

FCC Radio TEST Report

FCC ID: H8GCNB72DMPD225

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

Issued Date : Apr.11, 2007

Report No. : 0703C126

Equipment : Wireless Battery Free Optical Mouse

Model No. : NB-72D

Applicant : A-FOUR TECH CO., LTD.

Address : 6F, No.108, Min-Chuan Rd., Hsin-Tien,
Taipei, R.O.C.

Tested by:

Neutron Engineering Inc. EMC Laboratory

Data of Test:

Apr. 11 2007 ~May. 07 2007

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Declaration

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1. CERTIFICATION

Equipment : Wireless Battery Free Optical Mouse
Trade Name : A4TECH
Model No. : NB-72D
Applicant : A-FOUR TECH CO., LTD.
Data of Test : Apr. 11 2007 ~ May. 07 2007
Test Item : ENGINEERING SAMPLE
Standards : FCC Part15, Subpart C / RSS-210: 2004/ ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-0703C126) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and CNLA according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards: (Antenna to EUT distance is **3 m**)

| FCC Part15, Subpart C | | | | |
|------------------------------|--------------------|---------|-----------------------|----------|
| Standard | Test Item | Limit | Frequency Range (MHz) | Judgment |
| 15.207 | Conducted Emission | Class B | 0.15 - 30 | PASS |
| 15.209 | Radiated Emission | Class B | 0.09 -1000 | PASS |

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS02** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan.

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95 %**.

A. Conducted Measurement :

| Test Site | Method | Measurement Frequency Range | U , (dB) | NOTE |
|-----------|--------|-----------------------------|----------|------|
| C01 | ANSI | 150 KHz ~ 30MHz | 1.94 | |

B. Radiated Measurement :

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U , (dB) | NOTE |
|-----------|--------|-----------------------------|------------|----------|------|
| OS01 | ANSI | 30MHz ~ 200MHz | V | 3.82 | |
| | | 30MHz ~ 200MHz | H | 3.60 | |
| | | 200MHz ~ 1,000MHz | V | 3.86 | |
| | | 200MHz ~ 1,000MHz | H | 3.94 | |
| OS02 | ANSI | 30MHz ~ 200MHz | V | 2.48 | |
| | | 30MHz ~ 200MHz | H | 2.16 | |
| | | 200MHz ~ 1,000MHz | V | 2.50 | |
| | | 200MHz ~ 1,000MHz | H | 2.66 | |

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | | |
|--|--|--------------------------|
| Equipment | Wireless Battery Free Optical Mouse | |
| Trade Name | A4TECH | |
| Model No. | NB-72D | |
| OEM Brand/Model No. | N/A | |
| Model Difference | N/A | |
| Product Description | The EUT is a Wireless Battery Free Optical Mouse. | |
| | Operation Frequency: | 119 KHz – 135 KHz |
| | Product Class: | Class 1 |
| | Receiver Class: | Class 3 |
| | Modulation Type: | ASK |
| | Antenna Designation: | Integra (Induction coil) |
| | Output Power: | 97.57dBuV/m |
| | Mode of Operation: | Simplex |
| Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. | | |
| Power Supply | Power Pad: DC 5 V, 300mA/ Supplied from PC USB port Wireless Battery Free Optical Mouse: DC 5 V, 90mA/ Faradism | |
| Connecting I/O Port(s) | Please refer to the User's Manual | |
| Products Covered | N/A | |

Note:

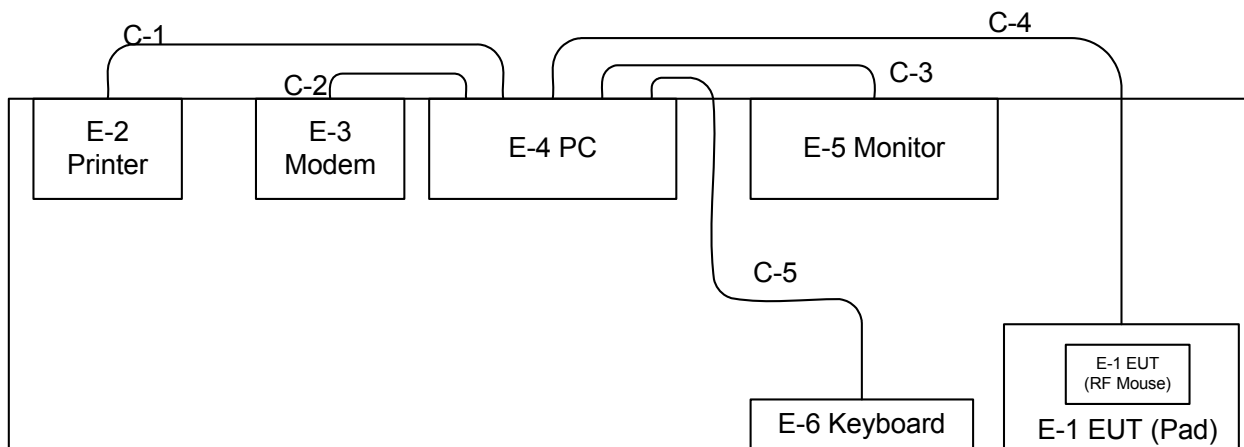
1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Test Mode | Description |
|-------------------|--------------|
| Mode 1 | TX 124.5 KHz |

| For Conducted / Radiated Test | |
|-------------------------------|--------------|
| Final Test Mode | Description |
| Mode 1 | TX 124.5 KHz |

