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TEST REPORT

Report Number: 16081553HKG-002

Application
for
Original Grant of 47 CFR Part 15 Certification
RSS-247 Issue 1 Equipment Certification

24 Channel Digital Mixer/Recorder

FCC ID: API-UI24RMIXER

IC: 6132A-UI24RMIXER

This report contains the data of 5GHz WLAN (WiFi) portion only.

Prepared and Checked by:

Approved by:

Signed On File

Lee Shui Tim, Tim
Lead Engineer

Koo Wai Ip
Technical Supervisor
April 03, 2017

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Intertek Testing Services Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-etlsemko.com

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GENERAL INFORMATION

Applicant Name:	Harman International Industries, Inc
Applicant Address:	8500 Balboa Boulevard, Northridge, California, 91329, United States.
Contact Person:	Tim Song
Tel:	(818) 898 8173
Fax:	(818) 892 0325
e-mail:	N/A
Manufacturer:	Harman International Industries, Inc
Manufacturer Address:	8500 Balboa Boulevard, Northridge, California, 91329, United States.
FCC Specification Standard:	FCC Part 15, 2015 Edition
IC Specification Standard:	RSS-247 Issue 1, May 2015 RSS-Gen Issue 4, November 2014
FCC ID:	API-UI24RMIXER
IC:	6132A-UI24RMIXER
Brand Name:	Soundcraft
FCC Model(s):	Ui24R
For IC HVIN:	Ui24R
For IC PMN:	Ui24R
Type of EUT:	Unlicensed National Information Infrastructure Transmitter
Description of EUT:	24 Channel Digital Mixer/Recorder
Serial Number:	N/A
Sample Receipt Date:	November 01, 2016
Date of Test:	November 01, 2016 to April 01, 2017
Report Date:	April 03, 2017
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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Table of Contents

1.0 Test Results Summary & Statement of Compliance	5
1.1 Summary of Test Results	5
1.2 Statement of Compliance	5
2.0 General Description	7
2.1 Product Description	7
2.2 Test Methodology	8
2.3 Test Facility	8
2.4 Related Submittal(s) Grants	8
3.0 System Test Configuration	10
3.1 Justification	10
3.2 Radiated Emission Test Setup	12
3.3 AC Line Conducted Emission Test Setup	13
3.4 EUT Exercising Software	14
3.5 Measurement Uncertainty	14
4.0 Test Results	16
4.1 Maximum Conducted Output Power at Antenna Terminals	16
4.2 Minimum 6dB RF Bandwidth	19
4.3 Maximum Power Spectral Density	20
4.4 Out of Band Conducted Emissions	22
4.5 Field Strength Calculation	23
4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions	24
4.6.1 Radiated Emission Configuration Photograph	24
4.6.2 Radiated Emission Data	24
4.6.3 Transmitter Duty Cycle Calculation	38
4.7 AC Power Line Conducted Emission	38
4.7.1 AC Power Line Conducted Emission Configuration Photograph	38
4.7.2 AC Power Line Conducted Emission Data	38
5.0 Equipment List	45

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EXHIBIT 1 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

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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/ 6.2.3.1/ 6.2.4.1	Pass	2.1
Max. Conducted Output Power (peak)	15.407(a)	6.2.1.1/ 6.2.3.1/ 6.2.4.1	Pass	4.1
Min. 6dB RF Bandwidth	15.407(e)	6.2.4.1	Pass	4.2
Max. Power Density (average)	15.407(a)	6.2.4.1	Pass	4.3
Out of Band Antenna Conducted Emission	15.407(b)	6.2.4.2	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.407(b), 15.209 & 15.109	6.2.4.2	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4 [#]	Pass	4.7

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, 2015 Edition
RSS-247 Issue 1, May 2015
RSS-Gen Issue 4, November 2014

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EXHIBIT 2 GENERAL DESCRIPTION

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2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a 24 Channel Digital Mixer/Recorder, equipped with multi-channel XLR/line input/output, headphone output, WiFi, LAN 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 only 802.11b mode that occupies a frequency range from 2412MHz to 2462MHz (11 channels with channel spacing of 5MHz). For 5GHz band, the EUT has only 802.11a 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). The EUT is powered by 100-240VAC. 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(s) used in the EUT are external, detachable, with reverse-SMA connector.

