Compliance Laboratory

# FCC PART 15 SUBPART B
# Test Report

FOR

Applicant: Speed Dragon Multimedia Limited

Address: Room 1312, Vanta Industrial Centre, 33 Tai Lin Pai RD, Kwai Chung, N.T, Hong Kong

Product Name: USB 2.0 Gigabit NAS SERVER

Model Name: SD-ANW01

Brand Name: N/A

FCC ID: U3PSD-ANWUSB

Date of Issue: MaY.25, 2011

Issued by: Most Technology Service Co., Ltd.
Address: No.5, 2nd Langshan Road, North District, Hi-tech Industrial Park, Nanshan, Shenzhen, Guangdong, China
Tel: 86-755-86170306
Fax: 86-755-86170310

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# 1. Verification of Conformity

**Equipment under test:** USB 2.0 Gigabit NAS SERVER
**Brand Name:** N/A
**Model Number:** SD-ANW01
**FCC ID:** **U3PSD-ANWUSB**
**Applicant:** Speed Dragon Multimedia Limited
Room 1312, Vanta Industrial Centre,33 Tai Lin Pai RD,
Kwai Chung,N.T, Hong Kong

**Manufacturer:** Speed Dragon Multimedia Limited
Room 1312, Vanta Industrial Centre,33 Tai Lin Pai RD,
Kwai Chung,N.T, Hong Kong

**Technical Standards:** FCC Part 15 Subpart B
**File Number:** MOST MTECP05036
**Date of test:** May. 25, 2011-May 27, 2011

**Deviation:** None
**Condition of Test Sample:** Normal
**Test Result:** **PASS**

The above equipment was tested by Most for compliance with the requirements set forth in FCC Rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in the report.

**Test by:**  **(candy Zhang)**

**Reviewed by:**  **(key Wang)**

**Approved by:**  **(Yvette Zhou)**

# 2. General information

## 2.1 Product information

| | |
|---|---|
| Power Adaptor | KSAFD0500300W1EU |
| Motherboard | USERV-E2 |
| Chip | MCS8142 |

NOTE: Please refer to the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

## 2.2. Objective

The objective of the report is to perform tests according to FCC Part 15 Subpart B for the EUT FCC ID Certification:

| NO. | Identity | Document Title |
|---|---|---|
| 1 | FCC PART15 Subpart B | Class B personal computers and peripherals..... |

## 2.3 Test standards and results

Test items and the results are as bellow:

| NO. | Section | Description | Result | Date of test |
|---|---|---|---|---|
| 1 | 15.107 | Conducted | Pass | 2011-05-25 |
| 2 | 15.109 | Radiated emission | Pass | 2011-05-26 |

## 2.4 Measurement uncertainty

| No. | Item | Uncertainty |
|---|---|---|
| 1. | Uncertainty for Conducted Disturbance Test | 1.25dB |
| 2. | Uncertainty for Radiated Disturbance Test | 3.15dB |

## 2.5 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35 ℃
- Humidity: 30-60%
- Atmospheric pressure: 86-106kPa

# 3: Test facility

## 3.1 test facility

Test Site: Most Technology Service Co., Ltd

Location: No.5, Nangshan 2nd Rd., North Hi-tech Industrial Park, Shenzhen, Guangdong, China.

Description: There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test sites and the line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4-2003and CISPR 16 requirements. The FCC Registration Number is **490827**

Site Filing: The site description is on file with the Federal Communications Commission ,7435 Oakland Mills Road, Columbia , MD 21046

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4 and CISPR 16 requirements that Meet industry regulatory agency and accreditation agency requirement.

Ground Plane: Two conductive reference ground planes were used during the Line Conducted emission, One in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna .It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

## 3.2 General Test Procedures

Test mode: The following data show only with the worst case setup

Conducted Emissions: The EUT is placed on the test table, which is 0.8 m above ground plane. According to the requirements Section 13.1.4.1 of ANSI C63.4 .Conducted emissions from the EUT measured in the frequency range between 0.15MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions: The EUT is placed on a turntable, which is 0.8m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which Varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by Changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum Emissions, exploratory radiated emission measurements were made according to the requirements in section 13.1.4.1 of ANSI C63.4.

