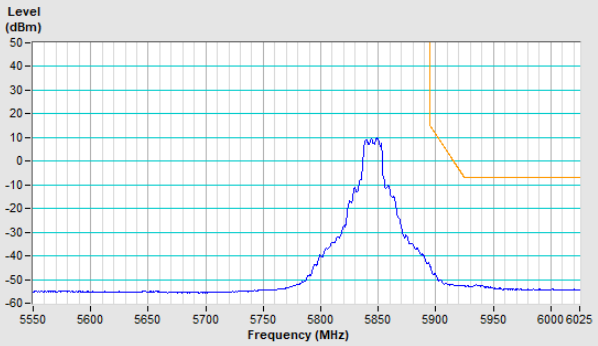
Frequency Range	5.5 GHz ~ 6.025 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (RMS) RB = 1 MHz, VB = 3 MHz

802.11a Channel 169

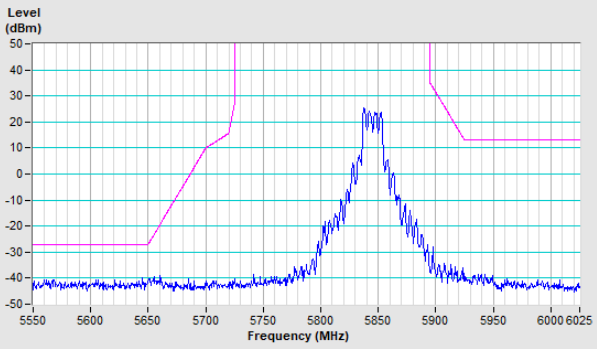
Horizontal (Peak)



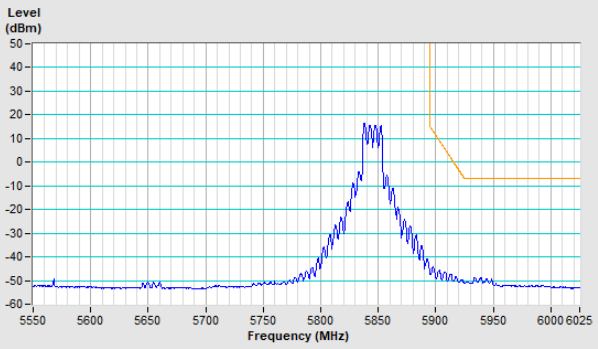
Horizontal (Average)



Vertical (Peak)

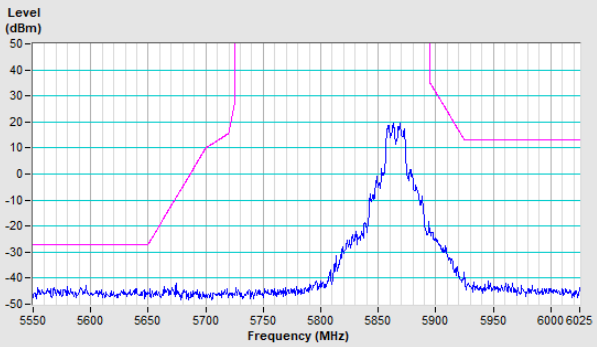


Vertical (Average)