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

This report covers 5.0GHz band WiFi portion only.

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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 v01r03 (22-August-2016). 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 at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. 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).

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EXHIBIT 3 SYSTEM TEST CONFIGURATION

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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 120VAC.

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 0.8m 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.

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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.

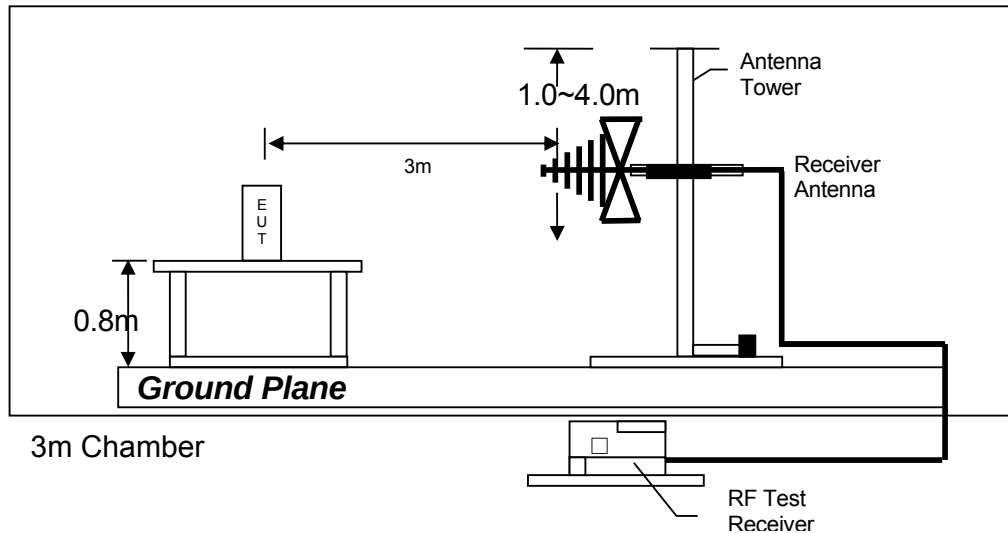
All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

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

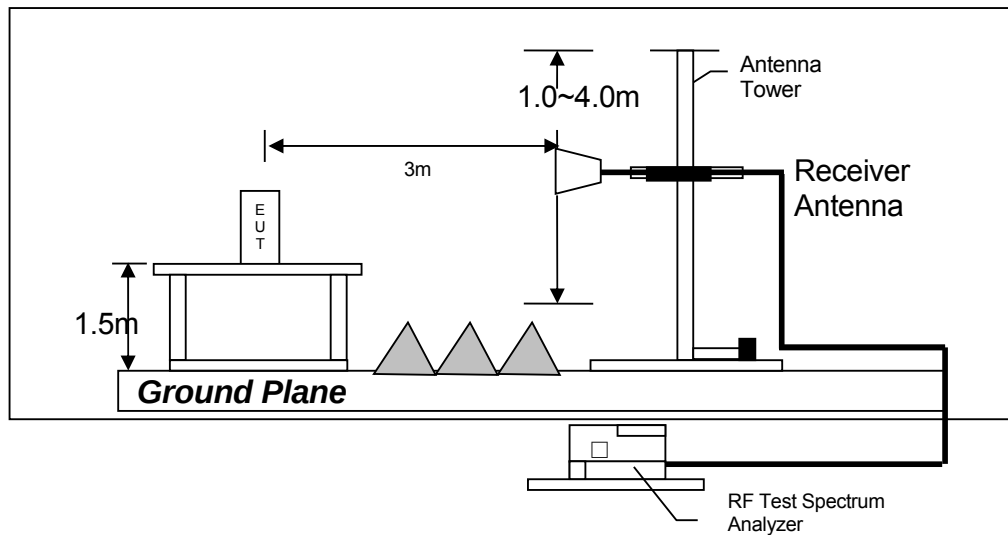
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3.2 Radiated Emission Test Setup

