



Most Technology Service Co., Ltd.  
Tel: (86) 755-26825180 Fax: (86) 755-86170310  
Http:// www. szmost.com Email: szmost@szmost.com

**Test Report**

Product Name: Maliblu Bluetooth Mouse

FCC ID: VSU-GA6281  
MODEL NO. : GA-6281-06

Applicant:

**SHENZHEN QUANNUO ELECTRONICS LTD.**  
**3<sup>rd</sup> FL., BLOCK 1 WEST WING, TIAN FU AN IND. ZONE,**  
**JI XIANG(LEZHUJIAO), BAOAN DISTRICT, SHENZHEN GUANGDONG, CHINA**

**Date Received: 12/11/2007-12/12/2007**

**Date Tested: 12/12/2007**

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Cover Sheet



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## EMC Equipment List

| Equipment                      | Manufacturer  | Model No.      | Serial No.   | Last Cal.   | Cal. Interval |
|--------------------------------|---------------|----------------|--------------|-------------|---------------|
| EMI Test Receiver              | ROHDE&SCHWARZ | ESCI           | 100492       | Apr 06,2007 | 1 Year        |
| LISN                           | ROHDE&SCHWARZ | ENV216         | 100093       | Apr 06,2007 | 1 Year        |
| EMI Test Receiver              | ROHDE&SCHWARZ | ESCI           | 101202       | Apr 06,2007 | 1 Year        |
| Spectrum Analyzer              | ANRITSU       | MS2651B        | 6200238316   | Apr 06,2007 | 1 Year        |
| 50Ω Coaxial Switch             | ANRITSU CORP  | MP59B          | 6200283933   | Apr 06,2007 | 1 Year        |
| Bilog Antenna                  | Sunol         | JB3            | A121206      | Apr 06,2007 | 1 Year        |
| Horn Antenna                   | EMCO          | 3115           | 640201028-06 | Apr 06,2007 | 1 Year        |
| 50Ω Coaxial Switch             | ANRITSU CORP  | MP59B          | 6200283933   | Apr 06,2007 | 1 Year        |
| Cable                          | Resenberger   | N/A            | NO.1         | Apr 06,2007 | 1 Year        |
| Cable                          | SCHWARZBECK   | N/A            | NO.2         | Apr 06,2007 | 1 Year        |
| Cable                          | SCHWARZBECK   | N/A            | NO.3         | Apr 06,2007 | 1 Year        |
| Single Phase Power Line Filter | Kikusui       | LIN40MA-PC R-L | LM002352     | Apr 06,2007 | 1 Year        |
| AC Power Source                | Kikusui       | AC40MA         | LM003232     | Apr 06,2007 | 1 Year        |
| Test analyzer                  | Kikusui       | KHA1000        | LM003720     | Apr 06,2007 | 1 Year        |
| ESD Tester                     | Kikusui       | KES4021        | LM003537     | Apr 08,2007 | 1 Year        |
| Signal Generator               | IFR           | 2032           | 203002/100   | Apr 08,2007 | 1 Year        |
| Amplifier                      | A&R           | 150W1000       | 301584       | NCR         | NCR           |
| Dual Directional Coupler       | A&R           | DC6080         | 301508       | Apr 06,2007 | 1 Year        |
| Power Head                     | A&R           | PH2000         | 301193       | Apr 06,2007 | 1 Year        |
| Power Meter                    | A&R           | PM2002         | 302799       | Apr 06,2007 | 1 Year        |
| Field Monitor                  | A&R           | FM5004         | 300329       | Apr 06,2007 | 1 Year        |
| Field Probe                    | A&R           | FP5000         | 300221       | Apr 06,2007 | 1 Year        |
| EMCPRO System                  | EM Test       | UCS-500-M4     | V0648102026  | Apr 06,2007 | 1 Year        |
| EMCPRO System                  | EM Test       | UCS-500-M4     | V0648102026  | Apr 06,2007 | 1 Year        |

Remark:

Test Firm Name: Most Technology Service Co., Ltd.