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

C-1 Centronics Cable

C-2 Interface Cable

C-3 VGA Cable

C-4 Data Cable

C-5 Data Cable

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | FCC ID | Series No. | Note |
|------|-------------------------------------|-----------|-----------------|----------------|-----------------|------|
| E-1 | Wireless Battery Free Optical Mouse | A4TECH | NB-72D | H8GCNB72DMP225 | N/A | EUT |
| E-2 | Printer | SII | DPU-414 | DOC | 1045105A | |
| E-3 | Modem | ACEEX | DM-1414V | DOC | 8041708 | |
| E-4 | PC | IBM | 8422-KVA | DOC | L3D0137 | |
| E-5 | 19" TFT LCD Monitor | Samsung | SyncMaster 193T | DOC | NB19HMEX101919K | |
| E-6 | PS/2 K/B | Logitech | Y-SJ17(ACK260A) | DOC | SYU44664880 | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
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| | | | | | | |
| | | | | | | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| C-1 | YES | NO | 1.8M | |
| C-2 | YES | NO | 1.5M | |
| C-3 | YES | YES | 1.8M | |
| C-4 | YES | NO | 1.5M | |
| C-5 | YES | NO | 1.5M | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | |
|-----------------|----------------|---------|----------------|-----------|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 |

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

4.1.2 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|-----------------|------------|------------|------------------|
| 1 | LISN | Rolf Heine | NNB-2/16Z | 98053 | Dec. 18, 2007 |
| 2 | 4L-V-LISN | Rolf Heine | NNB-4/63TL | 02/10040 | Apr. 05, 2008 |
| 3 | Pulse Limiter | Electro-Metrics | EM-7600 | 112644 | Nov. 28, 2007 |
| 4 | 50Ω Terminator | N/A | N/A | N/A | May 10, 2008 |
| 5 | Test Cable | N/A | C01 | N/A | Nov. 28, 2007 |
| 6 | EMI Test Receiver | R&S | ESCI | 100082 | Feb. 01, 2008 |

Remark: " N/A" denotes No Model No. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

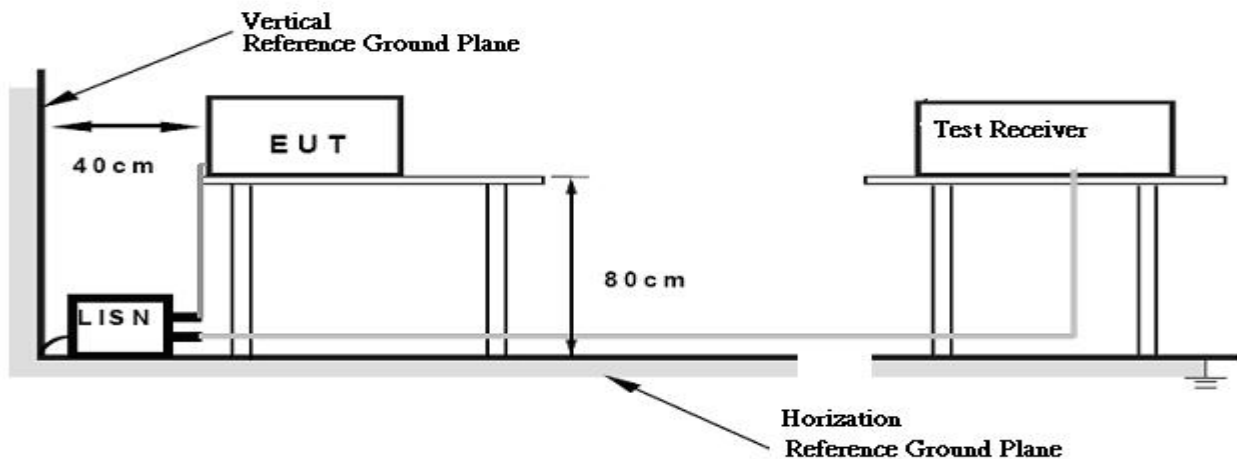
4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The EUT exercise program used during radiated and/or conducted emission measurement was designed to exercise the various system components in a manner similar to a typical use. The program contained on a PC hard disk and is auto-starting on power-up. Once loaded, the program sequentially exercises each system component in turn. The sequence used is:

1. Read (write) from (to) mass storage device (Disk).
2. Send "H" pattern to video port device (Monitor).
3. Send " H " pattern to parallel port device (Printer).
4. Send " H " pattern to serial port device (Modem).
5. Repeated from 2 to 4 continuously.