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



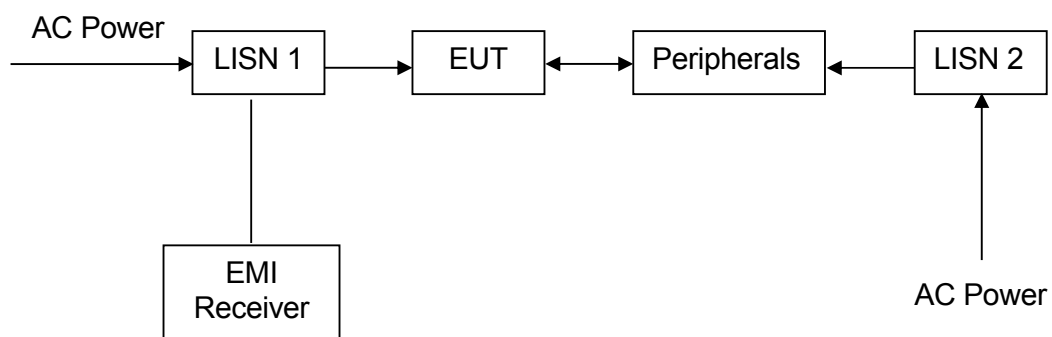
Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

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3.3 AC Line Conducted Emission Test Setup



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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 120VAC

Description of Accessories:

1. 1X Headphone cable of 1.2m long (with termination)
2. 2X 4GB USB Flash (Play and Record)
3. 16X Audio cable of 2m long (with termination)
4. 2X LAN cable of 2m long (with termination)
5. 2X USB cable of 2m long (with termination)
6. 1X Power cable of 2m long
(Provided by Intertek)

3.5 Measurement Uncertainty

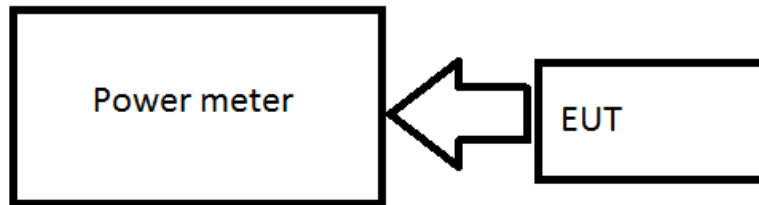
When determining of the test conclusion, the Measurement Uncertainty of test at a level of confidence of 95% has been considered. The values of the Measurement uncertainty for radiated emission test and RF conducted measurement test are $\pm 5.3\text{dB}$ and $\pm 0.99\text{dB}$ respectively. The value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

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.

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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%).

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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	10.4	11.0	9.2	8.3	14.1	25.9	12.9	19.7
5220.0	10.4	11.0	10.3	10.7	14.1	25.9	14.0	25.4
5240.0	10.2	10.5	10.7	11.7	13.9	24.8	14.4	27.8

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	6.4	4.4	10.6	11.5	10.1	10.3	14.3	27.2
5785.0	6.2	4.2	9.6	9.1	9.9	9.9	13.3	21.6
5825.0	5.8	3.8	9.1	8.1	9.5	9.0	12.8	19.2

4.1 Maximum Conducted Output Power at Antenna Terminals

Cable loss : 2.1 dB External Attenuation : 0 dB

UNII-1 :
IEEE 802.11A (OFDM, 6Mbps)
max. conducted (average) output level = 10.7 dBm

UNII-3 :
IEEE 802.11A (OFDM, 6Mbps)
max. conducted (average) output level = 10.6 dBm

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4.1 Maximum Conducted Output Power at Antenna Terminals – Cont'd

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)

☒ RSS:

For 5150MHz-5350MHz:

200mW (23dBm) E.I.R.P

For 5725MHz-5825MHz:

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.

IEEE802.11A (OFDM, HT20, MCS0)		
Frequency (MHz)	ANTA 6dB Bandwidth (MHz)	ANTB 6dB Bandwidth (MHz)
5745	16.8	16.8
5785	16.8	16.8
5825	16.8	16.8

Limits:

6 dB bandwidth shall be at least 500kHz

The plots of 6dB RF bandwidth and occupied bandwidth are saved with filename :
ANTA UNII-1.pdf, ANTB UNII-1.pdf, ANTA UNII-3.pdf, ANTB UNII-3.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.

U-NII-1:

IEEE 802.11A (OFDM, 6Mbps)

Frequency (MHz)	Maximum Power Spectral Density				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz
5180.0	0.5	1.1	0.1	1.0	4.3	2.7	3.9	2.4
5220.0	1.3	1.4	1.3	1.4	5.1	3.2	5.1	3.2
5240.0	1.2	1.3	1.5	1.4	4.9	3.1	5.2	3.3

U-NII-3

IEEE 802.11A (OFDM, 6Mbps)

Frequency (MHz)	Maximum Power Spectral Density				EIRP			
	ANT1		ANT2		ANT1		ANT2	
	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz	dBm /500kHz	mW /500kHz
5745.0	-5.5	0.3	-1.4	0.7	-1.8	0.7	2.4	1.7
5785.0	-5.8	0.3	-2.3	0.6	-2.0	0.6	1.4	1.4
5825.0	-6.1	0.2	-2.8	0.5	-2.4	0.6	1.0	1.2

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).

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The test data are saved with filename: ANTA UNII-1.pdf, ANTB UNII-1.pdf, ANTA UNII-3.pdf, ANTB UNII-3.pdf

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4.4 Out of Band Conducted Emissions

The measurement procedures under sections 2G of 789033 D02 General UNII Test Procedures New Rules v01r03 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 than -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 at 25 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 at 75 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: ANTA UNII-1 SPUR.pdf, ANTB UNII-1 SPUR.pdf, ANTA UNII-3 SPUR.pdf, ANTB UNII-3 SPUR.pdf

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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 dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- 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 dB μ V is obtained. The antenna 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 dB μ V/m. This value in dB μ V/m is converted to its corresponding level in μ V/m.

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

$$FS = 62.0 + 7.4 + 1.6 - 29.0 + 0.0 + (-10.0) = 32.0 \text{ dB}\mu\text{V/m}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(32.0 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

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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

5150.000 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 1-10 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.2 dB margin compare with average limit

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Mode: A Mode 5180MHz Ant 1

Table 1
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	5150.000	64.5	33	35.7	67.2	68.2	-1.0
V	15540.000	58.5	33	37.7	63.2	68.2	-5.0
V	19375.000	34.1	33	37.7	38.8	68.2	-29.4
V	20720.000	36.1	33	37.7	40.8	68.2	-27.4

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	5150.000	51.1	33	35.7	53.8	54.0	-0.2
V	15540.000	48.4	33	37.7	53.1	54.0	-0.9
V	19375.000	29.0	33	37.7	33.7	54.0	-20.3
V	20720.000	30.1	33	37.7	34.8	54.0	-19.2

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

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Mode: A Mode 5220MHz Ant 1

Table 2
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	15660.000	58.0	33	37.7	62.7	68.2	-5.5
V	20880.000	35.7	33	37.7	40.4	68.2	-27.8
V	31320.000	35.7	33	42.1	44.8	68.2	-23.4

