

FCC Test Report

Report No.: RF190514C12A

FCC ID: 2ARXKVHE10

Test Model: VHE10

Series Model: VHE10XXX (X=A-Z, 0-9, blank or "-")

Received Date: May 14, 2019

Test Date: Jun. 21 ~ Jul. 20, 2019

Issued Date: Sep. 25, 2019

Applicant: Veea Inc

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190514C12A	Original release	Sep. 25, 2019

1 Certificate of Conformity

Product: veeahub

Brand: 

Test Model: VHE10

Series Model: VHE10XXX (X=A-Z, 0-9, blank or "-")

Sample Status: Engineering sample

Applicant: Veea Inc

Test Date: Jun. 21 ~ Jul. 20, 2019

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Sep. 25, 2019
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Sep. 25, 2019
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -0.26dB at 1.49895MHz.
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 -1.1dB 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	No antenna connector is used.

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	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	veeaHub
Brand	veeaHub 
Test Model	VHE10
Series Model	VHE10XXX (X=A-Z, 0-9, blank or "-")
Model Difference	Marketing purposes
Sample Status	Engineering sample
Power Supply Rating	48Vdc (Adapter and POE)
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 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	5180~5240MHz, 5260 ~ 5320MHz, 5500 ~ 5720MHz
Number of Channel	5180 ~ 5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5720MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 12 802.11n (HT40), 802.11ac (VHT40): 6 802.11ac (VHT80): 3
Output Power	CDD Mode: 5180 ~ 5240MHz: 787.197mW 5260 ~ 5320MHz: 244.553mW 5500 ~ 5720MHz: 244.185mW Beamforming Mode: 5180 ~ 5240MHz: 599.077mW 5260 ~ 5320MHz: 151.977mW 5500 ~ 5720MHz: 152.418mW
Antenna Type	Chip antenna with 2.1dBi gain
Antenna Connector	NA
Accessory Device	Adapter
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV CPS report no.: RF190514C12-4) are adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz by software and changing module 1's antenna cable (5180 ~ 5240MHz, 5260 ~ 5320MHz Band) from 38cm to 23cm; for adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz, all test items had been tested; for changing module 1's antenna cable, only the test item of radiated emission above 1GHz test had been re-tested.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitter and 4 receivers.

Modulation Mode	Beamforming Mode	TX Function
802.11a	Not Support	4TX
802.11n (HT20)	Support	4TX
802.11n (HT40)	Support	4TX
802.11ac (VHT20)	Support	4TX
802.11ac (VHT40)	Support	4TX
802.11ac (VHT80)	Support	4TX

* The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40. After pre-testing, 802.11ac (VHT20/VHT40) power is lower than 802.11n (HT20/HT40), therefore 802.11n (HT20/HT40) is the worst case to representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

3. The EUT has two sale types.

Type	Description
A	Without LTE function, BT internal ant.
B	With LTE function, BT external ant.

4. The following RF Modules are for the EUT.

RF Module	Band
Module 1	5180 ~ 5240MHz, 5260 ~ 5320MHz
Module 2	5500 ~ 5720MHz, 5745 ~ 5825MHz
Module 3	2412 ~ 2462MHz

5. The EUT uses following adapter and POE.

Adapter	
Brand	EDACPOWER ELEC.
Model	EA1062SGR-480
Input Power	100-240Vac, 50-60Hz, 2.5A
Output Power	48Vdc, 1.35A
Power Line	1.2m DC cable with one core

POE (Support unit)	
Model	APOE02-WM
Output Power	48Vdc

6. WLAN, zigbee and Bluetooth technology can transmit at same time.

3.2 Description of Test Modes

For 5180 ~ 5240MHz:

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

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

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

For 5260 ~ 5320MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

For 5500 ~ 5720MHz:

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

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 (HT40), 802.11ac (VHT40):

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

3 channels are provided for 802.11ac (VHT80):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	√	√	-	Power from POE

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane for U-NII-2A Band and Y-plane for U-NII-2C Band**.
2. Radiated emission test (below 1GHz) and power line conducted emission test items chosen the worst maximum power.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11n (HT40)	5260-5320	54 to 62	62	OFDM	6.0
A, B	802.11n (HT40)	5500-5720	102 to 142	110	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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11n (HT40)	5260-5320	54 to 62	62	OFDM	6.0
A, B	802.11n (HT40)	5500-5720	102 to 142	110	OFDM	6.0

Transmit Power Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	29.3

Occupied Bandwidth, Peak Power Spectral Densit, Frequency Stability and 6dB Bandwidth Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5720	100 to 144	100, 116, 140, 144	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140, 144	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134, 142	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122, 138	OFDM	29.3

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 70% RH 26 deg. C, 70% RH	120Vac, 60Hz	Willy Cheng
RE<1G	25 deg. C, 68% RH	120Vac, 60Hz 48Vdc	Willy Cheng
PLC	21 deg. C, 61% RH	120Vac, 60Hz 48Vdc	Willy Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

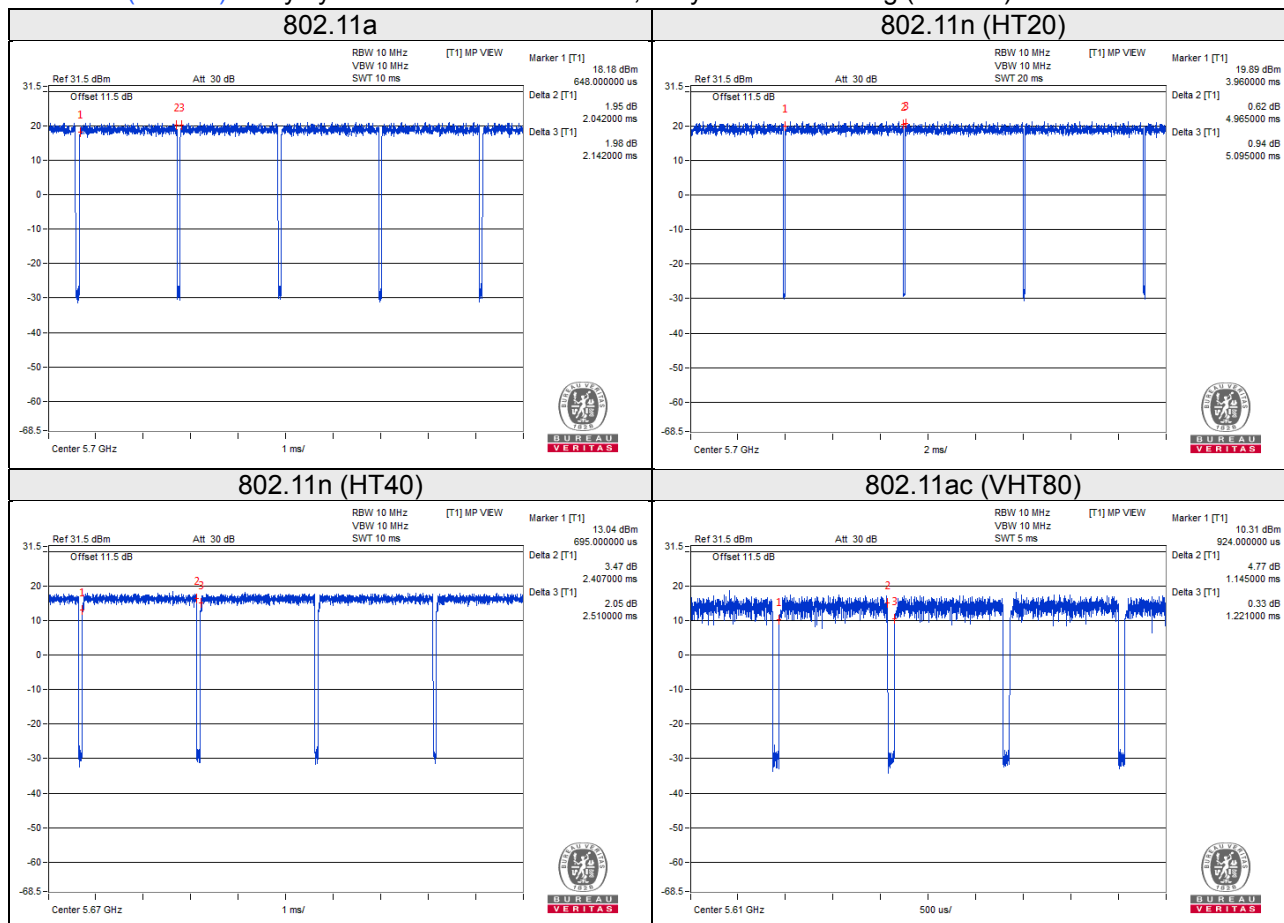
Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = $2.042/2.142 = 0.953$, Duty factor = $10 * \log(1/0.953) = 0.21$

802.11n (HT20): Duty cycle = $4.965/5.095 = 0.974$, Duty factor = $10 * \log(1/0.974) = 0.11$

802.11n (HT40): Duty cycle = $2.407/2.510 = 0.959$, Duty factor = $10 * \log(1/0.959) = 0.18$

802.11ac (VHT80): Duty cycle = $1.145/1.221 = 0.938$, Duty factor = $10 * \log(1/0.938) = 0.28$



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	USB Flash	HP	v250W	03	NA	-
D.	USB Flash	HP	v250W	05	NA	-
E.	USB Flash	HP	v250W	09	NA	-
F.	POE	NA	APOE02-WM	NA	NA	Provided by manufacturer

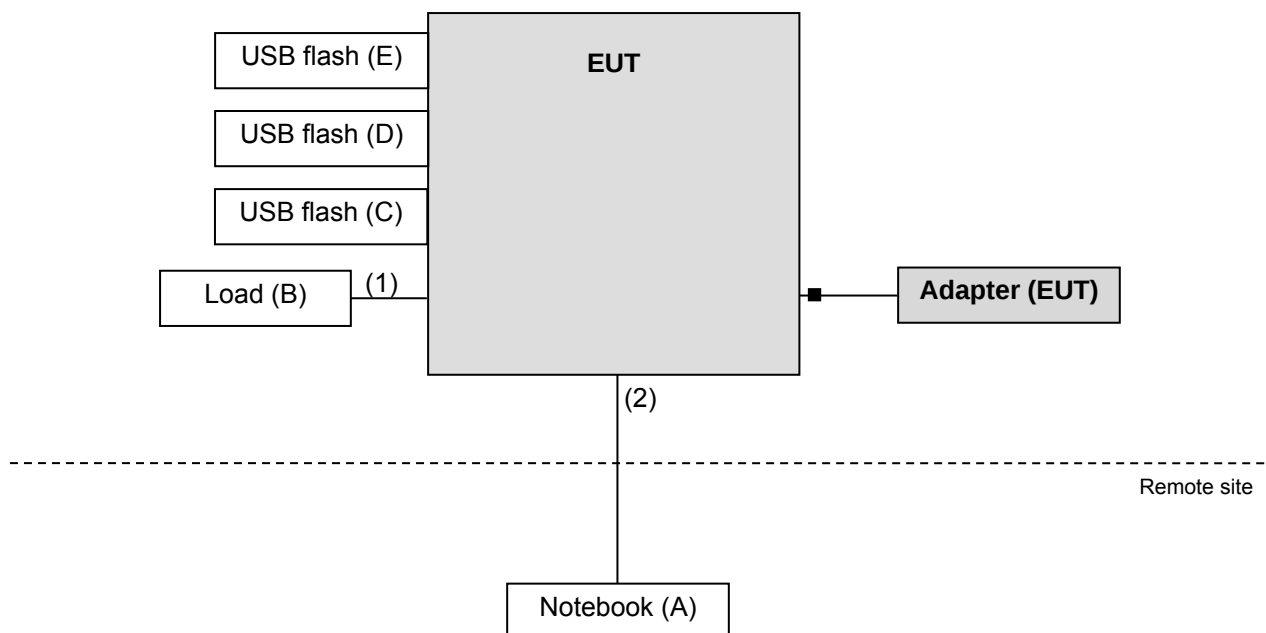
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

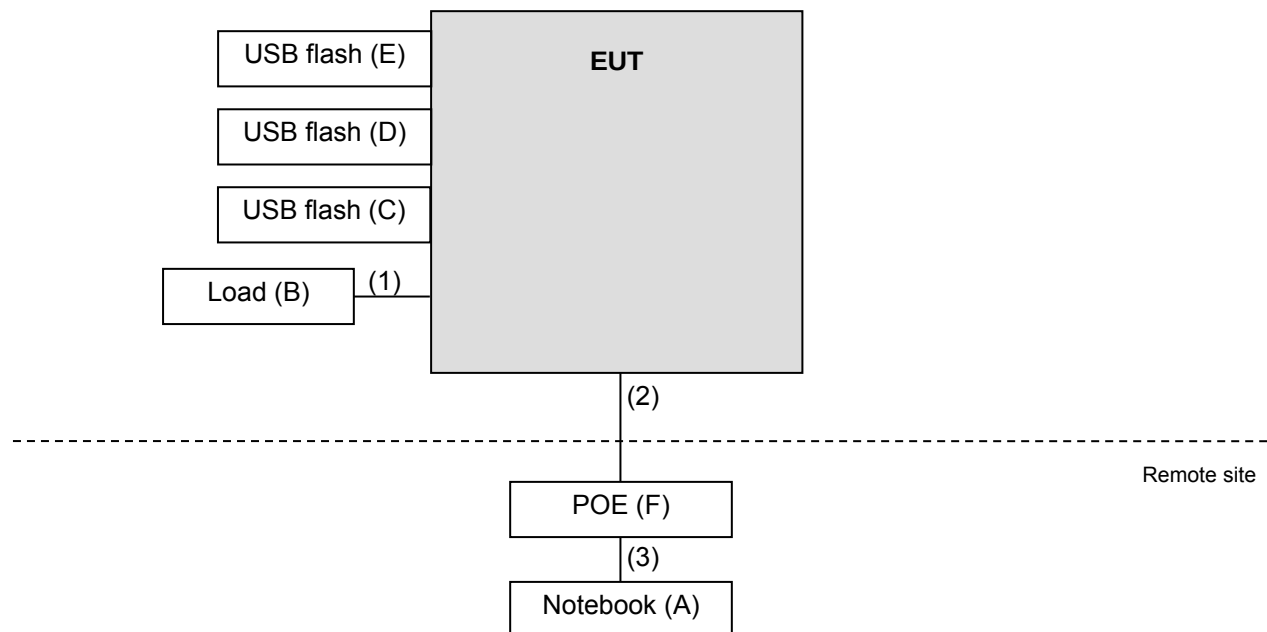
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45 cable	1	1.5	N	0	Cat5e
2.	RJ45 cable	1	5	N	0	Cat5e
3.	RJ45 cable	1	1.5	N	0	Cat5e

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards

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:

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

Limits of unwanted emission out of the restricted bands

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 30, 2019	May 29, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 22, 2018	Nov. 21, 2019
HORN Antenna SCHWARZBECK	9120D	209	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna EMCI	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2018	Aug. 20, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 27, 2019	Mar. 26, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2018	Aug. 20, 2019
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Aug. 21, 2018	Aug. 20, 2019
RF signal cable WOKEN	8D-FB	Cable-CH3-01	Aug. 21, 2018	Aug. 20, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2018	Nov. 13, 2019
Peak Power Analyzer KEYSIGHT (Support 8TX 160M Bandwidth)	8990B	MY51000485	Jan. 14, 2019	Jan. 13, 2020
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519 0004/MY55190007/MY 55210005	Jul. 17, 2018 Jul. 15, 2019	Jul. 16, 2019 Jul. 14, 2020

