

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
Report No.: RFBEDV-WTW-P23030565-8
FCC ID: G95MGA5331
Product: WIFI Gateway
Brand: Vantiva
Test Model: MGA5331
Received Date: 2023/3/16
Test Date: 2023/4/10 ~ 2023/5/19
Issued Date: 2023/7/27

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FCC Registration / 788550 / TW0003
Designation Number:

Approved by: _____

Jeremy Lin

Jeremy Lin / Project Engineer

, Date: _____

2023/7/27

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Prepared by : Vera Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFBEDV-WTW-P23030565-8	Original Release	2023/7/27

1 Certificate

Product: WIFI Gateway

Brand: Vantiva

Test Model: MGA5331

Sample Status: Engineering Sample

Applicant: Vantiva USA LLC

Test Date: 2023/4/10 ~ 2023/5/19

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
KDB 662911 D03 MIMO Antenna Gain Measurement v01

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)(2)	26 dB Bandwidth	Pass	For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1) 15.407(a)(2) 15.407(a)(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 -19.35 dB at 0.47800 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -2.3 dB at 299.66 MHz
15.407(b) (1/10) 15.407(b) (2/10) 15.407(b) (3/10) 15.407(b) (4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.4 dB at 5725.00 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) (±)
Occupied Bandwidth	-	491.896 Hz
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 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	WIFI Gateway
Brand	Vantiva
Test Model	MGA5331
Status of EUT	Engineering sample
Power Supply Rating	Refer to Note
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps 802.11ac: up to 3466.7Mbps 802.11ax: up to 4803.9Mbps
Operating Frequency	5250 ~ 5320 MHz, 5500 ~ 5720 MHz
Number of Channel	5250 ~ 5320 MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 4 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1 802.11ac (VHT160), 802.11ax (HE160): 1 5500 ~ 5720 MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 12 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 6 802.11ac (VHT80), 802.11ax (HE80): 3 802.11ac (VHT160), 802.11ax (HE160): 1
Output Power	CDD mode: 5250 ~ 5320 MHz: 249.45 mW (23.97 dBm) 5500 ~ 5720 MHz: 240.328 mW (23.81 dBm) Beamforming mode: 5250 ~ 5320 MHz: 249.45 mW (23.97 dBm) 5500 ~ 5720 MHz: 240.328 mW (23.81 dBm)
EUT Category	Indoor Access Point

Note:

1. This report is issued as a supplementary report to BV CPS report no. RFBEDV-WTW-P23030565-1. The difference compared with original report is adding 5250 ~ 5320 MHz and 5500 ~ 5720 MHz by software.
2. The EUT uses following accessories.

AC Adapter		
Brand	Model	Specification
HONOR	ADS-42FI-12 12042EPCU-L	AC Input: 100-120V~ 50/60Hz 1.2A max. DC Output: 12VDC, 3.5A, 42W DC Output Cable: 1.5m, Non-Shielded

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Type	PCB			
Connector Type	ipex(MHF)			
Band	Max Gain (dBi)			
	Chain 0	Chain 1	Chain 2	Chain 3
5G Band 1	1.51	-0.18	0.73	-0.12
5G Band 2	1.03	1.28	2.03	0.09
5G Band 3	2.62	-0.26	2.19	2.19
5G Band 4	0.47	-0.29	2.81	0.47

Band	Directional Gain (dBi)
5G Band 1	5.6
5G Band 2	5.48
5G Band 3	6.01
5G Band 4	6.48

* The detailed antenna information, please refer to the Test report-Antenna Spec.pdf.

2. 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
802.11ac (VHT160)	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
802.11ax (HE80)	4TX	4RX
802.11ax (HE160)	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, 160 MHz), and 802.11ax mode for 20 MHz (40 MHz, 80 MHz, 160 MHz), therefore the manufacturer will control the power for 802.11n/ac mode is same as the 802.11ax mode or more lower than it and investigated worst case to representative mode in test report.
4. The EUT device modulation technique OFDMA does not support partial RUs (resource units) and channel puncturing/bandwidth reduction mechanisms.

3.3 Channel List

For 5250 ~ 5320 MHz

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency
58	5290 MHz

1 channels are provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
50	5250 MHz

For 5500 ~ 5720 MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

1 channels are provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
114	5570 MHz

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	The EUT is designed to be positioned on the X-plane only.
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Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
26 dB Bandwidth / Power Spectral Density / Occupied Bandwidth	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11ax (HE20)	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD	58, 106, 122, 138	BPSK	MCS0
	802.11ax (HE160)	CDD	50, 114	BPSK	MCS0
RF Output Power	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11n (HT20)	CDD & Beamforming	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11n (HT40)	CDD & Beamforming	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ac (VHT20)	CDD & Beamforming	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ac (VHT40)	CDD & Beamforming	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ac (VHT80)	CDD & Beamforming	58, 106, 122, 138	BPSK	MCS0
	802.11ac (VHT160)	CDD & Beamforming	50, 114	BPSK	MCS0
	802.11ax (HE20)	CDD & Beamforming	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD & Beamforming	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD & Beamforming	58, 106, 122, 138	BPSK	MCS0
	802.11ax (HE160)	CDD & Beamforming	50, 114	BPSK	MCS0
	802.11a	CDD	144	BPSK	6Mb/s
6 dB Bandwidth	802.11ax (HE20)	CDD	144	BPSK	MCS0
	802.11ax (HE40)	CDD	142	BPSK	MCS0
	802.11ax (HE80)	CDD	138	BPSK	MCS0
	802.11ax (HE160)	CDD	138	BPSK	MCS0
Frequency Stability	802.11a	-	52	un-modulation	-
AC Power Conducted Emissions	802.11ax (HE40)	CDD	62	BPSK	MCS0
Unwanted Emissions below 1 GHz	802.11ax (HE40)	CDD	62	BPSK	MCS0
Unwanted Emissions above 1 GHz	802.11a	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	6Mb/s
	802.11ax (HE20)	CDD	52, 60, 64, 100, 116, 140, 144	BPSK	MCS0
	802.11ax (HE40)	CDD	54, 62, 102, 110, 134, 142	BPSK	MCS0
	802.11ax (HE80)	CDD	58, 106, 122, 138	BPSK	MCS0
	802.11ax (HE160)	CDD	50, 114	BPSK	MCS0

3.5 Duty Cycle of Test Signal

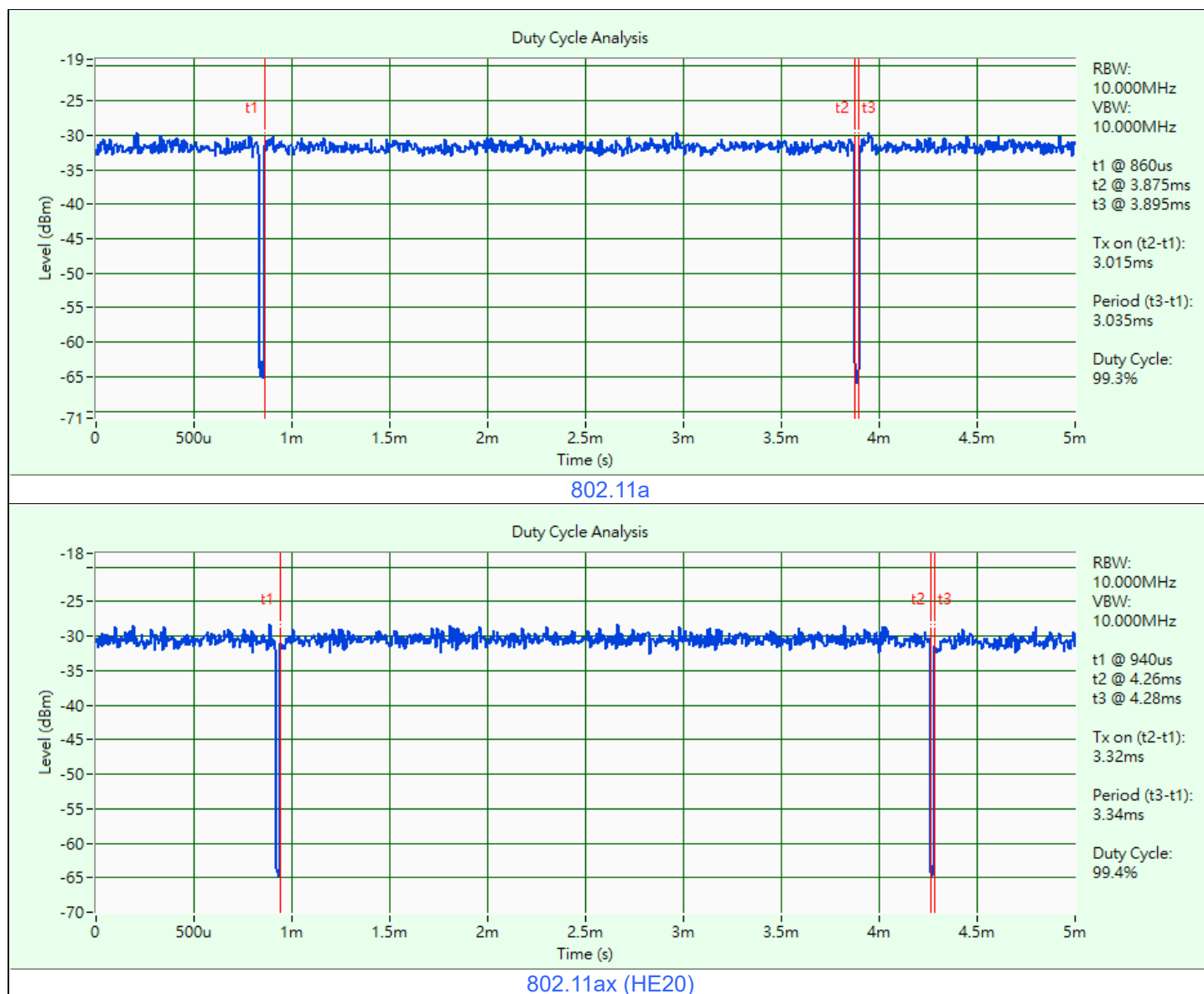
802.11a: Duty cycle = 3.015 ms / 3.035 ms x 100% = 99.3%

802.11ax (HE20): Duty cycle = 3.32 ms / 3.34 ms x 100% = 99.4%

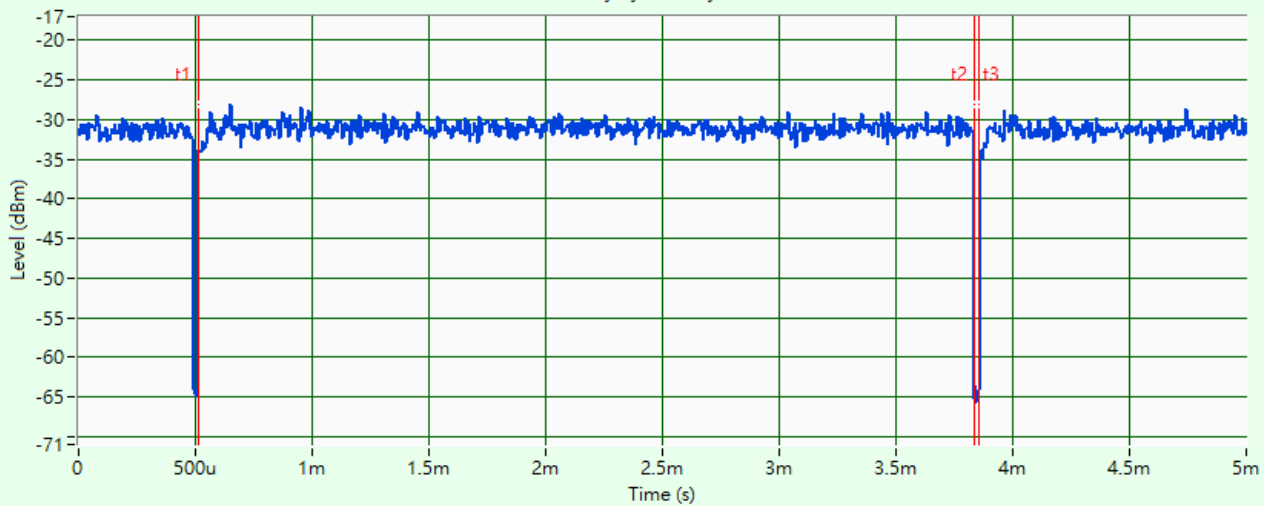
802.11ax (HE40): Duty cycle = 3.32 ms / 3.34 ms x 100% = 99.4%

802.11ax (HE80): Duty cycle = 3.175 ms / 3.19 ms x 100% = 99.5%

802.11ax (HE160): Duty cycle = 3.005 ms / 3.025 ms x 100% = 99.3%

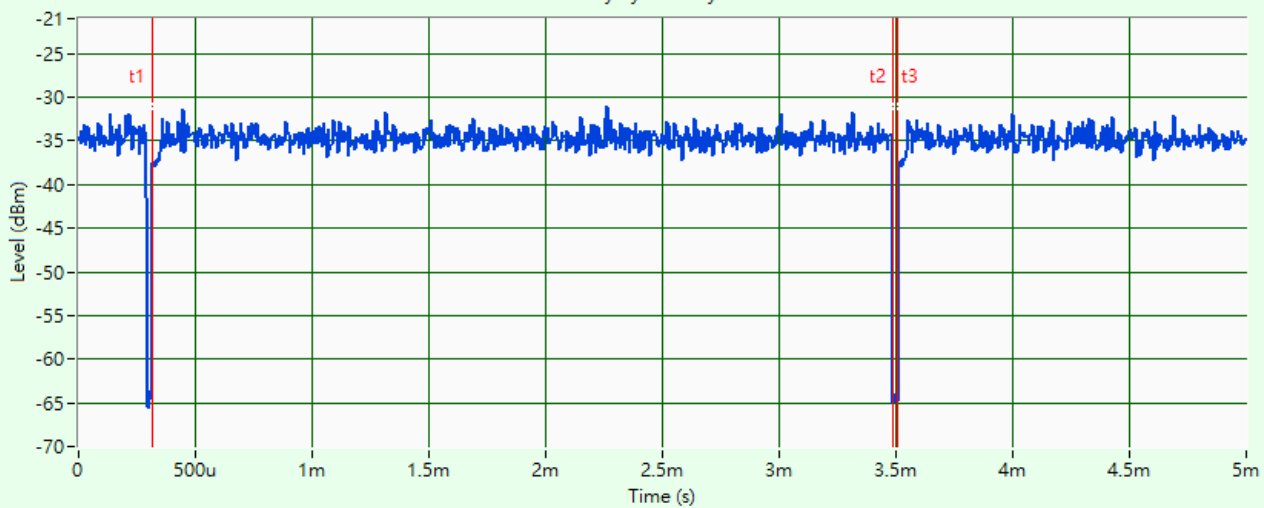


Duty Cycle Analysis



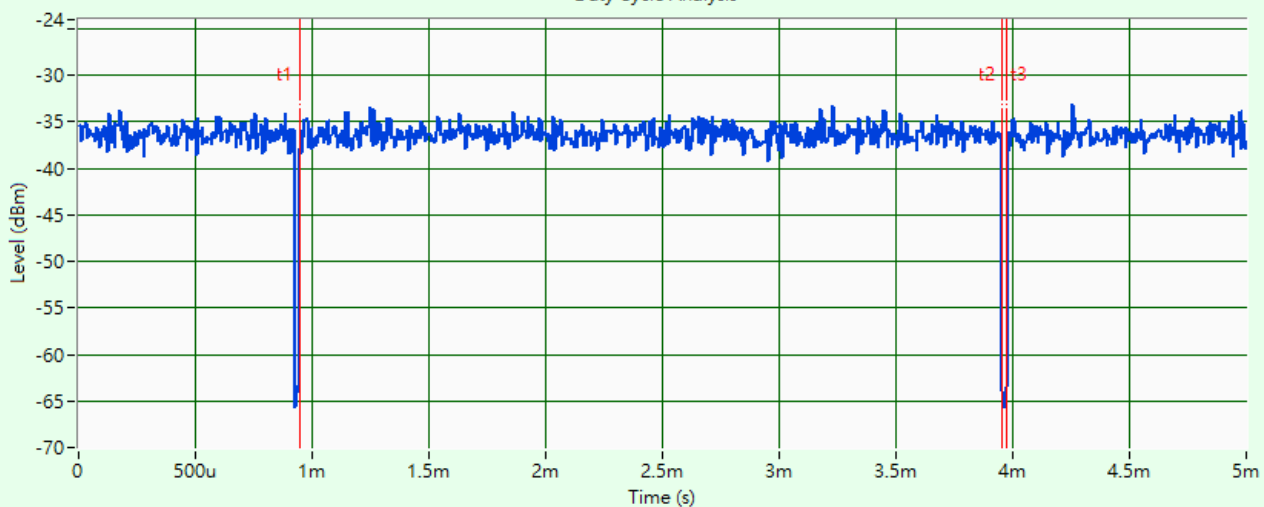
802.11ax (HE40)

Duty Cycle Analysis



802.11ax (HE80)

Duty Cycle Analysis

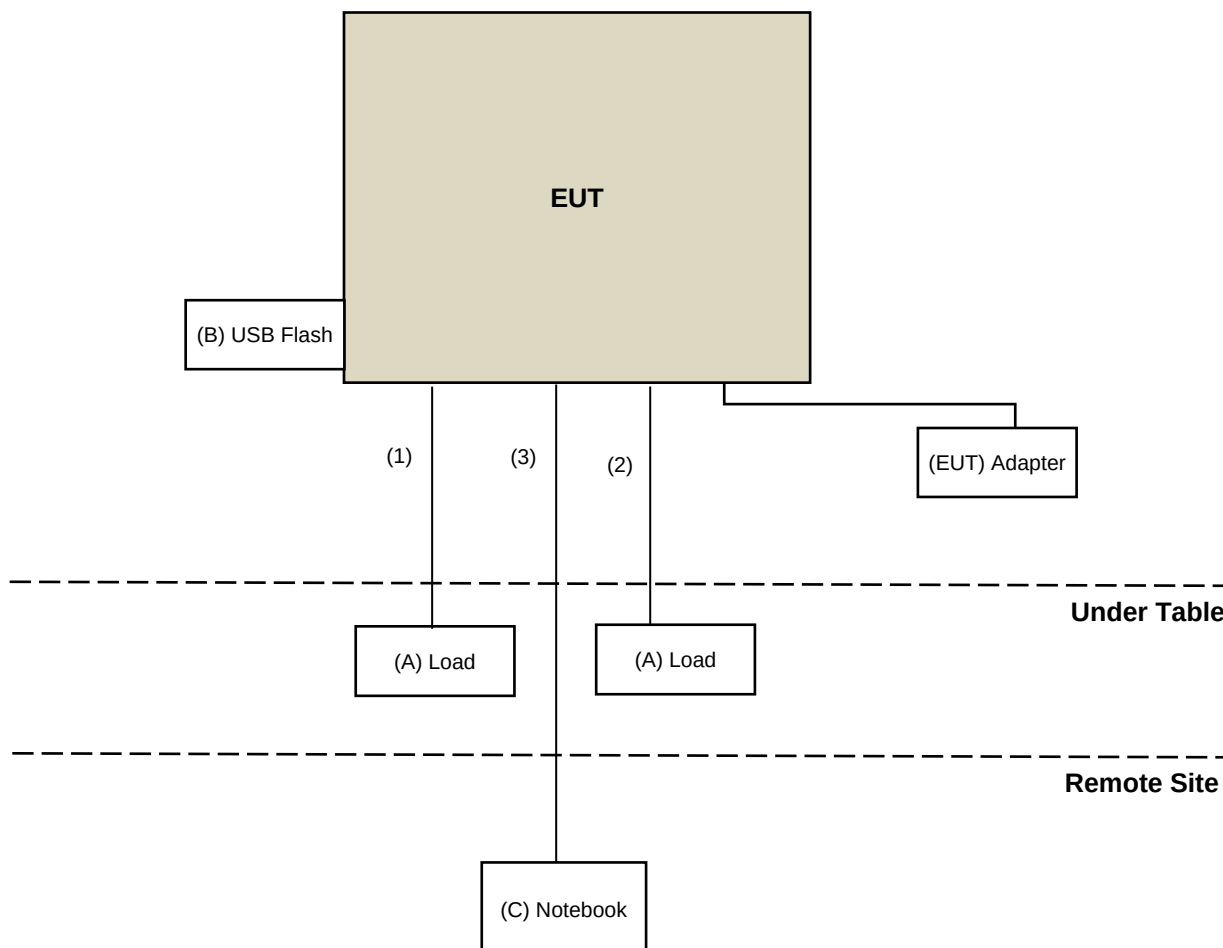


802.11ax (HE160)

3.6 Test Program Used and Operation Descriptions

Controlling software Mtool 3.2.1.5 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Load*2	N/A	N/A	N/A	N/A	Provided by Lab
B	USB Flash	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
C	Notebook	Lenovo	X250ALT5	PC06HPSE	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ11 Cable	1	1.5	NO	0	Provided by Lab
2	RJ45 Cable	4	1.5	NO	0	Provided by Lab
3	RJ45 Cable	1	10	NO	0	Provided by Lab

4 Test Instruments

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

4.1 26 dB Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101105	2023/2/22	2024/2/21
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/4/21 ~ 2023/5/19

4.2 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101105	2023/2/22	2024/2/21
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/ MY55190007/MY55210005	2022/7/13	2023/7/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/4/21 ~ 2023/5/19

4.3 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.4 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.1 to get information of the instruments.

4.6 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
AC Power Supply JIN YIH Technology	6905S	1720444	N/A	N/A
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22
Signal & Spectrum Analyzer R&S	FSV3044	101105	2023/2/22	2024/2/21
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Temperature & Humidity Chamber Terchy	HRM-120RF	931022	2022/12/27	2023/12/26

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/4/21 ~ 2023/5/19

4.7 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
LISN R&S	ESH3-Z5	100311	2022/9/12	2023/9/11
LISN ROHDE & SCHWARZ	ENV216	101826	2023/3/23	2024/3/22
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2023/1/7	2024/1/6
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2022/12/5	2023/12/4
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2023/5/17

4.8 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB9168	9168-160	2022/10/20	2023/10/19
Loop Antenna EMCI	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
Pre-amplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
Preamplifier Agilent	8447D	2944A10638	2022/5/14	2023/5/13
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
RF Coaxial Cable WOKEN	8D-FB	Cable-CH9-01	2022/5/14	2023/5/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/4/27	2023/4/26
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/4/13

4.9 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	9120D	9120D-1169	2022/11/13	2023/11/12
	BBHA 9170	9170-480	2022/11/13	2023/11/12
		BBHA9170243	2022/11/13	2023/11/12
Pre-Amplifier EMCI	EMC 184045	980116	2022/10/1	2023/9/30
Preamplifier Agilent	8449B	3008A02367	2023/2/15	2024/2/14
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7	2024/1/6
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7	2024/1/6
RF FILTER MICRO-TRONICS	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/4/27	2023/4/26
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/4/10 ~ 2023/4/12

5 Limits of Test Items

5.1 26 dB Bandwidth

The results are for reference only.

5.2 RF Output Power

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 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	250mW (24 dBm)

Operation Band	Limit
U-NII-2A	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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.

5.3 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-2A	11 dBm/MHz
U-NII-2C	11 dBm/MHz
U-NII-3	30 dBm/500 kHz

5.4 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.

5.5 Occupied Bandwidth

The results are for reference only.

5.6 Frequency Stability

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

5.7 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.

5.8 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).

5.9 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)

For transmitters operating in the 5.15-5.25 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.25-5.35 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.47-5.725 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(3)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.725-5.850 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1}	PK: 68.2 (dBμV/m) ^{*1}
	PK: 10 (dBm/MHz) ^{*2}	PK: 105.2 (dBμV/m) ^{*2}
	PK: 15.6 (dBm/MHz) ^{*3}	PK: 110.8 (dBμV/m) ^{*3}
	PK: 27 (dBm/MHz) ^{*4}	PK: 122.2 (dBμV/m) ^{*4}

^{*1} beyond 75 MHz or more above of the band edge.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 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.

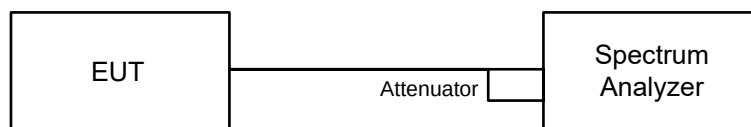
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 26 dB Bandwidth

6.1.1 Test Setup

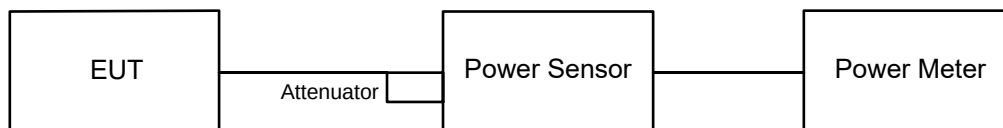


6.1.2 Test Procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.2 RF Output Power

6.2.1 Test Setup



For channel straddling:



6.2.2 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.

For channel straddling:

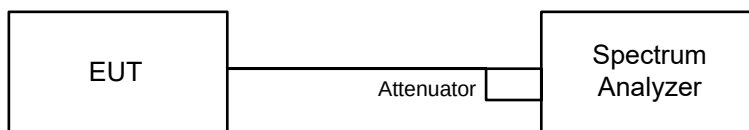
Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

Note: When measuring straddle channel power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.3 Power Spectral Density

6.3.1 Test Setup



6.3.2 Test Procedure

For specified measurement bandwidth 1 MHz:

Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW $\geq$ 3 MHz, Detector = RMS
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

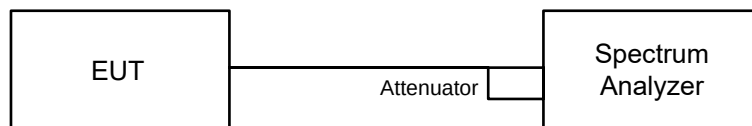
For specified measurement bandwidth 500 kHz:

Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- 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 $\text{BWCF} = 10\log(500 \text{ kHz}/300 \text{ kHz})$
- Sweep points $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

6.4 6 dB Bandwidth

6.4.1 Test Setup

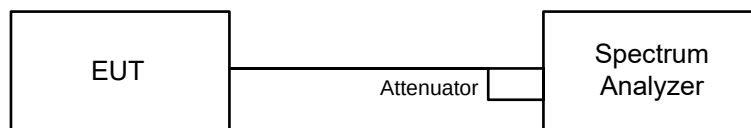


6.4.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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.

6.5 Occupied Bandwidth

6.5.1 Test Setup

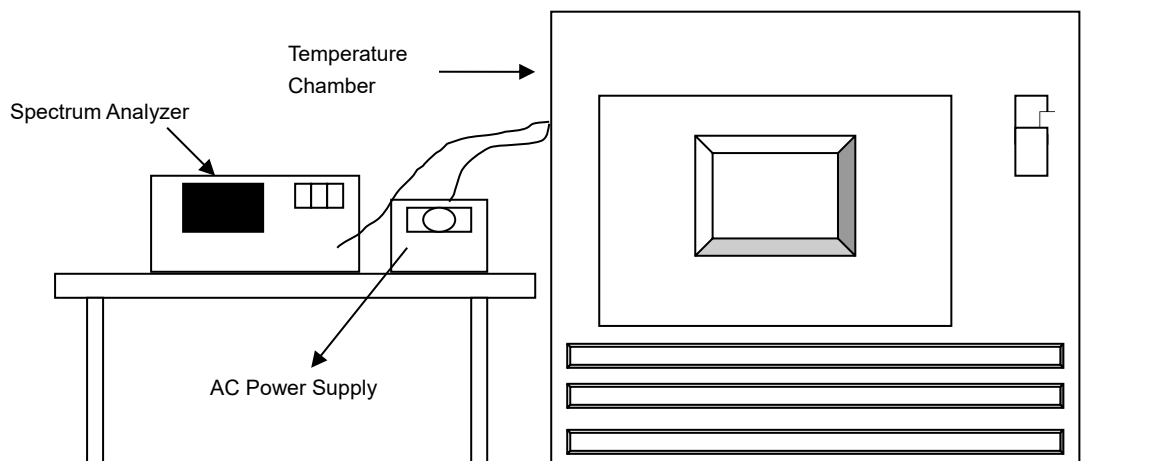


6.5.2 Test Procedure

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.

