

FCC Test Report

Report No.: RFBCKS-WTW-P22040223-1

FCC ID: UXX-S5A235A

Test Model: S5A235A

Received Date: Apr. 08, 2022

Test Date: Apr. 21 ~ Aug. 03, 2022

Issued Date: Aug. 10, 2022

Applicant: Cradlepoint, Inc.

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P22040223-1	Original release.	Aug. 10, 2022

1 Certificate of Conformity

Product: Ruggedized LTE Router

Brand: Cradlepoint, Inc.

Test Model: S5A235A

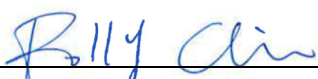
Sample Status: Engineering sample

Applicant: Cradlepoint, Inc.

Test Date: Apr. 21 ~ 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 : , **Date:** Aug. 10, 2022
Polly Chien / Specialist

Approved by : , **Date:** Aug. 10, 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 -9.75dB at 0.34159MHz.
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 -0.8dB at 5150.00MHz, 5940.80MHz.
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	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is R-SMA and SMA not a standard connector.

Note:

- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- For U-NII-1 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.
- 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	3.59 dB
	200MHz ~ 1000MHz	3.60 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	Ruggedized LTE Router
Brand	Cradlepoint, Inc.
Test Model	S5A235A
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
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 886.7Mbps 802.11ax: up to 1201Mbps
Operating Frequency	5180 ~ 5240MHz, 5745 ~ 5825MHz
Number of Channel	5180 ~ 5240MHz: 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 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	CDD Mode: 5180 ~ 5240MHz: 149.359mW 5745 ~ 5825MHz: 165.252mW Beamforming Mode: 5180 ~ 5240MHz: 118.489mW 5745 ~ 5825MHz: 119.219mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Refer to Note
Cable Supplied	Refer to Note
Contains FCC ID (WWAN module)	N7NEM74B

Note:

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

Modulation Mode	Beamforming Mode	TX Function
802.11a	Not Support	2TX
802.11n (HT20)	Support	2TX
802.11n (HT40)	Support	2TX
802.11ac (VHT20)	Support	2TX
802.11ac (VHT40)	Support	2TX
802.11ac (VHT80)	Support	2TX
802.11ax (HE20)	Support	2TX
802.11ax (HE40)	Support	2TX
802.11ax (HE80)	Support	2TX

* The bandwidth and modulation are similar for 802.11n mode for 20MHz (40MHz), 802.11ac mode for 20MHz (40MHz, 80MHz) and 802.11ax mode for 20MHz (40MHz, 80MHz). Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n/ax, 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.

2. After pretest OFDMA mode, the Full RU is the worst case and record in this report.

3. The following antennas were provided to the EUT.

Ant. No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (MHz)	Antenna Type	Connector Type
Wi-Fi Set1	1	Cradlepoint	test antenna 1	5.5069	2400-2483.5	Monopole	R-SMA
				5.8125	5150-5250	Monopole	R-SMA
				5.7725	5250-5350	Monopole	R-SMA
				5.7133	5425-5725	Monopole	R-SMA
				5.9957	5725-5850	Monopole	R-SMA
	2	Cradlepoint	test antenna 1	5.5069	2400-2483.5	Monopole	R-SMA
				5.8125	5150-5250	Monopole	R-SMA
				5.7725	5250-5350	Monopole	R-SMA
				5.7133	5425-5725	Monopole	R-SMA
				5.9957	5725-5850	Monopole	R-SMA
Wi-Fi Set2	1	PANORAMA	LG-IN2457	2	2400-2483.5	Monopole	R-SMA
				1.1	5150-5250	Monopole	R-SMA
				2.4	5250-5350	Monopole	R-SMA
				3.1	5425-5725	Monopole	R-SMA
				3.5	5725-5850	Monopole	R-SMA
	2	PANORAMA	LG-IN2457	2.4	2400-2483.5	Monopole	R-SMA
				0.9	5150-5250	Monopole	R-SMA
				1.7	5250-5350	Monopole	R-SMA
				2.9	5425-5725	Monopole	R-SMA
				3.5	5725-5850	Monopole	R-SMA

Ant. No.	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (MHz)	Antenna Type	Connector Type
Wi-Fi Set3	1	WNC	170836-000	2.47	2400-2483.5	Dipole	R-SMA
				2.18	5150-5250	Dipole	R-SMA
				2.19	5250-5350	Dipole	R-SMA
				2.14	5425-5725	Dipole	R-SMA
				2.47	5725-5850	Dipole	R-SMA
	2	WNC	170836-000	2.47	2400-2483.5	Dipole	R-SMA
				2.18	5150-5250	Dipole	R-SMA
				2.19	5250-5350	Dipole	R-SMA
				2.14	5425-5725	Dipole	R-SMA
				2.47	5725-5850	Dipole	R-SMA
BT	1	Cradlepoint	170847-000	2.16	2400-2500	Dipole	R-SMA
GPS	1	PANORAMA	LG-IN2457	26	1562-1612	Dipole	SMA
GPS	2	Taoglas	AA.162	30	1562-1612	Dipole	SMA
LTE Set1	1	Cradlepoint	170801-000	1.42	619-790	Dipole	SMA
				0.88	1445-1515	Dipole	SMA
				2.69	1710-2700	Dipole	SMA
				4.13	3400-3700	Dipole	SMA
				4.29	5150-5925	Dipole	SMA
LTE Set2	2	Cradlepoint	170801-000	1.42	619-790	Dipole	SMA
				0.88	1445-1515	Dipole	SMA
				2.69	1710-2700	Dipole	SMA
				4.13	3400-3700	Dipole	SMA
				4.29	5150-5925	Dipole	SMA
LTE Set1	1	PANORAMA	LG-IN2457	0.5	617-698	Monopole	SMA
				1.3	699-798	Monopole	SMA
				1.9	807- 862	Monopole	SMA
				1.6	880-960	Monopole	SMA
				1.5	1427-1518	Monopole	SMA
				2	1625-1661	Monopole	SMA
				1.6	1710-1920	Monopole	SMA
				2.2	1920-2170	Monopole	SMA
				1.2	2300-2400	Monopole	SMA
				1.3	2496-2690	Monopole	SMA
				2.2	3300-4200	Monopole	SMA
				1.9	4400-5000	Monopole	SMA
LTE Set2	2	PANORAMA	LG-IN2457	0.15	617-698	Monopole	SMA
				1.5	699-798	Monopole	SMA
				2	807- 862	Monopole	SMA
				2	880-960	Monopole	SMA
				2.6	1427-1518	Monopole	SMA
				1.8	1625-1661	Monopole	SMA
				1.6	1710-1920	Monopole	SMA
				2	1920-2170	Monopole	SMA
				1.5	2300-2400	Monopole	SMA
				1.4	2496-2690	Monopole	SMA
				2.6	3300-4200	Monopole	SMA
				1.7	4400-5000	Monopole	SMA

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

*After the monopole antennas pre-test, the worst case is the Wi-Fi Set1 antenna with maximum antenna gain, so it was finally selected for testing. 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 accessory devices.

Product	Brand	Model	Description
Adapter 1	ADP	WA-36N12R	I/P: 100-240Vac, 50-60Hz, 0.9A O/P: 12.0Vdc, 3.0A Power cable: 1.5m without core
Adapter 2	Ktec	KSA-36W-120300D5	I/P: 100-240V~50/60Hz, 1.0A O/P: 12.0Vdc, 3.0A, 36.0W Power cable: 1.42m without core
Nebula dock (Expansion dock) Support Unit	Cradlepoint, Inc.	S0A235A	-

5. The EUT has two different configuration, after pretest the original one was the worst case for final test.

Configuration		
PCBA	PHY IC	eMMC
Original	QCA-8081	MTFC8GAMALGT-AAT
2nd Source	QCA-8080	THGBMJG6C1LBAU7

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

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

Channel	Frequency
42	5210MHz

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				Antenna	Description
	RE $\geq$ 1G	RE<1G	PLC	APCM		
A1	√	√	√	√	Wi-Fi Set1 (Monopole)	EUT + Adapter 1
A2	-	√	√	-		EUT + Adapter 2
B1	√	√	√	-	Wi-Fi Set3 (Dipole)	EUT + Adapter 1
B2	-	√	√	-		EUT + Adapter 2

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:

- The EUT's antenna was positioned and tested under the listed conditions:
 - The Monopole Antenna Parallel(A1, A2)
 - The Dipole Antenna's angle of 90 degrees(B1, B2)
- Radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum power.
- "-" 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)
A1, B1	802.11a	5180-5250	36 to 48	36, 40, 48	OFDM	6.0
	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
A1, B1	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	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

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)
A1, A2, B1, B2	802.11a	5180-5250	36 to 48	157	OFDMA	6.0
	802.11a	5745-5825	149 to 165		OFDMA	6.0

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)
A1, A2, B1, B2	802.11a	5180-5250	36 to 48	157	OFDMA	6.0
	802.11a	5745-5825	149 to 165		OFDMA	6.0

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)
A1	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
	802.11ax (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
A1	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

* 802.11n, 802.11ac modes are for conducted output power measurement only. For other test items, only test 802.11a, 802.11ax modes.

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	22 deg. C, 70% RH	120Vac, 60Hz	Greg Lin,
RE<1G	23 deg. C, 67% RH	120Vac, 60Hz	Adair Peng, Rex Wang
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Rex Wang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ivan Tseng

3.3 Duty Cycle of Test Signal

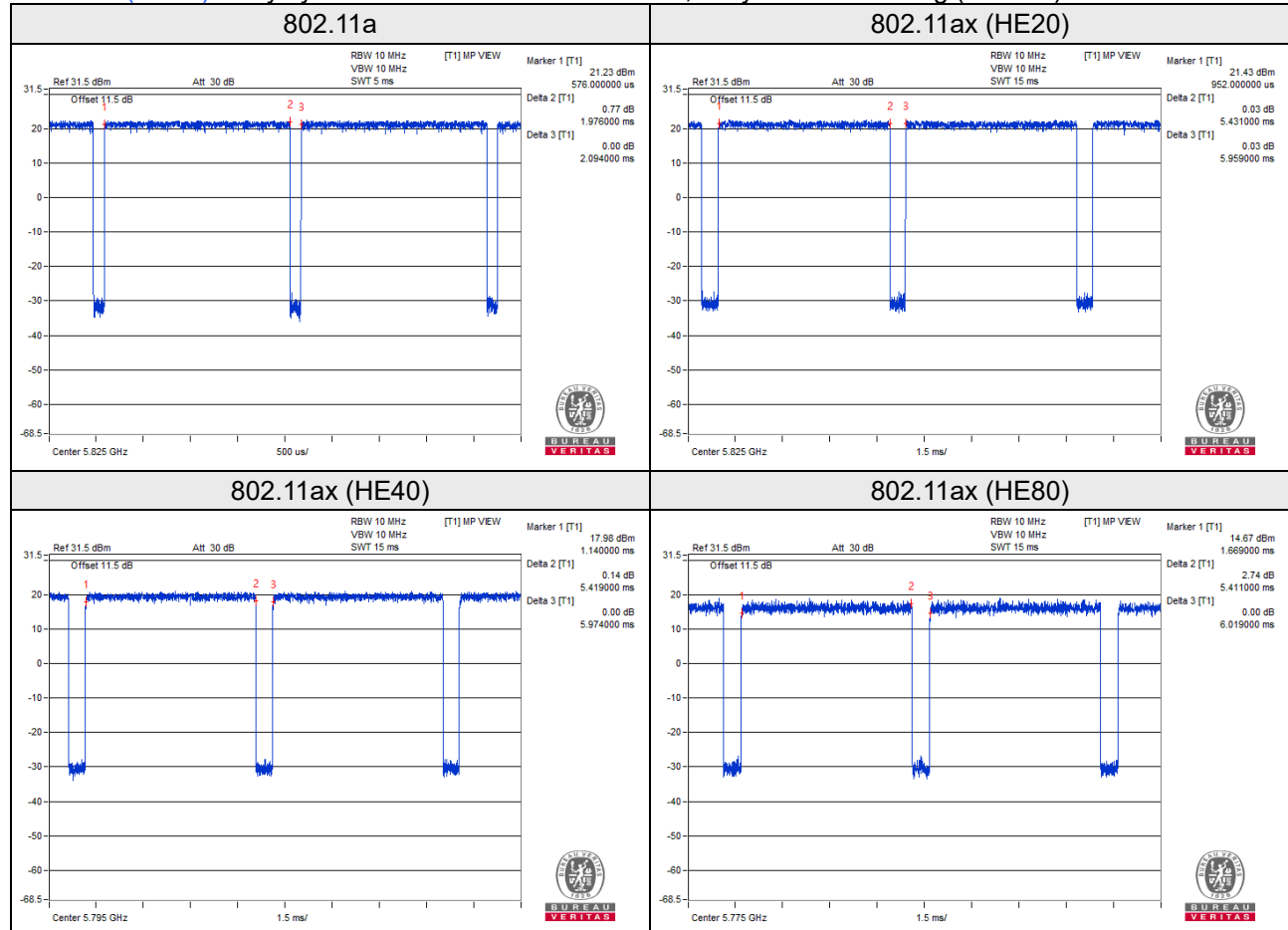
Duty cycle of test signal is < 98%, duty factor is required.

02.11a: Duty cycle = $1.976\text{ms}/2.094\text{ms} = 0.944$, Duty factor = $10 \cdot \log(1/0.944) = 0.25$

802.11ax (HE20): Duty cycle = $5.431\text{ms}/5.959\text{ms} = 0.911$, Duty factor = $10 \cdot \log(1/0.911) = 0.40$

802.11ax (HE40): Duty cycle = $5.419\text{ms}/5.974\text{ms} = 0.907$, Duty factor = $10 \cdot \log(1/0.907) = 0.42$

802.11ax (HE80): Duty cycle = $5.411\text{ms}/6.019\text{ms} = 0.899$, Duty factor = $10 \cdot \log(1/0.899) = 0.46$



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.

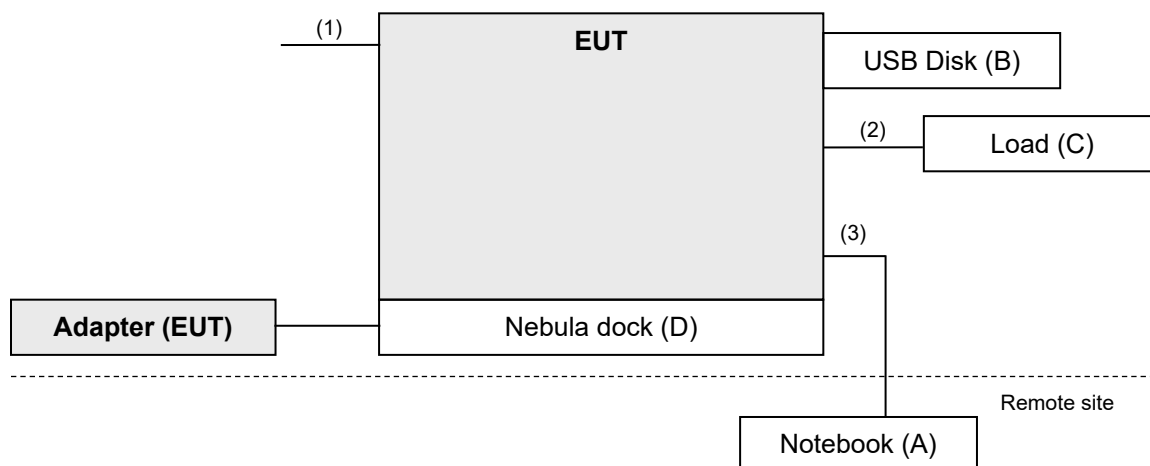
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	Inspiron 14R	8LRKKW1	FCC DoC Approved	Provided by Lab
B.	USB Disk	SanDisk	SDDDC3	NA	NA	Provided by Lab
C.	Load	NA	NA	NA	NA	Provided by Lab
D.	Nebula dock (Expansion dock)	Cradlepoint, Inc.	S0A235A	NA	NA	Provided by client

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.	RS232 Cable	1	1	N	0	Provided by Lab
2.	LAN Cable	1	1.5	N	0	Provided by Lab RJ45, Cat.5e
3.	LAN Cable	1	10	N	0	Provided by Lab RJ45, Cat.5e

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}
^{*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
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100979	Mar. 25, 2022	Mar. 24, 2023
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Spectrum Analyzer ROHDE & SCHWARZ	FSW43	101867	Jan. 07, 2022	Jan. 06, 2023
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Oct. 26, 2021	Oct. 25, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021 Jul. 27, 2022	Jul. 20, 2022 Jul. 26, 2023
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021 May 14, 2022	Jun. 04, 2022 May 13, 2023
Preamplifier Agilent (Above 1GHz)	8449B	3008A01962	Oct. 05, 2021	Oct. 04, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8 000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021 May 14, 2022	Jun. 04, 2022 May 13, 2023
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 04, 2021	Sep. 03, 2022
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 18, 2022	Jan. 17, 2023
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 17, 2022	Jan. 16, 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 HwaYa Chamber 9.
 3. Tested data: Apr. 21 ~ Jul. 22, 2022 & Aug. 03, 2022

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:

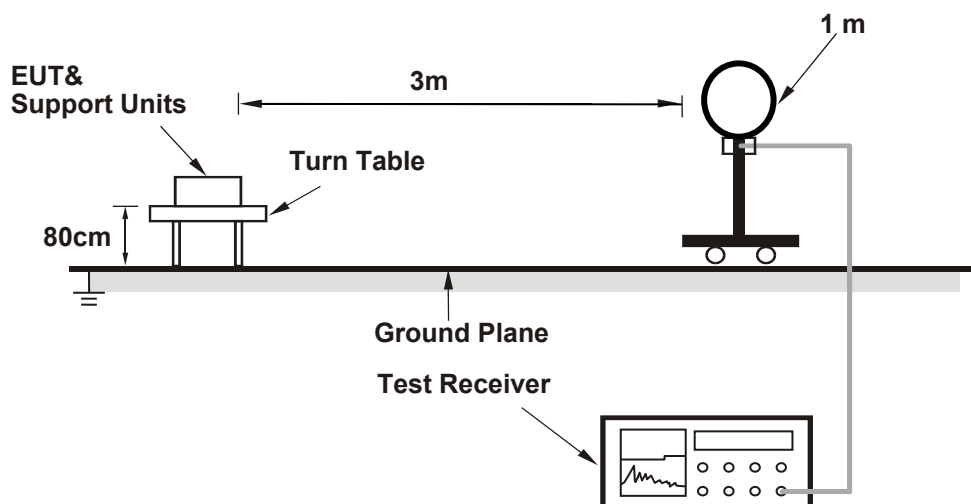
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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. (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

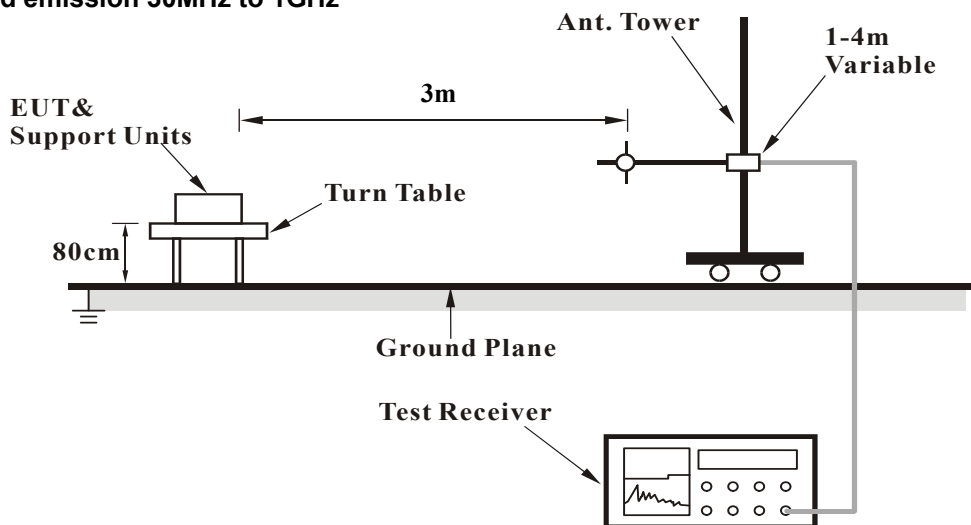
No deviation.

4.1.5 Test Setup

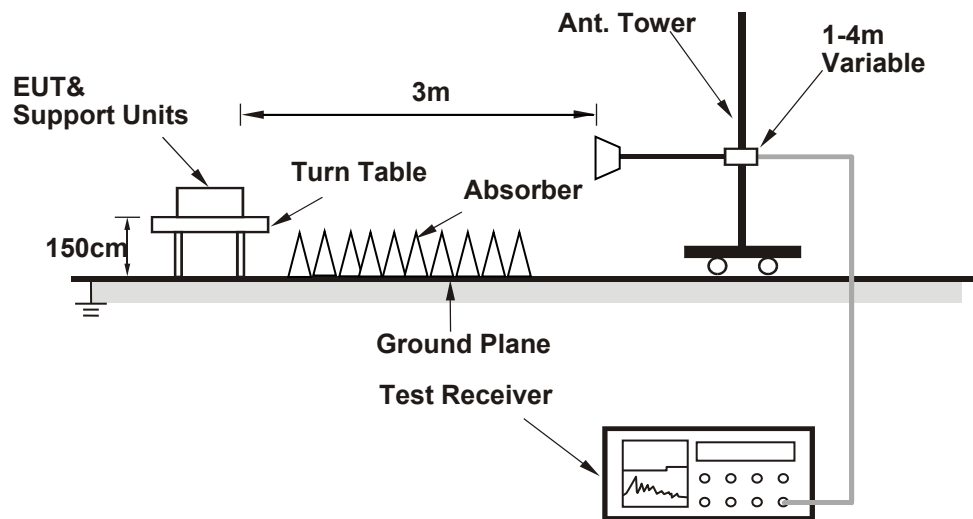
For Radiated emission below 30MHz



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.

4.1.7 Test Results

Above 1GHz data:

Mode A1

RF Mode	TX 802.11a	Channel	CH 36 : 5180 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	64.8 PK	74.0	-9.2	1.67 H	70	59.2	5.6
2	5150.00	52.8 AV	54.0	-1.2	1.67 H	70	47.2	5.6
3	*5180.00	118.4 PK			1.67 H	70	78.4	40.0
4	*5180.00	108.8 AV			1.67 H	70	68.8	40.0
5	#10360.00	58.9 PK	68.2	-9.3	3.31 H	212	41.4	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	59.7 PK	74.0	-14.3	3.77 V	22	54.1	5.6
2	5150.00	46.4 AV	54.0	-7.6	3.77 V	22	40.8	5.6
3	*5180.00	110.1 PK			3.77 V	22	70.1	40.0
4	*5180.00	100.4 AV			3.77 V	22	60.4	40.0
5	#10360.00	58.2 PK	68.2	-10.0	2.87 V	326	40.7	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. 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 802.11a	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	5150.00	66.7 PK	74.0	-7.3	1.85 H	72	61.1	5.6
2	5150.00	53.0 AV	54.0	-1.0	1.85 H	72	47.4	5.6
3	*5200.00	120.2 PK			1.85 H	72	80.2	40.0
4	*5200.00	110.6 AV			1.85 H	72	70.6	40.0
5	#10400.00	59.1 PK	68.2	-9.1	3.36 H	209	41.6	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	60.8 PK	74.0	-13.2	3.73 V	26	55.2	5.6
2	5150.00	47.8 AV	54.0	-6.2	3.73 V	26	42.2	5.6
3	*5200.00	111.8 PK			3.73 V	26	71.8	40.0
4	*5200.00	102.1 AV			3.73 V	26	62.1	40.0
5	#10400.00	58.4 PK	68.2	-9.8	2.88 V	337	40.9	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. 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 802.11a	Channel	CH 48 : 5240 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	*5240.00	121.0 PK			1.83 H	71	81.1	39.9
2	*5240.00	111.3 AV			1.83 H	71	71.4	39.9
3	5350.00	56.9 PK	74.0	-17.1	1.83 H	71	51.6	5.3
4	5350.00	43.6 AV	54.0	-10.4	1.83 H	71	38.3	5.3
5	#10480.00	59.4 PK	68.2	-8.8	3.32 H	204	41.8	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	*5240.00	112.3 PK			3.73 V	26	72.4	39.9
2	*5240.00	102.7 AV			3.73 V	26	62.8	39.9
3	5350.00	55.6 PK	74.0	-18.4	3.73 V	26	50.3	5.3
4	5350.00	43.2 AV	54.0	-10.8	3.73 V	26	37.9	5.3
5	#10480.00	58.5 PK	68.2	-9.7	2.82 V	319	40.9	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. 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 802.11a	Channel	CH 149 : 5745 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	#5642.00	58.0 PK	68.2	-10.2	1.13 H	81	52.0	6.0
2	*5745.00	118.4 PK			1.13 H	81	77.5	40.9
3	*5745.00	109.0 AV			1.13 H	81	68.1	40.9
4	#5966.00	57.5 PK	68.2	-10.7	1.13 H	81	50.6	6.9
5	11490.00	59.7 PK	74.0	-14.3	3.34 H	205	41.1	18.6
6	11490.00	45.1 AV	54.0	-8.9	3.34 H	205	26.5	18.6

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	#5634.40	56.5 PK	68.2	-11.7	4.00 V	2	50.5	6.0
2	*5745.00	115.0 PK			4.00 V	2	74.1	40.9
3	*5745.00	105.4 AV			4.00 V	2	64.5	40.9
4	#5956.80	57.2 PK	68.2	-11.0	4.00 V	2	50.4	6.8
5	11490.00	59.4 PK	74.0	-14.6	2.80 V	319	40.8	18.6
6	11490.00	44.9 AV	54.0	-9.1	2.80 V	319	26.3	18.6

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	#5637.60	56.9 PK	68.2	-11.3	1.08 H	82	50.9	6.0
2	*5785.00	117.9 PK			1.08 H	82	76.9	41.0
3	*5785.00	108.6 AV			1.08 H	82	67.6	41.0
4	#5942.00	57.9 PK	68.2	-10.3	1.08 H	82	50.9	7.0
5	11570.00	59.2 PK	74.0	-14.8	3.31 H	213	40.8	18.4
6	11570.00	45.4 AV	54.0	-8.6	3.31 H	213	27.0	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	#5633.60	56.2 PK	68.2	-12.0	3.92 V	12	50.2	6.0
2	*5785.00	114.2 PK			3.92 V	12	73.2	41.0
3	*5785.00	104.5 AV			3.92 V	12	63.5	41.0
4	#5996.40	57.6 PK	68.2	-10.6	3.92 V	12	50.7	6.9
5	11570.00	59.0 PK	74.0	-15.0	2.86 V	326	40.6	18.4
6	11570.00	45.0 AV	54.0	-9.0	2.86 V	326	26.6	18.4

Remarks:

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

RF Mode	TX 802.11a	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	#5620.40	55.7 PK	68.2	-12.5	1.12 H	80	49.7	6.0
2	*5825.00	118.6 PK			1.12 H	80	77.4	41.2
3	*5825.00	109.5 AV			1.12 H	80	68.3	41.2
4	#5938.00	57.3 PK	68.2	-10.9	1.12 H	80	50.3	7.0
5	11650.00	59.1 PK	74.0	-14.9	3.26 H	204	40.9	18.2
6	11650.00	44.9 AV	54.0	-9.1	3.26 H	204	26.7	18.2
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	#5610.80	56.1 PK	68.2	-12.1	3.92 V	23	50.1	6.0
2	*5825.00	113.2 PK			3.92 V	23	72.0	41.2
3	*5825.00	103.4 AV			3.92 V	23	62.2	41.2
4	#5996.00	57.3 PK	68.2	-10.9	3.92 V	23	50.4	6.9
5	11650.00	58.9 PK	74.0	-15.1	2.81 V	315	40.7	18.2
6	11650.00	44.7 AV	54.0	-9.3	2.81 V	315	26.5	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 36 : 5180 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	67.7 PK	74.0	-6.3	1.75 H	70	62.1	5.6
2	5150.00	52.9 AV	54.0	-1.1	1.75 H	70	47.3	5.6
3	*5180.00	120.4 PK			1.75 H	70	80.4	40.0
4	*5180.00	107.9 AV			1.75 H	70	67.9	40.0
5	#10360.00	59.0 PK	68.2	-9.2	3.26 H	212	41.5	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	61.2 PK	74.0	-12.8	3.69 V	22	55.6	5.6
2	5150.00	47.4 AV	54.0	-6.6	3.69 V	22	41.8	5.6
3	*5180.00	112.3 PK			3.69 V	22	72.3	40.0
4	*5180.00	99.7 AV			3.69 V	22	59.7	40.0
5	#10360.00	58.2 PK	68.2	-10.0	2.93 V	336	40.7	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. 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 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	5150.00	68.3 PK	74.0	-5.7	1.74 H	70	62.7	5.6
2	5150.00	52.7 AV	54.0	-1.3	1.74 H	70	47.1	5.6
3	*5200.00	122.3 PK			1.74 H	70	82.3	40.0
4	*5200.00	109.7 AV			1.74 H	70	69.7	40.0
5	#10400.00	59.6 PK	68.2	-8.6	3.28 H	217	42.1	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	61.2 PK	74.0	-12.8	3.76 V	26	55.6	5.6
2	5150.00	46.9 AV	54.0	-7.1	3.76 V	26	41.3	5.6
3	*5200.00	113.8 PK			3.76 V	26	73.8	40.0
4	*5200.00	101.3 AV			3.76 V	26	61.3	40.0
5	#10400.00	58.9 PK	68.2	-9.3	2.92 V	338	41.4	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. 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 48 : 5240 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	*5240.00	122.3 PK			1.80 H	68	82.4	39.9
2	*5240.00	110.0 AV			1.80 H	68	70.1	39.9
3	5350.00	56.8 PK	74.0	-17.2	1.80 H	68	51.5	5.3
4	5350.00	43.5 AV	54.0	-10.5	1.80 H	68	38.2	5.3
5	#10480.00	59.4 PK	68.2	-8.8	3.32 H	205	41.8	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	*5240.00	114.1 PK			3.79 V	22	74.2	39.9
2	*5240.00	101.6 AV			3.79 V	22	61.7	39.9
3	5350.00	55.9 PK	74.0	-18.1	3.79 V	22	50.6	5.3
4	5350.00	42.8 AV	54.0	-11.2	3.79 V	22	37.5	5.3
5	#10480.00	58.8 PK	68.2	-9.4	2.79 V	327	41.2	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. 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 149 : 5745 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	#5650.80	60.0 PK	68.8	-8.8	1.00 H	80	54.0	6.0
2	*5745.00	121.3 PK			1.00 H	80	80.4	40.9
3	*5745.00	108.9 AV			1.00 H	80	68.0	40.9
4	#5974.40	57.5 PK	68.2	-10.7	1.00 H	80	50.6	6.9
5	11490.00	59.3 PK	74.0	-14.7	3.29 H	202	40.7	18.6
6	11490.00	45.2 AV	54.0	-8.8	3.29 H	202	26.6	18.6
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	#5640.80	56.6 PK	68.2	-11.6	3.94 V	2	50.6	6.0
2	*5745.00	115.8 PK			3.94 V	2	74.9	40.9
3	*5745.00	103.7 AV			3.94 V	2	62.8	40.9
4	#5945.20	56.9 PK	68.2	-11.3	3.94 V	2	49.9	7.0
5	11490.00	59.1 PK	74.0	-14.9	2.85 V	321	40.5	18.6
6	11490.00	44.9 AV	54.0	-9.1	2.85 V	321	26.3	18.6

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 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	56.5 PK	68.2	-11.7	1.00 H	79	50.5	6.0
2	*5785.00	121.6 PK			1.00 H	79	80.6	41.0
3	*5785.00	108.6 AV			1.00 H	79	67.6	41.0
4	#5933.20	57.1 PK	68.2	-11.1	1.00 H	79	50.1	7.0
5	11570.00	59.3 PK	74.0	-14.7	3.34 H	210	40.9	18.4
6	11570.00	45.1 AV	54.0	-8.9	3.34 H	210	26.7	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	#5632.40	55.8 PK	68.2	-12.4	3.92 V	2	49.8	6.0
2	*5785.00	117.6 PK			3.92 V	2	76.6	41.0
3	*5785.00	104.3 AV			3.92 V	2	63.3	41.0
4	#5994.00	58.0 PK	68.2	-10.2	3.92 V	2	51.1	6.9
5	11570.00	59.0 PK	74.0	-15.0	2.88 V	327	40.6	18.4
6	11570.00	44.8 AV	54.0	-9.2	2.88 V	327	26.4	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. 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	#5639.60	55.9 PK	68.2	-12.3	1.03 H	78	49.9	6.0
2	*5825.00	121.2 PK			1.03 H	78	80.0	41.2
3	*5825.00	108.1 AV			1.03 H	78	66.9	41.2
4	#5979.60	58.0 PK	68.2	-10.2	1.03 H	78	51.1	6.9
5	11650.00	58.8 PK	74.0	-15.2	3.36 H	207	40.6	18.2
6	11650.00	44.7 AV	54.0	-9.3	3.36 H	207	26.5	18.2
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	#5640.40	55.4 PK	68.2	-12.8	3.92 V	18	49.4	6.0
2	*5825.00	115.0 PK			3.92 V	18	73.8	41.2
3	*5825.00	102.6 AV			3.92 V	18	61.4	41.2
4	#5988.00	56.9 PK	68.2	-11.3	3.92 V	18	50.0	6.9
5	11650.00	58.5 PK	74.0	-15.5	2.83 V	316	40.3	18.2
6	11650.00	44.4 AV	54.0	-9.6	2.83 V	316	26.2	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 38 : 5190 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	67.2 PK	74.0	-6.8	1.72 H	71	61.6	5.6
2	5150.00	53.1 AV	54.0	-0.9	1.72 H	71	47.5	5.6
3	*5190.00	110.5 PK			1.72 H	71	70.5	40.0
4	*5190.00	99.3 AV			1.72 H	71	59.3	40.0
5	#10380.00	58.9 PK	68.2	-9.3	3.39 H	203	41.3	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	5150.00	59.5 PK	74.0	-14.5	3.76 V	21	53.9	5.6
2	5150.00	47.0 AV	54.0	-7.0	3.76 V	21	41.4	5.6
3	*5190.00	102.4 PK			3.76 V	21	62.4	40.0
4	*5190.00	90.9 AV			3.76 V	21	50.9	40.0
5	#10380.00	58.0 PK	68.2	-10.2	2.79 V	331	40.4	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. 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 (HE40)	Channel	CH 46 : 5230 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	67.9 PK	74.0	-6.1	1.82 H	71	62.3	5.6
2	5150.00	53.0 AV	54.0	-1.0	1.82 H	71	47.4	5.6
3	*5230.00	118.7 PK			1.82 H	71	78.7	40.0
4	*5230.00	107.1 AV			1.82 H	71	67.1	40.0
5	#10460.00	58.9 PK	68.2	-9.3	3.30 H	212	41.4	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	59.8 PK	74.0	-14.2	3.73 V	32	54.2	5.6
2	5150.00	46.2 AV	54.0	-7.8	3.73 V	32	40.6	5.6
3	*5230.00	110.6 PK			3.73 V	32	70.6	40.0
4	*5230.00	99.1 AV			3.73 V	32	59.1	40.0
5	#10460.00	57.9 PK	68.2	-10.3	2.93 V	341	40.4	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. 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 (HE40)	Channel	CH 151 : 5755 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	#5642.80	60.7 PK	68.2	-7.5	1.00 H	80	54.7	6.0
2	*5755.00	117.7 PK			1.00 H	80	76.8	40.9
3	*5755.00	105.4 AV			1.00 H	80	64.5	40.9
4	#5938.40	57.7 PK	68.2	-10.5	1.00 H	80	50.7	7.0
5	11510.00	59.2 PK	74.0	-14.8	3.24 H	211	40.7	18.5
6	11510.00	45.1 AV	54.0	-8.9	3.24 H	211	26.6	18.5

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	#5638.00	61.8 PK	68.2	-6.4	3.97 V	12	55.8	6.0
2	*5755.00	113.1 PK			3.97 V	12	72.2	40.9
3	*5755.00	100.6 AV			3.97 V	12	59.7	40.9
4	#5987.20	57.5 PK	68.2	-10.7	3.97 V	12	50.6	6.9
5	11510.00	59.1 PK	74.0	-14.9	2.84 V	326	40.6	18.5
6	11510.00	44.9 AV	54.0	-9.1	2.84 V	326	26.4	18.5

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 159 : 5795 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	#5647.60	57.1 PK	68.2	-11.1	1.11 H	80	51.1	6.0
2	*5795.00	117.8 PK			1.11 H	80	76.7	41.1
3	*5795.00	105.4 AV			1.11 H	80	64.3	41.1
4	#5930.40	57.7 PK	68.2	-10.5	1.11 H	80	50.7	7.0
5	11590.00	58.9 PK	74.0	-15.1	3.38 H	202	40.6	18.3
6	11590.00	44.8 AV	54.0	-9.2	3.38 H	202	26.5	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	#5648.80	58.2 PK	68.2	-10.0	4.00 V	21	52.2	6.0
2	*5795.00	111.4 PK			4.00 V	21	70.3	41.1
3	*5795.00	100.0 AV			4.00 V	21	58.9	41.1
4	#5924.40	58.0 PK	68.6	-10.6	4.00 V	21	50.9	7.1
5	11590.00	58.7 PK	74.0	-15.3	2.88 V	324	40.4	18.3
6	11590.00	44.7 AV	54.0	-9.3	2.88 V	324	26.4	18.3

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 42 : 5210 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	66.4 PK	74.0	-7.6	1.73 H	72	60.8	5.6
2	5150.00	53.2 AV	54.0	-0.8	1.73 H	72	47.6	5.6
3	*5210.00	106.1 PK			1.73 H	72	66.1	40.0
4	*5210.00	94.8 AV			1.73 H	72	54.8	40.0
5	#10420.00	58.4 PK	68.2	-9.8	3.27 H	214	40.9	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	3.72 V	23	53.5	5.6
2	5150.00	47.2 AV	54.0	-6.8	3.72 V	23	41.6	5.6
3	*5210.00	97.9 PK			3.72 V	23	57.9	40.0
4	*5210.00	86.4 AV			3.72 V	23	46.4	40.0
5	#10420.00	57.8 PK	68.2	-10.4	2.82 V	319	40.3	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. 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 (HE80)	Channel	CH 155 : 5775 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	#5648.40	64.7 PK	68.2	-3.5	1.04 H	81	58.7	6.0
2	*5775.00	113.5 PK			1.04 H	81	72.5	41.0
3	*5775.00	101.4 AV			1.04 H	81	60.4	41.0
4	#5940.80	67.4 PK	68.2	-0.8	1.04 H	81	60.4	7.0
5	11550.00	59.2 PK	74.0	-14.8	3.35 H	211	40.8	18.4
6	11550.00	45.1 AV	54.0	-8.9	3.35 H	211	26.7	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	#5644.80	60.6 PK	68.2	-7.6	4.00 V	22	54.6	6.0
2	*5775.00	108.6 PK			4.00 V	22	67.6	41.0
3	*5775.00	95.6 AV			4.00 V	22	54.6	41.0
4	#5929.20	60.0 PK	68.2	-8.2	4.00 V	22	52.9	7.1
5	11550.00	59.1 PK	74.0	-14.9	2.76 V	322	40.7	18.4
6	11550.00	44.7 AV	54.0	-9.3	2.76 V	322	26.3	18.4

Remarks:

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

Mode B1

RF Mode	TX 802.11a	Channel	CH 36 : 5180 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	59.1 PK	74.0	-14.9	1.74 H	159	53.5	5.6
2	5150.00	46.0 AV	54.0	-8.0	1.74 H	159	40.4	5.6
3	*5180.00	109.4 PK			1.74 H	159	69.4	40.0
4	*5180.00	100.2 AV			1.74 H	159	60.2	40.0
5	#10360.00	58.2 PK	68.2	-10.0	3.14 H	205	40.7	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	63.2 PK	74.0	-10.8	2.44 V	341	57.6	5.6
2	5150.00	49.9 AV	54.0	-4.1	2.44 V	341	44.3	5.6
3	*5180.00	117.8 PK			2.44 V	341	77.8	40.0
4	*5180.00	108.6 AV			2.44 V	341	68.6	40.0
5	#10360.00	59.1 PK	68.2	-9.1	1.57 V	114	41.6	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. 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 802.11a	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	111.2 PK			1.79 H	152	71.2	40.0
2	*5200.00	101.8 AV			1.79 H	152	61.8	40.0
3	#10400.00	58.1 PK	68.2	-10.1	3.14 H	211	40.6	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	*5200.00	119.9 PK			2.53 V	343	79.9	40.0
2	*5200.00	110.6 AV			2.53 V	343	70.6	40.0
3	#10400.00	59.0 PK	68.2	-9.2	1.54 V	116	41.5	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. 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 802.11a	Channel	CH 48 : 5240 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	*5240.00	111.1 PK			1.79 H	159	71.2	39.9
2	*5240.00	101.8 AV			1.79 H	159	61.9	39.9
3	5350.00	55.9 PK	74.0	-18.1	1.79 H	159	50.6	5.3
4	5350.00	43.9 AV	54.0	-10.1	1.79 H	159	38.6	5.3
5	#10480.00	58.3 PK	68.2	-9.9	3.14 H	196	40.7	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	*5240.00	120.1 PK			2.64 V	342	80.2	39.9
2	*5240.00	110.8 AV			2.64 V	342	70.9	39.9
3	5350.00	56.6 PK	74.0	-17.4	2.64 V	342	51.3	5.3
4	5350.00	45.0 AV	54.0	-9.0	2.64 V	342	39.7	5.3
5	#10480.00	59.1 PK	68.2	-9.1	1.66 V	114	41.5	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. 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 802.11a	Channel	CH 149 : 5745 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	#5634.00	55.9 PK	68.2	-12.3	1.77 H	163	49.9	6.0
2	*5745.00	111.6 PK			1.77 H	163	70.7	40.9
3	*5745.00	102.5 AV			1.77 H	163	61.6	40.9
4	#5936.80	56.6 PK	68.2	-11.6	1.77 H	163	49.6	7.0
5	11490.00	59.2 PK	74.0	-14.8	1.66 H	107	40.6	18.6
6	11490.00	45.9 AV	54.0	-8.1	1.66 H	107	27.3	18.6
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	#5648.80	55.3 PK	68.2	-12.9	1.72 V	355	49.3	6.0
2	*5745.00	120.8 PK			1.72 V	355	79.9	40.9
3	*5745.00	111.0 AV			1.72 V	355	70.1	40.9
4	#5936.40	56.1 PK	68.2	-12.1	1.72 V	355	49.1	7.0
5	11490.00	59.9 PK	74.0	-14.1	1.60 V	114	41.3	18.6
6	11490.00	46.2 AV	54.0	-7.8	1.60 V	114	27.6	18.6

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	#5643.60	55.5 PK	68.2	-12.7	1.69 H	165	49.5	6.0
2	*5785.00	111.8 PK			1.69 H	165	70.8	41.0
3	*5785.00	102.4 AV			1.69 H	165	61.4	41.0
4	#5950.80	56.5 PK	68.2	-11.7	1.69 H	165	49.6	6.9
5	11570.00	59.2 PK	74.0	-14.8	1.59 H	101	40.8	18.4
6	11570.00	45.8 AV	54.0	-8.2	1.59 H	101	27.4	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	#5602.80	56.7 PK	68.2	-11.5	1.74 V	11	50.7	6.0
2	*5785.00	121.5 PK			1.74 V	11	80.5	41.0
3	*5785.00	111.6 AV			1.74 V	11	70.6	41.0
4	#5933.60	57.1 PK	68.2	-11.1	1.74 V	11	50.1	7.0
5	11570.00	59.7 PK	74.0	-14.3	1.58 V	119	41.3	18.4
6	11570.00	46.1 AV	54.0	-7.9	1.58 V	119	27.7	18.4

Remarks:

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

RF Mode	TX 802.11a	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	#5624.80	55.3 PK	68.2	-12.9	1.72 H	161	49.3	6.0
2	*5825.00	112.1 PK			1.72 H	161	70.9	41.2
3	*5825.00	102.8 AV			1.72 H	161	61.6	41.2
4	#5927.20	57.0 PK	68.2	-11.2	1.72 H	161	49.9	7.1
5	11650.00	59.1 PK	74.0	-14.9	1.64 H	112	40.9	18.2
6	11650.00	45.5 AV	54.0	-8.5	1.64 H	112	27.3	18.2
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	#5627.20	56.2 PK	68.2	-12.0	1.66 V	12	50.2	6.0
2	*5825.00	121.6 PK			1.66 V	12	80.4	41.2
3	*5825.00	112.0 AV			1.66 V	12	70.8	41.2
4	#5926.40	62.4 PK	68.2	-5.8	1.66 V	12	55.3	7.1
5	11650.00	59.3 PK	74.0	-14.7	1.57 V	113	41.1	18.2
6	11650.00	45.9 AV	54.0	-8.1	1.57 V	113	27.7	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 36 : 5180 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	62.1 PK	74.0	-11.9	1.74 H	155	56.5	5.6
2	5150.00	48.1 AV	54.0	-5.9	1.74 H	155	42.5	5.6
3	*5180.00	112.2 PK			1.74 H	155	72.2	40.0
4	*5180.00	99.6 AV			1.74 H	155	59.6	40.0
5	#10360.00	58.1 PK	68.2	-10.1	3.26 H	217	40.6	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	67.5 PK	74.0	-6.5	2.46 V	341	61.9	5.6
2	5150.00	52.5 AV	54.0	-1.5	2.46 V	341	46.9	5.6
3	*5180.00	120.7 PK			2.46 V	341	80.7	40.0
4	*5180.00	108.4 AV			2.46 V	341	68.4	40.0
5	#10360.00	59.2 PK	68.2	-9.0	1.58 V	114	41.7	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. 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 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	114.2 PK			1.84 H	169	74.2	40.0
2	*5200.00	101.5 AV			1.84 H	169	61.5	40.0
3	#10400.00	58.7 PK	68.2	-9.5	3.15 H	198	41.2	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	*5200.00	122.8 PK			2.55 V	340	82.8	40.0
2	*5200.00	110.3 AV			2.55 V	340	70.3	40.0
3	#10400.00	59.4 PK	68.2	-8.8	1.54 V	119	41.9	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. 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 48 : 5240 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	*5240.00	113.8 PK			1.71 H	163	73.9	39.9
2	*5240.00	101.3 AV			1.71 H	163	61.4	39.9
3	5350.00	55.7 PK	74.0	-18.3	1.71 H	163	50.4	5.3
4	5350.00	43.7 AV	54.0	-10.3	1.71 H	163	38.4	5.3
5	#10480.00	58.4 PK	68.2	-9.8	3.11 H	205	40.8	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	*5240.00	122.8 PK			2.67 V	339	82.9	39.9
2	*5240.00	110.2 AV			2.67 V	339	70.3	39.9
3	5350.00	56.7 PK	74.0	-17.3	2.67 V	339	51.4	5.3
4	5350.00	44.9 AV	54.0	-9.1	2.67 V	339	39.6	5.3
5	#10480.00	59.2 PK	68.2	-9.0	1.73 V	124	41.6	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. 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 149 : 5745 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	#5638.40	55.0 PK	68.2	-13.2	1.71 H	158	49.0	6.0
2	*5745.00	114.7 PK			1.71 H	158	73.8	40.9
3	*5745.00	102.4 AV			1.71 H	158	61.5	40.9
4	#5930.80	56.5 PK	68.2	-11.7	1.71 H	158	49.5	7.0
5	11490.00	59.4 PK	74.0	-14.6	1.63 H	105	40.8	18.6
6	11490.00	46.1 AV	54.0	-7.9	1.63 H	105	27.5	18.6

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	#5632.40	56.0 PK	68.2	-12.2	1.78 V	358	50.0	6.0
2	*5745.00	123.3 PK			1.78 V	358	82.4	40.9
3	*5745.00	111.3 AV			1.78 V	358	70.4	40.9
4	#5937.60	56.8 PK	68.2	-11.4	1.78 V	358	49.8	7.0
5	11490.00	60.0 PK	74.0	-14.0	1.56 V	117	41.4	18.6
6	11490.00	46.4 AV	54.0	-7.6	1.56 V	117	27.8	18.6

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 157 : 5785 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	#5621.60	56.9 PK	68.2	-11.3	1.70 H	169	50.9	6.0
2	*5785.00	115.6 PK			1.70 H	169	74.6	41.0
3	*5785.00	103.1 AV			1.70 H	169	62.1	41.0
4	#5928.40	57.5 PK	68.2	-10.7	1.70 H	169	50.4	7.1
5	11570.00	59.6 PK	74.0	-14.4	1.68 H	111	41.2	18.4
6	11570.00	45.9 AV	54.0	-8.1	1.68 H	111	27.5	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	#5643.20	55.9 PK	68.2	-12.3	1.74 V	7	49.9	6.0
2	*5785.00	123.8 PK			1.74 V	7	82.8	41.0
3	*5785.00	111.9 AV			1.74 V	7	70.9	41.0
4	#5925.60	57.2 PK	68.2	-11.0	1.74 V	7	50.1	7.1
5	11570.00	60.0 PK	74.0	-14.0	1.63 V	115	41.6	18.4
6	11570.00	46.5 AV	54.0	-7.5	1.63 V	115	28.1	18.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
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	#5646.00	56.2 PK	68.2	-12.0	1.71 H	165	50.2	6.0
2	*5825.00	116.0 PK			1.71 H	165	74.8	41.2
3	*5825.00	104.0 AV			1.71 H	165	62.8	41.2
4	#5972.00	57.0 PK	68.2	-11.2	1.71 H	165	50.1	6.9
5	11650.00	59.5 PK	74.0	-14.5	1.59 H	104	41.3	18.2
6	11650.00	45.8 AV	54.0	-8.2	1.59 H	104	27.6	18.2
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	#5632.00	56.3 PK	68.2	-11.9	1.75 V	8	50.3	6.0
2	*5825.00	124.7 PK			1.75 V	8	83.5	41.2
3	*5825.00	112.2 AV			1.75 V	8	71.0	41.2
4	#5946.80	61.3 PK	68.2	-6.9	1.75 V	8	54.3	7.0
5	11650.00	59.9 PK	74.0	-14.1	1.56 V	112	41.7	18.2
6	11650.00	46.5 AV	54.0	-7.5	1.56 V	112	28.3	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 38 : 5190 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	61.0 PK	74.0	-13.0	1.65 H	153	55.4	5.6
2	5150.00	47.9 AV	54.0	-6.1	1.65 H	153	42.3	5.6
3	*5190.00	103.9 PK			1.65 H	153	63.9	40.0
4	*5190.00	91.3 AV			1.65 H	153	51.3	40.0
5	#10380.00	58.0 PK	68.2	-10.2	3.25 H	216	40.4	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	5150.00	65.8 PK	74.0	-8.2	2.47 V	349	60.2	5.6
2	5150.00	52.3 AV	54.0	-1.7	2.47 V	349	46.7	5.6
3	*5190.00	112.8 PK			2.47 V	349	72.8	40.0
4	*5190.00	100.4 AV			2.47 V	349	60.4	40.0
5	#10380.00	58.8 PK	68.2	-9.4	1.61 V	109	41.2	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. 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 (HE40)	Channel	CH 46 : 5230 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	59.7 PK	74.0	-14.3	1.67 H	156	54.1	5.6
2	5150.00	46.0 AV	54.0	-8.0	1.67 H	156	40.4	5.6
3	*5230.00	109.8 PK			1.67 H	156	69.8	40.0
4	*5230.00	97.2 AV			1.67 H	156	57.2	40.0
5	#10460.00	57.7 PK	68.2	-10.5	3.03 H	209	40.2	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	64.8 PK	74.0	-9.2	2.47 V	346	59.2	5.6
2	5150.00	50.9 AV	54.0	-3.1	2.47 V	346	45.3	5.6
3	*5230.00	118.2 PK			2.47 V	346	78.2	40.0
4	*5230.00	106.1 AV			2.47 V	346	66.1	40.0
5	#10460.00	58.1 PK	68.2	-10.1	3.07 V	202	40.6	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. 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 (HE40)	Channel	CH 151 : 5755 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	#5647.60	57.2 PK	68.2	-11.0	1.79 H	162	51.2	6.0
2	*5755.00	111.5 PK			1.79 H	162	70.6	40.9
3	*5755.00	99.0 AV			1.79 H	162	58.1	40.9
4	#5930.00	57.8 PK	68.2	-10.4	1.79 H	162	50.8	7.0
5	11510.00	59.0 PK	74.0	-15.0	1.69 H	110	40.5	18.5
6	11510.00	45.9 AV	54.0	-8.1	1.69 H	110	27.4	18.5

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	#5638.40	62.5 PK	68.2	-5.7	1.76 V	9	56.5	6.0
2	*5755.00	120.1 PK			1.76 V	9	79.2	40.9
3	*5755.00	107.5 AV			1.76 V	9	66.6	40.9
4	#5924.80	59.7 PK	68.3	-8.6	1.76 V	9	52.6	7.1
5	11510.00	59.4 PK	74.0	-14.6	1.55 V	113	40.9	18.5
6	11510.00	46.1 AV	54.0	-7.9	1.55 V	113	27.6	18.5

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 159 : 5795 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	#5646.00	56.4 PK	68.2	-11.8	1.74 H	160	50.4	6.0
2	*5795.00	111.4 PK			1.74 H	160	70.3	41.1
3	*5795.00	99.4 AV			1.74 H	160	58.3	41.1
4	#5926.00	57.7 PK	68.2	-10.5	1.74 H	160	50.6	7.1
5	11590.00	59.0 PK	74.0	-15.0	1.65 H	108	40.7	18.3
6	11590.00	45.7 AV	54.0	-8.3	1.65 H	108	27.4	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	#5647.20	59.5 PK	68.2	-8.7	1.78 V	358	53.5	6.0
2	*5795.00	120.2 PK			1.78 V	358	79.1	41.1
3	*5795.00	108.1 AV			1.78 V	358	67.0	41.1
4	#5939.20	60.0 PK	68.2	-8.2	1.78 V	358	53.0	7.0
5	11590.00	59.1 PK	74.0	-14.9	1.61 V	117	40.8	18.3
6	11590.00	46.0 AV	54.0	-8.0	1.61 V	117	27.7	18.3

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 42 : 5210 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	59.5 PK	74.0	-14.5	1.70 H	161	53.9	5.6
2	5150.00	47.4 AV	54.0	-6.6	1.70 H	161	41.8	5.6
3	*5210.00	97.4 PK			1.70 H	161	57.4	40.0
4	*5210.00	85.8 AV			1.70 H	161	45.8	40.0
5	#10420.00	57.6 PK	68.2	-10.6	3.05 H	216	40.1	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	63.7 PK	74.0	-10.3	2.57 V	338	58.1	5.6
2	5150.00	51.9 AV	54.0	-2.1	2.57 V	338	46.3	5.6
3	*5210.00	106.0 PK			2.57 V	338	66.0	40.0
4	*5210.00	94.6 AV			2.57 V	338	54.6	40.0
5	#10420.00	58.3 PK	68.2	-9.9	1.58 V	113	40.8	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. 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 (HE80)	Channel	CH 155 : 5775 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	#5650.00	59.0 PK	68.2	-9.2	1.77 H	165	53.0	6.0
2	*5775.00	106.5 PK			1.77 H	165	65.5	41.0
3	*5775.00	94.5 AV			1.77 H	165	53.5	41.0
4	#5930.00	59.1 PK	68.2	-9.1	1.77 H	165	52.1	7.0
5	11550.00	59.0 PK	74.0	-15.0	1.63 H	105	40.6	18.4
6	11550.00	45.7 AV	54.0	-8.3	1.63 H	105	27.3	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	#5642.80	67.2 PK	68.2	-1.0	1.78 V	11	61.2	6.0
2	*5775.00	115.2 PK			1.78 V	11	74.2	41.0
3	*5775.00	103.5 AV			1.78 V	11	62.5	41.0
4	#5926.40	66.8 PK	68.2	-1.4	1.78 V	11	59.7	7.1
5	11550.00	59.2 PK	74.0	-14.8	1.64 V	118	40.8	18.4
6	11550.00	46.0 AV	54.0	-8.0	1.64 V	118	27.6	18.4

Remarks:

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

Below 1GHz Worst-Case Data:

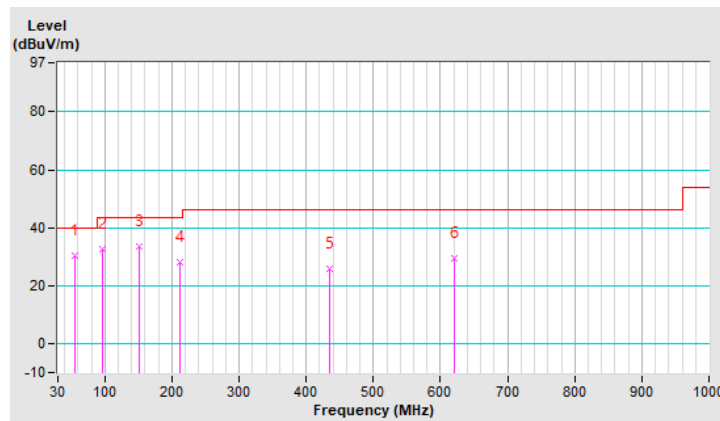
Mode A1

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	56.19	30.4 QP	40.0	-9.6	2.00 H	18	39.7	-9.3
2	95.96	32.8 QP	43.5	-10.7	1.00 H	165	47.5	-14.7
3	152.22	33.3 QP	43.5	-10.2	1.50 H	100	42.2	-8.9
4	211.39	27.9 QP	43.5	-15.6	1.00 H	207	39.2	-11.3
5	434.49	25.8 QP	46.0	-20.2	1.00 H	268	29.5	-3.7
6	620.73	29.5 QP	46.0	-16.5	1.50 H	181	29.6	-0.1

Remarks:

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

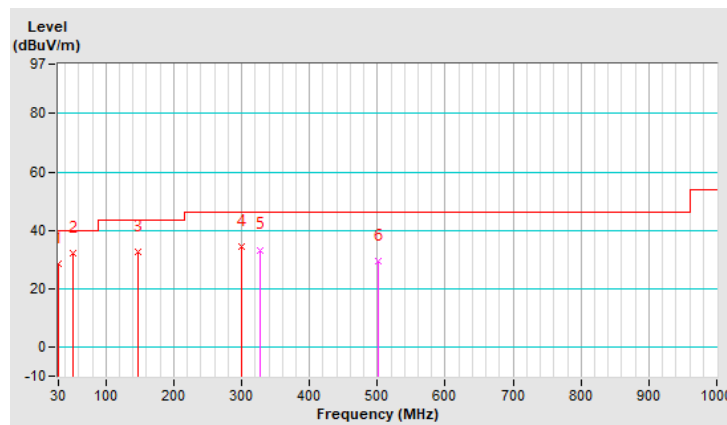


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	30.07	28.5 QP	40.0	-11.5	1.50 V	79	38.7	-10.2
2	51.55	32.3 QP	40.0	-7.7	1.00 V	21	41.3	-9.0
3	148.09	32.7 QP	43.5	-10.8	1.50 V	21	41.7	-9.0
4	299.32	34.3 QP	46.0	-11.7	1.00 V	79	41.2	-6.9
5	326.82	33.3 QP	46.0	-12.7	1.00 V	22	39.4	-6.1
6	501.42	29.4 QP	46.0	-16.6	1.00 V	22	31.9	-2.5

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.



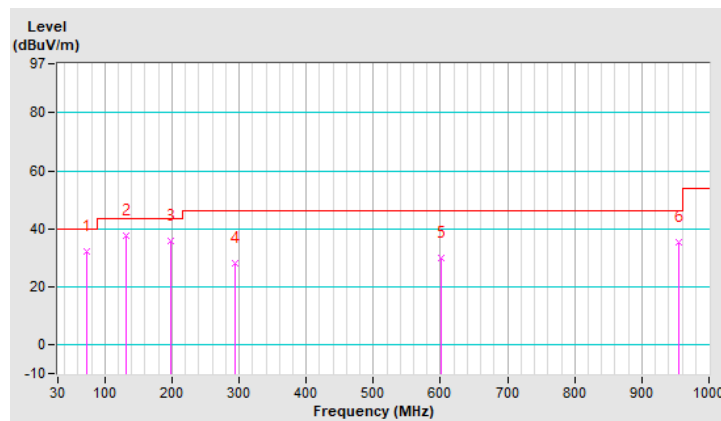
Mode A2

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	72.68	32.0 QP	40.0	-8.0	1.50 H	132	43.8	-11.8
2	131.85	37.5 QP	43.5	-6.0	1.00 H	132	47.7	-10.2
3	198.78	35.6 QP	43.5	-7.9	1.00 H	144	47.2	-11.6
4	294.81	27.9 QP	46.0	-18.1	1.25 H	136	35.0	-7.1
5	601.33	30.1 QP	46.0	-15.9	1.25 H	297	30.5	-0.4
6	955.38	35.3 QP	46.0	-10.7	1.00 H	64	29.1	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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.

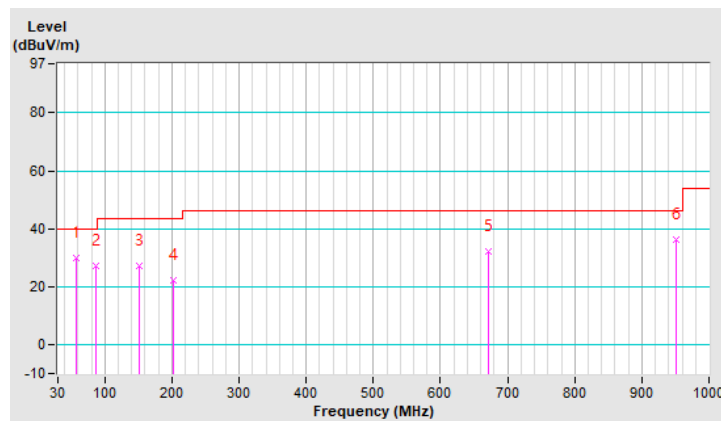


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	58.13	30.0 QP	40.0	-10.0	1.00 V	201	39.5	-9.5
2	87.23	27.2 QP	40.0	-12.8	1.25 V	42	41.9	-14.7
3	152.22	27.4 QP	43.5	-16.1	1.50 V	101	36.3	-8.9
4	202.66	22.2 QP	43.5	-21.3	1.00 V	196	33.7	-11.5
5	672.14	32.2 QP	46.0	-13.8	1.50 V	359	31.7	0.5
6	950.53	36.2 QP	46.0	-9.8	1.00 V	343	30.1	6.1

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.



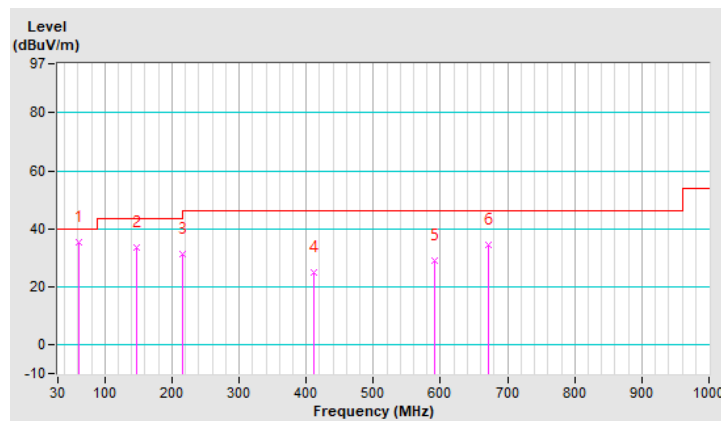
Mode B1

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	61.04	35.3 QP	40.0	-4.7	1.50 H	90	45.2	-9.9
2	146.40	33.4 QP	43.5	-10.1	1.00 H	151	42.3	-8.9
3	216.24	31.1 QP	46.0	-14.9	1.00 H	109	42.3	-11.2
4	411.21	24.9 QP	46.0	-21.1	1.50 H	149	29.7	-4.8
5	591.63	29.2 QP	46.0	-16.8	1.00 H	270	29.7	-0.5
6	672.14	34.4 QP	46.0	-11.6	1.00 H	303	33.9	0.5

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.

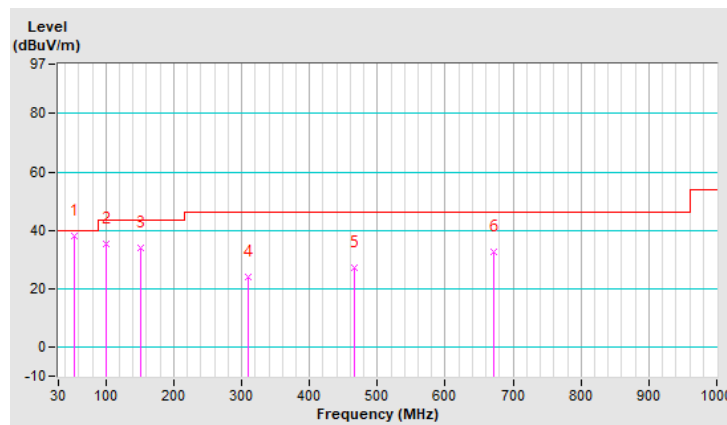


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	53.28	38.0 QP	40.0	-2.0	2.00 V	5	47.1	-9.1
2	99.84	35.4 QP	43.5	-8.1	1.00 V	270	49.1	-13.7
3	152.22	34.1 QP	43.5	-9.4	2.00 V	324	43.0	-8.9
4	309.36	23.9 QP	46.0	-22.1	1.00 V	164	30.4	-6.5
5	466.50	27.3 QP	46.0	-18.7	1.50 V	152	30.5	-3.2
6	672.14	32.7 QP	46.0	-13.3	1.00 V	170	32.2	0.5

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.



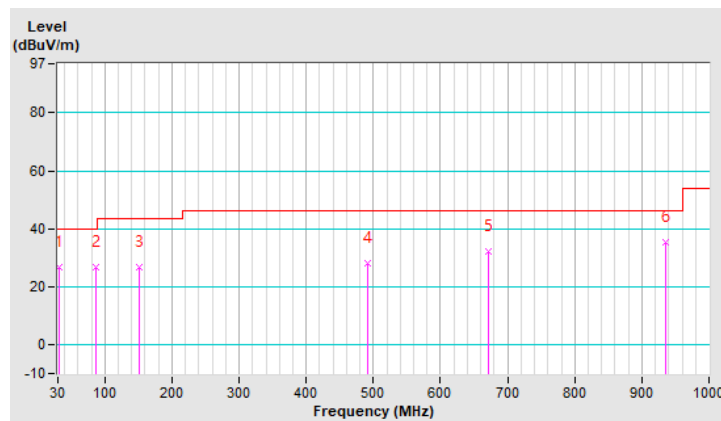
Mode B2

RF Mode	TX 802.11a	Channel	CH 157 : 5785 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	31.94	26.5 QP	40.0	-13.5	1.00 H	31	37.1	-10.6
2	87.23	26.5 QP	40.0	-13.5	1.50 H	291	41.2	-14.7
3	152.22	26.6 QP	43.5	-16.9	1.50 H	208	35.5	-8.9
4	491.72	28.1 QP	46.0	-17.9	1.00 H	96	30.8	-2.7
5	672.14	32.1 QP	46.0	-13.9	1.00 H	29	31.6	0.5
6	935.01	35.5 QP	46.0	-10.5	1.25 H	286	29.4	6.1

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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.

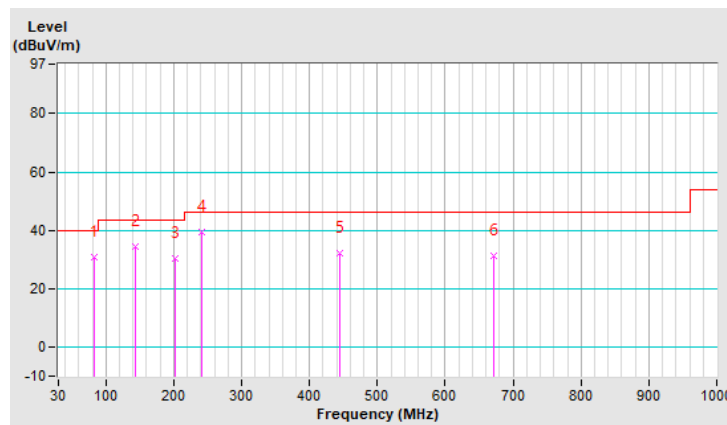


RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	83.35	30.8 QP	40.0	-9.2	1.00 V	13	45.0	-14.2
2	142.52	34.4 QP	43.5	-9.1	1.00 V	145	43.6	-9.2
3	201.69	30.2 QP	43.5	-13.3	1.00 V	145	41.7	-11.5
4	241.46	39.3 QP	46.0	-6.7	1.00 V	143	48.7	-9.4
5	444.19	32.1 QP	46.0	-13.9	1.25 V	145	35.8	-3.7
6	672.14	31.2 QP	46.0	-14.8	1.50 V	318	30.7	0.5

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 of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
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	ESR3	102412	Jan. 22, 2022	Jan. 21, 2023
RF signal cable Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Feb. 17, 2022	Feb. 16, 2023
V-LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 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 2 (Conduction 2).

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

4. Tested date: May 17 ~ Jun. 10, 2022

4.2.3 Test Procedures

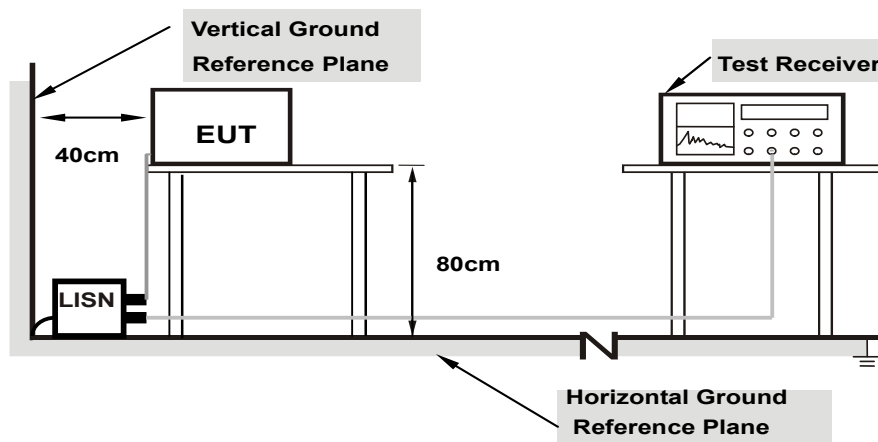
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

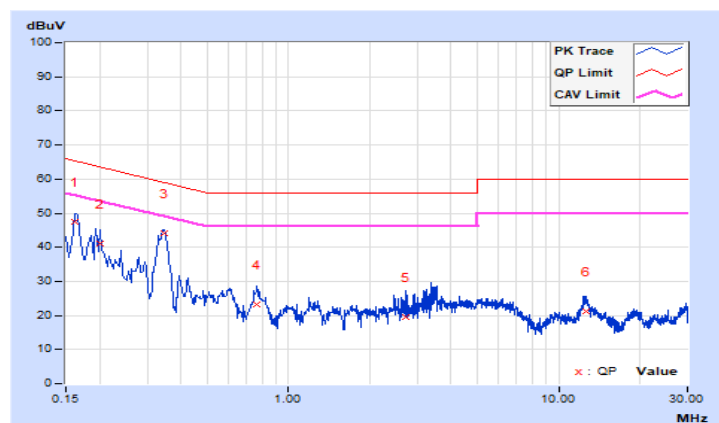
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A1		

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	0.16173	10.14	37.32	23.67	47.46	33.81	65.37	55.37	-17.91	-21.56
2	0.20083	10.16	31.03	18.73	41.19	28.89	63.58	53.58	-22.39	-24.69
3	0.34550	10.22	33.91	28.57	44.13	38.79	59.07	49.07	-14.94	-10.28
4	0.76386	10.28	13.08	6.14	23.36	16.42	56.00	46.00	-32.64	-29.58
5	2.73060	10.38	9.12	0.98	19.50	11.36	56.00	46.00	-36.50	-34.64
6	12.62681	10.49	10.76	4.84	21.25	15.33	60.00	50.00	-38.75	-34.67

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.

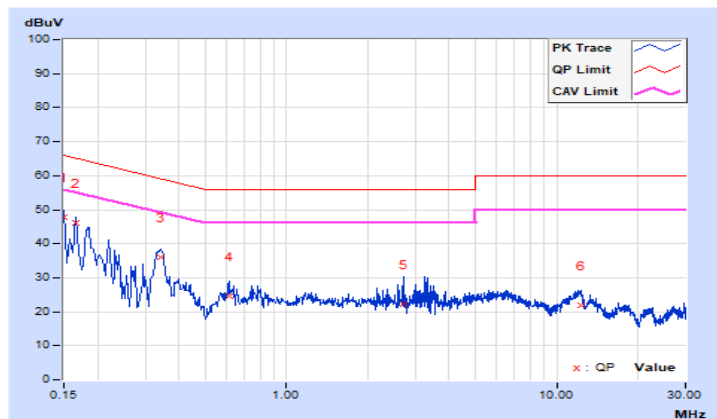


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A1		

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	0.15000	10.14	37.81	20.78	47.95	30.92	66.00	56.00	-18.05	-25.08
2	0.16564	10.16	35.94	23.32	46.10	33.48	65.18	55.18	-19.08	-21.70
3	0.34108	10.24	25.65	22.15	35.89	32.39	59.18	49.18	-23.29	-16.79
4	0.61138	10.28	14.23	8.14	24.51	18.42	56.00	46.00	-31.49	-27.58
5	2.71887	10.37	11.91	4.36	22.28	14.73	56.00	46.00	-33.72	-31.27
6	12.25927	10.56	11.44	5.72	22.00	16.28	60.00	50.00	-38.00	-33.72

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.

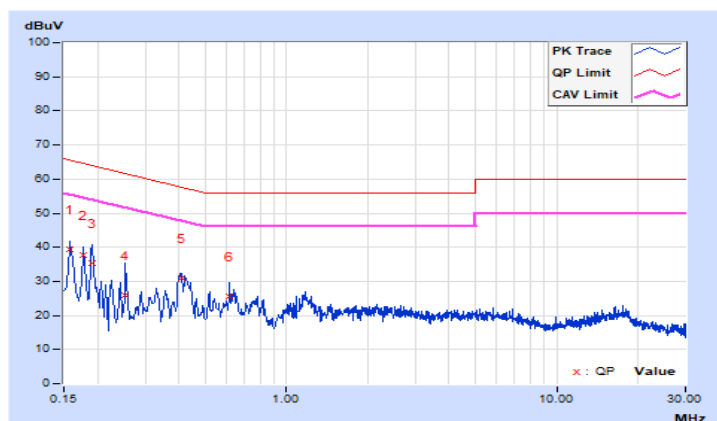


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A2		

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	0.15800	10.13	29.26	12.52	39.39	22.65	65.57	55.57	-26.18	-32.92
2	0.17708	10.15	27.67	12.83	37.82	22.98	64.62	54.62	-26.80	-31.64
3	0.19000	10.15	25.16	9.67	35.31	19.82	64.04	54.04	-28.73	-34.22
4	0.25400	10.18	15.85	4.84	26.03	15.02	61.63	51.63	-35.60	-36.61
5	0.40712	10.24	20.70	14.07	30.94	24.31	57.71	47.71	-26.77	-23.40
6	0.61800	10.26	15.49	8.91	25.75	19.17	56.00	46.00	-30.25	-26.83

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.

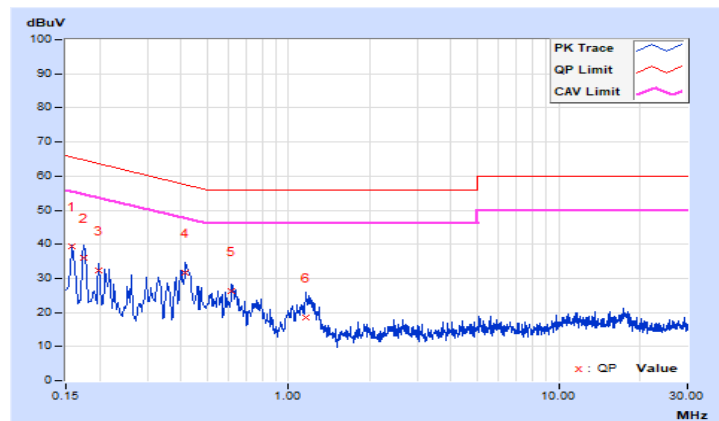


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A2		

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	0.15800	10.15	29.27	12.53	39.42	22.68	65.57	55.57	-26.15	-32.89
2	0.17400	10.16	25.86	11.62	36.02	21.78	64.77	54.77	-28.75	-32.99
3	0.19800	10.19	22.03	6.95	32.22	17.14	63.69	53.69	-31.47	-36.55
4	0.41400	10.26	21.29	9.85	31.55	20.11	57.57	47.57	-26.02	-27.46
5	0.61800	10.28	15.83	8.65	26.11	18.93	56.00	46.00	-29.89	-27.07
6	1.15800	10.32	8.34	0.73	18.66	11.05	56.00	46.00	-37.34	-34.95

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.

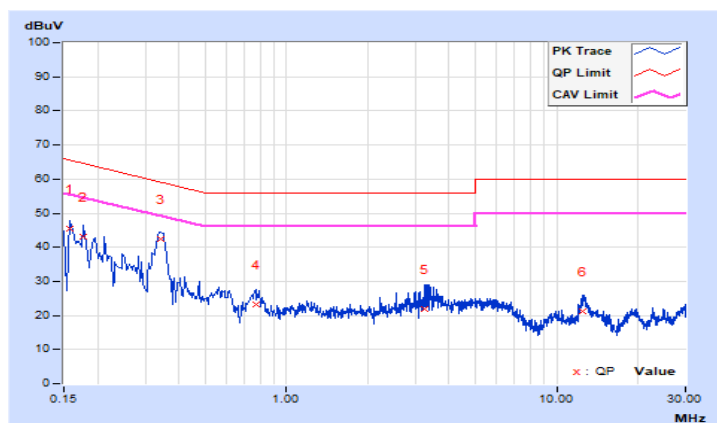


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B1		

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	0.15782	10.13	35.42	21.45	45.55	31.58	65.58	55.58	-20.03	-24.00
2	0.17737	10.15	32.95	19.16	43.10	29.31	64.61	54.61	-21.51	-25.30
3	0.34159	10.22	32.16	29.19	42.38	39.41	59.16	49.16	-16.78	-9.75
4	0.76778	10.28	12.88	6.71	23.16	16.99	56.00	46.00	-32.84	-29.01
5	3.24281	10.39	11.61	1.37	22.00	11.76	56.00	46.00	-34.00	-34.24
6	12.55252	10.49	10.85	4.79	21.34	15.28	60.00	50.00	-38.66	-34.72

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.

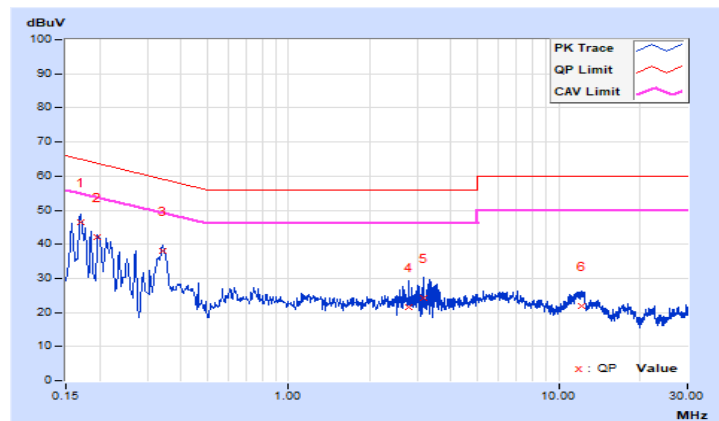


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B1		

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	10.16	36.47	23.71	46.63	33.87	64.98	54.98	-18.35	-21.11
2	0.19692	10.19	31.97	19.97	42.16	30.16	63.74	53.74	-21.58	-23.58
3	0.34159	10.24	27.80	22.10	38.04	32.34	59.16	49.16	-21.12	-16.82
4	2.78531	10.38	11.22	4.25	21.60	14.63	56.00	46.00	-34.40	-31.37
5	3.16070	10.38	13.77	4.33	24.15	14.71	56.00	46.00	-31.85	-31.29
6	12.11460	10.55	11.18	5.56	21.73	16.11	60.00	50.00	-38.27	-33.89

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.

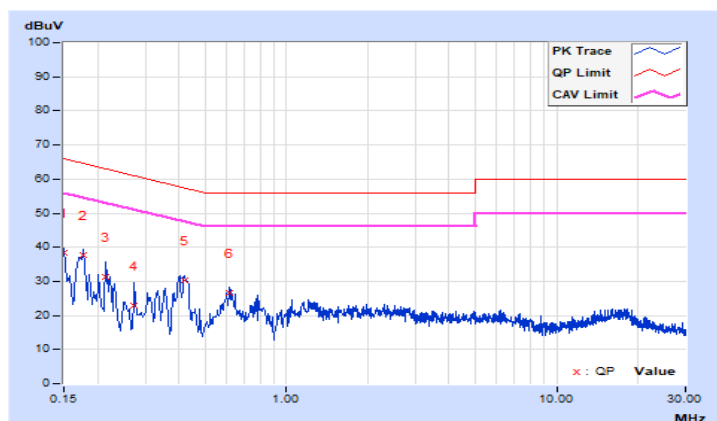


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B2		

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	0.15000	10.13	28.12	14.98	38.25	25.11	66.00	56.00	-27.75	-30.89
2	0.17800	10.15	27.63	12.51	37.78	22.66	64.58	54.58	-26.80	-31.92
3	0.21400	10.17	21.11	5.15	31.28	15.32	63.05	53.05	-31.77	-37.73
4	0.27400	10.19	12.69	0.63	22.88	10.82	61.00	51.00	-38.12	-40.18
5	0.42020	10.24	20.18	13.03	30.42	23.27	57.44	47.44	-27.02	-24.17
6	0.61400	10.26	16.49	8.88	26.75	19.14	56.00	46.00	-29.25	-26.86

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.

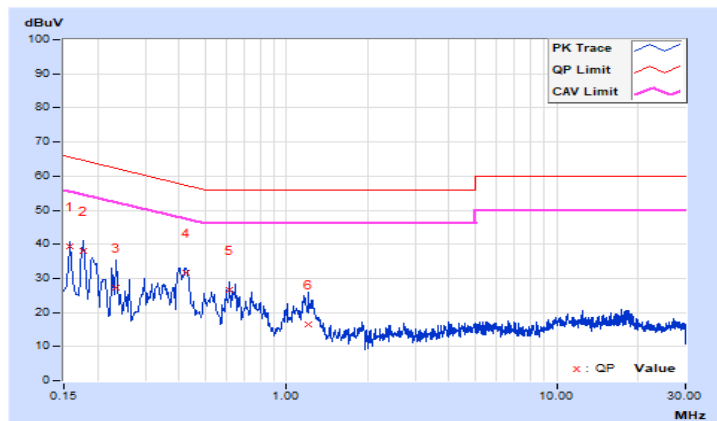


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B2		

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	0.15800	10.15	29.14	12.45	39.29	22.60	65.57	55.57	-26.28	-32.97
2	0.17800	10.17	27.73	12.37	37.90	22.54	64.58	54.58	-26.68	-32.04
3	0.23400	10.20	16.97	4.20	27.17	14.40	62.31	52.31	-35.14	-37.91
4	0.42600	10.26	21.37	15.22	31.63	25.48	57.33	47.33	-25.70	-21.85
5	0.61800	10.28	16.24	8.84	26.52	19.12	56.00	46.00	-29.48	-26.88
6	1.20539	10.32	6.13	1.11	16.45	11.43	56.00	46.00	-39.55	-34.57

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 $N_{ANT} \leq 4$;

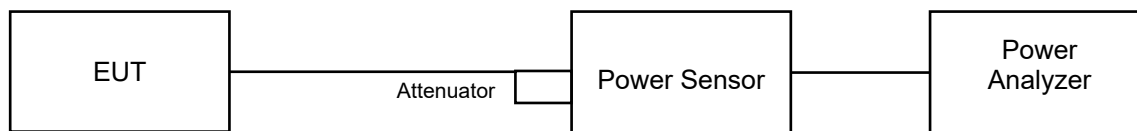
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

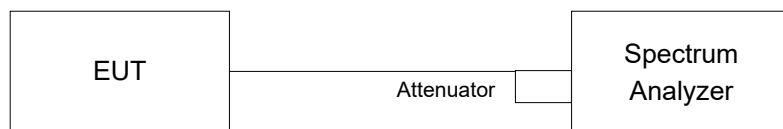
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth



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 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:

CDD Mode

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	16.43	15.58	80.095	19.04	30.00	Pass
40	5200	18.24	17.28	120.137	20.80	30.00	Pass
48	5240	19.19	18.22	149.359	21.74	30.00	Pass
149	5745	19.47	18.72	162.985	22.12	30.00	Pass
157	5785	19.53	18.78	165.252	22.18	30.00	Pass
165	5825	19.43	18.69	161.661	22.09	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	15.68	14.72	66.631	18.24	30.00	Pass
40	5200	18.03	17.11	114.937	20.60	30.00	Pass
48	5240	18.02	17.13	115.029	20.61	30.00	Pass
149	5745	18.02	17.06	114.203	20.58	30.00	Pass
157	5785	18.05	17.15	115.706	20.63	30.00	Pass
165	5825	18.09	17.11	115.821	20.64	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	10.64	9.74	21.007	13.22	30.00	Pass
46	5230	16.46	15.51	79.822	19.02	30.00	Pass
151	5755	17.99	16.98	112.839	20.52	30.00	Pass
159	5795	17.96	17.01	112.752	20.52	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	15.70	14.75	67.007	18.26	30.00	Pass
40	5200	18.15	17.19	117.673	20.71	30.00	Pass
48	5240	18.16	17.18	117.703	20.71	30.00	Pass
149	5745	18.13	17.14	116.774	20.67	30.00	Pass
157	5785	18.14	17.15	117.043	20.68	30.00	Pass
165	5825	18.10	17.12	116.088	20.65	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	10.66	9.78	21.147	13.25	30.00	Pass
46	5230	16.52	15.53	80.602	19.06	30.00	Pass
151	5755	18.02	17.03	113.853	20.56	30.00	Pass
159	5795	18.01	17.03	113.707	20.56	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	8.79	7.88	13.706	11.37	30.00	Pass
155	5775	17.25	16.44	97.144	19.87	30.00	Pass

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	15.74	14.78	67.558	18.30	30.00	Pass
40	5200	18.18	17.22	118.489	20.74	30.00	Pass
48	5240	18.16	17.22	118.187	20.73	30.00	Pass
149	5745	18.16	17.17	117.583	20.70	30.00	Pass
157	5785	18.22	17.23	119.219	20.76	30.00	Pass
165	5825	18.13	17.18	117.253	20.69	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	10.72	9.83	21.419	13.31	30.00	Pass
46	5230	16.58	15.60	81.807	19.13	30.00	Pass
151	5755	18.03	17.05	114.232	20.58	30.00	Pass
159	5795	18.05	17.06	114.642	20.59	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	8.81	7.92	13.798	11.40	30.00	Pass
155	5775	17.28	16.47	97.817	19.90	30.00	Pass

Beamforming Mode

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	15.68	14.72	66.631	18.24	27.18	Pass
40	5200	18.03	17.11	114.937	20.60	27.18	Pass
48	5240	18.02	17.13	115.029	20.61	27.18	Pass
149	5745	18.02	17.06	114.203	20.58	26.99	Pass
157	5785	18.05	17.15	115.706	20.63	26.99	Pass
165	5825	18.09	17.11	115.821	20.64	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = $5.81\text{dBi} + 10\log(2)=8.82\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.82 - 6) = 27.18\text{dBm}$.
2. 5745-5825MHz: Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.

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	10.64	9.74	21.007	13.22	27.18	Pass
46	5230	16.46	15.51	79.822	19.02	27.18	Pass
151	5755	17.99	16.98	112.839	20.52	26.99	Pass
159	5795	17.96	17.01	112.752	20.52	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = $5.81\text{dBi} + 10\log(2)=8.82\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.82 - 6) = 27.18\text{dBm}$.
2. 5745-5825MHz: Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.

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	15.70	14.75	67.007	18.26	27.18	Pass
40	5200	18.15	17.19	117.673	20.71	27.18	Pass
48	5240	18.16	17.18	117.703	20.71	27.18	Pass
149	5745	18.13	17.14	116.774	20.67	26.99	Pass
157	5785	18.14	17.15	117.043	20.68	26.99	Pass
165	5825	18.10	17.12	116.088	20.65	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = $5.81\text{dBi} + 10\log(2)=8.82\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.82 - 6) = 27.18\text{dBm}$.
2. 5745-5825MHz: Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.

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	10.66	9.78	21.147	13.25	27.18	Pass
46	5230	16.52	15.53	80.602	19.06	27.18	Pass
151	5755	18.02	17.03	113.853	20.56	26.99	Pass
159	5795	18.01	17.03	113.707	20.56	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = $5.81\text{dBi} + 10\log(2)=8.82\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.82 - 6) = 27.18\text{dBm}$.
2. 5745-5825MHz: Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.

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	8.79	7.88	13.706	11.37	27.18	Pass
155	5775	17.25	16.44	97.144	19.87	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = $5.81\text{dBi} + 10\log(2)=8.82\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.82 - 6) = 27.18\text{dBm}$.
2. 5745-5825MHz: Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.

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	15.74	14.78	67.558	18.30	27.18	Pass
40	5200	18.18	17.22	118.489	20.74	27.18	Pass
48	5240	18.16	17.22	118.187	20.73	27.18	Pass
149	5745	18.16	17.17	117.583	20.70	26.99	Pass
157	5785	18.22	17.23	119.219	20.76	26.99	Pass
165	5825	18.13	17.18	117.253	20.69	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = 5.81dBi + 10log(2)=8.82dBi > 6dBi, so the power limit shall be reduced to 30 - (8.82 - 6) = 27.18dBm.
2. 5745-5825MHz: Directional gain = 6.00dBi + 10log(2)=9.01dBi > 6dBi, so the power limit shall be reduced to 30 - (9.01 - 6) = 26.99dBm.

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	10.72	9.83	21.419	13.31	27.18	Pass
46	5230	16.58	15.60	81.807	19.13	27.18	Pass
151	5755	18.03	17.05	114.232	20.58	26.99	Pass
159	5795	18.05	17.06	114.642	20.59	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = 5.81dBi + 10log(2)=8.82dBi > 6dBi, so the power limit shall be reduced to 30 - (8.82 - 6) = 27.18dBm.
2. 5745-5825MHz: Directional gain = 6.00dBi + 10log(2)=9.01dBi > 6dBi, so the power limit shall be reduced to 30 - (9.01 - 6) = 26.99dBm.

802.11ax (HE80)

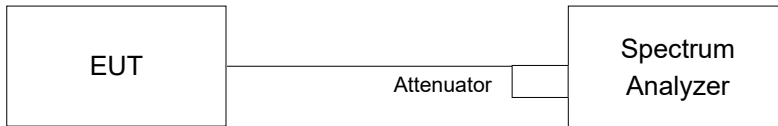
Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	8.81	7.92	13.798	11.40	27.18	Pass
155	5775	17.28	16.47	97.817	19.90	26.99	Pass

Note:

1. 5180-5240MHz: Directional gain = 5.81dBi + 10log(2)=8.82dBi > 6dBi, so the power limit shall be reduced to 30 - (8.82 - 6) = 27.18dBm.
2. 5745-5825MHz: Directional gain = 6.00dBi + 10log(2)=9.01dBi > 6dBi, so the power limit shall be reduced to 30 - (9.01 - 6) = 26.99dBm.

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

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.32	16.20
40	5200	16.32	16.32
48	5240	16.56	16.44
149	5745	16.56	16.44
157	5785	16.80	16.80
165	5825	16.80	16.44

802.11ax (HE20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.84	18.84
40	5200	18.84	18.84
48	5240	18.84	18.84
149	5745	18.84	19.08
157	5785	18.84	18.96
165	5825	18.84	19.08

802.11ax (HE40)

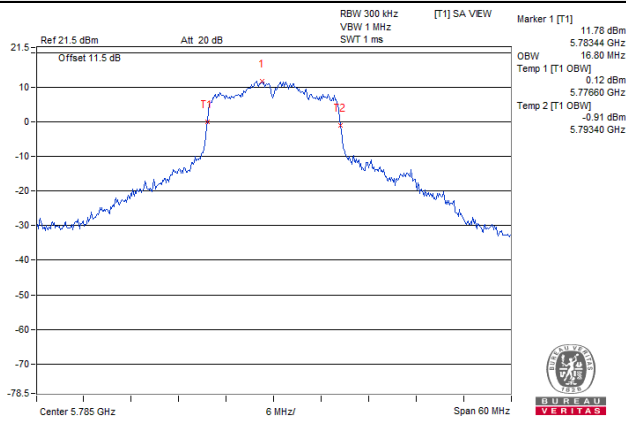
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.68	37.68
46	5230	37.68	37.68
151	5755	37.68	38.64
159	5795	37.80	37.80

802.11ax (HE80)

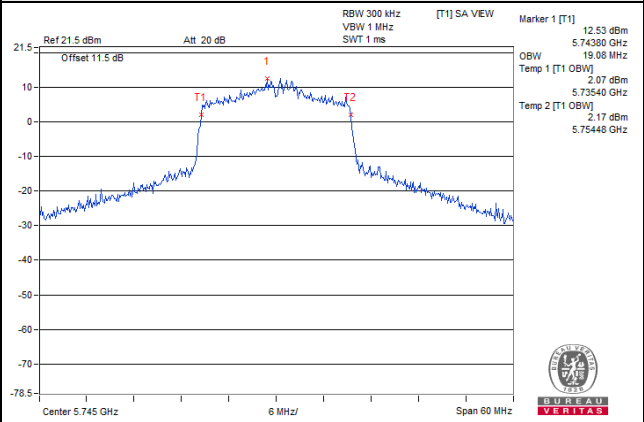
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.32	76.80
155	5775	76.80	77.28

Spectrum Plot of Worst Value

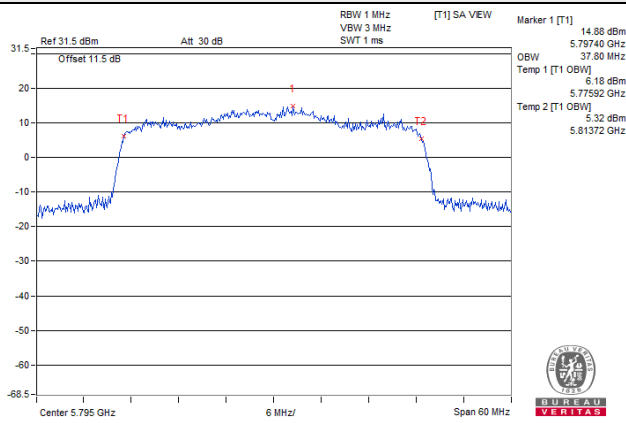
802.11a



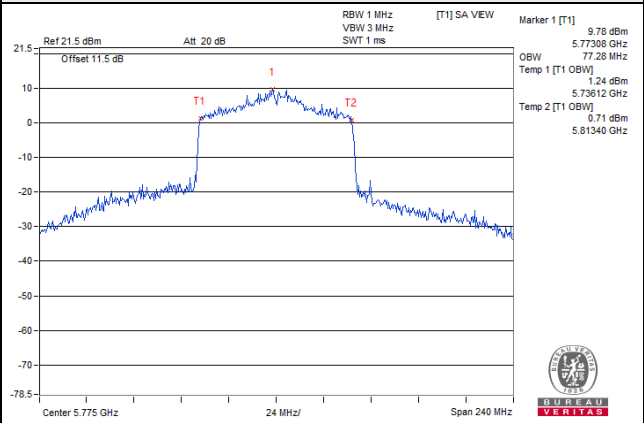
802.11ax (HE20)



802.11ax (HE40)

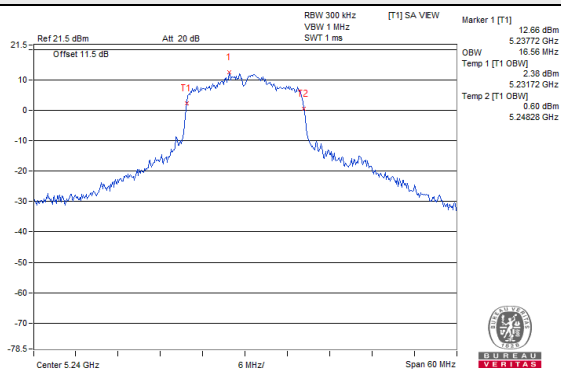


802.11ax (HE80)

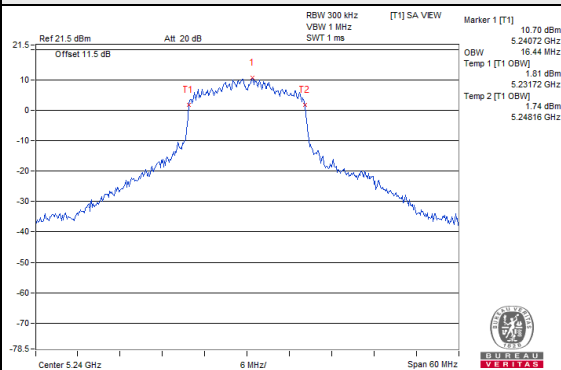


Spectrum Plot for near By DFS Band

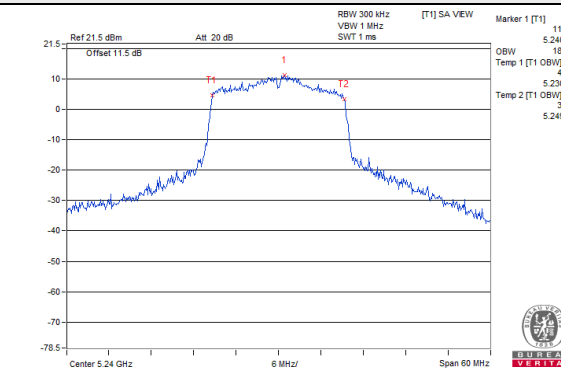
802.11a / Chain 0 / CH 48



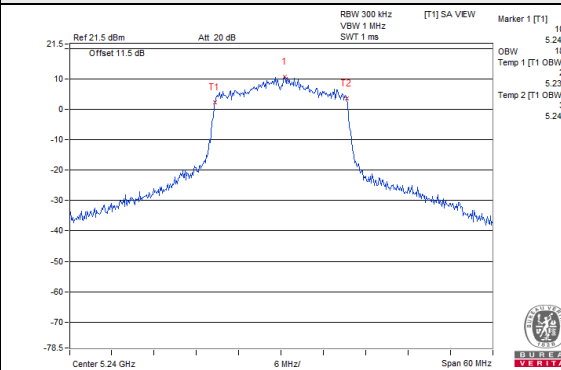
802.11a / Chain 1 / CH 48



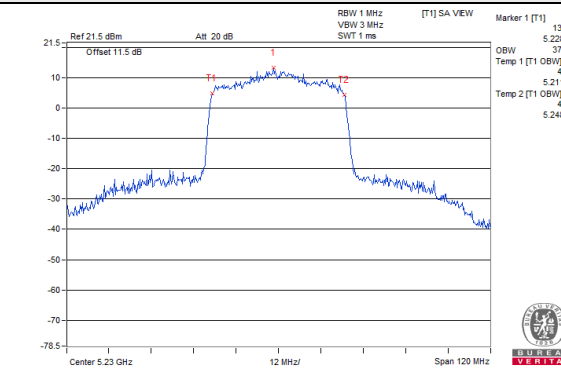
802.11ax (HE20) / Chain 0 / CH 48



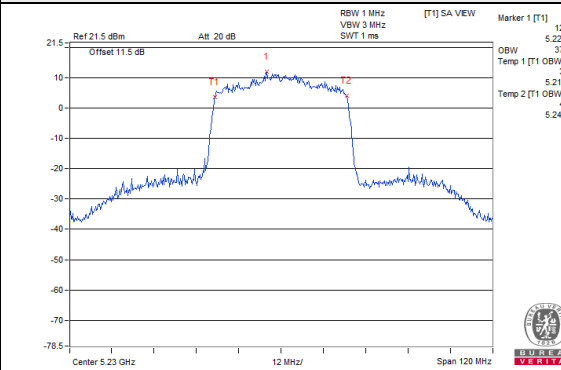
802.11ax (HE20) / Chain 1 / CH 48



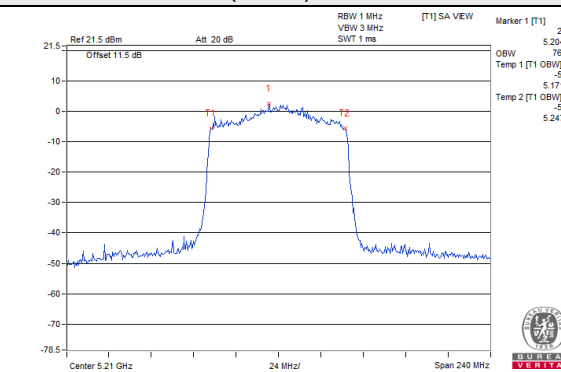
802.11ax (HE40) / Chain 0 / CH 46



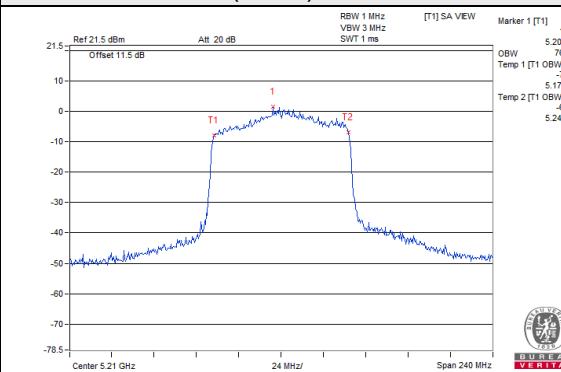
802.11ax (HE40) / Chain 1 / CH 46



802.11ax (HE80) / Chain 0 / CH 42

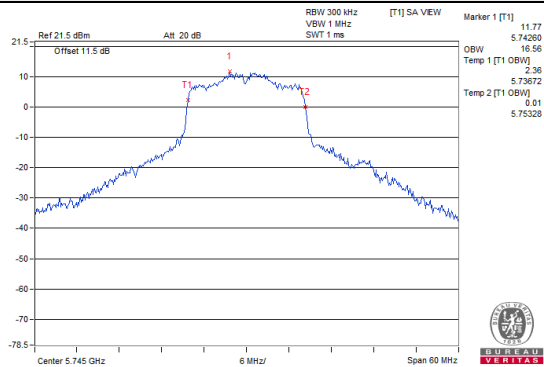


802.11ax (HE80) / Chain 1 / CH 42

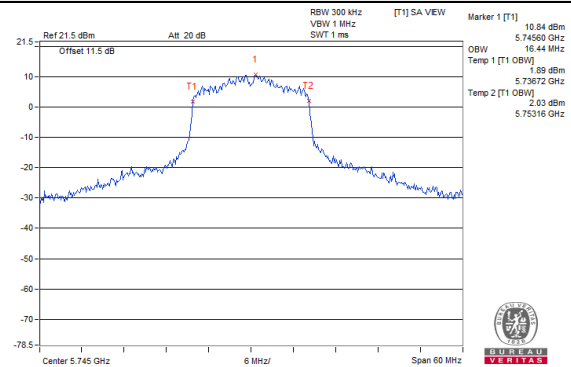


Spectrum Plot for near By DFS Band

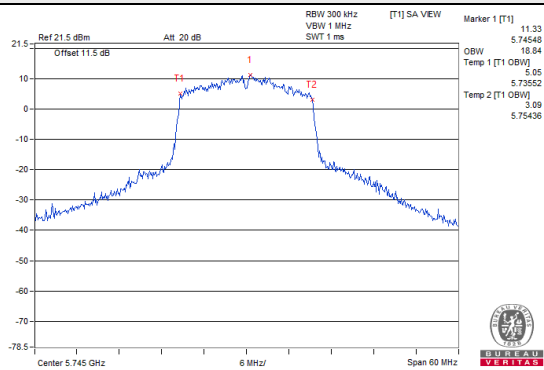
802.11a / Chain 0 / CH 149



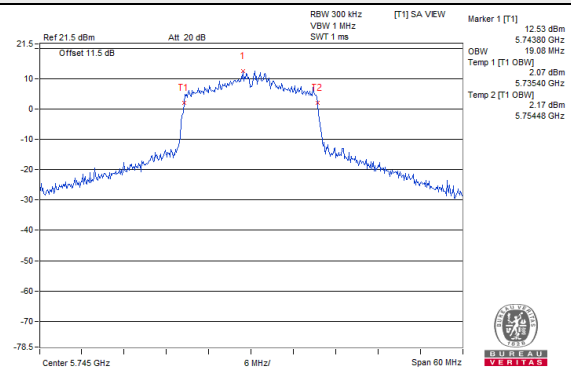
802.11ax / Chain 1 / CH 149



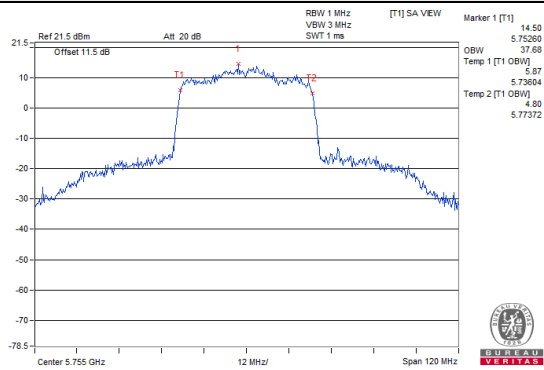
802.11ax (HE20) / Chain 0 / CH 149



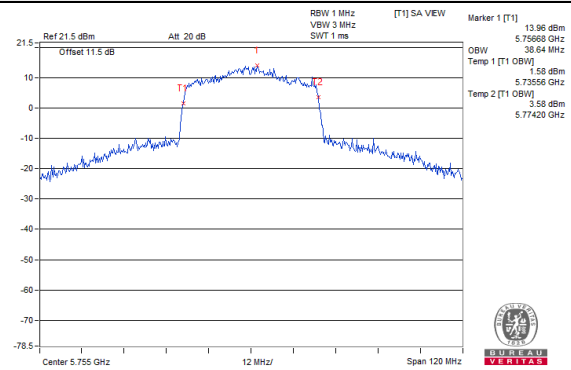
802.11ax (HE20) / Chain 1 / CH 149



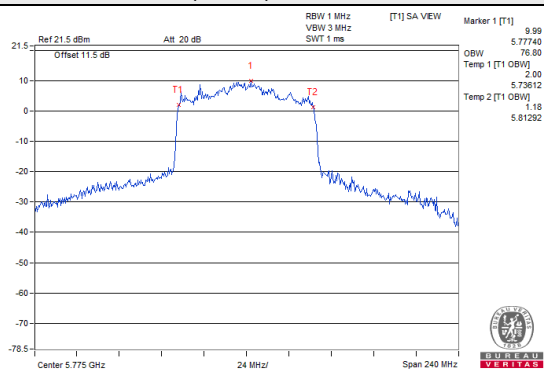
802.11ax (HE40) / Chain 0 / CH 151



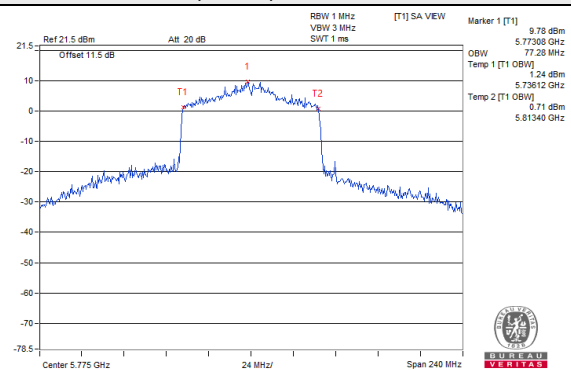
802.11ax (HE40) / Chain 1 / CH 151



802.11ax (HE80) / Chain 0 / CH 155



802.11ax (HE80) / Chain 1 / CH 155

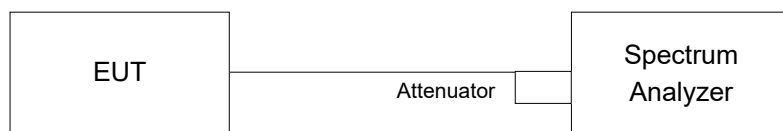


4.5 Peak Power Spectral Density Measurement

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-1

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).

For U-NII-3 band

Duty cycle <98%

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW ≥ 1 MHz, Detector = RMS
- 3) Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 4) Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
- 5) Sweep time = auto, trigger set to "free run".
- 6) Trace average at least 100 traces in power averaging mode.
- 7) 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-1

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				
36	5180	3.22	2.52	0.25	6.14	14.18	Pass
40	5200	5.02	4.16	0.25	7.87	14.18	Pass
48	5240	6.02	5.04	0.25	8.82	14.18	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.
- 5180-5250MHz: Directional gain = $5.81\text{dBi} + 10\log(2) = 8.82\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.82 - 6) = 14.18\text{dBm}$.
- 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				
36	5180	2.45	1.68	0.40	5.49	14.18	Pass
40	5200	4.96	4.06	0.40	7.94	14.18	Pass
48	5240	4.99	4.09	0.40	7.97	14.18	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.
- 5180-5250MHz: Directional gain = $5.81\text{dBi} + 10\log(2) = 8.82\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.82 - 6) = 14.18\text{dBm}$.
- 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				
38	5190	-5.44	-6.19	0.42	-2.37	14.18	Pass
46	5230	0.44	-0.67	0.42	3.35	14.18	Pass

Note:

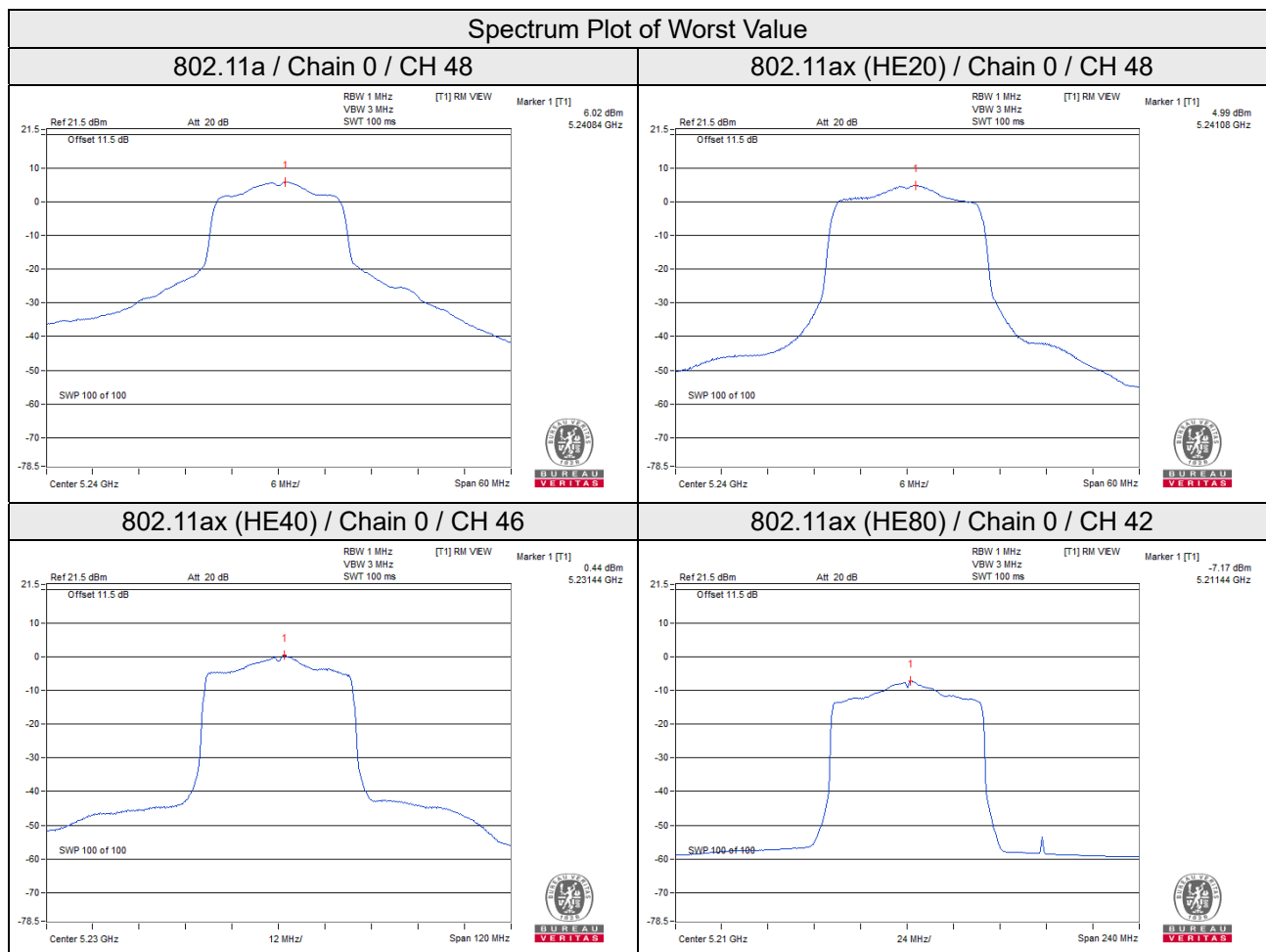
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180-5250MHz: Directional gain = $5.81\text{dBi} + 10\log(2) = 8.82\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.82 - 6) = 14.18\text{dBm}$.
- 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				
42	5210	-7.17	-7.92	0.46	-4.06	14.18	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.
- 5180-5250MHz: Directional gain = $5.81\text{dBi} + 10\log(2) = 8.82\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.82 - 6) = 14.18\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	1.75	3.97	3.01	0.25	7.23	26.99	Pass
	157	5785	1.87	4.09	3.01	0.25	7.35	26.99	Pass
	165	5825	1.77	3.99	3.01	0.25	7.25	26.99	Pass
1	149	5745	1.01	3.23	3.01	0.25	6.49	26.99	Pass
	157	5785	1.04	3.26	3.01	0.25	6.52	26.99	Pass
	165	5825	0.96	3.18	3.01	0.25	6.44	26.99	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (N_{ANT}) dB.
2. Directional gain = 6.00dBi + 10log(2)=9.01dBi > 6dBi, so the power density limit shall be reduced to 30 - (9.01 - 6) =26.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	0.26	2.48	3.01	0.40	5.89	26.99	Pass
	157	5785	0.35	2.57	3.01	0.40	5.98	26.99	Pass
	165	5825	0.20	2.42	3.01	0.40	5.83	26.99	Pass
1	149	5745	-0.71	1.51	3.01	0.40	4.92	26.99	Pass
	157	5785	-0.67	1.55	3.01	0.40	4.96	26.99	Pass
	165	5825	-0.74	1.48	3.01	0.40	4.89	26.99	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (N_{ANT}) dB.
2. Directional gain = 6.00dBi + 10log(2)=9.01dBi > 6dBi, so the power density limit shall be reduced to 30 - (9.01 - 6) =26.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-2.82	-0.60	3.01	0.42	2.83	26.99	Pass
	159	5795	-2.80	-0.58	3.01	0.42	2.85	26.99	Pass
1	151	5755	-3.72	-1.50	3.01	0.42	1.93	26.99	Pass
	159	5795	-3.71	-1.49	3.01	0.42	1.94	26.99	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add $10 \log (N_{ANT})$ dB.
2. Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE80)

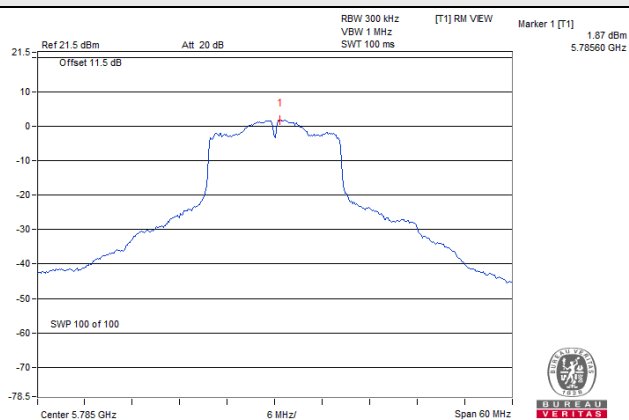
TX chain	Chan.	Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-6.29	-4.07	3.01	0.46	-0.60	26.99	Pass
1	155	5775	-6.85	-4.63	3.01	0.46	-1.16	26.99	Pass

Note:

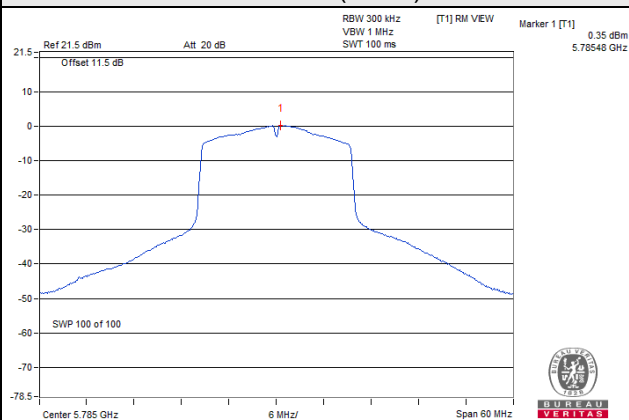
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add $10 \log (N_{ANT})$ dB.
2. Directional gain = $6.00\text{dBi} + 10\log(2)=9.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (9.01 - 6) = 26.99\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

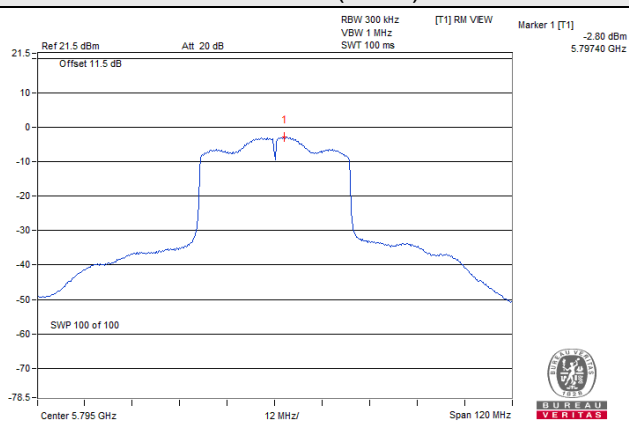
802.11a



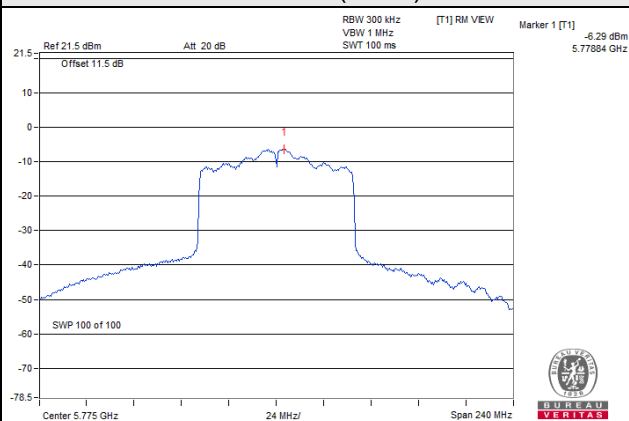
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

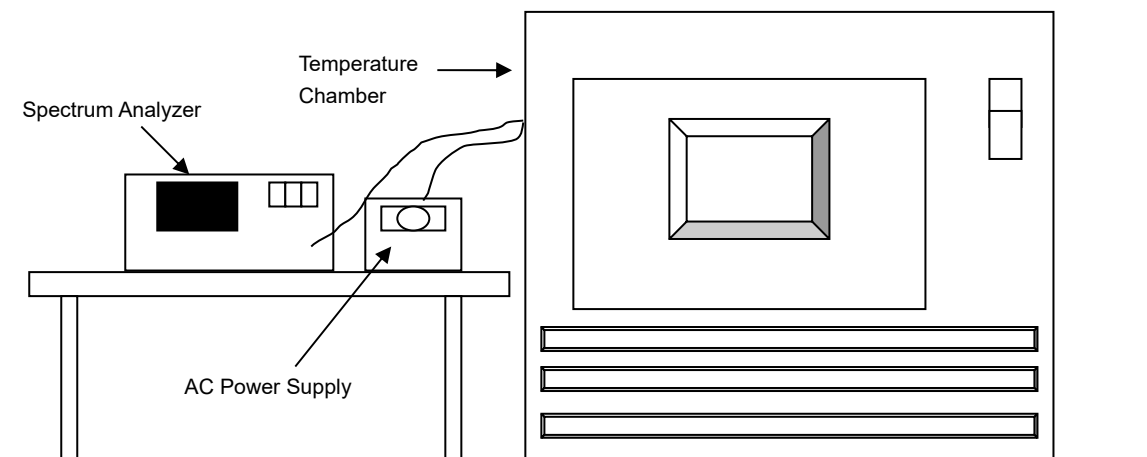


4.6 Frequency Stability

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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 01, 2022	May 31, 2023
Standard Temperature And Humidity Chamber TERCHY	MHU-225AU	920842	Jun. 21, 2022	Jun. 20, 2023
Three-phase coupling / decoupling network TESEQ	CDN 3063	4006	Mar. 08, 2022	Mar. 07, 2023
AC Power Supply Extech	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.
2. Tested date: Jul. 22, 2022

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 every 10 degrees reduction until the lowest temperature achieved.
- 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

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
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
70	120	5180.0119	Pass	5180.0117	Pass	5180.0128	Pass	5180.0116	Pass
60	120	5180.0117	Pass	5180.0122	Pass	5180.0134	Pass	5180.0116	Pass
50	120	5180.0029	Pass	5180.0021	Pass	5180.0022	Pass	5180.0051	Pass
40	120	5180.0034	Pass	5179.9990	Pass	5180.0001	Pass	5180.0039	Pass
30	120	5179.9926	Pass	5179.9938	Pass	5179.9937	Pass	5179.9927	Pass
20	120	5179.9940	Pass	5179.9921	Pass	5179.9922	Pass	5179.9925	Pass
10	120	5180.0263	Pass	5180.0234	Pass	5180.0265	Pass	5180.0245	Pass
0	120	5180.0219	Pass	5180.0228	Pass	5180.0220	Pass	5180.0210	Pass
-10	120	5179.9889	Pass	5179.9913	Pass	5179.9875	Pass	5179.9874	Pass
-20	120	5180.0059	Pass	5180.0066	Pass	5180.0037	Pass	5180.0045	Pass
-30	120	5180.0237	Pass	5180.0196	Pass	5180.0196	Pass	5180.0209	Pass

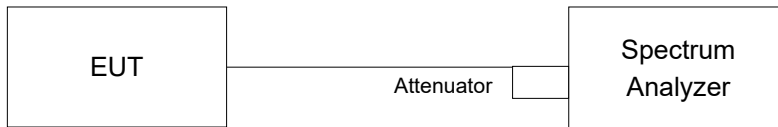
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9946	Pass	5179.9933	Pass	5179.9916	Pass	5179.9955	Pass
	120	5179.9940	Pass	5179.9921	Pass	5179.9922	Pass	5179.9925	Pass
	102	5179.9849	Pass	5179.9886	Pass	5179.9866	Pass	5179.9893	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.14	15.15	0.5	Pass
157	5785	15.13	15.15	0.5	Pass
165	5825	15.17	15.17	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.17	15.16	0.5	Pass
157	5785	15.14	15.15	0.5	Pass
165	5825	15.04	15.15	0.5	Pass

802.11ax (HE40)

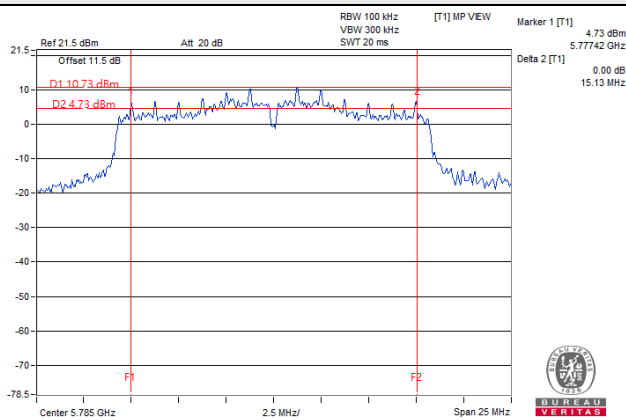
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	33.85	33.89	0.5	Pass
159	5795	35.14	35.17	0.5	Pass

802.11ax (HE80)

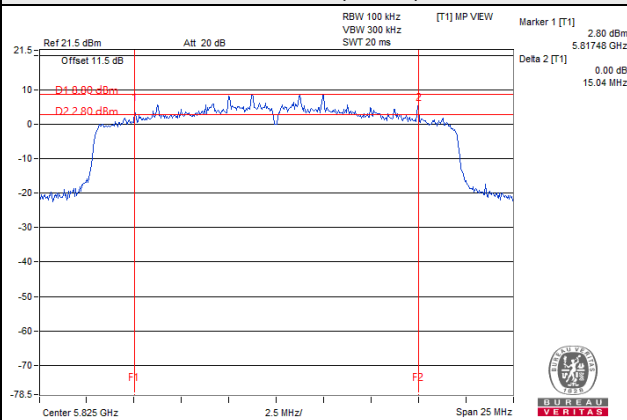
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	69.03	70.12	0.5	Pass

Spectrum Plot of Worst Value

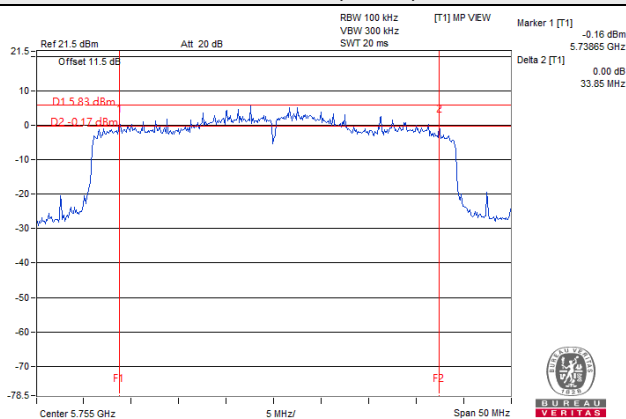
802.11a



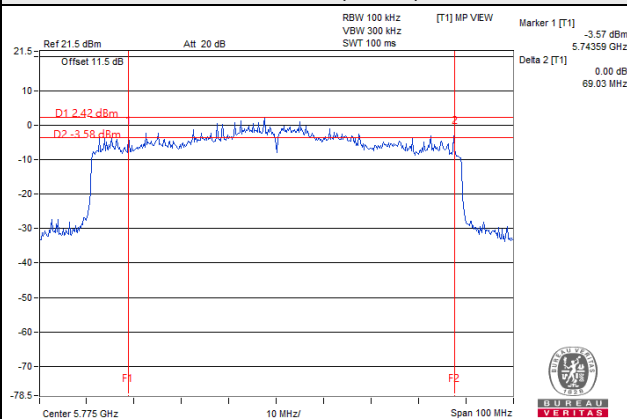
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)

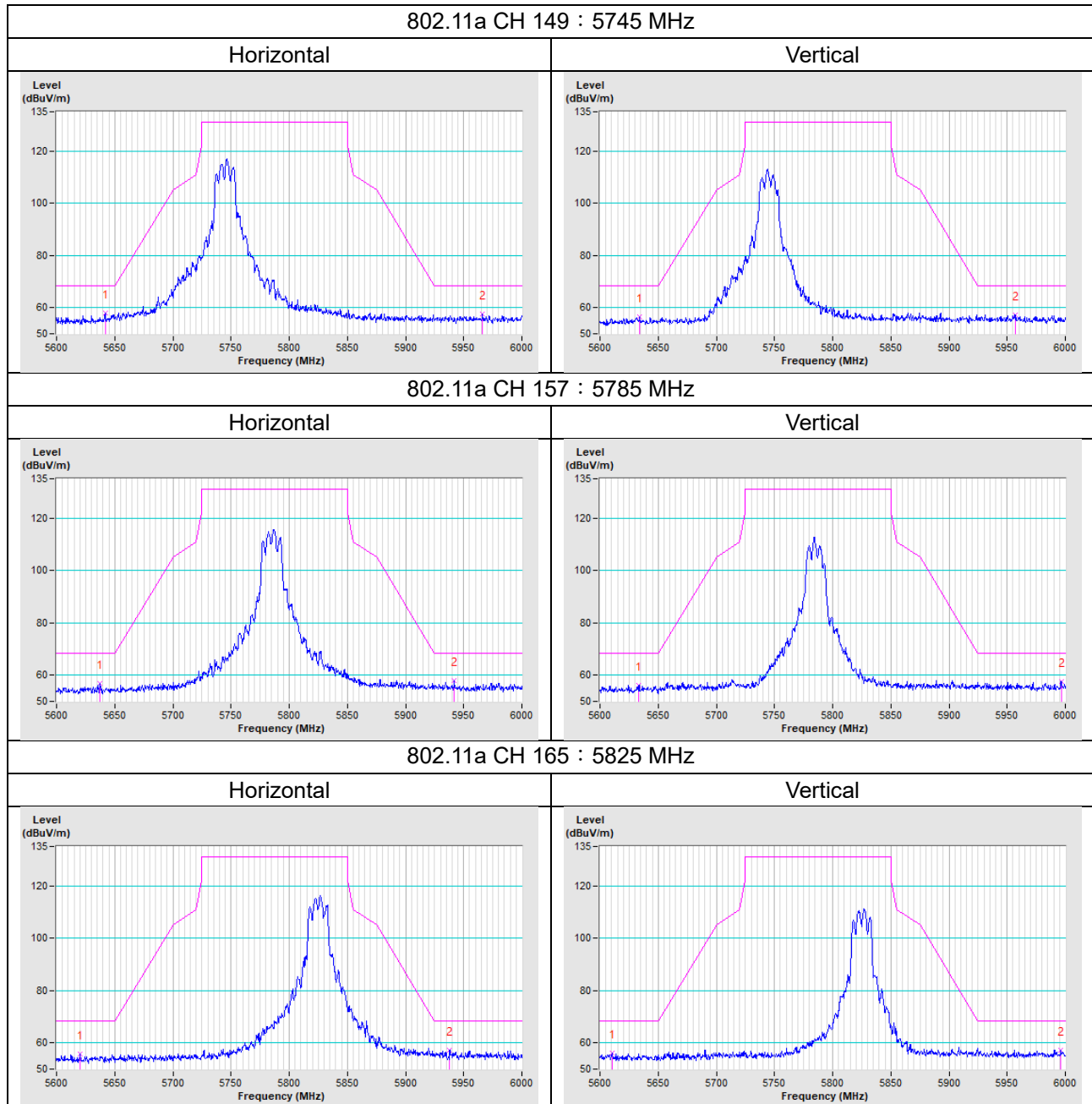


5 Pictures of Test Arrangements

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

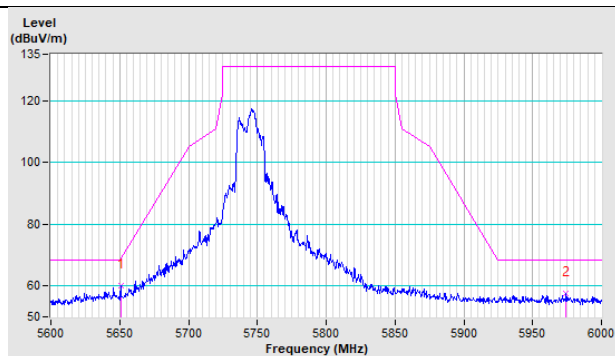
Annex A - Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

Mode A1

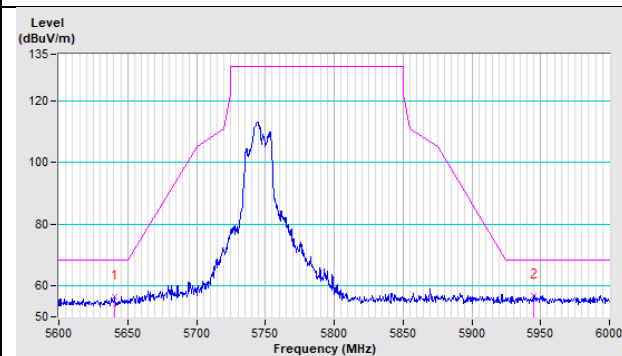


802.11ax (HE20) CH 149 : 5745 MHz

Horizontal

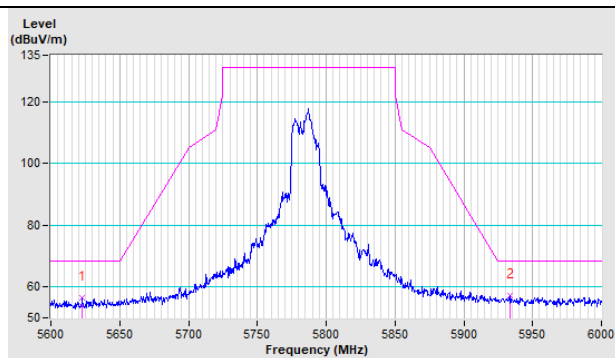


Vertical

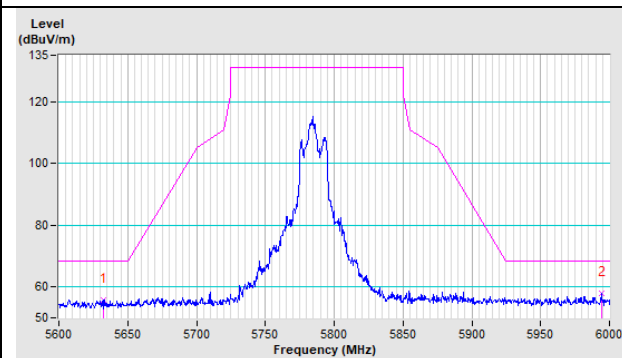


802.11ax (HE20) CH 157 : 5785 MHz

Horizontal

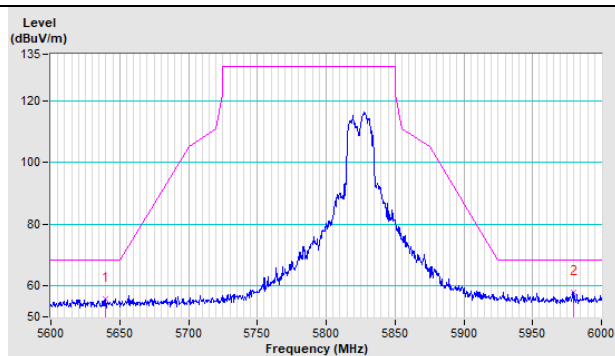


Vertical

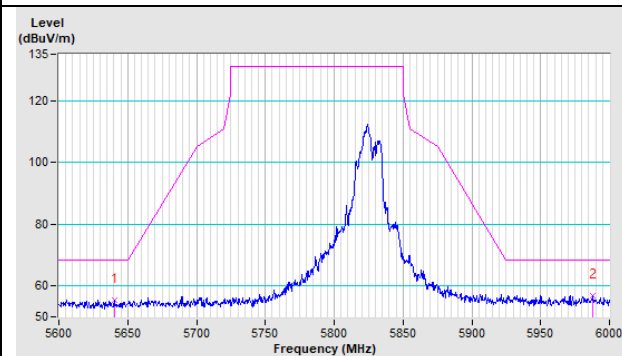


802.11ax (HE20) CH 165 : 5825 MHz

Horizontal

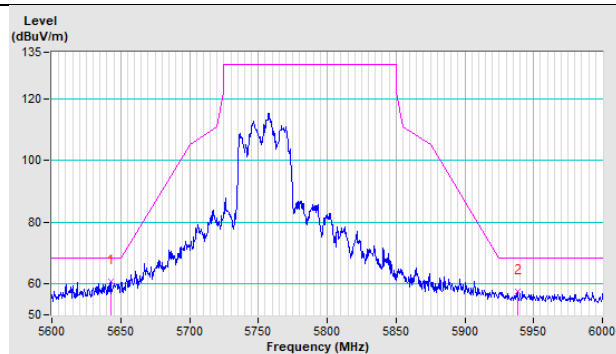


Vertical

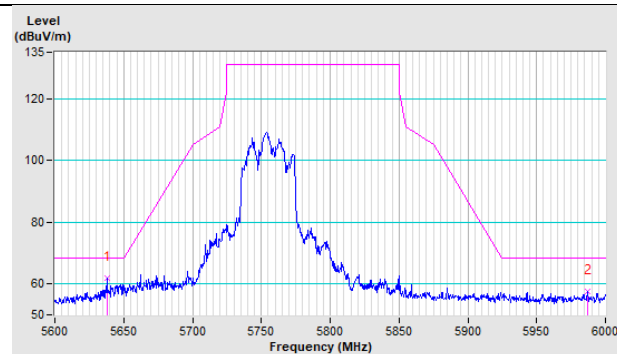


802.11ax (HE40) CH 151 : 5755 MHz

Horizontal

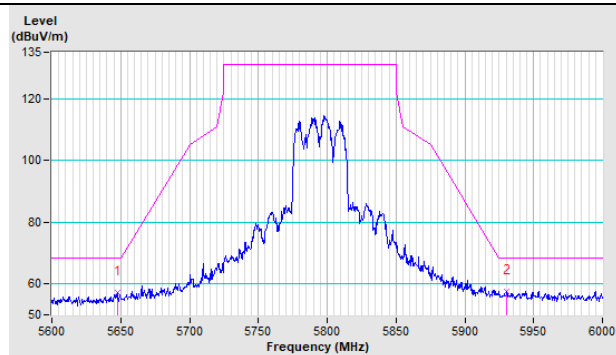


Vertical

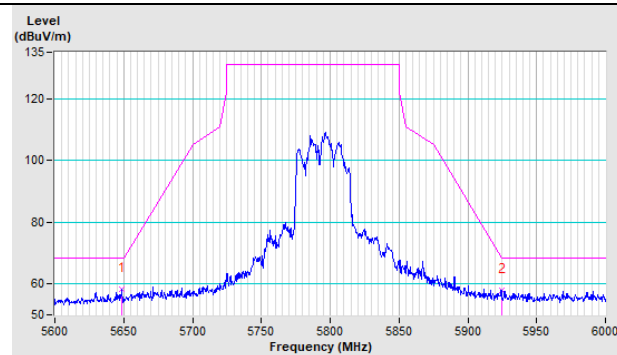


802.11ax (HE40) CH 159 : 5795 MHz

Horizontal

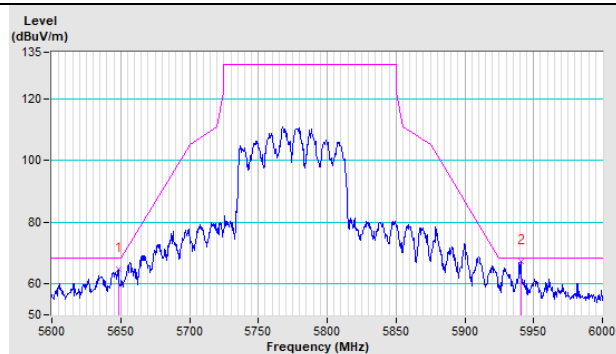


Vertical

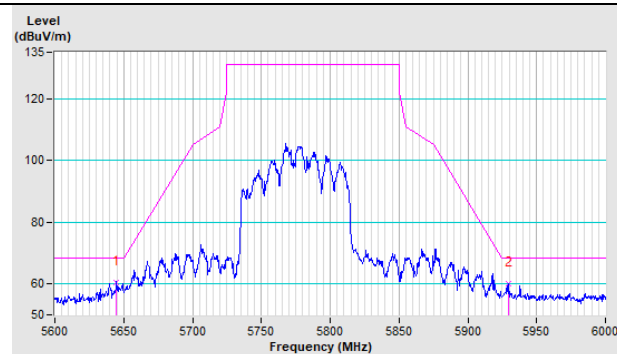


802.11ax (HE80) CH 155 : 5775 MHz

Horizontal



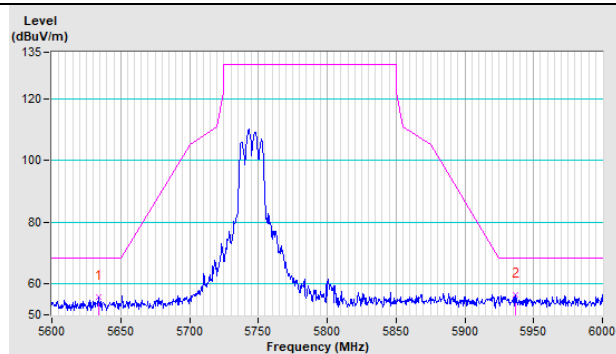
Vertical



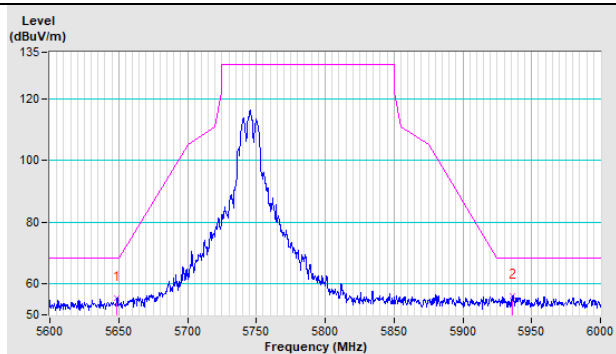
Mode B1

802.11a CH 149 : 5745 MHz

Horizontal

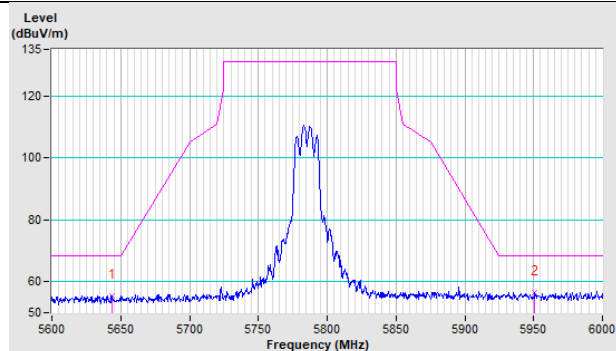


Vertical

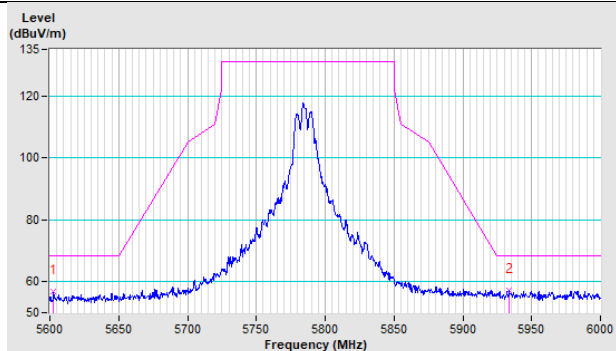


802.11a CH 157 : 5785 MHz

Horizontal

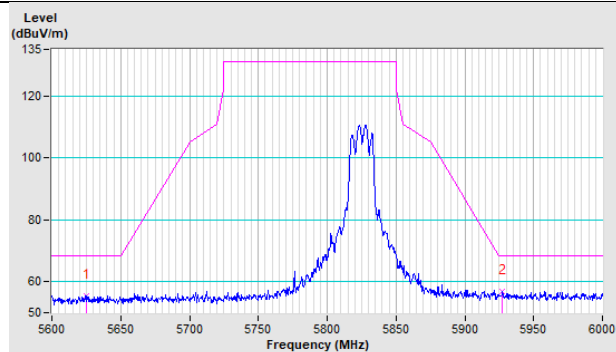


Vertical

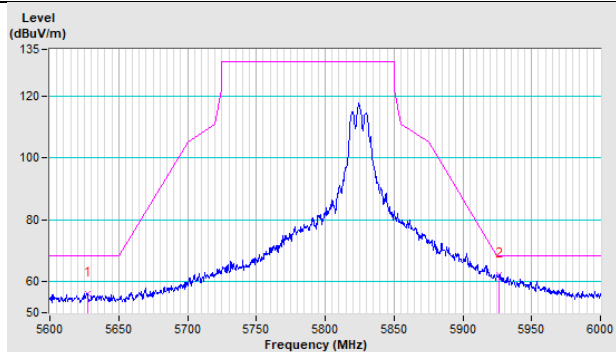


802.11a CH 165 : 5825 MHz

Horizontal

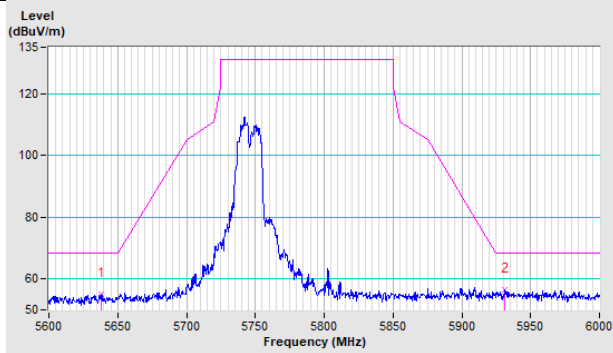


Vertical

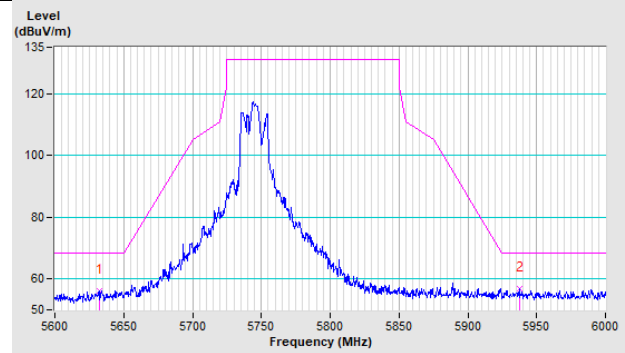


802.11ax (HE20) CH 149 : 5745 MHz

Horizontal

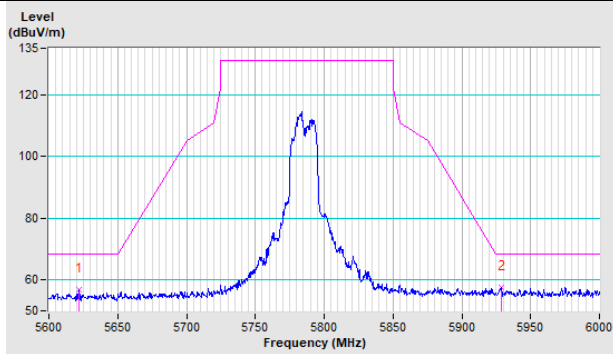


Vertical

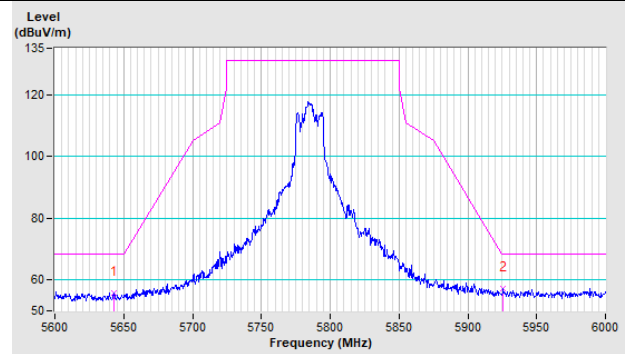


802.11ax (HE20) CH 157 : 5785 MHz

Horizontal

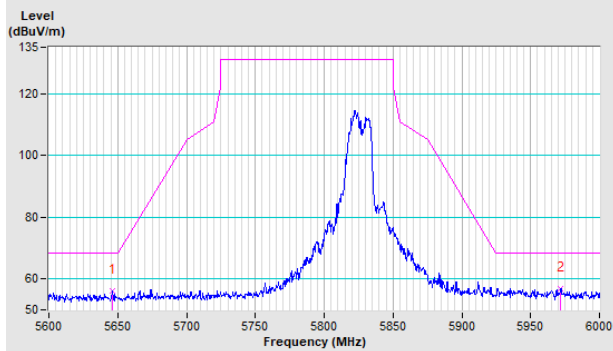


Vertical

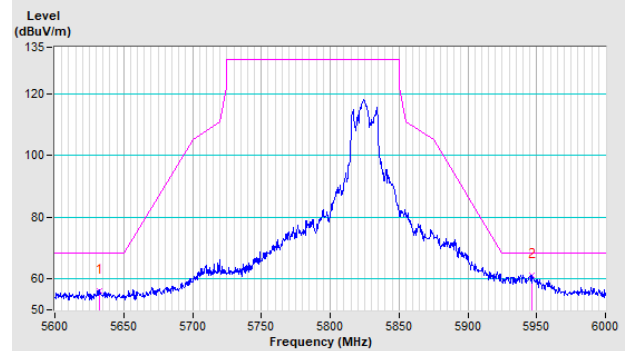


802.11ax (HE20) CH 165 : 5825 MHz

Horizontal

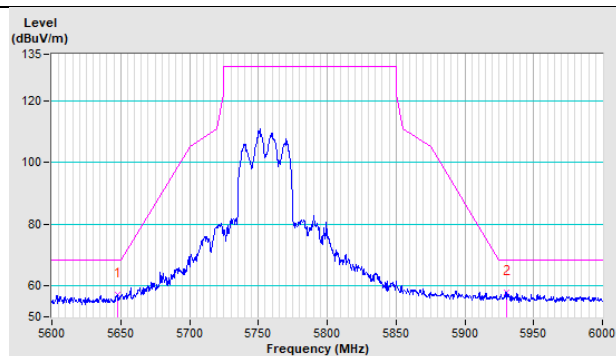


Vertical

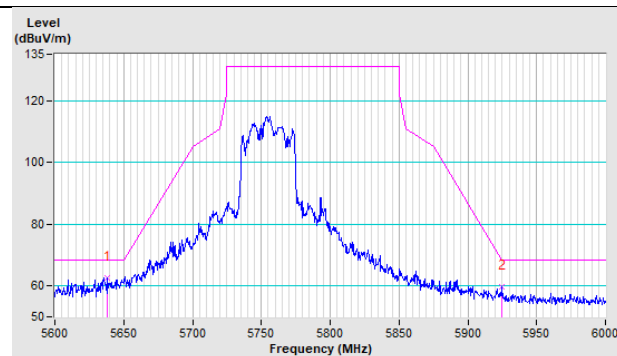


802.11ax (HE40) CH 151 : 5755 MHz

Horizontal

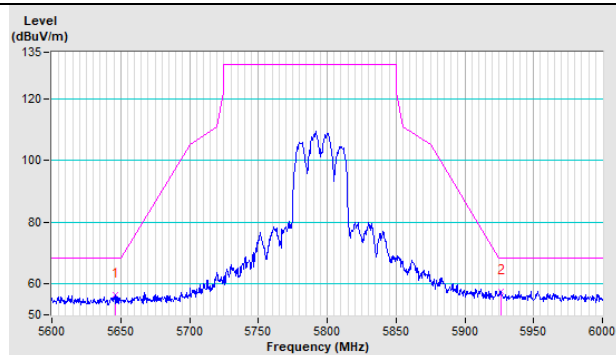


Vertical

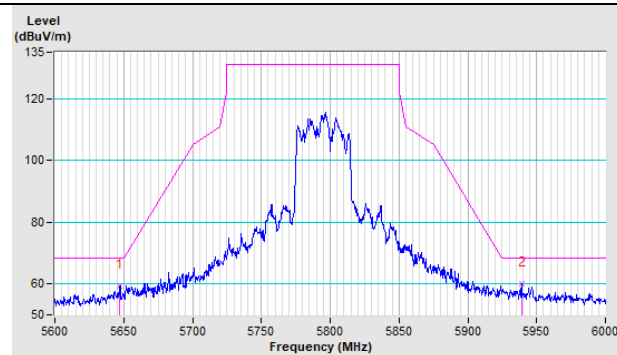


802.11ax (HE40) CH 159 : 5795 MHz

Horizontal

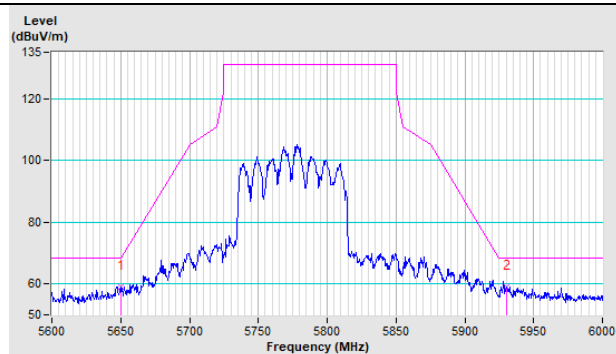


Vertical

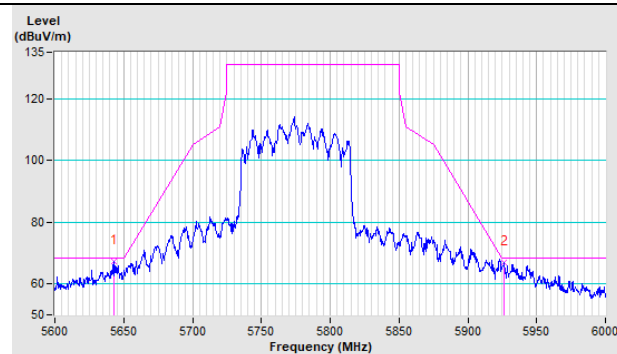


802.11ax (HE80) CH 155 : 5775 MHz

Horizontal

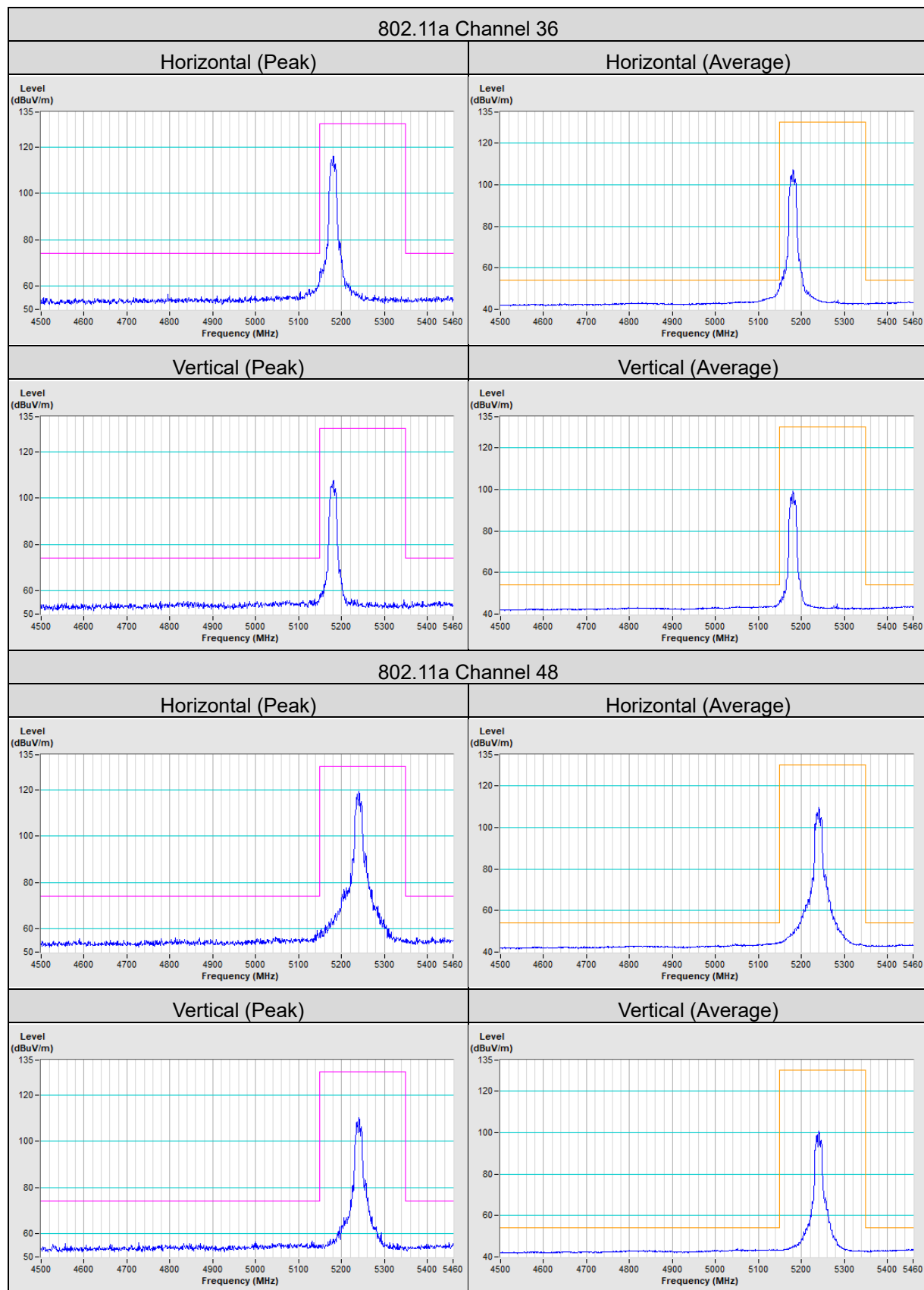


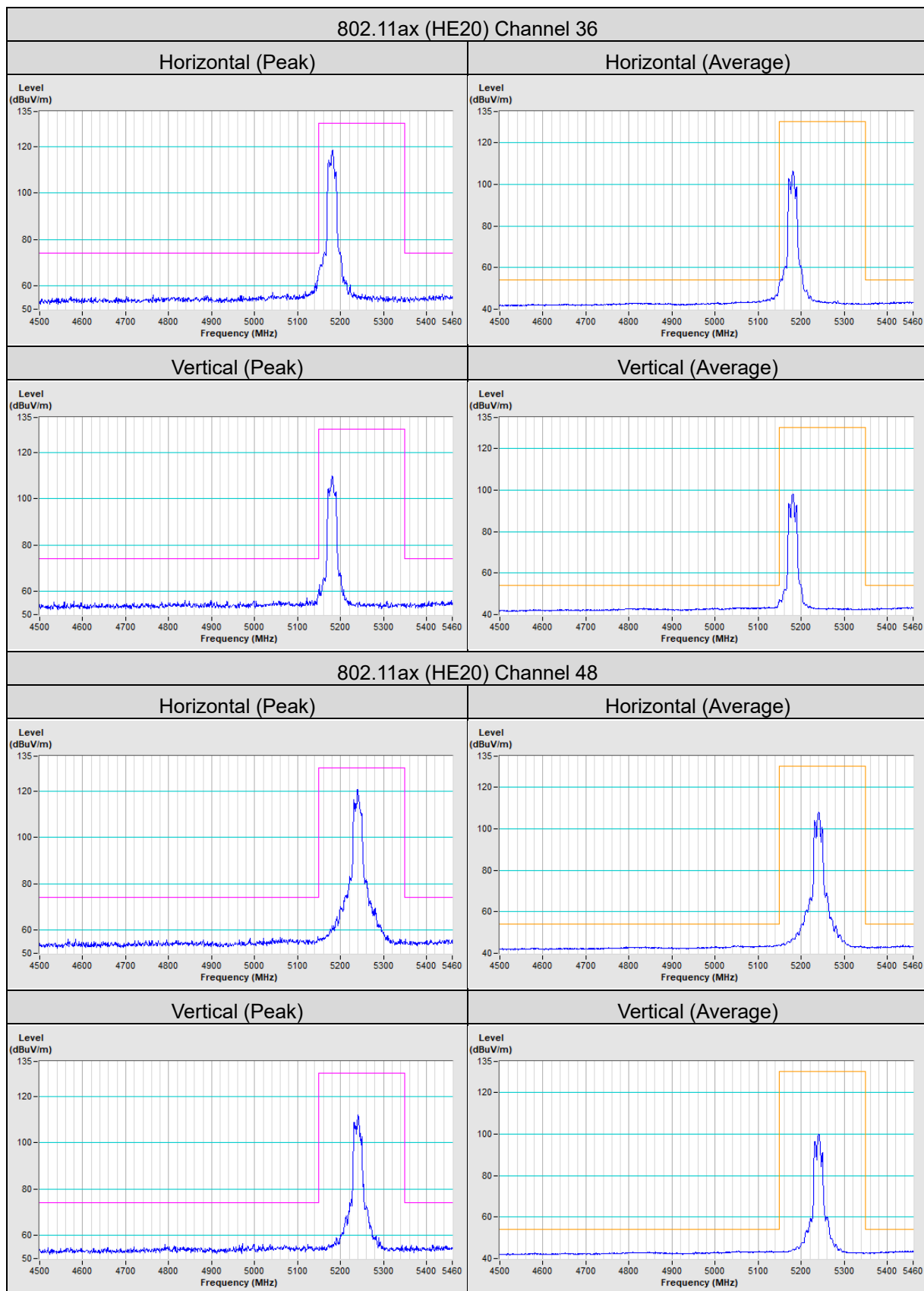
Vertical

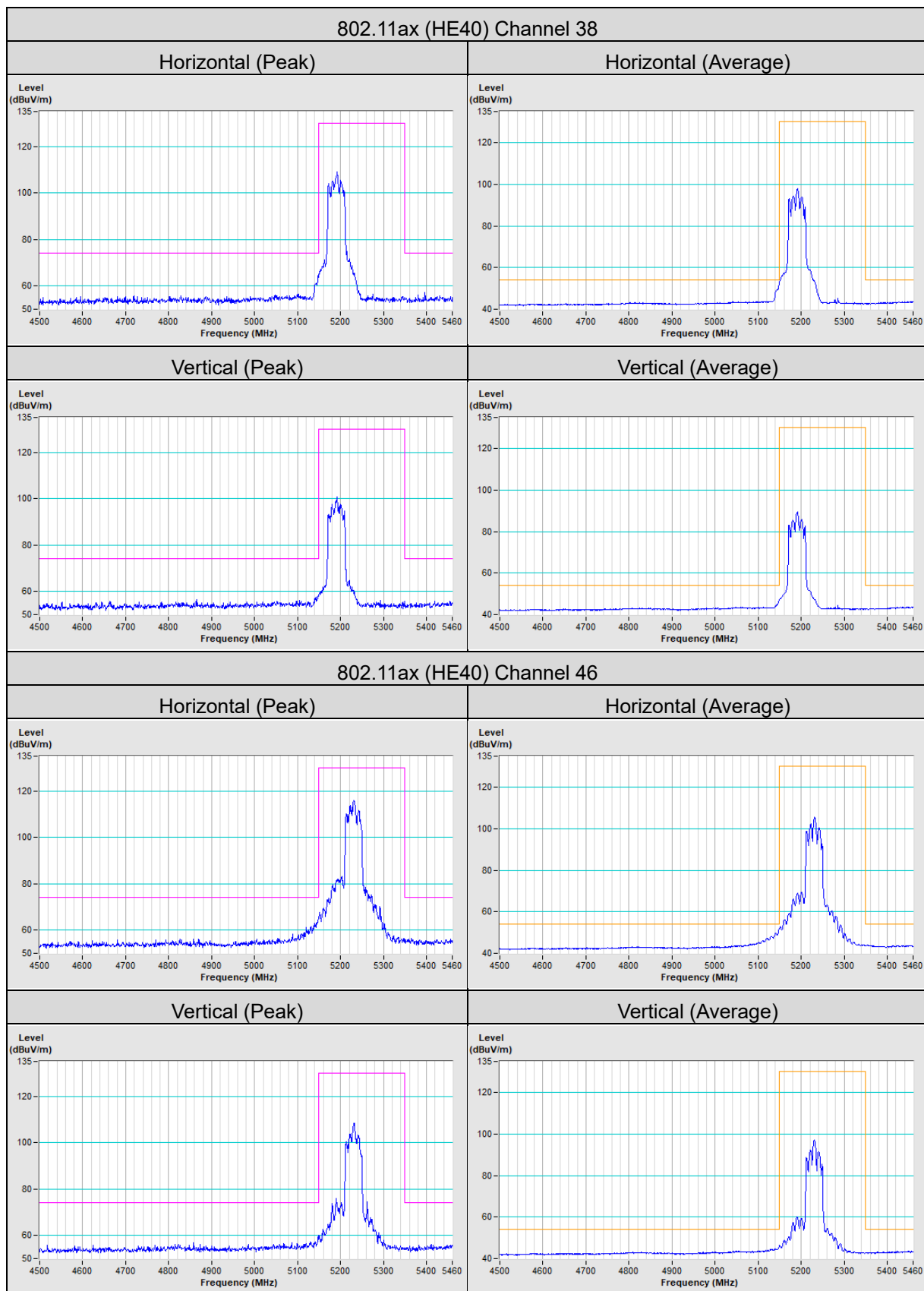


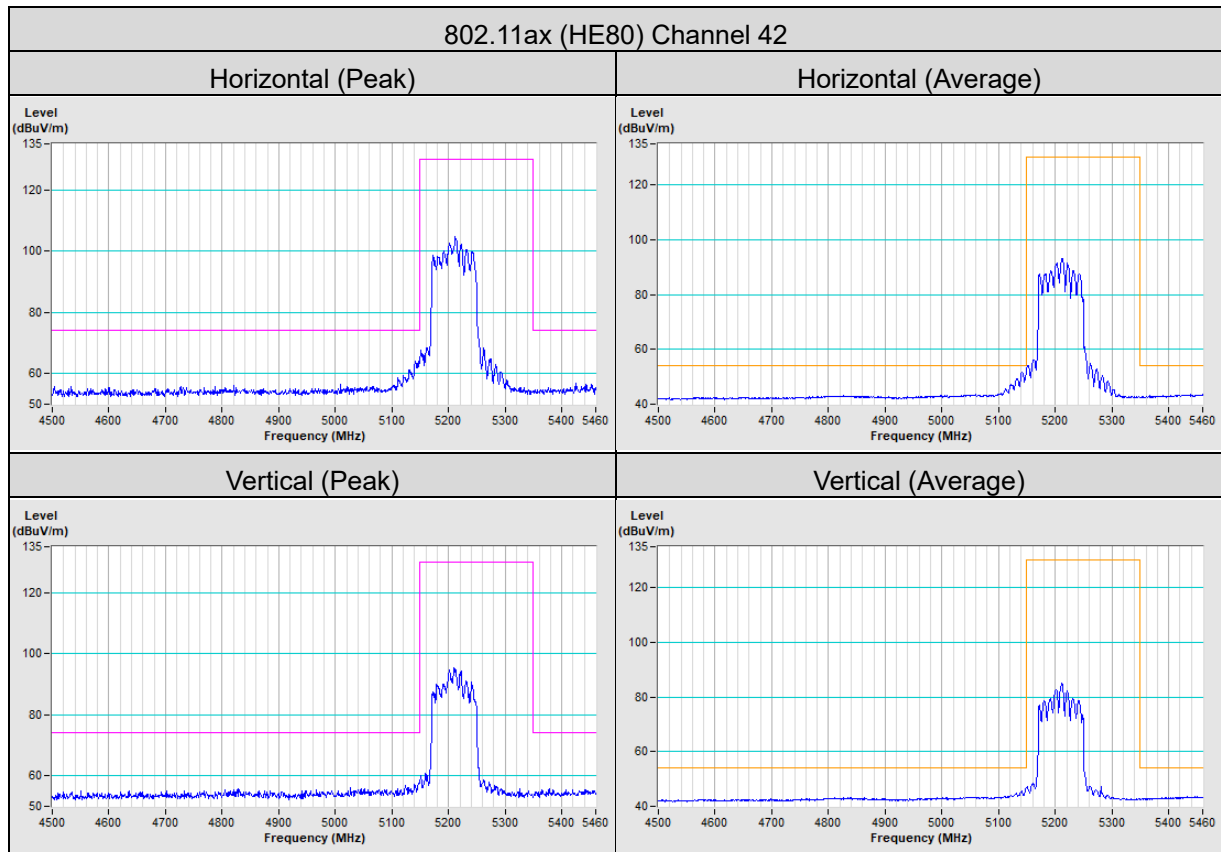
Annex B - Band Edge Measurement

Mode A1

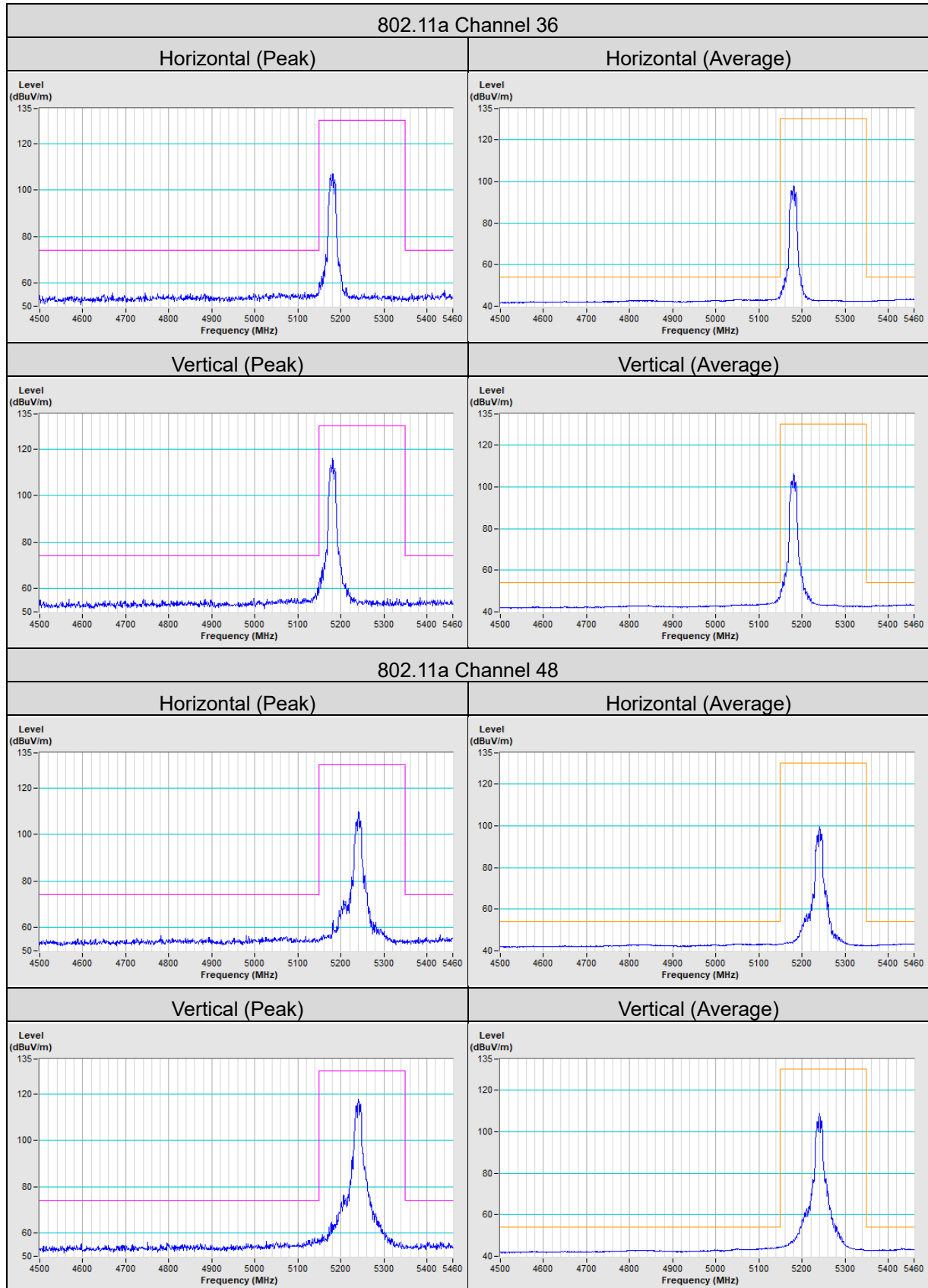


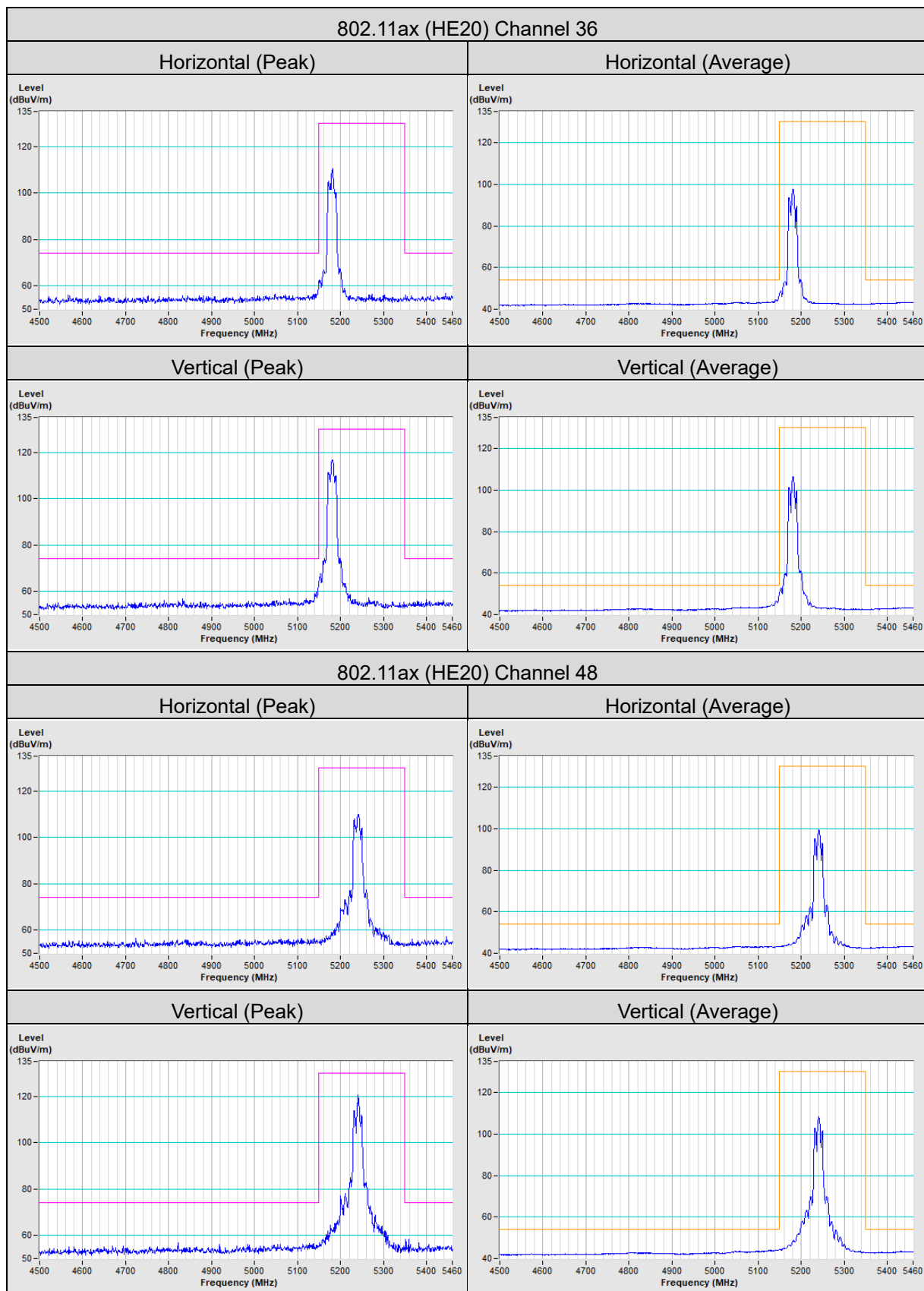


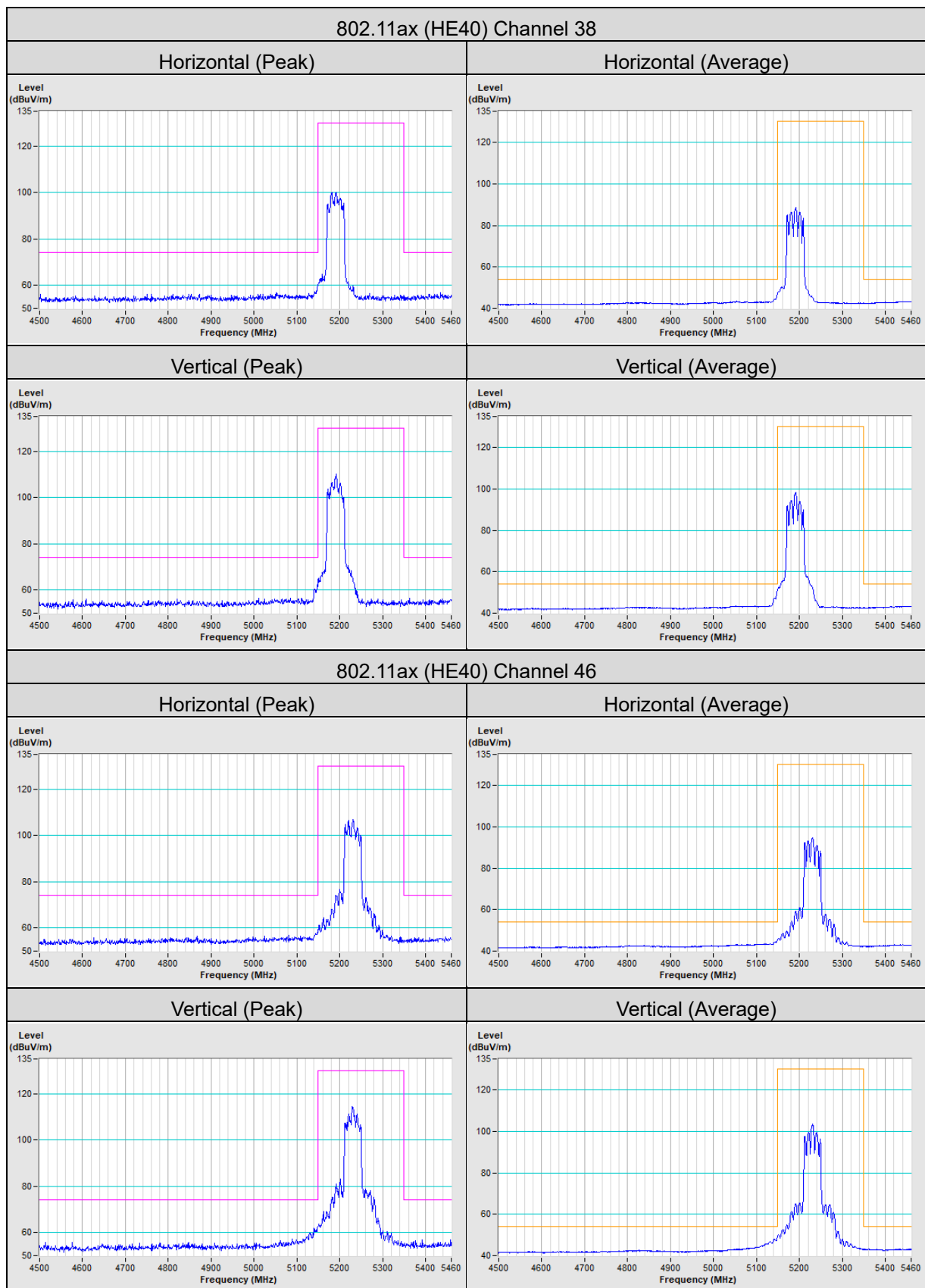


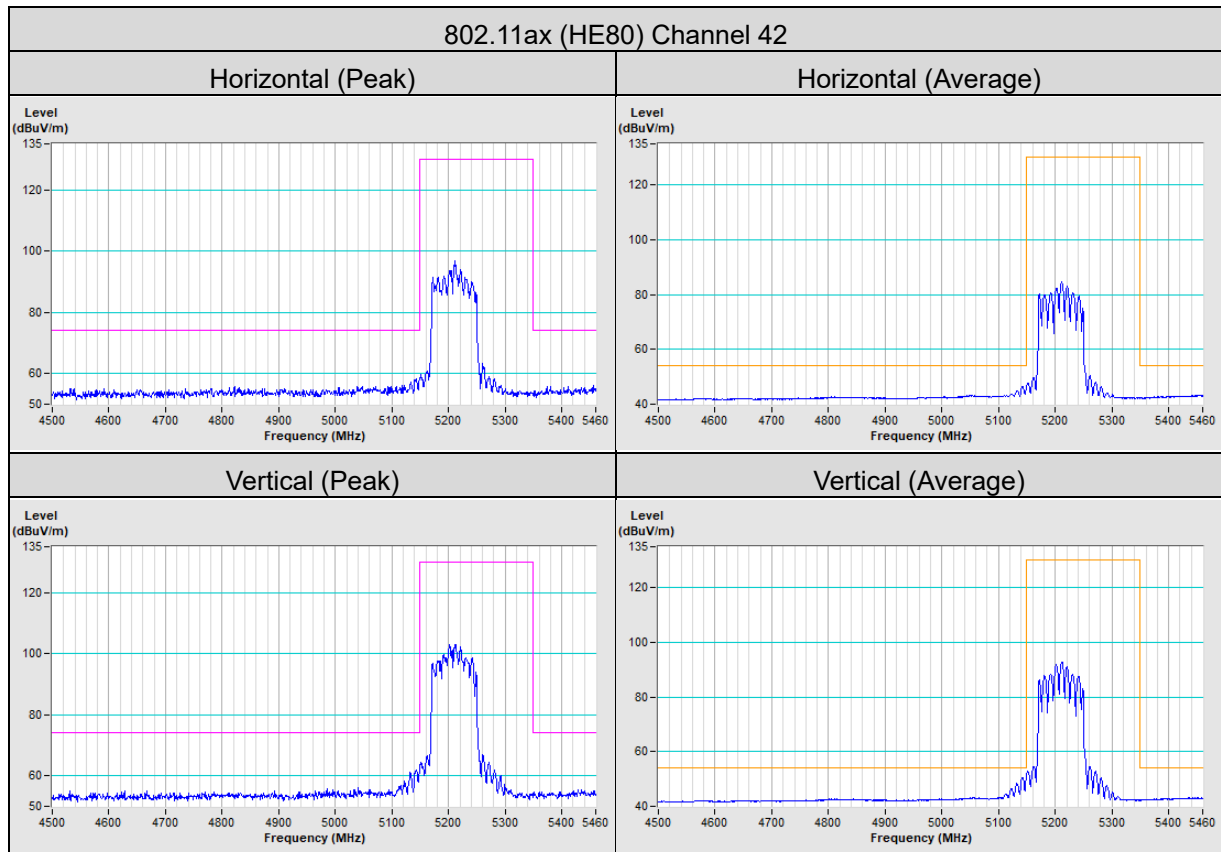


Mode B1









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.

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

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Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

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Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---