FCC Test Report

Report No.:	RFBEMT-WTW-P20100622-1
FCC ID:	K7S-08270
Test Model:	RE7350
Series Model:	RE7310
Received Date:	Oct. 26, 2020
Test Date:	Nov. 01 to 30, 2020
Issued Date:	Dec. 15, 2020
Applicant:	Belkin International, Inc.
Address:	12045 East Waterfront Drive Playa Vista, CA. 90094, USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RFBEMT-WTW-P20100622-1	Original release.	Dec. 15, 2020

1 Certificate of Conformity

Product:	LINKSYS RE7350 WIFI 6 RANGE EXTENDER, AX1800 LINKSYS RE7310 WIFI RANGE EXTENDER, AX1800
Brand:	Linksys
Test Model:	RE7350
Series Model:	RE7310
Sample Status:	Engineering sample
Applicant:	Belkin International, Inc.
Test Date:	Nov. 01 to 30, 2020
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 : Phoenix Huang , **Date:** Dec. 15, 2020

Phoenix Huang / Specialist

Approved by : , **Date:** Dec. 15, 2020

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 -5.67 dB at 0.49472 MHz.
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 -0.1 dB at 5147.71 MHz and 11570.00 MHz.
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 i-pex(MHF) not a standard connector.

Note:
1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOBE 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) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 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	LINKSYS RE7350 WIFI 6 RANGE EXTENDER, AX1800 LINKSYS RE7310 WIFI RANGE EXTENDER, AX1800
Brand	Linksys
Test Model	RE7350
Series Model	RE7310
Status of EUT	Engineering sample
Driver version	1.0.3.16
Power Supply Rating	100 ~ 240 Vac, 1.5 A, 50-60 Hz
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: up to 11 Mbps 802.11a/g: 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	**2.4GHz:** 2.412 ~ 2.462 GHz **5GHz:** 5.18 ~ 5.24 GHz, 5.745 ~ 5.825 GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11ax (HE40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 9 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 4 802.11ac (VHT80), 802.11ax (HE80): 2
Output Power	**CDD Mode:** **2.4GHz:** 847.77 mW **5.18 ~ 5.24GHz:** 538.719 mW **5.745 ~ 5.825GHz:** 563.029 mW **Beamforming Mode:** **2.4GHz:** 629.061 mW **5.18 ~ 5.24GHz:** 538.719 mW **5.745 ~ 5.825GHz:** 540.43 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The EUT has below model names, which are identical to each other in all aspects except for the following table:

Product Name	Model Name	Brand	PCBA
LINKSYS RE7350 WIFI 6 RANGE EXTENDER, AX1800	RE7350	Linksys	with RJ45
LINKSYS RE7310 WIFI RANGE EXTENDER, AX1800	RE7310		no RJ45
Note: Above two model names of EUT were pre-tested in chamber, the worse case was found in model No.: **RE7350**. Therefore only the test data of the type was recorded in this report.			

2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN (2.4GHz)	WLAN (5GHz)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

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

Antenna No.	RF Chain No.	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type	Cable Length (mm)
1	DB1	4.9	2.4~2.4835	PCB	i-pex(MHF)	80
		5.3	5.15~5.25			
		4.8	5.725~5.85			
2	DB2	4.9	2.4~2.4835	PCB	i-pex(MHF)	80
		5.5	5.15~5.25			
		5.1	5.725~5.85			

4. The EUT incorporates a MIMO function:

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
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/b/g & 2.4GHz 802.11n 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 mode or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)

5. 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.
6. 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 **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement
Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

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
802.11ax (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
802.11ax (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

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
802.11ax (HE20)	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDMA	BPSK	MCS0

Power Line Conducted Emission Test:

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate Parameter
802.11ax (HE20)	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDMA	BPSK	MCS0

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:

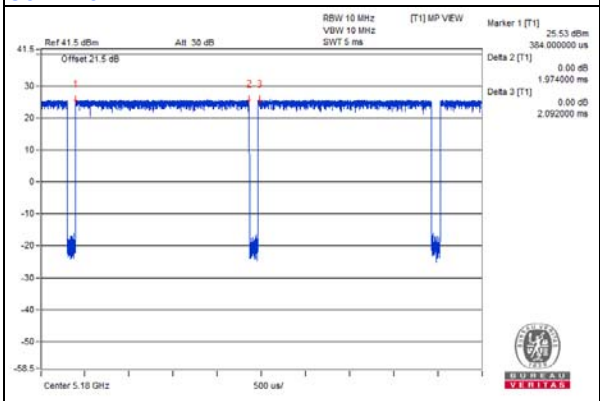
Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	25deg. C, 75%RH, 22deg. C, 68%RH	120Vac, 60Hz	Benson Chao, Benson Chao
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Carter Lin
PLC	25deg. C, 62%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Eric Peng

3.3 Duty Cycle of Test Signal

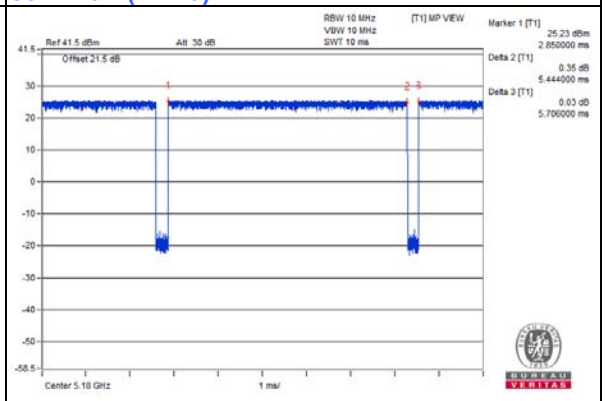
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11a: Duty cycle = 1.974 ms/2.092 ms = 0.944, Duty factor = 10 * log (1/Duty cycle) = 0.25 dB
802.11ax (HE20): Duty cycle = 5.444 ms/5.706 ms = 0.954, Duty factor = 10 * log (1/Duty cycle) = 0.2 dB
802.11ax (HE40): Duty cycle = 5.444 ms/5.77 ms = 0.944, Duty factor = 10 * log (1/Duty cycle) = 0.25 dB
802.11ax (HE80): Duty cycle = 5.444 ms/5.668 ms = 0.96, Duty factor = 10 * log (1/Duty cycle) = 0.18 dB

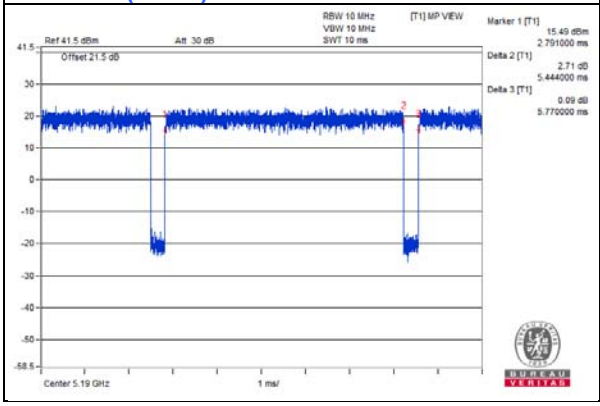
802.11a



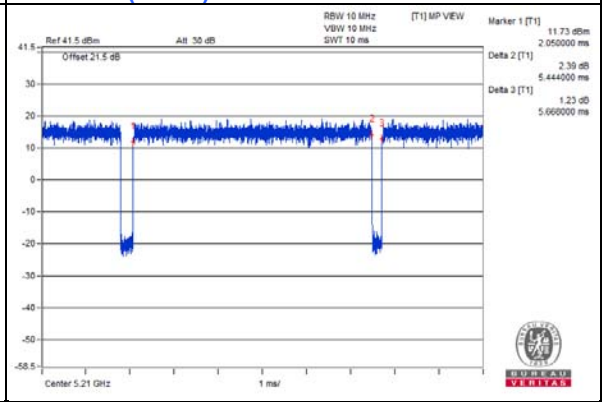
802.11ax (HE20)



802.11ax (HE40)



802.11ax (HE80)



3.4 Description of Support Units

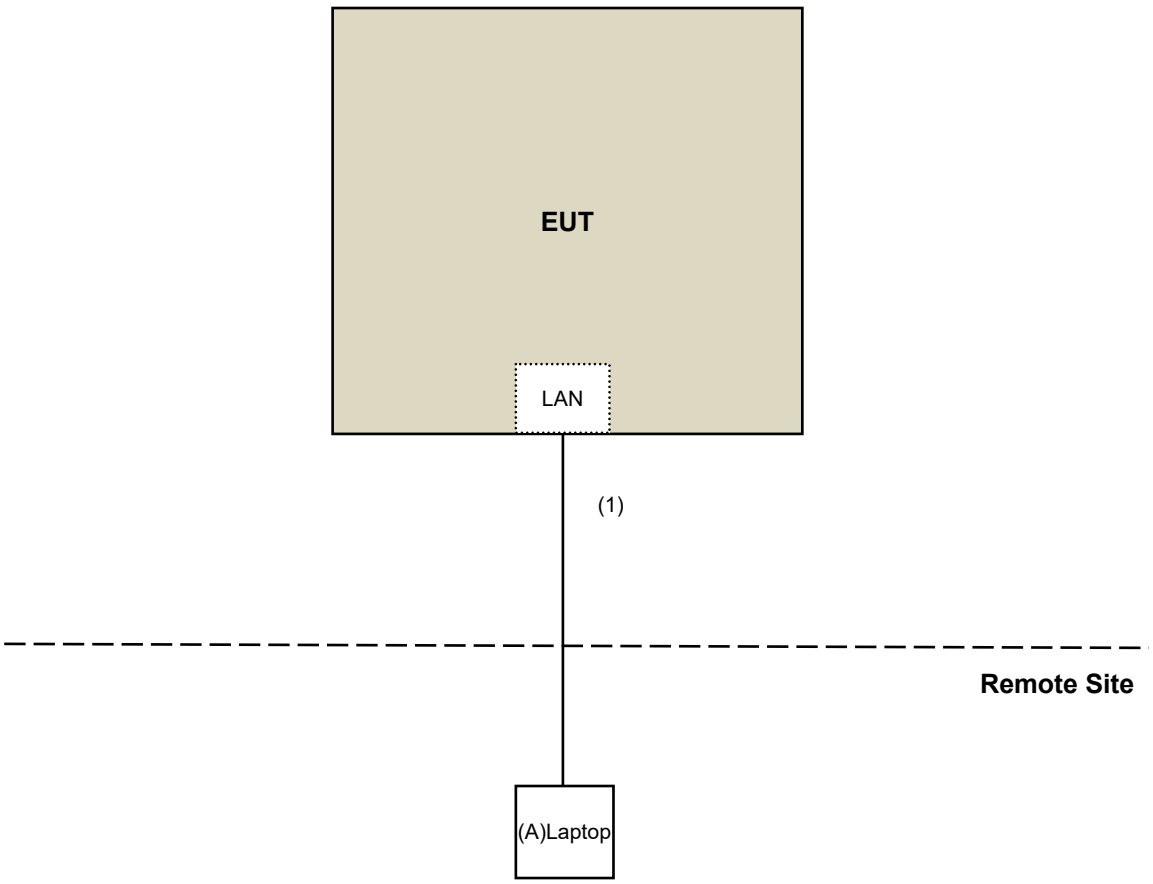
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	Inspiron 7570	DW3CSJ2	NA	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.	RJ-45 Cable	1	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

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

Test Standard:
FCC Part 15, Subpart E (15.407)
ANSI C63.10-2013

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

References Test Guidance:
KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) *1 PK: 10 (dBm/MHz) *2 PK: 15.6 (dBm/MHz) *3 PK: 27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK: 105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK: 122.2 (dBμV/m) *4
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(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4

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

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

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

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

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

$$E = \frac{1000000\sqrt{30P}}{3}$$ μV/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 Keysight	N9038A	MY54450088	July 06, 2020	July 05, 2021
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	264	Feb. 18, 2020	Feb. 17, 2021
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 28, 2020	Apr. 27, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 05, 2020	Nov. 04, 2021
RF Cable	8D	966-3-1	Mar. 17, 2020	Mar. 16, 2021
RF Cable	8D	966-3-2	Mar. 17, 2020	Mar. 16, 2021
RF Cable	8D	966-3-3	Mar. 17, 2020	Mar. 16, 2021
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 24, 2020	Sep. 23, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1500	180504	Apr. 29, 2020	Apr. 28, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 09, 2020	June 08, 2021
RF Cable	EMC104-SM-SM-6000	180602	June 09, 2020	June 08, 2021
Spectrum Analyzer Keysight	N9030A	MY54490679	July 13, 2020	July 12, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 15, 2020	Jan. 14, 2021
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC-KM-KM-4000	200214	Mar. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Tested Date: Nov. 29, 2020

For OOBE test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 06, 2020	July 05, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1500	180504	Apr. 29, 2020	Apr. 28, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 09, 2020	June 08, 2021
RF Cable	EMC104-SM-SM-6000	180602	June 09, 2020	June 08, 2021
Spectrum Analyzer Keysight	N9030A	MY54490679	July 13, 2020	July 12, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 15, 2020	Jan. 14, 2021
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC-KM-KM-4000	200214	Mar. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. 3.
3. Tested Date: Nov. 01, 2020

For other test items:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	May 29, 2020	May 28, 2021
Power meter Anritsu	ML2495A	1529002	July 22, 2020	July 21, 2021
Power sensor Anritsu	MA2411B	1339443	July 22, 2020	July 21, 2021
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 14, 2020	Apr. 13, 2021
AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 16, 2020	Jan. 15, 2021
True RMS Clamp Meter FLUKE	325	31130711WS	June 06, 2020	June 05, 2021
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

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: Nov. 16, 2020

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:

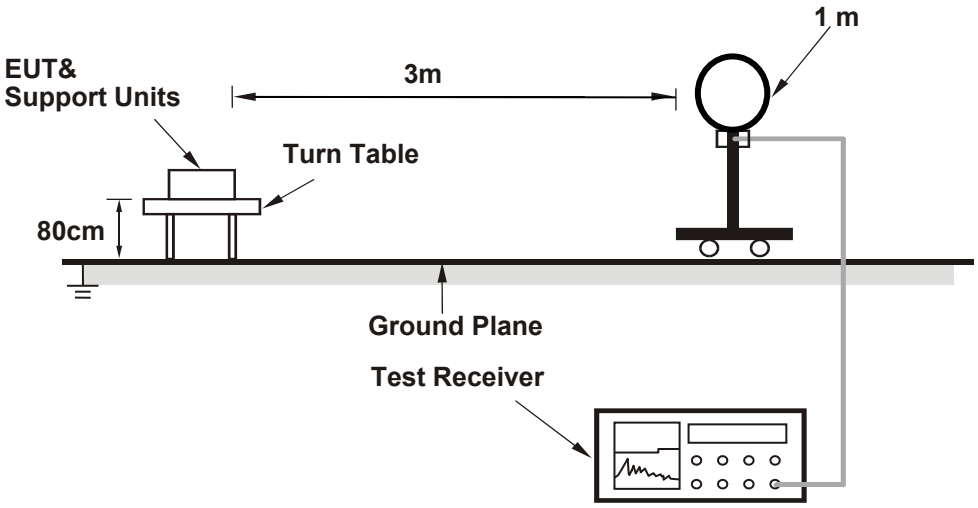
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 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

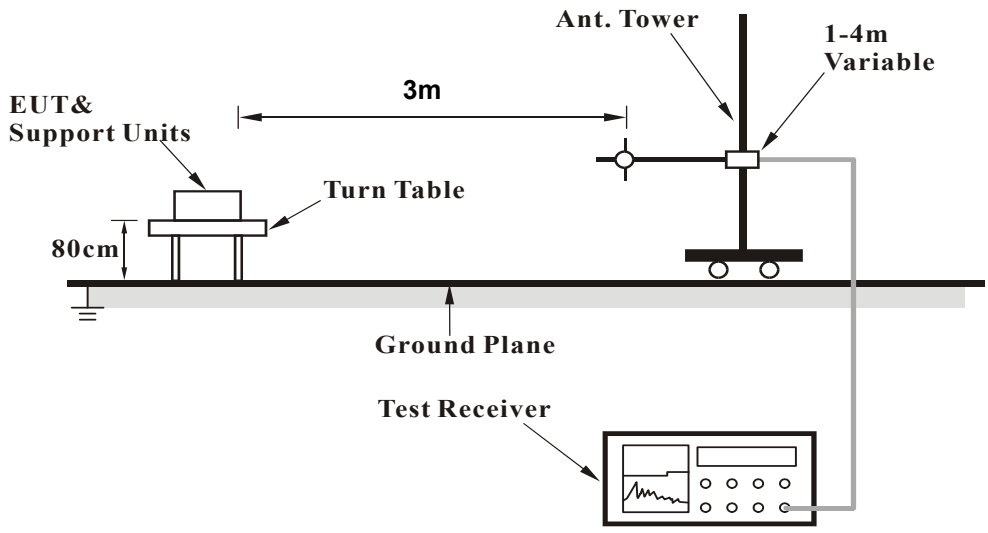
No deviation.

4.1.5 Test Setup

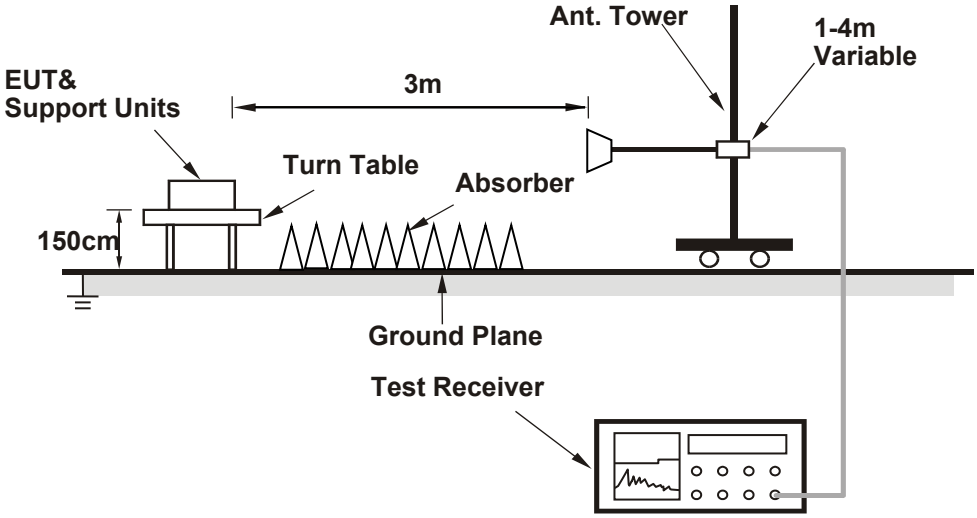
For Radiated emission below 30MHz



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

a. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (QDART-Connectivity1.0-00072) 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	5148.98	62.6 PK	74.0	-11.4	1.00 H	355	57.8	4.8
2	5148.98	52.6 AV	54.0	-1.4	1.00 H	355	47.8	4.8
3	*5180.00	119.8 PK			1.00 H	355	115.3	4.5
4	*5180.00	111.3 AV			1.00 H	355	106.8	4.5
5	#10360.00	62.4 PK	68.2	-5.8	1.74 H	203	48.7	13.7
6	15540.00	51.5 PK	74.0	-22.5	2.68 H	149	37.6	13.9
7	15540.00	41.0 AV	54.0	-13.0	2.68 H	149	27.1	13.9
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	59.3 PK	74.0	-14.7	1.99 V	213	54.6	4.7
2	5150.00	48.3 AV	54.0	-5.7	1.99 V	213	43.6	4.7
3	*5180.00	106.2 PK			1.99 V	213	101.7	4.5
4	*5180.00	97.2 AV			1.99 V	213	92.7	4.5
5	#10360.00	60.3 PK	68.2	-7.9	1.33 V	217	46.6	13.7
6	15540.00	51.9 PK	74.0	-22.1	1.86 V	300	38.0	13.9
7	15540.00	41.5 AV	54.0	-12.5	1.86 V	300	27.6	13.9

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 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	5149.65	56.5 PK	74.0	-17.5	1.45 H	15	51.7	4.8
2	5149.65	49.5 AV	54.0	-4.5	1.45 H	15	44.7	4.8
3	*5200.00	119.3 PK			1.45 H	15	115.1	4.2
4	*5200.00	110.8 AV			1.45 H	15	106.6	4.2
5	#10400.00	62.1 PK	68.2	-6.1	1.69 H	194	48.5	13.6
6	15600.00	51.6 PK	74.0	-22.4	2.68 H	147	37.5	14.1
7	15600.00	41.2 AV	54.0	-12.8	2.68 H	147	27.1	14.1
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	*5200.00	105.7 PK			2.00 V	220	101.5	4.2
2	*5200.00	96.7 AV			2.00 V	220	92.5	4.2
3	#10400.00	60.3 PK	68.2	-7.9	1.34 V	203	46.7	13.6
4	15600.00	51.5 PK	74.0	-22.5	1.84 V	312	37.4	14.1
5	15600.00	41.2 AV	54.0	-12.8	1.84 V	312	27.1	14.1

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 802.11a	Channel	CH 48：5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	116.7 PK			1.76 H	14	112.4	4.3
2	*5240.00	108.4 AV			1.76 H	14	104.1	4.3
3	5438.04	49.4 PK	74.0	-24.6	1.76 H	14	45.1	4.3
4	5438.04	40.2 AV	54.0	-13.8	1.76 H	14	35.9	4.3
5	#10480.00	62.5 PK	68.2	-5.7	1.69 H	193	48.8	13.7
6	15720.00	50.9 PK	74.0	-23.1	2.74 H	137	36.5	14.4
7	15720.00	40.7 AV	54.0	-13.3	2.74 H	137	26.3	14.4
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	*5240.00	104.9 PK			2.01 V	223	100.6	4.3
2	*5240.00	95.6 AV			2.01 V	223	91.3	4.3
3	5439.26	50.0 PK	74.0	-24.0	2.01 V	223	45.7	4.3
4	5439.26	38.0 AV	54.0	-16.0	2.01 V	223	33.7	4.3
5	#10480.00	59.8 PK	68.2	-8.4	1.31 V	216	46.1	13.7
6	15720.00	52.1 PK	74.0	-21.9	1.85 V	314	37.7	14.4
7	15720.00	41.8 AV	54.0	-12.2	1.85 V	314	27.4	14.4

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	#5631.13	52.5 PK	68.2	-15.7	1.43 H	7	48.2	4.3
2	*5745.00	117.6 PK			1.43 H	7	112.8	4.8
3	*5745.00	109.6 AV			1.43 H	7	104.8	4.8
4	#5954.69	52.2 PK	68.2	-16.0	1.43 H	7	47.2	5.0
5	11490.00	64.5 PK	74.0	-9.5	2.46 H	166	49.9	14.6
6	11490.00	53.7 AV	54.0	-0.3	2.46 H	166	39.1	14.6
7	#17235.00	50.7 PK	68.2	-17.5	3.12 H	246	32.5	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5576.90	50.5 PK	68.2	-17.7	1.98 V	218	46.2	4.3
2	*5745.00	109.4 PK			1.98 V	218	104.6	4.8
3	*5745.00	97.9 AV			1.98 V	218	93.1	4.8
4	#5971.28	49.7 PK	68.2	-18.5	1.98 V	218	44.7	5.0
5	11490.00	62.4 PK	74.0	-11.6	2.83 V	228	47.8	14.6
6	11490.00	52.7 AV	54.0	-1.3	2.83 V	228	38.1	14.6
7	#17235.00	51.3 PK	68.2	-16.9	1.58 V	328	33.1	18.2

Remarks:

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

RF Mode	TX 802.11a	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	#5591.04	51.4 PK	68.2	-16.8	1.24 H	8	47.1	4.3
2	*5785.00	119.1 PK			1.24 H	8	114.2	4.9
3	*5785.00	110.2 AV			1.24 H	8	105.3	4.9
4	#5983.50	51.6 PK	68.2	-16.6	1.24 H	8	46.5	5.1
5	11570.00	63.3 PK	74.0	-10.7	2.61 H	167	48.7	14.6
6	**11570.00**	**53.9 AV**	**54.0**	**-0.1**	**2.61 H**	**167**	**39.3**	**14.6**
7	#17355.00	51.3 PK	68.2	-16.9	3.15 H	238	33.1	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5639.97	50.8 PK	68.2	-17.4	2.00 V	222	46.5	4.3
2	*5785.00	110.0 PK			2.00 V	222	105.1	4.9
3	*5785.00	98.3 AV			2.00 V	222	93.4	4.9
4	#5941.27	51.4 PK	68.2	-16.8	2.00 V	222	46.4	5.0
5	11570.00	59.7 PK	74.0	-14.3	1.47 V	186	45.1	14.6
6	11570.00	50.4 AV	54.0	-3.6	1.47 V	186	35.8	14.6
7	#17355.00	51.9 PK	68.2	-16.3	1.57 V	326	33.7	18.2

Remarks:

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

RF Mode	TX 802.11a	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	#5635.62	53.1 PK	68.2	-15.1	1.09 H	12	48.8	4.3
2	*5825.00	118.2 PK			1.09 H	12	113.3	4.9
3	*5825.00	109.7 AV			1.09 H	12	104.8	4.9
4	#5946.40	50.7 PK	68.2	-17.5	1.09 H	12	45.8	4.9
5	11650.00	64.1 PK	74.0	-9.9	2.37 H	277	49.5	14.6
6	11650.00	53.8 AV	54.0	-0.2	2.37 H	277	39.2	14.6
7	#17475.00	50.9 PK	68.2	-17.3	3.12 H	235	32.1	18.8
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	#5641.37	51.5 PK	68.2	-16.7	1.95 V	223	47.2	4.3
2	*5825.00	109.2 PK			1.95 V	223	104.3	4.9
3	*5825.00	97.8 AV			1.95 V	223	92.9	4.9
4	#5932.30	50.6 PK	68.2	-17.6	1.95 V	223	45.7	4.9
5	11650.00	59.3 PK	74.0	-14.7	1.45 V	170	44.7	14.6
6	11650.00	50.0 AV	54.0	-4.0	1.45 V	170	35.4	14.6
7	#17475.00	52.0 PK	68.2	-16.2	1.62 V	319	33.2	18.8

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 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	5145.31	61.6 PK	74.0	-12.4	1.58 H	13	56.8	4.8
2	5145.31	52.5 AV	54.0	-1.5	1.58 H	13	47.7	4.8
3	*5180.00	118.9 PK			1.58 H	13	114.4	4.5
4	*5180.00	108.4 AV			1.58 H	13	103.9	4.5
5	#10360.00	47.9 PK	68.2	-20.3	1.89 H	318	34.2	13.7
6	15540.00	44.5 PK	74.0	-29.5	1.94 H	320	30.6	13.9
7	15540.00	32.5 AV	54.0	-21.5	1.94 H	320	18.6	13.9
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	62.6 PK	74.0	-11.4	2.01 V	211	57.9	4.7
2	5150.00	51.9 AV	54.0	-2.1	2.01 V	211	47.2	4.7
3	*5180.00	108.8 PK			2.01 V	211	104.3	4.5
4	*5180.00	97.1 AV			2.01 V	211	92.6	4.5
5	#10360.00	57.7 PK	68.2	-10.5	1.32 V	224	44.0	13.7
6	15540.00	48.7 PK	74.0	-25.3	1.90 V	285	34.8	13.9
7	15540.00	38.4 AV	54.0	-15.6	1.90 V	285	24.5	13.9

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 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	59.5 PK	74.0	-14.5	1.44 H	15	54.8	4.7
2	5150.00	49.4 AV	54.0	-4.6	1.44 H	15	44.7	4.7
3	*5200.00	120.4 PK			1.44 H	15	116.2	4.2
4	*5200.00	110.0 AV			1.44 H	15	105.8	4.2
5	#10400.00	47.8 PK	68.2	-20.4	1.91 H	303	34.2	13.6
6	15600.00	44.9 PK	74.0	-29.1	1.94 H	307	30.8	14.1
7	15600.00	32.6 AV	54.0	-21.4	1.94 H	307	18.5	14.1
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	*5200.00	108.6 PK			2.07 V	216	104.4	4.2
2	*5200.00	96.7 AV			2.07 V	216	92.5	4.2
3	#10400.00	58.1 PK	68.2	-10.1	1.26 V	217	44.5	13.6
4	15600.00	48.8 PK	74.0	-25.2	1.85 V	272	34.7	14.1
5	15600.00	38.5 AV	54.0	-15.5	1.85 V	272	24.4	14.1

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 (HE20)	Channel	CH 48：5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	118.8 PK			1.44 H	13	114.5	4.3
2	*5240.00	107.9 AV			1.44 H	13	103.6	4.3
3	5434.25	51.0 PK	74.0	-23.0	1.44 H	13	46.7	4.3
4	5434.25	41.4 AV	54.0	-12.6	1.44 H	13	37.1	4.3
5	#10480.00	48.0 PK	68.2	-20.2	1.90 H	310	34.3	13.7
6	15720.00	45.0 PK	74.0	-29.0	1.89 H	321	30.6	14.4
7	15720.00	32.7 AV	54.0	-21.3	1.89 H	321	18.3	14.4
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	*5240.00	106.6 PK			2.02 V	230	102.3	4.3
2	*5240.00	95.8 AV			2.02 V	230	91.5	4.3
3	5389.99	48.7 PK	74.0	-25.3	2.02 V	230	44.4	4.3
4	5389.99	37.3 AV	54.0	-16.7	2.02 V	230	33.0	4.3
5	#10480.00	57.8 PK	68.2	-10.4	1.33 V	224	44.1	13.7
6	15720.00	48.4 PK	74.0	-25.6	1.90 V	296	34.0	14.4
7	15720.00	38.4 AV	54.0	-15.6	1.90 V	296	24.0	14.4

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 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	#5610.50	52.4 PK	68.2	-15.8	1.46 H	11	48.2	4.2
2	*5745.00	117.9 PK			1.46 H	11	113.1	4.8
3	*5745.00	108.2 AV			1.46 H	11	103.4	4.8
4	#5952.22	53.2 PK	68.2	-15.0	1.46 H	11	48.3	4.9
5	11490.00	53.4 PK	74.0	-20.6	2.64 H	7	38.8	14.6
6	11490.00	50.5 AV	54.0	-3.5	2.64 H	7	35.9	14.6
7	#17235.00	47.1 PK	68.2	-21.1	2.65 H	14	28.9	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5594.22	50.4 PK	68.2	-17.8	1.99 V	207	46.1	4.3
2	*5745.00	108.9 PK			1.99 V	207	104.1	4.8
3	*5745.00	97.5 AV			1.99 V	207	92.7	4.8
4	#6006.31	51.4 PK	68.2	-16.8	1.99 V	207	46.3	5.1
5	11490.00	56.7 PK	74.0	-17.3	1.49 V	163	42.1	14.6
6	11490.00	47.2 AV	54.0	-6.8	1.49 V	163	32.6	14.6
7	#17235.00	49.2 PK	68.2	-19.0	1.62 V	304	31.0	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 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	#5597.32	51.7 PK	68.2	-16.5	1.50 H	10	47.4	4.3
2	*5785.00	120.1 PK			1.50 H	10	115.2	4.9
3	*5785.00	110.0 AV			1.50 H	10	105.1	4.9
4	#5967.25	50.8 PK	68.2	-17.4	1.50 H	10	45.8	5.0
5	11570.00	53.2 PK	74.0	-20.8	2.58 H	21	38.6	14.6
6	11570.00	50.5 AV	54.0	-3.5	2.58 H	21	35.9	14.6
7	#17355.00	46.9 PK	68.2	-21.3	2.63 H	15	28.7	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5600.78	50.5 PK	68.2	-17.7	2.03 V	215	46.3	4.2
2	*5785.00	109.5 PK			2.03 V	215	104.6	4.9
3	*5785.00	98.1 AV			2.03 V	215	93.2	4.9
4	#5976.74	51.5 PK	68.2	-16.7	2.03 V	215	46.5	5.0
5	11570.00	56.5 PK	74.0	-17.5	1.52 V	158	41.9	14.6
6	11570.00	46.7 AV	54.0	-7.3	1.52 V	158	32.1	14.6
7	#17355.00	49.1 PK	68.2	-19.1	1.65 V	302	30.9	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 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	#5631.97	51.3 PK	68.2	-16.9	1.43 H	25	47.0	4.3
2	*5825.00	119.6 PK			1.43 H	25	114.7	4.9
3	*5825.00	109.4 AV			1.43 H	25	104.5	4.9
4	#5928.49	52.0 PK	68.2	-16.2	1.43 H	25	47.1	4.9
5	11650.00	55.0 PK	74.0	-19.0	2.68 H	23	40.4	14.6
6	11650.00	50.7 AV	54.0	-3.3	2.68 H	23	36.1	14.6
7	#17475.00	48.8 PK	68.2	-19.4	2.73 H	32	30.0	18.8
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	#5568.01	51.0 PK	68.2	-17.2	1.98 V	215	46.7	4.3
2	*5825.00	109.0 PK			1.98 V	215	104.1	4.9
3	*5825.00	97.6 AV			1.98 V	215	92.7	4.9
4	#5971.76	51.5 PK	68.2	-16.7	1.98 V	215	46.5	5.0
5	11650.00	56.9 PK	74.0	-17.1	1.55 V	150	42.3	14.6
6	11650.00	47.6 AV	54.0	-6.4	1.55 V	150	33.0	14.6
7	#17475.00	49.7 PK	68.2	-18.5	1.58 V	306	30.9	18.8

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 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	5147.71	63.2 PK	74.0	-10.8	1.55 H	12	58.4	4.8
2	**5147.71**	**53.9 AV**	**54.0**	**-0.1**	**1.55 H**	**12**	**49.1**	**4.8**
3	*5190.00	113.6 PK			1.55 H	12	109.2	4.4
4	*5190.00	103.1 AV			1.55 H	12	98.7	4.4
5	#10380.00	46.9 PK	68.2	-21.3	1.87 H	301	33.4	13.5
6	15570.00	44.9 PK	74.0	-29.1	1.97 H	309	30.9	14.0
7	15570.00	32.5 AV	54.0	-21.5	1.97 H	309	18.5	14.0
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	53.3 PK	74.0	-20.7	2.04 V	229	48.6	4.7
2	5150.00	42.4 AV	54.0	-11.6	2.04 V	229	37.7	4.7
3	*5190.00	103.7 PK			2.04 V	229	99.3	4.4
4	*5190.00	92.7 AV			2.04 V	229	88.3	4.4
5	#10380.00	46.4 PK	68.2	-21.8	1.31 V	218	32.9	13.5
6	15570.00	45.4 PK	74.0	-28.6	1.93 V	290	31.4	14.0
7	15570.00	32.7 AV	54.0	-21.3	1.93 V	290	18.7	14.0

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 (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	5144.88	62.0 PK	74.0	-12.0	1.45 H	14	57.2	4.8
2	5144.88	51.2 AV	54.0	-2.8	1.45 H	14	46.4	4.8
3	*5230.00	117.1 PK			1.45 H	14	112.8	4.3
4	*5230.00	106.7 AV			1.45 H	14	102.4	4.3
5	#10460.00	46.7 PK	68.2	-21.5	1.90 H	303	33.1	13.6
6	15690.00	45.2 PK	74.0	-28.8	1.92 H	304	30.6	14.6
7	15690.00	32.6 AV	54.0	-21.4	1.92 H	304	18.0	14.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	107.4 PK			2.06 V	215	103.1	4.3
2	*5230.00	96.4 AV			2.06 V	215	92.1	4.3
3	5350.00	51.1 PK	74.0	-22.9	2.06 V	215	46.9	4.2
4	5350.00	38.6 AV	54.0	-15.4	2.06 V	215	34.4	4.2
5	#10460.00	47.1 PK	68.2	-21.1	1.34 V	210	33.5	13.6
6	15690.00	44.9 PK	74.0	-29.1	1.93 V	276	30.3	14.6
7	15690.00	32.2 AV	54.0	-21.8	1.93 V	276	17.6	14.6

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 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	#5644.34	64.4 PK	68.2	-3.8	1.40 H	10	60.1	4.3
2	*5755.00	118.8 PK			1.40 H	10	114.0	4.8
3	*5755.00	108.1 AV			1.40 H	10	103.3	4.8
4	#5940.19	52.1 PK	68.2	-16.1	1.40 H	10	47.1	5.0
5	11510.00	50.1 PK	74.0	-23.9	2.59 H	21	35.4	14.7
6	11510.00	47.5 AV	54.0	-6.5	2.59 H	21	32.8	14.7
7	#17265.00	44.3 PK	68.2	-23.9	2.63 H	30	26.1	18.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5640.92	56.4 PK	68.2	-11.8	1.99 V	213	52.1	4.3
2	*5755.00	107.0 PK			1.99 V	213	102.2	4.8
3	*5755.00	95.7 AV			1.99 V	213	90.9	4.8
4	#6010.80	51.0 PK	68.2	-17.2	1.99 V	213	45.9	5.1
5	11510.00	50.0 PK	74.0	-24.0	1.34 V	201	35.3	14.7
6	11510.00	47.3 AV	54.0	-6.7	1.34 V	201	32.6	14.7
7	#17265.00	44.1 PK	68.2	-24.1	1.91 V	285	25.9	18.2

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 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	#5620.49	54.5 PK	68.2	-13.7	1.45 H	7	50.2	4.3
2	*5795.00	118.0 PK			1.45 H	7	113.1	4.9
3	*5795.00	107.5 AV			1.45 H	7	102.6	4.9
4	#5934.29	57.3 PK	68.2	-10.9	1.45 H	7	52.4	4.9
5	11590.00	50.5 PK	74.0	-23.5	2.47 H	26	35.9	14.6
6	11590.00	47.6 AV	54.0	-6.4	2.47 H	26	33.0	14.6
7	#17385.00	49.8 PK	68.2	-18.4	2.52 H	23	31.5	18.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5641.72	51.3 PK	68.2	-16.9	1.96 V	217	47.0	4.3
2	*5795.00	106.8 PK			1.96 V	217	101.9	4.9
3	*5795.00	95.8 AV			1.96 V	217	90.9	4.9
4	#5943.84	52.2 PK	68.2	-16.0	1.96 V	217	47.3	4.9
5	11590.00	50.3 PK	74.0	-23.7	1.32 V	207	35.7	14.6
6	11590.00	47.7 AV	54.0	-6.3	1.32 V	207	33.1	14.6
7	#17385.00	50.1 PK	68.2	-18.1	1.91 V	278	31.8	18.3

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 42：5210 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5142.96	62.0 PK	74.0	-12.0	1.38 H	355	57.2	4.8
2	5142.96	53.3 AV	54.0	-0.7	1.38 H	355	48.5	4.8
3	*5210.00	107.5 PK			1.38 H	355	103.2	4.3
4	*5210.00	97.8 AV			1.38 H	355	93.5	4.3
5	5407.92	50.4 PK	74.0	-23.6	1.38 H	355	46.1	4.3
6	5407.92	40.0 AV	54.0	-14.0	1.38 H	355	35.7	4.3
7	#10420.00	46.7 PK	68.2	-21.5	1.90 H	302	33.2	13.5
8	15630.00	46.1 PK	74.0	-27.9	1.92 H	315	31.8	14.3
9	15630.00	32.9 AV	54.0	-21.1	1.92 H	315	18.6	14.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5148.69	62.0 PK	74.0	-12.0	2.07 V	220	57.2	4.8
2	5148.69	48.2 AV	54.0	-5.8	2.07 V	220	43.4	4.8
3	*5210.00	99.1 PK			2.07 V	220	94.8	4.3
4	*5210.00	90.5 AV			2.07 V	220	86.2	4.3
5	5350.00	52.9 PK	74.0	-21.1	2.07 V	220	48.7	4.2
6	5350.00	39.1 AV	54.0	-14.9	2.07 V	220	34.9	4.2
7	#10420.00	46.9 PK	68.2	-21.3	1.35 V	204	33.4	13.5
8	15630.00	46.4 PK	74.0	-27.6	1.90 V	270	32.1	14.3
9	15630.00	33.1 AV	54.0	-20.9	1.90 V	270	18.8	14.3

Remarks:

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

RF Mode	TX 802.11ax (HE80)	Channel	CH 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	#5643.79	67.7 PK	68.2	-0.5	1.43 H	8	63.4	4.3
2	*5775.00	113.0 PK			1.43 H	8	108.1	4.9
3	*5775.00	102.9 AV			1.43 H	8	98.0	4.9
4	#5932.29	58.9 PK	68.2	-9.3	1.43 H	8	54.0	4.9
5	11550.00	49.0 PK	74.0	-25.0	1.86 H	308	34.4	14.6
6	11550.00	45.0 AV	54.0	-9.0	1.86 H	308	30.4	14.6
7	#17325.00	46.5 PK	68.2	-21.7	1.90 H	317	28.4	18.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5645.87	59.8 PK	68.2	-8.4	1.95 V	220	55.5	4.3
2	*5775.00	102.4 PK			1.95 V	220	97.5	4.9
3	*5775.00	91.1 AV			1.95 V	220	86.2	4.9
4	#5934.95	54.8 PK	68.2	-13.4	1.95 V	220	49.9	4.9
5	11550.00	49.5 PK	74.0	-24.5	1.37 V	222	34.9	14.6
6	11550.00	45.5 AV	54.0	-8.5	1.37 V	222	30.9	14.6
7	#17325.00	46.8 PK	68.2	-21.4	1.94 V	269	28.7	18.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.

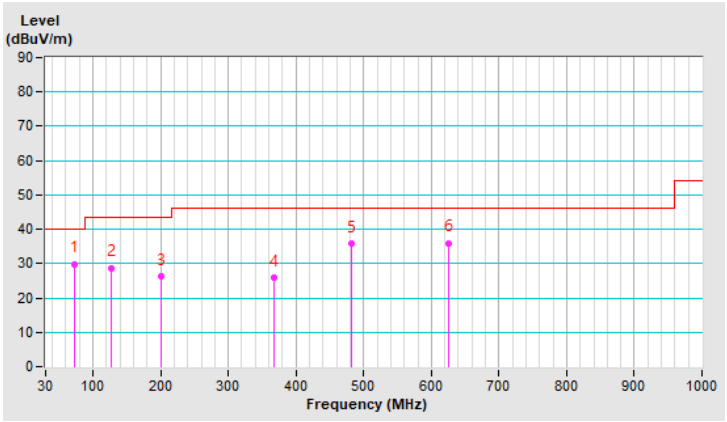
Below 1GHz Data:

RF Mode	TX 802.11ax (HE20)	Channel	CH 40：5200 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	73.53	29.9 QP	40.0	-10.1	1.50 H	200	40.7	-10.8
2	126.93	28.8 QP	43.5	-14.7	1.00 H	295	37.3	-8.5
3	200.48	26.2 QP	43.5	-17.3	1.50 H	84	36.2	-10.0
4	368.31	25.8 QP	46.0	-20.2	1.00 H	360	29.8	-4.0
5	481.22	35.9 QP	46.0	-10.1	1.50 H	304	36.7	-0.8
6	626.53	36.0 QP	46.0	-10.0	1.00 H	323	33.2	2.8

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

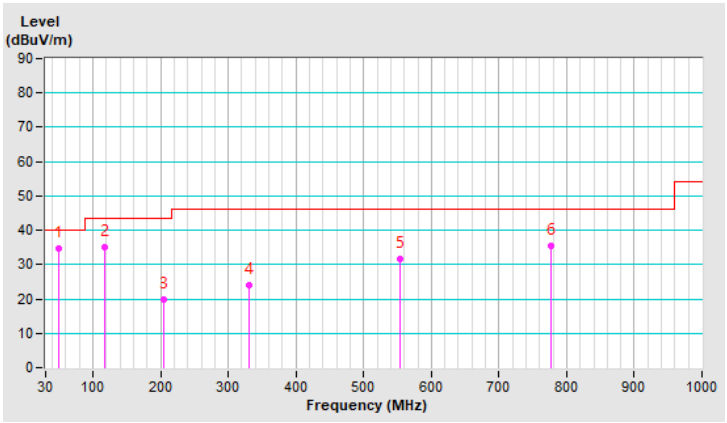


RF Mode	TX 802.11ax (HE20)	Channel	CH 40：5200 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	48.65	34.6 QP	40.0	-5.4	1.50 V	25	42.2	-7.6
2	117.45	35.2 QP	43.5	-8.3	1.00 V	298	44.5	-9.3
3	205.25	19.9 QP	43.5	-23.6	1.00 V	26	29.9	-10.0
4	330.97	24.0 QP	46.0	-22.0	1.50 V	141	28.8	-4.8
5	554.53	31.7 QP	46.0	-14.3	1.00 V	314	31.0	0.7
6	776.17	35.3 QP	46.0	-10.7	1.00 V	132	29.5	5.8

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 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	Oct. 20, 2020	Oct. 19, 2021
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 27, 2020	Oct. 26, 2021
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 19, 2020	Mar. 18, 2021
50 ohms Terminator	50	3	Oct. 26, 2020	Oct. 25, 2021
RF Cable	5D-FB	COCCAB-001	Sep. 26, 2020	Sep. 25, 2021
Fixed attenuator EMCI	STI02-2200-10	005	Aug. 29, 2020	Aug. 28, 2021
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: Nov. 30, 2020

4.2.3 Test Procedure

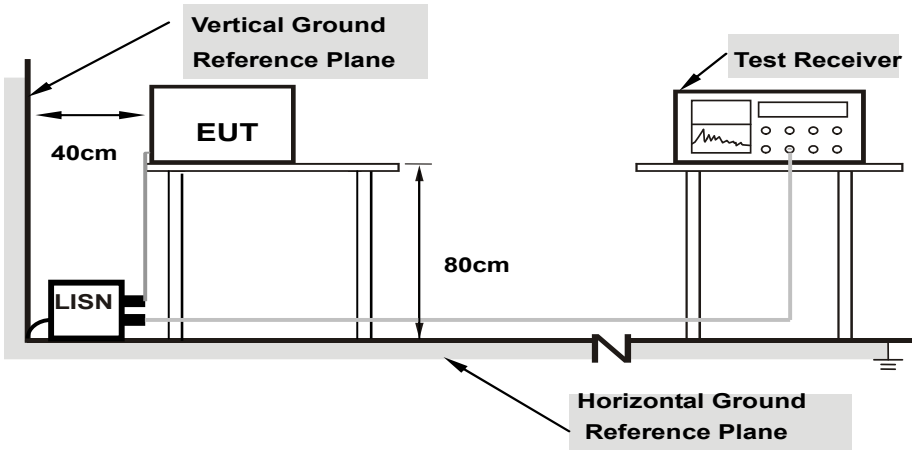
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

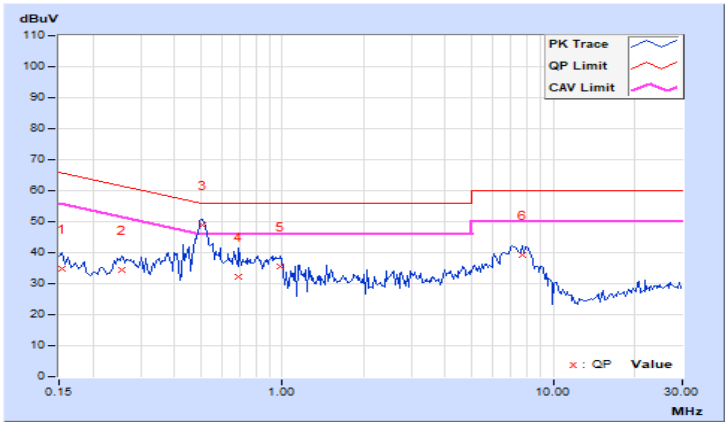
4.2.7 Test Results

RF Mode	TX 802.11ax (HE20)	Channel	CH 40：5200 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	0.15391	9.96	25.00	15.47	34.96	25.43	65.79	55.79	-30.83	-30.36
2	0.25547	10.00	24.32	17.04	34.32	27.04	61.58	51.58	-27.26	-24.54
3	0.50938	10.03	38.83	29.65	48.86	39.68	56.00	46.00	-7.14	-6.32
4	0.68906	10.04	22.09	14.57	32.13	24.61	56.00	46.00	-23.87	-21.39
5	0.98594	10.06	25.62	13.97	35.68	24.03	56.00	46.00	-20.32	-21.97
6	7.69922	10.55	28.89	20.82	39.44	31.37	60.00	50.00	-20.56	-18.63

Remarks:

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

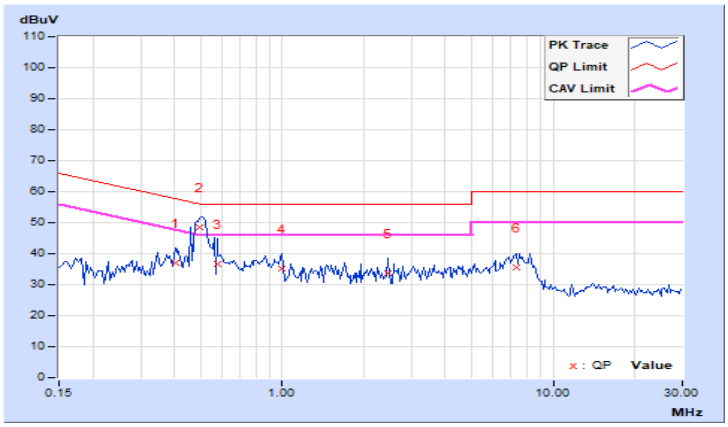


RF Mode	TX 802.11ax (HE20)	Channel	CH 40：5200 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.40391	10.01	27.05	20.56	37.06	30.57	57.77	47.77	-20.71	-17.20
2	**0.49472**	**10.02**	**38.32**	**30.40**	**48.34**	**40.42**	**56.09**	**46.09**	**-7.75**	**-5.67**
3	0.57578	10.03	26.77	16.11	36.80	26.14	56.00	46.00	-19.20	-19.86
4	0.99766	10.07	25.07	16.17	35.14	26.24	56.00	46.00	-20.86	-19.76
5	2.44922	10.16	23.38	15.28	33.54	25.44	56.00	46.00	-22.46	-20.56
6	7.27734	10.45	25.03	18.49	35.48	28.94	60.00	50.00	-24.52	-21.06

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 ≦ 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

Note: This device can support different category application which switched by access point mode and client mode by software.

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

For U-NII-1 band

Master Mode

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.56	23.89	530.665	27.25	30	Pass
40	5200	24.32	23.77	508.628	27.06	30	Pass
48	5240	22.92	22.40	369.665	25.68	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.21	23.60	492.72	26.93	30	Pass
40	5200	24.19	23.91	508.459	27.06	30	Pass
48	5240	22.19	21.64	311.458	24.93	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.90	18.63	150.57	21.78	30	Pass
46	5230	22.83	22.57	372.584	25.71	30	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.21	17.80	126.478	21.02	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.43	23.89	522.238	27.18	30	Pass
40	5200	24.47	24.13	538.719	27.31	30	Pass
48	5240	22.40	21.94	330.095	25.19	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	19.11	18.90	159.095	22.02	30	Pass
46	5230	23.04	22.81	392.358	25.94	30	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.41	18.02	132.73	21.23	30	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.21	23.60	492.72	26.93	27.59	Pass
40	5200	24.19	23.91	508.459	27.06	27.59	Pass
48	5240	22.19	21.64	311.458	24.93	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.90	18.63	150.57	21.78	27.59	Pass
46	5230	22.83	22.57	372.584	25.71	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.21	17.80	126.478	21.02	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	24.43	23.89	522.238	27.18	27.59	Pass
40	5200	24.47	24.13	538.719	27.31	27.59	Pass
48	5240	22.40	21.94	330.095	25.19	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	19.11	18.90	159.095	22.02	27.59	Pass
46	5230	23.04	22.81	392.358	25.94	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.41	18.02	132.73	21.23	27.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 30-(8.41-6) = 27.59 dBm.

Client Mode

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.56	18.30	139.388	21.44	24	Pass
40	5200	18.60	18.11	137.158	21.37	24	Pass
48	5240	18.67	18.18	139.386	21.44	24	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.24	18.53	137.966	21.40	24	Pass
40	5200	18.30	18.49	138.24	21.41	24	Pass
48	5240	17.96	18.25	129.352	21.12	24	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.90	18.63	150.57	21.78	24	Pass
46	5230	20.34	20.10	210.473	23.23	24	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.21	17.80	126.478	21.02	24	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.54	18.82	147.658	21.69	24	Pass
40	5200	18.52	18.71	145.423	21.63	24	Pass
48	5240	18.18	18.51	136.724	21.36	24	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	19.11	18.90	159.095	22.02	24	Pass
46	5230	20.55	20.32	221.148	23.45	24	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.41	18.02	132.73	21.23	24	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.07	17.96	126.638	21.03	21.59	Pass
40	5200	18.09	17.73	123.709	20.92	21.59	Pass
48	5240	17.96	18.25	129.352	21.12	21.59	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.35	17.95	130.765	21.16	21.59	Pass
46	5230	18.31	17.82	128.298	21.08	21.59	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.21	17.80	126.478	21.02	21.59	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	18.27	18.24	133.824	21.27	21.59	Pass
40	5200	18.31	18.09	132.181	21.21	21.59	Pass
48	5240	18.18	18.51	136.724	21.36	21.59	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.64	18.15	138.427	21.41	21.59	Pass
46	5230	18.53	18.08	135.554	21.32	21.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	18.41	18.02	132.73	21.23	21.59	Pass

Note: The directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 8.41 dBi > 6 dBi , so the power limit shall be reduced to 24-(8.41-6) = 21.59 dBm.

For U-NII-3 band

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.65	23.67	524.552	27.20	30	Pass
157	5785	24.78	24.19	563.029	27.51	30	Pass
165	5825	24.68	24.21	557.398	27.46	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.05	23.34	469.872	26.72	30	Pass
157	5785	24.35	23.68	505.616	27.04	30	Pass
165	5825	24.43	23.36	494.102	26.94	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	23.96	23.21	458.297	26.61	30	Pass
159	5795	24.18	23.97	511.278	27.09	30	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	22.19	21.82	317.632	25.02	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.33	23.54	496.963	26.96	30	Pass
157	5785	24.55	23.95	533.415	27.27	30	Pass
165	5825	24.64	23.62	521.216	27.17	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	24.16	23.51	485.004	26.86	30	Pass
159	5795	24.45	24.18	540.43	27.33	30	Pass

802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	22.47	22.02	335.825	25.26	30	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.05	23.34	469.872	26.72	28.04	Pass
157	5785	24.35	23.68	505.616	27.04	28.04	Pass
165	5825	24.43	23.36	494.102	26.94	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	23.96	23.21	458.297	26.61	28.04	Pass
159	5795	24.18	23.97	511.278	27.09	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	22.19	21.82	317.632	25.02	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.33	23.54	496.963	26.96	28.04	Pass
157	5785	24.55	23.95	533.415	27.27	28.04	Pass
165	5825	24.64	23.62	521.216	27.17	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	24.16	23.51	485.004	26.86	28.04	Pass
159	5795	24.45	24.18	540.43	27.33	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 dBm.

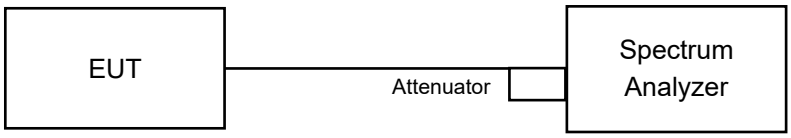
802.11ax (HE80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	22.47	22.02	335.825	25.26	28.04	Pass

Note: The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi , so the power limit shall be reduced to 30-(7.96-6) = 28.04 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

For U-NII-1 band

Master Mode

CDD Mode

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	26.88	18.84
40	5200	25.8	20.52
48	5240	18.6	16.8

802.11ax (HE20)

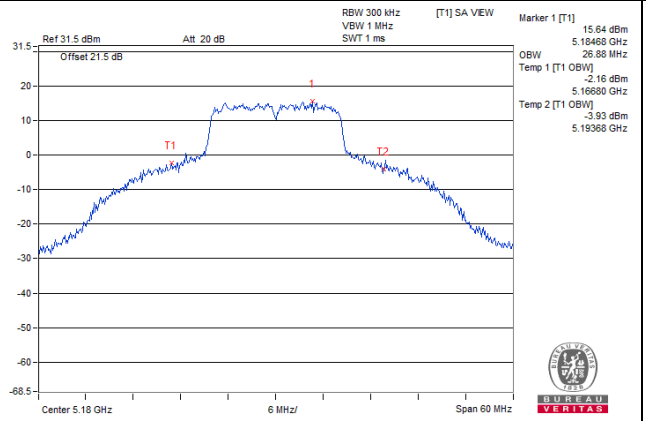
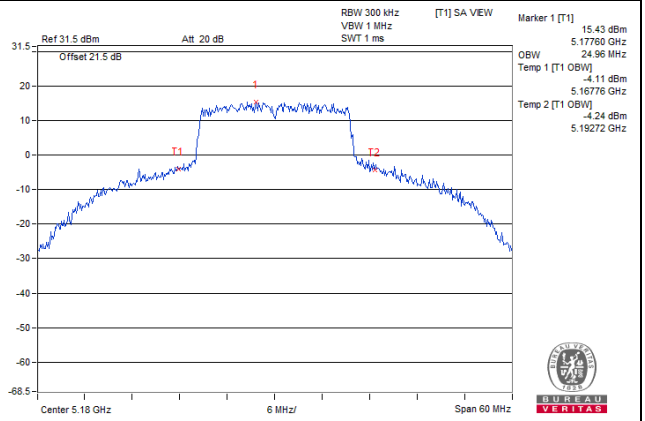
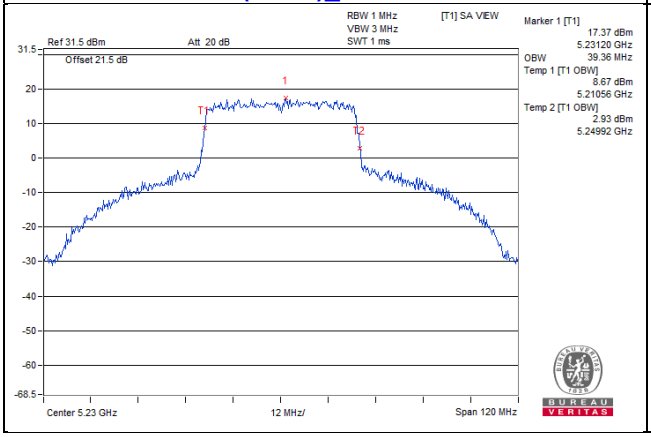
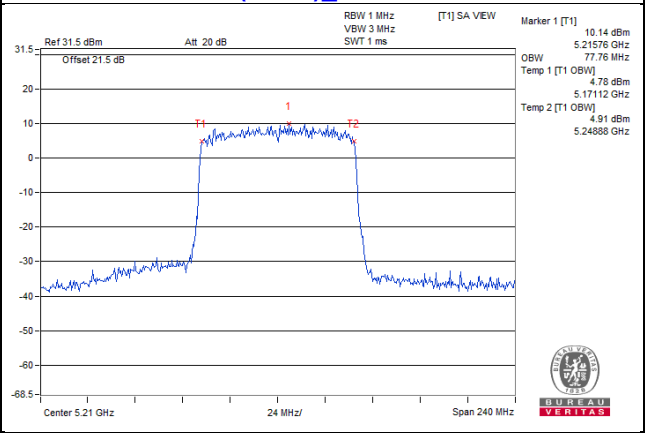
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	24.96	21.36
40	5200	21.84	22.08
48	5240	19.2	18.96

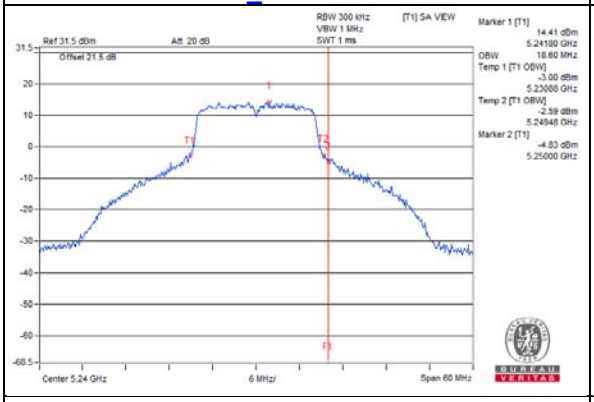
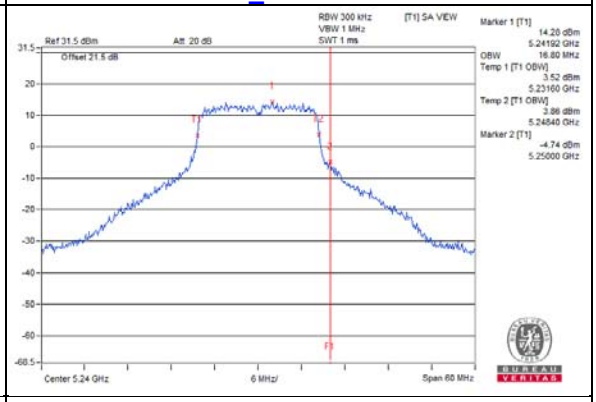
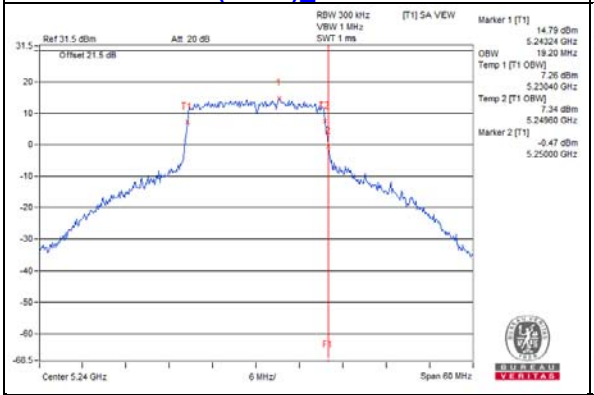
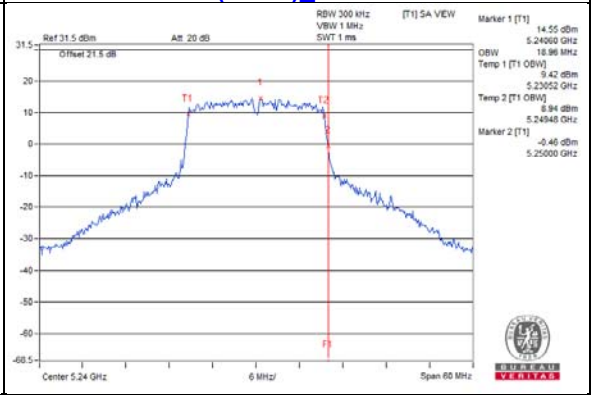
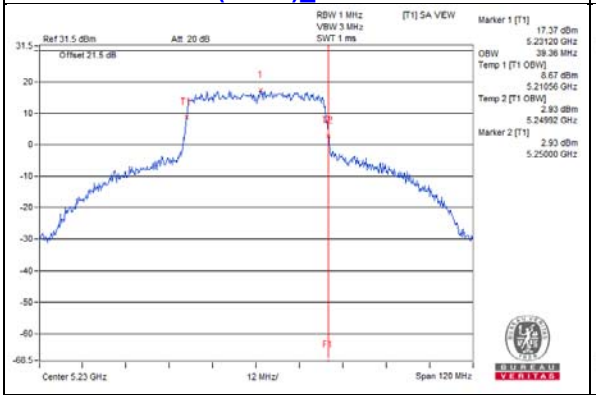
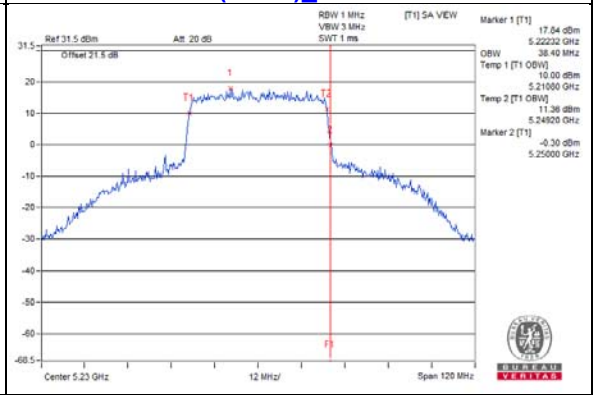
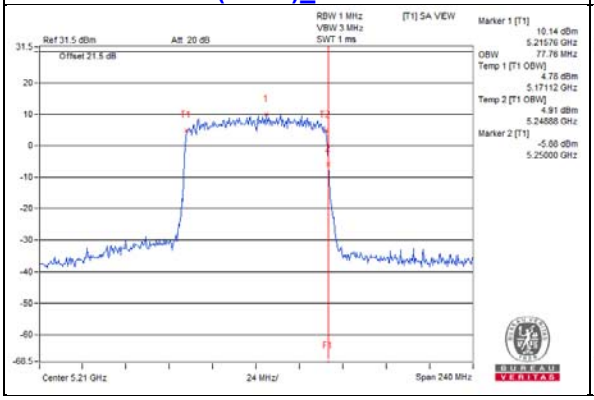
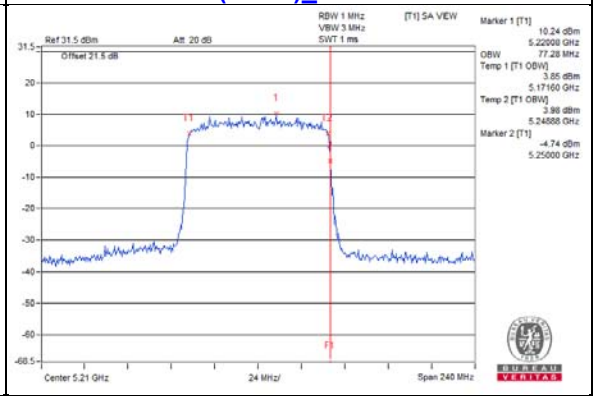
802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	37.92	37.92
46	5230	39.36	38.4

802.11ax (HE80)

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

Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH36	**802.11ax (HE20)_Chain 0 / CH36**
	
802.11ax (HE40)_Chain 0 / CH46	**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_Chain0 / CH48	**802.11a_Chain1 / CH48**
	
802.11ax (HE20)_Chain0 / CH48	**802.11ax (HE20)_Chain1 / CH48**
	
802.11ax (HE40)_Chain0 / CH46	**802.11ax (HE40)_Chain1 / CH46**
	
802.11ax (HE80)_Chain0 / CH42	**802.11ax (HE80)_Chain1 / CH42**
	

Client mode

CDD Mode

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	16.56	16.56
40	5200	16.44	16.44
48	5240	16.44	16.32

802.11ax (HE20)

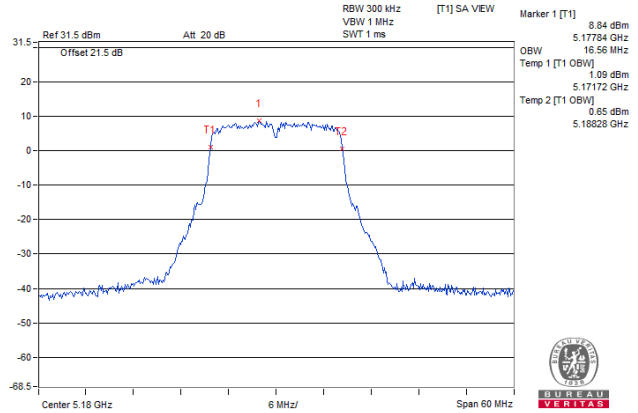
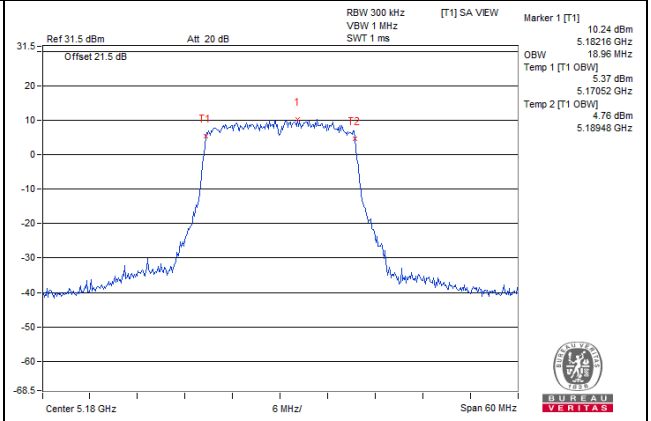
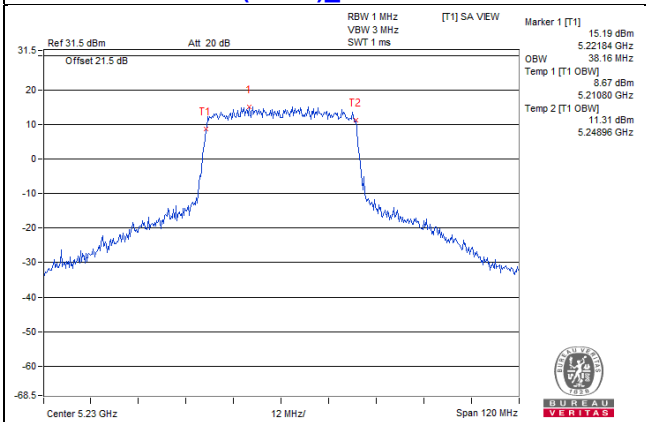
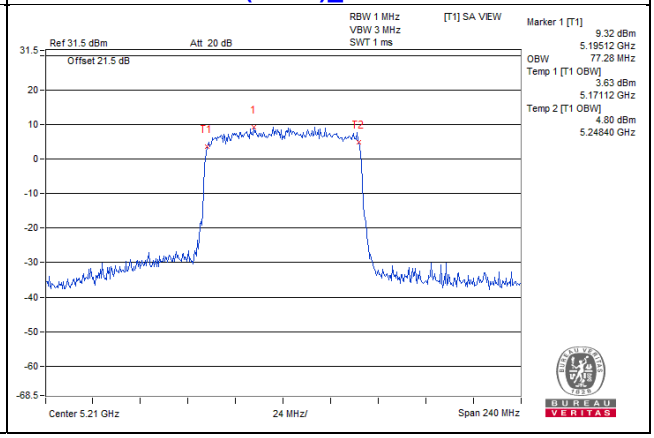
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.96	18.96
40	5200	18.96	18.96
48	5240	18.96	18.96

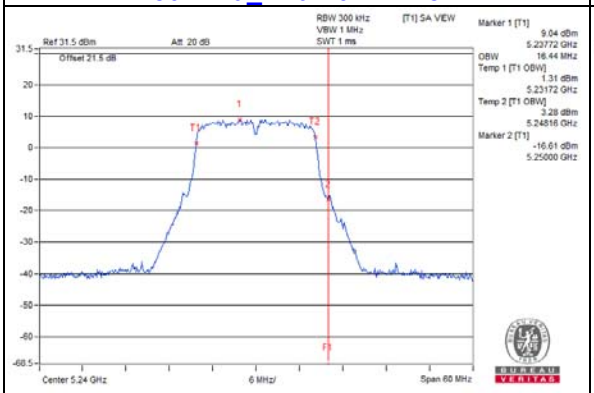
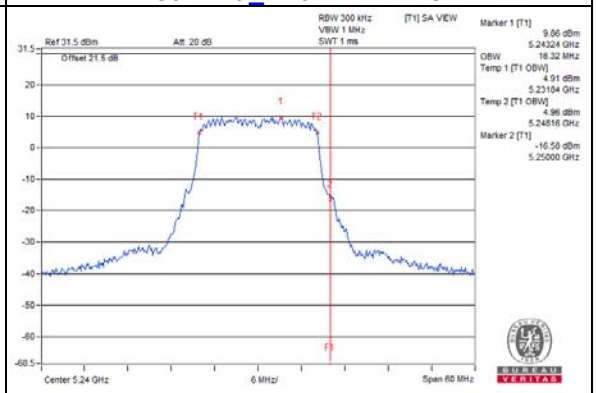
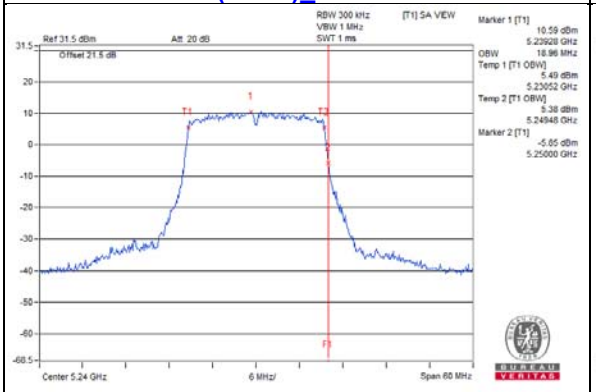
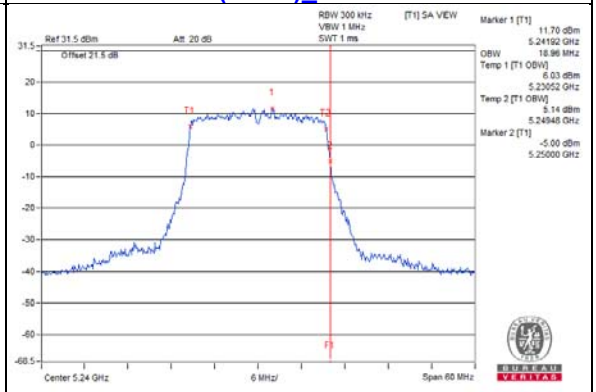
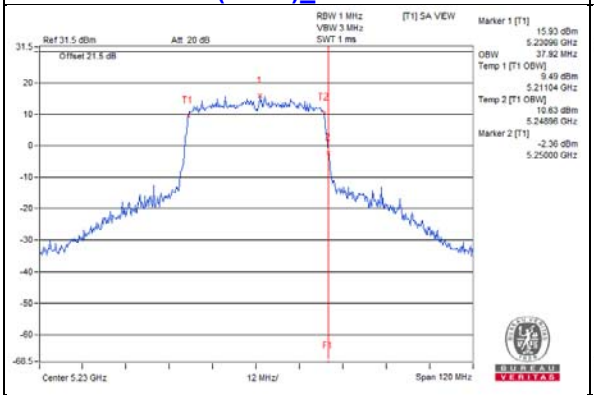
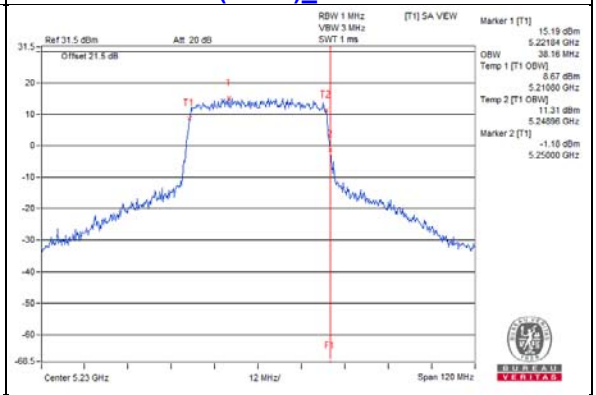
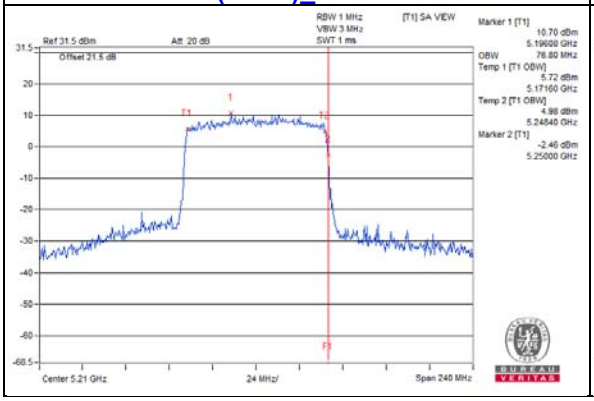
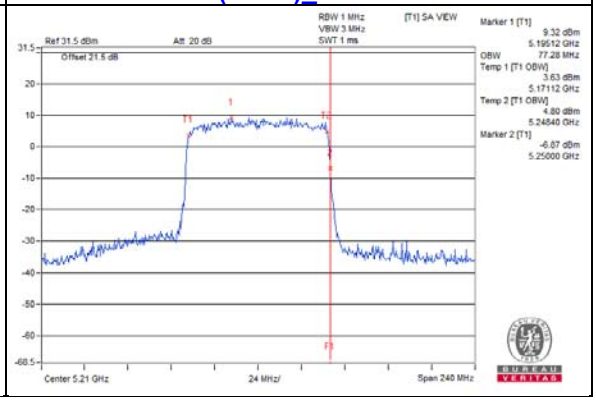
802.11ax (HE40)

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

802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.8	77.28

Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH36	**802.11ax (HE20)_Chain 0 / CH36**
	
802.11ax (HE40)_Chain 1 / CH46	**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_Chain0 / CH48	**802.11a_Chain1 / CH48**
	
802.11ax (HE20)_Chain0 / CH48	**802.11ax (HE20)_Chain1 / CH48**
	
802.11ax (HE40)_Chain0 / CH46	**802.11ax (HE40)_Chain1 / CH46**
	
802.11ax (HE80)_Chain0 / CH42	**802.11ax (HE80)_Chain1 / CH42**
	

For U-NII-3 band

CDD Mode

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
149	5745	35.07	27.48
157	5785	30.69	29.21
165	5825	29.04	27

802.11ax (HE20)

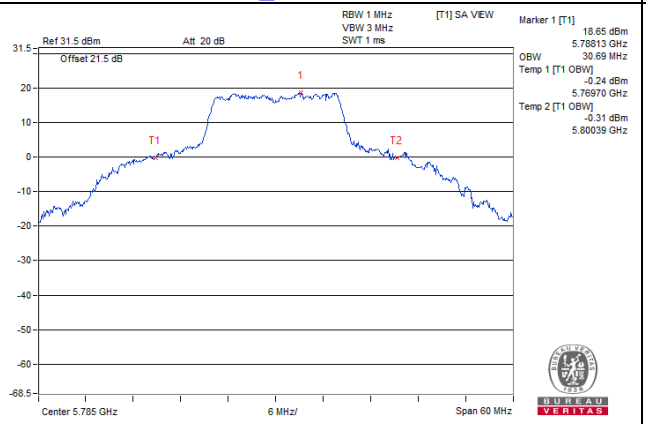
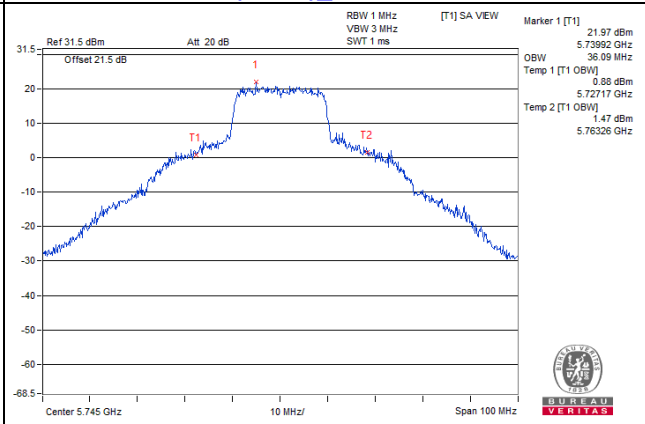
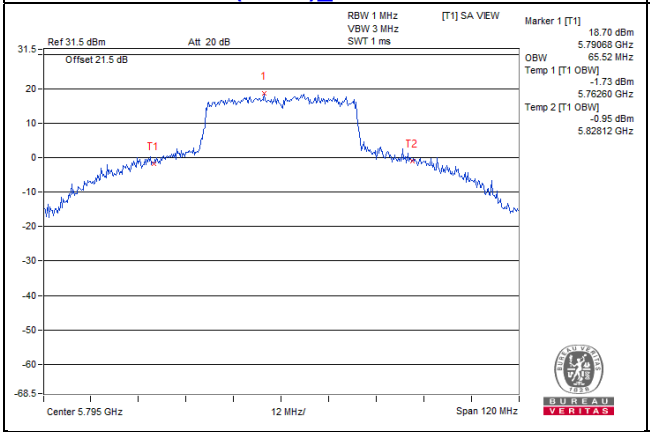
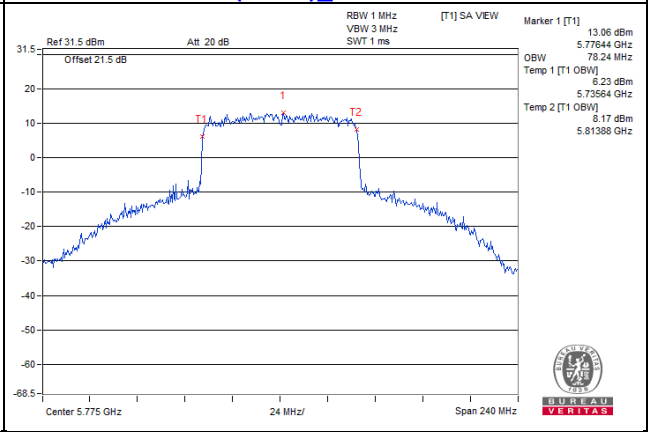
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
149	5745	36.09	26.04
157	5785	28.69	29.64
165	5825	28.92	25.8

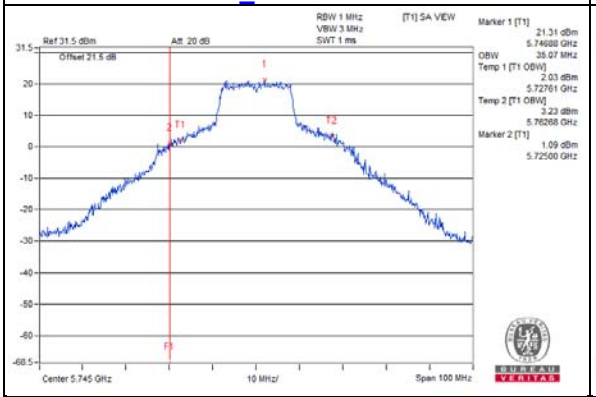
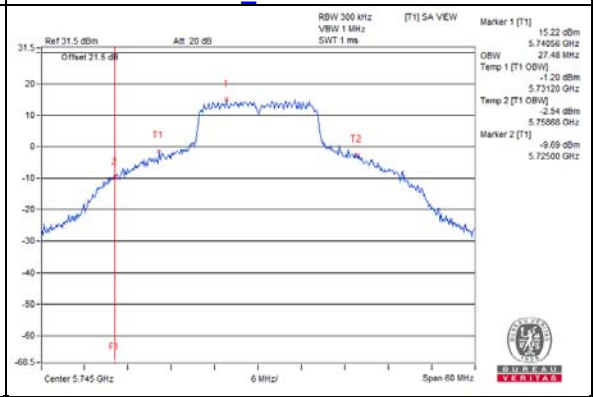
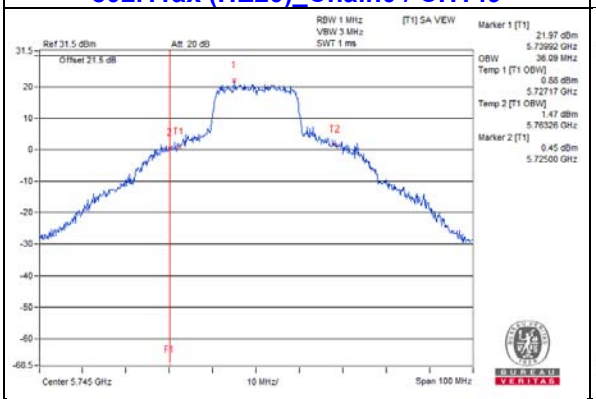
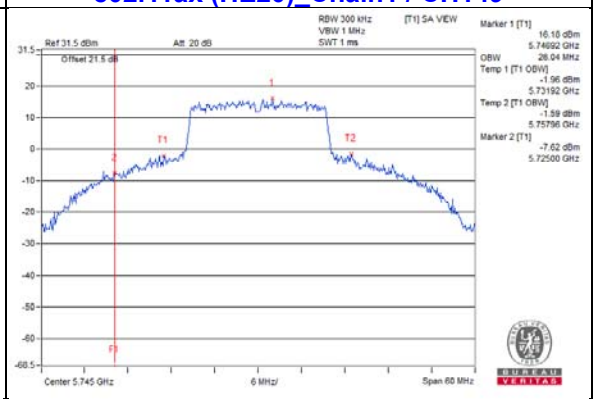
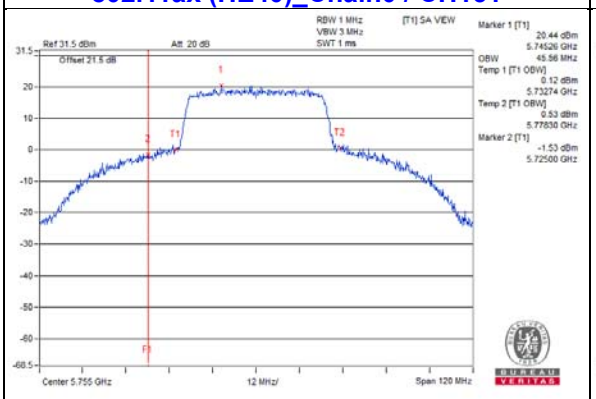
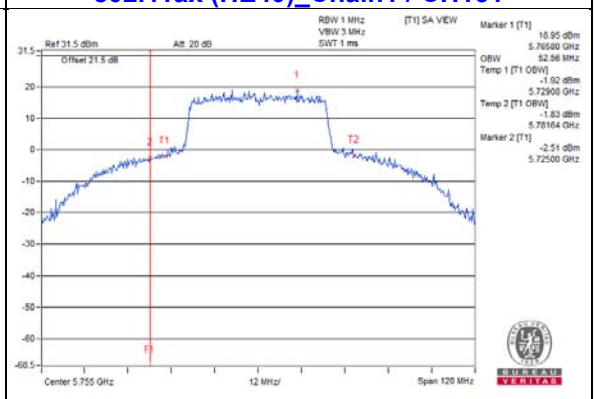
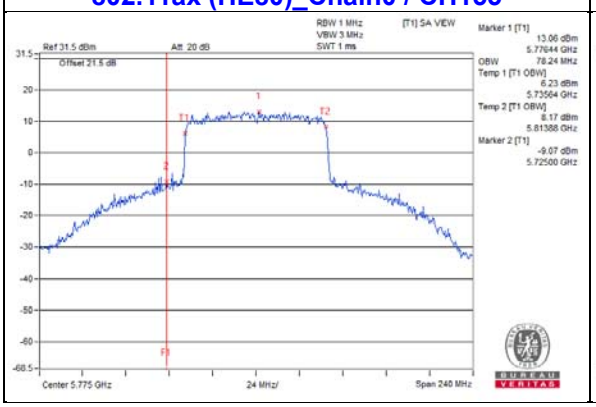
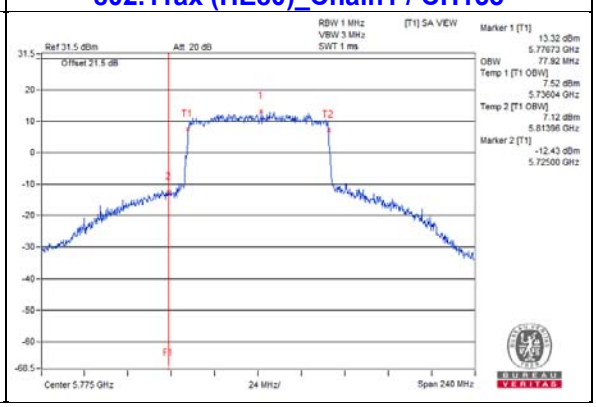
802.11ax (HE40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
151	5755	45.56	52.56
159	5795	65.52	57.6

802.11ax (HE80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
155	5775	78.24	77.92

Spectrum Plot of Max. Value	
802.11a_Chain 0 / CH149	**802.11ax (HE20)_Chain 0 / CH149**
	
802.11ax (HE40)_Chain 0 / CH159	**802.11ax (HE80)_Chain 0 / CH155**
	

Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2C band)	
802.11a_Chain0 / CH149	**802.11a_Chain1 / CH149**
	
802.11ax (HE20)_Chain0 / CH149	**802.11ax (HE20)_Chain1 / CH149**
	
802.11ax (HE40)_Chain0 / CH151	**802.11ax (HE40)_Chain1 / CH151**
	
802.11ax (HE80)_Chain0 / CH155	**802.11ax (HE80)_Chain1 / CH155**
	

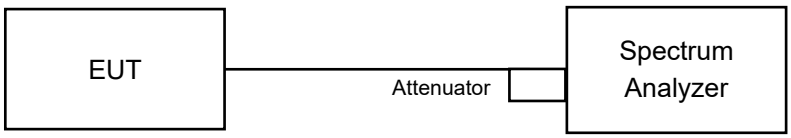
4.5 Peak Power Spectral Density Measurement

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

Note: This device can support different category application which switched by access point mode and client mode by software.

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 band:

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 = 10log(500kHz/300kHz)
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

For U-NII-1 band:

Master Mode

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	10.74	10.14	0.25	13.71	14.59	Pass
40	5200	10.40	10.36	0.25	13.64	14.59	Pass
48	5240	9.08	8.97	0.25	12.29	14.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 17-(8.41-6) = 14.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	9.34	9.34	0.20	12.55	14.59	Pass
40	5200	7.44	10.21	0.20	12.26	14.59	Pass
48	5240	8.68	5.99	0.20	10.75	14.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 17-(8.41-6) = 14.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	0.91	0.54	0.25	3.99	14.59	Pass
46	5230	5.13	4.87	0.25	8.26	14.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 17-(8.41-6) = 14.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	-4.02	-4.14	0.18	-0.89	14.59	Pass

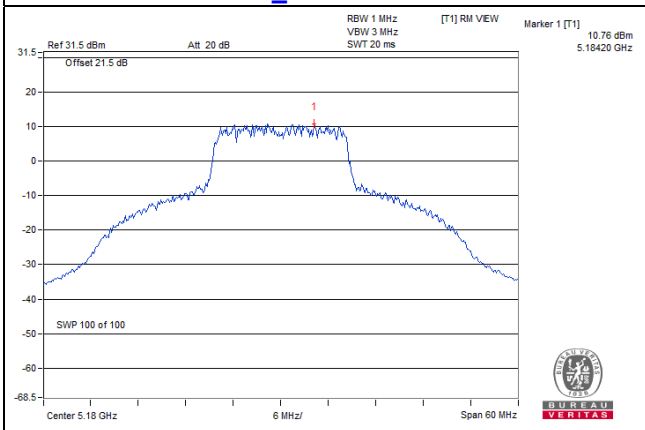
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 17-(8.41-6) = 14.59 dBm.

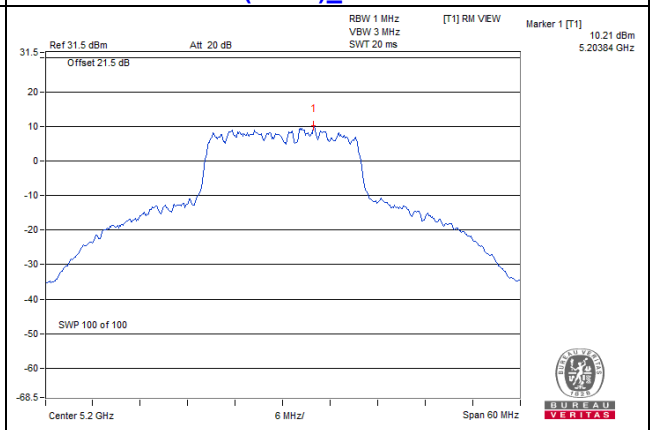
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

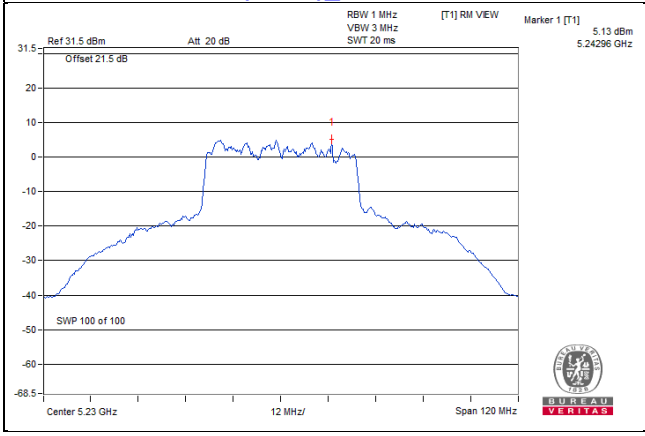
802.11a_Chain 0 / CH36



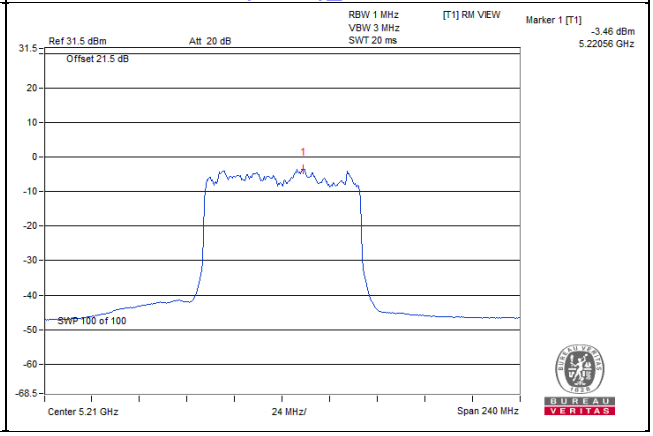
802.11ax (HE20)_Chain 1 / CH40



802.11ax (HE40)_Chain 0 / CH46



802.11ax (HE80)_Chain 0 / CH42



Client Mode

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	3.94	4.14	0.25	7.30	8.59	Pass
40	5200	3.44	4.21	0.25	7.10	8.59	Pass
48	5240	4.17	4.07	0.25	7.38	8.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.41-6) = 8.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	3.76	4.58	0.20	7.40	8.59	Pass
40	5200	2.85	4.50	0.20	6.97	8.59	Pass
48	5240	4.66	3.07	0.20	7.15	8.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.41-6) = 8.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	1.65	1.25	0.25	4.72	8.59	Pass
46	5230	2.66	2.71	0.25	5.95	8.59	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] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.41-6) = 8.59 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

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	-2.90	-3.90	0.18	-0.19	8.59	Pass

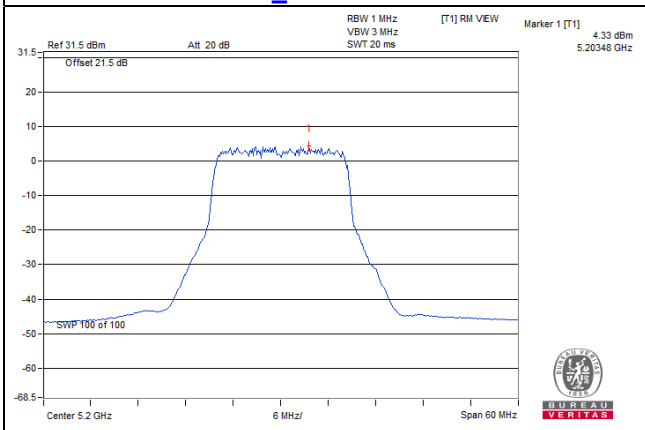
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 8.41 dBi > 6 dBi, so the power density limit shall be reduced to 11-(8.41-6) = 8.59 dBm.

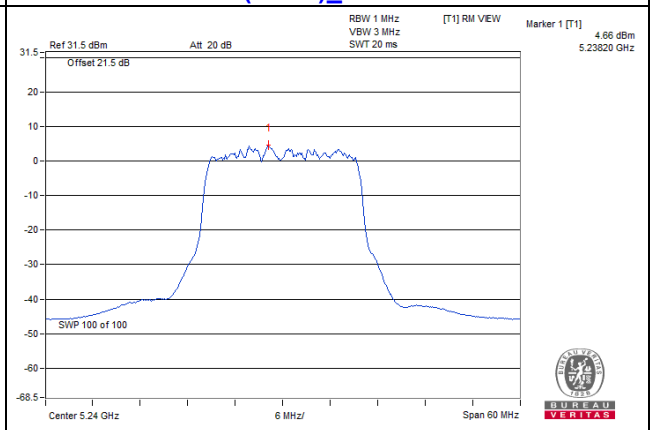
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

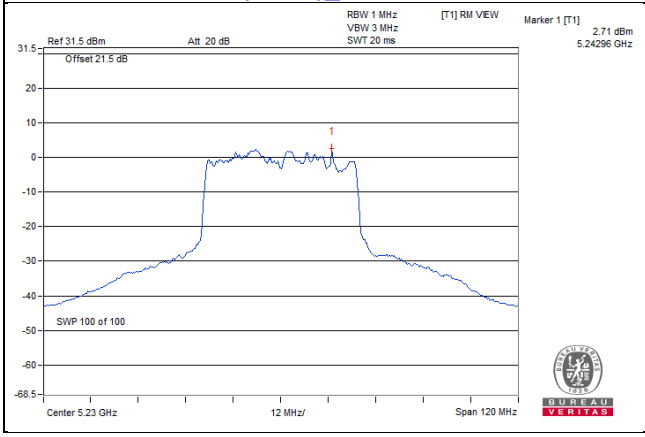
802.11a_Chain 1 / CH40



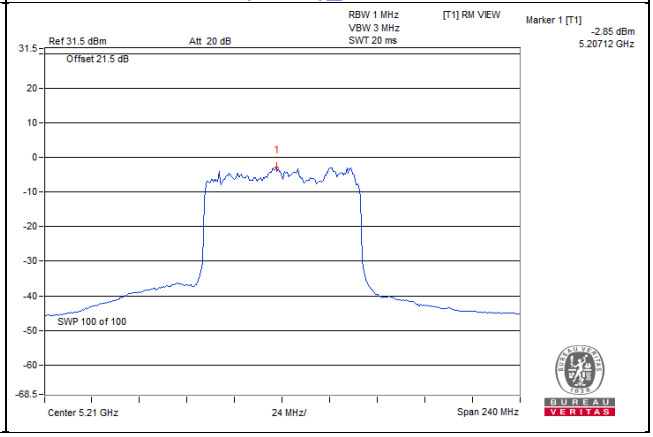
802.11ax (HE20)_Chain 0 / CH48



802.11ax (HE40)_Chain 1 / CH46



802.11ax (HE80)_Chain 0 / CH42



For U-NII-3 band:

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1					
149	5745	1.44	0.86	0.25	4.42	6.64	28.04	Pass
157	5785	1.89	1.16	0.25	4.80	7.02	28.04	Pass
165	5825	1.31	1.17	0.25	4.50	6.72	28.04	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] = 7.96 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.96-6) = 28.04 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1					
149	5745	0.15	0.09	0.20	3.33	5.55	28.04	Pass
157	5785	0.20	-0.16	0.20	3.24	5.46	28.04	Pass
165	5825	0.16	-0.74	0.20	2.95	5.17	28.04	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] = 7.96 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.96-6) = 28.04 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1					
151	5755	-3.58	-4.41	0.25	-0.71	1.51	28.04	Pass
159	5795	-3.93	-3.94	0.25	-0.67	1.55	28.04	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] = 7.96 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.96-6) = 28.04 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

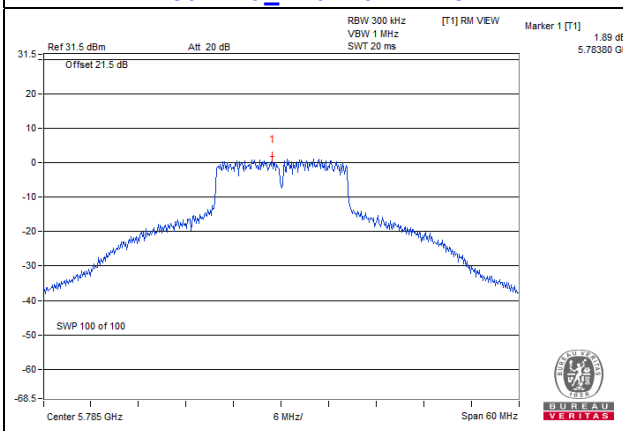
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)		Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
		Chain 0	Chain 1					
155	5775	-8.22	-8.35	0.18	-5.10	-2.88	28.04	Pass

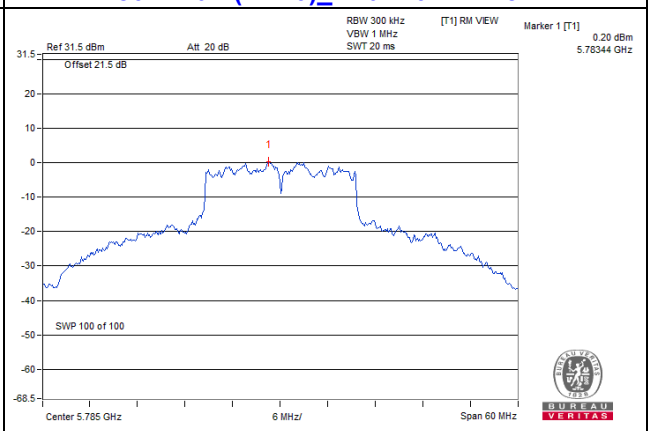
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. The directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.96 dBi > 6 dBi, so the power density limit shall be reduced to 30-(7.96-6) = 28.04 dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

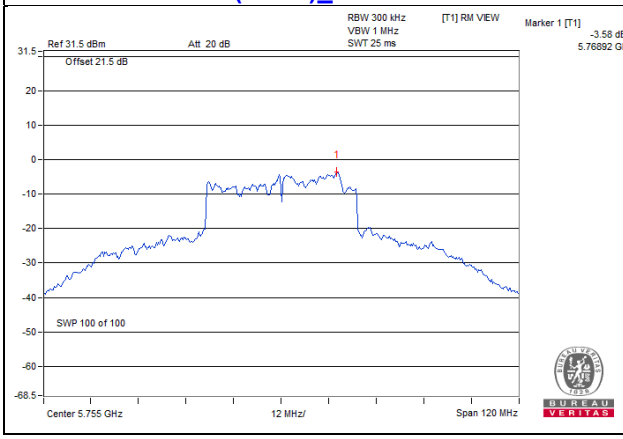
802.11a_Chain 0 / CH157



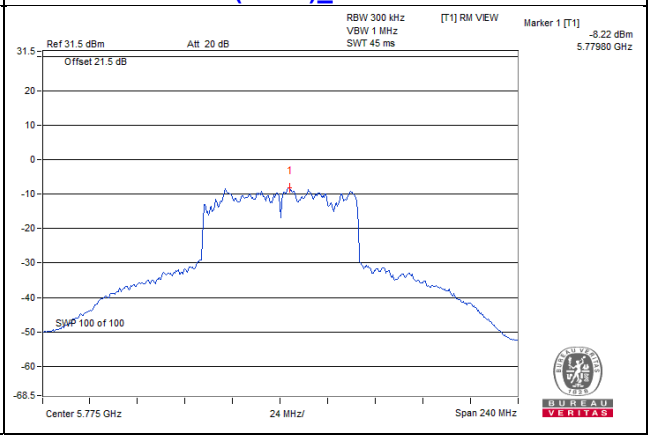
802.11ax (HE20)_Chain 0 / CH157



802.11ax (HE40)_Chain 0 / CH151



802.11ax (HE80)_Chain 0 / CH155

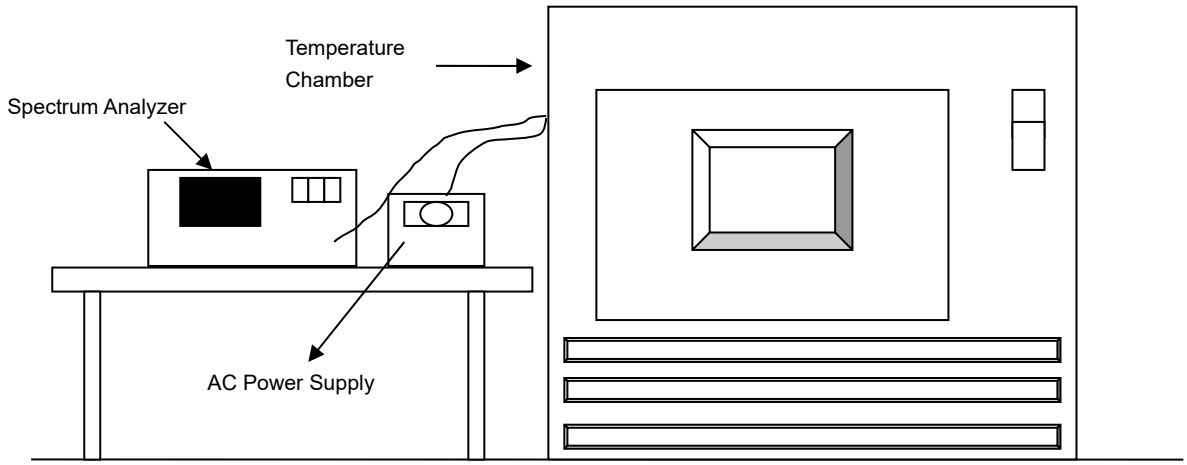


4.6 Frequency Stability Measurement

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

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. 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.

e. Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.

f. 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. (℃)	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	5179.9939	Pass	5179.9934	Pass	5179.997	Pass	5179.9937	Pass
30	120	5180.0087	Pass	5180.0066	Pass	5180.0056	Pass	5180.0091	Pass
20	120	5180.0073	Pass	5180.0086	Pass	5180.0065	Pass	5180.0084	Pass
10	120	5179.987	Pass	5179.9874	Pass	5179.9875	Pass	5179.9854	Pass
0	120	5179.999	Pass	5179.9991	Pass	5179.9986	Pass	5179.9992	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	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	5180.0075	Pass	5180.0092	Pass	5180.0071	Pass	5180.0082	Pass
	120	5180.0073	Pass	5180.0086	Pass	5180.0065	Pass	5180.0084	Pass
	102	5180.0079	Pass	5180.0092	Pass	5180.0057	Pass	5180.0085	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

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.4	16.37	0.5	Pass
157	5785	16.39	16.38	0.5	Pass
165	5825	16.37	16.37	0.5	Pass

802.11ax (HE20)

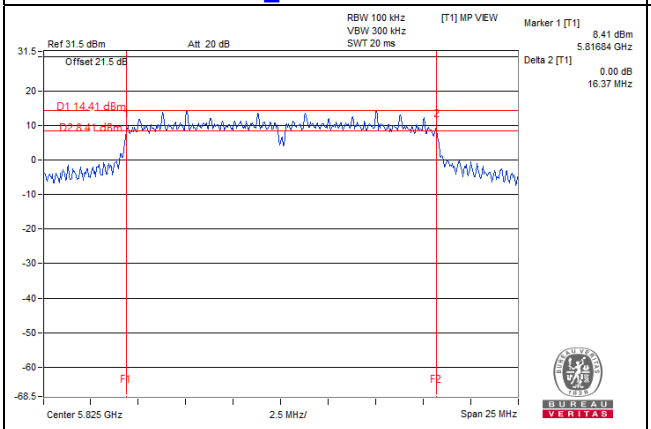
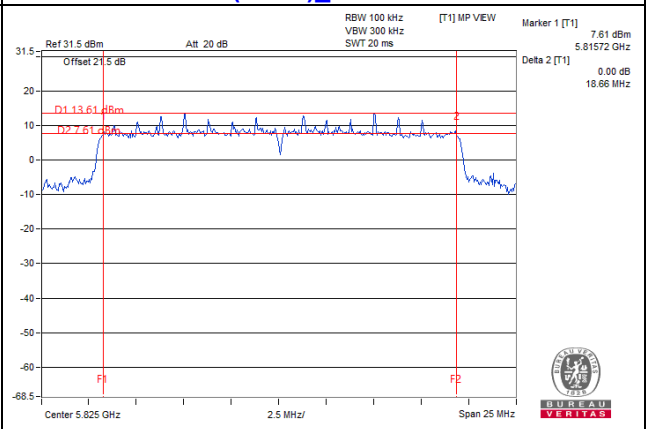
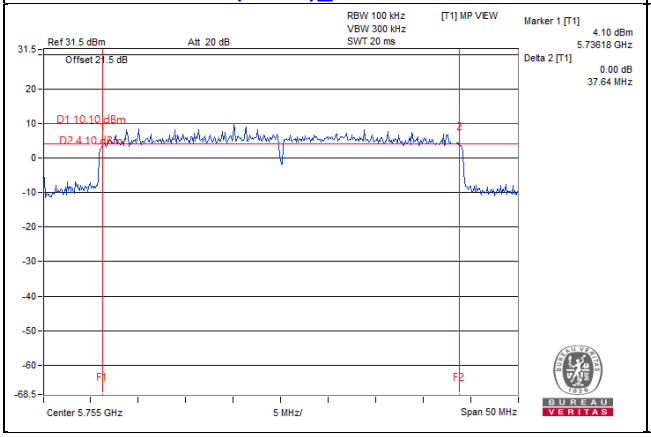
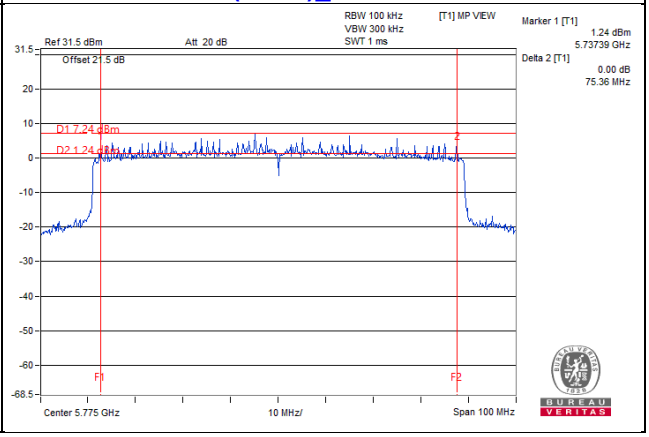
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	18.84	18.74	0.5	Pass
157	5785	18.77	18.68	0.5	Pass
165	5825	18.68	18.66	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	37.97	37.64	0.5	Pass
159	5795	38.11	38.28	0.5	Pass

