

FCC Test Report

Report No.: RFBAOZ-WTW-P21060679-1

FCC ID: 2AHKM-ARIA3411

Test Model: ARIA3411

Series Model: OS3411

Received Date: 2021/6/22

Test Date: 2021/8/30 ~ 2021/9/27

Issued Date: 2021/11/30

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**FCC Registration /
Designation Number:** 723255 / TW2022



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Table of Contents

Release Control Record	4
1 Certificate of Conformity.....	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information.....	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	10
3.2.1 Test Mode Applicability and Tested Channel Detail	11
3.3 Duty Cycle of Test Signal	14
3.4 Description of Support Units	15
3.4.1 Configuration of System under Test	16
3.5 General Description of Applied Standard and references	17
4 Test Types and Results	18
4.1 Radiated Emission and Bandedge Measurement.....	18
4.1.1 Limits of Radiated Emission and Bandedge Measurement	18
4.1.2 Test Instruments	19
4.1.3 Test Procedure	21
4.1.4 Deviation from Test Standard	22
4.1.5 Test Setup.....	22
4.1.6 EUT Operating Condition	23
4.1.7 Test Results	24
4.2 Conducted Emission Measurement	44
4.2.1 Limits of Conducted Emission Measurement	44
4.2.2 Test Instruments	44
4.2.3 Test Procedure	45
4.2.4 Deviation from Test Standard	45
4.2.5 Test Setup.....	45
4.2.6 EUT Operating Condition	45
4.2.7 Test Results	46
4.3 Transmit Power Measurement	48
4.3.1 Limits of Transmit Power Measurement	48
4.3.2 Test Setup.....	48
4.3.3 Test Instruments	48
4.3.4 Test Procedure	48
4.3.5 Deviation from Test Standard	48
4.3.6 EUT Operating Condition	48
4.3.7 Test Results	49
4.4 Occupied Bandwidth Measurement	58
4.4.1 Test Setup.....	58
4.4.2 Test Instruments	58
4.4.3 Test Procedure	58
4.4.4 Test Results	59
4.5 Peak Power Spectral Density Measurement	66
4.5.1 Limits of Peak Power Spectral Density Measurement	66
4.5.2 Test Setup.....	66
4.5.3 Test Instruments	66
4.5.4 Test Procedure	66
4.5.5 Deviation from Test Standard	67
4.5.6 EUT Operating Condition	67
4.5.7 Test Results	68
4.6 Frequency Stability Measurement.....	74
4.6.1 Limits of Frequency Stability Measurement	74

4.6.2	Test Setup.....	74
4.6.3	Test Instruments	74
4.6.4	Test Procedure	74
4.6.5	Deviation from Test Standard	74
4.6.6	EUT Operating Condition	74
4.6.7	Test Results	75
4.7	6dB Bandwidth Measurement	76
4.7.1	Limits of 6dB Bandwidth Measurement	76
4.7.2	Test Setup.....	76
4.7.3	Test Instruments	76
4.7.4	Test Procedure	76
4.7.5	Deviation from Test Standard	76
4.7.6	EUT Operating Condition	76
4.7.7	Test Results	77
5	Pictures of Test Arrangements.....	79
	Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)	80
	Annex B- Band-edge measurement (For U-NII-1 band)	83
	Appendix – Information of the Testing Laboratories	87

Release Control Record

Issue No.	Description	Date Issued
RFBAOZ-WTW-P21060679-1	Original release.	2021/11/30

1 Certificate of Conformity

Product: Tri-band WiFi Extender

Brand: hitron

Test Model: ARIA3411

Series Model: OS3411

Sample Status: Engineering sample

Applicant: Hitron Technologies Inc.

Test Date: 2021/8/30 ~ 2021/9/27

Standard: 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 EMC characteristics under the conditions specified in this report.

Prepared by : Cherry Chuo , **Date:** 2021/11/30
Cherry Chuo / Specialist

Approved by : Clark Lin , **Date:** 2021/11/30
Clark Lin / Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -12.93dB at 19.54297MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.4dB at 5147.90MHz and 5150.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	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 ipex(MHF) not a standard connector.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
2. 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.
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	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.1 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Tri-band WiFi Extender
Brand	hitron
Test Model	ARIA3411
Series Model	OS3411
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc from power adapter
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7 Mbps 802.11ax: up to 1201.0 Mbps
Operating Frequency	5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 80211ax (HE20): 9 802.11n (HT40), 802.11ac (VHT40), 80211ax (HE40): 4 802.11ac (VHT80), 80211ax (HE80): 2
Output Power	CDD Mode: 5.18 ~ 5.24 GHz (Master): 707.181 mW 5.18 ~ 5.24 GHz (Client): 245.803 mW 5.745 ~ 5.825 GHz: 795.324 mW Beamforming Mode: 5.18 ~ 5.24 GHz (Master): 633.537 mW 5.18 ~ 5.24 GHz (Client): 200.387 mW 5.745 ~ 5.825 GHz: 779 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	Yellow RJ45 Cable for ARIA3411 (Unshielded, 1.5M) x 1, White RJ45 Cable for OS3411 (Unshielded, 1.5M) x 1

Note:

1. The EUT has two model names which are identical to each other in all aspects except for the followings:

Model Name	Difference
ARIA3411	with black housing
OS3411	with white housing

Note: From the above models, model: **ARIA3411** was selected as representative model for the test and its data are recorded in this report.

2. The EUT has below radios as following table:

Radio 1	Radio 2	Radio 3	Radio 4
Bluetooth	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz

3. Simultaneously transmission condition.

Condition	Technology			
1	WLAN 2.4GHz	WLAN 5GHz	WLAN 6GHz	Bluetooth

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. For radiated emissions, the EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	Yellow RJ45 Cable
Mode B	White RJ45 Cable

From the above modes, the worst radiated emissions was found in **Mode A**. Therefore only the test data of the modes were recorded in this report.

5. The antennas provided to the EUT, please refer to the following table:

Antenna NO.	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type	Cable Length
1	RFPCA252525IMLB901	2.63	2.4~2.4835	printed PCB	ipex(MHF)	24cm
		4.02	5.15~5.85			
2	RFPCA282525IMLB901	2.6	2.4~2.4835	printed PCB	ipex(MHF)	24cm
		3.81	5.15~5.85			
3	RFPCA212009IMMB901	3.59	5.85~7.125	printed PCB	ipex(MHF)	10cm
4	RFPCA221508IMMB901	4.71	5.85~7.125	printed PCB	ipex(MHF)	7.5cm
5	RFPCA221514IMMB901	4.7	5.85~7.125	printed PCB	ipex(MHF)	13.5cm
6	RFPCA212009IMMB902	4.59	5.85~7.125	printed PCB	ipex(MHF)	8.5cm
7 (for BT)	RFPCA381007IMAB301	4.77	2.4~2.4835	printed PCB	ipex(MHF)	6.5cm

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

Brand	Model No.	Spec.	Description
APD	WA-30P12FU	Input: 100-240 Vac, 0.9 A Max, 50-60 Hz Output: 12 Vdc, 2.5 A DC output cable (Unshielded, 1.5 m)	Black (for model: ARIA3411) White (for model: OS3411)

7. The EUT incorporates a MIMO function:

5GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX

Note:

1. All of modulation mode support beamforming function except 802.11a modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), 802.11ac mode for 20MHz (40MHz, 80MHz) and 802.11ax mode for 20MHz (40MHz, 80MHz), therefore the manufacturer will control the power for 802.11n/ac mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)
8. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
9. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

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	5210 MHz

FOR 5745 ~ 5825MHz:

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

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

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

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

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

Channel	Frequency
155	5775 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz
PLC: Power Line Conducted Emission

RE<1G: Radiated Emission below 1GHz
APCM: Antenna Port Conducted Measurement

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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6Mb/s
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6Mb/s
802.11ax (HE20)	5180-5240	36 to 48	36, 40, 48	OFDMA	BPSK	MCS0
802.11ax (HE40)		38 to 46	38, 46	OFDMA	BPSK	MCS0
802.11ax (HE80)		42	42	OFDMA	BPSK	MCS0
802.11ax (HE20)	5745-5825	149 to 165	149, 157, 165	OFDMA	BPSK	MCS0
802.11ax (HE40)		151 to 159	151, 159	OFDMA	BPSK	MCS0
802.11ax (HE80)		155	155	OFDMA	BPSK	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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	165	OFDM	BPSK	6Mb/s

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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	165	OFDM	BPSK	6Mb/s

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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6Mb/s
802.11ac (VHT20) (output power only)		36 to 48	36, 40, 48	OFDM	BPSK	MCS0
802.11ac (VHT40) (output power only)		38 to 46	38, 46	OFDM	BPSK	MCS0
802.11ac (VHT80) (output power only)		42	42	OFDM	BPSK	MCS0
802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	BPSK	MCS0
802.11ax (HE40)		38 to 46	38, 46	OFDMA	BPSK	MCS0
802.11ax (HE80)		42	42	OFDMA	BPSK	MCS0
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6Mb/s
802.11ac (VHT20) (output power only)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
802.11ac (VHT40) (output power only)		151 to 159	151, 159	OFDM	BPSK	MCS0
802.11ac (VHT80) (output power only)		155	155	OFDM	BPSK	MCS0
802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	BPSK	MCS0
802.11ax (HE40)		151 to 159	151, 159	OFDMA	BPSK	MCS0
802.11ax (HE80)		155	155	OFDMA	BPSK	MCS0

Beamforming Mode (output power only)						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	MCS0
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	MCS0
802.11ac (VHT80)		42	42	OFDM	BPSK	MCS0
802.11ax (HE20)		36 to 48	36, 40, 48	OFDMA	BPSK	MCS0
802.11ax (HE40)		38 to 46	38, 46	OFDMA	BPSK	MCS0
802.11ax (HE80)		42	42	OFDMA	BPSK	MCS0
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	MCS0
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	MCS0
802.11ac (VHT80)		155	155	OFDM	BPSK	MCS0
802.11ax (HE20)		149 to 165	149, 157, 165	OFDMA	BPSK	MCS0
802.11ax (HE40)		151 to 159	151, 159	OFDMA	BPSK	MCS0
802.11ax (HE80)		155	155	OFDMA	BPSK	MCS0

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE $\geq$ 1G	25deg. C, 67%RH	120Vac, 60Hz	Sampson Chen
RE $<$ 1G	24deg. C, 63%RH	120Vac, 60Hz	Sampson Chen
PLC	29deg. C, 66%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Leon Dai

3.3 Duty Cycle of Test Signal

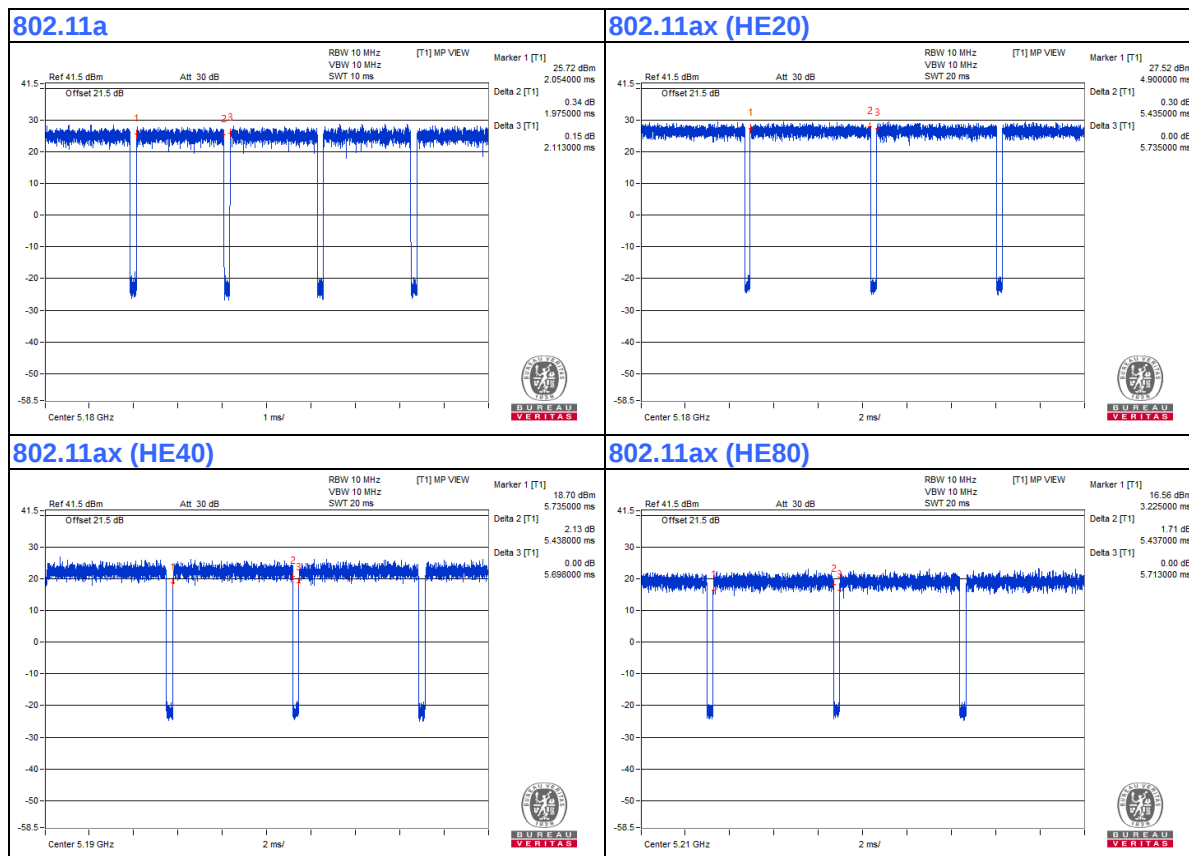
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.975 ms/2.113 ms = 0.935, Duty factor = $10 * \log (1/\text{Duty cycle}) = 0.29 \text{ dB}$

802.11ax (HE20): Duty cycle = 5.435 ms/5.735 ms = 0.948, Duty factor = $10 * \log (1/\text{Duty cycle}) = 0.23 \text{ dB}$

802.11ax (HE40): Duty cycle = 5.438 ms/5.698 ms = 0.954, Duty factor = $10 * \log (1/\text{Duty cycle}) = 0.20 \text{ dB}$

802.11ax (HE80): Duty cycle = 5.437 ms/5.713 ms = 0.952, Duty factor = $10 * \log (1/\text{Duty cycle}) = 0.22 \text{ dB}$



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.

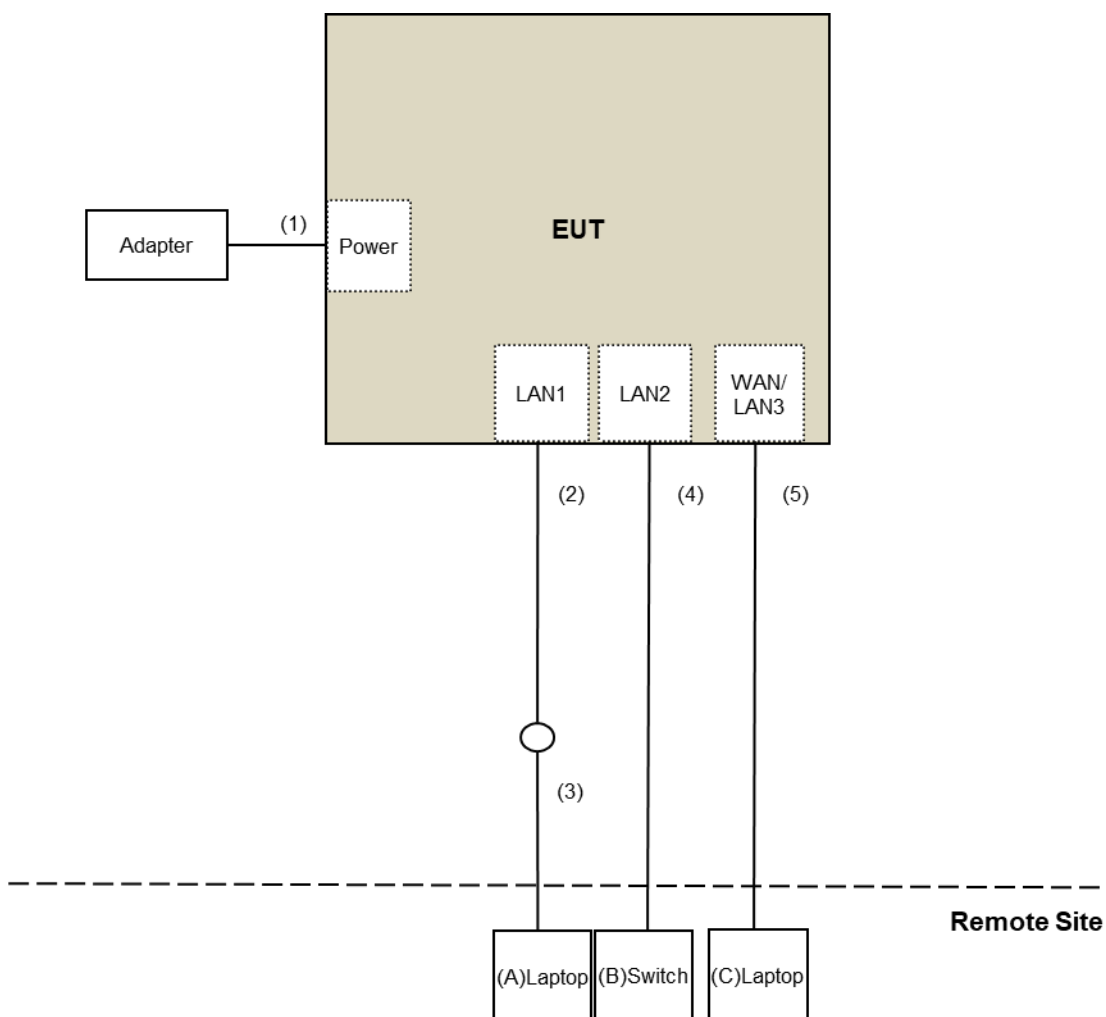
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	Lenovo	20U5S01X00 L14	PF-1ANPYA	N/A	Provided by Lab
B.	Switch	D-Link	DGS-1005D	DR8WC92000523	NA	Provided by Lab
C.	Laptop	Lenovo	20U5S01X00 L14	PF-28LKK7	N/A	Provided by Lab

