

FCC Test Report (WLAN)

Report No.: RFBECO-WTW-P21010839-1

FCC ID: TLZ-CU488

Test Model: AW-CU488

Received Date: Feb. 03, 2021

Test Date: Feb. 24 to Mar. 03, 2021

Issued Date: Mar. 16, 2021

Applicant: AzureWave Technologies, Inc.

Address: 8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei City , Taiwan 231

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
RFBECO-WTW-P21010839-1	Original release.	Mar. 16, 2021

1 Certificate of Conformity

Product: IEEE 802.11 a/b/g/n 1T1R WLAN and Bluetooth Low Energy Microcontroller Module

Brand: AzureWave

Test Model: AW-CU488

Sample Status: Engineering sample

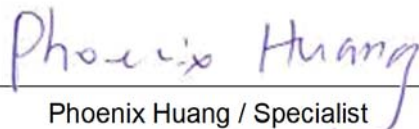
Applicant: AzureWave Technologies, Inc.

Test Date: Feb. 24 to Mar. 03, 2021

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 / Specialist

Date:

Mar. 16, 2021

Approved by :



Date:

Mar. 16, 2021

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)(8)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -13.21 dB at 0.56797 MHz.
15.407(b) (1/2/3/4(i/ii)/8)	Radiated Emissions & Band Edge Measurement*	PASS	Meet the requirement of limit. Minimum passing margin is -0.1 dB at 5470.00 MHz and 5725.00 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	No antenna connector is used.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
2. For U-NII-1, U-NII-2A, U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.9 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.1 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	IEEE 802.11 a/b/g/n 1T1R WLAN and Bluetooth Low Energy Microcontroller Module
Brand	AzureWave
Test Model	AW-CU488
Status of EUT	Engineering sample
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11a/g: up to 54 Mbps 802.11n: up to 72.2 Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462 GHz 5GHz: 5.18 ~ 5.24 GHz, 5.26 ~ 5.32 GHz, 5.50 ~ 5.70 GHz, 5.745 ~ 5.825 GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 5GHz: 802.11a, 802.11n (HT20): 24
Output Power	2.4 GHz: 490.908 mW 5.18 ~ 5.24 GHz: 139.959 mW 5.26 ~ 5.32 GHz: 74.989 mW 5.50 ~ 5.70 GHz: 77.983 mW 5.745 ~ 5.825GHz: 137.404 mW
Antenna Type	Refer to Note
Antenna Connector	NA
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. There are WLAN and Bluetooth technology used for the EUT.
2. The device of WLAN (2.4GHz), WLAN (5GHz) and Bluetooth technology cannot transmit simultaneously.
3. The antenna provided to the EUT, please refer to the following table:

Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	LYNwave	ALX20M-222AAC	3.7	2.4~2.5	PIFA	none
			3.6	5.15~5.85		

4. The EUT incorporates a SISO function.

2.4GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11b	1TX	1RX
802.11g	1TX	1RX
802.11n (HT20)	1TX	1RX
5GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11a	1TX	1RX
802.11n (HT20)	1TX	1RX

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):

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

FOR 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

FOR 5500 ~ 5720MHz

11 channels are provided for 802.11a, 802.11n (HT20):

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

FOR 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 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 **Y-plane (Below 1GHz)** and **X-plane (Above 1GHz)**.

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11n (HT20)	5180-5320, 5500-5700, 5745-5825	36 to 64, 100 to 140, 149 to 165	40	OFDM	BPSK	6.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11n (HT20)	5180-5320, 5500-5700, 5745-5825	36 to 64, 100 to 140, 149 to 165	40	OFDM	BPSK	6.5

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6
802.11n (HT20)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6
802.11n (HT20)		100 to 140	100, 116, 140	OFDM	BPSK	6.5
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5

Test Condition:

Applicable To	Environmental Conditions	Input Power (System)	Tested By
RE _≥ 1G	25deg. C, 69%RH	120Vac, 60Hz	Carter Lin
RE _{<} 1G	25deg. C, 66%RH	120Vac, 60Hz	Sampson Chen
PLC	25deg. C, 66%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

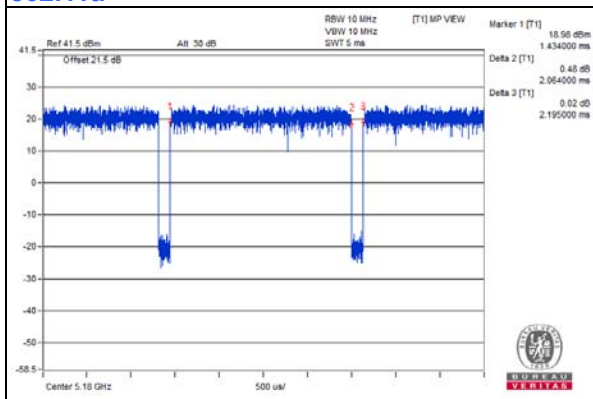
3.3 Duty Cycle of Test Signal

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

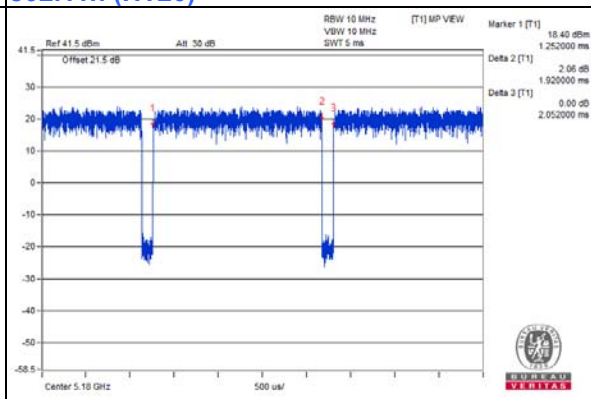
802.11a: Duty cycle = 2.064 ms/2.195 ms = 0.94, Duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.27 \text{ dB}$

802.11n (HT20): Duty cycle = 1.92 ms/2.052 ms = 0.936, Duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.29 \text{ dB}$

802.11a



802.11n (HT20)



3.4 Description of Support Units

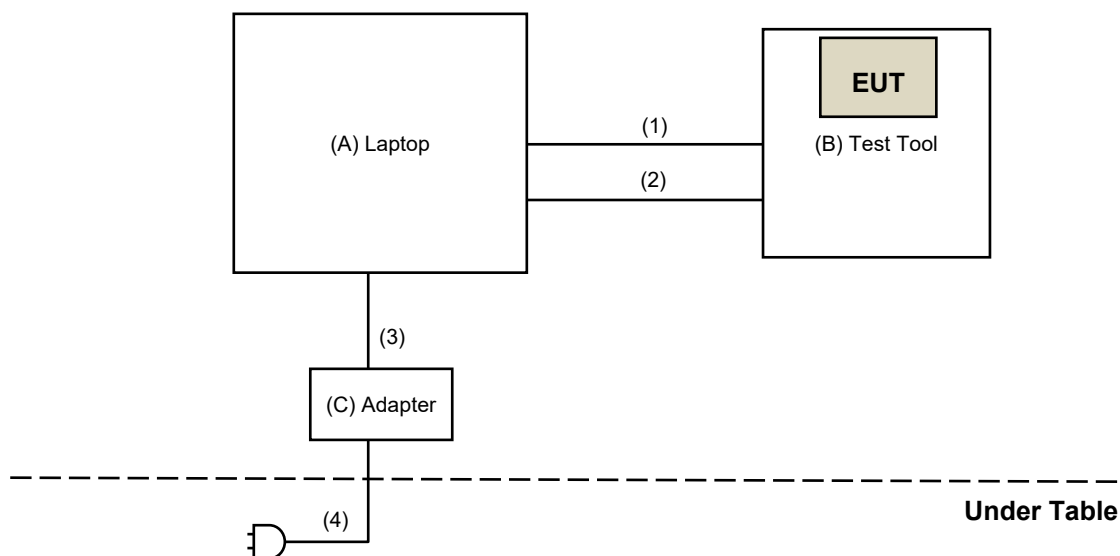
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6440	F9LYQ32	DoC	Provided by Lab
B.	Test Tool	AzureWave Technologies, Inc.	NA	NA	NA	Supplied by client
C.	Adapter	Lenovo	ADLX45YLC3D	NA	NA	Provided by Lab

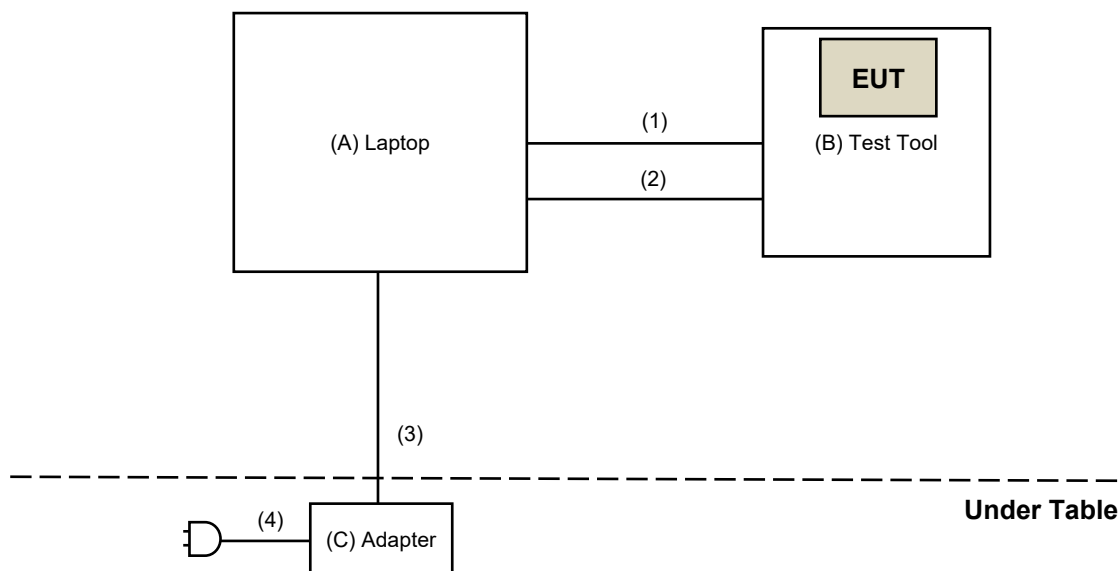
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1.8	Yes	0	Provided by Lab
2.	USB Cable	1	1.8	Yes	0	Provided by Lab
3.	DC Cable	1	1.8	No	0	Provided by Lab
4.	AC Cable	1	1	No	0	Provided by Lab

3.4.1 Configuration of System under Test

For AC Power Conducted Emissions test:



For Radiated Emissions test:



3.5 General Description of Applied Standard and References

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

Test Standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10-2013

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

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
		PK:74 (dBuV/m)	AV:54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2(dBuV/m) ^{*1} PK: 105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK: 122.2 (dBuV/m) ^{*4}
^{*1} beyond 75 MHz or more above of the band edge. ^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.			

Note:

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

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

4.1.2 Test Instruments

For Radiated Emission test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 01, 2020	Nov. 30, 2021
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier EMCI	EMC330N	980701	Mar. 11, 2020	Mar. 10, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 06, 2020	Nov. 05, 2021
RF Cable	8D	966-6-1	Apr. 04, 2020	Apr. 03, 2021
RF Cable	8D	966-4-2	Mar. 18, 2020	Mar. 17, 2021
RF Cable	8D	966-4-3	Mar. 18, 2020	Mar. 17, 2021
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-03	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC 12630 SE	980638	Apr. 08, 2020	Apr. 07, 2021
RF Cable	EMC104-SM-SM-1200	160922	Dec. 25, 2020	Dec. 24, 2021
RF Cable	EMC104-SM-SM-2000	180502	Apr. 29, 2020	Apr. 28, 2021
RF Cable	EMC104-SM-SM-6000	180418	Apr. 29, 2020	Apr. 28, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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. 4.
3. Tested Date: Feb. 24 to Mar. 02, 2021

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
DC Power Supply Topward	6603D	795558	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 14, 2021	Jan. 13, 2022
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: Mar. 03, 2021

4.1.3 Test Procedure

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

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

Note:

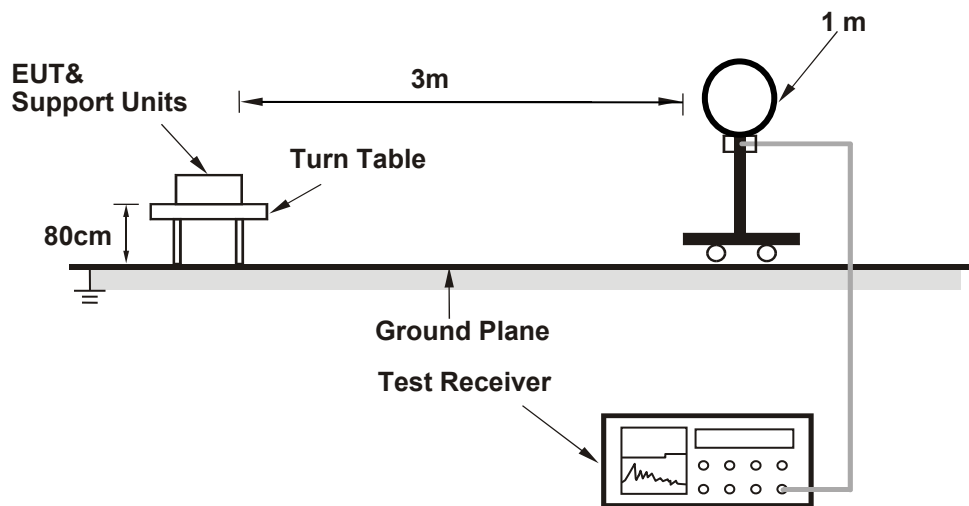
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

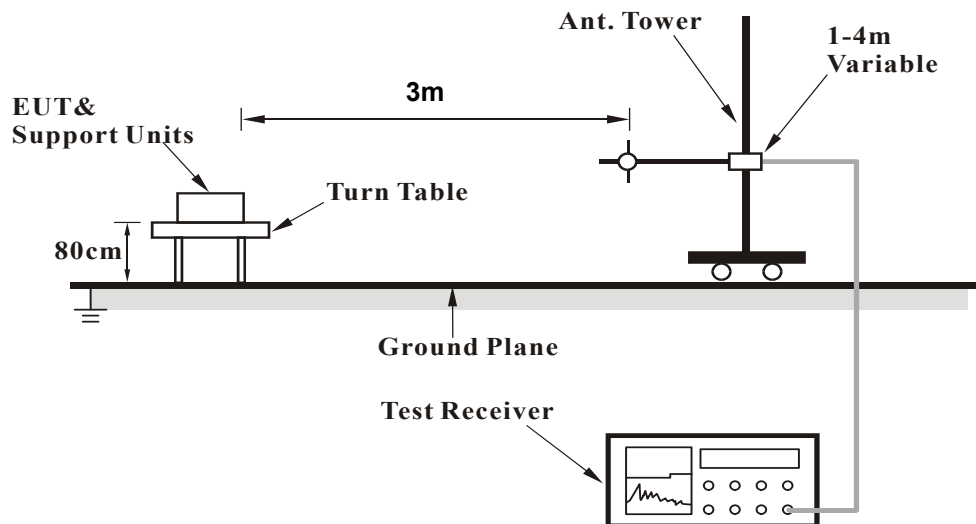
No deviation.

