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TEST REPORT

Report Number: 17030672HKG-001

Application
for
Original Grant of 47 CFR Part 15 Certification
RSS-247 Issue 2 Equipment

Lightstrip Plus

FCC ID: 2AGBW71901AX

IC: 20812-71901AX

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May 17, 2017

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GENERAL INFORMATION

Applicant Name:	Philips Lighting (China) Investment Co., Ltd.
Applicant Address:	Building 9, Lane 888, Tianlin Road, Minhang District, Shanghai, China.
FCC Specification Standard:	FCC Part 15, October 1, 2015 Edition
FCC ID:	2AGBW71901AX
FCC Model(s):	71901A
IC Specification Standard:	RSS-247 Issue 2, February 2017 RSS-Gen Issue 4, November 2014
IC:	20812-71901AX
PMN:	Lightstrip Plus
HVIN:	71901A
Type of EUT:	Digital Transmission System
Description of EUT:	Philips Hue Lightstrip Plus
Serial Number:	N/A
Sample Receipt Date:	March 14, 2017
Date of Test:	March 14, 2017 to April 22, 2017
Report Date:	May 17, 2017
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

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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	15.203	5.4	Pass	2.1
Max. Conducted Output Power (Peak)	15.247(b)(3)&(4)	5.4	Pass	4.1
Min. 6dB RF Bandwidth	15.247(a)(2)	5.2	Pass	4.2
Max. Power Density	15.247(e)	5.2	Pass	4.3
Out of Band Antenna Conducted Emission	15.247(d)	5.5	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.247(d), 15.209 & 15.109	5.5	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	8.8#	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, October 1, 2015 Edition
RSS-247 Issue 2, February 2017
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) 71901A (71901A) is a Lightstrip Plus. The EUT can operate while connected and controlled by a Zigbee Remote (Provided by Applicant) via Zigbee radio link. The EUT can only support Zigbee. The Zigbee portion occupies frequency range of 2405MHz to 2475MHz (15 channels with channel spacing of 5MHz). The EUT is powered by 120VAC 60Hz.

The antenna(s) used in the EUT is integral.

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

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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.558074 D01 v04 (05-April-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 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 Industry Canada No.: 2042V-1.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (Zigbee portion)

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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 a 100-240VAC to 24VDC 600mA adaptor.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. 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.

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. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109.

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3.1 Justification – Cont'd

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 4.8.3.

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 4.8.3. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

For AC line conducted emission test, 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 was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. 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.

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

Different data rates have been tested. Worst case is reported only.

All relevant operation modes have been tested, and the worst case data is included in this report.

All data rates were tested under normal mode of Zigbee. Only the worst-case data is shown in the report for DSSS.

3.2 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.

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3.3 Details of EUT and Description of Accessories

Details of EUT:

An AC adaptor (provided with the unit) was used to power the device. Their description are listed below.

- (1) An AC adaptor (100-240VAC 50Hz to 24VDC 600mA, Model: S020CVM2400083) (Provided by Client)

Description of Accessories:

There are no accessories for compliance of this product.

3.4 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**

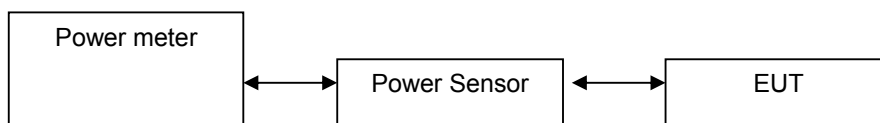
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4.0 Test Results

4.1 Maximum Conducted (peak) Output Power at Antenna Terminals

RF Conduct Measurement Test Setup

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



The antenna port of the EUT was connected to the input of a spectrum analyzer.

- The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to the obtain power at the EUT antenna terminals. The measurement procedure 9.1.3 was used.
- The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2405	3.51	2.24
Middle Channel: 2450	4.15	2.60
High Channel: 2475	2.96	1.98

Cable loss : 2.2 External Attenuation : 0 dB

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

max. conducted (peak) output level = 4.15 dBm

Limits:

- 1W (30dBm) for antennas with gains of 6dBi or less
- 0.89W (29.5dBm) for antennas with 6.5dBi antenna gain

The plots of conducted output power are saved as below.

