# TEST REPORT

**Date: 2014-04-21**
**Report No.: 60.870.14.003.03F**

| | | |
|---|---|---|
| **Applicant:** | Binatone Electronics International Limited<br>Floor 23, 9 Des Voeux Road West, Sheung Wan, Hong Kong | |
| **Description of Samples:** | Model name: | Video Baby Monitor (Baby Unit) |
| | Brand name: | motorola |
| | Model no.: | MBP36SPU, SCOUT36SPU, FOCUS36SPU |
| | FCCID: | VLJ-MBP36SPU |
| **Date Samples Received:** | 2014-02-19 | |
| **Date Tested:** | 2014-02-20 to 2014-04-12 | |
| **Investigation Requested:** | FCC Part 15 Subpart B | |
| **Conclusions:** | The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report. | |

**Remarks:**

Checked by:

Ray Cheung
Project Engineer
Wireless & Telecom department

Approved by:-

Jeff Pong
Operation Manager
Wireless & Telecom department

**CONTENT:**

## 1.0 General Details

### 1.1 Test Laboratory

Attestation of Global Compliance SZ Co Ltd.
2/F, Building 2,No.1-No.4,Chaxi Sanwei, Technical Industrial Park, Gushu, Xixiang, Shenzhen, China.
Registration Number: 259865

Tested by:

John Zhi

### 1.2 Applicant Details

**Applicant**

**Binatone Electronics International Ltd.**
Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong

**Manufacturer**

**VTech(Dongguan) Telecommunications Limted**
VTech Science Park, Xia Ling Bei Management Zone, Liaobu, Dongguan, Guandong, China

## 1.3 Equipment Under Test [EUT]

**Description of Sample**

| | |
|---|---|
| Product Description: | Video Baby Monitor (Parent Unit) |
| Model No: | MBP36SPU, SCOUT36SPU, FOCUS36SPU |
| Brand Name: | motorola |
| FCCID: | VLJ-MBP36SPU |
| Rating: | DC 5.0V, 600mA powered by AC/DC power adaptor<br>Or<br>DC 3.6V 900mAh (Ni-MH package rechargeable battery) |
| Accessories and Auxiliary Equipment: | AC/DC Adaptor, Computer |
| EUT Exercising Software: | None |

**Description of EUT**

The Equipment Under Test (EUT) is a Monitor of Wireless Monitoring System.

As per Client Declaration, the circuit design, PCB Layout, shielding and interface of MBP36SPU, SCOUT36SPU & FOCUS36SPU are identical. So we use MBP36SPU as a representative model to perform all testing.

## 1.4 Equipment Modification

No modification was conducted on the tested sample by TUV SUD Hong Kong Ltd.

## 1.5 Related Submittal(s) Grants

This is a signal application subjected to Certificate Authorization.

## 2.0 Technical Details

### 2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2012 and ANSI C63.4: 2009

### 2.2 Test Standards and Results Summary Tables

| EMISSION<br>Results Summary | | | | | |
|---|---|---|---|---|---|
| Test Condition | FCC Test Requirement | Class / Severity | Test Result | | |
| | | | Pass | Failed | N/A |
| Radiated Emissions, 30MHz to 4.5GHz | Part 15.109 | Class B | ☒ | ☐ | ☐ |
| Conducted Emissions on AC, 0.15MHz to 30MHz | Part 15.107 | Class B | ☒ | ☐ | ☐ |

Note: N/A - Not Applicable

## 3.0 Test Methodology

### 3.1 Radiated Emission

The sample was placed 0.8m above the ground plane on a standard emission test site *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

### 3.2 Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

FS = R + System Factor
System Factor = AF + CF + FA – PA

Where FS = Net Field Strength in dBuV/m at 3 meters.
R = Reading of Spectrum Analyzer / Test Receiver in dBuV.
AF = Antenna Factor in dB.
CF = Cable Attenuation Factor in dB.
FA = Filter Attenuation Factor in dB.
PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

### 3.3 Conducted Emissions

The EUT was placed on a non-metallic table 0.8m above the horizontal metal reference place and 0.4m from a vertical ground plane which is connected to the horizontal metal ground plane. Meanwhile, the AC main of EUT was connected to the distance of 0.8m line impedance stabilization network (LISN) during measurement.

