

FCC Test Report

Report No.: RFBDYS-WTW-P20100843A

FCC ID: Q6G-AP330

Test Model: AP330

Received Date: Nov. 01, 2020

Test Date: Nov. 12, 2020 ~ Jan. 18, 2021

Issued Date: Apr. 26, 2021

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Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P20100843A	Original release.	Apr. 26, 2021

1 Certificate of Conformity

Product: Wireless Access Point

Brand: WatchGuard

Test Model: AP330

Sample Status: Engineering sample

Applicant: WatchGuard Technologies, Inc.

Test Date: Nov. 12, 2020 ~ Jan. 18, 2021

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

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.

Prepared by : , **Date:** Apr. 26, 2021
Polly Chien / Specialist

Approved by : , **Date:** Apr. 26, 2021
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.38dB at 0.34108MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 5470.00MHz & 5725.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	N/A	Not Applicable
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector are IPEX not a standard connector.

Note:

1. For U-NII-2A, U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
2. 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	Frequency	Expanded Uncertainty (k=2) (\pm)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Access Point
Brand	WatchGuard
Test Model	AP330
Sample Status	Engineering sample
Power Supply rating	12Vdc from Adapter 54Vdc from PoE
Modulation Type	802.11a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps 802.11ax: up to 1201Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5700MHz
Number of Channel	<u>5GHz traffic radio:</u> 5260 ~ 5320MHz: 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 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 5 802.11ac (VHT80), 802.11ax (HE80): 2 <u>Scanning radio:</u> 5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2
Output Power	CDD Mode: 5260 ~ 5320MHz: 5G traffic radio: 198.742mW Scanning radio: 236.835mW 5500 ~ 5700MHz: 5G traffic radio: 205.971mW Scanning radio: 236.355mW Beamforming Mode: 5260 ~ 5320MHz: 5G traffic radio: 99.378mW 5500 ~ 5700MHz: 5G traffic radio: 95.624mW

Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV CPS report no.: RFBDYS-WTW-P20100843-1) are adding 5.26GHz to 5.32GHz and 5.50GHz to 5.70GHz by software.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	CDD Mode	Beamforming Mode	TX Function	Radio
802.11a	Support	Not Support	2TX	5G traffic radio (Radio 2)
802.11n (HT20)	Support	Not Support	2TX	
802.11n (HT40)	Support	Not Support	2TX	
802.11ac (VHT20)	Support	Support	2TX	
802.11ac (VHT40)	Support	Support	2TX	
802.11ac (VHT80)	Support	Support	2TX	
802.11ax (HE20)	Support	Support	2TX	
802.11ax (HE40)	Support	Support	2TX	
802.11ax (HE80)	Support	Support	2TX	
802.11a	Support	Not Support	2TX	Scanning radio (Radio 3)
802.11n (HT20)	Support	Not Support	2TX	
802.11n (HT40)	Support	Not Support	2TX	
802.11ac (VHT20)	Support	Not Support	2TX	
802.11ac (VHT40)	Support	Not Support	2TX	
802.11ac (VHT80)	Support	Not Support	2TX	

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40/VHT80 on 802.11n mode and HE20/HE40/HE80 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11ax, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

3. The EUT consumes power from the following POE and adapter.

POE (support unit only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A

Adapter (support unit only)	
Brand	APD
Model	WA-30J12R
Input Power	100-240Vac, 50-60Hz, 0.9A
Output Power	12.0Vdc, 2.5A, 30.0W
Power Cord	1.45m power cable w/o core

4. The following antennas were provided to the EUT.

Antenna Type	PIFA					
Antenna Connector	IPEX					
Antenna No.	Gain (dBi)					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
2G1	2.82	2.12	2.02	-	-	-
2G2	3.31	3.67	2.68	-	-	-
5G1	-	-	-	4.41	4.21	4.96
5G2	-	-	-	4.93	4.19	3.35
Scan1	4.54	3.95	4.48	5.67	5.61	6.15
Scan2	4.34	4.25	4.83	4.78	4.26	4.40
BLE	2.41	2.21	2.01	-	-	-

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

5. 2G traffic radio, 5G traffic radio, Scanning radio (5G) and BT LE technologies can transmit at same time.

*2G traffic radio, 5G traffic radio, Scanning radio (5G) and Zigbee technologies can transmit at same time.

*5GHz traffic radio and Scanning radio (5G) cannot transmit in the same band at same time.

* BT LE and Zigbee cannot transmit in the same band at same time.

6. Spurious emission of the simultaneous operation (WLAN, BLE and Zigbee) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

5260~5320MHz:

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

Channel	Frequency
58	5290MHz

5500~5700MHz:

11 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		

5 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		

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

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	√	√	-	Power from PoE

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	5G traffic radio
A	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0	
A	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0	
A	802.11ax (HE80)		58	58	OFDMA	MCS0	
A	802.11a		52 to 64	52, 60, 64	OFDM	6.0	Scanning radio
A	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2	
A	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0	
A	802.11ac (VHT80)		58	58	OFDM	29.3	
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0	5G traffic radio
A	802.11ax (HE20)		100 to 140	100, 116, 140	OFDMA	MCS0	
A	802.11ax (HE40)		102 to 134	102, 110, 134	OFDMA	MCS0	
A	802.11ax (HE80)		106, 122	106, 122	OFDMA	MCS0	
A	802.11a		100 to 140	100, 116, 140	OFDM	6.0	Scanning radio
A	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	7.2	
A	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	15.0	
A	802.11ac (VHT80)		106, 122	106, 122	OFDM	29.3	

Radiated Emission Test (Below 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11ax (HE40)	5500-5700	102 to 134	134	OFDMA	MCS0	5G traffic radio
	802.11a	5500-5700	100 to 140	60	OFDM	6.0	Scanning radio

Power Line Conducted Emission Test:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A, B	802.11ax (HE40)	5500-5700	102 to 134	134	OFDMA	MCS0	5G traffic radio
	802.11a	5500-5700	100 to 140	60	OFDM	6.0	Scanning radio

Antenna Port Conducted Measurement:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)	Remark
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0	5G traffic radio
A	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0	
A	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0	
A	802.11ax (HE80)		58	58	OFDMA	MCS0	
A	802.11a		52 to 64	52, 60, 64	OFDM	6.0	Scanning radio
A	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	7.2	
A	802.11ac (VHT40)		54 to 62	54, 62	OFDM	15.0	
A	802.11ac (VHT80)		58	58	OFDM	29.3	
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0	5G traffic radio
A	802.11ax (HE20)		100 to 140	100, 116, 140	OFDMA	MCS0	
A	802.11ax (HE40)		102 to 134	102, 110, 134	OFDMA	MCS0	
A	802.11ax (HE80)		106, 122	106, 122	OFDMA	MCS0	
A	802.11a		100 to 140	100, 116, 140	OFDM	6.0	Scanning radio
A	802.11ac (VHT20)		100 to 140	100, 116, 140	OFDM	7.2	
A	802.11ac (VHT40)		102 to 134	102, 110, 134	OFDM	15.0	
A	802.11ac (VHT80)		106, 122	106, 122	OFDM	29.3	

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE\geq1G	23 deg. C, 66% RH	120Vac, 60Hz	Titan Hsu, Willy Cheng
	23 deg. C, 68% RH		
RE<1G	22 deg. C, 68% RH	120Vac, 60Hz	Edison Lee
PLC	23 deg. C, 67% RH	120Vac, 60Hz 54Vdc	Edison Lee
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu, Ted Chang

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor shall be considered.

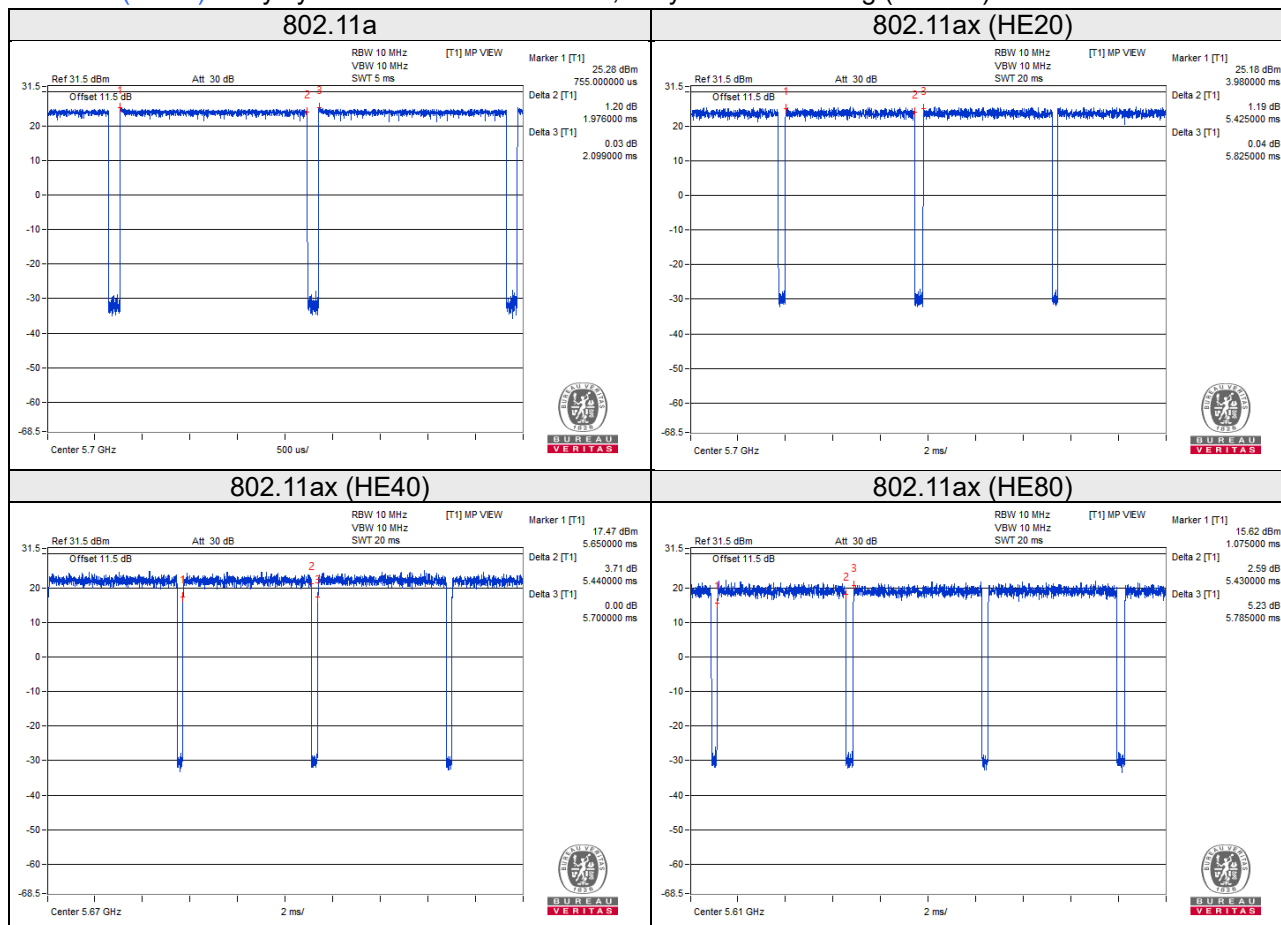
5G traffic radio:

802.11a: Duty cycle = $1.976/2.099 = 0.941$, Duty factor = $10 * \log(1/0.941) = 0.26$

802.11ax (HE20): Duty cycle = $5.425/5.825 = 0.931$, Duty factor = $10 * \log(1/0.931) = 0.31$

802.11ax (HE40): Duty cycle = $5.440/5.700 = 0.954$, Duty factor = $10 * \log(1/0.954) = 0.20$

802.11ax (HE80): Duty cycle = $5.430/5.785 = 0.939$, Duty factor = $10 * \log(1/0.939) = 0.28$



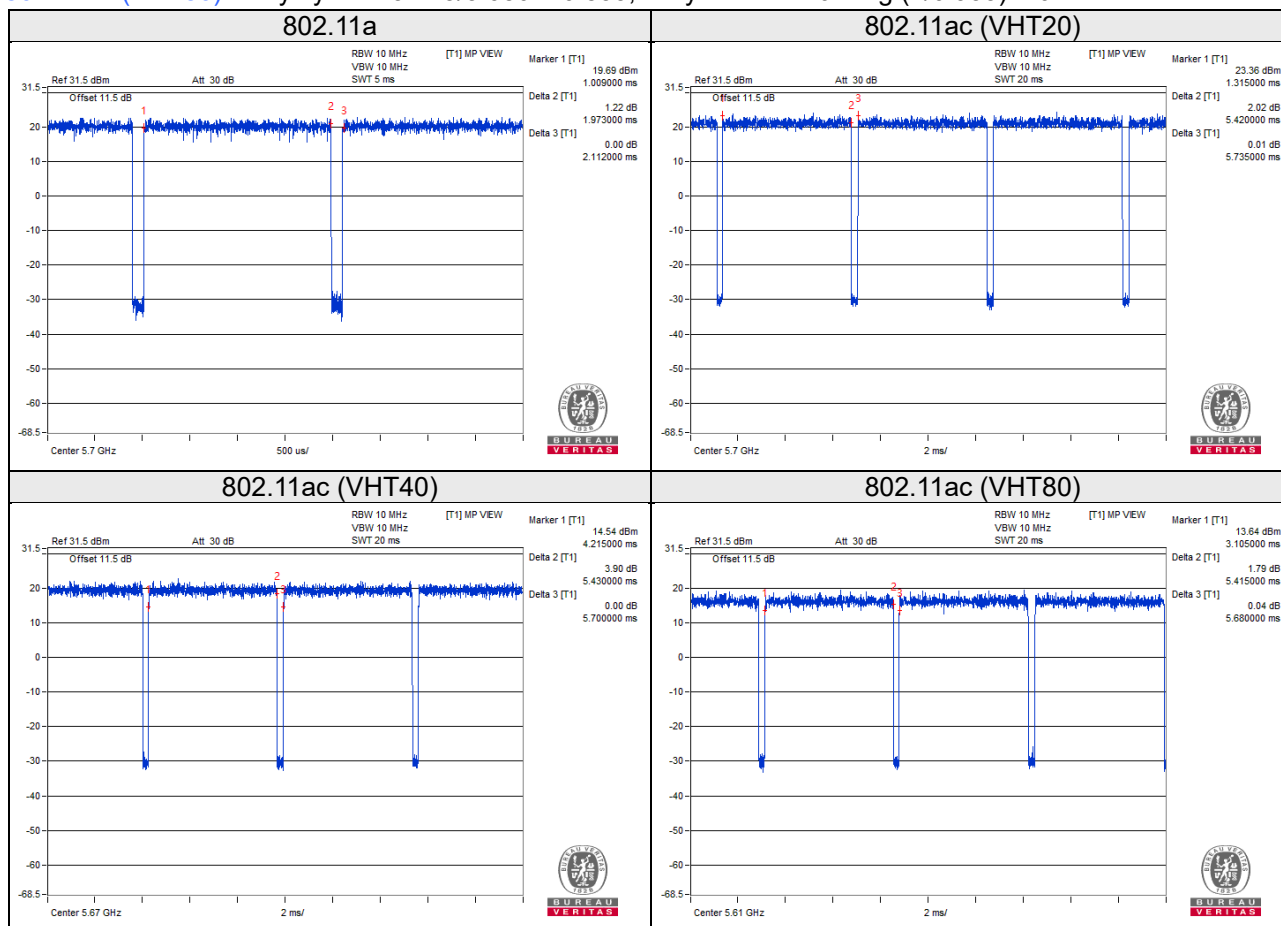
Scanning radio:

802.11a: Duty cycle = $1.973/2.112 = 0.934$, Duty factor = $10 * \log(1/0.934) = 0.30$

802.11ac (VHT20): Duty cycle = $5.420/5.735 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

802.11ac (VHT40): Duty cycle = $5.430/5.700 = 0.953$, Duty factor = $10 * \log(1/0.953) = 0.21$

802.11ac (VHT80): Duty cycle = $5.415/5.680 = 0.853$, Duty factor = $10 * \log(1/0.953) = 0.21$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Adapter	APD	WA-30J12R	NA	NA	Provided by client
C.	USB Flash	Sandisk	SDDDC-032G	NA	NA	-
D.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by client

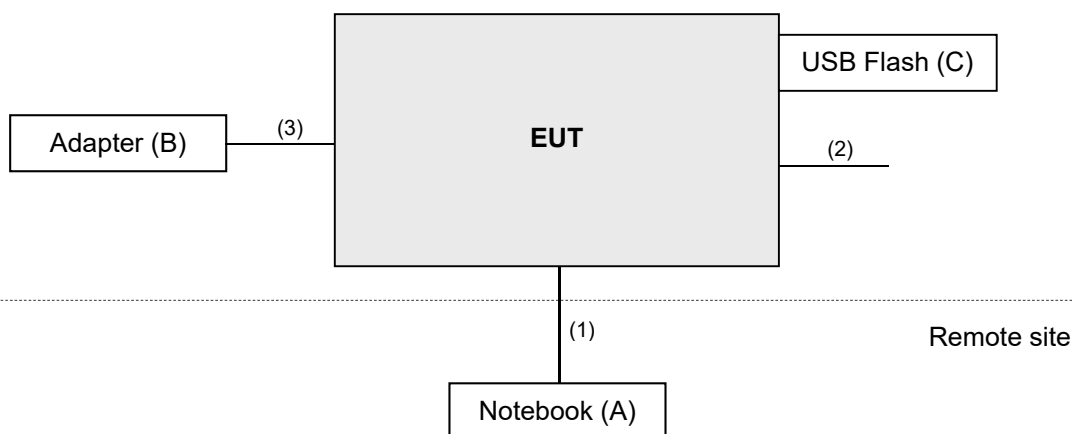
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

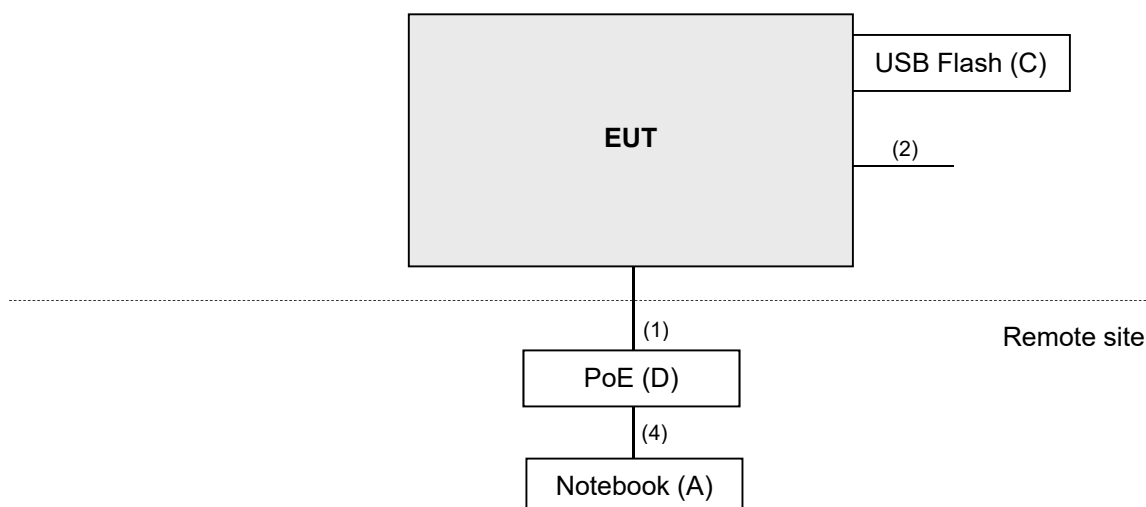
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN	1	7.0	N	0	RJ45, Cat5e
2.	Console cable	1	1.45	N	0	Provided by client
3.	Power cable	1	1.8	-	0	Provided by client
4.	LAN	1	1.5	N	0	RJ45, Cat5e

3.4.1 Configuration of System under Test

Mode A



Mode B



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

KDB References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

Note:

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 1000MHz, 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 20dB 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 3m	
			PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK: -27 (dBm/MHz)	PK: 68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	<input checked="" type="checkbox"/>	15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2(dBµV/m) ^{*1} PK: 105.2 (dBµV/m) ^{*2} PK: 110.8(dBµV/m) ^{*3} PK: 122.2 (dBµV/m) ^{*4}
	<input type="checkbox"/>	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019 Nov. 22, 2020	Nov. 23, 2020 Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019 Nov. 22, 2020	Nov. 23, 2020 Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2020	Sep. 03, 2021
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 14, 2020	Jan. 13, 2021
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 13, 2020	Jan. 12, 2021

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.
3. Tested date: Nov. 12, 2020 ~ Dec. 29, 2020

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect 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.

Note:

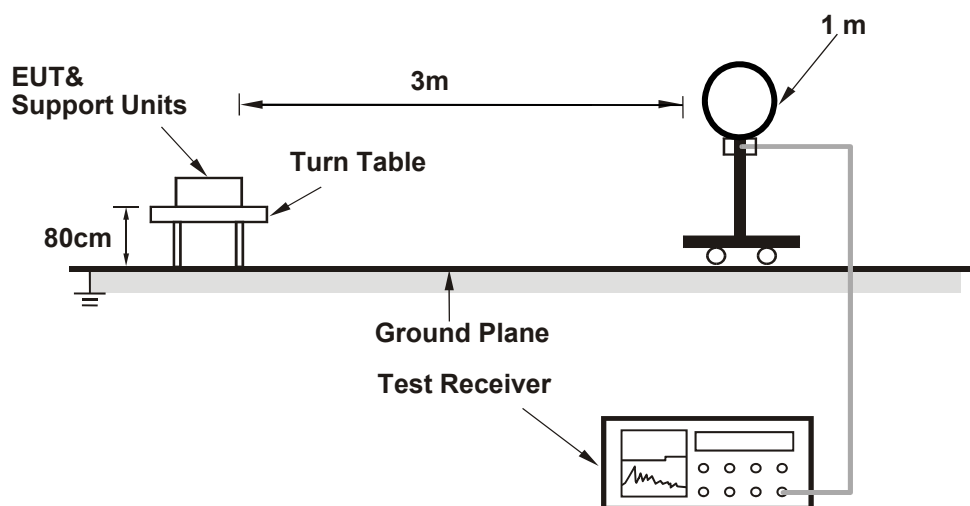
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5G traffic radio: 802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE80): RBW = 1MHz, VBW = 1kHz;
Scanning radio: 802.11a: RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT40): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT80): RBW = 1MHz, VBW = 1kHz
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

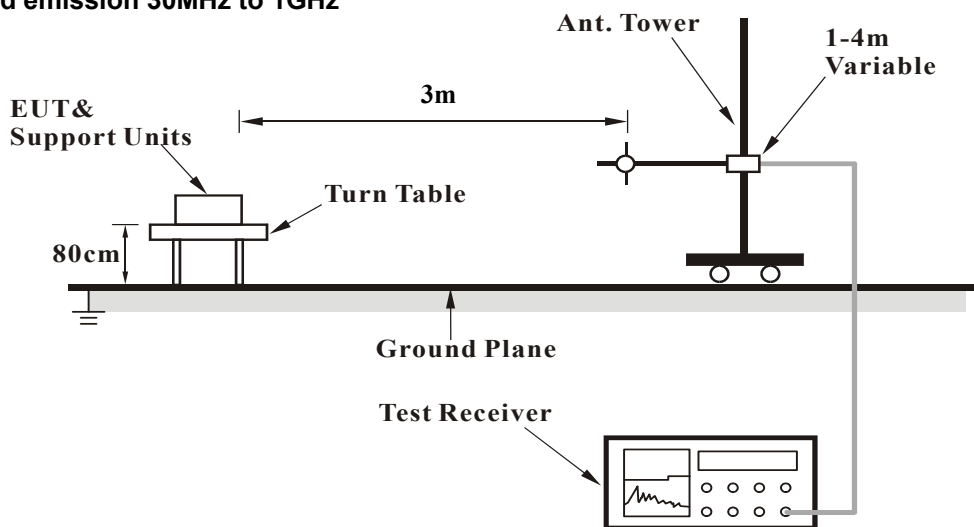
No deviation.

