

Binatone Electronics International Limited

Application  
For  
Certification

2.4GHz Frequency Hopping Spread Spectrum Baby Unit

**(FCC ID: VLJ-MBP10BU)**

HK09080941-1

MN/ cl

September 14, 2009

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# INTERTEK TESTING SERVICES

## MEASUREMENT/TECHNICAL REPORT

**Binatone Electronics International Limited – MODEL: MBP10BU  
MBP10, MBP10-2**

**FCC ID: VLJ-MBP10BU**

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

Equipment Type: DSS-Part 15 Spread Spectrum 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 [10-01-08 Edition] provision.

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## EXHIBIT 1 SUMMARY OF TEST RESULTS

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### 1.0 Summary of Test

**Binatone Electronics International Limited - MODEL: MBP10BU  
MBP10, MBP10-2**

**FCC ID: VLJ-MBP10BU**

TEST	REFERENCE	RESULTS
Max. Output Power	15.247(b)(1)	Pass
Min. No. of Hopping Frequencies	15.247(a)(1)	Pass
Min. Hopping Channel Carrier Frequency Separation	15.247(a)(1)	Pass
Average Time of Occupancy	15.247(a)(1)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
Radiated Spurious Emissions	15.247(d) 15.109	Pass
AC Conducted Emission	15.207 15.107	Pass
Antenna Requirement	15.203	Pass (See Notes)
Radio Frequency Radiation Exposure	15.247(i)	Pass

Notes: The EUT uses a permanently attached antenna which, in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

**EXHIBIT 2  
GENERAL DESCRIPTION**

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## 2.0 General Description

### 2.1 Product Description

The Equipment Under Test (EUT) is a 2.4GHz Frequency Hopping Spread Spectrum Baby Unit of Digital Baby Monitor. It operates at frequency range of 2401.056MHz to 2482.272MHz, and it uses all 95 channels (95 channels are used for sending dummy signal and 19 channels are used for sending traffic bearer). The EUT is powered by a 100-240VAC to 6.0VDC 300mA switching AC adaptor. It has a power button and a find button to turn on the unit and page a corresponding parent unit respectively. After switching on the unit, it transmits a baby's voice to the corresponding parent unit.

Antenna Type : Integral, Internal

The Baby Unit of models: MBP10 and MBP10-2 are the same as the model: MBP10BU in hardware aspect. The difference between MBP10 and MBP10-2 is number of Parent Units in a package. The model: MBP10BU is an individual model number assigned for the Baby Unit.

The circuit description and frequency hopping algorithm are saved with filename: descri.pdf

### 2.2 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). Preliminary radiated scans were performed in the Open Area Test Sites only to determine worst case modes. 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 FCC Public Notice DA 00-705. All other measurements were made in accordance with the procedures in 47 CFR Part 2.

### 2.3 Test Facility

The open area test site and conducted measurement facility used to collect the data 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



## INTERTEK TESTING SERVICES

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### 3.0 System Test Configuration

#### 3.1 Justification

For 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 a 100-240VAC to 6.0VDC 300mA (Model: KSS05-060-0300U).

For the measurements, the EUT is attached to a plastic stand if necessary and placed on the wooden turntable. If the EUT attaches to peripherals, they are connected and operational (as typical as possible).

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

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.

Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz.

Radiated emission measurement were performed 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.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF*. The effective period ( $\tau_{eff}$ ) referred to TX ON time plot. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3 dB, the pulse desensitization factor was 0 dB.

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

As the baby unit has 2 antennas, both have been checked. While conducting the test on one of antennas, another one was being disable its transmission. The data in this report represented the worst-case.

#### 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 Special Accessories

There are no special accessories necessary for compliance of this product.

### 3.4 Measurement Uncertainty

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

### 3.5 Equipment Modification

Any modifications installed previous to testing by Binatone Electronics International Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Commercial & Electrical Division, Intertek Testing Services Hong Kong Ltd.

All the items listed under section 3.0 of this report are confirmed by:

*Confirmed by:*

*Nip Ming Fung, Melvin  
Supervisor  
Intertek Testing Services Hong Kong Ltd.  
Agent for Binatone Electronics International Ltd.*



\_\_\_\_\_  
Signature

\_\_\_\_\_  
September 14, 2009 Date

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**EXHIBIT 4  
MEASUREMENT RESULTS**

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.0 Measurement Results

#### 4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(1):

- The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
- The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set for RBW>20dB bandwidth and power was read directly in dBm. External attenuation and cable loss were compensated for using the OFFSET function of the analyser.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm).

(Baby Unit) Antenna Gain = 0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2401.056	20.47	111.43
Middle Channel: 2440.800	20.25	105.93
High Channel: 2482.272	19.92	98.17

Cable loss : 0.5 dB External Attenuation : N/A

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

dBm max. output level = 20.47 dBm (30dBm or less)

Please refer to the attached plots for details:

Plot B1A: Low Channel Output Power  
Plot B1B: Middle Channel Output Power  
Plot B1C: High Channel Output Power

For electronic filing, the above plots are saved with filename: maxop.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.2 Maximum 20 dB RF Bandwidth, FCC Rule 15.247(a)(1)(iii):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was chosen so that the display was a result of the hopping channel modulation. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 20 dB lower than PEAK level. The 20 dB bandwidth was determined from where the channel output spectrum intersected the display line.

(Baby Unit)	
Frequency (MHz)	20 dB Bandwidth (kHz)
2440.800	618

Refer to the following plots for 20 dB bandwidth:

Plot B2A: Low Channel 20 dB RF Bandwidth

Plot B2B: Middle Channel 20 dB RF Bandwidth

Plot B2C: High Channel 20 dB RF Bandwidth

For electronic filing, the above plots are saved with filename: 20dB.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.3 Minimum Number of Hopping Frequencies, FCC Rule 15.247(a)(1)(iii):

The RF passband of the EUT was divided into 5 approximately equal bands. With the analyzer set to MAX HOLD readings were taken for 2-3 minutes in each band. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

Baby Unit	
No. of hopping channels	95

Plot B3A-B3E: Number of Hopping Frequencies

Minimum Requirements: at least 15 hopping channels for 2400MHz-2483.5MHz.

For electronic filing, the above plots are saved with filename: chno.pdf

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

#### 4.4 Minimum Hopping Channel Carrier Frequency Separation, FCC Ref: 15.247(a)(1):

Using the DELTA MARKER function of the analyzer, the frequency separation between two adjacent channels was measured and compared against the limit.

25 kHz

20 dB bandwidth of hopping channel: 618kHz

2/3 of 20dB bandwidth of hopping channel:

Baby Unit	
Channel Separation	856kHz

Plot B4: Channel 46 and Channel 47

Requirement: The frequency separation is more than 20dB bandwidth of hopping channel.

For electronic filing, the above plots are saved with filename: fsepa.pdf

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.5 Average Channel Occupancy Time, FCC Ref: 15.247(a)(1)(iii):

The spectrum analyzer center frequency was set to one of the known hopping channels. The SWEEP was set to 10ms, the SPAN was set to ZERO SPAN, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

The SWEEP was then set to the time required by the regulation (20 seconds for 902-928 MHz devices, if the 20dB bandwidth is less than 250kHz, 10 seconds for 902-928 MHz if the 20dB bandwidth is or greater than 250kHz, "0.4 seconds x Number of hopping channels employed" seconds for 2400-2483.5 MHz, 30 seconds for 5725-5850 MHz). The analyzer was set to SINGLE SWEEP, the total ON time was added and compared against the limit (0.4 seconds).

Dummy Bearer: Average 0.4 seconds maximum occupancy in 38 seconds (0.4sec. x 95) for 2400MHz-2483.5MHz.

Baby Unit	
Average Occupancy Time = 0.252ms x 40	10.08 ms

Traffic Bearer: Average 0.4 seconds maximum occupancy in 7.6 seconds (0.4sec. x 19) for 2400MHz-2483.5MHz.

Baby Unit (worst-case: 2 Parent Units operation)	
Average Occupancy Time = (0.824ms x 2 + 0.252ms) x 40	76 ms

Refer to attached spectrum analyzer plots B5A-D.

For electronic filing, the above plots are saved with filename: avetime.pdf



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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.6 Out of Band Conducted Emissions, FCC Rule 15.247(d):

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the following plots for out of band conducted emissions data:

Plot B6A1 - B6A2: Low Channel Emissions  
Plot B6B1 - B6B2: Middle Channel Emissions  
Plot B6C1 - B6C2: High Channel Emissions  
Plot B6D1: Modulation Products Emissions\*

All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

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

\*This plot is shown the worst-case which has been already considered between enable and disable the hopping function of the EUT.

For electronic filing, the above plots are saved with filenames: obantcon.pdf

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.7 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

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. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.8 Radiated Spurious Emissions FCC Ref: 15.247(d), 15.109

- Not required – No digital part
- Test results are attached
- Included in the separated DoC report.

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.9 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 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$\begin{aligned} RA &= 62.0 \text{ dB}\mu\text{V} \\ AF &= 7.4 \text{ dB} \\ CF &= 1.6 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ PD &= 0 \text{ dB} \\ AV &= -10 \text{ dB} \\ FS &= 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm} [(32 \text{ dB}\mu\text{V/m})/20] = 39.8 \mu\text{V/m}$$

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.10 Radiated Emission Configuration Photograph - Baby Unit

Worst Case Restricted Band Radiated Emission  
at

73.000MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: config photos.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.11 Radiated Emission Data - Baby Unit

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Judgement : Passed by 6.4 dB margin

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### **TEST PERSONNEL:**



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*Tester Signature*

Koo Wai Ip, Engineer  
*Typed/Printed Name*

September 14, 2009  
*Date*

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU  
Mode : TX-Channel 0

Date of Test: August 24-27, 2009

Table 1, Baby Unit

**Radiated Emissions  
Pursuant to FCC 15.247(d) Emissions Requirement**

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4802.112	50.5	33	34.9	34.4	18.0	54.0	-36.0
H	*12005.280	44.8	33	40.5	34.4	17.9	54.0	-36.1

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4802.112	50.5	33	34.9	52.4	74.0	-21.6
H	*12005.280	44.8	33	40.5	52.3	74.0	-21.7

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. 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 used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU  
Mode : TX-Channel 46

Date of Test: August 24-27, 2009

Table 2, Baby unit

### Radiated Emissions Pursuant to FCC 15.247(d) Emission Requirement

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4881.600	50.4	33	34.9	34.4	17.9	54.0	-36.1
H	*7322.400	53.4	33	37.9	34.4	23.9	54.0	-30.1
H	*12204.000	44.9	33	40.5	34.4	18.0	54.0	-36.0

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
H	*4881.600	50.4	33	34.9	52.3	74.0	-21.7
H	*7322.400	53.4	33	37.9	58.3	74.0	-15.7
H	*12204.000	44.9	33	40.5	52.4	74.0	-21.6

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. 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 used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz.

Test Engineer: Koo Wai Ip



## INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited  
 Model: MBP10BU  
 Mode : TX-Channel 94

Date of Test: August 24-27, 2009

Table 3, Baby unit

### Radiated Emissions Pursuant to FCC 15.247(d) Emissions Requirement

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB $\mu$ V/m)	Average Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	**2482.272	120.8	33	29.4	34.4	82.8	--	--
H	*4964.544	50.4	33	34.9	34.4	17.9	54.0	-36.1
H	*7446.816	53.5	33	37.9	34.4	24.0	54.0	-30.0
H	*12411.360	44.8	33	40.5	34.4	17.9	54.0	-36.1

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB $\mu$ V/m)	Peak Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	**2482.272	120.8	33	29.4	117.2	--	--
H	*4964.544	50.4	33	34.9	52.3	74.0	-21.7
H	*7446.816	53.5	33	37.9	58.4	74.0	-15.6
H	*12411.360	44.8	33	40.5	52.3	74.0	-21.7

- NOTES:
1. Peak detector is used for the emission measurement.
  2. All measurements were made at 3 meters. 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 used for the emission over 1000MHz.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz.
- \*\* Fundamental emission was measured for determining band-edge compliance of using delta measurement technique.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU  
Mode: Talk

Date of Test: August 24-27, 2009

Table 4, Baby Unit

### Radiated Emissions Pursuant to FCC 15.247(d), 15.109 Emission Requirement

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	36.500	39.9	16	10.0	33.9	40.0	-6.1
V	*73.000	42.6	16	7.0	33.6	40.0	-6.4
V	*109.500	36.1	16	14.0	34.1	43.5	-9.4
H	146.000	36.5	16	14.0	34.5	43.5	-9.0
H	182.500	29.2	16	20.0	33.2	43.5	-10.3
H	219.000	31.8	16	17.0	32.8	46.0	-13.2

- NOTES:
1. Quasi-peak detector is used for the emission below or equal to 1000 MHz.
  2. All measurements were made at 3 meters. 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.
- \* Emission within the restricted band meets the requirement of part 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz.