802.11ax (HE80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.45	75.36	0.5	Pass

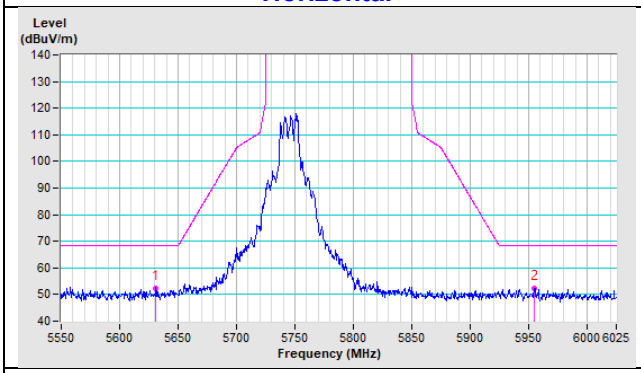
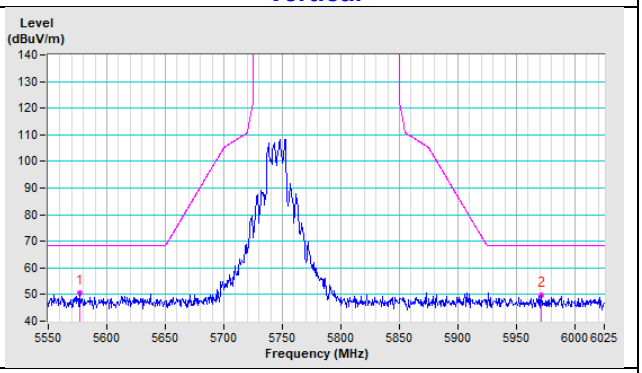
Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH165	**802.11ax (HE20)_Chain 1 / CH165**
	
802.11ax (HE40)_Chain 1 / CH151	**802.11ax (HE80)_Chain 1 / CH155**
	

5 Pictures of Test Arrangements

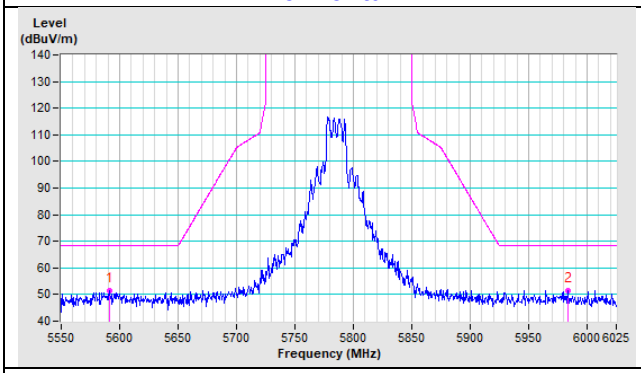
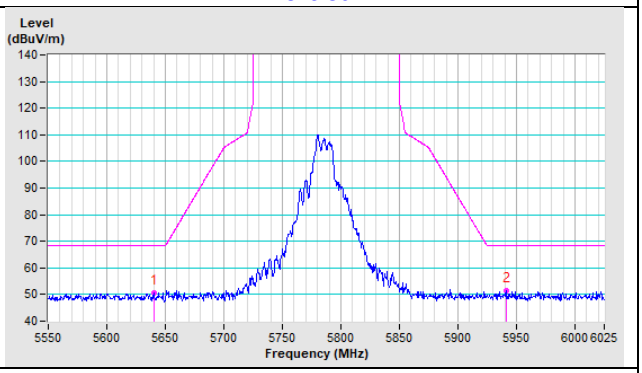
Please refer to the attached file (Test Setup Photo).

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

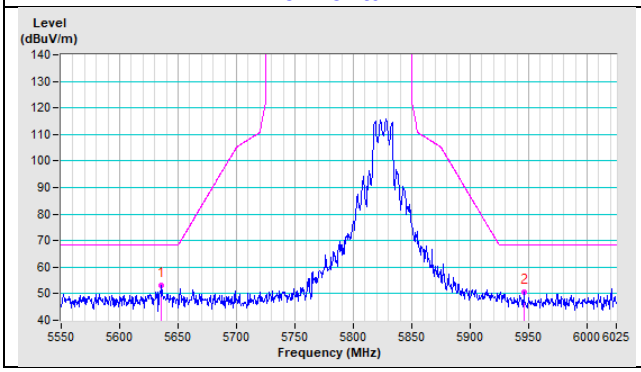
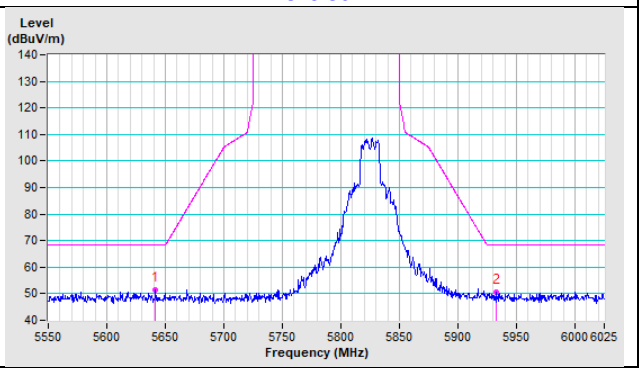
802.11a CH 149：5745 MHz

Horizontal	Vertical
	

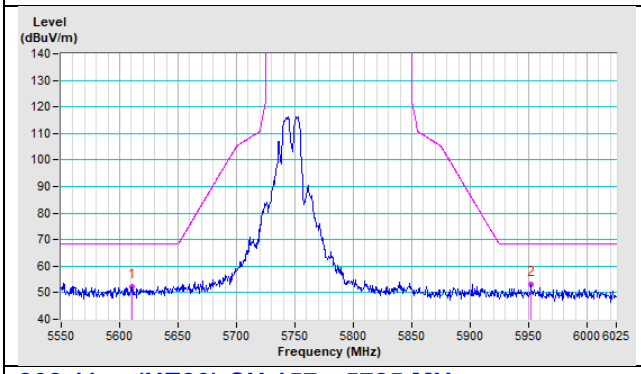
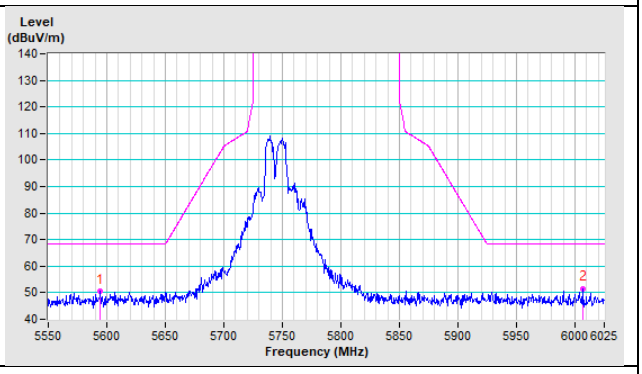
802.11a CH 157：5785 MHz

Horizontal	Vertical
	

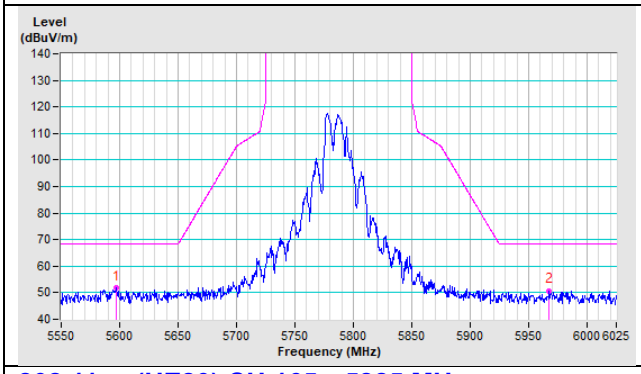
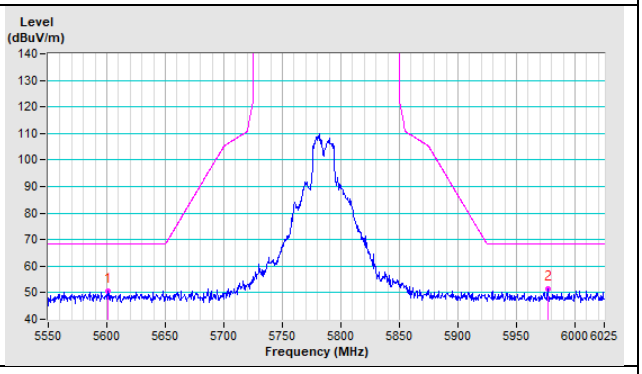
802.11a CH 165：5825 MHz

Horizontal	Vertical
	

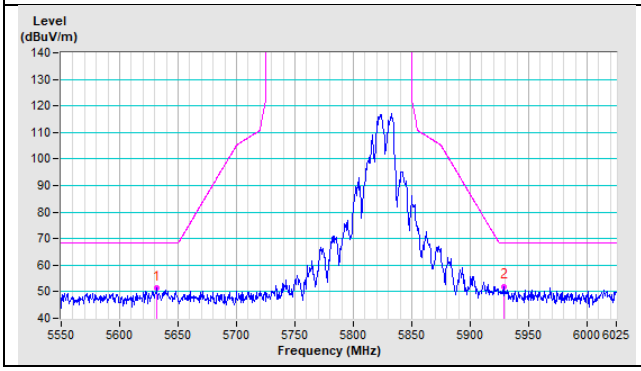
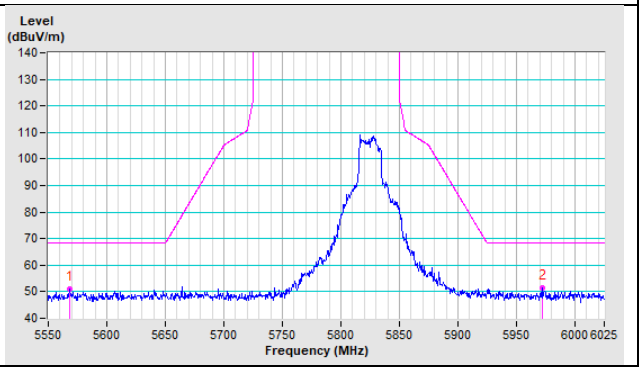
802.11ax (HE20) CH 149：5745 MHz

Horizontal	Vertical
	

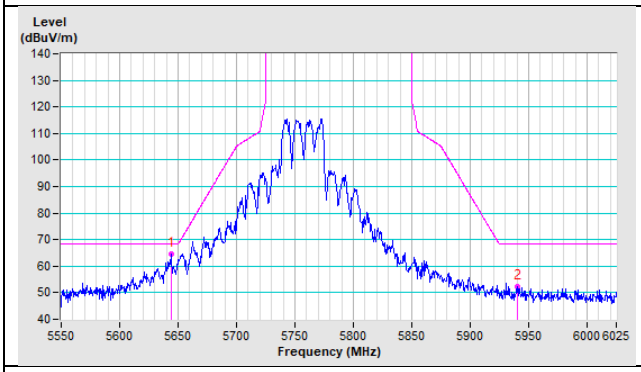
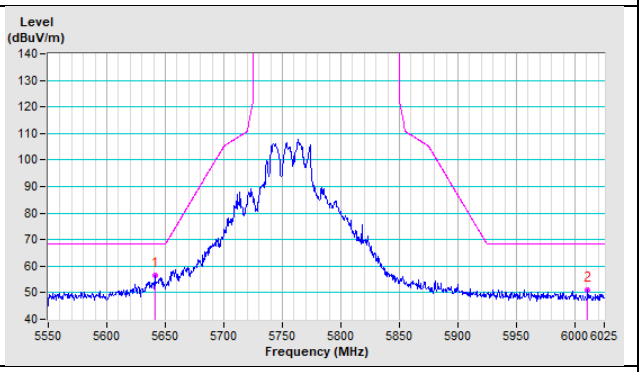
802.11ax (HE20) CH 157：5785 MHz

Horizontal	Vertical
	

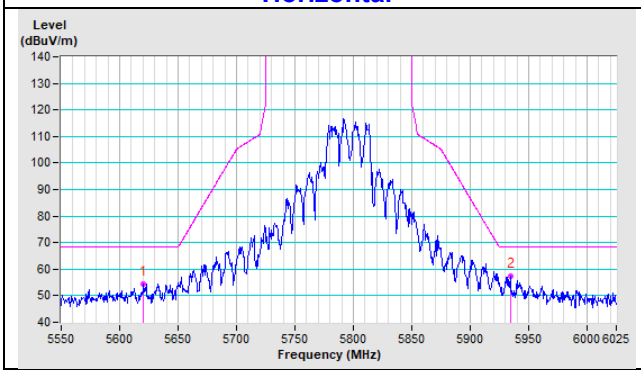
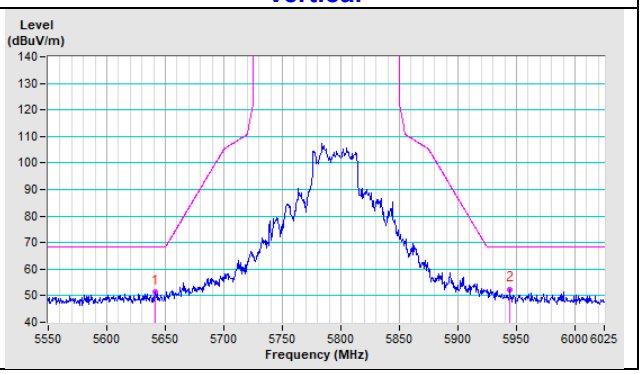
802.11ax (HE20) CH 165：5825 MHz

Horizontal	Vertical
	

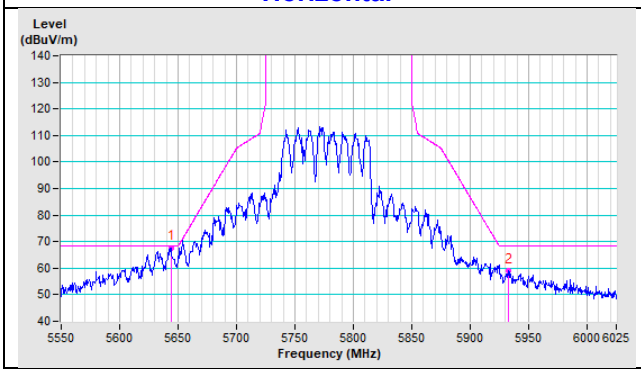
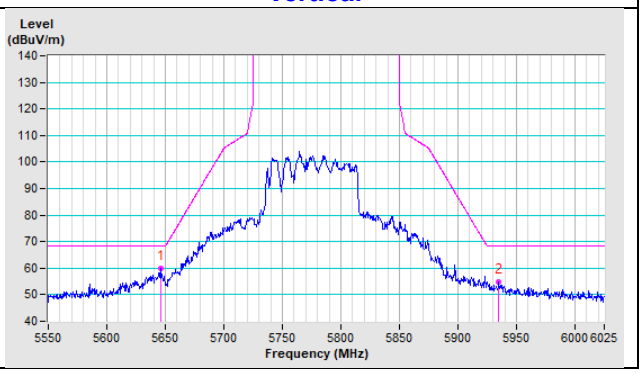
802.11ax (HE40) CH 151：5755 MHz

Horizontal	Vertical
	

802.11ax (HE40) CH 159：5795 MHz

Horizontal	Vertical
	

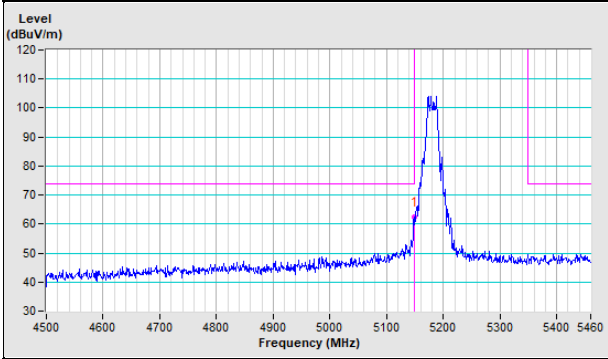
802.11ax (HE80) CH 155：5775 MHz

Horizontal	Vertical
	

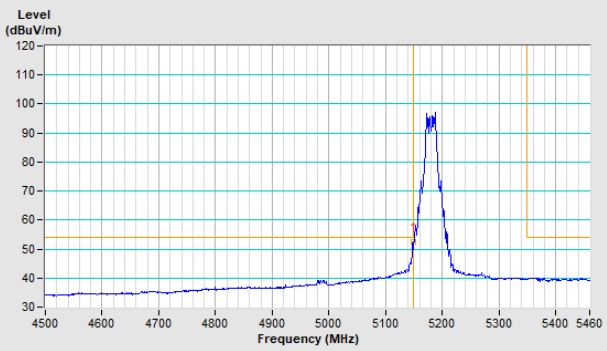
Annex B - Band-Edge Measurement (For U-NII-1 band)

802.11a Channel 36

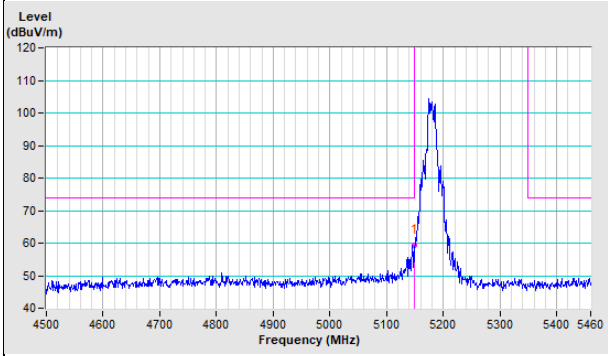
Horizontal (Peak)