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

Note:

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

For Radiated emission above 30MHz

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

Note:

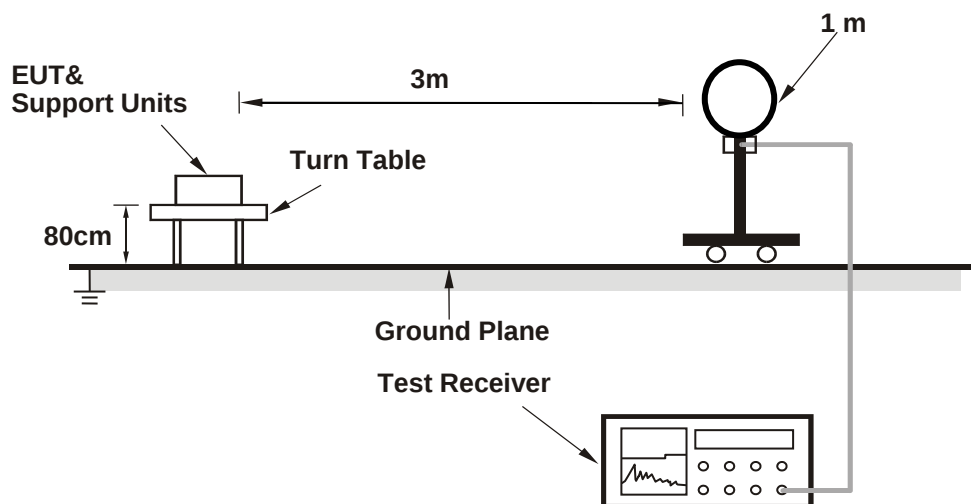
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
(802.11a: RBW = 1MHz, VBW = 1kHz; 802.11n (HT20): RBW = 1MHz, VBW = 1kHz;
802.11n (HT40): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT80): RBW = 1MHz, VBW = 1kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

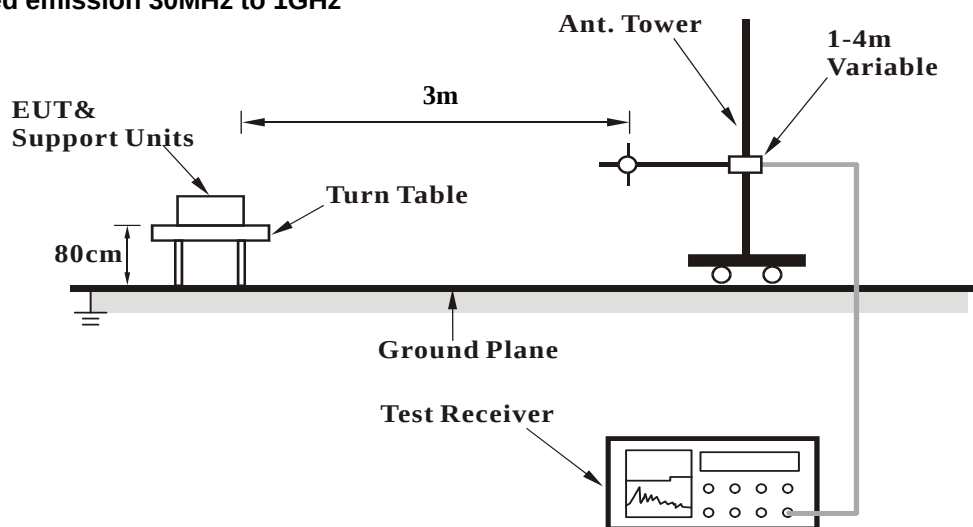
No deviation.

4.1.5 Test Setup

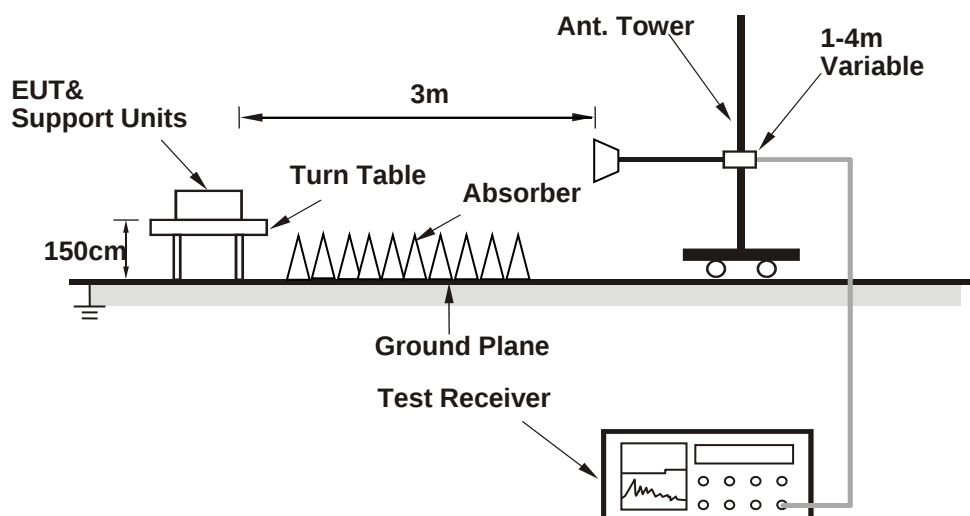
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (QRCT V3.0.264.0) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz data:

802.11a

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

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	67.7 PK	74.0	-6.3	1.43 H	22	63.5	4.2
2	5150.00	52.5 AV	54.0	-1.5	1.43 H	22	48.3	4.2
3	*5180.00	117.5 PK			1.60 H	17	78.1	39.4
4	*5180.00	106.7 AV			1.60 H	17	67.3	39.4
5	#10360.00	59.8 PK	68.2	-8.4	1.81 H	150	42.3	17.5
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	68.3 PK	74.0	-5.7	1.53 V	10	64.1	4.2
2	5150.00	52.9 AV	54.0	-1.1	1.53 V	10	48.7	4.2
3	*5180.00	119.0 PK			1.35 V	15	79.6	39.4
4	*5180.00	108.3 AV			1.35 V	15	68.9	39.4
5	#10360.00	59.4 PK	68.2	-8.8	1.85 V	15	41.9	17.5

Remarks:

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

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

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	62.7 PK	74.0	-11.3	1.60 H	60	58.5	4.2
2	5150.00	48.2 AV	54.0	-5.8	1.60 H	60	44.0	4.2
3	*5200.00	120.1 PK			1.63 H	52	80.8	39.3
4	*5200.00	108.8 AV			1.63 H	52	69.5	39.3
5	#10400.00	59.7 PK	68.2	-8.5	2.53 H	166	42.1	17.6
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	65.6 PK	74.0	-8.4	1.69 V	355	61.4	4.2
2	5150.00	52.5 AV	54.0	-1.5	1.69 V	355	48.3	4.2
3	*5200.00	119.5 PK			1.44 V	359	80.2	39.3
4	*5200.00	109.1 AV			1.44 V	359	69.8	39.3
5	#10400.00	59.4 PK	68.2	-8.8	2.48 V	177	41.8	17.6

Remarks:

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

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

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	120.6 PK			1.66 H	30	81.5	39.1
2	*5240.00	109.3 AV			1.66 H	30	70.2	39.1
3	5350.00	57.1 PK	74.0	-16.9	1.66 H	44	53.0	4.1
4	5350.00	43.5 AV	54.0	-10.5	1.66 H	44	39.4	4.1
5	#10480.00	60.5 PK	68.2	-7.7	1.85 H	222	42.1	18.4
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	121.1 PK			1.43 V	11	82.0	39.1
2	*5240.00	110.2 AV			1.43 V	11	71.1	39.1
3	5350.00	57.1 PK	74.0	-16.9	1.66 V	22	53.0	4.1
4	5350.00	43.7 AV	54.0	-10.3	1.66 V	22	39.6	4.1
5	#10480.00	60.1 PK	68.2	-8.1	1.75 V	288	41.7	18.4

Remarks:

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

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

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	56.0 PK	74.0	-18.0	1.99 H	62	51.6	4.4
2	5150.00	43.4 AV	54.0	-10.6	1.99 H	62	39.0	4.4
3	*5260.00	114.0 PK			1.80 H	42	74.7	39.3
4	*5260.00	102.6 AV			1.80 H	42	63.3	39.3
5	#10520.00	59.0 PK	68.2	-9.2	1.96 H	237	41.7	17.3

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	56.4 PK	74.0	-17.6	1.60 V	359	52.0	4.4
2	5150.00	44.2 AV	54.0	-9.8	1.60 V	359	39.8	4.4
3	*5260.00	113.7 PK			1.51 V	351	74.4	39.3
4	*5260.00	102.9 AV			1.51 V	351	63.6	39.3
5	#10520.00	59.1 PK	68.2	-9.1	1.69 V	238	41.8	17.3

Remarks:

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

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

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	113.3 PK			1.73 H	36	74.0	39.3
2	*5300.00	102.0 AV			1.73 H	36	62.7	39.3
3	10600.00	59.8 PK	74.0	-14.2	1.83 H	262	42.0	17.8
4	10600.00	46.6 AV	54.0	-7.4	1.83 H	262	28.8	17.8
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	114.6 PK			1.37 V	25	75.3	39.3
2	*5300.00	103.3 AV			1.37 V	25	64.0	39.3
3	10600.00	60.8 PK	74.0	-13.2	2.11 V	3	43.0	17.8
4	10600.00	47.5 AV	54.0	-6.5	2.11 V	3	29.7	17.8

Remarks:

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

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

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	113.9 PK			1.70 H	36	74.6	39.3
2	*5320.00	102.9 AV			1.70 H	36	63.6	39.3
3	5350.00	56.9 PK	74.0	-17.1	1.67 H	46	52.6	4.3
4	5350.00	44.1 AV	54.0	-9.9	1.67 H	46	39.8	4.3
5	10640.00	59.4 PK	74.0	-14.6	2.31 H	256	41.8	17.6
6	10640.00	45.6 AV	54.0	-8.4	2.31 H	256	28.0	17.6
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	115.1 PK			1.58 V	7	75.8	39.3
2	*5320.00	104.0 AV			1.58 V	7	64.7	39.3
3	5350.00	56.6 PK	74.0	-17.4	1.62 V	354	52.3	4.3
4	5350.00	44.1 AV	54.0	-9.9	1.62 V	354	39.8	4.3
5	10620.00	59.5 PK	74.0	-14.5	1.57 V	6	41.8	17.7
6	10620.00	46.2 AV	54.0	-7.8	1.57 V	6	28.5	17.7

Remarks:

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

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

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	59.2 PK	74.0	-14.8	2.31 H	359	54.6	4.6
2	5460.00	46.8 AV	54.0	-7.2	2.31 H	359	42.2	4.6
3	#5470.00	62.6 PK	68.2	-5.6	2.07 H	18	58.0	4.6
4	*5500.00	118.7 PK			2.00 H	15	78.9	39.8
5	*5500.00	107.6 AV			2.00 H	15	67.8	39.8
6	11000.00	60.2 PK	74.0	-13.8	1.12 H	23	41.5	18.7
7	11000.00	47.2 AV	54.0	-6.8	1.12 H	23	28.5	18.7
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	57.4 PK	74.0	-16.6	2.08 V	34	52.8	4.6
2	5460.00	45.9 AV	54.0	-8.1	2.08 V	34	41.3	4.6
3	#5470.00	60.9 PK	68.2	-7.3	1.64 V	35	56.3	4.6
4	*5500.00	117.7 PK			1.96 V	20	77.9	39.8
5	*5500.00	106.9 AV			1.96 V	20	67.1	39.8
6	11000.00	60.0 PK	74.0	-14.0	2.56 V	283	41.3	18.7
7	11000.00	46.2 AV	54.0	-7.8	2.56 V	283	27.5	18.7

Remarks:

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

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

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	117.5 PK			1.51 H	299	77.7	39.8
2	*5580.00	106.8 AV			1.51 H	299	67.0	39.8
3	11160.00	60.3 PK	74.0	-13.7	2.06 H	19	42.5	17.8
4	11160.00	48.2 AV	54.0	-5.8	2.06 H	19	30.4	17.8
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	117.4 PK			1.88 V	53	77.6	39.8
2	*5580.00	106.7 AV			1.88 V	53	66.9	39.8
3	11160.00	59.1 PK	74.0	-14.9	2.21 V	125	41.3	17.8
4	11160.00	46.7 AV	54.0	-7.3	2.21 V	125	28.9	17.8

Remarks:

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

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

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	116.2 PK			1.34 H	325	76.4	39.8
2	*5700.00	105.3 AV			1.34 H	325	65.5	39.8
3	#5725.00	63.4 PK	68.2	-4.8	1.29 H	298	58.7	4.7
4	11400.00	60.3 PK	74.0	-13.7	1.71 H	10	42.6	17.7
5	11400.00	46.5 AV	54.0	-7.5	1.71 H	10	28.8	17.7
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	115.4 PK			1.16 V	53	75.6	39.8
2	*5700.00	104.5 AV			1.16 V	53	64.7	39.8
3	#5725.00	61.6 PK	68.2	-6.6	1.38 V	64	56.9	4.7
4	11400.00	59.7 PK	74.0	-14.3	2.52 V	188	42.0	17.7
5	11400.00	46.0 AV	54.0	-8.0	2.52 V	188	28.3	17.7

Remarks:

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

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

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	54.2 PK	74.0	-19.8	1.55 H	258	49.6	4.6
2	5460.00	43.5 AV	54.0	-10.5	1.55 H	258	38.9	4.6
3	#5470.00	56.1 PK	68.2	-12.1	1.65 H	203	51.5	4.6
4	*5720.00	116.3 PK			1.53 H	298	76.3	40.0
5	*5720.00	105.4 AV			1.53 H	298	65.4	40.0
6	#5850.00	58.2 PK	68.2	-10.0	1.69 H	283	52.9	5.3
7	11440.00	60.0 PK	74.0	-14.0	1.28 H	19	42.2	17.8
8	11440.00	46.7 AV	54.0	-7.3	1.28 H	19	28.9	17.8
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	54.8 PK	74.0	-19.2	1.58 V	55	50.2	4.6
2	5460.00	43.1 AV	54.0	-10.9	1.58 V	55	38.5	4.6
3	#5470.00	55.7 PK	68.2	-12.5	1.55 V	78	51.1	4.6
4	*5720.00	115.4 PK			1.02 V	49	75.4	40.0
5	*5720.00	103.6 AV			1.02 V	49	63.6	40.0
6	#5850.00	57.1 PK	68.2	-11.1	1.53 V	69	51.8	5.3
7	11440.00	59.6 PK	74.0	-14.4	2.82 V	264	41.8	17.8
8	11440.00	46.1 AV	54.0	-7.9	2.82 V	264	28.3	17.8

Remarks:

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

802.11n (HT20)

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

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	65.0 PK	74.0	-9.0	1.60 H	61	60.8	4.2
2	5150.00	49.6 AV	54.0	-4.4	1.60 H	61	45.4	4.2
3	*5180.00	118.3 PK			1.66 H	51	78.9	39.4
4	*5180.00	107.4 AV			1.66 H	51	68.0	39.4
5	#10360.00	58.1 PK	68.2	-10.1	2.81 H	222	40.6	17.5
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	67.0 PK	74.0	-7.0	1.53 V	11	62.8	4.2
2	5150.00	53.0 AV	54.0	-1.0	1.53 V	11	48.8	4.2
3	*5180.00	118.4 PK			1.39 V	15	79.0	39.4
4	*5180.00	107.6 AV			1.39 V	15	68.2	39.4
5	#10360.00	57.9 PK	68.2	-10.3	1.85 V	250	40.4	17.5

