

## FCC PART 15.247

## TEST REPORT

For

### **Lorex Technology Inc.**

250 Royal Crest Court, Markham, Ontario, L3R 3S1, Canada

**FCC ID: UCZC2415**

<b>Report Type:</b> Class II Permissive Change	<b>Product Type:</b> Digital FHSS Device (Camera Unit)
<b>Test Engineer:</b> <u>David Lee</u> <i>David Lee</i>	
<b>Report Number:</b> <u>RSZ150323005-00A1</u>	
<b>Report Date:</b> <u>2015-05-05</u>	
<b>Reviewed By:</b> <u>RF Engineer</u> <i>Jimmy xiao</i>	
<b>Prepared By:</b> Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 <a href="http://www.baclcorp.com.cn">www.baclcorp.com.cn</a>	

**Note:** This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

## **TABLE OF CONTENTS**

<b>GENERAL INFORMATION.....</b>	<b>4</b>
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT) .....	4
OBJECTIVE .....	4
RELATED SUBMITTAL(S)/GRANT(S).....	4
TEST METHODOLOGY .....	5
TEST FACILITY .....	5
<b>SYSTEM TEST CONFIGURATION.....</b>	<b>6</b>
DESCRIPTION OF TEST CONFIGURATION .....	6
EUT EXERCISE SOFTWARE .....	6
EQUIPMENT MODIFICATIONS .....	6
EXTERNAL I/O CABLE.....	6
BLOCK DIAGRAM OF TEST SETUP .....	6
<b>SUMMARY OF TEST RESULTS .....</b>	<b>7</b>
<b>FCC §15.247 (i) &amp; §1.1307 (b) (1) &amp; §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE).....</b>	<b>8</b>
APPLICABLE STANDARD .....	8
<b>FCC §15.203 – ANTENNA REQUIREMENT.....</b>	<b>9</b>
APPLICABLE STANDARD .....	9
ANTENNA CONNECTOR CONSTRUCTION .....	9
<b>FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS .....</b>	<b>10</b>
APPLICABLE STANDARD .....	10
MEASUREMENT UNCERTAINTY.....	10
EUT SETUP .....	10
EMI TEST RECEIVER SETUP.....	11
TEST PROCEDURE .....	11
TEST EQUIPMENT LIST AND DETAILS.....	11
CORRECTED FACTOR & MARGIN CALCULATION .....	12
TEST RESULTS SUMMARY .....	12
TEST DATA .....	12
<b>FCC §15.205, §15.209 &amp; §15.247(d) – RADIATED EMISSIONS.....</b>	<b>17</b>
APPLICABLE STANDARD .....	17
MEASUREMENT UNCERTAINTY.....	17
EUT SETUP .....	17
EMI TEST RECEIVER & SPECTRUM ANALYZER SETUP .....	18
TEST PROCEDURE .....	18
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	19
TEST EQUIPMENT LIST AND DETAILS.....	19
CORRECTED AMPLITUDE & MARGIN CALCULATION .....	19
TEST RESULTS SUMMARY .....	20
TEST DATA .....	20
<b>FCC §15.247(a) (1)-CHANNEL SEPARATION .....</b>	<b>22</b>
APPLICABLE STANDARD .....	22
TEST PROCEDURE .....	22
TEST EQUIPMENT LIST AND DETAILS.....	22
TEST DATA .....	22
<b>FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH.....</b>	<b>23</b>

APPLICABLE STANDARD .....	23
TEST PROCEDURE .....	23
TEST EQUIPMENT LIST AND DETAILS.....	23
TEST DATA .....	23
<b>FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL .....</b>	<b>24</b>
APPLICABLE STANDARD .....	24
TEST PROCEDURE .....	24
TEST EQUIPMENT LIST AND DETAILS.....	24
TEST DATA .....	24
<b>FCC §15.247(a) (1) (iii) -TIME OF OCCUPANCY (DWELL TIME).....</b>	<b>25</b>
APPLICABLE STANDARD .....	25
TEST PROCEDURE .....	25
TEST EQUIPMENT LIST AND DETAILS.....	25
TEST DATA .....	25
<b>FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT .....</b>	<b>26</b>
APPLICABLE STANDARD .....	26
TEST PROCEDURE .....	26
TEST EQUIPMENT LIST AND DETAILS.....	26
TEST DATA .....	26
<b>FCC §15.247(d) - BAND EDGES .....</b>	<b>27</b>
APPLICABLE STANDARD .....	27
TEST PROCEDURE .....	27
TEST EQUIPMENT LIST AND DETAILS.....	27
TEST DATA .....	27
<b>PRODUCT SIMILARITY DECLARATION LETTER.....</b>	<b>28</b>

## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

The *Lorex Technology Inc.*'s product, model number: *BB2425 (FCC ID: UCZC2415)* or the "EUT" in this report was a *camera unit of digital FHSS device, named as 2.4G Baby monitor BB2425 by applicant*, which was measured approximately: 15.3 cm (L) x 9.0 cm (W) x 10.1 cm (H), rated input voltage: DC 6V from Aadapter.

#### **KINGS** Aadapter Information:

Model: Y07FF-060-0800U

Input: 100-240V~50/60 Hz 0.25A

Output: DC 6V 800mA

#### **G.Credit** Aadapter Information:

Model: HX-AD060080-U02

Input: 100-240V~50/60 Hz 0.15A

Output: DC 6V 0.8A

#### **5ESP** Aadapter Information:

Model: 5E-AD060080-U

Input: 100-240V~50/60 Hz 0.15A

Output: DC 6V 0.8A

*Note: The series product, model BB2415, LB215, BB2415AC1 and BB2425, they are identical schematics, just named differently due to market purpose, which was explained in the attached product similarity declaration letter, and the model BB2425 was selected for testing.*

*\*All measurement and test data in this report was gathered from production sample serial number: 1503204 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2015-03-23.*

### Objective

This report is prepared on behalf of *Lorex Technology Inc.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine the compliance of EUT with FCC Part 15, Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Note: This is the CIIPC application of the device based on the original report RSZ131105004-00, the differences between the original device and the current one are as follows:

1. Adding two adapters: one brand is **KINGS**, the other one's brand is **G.Credit**.
2. Changing the product name from "2.4G baby monitor BB2415" to "2.4G Baby monitor BB2425".
3. Changing the model number from "BB2415, LB215 and BB2415AC1" to "BB2415, LB215, BB2415AC1 and BB2425".

For the change made to the device, the test items "Conducted Emissions" and "Radiated Emissions" were performed, so the data of these two items and the related EUT and Setup photos have been updated, and all the other test data and photos please refer to the report RSZ131105004-00 with FCC ID: UCZC2415, which was granted on 2014-01-25.

### Related Submittal(s)/Grant(s)

Submitted with the monitor unit of a system with FCC ID: UCZM5410

## **Test Methodology**

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 5.91 dB for 30MHz-1GHz.and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

## **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in an engineering mode which was selected by manufacturer.

### EUT Exercise Software

No exercise software was used.

### Equipment Modifications

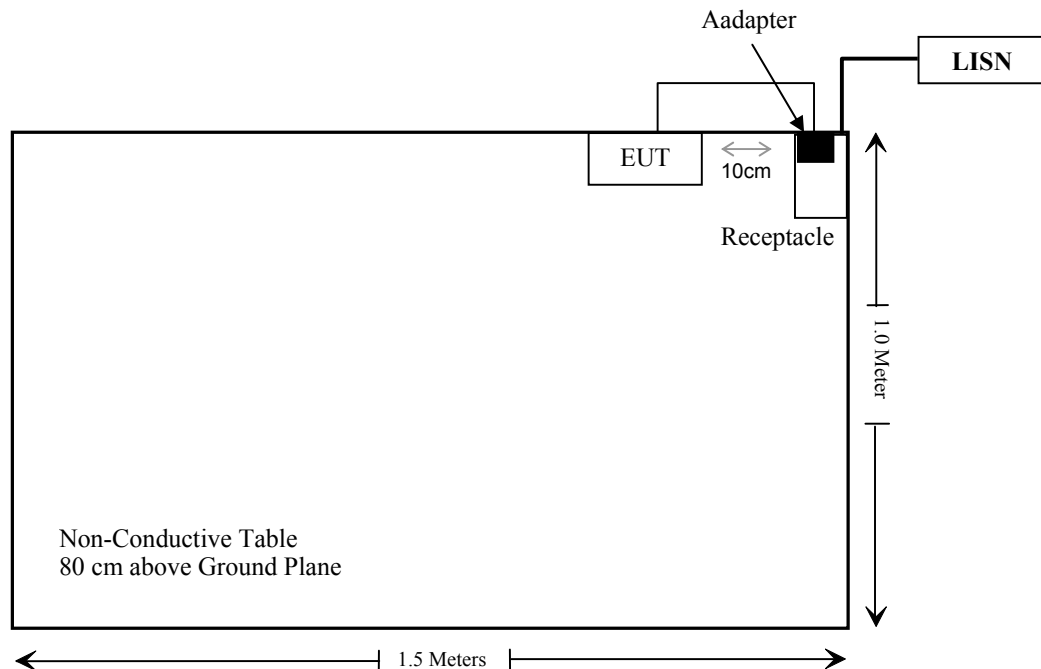
No modification was made to the EUT tested.

