

Partial FCC Test Report

(Spot Check)

Report No.: RFBGTL-WTW-P22070227-3

FCC ID: APYHRO00316

Received Date: Feb. 19, 2022

Test Date: Jul. 26 ~ Aug. 03, 2022

Issued Date: Aug. 25, 2022

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FCC Registration / 788550 / TW0003

Designation Number: 281270 / TW0032



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Release Control Record

Issue No.	Description	Date Issued
RFBGTL-WTW-P22070227-3	Original Release	Aug. 25, 2022

1 Certificate of Conformity

Product: Smart Phone

Brand: SHARP

Sample Status: Engineering Sample

Applicant: SHARP Corporation Mobile Communication BU

Test Date: Jul. 26 ~ Aug. 03, 2022

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 : Lena Wang, **Date:** Aug. 25, 2022
Lena Wang / Specialist

Approved by : Jeremy Lin, **Date:** Aug. 25, 2022
Jeremy Lin / 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)(9)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -28.44 at 0.49400MHz.
15.407(b)(1/2/3/4(i/ii)/9)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.36 at 36.79MHz.
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	N/A	Refer to Note
15.407(e)	6dB bandwidth	N/A	Refer to Note
15.407(g)	Frequency Stability	N/A	Refer to Note
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX not a standard connector.

Note:

1. This report is a partial report, only spot check test items such as Radiated Emissions and Conducted Power test chosen the worst channel of original report was were performed for this report. Refer to original report for the other test data.
2. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
3. For U-NII-1, 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 B. Test Procedures refer to report 4.1.3.
4. 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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Smart Phone
Brand	SHARP
Sample Status	Engineering Sample
Power Supply Rating	5.0Vdc (from adapter) 3.87Vdc (Battery)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
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 1733.3Mbps 802.11ax: up to 2402Mbps
Operating Frequency	5180 ~ 5320MHz, 5500 ~ 5720MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 8 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 4 802.11ac (VHT80), 802.11ax (HE80): 2 802.11ac (VHT160), 802.11ax (HE160): 1 5500 ~ 5720MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 12 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 6 802.11ac (VHT80), 802.11ax (HE80): 3 802.11ac (VHT160), 802.11ax (HE160): 1 5745 ~ 5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 5 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 2 802.11ac (VHT80), 802.11ax (HE80): 1
Output Power	Refer to note
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Refer to note
Cable Supplied	Refer to note

Note:

1. This report is a supplementary report to the original BV CPS report no.: RFBGTL-WTW-P22020475-1. Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. Radiated emission and output power verification worst test refer to original report.

2. There are differences between FCC ID: APYHRO00314 & FCC ID: APYHRO00316:

FCC ID	APYHRO00314	APYHRO00316
FM Radio	Supports	Doesn't support

3. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX Function
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX
802.11ac (VHT160)	2TX
802.11ax (HE20)	2TX
802.11ax (HE40)	2TX
802.11ax (HE80)	2TX
802.11ax (HE160)	2TX

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11ac mode and HE20/HE40 on 802.11ax mode. The bandwidth and modulation are similar for VHT80/VHT160 on 802.11ac mode and HE80/HE160 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

4. The EUT contains following support units.

Product	Brand	Model	Description
Adapter (Support unit)	Salom	XN-2QC25	Input: 100-240Vac, 50/60Hz, 0.2A Output: 5.0Vdc, 800mA
Battery	-	-	3.87Vdc, Rated 4870mAh (18.9Wh), Typ. 5000mAh (19.4Wh)
Headset (Support unit)	Ambibio	AB-HI02JS	-
USB cable (Support unit)	Luxshare-ICT	L6KU2007-CS-H	0.95m shielded cable without core

5. The antenna used in this EUT is listed as below table:

Ant. Type	Connector	Ant. No.:	Antenna Gain (dBi)				
			2400-2472 MHz	5150-5250 MHz	5250-5350 MHz	5470-5725 MHz	5725-5850 MHz
PIFA	I-PEX	4	-2.7	-2.5	-3.6	-3.8	-1.9
		8	0.0	-2.9	-2.4	-1.6	-0.9

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

6. Output Power are as below:

Frequency (MHz)	Output Power (mW)						
	Full RU	Partial RU					
		RU26	RU52	RU106	RU242	RU486	RU996
5180-5250	30.377	12.107	12.094	12.079	11.901	11.791	5.729
5250-5320	30.905	12.262	12.191	12.065	12.038	11.997	5.598
5500-5720	30.659	12.275	12.164	12.095	12.135	11.97	11.67
5745-5825	30.307	12.219	12.205	12.052	11.941	11.845	-

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

3.2 Description of Test Modes

For 5180 ~ 5320MHz:

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

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz
54	5270 MHz	62	5310 MHz

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

Channel	Frequency	Channel	Frequency
42	5210MHz	58	5290MHz

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
50	5250MHz

For 5500 ~ 5720MHz:

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

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

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

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

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

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

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
114	5570MHz

For 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

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

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	P	
-	√	√	√	√	-

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 P: Conducted Output Power 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. Radiated emission test (below 1GHz) and power line conducted emission test items chosen the worst maximum power channel for final testing.

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)
-	802.11ax (HE20)	5180-5250	36 to 48	40	OFDMA	MCS0
-	802.11ax (HE20)	5250-5320	52 to 64	52, 64	OFDMA	MCS0
-	802.11ax (HE20)	5500-5720	100 to 144	140	OFDMA	MCS0
-	802.11ax (HE20)	5745-5825	149 to 165	165	OFDMA	MCS0

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)
-	802.11ax (HE20)	5180-5250	36 to 48	165	OFDMA	MCS0
	802.11ax (HE20)	5250-5320	52 to 64		OFDMA	MCS0
	802.11ax (HE20)	5500-5720	100 to 144		OFDMA	MCS0
	802.11ax (HE20)	5745-5825	149 to 165		OFDMA	MCS0

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)
-	802.11ax (HE20)	5180-5250	36 to 48	165	OFDMA	MCS0
	802.11ax (HE20)	5250-5320	52 to 64		OFDMA	MCS0
	802.11ax (HE20)	5500-5720	100 to 144		OFDMA	MCS0
	802.11ax (HE20)	5745-5825	149 to 165		OFDMA	MCS0

Transmit Power 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)
-	802.11a	5180-5250	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	MCS0
	802.11n (HT40)		38 to 46	38, 46	OFDM	MCS0
	802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	MCS0
	802.11ac (VHT40)		38 to 46	38, 46	OFDM	MCS0
	802.11ac (VHT80)		42	42	OFDM	MCS0
	802.11ac (VHT160)		50	50	OFDM	MCS0
	802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	MCS0
	802.11ax (HE40)		38 to 46	38, 46	OFDMA	MCS0
	802.11ax (HE80)		42	42	OFDMA	MCS0
	802.11ax (HE160)		50	50	OFDMA	MCS0
-	802.11a	5250-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	MCS0
	802.11n (HT40)		54 to 62	54, 62	OFDM	MCS0
	802.11ac (VHT20)		52 to 64	52, 60, 64	OFDM	MCS0
	802.11ac (VHT40)		54 to 62	54, 62	OFDM	MCS0
	802.11ac (VHT80)		58	58	OFDM	MCS0
	802.11ac (VHT160)		50	50	OFDM	MCS0
	802.11ax (HE20)		52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (HE80)		58	58	OFDMA	MCS0
	802.11ax (HE160)		50	50	OFDMA	MCS0
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	MCS0
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	MCS0
	802.11ac (VHT20)		100 to 144	100, 116, 140, 144	OFDM	MCS0
	802.11ac (VHT40)		102 to 142	102, 110, 134, 142	OFDM	MCS0
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	MCS0
	802.11ac (VHT160)		114	114	OFDM	MCS0
	802.11ax (HE20)		100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (HE80)		106 to 138	106, 122, 138	OFDMA	MCS0
	802.11ax (HE160)		114	114	OFDMA	MCS0