Setting :

| | | |
|---|---|---|
| 9KHZ~150KHZ | RBW 200HZ | VBW1KHZ |
| 150KHZ~30MHZ | RBW 9KHZ | VBW 30KHZ |
| 30MHZ~1GHZ | RBW 120KHZ | VBW 300KHZ |
| Above 1GHZ | RBW 1MHZ | VBW 3MHZ |

# 4. Setup of Equipment Under Test

## 4.1 SUPPORT EQUIPMENT

| Manufacturer | Description | Model | Serial number |
|---|---|---|---|
| DELL | PC | DCSM | 5P3842X |
| Lenovo | USB Driver | DTUG2 2G | |
| Dell | Monitor | E178FPc | 78682 |

## 4.2 TEST EQUIPMENT LIST

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|
| EMI Test Receiver | ROHDE&SCHWARZ | ESCI | 100492 | Mar. 06, 2011 | 1 Year |
| LISN | ROHDE&SCHWARZ | ENV216 | 100093 | Mar. 06, 2011 | 1Year |
| EMI Test Receiver | ROHDE&SCHWARZ | ESPI | 101202 | Mar. 06, 2011 | 1 Year |
| Spectrum Analyzer | ANRITSU | MS2651B | 6200238316 | Mar. 06, 2011 | 1 Year |
| 50Ω Coaxial Switch | ANRITSU CORP | MP59B | 6200283933 | Mar. 06, 2011 | 1 Year |
| Bilog Antenna | Sunol | JB3 | A121206 | Mar. 06, 2011 | 1 Year |
| Horn Antenna | EMCO | 3115 | 640201028-06 | Mar. 06, 2011 | 1 Year |
| 50Ω Coaxial Switch | ANRITSU CORP | MP59B | 6200283933 | Mar. 06, 2011 | 1 Year |
| Cable | Resenberger | N/A | NO.1 | Mar. 06, 2011 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.2 | Mar. 06, 2011 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.3 | Mar. 06, 2011 | 1 Year |
| DC Power Filter | Duoji | DL2X30B | N/A | Mar. 06, 2011 | 1 Year |
| Single phase power Line filter | Duoji | FNF 202B30 | N/A | Mar. 06, 2011 | 1 Year |
| 3 phase power line filter | Duoji | FNF 402B30 | N/A | Mar. 06, 2011 | 1 Year |
| Test receiver | Rohde&schwarz | ESCI | 100492 | Mar. 06, 2011 | 1 Year |
| Coaxial switch | Anritsu Corp | MP59B | 6200283933 | Mar. 06, 2011 | 1 Year |
| AC power soure | KIKUSUI | AC40MA | LM003232 | Mar. 06, 2011 | 1 Year |
| EMCPRO System | EM TEST | UCS-500-M4 | V0648102026 | Mar. 06, 2011 | 1 Year |
| Absorbing Clamp | Luthi | MDS21 | 3635 | Mar. 06, 2011 | 1 Year |
| Spectrum analyzer | Agilent | E4408B | MY41440460 | Mar. 06, 2011 | 1 Year |
| | | | | | |
| | | | | | |
| | | | | | |

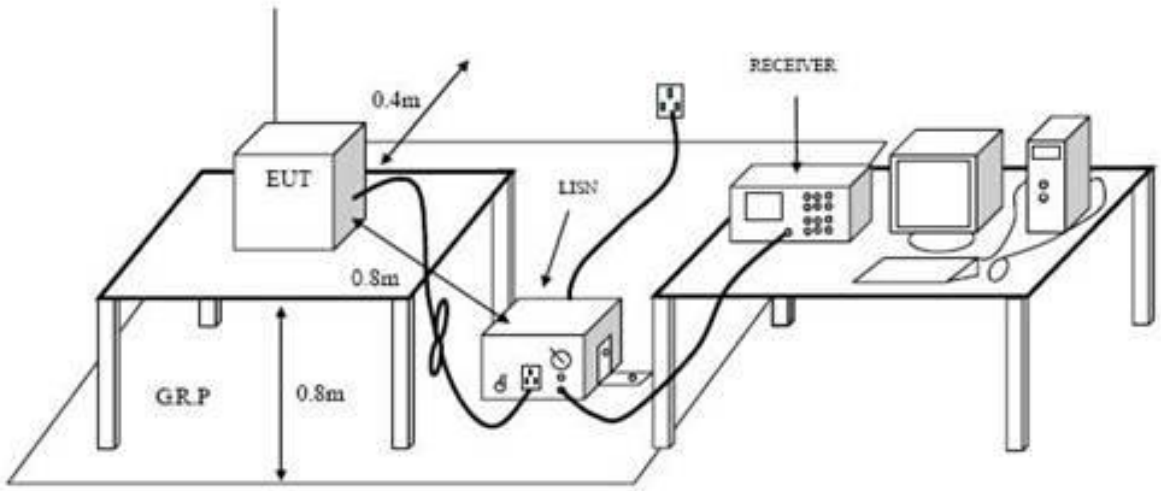
# 5: Test Requirements

## 5.1 Limits of line conducted emission test

| Frequency of Emission (MHz) | Conducted Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 * | 56 to 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* the limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.
The lower limit shall apply at the transition frequency