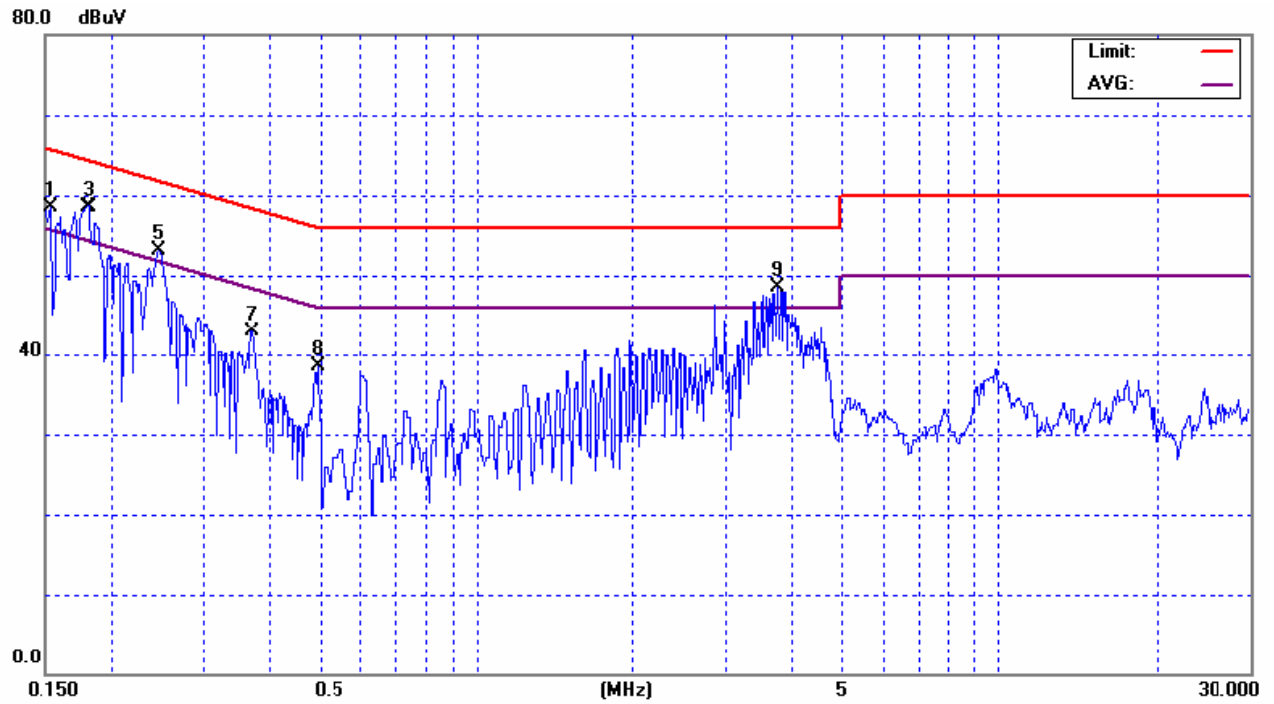
4.1.7 TEST RESULTS

| | | | |
|---------------|-------------------------------------|---------------------|--------------|
| EUT : | Wireless Battery Free Optical Mouse | Model No. : | NB-72D |
| Temperature : | 23 °C | Relative Humidity : | 54% |
| Pressure : | 1015 hPa | Test Power : | AC 120V/60Hz |
| Test Mode : | TX 124.5 KHz | | |

| Freq. (MHz) | Terminal L/N | Measured(dBuV) | | Limits(dBuV) | | Margin (dB) | Note |
|----------------|-----------------|----------------|---------|--------------|---------|----------------|------|
| | | QP-Mode | AV-Mode | QP-Mode | AV-Mode | | |
| 0.15 | Line | 58.43 | * | 65.81 | 55.81 | -7.38 | QP |
| 0.15 | Line | * | 29.88 | 65.81 | 55.81 | -25.93 | AVG |
| 0.18 | Line | 58.60 | * | 64.45 | 54.45 | -5.85 | QP |
| 0.18 | Line | * | 45.38 | 64.45 | 54.45 | -9.07 | AVG |
| 0.25 | Line | 53.07 | * | 61.87 | 51.87 | -8.80 | QP |
| 0.25 | Line | * | 46.18 | 61.87 | 51.87 | -5.69 | AVG |
| 0.37 | Line | 42.92 | * | 58.51 | 48.51 | -15.59 | QP |
| 0.50 | Line | 38.51 | * | 56.08 | 46.08 | -17.57 | QP |
| 3.77 | Line | 48.41 | * | 56.00 | 46.00 | -7.59 | QP |
| 3.77 | Line | * | 31.60 | 56.00 | 46.00 | -14.40 | AVG |

Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of Note. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a “ * ” marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.