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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.

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2405	1.52
Middle Channel: 2450	1.60
High Channel: 2475	1.60

Limits

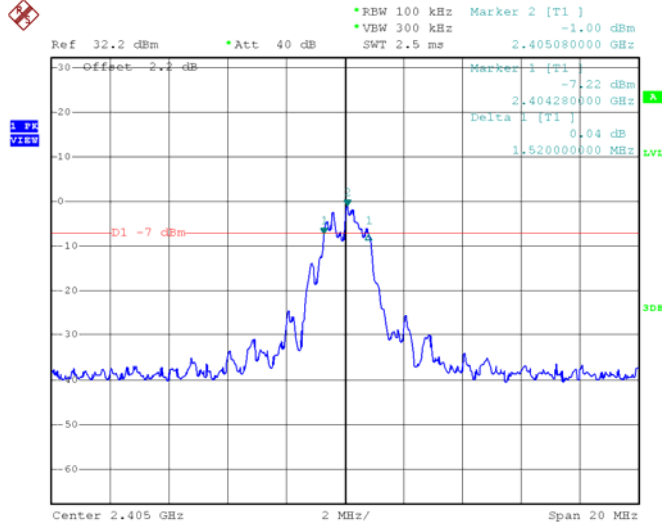
6 dB bandwidth shall be at least 500kHz

The plots of 6dB RF bandwidth are saved as below.

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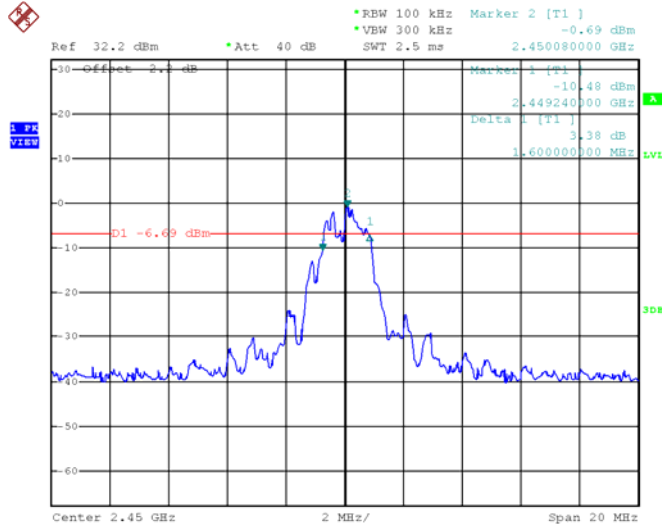
Plots of 6dB RF bandwidth

Lowest Channel



Date: 8.APR.2017 19:08:54

Middle Channel

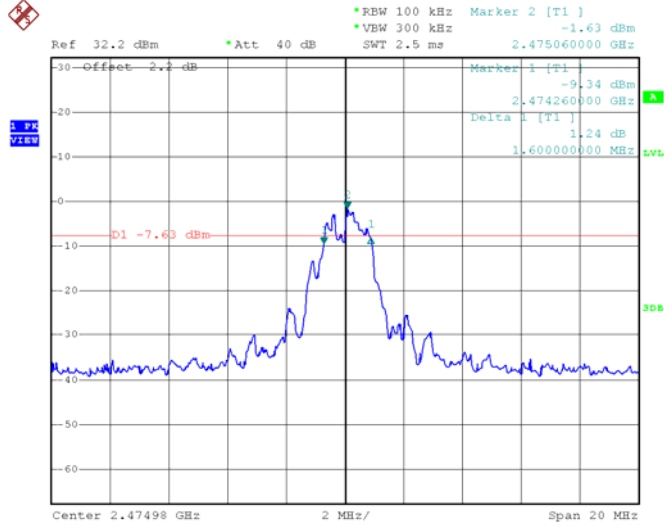


Date: 22.APR.2017 10:06:45

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Plots of 6dB RF bandwidth

Highest Channel



Date: 13.APR.2017 11:07:56

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4.3 Maximum Power Spectral Density

Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure 10.2 PKPSD was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

Frequency (MHz)	PSD in 100kHz (dBm)
Low Channel: 2405	-0.51
Middle Channel: 2450	-0.46
High Channel: 2475	-1.51

Cable Loss: 2.2 dB

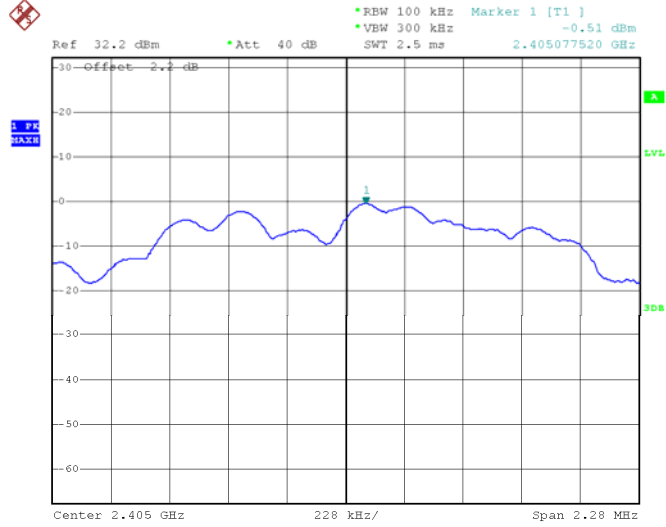
Limit:
8dBm

The plots of power spectral density are as below.

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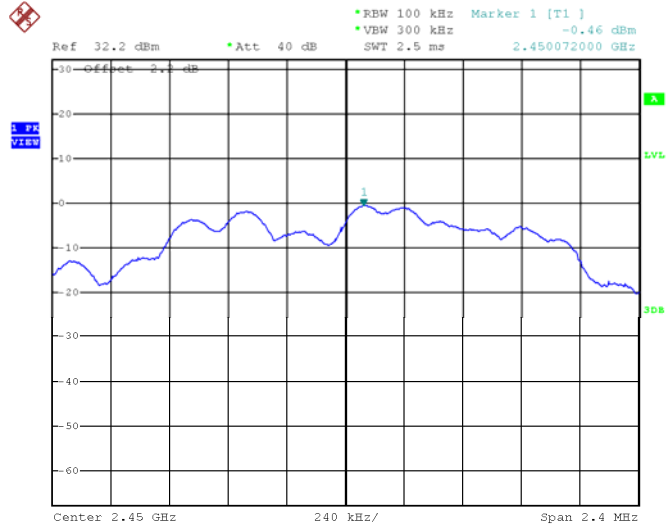
Plots of power spectral density

Lowest channel



Date: 8.APR.2017 19:10:44

Middle channel

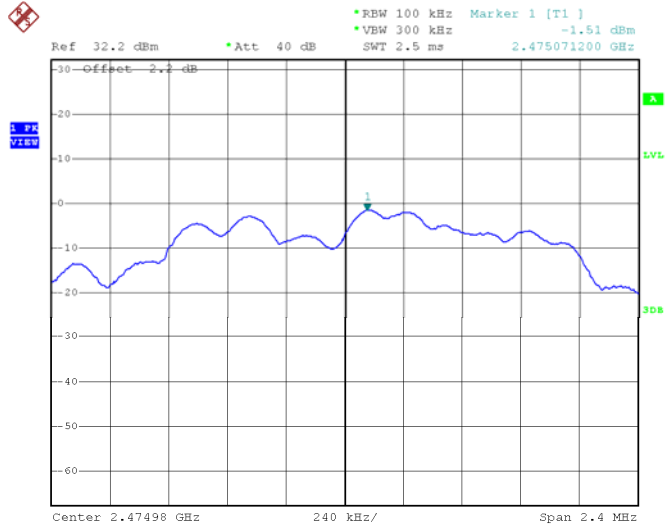


Date: 22.APR.2017 10:07:25

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Plots of power spectral density

Highest channel



Date: 13.APR.2017 11:09:14

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4.4 Out of Band Conducted Emissions

The maximum conducted (peak) output power was used to demonstrate compliance as described in 9.1. Then the display line (in red) shown in the following plots denotes the limit at 20dB below maximum measured in-band peak PSD level in 100 KHz bandwidth for Zigbee.