Test Firm Address:

No. 5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China

FCC Registered Test Site Number: 490827



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## TEST PROCEDURE

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of MOST TECHNOLOGY SERVICE CO., LTD. The EUT was transmitting a test signal during the testing.

**POWER LINE CONDUCTED INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a 50 uH LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25 °C with a humidity of 58%.

**RADIATION INTERFERENCE:** The test procedure used was ANSI Standard C63.4-2003 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100 kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. The ambient temperature of the EUT was 25°C with a humidity of 58%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz) METER READING + ACF + CABLE = FS  
33 20 dBuV + 10.36 dB + 0.9 dB = 31.26 dBuV/m @ 3m

**ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10th harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings were converted to average readings based on the duration of "ON" time.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard C63.4-2003 10.1.7 with the EUT 40 cm from the vertical ground wall.



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**APPLICANT:** SHENZHEN QUANNUO ELECTRONICS LTD.

**FCC ID:** VSU-GA6281

**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:**

| FIELD STRENGTH of Fundamental: | FIELD STRENGTH of Harmonics | S15.209                                    |
|--------------------------------|-----------------------------|--|
| 902-928 MHZ                    |                             | 30 - 88 MHz 40 dBuV/m @3M                  |
| 2.4-2.4835 GHz                 |                             | 88 - 216 MHz 43.5                          |
| 94 dBuV/m @3m                  | 54 dBuV/m @3m               | 216 - 960 MHz 46<br>ABOVE 960 MHz 54dBuV/m |

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**REMARK:** Emissions attenuated more than 20 dB below the permissible value are not reported.

Play Mode:

| Frequency (MHz)               | Antenna Polarization | Emission Level (dBuV/m) |       |       | FCC 15 Subpart C Limit (dBuV/m) |
|-------------------------------|----------------------|-------------------------|-------|-------|---------------------------------|
|                               |                      | Avg                     | QP    | Peak  |                                 |
| Low frequency(2402.00 MHz)    |                      |                         |       |       |                                 |
| 93.15                         | Vertical             | --                      | 35.10 | 37.50 | 43.5                            |
| 115.00                        | Vertical             | --                      | 34.60 | 36.80 | 46.0                            |
| 2402.00                       | Vertical             | --                      | --    | 84.05 | 94.0                            |
| 4804.00                       | Vertical             | --                      | --    | 35.05 | 54.0                            |
| 7206.10                       | Vertical             | --                      | --    | 34.10 | 54.0                            |
| 9608.20                       | Vertical             | --                      | --    | 33.20 | 54.0                            |
| 92.35                         | Horizontal           | --                      | 33.50 | 38.00 | 43.5                            |
| 116.10                        | Horizontal           | --                      | 33.10 | 38.70 | 46.0                            |
| 2402.00                       | Horizontal           | --                      | --    | 84.70 | 94.0                            |
| 4804.00                       | Horizontal           | --                      | --    | 34.20 | 54.0                            |
| 7206.10                       | Horizontal           | --                      | --    | 33.50 | 54.0                            |
| 9608.20                       | Horizontal           | --                      | --    | 32.10 | 54.0                            |
| Middle frequency(2441.00 MHz) |                      |                         |       |       |                                 |
| 115.10                        | Vertical             | --                      | 34.50 | 37.20 | 43.5                            |
| 2441.00                       | Vertical             | --                      | --    | 84.55 | 94.0                            |
| 4882.10                       | Vertical             | --                      | --    | 33.65 | 54.0                            |
| 7323.20                       | Vertical             | --                      | --    | 32.35 | 54.0                            |
| 9764.30                       | Vertical             | --                      | --    | 31.50 | 54.0                            |
| 115.25                        | Horizontal           | --                      | 33.70 | 38.10 | 43.5                            |
| 2441.00                       | Horizontal           | --                      | --    | 84.80 | 94.0                            |
| 4882.10                       | Horizontal           | --                      | --    | 33.25 | 54.0                            |
| 7323.20                       | Horizontal           | --                      | --    | 32.10 | 54.0                            |
| 9764.30                       | Horizontal           | --                      | --    | 32.00 | 54.0                            |