6.6 Frequency Stability

6.6.1 Test Setup

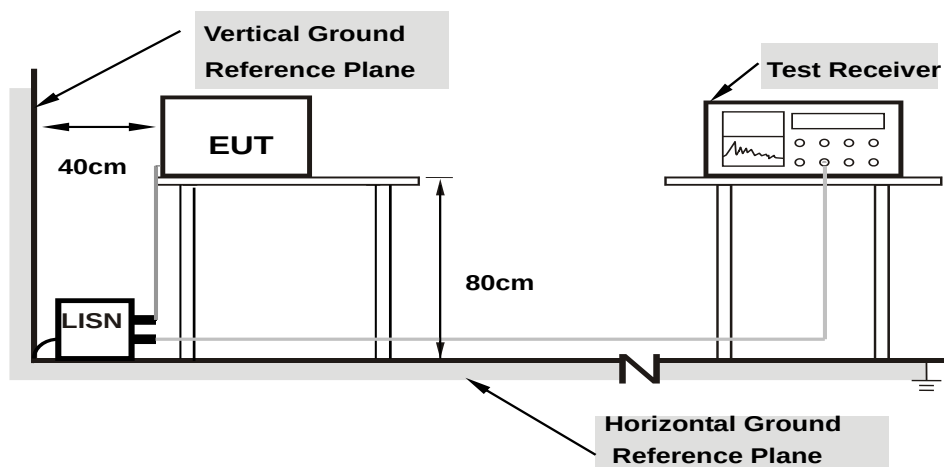


6.6.2 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- 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.

6.7 AC Power Conducted Emissions

6.7.1 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).

6.7.2 Test Procedure

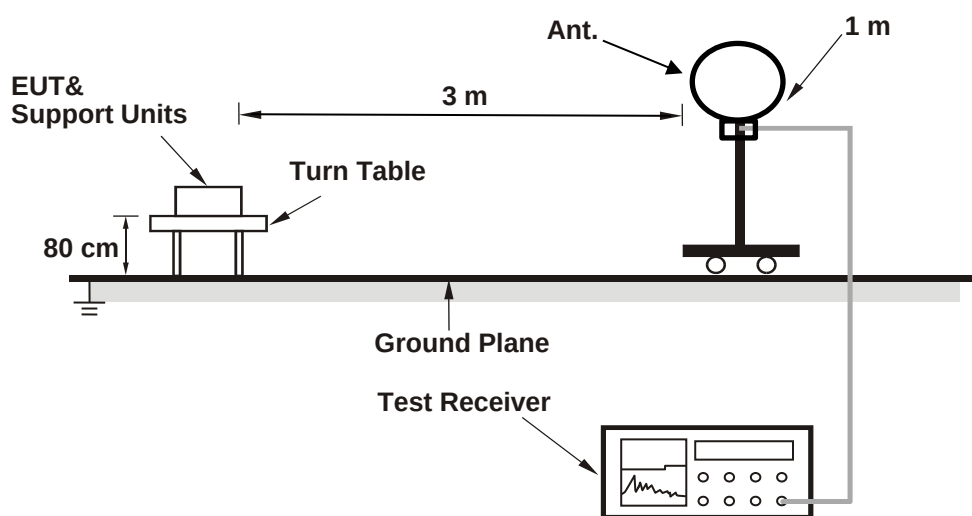
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

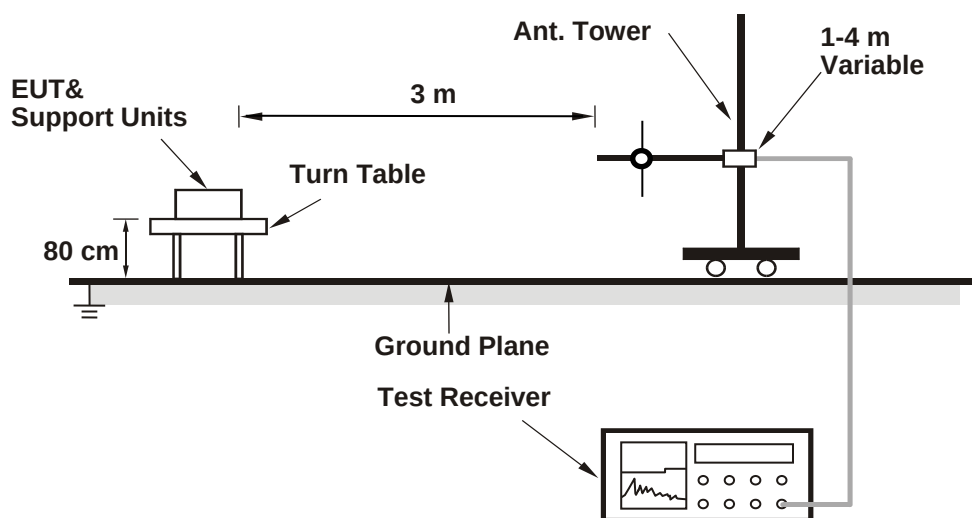
6.8 Unwanted Emissions below 1 GHz

6.8.1 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).

6.8.2 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

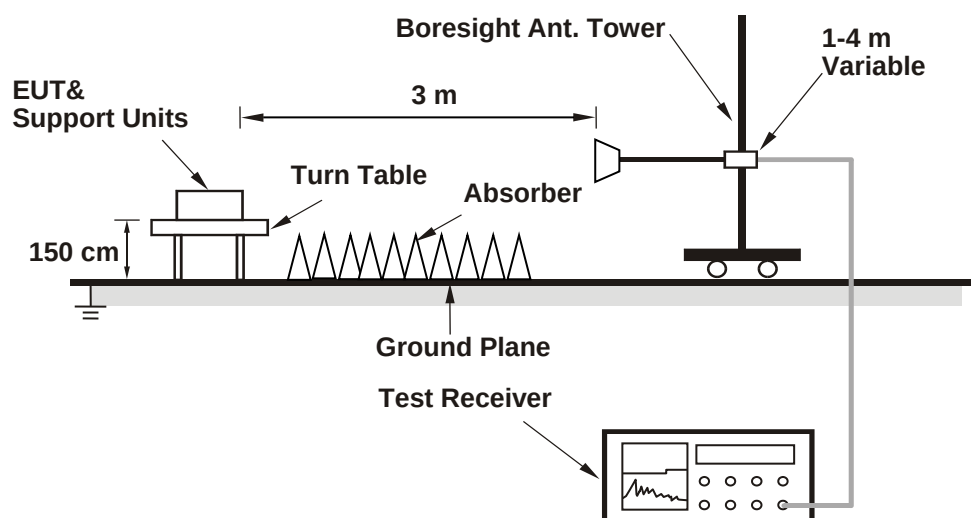
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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(QP) detect function, Average(AV) detect function, Peak(PK) 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), Average detection (AV), Peak detection (PK) at frequency (30MHz to 1 GHz).
2. All modes of operation were investigated and the worst-case emissions are reported.

6.9 Unwanted Emissions above 1 GHz

6.9.1 Test Setup



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

6.9.2 Test Procedure

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

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

7 Test Results of Test Item

7.1 26 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.94	21.87	21.83	21.83
60	5300	21.86	21.85	21.97	21.95
64	5320	25.48	23.17	26.46	23.27
100	5500	23.83	22.55	25.28	23.32
116	5580	21.93	21.75	21.80	21.83
140	5700	21.90	21.82	21.98	21.75
144 (U-NII-2C)	5720	16.01	15.96	16.00	15.94
144 (U-NII-3)	5720	5.91	6.00	5.89	5.87

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.83	24.39 > 24
60	5300	21.85	24.39 > 24
64	5320	23.17	24.64 > 24
100	5500	22.55	24.53 > 24
116	5580	21.75	24.37 > 24
140	5700	21.75	24.37 > 24
144 (U-NII-2C)	5720	15.94	23.02 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ax (HE20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	21.99	22.07	21.86	21.97
60	5300	22.13	21.93	21.84	21.95
64	5320	26.17	26.07	27.51	28.20
100	5500	23.67	26.46	24.36	26.20
116	5580	22.03	22.08	22.14	21.95
140	5700	21.93	22.08	22.05	22.08
144 (U-NII-2C)	5720	16.10	16.12	16.09	16.07
144 (U-NII-3)	5720	5.99	6.05	6.00	6.02

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	21.86	24.39 > 24
60	5300	21.84	24.39 > 24
64	5320	26.07	25.16 > 24
100	5500	23.67	24.74 > 24
116	5580	21.95	24.41 > 24
140	5700	21.93	24.41 > 24
144 (U-NII-2C)	5720	16.07	23.06 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ax (HE40)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	42.10	41.93	41.87	41.89
62	5310	44.25	50.67	50.65	43.40
102	5510	43.93	50.13	50.19	44.23
110	5550	41.95	41.81	41.68	41.81
134	5670	42.03	41.80	42.00	41.82
142 (U-NII-2C)	5710	36.08	36.02	36.22	35.96
142 (U-NII-3)	5710	5.94	5.94	5.83	5.76

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	41.87	27.21 > 24
62	5310	43.40	27.37 > 24
102	5510	43.93	27.42 > 24
110	5550	41.68	27.19 > 24
134	5670	41.80	27.21 > 24
142 (U-NII-2C)	5710	35.96	26.55 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11ax (HE80)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	87.79	87.56	93.41	85.40
106	5530	94.07	85.67	86.32	86.80
122	5610	82.97	82.80	82.71	83.26
138 (U-NII-2C)	5690	76.76	76.63	76.63	76.85
138 (U-NII-3)	5690	6.59	6.50	6.34	6.73

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	85.40	30.31 > 24
106	5530	85.67	30.32 > 24
122	5610	82.71	30.17 > 24
138 (U-NII-2C)	5690	76.63	29.84 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

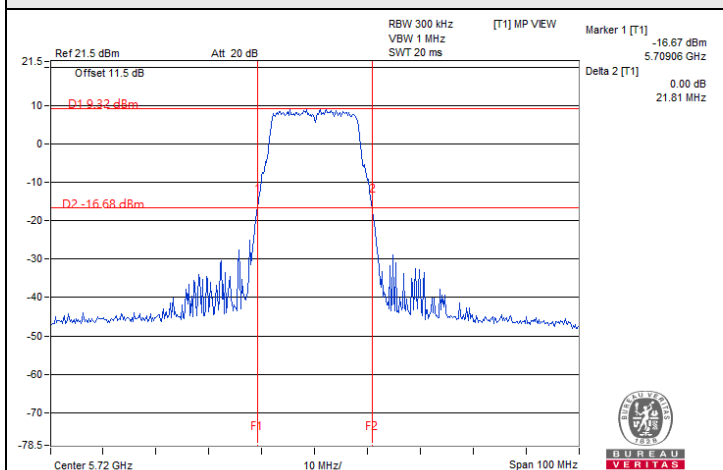
802.11ax (HE160)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
50 (U-NII-1)	5250	84.02	84.35	83.80	84.10
50 (U-NII-2A)	5250	84.60	84.54	84.75	84.54
114	5570	168.55	169.59	168.63	168.65

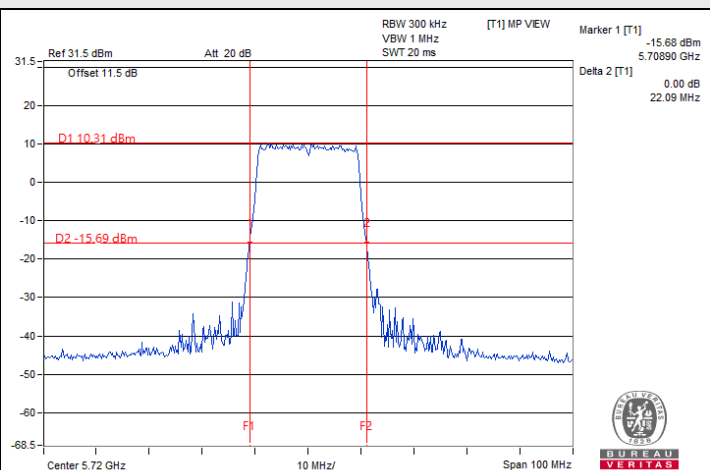
Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	84.54	30.27 > 24
114	5570	168.55	33.26 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

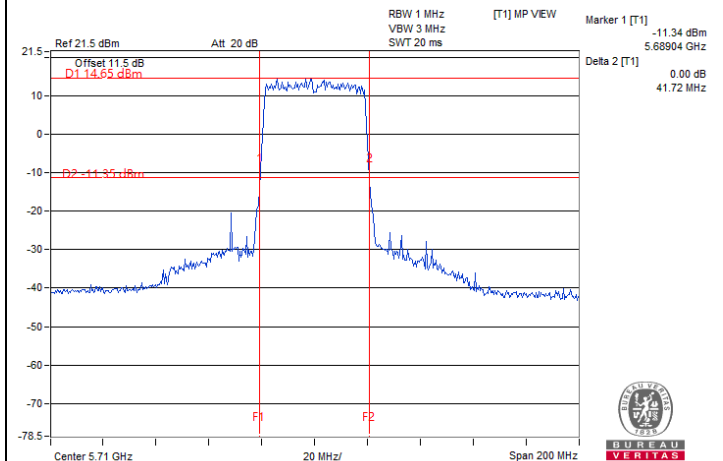
Spectrum Plot of Minimum Value



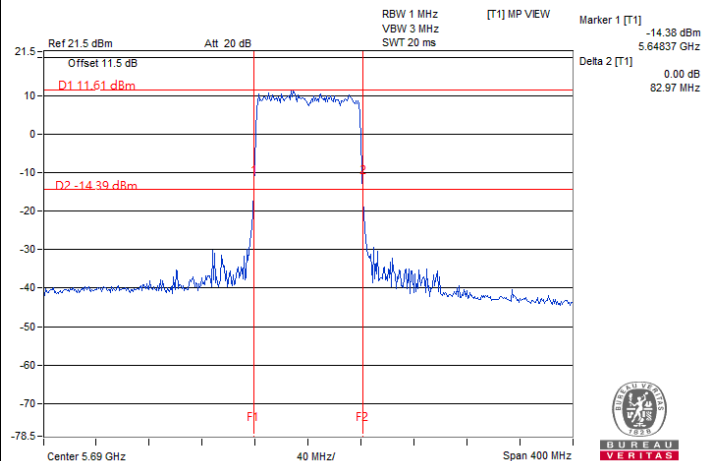
802.11a / Chain 3 : CH 144 (U-NII-3)



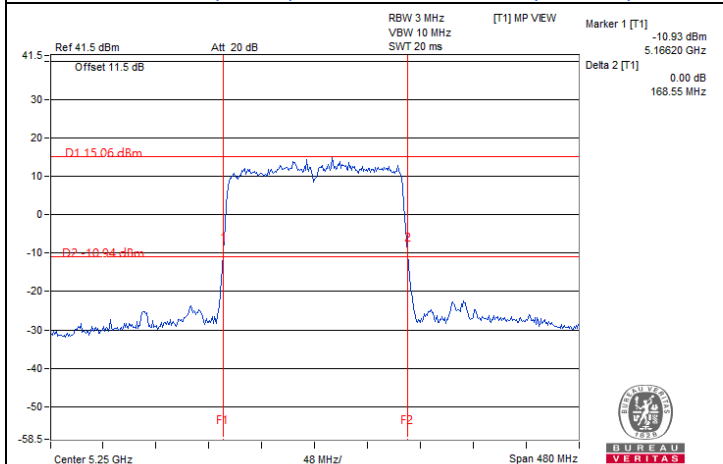
802.11ax (HE20) / Chain 0 : CH 144 (U-NII-3)



802.11ax (HE40) / Chain 3 : CH 142 (U-NII-3)



802.11ax (HE80) / Chain 2 : CH 138 (U-NII-3)



802.11ax (HE160) / Chain 2 : CH 50 (U-NII-1)

Notes:

1. For U-NII-2C straddle channel = 5725 MHz - Marker 1
2. For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz
3. For U-NII-1 straddle channel = 5250 MHz - Marker 1
4. For U-NII-2A straddle channel = Marker 1 + Delta 2 - 5250 MHz

7.2 RF Output Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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802.11a

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				
52	5260	17.45	17.37	17.81	17.53	227.185	23.56	24	Pass
60	5300	17.37	17.11	17.78	17.65	224.17	23.51	24	Pass
64	5320	17.12	17.23	17.96	17.52	223.378	23.49	24	Pass
100	5500	17.78	17.52	17.53	17.66	231.441	23.64	24	Pass
116	5580	17.68	17.32	17.43	17.58	225.179	23.53	24	Pass
140	5700	17.96	17.67	17.78	17.52	237.469	23.76	24	Pass
*144 (U-NII-2C)	5720	16.46	15.38	16.42	16.46	166.885	22.22	23.02	Pass
*144 (U-NII-3)	5720	10.15	9.08	10.12	10.18	39.146	15.93	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the directional gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the directional gain is 2.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) 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				
52	5260	17.38	17.44	17.78	17.11	221.548	23.45	24	Pass
60	5300	17.42	17.45	17.72	17.35	224.279	23.51	24	Pass
64	5320	17.35	17.05	17.82	17.08	216.609	23.36	24	Pass
100	5500	17.91	17.61	17.64	17.11	228.959	23.60	24	Pass
116	5580	17.86	17.59	17.44	17.05	224.667	23.52	24	Pass
140	5700	16.91	16.82	17.22	17.08	200.948	23.03	24	Pass
*144 (U-NII-2C)	5720	16.00	15.48	15.90	15.75	151.617	21.81	23.06	Pass
*144 (U-NII-3)	5720	10.68	10.18	10.62	10.52	44.925	16.52	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the directional gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the directional gain is 2.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40) 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				
54	5270	17.61	17.38	17.67	17.95	233.231	23.68	24	Pass
62	5310	17.98	17.49	17.89	18.06	244.402	23.88	24	Pass
102	5510	18.13	17.69	17.24	17.26	229.939	23.62	24	Pass
110	5550	18.05	17.46	17.16	17.69	230.293	23.62	24	Pass
134	5670	18.04	17.62	17.25	17.22	227.301	23.57	24	Pass
*142 (U-NII-2C)	5710	16.90	16.75	16.60	16.76	189.426	22.77	24	Pass
*142 (U-NII-3)	5710	7.08	7.01	6.85	7.02	20.005	13.01	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 2.81 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				
52	5260	17.42	17.47	17.82	17.22	224.312	23.51	24	Pass
60	5300	17.48	17.49	17.77	17.49	228.027	23.58	24	Pass
64	5320	17.38	17.08	17.89	17.12	218.793	23.40	24	Pass
100	5500	17.94	17.66	17.68	17.23	232.033	23.66	24	Pass
116	5580	17.92	17.62	17.47	17.11	227.005	23.56	24	Pass
140	5700	16.95	16.88	17.29	17.12	203.4	23.08	24	Pass
*144 (U-NII-2C)	5720	16.03	15.52	15.92	15.78	152.66	21.84	23.06	Pass
*144 (U-NII-3)	5720	10.72	10.21	10.65	10.54	45.237	16.55	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the directional gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the directional gain is 2.81 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				
54	5270	17.64	17.41	17.78	17.98	235.942	23.73	24	Pass
62	5310	18.04	17.53	17.92	18.11	246.962	23.93	24	Pass
102	5510	18.19	17.75	17.28	17.29	232.52	23.66	24	Pass
110	5550	18.11	17.48	17.19	17.72	232.206	23.66	24	Pass
134	5670	18.08	17.68	17.29	17.24	229.429	23.61	24	Pass
*142 (U-NII-2C)	5710	16.95	16.81	16.64	16.82	191.734	22.83	24	Pass
*142 (U-NII-3)	5710	7.14	7.05	6.90	7.08	20.249	13.06	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 2.81 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				
58	5290	17.28	17.42	17.94	17.98	233.7	23.69	24	Pass
106	5530	18.03	17.69	17.48	17.72	237.414	23.76	24	Pass
122	5610	17.75	17.82	17.11	17.62	229.314	23.60	24	Pass
*138 (U-NII-2C)	5690	17.28	17.02	16.94	16.98	203.126	23.08	24	Pass
*138 (U-NII-3)	5690	3.79	3.60	3.57	3.54	9.219	9.65	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 2.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ac (VHT160) 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				
*50 (U-NII-1)	5250	14.50	14.12	13.85	14.30	105.188	20.22	30	Pass
*50 (U-NII-2A)	5250	14.96	14.70	14.50	14.86	119.648	20.78	24	Pass
114	5570	17.48	17.62	17.68	17.62	230.209	23.62	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 1.51 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 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				
52	5260	17.46	17.53	17.86	17.25	226.525	23.55	24	Pass
60	5300	17.54	17.56	17.82	17.52	230.799	23.63	24	Pass
64	5320	17.42	17.13	17.96	17.15	221.247	23.45	24	Pass
100	5500	18.01	17.72	17.74	17.31	235.654	23.72	24	Pass
116	5580	17.98	17.67	17.52	17.22	230.502	23.63	24	Pass
140	5700	17.02	16.91	17.34	17.18	205.881	23.14	24	Pass
*144 (U-NII-2C)	5720	16.07	15.56	15.96	15.81	153.985	21.87	23.06	Pass
*144 (U-NII-3)	5720	10.77	10.24	10.69	10.57	45.633	16.59	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the directional gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the directional gain is 2.81 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				
54	5270	17.68	17.45	17.82	18.02	238.125	23.77	24	Pass
62	5310	18.11	17.54	17.96	18.16	249.45	23.97	24	Pass
102	5510	18.23	17.77	17.34	17.32	234.52	23.70	24	Pass
110	5550	18.14	17.55	17.24	17.78	234.994	23.71	24	Pass
134	5670	18.11	17.75	17.32	17.27	231.565	23.65	24	Pass
*142 (U-NII-2C)	5710	16.97	16.85	16.69	16.86	193.386	22.86	24	Pass
*142 (U-NII-3)	5710	7.19	7.11	6.94	7.11	20.46	13.11	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 2.81 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				
58	5290	17.34	17.44	17.98	18.04	236.148	23.73	24	Pass
106	5530	18.11	17.72	17.54	17.76	240.328	23.81	24	Pass
122	5610	17.78	17.84	17.14	17.68	231.167	23.64	24	Pass
*138 (U-NII-2C)	5690	17.33	17.08	16.97	17.03	205.366	23.13	24	Pass
*138 (U-NII-3)	5690	3.84	3.65	3.61	3.58	9.315	9.69	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 2.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE160) 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				
*50 (U-NII-1)	5250	14.55	14.17	13.93	14.35	106.576	20.28	30	Pass
*50 (U-NII-2A)	5250	15.00	14.77	14.54	14.92	121.105	20.83	24	Pass
114	5570	17.51	17.68	17.71	17.67	232.477	23.66	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 1.51 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 2.03 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 2.62 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) 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				
52	5260	17.38	17.44	17.78	17.11	221.548	23.45	24	Pass
60	5300	17.42	17.45	17.72	17.35	224.279	23.51	24	Pass
64	5320	17.35	17.05	17.82	17.08	216.609	23.36	24	Pass
100	5500	17.91	17.61	17.64	17.11	228.959	23.60	23.99	Pass
116	5580	17.86	17.59	17.44	17.05	224.667	23.52	23.99	Pass
140	5700	16.91	16.82	17.22	17.08	200.948	23.03	23.99	Pass
*144 (U-NII-2C)	5720	16.00	15.48	15.90	15.75	151.617	21.81	23.05	Pass
*144 (U-NII-3)	5720	10.68	10.18	10.62	10.52	44.925	16.52	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

802.11n (HT40) 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				
54	5270	17.61	17.38	17.67	17.95	233.231	23.68	24	Pass
62	5310	17.98	17.49	17.89	18.06	244.402	23.88	24	Pass
102	5510	18.13	17.69	17.24	17.26	229.939	23.62	23.99	Pass
110	5550	18.05	17.46	17.16	17.69	230.293	23.62	23.99	Pass
134	5670	18.04	17.62	17.25	17.22	227.301	23.57	23.99	Pass
*142 (U-NII-2C)	5710	16.90	16.75	16.60	16.76	189.426	22.77	23.99	Pass
*142 (U-NII-3)	5710	7.08	7.01	6.85	7.02	20.005	13.01	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

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				
52	5260	17.42	17.47	17.82	17.22	224.312	23.51	24	Pass
60	5300	17.48	17.49	17.77	17.49	228.027	23.58	24	Pass
64	5320	17.38	17.08	17.89	17.12	218.793	23.40	24	Pass
100	5500	17.94	17.66	17.68	17.23	232.033	23.66	23.99	Pass
116	5580	17.92	17.62	17.47	17.11	227.005	23.56	23.99	Pass
140	5700	16.95	16.88	17.29	17.12	203.4	23.08	23.99	Pass
*144 (U-NII-2C)	5720	16.03	15.52	15.92	15.78	152.66	21.84	23.05	Pass
*144 (U-NII-3)	5720	10.72	10.21	10.65	10.54	45.237	16.55	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

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				
54	5270	17.64	17.41	17.78	17.98	235.942	23.73	24	Pass
62	5310	18.04	17.53	17.92	18.11	246.962	23.93	24	Pass
102	5510	18.19	17.75	17.28	17.29	232.52	23.66	23.99	Pass
110	5550	18.11	17.48	17.19	17.72	232.206	23.66	23.99	Pass
134	5670	18.08	17.68	17.29	17.24	229.429	23.61	23.99	Pass
*142 (U-NII-2C)	5710	16.95	16.81	16.64	16.82	191.734	22.83	23.99	Pass
*142 (U-NII-3)	5710	7.14	7.05	6.90	7.08	20.249	13.06	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

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				
58	5290	17.28	17.42	17.94	17.98	233.7	23.69	24	Pass
106	5530	18.03	17.69	17.48	17.72	237.414	23.76	23.99	Pass
122	5610	17.75	17.82	17.11	17.62	229.314	23.60	23.99	Pass
*138 (U-NII-2C)	5690	17.28	17.02	16.94	16.98	203.126	23.08	23.99	Pass
*138 (U-NII-3)	5690	3.79	3.60	3.57	3.54	9.219	9.65	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

802.11ac (VHT160) 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				
*50 (U-NII-1)	5250	14.50	14.12	13.85	14.30	105.188	20.22	30	Pass
*50 (U-NII-2A)	5250	14.96	14.70	14.50	14.86	119.648	20.78	24	Pass
114	5570	17.48	17.62	17.68	17.62	230.209	23.62	23.99	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-1, the directional gain is 5.6 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].

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				
52	5260	17.46	17.53	17.86	17.25	226.525	23.55	24	Pass
60	5300	17.54	17.56	17.82	17.52	230.799	23.63	24	Pass
64	5320	17.42	17.13	17.96	17.15	221.247	23.45	24	Pass
100	5500	18.01	17.72	17.74	17.31	235.654	23.72	23.99	Pass
116	5580	17.98	17.67	17.52	17.22	230.502	23.63	23.99	Pass
140	5700	17.02	16.91	17.34	17.18	205.881	23.14	23.99	Pass
*144 (U-NII-2C)	5720	16.07	15.56	15.96	15.81	153.985	21.87	23.05	Pass
*144 (U-NII-3)	5720	10.77	10.24	10.69	10.57	45.633	16.59	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

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				
54	5270	17.68	17.45	17.82	18.02	238.125	23.77	24	Pass
62	5310	18.11	17.54	17.96	18.16	249.45	23.97	24	Pass
102	5510	18.23	17.77	17.34	17.32	234.52	23.70	23.99	Pass
110	5550	18.14	17.55	17.24	17.78	234.994	23.71	23.99	Pass
134	5670	18.11	17.75	17.32	17.27	231.565	23.65	23.99	Pass
*142 (U-NII-2C)	5710	16.97	16.85	16.69	16.86	193.386	22.86	23.99	Pass
*142 (U-NII-3)	5710	7.19	7.11	6.94	7.11	20.46	13.11	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

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				
58	5290	17.34	17.44	17.98	18.04	236.148	23.73	24	Pass
106	5530	18.11	17.72	17.54	17.76	240.328	23.81	23.99	Pass
122	5610	17.78	17.84	17.14	17.68	231.167	23.64	23.99	Pass
*138 (U-NII-2C)	5690	17.33	17.08	16.97	17.03	205.366	23.13	23.99	Pass
*138 (U-NII-3)	5690	3.84	3.65	3.61	3.58	9.315	9.69	29.52	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].
- For U-NII-3, the directional gain is 6.48 dBi > 6 dBi, so the output power limit shall be reduced to 30-(6.48-6) = 29.52 dBm.

