



## **Baby-Tech Innovations**

Application  
For  
Certification  
**FCC ID: 2ABHX-AIV1000**

### **Product Description: Baby Monitor for Cars**

**Model: 1000-YG**  
**Additional Models: 1000-GM, 1000-BP**  
**2.4GHz Transmitter**

Report No.: 131209013SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-13]

Prepared and Checked by:

Approved by:

Sign on file

Benson Wang  
Assistant Engineer

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Billy Li  
Supervisor  
Date: February 25, 2014

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
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- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF: No.: FCC 15C\_TX\_b

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## INTERTEK TESTING SERVICES

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### LIST OF EXHIBITS

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# INTERTEK TESTING SERVICES

## MEASUREMENT/TECHNICAL REPORT

**Baby-Tech Innovations**

**Model: 1000-YG**

**Additional Models: 1000-GM, 1000-BP**

**FCC ID: 2ABHX-AIV1000**

This report concerns (check one:)      Original Grant ☒      Class II Change ☐

Equipment Type: DXX - Part 15 Low Power Communication Device Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?      Yes ☐      No ☒

If yes, defer until: \_\_\_\_\_  
date

Company Name agrees to notify the Commission by: \_\_\_\_\_  
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37?      Yes ☐      No ☒

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-13 Edition] provision.

Report prepared by:

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# INTERTEK TESTING SERVICES

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## INTERTEK TESTING SERVICES

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### List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
Test Report	20dB BW Plot	bw.pdf
Test Report	Average Factor	af.pdf
Test Report	Bandedge Plot	bandedge.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	agency.pdf
Cover Letter	Confidentiality Request	request.pdf

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 1**

### **GENERAL DESCRIPTION**

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### 1.0 General Description

#### 1.1 Product Description

The Equipment under Test (EUT) is a Baby monitor for Cars, model: 1000-YG operating at 2410 – 2475MHz with channel spacing 3.25MHz. The Baby Monitor for Cars consists of two parts – the monitor and the camera plush. The camera plush is a transmitter and the monitor is a receiver. The camera is designed to be powered by an embedded and an external DC 3.7V rechargeable battery. The battery can be charged by DC 5V USB output port of cigar charger or AC/DC adapter which has an input of 120VAC, 60Hz. For more detail information pls. refer to the user manual.

The Models: 1000-GM, 1000-BP are the same as the Model: 1000-YG in hardware aspect. The difference are appearance and model number serves as marketing strategy.

Antenna Type: Integral antenna.

Modulation Type: GFSK

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 1.2 Related Submittal(s) Grants

This is an application for certification of the transmitter for the Baby Monitor for Cars unit, and there is no corresponding unit for certification

#### 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). Radiated Emission measurement was performed in a Semi-anechoic chamber. Preliminary scans were performed in the Semi-anechoic chamber only to determine worst case modes. For each scan, the procedure for maximizing emissions in Appendices D and E were followed. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

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### 1.4 Test Facility

The Semi-Anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).



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## **EXHIBIT 2**

### **SYSTEM TEST CONFIGURATION**

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### **2.0    System Test Configuration**

#### **2.1    Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4: 2009.

The transmitter was powered by an embedded and an external DC 3.7V rechargeable battery. The battery was charged by an AC/DC adapters which was powered by AC 120V, 60Hz during the test.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### **2.2    EUT Exercising Software**

The EUT exercise program (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

#### **2.3    Special Accessories**

No special accessories used.

#### **2.4    Equipment Modification**

Any modifications installed previous to testing by Baby-Tech Innovations will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

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### 2.5 Measurement Uncertainty

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

### 2.6 Support Equipment List and Description

Description	Manufacturer	Model No.
Adaptor	TP-Link	T050100-2A3
210 cm unshielded USB Cable (marketed in one package with the EUT)	Baby-Tech Innovations	N/A

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 3**

### **EMISSION RESULTS**

## INTERTEK TESTING SERVICES

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### 3.0 Emission Results

Data is included worst-case configuration (the configuration which resulted in the highest emission levels).

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## INTERTEK TESTING SERVICES

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### 3.1 Radiated Test Results

A sample calculation, configuration photographs and data tables of the emissions are included.