4.1.5 Test Setup

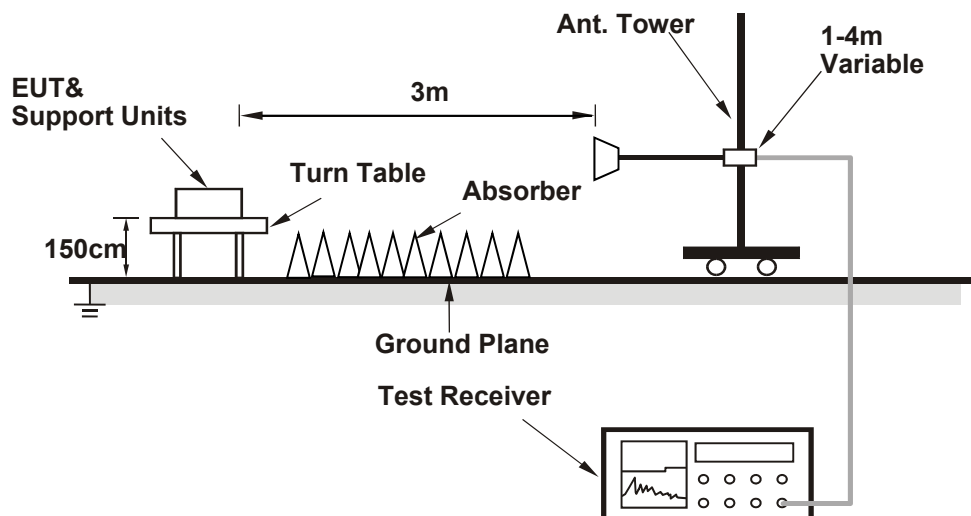
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

Above 1GHz data:

5G traffic radio:

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.1 PK	74.0	-14.9	1.52 H	311	52.6	6.5
2	5150.00	45.7 AV	54.0	-8.3	1.52 H	311	39.2	6.5
3	*5260.00	120.7 PK			1.56 H	308	78.9	41.8
4	*5260.00	109.7 AV			1.56 H	308	67.9	41.8
5	#10520.00	61.1 PK	68.2	-7.1	1.02 H	347	43.7	17.4
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	5150.00	59.3 PK	74.0	-14.7	1.99 V	312	52.8	6.5
2	5150.00	45.5 AV	54.0	-8.5	1.99 V	312	39.0	6.5
3	*5260.00	118.7 PK			2.08 V	301	76.9	41.8
4	*5260.00	108.4 AV			2.08 V	301	66.6	41.8
5	#10520.00	60.1 PK	68.2	-8.1	1.48 V	269	42.7	17.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	121.2 PK			1.97 H	328	79.3	41.9
2	*5300.00	110.1 AV			1.97 H	328	68.2	41.9
3	10600.00	59.5 PK	74.0	-14.5	1.00 H	347	42.4	17.1
4	10600.00	46.6 AV	54.0	-7.4	1.00 H	347	29.5	17.1
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	*5300.00	118.1 PK			1.95 V	300	76.2	41.9
2	*5300.00	107.8 AV			1.95 V	300	65.9	41.9
3	10600.00	59.9 PK	74.0	-14.1	1.62 V	274	42.8	17.1
4	10600.00	45.7 AV	54.0	-8.3	1.62 V	274	28.6	17.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	118.7 PK			1.16 H	326	76.8	41.9
2	*5320.00	107.7 AV			1.16 H	326	65.8	41.9
3	5350.00	67.3 PK	74.0	-6.7	1.90 H	328	61.0	6.3
4	5350.00	52.3 AV	54.0	-1.7	1.90 H	328	46.0	6.3
5	10640.00	60.5 PK	74.0	-13.5	1.00 H	349	43.2	17.3
6	10640.00	47.2 AV	54.0	-6.8	1.00 H	349	29.9	17.3
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	*5320.00	115.6 PK			2.16 V	302	73.7	41.9
2	*5320.00	105.3 AV			2.16 V	302	63.4	41.9
3	5350.00	65.9 PK	74.0	-8.1	2.05 V	318	59.6	6.3
4	5350.00	50.1 AV	54.0	-3.9	2.05 V	318	43.8	6.3
5	10640.00	60.4 PK	74.0	-13.6	1.43 V	264	43.1	17.3
6	10640.00	45.6 AV	54.0	-8.4	1.43 V	264	28.3	17.3

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.9 PK	74.0	-15.1	1.66 H	297	52.7	6.2
2	5460.00	45.5 AV	54.0	-8.5	1.66 H	297	39.3	6.2
3	#5470.00	66.5 PK	68.2	-1.7	1.68 H	295	60.3	6.2
4	*5500.00	119.7 PK			1.65 H	299	77.8	41.9
5	*5500.00	108.9 AV			1.65 H	299	67.0	41.9
6	11000.00	61.9 PK	74.0	-12.1	1.39 H	295	43.5	18.4
7	11000.00	50.3 AV	54.0	-3.7	1.39 H	295	31.9	18.4
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	57.7 PK	74.0	-16.3	1.47 V	281	51.5	6.2
2	5460.00	44.7 AV	54.0	-9.3	1.47 V	281	38.5	6.2
3	#5470.00	60.7 PK	68.2	-7.5	1.45 V	279	54.5	6.2
4	*5500.00	117.5 PK			1.16 V	277	75.6	41.9
5	*5500.00	106.6 AV			1.16 V	277	64.7	41.9
6	11000.00	60.7 PK	74.0	-13.3	1.04 V	299	42.3	18.4
7	11000.00	49.1 AV	54.0	-4.9	1.04 V	299	30.7	18.4

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	121.3 PK			1.73 H	334	79.3	42.0
2	*5580.00	110.7 AV			1.73 H	334	68.7	42.0
3	11160.00	59.8 PK	74.0	-14.2	1.46 H	298	41.7	18.1
4	11160.00	47.2 AV	54.0	-6.8	1.46 H	298	29.1	18.1
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	*5580.00	120.4 PK			1.24 V	282	78.4	42.0
2	*5580.00	109.7 AV			1.24 V	282	67.7	42.0
3	11160.00	60.3 PK	74.0	-13.7	1.11 V	302	42.2	18.1
4	11160.00	48.6 AV	54.0	-5.4	1.11 V	302	30.5	18.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	119.0 PK			1.30 H	329	76.9	42.1
2	*5700.00	108.5 AV			1.30 H	329	66.4	42.1
3	#5725.00	66.6 PK	68.2	-1.6	1.24 H	327	60.3	6.3
4	11400.00	60.8 PK	74.0	-13.2	1.75 H	303	43.2	17.6
5	11400.00	48.1 AV	54.0	-5.9	1.75 H	303	30.5	17.6
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			1.30 V	284	76.0	42.1
2	*5700.00	107.8 AV			1.30 V	284	65.7	42.1
3	#5725.00	65.3 PK	68.2	-2.9	1.32 V	289	59.0	6.3
4	11400.00	59.7 PK	74.0	-14.3	1.06 V	302	42.1	17.6
5	11400.00	48.1 AV	54.0	-5.9	1.06 V	302	30.5	17.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ax (HE20)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.3 PK	74.0	-14.7	1.77 H	319	52.8	6.5
2	5150.00	45.7 AV	54.0	-8.3	1.77 H	319	39.2	6.5
3	*5260.00	120.6 PK			1.89 H	326	78.8	41.8
4	*5260.00	110.4 AV			1.89 H	326	68.6	41.8
5	#10520.00	60.4 PK	68.2	-7.8	1.00 H	347	43.0	17.4
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	5150.00	59.1 PK	74.0	-14.9	2.03 V	305	52.6	6.5
2	5150.00	45.4 AV	54.0	-8.6	2.03 V	305	38.9	6.5
3	*5260.00	119.7 PK			1.97 V	298	77.9	41.8
4	*5260.00	106.5 AV			1.97 V	298	64.7	41.8
5	#10520.00	59.9 PK	68.2	-8.3	1.43 V	287	42.5	17.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	120.4 PK			1.29 H	324	78.5	41.9
2	*5300.00	109.7 AV			1.29 H	324	67.8	41.9
3	10600.00	59.4 PK	74.0	-14.6	1.00 H	349	42.3	17.1
4	10600.00	46.7 AV	54.0	-7.3	1.00 H	349	29.6	17.1
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	*5300.00	119.9 PK			2.37 V	314	78.0	41.9
2	*5300.00	106.2 AV			2.37 V	314	64.3	41.9
3	10600.00	59.9 PK	74.0	-14.1	1.89 V	274	42.8	17.1
4	10600.00	45.7 AV	54.0	-8.3	1.89 V	274	28.6	17.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	120.9 PK			1.91 H	329	79.0	41.9
2	*5320.00	107.4 AV			1.91 H	329	65.5	41.9
3	5350.00	69.1 PK	74.0	-4.9	1.27 H	324	62.8	6.3
4	5350.00	52.2 AV	54.0	-1.8	1.27 H	324	45.9	6.3
5	10640.00	59.9 PK	74.0	-14.1	1.03 H	327	42.6	17.3
6	10640.00	46.8 AV	54.0	-7.2	1.03 H	327	29.5	17.3
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	*5320.00	118.7 PK			2.30 V	320	76.8	41.9
2	*5320.00	104.9 AV			2.30 V	320	63.0	41.9
3	5350.00	69.7 PK	74.0	-4.3	2.28 V	321	63.4	6.3
4	5350.00	51.1 AV	54.0	-2.9	2.28 V	321	44.8	6.3
5	10640.00	60.6 PK	74.0	-13.4	1.48 V	279	43.3	17.3
6	10640.00	46.8 AV	54.0	-7.2	1.48 V	279	29.5	17.3

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.5 PK	74.0	-15.5	1.38 H	336	52.3	6.2
2	5460.00	45.2 AV	54.0	-8.8	1.38 H	336	39.0	6.2
3	#5470.00	66.5 PK	68.2	-1.7	1.36 H	330	60.3	6.2
4	*5500.00	120.7 PK			2.06 H	325	78.8	41.9
5	*5500.00	107.3 AV			2.06 H	325	65.4	41.9
6	11000.00	61.1 PK	74.0	-12.9	1.42 H	297	42.7	18.4
7	11000.00	50.3 AV	54.0	-3.7	1.42 H	297	31.9	18.4
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	57.8 PK	74.0	-16.2	1.06 V	288	51.6	6.2
2	5460.00	45.4 AV	54.0	-8.6	1.06 V	288	39.2	6.2
3	#5470.00	62.1 PK	68.2	-6.1	1.03 V	284	55.9	6.2
4	*5500.00	119.5 PK			1.17 V	280	77.6	41.9
5	*5500.00	105.9 AV			1.17 V	280	64.0	41.9
6	11000.00	60.4 PK	74.0	-13.6	1.09 V	289	42.0	18.4
7	11000.00	48.8 AV	54.0	-5.2	1.09 V	289	30.4	18.4

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	121.7 PK			2.08 H	323	79.7	42.0
2	*5580.00	107.7 AV			2.08 H	323	65.7	42.0
3	11160.00	60.3 PK	74.0	-13.7	2.03 H	278	42.2	18.1
4	11160.00	47.4 AV	54.0	-6.6	2.03 H	278	29.3	18.1
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	*5580.00	121.2 PK			1.17 V	288	79.2	42.0
2	*5580.00	107.0 AV			1.17 V	288	65.0	42.0
3	11160.00	60.3 PK	74.0	-13.7	1.12 V	302	42.2	18.1
4	11160.00	48.1 AV	54.0	-5.9	1.12 V	302	30.0	18.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	121.2 PK			1.19 H	330	79.1	42.1
2	*5700.00	107.8 AV			1.19 H	330	65.7	42.1
3	#5725.00	67.2 PK	68.2	-1.0	1.23 H	331	60.9	6.3
4	11400.00	60.0 PK	74.0	-14.0	2.23 H	309	42.4	17.6
5	11400.00	47.7 AV	54.0	-6.3	2.23 H	309	30.1	17.6
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	120.6 PK			1.37 V	287	78.5	42.1
2	*5700.00	107.3 AV			1.37 V	287	65.2	42.1
3	#5725.00	64.6 PK	68.2	-3.6	1.45 V	281	58.3	6.3
4	11400.00	59.8 PK	74.0	-14.2	1.12 V	303	42.2	17.6
5	11400.00	48.1 AV	54.0	-5.9	1.12 V	303	30.5	17.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ax (HE40)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.4 PK	74.0	-14.6	1.86 H	312	52.9	6.5
2	5150.00	45.7 AV	54.0	-8.3	1.86 H	312	39.2	6.5
3	*5270.00	120.5 PK			1.91 H	326	78.6	41.9
4	*5270.00	107.0 AV			1.91 H	326	65.1	41.9
5	#10540.00	60.1 PK	68.2	-8.1	1.07 H	314	42.6	17.5
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	59.1 PK	74.0	-14.9	2.03 V	311	52.6	6.5
2	5150.00	45.6 AV	54.0	-8.4	2.03 V	311	39.1	6.5
3	*5270.00	117.2 PK			1.95 V	303	75.3	41.9
4	*5270.00	104.3 AV			1.95 V	303	62.4	41.9
5	#10540.00	60.4 PK	68.2	-7.8	1.89 V	288	42.9	17.5

Remarks:

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

CHANNEL	TX Channel 62	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	118.2 PK			1.95 H	329	76.3	41.9
2	*5310.00	105.0 AV			1.95 H	329	63.1	41.9
3	5350.00	70.8 PK	74.0	-3.2	1.93 H	327	64.5	6.3
4	5350.00	52.4 AV	54.0	-1.6	1.93 H	327	46.1	6.3
5	10620.00	59.9 PK	74.0	-14.1	1.12 H	339	42.6	17.3
6	10620.00	45.6 AV	54.0	-8.4	1.12 H	339	28.3	17.3
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	115.7 PK			2.08 V	302	73.8	41.9
2	*5310.00	102.2 AV			2.08 V	302	60.3	41.9
3	5350.00	66.1 PK	74.0	-7.9	1.87 V	310	59.8	6.3
4	5350.00	49.0 AV	54.0	-5.0	1.87 V	310	42.7	6.3
5	10620.00	59.8 PK	74.0	-14.2	1.47 V	286	42.5	17.3
6	10620.00	45.5 AV	54.0	-8.5	1.47 V	286	28.2	17.3

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	60.9 PK	74.0	-13.1	2.08 H	329	54.7	6.2
2	5460.00	46.8 AV	54.0	-7.2	2.08 H	329	40.6	6.2
3	#5470.00	66.5 PK	68.2	-1.7	2.13 H	325	60.3	6.2
4	*5510.00	117.4 PK			2.09 H	318	75.5	41.9
5	*5510.00	104.0 AV			2.09 H	318	62.1	41.9
6	11020.00	60.3 PK	74.0	-13.7	1.37 H	296	42.0	18.3
7	11020.00	49.4 AV	54.0	-4.6	1.37 H	296	31.1	18.3
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	5460.00	57.7 PK	74.0	-16.3	1.35 V	299	51.5	6.2
2	5460.00	45.7 AV	54.0	-8.3	1.35 V	299	39.5	6.2
3	#5470.00	59.5 PK	68.2	-8.7	1.39 V	301	53.3	6.2
4	*5510.00	115.0 PK			1.32 V	278	73.1	41.9
5	*5510.00	101.8 AV			1.32 V	278	59.9	41.9
6	11020.00	60.5 PK	74.0	-13.5	1.12 V	303	42.2	18.3
7	11020.00	48.3 AV	54.0	-5.7	1.12 V	303	30.0	18.3

Remarks:

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

CHANNEL	TX Channel 110	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	118.2 PK			1.79 H	295	76.2	42.0
2	*5550.00	104.7 AV			1.79 H	295	62.7	42.0
3	11100.00	60.1 PK	74.0	-13.9	1.90 H	331	42.2	17.9
4	11100.00	46.9 AV	54.0	-7.1	1.90 H	331	29.0	17.9
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	117.5 PK			1.31 V	281	75.5	42.0
2	*5550.00	104.2 AV			1.31 V	281	62.2	42.0
3	11100.00	59.9 PK	74.0	-14.1	1.22 V	307	42.0	17.9
4	11100.00	47.8 AV	54.0	-6.2	1.22 V	307	29.9	17.9

Remarks:

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

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	117.2 PK			1.66 H	335	75.1	42.1
2	*5670.00	104.0 AV			1.66 H	335	61.9	42.1
3	#5725.00	66.6 PK	68.2	-1.6	1.66 H	335	60.3	6.3
4	11340.00	59.5 PK	74.0	-14.5	1.86 H	319	41.7	17.8
5	11340.00	47.2 AV	54.0	-6.8	1.86 H	319	29.4	17.8
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	*5670.00	116.7 PK			1.29 V	283	74.6	42.1
2	*5670.00	103.6 AV			1.29 V	283	61.5	42.1
3	#5725.00	64.6 PK	68.2	-3.6	1.25 V	288	58.3	6.3
4	11340.00	59.8 PK	74.0	-14.2	1.13 V	308	42.0	17.8
5	11340.00	47.6 AV	54.0	-6.4	1.13 V	308	29.8	17.8

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ax (HE80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.9 PK	74.0	-14.1	1.99 H	334	53.4	6.5
2	5150.00	46.3 AV	54.0	-7.7	1.99 H	334	39.8	6.5
3	*5290.00	115.5 PK			2.00 H	327	73.6	41.9
4	*5290.00	102.7 AV			2.00 H	327	60.8	41.9
5	5350.00	71.5 PK	74.0	-2.5	1.94 H	326	65.2	6.3
6	5350.00	52.6 AV	54.0	-1.4	1.94 H	326	46.3	6.3
7	#10580.00	60.1 PK	68.2	-8.1	1.09 H	336	42.8	17.3
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	5150.00	59.1 PK	74.0	-14.9	1.21 V	318	52.6	6.5
2	5150.00	45.7 AV	54.0	-8.3	1.21 V	318	39.2	6.5
3	*5290.00	113.2 PK			1.15 V	303	71.3	41.9
4	*5290.00	100.6 AV			1.15 V	303	58.7	41.9
5	5350.00	68.1 PK	74.0	-5.9	2.10 V	307	61.8	6.3
6	5350.00	49.8 AV	54.0	-4.2	2.10 V	307	43.5	6.3
7	#10580.00	59.3 PK	68.2	-8.9	1.95 V	343	42.0	17.3

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	66.5 PK	74.0	-7.5	2.08 H	320	60.3	6.2
2	5460.00	47.9 AV	54.0	-6.1	2.08 H	320	41.7	6.2
3	#5470.00	67.2 PK	68.2	-1.0	2.06 H	317	61.0	6.2
4	*5530.00	113.2 PK			2.08 H	319	71.2	42.0
5	*5530.00	100.1 AV			2.08 H	319	58.1	42.0
6	#5725.00	57.8 PK	68.2	-10.4	2.11 H	329	51.5	6.3
7	11060.00	59.7 PK	74.0	-14.3	1.26 H	302	41.6	18.1
8	11060.00	47.8 AV	54.0	-6.2	1.26 H	302	29.7	18.1
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	5460.00	64.5 PK	74.0	-9.5	1.33 V	305	58.3	6.2
2	5460.00	46.8 AV	54.0	-7.2	1.33 V	305	40.6	6.2
3	#5470.00	66.2 PK	68.2	-2.0	1.31 V	301	60.0	6.2
4	*5530.00	112.4 PK			1.27 V	279	70.4	42.0
5	*5530.00	99.6 AV			1.27 V	279	57.6	42.0
6	#5725.00	57.8 PK	68.2	-10.4	1.39 V	299	51.5	6.3
7	11060.00	60.2 PK	74.0	-13.8	1.12 V	302	42.1	18.1
8	11060.00	48.2 AV	54.0	-5.8	1.12 V	302	30.1	18.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 122	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	59.8 PK	74.0	-14.2	2.02 H	326	53.6	6.2
2	5460.00	46.0 AV	54.0	-8.0	2.02 H	326	39.8	6.2
3	#5470.00	62.6 PK	68.2	-5.6	2.00 H	320	56.4	6.2
4	*5610.00	113.2 PK			1.22 H	326	71.2	42.0
5	*5610.00	99.6 AV			1.22 H	326	57.6	42.0
6	#5725.00	67.2 PK	68.2	-1.0	1.25 H	331	60.9	6.3
7	11220.00	59.9 PK	74.0	-14.1	1.50 H	312	41.8	18.1
8	11220.00	47.1 AV	54.0	-6.9	1.50 H	312	29.0	18.1
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	5460.00	58.8 PK	74.0	-15.2	2.18 V	295	52.6	6.2
2	5460.00	45.7 AV	54.0	-8.3	2.18 V	295	39.5	6.2
3	#5470.00	60.8 PK	68.2	-7.4	2.21 V	300	54.6	6.2
4	*5610.00	112.3 PK			1.30 V	282	70.3	42.0
5	*5610.00	99.2 AV			1.30 V	282	57.2	42.0
6	#5725.00	66.5 PK	68.2	-1.7	1.30 V	291	60.2	6.3
7	11220.00	60.3 PK	74.0	-13.7	1.16 V	305	42.2	18.1
8	11220.00	48.1 AV	54.0	-5.9	1.16 V	305	30.0	18.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Scanning radio:

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	52.7 PK	74.0	-21.3	1.21 H	333	50.6	2.1
2	5150.00	41.9 AV	54.0	-12.1	1.21 H	333	39.8	2.1
3	*5260.00	108.2 PK			1.18 H	326	72.1	36.1
4	*5260.00	97.7 AV			1.18 H	326	61.6	36.1
5	#10520.00	60.7 PK	68.2	-7.5	1.16 H	53	45.5	15.2
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	5150.00	53.8 PK	74.0	-20.2	1.06 V	43	51.7	2.1
2	5150.00	42.7 AV	54.0	-11.3	1.06 V	43	40.6	2.1
3	*5260.00	114.8 PK			1.00 V	65	78.7	36.1
4	*5260.00	104.2 AV			1.00 V	65	68.1	36.1
5	#10520.00	61.5 PK	68.2	-6.7	1.53 V	26	46.3	15.2

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	108.4 PK			1.33 H	347	72.3	36.1
2	*5300.00	97.8 AV			1.33 H	347	61.7	36.1
3	10600.00	61.5 PK	74.0	-12.5	1.17 H	54	45.9	15.6
4	10600.00	46.7 AV	54.0	-7.3	1.17 H	54	31.1	15.6
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	114.9 PK			1.03 V	57	78.8	36.1
2	*5300.00	104.4 AV			1.03 V	57	68.3	36.1
3	10600.00	62.4 PK	74.0	-11.6	1.56 V	13	46.8	15.6
4	10600.00	48.3 AV	54.0	-5.7	1.56 V	13	32.7	15.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	107.3 PK			1.27 H	351	71.1	36.2
2	*5320.00	96.8 AV			1.27 H	351	60.6	36.2
3	5350.00	62.3 PK	74.0	-11.7	1.21 H	342	60.3	2.0
4	5350.00	44.4 AV	54.0	-9.6	1.21 H	342	42.4	2.0
5	10640.00	61.6 PK	74.0	-12.4	1.05 H	74	45.8	15.8
6	10640.00	46.7 AV	54.0	-7.3	1.05 H	74	30.9	15.8
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	*5320.00	114.1 PK			1.03 V	65	77.9	36.2
2	*5320.00	103.5 AV			1.03 V	65	67.3	36.2
3	5350.00	68.5 PK	74.0	-5.5	1.07 V	55	66.5	2.0
4	5350.00	50.5 AV	54.0	-3.5	1.07 V	55	48.5	2.0
5	10640.00	62.4 PK	74.0	-11.6	1.59 V	25	46.6	15.8
6	10640.00	48.6 AV	54.0	-5.4	1.59 V	25	32.8	15.8

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	58.1 PK	74.0	-15.9	1.17 H	356	55.4	2.7
2	5460.00	42.9 AV	54.0	-11.1	1.17 H	356	40.2	2.7
3	#5470.00	63.2 PK	68.0	-4.8	1.20 H	357	60.5	2.7
4	*5500.00	108.7 PK			1.08 H	359	71.7	37.0
5	*5500.00	98.8 AV			1.08 H	359	61.8	37.0
6	11000.00	58.1 PK	74.0	-15.9	1.31 H	57	41.2	16.9
7	11000.00	44.1 AV	54.0	-9.9	1.31 H	57	27.2	16.9
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	59.9 PK	74.0	-14.1	1.10 V	43	57.2	2.7
2	5460.00	46.1 AV	54.0	-7.9	1.10 V	43	43.4	2.7
3	#5470.00	67.2 PK	68.2	-1.0	1.02 V	68	64.5	2.7
4	*5500.00	114.1 PK			1.02 V	72	77.1	37.0
5	*5500.00	103.4 AV			1.02 V	72	66.4	37.0
6	11000.00	59.1 PK	74.0	-14.9	1.59 V	32	42.2	16.9
7	11000.00	45.4 AV	54.0	-8.6	1.59 V	32	28.5	16.9