## 5.2 BLOCK DIAGRAM OF TESP SETUP




## 5.3 preliminary procedure of line conducted emission test

1) the equipment was set up as per the test configuration to simulate typical actual usage per the user's manual.When the EUT is a tabletop system,a wooden table with a height 0.8 meters is used and is placed on the ground plane as per FCC 15(see Test Facility for the dimensions of the ground plane noo-conductive covering to insulate the EUT from the ground plane.
2) Support equipment,if needed,was placed as per FCC Part 15.
3) All I/O Cables were positioned to simulate typical actual usage as per FCC Part 15.
4) The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network(LISN)which supplied power source and was grounded to the ground plane.
5) All support equipments received power from a second LISN supplying power of AC 120V/60Hz,if any.
6) The EUT Test program was started.Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer /Receiver connected to the LISN powering the EUT.The LISN hsa two monitoring points:Line1(Hot side)and Line 2(Neutral Side).Two scans were taken:one with Line 1connected to Analyzer/Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer/Receiver.
7) Analyzer /Receiver scanned form 150kHz to 30MHz for emissions in each of the test modes.
8) During the above scans,the emissions were maximized by cable manipulation.
9) The following test mode(s)were scanned during the preliminary test:

| **Preliminary Conducted Emission Test** | | | | |
|---|---|---|---|---|
| **Frequency Range Investigated** | | **150KHz to 30MHz** | | |
| **Mode of operation** | **Date** | **Report No.** | **Date#** | **Worst Mode** |
| Normal Working | 2011-05-25 | MOST MTECP05036 | RM001_(L,N) | ■ YES |

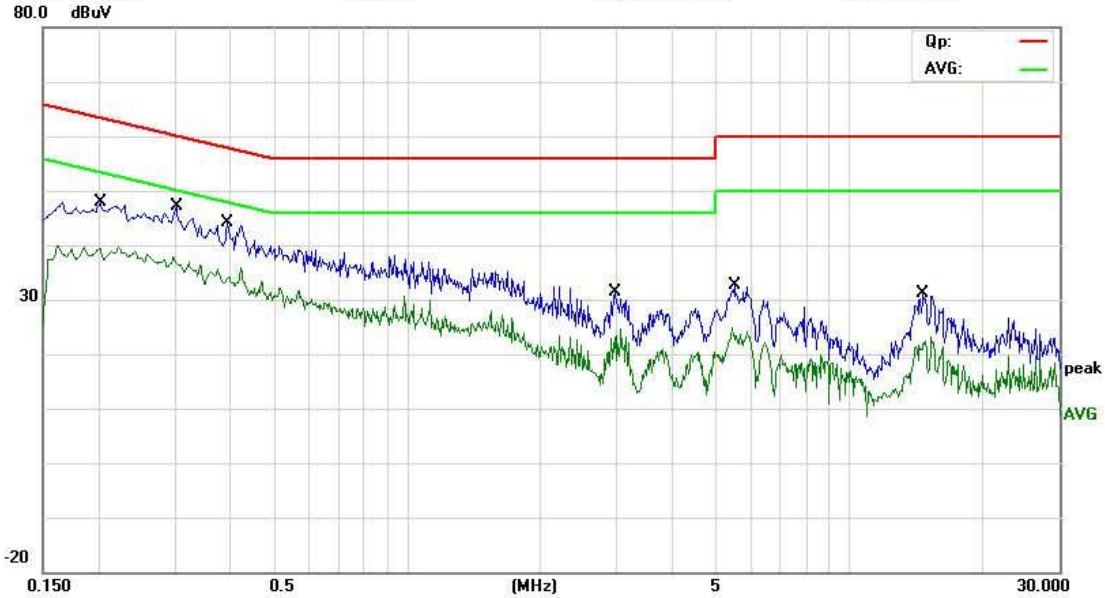
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing

## 5.4 Test result of line conducted emission test

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

**Conducted Emission Measurement**

File :SD-ANW01 Data :#1 Date: 2011/05/25 Time: 13:55:50




Site site #1 Phase: L1 Temperature: 26
Limit: FCC Part15 B Class B QP Power: DC 5V Adapter AC 120V/60Hz Humidity: 60 %
EUT: USB 2.0 Gigabit NAS SERVER
M/N: SD-ANW01
Mode: Running
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.2020 | 35.79 | 11.99 | 47.78 | 63.53 | -15.75 | QP | |
| 2 | * | 0.3020 | 35.92 | 11.32 | 47.24 | 60.19 | -12.95 | QP | |
| 3 | | 0.3940 | 33.31 | 10.71 | 44.02 | 57.98 | -13.96 | QP | |
| 4 | | 2.9660 | 21.35 | 9.97 | 31.32 | 56.00 | -24.68 | QP | |
| 5 | | 5.5180 | 20.92 | 11.69 | 32.61 | 60.00 | -27.39 | QP | |
| 6 | | 14.7420 | 22.21 | 9.00 | 31.21 | 60.00 | -28.79 | QP | |

*:Maximum data x:Over limit !:over margin

Engineer Signature: Kavin

Compliance Laboratory

Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
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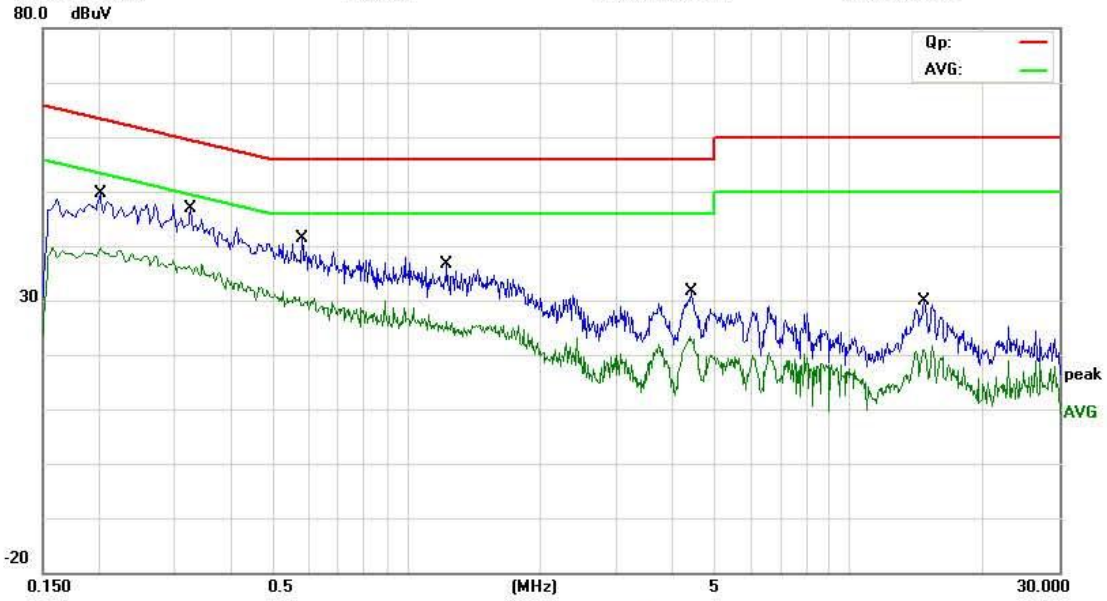
Tel: 0755-86170306 Fax: 0755-86170310

## Conducted Emission Measurement

File :SD-ANW01 Data :#2 Date: 2011/05/25 Time: 13:56:54




Site site #1 Phase: N Temperature: 26
Limit: FCC Part15 B Class B QP Power: DC 5V Adapter AC 120V/60Hz Humidity: 60 %
EUT: USB 2.0 Gigabit NAS SERVER
M/N: SD-ANW01
Mode: Running
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | Detector | Comment |
| 1 | | 0.2020 | 37.66 | 11.99 | 49.65 | 63.53 | -13.88 | QP | |
| 2 | * | 0.3260 | 35.83 | 11.16 | 46.99 | 59.55 | -12.56 | QP | |
| 3 | | 0.5820 | 31.27 | 10.00 | 41.27 | 56.00 | -14.73 | QP | |
| 4 | | 1.2340 | 26.86 | 9.77 | 36.63 | 56.00 | -19.37 | QP | |
| 5 | | 4.4100 | 20.20 | 11.41 | 31.61 | 56.00 | -24.39 | QP | |
| 6 | | 14.8100 | 20.90 | 9.00 | 29.90 | 60.00 | -30.10 | QP | |