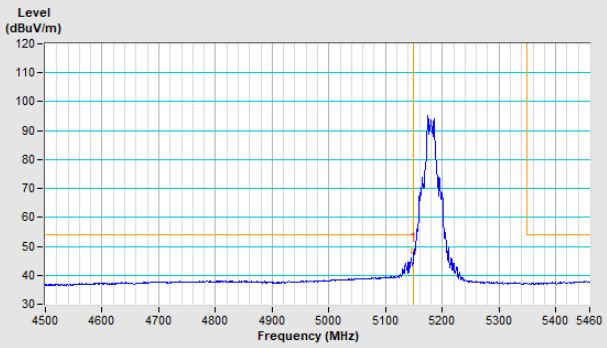
Horizontal (Average)



Vertical (Peak)

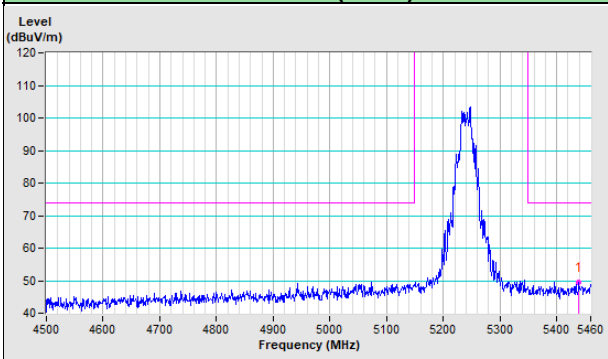


Vertical (Average)

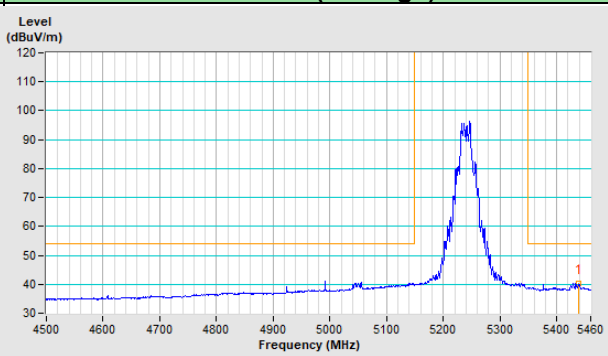


802.11a Channel 48

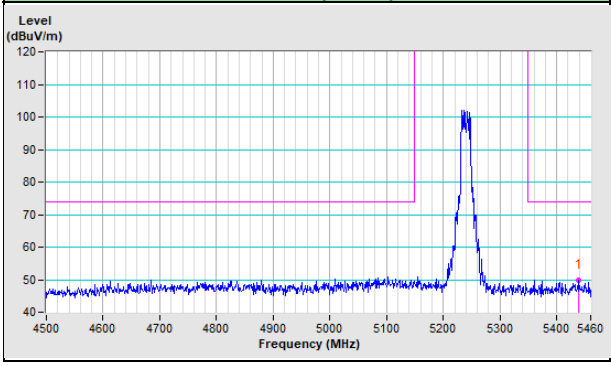
Horizontal (Peak)



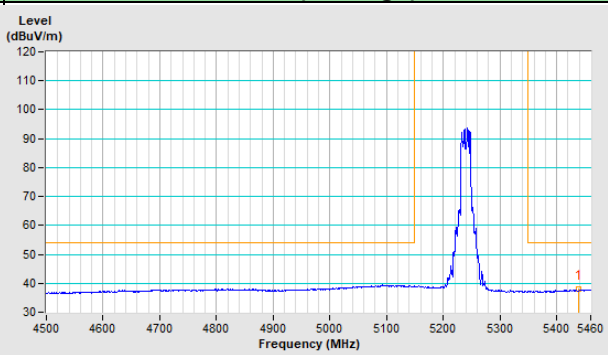
Horizontal (Average)



Vertical (Peak)

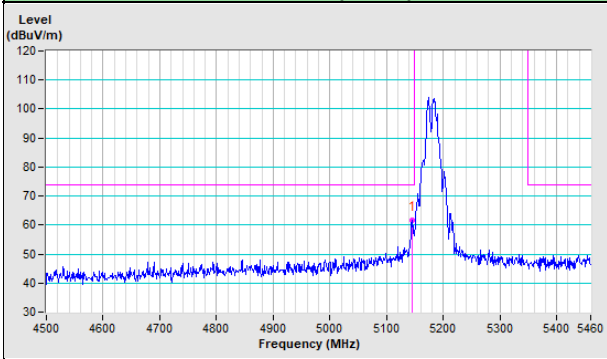


Vertical (Average)

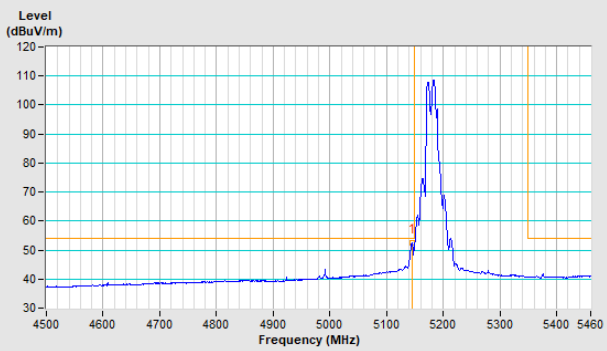


802.11ax (HE20) Channel 36

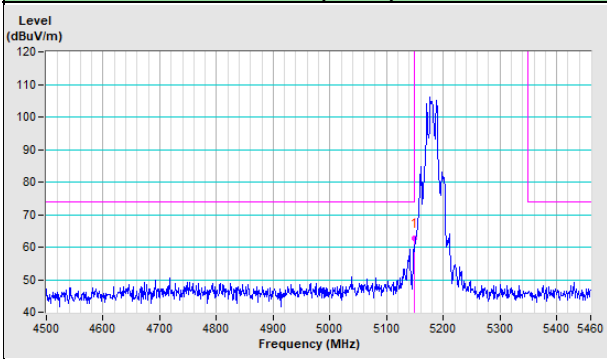
Horizontal (Peak)



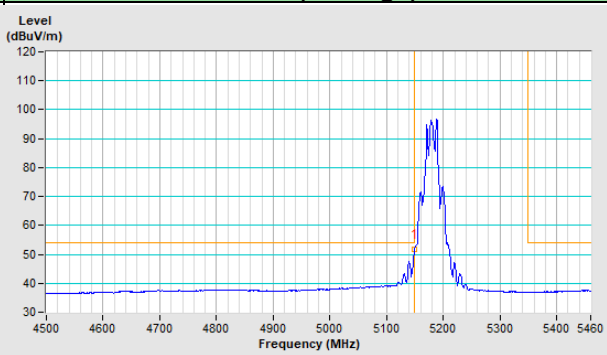
Horizontal (Average)



Vertical (Peak)

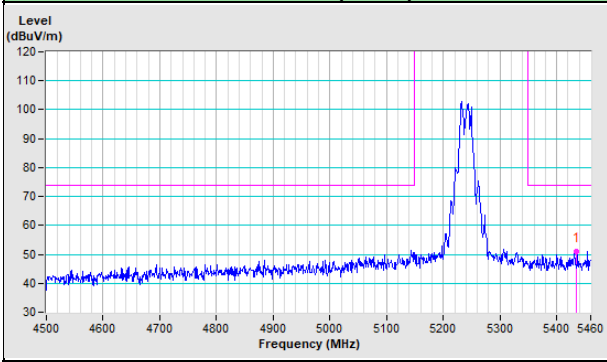


Vertical (Average)

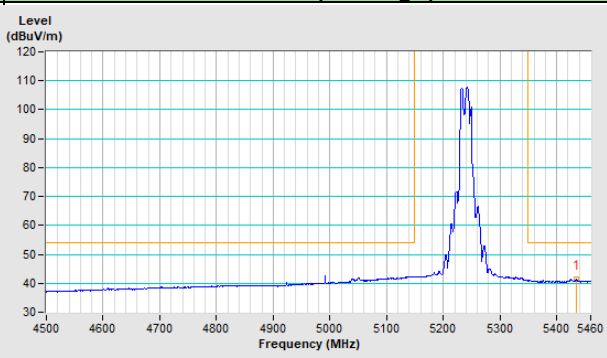


802.11ax (HE20) Channel 48

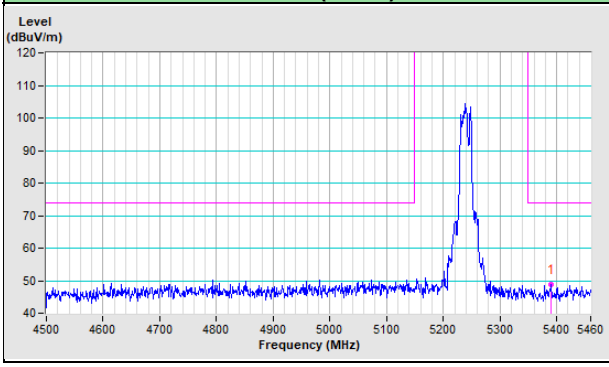
Horizontal (Peak)



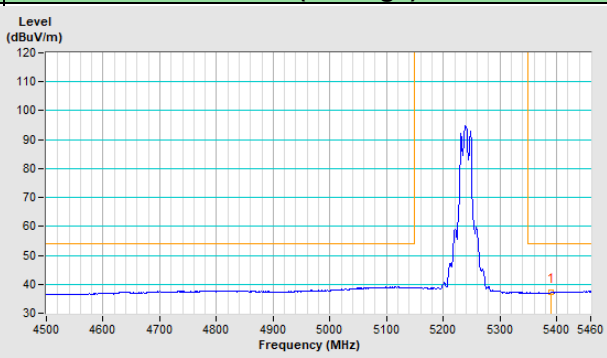
Horizontal (Average)



Vertical (Peak)

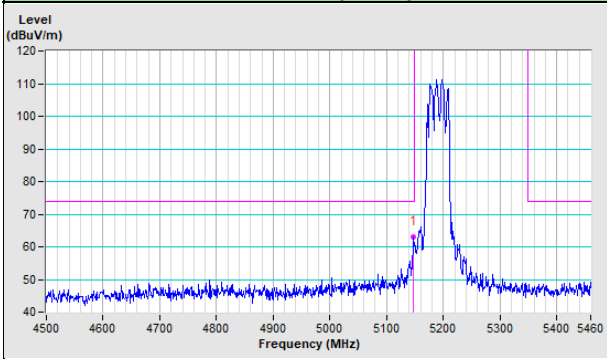


Vertical (Average)

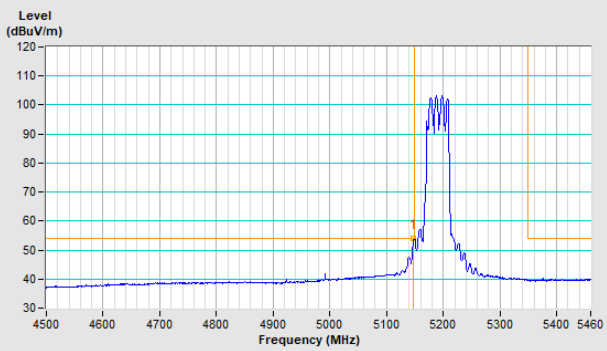


802.11ax (HE40) Channel 38

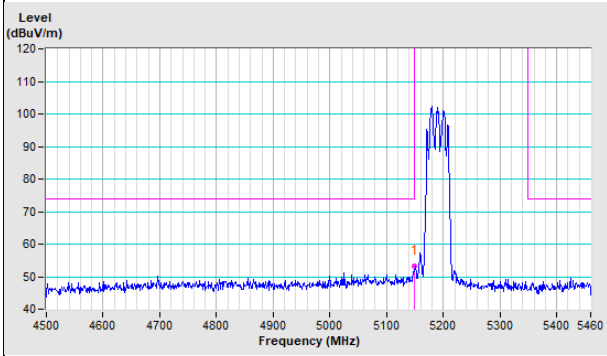
Horizontal (Peak)



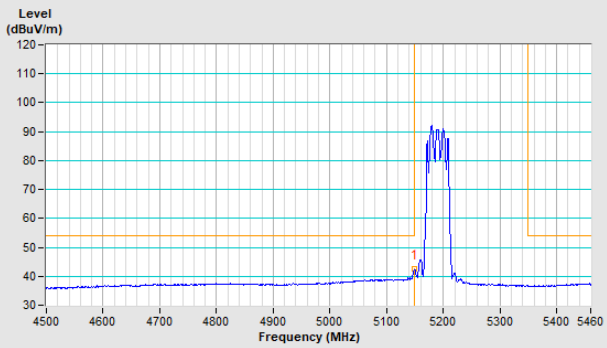
Horizontal (Average)



Vertical (Peak)

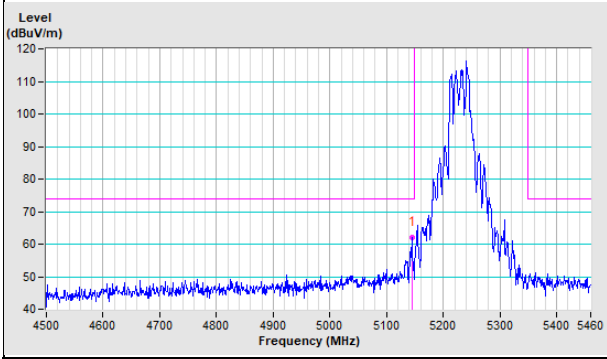


Vertical (Average)

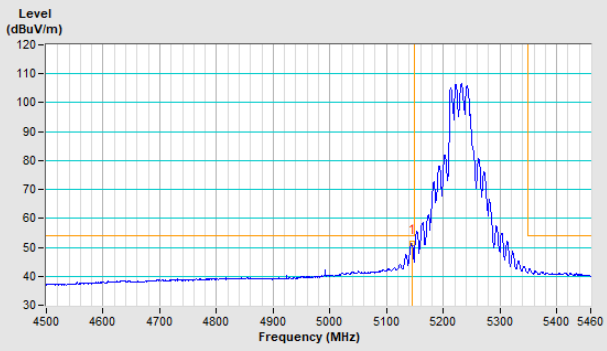


802.11ax (HE40) Channel 46

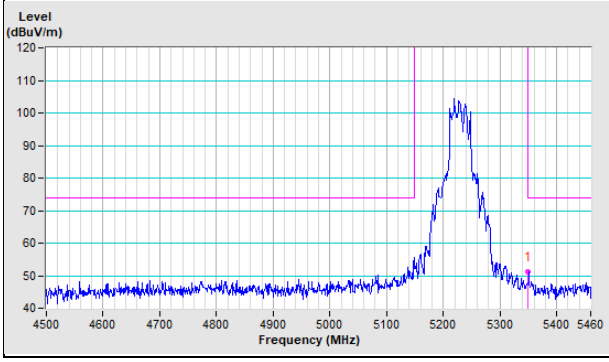
Horizontal (Peak)



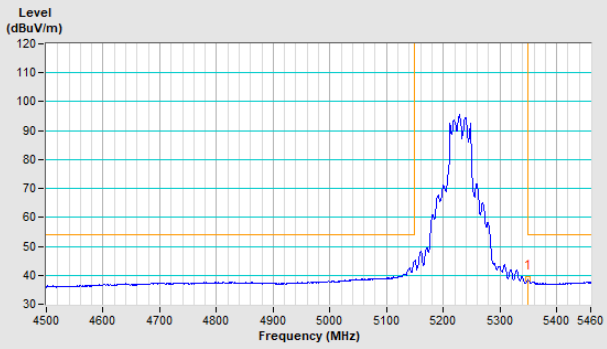
Horizontal (Average)

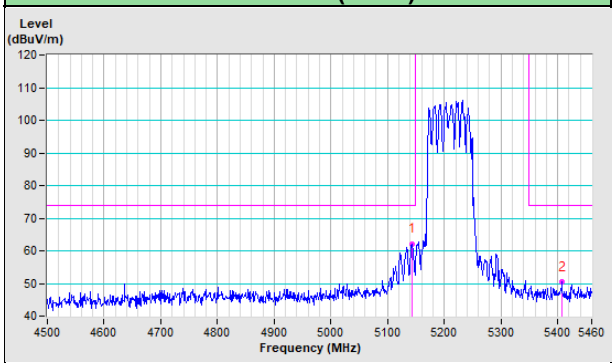
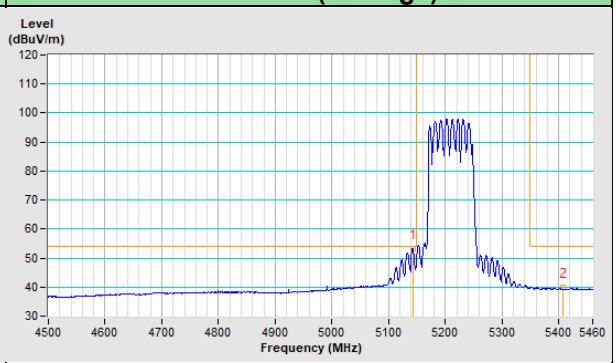
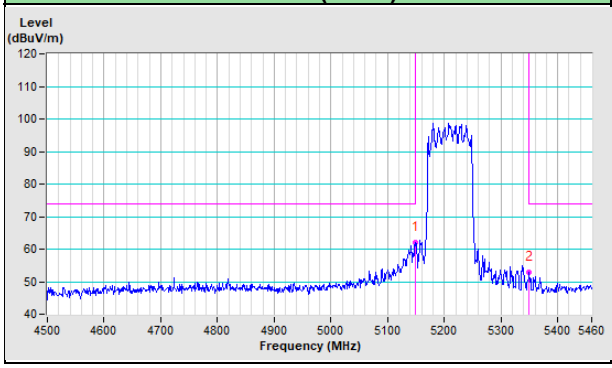
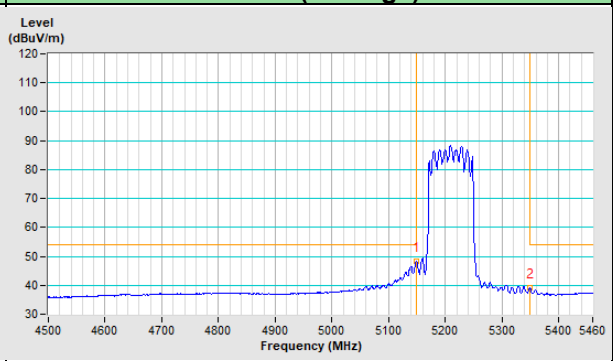


Vertical (Peak)



Vertical (Average)



802.11ax (HE80) Channel 42	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

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:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---