TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: **47 CFR FCC Part 15, Subpart E (Section 15.407)**

Report No.: RFBFBE-WTW-P22031259-1

FCC ID: I88EX5512-T0

Model No.: EX5512-T0

Received Date: 2022/6/1

Test Date: 2022/6/5 ~ 2022/7/23

Issued Date: 2022/8/24

Applicant: Zyxel Communications Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / Designation Number: 723255 / TW2022

Approved by: _____ , **Date:** 2022/8/24

May Chen / Manager

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Prepared by : Cherry Chuo / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBFBE-WTW-P22031259-1	Original release.	2022/8/24

1 Certificate

Product:	AX6000 WiFi 6 Multi-Gigabit Ethernet Gateway
Brand:	ZYXEL
Test Model:	EX5512-T0
Sample Status:	Engineering sample
Applicant:	Zyxel Communications Corporation
Test Date:	2022/6/5 ~ 2022/7/23
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407)
Measurement procedure:	ANSI C63.10-2013 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)(1/2/3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
---	Occupied Bandwidth	-	Reference only.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -9.60 dB at 0.36489 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -3.2 dB at 37.35 MHz
15.407(b) (1/2/3/4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.6 dB at 5150.00 MHz
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	AX6000 WiFi 6 Multi-Gigabit Ethernet Gateway
Brand	ZYXEL
Test Model	EX5512-T0
Status of EUT	Engineering sample
CPU Model No.	MT7986A
RF Chip Model No.	2.4G Chip Model: MT7976G 5G Chip Model: MT7976A
FW Version	V5.70(ACEG.0)b3
Power Supply Rating	12Vdc from Adapter
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 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3 Mbps 802.11ax: up to 2401.9 Mbps
Operating Frequency	5180 ~ 5240 MHz 5745 ~ 5825 MHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 9 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 4 802.11ac (VHT80), 802.11ax (HE80): 2
Output Power	**CDD Mode** 5180 ~ 5240 MHz : 935.114 mW (29.71 dBm) 5745 ~ 5825 MHz : 985.99 mW (29.94 dBm) **Beamforming Mode** 5180 ~ 5240 MHz : 828.648 mW (29.18 dBm) 5745 ~ 5825 MHz : 985.99 mW (29.94 dBm)
EUT Category	Indoor Access Point
Accessory Device	- AC Adapter x1, Brand:MNC, Model:MAUS-1202503000 - Ethernet Cable x1 (1m, Non-shielded)

Note:

1. The EUT power needs to be supplied from a power adapter, the information is as below table:

Brand	Model	Specification
MNC	MAUS-1202503000	AC Input : 100-240V 50/60Hz, 0.8A DC Output : 12V/2.5A DC Cable : 1.5m, Non-shielded

2. 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.		

3. 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.

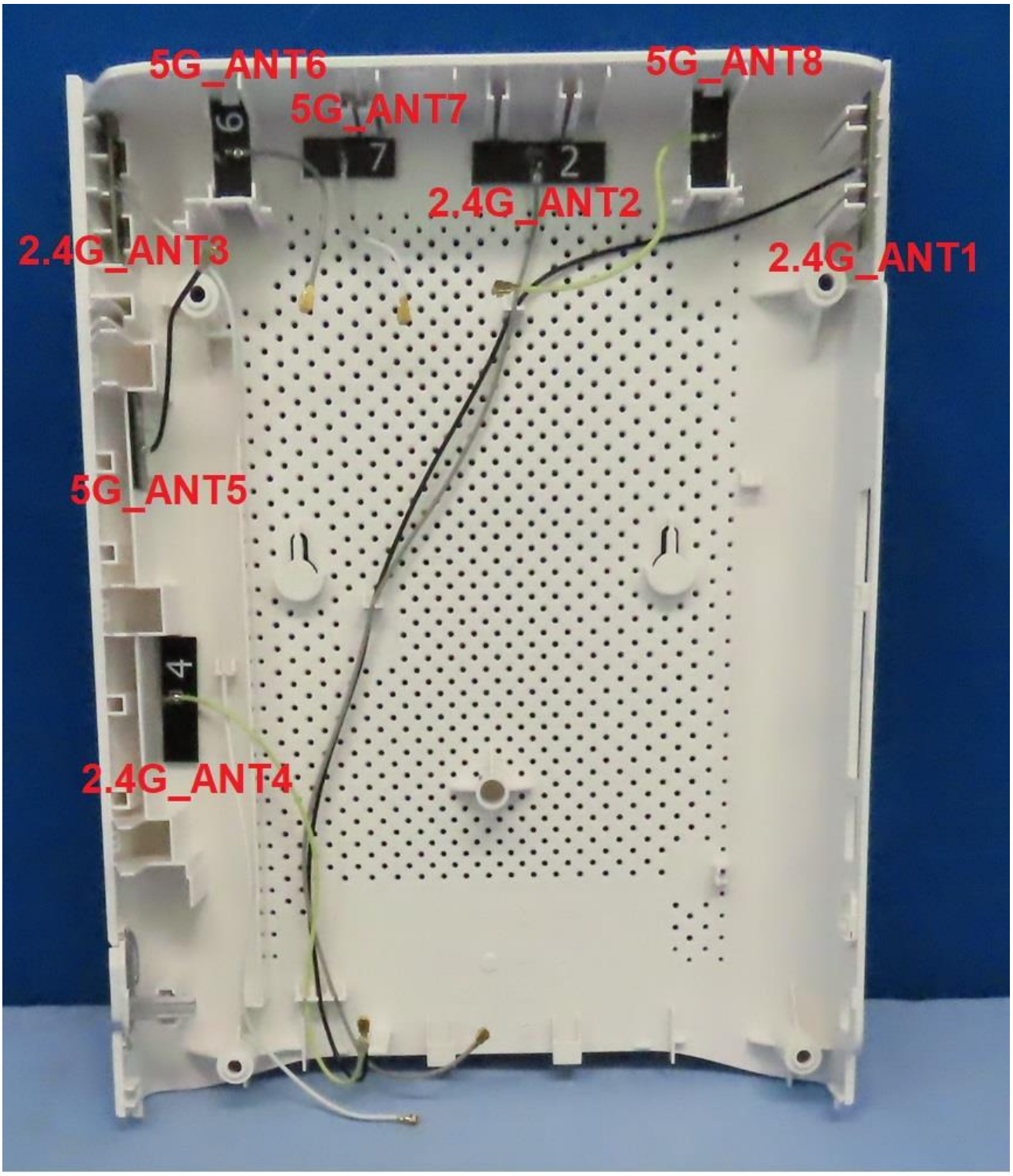
3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna No.	RF Chain No.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type
2G_ANT1	2G_Chain2	M.gear	56-001-000240Z	2.6	2.4~2.4835	Dipole	ipex(MHF)
2G_ANT2	2G_Chain0	M.gear	56-001-000241Z	3.3	2.4~2.4835	Dipole	ipex(MHF)
2G_ANT3	2G_Chain1	M.gear	56-001-000247Z	3.1	2.4~2.4835	Dipole	ipex(MHF)
2G_ANT4	2G_Chain3	M.gear	56-001-000242Z	3.2	2.4~2.4835	Dipole	ipex(MHF)
5G_ANT5	5G_Chain0	M.gear	56-001-000243Z	3.2	5.15~5.25	Dipole	ipex(MHF)
				3.4	5.25~5.35		
				4.0	5.47~5.725		
				3.3	5.725~5.85		
				3.6	5.850~5.895		
5G_ANT6	5G_Chain1	M.gear	56-001-000244Z	2.5	5.15~5.25	Dipole	ipex(MHF)
				2.2	5.25~5.35		
				3.2	5.47~5.725		
				2.4	5.725~5.85		
				2.7	5.850~5.895		
5G_ANT7	5G_Chain2	M.gear	56-001-000245Z	3.6	5.15~5.25	Dipole	ipex(MHF)
				3.8	5.25~5.35		
				3.9	5.47~5.725		
				3.8	5.725~5.85		
				4.2	5.850~5.895		
5G_ANT8	5G_Chain3	M.gear	56-001-000246Z	2.4	5.15~5.25	Dipole	ipex(MHF)
				3.4	5.25~5.35		
				3.4	5.47~5.725		
				3.2	5.725~5.85		
				3.2	5.850~5.895		

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

* Antenna port location



2. The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Directional Antenna Gain (dBi)	Antenna Type	Antenna Connector
5.15~5.25	6.49	Dipole	ipex(MHF)
5.25~5.35	6.66		
5.47~5.725	6.62		
5.725~5.85	5.57		
Note: Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement. More detailed information, please refer to antenna specification.			

3. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	**TX & RX Configuration**	
802.11a	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
802.11ac (VHT20)	4TX	4RX
802.11ac (VHT40)	4TX	4RX
802.11ac (VHT80)	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
802.11ax (HE80)	4TX	4RX

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 (40MHz, 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 5180 ~ 5240MHz

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

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

Channel	Frequency
42	5210 MHz

FOR 5745 ~ 5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

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

Channel	Frequency
155	5775 MHz

3.4 Power Setting

Power Setting						
Channel	802.11a CDD	802.11ac (VHT20) CDD	Channel	802.11ac (VHT40) CDD	Channel	802.11ac (VHT80) CDD
36	23	22.5	38	17	42	14
40	23.5	24	46	23.5	155	22
48	24	24	151	24		
149	23.5	23.5	159	24.5		
157	24	24				
165	24	24.5				

Power Setting					
Channel	802.11ax (HE20) CDD	Channel	802.11ax (HE40) CDD	Channel	802.11ax (HE80) CDD
36	22.5	38	17	42	14
40	24	46	23.5	155	22
48	24	151	24		
149	23.5	159	24.5		
157	24				
165	24.5				

Power Setting					
Channel	802.11ac (VHT20) Beamforming	Channel	802.11ac (VHT40) Beamforming	Channel	802.11ac (VHT80) Beamforming
36	22.5	38	17	42	14
40	23.5	46	23	155	22
48	23.5	151	24		
149	23.5	159	24.5		
157	24				
165	24.5				

Power Setting					
Channel	802.11ax (HE20) Beamforming	Channel	802.11ax (HE40) Beamforming	Channel	802.11ax (HE80) Beamforming
36	22.5	38	17	42	14
40	23.5	46	23	155	22
48	23.5	151	24		
149	23.5	159	24.5		
157	24				
165	24.5				

3.5 Test Mode Applicability and Tested Channel Detail

Worst Case:	1. 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.

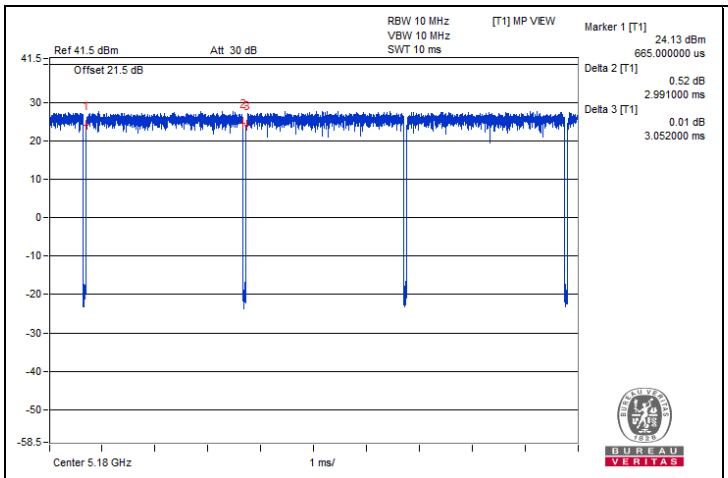
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ac (VHT20)	CDD & Beamforming	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ac (VHT40)	CDD & Beamforming	38, 46, 54, 151, 159	BPSK	MCS0
	802.11ac (VHT80)	CDD & Beamforming	42, 155	BPSK	MCS0
	802.11ax (HE20)	CDD & Beamforming	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	38, 46, 54, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD & Beamforming	42, 155	BPSK	MCS0
6 dB Bandwidth	802.11a	CDD	149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	155	BPSK	MCS0
Occupied Bandwidth / Power Spectral Density	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	38, 46, 54, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	42, 155	BPSK	MCS0
Frequency Stability	802.11a	-	36	un-modulation	-
AC Power Conducted Emissions	802.11ax (HE20)	CDD	149	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ax (HE20)	CDD	149	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	CDD	36, 40, 48, 149, 157, 165	BPSK	6Mb/s
	802.11ax (HE20)	CDD	36, 40, 48, 149, 157, 165	BPSK	MCS0
	802.11ax (HE40)	CDD	38, 46, 54, 151, 159	BPSK	MCS0
	802.11ax (HE80)	CDD	42, 155	BPSK	MCS0

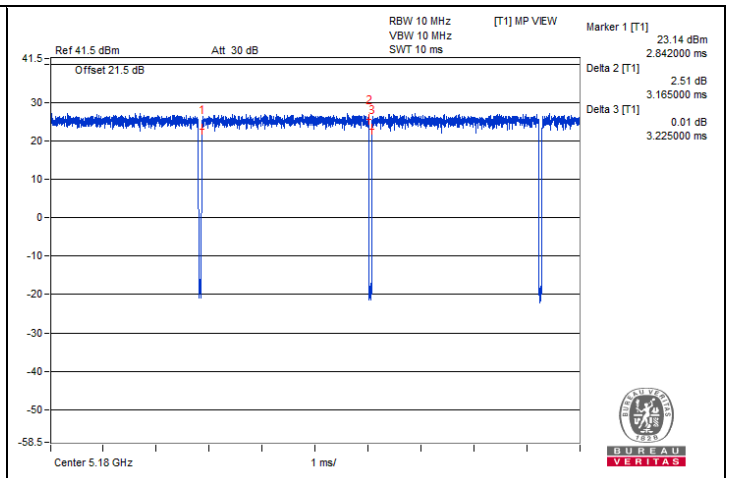
3.6 Duty Cycle of Test Signal

Duty cycle of test signal is >= 98 %, duty factor is not required.
Duty cycle of test signal is < 98 %, duty factor shall be considered.

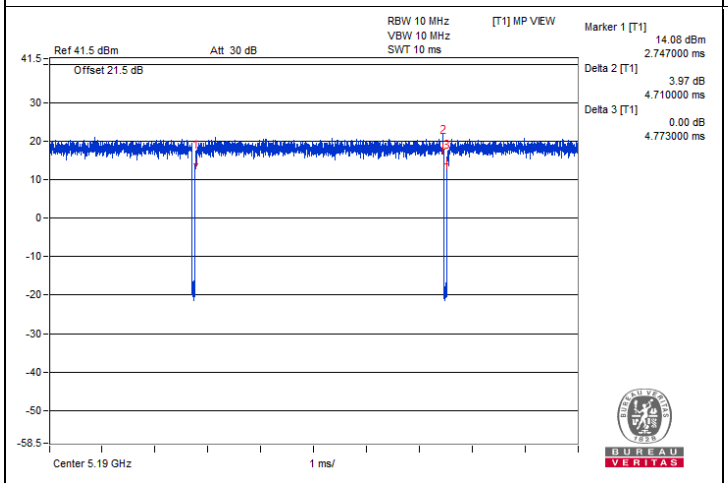
802.11a: Duty cycle = 2.991 ms / 3.052 ms x 100% = 98.0%
802.11ax (HE20): Duty cycle = 3.165 ms / 3.225 ms x 100% = 98.1%
802.11ax (HE40): Duty cycle = 4.71 ms / 4.773 ms x 100% = 98.7%
802.11ax (HE80): Duty cycle = 4.505 ms / 4.585 ms x 100% = 98.3%



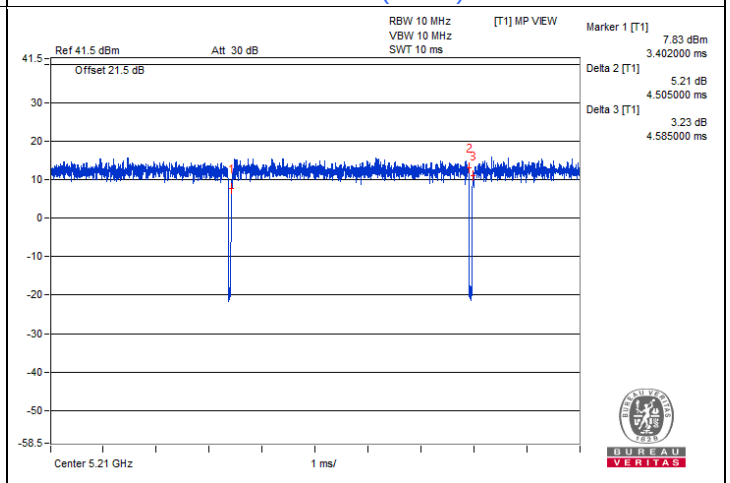
802.11a



802.11ax (HE20)



802.11ax (HE40)

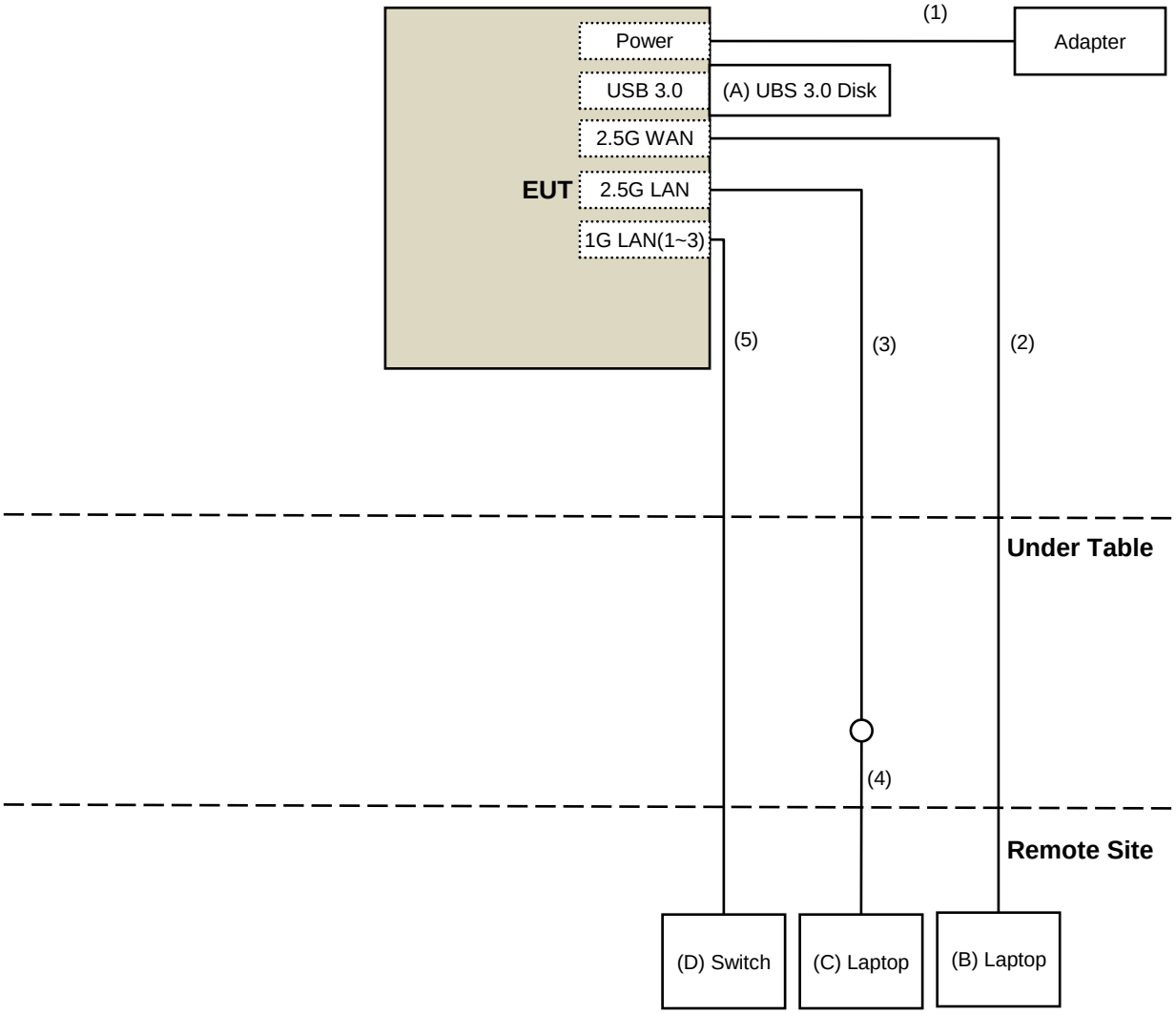


802.11ax (HE80)

3.7 Test Program Used and Operation Descriptions

Controlling software (QATool_UIv2.88_DLLv6.93_ap_2022.01.04(V14)c) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.8 Connection Diagram of EUT and Peripheral Devices



3.9 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	UBS 3.0 Disk	SanDisk	BM181225896Z	N/A	N/A	Provided by Lab
B	Laptop	Lenovo	20U5S01X00 L14	PF-28LKK7	N/A	Provided by Lab
C	Laptop	DELL	PP36S	25733582128	N/A	Provided by Lab
D	Switch	D-Link	DGS-1005D	DR8WC92000523	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.5	No	0	Supplied by applicant
2	RJ-45 Cable	1	10	No	0	Provided by Lab
3	Ethernet Cable	1	1	No	0	Supplied by applicant
4	RJ-45 Cable	1	10	No	0	Provided by Lab
5	RJ-45 Cable	3	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: 2022/7/18

4.2 Power Spectral Density

Refer to section 4.1to get information of the instruments.

4.3 6 dB Bandwidth

Refer to section 4.1to get information of the instruments.

4.4 Occupied Bandwidth

Refer to section 4.1to get information of the instruments.

4.5 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: 2022/7/18

4.6 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	2021/8/27	2022/8/26
LISN R&S	ESH3-Z5	848773/004	2021/10/29	2022/10/28
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2021/9/25	2022/9/24
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: 2022/6/10

4.7 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 JYEBO	5D-FB	LOOPCAB-001	2022/1/6	2023/1/5
		LOOPCAB-002	2022/1/6	2023/1/5
RF Coaxial Cable COMMATE/PEWC	8D	966-4-1	2022/3/8	2023/3/7
		966-3-2	2022/2/26	2023/2/25
		966-3-3	2022/2/26	2023/2/25
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: 2022/7/20

4.8 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	BBHA9120-D	9120D-406	2021/11/14	2022/11/13
	BBHA 9170	9170-739	2021/11/14	2022/11/13
MXE EMI Receiver(20 Hz to 44 GHz) Keysight	N9038A	MY54450088	2021/7/6 2022/7/13	2022/7/5 2023/7/12
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	EMC104-SM-SM-1500	180504	2022/4/25	2023/4/24
	EMC-KM-KM-4000	200214	2022/3/8	2023/3/7
	EMC104-SM-SM-2000	180601	2021/6/8 2022/6/6	2022/6/7 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	2021/7/6 2022/6/20	2022/7/5 2023/6/19

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/6/5 ~ 2022/7/23

5 Limits of Test Items

5.1 RF Output Power

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Point	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Mobile and Portable client device	250 mW (24 dBm)

Operation Band	Limit
U-NII-3	1 Watt (30 dBm)

Per KDB 662911 D01 Multiple Transmitter Output 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

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	17 dBm/ MHz
	Fixed point-to-point Access Point	
	Indoor Access Point	
	Mobile and Portable client device	11 dBm/ MHz

Operation Band	Limit
U-NII-3	30 dBm/ 500 kHz

5.3 6 dB Bandwidth

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

5.4 Occupied Bandwidth

The results are for reference only.

5.5 Frequency Stability

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

5.6 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.

5.7 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).