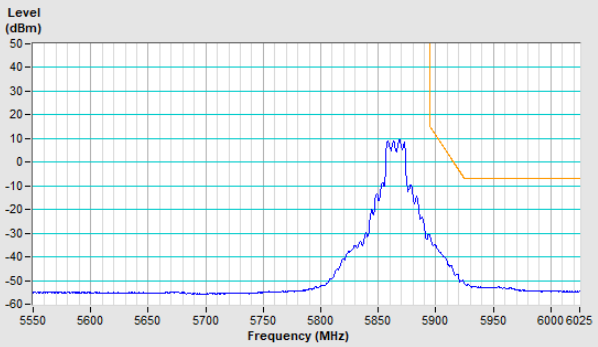


802.11a Channel 173

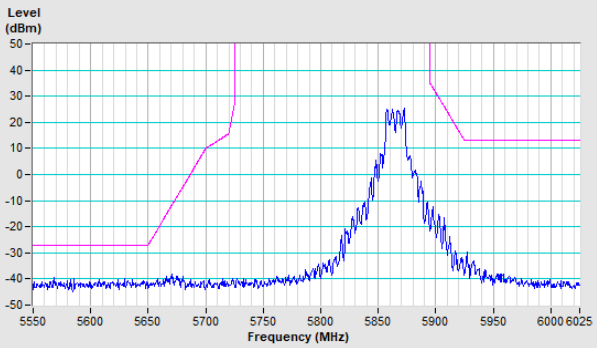
Horizontal (Peak)



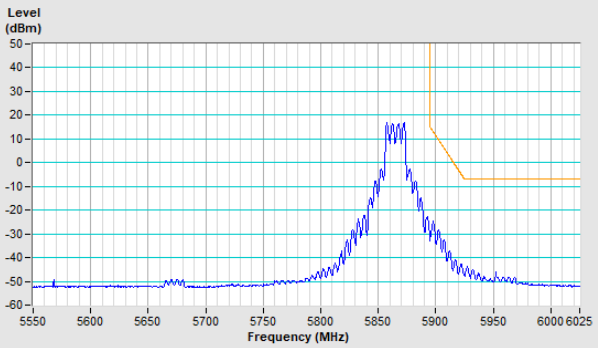
Horizontal (Average)

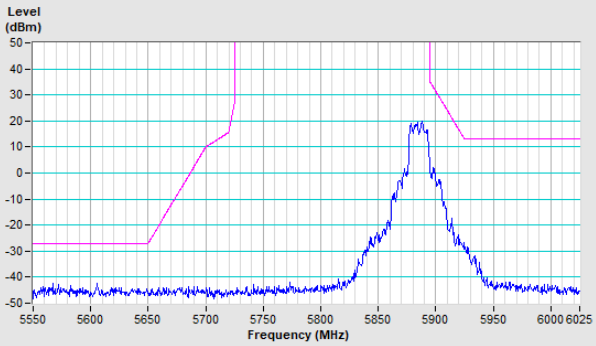
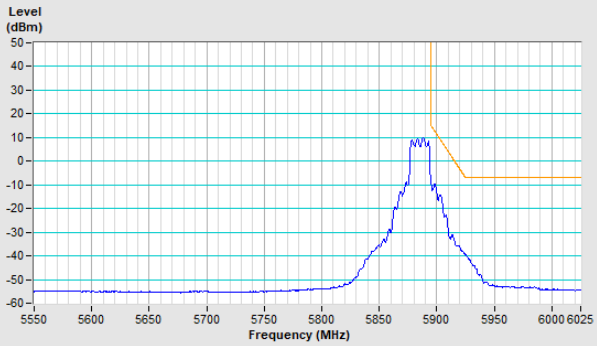
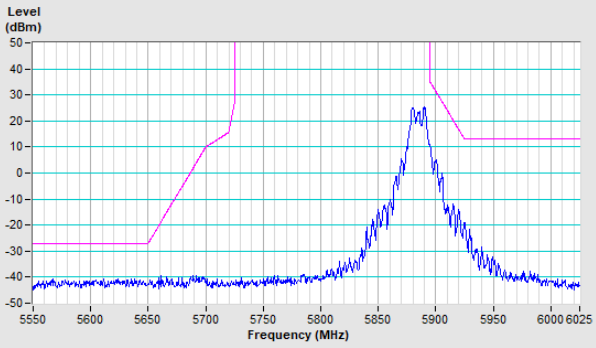
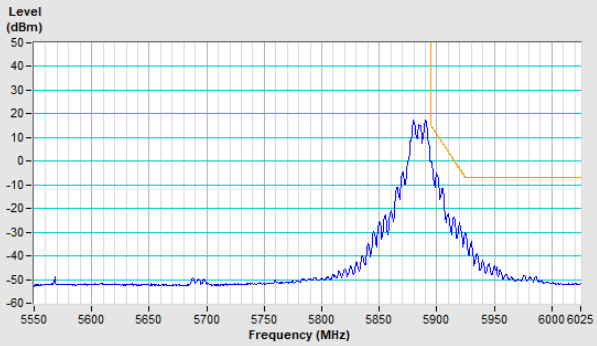