The measurement procedures under sections 11 of KDB558074 D01 v04 (05-April-2017) were used.

Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

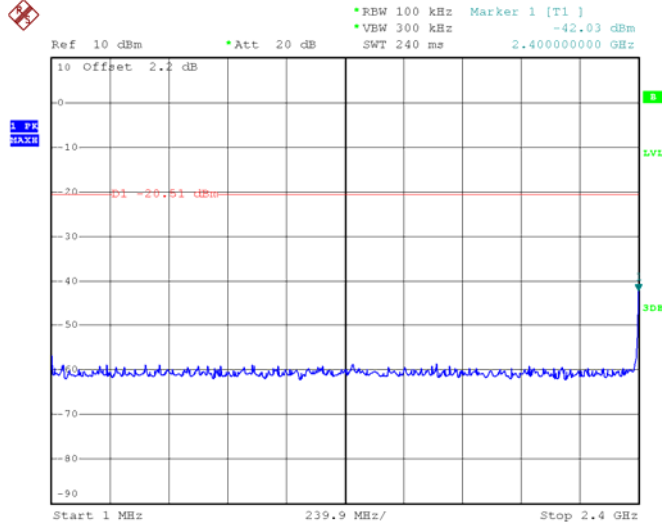
Limits:

All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB for Zigbee below the maximum measured in-band peak PSD level.

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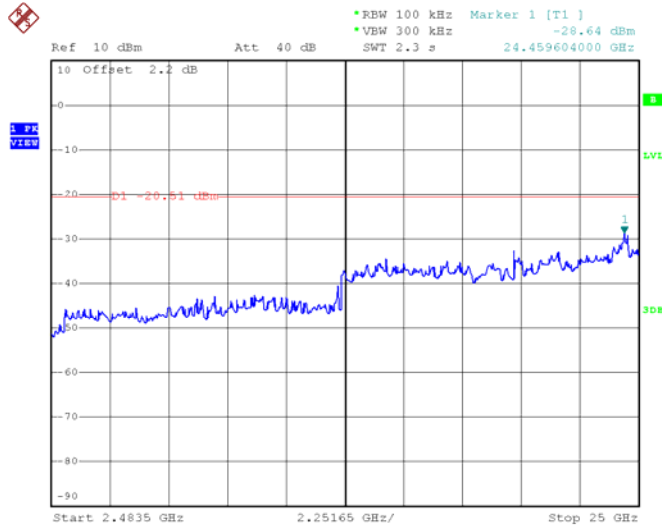
Plots of out of band conducted emissions

