

FCC Test Report (WLAN)

Report No.: RF190625C32

FCC ID: RYK-WPEQ262ACNIBT

Test Model: WPEQ-262ACNI(BT)

Received Date: Jun. 25, 2019

Test Date: Jul. 19 to Sep. 12, 2019

Issued Date: Sep. 17, 2019

Applicant: SparkLAN Communications, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 198487 / TW2021



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Release Control Record

Issue No.	Description	Date Issued
RF190625C32	Original release.	Sep. 17, 2019

1 Certificate of Conformity

Product: 802.11ac/b/g/n Wi-Fi+BT Module

Brand: SparkLAN

Test Model: WPEQ-262ACNI(BT)

Sample Status: R&D sample

Applicant: SparkLAN Communications, Inc.

Test Date: Jul. 19 to Sep. 12, 2019

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 RF characteristics under the conditions specified in this report.

Prepared by : Annie Chang, **Date:** Sep. 17, 2019
Annie Chang / Senior Specialist

Approved by : Rex Lai, **Date:** Sep. 17, 2019
Rex Lai / Associate 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 -5.86dB at 25.87000MHz.
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 -0.33dB at 5470.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is RP-SMA not a standard connector.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.

Note:

Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1GHz	5.43 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.42 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11ac/b/g/n Wi-Fi+BT Module
Brand	SparkLAN
Test Model	WPEQ-262ACNI(BT)
Status of EUT	R&D sample
Power Supply Rating	3.3Vdc
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz): 4 802.11n (40MHz), 802.11ac (40MHz): 2 802.11ac (80MHz): 1 5260~5320MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz): 4 802.11n (40MHz), 802.11ac (40MHz): 2 802.11ac (80MHz): 1 5500~5700MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz): 12 802.11n (40MHz), 802.11ac (40MHz): 6 802.11ac (80MHz): 3 5745~5825MHz: 802.11a, 802.11n (20MHz), 802.11ac (20MHz): 5 802.11n (40MHz), 802.11ac (40MHz): 2 802.11ac (80MHz): 1
Output Power	5180~5240MHz: 158.521mW 5260~5320MHz: 154.041mW 5500~5720MHz: 160.343mW 5745~5825MHz: 195.233mW
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	Antenna
Data Cable Supplied	N/A

Note:

1. The EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	TX FUNCTION
802.11a	2TX
802.11n (20MHz)	2TX
802.11n (40MHz)	2TX
802.11ac (20MHz)	2TX
802.11ac (40MHz)	2TX
802.11ac (80MHz)	2TX

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

2. 2.4GHz & 5GHz technologies cannot transmit at same time.
WLAN & BT technologies cannot transmit at same time.

3. The EUT uses following antenna. The antenna 1 is the max. gain and chosen for final tests.

No.	Transmitter Circuit	Brand	Model	Antenna Type	2.4G gain with cable loss (dBi)	5G gain with cable loss (dBi)	Connector Type
1	Chain(0) Chain(1)	Sparklan	AD-300N	Dipole	3	5	RP-SMA
2	Chain(0) Chain(1)	Sparklan	AD-103AG	Dipole	2.02	2.03	RP-SMA
3	Chain(0) Chain(1)	Sparklan	AD-302N	Dipole	3	2	RP-SMA
4	Chain(0) Chain(1)	Sparklan	AD-303N	Dipole	3	3	RP-SMA

4. 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.

3.2 Description of Test Modes

5180~5240MHz:

4 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
42	5210MHz

5260~5320MHz:

4 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
58	5290MHz

5500~5720MHz:

12 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

6 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

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

3 channels provided for 802.11ac (80MHz):

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

5745~5825MHz:

5 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (80MHz):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

Where **RE $\geq$ 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 2 axis. The worst case was found when positioned on **Y-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						
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	6.5
	802.11ac (40MHz)		38 to 46	38, 46	OFDM	13.5
	802.11ac (80MHz)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (20MHz)		52 to 64	52, 60, 64	OFDM	6.5
	802.11ac (40MHz)		54 to 62	54, 62	OFDM	13.5
	802.11ac (80MHz)		58	58	OFDM	29.3
-	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11ac (20MHz)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11ac (40MHz)		102 to 142	102, 118, 134, 142	OFDM	13.5
	802.11ac (80MHz)		106 to 138	106, 122, 138	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	6.5
	802.11ac (40MHz)		151 to 159	151, 159	OFDM	13.5
	802.11ac (80MHz)		155	155	OFDM	29.3

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						
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0
-	802.11a	5260-5320	52 to 64		OFDM	6.0
-	802.11a	5500-5720	100 to 144		OFDM	6.0
-	802.11a	5745-5825	149 to 165		OFDM	6.0

Power Line Conducted Emission Test:

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

CDD Mode						
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0
-	802.11a	5260-5320	52 to 64		OFDM	6.0
-	802.11a	5500-5720	100 to 144		OFDM	6.0
-	802.11a	5745-5825	149 to 165		OFDM	6.0

Antenna Port Conducted Measurement:

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

CDD Mode						
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11ac (20MHz)		36 to 48	36, 40, 48	OFDM	6.5
	802.11ac (40MHz)		38 to 46	38, 46	OFDM	13.5
	802.11ac (80MHz)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11ac (20MHz)		52 to 64	52, 60, 64	OFDM	6.5
	802.11ac (40MHz)		54 to 62	54, 62	OFDM	13.5
	802.11ac (80MHz)		58	58	OFDM	29.3
-	802.11a	5500-5720	100 to 140	100, 116, 132, 140	OFDM	6.0
	802.11ac (20MHz)		100 to 140	100, 116, 132, 140	OFDM	6.5
	802.11ac (40MHz)		102 to 142	102, 118, 134, 142	OFDM	13.5
	802.11ac (80MHz)		106 to 138	106, 122, 138	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11ac (20MHz)		149 to 165	149, 157, 165	OFDM	6.5
	802.11ac (40MHz)		151 to 159	151, 159	OFDM	13.5
	802.11ac (80MHz)		155	155	OFDM	29.3

Beamforming Mode (Output Power Only)						
EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11ac (20MHz)	5180-5240	36 to 48	36, 40, 48	OFDM	6.5
	802.11ac (40MHz)		38 to 46	38, 46	OFDM	13.5
	802.11ac (80MHz)		42	42	OFDM	29.3
-	802.11ac (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	6.5
	802.11ac (40MHz)		54 to 62	54, 62	OFDM	13.5
	802.11ac (80MHz)		58	58	OFDM	29.3
-	802.11ac (20MHz)	5500-5720	100 to 140	100, 116, 132, 140	OFDM	6.5
	802.11ac (40MHz)		102 to 142	102, 118, 134, 142	OFDM	13.5
	802.11ac (80MHz)		106 to 138	106, 122, 138	OFDM	29.3
-	802.11ac (20MHz)	5745-5825	149 to 165	149, 157, 165	OFDM	6.5
	802.11ac (40MHz)		151 to 159	151, 159	OFDM	13.5
	802.11ac (80MHz)		155	155	OFDM	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE$\geq$1G	25deg. C, 76%RH	120Vac, 60Hz (System)	StarItaly Wu
RE<1G	25deg. C, 76%RH	120Vac, 60Hz (System)	Dalen Dai
PLC	23deg. C, 66%RH	120Vac, 60Hz (System)	Titan Hsu
APCM	25deg. C, 60%RH	120Vac, 60Hz (System)	Ivan Tseng

3.3 Duty Cycle of Test Signal

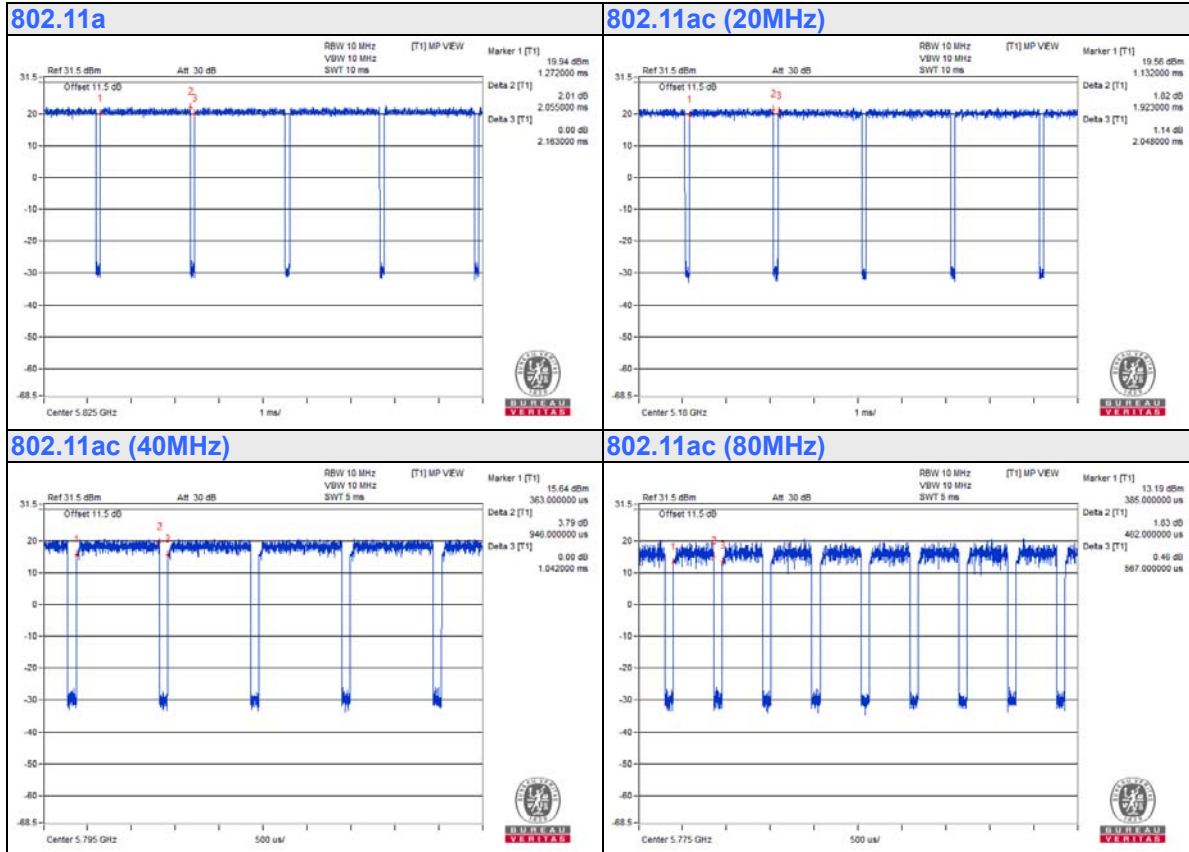
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = $2.055/2.163 = 0.950$, Duty factor = $10 * \log(1/0.950) = 0.22$

802.11ac (20MHz): Duty cycle = $1.924/2.047 = 0.940$, Duty factor = $10 * \log(1/0.940) = 0.27$

802.11ac (40MHz): Duty cycle = $0.946/1.042 = 0.908$, Duty factor = $10 * \log(1/0.908) = 0.42$

802.11ac (80MHz): Duty cycle = $0.462/0.567 = 0.815$, Duty factor = $10 * \log(1/0.815) = 0.89$



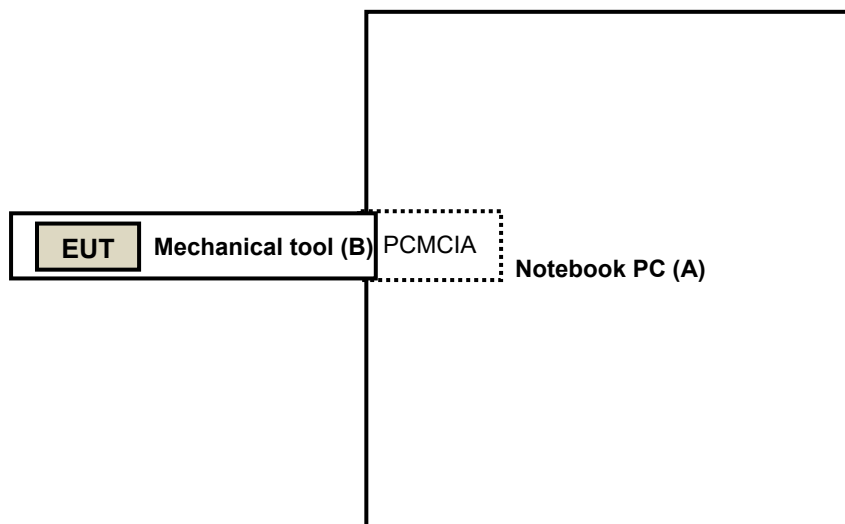
3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook PC	DELL	E6530	9331GV1	N/A	Provided by Lab
B.	Mechanical tool	N/A	N/A	N/A	N/A	Supplied by client

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

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standard

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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}
	☐	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
HP Preamplifier	8447D	2432A03504	Feb. 20, 2019	Feb. 19, 2020
HP Preamplifier	8449B	3008A01201	Feb. 21, 2019	Feb. 20, 2020
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 20, 2019	Feb. 19, 2020
Agilent TEST RECEIVER	N9038A	MY51210129	Mar. 05, 2019	Mar. 04, 2020
Schwarzbeck Antenna	VULB 9168	139	Nov. 26, 2018	Nov. 25, 2019
Schwarzbeck Antenna	VHBA 9123	480	Jun. 3, 2019	Jun. 2, 2021
Schwarzbeck Horn Antenna	BBHA-9170	212	Nov. 25, 2018	Nov. 24, 2019
Schwarzbeck Horn Antenna	BBHA 9120-D1	D130	Nov. 25, 2018	Nov. 24, 2019
ADT. Turn Table	TT100	0306	NA	NA
ADT. Tower	AT100	0306	NA	NA
Software	Radiated_V7.6.15.9.5	NA	NA	NA
SUHNER RF cable With 4dB PAD	SF102	Cable-CH6-01	Jul. 10, 2019	Jul. 9, 2020
SUHNER RF cable With 3/4dB PAD	SF102	Cable-CH8-3.6m	Jul. 10, 2019	Jul. 9, 2020
KEYSIGHT MIMO Powermeasurement Test set	U2021XA	U2021XA-001	Jun. 11, 2019	Jun. 10, 2020
KEYSIGHT Spectrum Analyzer	N9030A	MY54490260	Jul. 30, 2019	Jul. 29, 2020
Loop Antenna EMCI	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
EMCO Horn Antenna	3115	00028257	Nov. 25, 2018	Nov. 24, 2019
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	NA	NA
ROHDE & SCHWARZ Spectrum Analyzer	FSV40	101042	Sep. 27, 2018	Sep. 26, 2019
Anritsu Power Sensor	MA2411B	0738404	Apr. 16, 2019	Apr. 15, 2020
Anritsu Power Meter	ML2495A	0842014	Apr. 16, 2019	Apr. 15, 2020

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. Tested Date: Jul. 19 ~ Aug. 13, 2019

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:

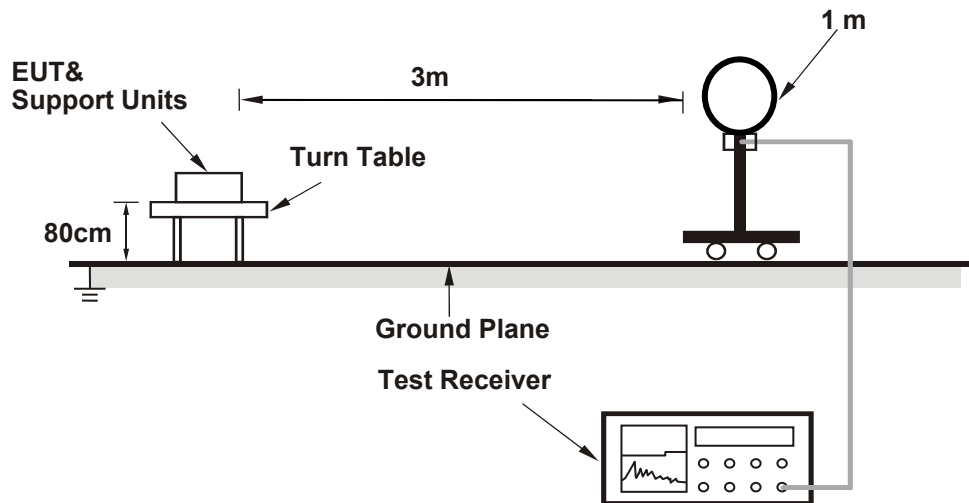
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

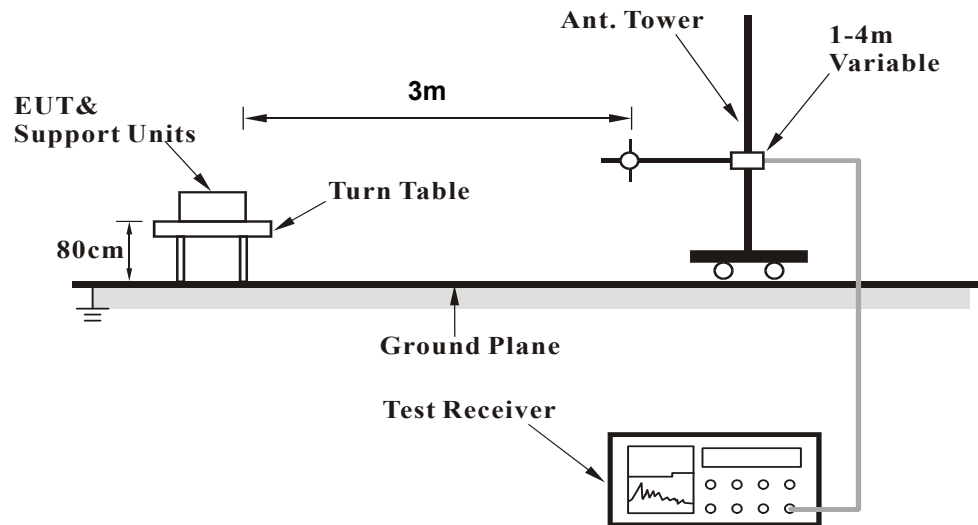
No deviation.