Vertical (Peak)



Vertical (Average)

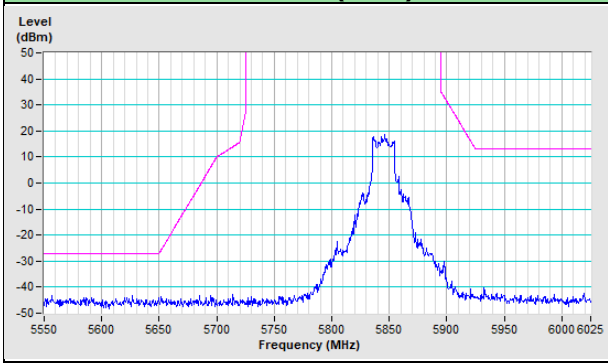


802.11a Channel 177	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

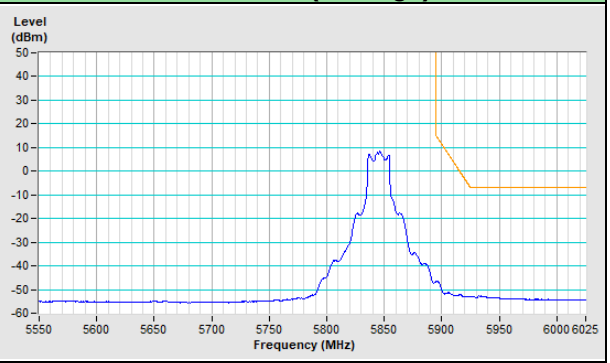
Frequency Range	5.5 GHz ~ 6.025 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (RMS) RB = 1 MHz, VB = 3 MHz

802.11ax (HE20) Channel 169

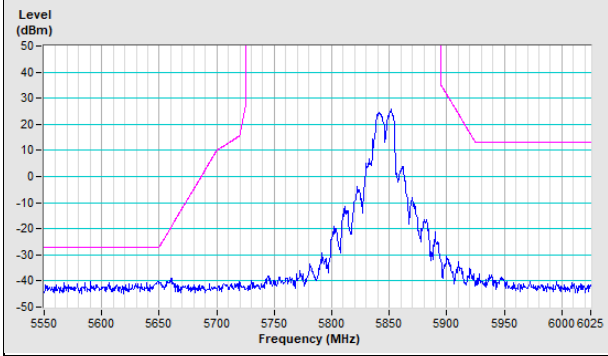
Horizontal (Peak)



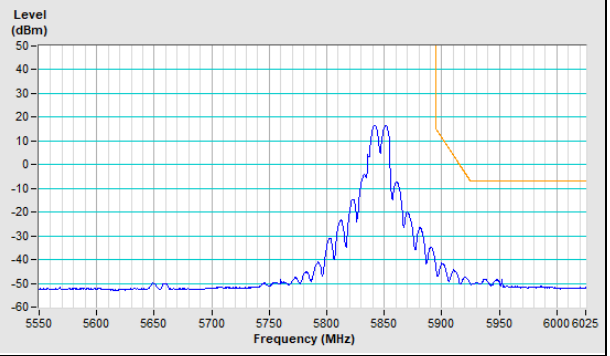
Horizontal (Average)



Vertical (Peak)

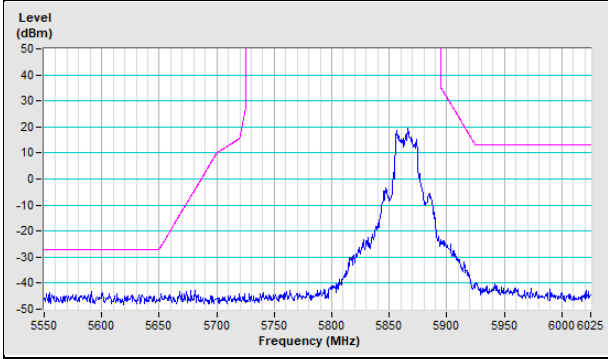


Vertical (Average)

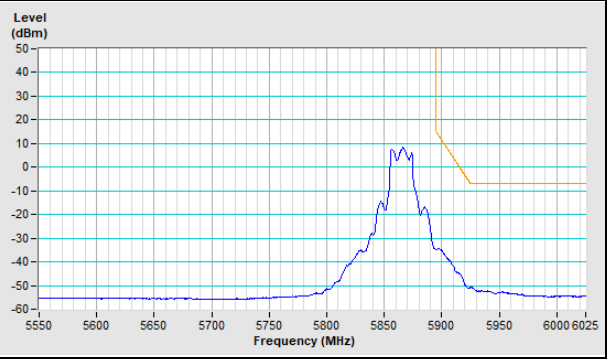


802.11ax (HE20) Channel 173

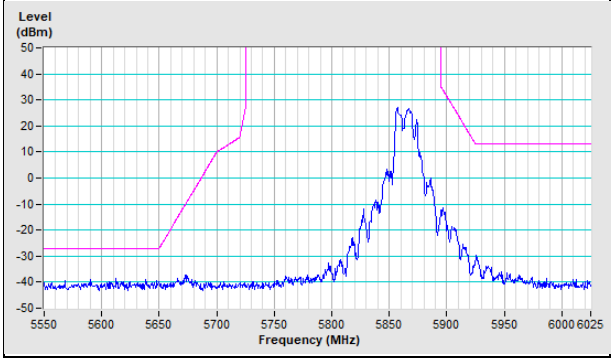
Horizontal (Peak)



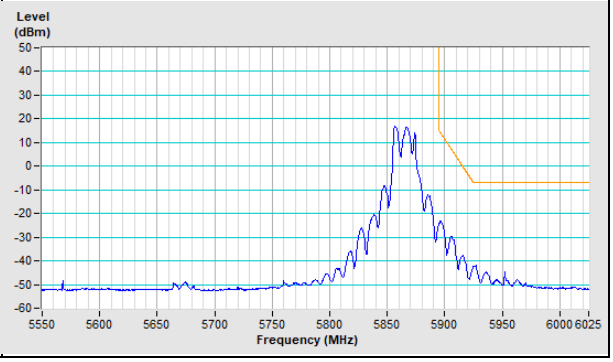
Horizontal (Average)

