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TEST REPORT

Report No.: 16090671HKG-005

Thomas & Darden Inc.

Application For Certification
(Original Grant)

This report contains the data of WLAN (WiFi) portion only.

FCC ID: 2ANJG-KUBEV1001
IC: 23114-KUBEV1001

PREPARED AND CHECKED BY:	APPROVED BY:
Signed On File Lee Shui Tim, Tim Lead Engineer	Digitally signed by Terry Chan Location: Intertek Testing Services Hong Kong Ltd. Chan Chi Hung, Terry Assistant Manager Date: December 06, 2017

TEST REPORT

GENERAL INFORMATION

Grantee:	Thomas & Darden Inc.
Grantee Address:	916 Springdale Road, Building 4, Suite 104, Austin, TX 78702, United States.
Contact Person:	Russell Williamson
Tel:	(512) 535-5700
Fax:	N/A
e-mail:	russell@thomasdarden.com
Manufacturer:	Thomas & Darden Inc.
Manufacturer Address:	916 Springdale Road, Building 4, Suite 104, Austin, TX 78702, United States.
Brand Name:	KUBE
Model(s) / HVIN:	KUBEv1-001
PMN:	KUBE
Type of EUT:	Unlicensed National Information Infrastructure Transmitter
Description of EUT:	Wi-Fi, BT, Aux-in Speaker
Serial Number:	N/A
FCC ID / IC:	2ANJG-KUBEV1001 / 23114-KUBEV1001
Date of Sample Submitted:	May 18, 2017
Date of Test:	May 25, 2017 to June 13, 2017
Report No.:	16090671HKG-005
Report Date:	December 01, 2017
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

TEST REPORT

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EXHIBIT 1 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.0 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.1 Summary of Test Results

TEST ITEMS	FCC PART 15 SECTION	RSS-247/ RSS-GEN# SECTION	RESULTS	DETAILS SEE SECTION
Antenna Requirement	15.407(a)	6.2.1.1/ 6.2.4.1	Pass	2.1
Max. Conducted Output Power (Peak)	15.407(a)	6.2.1.1/ 6.2.4.1	Pass	4.1
Transmit Power Control (TPC)	15.407(h)	6.2.1.1/ 6.2.4.1	N/A	N/A
Min. 6dB RF Bandwidth	15.407(e)	6.2.4.1	Pass	4.2
Max. Power Density (average)	15.407(a)	6.2.1.1 6.2.4.1	Pass	4.3
Out of Band Antenna Conducted Emission	15.407(b)	6.2.1.2/ 6.2.4.2	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.407(b), 15.209 & 15.109	6.2.1.2/ 6.2.4.2	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4#	Pass	4.7
Dynamic Frequency Selection(DFS)	15.407	6.3.1	N/A	N/A

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standard:

FCC Part 15, October 1, 2016 Edition
RSS-247 Issue 2, February 2017
RSS-Gen Issue 4, November 2014

TEST REPORT

EXHIBIT 2 GENERAL DESCRIPTION

2.0 GENERAL DESCRIPTION

2.1 Product Description

The Equipment Under Test (EUT) is a Wi-Fi, BT, Aux-in Speaker, equipped with WiFi and USB Interface. Its operation can be controlled by a Smartphone/Notebook over WiFi link. The WiFi module covers both 2.4GHz and 5GHz band.

For the 2.4GHz band, the EUT has
802.11b/g/n-HT20 mode that occupies a frequency range from 2412MHz to 2462MHz (11 channels with channel spacing of 5MHz) ;

802.11n-HT40 mode that occupies a frequency range from 2422MHz to 2452MHz (7 channels with channel spacing of 5MHz).

For 5GHz band, the EUT has
802.11a/n-HT20/ac-VHT20 mode that occupies a frequency range from 5180MHz to 5240MHz (4 channels with channel spacing of 20MHz) and another frequency range from 5745MHz to 5825MHz (5 channels with channel spacing of 20MHz)

802.11n-HT40/ac-VHT40 mode that occupies a frequency range from 5190MHz to 5230MHz (2 channels with channel spacing of 40MHz) and another frequency range from 5755MHz to 5795MHz (2 channels with channel spacing of 40MHz);

802.11ac-VHT80 mode that occupies a frequency from 5210MHz (1 channels with channel spacing of 80MHz) and another frequency from 5755MHz to 5795MHz (2 channels with channel spacing of 40MHz).

The EUT is powered by 100-240VDC. HDMI function is not implemented for this product. The applicant declared that the EUT is a non-MIMO master unit without DFS function. The 2.4GHz and 5GHz portion of WiFi will not transmit simultaneously.

The EUT has two antennas.

The antenna used in transceiver is internal, integral.

The circuit description is saved with filename: descri.pdf.

This report covers 5.0GHz band WiFi portion only.

TEST REPORT

2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Preliminary radiated scans and all radiated measurements were performed in radiated emission test sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "Justification Section" of this Application. Antenna port conducted measurements were performed according to ANSI C63.10 (2013) and KDB Publication No. 789033 D02 v01r04 (02-May-2017). All other measurements were made in accordance with the procedures in 47 CFR Part 2 and RSS-Gen Issue 4 (2014).

2.3 Test Facility

The radiated emission test site and antenna port conducted measurement facility used to collect the radiated data and conductive data are in:
Compliance Certification Services (Shenzhen) Inc.
Address: No. 10-1, Mingkeda Logistics Park No. 18 Huanguan South Rd., Guan Ian Town, Bao'an, Shenzhen, Guangdong, China.
Telephone: +86-755-2956 4585
Designation Number: CN1198
Test Engineer: Kevin Liang
This test facility and site measurement data have been fully placed on file with the FCC and the Industry Canada.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (WiFi portion only).

TEST REPORT

EXHIBIT 3 SYSTEM TEST CONFIGURATION

3.0 SYSTEM TEST CONFIGURATION

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit / receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by 120VDC or/and 45VDC (Rechargeable battery pack).

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable which is four feet in diameter and approximately 12mm in height above the ground plane for emission measurement at or below 1GHz and 1.5m in height above the ground plane for emission measurement above 1GHz. If the base unit attached to peripherals, they were connected and operational (as typical as possible).