4.1.5 Test Setup

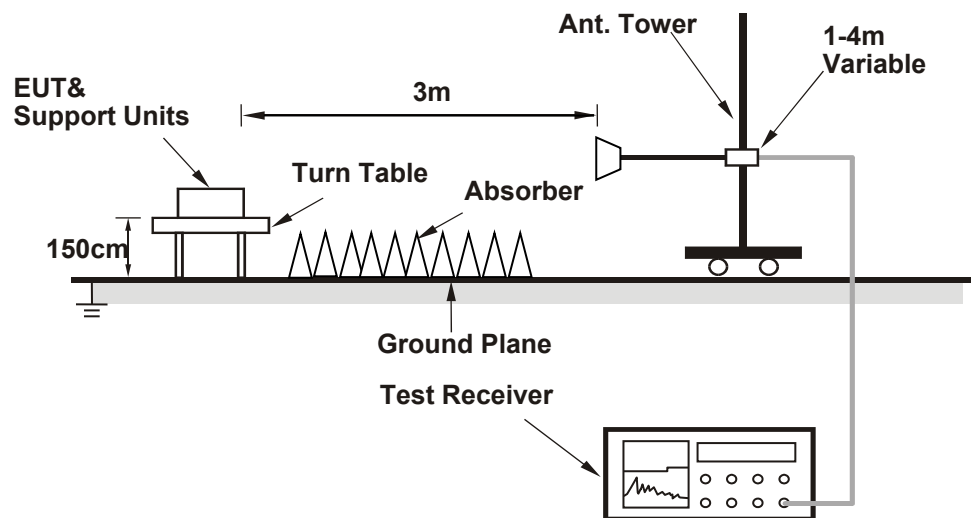
For Radiated emission below 30MHz



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

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

4.1.7 Test Results

CDD Mode

Above 1GHz Data:

802.11a

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	65.16 PK	74.00	-8.84	1.64 H	85	57.95	7.21
2	5150.00	50.52 AV	54.00	-3.48	1.64 H	85	43.31	7.21
3	*5180.00	109.54 PK			1.64 H	85	102.29	7.25
4	*5180.00	100.06 AV			1.64 H	85	92.81	7.25
5	#10360.00	55.90 PK	68.20	-12.30	1.98 H	227	38.76	17.14
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	67.98 PK	74.00	-6.02	2.20 V	30	60.77	7.21
2	5150.00	53.15 AV	54.00	-0.85	2.20 V	30	45.94	7.21
3	*5180.00	116.02 PK			2.20 V	30	108.77	7.25
4	*5180.00	106.34 AV			2.20 V	30	99.09	7.25
5	#10360.00	57.12 PK	68.20	-11.08	1.46 V	138	39.98	17.14

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.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.79 PK			1.66 H	91	103.53	7.26
2	*5200.00	101.15 AV			1.66 H	91	93.89	7.26
3	#10400.00	57.11 PK	68.20	-11.09	1.96 H	231	39.77	17.34
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	117.34 PK			2.19 V	28	110.08	7.26
2	*5200.00	107.60 AV			2.19 V	28	100.34	7.26
3	#10400.00	57.57 PK	68.20	-10.63	1.43 V	156	40.23	17.34

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.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.25 PK			1.71 H	83	103.29	6.96
2	*5240.00	100.70 AV			1.71 H	83	93.74	6.96
3	5350.00	57.15 PK	74.00	-16.85	1.71 H	83	49.78	7.37
4	5350.00	46.86 AV	54.00	-7.14	1.71 H	83	39.49	7.37
5	#10480.00	56.97 PK	68.20	-11.23	1.99 H	224	39.27	17.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	116.80 PK			2.23 V	31	109.84	6.96
2	*5240.00	107.11 AV			2.23 V	31	100.15	6.96
3	5350.00	58.85 PK	74.00	-15.15	2.23 V	31	51.48	7.37
4	5350.00	47.99 AV	54.00	-6.01	2.23 V	31	40.62	7.37
5	#10480.00	57.89 PK	68.20	-10.31	1.51 V	167	40.19	17.70

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.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.14 PK	74.00	-14.86	1.60 H	78	51.93	7.21
2	5150.00	47.33 AV	54.00	-6.67	1.60 H	78	40.12	7.21
3	*5260.00	110.09 PK			1.60 H	78	103.17	6.92
4	*5260.00	100.21 AV			1.60 H	78	93.29	6.92
5	#10520.00	57.45 PK	68.20	-10.75	1.94 H	221	39.61	17.84
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	59.95 PK	74.00	-14.05	2.22 V	26	52.74	7.21
2	5150.00	47.59 AV	54.00	-6.41	2.22 V	26	40.38	7.21
3	*5260.00	116.55 PK			2.22 V	26	109.63	6.92
4	*5260.00	106.68 AV			2.22 V	26	99.76	6.92
5	#10520.00	58.02 PK	68.20	-10.18	1.59 V	137	40.18	17.84

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.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.16 PK			1.56 H	74	103.07	7.09
2	*5300.00	100.33 AV			1.56 H	74	93.24	7.09
3	10600.00	57.84 PK	74.00	-16.16	1.93 H	228	39.82	18.02
4	10600.00	46.76 AV	54.00	-7.24	1.93 H	228	28.74	18.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	116.64 PK			2.20 V	32	109.55	7.09
2	*5300.00	106.77 AV			2.20 V	32	99.68	7.09
3	10600.00	58.35 PK	74.00	-15.65	1.52 V	160	40.33	18.02
4	10600.00	47.13 AV	54.00	-6.87	1.52 V	160	29.11	18.02

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.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.63 PK			1.55 H	69	102.44	7.19
2	*5320.00	99.92 AV			1.55 H	69	92.73	7.19
3	5350.00	66.29 PK	74.00	-7.71	1.55 H	69	58.92	7.37
4	5350.00	50.88 AV	54.00	-3.12	1.55 H	69	43.51	7.37
5	10640.00	56.63 PK	74.00	-17.37	1.84 H	230	38.91	17.72
6	10640.00	46.15 AV	54.00	-7.85	1.84 H	230	28.43	17.72
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	116.12 PK			2.19 V	27	108.93	7.19
2	*5320.00	106.34 AV			2.19 V	27	99.15	7.19
3	5350.00	68.03 PK	74.00	-5.97	2.19 V	27	60.66	7.37
4	5350.00	53.19 AV	54.00	-0.81	2.19 V	27	45.82	7.37
5	10640.00	57.59 PK	74.00	-16.41	1.33 V	162	39.87	17.72
6	10640.00	46.57 AV	54.00	-7.43	1.33 V	162	28.85	17.72

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.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.51 PK	74.00	-14.49	1.53 H	72	51.88	7.63
2	5460.00	45.26 AV	54.00	-8.74	1.53 H	72	37.63	7.63
3	#5470.00	66.39 PK	68.20	-1.81	1.53 H	72	58.74	7.65
4	*5500.00	108.12 PK			1.53 H	72	100.43	7.69
5	*5500.00	98.04 AV			1.53 H	72	90.35	7.69
6	11000.00	56.86 PK	74.00	-17.14	1.97 H	224	38.62	18.24
7	11000.00	46.47 AV	54.00	-7.53	1.97 H	224	28.23	18.24
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	60.67 PK	74.00	-13.33	2.40 V	21	53.04	7.63
2	5460.00	47.44 AV	54.00	-6.56	2.40 V	21	39.81	7.63
3	#5470.00	67.87 PK	68.20	-0.33	2.40 V	21	60.22	7.65
4	*5500.00	114.67 PK			2.40 V	21	106.98	7.69
5	*5500.00	104.56 AV			2.40 V	21	96.87	7.69
6	11000.00	58.18 PK	74.00	-15.82	1.33 V	150	39.94	18.24
7	11000.00	46.87 AV	54.00	-7.13	1.33 V	150	28.63	18.24

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.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.40 PK			1.55 H	70	101.70	7.70
2	*5580.00	99.33 AV			1.55 H	70	91.63	7.70
3	11160.00	57.54 PK	74.00	-16.46	1.95 H	229	39.64	17.90
4	11160.00	46.63 AV	54.00	-7.37	1.95 H	229	28.73	17.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.83 PK			2.33 V	26	108.13	7.70
2	*5580.00	105.74 AV			2.33 V	26	98.04	7.70
3	11160.00	57.96 PK	74.00	-16.04	1.40 V	158	40.06	17.90
4	11160.00	46.94 AV	54.00	-7.06	1.40 V	158	29.04	17.90

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.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.26 PK			1.57 H	69	101.84	7.42
2	*5700.00	99.19 AV			1.57 H	69	91.77	7.42
3	#5725.00	64.83 PK	68.20	-3.37	1.57 H	69	57.33	7.50
4	11400.00	57.31 PK	74.00	-16.69	1.99 H	217	39.61	17.70
5	11400.00	46.40 AV	54.00	-7.60	1.99 H	217	28.70	17.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.71 PK			2.37 V	20	108.29	7.42
2	*5700.00	105.59 AV			2.37 V	20	98.17	7.42
3	#5725.00	67.35 PK	68.20	-0.85	2.37 V	20	59.85	7.50
4	11400.00	57.81 PK	74.00	-16.19	1.44 V	163	40.11	17.70
5	11400.00	46.79 AV	54.00	-7.21	1.44 V	163	29.09	17.70

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.

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.02 PK	68.20	-9.18	1.56 H	71	51.37	7.65
2	*5720.00	108.86 PK			1.56 H	71	101.37	7.49
3	*5720.00	98.76 AV			1.56 H	71	91.27	7.49
4	11440.00	56.70 PK	74.00	-17.30	1.94 H	216	38.84	17.86
5	11440.00	46.37 AV	54.00	-7.63	1.94 H	216	28.51	17.86
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.59 PK	68.20	-8.61	2.30 V	31	51.94	7.65
2	*5720.00	115.42 PK			2.30 V	31	107.93	7.49
3	*5720.00	105.31 AV			2.30 V	31	97.82	7.49
4	11440.00	57.79 PK	74.00	-16.21	1.38 V	154	39.93	17.86
5	11440.00	46.82 AV	54.00	-7.18	1.38 V	154	28.96	17.86

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.

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5649.27	59.64 PK	68.20	-8.56	1.56 H	71	51.88	7.76
2	*5745.00	110.75 PK			1.56 H	71	102.88	7.87
3	*5745.00	100.56 AV			1.56 H	71	92.69	7.87
4	#5931.90	60.90 PK	68.20	-7.30	1.56 H	71	52.42	8.48
5	11490.00	57.53 PK	74.00	-16.47	1.93 H	223	38.61	18.92
6	11490.00	47.04 AV	54.00	-6.96	1.93 H	223	28.12	18.92
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5566.62	59.25 PK	68.20	-8.95	2.18 V	350	51.54	7.71
2	*5745.00	116.53 PK			2.18 V	350	108.94	7.59
3	*5745.00	106.37 AV			2.18 V	350	98.78	7.59
4	#5996.98	60.16 PK	68.20	-8.04	2.18 V	350	52.08	8.08
5	11490.00	57.60 PK	74.00	-16.40	1.38 V	145	39.53	18.07
6	11490.00	47.01 AV	54.00	-6.99	1.38 V	145	28.94	18.07

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.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5570.43	60.01 PK	68.20	-8.19	1.61 H	65	51.89	8.12
2	*5785.00	110.23 PK			1.61 H	65	102.22	8.01
3	*5785.00	100.04 AV			1.61 H	65	92.03	8.01
4	#5999.35	60.61 PK	68.20	-7.59	1.61 H	65	52.18	8.43
5	11570.00	57.38 PK	74.00	-16.62	1.99 H	216	38.53	18.85
6	11570.00	46.95 AV	54.00	-7.05	1.99 H	216	28.10	18.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5614.60	59.70 PK	68.20	-8.50	2.17 V	353	52.10	7.60
2	*5785.00	116.18 PK			2.17 V	353	108.44	7.74
3	*5785.00	105.93 AV			2.17 V	353	98.19	7.74
4	#5981.77	60.59 PK	68.20	-7.61	2.17 V	353	52.49	8.10
5	11570.00	57.42 PK	74.00	-16.58	1.41 V	156	39.44	17.98
6	11570.00	46.88 AV	54.00	-7.12	1.41 V	156	28.90	17.98

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.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5554.75	58.82 PK	68.20	-9.38	1.52 H	67	50.62	8.20
2	*5825.00	109.72 PK			1.52 H	67	101.52	8.20
3	*5825.00	99.46 AV			1.52 H	67	91.26	8.20
4	#5930.48	61.04 PK	68.20	-7.16	1.52 H	67	52.57	8.47
5	11650.00	57.24 PK	74.00	-16.76	1.95 H	221	38.60	18.64
6	11650.00	46.95 AV	54.00	-7.05	1.95 H	221	28.31	18.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5630.75	59.30 PK	68.20	-8.90	2.19 V	11	51.78	7.52
2	*5825.00	115.98 PK			2.19 V	11	108.06	7.92
3	*5825.00	105.71 AV			2.19 V	11	97.79	7.92
4	#5934.75	60.19 PK	68.20	-8.01	2.19 V	11	52.04	8.15
5	11650.00	57.46 PK	74.00	-16.54	1.45 V	166	39.74	17.72
6	11650.00	46.93 AV	54.00	-7.07	1.45 V	166	29.21	17.72

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.

802.11ac (20MHz)

CHANNEL	TX Channel 36	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.94 PK	74.00	-7.06	1.57 H	81	59.73	7.21
2	5150.00	50.83 AV	54.00	-3.17	1.57 H	81	43.62	7.21
3	*5180.00	109.89 PK			1.57 H	81	102.64	7.25
4	*5180.00	99.43 AV			1.57 H	81	92.18	7.25
5	#10360.00	56.28 PK	68.20	-11.92	1.92 H	213	39.14	17.14

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.36 PK	74.00	-5.64	2.17 V	25	61.15	7.21
2	5150.00	53.20 AV	54.00	-0.80	2.17 V	25	45.99	7.21
3	*5180.00	116.28 PK			2.17 V	25	109.03	7.25
4	*5180.00	105.99 AV			2.17 V	25	98.74	7.25
5	#10360.00	57.07 PK	68.20	-11.13	1.34 V	170	39.93	17.14

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.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.64 PK			1.61 H	79	103.38	7.26
2	*5200.00	100.41 AV			1.61 H	79	93.15	7.26
3	#10400.00	56.86 PK	68.20	-11.34	1.94 H	226	39.52	17.34
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	117.09 PK			2.21 V	27	109.83	7.26
2	*5200.00	106.87 AV			2.21 V	27	99.61	7.26
3	#10400.00	57.49 PK	68.20	-10.71	1.50 V	141	40.15	17.34

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.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	110.40 PK			1.59 H	75	103.44	6.96
2	*5240.00	100.23 AV			1.59 H	75	93.27	6.96
3	5350.00	58.16 PK	74.00	-15.84	1.59 H	75	50.79	7.37
4	5350.00	47.55 AV	54.00	-6.45	1.59 H	75	40.18	7.37
5	#10480.00	57.08 PK	68.20	-11.12	1.98 H	230	39.38	17.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	116.88 PK			2.15 V	32	109.92	6.96
2	*5240.00	106.66 AV			2.15 V	32	99.70	6.96
3	5350.00	59.00 PK	74.00	-15.00	2.15 V	32	51.63	7.37
4	5350.00	47.94 AV	54.00	-6.06	2.15 V	32	40.57	7.37
5	#10480.00	57.90 PK	68.20	-10.30	1.43 V	166	40.20	17.70

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.