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	MCS0
	802.11n (HT40)		151 to 159	151, 159	OFDM	MCS0
	802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	MCS0
	802.11ac (VHT40)		151 to 159	151, 159	OFDM	MCS0
	802.11ac (VHT80)		155	155	OFDM	MCS0
	802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	MCS0
	802.11ax (HE40)		151 to 159	151, 159	OFDMA	MCS0
	802.11ax (HE80)		155	155	OFDMA	MCS0

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EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11ax (HE20)	5180-5250	36 to 48	36, 40, 48	OFDMA	MCS0
	802.11ax (HE40)		38 to 46	38, 46	OFDMA	MCS0
	802.11ax (HE80)		42	42	OFDMA	MCS0
	802.11ax (HE160)		50	50	OFDMA	MCS0
-	802.11ax (HE20)	5250-5320	52 to 64	52, 60, 64	OFDMA	MCS0
	802.11ax (HE40)		54 to 62	54, 62	OFDMA	MCS0
	802.11ax (HE80)		58	58	OFDMA	MCS0
	802.11ax (HE160)		50	50	OFDMA	MCS0
-	802.11ax (HE20)	5500-5720	100 to 144	100, 116, 140, 144	OFDMA	MCS0
	802.11ax (HE40)		102 to 142	102, 110, 134, 142	OFDMA	MCS0
	802.11ax (HE80)		106 to 138	106, 122, 138	OFDMA	MCS0
	802.11ax (HE160)		114	114	OFDMA	MCS0
-	802.11ax (HE20)	5745-5825	149 to 165	149, 157, 165	OFDMA	MCS0
	802.11ax (HE40)		151 to 159	151, 159	OFDMA	MCS0
	802.11ax (HE80)		155	155	OFDMA	MCS0

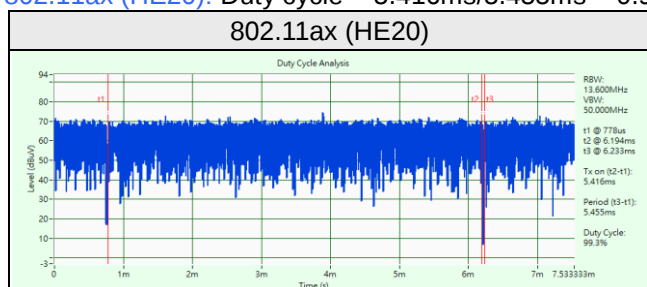
Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE _≥ 1G	16 deg. C, 64% RH	120Vac, 60Hz	Edison Lee
RE _{<} 1G	22 deg. C, 67% RH	120Vac, 60Hz	Edison Lee
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Edison Lee
P	25 deg. C, 60% RH	120Vac, 60Hz	Jisyong Wang

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is > 98 %, duty factor is not required.

802.11ax (HE20): Duty cycle = 5.416ms/5.455ms = 0.993



3.4 Description of Support Units

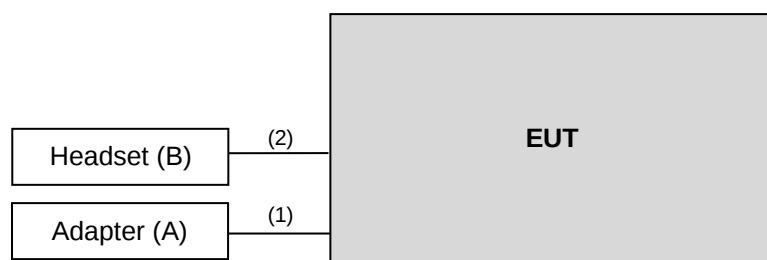
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Adapter	Salom	XN-2QC25	NA	NA	Provided by client
B	Headset	Ambibio	AB-HI02JS	NA	NA	Provided by client

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB cable	1	0.95	Y	0	Provided by client
2	Audio cable	1	1.1	N	0	Provided by client

3.4.1 Configuration of System under Test



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.

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 (dBuV/m)	AV: 54 (dBuV/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(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	☒ 15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2(dBuV/m) ^{*1} PK: 105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK: 122.2 (dBuV/m) ^{*4}
	☐ 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. 01, 2022	Jun. 30, 2023
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 21, 2021	Dec. 20, 2022
BILOG Antenna SCHWARZBECK	VULB9168	995	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-404	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980810	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM- (9000+2000+1000)	201230+ 201242+ 210101	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM- NM- (9000+300+500)	201252+ 201250+ 201245	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM- (5000+3000+2000)	201261+201258+ 201249	Jan. 17, 2022	Jan. 16, 2023
Software BV CPS	ADT_Radiated_V7. 6.15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190 004/MY55190007/MY55 210005	Jul. 13, 2022	Jul. 12, 2023

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 WM Chamber 7.

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:

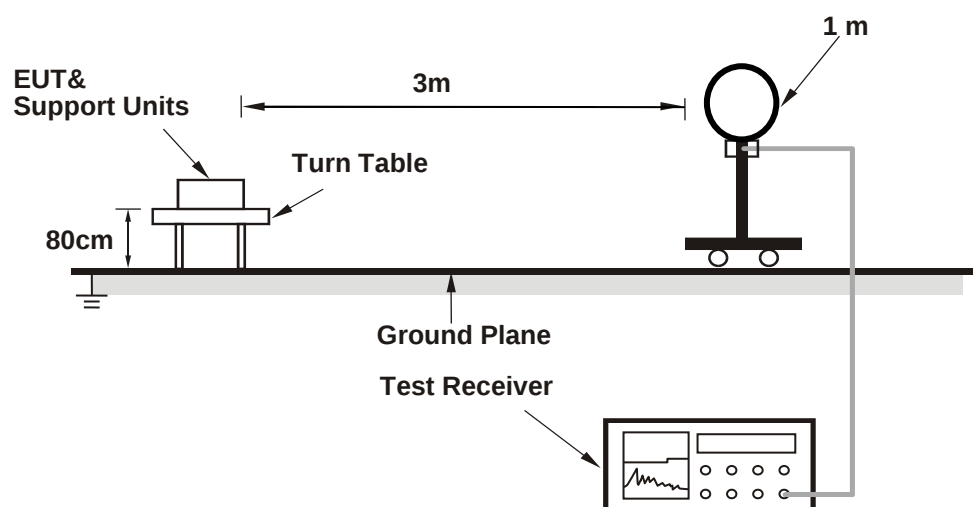
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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. (802.11ax (HE20): RBW = 1MHz, VBW = 10Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

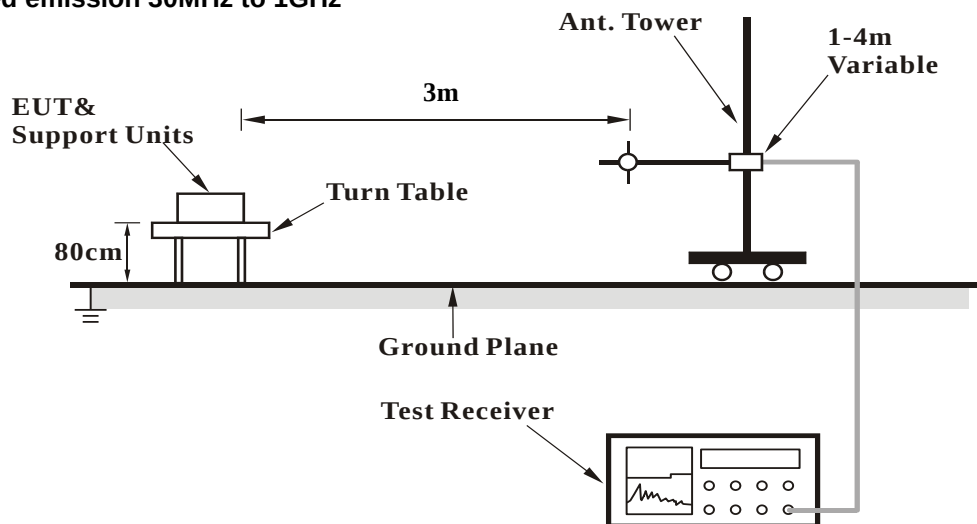
No deviation.

