




FCC PART 15B
MEASUREMENT AND TEST REPORT
FOR
UNICORN MANUFACTURING LTD.

UNIT5, 21/F, H.K. WORSTED MILLS IND BLDG, 31-39WO TONG TSUI ST,

KWAI CHUNG, N.T. HONGKONG

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|----------------------------|
| FCC ID: UTF-DPF0004 |
|----------------------------|

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|--|---|---------------|----------------|--------------------|---------------------|-------------------------------|-------------------|-------------------|---------------------------------|---------------------|-------------------|---|--|--------------------------------------|---|
| Report Concerns: Original Report | Equipment Type: DIGITAL PHOTO FRAME | | | | | | | | | | | | | | |
| <table style="width: 100%;"><tr><td style="width: 40%;">Model:</td><td><u>DPF4000</u></td></tr><tr><td>Report No.:</td><td><u>STR080681811</u></td></tr><tr><td>Test/Witness Engineer:</td><td><i>Seven Song</i></td></tr><tr><td>Test Date:</td><td><u>2008-07-04 to 2008-07-11</u></td></tr><tr><td>Issued Date:</td><td><u>2008-07-12</u></td></tr><tr><td colspan="2">Prepared By: <div style="text-align: center;">SEM.Test Compliance Service Co., Ltd. 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)</div></td></tr><tr><td>Approved & Authorized By:</td><td style="text-align: center;"><div style="margin-bottom: 10px;"></div><div style="border-top: 1px solid black; width: 100%; margin-bottom: 5px;"></div>Jandy So / PSQ Manager</td></tr></table> | | Model: | <u>DPF4000</u> | Report No.: | <u>STR080681811</u> | Test/Witness Engineer: | <i>Seven Song</i> | Test Date: | <u>2008-07-04 to 2008-07-11</u> | Issued Date: | <u>2008-07-12</u> | Prepared By: <div style="text-align: center;">SEM.Test Compliance Service Co., Ltd. 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)</div> | | Approved & Authorized By: | <div style="margin-bottom: 10px;"></div> <div style="border-top: 1px solid black; width: 100%; margin-bottom: 5px;"></div> Jandy So / PSQ Manager |
| Model: | <u>DPF4000</u> | | | | | | | | | | | | | | |
| Report No.: | <u>STR080681811</u> | | | | | | | | | | | | | | |
| Test/Witness Engineer: | <i>Seven Song</i> | | | | | | | | | | | | | | |
| Test Date: | <u>2008-07-04 to 2008-07-11</u> | | | | | | | | | | | | | | |
| Issued Date: | <u>2008-07-12</u> | | | | | | | | | | | | | | |
| Prepared By: <div style="text-align: center;">SEM.Test Compliance Service Co., Ltd. 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)</div> | | | | | | | | | | | | | | | |
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: UNICORN MANUFACTURING LTD.
Address of applicant: UNIT5, 21/F, H.K. WORSTED MILLS IND BLDG, 31-39WO
TONG TSUI ST, KWAI CHUNG, N.T. HONGKONG

Manufacturer: UNICORN ELEC. (SHENZHEN) CO., LTD.
Address of manufacturer: ZHING KENG JING VILLAGE, GUAN LAN DISTRICT, BAO
AN, SHENZHEN, CHINA

General Description of E.U.T

| Items | Description |
|---|---------------------|
| EUT Description: | DIGITAL PHOTO FRAME |
| Trade Name: | / |
| Model No.: | DP4000 |
| Rated Voltage: | DC 6V Battery |
| Rated Current: | / |
| Size: | 11.0X10.5X6.0 cm |
| For more information refer to the circuit diagram form and the user's manual. | |

The test data is gathered from a production sample provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the UNICORN MANUFACTURING LTD. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission/immunity, should be checked to ensure compliance has been maintained.

1.3 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the Operating Instructions.

1.5 Test Facility

The Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files which the Registration No.: **994117**. Measurement required was performed at laboratory of SEM.Test Compliance Service Co., Ltd. at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101).

1.6 EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components. The test software, provided by the customer, is started while the EUT is on to simulate the normal work.