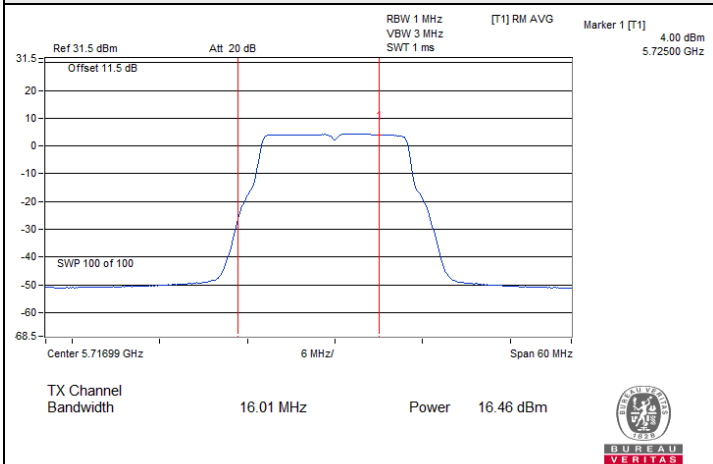
802.11ax (HE160) Beamforming

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				
*50 (U-NII-1)	5250	14.55	14.17	13.93	14.35	106.576	20.28	30	Pass
*50 (U-NII-2A)	5250	15.00	14.77	14.54	14.92	121.105	20.83	24	Pass
114	5570	17.51	17.68	17.71	17.67	232.477	23.66	23.99	Pass

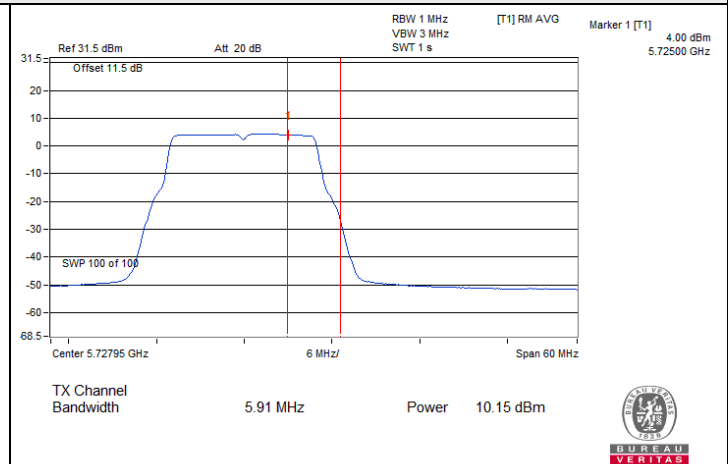
Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
- For U-NII-1, the directional gain is 5.6 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the output power limit shall be reduced to [Determined Conducted Power Limit-(6.01-6)].

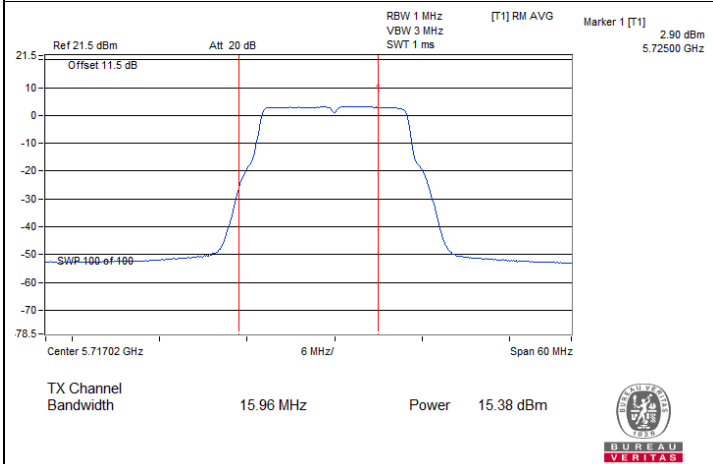
Spectrum Plot for channel straddling



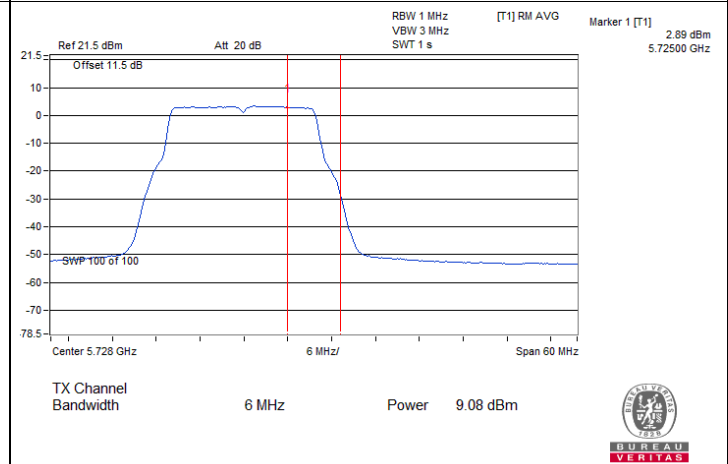
802.11a / Chain 0 : CH 144 (U-NII-2C)



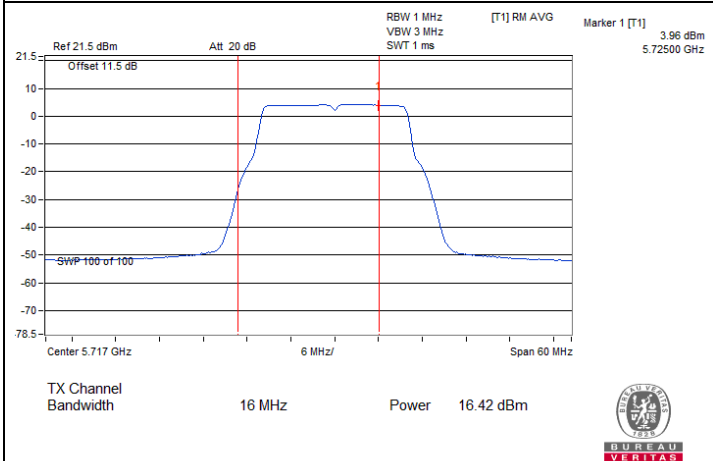
802.11a / Chain 0 : CH 144 (U-NII-3)



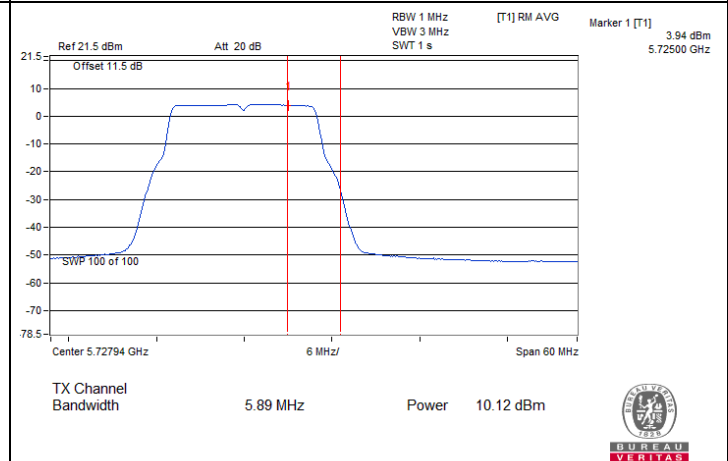
802.11a / Chain 1 : CH 144 (U-NII-2C)



802.11a / Chain 1 : CH 144 (U-NII-3)

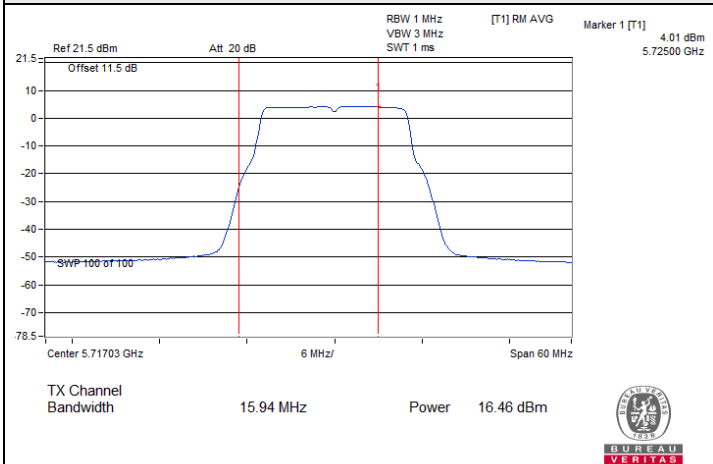


802.11a / Chain 2 : CH 144 (U-NII-2C)

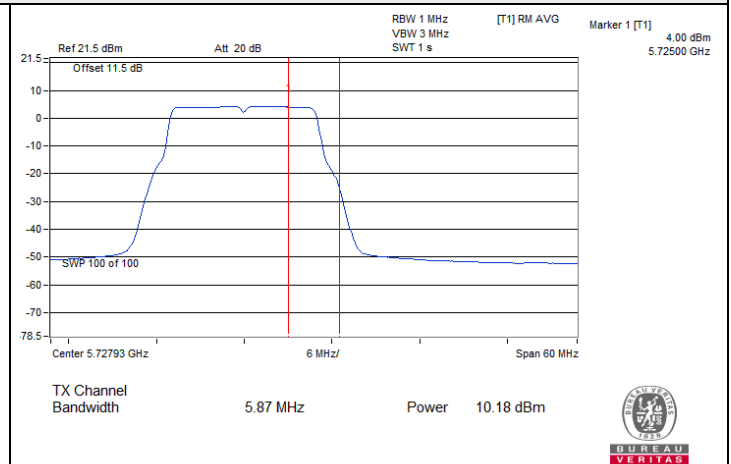


802.11a / Chain 2 : CH 144 (U-NII-3)

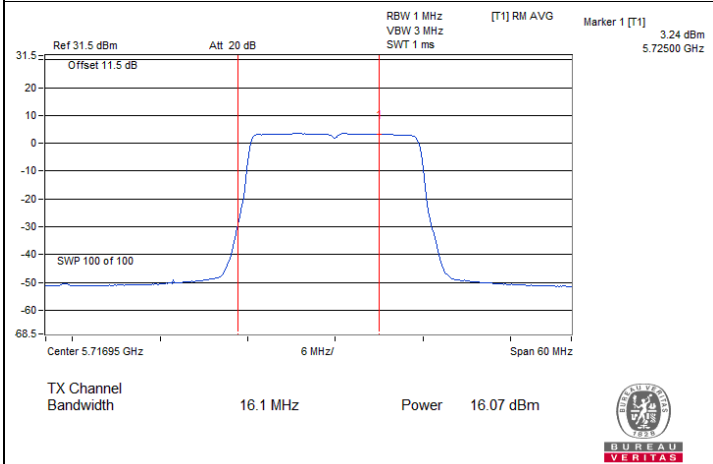
Spectrum Plot for channel straddling



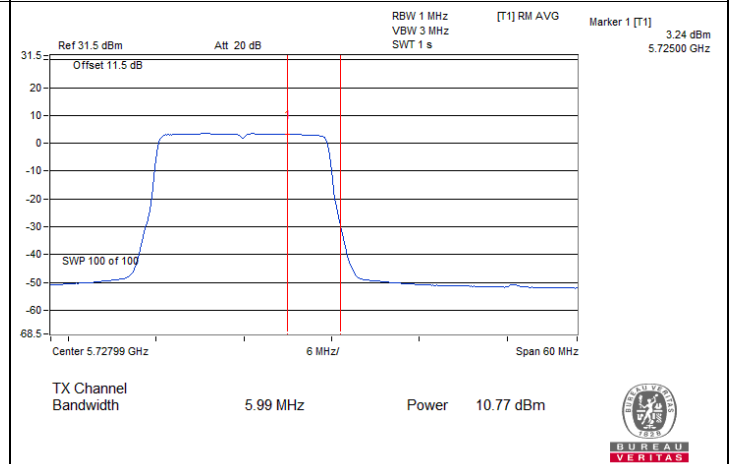
802.11a / Chain 3 : CH 144 (U-NII-2C)



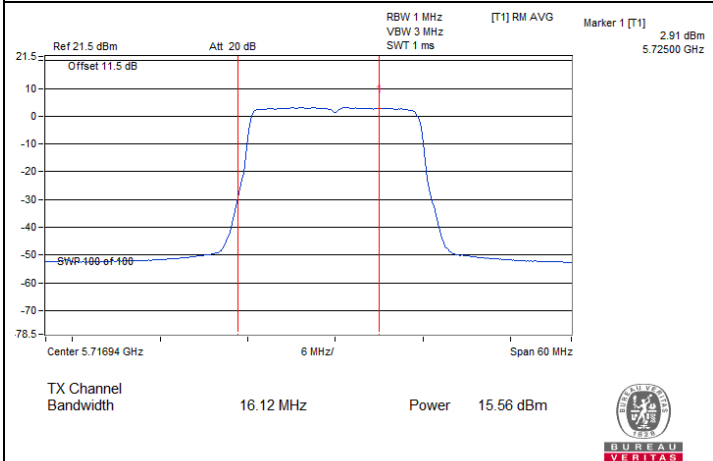
802.11a / Chain 3 : CH 144 (U-NII-3)



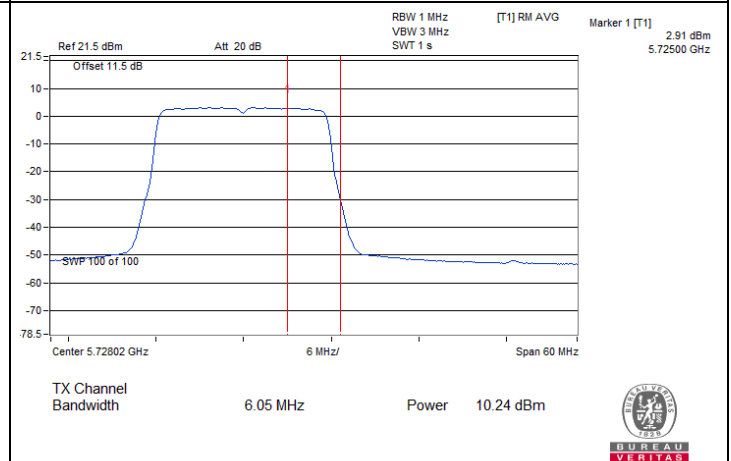
802.11ax (HE20) / Chain 0 : CH 144 (U-NII-2C)



802.11ax (HE20) / Chain 0 : CH 144 (U-NII-3)

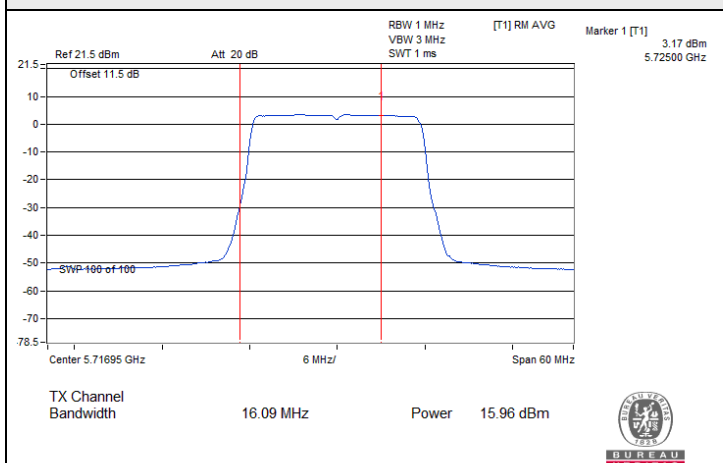


802.11ax (HE20) / Chain 1 : CH 144 (U-NII-2C)

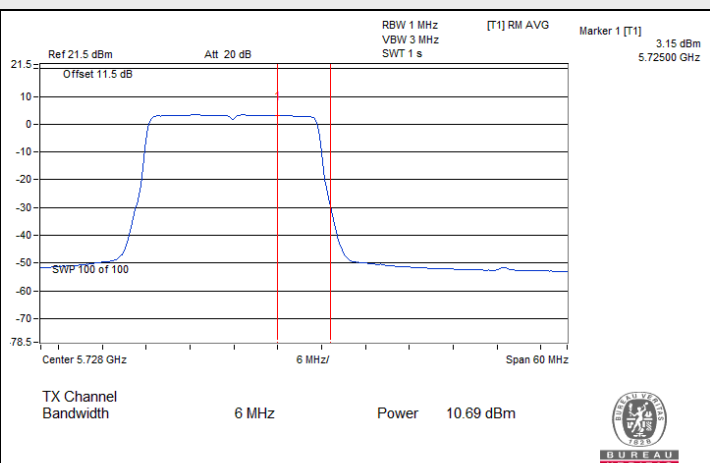


802.11ax (HE20) / Chain 1 : CH 144 (U-NII-3)

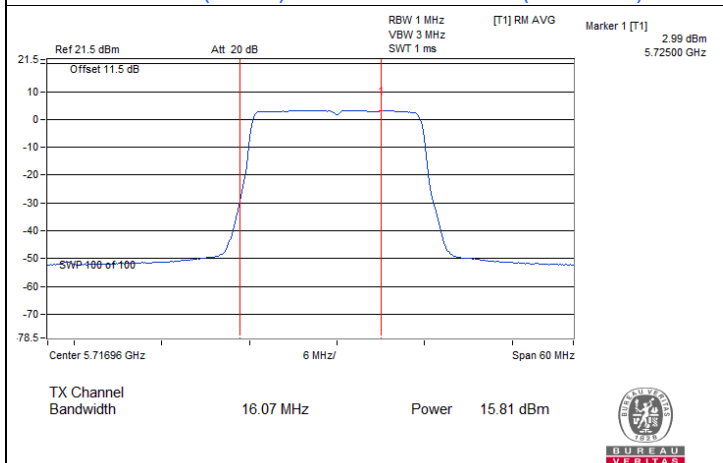
Spectrum Plot for channel straddling



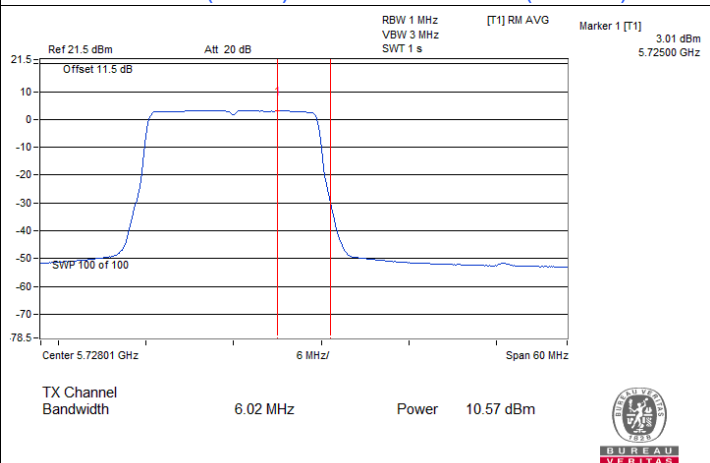
802.11ax (HE20) / Chain 2 : CH 144 (U-NII-2C)



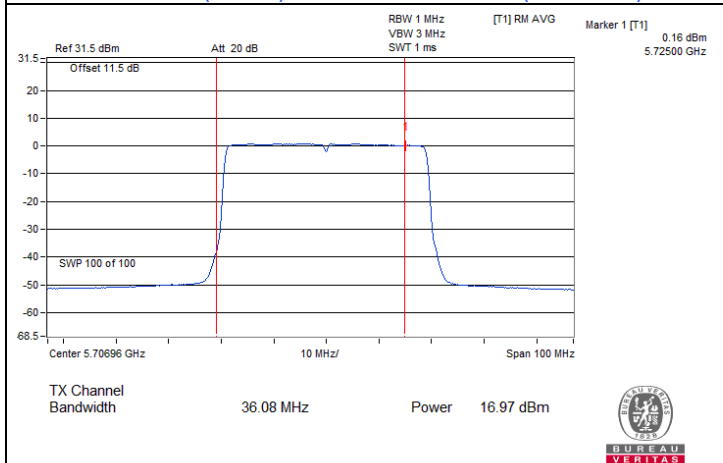
802.11ax (HE20) / Chain 2 : CH 144 (U-NII-3)



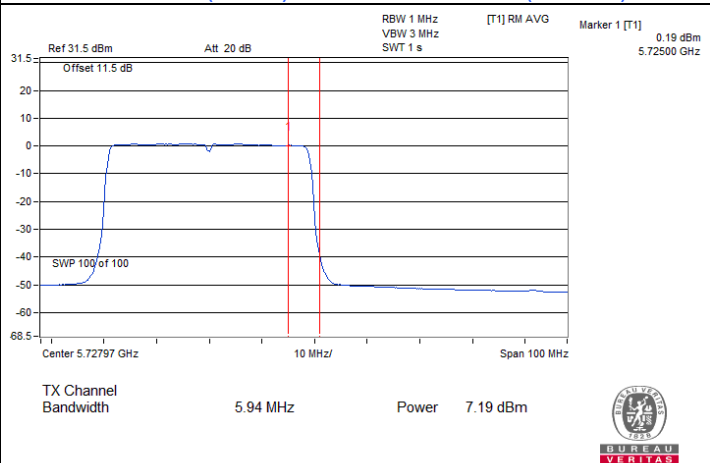
802.11ax (HE20) / Chain 3 : CH 144 (U-NII-2C)



802.11ax (HE20) / Chain 3 : CH 144 (U-NII-3)

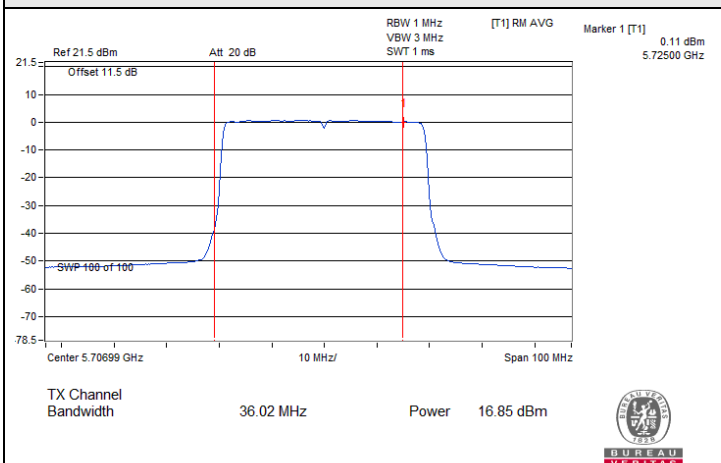


802.11ax (HE40) / Chain 0 : CH 142 (U-NII-2C)

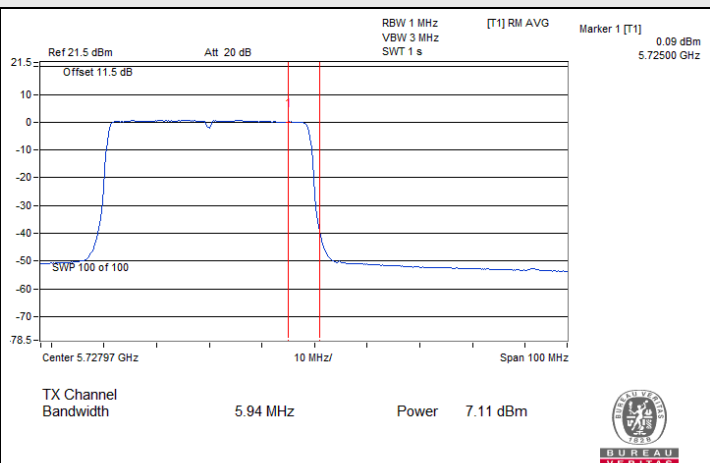


802.11ax (HE40) / Chain 0 : CH 142 (U-NII-3)

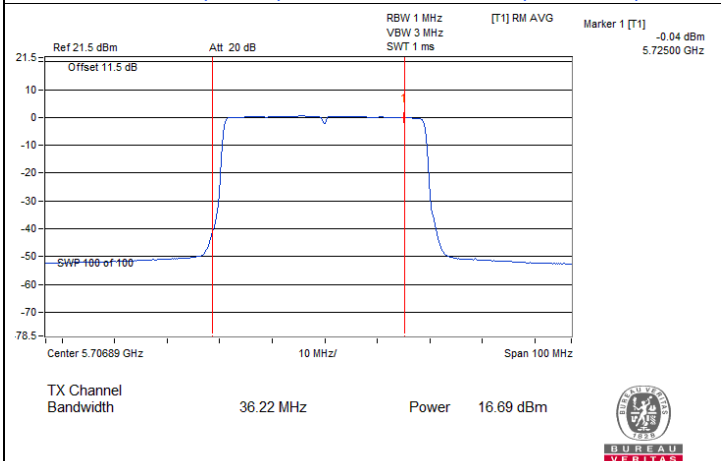
Spectrum Plot for channel straddling



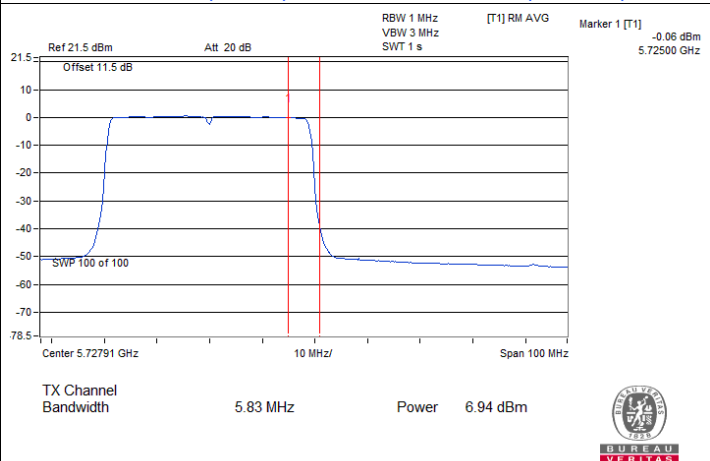
802.11ax (HE40) / Chain 1 : CH 142 (U-NII-2C)



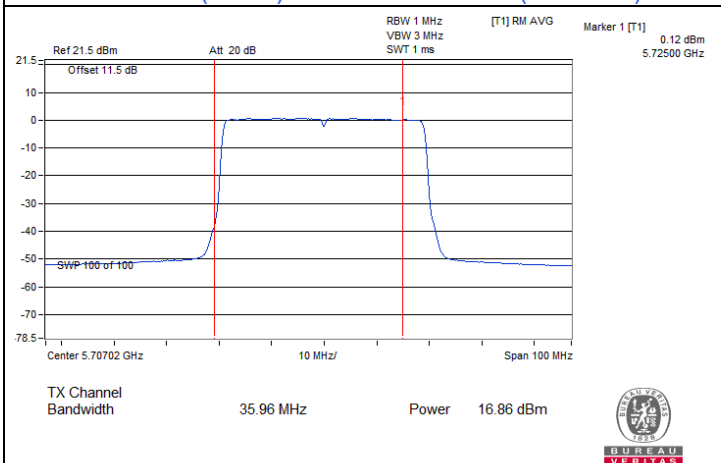
802.11ax (HE40) / Chain 1 : CH 142 (U-NII-3)



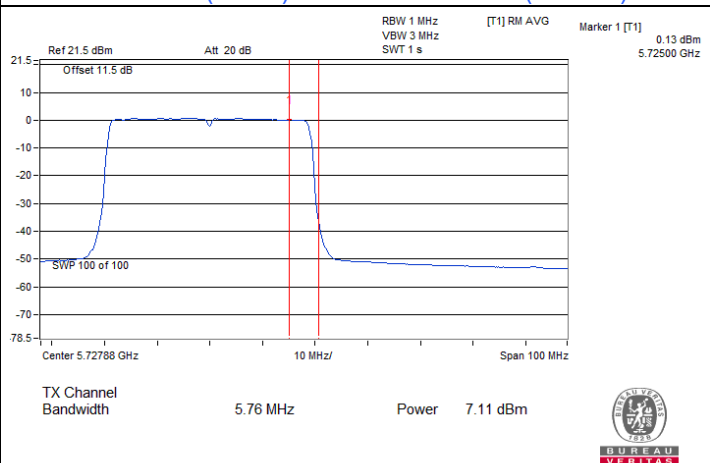
802.11ax (HE40) / Chain 2 : CH 142 (U-NII-2C)



802.11ax (HE40) / Chain 2 : CH 142 (U-NII-3)

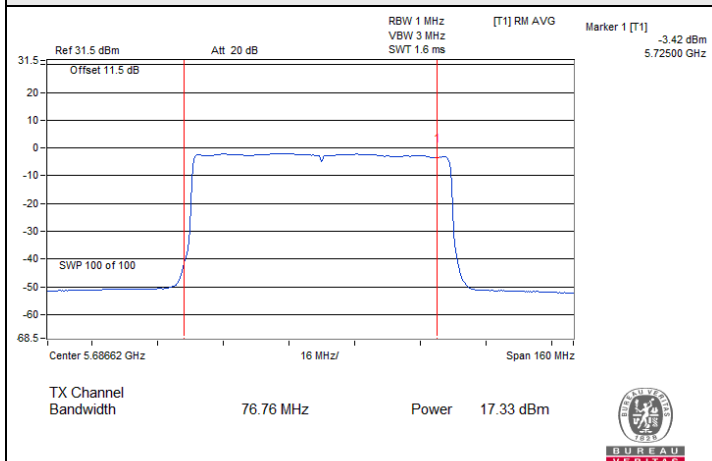


802.11ax (HE40) / Chain 3 : CH 142 (U-NII-2C)