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.63 PK	74.00	-15.37	1.54 H	68	51.42	7.21
2	5150.00	45.70 AV	54.00	-8.30	1.54 H	68	38.49	7.21
3	*5260.00	108.27 PK			1.54 H	68	101.35	6.92
4	*5260.00	98.08 AV			1.54 H	68	91.16	6.92
5	#10520.00	57.25 PK	68.20	-10.95	1.98 H	229	39.41	17.84
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	60.50 PK	74.00	-13.50	2.17 V	21	53.29	7.21
2	5150.00	46.24 AV	54.00	-7.76	2.17 V	21	39.03	7.21
3	*5260.00	114.77 PK			2.17 V	21	107.85	6.92
4	*5260.00	104.18 AV			2.17 V	21	97.26	6.92
5	#10520.00	57.91 PK	68.20	-10.29	1.47 V	155	40.07	17.84

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.

CHANNEL	TX Channel 60	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.13 PK			1.63 H	74	102.04	7.09
2	*5300.00	98.69 AV			1.63 H	74	91.60	7.09
3	10600.00	57.73 PK	74.00	-16.27	1.91 H	232	39.71	18.02
4	10600.00	46.69 AV	54.00	-7.31	1.91 H	232	28.67	18.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.42 PK			2.19 V	24	108.33	7.09
2	*5300.00	104.90 AV			2.19 V	24	97.81	7.09
3	10600.00	58.35 PK	74.00	-15.65	1.50 V	142	40.33	18.02
4	10600.00	47.09 AV	54.00	-6.91	1.50 V	142	29.07	18.02

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.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	109.48 PK			1.64 H	71	102.29	7.19
2	*5320.00	98.97 AV			1.64 H	71	91.78	7.19
3	5350.00	66.32 PK	74.00	-7.68	1.64 H	71	58.95	7.37
4	5350.00	50.30 AV	54.00	-3.70	1.64 H	71	42.93	7.37
5	10640.00	57.37 PK	74.00	-16.63	1.93 H	227	39.65	17.72
6	10640.00	46.51 AV	54.00	-7.49	1.93 H	227	28.79	17.72
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.93 PK			2.13 V	27	108.74	7.19
2	*5320.00	105.42 AV			2.13 V	27	98.23	7.19
3	5350.00	67.59 PK	74.00	-6.41	2.13 V	27	60.22	7.37
4	5350.00	52.15 AV	54.00	-1.85	2.13 V	27	44.78	7.37
5	10640.00	58.23 PK	74.00	-15.77	1.49 V	138	40.51	17.72
6	10640.00	46.96 AV	54.00	-7.04	1.49 V	138	29.24	17.72

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.

CHANNEL	TX Channel 100	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.08 PK	74.00	-14.92	1.49 H	57	51.45	7.63
2	5460.00	44.57 AV	54.00	-9.43	1.49 H	57	36.94	7.63
3	#5470.00	66.11 PK	68.20	-2.09	1.49 H	57	58.46	7.65
4	*5500.00	107.42 PK			1.49 H	57	99.73	7.69
5	*5500.00	97.30 AV			1.49 H	57	89.61	7.69
6	11000.00	56.76 PK	74.00	-17.24	1.93 H	220	38.52	18.24
7	11000.00	46.38 AV	54.00	-7.62	1.93 H	220	28.14	18.24
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	60.46 PK	74.00	-13.54	2.29 V	27	52.83	7.63
2	5460.00	47.01 AV	54.00	-6.99	2.29 V	27	39.38	7.63
3	#5470.00	67.37 PK	68.20	-0.83	2.29 V	27	59.72	7.65
4	*5500.00	114.36 PK			2.29 V	27	106.67	7.69
5	*5500.00	104.18 AV			2.29 V	27	96.49	7.69
6	11000.00	57.91 PK	74.00	-16.09	1.36 V	151	39.67	18.24
7	11000.00	46.94 AV	54.00	-7.06	1.36 V	151	28.70	18.24

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.

CHANNEL	TX Channel 116	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	107.78 PK			1.53 H	71	100.08	7.70
2	*5580.00	97.64 AV			1.53 H	71	89.94	7.70
3	11160.00	56.34 PK	74.00	-17.66	1.95 H	224	38.44	17.90
4	11160.00	46.21 AV	54.00	-7.79	1.95 H	224	28.31	17.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.29 PK			2.34 V	35	107.59	7.70
2	*5580.00	105.14 AV			2.34 V	35	97.44	7.70
3	11160.00	57.74 PK	74.00	-16.26	1.41 V	167	39.84	17.90
4	11160.00	47.67 AV	54.00	-6.33	1.41 V	167	29.77	17.90

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.

CHANNEL	TX Channel 140	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	107.53 PK			1.44 H	68	100.11	7.42
2	*5700.00	97.44 AV			1.44 H	68	90.02	7.42
3	#5725.00	65.62 PK	68.20	-2.58	1.44 H	68	58.12	7.50
4	11400.00	56.18 PK	74.00	-17.82	1.89 H	217	38.48	17.70
5	11400.00	46.04 AV	54.00	-7.96	1.89 H	217	28.34	17.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	115.08 PK			2.27 V	21	107.66	7.42
2	*5700.00	104.95 AV			2.27 V	21	97.53	7.42
3	#5725.00	67.09 PK	68.20	-1.11	2.27 V	21	59.59	7.50
4	11400.00	57.49 PK	74.00	-16.51	1.46 V	162	39.79	17.70
5	11400.00	47.51 AV	54.00	-6.49	1.46 V	162	29.81	17.70

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.

CHANNEL	TX Channel 144	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.10 PK	68.20	-9.10	1.55 H	66	51.45	7.65
2	*5720.00	107.63 PK			1.55 H	66	100.14	7.49
3	*5720.00	97.54 AV			1.55 H	66	90.05	7.49
4	11440.00	56.36 PK	74.00	-17.64	1.95 H	223	38.50	17.86
5	11440.00	46.15 AV	54.00	-7.85	1.95 H	223	28.29	17.86
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.50 PK	68.20	-8.70	2.36 V	34	51.85	7.65
2	*5720.00	115.03 PK			2.36 V	34	107.54	7.49
3	*5720.00	104.87 AV			2.36 V	34	97.38	7.49
4	11440.00	57.71 PK	74.00	-16.29	1.47 V	155	39.85	17.86
5	11440.00	47.59 AV	54.00	-6.41	1.47 V	155	29.73	17.86

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.

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5620.77	59.64 PK	68.20	-8.56	1.60 H	73	51.73	7.91
2	*5745.00	110.21 PK			1.60 H	73	102.34	7.87
3	*5745.00	100.06 AV			1.60 H	73	92.19	7.87
4	#5935.70	61.47 PK	68.20	-6.73	1.60 H	73	53.00	8.47
5	11490.00	57.29 PK	74.00	-16.71	1.96 H	225	38.37	18.92
6	11490.00	47.03 AV	54.00	-6.97	1.96 H	225	28.11	18.92
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5597.02	59.21 PK	68.20	-8.99	2.17 V	356	51.54	7.67
2	*5745.00	116.37 PK			2.17 V	356	108.78	7.59
3	*5745.00	106.12 AV			2.17 V	356	98.53	7.59
4	#5999.82	59.87 PK	68.20	-8.33	2.17 V	356	51.79	8.08
5	11490.00	57.49 PK	74.00	-16.51	1.39 V	158	39.42	18.07
6	11490.00	46.97 AV	54.00	-7.03	1.39 V	158	28.90	18.07

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.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5614.12	59.46 PK	68.20	-8.74	1.55 H	67	51.52	7.94
2	*5785.00	109.94 PK			1.55 H	67	101.93	8.01
3	*5785.00	99.89 AV			1.55 H	67	91.88	8.01
4	#5949.95	61.09 PK	68.20	-7.11	1.55 H	67	52.65	8.44
5	11570.00	57.07 PK	74.00	-16.93	2.03 H	214	38.22	18.85
6	11570.00	46.76 AV	54.00	-7.24	2.03 H	214	27.91	18.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5636.93	58.74 PK	68.20	-9.46	2.18 V	351	51.24	7.50
2	*5785.00	115.89 PK			2.18 V	351	108.15	7.74
3	*5785.00	105.76 AV			2.18 V	351	98.02	7.74
4	#6017.87	59.91 PK	68.20	-8.29	2.18 V	351	51.74	8.17
5	11570.00	57.36 PK	74.00	-16.64	1.45 V	163	39.38	17.98
6	11570.00	46.88 AV	54.00	-7.12	1.45 V	163	28.90	17.98

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.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5607.48	59.44 PK	68.20	-8.76	1.58 H	69	51.46	7.98
2	*5825.00	108.78 PK			1.58 H	69	100.58	8.20
3	*5825.00	98.51 AV			1.58 H	69	90.31	8.20
4	#5952.32	61.07 PK	68.20	-7.13	1.58 H	69	52.64	8.43
5	11650.00	57.01 PK	74.00	-16.99	1.96 H	227	38.37	18.64
6	11650.00	46.48 AV	54.00	-7.52	1.96 H	227	27.84	18.64
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5610.80	59.60 PK	68.20	-8.60	2.21 V	358	51.98	7.62
2	*5825.00	114.72 PK			2.21 V	358	106.80	7.92
3	*5825.00	104.53 AV			2.21 V	358	96.61	7.92
4	#6024.05	60.29 PK	68.20	-7.91	2.21 V	358	52.10	8.19
5	11650.00	56.94 PK	74.00	-17.06	1.44 V	160	39.22	17.72
6	11650.00	46.40 AV	54.00	-7.60	1.44 V	160	28.68	17.72

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.

802.11ac (40MHz)

CHANNEL	TX Channel 38	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	69.15 PK	74.00	-4.85	1.52 H	85	61.94	7.21
2	5150.00	49.79 AV	54.00	-4.21	1.52 H	85	42.58	7.21
3	*5190.00	103.42 PK			1.52 H	85	96.17	7.25
4	*5190.00	93.95 AV			1.52 H	85	86.70	7.25
5	#10380.00	55.79 PK	68.20	-12.41	1.94 H	223	38.55	17.24
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	71.54 PK	74.00	-2.46	2.20 V	31	64.33	7.21
2	5150.00	52.85 AV	54.00	-1.15	2.20 V	31	45.64	7.21
3	*5190.00	109.91 PK			2.20 V	31	102.66	7.25
4	*5190.00	100.52 AV			2.20 V	31	93.27	7.25
5	#10380.00	56.52 PK	68.20	-11.68	1.29 V	161	39.28	17.24

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.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	106.77 PK			1.45 H	76	99.73	7.04
2	*5230.00	96.98 AV			1.45 H	76	89.94	7.04
3	5350.00	64.30 PK	74.00	-9.70	1.45 H	76	56.93	7.37
4	5350.00	47.65 AV	54.00	-6.35	1.45 H	76	40.28	7.37
5	#10460.00	56.56 PK	68.20	-11.64	1.99 H	235	38.95	17.61
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	113.13 PK			2.16 V	29	106.09	7.04
2	*5230.00	103.97 AV			2.16 V	29	96.93	7.04
3	5350.00	65.79 PK	74.00	-8.21	2.16 V	29	58.42	7.37
4	5350.00	48.42 AV	54.00	-5.58	2.16 V	29	41.05	7.37
5	#10460.00	57.89 PK	68.20	-10.31	1.47 V	158	40.28	17.61

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.

CHANNEL	TX Channel 54	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	63.15 PK	74.00	-10.85	1.51 H	67	55.94	7.21
2	5150.00	46.36 AV	54.00	-7.64	1.51 H	67	39.15	7.21
3	*5270.00	106.24 PK			1.51 H	67	99.28	6.96
4	*5270.00	95.99 AV			1.51 H	67	89.03	6.96
5	#10540.00	57.51 PK	68.20	-10.69	2.92 H	229	39.63	17.88
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	64.00 PK	74.00	-10.00	2.18 V	20	56.79	7.21
2	5150.00	46.93 AV	54.00	-7.07	2.18 V	20	39.72	7.21
3	*5270.00	112.73 PK			2.18 V	20	105.77	6.96
4	*5270.00	102.44 AV			2.18 V	20	95.48	6.96
5	#10540.00	58.13 PK	68.20	-10.07	1.53 V	161	40.25	17.88

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.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	106.52 PK			1.45 H	60	99.37	7.15
2	*5310.00	96.26 AV			1.45 H	60	89.11	7.15
3	5350.00	69.45 PK	74.00	-4.55	1.45 H	60	62.08	7.37
4	5350.00	50.56 AV	54.00	-3.44	1.45 H	60	43.19	7.37
5	10620.00	56.79 PK	74.00	-17.21	2.04 H	238	38.93	17.86
6	10620.00	46.23 AV	54.00	-7.77	2.04 H	238	28.37	17.86
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	113.08 PK			2.17 V	24	105.93	7.15
2	*5310.00	102.76 AV			2.17 V	24	95.61	7.15
3	5350.00	71.70 PK	74.00	-2.30	2.17 V	24	64.33	7.37
4	5350.00	53.01 AV	54.00	-0.99	2.17 V	24	45.64	7.37
5	10620.00	57.48 PK	74.00	-16.52	1.38 V	156	39.62	17.86
6	10620.00	46.60 AV	54.00	-7.40	1.38 V	156	28.74	17.86

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.

CHANNEL	TX Channel 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.54 PK	74.00	-14.46	1.56 H	70	51.91	7.63
2	5460.00	45.17 AV	54.00	-8.83	1.56 H	70	37.54	7.63
3	#5470.00	65.92 PK	68.20	-2.28	1.56 H	70	58.27	7.65
4	*5510.00	101.97 PK			1.56 H	70	94.27	7.70
5	*5510.00	96.71 AV			1.56 H	70	89.01	7.70
6	11020.00	56.34 PK	74.00	-17.66	1.96 H	227	38.16	18.18
7	11020.00	46.10 AV	54.00	-7.90	1.96 H	227	27.92	18.18
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	67.24 PK	74.00	-6.76	2.01 V	43	59.61	7.63
2	5460.00	46.91 AV	54.00	-7.09	2.01 V	43	39.28	7.63
3	#5470.00	67.79 PK	68.20	-0.41	2.01 V	43	60.14	7.65
4	*5510.00	108.36 PK			2.01 V	43	100.66	7.70
5	*5510.00	97.94 AV			2.01 V	43	90.24	7.70
6	11020.00	57.12 PK	74.00	-16.88	1.48 V	139	38.94	18.18
7	11020.00	46.41 AV	54.00	-7.59	1.48 V	139	28.23	18.18

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.

CHANNEL	TX Channel 118	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5590.00	105.14 PK			1.61 H	77	97.45	7.69
2	*5590.00	94.81 AV			1.61 H	77	87.12	7.69
3	11180.00	56.41 PK	74.00	-17.59	1.98 H	222	38.52	17.89
4	11180.00	46.12 AV	54.00	-7.88	1.98 H	222	28.23	17.89
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5590.00	111.55 PK			2.05 V	38	103.86	7.69
2	*5590.00	101.20 AV			2.05 V	38	93.51	7.69
3	11180.00	57.60 PK	74.00	-16.40	1.42 V	157	39.71	17.89
4	11180.00	47.43 AV	54.00	-6.57	1.42 V	157	29.54	17.89

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.

CHANNEL	TX Channel 134	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	104.20 PK			1.52 H	69	96.77	7.43
2	*5670.00	93.85 AV			1.52 H	69	86.42	7.43
3	#5725.00	66.41 PK	68.20	-1.79	1.52 H	69	58.91	7.50
4	11340.00	55.78 PK	74.00	-18.22	1.94 H	208	38.04	17.74
5	11340.00	45.87 AV	54.00	-8.13	1.94 H	208	28.13	17.74
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.36 PK			2.11 V	46	102.93	7.43
2	*5670.00	100.10 AV			2.11 V	46	92.67	7.43
3	#5725.00	67.83 PK	68.20	-0.37	2.11 V	46	60.33	7.50
4	11340.00	56.97 PK	74.00	-17.03	1.55 V	128	39.23	17.74
5	11340.00	46.90 AV	54.00	-7.10	1.55 V	128	29.16	17.74

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.

CHANNEL	TX Channel 142	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	104.44 PK			1.57 H	74	96.98	7.46
2	*5710.00	94.16 AV			1.57 H	74	86.70	7.46
3	#5850.00	58.88 PK	68.20	-9.32	1.57 H	74	50.85	8.03
4	11420.00	56.29 PK	74.00	-17.71	1.99 H	211	38.51	17.78
5	11420.00	46.18 AV	54.00	-7.82	1.99 H	211	28.40	17.78
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5710.00	111.03 PK			2.03 V	41	103.57	7.46
2	*5710.00	100.67 AV			2.03 V	41	93.21	7.46
3	#5850.00	59.36 PK	68.20	-8.84	2.03 V	41	51.33	8.03
4	11420.00	57.52 PK	74.00	-16.48	1.46 V	151	39.74	17.78
5	11420.00	47.38 AV	54.00	-6.62	1.46 V	151	29.60	17.78

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.