Lowest Channel, Plot A



Date: 8.APR.2017 19:24:41

Lowest Channel, Plot B

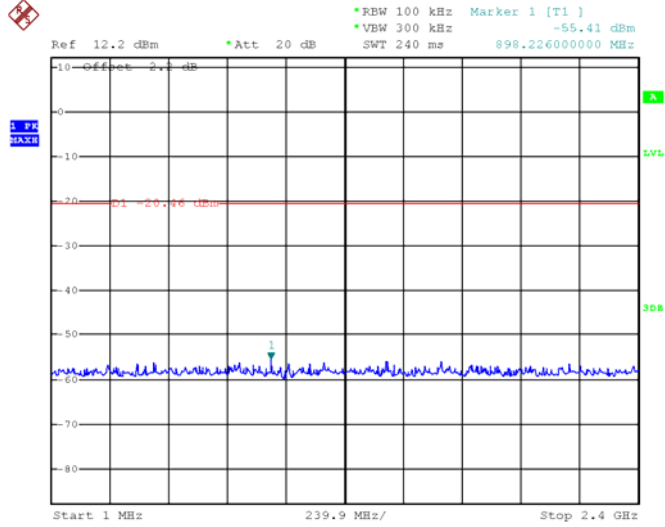


Date: 8.APR.2017 19:13:09

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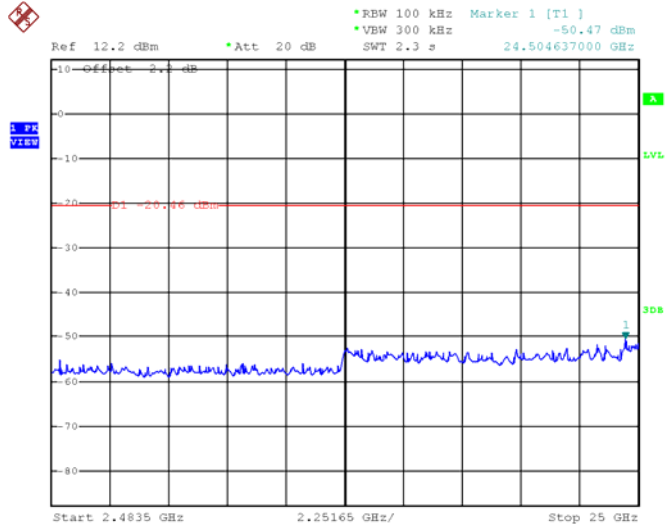
Plots of out of band conducted emissions

Middle Channel, Plot A



Date: 22.APR.2017 10:08:17

Middle Channel, Plot B

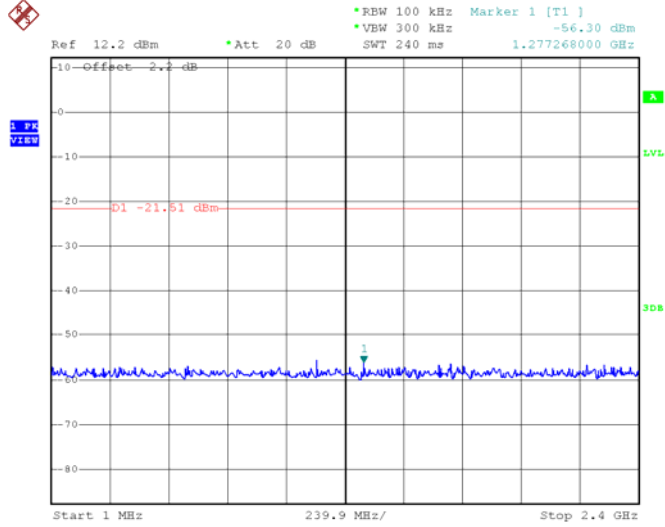


Date: 22.APR.2017 10:09:10

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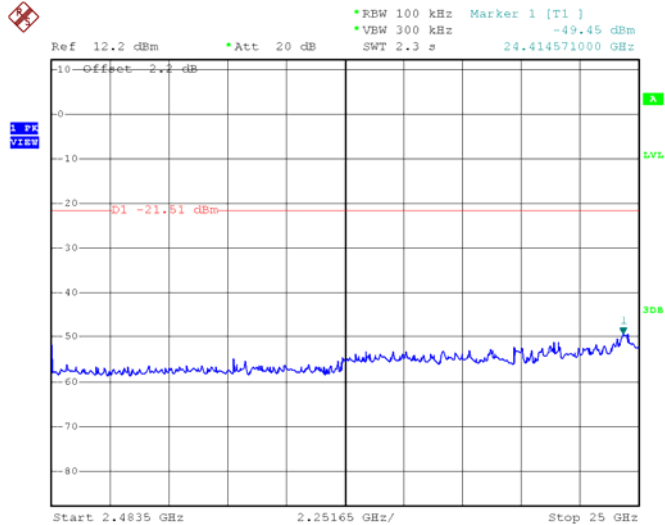
Plots of out of band conducted emissions

Highest Channel, Plot A



Date: 13.APR.2017 11:10:48

Highest Channel, Plot B



Date: 13.APR.2017 11:11:31

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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

7350.000 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 1-4 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 0.2 dB margin

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Mode: TX-Channel 11

Table 1

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
H	2390.000	57.4	33	29.4	53.8	54.0	-0.2
V	4810.000	38.2	33	34.9	40.1	54.0	-13.9
V	12025.000	39.5	33	40.5	47.0	54.0	-7.0

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
H	2390.000	57.4	33	29.4	53.8	74.0	-20.2
V	4810.000	38.2	33	34.9	40.1	74.0	-33.9
V	12025.000	39.5	33	40.5	47.0	74.0	-27.0

- 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 Section 15.205 / RSS-Gen Section 8.10.
 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.

