

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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## TEST REPORT

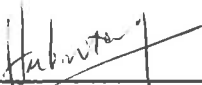
**Report Number: 14010195HKG-004**

Application  
For  
Certification  
(Original Grant)  
(FCC ID: AUI3301089T)

Transmitter

Prepared and Checked by:

Approved by:

  
\_\_\_\_\_  
Wong Cheuk Ho, Herbert  
Lead Engineer

  
\_\_\_\_\_  
Chan Chi Hung, Terry  
Supervisor  
July 14, 2014

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Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: [www.hk.intertek-etlsemko.com](http://www.hk.intertek-etlsemko.com)

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## GENERAL INFORMATION

|                                    |                                                                                                                         |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant Name:</b>             | Musical Electronics Limited                                                                                             |
| <b>Applicant Address:</b>          | Flat H, J, K, 12/F., World Tech Centre,<br>95 How Ming Street, Kwun Tong,<br>Kowloon, Hong Kong.                        |
| <b>Manufacturer:</b>               | Musical Electronics (Qing Yuan) Limited<br>TAI HE INDUSTRIAL PARK,<br>QING XIN COUNTY, QING YUAN,<br>GUANG DONG, CHINA. |
| <b>FCC Specification Standard:</b> | FCC Part 15, October 1, 2012 Edition                                                                                    |
| <b>FCC ID:</b>                     | AUI3301089T                                                                                                             |
| <b>FCC Model(s):</b>               | 3301089                                                                                                                 |
| <b>Type of EUT:</b>                | Digital Transmission System                                                                                             |
| <b>Description of EUT:</b>         | Wireless Stereo Headphones – Docking<br>Station                                                                         |
| <b>Serial Number:</b>              | Not Labelled                                                                                                            |
| <b>Sample Receipt Date:</b>        | Feb 15, 2014                                                                                                            |
| <b>Date of Test:</b>               | Feb 15, 2014 to July 14, 2014                                                                                           |
| <b>Report Date:</b>                | July 14, 2014                                                                                                           |
| <b>Environmental Conditions:</b>   | Temperature: +10 to 40°C<br>Humidity: 10 to 90%                                                                         |

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**EXHIBIT 1**  
**SUMMARY OF TEST RESULTS & STATEMENT OF COMPLIANCE**

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## 1.0 Summary of Test Results

| Test Items                                                   | FCC Part 15 Section        | Results | Details see section |
|--------------------------------------------------------------|----------------------------|---------|---------------------|
| Antenna Requirement                                          | 15.203                     | Pass    | 2.1                 |
| Max. Conducted Output Power                                  | 15.247(b)(3)&(4)           | Pass    | 4.1                 |
| Min. 6dB RF Bandwidth                                        | 15.247(a)(2)               | Pass    | 4.2                 |
| Max. Power Density                                           | 15.247(e)                  | Pass    | 4.3                 |
| Out of Band Antenna Conducted Emission                       | 15.247(d)                  | Pass    | 4.4                 |
| Radiated Emission in Restricted Bands and Spurious Emissions | 15.247(d), 15.209 & 15.109 | Pass    | 4.6                 |
| AC Power Line Conducted Emission                             | 15.207 & 15.107            | 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.

### 1.1 Statement of Compliance

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

FCC Part 15, October 1, 2012 Edition

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## **EXHIBIT 2**

### **GENERAL DESCRIPTION**

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## **2.0 General Description**

### **2.1 Product Description**

The EUT is a transmitter (Docking Station) of Wireless Stereo Headphones operating on 26 channels (2403MHz to 2478MHz with 3MHz channel spacing) in the 2.4GHz ISM band (2400MHz to 2483.5MHz). The device scans through the 26 channels constantly to monitor the real-time RSSI values. Two channels will be selected according to the instantaneous lowest RSSI channels. The selected 2 channels are transmitting alternatively during normal operation. If the 2 working channels are interfered, the device would select another 2 channels with lowest RSSI values. The EUT accepts stereo analog line-input and optical digital input. The audio signal is sent to the corresponding receiver via this 2.4GHz radio. The EUT has a charging port for charging the corresponding receiver (headphone).

The EUT is powered by a supplied AC/DC adaptor (Input: 120-240VAC; Output: 5VDC).

The antenna used in the EUT is internal and integral.

Antenna Gain 2.3dBi

Modulation type: GFSK

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

### **2.2 Related Submittal(s) Grants**

This is a single application for certification of a transmitter.

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## 2.3 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). Preliminary radiated scans and all radiated measurements were performed in Open Area 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 (2009) and KDB Publication No. 558074 D01 v03r02(05-June-2014).

## 2.4 Test Facility

The open area test site, AC Power Line conducted measurement facility, and antenna port conducted measurement facility used to collect the radiated data, AC Power Line conducted data, and conductive data are at Roof Top, 2<sup>nd</sup> Floor, and 5<sup>th</sup> Floor respectively of Intertek Testing Services Hong Kong Ltd., which is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC.

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**EXHIBIT 3**  
**SYSTEM TEST CONFIGURATION**

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## **2 System Test Configuration**

### **3.1 Justification**

For radiated emissions testing, the equipment under test (EUT) was setup to transmit 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 an AC/DC adapter 120VAC.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT 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 circuitry used to control additional functions other than the operation of the transmitter is subject to FCC Part 15 Section 15.109 Limits.

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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.

For the 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 0.4meter space from a vertical reference plane. Th 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.

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

### 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 Accessories and Description of Supporting Equipments

#### Details of EUT Accessories:

- (1) An AC/DC adaptor (Model: SJB0500400PU) (Supplied by Client)  
(Input: 100-240VAC, 50-60Hz, 300mA; Output: 5VDC, 400mA)
- (2) 1 x Audio cable with 1 meter long (Supplied by Client)
- (3) 1/8" stereo headphone jack (Supplied by Client)

#### Description of Supporting Equipments:

- (1) 1 x Walkman (Supplied by Intertek)

### 3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

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 Test Results

##### 4.1 Maximum Conducted Output Power at Antenna Terminals

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

- ☒ External attenuation and cable loss were compensated for using the OFFSET function of the analyser. The measurement procedure 9.1.1 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.

| Antenna Gain = 2.3 dBi |               |                 |
|------------------------|---------------|-----------------|
| Frequency (MHz)        | Output in dBm | Output in mWatt |
| Low Channel:           | 18.49         | 70.6            |
| Middle Channel:        | 18.25         | 66.8            |
| High Channel:          | 17.94         | 62.2            |

Cable loss : 0.5 dB External Attenuation : 0 dB

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

Limits:

- ☒ 1W (30dBm) for antennas with gains of 6dBi or less
- ☐ \_\_\_W (\_\_\_dBm) for antennas with gains more than 6dBi

The plots of conducted output power are saved as below.

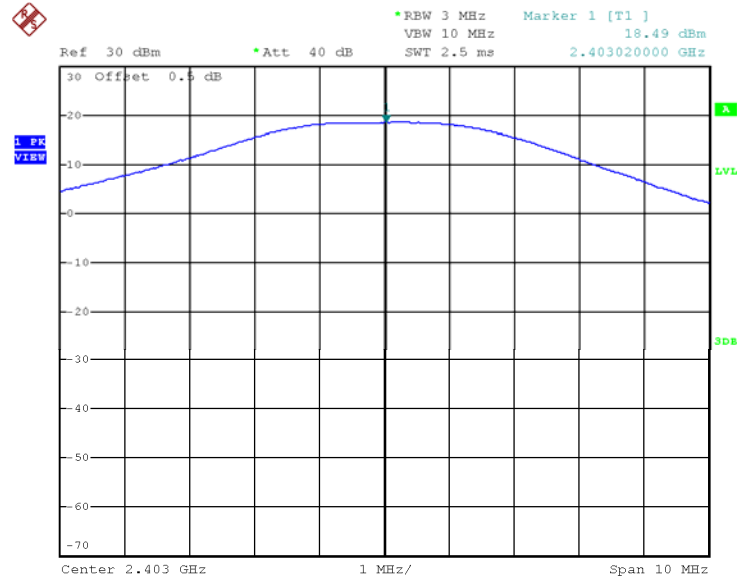
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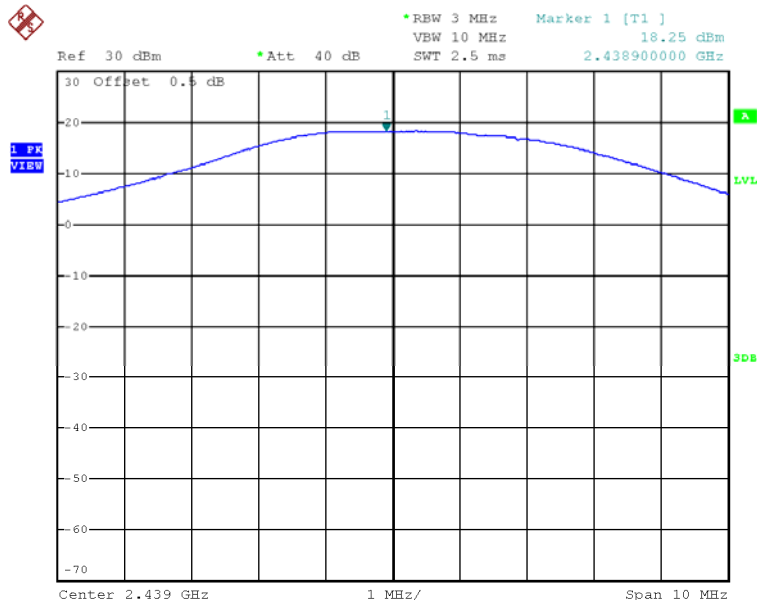
## Plots of maximum output power