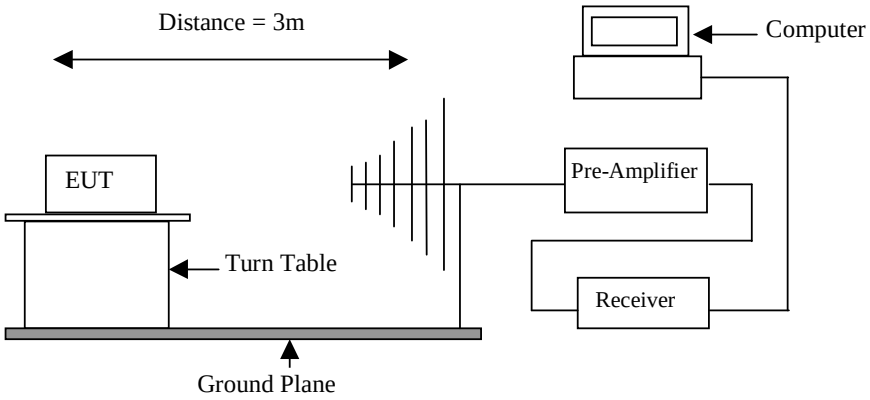
Initial measurements were performed in quasi-peak and average detection modes by the test receiver, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

## 4.0 Test Results

### 4.1 Spurious Radiated Emissions ( 30MHz to 4.5GHz )

| | |
|---|---|
| Test Requirement: | FCC Part 15 section 15.109 Class B |
| Test Method: | ANSI C63.4:2009 |
| Test Date: | 2014-03-10 |
| Mode of Operation: | PC Communication mode |
| Detector Function: | Quasi-peak (Below 1000 MHz)<br>Average (Above 1000 MHz) |
| Measurement BW: | 120 kHz (Below 1000 MHz)<br>1 MHz (Above 1000 MHz) |

**Test Setup:**



**Results: PASS**

| Radiated Emissions | | | | | |
|---|---|---|---|---|---|
| Emissions Frequency **MHz** | Value | E-Field Polarity | Field Strength at 3m **dBuV/m** | Limit **dBuV/m** | Delta to Limit **dBuV/m** |
| 53.72 | QP | V | 34.83 | 40.00 | -5.17 |
| 192.04 | QP | V | 34.14 | 43.50 | -9.36 |
| 288.08 | QP | V | 38.32 | 46.00 | -7.68 |
| 456.12 | QP | V | 40.30 | 46.00 | -5.70 |
| 665.88 | QP | V | 38.66 | 46.00 | -7.34 |
| 827.72 | QP | V | 39.35 | 46.00 | -6.65 |
| 139.64 | QP | H | 39.61 | 43.50 | -3.89 |
| 160.44 | QP | H | 38.80 | 43.50 | -4.70 |
| 237.68 | QP | H | 38.37 | 46.00 | -7.63 |
| 263.56 | QP | H | 34.24 | 46.00 | -11.76 |
| 665.36 | QP | H | 34.28 | 46.00 | -11.72 |

Note:

- No further spurious emissions found between 30 MHz and lowest internal used/generated frequency.
- Result data graph is attached at the page 11 to page12 for reference.

Remark:

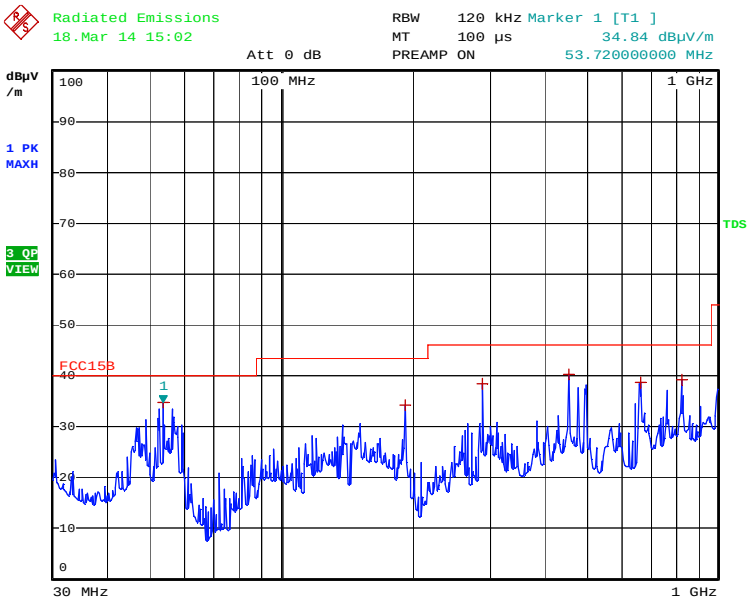
- Calculated measurement uncertainty: ±5.0dB .

