

FCC Test Report

Report No.: RF180524C28A

FCC ID: 2AKCZ-0D1

Test Model: APL46-0D1

Received Date: May 04, 2018

Test Date: May 16 ~ Jun. 20, 2018

Issued Date: Jul. 26, 2018

Applicant: SonicWall 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
RF180524C28A	Original release	Jul. 26, 2018

1 Certificate of Conformity

Product: Wireless Access Point

Brand: SONICWALL

Test Model: APL46-0D1

Sample Status: Engineering sample

Applicant: SonicWall Inc.

Test Date: May 16 ~ Jun. 20, 2018

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:** Jul. 26, 2018
Celine Chou / Specialist

Approved by : Bruce Chen , **Date:** Jul. 26, 2018
Bruce Chen / 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 -5.34dB at 0.51856MHz.
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 -1.3dB at 5350.00MHz.
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(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connectors are N-Type, N-jack and IPEX not a standard connector.

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	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	Wireless Access Point
Brand	SONICWALL
Test Model	APL46-0D1
Sample Status	Engineering sample
Power Supply Rating	54Vdc from 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 300Mbps 802.11ac: up to 867Mbps
Operating Frequency	5260 ~ 5320MHz, 5500 ~ 5700MHz
Number of Channel	5260 ~ 5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500 ~ 5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2
Output Power	Radio 2, Dipole Ant.: CDD Mode: 5260 ~ 5320MHz: 217.300mW 5500 ~ 5700MHz: 178.919mW Beamforming Mode: 5260 ~ 5320MHz: 108.657mW 5500 ~ 5700MHz: 89.466mW Radio 2, Sector Ant.: CDD Mode: 5260 ~ 5320MHz: 33.948mW 5500 ~ 5700MHz: 34.415mW Beamforming Mode: 5260 ~ 5320MHz: 16.975mW 5500 ~ 5700MHz: 17.209mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	1.78m non-shielded ground cable without core

Note:

1. This report is prepared for FCC class II permissive change. The differences compared with the original report (BV ADT report no.: RF180524C28-1) are adding 5.26GHz to 5.32GHz and 5.50GHz to 5.72GHz by software and adding a crystal (BTY2) and corresponding passive components(BC46, C208) in our platform for BTE. This RTC has nothing to do with BLE RF power, regardless of any BLE signal quality.
2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	Beamforming Mode	TX Function	Remark
802.11a	Not Support	2TX	Radio 2
802.11n (HT20)	Support	2TX	
802.11n (HT40)	Support	2TX	
802.11ac (VHT20)	Support	2TX	
802.11ac (VHT40)	Support	2TX	
802.11ac (VHT80)	Support	2TX	

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

* For 802.11n and 802.11ac, 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.


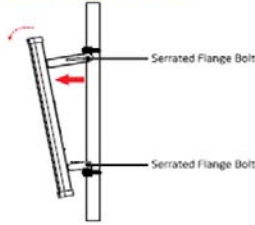

3. The EUT consumes power from the following PoE. (for support unit only)

PoE	
Brand	EnGenius
Model	EPA5006GAT
Input	100-240Vac, 50-60Hz, 0.8A
Output	54Vdc, 0.6A PIN 4,5: 54V PIN 7,8: RETURN

4. The following antennas were provided to the EUT.

1. The following antennas were provided to the EOP:															
No.	Antenna Model	Freq. Range	Type	Con nector	Gain (dBi)										Remark
					2400	2450	2500	5150	5250	5350	5500	5600	5725	5850	
1	DA2105 (D121-05)	2.4G	Dipole	N-Type	4.1	4.2	4.5	-	-	-	-	-	-	-	Radio 1 (WLAN 2.4G: 2TX)
2	DA5107 (D151-07)	5G	Dipole	N-Type	-	-	-	6.3	6.3	5.4	5.0	5.1	5.2	5.1	Radio 2 (WLAN 5G: 2TX)
					Ant.1 (2400-2500MHz)					Ant.2 (2400-2500MHz)					
3	S122-12	2.4G	Sector	N-jack	12.60					12.00					Radio 1 (WLAN 2.4G: 2TX)
					Ant.1 (5150-5850MHz)					Ant.2 (5150-5850MHz)					
4	S152-15	5G	Sector	N-jack	14.10					14.60					Radio 2 (WLAN 5G: 2TX)
					2400-2500MHz										
5	BLE Antenna	2.4G	PIFA	IPEX	3.69										Radio 4 (BTLE)
6	Scan Antenna	2.4G	PIFA	IPEX	3.67										Radio 3 (WLAN 2.4G: 1TX)

5. The EUT will install at outdoor area, the highest antenna gain from the horizon above 30 degrees as below, for more detail information please refer to antenna specification and user manual

Antenna Model	Antenna gain	Antenna install degree
DA5107 (D151-07)	-3.89dBi	
Due to device will restricted installation position as above photo, thus consider to above 30 degrees from the horizon the highest antenna gain are chosen from antenna specification exhibits from 120 to 240 degrees, 300 to 60 degrees for U-NII-1 band		
S152-15	6.83dBi	<div> <div> downtilt up to 10  </div> <div> uptilt up to 10  </div> </div>
Due to device will restricted installation position as above photo, thus consider to above 30 degrees from the horizon the highest antenna gain are chosen from antenna specification exhibits from 290 to 70 degrees for U-NII-1 band		

3.2 Description of Test Modes

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 ~ 5700MHz:

11 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		

5 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		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	122	5610 MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT (Radio 2) with dipole ant.
B	√	√	√	√	EUT (Radio 2) with sector ant.

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement
PLC: Power Line Conducted Emission

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

Note: The EUT positioned on **Z-plane**.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	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, B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	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	802.11a	5260-5320	52 to 64	52	OFDM	6.0
	802.11a	5500-5700	100 to 140		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	802.11a	5260-5320	52 to 64	52	OFDM	6.0
	802.11a	5500-5700	100 to 140		OFDM	6.0

Peak Power Spectral Density, Bandwidth and Frequency Stability 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, B	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, B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3

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)
CDD Mode						
A, B	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, B	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
Beamforming Mode						
A, B	802.11n (HT20)	5260-5320	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, B	802.11n (HT20)	5500-5700	100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE _≥ 1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
RE _{<} 1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
PLC	24 deg. C, 66% RH	120Vac, 60Hz	Willy Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

Test Mode A (Radio 2, Dipole Ant.)

802.11n (HT20): Duty cycle of test signal is > 98%, duty factor is not required.

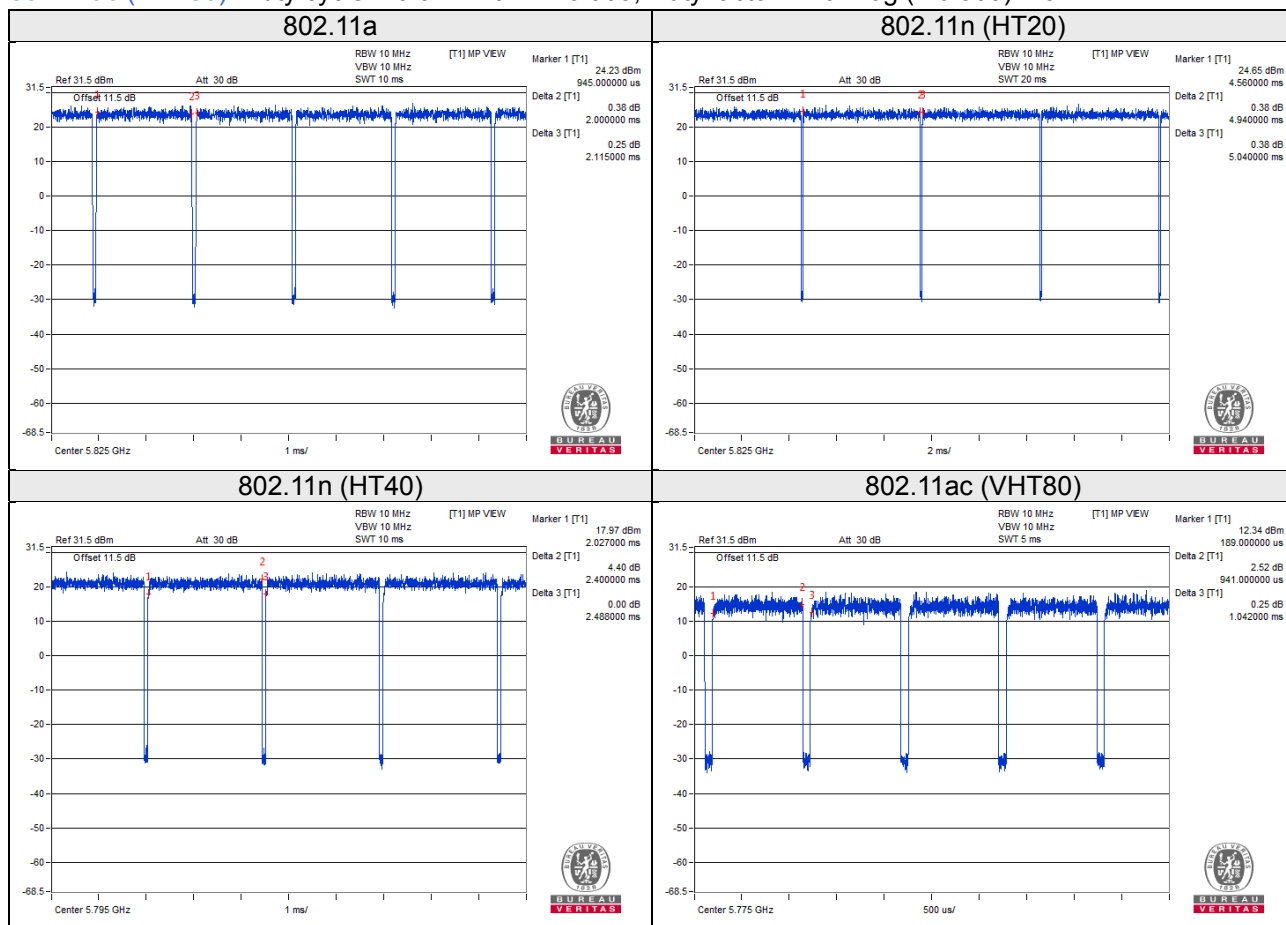
802.11a, 802.11n (HT40), 802.11ac (VHT80): Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = $2.000/2.115 = 0.946$, Duty factor = $10 * \log(1/0.946) = 0.24$

802.11n (HT20): Duty cycle = $4.940/5.040 = 0.980$

802.11n (HT40): Duty cycle = $2.400/2.488 = 0.965$, Duty factor = $10 * \log(1/0.965) = 0.16$

802.11ac (VHT80): Duty cycle = $0.941/1.042 = 0.903$, Duty factor = $10 * \log(1/0.903) = 0.44$



Test Mode B (Radio 2, Sector Ant.)

802.11n (HT20): Duty cycle of test signal is > 98%, duty factor is not required.

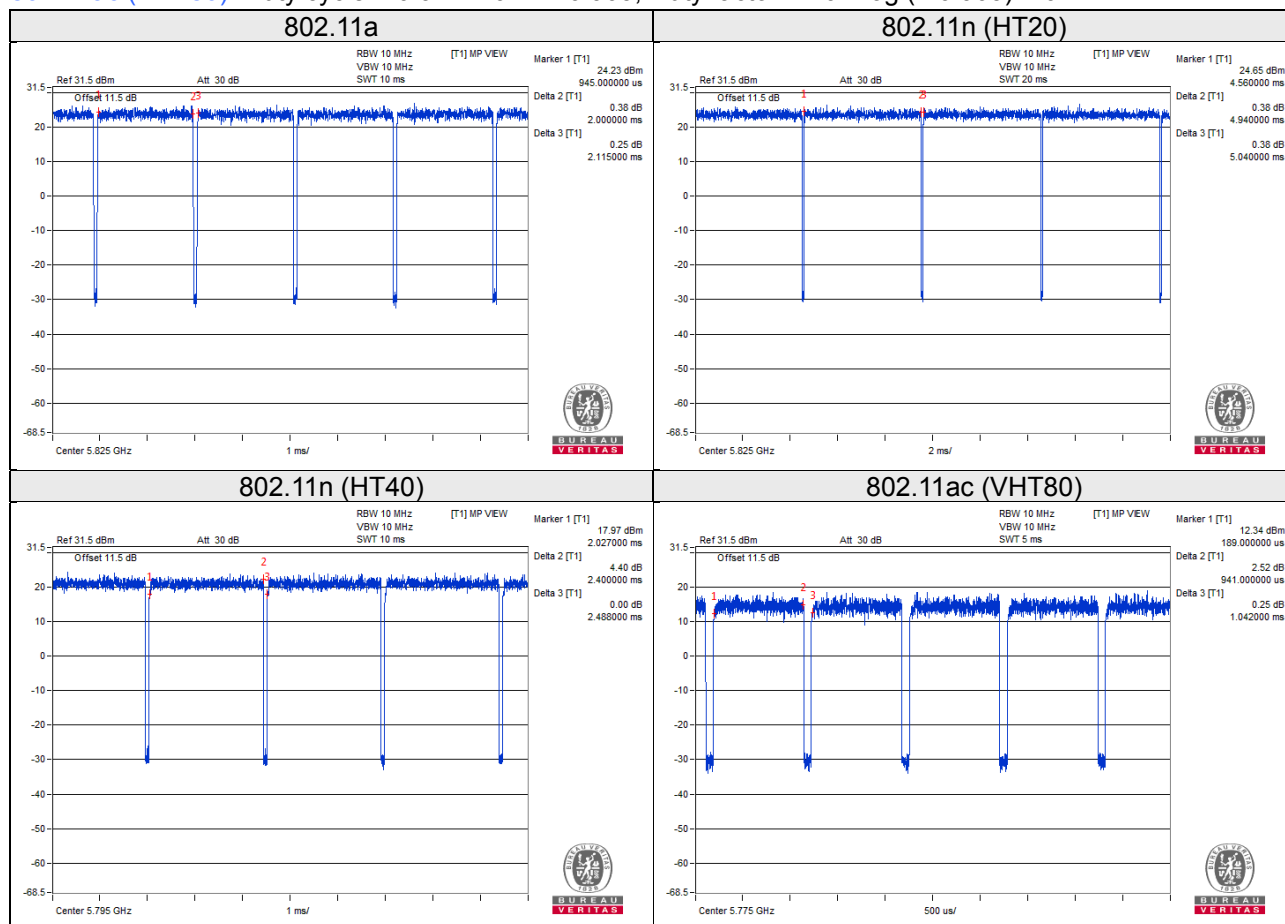
802.11a, 802.11n (HT40), 802.11ac (VHT80): Duty cycle of test signal is < 98%, duty factor is required.

802.11a: Duty cycle = $2.000/2.115 = 0.946$, Duty factor = $10 * \log (1/0.946) = 0.24$

802.11n (HT20): Duty cycle = $4.940/5.040 = 0.980$

802.11n (HT40): Duty cycle = $2.400/2.488 = 0.965$, Duty factor = $10 * \log (1/0.965) = 0.16$

802.11ac (VHT80): Duty cycle = $0.941/1.042 = 0.903$, Duty factor = $10 * \log (1/0.903) = 0.44$



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.