### Lowest channel 2403MHz



Date: 14.JUL.2014 20:02:55

### Middle channel 2439MHz



Date: 14.JUL.2014 20:09:05

Test Report Number: 14010195HKG-004  
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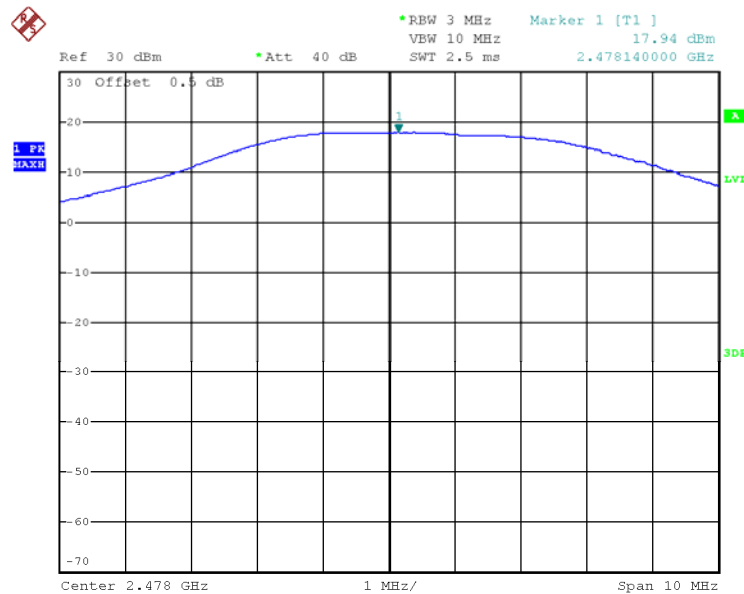
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## Plots of maximum output power

### Highest channel 2478MHz



Date: 14.JUL.2014 20:13:48

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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 8.1 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: 2403    | 1.20                |
| Middle Channel: 2439 | 1.20                |
| High Channel: 2478   | 1.20                |

Limits :

6 dB bandwidth shall be at least 500kHz

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

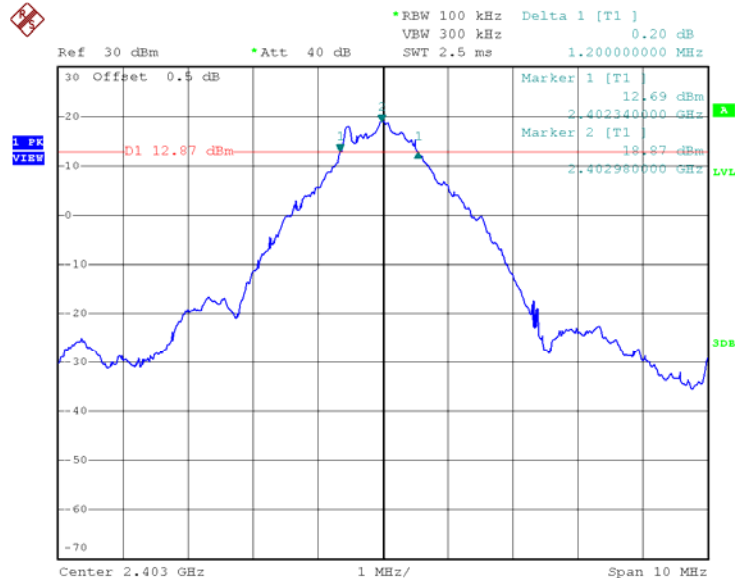
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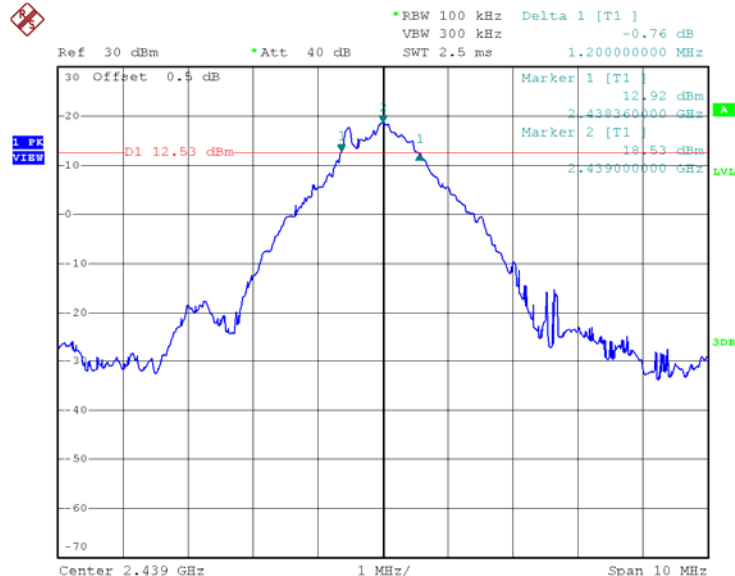
## Plots of 6dB RF bandwidth

### Lowest Channel 2403MHz



Date: 25.FEB.2014 18:30:46

### Middle Channel 2439MHz



Date: 25.FEB.2014 18:40:41

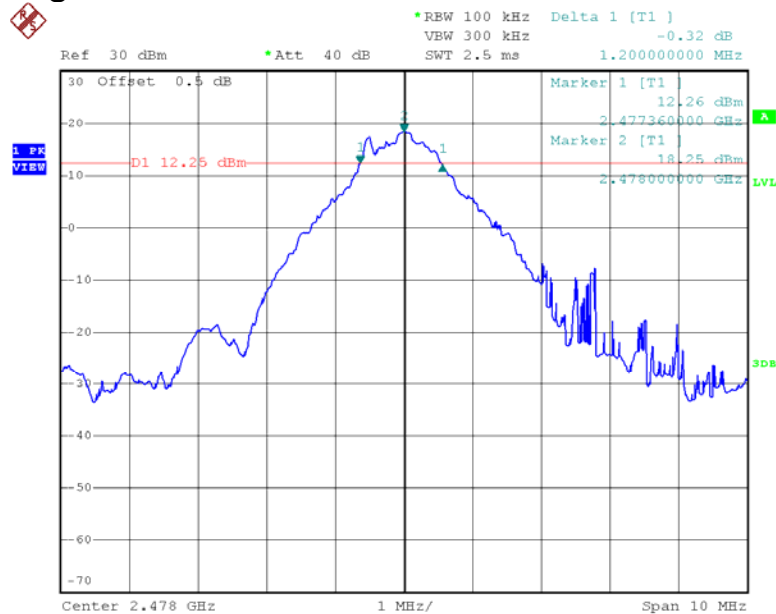
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## Plots of 6dB RF bandwidth

### Highest Channel 2478MHz



Date: 25.FEB.2014 18:52:46

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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: 2403    | 18.84 *             |
| Middle Channel: 2439 | 18.54 *             |
| High Channel: 2478   | 18.22 *             |

\*As the measured values exceed the limit while using 100kHz of RBW, so the RBW should be reduced to 3kHz of RBW to repeat the test for this case.

| Frequency (MHz)      | PSD in 3kHz (dBm) |
|----------------------|-------------------|
| Low Channel: 2403    | 2.92              |
| Middle Channel: 2439 | 2.46              |
| High Channel: 2478   | 2.82              |

Cable Loss: 0.5 dB

Limit: 8dBm

The plots of power spectral density are as below.

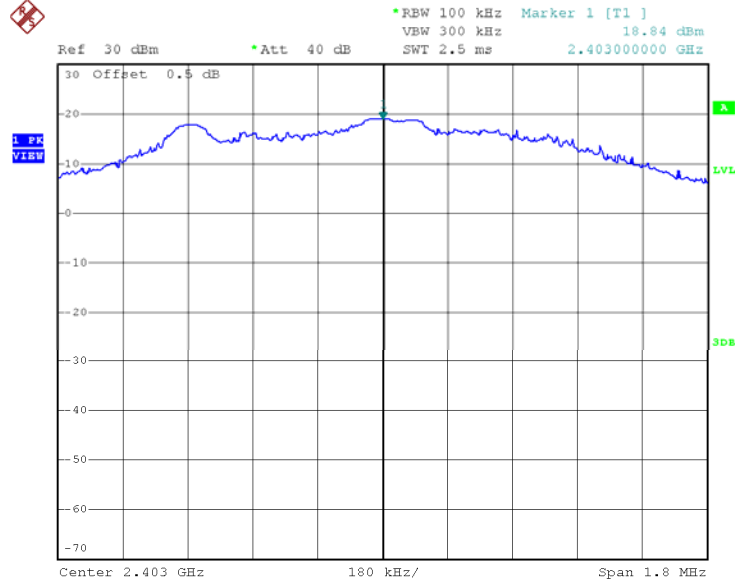
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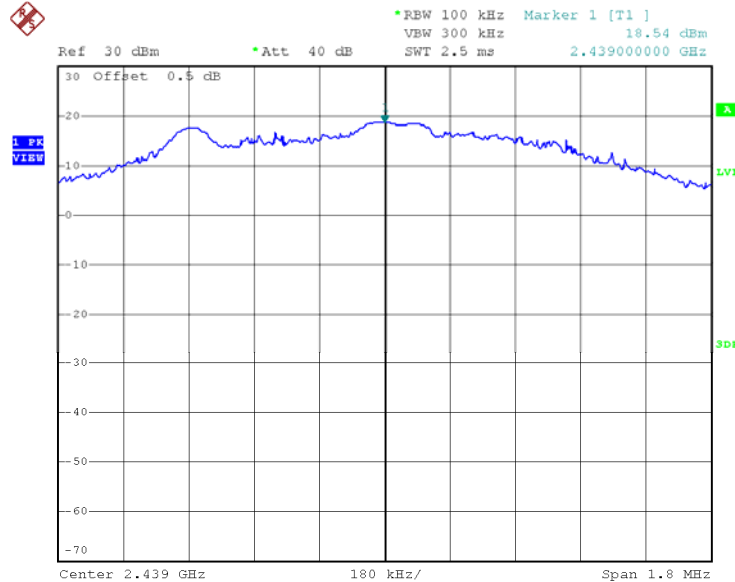
## Plots of power spectral density in 100kHz