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5589.43	60.14 PK	68.20	-8.06	1.59 H	70	52.08	8.06
2	*5755.00	107.22 PK			1.59 H	70	99.33	7.89
3	*5755.00	97.16 AV			1.59 H	70	89.27	7.89
4	#5954.70	60.73 PK	68.20	-7.47	1.59 H	70	52.30	8.43
5	11510.00	57.14 PK	74.00	-16.86	2.05 H	218	38.24	18.90
6	11510.00	46.83 AV	54.00	-7.17	2.05 H	218	27.93	18.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5618.87	63.39 PK	68.20	-4.81	2.13 V	350	55.81	7.58
2	*5755.00	113.59 PK			2.13 V	350	105.98	7.61
3	*5755.00	103.58 AV			2.13 V	350	95.97	7.61
4	#5956.12	61.17 PK	68.20	-7.03	2.13 V	350	53.07	8.10
5	11510.00	57.26 PK	74.00	-16.74	1.34 V	155	39.17	18.09
6	11510.00	46.79 AV	54.00	-7.21	1.34 V	155	28.70	18.09

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.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5608.90	59.79 PK	68.20	-8.41	1.61 H	67	51.83	7.96
2	*5795.00	107.27 PK			1.61 H	67	99.21	8.06
3	*5795.00	97.09 AV			1.61 H	67	89.03	8.06
4	#5927.62	61.40 PK	68.20	-6.80	1.61 H	67	52.91	8.49
5	11590.00	57.12 PK	74.00	-16.88	1.93 H	213	38.29	18.83
6	11590.00	46.61 AV	54.00	-7.39	1.93 H	213	27.78	18.83
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5589.90	61.97 PK	68.20	-6.23	2.17 V	359	54.28	7.69
2	*5795.00	113.20 PK			2.17 V	359	105.41	7.79
3	*5795.00	103.11 AV			2.17 V	359	95.32	7.79
4	#5940.45	62.25 PK	68.20	-5.95	2.17 V	359	54.12	8.13
5	11590.00	57.13 PK	74.00	-16.87	1.43 V	162	39.19	17.94
6	11590.00	46.46 AV	54.00	-7.54	1.43 V	162	28.52	17.94

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.

802.11ac (80MHz)

CHANNEL	TX Channel 42	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	62.95 PK	74.00	-11.05	1.51 H	77	55.74	7.21
2	5150.00	50.36 AV	54.00	-3.64	1.51 H	77	43.15	7.21
3	*5210.00	100.61 PK			1.51 H	77	93.43	7.18
4	*5210.00	91.03 AV			1.51 H	77	83.85	7.18
5	5350.00	57.31 PK	74.00	-16.69	1.51 H	77	49.94	7.37
6	5350.00	44.22 AV	54.00	-9.78	1.51 H	77	36.85	7.37
7	#10420.00	56.09 PK	68.20	-12.11	1.95 H	233	38.66	17.43

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.16 PK	74.00	-7.84	2.17 V	27	58.95	7.21
2	5150.00	52.93 AV	54.00	-1.07	2.17 V	27	45.72	7.21
3	*5210.00	106.23 PK			2.17 V	27	99.05	7.18
4	*5210.00	95.92 AV			2.17 V	27	88.74	7.18
5	5350.00	59.73 PK	74.00	-14.27	2.17 V	27	52.36	7.37
6	5350.00	46.88 AV	54.00	-7.12	2.17 V	27	39.51	7.37
7	#10420.00	56.57 PK	68.20	-11.63	1.38 V	155	39.14	17.43

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.

CHANNEL	TX Channel 58	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	60.29 PK	74.00	-13.71	1.56 H	71	53.08	7.21
2	5150.00	47.02 AV	54.00	-6.98	1.56 H	71	39.81	7.21
3	*5290.00	99.60 PK			1.56 H	71	92.55	7.05
4	*5290.00	89.72 AV			1.56 H	71	82.67	7.05
5	5350.00	63.76 PK	74.00	-10.24	1.56 H	71	56.39	7.37
6	5350.00	51.25 AV	54.00	-2.75	1.56 H	71	43.88	7.37
7	#10580.00	61.15 PK	68.20	-7.05	2.11 H	233	43.18	17.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	60.48 PK	74.00	-13.52	2.14 V	28	53.27	7.21
2	5150.00	47.40 AV	54.00	-6.60	2.14 V	28	40.19	7.21
3	*5290.00	105.88 PK			2.14 V	28	98.83	7.05
4	*5290.00	95.99 AV			2.14 V	28	88.94	7.05
5	5350.00	66.41 PK	74.00	-7.59	2.14 V	28	59.04	7.37
6	5350.00	53.50 AV	54.00	-0.50	2.14 V	28	46.13	7.37
7	#10580.00	57.16 PK	68.20	-11.04	1.52 V	148	39.19	17.97

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.

CHANNEL	TX Channel 106	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	59.71 PK	74.00	-14.29	1.48 H	66	52.08	7.63
2	5460.00	44.96 AV	54.00	-9.04	1.48 H	66	37.33	7.63
3	#5470.00	66.05 PK	68.20	-2.15	1.48 H	66	58.40	7.65
4	*5530.00	99.85 PK			1.48 H	66	92.13	7.72
5	*5530.00	89.51 AV			1.48 H	66	81.79	7.72
6	11060.00	56.09 PK	74.00	-17.91	1.98 H	66	38.04	18.05
7	11060.00	45.85 AV	54.00	-8.15	1.98 H	220	27.80	18.05
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	65.82 PK	74.00	-8.18	2.03 V	37	58.19	7.63
2	5460.00	53.24 AV	54.00	-0.76	2.03 V	37	45.61	7.63
3	#5470.00	67.69 PK	68.20	-0.51	2.03 V	37	60.04	7.65
4	*5530.00	105.93 PK			2.03 V	37	98.21	7.72
5	*5530.00	95.57 AV			2.03 V	37	87.85	7.72
6	11060.00	56.76 PK	74.00	-17.24	1.60 V	142	38.71	18.05
7	11060.00	46.57 AV	54.00	-7.43	1.60 V	142	28.52	18.05

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.

CHANNEL	TX Channel 122	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	103.77 PK			1.53 H	69	96.15	7.62
2	*5610.00	93.56 AV			1.53 H	69	85.94	7.62
3	#5725.00	60.13 PK	68.20	-8.07	1.53 H	69	52.63	7.50
4	11220.00	56.29 PK	74.00	-17.71	2.03 H	218	38.44	17.85
5	11220.00	45.95 AV	54.00	-8.05	2.03 H	218	28.10	17.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5610.00	109.91 PK			2.07 V	29	102.29	7.62
2	*5610.00	99.55 AV			2.07 V	29	91.93	7.62
3	#5725.00	60.58 PK	68.20	-7.62	2.07 V	29	53.08	7.50
4	11220.00	57.31 PK	74.00	-16.69	1.57 V	148	39.46	17.85
5	11220.00	46.80 AV	54.00	-7.20	1.57 V	148	28.95	17.85

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.

CHANNEL	TX Channel 138	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.28 PK	68.20	-8.92	1.60 H	72	51.63	7.65
2	*5690.00	103.27 PK			1.60 H	72	95.84	7.43
3	*5690.00	92.89 AV			1.60 H	72	85.46	7.43
4	#5850.00	59.97 PK	68.20	-8.23	1.60 H	72	51.94	8.03
5	11380.00	56.12 PK	74.00	-17.88	1.93 H	224	38.41	17.71
6	11380.00	45.77 AV	54.00	-8.23	1.93 H	224	28.06	17.71
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5470.00	59.68 PK	68.20	-8.52	2.13 V	34	52.03	7.65
2	*5690.00	109.41 PK			2.13 V	34	101.98	7.43
3	*5690.00	99.05 AV			2.13 V	34	91.62	7.43
4	#5850.00	60.42 PK	68.20	-7.78	2.13 V	34	52.39	8.03
5	11380.00	57.08 PK	74.00	-16.92	1.45 V	152	39.37	17.71
6	11380.00	46.46 AV	54.00	-7.54	1.45 V	152	28.75	17.71

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.

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5626.95	60.08 PK	68.20	-8.12	1.53 H	64	52.20	7.88
2	*5775.00	104.75 PK			1.53 H	64	96.77	7.98
3	*5775.00	94.52 AV			1.53 H	64	86.54	7.98
4	#5946.62	62.14 PK	68.20	-6.06	1.53 H	64	53.69	8.45
5	11550.00	57.03 PK	74.00	-16.97	1.95 H	229	38.16	18.87
6	11550.00	46.56 AV	54.00	-7.44	1.95 H	229	27.69	18.87
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5641.68	63.65 PK	68.20	-4.55	2.21 V	6	56.17	7.48
2	*5775.00	112.04 PK			2.21 V	6	104.34	7.70
3	*5775.00	101.85 AV			2.21 V	6	94.15	7.70
4	#5958.50	61.04 PK	68.20	-7.16	2.21 V	6	52.93	8.11
5	11550.00	57.06 PK	74.00	-16.94	1.35 V	166	39.04	18.02
6	11550.00	46.39 AV	54.00	-7.61	1.35 V	166	28.37	18.02

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:

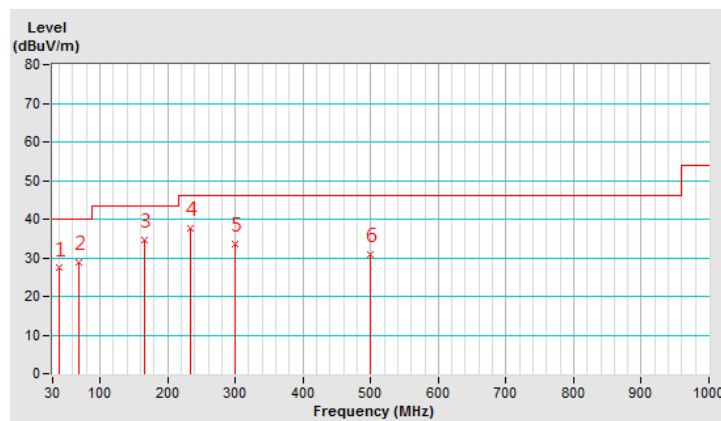
802.11a

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.99	27.36 QP	40.00	-12.64	1.55 H	40	35.28	-7.92
2	68.22	28.84 QP	40.00	-11.16	1.89 H	108	37.69	-8.85
3	165.99	34.66 QP	43.50	-8.84	1.34 H	360	41.39	-6.73
4	232.78	37.64 QP	46.00	-8.36	1.20 H	264	45.63	-7.99
5	299.32	33.67 QP	46.00	-12.33	1.93 H	45	38.56	-4.89
6	498.90	31.01 QP	46.00	-14.99	1.54 H	110	31.70	-0.69

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.

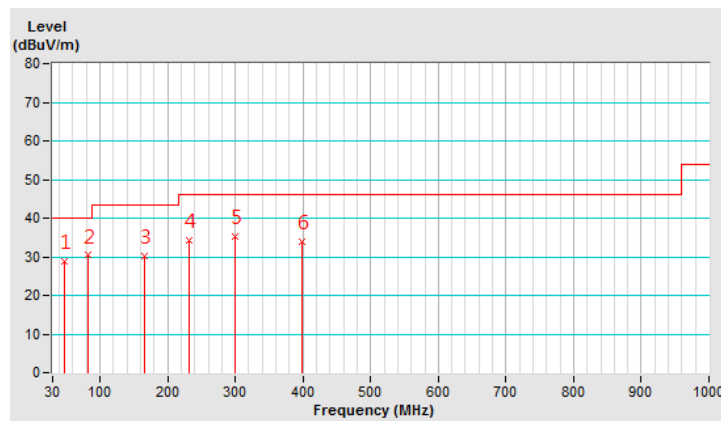


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	47.02	28.92 QP	40.00	-11.08	1.56 V	240	36.25	-7.33
2	82.33	30.35 QP	40.00	-9.65	1.92 V	71	42.34	-11.99
3	165.95	30.19 QP	43.50	-13.31	1.63 V	186	36.92	-6.73
4	232.39	34.20 QP	46.00	-11.80	1.70 V	360	42.23	-8.03
5	299.32	35.34 QP	46.00	-10.66	2.08 V	149	40.23	-4.89
6	399.08	34.02 QP	46.00	-11.98	1.17 V	235	37.08	-3.06

REMARKS:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-0 1	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 30, 2019	Jan. 29, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 13, 2019	Aug. 12, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. Tested Date: Sep. 12, 2019

4.2.3 Test Procedure

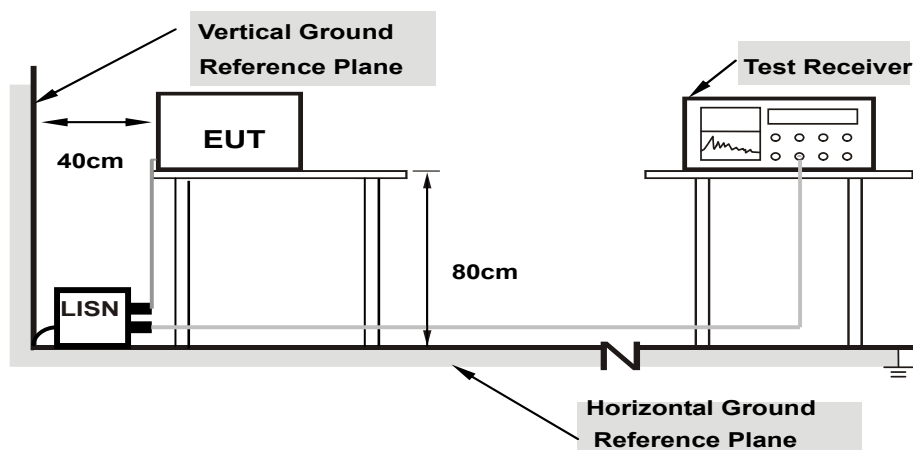
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

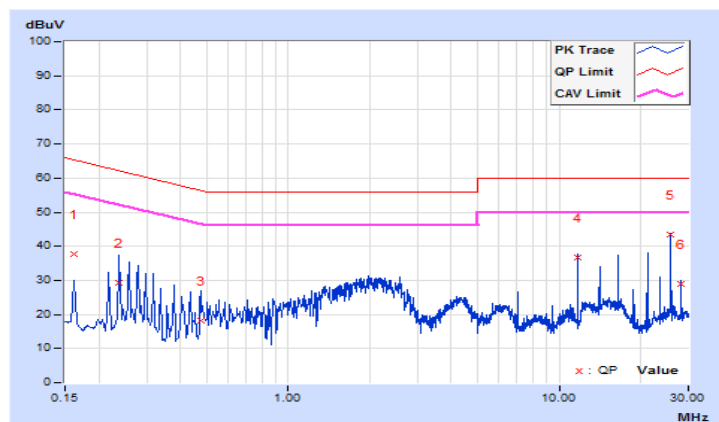
CDD Mode

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	10.11	27.73	3.63	37.84	13.74	65.36	55.36	-27.52	-41.62
2	0.23800	10.13	19.15	3.08	29.28	13.21	62.17	52.17	-32.89	-38.96
3	0.47400	10.17	8.10	1.98	18.27	12.15	56.44	46.44	-38.17	-34.29
4	11.76200	10.46	26.28	26.19	36.74	36.65	60.00	50.00	-23.26	-13.35
5	25.87000	10.49	32.92	32.92	43.41	43.41	60.00	50.00	-16.59	-6.59
6	28.22200	10.43	18.63	18.28	29.06	28.71	60.00	50.00	-30.94	-21.29

REMARKS:

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

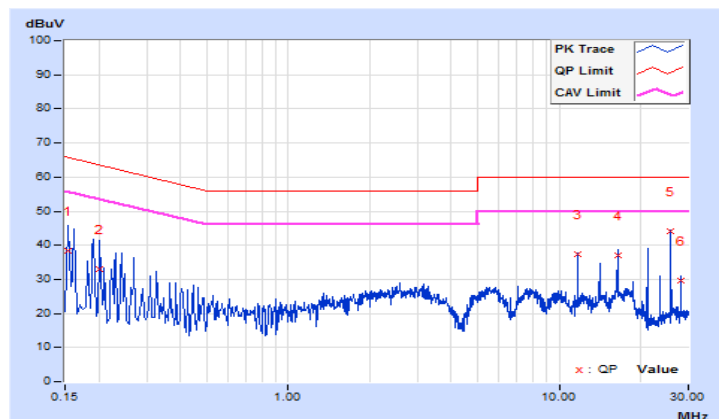


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.16	28.06	7.28	38.22	17.44	65.78	55.78	-27.56	-38.34
2	0.20148	10.18	22.74	5.79	32.92	15.97	63.55	53.55	-30.63	-37.58
3	11.75800	10.59	26.68	26.34	37.27	36.93	60.00	50.00	-22.73	-13.07
4	16.46200	10.70	26.44	25.48	37.14	36.18	60.00	50.00	-22.86	-13.82
5	25.87000	10.62	33.53	33.52	44.15	44.14	60.00	50.00	-15.85	-5.86
6	28.22200	10.55	19.12	18.85	29.67	29.40	60.00	50.00	-30.33	-20.60