#### 3.1.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

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

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  
               $AV$  = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where       $FS$  = Field Strength in dB $\mu$ V/m  
               $RR = RA - AG - AV$  in dB $\mu$ V  
               $LF = CF + AF$  in dB

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$RA = 52.0 \text{ dB}\mu\text{V/m}$$

$$AF = 7.4 \text{ dB}$$

$$CF = 1.6 \text{ dB}$$

$$AG = 29.0 \text{ dB}$$

$$AV = 5.0 \text{ dB}$$

$$FS = RR + LF$$

$$FS = 18 + 9 = 27 \text{ dB}\mu\text{V/m}$$

$$RR = 18.0 \text{ dB}\mu\text{V}$$

$$LF = 9.0 \text{ dB}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

## INTERTEK TESTING SERVICES

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### 3.1.2 Radiated Emission Configuration Photograph

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos. pdf.

### 3.1.3 Radiated Emissions

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission  
at  
144.009 MHz

Judgement: Passed by 1.0 dB

#### **TEST PERSONNEL:**

*Sign on file*

Benson Wang, Assistant Engineer  
*Typed/Printed Name*

February 17, 2014  
*Date*

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations

Date of Test: February 17, 2014

Model: 1000-YG

Sample: 1/1

Worst Case Operating Mode: transmitting and charging

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Horizontal	144.000	54.4	26.0	14.0	42.4	43.5	-1.1
Horizontal	240.005	53.9	26.0	16.9	44.8	46.0	-1.2
Horizontal	336.035	50.2	26.0	20.4	44.6	46.0	-1.4
Vertical	30.485	45.2	26.0	14.0	33.2	40.0	-6.8
Vertical	144.009	50.6	26.0	17.9	42.5	43.5	-1.0
Vertical	239.993	49.2	26.0	19.9	43.1	46.0	-2.9

NOTES: 1. Quasi-Peak detector is used except for others stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances 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 harmonic 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. All emissions are below the QP limit.



## INTERTEK TESTING SERVICES

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### 3.1.4 Transmitter Spurious Emissions (Radiated)

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission  
at  
7425 MHz

Judgement: Passed by 8.6 dB

#### **TEST PERSONNEL:**

*Sign on file*

Benson Wang, Engineer

*Typed/Printed Name*

February 17, 2014

*Date*

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations  
Model: 1000-YG  
Sample: 1/1  
Mode: Transmit (2410MHz)

Date of Test: February 17, 2014

Table 2

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2410.000	92.5	36.7	28.5	84.3	114.0	-29.7
Vertical	4820.000	59.4	36.7	28.5	51.2	74.0	-22.8
Vertical	7230.000	57.2	36.1	33.1	54.2	74.0	-19.8

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2410.000	92.5	36.7	28.5	16.8	67.5	94.0	-26.5
Vertical	4820.000	59.4	36.7	28.5	16.8	34.4	54.0	-19.6
Vertical	7230.000	57.2	36.1	33.1	16.8	37.4	54.0	-16.6

- Notes:
1. Peak Detector Data unless otherwise stated.
  2. All measurements were made at 3 meter. Harmonic 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 harmonic 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.

Test Engineer: Benson Wang

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations  
Model: 1000-YG  
Sample: 1/1  
Mode: Transmit (2442.5MHz)

Date of Test: February 17, 2014

Table 3

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2442.500	94.1	36.7	28.5	85.9	114.0	-28.1
Vertical	4885.000	59.5	36.7	28.5	51.3	74.0	-22.7
Vertical	7327.500	56.6	36.1	33.1	53.6	74.0	-20.4

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2442.500	94.1	36.7	28.5	16.8	69.1	94.0	-24.9
Vertical	4885.000	59.5	36.7	28.5	16.8	34.5	54.0	-19.5
Vertical	7327.500	56.6	36.1	33.1	16.8	36.8	54.0	-17.2

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic 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 harmonic 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.

Test Engineer: Benson Wang

TRF No.: FCC 15C\_TX\_b  
FCC ID: 2ABHX-AIV1000

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations  
Model: 1000-YG  
Sample: 1/1  
Mode: Transmit (2475MHz)

Date of Test: February 17, 2014

Table 4

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2475.000	94.9	36.7	28.6	86.8	114.0	-27.2
Vertical	4850.000	59.1	36.7	28.6	51.0	74.0	-23.0
Vertical	7425.000	64.9	36.1	33.4	62.2	74.0	-11.8

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
Vertical	2475.000	94.9	36.7	28.6	16.8	70.0	94.0	-24.0
Vertical	4850.000	59.1	36.7	28.6	16.8	34.2	54.0	-19.8
Vertical	7425.000	64.9	36.1	33.4	16.8	45.4	54.0	-8.6

Notes: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meter. Harmonic 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 harmonic 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.