### Lowest channel 2403MHz



Date: 25.FEB.2014 18:56:34

### Middle channel 2439MHz



Date: 25.FEB.2014 19:08:51

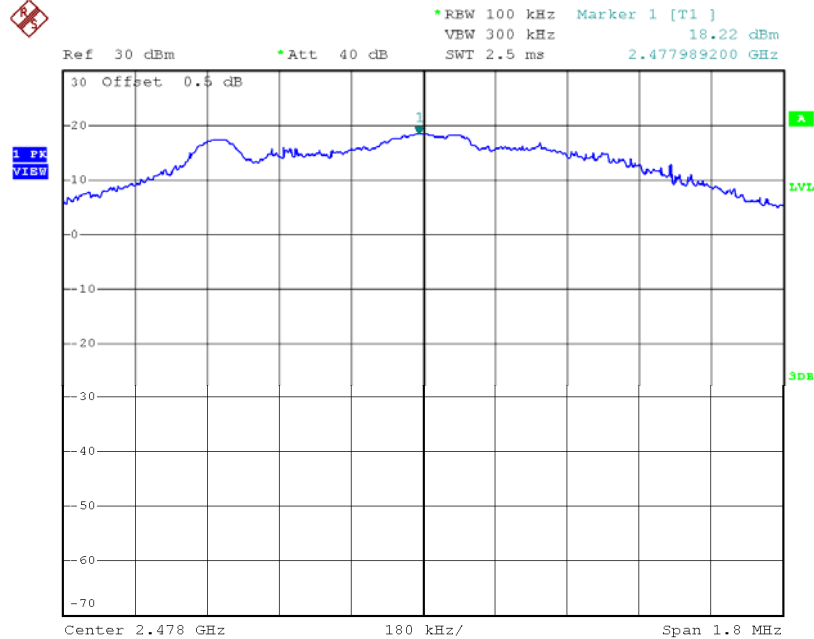
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## Plots of power spectral density in 100kHz

### Highest channel 2478MHz



Date: 25.FEB.2014 19:10:37

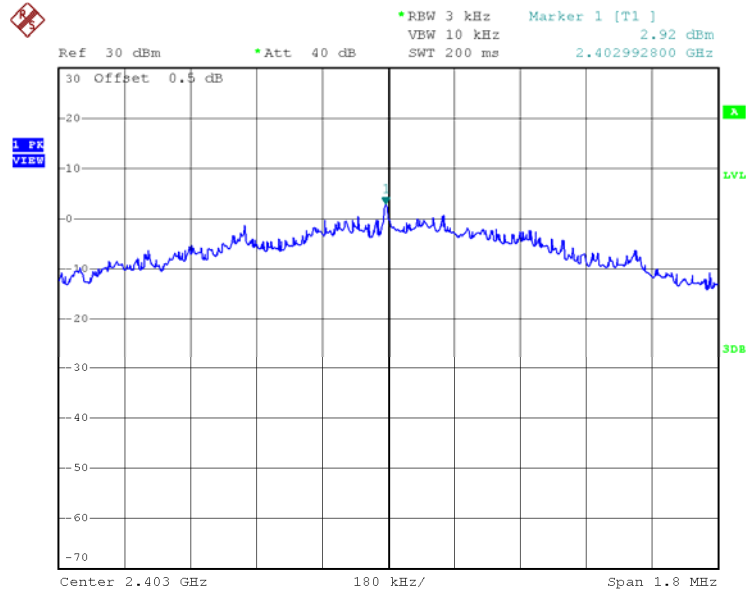
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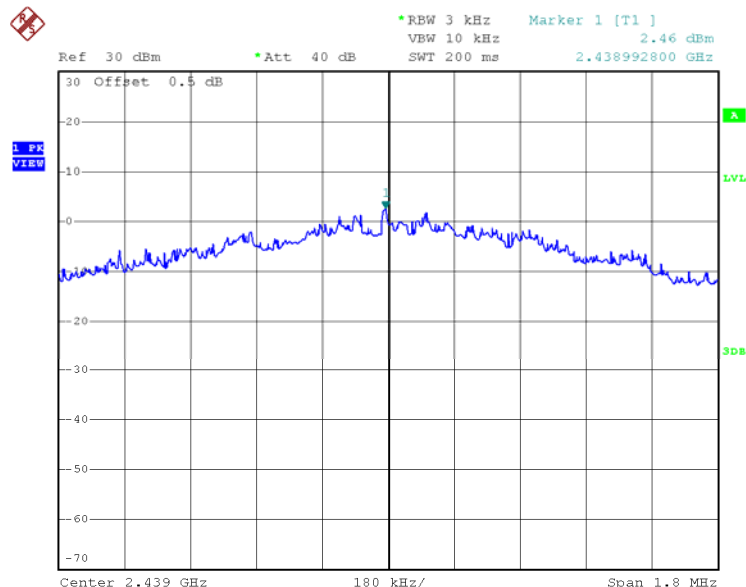
## Plots of power spectral density in 3kHz

### Lowest channel 2403MHz



Date: 25.FEB.2014 19:01:58

### Middle channel 2439MHz



Date: 25.FEB.2014 19:07:20

Test Report Number: 14010195HKG-004  
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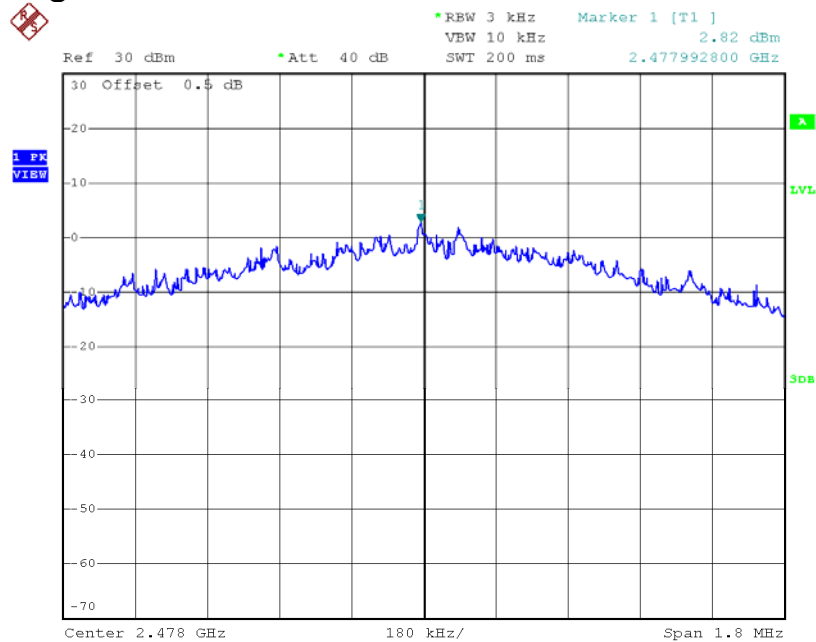
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## Plots of power spectral density in 3kHz

### Highest channel 2478MHz



Date: 25.FEB.2014 19:16:23

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#### 4.4 Out of Band Conducted Emissions

RBW was set to 1MHz rather than 100KHz in order to increase the measurement speed.

The display line (in red) shown in the following plots denotes the limit at 20dB below maximum measured in-band peak PSD level in 100KHz bandwidth. The traces in the following plots are measured with 1MHz RBW but not 100KHz in measurement range from 10MHz to 2GHz and 2.8GHz to 25GHz.

The measurement procedures under sections 11 of KDB558074 were used.

Limits:

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

The plots of out of band conducted emissions are as below.

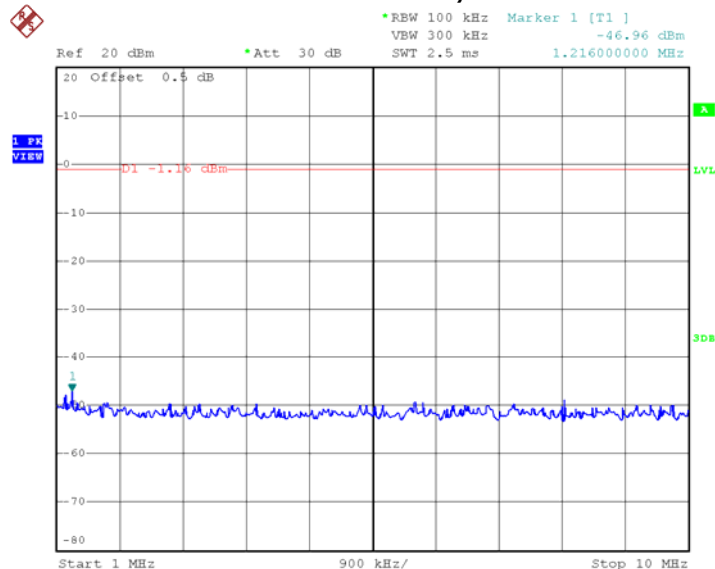
Issuing Laboratory:  
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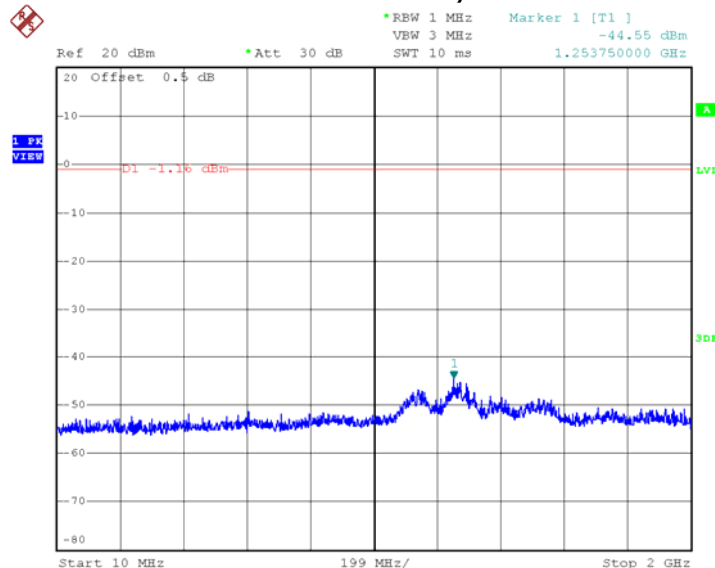
## Plots of out of band conducted emissions