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Mode: TX-Channel 20

Table 2

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
V	4900.000	39.9	33	34.9	41.8	54.0	-12.2
V	7350.000	48.9	33	37.9	53.8	54.0	-0.2
V	12250.000	37.7	33	40.5	45.2	54.0	-8.8

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
V	4900.000	39.9	33	34.9	41.8	74.0	-32.2
V	7350.000	48.9	33	37.9	53.8	74.0	-20.2
V	12250.000	37.7	33	40.5	45.2	74.0	-28.8

- 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-Gen Section 8.10.
 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.

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Mode: TX-Channel 25

Table 3

Radiated Emission Data

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
<i>H</i>	<i>2483.500</i>	<i>52.1</i>	<i>33</i>	<i>29.4</i>	<i>48.5</i>	<i>54.0</i>	<i>-5.5</i>
<i>V</i>	<i>4950.000</i>	<i>41.4</i>	<i>33</i>	<i>34.9</i>	<i>43.3</i>	<i>54.0</i>	<i>-10.7</i>
<i>V</i>	<i>7425.000</i>	<i>48.0</i>	<i>33</i>	<i>37.9</i>	<i>52.9</i>	<i>54.0</i>	<i>-1.1</i>
<i>V</i>	<i>12375.000</i>	<i>37.3</i>	<i>33</i>	<i>40.5</i>	<i>44.8</i>	<i>54.0</i>	<i>-9.2</i>

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
<i>H</i>	<i>2483.500</i>	<i>52.1</i>	<i>33</i>	<i>29.4</i>	<i>48.5</i>	<i>74.0</i>	<i>-25.5</i>
<i>V</i>	<i>4950.000</i>	<i>41.4</i>	<i>33</i>	<i>34.9</i>	<i>43.3</i>	<i>74.0</i>	<i>-30.7</i>
<i>V</i>	<i>7425.000</i>	<i>48.0</i>	<i>33</i>	<i>37.9</i>	<i>52.9</i>	<i>74.0</i>	<i>-21.1</i>
<i>V</i>	<i>12375.000</i>	<i>37.3</i>	<i>33</i>	<i>40.5</i>	<i>44.8</i>	<i>74.0</i>	<i>-29.2</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-Gen Section 8.10.
 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.

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Mode: TX (Other)

Table 4

Radiated Emission Data

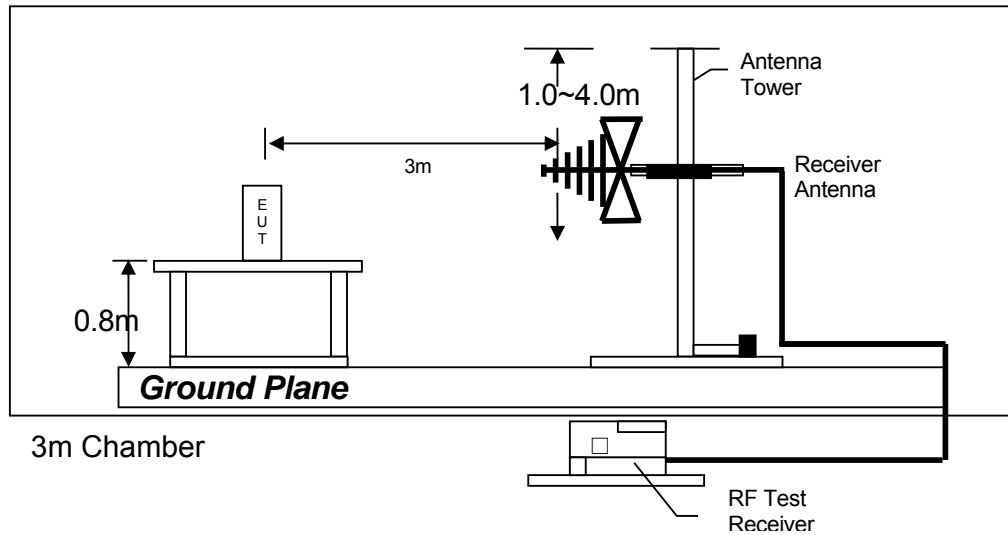
Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
<i>V</i>	<i>119.361</i>	<i>30.6</i>	<i>16</i>	<i>14.0</i>	<i>28.6</i>	<i>43.5</i>	<i>-14.9</i>
<i>H</i>	<i>162.526</i>	<i>28.8</i>	<i>16</i>	<i>16.0</i>	<i>28.8</i>	<i>43.5</i>	<i>-14.7</i>
<i>H</i>	<i>608.362</i>	<i>23.2</i>	<i>16</i>	<i>29.0</i>	<i>36.2</i>	<i>46.0</i>	<i>-9.8</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. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.