Remarks:

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

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

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	62.0 PK	74.0	-12.0	1.60 H	50	57.8	4.2
2	5150.00	48.9 AV	54.0	-5.1	1.60 H	50	44.7	4.2
3	*5200.00	119.9 PK			1.53 H	33	80.6	39.3
4	*5200.00	108.3 AV			1.53 H	33	69.0	39.3
5	#10400.00	58.4 PK	68.2	-9.8	2.50 H	202	40.8	17.6
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	67.2 PK	74.0	-6.8	1.57 V	350	63.0	4.2
2	5150.00	52.0 AV	54.0	-2.0	1.57 V	350	47.8	4.2
3	*5200.00	120.3 PK			1.43 V	10	81.0	39.3
4	*5200.00	109.0 AV			1.43 V	10	69.7	39.3
5	#10400.00	58.4 PK	68.2	-9.8	1.85 V	299	40.8	17.6

Remarks:

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

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

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	120.0 PK			1.66 H	40	80.9	39.1
2	*5240.00	108.8 AV			1.66 H	40	69.7	39.1
3	5350.00	46.3 PK	74.0	-27.7	1.57 H	33	42.2	4.1
4	5350.00	43.5 AV	54.0	-10.5	1.57 H	33	39.4	4.1
5	#10480.00	59.6 PK	68.2	-8.6	2.50 H	199	41.2	18.4
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	120.7 PK			1.40 V	10	81.6	39.1
2	*5240.00	110.1 AV			1.40 V	10	71.0	39.1
3	5350.00	56.7 PK	74.0	-17.3	1.35 V	7	52.6	4.1
4	5350.00	43.5 AV	54.0	-10.5	1.35 V	7	39.4	4.1
5	#10480.00	59.9 PK	68.2	-8.3	1.74 V	250	41.5	18.4

Remarks:

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

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

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	56.0 PK	74.0	-18.0	1.99 H	179	51.6	4.4
2	5150.00	43.6 AV	54.0	-10.4	1.99 H	179	39.2	4.4
3	*5260.00	113.3 PK			1.74 H	37	74.0	39.3
4	*5260.00	102.2 AV			1.74 H	37	62.9	39.3
5	#10520.00	58.9 PK	68.2	-9.3	2.35 H	198	41.6	17.3

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	56.4 PK	74.0	-17.6	1.63 V	355	52.0	4.4
2	5150.00	44.0 AV	54.0	-10.0	1.63 V	355	39.6	4.4
3	*5260.00	113.7 PK			1.55 V	7	74.4	39.3
4	*5260.00	103.2 AV			1.55 V	7	63.9	39.3
5	#10520.00	58.9 PK	68.2	-9.3	1.66 V	261	41.6	17.3

Remarks:

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

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

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	113.8 PK			1.72 H	36	74.5	39.3
2	*5300.00	102.1 AV			1.72 H	36	62.8	39.3
3	10600.00	60.8 PK	74.0	-13.2	1.69 H	232	43.0	17.8
4	10600.00	46.4 AV	54.0	-7.6	1.69 H	232	28.6	17.8
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	113.4 PK			1.33 V	7	74.1	39.3
2	*5300.00	103.0 AV			1.33 V	7	63.7	39.3
3	10600.00	59.4 PK	74.0	-14.6	1.63 V	231	41.6	17.8
4	10600.00	46.7 AV	54.0	-7.3	1.63 V	231	28.9	17.8

Remarks:

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

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

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	114.3 PK			1.70 H	37	75.0	39.3
2	*5320.00	102.9 AV			1.70 H	37	63.6	39.3
3	5350.00	58.1 PK	74.0	-15.9	1.81 H	44	53.8	4.3
4	5350.00	44.9 AV	54.0	-9.1	1.81 H	44	40.6	4.3
5	10640.00	59.2 PK	74.0	-14.8	1.65 H	236	41.6	17.6
6	10640.00	45.5 AV	54.0	-8.5	1.65 H	236	27.9	17.6
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	114.6 PK			1.53 V	8	75.3	39.3
2	*5320.00	104.1 AV			1.53 V	8	64.8	39.3
3	5350.00	56.6 PK	74.0	-17.4	1.67 V	351	52.3	4.3
4	5350.00	43.8 AV	54.0	-10.2	1.67 V	351	39.5	4.3
5	10640.00	60.4 PK	74.0	-13.6	2.13 V	265	42.8	17.6
6	10640.00	47.1 AV	54.0	-6.9	2.13 V	265	29.5	17.6

Remarks:

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

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

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	60.3 PK	74.0	-13.7	2.15 H	351	55.7	4.6
2	5460.00	47.5 AV	54.0	-6.5	2.15 H	351	42.9	4.6
3	#5470.00	63.0 PK	68.2	-5.2	2.27 H	19	58.4	4.6
4	*5500.00	119.0 PK			2.12 H	18	79.2	39.8
5	*5500.00	107.8 AV			2.12 H	18	68.0	39.8
6	11000.00	60.2 PK	74.0	-13.8	1.43 H	57	41.5	18.7
7	11000.00	46.7 AV	54.0	-7.3	1.43 H	57	28.0	18.7
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	59.9 PK	74.0	-14.1	1.38 V	44	55.3	4.6
2	5460.00	47.8 AV	54.0	-6.2	1.38 V	44	43.2	4.6
3	#5470.00	62.9 PK	68.2	-5.3	1.27 V	53	58.3	4.6
4	*5500.00	118.1 PK			1.09 V	51	78.3	39.8
5	*5500.00	106.6 AV			1.09 V	51	66.8	39.8
6	11000.00	60.0 PK	74.0	-14.0	2.36 V	225	41.3	18.7
7	11000.00	46.5 AV	54.0	-7.5	2.36 V	225	27.8	18.7

Remarks:

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

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

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	118.1 PK			1.51 H	298	78.3	39.8
2	*5580.00	106.9 AV			1.51 H	298	67.1	39.8
3	11160.00	60.8 PK	74.0	-13.2	1.77 H	36	43.0	17.8
4	11160.00	47.6 AV	54.0	-6.4	1.77 H	36	29.8	17.8
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	118.1 PK			1.10 V	49	78.3	39.8
2	*5580.00	106.4 AV			1.10 V	49	66.6	39.8
3	11160.00	59.9 PK	74.0	-14.1	2.26 V	218	42.1	17.8
4	11160.00	46.3 AV	54.0	-7.7	2.26 V	218	28.5	17.8

Remarks:

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

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

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	116.9 PK			1.43 H	296	77.1	39.8
2	*5700.00	105.6 AV			1.43 H	296	65.8	39.8
3	#5725.00	62.9 PK	68.2	-5.3	1.29 H	297	58.2	4.7
4	11400.00	59.7 PK	74.0	-14.3	1.38 H	15	42.0	17.7
5	11400.00	47.0 AV	54.0	-7.0	1.38 H	15	29.3	17.7
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	114.7 PK			1.44 V	11	74.9	39.8
2	*5700.00	103.6 AV			1.44 V	11	63.8	39.8
3	#5725.00	60.3 PK	68.2	-7.9	1.29 V	55	55.6	4.7
4	11400.00	59.0 PK	74.0	-15.0	2.36 V	225	41.3	17.7
5	11400.00	46.6 AV	54.0	-7.4	2.36 V	225	28.9	17.7

Remarks:

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

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

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	56.6 PK	74.0	-17.4	1.63 H	285	52.0	4.6
2	5460.00	43.3 AV	54.0	-10.7	1.63 H	285	38.7	4.6
3	#5470.00	57.4 PK	68.2	-10.8	1.58 H	301	52.8	4.6
4	*5720.00	117.0 PK			1.54 H	297	77.0	40.0
5	*5720.00	105.7 AV			1.54 H	297	65.7	40.0
6	#5850.00	58.5 PK	68.2	-9.7	1.66 H	284	53.2	5.3
7	11440.00	60.6 PK	74.0	-13.4	1.47 H	12	42.8	17.8
8	11440.00	47.0 AV	54.0	-7.0	1.47 H	12	29.2	17.8
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	56.2 PK	74.0	-17.8	1.96 V	58	51.6	4.6
2	5460.00	42.8 AV	54.0	-11.2	1.96 V	58	38.2	4.6
3	#5470.00	56.7 PK	68.2	-11.5	2.18 V	66	52.1	4.6
4	*5720.00	114.8 PK			1.77 V	47	74.8	40.0
5	*5720.00	103.5 AV			1.77 V	47	63.5	40.0
6	#5850.00	58.3 PK	68.2	-9.9	2.39 V	284	53.0	5.3
7	11440.00	59.9 PK	74.0	-14.1	2.43 V	221	42.1	17.8
8	11440.00	46.7 AV	54.0	-7.3	2.43 V	221	28.9	17.8

Remarks:

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

802.11n (HT40)

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

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	66.6 PK	74.0	-7.4	2.55 H	53	62.4	4.2
2	5150.00	52.5 AV	54.0	-1.5	2.55 H	53	48.3	4.2
3	*5190.00	114.1 PK			1.77 H	33	74.8	39.3
4	*5190.00	103.6 AV			1.77 H	33	64.3	39.3
5	#10380.00	58.4 PK	68.2	-9.8	2.47 H	233	40.7	17.7
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	67.9 PK	74.0	-6.1	3.00 V	354	63.7	4.2
2	5150.00	53.0 AV	54.0	-1.0	3.00 V	354	48.8	4.2
3	*5190.00	114.8 PK			1.59 V	10	75.5	39.3
4	*5190.00	104.3 AV			1.59 V	10	65.0	39.3
5	#10380.00	58.1 PK	68.2	-10.1	1.99 V	233	40.4	17.7

Remarks:

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

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

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	63.3 PK	74.0	-10.7	1.83 H	15	59.1	4.2
2	5150.00	49.9 AV	54.0	-4.1	1.83 H	15	45.7	4.2
3	*5230.00	114.2 PK			1.60 H	40	75.1	39.1
4	*5230.00	103.5 AV			1.60 H	40	64.4	39.1
5	5350.00	56.5 PK	74.0	-17.5	1.75 H	351	52.4	4.1
6	5350.00	43.6 AV	54.0	-10.4	1.75 H	351	39.5	4.1
7	#10460.00	58.8 PK	68.2	-9.4	1.75 H	250	40.6	18.2
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	66.9 PK	74.0	-7.1	3.31 V	12	62.7	4.2
2	5150.00	52.5 AV	54.0	-1.5	3.31 V	12	48.3	4.2
3	*5230.00	115.3 PK			1.53 V	10	76.2	39.1
4	*5230.00	105.2 AV			1.53 V	10	66.1	39.1
5	5350.00	57.5 PK	74.0	-16.5	2.91 V	351	53.4	4.1
6	5350.00	43.6 AV	54.0	-10.4	2.91 V	351	39.5	4.1
7	#10460.00	59.8 PK	68.2	-8.4	2.01 V	222	41.6	18.2

Remarks:

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

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

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	55.9 PK	74.0	-18.1	1.82 H	55	51.5	4.4
2	5150.00	43.7 AV	54.0	-10.3	1.82 H	55	39.3	4.4
3	*5270.00	110.2 PK			1.66 H	38	70.9	39.3
4	*5270.00	100.0 AV			1.66 H	38	60.7	39.3
5	#10540.00	59.5 PK	68.2	-8.7	2.91 H	251	42.0	17.5

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	56.2 PK	74.0	-17.8	1.69 V	355	51.8	4.4
2	5150.00	44.0 AV	54.0	-10.0	1.69 V	355	39.6	4.4
3	*5270.00	111.6 PK			1.46 V	7	72.3	39.3
4	*5270.00	101.0 AV			1.46 V	7	61.7	39.3
5	#10540.00	59.7 PK	68.2	-8.5	4.00 V	261	42.2	17.5

Remarks:

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

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

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	111.2 PK			1.49 H	38	71.9	39.3
2	*5310.00	100.2 AV			1.49 H	38	60.9	39.3
3	5350.00	61.2 PK	74.0	-12.8	1.69 H	41	56.9	4.3
4	5350.00	45.9 AV	54.0	-8.1	1.69 H	41	41.6	4.3
5	10620.00	59.7 PK	74.0	-14.3	2.51 H	148	42.0	17.7
6	10620.00	46.3 AV	54.0	-7.7	2.51 H	148	28.6	17.7
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	112.0 PK			1.54 V	8	72.7	39.3
2	*5310.00	101.4 AV			1.54 V	8	62.1	39.3
3	5350.00	61.3 PK	74.0	-12.7	1.38 V	312	57.0	4.3
4	5350.00	48.1 AV	54.0	-5.9	1.38 V	312	43.8	4.3
5	10620.00	59.7 PK	74.0	-14.3	1.66 V	201	42.0	17.7
6	10620.00	46.2 AV	54.0	-7.8	1.66 V	201	28.5	17.7

Remarks:

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

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

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	59.9 PK	74.0	-14.1	2.55 H	47	55.3	4.6
2	5460.00	46.1 AV	54.0	-7.9	2.55 H	47	41.5	4.6
3	#5470.00	66.6 PK	68.2	-1.6	2.52 H	51	62.0	4.6
4	*5510.00	115.3 PK			2.08 H	18	75.4	39.9
5	*5510.00	104.8 AV			2.08 H	18	64.9	39.9
6	11020.00	60.8 PK	74.0	-13.2	2.83 H	251	42.3	18.5
7	11020.00	46.4 AV	54.0	-7.6	2.83 H	251	27.9	18.5
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	58.4 PK	74.0	-15.6	1.76 V	18	53.8	4.6
2	5460.00	46.9 AV	54.0	-7.1	1.76 V	18	42.3	4.6
3	#5470.00	67.1 PK	68.2	-1.1	1.68 V	50	62.5	4.6
4	*5510.00	114.8 PK			1.08 V	48	74.9	39.9
5	*5510.00	103.8 AV			1.08 V	48	63.9	39.9
6	11020.00	60.3 PK	74.0	-13.7	1.58 V	236	41.8	18.5
7	11020.00	45.9 AV	54.0	-8.1	1.58 V	236	27.4	18.5

Remarks:

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

CHANNEL	TX Channel 110	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5550.00	114.1 PK			1.49 H	324	74.3	39.8
2	*5550.00	103.8 AV			1.49 H	324	64.0	39.8
3	11100.00	59.6 PK	74.0	-14.4	1.89 H	236	41.6	18.0
4	11100.00	45.8 AV	54.0	-8.2	1.89 H	236	27.8	18.0
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	*5550.00	114.1 PK			1.49 V	9	74.3	39.8
2	*5550.00	104.3 AV			1.49 V	9	64.5	39.8
3	11100.00	59.4 PK	74.0	-14.6	2.39 V	182	41.4	18.0
4	11100.00	45.5 AV	54.0	-8.5	2.39 V	182	27.5	18.0

Remarks:

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

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

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	113.3 PK			1.53 H	298	73.5	39.8
2	*5670.00	103.0 AV			1.53 H	298	63.2	39.8
3	#5725.00	59.7 PK	68.2	-8.5	1.52 H	298	55.0	4.7
4	11340.00	60.0 PK	74.0	-14.0	2.24 H	183	42.2	17.8
5	11340.00	46.4 AV	54.0	-7.6	2.24 H	183	28.6	17.8
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	111.9 PK			1.48 V	10	72.1	39.8
2	*5670.00	101.3 AV			1.48 V	10	61.5	39.8
3	#5725.00	57.9 PK	68.2	-10.3	1.32 V	315	53.2	4.7
4	11340.00	59.6 PK	74.0	-14.4	1.82 V	236	41.8	17.8
5	11340.00	46.0 AV	54.0	-8.0	1.82 V	236	28.2	17.8

Remarks:

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

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

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	57.6 PK	74.0	-16.4	2.22 H	251	53.0	4.6
2	5460.00	43.5 AV	54.0	-10.5	2.22 H	251	38.9	4.6
3	#5470.00	58.0 PK	68.2	-10.2	1.64 H	283	53.4	4.6
4	*5710.00	112.5 PK			1.50 H	298	72.6	39.9
5	*5710.00	102.5 AV			1.50 H	298	62.6	39.9
6	#5850.00	58.7 PK	68.2	-9.5	1.69 H	243	53.4	5.3
7	11420.00	58.9 PK	74.0	-15.1	2.34 H	196	41.2	17.7
8	11420.00	45.1 AV	54.0	-8.9	2.34 H	196	27.4	17.7
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	56.9 PK	74.0	-17.1	1.58 V	355	52.3	4.6
2	5460.00	43.1 AV	54.0	-10.9	1.58 V	355	38.5	4.6
3	#5470.00	57.4 PK	68.2	-10.8	1.44 V	305	52.8	4.6
4	*5710.00	110.6 PK			1.53 V	11	70.7	39.9
5	*5710.00	100.4 AV			1.53 V	11	60.5	39.9
6	#5850.00	57.5 PK	68.2	-10.7	1.69 V	296	52.2	5.3
7	11420.00	59.7 PK	74.0	-14.3	1.82 V	233	42.0	17.7
8	11420.00	45.3 AV	54.0	-8.7	1.82 V	233	27.6	17.7

Remarks:

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

802.11ac (VHT80)

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

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	65.5 PK	74.0	-8.5	2.61 H	40	61.3	4.2
2	5150.00	51.1 AV	54.0	-2.9	2.61 H	40	46.9	4.2
3	*5210.00	109.1 PK			1.81 H	42	69.9	39.2
4	*5210.00	98.7 AV			1.81 H	42	59.5	39.2
5	5350.00	57.2 PK	74.0	-16.8	2.35 H	37	53.1	4.1
6	5350.00	44.5 AV	54.0	-9.5	2.35 H	37	40.4	4.1
7	#10420.00	58.3 PK	68.2	-9.9	1.75 H	244	40.4	17.9
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	68.7 PK	74.0	-5.3	1.60 V	15	64.5	4.2
2	5150.00	52.7 AV	54.0	-1.3	1.60 V	15	48.5	4.2
3	*5210.00	109.5 PK			1.55 V	10	70.3	39.2
4	*5210.00	99.0 AV			1.55 V	10	59.8	39.2
5	5350.00	57.1 PK	74.0	-16.9	1.69 V	20	53.0	4.1
6	5350.00	44.5 AV	54.0	-9.5	1.69 V	20	40.4	4.1
7	#10420.00	58.3 PK	68.2	-9.9	1.90 V	277	40.4	17.9

Remarks:

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

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

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	60.8 PK	74.0	-13.2	2.52 H	41	56.4	4.4
2	5150.00	47.1 AV	54.0	-6.9	2.52 H	41	42.7	4.4
3	*5290.00	107.9 PK			1.73 H	44	68.6	39.3
4	*5290.00	97.8 AV			1.73 H	44	58.5	39.3
5	5350.00	65.1 PK	74.0	-8.9	1.54 H	38	60.8	4.3
6	5350.00	50.3 AV	54.0	-3.7	1.54 H	38	46.0	4.3
7	#10580.00	59.5 PK	68.2	-8.7	2.02 H	281	41.8	17.7
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	59.9 PK	74.0	-14.1	1.39 V	325	55.5	4.4
2	5150.00	45.4 AV	54.0	-8.6	1.39 V	325	41.0	4.4
3	*5290.00	109.0 PK			1.51 V	8	69.7	39.3
4	*5290.00	98.7 AV			1.51 V	8	59.4	39.3
5	5350.00	65.9 PK	74.0	-8.1	1.38 V	309	61.6	4.3
6	5350.00	52.3 AV	54.0	-1.7	1.38 V	309	48.0	4.3
7	#10580.00	59.5 PK	68.2	-8.7	2.86 V	341	41.8	17.7

Remarks:

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

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

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	63.1 PK	74.0	-10.9	3.54 H	162	58.5	4.6
2	5460.00	49.0 AV	54.0	-5.0	3.54 H	162	44.4	4.6
3	#5470.00	66.5 PK	68.2	-1.7	1.76 H	16	61.9	4.6
4	*5530.00	109.8 PK			2.15 H	16	69.9	39.9
5	*5530.00	99.9 AV			2.15 H	16	60.0	39.9
6	#5725.00	57.9 PK	68.2	-10.3	1.49 H	337	53.2	4.7
7	11060.00	59.7 PK	74.0	-14.3	1.82 H	251	41.5	18.2
8	11060.00	46.2 AV	54.0	-7.8	1.82 H	251	28.0	18.2
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	58.9 PK	74.0	-15.1	1.66 V	63	54.3	4.6
2	5460.00	49.1 AV	54.0	-4.9	1.66 V	63	44.5	4.6
3	#5470.00	65.9 PK	68.2	-2.3	1.62 V	51	61.3	4.6
4	*5530.00	108.1 PK			1.48 V	10	68.2	39.9
5	*5530.00	98.2 AV			1.48 V	10	58.3	39.9
6	#5725.00	56.9 PK	68.2	-11.3	1.68 V	77	52.2	4.7
7	11060.00	59.3 PK	74.0	-14.7	2.55 V	188	41.1	18.2
8	11060.00	46.5 AV	54.0	-7.5	2.55 V	188	28.3	18.2

Remarks:

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

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

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	55.2 PK	74.0	-18.8	1.84 H	312	50.6	4.6
2	5460.00	44.5 AV	54.0	-9.5	1.84 H	312	39.9	4.6
3	#5470.00	58.8 PK	68.2	-9.4	1.72 H	302	54.2	4.6
4	*5610.00	110.0 PK			1.65 H	299	70.1	39.9
5	*5610.00	99.9 AV			1.65 H	299	60.0	39.9
6	#5725.00	62.1 PK	68.2	-6.1	1.52 H	298	57.4	4.7
7	11220.00	60.4 PK	74.0	-13.6	1.66 H	185	42.5	17.9
8	11220.00	46.7 AV	54.0	-7.3	1.66 H	185	28.8	17.9
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	55.8 PK	74.0	-18.2	1.58 V	352	51.2	4.6
2	5460.00	43.5 AV	54.0	-10.5	1.58 V	352	38.9	4.6
3	#5470.00	58.3 PK	68.2	-9.9	1.66 V	348	53.7	4.6
4	*5610.00	108.7 PK			1.50 V	11	68.8	39.9
5	*5610.00	98.6 AV			1.50 V	11	58.7	39.9
6	#5725.00	61.2 PK	68.2	-7.0	1.53 V	343	56.5	4.7
7	11220.00	60.2 PK	74.0	-13.8	2.38 V	177	42.3	17.9
8	11220.00	46.8 AV	54.0	-7.2	2.38 V	177	28.9	17.9

Remarks:

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

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

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	55.9 PK	74.0	-18.1	1.58 H	268	51.3	4.6
2	5460.00	43.4 AV	54.0	-10.6	1.58 H	268	38.8	4.6
3	#5470.00	57.2 PK	68.2	-11.0	1.43 H	315	52.6	4.6
4	*5690.00	109.4 PK			1.52 H	299	69.5	39.9
5	*5690.00	99.3 AV			1.52 H	299	59.4	39.9
6	#5850.00	58.6 PK	68.2	-9.6	2.53 H	251	53.3	5.3
7	11380.00	59.0 PK	74.0	-15.0	2.69 H	251	41.3	17.7
8	11380.00	46.0 AV	54.0	-8.0	2.69 H	251	28.3	17.7
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	56.2 PK	74.0	-17.8	1.55 V	351	51.6	4.6
2	5460.00	43.5 AV	54.0	-10.5	1.55 V	351	38.9	4.6
3	#5470.00	56.7 PK	68.2	-11.5	1.62 V	357	52.1	4.6
4	*5690.00	107.2 PK			1.48 V	11	67.3	39.9
5	*5690.00	96.8 AV			1.48 V	11	56.9	39.9
6	#5850.00	58.1 PK	68.2	-10.1	1.69 V	26	52.8	5.3
7	11380.00	59.2 PK	74.0	-14.8	1.98 V	221	41.5	17.7
8	11380.00	46.2 AV	54.0	-7.8	1.98 V	221	28.5	17.7

Remarks:

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

Below 1GHz Worst-Case Data:

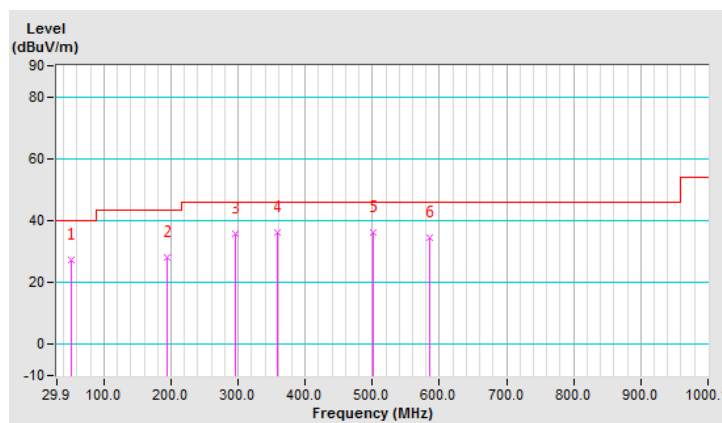
802.11a

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	51.29	27.1 QP	40.0	-12.9	1.00 H	77	36.8	-9.7
2	195.16	28.3 QP	43.5	-15.2	1.00 H	272	39.6	-11.3
3	296.27	35.8 QP	46.0	-10.2	1.50 H	335	43.4	-7.6
4	358.48	36.0 QP	46.0	-10.0	1.50 H	293	42.4	-6.4
5	500.42	36.2 QP	46.0	-9.8	2.00 H	154	39.8	-3.6
6	585.97	34.3 QP	46.0	-11.7	1.00 H	19	35.8	-1.5

Remarks:

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

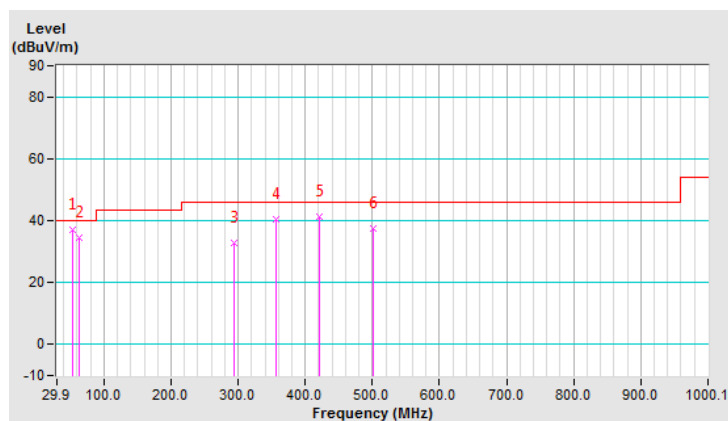


CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	53.23	36.9 QP	40.0	-3.1	1.00 V	35	46.7	-9.8
2	62.95	34.4 QP	40.0	-5.6	1.00 V	14	44.7	-10.3
3	294.32	32.6 QP	46.0	-13.4	2.00 V	168	40.2	-7.6
4	356.54	40.3 QP	46.0	-5.7	1.00 V	9	46.8	-6.5
5	420.70	41.2 QP	46.0	-4.8	1.00 V	144	46.1	-4.9
6	500.42	37.6 QP	46.0	-8.4	1.50 V	16	41.2	-3.6

Remarks:

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

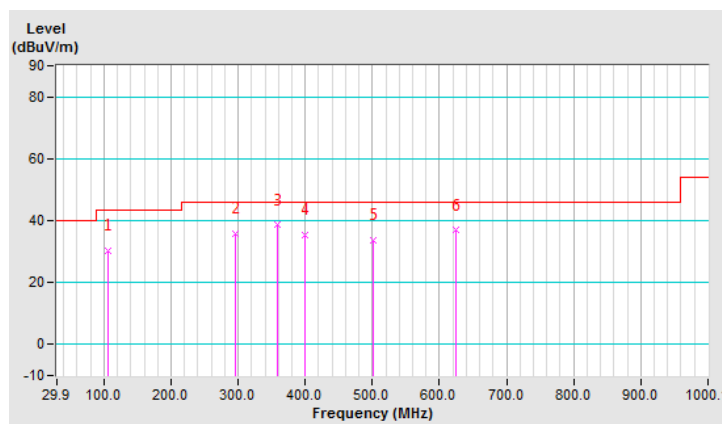


CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	105.73	30.3 QP	43.5	-13.2	1.50 H	96	43.2	-12.9
2	296.27	35.8 QP	46.0	-10.2	1.00 H	57	43.4	-7.6
3	358.48	38.5 QP	46.0	-7.5	1.00 H	130	44.9	-6.4
4	399.31	35.3 QP	46.0	-10.7	2.00 H	342	40.9	-5.6
5	500.42	33.6 QP	46.0	-12.4	1.50 H	320	37.2	-3.6
6	624.85	36.8 QP	46.0	-9.2	1.00 H	204	37.5	-0.7

Remarks:

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

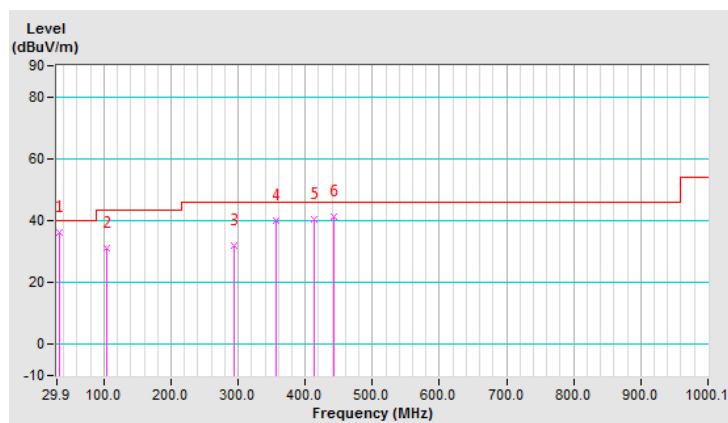


CHANNEL	TX Channel 64	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	33.79	36.1 QP	40.0	-3.9	1.00 V	161	47.3	-11.2
2	103.78	31.3 QP	43.5	-12.2	1.00 V	75	44.4	-13.1
3	294.32	32.1 QP	46.0	-13.9	1.50 V	4	39.7	-7.6
4	356.54	39.8 QP	46.0	-6.2	1.00 V	20	46.3	-6.5
5	412.92	40.3 QP	46.0	-5.7	1.50 V	354	45.6	-5.3
6	442.09	41.2 QP	46.0	-4.8	1.00 V	20	45.6	-4.4

Remarks:

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

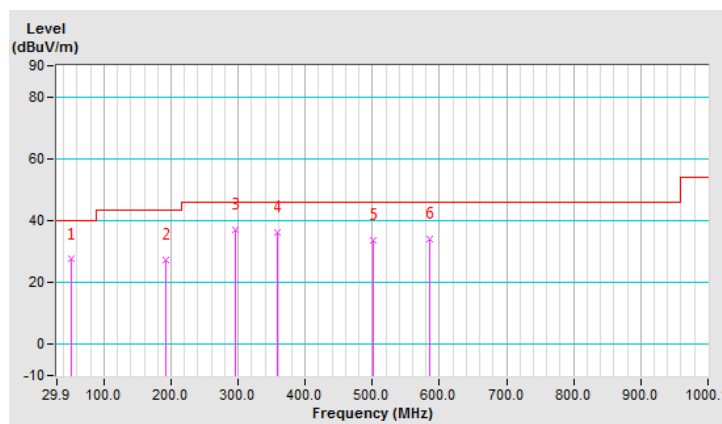


CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	51.29	27.5 QP	40.0	-12.5	1.00 H	117	37.2	-9.7
2	193.22	27.5 QP	43.5	-16.0	1.00 H	251	38.7	-11.2
3	296.27	36.9 QP	46.0	-9.1	1.50 H	352	44.5	-7.6
4	358.48	36.0 QP	46.0	-10.0	2.00 H	129	42.4	-6.4
5	500.42	33.8 QP	46.0	-12.2	1.00 H	1	37.4	-3.6
6	585.97	34.2 QP	46.0	-11.8	1.50 H	1	35.7	-1.5

Remarks:

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

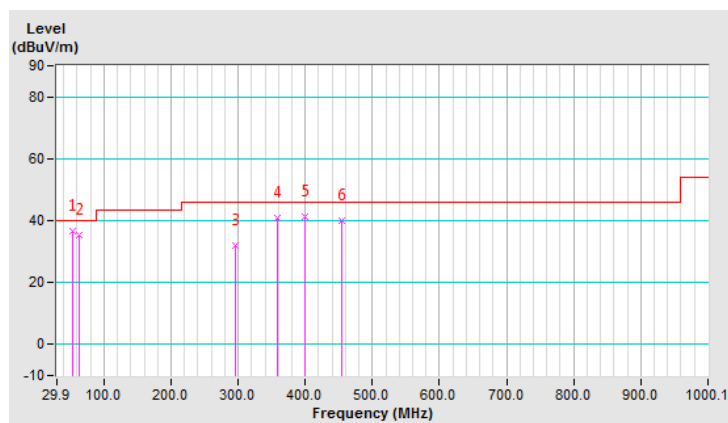


CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	53.23	36.5 QP	40.0	-3.5	1.00 V	334	46.3	-9.8
2	62.95	35.3 QP	40.0	-4.7	1.00 V	17	45.6	-10.3
3	296.27	32.0 QP	46.0	-14.0	1.00 V	172	39.6	-7.6
4	358.48	41.0 QP	46.0	-5.0	1.50 V	22	47.4	-6.4
5	399.31	41.3 QP	46.0	-4.7	2.00 V	137	46.9	-5.6
6	453.75	39.9 QP	46.0	-6.1	1.00 V	348	44.2	-4.3

Remarks:

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

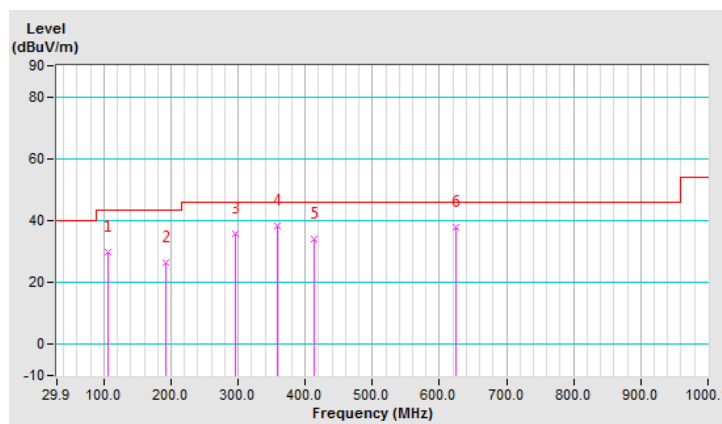


CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	105.73	29.8 QP	43.5	-13.7	1.00 H	277	42.7	-12.9
2	193.22	26.5 QP	43.5	-17.0	1.00 H	66	37.7	-11.2
3	296.27	35.8 QP	46.0	-10.2	2.00 H	58	43.4	-7.6
4	358.48	38.2 QP	46.0	-7.8	1.00 H	140	44.6	-6.4
5	412.92	34.1 QP	46.0	-11.9	1.50 H	309	39.4	-5.3
6	624.85	37.7 QP	46.0	-8.3	1.50 H	203	38.4	-0.7

Remarks:

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

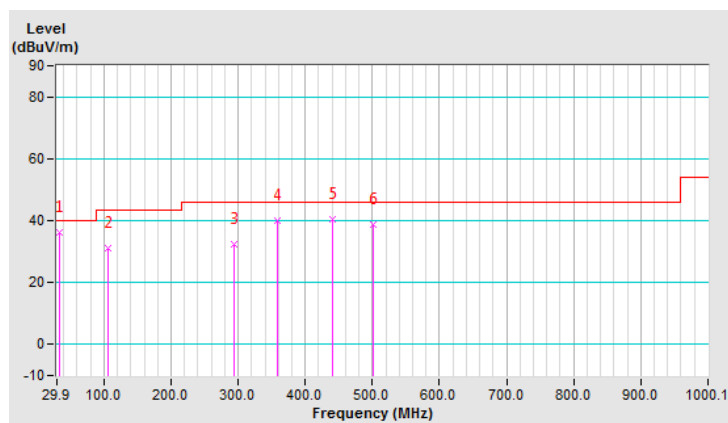


CHANNEL	TX Channel 100	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	33.79	36.2 QP	40.0	-3.8	1.50 V	291	47.4	-11.2
2	105.73	31.3 QP	43.5	-12.2	1.00 V	93	44.2	-12.9
3	294.32	32.5 QP	46.0	-13.5	1.50 V	355	40.1	-7.6
4	358.48	40.1 QP	46.0	-5.9	1.00 V	8	46.5	-6.4
5	440.14	40.4 QP	46.0	-5.6	1.00 V	335	44.8	-4.4
6	500.42	38.9 QP	46.0	-7.1	2.00 V	2	42.5	-3.6

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 10, 2018	Dec. 09, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Conc_ 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 1.

3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

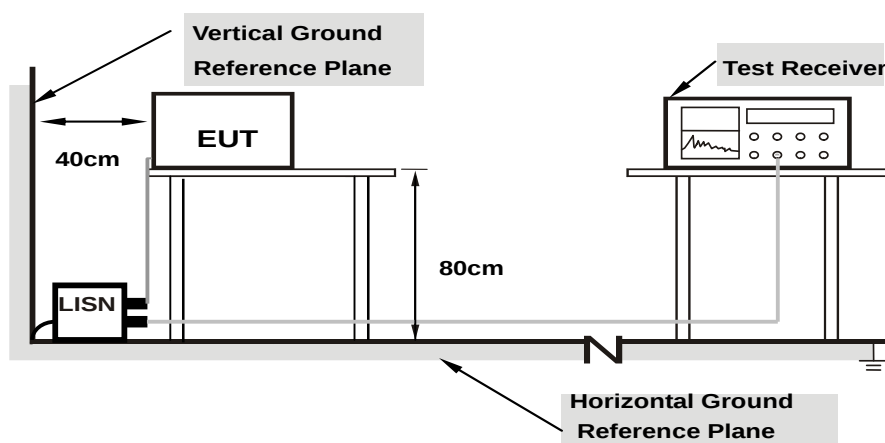
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

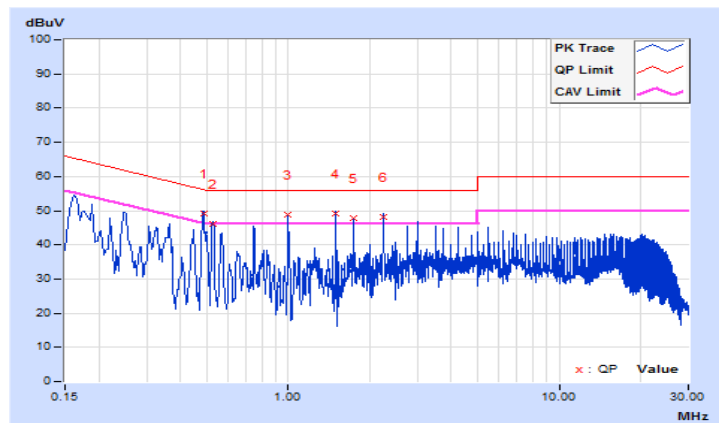
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 64	Test Mode	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48626	9.89	39.26	35.87	49.15	45.76	56.23	46.23	-7.08	-0.47
2	0.52544	9.89	36.38	35.15	46.27	45.04	56.00	46.00	-9.73	-0.96
3	0.99847	9.92	38.90	35.26	48.82	45.18	56.00	46.00	-7.18	-0.82
4	1.49895	9.93	39.36	35.22	49.29	45.15	56.00	46.00	-6.71	-0.85
5	1.74919	9.94	37.73	34.95	47.67	44.89	56.00	46.00	-8.33	-1.11
6	2.24967	9.96	38.05	35.37	48.01	45.33	56.00	46.00	-7.99	-0.67

Remarks:

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

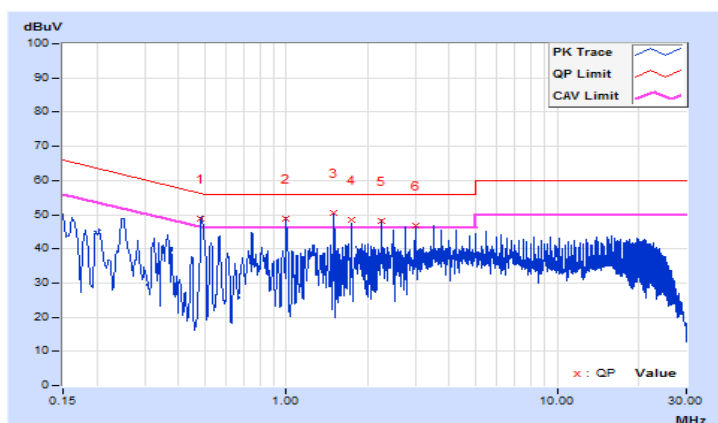


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 64	Test Mode	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48550	9.87	38.85	35.74	48.72	45.61	56.24	46.24	-7.52	-0.63
2	0.99847	9.88	38.94	35.30	48.82	45.18	56.00	46.00	-7.18	-0.82
3	1.49895	9.90	40.53	35.79	50.43	45.69	56.00	46.00	-5.57	-0.31
4	1.74919	9.92	38.63	34.98	48.55	44.90	56.00	46.00	-7.45	-1.10
5	2.24967	9.94	38.26	35.18	48.20	45.12	56.00	46.00	-7.80	-0.88
6	3.00039	9.97	36.78	35.16	46.75	45.13	56.00	46.00	-9.25	-0.87

Remarks:

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

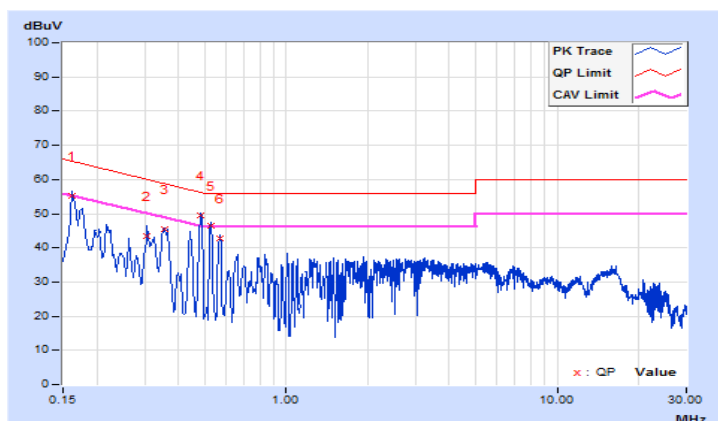


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 64	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.84	45.26	36.32	55.10	46.16	65.37	55.37	-10.27	-9.21
2	0.30640	9.87	33.66	25.51	43.53	35.38	60.07	50.07	-16.54	-14.69
3	0.35389	9.87	35.43	28.52	45.30	38.39	58.87	48.87	-13.57	-10.48
4	0.48295	9.89	39.73	35.75	49.62	45.64	56.29	46.29	-6.67	-0.65
5	0.52544	9.89	36.43	35.18	46.32	45.07	56.00	46.00	-9.68	-0.93
6	0.56837	9.89	33.03	31.71	42.92	41.60	56.00	46.00	-13.08	-4.40

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.

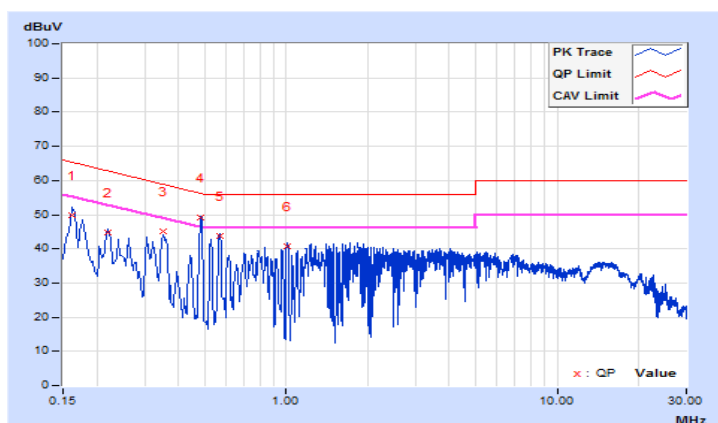


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 64	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.82	40.18	27.30	50.00	37.12	65.37	55.37	-15.37	-18.25
2	0.22038	9.84	34.89	30.10	44.73	39.94	62.80	52.80	-18.07	-12.86
3	0.35111	9.86	35.12	32.80	44.98	42.66	58.94	48.94	-13.96	-6.28
4	0.48295	9.87	39.18	35.89	49.05	45.76	56.29	46.29	-7.24	-0.53
5	0.56866	9.87	33.83	32.58	43.70	42.45	56.00	46.00	-12.30	-3.55
6	1.00998	9.88	30.72	28.89	40.60	38.77	56.00	46.00	-15.40	-7.23

Remarks:

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

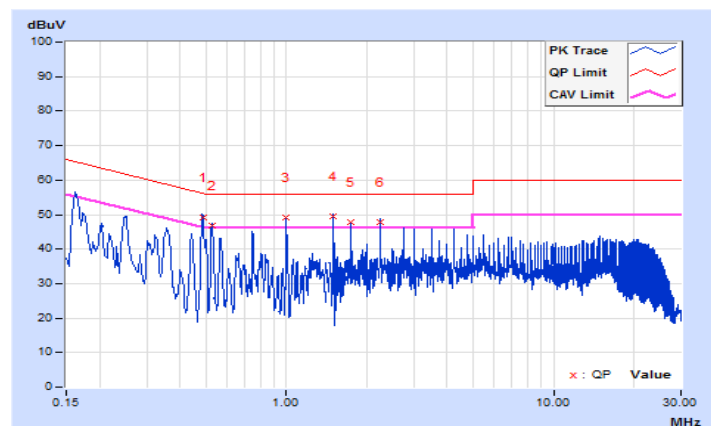


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 100	Test Mode	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48626	9.89	39.31	35.79	49.20	45.68	56.23	46.23	-7.03	-0.55
2	0.52821	9.89	36.86	35.71	46.75	45.60	56.00	46.00	-9.25	-0.40
3	0.99939	9.92	39.24	35.60	49.16	45.52	56.00	46.00	-6.84	-0.48
4	1.49895	9.93	39.50	35.66	49.43	45.59	56.00	46.00	-6.57	-0.41
5	1.74919	9.94	37.80	34.98	47.74	44.92	56.00	46.00	-8.26	-1.08
6	2.25001	9.96	37.84	34.74	47.80	44.70	56.00	46.00	-8.20	-1.30

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.

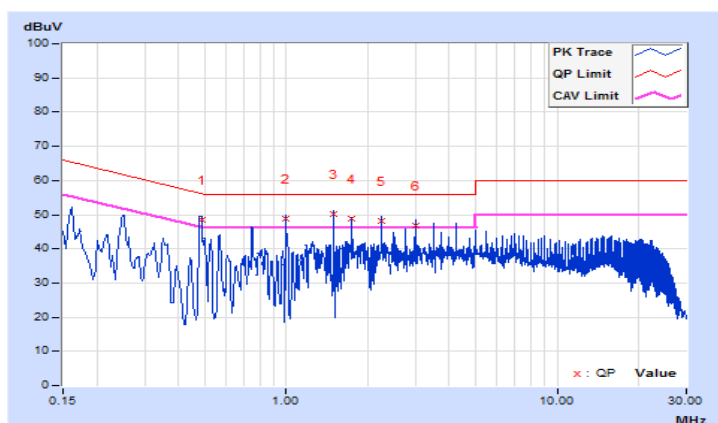


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 100	Test Mode	A

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.48626	9.87	38.77	35.48	48.64	45.35	56.23	46.23	-7.59	-0.88
2	0.99847	9.88	38.94	35.29	48.82	45.17	56.00	46.00	-7.18	-0.83
3	1.49895	9.90	40.25	35.84	50.15	45.74	56.00	46.00	-5.85	-0.26
4	1.74919	9.92	38.82	35.07	48.74	44.99	56.00	46.00	-7.26	-1.01
5	2.24967	9.94	38.04	34.57	47.98	44.51	56.00	46.00	-8.02	-1.49
6	3.00039	9.97	36.68	35.08	46.65	45.05	56.00	46.00	-9.35	-0.95

Remarks:

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

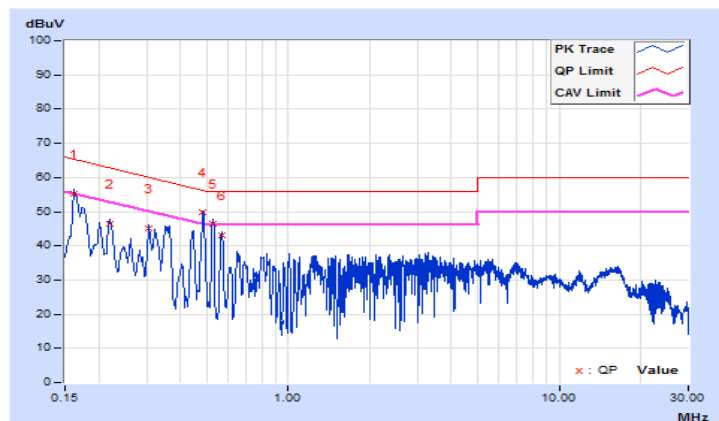


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 100	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	9.84	45.42	36.46	55.26	46.30	65.37	55.37	-10.11	-9.07
2	0.21966	9.85	36.75	29.18	46.60	39.03	62.83	52.83	-16.23	-13.80
3	0.30640	9.87	35.23	30.81	45.10	40.68	60.07	50.07	-14.97	-9.39
4	0.48295	9.89	39.79	35.81	49.68	45.70	56.29	46.29	-6.61	-0.59
5	0.52927	9.89	36.44	34.04	46.33	43.93	56.00	46.00	-9.67	-2.07
6	0.56866	9.89	33.15	31.74	43.04	41.63	56.00	46.00	-12.96	-4.37

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.

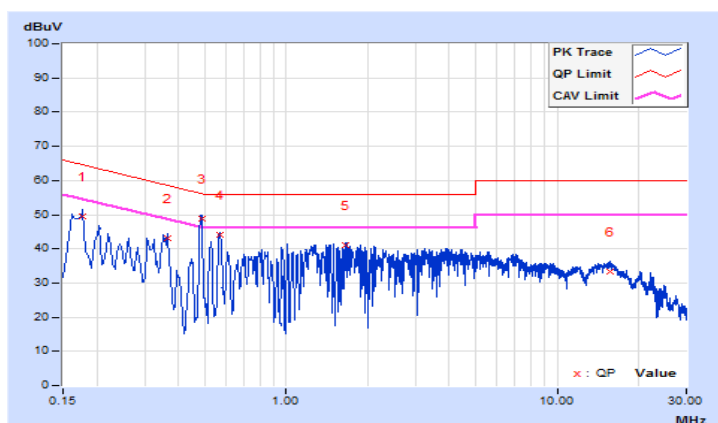


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	TX Channel 100	Test Mode	B

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17737	9.83	39.69	32.56	49.52	42.39	64.61	54.61	-15.09	-12.22
2	0.36505	9.86	33.33	27.15	43.19	37.01	58.61	48.61	-15.42	-11.60
3	0.48626	9.87	38.93	35.45	48.80	45.32	56.23	46.23	-7.43	-0.91
4	0.56866	9.87	34.11	32.84	43.98	42.71	56.00	46.00	-12.02	-3.29
5	1.66622	9.91	31.06	25.99	40.97	35.90	56.00	46.00	-15.03	-10.10
6	15.70789	10.25	23.25	14.37	33.50	24.62	60.00	50.00	-26.50	-25.38

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

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

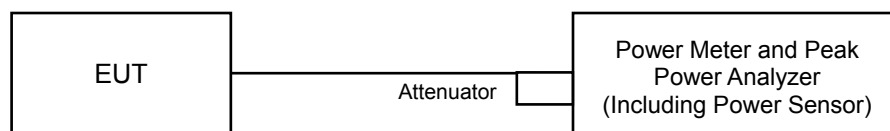
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

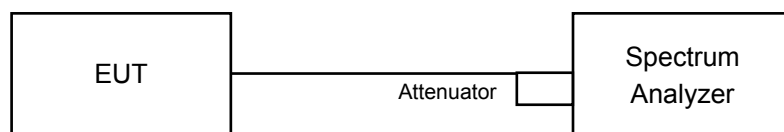
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

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

For 26dB Bandwidth

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

Power Output:

CDD Mode

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	20.42	20.83	19.97	21.12	459.946	26.63	30.00	Pass
40	5200	20.48	20.85	20.06	21.08	462.929	26.66	30.00	Pass
48	5240	21.15	20.98	20.31	21.78	513.691	27.11	30.00	Pass
52	5260	16.01	15.88	14.46	15.87	145.190	21.62	23.99	Pass
60	5300	15.71	15.95	14.78	15.74	144.152	21.59	23.96	Pass
64	5320	15.58	15.11	14.62	16.48	142.011	21.52	23.97	Pass
100	5500	16.32	16.48	16.67	16.55	178.956	22.53	23.92	Pass
116	5580	16.92	16.54	16.38	16.88	186.490	22.71	23.88	Pass
140	5700	16.52	16.24	15.79	16.32	167.734	22.25	23.90	Pass
144	5720 (For U-NII-2C)	13.57	12.55	12.25	13.44	83.507	19.22	22.69	Pass
144	5720 (For U-NII-3)	7.53	6.34	6.91	7.41	21.382	13.30	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(20.22) = 24.05 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(19.97) = 24.00 < 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.07) = 24.02 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.94) = 23.99 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.03) = 24.01 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.97) = 24.00 < 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.88) = 22.79 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(19.92) = 23.99 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(19.89) = 23.98 < 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.90) = 23.98 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.88) = 23.98 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.41) = 23.88 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.53) = 23.90 < 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5710.01) = 22.75 < 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(19.98) = 24.00 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.05) = 24.02 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.85) = 23.97 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.63) = 23.92 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.46) = 23.89 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.65) = 23.93 < 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5710.22) = 22.69 < 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(19.99) = 24.00 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(19.78) = 23.96 < 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.89) = 23.98 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.92) = 23.99 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.14) = 24.04 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.20) = 24.05 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.99) = 22.76 < 24\text{dBm}$

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	21.18	21.37	20.38	21.32	512.971	27.10	30.00	Pass
40	5200	23.08	23.01	22.14	23.43	787.197	28.96	30.00	Pass
48	5240	22.58	22.49	21.69	22.95	703.366	28.47	30.00	Pass
52	5260	17.15	16.74	15.49	17.09	185.654	22.69	24.00	Pass
60	5300	16.42	16.55	15.51	16.53	169.580	22.29	24.00	Pass
64	5320	16.24	15.78	15.34	16.94	163.546	22.14	24.00	Pass
100	5500	16.17	16.01	15.15	16.27	156.400	21.94	24.00	Pass
116	5580	17.02	16.78	16.48	17.13	194.098	22.88	24.00	Pass
140	5700	16.67	16.41	15.88	16.43	172.884	22.38	24.00	Pass
144	5720 (For U-NII-2C)	13.69	13.75	12.89	13.33	90.390	19.56	22.81	Pass
144	5720 (For U-NII-3)	9.03	6.57	7.19	8.26	25.113	14.00	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.60) = 24.13 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.85) = 24.19 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.63) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.74) = 24.16 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.87) = 24.19 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.75) = 22.83 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.83) = 24.18 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.50) = 24.11 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.38) = 24.09 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.80) = 22.81 < 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(20.86) = 24.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.74) = 24.16 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.79) = 24.17 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.75) = 22.83 < 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(20.53) = 24.12 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.51) = 24.11 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.60) = 24.13 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.72) = 22.84 < 24\text{dBm}$

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.24	18.98	17.58	18.87	280.119	24.47	30.00	Pass
46	5230	19.74	19.95	19.21	20.57	390.437	25.92	30.00	Pass
54	5270	18.12	18.19	16.87	18.05	243.247	23.86	24.00	Pass
62	5310	17.89	18.14	16.86	18.41	244.553	23.88	24.00	Pass
102	5510	17.55	17.51	16.68	17.57	216.956	23.36	24.00	Pass
110	5550	18.02	17.94	17.53	17.92	244.185	23.88	24.00	Pass
134	5670	17.94	17.63	17.82	17.77	240.548	23.81	24.00	Pass
142	5710 (For U-NII-2C)	15.51	14.64	13.48	14.90	122.900	20.90	24.00	Pass
142	5710 (For U-NII-3)	4.28	5.48	4.25	3.15	11.405	10.57	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(40.78) = 27.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.05) = 27.13 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.78) = 27.10 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.84) = 27.11 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.66) = 27.09 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.68) = 26.48 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(40.83) = 27.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.02) = 27.12 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.89) = 27.11 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.77) = 27.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.02) = 27.12 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.60) = 26.49 > 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(40.45) = 27.06 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.51) = 27.07 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.65) = 27.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.63) = 27.08 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.70) = 27.09 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.72) = 26.47 > 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(40.41) = 27.06 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.69) = 27.09 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.68) = 27.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.49) = 27.07 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.48) = 27.07 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.94) = 26.44 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	17.64	17.72	16.96	18.26	233.879	23.69	30.00	Pass
58	5290	17.48	17.39	16.46	17.58	212.343	23.27	24.00	Pass
106	5530	15.88	15.91	15.29	15.82	149.720	21.75	24.00	Pass
122	5610	17.98	17.71	17.06	17.85	233.596	23.68	24.00	Pass
138	5690 (For U-NII-2C)	14.33	13.96	13.59	13.65	104.527	20.19	24.00	Pass
138	5690 (For U-NII-3)	1.35	1.76	0.07	0.19	5.253	7.20	30.00	Pass

Note:

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

Chain 0

1. $11\text{dBm} + 10\log(83.98) = 30.24 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(84.29) = 30.25 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.40) = 30.21 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.31) = 29.85 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(82.88) = 30.18 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(84.03) = 30.24 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.83) = 30.23 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.49) = 29.84 > 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(83.86) = 30.23 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(84.33) = 30.25 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(84.16) = 30.25 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.12) = 29.86 > 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(83.82) = 30.23 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(84.25) = 30.25 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.23) = 30.20 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(5725.00 - 5648.49) = 29.84 > 24\text{dBm}$

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	21.18	21.37	20.38	21.32	512.971	27.10	27.88	Pass
40	5200	21.59	21.51	20.68	22.93	599.077	27.77	27.88	Pass
48	5240	21.52	21.44	20.63	21.91	552.072	27.42	27.88	Pass
52	5260	16.14	15.72	14.45	16.05	146.573	21.66	21.88	Pass
60	5300	15.59	15.68	14.58	15.63	138.474	21.41	21.88	Pass
64	5320	15.71	15.24	14.80	15.67	137.757	21.39	21.88	Pass
100	5500	15.68	15.52	14.61	15.74	139.032	21.43	21.88	Pass
116	5580	15.98	15.72	15.43	16.08	152.418	21.83	21.88	Pass
140	5700	15.64	15.37	14.83	15.41	136.242	21.34	21.88	Pass
144	5720 (For U-NII-2C)	13.69	13.75	12.89	13.33	90.390	19.56	20.69	Pass
144	5720 (For U-NII-3)	9.03	6.57	7.19	8.26	25.113	14.00	27.88	Pass

Note:

1. 5180~5240MHz Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $30 - (8.12 - 6) = 27.88\text{dBm}$.
2. 5260~5320MHz Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $24 - (8.12 - 6) = 21.88\text{dBm}$.
3. 5500~5700MHz Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $24 - (8.12 - 6) = 21.88\text{dBm}$.
4. 5720MHz Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $22.81 - (8.12 - 6) = 20.69\text{dBm}$.
5. 5745~5825MHz Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $30 - (8.12 - 6) = 27.88\text{dBm}$.

Chain 0

1. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.60) = 24.13 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.85) = 24.19 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.63) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.74) = 24.16 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.87) = 24.19 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.75) = 22.83 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.83) = 24.18 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.50) = 24.11 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.38) = 24.09 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.80) = 22.81 < 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(20.86) = 24.19 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.74) = 24.16 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.79) = 24.17 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.65) = 24.14 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.75) = 22.83 < 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(20.53) = 24.12 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.51) = 24.11 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.57) = 24.13 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.60) = 24.13 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$
7. $11\text{dBm} + 10\log(5725.00 - 5709.72) = 22.84 < 24\text{dBm}$

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.24	18.98	17.58	18.87	280.119	24.47	27.88	Pass
46	5230	19.74	19.95	19.21	20.57	390.437	25.92	27.88	Pass
54	5270	16.08	16.14	14.83	16.01	151.977	21.82	21.88	Pass
62	5310	15.31	15.67	14.31	15.92	136.922	21.36	21.88	Pass
102	5510	15.52	15.48	14.69	15.54	136.217	21.34	21.88	Pass
110	5550	15.51	15.40	15.01	15.39	136.527	21.35	21.88	Pass
134	5670	15.92	15.58	15.79	15.72	150.481	21.77	21.88	Pass
142	5710 (For U-NII-2C)	15.51	14.64	13.48	14.90	122.900	20.90	21.88	Pass
142	5710 (For U-NII-3)	4.28	5.48	4.25	3.15	11.405	10.57	27.88	Pass

Note:

1. 5180~5240MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
2. 5260~5320MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 24-(8.12-6) = 21.88dBm.
3. 5500~5720MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 24-(8.12-6) = 21.88dBm.
4. 5745~5825MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.