5.8 Unwanted Emissions above 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)
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).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2 (dBµV/m) *1 PK: 105.2 (dBµV/m) *2 PK: 110.8 (dBµV/m) *3 PK: 122.2 (dBµV/m) *4
*1 beyond 75 MHz or more above of the band edge. *3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. *4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

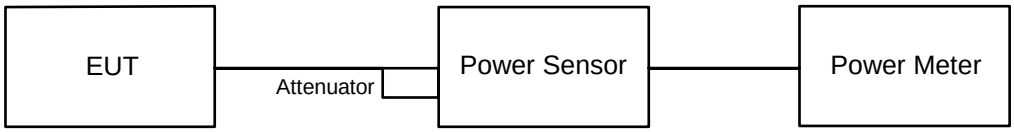
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

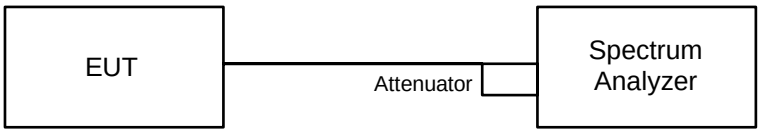


6.1.2 Test Procedure

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-1

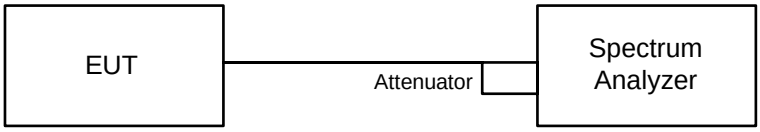
a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
c. Sweep points ≥ [2 × span / RBW]. (This gives bin-to-bin spacing ≤ RBW / 2, so that narrowband signals are not lost between frequency bins.)
d. Sweep time = auto, trigger set to “free run”.
e. Trace average at least 100 traces in power averaging mode.
f. Record the max value

For specified measurement bandwidth 500 kHz:
Method SA-1

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 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log(500 kHz/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. Record the max value

6.3 6 dB Bandwidth

6.3.1 Test Setup

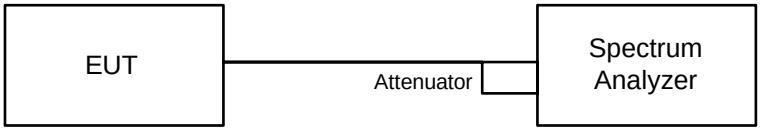


6.3.2 Test Procedure

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 Occupied Bandwidth

6.4.1 Test Setup

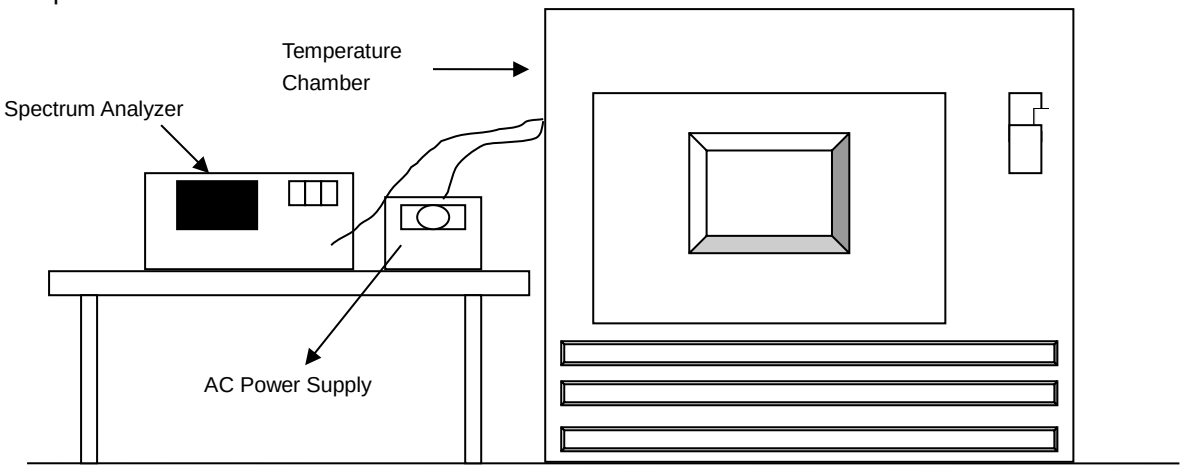


6.4.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

6.5 Frequency Stability

6.5.1 Test Setup



6.5.2 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.

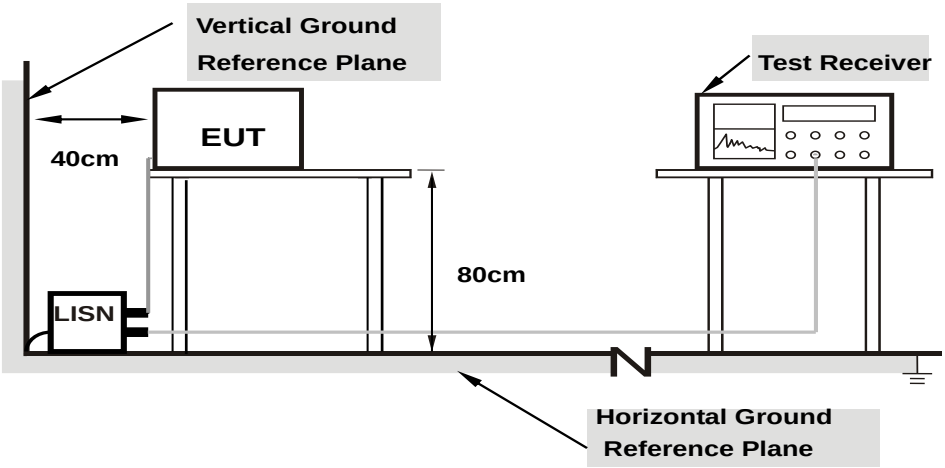
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.

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.

6.6 AC Power Conducted Emissions

6.6.1 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).

6.6.2 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.

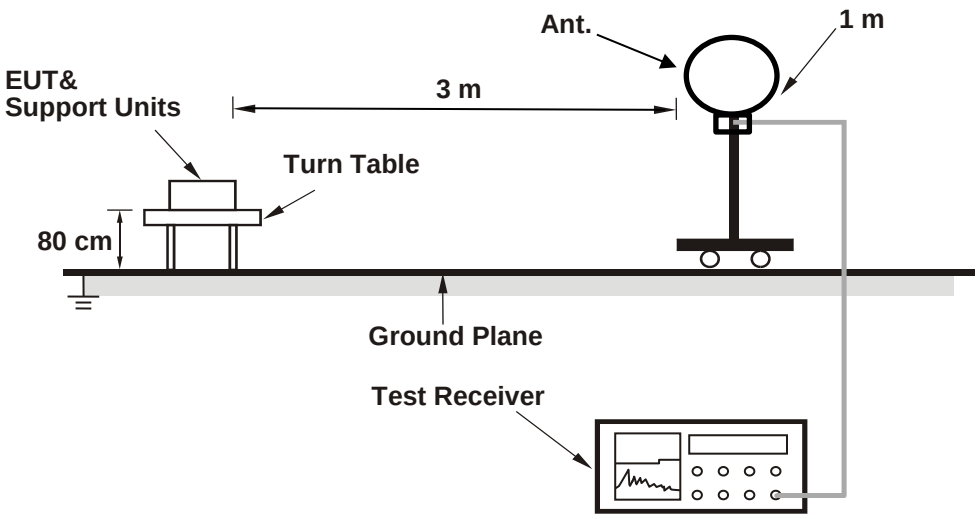
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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.

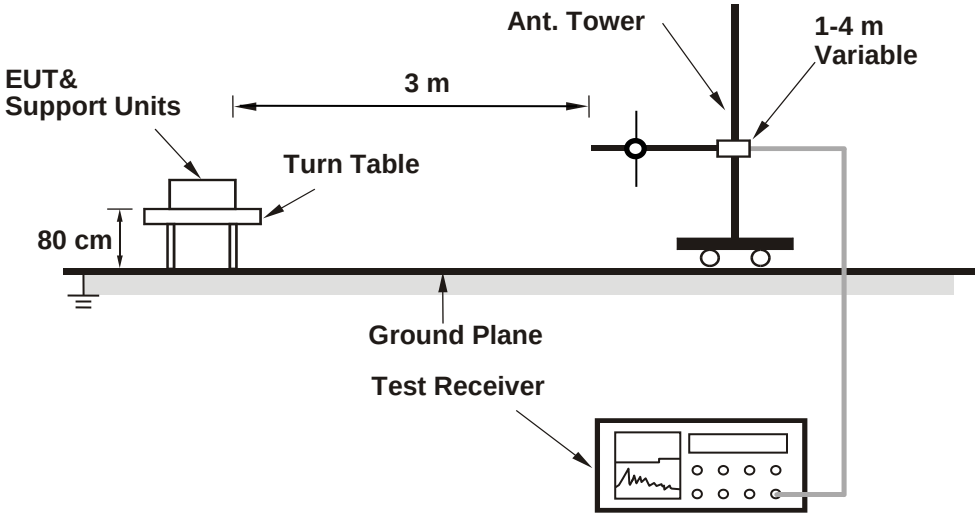
6.7 Unwanted Emissions below 1 GHz

6.7.1 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).

6.7.2 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.

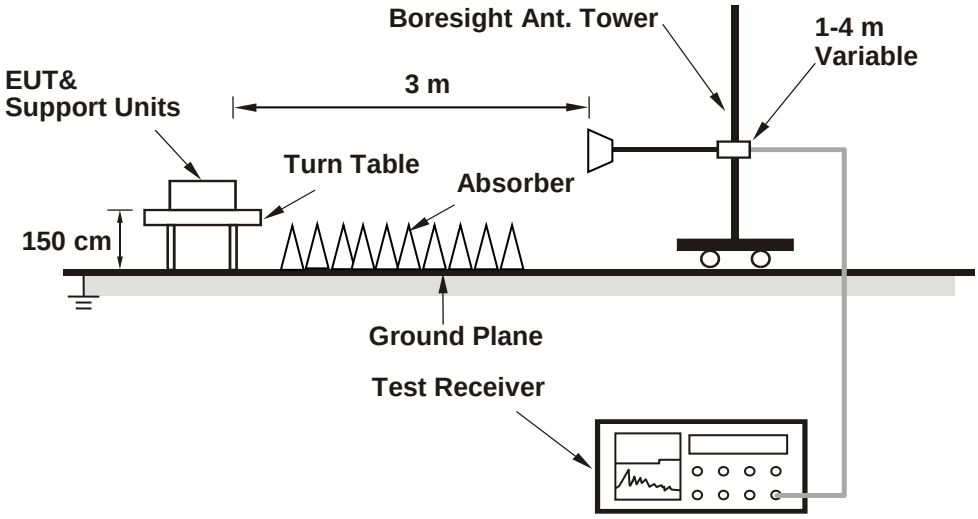
Notes:

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.

6.8 Unwanted Emissions above 1 GHz

6.8.1 Test Setup

For Radiated emission above 1 GHz



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

6.8.2 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:	Waydi Tuan

802.11a CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	23.67	23.22	22.93	22.77	828.274	29.18	30	Pass
40	5200	23.66	23.41	23.05	22.62	836.201	29.22	30	Pass
48	5240	23.53	23.64	22.96	22.61	836.717	29.23	30	Pass
149	5745	24.45	23.54	23.27	23.51	941.268	29.74	30	Pass
157	5785	24.69	23.44	23.17	23.20	931.664	29.69	30	Pass
165	5825	24.12	23.34	23.43	23.67	927.102	29.67	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the directional gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the directional gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	22.97	22.46	21.99	21.68	679.706	28.32	30	Pass
40	5200	23.85	23.72	23.23	22.89	883.08	29.46	30	Pass
48	5240	23.74	23.83	23.20	22.81	878.053	29.44	30	Pass
149	5745	24.21	23.74	22.98	23.49	922.192	29.65	30	Pass
157	5785	24.43	23.29	22.68	23.22	885.884	29.47	30	Pass
165	5825	23.99	23.22	23.14	23.37	883.838	29.46	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the directional gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the directional gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	17.64	17.33	16.99	16.46	206.414	23.15	30	Pass
46	5230	23.81	23.83	23.08	22.65	869.295	29.39	30	Pass
151	5755	24.50	23.66	22.91	23.52	934.451	29.71	30	Pass
159	5795	24.56	23.41	22.77	23.17	901.765	29.55	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	14.68	14.89	12.17	13.36	98.367	19.93	30	Pass
155	5775	23.33	22.17	20.98	21.66	651.963	28.14	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	23.23	22.72	22.23	21.92	720.152	28.57	30	Pass
40	5200	24.11	23.98	23.47	23.12	935.114	29.71	30	Pass
48	5240	24.00	24.06	23.46	23.05	929.528	29.68	30	Pass
149	5745	24.64	23.97	23.21	23.73	985.99	29.94	30	Pass
157	5785	24.69	23.53	22.91	23.46	937.12	29.72	30	Pass
165	5825	24.23	23.46	23.37	23.60	933.027	29.70	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the directional gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the directional gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	17.89	17.60	17.23	16.70	218.68	23.40	30	Pass
46	5230	24.05	24.05	23.32	22.91	918.412	29.63	30	Pass
151	5755	24.67	23.91	23.14	23.76	982.873	29.92	30	Pass
159	5795	24.83	23.65	22.99	23.40	953.671	29.79	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE80) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	14.92	15.13	14.43	13.59	114.218	20.58	30	Pass
155	5775	23.55	22.41	21.22	21.90	687.961	28.38	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. For U-NII-1, the maximum gain is 3.6 dBi < 6 dBi, so the output power limit shall not be reduced.
3. For U-NII-3, the maximum gain is 3.8 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	22.97	22.46	21.99	21.68	679.706	28.32	29.51	Pass
40	5200	23.36	23.24	22.72	22.36	786.888	28.96	29.51	Pass
48	5240	23.25	23.31	22.72	22.31	782.922	28.94	29.51	Pass
149	5745	24.21	23.74	22.98	23.49	922.192	29.65	30	Pass
157	5785	24.43	23.29	22.68	23.22	885.884	29.47	30	Pass
165	5825	23.99	23.22	23.14	23.37	883.838	29.46	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	17.64	17.33	16.99	16.46	206.414	23.15	29.51	Pass
46	5230	23.28	23.31	22.56	22.18	772.601	28.88	29.51	Pass
151	5755	24.50	23.66	22.91	23.52	934.451	29.71	30	Pass
159	5795	24.56	23.41	22.77	23.17	901.765	29.55	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	14.68	14.89	12.17	13.36	98.367	19.93	29.51	Pass
155	5775	23.33	22.17	20.98	21.66	651.963	28.14	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	23.23	22.72	22.23	21.92	720.152	28.57	29.51	Pass
40	5200	23.58	23.46	22.95	22.59	828.648	29.18	29.51	Pass
48	5240	23.47	23.53	22.94	22.52	823.192	29.16	29.51	Pass
149	5745	24.64	23.97	23.21	23.73	985.99	29.94	30	Pass
157	5785	24.69	23.53	22.91	23.46	937.12	29.72	30	Pass
165	5825	24.23	23.46	23.37	23.60	933.027	29.70	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	17.89	17.60	17.23	16.70	218.68	23.40	29.51	Pass
46	5230	23.51	23.53	22.79	22.40	813.7	29.10	29.51	Pass
151	5755	24.67	23.91	23.14	23.76	982.873	29.92	30	Pass
159	5795	24.83	23.65	22.99	23.40	953.671	29.79	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE80) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	14.92	15.13	14.43	13.59	114.218	20.58	29.51	Pass
155	5775	23.55	22.41	21.22	21.90	687.961	28.38	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. For U-NII-1, the directional gain is 6.49 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.49-6) = 29.51 dBm.
3. For U-NII-3, the directional gain is 5.57 dBi< 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	10.15	9.75	9.59	9.50	15.78	16.51	Pass
40	5200	10.69	10.69	10.11	9.71	16.34	16.51	Pass
48	5240	10.67	10.39	10.01	9.87	16.27	16.51	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-1, the directional gain is 6.49 dBi > 6dBi, so the power density limit shall be reduced to 17-(6.49-6) = 16.51 dBm/MHz.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	9.26	9.80	8.79	8.48	15.13	16.51	Pass
40	5200	10.72	11.04	10.09	9.71	16.44	16.51	Pass
48	5240	10.38	11.02	10.12	9.27	16.26	16.51	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-1, the directional gain is 6.49 dBi > 6dBi, so the power density limit shall be reduced to 17-(6.49-6) = 16.51 dBm/MHz.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
38	5190	1.74	2.98	1.72	0.88	7.92	16.51	Pass
46	5230	8.18	8.75	8.16	7.18	14.12	16.51	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-1, the directional gain is 6.49 dBi > 6dBi, so the power density limit shall be reduced to 17-(6.49-6) = 16.51 dBm/MHz.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
42	5210	-4.29	-3.54	-4.82	-5.40	1.56	16.51	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 is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-1, the directional gain is 6.49 dBi > 6dBi, so the power density limit shall be reduced to 17-(6.49-6) = 16.51 dBm/MHz.

802.11a

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)				Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
149	5745	2.39	2.06	3.05	4.05	8.98	11.20	30	Pass
157	5785	3.47	2.37	3.18	3.92	9.29	11.51	30	Pass
165	5825	2.38	2.21	3.13	3.69	8.91	11.13	30	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-3, the directional gain is 5.57 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)				Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
149	5745	1.94	3.21	1.81	1.38	8.16	10.38	30	Pass
157	5785	2.76	3.36	1.89	2.23	8.62	10.84	30	Pass
165	5825	2.02	3.36	1.98	2.41	8.5	10.72	30	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-3, the directional gain is 5.57 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)				Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
151	5755	0.74	1.56	0.16	0.53	6.8	9.02	30	Pass
159	5795	0.88	1.62	0.35	0.55	6.9	9.12	30	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-3, the directional gain is 5.57 dBi < 6 dBi, so the power density limit shall not be reduced.

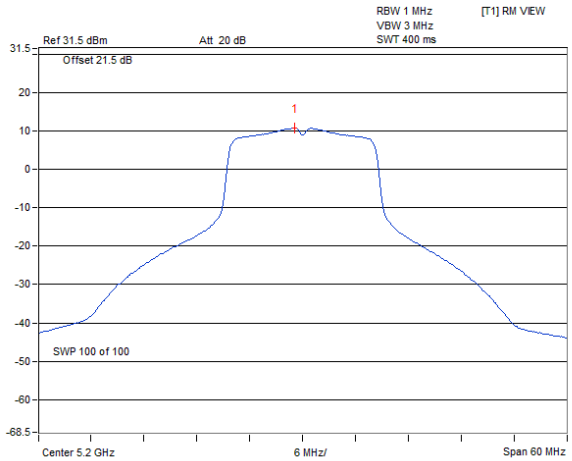
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD (dBm/300kHz)				Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
155	5775	-3.81	-3.37	-4.92	-4.71	1.86	4.08	30	Pass

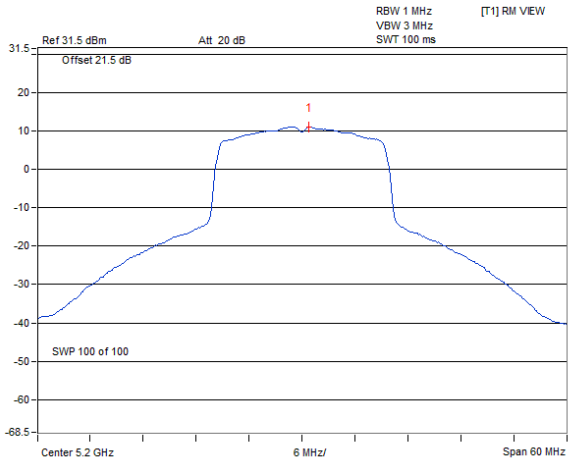
Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. For U-NII-3, the directional gain is 5.57 dBi < 6 dBi, so the power density limit shall not be reduced.

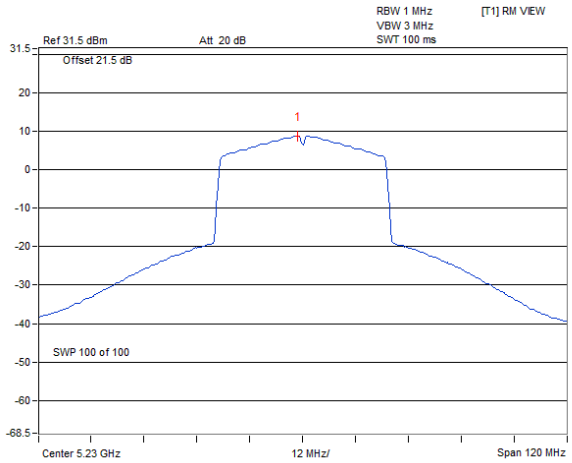
Spectrum Plot of Maximum Value



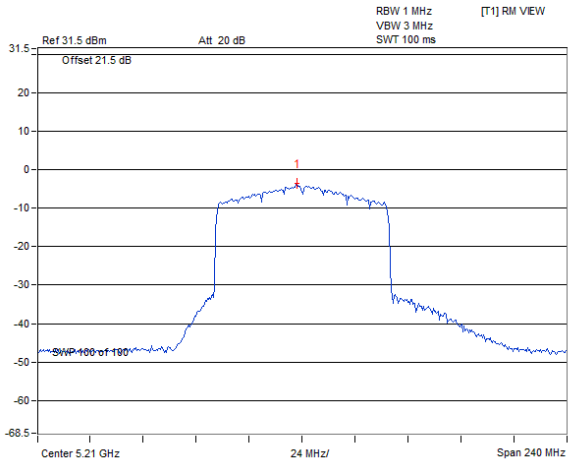
802.11a / Chain0 : CH 40



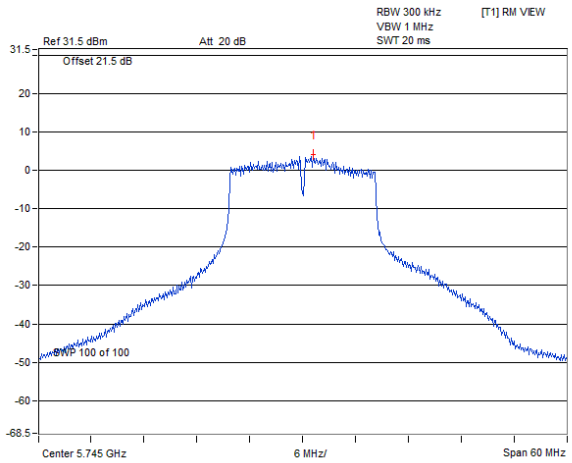
802.11ax (HE20) / Chain1 : CH 40



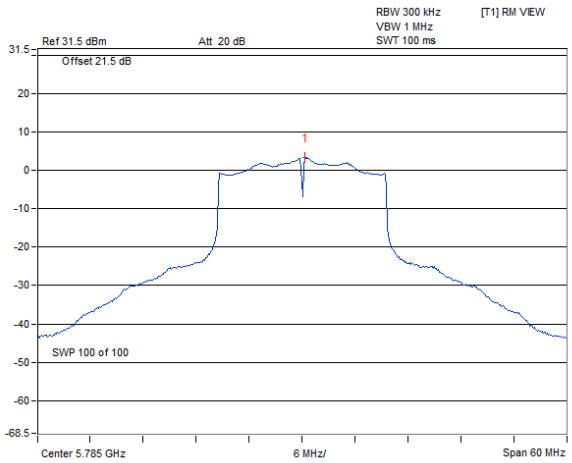
802.11ax (HE40) / Chain1 : CH 46



802.11ax (HE80) / Chain1 : CH 42

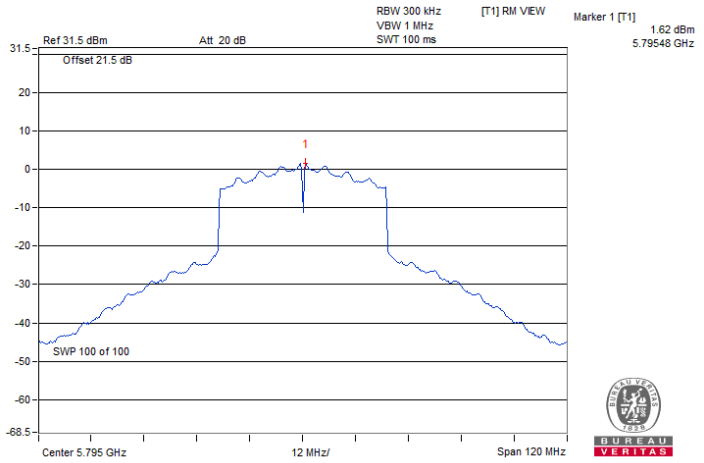


802.11a / Chain3 : CH 149

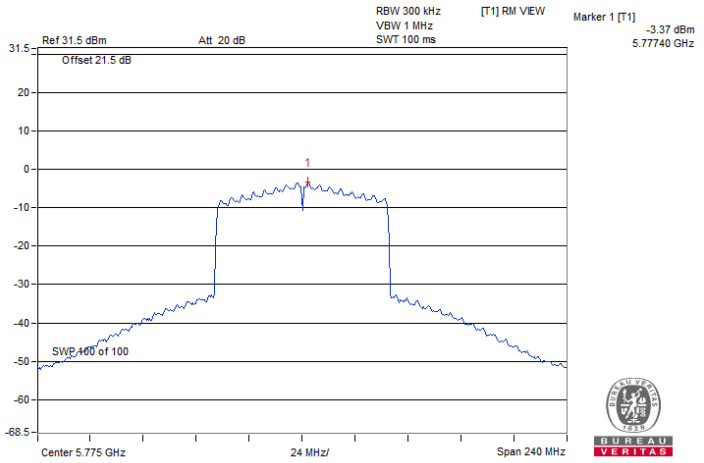


802.11ax (HE20) / Chain1 : CH 157

Spectrum Plot of Maximum Value



802.11ax (HE40) / Chain1 : CH 159



802.11ax (HE80) / Chain1 : CH 155

7.3 6 dB Bandwidth

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

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	15.72	16.39	15.49	15.38	0.5	Pass
157	5785	15.30	16.38	16.33	15.34	0.5	Pass
165	5825	15.39	16.40	16.37	16.04	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	17.96	16.55	17.43	17.83	0.5	Pass
157	5785	17.79	16.23	17.81	17.96	0.5	Pass
165	5825	16.79	15.15	18.21	17.61	0.5	Pass