4.1.5 Test Setup

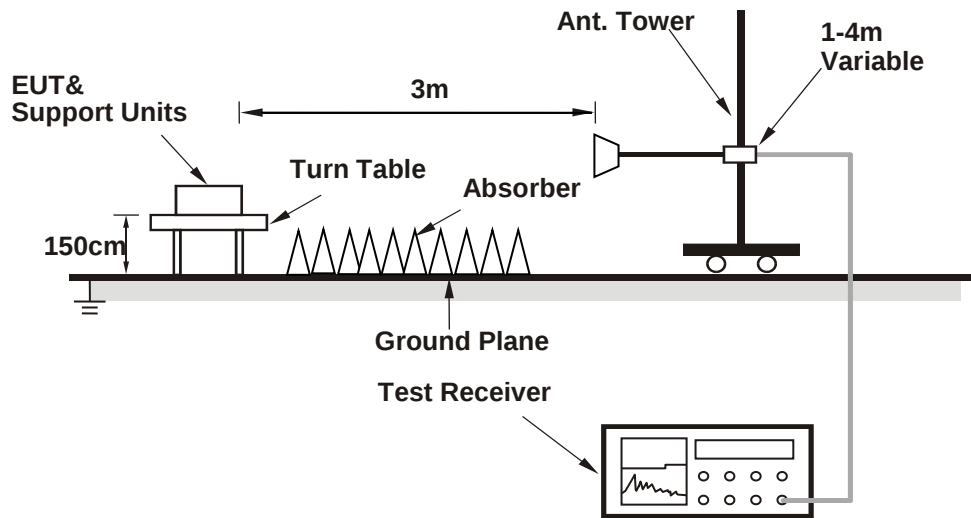
For Radiated emission below 30MHz



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

- a. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

RF Mode	TX 802.11ax (HE20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) 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	*5200.00	104.8 PK			2.66 H	148	64.5	40.3
2	*5200.00	95.1 AV			2.66 H	148	54.8	40.3
3	#10400.00	55.4 PK	68.2	-12.8	1.55 H	151	48.0	7.4
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	*5200.00	103.4 PK			1.48 V	93	63.1	40.3
2	*5200.00	94.1 AV			1.48 V	93	53.8	40.3
3	#10400.00	54.6 PK	68.2	-13.6	2.30 V	85	47.2	7.4

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) 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	55.9 PK	74.0	-18.1	2.60 H	148	54.1	1.8
2	5150.00	47.4 AV	54.0	-6.6	2.60 H	148	45.6	1.8
3	*5260.00	104.3 PK			2.60 H	148	64.2	40.1
4	*5260.00	95.5 AV			2.60 H	148	55.4	40.1
5	#10520.00	55.3 PK	68.2	-12.9	1.59 H	150	48.3	7.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.9 PK	74.0	-18.1	1.40 V	91	54.1	1.8
2	5150.00	47.0 AV	54.0	-7.0	1.40 V	91	45.2	1.8
3	*5260.00	102.5 PK			1.40 V	91	62.4	40.1
4	*5260.00	93.8 AV			1.40 V	91	53.7	40.1
5	#10520.00	54.2 PK	68.2	-14.0	2.33 V	89	47.2	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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ax (HE20)	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) 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	104.0 PK			2.28 H	149	64.0	40.0
2	*5320.00	94.7 AV			2.28 H	149	54.7	40.0
3	5350.00	56.6 PK	74.0	-17.4	2.28 H	149	55.2	1.4
4	5350.00	47.4 AV	54.0	-6.6	2.28 H	149	46.0	1.4
5	10640.00	54.4 PK	74.0	-19.6	1.49 H	158	47.4	7.0
6	10640.00	45.0 AV	54.0	-9.0	1.49 H	158	38.0	7.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	101.7 PK			1.39 V	95	61.7	40.0
2	*5320.00	93.9 AV			1.39 V	95	53.9	40.0
3	5350.00	55.5 PK	74.0	-18.5	1.39 V	95	54.1	1.4
4	5350.00	47.1 AV	54.0	-6.9	1.39 V	95	45.7	1.4
5	10640.00	53.4 PK	74.0	-20.6	2.33 V	95	46.4	7.0
6	10640.00	44.8 AV	54.0	-9.2	2.33 V	95	37.8	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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11ax (HE20)	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) 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	105.3 PK			2.54 H	118	64.0	41.3
2	*5700.00	97.1 AV			2.54 H	118	55.8	41.3
3	#5725.00	57.2 PK	68.2	-11.0	2.54 H	118	54.5	2.7
4	11400.00	55.9 PK	74.0	-18.1	1.56 H	165	48.1	7.8
5	11400.00	45.9 AV	54.0	-8.1	1.56 H	165	38.1	7.8
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	*5700.00	103.0 PK			1.26 V	88	61.7	41.3
2	*5700.00	94.4 AV			1.26 V	88	53.1	41.3
3	#5725.00	57.1 PK	68.2	-11.1	1.26 V	88	54.4	2.7
4	11400.00	55.0 PK	74.0	-19.0	2.24 V	96	47.2	7.8
5	11400.00	44.7 AV	54.0	-9.3	2.24 V	96	36.9	7.8

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) 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	#5622.80	56.8 PK	68.2	-11.4	1.32 H	185	54.3	2.5
2	*5825.00	105.0 PK			1.32 H	185	63.1	41.9
3	*5825.00	95.6 AV			1.32 H	185	53.7	41.9
4	#5938.80	58.1 PK	68.2	-10.1	1.32 H	185	55.0	3.1
5	11650.00	56.2 PK	74.0	-17.8	2.33 H	90	48.4	7.8
6	11650.00	46.7 AV	54.0	-7.3	2.33 H	90	38.9	7.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5610.40	58.2 PK	68.2	-10.0	2.43 V	116	55.8	2.4
2	*5825.00	97.8 PK			2.43 V	116	55.9	41.9
3	*5825.00	96.2 AV			2.43 V	116	54.3	41.9
4	#5944.80	58.5 PK	68.2	-9.7	2.43 V	116	55.4	3.1
5	11650.00	57.1 PK	74.0	-16.9	1.61 V	170	49.3	7.8
6	11650.00	46.9 AV	54.0	-7.1	1.61 V	170	39.1	7.8

Remarks:

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

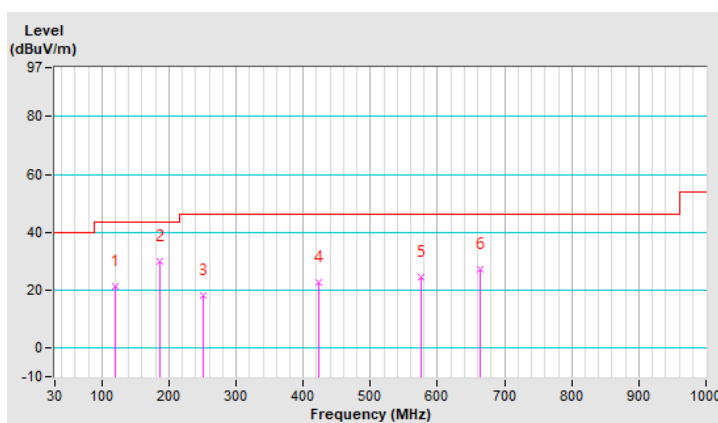
Below 1GHz Worst-Case Data:

RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	120.21	21.07 QP	43.50	-22.43	1.50 H	18	36.49	-15.42
2	186.17	30.06 QP	43.50	-13.44	1.00 H	125	45.55	-15.49
3	251.16	17.96 QP	46.00	-28.04	1.00 H	126	32.67	-14.71
4	423.82	22.80 QP	46.00	-23.20	1.00 H	258	32.59	-9.79
5	576.11	24.24 QP	46.00	-21.76	2.00 H	104	30.79	-6.55
6	664.38	27.14 QP	46.00	-18.86	1.00 H	324	32.07	-4.93

Remarks:

1. Emission Level(dBUV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

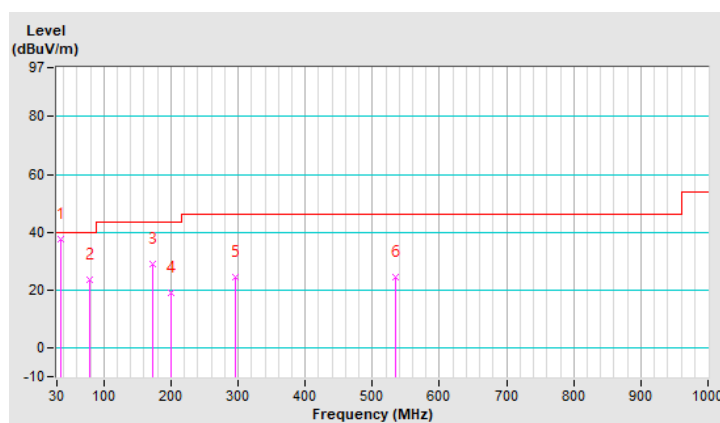


RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	36.79	37.64 QP	40.00	-2.36	1.50 V	348	51.71	-14.07
2	78.50	23.39 QP	40.00	-16.61	1.00 V	57	41.27	-17.88
3	172.59	29.15 QP	43.50	-14.35	1.00 V	107	43.13	-13.98
4	200.72	18.97 QP	43.50	-24.53	1.50 V	32	35.83	-16.86
5	296.75	24.37 QP	46.00	-21.63	2.00 V	78	37.50	-13.13
6	534.40	24.33 QP	46.00	-21.67	1.00 V	123	31.89	-7.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB 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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 03, 2021	Dec. 02, 2022
RF signal cable Woken	5D-FB	Cable-cond1-01	Jan. 15, 2022	Jan. 14, 2023
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Mar. 14, 2022	Mar. 13, 2023
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Sep. 07, 2021	Sep. 06, 2022
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 1 (Conduction 1).

3. The VCCI Site Registration No. is C-12040.

4. Tested date: 2022/7/29

4.2.3 Test Procedures

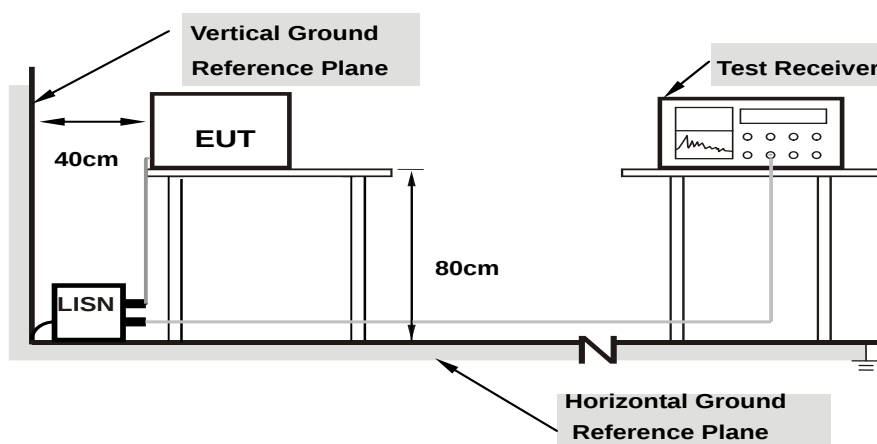
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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:

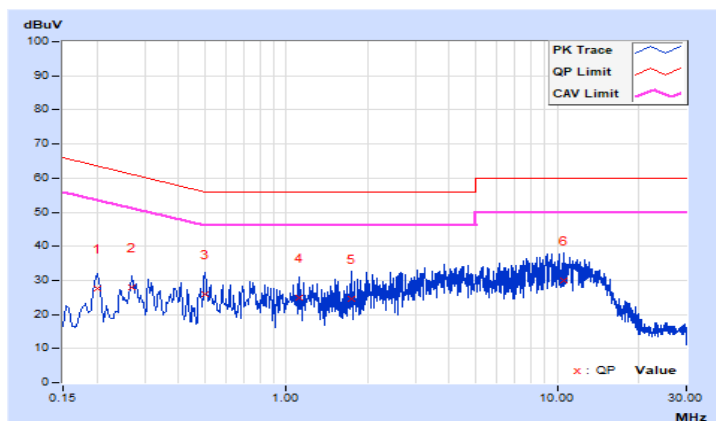
802.11ax (HE20)

RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20095	9.72	17.90	6.03	27.62	15.75	63.57	53.57	-35.95	-37.82
2	0.26992	9.75	18.23	10.02	27.98	19.77	61.12	51.12	-33.14	-31.35
3	0.50132	9.81	16.19	7.05	26.00	16.86	56.00	46.00	-30.00	-29.14
4	1.11000	9.85	15.05	4.66	24.90	14.51	56.00	46.00	-31.10	-31.49
5	1.73800	9.88	14.61	6.24	24.49	16.12	56.00	46.00	-31.51	-29.88
6	10.54200	10.07	19.74	9.17	29.81	19.24	60.00	50.00	-30.19	-30.76

Remarks:

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

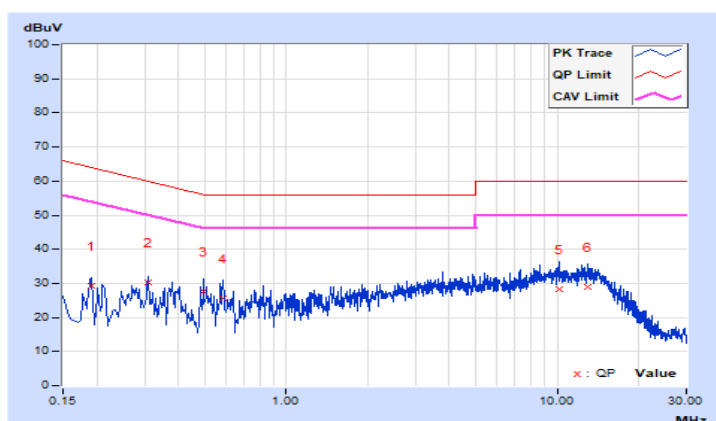


RF Mode	TX 802.11ax (HE20)	Channel	CH 165 : 5825 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19000	9.71	19.69	8.23	29.40	17.94	64.04	54.04	-34.64	-36.10
2	0.31000	9.77	20.40	8.59	30.17	18.36	59.97	49.97	-29.80	-31.61
3	0.49400	9.82	17.84	6.14	27.66	15.96	56.10	46.10	-28.44	-30.14
4	0.58200	9.83	15.63	4.03	25.46	13.86	56.00	46.00	-30.54	-32.14
5	10.15000	10.06	18.08	8.74	28.14	18.80	60.00	50.00	-31.86	-31.20
6	12.91000	10.10	18.96	7.94	29.06	18.04	60.00	50.00	-30.94	-31.96