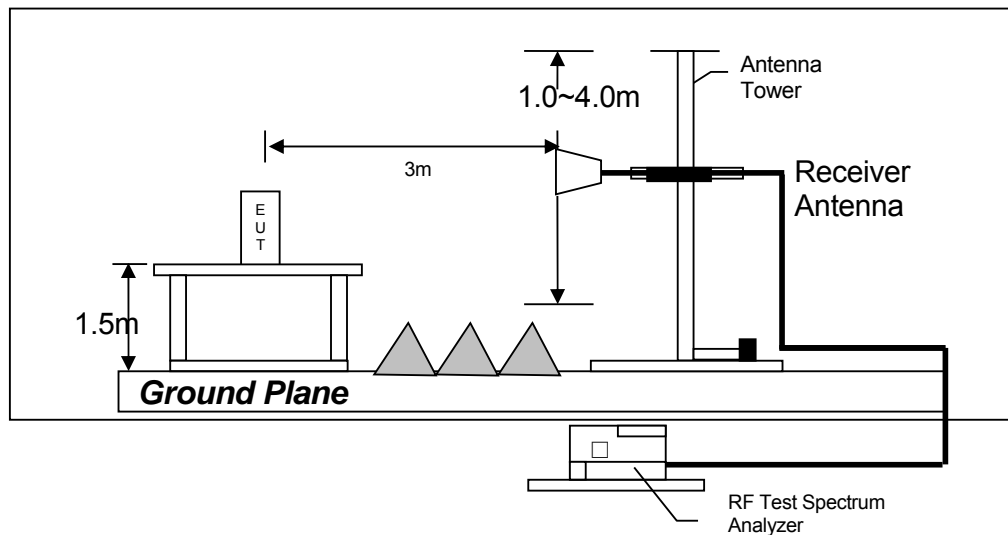
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4.6.3 Radiated Emission Test Setup

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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4.6.4 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

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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

411 kHz

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.

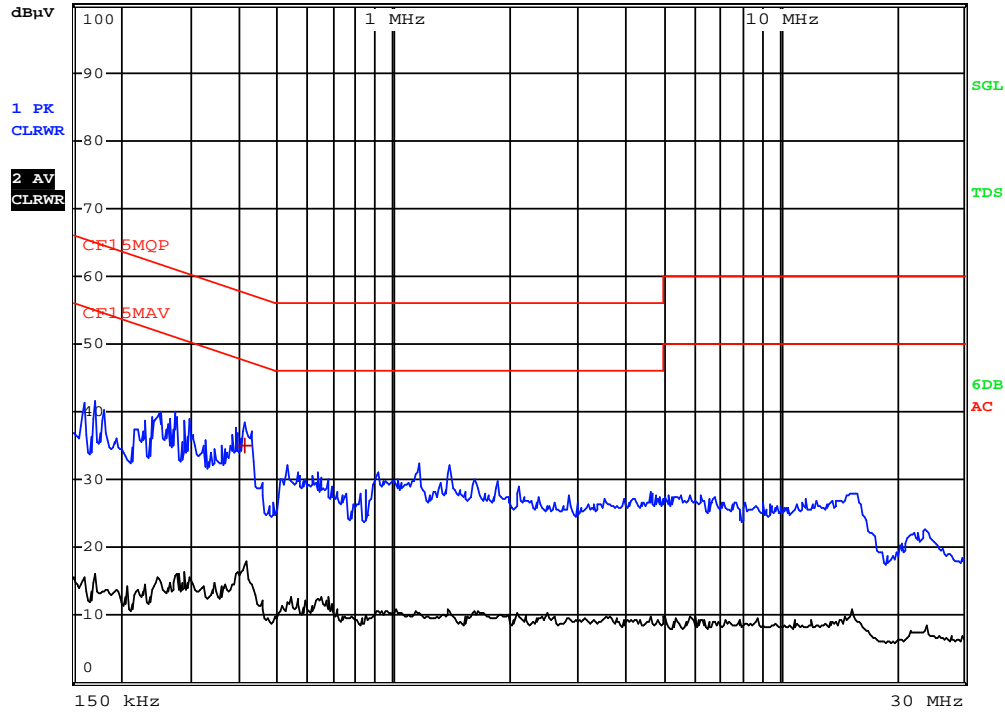
Passed by 22.71 dB margin compare with Quasi-peak limit