**Limits for Radiated Emissions [ Section 15.109 Class B] :**

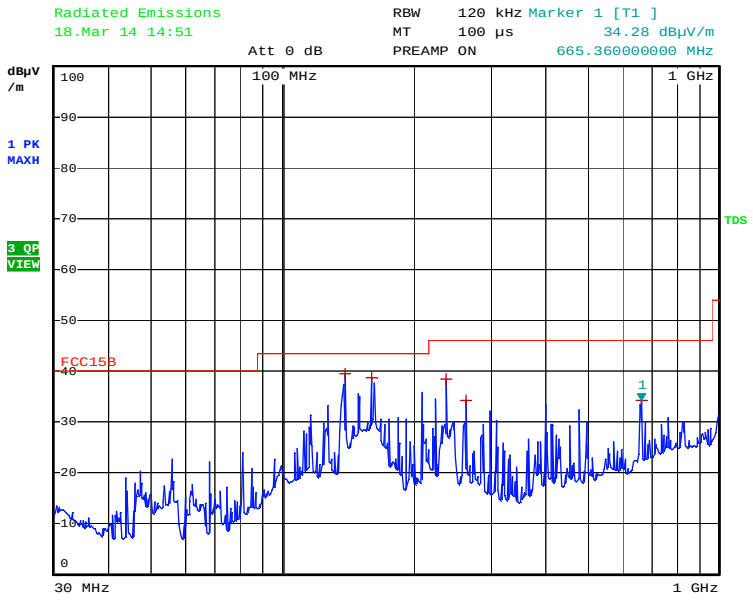
| Frequency Range [MHz] | Quasi-Peak Limits [μV/m] |
|---|---|
| 30-88 | 100 |
| 88-216 | 150 |
| 216-960 | 200 |
| Above960 | 500 |

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

## Vertical



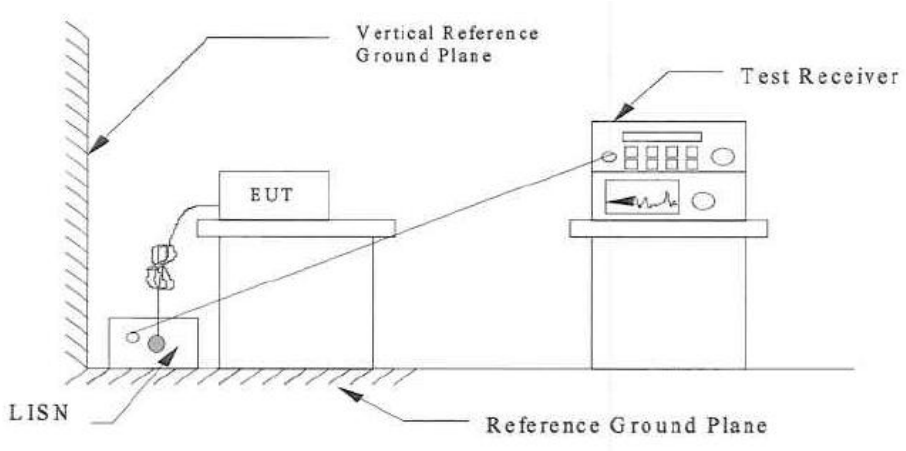

## Horizontal



## 4.2 Conducted Emissions (0.15MHz to 30MHz)

| | |
|---|---|
| Test Requirement: | FCC part 15 Section 15.107 Class B |
| Test Method: | ANSI C63.4:2003 |
| Test Date: | 2014-03-10 |
| Mode of Operation: | Transmitting mode |
| Detector Function | Quasi-peak, average |
| Measurement BW | 9kHz (150kHz to 30MHz) |