REMARKS:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

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

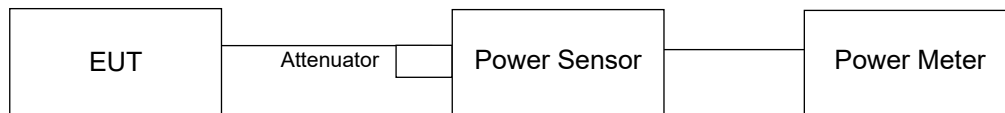
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

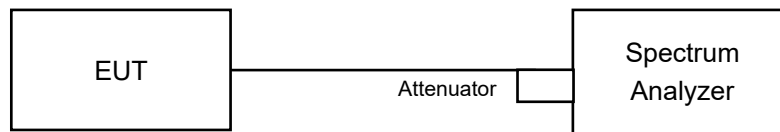
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output Measurement



For 26dB Occupied Bandwidth



4.3.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer Agilent	N9010A	MY52220207	Dec. 26, 2018	Dec. 25, 2019
Power Meter Anritsu	ML2495A	1012010	Sep. 05, 2018	Sep. 04, 2019
Power Sensor Anritsu	MA2411B	1315050	Sep. 04, 2018	Sep. 03, 2019

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested Date: Aug. 29, 2019

4.3.4 Test Procedure

For Average Power Measurement

For 802.11a, 802.11ac (20MHz), 802.11ac (40MHz)

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

For 802.11ac (80MHz)

- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger to "free run".
- 3) Set RBW = 1 MHz.
- 4) Set VBW $\geq$ 3 MHz
- 5) Number of points in sweep $\geq$ 2 Span / RBW.
- 6) Sweep time $\leq$ (number of points in sweep) * T
- 7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- 8) Detector = RMS.
- 9) Trace mode = max hold.
- 10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

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 Result

CDD Mode

Power Output:

802.11a

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
36	5180	18.17	18.11	130.329	21.15	24	Pass
40	5200	17.82	17.97	123.195	20.91	24	Pass
48	5240	17.84	17.93	122.901	20.90	24	Pass
52	5260	17.67	17.94	120.709	20.82	24	Pass
60	5300	17.82	17.97	123.195	20.91	24	Pass
64	5320	17.32	17.44	109.414	20.39	24	Pass
100	5500	17.81	18.01	123.636	20.92	24	Pass
116	5580	18.10	18.36	133.114	21.24	24	Pass
140	5700	17.87	17.89	122.753	20.89	24	Pass
144	5720 For U-NII-2C	17.59	17.58	114.692	20.60	22.88	Pass
144	5720 For U-NII-3	12.90	13.32	40.976	16.13	30	Pass
149	5745	19.85	19.94	195.233	22.91	30	Pass
157	5785	19.74	19.89	191.688	22.83	30	Pass
165	5825	19.57	19.87	187.624	22.73	30	Pass

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(21.36) = 24.30\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(21.27) = 24.28\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(20.51) = 24.12\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(21.32) = 24.29\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(21.19) = 24.26\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(21.30) = 24.28\text{ dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(5725.00-5709.58) = 22.88\text{ dBm} < 24\text{dBm}$.

Chain 1

1. $11\text{dBm} + 10\log(21.28) = 24.28\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(21.51) = 24.33\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(20.68) = 24.16\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(21.36) = 24.30\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(21.24) = 24.27\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.37) = 24.50\text{ dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(5725.00-5709.53) = 23.02\text{ dBm} < 24\text{dBm}$.

802.11ac (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
36	5180	17.31	17.80	114.083	20.57	24	Pass
40	5200	18.70	18.92	152.114	21.82	24	Pass
48	5240	18.56	18.90	149.404	21.74	24	Pass
52	5260	18.44	18.86	146.736	21.67	24	Pass
60	5300	18.61	18.93	150.774	21.78	24	Pass
64	5320	18.77	18.96	154.041	21.88	24	Pass
100	5500	17.75	17.84	120.380	20.81	24	Pass
116	5580	19.00	19.08	160.343	22.05	24	Pass
140	5700	18.43	18.47	139.970	21.46	24	Pass
144	5720 For U-NII-2C	17.09	17.58	108.448	20.35	23.02	Pass
144	5720 For U-NII-3	12.99	13.25	41.042	16.13	30	Pass
149	5745	19.26	19.43	172.033	22.36	30	Pass
157	5785	19.13	19.32	167.353	22.24	30	Pass
165	5825	19.11	19.27	165.998	22.20	30	Pass

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(22.64) = 24.55\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.63) = 24.55\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.54) = 24.53\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(21.87) = 24.40\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(23.58) = 24.73\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.46) = 24.51\text{ dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(5725.00-5709.06) = 23.02\text{ dBm} < 24\text{dBm}$.

Chain 1

1. $11\text{dBm} + 10\log(23.11) = 24.64\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(23.15) = 24.65\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(23.18) = 24.65\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.56) = 24.53\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(26.82) = 25.28\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(23.63) = 24.73\text{ dBm} > 24\text{dBm}$.
7. $11\text{dBm} + 10\log(5725.00-5708.63) = 23.14\text{ dBm} < 24\text{dBm}$.

802.11ac (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
38	5190	15.15	15.28	66.463	18.23	24	Pass
46	5230	18.92	19.06	158.521	22.00	24	Pass
54	5270	18.77	19.04	155.504	21.92	24	Pass
62	5310	15.51	15.67	72.461	18.60	24	Pass
102	5510	12.81	13.01	39.098	15.92	24	Pass
118	5590	18.97	19.09	159.982	22.04	24	Pass
134	5670	17.43	17.63	113.278	20.54	24	Pass
142	5710 For U-NII-2C	18.25	18.18	132.600	21.23	24	Pass
142	5710 For U-NII-3	11.32	11.88	28.969	14.62	30	Pass
151	5755	19.15	19.28	166.947	22.23	30	Pass
159	5795	19.07	19.26	165.057	22.18	30	Pass

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(53.62) = 28.29\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(43.04) = 27.34\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(42.01) = 27.23\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(52.20) = 28.18\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(44.53) = 27.49\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(5725.00-5685.73)=26.94\text{dBm} > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(57.08) = 28.56\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(42.10) = 27.24\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(42.23) = 27.26\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(58.43) = 28.67\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(43.11) = 27.35\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(5725.00-5685.71)=26.94\text{dBm} > 24\text{dBm}$.

802.11ac (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
42	5210	14.13	14.34	53.046	17.25	24	Pass
58	5290	13.92	14.19	50.902	17.07	24	Pass
106	5530	14.46	14.62	56.898	17.55	24	Pass
122	5610	18.89	18.98	156.514	21.95	24	Pass
138	5690 For U-NII-2C	18.02	18.14	128.550	21.09	24	Pass
138	5690 For U-NII-3	11.44	11.88	29.349	14.68	30	Pass
155	5775	19.08	19.16	163.324	22.13	30	Pass

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(83.72) = 30.23\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(84.09) = 30.25\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(123.83) = 31.93\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(5725.00-5641.92) = 30.19\text{ dBm} > 24\text{dBm}$.

Chain 1

1. $11\text{dBm} + 10\log(83.56) = 30.22\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(83.33) = 30.21\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(105.00) = 31.21\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(5725.00-5633.22) = 30.63\text{ dBm} > 24\text{dBm}$.

Beamforming Mode

Power Output:

802.11ac (20MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
36	5180	14.30	14.79	57.045	17.56	21.99	Pass
40	5200	15.69	15.91	76.062	18.81	21.99	Pass
48	5240	15.55	15.89	74.707	18.73	21.99	Pass
52	5260	15.43	15.85	73.373	18.66	21.99	Pass
60	5300	15.60	15.92	75.392	18.77	21.99	Pass
64	5320	15.76	15.95	77.025	18.87	21.99	Pass
100	5500	14.74	14.83	60.194	17.80	21.99	Pass
116	5580	15.99	16.07	80.177	19.04	21.99	Pass
140	5700	15.42	15.46	69.990	18.45	21.99	Pass
144	5720 For U-NII-2C	14.08	14.57	54.228	17.34	21.01	Pass
144	5720 For U-NII-3	9.98	10.24	20.522	13.12	27.99	Pass
149	5745	16.25	16.42	86.023	19.35	27.99	Pass
157	5785	16.12	16.31	83.682	19.23	27.99	Pass
165	5825	16.10	16.26	83.005	19.19	27.99	Pass

Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the Conducted Power limit shall be reduced to $24 - (8.01 - 6) = 21.99\text{dBm}$. <For U-NII-1, U-NII-2A, U-NII-2C Band>
 $30 - (8.01 - 6) = 27.99\text{dBm}$. <For U-NII-3 Band>

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

- $11\text{dBm} + 10\log(22.64) = 24.55\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(22.63) = 24.55\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(22.54) = 24.53\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(21.87) = 24.40\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(23.58) = 24.73\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(22.46) = 24.51\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(5725.00-5709.06) = 23.02\text{dBm} < 24\text{dBm}$.

Chain 1

- $11\text{dBm} + 10\log(23.11) = 24.64\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(23.15) = 24.65\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(23.18) = 24.65\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(22.56) = 24.53\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(26.82) = 25.28\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(23.63) = 24.73\text{dBm} > 24\text{dBm}$.
- $11\text{dBm} + 10\log(5725.00-5708.63) = 23.14\text{dBm} < 24\text{dBm}$.

802.11ac (40MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
38	5190	12.14	12.27	33.234	15.22	21.99	Pass
46	5230	15.91	16.05	79.266	18.99	21.99	Pass
54	5270	15.76	16.03	77.757	18.91	21.99	Pass
62	5310	12.50	12.66	36.233	15.59	21.99	Pass
102	5510	9.80	10.00	19.550	12.91	21.99	Pass
118	5590	15.96	16.08	79.997	19.03	21.99	Pass
134	5670	14.42	14.62	56.642	17.53	21.99	Pass
142	5710 For U-NII-2C	15.24	15.17	66.305	18.22	21.99	Pass
142	5710 For U-NII-3	8.31	8.87	14.485	11.61	27.99	Pass
151	5755	16.14	16.27	83.479	19.22	27.99	Pass
159	5795	16.06	16.25	82.535	19.17	27.99	Pass
Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the Conducted Power limit shall be reduced to 24-(8.01-6) = 21.99dBm. <For U-NII-1, U-NII-2A, U-NII-2C Band> 30-(8.01-6) = 27.99dBm. <For U-NII-3 Band>							

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. 11dBm + 10log(53.62) = 28.29 dBm > 24dBm.
2. 11dBm + 10log(43.04) = 27.34 dBm > 24dBm.
3. 11dBm + 10log(42.01) = 27.23 dBm > 24dBm.
4. 11dBm + 10log(52.20) = 28.18 dBm > 24dBm.
5. 11dBm + 10log(44.53) = 27.49 dBm > 24dBm.
6. 11dBm + 10log(5725.00-5685.73)=26.94dBm >24dBm

Chain 1

1. 11dBm + 10log(57.08) = 28.56 dBm > 24dBm.
2. 11dBm + 10log(42.10) = 27.24 dBm > 24dBm.
3. 11dBm + 10log(42.23) = 27.26 dBm > 24dBm.
4. 11dBm + 10log(58.43) = 28.67 dBm > 24dBm.
5. 11dBm + 10log(43.11) = 27.35 dBm > 24dBm.
6. 11dBm + 10log(5725.00-5685.71)=26.94dBm >24dBm.

802.11ac (80MHz)

CHAN.	FREQ. (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass/Fail
		CHAIN 0	CHAIN 1				
42	5210	11.12	11.33	26.525	14.24	21.99	Pass
58	5290	10.91	11.18	25.453	14.06	21.99	Pass
106	5530	11.45	11.61	28.452	14.54	21.99	Pass
122	5610	15.88	15.97	78.263	18.94	21.99	Pass
138	5690 For U-NII-2C	15.01	15.13	64.28	18.08	21.99	Pass
138	5690 For U-NII-3	8.43	8.87	14.675	11.67	27.99	Pass
155	5775	16.07	16.15	81.668	19.12	27.99	Pass

Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the Conducted Power limit shall be reduced to $24 - (8.01 - 6) = 21.99\text{dBm}$. <For U-NII-1, U-NII-2A, U-NII-2C Band>
 $30 - (8.01 - 6) = 27.99\text{dBm}$. <For U-NII-3 Band>

NOTE:

For U-NII-2A, U-NII-2C Band:

Chain 0

1. $11\text{dBm} + 10\log(83.72) = 30.23\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(84.09) = 30.25\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(123.83) = 31.93\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(5725.00-5641.92) = 30.19\text{dBm} > 24\text{dBm}$.

Chain 1

1. $11\text{dBm} + 10\log(83.56) = 30.22\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(83.33) = 30.21\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(105.00) = 31.21\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(5725.00-5633.22) = 30.63\text{dBm} > 24\text{dBm}$.

CDD Mode

26dB Bandwidth:

802.11a

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	21.36	21.28
60	5300	21.27	21.51
64	5320	20.51	20.68
100	5500	21.32	21.36
116	5580	21.19	21.24
140	5700	21.30	22.37
144	5720 For U-NII-2C	15.42	15.47

802.11ac (20MHz)

Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.64	23.11
60	5300	22.63	23.15
64	5320	22.54	23.18
100	5500	21.87	22.56
116	5580	23.58	26.82
140	5700	22.46	23.63
144	5720 For U-NII-2C	15.94	16.37

802.11ac (40MHz)

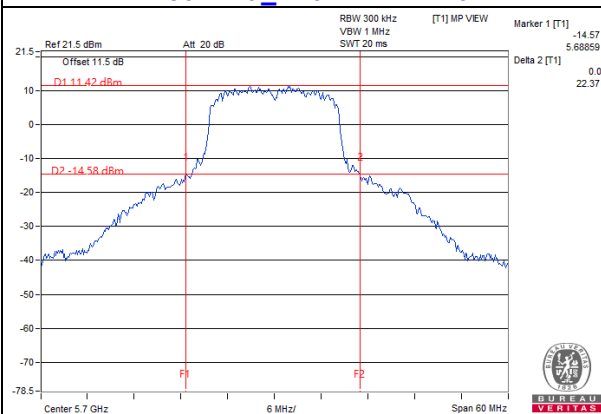
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	53.62	57.08
62	5310	43.04	42.10
102	5510	42.01	42.23
118	5590	52.20	58.43
134	5670	44.53	43.11
142	5710 For U-NII-2C	39.27	39.29

802.11ac (80MHz)

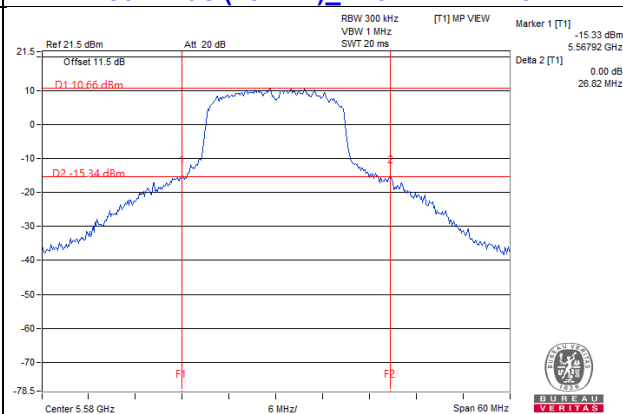
Channel	Channel Frequency (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.72	83.56
106	5530	84.09	83.33
122	5610	123.83	105.00
138	5690 For U-NII-2C	83.08	91.78

