

# FCC 47 CFR PART 15 SUBPART B TEST REPORT

For

**Applicant: Speed Dragon Multimedia Limited** 

Rm 1312, Vanta Industrial Centre, 21-33 Tai Lin Pai Rd, Kwai Address:

Chung, N.T, Hong Kong

**Product Name: IDE to CF Adapter** 

Model Number: IDE2UCF

**Brand Name: N/A** 

FCC ID: U3P-IDE2UCF

Report No.: MTE/SAL/F14091206

Date of Issue: Sept. 22, 2014

Issued by: Most Technology Service Co., Ltd.

Address: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan,

Shenzhen, Guangdong, China

Tel: 86-755-86026850

Fax: 86-755-26013350

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#### 1. VERIFICATION OF CONFORMITY

**Equipment Under Test:** IDE to CF Adapter

Brand Name: N/A

Model Number: IDE2UCF

Series Number: N/A

FCC ID: U3P-IDE2UCF

Applicant: Speed Dragon Multimedia Limited

Rm 1312, Vanta Industrial Centre, 21-33 Tai Lin Pai Rd, Kwai Chung, N.T,

Hong Kong

Manufacturer: Speed Dragon Multimedia Limited

Rm 1312, Vanta Industrial Centre, 21-33 Tai Lin Pai Rd, Kwai Chung, N.T.

Hong Kong

Technical Standards: FCC Part 15 B

File Number: MTE/SAL/F14091206

Date of test: Sept. 03, 2014

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

The above equipment was tested by MOST for compliance with the requirements set forth in FCC Part 15 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 this report.

Tested by (+ signature):

Sophia Liu

Sept. 03, 2014

Henry Chen

Sept. 03, 2014

Approved by (+ signature):

Yvetter Zhou(Manager)

Sept. 22, 2014

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### 2. GENERAL INFORMATION 2.1 PRODUCT INFORMATION

| Description:                  | IDE to CF Adapter                        |  |  |  |  |
|-------------------------------|------------------------------------------|--|--|--|--|
| Model Name:                   | IDE2UCF                                  |  |  |  |  |
| Series Number:                | N/A                                      |  |  |  |  |
| Model Difference description: | N/A                                      |  |  |  |  |
| Power Supply:                 | DC 5V from PC System Input AC 120V/60Hz. |  |  |  |  |
| Temperature Range:            | -20°C ~ +50°C                            |  |  |  |  |

#### NOTE:

<sup>1.</sup> For a more detailed features description about the EUT, please refer to User's Manual.

#### 2.2 OBJECTIVE

Perform FCC Part 15 Subpart B tests for FCC Marking.

#### 2.3 TEST STANDARDS AND RESULTS

Test items and the results are as bellow:

| EMISSION                        |           |        |                    |  |  |  |
|---------------------------------|-----------|--------|--------------------|--|--|--|
| Standard                        | Item      | Result | Remarks            |  |  |  |
| FCC Subpart 15 B Section 15.107 | Conducted | PASS   | Meet Class B limit |  |  |  |
| FCC Subpart 15 B Section 15.109 | Radiated  | PASS   | Meet Class B limit |  |  |  |

Note: 1. The test result judgment is decided by the limit of measurement standard

2. The information of measurement uncertainty is available upon the customer's request.

#### 2.4 ENVIRONMENTAL CONDITIONS

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

- Temperature: 15-35°C - Humidity: 30-60 %

- Atmospheric pressure: 86-106 kPa

#### 2.5 MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

The report uncertainty of measurement y±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%

- Uncertainty of Conducted Emission,  $Uc = \pm 1.8dB$
- Uncertainty of Radiated Emission, Uc = ±3.2dB

#### 3. TEST METHODOLOGY

#### 3. 1TEST FACILITY

Test Site: Most Technology Service Co., Ltd.