**Test Setup:**




**Result: PASS**

**Refer Figures and tables for the result.**

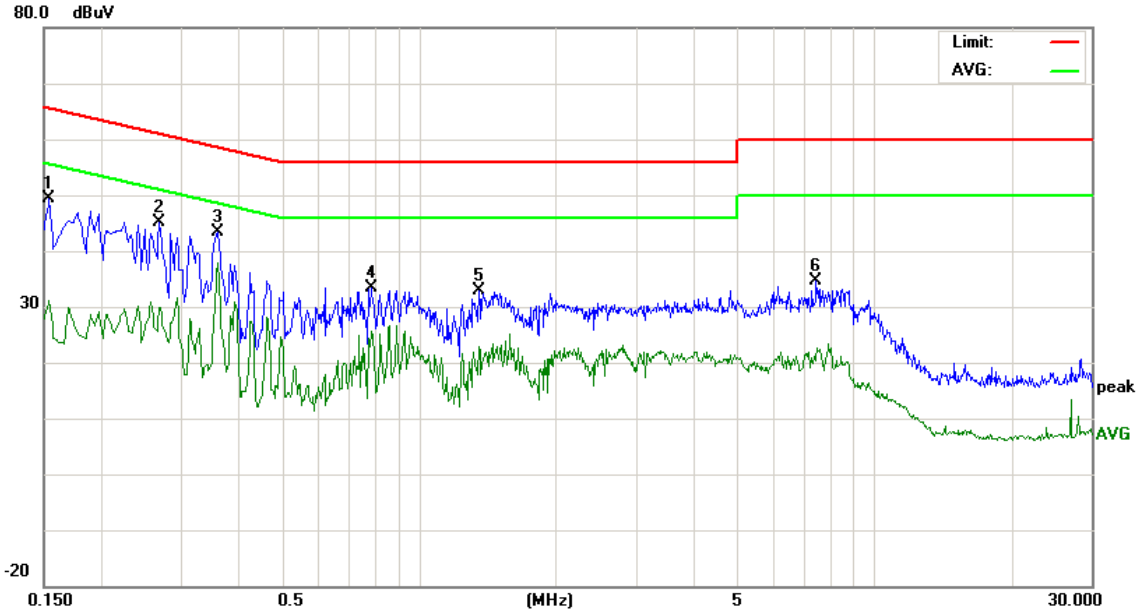
**Limits for Conducted Emission [ Section 15.107]:**

| Frequency Range [MHz] | Quasi-Peak Limit [dBµV] | Average Limit [dBµV] |
|---|---|---|
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5.0 | 56 | 46 |
| 5.0-30.0 | 60 | 50 |

* Decreases with the logarithm of the frequency.