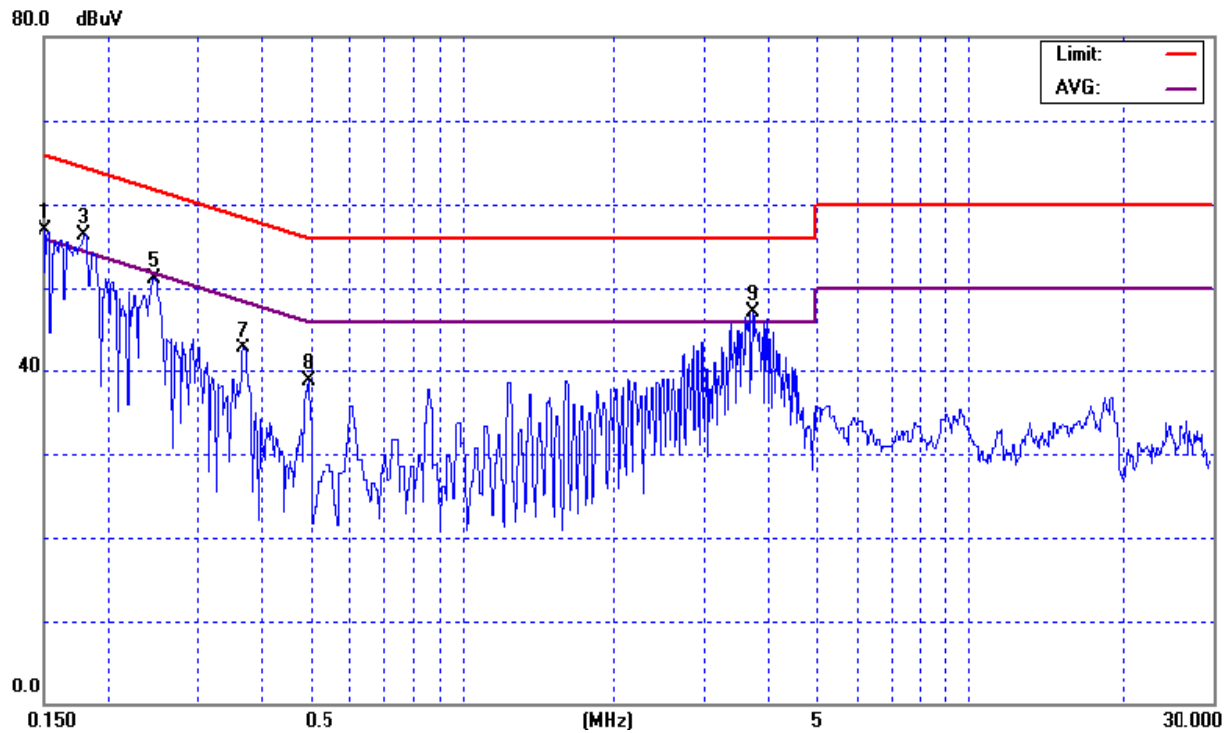


| | | | |
|---------------|-------------------------------------|---------------------|--------------|
| EUT : | Wireless Battery Free Optical Mouse | Model No. : | NB-72D |
| Temperature : | 23 °C | Relative Humidity : | 54% |
| Pressure : | 1015hPa | Test Power : | AC 120V/60Hz |
| Test Mode : | TX 124.5 KHz | | |

| Freq. (MHz) | Terminal L/N | Measured(dBuV) | | Limits(dBuV) | | Margin (dB) | Note |
|----------------|-----------------|----------------|---------|--------------|---------|----------------|------|
| | | QP-Mode | AV-Mode | QP-Mode | AV-Mode | | |
| 0.15 | Neutral | 56.87 | * | 66.00 | 56.00 | -9.13 | QP |
| 0.15 | Neutral | * | 25.78 | 56.00 | 46.00 | -30.22 | AVG |
| 0.18 | Neutral | 56.25 | * | 64.51 | 54.51 | -8.26 | QP |
| 0.18 | Neutral | * | 32.17 | 54.51 | 44.51 | -12.34 | AVG |
| 0.25 | Neutral | 51.17 | * | 61.87 | 51.87 | -10.70 | QP |
| 0.25 | Neutral | * | 45.07 | 51.87 | 41.87 | -6.80 | AVG |
| 0.37 | Neutral | 42.66 | * | 58.52 | 48.52 | -15.86 | QP |
| 0.50 | Neutral | 38.67 | * | 56.08 | 46.08 | -17.41 | QP |
| 3.73 | Neutral | 47.02 | * | 56.00 | 46.00 | -8.98 | QP |
| 3.73 | Neutral | * | 31.99 | 46.00 | 36.00 | -14.01 | AVG |
| | | | | | | | |

Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of Note. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

| Frequency (MHz) | Field Strength Limitation | | Field Strength Limitation at 3m Measurement Dist | |
|--------------------|------------------------------|------|--|-----------------------------------|
| | (uV/m) | Dist | (uV/m) | (dBuV/m) |
| 0.009 – 0.490 | $2400 / F(\text{KHz})$ | 300m | $10000 * 2400/F(\text{KHz})$ | $20\log 2400/F(\text{KHz}) + 80$ |
| 0.490 – 1.705 | $24000 / F(\text{KHz})$ | 30m | $100 * 24000/F(\text{KHz})$ | $20\log 24000/F(\text{KHz}) + 40$ |
| 1.705 – 30.00 | 30 | 30m | $100 * 30$ | $20\log 30 + 40$ |
| 30.0 – 88.0 | 100 | 3m | 100 | $20\log 100$ |
| 88.0 – 216.0 | 150 | 3m | 150 | $20\log 150$ |
| 216.0 – 960.0 | 200 | 3m | 200 | $20\log 200$ |
| Above 960.0 | 500 | 3m | 500 | $20\log 500$ |

Notes:

- (1) The tighter limit shall apply at the boundary between two frequency range.
- (2) Limitation expressed in dBuV/m is calculated by $20\log$ Emission Level (uV/m).
- (3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.

Example:

F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as $L_{d1} = L_1 = 30\text{uV/m} * (10)^2 = 100 * 30 \text{ uV/m}$

4.2.2 MEASUREMENT INSTRUMENTS LIST

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|-----------------|--------------|------------|------------------|
| 1 | Log-Bicon Antenna | MESS-ELEKTRONIK | VULB 9160 | 3058 | Nov. 28, 2007 |
| 2 | Test Cable | N/A | 10M_OS02 | N/A | Nov. 28, 2007 |
| 3 | Test Cable | N/A | OS02-1/-2/-3 | N/A | Nov. 28, 2007 |
| 4 | Pre-Amplifier | Anritsu | MH648A | M09961 | Nov. 28, 2007 |
| 5 | EMI Test Receiver | R&S | ESCI | 100082 | Feb. 01, 2008 |
| 6 | Antenna Mast | Chance Most | CMTB-1.5 | N/A | N/A |
| 7 | Turn Table | Chance Most | CMTB-1.5 | N/A | N/A |
| 8 | Loop Ant | EMCO | 6502 | 00042960 | Jan. 13, 2008 |

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.2.2

| Spectrum Parameter | Setting |
|---------------------------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average |
| RB / VB (other emission) | 100KHz / 100KHz for peak |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

4.2.3 TEST PROCEDURE

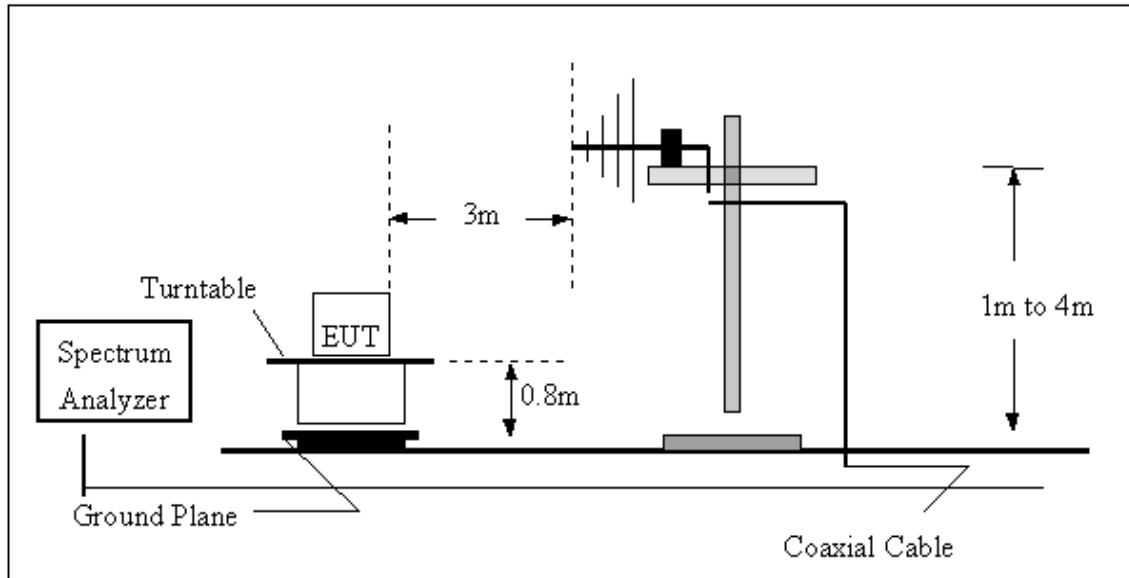
- a. The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