### External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielded detachable DC Power Cable	1.83	EUT	Aadapter

### Block Diagram of Test Setup

For Conducted Emission:



**SUMMARY OF TEST RESULTS**

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b)(1), §2.1091	Maximum Permissible Exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Emissions	Compliance
§15.247 (a)(1)	20 dB Bandwidth	Compliance*
§15.247(a)(1)	Channel Separation	Compliance*
§15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliance*
§15.247(a)(1)(iii)	Quantity of hopping channel	Compliance*
§15.247(b)(1)	Peak Output Power Measurement	Compliance*
§15.247(d)	Band Edges	Compliance*

Compliance\*: Please referred to FCC ID: UCZC2415 granted on 2014-01-25, report No.: RSZ131105004-00, which was tested by Simon Wang.

## FCC §15.247 (i) & §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

### Applicable Standard

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

#### Limits for General Population/Uncontrolled Exposure

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (Minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

\* = Plane-wave equivalent power density

### MPE Calculation

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where:

S = power density (in appropriate units, e.g. mW/cm<sup>2</sup>)

P = power input to the antenna (in appropriate units, e.g., mW).

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain.

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm <sup>2</sup> )	MPE Limit (mW/cm <sup>2</sup> )
	(dBi)	(numeric)	(dBm)	(mW)			
2441.250	2.0	1.58	15.06	32.06	20	0.010	1.0

Note: To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

### Result: Compliance



**FCC §15.203 – ANTENNA REQUIREMENT**

---

**Applicable Standard**

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

**Antenna Connector Construction**

The EUT has one integral antenna arrangement and the maximum gain is 2.0 dBi, fulfill the requirement of this section. Please refer to the internal photos.

**Result:** Compliance.

## FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

### Applicable Standard

FCC §15.207

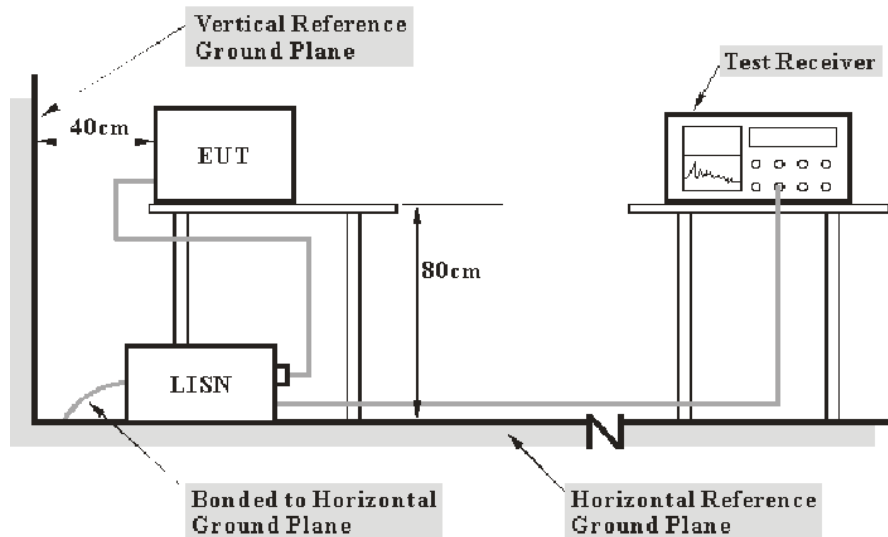
### Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between AMN/ISN and receiver, AMN/ISN voltage division factor, AMN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Shenzhen) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report

Port	Expanded Measurement uncertainty
AC Mains	3.26 dB (k=2, 95% level of confidence)
CAT 3	3.70 dB (k=2, 95% level of confidence)
CAT 5	3.86 dB (k=2, 95% level of confidence)
CAT 6	4.64 dB (k=2, 95% level of confidence)

### EUT Setup



- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The adapter was connected to a 120 VAC/60 Hz power source.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Procedure

During the conducted emission test, the 5ESP adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2014-06-03	2015-06-03
Rohde & Schwarz	LISN	ENV216	3560.6650.12-101613-Yb	2014-12-01	2015-12-01
Rohde & Schwarz	LISN	ESH3-Z5	100113	NCR	NCR
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2014-10-15	2015-10-15
Rohde & Schwarz	CE Test software	EMC 32	V8.53	NCR	NCR

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

## Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Correction Factor} = \text{LISN/ISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the recorded data in following table, the worst margin reading as below:

**4.8 dB at 0.490530 MHz** in the **Line** conducted mode for G.Credit adapter

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m + U_{(Lm)} \leq L_{\text{lim}} + U_{\text{cispr}}$$

in BACL.,  $U_{(Lm)}$  is less than  $U_{\text{cispr}}$ , if  $L_m$  is less than  $L_{\text{lim}}$ , it implies that the EUT complies with the limit.

## Test Data

### Environmental Conditions

<b>Temperature:</b>	26 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	100.0 kPa

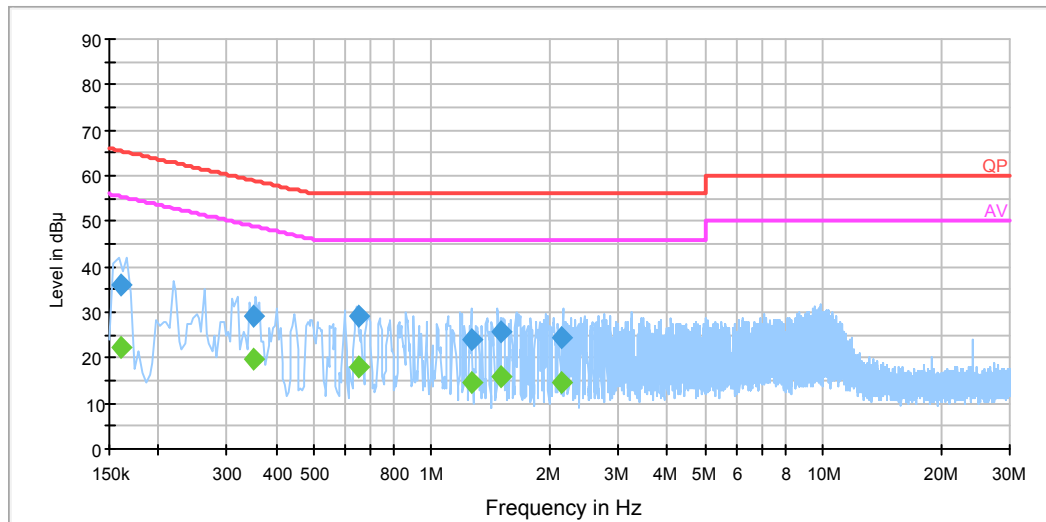
*The testing was performed by David Lee on 2015-05-05.*

Test Mode: Transmitting

For KINGS adapter

AC 120 V, 60 Hz, Line:

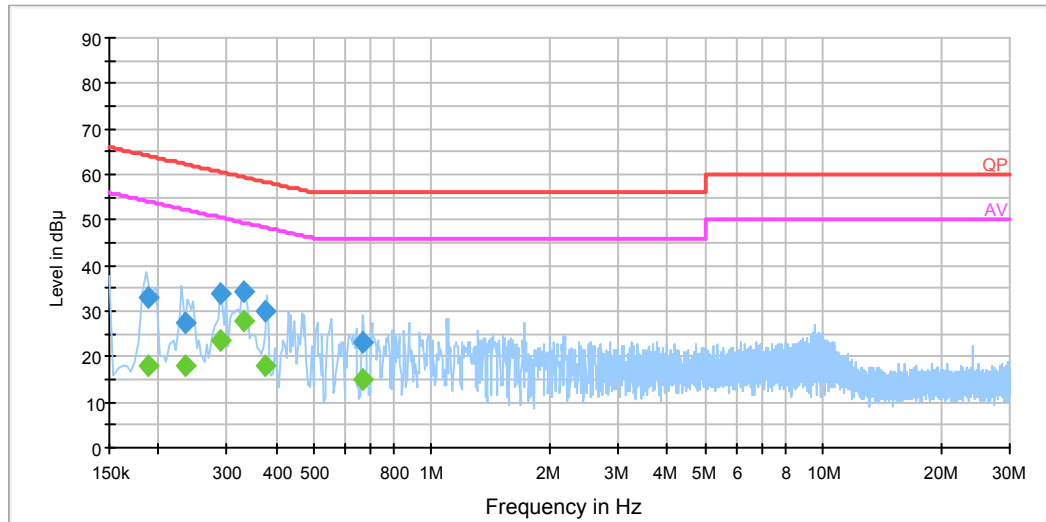
EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.161500	35.9	19.2	65.4	29.4	QP
0.161500	22.3	19.2	55.4	33.0	Ave.
0.348690	29.3	19.2	59.0	29.7	QP
0.348690	19.8	19.2	49.0	29.2	Ave.
0.648370	28.9	19.3	56.0	27.1	QP
0.648370	17.8	19.3	46.0	28.2	Ave.
1.259070	24.1	19.4	56.0	31.9	QP
1.259070	14.7	19.4	46.0	31.3	Ave.
1.495830	25.8	19.4	56.0	30.2	QP
1.495830	15.8	19.4	46.0	30.2	Ave.
2.141570	24.6	19.4	56.0	31.4	QP
2.141570	14.4	19.4	46.0	31.6	Ave.

**AC 120V, 60 Hz, Neutral:**

EMI Auto Test N

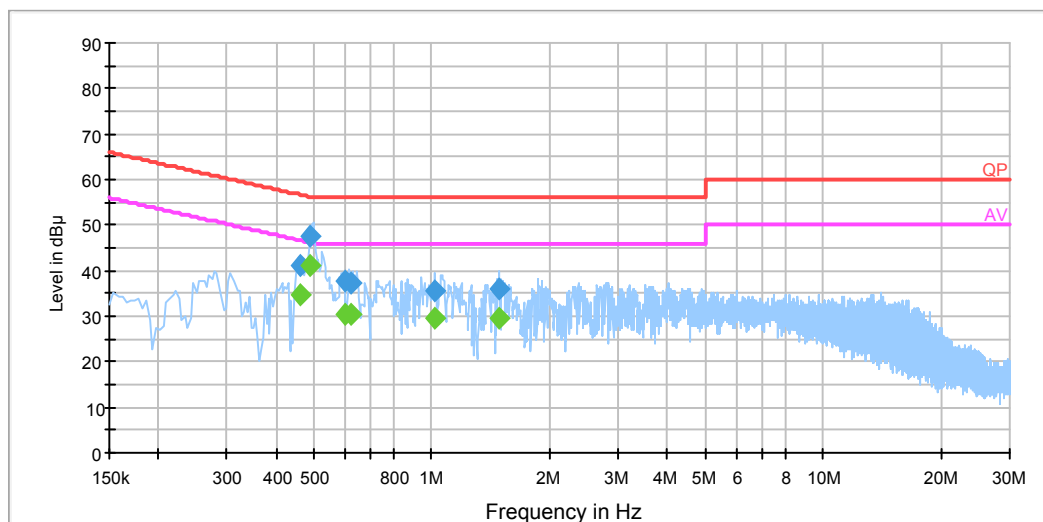


Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.189500	33.0	19.3	64.1	31.1	QP
0.189500	17.9	19.3	54.1	36.1	Ave.
0.234500	27.3	19.2	62.3	35.0	QP
0.234500	18.0	19.2	52.3	34.3	Ave.
0.289500	33.9	19.2	60.5	26.6	QP
0.289500	23.6	19.2	50.5	26.9	Ave.
0.329050	34.4	19.2	59.5	25.0	QP
0.329050	27.9	19.2	49.5	21.6	Ave.
0.376330	30.2	19.2	58.4	28.2	QP
0.376330	18.2	19.2	48.4	30.2	Ave.
0.664010	23.0	19.3	56.0	33.0	QP
0.664010	15.2	19.3	46.0	30.8	Ave.