### Lowest Channel 2403MHz, Plot A



Date: 25.FEB.2014 19:55:05

### Lowest Channel 2403MHz, Plot B



Date: 25.FEB.2014 19:57:25

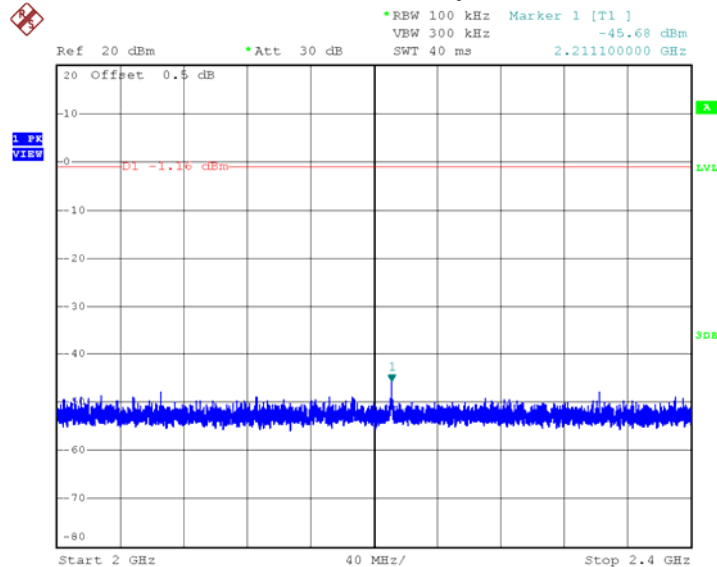
Issuing Laboratory:  
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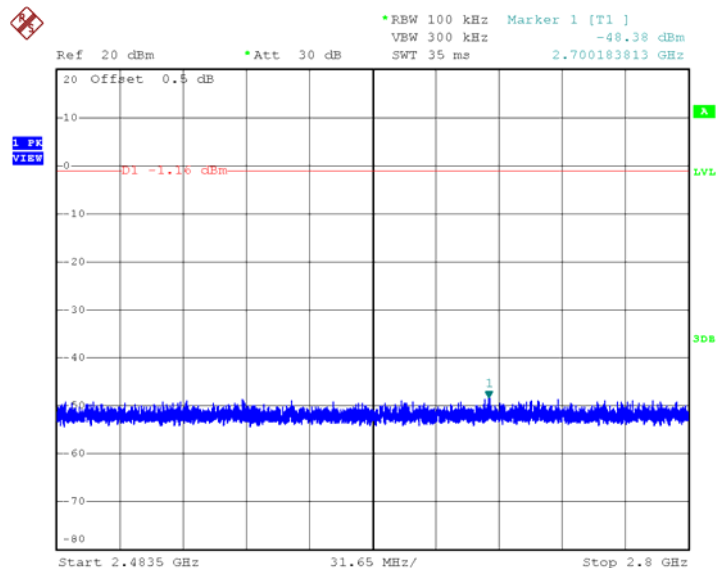
## Plots of out of band conducted emissions

### Lowest Channel 2403MHz, Plot C



Date: 25.FEB.2014 20:08:42

### Lowest Channel 2403MHz, Plot D



Date: 25.FEB.2014 20:10:55

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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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

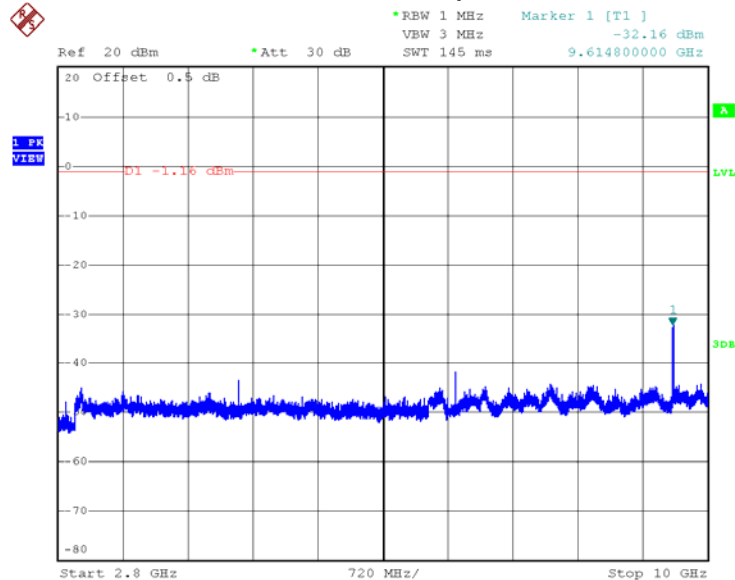
Issuing Laboratory:  
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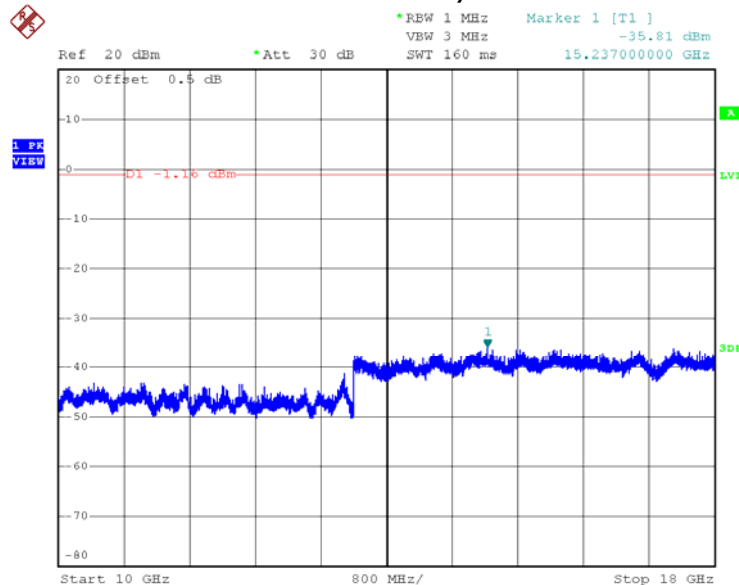
## Plots of out of band conducted emissions

### Lowest Channel 2403MHz, Plot E



Date: 25.FEB.2014 20:12:18

### Lowest Channel 2403MHz, Plot F



Date: 25.FEB.2014 20:12:57

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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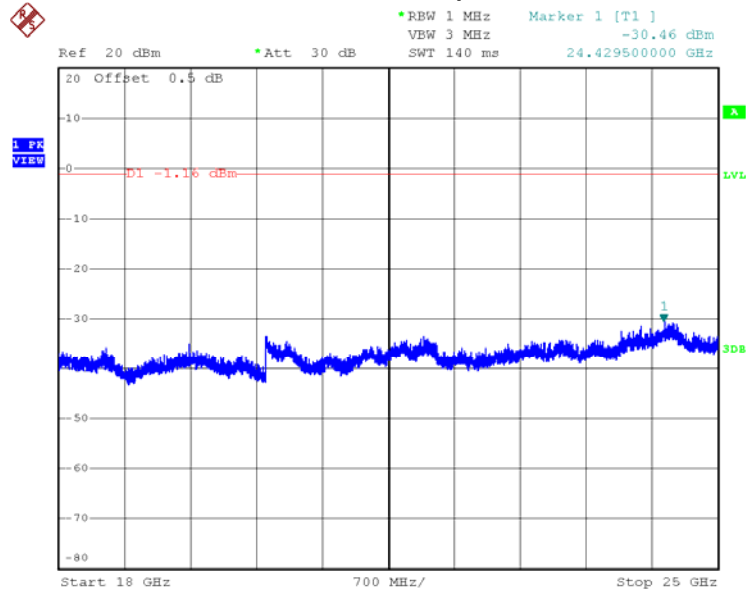
Issuing Laboratory:  
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## Plots of out of band conducted emissions

### Lowest Channel 2403MHz, Plot G



Date: 25.FEB.2014 20:14:01

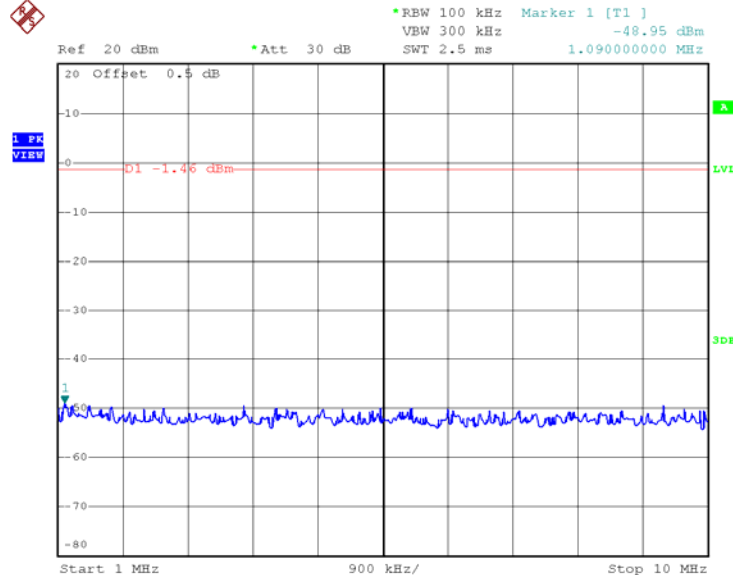
Issuing Laboratory:  
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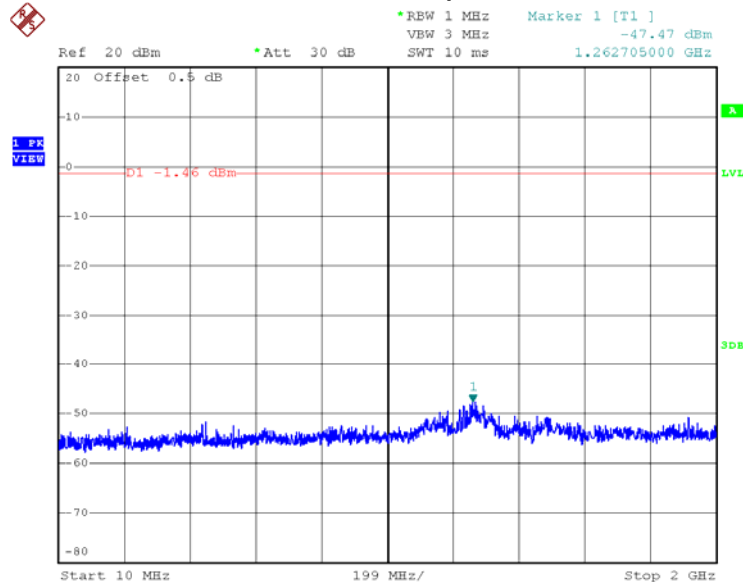
## Plots of out of band conducted emissions

### Middle Channel 2439MHz, Plot A



Date: 25.FEB.2014 20:17:55

### Middle Channel 2439MHz, Plot B



Date: 25.FEB.2014 20:19:04

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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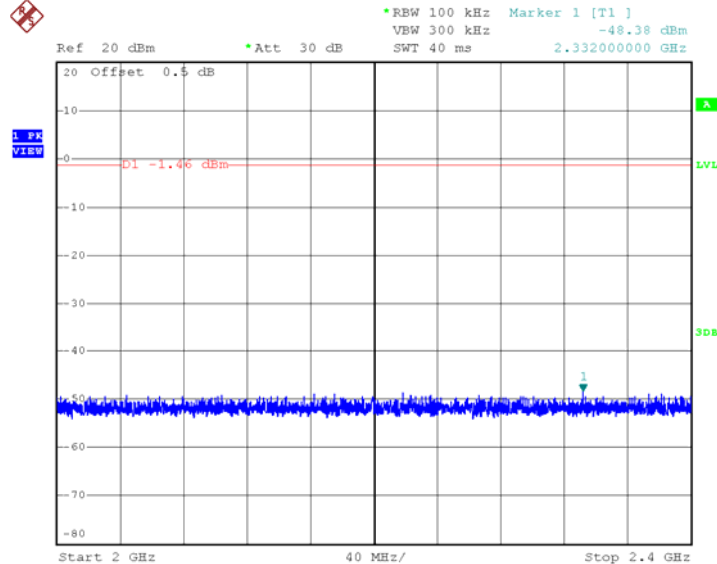
Issuing Laboratory:  
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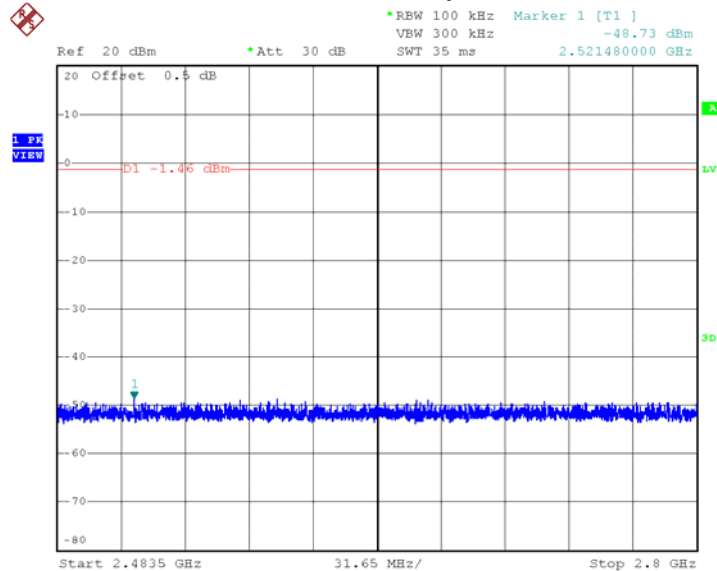
## Plots of out of band conducted emissions

### Middle Channel 2439MHz, Plot C



Date: 25.FEB.2014 20:21:23

### Middle Channel 2439MHz, Plot D



Date: 25.FEB.2014 20:22:48

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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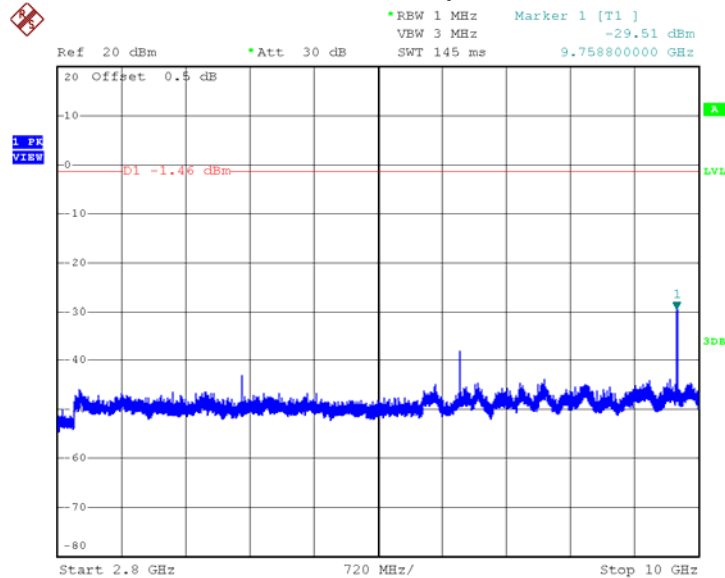
Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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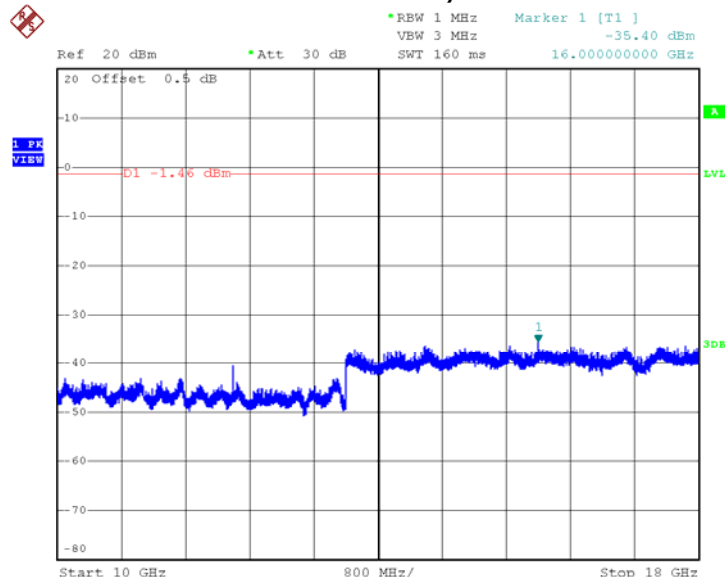
## Plots of out of band conducted emissions

### Middle Channel 2439MHz, Plot E



Date: 25.FEB.2014 20:23:36

### Middle Channel 2439MHz, Plot F



Date: 25.FEB.2014 20:24:53

Test Report Number: 14010195HKG-004  
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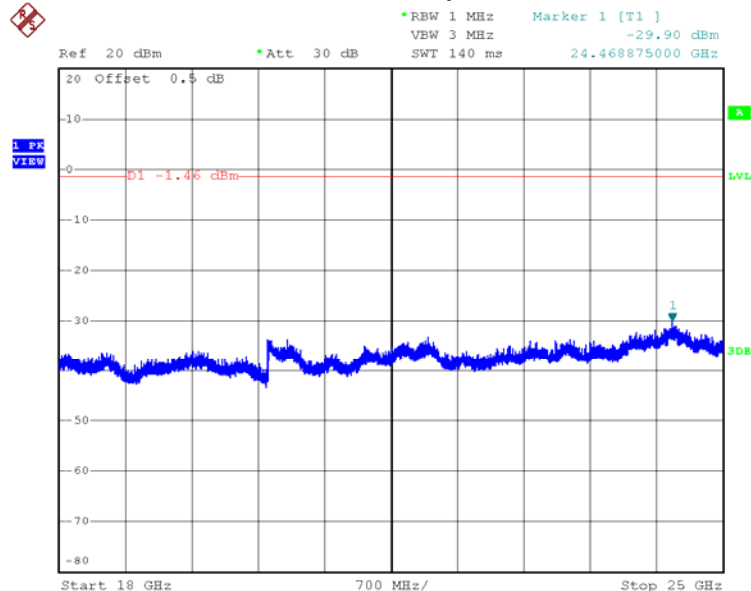
Issuing Laboratory:  
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## Plots of out of band conducted emissions

### Middle Channel 2439MHz, Plot G



Date: 25.FEB.2014 20:25:49

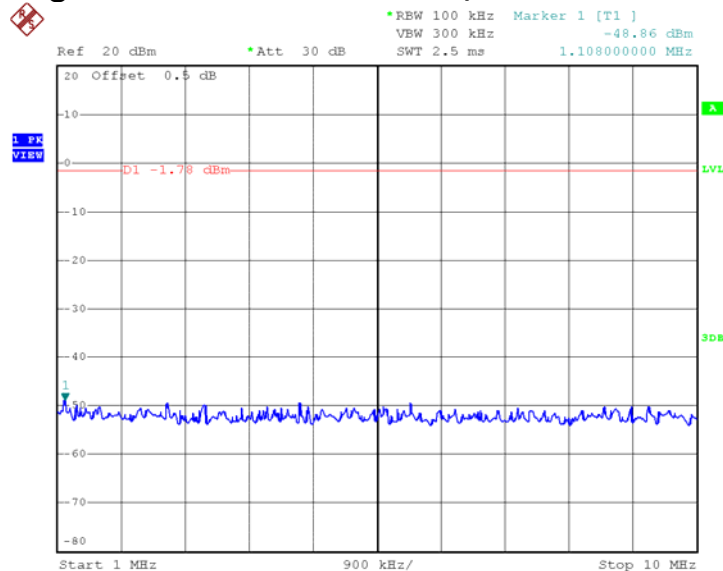
Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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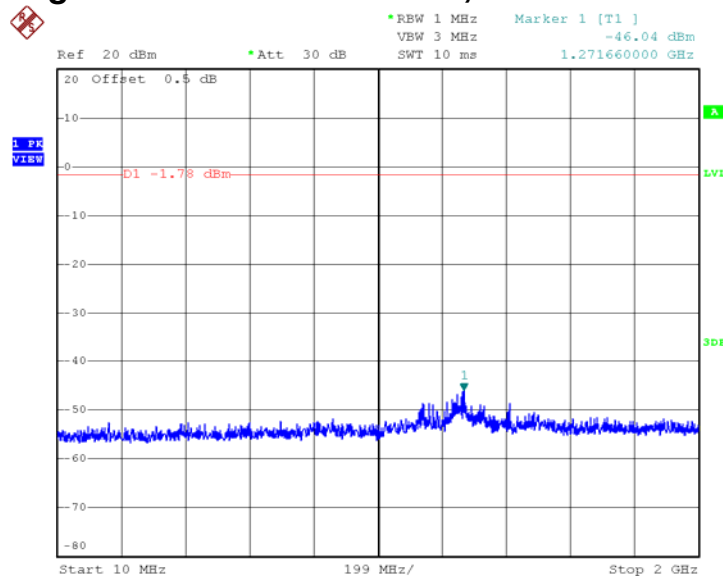
## Plots of out of band conducted emissions