The signal was maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization were varied during the search for maximum signal level. The antenna height was varied from 1 to 4 meters. Radiated emissions were taken at three meters unless the signal level was too low for measurement at that distance. If necessary, a pre-amplifier was used and/or the test was conducted at a closer distance.

For any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Radiated emission measurement for transmitter were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

TEST REPORT

3.1 Justification – Cont'd

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.209/ RSS-247 2.5. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109/ RSS-247 Section 5.5 Limits.

Detector function for radiated emissions was in peak mode. Average readings, when required, were taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.2.3.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis… Pulsed RF.* The effective period (Teff) was referred to Exhibit 4.6.3. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

The EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT power cord connected to one LISN (Line impedance stabilization network), which provided 50ohm coupling impedance for measuring instrument. Meanwhile, the peripheral or support equipment power cords connected to a separate LISN. The ac powers for all LISNs were obtained from the same power source. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled. Power cords of non-EUT equipment (peripherals) were not bundled. AC power cords of peripheral equipments draped over the rear edge of the table, and routed them down onto the floor of the ac power line conducted emission test site to the second LISN.

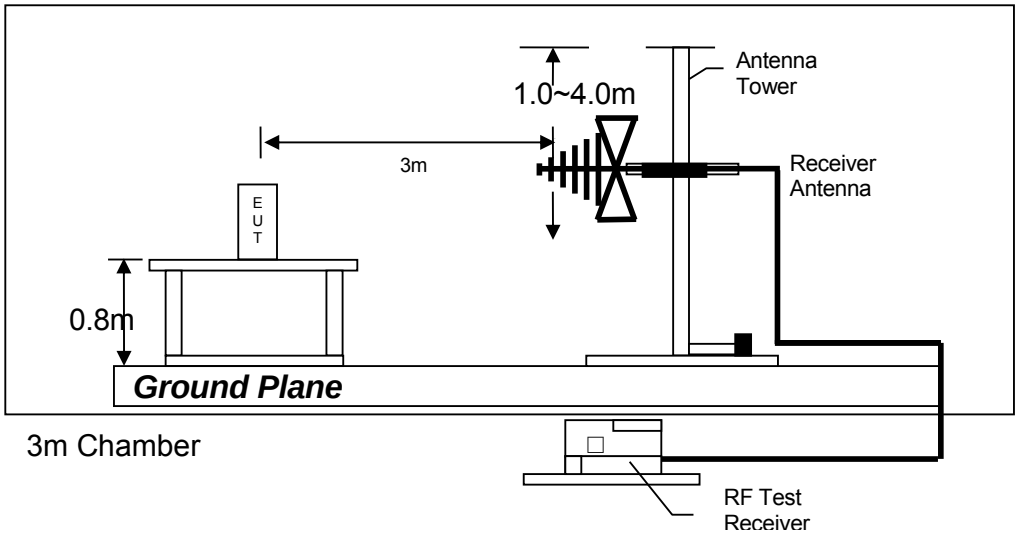
All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

All setting of data rate for 802.11A/N/AC of WiFi mode had been considered, and worst case test data are shown on this test report.

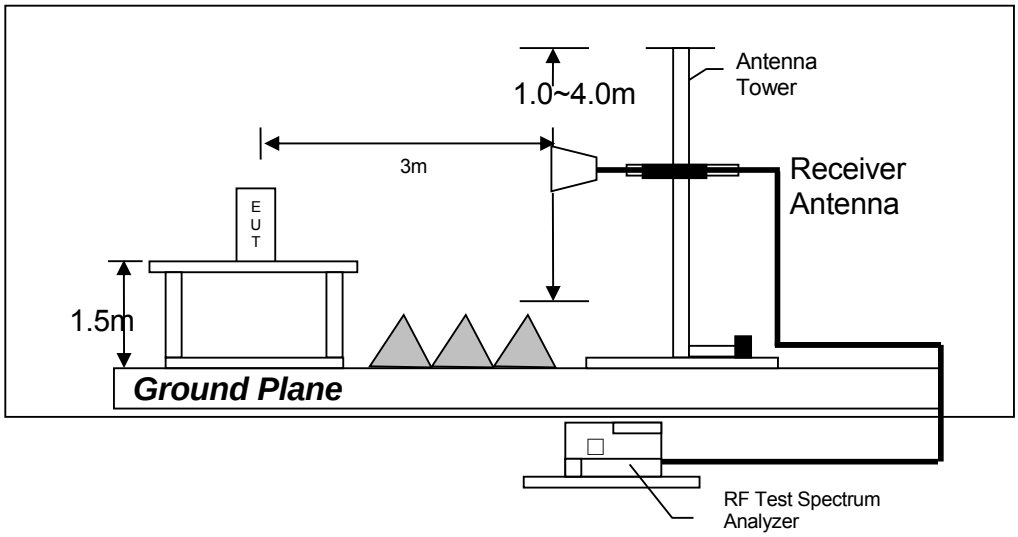
TEST REPORT

3.2 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



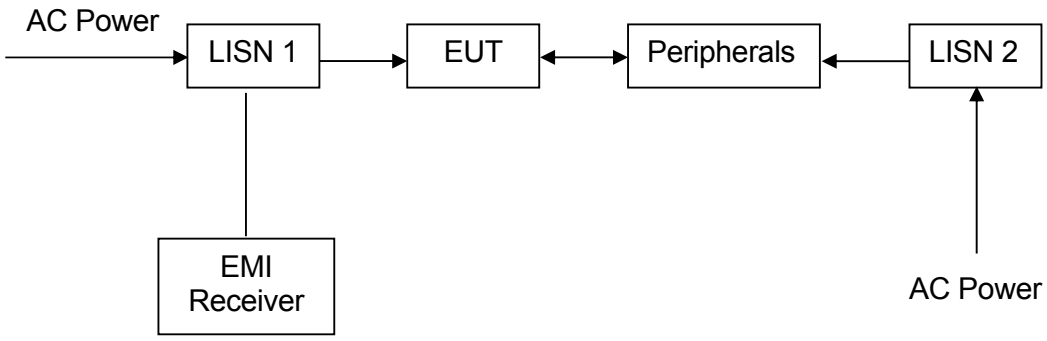
Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

TEST REPORT

3.3 AC Line Conducted Emission Test Setup



TEST REPORT

3.4 EUT Exercising Software

The EUT exercise program (if any) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