*:Maximum data x:Over limit l:over margin

Engineer Signature: Kavin

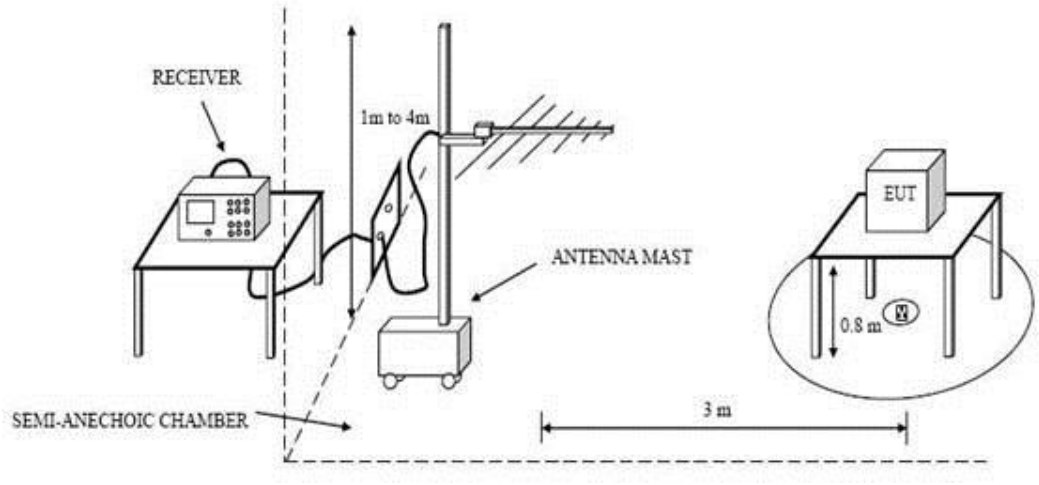
# 6: Test Radiated Emission Requirement

## 6.1 limits of radiated disturbances at 3m distances for class B

30 -88 MHz 40 dBuV/m @3M
88 - 216 MHz 43.5
216 - 960 MHz 46
ABOVE 960 MHz 54dBuV/m

Note: adjust the brightness and contrast to maximum
Emissions attenuated more than 20 dB below the permissible value are not reported.

## 6.2：BLOCK OF RADIATION INTERFERENCE




## 6.3 Preliminary radiated emission test

In the frequency range above 30MHz,Bi-log Test Antenna(30MHz to 1GHz)and Horn Test Antenna (above 1GHz)are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength. The emission levels at both horizontal and vertical polarizations should be tested.

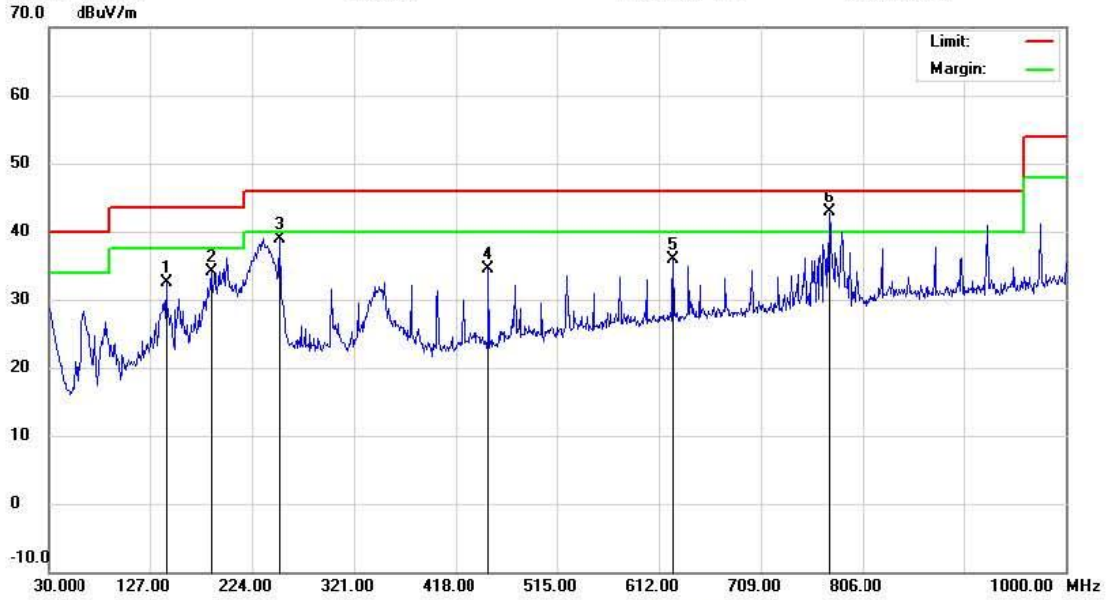
| Preliminary Radiated Emission Test | | | | |
|---|---|---|---|---|
| Frequency Range Investigated | | 30MHz to 5000MHz | | |
| Mode of operation | Date | Report No. | Date# | Worst Mode |
| Normal Working | 2011-03-26 | MOST MTECP05036 | RM001_(H,V) | ■ YES |

## 6.4 Test result of radiation emission test

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

**Radiated Emission Measurement**

File :SD-ANW01 Data :#1 Date: 2011-5-26 Time: 8:42:07




Site site MOST 3M
Limit: FCC Part15 B 3M Radiation
EUT: USB 2.0 Gigabit NAS SERVER
M/N: SD-ANW01
Mode: Running
Note:

Polarization: *Horizontal*
Power: DC 5V Adapter 120V/60Hz

Temperature: 26
Humidity: 61 %
Distance:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 142.5200 | 15.55 | 17.05 | 32.60 | 43.50 | -10.90 | QP | | | |
| 2 | | 185.1999 | 17.53 | 16.60 | 34.13 | 43.50 | -9.37 | QP | | | |
| 3 | | 250.1899 | 21.58 | 17.40 | 38.98 | 46.00 | -7.02 | QP | | | |
| 4 | | 450.0099 | 14.43 | 20.10 | 34.53 | 46.00 | -11.47 | QP | | | |
| 5 | | 625.5800 | 12.22 | 23.62 | 35.84 | 46.00 | -10.16 | QP | | | |
| 6 | * | 773.9900 | 16.90 | 26.02 | 42.92 | 46.00 | -3.08 | QP | | | |

