

TEST REPORT

| | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------|--------------------|
| FCC ID: | ZLSF7000SCA40 | Report No.: | EM201100172 |
| Client: | Guangzhou Zhong Hong Electronics Co., Ltd. | | |
| Address: | No. 15, Gaotian Street, Datian, Jianggao Town, Baiyun District, Guangzhou China | | |
| Sample Description: | Mouse | | |
| Model: | SCA40, F7000 | | |
| Test Location: | EMC Laboratory of Guangzhou GRG Metrology and Test Technology Co., Ltd. | | |
| Test Specification: | FCC PART15 Subpart B:2009 | | |
| Issue Date: | 2011-05-31 | | |
| Test Result: | <i>According to the kind and extend of tests performed the test item passed test specification.</i> | | |
| Tested By: | Reviewed By: | Approved By: | |
| Tiger Su/Test Engineer | Dai Yong / Technical Manager | Gavin Wu / Manager | |
| | | | |
| Date: | Date: | Date: | |
| Other Aspects: | | | |
| None | | | |
| Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable | | | |
| The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT. | | | |

DIRECTIONS OF TEST

1. The test standards at this station are examined and given as public standards of measurement by the Metrological Unit of the Committee of National Defence Science Industry. The authorized certificate number is DL175. This station is also authorized by CNAS. The certificate number is L0446. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.
2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.
3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.

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1. TEST RESULT SUMMARY

| EMISSION (FCC PART15 B) | | | | |
|--------------------------------|-------------------------|--------------------|---------------|-------------------------------|
| Item | Test Requirement | Test Method | Result | Remarks |
| Conducted Emission | FCC 15.107 | ANSI C63.4:2009 | P | Meets the Class B requirement |
| Radiated Emission | FCC 15.109 | ANSI C63.4:2009 | P | Meets the Class B requirement |

2. GENERAL DESCRIPTION OF EUT

2.1 APPLICANT

Name: Guangzhou Zhong Hong Electronics Co., Ltd.

Address: No. 15, Gaotian Street, Datian, Jianggao Town, Baiyun District, Guangzhou China

2.2 MANUFACTURER

Name: Guangzhou Zhong Hong Electronics Co., Ltd.

Address: No. 15, Gaotian Street, Datian, Jianggao Town, Baiyun District, Guangzhou China

2.3 BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment : Mouse

Model No. : SCA40, F7000

Trade Name : /

Power Supply Type : USB DC 5V Supplied by PC

Note : The two models SCA40 and F7000 actually refer to the same product

2.4 LOCAL SUPPORTIVE INSTRUMENTS

| Name of Equipment | Manufacturer | Model | Serial Number |
|-------------------|--------------|------------|------------------------------|
| Keyboard | DELL | SK-8115 | CN-0DJ313-71616-71 J-12WA |
| LCD | Lenovo | LXM-L 15DB | 7M0284881972270 |
| Host | Lenovo | IJ3 | L3DE358 |
| Modem | D-TECHS | DI-56C | Modem070112364 |
| Printer | DELL | 1720 | 4512-2d0 |

NOTE: There are some essential AC power cords and VGA cable.

3. LABORATORY AND ACCREDITATIONS

3.1 LABORATORY

The tests and measurements refer to this report were performed by EMC Laboratory of Guangzhou GRG Metrology and Test Technology CO., LTD.

Add. : 163 Pingyun Rd, West of Huangpu Ave, Guangzhou, 510656, P. R. China

Telephone: +86-20-38699959, 38699960, 38699961

Fax : +86-20-38695185

3.2 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | |
|---------------|-----------------------------|
| USA | FCC Listed Lab (No. 688188) |
| China | CNAS (No.L0446) |
| China | DILAC (No.DL175) |
| Canada | Registration No.:8355A-1 |

3.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Uncertainty |
|--------------------|------------------|--------------------|
| Radiated Emission | 30MHz ~ 1GHz | 4.2 dB |
| Conducted Emission | 9kHz~30MHz | 3.1 dB |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4. EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS

| Frequency (MHz) | Quasi-peak (dB μ V) | Average (dB μ V) |
|-----------------|-------------------------|----------------------|
| 0.15 ~ 0.5 | 66~56 | 56~46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

NOTE: (1) The lower limit shall apply at the transition frequencies.