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	15660.000	48.3	33	37.7	53.0	54.0	-1.0
V	20880.000	29.5	33	37.7	34.2	54.0	-19.8
V	31320.000	29.3	33	42.1	38.4	54.0	-15.6

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5240MHz Ant 1

Table 3
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
<i>V</i>	<i>5350.000</i>	<i>56.3</i>	<i>33</i>	<i>35.7</i>	<i>59.0</i>	<i>68.2</i>	<i>-9.2</i>
<i>V</i>	<i>15720.000</i>	<i>57.8</i>	<i>33</i>	<i>37.7</i>	<i>62.5</i>	<i>68.2</i>	<i>-5.7</i>
<i>V</i>	<i>19435.000</i>	<i>35.0</i>	<i>33</i>	<i>37.7</i>	<i>39.7</i>	<i>68.2</i>	<i>-28.5</i>
<i>V</i>	<i>20960.000</i>	<i>36.2</i>	<i>33</i>	<i>37.7</i>	<i>40.9</i>	<i>68.2</i>	<i>-27.3</i>
<i>H</i>	<i>31140.000</i>	<i>35.6</i>	<i>33</i>	<i>42.1</i>	<i>44.7</i>	<i>68.2</i>	<i>-23.5</i>

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
<i>V</i>	<i>5350.000</i>	<i>48.4</i>	<i>33</i>	<i>35.7</i>	<i>51.1</i>	<i>54.0</i>	<i>-2.9</i>
<i>V</i>	<i>15720.000</i>	<i>48.9</i>	<i>33</i>	<i>37.7</i>	<i>53.6</i>	<i>54.0</i>	<i>-0.4</i>
<i>V</i>	<i>19435.000</i>	<i>29.1</i>	<i>33</i>	<i>37.7</i>	<i>33.8</i>	<i>54.0</i>	<i>-20.2</i>
<i>V</i>	<i>20960.000</i>	<i>29.6</i>	<i>33</i>	<i>37.7</i>	<i>34.3</i>	<i>54.0</i>	<i>-19.7</i>
<i>H</i>	<i>31140.000</i>	<i>29.0</i>	<i>33</i>	<i>42.1</i>	<i>38.1</i>	<i>54.0</i>	<i>-15.9</i>

- 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.
 $E[dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5180MHz Ant 2

Table 4
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	5150.000	63.3	33	35.7	66.0	68.2	-2.2
V	15540.000	58.7	33	37.7	63.4	68.2	-4.8
V	19375.000	34.0	33	37.7	38.7	68.2	-29.5
V	20720.000	35.9	33	37.7	40.6	68.2	-27.6

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	5150.000	50.1	33	35.7	52.8	54.0	-1.2
V	15540.000	49.0	33	37.7	53.7	54.0	-0.3
V	19375.000	28.7	33	37.7	33.4	54.0	-20.6
V	20720.000	30.1	33	37.7	34.8	54.0	-19.2

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5220MHz Ant 2

Table 5
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	15660.000	57.9	33	37.7	62.6	68.2	-5.6
V	20880.000	35.2	33	37.7	39.9	68.2	-28.3
V	31320.000	32.5	33	42.1	41.6	68.2	-26.6

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	15660.000	48.6	33	37.7	53.3	54.0	-0.7
V	20880.000	28.8	33	37.7	33.5	54.0	-20.5
V	31320.000	26.5	33	42.1	35.6	54.0	-18.4

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5240MHz Ant 2

Table 6
IEEE 802.11a (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	5350.000	55.4	33	35.7	58.1	68.2	-10.1
V	15720.000	58.1	33	37.7	62.8	68.2	-5.4
V	19435.000	34.7	33	37.7	39.4	68.2	-28.8
V	20960.000	35.6	33	37.7	40.3	68.2	-27.9
H	31440.000	35.2	33	42.1	44.3	68.2	-23.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	5350.000	47.6	33	35.7	50.3	54.0	-3.7
V	15720.000	48.6	33	37.7	53.3	54.0	-0.7
V	19435.000	28.7	33	37.7	33.4	54.0	-20.6
V	20960.000	29.8	33	37.7	34.5	54.0	-19.5
H	31440.000	29.2	33	42.1	38.3	54.0	-15.7