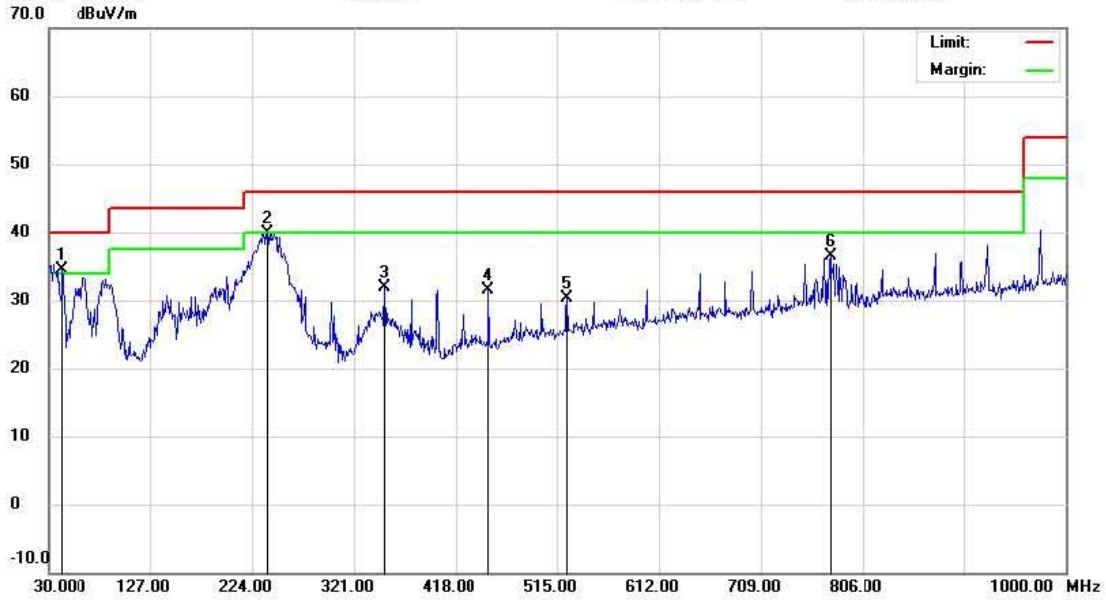
*:Maximum data x:Over limit l:over margin

Engineer Signature: Ricky

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

## Radiated Emission Measurement

File :SD-ANW01 Data :#2 Date: 2011-5-26 Time: 8:44:40




Site site MOST 3M
Limit: FCC Part15 B 3M Radiation
EUT: USB 2.0 Gigabit NAS SERVER
M/N: SD-ANW01
Mode: Running
Note:

Polarization: *Vertical*
Power: DC 5V Adapter 120V/60Hz
Distance:

Temperature: 26
Humidity: 61 %

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | * | 42.6099 | 19.34 | 15.13 | 34.47 | 40.00 | -5.53 | QP | | | |
| 2 | | 238.5500 | 22.81 | 17.10 | 39.91 | 46.00 | -6.09 | QP | | | |
| 3 | | 350.1000 | 14.15 | 17.81 | 31.96 | 46.00 | -14.04 | QP | | | |
| 4 | | 450.0099 | 11.34 | 20.10 | 31.44 | 46.00 | -14.56 | QP | | | |
| 5 | | 524.7000 | 8.26 | 22.04 | 30.30 | 46.00 | -15.70 | QP | | | |
| 6 | | 774.9600 | 10.48 | 26.05 | 36.53 | 46.00 | -9.47 | QP | | | |

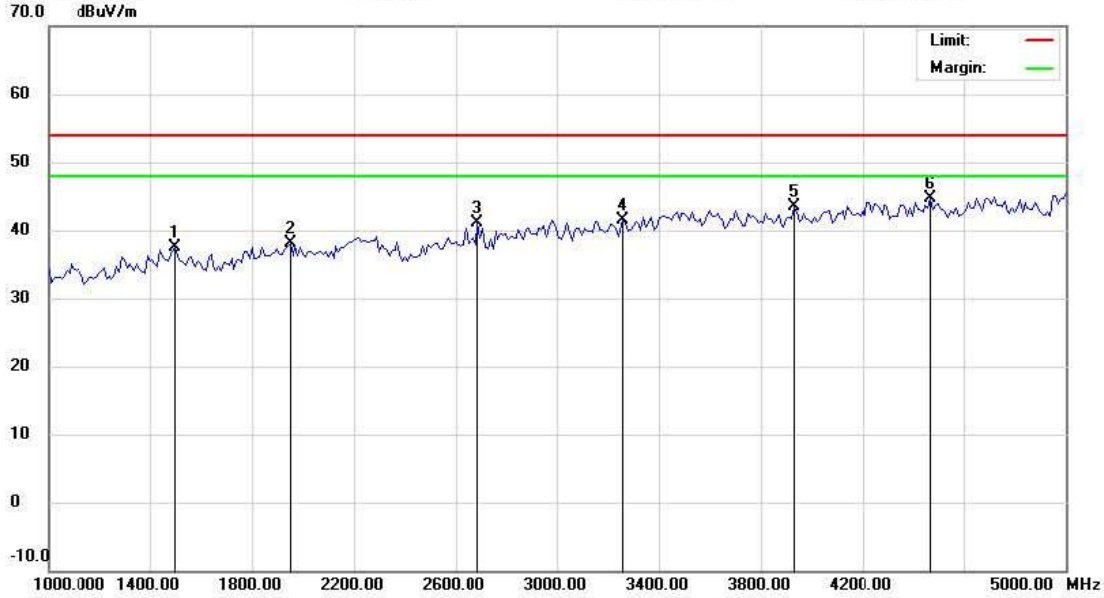
*:Maximum data x:Over limit l:over margin

Engineer Signature: Ricky

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

## Radiated Emission Measurement

File :SD-ANW01 Data :#11 Date: 2011-6-3 Time: 15:43:02




Site site MOST 3M Polarization: *Vertical* Temperature: 26
Limit: FCC Part15 B 3M Radiation(1000M-5000M) Power: DC 5V Adapter 120V/60Hz Humidity: 61 %
EUT: USB 2.0 Gigabit NAS SERVER Distance:
M/N: SD-ANW01
Mode: Running
Note:

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 1500.000 | 31.96 | 5.63 | 37.59 | 54.00 | -16.41 | peak | | | |
| 2 | | 1950.000 | 29.49 | 8.64 | 38.13 | 54.00 | -15.87 | peak | | | |
| 3 | | 2690.000 | 31.18 | 9.88 | 41.06 | 54.00 | -12.94 | peak | | | |
| 4 | | 3260.000 | 29.21 | 12.20 | 41.41 | 54.00 | -12.59 | peak | | | |
| 5 | | 3930.000 | 30.02 | 13.46 | 43.48 | 54.00 | -10.52 | peak | | | |
| 6 | * | 4470.000 | 29.20 | 15.45 | 44.65 | 54.00 | -9.35 | peak | | | |

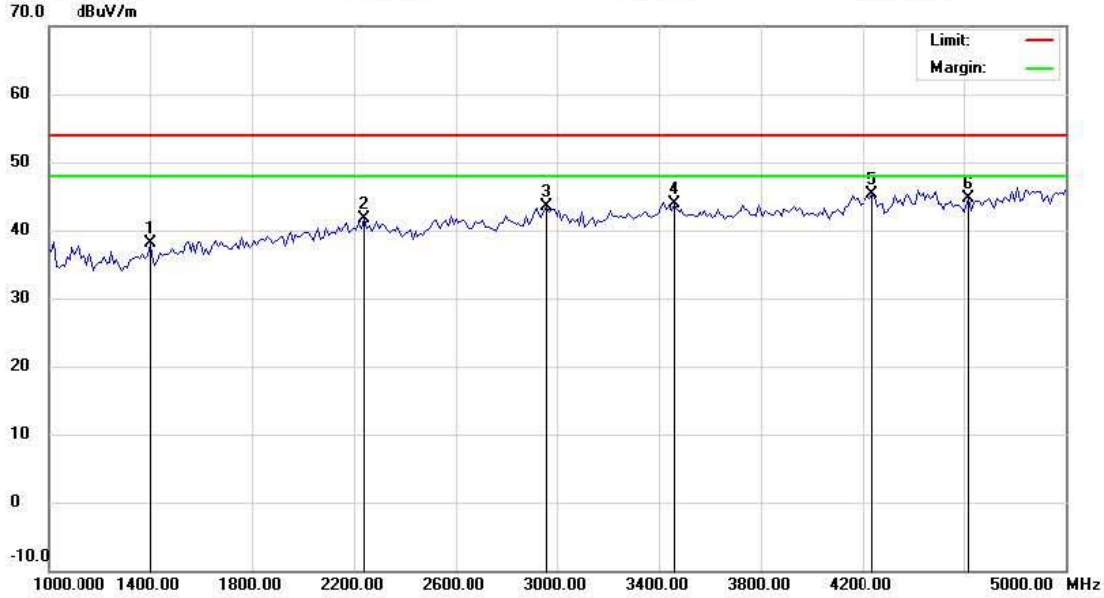
*:Maximum data x:Over limit l:over margin

Engineer Signature: key

Compliance Laboratory
Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park
Guangdong ,China
Tel: 0755-86170306 Fax: 0755-86170310

## Radiated Emission Measurement

File :SD-ANW01 Data :#12 Date: 2011-6-3 Time: 15:43:18




Site site MOST 3M
Limit: FCC Part15 B 3M Radiation(1000M-5000M)
EUT: USB 2.0 Gigabit NAS SERVER
M/N: SD-ANW01
Mode: Running
Note:

Polarization: *Horizontal*
Power: DC 5V Adapter 120V/60Hz
Distance:

Temperature: 26
Humidity: 61 %

| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit | Over | | Antenna Height | Table Degree | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV/m | dBuV/m | dB | Detector | cm | degree | Comment |
| 1 | | 1400.000 | 32.61 | 5.56 | 38.17 | 54.00 | -15.83 | peak | | | |
| 2 | | 2240.000 | 31.17 | 10.49 | 41.66 | 54.00 | -12.34 | peak | | | |
| 3 | | 2960.000 | 31.90 | 11.54 | 43.44 | 54.00 | -10.56 | peak | | | |
| 4 | | 3460.000 | 31.23 | 12.64 | 43.87 | 54.00 | -10.13 | peak | | | |
| 5 | * | 4240.000 | 30.91 | 14.32 | 45.23 | 54.00 | -8.77 | peak | | | |
| 6 | | 4620.000 | 29.23 | 15.43 | 44.66 | 54.00 | -9.34 | peak | | | |

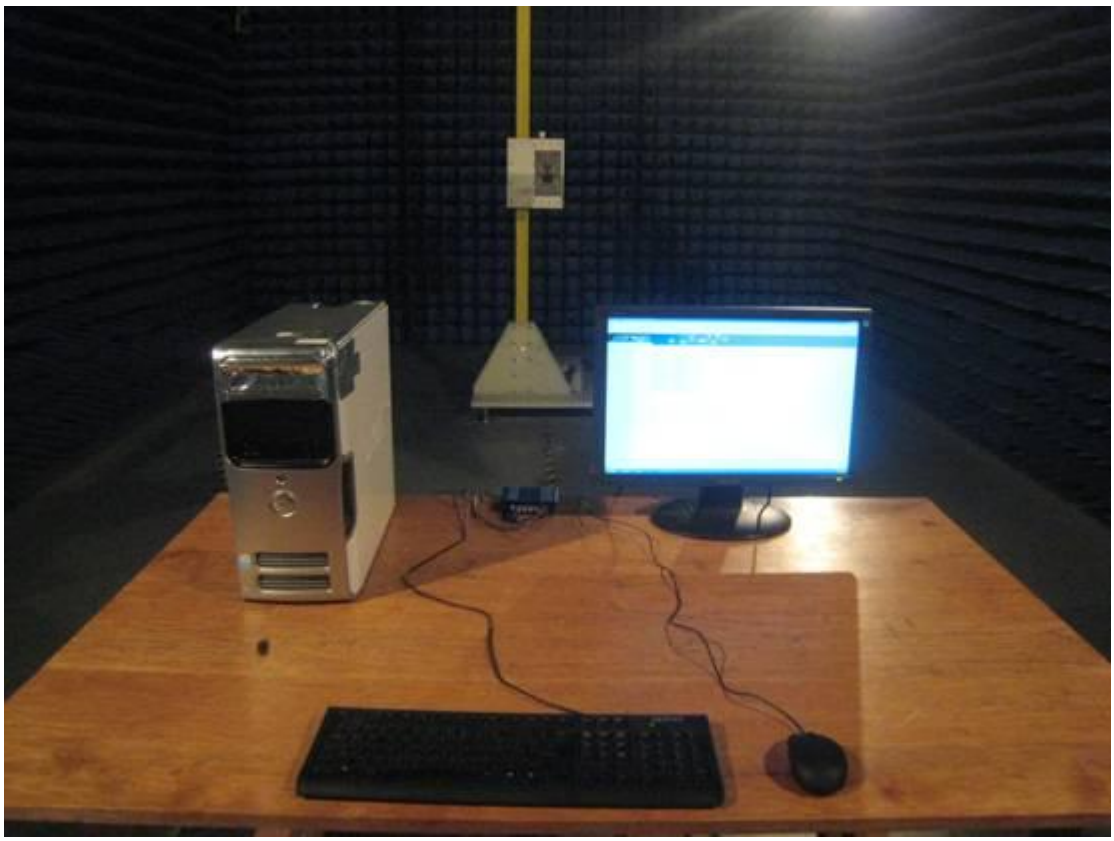
*:Maximum data x:Over limit l:over margin

Engineer Signature: key

# Appendix

CE

RE(30MHz-1000MHz)



RE (1000M-5000M)