Spectrum Plot of Worst Value

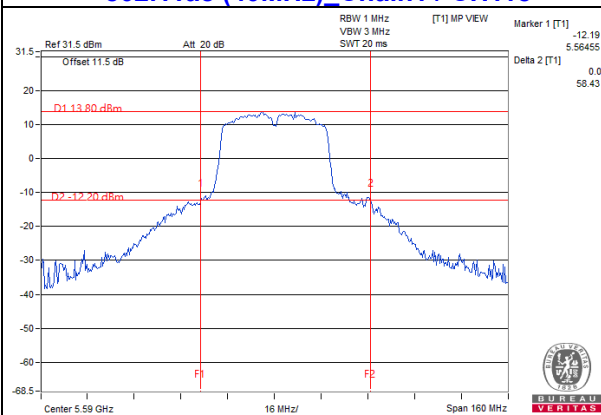
802.11a_Chain1 / CH140



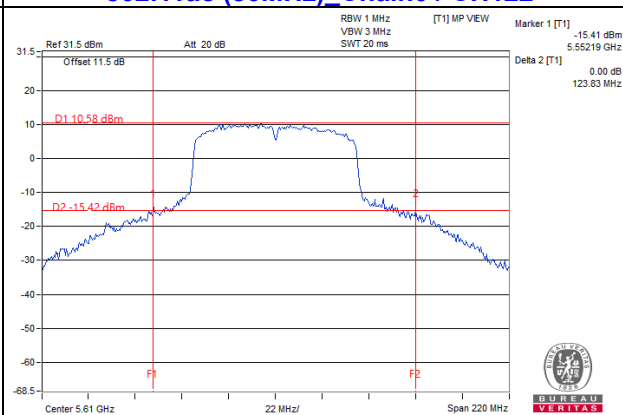
802.11ac (20MHz)_Chain1 / CH116



802.11ac (40MHz)_Chain1 / CH118



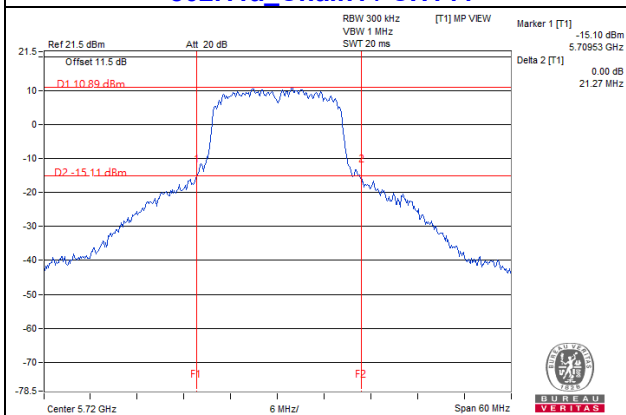
802.11ac (80MHz)_Chain0 / CH122



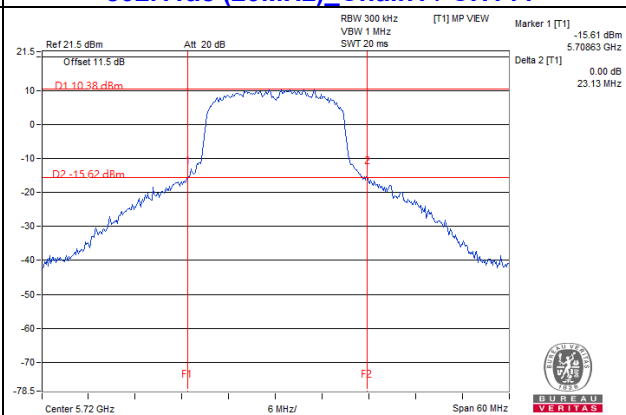
Straddle channel

Spectrum Plot of Worst Value

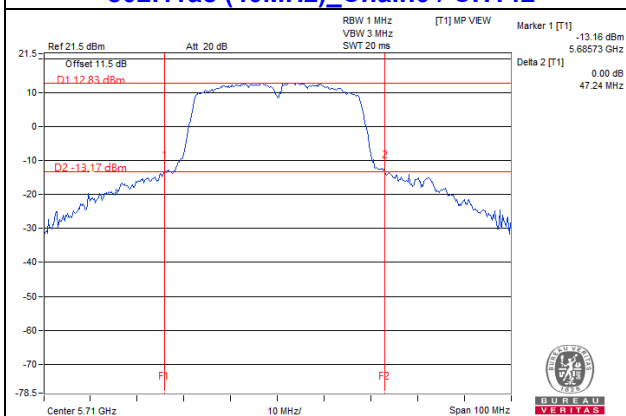
802.11a_Chain1 / CH144



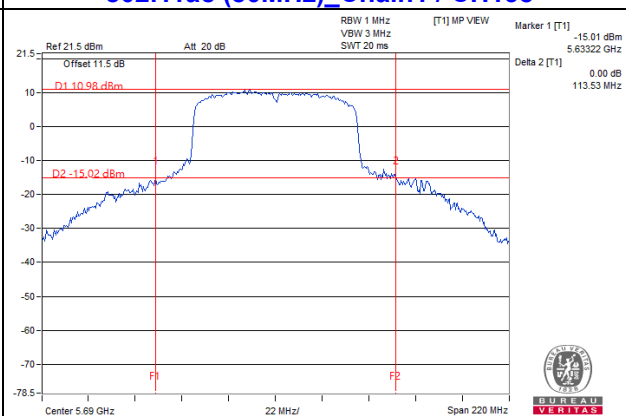
802.11ac (20MHz)_Chain1 / CH144



802.11ac (40MHz)_Chain0 / CH142



802.11ac (80MHz)_Chain1 / CH138



EUT MAXIMUM CONDUCTED POWER

CDD Mode

802.11a

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	123.195	20.91
5470~5725	133.114	21.24

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (20MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	154.041	21.88
5470~5725	160.343	22.05

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (40MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	155.504	21.92
5470~5725	159.982	22.04

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (80MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	50.902	17.07
5470~5725	156.514	21.95

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

Beamforming Mode

802.11ac (20MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	77.025	18.87
5470~5725	80.177	19.04

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11ac (40MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	77.757	18.91
5470~5725	79.997	19.03

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

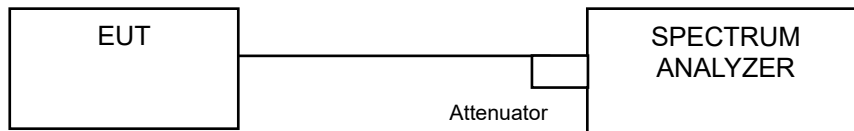
802.11ac (80MHz)

Frequency Band (MHz)	MAX. Power	
	Output Power(mW)	Output Power(dBm)
5250~5350	25.453	14.06
5470~5725	78.263	18.94

NOTE: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.3.3 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

CDD Mode

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
36	5180	16.43	16.43
40	5200	16.44	16.44
48	5240	16.44	16.44
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.32
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.44	16.44
144	5720 For U-NII-2C	13.28	13.28
144	5720 For U-NII-3	3.04	3.04
149	5745	16.56	16.68
157	5785	16.44	16.68
165	5825	16.32	16.56

802.11ac (20MHz)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
36	5180	17.52	17.52
40	5200	17.64	17.64
48	5240	17.52	17.52
52	5260	17.52	17.52
60	5300	17.52	17.52
64	5320	17.52	17.52
100	5500	17.52	17.52
116	5580	17.52	17.64
140	5700	17.52	17.52
144	5720 For U-NII-2C	13.88	13.88
144	5720 For U-NII-3	3.64	3.64
149	5745	17.64	17.52
157	5785	17.52	17.64
165	5825	17.52	17.52

802.11ac (40MHz)

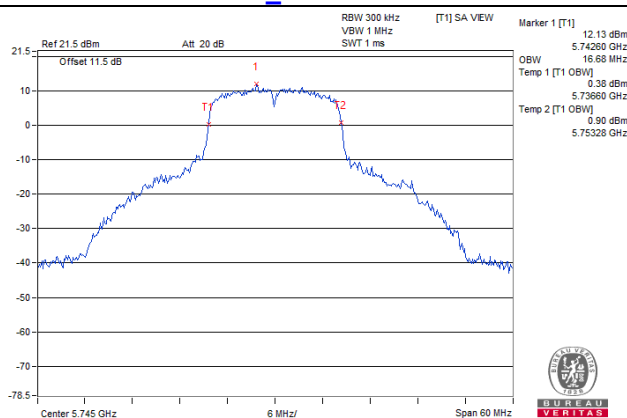
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
38	5190	36.12	36.00
46	5230	36.36	36.36
54	5270	36.36	36.36
62	5310	36.12	36.00
102	5510	36.12	36.00
118	5590	36.36	36.24
134	5670	36.24	36.12
142	5710 For U-NII-2C	33.12	33.24
142	5710 For U-NII-3	3.00	3.00
151	5755	36.24	36.36
159	5795	36.24	36.36

802.11ac (80MHz)

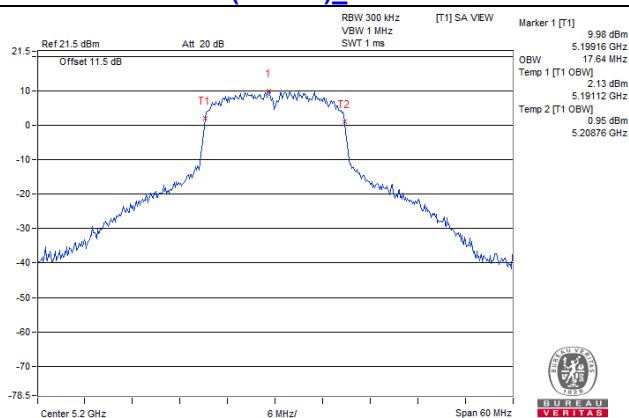
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
42	5210	75.12	75.12
58	5290	75.12	75.12
106	5530	75.12	74.88
122	5610	75.84	75.36
138	5690 For U-NII-2C	72.92	73.16
138	5690 For U-NII-3	2.44	2.44
155	5775	75.84	75.36

Spectrum Plot of Worst Value

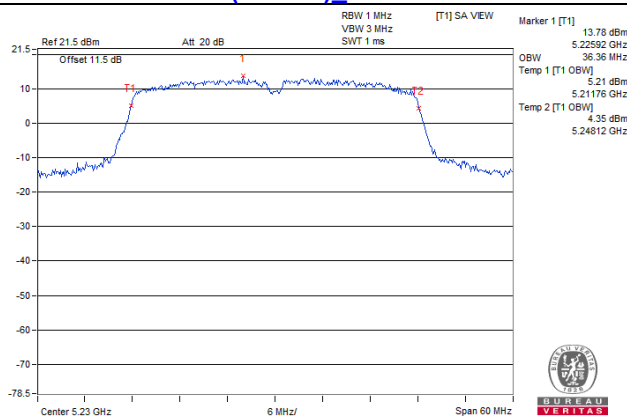
802.11a_Chain1/ CH149



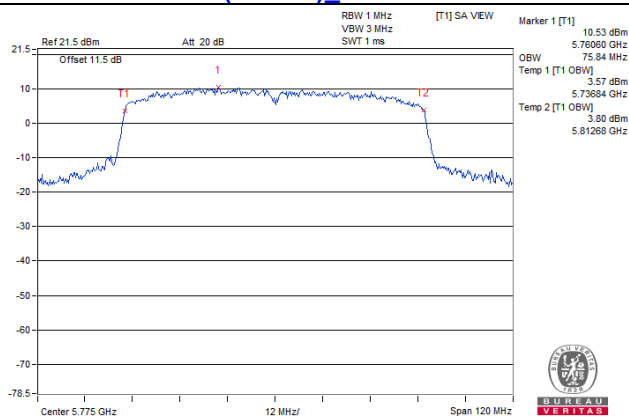
802.11ac (20MHz)_Chain0 / CH40



802.11ac (40MHz)_Chain0 / CH46



802.11ac (80MHz)_Chain0 / CH155

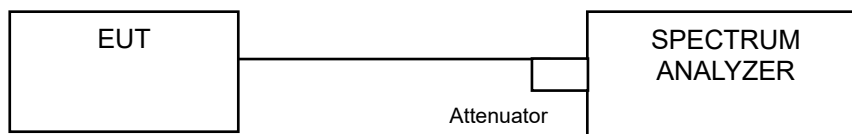


4.5 Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.3.3 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 = 30 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)

For U-NII-3 band:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 500 kHz, Set VBW $\geq$ 3 RBW, 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)
- 6) Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$

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

CDD Mode

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

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	5.50	5.29	0.22	8.63	8.99	Pass
40	5200	5.52	5.43	0.22	8.71	8.99	Pass
48	5240	5.74	5.21	0.22	8.71	8.99	Pass
52	5260	5.28	5.89	0.22	8.83	8.99	Pass
60	5300	5.29	5.82	0.22	8.79	8.99	Pass
64	5320	4.93	5.41	0.22	8.41	8.99	Pass
100	5500	5.05	5.31	0.22	8.41	8.99	Pass
116	5580	5.10	5.57	0.22	8.57	8.99	Pass
140	5700	5.10	5.43	0.22	8.50	8.99	Pass
144	5720 For U-NII-2C	5.17	5.75	0.22	8.70	8.99	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. Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (8.01 - 6) = 8.99\text{dBm}$.
 3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (20MHz)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	4.85	4.53	0.27	7.97	8.99	Pass
40	5200	5.60	5.30	0.27	8.73	8.99	Pass
48	5240	5.65	5.19	0.27	8.71	8.99	Pass
52	5260	5.15	5.62	0.27	8.67	8.99	Pass
60	5300	5.28	5.65	0.27	8.75	8.99	Pass
64	5320	5.38	5.58	0.27	8.76	8.99	Pass
100	5500	4.75	4.97	0.27	8.14	8.99	Pass
116	5580	5.48	5.90	0.27	8.98	8.99	Pass
140	5700	4.97	5.47	0.27	8.51	8.99	Pass
144	5720 For U-NII-2C	5.28	5.84	0.27	8.85	8.99	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. Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (8.01 - 6) = 8.99\text{dBm}$.
 3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (40MHz)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-0.71	-1.10	0.42	2.53	8.99	Pass
46	5230	2.69	2.40	0.42	5.98	8.99	Pass
54	5270	2.21	2.66	0.42	5.87	8.99	Pass
62	5310	-0.33	-0.11	0.42	3.21	8.99	Pass
102	5510	-3.28	-2.94	0.42	0.32	8.99	Pass
118	5590	2.33	2.62	0.42	5.91	8.99	Pass
134	5670	1.43	2.04	0.42	5.18	8.99	Pass
142	5710 For U-NII-2C	2.34	2.74	0.42	5.97	8.99	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. Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(8.01-6) = 8.99\text{dBm}$.
 3. Refer to section 3.3 for duty cycle spectrum plot.

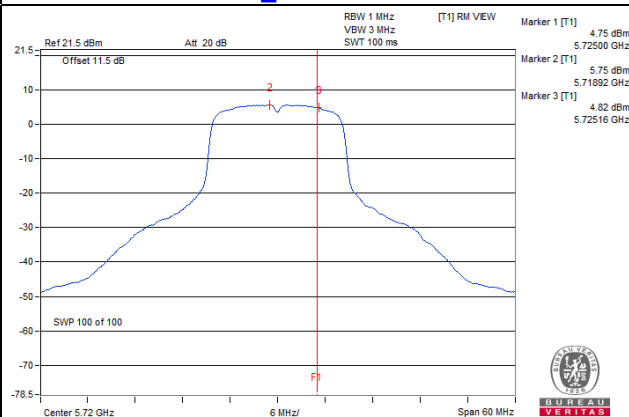
802.11ac (80MHz)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm)		Duty Factor (dB)	Total PSD With Duty Factor (dBm)	MAX. Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-5.09	-5.17	0.89	-1.23	8.99	Pass
58	5290	-5.13	-4.94	0.89	-1.13	8.99	Pass
106	5530	-5.11	-4.70	0.89	-1.00	8.99	Pass
122	5610	-1.03	-1.02	0.89	2.88	8.99	Pass
138	5690 For U-NII-2C	-1.03	-0.53	0.89	3.13	8.99	Pass

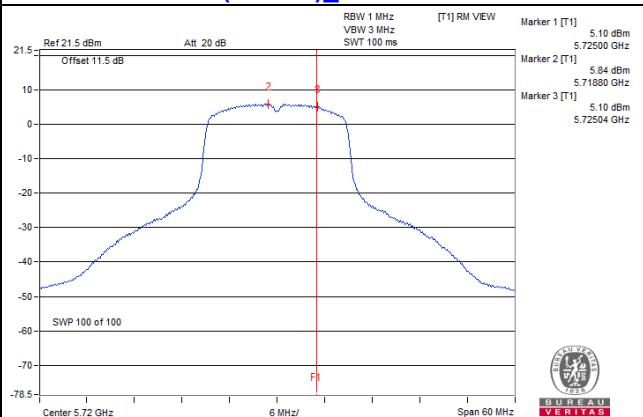
- Note:**
- Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
 - Directional gain = $5\text{dBi} + 10\log(2) = 8.01\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11 - (8.01 - 6) = 8.99\text{dBm}$.
 - Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