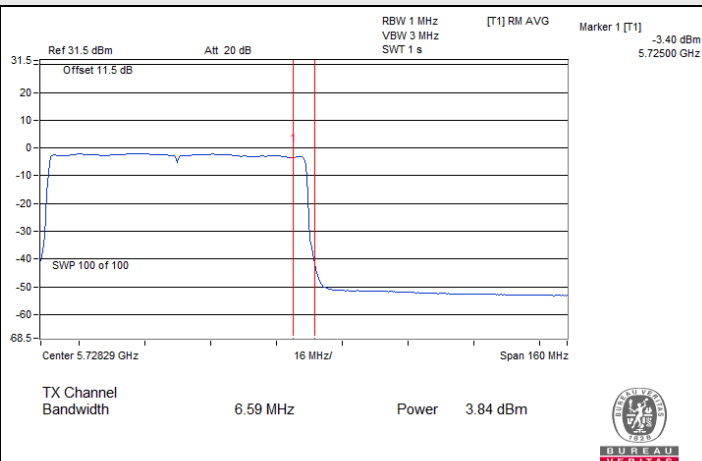


802.11ax (HE40) / Chain 3 : CH 142 (U-NII-3)

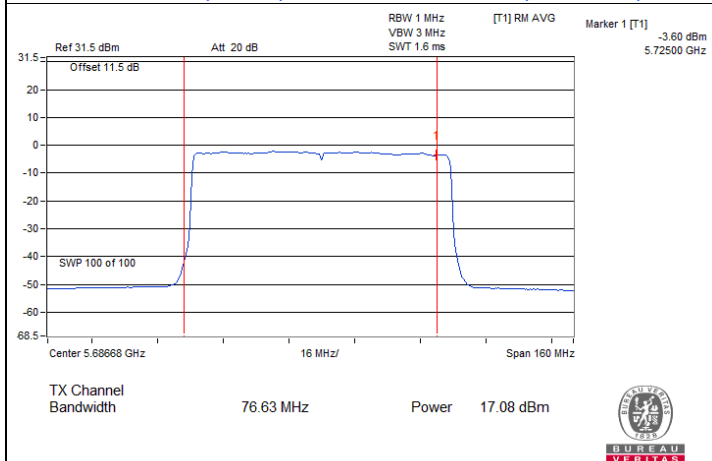
Spectrum Plot for channel straddling



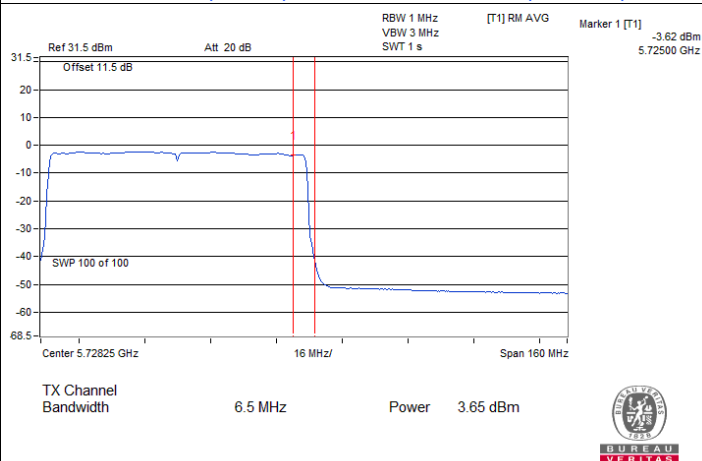
802.11ax (HE80) / Chain 0 : CH 138 (U-NII-2C)



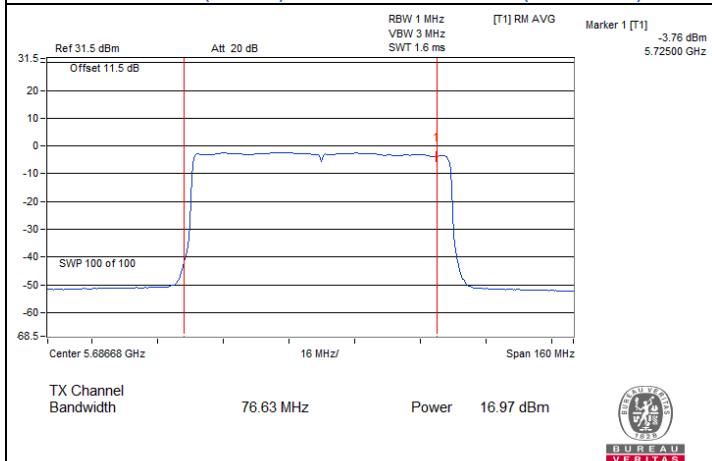
802.11ax (HE80) / Chain 0 : CH 138 (U-NII-3)



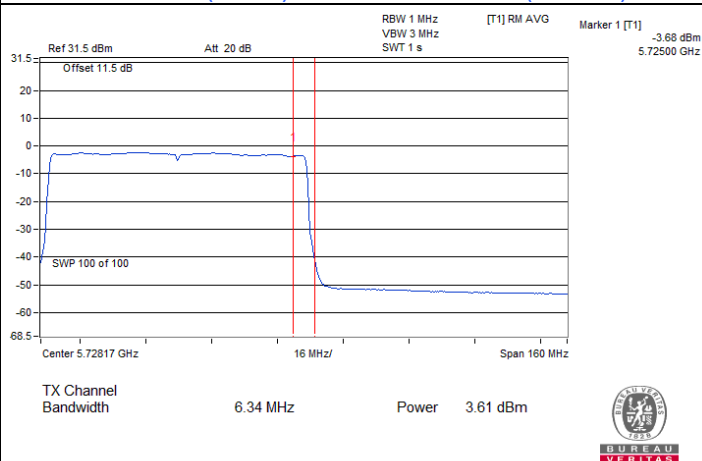
802.11ax (HE80) / Chain 1 : CH 138 (U-NII-2C)



802.11ax (HE80) / Chain 1 : CH 138 (U-NII-3)

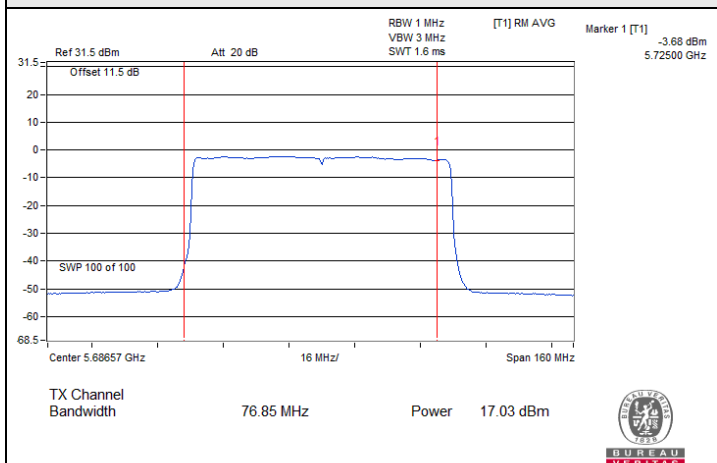


802.11ax (HE80) / Chain 2 : CH 138 (U-NII-2C)

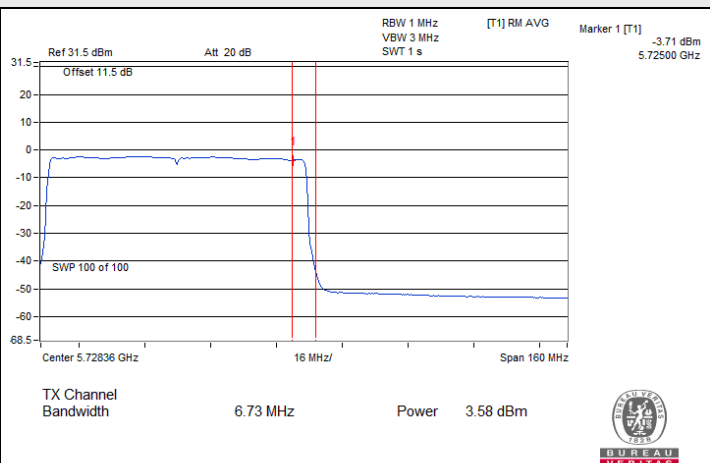


802.11ax (HE80) / Chain 2 : CH 138 (U-NII-3)

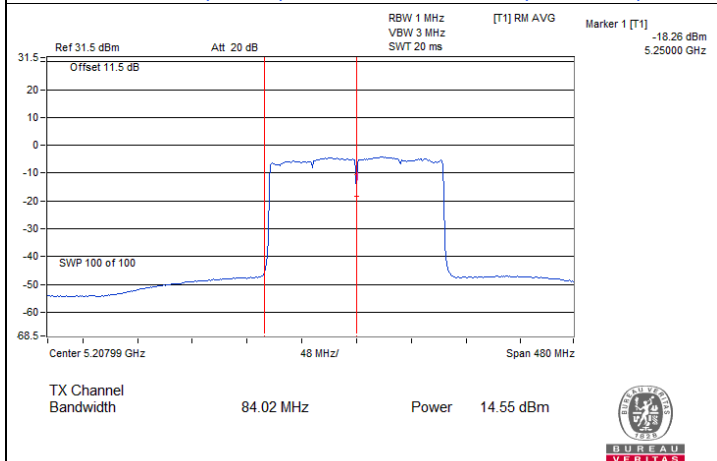
Spectrum Plot for channel straddling



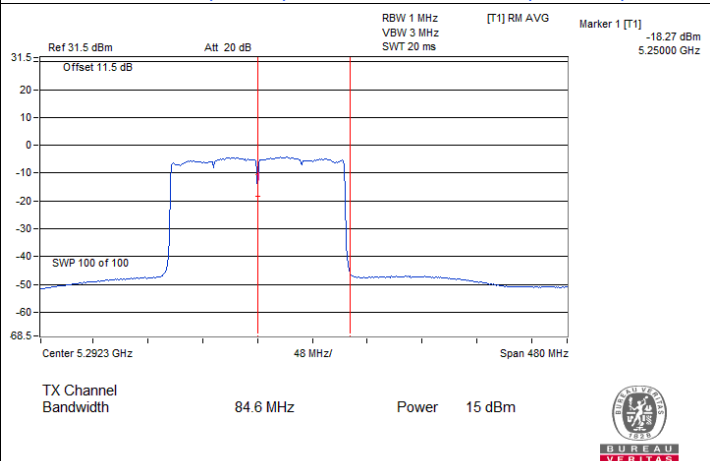
802.11ax (HE80) / Chain 3 : CH 138 (U-NII-2C)



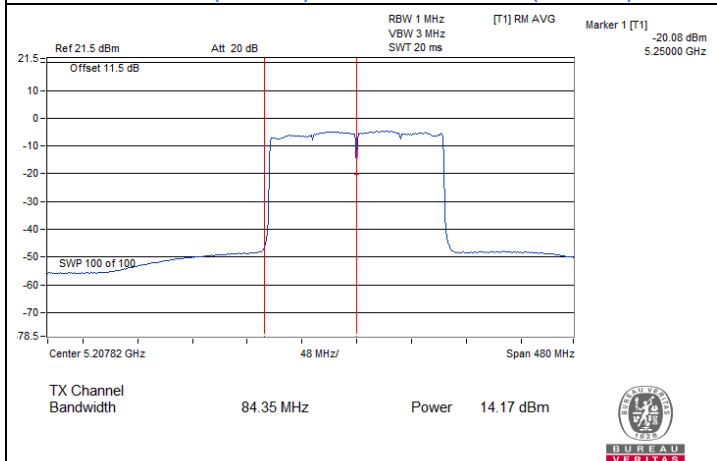
802.11ax (HE80) / Chain 3 : CH 138 (U-NII-3)



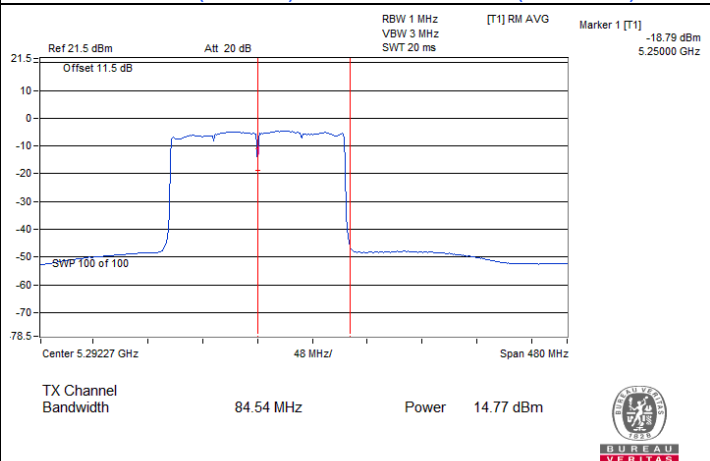
802.11ax (HE160) / Chain 0 : CH 50 (U-NII-1)



802.11ax (HE160) / Chain 0 : CH 50 (U-NII-2A)

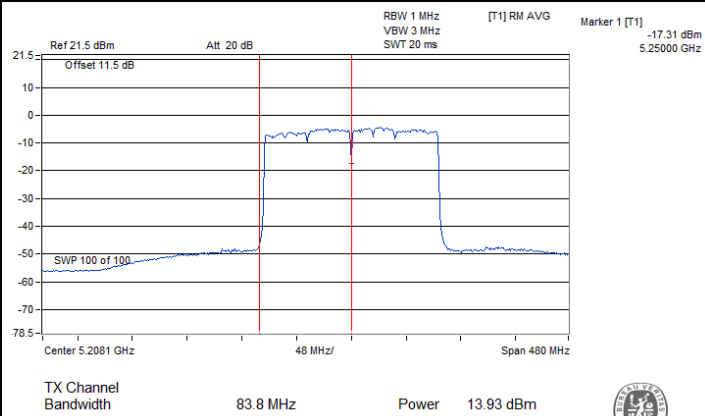


802.11ax (HE160) / Chain 1 : CH 50 (U-NII-1)

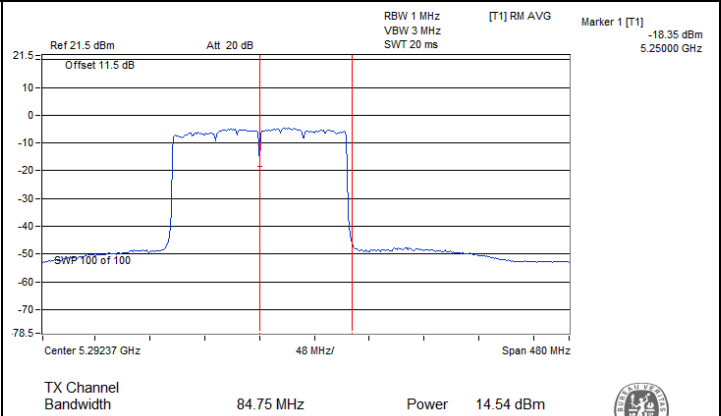


802.11ax (HE160) / Chain 1 : CH 50 (U-NII-2A)

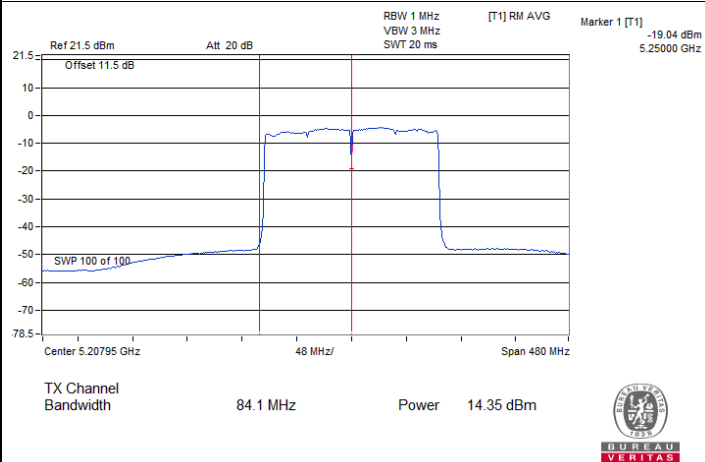
Spectrum Plot for channel straddling



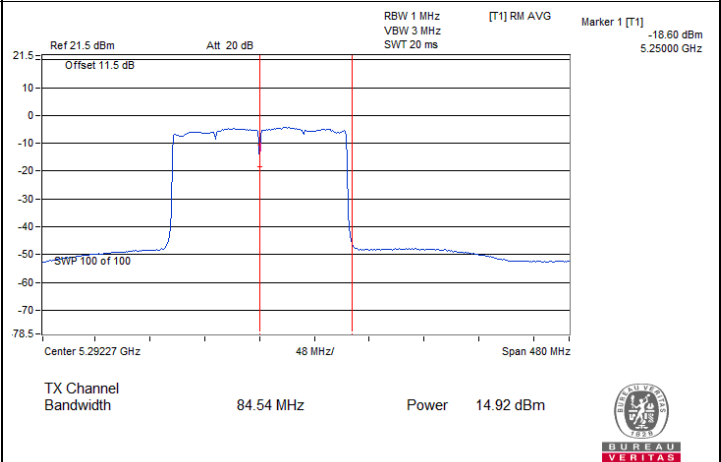
802.11ax (HE160) / Chain 2 : CH 50 (U-NII-1)



802.11ax (HE160) / Chain 2 : CH 50 (U-NII-2A)



802.11ax (HE160) / Chain 3 : CH 50 (U-NII-1)



802.11ax (HE160) / Chain 3 : CH 50 (U-NII-2A)

7.3 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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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			
52	5260	4.26	4.35	4.23	4.26	10.30	11	Pass
60	5300	4.24	4.40	4.35	4.38	10.36	11	Pass
64	5320	4.11	4.02	4.35	4.27	10.21	11	Pass
100	5500	4.53	4.49	4.39	4.42	10.48	10.99	Pass
116	5580	4.61	4.33	4.28	4.30	10.40	10.99	Pass
140	5700	4.85	4.59	4.54	4.31	10.60	10.99	Pass
144 (U-NII-2C)	5720	4.86	4.45	4.46	4.40	10.57	10.99	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-2A, the directional gain is 5.48 dBi < 6 dBi, so the power density limit shall not be reduced.
4. For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the power density limit shall be reduced to 11-(6.01-6) = 10.99 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			
52	5260	4.40	4.18	4.64	4.10	10.36	11	Pass
60	5300	4.23	4.42	4.70	4.28	10.43	11	Pass
64	5320	4.16	4.35	4.48	4.19	10.32	11	Pass
100	5500	4.90	4.63	4.84	4.29	10.69	10.99	Pass
116	5580	4.93	4.22	4.34	4.17	10.45	10.99	Pass
140	5700	3.93	3.55	4.49	4.41	10.13	10.99	Pass
144 (U-NII-2C)	5720	4.63	4.10	4.46	4.30	10.40	10.99	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-2A, the directional gain is 5.48 dBi < 6 dBi, so the power density limit shall not be reduced.
4. For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the power density limit shall be reduced to 11-(6.01-6) = 10.99 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			
54	5270	1.55	1.41	1.44	1.83	7.58	11	Pass
62	5310	2.01	1.41	1.60	2.12	7.82	11	Pass
102	5510	2.08	1.65	1.69	1.15	7.68	10.99	Pass
110	5550	2.11	1.40	1.09	1.62	7.59	10.99	Pass
134	5670	2.09	1.73	1.25	1.13	7.59	10.99	Pass
142 (U-NII-2C)	5710	1.88	1.59	1.28	1.19	7.51	10.99	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-2A, the directional gain is 5.48 dBi < 6 dBi, so the power density limit shall not be reduced.
4. For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the power density limit shall be reduced to 11-(6.01-6) = 10.99 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			
58	5290	-1.62	-1.63	-1.22	-1.22	4.60	11	Pass
106	5530	-0.86	-1.32	-1.73	-1.38	4.71	10.99	Pass
122	5610	-1.36	-1.23	-1.75	-1.66	4.53	10.99	Pass
138 (U-NII-2C)	5690	-1.53	-1.24	-1.91	-1.67	4.44	10.99	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-2A, the directional gain is 5.48 dBi < 6 dBi, so the power density limit shall not be reduced.
4. For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the power density limit shall be reduced to 11-(6.01-6) = 10.99 dBm/MHz.

802.11ax (HE160)

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			
50 (U-NII-1)	5250	-4.58	-4.83	-5.05	-4.57	1.27	17	Pass
50 (U-NII-2A)	5250	-4.34	-4.50	-4.70	-4.27	1.57	11	Pass
114	5570	-4.42	-4.72	-3.50	-4.49	1.76	10.99	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 5.6 dBi < 6dBi, so the power density limit shall not be reduced.
4. For U-NII-2A, the directional gain is 5.48 dBi < 6 dBi, so the power density limit shall not be reduced.
5. For U-NII-2C, the directional gain is 6.01 dBi > 6 dBi, so the power density limit shall be reduced to $11 - (6.01 - 6) = 10.99$ 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				
144 (U-NII-3)	5720	-4.34	-5.38	-4.43	-4.42	1.4	3.62	29.52	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 6.48 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (6.48 - 6) = 29.52$ dBm/500kHz.

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				
144 (U-NII-3)	5720	-5.95	-5.58	-5.91	-6.01	0.16	2.38	29.52	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 6.48 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (6.48 - 6) = 29.52$ dBm/500kHz.

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				
142 (U-NII-3)	5710	-8.81	-8.92	-9.07	-9.06	-2.94	-0.72	29.52	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 6.48 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (6.48 - 6) = 29.52$ dBm/500kHz.

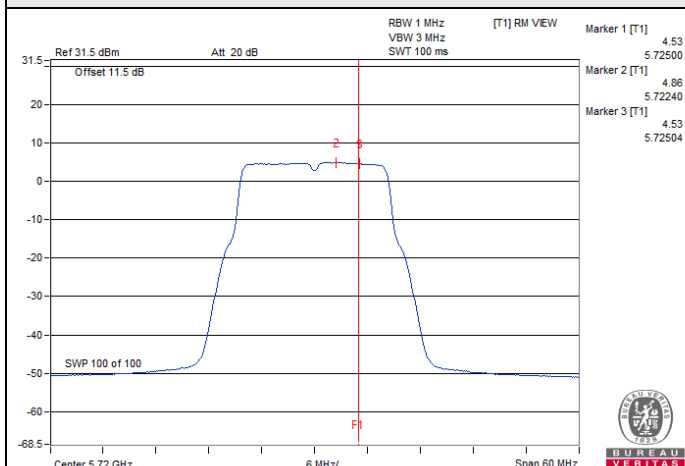
802.11ax (HE80)

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				
138 (U-NII-3)	5690	-12.55	-12.71	-12.64	-12.60	-6.6	-4.38	29.52	Pass

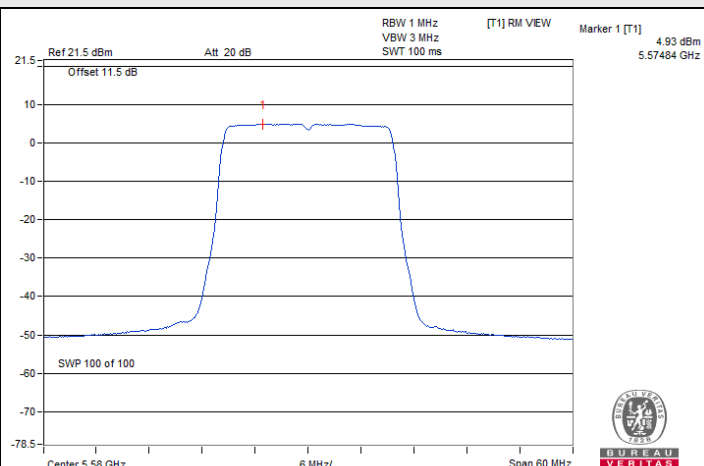
Notes:

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 6.48 dBi > 6 dBi, so the power density limit shall be reduced to $30 - (6.48 - 6) = 29.52$ dBm/500kHz.

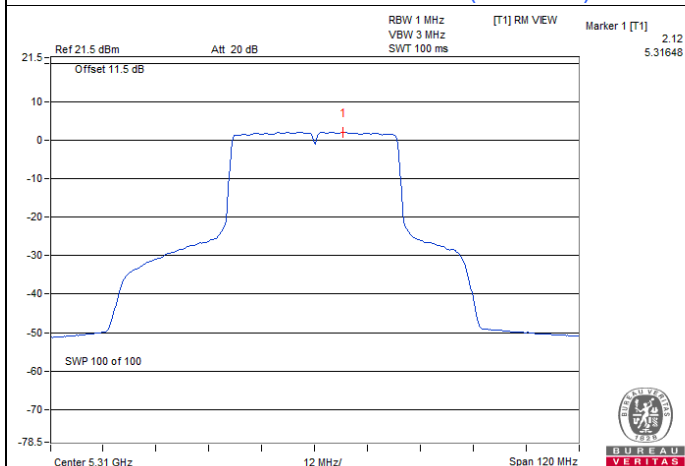
Spectrum Plot of Maximum Value



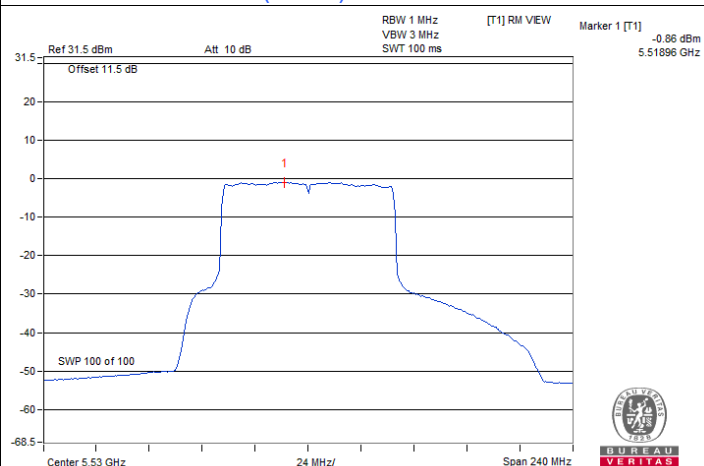
802.11a / Chain 0 : CH 144 (U-NII-2C)



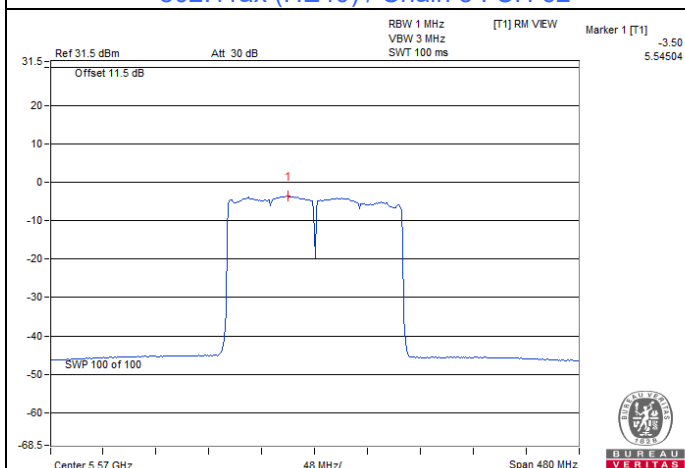
802.11ax (HE20) / Chain 0 : CH 116



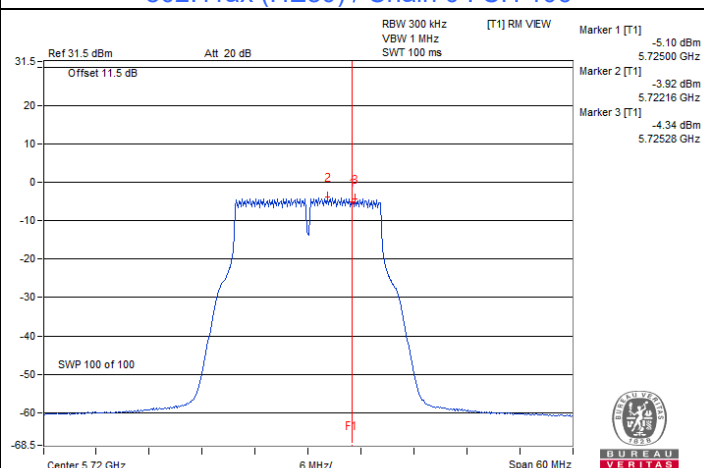
802.11ax (HE40) / Chain 3 : CH 62



802.11ax (HE80) / Chain 0 : CH 106

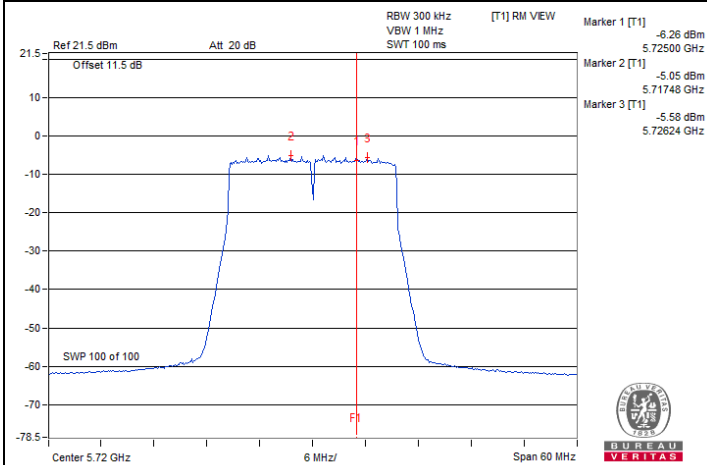


802.11ax (HE160) / Chain 2 : CH 114

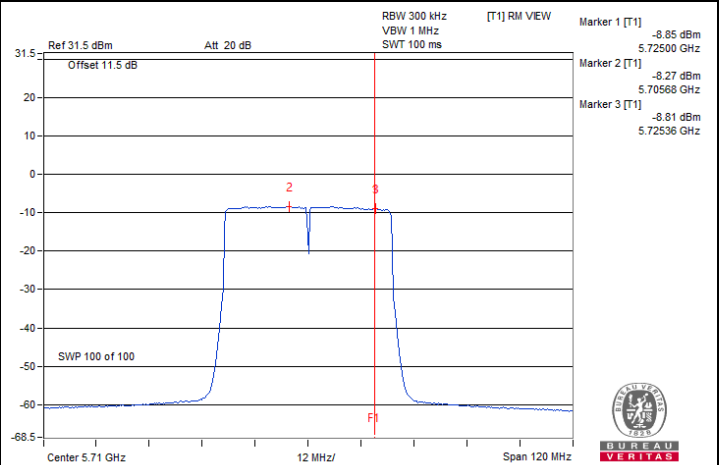


802.11a / Chain 0 : CH 144 (U-NII-3)