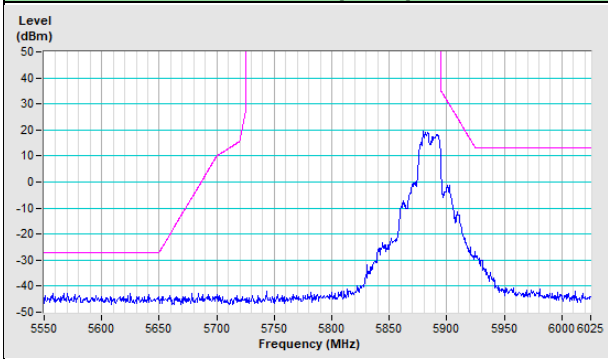
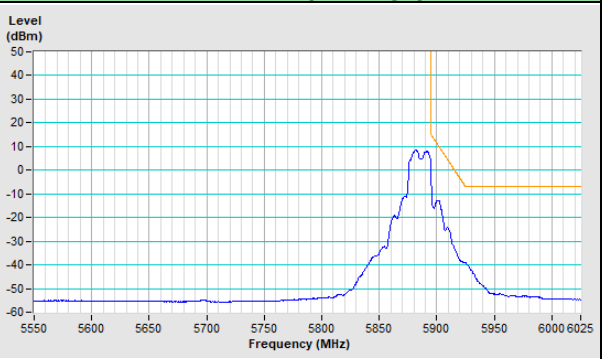
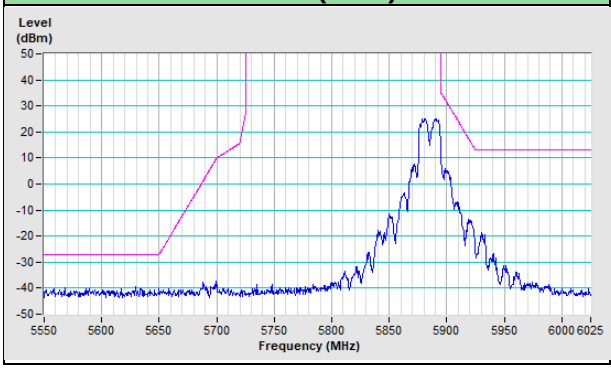
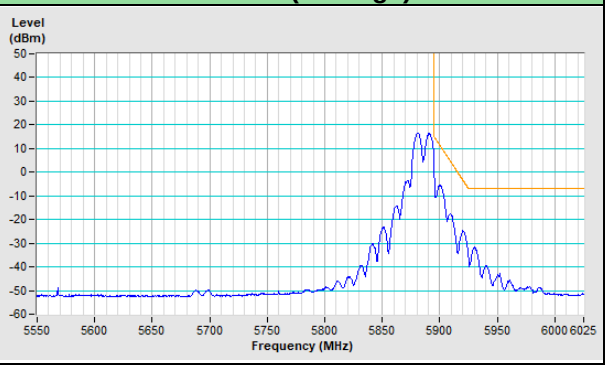


Vertical (Peak)



Vertical (Average)

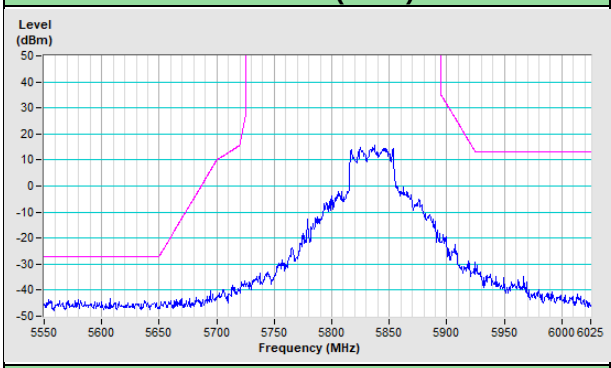


802.11ax (HE20) Channel 177	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

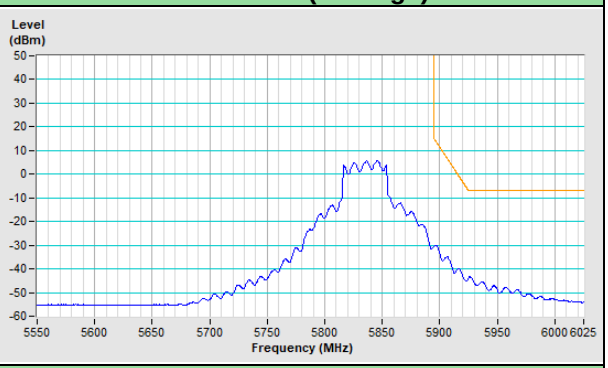
Frequency Range	5.5 GHz ~ 6.025 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (RMS) RB = 1 MHz, VB = 3 MHz

802.11ax (HE40) Channel 167

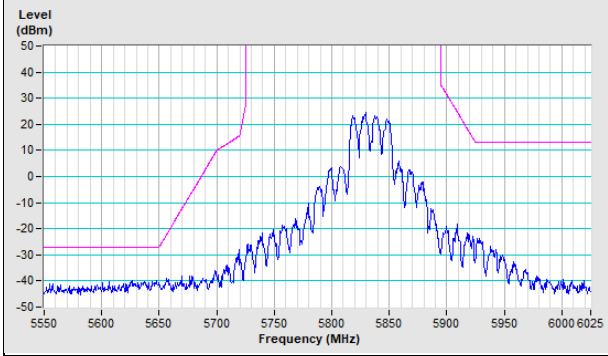
Horizontal (Peak)