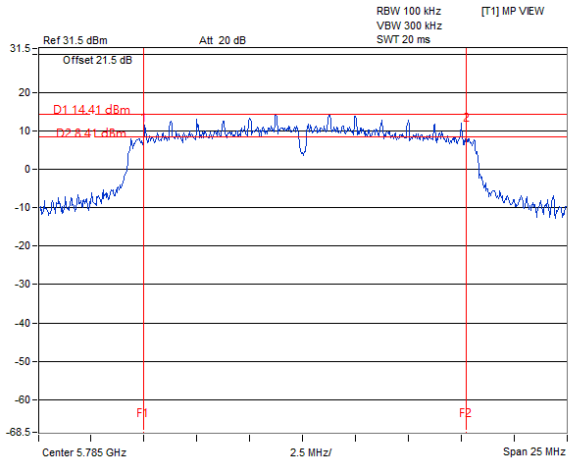
802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	35.43	31.39	30.53	34.44	0.5	Pass
159	5795	34.01	33.35	32.63	33.91	0.5	Pass

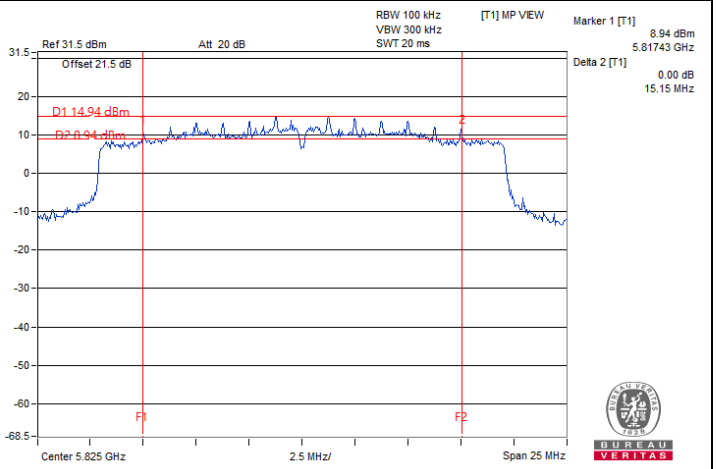
802.11ax (HE80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	75.37	73.96	63.89	75.38	0.5	Pass

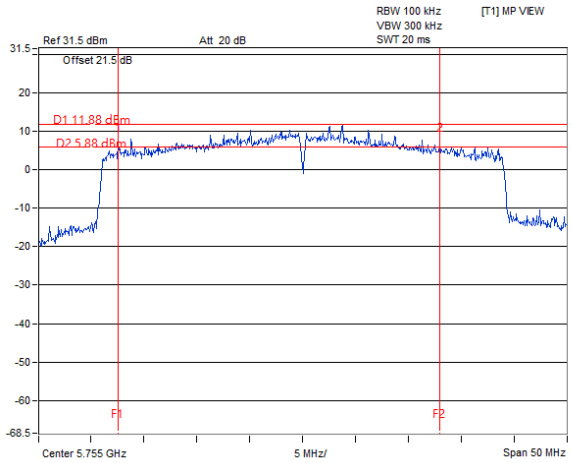
Spectrum Plot of Minimum Value



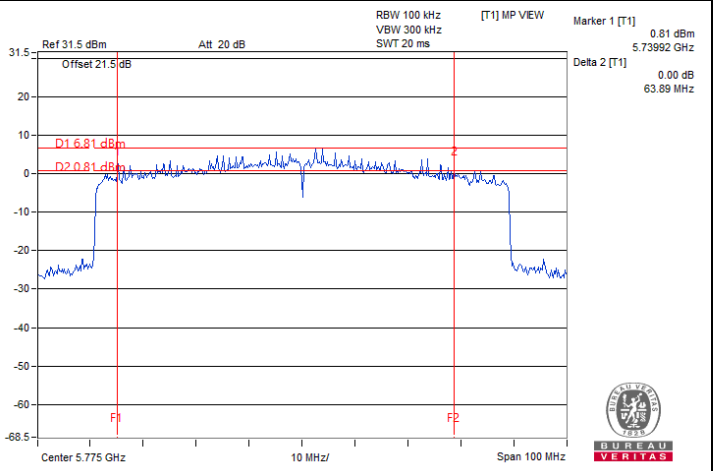
802.11a / Chain0 : CH 157



802.11ax (HE20) / Chain1 : CH 165



802.11ax (HE40) / Chain2 : CH 151



802.11ax (HE80) / Chain2 : CH 155

7.4 Occupied Bandwidth

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

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	16.92	16.80	16.80	16.68
40	5200	17.04	16.92	16.68	16.68
48	5240	17.28	17.04	16.80	16.68
149	5745	17.04	17.28	16.80	17.04
157	5785	18.96	17.88	17.16	17.52
165	5825	17.16	18.00	18.36	17.88

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
36	5180	18.96	18.96	18.96	18.96
40	5200	19.08	19.08	19.08	18.96
48	5240	18.96	18.96	18.96	18.96
149	5745	19.20	19.20	18.96	19.08
157	5785	19.32	19.20	19.08	19.08
165	5825	19.20	19.32	19.20	19.20

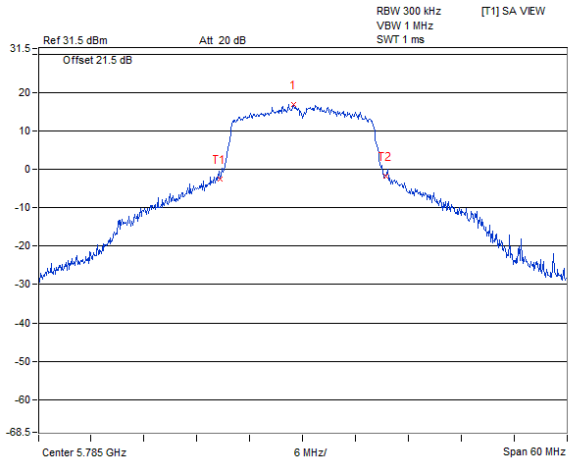
802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
38	5190	37.68	37.56	37.68	37.68
46	5230	37.92	37.92	37.92	37.68
151	5755	38.16	38.16	38.09	37.92
159	5795	38.16	38.16	37.92	38.04

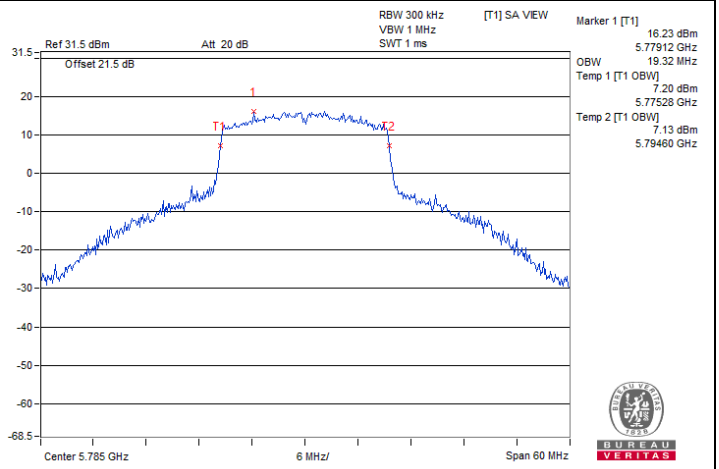
802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
42	5210	76.80	76.80	76.80	76.80
155	5775	77.28	76.80	76.80	76.80

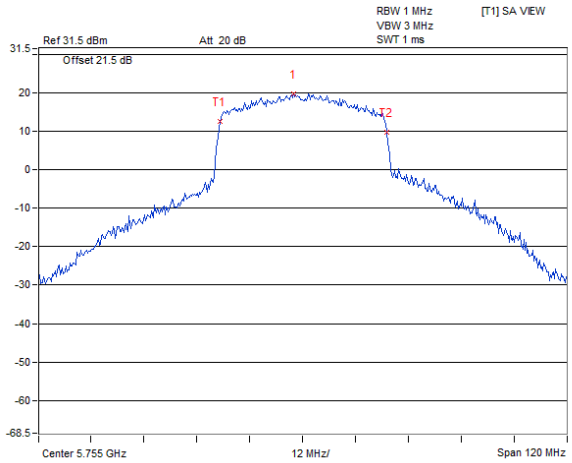
Spectrum Plot of Maximum Value



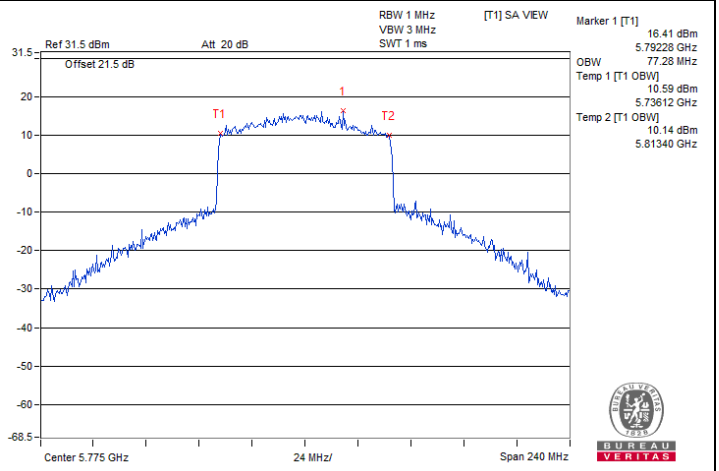
802.11a / Chain0 : CH 157



802.11ax (HE20) / Chain0 : CH 157

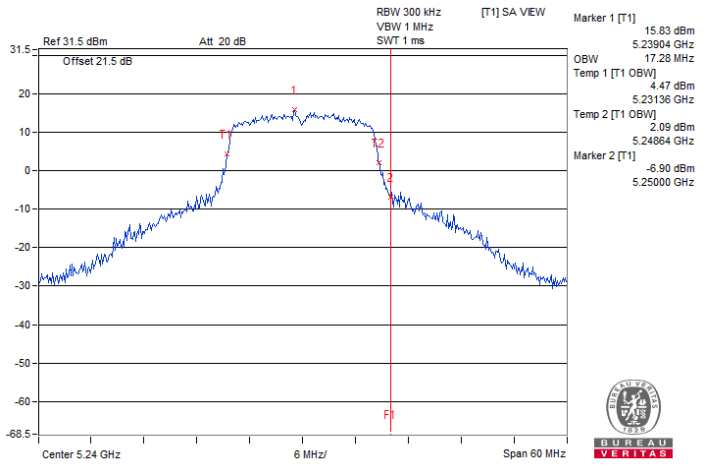


802.11ax (HE40) / Chain0 : CH 151

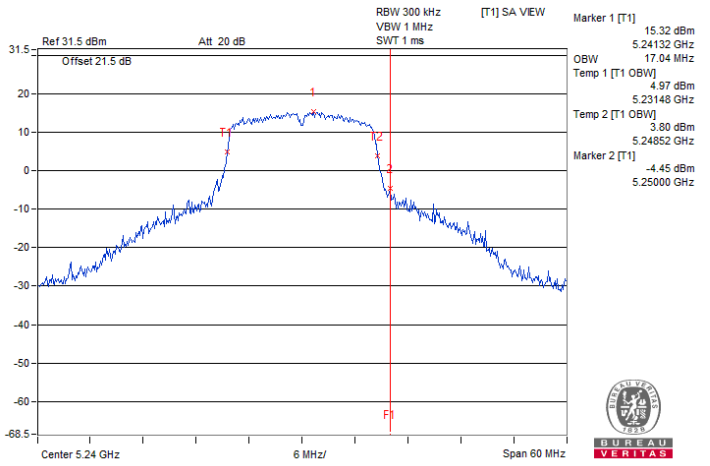


802.11ax (HE80) / Chain0 : CH 155

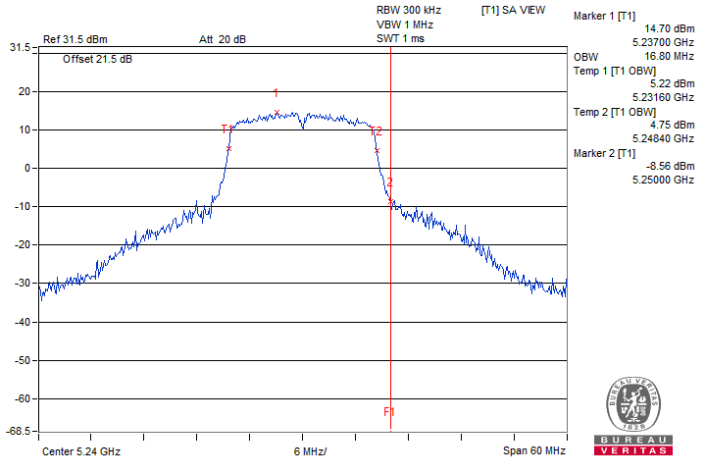
Spectrum Plot for nearby DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)



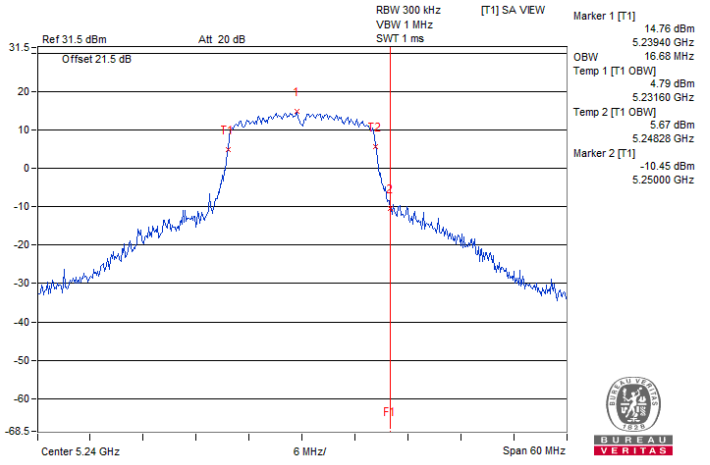
802.11a / Chain 0 : CH 48



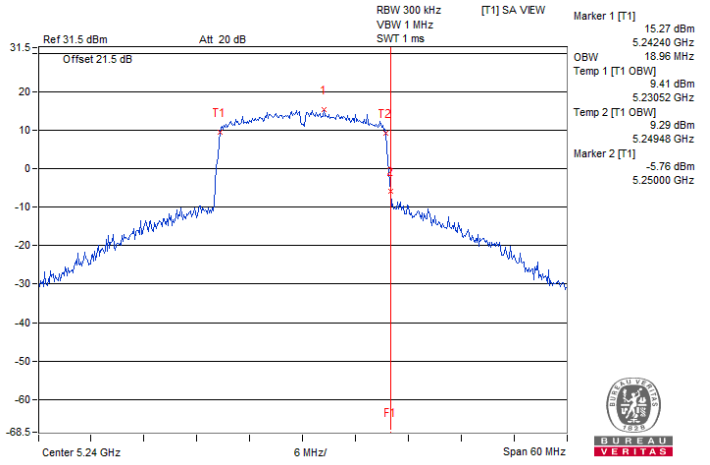
802.11a / Chain 1 : CH 48



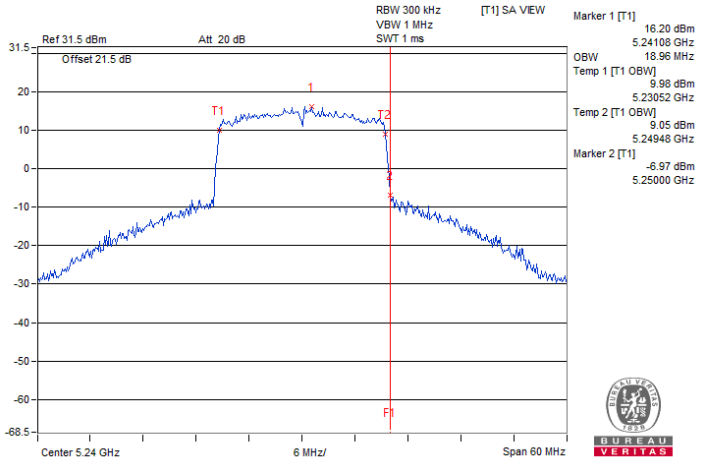
802.11a / Chain 2 : CH 48



802.11a / Chain 3 : CH 48

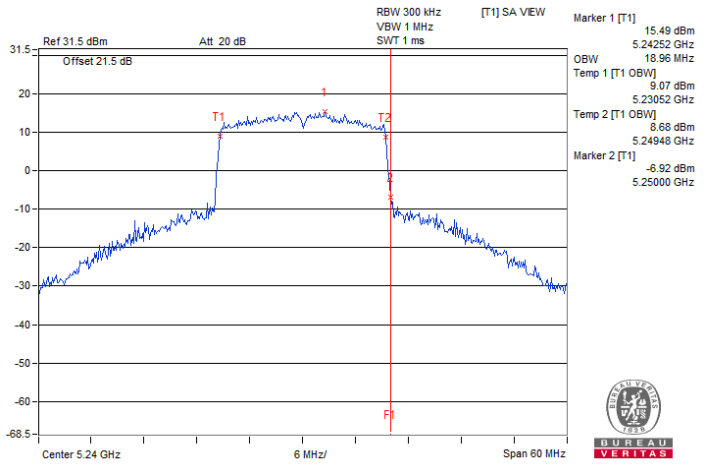


802.11ax (HE20) / Chain 0 : CH 48

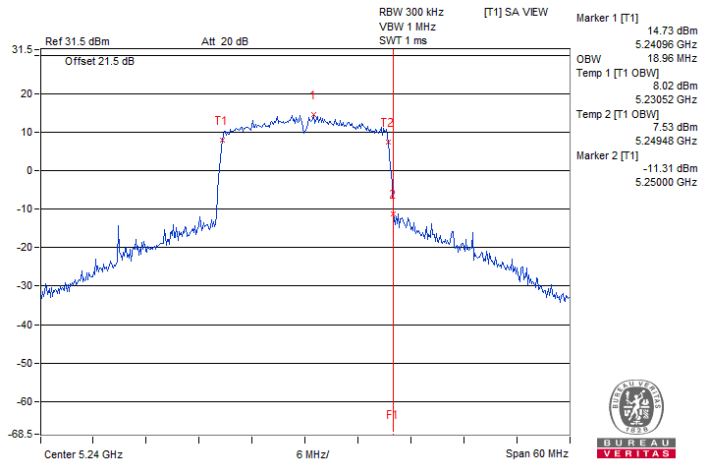


802.11ax (HE20) / Chain 1 : CH 48

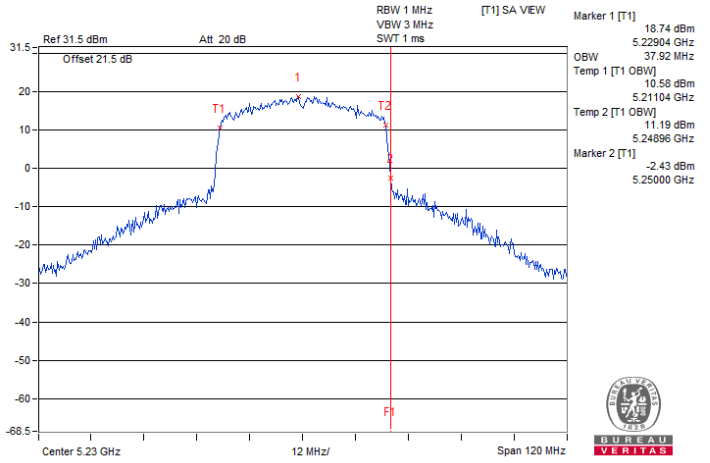
Spectrum Plot for nearby DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)



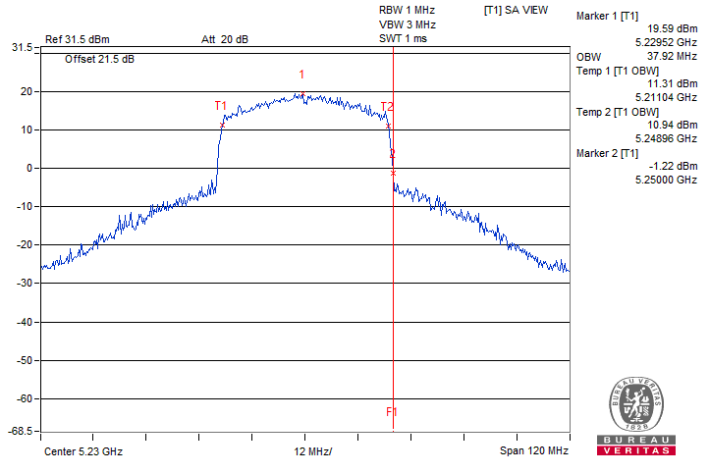
802.11ax (HE20) / Chain 2 : CH 48



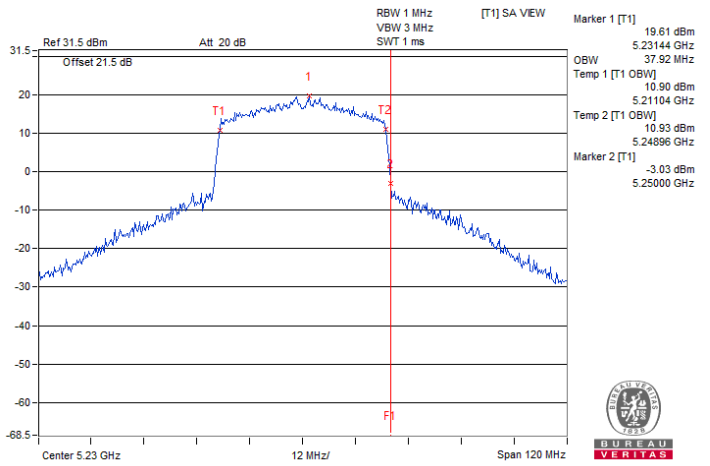
802.11ax (HE20) / Chain 3 : CH 48



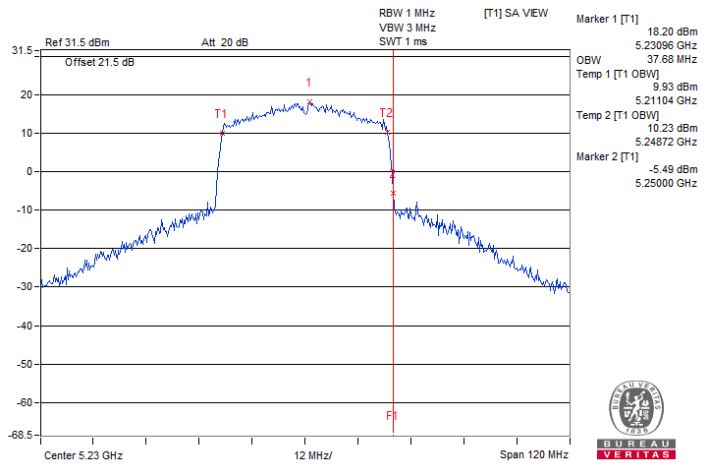
802.11ax (HE40) / Chain 0 : CH 46



802.11ax (HE40) / Chain 1 : CH 46



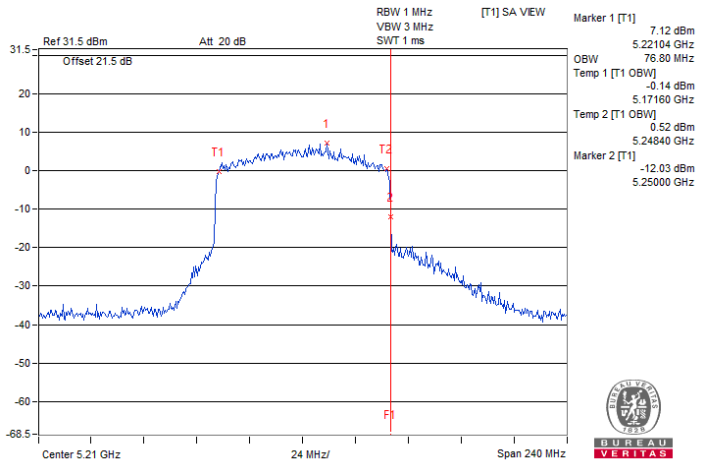
802.11ax (HE40) / Chain 2 : CH 46



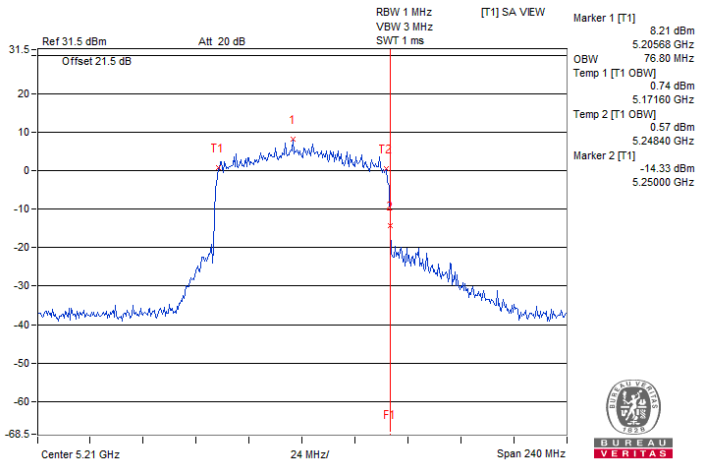
802.11ax (HE40) / Chain 3 : CH 46

Spectrum Plot for nearby DFS band

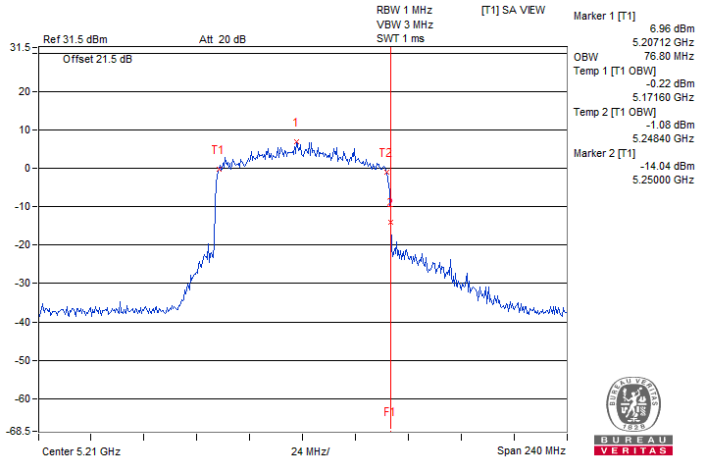
(DFS is required, if 99% OCP straddle into U-NII-2A band)



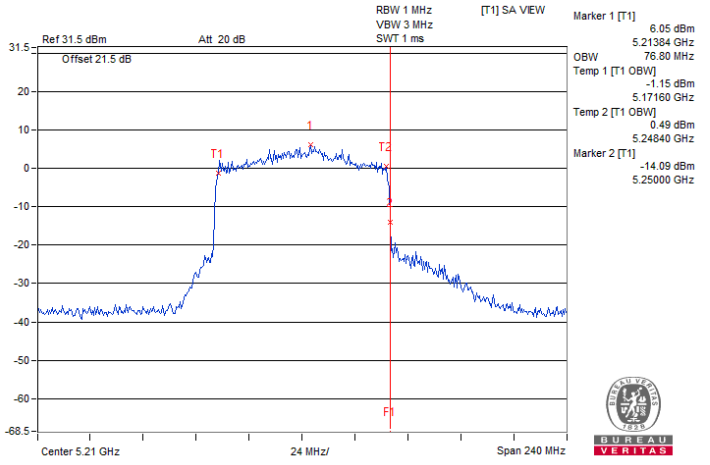
802.11ax (HE80) / Chain 0 : CH 42



802.11ax (HE80) / Chain 1 : CH 42



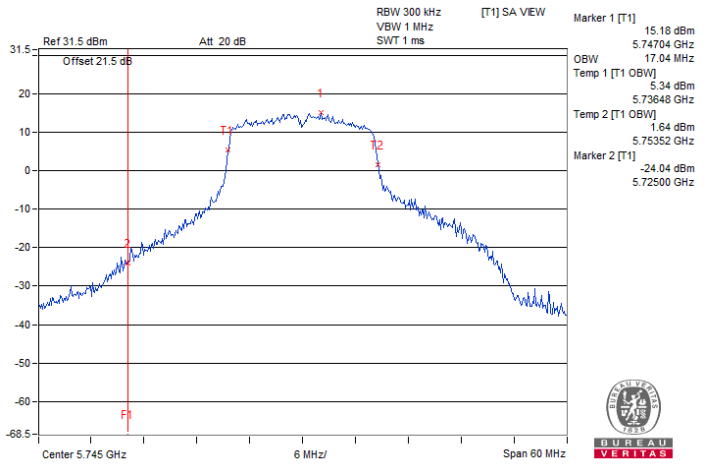
802.11ax (HE80) / Chain 2 : CH 42



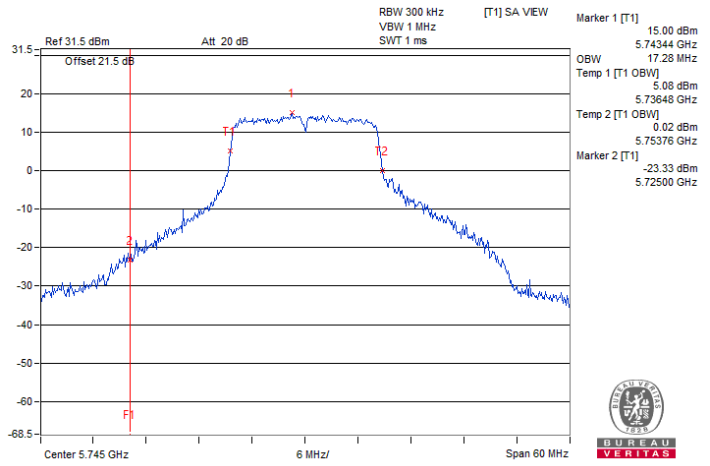
802.11ax (HE80) / Chain 3 : CH 42

Spectrum Plot for nearby DFS band

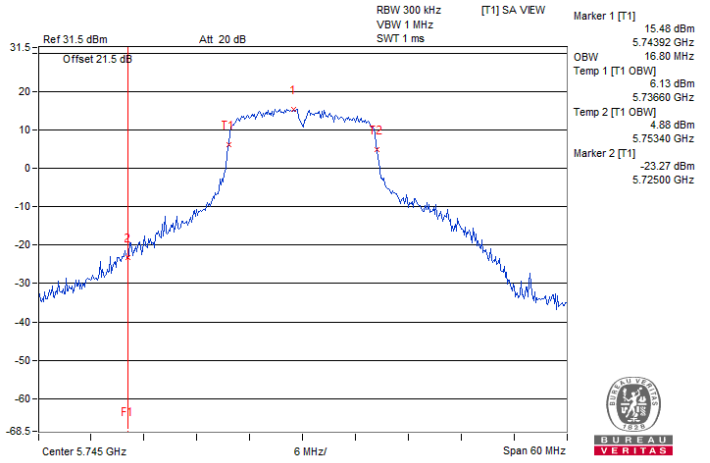
(DFS is required, if 99% OCP straddle into U-NII-2C band)



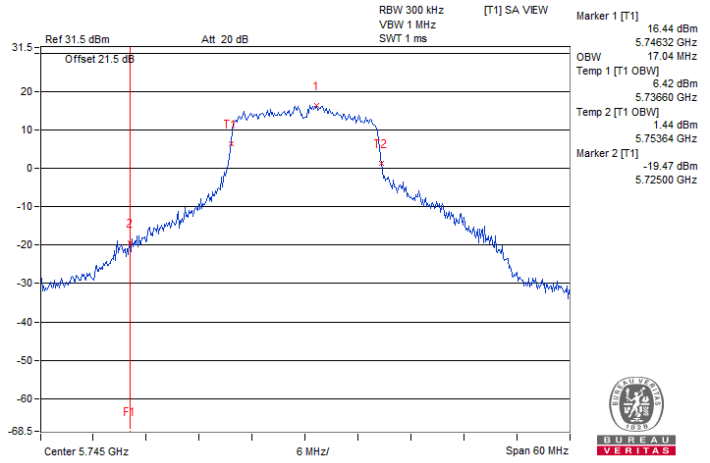
802.11a / Chain 0 : CH 149



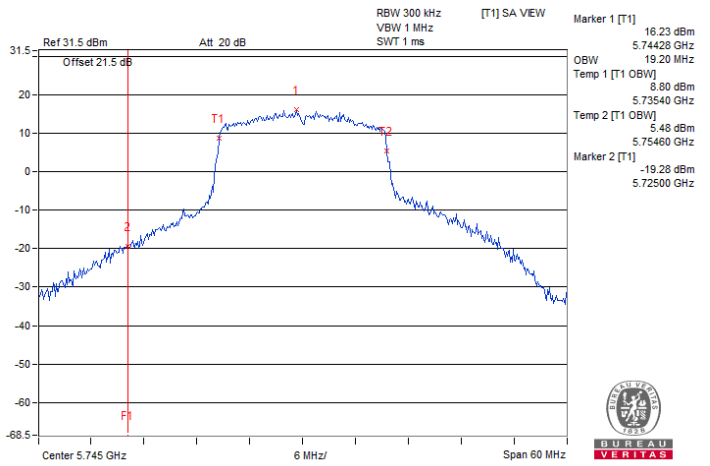
802.11a / Chain 1 : CH 149



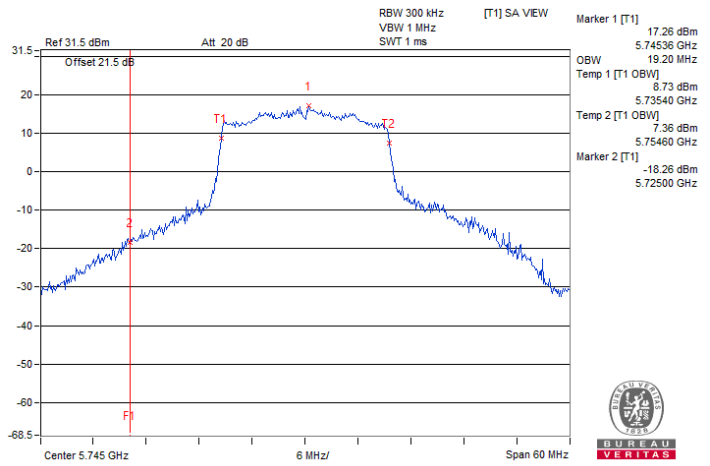
802.11a / Chain 2 : CH 149



802.11a / Chain 3 : CH 149



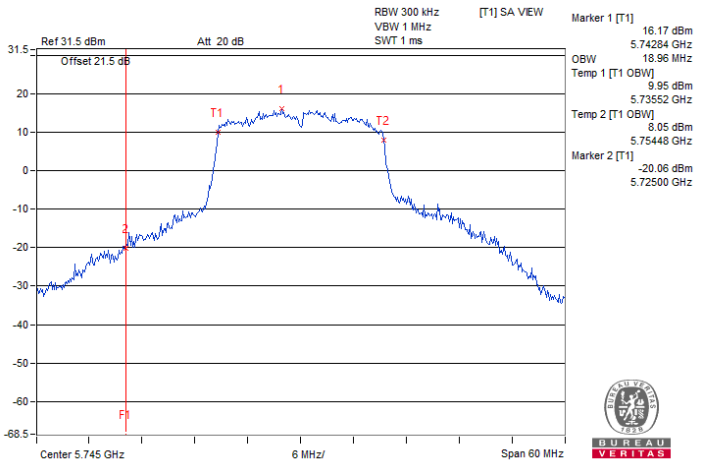
802.11ax (HE20) / Chain 0 : CH 149



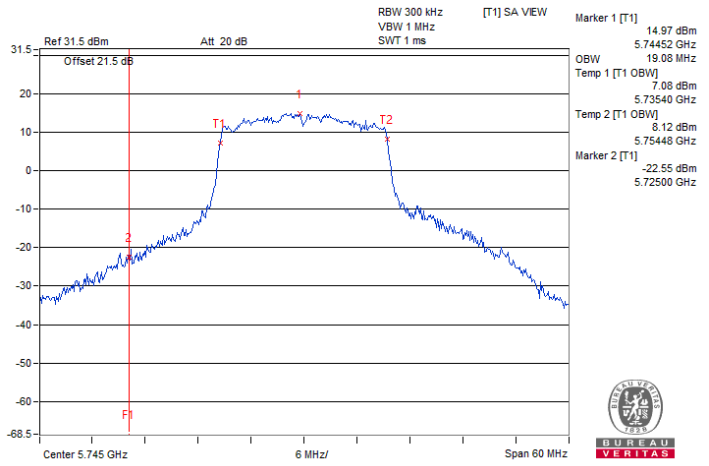
802.11ax (HE20) / Chain 1 : CH 149

Spectrum Plot for nearby DFS band

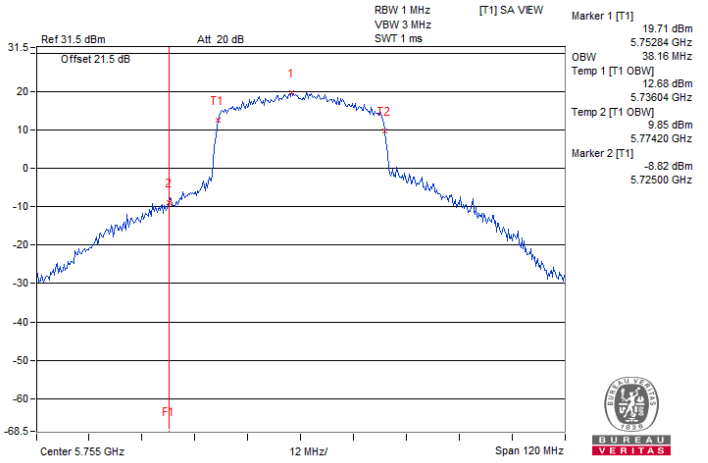
(DFS is required, if 99% OCP straddle into U-NII-2C band)



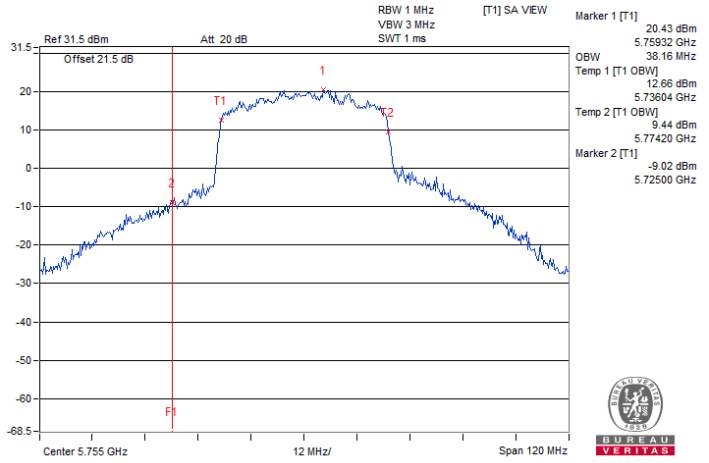
802.11ax (HE20) / Chain 2 : CH 149



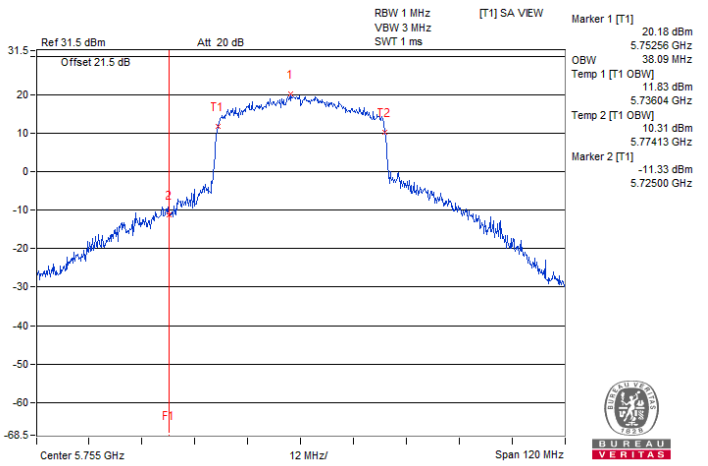
802.11ax (HE20) / Chain 3 : CH 149



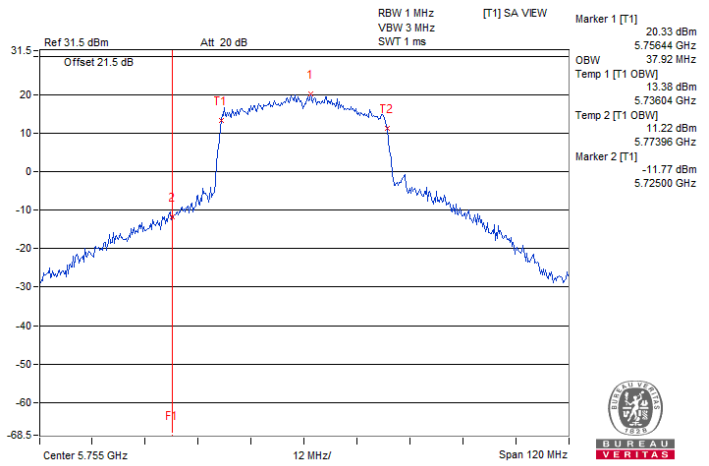
802.11ax (HE40) / Chain 0 : CH 151



802.11ax (HE40) / Chain 1 : CH 151



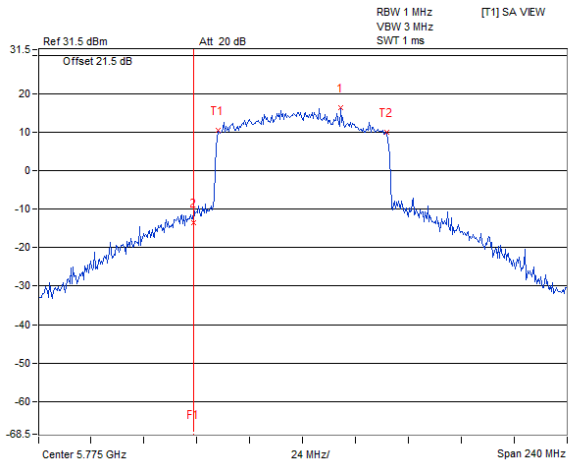
802.11ax (HE40) / Chain 2 : CH 151



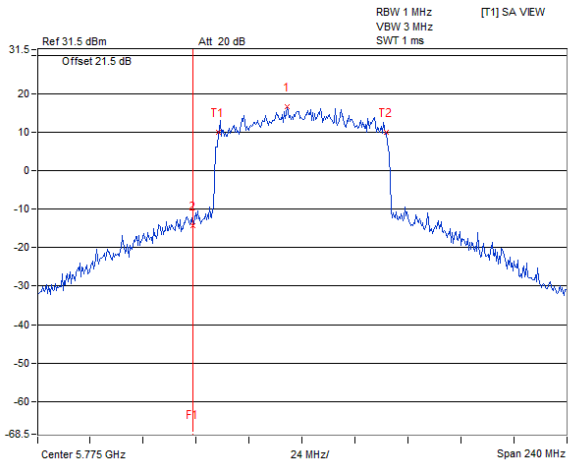
802.11ax (HE40) / Chain 3 : CH 151

Spectrum Plot for nearby DFS band

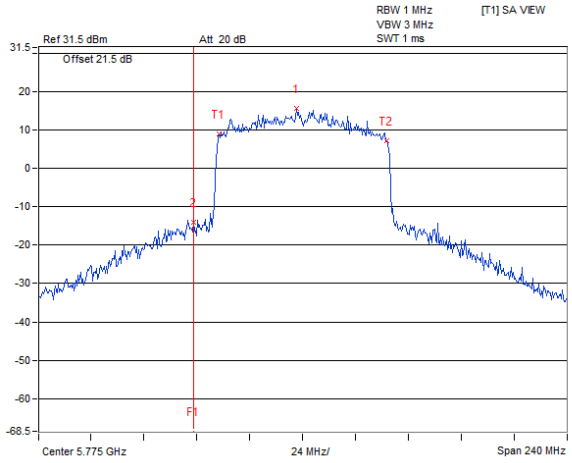
(DFS is required, if 99% OCP straddle into U-NII-2C band)



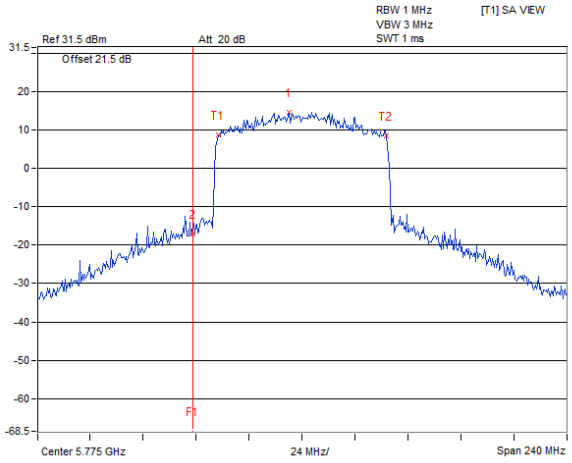
802.11ax (HE80) / Chain 0 : CH 155



802.11ax (HE80) / Chain 1 : CH 155



802.11ax (HE80) / Chain 2 : CH 155



802.11ax (HE80) / Chain 3 : CH 155

7.5 Frequency Stability

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

802.11a

Frequency Stability Versus Temp.									
Operating Frequency: 5180 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	5180.0273	Pass	5180.0224	Pass	5180.0227	Pass	5180.023	Pass
30	120	5180.0244	Pass	5180.0259	Pass	5180.0251	Pass	5180.0236	Pass
20	120	5180.0259	Pass	5180.0214	Pass	5180.0242	Pass	5180.0247	Pass
10	120	5179.9742	Pass	5179.9763	Pass	5179.9776	Pass	5179.9763	Pass
0	120	5179.9808	Pass	5179.9779	Pass	5179.9777	Pass	5179.9805	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 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	5180.0206	Pass	5180.0192	Pass	5180.0196	Pass	5180.0222	Pass
	120	5180.0259	Pass	5180.0214	Pass	5180.0242	Pass	5180.0247	Pass
	102	5180.0238	Pass	5180.0232	Pass	5180.025	Pass	5180.0247	Pass

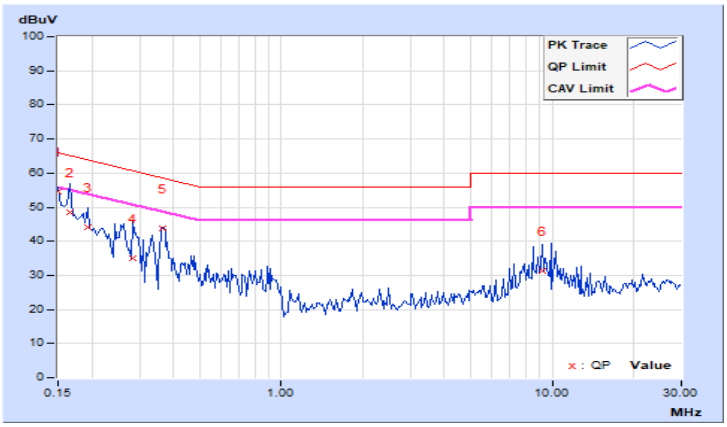
7.6 AC Power Conducted Emissions

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 149：5745 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	0.15006	10.07	44.39	30.98	54.46	41.05	66.00	56.00	-11.54	-14.95
2	0.16557	10.07	38.42	22.34	48.49	32.41	65.18	55.18	-16.69	-22.77
3	0.19292	10.08	34.17	22.36	44.25	32.44	63.91	53.91	-19.66	-21.47
4	0.28288	10.09	24.96	15.31	35.05	25.40	60.73	50.73	-25.68	-25.33
5	**0.36489**	**10.10**	**33.64**	**28.92**	**43.74**	**39.02**	**58.62**	**48.62**	**-14.88**	**-9.60**
6	9.16786	10.72	20.66	11.94	31.38	22.66	60.00	50.00	-28.62	-27.34

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

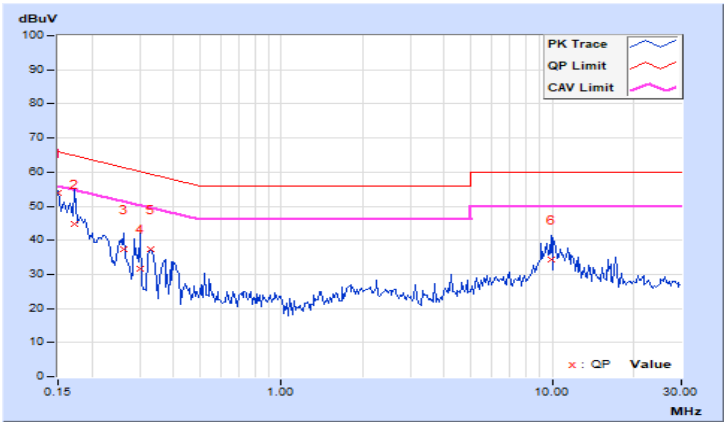


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 149：5745 MHz
Frequency Range	150 kHz ~ 30 MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	25°C, 75% RH
Tested By	Ryan Du		

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	0.15007	10.05	43.87	29.08	53.92	39.13	66.00	56.00	-12.08	-16.87
2	0.17341	10.06	34.68	19.59	44.74	29.65	64.80	54.80	-20.06	-25.15
3	0.26336	10.09	27.25	14.77	37.34	24.86	61.32	51.32	-23.98	-26.46
4	0.30239	10.09	21.52	6.39	31.61	16.48	60.18	50.18	-28.57	-33.70
5	0.32962	10.09	27.24	21.47	37.33	31.56	59.46	49.46	-22.13	-17.90
6	9.95711	10.68	23.51	15.89	34.19	26.57	60.00	50.00	-25.81	-23.43

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



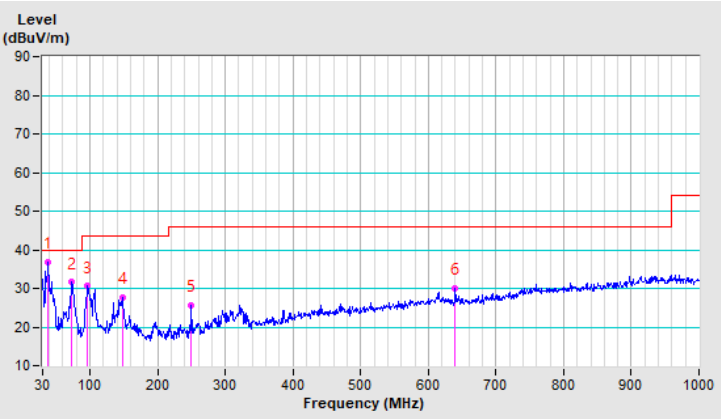
7.7 Unwanted Emissions below 1 GHz

RF Mode	TX 802.11ax (HE20)	**Channel**	CH 149：5745 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	**37.35**	**36.8 QP**	**40.0**	**-3.2**	**2.00 H**	**189**	**45.6**	**-8.8**
2	73.33	31.6 QP	40.0	-8.4	2.00 H	42	42.8	-11.2
3	96.61	30.5 QP	43.5	-13.0	2.00 H	276	43.9	-13.4
4	148.10	27.8 QP	43.5	-15.7	2.00 H	66	35.9	-8.1
5	250.02	25.6 QP	46.0	-20.4	2.00 H	67	35.2	-9.6
6	640.03	30.0 QP	46.0	-16.0	1.50 H	75	29.9	0.1

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.