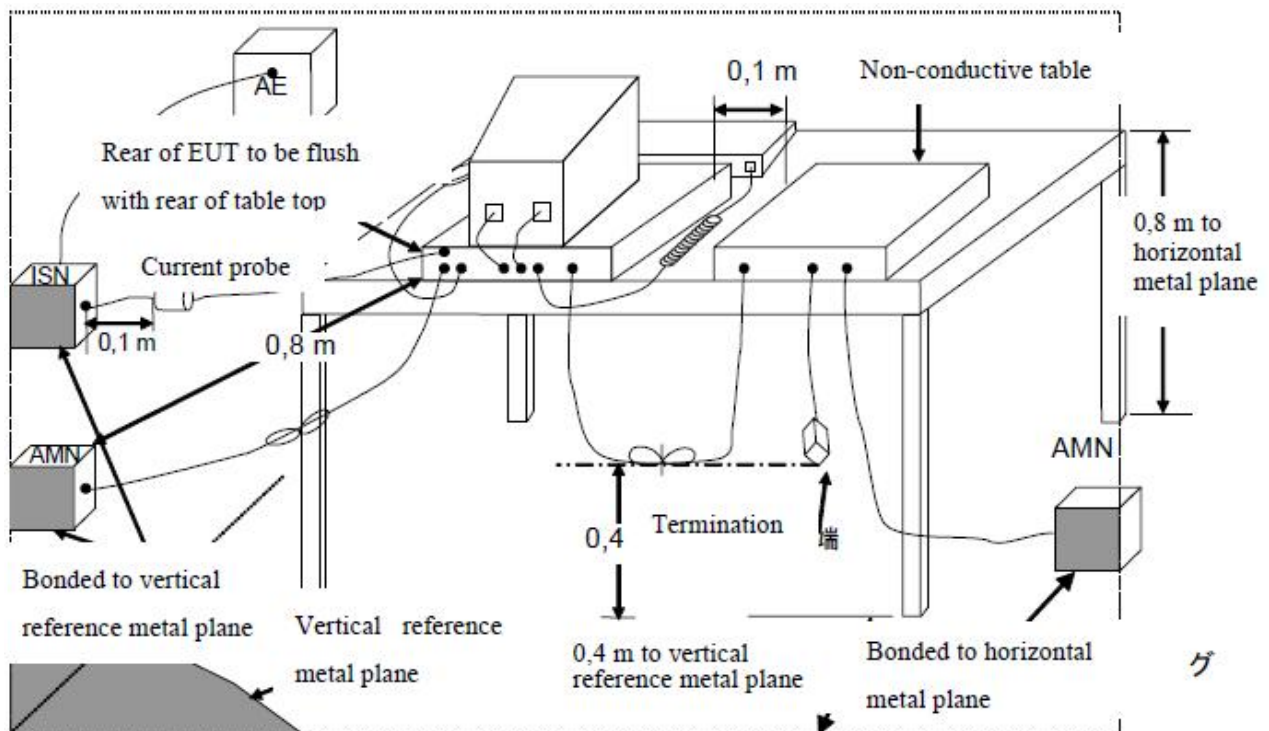
(2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 ~ 0.5 MHz.

4.1.2 TEST INSTRUMENTS

| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Due |
|-------------------|--------------|-----------|---------------|-----------------|
| EMI Receiver | R&S | ESCI | 100529 | 2011-06-17 |
| L.I.S.N | SCHWARZBECK | NSLK 8127 | 8127450 | 2011-08-22 |

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST SETUP AND PROCEDURES



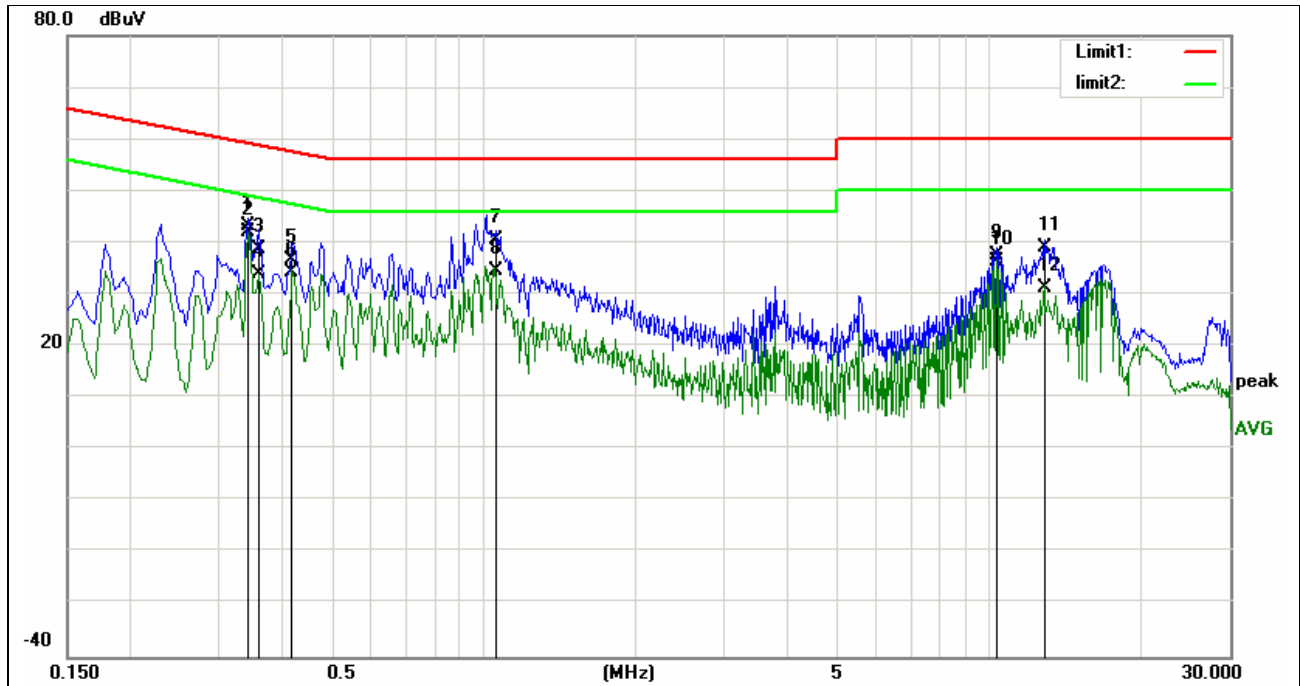
The EUT shall be placed on a non-conductive table such that it is 0.8 m above the horizontal ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The V-network shall be 0.8 m away from the EUT, If the mains lead of the appliance under test is longer than necessary to be connected to the V-network the length of this lead in excess of 0.8 m shall be folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. In the case of controversy with regard to the banning of sales or withdrawal of a type approval it may be replaced by a lead of similar quality with a length of 1 m. For this test, the test terminal is PC AC input port. We consider that the mouse and the computer is a whole.

4.1.4 TEST RESULTS

Pass

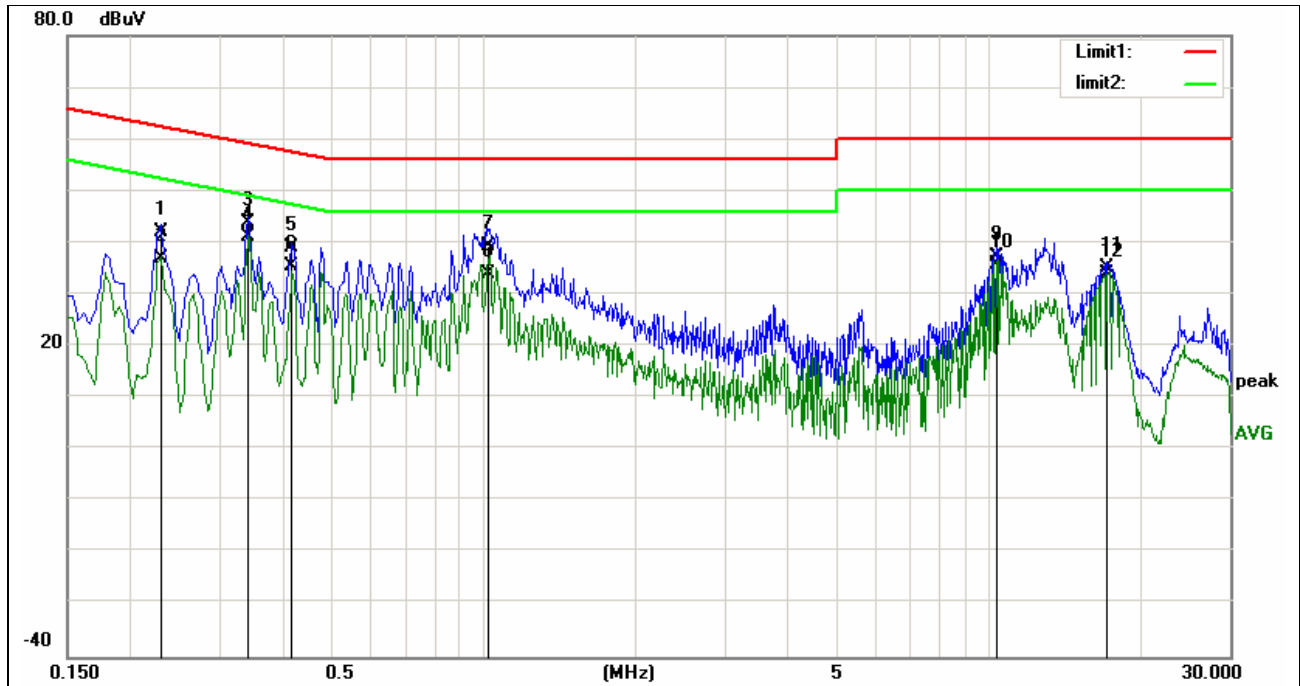
Please refer to the following test data.

| | | | |
|------------------|----------------------------|----------------|--------------|
| Project No.: | ZJ00006829 | Probe: | L1 |
| Standard: | (CE)FCC PART 15 class B_QP | Power Source: | AC 120V/60Hz |
| Test item: | Conduction Test | Date: | 2011-5-21 |
| Temp./Hum.(%RH): | 23/57%RH | Time: | 13:36:55 |
| EUT: | Mouse | Test Engineer: | Tiger Su |
| Model: | SCA40/F7000 | Test Result: | Pass |
| Note: | Normal Working | | |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|--------|
| 1 | 0.3424 | 43.20 | 0.12 | 43.32 | 59.14 | -15.82 | QP |
| 2 | 0.3424 | 41.83 | 0.12 | 41.95 | 49.14 | -7.19 | AVG |
| 3 | 0.3576 | 38.63 | 0.12 | 38.75 | 58.78 | -20.03 | QP |
| 4 | 0.3576 | 33.91 | 0.12 | 34.03 | 48.78 | -14.75 | AVG |
| 5 | 0.4175 | 36.45 | 0.12 | 36.57 | 57.50 | -20.93 | QP |
| 6 | 0.4175 | 34.28 | 0.12 | 34.40 | 47.50 | -13.10 | AVG |
| 7 | 1.0597 | 40.34 | 0.17 | 40.51 | 56.00 | -15.49 | QP |
| 8 | 1.0597 | 34.50 | 0.17 | 34.67 | 46.00 | -11.33 | AVG |
| 9 | 10.3753 | 36.85 | 0.63 | 37.48 | 60.00 | -22.52 | QP |
| 10 | 10.3753 | 35.86 | 0.63 | 36.49 | 50.00 | -13.51 | AVG |
| 11 | 12.8729 | 38.23 | 0.70 | 38.93 | 60.00 | -21.07 | QP |
| 12 | 12.8729 | 30.66 | 0.70 | 31.36 | 50.00 | -18.64 | AVG |

| | | | |
|------------------|----------------------------|----------------|--------------|
| Project No.: | ZJ00006829 | Probe: | N |
| Standard: | (CE)FCC PART 15 class B_QP | Power Source: | AC 110V/60Hz |
| Test item: | Conduction Test | Date: | 2011-5-21 |
| Temp./Hum.(%RH): | 23/57%RH | Time: | 13:20:04 |
| EUT: | mouse | Test Engineer: | Tiger Su |
| Model: | SCA40/F7000 | Test Result: | Pass |
| Note: | Normal Working | | |



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|--------|
| 1 | 0.2281 | 41.96 | 0.03 | 41.99 | 62.52 | -20.53 | QP |
| 2 | 0.2281 | 36.97 | 0.03 | 37.00 | 52.52 | -15.52 | AVG |
| 3 | 0.3422 | 43.75 | 0.12 | 43.87 | 59.15 | -15.28 | QP |
| 4 | 0.3422 | 41.07 | 0.12 | 41.19 | 49.15 | -7.96 | AVG |
| 5 | 0.4191 | 39.05 | 0.12 | 39.17 | 57.47 | -18.30 | QP |
| 6 | 0.4191 | 35.46 | 0.12 | 35.58 | 47.47 | -11.89 | AVG |
| 7 | 1.0289 | 39.22 | 0.13 | 39.35 | 56.00 | -16.65 | QP |
| 8 | 1.0289 | 33.71 | 0.13 | 33.84 | 46.00 | -12.16 | AVG |
| 9 | 10.3784 | 36.58 | 0.63 | 37.21 | 60.00 | -22.79 | QP |
| 10 | 10.3784 | 35.26 | 0.63 | 35.89 | 50.00 | -14.11 | AVG |
| 11 | 17.1081 | 34.28 | 0.84 | 35.12 | 60.00 | -24.88 | QP |
| 12 | 17.1081 | 33.06 | 0.84 | 33.90 | 50.00 | -16.10 | AVG |

4.1.5 PHOTOGRAPHS OF THE TEST CONFIGURATION



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS

| Frequency (MHz) | Field Strength Limit ($\mu\text{V/m}$) | Field Strength Limit (dB $\mu\text{V/m}$) |
|-----------------|------------------------------------------|--------------------------------------------|
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above 960 | 500 | 54 |

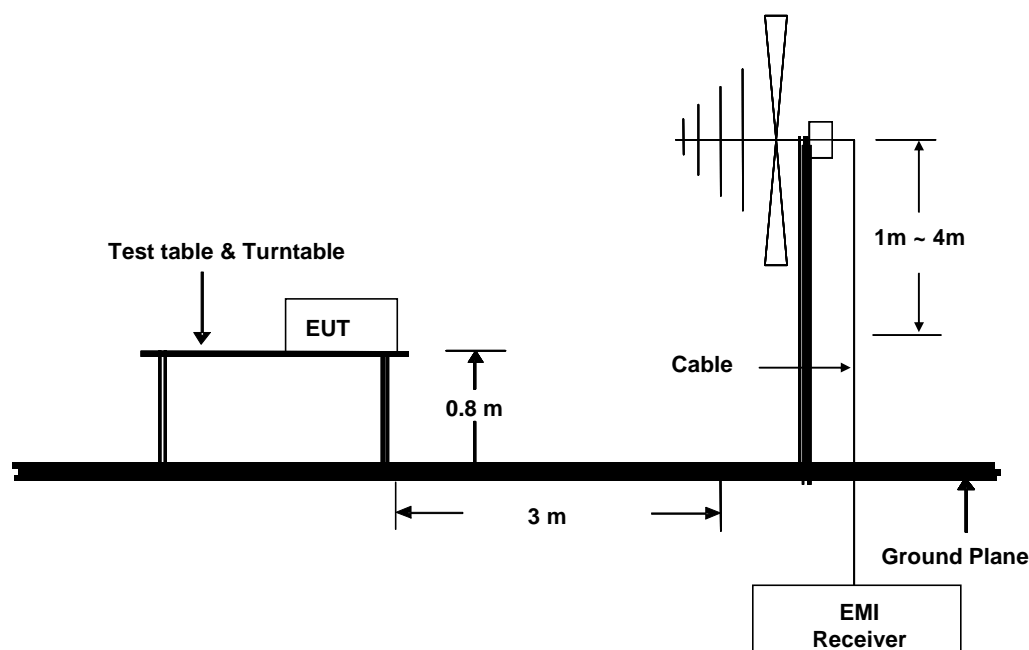
NOTE: (1) The lower limit shall apply at the transition frequencies.
 (2) The limit above is the 3m method.
 (3) $\text{dB } \mu\text{V/m} = 20\log(\mu\text{V/m})$

4.2.2 TEST INSTRUMENTS

| Name of equipment | Manufacturer | Model | Serial number | Calibration due |
|--------------------------------|--------------|-------|---------------|-----------------|
| Biconical log-periodic antenna | ETS.LINDGREN | 3142C | 00075971 | 2011-07-30 |
| Receiver | R&S | ESU40 | 100106 | 2011-08-23 |

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST SETUP AND PROCEDURES



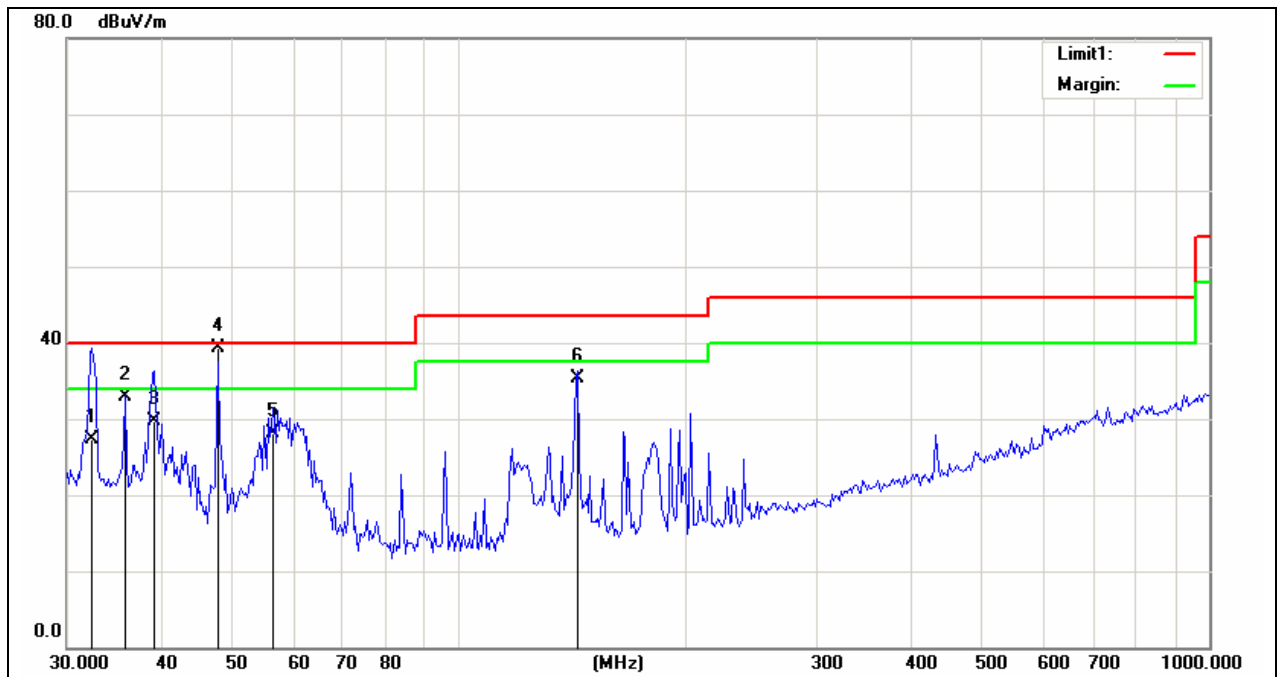
The EUT was placed on a wooden turntable which could rotate from 0° to 360° , 0.8m high above the ground, the distance between the EUT and the antenna is 3m.

When the test was carried out, the EUT should be rotate from 0° to 360° , and the antenna should be moved from 1m to 4m for maximum meter reading at each test frequency.

4.2.4 TEST RESULTS

PASS (Note: The highest radiated emission only have 0.6dB margin in 47.837MHz)

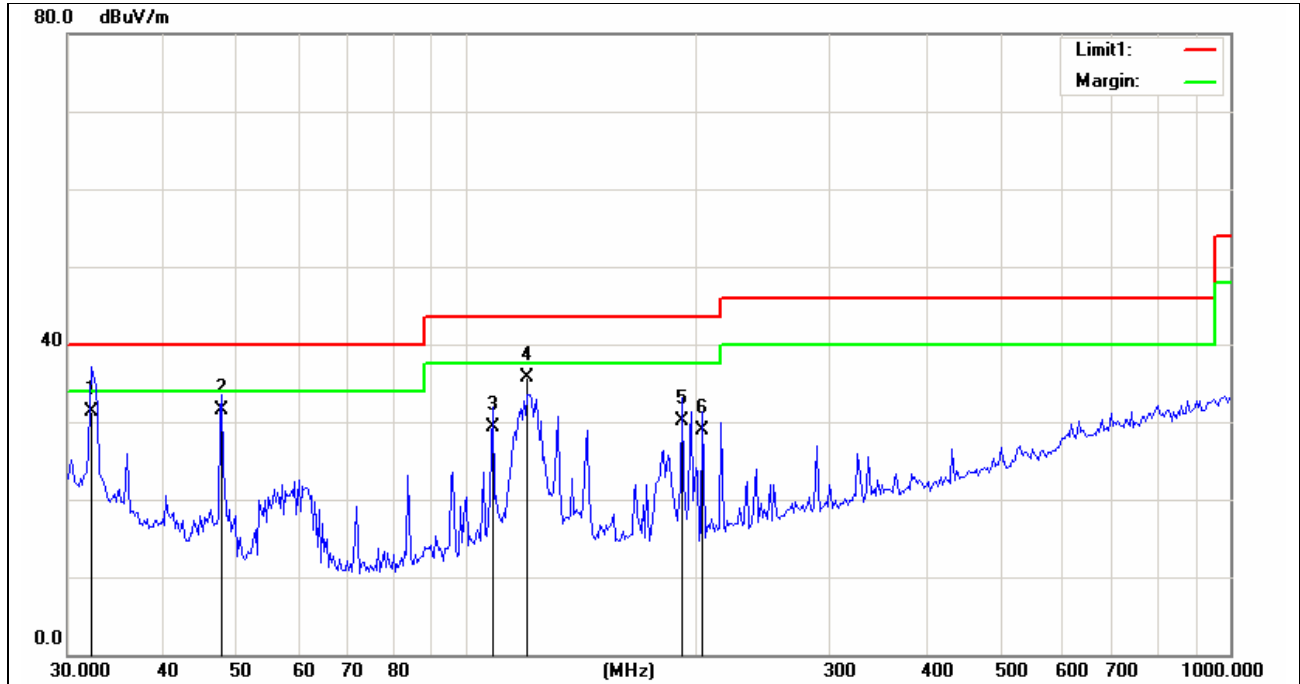
| | | | |
|------------------|----------------------------|---------------|----------------------|
| Project No.: | ZJ00006829 | Polarization: | Vertical |
| Standard: | (RE)FCC PART 15 class B 3m | Power Source: | DC 5V Supplied by PC |
| Test item: | Radiation Test | Date: | 2011-5-24 |
| Temp./Hum.(%RH): | 25/57%RH | Tested By: | Tiger Su |
| EUT: | Mouse | Distance: | 3m |
| Model: | SCA40/F7000 | Mode: | Normal Working |
| Note: | | | |



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|------------------|-----------------------|-----------------|----------------|-------------|--------|
| 1 | 32.4555 | 9.48 | 17.92 | 27.40 | 40.00 | -12.60 | QP |
| 2 | 35.9102 | 17.09 | 15.81 | 32.90 | 40.00 | -7.10 | QP |
| 3 | 39.2885 | 15.95 | 13.75 | 29.70 | 40.00 | -10.30 | QP |
| 4 | 47.8370 | 28.88 | 10.52 | 39.40 | 40.00 | -0.60 | QP |
| 5 | 56.3540 | 19.46 | 8.64 | 28.10 | 40.00 | -11.90 | QP |
| 6 | 143.8876 | 25.80 | 9.55 | 35.35 | 43.50 | -8.15 | QP |

| | | | |
|-------------------------|-----------------------------------|----------------------|-----------------------------|
| Project No.: | ZJ00006829 | Polarziation: | Horizontal |
| Standard: | (RE)FCC PART 15 class B 3m | Power Source: | DC 5V Supplied by PC |
| Test item: | Radiation Test | Date: | 2011-5-24 |
| Temp./Hum.(%RH): | 25/57%RH | Tested By: | Tiger Su |
| EUT: | Mouse | Distance: | 3m |
| Model: | SCA40/F7000 | Mode: | Normal Working |

Note:



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct Factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|---------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 32.2736 | 13.36 | 18.04 | 31.40 | 40.00 | -8.60 | QP |
| 2 | 47.8300 | 20.98 | 10.52 | 31.50 | 40.00 | -8.50 | QP |
| 3 | 108.0320 | 19.80 | 9.60 | 29.40 | 43.50 | -14.10 | QP |
| 4 | 120.2064 | 26.93 | 8.87 | 35.80 | 43.50 | -7.70 | QP |
| 5 | 192.0410 | 18.65 | 11.45 | 30.10 | 43.50 | -13.40 | QP |
| 6 | 203.8616 | 17.31 | 11.59 | 28.90 | 43.50 | -14.60 | QP |

4.2.5 PHOTOGRAPH OF THE TEST CONFIGURATION



5. PHOTOGRAPHS OF EUT

External Photos

Front View

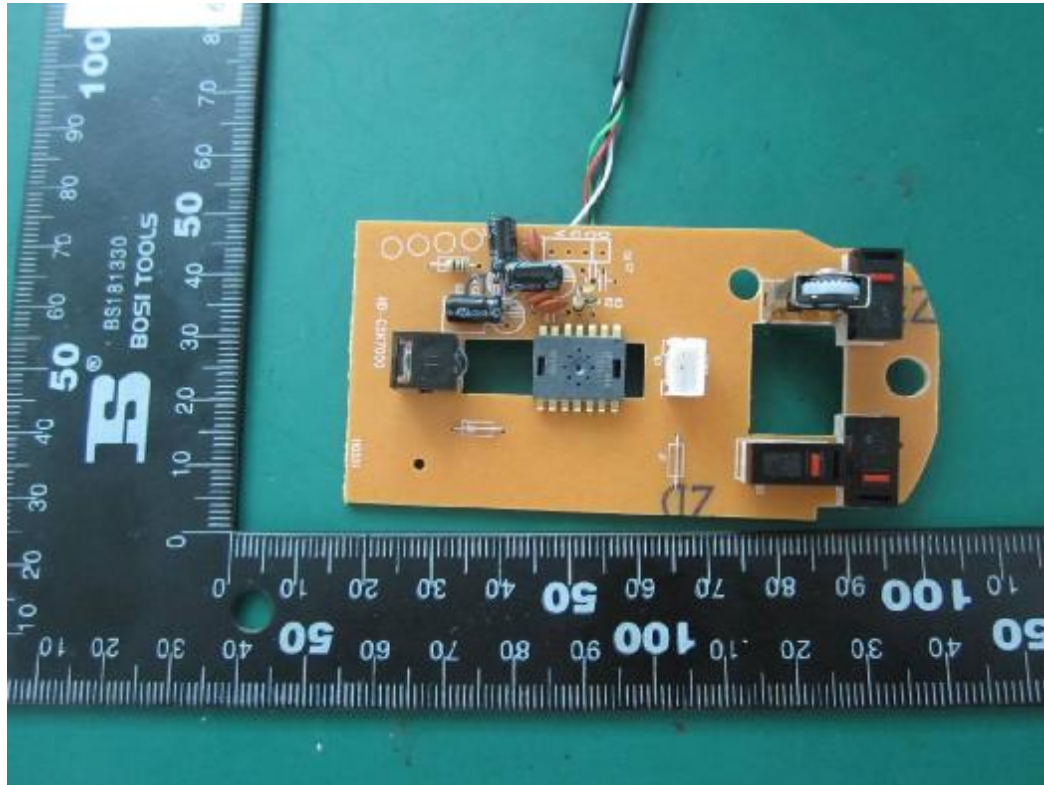


Back View

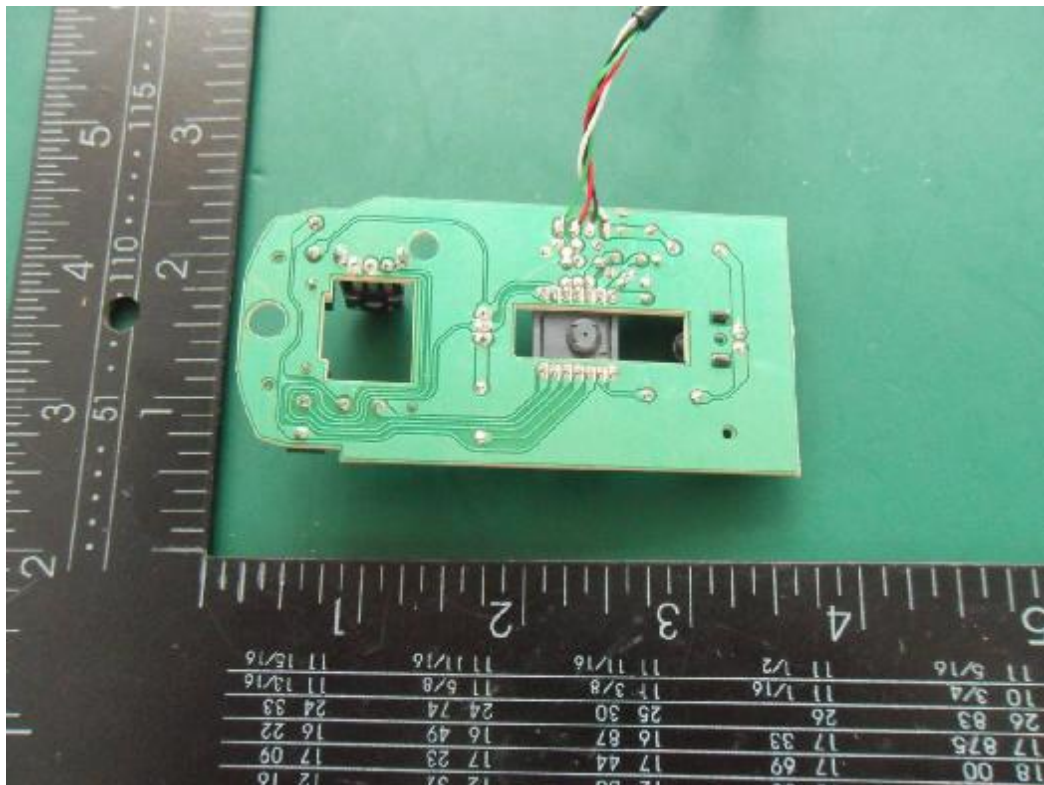


Internal PCB Photos

PCB1 Front View



PCB1 Back View



PCB 2 Front View



PCB 2 Back View