### Highest Channel 2478MHz, Plot A



Date: 25.FEB.2014 20:28:20

### Highest Channel 2478MHz, Plot B



Date: 25.FEB.2014 20:29:16

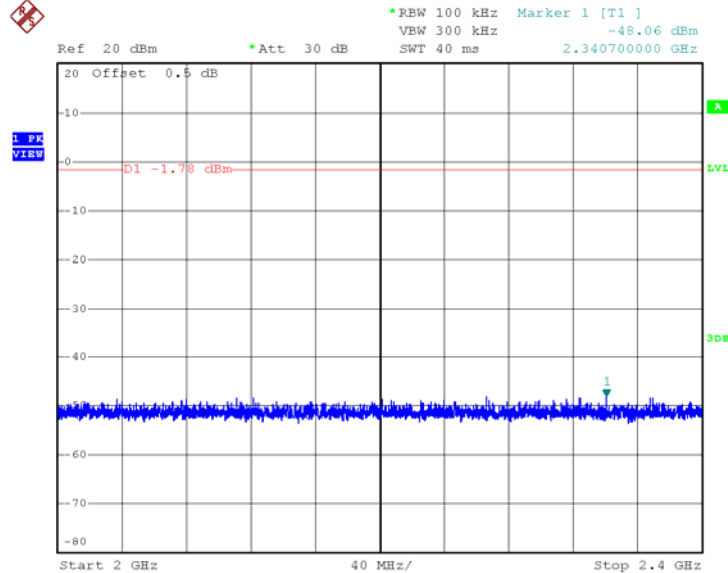
Issuing Laboratory:  
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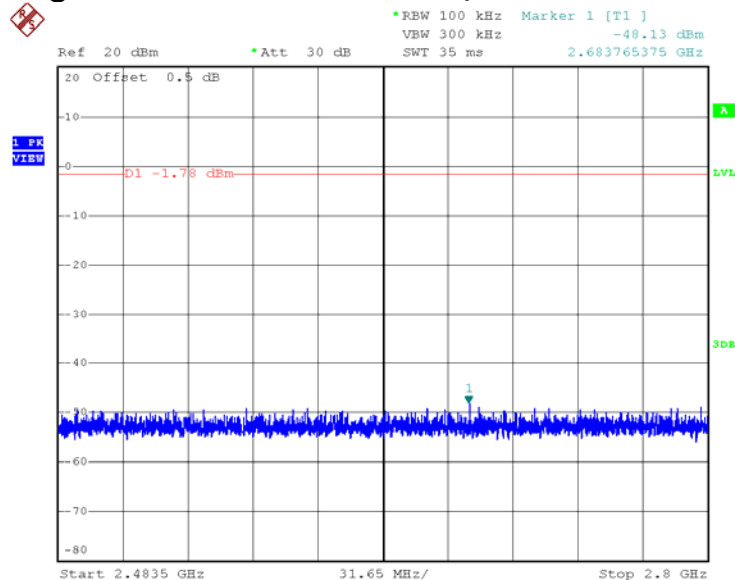
## Plots of out of band conducted emissions

### Highest Channel 2478MHz, Plot C



Date: 25.FEB.2014 20:30:34

### Highest Channel 2478MHz, Plot D



Date: 25.FEB.2014 20:33:02

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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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

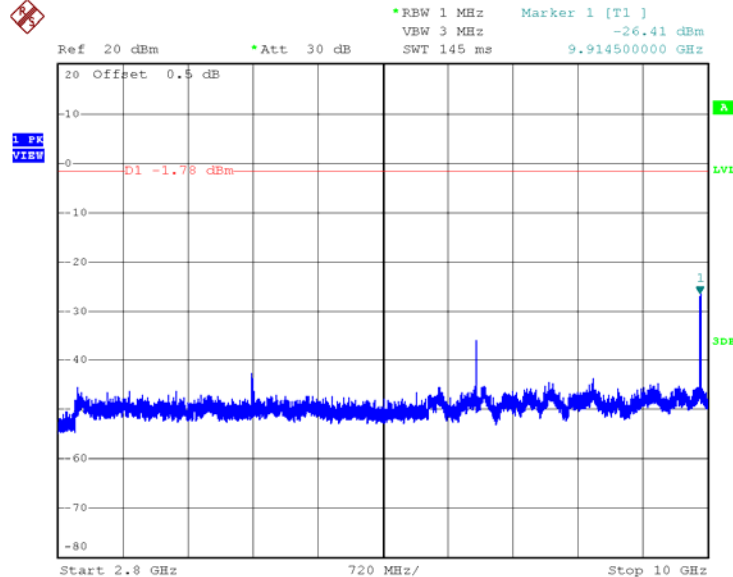
Issuing Laboratory:  
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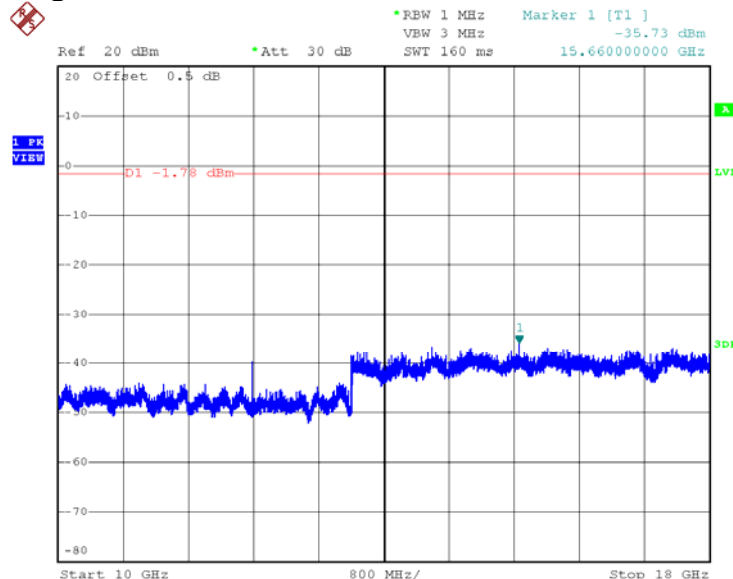
## Plots of out of band conducted emissions

### Highest Channel 2478MHz, Plot E



Date: 25.FEB.2014 20:34:26

### Highest Channel 2478MHz, Plot F



Date: 25.FEB.2014 20:35:04

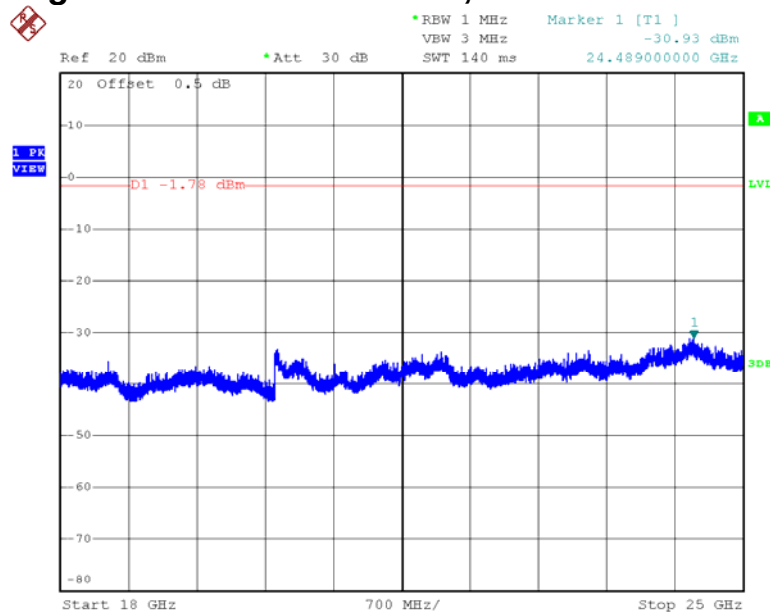
Issuing Laboratory:  
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## Plots of out of band conducted emissions

### Highest Channel 2478MHz, Plot G



Date: 25.FEB.2014 20:36:04

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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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 $\mu$ V/m
- RA = Receiver Amplitude (including preamplifier) in dB $\mu$ 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 $\mu$ 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 $\mu$ V/m. This value in dB $\mu$ V/m is converted to its corresponding level in  $\mu$ V/m.

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

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

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

Issuing Laboratory:  
**Intertek Testing Services Hong Kong Limited**

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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.

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#### 4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission  
at

4806.000MHz

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

#### 4.6.1 Radiated Emission Data

The data in tables 1-5 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 5.2 dB margin compare with average limit

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#### 4.6.2 Radiated Emissions Data

Mode: Lowest Channel 2403MHz - Transmission

Table 1

#### Radiated Emission Data

| Polarization | Frequency (MHz)  | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dBμV/m) | Average Factor (dB) | Calculated at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|------------------|----------------|-------------------|---------------------|---------------------------|---------------------|---------------------------|------------------------------|-------------|
| <b>V</b>     | <b>2390.000</b>  | <b>52.0</b>    | <b>33</b>         | <b>29.4</b>         | <b>48.4</b>               | <b>0</b>            | <b>48.4</b>               | <b>54.0</b>                  | <b>-5.6</b> |
| <b>V</b>     | <b>4806.000</b>  | <b>46.9</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.8</b>               | <b>0</b>            | <b>48.8</b>               | <b>54.0</b>                  | <b>-5.2</b> |
| <b>V</b>     | <b>12015.000</b> | <b>41.1</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.6</b>               | <b>0</b>            | <b>48.6</b>               | <b>54.0</b>                  | <b>-5.4</b> |

| Polarization | 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)  |
|--------------|------------------|----------------|-------------------|---------------------|---------------------------|---------------------------|--------------|
| <b>V</b>     | <b>2390.000</b>  | <b>52.0</b>    | <b>33</b>         | <b>29.4</b>         | <b>48.4</b>               | <b>74.0</b>               | <b>-25.6</b> |
| <b>V</b>     | <b>4806.000</b>  | <b>46.9</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.8</b>               | <b>74.0</b>               | <b>-25.2</b> |
| <b>V</b>     | <b>12015.000</b> | <b>41.1</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.6</b>               | <b>74.0</b>               | <b>-25.4</b> |

Remark: Peak detector is used for the emission measurement.

#### NOTES:

1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by **bold italic**) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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Mode: Middle Channel 2439MHz - Transmission

Table 2

**Radiated Emission Data**

| Polarization | Frequency (MHz)  | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dBμV/m) | Average Factor (dB) | Calculated at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|------------------|----------------|-------------------|---------------------|---------------------------|---------------------|---------------------------|------------------------------|-------------|
| <b>V</b>     | <b>4878.000</b>  | <b>46.5</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.4</b>               | <b>0</b>            | <b>48.4</b>               | <b>54.0</b>                  | <b>-5.6</b> |
| <b>V</b>     | <b>7317.000</b>  | <b>43.7</b>    | <b>33</b>         | <b>37.9</b>         | <b>48.6</b>               | <b>0</b>            | <b>48.6</b>               | <b>54.0</b>                  | <b>-5.4</b> |
| <b>V</b>     | <b>12195.000</b> | <b>41.3</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.8</b>               | <b>0</b>            | <b>48.8</b>               | <b>54.0</b>                  | <b>-5.2</b> |

| Polarization | 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)  |
|--------------|------------------|----------------|-------------------|---------------------|---------------------------|---------------------------|--------------|
| <b>V</b>     | <b>4878.000</b>  | <b>46.5</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.4</b>               | <b>74.0</b>               | <b>-25.6</b> |
| <b>V</b>     | <b>7317.000</b>  | <b>43.7</b>    | <b>33</b>         | <b>37.9</b>         | <b>48.6</b>               | <b>74.0</b>               | <b>-25.4</b> |
| <b>V</b>     | <b>12195.000</b> | <b>41.3</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.8</b>               | <b>74.0</b>               | <b>-25.2</b> |

Remark: Peak detector is used for the emission measurement.

NOTES:

1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by **bold italic**) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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Mode: Highest Channel 2478MHz - Transmission

Table 3

**Radiated Emission Data**

| Polarization | Frequency (MHz)  | Reading (dBμV) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dBμV/m) | Average Factor (dB) | Calculated at 3m (dBμV/m) | Average Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|------------------|----------------|-------------------|---------------------|---------------------------|---------------------|---------------------------|------------------------------|-------------|
| V            | <b>2483.500</b>  | <b>52.2</b>    | <b>33</b>         | <b>29.4</b>         | <b>48.6</b>               | <b>0</b>            | <b>48.6</b>               | <b>54.0</b>                  | <b>-5.4</b> |
| V            | <b>4956.000</b>  | <b>46.8</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.7</b>               | <b>0</b>            | <b>48.7</b>               | <b>54.0</b>                  | <b>-5.3</b> |
| V            | <b>7434.000</b>  | <b>43.7</b>    | <b>33</b>         | <b>37.9</b>         | <b>48.6</b>               | <b>0</b>            | <b>48.6</b>               | <b>54.0</b>                  | <b>-5.4</b> |
| V            | <b>12390.000</b> | <b>40.9</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.4</b>               | <b>0</b>            | <b>48.4</b>               | <b>54.0</b>                  | <b>-5.6</b> |

| Polarization | 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            | <b>2483.500</b>  | <b>52.2</b>    | <b>33</b>         | <b>29.4</b>         | <b>48.6</b>               | <b>74.0</b>               | <b>-25.4</b> |
| V            | <b>4956.000</b>  | <b>46.8</b>    | <b>33</b>         | <b>34.9</b>         | <b>48.7</b>               | <b>74.0</b>               | <b>-25.3</b> |
| V            | <b>7434.000</b>  | <b>43.7</b>    | <b>33</b>         | <b>37.9</b>         | <b>48.6</b>               | <b>74.0</b>               | <b>-25.4</b> |
| V            | <b>12390.000</b> | <b>40.9</b>    | <b>33</b>         | <b>40.5</b>         | <b>48.4</b>               | <b>74.0</b>               | <b>-25.6</b> |

Remark: Peak detector is used for the emission measurement.

NOTES:

1. 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.
2. Negative value in the margin column shows emission below limit.
3. Horn antenna is used for the emission over 1000MHz.
4. Emission (the row indicated by **bold italic**) within the restricted band meets the requirement of FCC Part 15 Section 15.205.

Issuing Laboratory:  
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Mode: Transmitting

Table 4  
Radiated Emission Data

| Polarization | Frequency (MHz) | Net at 3m (dBμV/m) | Limit at 3m (dBμV/m) | Margin (dB) |
|--------------|-----------------|--------------------|----------------------|-------------|
| V            | 49.480          | 33.9               | 40.0                 | -6.1        |
| <b>V</b>     | <b>123.700</b>  | <b>34.2</b>        | <b>43.5</b>          | <b>-9.3</b> |
| <b>V</b>     | <b>173.180</b>  | <b>34.2</b>        | <b>43.5</b>          | <b>-9.3</b> |
| V            | 197.920         | 33.8               | 43.5                 | -9.7        |
| V            | 222.660         | 34.8               | 46.0                 | -11.2       |
| <b>V</b>     | <b>282.622</b>  | <b>37.4</b>        | <b>46.0</b>          | <b>-8.6</b> |
| V            | 307.200         | 40.4               | 46.0                 | -5.6        |
| <b>V</b>     | <b>331.770</b>  | <b>38.9</b>        | <b>46.0</b>          | <b>-7.1</b> |
| V            | 356.048         | 40.2               | 46.0                 | -5.8        |
| <b>V</b>     | <b>405.500</b>  | <b>40.6</b>        | <b>46.0</b>          | <b>-5.4</b> |
| V            | 454.646         | 35.4               | 46.0                 | -10.6       |
| V            | 503.808         | 40.2               | 46.0                 | -5.8        |

- NOTES:
1. Quasi-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.

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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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

0.429 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

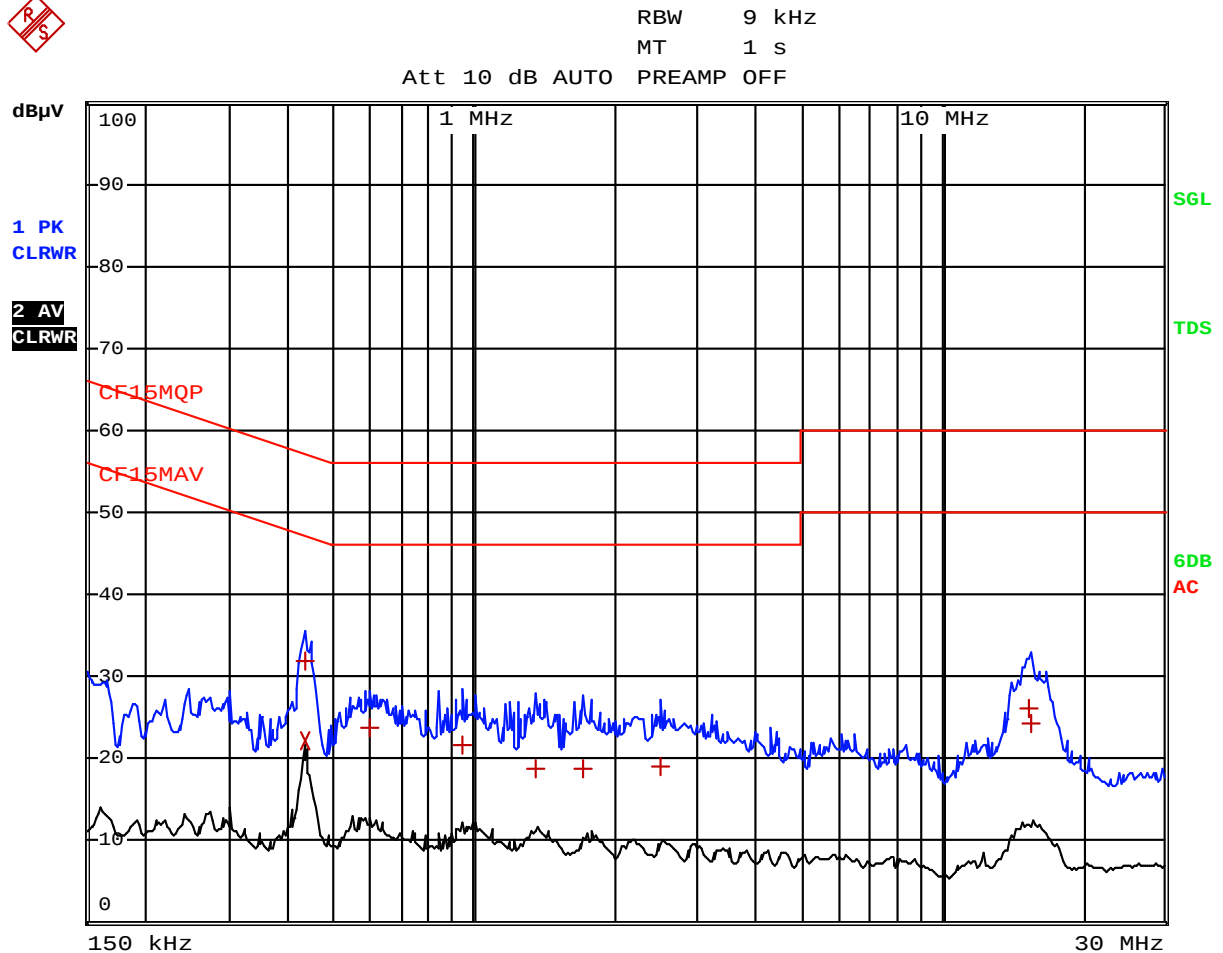
Passed by 19.1 dB margin compare with average limit