- 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 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.
 $E[dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5745MHz Ant 1

Table 7
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	17235.000	34.3	33	37.6	38.9	68.2	-29.3
V	22980.000	35.9	33	38.3	41.2	68.2	-27.0
V	28725.000	35.6	33	40.1	42.7	68.2	-25.5
H	34470.000	37.5	33	41.1	45.6	68.2	-22.6

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	17235.000	29.5	33	37.6	34.1	54.0	-19.9
V	22980.000	29.9	33	38.3	35.2	54.0	-18.8
V	28725.000	29.3	33	40.1	36.4	54.0	-17.6
H	34470.000	29.3	33	41.1	37.4	54.0	-16.6

- 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.
 $E[dB\mu V/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5785MHz Ant 1

Table 8
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	11570.000	53.3	33	40.5	60.8	68.2	-7.4
V	17355.000	34.1	33	37.6	38.7	68.2	-29.5
V	23140.000	35.7	33	38.6	41.3	68.2	-26.9
V	28925.000	35.3	33	40.1	42.4	68.2	-25.8
V	34710.000	37.1	33	41.3	45.4	68.2	-22.8

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	11570.000	45.6	33	40.5	53.1	54.0	-0.9
V	17355.000	29.6	33	37.6	34.2	54.0	-19.8
V	23140.000	30.2	33	38.6	35.8	54.0	-18.2
V	28925.000	29.6	33	40.1	36.7	54.0	-17.3
V	34710.000	29.3	33	41.3	37.6	54.0	-16.4

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5825MHz Ant 1

Table 9
IEEE 802.11A (OFDM, 6Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	11650.000	53.7	33	40.5	61.2	68.2	-7.0
V	17475.000	34.0	33	37.6	38.6	68.2	-29.6
V	23300.000	35.9	33	38.6	41.5	68.2	-26.7
V	29125.000	35.9	33	40.0	42.9	68.2	-25.3
H	34950.000	37.6	33	41.3	45.9	68.2	-22.3

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	11650.000	45.7	33	40.5	53.2	54.0	-0.8
V	17475.000	29.8	33	37.6	34.4	54.0	-19.6
V	23300.000	29.8	33	38.6	35.4	54.0	-18.6
V	29125.000	29.3	33	40.0	36.3	54.0	-17.7
H	34950.000	28.8	33	41.3	37.1	54.0	-16.9

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5745MHz Ant 2

Table 10
IEEE 802.11A (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	17235.000	34.6	33	37.6	39.2	68.2	-29.0
V	22980.000	36.5	33	38.3	41.8	68.2	-26.4
V	28725.000	35.8	33	40.1	42.9	68.2	-25.3
H	34470.000	37.7	33	41.1	45.8	68.2	-22.4

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	17235.000	29.7	33	37.6	34.3	54.0	-19.7
V	22980.000	30.1	33	38.3	35.4	54.0	-18.6
V	28725.000	29.0	33	40.1	36.1	54.0	-17.9
H	34470.000	29.1	33	41.1	37.2	54.0	-16.8

- 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 / 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5785MHz Ant 2

Table 11
IEEE 802.11A (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	11570.000	54.2	33	40.5	61.7	68.2	-6.5
V	17355.000	35.1	33	37.6	39.7	68.2	-28.5
V	23140.000	35.8	33	38.6	41.4	68.2	-26.8
V	28925.000	35.8	33	40.1	42.9	68.2	-25.3
V	34710.000	37.4	33	41.3	45.7	68.2	-22.5