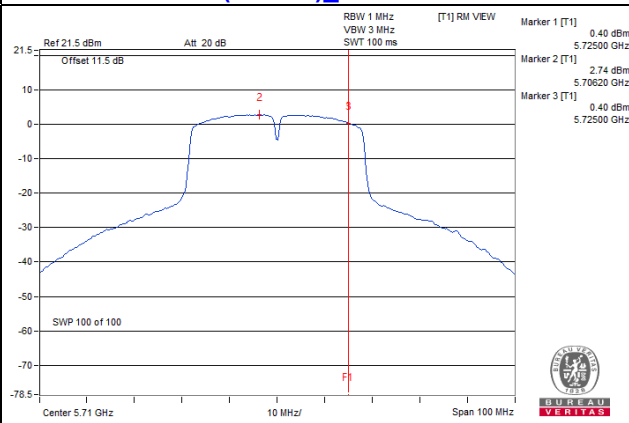
802.11a_Chain 1 / CH144



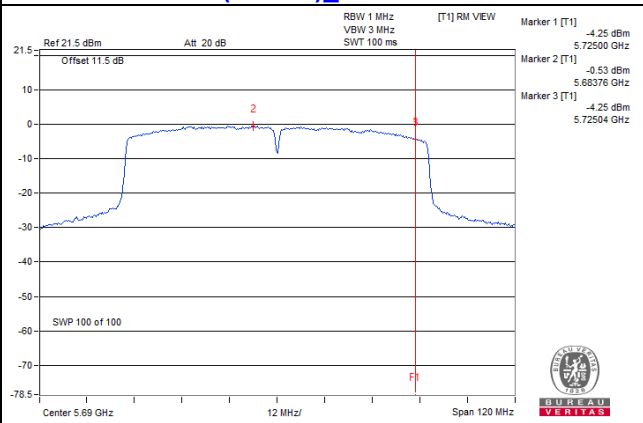
802.11ac (20MHz)_Chain 1 / CH144



802.11ac (40MHz)_Chain 1 / CH142



802.11ac (80MHz)_Chain 1 / CH138



For U-NII-3:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	PSD W/O Duty Factor (dBm/500kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	144	5720 For U-NII-3	-4.13	-1.91	3.01	0.22	1.32	27.99	Pass
	149	5745	-1.69	0.53	3.01	0.22	3.76	27.99	Pass
	157	5785	-2.49	-0.27	3.01	0.22	2.96	27.99	Pass
	165	5825	-3.00	-0.78	3.01	0.22	2.45	27.99	Pass
1	144	5720 For U-NII-3	-3.90	-1.68	3.01	0.22	1.55	27.99	Pass
	149	5745	-1.53	0.69	3.01	0.22	3.92	27.99	Pass
	157	5785	-1.59	0.63	3.01	0.22	3.86	27.99	Pass
	165	5825	-2.27	-0.05	3.01	0.22	3.18	27.99	Pass

Note: 1. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

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

802.11ac (20MHz)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	PSD W/O Duty Factor (dBm/500kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	144	5720 For U-NII-3	-4.35	-2.13	3.01	0.27	1.15	27.99	Pass
	149	5745	-1.98	0.24	3.01	0.27	3.52	27.99	Pass
	157	5785	-2.58	-0.36	3.01	0.27	2.92	27.99	Pass
	165	5825	-3.36	-1.14	3.01	0.27	2.14	27.99	Pass
1	144	5720 For U-NII-3	-3.61	-1.39	3.01	0.27	1.89	27.99	Pass
	149	5745	-2.46	-0.24	3.01	0.27	3.04	27.99	Pass
	157	5785	-2.40	-0.18	3.01	0.27	3.10	27.99	Pass
	165	5825	-2.68	-0.46	3.01	0.27	2.82	27.99	Pass

Note: 1. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

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

802.11ac (40MHz)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	PSD W/O Duty Factor (dBm/500kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	142	5710 For U-NII-3	-8.70	-6.48	3.01	0.42	-3.05	27.99	Pass
	151	5755	-5.82	-3.60	3.01	0.42	-0.17	27.99	Pass
	159	5795	-6.39	-4.17	3.01	0.42	-0.74	27.99	Pass
1	142	5710 For U-NII-3	-8.41	-6.19	3.01	0.42	-2.76	27.99	Pass
	151	5755	-5.94	-3.72	3.01	0.42	-0.29	27.99	Pass
	159	5795	-5.93	-3.71	3.01	0.42	-0.28	27.99	Pass

Note: 1. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

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

802.11ac (80MHz)

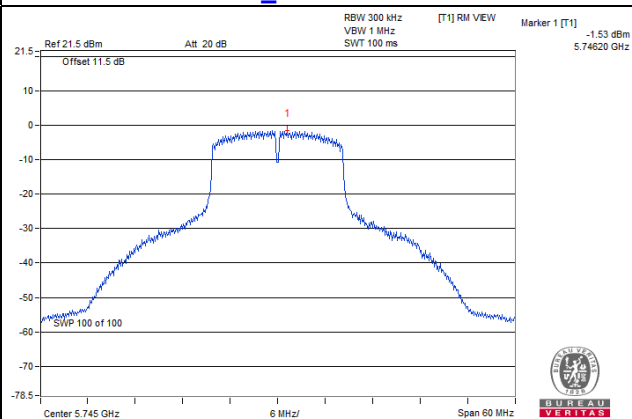
TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/300kHz)	PSD W/O Duty Factor (dBm/500kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	138	5690 For U-NII-3	-13.52	-11.30	3.01	0.89	-7.40	27.99	Pass
	155	5775	-9.04	-6.82	3.01	0.89	-2.92	27.99	Pass
1	138	5690 For U-NII-3	-13.24	-11.02	3.01	0.89	-7.12	27.99	Pass
	155	5775	-9.39	-7.17	3.01	0.89	-3.27	27.99	Pass

Note: 1. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi , so the power density limit shall be reduced to 30-(8.01-6) = 27.99dBm.

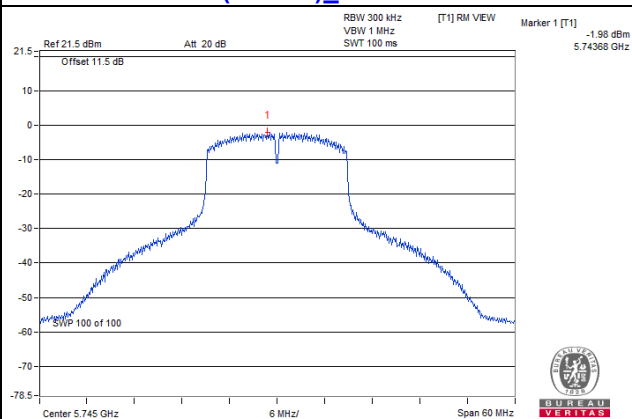
2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

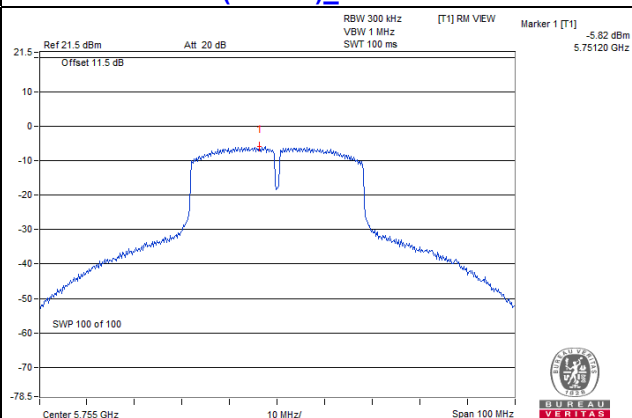
802.11a_Chain 1 / CH149



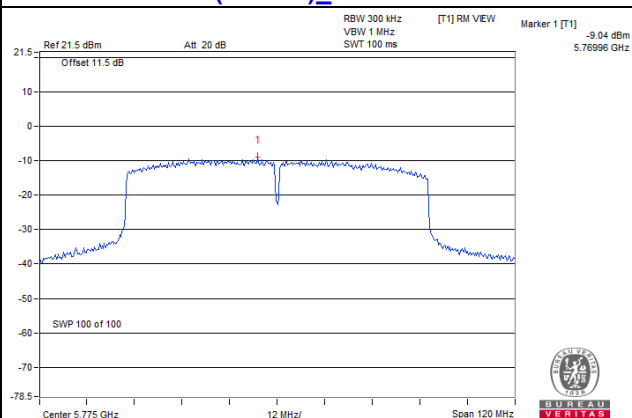
802.11ac (20MHz)_Chain 0 / CH149



802.11ac (40MHz)_Chain 0 / CH151



802.11ac (80MHz)_Chain 01 / CH155

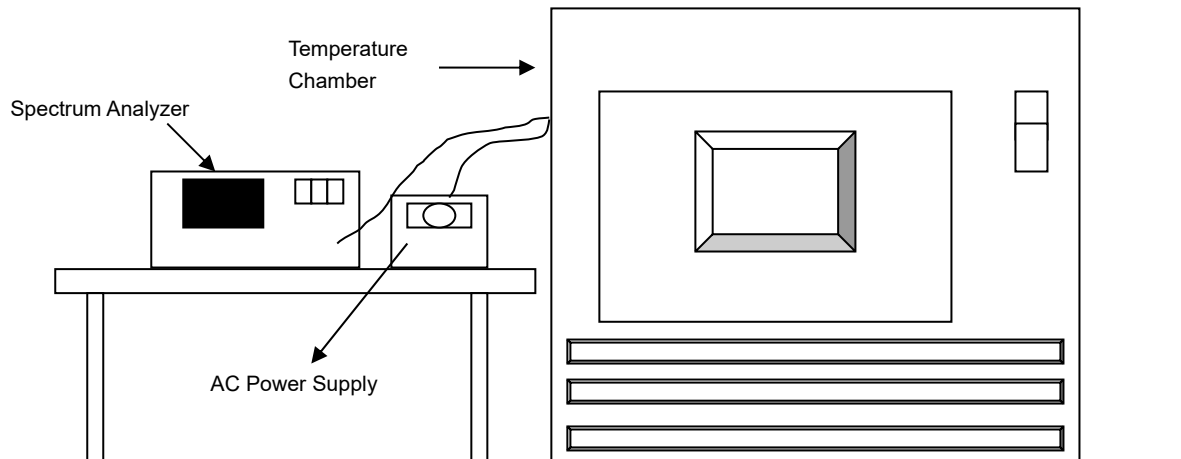


4.6 Frequency Stability Measurement

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 4.3.3 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

CDD Mode

802.11a / 802.11ac (20MHz)

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
85	120	5179.9905	Pass	5179.9864	Pass	5179.9882	Pass	5179.9867	Pass
80	120	5180.0111	Pass	5180.0094	Pass	5180.0142	Pass	5180.011	Pass
70	120	5180.0202	Pass	5180.0167	Pass	5180.0191	Pass	5180.0169	Pass
60	120	5180.0206	Pass	5180.0224	Pass	5180.0238	Pass	5180.0238	Pass
50	120	5179.9926	Pass	5179.9932	Pass	5179.9965	Pass	5179.9969	Pass
40	120	5180.0175	Pass	5180.0161	Pass	5180.0162	Pass	5180.0189	Pass
30	120	5179.9828	Pass	5179.9807	Pass	5179.9799	Pass	5179.9798	Pass
20	120	5179.9992	Pass	5179.9979	Pass	5180.001	Pass	5179.998	Pass
10	120	5179.9994	Pass	5180.0039	Pass	5180.0028	Pass	5179.9999	Pass
0	120	5180.005	Pass	5180.0072	Pass	5180.0038	Pass	5180.0053	Pass
-10	120	5180.0231	Pass	5180.0226	Pass	5180.0257	Pass	5180.0245	Pass
-20	120	5179.9885	Pass	5179.9894	Pass	5179.991	Pass	5179.9877	Pass
-30	120	5179.9912	Pass	5179.9869	Pass	5179.9907	Pass	5179.9906	Pass
-40	120	5180.006	Pass	5180.0071	Pass	5180.0057	Pass	5180.0055	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5179.9992	Pass	5179.9985	Pass	5180.0013	Pass	5179.999	Pass
	120	5179.9992	Pass	5179.9979	Pass	5180.001	Pass	5179.998	Pass
	102	5179.9983	Pass	5179.9976	Pass	5180.0013	Pass	5179.9978	Pass

802.11ac (40MHz)

Frequency Stability Versus Temp.									
Operating Frequency: 5190 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
85	120	5190.015	Pass	5190.0151	Pass	5190.0124	Pass	5190.0156	Pass
80	120	5190.0097	Pass	5190.0116	Pass	5190.0121	Pass	5190.0118	Pass
70	120	5189.9919	Pass	5189.9911	Pass	5189.9906	Pass	5189.9911	Pass
60	120	5189.9783	Pass	5189.9792	Pass	5189.9788	Pass	5189.9819	Pass
50	120	5190.0204	Pass	5190.0209	Pass	5190.0203	Pass	5190.0187	Pass
40	120	5189.9947	Pass	5189.9947	Pass	5189.991	Pass	5189.9932	Pass
30	120	5190.0229	Pass	5190.0246	Pass	5190.0244	Pass	5190.023	Pass
20	120	5190.0241	Pass	5190.0235	Pass	5190.0254	Pass	5190.0228	Pass
10	120	5189.9763	Pass	5189.9752	Pass	5189.9745	Pass	5189.9783	Pass
0	120	5189.9759	Pass	5189.9736	Pass	5189.9733	Pass	5189.9756	Pass
-10	120	5190.0147	Pass	5190.0184	Pass	5190.0157	Pass	5190.0169	Pass
-20	120	5190.0063	Pass	5190.0053	Pass	5190.0075	Pass	5190.0074	Pass
-30	120	5190.0076	Pass	5190.0092	Pass	5190.0068	Pass	5190.0119	Pass
-40	120	5189.9968	Pass	5190.0003	Pass	5190.0004	Pass	5190.0007	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5190 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5190.0248	Pass	5190.0226	Pass	5190.0258	Pass	5190.022	Pass
	120	5190.0241	Pass	5190.0235	Pass	5190.0254	Pass	5190.0228	Pass
	102	5190.0248	Pass	5190.0228	Pass	5190.0249	Pass	5190.0237	Pass

802.11ac (80MHz)

Frequency Stability Versus Temp.									
Operating Frequency: 5210MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
85	120	5209.9914	Pass	5209.9929	Pass	5209.9958	Pass	5209.9949	Pass
80	120	5210.0135	Pass	5210.0152	Pass	5210.0183	Pass	5210.0148	Pass
70	120	5209.9814	Pass	5209.9793	Pass	5209.9821	Pass	5209.9801	Pass
60	120	5210.0046	Pass	5210.0077	Pass	5210.0043	Pass	5210.0041	Pass
50	120	5210.0189	Pass	5210.022	Pass	5210.0205	Pass	5210.0205	Pass
40	120	5209.9775	Pass	5209.9785	Pass	5209.9782	Pass	5209.9753	Pass
30	120	5209.9904	Pass	5209.9914	Pass	5209.9891	Pass	5209.9893	Pass
20	120	5209.9969	Pass	5209.9936	Pass	5209.9951	Pass	5209.9926	Pass
10	120	5209.9757	Pass	5209.9753	Pass	5209.9744	Pass	5209.9763	Pass
0	120	5209.9759	Pass	5209.9741	Pass	5209.9737	Pass	5209.9768	Pass
-10	120	5209.9813	Pass	5209.9843	Pass	5209.9823	Pass	5209.9838	Pass
-20	120	5210.0242	Pass	5210.0264	Pass	5210.0259	Pass	5210.0268	Pass
-30	120	5209.9839	Pass	5209.9838	Pass	5209.9821	Pass	5209.9815	Pass
-40	120	5209.9738	Pass	5209.9766	Pass	5209.9743	Pass	5209.9734	Pass

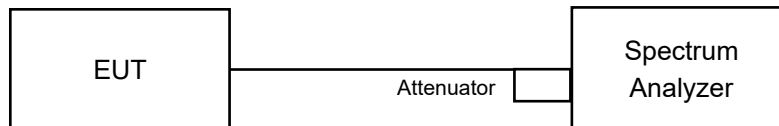
Frequency Stability Versus Voltage									
Operating Frequency: 5210MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5209.9964	Pass	5209.9932	Pass	5209.9955	Pass	5209.9921	Pass
	120	5209.9969	Pass	5209.9936	Pass	5209.9951	Pass	5209.9926	Pass
	102	5209.9959	Pass	5209.9941	Pass	5209.9957	Pass	5209.9923	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 4.3.3 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

CDD Mode

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 For U-NII-3	2.53	2.52	0.5	PASS
149	5745	15.21	15.18	0.5	PASS
157	5785	15.19	15.21	0.5	PASS
165	5825	15.20	15.21	0.5	PASS

Chain 0: 2.53MHz=5712.32MHz+15.21MHz-5725MHz

Chain 1: 2.52MHz=5712.36MHz+15.16MHz-5725MHz

802.11ac (20MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 For U-NII-3	2.52	2.52	0.5	PASS
149	5745	15.21	15.20	0.5	PASS
157	5785	15.20	15.20	0.5	PASS
165	5825	15.17	15.19	0.5	PASS

Chain 0: 2.52MHz=5712.33MHz+15.19MHz-5725MHz

Chain 1: 2.52MHz=5712.33MHz+15.19MHz-5725MHz

802.11ac (40MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 For U-NII-3	2.52	2.52	0.5	PASS
151	5755	35.19	35.19	0.5	PASS
159	5795	35.16	35.18	0.5	PASS

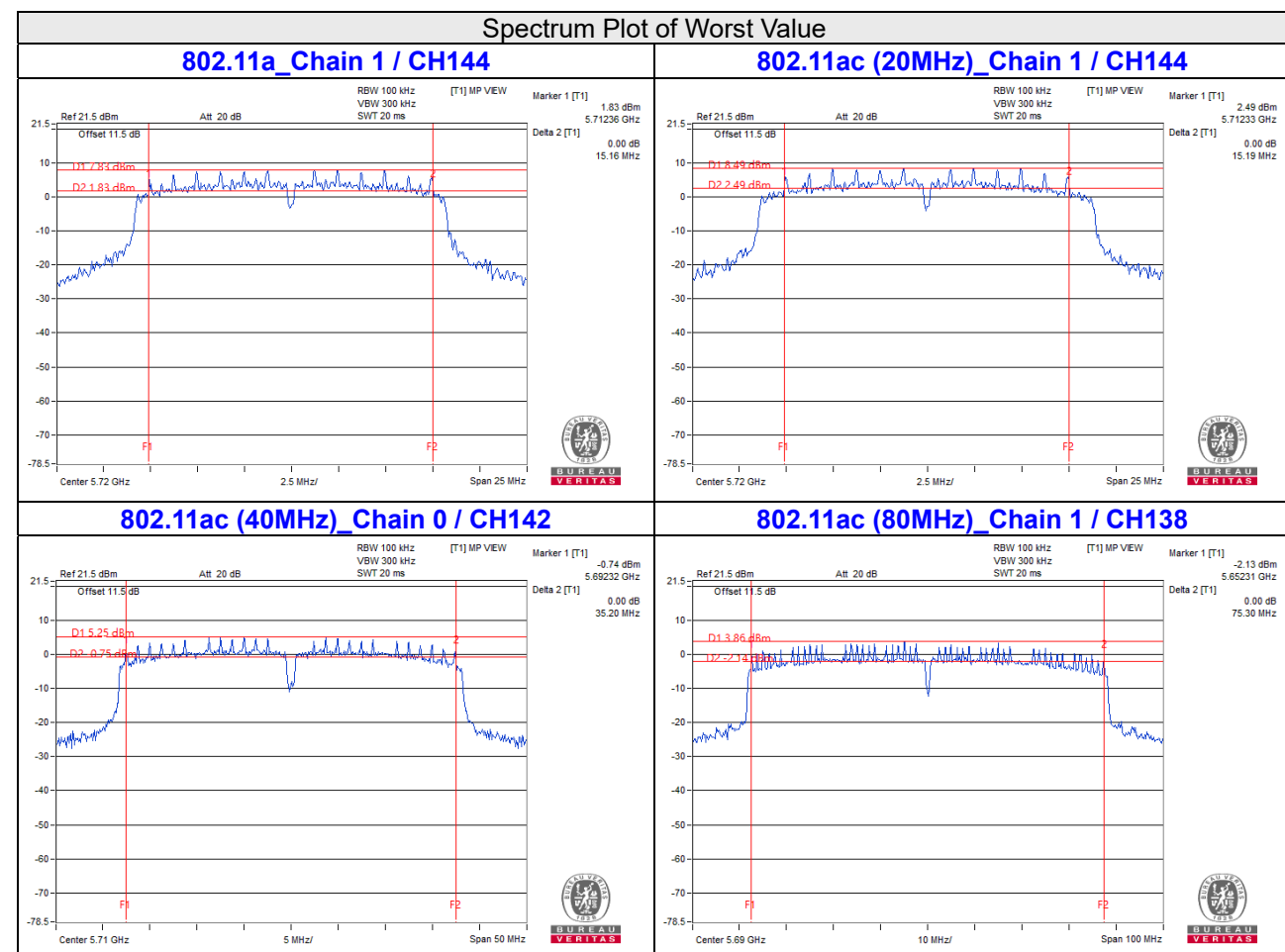
Chain 0: 2.52MHz=5692.32MHz+35.20MHz-5725MHz

Chain 1: 2.52MHz=5692.34MHz+35.18MHz-5725MHz

802.11ac (80MHz)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 For U-NII-3	2.63	2.61	0.5	PASS
155	5775	75.24	75.35	0.5	PASS

Chain 0: 2.63MHz=5652.27MHz+75.36MHz-5725MHz
Chain 1: 2.61MHz=5652.31MHz+75.30MHz-5725MHz



5 Pictures of Test Arrangements

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

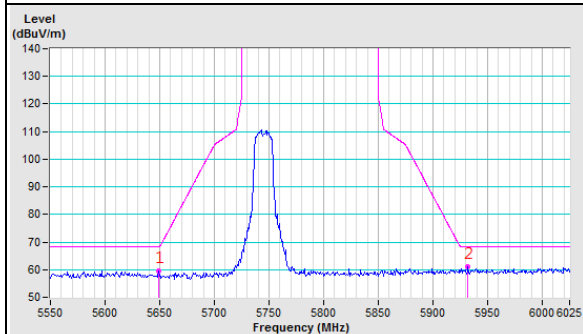
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

CDD Mode

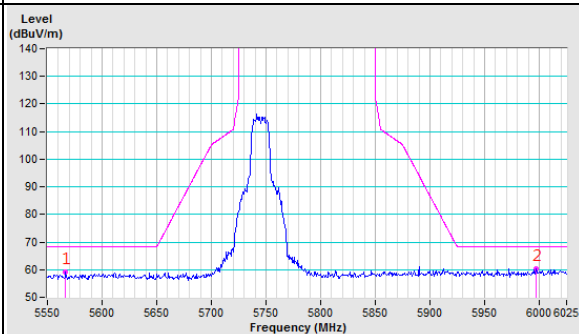
802.11a

CH149

Horizontal

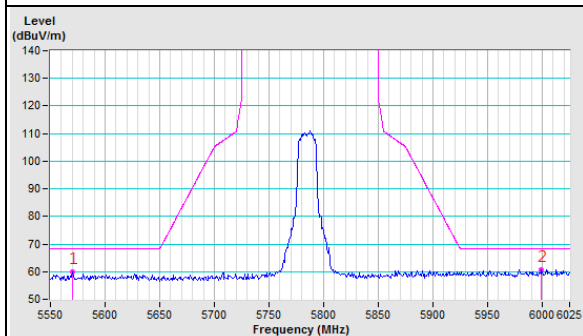


Vertical

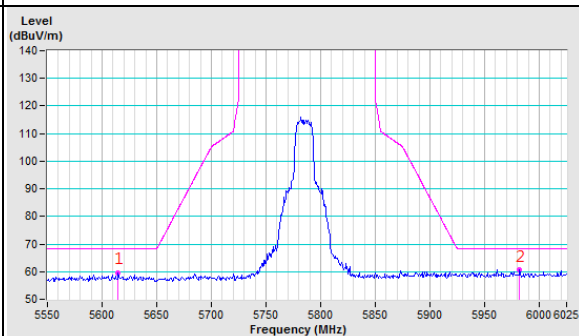


CH157

Horizontal

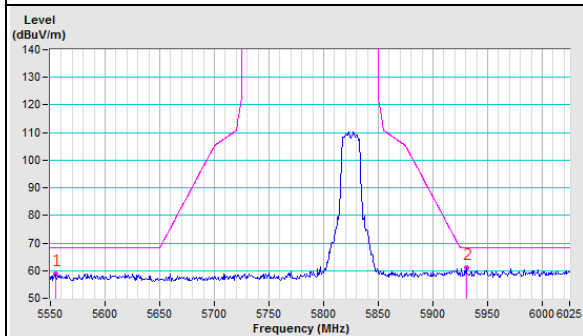


Vertical

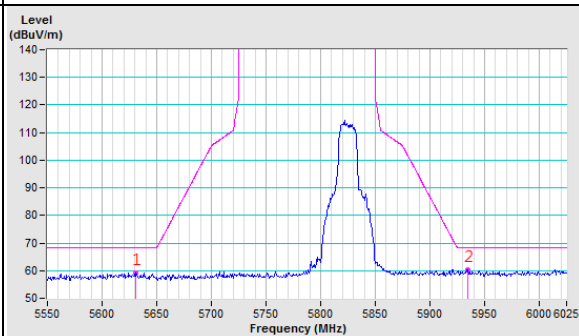


CH165

Horizontal

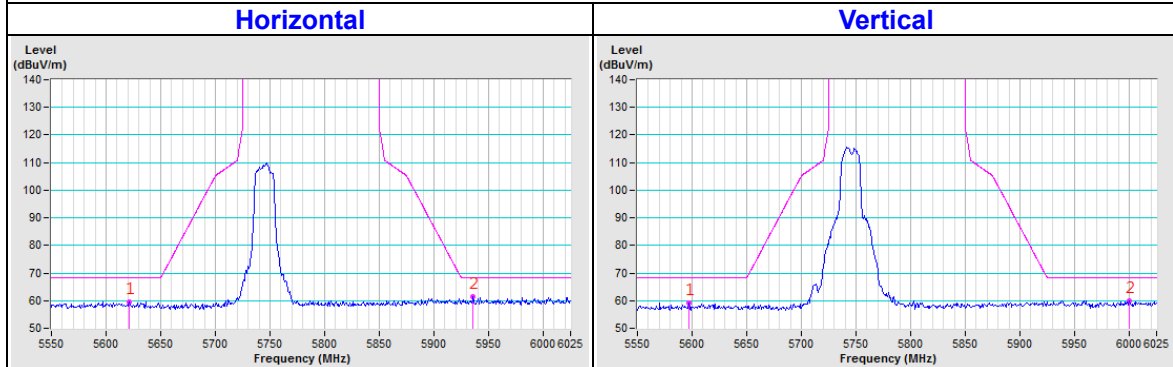


Vertical

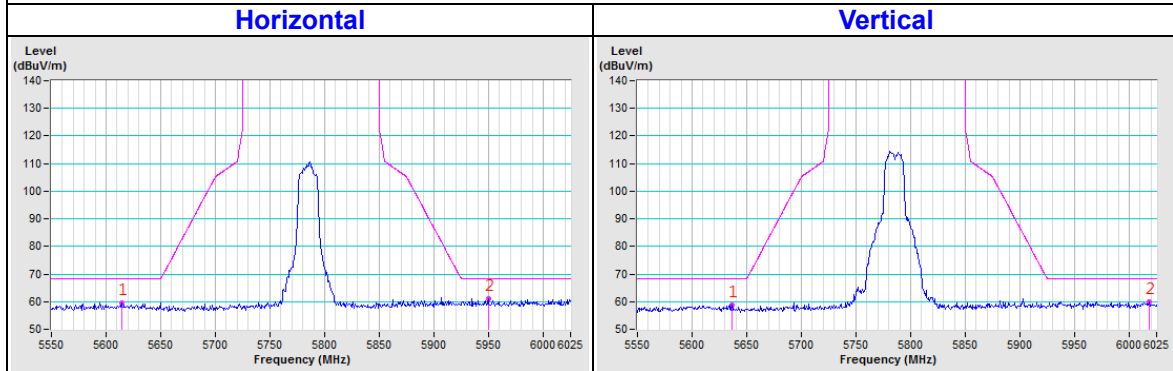


802.11ac (20MHz)

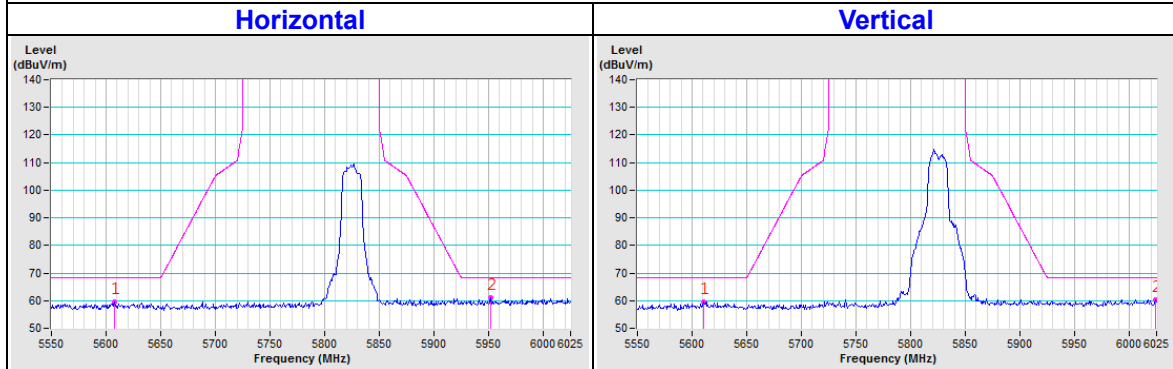
CH149



CH157

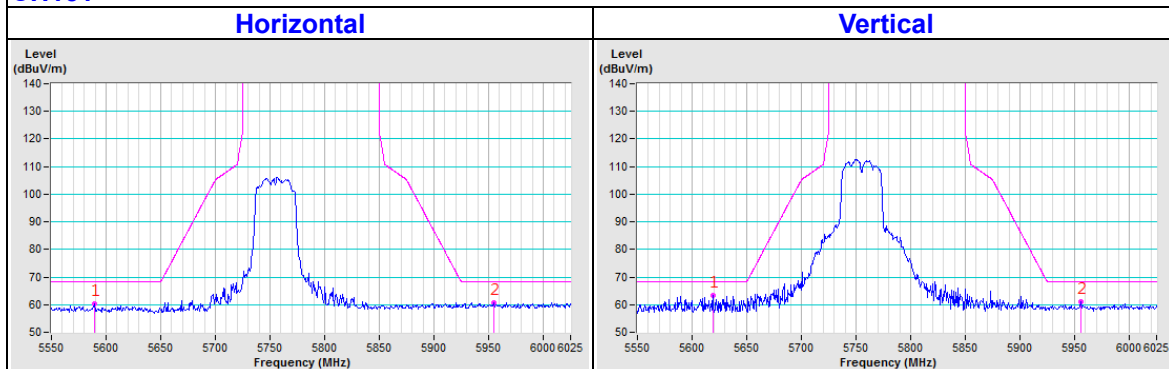


CH165

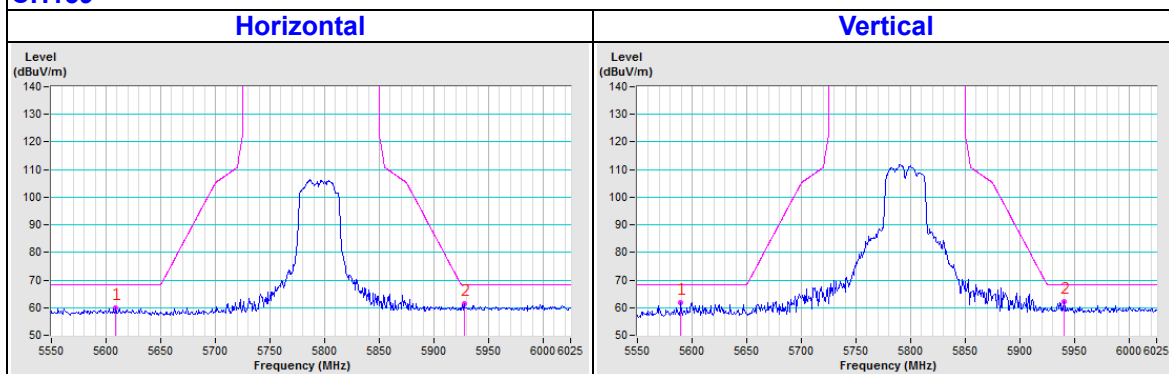


802.11ac (40MHz)

CH151

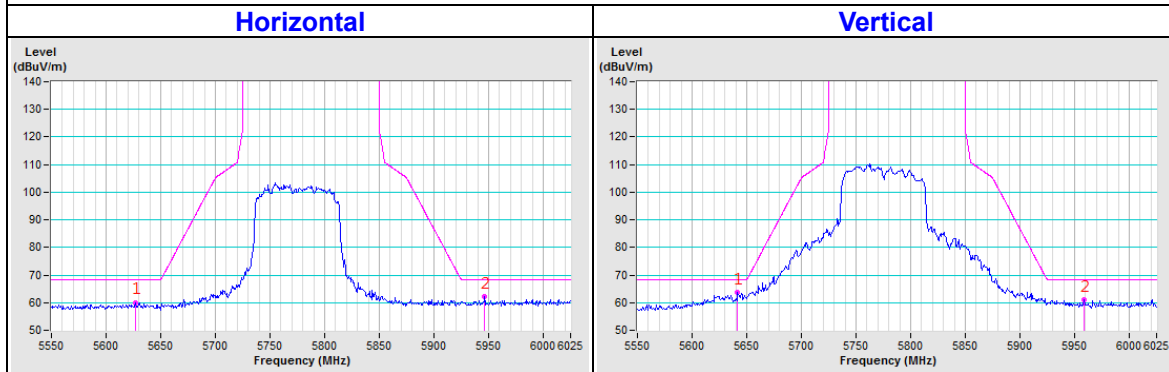


CH159



802.11ac (80MHz)

CH155



Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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Fax: 886-2-26051924

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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 ---