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	109.5 PK			1.08 H	357	72.6	36.9
2	*5580.00	99.0 AV			1.08 H	357	62.1	36.9
3	11160.00	57.5 PK	74.0	-16.5	1.29 H	61	41.8	15.7
4	11160.00	43.4 AV	54.0	-10.6	1.29 H	61	27.7	15.7
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	*5580.00	114.2 PK			1.28 V	22	77.3	36.9
2	*5580.00	103.2 AV			1.28 V	22	66.3	36.9
3	11160.00	58.6 PK	74.0	-15.4	1.55 V	52	42.9	15.7
4	11160.00	45.0 AV	54.0	-9.0	1.55 V	52	29.3	15.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	107.8 PK			1.11 H	359	70.6	37.2
2	*5700.00	97.5 AV			1.11 H	359	60.3	37.2
3	#5725.00	62.0 PK	68.2	-6.2	1.07 H	352	59.1	2.9
4	11400.00	57.2 PK	74.0	-16.8	1.32 H	49	41.3	15.9
5	11400.00	43.3 AV	54.0	-10.7	1.32 H	49	27.4	15.9
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	113.8 PK			1.04 V	72	76.6	37.2
2	*5700.00	103.4 AV			1.04 V	72	66.2	37.2
3	#5725.00	67.1 PK	68.2	-1.1	1.01 V	21	64.2	2.9
4	11400.00	58.4 PK	74.0	-15.6	1.62 V	35	42.5	15.9
5	11400.00	44.6 AV	54.0	-9.4	1.62 V	35	28.7	15.9

Remarks:

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

802.11n (HT20)

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	52.7 PK	74.0	-21.3	1.32 H	336	50.6	2.1
2	5150.00	41.8 AV	54.0	-12.2	1.32 H	336	39.7	2.1
3	*5260.00	107.5 PK			1.23 H	342	71.4	36.1
4	*5260.00	97.0 AV			1.23 H	342	60.9	36.1
5	#10520.00	60.7 PK	68.2	-7.5	1.14 H	58	45.5	15.2
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	5150.00	54.6 PK	74.0	-19.4	1.07 V	57	52.5	2.1
2	5150.00	42.9 AV	54.0	-11.1	1.07 V	57	40.8	2.1
3	*5260.00	114.2 PK			1.00 V	60	78.1	36.1
4	*5260.00	103.6 AV			1.00 V	60	67.5	36.1
5	#10520.00	59.9 PK	68.2	-8.3	1.45 V	16	44.7	15.2

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 60	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	108.0 PK			1.45 H	346	71.9	36.1
2	*5300.00	97.4 AV			1.45 H	346	61.3	36.1
3	10600.00	59.3 PK	74.0	-14.7	1.17 H	73	43.7	15.6
4	10600.00	44.7 AV	54.0	-9.3	1.17 H	73	29.1	15.6
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	114.5 PK			1.03 V	46	78.4	36.1
2	*5300.00	104.0 AV			1.03 V	46	67.9	36.1
3	10600.00	60.3 PK	74.0	-13.7	1.43 V	13	44.7	15.6
4	10600.00	45.3 AV	54.0	-8.7	1.43 V	13	29.7	15.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 64	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	107.2 PK			1.38 H	336	71.0	36.2
2	*5320.00	97.1 AV			1.38 H	336	60.9	36.2
3	5350.00	62.7 PK	74.0	-11.3	1.37 H	327	60.7	2.0
4	5350.00	46.5 AV	54.0	-7.5	1.37 H	327	44.5	2.0
5	10640.00	59.3 PK	74.0	-14.7	1.17 H	71	43.5	15.8
6	10640.00	44.7 AV	54.0	-9.3	1.17 H	71	28.9	15.8
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	*5320.00	113.7 PK			1.01 V	61	77.5	36.2
2	*5320.00	103.6 AV			1.01 V	61	67.4	36.2
3	5350.00	68.9 PK	74.0	-5.1	1.05 V	50	66.9	2.0
4	5350.00	52.6 AV	54.0	-1.4	1.05 V	50	50.6	2.0
5	10640.00	60.1 PK	74.0	-13.9	1.57 V	26	44.3	15.8
6	10640.00	45.3 AV	54.0	-8.7	1.57 V	26	29.5	15.8

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	55.5 PK	74.0	-18.5	1.05 H	24	52.8	2.7
2	5460.00	42.2 AV	54.0	-11.8	1.05 H	24	39.5	2.7
3	#5470.00	64.2 PK	68.2	-4.0	1.25 H	18	61.5	2.7
4	*5500.00	108.1 PK			1.06 H	359	71.1	37.0
5	*5500.00	97.8 AV			1.06 H	359	60.8	37.0
6	11000.00	58.2 PK	74.0	-15.8	1.28 H	60	41.3	16.9
7	11000.00	44.3 AV	54.0	-9.7	1.28 H	60	27.4	16.9
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	60.8 PK	74.0	-13.2	1.06 V	68	58.1	2.7
2	5460.00	46.5 AV	54.0	-7.5	1.06 V	68	43.8	2.7
3	#5470.00	66.9 PK	68.2	-1.3	1.23 V	21	64.2	2.7
4	*5500.00	113.3 PK			1.05 V	73	76.3	37.0
5	*5500.00	102.5 AV			1.05 V	73	65.5	37.0
6	11000.00	59.2 PK	74.0	-14.8	1.62 V	38	42.3	16.9
7	11000.00	45.5 AV	54.0	-8.5	1.62 V	38	28.6	16.9

Remarks:

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

CHANNEL	TX Channel 116	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	107.8 PK			1.08 H	19	70.9	36.9
2	*5580.00	97.7 AV			1.08 H	19	60.8	36.9
3	11160.00	57.4 PK	74.0	-16.6	1.32 H	55	41.7	15.7
4	11160.00	43.2 AV	54.0	-10.8	1.32 H	55	27.5	15.7
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	*5580.00	113.1 PK			1.25 V	22	76.2	36.9
2	*5580.00	102.6 AV			1.25 V	22	65.7	36.9
3	11160.00	58.4 PK	74.0	-15.6	1.58 V	36	42.7	15.7
4	11160.00	44.7 AV	54.0	-9.3	1.58 V	36	29.0	15.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 140	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	104.6 PK			1.10 H	22	67.4	37.2
2	*5700.00	95.0 AV			1.10 H	22	57.8	37.2
3	#5725.00	62.3 PK	68.2	-5.9	2.26 H	67	59.4	2.9
4	11400.00	56.9 PK	74.0	-17.1	1.29 H	44	41.0	15.9
5	11400.00	43.0 AV	54.0	-11.0	1.29 H	44	27.1	15.9

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	111.7 PK			1.08 V	72	74.5	37.2
2	*5700.00	101.5 AV			1.08 V	72	64.3	37.2
3	#5725.00	67.2 PK	68.2	-1.0	1.08 V	37	64.3	2.9
4	11400.00	58.2 PK	74.0	-15.8	1.61 V	63	42.3	15.9
5	11400.00	44.8 AV	54.0	-9.2	1.61 V	63	28.9	15.9

Remarks:

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

802.11n (HT40)

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	53.4 PK	74.0	-20.6	1.36 H	337	51.3	2.1
2	5150.00	41.8 AV	54.0	-12.2	1.36 H	337	39.7	2.1
3	*5270.00	105.2 PK			1.44 H	341	69.1	36.1
4	*5270.00	94.7 AV			1.44 H	341	58.6	36.1
5	#10540.00	58.2 PK	68.2	-10.0	1.16 H	48	42.8	15.4
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	5150.00	54.9 PK	74.0	-19.1	1.07 V	52	52.8	2.1
2	5150.00	42.4 AV	54.0	-11.6	1.07 V	52	40.3	2.1
3	*5270.00	111.6 PK			1.03 V	61	75.5	36.1
4	*5270.00	101.2 AV			1.03 V	61	65.1	36.1
5	#10540.00	59.3 PK	68.2	-8.9	1.58 V	12	43.9	15.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 62	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	99.4 PK			1.36 H	341	63.3	36.1
2	*5310.00	89.5 AV			1.36 H	341	53.4	36.1
3	5350.00	58.3 PK	74.0	-15.7	1.31 H	337	56.3	2.0
4	5350.00	46.4 AV	54.0	-7.6	1.31 H	337	44.4	2.0
5	10620.00	57.7 PK	74.0	-16.3	1.21 H	47	42.1	15.6
6	10620.00	43.6 AV	54.0	-10.4	1.21 H	47	28.0	15.6
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	106.0 PK			1.00 V	69	69.9	36.1
2	*5310.00	96.1 AV			1.00 V	69	60.0	36.1
3	5350.00	64.5 PK	74.0	-9.5	1.07 V	61	62.5	2.0
4	5350.00	52.6 AV	54.0	-1.4	1.07 V	61	50.6	2.0
5	10620.00	58.9 PK	74.0	-15.1	1.62 V	31	43.3	15.6
6	10620.00	44.3 AV	54.0	-9.7	1.62 V	31	28.7	15.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	55.9 PK	74.0	-18.1	1.15 H	18	53.2	2.7
2	5460.00	41.1 AV	54.0	-12.9	1.15 H	18	38.4	2.7
3	#5470.00	60.0 PK	68.2	-8.2	1.59 H	15	57.3	2.7
4	*5510.00	99.3 PK			1.06 H	21	62.4	36.9
5	*5510.00	89.7 AV			1.06 H	21	52.8	36.9
6	11020.00	57.9 PK	74.0	-16.1	1.31 H	24	41.2	16.7
7	11020.00	43.5 AV	54.0	-10.5	1.31 H	24	26.8	16.7
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	59.6 PK	74.0	-14.4	1.06 V	54	56.9	2.7
2	5460.00	44.1 AV	54.0	-9.9	1.06 V	54	41.4	2.7
3	#5470.00	67.0 PK	68.2	-1.2	1.16 V	75	64.3	2.7
4	*5510.00	104.6 PK			1.05 V	67	67.7	36.9
5	*5510.00	94.4 AV			1.05 V	67	57.5	36.9
6	11020.00	58.2 PK	74.0	-15.8	1.59 V	53	41.5	16.7
7	11020.00	44.8 AV	54.0	-9.2	1.59 V	53	28.1	16.7

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 110	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	103.4 PK			1.11 H	3	66.5	36.9
2	*5550.00	93.3 AV			1.11 H	3	56.4	36.9
3	11100.00	58.0 PK	74.0	-16.0	1.29 H	66	42.1	15.9
4	11100.00	44.2 AV	54.0	-9.8	1.29 H	66	28.3	15.9
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	110.1 PK			1.19 V	69	73.2	36.9
2	*5550.00	99.7 AV			1.19 V	69	62.8	36.9
3	11100.00	59.5 PK	74.0	-14.5	1.55 V	45	43.6	15.9
4	11100.00	45.0 AV	54.0	-9.0	1.55 V	45	29.1	15.9

Remarks:

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

CHANNEL	TX Channel 134	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz	FUNCTION	Average (AV)

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	103.0 PK			1.06 H	21	66.0	37.0
2	*5670.00	92.9 AV			1.06 H	21	55.9	37.0
3	#5725.00	58.0 PK	68.0	-10.0	1.35 H	22	55.1	2.9
4	11340.00	59.2 PK	74.0	-14.8	1.26 H	44	43.1	16.1
5	11340.00	45.3 AV	54.0	-8.7	1.26 H	44	29.2	16.1

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	*5670.00	110.0 PK			1.12 V	70	73.0	37.0
2	*5670.00	99.4 AV			1.12 V	70	62.4	37.0
3	#5725.00	66.8 PK	68.2	-1.4	1.03 V	23	63.9	2.9
4	11340.00	60.2 PK	74.0	-13.8	1.59 V	66	44.1	16.1
5	11340.00	45.4 AV	54.0	-8.6	1.59 V	66	29.3	16.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	52.5 PK	74.0	-21.5	1.24 H	328	50.4	2.1
2	5150.00	41.7 AV	54.0	-12.3	1.24 H	328	39.6	2.1
3	*5290.00	96.2 PK			1.29 H	332	60.1	36.1
4	*5290.00	86.2 AV			1.29 H	332	50.1	36.1
5	5350.00	60.5 PK	74.0	-13.5	1.31 H	325	58.5	2.0
6	5350.00	46.3 AV	54.0	-7.7	1.31 H	325	44.3	2.0
7	#10580.00	57.3 PK	68.2	-10.9	1.17 H	49	41.8	15.5
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	53.6 PK	74.0	-20.4	1.05 V	53	51.5	2.1
2	5150.00	42.4 AV	54.0	-11.6	1.05 V	53	40.3	2.1
3	*5290.00	102.5 PK			1.00 V	70	66.4	36.1
4	*5290.00	92.5 AV			1.00 V	70	56.4	36.1
5	5350.00	66.8 PK	74.0	-7.2	1.09 V	49	64.8	2.0
6	5350.00	52.6 AV	54.0	-1.4	1.09 V	49	50.6	2.0
7	#10580.00	58.4 PK	68.2	-9.8	1.43 V	18	42.9	15.5

Remarks:

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

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	57.3 PK	74.0	-16.7	1.15 H	22	54.6	2.7
2	5460.00	45.7 AV	54.0	-8.3	1.15 H	22	43.0	2.7
3	#5470.00	58.1 PK	68.2	-10.1	1.12 H	30	55.4	2.7
4	*5530.00	94.1 PK			1.18 H	22	57.2	36.9
5	*5530.00	83.3 AV			1.18 H	22	46.4	36.9
6	11060.00	57.6 PK	74.0	-16.4	1.26 H	38	41.2	16.4
7	11060.00	43.7 AV	54.0	-10.3	1.26 H	38	27.3	16.4
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	60.6 PK	74.0	-13.4	1.21 V	23	57.9	2.7
2	5460.00	48.8 AV	54.0	-5.2	1.21 V	23	46.1	2.7
3	#5470.00	67.2 PK	68.2	-1.0	1.27 V	51	64.5	2.7
4	*5530.00	101.2 PK			1.04 V	66	64.3	36.9
5	*5530.00	89.1 AV			1.04 V	66	52.2	36.9
6	11060.00	60.2 PK	74.0	-13.8	1.59 V	54	43.8	16.4
7	11060.00	44.5 AV	54.0	-9.5	1.59 V	54	28.1	16.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 122	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

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	56.1 PK	74.0	-17.9	1.13 H	20	53.4	2.7
2	5460.00	44.0 AV	54.0	-10.0	1.13 H	20	41.3	2.7
3	#5470.00	57.9 PK	68.2	-10.3	1.13 H	22	55.2	2.7
4	*5610.00	101.0 PK			1.13 H	40	64.1	36.9
5	*5610.00	91.2 AV			1.13 H	40	54.3	36.9
6	#5725.00	59.8 PK	68.2	-8.4	1.27 H	13	56.9	2.9
7	11220.00	58.2 PK	74.0	-15.8	1.26 H	39	42.7	15.5
8	11220.00	43.6 AV	54.0	-10.4	1.26 H	39	28.1	15.5
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	59.8 PK	74.0	-14.2	1.08 V	34	57.1	2.7
2	5460.00	47.7 AV	54.0	-6.3	1.08 V	34	45.0	2.7
3	#5470.00	63.8 PK	68.2	-4.4	1.17 V	69	61.1	2.7
4	*5610.00	106.4 PK			1.17 V	67	69.5	36.9
5	*5610.00	96.6 AV			1.17 V	67	59.7	36.9
6	#5725.00	66.6 PK	68.2	-1.6	1.03 V	27	63.7	2.9
7	11220.00	59.3 PK	74.0	-14.7	1.62 V	67	43.8	15.5
8	11220.00	44.2 AV	54.0	-9.8	1.62 V	67	28.7	15.5

Remarks:

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

Below 1GHz Worst-Case

5G traffic radio:

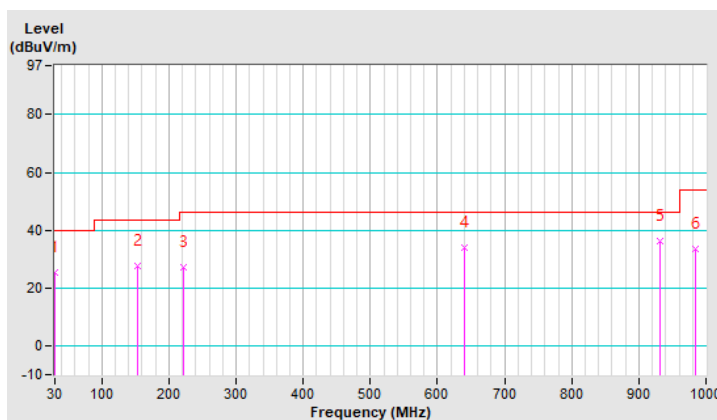
802.11ax (HE40)

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	25.4 QP	40.0	-14.6	1.00 H	180	36.3	-10.9
2	153.71	27.5 QP	43.5	-16.0	1.00 H	253	35.9	-8.4
3	222.59	27.2 QP	46.0	-18.8	1.00 H	239	37.8	-10.6
4	640.12	34.2 QP	46.0	-11.8	1.50 H	201	33.2	1.0
5	932.52	36.4 QP	46.0	-9.6	1.00 H	80	29.9	6.5
6	984.54	33.3 QP	54.0	-20.7	2.00 H	65	26.3	7.0

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

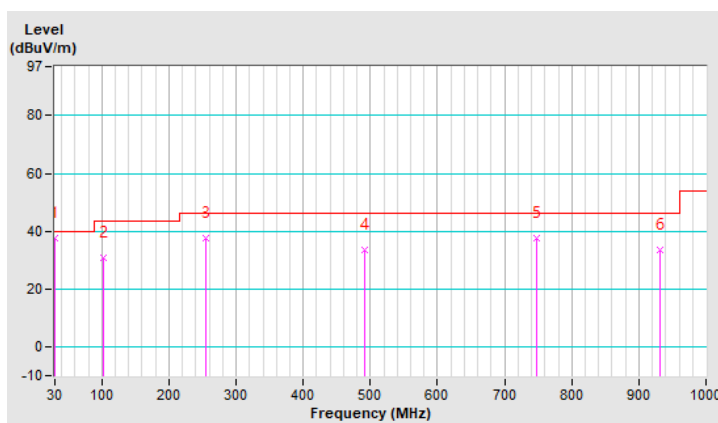


CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	37.7 QP	40.0	-2.3	2.00 V	133	48.6	-10.9
2	101.70	30.7 QP	43.5	-12.8	1.00 V	112	43.8	-13.1
3	254.93	37.5 QP	46.0	-8.5	1.00 V	186	45.7	-8.2
4	491.10	33.4 QP	46.0	-12.6	1.00 V	182	35.9	-2.5
5	746.96	37.4 QP	46.0	-8.6	1.50 V	178	34.2	3.2
6	932.52	33.6 QP	46.0	-12.4	1.00 V	346	27.1	6.5

Remarks:

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

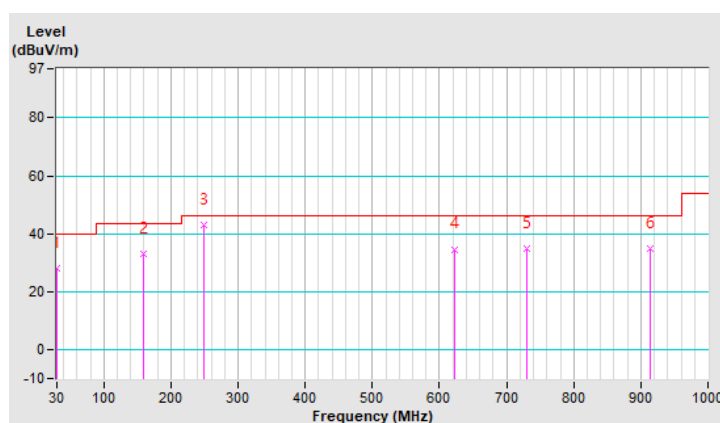


CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	28.1 QP	40.0	-11.9	2.00 H	214	39.0	-10.9
2	159.33	33.2 QP	43.5	-10.3	1.00 H	274	41.5	-8.3
3	249.30	43.1 QP	46.0	-2.9	1.00 H	51	51.7	-8.6
4	621.84	34.7 QP	46.0	-11.3	1.00 H	151	33.9	0.8
5	730.09	35.1 QP	46.0	-10.9	1.50 H	245	32.5	2.6
6	914.25	34.9 QP	46.0	-11.1	1.00 H	122	28.7	6.2

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

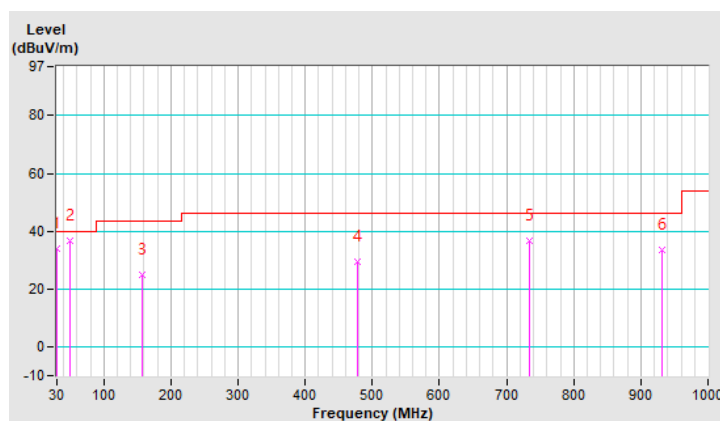


CHANNEL	TX Channel 134	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	34.2 QP	40.0	-5.8	1.00 V	359	45.1	-10.9
2	49.68	36.9 QP	40.0	-3.1	1.50 V	311	46.0	-9.1
3	157.93	25.0 QP	43.5	-18.5	1.50 V	246	33.4	-8.4
4	477.04	29.6 QP	46.0	-16.4	1.50 V	10	32.2	-2.6
5	734.30	36.5 QP	46.0	-9.5	1.50 V	305	33.6	2.9
6	931.12	33.5 QP	46.0	-12.5	1.50 V	195	27.0	6.5

Remarks:

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



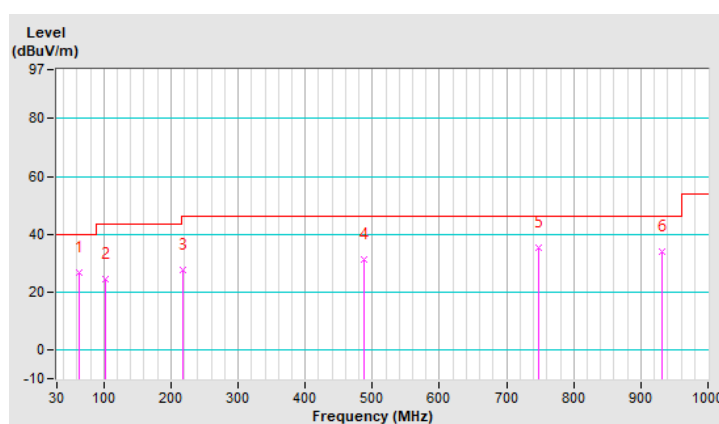
Scanning radio: 802.11a

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	63.74	26.8 QP	40.0	-13.2	1.51 H	208	36.6	-9.8
2	101.70	24.5 QP	43.5	-19.0	2.00 H	302	37.6	-13.1
3	216.97	27.6 QP	46.0	-18.4	1.51 H	270	38.2	-10.6
4	486.88	31.3 QP	46.0	-14.7	1.51 H	148	33.9	-2.6
5	746.96	35.3 QP	46.0	-10.7	2.00 H	356	32.1	3.2
6	932.52	34.1 QP	46.0	-11.9	1.51 H	76	27.6	6.5

Remarks:

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

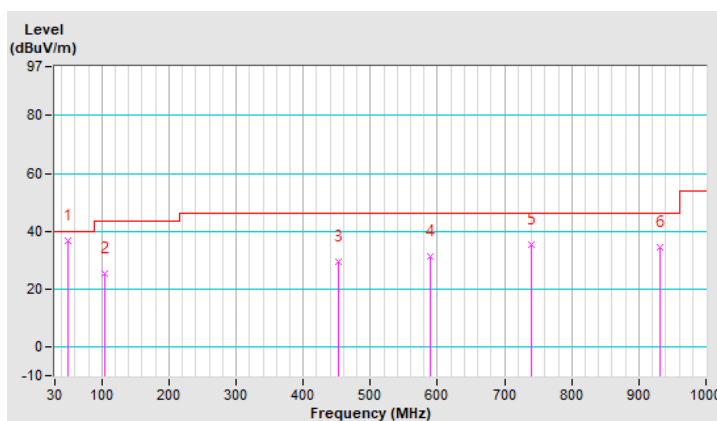


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	49.68	36.8 QP	40.0	-3.2	1.50 V	91	45.9	-9.1
2	104.51	25.2 QP	43.5	-18.3	1.50 V	158	37.7	-12.5
3	453.14	29.6 QP	46.0	-16.4	1.50 V	14	32.8	-3.2
4	589.51	31.3 QP	46.0	-14.7	1.50 V	195	31.5	-0.2
5	739.93	35.2 QP	46.0	-10.8	2.00 V	175	32.1	3.1
6	932.52	34.5 QP	46.0	-11.5	2.00 V	107	28.0	6.5