Chain 0

1. $11\text{dBm} + 10\log(40.78) = 27.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.05) = 27.13 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.78) = 27.10 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.84) = 27.11 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.66) = 27.09 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.68) = 26.48 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(40.83) = 27.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(41.02) = 27.12 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.89) = 27.11 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.77) = 27.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(41.02) = 27.12 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.60) = 26.49 > 24\text{dBm}$

Chain 2

1. $11\text{dBm} + 10\log(40.45) = 27.06 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.51) = 27.07 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.65) = 27.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.63) = 27.08 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.70) = 27.09 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.72) = 26.47 > 24\text{dBm}$

Chain 3

1. $11\text{dBm} + 10\log(40.41) = 27.06 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.69) = 27.09 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.68) = 27.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.49) = 27.07 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.48) = 27.07 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(5725.00 - 5689.94) = 26.44 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	17.64	17.72	16.96	18.26	233.879	23.69	27.88	Pass
58	5290	16.01	15.92	15.97	15.03	150.365	21.77	21.88	Pass
106	5530	15.88	15.91	15.29	15.82	149.720	21.75	21.88	Pass
122	5610	15.94	15.67	15.01	15.88	146.584	21.66	21.88	Pass
138	5690 (For U-NII-2C)	14.33	13.96	13.59	13.65	104.527	20.19	21.88	Pass
138	5690 (For U-NII-3)	1.35	1.76	0.07	0.19	5.253	7.20	27.88	Pass

Note:

- 5180~5240MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
- 5260~5320MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 24-(8.12-6) = 21.88dBm.
- 5500~5720MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 24-(8.12-6) = 21.88dBm.
- 5745~5825MHz Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.

Chain 0

- 11dBm + 10log (83.98) = 30.24 > 24dBm
- 11dBm + 10log (84.29) = 30.25 > 24dBm
- 11dBm + 10log (83.40) = 30.21 > 24dBm
- 11dBm + 10log (5725.00 - 5648.31) = 29.85 > 24dBm

Chain 1

- 11dBm + 10log (82.88) = 30.18 > 24dBm
- 11dBm + 10log (84.03) = 30.24 > 24dBm
- 11dBm + 10log (83.83) = 30.23 > 24dBm
- 11dBm + 10log (5725.00 - 5648.49) = 29.84 > 24dBm

Chain 2

- 11dBm + 10log (83.86) = 30.23 > 24dBm
- 11dBm + 10log (84.33) = 30.25 > 24dBm
- 11dBm + 10log (84.16) = 30.25 > 24dBm
- 11dBm + 10log (5725.00 - 5648.12) = 29.86 > 24dBm

Chain 3

- 11dBm + 10log (83.82) = 30.23 > 24dBm
- 11dBm + 10log (84.25) = 30.25 > 24dBm
- 11dBm + 10log (83.23) = 30.20 > 24dBm
- 11dBm + 10log (5725.00 - 5648.49) = 29.84 > 24dBm

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	20.22	19.92	19.98	19.99
60	5300	19.97	19.89	20.05	19.78
64	5320	20.07	19.90	19.85	19.89
100	5500	19.94	19.88	19.63	19.92
116	5580	20.03	19.41	19.46	20.14
140	5700	19.97	19.53	19.65	20.20
144	5720 (For U-NII-2C)	15.12	14.99	14.78	15.01
144	5720 (For U-NII-3)	4.99	4.70	4.80	5.18

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	20.57	20.83	20.86	20.53
60	5300	20.60	20.61	20.74	20.51
64	5320	20.85	20.61	20.79	20.57
100	5500	20.63	20.50	20.65	20.45
116	5580	20.74	20.31	20.65	20.60
140	5700	20.87	20.38	20.57	20.59
144	5720 (For U-NII-2C)	15.25	15.20	15.25	15.28
144	5720 (For U-NII-3)	5.46	5.29	5.29	5.35

802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	40.78	40.83	40.45	40.41
62	5310	41.05	41.02	40.51	40.69
102	5510	40.78	40.89	40.65	40.68
110	5550	40.84	40.77	40.63	40.49
134	5670	40.66	41.02	40.70	40.48
142	5710 (For U-NII-2C)	35.32	35.40	35.28	35.06
142	5710 (For U-NII-3)	5.39	5.46	5.49	5.32

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	83.98	82.88	83.86	83.82
106	5530	84.29	84.03	84.33	84.25
122	5610	83.40	83.83	84.16	83.23
138	5690 (For U-NII-2C)	76.69	76.51	76.88	76.51
138	5690 (For U-NII-3)	7.07	7.06	7.26	6.76

802.11n (HT20)



802.11ac (VHT80)

EUT Maximum Conducted Power

CDD Mode

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	145.190	21.62
5470~5725	186.490	22.71

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	185.654	22.69
5470~5725	194.098	22.88

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	244.553	23.88
5470~5725	244.185	23.88

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	212.343	23.27
5470~5725	233.596	23.68

Beamforming Mode

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	146.573	21.66
5470~5725	152.418	21.83

802.11n (HT40)

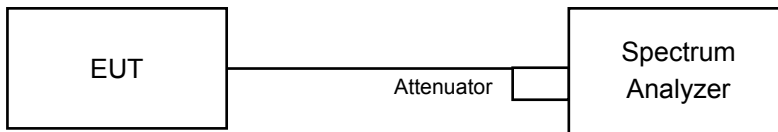
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	151.977	21.82
5470~5725	150.481	21.77

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	150.365	21.77
5470~5725	149.720	21.75

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Result

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	16.44	16.56	16.56	16.44
60	5300	16.44	16.44	16.56	16.44
64	5320	16.56	16.44	16.44	16.44
100	5500	16.56	16.56	16.56	16.44
116	5580	16.56	16.32	16.44	16.56
140	5700	16.56	16.44	16.44	16.56
144	5720 (For U-NII-2C)	13.16	13.16	13.16	13.16
144	5720 (For U-NII-3)	3.16	3.16	3.16	3.16

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
52	5260	17.64	17.64	17.64	17.64
60	5300	17.64	17.64	17.64	17.64
64	5320	17.64	17.64	17.64	17.64
100	5500	17.76	17.64	17.52	17.64
116	5580	17.64	17.52	17.52	17.76
140	5700	17.76	17.64	17.52	17.64
144	5720 (For U-NII-2C)	13.76	13.76	13.76	13.76
144	5720 (For U-NII-3)	3.76	3.76	3.76	3.76

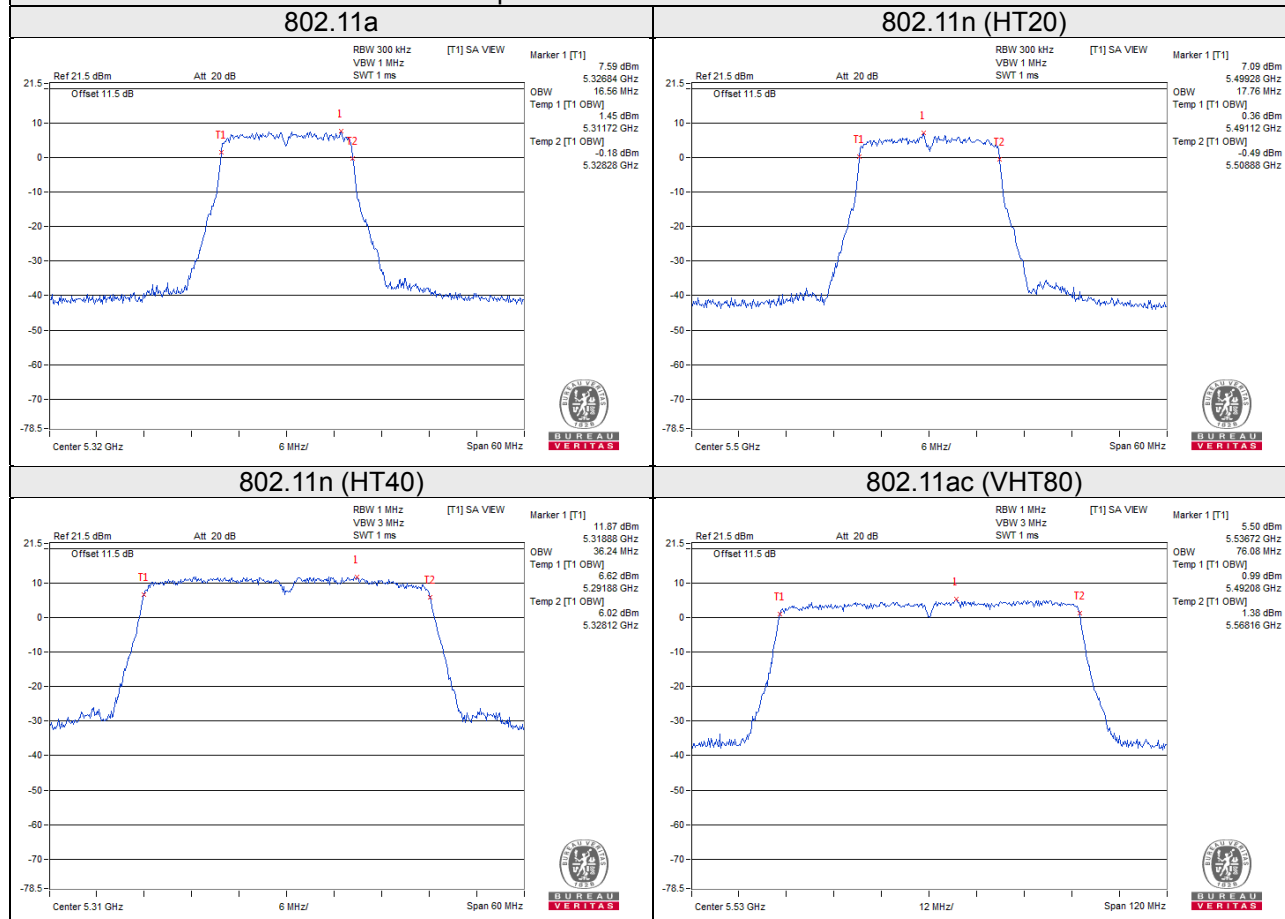
802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
54	5270	36.12	36.00	35.88	36.12
62	5310	36.24	36.12	36.00	36.12
102	5510	36.12	36.00	36.00	36.12
110	5550	36.12	36.12	36.12	36.12
134	5670	36.12	36.24	36.12	36.00
142	5710 (For U-NII-2C)	33.00	33.00	33.00	32.88
142	5710 (For U-NII-3)	3.12	3.24	3.12	3.00

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)			
		Chain 0	Chain 1	Chain 2	Chain 3
58	5290	75.84	75.84	75.60	76.08
106	5530	76.08	75.84	75.84	75.84
122	5620	75.84	76.08	76.08	75.60
138	5690 (For U-NII-2C)	72.92	72.92	72.92	72.92
138	5690 (For U-NII-3)	2.92	2.92	3.16	2.92

Spectrum Plot of Worst Value

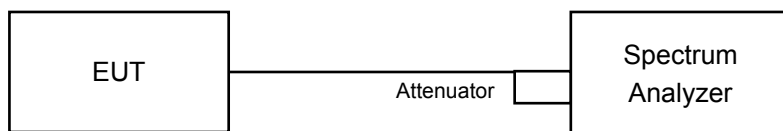


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-2A and U-NII-2C band:

Using method SA-2

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

For U-NII-3 band:

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- 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 $BWCF = 10\log(500 \text{ kHz} / 300 \text{ kHz})$
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-2A and U-NII-2C band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	2.73	2.59	1.72	2.83	0.21	8.72	8.88	Pass
60	5300	2.54	2.72	2.17	2.93	0.21	8.83	8.88	Pass
64	5320	2.32	2.65	2.13	3.30	0.21	8.85	8.88	Pass
100	5500	2.49	2.85	2.03	2.55	0.21	8.72	8.88	Pass
116	5580	2.72	2.98	2.63	2.00	0.21	8.83	8.88	Pass
140	5700	2.31	2.62	2.07	1.98	0.21	8.48	8.88	Pass
144	5720	2.39	2.55	2.08	2.03	0.21	8.50	8.88	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.12 - 6) = 8.88\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
52	5260	3.07	2.90	1.76	3.02	0.11	8.85	8.88	Pass
60	5300	2.40	2.83	2.97	2.73	0.11	8.87	8.88	Pass
64	5320	2.31	2.33	1.88	3.19	0.11	8.58	8.88	Pass
100	5500	2.02	2.34	1.52	1.95	0.11	8.10	8.88	Pass
116	5580	2.79	3.06	2.44	2.07	0.11	8.74	8.88	Pass
140	5700	2.11	2.82	1.92	2.21	0.11	8.41	8.88	Pass
144	5720	2.08	2.77	1.91	2.33	0.11	8.42	8.88	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.12 - 6) = 8.88\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
54	5270	1.98	1.87	0.99	2.26	0.18	8.00	8.88	Pass
62	5310	1.72	2.19	1.72	2.07	0.18	8.13	8.88	Pass
102	5510	0.20	0.66	-0.27	0.06	0.18	6.38	8.88	Pass
110	5550	0.82	1.32	0.66	0.22	0.18	6.97	8.88	Pass
134	5670	0.41	1.34	0.30	0.45	0.18	6.85	8.88	Pass
142	5710	0.51	1.37	0.31	0.24	0.18	6.83	8.88	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.12 - 6) = 8.88\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

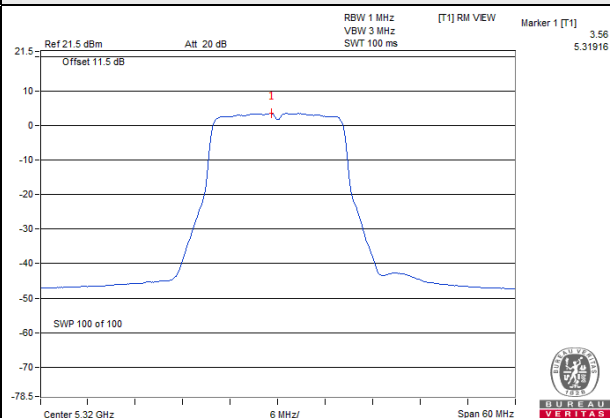
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
58	5290	-0.21	-0.04	-1.07	-0.94	0.28	5.76	8.88	Pass
106	5530	-4.97	-4.59	-5.26	-5.70	0.28	1.19	8.88	Pass
122	5610	-2.82	-1.98	-3.09	-3.28	0.28	3.54	8.88	Pass
138	5690	-2.80	-2.17	-3.24	-2.93	0.28	3.53	8.88	Pass

Note:

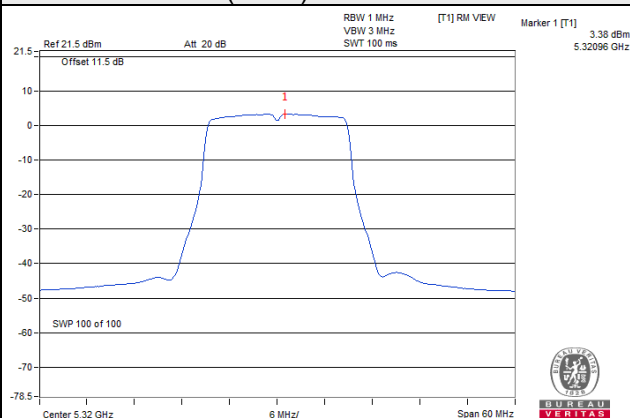
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $2.1\text{dBi} + 10\log(4) = 8.12\text{dBi} > 6\text{dBi}$, so the limit shall be reduced to $11 - (8.12 - 6) = 8.88\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

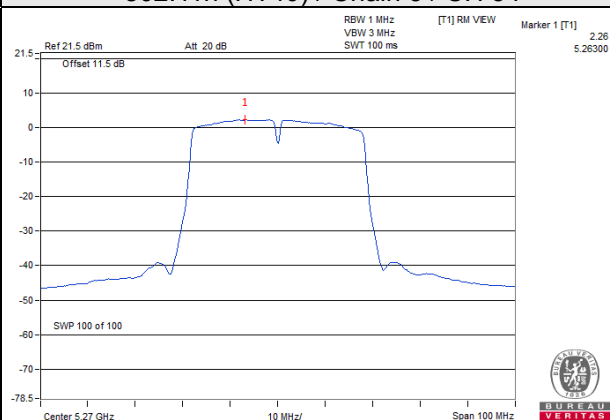
802.11a / Chain 3 / CH 64



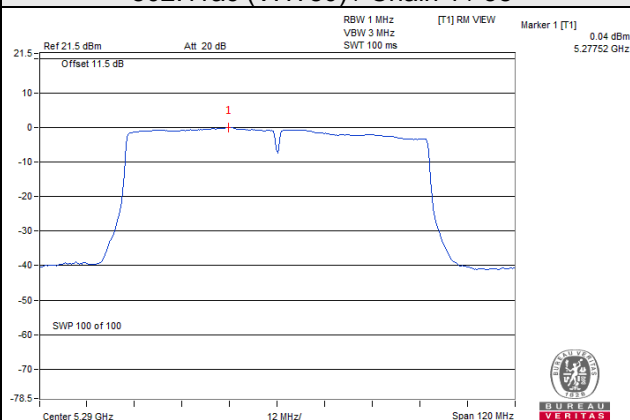
802.11n (HT20) / Chain 3 / CH 64



802.11n (HT40) / Chain 3 / CH 54



802.11ac (VHT80) / Chain 1 / 58



For U-NII-3 band:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720	-5.71	-3.49	6.02	0.21	2.74	27.88	Pass
1	144	5720	-7.27	-5.05	6.02	0.21	1.18	27.88	Pass
2	144	5720	-6.74	-4.52	6.02	0.21	1.71	27.88	Pass
3	144	5720	-6.40	-4.18	6.02	0.21	2.05	27.88	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	144	5720	-5.69	-3.47	6.02	0.11	2.66	27.88	Pass
1	144	5720	-6.89	-4.67	6.02	0.11	1.46	27.88	Pass
2	144	5720	-6.85	-4.63	6.02	0.11	1.50	27.88	Pass
3	144	5720	-6.01	-3.79	6.02	0.11	2.34	27.88	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	142	5710	-9.14	-6.92	6.02	0.18	-0.72	27.88	Pass
1	142	5710	-8.75	-6.53	6.02	0.18	-0.33	27.88	Pass
2	142	5710	-9.93	-7.71	6.02	0.18	-1.51	27.88	Pass
3	142	5710	-9.67	-7.45	6.02	0.18	-1.25	27.88	Pass

Note:

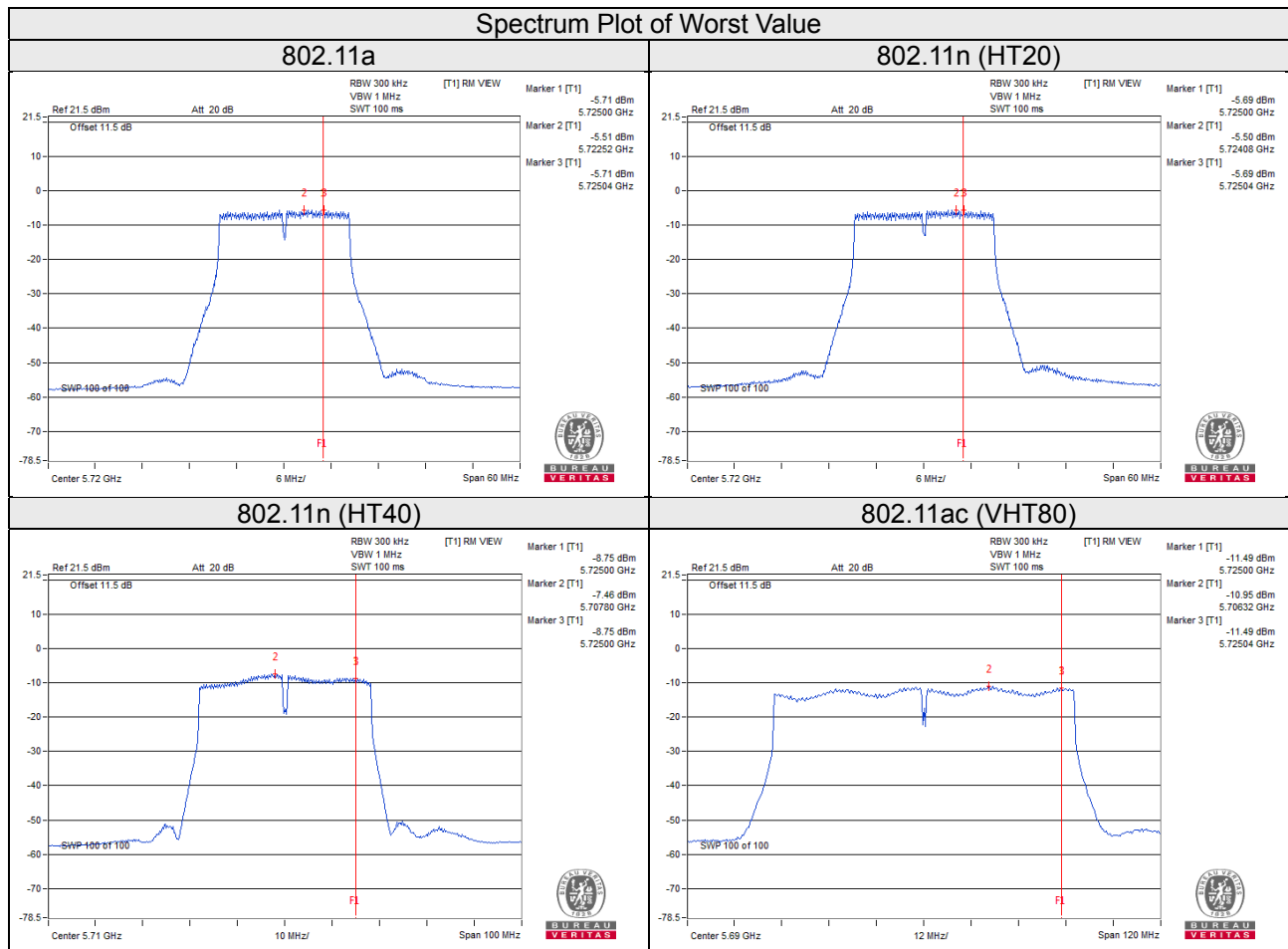
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
2. Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD w/o Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	138	5690	-11.94	-9.72	6.02	0.28	-3.42	27.88	Pass
1	138	5690	-11.49	-9.27	6.02	0.28	-2.97	27.88	Pass
2	138	5690	-12.71	-10.49	6.02	0.28	-4.19	27.88	Pass
3	138	5690	-12.35	-10.13	6.02	0.28	-3.83	27.88	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure and add 10 log (N_{ANT}) dB.
- Directional Gain = 2.1dBi + 10log(4)= 8.12dBi > 6dBi, so the limit shall be reduced to 30-(8.12-6) = 27.88dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

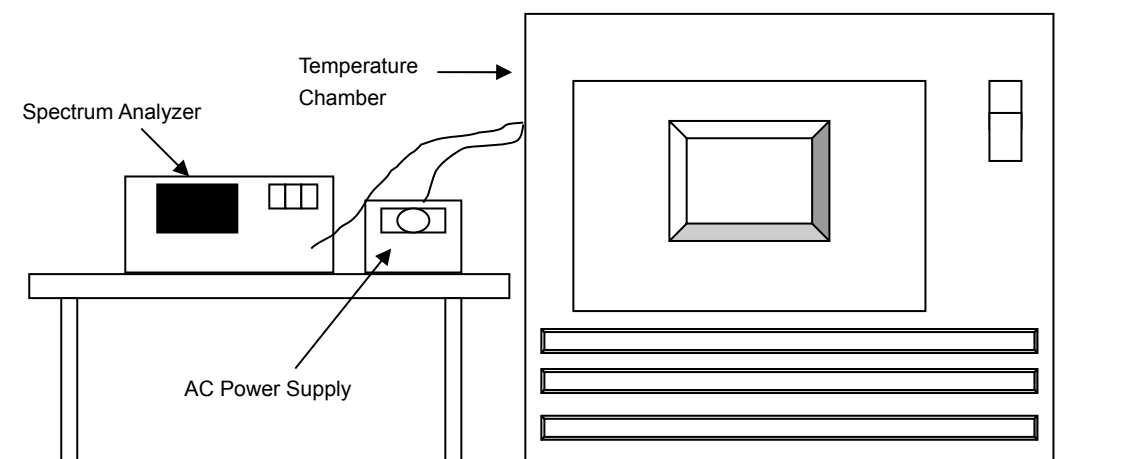


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 03, 2019	Jun. 02, 2020
Digital Multimeter Fluke	87-III	70360742	Jun. 29, 2018	Jun. 28, 2019
			Jun. 28, 2019	Jun. 27, 2020
AC Power Supply Extech	CFW-105	E000603	NA	NA

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

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 c and d with every 10 degrees reduction until the lowest temperature achieved.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
50	120	5260.0128	Pass	5260.015	Pass	5260.0138	Pass	5260.0124	Pass
40	120	5260.003	Pass	5259.9988	Pass	5260.0022	Pass	5260.0006	Pass
30	120	5259.9874	Pass	5259.9853	Pass	5259.9852	Pass	5259.9875	Pass
20	120	5259.9911	Pass	5259.9945	Pass	5259.9913	Pass	5259.99	Pass
10	120	5259.9813	Pass	5259.9802	Pass	5259.9821	Pass	5259.9816	Pass
0	120	5259.9813	Pass	5259.9851	Pass	5259.981	Pass	5259.9843	Pass

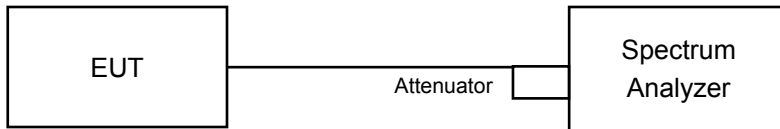
Frequency Stability Versus Voltage									
Operating Frequency: 5260MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5259.9917	Pass	5259.9941	Pass	5259.9921	Pass	5259.9908	Pass
	120	5259.9911	Pass	5259.9945	Pass	5259.9913	Pass	5259.99	Pass
	102	5259.9904	Pass	5259.9944	Pass	5259.9905	Pass	5259.9909	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144	5720 (For U-NII-3)	3.21	2.91	3.19	3.20	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
144	5720 (For U-NII-3)	3.81	3.17	3.20	3.81	0.5	Pass

802.11n (HT40)

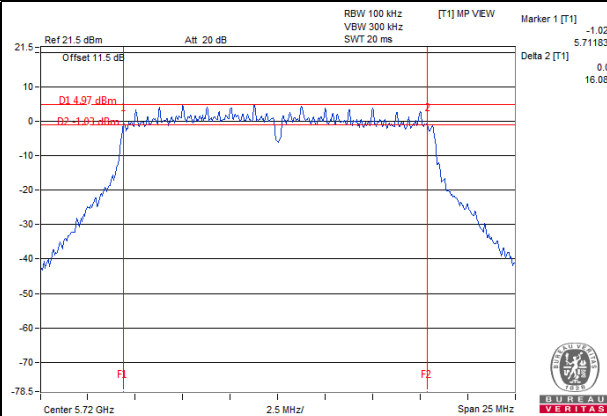
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
142	5710 (For U-NII-2C)	2.65	3.20	2.65	2.58	0.5	Pass

802.11ac (VHT80)

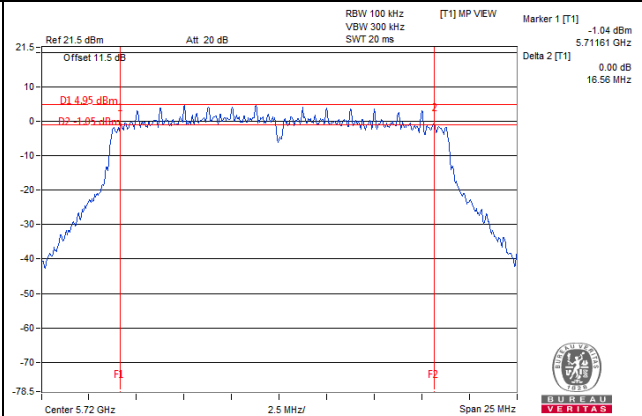
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
138	5690 (For U-NII-2C)	3.24	3.23	3.25	3.20	0.5	Pass

Spectrum Plot of Worst Value

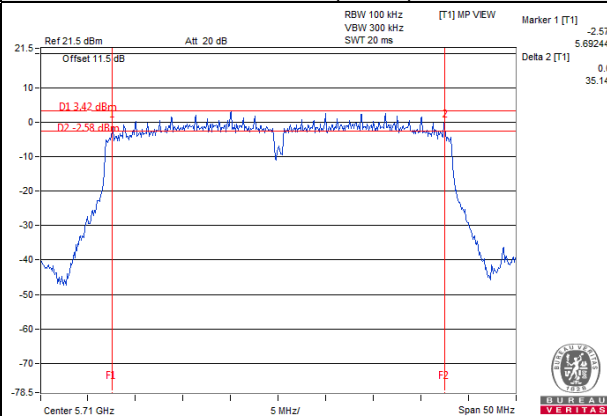
802.11a



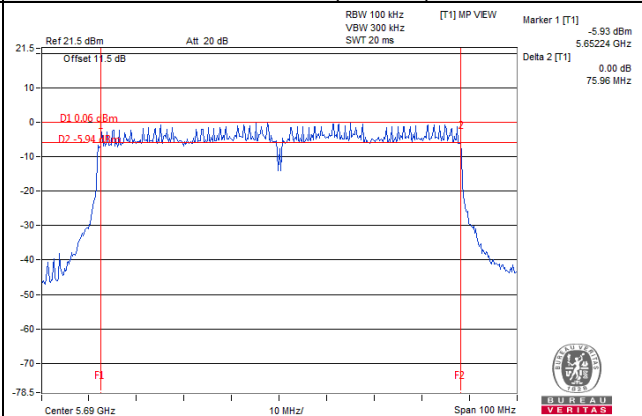
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



Note:

For CH144 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

For CH142 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

For CH138 (UNII-3 Band): The 6dB bandwidth above 5725MHz = Marker 1 + Delta 2 - 5725MHz

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

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

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