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Worst Case: TX (Other)



RBW 9 kHz
MT 1 s
Att 10 dB AUTO PREAMP OFF



Date: 10.APR.2017 12:24:56

INTERTEK TESTING SERVICES

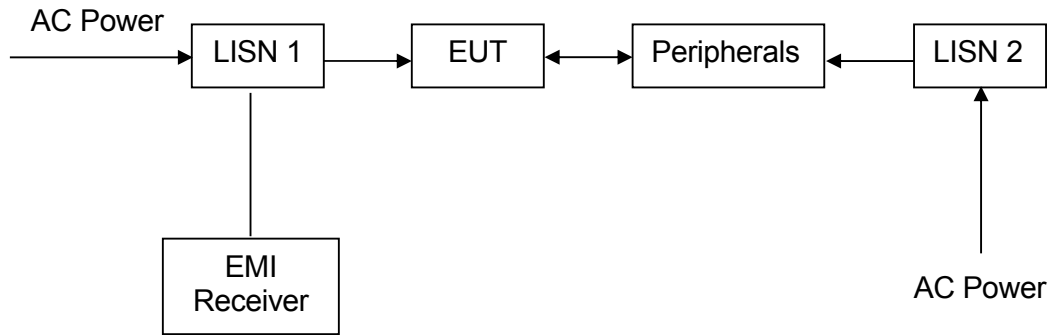
Worst Case: TX (Other)

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	CF15MQP		
Trace2:	CF15MAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dB μ V	DELTA LIMIT dB
1 Quasi Peak	411 kHz	34.91 N	-22.71

Date: 10.APR.2017 12:24:51

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4.7.3 Conducted Emission Test Setup



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**EXHIBIT 5
EQUIPMENT LIST**

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5.0 Equipment List

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer
Registration No.	EW-3095	EW-2466
Manufacturer	R&S	R&S
Model No.	ESCI	FSP30
Calibration Date	Oct. 25, 2016	Oct. 03, 2016
Calibration Due Date	Oct. 25, 2017	Aug. 20, 2017

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0571	EW-0447	EW-1133
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	May. 18, 2016	May. 18, 2016	Nov. 05, 2015
Calibration Due Date	Nov. 18, 2017	Nov. 18, 2017	May 05, 2017

Equipment	Broad-Band Horn Antenna with frequency range 14G - 40GHz
Registration No.	EW-1679
Manufacturer	SCHWARZBECK
Model No.	BBHA9170
Calibration Date	June. 28, 2016
Calibration Due Date	June. 28, 2017

2) 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	Nov. 17, 2016	Feb. 21, 2017
Calibration Due Date	Nov. 17, 2017	Jan. 05, 2018

3) Conductive Measurement Test

Equipment	Spectrum Analyzer
Registration No.	EW-2466
Manufacturer	R&S
Model No.	FSP30
Calibration Date	Oct. 03, 2016
Calibration Due Date	Aug. 20, 2017

END OF TEST REPORT