Remarks:

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

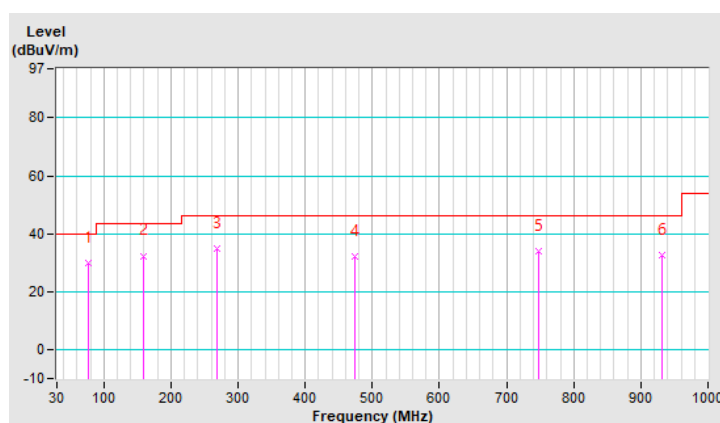


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	76.39	29.7 QP	40.0	-10.3	1.00 H	232	42.2	-12.5
2	159.33	32.4 QP	43.5	-11.1	2.00 H	242	40.7	-8.3
3	268.99	34.9 QP	46.0	-11.1	2.00 H	105	42.4	-7.5
4	474.23	32.2 QP	46.0	-13.8	1.50 H	109	34.9	-2.7
5	746.96	34.1 QP	46.0	-11.9	2.00 H	199	30.9	3.2
6	931.12	32.7 QP	46.0	-13.3	2.00 H	7	26.2	6.5

Remarks:

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

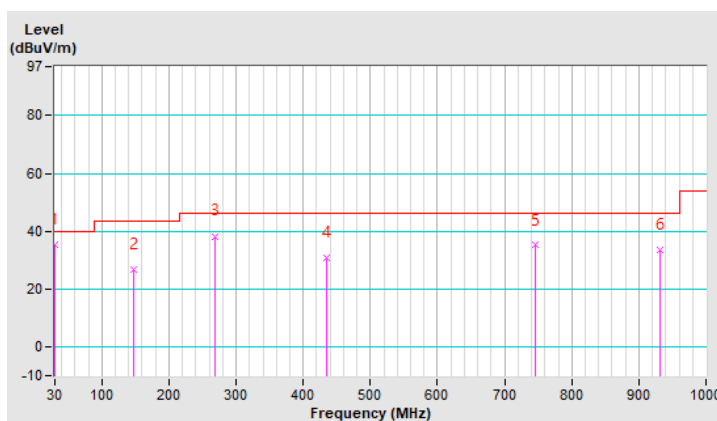


CHANNEL	TX Channel 60	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	35.3 QP	40.0	-4.7	1.00 V	145	46.2	-10.9
2	146.68	26.6 QP	43.5	-16.9	2.00 V	353	35.2	-8.6
3	268.99	38.3 QP	46.0	-7.7	2.00 V	162	45.8	-7.5
4	434.87	30.6 QP	46.0	-15.4	1.50 V	145	34.1	-3.5
5	745.55	35.1 QP	46.0	-10.9	2.00 V	222	31.9	3.2
6	931.12	33.4 QP	46.0	-12.6	2.00 V	118	26.9	6.5

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 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 0.50MHz.

4.2.2 Test Instruments

Tested date: Dec. 16, 2020 ~ Jan. 18, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Feb. 17, 2020	Feb. 16, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 20, 2020	Jan. 19, 2021
V-LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 18, 2020	Aug. 17, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).

3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

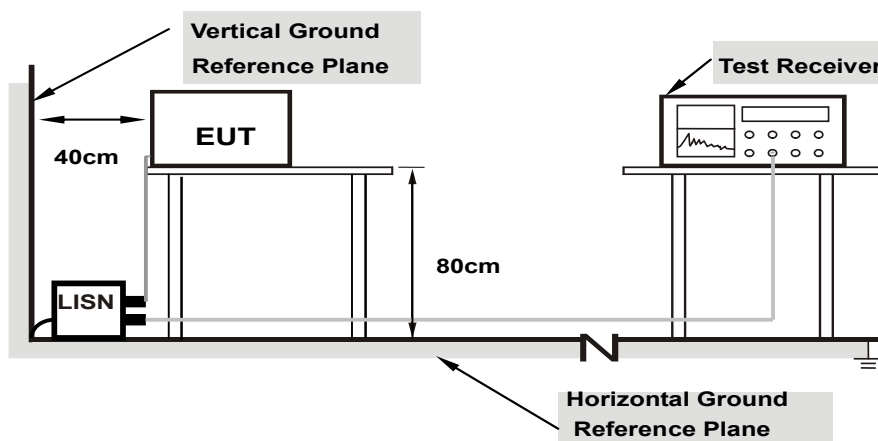
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 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).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

5G traffic radio:

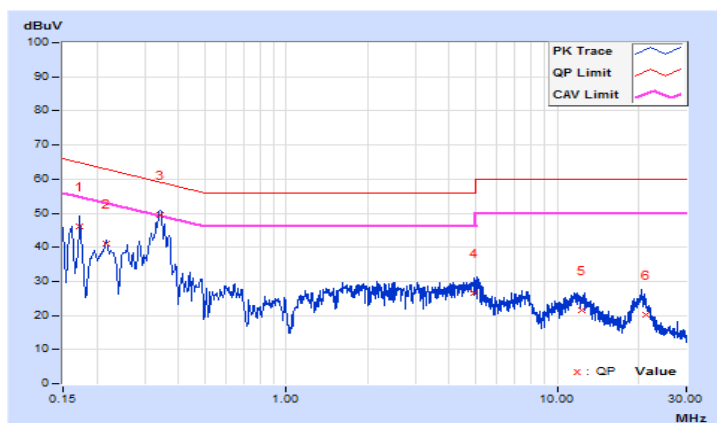
802.11ax (HE40)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17147	9.65	36.52	21.99	46.17	31.64	64.89	54.89	-18.72	-23.25
2	0.21565	9.65	31.36	20.86	41.01	30.51	62.98	52.98	-21.97	-22.47
3	0.34108	9.67	39.83	34.13	49.50	43.80	59.18	49.18	-9.68	-5.38
4	4.90797	9.75	16.80	9.35	26.55	19.10	56.00	46.00	-29.45	-26.90
5	12.27491	9.79	11.87	6.15	21.66	15.94	60.00	50.00	-38.34	-34.06
6	21.16234	9.77	10.27	3.40	20.04	13.17	60.00	50.00	-39.96	-36.83

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.

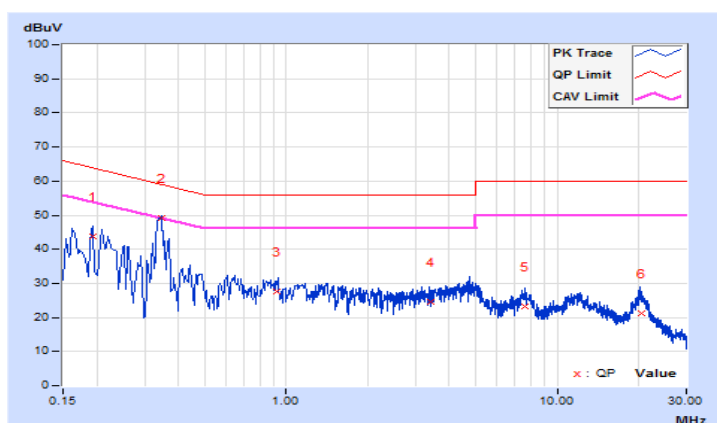


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19255	9.67	34.10	22.86	43.77	32.53	63.93	53.93	-20.16	-21.40
2	0.34550	9.69	39.44	32.21	49.13	41.90	59.07	49.07	-9.94	-7.17
3	0.92343	9.73	18.00	13.24	27.73	22.97	56.00	46.00	-28.27	-23.03
4	3.40284	9.76	14.73	8.17	24.49	17.93	56.00	46.00	-31.51	-28.07
5	7.55945	9.81	13.46	7.90	23.27	17.71	60.00	50.00	-36.73	-32.29
6	20.39207	9.90	11.32	5.95	21.22	15.85	60.00	50.00	-38.78	-34.15

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.

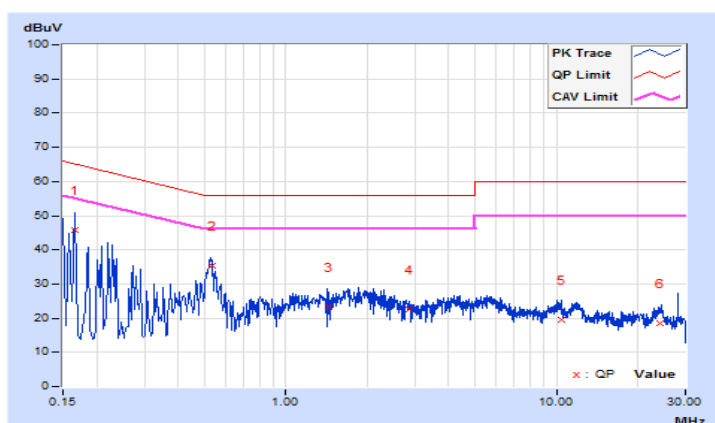


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16526	9.65	36.17	11.93	45.82	21.58	65.20	55.20	-19.38	-33.62
2	0.53318	9.69	25.78	14.97	35.47	24.66	56.00	46.00	-20.53	-21.34
3	1.43248	9.71	13.65	5.15	23.36	14.86	56.00	46.00	-32.64	-31.14
4	2.84790	9.73	12.81	3.47	22.54	13.20	56.00	46.00	-33.46	-32.80
5	10.39029	9.80	9.78	1.16	19.58	10.96	60.00	50.00	-40.42	-39.04
6	24.10266	9.76	8.91	0.39	18.67	10.15	60.00	50.00	-41.33	-39.85

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.

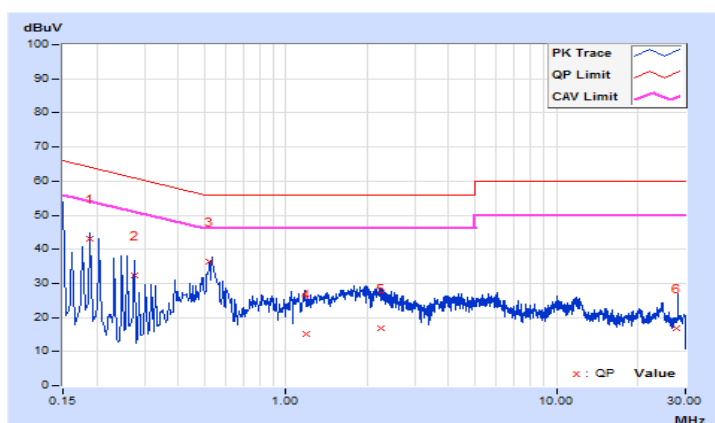


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18754	9.67	33.41	11.02	43.08	20.69	64.14	54.14	-21.06	-33.45
2	0.27480	9.68	22.56	3.20	32.24	12.88	60.97	50.97	-28.73	-38.09
3	0.51856	9.71	26.82	15.73	36.53	25.44	56.00	46.00	-19.47	-20.56
4	1.18296	9.73	5.57	1.23	15.30	10.96	56.00	46.00	-40.70	-35.04
5	2.24185	9.75	6.96	0.56	16.71	10.31	56.00	46.00	-39.29	-35.69
6	27.68031	9.89	7.08	0.79	16.97	10.68	60.00	50.00	-43.03	-39.32

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.



Scanning radio:

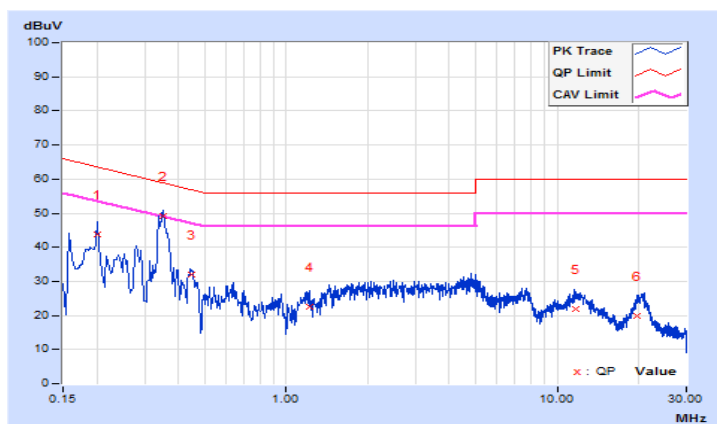
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19978	9.65	34.20	22.27	43.85	31.92	63.62	53.62	-19.77	-21.70
2	0.34926	9.67	39.52	30.85	49.19	40.52	58.98	48.98	-9.79	-8.46
3	0.44716	9.68	22.44	15.00	32.12	24.68	56.93	46.93	-24.81	-22.25
4	1.21352	9.71	12.72	8.10	22.43	17.81	56.00	46.00	-33.57	-28.19
5	11.67668	9.79	12.11	6.40	21.90	16.19	60.00	50.00	-38.10	-33.81
6	19.64526	9.78	10.13	3.50	19.91	13.28	60.00	50.00	-40.09	-36.72

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.

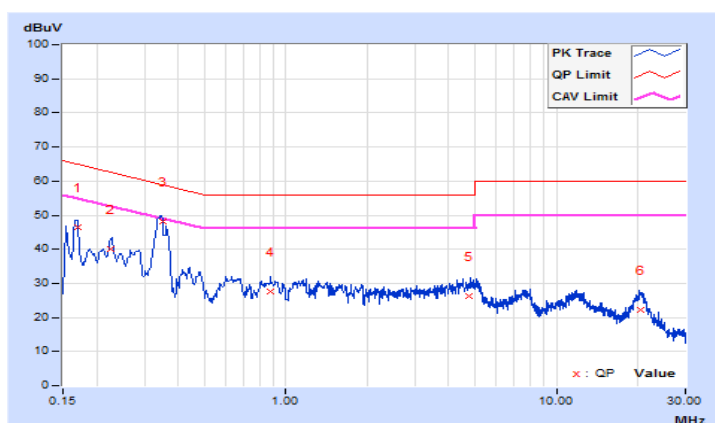


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16955	9.68	36.70	23.52	46.38	33.20	64.98	54.98	-18.60	-21.78
2	0.22434	9.67	30.45	21.63	40.12	31.30	62.66	52.66	-22.54	-21.36
3	0.34941	9.69	38.57	29.97	48.26	39.66	58.98	48.98	-10.72	-9.32
4	0.87372	9.72	17.93	12.82	27.65	22.54	56.00	46.00	-28.35	-23.46
5	4.73643	9.78	16.49	9.51	26.27	19.29	56.00	46.00	-29.73	-26.71
6	20.37643	9.90	12.47	6.17	22.37	16.07	60.00	50.00	-37.63	-33.93

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.

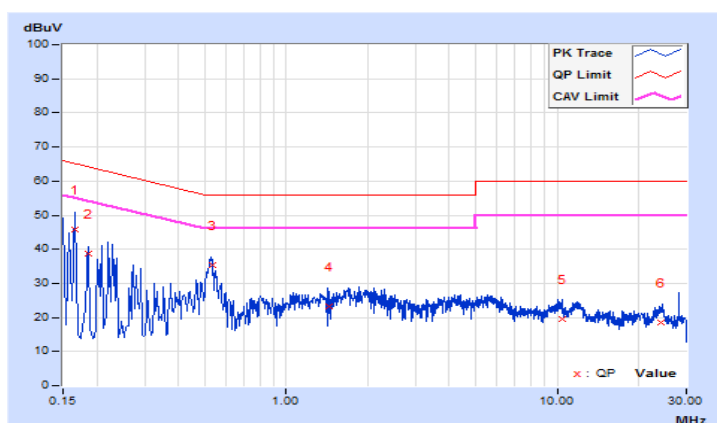


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16526	9.65	36.17	11.93	45.82	21.58	65.20	55.20	-19.38	-33.62
2	0.18508	9.65	29.05	7.99	38.70	17.64	64.25	54.25	-25.55	-36.61
3	0.53318	9.69	25.78	14.97	35.47	24.66	56.00	46.00	-20.53	-21.34
4	1.43248	9.71	13.65	5.15	23.36	14.86	56.00	46.00	-32.64	-31.14
5	10.39029	9.80	9.78	1.16	19.58	10.96	60.00	50.00	-40.42	-39.04
6	24.10266	9.76	8.91	0.39	18.67	10.15	60.00	50.00	-41.33	-39.85

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.

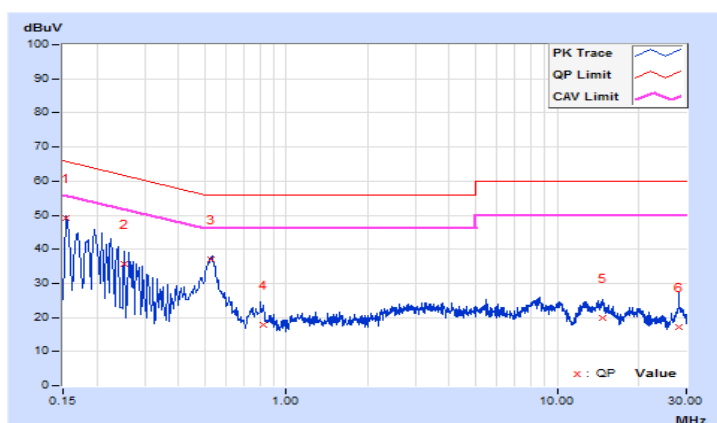


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.68	39.49	15.98	49.17	25.66	65.79	55.79	-16.62	-30.13
2	0.25125	9.68	25.93	4.81	35.61	14.49	61.72	51.72	-26.11	-37.23
3	0.52536	9.71	27.29	16.28	37.00	25.99	56.00	46.00	-19.00	-20.01
4	0.82234	9.72	8.17	2.24	17.89	11.96	56.00	46.00	-38.11	-34.04
5	14.67174	9.86	9.97	1.04	19.83	10.90	60.00	50.00	-40.17	-39.10
6	28.03612	9.89	7.34	0.03	17.23	9.92	60.00	50.00	-42.77	-40.08

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.



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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)
U-NII-2A	$\sqrt{\quad}$		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	$\sqrt{\quad}$		250mW (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 Method of conducted output power measurement on IEEE 802.11 devices,

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

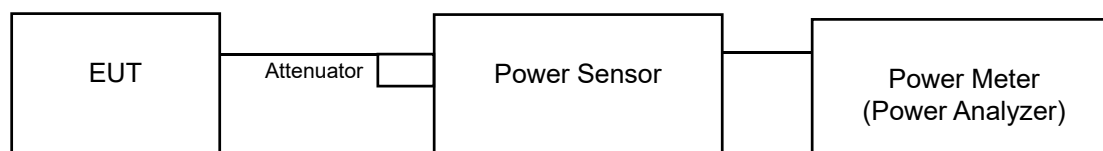
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

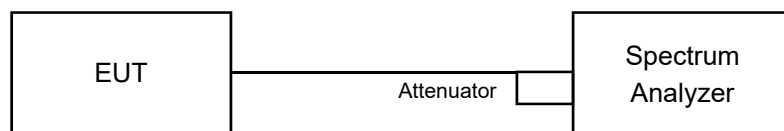
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

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. Duty factor is not added to measured value.

For 26dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. 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%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

Power Output:

5G traffic radio: CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	19.86	19.78	191.888	22.83	24.00	Pass
60	5300	20.02	19.55	190.619	22.80	24.00	Pass
64	5320	20.01	19.68	193.127	22.86	24.00	Pass
100	5500	20.23	19.92	203.613	23.09	24.00	Pass
116	5580	20.28	19.97	205.971	23.14	24.00	Pass
140	5700	19.94	19.64	190.673	22.80	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(20.73) = 24.16 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.73) = 24.16 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.78) = 24.17 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.72) = 24.16 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.77) = 24.17 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.87) = 24.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.62) = 24.14 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.73) = 24.16 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.75) = 24.17 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.73) = 24.16 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.88) = 24.19 > 24\text{dBm}$

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	20.12	19.82	198.742	22.98	24.00	Pass
60	5300	19.77	19.43	182.542	22.61	24.00	Pass
64	5320	19.74	19.47	182.701	22.62	24.00	Pass
100	5500	19.85	19.47	185.117	22.67	24.00	Pass
116	5580	19.82	19.39	182.836	22.62	24.00	Pass
140	5700	19.46	19.13	170.154	22.31	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(21.76) = 24.37 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.89) = 24.40 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(21.53) = 24.33 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(22.08) = 24.43 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(21.73) = 24.37 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(22.15) = 24.45 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(21.75) = 24.37 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(21.53) = 24.33 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(21.48) = 24.32 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(21.60) = 24.34 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(22.01) = 24.42 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(21.54) = 24.33 > 24\text{dBm}$

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	19.86	19.75	191.234	22.82	24.00	Pass
62	5310	18.94	18.84	154.903	21.90	24.00	Pass
102	5510	19.86	19.75	191.234	22.82	24.00	Pass
110	5550	18.94	18.84	154.903	21.90	24.00	Pass
134	5670	19.86	19.75	144.058	21.59	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(42.41) = 27.27 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.33) = 27.26 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(42.52) = 27.28 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(42.36) = 27.26 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(42.42) = 27.27 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(42.67) = 27.30 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.17) = 27.25 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(42.52) = 27.28 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(42.66) = 27.30 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(42.29) = 27.26 > 24\text{dBm}$

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	18.36	18.20	134.618	21.29	24.00	Pass
106	5530	18.32	18.14	133.083	21.24	24.00	Pass
122	5610	18.72	18.66	147.925	21.70	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(83.29) = 30.20 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(83.26) = 30.20 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(84.09) = 30.24 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(83.11) = 30.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(83.62) = 30.22 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.29) = 30.20 > 24\text{dBm}$

5G traffic radio: Beamforming Mode

802.11ax (HE20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.11	16.81	99.378	19.97	22.06	Pass
60	5300	16.76	16.42	91.277	19.60	22.06	Pass
64	5320	16.73	16.46	91.357	19.61	22.06	Pass
100	5500	16.84	16.46	92.565	19.66	22.78	Pass
116	5580	16.81	16.38	91.424	19.61	22.78	Pass
140	5700	16.45	16.12	85.083	19.30	22.78	Pass

Note:

- 5260-5320MHz: Beamforming Directional gain = $4.93\text{dBi} + 10\log(2) = 7.94\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $24 - (7.94 - 6) = 22.06\text{dBm}$.
- 5500-5700MHz: Beamforming Directional gain = $4.21\text{dBi} + 10\log(2) = 7.22\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $24 - (7.22 - 6) = 22.78\text{dBm}$.

For U-NII-2A, U-NII-2C Band:

Chain 0

- $11\text{dBm} + 10\log(21.76) = 24.37 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.89) = 24.40 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.53) = 24.33 > 24\text{dBm}$
- $11\text{dBm} + 10\log(22.08) = 24.43 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.73) = 24.37 > 24\text{dBm}$
- $11\text{dBm} + 10\log(22.15) = 24.45 > 24\text{dBm}$

Chain 1

- $11\text{dBm} + 10\log(21.75) = 24.37 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.53) = 24.33 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.48) = 24.32 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.60) = 24.34 > 24\text{dBm}$
- $11\text{dBm} + 10\log(22.01) = 24.42 > 24\text{dBm}$
- $11\text{dBm} + 10\log(21.54) = 24.33 > 24\text{dBm}$

802.11ax (HE40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	16.85	16.74	95.624	19.81	22.06	Pass
62	5310	15.93	15.83	77.457	18.89	22.06	Pass
102	5510	16.85	16.74	95.624	19.81	22.78	Pass
110	5550	15.93	15.83	77.457	18.89	22.78	Pass
134	5670	15.59	15.54	72.034	18.58	22.78	Pass

Note:

- 5260-5320MHz: Beamforming Directional gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 24-(7.94-6) = 22.06dBm.
- 5500-5700MHz: Beamforming Directional gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 24-(7.22-6) = 22.78dBm.

For U-NII-2A, U-NII-2C Band:

Chain 0

- 11dBm + 10log (42.41) = 27.27 > 24dBm
- 11dBm + 10log (42.33) = 27.26 > 24dBm
- 11dBm + 10log (42.52) = 27.28 > 24dBm
- 11dBm + 10log (42.36) = 27.26 > 24dBm
- 11dBm + 10log (42.42) = 27.27 > 24dBm

Chain 1

- 11dBm + 10log (42.67) = 27.30 > 24dBm
- 11dBm + 10log (42.17) = 27.25 > 24dBm
- 11dBm + 10log (42.52) = 27.28 > 24dBm
- 11dBm + 10log (42.66) = 27.30 > 24dBm
- 11dBm + 10log (42.29) = 27.26 > 24dBm

802.11ax (HE80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	15.35	15.19	67.314	18.28	22.06	Pass
106	5530	15.31	15.13	66.546	18.23	22.78	Pass
122	5610	15.71	15.65	73.967	18.69	22.78	Pass

Note:

1. 5260-5320MHz: Beamforming Directional gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 24-(7.94-6) = 22.06dBm.
2. 5500-5700MHz: Beamforming Directional gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 24-(7.22-6) = 22.78dBm.

For U-NII-2A, U-NII-2C Band:

Chain 0

1. 11dBm + 10log (83.29) = 30.20 > 24dBm
2. 11dBm + 10log (83.26) = 30.20 > 24dBm
3. 11dBm + 10log (84.09) = 30.24 > 24dBm

Chain 1

1. 11dBm + 10log (83.11) = 30.19 > 24dBm
2. 11dBm + 10log (83.62) = 30.22 > 24dBm
3. 11dBm + 10log (83.29) = 30.20 > 24dBm

Scanning radio:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.21	16.95	102.147	20.09	24.00	Pass
60	5300	16.97	16.82	97.858	19.91	24.00	Pass
64	5320	17.01	16.83	98.429	19.93	24.00	Pass
100	5500	17.09	16.71	98.050	19.91	24.00	Pass
116	5580	16.99	16.62	95.923	19.82	24.00	Pass
140	5700	17.85	17.66	119.298	20.77	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(28.74) = 25.58 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(27.99) = 25.47 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(27.68) = 25.42 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(27.35) = 25.36 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(26.43) = 25.22 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(25.00) = 24.97 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(26.51) = 25.23 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(26.99) = 25.31 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(28.63) = 25.56 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(26.52) = 25.23 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(23.76) = 24.75 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(24.45) = 24.88 > 24\text{dBm}$

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
52	5260	17.43	17.28	108.791	20.37	24.00	Pass
60	5300	17.36	17.22	107.173	20.30	24.00	Pass
64	5320	17.35	17.19	106.685	20.28	24.00	Pass
100	5500	17.83	17.41	115.754	20.64	24.00	Pass
116	5580	18.24	17.65	124.891	20.97	24.00	Pass
140	5700	17.81	17.66	118.739	20.75	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(33.47) = 26.24 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(29.69) = 25.72 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(27.69) = 25.42 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(29.06) = 25.63 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(26.43) = 25.22 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(27.55) = 25.40 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(29.97) = 25.76 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(28.56) = 25.55 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(29.66) = 25.72 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(26.64) = 25.25 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(25.98) = 25.14 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(26.02) = 25.15 > 24\text{dBm}$

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
54	5270	20.54	20.92	236.835	23.74	24.00	Pass
62	5310	20.48	20.93	235.566	23.72	24.00	Pass
102	5510	14.97	14.63	60.445	17.81	24.00	Pass
110	5550	20.78	20.67	236.355	23.74	24.00	Pass
134	5670	20.03	19.84	197.076	22.95	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(90.95) = 30.58 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(88.58) = 30.47 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(48.92) = 27.89 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(90.46) = 30.56 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(87.38) = 30.41 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(96.58) = 30.84 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(96.52) = 30.84 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(46.90) = 27.71 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(83.86) = 30.23 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(68.18) = 29.33 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
58	5290	20.66	20.75	235.263	23.72	24.00	Pass
106	5530	13.87	13.61	47.340	16.75	24.00	Pass
122	5610	20.74	20.52	231.297	23.64	24.00	Pass

Note:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(191.86) = 33.82 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(87.88) = 30.43 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(180.20) = 33.55 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(200.57) = 34.02 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(88.00) = 30.44 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(171.41) = 33.34 > 24\text{dBm}$

26dB Bandwidth:

5G traffic radio:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.73	20.87
60	5300	20.73	20.62
64	5320	20.65	20.73
100	5500	20.78	20.75
116	5580	20.72	20.73
140	5700	20.77	20.88

802.11ax (HE20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	21.76	21.75
60	5300	21.89	21.53
64	5320	21.53	21.48
100	5500	22.08	21.60
116	5580	21.73	22.01
140	5700	22.15	21.54

802.11ax (HE40)

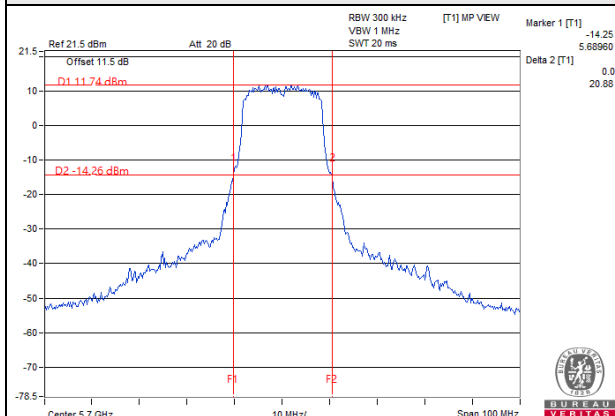
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	42.41	42.67
62	5310	42.33	42.17
102	5510	42.52	42.52
110	5550	42.36	42.66
134	5670	42.42	42.29

802.11ax (HE80)

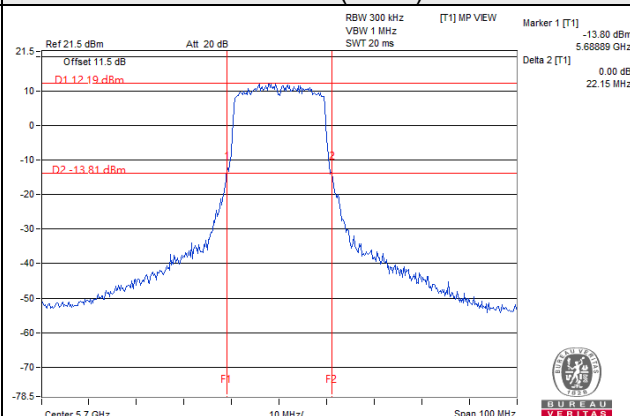
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.29	83.11
106	5530	83.26	83.62
122	5610	84.09	83.29

Spectrum Plot of Worst Value

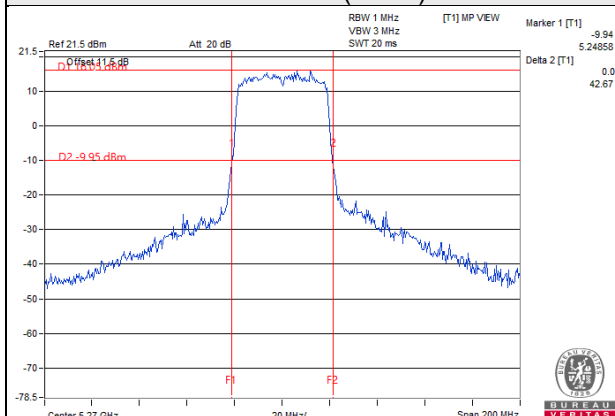
802.11a



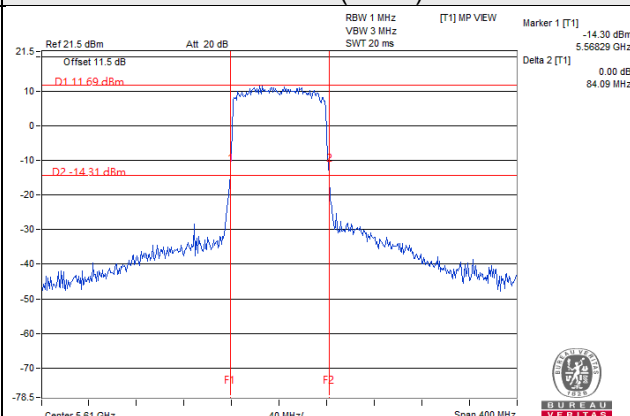
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Scanning radio:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	28.74	26.51
60	5300	27.99	26.99
64	5320	27.68	28.63
100	5500	27.35	26.52
116	5580	26.43	23.76
140	5700	25.00	24.45

802.11ac (VHT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	33.47	29.97
60	5300	29.69	28.56
64	5320	27.69	29.66
100	5500	29.06	26.64
116	5580	26.43	25.98
140	5700	27.55	26.02

802.11ac (VHT40)

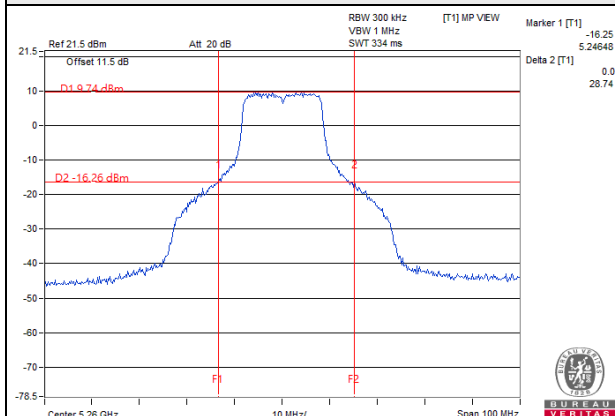
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	90.95	96.58
62	5310	88.58	96.52
102	5510	48.92	46.90
110	5550	90.46	83.86
134	5670	87.38	68.18

802.11ac (VHT80)

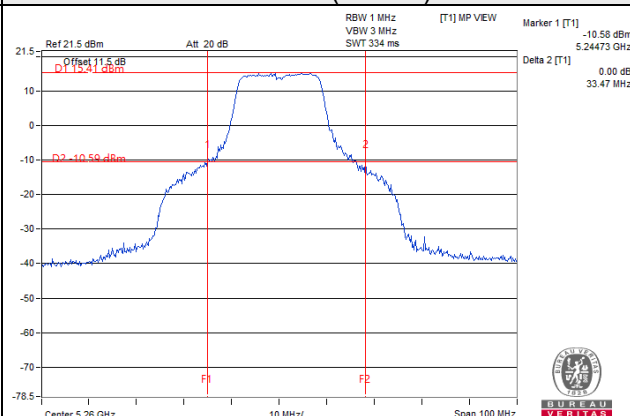
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	191.86	200.57
106	5530	87.88	88.00
122	5610	180.20	171.41

Spectrum Plot of Worst Value

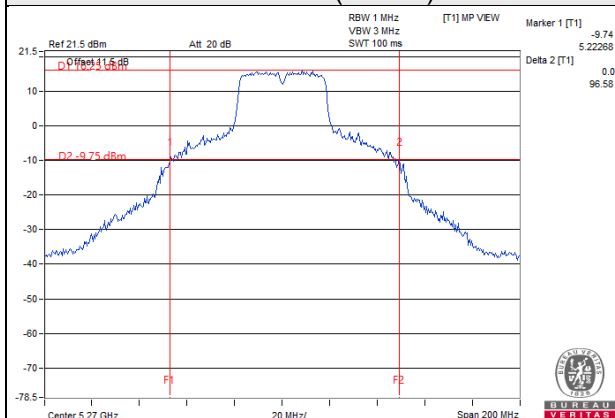
802.11a



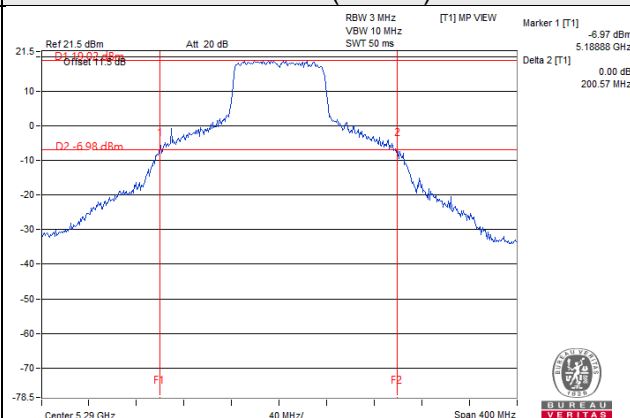
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



EUT Maximum Conducted Power

5G traffic radio: CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	193.127	22.86
5470~5725	205.971	23.14

802.11ax (HE20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	198.742	22.98
5470~5725	185.117	22.67

802.11ax (HE40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	191.234	22.82
5470~5725	191.234	22.82

802.11ax (HE80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	134.618	21.29
5470~5725	147.925	21.70

5G traffic radio: Beamforming Mode

802.11ax (HE20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	99.378	19.97
5470~5725	92.565	19.66

802.11ax (HE40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	77.457	18.89
5470~5725	95.624	19.81

802.11ax (HE80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	67.314	18.28
5470~5725	73.967	18.69

Scanning radio:

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	102.147	20.09
5470~5725	119.298	20.77

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	108.791	20.37
5470~5725	124.891	20.97

802.11ac (VHT40)

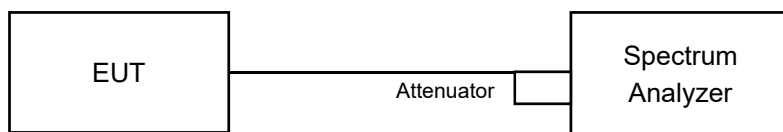
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	236.835	23.74
5470~5725	236.355	23.74

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	235.263	23.72
5470~5725	231.297	23.64

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 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.

4.4.4 Test Result

5G traffic radio:

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.44	16.44

802.11ax (HE20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.08	19.08
60	5300	18.96	18.96
64	5320	19.08	18.96
100	5500	18.84	18.96
116	5580	19.08	19.08
140	5700	18.96	18.96

802.11ax (HE40)

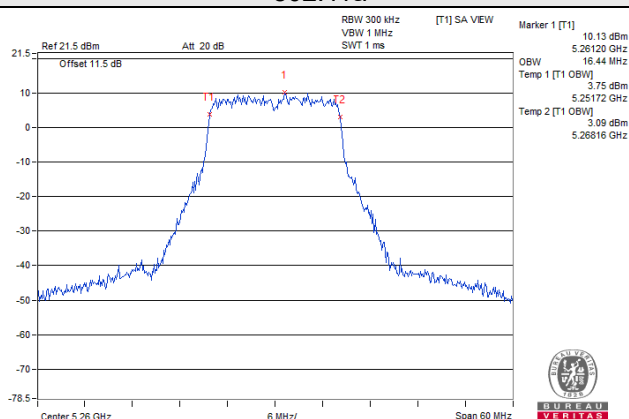
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	38.04	38.04
62	5310	38.04	38.04
102	5510	38.04	37.92
110	5550	37.80	37.92
134	5670	38.04	38.04

802.11ax (HE80)

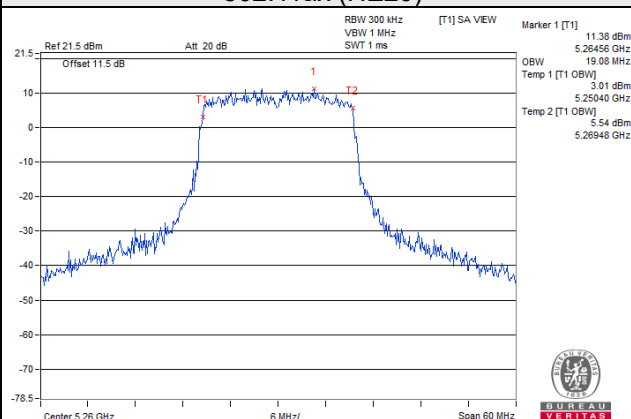
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	77.28	77.04
106	5530	77.28	77.28
122	5610	77.28	77.28

Spectrum Plot of Worst Value

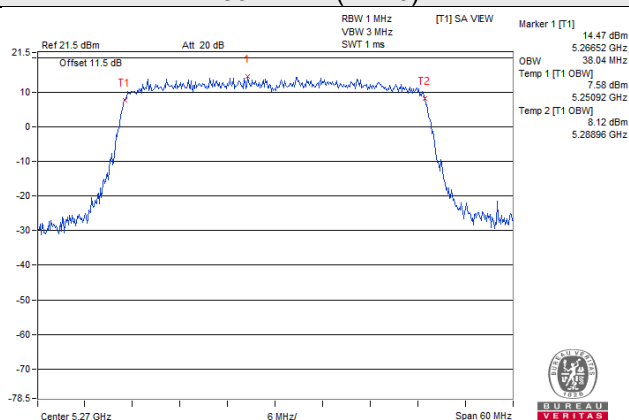
802.11a



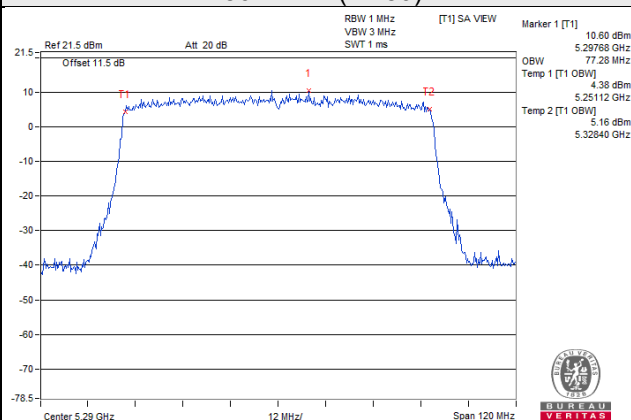
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



Scanning radio:

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.16	17.04
60	5300	17.04	17.04
64	5320	17.04	17.04
100	5500	17.04	16.92
116	5580	16.92	16.8
140	5700	16.92	16.8

802.11ac (VHT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	18.24	18.24
60	5300	18.24	18.12
64	5320	18.24	18.36
100	5500	18.24	18.12
116	5580	18.12	18.00
140	5700	18.12	18.00

802.11ac (VHT40)

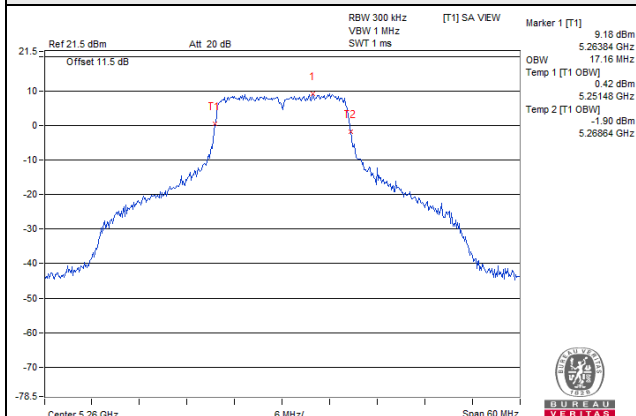
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	38.40	39.72
62	5310	38.28	39.72
102	5510	37.08	36.96
110	5550	38.28	37.80
134	5670	37.92	37.44

802.11ac (VHT80)

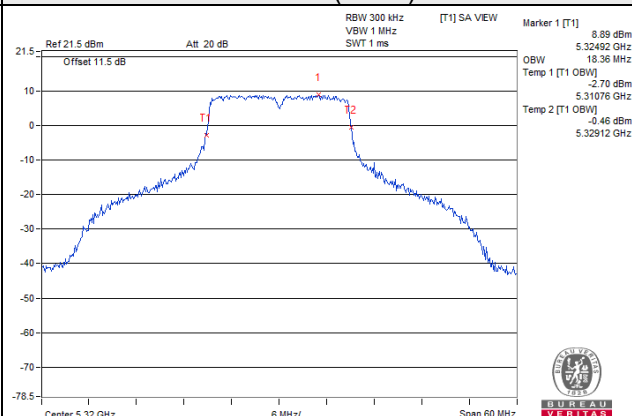
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	78.48	80.16
106	5530	76.32	76.08
122	5610	78.24	76.80

Spectrum Plot of Worst Value

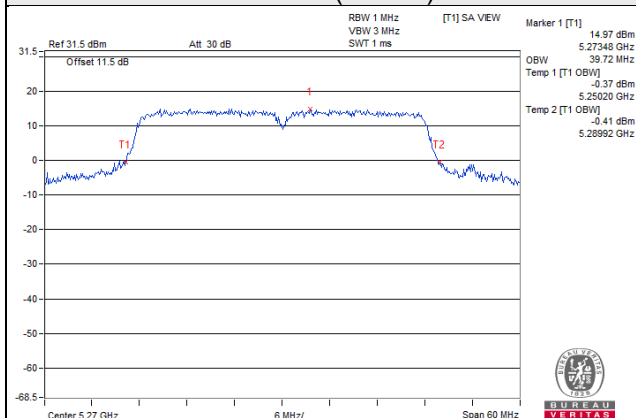
802.11a



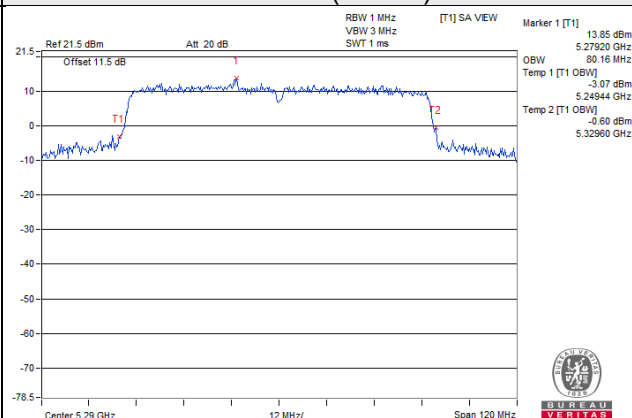
802.11n (HT20)



802.11ac (VHT40)



802.11ac (VHT80)

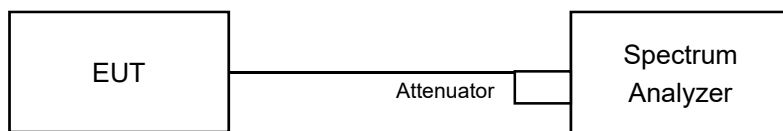


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3			30dBm/ 500kHz

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-2A, U-NII-2C band:

Duty cycle of test signal is < 98%

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-2A, U-NII-2C band:

5G traffic radio:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	5.61	5.88	0.26	9.02	9.06	Pass
60	5300	5.62	5.75	0.26	8.96	9.06	Pass
64	5320	5.61	5.78	0.26	8.97	9.06	Pass
100	5500	6.24	5.69	0.26	9.25	9.78	Pass
116	5580	6.18	6.33	0.26	9.53	9.78	Pass
140	5700	5.90	5.98	0.26	9.21	9.78	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 11-(7.94-6) = 9.06dBm.
For U-NII-2C: Directional Gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 11-(7.22-6) = 9.78dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	5.33	5.29	0.31	8.63	9.06	Pass
60	5300	4.98	4.76	0.31	8.19	9.06	Pass
64	5320	4.83	4.73	0.31	8.10	9.06	Pass
100	5500	5.05	4.81	0.31	8.25	9.78	Pass
116	5580	4.97	4.89	0.31	8.25	9.78	Pass
140	5700	4.74	4.34	0.31	7.86	9.78	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 11-(7.94-6) = 9.06dBm.
For U-NII-2C: Directional Gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 11-(7.22-6) = 9.78dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	1.61	1.48	0.20	4.76	9.06	Pass
62	5310	0.73	0.97	0.20	4.07	9.06	Pass
102	5510	0.08	0.37	0.20	3.44	9.78	Pass
110	5550	1.84	1.64	0.20	4.95	9.78	Pass
134	5670	1.02	1.08	0.20	4.26	9.78	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 11-(7.94-6) = 9.06dBm.
For U-NII-2C: Directional Gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 11-(7.22-6) = 9.78dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

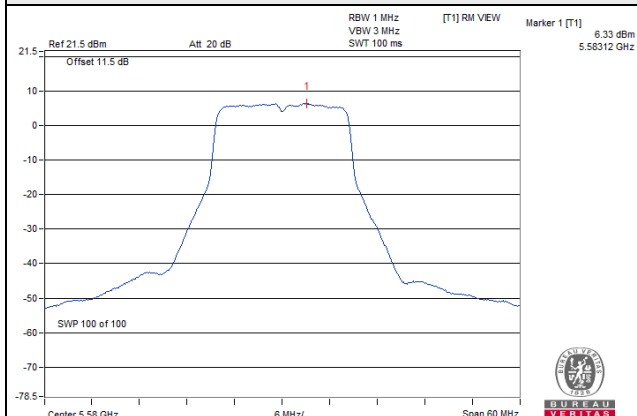
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-2.48	-2.59	0.28	0.75	9.06	Pass
106	5530	-2.83	-2.65	0.28	0.55	9.78	Pass
122	5610	-2.58	-1.77	0.28	1.13	9.78	Pass

Note:

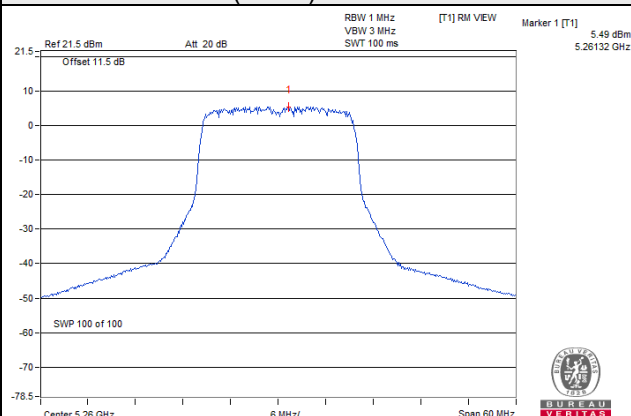
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-2A: Directional Gain = 4.93dBi + 10log(2) = 7.94dBi > 6dBi, so the limit shall be reduced to 11-(7.94-6) = 9.06dBm.
For U-NII-2C: Directional Gain = 4.21dBi + 10log(2) = 7.22dBi > 6dBi, so the limit shall be reduced to 11-(7.22-6) = 9.78dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

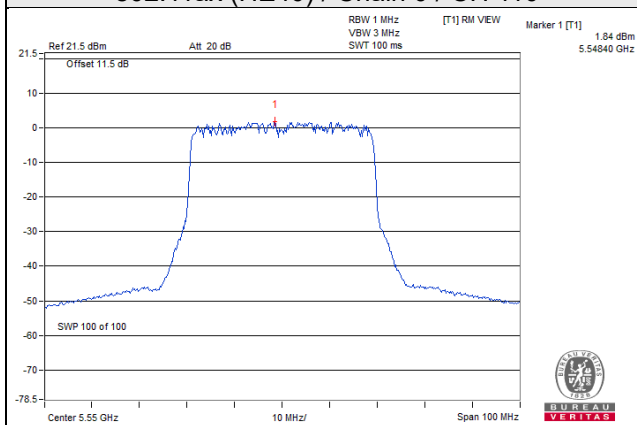
802.11a / Chain 1 / CH 116



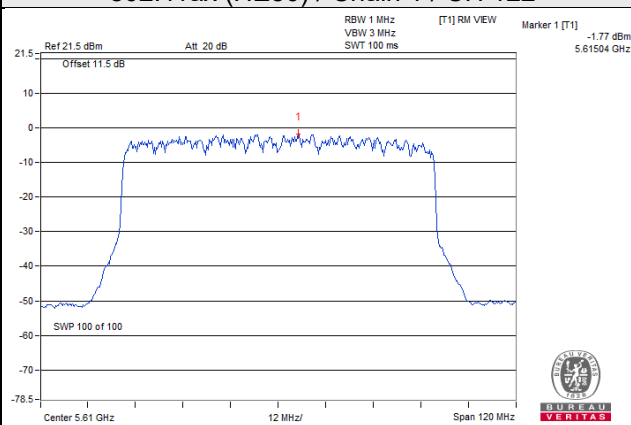
802.11ax (HE20) / Chain 0 / CH 52



802.11ax (HE40) / Chain 0 / CH 110



802.11ax (HE80) / Chain 1 / CH 122



Scanning radio:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	5.11	4.54	0.30	8.14	8.32	Pass
60	5300	4.81	5.01	0.30	8.22	8.32	Pass
64	5320	4.98	5.20	0.30	8.30	8.32	Pass
100	5500	5.01	4.76	0.30	8.19	8.38	Pass
116	5580	5.21	4.31	0.30	8.09	8.38	Pass
140	5700	5.18	4.93	0.30	8.36	8.38	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = $5.67\text{dBi} + 10\log(2) = 8.68\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.68 - 6) = 8.32\text{dBm}$.
For U-NII-2C: Directional Gain = $5.61\text{dBi} + 10\log(2) = 8.62\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.62 - 6) = 8.38\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
52	5260	4.78	4.32	0.25	7.81	8.32	Pass
60	5300	4.71	4.52	0.25	7.87	8.32	Pass
64	5320	4.72	4.87	0.25	8.05	8.32	Pass
100	5500	5.02	4.82	0.25	8.18	8.38	Pass
116	5580	5.29	4.51	0.25	8.17	8.38	Pass
140	5700	5.01	4.26	0.25	7.91	8.38	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = $5.67\text{dBi} + 10\log(2) = 8.68\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.68 - 6) = 8.32\text{dBm}$.
For U-NII-2C: Directional Gain = $5.61\text{dBi} + 10\log(2) = 8.62\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.62 - 6) = 8.38\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

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802.11ac (VHT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
54	5270	3.71	4.15	0.21	7.16	8.32	Pass
62	5310	3.74	4.33	0.21	7.27	8.32	Pass
102	5510	-2.04	-2.42	0.21	1.00	8.38	Pass
110	5550	4.08	3.47	0.21	7.01	8.38	Pass
134	5670	3.85	2.46	0.21	6.43	8.38	Pass

Note:

- 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.
- For U-NII-2A: Directional Gain = $5.67\text{dBi} + 10\log(2) = 8.68\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.68 - 6) = 8.32\text{dBm}$.
For U-NII-2C: Directional Gain = $5.61\text{dBi} + 10\log(2) = 8.62\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.62 - 6) = 8.38\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

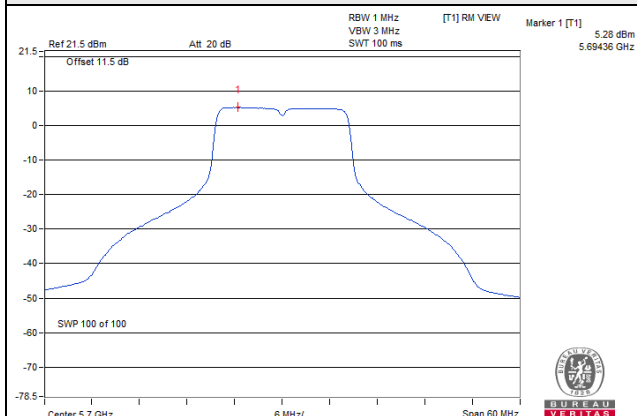
Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	0.73	0.88	0.21	4.58	8.32	Pass
106	5530	-6.23	-6.98	0.21	-2.82	8.38	Pass
122	5610	1.23	0.04	0.21	4.45	8.38	Pass

Note:

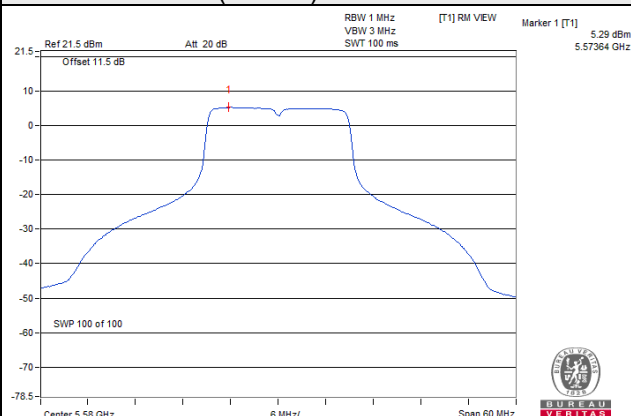
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-2A: Directional Gain = $5.67\text{dBi} + 10\log(2) = 8.68\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.68 - 6) = 8.32\text{dBm}$.
For U-NII-2C: Directional Gain = $5.61\text{dBi} + 10\log(2) = 8.62\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.62 - 6) = 8.38\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

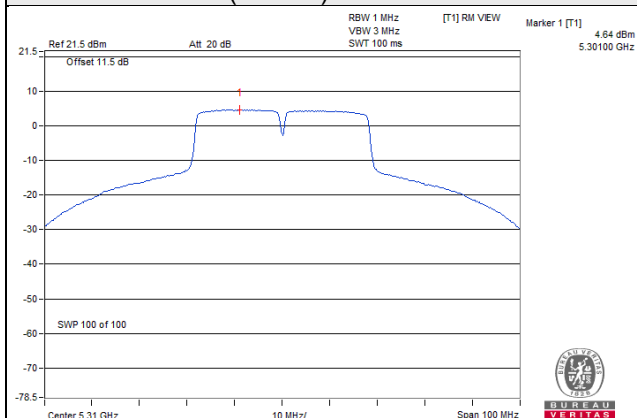
802.11a / Chain 0 / CH 140



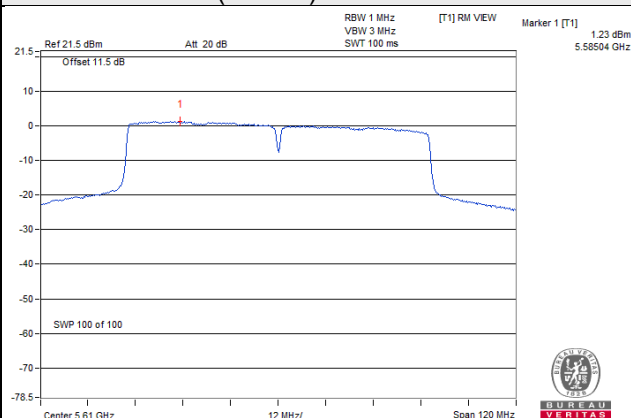
802.11ac (VHT20) / Chain 0 / CH 116



802.11ac (VHT40) / Chain 1 / CH 62



802.11ac (VHT80) / Chain 0 / CH 122

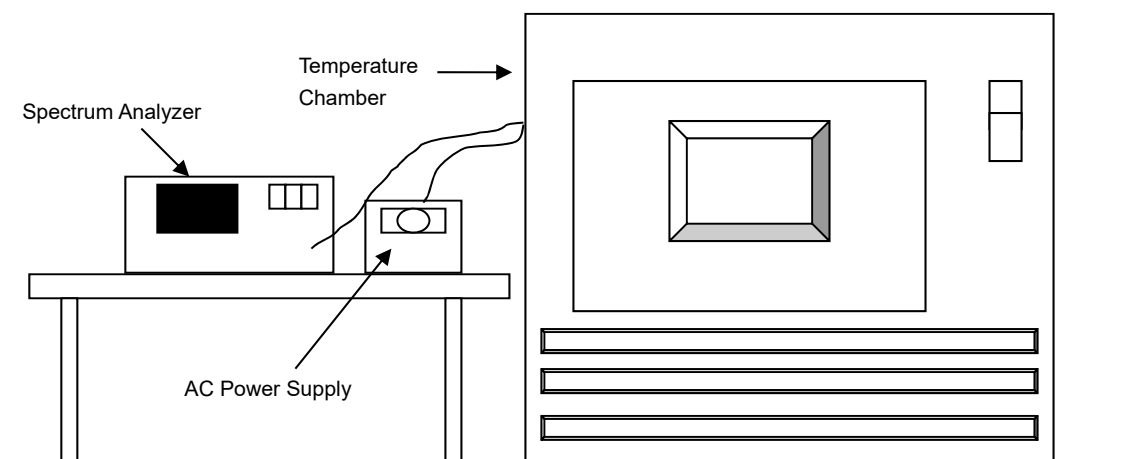


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Tested date: Dec. 29, 2020

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
Standard Temperature And Humidity Chamber	MHU-225AU	920842	May 28, 2020	May 27, 2021
Digital Multimeter Fluke	87-III	70360742	Jun. 23, 2020	Jun. 22, 2021
AC Power Supply Extch	CFW-105	E000603	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.4 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results

5G traffic radio:

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5260.0129	PASS	5260.0136	PASS	5260.0148	PASS	5260.0107	PASS
40	120	5260.0056	PASS	5260.0074	PASS	5260.0076	PASS	5260.0059	PASS
30	120	5259.9730	PASS	5259.9751	PASS	5259.9742	PASS	5259.9776	PASS
20	120	5259.9719	PASS	5259.9752	PASS	5259.9769	PASS	5259.9761	PASS
10	120	5259.9945	PASS	5259.9986	PASS	5259.9975	PASS	5259.9967	PASS
0	120	5259.9851	PASS	5259.9853	PASS	5259.9816	PASS	5259.9853	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5259.9709	PASS	5259.9744	PASS	5259.9763	PASS	5259.9751	PASS
	120	5259.9719	PASS	5259.9752	PASS	5259.9769	PASS	5259.9761	PASS
	102	5259.9724	PASS	5259.9752	PASS	5259.9777	PASS	5259.9751	PASS

Scanning radio:

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5260.0201	PASS	5260.0221	PASS	5260.0173	PASS	5260.0212	PASS
40	120	5259.9922	PASS	5259.9966	PASS	5259.9947	PASS	5259.9924	PASS
30	120	5259.9888	PASS	5259.9884	PASS	5259.9876	PASS	5259.9914	PASS
20	120	5259.9995	PASS	5260.0025	PASS	5260.0006	PASS	5259.9980	PASS
10	120	5260.0218	PASS	5260.0192	PASS	5260.0204	PASS	5260.0188	PASS
0	120	5260.0192	PASS	5260.0207	PASS	5260.0192	PASS	5260.0196	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5259.9997	PASS	5260.0028	PASS	5259.9996	PASS	5259.9971	PASS
	120	5259.9995	PASS	5260.0025	PASS	5260.0006	PASS	5259.9980	PASS
	102	5260.0003	PASS	5260.0023	PASS	5260.0009	PASS	5259.9987	PASS

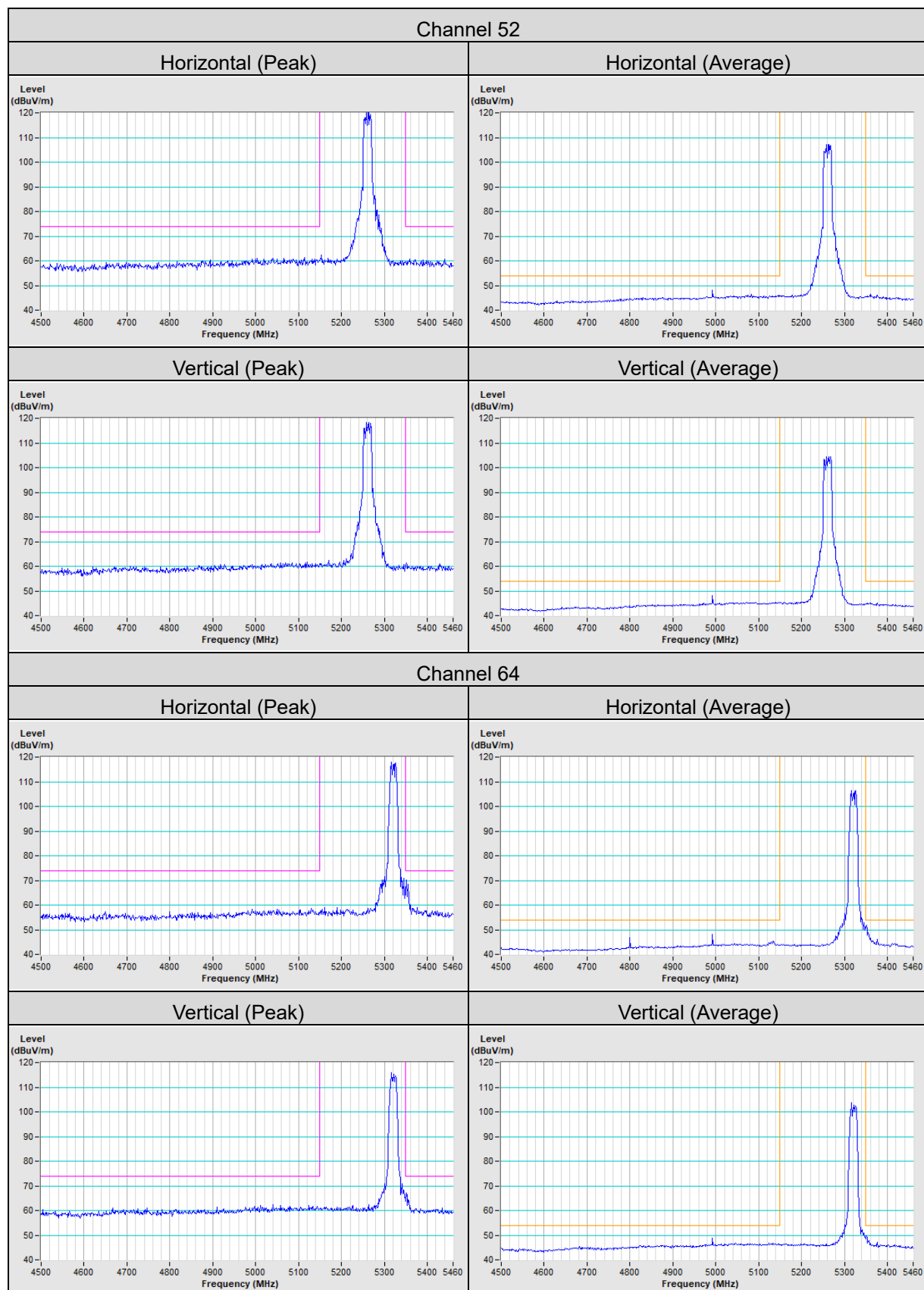
5 Pictures of Test Arrangements

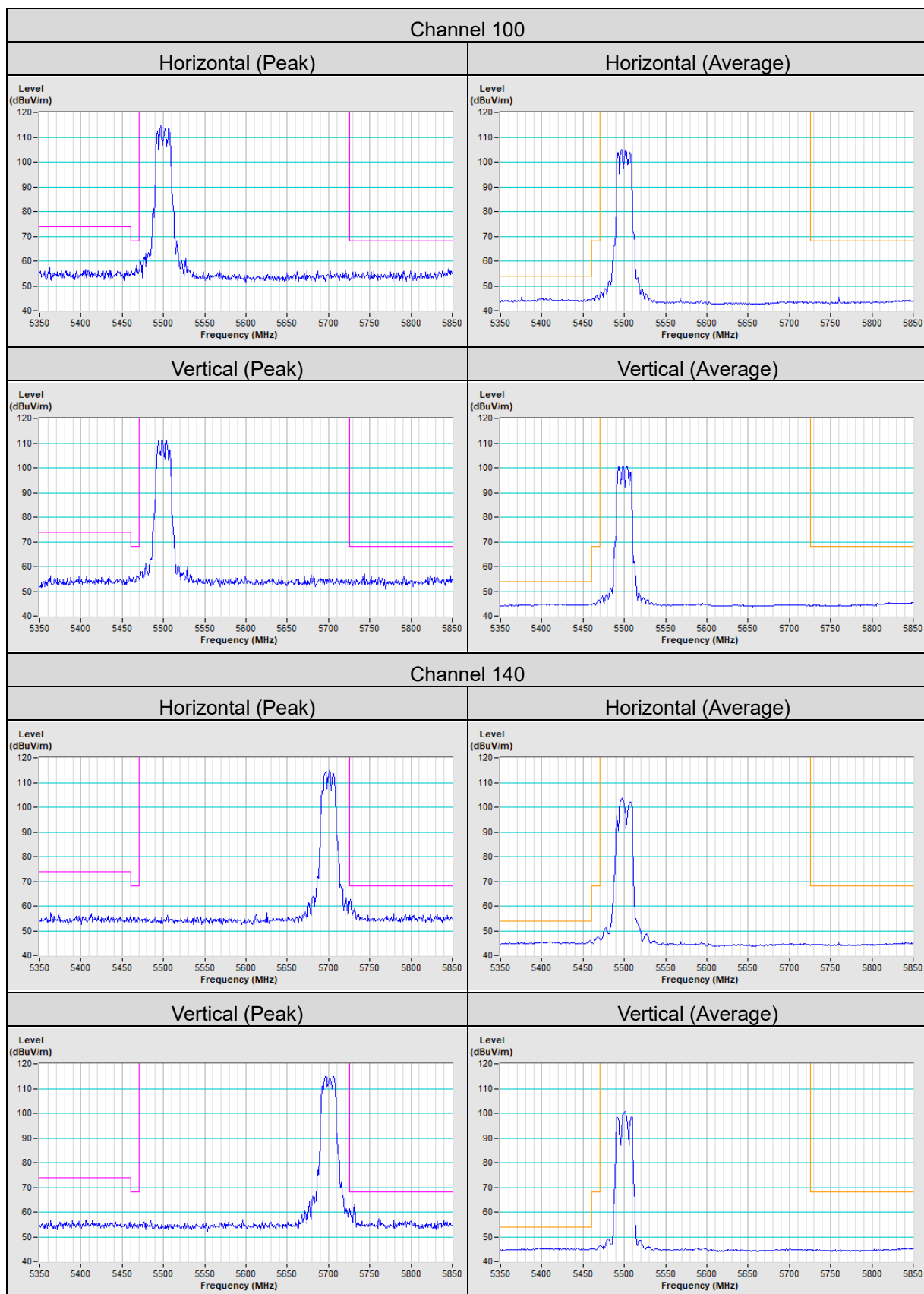
Please refer to the attached file (Test Setup Photo).

Annex A- Band Edge Measurement

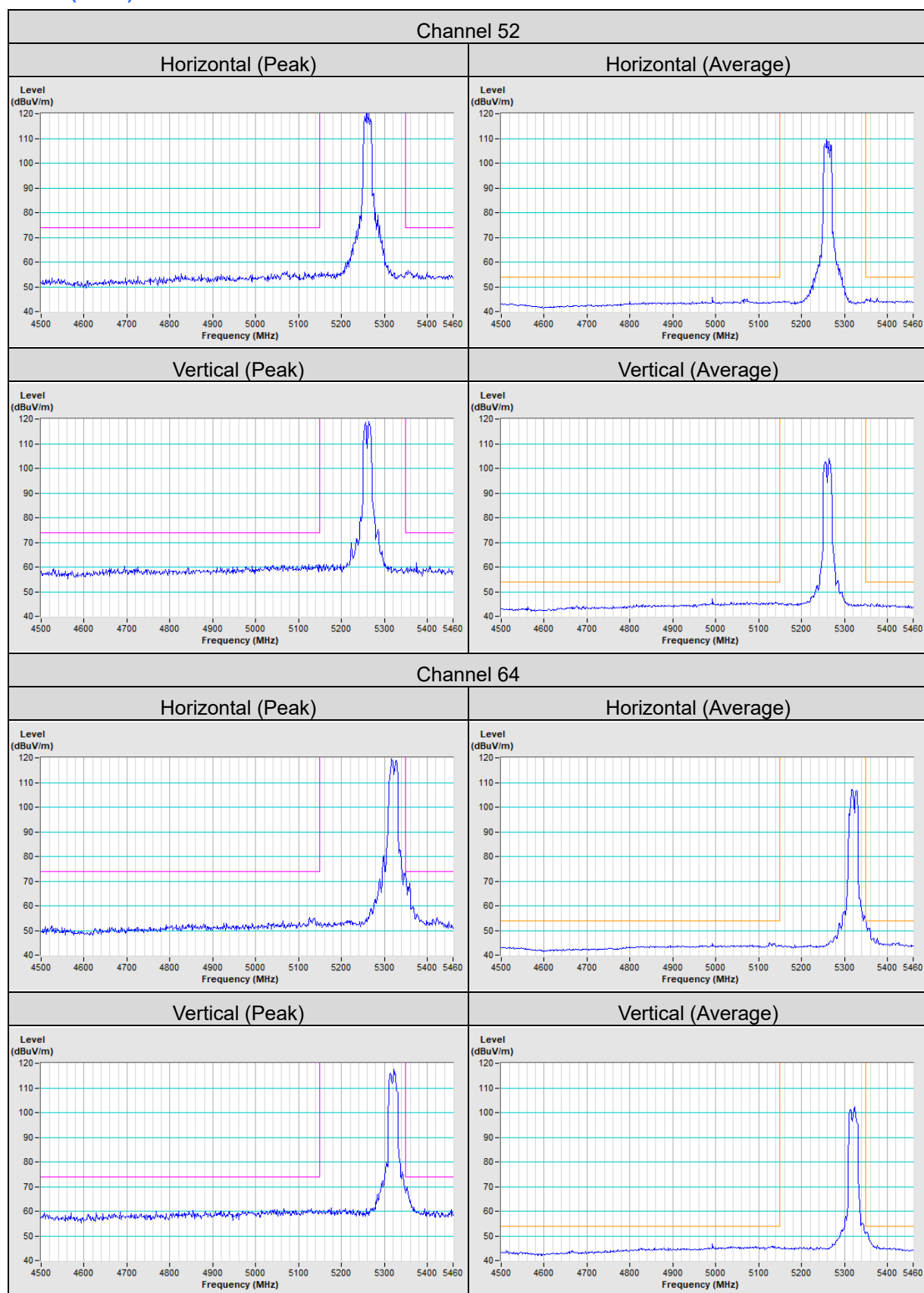
5G traffic radio:

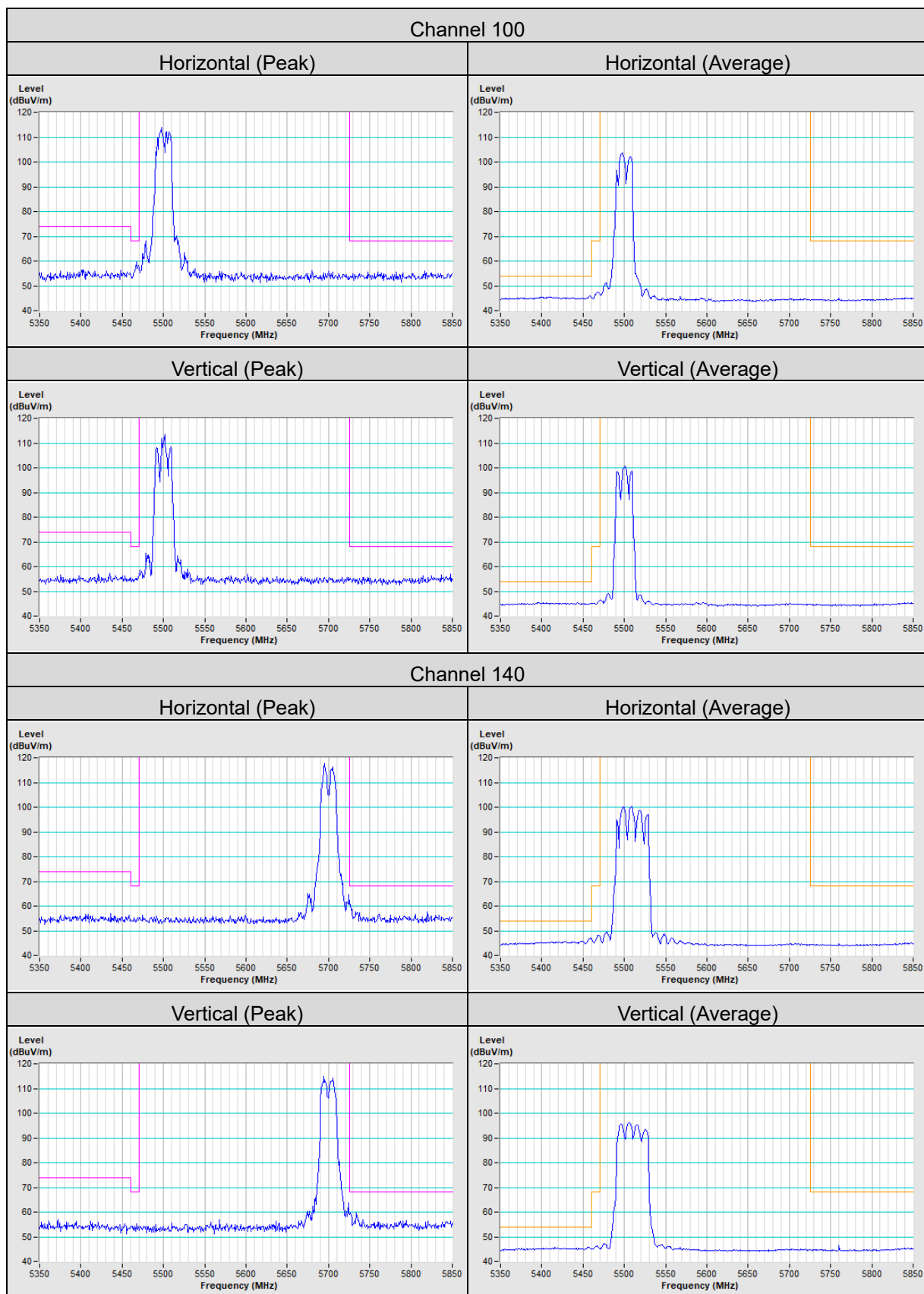
802.11a



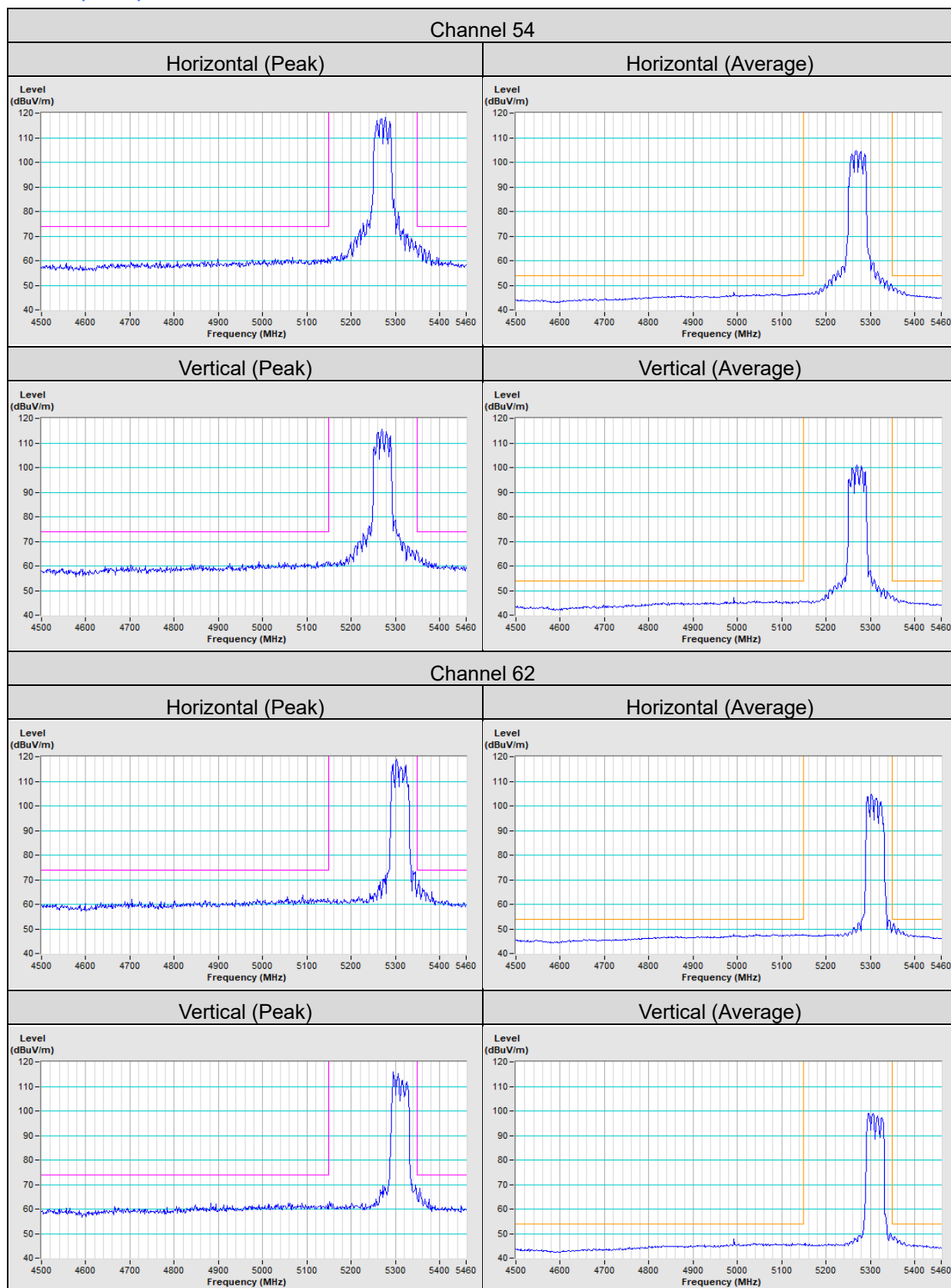


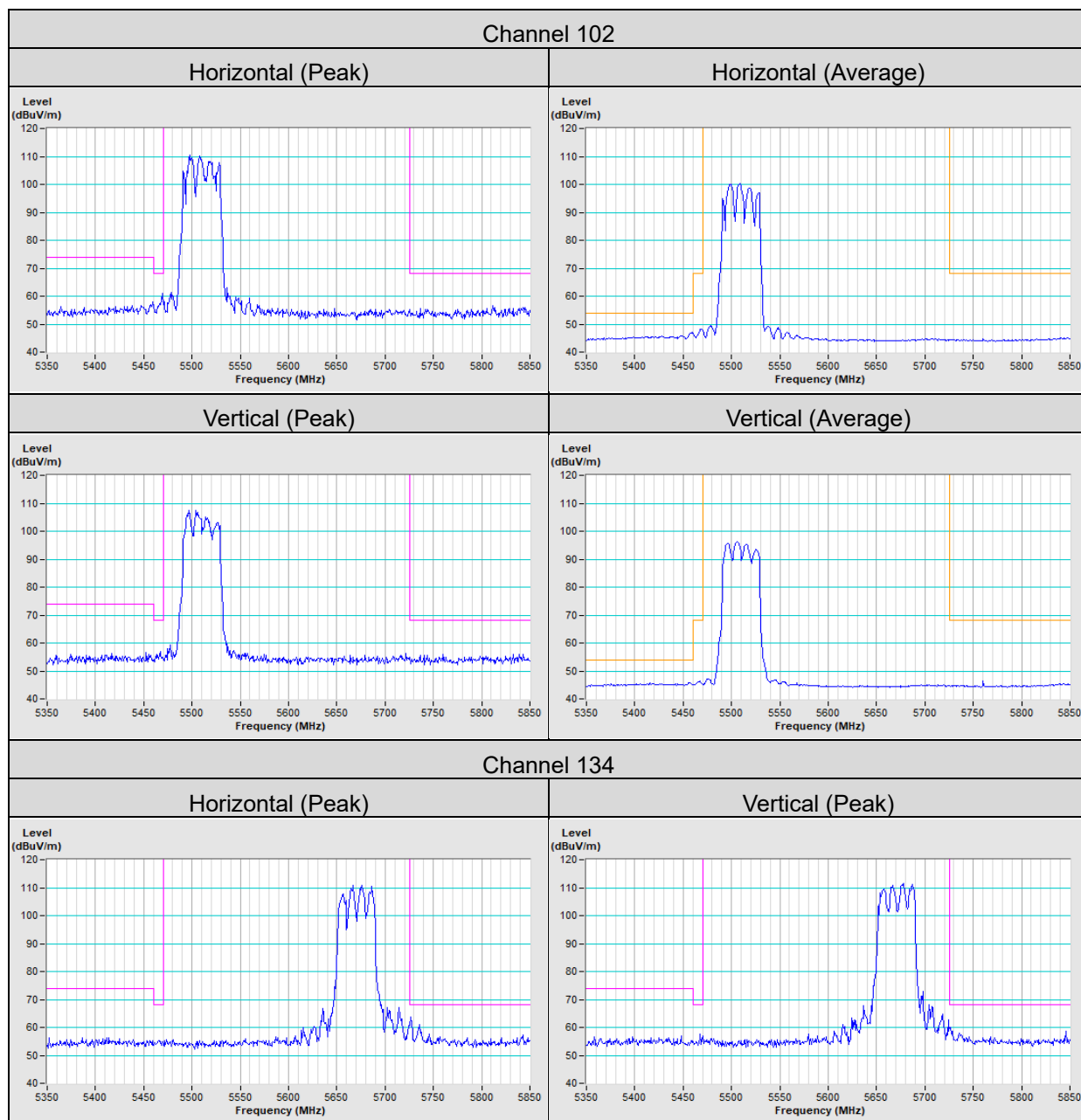
802.11ax (HE20)



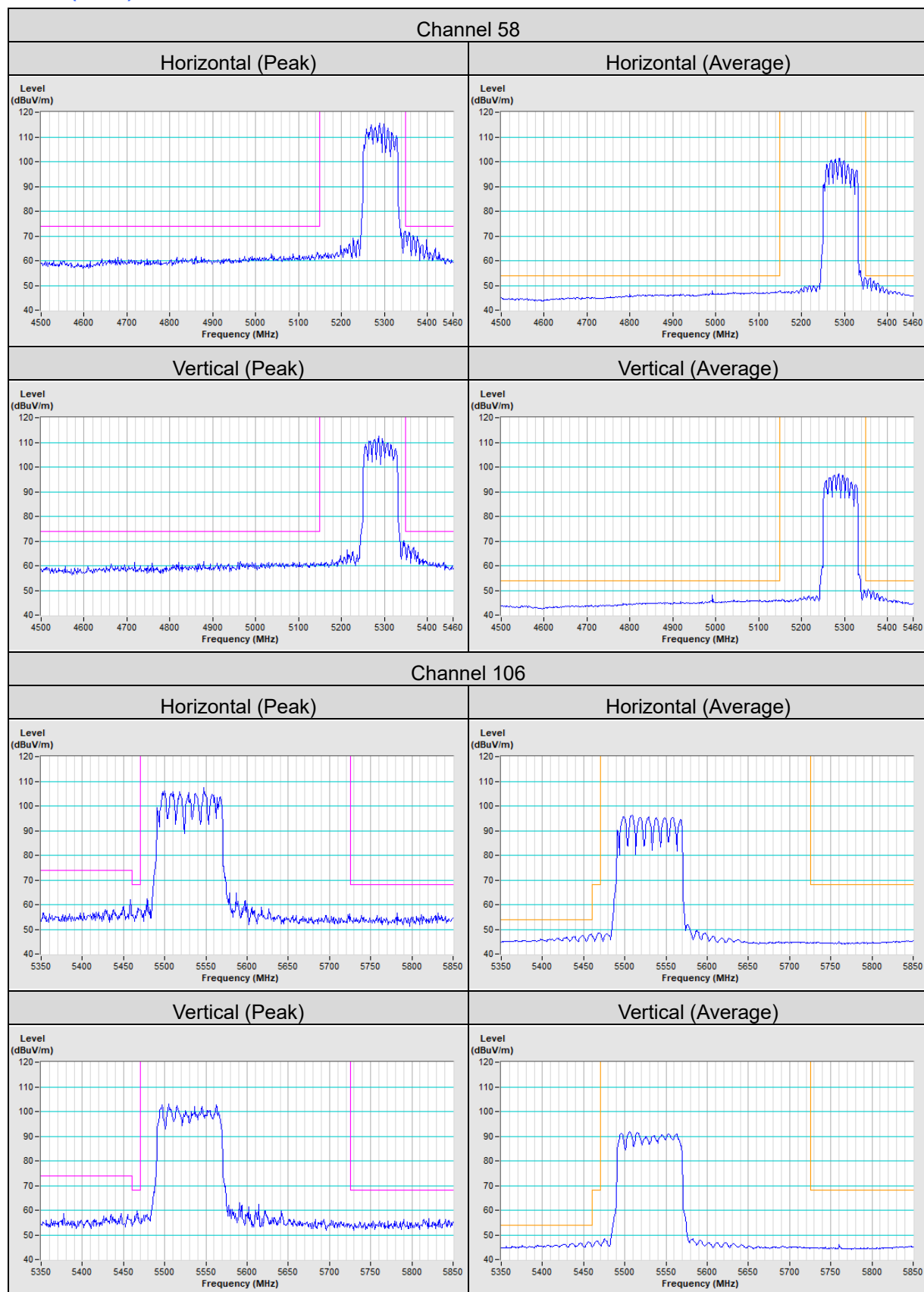


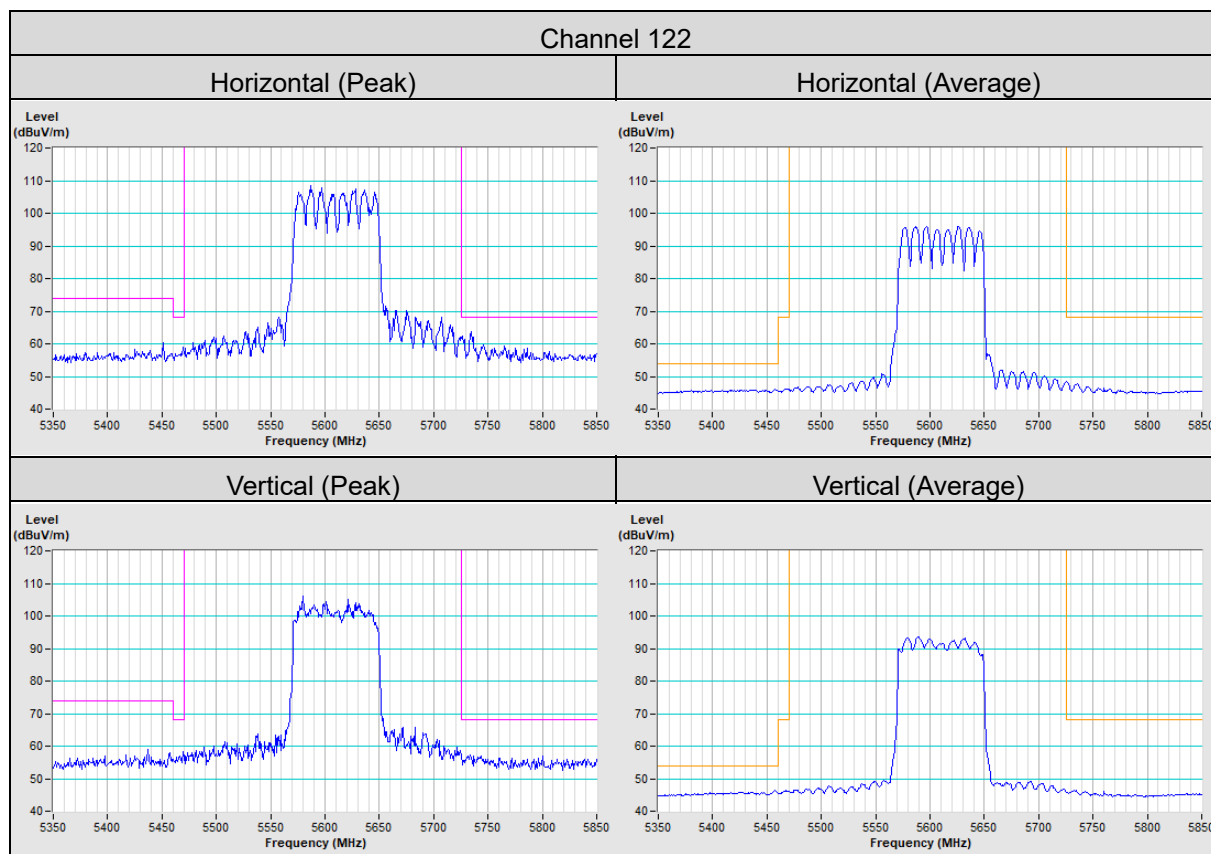
802.11ax (HE40)



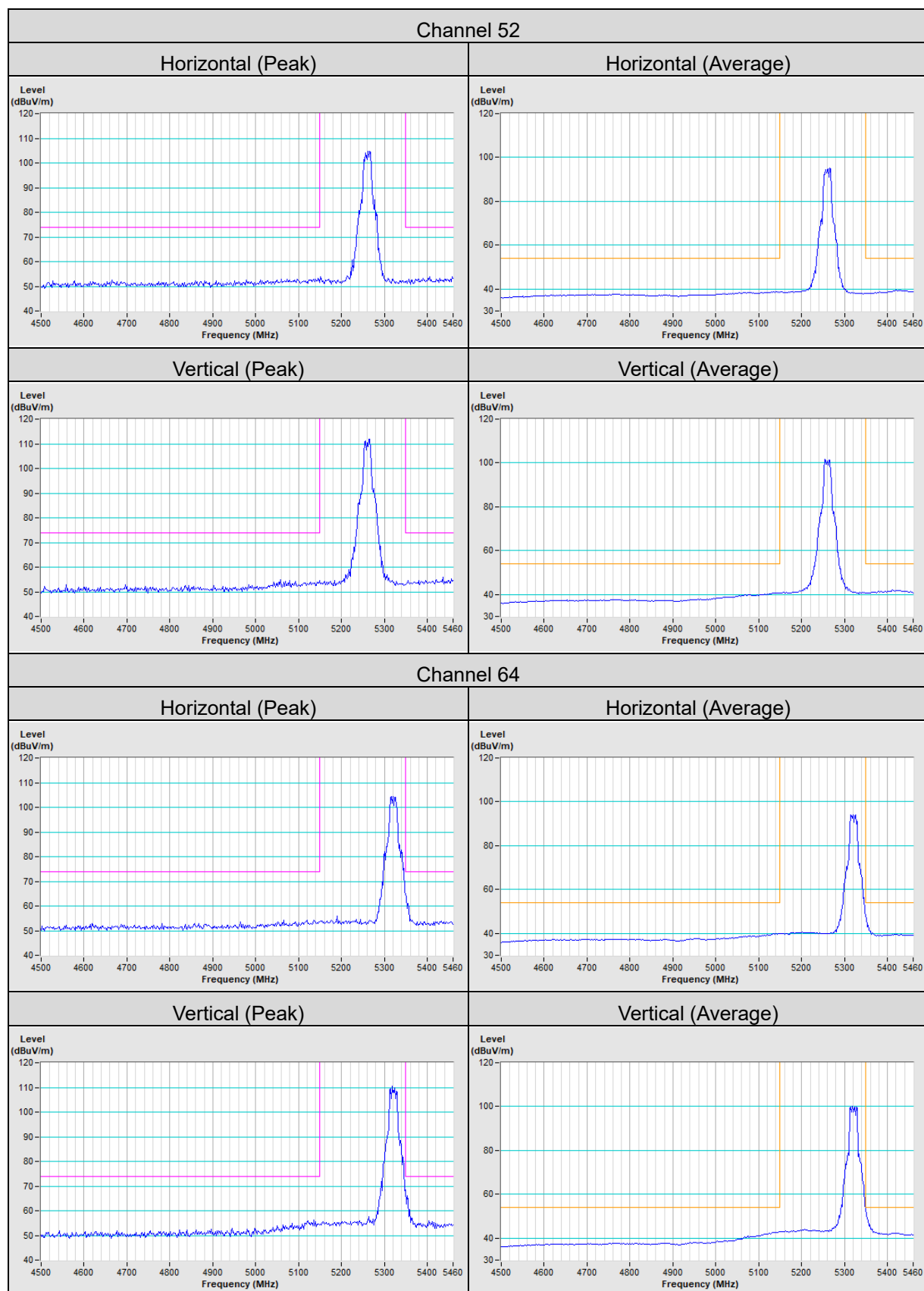


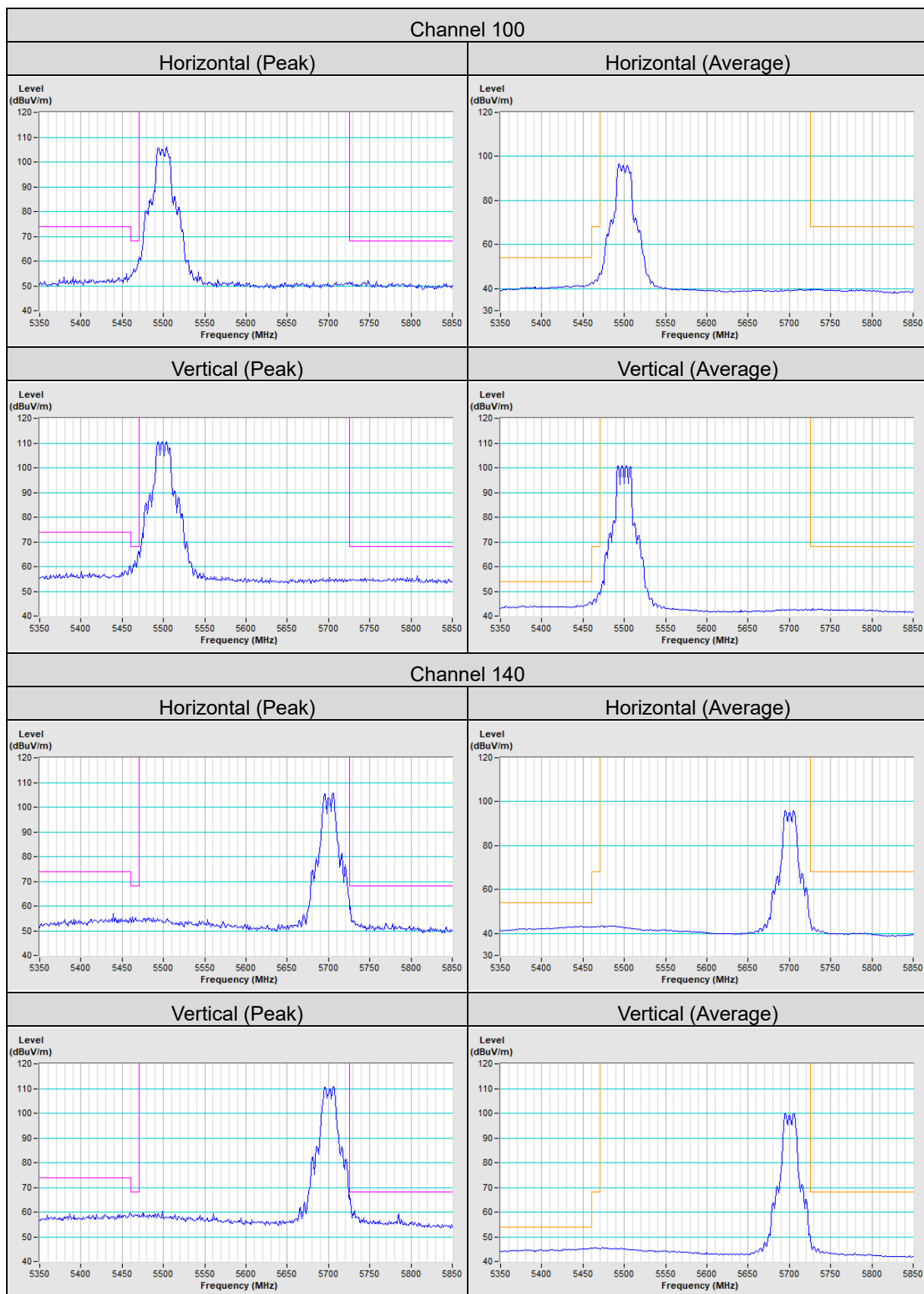
802.11ax (HE80)