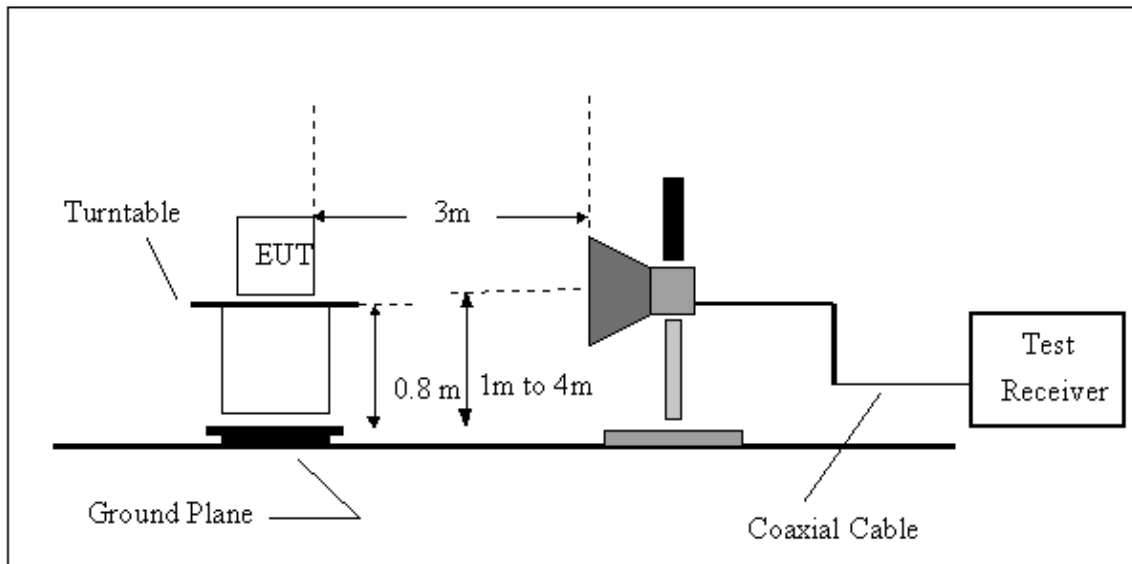
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz

4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (Below 30MHz)

| | | | |
|-----------------|-------------------------------------|---------------------|--------------|
| EUT : | Wireless Battery Free Optical Mouse | Model No. : | NB-72D |
| Temperature : | 28 °C | Relative Humidity : | 56 % |
| Pressure : | 1004 hPa | Test Power : | AC 120V/60Hz |
| Test distance : | 3m | | |
| Test Mode : | TX 124.5 KHz | | |

| Freq. (KHz) | Receiver Reading in dBuV/m | Factor (dB) | Field Strength Limit (uV/m) | Required Measurement Distance(m) | Limitation Converted 3m dist. (dBuV/m) | Over Limit | Dectector Mode PK/AV |
|-------------|----------------------------|-------------|-----------------------------|----------------------------------|--|------------|----------------------|
| 124.50 | 84.57 | 13.00 | 19.28 | 300.00 | 105.70 | - 8.13 | Peak |
| 249.00 | 43.62 | 12.80 | 9.64 | 300.00 | 99.68 | - 43.26 | Peak |
| 373.50 | 40.13 | 12.80 | 6.43 | 300.00 | 96.16 | - 43.23 | Peak |
| 498.00 | 35.87 | 12.70 | 48.19 | 30.00 | 73.66 | - 25.09 | Peak |
| 622.50 | - | 12.70 | 38.55 | 30.00 | 71.72 | - | Peak |
| 747.00 | - | 12.80 | 32.13 | 30.00 | 70.14 | - | Peak |
| 871.50 | - | 12.80 | 27.54 | 30.00 | 68.80 | - | Peak |
| 996.00 | - | 12.80 | 24.10 | 30.00 | 67.64 | - | Peak |
| 1120.50 | - | 12.90 | 21.42 | 30.00 | 66.62 | - | Peak |
| 1245.00 | - | 12.90 | 19.28 | 30.00 | 65.70 | - | Peak |

Remark :

- (1) Spectrum Setting:
 9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.
 150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.
 30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
- (2) All receiver readings (the measured field strength levels) are measured from loop antenna directly.
- (3) The emission limits shown in the above table are base on measurements employing a quasi-peak detector except for the frequency bands 9-90 KHz, 110-490 KHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
- (4) Data of measurement within this frequency range shown “ - ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(Between 30 – 1000 MHz)

| | | | |
|-----------------|-------------------------------------|---------------------|--------------|
| EUT : | Wireless Battery Free Optical Mouse | Model No. : | NB-72D |
| Temperature : | 26 °C | Relative Humidity : | 60 % |
| Pressure : | 1004 hPa | Test Power : | AC 120V/60Hz |
| Test distance : | 3m | | |
| Test Mode : | TX 124.5 KHz | | |