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**NAME OF TEST:** RADIATION INTERFERENCE

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:**

| FIELD STRENGTH of Fundamental: | FIELD STRENGTH of Harmonics | S15.209  |
|--------------------------------|-----------------------------|--|
| 902-928 MHZ<br>2.4-2.4835 GHz  |                             | 30 - 88 MHz 40 dBuV/m @3M<br>88 - 216 MHz 43.5 |
| 94 dBuV/m @3m                  | 54 dBuV/m @3m               | 216 - 960 MHz 46<br>ABOVE 960 MHz 54 dBuV/m    |

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50 dB BELOW THE LEVEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

**REMARK:** Emissions attenuated more than 20 dB below the permissible value are not reported.

**Continued:**

Play Mode:

| Frequency (MHz)            | Antenna Polarization | Emission Level (dBuV/m) |       |       | FCC 15 Subpart C Limit (dBuV/m) |
|----------------------------|----------------------|-------------------------|-------|-------|---------------------------------|
|                            |                      | Avg                     | QP    | Peak  |                                 |
| High frequency(2480.0 MHz) |                      |                         |       |       |                                 |
| 116.00                     | Vertical             | --                      | 34.05 | 37.20 | 43.5                            |
| 2480.00                    | Vertical             | --                      | --    | 84.95 | 94.0                            |
| 4960.10                    | Vertical             | --                      | --    | 33.45 | 54.0                            |
| 7440.20                    | Vertical             | --                      | --    | 32.30 | 54.0                            |
| 9920.00                    | Vertical             | --                      | --    | 32.10 | 54.0                            |
| 116.50                     | Horizontal           | --                      | 33.35 | 35.50 | 43.5                            |
| 2480.00                    | Horizontal           | --                      | --    | 85.10 | 94.0                            |
| 4960.10                    | Horizontal           | --                      | --    | 33.50 | 54.0                            |
| 7440.20                    | Horizontal           | --                      | --    | 32.30 | 54.0                            |
| 9920.00                    | Horizontal           | --                      | --    | 32.00 | 54.0                            |

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**NAME OF TEST:** Occupied Bandwidth and Band Edge Compliance

**RULES PART NUMBER:** 15.249, 15.209

**REQUIREMENTS:** The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.209.

Band edge emissions plots are included on the following pages

**METHOD OF MEASUREMENT:** A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dB per division.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

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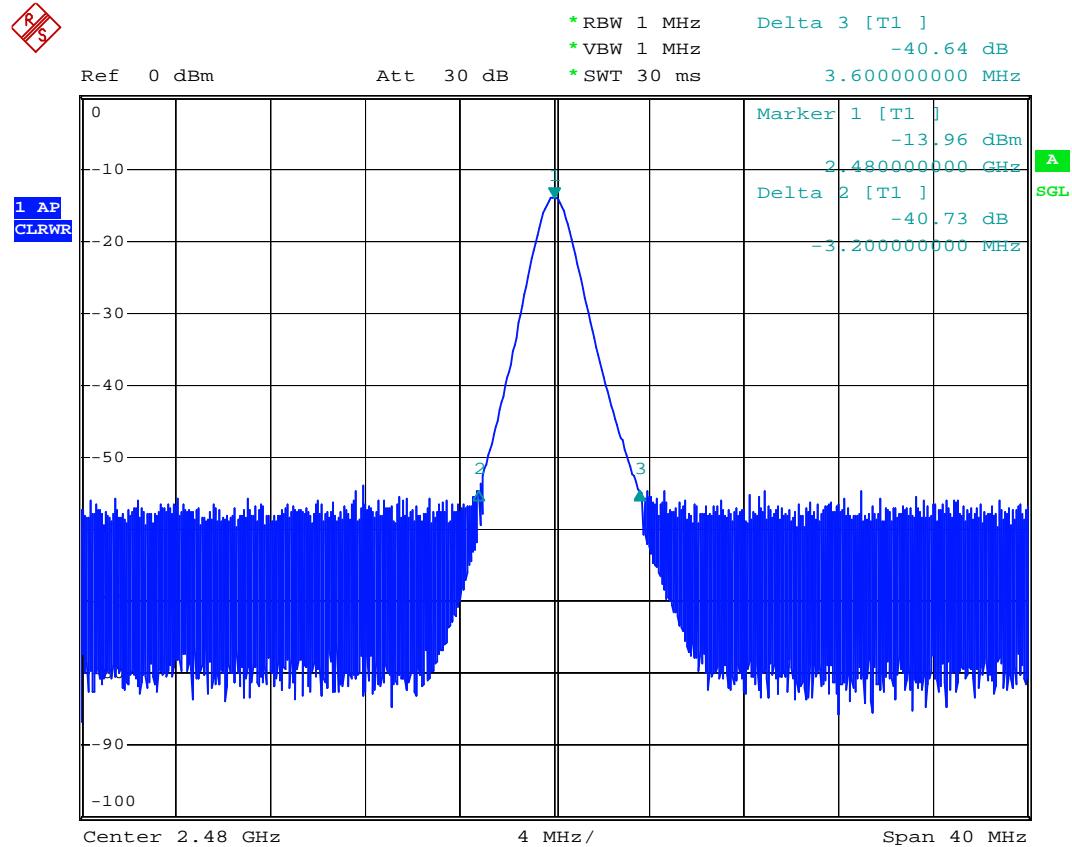
Compliance Laboratory