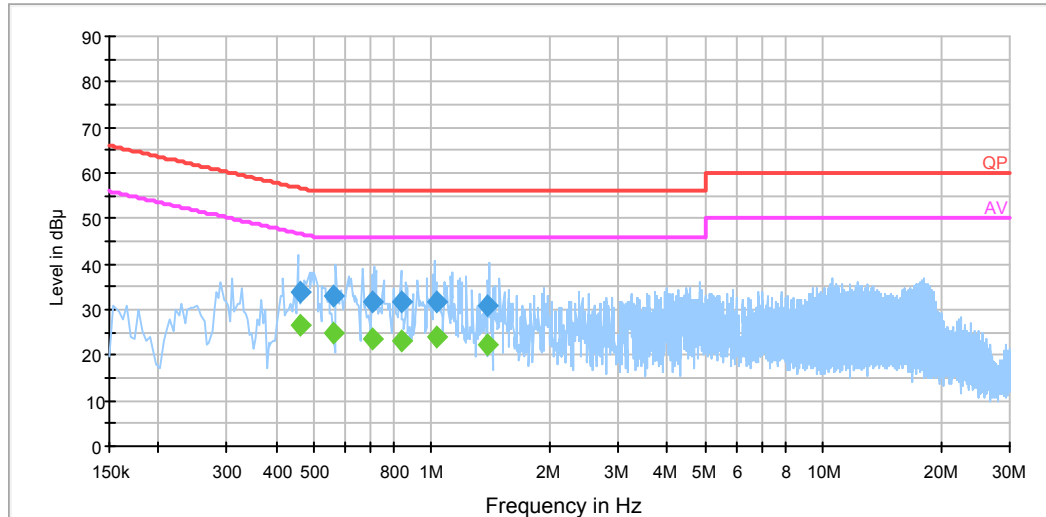
For G.Credit adapter:

AC 120 V, 60 Hz, Line:

EMI Auto Test L



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.463070	41.1	19.2	56.6	15.6	QP
0.463070	34.7	19.2	46.6	11.9	Ave.
0.490530	47.5	19.3	56.2	8.6	QP
0.490530	41.3	19.3	46.2	4.8	Ave.
0.602910	37.6	19.3	56.0	18.4	QP
0.602910	30.2	19.3	46.0	15.8	Ave.
0.624730	37.1	19.3	56.0	18.9	QP
0.624730	30.3	19.3	46.0	15.7	Ave.
1.014730	35.5	19.4	56.0	20.5	QP
1.014730	29.5	19.4	46.0	16.5	Ave.
1.483650	36.0	19.4	56.0	20.0	QP
1.483650	29.7	19.4	46.0	16.3	Ave.

**AC 120V, 60 Hz, Neutral:****EMI Auto Test N**

Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/QP/Ave.)
0.459190	34.0	19.2	56.7	22.7	QP
0.459190	26.4	19.2	46.7	20.3	Ave.
0.561450	32.9	19.3	56.0	23.1	QP
0.561450	24.8	19.3	46.0	21.2	Ave.
0.707350	31.9	19.3	56.0	24.1	QP
0.707350	23.6	19.3	46.0	22.4	Ave.
0.833490	31.9	19.3	56.0	24.1	QP
0.833490	23.0	19.3	46.0	23.0	Ave.
1.030730	31.7	19.4	56.0	24.3	QP
1.030730	24.0	19.4	46.0	22.0	Ave.
1.384970	30.7	19.4	56.0	25.4	QP
1.384970	22.4	19.4	46.0	23.6	Ave.

**Note:**

- 1) Correction Factor = LISN VDF (Voltage Division Factor) + Cable Loss + Transient Limiter Attenuation  
The corrected factor has been input into the transducer of the test software.
- 2) Corrected Amplitude = Reading + Correction Factor
- 3) Margin = Limit – Corrected Amplitude



## **FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS**

### **Applicable Standard**

FCC §15.247 (d); §15.209; §15.205;