| Freq. (MHz) | Ant.Pol. H/V | DetectorMode (PK/AV) | Reading (dBuV) | Ant./CL/ Amp. CF(dB) | Actual FS (dBuV/m) | Limits 3m (dBuV/m) | Margin (dB) | Note |
|----------------|-----------------|-------------------------|-------------------|-------------------------|-----------------------|-----------------------|----------------|------|
| 99.84 | V | Peak | 63.80 | -27.14 | 36.67 | 43.50 | - 6.83 | |
| 220.12 | V | Peak | 54.34 | -24.99 | 29.35 | 46.00 | - 16.65 | |
| 299.66 | V | Peak | 54.53 | -22.61 | 31.92 | 46.00 | - 14.08 | |
| 365.62 | V | Peak | 57.89 | -20.97 | 36.92 | 46.00 | - 9.08 | |
| 386.96 | V | Peak | 51.66 | -20.21 | 31.45 | 46.00 | - 14.55 | |
| 431.58 | V | Peak | 53.78 | -18.73 | 35.05 | 46.00 | - 10.95 | |
| 499.48 | V | Peak | 53.43 | -17.38 | 36.05 | 46.00 | - 9.95 | |
| 528.58 | V | Peak | 47.99 | -16.88 | 31.11 | 46.00 | - 14.89 | |
| 623.64 | V | Peak | 43.74 | -13.41 | 30.33 | 46.00 | - 15.67 | |
| 701.24 | V | Peak | 42.96 | -11.25 | 31.71 | 46.00 | - 14.29 | |
| 815.70 | V | Peak | 38.11 | -7.81 | 30.30 | 46.00 | - 15.70 | |
| 899.12 | V | Peak | 39.16 | -6.20 | 32.96 | 46.00 | - 13.04 | |
| 1000.00 | V | Peak | 45.53 | -4.42 | 41.11 | 54.00 | - 12.98 | |

Remark :

(1) Spectrum Setting:

9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.

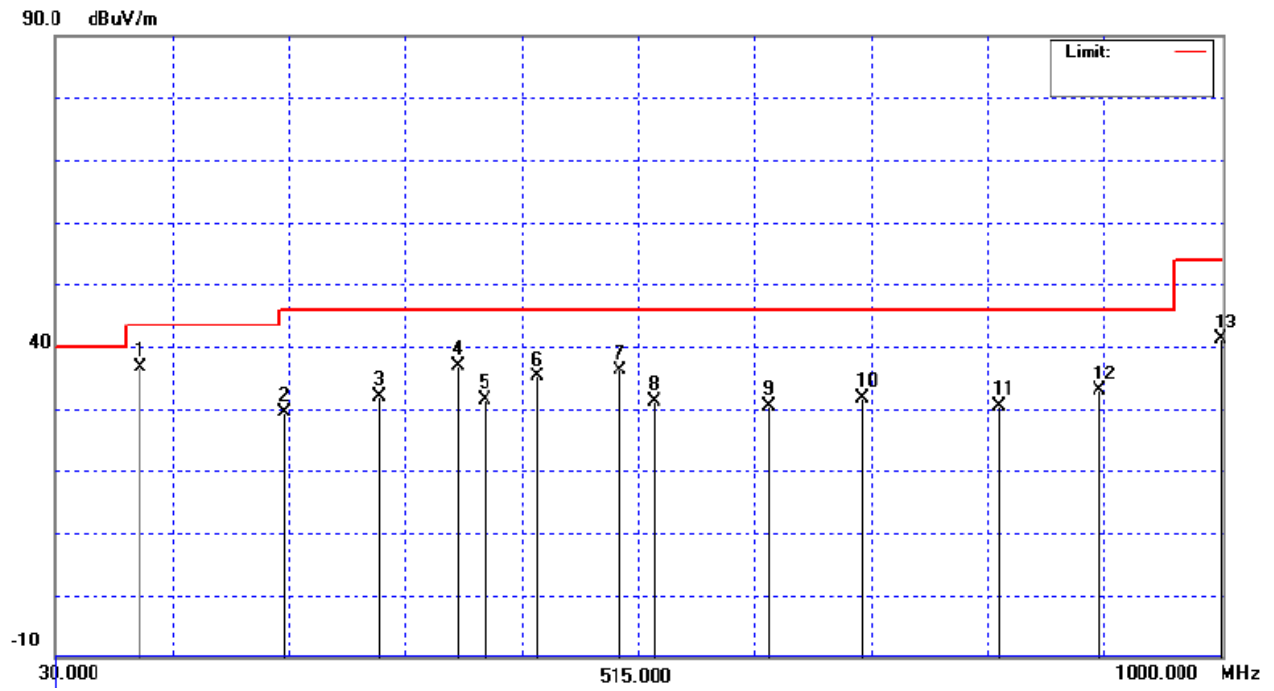
150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.

30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.

(2) All readings are Peak unless otherwise stated QP in column of 『Note』 . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform .

(3) Measuring frequency range from 30MHz to 1000MHz(@10m) .