Test Engineer: Koo Wai Ip

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

4.12 AC Line Conducted Emission, FCC Rule 15.207, 15.107:

Not required; battery operation only

Test data attached

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.13 AC Line Conducted Configuration Photograph – Baby Unit

Worst Case Line-Conducted Configuration  
at

3.795 MHz

For electronic filing, the worst case line conducted configuration photographs are saved with filename: config photos.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.14 AC Line Conducted Emission Data – Baby Unit

The data on the following pages list the significant emission frequencies, the limit, and the margin of compliance.

Judgement : Passed by 16.81 dB margin compared with quasi-peak limit

For electronic filing, the worst case line conducted emission data are saved with filename: conduct.pdf

### **TEST PERSONNEL:**



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*Tester Signature*

Koo Wai Ip, Engineer  
*Typed/Printed Name*

September 14, 2009  
*Date*

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.15 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The transmitter ON time was determined from the resultant time-amplitude display:

Baby Unit:

Duty cycle (DC) = Maximum ON time in 100ms/100ms  
= [(0.824ms x 2) + 0.252ms]/100ms for 2 Parent Units operation

Duty cycle correction, dB = 20\* log (DC)  
= 20\* log (0.019)  
= -34.4dB

X	See attached spectrum analyzer chart (s) for transmitter timing Baby Unit: Plot B7A and Plot B7B
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plots are saved with filenames: dcc.pdf

## INTERTEK TESTING SERVICES

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Company: Binatone Electronics International Limited  
Model: MBP10BU

Date of Test: August 24-27, 2009

### 4.16 Radio Frequency Radiation Exposure, FCC Rule 15.247(i):

EUT is subject to the radio frequency exposure requirements specified in FCC Rule §§ 1.1307. It shall be considered to operate in a “general population / uncontrolled” environment.

- Output power is greater than the applicable low threshold from TCB Exclusions List (17 July 2002). EUT was evaluated for Specific Absorption Rate (SAR) evaluation compliance according to OET Bulletin 65 Supplement C (Edition 01-01) and SAR Measurement Requirements for 3-6GHz (October 2006, Revised). It is in compliance with the SAR evaluation requirements. The caution statement specified in the user manual.
- EUT was evaluated for Maximum Permissible Exposure (MPE) evaluation compliance according to OET Bulletin 65, Supplement C (Edition 01-01). The evaluation calculation results are saved as filename: RF exposure.pdf

## INTERTEK TESTING SERVICES

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### 5.0 Equipment List

#### 1) Radiated Emissions Test

Equipment	Biconical Antenna	Double Ridged Guide Antenna	Broad-Band Horn Antenna with frequency range 14G - 40GHz
Registration No.	EW-0954	EW-1015	EW-1679
Manufacturer	EMCO	EMCO	SCHWARZBECK
Model No.	3104C	3115	BBHA9170
Calibration Date	Sep. 30, 2008	Jul. 28, 2008	Feb. 10, 2009
Calibration Due Date	Mar. 30, 2010	Jan. 28, 2010	Feb. 10, 2010

Equipment	Digital Multimeter	EMI Test Receiver	Spectrum Analyzer
Registration No.	EW-1237	EW-0014	EW-2188
Manufacturer	FLUKE	R&S	AGILENTTECH
Model No.	179	ESVS30	E4407B
Calibration Date	Sep. 01, 2008	Jun 01, 2009	Dec. 18, 2008
Calibration Due Date	Oct. 01, 2009	Jun 01, 2010	Dec. 18, 2009

Equipment	Log Periodic Antenna
Registration No.	EW-0446
Manufacturer	EMCO
Model No.	3146
Calibration Date	Oct. 02, 2008
Calibration Due Date	Apr. 02, 2010

#### 2) Conducted Emissions Test

Equipment	EMI Test Receiver	Pulse Limiter	Artificial Mains
Registration No.	EW-2251	EW-0698	EW-0192
Manufacturer	R&S	R&S	R&S
Model No.	ESCI	ESH3-Z2	ESH3-Z5
Calibration Date	Oct. 28, 2008	Feb. 03, 2009	Nov. 12, 2008
Calibration Due Date	Oct. 28, 2009	Feb. 03, 2010	Nov. 12, 2009

#### 3) Conductive Measurement Test

Equipment	Spectrum Analyzer
Registration No.	EW-2253
Manufacturer	R&S
Model No.	FSP40
Calibration Date	Aug. 12, 2008
Calibration Due Date	Nov. 12, 2009