Details of EUT:

1. The EUT is powered by 120VDC or/and 45VDC (Rechargeable battery pack)

Description of Accessories:

N/A

3.5 Measurement Uncertainty

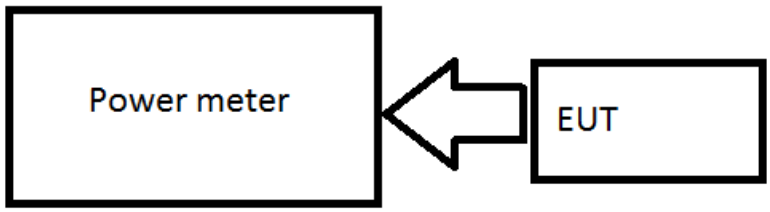
When determining of the test conclusion, the Measurement Uncertainty of test at a level of confidence of 95% has been considered. The values of the Measurement uncertainty for radiated emission test and RF conducted measurement test are ± 5.3dB and ±0.99dB respectively. The value of the Measurement uncertainty for conducted emission test is ±4.2dB.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

TEST REPORT

EXHIBIT 4 TEST RESULTS

4.0 TEST RESULTS



4.1 Measurement using a Power Meter(PM)

The antenna port of the EUT was connected to the input of a power meter.

(i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

- The EUT is configured to transmit continuously or to transmit with a constant duty cycle. 789033 D02 General UNII Test Procedures New Rules v01r03 Page 8
- At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
- The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding 10 log (1/x) where x is the duty cycle (e.g., 10 log (1/0.25) if the duty cycle is 25%).

TEST REPORT

UNII-1: 5150MHz-5250MHz
IEEE 802.11A (OFDM, 6Mbps)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5180.0	14.6	28.8	**14.7**	29.5	16.6	45.7	16.7	46.8
5220.0	14.6	28.8	**14.6**	28.8	16.6	45.7	16.6	45.7
5240.0	14.7	29.5	**14.9**	30.9	16.7	46.8	16.9	49.0

IEEE 802.11n-HT20 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5180.0	13.7	23.4	**13.8**	24.0	15.7	37.2	15.8	38.0
5220.0	13.8	24.0	**13.9**	24.5	15.8	38.0	15.9	38.9
5240.0	13.9	24.5	**13.9**	24.5	15.9	38.9	15.9	38.9

IEEE 802.11n-HT40 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5190.0	13.4	21.9	**13.5**	22.4	15.4	34.7	15.5	35.5
5230.0	13.5	22.4	**13.9**	24.5	15.5	35.5	15.9	38.9

IEEE 802.11ac-VHT20 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5180.0	13.6	22.9	**13.8**	24.0	15.6	36.3	15.8	38.0
5220.0	13.7	23.4	**13.7**	23.4	15.7	37.2	15.7	37.2
5240.0	13.7	23.4	**13.7**	23.4	15.7	37.2	15.7	37.2

IEEE 802.11ac-VHT40 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5190.0	13.7	23.4	**13.7**	23.4	15.7	37.2	15.7	37.2
5230.0	13.7	23.4	**13.8**	24.0	15.7	37.2	15.8	38.0

IEEE 802.11ac-VHT80 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5210.0	11.4	13.8	**11.7**	14.8	13.4	21.9	13.7	23.4

TEST REPORT

UNII-3: 5725MHz-5850MHz

IEEE 802.11A (OFDM, 6Mbps)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5745.0	10.1	10.2	**10.0**	10.0	12.1	16.2	12.0	15.8
5785.0	11.0	12.6	**11.0**	12.6	13.0	20.0	13.0	20.0
5825.0	11.6	14.5	**11.7**	14.8	13.6	22.9	13.7	23.4

IEEE 802.11n-HT20 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5745.0	9.9	9.8	**9.9**	9.8	11.9	15.5	11.9	15.5
5785.0	10.7	11.7	**10.8**	12.0	12.7	18.6	12.8	19.1
5825.0	11.5	14.1	**11.5**	14.1	13.5	22.4	13.5	22.4

IEEE 802.11n-HT40 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5755.0	10.2	10.5	**10.2**	10.5	12.2	16.6	12.2	16.6
5795.0	11.0	12.6	**11.3**	13.5	13.0	20.0	13.3	21.4

IEEE 802.11ac-VHT20 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5745.0	9.9	9.8	**9.9**	9.8	11.9	15.5	11.9	15.5
5785.0	10.8	12.0	**11.6**	14.5	12.8	19.1	13.6	22.9
5825.0	11.5	14.1	**11.5**	14.1	13.5	22.4	13.5	22.4

IEEE 802.11ac-VHT40 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5755.0	10.2	10.5	**10.3**	10.7	12.2	16.6	12.3	17.0
5795.0	11.0	12.6	**11.0**	12.6	13.0	20.0	13.0	20.0

IEEE 802.11ac-VHT80 (OFDM, MCS0)

Frequency (MHz)	Conducted output power				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm	mW	dBm	mW	dBm	mW	dBm	mW
5775.0	10.3	10.7	**10.6**	11.5	12.3	17.0	12.6	18.2

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4.1 Maximum Conducted Output Power at Antenna Terminals

Cable loss : 4 dB External Attenuation : 10 dB

UNII-1 :
IEEE 802.11A (OFDM, 6Mbps)
max. conducted (average) output level = 14.9 dBm

UNII-3 :
IEEE 802.11A (OFDM, 6Mbps)
max. conducted (average) output level = 11.7 dBm

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

The transmit signals are not correlated with each other.

Limits:
☒ FCC: 1W (30dBm) for antennas with gains of 6dBi or less.(Master device)

☒ For 5150MHz-5350MHz:
RSS: 200mW (23dBm) E.I.R.P
For 5725MHz-5825MHz:
RSS: 1W (30dBm) for antennas with gains of 6dBi or less. (Master device)

☐ 0.8W (29.23dBm) for antennas with gains more than 6dBi (Master device).

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4.2 Minimum 6dB RF Bandwidth

The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Wi-Fi A, N (HT20), N (HT40), AC (VHT20), AC (VHT40) and AC (VHT80) of antenna 1 or antenna 2 have been considered, only the worst case of the antenna data was show on test report.