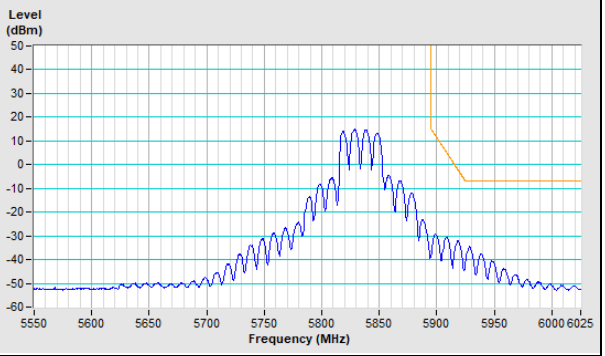
Horizontal (Average)



Vertical (Peak)

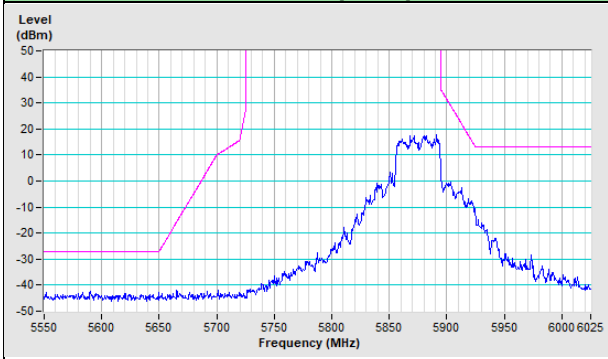


Vertical (Average)

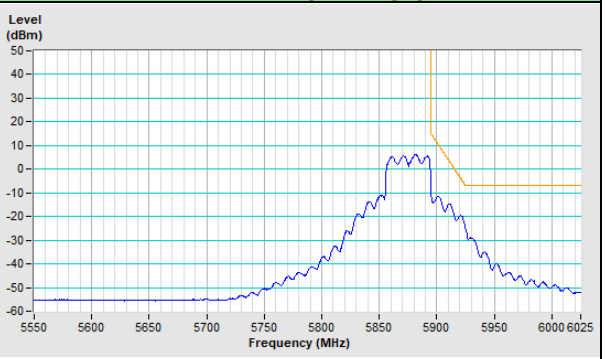


802.11ax (HE40) Channel 175

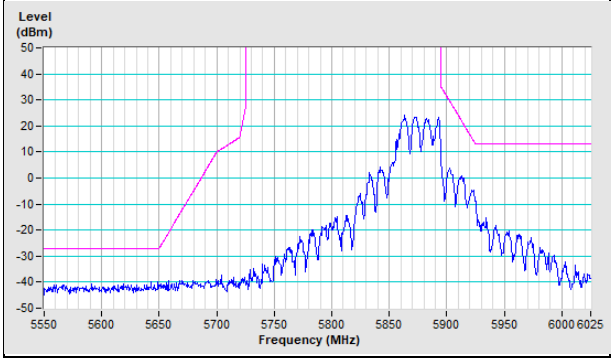
Horizontal (Peak)



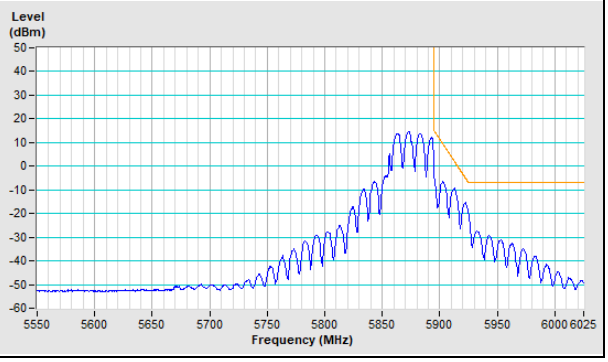
Horizontal (Average)