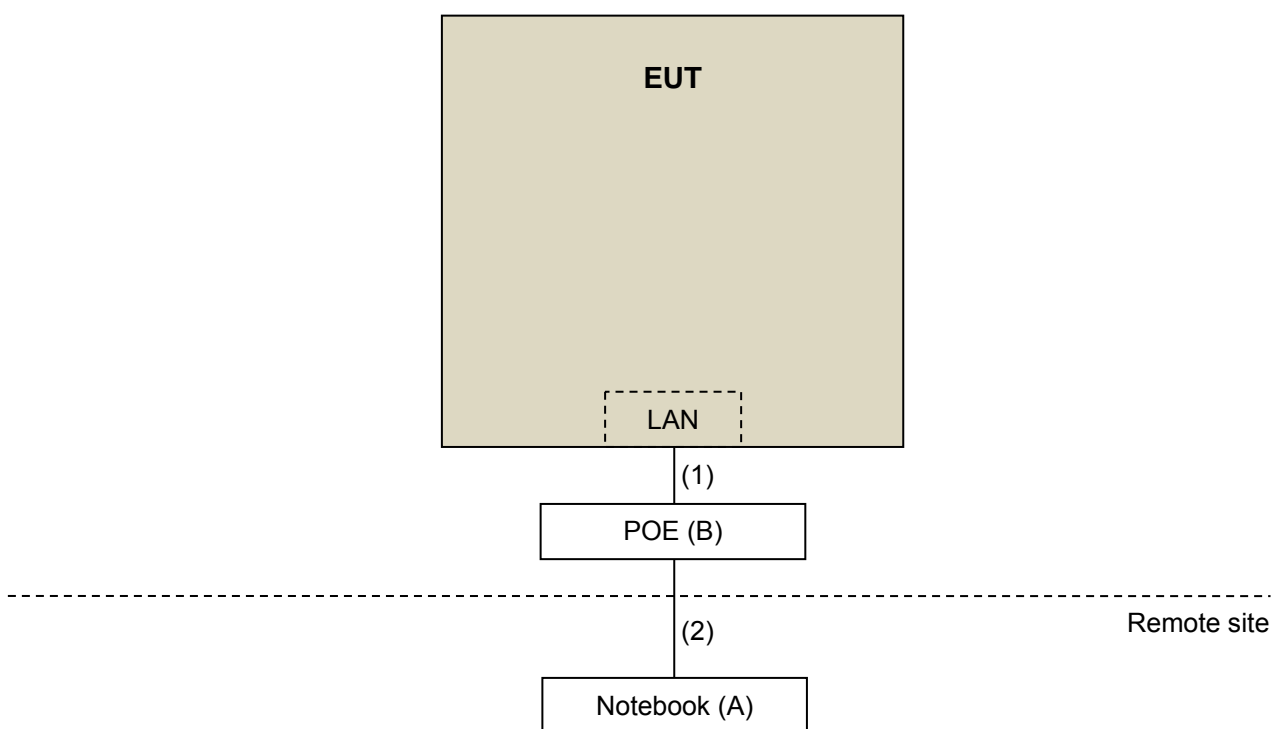
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by manufacturer

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, Cat5e	1	1	N	0	-
2.	RJ45, Cat5e	1	6	N	0	-

3.4.1 Configuration of System under Test



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	<input type="checkbox"/>	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}
	<input type="checkbox"/>	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.			^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 03, 2018	Apr. 02, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8 000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
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
26GHz ~ 40GHz Amplifier Agilent	8449B	3008A1960	Aug. 08, 2017	Aug. 07, 2018
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018
			Jun. 04, 2018	Jun. 03, 2019

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
5. The IC Site Registration No. is IC 7450F-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:

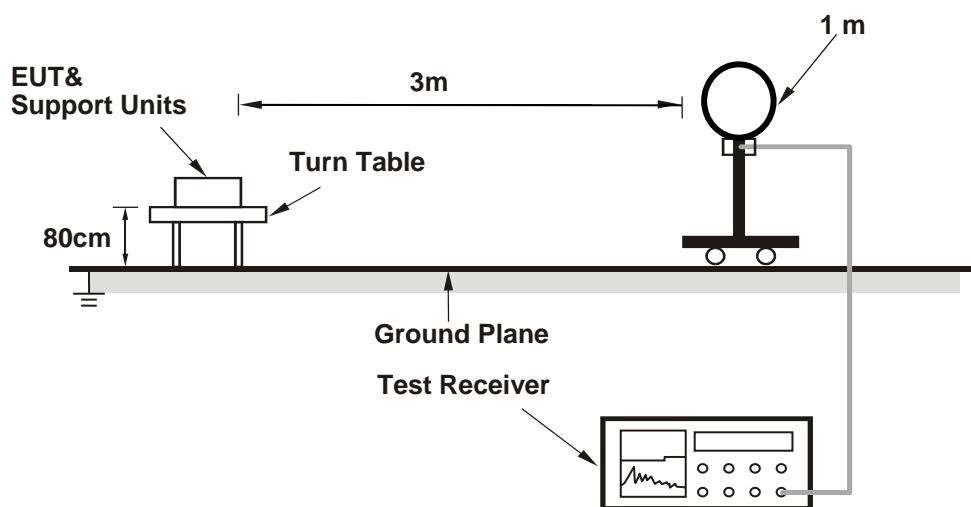
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

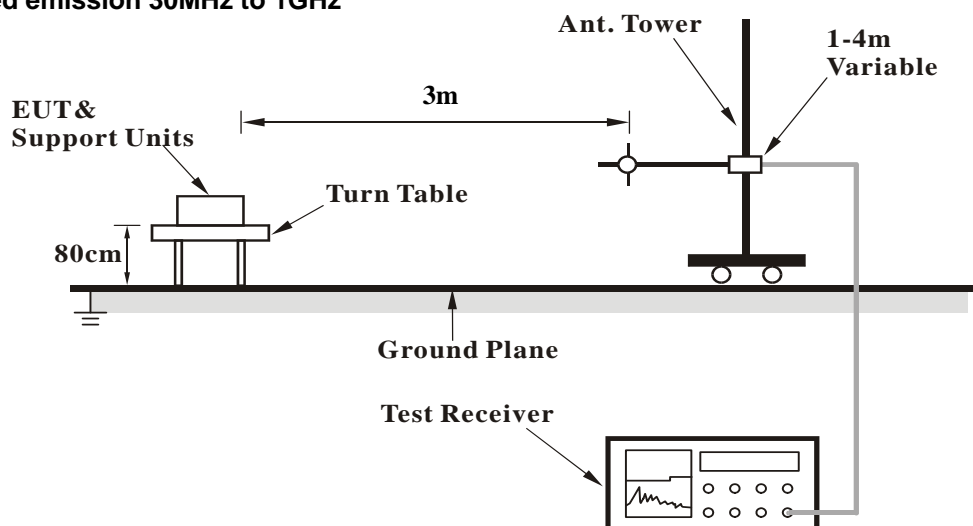
No deviation.

4.1.5 Test Setup

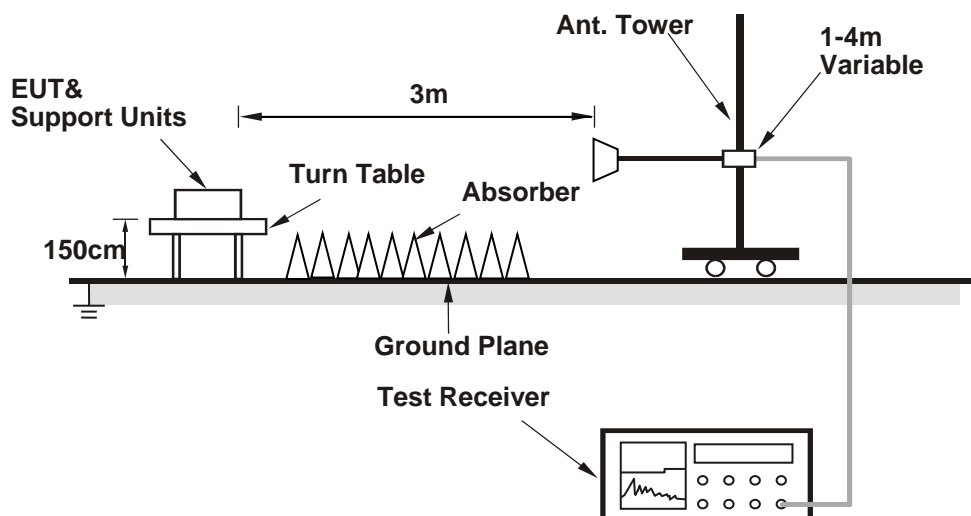
For Radiated emission below 30MHz



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 (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

Above 1GHz data:

Test Mode A (Radio 2, Dipole Ant.)

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	45.5 PK	74.0	-28.5	2.23 H	203	41.6	3.9
2	5150.00	42.2 AV	54.0	-11.8	2.23 H	203	38.3	3.9
3	*5260.00	104.3 PK			2.11 H	193	64.9	39.4
4	*5260.00	94.0 AV			2.11 H	193	54.6	39.4
5	#10520.00	58.5 PK	74.0	-15.5	1.55 H	288	41.7	16.8
6	#10520.00	45.0 AV	54.0	-9.0	1.55 H	288	28.2	16.8
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	5150.00	56.7 PK	74.0	-17.3	1.80 V	322	52.8	3.9
2	5150.00	44.4 AV	54.0	-9.6	1.80 V	322	40.5	3.9
3	*5260.00	121.4 PK			1.68 V	356	82.0	39.4
4	*5260.00	110.3 AV			1.68 V	356	70.9	39.4
5	#10520.00	57.8 PK	74.0	-16.2	2.28 V	233	41.0	16.8
6	#10520.00	45.2 AV	54.0	-8.8	2.28 V	233	28.4	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	102.9 PK			2.05 H	189	63.5	39.4
2	*5300.00	92.5 AV			2.05 H	189	53.1	39.4
3	10600.00	58.2 PK	74.0	-15.8	1.63 H	297	41.2	17.0
4	10600.00	45.2 AV	54.0	-8.8	1.63 H	297	28.2	17.0
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	*5300.00	119.9 PK			1.66 V	132	80.5	39.4
2	*5300.00	109.4 AV			1.66 V	132	70.0	39.4
3	10600.00	58.7 PK	74.0	-15.3	1.91 V	219	41.7	17.0
4	10600.00	45.2 AV	54.0	-8.8	1.91 V	219	28.2	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	102.0 PK			1.64 H	188	62.5	39.5
2	*5320.00	91.4 AV			1.64 H	188	51.9	39.5
3	5350.00	67.5 PK	74.0	-6.5	1.77 H	193	63.5	4.0
4	5350.00	48.3 AV	54.0	-5.7	1.77 H	193	44.3	4.0
5	10640.00	58.2 PK	74.0	-15.8	1.95 H	263	41.2	17.0
6	10640.00	45.0 AV	54.0	-9.0	1.95 H	263	28.0	17.0
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	*5320.00	118.2 PK			1.71 V	315	78.7	39.5
2	*5320.00	107.5 AV			1.71 V	315	68.0	39.5
3	5350.00	70.7 PK	74.0	-3.3	1.87 V	313	66.7	4.0
4	5350.00	52.4 AV	54.0	-1.6	1.87 V	313	48.4	4.0
5	10640.00	58.2 PK	74.0	-15.8	1.90 V	198	41.2	17.0
6	10640.00	44.8 AV	54.0	-9.2	1.90 V	198	27.8	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.9 PK	74.0	-18.1	1.71 H	161	51.5	4.4
2	5460.00	43.6 AV	54.0	-10.4	1.71 H	161	39.2	4.4
3	#5470.00	58.7 PK	74.0	-15.3	1.77 H	169	54.3	4.4
4	#5470.00	45.6 AV	54.0	-8.4	1.77 H	169	41.2	4.4
5	*5500.00	99.0 PK			1.69 H	158	58.9	40.1
6	*5500.00	88.3 AV			1.69 H	158	48.2	40.1
7	11000.00	62.1 PK	74.0	-11.9	2.02 H	283	43.4	18.7
8	11000.00	48.4 AV	54.0	-5.6	2.02 H	283	29.7	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	58.3 PK	74.0	-15.7	1.91 V	320	53.9	4.4
2	5460.00	45.7 AV	54.0	-8.3	1.91 V	320	41.3	4.4
3	#5470.00	72.3 PK	74.0	-1.7	1.83 V	311	67.9	4.4
4	#5470.00	52.3 AV	54.0	-1.7	1.83 V	311	47.9	4.4
5	*5500.00	116.6 PK			1.86 V	307	76.5	40.1
6	*5500.00	105.8 AV			1.86 V	307	65.7	40.1
7	11000.00	60.1 PK	74.0	-13.9	2.10 V	222	41.4	18.7
8	11000.00	46.4 AV	54.0	-7.6	2.10 V	222	27.7	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	100.3 PK			2.01 H	314	60.3	40.0
2	*5580.00	89.4 AV			2.01 H	314	49.4	40.0
3	11160.00	60.2 PK	74.0	-13.8	1.97 H	303	42.7	17.5
4	11160.00	47.1 AV	54.0	-6.9	1.97 H	303	29.6	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	*5580.00	118.5 PK			1.67 V	309	78.5	40.0
2	*5580.00	108.0 AV			1.67 V	309	68.0	40.0
3	11160.00	58.2 PK	74.0	-15.8	2.00 V	193	40.7	17.5
4	11160.00	45.1 AV	54.0	-8.9	2.00 V	193	27.6	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	99.6 PK			1.13 H	170	59.6	40.0
2	*5700.00	88.6 AV			1.13 H	170	48.6	40.0
3	#5725.00	56.7 PK	74.0	-17.3	1.36 H	187	52.3	4.4
4	#5725.00	44.0 AV	54.0	-10.0	1.36 H	187	39.6	4.4
5	11400.00	61.9 PK	74.0	-12.1	2.09 H	254	44.5	17.4
6	11400.00	47.7 AV	54.0	-6.3	2.09 H	254	30.3	17.4
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	*5700.00	116.4 PK			1.77 V	347	76.4	40.0
2	*5700.00	105.5 AV			1.77 V	347	65.5	40.0
3	#5725.00	67.4 PK	74.0	-6.6	1.71 V	349	63.0	4.4
4	#5725.00	52.6 AV	54.0	-1.4	1.71 V	349	48.2	4.4
5	11400.00	56.6 PK	74.0	-17.4	2.22 V	263	39.2	17.4
6	11400.00	43.9 AV	54.0	-10.1	2.22 V	263	26.5	17.4

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	45.8 PK	74.0	-28.2	1.98 H	196	41.9	3.9
2	5150.00	42.1 AV	54.0	-11.9	1.98 H	196	38.2	3.9
3	*5260.00	103.1 PK			2.11 H	201	63.7	39.4
4	*5260.00	91.8 AV			2.11 H	201	52.4	39.4
5	#10520.00	59.0 PK	74.0	-15.0	2.18 H	233	42.2	16.8
6	#10520.00	45.0 AV	54.0	-9.0	2.18 H	233	28.2	16.8
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	5150.00	56.6 PK	74.0	-17.4	1.83 V	2	52.7	3.9
2	5150.00	44.1 AV	54.0	-9.9	1.83 V	2	40.2	3.9
3	*5260.00	120.9 PK			1.77 V	357	81.5	39.4
4	*5260.00	110.0 AV			1.77 V	357	70.6	39.4
5	#10520.00	58.6 PK	74.0	-15.4	1.99 V	223	41.8	16.8
6	#10520.00	45.4 AV	54.0	-8.6	1.99 V	223	28.6	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.7 PK			2.11 H	195	64.3	39.4
2	*5300.00	92.4 AV			2.11 H	195	53.0	39.4
3	10600.00	58.6 PK	74.0	-15.4	1.87 H	231	41.6	17.0
4	10600.00	45.2 AV	54.0	-8.8	1.87 H	231	28.2	17.0
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	*5300.00	121.1 PK			1.74 V	315	81.7	39.4
2	*5300.00	109.6 AV			1.74 V	315	70.2	39.4
3	10600.00	59.0 PK	74.0	-15.0	2.21 V	197	42.0	17.0
4	10600.00	45.3 AV	54.0	-8.7	2.21 V	197	28.3	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	101.7 PK			2.10 H	196	62.2	39.5
2	*5320.00	90.0 AV			2.10 H	196	50.5	39.5
3	5350.00	55.7 PK	74.0	-18.3	1.97 H	203	51.7	4.0
4	5350.00	42.7 AV	54.0	-11.3	1.97 H	203	38.7	4.0
5	10640.00	58.0 PK	74.0	-16.0	1.93 H	263	41.0	17.0
6	10640.00	45.2 AV	54.0	-8.8	1.93 H	263	28.2	17.0
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	*5320.00	119.0 PK			1.77 V	315	79.5	39.5
2	*5320.00	108.0 AV			1.77 V	315	68.5	39.5
3	5350.00	69.8 PK	74.0	-4.2	1.60 V	354	65.8	4.0
4	5350.00	52.3 AV	54.0	-1.7	1.60 V	354	48.3	4.0
5	10640.00	59.2 PK	74.0	-14.8	2.09 V	254	42.2	17.0
6	10640.00	45.0 AV	54.0	-9.0	2.09 V	254	28.0	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	55.9 PK	74.0	-18.1	2.20 H	203	51.5	4.4
2	5460.00	43.4 AV	54.0	-10.6	2.20 H	203	39.0	4.4
3	#5470.00	57.2 PK	74.0	-16.8	1.99 H	210	52.8	4.4
4	#5470.00	44.1 AV	54.0	-9.9	1.99 H	210	39.7	4.4
5	*5500.00	97.9 PK			2.04 H	198	57.8	40.1
6	*5500.00	87.5 AV			2.04 H	198	47.4	40.1
7	11000.00	61.3 PK	74.0	-12.7	1.91 H	244	42.6	18.7
8	11000.00	48.2 AV	54.0	-5.8	1.91 H	244	29.5	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	58.4 PK	74.0	-15.6	1.76 V	343	54.0	4.4
2	5460.00	46.5 AV	54.0	-7.5	1.76 V	343	42.1	4.4
3	#5470.00	71.1 PK	74.0	-2.9	1.81 V	339	66.7	4.4
4	#5470.00	52.2 AV	54.0	-1.8	1.81 V	339	47.8	4.4
5	*5500.00	117.0 PK			1.76 V	351	76.9	40.1
6	*5500.00	106.1 AV			1.76 V	351	66.0	40.1
7	11000.00	60.4 PK	74.0	-13.6	2.06 V	254	41.7	18.7
8	11000.00	46.1 AV	54.0	-7.9	2.06 V	254	27.4	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	101.6 PK			2.01 H	315	61.6	40.0
2	*5580.00	90.5 AV			2.01 H	315	50.5	40.0
3	11160.00	60.5 PK	74.0	-13.5	1.87 H	211	43.0	17.5
4	11160.00	46.8 AV	54.0	-7.2	1.87 H	211	29.3	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	*5580.00	119.5 PK			1.80 V	311	79.5	40.0
2	*5580.00	108.2 AV			1.80 V	311	68.2	40.0
3	11160.00	58.8 PK	74.0	-15.2	2.13 V	205	41.3	17.5
4	11160.00	45.5 AV	54.0	-8.5	2.13 V	205	28.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	98.3 PK			2.08 H	313	58.3	40.0
2	*5700.00	87.4 AV			2.08 H	313	47.4	40.0
3	#5725.00	57.1 PK	74.0	-16.9	1.87 H	330	52.7	4.4
4	#5725.00	44.0 AV	54.0	-10.0	1.87 H	330	39.6	4.4
5	11400.00	60.6 PK	74.0	-13.4	1.99 H	266	43.2	17.4
6	11400.00	47.9 AV	54.0	-6.1	1.99 H	266	30.5	17.4
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	*5700.00	116.7 PK			1.78 V	350	76.7	40.0
2	*5700.00	105.2 AV			1.78 V	350	65.2	40.0
3	#5725.00	68.5 PK	74.0	-5.5	1.82 V	0	64.1	4.4
4	#5725.00	52.3 AV	54.0	-1.7	1.82 V	0	47.9	4.4
5	11400.00	61.2 PK	74.0	-12.8	1.99 V	235	43.8	17.4
6	11400.00	47.6 AV	54.0	-6.4	1.99 V	235	30.2	17.4

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.4 PK	74.0	-18.6	2.13 H	207	51.5	3.9
2	5150.00	42.2 AV	54.0	-11.8	2.13 H	207	38.3	3.9
3	*5270.00	101.5 PK			2.08 H	198	62.1	39.4
4	*5270.00	91.4 AV			2.08 H	198	52.0	39.4
5	5350.00	55.9 PK	74.0	-18.1	2.02 H	212	51.9	4.0
6	5350.00	42.7 AV	54.0	-11.3	2.02 H	212	38.7	4.0
7	#10540.00	58.7 PK	74.0	-15.3	1.93 H	231	41.8	16.9
8	#10540.00	45.6 AV	54.0	-8.4	1.93 H	231	28.7	16.9
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	59.3 PK	74.0	-14.7	1.88 V	356	55.4	3.9
2	5150.00	44.6 AV	54.0	-9.4	1.88 V	356	40.7	3.9
3	*5270.00	118.1 PK			1.74 V	316	78.7	39.4
4	*5270.00	107.8 AV			1.74 V	316	68.4	39.4
5	5350.00	67.0 PK	74.0	-7.0	1.80 V	317	63.0	4.0
6	5350.00	50.7 AV	54.0	-3.3	1.80 V	317	46.7	4.0
7	#10540.00	58.5 PK	74.0	-15.5	2.21 V	231	41.6	16.9
8	#10540.00	45.4 AV	54.0	-8.6	2.21 V	231	28.5	16.9

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	97.0 PK			1.44 H	125	57.6	39.4
2	*5310.00	86.6 AV			1.44 H	125	47.2	39.4
3	5350.00	56.5 PK	74.0	-17.5	1.63 H	133	52.5	4.0
4	5350.00	42.6 AV	54.0	-11.4	1.63 H	133	38.6	4.0
5	10620.00	59.1 PK	74.0	-14.9	1.87 H	293	42.0	17.1
6	10620.00	45.1 AV	54.0	-8.9	1.87 H	293	28.0	17.1
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	114.8 PK			1.80 V	315	75.4	39.4
2	*5310.00	104.5 AV			1.80 V	315	65.1	39.4
3	5350.00	72.7 PK	74.0	-1.3	1.87 V	313	68.7	4.0
4	5350.00	52.5 AV	54.0	-1.5	1.87 V	313	48.5	4.0
5	10620.00	58.0 PK	74.0	-16.0	2.03 V	299	40.9	17.1
6	10620.00	44.8 AV	54.0	-9.2	2.03 V	299	27.7	17.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	53.8 PK	74.0	-20.2	1.88 H	197	49.4	4.4
2	5460.00	42.4 AV	54.0	-11.6	1.88 H	197	38.0	4.4
3	#5470.00	56.4 PK	74.0	-17.6	1.83 H	212	52.0	4.4
4	#5470.00	43.4 AV	54.0	-10.6	1.83 H	212	39.0	4.4
5	*5510.00	95.3 PK			1.75 H	193	55.2	40.1
6	*5510.00	84.7 AV			1.75 H	193	44.6	40.1
7	11020.00	59.9 PK	74.0	-14.1	2.15 H	304	41.5	18.4
8	11020.00	46.4 AV	54.0	-7.6	2.15 H	304	28.0	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	5460.00	57.5 PK	74.0	-16.5	1.51 V	303	53.1	4.4
2	5460.00	45.9 AV	54.0	-8.1	1.51 V	303	41.5	4.4
3	#5470.00	68.4 PK	74.0	-5.6	1.84 V	311	64.0	4.4
4	#5470.00	52.4 AV	54.0	-1.6	1.84 V	311	48.0	4.4
5	*5510.00	112.1 PK			1.78 V	312	72.0	40.1
6	*5510.00	101.6 AV			1.78 V	312	61.5	40.1
7	11020.00	59.9 PK	74.0	-14.1	1.89 V	266	41.5	18.4
8	11020.00	46.6 AV	54.0	-7.4	1.89 V	266	28.2	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	100.7 PK			1.66 H	195	60.7	40.0
2	*5550.00	90.3 AV			1.66 H	195	50.3	40.0
3	11100.00	58.8 PK	74.0	-15.2	1.97 H	294	41.3	17.5
4	11100.00	45.3 AV	54.0	-8.7	1.97 H	294	27.8	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	*5550.00	116.0 PK			1.86 V	353	76.0	40.0
2	*5550.00	105.6 AV			1.86 V	353	65.6	40.0
3	11100.00	59.2 PK	74.0	-14.8	2.39 V	166	41.7	17.5
4	11100.00	45.3 AV	54.0	-8.7	2.39 V	166	27.8	17.5

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	99.0 PK			1.73 H	196	58.9	40.1
2	*5670.00	88.8 AV			1.73 H	196	48.7	40.1
3	#5725.00	56.3 PK	74.0	-17.7	1.93 H	205	51.7	4.6
4	#5725.00	43.1 AV	54.0	-10.9	1.93 H	205	38.5	4.6
5	11340.00	60.2 PK	74.0	-13.8	2.35 H	322	41.5	18.7
6	11340.00	47.0 AV	54.0	-7.0	2.35 H	322	28.3	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	*5670.00	114.6 PK			1.95 V	307	74.5	40.1
2	*5670.00	104.1 AV			1.95 V	307	64.0	40.1
3	#5725.00	68.8 PK	74.0	-5.2	1.65 V	350	64.4	4.4
4	#5725.00	52.5 AV	54.0	-1.5	1.65 V	350	48.1	4.4
5	11340.00	59.6 PK	74.0	-14.4	2.35 V	211	41.8	17.8
6	11340.00	46.5 AV	54.0	-7.5	2.35 V	211	28.7	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	55.3 PK	74.0	-18.7	1.81 H	144	51.4	3.9
2	5150.00	42.3 AV	54.0	-11.7	1.81 H	144	38.4	3.9
3	*5290.00	93.6 PK			1.74 H	129	54.2	39.4
4	*5290.00	83.6 AV			1.74 H	129	44.2	39.4
5	5350.00	55.9 PK	74.0	-18.1	1.79 H	133	51.9	4.0
6	5350.00	43.3 AV	54.0	-10.7	1.79 H	133	39.3	4.0
7	#10580.00	59.1 PK	74.0	-14.9	2.04 H	210	42.0	17.1
8	#10580.00	45.8 AV	54.0	-8.2	2.04 H	210	28.7	17.1
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	61.2 PK	74.0	-12.8	1.90 V	319	57.3	3.9
2	5150.00	45.9 AV	54.0	-8.1	1.90 V	319	42.0	3.9
3	*5290.00	111.0 PK			1.81 V	313	71.6	39.4
4	*5290.00	100.5 AV			1.81 V	313	61.1	39.4
5	5350.00	70.8 PK	74.0	-3.2	1.89 V	313	66.8	4.0
6	5350.00	52.4 AV	54.0	-1.6	1.89 V	313	48.4	4.0
7	#10580.00	58.5 PK	74.0	-15.5	1.99 V	221	41.4	17.1
8	#10580.00	45.4 AV	54.0	-8.6	1.99 V	221	28.3	17.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.4 PK	74.0	-19.6	1.89 H	199	50.0	4.4
2	5460.00	42.0 AV	54.0	-12.0	1.89 H	199	37.6	4.4
3	#5470.00	55.6 PK	74.0	-18.4	2.01 H	211	51.2	4.4
4	#5470.00	42.6 AV	54.0	-11.4	2.01 H	211	38.2	4.4
5	*5530.00	88.8 PK			1.99 H	191	48.7	40.1
6	*5530.00	78.5 AV			1.99 H	191	38.4	40.1
7	#5725.00	55.4 PK	74.0	-18.6	1.93 H	205	51.0	4.4
8	#5725.00	42.7 AV	54.0	-11.3	1.93 H	205	38.3	4.4
9	11060.00	59.7 PK	74.0	-14.3	2.26 H	243	41.8	17.9
10	11060.00	46.0 AV	54.0	-8.0	2.26 H	243	28.1	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	60.8 PK	74.0	-13.2	2.22 V	303	56.4	4.4
2	5460.00	46.5 AV	54.0	-7.5	2.22 V	303	42.1	4.4
3	#5470.00	67.3 PK	74.0	-6.7	1.84 V	311	62.9	4.4
4	#5470.00	52.3 AV	54.0	-1.7	1.84 V	311	47.9	4.4
5	*5530.00	106.7 PK			1.82 V	314	66.6	40.1
6	*5530.00	96.4 AV			1.82 V	314	56.3	40.1
7	#5725.00	58.7 PK	74.0	-15.3	1.91 V	323	54.3	4.4
8	#5725.00	44.6 AV	54.0	-9.4	1.91 V	323	40.2	4.4
9	11060.00	59.1 PK	74.0	-14.9	2.18 V	186	41.2	17.9
10	11060.00	46.0 AV	54.0	-8.0	2.18 V	186	28.1	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.7 PK	74.0	-19.3	1.71 H	311	50.3	4.4
2	5460.00	41.4 AV	54.0	-12.6	1.71 H	311	37.0	4.4
3	#5470.00	54.7 PK	74.0	-19.3	1.66 H	303	50.3	4.4
4	#5470.00	41.9 AV	54.0	-12.1	1.66 H	303	37.5	4.4
5	*5610.00	94.3 PK			1.56 H	319	54.2	40.1
6	*5610.00	84.5 AV			1.56 H	319	44.4	40.1
7	#5725.00	54.7 PK	74.0	-19.3	1.80 H	293	50.3	4.4
8	#5725.00	41.9 AV	54.0	-12.1	1.80 H	293	37.5	4.4
9	11220.00	58.6 PK	74.0	-15.4	1.88 H	193	40.9	17.7
10	11220.00	45.7 AV	54.0	-8.3	1.88 H	193	28.0	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	61.4 PK	74.0	-12.6	1.99 V	101	57.0	4.4
2	5460.00	44.0 AV	54.0	-10.0	1.99 V	101	39.6	4.4
3	#5470.00	69.4 PK	74.0	-4.6	1.84 V	26	65.0	4.4
4	#5470.00	50.1 AV	54.0	-3.9	1.84 V	26	45.7	4.4
5	*5610.00	112.3 PK			1.81 V	310	72.2	40.1
6	*5610.00	101.9 AV			1.81 V	310	61.8	40.1
7	#5725.00	68.5 PK	74.0	-5.5	1.71 V	348	64.1	4.4
8	#5725.00	52.6 AV	54.0	-1.4	1.71 V	348	48.2	4.4
9	11220.00	59.2 PK	74.0	-14.8	2.10 V	159	41.5	17.7
10	11220.00	46.2 AV	54.0	-7.8	2.10 V	159	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Test Mode B (Radio 2, Sector Ant.)

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.6 PK	74.0	-16.4	1.99 H	12	53.7	3.9
2	5150.00	44.1 AV	54.0	-9.9	1.99 H	12	40.2	3.9
3	*5260.00	114.6 PK			1.89 H	17	75.2	39.4
4	*5260.00	103.2 AV			1.89 H	17	63.8	39.4
5	#10520.00	59.0 PK	74.0	-15.0	1.71 H	166	42.2	16.8
6	#10520.00	46.4 AV	54.0	-7.6	1.71 H	166	29.6	16.8
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	5150.00	56.5 PK	74.0	-17.5	1.00 V	199	52.6	3.9
2	5150.00	44.1 AV	54.0	-9.9	1.00 V	199	40.2	3.9
3	*5260.00	113.1 PK			1.92 V	24	73.7	39.4
4	*5260.00	102.2 AV			1.92 V	24	62.8	39.4
5	#10520.00	58.8 PK	74.0	-15.2	1.69 V	188	42.0	16.8
6	#10520.00	46.2 AV	54.0	-7.8	1.69 V	188	29.4	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	113.8 PK			1.84 H	15	74.4	39.4
2	*5300.00	102.5 AV			1.84 H	15	63.1	39.4
3	10600.00	59.9 PK	74.0	-14.1	1.99 H	183	42.9	17.0
4	10600.00	46.6 AV	54.0	-7.4	1.99 H	183	29.6	17.0
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	*5300.00	111.8 PK			1.87 V	28	72.4	39.4
2	*5300.00	100.8 AV			1.87 V	28	61.4	39.4
3	10600.00	59.5 PK	74.0	-14.5	1.82 V	185	42.5	17.0
4	10600.00	46.2 AV	54.0	-7.8	1.82 V	185	29.2	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	114.5 PK			1.88 H	16	75.0	39.5
2	*5320.00	103.0 AV			1.88 H	16	63.5	39.5
3	5350.00	58.9 PK	74.0	-15.1	1.98 H	10	54.9	4.0
4	5350.00	45.6 AV	54.0	-8.4	1.98 H	10	41.6	4.0
5	10640.00	59.6 PK	74.0	-14.4	1.85 H	160	42.6	17.0
6	10640.00	46.0 AV	54.0	-8.0	1.85 H	160	29.0	17.0
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	*5320.00	112.8 PK			1.87 V	32	73.3	39.5
2	*5320.00	101.8 AV			1.87 V	32	62.3	39.5
3	5350.00	57.4 PK	74.0	-16.6	1.88 V	27	53.4	4.0
4	5350.00	45.1 AV	54.0	-8.9	1.88 V	27	41.1	4.0
5	10640.00	59.5 PK	74.0	-14.5	1.90 V	179	42.5	17.0
6	10640.00	45.8 AV	54.0	-8.2	1.90 V	179	28.8	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.3 PK	74.0	-17.7	1.99 H	351	51.9	4.4
2	5460.00	44.3 AV	54.0	-9.7	1.99 H	351	39.9	4.4
3	#5470.00	58.9 PK	74.0	-15.1	2.02 H	351	54.5	4.4
4	#5470.00	44.9 AV	54.0	-9.1	2.02 H	351	40.5	4.4
5	*5500.00	113.8 PK			1.95 H	348	73.7	40.1
6	*5500.00	102.5 AV			1.95 H	348	62.4	40.1
7	11000.00	60.7 PK	74.0	-13.3	2.03 H	188	42.0	18.7
8	11000.00	47.6 AV	54.0	-6.4	2.03 H	188	28.9	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	56.4 PK	74.0	-17.6	1.91 V	349	52.0	4.4
2	5460.00	44.4 AV	54.0	-9.6	1.91 V	349	40.0	4.4
3	#5470.00	59.1 PK	74.0	-14.9	1.90 V	355	54.7	4.4
4	#5470.00	45.2 AV	54.0	-8.8	1.90 V	355	40.8	4.4
5	*5500.00	114.1 PK			1.94 V	348	74.0	40.1
6	*5500.00	103.0 AV			1.94 V	348	62.9	40.1
7	11000.00	59.9 PK	74.0	-14.1	1.89 V	188	41.2	18.7
8	11000.00	47.1 AV	54.0	-6.9	1.89 V	188	28.4	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	113.3 PK			1.99 H	348	73.3	40.0
2	*5580.00	102.2 AV			1.99 H	348	62.2	40.0
3	11160.00	60.0 PK	74.0	-14.0	2.13 H	193	42.5	17.5
4	11160.00	46.5 AV	54.0	-7.5	2.13 H	193	29.0	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	*5580.00	113.4 PK			1.93 V	350	73.4	40.0
2	*5580.00	102.6 AV			1.93 V	350	62.6	40.0
3	11160.00	60.7 PK	74.0	-13.3	2.03 V	188	43.2	17.5
4	11160.00	46.5 AV	54.0	-7.5	2.03 V	188	29.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	114.2 PK			2.01 H	359	74.2	40.0
2	*5700.00	102.4 AV			2.01 H	359	62.4	40.0
3	#5725.00	59.7 PK	74.0	-14.3	1.90 H	8	55.3	4.4
4	#5725.00	46.7 AV	54.0	-7.3	1.90 H	8	42.3	4.4
5	11400.00	60.2 PK	74.0	-13.8	1.95 H	188	42.8	17.4
6	11400.00	47.1 AV	54.0	-6.9	1.95 H	188	29.7	17.4
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	*5700.00	114.4 PK			1.99 V	347	74.4	40.0
2	*5700.00	103.4 AV			1.99 V	347	63.4	40.0
3	#5725.00	60.6 PK	74.0	-13.4	2.03 V	358	56.2	4.4
4	#5725.00	46.8 AV	54.0	-7.2	2.03 V	358	42.4	4.4
5	11400.00	60.4 PK	74.0	-13.6	2.09 V	199	43.0	17.4
6	11400.00	47.2 AV	54.0	-6.8	2.09 V	199	29.8	17.4

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.8 PK	74.0	-16.2	1.93 H	17	53.9	3.9
2	5150.00	43.6 AV	54.0	-10.4	1.93 H	17	39.7	3.9
3	*5260.00	114.4 PK			1.89 H	20	75.0	39.4
4	*5260.00	103.1 AV			1.89 H	20	63.7	39.4
5	#10520.00	59.2 PK	74.0	-14.8	1.77 H	169	42.4	16.8
6	#10520.00	46.3 AV	54.0	-7.7	1.77 H	169	29.5	16.8
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	5150.00	57.5 PK	74.0	-16.5	1.97 V	13	53.6	3.9
2	5150.00	45.1 AV	54.0	-8.9	1.97 V	13	41.2	3.9
3	*5260.00	113.6 PK			1.88 V	29	74.2	39.4
4	*5260.00	102.0 AV			1.88 V	29	62.6	39.4
5	#10520.00	59.0 PK	74.0	-15.0	2.03 V	188	42.2	16.8
6	#10520.00	46.1 AV	54.0	-7.9	2.03 V	188	29.3	16.8

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	114.2 PK			1.92 H	20	74.8	39.4
2	*5300.00	102.5 AV			1.92 H	20	63.1	39.4
3	10600.00	60.0 PK	74.0	-14.0	1.79 H	154	43.0	17.0
4	10600.00	46.9 AV	54.0	-7.1	1.79 H	154	29.9	17.0
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	*5300.00	112.3 PK			1.92 V	26	72.9	39.4
2	*5300.00	100.9 AV			1.92 V	26	61.5	39.4
3	10600.00	59.7 PK	74.0	-14.3	1.93 V	178	42.7	17.0
4	10600.00	46.5 AV	54.0	-7.5	1.93 V	178	29.5	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	114.3 PK			1.88 H	16	74.8	39.5
2	*5320.00	102.9 AV			1.88 H	16	63.4	39.5
3	5350.00	58.6 PK	74.0	-15.4	1.98 H	20	54.6	4.0
4	5350.00	45.4 AV	54.0	-8.6	1.98 H	20	41.4	4.0
5	10640.00	60.2 PK	74.0	-13.8	1.75 H	184	43.2	17.0
6	10640.00	46.0 AV	54.0	-8.0	1.75 H	184	29.0	17.0
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	*5320.00	111.8 PK			1.89 V	27	72.3	39.5
2	*5320.00	100.8 AV			1.89 V	27	61.3	39.5
3	5350.00	58.3 PK	74.0	-15.7	1.92 V	32	54.3	4.0
4	5350.00	46.3 AV	54.0	-7.7	1.92 V	32	42.3	4.0
5	10640.00	59.6 PK	74.0	-14.4	1.85 V	191	42.6	17.0
6	10640.00	45.8 AV	54.0	-8.2	1.85 V	191	28.8	17.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.6 PK	74.0	-17.4	2.04 H	359	52.2	4.4
2	5460.00	44.3 AV	54.0	-9.7	2.04 H	359	39.9	4.4
3	#5470.00	58.4 PK	74.0	-15.6	1.91 H	3	54.0	4.4
4	#5470.00	45.1 AV	54.0	-8.9	1.91 H	3	40.7	4.4
5	*5500.00	113.7 PK			1.97 H	353	73.6	40.1
6	*5500.00	101.7 AV			1.97 H	353	61.6	40.1
7	11000.00	60.5 PK	74.0	-13.5	2.13 H	189	41.8	18.7
8	11000.00	47.3 AV	54.0	-6.7	2.13 H	189	28.6	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	56.8 PK	74.0	-17.2	2.02 V	355	52.4	4.4
2	5460.00	44.6 AV	54.0	-9.4	2.02 V	355	40.2	4.4
3	#5470.00	58.5 PK	74.0	-15.5	1.91 V	344	54.1	4.4
4	#5470.00	45.2 AV	54.0	-8.8	1.91 V	344	40.8	4.4
5	*5500.00	114.1 PK			1.98 V	351	74.0	40.1
6	*5500.00	102.8 AV			1.98 V	351	62.7	40.1
7	11000.00	60.7 PK	74.0	-13.3	2.13 V	195	42.0	18.7
8	11000.00	47.6 AV	54.0	-6.4	2.13 V	195	28.9	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	113.0 PK			2.03 H	350	73.0	40.0
2	*5580.00	101.2 AV			2.03 H	350	61.2	40.0
3	11160.00	60.2 PK	74.0	-13.8	1.95 H	194	42.7	17.5
4	11160.00	46.5 AV	54.0	-7.5	1.95 H	194	29.0	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	*5580.00	113.9 PK			1.95 V	345	73.9	40.0
2	*5580.00	102.9 AV			1.95 V	345	62.9	40.0
3	11160.00	60.4 PK	74.0	-13.6	1.89 V	177	42.9	17.5
4	11160.00	46.8 AV	54.0	-7.2	1.89 V	177	29.3	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.2 PK			2.00 H	17	73.2	40.0
2	*5700.00	101.5 AV			2.00 H	17	61.5	40.0
3	#5725.00	60.2 PK	74.0	-13.8	1.94 H	17	55.8	4.4
4	#5725.00	46.9 AV	54.0	-7.1	1.94 H	17	42.5	4.4
5	11400.00	59.8 PK	74.0	-14.2	1.85 H	177	42.4	17.4
6	11400.00	46.3 AV	54.0	-7.7	1.85 H	177	28.9	17.4
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	*5700.00	114.7 PK			1.99 V	349	74.7	40.0
2	*5700.00	103.7 AV			1.99 V	349	63.7	40.0
3	#5725.00	60.6 PK	74.0	-13.4	2.02 V	355	56.2	4.4
4	#5725.00	47.6 AV	54.0	-6.4	2.02 V	355	43.2	4.4
5	11400.00	60.2 PK	74.0	-13.8	2.01 V	185	42.8	17.4
6	11400.00	46.5 AV	54.0	-7.5	2.01 V	185	29.1	17.4

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.1 PK	74.0	-16.9	1.95 H	2	53.2	3.9
2	5150.00	44.2 AV	54.0	-9.8	1.95 H	2	40.3	3.9
3	*5270.00	110.6 PK			1.90 H	13	71.2	39.4
4	*5270.00	99.9 AV			1.90 H	13	60.5	39.4
5	#10540.00	60.0 PK	74.0	-14.0	1.77 H	193	43.1	16.9
6	#10540.00	46.5 AV	54.0	-7.5	1.77 H	193	29.6	16.9
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	56.7 PK	74.0	-17.3	2.04 V	18	52.8	3.9
2	5150.00	43.8 AV	54.0	-10.2	2.04 V	18	39.9	3.9
3	*5270.00	109.3 PK			1.91 V	27	69.9	39.4
4	*5270.00	99.1 AV			1.91 V	27	59.7	39.4
5	#10540.00	59.7 PK	74.0	-14.3	1.88 V	186	42.8	16.9
6	#10540.00	46.4 AV	54.0	-7.6	1.88 V	186	29.5	16.9

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	110.4 PK			1.92 H	20	71.0	39.4
2	*5310.00	99.8 AV			1.92 H	20	60.4	39.4
3	5350.00	60.4 PK	74.0	-13.6	1.91 H	2	56.4	4.0
4	5350.00	46.7 AV	54.0	-7.3	1.91 H	2	42.7	4.0
5	10620.00	60.4 PK	74.0	-13.6	1.76 H	193	43.3	17.1
6	10620.00	46.7 AV	54.0	-7.3	1.76 H	193	29.6	17.1
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	108.0 PK			1.84 V	30	68.6	39.4
2	*5310.00	98.0 AV			1.84 V	30	58.6	39.4
3	5350.00	60.1 PK	74.0	-13.9	1.97 V	22	56.1	4.0
4	5350.00	46.1 AV	54.0	-7.9	1.97 V	22	42.1	4.0
5	10620.00	60.1 PK	74.0	-13.9	1.89 V	188	43.0	17.1
6	10620.00	46.4 AV	54.0	-7.6	1.89 V	188	29.3	17.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	56.4 PK	74.0	-17.6	2.01 H	344	52.0	4.4
2	5460.00	44.7 AV	54.0	-9.3	2.01 H	344	40.3	4.4
3	#5470.00	61.4 PK	74.0	-12.6	1.90 H	352	57.0	4.4
4	#5470.00	46.9 AV	54.0	-7.1	1.90 H	352	42.5	4.4
5	*5510.00	109.6 PK			1.93 H	347	69.5	40.1
6	*5510.00	98.9 AV			1.93 H	347	58.8	40.1
7	11020.00	60.4 PK	74.0	-13.6	2.07 H	178	42.0	18.4
8	11020.00	47.1 AV	54.0	-6.9	2.07 H	178	28.7	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	5460.00	57.3 PK	74.0	-16.7	2.04 V	354	52.9	4.4
2	5460.00	44.8 AV	54.0	-9.2	2.04 V	354	40.4	4.4
3	#5470.00	59.0 PK	74.0	-15.0	1.98 V	341	54.6	4.4
4	#5470.00	45.6 AV	54.0	-8.4	1.98 V	341	41.2	4.4
5	*5510.00	110.1 PK			1.93 V	349	70.0	40.1
6	*5510.00	99.8 AV			1.93 V	349	59.7	40.1
7	11020.00	60.9 PK	74.0	-13.1	1.93 V	187	42.5	18.4
8	11020.00	47.4 AV	54.0	-6.6	1.93 V	187	29.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	108.2 PK			1.93 H	350	68.2	40.0
2	*5550.00	97.1 AV			1.93 H	350	57.1	40.0
3	11100.00	60.4 PK	74.0	-13.6	2.12 H	196	42.9	17.5
4	11100.00	46.8 AV	54.0	-7.2	2.12 H	196	29.3	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	*5550.00	108.7 PK			1.91 V	348	68.7	40.0
2	*5550.00	98.5 AV			1.91 V	348	58.5	40.0
3	11100.00	60.3 PK	74.0	-13.7	1.81 V	189	42.8	17.5
4	11100.00	46.9 AV	54.0	-7.1	1.81 V	189	29.4	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.3 PK			1.96 H	346	70.2	40.1
2	*5670.00	99.5 AV			1.96 H	346	59.4	40.1
3	#5725.00	58.6 PK	74.0	-15.4	1.92 H	354	54.2	4.4
4	#5725.00	45.5 AV	54.0	-8.5	1.92 H	354	41.1	4.4
5	11340.00	60.8 PK	74.0	-13.2	2.08 H	199	43.0	17.8
6	11340.00	47.2 AV	54.0	-6.8	2.08 H	199	29.4	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	*5670.00	110.3 PK			1.93 V	349	70.2	40.1
2	*5670.00	100.1 AV			1.93 V	349	60.0	40.1
3	#5725.00	61.3 PK	74.0	-12.7	1.99 V	350	56.9	4.4
4	#5725.00	46.8 AV	54.0	-7.2	1.99 V	350	42.4	4.4
5	11340.00	61.0 PK	74.0	-13.0	1.94 V	201	43.2	17.8
6	11340.00	47.3 AV	54.0	-6.7	1.94 V	201	29.5	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	56.8 PK	74.0	-17.2	2.01 H	351	52.9	3.9
2	5150.00	44.3 AV	54.0	-9.7	2.01 H	351	40.4	3.9
3	*5290.00	107.0 PK			1.90 H	20	67.6	39.4
4	*5290.00	96.1 AV			1.90 H	20	56.7	39.4
5	5350.00	61.5 PK	74.0	-12.5	1.87 H	344	57.5	4.0
6	5350.00	48.3 AV	54.0	-5.7	1.87 H	344	44.3	4.0
7	#10580.00	60.1 PK	74.0	-13.9	1.81 H	256	43.0	17.1
8	#10580.00	46.8 AV	54.0	-7.2	1.81 H	256	29.7	17.1
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	57.1 PK	74.0	-16.9	2.04 V	322	53.2	3.9
2	5150.00	43.6 AV	54.0	-10.4	2.04 V	322	39.7	3.9
3	*5290.00	103.8 PK			1.95 V	316	64.4	39.4
4	*5290.00	93.3 AV			1.95 V	316	53.9	39.4
5	5350.00	62.8 PK	74.0	-11.2	1.95 V	307	58.8	4.0
6	5350.00	48.7 AV	54.0	-5.3	1.95 V	307	44.7	4.0
7	#10580.00	60.2 PK	74.0	-13.8	1.71 V	177	43.1	17.1
8	#10580.00	46.7 AV	54.0	-7.3	1.71 V	177	29.6	17.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	61.9 PK	74.0	-12.1	1.90 H	359	57.5	4.4
2	5460.00	48.9 AV	54.0	-5.1	1.90 H	359	44.5	4.4
3	#5470.00	65.6 PK	74.0	-8.4	1.94 H	353	61.2	4.4
4	#5470.00	49.9 AV	54.0	-4.1	1.94 H	353	45.5	4.4
5	*5530.00	105.2 PK			1.89 H	347	65.1	40.1
6	*5530.00	94.9 AV			1.89 H	347	54.8	40.1
7	#5725.00	61.3 PK	74.0	-12.7	2.02 H	344	56.9	4.4
8	#5725.00	47.9 AV	54.0	-6.1	2.02 H	344	43.5	4.4
9	11060.00	60.4 PK	74.0	-13.6	1.85 H	191	42.5	17.9
10	11060.00	47.1 AV	54.0	-6.9	1.85 H	191	29.2	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	59.2 PK	74.0	-14.8	1.89 V	359	54.8	4.4
2	5460.00	47.2 AV	54.0	-6.8	1.89 V	359	42.8	4.4
3	#5470.00	62.4 PK	74.0	-11.6	1.94 V	352	58.0	4.4
4	#5470.00	48.1 AV	54.0	-5.9	1.94 V	352	43.7	4.4
5	*5530.00	106.0 PK			1.90 V	346	65.9	40.1
6	*5530.00	95.1 AV			1.90 V	346	55.0	40.1
7	#5725.00	57.6 PK	74.0	-16.4	1.95 V	352	53.2	4.4
8	#5725.00	45.3 AV	54.0	-8.7	1.95 V	352	40.9	4.4
9	11060.00	60.1 PK	74.0	-13.9	1.81 V	169	42.2	17.9
10	11060.00	46.6 AV	54.0	-7.4	1.81 V	169	28.7	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	54.6 PK	74.0	-19.4	1.90 H	330	50.2	4.4
2	5460.00	42.0 AV	54.0	-12.0	1.90 H	330	37.6	4.4
3	#5470.00	56.6 PK	74.0	-17.4	1.91 H	323	52.2	4.4
4	#5470.00	43.2 AV	54.0	-10.8	1.91 H	323	38.8	4.4
5	*5610.00	104.5 PK			2.09 H	349	64.4	40.1
6	*5610.00	94.5 AV			2.09 H	349	54.4	40.1
7	#5725.00	58.2 PK	74.0	-15.8	2.15 H	350	53.8	4.4
8	#5725.00	43.0 AV	54.0	-11.0	2.15 H	350	38.6	4.4
9	11220.00	58.7 PK	74.0	-15.3	1.85 H	241	41.0	17.7
10	11220.00	46.2 AV	54.0	-7.8	1.85 H	241	28.5	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	54.7 PK	74.0	-19.3	1.95 V	340	50.3	4.4
2	5460.00	42.1 AV	54.0	-11.9	1.95 V	340	37.7	4.4
3	#5470.00	56.2 PK	74.0	-17.8	1.98 V	330	51.8	4.4
4	#5470.00	42.4 AV	54.0	-11.6	1.98 V	330	38.0	4.4
5	*5610.00	104.1 PK			2.04 V	349	64.0	40.1
6	*5610.00	93.9 AV			2.04 V	349	53.8	40.1
7	#5725.00	56.2 PK	74.0	-17.8	2.00 V	357	51.8	4.4
8	#5725.00	43.3 AV	54.0	-10.7	2.00 V	357	38.9	4.4
9	11220.00	59.2 PK	74.0	-14.8	1.99 V	269	41.5	17.7
10	11220.00	45.4 AV	54.0	-8.6	1.99 V	269	27.7	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Worst-Case Data:

Test Mode A (Radio 2, Dipole Ant.)

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	27.2 QP	40.0	-12.8	1.99 H	18	41.6	-14.4
2	97.95	27.8 QP	43.5	-15.7	1.99 H	259	46.4	-18.6
3	138.78	23.3 QP	43.5	-20.2	1.99 H	250	38.0	-14.7
4	249.60	29.3 QP	46.0	-16.7	1.00 H	77	43.9	-14.6
5	447.92	27.6 QP	46.0	-18.4	1.49 H	168	37.7	-10.1
6	556.80	32.0 QP	46.0	-14.0	1.00 H	73	40.5	-8.5
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	45.45	33.2 QP	40.0	-6.8	1.01 V	8	47.6	-14.4
2	101.84	26.6 QP	43.5	-16.9	1.50 V	97	44.9	-18.3
3	189.33	29.5 QP	43.5	-14.0	1.01 V	187	45.7	-16.2
4	298.21	24.9 QP	46.0	-21.1	1.01 V	74	37.7	-12.8
5	449.87	31.4 QP	46.0	-14.6	1.01 V	115	41.5	-10.1
6	549.03	38.6 QP	46.0	-7.4	1.01 V	227	47.2	-8.6

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.
4. Margin value = Emission Level – Limit value

Test Mode B (Radio 2, Sector Ant.)

802.11a

CHANNEL	TX Channel 52	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	88.23	31.8 QP	43.5	-11.7	1.99 H	271	46.4	-14.6
2	226.27	24.4 QP	46.0	-21.6	1.00 H	58	35.3	-10.9
3	249.60	29.1 QP	46.0	-16.9	1.00 H	35	38.2	-9.1
4	444.03	27.3 QP	46.0	-18.7	1.99 H	64	31.2	-3.9
5	549.03	39.1 QP	46.0	-6.9	1.49 H	76	41.0	-1.9
6	823.17	34.2 QP	46.0	-11.8	1.99 H	192	30.3	3.9
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	43.51	35.5 QP	40.0	-4.5	1.01 V	334	45.1	-9.6
2	80.45	31.5 QP	40.0	-8.5	1.50 V	131	44.9	-13.4
3	156.28	26.7 QP	43.5	-16.8	1.01 V	145	35.3	-8.6
4	274.88	28.1 QP	46.0	-17.9	1.01 V	276	35.9	-7.8
5	549.03	36.8 QP	46.0	-9.2	1.01 V	40	38.7	-1.9
6	751.23	33.7 QP	46.0	-12.3	1.50 V	227	31.1	2.6

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.
4. Margin value = Emission Level – Limit value

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	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
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-2040.

4.2.3 Test Procedures

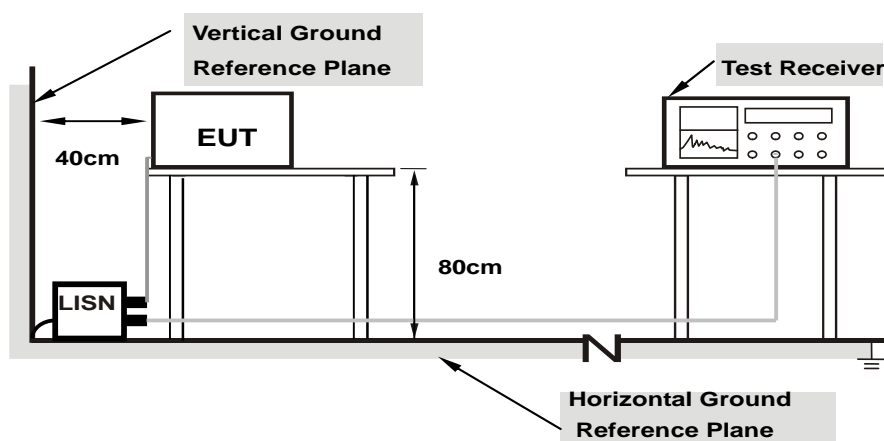
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Test Mode A (Radio 2, Dipole Ant.)

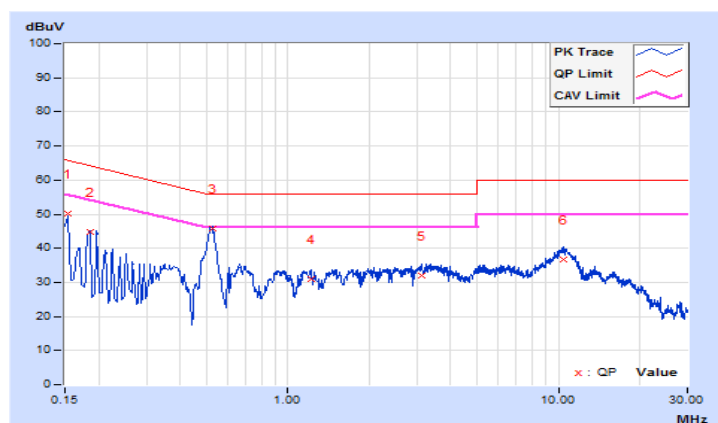
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.15391	10.10	39.92	25.01	50.02	35.11	65.79	55.79	-15.77	-20.68
2	0.18508	10.10	34.81	20.44	44.91	30.54	64.25	54.25	-19.34	-23.71
3	0.52544	10.12	35.67	30.51	45.79	40.63	56.00	46.00	-10.21	-5.37
4	1.21352	10.15	20.95	16.77	31.10	26.92	56.00	46.00	-24.90	-19.08
5	3.11769	10.24	21.89	16.93	32.13	27.17	56.00	46.00	-23.87	-18.83
6	10.49586	10.65	25.99	20.78	36.64	31.43	60.00	50.00	-23.36	-18.57

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.

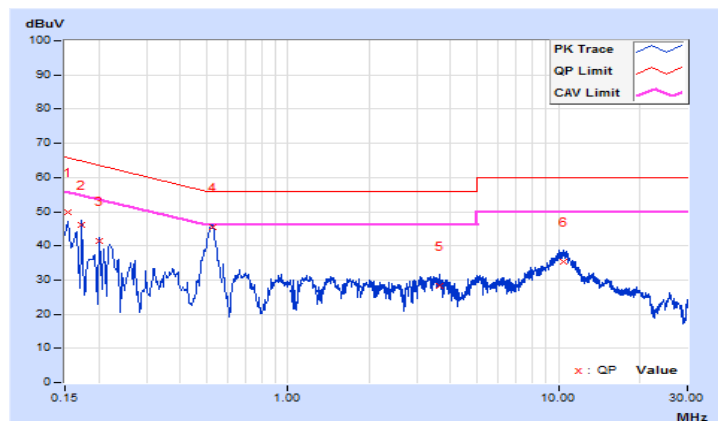


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.10	39.63	23.92	49.73	34.02	65.79	55.79	-16.06	-21.77
2	0.17346	10.10	35.98	20.11	46.08	30.21	64.79	54.79	-18.71	-24.58
3	0.20084	10.10	31.37	15.62	41.47	25.72	63.58	53.58	-22.11	-27.86
4	0.52544	10.12	35.25	30.14	45.37	40.26	56.00	46.00	-10.63	-5.74
5	3.64163	10.25	17.92	12.46	28.17	22.71	56.00	46.00	-27.83	-23.29
6	10.47240	10.54	24.66	19.21	35.20	29.75	60.00	50.00	-24.80	-20.25

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.



Test Mode B (Radio 2, Sector Ant.)

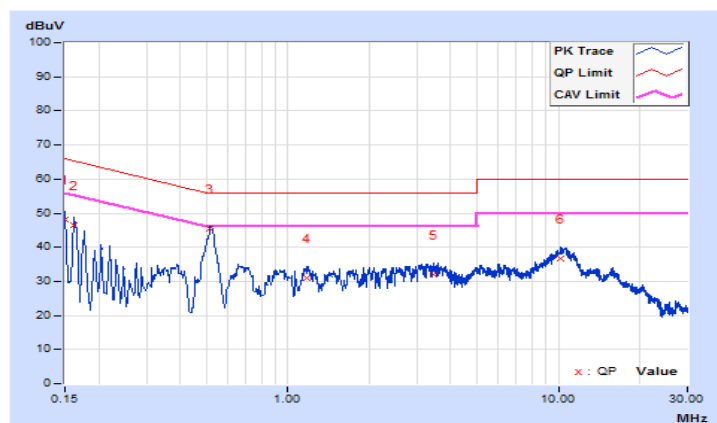
802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	----------	-------------------	--------------------------------

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	0.15000	10.10	37.97	23.64	48.07	33.74	66.00	56.00	-17.93	-22.26
2	0.16173	10.10	36.26	21.03	46.36	31.13	65.37	55.37	-19.01	-24.24
3	0.51583	10.12	35.23	30.22	45.35	40.34	56.00	46.00	-10.65	-5.66
4	1.17056	10.15	20.96	17.53	31.11	27.68	56.00	46.00	-24.89	-18.32
5	3.43831	10.26	21.82	16.78	32.08	27.04	56.00	46.00	-23.92	-18.96
6	10.17915	10.63	26.13	20.99	36.76	31.62	60.00	50.00	-23.24	-18.38

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.

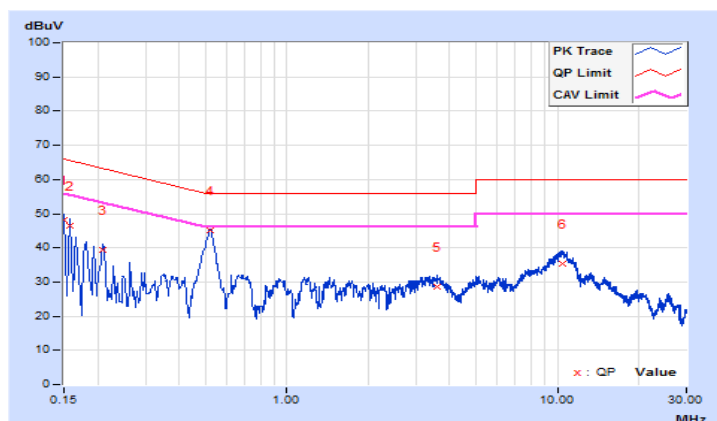


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

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	0.15000	10.10	37.93	22.50	48.03	32.60	66.00	56.00	-17.97	-23.40
2	0.15782	10.10	36.40	20.92	46.50	31.02	65.58	55.58	-19.08	-24.56
3	0.20865	10.10	29.21	14.86	39.31	24.96	63.26	53.26	-23.95	-28.30
4	0.51856	10.12	35.13	30.54	45.25	40.66	56.00	46.00	-10.75	-5.34
5	3.57907	10.25	18.43	13.14	28.68	23.39	56.00	46.00	-27.32	-22.61
6	10.49586	10.54	24.73	19.33	35.27	29.87	60.00	50.00	-24.73	-20.13

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	$\sqrt{\quad}$		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	$\sqrt{\quad}$		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} ;

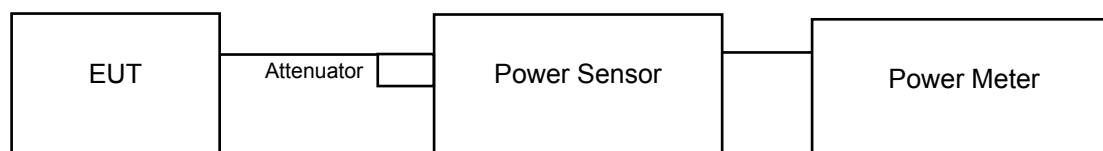
Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

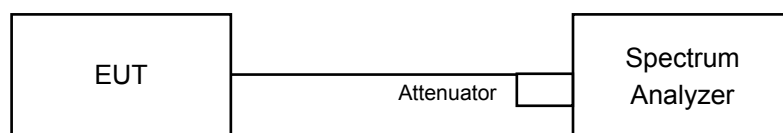
4.3.2 Test Setup

For Power Output

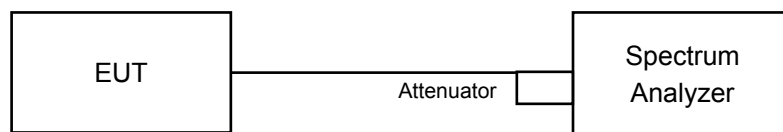
802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



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

802.11a, 802.11n (HT20), 802.11n (HT40)

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

For 802.11ac (VHT80)

- a. Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- b. Set sweep trigger to “free run”.
- c. Set RBW = 1 MHz.
- d. Set VBW \geq 3 MHz.
- e. Number of points in sweep \geq 2 Span / RBW.
- f. Sweep time \leq (number of points in sweep) * T
- g. Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- h. Detector = RMS.
- i. Trace mode = max hold.
- j. Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- k. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

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:

Test Mode A (Radio 2, Dipole Ant., 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				
52	5260	17.86	17.85	122.048	20.87	23.54	Pass
60	5300	17.81	17.62	118.205	20.73	23.56	Pass
64	5320	18.19	17.35	120.242	20.80	23.60	Pass
100	5500	17.22	17.31	106.550	20.28	23.53	Pass
116	5580	17.58	17.32	111.231	20.46	23.55	Pass
140	5700	18.45	17.81	130.379	21.15	23.55	Pass

Note:

1. 5260MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.84-(6.30-6) = 23.54dBm.
2. 5300MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.86-(6.30-6) = 23.56dBm.
3. 5320MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.90-(6.30-6) = 23.60dBm.
4. 5500MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.83-(6.30-6) = 23.53dBm.
5. 5580MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.85-(6.30-6) = 23.55dBm.
6. 5700MHz: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 23.85-(6.30-6) = 23.55dBm.

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

Chain 0

1. 11dBm + 10log (19.73) = 23.95 < 24dBm
2. 11dBm + 10log (19.60) = 23.92 < 24dBm
3. 11dBm + 10log (19.53) = 23.90 < 24dBm
4. 11dBm + 10log (19.60) = 23.92 < 24dBm
5. 11dBm + 10log (19.75) = 23.95 < 24dBm
6. 11dBm + 10log (19.66) = 23.93 < 24dBm

Chain 1

1. 11dBm + 10log (19.24) = 23.84 < 24dBm
2. 11dBm + 10log (19.35) = 23.86 < 24dBm
3. 11dBm + 10log (19.75) = 23.95 < 24dBm
4. 11dBm + 10log (19.21) = 23.83 < 24dBm
5. 11dBm + 10log (19.30) = 23.85 < 24dBm
6. 11dBm + 10log (19.29) = 23.85 < 24dBm

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				
52	5260	18.23	18.34	134.761	21.30	23.70	Pass
60	5300	18.31	17.82	128.298	21.08	23.70	Pass
64	5320	18.37	17.35	123.032	20.90	23.70	Pass
100	5500	17.81	17.65	118.605	20.74	23.70	Pass
116	5580	18.20	17.86	127.163	21.04	23.70	Pass
140	5700	17.80	17.22	112.979	20.53	23.70	Pass

Note: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 24-(6.30-6) = 23.70dBm.

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

Chain 0

1. $11\text{dBm} + 10\log(20.53) = 24.12 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.55) = 24.12 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.43) = 24.10 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.32) = 24.07 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.51) = 24.11 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.40) = 24.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.68) = 24.15 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.56) = 24.13 > 24\text{dBm}$

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				
54	5270	20.41	20.31	217.300	23.37	23.70	Pass
62	5310	17.96	16.94	111.948	20.49	23.70	Pass
102	5510	15.21	15.41	67.943	18.32	23.70	Pass
110	5550	19.41	19.62	178.919	22.53	23.70	Pass
134	5670	19.11	18.74	156.287	21.94	23.70	Pass

Note: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 24-(6.30-6) = 23.70dBm.

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

Chain 0

1. 11dBm + 10log (55.78) = 28.46 > 24dBm
2. 11dBm + 10log (40.70) = 27.09 > 24dBm
3. 11dBm + 10log (40.82) = 27.10 > 24dBm
4. 11dBm + 10log (41.77) = 27.20 > 24dBm
5. 11dBm + 10log (40.81) = 27.10 > 24dBm

Chain 1

1. 11dBm + 10log (41.68) = 27.19 > 24dBm
2. 11dBm + 10log (40.41) = 27.06 > 24dBm
3. 11dBm + 10log (40.64) = 27.08 > 24dBm
4. 11dBm + 10log (40.58) = 27.08 > 24dBm
5. 11dBm + 10log (40.71) = 27.09 > 24dBm

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				
58	5290	17.61	17.11	109.081	20.38	23.70	Pass
106	5530	13.11	13.22	41.453	16.18	23.70	Pass
122	5610	19.65	18.79	167.940	22.25	23.70	Pass

Note: Gain = 6.30dBi > 6dBi, so the power limit shall be reduced to 24-(6.30-6) = 23.70dBm.

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

Chain 0

1. 11dBm + 10log (83.58) = 30.22 > 24dBm
2. 11dBm + 10log (83.38) = 30.21 > 24dBm
3. 11dBm + 10log (84.05) = 30.24 > 24dBm

Chain 1

1. 11dBm + 10log (83.69) = 30.22 > 24dBm
2. 11dBm + 10log (83.76) = 30.23 > 24dBm
3. 11dBm + 10log (84.46) = 30.26 > 24dBm

Test Mode A (Radio 2, Dipole Ant., 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				
52	5260	15.22	15.33	67.385	18.29	20.69	Pass
60	5300	15.30	14.81	64.153	18.07	20.69	Pass
64	5320	15.36	14.34	61.520	17.89	20.69	Pass
100	5500	14.80	14.64	59.307	17.73	20.69	Pass
116	5580	15.19	14.85	63.586	18.03	20.69	Pass
140	5700	14.79	14.21	56.493	17.52	20.69	Pass

Note: Directional gain = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (9.31 - 6) = 20.69\text{dBm}$.

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

Chain 0

1. $11\text{dBm} + 10\log(20.53) = 24.12 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.61) = 24.14 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.55) = 24.12 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.43) = 24.10 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.32) = 24.07 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.51) = 24.11 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.40) = 24.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.68) = 24.15 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.56) = 24.13 > 24\text{dBm}$

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				
54	5270	17.40	17.30	108.657	20.36	20.69	Pass
62	5310	14.95	13.93	55.978	17.48	20.69	Pass
102	5510	12.20	12.40	33.974	15.31	20.69	Pass
110	5550	16.40	16.61	89.466	19.52	20.69	Pass
134	5670	16.10	15.73	78.149	18.93	20.69	Pass

Note: Directional gain = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (9.31 - 6) = 20.69\text{dBm}$.

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

Chain 0

- $11\text{dBm} + 10\log(55.78) = 28.46 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.70) = 27.09 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.82) = 27.10 > 24\text{dBm}$
- $11\text{dBm} + 10\log(41.77) = 27.20 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.81) = 27.10 > 24\text{dBm}$

Chain 1

- $11\text{dBm} + 10\log(41.68) = 27.19 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.41) = 27.06 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.64) = 27.08 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.58) = 27.08 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.71) = 27.09 > 24\text{dBm}$

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				
58	5290	14.60	14.10	54.544	17.37	20.69	Pass
106	5530	10.10	10.21	20.728	13.17	20.69	Pass
122	5610	16.64	15.78	83.976	19.24	20.69	Pass

Note: Directional gain = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (9.31 - 6) = 20.69\text{dBm}$.

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

Chain 0

- $11\text{dBm} + 10\log(83.58) = 30.22 > 24\text{dBm}$
- $11\text{dBm} + 10\log(83.38) = 30.21 > 24\text{dBm}$
- $11\text{dBm} + 10\log(84.05) = 30.24 > 24\text{dBm}$

Chain 1

- $11\text{dBm} + 10\log(83.69) = 30.22 > 24\text{dBm}$
- $11\text{dBm} + 10\log(83.76) = 30.23 > 24\text{dBm}$
- $11\text{dBm} + 10\log(84.46) = 30.26 > 24\text{dBm}$

Test Mode B (Radio 2, Sector Ant., 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				
52	5260	9.30	9.90	18.283	12.62	15.24	Pass
60	5300	8.70	9.06	15.467	11.89	15.21	Pass
64	5320	9.20	9.30	16.829	12.26	15.23	Pass
100	5500	9.80	8.10	16.007	12.04	15.23	Pass
116	5580	9.80	8.40	16.468	12.17	15.26	Pass
140	5700	9.50	9.04	16.930	12.29	15.25	Pass

Note:

1. 5260MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.84 - (14.60 - 6) = 15.24\text{dBm}$.
2. 5300MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.81 - (14.60 - 6) = 15.21\text{dBm}$.
3. 5320MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.83 - (14.60 - 6) = 15.23\text{dBm}$.
4. 5500MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.83 - (14.60 - 6) = 15.23\text{dBm}$.
5. 5580MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.86 - (14.60 - 6) = 15.26\text{dBm}$.
6. 5700MHz: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $23.85 - (14.60 - 6) = 15.25\text{dBm}$.

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

Chain 0

1. $11\text{dBm} + 10\log(19.70) = 23.94 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(19.47) = 23.89 < 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.69) = 23.94 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.64) = 23.93 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.54) = 23.90 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.60) = 23.92 < 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(19.26) = 23.84 < 24\text{dBm}$
2. $11\text{dBm} + 10\log(19.12) = 23.81 < 24\text{dBm}$
3. $11\text{dBm} + 10\log(19.23) = 23.83 < 24\text{dBm}$
4. $11\text{dBm} + 10\log(19.19) = 23.83 < 24\text{dBm}$
5. $11\text{dBm} + 10\log(19.32) = 23.86 < 24\text{dBm}$
6. $11\text{dBm} + 10\log(19.28) = 23.85 < 24\text{dBm}$

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				
52	5260	9.20	9.60	17.438	12.41	15.40	Pass
60	5300	9.30	9.40	17.221	12.36	15.40	Pass
64	5320	9.40	9.50	17.623	12.46	15.40	Pass
100	5500	10.20	8.40	17.389	12.40	15.40	Pass
116	5580	10.20	8.80	18.057	12.57	15.40	Pass
140	5700	9.80	9.30	18.061	12.57	15.40	Pass

Note: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to 24-(14.60-6) = 15.40dBm.

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

Chain 0

1. $11\text{dBm} + 10\log(20.37) = 24.08 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.62) = 24.14 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.43) = 24.10 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.36) = 24.08 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.40) = 24.09 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.42) = 24.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.44) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.48) = 24.11 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$

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				
54	5270	12.03	12.55	33.948	15.31	15.40	Pass
62	5310	12.08	12.43	33.642	15.27	15.40	Pass
102	5510	12.47	12.05	33.692	15.28	15.40	Pass
110	5550	12.45	12.11	33.834	15.29	15.40	Pass
134	5670	12.66	12.03	34.409	15.37	15.40	Pass

Note: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $24 - (14.60 - 6) = 15.40$ dBm.

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

Chain 0

1. $11\text{dBm} + 10\log(40.77) = 27.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.67) = 27.09 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.65) = 27.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.54) = 27.07 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.50) = 27.07 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(40.55) = 27.07 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(40.29) = 27.05 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(40.36) = 27.05 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(40.66) = 27.09 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(40.55) = 27.07 > 24\text{dBm}$

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				
58	5290	12.05	12.33	33.132	15.20	15.40	Pass
106	5530	12.67	12.02	34.415	15.37	15.40	Pass
122	5610	12.61	11.65	32.861	15.17	15.40	Pass

Note: Gain = 14.60dBi > 6dBi, so the power limit shall be reduced to $24 - (14.60 - 6) = 15.40$ dBm.

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

Chain 0

1. $11\text{dBm} + 10\log(84.07) = 30.24 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(84.53) = 30.27 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(83.06) = 30.19 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(83.33) = 30.20 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(83.46) = 30.21 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(84.70) = 30.27 > 24\text{dBm}$

Test Mode B (Radio 2, Sector Ant., 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				
52	5260	6.19	6.59	8.719	9.40	12.39	Pass
60	5300	6.29	6.39	8.611	9.35	12.39	Pass
64	5320	6.39	6.49	8.812	9.45	12.39	Pass
100	5500	7.19	5.39	8.695	9.39	12.39	Pass
116	5580	7.19	5.79	9.029	9.56	12.39	Pass
140	5700	6.79	6.29	9.031	9.56	12.39	Pass

Note: Directional gain = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (17.61 - 6) = 12.39\text{dBm}$.

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

Chain 0

1. $11\text{dBm} + 10\log(20.37) = 24.08 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.62) = 24.14 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.43) = 24.10 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.45) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.36) = 24.08 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.40) = 24.09 > 24\text{dBm}$

Chain 1

1. $11\text{dBm} + 10\log(20.42) = 24.10 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(20.31) = 24.07 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(20.44) = 24.10 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(20.48) = 24.11 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(20.59) = 24.13 > 24\text{dBm}$

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				
54	5270	9.02	9.54	16.975	12.30	12.39	Pass
62	5310	9.07	9.42	16.822	12.26	12.39	Pass
102	5510	9.46	9.04	16.848	12.27	12.39	Pass
110	5550	9.44	9.10	16.918	12.28	12.39	Pass
134	5670	9.65	9.02	17.206	12.36	12.39	Pass

Note: Directional gain = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (17.61 - 6) = 12.39\text{dBm}$.

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

Chain 0

- $11\text{dBm} + 10\log(40.77) = 27.10 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.67) = 27.09 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.65) = 27.09 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.54) = 27.07 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.50) = 27.07 > 24\text{dBm}$

Chain 1

- $11\text{dBm} + 10\log(40.55) = 27.07 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.29) = 27.05 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.36) = 27.05 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.66) = 27.09 > 24\text{dBm}$
- $11\text{dBm} + 10\log(40.55) = 27.07 > 24\text{dBm}$

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				
58	5290	9.04	9.32	16.568	12.19	12.39	Pass
106	5530	9.66	9.01	17.209	12.36	12.39	Pass
122	5610	9.60	8.64	16.431	12.16	12.39	Pass

Note: Directional gain = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $24 - (17.61 - 6) = 12.39\text{dBm}$.

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

Chain 0

- $11\text{dBm} + 10\log(84.07) = 30.24 > 24\text{dBm}$
- $11\text{dBm} + 10\log(84.53) = 30.27 > 24\text{dBm}$
- $11\text{dBm} + 10\log(83.06) = 30.19 > 24\text{dBm}$

Chain 1

- $11\text{dBm} + 10\log(83.33) = 30.20 > 24\text{dBm}$
- $11\text{dBm} + 10\log(83.46) = 30.21 > 24\text{dBm}$
- $11\text{dBm} + 10\log(84.70) = 30.27 > 24\text{dBm}$

26dB Bandwidth:

Test Mode A (Radio 2, Dipole Ant.)

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.73	19.24
60	5300	19.60	19.35
64	5320	19.53	19.75
100	5500	19.60	19.21
116	5580	19.75	19.30
140	5700	19.66	19.29

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.53	20.32
60	5300	20.45	20.51
64	5320	20.59	20.40
100	5500	20.61	20.68
116	5580	20.55	20.45
140	5700	20.43	20.56

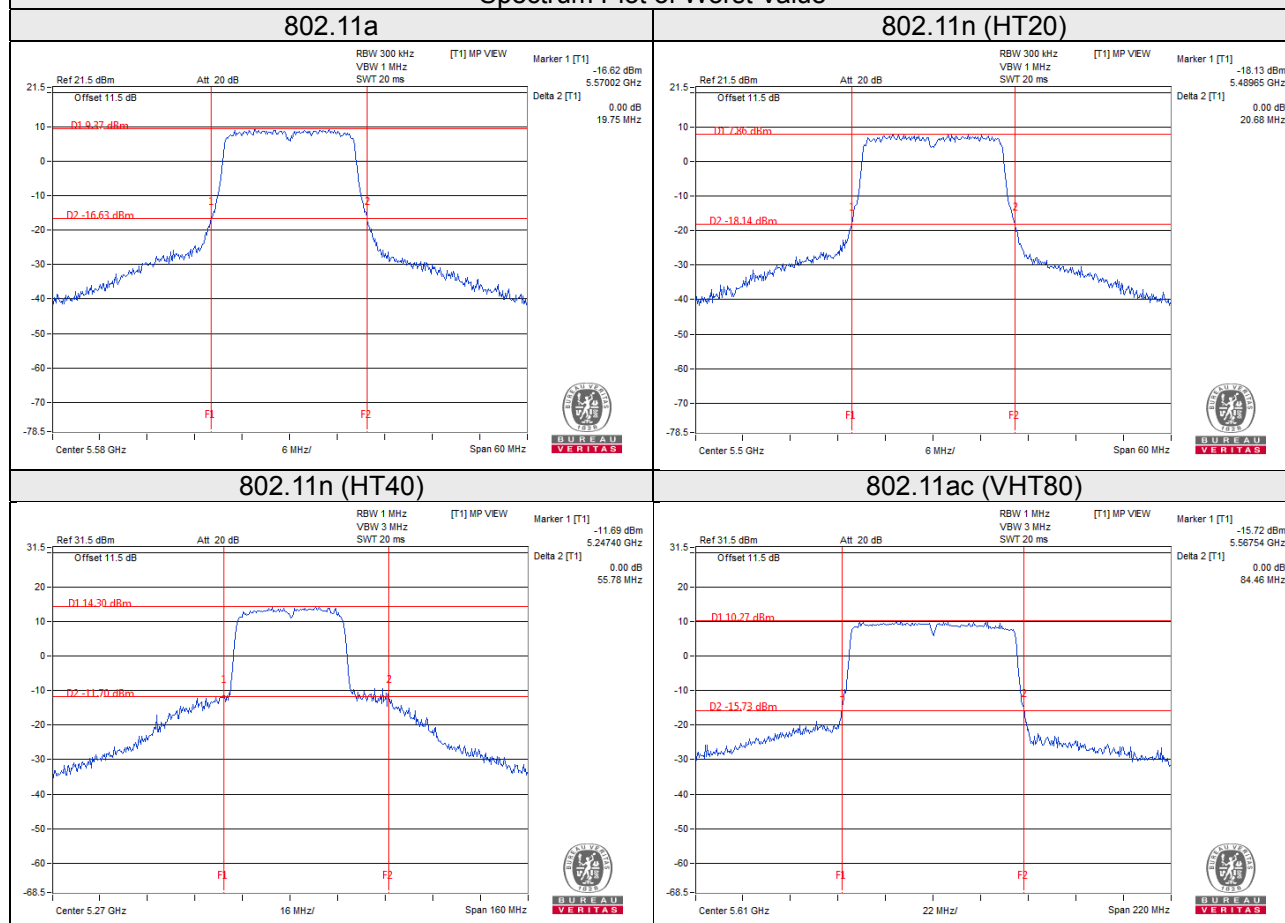
802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	55.78	41.68
62	5310	40.70	40.41
102	5510	40.82	40.64
110	5550	41.77	40.58
134	5670	40.81	40.71

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	83.58	83.69
106	5530	83.38	83.76
122	5610	84.05	84.46

Spectrum Plot of Worst Value



Test Mode B (Radio 2, Sector Ant.)

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	19.70	19.26
60	5300	19.47	19.12
64	5320	19.69	19.23
100	5500	19.64	19.19
116	5580	19.54	19.32
140	5700	19.60	19.28

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.37	20.42
60	5300	20.62	20.31
64	5320	20.43	20.31
100	5500	20.45	20.44
116	5580	20.36	20.48
140	5700	20.40	20.59

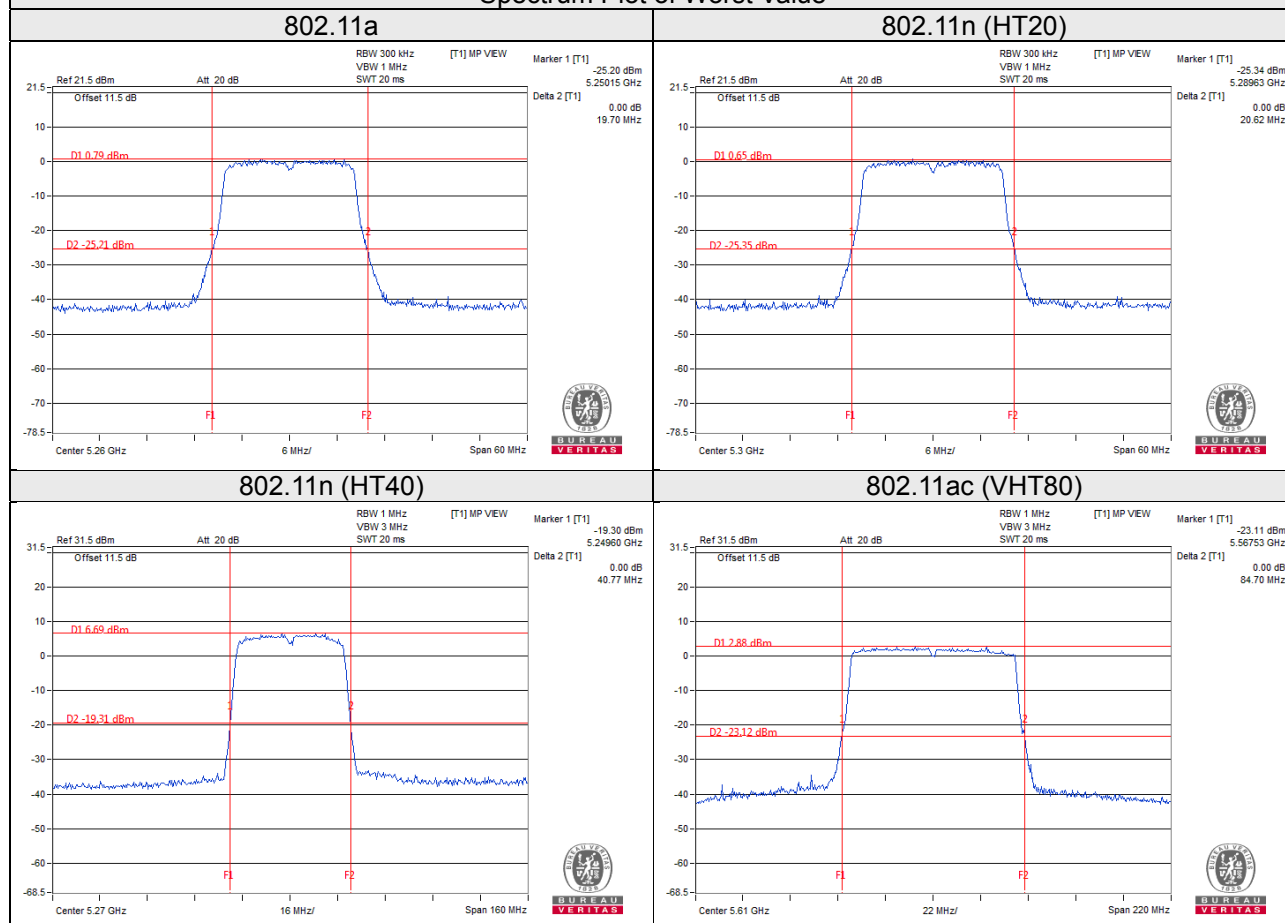
802.11n (HT40)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	40.77	40.55
62	5310	40.67	40.29
102	5510	40.65	40.36
110	5550	40.54	40.66
134	5670	40.50	40.55

802.11ac (VHT80)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.07	83.33
106	5530	84.53	83.46
122	5610	83.06	84.70

Spectrum Plot of Worst Value



EUT Maximum Conducted Power

Test Mode A (Radio 2, Dipole Ant., CDD Mode)

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	122.048	20.87
5470~5725	130.379	21.15

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	134.761	21.30
5470~5725	127.163	21.04

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	217.300	23.37
5470~5725	178.919	22.53

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	109.081	20.38
5470~5725	167.940	22.25

Test Mode A (Radio 2, Dipole Ant., Beamforming Mode)

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	67.385	18.29
5470~5725	63.586	18.03

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	108.657	20.36
5470~5725	89.466	19.52

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	54.544	17.37
5470~5725	83.976	19.24

Test Mode B (Radio 2, Sector Ant., CDD Mode)

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	18.283	12.62
5470~5725	16.930	12.29

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	17.623	12.46
5470~5725	18.061	12.57

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	33.948	15.31
5470~5725	34.409	15.37

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	33.132	15.20
5470~5725	34.415	15.37

Test Mode B (Radio 2, Sector Ant., Beamforming Mode)

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	8.812	9.45
5470~5725	9.031	9.56

802.11n (HT40)

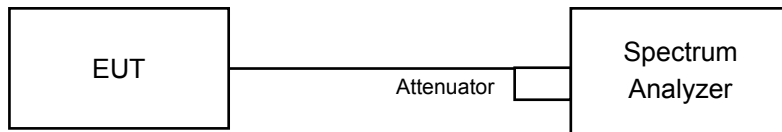
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	16.975	12.30
5470~5725	17.206	12.36

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	16.568	12.19
5470~5725	17.209	12.36

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

Test Mode A (Radio 2, Dipole Ant.)

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.56	16.44

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.64	17.64
64	5320	17.64	17.64
100	5500	17.64	17.76
116	5580	17.64	17.64
140	5700	17.64	17.64

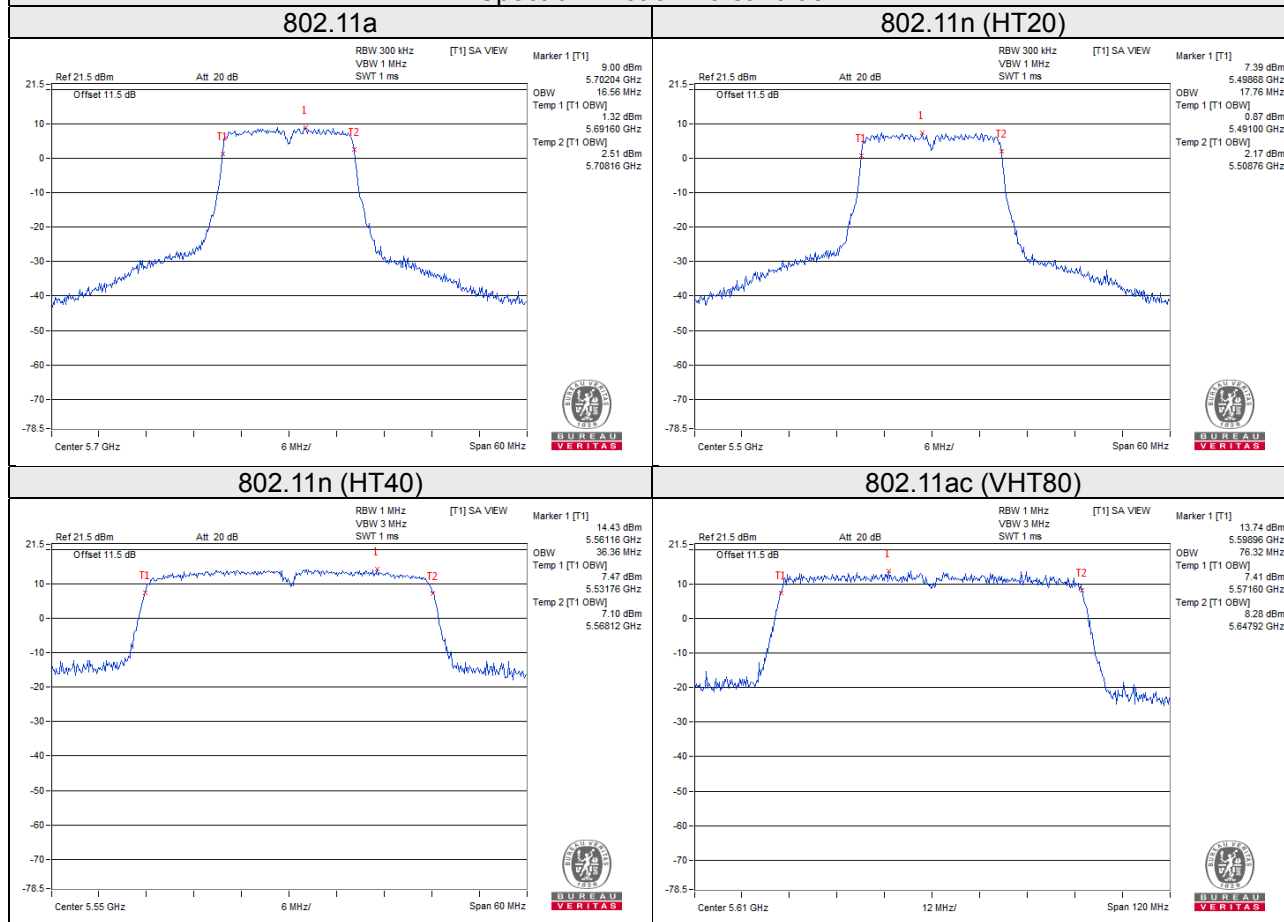
802.11n (HT40)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.36	36.36
62	5310	36.12	36.24
102	5510	36.12	36.12
110	5550	36.36	36.12
134	5670	36.24	36.12

802.11ac (VHT80)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	75.84	75.84
106	5530	76.08	75.84
122	5610	75.84	76.32

Spectrum Plot of Worst Value



Test Mode B (Radio 2, Sector Ant.)

802.11a

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	16.44	16.44
60	5300	16.44	16.44
64	5320	16.44	16.44
100	5500	16.44	16.44
116	5580	16.44	16.44
140	5700	16.44	16.44

802.11n (HT20)

Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	17.64	17.64
60	5300	17.64	17.64
64	5320	17.64	17.64
100	5500	17.64	17.64
116	5580	17.64	17.64
140	5700	17.64	17.64

802.11n (HT40)

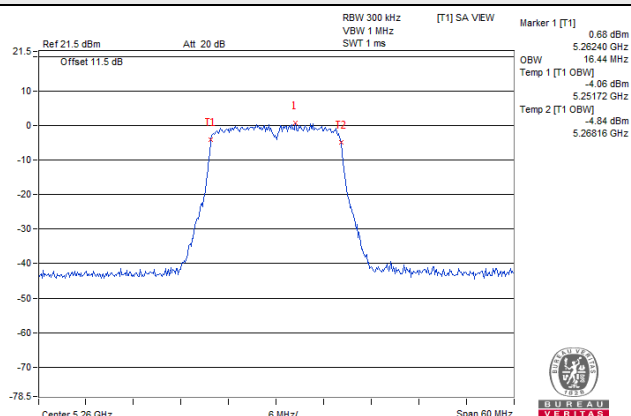
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	36.12	36.12
62	5310	36.12	36.12
102	5510	36.12	36.00
110	5550	36.12	36.12
134	5670	36.12	36.12

802.11ac (VHT80)

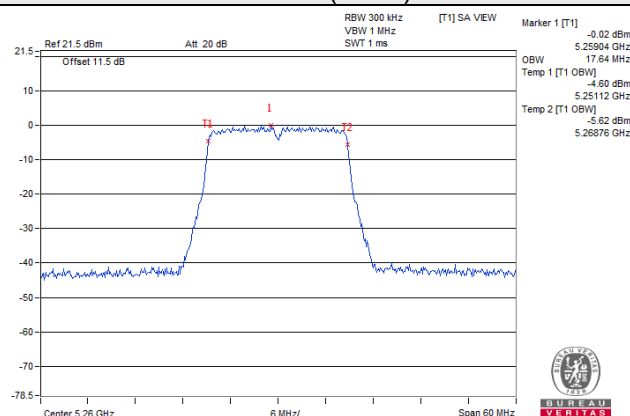
Chan.	Freq. (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	75.84	75.84
106	5530	75.84	75.84
122	5610	75.84	76.32

Spectrum Plot of Worst Value

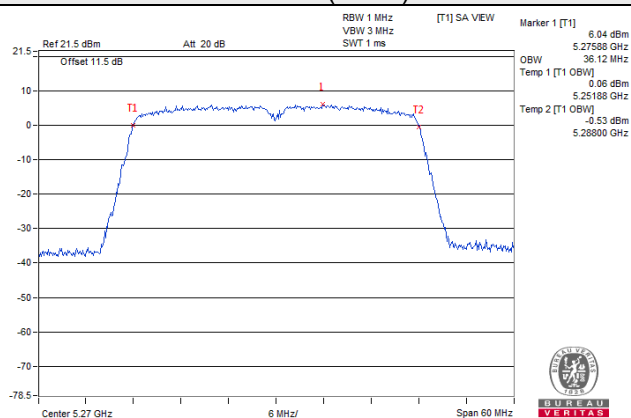
802.11a



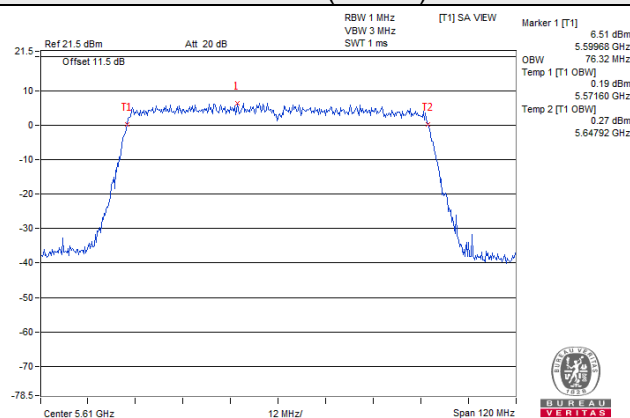
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

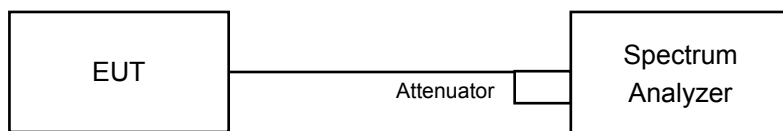


4.5 Peak Power Spectral Density Measurement

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

Duty cycle of test signal is > 98%

Using method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
- Sweep time = auto, trigger set to “free run”.
- Trace average at least 100 traces in power averaging mode.
- Record the max value

Duty cycle of test signal is < 98%

Using method SA-2

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1MHz, Set VBW ≥ 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 $10 \log (1/\text{duty cycle})$

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

Test Mode A (Radio 2, Dipole Ant.)

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				
52	5260	4.11	4.55	0.24	7.59	7.69	Pass
60	5300	4.45	4.39	0.24	7.67	7.69	Pass
64	5320	4.51	4.34	0.24	7.68	7.69	Pass
100	5500	4.48	3.05	0.24	7.08	7.69	Pass
116	5580	4.83	3.40	0.24	7.43	7.69	Pass
140	5700	4.53	4.24	0.24	7.64	7.69	Pass

Note:

1. Method 1 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 = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
52	5260	4.37	4.56	7.48	7.69	Pass
60	5300	4.40	4.50	7.46	7.69	Pass
64	5320	4.22	4.25	7.25	7.69	Pass
100	5500	4.84	3.90	7.41	7.69	Pass
116	5580	4.53	4.01	7.29	7.69	Pass
140	5700	3.72	3.17	6.46	7.69	Pass

Note:

1. Method 1 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 = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.

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				
54	5270	3.48	3.84	0.16	6.83	7.69	Pass
62	5310	0.95	0.90	0.16	4.09	7.69	Pass
102	5510	-0.39	-1.13	0.16	2.42	7.69	Pass
110	5550	3.98	3.45	0.16	6.89	7.69	Pass
134	5670	2.40	2.24	0.16	5.49	7.69	Pass

Note:

1. Method 1 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 = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

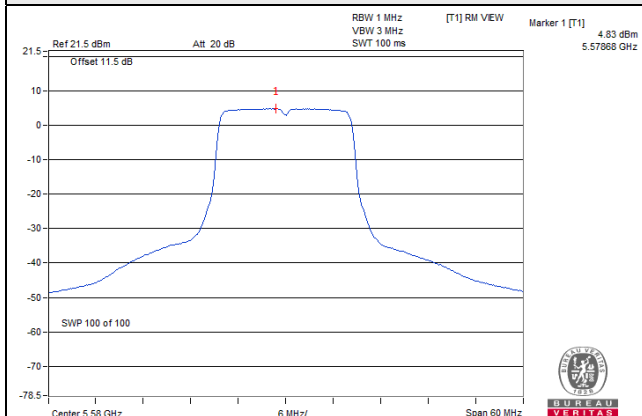
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-2.42	-2.74	0.44	0.88	7.69	Pass
106	5530	-5.91	-7.86	0.44	-3.32	7.69	Pass
122	5610	-0.66	-0.70	0.44	2.77	7.69	Pass

Note:

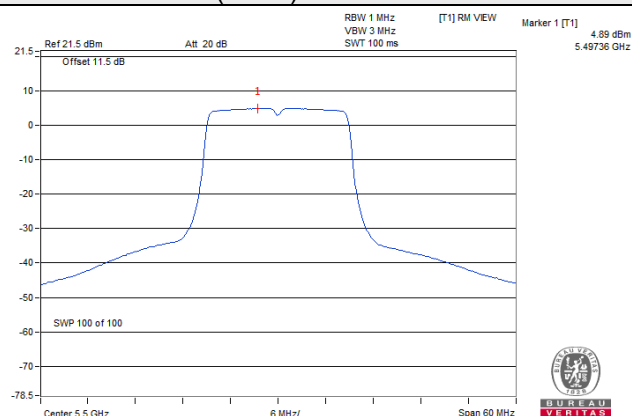
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $6.30\text{dBi} + 10\log(2) = 9.31\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(9.31-6) = 7.69\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

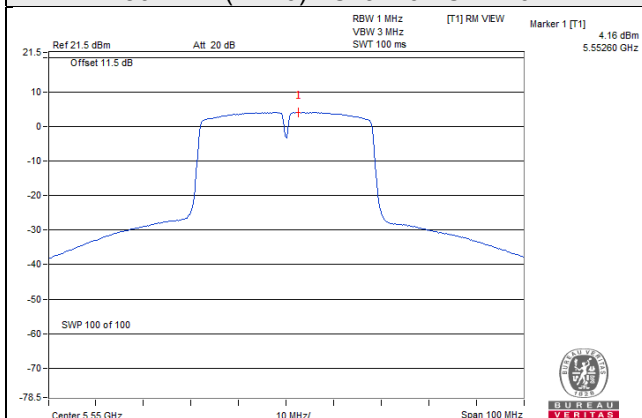
802.11a / Chain 0 / CH 116



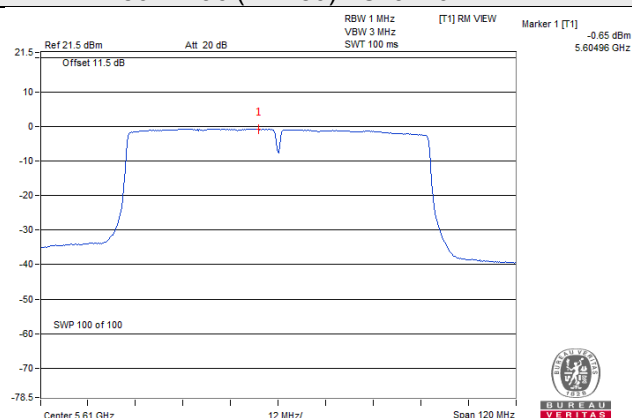
802.11n (HT20) / Chain 0 / CH 100



802.11n (HT40) / Chain 0 / CH 110



802.11ac (VHT80) / Chain 0 / 122



Test Mode B (Radio 2, Sector Ant.)

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				
52	5260	-4.36	-3.47	0.24	-0.64	-0.61	Pass
60	5300	-4.57	-3.51	0.24	-0.75	-0.61	Pass
64	5320	-4.25	-3.55	0.24	-0.63	-0.61	Pass
100	5500	-4.25	-3.69	0.24	-0.71	-0.61	Pass
116	5580	-4.49	-3.39	0.24	-0.65	-0.61	Pass
140	5700	-4.19	-3.61	0.24	-0.64	-0.61	Pass

Note:

1. Method 1 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 = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(17.61-6) = -0.61\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)		Total PSD (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
52	5260	-4.29	-3.91	-1.09	-0.61	Pass
60	5300	-4.17	-4.08	-1.11	-0.61	Pass
64	5320	-4.13	-4.07	-1.09	-0.61	Pass
100	5500	-3.39	-5.22	-1.20	-0.61	Pass
116	5580	-3.25	-4.96	-1.01	-0.61	Pass
140	5700	-3.68	-4.41	-1.02	-0.61	Pass

Note:

1. Method 1 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 = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(17.61-6) = -0.61\text{dBm}$.

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				
54	5270	-4.56	-3.58	0.16	-0.88	-0.61	Pass
62	5310	-4.65	-3.46	0.16	-0.85	-0.61	Pass
102	5510	-3.84	-5.83	0.16	-1.56	-0.61	Pass
110	5550	-3.78	-5.87	0.16	-1.53	-0.61	Pass
134	5670	-3.93	-4.08	0.16	-0.84	-0.61	Pass

Note:

1. Method 1 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 = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(17.61-6) = -0.61\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

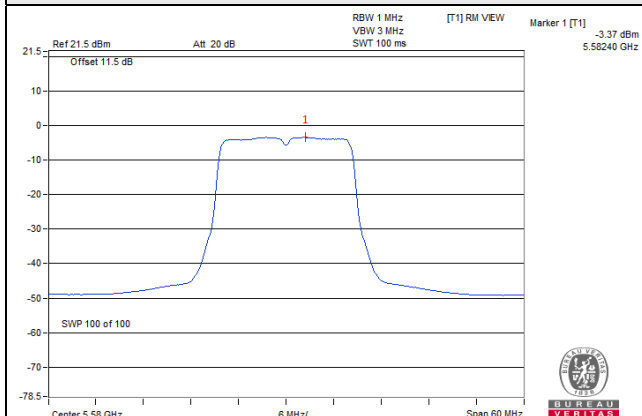
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
58	5290	-8.36	-7.32	0.44	-4.35	-0.61	Pass
106	5530	-8.29	-9.44	0.44	-5.37	-0.61	Pass
122	5610	-8.05	-8.04	0.44	-4.59	-0.61	Pass

Note:

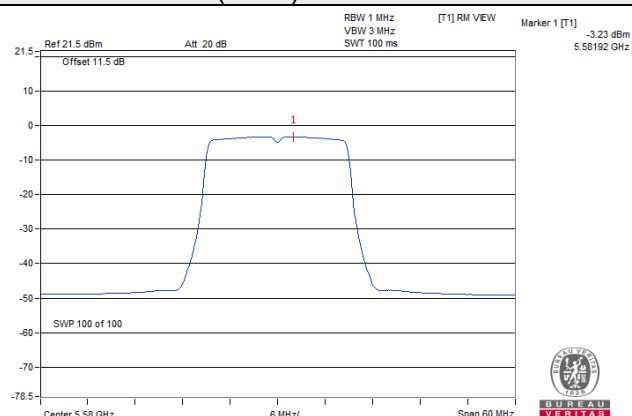
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $14.60\text{dBi} + 10\log(2) = 17.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $11-(17.61-6) = -0.61\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

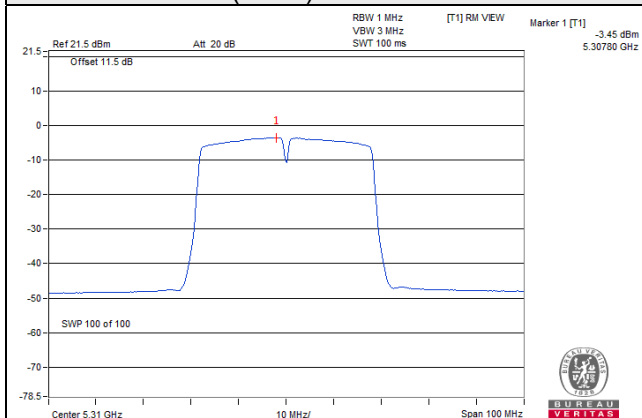
802.11a / Chain 1 / CH 116



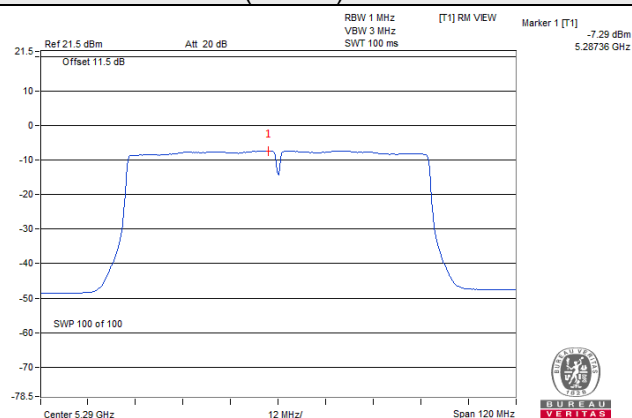
802.11n (HT20) / Chain 0 / CH 116



802.11n (HT40) / Chain 1 / CH 62



802.11ac (VHT80) / Chain 1 / 58

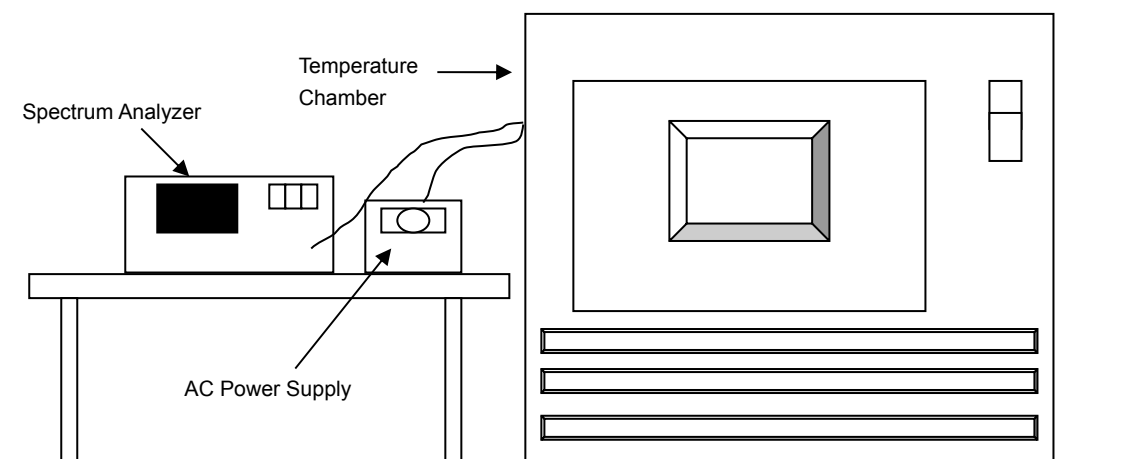


4.6 Frequency Stability

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

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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: 5500MHz									
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	5500.0055	Pass	5500.0044	Pass	5500.0054	Pass	5500.002	Pass
40	120	5499.9826	Pass	5499.9825	Pass	5499.983	Pass	5499.9859	Pass
30	120	5499.9773	Pass	5499.9751	Pass	5499.9764	Pass	5499.9785	Pass
20	120	5500.0163	Pass	5500.0156	Pass	5500.0187	Pass	5500.0193	Pass
10	120	5500.0175	Pass	5500.0164	Pass	5500.0151	Pass	5500.0149	Pass
0	120	5500.0051	Pass	5500.0049	Pass	5500.008	Pass	5500.0077	Pass
-10	120	5499.9808	Pass	5499.9808	Pass	5499.9833	Pass	5499.9807	Pass
-20	120	5499.9873	Pass	5499.9881	Pass	5499.985	Pass	5499.9878	Pass
-30	120	5499.9996	Pass	5499.9961	Pass	5499.9962	Pass	5499.9978	Pass

Frequency Stability Versus Voltage									
Operating Frequency: 5500MHz									
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	5500.0162	Pass	5500.0159	Pass	5500.0177	Pass	5500.0184	Pass
	120	5500.0163	Pass	5500.0156	Pass	5500.0187	Pass	5500.0193	Pass
	102	5500.0165	Pass	5500.0164	Pass	5500.0194	Pass	5500.0188	Pass

5 Pictures of Test Arrangements

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

Appendix – Information on 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:

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Web Site: www.bureauveritas-adt.com

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

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