Polarization	Frequency	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	11570.000	46.0	33	40.5	53.5	54.0	-0.5
V	17355.000	29.7	33	37.6	34.3	54.0	-19.7
V	23140.000	30.0	33	38.6	35.6	54.0	-18.4
V	28925.000	29.7	33	40.1	36.8	54.0	-17.2
V	34710.000	29.1	33	41.3	37.4	54.0	-16.6

- 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

INTERTEK TESTING SERVICES

Mode: A Mode 5825MHz Ant 2

Table 12
IEEE 802.11A (OFDM, 6 Mbps)

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Peak Limit at 3m (dBuV/m)	Margin (dB)
V	17475.000	35.2	33	37.6	39.8	68.2	-28.4
V	23300.000	36.1	33	38.6	41.7	68.2	-26.5
V	29125.000	35.7	33	40.0	42.7	68.2	-25.5
H	34950.000	37.0	33	41.3	45.3	68.2	-22.9

Polarization	Frequency (MHz)	Reading (dBuV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBuV/m)	Average Limit at 3m (dBuV/m)	Margin (dB)
V	17475.000	29.9	33	37.6	34.5	54.0	-19.5
V	23300.000	30.1	33	38.6	35.7	54.0	-18.3
V	29125.000	29.3	33	40.0	36.3	54.0	-17.7
H	34950.000	29.2	33	41.3	37.5	54.0	-16.5

- 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 / 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.
 $E[dBuV/m] = EIRP[dBm] + 95.2$, for $d = 3$ meters.
 Thus, the Peak limit for U-NII should be $-27+95.2=68.2$ dBuV/m.

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Worst Case: EUT Transmitting

Table 13

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
H	31.668	41.6	16	10.0	35.6	40.0	-4.4
H	191.952	30.9	16	16.0	30.9	43.5	-12.6
H	216.074	30.4	16	17.0	31.4	46.0	-14.6
H	288.068	32.6	16	22.0	38.6	46.0	-7.4

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

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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

0.164 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 6.0 dB margin compare with average limit

INTERTEK TESTING SERVICES

Worst Case: EUT Transmitting

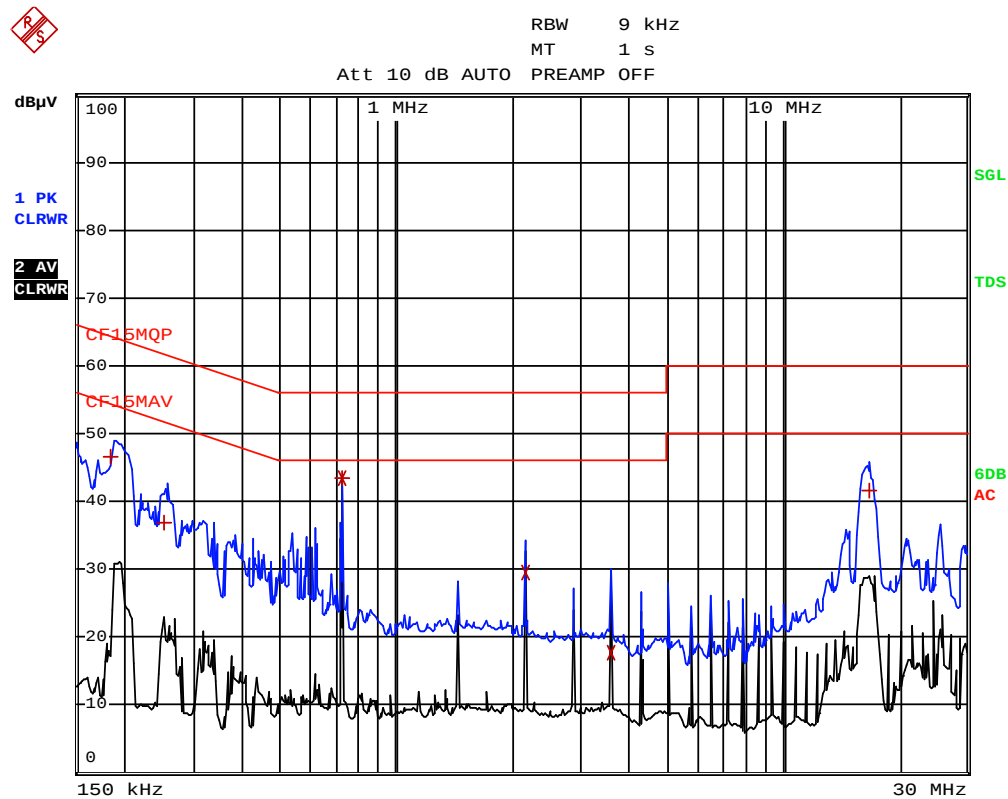
EDIT PEAK LIST (Final Measurement Results)				
Trace1:	CF15MQP			
Trace2:	CF15MAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1 Quasi Peak	186 kHz	46.47	N	-17.74
1 Quasi Peak	253.5 kHz	36.98	N	-24.66
1 Quasi Peak	721.5 kHz	43.48	L1	-12.51
2 CISPR Average	721.5 kHz	43.55	N	-2.44
2 CISPR Average	2.166 MHz	29.51	N	-16.48
2 CISPR Average	3.6105 MHz	17.74	N	-28.25
1 Quasi Peak	16.6785 MHz	41.61	L1	-18.38