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	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		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 $N_{ANT} \leq 4$;

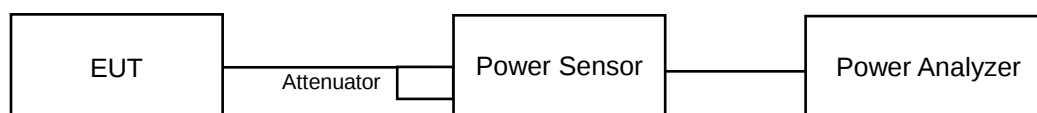
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

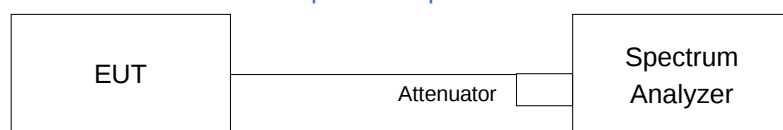
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth and power output of transmission above 5.725 GHz where the EBW crosses 5.725 GHz



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 and set the detector to average. Duty factor is not added to measured value.

For transmission above 5.725 GHz where the EBW crosses 5.725 GHz

For channel aggregation (channel 138, 142, 144) measurement refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section III Channel Aggregation subpart C. measurement procedures 2 and section II E 2 d) method SA-2.

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:

802.11a

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.70	11.92	30.351	14.82	24.00	Pass
40	5200	11.64	11.75	29.55	14.71	24.00	Pass
48	5240	11.67	11.77	29.721	14.73	24.00	Pass
52	5260	11.67	11.86	30.035	14.78	24.00	Pass
60	5300	11.65	11.69	29.379	14.68	24.00	Pass
64	5320	11.68	11.92	30.283	14.81	24.00	Pass
100	5500	11.82	11.89	30.658	14.87	24.00	Pass
116	5580	11.76	11.90	30.485	14.84	24.00	Pass
140	5700	11.47	11.90	29.516	14.70	24.00	Pass
144	5720 (For U-NII-2C)	10.43	10.40	22.006	13.43	24.00	Pass
144	5720 (For U-NII-3)	4.15	4.27	5.273	7.22	30.00	Pass
149	5745	11.72	11.57	29.214	14.66	30.00	Pass
157	5785	11.78	11.77	30.097	14.79	30.00	Pass
165	5825	11.83	11.78	30.307	14.82	30.00	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.68	11.72	29.582	14.71	24.00	Pass
40	5200	11.57	11.65	28.977	14.62	24.00	Pass
48	5240	11.66	11.74	29.583	14.71	24.00	Pass
52	5260	11.62	11.78	29.587	14.71	24.00	Pass
60	5300	11.57	11.64	28.943	14.62	24.00	Pass
64	5320	11.62	11.81	29.692	14.73	24.00	Pass
100	5500	11.78	11.79	30.167	14.80	24.00	Pass
116	5580	11.67	11.73	29.583	14.71	24.00	Pass
140	5700	11.44	11.79	29.032	14.63	24.00	Pass
144	5720 (For U-NII-2C)	10.35	10.21	21.335	13.29	24.00	Pass
144	5720 (For U-NII-3)	4.90	4.63	5.994	7.78	30.00	Pass
149	5745	11.61	11.53	28.711	14.58	30.00	Pass
157	5785	11.78	11.61	29.554	14.71	30.00	Pass
165	5825	11.75	11.53	29.186	14.65	30.00	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	11.74	11.82	30.133	14.79	24.00	Pass
46	5230	11.70	11.79	29.892	14.76	24.00	Pass
54	5270	11.76	11.80	30.132	14.79	24.00	Pass
62	5310	11.71	11.82	30.031	14.78	24.00	Pass
102	5510	11.74	11.81	30.098	14.79	24.00	Pass
110	5550	11.75	11.78	30.028	14.78	24.00	Pass
134	5670	11.48	11.83	29.301	14.67	24.00	Pass
142	5710 (For U-NII-2C)	10.85	10.75	24.047	13.81	24.00	Pass
142	5710 (For U-NII-3)	0.90	0.65	2.392	3.79	30.00	Pass
151	5755	11.77	11.63	29.586	14.71	30.00	Pass
159	5795	11.78	11.66	29.722	14.73	30.00	Pass

802.11ac (VHT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.70	11.80	29.927	14.76	24.00	Pass
40	5200	11.62	11.70	29.312	14.67	24.00	Pass
48	5240	11.70	11.72	29.65	14.72	24.00	Pass
52	5260	11.62	11.83	29.762	14.74	24.00	Pass
60	5300	11.58	11.70	29.179	14.65	24.00	Pass
64	5320	11.69	11.81	29.928	14.76	24.00	Pass
100	5500	11.77	11.84	30.307	14.82	24.00	Pass
116	5580	11.69	11.79	29.858	14.75	24.00	Pass
140	5700	11.47	11.85	29.339	14.67	24.00	Pass
144	5720 (For U-NII-2C)	10.38	10.32	21.679	13.36	24.00	Pass
144	5720 (For U-NII-3)	4.91	4.65	6.015	7.79	30.00	Pass
149	5745	11.62	11.59	28.942	14.62	30.00	Pass
157	5785	11.77	11.73	29.925	14.76	30.00	Pass
165	5825	11.85	11.74	30.239	14.81	30.00	Pass

802.11ac (VHT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	11.73	11.80	30.029	14.78	24.00	Pass
46	5230	11.71	11.82	30.031	14.78	24.00	Pass
54	5270	11.77	11.78	30.097	14.79	24.00	Pass
62	5310	11.75	11.87	30.344	14.82	24.00	Pass
102	5510	11.77	11.89	30.484	14.84	24.00	Pass
110	5550	11.73	11.79	29.994	14.77	24.00	Pass
134	5670	11.47	11.86	29.374	14.68	24.00	Pass
142	5710 (For U-NII-2C)	10.89	10.81	24.325	13.86	24.00	Pass
142	5710 (For U-NII-3)	0.93	0.68	2.408	3.82	30.00	Pass
151	5755	11.76	11.69	29.754	14.74	30.00	Pass
159	5795	11.83	11.65	29.862	14.75	30.00	Pass

802.11ac (VHT80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	11.68	11.76	29.72	14.73	24.00	Pass
58	5290	11.65	11.79	29.723	14.73	24.00	Pass
106	5530	11.69	11.67	29.446	14.69	24.00	Pass
122	5610	11.41	11.80	28.971	14.62	24.00	Pass
138	5690 (For U-NII-2C)	11.10	11.02	25.53	14.07	24.00	Pass
138	5690 (For U-NII-3)	-2.83	-3.21	0.9987	-0.01	30.00	Pass
155	5775	11.74	11.64	29.516	14.70	30.00	Pass

802.11ac (VHT160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	8.65	8.73	14.793	11.70	24.00	Pass
*50	5250 (U-NII-2A Band)	8.50	8.47	14.11	11.50	24.00	Pass
114	5570	11.75	11.85	30.273	14.81	24.00	Pass

Full RU

802.11ax (HE20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	11.70	11.92	30.351	14.82	24.00	Pass
40	5200	11.64	11.75	29.55	14.71	24.00	Pass
48	5240	11.67	11.77	29.721	14.73	24.00	Pass
52	5260	11.67	11.86	30.035	14.78	24.00	Pass
60	5300	11.65	11.69	29.379	14.68	24.00	Pass
64	5320	11.68	11.92	30.283	14.81	24.00	Pass
100	5500	11.82	11.89	30.658	14.87	24.00	Pass
116	5580	11.76	11.90	30.485	14.84	24.00	Pass
140	5700	11.47	11.90	29.516	14.70	24.00	Pass
144	5720 (For U-NII-2C)	10.45	10.39	22.031	13.43	22.98	Pass
144	5720 (For U-NII-3)	4.91	4.67	6.028	7.80	30.00	Pass
149	5745	11.72	11.57	29.214	14.66	30.00	Pass
157	5785	11.78	11.77	30.097	14.79	30.00	Pass
165	5825	11.83	11.78	30.307	14.82	30.00	Pass

802.11ax (HE40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	11.78	11.85	30.377	14.83	24.00	Pass
46	5230	11.76	11.86	30.343	14.82	24.00	Pass
54	5270	11.73	11.82	30.099	14.79	24.00	Pass
62	5310	11.77	11.88	30.448	14.84	24.00	Pass
102	5510	11.80	11.91	30.659	14.87	24.00	Pass
110	5550	11.77	11.79	30.132	14.79	24.00	Pass
134	5670	11.50	11.93	29.721	14.73	24.00	Pass
142	5710 (For U-NII-2C)	10.93	10.88	24.634	13.92	24.00	Pass
142	5710 (For U-NII-3)	0.98	0.70	2.428	3.85	30.00	Pass
151	5755	11.73	11.70	29.685	14.73	30.00	Pass
159	5795	11.78	11.71	29.891	14.76	30.00	Pass

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	11.71	11.75	29.788	14.74	24.00	Pass
58	5290	11.88	11.90	30.905	14.90	24.00	Pass
106	5530	11.83	11.82	30.446	14.84	24.00	Pass
122	5610	11.47	11.77	29.06	14.63	24.00	Pass
138	5690 (For U-NII-2C)	11.17	11.08	25.915	14.14	24.00	Pass
138	5690 (For U-NII-3)	-2.85	-3.17	1.0007	0.00	30.00	Pass
155	5775	11.75	11.67	29.652	14.72	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	8.78	8.83	15.189	11.82	24.00	Pass
*50	5250 (U-NII-2A Band)	8.79	8.80	15.154	11.81	24.00	Pass
114	5570	11.76	11.93	30.592	14.86	24.00	Pass

Partial RU

RU26

802.11ax (HE20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	7.69	7.85	11.97	10.78	24.00	Pass
40	5200	7.59	7.75	11.698	10.68	24.00	Pass
48	5240	7.66	7.77	11.819	10.73	24.00	Pass
52	5260	7.65	7.81	11.861	10.74	24.00	Pass
60	5300	7.76	7.83	12.038	10.81	24.00	Pass
64	5320	7.72	7.86	12.025	10.80	24.00	Pass
100	5500	7.79	7.93	12.22	10.87	24.00	Pass
116	5580	7.85	7.89	12.247	10.88	24.00	Pass
140	5700	7.81	7.90	12.205	10.87	24.00	Pass
144	5720 (For U-NII-2C)	-20.01	-19.62	0.020891	-16.80	24.00	Pass
144	5720 (For U-NII-3)	7.48	7.53	11.26	10.52	30.00	Pass
149	5745	7.75	7.81	11.996	10.79	30.00	Pass
157	5785	7.84	7.87	12.205	10.87	30.00	Pass
165	5825	7.83	7.87	12.191	10.86	30.00	Pass

802.11ax (HE40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	7.78	7.86	12.107	10.83	24.00	Pass
46	5230	7.73	7.89	12.081	10.82	24.00	Pass
54	5270	7.81	7.91	12.22	10.87	24.00	Pass
62	5310	7.82	7.93	12.262	10.89	24.00	Pass
102	5510	7.78	7.91	12.178	10.86	24.00	Pass
110	5550	7.77	7.93	12.193	10.86	24.00	Pass
134	5670	7.86	7.90	12.275	10.89	24.00	Pass
142	5710 (For U-NII-2C)	-20.15	-20.09	0.019455	-17.11	24.00	Pass
142	5710 (For U-NII-3)	7.50	7.53	11.286	10.53	30.00	Pass
151	5755	7.74	7.89	12.095	10.83	30.00	Pass
159	5795	7.82	7.90	12.219	10.87	30.00	Pass

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	7.76	7.82	12.024	10.80	24.00	Pass
58	5290	7.74	7.87	12.066	10.82	24.00	Pass
106	5530	7.77	7.88	12.122	10.84	24.00	Pass
122	5610	7.79	7.83	12.079	10.82	24.00	Pass
138	5690 (For U-NII-2C)	-20.25	-19.83	0.01984	-17.02	24.00	Pass
138	5690 (For U-NII-3)	7.52	7.51	11.286	10.53	30.00	Pass
155	5775	7.79	7.83	12.079	10.82	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.41	7.75	11.465	10.59	24.00	Pass
*50	5250 (U-NII-2A Band)	-31.83	-32.85	0.0011749	-29.30	24.00	Pass
114	5570	7.68	7.80	11.887	10.75	24.00	Pass

RU52

802.11ax (HE20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	7.68	7.78	11.859	10.74	24.00	Pass
40	5200	7.57	7.69	11.59	10.64	24.00	Pass
48	5240	7.65	7.70	11.709	10.69	24.00	Pass
52	5260	7.64	7.79	11.819	10.73	24.00	Pass
60	5300	7.64	7.75	11.764	10.71	24.00	Pass
64	5320	7.70	7.85	11.984	10.79	24.00	Pass
100	5500	7.74	7.87	12.066	10.82	24.00	Pass
116	5580	7.71	7.77	11.886	10.75	24.00	Pass
140	5700	7.73	7.90	12.095	10.83	24.00	Pass
144	5720 (For U-NII-2C)	-13.53	-12.99	0.0946	-10.24	24.00	Pass
144	5720 (For U-NII-3)	7.31	7.55	11.071	10.44	30.00	Pass
149	5745	7.65	7.78	11.819	10.73	30.00	Pass
157	5785	7.68	7.85	11.957	10.78	30.00	Pass
165	5825	7.76	7.84	12.052	10.81	30.00	Pass

802.11ax (HE40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	7.75	7.88	12.094	10.83	24.00	Pass
46	5230	7.71	7.81	11.941	10.77	24.00	Pass
54	5270	7.73	7.85	12.025	10.80	24.00	Pass
62	5310	7.81	7.89	12.191	10.86	24.00	Pass
102	5510	7.78	7.85	12.093	10.83	24.00	Pass
110	5550	7.69	7.86	11.984	10.79	24.00	Pass
134	5670	7.79	7.89	12.164	10.85	24.00	Pass
142	5710 (For U-NII-2C)	-4.99	-4.72	0.6542	-1.84	24.00	Pass
142	5710 (For U-NII-3)	7.41	7.53	11.17	10.48	30.00	Pass
151	5755	7.75	7.81	11.996	10.79	30.00	Pass
159	5795	7.81	7.90	12.205	10.87	30.00	Pass