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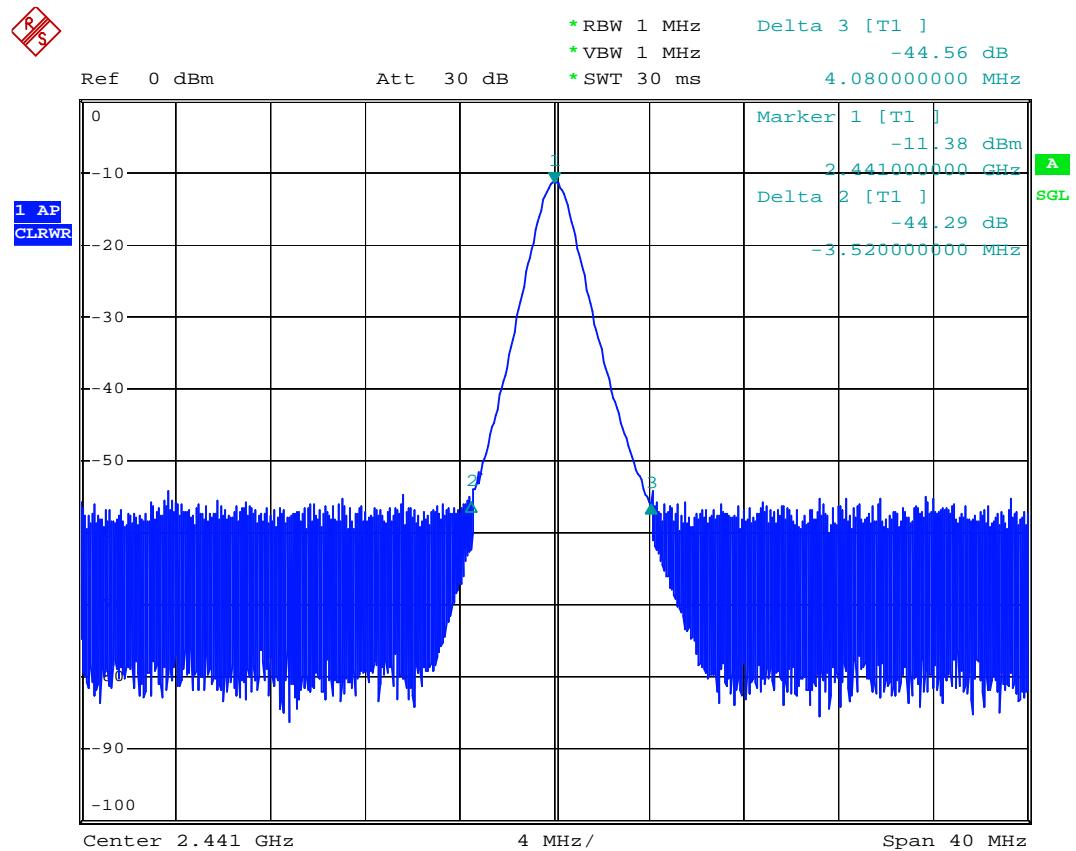
High