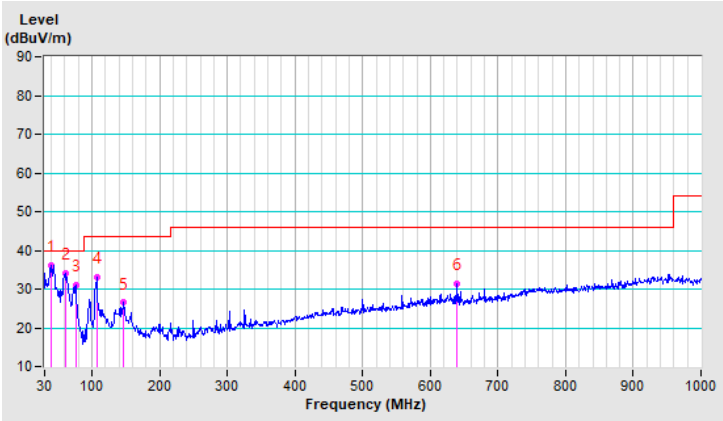


RF Mode	TX 802.11ax (HE20)	Channel	CH 149：5745 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	39.51	36.2 QP	40.0	-3.8	2.00 V	0	44.9	-8.7
2	61.57	34.1 QP	40.0	-5.9	1.50 V	360	43.2	-9.1
3	75.74	31.1 QP	40.0	-8.9	1.50 V	298	42.9	-11.8
4	106.68	33.1 QP	43.5	-10.4	1.50 V	360	44.5	-11.4
5	146.04	26.5 QP	43.5	-17.0	1.50 V	360	34.6	-8.1
6	640.03	31.3 QP	46.0	-14.7	2.00 V	188	31.2	0.1

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.



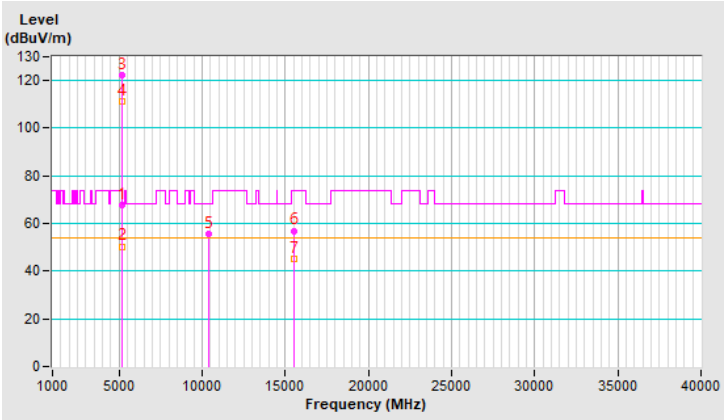
7.8 Unwanted Emissions above 1 GHz

RF Mode	TX 802.11a	**Channel**	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 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	5150.00	67.6 PK	74.0	-6.4	1.68 H	55	62.8	4.8
2	5150.00	50.4 AV	54.0	-3.6	1.68 H	55	45.6	4.8
3	*5180.00	122.2 PK			1.68 H	55	117.5	4.7
4	*5180.00	111.2 AV			1.68 H	55	106.5	4.7
5	#10360.00	55.8 PK	68.2	-12.4	1.49 H	289	41.6	14.2
6	15540.00	57.0 PK	74.0	-17.0	1.56 H	49	42.6	14.4
7	15540.00	45.2 AV	54.0	-8.8	1.56 H	49	30.8	14.4

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.

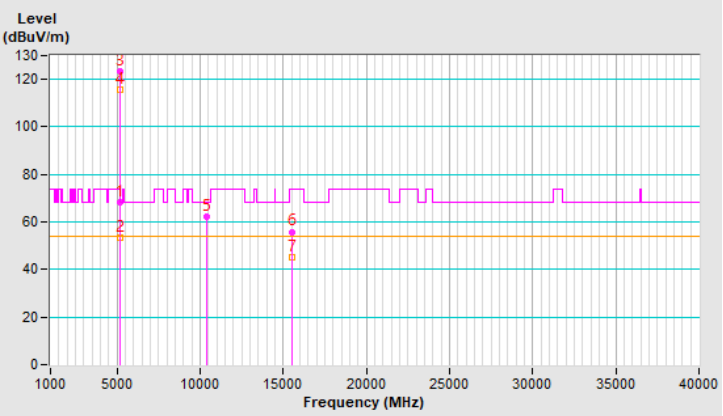


RF Mode	TX 802.11a	**Channel**	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	68.4 PK	74.0	-5.6	1.75 V	109	63.6	4.8
2	**5150.00**	**53.4 AV**	**54.0**	**-0.6**	**1.75 V**	**109**	**48.6**	**4.8**
3	*5180.00	123.2 PK			1.75 V	109	118.5	4.7
4	*5180.00	115.7 AV			1.75 V	109	111.0	4.7
5	#10360.00	62.0 PK	68.2	-6.2	1.85 V	313	47.8	14.2
6	15540.00	55.9 PK	74.0	-18.1	1.42 V	93	41.5	14.4
7	15540.00	45.3 AV	54.0	-8.7	1.42 V	93	30.9	14.4

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.

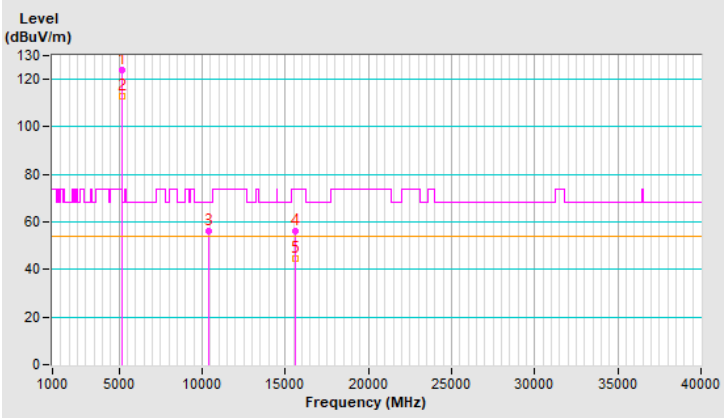


RF Mode	TX 802.11a	Channel	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	*5200.00	123.8 PK			1.71 H	46	119.2	4.6
2	*5200.00	112.7 AV			1.71 H	46	108.1	4.6
3	#10400.00	56.4 PK	68.2	-11.8	1.56 H	275	42.2	14.2
4	15600.00	56.4 PK	74.0	-17.6	1.57 H	63	41.6	14.8
5	15600.00	44.6 AV	54.0	-9.4	1.57 H	63	29.8	14.8

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.

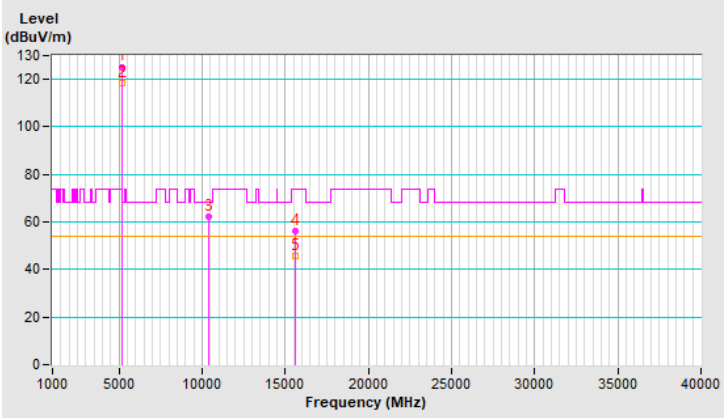


RF Mode	TX 802.11a	Channel	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	*5200.00	125.3 PK			1.71 V	277	120.7	4.6
2	*5200.00	118.2 AV			1.71 V	277	113.6	4.6
3	#10400.00	62.4 PK	68.2	-5.8	1.90 V	329	48.2	14.2
4	15600.00	56.0 PK	74.0	-18.0	1.39 V	95	41.2	14.8
5	15600.00	45.6 AV	54.0	-8.4	1.39 V	95	30.8	14.8

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.

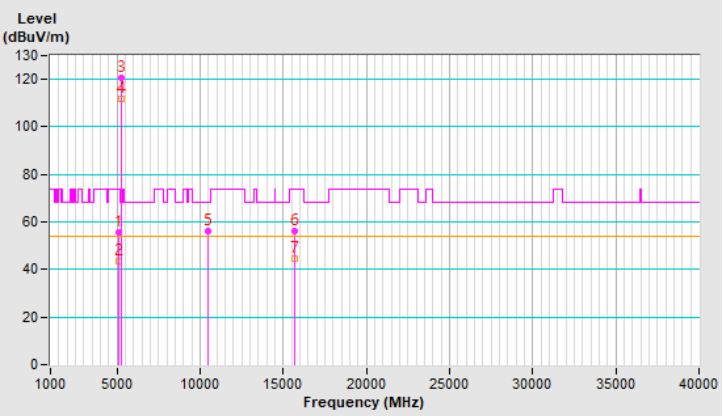


RF Mode	TX 802.11a	Channel	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5082.19	55.5 PK	74.0	-18.5	1.64 H	62	50.9	4.6
2	5082.19	43.7 AV	54.0	-10.3	1.64 H	62	39.1	4.6
3	*5240.00	120.6 PK			1.64 H	62	116.2	4.4
4	*5240.00	111.7 AV			1.64 H	62	107.3	4.4
5	#10480.00	56.1 PK	68.2	-12.1	1.52 H	279	41.7	14.4
6	15720.00	56.3 PK	74.0	-17.7	1.67 H	38	42.8	13.5
7	15720.00	44.4 AV	54.0	-9.6	1.67 H	38	30.9	13.5

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.

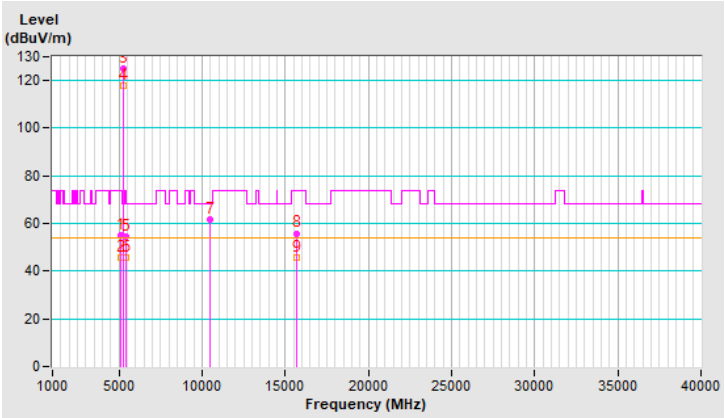


RF Mode	TX 802.11a	Channel	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5081.57	55.0 PK	74.0	-19.0	1.84 V	283	50.4	4.6
2	5081.57	45.8 AV	54.0	-8.2	1.84 V	283	41.2	4.6
3	*5240.00	124.9 PK			1.84 V	283	120.5	4.4
4	*5240.00	118.0 AV			1.84 V	283	113.6	4.4
5	5400.67	54.5 PK	74.0	-19.5	1.84 V	283	49.8	4.7
6	5400.67	45.9 AV	54.0	-8.1	1.84 V	283	41.2	4.7
7	#10480.00	61.8 PK	68.2	-6.4	1.90 V	319	47.4	14.4
8	15720.00	55.9 PK	74.0	-18.1	1.42 V	95	42.4	13.5
9	15720.00	45.5 AV	54.0	-8.5	1.42 V	95	32.0	13.5

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.

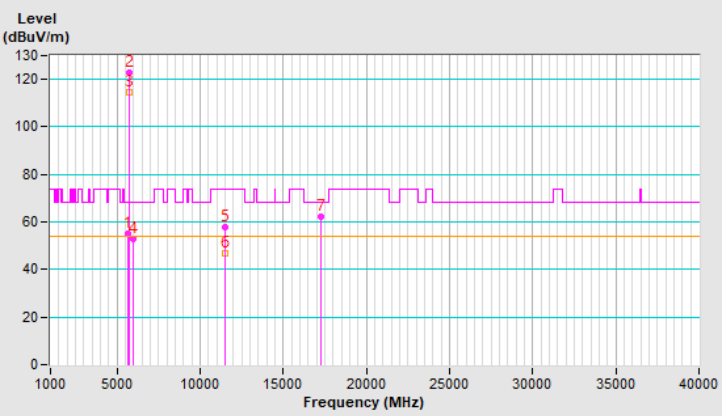


RF Mode	TX 802.11a	Channel	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5622.66	55.0 PK	68.2	-13.2	1.61 H	291	50.1	4.9
2	*5745.00	122.8 PK			1.61 H	291	117.7	5.1
3	*5745.00	114.6 AV			1.61 H	291	109.5	5.1
4	#5967.95	52.9 PK	68.2	-15.3	1.61 H	291	47.4	5.5
5	11490.00	57.7 PK	74.0	-16.3	1.58 H	285	42.6	15.1
6	11490.00	47.0 AV	54.0	-7.0	1.58 H	285	31.9	15.1
7	#17235.00	62.2 PK	68.2	-6.0	1.53 H	28	43.9	18.3

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.

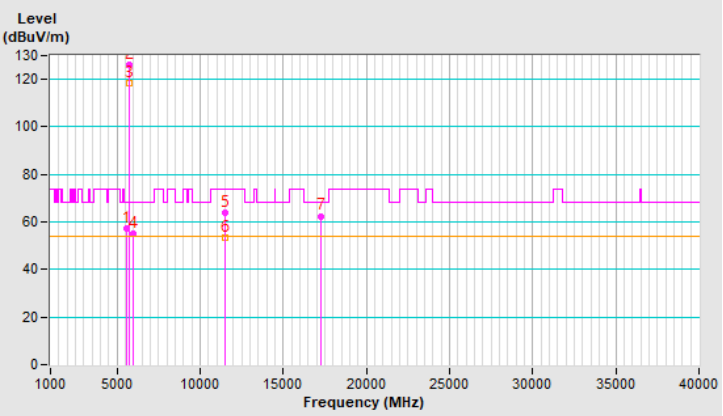


RF Mode	TX 802.11a	**Channel**	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5584.62	57.1 PK	68.2	-11.1	1.36 V	271	52.3	4.8
2	*5745.00	126.0 PK			1.36 V	271	120.9	5.1
3	*5745.00	118.4 AV			1.36 V	271	113.3	5.1
4	#5996.01	55.1 PK	68.2	-13.1	1.36 V	271	49.7	5.4
5	11490.00	64.0 PK	74.0	-10.0	2.98 V	94	48.9	15.1
6	11490.00	53.3 AV	54.0	-0.7	2.98 V	94	38.2	15.1
7	#17235.00	62.5 PK	68.2	-5.7	1.58 V	51	44.2	18.3

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.

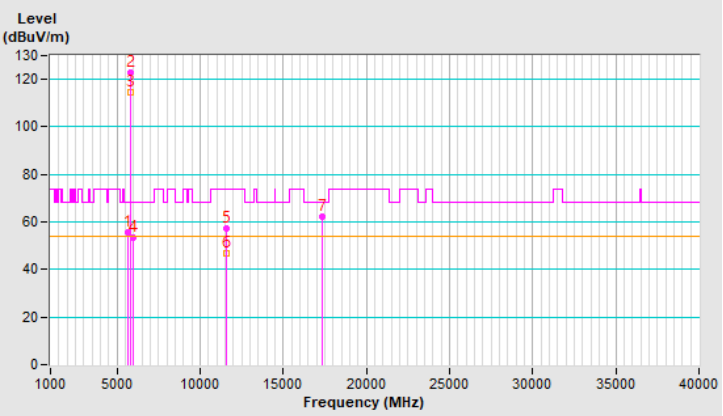


RF Mode	TX 802.11a	**Channel**	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5624.10	55.5 PK	68.2	-12.7	1.61 H	294	50.6	4.9
2	*5785.00	122.6 PK			1.61 H	294	117.4	5.2
3	*5785.00	114.4 AV			1.61 H	294	109.2	5.2
4	#5949.42	53.6 PK	68.2	-14.6	1.61 H	294	48.1	5.5
5	11570.00	57.2 PK	74.0	-16.8	1.59 H	274	42.1	15.1
6	11570.00	46.8 AV	54.0	-7.2	1.59 H	274	31.7	15.1
7	#17355.00	62.1 PK	68.2	-6.1	1.58 H	14	43.2	18.9

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.

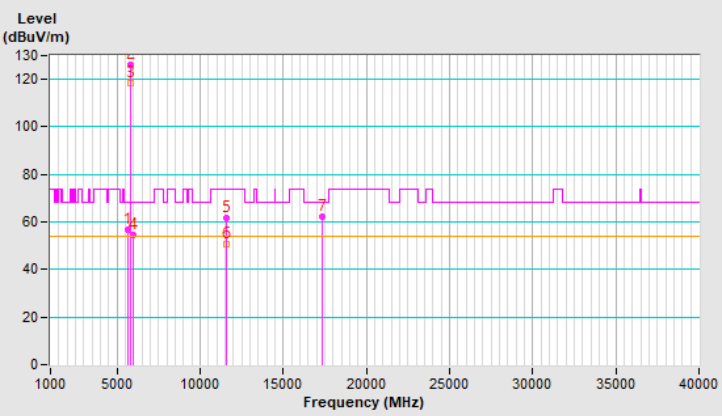


RF Mode	TX 802.11a	**Channel**	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5623.35	56.7 PK	68.2	-11.5	1.59 V	254	51.8	4.9
2	*5785.00	126.3 PK			1.59 V	254	121.1	5.2
3	*5785.00	118.6 AV			1.59 V	254	113.4	5.2
4	#5980.96	54.4 PK	68.2	-13.8	1.59 V	254	48.9	5.5
5	11570.00	61.8 PK	74.0	-12.2	3.00 V	95	46.7	15.1
6	11570.00	50.5 AV	54.0	-3.5	3.00 V	95	35.4	15.1
7	#17355.00	62.4 PK	68.2	-5.8	1.62 V	60	43.5	18.9

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.

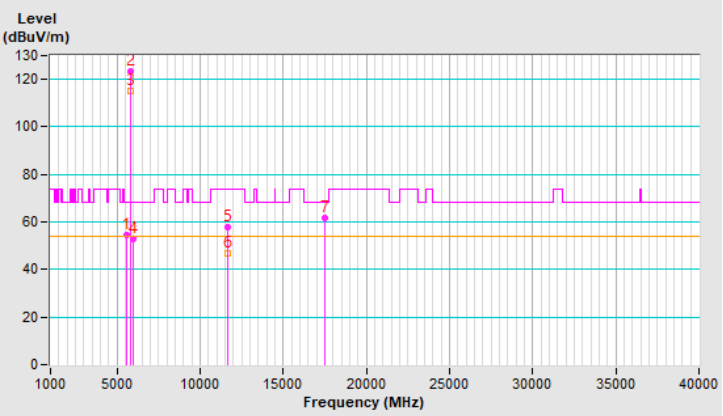


RF Mode	TX 802.11a	Channel	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5583.35	54.6 PK	68.2	-13.6	1.58 H	294	49.8	4.8
2	*5825.00	123.2 PK			1.58 H	294	117.9	5.3
3	*5825.00	114.9 AV			1.58 H	294	109.6	5.3
4	#5984.58	53.1 PK	68.2	-15.1	1.58 H	294	47.6	5.5
5	11650.00	57.7 PK	74.0	-16.3	1.54 H	298	42.7	15.0
6	11650.00	46.9 AV	54.0	-7.1	1.54 H	298	31.9	15.0
7	#17475.00	61.7 PK	68.2	-6.5	1.59 H	22	42.7	19.0

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.

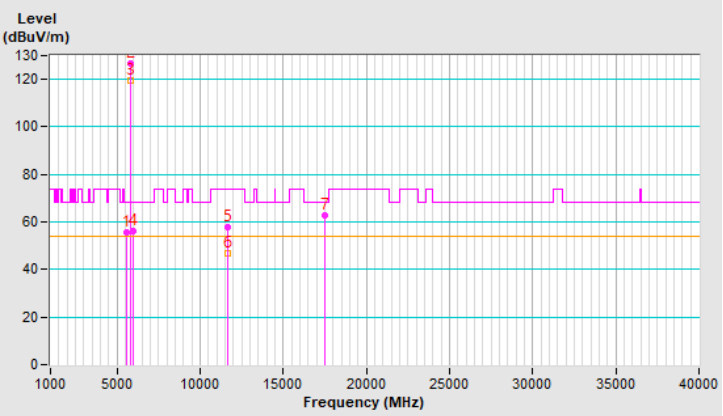


RF Mode	TX 802.11a	**Channel**	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5580.04	55.5 PK	68.2	-12.7	1.49 V	255	50.7	4.8
2	*5825.00	126.9 PK			1.49 V	255	121.6	5.3
3	*5825.00	119.4 AV			1.49 V	255	114.1	5.3
4	#5944.11	56.3 PK	68.2	-11.9	1.49 V	255	50.8	5.5
5	11650.00	57.8 PK	74.0	-16.2	3.02 V	95	42.8	15.0
6	11650.00	47.0 AV	54.0	-7.0	3.02 V	95	32.0	15.0
7	#17475.00	62.6 PK	68.2	-5.6	1.55 V	63	43.6	19.0

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.