Remarks:
Calculated measurement uncertainty: ±2.8dB

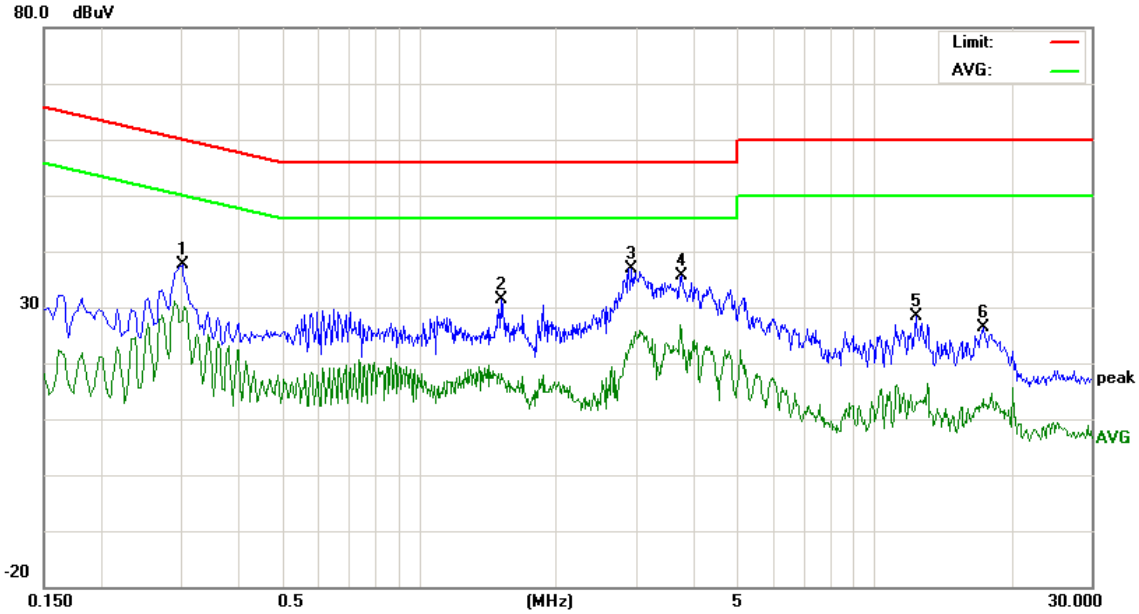
**Result data graph shows the conducted emission (Live).**




Refer to the following table for the result details:

| Conducted Emission | | | | | |
|---|---|---|---|---|---|
| Frequency (MHz) | Detector (QP/AV) | Phase | Result (dBµV) | Limit (dBµV) | Margin |
| 0.154 | QP | L | 49.26 | 65.78 | -16.52 |
| 0.270 | QP | L | 45.10 | 61.12 | -16.02 |
| 0.362 | QP | L | 43.35 | 58.68 | -15.33 |
| 0.786 | QP | L | 33.47 | 56.00 | -22.53 |
| 1.358 | QP | L | 32.82 | 56.00 | -23.18 |
| 7.486 | QP | L | 34.67 | 60.00 | -25.33 |

**Result data graph shows the conducted emission (Neutral).**




Refer to the following table for the result details:

| Conducted Emission | | | | | |
|---|---|---|---|---|---|
| Frequency (MHz) | Detector (QP/AV) | Phase | Result (dBµV) | Limit (dBµV) | Margin |
| 0.150 | QP | N | 46.17 | 65.99 | -19.82 |
| 0.178 | QP | N | 44.91 | 64.57 | -19.66 |
| 0.354 | QP | N | 44.00 | 58.87 | -14.87 |
| 0.774 | QP | N | 34.64 | 56.00 | -21.36 |
| 1.114 | QP | N | 33.13 | 56.00 | -22.87 |
| 7.702 | QP | N | 38.94 | 60.00 | -21.06 |

## 5.0 List of Measurement Equipment

**Radiated Emission Test**

| Description | Manufacturer | Model no. | Serial no. | CAL due |
|---|---|---|---|---|
| N/A | 3m Semi- Anechoic Chamber | 9.0(L)*6.0(W)* 6.0(H) | N/A | Jul. 16 2014 |
| Agilent | Spectrum Analyzer | E4440A | US41421290 | Jul. 16 2014 |
| R&S | EMI Test Receiver | ESCI | 100694 | Jul. 16 2014 |
| A.H. | Wideband Antenna | SAS-521-4 | 26 | Jul. 16 2014 |
| EMCO | Antenna | 3142C | 60447 | Jul. 16 2014 |
| EM | Horn Antenna | EM-AH-10180 | 67 | Jul. 16 2014 |
| EM | Power Amplifier | EM30180 | 0607030 | Jul. 16 2014 |
| MF | Position Controller | MF-7802 | MF780208138 | N/A |

**Conducted Emissions**

| Description | Manufacturer | Model no. | Serial no. | CAL due |
|---|---|---|---|---|
| N/A | Shielding Room | 7.(L)x4(W)x3(H) | N/A | Jul. 16 2014 |
| R&S | EMI Test Receiver | ESCI | 100694 | Jul. 16 2014 |
| R&S | LISN | ESH3-Z5 | 8389791009 | Jul. 16 2014 |

Remarks:
CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined