

Binatone Electronics International Limited

Application
For
Certification

2.4GHz Frequency Hopping Spread Spectrum Parent Unit

(FCC ID: VLJ-MBP15PU)

HK09051499-1
MN/ cl
September 09, 2009

- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

Intertek Testing Services Hong Kong Ltd.

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.
Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: www.hk.intertek-ettsemko.com

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

**Binatone Electronics International Limited – Model: MBP15, MBP15-2,
MBP15PU**

FCC ID: VLJ-MBP15PU

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 [10-01-07
Edition] Provision.

Report prepared by:

Nip Ming Fung, Melvin
Intertek Testing Services Hong Kong Ltd.
2/F., Garment Centre,
576 Castle Peak Road,
Kowloon, Hong Kong.
Phone : 852-2173-8535
Fax: 852-2741-1693

INTERTEK TESTING SERVICES

Table of Contact

1.0 Summary of Test Results	4
2.0 General Description	6
2.1 Product Description	6
2.2 Related Submittal(s) Grants	6
2.3 Test Methodology	7
2.4 Test Facility	7
3.0 System Test Configuration	9
3.1 Justification	9
3.2 EUT Exercising Software	9
3.3 Special Accessories	10
3.4 Measurement Uncertainty	10
3.5 Equipment Modification	10
4.0 Measurement Results	12
4.1 Maximum Conducted Output Power at Antenna Terminals	12
4.2 Maximum 20 dB RF Bandwidth	13
4.3 Minimum Number of Hopping Frequencies	14
4.4 Minimum Hopping Channel Carrier Frequency Separation	15
4.5 Average Channel Occupancy Time	16
4.6 Out of Band Conducted Emissions	17
4.7 Transmitter Radiated Emissions in Restricted Bands	18
4.8 Radiated Spurious Emissions	19
4.9 Field Strength Calculation	20
4.10 Radiated Emission Configuration Photograph – Parent Unit	21
4.11 Radiated Emission Data – Parent Unit	22
4.12 AC Line Conducted Emission	27
4.13 AC Line Conducted Configuration Photograph – Parent Unit	28
4.14 AC Line Conducted Emission Data – Parent Unit	29
4.15 Transmitter Duty Cycle Calculation and Measurements	30
4.16 Radio Frequency Radiation Exposure	31
5.0 Equipment List	32
Appendix - Exhibit of Application for Certification	

INTERTEK TESTING SERVICES

EXHIBIT 1 SUMMARY OF TEST RESULTS

INTERTEK TESTING SERVICES

1.0 Summary of Test

**Binatone Electronics International Limited – Model: MBP15, MBP15-2,
MBP15PU**

FCC ID: VLJ-MBP15PU

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 Emissions 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.

INTERTEK TESTING SERVICES

EXHIBIT 2 GENERAL DESCRIPTION

INTERTEK TESTING SERVICES

2.0 General Description

2.1 Product Description

The Equipment Under Test (EUT) is a 2.4GHz Frequency Hopping Spread Spectrum of Parent Unit of Baby Monitor system. It operates at 2401.056MHz to 2482.272MHz. There are total of 95 channels, and 19 channels are used for the communication environment. The EUT is powered by 2 x "AAA" "Ni-MH" type rechargeable battery. There are power and volume button to turn on and adjust volume. Besides, there are 3 buttons, "menu", "OK" and talk for menu selection, confirmation, and communicate with corresponding baby unit respectively.

Antenna Type : Integral, Internal

The Model: MBP15-2 and MBP15PU are the same as the Model: MBP15 in hardware aspect except different number of parent unit and charger. The difference in model number serves as marketing strategy.

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

2.2 Related Submittal(s) Grants

This is an application for certification of a transmitter. The baby unit, associated with this parent unit, has FCC ID: VLJ-MBP15BU and has been filed at the same time.

INTERTEK TESTING SERVICES

2.3 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.

2.4 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.

INTERTEK TESTING SERVICES

**EXHIBIT 3
SYSTEM TEST CONFIGURATION**

INTERTEK TESTING SERVICES

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 6VDC 300mA switching AC adaptor (Model: KSS05-060-0300 U) and/or 2.4V 600mAh "Ni-MH" type rechargeable battery pack.

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. The spurious emissions more than 20 dB below the permissible value are not reported.

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 (τ_{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.