Test Engineer: Benson Wang

## INTERTEK TESTING SERVICES

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### 3.2 Conducted Emission at Mains Terminal

#### 3.2.1 Conducted Emissions Configuration Photograph

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

#### 3.2.2 Conducted Emissions

Worst Case Conducted Configuration  
at  
0.414 MHz

Judgement: Passed by 9.9 dB margin

#### **TEST PERSONNEL:**

*Sign on file*

Benson Wang, Engineer

*Typed/Printed Name*

February 17, 2014

*Date*

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations

Date of Test: February 17, 2014

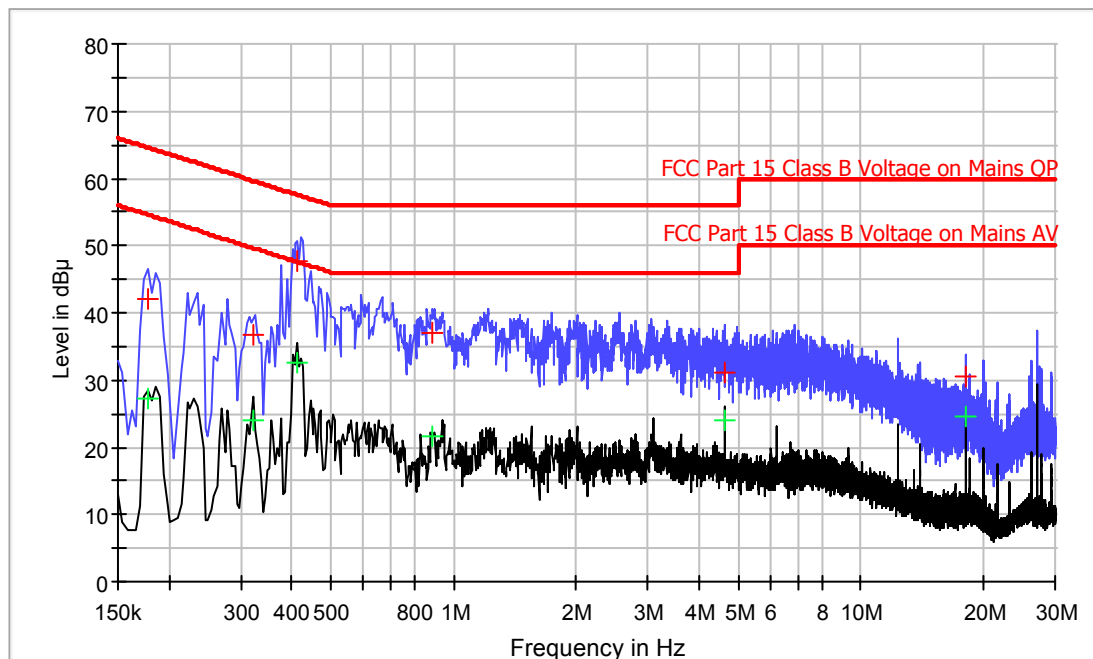
Model: 1000-YG

Sample: 1/1

Worst Case Operating Mode: transmitting and charging

### Conducted Emission Test - FCC

Pursuant to 15.207 Emissions Requirement



### Result Table QP

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.178000	42.1	L1	9.8	22.5	64.6
0.322000	36.7	L1	9.7	23.0	59.7
0.414000	47.7	L1	9.7	9.9	57.6
0.890000	37.1	L1	9.8	18.9	56.0
4.642000	31.1	L1	9.9	24.9	56.0
17.998000	30.4	L1	10.3	29.6	60.0

### Result Table AV

Frequency (MHz)	CAverage (dB $\mu$ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.178000	27.1	L1	9.8	27.5	54.6
0.322000	23.9	L1	9.7	25.8	49.7
0.414000	32.7	L1	9.7	14.9	47.6
0.890000	21.7	L1	9.8	24.3	46.0
4.642000	24.0	L1	9.9	22.0	46.0
17.998000	24.6	L1	10.3	25.4	50.0