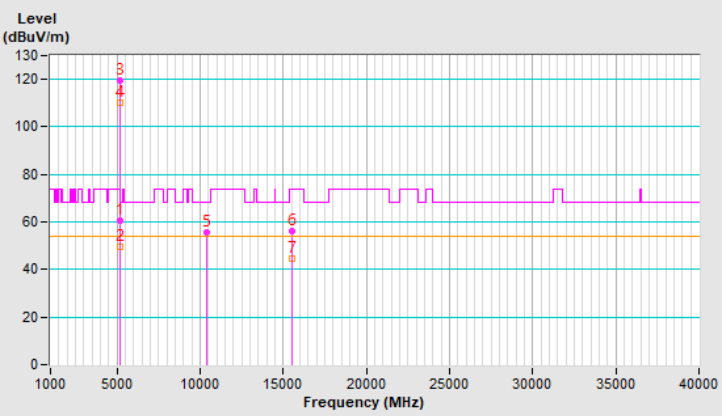


RF Mode	TX 802.11ax (HE20)	Channel	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	60.8 PK	74.0	-13.2	1.63 H	88	56.0	4.8
2	5150.00	49.5 AV	54.0	-4.5	1.63 H	88	44.7	4.8
3	*5180.00	119.7 PK			1.63 H	88	115.0	4.7
4	*5180.00	110.3 AV			1.63 H	88	105.6	4.7
5	#10360.00	55.8 PK	68.2	-12.4	1.51 H	269	41.6	14.2
6	15540.00	56.3 PK	74.0	-17.7	1.66 H	39	41.9	14.4
7	15540.00	44.4 AV	54.0	-9.6	1.66 H	39	30.0	14.4

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.

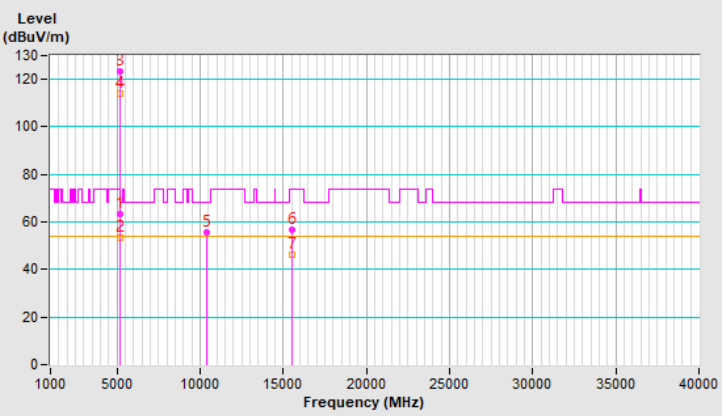


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 36：5180 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	63.5 PK	74.0	-10.5	1.79 V	269	58.7	4.8
2	5150.00	53.2 AV	54.0	-0.8	1.79 V	269	48.4	4.8
3	*5180.00	123.2 PK			1.79 V	269	118.5	4.7
4	*5180.00	114.2 AV			1.79 V	269	109.5	4.7
5	#10360.00	55.4 PK	68.2	-12.8	1.95 V	330	41.2	14.2
6	15540.00	56.5 PK	74.0	-17.5	1.36 V	87	42.1	14.4
7	15540.00	46.0 AV	54.0	-8.0	1.36 V	87	31.6	14.4

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.

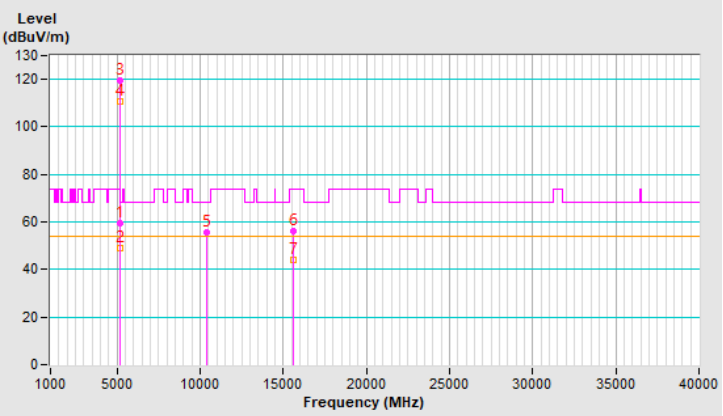


RF Mode	TX 802.11ax (HE20)	Channel	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	59.3 PK	74.0	-14.7	1.64 H	100	54.5	4.8
2	5150.00	49.1 AV	54.0	-4.9	1.64 H	100	44.3	4.8
3	*5200.00	119.7 PK			1.64 H	100	115.1	4.6
4	*5200.00	110.5 AV			1.64 H	100	105.9	4.6
5	#10400.00	55.8 PK	68.2	-12.4	1.53 H	269	41.6	14.2
6	15600.00	56.1 PK	74.0	-17.9	1.70 H	26	41.3	14.8
7	15600.00	44.1 AV	54.0	-9.9	1.70 H	26	29.3	14.8

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.

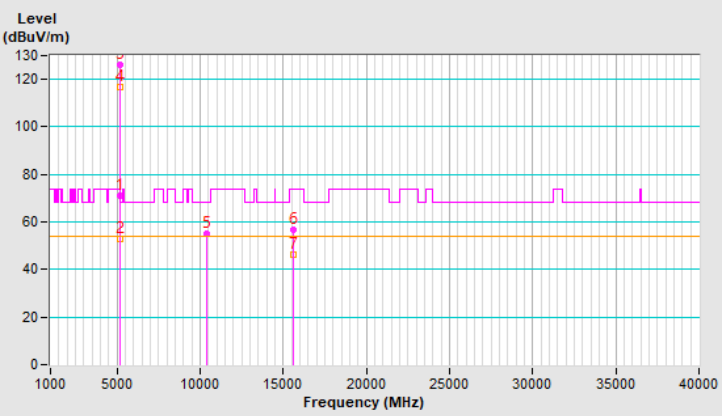


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 40：5200 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	70.8 PK	74.0	-3.2	1.76 V	266	66.0	4.8
2	5150.00	52.7 AV	54.0	-1.3	1.76 V	266	47.9	4.8
3	*5200.00	126.2 PK			1.76 V	266	121.6	4.6
4	*5200.00	117.0 AV			1.76 V	266	112.4	4.6
5	#10400.00	55.2 PK	68.2	-13.0	1.99 V	317	41.0	14.2
6	15600.00	56.7 PK	74.0	-17.3	1.40 V	89	41.9	14.8
7	15600.00	46.2 AV	54.0	-7.8	1.40 V	89	31.4	14.8

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.

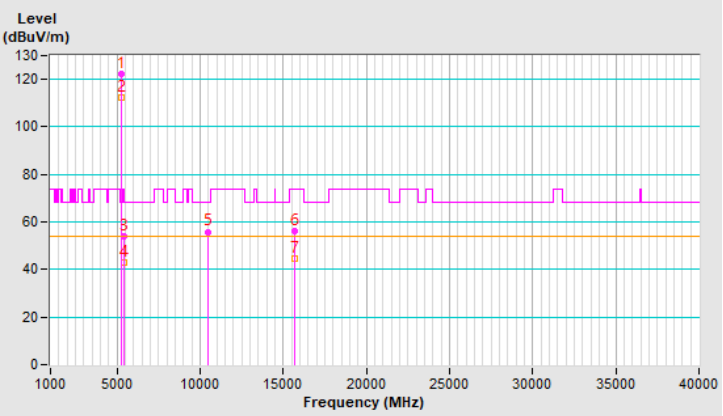


RF Mode	TX 802.11ax (HE20)	Channel	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	*5240.00	122.2 PK			1.60 H	72	117.8	4.4
2	*5240.00	112.2 AV			1.60 H	72	107.8	4.4
3	5398.90	54.1 PK	74.0	-19.9	1.60 H	72	49.4	4.7
4	5398.90	43.1 AV	54.0	-10.9	1.60 H	72	38.4	4.7
5	#10480.00	55.9 PK	68.2	-12.3	1.55 H	284	41.5	14.4
6	15720.00	56.2 PK	74.0	-17.8	1.70 H	36	42.7	13.5
7	15720.00	44.4 AV	54.0	-9.6	1.70 H	36	30.9	13.5

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.

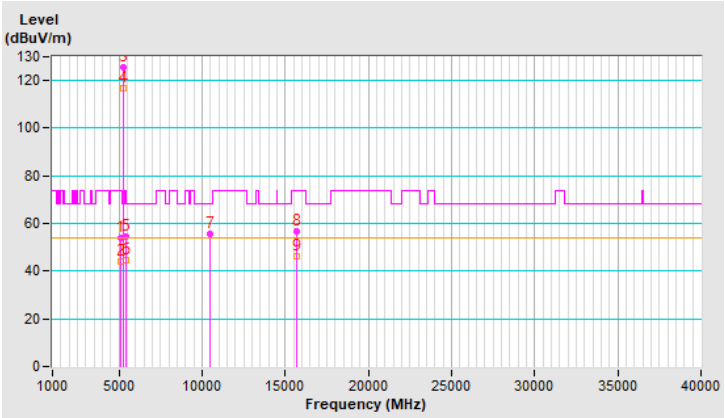


RF Mode	TX 802.11ax (HE20)	Channel	CH 48：5240 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5077.75	54.1 PK	74.0	-19.9	1.74 V	265	49.5	4.6
2	5077.75	44.3 AV	54.0	-9.7	1.74 V	265	39.7	4.6
3	*5240.00	125.8 PK			1.74 V	265	121.4	4.4
4	*5240.00	116.8 AV			1.74 V	265	112.4	4.4
5	5402.76	54.3 PK	74.0	-19.7	1.74 V	265	49.6	4.7
6	5402.76	44.7 AV	54.0	-9.3	1.74 V	265	40.0	4.7
7	#10480.00	55.7 PK	68.2	-12.5	1.92 V	342	41.3	14.4
8	15720.00	56.7 PK	74.0	-17.3	1.34 V	88	43.2	13.5
9	15720.00	46.3 AV	54.0	-7.7	1.34 V	88	32.8	13.5

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.

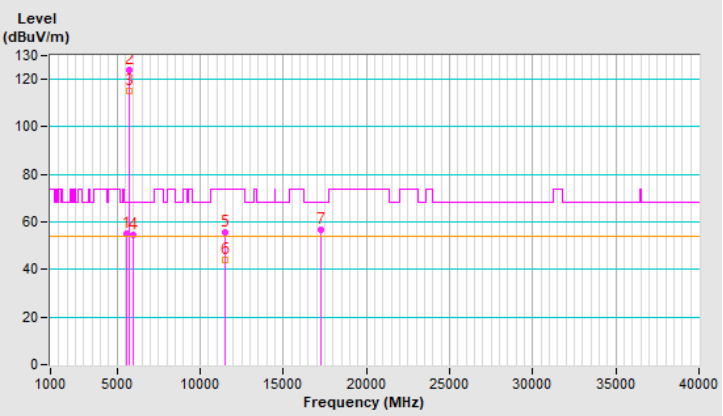


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5583.20	55.2 PK	68.2	-13.0	2.83 H	284	50.4	4.8
2	*5745.00	123.7 PK			2.83 H	284	118.6	5.1
3	*5745.00	114.9 AV			2.83 H	284	109.8	5.1
4	#5984.06	54.6 PK	68.2	-13.6	2.83 H	284	49.1	5.5
5	11490.00	55.4 PK	74.0	-18.6	1.49 H	256	40.3	15.1
6	11490.00	44.3 AV	54.0	-9.7	1.49 H	256	29.2	15.1
7	#17235.00	56.5 PK	68.2	-11.7	1.70 H	47	38.2	18.3

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.

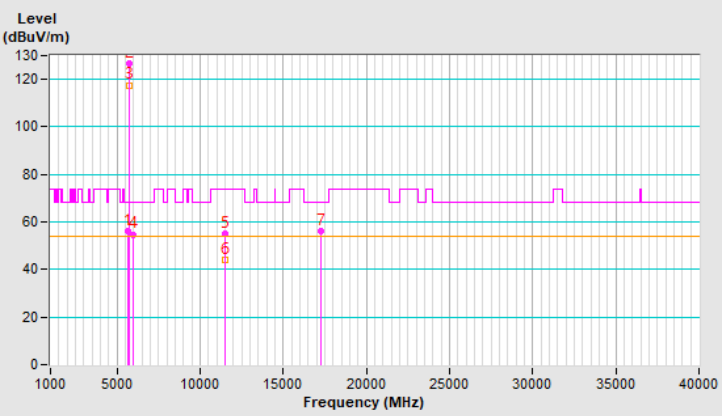


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 149：5745 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5624.98	56.0 PK	68.2	-12.2	1.74 V	258	51.1	4.9
2	*5745.00	126.5 PK			1.74 V	258	121.4	5.1
3	*5745.00	117.6 AV			1.74 V	258	112.5	5.1
4	#5938.16	54.8 PK	68.2	-13.4	1.74 V	258	49.3	5.5
5	11490.00	55.3 PK	74.0	-18.7	1.91 V	319	40.2	15.1
6	11490.00	44.2 AV	54.0	-9.8	1.91 V	319	29.1	15.1
7	#17235.00	56.4 PK	68.2	-11.8	1.37 V	97	38.1	18.3

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.

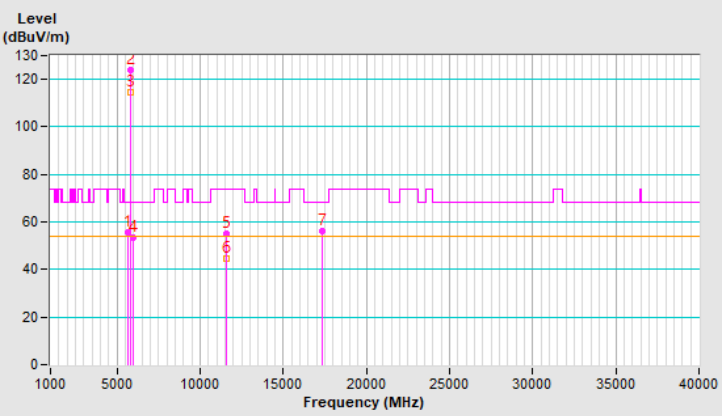


RF Mode	TX 802.11ax (HE20)	Channel	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5628.13	55.8 PK	68.2	-12.4	2.80 H	288	50.9	4.9
2	*5785.00	123.8 PK			2.80 H	288	118.6	5.2
3	*5785.00	114.7 AV			2.80 H	288	109.5	5.2
4	#5943.91	53.4 PK	68.2	-14.8	2.80 H	288	47.9	5.5
5	11570.00	55.3 PK	74.0	-18.7	1.46 H	268	40.2	15.1
6	11570.00	44.5 AV	54.0	-9.5	1.46 H	268	29.4	15.1
7	#17355.00	56.0 PK	68.2	-12.2	1.67 H	54	37.1	18.9

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.

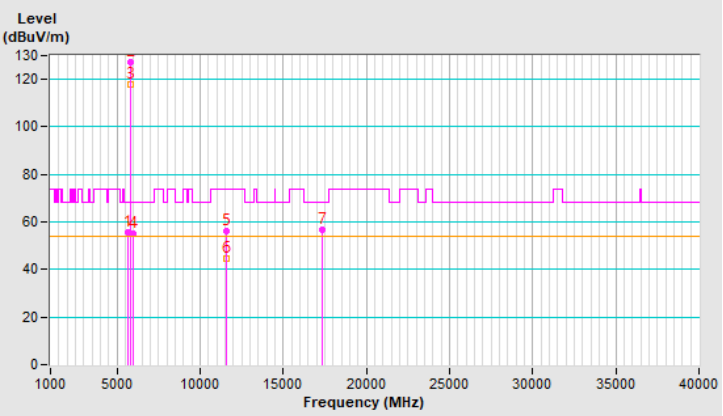


RF Mode	TX 802.11ax (HE20)	Channel	CH 157：5785 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5629.54	55.6 PK	68.2	-12.6	1.77 V	257	50.7	4.9
2	*5785.00	127.3 PK			1.77 V	257	122.1	5.2
3	*5785.00	118.0 AV			1.77 V	257	112.8	5.2
4	#5944.26	55.2 PK	68.2	-13.0	1.77 V	257	49.7	5.5
5	11570.00	56.0 PK	74.0	-18.0	1.97 V	346	40.9	15.1
6	11570.00	44.8 AV	54.0	-9.2	1.97 V	346	29.7	15.1
7	#17355.00	56.8 PK	68.2	-11.4	1.34 V	77	37.9	18.9

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.

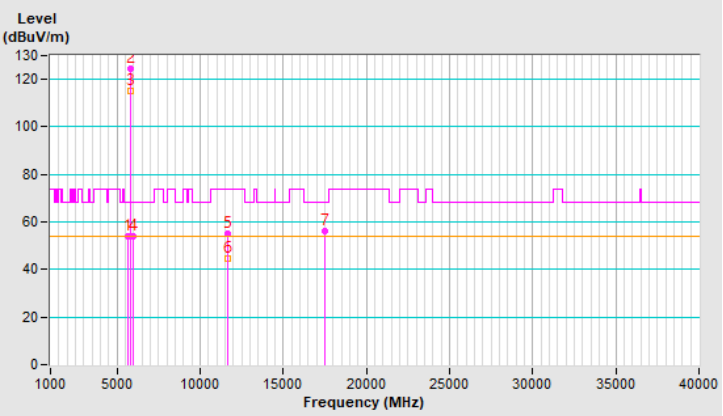


RF Mode	TX 802.11ax (HE20)	Channel	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5641.47	54.2 PK	68.2	-14.0	2.66 H	274	49.3	4.9
2	*5825.00	124.4 PK			2.66 H	274	119.1	5.3
3	*5825.00	115.1 AV			2.66 H	274	109.8	5.3
4	#5944.25	53.8 PK	68.2	-14.4	2.66 H	274	48.3	5.5
5	11650.00	55.3 PK	74.0	-18.7	1.54 H	274	40.3	15.0
6	11650.00	44.4 AV	54.0	-9.6	1.54 H	274	29.4	15.0
7	#17475.00	56.3 PK	68.2	-11.9	1.61 H	32	37.3	19.0

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.

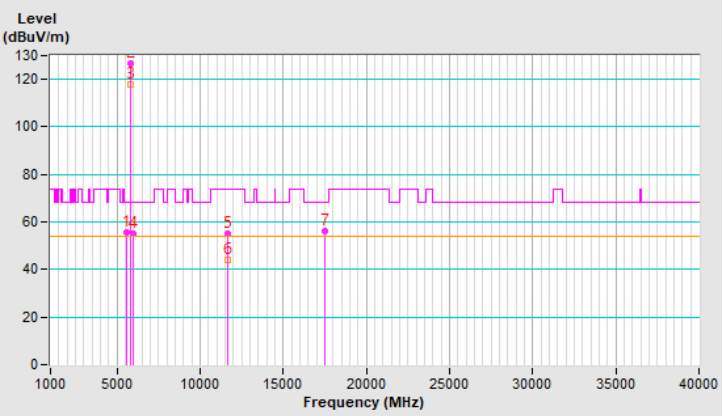


RF Mode	TX 802.11ax (HE20)	**Channel**	CH 165：5825 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5589.88	55.5 PK	68.2	-12.7	1.76 V	259	50.6	4.9
2	*5825.00	126.7 PK			1.76 V	259	121.4	5.3
3	*5825.00	117.9 AV			1.76 V	259	112.6	5.3
4	#5943.59	55.0 PK	68.2	-13.2	1.76 V	259	49.5	5.5
5	11650.00	55.0 PK	74.0	-19.0	1.95 V	330	40.0	15.0
6	11650.00	44.0 AV	54.0	-10.0	1.95 V	330	29.0	15.0
7	#17475.00	56.2 PK	68.2	-12.0	1.34 V	76	37.2	19.0

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.

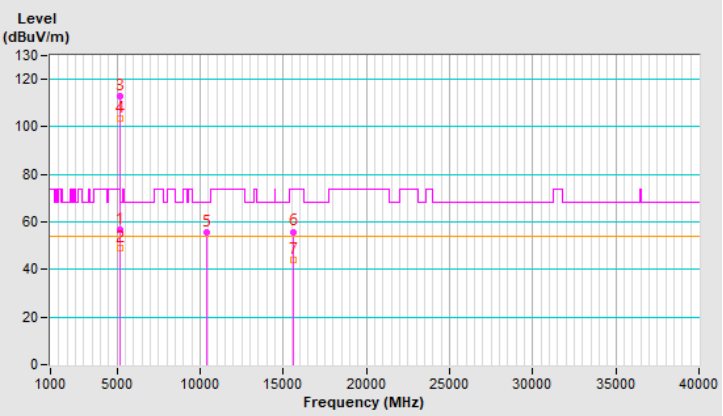


RF Mode	TX 802.11ax (HE40)	Channel	CH 38：5190 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5149.25	56.8 PK	74.0	-17.2	1.62 H	30	52.0	4.8
2	5149.25	49.1 AV	54.0	-4.9	1.62 H	30	44.3	4.8
3	*5190.00	112.8 PK			1.62 H	30	108.2	4.6
4	*5190.00	103.5 AV			1.62 H	30	98.9	4.6
5	#10380.00	55.7 PK	68.2	-12.5	1.56 H	261	41.5	14.2
6	15570.00	55.9 PK	74.0	-18.1	1.61 H	38	41.4	14.5
7	15570.00	44.0 AV	54.0	-10.0	1.61 H	38	29.5	14.5

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.

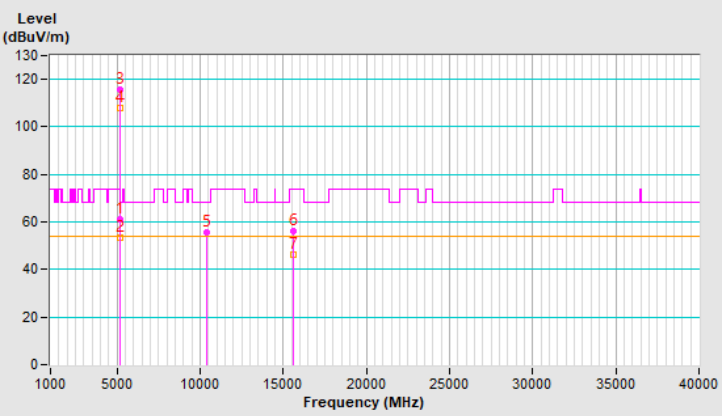


RF Mode	TX 802.11ax (HE40)	Channel	CH 38：5190 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	61.0 PK	74.0	-13.0	1.78 V	242	56.2	4.8
2	5150.00	53.2 AV	54.0	-0.8	1.78 V	242	48.4	4.8
3	*5190.00	115.9 PK			1.78 V	242	111.3	4.6
4	*5190.00	107.7 AV			1.78 V	242	103.1	4.6
5	#10380.00	55.7 PK	68.2	-12.5	1.99 V	332	41.5	14.2
6	15570.00	56.4 PK	74.0	-17.6	1.36 V	90	41.9	14.5
7	15570.00	46.1 AV	54.0	-7.9	1.36 V	90	31.6	14.5

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.

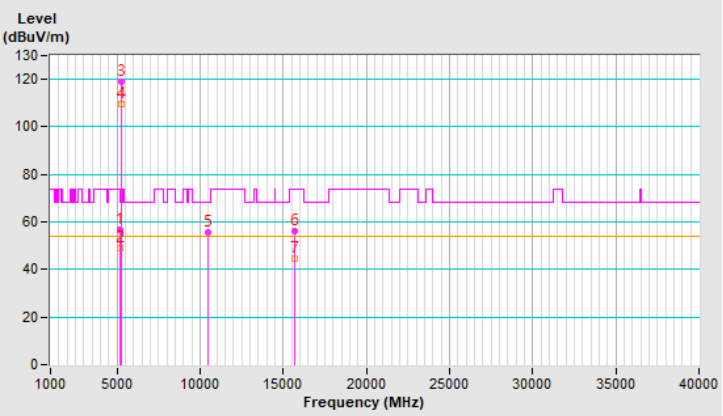


RF Mode	TX 802.11ax (HE40)	Channel	CH 46：5230 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5148.72	56.6 PK	74.0	-17.4	1.58 H	83	51.8	4.8
2	5148.72	48.8 AV	54.0	-5.2	1.58 H	83	44.0	4.8
3	*5230.00	119.1 PK			1.58 H	83	114.6	4.5
4	*5230.00	109.7 AV			1.58 H	83	105.2	4.5
5	#10460.00	55.4 PK	68.2	-12.8	1.60 H	266	41.0	14.4
6	15690.00	56.3 PK	74.0	-17.7	1.55 H	47	42.6	13.7
7	15690.00	44.5 AV	54.0	-9.5	1.55 H	47	30.8	13.7

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.