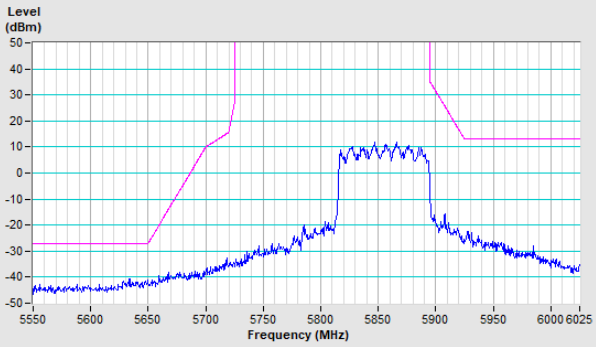
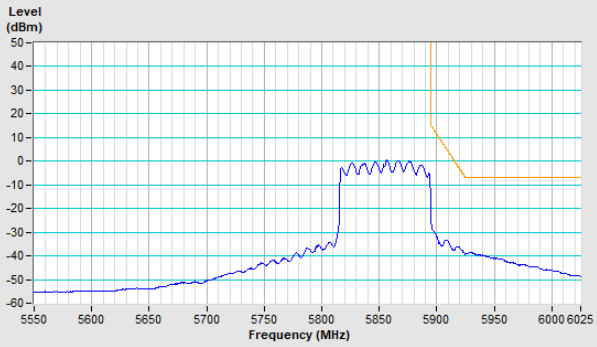
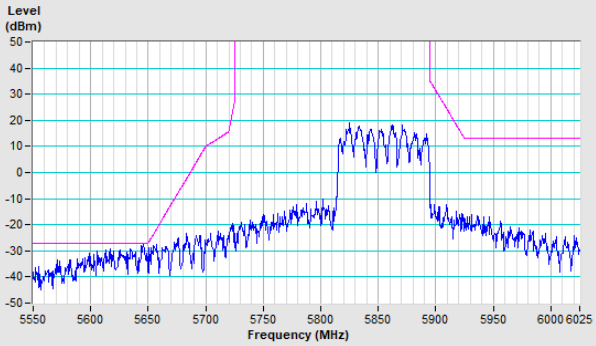
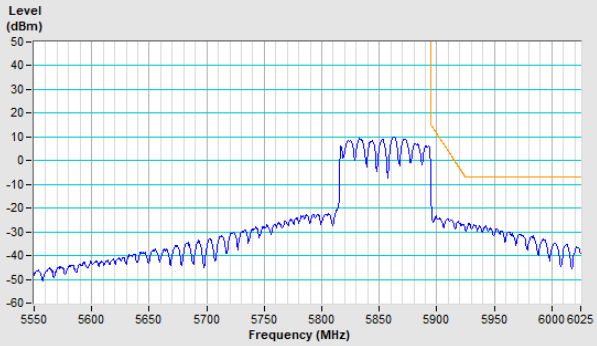
Vertical (Peak)



Vertical (Average)



Frequency Range	5.5 GHz ~ 6.025 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (RMS) RB = 1 MHz, VB = 3 MHz

802.11ax (HE80) Channel 171	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

8 Operational Restrictions for 5.85-5.895GHz U-NII Devices

For Indoor Access Point operates in the 5.850-5.895 GHz band, is supplied power from a wired connection, has an integrated antenna, is not battery powered, and does not have a weatherized enclosure. Indoor access point devices must bear the following statement in a conspicuous location on the device and in the user's manual: FCC regulations restrict operation of this device to indoor use only.

Device is a Indoor access point, all restrictions are meet the §15.403 requirements. Please refer to the Attestation letter exhibit supplied within this application.

9 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

10 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@bureauveritas.com
Web Site: http://ee.bureauveritas.com.tw

The address and road map of all our labs can be found in our web site also.

--- END ---