IEEE802.11A (OFDM, 6Mbps)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5745	16.39
5785	16.36
5825	16.45

IEEE802.11n (OFDM, HT20, MCS0)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5745	17.57
5785	17.29
5825	17.13

IEEE802.11n (OFDM, HT40, MCS0)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5755	35.47
5795	35.21

IEEE802.11ac (OFDM, VHT20, MCS0)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5745	17.35
5785	17.32
5825	17.41

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IEEE802.11ac (OFDM, VHT40, MCS0)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5755	35.43
5795	35.46

IEEE802.11ac (OFDM, VHT80, MCS0)	
Frequency (MHz)	ANT2 6dB Bandwidth (MHz)
5775	75.90

Limits:
6 dB bandwidth shall be at least 500kHz

The plots of 6dB RF bandwidth and occupied bandwidth are saved with filename: ANT2 UNII-1(99%&-26dB BW).pdf.

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4.3 Maximum Power Spectral Density

Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure method SA-1 was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

Wi-Fi A, N (HT20), N (HT40), AC (VHT20), AC (VHT40) and AC (VHT80) of antenna 1 or antenna 2 have been considered, only the worst case of the antenna data was show on test report.

U-NII-1:
IEEE 802.11A (OFDM, 6Mbps)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5180.0	1.5	1.4	3.5	2.2
5220.0	1.6	1.4	3.6	2.3
5240.0	1.6	1.4	3.6	2.3

IEEE 802.11n-HT20 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5180.0	0.4	1.1	2.4	1.7
5220.0	0.3	1.1	2.3	1.7
5240.0	0.3	1.1	2.3	1.7

IEEE 802.11n-HT40 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5190.0	-1.3	0.7	0.7	1.2
5230.0	-1.3	0.7	0.7	1.2

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IEEE 802.11ac-VHT20 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5180.0	0.4	1.1	2.4	1.7
5220.0	0.0	1.0	2.0	1.6
5240.0	0.2	1.0	2.2	1.7

IEEE 802.11ac-VHT40 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5190.0	-1.6	0.7	0.4	1.1
5230.0	-1.3	0.7	0.7	1.2

IEEE 802.11ac-VHT80 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /MHz	mW /MHz	dBm /MHz	mW /MHz
5210.0	-7.7	0.2	-5.7	0.3

U-NII-3

IEEE 802.11A (OFDM, 6Mbps)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5745.0	0.8	1.2	2.8	1.9
5785.0	1.8	1.5	3.8	2.4
5825.0	2.1	1.6	4.1	2.6

TEST REPORT

IEEE 802.11n-HT20 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5745.0	-1.00	0.8	1.0	1.3
5785.0	0.3	1.1	2.3	1.7
5825.0	0.4	1.1	2.4	1.8

IEEE 802.11n-HT40 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5755.0	-3.1	0.5	-1.1	0.8
5795.0	-2.4	0.6	-0.4	0.9

IEEE 802.11ac-VHT20 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5745.0	-0.6	0.9	1.4	1.4
5785.0	0.3	1.1	2.3	1.7
5825.0	0.8	1.2	2.8	1.9

IEEE 802.11ac-VHT40 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5755.0	-3.3	0.5	-1.3	0.7
5795.0	-2.6	0.6	-0.6	0.9

TEST REPORT

IEEE 802.11ac-VHT80 (OFDM, MCS0)

	Maximum Power Spectral Density		EIRP	
	ANT2		ANT2	
Frequency (MHz)	dBm /0.5MHz	mW /0.5MHz	dBm /0.5MHz	mW /0.5MHz
5775.0	-8.5	0.1	-6.5	0.2

5775.0 - 8.5 0.1 -6.5

Limit:

For U-NII-1:

☒ FCC: 17dBm/MHz for antennas with gains less than 6dBi (Master device).
RSS: 10dBm/MHz E.I.R.P

For U-NII-3:

☒ FCC: 30dBm/500kHz for antennas with gains less than 6dBi (Master device).
RSS: 30dBm/500kHz for antennas with gains less than 6dBi (Master device).

The test data are saved with filename: ANT2 UNII-1(Maximum Power Spectral Density).pdf.

TEST REPORT

4.4 Out of Band Conducted Emissions

The measurement procedures under sections 2G of 789033 D02 General UNII Test Procedures New Rules v01r04 were used.

Furthermore, Integration Method for measuring bandedge emissions was incorporated in the test of the edge at MHz.

Limits:

For UNII-1:
All spurious emission should be less then -27dBm/MHz for master device.

For UNII-3:
FCC:
All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

RSS:
Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a. 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 Bm/MHz at 5 MHz above or below the band edges;
b. 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at25 MHz above or below the band edges;
c. 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at75 MHz above or below the band edges; and
d. -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

The test data is saved with filename: ANT2 UNII-1(SPUR).pdf, ANT2 UNII-3(SPUR).pdf.

TEST REPORT

4.5 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Example
Assume a receiver reading of 62.0 dBμV is obtained. The 0antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBμV/m. This value in dBμV/m is converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBμV/m

Level in μV/m = Common Antilogarithm [(32.0 dBμV/m)/20] = 39.8 μV/m

TEST REPORT

4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission
at

5150 MHz

The worst case radiated emission configuration photographs are saved with filename: config photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-30 list the significant emission frequencies, the limit and the margin of compliance.

Wi-Fi A, N (HT20), N (HT40), AC (VHT20), AC (VHT40) and AC (VHT80) of antenna 1 or antenna 2 have been considered, only the worst case of the antenna data was show on test report.

Judgement -

Passed by -3.7 dB margin

TEST REPORT

Mode: A Mode 5180MHz Ant 2

Table 1
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5150.000***	***41.1***	***33***	***35.7***	***43.8***	***54.0***	***-10.2***
V	***15540.000***	***36.5***	***33***	***37.7***	***41.2***	***54.0***	***-12.8***
V	***20720.000***	***37.6***	***33***	***37.7***	***42.3***	***54.0***	***-11.7***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5150.000***	***51.5***	***33***	***35.7***	***54.2***	***74.0***	***-19.8***
V	***15540.000***	***47.3***	***33***	***37.7***	***52.0***	***74.0***	***-22.0***
V	***20720.000***	***48.7***	***33***	***37.7***	***53.4***	***74.0***	***-20.6***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m

TEST REPORT

Mode: A Mode 5220MHz Ant 2

Table 2
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***37.4***	***33***	***37.7***	***42.1***	***54.0***	***-11.9***
V	***20880.000***	***38.7***	***33***	***37.7***	***43.4***	***54.0***	***-10.6***
H	***31320.000***	***36.5***	***33***	***42.1***	***45.6***	***68.0***	***-22.4***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***47.8***	***33***	***37.7***	***52.5***	***74.0***	***-21.5***
V	***20880.000***	***48.4***	***33***	***37.7***	***53.1***	***74.0***	***-20.9***
H	***31320.000***	***45.5***	***33***	***42.1***	***54.6***	***68.0***	***-13.4***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: A Mode 5240MHz Ant 2

Table 3
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***35.2***	***33***	***35.7***	***37.9***	***54.0***	***-16.1***
V	***15720.000***	***38.8***	***33***	***37.7***	***43.5***	***54.0***	***-10.6***
V	***20960.000***	***38.6***	***33***	***37.7***	***43.3***	***54.0***	***-10.7***
H	***31440.000***	***35.1***	***33***	***42.1***	***44.2***	***68.0***	***-23.8***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***44.8***	***33***	***35.7***	***47.5***	***74.0***	***-26.5***
V	***15720.000***	***47.4***	***33***	***37.7***	***52.1***	***74.0***	***-21.9***
V	***20960.000***	***48.6***	***33***	***37.7***	***53.3***	***74.0***	***-20.7***
H	***31440.000***	***45.8***	***33***	***42.1***	***54.9***	***68.0***	***-13.1***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: A Mode 5745MHz Ant 2

Table 4
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***36.0***	***33***	***40.8***	***43.8***	***54.0***	***-10.2***
V	***22980.000***	***38.6***	***33***	***38.3***	***43.9***	***54.0***	***-10.1***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***44.1***	***33***	***40.8***	***51.9***	***74.0***	***-22.1***
V	***22980.000***	***48.5***	***33***	***38.3***	***53.8***	***74.0***	***-20.2***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: A Mode 5785MHz Ant 2

Table 5
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***36.4***	***33***	***40.5***	***43.9***	***54.0***	***-10.1***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***43.5***	***33***	***40.5***	***51.0***	***74.0***	***-23.0***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: A Mode 5825MHz Ant 2

Table 6
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***33.4***	***33***	***40.5***	***40.9***	***54.0***	***-13.1***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***43.8***	***33***	***40.5***	***51.3***	***74.0***	***-22.7***

NOTES:
1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

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TEST REPORT

Mode: N-HT20 Mode 5180MHz Ant 2

Table 7
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***43.0***	***33***	***35.7***	***45.7***	***54.0***	***-8.3***
V	***15540.000***	***36.3***	***33***	***37.7***	***41.0***	***54.0***	***-13.0***
V	***20720.000***	***37.9***	***33***	***37.7***	***42.6***	***54.0***	***-11.4***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***56.1***	***33***	***35.7***	***58.8***	***74.0***	***-15.2***
V	***15540.000***	***47.4***	***33***	***37.7***	***52.1***	***74.0***	***-21.9***
V	***20720.000***	***48.9***	***33***	***37.7***	***53.6***	***74.0***	***-20.4***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT20 Mode 5220MHz Ant 2

Table 8
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***37.5***	***33***	***37.7***	***42.2***	***54.0***	***-11.8***
V	***20880.000***	***39.3***	***33***	***37.7***	***44.0***	***54.0***	***-10.1***
H	***31320.000***	***36.4***	***33***	***42.1***	***45.5***	***68.0***	***-22.5***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***48.1***	***33***	***37.7***	***52.8***	***74.0***	***-21.3***
V	***20880.000***	***49.0***	***33***	***37.7***	***53.7***	***74.0***	***-20.3***
H	***31320.000***	***45.2***	***33***	***42.1***	***54.3***	***68.0***	***-13.8***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT20 Mode 5240MHz Ant 2

Table 9
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***35.3***	***33***	***35.7***	***38.0***	***54.0***	***-16.0***
V	***15720.000***	***38.9***	***33***	***37.7***	***43.6***	***54.0***	***-10.4***
V	***20960.000***	***39.2***	***33***	***37.7***	***43.9***	***54.0***	***-10.1***
H	***31440.000***	***34.7***	***33***	***42.1***	***43.8***	***68.0***	***-24.2***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***44.9***	***33***	***35.7***	***47.6***	***74.0***	***-26.4***
V	***15720.000***	***47.4***	***33***	***37.7***	***52.1***	***74.0***	***-21.9***
V	***20960.000***	***48.9***	***33***	***37.7***	***53.6***	***74.0***	***-20.4***
H	***31440.000***	***45.4***	***33***	***42.1***	***54.5***	***68.0***	***-13.5***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT20 Mode 5745MHz Ant 2

Table 10
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***35.6***	***33***	***40.8***	***43.4***	***54.0***	***-10.6***
V	***17235.000***	***36.7***	***33***	***37.6***	***41.3***	***54.0***	***-12.7***
V	***22980.000***	***38.3***	***33***	***38.3***	***43.6***	***54.0***	***-10.4***
H	***28725.000***	***37.6***	***33***	***40.1***	***44.7***	***68.0***	***-23.3***
H	***34470.000***	***37.0***	***33***	***41.1***	***45.1***	***68.0***	***-22.9***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***35.6***	***33***	***40.8***	***43.4***	***74.0***	***-30.6***
V	***17235.000***	***36.7***	***33***	***37.6***	***41.3***	***74.0***	***-32.7***
V	***22980.000***	***38.3***	***33***	***38.3***	***43.6***	***74.0***	***-30.4***
H	***28725.000***	***37.6***	***33***	***40.1***	***44.7***	***68.0***	***-23.3***
H	***34470.000***	***37.0***	***33***	***41.1***	***45.1***	***68.0***	***-22.9***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT20 Mode 5785MHz Ant 2

Table 11
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***36.7***	***33***	***40.5***	***44.2***	***54.0***	***-9.8***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***43.3***	***33***	***40.5***	***50.8***	***74.0***	***-23.2***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT20 Mode 5825MHz Ant 2

Table 12
IEEE 802.11n-HT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***34.0***	***33***	***40.5***	***41.5***	***54.0***	***-12.5***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***43.3***	***33***	***40.5***	***50.8***	***74.0***	***-23.2***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5180MHz Ant 2

Table 13
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***42.9***	***33***	***35.7***	***45.6***	***54.0***	***-8.4***
V	***15540.000***	***36.1***	***33***	***37.7***	***40.8***	***54.0***	***-13.2***
V	***20720.000***	***37.4***	***33***	***37.7***	***42.1***	***54.0***	***-11.9***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***54.6***	***33***	***35.7***	***57.3***	***74.0***	***-16.7***
V	***15540.000***	***47.3***	***33***	***37.7***	***52.0***	***74.0***	***-22.1***
V	***20720.000***	***48.7***	***33***	***37.7***	***53.4***	***74.0***	***-20.6***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5220MHz Ant 2

Table 14
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***37.1***	***33***	***37.7***	***41.8***	***54.0***	***-12.2***
V	***20880.000***	***39.0***	***33***	***37.7***	***43.7***	***54.0***	***-10.3***
H	***31320.000***	***36.2***	***33***	***42.1***	***45.3***	***68.0***	***-22.7***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***15660.000***	***48.3***	***33***	***37.7***	***53.0***	***74.0***	***-21.0***
V	***20880.000***	***49.3***	***33***	***37.7***	***54.0***	***74.0***	***-20.0***
H	***31320.000***	***44.8***	***33***	***42.1***	***53.9***	***68.0***	***-14.1***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5240MHz Ant 2

Table 15
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***35.2***	***33***	***35.7***	***37.9***	***54.0***	***-16.1***
V	***15720.000***	***38.8***	***33***	***37.7***	***43.5***	***54.0***	***-10.5***
V	***20960.000***	***39.6***	***33***	***37.7***	***44.3***	***54.0***	***-9.7***
H	***31440.000***	***34.5***	***33***	***42.1***	***43.6***	***68.0***	***-24.4***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***45.0***	***33***	***35.7***	***47.7***	***74.0***	***-26.3***
V	***15720.000***	***47.2***	***33***	***37.7***	***51.9***	***74.0***	***-22.1***
V	***20960.000***	***49.3***	***33***	***37.7***	***54.0***	***74.0***	***-20.0***
H	***31440.000***	***45.1***	***33***	***42.1***	***54.2***	***68.0***	***-13.8***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5745MHz Ant 2

Table 16
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***35.5***	***33***	***40.8***	***43.3***	***54.0***	***-10.7***
V	***22980.000***	***38.0***	***33***	***38.3***	***43.3***	***54.0***	***-10.7***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11490.000***	***44.5***	***33***	***40.8***	***52.3***	***74.0***	***-21.7***
V	***22980.000***	***48.5***	***33***	***38.3***	***53.8***	***74.0***	***-20.2***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5785MHz Ant 2

Table 17
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***37.4***	***33***	***40.5***	***44.9***	***54.0***	***-9.2***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11570.000***	***43.2***	***33***	***40.5***	***50.7***	***74.0***	***-23.3***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT20 Mode 5825MHz Ant 2

Table 18
IEEE 802.11ac-VHT20 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***33.6***	***33***	***40.5***	***41.1***	***54.0***	***-12.9***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11650.000***	***43.1***	***33***	***40.5***	***50.6***	***74.0***	***-23.4***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT40 Mode 5190MHz Ant 2

Table 19
IEEE 802.11n-HT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***45.9***	***33***	***35.7***	***48.6***	***54.0***	***-5.4***
V	***15570.000***	***35.8***	***33***	***37.7***	***40.5***	***54.0***	***-13.6***
V	***20760.000***	***37.7***	***33***	***37.7***	***42.4***	***54.0***	***-11.6***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***5150.000***	***61.4***	***33***	***35.7***	***64.1***	***74.0***	***-9.9***
V	***15570.000***	***46.9***	***33***	***37.7***	***51.6***	***74.0***	***-22.4***
V	***20760.000***	***48.5***	***33***	***37.7***	***53.2***	***74.0***	***-20.8***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m

TEST REPORT

Mode: N-HT40 Mode 5230MHz Ant 2

Table 20
IEEE 802.11n-HT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***5350.000***	***35.6***	***33***	***35.7***	***38.3***	***54.0***	***-15.7***
V	***15690.000***	***38.5***	***33***	***37.7***	***43.2***	***54.0***	***-10.8***
V	***20920.000***	***38.7***	***33***	***37.7***	***43.4***	***54.0***	***-10.6***
H	***31380.000***	***34.2***	***33***	***42.1***	***43.3***	***68.0***	***-24.7***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***5350.000***	***45.3***	***33***	***35.7***	***48.0***	***74.0***	***-26.0***
V	***15690.000***	***47.2***	***33***	***37.7***	***51.9***	***74.0***	***-22.1***
V	***20920.000***	***48.8***	***33***	***37.7***	***53.5***	***74.0***	***-20.5***
H	***31380.000***	***45.4***	***33***	***42.1***	***54.5***	***68.0***	***-13.5***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: N-HT40 Mode 5755MHz Ant 2

Table 21
IEEE 802.11n-HT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11510.000***	***35.8***	***33***	***40.5***	***43.3***	***54.0***	***-10.8***
V	***23020.000***	***37.8***	***33***	***38.6***	***43.4***	***54.0***	***-10.6***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11510.000***	***44.5***	***33***	***40.5***	***52.0***	***74.0***	***-22.0***
V	***23020.000***	***48.3***	***33***	***38.6***	***53.9***	***74.0***	***-20.1***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m

TEST REPORT

Mode: AC-VHT40 Mode 5230MHz Ant 2

Table 24
IEEE 802.11ac-VHT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***35.3***	***33***	***35.7***	***38.0***	***54.0***	***-16.0***
V	***15690.000***	***38.3***	***33***	***37.7***	***43.0***	***54.0***	***-11.0***
V	***20920.000***	***38.5***	***33***	***37.7***	***43.2***	***54.0***	***-10.8***
H	***31380.000***	***34.2***	***33***	***42.1***	***43.3***	***68.0***	***-24.7***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5350.000***	***44.4***	***33***	***35.7***	***47.1***	***74.0***	***-26.9***
V	***15690.000***	***47.4***	***33***	***37.7***	***52.1***	***74.0***	***-21.9***
V	***20920.000***	***49.0***	***33***	***37.7***	***53.7***	***74.0***	***-20.4***
H	***31380.000***	***45.8***	***33***	***42.1***	***54.9***	***68.0***	***-13.1***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT40 Mode 5755MHz Ant 2