Date: 11.DEC.2007 13:51:11

APPLICANT: SHENZHEN QUANNUO ELECTRONICS LTD.  
FCC ID: VSU-GA6281

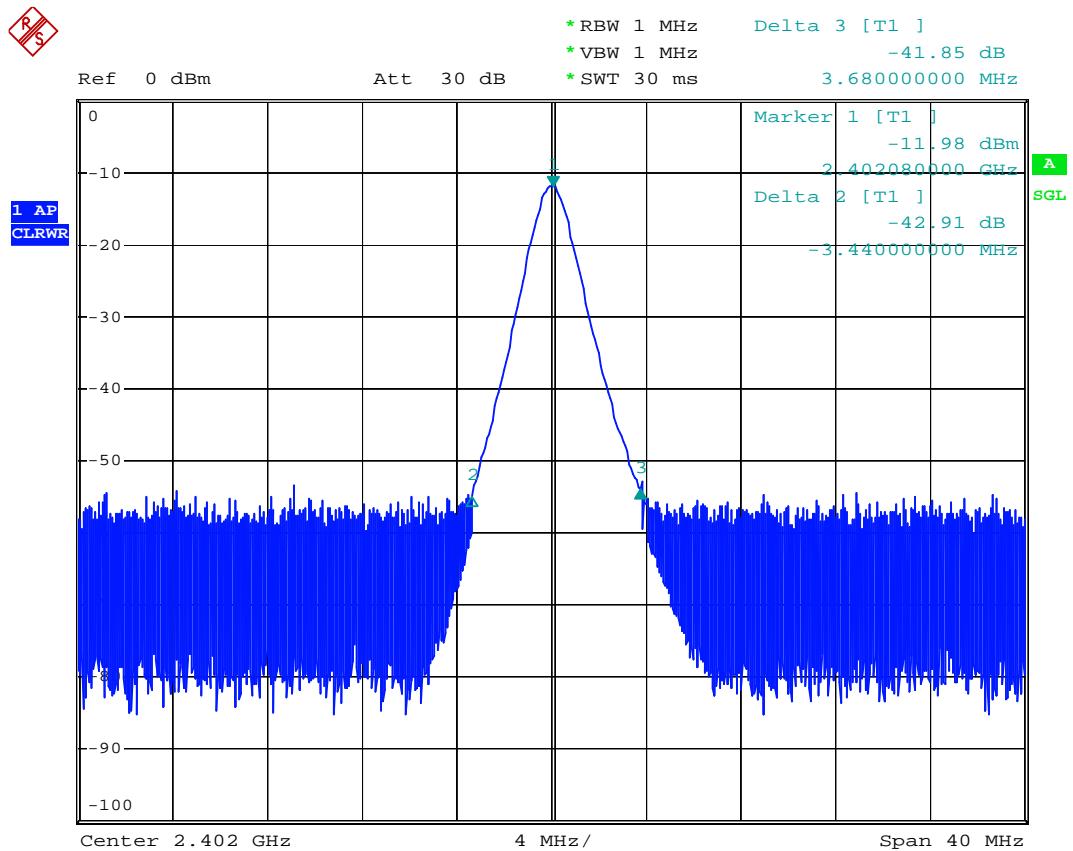
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Date: 11.DEC.2007 13:57:15

 APPLICANT: SHENZHEN QUANNUO ELECTRONICS LTD.  
 FCC ID: VSU-GA6281

Low



Date: 11.DEC.2007 14:03:20

APPLICANT: SHENZHEN QUANNUO ELECTRONICS LTD.  
 FCC ID: VSU-GA6281