Note:

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

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard 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:

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

4.1.2 Test Instruments

For Radiated Emission & Bandedge test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	2020/12/1	2021/11/30
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
LOOP ANTENNA Electro-Metrics	EM-6879	264	2021/3/5	2022/3/4
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2021/1/7	2022/1/6
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-002	2021/1/7	2022/1/6
Pre_Amplifier EMCI	EMC330N	980701	2021/3/10	2022/3/9
Trilog Broadband Antenna Schwarzbeck	VULB 9168	9168-406	2020/11/6	2021/11/5
RF Coaxial Cable COMMATE/PEWC	8D	966-4-1	2021/3/17	2022/3/16
RF Coaxial Cable COMMATE/PEWC	8D	966-4-2	2021/3/17	2022/3/16
RF Coaxial Cable COMMATE/PEWC	8D	966-4-3	2021/3/17	2022/3/16
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	2021/1/11	2022/1/10
Horn Antenna SCHWARZBECK	BBHA 9120D	9120D-783	2020/11/22	2021/11/21
Pre_Amplifier EMCI	EMC 12630 SE	980638	2021/4/7	2022/4/6
RF Cable-Frequency Range : 1-26.5GHz EMCI	EMC104-SM-SM-1200	160922	2020/12/25	2021/12/24
RF Coaxial Cable EMCI	EMC104-SM-SM-2000	180502	2021/4/26	2022/4/25
RF Coaxial Cable EMCI	EMC104-SM-SM-6000	180418	2021/4/26	2022/4/25
Pre_Amplifier EMCI	EMC184045SE	980387	2021/1/11	2022/1/10
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170519	2020/11/22	2021/11/21
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2021/1/11	2022/1/10
RF cable (40GHz) EMCI	EMC-KM-KM-4000	200214	2021/3/10	2022/3/9

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 966 Chamber No. 4.
3. Tested Date: 2021/8/30 ~ 2021/9/13

For other test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	101516	2021/3/8	2022/3/7
Power Meter Anritsu	ML2495A	1529002	2021/6/21	2022/6/20
Pulse Power Sensor Anritsu	MA2411B	1339443	2021/5/31	2022/5/30
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2021/4/13	2022/4/12
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA
DC POWER SUPPLY Topward	6603D	795558	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	2021/1/14	2022/1/13

- NOTE:**
1. The test was performed in Oven room 2.
 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 3. Tested Date: 2021/9/27

4.1.3 Test Procedure

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 detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

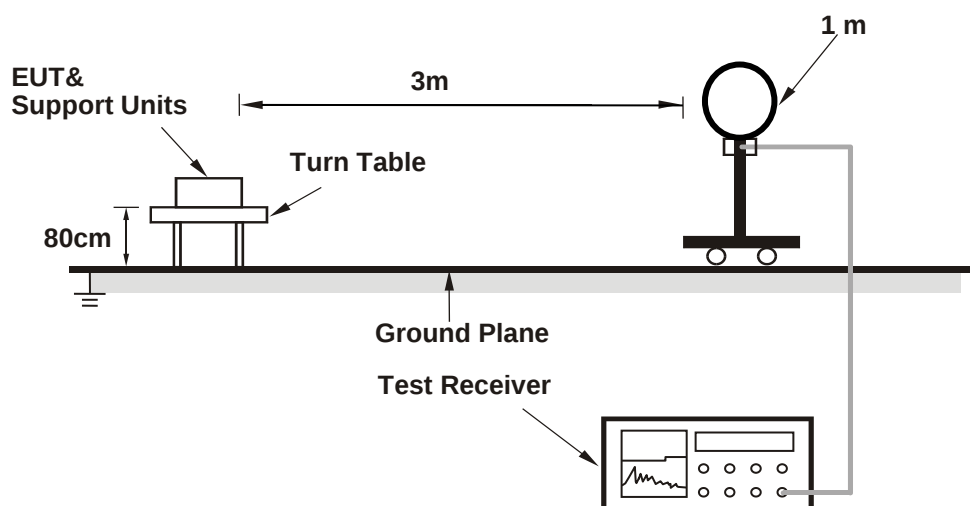
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

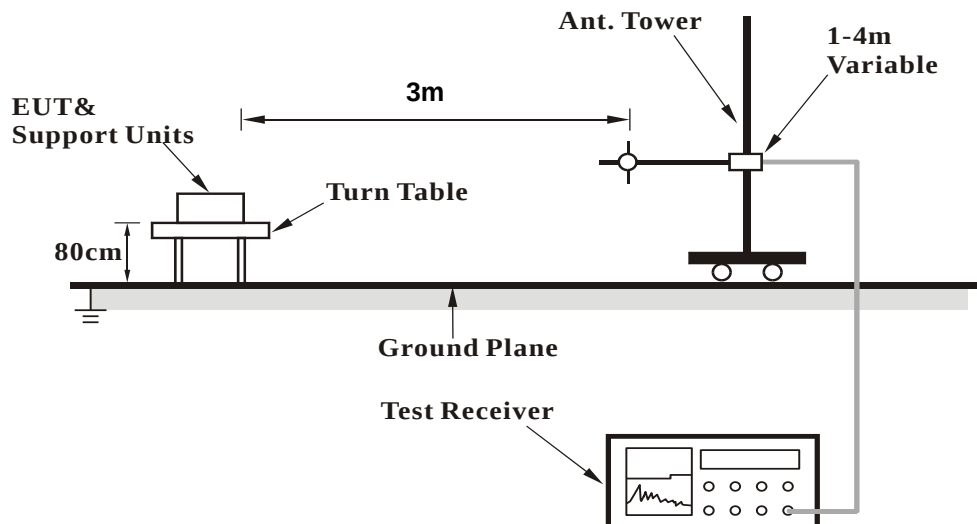
No deviation.

4.1.5 Test Setup

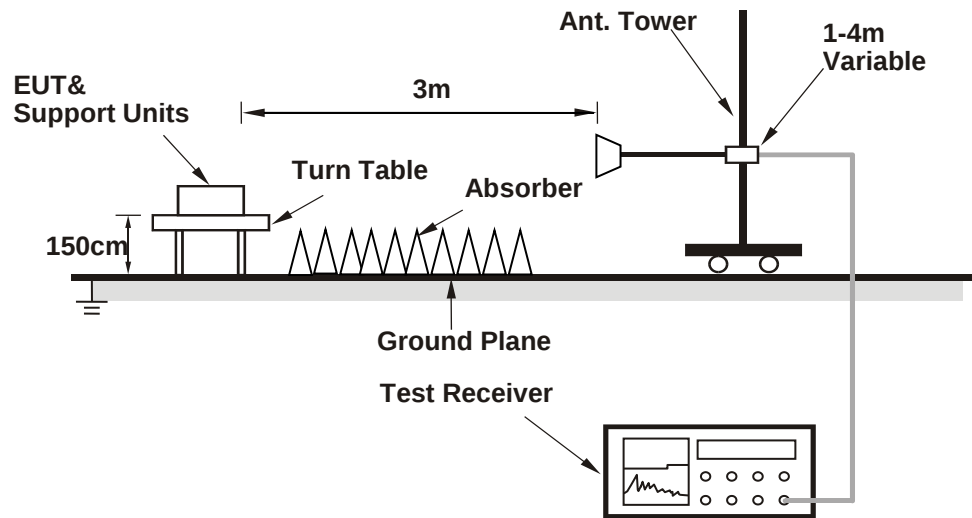
For Radiated emission below 30MHz



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 Condition

- Connected the EUT with the Laptop Computer which is placed on remote site.
- Controlling software (qdart_conn.win.1.0_installer_00076.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

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	5149.30	60.5 PK	74.0	-13.5	1.80 H	25	59.0	1.5
2	5149.30	49.0 AV	54.0	-5.0	1.80 H	25	47.5	1.5
3	*5180.00	115.9 PK			1.80 H	25	114.5	1.4
4	*5180.00	106.5 AV			1.80 H	25	105.1	1.4
5	#10360.00	44.5 PK	68.2	-23.7	2.06 H	172	33.8	10.7
6	15540.00	49.9 PK	74.0	-24.1	1.26 H	125	37.9	12.0
7	15540.00	37.0 AV	54.0	-17.0	1.26 H	125	25.0	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5147.90	67.4 PK	74.0	-6.6	1.69 V	265	65.9	1.5
2	5147.90	53.6 AV	54.0	-0.4	1.69 V	265	52.1	1.5
3	*5180.00	118.9 PK			1.69 V	265	117.5	1.4
4	*5180.00	109.1 AV			1.69 V	265	107.7	1.4
5	#10360.00	46.0 PK	68.2	-22.2	1.26 V	274	35.3	10.7
6	15540.00	49.2 PK	74.0	-24.8	2.50 V	113	37.2	12.0
7	15540.00	36.3 AV	54.0	-17.7	2.50 V	113	24.3	12.0

Remarks:

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

RF Mode	TX 802.11a	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	58.7 PK	74.0	-15.3	1.85 H	41	57.2	1.5
2	5150.00	48.3 AV	54.0	-5.7	1.85 H	41	46.8	1.5
3	*5200.00	117.9 PK			1.85 H	41	116.3	1.6
4	*5200.00	108.1 AV			1.85 H	41	106.5	1.6
5	#10400.00	44.9 PK	68.2	-23.3	2.00 H	183	34.0	10.9
6	15600.00	49.8 PK	74.0	-24.2	1.28 H	124	37.8	12.0
7	15600.00	36.6 AV	54.0	-17.4	1.28 H	124	24.6	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	65.4 PK	74.0	-8.6	1.66 V	262	63.9	1.5
2	5150.00	52.1 AV	54.0	-1.9	1.66 V	262	50.6	1.5
3	*5200.00	120.5 PK			1.66 V	262	118.9	1.6
4	*5200.00	110.9 AV			1.66 V	262	109.3	1.6
5	#10400.00	46.3 PK	68.2	-21.9	1.27 V	262	35.4	10.9
6	15600.00	49.1 PK	74.0	-24.9	2.56 V	109	37.1	12.0
7	15600.00	36.1 AV	54.0	-17.9	2.56 V	109	24.1	12.0

Remarks:

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

RF Mode	TX 802.11a	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	5117.86	50.9 PK	74.0	-23.1	1.77 H	23	49.4	1.5
2	5117.86	41.8 AV	54.0	-12.2	1.77 H	23	40.3	1.5
3	*5240.00	116.2 PK			1.77 H	23	115.0	1.2
4	*5240.00	108.3 AV			1.77 H	23	107.1	1.2
5	5370.98	50.9 PK	74.0	-23.1	1.77 H	23	49.6	1.3
6	5370.98	41.0 AV	54.0	-13.0	1.77 H	23	39.7	1.3
7	#10480.00	45.0 PK	68.2	-23.2	2.04 H	170	34.1	10.9
8	15720.00	50.0 PK	74.0	-24.0	1.25 H	118	38.1	11.9
9	15720.00	36.8 AV	54.0	-17.2	1.25 H	118	24.9	11.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	56.2 PK	74.0	-17.8	1.72 V	264	54.7	1.5
2	5150.00	45.4 AV	54.0	-8.6	1.72 V	264	43.9	1.5
3	*5240.00	120.3 PK			1.72 V	264	119.1	1.2
4	*5240.00	110.8 AV			1.72 V	264	109.6	1.2
5	5350.00	53.6 PK	74.0	-20.4	1.72 V	264	52.3	1.3
6	5350.00	42.6 AV	54.0	-11.4	1.72 V	264	41.3	1.3
7	#10480.00	46.4 PK	68.2	-21.8	1.31 V	269	35.5	10.9
8	15720.00	49.1 PK	74.0	-24.9	2.58 V	114	37.2	11.9
9	15720.00	35.8 AV	54.0	-18.2	2.58 V	114	23.9	11.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
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	#5625.42	53.5 PK	68.2	-14.7	3.91 H	139	51.8	1.7
2	*5745.00	117.8 PK			3.91 H	139	115.7	2.1
3	*5745.00	108.3 AV			3.91 H	139	106.2	2.1
4	#5940.40	49.8 PK	68.2	-18.4	3.91 H	139	47.5	2.3
5	11490.00	52.0 PK	74.0	-22.0	2.24 H	205	39.4	12.6
6	11490.00	40.9 AV	54.0	-13.1	2.24 H	205	28.3	12.6
7	#17235.00	63.6 PK	68.2	-4.6	1.98 H	151	46.8	16.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5554.14	54.7 PK	68.2	-13.5	1.48 V	188	53.2	1.5
2	*5745.00	119.5 PK			1.48 V	188	117.4	2.1
3	*5745.00	110.1 AV			1.48 V	188	108.0	2.1
4	#5982.74	49.0 PK	68.2	-19.2	1.48 V	188	46.7	2.3
5	11490.00	49.9 PK	74.0	-24.1	1.31 V	293	37.3	12.6
6	11490.00	39.8 AV	54.0	-14.2	1.31 V	293	27.2	12.6
7	#17235.00	54.0 PK	68.2	-14.2	2.58 V	121	37.2	16.8

Remarks:

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

RF Mode	TX 802.11a	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	#5587.90	52.2 PK	68.2	-16.0	3.84 H	144	50.5	1.7
2	*5785.00	117.6 PK			3.84 H	144	115.4	2.2
3	*5785.00	108.1 AV			3.84 H	144	105.9	2.2
4	#5927.80	49.7 PK	68.2	-18.5	3.84 H	144	47.5	2.2
5	11570.00	52.1 PK	74.0	-21.9	2.20 H	196	39.7	12.4
6	11570.00	40.8 AV	54.0	-13.2	2.20 H	196	28.4	12.4
7	#17355.00	63.3 PK	68.2	-4.9	1.93 H	141	45.8	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	#5586.28	53.8 PK	68.2	-14.4	1.53 V	193	52.1	1.7
2	*5785.00	119.7 PK			1.53 V	193	117.5	2.2
3	*5785.00	110.4 AV			1.53 V	193	108.2	2.2
4	#5979.15	49.2 PK	68.2	-19.0	1.53 V	193	46.9	2.3
5	11570.00	49.5 PK	74.0	-24.5	1.35 V	284	37.1	12.4
6	11570.00	39.6 AV	54.0	-14.4	1.35 V	284	27.2	12.4
7	#17355.00	54.4 PK	68.2	-13.8	2.53 V	105	36.9	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 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	#5640.01	51.8 PK	68.2	-16.4	3.86 H	132	50.0	1.8
2	*5825.00	117.4 PK			3.86 H	132	115.2	2.2
3	*5825.00	107.9 AV			3.86 H	132	105.7	2.2
4	#5926.32	53.6 PK	68.2	-14.6	3.86 H	132	51.4	2.2
5	11650.00	52.3 PK	74.0	-21.7	2.17 H	181	40.0	12.3
6	11650.00	41.2 AV	54.0	-12.8	2.17 H	181	28.9	12.3
7	#17475.00	63.6 PK	68.2	-4.6	1.92 H	141	45.2	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	#5641.06	53.8 PK	68.2	-14.4	1.52 V	191	52.0	1.8
2	*5825.00	119.4 PK			1.52 V	191	117.2	2.2
3	*5825.00	110.2 AV			1.52 V	191	108.0	2.2
4	#5929.16	53.5 PK	68.2	-14.7	1.52 V	191	51.3	2.2
5	11650.00	49.2 PK	74.0	-24.8	1.39 V	298	36.9	12.3
6	11650.00	39.3 AV	54.0	-14.7	1.39 V	298	27.0	12.3
7	#17475.00	54.8 PK	68.2	-13.4	2.57 V	106	36.4	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 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	65.7 PK	74.0	-8.3	3.87 H	289	64.2	1.5
2	5150.00	52.6 AV	54.0	-1.4	3.87 H	289	51.1	1.5
3	*5180.00	117.7 PK			3.87 H	289	116.3	1.4
4	*5180.00	106.1 AV			3.87 H	289	104.7	1.4
5	#10360.00	44.3 PK	68.2	-23.9	2.00 H	168	33.6	10.7
6	15540.00	50.3 PK	74.0	-23.7	1.23 H	137	38.3	12.0
7	15540.00	37.4 AV	54.0	-16.6	1.23 H	137	25.4	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5143.90	66.8 PK	74.0	-7.2	2.79 V	225	65.3	1.5
2	5143.90	53.3 AV	54.0	-0.7	2.79 V	225	51.8	1.5
3	*5180.00	120.3 PK			2.79 V	225	118.9	1.4
4	*5180.00	108.5 AV			2.79 V	225	107.1	1.4
5	#10360.00	46.1 PK	68.2	-22.1	1.20 V	263	35.4	10.7
6	15540.00	49.5 PK	74.0	-24.5	2.49 V	107	37.5	12.0
7	15540.00	36.6 AV	54.0	-17.4	2.49 V	107	24.6	12.0