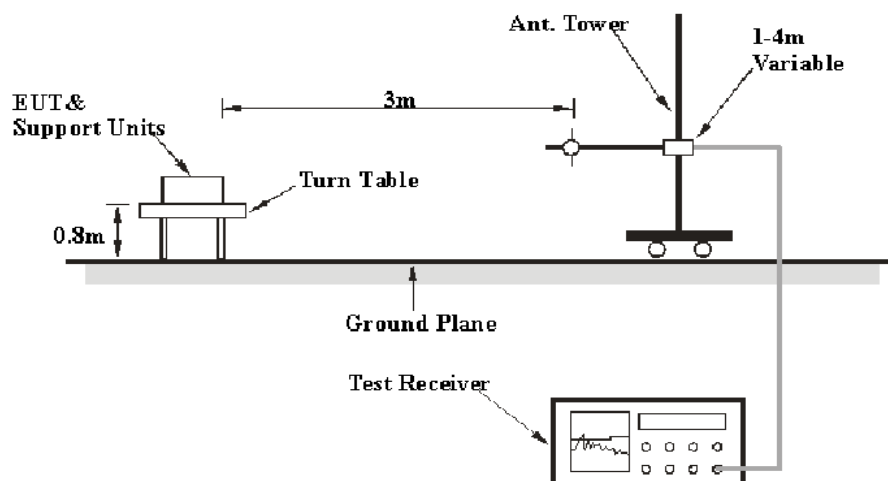
### **Measurement Uncertainty**

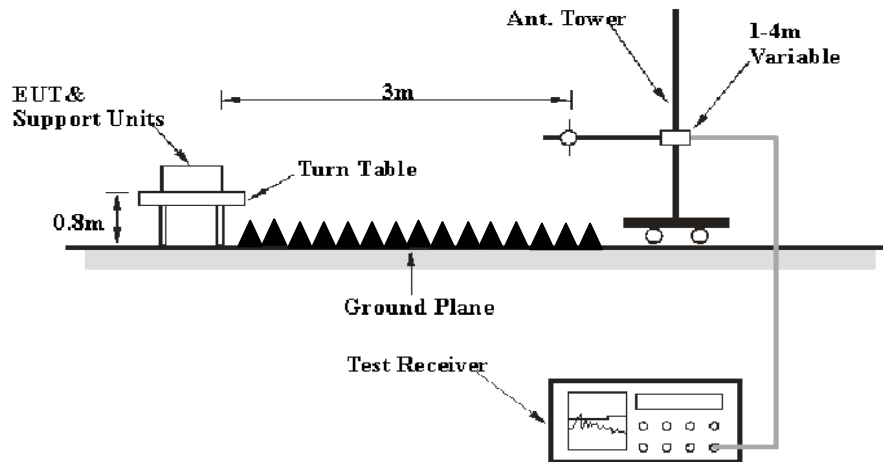
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expanded combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Shenzhen) is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz. And the uncertainty will not be taken into consideration for the test data recorded in the report

### **EUT Setup**

**Below 1 GHz:**



**Above 1GHz:**

The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209 and FCC 15.247 limits.

The adapter was connected to a 120 VAC/60 Hz power source.

**EMI Test Receiver & Spectrum Analyzer Setup**

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	10 Hz	/	Ave.

**Test Procedure**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All final data was recorded in Quasi-peak detection mode for frequency range of 30 MHz -1 GHz and peak and Average detection modes for frequencies above 1 GHz.

### Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2014-05-06	2015-05-06
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2014-11-03	2015-11-03
Sunol Sciences	Bi-log Antenna	JB1	A040904-1	NCR	NCR
Mini	Amplifier	ZVA-183-S+	5969001149	2015-04-23	2016-04-23
A.H. System	Horn Antenna	SAS-200/571	135	2013-02-11	2016-02-10
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2014-12-11	2015-12-11
the electro-Mechanics Co.	Horn Antenna	3116	9510-2270	2013-10-14	2016-10-13
TDK	Chamber	Chamber A	2#	2012-10-15	2015-10-15
TDK	Chamber	Chamber B	1#	2014-07-22	2015-07-22
DUCOMMUN	Pre-amplifier	ALN-22093530-01	991373-01	2014-08-03	2015-08-03
R&S	Auto test Software	EMC32	V9.10	NCR	NCR

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

### Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

**4.45 dB at 432.01 MHz in the Vertical polarization for KINGS adapter**

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$$L_m + U_{(L_m)} \leq L_{lim} + U_{cispr}$$

In BACL,  $U_{(L_m)}$  is less than  $+ U_{cispr}$ , if  $L_m$  is less than  $L_{lim}$ , it implies that the EUT complies with the limit.

## Test Data

### Environmental Conditions

Temperature:	26°C
Relative Humidity:	50 %
ATM Pressure:	100.0kPa

*The testing was performed by David Lee on 2015-05-05.*

*EUT operation mode: Transmitting*

**30 MHz -25 GHz:****For KINGS adapter:**

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
36.02	38.58	QP	131	1.1	V	-10.8	27.78	40	12.22
60.00	45.04	QP	199	1.0	V	-19.8	25.24	40	14.76
408.01	48.67	QP	217	1.5	V	-10.0	38.67	46	7.33
432.01	51.55	QP	189	1.3	V	-10.0	41.55	46	4.45
528.02	41.04	QP	170	1.0	V	-8.5	32.54	46	13.46
827.96	21.91	QP	20	2.8	H	-4.1	17.81	46	28.19

**For the G.Credit adapter:**

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.247/205/209	
	Reading (dBμV)	Detector (PK/QP/Ave.)		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
40.29	39.15	QP	254	1.1	V	-13.6	25.55	40	14.45
48.00	53.98	QP	257	1.1	V	-18.6	35.38	40	4.62
54.01	55.30	QP	240	1.4	V	-20.1	35.20	40	4.80
336.03	45.03	QP	332	1.5	V	-12.0	33.03	46	12.97
480.02	45.79	QP	30	1.1	V	-8.6	37.19	46	8.81
576.01	42.53	QP	100	1.1	V	-7.8	34.73	46	11.27

**Note:**

- 1) Corrected Factor=Antenna factor (RX) + cable loss – amplifier factor
- 2) Corrected Amplitude = Corrected Factor + Reading
- 3) Margin = Limit - Corrected Amplitude

**FCC §15.247(a) (1)-CHANNEL SEPARATION****Applicable Standard**

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

**Test Procedure**

1. Set the EUT in Operating mode, RBW was set at 100 kHz, VBW  $\geq$  3RBW maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another trace
3. Measure the channel separation.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

**FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH****Applicable Standard**

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

**Test Procedure**

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

**FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL****Applicable Standard**

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**Test Procedure**

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in hopping mode from first channel to last.
3. By using the max-hold function record the quantity of the channel.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).



**FCC §15.247(a) (1) (iii) -TIME OF OCCUPANCY (DWELL TIME)****Applicable Standard**

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**Test Procedure**

The EUT was worked in channel hopping; spectrum span was set as 0. Sweep was set as 0.4 X channel no. (s), the quantity of pulse was get from single sweep. In addition, the time of single pulses was tested.

Dwell Time= Pulse time (ms) \* hope rate/2/ number of hopping channels \* hopping No.\*0.4 s

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

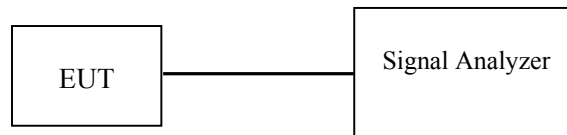
Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

**FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT****Applicable Standard**

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

**Test Procedure**

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
3. Add a correction factor to the display.

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Test Data**

Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

## FCC §15.247(d) - BAND EDGES

### Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Put it on the rotated table and turn on the EUT and make it operate in operating mode. Then set it to low channel and high channel within its operating range, and make sure the instrument is operated in its linear range.
3. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
4. Repeat above procedures until all measured frequencies were complete.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	837405/023	2013-05-31	2014-05-31

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

### Test Data

Test data is referred to FCC ID: UCZC2415, report No.: RSZ131105004-00, issued on 2014-01-23, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

**PRODUCT SIMILARITY DECLARATION LETTER**

Lorex Technology Inc.  
250 Royal Crest Court Markham, Ontario L3R 3S1 Canada  
Tel: 905 946 8589 Fax: 905 947 0138

2015-4-14

**Product Similarity Declaration**

To Whom It May Concern,

We, Lorex Technology Inc. , hereby declare that we have a product named as 2.4G Baby monitor BB2425, (Model number: BB2425) was tested by BACL, meanwhile, for our marketing purpose, we would like to list a series models (BB2425,BB2415,LB215, BB2415AC1) on reports and certificate, all the models are identical schematics. Only named differently due to different combination, for details as below:

Model No	Model description
BB2425	1 camera unit +1 monitor unit +1 charger unit
BB2415	1 camera unit +1 monitor unit
LB215	1 camera unit + 1 monitor unit with difference packaging
BB2415AC1	1 camera unit

No other changes are made to them.

We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

Signature:

Niles Kanapathipillai

Director Quality Assurance

\*\*\*\*\* END OF REPORT \*\*\*\*\*