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table .



| | | | |
|-----------------|-------------------------------------|---------------------|--------------|
| EUT : | Wireless Battery Free Optical Mouse | Model No. : | NB-72D |
| Temperature : | 26 °C | Relative Humidity : | 60 % |
| Pressure : | 1004 hPa | Test Power : | AC 120V/60Hz |
| Test distance : | 3m | | |
| Test Mode : | TX 124.5 KHz | | |

| Freq. (MHz) | Ant.Pol. H/V | DetectorMode (PK/AV) | Reading (dBuV) | Ant./CL/ Amp. CF(dB) | Actual FS (dBuV/m) | Limits 3m (dBuV/m) | Margin (dB) | note |
|----------------|-----------------|-------------------------|-------------------|-------------------------|-----------------------|-----------------------|----------------|------|
| 99.84 | H | Peak | 61.49 | -27.13 | 34.36 | 43.50 | - 9.14 | |
| 220.12 | H | Peak | 60.54 | -24.99 | 35.55 | 46.00 | - 10.45 | |
| 299.66 | H | Peak | 55.53 | -22.61 | 32.92 | 46.00 | - 13.08 | |
| 365.62 | H | Peak | 59.60 | -20.97 | 38.63 | 46.00 | - 7.37 | |
| 433.52 | H | Peak | 47.69 | -18.66 | 29.03 | 46.00 | - 16.97 | |
| 499.48 | H | Peak | 45.69 | -17.38 | 28.31 | 46.00 | - 17.69 | |
| 528.58 | H | Peak | 46.71 | -16.88 | 29.83 | 46.00 | - 16.17 | |
| 666.32 | H | Peak | 41.53 | -12.20 | 29.33 | 46.00 | - 16.67 | |
| 765.26 | H | Peak | 38.77 | -8.82 | 29.95 | 46.00 | - 16.05 | |
| 901.06 | H | Peak | 38.05 | -6.61 | 31.89 | 46.00 | - 14.11 | |
| 1000.00 | H | Peak | 38.69 | -4.42 | 34.27 | 54.00 | - 19.73 | |

Remark :

(1) Spectrum Setting:

9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.

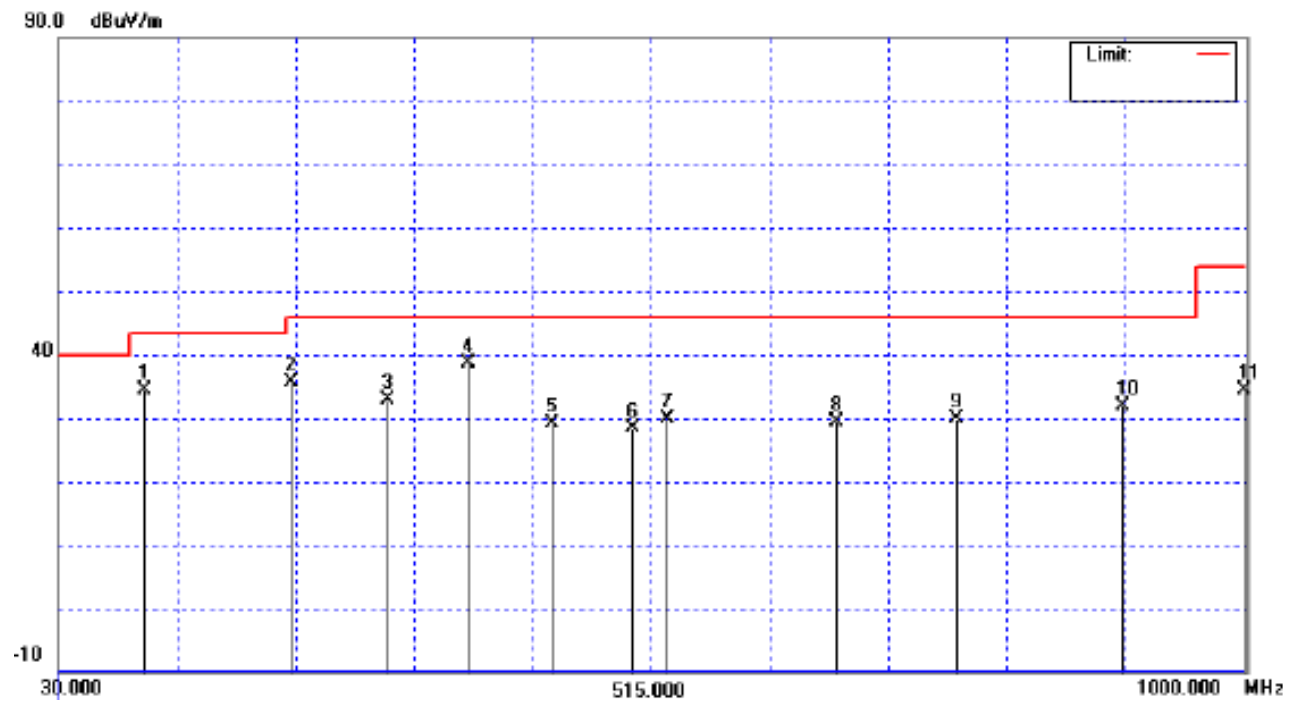
150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, Sweep time = 200 ms.

30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz(@10m).

(4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table.



5. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos
Radiated Emission Test Set-up, Frequency Below 30MHz



Radiated Measurement Photos
Radiated Emission Test Set-UP, Frequency Between 30 - 1000MHz