4.1.5 Test Setup

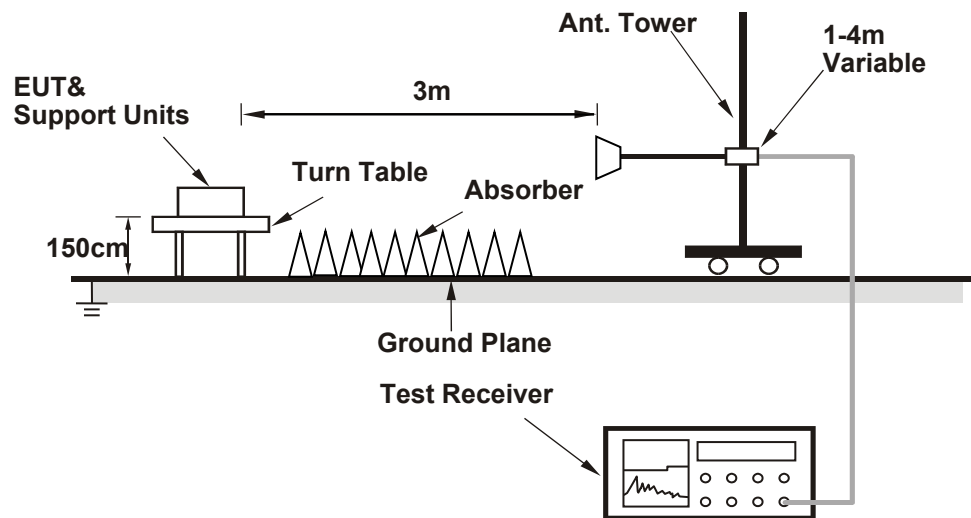
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

- Placed the EUT on the testing table.
- Controlling software (AmebaD_mptool_2V1) 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	5150.00	67.2 PK	74.0	-6.8	2.72 H	322	66.1	1.1
2	5150.00	53.7 AV	54.0	-0.3	2.72 H	322	52.6	1.1
3	*5180.00	110.4 PK			2.72 H	322	109.4	1.0
4	*5180.00	99.8 AV			2.72 H	322	98.8	1.0
5	#10360.00	52.5 PK	68.2	-15.7	2.16 H	269	42.2	10.3
6	15540.00	57.5 PK	74.0	-16.5	3.84 H	136	45.5	12.0
7	15540.00	44.7 AV	54.0	-9.3	3.84 H	136	32.7	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.6 PK	74.0	-12.4	3.89 V	214	60.5	1.1
2	5150.00	49.7 AV	54.0	-4.3	3.89 V	214	48.6	1.1
3	*5180.00	105.6 PK			3.89 V	214	104.6	1.0
4	*5180.00	96.6 AV			3.89 V	214	95.6	1.0
5	#10360.00	54.8 PK	68.2	-13.4	2.45 V	146	44.5	10.3
6	15540.00	59.7 PK	74.0	-14.3	1.54 V	157	47.7	12.0
7	15540.00	46.7 AV	54.0	-7.3	1.54 V	157	34.7	12.0

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	64.9 PK	74.0	-9.1	2.69 H	316	63.8	1.1
2	5150.00	52.8 AV	54.0	-1.2	2.69 H	316	51.7	1.1
3	*5200.00	112.6 PK			2.69 H	316	111.5	1.1
4	*5200.00	102.5 AV			2.69 H	316	101.4	1.1
5	#10400.00	53.1 PK	68.2	-15.1	2.21 H	272	42.7	10.4
6	15600.00	58.1 PK	74.0	-15.9	3.81 H	144	46.1	12.0
7	15600.00	45.2 AV	54.0	-8.8	3.81 H	144	33.2	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	60.4 PK	74.0	-13.6	3.90 V	219	59.3	1.1
2	5150.00	49.1 AV	54.0	-4.9	3.90 V	219	48.0	1.1
3	*5200.00	108.4 PK			3.90 V	219	107.3	1.1
4	*5200.00	99.2 AV			3.90 V	219	98.1	1.1
5	#10400.00	55.1 PK	68.2	-13.1	2.42 V	152	44.7	10.4
6	15600.00	60.1 PK	74.0	-13.9	1.59 V	146	48.1	12.0
7	15600.00	46.9 AV	54.0	-7.1	1.59 V	146	34.9	12.0

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.6 PK	74.0	-21.4	2.72 H	322	51.5	1.1
2	5150.00	40.7 AV	54.0	-13.3	2.72 H	322	39.6	1.1
3	*5240.00	109.0 PK			2.72 H	322	108.2	0.8
4	*5240.00	100.0 AV			2.72 H	322	99.2	0.8
5	5350.00	53.6 PK	74.0	-20.4	2.72 H	322	52.8	0.8
6	5350.00	41.8 AV	54.0	-12.2	2.72 H	322	41.0	0.8
7	#10480.00	52.7 PK	68.2	-15.5	2.14 H	283	42.4	10.3
8	15720.00	57.6 PK	74.0	-16.4	3.85 H	128	46.4	11.2
9	15720.00	44.8 AV	54.0	-9.2	3.85 H	128	33.6	11.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	51.4 PK	74.0	-22.6	3.93 V	201	50.3	1.1
2	5150.00	40.9 AV	54.0	-13.1	3.93 V	201	39.8	1.1
3	*5240.00	105.8 PK			3.93 V	201	105.0	0.8
4	*5240.00	97.0 AV			3.93 V	201	96.2	0.8
5	5350.00	52.8 PK	74.0	-21.2	3.93 V	201	52.0	0.8
6	5350.00	41.9 AV	54.0	-12.1	3.93 V	201	41.1	0.8
7	#10480.00	54.5 PK	68.2	-13.7	2.48 V	132	44.2	10.3
8	15720.00	59.8 PK	74.0	-14.2	1.57 V	168	48.6	11.2
9	15720.00	46.9 AV	54.0	-7.1	1.57 V	168	35.7	11.2

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 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.7 PK	74.0	-21.3	2.70 H	324	51.6	1.1
2	5150.00	40.8 AV	54.0	-13.2	2.70 H	324	39.7	1.1
3	*5260.00	109.6 PK			2.70 H	324	108.9	0.7
4	*5260.00	100.4 AV			2.70 H	324	99.7	0.7
5	5350.00	54.1 PK	74.0	-19.9	2.70 H	324	53.3	0.8
6	5350.00	42.3 AV	54.0	-11.7	2.70 H	324	41.5	0.8
7	#10520.00	52.4 PK	68.2	-15.8	2.22 H	270	42.0	10.4
8	15780.00	58.0 PK	74.0	-16.0	3.87 H	125	46.9	11.1
9	15780.00	45.0 AV	54.0	-9.0	3.87 H	125	33.9	11.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	51.0 PK	74.0	-23.0	3.88 V	227	49.9	1.1
2	5150.00	40.5 AV	54.0	-13.5	3.88 V	227	39.4	1.1
3	*5260.00	105.8 PK			3.88 V	227	105.1	0.7
4	*5260.00	97.0 AV			3.88 V	227	96.3	0.7
5	5350.00	52.5 PK	74.0	-21.5	3.88 V	227	51.7	0.8
6	5350.00	41.6 AV	54.0	-12.4	3.88 V	227	40.8	0.8
7	#10520.00	55.0 PK	68.2	-13.2	2.45 V	139	44.6	10.4
8	15780.00	59.7 PK	74.0	-14.3	1.59 V	143	48.6	11.1
9	15780.00	46.9 AV	54.0	-7.1	1.59 V	143	35.8	11.1

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 60 : 5300 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	*5300.00	109.7 PK			2.74 H	325	109.0	0.7
2	*5300.00	100.6 AV			2.74 H	325	99.9	0.7
3	5350.00	58.2 PK	74.0	-15.8	2.74 H	325	57.4	0.8
4	5350.00	44.8 AV	54.0	-9.2	2.74 H	325	44.0	0.8
5	10600.00	53.1 PK	74.0	-20.9	2.15 H	285	42.6	10.5
6	10600.00	41.7 AV	54.0	-12.3	2.15 H	285	31.2	10.5
7	15900.00	57.2 PK	74.0	-16.8	3.90 H	150	45.4	11.8
8	15900.00	44.4 AV	54.0	-9.6	3.90 H	150	32.6	11.8
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	*5300.00	105.8 PK			3.87 V	210	105.1	0.7
2	*5300.00	97.0 AV			3.87 V	210	96.3	0.7
3	5350.00	56.1 PK	74.0	-17.9	3.87 V	210	55.3	0.8
4	5350.00	42.4 AV	54.0	-11.6	3.87 V	210	41.6	0.8
5	10600.00	55.5 PK	74.0	-18.5	2.50 V	157	45.0	10.5
6	10600.00	42.9 AV	54.0	-11.1	2.50 V	157	32.4	10.5
7	15900.00	59.3 PK	74.0	-14.7	1.59 V	151	47.5	11.8
8	15900.00	46.3 AV	54.0	-7.7	1.59 V	151	34.5	11.8

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.

RF Mode	TX 802.11a	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	110.8 PK			2.74 H	265	110.1	0.7
2	*5320.00	99.7 AV			2.74 H	265	99.0	0.7
3	5350.00	68.0 PK	74.0	-6.0	2.74 H	265	67.2	0.8
4	5350.00	52.4 AV	54.0	-1.6	2.74 H	265	51.6	0.8
5	10640.00	52.5 PK	74.0	-21.5	2.14 H	267	42.1	10.4
6	10640.00	41.1 AV	54.0	-12.9	2.14 H	267	30.7	10.4
7	15960.00	57.3 PK	74.0	-16.7	3.89 H	141	45.2	12.1
8	15960.00	44.5 AV	54.0	-9.5	3.89 H	141	32.4	12.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	105.8 PK			3.90 V	210	105.1	0.7
2	*5320.00	97.1 AV			3.90 V	210	96.4	0.7
3	5350.00	58.1 PK	74.0	-15.9	3.90 V	210	57.3	0.8
4	5350.00	45.0 AV	54.0	-9.0	3.90 V	210	44.2	0.8
5	10640.00	54.7 PK	74.0	-19.3	2.41 V	153	44.3	10.4
6	10640.00	42.5 AV	54.0	-11.5	2.41 V	153	32.1	10.4
7	15960.00	59.8 PK	74.0	-14.2	1.56 V	165	47.7	12.1
8	15960.00	46.6 AV	54.0	-7.4	1.56 V	165	34.5	12.1

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 100 : 5500 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	5460.00	63.1 PK	74.0	-10.9	2.73 H	265	62.0	1.1
2	5460.00	42.5 AV	54.0	-11.5	2.73 H	265	41.4	1.1
3	#5470.00	68.1 PK	68.2	-0.1	2.73 H	265	67.0	1.1
4	*5500.00	109.1 PK			2.73 H	265	108.0	1.1
5	*5500.00	99.3 AV			2.73 H	265	98.2	1.1
6	11000.00	52.7 PK	74.0	-21.3	2.16 H	265	41.3	11.4
7	11000.00	41.2 AV	54.0	-12.8	2.16 H	265	29.8	11.4
8	#16500.00	57.9 PK	68.2	-10.3	3.89 H	128	43.7	14.2
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	5460.00	56.6 PK	74.0	-17.4	3.84 V	217	55.5	1.1
2	5460.00	39.1 AV	54.0	-14.9	3.84 V	217	38.0	1.1
3	#5464.00	60.7 PK	68.2	-7.5	3.84 V	217	59.6	1.1
4	*5500.00	104.5 PK			3.84 V	217	103.4	1.1
5	*5500.00	95.8 AV			3.84 V	217	94.7	1.1
6	11000.00	55.4 PK	74.0	-18.6	2.44 V	144	44.0	11.4
7	11000.00	42.8 AV	54.0	-11.2	2.44 V	144	31.4	11.4
8	#16500.00	59.4 PK	68.2	-8.8	1.57 V	156	45.2	14.2

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 116 : 5580 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	*5580.00	109.9 PK			2.72 H	319	108.6	1.3
2	*5580.00	100.6 AV			2.72 H	319	99.3	1.3
3	11160.00	52.2 PK	74.0	-21.8	2.19 H	281	41.0	11.2
4	11160.00	41.2 AV	54.0	-12.8	2.19 H	281	30.0	11.2
5	#16740.00	57.9 PK	68.2	-10.3	3.85 H	150	42.6	15.3
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	*5580.00	105.8 PK			3.88 V	202	104.5	1.3
2	*5580.00	97.0 AV			3.88 V	202	95.7	1.3
3	11160.00	54.6 PK	74.0	-19.4	2.44 V	140	43.4	11.2
4	11160.00	42.1 AV	54.0	-11.9	2.44 V	140	30.9	11.2
5	#16740.00	59.9 PK	68.2	-8.3	1.55 V	141	44.6	15.3

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 802.11a	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	109.2 PK			2.76 H	268	107.7	1.5
2	*5700.00	98.9 AV			2.76 H	268	97.4	1.5
3	#5725.00	68.1 PK	68.2	-0.1	2.76 H	268	66.5	1.6
4	11400.00	52.9 PK	74.0	-21.1	2.19 H	279	40.7	12.2
5	11400.00	41.5 AV	54.0	-12.5	2.19 H	279	29.3	12.2
6	#17100.00	58.0 PK	68.2	-10.2	3.84 H	136	41.2	16.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	106.1 PK			3.94 V	205	104.6	1.5
2	*5700.00	95.6 AV			3.94 V	205	94.1	1.5
3	#5725.00	61.2 PK	68.2	-7.0	3.94 V	205	59.6	1.6
4	11400.00	55.3 PK	74.0	-18.7	2.50 V	133	43.1	12.2
5	11400.00	42.8 AV	54.0	-11.2	2.50 V	133	30.6	12.2
6	#17100.00	59.3 PK	68.2	-8.9	1.51 V	156	42.5	16.8

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	#5618.10	52.3 PK	68.2	-15.9	2.77 H	269	50.9	1.4
2	*5745.00	112.1 PK			2.77 H	269	110.4	1.7
3	*5745.00	102.1 AV			2.77 H	269	100.4	1.7
4	#5949.42	49.6 PK	68.2	-18.6	2.77 H	269	47.8	1.8
5	11490.00	52.4 PK	74.0	-21.6	2.12 H	266	40.3	12.1
6	11490.00	41.5 AV	54.0	-12.5	2.12 H	266	29.4	12.1
7	#17235.00	58.0 PK	68.2	-10.2	3.87 H	146	41.8	16.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5627.79	51.0 PK	68.2	-17.2	3.88 V	208	49.6	1.4
2	*5745.00	108.8 PK			3.88 V	208	107.1	1.7
3	*5745.00	99.3 AV			3.88 V	208	97.6	1.7
4	#5944.51	49.1 PK	68.2	-19.1	3.88 V	208	47.3	1.8
5	11490.00	54.2 PK	74.0	-19.8	2.41 V	144	42.1	12.1
6	11490.00	43.1 AV	54.0	-10.9	2.41 V	144	31.0	12.1
7	#17235.00	61.9 PK	68.2	-6.3	2.30 V	254	45.7	16.2

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	#5605.23	50.9 PK	68.2	-17.3	2.76 H	265	49.5	1.4
2	*5785.00	112.4 PK			2.76 H	265	110.6	1.8
3	*5785.00	102.3 AV			2.76 H	265	100.5	1.8
4	#5939.35	50.8 PK	68.2	-17.4	2.76 H	265	49.0	1.8
5	11570.00	52.5 PK	74.0	-21.5	2.20 H	253	40.5	12.0
6	11570.00	41.2 AV	54.0	-12.8	2.20 H	253	29.2	12.0
7	#17355.00	57.0 PK	68.2	-11.2	3.84 H	132	40.0	17.0
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	#5635.37	49.1 PK	68.2	-19.1	3.94 V	204	47.7	1.4
2	*5785.00	108.6 PK			3.94 V	204	106.8	1.8
3	*5785.00	99.1 AV			3.94 V	204	97.3	1.8
4	#5942.67	49.6 PK	68.2	-18.6	3.94 V	204	47.8	1.8
5	11570.00	54.2 PK	74.0	-19.8	2.44 V	160	42.2	12.0
6	11570.00	42.1 AV	54.0	-11.9	2.44 V	160	30.1	12.0
7	#17355.00	59.7 PK	68.2	-8.5	1.56 V	167	42.7	17.0

Remarks:

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

RF Mode	TX 802.11a	Channel	CH 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	#5629.65	50.3 PK	68.2	-17.9	2.77 H	269	48.9	1.4
2	*5825.00	112.6 PK			2.77 H	269	110.8	1.8
3	*5825.00	102.4 AV			2.77 H	269	100.6	1.8
4	#5952.19	52.5 PK	68.2	-15.7	2.77 H	269	50.7	1.8
5	11650.00	53.2 PK	74.0	-20.8	2.19 H	274	41.5	11.7
6	11650.00	41.7 AV	54.0	-12.3	2.19 H	274	30.0	11.7
7	#17475.00	57.6 PK	68.2	-10.6	3.88 H	143	38.7	18.9
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	#5614.10	51.8 PK	68.2	-16.4	3.91 V	214	50.5	1.3
2	*5825.00	108.7 PK			3.91 V	214	106.9	1.8
3	*5825.00	99.5 AV			3.91 V	214	97.7	1.8
4	#5944.95	51.3 PK	68.2	-16.9	3.91 V	214	49.5	1.8
5	11650.00	54.4 PK	74.0	-19.6	2.40 V	132	42.7	11.7
6	11650.00	41.9 AV	54.0	-12.1	2.40 V	132	30.2	11.7
7	#17475.00	59.7 PK	68.2	-8.5	1.56 V	141	40.8	18.9

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 802.11n (HT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	63.9 PK	74.0	-10.1	2.12 H	337	62.8	1.1
2	5150.00	53.5 AV	54.0	-0.5	2.12 H	337	52.4	1.1
3	*5180.00	107.9 PK			2.12 H	337	106.9	1.0
4	*5180.00	98.9 AV			2.12 H	337	97.9	1.0
5	#10360.00	52.3 PK	68.2	-15.9	2.16 H	264	42.0	10.3
6	15540.00	57.2 PK	74.0	-16.8	3.85 H	120	45.2	12.0
7	15540.00	44.2 AV	54.0	-9.8	3.85 H	120	32.2	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.0 PK	74.0	-13.0	2.82 V	215	59.9	1.1
2	5150.00	49.1 AV	54.0	-4.9	2.82 V	215	48.0	1.1
3	*5180.00	104.7 PK			2.82 V	215	103.7	1.0
4	*5180.00	95.6 AV			2.82 V	215	94.6	1.0
5	#10360.00	55.1 PK	68.2	-13.1	2.40 V	137	44.8	10.3
6	15540.00	59.7 PK	74.0	-14.3	1.56 V	153	47.7	12.0
7	15540.00	46.7 AV	54.0	-7.3	1.56 V	153	34.7	12.0

Remarks:

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

RF Mode	TX 802.11n (HT20)	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	65.3 PK	74.0	-8.7	2.12 H	335	64.2	1.1
2	5150.00	53.2 AV	54.0	-0.8	2.12 H	335	52.1	1.1
3	*5200.00	112.9 PK			2.12 H	335	111.8	1.1
4	*5200.00	102.9 AV			2.12 H	335	101.8	1.1
5	#10400.00	53.2 PK	68.2	-15.0	2.21 H	281	42.8	10.4
6	15600.00	57.4 PK	74.0	-16.6	3.83 H	124	45.4	12.0
7	15600.00	44.7 AV	54.0	-9.3	3.83 H	124	32.7	12.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.3 PK	74.0	-12.7	2.86 V	213	60.2	1.1
2	5150.00	49.4 AV	54.0	-4.6	2.86 V	213	48.3	1.1
3	*5200.00	110.0 PK			2.86 V	213	108.9	1.1
4	*5200.00	101.0 AV			2.86 V	213	99.9	1.1
5	#10400.00	55.0 PK	68.2	-13.2	2.44 V	147	44.6	10.4
6	15600.00	59.7 PK	74.0	-14.3	1.50 V	169	47.7	12.0
7	15600.00	46.9 AV	54.0	-7.1	1.50 V	169	34.9	12.0

Remarks:

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

RF Mode	TX 802.11n (HT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	53.2 PK	74.0	-20.8	2.08 H	352	52.1	1.1
2	5150.00	42.5 AV	54.0	-11.5	2.08 H	352	41.4	1.1
3	*5240.00	109.6 PK			2.08 H	352	108.8	0.8
4	*5240.00	100.4 AV			2.08 H	352	99.6	0.8
5	5350.00	52.8 PK	74.0	-21.2	2.08 H	352	52.0	0.8
6	5350.00	41.4 AV	54.0	-12.6	2.08 H	352	40.6	0.8
7	#10480.00	53.1 PK	68.2	-15.1	2.16 H	258	42.8	10.3
8	15720.00	57.0 PK	74.0	-17.0	3.81 H	149	45.8	11.2
9	15720.00	44.2 AV	54.0	-9.8	3.81 H	149	33.0	11.2

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.4 PK	74.0	-21.6	2.83 V	214	51.3	1.1
2	5150.00	42.1 AV	54.0	-11.9	2.83 V	214	41.0	1.1
3	*5240.00	106.3 PK			2.83 V	214	105.5	0.8
4	*5240.00	97.3 AV			2.83 V	214	96.5	0.8
5	5350.00	51.9 PK	74.0	-22.1	2.83 V	214	51.1	0.8
6	5350.00	40.8 AV	54.0	-13.2	2.83 V	214	40.0	0.8
7	#10480.00	55.0 PK	68.2	-13.2	2.49 V	161	44.7	10.3
8	15720.00	59.9 PK	74.0	-14.1	1.51 V	150	48.7	11.2
9	15720.00	46.9 AV	54.0	-7.1	1.51 V	150	35.7	11.2

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 802.11n (HT20)	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.8 PK	74.0	-21.2	2.05 H	349	51.7	1.1
2	5150.00	41.2 AV	54.0	-12.8	2.05 H	349	40.1	1.1
3	*5260.00	109.5 PK			2.05 H	349	108.8	0.7
4	*5260.00	100.5 AV			2.05 H	349	99.8	0.7
5	5350.00	53.9 PK	74.0	-20.1	2.05 H	349	53.1	0.8
6	5350.00	42.2 AV	54.0	-11.8	2.05 H	349	41.4	0.8
7	#10520.00	53.0 PK	68.2	-15.2	2.14 H	276	42.6	10.4
8	15780.00	58.2 PK	74.0	-15.8	3.81 H	139	47.1	11.1
9	15780.00	45.2 AV	54.0	-8.8	3.81 H	139	34.1	11.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	52.1 PK	74.0	-21.9	2.77 V	213	51.0	1.1
2	5150.00	40.7 AV	54.0	-13.3	2.77 V	213	39.6	1.1
3	*5260.00	106.1 PK			2.77 V	213	105.4	0.7
4	*5260.00	97.2 AV			2.77 V	213	96.5	0.7
5	5350.00	52.0 PK	74.0	-22.0	2.77 V	213	51.2	0.8
6	5350.00	41.7 AV	54.0	-12.3	2.77 V	213	40.9	0.8
7	#10520.00	55.1 PK	68.2	-13.1	2.46 V	143	44.7	10.4
8	15780.00	59.3 PK	74.0	-14.7	1.55 V	160	48.2	11.1
9	15780.00	46.5 AV	54.0	-7.5	1.55 V	160	35.4	11.1

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 802.11n (HT20)	Channel	CH 60 : 5300 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	*5300.00	109.3 PK			2.11 H	338	108.6	0.7
2	*5300.00	100.8 AV			2.11 H	338	100.1	0.7
3	5350.00	57.9 PK	74.0	-16.1	2.11 H	338	57.1	0.8
4	5350.00	44.3 AV	54.0	-9.7	2.11 H	338	43.5	0.8
5	10600.00	52.9 PK	74.0	-21.1	2.11 H	272	42.4	10.5
6	10600.00	41.7 AV	54.0	-12.3	2.11 H	272	31.2	10.5
7	15900.00	57.8 PK	74.0	-16.2	3.85 H	146	46.0	11.8
8	15900.00	45.1 AV	54.0	-8.9	3.85 H	146	33.3	11.8
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	*5300.00	106.1 PK			2.81 V	211	105.4	0.7
2	*5300.00	97.4 AV			2.81 V	211	96.7	0.7
3	5350.00	56.1 PK	74.0	-17.9	2.81 V	211	55.3	0.8
4	5350.00	42.4 AV	54.0	-11.6	2.81 V	211	41.6	0.8
5	10600.00	54.3 PK	74.0	-19.7	2.45 V	152	43.8	10.5
6	10600.00	42.1 AV	54.0	-11.9	2.45 V	152	31.6	10.5
7	15900.00	59.6 PK	74.0	-14.4	1.49 V	159	47.8	11.8
8	15900.00	46.8 AV	54.0	-7.2	1.49 V	159	35.0	11.8

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.

RF Mode	TX 802.11n (HT20)	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	110.4 PK			2.06 H	343	109.7	0.7
2	*5320.00	100.7 AV			2.06 H	343	100.0	0.7
3	5350.00	68.9 PK	74.0	-5.1	2.06 H	343	68.1	0.8
4	5350.00	53.5 AV	54.0	-0.5	2.06 H	343	52.7	0.8
5	10640.00	52.9 PK	74.0	-21.1	2.11 H	279	42.5	10.4
6	10640.00	41.5 AV	54.0	-12.5	2.11 H	279	31.1	10.4
7	15960.00	57.1 PK	74.0	-16.9	3.82 H	143	45.0	12.1
8	15960.00	44.5 AV	54.0	-9.5	3.82 H	143	32.4	12.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	105.6 PK			2.85 V	218	104.9	0.7
2	*5320.00	96.6 AV			2.85 V	218	95.9	0.7
3	5350.00	59.8 PK	74.0	-14.2	2.85 V	218	59.0	0.8
4	5350.00	48.1 AV	54.0	-5.9	2.85 V	218	47.3	0.8
5	10640.00	54.2 PK	74.0	-19.8	2.41 V	148	43.8	10.4
6	10640.00	42.0 AV	54.0	-12.0	2.41 V	148	31.6	10.4
7	15960.00	59.5 PK	74.0	-14.5	1.50 V	158	47.4	12.1
8	15960.00	46.4 AV	54.0	-7.6	1.50 V	158	34.3	12.1

Remarks:

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

RF Mode	TX 802.11n (HT20)	Channel	CH 100 : 5500 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	5460.00	59.7 PK	74.0	-14.3	2.10 H	349	58.6	1.1
2	5460.00	41.9 AV	54.0	-12.1	2.10 H	349	40.8	1.1
3	#5470.00	68.0 PK	68.2	-0.2	2.10 H	349	66.9	1.1
4	*5500.00	109.0 PK			2.10 H	349	107.9	1.1
5	*5500.00	98.9 AV			2.10 H	349	97.8	1.1
6	11000.00	52.6 PK	74.0	-21.4	2.15 H	258	41.2	11.4
7	11000.00	41.6 AV	54.0	-12.4	2.15 H	258	30.2	11.4
8	#16500.00	56.8 PK	68.2	-11.4	3.88 H	135	42.6	14.2
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	5457.27	55.5 PK	74.0	-18.5	2.79 V	214	54.4	1.1
2	5457.27	39.9 AV	54.0	-14.1	2.79 V	214	38.8	1.1
3	#5463.81	61.1 PK	68.2	-7.1	2.79 V	214	60.0	1.1
4	*5500.00	104.4 PK			2.79 V	214	103.3	1.1
5	*5500.00	95.0 AV			2.79 V	214	93.9	1.1
6	11000.00	55.2 PK	74.0	-18.8	2.43 V	159	43.8	11.4
7	11000.00	42.6 AV	54.0	-11.4	2.43 V	159	31.2	11.4
8	#16500.00	59.3 PK	68.2	-8.9	1.49 V	165	45.1	14.2

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 802.11n (HT20)	Channel	CH 116 : 5580 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	*5580.00	109.4 PK			2.06 H	360	108.1	1.3
2	*5580.00	100.0 AV			2.06 H	360	98.7	1.3
3	11160.00	52.6 PK	74.0	-21.4	2.12 H	283	41.4	11.2
4	11160.00	41.2 AV	54.0	-12.8	2.12 H	283	30.0	11.2
5	#16740.00	57.5 PK	68.2	-10.7	3.84 H	138	42.2	15.3
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	*5580.00	106.1 PK			2.85 V	202	104.8	1.3
2	*5580.00	97.4 AV			2.85 V	202	96.1	1.3
3	11160.00	54.6 PK	74.0	-19.4	2.51 V	156	43.4	11.2
4	11160.00	42.2 AV	54.0	-11.8	2.51 V	156	31.0	11.2
5	#16740.00	59.4 PK	68.2	-8.8	1.50 V	165	44.1	15.3

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 802.11n (HT20)	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	107.8 PK			1.95 H	350	106.3	1.5
2	*5700.00	99.1 AV			1.95 H	350	97.6	1.5
3	#5725.00	67.8 PK	68.2	-0.4	1.95 H	350	66.2	1.6
4	11400.00	51.8 PK	74.0	-22.2	2.15 H	272	39.6	12.2
5	11400.00	40.9 AV	54.0	-13.1	2.15 H	272	28.7	12.2
6	#17100.00	57.8 PK	68.2	-10.4	3.88 H	133	41.0	16.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	104.6 PK			2.78 V	212	103.1	1.5
2	*5700.00	95.2 AV			2.78 V	212	93.7	1.5
3	#5725.00	60.4 PK	68.2	-7.8	2.78 V	212	58.8	1.6
4	11400.00	55.1 PK	74.0	-18.9	2.45 V	154	42.9	12.2
5	11400.00	42.7 AV	54.0	-11.3	2.45 V	154	30.5	12.2
6	#17100.00	59.4 PK	68.2	-8.8	1.55 V	163	42.6	16.8

Remarks:

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

RF Mode	TX 802.11n (HT20)	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	#5632.82	51.1 PK	68.2	-17.1	2.05 H	335	49.7	1.4
2	*5745.00	111.8 PK			2.05 H	335	110.1	1.7
3	*5745.00	102.7 AV			2.05 H	335	101.0	1.7
4	#5943.00	49.1 PK	68.2	-19.1	2.05 H	335	47.3	1.8
5	11490.00	52.6 PK	74.0	-21.4	2.11 H	281	40.5	12.1
6	11490.00	41.6 AV	54.0	-12.4	2.11 H	281	29.5	12.1
7	#17235.00	57.3 PK	68.2	-10.9	3.87 H	139	41.1	16.2
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	#5626.37	51.9 PK	68.2	-16.3	3.95 V	210	50.5	1.4
2	*5745.00	109.8 PK			3.95 V	210	108.1	1.7
3	*5745.00	100.8 AV			3.95 V	210	99.1	1.7
4	#5947.27	49.4 PK	68.2	-18.8	3.95 V	210	47.6	1.8
5	11490.00	54.8 PK	74.0	-19.2	2.48 V	132	42.7	12.1
6	11490.00	42.6 AV	54.0	-11.4	2.48 V	132	30.5	12.1
7	#17235.00	59.6 PK	68.2	-8.6	1.49 V	168	43.4	16.2

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 802.11n (HT20)	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	#5599.77	51.1 PK	68.2	-17.1	2.10 H	356	49.8	1.3
2	*5785.00	112.3 PK			2.10 H	356	110.5	1.8
3	*5785.00	103.2 AV			2.10 H	356	101.4	1.8
4	#5939.24	51.1 PK	68.2	-17.1	2.10 H	356	49.3	1.8
5	11570.00	52.7 PK	74.0	-21.3	2.22 H	282	40.7	12.0
6	11570.00	41.6 AV	54.0	-12.4	2.22 H	282	29.6	12.0
7	#17355.00	57.4 PK	68.2	-10.8	3.82 H	122	40.4	17.0
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	#5555.87	49.4 PK	68.2	-18.8	3.86 V	216	48.2	1.2
2	*5785.00	109.9 PK			3.86 V	216	108.1	1.8
3	*5785.00	100.8 AV			3.86 V	216	99.0	1.8
4	#6019.13	49.4 PK	68.2	-18.8	3.86 V	216	47.5	1.9
5	11570.00	54.7 PK	74.0	-19.3	2.47 V	132	42.7	12.0
6	11570.00	42.4 AV	54.0	-11.6	2.47 V	132	30.4	12.0
7	#17355.00	59.9 PK	68.2	-8.3	1.50 V	144	42.9	17.0

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 802.11n (HT20)	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	#5586.48	50.6 PK	68.2	-17.6	2.07 H	343	49.3	1.3
2	*5825.00	111.3 PK			2.07 H	343	109.5	1.8
3	*5825.00	102.3 AV			2.07 H	343	100.5	1.8
4	#5950.16	51.3 PK	68.2	-16.9	2.07 H	343	49.5	1.8
5	11650.00	52.6 PK	74.0	-21.4	2.21 H	263	40.9	11.7
6	11650.00	41.1 AV	54.0	-12.9	2.21 H	263	29.4	11.7
7	#17475.00	57.2 PK	68.2	-11.0	3.86 H	123	38.3	18.9
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	#5555.47	50.8 PK	68.2	-17.4	3.56 V	208	49.6	1.2
2	*5825.00	109.6 PK			3.56 V	208	107.8	1.8
3	*5825.00	100.9 AV			3.56 V	208	99.1	1.8
4	#5946.98	52.2 PK	68.2	-16.0	3.56 V	208	50.4	1.8
5	11650.00	55.1 PK	74.0	-18.9	2.43 V	158	43.4	11.7
6	11650.00	42.4 AV	54.0	-11.6	2.43 V	158	30.7	11.7
7	#17475.00	59.9 PK	68.2	-8.3	1.55 V	151	41.0	18.9

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.

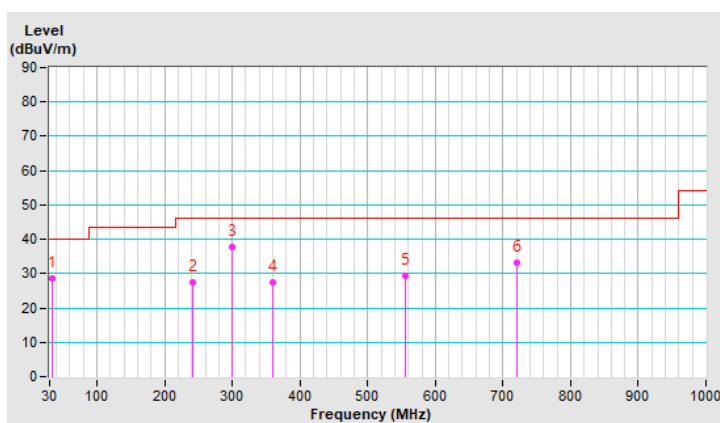
Below 1GHz Data:

RF Mode	TX 802.11n (HT20)	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	33.84	28.5 QP	40.0	-11.5	1.50 H	120	42.0	-13.5
2	240.68	27.5 QP	46.0	-18.5	1.00 H	288	41.7	-14.2
3	300.10	37.7 QP	46.0	-8.3	2.00 H	205	49.7	-12.0
4	360.12	27.6 QP	46.0	-18.4	1.00 H	204	38.1	-10.5
5	555.31	29.4 QP	46.0	-16.6	1.50 H	250	35.5	-6.1
6	719.94	33.1 QP	46.0	-12.9	2.00 H	330	36.3	-3.2

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 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.

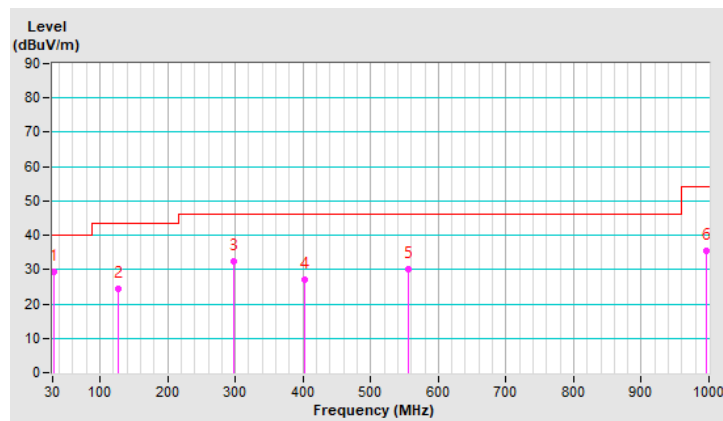


RF Mode	TX 802.11n (HT20)	Channel	CH 40 : 5200 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	31.18	29.5 QP	40.0	-10.5	1.00 V	15	43.4	-13.9
2	127.67	24.5 QP	43.5	-19.0	1.00 V	108	38.6	-14.1
3	298.67	32.5 QP	46.0	-13.5	2.00 V	90	44.6	-12.1
4	403.27	27.1 QP	46.0	-18.9	1.50 V	20	36.6	-9.5
5	555.31	30.2 QP	46.0	-15.8	1.00 V	125	36.3	-6.1
6	995.54	35.4 QP	54.0	-18.6	1.00 V	336	34.1	1.3

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	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: Mar, 02, 2021

4.2.3 Test Procedure

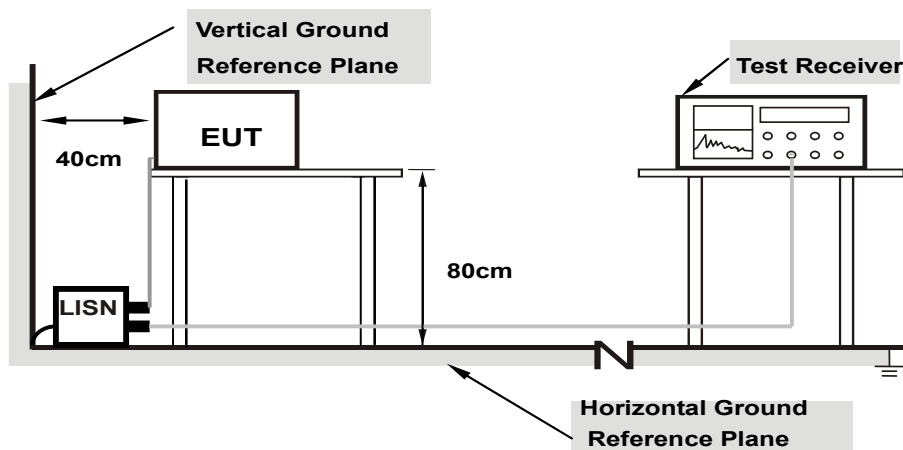
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Note: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

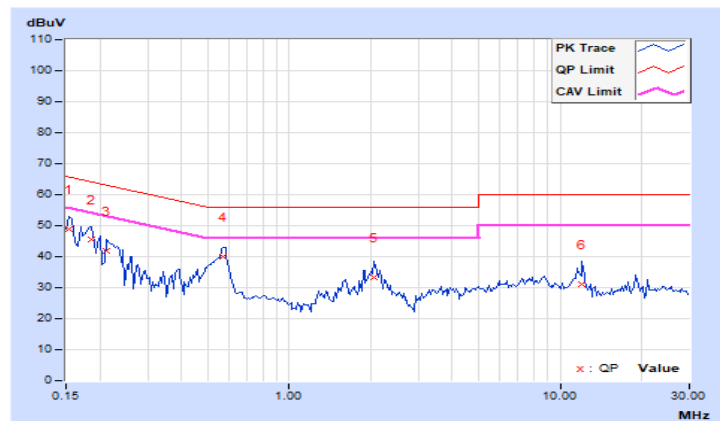
4.2.7 Test Results

RF Mode	TX 802.11n (HT20)	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	9.95	38.97	23.84	48.92	33.79	65.79	55.79	-16.87	-22.00
2	0.18516	9.96	35.51	18.92	45.47	28.88	64.25	54.25	-18.78	-25.37
3	0.21250	9.97	31.79	15.69	41.76	25.66	63.11	53.11	-21.35	-27.45
4	0.56797	10.00	29.96	22.79	39.96	32.79	56.00	46.00	-16.04	-13.21
5	2.06641	10.07	23.43	13.24	33.50	23.31	56.00	46.00	-22.50	-22.69
6	12.07031	10.65	20.43	13.51	31.08	24.16	60.00	50.00	-28.92	-25.84

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

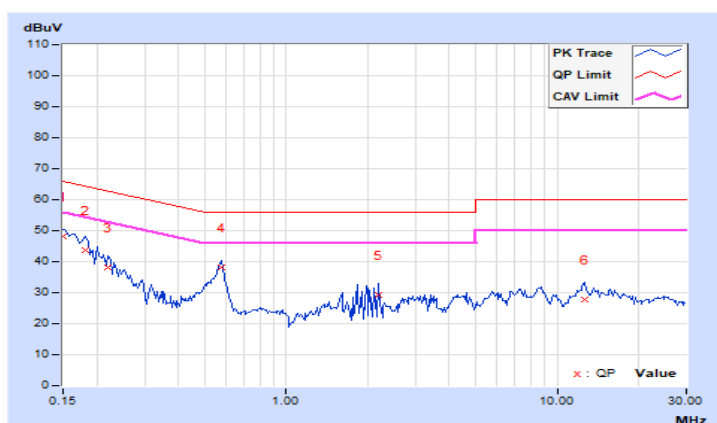


RF Mode	TX 802.11n (HT20)	Channel	CH 40 : 5200 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.15000	9.92	38.23	23.23	48.15	33.15	66.00	56.00	-17.85	-22.85
2	0.18125	9.94	33.93	18.60	43.87	28.54	64.43	54.43	-20.56	-25.89
3	0.22031	9.95	28.21	13.16	38.16	23.11	62.81	52.81	-24.65	-29.70
4	0.57578	9.97	28.03	19.41	38.00	29.38	56.00	46.00	-18.00	-16.62
5	2.18750	10.05	19.31	5.75	29.36	15.80	56.00	46.00	-26.64	-30.20
6	12.66797	10.53	17.34	12.32	27.87	22.85	60.00	50.00	-32.13	-27.15

Remarks:

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



4.3 Transmit Power Measurement

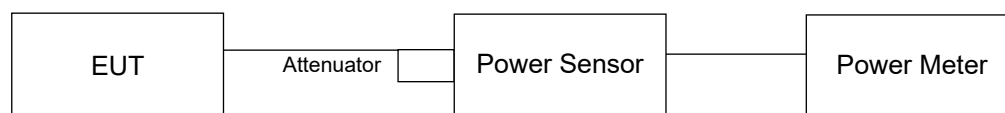
4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	✓	Client device	250mW (24 dBm)
U-NII-2A	✓		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	✓		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	✓		1 Watt (30 dBm)

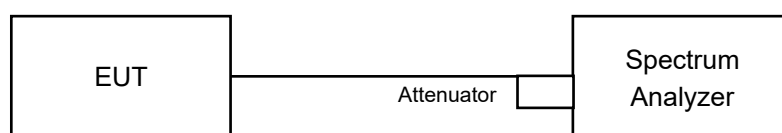
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

FOR POWER OUTPUT MEASUREMENT

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

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating 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

POWER OUTPUT

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	60.534	17.82	24	Pass
40	5200	135.519	21.32	24	Pass
48	5240	74.473	18.72	24	Pass
52	5260	74.989	18.75	24	Pass
60	5300	71.45	18.54	24	Pass
64	5320	59.293	17.73	24	Pass
100	5500	40.087	16.03	24	Pass
116	5580	77.983	18.92	24	Pass
140	5700	41.591	16.19	24	Pass
149	5745	134.586	21.29	30	Pass
157	5785	118.032	20.72	30	Pass
165	5825	130.918	21.17	30	Pass

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	37.89	26.78 > 24
60	5300	37.98	26.79 > 24
64	5320	23.75	24.75 > 24
100	5500	21.74	24.37 > 24
116	5580	41.42	27.17 > 24
140	5700	22.73	24.56 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	51.05	17.08	24	Pass
40	5200	139.959	21.46	24	Pass
48	5240	74.817	18.74	24	Pass
52	5260	73.451	18.66	24	Pass
60	5300	72.611	18.61	24	Pass
64	5320	59.979	17.78	24	Pass
100	5500	39.994	16.02	24	Pass
116	5580	77.446	18.89	24	Pass
140	5700	39.174	15.93	24	Pass
149	5745	137.404	21.38	30	Pass
157	5785	117.22	20.69	30	Pass
165	5825	127.938	21.07	30	Pass

Determined Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	37.67	26.75 > 24
60	5300	38.57	26.86 > 24
64	5320	37.61	26.75 > 24
100	5500	22.2	24.46 > 24
116	5580	37.2	26.7 > 24
140	5700	22.85	24.58 > 24

Note: For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

26dB OCCUPIED BANDWIDTH:

802.11a

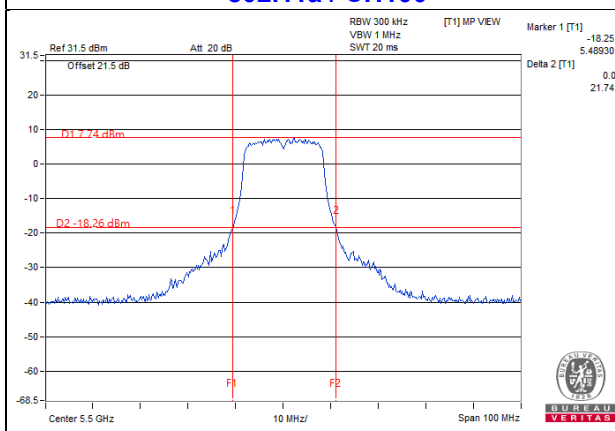
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
52	5260	37.89
60	5300	37.98
64	5320	23.75
100	5500	21.74
116	5580	41.42
140	5700	22.73

802.11n (HT20)

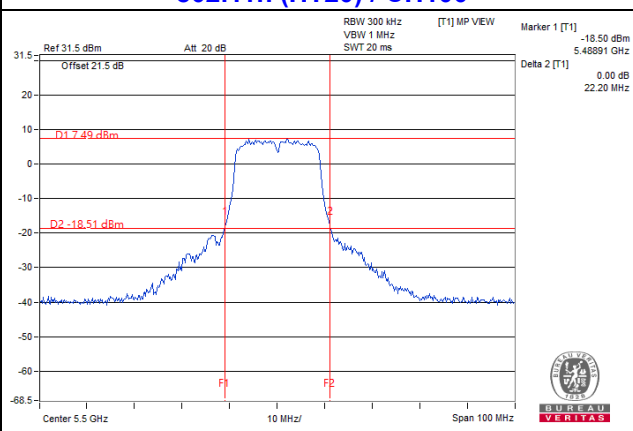
Channel	Frequency (MHz)	26dB Bandwidth (MHz)
52	5260	37.67
60	5300	38.57
64	5320	37.61
100	5500	22.2
116	5580	37.2
140	5700	22.85

Spectrum Plot of Worst Value

802.11a / CH100

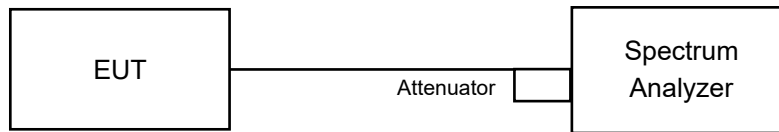


802.11n (HT20) / CH100



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.

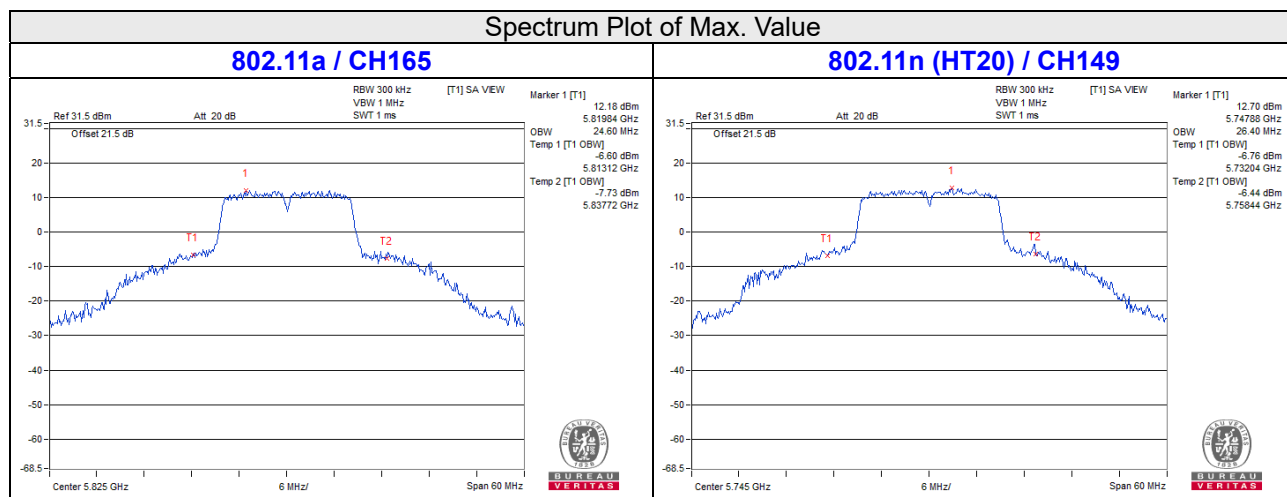
4.4.4 Test Results

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.04
40	5200	23.64
48	5240	17.52
52	5260	17.28
60	5300	17.28
64	5320	16.92
100	5500	16.68
116	5580	17.28
140	5700	17.04
149	5745	24.36
157	5785	22.92
165	5825	24.6

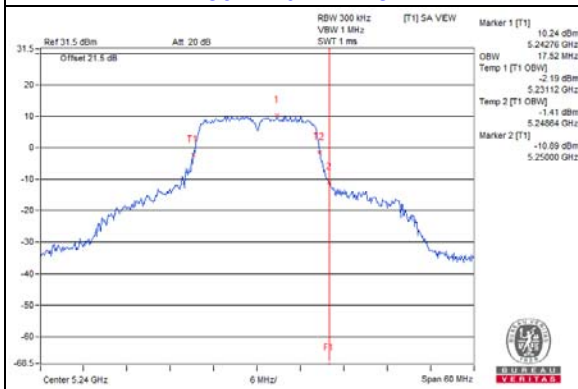
802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18
40	5200	24.6
48	5240	18.24
52	5260	18.12
60	5300	18.24
64	5320	18.12
100	5500	18
116	5580	18.12
140	5700	17.88
149	5745	26.4
157	5785	23.52
165	5825	25.44

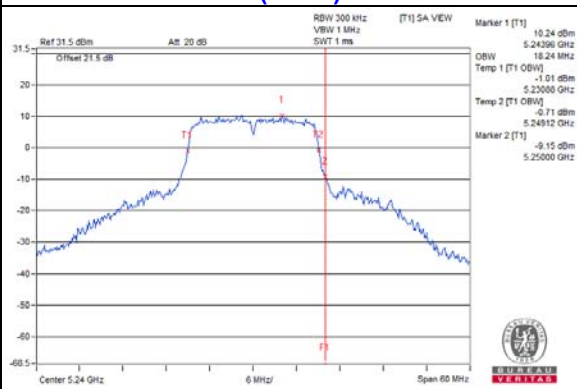


**Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)**

802.11a / CH48

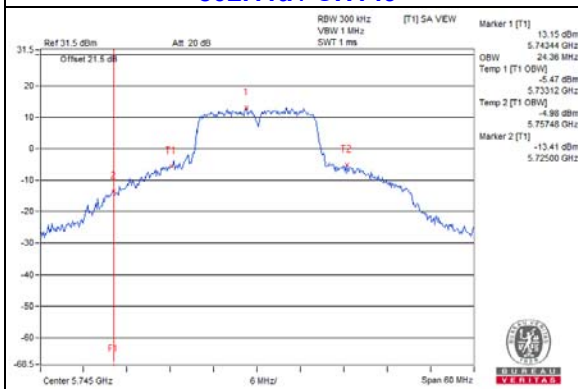


802.11n (HT20) / CH48

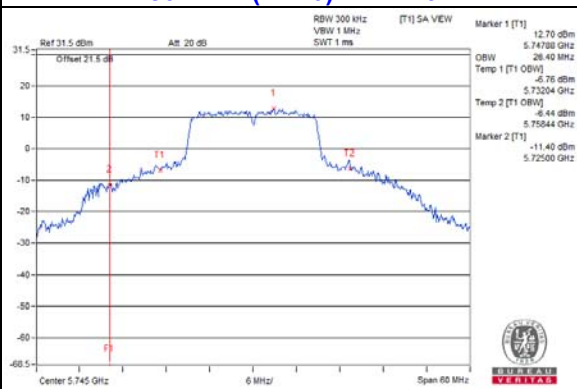


**Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)**

802.11a / CH149



802.11n (HT20) / CH149

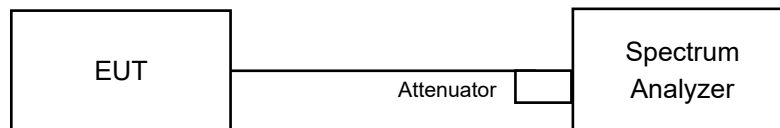


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For U-NII-1, U-NII-2A, U-NII-2C 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 $BWCF = 10\log(500\text{kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1, U-NII-2A, U-NII-2C band:

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
36	5180	4.95	0.27	5.22	11.00	Pass
40	5200	8.59	0.27	8.86	11.00	Pass
48	5240	5.97	0.27	6.24	11.00	Pass
52	5260	5.99	0.27	6.26	11.00	Pass
60	5300	5.97	0.27	6.24	11.00	Pass
64	5320	4.87	0.27	5.14	11.00	Pass
100	5500	3.05	0.27	3.32	11.00	Pass
116	5580	5.98	0.27	6.25	11.00	Pass
140	5700	3.12	0.27	3.39	11.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

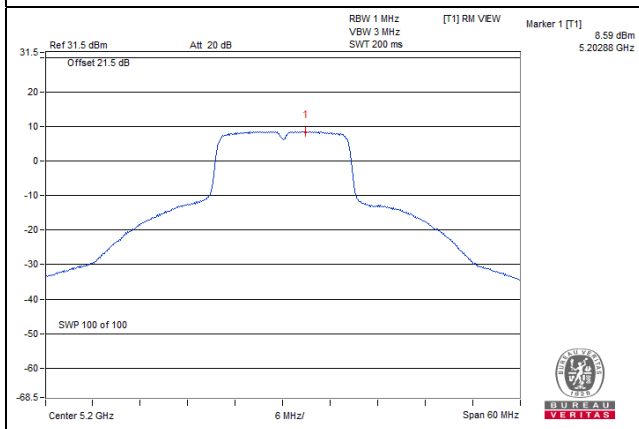
802.11n (HT20)

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
36	5180	4.20	0.29	4.49	11.00	Pass
40	5200	8.31	0.29	8.60	11.00	Pass
48	5240	5.61	0.29	5.90	11.00	Pass
52	5260	5.45	0.29	5.74	11.00	Pass
60	5300	5.56	0.29	5.85	11.00	Pass
64	5320	4.73	0.29	5.02	11.00	Pass
100	5500	2.86	0.29	3.15	11.00	Pass
116	5580	5.56	0.29	5.85	11.00	Pass
140	5700	2.85	0.29	3.14	11.00	Pass

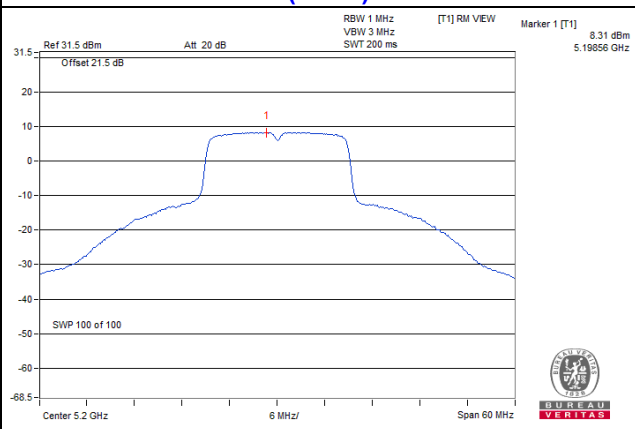
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

802.11a / CH40



802.11n (HT20) / CH40



For U-NII-3 band:

802.11a

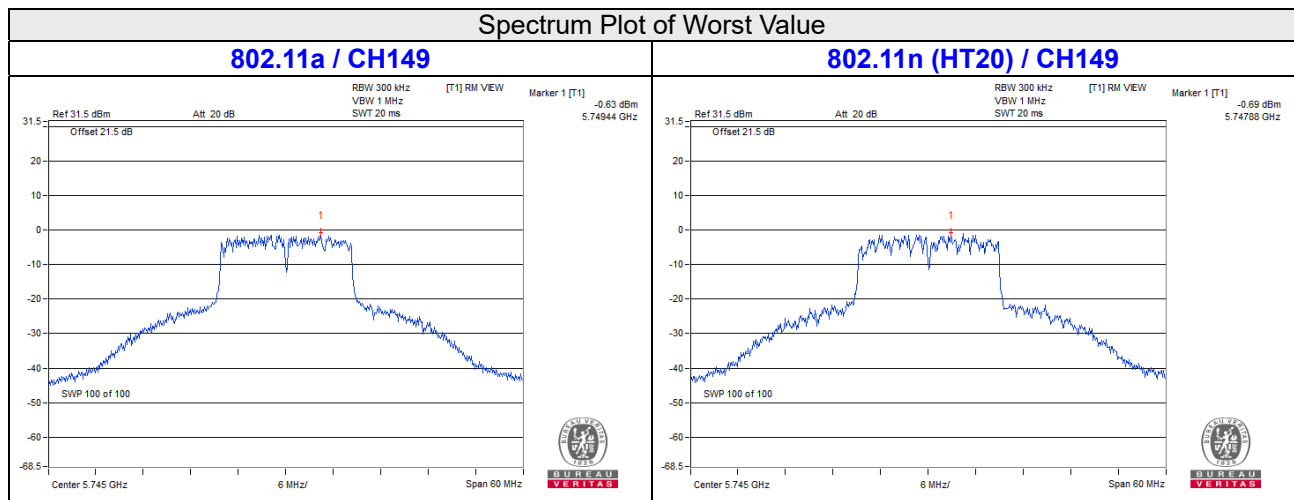
Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/300kHz)	Duty Factor (dB)	Total PSD (dBm/300kHz)	Total PSD (dBm/500kHz)	PSD Limit (dBm/500kHz)	Pass / Fail
149	5745	-0.63	0.27	-0.36	1.86	30.00	Pass
157	5785	-1.01	0.27	-0.74	1.48	30.00	Pass
165	5825	-0.83	0.27	-0.56	1.66	30.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

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
149	5745	-0.69	0.29	-0.40	1.82	30.00	Pass
157	5785	-1.03	0.29	-0.74	1.48	30.00	Pass
165	5825	-1.63	0.29	-1.34	0.88	30.00	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

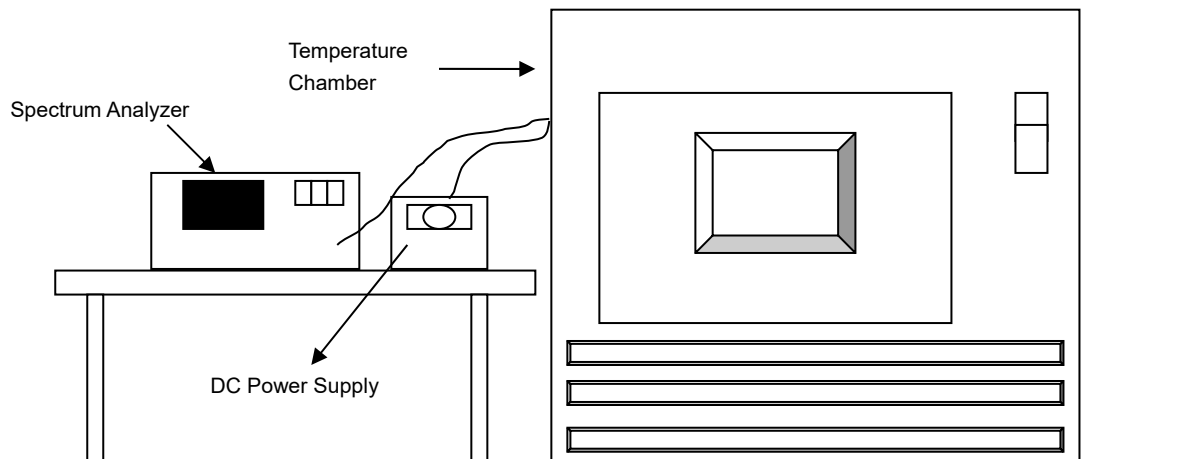


4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	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
85	3.3	5180.0093	Pass	5180.0095	Pass	5180.0084	Pass	5180.0062	Pass
80	3.3	5180.0087	Pass	5180.0072	Pass	5180.0071	Pass	5180.0105	Pass
70	3.3	5179.9917	Pass	5179.9892	Pass	5179.9906	Pass	5179.9899	Pass
60	3.3	5179.9755	Pass	5179.9759	Pass	5179.9788	Pass	5179.976	Pass
50	3.3	5179.9816	Pass	5179.9802	Pass	5179.9817	Pass	5179.9788	Pass
40	3.3	5179.977	Pass	5179.9798	Pass	5179.9793	Pass	5179.9779	Pass
30	3.3	5179.9819	Pass	5179.9806	Pass	5179.9805	Pass	5179.9832	Pass
20	3.3	5180.0012	Pass	5180.0059	Pass	5180.0043	Pass	5180.0047	Pass
10	3.3	5180.0138	Pass	5180.0116	Pass	5180.01	Pass	5180.0116	Pass
0	3.3	5179.9853	Pass	5179.9851	Pass	5179.9877	Pass	5179.984	Pass
-10	3.3	5179.9846	Pass	5179.9871	Pass	5179.9847	Pass	5179.9883	Pass
-20	3.3	5179.9897	Pass	5179.9876	Pass	5179.9886	Pass	5179.9883	Pass
-30	3.3	5180.0131	Pass	5180.0127	Pass	5180.0116	Pass	5180.0095	Pass

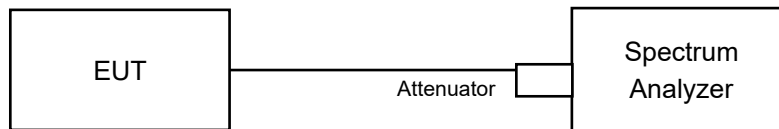
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	3.795	5180.0013	Pass	5180.0061	Pass	5180.0037	Pass	5180.0053	Pass
	3.3	5180.0012	Pass	5180.0059	Pass	5180.0043	Pass	5180.0047	Pass
	2.805	5180.0016	Pass	5180.0058	Pass	5180.005	Pass	5180.0043	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

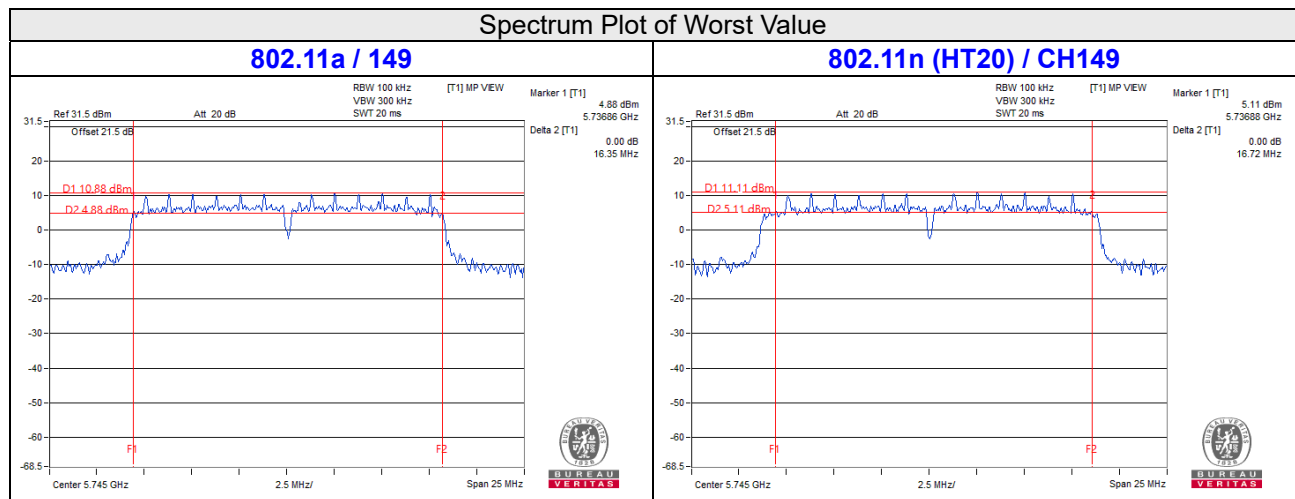
4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.35	0.5	Pass
157	5785	16.36	0.5	Pass
165	5825	16.39	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.72	0.5	Pass
157	5785	17.6	0.5	Pass
165	5825	17.58	0.5	Pass



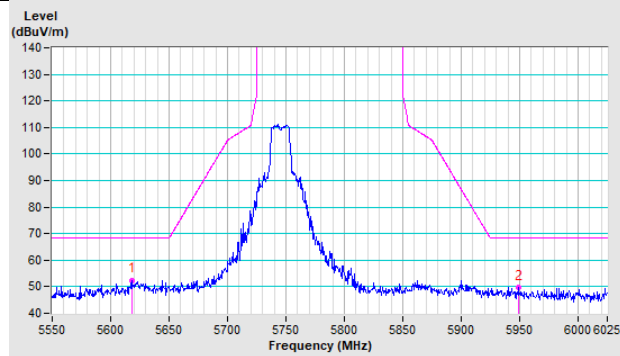
5 Pictures of Test Arrangements

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

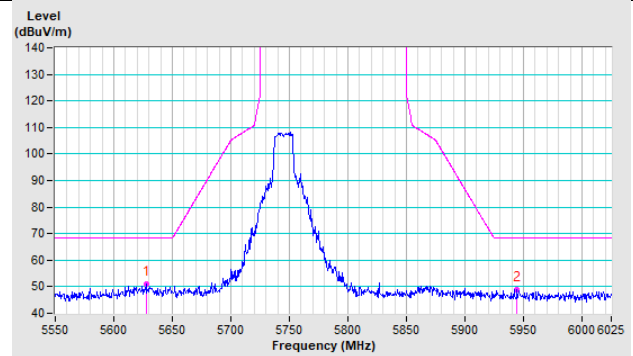
Annex A - Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a CH 149 : 5745 MHz

Horizontal

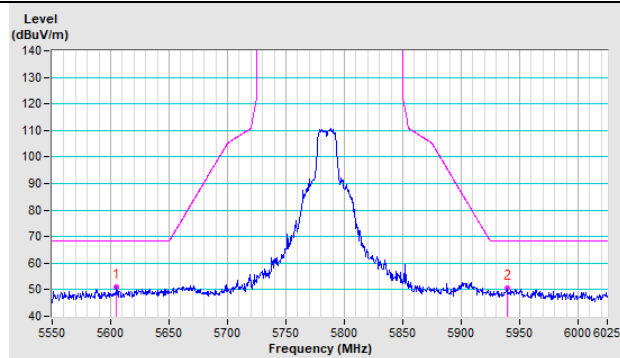


Vertical

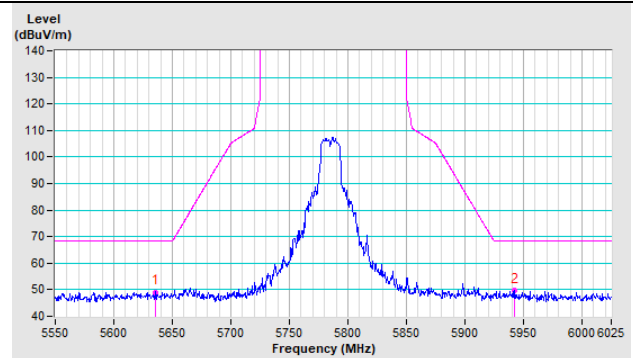


802.11a CH 157 : 5785 MHz

Horizontal

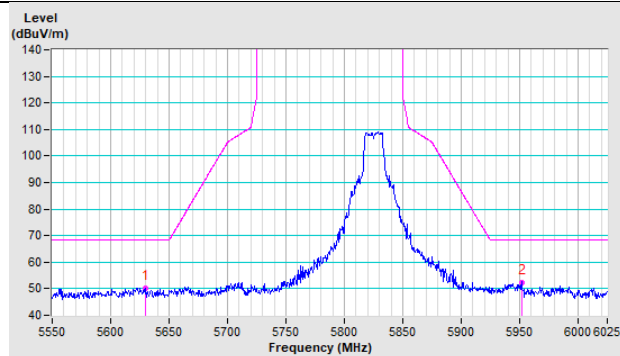


Vertical

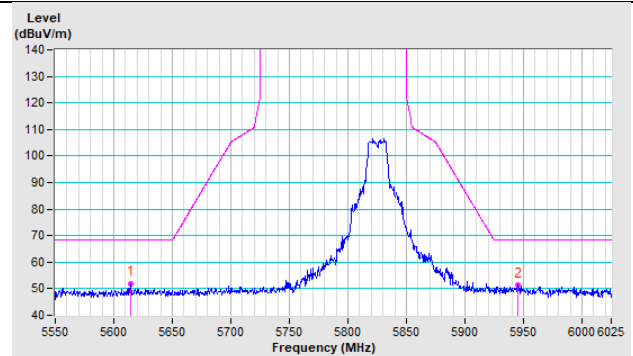


802.11a CH 165 : 5825 MHz

Horizontal

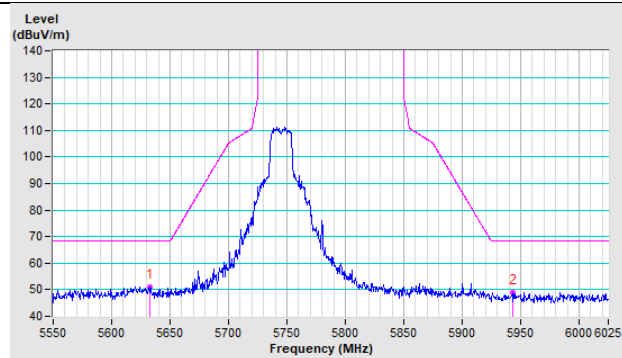


Vertical

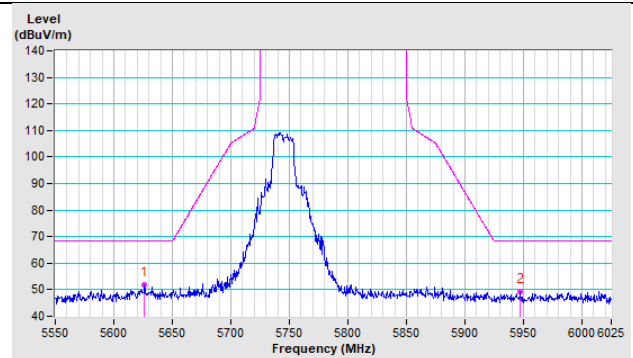


802.11n (HT20) CH 149 : 5745 MHz

Horizontal

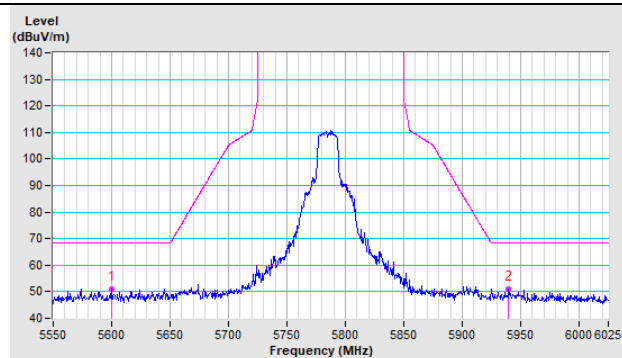


Vertical

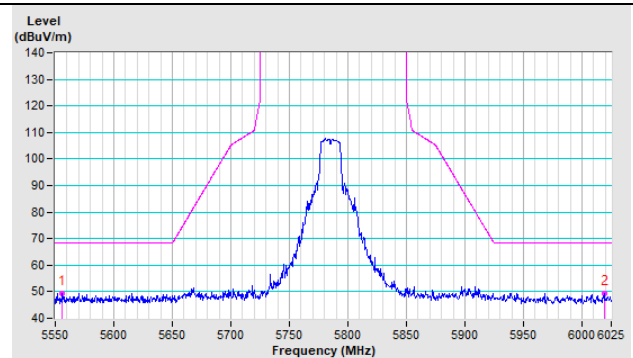


802.11n (HT20) CH 157 : 5785 MHz

Horizontal

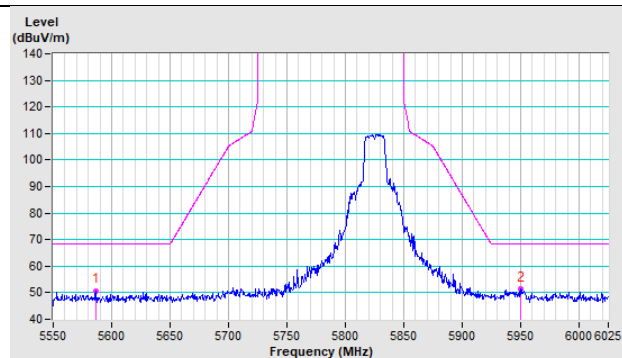


Vertical

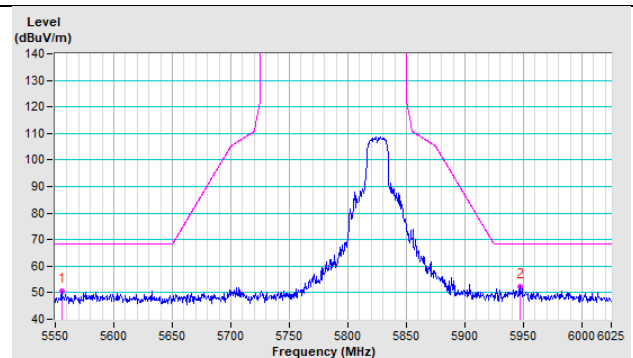


802.11n (HT20) CH 165 : 5825 MHz

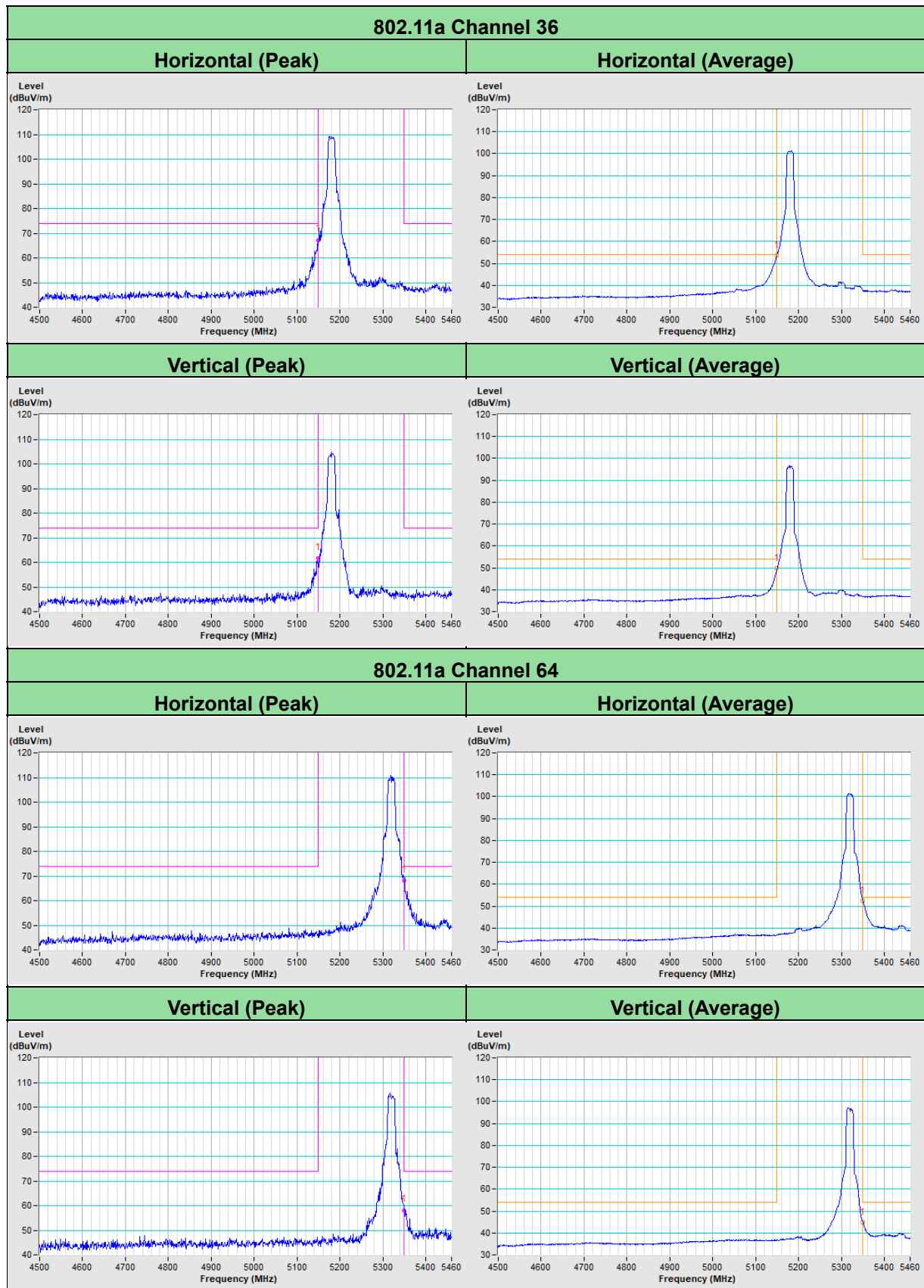
Horizontal

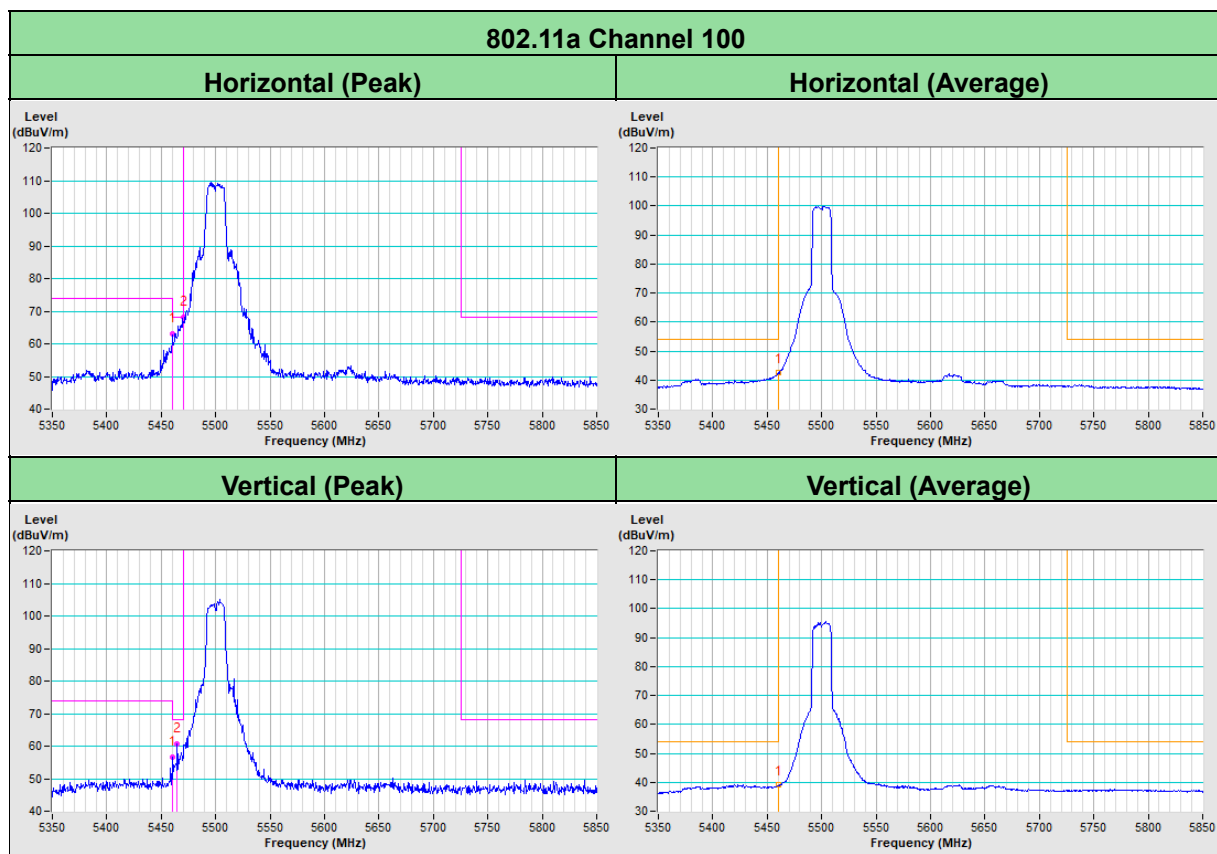


Vertical



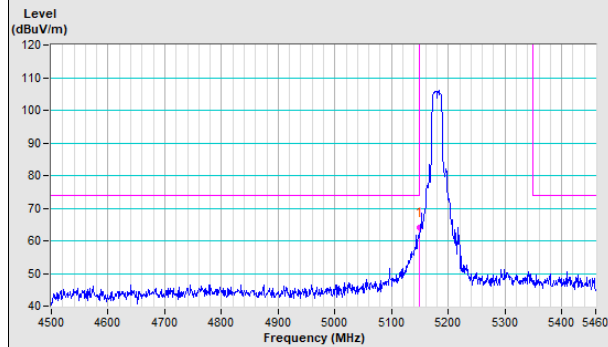
Annex B - Band-Edge Measurement (For U-NII-1, U-NII-2A, U-NII-2C band)



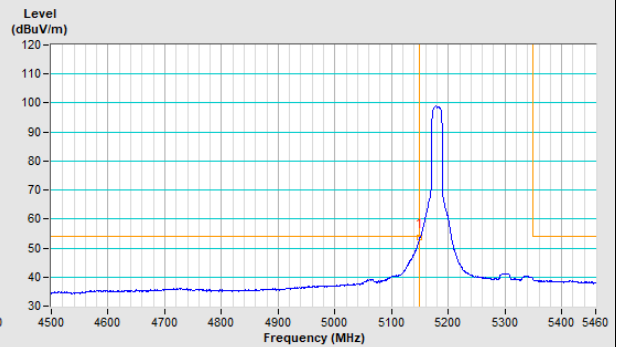


802.11n (HT20) Channel 36

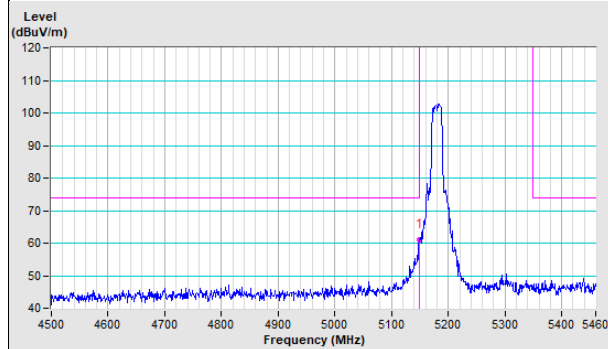
Horizontal (Peak)



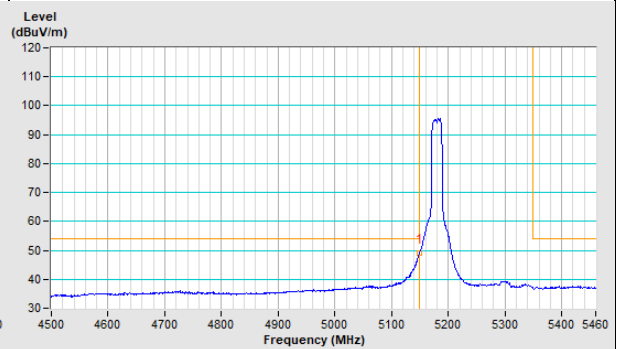
Horizontal (Average)



Vertical (Peak)

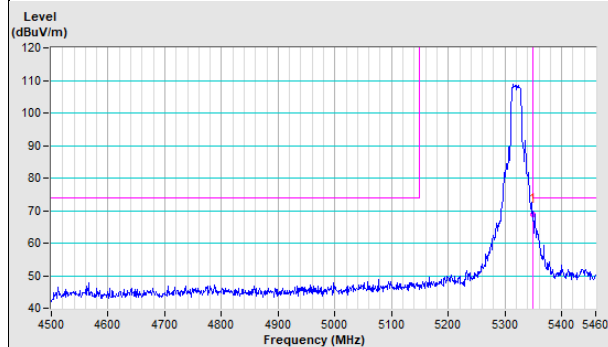


Vertical (Average)

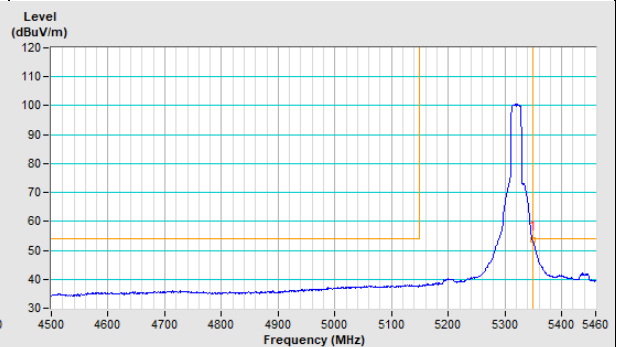


802.11n (HT20) Channel 64

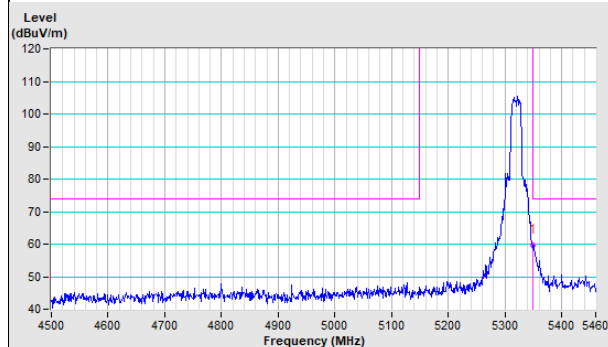
Horizontal (Peak)



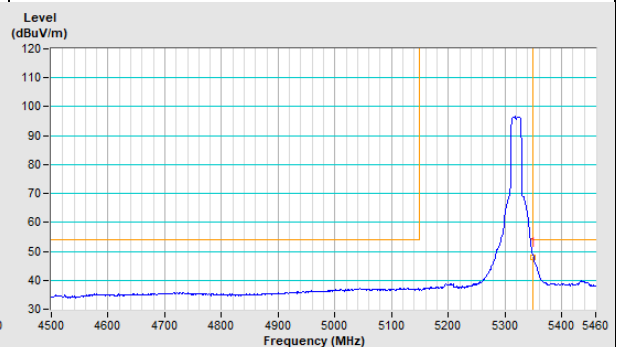
Horizontal (Average)

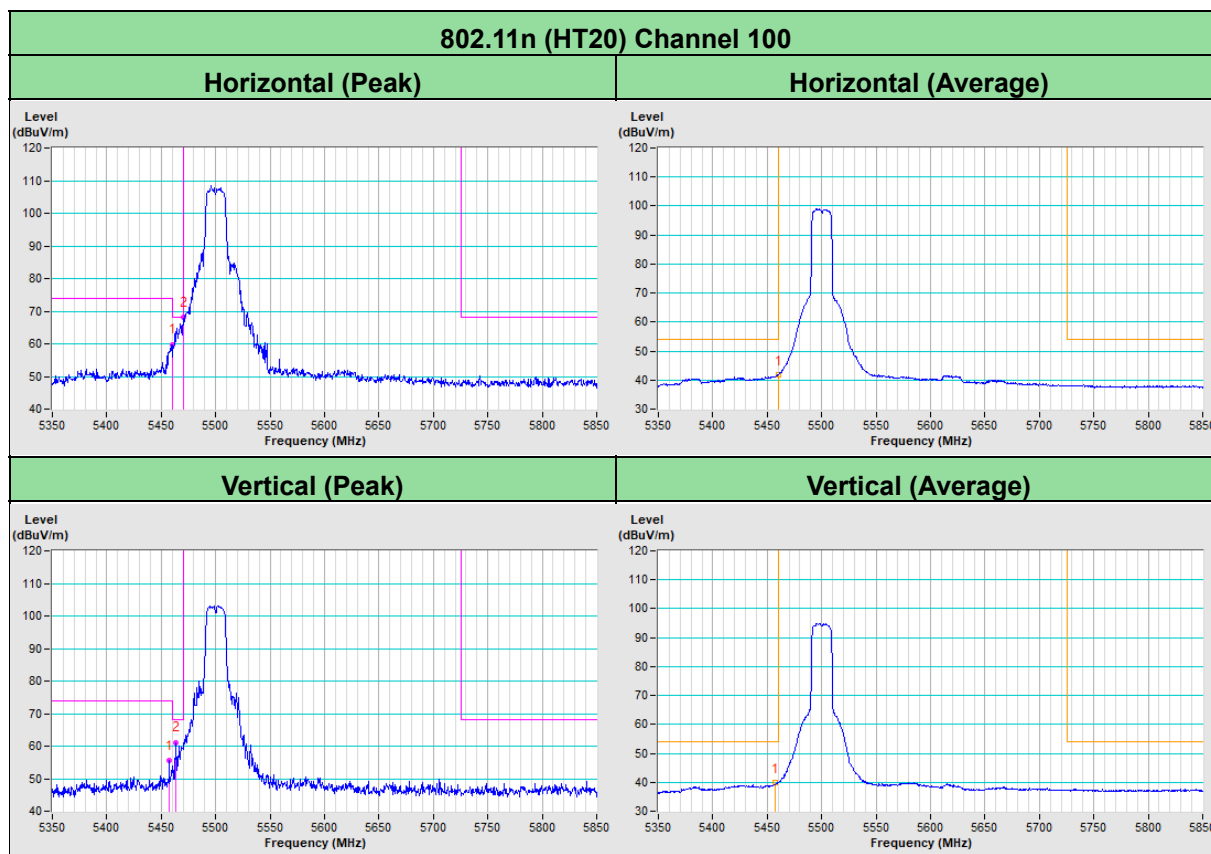


Vertical (Peak)



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

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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