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	7.72	7.85	12.011	10.80	24.00	Pass
58	5290	7.71	7.90	12.068	10.82	24.00	Pass
106	5530	7.77	7.85	12.079	10.82	24.00	Pass
122	5610	7.78	7.85	12.093	10.83	24.00	Pass
138	5690 (For U-NII-2C)	-5.53	-5.73	0.5472	-2.62	24.00	Pass
138	5690 (For U-NII-3)	7.20	7.51	10.884	10.37	30.00	Pass
155	5775	7.74	7.83	12.01	10.80	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.35	7.72	11.348	10.55	24.00	Pass
*50	5250 (U-NII-2A Band)	-32.35	-33.46	0.0010329	-29.86	24.00	Pass
114	5570	7.69	7.74	11.818	10.73	24.00	Pass

RU106

802.11ax (HE20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	7.68	7.78	11.859	10.74	24.00	Pass
40	5200	7.57	7.69	11.59	10.64	24.00	Pass
48	5240	7.65	7.70	11.709	10.69	24.00	Pass
52	5260	7.64	7.79	11.819	10.73	24.00	Pass
60	5300	7.64	7.75	11.764	10.71	24.00	Pass
64	5320	7.70	7.85	11.984	10.79	24.00	Pass
100	5500	7.74	7.87	12.066	10.82	24.00	Pass
116	5580	7.71	7.77	11.886	10.75	24.00	Pass
140	5700	7.73	7.90	12.095	10.83	24.00	Pass
144	5720 (For U-NII-2C)	4.21	4.30	5.328	7.27	24.00	Pass
144	5720 (For U-NII-3)	4.81	5.08	6.248	7.96	30.00	Pass
149	5745	7.65	7.78	11.819	10.73	30.00	Pass
157	5785	7.68	7.85	11.957	10.78	30.00	Pass
165	5825	7.76	7.84	12.052	10.81	30.00	Pass

802.11ax (HE40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	7.78	7.84	12.079	10.82	24.00	Pass
46	5230	7.75	7.80	11.982	10.79	24.00	Pass
54	5270	7.68	7.74	11.804	10.72	24.00	Pass
62	5310	7.77	7.84	12.065	10.82	24.00	Pass
102	5510	7.74	7.79	11.955	10.78	24.00	Pass
110	5550	7.64	7.82	11.861	10.74	24.00	Pass
134	5670	7.80	7.83	12.093	10.83	24.00	Pass
142	5710 (For U-NII-2C)	4.60	4.52	5.715	7.57	24.00	Pass
142	5710 (For U-NII-3)	4.12	4.31	5.28	7.23	30.00	Pass
151	5755	7.74	7.78	11.941	10.77	30.00	Pass
159	5795	7.74	7.85	12.038	10.81	30.00	Pass

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	7.70	7.81	11.928	10.77	24.00	Pass
58	5290	7.70	7.82	11.942	10.77	24.00	Pass
106	5530	7.74	7.87	12.066	10.82	24.00	Pass
122	5610	7.75	7.81	11.996	10.79	24.00	Pass
138	5690 (For U-NII-2C)	4.90	4.89	6.173	7.90	24.00	Pass
138	5690 (For U-NII-3)	4.41	4.46	5.553	7.45	30.00	Pass
155	5775	7.74	7.81	11.982	10.79	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.61	7.65	11.589	10.64	24.00	Pass
*50	5250 (U-NII-2A Band)	-33.29	-33.67	0.0008983	-30.47	24.00	Pass
114	5570	7.64	7.74	11.751	10.70	24.00	Pass

RU242

802.11ax (HE40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	7.72	7.78	11.914	10.76	24.00	Pass
46	5230	7.73	7.78	11.927	10.77	24.00	Pass
54	5270	7.68	7.73	11.791	10.72	24.00	Pass
62	5310	7.75	7.84	12.038	10.81	24.00	Pass
102	5510	7.68	7.74	11.804	10.72	24.00	Pass
110	5550	7.66	7.78	11.832	10.73	24.00	Pass
134	5670	7.67	7.83	11.915	10.76	24.00	Pass
142	5710 (For U-NII-2C)	6.63	6.67	9.248	9.66	24.00	Pass
142	5710 (For U-NII-3)	0.85	0.97	2.466	3.92	30.00	Pass
151	5755	7.71	7.79	11.914	10.76	30.00	Pass
159	5795	7.69	7.85	11.97	10.78	30.00	Pass

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	7.67	7.82	11.901	10.76	24.00	Pass
58	5290	7.69	7.83	11.942	10.77	24.00	Pass
106	5530	7.71	7.81	11.941	10.77	24.00	Pass
122	5610	7.80	7.86	12.135	10.84	24.00	Pass
138	5690 (For U-NII-2C)	6.51	6.65	9.101	9.59	24.00	Pass
138	5690 (For U-NII-3)	0.68	0.96	2.417	3.83	30.00	Pass
155	5775	7.72	7.80	11.941	10.77	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.52	7.61	11.417	10.58	24.00	Pass
*50	5250 (U-NII-2A Band)	-33.69	-34.06	0.0008202	-30.86	24.00	Pass
114	5570	7.64	7.69	11.683	10.68	24.00	Pass

RU484

802.11ax (HE80)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	7.67	7.74	11.791	10.72	24.00	Pass
58	5290	7.71	7.85	11.997	10.79	24.00	Pass
106	5530	7.69	7.85	11.97	10.78	24.00	Pass
122	5610	7.75	7.79	11.968	10.78	24.00	Pass
138	5690 (For U-NII-2C)	6.89	7.16	10.086	10.04	24.00	Pass
138	5690 (For U-NII-3)	-2.37	-2.15	1.189	0.75	30.00	Pass
155	5775	7.69	7.76	11.845	10.74	30.00	Pass

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.36	7.41	10.953	10.40	24.00	Pass
*50	5250 (U-NII-2A Band)	-33.46	-33.28	0.0009207	-30.36	24.00	Pass
114	5570	7.60	7.73	11.684	10.68	24.00	Pass

RU996

802.11ax (HE160)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
*50	5250 (U-NII-1 Band)	7.37	7.51	11.094	10.45	24.00	Pass
*50	5250 (U-NII-2A Band)	-28.45	-28.36	0.002888	-25.39	24.00	Pass
114	5570	7.60	7.72	11.67	10.67	24.00	Pass

EUT Average Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.315	14.82
5470~5725	30.099	14.79

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	29.692	14.73
5470~5725	30.167	14.80

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.132	14.79
5470~5725	30.098	14.79

802.11ac (VHT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	29.928	14.76
5470~5725	30.307	14.82

802.11ac (VHT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.344	14.82
5470~5725	30.484	14.84

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	29.723	14.73
5470~5725	29.446	14.69

802.11ac (VHT160)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	14.241	11.54
5470~5725	30.273	14.81

802.11ax (HE20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.283	14.81
5470~5725	30.658	14.87

802.11ax (HE40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.448	14.84
5470~5725	30.659	14.87

802.11ax (HE80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	30.905	14.90
5470~5725	30.446	14.84

802.11ax (HE160)