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 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	58.9 PK	74.0	-15.1	3.92 H	289	57.4	1.5
2	5150.00	46.1 AV	54.0	-7.9	3.92 H	289	44.6	1.5
3	*5200.00	118.1 PK			3.92 H	289	116.5	1.6
4	*5200.00	106.4 AV			3.92 H	289	104.8	1.6
5	#10400.00	44.8 PK	68.2	-23.4	2.09 H	179	33.9	10.9
6	15600.00	50.0 PK	74.0	-24.0	1.26 H	127	38.0	12.0
7	15600.00	36.8 AV	54.0	-17.2	1.26 H	127	24.8	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	1.51 V	16	58.9	1.5
2	5150.00	47.7 AV	54.0	-6.3	1.51 V	16	46.2	1.5
3	*5200.00	120.2 PK			1.51 V	16	118.6	1.6
4	*5200.00	108.7 AV			1.51 V	16	107.1	1.6
5	#10400.00	45.9 PK	68.2	-22.3	1.30 V	286	35.0	10.9
6	15600.00	49.0 PK	74.0	-25.0	2.50 V	121	37.0	12.0
7	15600.00	35.8 AV	54.0	-18.2	2.50 V	121	23.8	12.0

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 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	5150.00	51.4 PK	74.0	-22.6	3.84 H	294	49.9	1.5
2	5150.00	41.9 AV	54.0	-12.1	3.84 H	294	40.4	1.5
3	*5240.00	119.5 PK			3.84 H	294	118.3	1.2
4	*5240.00	107.7 AV			3.84 H	294	106.5	1.2
5	5375.83	51.4 PK	74.0	-22.6	3.84 H	294	50.1	1.3
6	5375.83	41.4 AV	54.0	-12.6	3.84 H	294	40.1	1.3
7	#10480.00	43.8 PK	68.2	-24.4	2.11 H	182	32.9	10.9
8	15720.00	50.4 PK	74.0	-23.6	1.20 H	134	38.5	11.9
9	15720.00	37.3 AV	54.0	-16.7	1.20 H	134	25.4	11.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.3 PK	74.0	-18.7	1.55 V	20	53.8	1.5
2	5150.00	43.7 AV	54.0	-10.3	1.55 V	20	42.2	1.5
3	*5240.00	120.5 PK			1.55 V	20	119.3	1.2
4	*5240.00	108.8 AV			1.55 V	20	107.6	1.2
5	5350.00	54.2 PK	74.0	-19.8	1.55 V	20	52.9	1.3
6	5350.00	42.5 AV	54.0	-11.5	1.55 V	20	41.2	1.3
7	#10480.00	45.7 PK	68.2	-22.5	1.27 V	264	34.8	10.9
8	15720.00	49.6 PK	74.0	-24.4	2.48 V	105	37.7	11.9
9	15720.00	36.6 AV	54.0	-17.4	2.48 V	105	24.7	11.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
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	#5644.01	52.7 PK	68.2	-15.5	3.91 H	134	50.9	1.8
2	*5745.00	119.6 PK			3.91 H	134	117.5	2.1
3	*5745.00	107.9 AV			3.91 H	134	105.8	2.1
4	#5941.45	50.7 PK	68.2	-17.5	3.91 H	134	48.4	2.3
5	11490.00	52.0 PK	74.0	-22.0	2.20 H	190	39.4	12.6
6	11490.00	40.7 AV	54.0	-13.3	2.20 H	190	28.1	12.6
7	#17235.00	63.7 PK	68.2	-4.5	2.01 H	154	46.9	16.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5646.00	55.6 PK	68.2	-12.6	1.54 V	185	53.8	1.8
2	*5745.00	121.0 PK			1.54 V	185	118.9	2.1
3	*5745.00	109.5 AV			1.54 V	185	107.4	2.1
4	#5930.50	49.5 PK	68.2	-18.7	1.54 V	185	47.3	2.2
5	11490.00	50.2 PK	74.0	-23.8	1.34 V	305	37.6	12.6
6	11490.00	40.0 AV	54.0	-14.0	1.34 V	305	27.4	12.6
7	#17235.00	54.4 PK	68.2	-13.8	2.63 V	116	37.6	16.8

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 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	#5583.64	54.5 PK	68.2	-13.7	3.71 H	144	52.8	1.7
2	*5785.00	120.1 PK			3.71 H	144	117.9	2.2
3	*5785.00	108.6 AV			3.71 H	144	106.4	2.2
4	#6001.23	49.6 PK	68.2	-18.6	3.71 H	144	47.3	2.3
5	11570.00	51.4 PK	74.0	-22.6	2.26 H	213	39.0	12.4
6	11570.00	40.4 AV	54.0	-13.6	2.26 H	213	28.0	12.4
7	#17355.00	63.7 PK	68.2	-4.5	2.02 H	162	46.2	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	#5595.97	54.9 PK	68.2	-13.3	1.46 V	180	53.2	1.7
2	*5785.00	121.3 PK			1.46 V	180	119.1	2.2
3	*5785.00	109.9 AV			1.46 V	180	107.7	2.2
4	#6005.50	49.6 PK	68.2	-18.6	1.46 V	180	47.3	2.3
5	11570.00	49.6 PK	74.0	-24.4	1.36 V	281	37.2	12.4
6	11570.00	39.3 AV	54.0	-14.7	1.36 V	281	26.9	12.4
7	#17355.00	54.3 PK	68.2	-13.9	2.60 V	128	36.8	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 (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	#5630.39	52.5 PK	68.2	-15.7	3.79 H	135	50.7	1.8
2	*5825.00	119.5 PK			3.79 H	135	117.3	2.2
3	*5825.00	107.8 AV			3.79 H	135	105.6	2.2
4	#5925.35	56.0 PK	68.2	-12.2	3.79 H	135	53.8	2.2
5	11650.00	51.8 PK	74.0	-22.2	2.21 H	197	39.5	12.3
6	11650.00	40.8 AV	54.0	-13.2	2.21 H	197	28.5	12.3
7	#17475.00	63.2 PK	68.2	-5.0	1.94 H	165	44.8	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	#5630.88	53.1 PK	68.2	-15.1	1.52 V	189	51.3	1.8
2	*5825.00	121.8 PK			1.52 V	189	119.6	2.2
3	*5825.00	110.1 AV			1.52 V	189	107.9	2.2
4	#5930.69	55.0 PK	68.2	-13.2	1.52 V	189	52.8	2.2
5	11650.00	50.6 PK	74.0	-23.4	1.34 V	304	38.3	12.3
6	11650.00	40.2 AV	54.0	-13.8	1.34 V	304	27.9	12.3
7	#17475.00	53.8 PK	68.2	-14.4	2.63 V	123	35.4	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 (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	60.1 PK	74.0	-13.9	3.98 H	219	58.6	1.5
2	5150.00	49.1 AV	54.0	-4.9	3.98 H	219	47.6	1.5
3	*5190.00	112.7 PK			3.98 H	219	111.3	1.4
4	*5190.00	101.4 AV			3.98 H	219	100.0	1.4
5	#10380.00	44.5 PK	68.2	-23.7	2.11 H	183	33.7	10.8
6	15570.00	50.1 PK	74.0	-23.9	1.28 H	133	38.0	12.1
7	15570.00	37.2 AV	54.0	-16.8	1.28 H	133	25.1	12.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	67.2 PK	74.0	-6.8	2.62 V	221	65.7	1.5
2	5150.00	53.6 AV	54.0	-0.4	2.62 V	221	52.1	1.5
3	*5190.00	116.3 PK			2.62 V	221	114.9	1.4
4	*5190.00	104.2 AV			2.62 V	221	102.8	1.4
5	#10380.00	46.0 PK	68.2	-22.2	1.25 V	273	35.2	10.8
6	15570.00	48.6 PK	74.0	-25.4	2.47 V	104	36.5	12.1
7	15570.00	35.9 AV	54.0	-18.1	2.47 V	104	23.8	12.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
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	58.5 PK	74.0	-15.5	3.93 H	204	57.0	1.5
2	5150.00	46.5 AV	54.0	-7.5	3.93 H	204	45.0	1.5
3	*5230.00	116.7 PK			3.93 H	204	115.4	1.3
4	*5230.00	104.5 AV			3.93 H	204	103.2	1.3
5	#10460.00	44.8 PK	68.2	-23.4	2.08 H	186	33.9	10.9
6	15690.00	49.8 PK	74.0	-24.2	1.24 H	138	37.9	11.9
7	15690.00	37.0 AV	54.0	-17.0	1.24 H	138	25.1	11.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5143.70	65.8 PK	74.0	-8.2	2.82 V	223	64.3	1.5
2	5143.70	53.4 AV	54.0	-0.6	2.82 V	223	51.9	1.5
3	*5230.00	117.8 PK			2.82 V	223	116.5	1.3
4	*5230.00	106.4 AV			2.82 V	223	105.1	1.3
5	#10460.00	46.5 PK	68.2	-21.7	1.21 V	281	35.6	10.9
6	15690.00	49.5 PK	74.0	-24.5	2.46 V	120	37.6	11.9
7	15690.00	36.4 AV	54.0	-17.6	2.46 V	120	24.5	11.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
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	#5649.60	63.3 PK	68.2	-4.9	3.49 H	203	61.5	1.8
2	*5755.00	117.1 PK			3.49 H	203	115.0	2.1
3	*5755.00	104.8 AV			3.49 H	203	102.7	2.1
4	#5955.97	49.8 PK	68.2	-18.4	3.49 H	203	47.5	2.3
5	11510.00	51.6 PK	74.0	-22.4	2.21 H	210	39.0	12.6
6	11510.00	40.5 AV	54.0	-13.5	2.21 H	210	27.9	12.6
7	#17265.00	63.9 PK	68.2	-4.3	1.93 H	142	47.1	16.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.01	64.9 PK	68.2	-3.3	1.49 V	186	63.1	1.8
2	*5755.00	118.8 PK			1.49 V	186	116.7	2.1
3	*5755.00	107.2 AV			1.49 V	186	105.1	2.1
4	#5929.75	50.2 PK	68.2	-18.0	1.49 V	186	48.0	2.2
5	11510.00	49.6 PK	74.0	-24.4	1.33 V	278	37.0	12.6
6	11510.00	39.5 AV	54.0	-14.5	1.33 V	278	26.9	12.6
7	#17265.00	54.7 PK	68.2	-13.5	2.58 V	112	37.9	16.8

Remarks:

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

RF Mode	TX 802.11ax (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	#5647.80	59.7 PK	68.2	-8.5	3.43 H	206	57.9	1.8
2	*5795.00	116.5 PK			3.43 H	206	114.3	2.2
3	*5795.00	104.1 AV			3.43 H	206	101.9	2.2
4	#5925.14	54.5 PK	68.2	-13.7	3.43 H	206	52.3	2.2
5	11590.00	51.9 PK	74.0	-22.1	2.26 H	221	39.5	12.4
6	11590.00	40.7 AV	54.0	-13.3	2.26 H	221	28.3	12.4
7	#17385.00	63.6 PK	68.2	-4.6	2.03 H	147	45.7	17.9
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5642.76	60.4 PK	68.2	-7.8	1.42 V	182	58.6	1.8
2	*5795.00	118.5 PK			1.42 V	182	116.3	2.2
3	*5795.00	107.0 AV			1.42 V	182	104.8	2.2
4	#5929.64	58.4 PK	68.2	-9.8	1.42 V	182	56.2	2.2
5	11590.00	49.3 PK	74.0	-24.7	1.31 V	283	36.9	12.4
6	11590.00	39.3 AV	54.0	-14.7	1.31 V	283	26.9	12.4
7	#17385.00	54.4 PK	68.2	-13.8	2.52 V	109	36.5	17.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	56.8 PK	74.0	-17.2	3.98 H	221	55.3	1.5
2	5150.00	46.2 AV	54.0	-7.8	3.98 H	221	44.7	1.5
3	*5210.00	109.1 PK			3.98 H	221	107.7	1.4
4	*5210.00	98.3 AV			3.98 H	221	96.9	1.4
5	5375.30	52.0 PK	74.0	-22.0	3.98 H	221	50.7	1.3
6	5375.30	40.8 AV	54.0	-13.2	3.98 H	221	39.5	1.3
7	#10420.00	44.7 PK	68.2	-23.5	2.10 H	162	33.8	10.9
8	15630.00	49.6 PK	74.0	-24.4	1.26 H	130	37.6	12.0
9	15630.00	36.6 AV	54.0	-17.4	1.26 H	130	24.6	12.0

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	66.3 PK	74.0	-7.7	1.28 V	21	64.8	1.5
2	5150.00	53.5 AV	54.0	-0.5	1.28 V	21	52.0	1.5
3	*5210.00	113.0 PK			1.28 V	21	111.6	1.4
4	*5210.00	100.8 AV			1.28 V	21	99.4	1.4
5	5357.70	57.2 PK	74.0	-16.8	1.28 V	21	55.8	1.4
6	5357.70	42.7 AV	54.0	-11.3	1.28 V	21	41.3	1.4
7	#10420.00	46.2 PK	68.2	-22.0	1.24 V	274	35.3	10.9
8	15630.00	49.0 PK	74.0	-25.0	2.49 V	112	37.0	12.0
9	15630.00	36.0 AV	54.0	-18.0	2.49 V	112	24.0	12.0

Remarks:

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

RF Mode	TX 802.11ax (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	#5648.57	63.4 PK	68.2	-4.8	3.80 H	237	61.6	1.8
2	*5775.00	109.2 PK			3.80 H	237	107.0	2.2
3	*5775.00	98.6 AV			3.80 H	237	96.4	2.2
4	#5928.59	56.0 PK	68.2	-12.2	3.80 H	237	53.8	2.2
5	11550.00	51.8 PK	74.0	-22.2	2.28 H	199	39.4	12.4
6	11550.00	40.7 AV	54.0	-13.3	2.28 H	199	28.3	12.4
7	#17325.00	63.8 PK	68.2	-4.4	2.03 H	145	46.6	17.2
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	#5617.97	64.1 PK	68.2	-4.1	1.62 V	217	62.3	1.8
2	*5775.00	111.6 PK			1.62 V	217	109.4	2.2
3	*5775.00	100.8 AV			1.62 V	217	98.6	2.2
4	#5930.93	55.0 PK	68.2	-13.2	1.62 V	217	52.8	2.2
5	11550.00	49.7 PK	74.0	-24.3	1.34 V	299	37.3	12.4
6	11550.00	39.4 AV	54.0	-14.6	1.34 V	299	27.0	12.4
7	#17325.00	53.5 PK	68.2	-14.7	2.57 V	111	36.3	17.2

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.

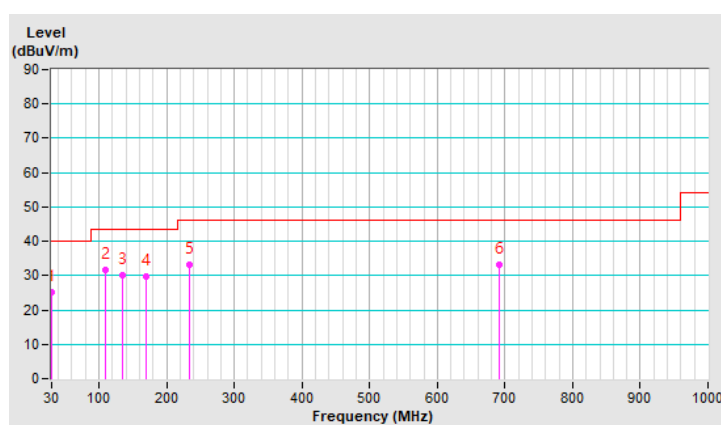
Below 1GHz Data:

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.63	25.2 QP	40.0	-14.8	1.00 H	260	38.8	-13.6
2	109.98	31.6 QP	43.5	-11.9	3.00 H	274	46.7	-15.1
3	134.69	30.1 QP	43.5	-13.4	1.50 H	267	42.9	-12.8
4	170.38	29.8 QP	43.5	-13.7	1.50 H	295	42.3	-12.5
5	234.31	33.0 QP	46.0	-13.0	1.00 H	114	46.6	-13.6
6	692.08	33.3 QP	46.0	-12.7	2.00 H	196	34.0	-0.7

Remarks:

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

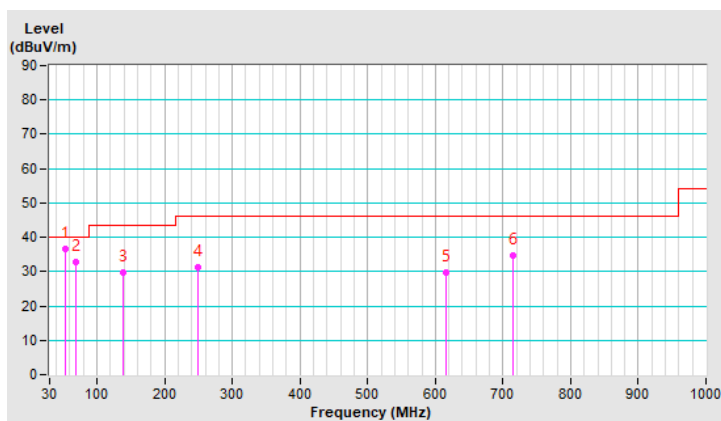


RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	54.10	36.7 QP	40.0	-3.3	1.00 V	302	49.4	-12.7
2	68.22	32.7 QP	40.0	-7.3	2.00 V	341	47.1	-14.4
3	139.25	29.6 QP	43.5	-13.9	1.00 V	199	42.0	-12.4
4	249.58	31.4 QP	46.0	-14.6	2.00 V	174	44.1	-12.7
5	615.23	29.7 QP	46.0	-16.3	1.50 V	86	31.6	-1.9
6	714.19	34.6 QP	46.0	-11.4	1.50 V	52	34.9	-0.3

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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	2020/10/20	2021/10/19
LISN R&S	ESH3-Z5	848773/004	2020/10/27	2021/10/26
LISN R & S	ESH3-Z5	835239/001	2021/3/26	2022/3/25
50 ohms Terminator	50	3	2020/10/26	2021/10/25
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2020/9/26	2021/9/25
Fixed attenuator STI	STI02-2200-10	005	2021/8/27	2022/8/26
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
- 3 Tested Date: 2021/8/31

4.2.3 Test Procedure

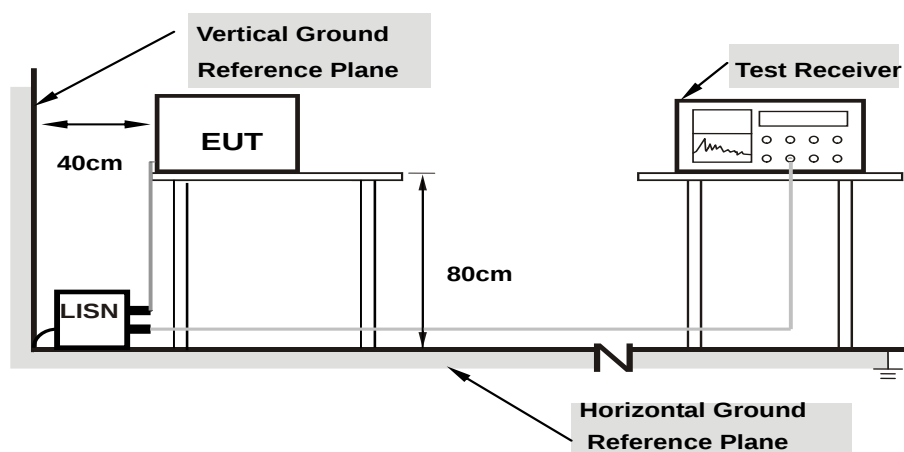
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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 Condition

Same as 4.1.6.

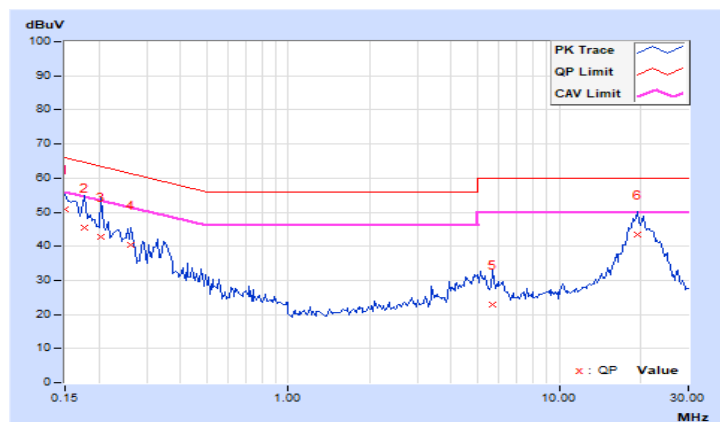
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.04	40.91	27.10	50.95	37.14	66.00	56.00	-15.05	-18.86
2	0.17734	10.05	35.57	23.02	45.62	33.07	64.61	54.61	-18.99	-21.54
3	0.20469	10.06	32.86	21.32	42.92	31.38	63.42	53.42	-20.50	-22.04
4	0.26328	10.07	30.47	22.52	40.54	32.59	61.33	51.33	-20.79	-18.74
5	5.69531	10.43	12.59	4.95	23.02	15.38	60.00	50.00	-36.98	-34.62
6	19.54297	11.49	32.10	25.58	43.59	37.07	60.00	50.00	-16.41	-12.93

Remarks:

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

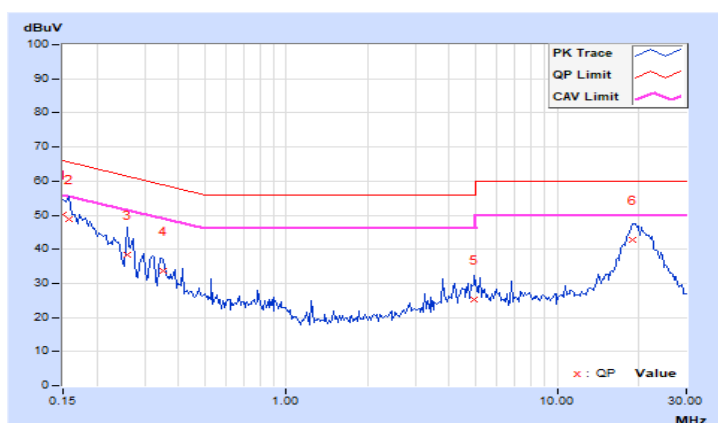


RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.02	40.26	26.09	50.28	36.11	66.00	56.00	-15.72	-19.89
2	0.15781	10.03	38.77	24.61	48.80	34.64	65.58	55.58	-16.78	-20.94
3	0.25938	10.06	28.26	16.67	38.32	26.73	61.45	51.45	-23.13	-24.72
4	0.34922	10.07	23.64	14.15	33.71	24.22	58.98	48.98	-25.27	-24.76
5	4.96484	10.35	14.95	6.32	25.30	16.67	56.00	46.00	-30.70	-29.33
6	18.89063	11.17	31.69	24.82	42.86	35.99	60.00	50.00	-17.14	-14.01

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)
	√	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,

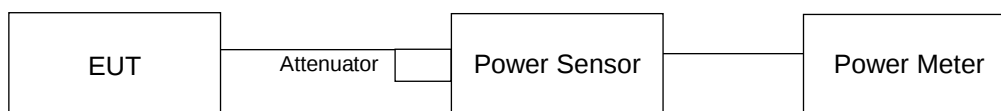
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

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

4.3.7 Test Results

U-NII-1 Master & U-NII-3

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	23.47	23.15	428.869	26.32	30.00	Pass
40	5200	25.44	25.37	694.295	28.42	30.00	Pass
48	5240	25.48	25.49	707.181	28.50	30.00	Pass
149	5745	24.95	25.27	649.12	28.12	30.00	Pass
157	5785	25.09	25.72	696.1	28.43	30.00	Pass
165	5825	26.03	25.96	795.324	29.01	30.00	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.06	23.63	485.358	26.86	30.00	Pass
40	5200	24.63	24.54	574.848	27.60	30.00	Pass
48	5240	24.57	24.64	577.49	27.62	30.00	Pass
149	5745	24.21	24.53	547.425	27.38	30.00	Pass
157	5785	24.34	24.97	585.695	27.68	30.00	Pass
165	5825	25.84	25.16	711.803	28.52	30.00	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	22.31	22.20	336.175	25.27	30.00	Pass
46	5230	24.88	25.12	632.697	28.01	30.00	Pass
151	5755	24.52	25.04	602.293	27.80	30.00	Pass
159	5795	24.57	24.95	599.026	27.77	30.00	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	21.32	21.28	269.795	24.31	30.00	Pass
155	5775	20.19	20.71	222.233	23.47	30.00	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.23	24.06	519.533	27.16	30.00	Pass
40	5200	24.70	24.76	594.347	27.74	30.00	Pass
48	5240	24.84	24.95	617.397	27.91	30.00	Pass
149	5745	24.27	24.88	574.91	27.60	30.00	Pass
157	5785	24.65	25.57	652.321	28.14	30.00	Pass
165	5825	25.88	25.93	779	28.92	30.00	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	22.21	22.36	338.528	25.30	30	Pass
46	5230	24.86	25.15	633.537	28.02	30	Pass
151	5755	24.39	25.39	620.729	27.93	30	Pass
159	5795	24.68	25.31	633.39	28.02	30	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	21.51	21.76	291.548	24.65	30.00	Pass
155	5775	20.30	21.26	240.811	23.82	30.00	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.06	23.63	485.358	26.86	29.07	Pass
40	5200	24.63	24.54	574.848	27.60	29.07	Pass
48	5240	24.57	24.64	577.49	27.62	29.07	Pass
149	5745	24.21	24.53	547.425	27.38	29.07	Pass
157	5785	24.34	24.97	585.695	27.68	29.07	Pass
165	5825	25.84	25.16	711.803	28.52	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	22.31	22.20	336.175	25.27	29.07	Pass
46	5230	24.88	25.12	632.697	28.01	29.07	Pass
151	5755	24.52	25.04	602.293	27.80	29.07	Pass
159	5795	24.57	24.95	599.026	27.77	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	21.32	21.28	269.795	24.31	29.07	Pass
155	5775	20.19	20.71	222.233	23.47	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.23	24.06	519.533	27.16	29.07	Pass
40	5200	24.70	24.76	594.347	27.74	29.07	Pass
48	5240	24.84	24.95	617.397	27.91	29.07	Pass
149	5745	24.27	24.88	574.91	27.60	29.07	Pass
157	5785	24.65	25.57	652.321	28.14	29.07	Pass
165	5825	25.88	25.93	779	28.92	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	22.21	22.36	338.528	25.30	29.07	Pass
46	5230	24.86	25.15	633.537	28.02	29.07	Pass
151	5755	24.39	25.39	620.729	27.93	29.07	Pass
159	5795	24.68	25.31	633.39	28.02	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	21.51	21.76	291.548	24.65	29.07	Pass
155	5775	20.30	21.26	240.811	23.82	29.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.
 2. For U-NII-3: The directional gain = $10 \log[(10^{G_{0/20}} + 10^{G_{1/20}})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

U-NII-1 Client

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	20.07	19.62	193.247	22.86	24	Pass
40	5200	20.03	19.84	197.076	22.95	24	Pass
48	5240	19.96	19.91	197.032	22.95	24	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	20.21	19.80	200.454	23.02	24	Pass
40	5200	20.09	20.01	202.324	23.06	24	Pass
48	5240	19.95	19.87	195.906	22.92	24	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	20.81	20.41	230.404	23.62	24	Pass
46	5230	20.33	20.31	215.294	23.33	24	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	20.63	20.46	226.784	23.56	24	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	20.51	20.07	214.085	23.31	24	Pass
40	5200	20.38	20.31	216.543	23.36	24	Pass
48	5240	20.23	20.16	209.192	23.21	24	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	21.11	20.67	245.803	23.91	24	Pass
46	5230	20.62	20.56	229.108	23.60	24	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	20.89	20.74	241.321	23.83	24	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	19.87	19.44	184.953	22.67	23.07	Pass
40	5200	19.70	19.63	185.159	22.68	23.07	Pass
48	5240	19.60	19.47	179.713	22.55	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	20.00	19.46	188.308	22.75	23.07	Pass
46	5230	19.65	19.68	185.154	22.68	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	19.71	19.58	184.323	22.66	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	20.16	19.69	196.864	22.94	23.07	Pass
40	5200	19.92	19.89	195.674	22.92	23.07	Pass
48	5240	19.88	19.75	191.681	22.83	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	20.27	19.73	200.387	23.02	23.07	Pass
46	5230	19.94	19.88	195.903	22.92	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

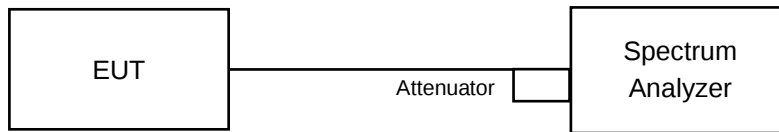
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	19.95	19.83	195.017	22.90	23.07	Pass

Note: 1. For U-NII-1: The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power limit shall be reduced to $24 - (6.93 - 6) = 23.07 \text{ dBm}$.

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 SAMPLE. 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 Results

Master

CDD Mode

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.56	16.44
40	5200	17.88	16.56
48	5240	17.64	16.56
149	5745	16.56	24
157	5785	26.16	34.08
165	5825	36.96	35.4

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	19.08	19.08
40	5200	19.2	18.96
48	5240	19.2	18.96
149	5745	19.08	22.08
157	5785	22.2	35.76
165	5825	39.6	36.72

802.11ax (HE40)

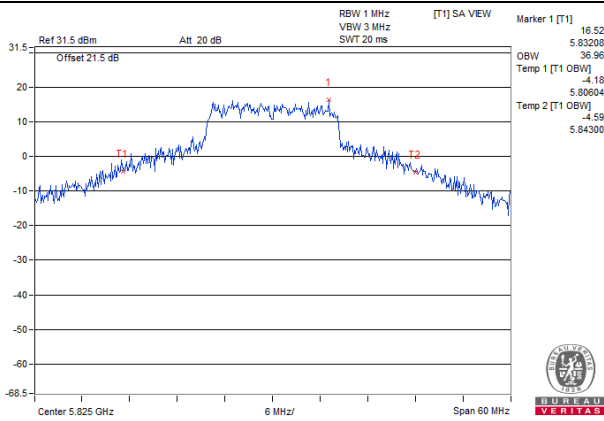
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.92	38.16
46	5230	38.64	38.16
151	5755	38.64	52.56
159	5795	56.88	58.56

802.11ax (HE80)

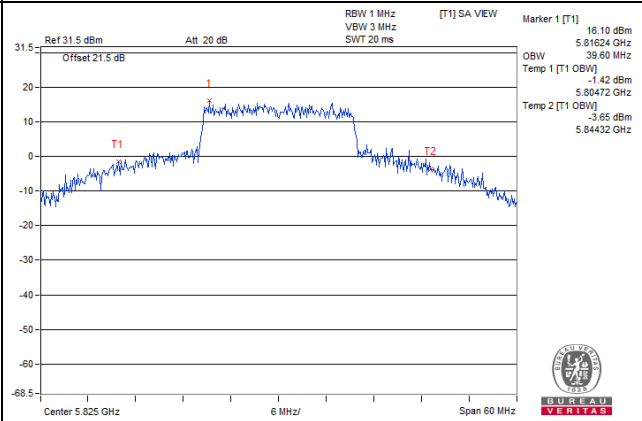
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	77.28	77.28
155	5775	77.28	77.28

Spectrum Plot of Max. Value

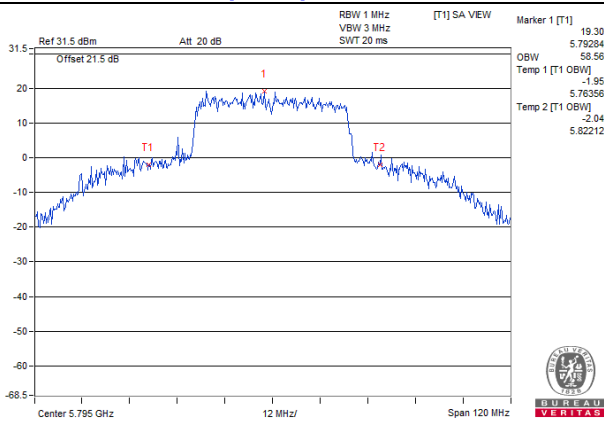
802.11a_Chain 0 / CH165



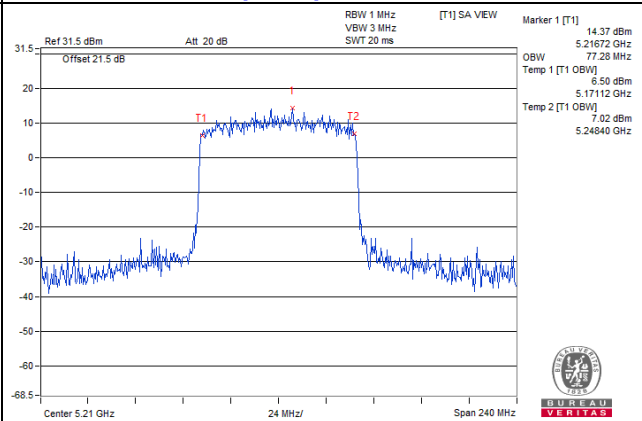
802.11ax (HE20)_Chain 0 / CH165



802.11ax (HE40)_Chain 1 / CH159

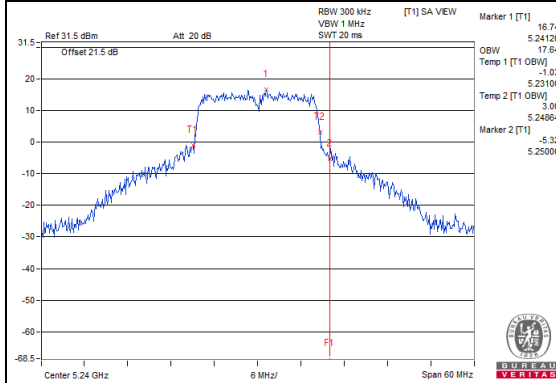


802.11ax (HE80)_Chain 0 / CH42

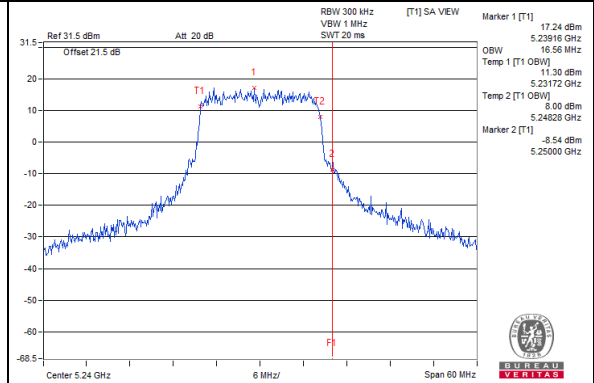


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

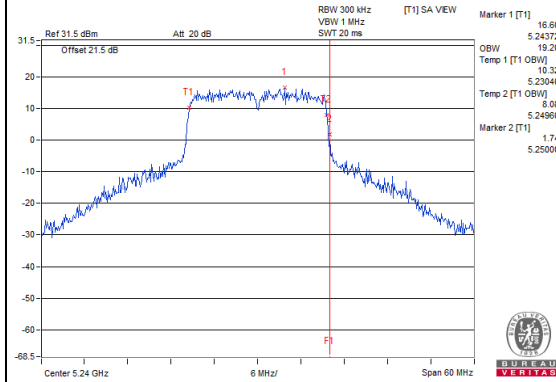
802.11a_Chain 0 / CH48



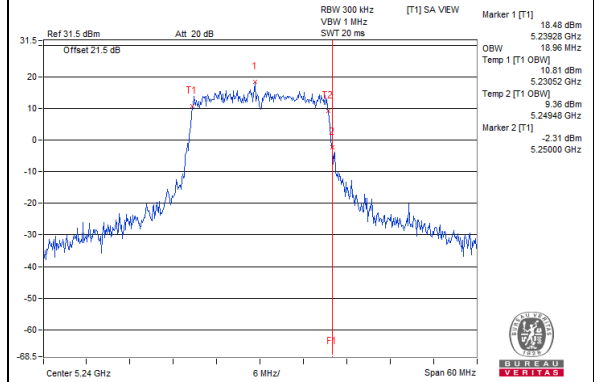
802.11a_Chain 1 / CH48



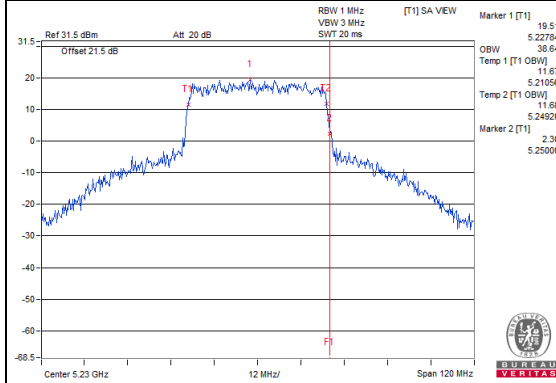
802.11ax (HE20)_Chain 0 / CH48



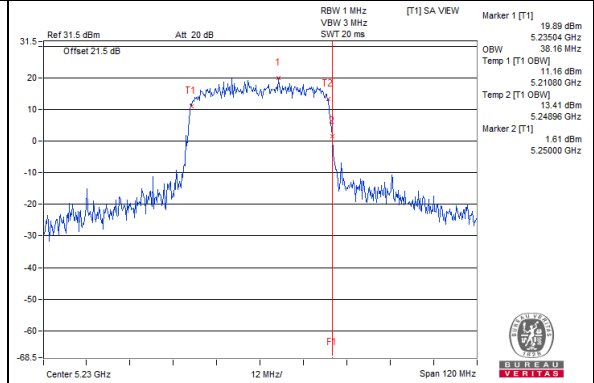
802.11ax (HE20)_Chain 1 / CH48



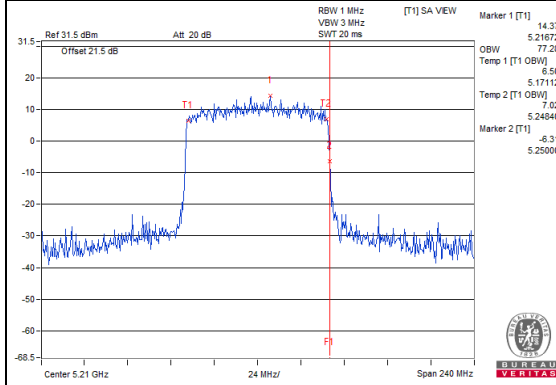
802.11ax (HE40)_Chain 0 / CH46



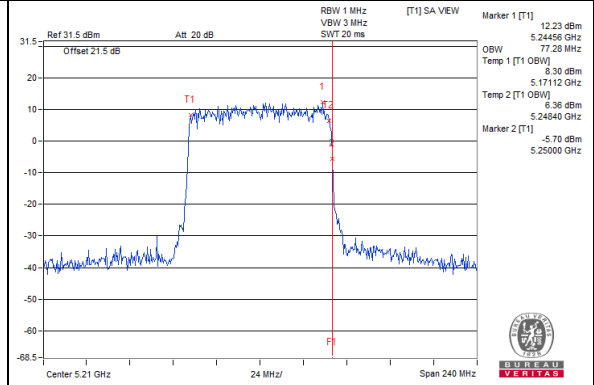
802.11ax (HE40)_Chain 1 / CH46



802.11ax (HE80)_Chain 0 / CH42

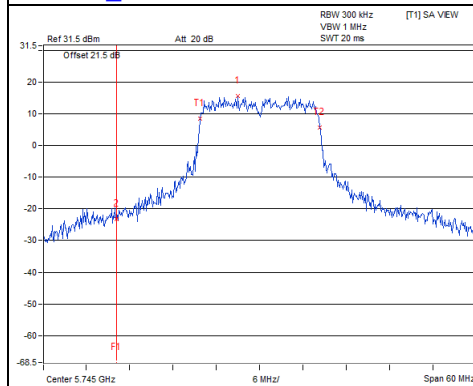


802.11ax (HE80)_Chain 1 / CH42

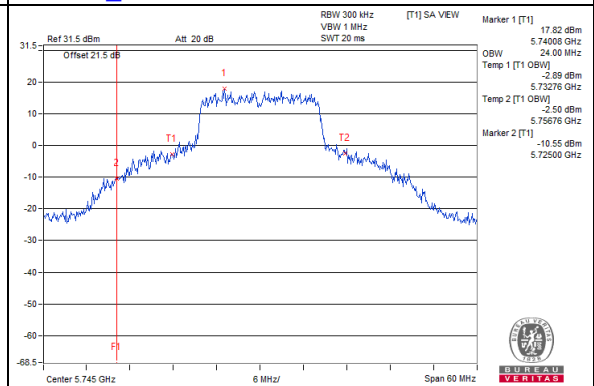


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

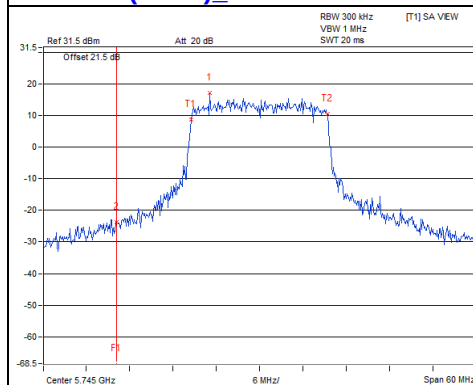
802.11a_Chain 0 / CH149



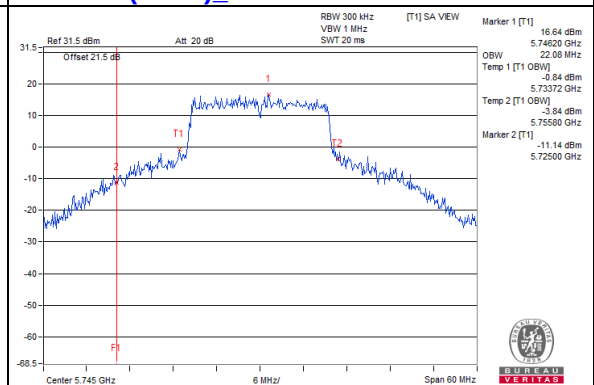
802.11a_Chain 1 / CH149



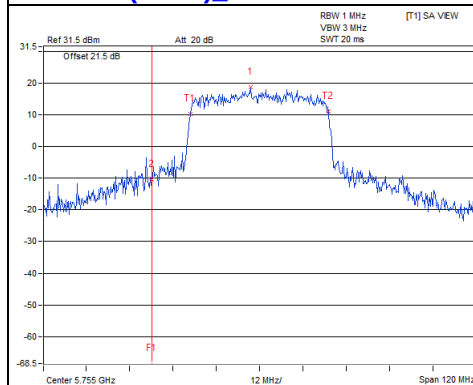
802.11ax (HE20)_Chain 0 / CH149



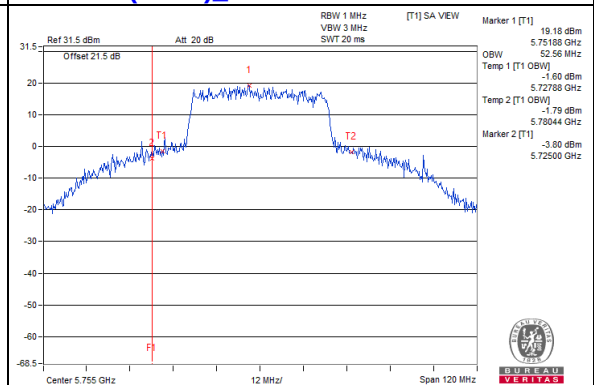
802.11ax (HE20)_Chain 1 / CH149



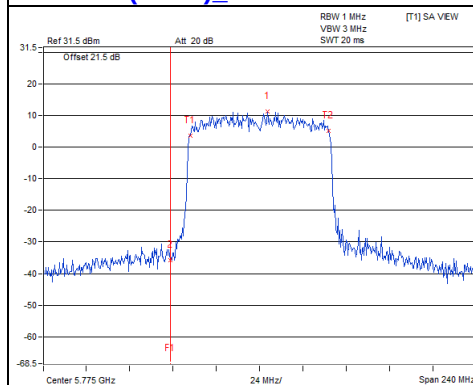
802.11ax (HE40)_Chain 0 / CH151



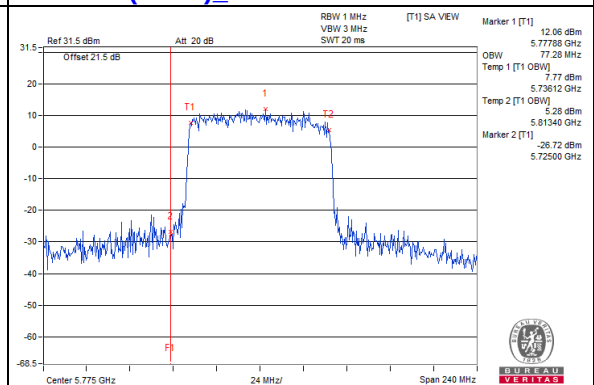
802.11ax (HE40)_Chain 1 / CH151



802.11ax (HE80)_Chain 0 / CH155



802.11ax (HE80)_Chain 1 / CH155



Client

CDD Mode

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.56	16.44
40	5200	16.56	16.56
48	5240	16.56	16.56

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.96	18.96
40	5200	18.96	18.96
48	5240	18.96	18.96

802.11ax (HE40)

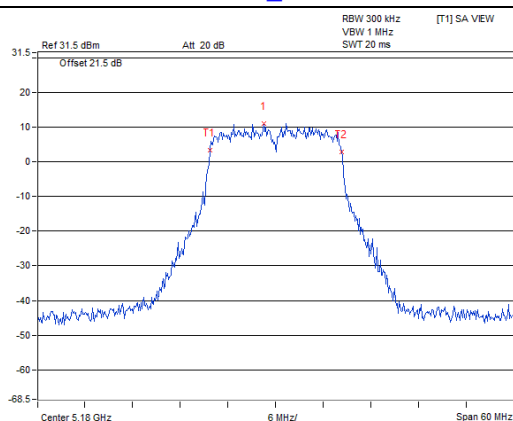
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	38.16	38.16
46	5230	37.92	37.92

802.11ax (HE80)

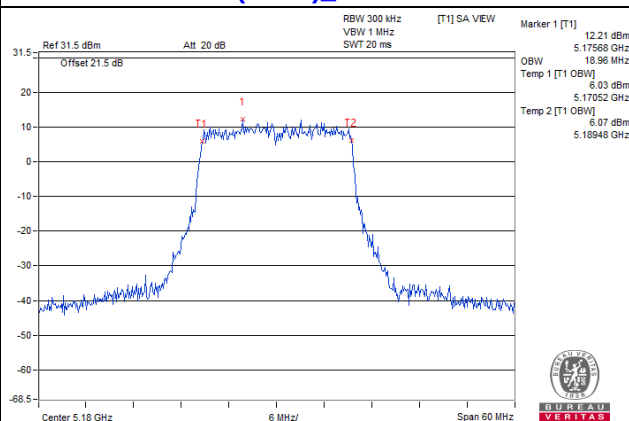
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	77.28	77.76

Spectrum Plot of Max. Value

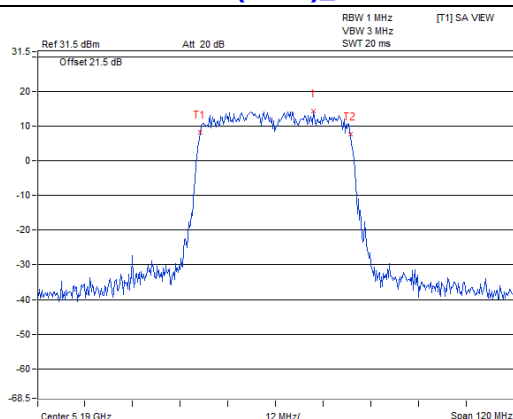
802.11a_Chain 0 / CH36



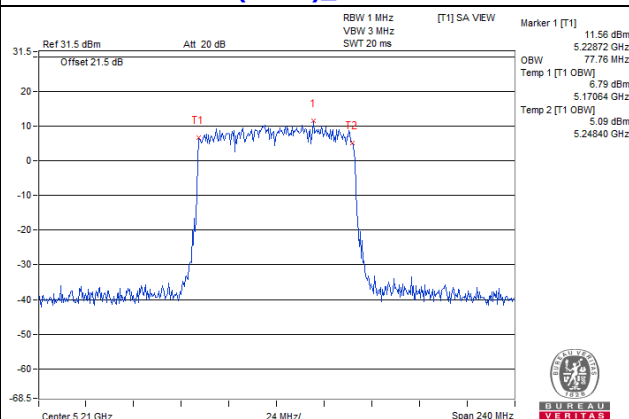
802.11ax (HE20)_Chain 0 / CH36



802.11ax (HE40)_Chain 0 / CH38

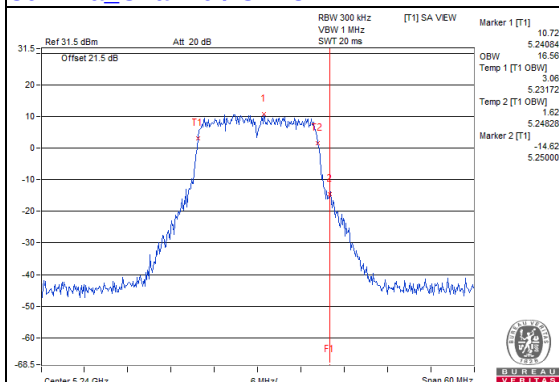


802.11ax (HE80)_Chain 1 / CH42

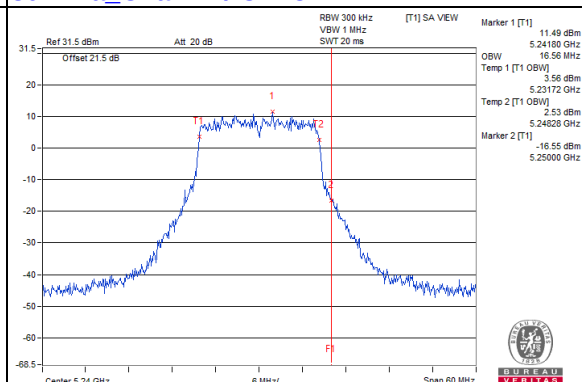


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

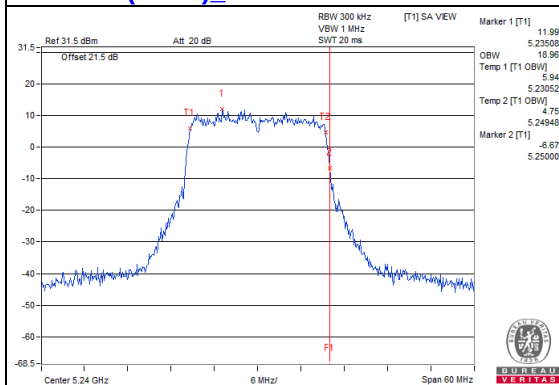
802.11a_Chain 0 / CH48



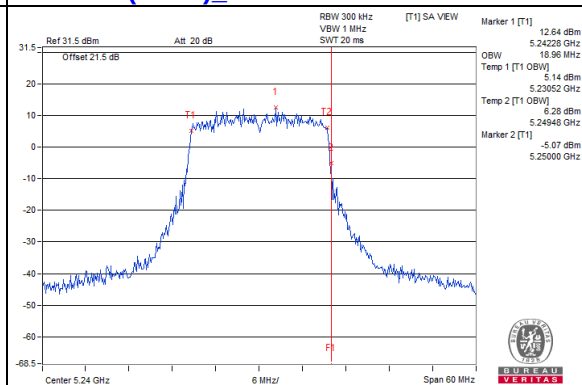
802.11a_Chain 1 / CH48



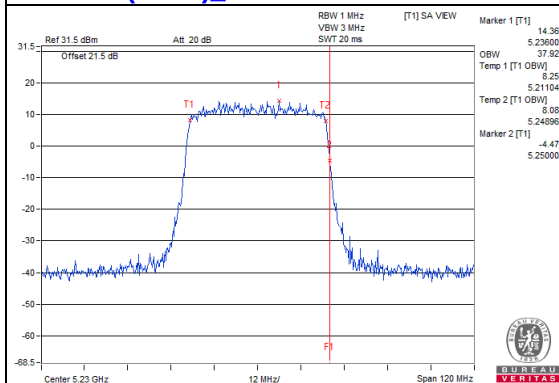
802.11ax (HE20)_Chain 0 / CH48



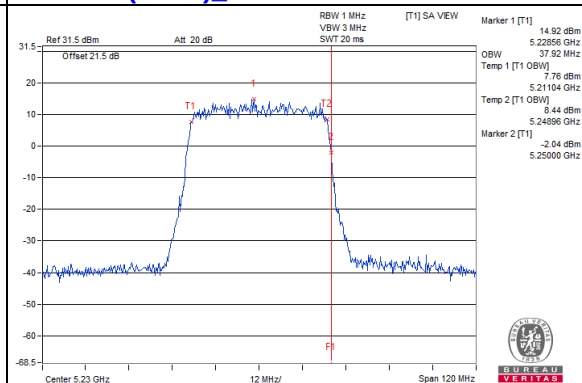
802.11ax (HE20)_Chain 1 / CH48



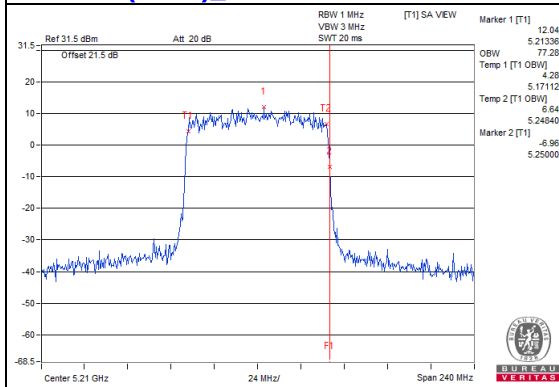
802.11ax (HE40)_Chain 0 / CH46



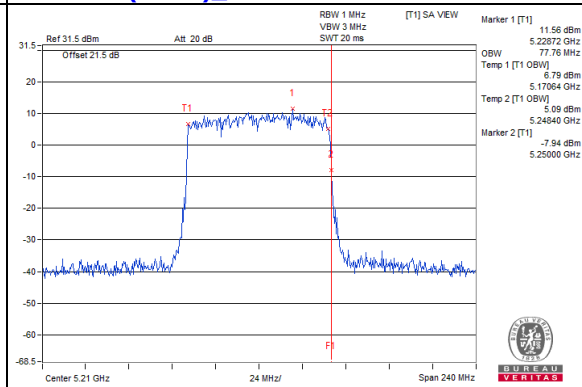
802.11ax (HE40)_Chain 1 / CH46



802.11ax (HE80)_Chain 0 / CH42



802.11ax (HE80)_Chain 1 / CH42

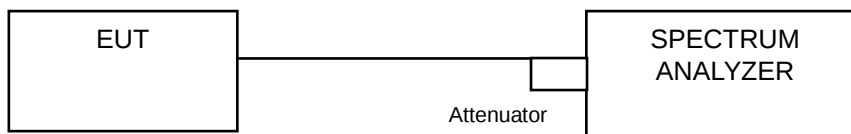


4.5 Peak Power Spectral Density Measurement

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	
	√	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 Procedure

For U-NII-1 band:

Using method SA-2

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

For U-NII-3:

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 Condition

Same as Item 4.3.6.

4.5.7 Test Results

Master

For U-NII-1:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	9.81	9.49	0.29	12.96	16.07	PASS
40	5200	11.80	11.77	0.29	15.09	16.07	PASS
48	5240	12.40	12.34	0.29	15.67	16.07	PASS

- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2]$ = 6.93 dBi > 6 dBi, so the power density limit shall be reduced to $17 - (6.93 - 6) = 16.07$ dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	9.91	10.06	0.23	13.23	16.07	PASS
40	5200	11.15	10.50	0.23	14.08	16.07	PASS
48	5240	11.19	11.34	0.23	14.51	16.07	PASS

- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2]$ = 6.93 dBi > 6 dBi, so the power density limit shall be reduced to $17 - (6.93 - 6) = 16.07$ dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	5.74	4.84	0.20	8.53	16.07	PASS
46	5230	9.04	8.38	0.20	11.94	16.07	PASS

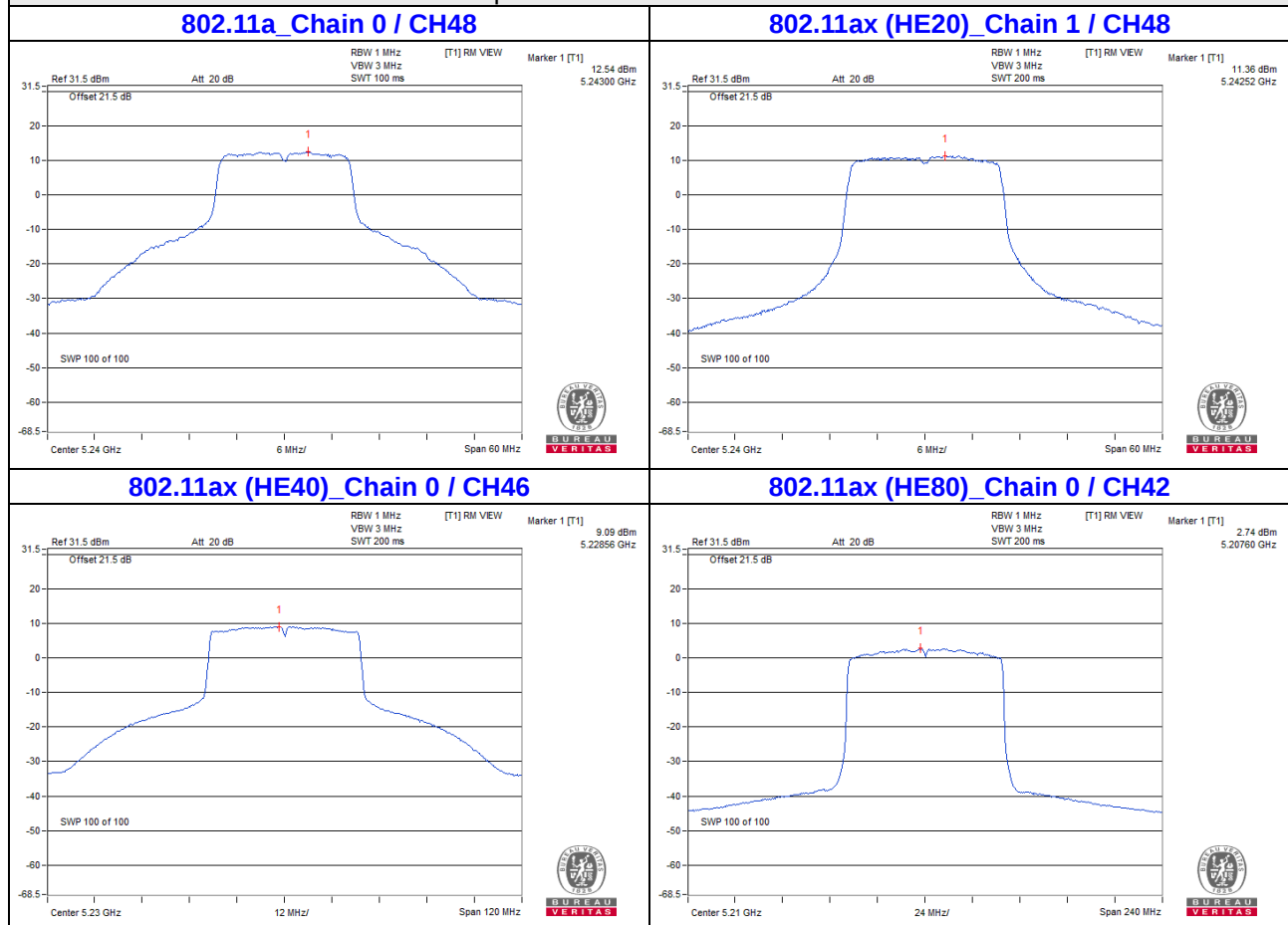
- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2]$ = 6.93 dBi > 6 dBi, so the power density limit shall be reduced to $17 - (6.93 - 6) = 16.07$ dBm.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	2.55	2.02	0.22	5.52	16.07	PASS

- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $17 - (6.93 - 6) = 16.07 \text{ dBm}$.

Spectrum Plot of Worst Value



Client

For U-NII-1:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	6.13	5.49	0.29	9.13	10.07	PASS
40	5200	6.49	5.77	0.29	9.45	10.07	PASS
48	5240	6.07	5.54	0.29	9.12	10.07	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.93 - 6) = 10.07 \text{ dBm}$.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	6.21	5.47	0.23	9.10	10.07	PASS
40	5200	6.28	6.06	0.23	9.42	10.07	PASS
48	5240	3.53	5.88	0.23	8.11	10.07	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.93 - 6) = 10.07 \text{ dBm}$.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	3.78	3.71	0.20	6.96	10.07	PASS
46	5230	3.81	3.82	0.20	7.03	10.07	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

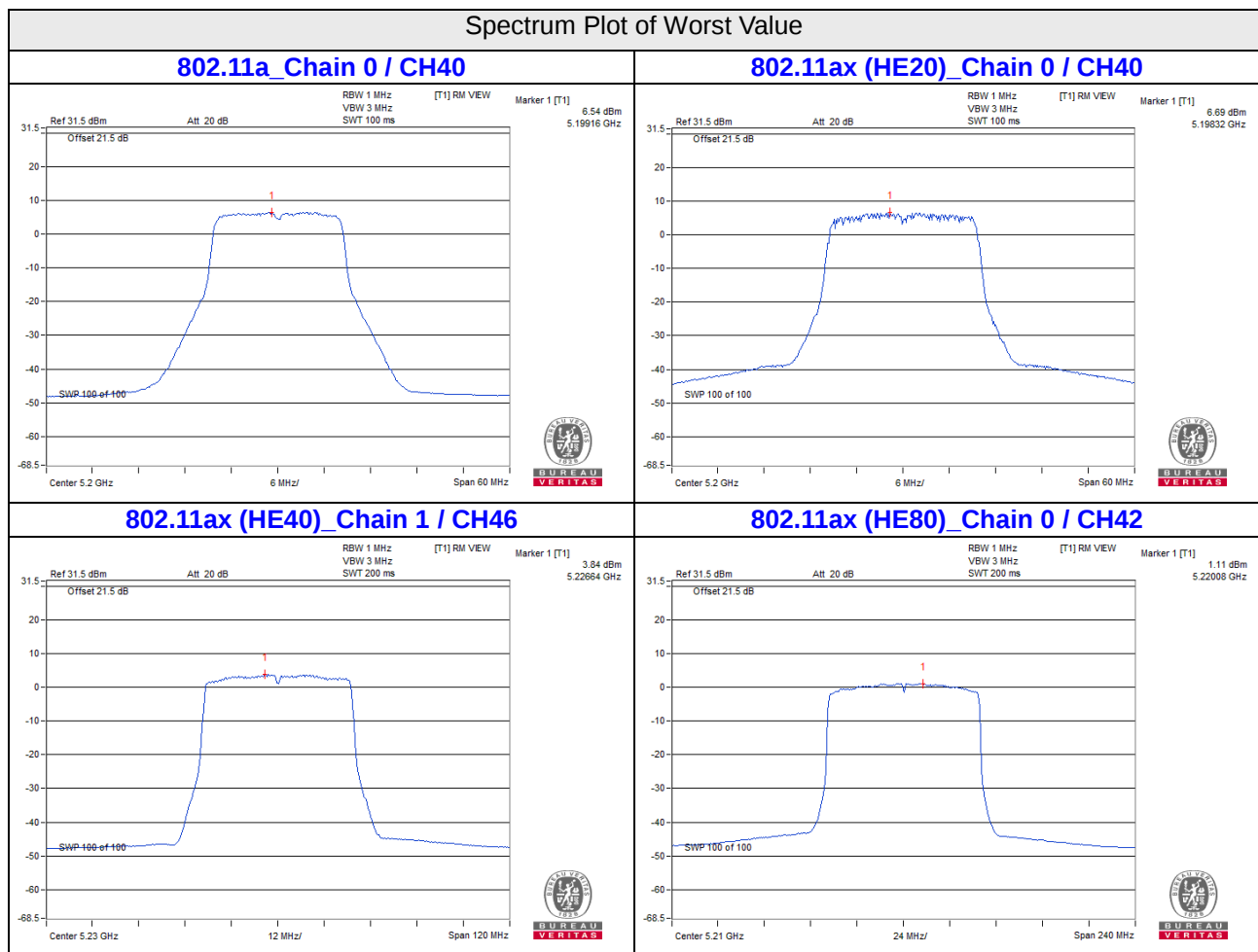
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.93 - 6) = 10.07 \text{ dBm}$.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD (dBm/MHz)	Max. PSD Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	1.05	0.70	0.22	4.10	10.07	PASS

- Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.93 - 6) = 10.07 \text{ dBm}$.

Spectrum Plot of Worst Value



For U-NII-3:

CDD Mode

802.11a

Chan.	Chan. Freq.	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (mW/300kHz)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
	(MHz)	Chain 0	Chain 1						
149	5745	3.11	4.33	0.29	5.089	7.07	9.29	29.07	PASS
157	5785	3.44	4.77	0.29	5.571	7.46	9.68	29.07	PASS
165	5825	3.44	3.78	0.29	4.917	6.92	9.14	29.07	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE20)

Chan.	Chan. Freq.	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (mW/300kHz)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
	(MHz)	Chain 0	Chain 1						
149	5745	1.28	2.46	0.23	3.276	5.15	7.37	29.07	PASS
157	5785	1.61	3.15	0.23	3.708	5.69	7.91	29.07	PASS
165	5825	1.95	1.90	0.23	3.288	5.17	7.39	29.07	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE40)

Chan.	Chan. Freq.	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (mW/300kHz)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
	(MHz)	Chain 0	Chain 1						
151	5755	-1.21	0.08	0.20	1.8603	2.70	4.92	29.07	PASS
159	5795	-0.70	-0.47	0.20	1.8322	2.63	4.85	29.07	PASS

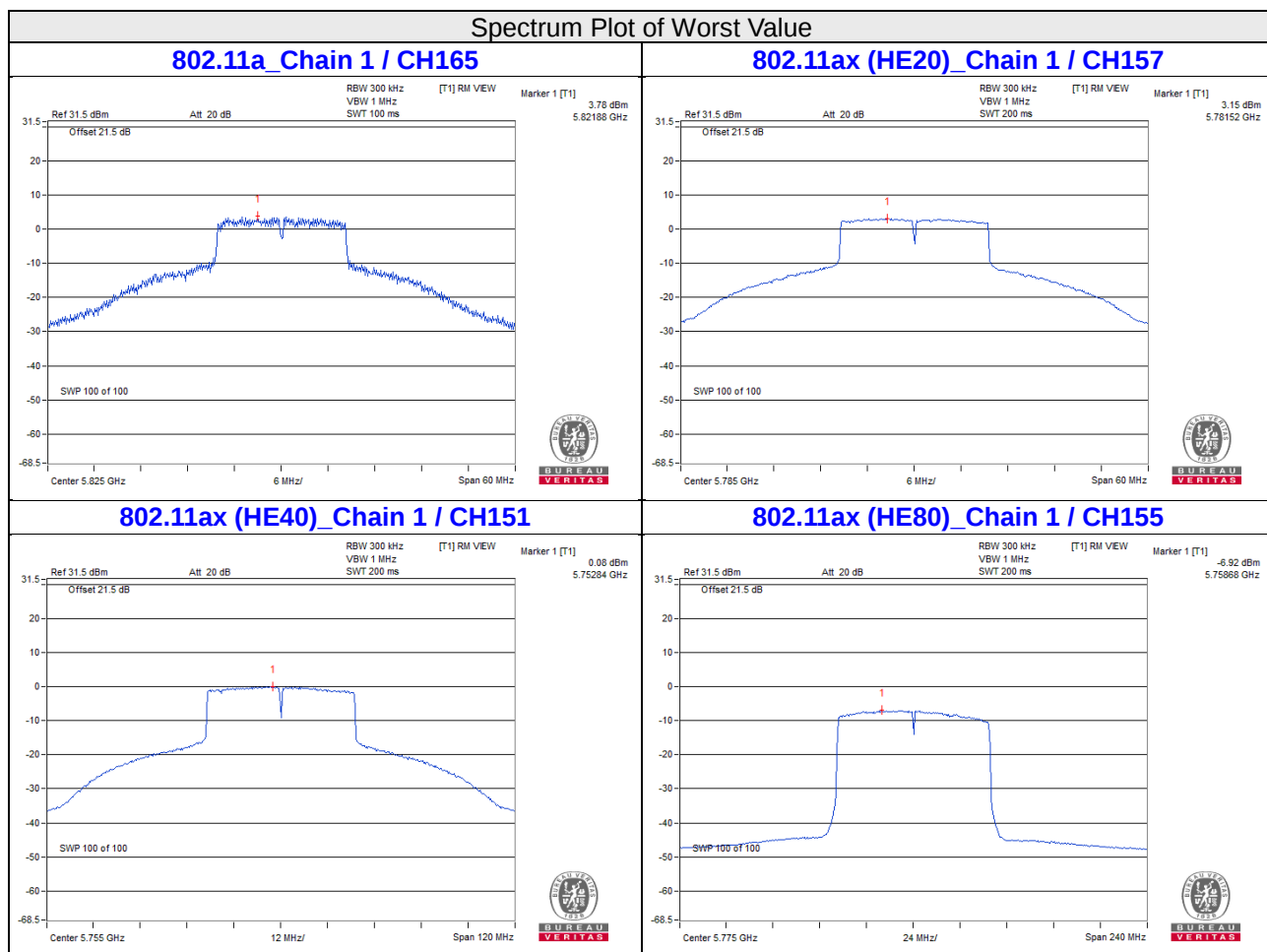
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

802.11ax (HE80)

Chan.	Chan. Freq.	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (mW/300kHz)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
	(MHz)	Chain 0	Chain 1						
155	5775	-8.10	-6.92	0.22	0.3763	-4.24	-2.02	29.07	PASS

- Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.93 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $30 - (6.93 - 6) = 29.07 \text{ dBm}$.

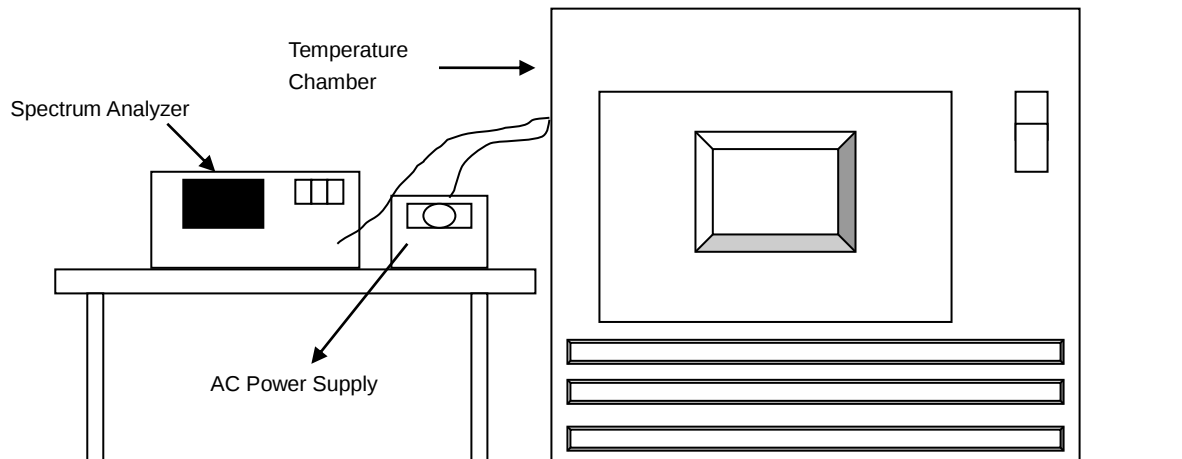


4.6 Frequency Stability Measurement

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

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
40	120	5179.9986	PASS	5180.0019	PASS	5179.999	PASS	5180.0009	PASS
30	120	5180.0044	PASS	5180.0076	PASS	5180.0074	PASS	5180.0056	PASS
20	120	5180.0164	PASS	5180.0179	PASS	5180.0174	PASS	5180.0182	PASS
10	120	5180.0192	PASS	5180.0153	PASS	5180.0164	PASS	5180.0162	PASS
0	120	5179.99	PASS	5179.9886	PASS	5179.9873	PASS	5179.9912	PASS

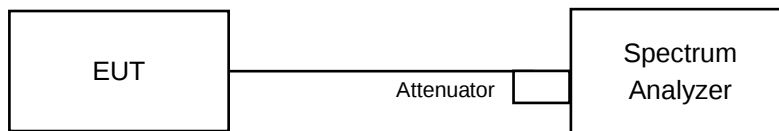
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5180.0163	PASS	5180.0179	PASS	5180.0184	PASS	5180.0181	PASS
	120	5180.0164	PASS	5180.0179	PASS	5180.0174	PASS	5180.0182	PASS
	102	5180.0169	PASS	5180.0177	PASS	5180.017	PASS	5180.0179	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

MEASUREMENT PROCEDURE REF

- 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

Master

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	15.81	15.99	0.5	Pass
157	5785	16.32	16.31	0.5	Pass
165	5825	16.37	16.31	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	18.58	18.81	0.5	Pass
157	5785	18.59	18.67	0.5	Pass
165	5825	18.96	18.77	0.5	Pass

802.11ax (HE40)

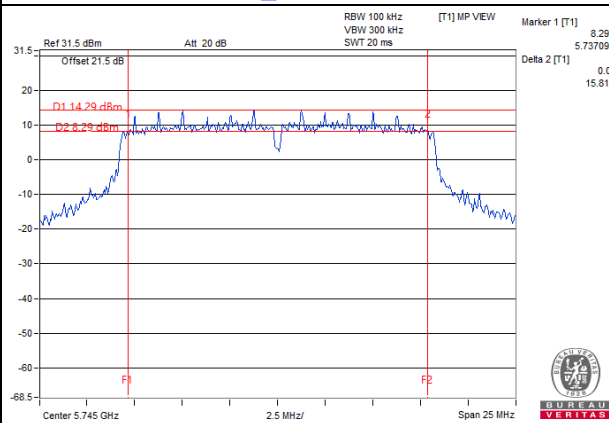
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	37.91	38.09	0.5	Pass
159	5795	37.9	37.88	0.5	Pass

802.11ax (HE80)

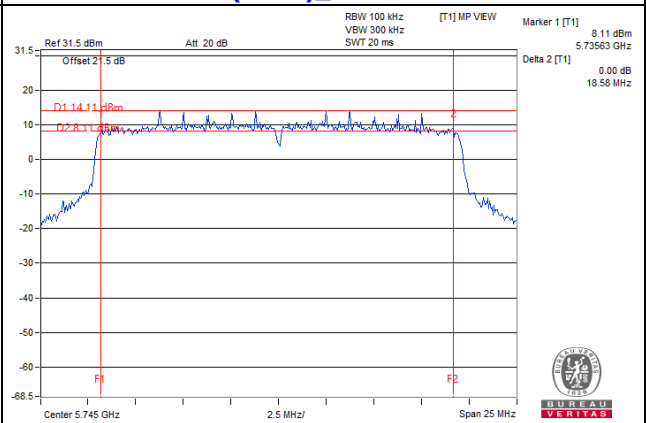
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.5	74.15	0.5	Pass

Spectrum Plot of Worst Value

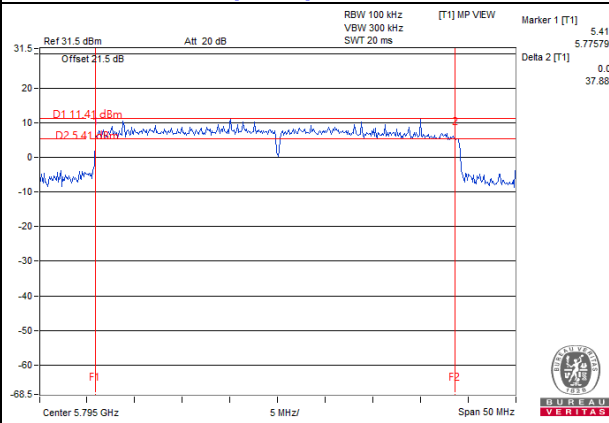
802.11a_Chain 0 / CH149



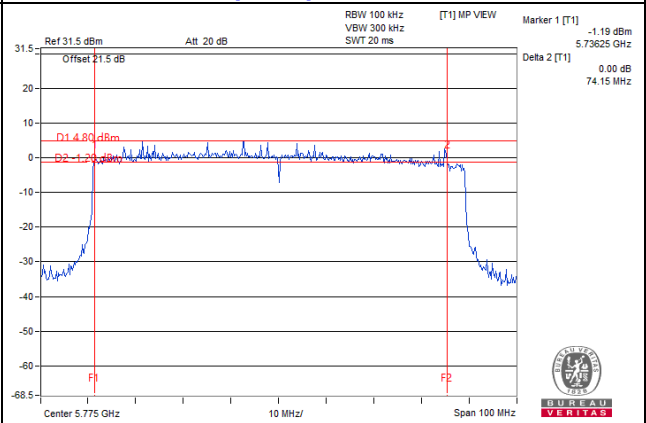
802.11ax (HE20)_Chain 0 / CH149



802.11ax (HE40)_Chain 1 / CH159



802.11ax (HE80)_Chain 1 / CH155



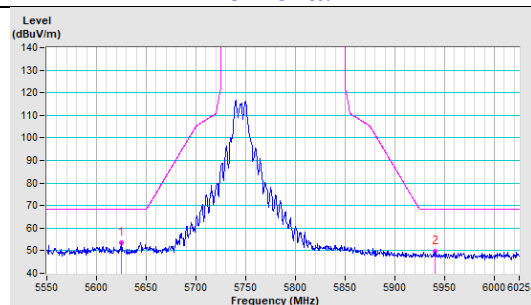
5 Pictures of Test Arrangements

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

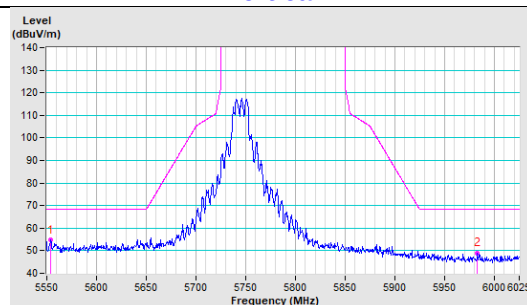
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a CH 149 : 5745 MHz

Horizontal

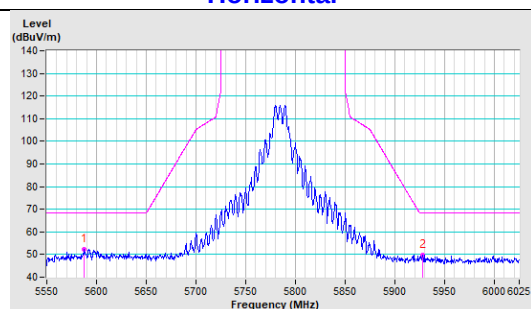


Vertical

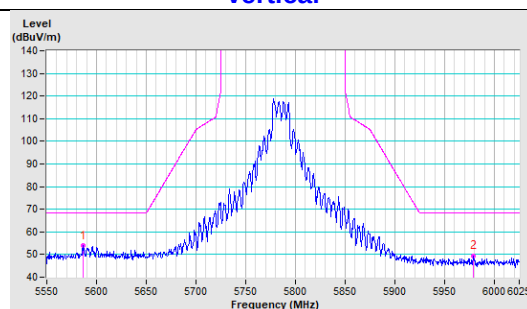


802.11a CH 157 : 5785 MHz

Horizontal

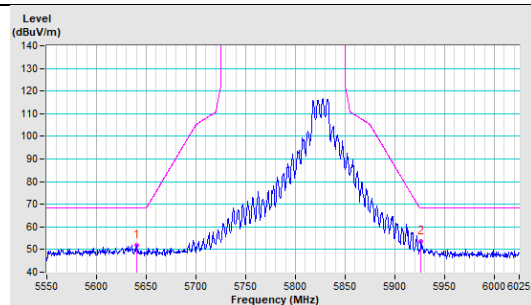


Vertical

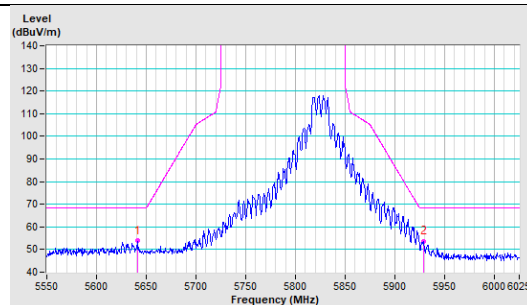


802.11a CH 165 : 5825 MHz

Horizontal

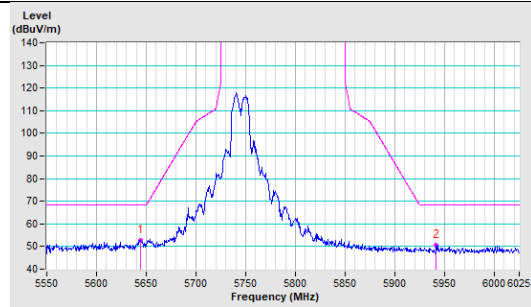


Vertical

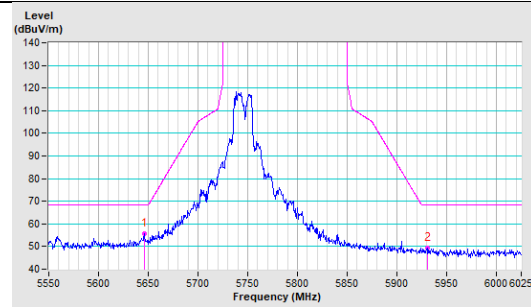


802.11ax (HE20) CH 149 : 5745 MHz

Horizontal

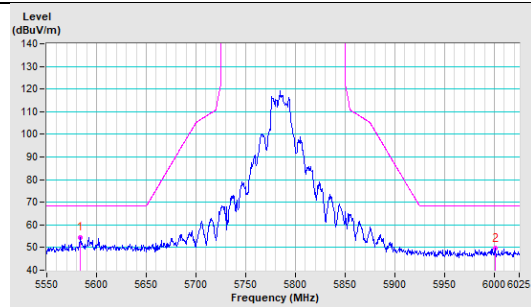


Vertical

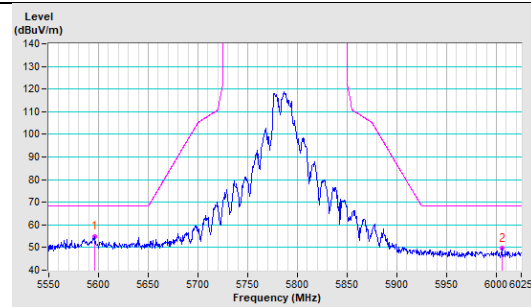


802.11ax (HE20) CH 157 : 5785 MHz

Horizontal

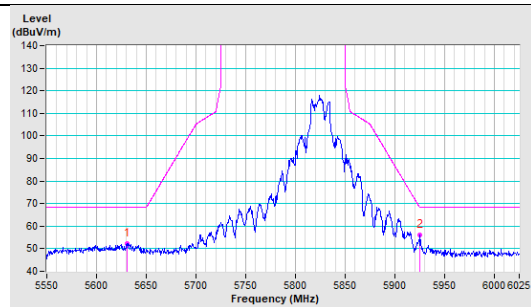


Vertical

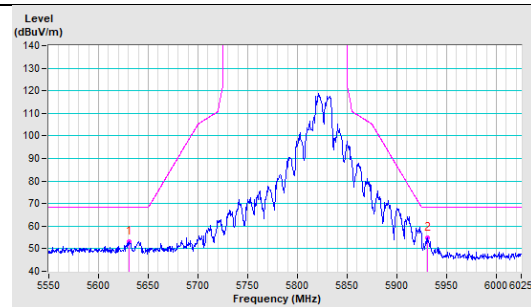


802.11ax (HE20) CH 165 : 5825 MHz

Horizontal

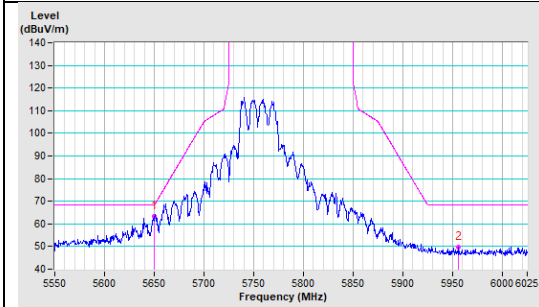


Vertical

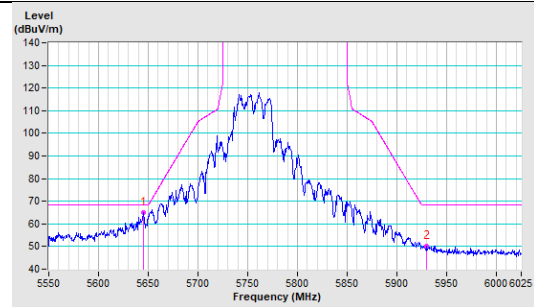


802.11ax (HE40) CH 151 : 5755 MHz

Horizontal

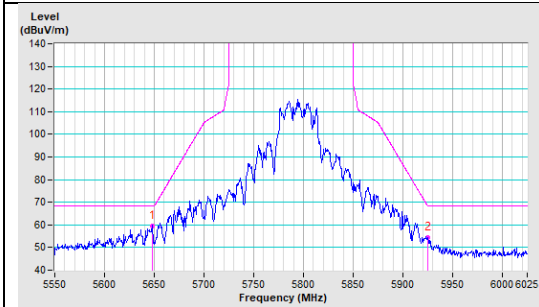


Vertical

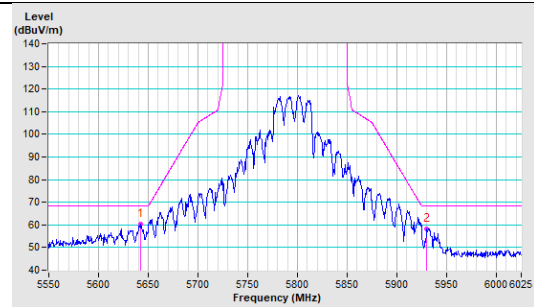


802.11ax (HE40) CH 159 : 5795 MHz

Horizontal

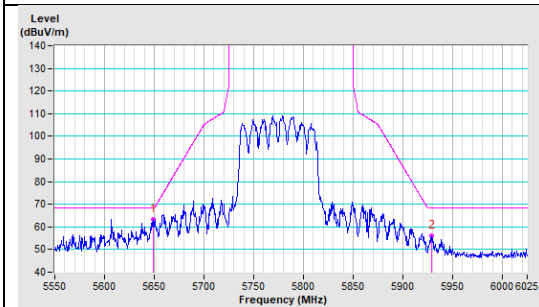


Vertical

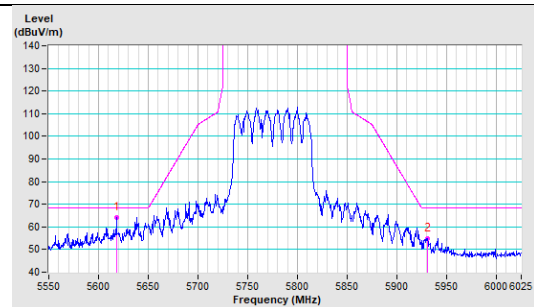


802.11ax (HE80) CH 155 : 5775 MHz

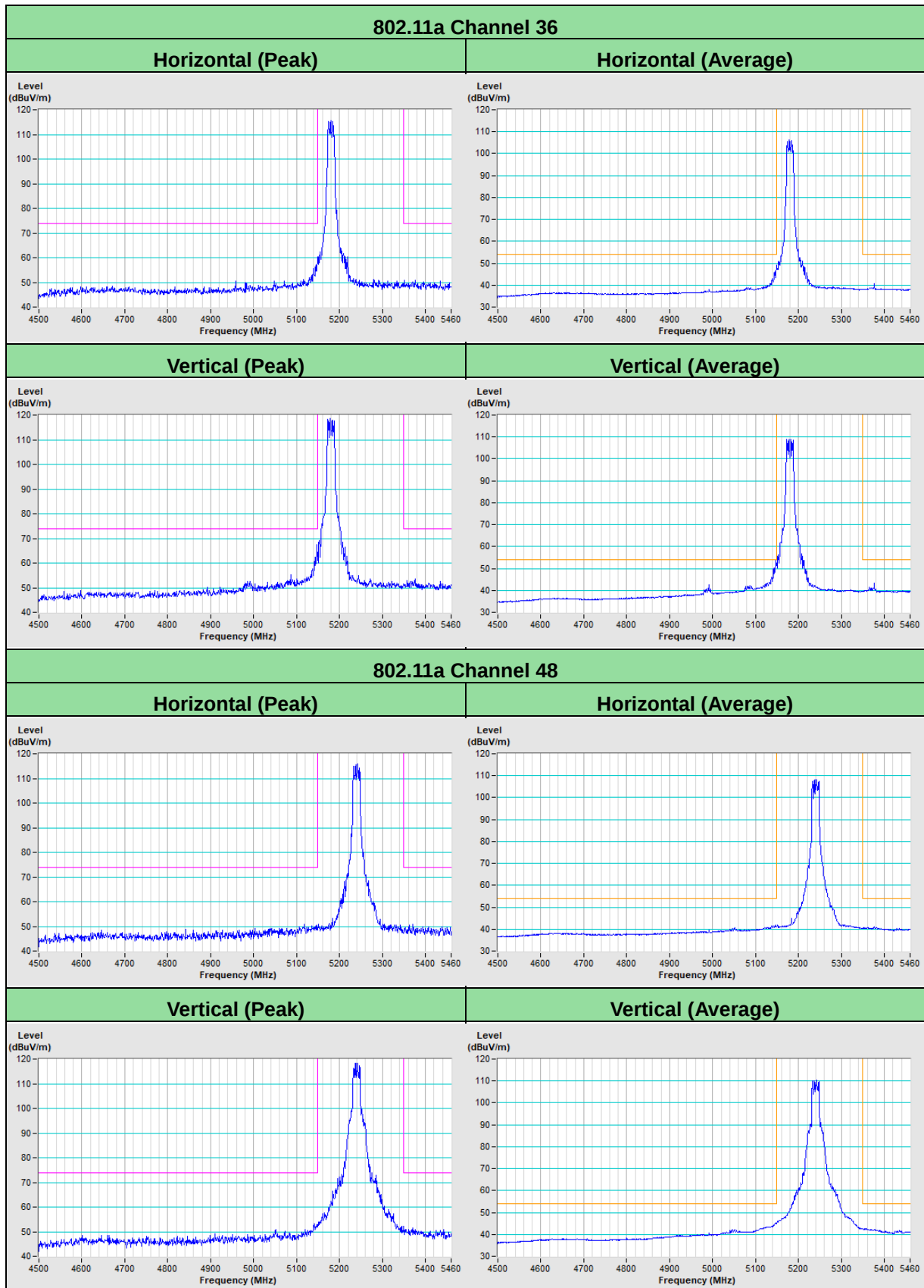
Horizontal

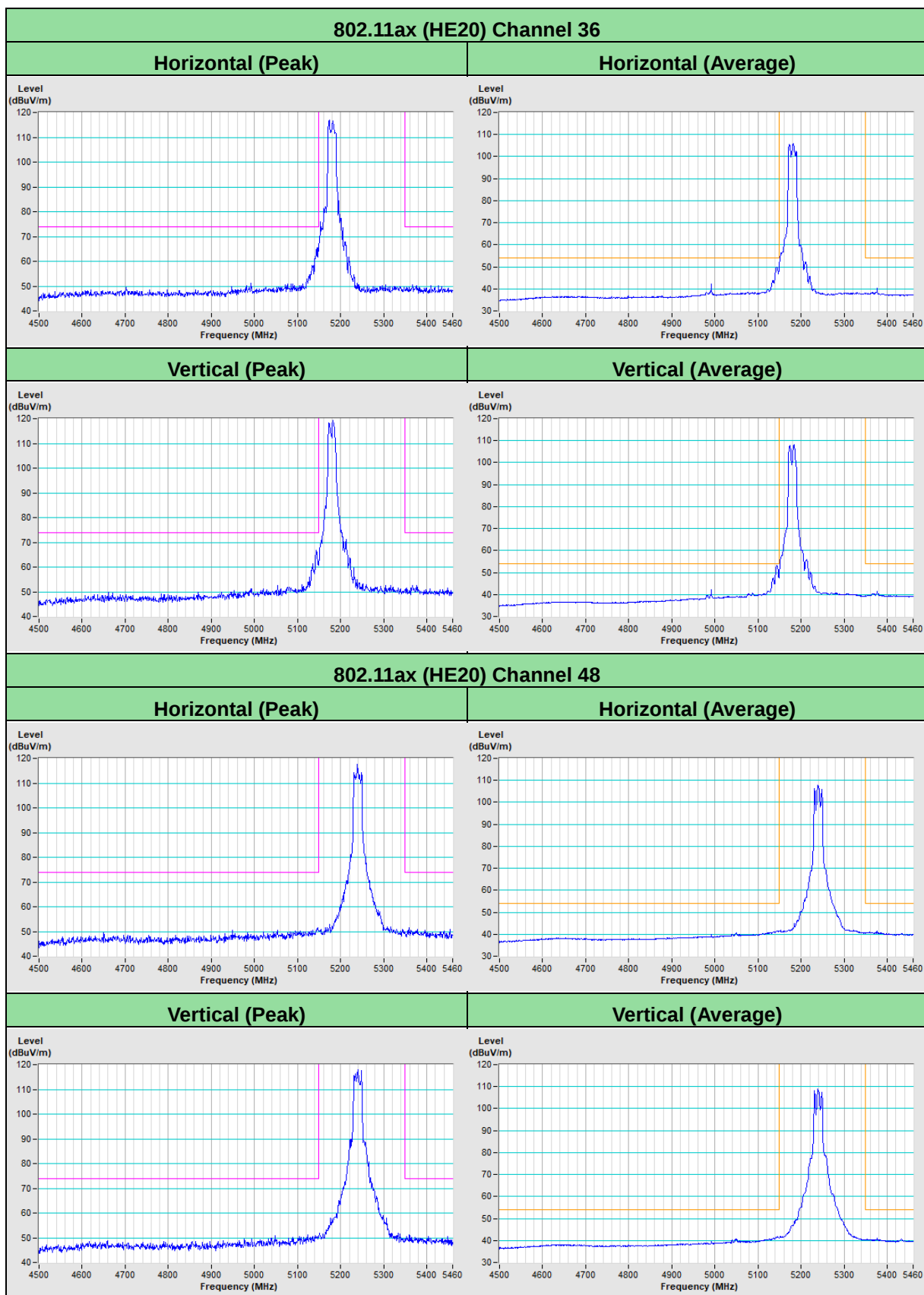


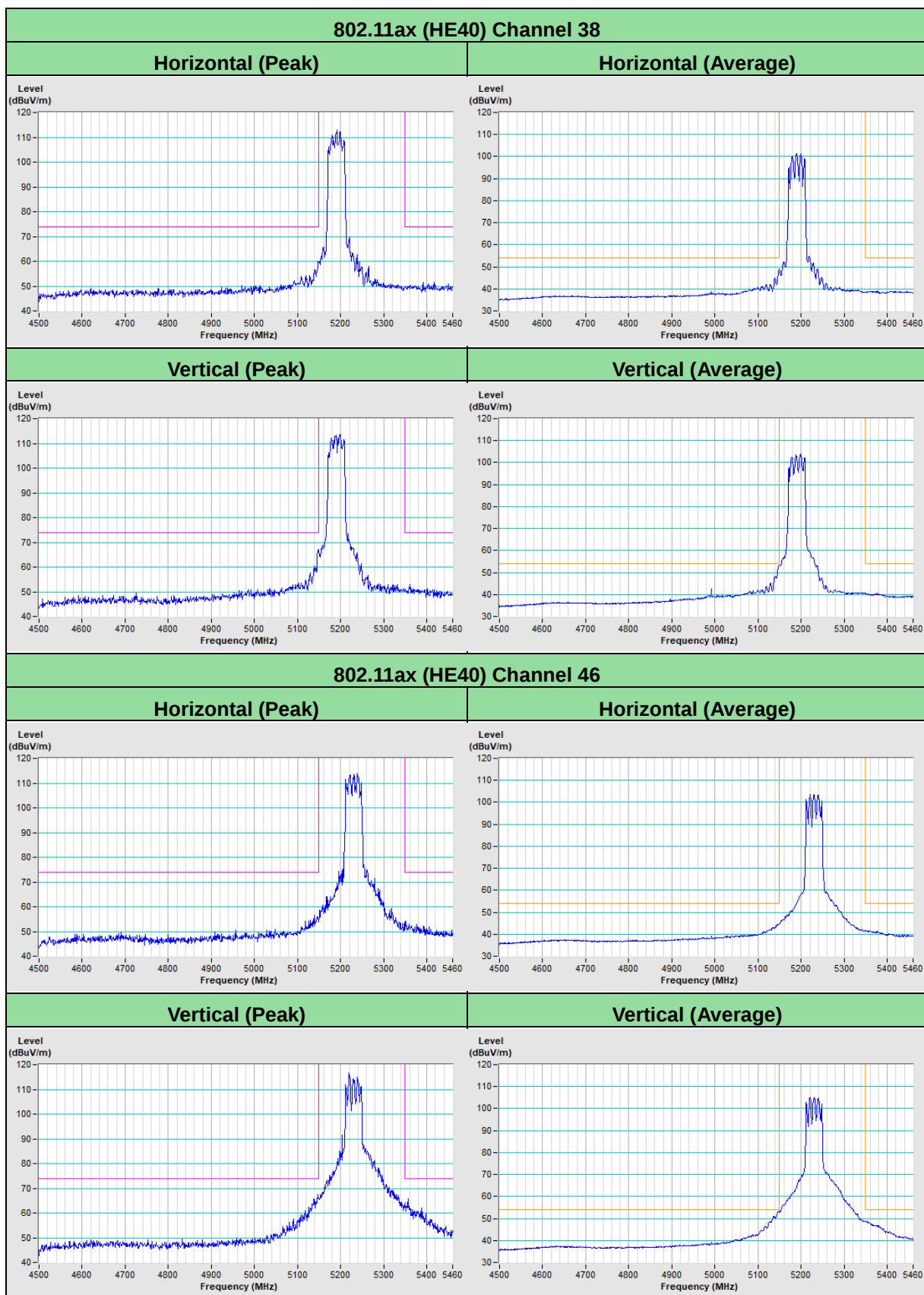
Vertical

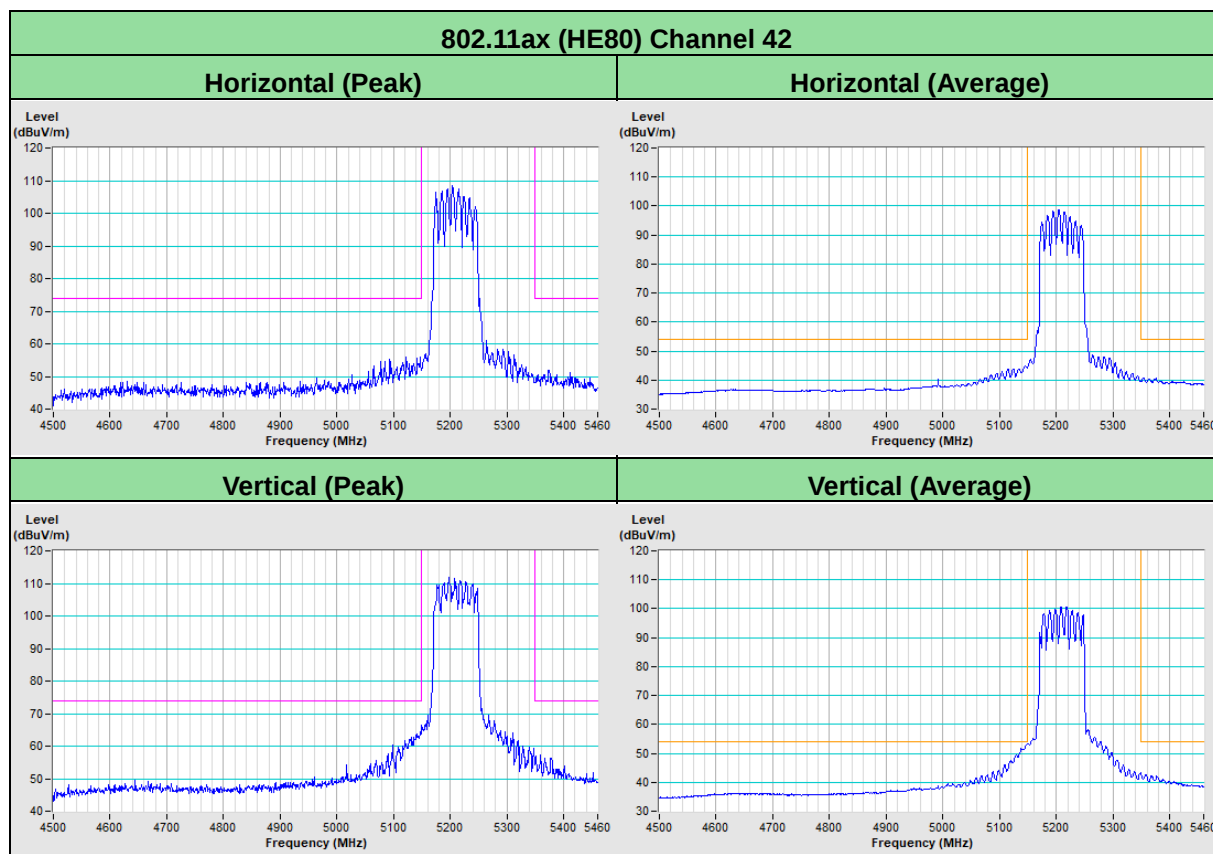


Annex B- Band-edge measurement (For U-NII-1 band)









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 according to ISO/IEC 17025.

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

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Hwa Ya EMC/RF/Safety Lab

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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.

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