TRF No.: FCC 15C\_TX\_b  
FCC ID: 2ABHX-AIV1000

## INTERTEK TESTING SERVICES

Applicant: Baby-Tech Innovations

Date of Test: February 17, 2014

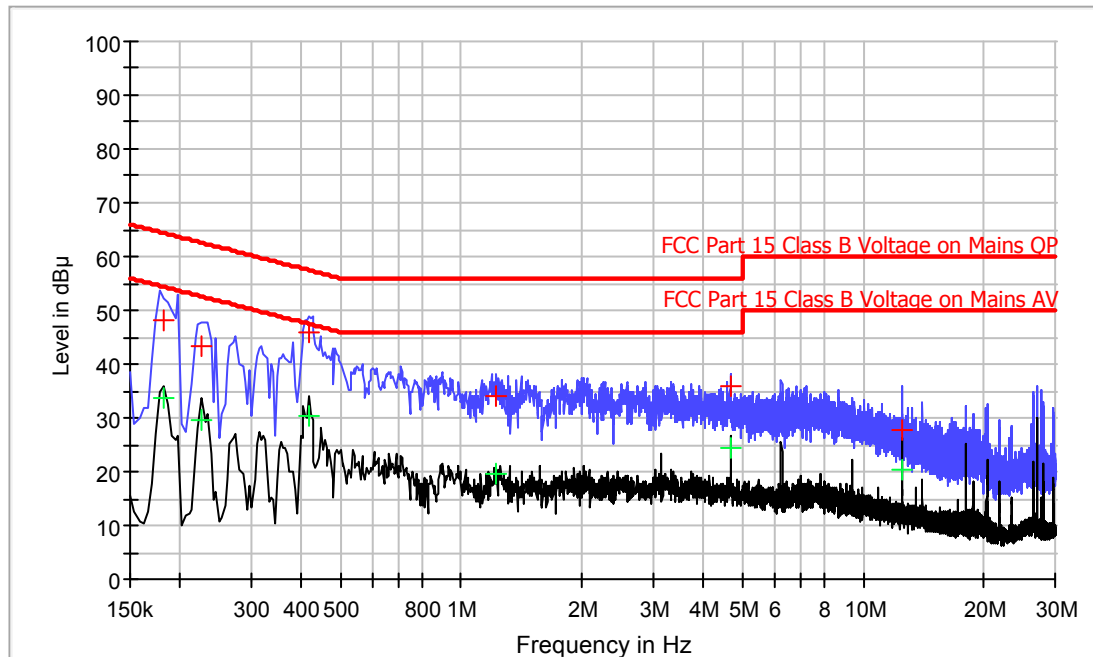
Model: 1000-YG

Sample: 1/1

Worst Case Operating Mode: transmitting and charging

### Conducted Emission Test - FCC

Pursuant to 15.207 Emissions Requirement



#### Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.182000	48.2	N	10.2	16.2	64.4
0.226000	43.3	N	10.2	19.3	62.6
0.418000	46.1	N	10.2	11.4	57.5
1.226000	34.1	N	10.3	21.9	56.0
4.694000	35.8	N	10.4	20.2	56.0
12.490000	27.8	N	10.6	32.2	60.0

#### Result Table AV

Frequency (MHz)	CAverage (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.182000	33.7	N	10.2	20.7	54.4
0.226000	29.5	N	10.2	23.1	52.6
0.418000	30.5	N	10.2	17.0	47.5
1.226000	19.6	N	10.3	26.4	46.0
4.694000	24.4	N	10.4	21.6	46.0
12.490000	20.4	N	10.6	29.6	50.0

TRF No.: FCC 15C\_TX\_b  
FCC ID: 2ABHX-AIV1000

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 4**

### **EQUIPMENT PHOTOGRAPHS**



## INTERTEK TESTING SERVICES

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### 4.0 Equipment Photographs

For electronic filing, the photographs of the tested EUT are saved with filename: external photos.pdf & internal photos.pdf.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 5**

### **PRODUCT LABELLING**

## INTERTEK TESTING SERVICES

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### 5.0 Product Labelling

For electronic filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

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## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 6**

### **TECHNICAL SPECIFICATIONS**

## INTERTEK TESTING SERVICES

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### 6.0 Technical Specifications

For electronic filing, the block diagram and schematics of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

# **INTERTEK TESTING SERVICES**

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## **EXHIBIT 7**

### **INSTRUCTION MANUAL**

## INTERTEK TESTING SERVICES

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### 7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

## **INTERTEK TESTING SERVICES**

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### **EXHIBIT 8**

### **MISCELLANEOUS INFORMATION**



## INTERTEK TESTING SERVICES

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### 8.0 Miscellaneous Information

This miscellaneous information includes details of the measured Bandwidth, the test procedure and calculation of factor such as pulse desensitization.

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### 8.1 Bandedge Plot

For electronic filing, the plot shows the fundamental emission when modulated is saved with filename: be.pdf. From the plot, the field strength of any emissions outside of the specified frequency band are attenuated to the general radiated emission limits in section 15.209. It fulfils the requirement of 15.249(d).

#### Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e ( Bandedge Plot).

#### **(i) Lower channel 2410MHz:**

Quasi-Peak Resultant field strength = Fundamental emissions (Quasi-peak value) – delta from the bandedge plot

$$\begin{aligned} &= 84.3\text{dB}\mu\text{v/m} - 41.1\text{dB} \\ &= 43.2\text{dB}\mu\text{v/m} \end{aligned}$$

#### **(ii) Upper channel 2475MHz:**

Quasi-Peak Resultant field strength = Fundamental emissions (Quasi-peak value) – delta from the bandedge plot

$$\begin{aligned} &= 86.8\text{dB}\mu\text{v/m} - 36.3\text{dB} \\ &= 50.5\text{dB}\mu\text{v/m} \end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dB $\mu$ v/m (Peak Limit) and 54dB $\mu$ v/m (Average Limit).

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### 8.1 Bandedge Plot (cont'd)

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 excepted variations in temperature and supply voltage were considered.

Figure 8.1 Bandwidth

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### 8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. The effective period ( $T_{\text{eff}}$ ) is approximately 1.9 ms for a digital "1" bit, as shown in the plots of Exhibit 8.3. With a resolution bandwidth (3 dB) of 100 kHz, the pulse desensitivity factor was 0 dB.

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### 8.3 Calculation of Average Factor

Averaging factor in dB =  $20 \log (\text{duty cycle})$

The specification for output field strengths in accordance with the FCC rules specify measurements with an average detector. During testing, a spectrum analyzer incorporating a peak detector was used. Therefore, a reduction factor can be applied to the resultant peak signal level and compared to the limit for measurement instrumentation incorporating an average detector.

The time period over which the duty cycle is measured is 100 milliseconds, or the repetition cycle, whichever is a shorter time frame. The worst case (highest percentage on) duty cycle is used for the calculation. The duty cycle is measured by placing the spectrum analyzer in zero scan (receiver mode) and linear mode at maximum bandwidth (3 MHz at 3 dB down) and viewing the resulting time domain signal output from the analyzer on a Tektronix oscilloscope. The oscilloscope is used because of its superior time base and triggering facilities.

A plot of the worst-case duty cycle as detected in this manner are saved with filename: af.pdf

The duty cycle is simply the on-time divided by the period:

The duration of one cycle = 13.2ms  
Effective period of the cycle = 1.9ms

$DC = 1.9\text{ms} / 13.2\text{ms} = 0.1439$  or 14.39%

Therefore, the averaging factor is found by  $20 \log_{10} 0.1439 = -16.8 \text{ dB}$

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### 8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2009.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions above 1GHz is in peak mode and Quasi-Peak mode is used below 1GHz.

The frequency range scanned is 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 40 GHz, whichever is lower.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

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### 8.4 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.4 - 2009.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

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### **EXHIBIT 9**

### **CONFIDENTIALITY REQUEST**



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### 9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

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### **EXHIBIT 10**

### **TEST EQUIPMENT LIST**

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### 10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	29-Jun-13	29-Jun-14
SZ185-01	EMI Receiver	R&S	ESCI	100547	12-Mar-13	12-Mar-14
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	27-Aug-13	27-Aug-14
SZ061-08	Horn Antenna	ETS	3115	00092346	26-Oct-13	26-Oct-14
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	13-May-13	13-May-14
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	12-Mar-13	12-Mar-14
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	12-Mar-13	12-Mar-14
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	03-Mar-13	03-Mar-14
SZ062-02	RF Cable	RADIAL	RG 213U	--	8-Jan-14	8-Jul-14
SZ062-06	RF Cable	RADIAL	0.04-26.5GHz	--	8-Jan-14	8-Jul-14
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	17-Oct-13	17-Apr-14
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	21-May-13	21-May-14
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	9-Nov-13	9-Nov-14
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	9-Nov-13	9-Nov-14
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	9-Nov-13	9-Nov-14
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-13	23-Aug-14