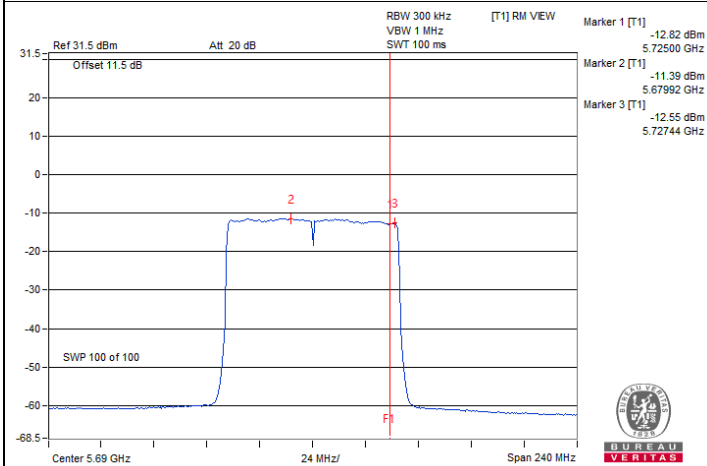
Spectrum Plot of Maximum Value



802.11ax (HE20) / Chain 1 : CH 144 (U-NII-3)



802.11ax (HE40) / Chain 0 : CH 142 (U-NII-3)



802.11ax (HE80) / Chain 0 : CH 138 (U-NII-3)

7.4 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
144 (U-NII-3)	5720	3.15	3.15	3.16	3.16	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		
144 (U-NII-3)	5720	4.45	4.44	4.48	4.49	0.5	Pass

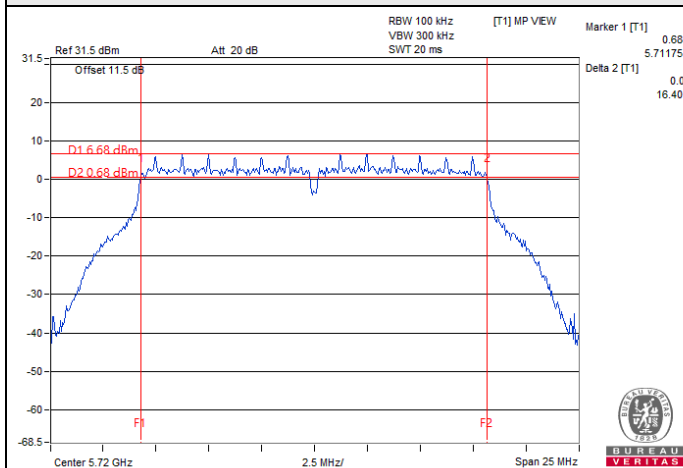
802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
142 (U-NII-3)	5710	3.97	3.85	3.91	3.87	0.5	Pass

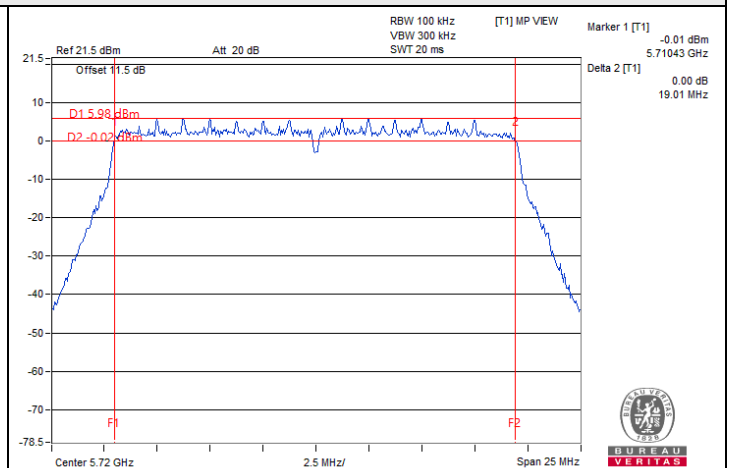
802.11ax (HE80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
138 (U-NII-3)	5690	3.65	3.94	4.02	3.82	0.5	Pass

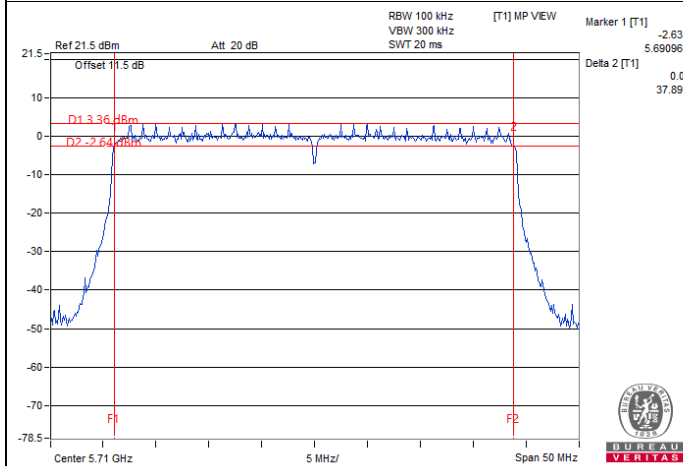
Spectrum Plot of Minimum Value



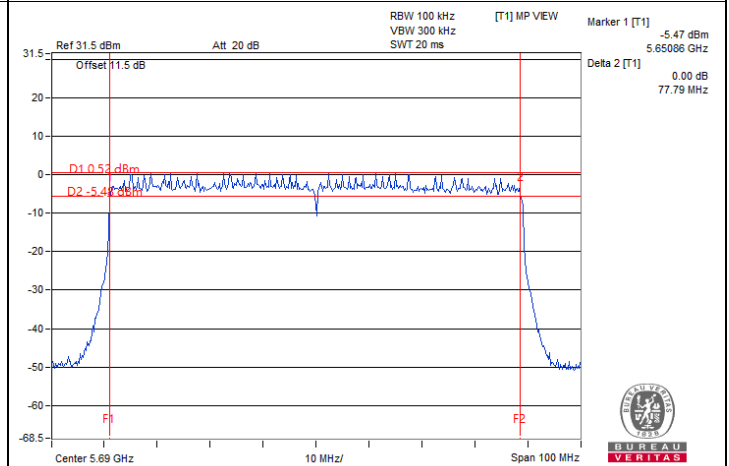
802.11a / Chain 0 : CH 144 (U-NII-3)



802.11ax (HE20) / Chain 1 : CH 144 (U-NII-3)



802.11ax (HE40) / Chain 1 : CH 142 (U-NII-3)



802.11ax (HE80) / Chain 0 : CH 138 (U-NII-3)

Note: For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz

7.5 Occupied Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.04	17.16	17.16	17.16
60	5300	17.04	17.04	17.04	17.16
64	5320	17.40	17.52	17.40	17.40
100	5500	17.40	17.16	17.40	17.28
116	5580	17.04	17.16	17.04	17.16
140	5700	17.16	17.16	17.16	17.16
144 (U-NII-2C)	5720	13.52	13.64	13.64	13.64
144 (U-NII-3)	5720	3.28	3.40	3.40	3.52

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	19.08	19.20	19.20	19.08
60	5300	19.08	19.20	19.20	19.08
64	5320	19.20	19.32	19.32	19.32
100	5500	19.20	19.32	19.32	19.32
116	5580	19.20	19.20	19.20	19.20
140	5700	19.20	19.20	19.20	19.20
144 (U-NII-2C)	5720	14.72	14.60	14.72	14.72
144 (U-NII-3)	5720	4.48	4.48	4.48	4.48

802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	38.16	38.16	38.16	38.16
62	5310	38.16	38.16	38.16	38.16
102	5510	38.16	38.16	38.40	38.16
110	5550	37.92	37.92	37.92	37.92
134	5670	38.16	38.16	37.92	37.92
142 (U-NII-2C)	5710	33.96	34.20	34.20	34.20
142 (U-NII-3)	5710	3.72	3.72	3.72	3.96

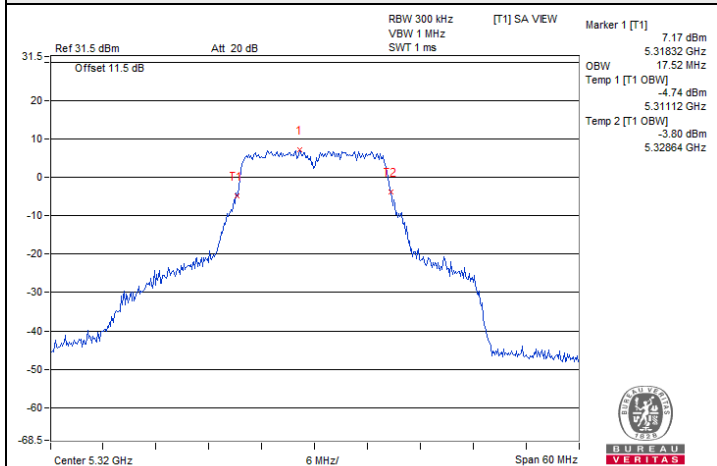
802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	77.28	77.28	77.28	77.28
106	5530	77.28	77.28	77.76	77.28
122	5610	77.28	77.28	77.28	77.28
138 (U-NII-2C)	5690	73.88	73.88	73.88	73.88
138 (U-NII-3)	5690	3.40	3.40	3.40	3.40

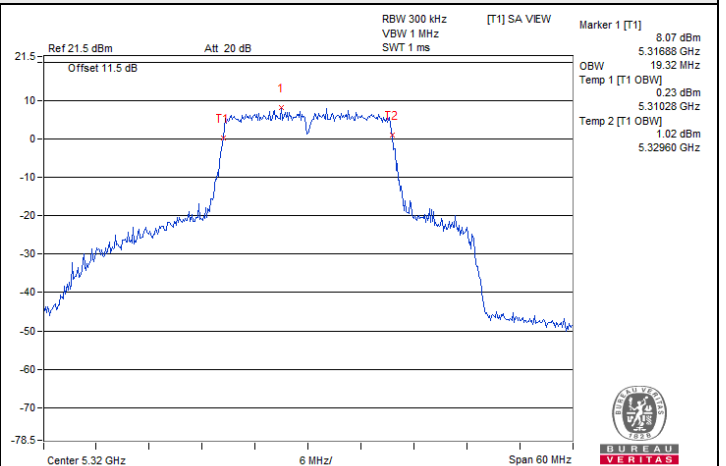
802.11ax (HE160)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
50 (U-NII-1)	5250	78.72	78.72	78.72	78.72
50 (U-NII-2A)	5250	77.76	77.76	77.76	78.72
114	5570	156.48	156.48	156.48	156.48

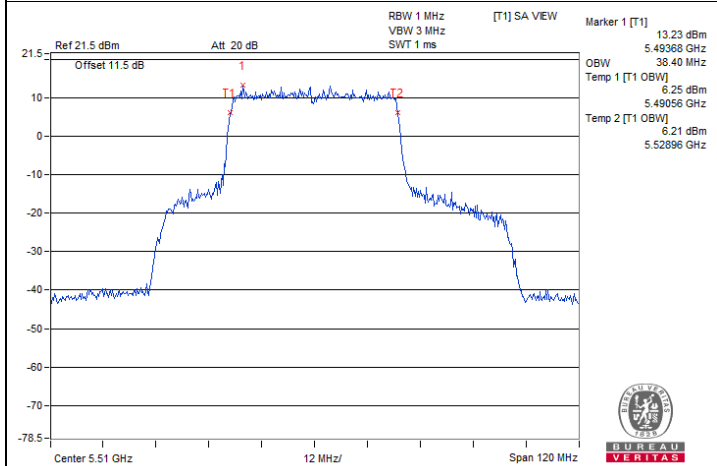
Spectrum Plot of Maximum Value



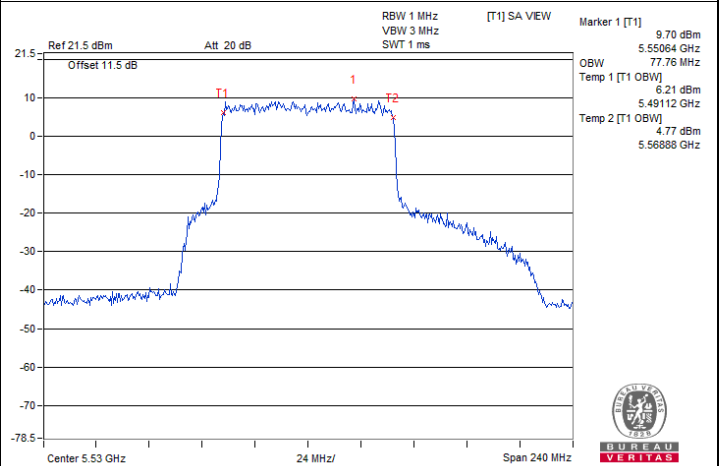
802.11a / Chain 1 : CH 64



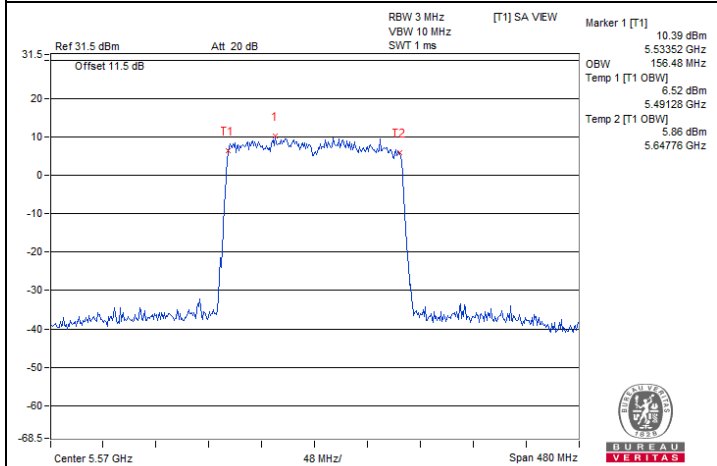
802.11ax (HE20) / Chain 1 : CH 64



802.11ax (HE40) / Chain 2 : CH 102



802.11ax (HE80) / Chain 2 : CH 106



802.11ax (HE160) / Chain 0 : CH 114

7.6 Frequency Stability

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	23°C, 67% RH	Tested By:	Chris Lin / Wayne Lin
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802.11a

Frequency Stability Versus Temperature									
Operating Frequency: 5260 MHz									
Temp. (°C)	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	5259.9802	Pass	5259.979	Pass	5259.9758	Pass	5259.9801	Pass
30	120	5260.0136	Pass	5260.0147	Pass	5260.0182	Pass	5260.0182	Pass
20	120	5260.0093	Pass	5260.012	Pass	5260.009	Pass	5260.0103	Pass
10	120	5260.0208	Pass	5260.0225	Pass	5260.0211	Pass	5260.0215	Pass
0	120	5259.9854	Pass	5259.9851	Pass	5259.9845	Pass	5259.9811	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5260 MHz									
Temp. (°C)	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	5260.0005	Pass	5260.0027	Pass	5259.9988	Pass	5259.9994	Pass
	120	5260.0093	Pass	5260.012	Pass	5260.009	Pass	5260.0103	Pass
	102	5260.0037	Pass	5260.004	Pass	5260.0055	Pass	5260.0025	Pass

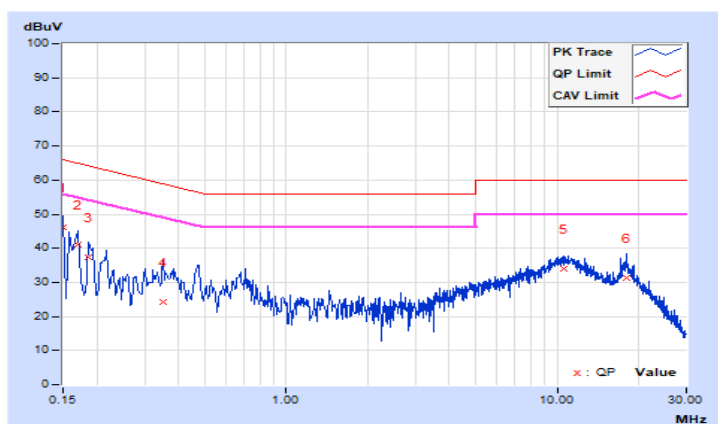
7.7 AC Power Conducted Emissions

RF Mode	802.11ax (HE40)	Channel	CH 62 : 5310 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	36.43	22.74	46.09	32.40	66.00	56.00	-19.91	-23.60
2	0.17000	9.68	31.46	16.80	41.14	26.48	64.96	54.96	-23.82	-28.48
3	0.18600	9.69	27.58	16.19	37.27	25.88	64.21	54.21	-26.94	-28.33
4	0.35000	9.77	14.41	5.05	24.18	14.82	58.96	48.96	-34.78	-34.14
5	10.61400	10.02	23.85	18.07	33.87	28.09	60.00	50.00	-26.13	-21.91
6	18.02200	10.06	21.30	14.97	31.36	25.03	60.00	50.00	-28.64	-24.97

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

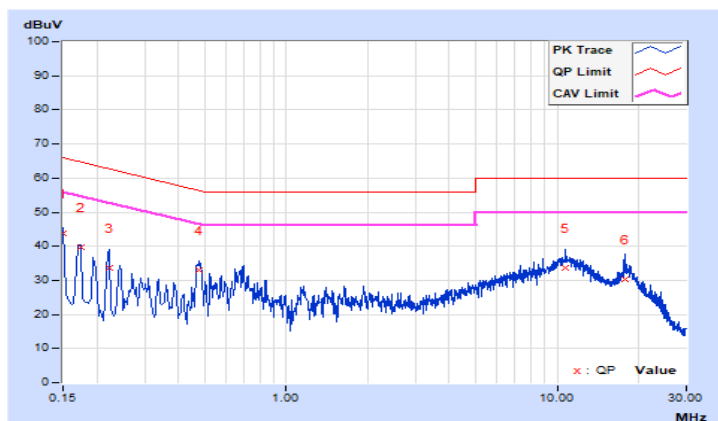


RF Mode	802.11ax (HE40)	Channel	CH 62 : 5310 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	34.22	20.29	43.88	29.95	66.00	56.00	-22.12	-26.05
2	0.17400	9.68	30.15	16.87	39.83	26.55	64.77	54.77	-24.94	-28.22
3	0.22200	9.71	24.04	9.66	33.75	19.37	62.74	52.74	-28.99	-33.37
4	0.47800	9.78	23.29	17.24	33.07	27.02	56.37	46.37	-23.30	-19.35
5	10.77400	10.07	23.47	17.68	33.54	27.75	60.00	50.00	-26.46	-22.25
6	17.73000	10.13	20.27	13.61	30.40	23.74	60.00	50.00	-29.60	-26.26

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



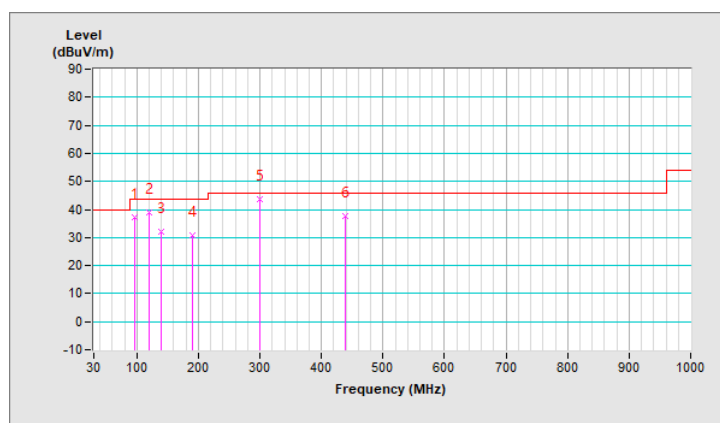
7.8 Unwanted Emissions below 1 GHz

RF Mode	802.11ax (HE40)	Channel	CH 62 : 5310 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6°C, 74.8% RH
Tested By	Rex Wang		

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	95.96	37.3 QP	43.5	-6.2	1.51 H	19	51.4	-14.1
2	119.24	38.9 QP	43.5	-4.6	1.01 H	205	50.1	-11.2
3	139.61	32.0 QP	43.5	-11.5	2.00 H	287	41.2	-9.2
4	191.02	30.7 QP	43.5	-12.8	1.51 H	133	41.9	-11.2
5	299.66	43.7 QP	46.0	-2.3	1.01 H	108	50.5	-6.8
6	438.37	37.7 QP	46.0	-8.3	1.51 H	222	41.3	-3.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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.

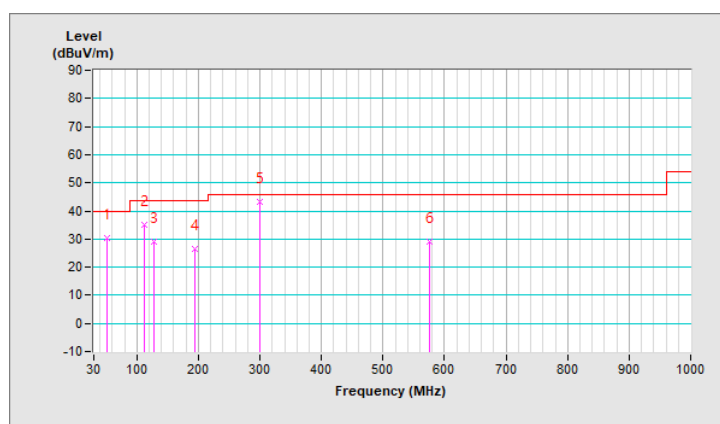


RF Mode	802.11ax (HE40)	Channel	CH 62 : 5310 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21.6°C, 74.8% RH
Tested By	Rex Wang		

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	51.34	30.2 QP	40.0	-9.8	1.51 V	312	39.1	-8.9
2	111.48	35.2 QP	43.5	-8.3	1.01 V	5	47.1	-11.9
3	127.97	29.2 QP	43.5	-14.3	1.01 V	223	39.5	-10.3
4	193.93	26.3 QP	43.5	-17.2	1.01 V	224	37.7	-11.4
5	299.66	43.2 QP	46.0	-2.8	1.51 V	84	50.0	-6.8
6	576.11	29.0 QP	46.0	-17.0	1.51 V	81	30.0	-1.0

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 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.



7.9 Unwanted Emissions above 1 GHz

RF Mode	802.11a	Channel	CH 52 : 5260 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	23°C, 67% RH
Tested By	Rex Wang		

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	61.6 PK	74.0	-12.4	2.70 H	117	40.6	21.0
2	5150.00	49.1 AV	54.0	-4.9	2.70 H	117	28.1	21.0
3	*5260.00	118.9 PK			2.70 H	117	78.1	40.8
4	*5260.00	109.2 AV			2.70 H	117	68.4	40.8
5	#10520.00	63.2 PK	68.2	-5.0	2.46 H	102	38.2	25.0
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	60.8 PK	74.0	-13.2	2.22 V	31	39.8	21.0
2	5150.00	48.5 AV	54.0	-5.5	2.22 V	31	27.5	21.0
3	*5260.00	115.4 PK			2.22 V	31	74.6	40.8
4	*5260.00	104.9 AV			2.22 V	31	64.1	40.8
5	#10520.00	62.8 PK	68.2	-5.4	1.89 V	64	37.8	25.0

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	802.11a	Channel	CH 60 : 5300 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5300.00	118.9 PK			2.82 H	117	78.1	40.8
2	*5300.00	109.1 AV			2.82 H	117	68.3	40.8
3	10600.00	62.7 PK	74.0	-11.3	2.55 H	96	37.7	25.0
4	10600.00	49.5 AV	54.0	-4.5	2.55 H	96	24.5	25.0
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	*5300.00	116.5 PK			3.60 V	4	75.7	40.8
2	*5300.00	105.8 AV			3.60 V	4	65.0	40.8
3	10600.00	62.5 PK	74.0	-11.5	2.07 V	52	37.5	25.0
4	10600.00	49.3 AV	54.0	-4.7	2.07 V	52	24.3	25.0

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.

RF Mode	802.11a	Channel	CH 64 : 5320 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5320.00	118.5 PK			2.92 H	110	77.6	40.9
2	*5320.00	108.6 AV			2.92 H	110	67.7	40.9
3	5350.00	62.4 PK	74.0	-11.6	2.92 H	110	41.4	21.0
4	5350.00	49.8 AV	54.0	-4.2	2.92 H	110	28.8	21.0
5	10640.00	64.0 PK	74.0	-10.0	2.63 H	105	38.3	25.7
6	10640.00	50.0 AV	54.0	-4.0	2.63 H	105	24.3	25.7
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	*5320.00	115.3 PK			3.04 V	8	74.4	40.9
2	*5320.00	105.2 AV			3.04 V	8	64.3	40.9
3	5350.00	61.5 PK	74.0	-12.5	3.04 V	8	40.5	21.0
4	5350.00	48.9 AV	54.0	-5.1	3.04 V	8	27.9	21.0
5	10640.00	63.7 PK	74.0	-10.3	1.93 V	64	38.0	25.7
6	10640.00	49.8 AV	54.0	-4.2	1.93 V	64	24.1	25.7

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.

RF Mode	802.11a	Channel	CH 100 : 5500 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	23°C, 67% RH
Tested By	Rex Wang		

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	5460.00	62.2 PK	74.0	-11.8	2.49 H	113	40.8	21.4
2	5460.00	49.4 AV	54.0	-4.6	2.49 H	113	28.0	21.4
3	#5470.00	64.8 PK	68.2	-3.4	2.49 H	113	43.4	21.4
4	*5500.00	118.4 PK			2.49 H	113	76.9	41.5
5	*5500.00	108.5 AV			2.49 H	113	67.0	41.5
6	11000.00	63.4 PK	74.0	-10.6	2.43 H	105	36.7	26.7
7	11000.00	49.9 AV	54.0	-4.1	2.43 H	105	23.2	26.7
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	5460.00	61.7 PK	74.0	-12.3	3.26 V	0	40.3	21.4
2	5460.00	49.0 AV	54.0	-5.0	3.26 V	0	27.6	21.4
3	#5470.00	63.0 PK	68.2	-5.2	3.26 V	0	41.6	21.4
4	*5500.00	114.8 PK			3.26 V	0	73.3	41.5
5	*5500.00	104.8 AV			3.26 V	0	63.3	41.5
6	11000.00	63.1 PK	74.0	-10.9	1.99 V	74	36.4	26.7
7	11000.00	49.7 AV	54.0	-4.3	1.99 V	74	23.0	26.7

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	802.11a	Channel	CH 116 : 5580 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5580.00	119.5 PK			2.93 H	118	77.9	41.6
2	*5580.00	109.1 AV			2.93 H	118	67.5	41.6
3	11160.00	63.0 PK	74.0	-11.0	2.55 H	104	37.2	25.8
4	11160.00	49.4 AV	54.0	-4.6	2.55 H	104	23.6	25.8
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	*5580.00	114.6 PK			3.76 V	12	73.0	41.6
2	*5580.00	105.0 AV			3.76 V	12	63.4	41.6
3	11160.00	62.7 PK	74.0	-11.3	2.05 V	72	36.9	25.8
4	11160.00	49.1 AV	54.0	-4.9	2.05 V	72	23.3	25.8

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.

RF Mode	802.11a	Channel	CH 140 : 5700 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5700.00	118.0 PK			2.76 H	115	76.3	41.7
2	*5700.00	108.6 AV			2.76 H	115	66.9	41.7
3	#5725.00	66.5 PK	68.2	-1.7	2.76 H	115	44.3	22.2
4	11400.00	63.8 PK	74.0	-10.2	2.49 H	106	36.8	27.0
5	11400.00	50.1 AV	54.0	-3.9	2.49 H	106	23.1	27.0
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	*5700.00	115.2 PK			3.16 V	0	73.5	41.7
2	*5700.00	105.0 AV			3.16 V	0	63.3	41.7
3	#5725.00	63.2 PK	68.2	-5.0	3.16 V	0	41.0	22.2
4	11400.00	63.5 PK	74.0	-10.5	1.98 V	67	36.5	27.0
5	11400.00	49.8 AV	54.0	-4.2	1.98 V	67	22.8	27.0

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	802.11a	Channel	CH 144 : 5720 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	23°C, 67% RH
Tested By	Rex Wang		

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	#5470.00	61.6 PK	68.2	-6.6	2.74 H	101	40.2	21.4
2	*5720.00	118.8 PK			2.74 H	101	76.9	41.9
3	*5720.00	108.9 AV			2.74 H	101	67.0	41.9
4	#5850.00	63.5 PK	68.2	-4.7	2.74 H	101	41.0	22.5
5	11440.00	63.8 PK	74.0	-10.2	2.44 H	98	36.7	27.1
6	11440.00	49.7 AV	54.0	-4.3	2.44 H	98	22.6	27.1
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	#5470.00	61.2 PK	68.2	-7.0	3.70 V	13	39.8	21.4
2	*5720.00	115.4 PK			3.70 V	13	73.5	41.9
3	*5720.00	105.4 AV			3.70 V	13	63.5	41.9
4	#5850.00	63.1 PK	68.2	-5.1	3.70 V	13	40.6	22.5
5	11440.00	63.4 PK	74.0	-10.6	1.91 V	68	36.3	27.1
6	11440.00	49.5 AV	54.0	-4.5	1.91 V	68	22.4	27.1

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	802.11ax (HE20)	Channel	CH 52 : 5260 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	23°C, 67% RH
Tested By	Rex Wang		

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	61.4 PK	74.0	-12.6	2.25 H	108	40.4	21.0
2	5150.00	48.8 AV	54.0	-5.2	2.25 H	108	27.8	21.0
3	*5260.00	120.0 PK			2.25 H	108	79.2	40.8
4	*5260.00	108.8 AV			2.25 H	108	68.0	40.8
5	#10520.00	62.8 PK	68.2	-5.4	2.44 H	103	37.8	25.0
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	60.9 PK	74.0	-13.1	3.41 V	9	39.9	21.0
2	5150.00	48.5 AV	54.0	-5.5	3.41 V	9	27.5	21.0
3	*5260.00	117.9 PK			3.41 V	9	77.1	40.8
4	*5260.00	105.4 AV			3.41 V	9	64.6	40.8
5	#10520.00	62.5 PK	68.2	-5.7	2.06 V	66	37.5	25.0

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	802.11ax (HE20)	Channel	CH 60 : 5300 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5300.00	120.8 PK			2.31 H	110	80.0	40.8
2	*5300.00	108.7 AV			2.31 H	110	67.9	40.8
3	10600.00	62.9 PK	74.0	-11.1	2.47 H	98	37.9	25.0
4	10600.00	49.6 AV	54.0	-4.4	2.47 H	98	24.6	25.0
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	*5300.00	117.6 PK			3.50 V	16	76.8	40.8
2	*5300.00	105.7 AV			3.50 V	16	64.9	40.8
3	10600.00	62.5 PK	74.0	-11.5	1.98 V	75	37.5	25.0
4	10600.00	49.3 AV	54.0	-4.7	1.98 V	75	24.3	25.0

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.

RF Mode	802.11ax (HE20)	Channel	CH 64 : 5320 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5320.00	120.8 PK			2.98 H	107	79.9	40.9
2	*5320.00	108.1 AV			2.98 H	107	67.2	40.9
3	5350.00	62.1 PK	74.0	-11.9	2.98 H	107	41.1	21.0
4	5350.00	50.0 AV	54.0	-4.0	2.98 H	107	29.0	21.0
5	10640.00	64.1 PK	74.0	-9.9	2.41 H	95	38.4	25.7
6	10640.00	50.1 AV	54.0	-3.9	2.41 H	95	24.4	25.7
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	*5320.00	116.5 PK			3.50 V	11	75.6	40.9
2	*5320.00	104.1 AV			3.50 V	11	63.2	40.9
3	5350.00	61.5 PK	74.0	-12.5	3.50 V	11	40.5	21.0
4	5350.00	48.9 AV	54.0	-5.1	3.50 V	11	27.9	21.0
5	10640.00	63.9 PK	74.0	-10.1	1.94 V	68	38.2	25.7
6	10640.00	50.0 AV	54.0	-4.0	1.94 V	68	24.3	25.7

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.

RF Mode	802.11ax (HE20)	Channel	CH 100 : 5500 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	23°C, 67% RH
Tested By	Rex Wang		

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	5460.00	62.7 PK	74.0	-11.3	2.56 H	89	41.3	21.4
2	5460.00	50.0 AV	54.0	-4.0	2.56 H	89	28.6	21.4
3	#5470.00	64.2 PK	68.2	-4.0	2.56 H	89	42.8	21.4
4	*5500.00	118.3 PK			2.56 H	89	76.8	41.5
5	*5500.00	106.6 AV			2.56 H	89	65.1	41.5
6	11000.00	63.5 PK	74.0	-10.5	2.43 H	100	36.8	26.7
7	11000.00	49.1 AV	54.0	-4.9	2.43 H	100	22.4	26.7
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	5460.00	62.2 PK	74.0	-11.8	3.97 V	1	40.8	21.4
2	5460.00	49.3 AV	54.0	-4.7	3.97 V	1	27.9	21.4
3	#5470.00	63.2 PK	68.2	-5.0	3.97 V	1	41.8	21.4
4	*5500.00	117.2 PK			3.97 V	1	75.7	41.5
5	*5500.00	105.0 AV			3.97 V	1	63.5	41.5
6	11000.00	63.2 PK	74.0	-10.8	2.11 V	64	36.5	26.7
7	11000.00	48.9 AV	54.0	-5.1	2.11 V	64	22.2	26.7

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	802.11ax (HE20)	Channel	CH 116 : 5580 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5580.00	119.8 PK			2.62 H	88	78.2	41.6
2	*5580.00	107.0 AV			2.62 H	88	65.4	41.6
3	11160.00	62.4 PK	74.0	-11.6	2.47 H	103	36.6	25.8
4	11160.00	49.3 AV	54.0	-4.7	2.47 H	103	23.5	25.8
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	*5580.00	119.1 PK			3.92 V	357	77.5	41.6
2	*5580.00	106.2 AV			3.92 V	357	64.6	41.6
3	11160.00	62.1 PK	74.0	-11.9	1.89 V	67	36.3	25.8
4	11160.00	49.0 AV	54.0	-5.0	1.89 V	67	23.2	25.8

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.

RF Mode	802.11ax (HE20)	Channel	CH 140 : 5700 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5700.00	120.3 PK			2.58 H	92	78.6	41.7
2	*5700.00	107.9 AV			2.58 H	92	66.2	41.7
3	#5725.00	67.8 PK	68.2	-0.4	2.58 H	92	45.6	22.2
4	11400.00	63.5 PK	74.0	-10.5	2.48 H	106	36.5	27.0
5	11400.00	49.8 AV	54.0	-4.2	2.48 H	106	22.8	27.0
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	*5700.00	118.1 PK			3.83 V	356	76.4	41.7
2	*5700.00	106.0 AV			3.83 V	356	64.3	41.7
3	#5725.00	67.2 PK	68.2	-1.0	3.83 V	356	45.0	22.2
4	11400.00	63.3 PK	74.0	-10.7	1.97 V	74	36.3	27.0
5	11400.00	49.6 AV	54.0	-4.4	1.97 V	74	22.6	27.0

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	802.11ax (HE20)	Channel	CH 144 : 5720 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	23°C, 67% RH
Tested By	Rex Wang		

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	#5470.00	62.0 PK	68.2	-6.2	2.82 H	90	40.6	21.4
2	*5720.00	119.9 PK			2.82 H	90	78.0	41.9
3	*5720.00	107.3 AV			2.82 H	90	65.4	41.9
4	#5850.00	63.3 PK	68.2	-4.9	2.82 H	90	40.8	22.5
5	11440.00	64.3 PK	74.0	-9.7	2.45 H	97	37.2	27.1
6	11440.00	49.7 AV	54.0	-4.3	2.45 H	97	22.6	27.1
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	#5470.00	61.7 PK	68.2	-6.5	3.91 V	352	40.3	21.4
2	*5720.00	118.5 PK			3.91 V	352	76.6	41.9
3	*5720.00	106.7 AV			3.91 V	352	64.8	41.9
4	#5850.00	63.1 PK	68.2	-5.1	3.91 V	352	40.6	22.5
5	11440.00	64.0 PK	74.0	-10.0	2.24 V	72	36.9	27.1
6	11440.00	49.5 AV	54.0	-4.5	2.24 V	72	22.4	27.1

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.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	802.11ax (HE40)	Channel	CH 54 : 5270 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	23°C, 67% RH
Tested By	Rex Wang		

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	62.0 PK	74.0	-12.0	2.24 H	107	41.0	21.0
2	5150.00	48.7 AV	54.0	-5.3	2.24 H	107	27.7	21.0
3	*5270.00	118.6 PK			2.24 H	107	77.8	40.8
4	*5270.00	105.8 AV			2.24 H	107	65.0	40.8
5	#10540.00	62.6 PK	68.2	-5.6	2.38 H	104	37.5	25.1
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	61.1 PK	74.0	-12.9	3.52 V	18	40.1	21.0
2	5150.00	48.4 AV	54.0	-5.6	3.52 V	18	27.4	21.0
3	*5270.00	115.2 PK			3.52 V	18	74.4	40.8
4	*5270.00	102.6 AV			3.52 V	18	61.8	40.8
5	#10540.00	62.4 PK	68.2	-5.8	2.00 V	72	37.3	25.1

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.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	802.11ax (HE40)	Channel	CH 62 : 5310 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5310.00	116.6 PK			2.21 H	109	75.8	40.8
2	*5310.00	104.8 AV			2.21 H	109	64.0	40.8
3	5350.00	63.5 PK	74.0	-10.5	2.21 H	109	42.5	21.0
4	5350.00	51.4 AV	54.0	-2.6	2.21 H	109	30.4	21.0
5	10620.00	63.7 PK	74.0	-10.3	2.48 H	102	38.4	25.3
6	10620.00	49.5 AV	54.0	-4.5	2.48 H	102	24.2	25.3
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	*5310.00	113.9 PK			3.49 V	14	73.1	40.8
2	*5310.00	101.7 AV			3.49 V	14	60.9	40.8
3	5350.00	61.3 PK	74.0	-12.7	3.49 V	14	40.3	21.0
4	5350.00	49.1 AV	54.0	-4.9	3.49 V	14	28.1	21.0
5	10620.00	63.4 PK	74.0	-10.6	1.89 V	66	38.1	25.3
6	10620.00	49.3 AV	54.0	-4.7	1.89 V	66	24.0	25.3

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.

RF Mode	802.11ax (HE40)	Channel	CH 102 : 5510 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	23°C, 67% RH
Tested By	Rex Wang		

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	5460.00	62.1 PK	74.0	-11.9	2.81 H	100	40.7	21.4
2	5460.00	49.8 AV	54.0	-4.2	2.81 H	100	28.4	21.4
3	#5470.00	65.8 PK	68.2	-2.4	2.81 H	100	44.4	21.4
4	*5510.00	117.8 PK			2.81 H	100	76.3	41.5
5	*5510.00	104.8 AV			2.81 H	100	63.3	41.5
6	11020.00	63.5 PK	74.0	-10.5	2.49 H	104	36.8	26.7
7	11020.00	49.9 AV	54.0	-4.1	2.49 H	104	23.2	26.7
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	5460.00	61.7 PK	74.0	-12.3	3.73 V	0	40.3	21.4
2	5460.00	49.0 AV	54.0	-5.0	3.73 V	0	27.6	21.4
3	#5470.00	63.0 PK	68.2	-5.2	3.73 V	0	41.6	21.4
4	*5510.00	115.9 PK			3.73 V	0	74.4	41.5
5	*5510.00	103.7 AV			3.73 V	0	62.2	41.5
6	11020.00	63.2 PK	74.0	-10.8	1.98 V	74	36.5	26.7
7	11020.00	49.6 AV	54.0	-4.4	1.98 V	74	22.9	26.7

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	802.11ax (HE40)	Channel	CH 110 : 5550 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5550.00	117.2 PK			2.89 H	100	75.7	41.5
2	*5550.00	105.3 AV			2.89 H	100	63.8	41.5
3	11100.00	63.5 PK	74.0	-10.5	2.40 H	93	37.3	26.2
4	11100.00	49.5 AV	54.0	-4.5	2.40 H	93	23.3	26.2
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	*5550.00	116.4 PK			3.71 V	358	74.9	41.5
2	*5550.00	103.9 AV			3.71 V	358	62.4	41.5
3	11100.00	63.1 PK	74.0	-10.9	1.91 V	69	36.9	26.2
4	11100.00	49.2 AV	54.0	-4.8	1.91 V	69	23.0	26.2

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.

RF Mode	802.11ax (HE40)	Channel	CH 134 : 5670 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5670.00	117.3 PK			3.15 H	101	75.6	41.7
2	*5670.00	104.3 AV			3.15 H	101	62.6	41.7
3	#5725.00	66.8 PK	68.2	-1.4	3.15 H	101	44.6	22.2
4	11340.00	63.2 PK	74.0	-10.8	2.46 H	94	36.8	26.4
5	11340.00	49.5 AV	54.0	-4.5	2.46 H	94	23.1	26.4
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	*5670.00	116.5 PK			3.71 V	358	74.8	41.7
2	*5670.00	103.8 AV			3.71 V	358	62.1	41.7
3	#5725.00	66.7 PK	68.2	-1.5	3.71 V	358	44.5	22.2
4	11340.00	63.0 PK	74.0	-11.0	1.95 V	64	36.6	26.4
5	11340.00	49.2 AV	54.0	-4.8	1.95 V	64	22.8	26.4

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	802.11ax (HE40)	Channel	CH 142 : 5710 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	23°C, 67% RH
Tested By	Rex Wang		

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	#5470.00	62.1 PK	68.2	-6.1	2.92 H	89	40.7	21.4
2	*5710.00	117.4 PK			2.92 H	89	75.6	41.8
3	*5710.00	104.4 AV			2.92 H	89	62.6	41.8
4	#5850.00	63.9 PK	68.2	-4.3	2.92 H	89	41.4	22.5
5	11420.00	63.7 PK	74.0	-10.3	2.47 H	99	36.6	27.1
6	11420.00	49.8 AV	54.0	-4.2	2.47 H	99	22.7	27.1
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	#5470.00	62.0 PK	68.2	-6.2	3.69 V	350	40.6	21.4
2	*5710.00	116.9 PK			3.69 V	350	75.1	41.8
3	*5710.00	104.0 AV			3.69 V	350	62.2	41.8
4	#5850.00	63.4 PK	68.2	-4.8	3.69 V	350	40.9	22.5
5	11420.00	63.5 PK	74.0	-10.5	1.98 V	70	36.4	27.1
6	11420.00	49.7 AV	54.0	-4.3	1.98 V	70	22.6	27.1

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.
5. " * " : Fundamental frequency, the limit was restricted at the RF Output Power.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	802.11ax (HE80)	Channel	CH 58 : 5290 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5290.00	114.6 PK			3.13 H	109	73.8	40.8
2	*5290.00	102.1 AV			3.13 H	109	61.3	40.8
3	5350.00	63.5 PK	74.0	-10.5	3.13 H	109	42.5	21.0
4	5350.00	50.6 AV	54.0	-3.4	3.13 H	109	29.6	21.0
5	#10580.00	63.0 PK	68.2	-5.2	2.53 H	97	38.0	25.0
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	*5290.00	111.3 PK			3.51 V	4	70.5	40.8
2	*5290.00	98.5 AV			3.51 V	4	57.7	40.8
3	5350.00	61.3 PK	74.0	-12.7	3.51 V	4	40.3	21.0
4	5350.00	49.1 AV	54.0	-4.9	3.51 V	4	28.1	21.0
5	#10580.00	62.4 PK	68.2	-5.8	2.24 V	72	37.4	25.0

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	802.11ax (HE80)	Channel	CH 106 : 5530 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	23°C, 67% RH
Tested By	Rex Wang		

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	5460.00	62.5 PK	74.0	-11.5	3.02 H	100	41.1	21.4
2	5460.00	50.2 AV	54.0	-3.8	3.02 H	100	28.8	21.4
3	#5470.00	64.0 PK	68.2	-4.2	3.02 H	100	42.6	21.4
4	*5530.00	114.3 PK			3.02 H	100	72.8	41.5
5	*5530.00	101.3 AV			3.02 H	100	59.8	41.5
6	11060.00	63.8 PK	74.0	-10.2	2.46 H	104	37.4	26.4
7	11060.00	49.9 AV	54.0	-4.1	2.46 H	104	23.5	26.4
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	5460.00	62.2 PK	74.0	-11.8	3.76 V	358	40.8	21.4
2	5460.00	49.1 AV	54.0	-4.9	3.76 V	358	27.7	21.4
3	#5470.00	63.1 PK	68.2	-5.1	3.76 V	358	41.7	21.4
4	*5530.00	112.3 PK			3.76 V	358	70.8	41.5
5	*5530.00	100.2 AV			3.76 V	358	58.7	41.5
6	11060.00	63.6 PK	74.0	-10.4	1.93 V	66	37.2	26.4
7	11060.00	49.6 AV	54.0	-4.4	1.93 V	66	23.2	26.4

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	802.11ax (HE80)	Channel	CH 122 : 5610 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	23°C, 67% RH
Tested By	Rex Wang		

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	*5610.00	113.0 PK			2.92 H	91	71.4	41.6
2	*5610.00	101.1 AV			2.92 H	91	59.5	41.6
3	#5725.00	63.8 PK	68.2	-4.4	2.92 H	91	41.6	22.2
4	11220.00	63.1 PK	74.0	-10.9	2.52 H	107	37.3	25.8
5	11220.00	49.4 AV	54.0	-4.6	2.52 H	107	23.6	25.8
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	*5610.00	112.4 PK			3.75 V	358	70.8	41.6
2	*5610.00	100.3 AV			3.75 V	358	58.7	41.6
3	#5725.00	63.6 PK	68.2	-4.6	3.75 V	358	41.4	22.2
4	11220.00	62.7 PK	74.0	-11.3	1.96 V	71	36.9	25.8
5	11220.00	49.2 AV	54.0	-4.8	1.96 V	71	23.4	25.8

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	802.11ax (HE80)	Channel	CH 138 : 5690 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	23°C, 67% RH
Tested By	Rex Wang		

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	#5470.00	62.1 PK	68.2	-6.1	2.83 H	93	40.7	21.4
2	*5690.00	113.6 PK			2.83 H	93	71.9	41.7
3	*5690.00	100.8 AV			2.83 H	93	59.1	41.7
4	#5850.00	63.3 PK	68.2	-4.9	2.83 H	93	40.8	22.5
5	11380.00	63.3 PK	74.0	-10.7	2.51 H	102	36.5	26.8
6	11380.00	49.4 AV	54.0	-4.6	2.51 H	102	22.6	26.8
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	#5470.00	62.0 PK	68.2	-6.2	3.67 V	0	40.6	21.4
2	*5690.00	112.3 PK			3.67 V	0	70.6	41.7
3	*5690.00	100.0 AV			3.67 V	0	58.3	41.7
4	#5850.00	63.1 PK	68.2	-5.1	3.67 V	0	40.6	22.5
5	11380.00	63.0 PK	74.0	-11.0	2.03 V	69	36.2	26.8
6	11380.00	49.3 AV	54.0	-4.7	2.03 V	69	22.5	26.8

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	802.11ax (HE160)	Channel	CH 50 : 5250 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	23°C, 67% RH
Tested By	Rex Wang		

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	5127.00	65.8 PK	74.0	-8.2	2.88 H	104	44.8	21.0
2	5127.00	53.4 AV	54.0	-0.6	2.88 H	104	32.4	21.0
3	*5250.00	112.9 PK			2.88 H	104	72.1	40.8
4	*5250.00	99.7 AV			2.88 H	104	58.9	40.8
5	5382.70	67.1 PK	74.0	-6.9	2.88 H	104	45.8	21.3
6	5382.70	53.5 AV	54.0	-0.5	2.88 H	104	32.2	21.3
7	#10500.00	62.6 PK	68.2	-5.6	2.46 H	92	37.6	25.0
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	64.7 PK	74.0	-9.3	3.51 V	15	43.7	21.0
2	5150.00	51.9 AV	54.0	-2.1	3.51 V	15	30.9	21.0
3	*5250.00	109.2 PK			3.51 V	15	68.4	40.8
4	*5250.00	96.4 AV			3.51 V	15	55.6	40.8
5	5350.00	66.5 PK	74.0	-7.5	3.51 V	15	45.5	21.0
6	5350.00	50.9 AV	54.0	-3.1	3.51 V	15	29.9	21.0
7	#10500.00	62.4 PK	68.2	-5.8	1.96 V	74	37.4	25.0

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	802.11ax (HE160)	Channel	CH 114 : 5570 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	23°C, 67% RH
Tested By	Rex Wang		

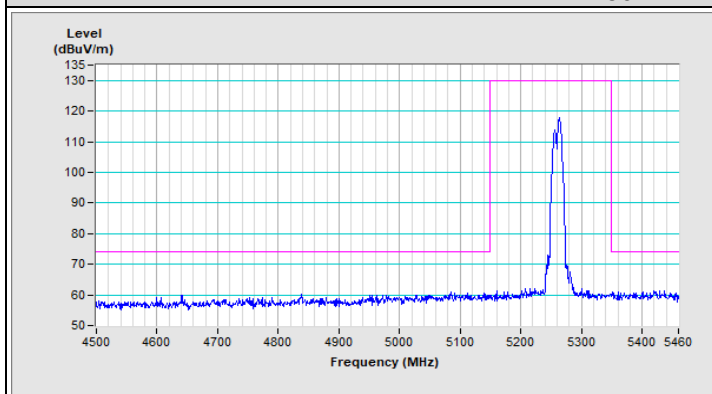
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5400.00	65.6 PK	74.0	-8.4	2.62 H	91	44.3	21.3
2	5400.00	52.8 AV	54.0	-1.2	2.62 H	91	31.5	21.3
3	#5470.00	67.2 PK	68.2	-1.0	2.62 H	91	45.8	21.4
4	*5570.00	110.2 PK			2.62 H	91	68.6	41.6
5	*5570.00	97.8 AV			2.62 H	91	56.2	41.6
6	#5725.00	66.4 PK	68.2	-1.8	2.62 H	91	44.2	22.2
7	11140.00	63.5 PK	74.0	-10.5	2.45 H	103	37.4	26.1
8	11140.00	49.6 AV	54.0	-4.4	2.45 H	103	23.5	26.1
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	5430.00	64.0 PK	74.0	-10.0	3.69 V	0	42.6	21.4
2	5430.00	49.9 AV	54.0	-4.1	3.69 V	0	28.5	21.4
3	#5470.00	63.9 PK	68.2	-4.3	3.69 V	0	42.5	21.4
4	*5570.00	108.3 PK			3.69 V	0	66.7	41.6
5	*5570.00	96.4 AV			3.69 V	0	54.8	41.6
6	#5725.00	65.5 PK	68.2	-2.7	3.69 V	0	43.3	22.2
7	11140.00	63.3 PK	74.0	-10.7	1.90 V	73	37.2	26.1
8	11140.00	49.4 AV	54.0	-4.6	1.90 V	73	23.3	26.1

Remarks:

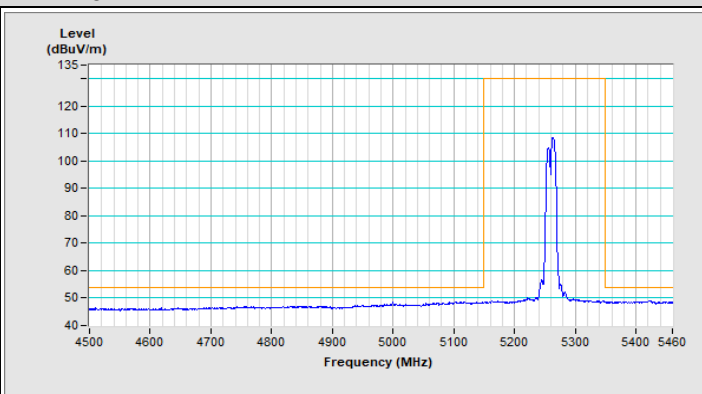
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency,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

Plot of Band Edge

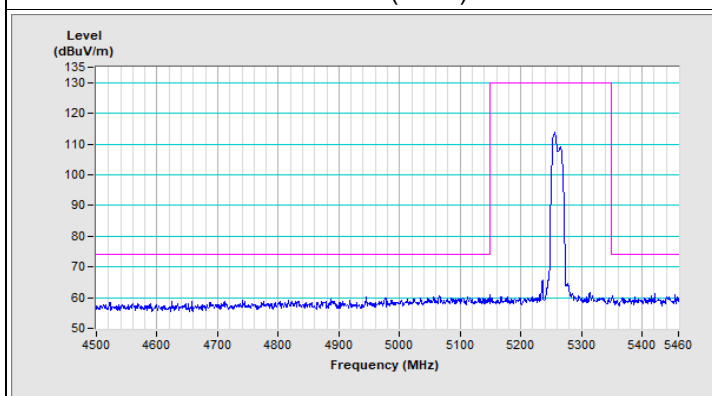
802.11a Channel 52



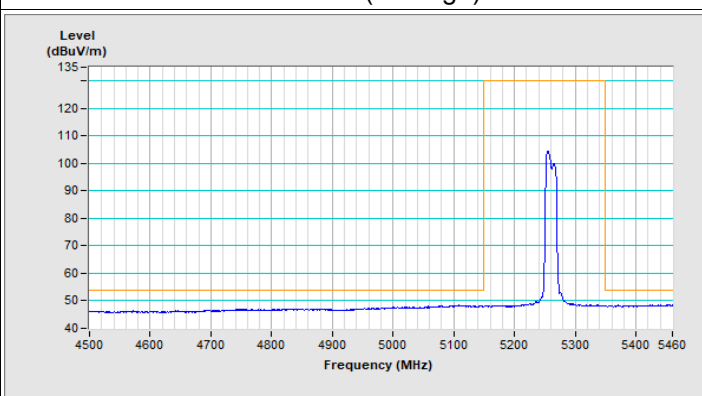
Horizontal (Peak)



Horizontal (Average)

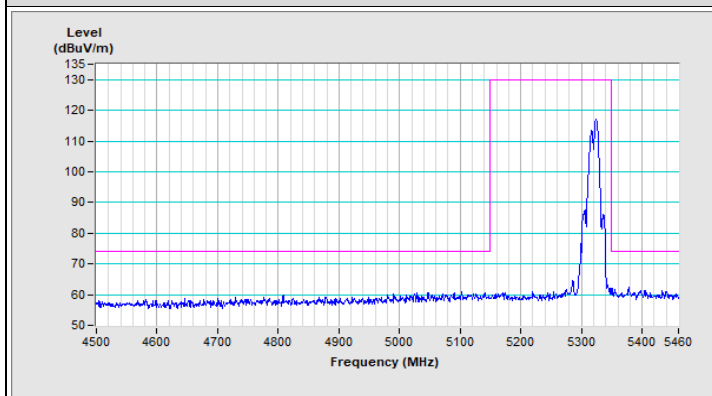


Vertical (Peak)

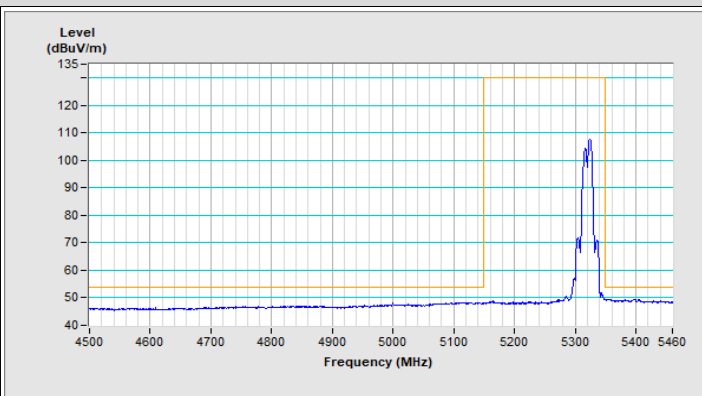


Vertical (Average)

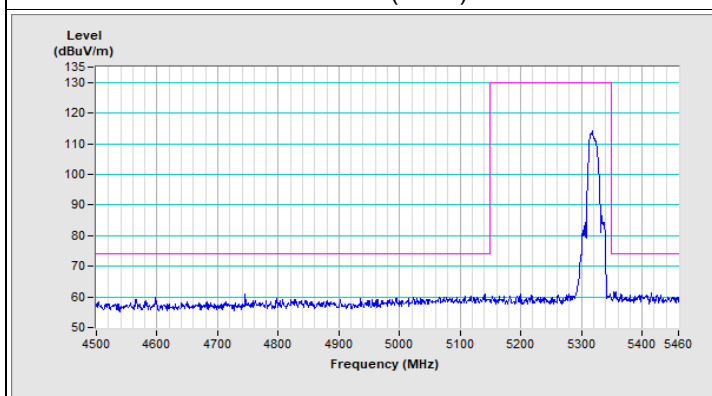
802.11a Channel 64



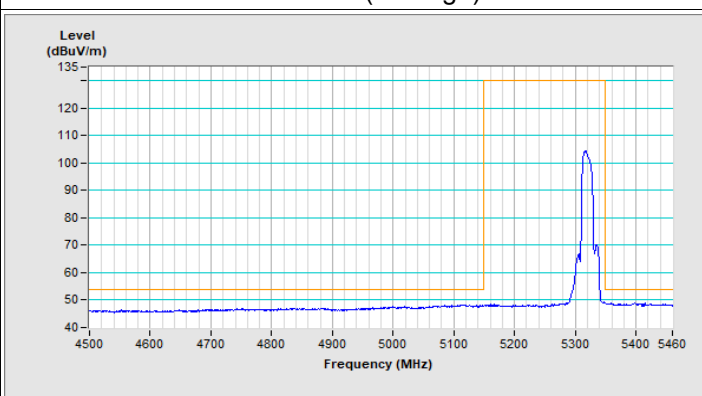
Horizontal (Peak)



Horizontal (Average)

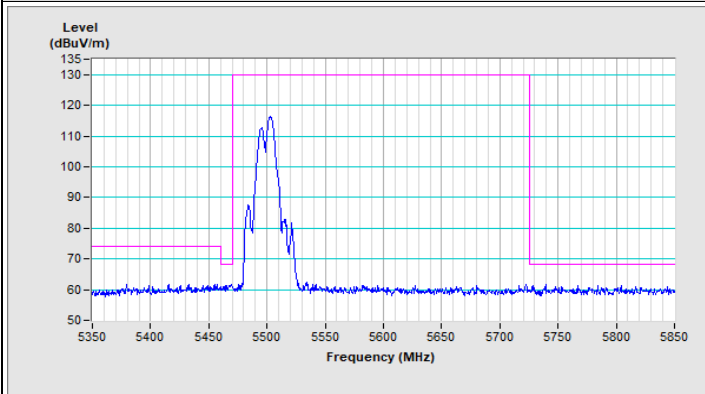


Vertical (Peak)

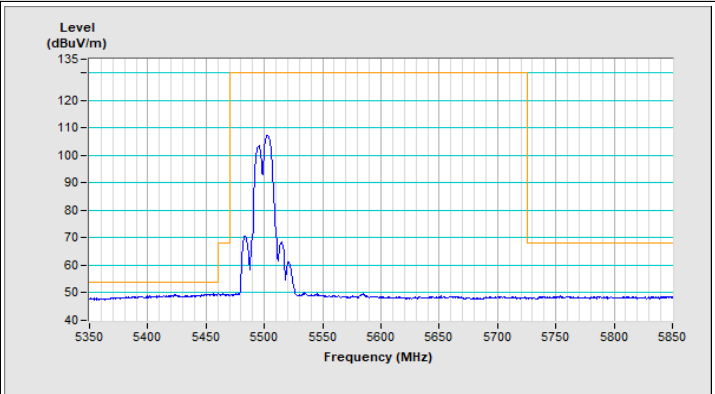


Vertical (Average)

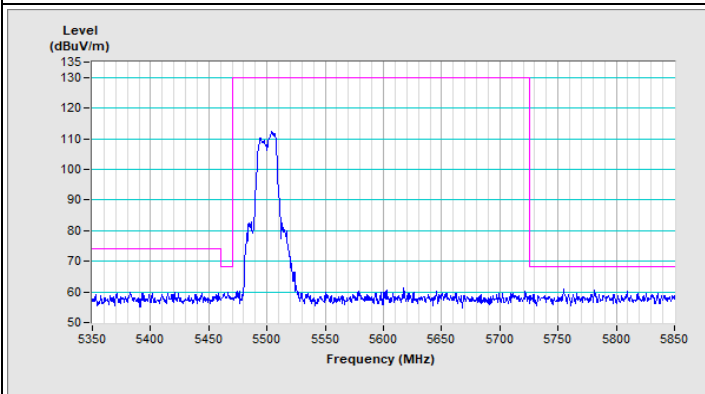
802.11a Channel 100



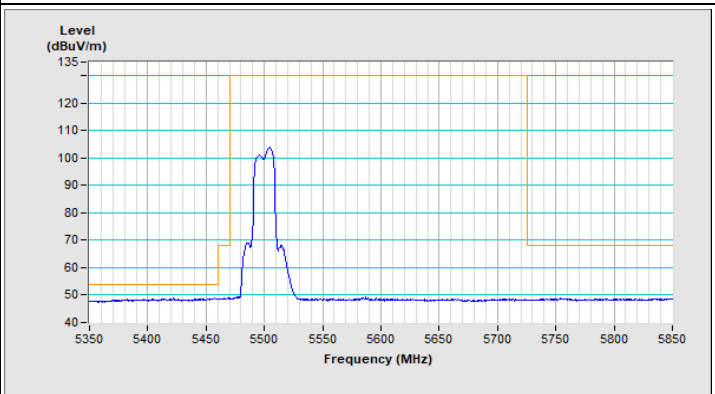
Horizontal (Peak)



Horizontal (Average)

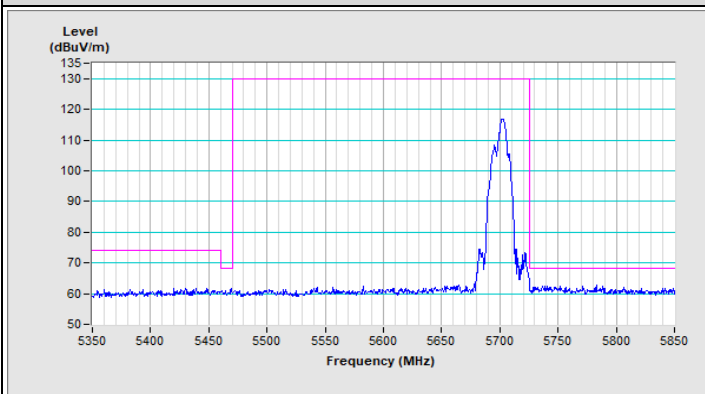


Vertical (Peak)

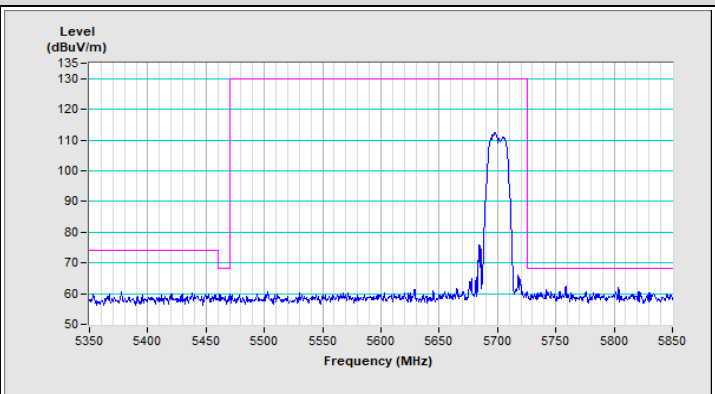


Vertical (Average)

802.11a Channel 140

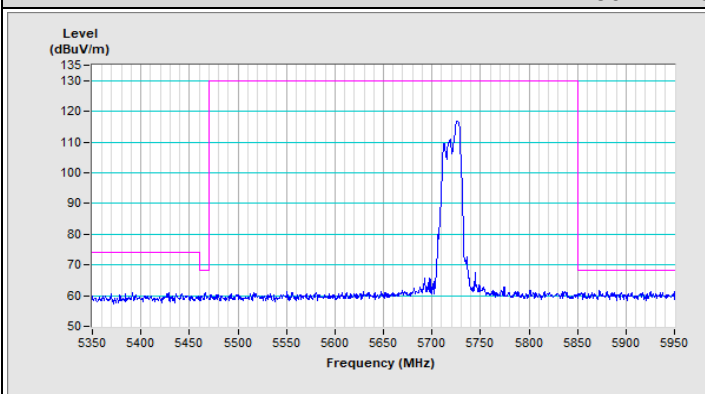


Horizontal (Peak)

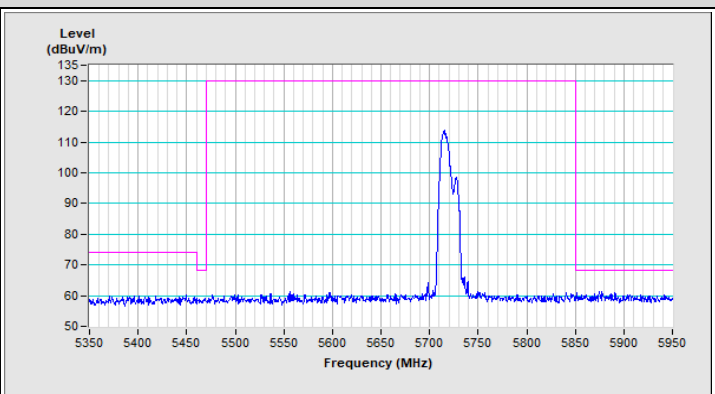


Vertical (Peak)

802.11a Channel 144

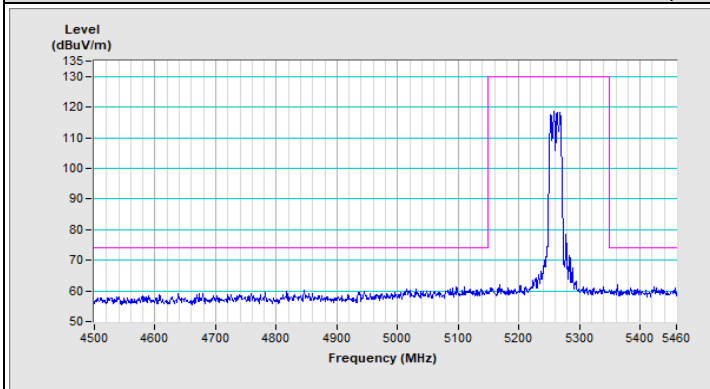


Horizontal (Peak)

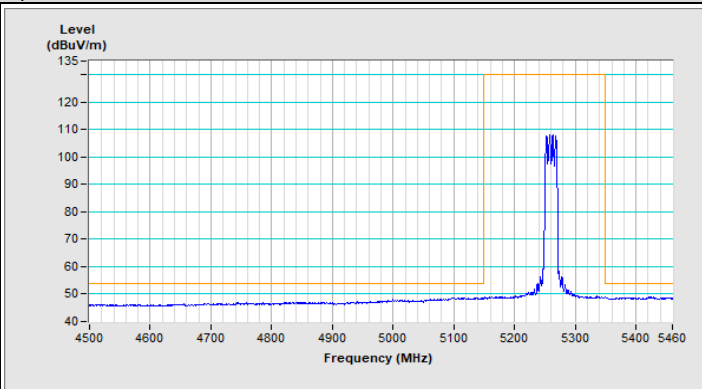


Vertical (Peak)

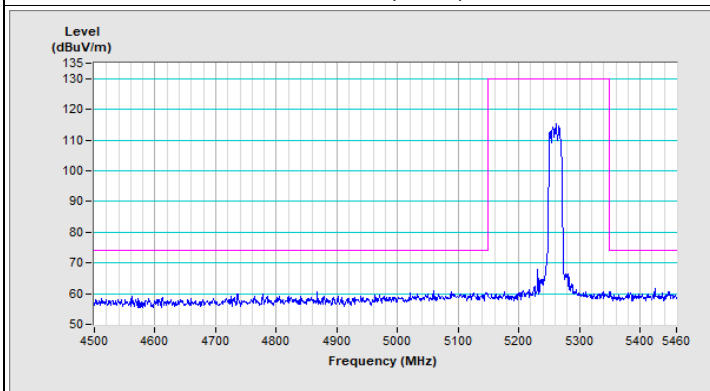
802.11ax (HE20) Channel 52



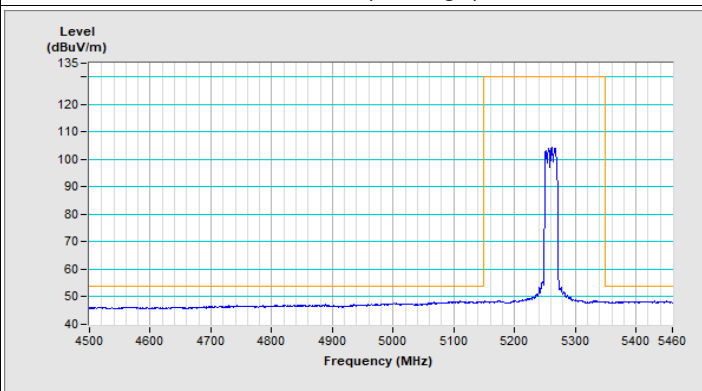
Horizontal (Peak)



Horizontal (Average)

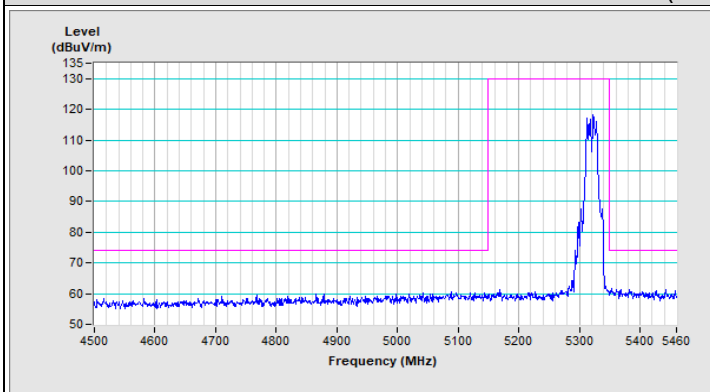


Vertical (Peak)

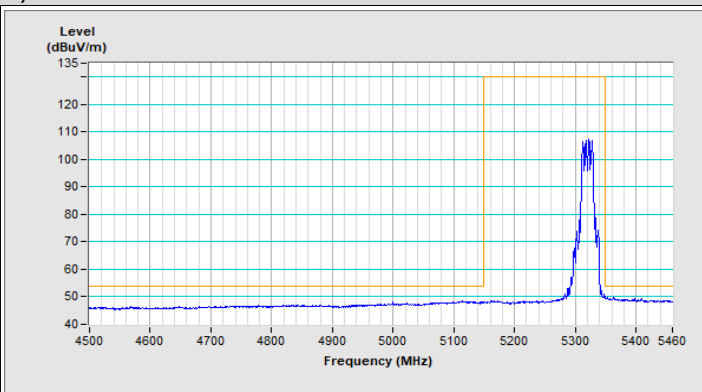


Vertical (Average)

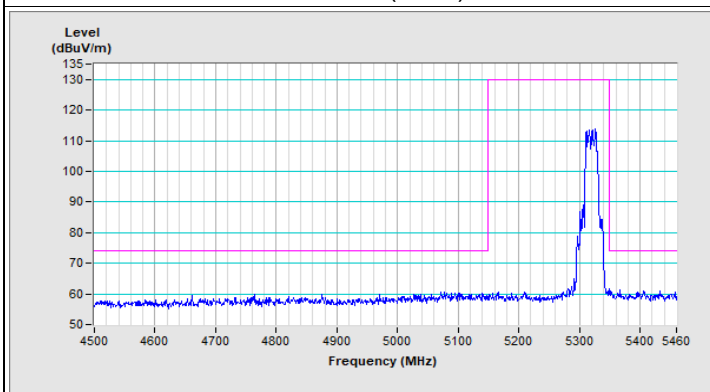
802.11ax (HE20) Channel 64



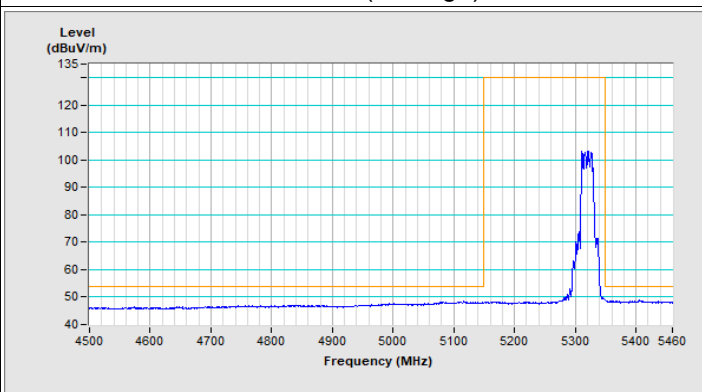
Horizontal (Peak)



Horizontal (Average)

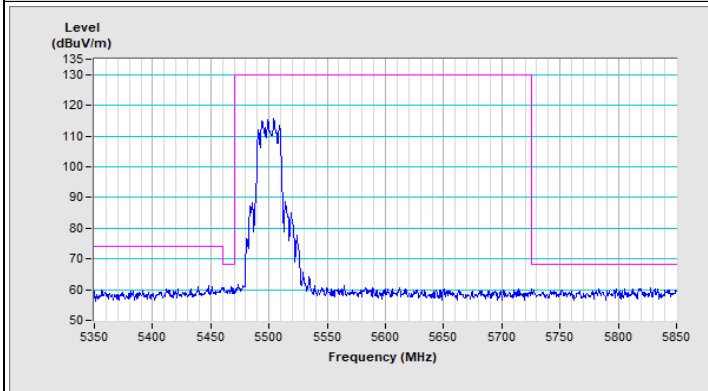


Vertical (Peak)

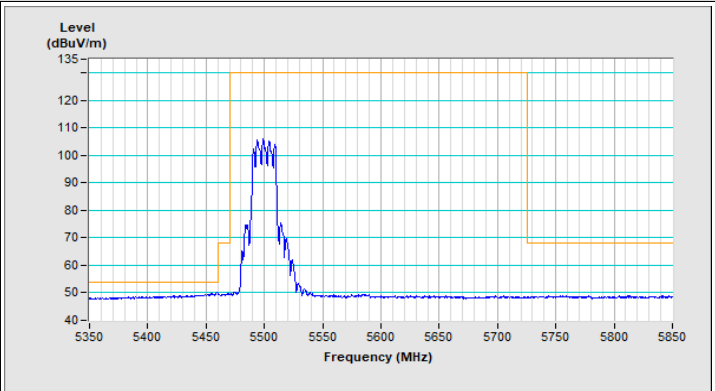


Vertical (Average)

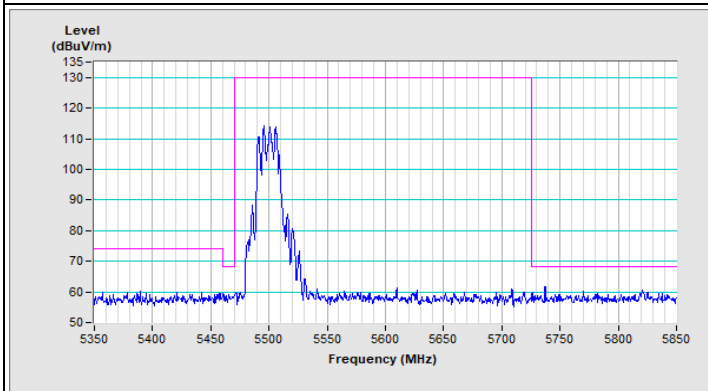
802.11ax (HE20) Channel 100



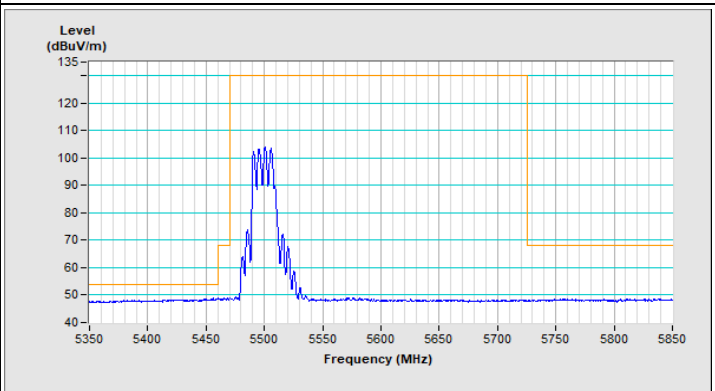
Horizontal (Peak)



Horizontal (Average)

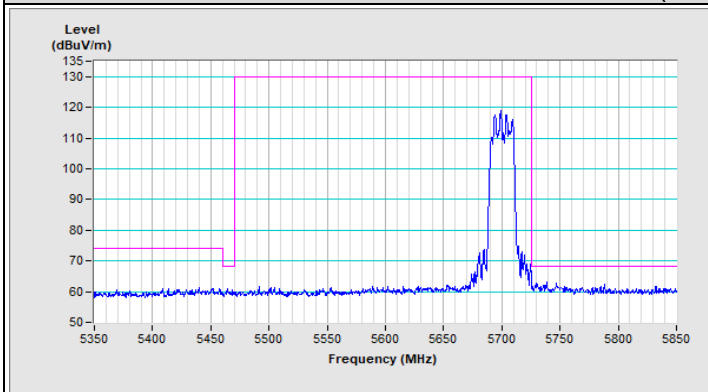


Vertical (Peak)

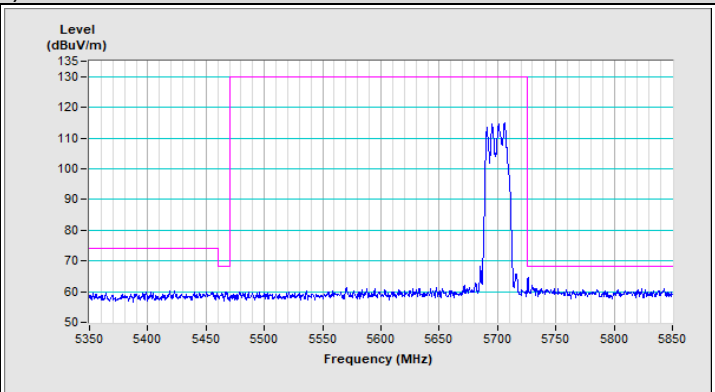


Vertical (Average)

802.11ax (HE20) Channel 140

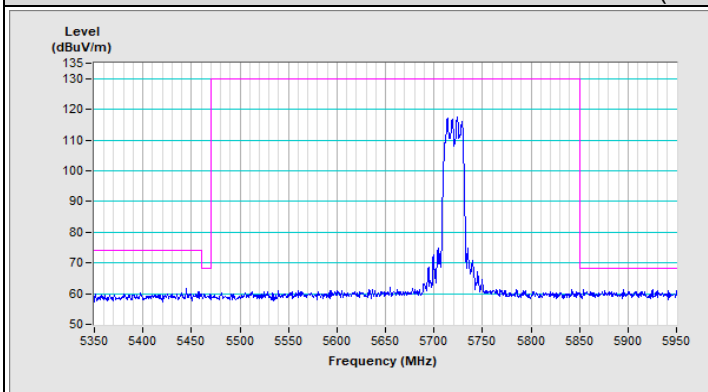


Horizontal (Peak)

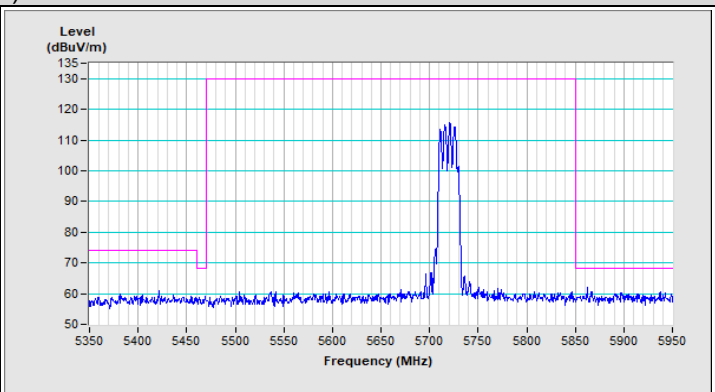


Vertical (Peak)

802.11ax (HE20) Channel 144

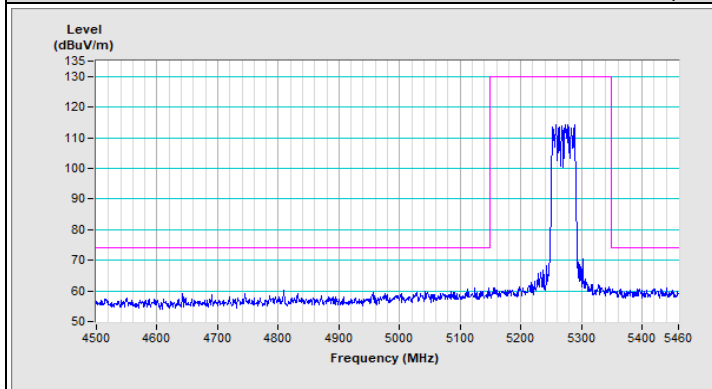


Horizontal (Peak)

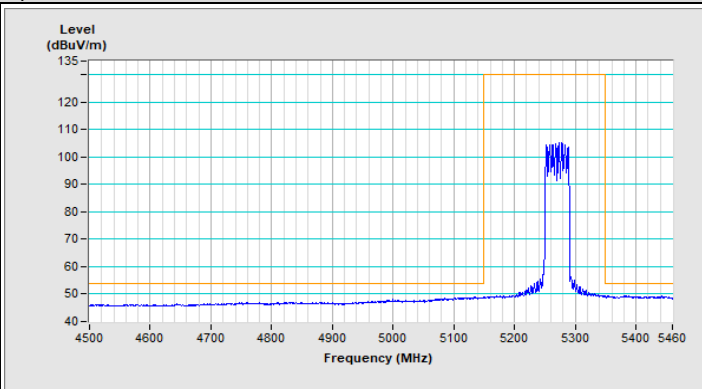


Vertical (Peak)

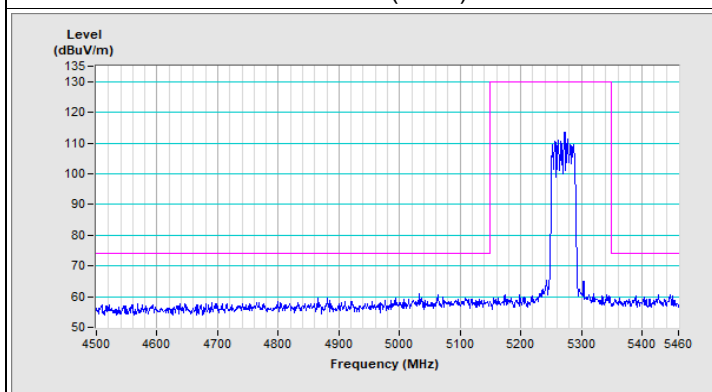
802.11ax (HE40) Channel 54



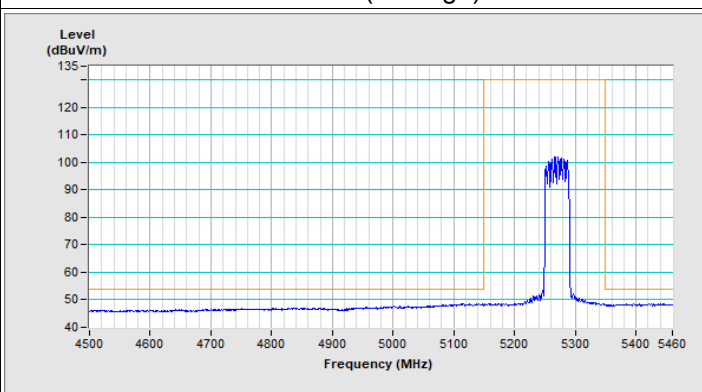
Horizontal (Peak)



Horizontal (Average)

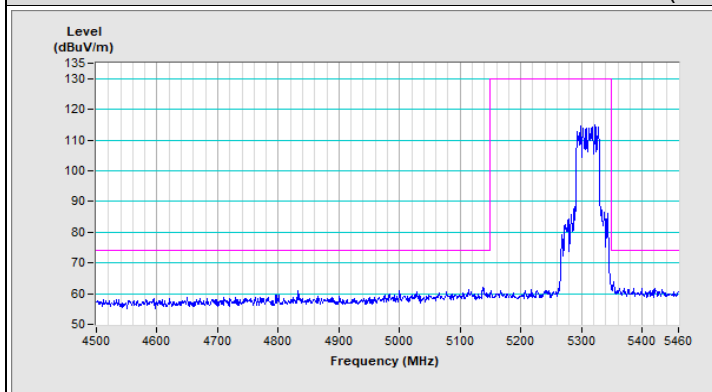


Vertical (Peak)

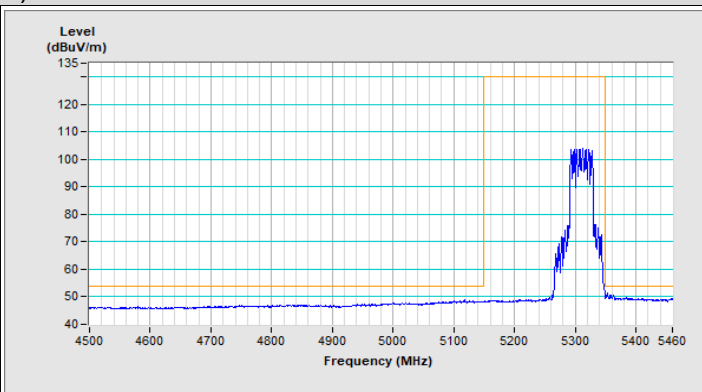


Vertical (Average)

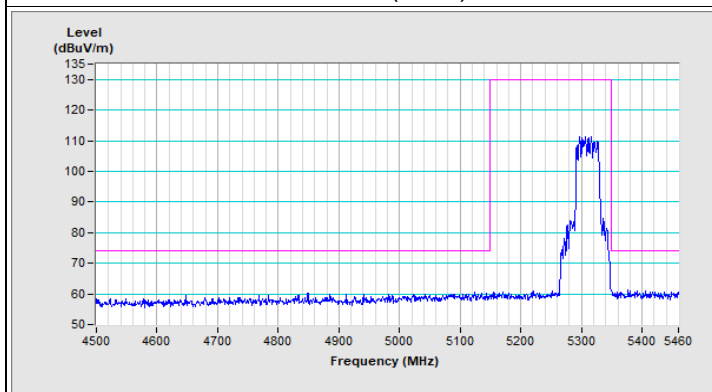
802.11ax (HE40) Channel 62



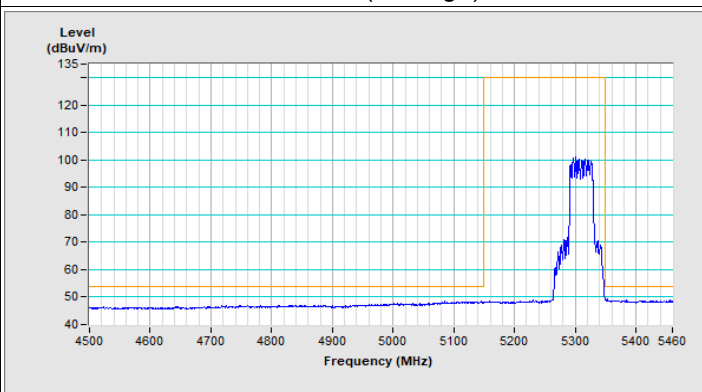
Horizontal (Peak)



Horizontal (Average)

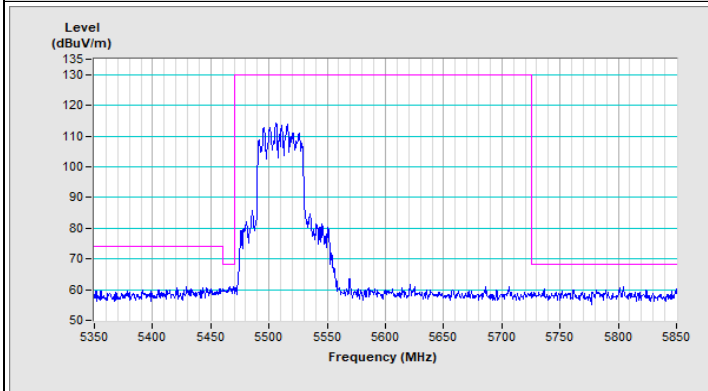


Vertical (Peak)

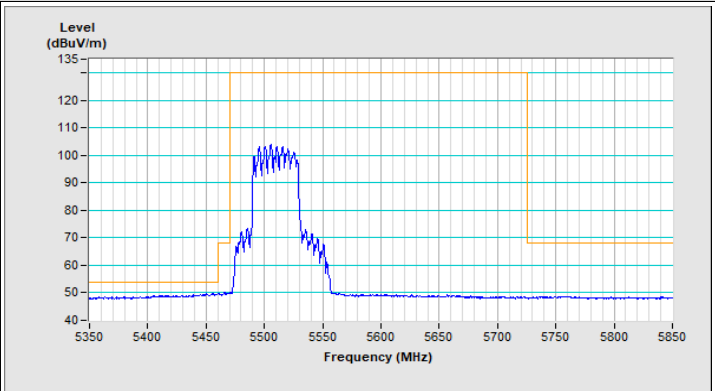


Vertical (Average)

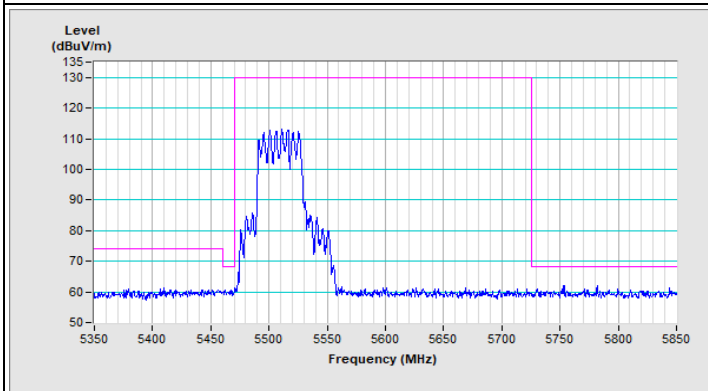
802.11ax (HE40) Channel 102



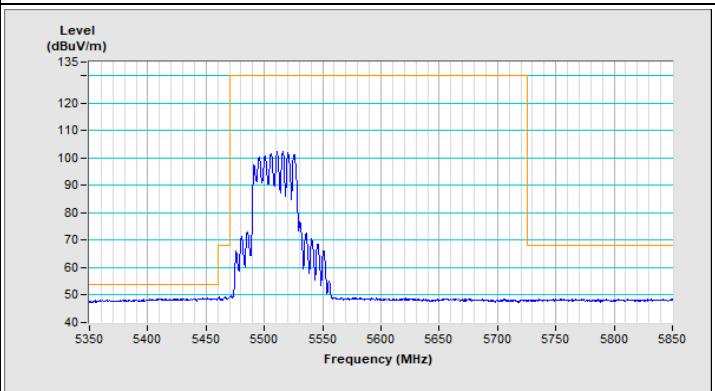
Horizontal (Peak)



Horizontal (Average)

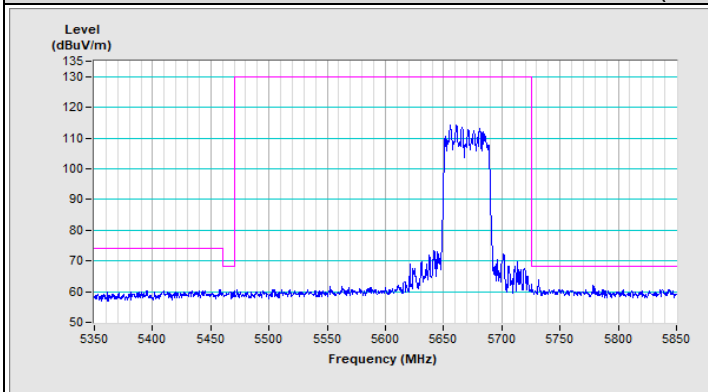


Vertical (Peak)

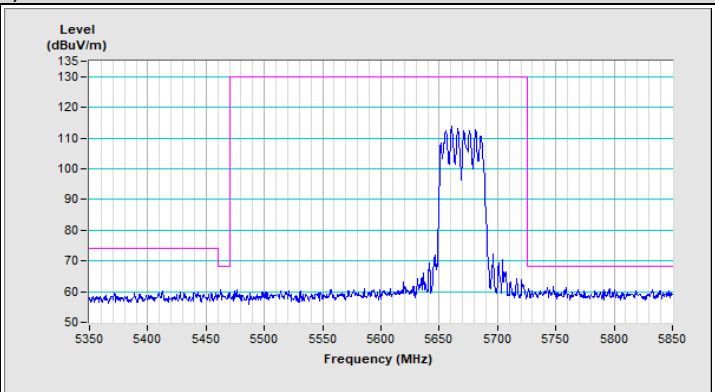


Vertical (Average)

802.11ax (HE40) Channel 134

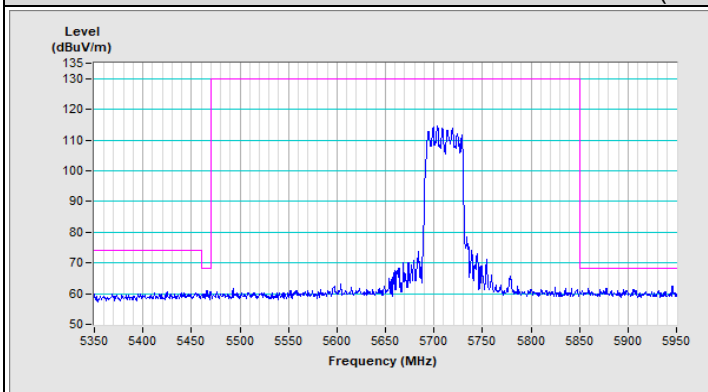


Horizontal (Peak)

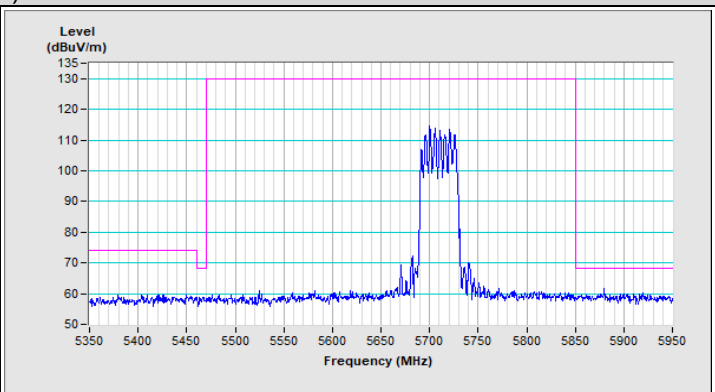


Vertical (Peak)

802.11ax (HE40) Channel 142

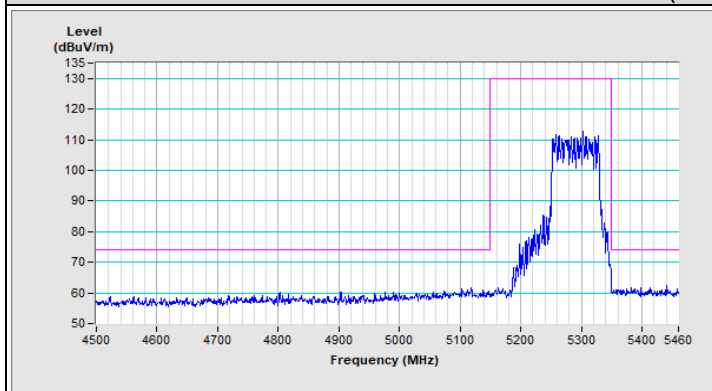


Horizontal (Peak)

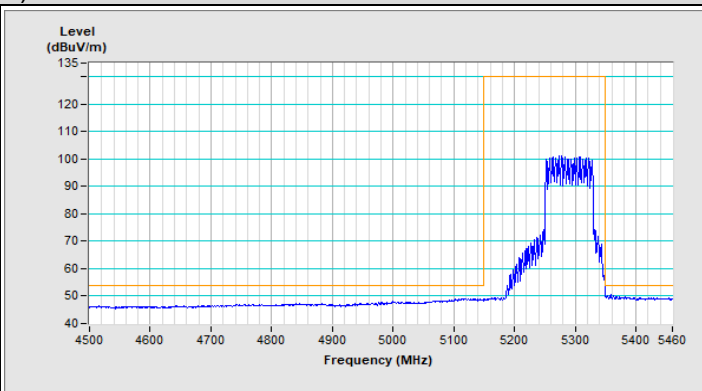


Vertical (Peak)

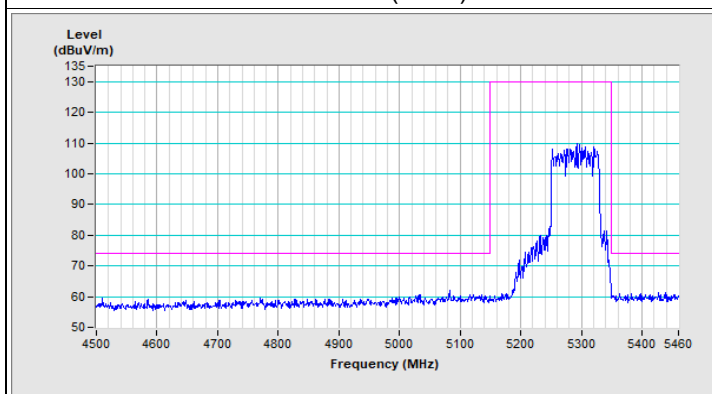
802.11ax (HE80) Channel 58



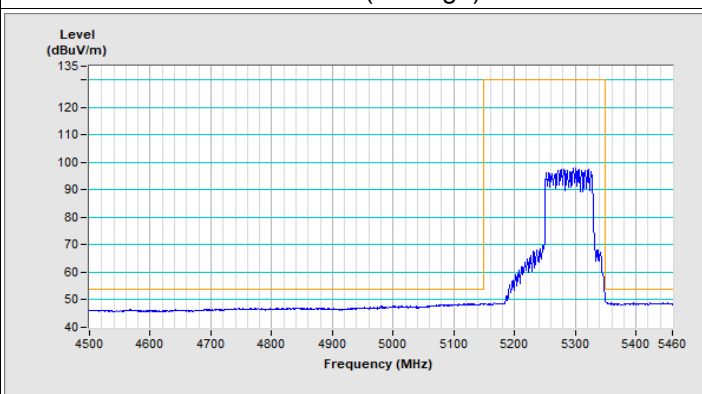
Horizontal (Peak)



Horizontal (Average)

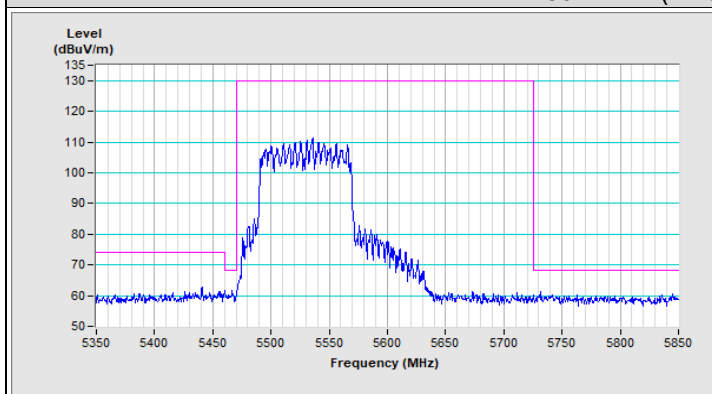


Vertical (Peak)

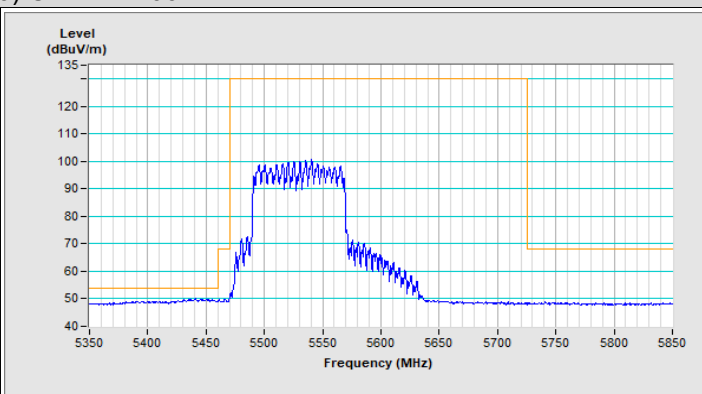


Vertical (Average)

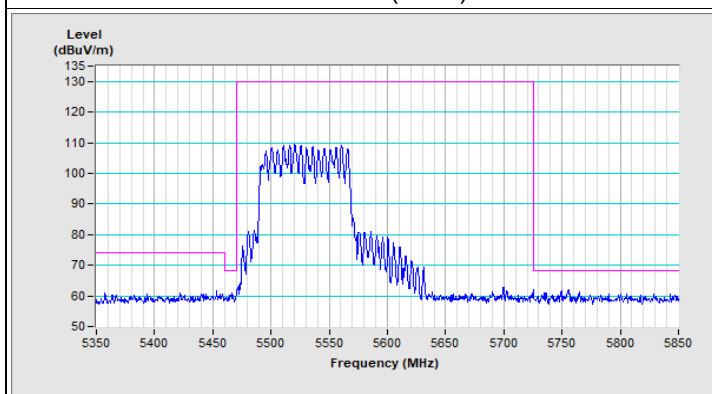
802.11ax (HE80) Channel 106



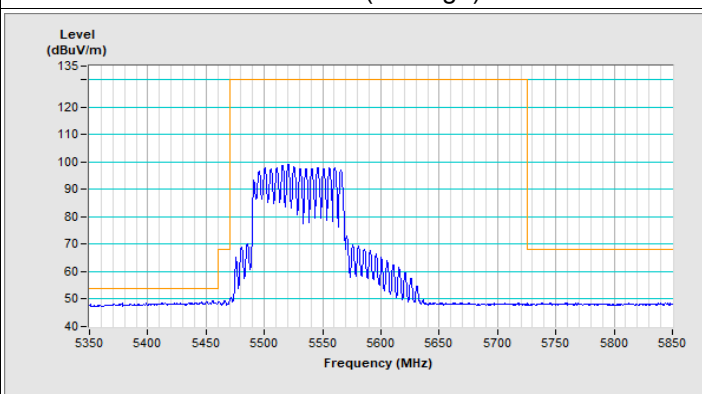
Horizontal (Peak)



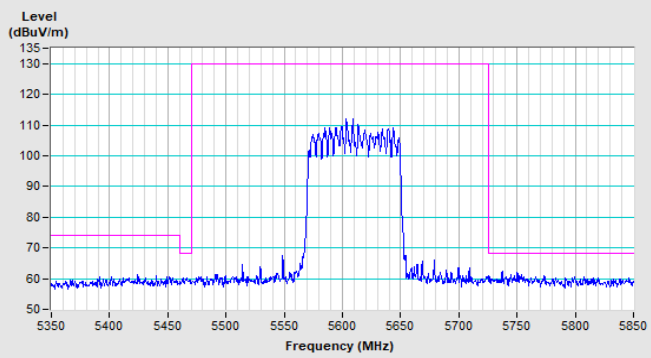
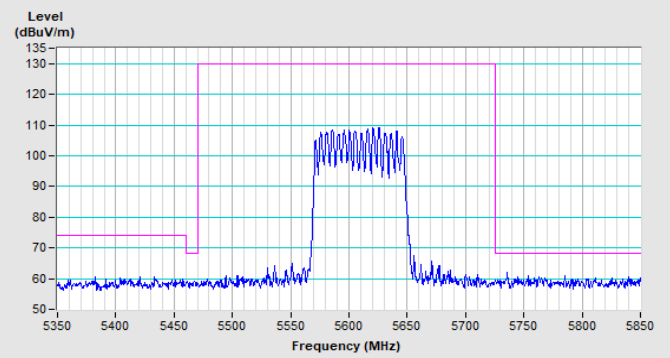
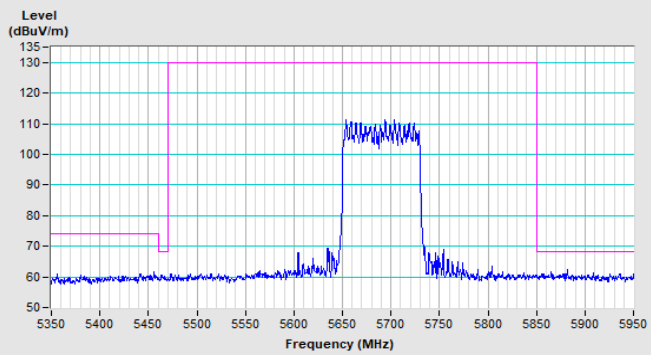
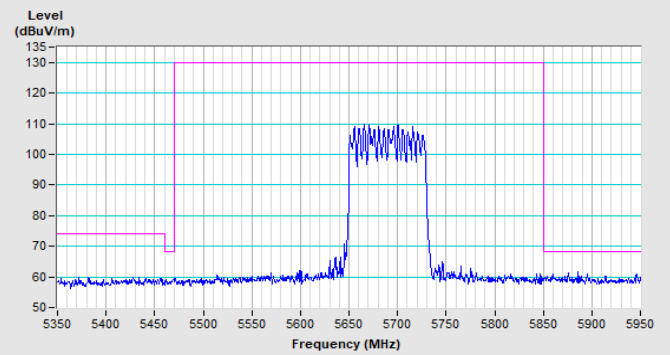
Horizontal (Average)



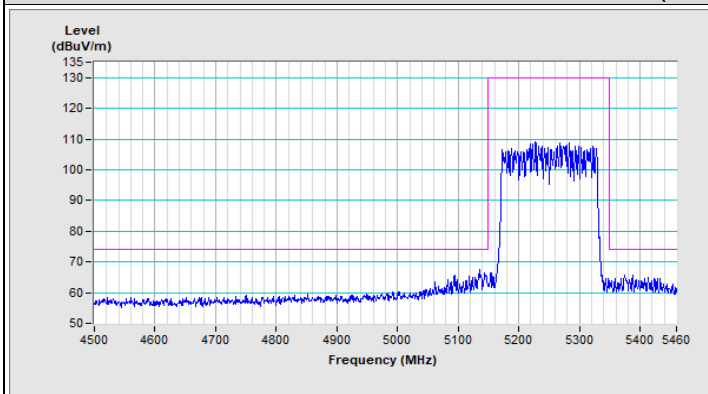
Vertical (Peak)



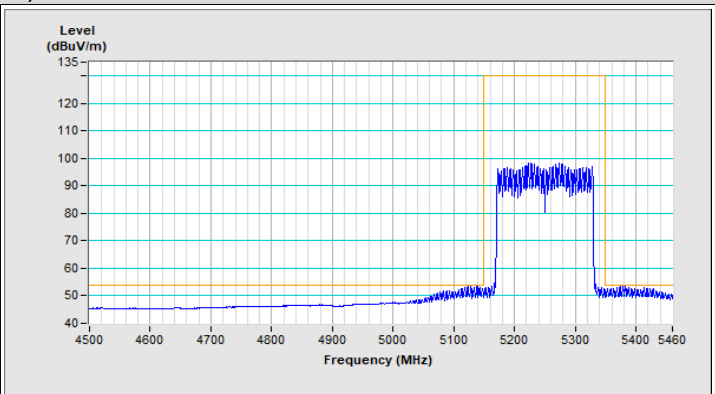
Vertical (Average)

802.11ax (HE80) Channel 122**Horizontal (Peak)****Vertical (Peak)****802.11ax (HE80) Channel 138****Horizontal (Peak)****Vertical (Peak)**

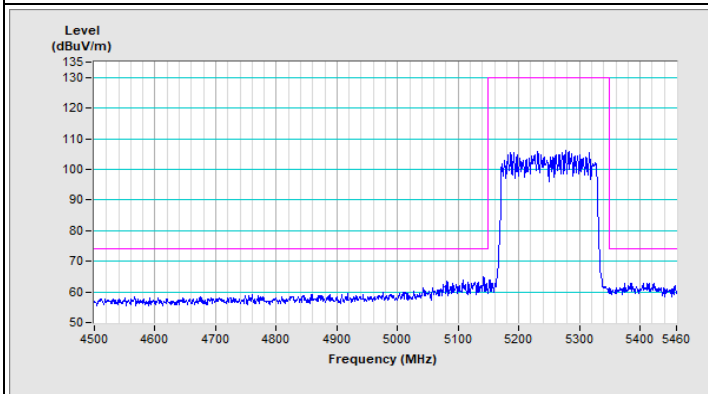
802.11ax (HE160) Channel 50



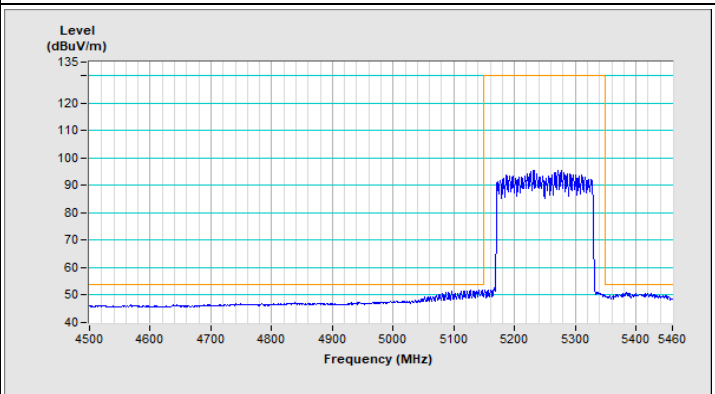
Horizontal (Peak)



Horizontal (Average)

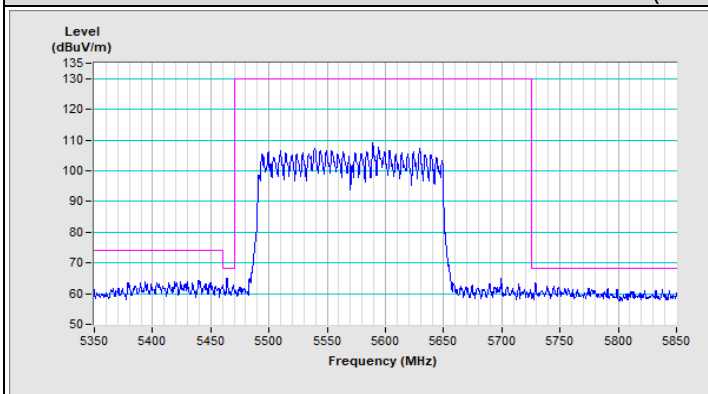


Vertical (Peak)

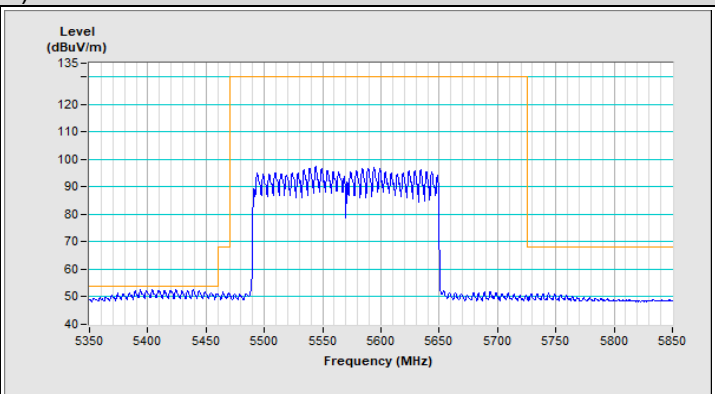


Vertical (Average)

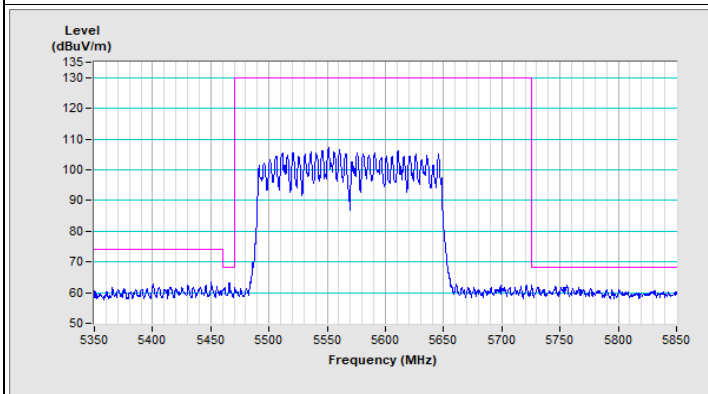
802.11ax (HE160) Channel 114



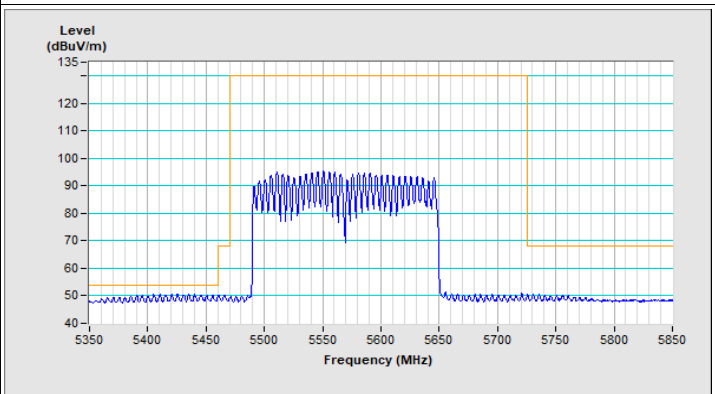
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

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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Web Site: <http://ee.bureauveritas.com.tw>

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

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