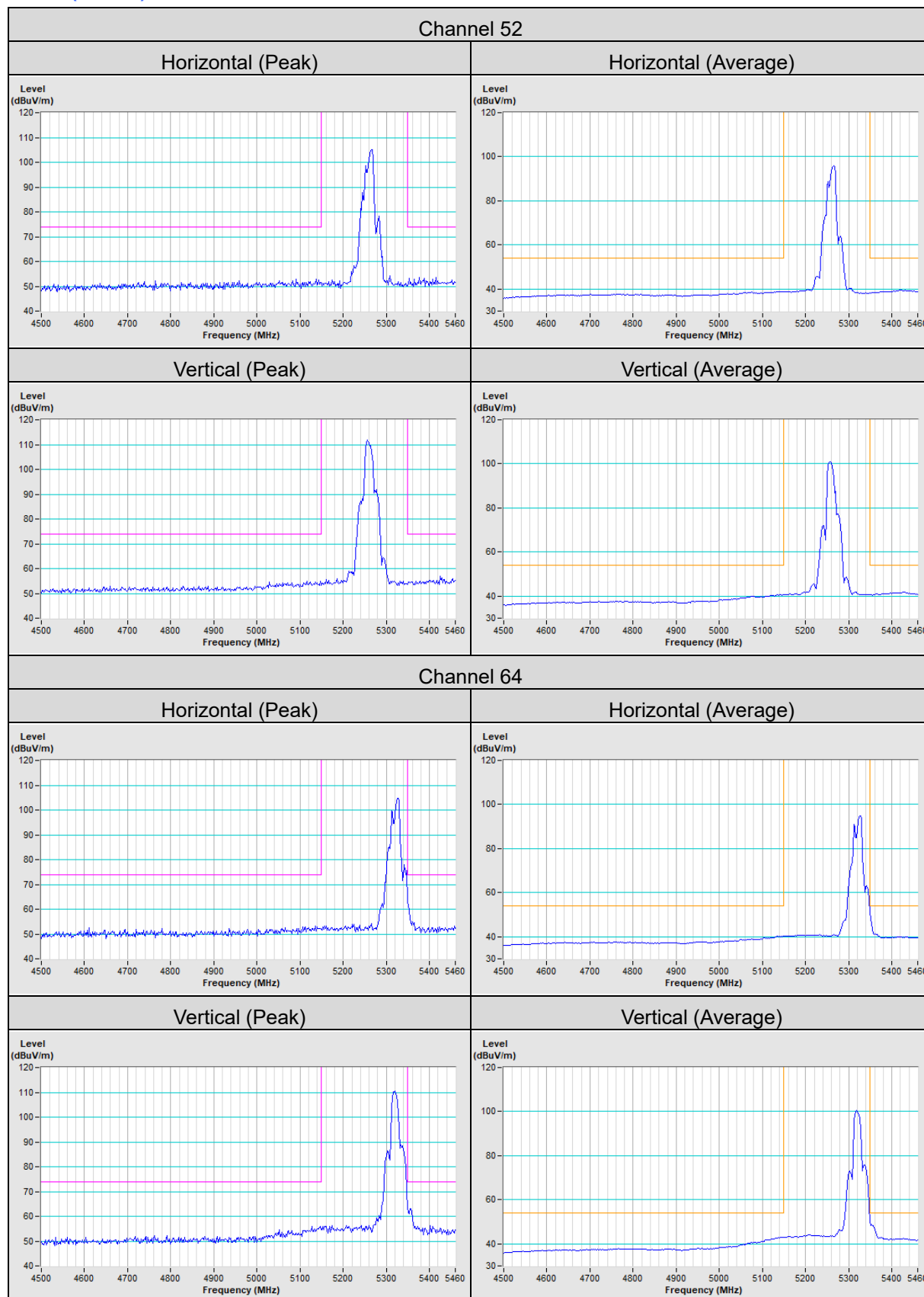


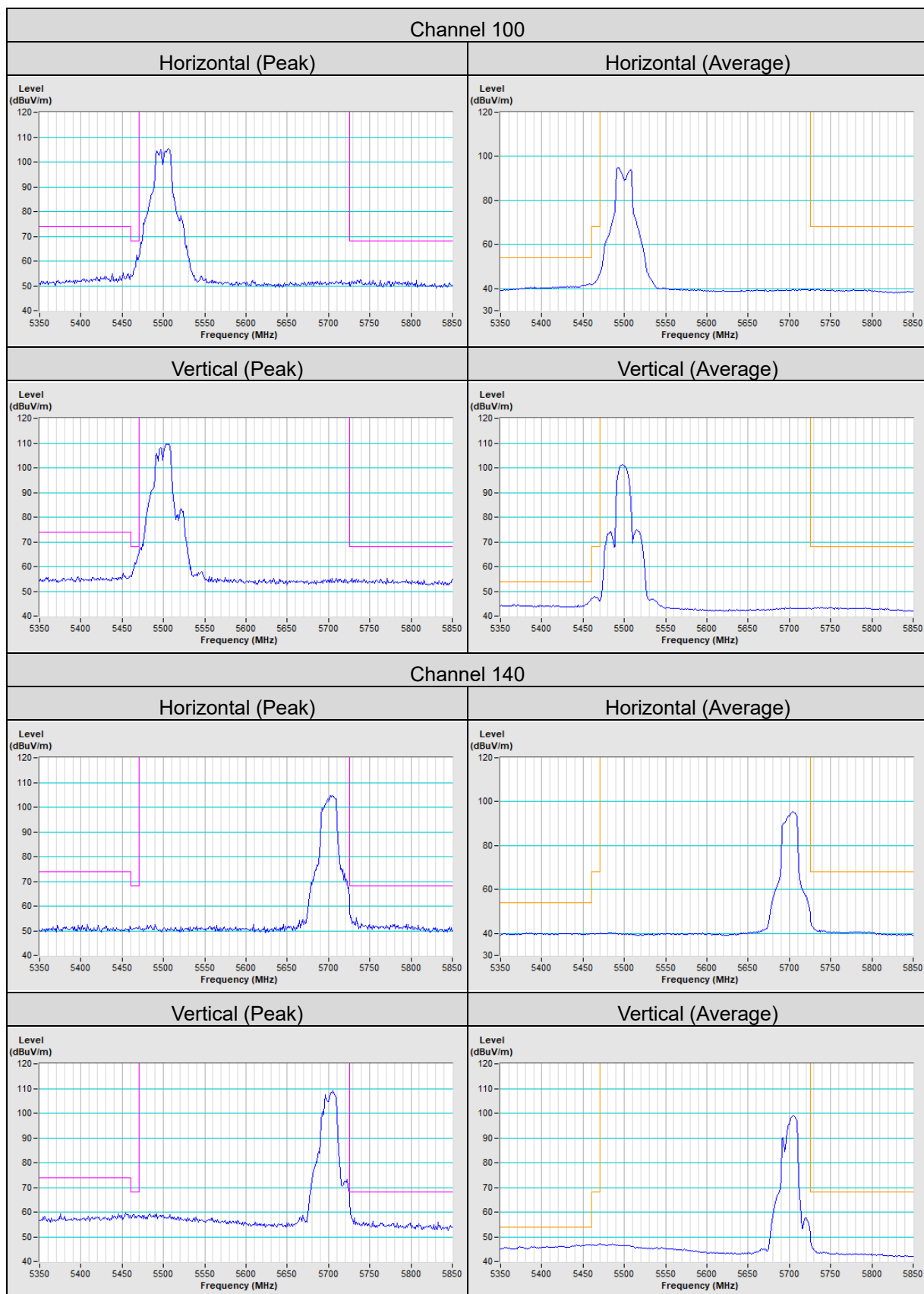
Scanning radio:
802.11a



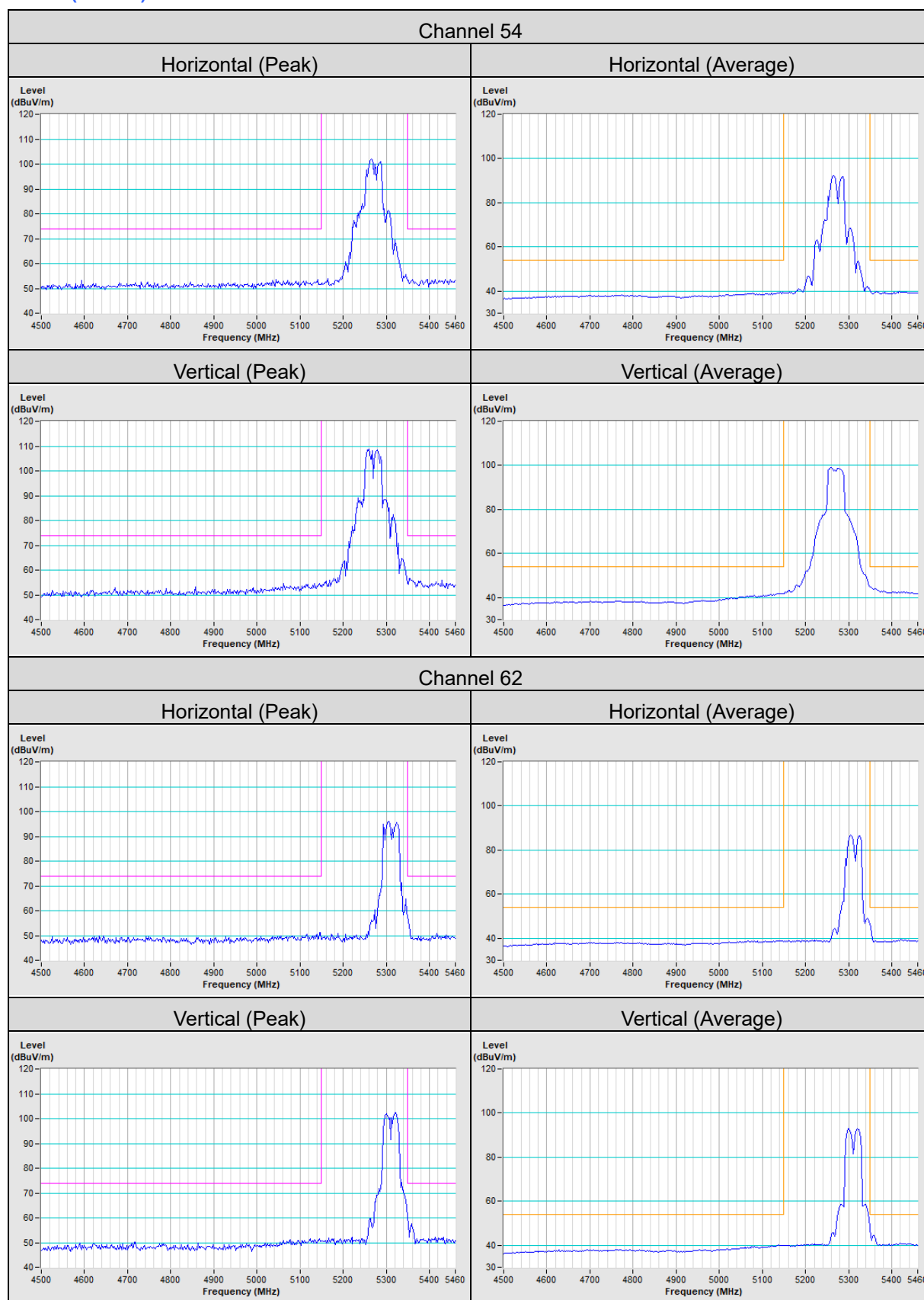


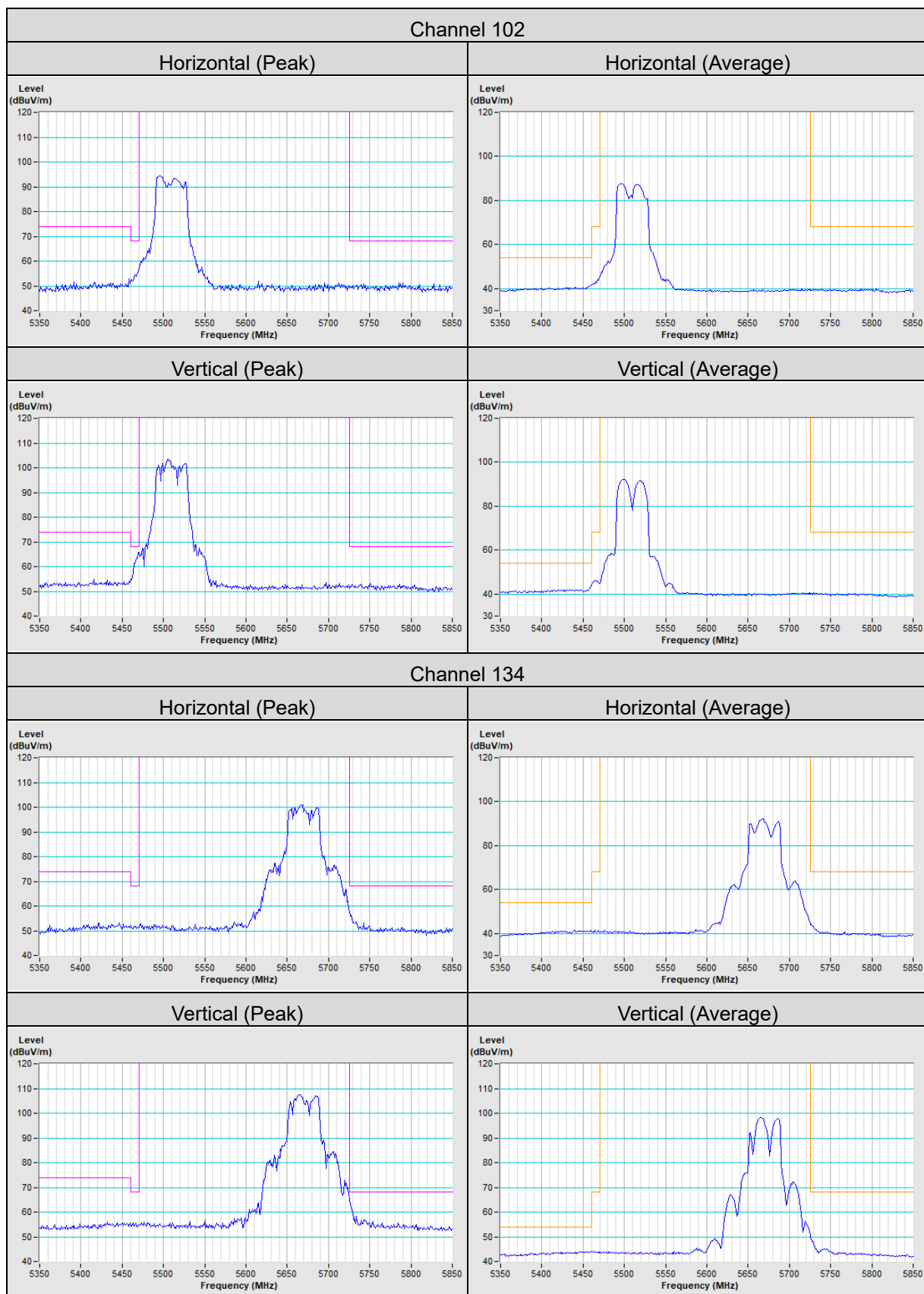
802.11ac (VHT20)



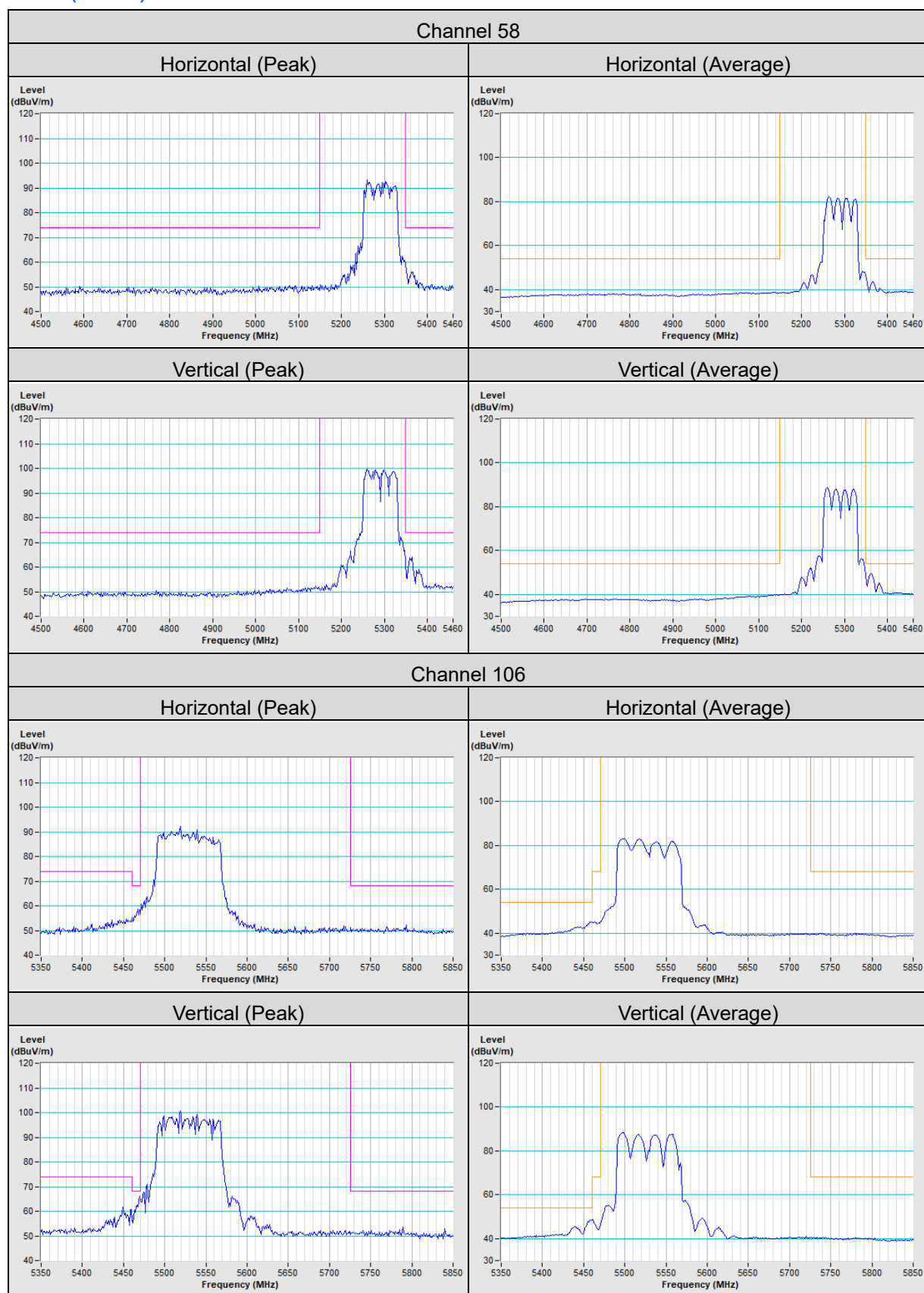


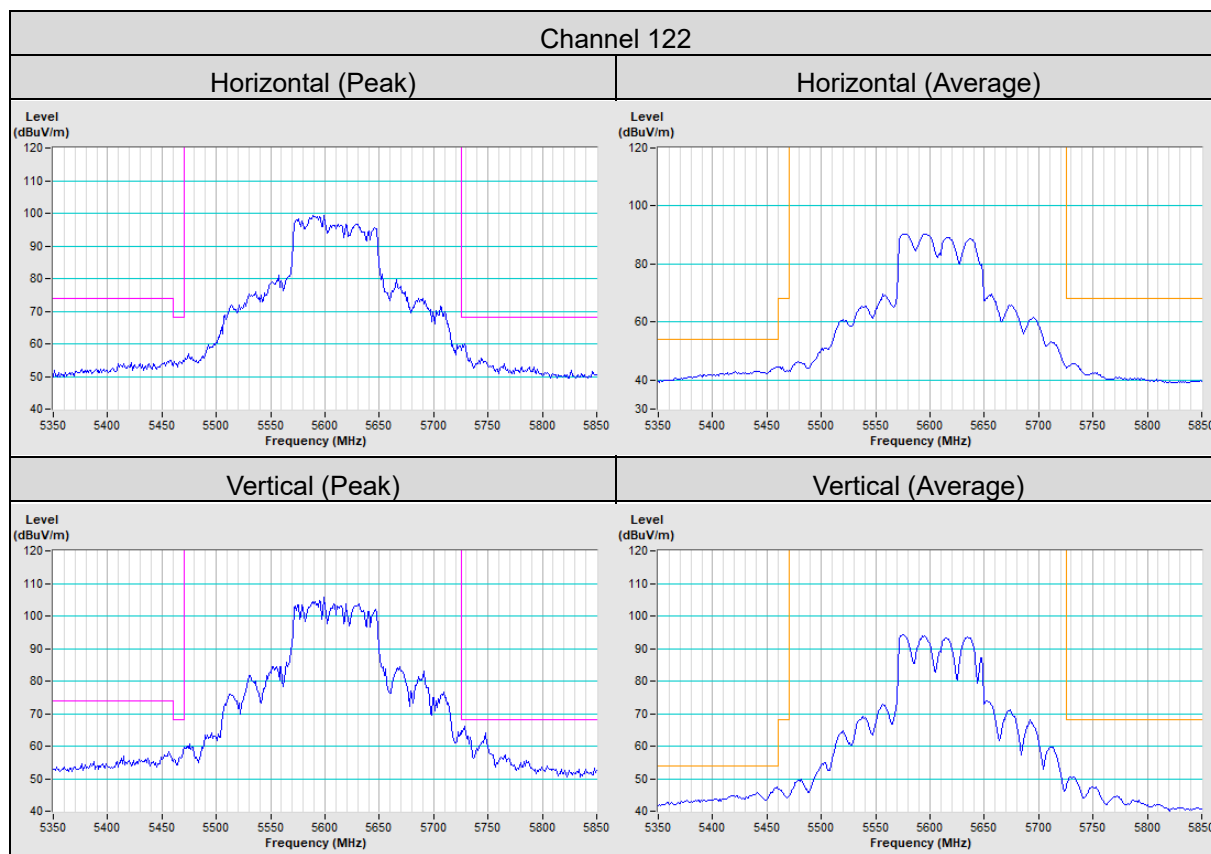
802.11ac (VHT40)





802.11ac (VHT80)





Appendix – 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 and approved according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

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

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