Table 25
IEEE 802.11ac-VHT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11510.000***	***36.0***	***33***	***40.5***	***43.5***	***54.0***	***-10.5***
V	***23020.000***	***38.0***	***33***	***38.6***	***43.6***	***54.0***	***-10.4***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11510.000***	***44.6***	***33***	***40.5***	***52.1***	***74.0***	***-21.9***
V	***23020.000***	***48.5***	***33***	***38.6***	***54.1***	***74.0***	***-19.9***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m

TEST REPORT

Mode: 802.11AC-VHT40 Mode 5795MHz Ant 2

Table 26
IEEE 802.11ac-VHT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11590.000***	***33.9***	***33***	***40.5***	***41.4***	***54.0***	***-12.6***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11590.000***	***33.9***	***33***	***40.5***	***41.4***	***74.0***	***-32.6***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT80 Mode 5210MHz Ant 2

Table 27
IEEE 802.11ac-VHT80 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***5150.000***	***47.6***	***33***	***35.7***	***50.3***	***54.0***	***-3.7***
V	***5350.000***	***38.1***	***33***	***35.7***	***40.8***	***54.0***	***-13.3***
V	***15630.000***	***39.2***	***33***	***37.7***	***43.9***	***54.0***	***-10.2***
V	***20840.000***	***39.0***	***33***	***37.7***	***43.7***	***54.0***	***-10.3***
H	***31260.000***	***34.9***	***33***	***42.1***	***44.0***	***68.0***	***-24.0***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***5150.000***	***58.5***	***33***	***35.7***	***61.2***	***74.0***	***-12.8***
V	***5350.000***	***46.5***	***33***	***35.7***	***49.2***	***74.0***	***-24.8***
V	***15630.000***	***48.1***	***33***	***37.7***	***52.8***	***74.0***	***-21.2***
V	***20840.000***	***49.3***	***33***	***37.7***	***54.0***	***74.0***	***-20.0***
H	***31260.000***	***46.7***	***33***	***42.1***	***55.8***	***68.0***	***-12.2***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205/ RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: AC-VHT80 Mode 5775MHz Ant 2

Table 28
IEEE 802.11ac-VHT80 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11550.000***	***36.8***	***33***	***40.5***	***44.3***	***54.0***	***-9.7***
V	***23100.000***	***38.3***	***33***	***38.6***	***43.9***	***54.0***	***-10.1***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11550.000***	***36.8***	***33***	***40.5***	***44.3***	***74.0***	***-29.7***
V	***23100.000***	***38.3***	***33***	***38.6***	***43.9***	***74.0***	***-30.1***

NOTES:

1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna is used for the emission over 1000MHz.

5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.

6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.

7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.

8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Mode: 802.11AC-VHT40 Mode 5795MHz Ant 2

Table 29
IEEE 802.11ac-VHT40 (OFDM, MCS0)

Radiated Emission Data

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
V	***11590.000***	***33.9***	***33***	***40.5***	***41.4***	***54.0***	***-12.6***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
V	***11590.000***	***33.9***	***33***	***40.5***	***41.4***	***74.0***	***-32.6***

NOTES:
1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 / RSS-247 Section 3.3.
6. For the measurement of radiated emission, summation method was used which numerical integrating (in terms of linear power) over the transmitter occupied bandwidth.
7. For the linear power measurement, data in 1MHz spacing was collected by spectrum analyzer with 1MHz resolution bandwidth.
8. Regarding to 15.407(b)(1)-(3) specifies that emissions outside of the respective U-NII bands are subject to a maximum emission limit (Peak) of -27 dBm/MHz.
   E[dBµV/m] = EIRP[dBm] + 95.2, for d = 3 meters.
   Thus, the Peak limit for U-NII should be -27+95.2=68.2 dBuV/m.

TEST REPORT

Worst Case: EUT Transmitting

Table 30

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Margin (dB)
H	104.690	26.6	16	13.0	23.6	-30.4
H	614.910	10.1	16	29.0	23.1	-33.8
H	831.220	18.7	16	31.0	33.7	-23.2
V	39.700	40.3	16	10.0	34.3	-15.3
V	103.720	25.3	16	13.0	22.3	-31.7
V	368.530	20.4	16	24.0	28.4	-28.5

NOTES:
1. Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

TEST REPORT

4.6.3 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

4.7 AC Power Line Conducted Emission

☐ Not applicable – EUT is only powered by battery for operation.

☒ EUT connects to AC power line. Emission Data is listed in following pages.

☐ Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.7.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.478 MHz

The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

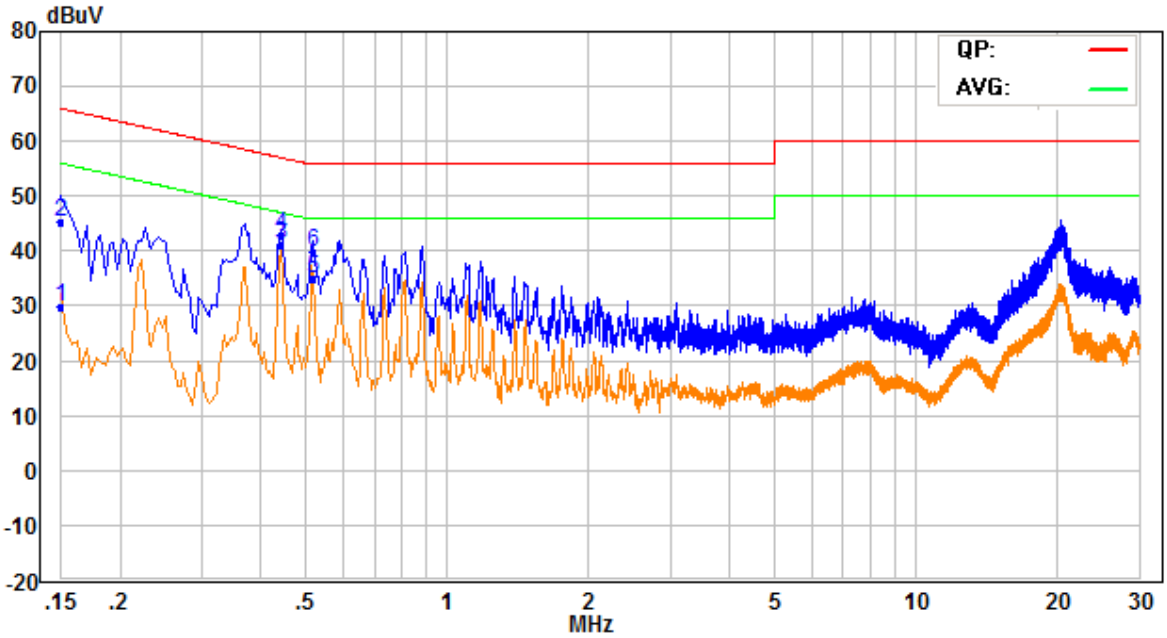
4.7.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance

Passed by 11.50 dB margin.

TEST REPORT

Worst Case: EUT Transmitting



TEST REPORT

Worst Case: EUT Transmitting

No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Rem ark
1	0.438	32.80	10.40	43.20	57.10	-13.90	Average
2	0.438	35.20	10.40	45.60	57.10	-11.50	QP
3*	0.478	27.90	10.40	38.30	56.40	-18.10	Average
4	0.478	32.20	10.40	42.60	56.40	-13.80	QP
5	0.518	28.90	10.40	39.30	56.00	-16.70	Average
6	0.518	33.80	10.40	44.20	56.00	-11.80	QP

TEST REPORT

4.8 Frequency Stability requirement

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5240	A	-6.6794	-3.8168	-5.7252	-4.7710	-6.6794	-7.6336
5785		-6.9144	-3.4572	-4.3215	-4.3215	-5.1858	-6.9144

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5240	A	-5.7252	-6.6794	-4.7710
25	5785		-4.3215	-4.3215	-3.4572

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5240	N (HT20)	-2.3755	-1.6832	-2.5883	-2.8949	-2.5140	-2.8309
5785		-1.4231	-1.5331	-1.7132	-1.9312	-2.2538	-1.6197

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5240	N (HT20)	-2.2340	-2.2588	-2.6765
25	5785		-1.4332	-1.6367	-1.6621

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5240	AC (VHT20)	-3.6623	-3.8376	-3.7357	-3.8197	-3.5699	-4.5115
5785		-3.5858	-3.1156	-3.1899	-4.0892	-3.8628	-3.2704

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5240	AC (VHT20)	-3.6682	-4.0993	-4.6265
25	5785		-3.6282	-3.2548	-3.7527

TEST REPORT

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5230	N (HT40)	-1.7685	-1.7010	-2.2698	-2.0629	-2.4636	-1.8922
5795		-1.4397	-1.3669	-1.7740	-1.8961	-1.7099	-2.5835

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5230	N (HT40)	-1.6567	-2.0262	-1.4987
25	5795		-2.1982	-1.7400	-1.2401

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5230	AC (VHT40)	-3.0035	-2.2136	-2.4504	-3.4072	-2.2962	-2.3685
5795		-3.1928	-3.0886	-2.4407	-3.4573	-2.5384	-2.1476

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5230	AC (VHT40)	-2.4003	-2.4953	-3.1944
25	5795		-2.8601	-2.5737	-3.5175

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5210	AC (VHT80)	-3.6799	-3.9996	-3.4990	-4.0914	-3.1927	-4.5642
5775		-3.5938	-3.8368	-3.1121	-4.1571	-3.2846	-4.2588

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 45VDC	Measured Value (ppm) 51VDC	Measured Value (ppm) 38VDC
25	5210	AC (VHT80)	-4.2969	-3.8850	-3.3305
25	5775		-3.8776	-3.6549	-2.8749

The Maximum value is -7.6336 ppm.

It is proved that the frequency stability such that an emission is maintained within the band of operation under all condition.

TEST REPORT

4.9 U-NII1 99% bandwidth requirement

For the case if a channel operating in U-NII 1 band has a 26-dB bandwidth that straddles into U-NII 2A band but its 99% occupied power bandwidth does not. For this rare case, DFS requirement does not apply.

The plots of U-NII1 99% bandwidth is saved with filename: ANT2 UNII-1(99%&-26dB BW).pdf proved that no further test for DFS.

TEST REPORT

EXHIBIT 5 EQUIPMENT LIST

5.0 EQUIPMENT LIST

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer	Biconical Antenna
Registration No.	CCS-0032	CCS-0036	CCS-0043
Manufacturer	Agilent	Agilent	Schwarzbeck
Model No.	E4446A	N9010A	BBHA 9170
Calibration Date	Feb. 17, 2017	Feb. 17, 2017	Feb. 11, 2017
Calibration Due Date	Feb. 16, 2018	Feb. 16, 2018	Feb. 10, 2018

Equipment	Log Periodic Antenna	Pyramidal Horn Antenna	Double Ridged Guide Antenna
Registration No.	CCS-0040	CCS-0039	CCS-0035
Manufacturer	SCHAFFNER	Agilent	Schwarzbeck
Model No.	CBL6143	8449B	BBHA9120
Calibration Date	Feb. 12, 2017	Feb. 11, 2017	Feb. 12, 2017
Calibration Due Date	Feb. 11, 2018	Feb. 10, 2018	Feb. 11, 2018

2) Conductive Measurement Test

Equipment	RF Power Meter	Spectrum Analyzer
Registration No.	CCS-0018	CCS-0036
Manufacturer	Agilent	Agilent
Model No.	ML2495A	N9010A
Calibration Date	Feb. 17, 2017	Feb. 17, 2017
Calibration Due Date	Feb. 16, 2018	Feb. 16, 2018

3) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN
Registration No.	CCS-0007	CCS-0006
Manufacturer	ROHDE&SCHWARZ	ROHDE&SCHWARZ
Model No.	ESCI	ENV216
Calibration Date	Feb. 11, 2017	Feb. 11, 2017
Calibration Due Date	Feb. 10, 2018	Feb. 10, 2018

TEST REPORT

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L4818
The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 2861.01
Compliance Certification Services (Shenzhen) Inc. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC Accredited Lab.
Designation Number: CN1198

END OF TEST REPORT