Date: 13.DEC.2016 20:44:01

INTERTEK TESTING SERVICES

INTERTEK TESTING SERVICES

Worst Case: EUT Transmitting



Date: 13.DEC.2016 20:44:20

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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)
5180	A	0.804	0.952	4.054	4.102	3.840	3.700
5745		0.725	0.854	4.090	4.894	3.842	4.418

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 120VAC	Measured Value (ppm) 132VAC	Measured Value (ppm) 108VAC
25	5180	A	4.054	4.601	3.893
25	5745		4.09	3.568	4.496

The Maximum value is +4.897ppm.

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

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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: UNII-1_99%.pdf proved that no further test for DFS.

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EXHIBIT 5 EQUIPMENT LIST

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer	Biconical Antenna
Registration No.	EW-3156	EW-2188	EW-2512
Manufacturer	R&S	AGILENTTECH	EMCO
Model No.	ESR26	E4407B	3104C
Calibration Date	Nov. 03, 2015	Apr. 25, 2016	Jan 22, 2015
Calibration Due Date	Nov. 03, 2016	Apr. 25, 2017	Jul 22, 2016

Equipment	Log Periodic Antenna	Pyramidal Horn Antenna	Double Ridged Guide Antenna
Registration No.	EW-1042	EW-0905	EW-1133
Manufacturer	EMCO	EMCO	EMCO
Model No.	3148	3160-09	3115
Calibration Date	May 21, 2015	Feb. 12, 2016	Nov. 05, 2015
Calibration Due Date	Nov 21, 2016	Aug. 12, 2017	May 05, 2017

2) Conductive Measurement Test

Equipment	RF Power Meter with Power Sensor (N1921A)	Spectrum Analyzer
Registration No.	EW-2270	EW-2249
Manufacturer	AGILENTTECH	R&S
Model No.	N1911A	FSP30
Calibration Date	Jan. 19, 2016	Nov. 27, 2015
Calibration Due Date	Jan. 19, 2017	Nov. 27, 2016

3) Conducted Emissions Test

Equipment	EMI Test Receiver	LISN
Registration No.	EW-2500	EW-2501
Manufacturer	R&S	R&S
Model No.	ESCI	ENV-216
Calibration Date	Jan. 28, 2016	Jan. 28, 2016
Calibration Due Date	Jan. 28, 2017	Jan. 28, 2017

END OF TEST REPORT