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Worst Case: EUT Transmitting  
EUT's AC Mains Phase: Live



Date: 30.MAY.2014 06:38:40

Test Report Number: 14010195HKG-004  
FCC ID: AUI3301089T

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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-ettsemko.com

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Intertek Testing Services Hong Kong Limited

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Worst Case: EUT Transmitting  
EUT's AC Mains Phase: Live

| EDIT PEAK LIST (Final Measurement Results) |             |            |    |                |
|--------------------------------------------|-------------|------------|----|----------------|
| Trace1:                                    | CF15MQP     |            |    |                |
| Trace2:                                    | CF15MAV     |            |    |                |
| Trace3:                                    | ---         |            |    |                |
| TRACE                                      | FREQUENCY   | LEVEL dBμV |    | DELTA LIMIT dB |
| 1 Quasi Peak                               | 433.5 kHz   | 31.95      | L1 | -25.23         |
| 2 CISPR Average                            | 433.5 kHz   | 22.10      | L1 | -25.08         |
| 1 Quasi Peak                               | 595.5 kHz   | 23.74      | L1 | -32.25         |
| 1 Quasi Peak                               | 942 kHz     | 21.64      | L1 | -34.35         |
| 1 Quasi Peak                               | 1.356 MHz   | 18.77      | L1 | -37.23         |
| 1 Quasi Peak                               | 1.707 MHz   | 18.76      | L1 | -37.23         |
| 1 Quasi Peak                               | 2.5035 MHz  | 19.04      | L1 | -36.95         |
| 1 Quasi Peak                               | 15.396 MHz  | 26.06      | L1 | -33.93         |
| 1 Quasi Peak                               | 15.6255 MHz | 24.21      | L1 | -35.78         |

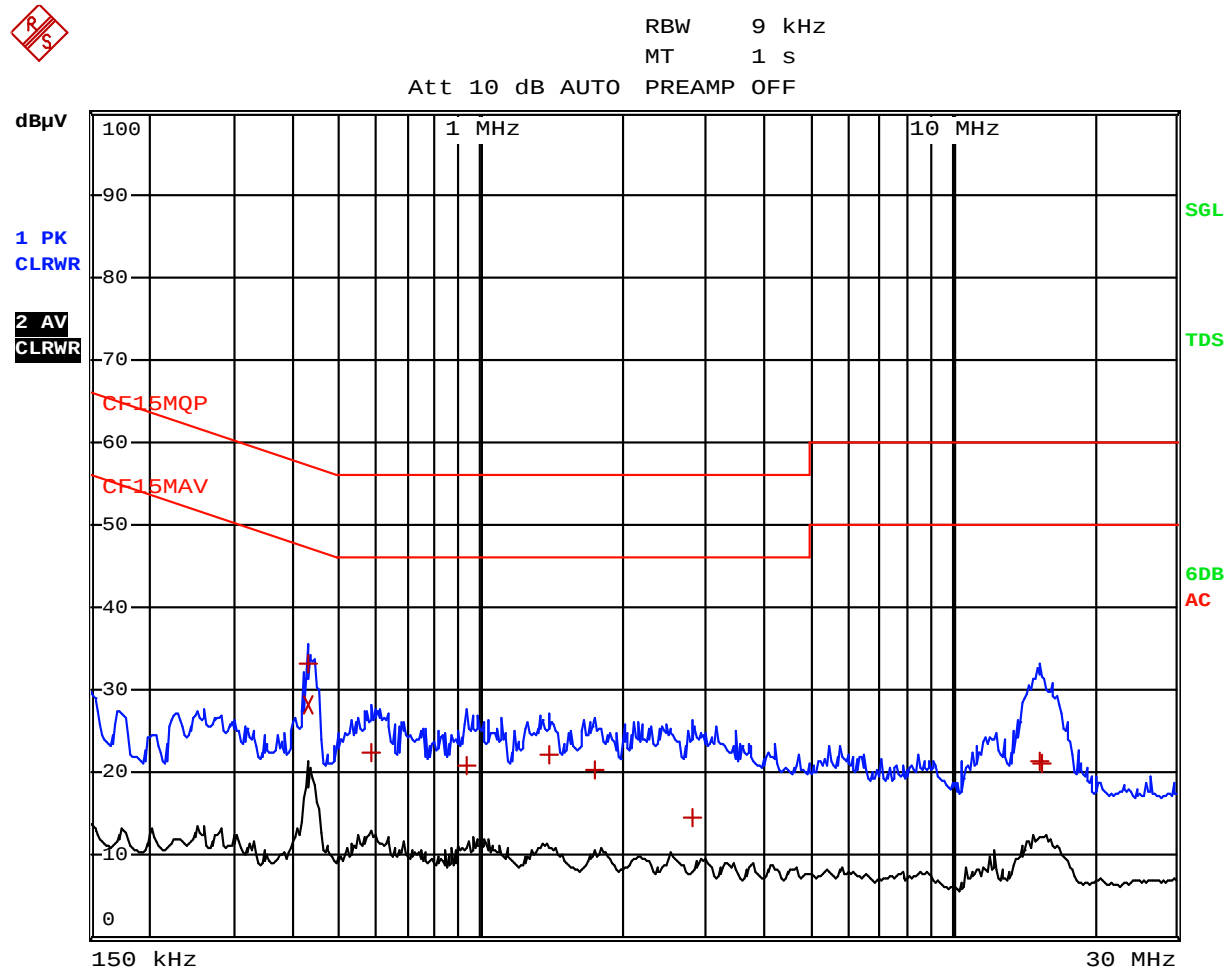
Date: 30.MAY.2014 06:38:01

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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Worst Case: EUT Transmitting  
EUT's AC Mains Phase: Neutral



Date: 30.MAY.2014 06:43:33

Issuing Laboratory:  
Intertek Testing Services Hong Kong Limited

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Worst Case: EUT Transmitting  
EUT's AC Mains Phase: Neutral

| EDIT PEAK LIST (Final Measurement Results) |             |            |   |                |
|--------------------------------------------|-------------|------------|---|----------------|
| Trace1:                                    | CF15MQP     |            |   |                |
| Trace2:                                    | CF15MAV     |            |   |                |
| Trace3:                                    | ---         |            |   |                |
| TRACE                                      | FREQUENCY   | LEVEL dBμV |   | DELTA LIMIT dB |
| 1 Quasi Peak                               | 429 kHz     | 33.25      | N | -24.01         |
| 2 CISPR Average                            | 429 kHz     | 28.18      | N | -19.08         |
| 1 Quasi Peak                               | 586.5 kHz   | 22.36      | N | -33.64         |
| 1 Quasi Peak                               | 937.5 kHz   | 20.84      | N | -35.15         |
| 1 Quasi Peak                               | 1.3965 MHz  | 22.05      | N | -33.94         |
| 1 Quasi Peak                               | 1.7565 MHz  | 20.28      | N | -35.72         |
| 1 Quasi Peak                               | 2.8275 MHz  | 14.47      | N | -41.52         |
| 1 Quasi Peak                               | 15.4455 MHz | 21.51      | N | -38.48         |
| 1 Quasi Peak                               | 15.486 MHz  | 21.23      | N | -38.76         |

Date: 30.MAY.2014 06:42:51

Issuing Laboratory:  
**Intertek Testing Services Hong Kong Limited**

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## **EXHIBIT 5 EQUIPMENT LIST**

Issuing Laboratory:  
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## 5.0 Equipment List

### 1) Radiated Emissions Test

| Equipment            | Biconical Antenna | Log Periodic Antenna | EMI Test Receiver |
|----------------------|-------------------|----------------------|-------------------|
| Registration No.     | EW-0571           | EW-0446              | EW-2251           |
| Manufacturer         | EMCO              | EMCO                 | R&S               |
| Model No.            | 3104C             | 3146                 | ESCI              |
| Calibration Date     | Nov. 01, 2013     | Apr. 30, 2013        | Nov. 20, 2013     |
| Calibration Due Date | May. 01, 2015     | Oct. 30, 2014        | Nov. 20, 2014     |

| Equipment            | Pyramidal Horn Antenna | Double Ridged Guide Antenna | Spectrum Analyzer |
|----------------------|------------------------|-----------------------------|-------------------|
| Registration No.     | EW-0905                | EW-1015                     | EW-2466           |
| Manufacturer         | EMCO                   | EMCO                        | R&S               |
| Model No.            | 3160-09                | 3115                        | FSP30             |
| Calibration Date     | Jan. 28, 2014          | Mar. 05, 2013               | Aug. 4, 2013      |
| Calibration Due Date | Jul. 28, 2015          | Sep. 05, 2014               | Aug. 4, 2014      |

### 2) Conducted Emissions Test

| Equipment            | EMI Test Receiver | LISN          |
|----------------------|-------------------|---------------|
| Registration No.     | EW-2251           | EW-2501       |
| Manufacturer         | R&S               | R&S           |
| Model No.            | ESCI              | ENV-216       |
| Calibration Date     | Nov. 20, 2013     | Dec. 25, 2013 |
| Calibration Due Date | Nov. 20, 2014     | Nov. 30, 2014 |

### 3) Conductive Measurement Test

| Equipment            | Spectrum Analyzer |
|----------------------|-------------------|
| Registration No.     | EW-2466           |
| Manufacturer         | R&S               |
| Model No.            | FSP30             |
| Calibration Date     | Aug. 4, 2013      |
| Calibration Due Date | Aug. 4, 2014      |

**END OF TEST REPORT**