Location: No.5, Langshan 2nd Rd, North Hi-Tech Industrial park, Nanshan, 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 C63.4:2009 and CISPR

16 requirements. The FCC Registration Number is 490827.

The CNAS Registration Number is CNAS L3573.

The site description is on file with the Federal Communications Site Filing:

Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 Instrument Tolerance:

requirements that meet industry regulatory agency and accreditation agency

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 40 cm 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

#### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4:2009, Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

#### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m 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 C63.4:2009.

#### 3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                                                                                                                                                                                                                                                                                    | MHz                   | MHz             | GHz           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------|---------------|
| 0.090 - 0.110  10.495 - 0.505 2.1735 - 2.1905 4.125 - 4.128 4.17725 - 4.17775 4.20725 - 4.20775 6.215 - 6.218 6.26775 - 6.26825 6.31175 - 6.31225 8.291 - 8.294 8.362 - 8.366 8.37625 - 8.38675 8.41425 - 8.41475 12.29 - 12.293 12.51975 - 12.52025 12.57675 - 12.57725 13.36 - 13.41 | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15    |
|                                                                                                                                                                                                                                                                                        | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46   |
|                                                                                                                                                                                                                                                                                        | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75   |
|                                                                                                                                                                                                                                                                                        | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5   |
|                                                                                                                                                                                                                                                                                        | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2     |
|                                                                                                                                                                                                                                                                                        | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5     |
|                                                                                                                                                                                                                                                                                        | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7   |
|                                                                                                                                                                                                                                                                                        | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4  |
|                                                                                                                                                                                                                                                                                        | 123 - 138             | 2200 - 2300     | 14.47 - 14.5  |
|                                                                                                                                                                                                                                                                                        | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2  |
|                                                                                                                                                                                                                                                                                        | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4   |
|                                                                                                                                                                                                                                                                                        | 156.7 - 156.9         | 2655 - 2900     | 22.01 - 23.12 |
|                                                                                                                                                                                                                                                                                        | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0   |
|                                                                                                                                                                                                                                                                                        | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8   |
|                                                                                                                                                                                                                                                                                        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5  |
|                                                                                                                                                                                                                                                                                        | 322 - 335.4           | 3600 - 4400     | (²)           |

<sup>&</sup>lt;sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

<sup>&</sup>lt;sup>2</sup> Above 38.6

#### 4 SETUP OF EQUIPMENT UNDER TEST

#### **4.1 SETUP CONFIGURATION OF EUT**

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

#### 4.2 EUT configuration

Interface cables:

| Interface cable | Length | Type        | Line     |             | Line termination |
|-----------------|--------|-------------|----------|-------------|------------------|
|                 | [m]    |             | shielded | unshielded  |                  |
| Power cord      | 1.5    | three wires |          | $\boxtimes$ | PC               |
| Power cord      | 1.5    | three wires |          | $\boxtimes$ | Printer          |
| DVI Cord        | 1.8    | Video type  |          | $\boxtimes$ | PC               |
| VGA Cord        | 1.8    | Video type  |          | $\boxtimes$ | PC               |
| DP Cord         | 1.8    | Video type  |          | $\boxtimes$ | PC               |

#### Peripheral devices:

List out all peripheral not inclued with EuT used during the test

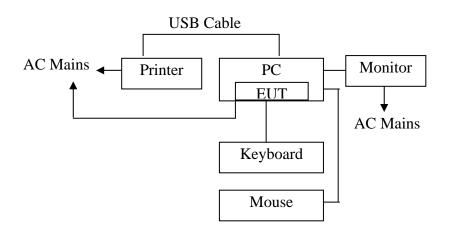
| Kind of equipment | Manufacturer | Model no.  |
|-------------------|--------------|------------|
| Mouse             | Lenovo       | M-UAE96    |
| Keyboard          | HP           | SK-2880    |
| PC                | Lenovo       | SS05750640 |
| Printer           | Canon        | L11121E    |
| Monitor           | Lenovo       | LXM-L15D13 |

#### Remark:

All the equipment/cables were placed in the worst-case [-configuration to maximize the emission during the

Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

#### 4.3 Block Diagram of connection between EUT and simulation



#### 4. 3 TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipment used at MOST for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

| No. | Equipment                               | Manufacturer                 | Model No.         | S/N         | Calibration due date |
|-----|-----------------------------------------|------------------------------|-------------------|-------------|----------------------|
| 1   | Test Receiver                           | Rohde & Schwarz              | ESCI              | 100492      | 2015/03/10           |
| 2   | L.I.S.N.                                | Rohde & Schwarz              | ENV216            | 100093      | 2015/03/10           |
| 3   | Coaxial Switch                          | Anritsu Corp                 | MP59B             | 6200283933  | 2015/03/07           |
| 4   | Terminator                              | Hubersuhner                  | 50Ω               | No.1        | 2015/03/07           |
| 5   | RF Cable                                | SchwarzBeck                  | N/A               | No.1        | 2015/03/07           |
| 6   | Test Receiver                           | Rohde & Schwarz              | ESPI              | 101202      | 2015/03/10           |
| 7   | Bilog Antenna                           | Sunol                        | JB3               | A121206     | 2015/03/14           |
| 8   | Test Antenna - Horn                     | SCHWARZBECK                  | BBHA9120D         | 756         | 2015/03/14           |
| 9   | Test Antenna - Bi-Log                   | Schwarzbeck                  | VULB 9163         |             | 2015/03/14           |
| 10  | Cable                                   | Resenberger                  | N/A               | NO.1        | 2015/03/07           |
| 11  | Cable                                   | SchwarzBeck                  | N/A               | NO.2        | 2015/03/07           |
| 12  | Cable                                   | SchwarzBeck                  | N/A               | NO.3        | 2015/03/07           |
| 13  | DC Power Filter                         | DuoJi                        | DL2×30B           | N/A         | 2015/03/07           |
| 14  | Single Phase Power Line<br>Filter       |                              |                   | N/A         | 2015/03/07           |
| 15  | 3 Phase Power Line Filter               | DuoJi                        | FNF 402B30        | N/A         | 2015/03/07           |
| 16  | Test Receiver                           | Rohde & Schwarz              | ESCI              | 100492      | 2015/03/10           |
| 17  | Absorbing Clamp                         | Luthi                        | MDS21             | 3635        | 2015/03/14           |
| 18  | Coaxial Switch                          | Anritsu Corp MP59B           |                   | 6200283933  | 2015/03/07           |
| 19  | AC Power Source                         | ce Kikusui AC40MA            |                   | LM003232    | 2015/03/10           |
| 20  | Test Analyzer                           | est Analyzer Kikusui KHA1000 |                   | LM003720    | 2015/03/10           |
| 21  | Line Impendence Network                 | Kikusui                      | LIN40MA-<br>PCR-L | LM002352    | 2015/03/10           |
| 22  | ESD Tester                              | Kikusui                      | KES4021           | LM003537    | 2015/03/07           |
| 23  | EMCPRO System                           | EM Test                      | UCS-500-M4        | V0648102026 | 2015/03/10           |
| 24  | Signal Generator                        | IFR                          | 2032              | 203002/100  | 2015/03/10           |
| 25  | Amplifier                               | A&R                          | 150W1000          | 301584      | 2015/03/14           |
| 26  | CDN                                     | FCC                          | FCC-801-M2-25     | 47          | 2015/03/10           |
| 27  | CDN                                     | FCC                          | FCC-801-M3-25     | 107         | 2015/03/10           |
| 28  | EM Injection Clamp                      | FCC                          | F-203I-23mm       | 403         | 2015/03/10           |
| 29  | RF Cable                                | MIYAZAKI                     | N/A               | No.1/No.2   | 2015/03/10           |
| 30  | Universal Radio<br>Communication Tester | ROHDE&SCHWARZ                | CMU200            | 0304789     | 2015/03/10           |
| 31  | Telecommunication Antenna               | European Antennas            | PSA 75301R/170    | 0304213     | 2015/03/10           |

**NOTE:** Equipments listed above have been calibrated and are in the period of validation.

#### 5. 47 CFR PART 15B REQUIREMENTS

#### **5.1 GENERAL INFORMATION**

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of X axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

#### **EUT Test Procedure:**

- 1. Put EUT on the test table.
- 2. Power on the EUT.
- 3. Make sure the EUT operates normally during the test.