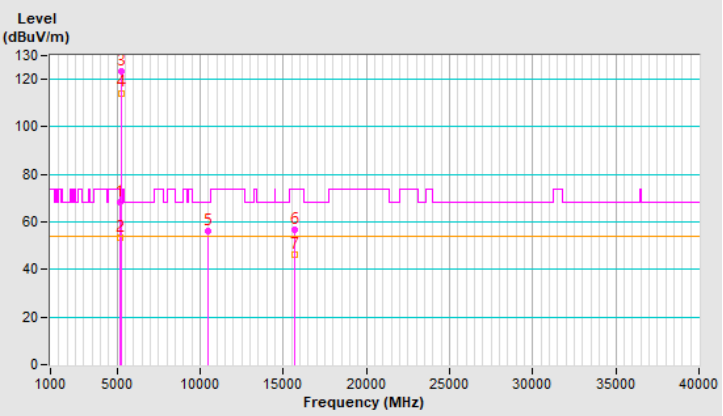


RF Mode	TX 802.11ax (HE40)	Channel	CH 46：5230 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	68.5 PK	74.0	-5.5	1.68 V	270	63.7	4.8
2	5150.00	53.3 AV	54.0	-0.7	1.68 V	270	48.5	4.8
3	*5230.00	123.2 PK			1.68 V	270	118.7	4.5
4	*5230.00	114.3 AV			1.68 V	270	109.8	4.5
5	#10460.00	56.0 PK	68.2	-12.2	2.01 V	321	41.6	14.4
6	15690.00	56.5 PK	74.0	-17.5	1.35 V	96	42.8	13.7
7	15690.00	46.2 AV	54.0	-7.8	1.35 V	96	32.5	13.7

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.

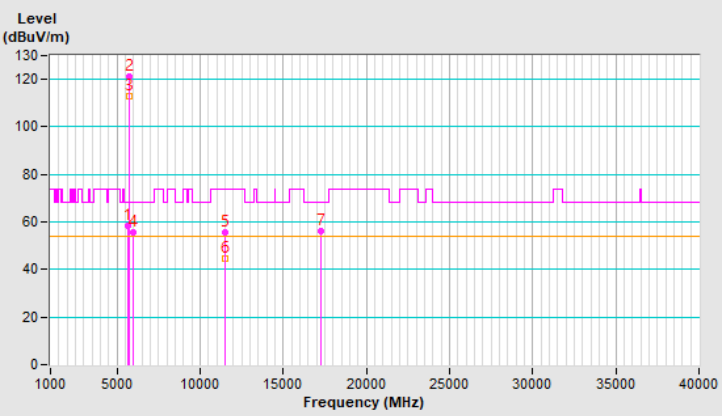


RF Mode	TX 802.11ax (HE40)	Channel	CH 151：5755 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5646.35	58.5 PK	68.2	-9.7	2.43 H	275	53.6	4.9
2	*5755.00	121.4 PK			2.43 H	275	116.3	5.1
3	*5755.00	112.8 AV			2.43 H	275	107.7	5.1
4	#5936.26	55.5 PK	68.2	-12.7	2.43 H	275	50.0	5.5
5	11510.00	55.7 PK	74.0	-18.3	1.52 H	261	40.6	15.1
6	11510.00	44.8 AV	54.0	-9.2	1.52 H	261	29.7	15.1
7	#17265.00	56.1 PK	68.2	-12.1	1.66 H	19	37.7	18.4

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.

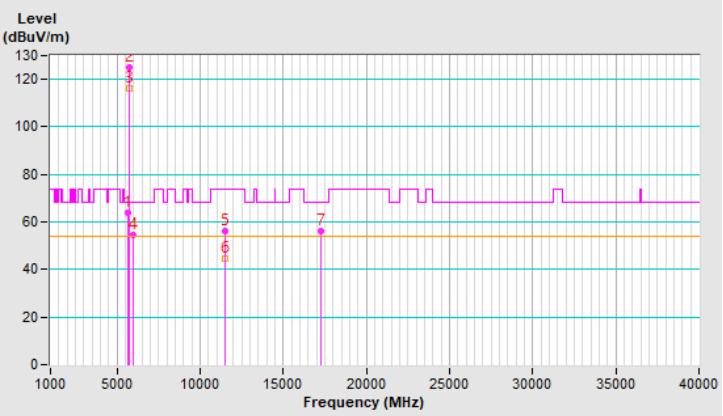


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 151：5755 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5636.72	64.1 PK	68.2	-4.1	1.51 V	274	59.2	4.9
2	*5755.00	124.9 PK			1.51 V	274	119.8	5.1
3	*5755.00	116.0 AV			1.51 V	274	110.9	5.1
4	#5994.71	54.4 PK	68.2	-13.8	1.51 V	274	49.0	5.4
5	11510.00	56.0 PK	74.0	-18.0	1.93 V	344	40.9	15.1
6	11510.00	44.8 AV	54.0	-9.2	1.93 V	344	29.7	15.1
7	#17265.00	56.3 PK	68.2	-11.9	1.32 V	85	37.9	18.4

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.

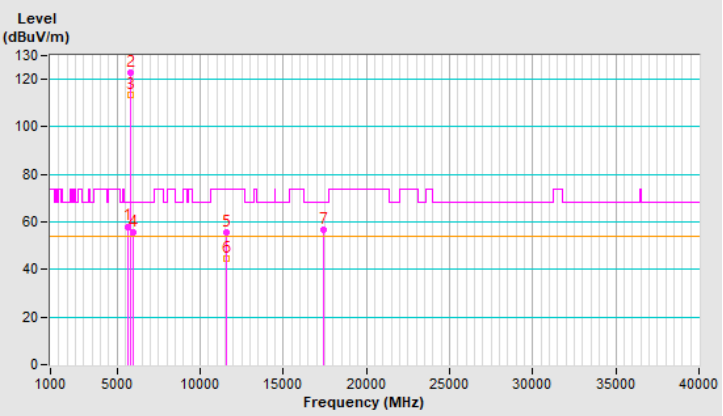


RF Mode	TX 802.11ax (HE40)	Channel	CH 159：5795 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5643.36	58.1 PK	68.2	-10.1	2.91 H	286	53.2	4.9
2	*5795.00	123.0 PK			2.91 H	286	117.8	5.2
3	*5795.00	113.5 AV			2.91 H	286	108.3	5.2
4	#5935.77	55.8 PK	68.2	-12.4	2.91 H	286	50.3	5.5
5	11590.00	55.4 PK	74.0	-18.6	1.58 H	288	40.3	15.1
6	11590.00	44.7 AV	54.0	-9.3	1.58 H	288	29.6	15.1
7	#17385.00	56.5 PK	68.2	-11.7	1.64 H	36	37.3	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.

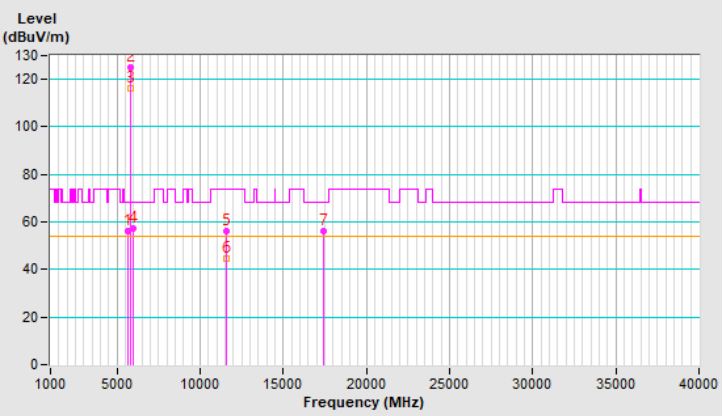


RF Mode	TX 802.11ax (HE40)	**Channel**	CH 159：5795 MHz
Frequency Range	1 GHz ~ 40 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20°C, 70% RH
Tested By	Ryan Du		

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	#5646.53	56.1 PK	68.2	-12.1	1.64 V	272	51.2	4.9
2	*5795.00	125.1 PK			1.64 V	272	119.9	5.2
3	*5795.00	116.2 AV			1.64 V	272	111.0	5.2
4	#5941.59	57.4 PK	68.2	-10.8	1.64 V	272	51.9	5.5
5	11590.00	56.0 PK	74.0	-18.0	2.03 V	325	40.9	15.1
6	11590.00	44.8 AV	54.0	-9.2	2.03 V	325	29.7	15.1
7	#17385.00	56.2 PK	68.2	-12.0	1.30 V	89	37.0	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.

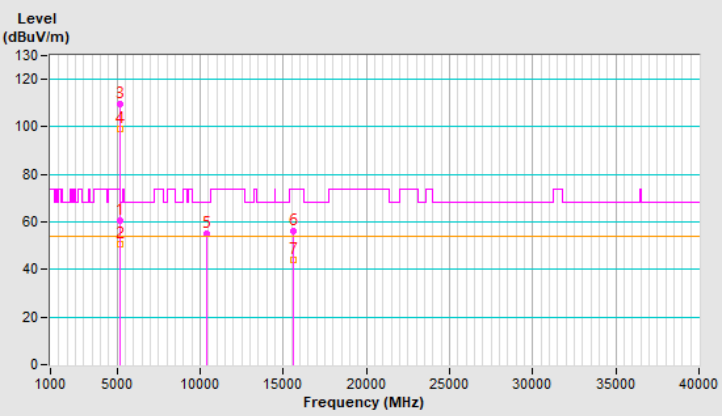


RF Mode	TX 802.11ax (HE80)	Channel	CH 42：5210 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5148.26	60.4 PK	74.0	-13.6	1.50 H	56	55.6	4.8
2	5148.26	50.6 AV	54.0	-3.4	1.50 H	56	45.8	4.8
3	*5210.00	109.6 PK			1.50 H	56	105.1	4.5
4	*5210.00	98.9 AV			1.50 H	56	94.4	4.5
5	#10420.00	55.0 PK	68.2	-13.2	1.60 H	278	40.7	14.3
6	15630.00	56.0 PK	74.0	-18.0	1.61 H	24	41.7	14.3
7	15630.00	43.8 AV	54.0	-10.2	1.61 H	24	29.5	14.3

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.

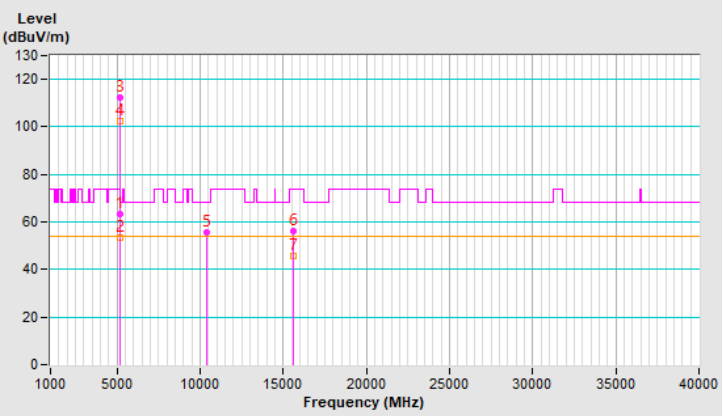


RF Mode	TX 802.11ax (HE80)	Channel	CH 42：5210 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	5150.00	63.3 PK	74.0	-10.7	1.81 V	264	58.5	4.8
2	5150.00	53.3 AV	54.0	-0.7	1.81 V	264	48.5	4.8
3	*5210.00	112.5 PK			1.81 V	264	108.0	4.5
4	*5210.00	102.2 AV			1.81 V	264	97.7	4.5
5	#10420.00	55.4 PK	68.2	-12.8	2.05 V	321	41.1	14.3
6	15630.00	56.3 PK	74.0	-17.7	1.32 V	89	42.0	14.3
7	15630.00	45.8 AV	54.0	-8.2	1.32 V	89	31.5	14.3

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.

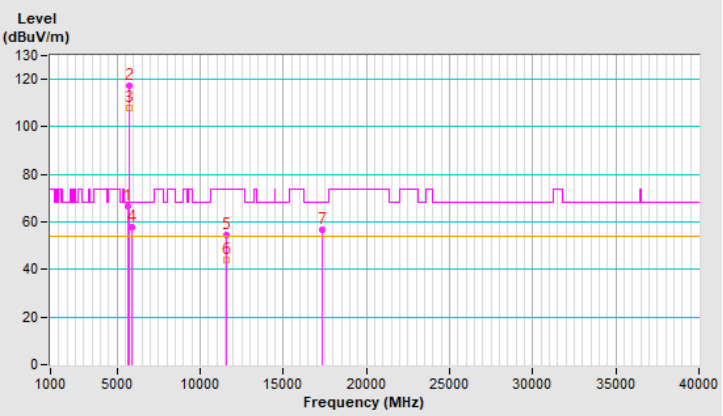


RF Mode	TX 802.11ax (HE80)	Channel	CH 155：5775 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5646.29	66.4 PK	68.2	-1.8	2.59 H	276	61.5	4.9
2	*5775.00	117.1 PK			2.59 H	276	111.9	5.2
3	*5775.00	108.0 AV			2.59 H	276	102.8	5.2
4	#5931.33	57.9 PK	68.2	-10.3	2.59 H	276	52.4	5.5
5	11550.00	54.7 PK	74.0	-19.3	1.59 H	269	39.7	15.0
6	11550.00	44.0 AV	54.0	-10.0	1.59 H	269	29.0	15.0
7	#17325.00	56.7 PK	68.2	-11.5	1.62 H	40	37.9	18.8

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.

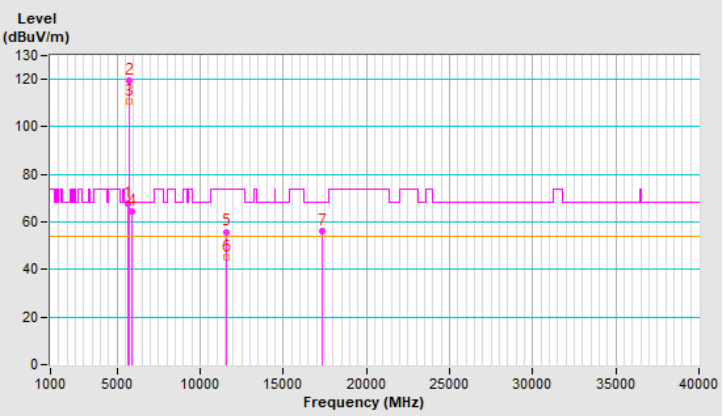


RF Mode	TX 802.11ax (HE80)	Channel	CH 155：5775 MHz
Frequency Range	1 GHz ~ 40 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20°C, 70% RH
Tested By	Ryan Du		

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	#5636.58	67.5 PK	68.2	-0.7	1.39 V	271	62.6	4.9
2	*5775.00	119.5 PK			1.39 V	271	114.3	5.2
3	*5775.00	110.8 AV			1.39 V	271	105.6	5.2
4	#5932.37	64.6 PK	68.2	-3.6	1.39 V	271	59.1	5.5
5	11550.00	55.9 PK	74.0	-18.1	2.02 V	344	40.9	15.0
6	11550.00	45.2 AV	54.0	-8.8	2.02 V	344	30.2	15.0
7	#17325.00	56.3 PK	68.2	-11.9	1.40 V	104	37.5	18.8

Remarks:

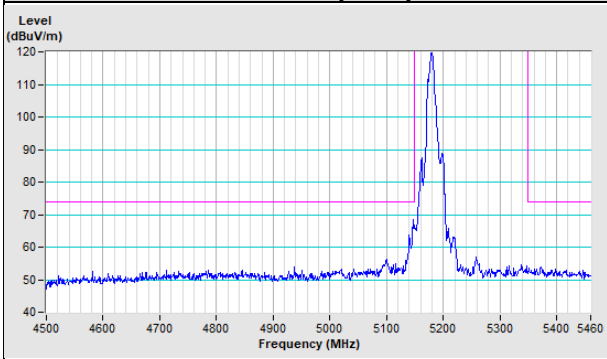
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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



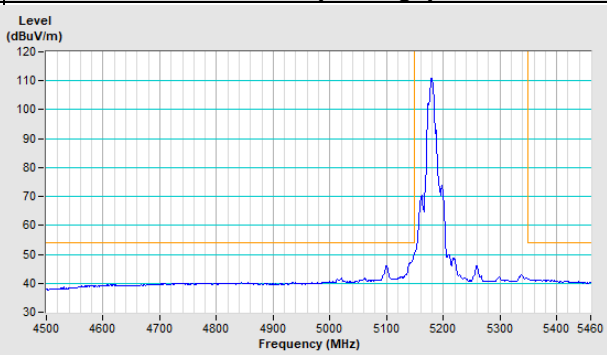
Plot of Band Edge

802.11a Channel 36

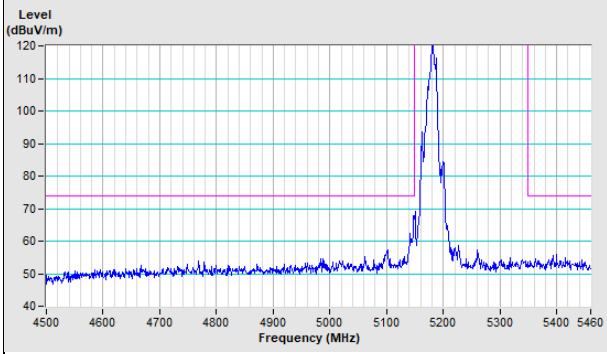
Horizontal (Peak)



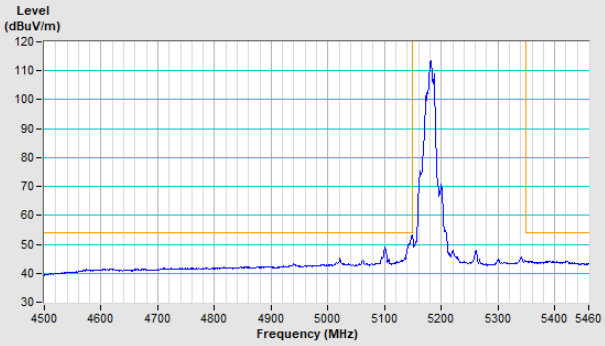
Horizontal (Average)



Vertical (Peak)

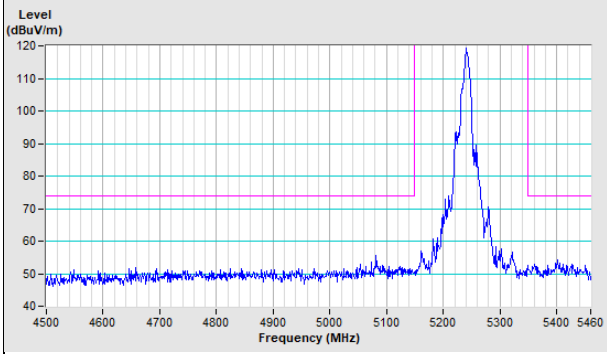


Vertical (Average)

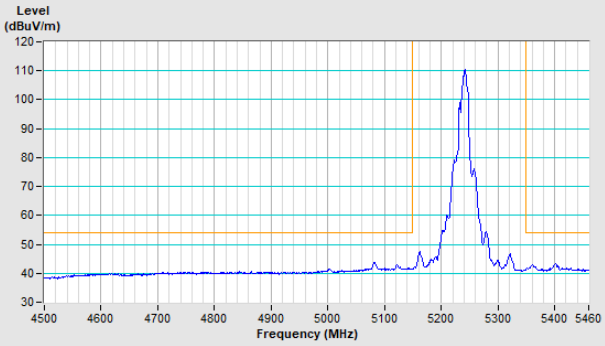


802.11a Channel 48

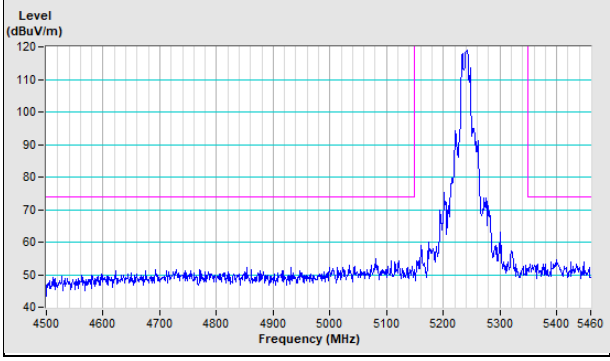
Horizontal (Peak)



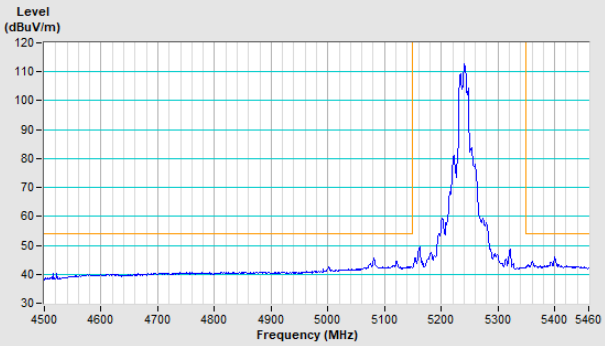
Horizontal (Average)



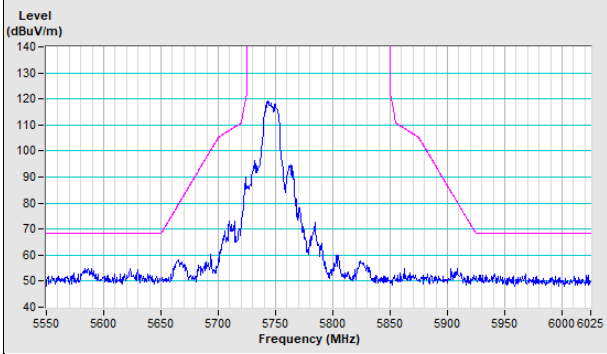
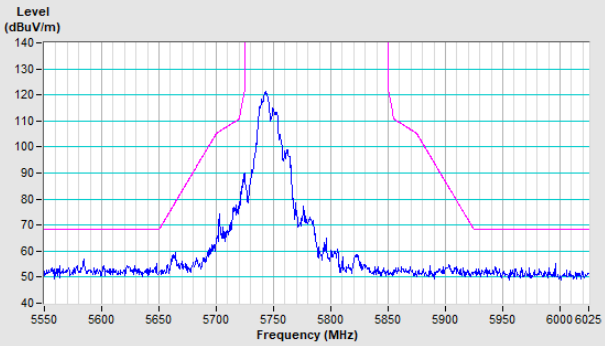
Vertical (Peak)



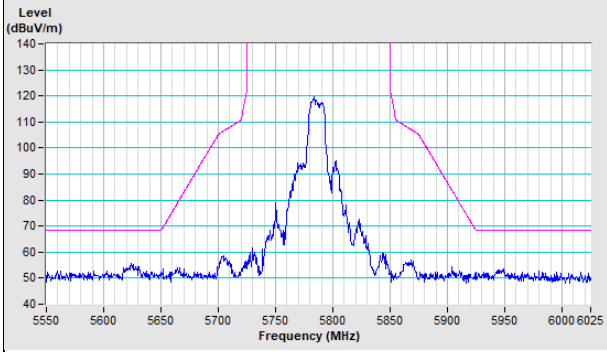
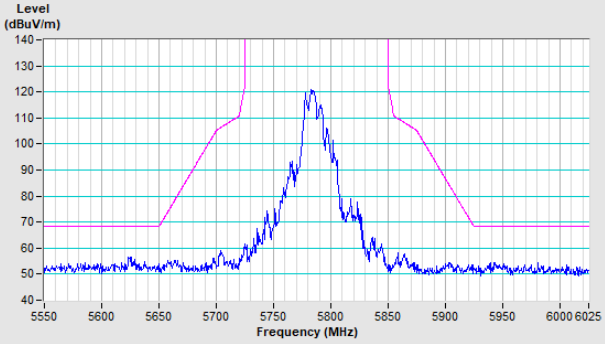
Vertical (Average)



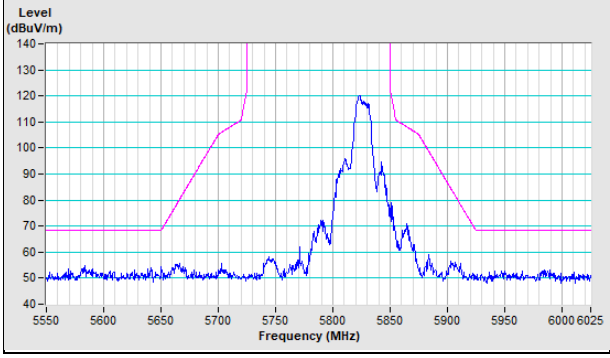
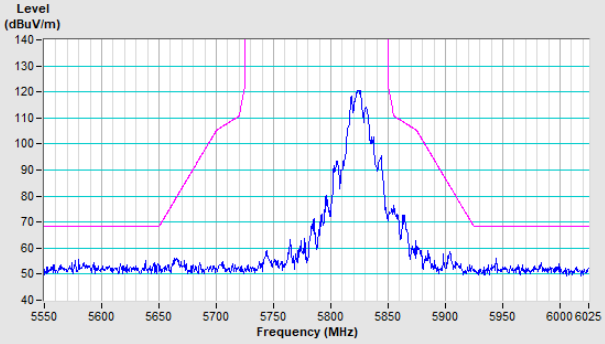
802.11a Channel 149

Horizontal (Peak)	Vertical (Peak)
	

802.11a Channel 157

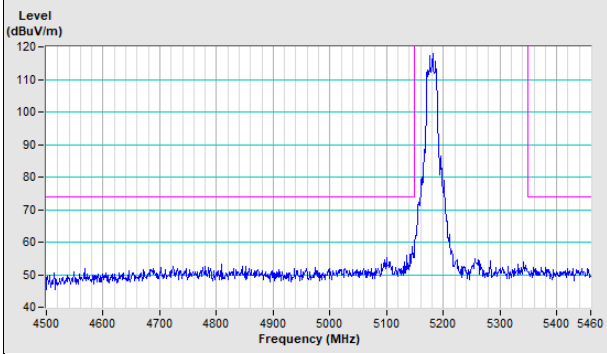
Horizontal (Peak)	Vertical (Peak)
	

802.11a Channel 165

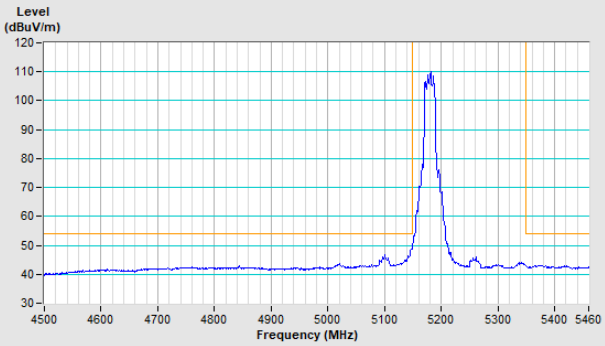
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE20) Channel 36

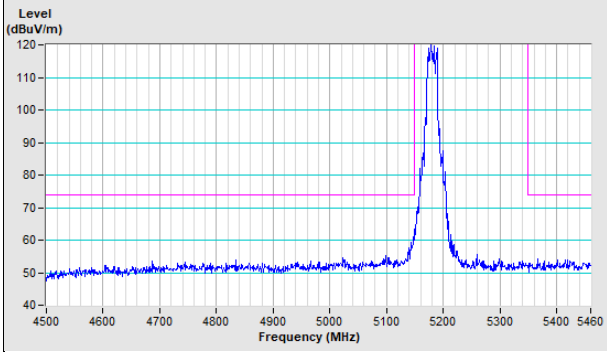
Horizontal (Peak)



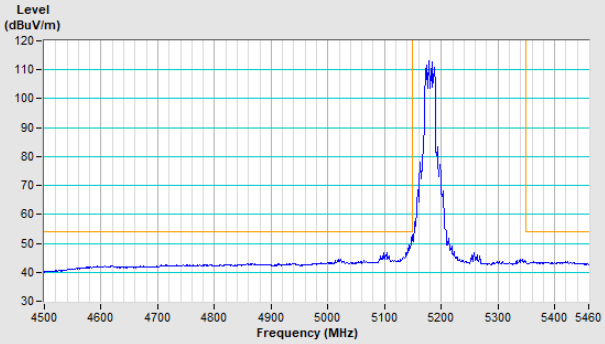
Horizontal (Average)



Vertical (Peak)

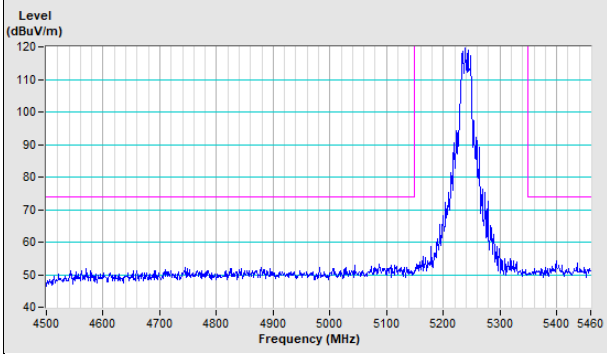


Vertical (Average)

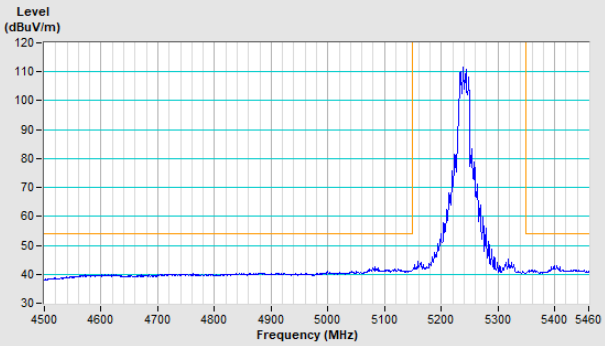


802.11ax (HE20) Channel 48

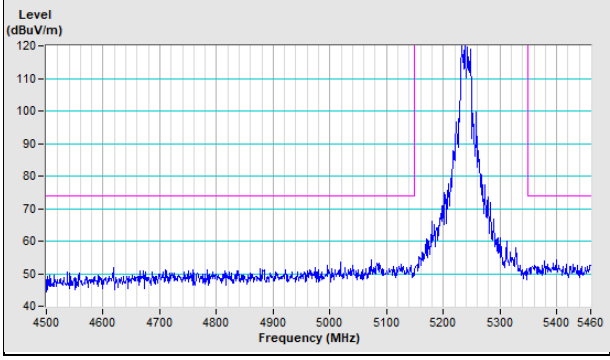
Horizontal (Peak)



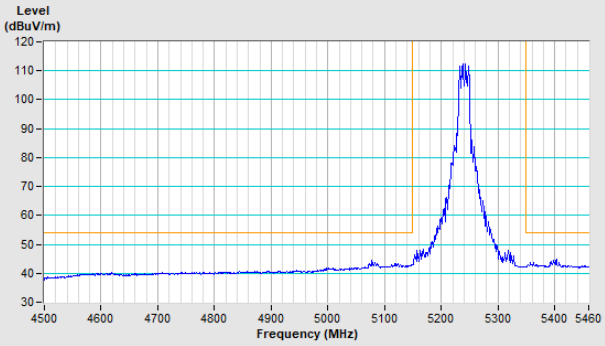
Horizontal (Average)



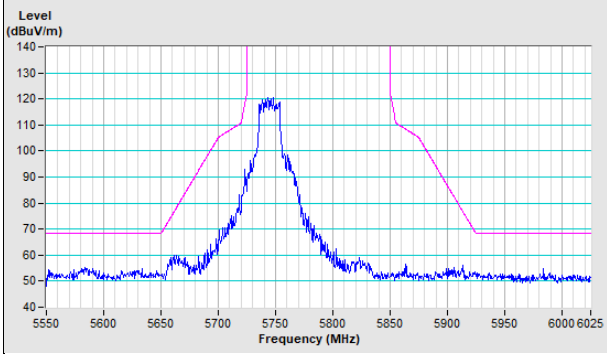
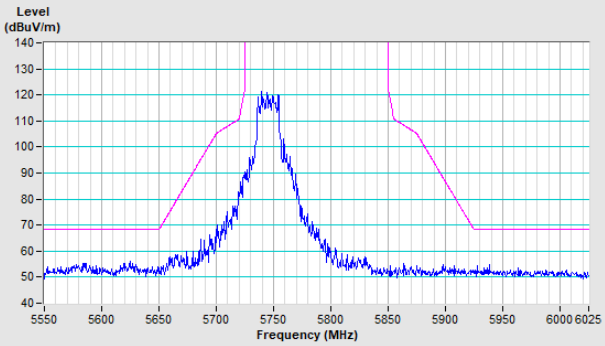
Vertical (Peak)



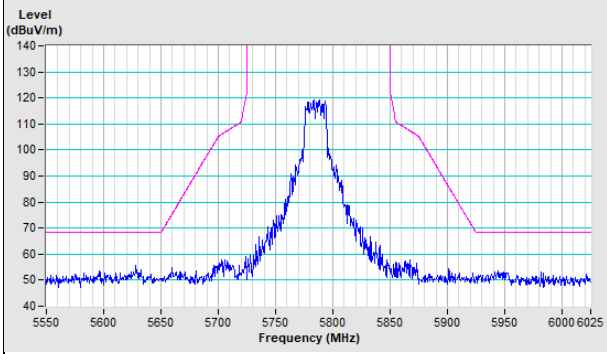
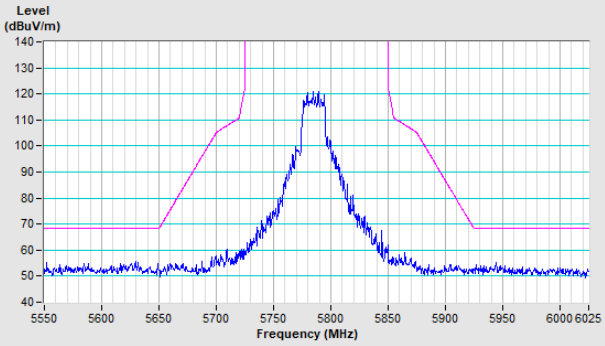
Vertical (Average)



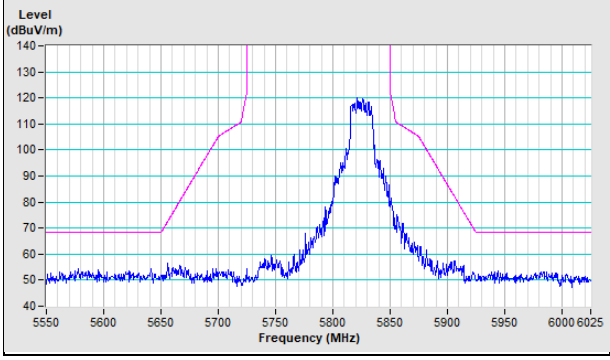
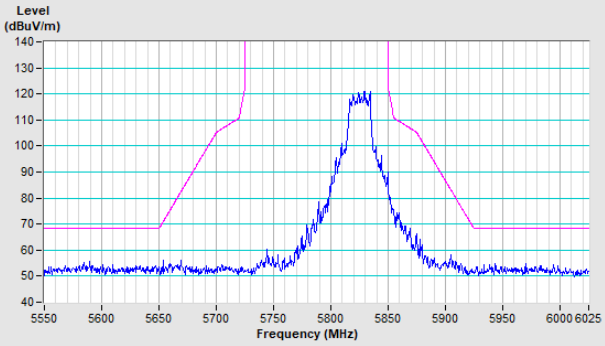
802.11ax (HE20) Channel 149

Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE20) Channel 157

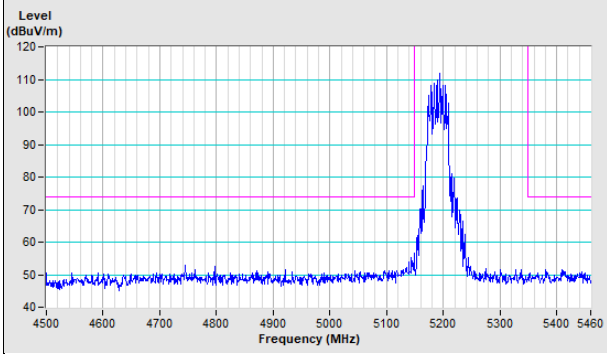
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE20) Channel 165

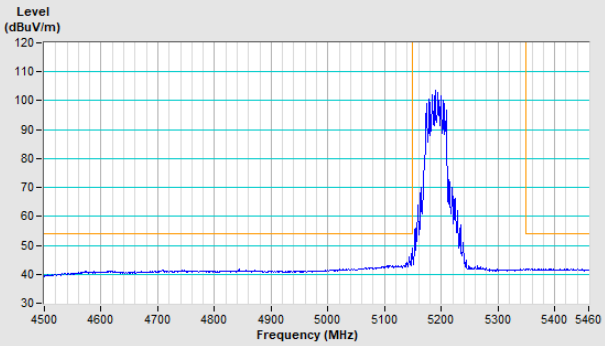
Horizontal (Peak)	Vertical (Peak)
	

802.11ax (HE40) Channel 38

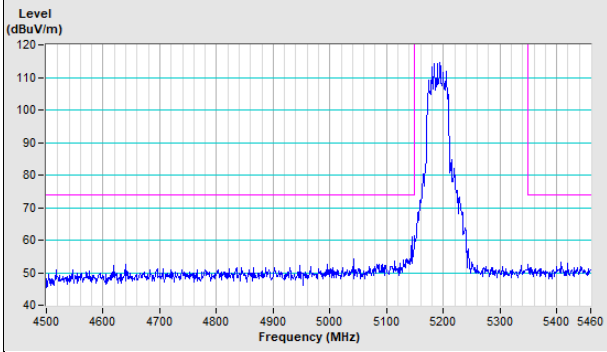
Horizontal (Peak)



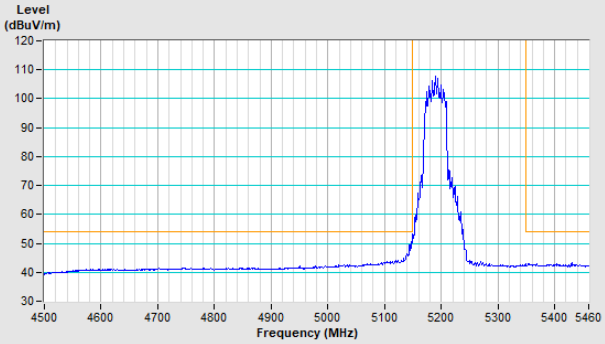
Horizontal (Average)



Vertical (Peak)

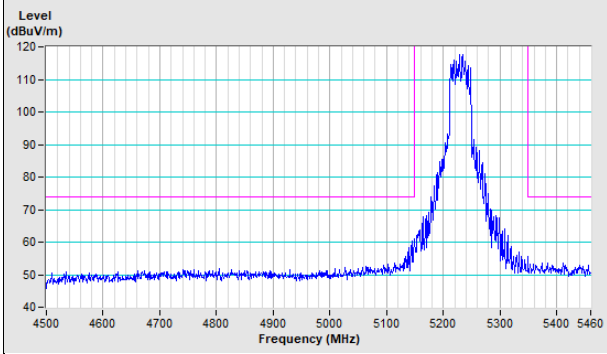


Vertical (Average)

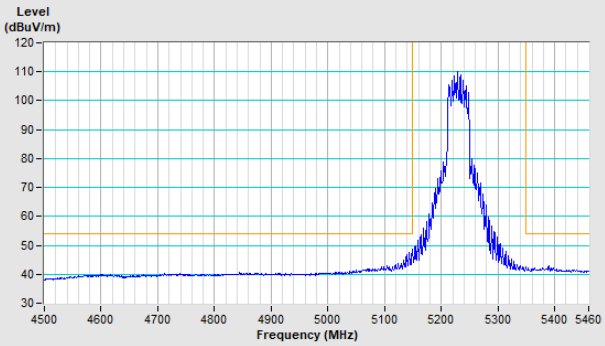


802.11ax (HE40) Channel 46

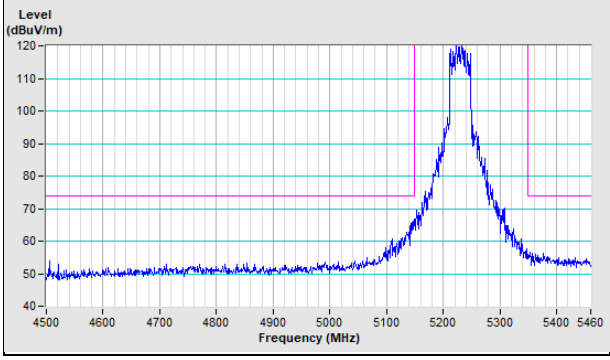
Horizontal (Peak)



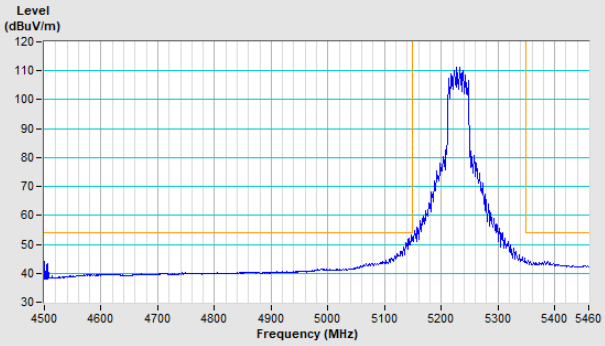
Horizontal (Average)

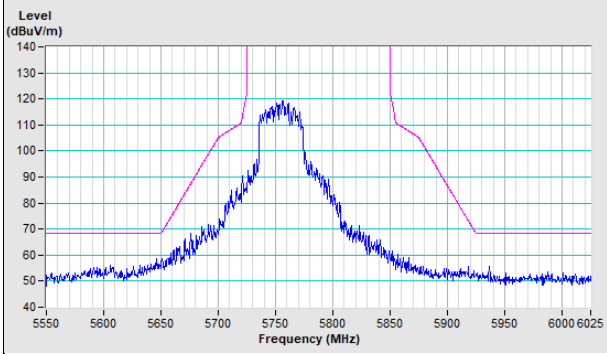
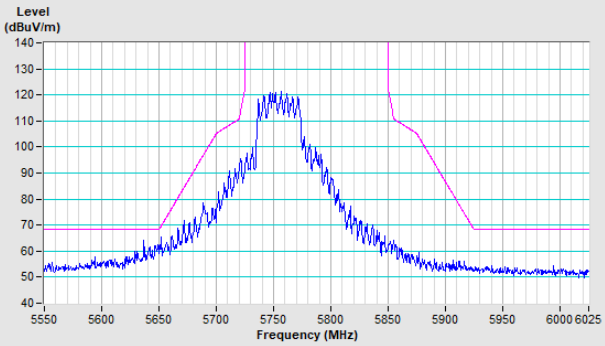


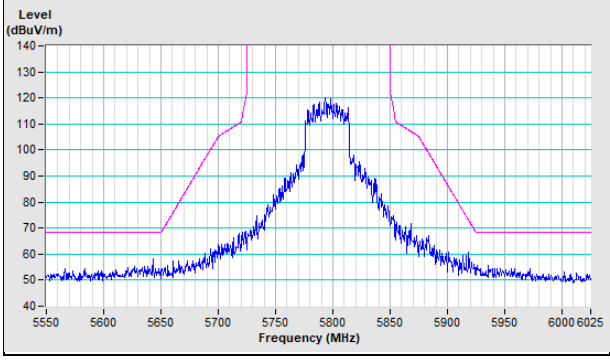
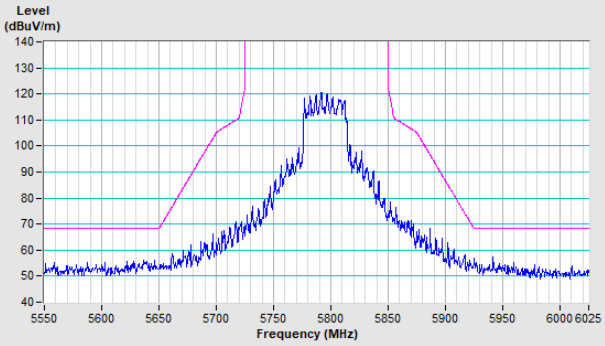
Vertical (Peak)



Vertical (Average)

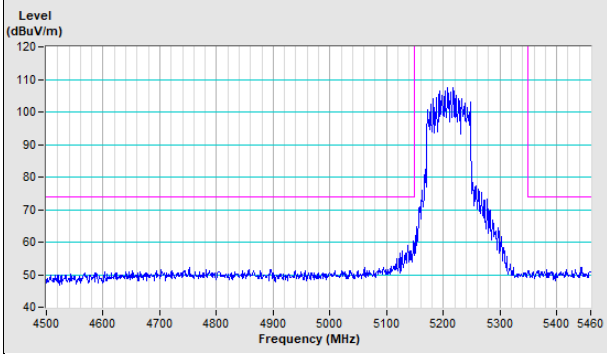


802.11ax (HE40) Channel 151	
Horizontal (Peak)	**Vertical (Peak)**
	

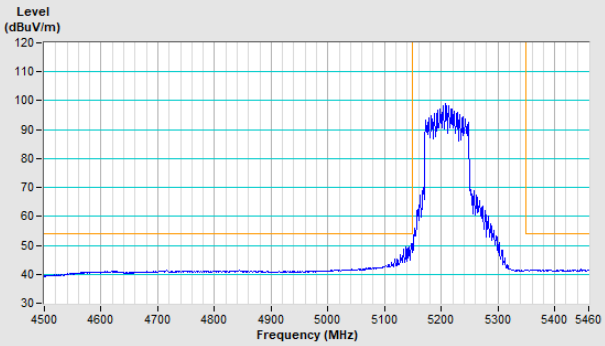
802.11ax (HE40) Channel 159	
Horizontal (Peak)	**Vertical (Peak)**
	

802.11ax (HE80) Channel 42

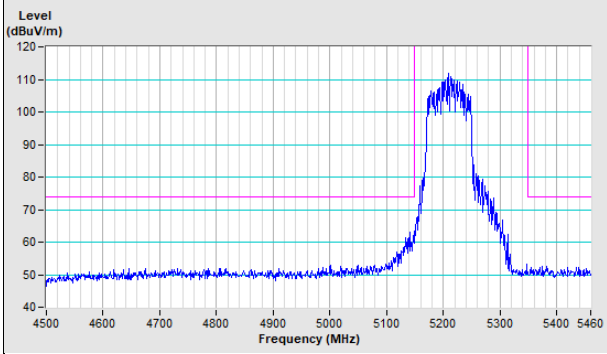
Horizontal (Peak)



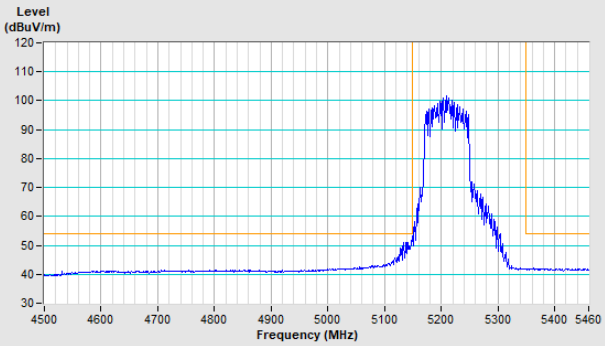
Horizontal (Average)



Vertical (Peak)

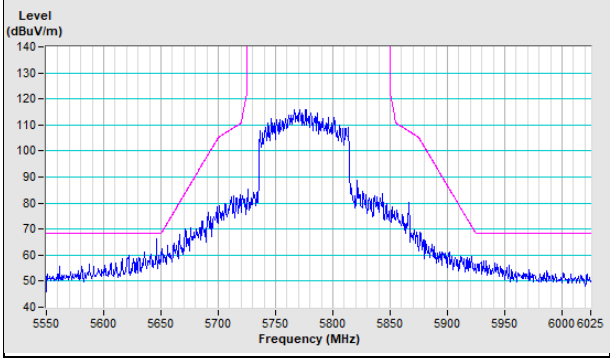


Vertical (Average)

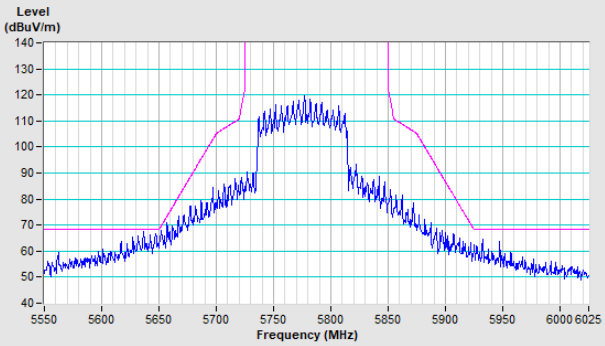


802.11ax (HE80) Channel 155

Horizontal (Peak)



Vertical (Peak)



8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 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:

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

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