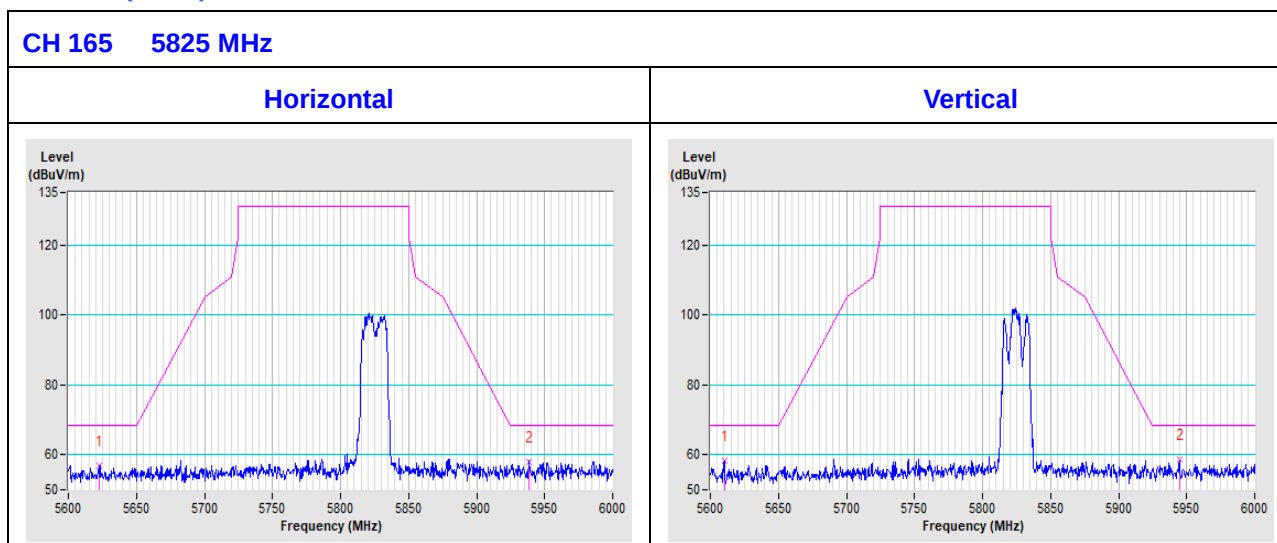
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	14.423	11.59
5470~5725	30.592	14.86

5 Pictures of Test Arrangements

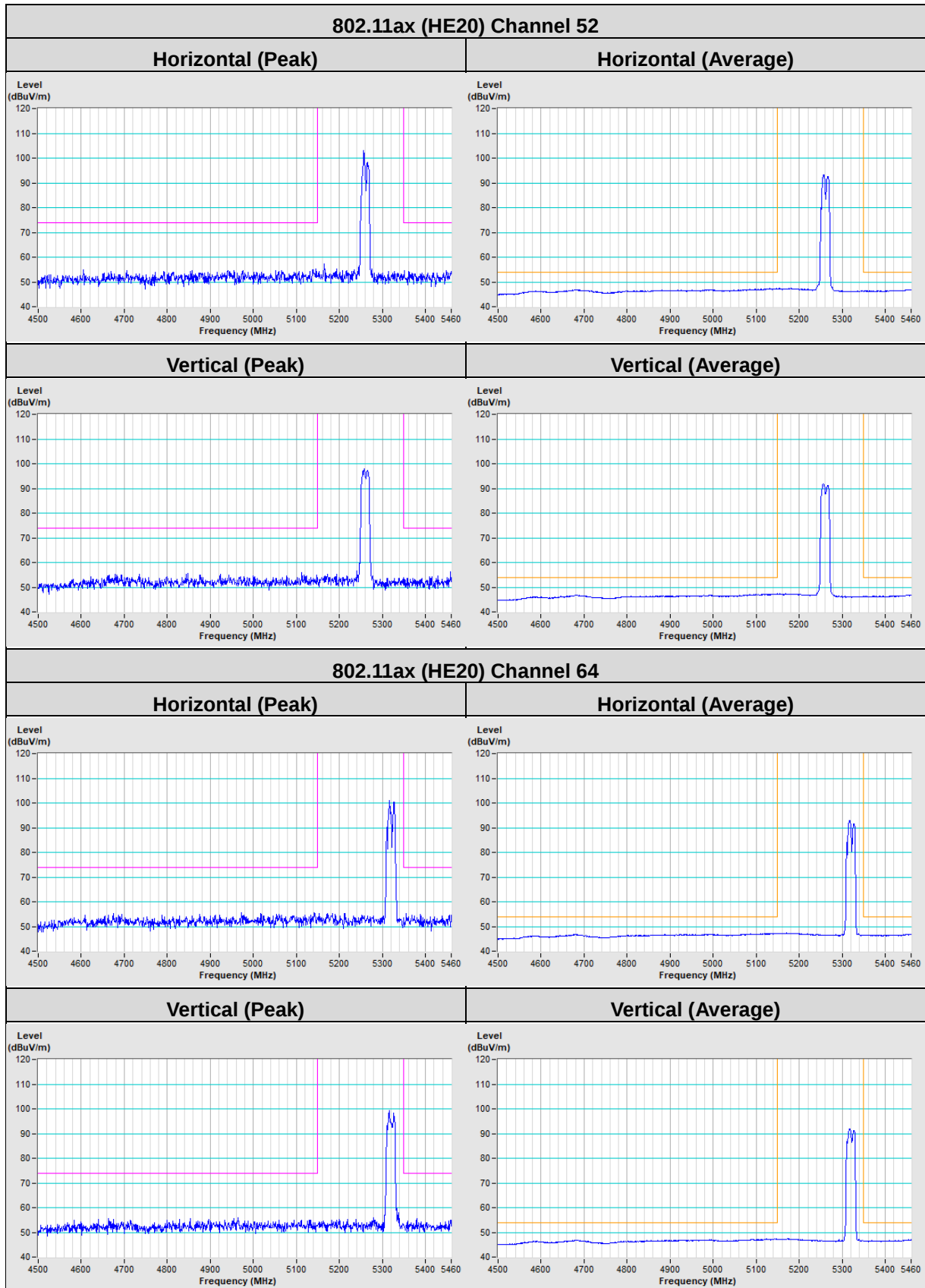
Please refer to the attached file (Test Setup Photo).

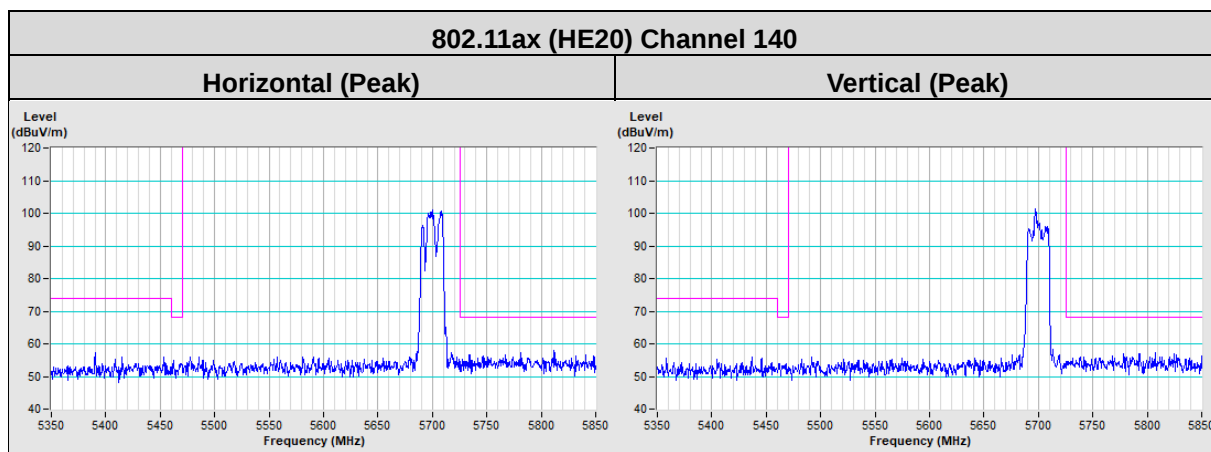
Annex A - Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11ax (HE20)



Annex B - Band Edge Measurement





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

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