#### **Mode 1: Data Transmitting**

During the measurement, A Communication link was established by EUT between two ports. The EUT was playing the data exchange function.

The EUT configuration of the emission test was PC+ Mouse + Keyboard + Printer + EUT + Monitor.

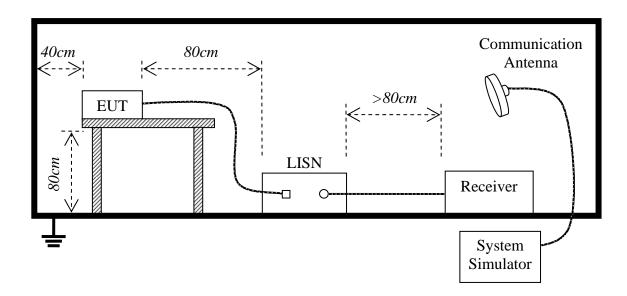
#### 6. LINE CONDUCTED EMISSION TEST

#### 6.1. LIMITS OF LINE CONDUCTED EMISSION TEST

| Fraguanay     | Maximum RF  | Line Voltage   |
|---------------|-------------|----------------|
| Frequency     | Q.P.( dBuV) | Average( dBuV) |
| 150kHz-500kHz | 66-56       | 56-46          |
| 500kHz-5MHz   | 56          | 46             |
| 5MHz-30MHz    | 60          | 50             |

\*\*Note: 1. the lower limit shall apply at the transition frequency.

#### **6.2. BLOCK DIAGRAM OF TEST SETUP**



<sup>2.</sup> The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

#### 6.3. 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 of 0.8 meters is used and is placed on the ground plane as per FCC Part 15 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-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 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 has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected 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 from 150 kHz to 30 MHz 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 In     | nvestigated                         | 1                 | 150KHz TO 30 MHz |             |  |  |  |  |
| Mode of operation Date |                                     | Report No.        | Data#            | Worst Mode  |  |  |  |  |
| Data Transmitting      | 2014-09-03                          | MTE/SAL/F14091206 | IDE2UCF          | $\boxtimes$ |  |  |  |  |

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

#### 6.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

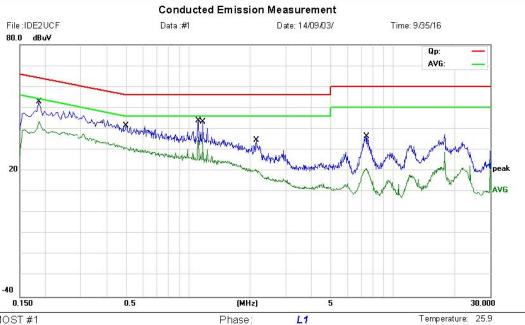
EUT and support equipment was set up on the test bench as per step 9 of the preliminary test. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –20dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test modes were carried out for all operation modes, The worst data was shown as the follow.

#### 6.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China Tel: 0755-86026850 Fax: 0755-26013350



Power: DC5VbyPC

Site MOST #1

Limit: FCC Part15 B Class B QP

EUT: IDE to CF Adapter

M/N: IDE2UCF

Mode: Data Transmitting

Note:

| No. | Mk. | Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit | Over   |          |         |
|-----|-----|--------|------------------|-------------------|------------------|-------|--------|----------|---------|
|     |     | MHz    | dBu∨             | dB                | dBu∀             | dBu∀  | dB     | Detector | Comment |
| 1   |     | 0.1836 | 36.67            | 11.02             | 47.69            | 64.32 | -16.63 | QР       |         |
| 2   |     | 0.1836 | 30.74            | 11.02             | 41.76            | 54.32 | -12.56 | AVG      |         |
| 3   |     | 0.4983 | 26.81            | 10.01             | 36.82            | 56.03 | -19.21 | QP       |         |
| 4   |     | 0.4983 | 22.45            | 10.01             | 32.46            | 46.03 | -13.57 | AVG      |         |
| 5   |     | 1.1146 | 31.39            | 9.89              | 41.28            | 56.00 | -14.72 | QP       |         |
| 6   | *   | 1.1146 | 24.86            | 9.89              | 34.75            | 46.00 | -11.25 | AVG      |         |
| 7   |     | 1.1741 | 25.31            | 9.83              | 35.14            | 56.00 | -20.86 | QP       |         |
| 8   |     | 1.1741 | 18.77            | 9.83              | 28.60            | 46.00 | -17.40 | AVG      |         |
| 9   |     | 2.1465 | 18.44            | 9.15              | 27.59            | 56.00 | -28.41 | QP       |         |
| 10  |     | 2.1465 | 10.56            | 9.15              | 19.71            | 46.00 | -26.29 | AVG      |         |
| 11  |     | 7.4750 | 17.97            | 10.52             | 28.49            | 60.00 | -31.51 | QP       |         |
| 12  |     | 7.4750 | 8.38             | 10.52             | 18.90            | 50.00 | -31.10 | AVG      |         |

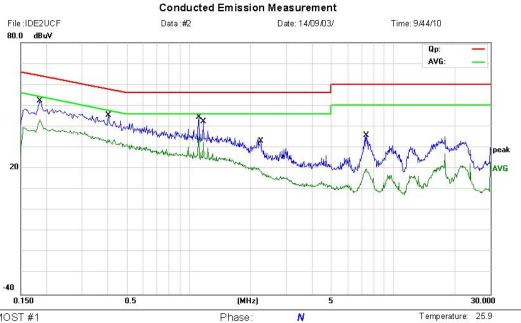
<sup>\*:</sup>Maximum data x:Over limit !:over margin

Engineer Signature: Robing

Humidity: 49 %



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China Tel: 0755-86026850 Fax: 0755-26013350



Power: DC5V by PC

Site MOST #1

Limit: FCC Part15 B Class B QP

EUT: IDE to CF Adapter

M/N: IDE2UCF

Mode: Data Transmitting

Note:

| No. | Mk. | Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit | Over   |          |         |
|-----|-----|--------|------------------|-------------------|------------------|-------|--------|----------|---------|
|     |     | MHz    | dBu∨             | dB                | dBu∀             | dBu∀  | dB     | Detector | Comment |
| 1   |     | 0.1876 | 37.44            | 11.26             | 48.70            | 64.14 | -15.44 | QP       |         |
| 2   | *   | 0.1876 | 31.38            | 11.26             | 42.64            | 54.14 | -11.50 | AVG      |         |
| 3   |     | 0.4073 | 27.73            | 10.62             | 38.35            | 57.70 | -19.35 | QP       |         |
| 4   |     | 0.4073 | 22.19            | 10.62             | 32.81            | 47.70 | -14.89 | AVG      |         |
| 5   |     | 1.1143 | 31.08            | 9.89              | 40.97            | 56.00 | -15.03 | QP       |         |
| 6   |     | 1.1143 | 24.56            | 9.89              | 34.45            | 46.00 | -11.55 | AVG      |         |
| 7   |     | 1.1805 | 30.28            | 9.82              | 40.10            | 56.00 | -15.90 | QP       |         |
| 8   |     | 1.1805 | 22.30            | 9.82              | 32.12            | 46.00 | -13.88 | AVG      |         |
| 9   |     | 2.2473 | 14.97            | 9.25              | 24.22            | 56.00 | -31.78 | QР       |         |
| 10  |     | 2.2473 | 8.55             | 9.25              | 17.80            | 46.00 | -28.20 | AVG      |         |
| 11  |     | 7.3786 | 15.09            | 10.57             | 25.66            | 60.00 | -34.34 | QP       |         |
| 12  |     | 7.3786 | 6.61             | 10.57             | 17.18            | 50.00 | -32.82 | AVG      |         |

<sup>\*:</sup>Maximum data x:Over limit !:over margin

Engineer Signature: Robing

Humidity: 49 %

#### 7. RADIATED EMISSION TEST

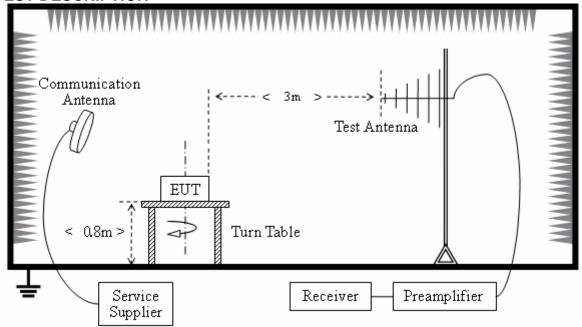
#### 7.1. LIMITS OF RADIATED DISTURBANCES AT 3M DISTANCES FOR CLASS B

According to FCC section 15.109 (a), Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency of emission (MHz) | Field strength (microvolts/meter) |
|-----------------------------|-----------------------------------|
| 30-88                       | 100                               |
| 88-216                      | 150                               |
| 216-960                     | 200                               |
| Above 960                   | 500                               |

As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

#### 7.2 TEST DESCRIPTION



- (1) The EUT was palced on a turntable with 0.8 meter above ground.
- (2) The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- (3) The table was rotated 360 degrees to determine the position of the highest radiation.
- (4) The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- (5) For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1m to 4m) and turntable(from 0 degree to 360 degrees) to find the maximum reading.
- (6) Set the test-receiver system to Peak Detect Function and specified bandwidth with maximum hold mode.
- (7) If the emission level of the EUT in peak mode was 3dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported.
- (8) Emission level(dBuV/m)=20 log Emission level(uv/m).
- (9) Corrected reading: Antenna Factor + cable loss + read level Preamp Factor = level

#### 7.3 TEST RESULT

| Preliminary Radiated Emission Test |               |                    |         |               |  |  |  |  |  |  |
|------------------------------------|---------------|--------------------|---------|---------------|--|--|--|--|--|--|
| Frequ                              | ency Range In | 30 MHz TO 1000 MHz |         |               |  |  |  |  |  |  |
| Mode of operation Date             |               | Report No.         | Data#   | Worst<br>Mode |  |  |  |  |  |  |
| Data Transmitting                  | 2014-09-03    | MTE/SAL/F14091206  | IDE2UCF | $\boxtimes$   |  |  |  |  |  |  |

#### Note:

The test modes were carried out for all operation modes, The worst data was shown as the follow.

#### **Below 1GHz**



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China Tel: 0755-86026850 Fax: 0755-26013350

Radiated Emission Measurement File:IDE2UCF Data:#1 Date: 2014-9-3 Time: 10:44:48 70.0 dBuV/m Margin: 60 50 40 30 20 10 0 -10.0 30.000 70 80 500 600 700

Site Chamber #1

Limit: FCC Part15 B 3M Radiation

EUT: IDE to CF Adapter

M/N: IDE2UCF

Mode: Data Transmitting

Note:

Power: DC 5V by PC

Polarization: Horizontal

Distance: 3m

Temperature: 26.9

56 %

Humidity:

| No. | Mk. | . Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit  | Over  |          | Antenna<br>Height | Table<br>Degree |         |
|-----|-----|----------|------------------|-------------------|------------------|--------|-------|----------|-------------------|-----------------|---------|
|     |     | MHz      | dBu∨             | dB                | dBu∀/m           | dBuV/m | dB    | Detector | cm                | degree          | Comment |
| 1   |     | 47.1599  | 21.88            | 11.72             | 33.60            | 40.00  | -6.40 | QР       |                   |                 |         |
| 2   | *   | 60.2801  | 24.62            | 10.83             | 35.45            | 40.00  | -4.55 | QР       |                   |                 |         |
| 3   |     | 71.8320  | 21.92            | 11.64             | 33.56            | 40.00  | -6.44 | QP       |                   |                 |         |
| 4   |     | 122.4040 | 19.53            | 17.55             | 37.08            | 43.50  | -6.42 | QP       |                   |                 |         |
| 5   |     | 239.9873 | 22.35            | 17.20             | 39.55            | 46.00  | -6.45 | QP       |                   |                 |         |
| 6   |     | 760.7036 | 11.53            | 25.62             | 37.15            | 46.00  | -8.85 | QP       |                   |                 |         |

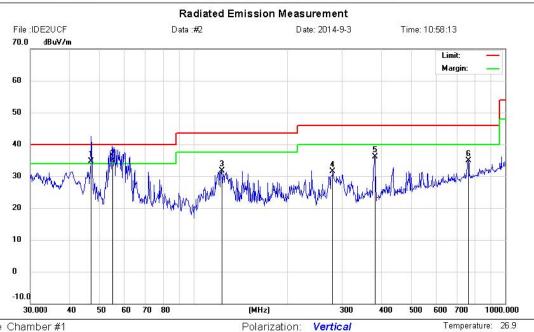
Engineer Signature: Robert

<sup>\*:</sup>Maximum data x:Over limit !:over margin



Address:No.5,Langshan 2nd Rd., North Hi-Tech Industrial park Guangdong ,China

Tel: 0755-86026850 Fax: 0755-26013350



Power: DC 5V by PC

Site Chamber #1

Limit: FCC Part15 B 3M Radiation

EUT: IDE to CF Adapter

M/N: IDE2UCF

Mode: Data Transmitting

Note:

Antenna Reading Table Correct Measure-Limit Freq. Over No. Mk. Level Factor ment Height Degree MHz dBu∀ dΒ dBuV/m dBuV/m dΒ Detector cm degree Comment 1 47.0820 22.80 11.96 34.76 40.00 -5.24 QΡ 100 136 2 55.1300 24.60 10.55 35.15 40.00 -4.85 QΡ 100 350 17.56 3 122.8340 14.18 31.74 43.50 -11.76 QΡ 4 280.0237 12.16 19.40 31.56 46.00 -14.44 QΡ 381.2487 17.99 18.12 5 36.11 46.00 -9.89 QΡ 760.7036 9.30 25.62 34.92 46.00 QΡ 6 -11.08

Humidity:

Distance: 3m

56 %

<sup>\*:</sup>Maximum data x:Over limit Lover margin

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

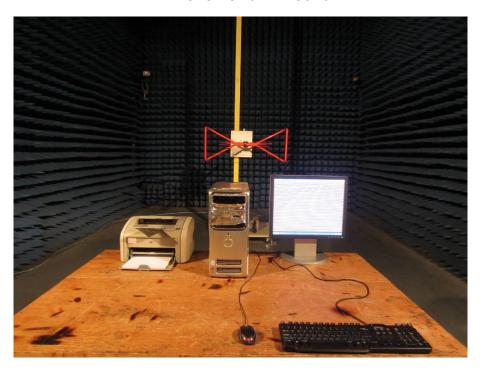
#### CE TEST SETUP OF IDE2UCF-1



CE TEST SETUP OF IDE2UCF-2







RE TEST SETUP OF IDE2UCF-4