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.

INTERTEK TESTING SERVICES

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 test has been considered.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by Binatone Electronics International Limited 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
Agent for Binatone Electronics International Limited*



Signature

September 09, 2009 Date

INTERTEK TESTING SERVICES

**EXHIBIT 4
MEASUREMENT RESULTS**

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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 0.125 watt (+21 dBm).

(Parent Unit) Antenna Gain = 0 dBi		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2401.056	20.38	109.14
Middle Channel: 2440.800	20.16	103.75
High Channel: 2482.272	19.99	99.77

Cable loss : 0.5 dB External Attenuation : 0 dB

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

dBm max. output level = 20.38 dBm (21dBm or less)

Please refer to the attached plots for details:

Plot P1A: Low Channel Output Power
Plot P1B: Middle Channel Output Power
Plot P1C: High Channel Output Power

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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.

(Parent Unit)	
Frequency (MHz)	20 dB Bandwidth (kHz)
2482.272	654

Refer to the following plots for 20 dB bandwidth:

- Plot P2A: Low Channel 20 dB RF Bandwidth
- Plot P2B: Middle Channel 20 dB RF Bandwidth
- Plot P2C: High Channel 20 dB RF Bandwidth

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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

The RF passband of the EUT was divided into 1 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.

Parent Unit	
No. of hopping channels	19

Plot P3A-P3E: number of Hopping Separation

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

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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:

2/3 of 20dB bandwidth of hopping channel: 436kHz

Parent Unit	
Channel Separation	864kHz

Plot P4: Channel 11 & Channel 12

Requirement: The frequency separation is more than 2/3 of 20dB bandwidth of hopping channel.

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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).

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

Parent Unit (for double-slot operation)	
Average Occupancy Time = 0.820ms x 2 x 40	65.6 ms

Refer to attached spectrum analyzer plots P5A-B

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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 P6A1 - P6A2: Low Channel Emissions
Plot P6B1 - P6B2: Middle Channel Emissions
Plot P6C1 - P6C2: High Channel Emissions
Plot P6D1 - P6D2: 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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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.

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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 μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

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

Example

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 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 μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

$$RA = 62.0 \text{ dB}\mu\text{V}$$

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

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

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

$$PD = 0 \text{ dB}$$

$$AV = -10 \text{ dB}$$

$$FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32 \text{ dB}\mu\text{V/m}$$

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

4.10 Radiated Emission Configuration Photograph – Parent Unit

Worst Case Restricted Band Radiated Emission
at

4881.600 & 4964.544 MHz

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

4.11 Radiated Emission Data – Parent Unit

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

Judgement : Passed by 1.6 dB margin compared with peak limit

TEST PERSONNEL:



Tester Signature

Koo Wai Ip, Engineer
Typed/Printed Name

September 09, 2009
Date

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15
Mode : TX-Channel 0

Table 1, Parent Unit

Radiated Emissions
Pursuant to FCC 15.247(d) Emissions Requirement

Polari- zation	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
H	*4802.112	70.4	33	34.9	35.7	36.6	54.0	-17.4
H	*12005.280	45.7	33	40.5	35.7	17.5	54.0	-36.5

Polari- zation	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
H	*4802.112	70.4	33	34.9	72.3	74.0	-1.7
H	*12005.280	45.7	33	40.5	53.2	74.0	-20.8

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna 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 Date of Test: May 29-June 12, 2009
Model: MBP15
Mode : TX-Channel 46

Table 2, Parent Unit

Radiated Emissions Pursuant to FCC 15.247(d) Emissions Requirement

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
H	*4881.600	70.5	33	34.9	35.7	36.7	54.0	-17.3
V	*7322.400	62.3	33	37.9	35.7	31.5	54.0	-22.5
H	*12204.000	45.9	33	40.5	35.7	17.7	54.0	-36.3

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
H	*4881.600	70.5	33	34.9	72.4	74.0	-1.6
V	*7322.400	62.3	33	37.9	67.2	74.0	-6.8
H	*12204.000	45.9	33	40.5	53.4	74.0	-20.6

- NOTES:
1. Peak detector is used for the emission measurement.
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna 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 Date of Test: May 29-June 12, 2009
 Model: MBP15
 Mode : TX-Channel 94

Table 3, Parent Unit

Radiated Emissions Pursuant to FCC 15.247(d) Emissions Requirement

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Average Factor (dB)	Calculated at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
H	2482.272	118.9	33	29.4	35.7	79.6	--	--
H	*4964.544	70.5	33	34.9	35.7	36.7	54.0	-17.3
V	*7446.816	62.3	33	37.9	35.7	31.5	54.0	-22.5
H	*12411.360	45.9	33	40.5	35.7	17.7	54.0	-36.3

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
H	2482.272	118.9	33	29.4	115.3	--	--
H	*4964.544	70.5	33	34.9	72.4	74.0	-1.6
V	*7446.816	62.3	33	37.9	67.2	74.0	-6.8
H	*12411.360	45.9	33	40.5	53.4	74.0	-20.6

- NOTES: 1. Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna 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 Date of Test: May 29-June 12, 2009
Model: MBP15
Mode: Talk

Table 4, Parent Unit

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

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
V	55.300	39.9	16	11.0	34.9	40.0	-5.1
V	*110.600	33.9	16	14.0	31.9	43.5	-11.6
H	*165.900	31.8	16	17.0	32.8	43.5	-10.7
H	221.200	32.6	16	17.0	33.6	46.0	-12.4
H	*276.500	27.4	16	22.0	33.4	46.0	-12.6
H	*331.800	24.6	16	24.0	32.6	46.0	-13.4

- NOTES: 1. Quasi-peak detector is used for the emission below or equal to 1000 MHz.
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
- * 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 Date of Test: May 29-June 12, 2009
Model: MBP15

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

Not required; battery operation only

Test data attached

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

4.13 AC Line Conducted Configuration Photograph – Parent Unit

Worst Case Line-Conducted Configuration
at

4.677 MHz

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

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

4.14 AC Line Conducted Emission Data – Parent Unit

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

Judgement : Passed by more than 18.18 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:



Tester Signature

Koo Wai Ip, Engineer
Typed/Printed Name

September 09, 2009
Date

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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:

Parent Unit:

$$\begin{aligned} \text{Duty cycle (DC)} &= \text{Maximum ON time in } 100\text{ms}/100\text{ms} \\ &= (0.820\text{ms} \times 2)/100\text{ms} \end{aligned}$$

$$\begin{aligned} \text{Duty cycle correction, dB} &= 20 * \log (\text{DC}) \\ &= 20 * \log (0.0164) \\ &= -35.7\text{dB} \end{aligned}$$

X	See attached spectrum analyzer chart (s) for transmitter timing Parent Unit: Plot P7
	See transmitter timing diagram provided by manufacturer
	Not applicable, duty cycle was not used.

For electronic filing, the above plot is saved with filenames: dcc.pdf

INTERTEK TESTING SERVICES

Company: Binatone Electronics International Limited Date of Test: May 29-June 12, 2009
Model: MBP15

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 less than the applicable low threshold from the SAR evaluation. The evaluation calculation results are saved as filename: RF exposure.pdf

- 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 info.pdf.

INTERTEK TESTING SERVICES

5.0 Equipment List

1) Radiated Emissions Test

Equipment	Biconical Antenna	Log Periodic Antenna	Double Ridged Guide Antenna
Registration No.	EW-0954	EW-0446	EW-1015
Manufacturer	EMCO	EMCO	EMCO
Model No.	3104C	3146	3115
Calibration Date	Sep. 30, 2008	Oct. 02, 2008	Jul. 28, 2008
Calibration Due Date	Mar. 30, 2010	Apr. 02, 2010	Jan. 28, 2010

Equipment	EMI Test Receiver	Spectrum Analyzer	Broad-Band Horn Antenna
Registration No.	EW-0016	EW-2188	EW-1679
Manufacturer	R&S	AGILENTTECH	SCHWARZBECK
Model No.	ESVS30	E4407B	BBHA9170
Calibration Date	Apr. 14, 2009	Dec. 18, 2008	Feb. 10, 2009
Calibration Due Date	Apr. 14, 2010	Dec. 18, 2009	Feb. 10, 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-1792
Manufacturer	R&S
Model No.	FSP40
Calibration Date	Feb. 02, 2009
Calibration Due Date	Feb. 02, 2010

INTERTEK TESTING SERVICES

APPENDIX EXHIBITS OF APPLICATION FOR CERTIFICATION