1.7 Accessories Equipment List and Details

| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|------------|---------------|
| IBM | Notebook | T22 | LV14893 |
| TP-LINK | Modem | TM-EC5658V | KT99CTQC-508 |
| Lenovo | Printer | 3110 | OD65133711480 |

1.8 EUT Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| USB Cable | 0.6 | Shielded | With Core |

2. SUMMARY OF TEST RESULTS

| Description of Test | Result |
|--------------------------------|-----------|
| §15.107 (a) Conducted Emission | Compliant |
| §15.109(a) Radiated Emission | Compliant |

3. §15.107 (a)- CONDUCTED EMISSION

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 1.5 dB.

3.2 Test Equipment List and Details

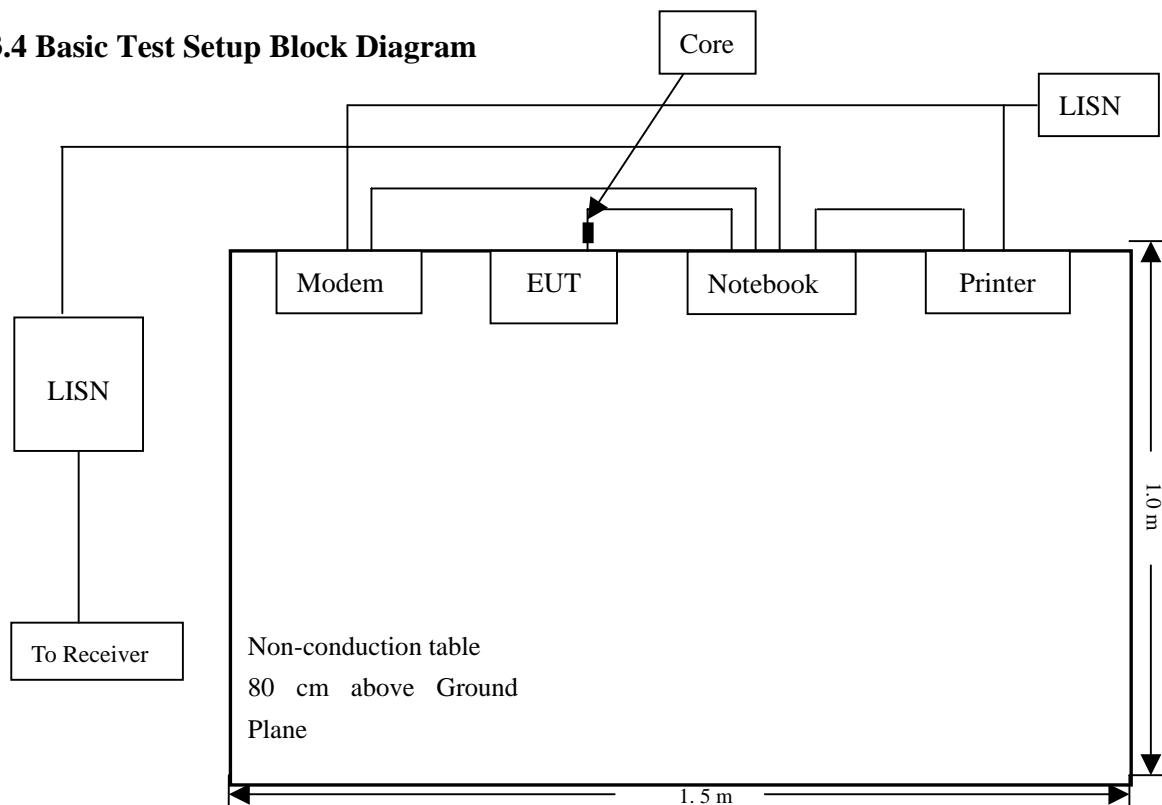
| Description | Manufacturer | Model | Serial Number | Cal. Date | Due. Date |
|-------------------|-----------------|------------|---------------|------------|------------|
| EMI Test Receiver | Rohde & Schwarz | ESCS30 | 830245/009 | 2008-01-25 | 2009-01-24 |
| AMN | Rohde & Schwarz | ESH2-Z5 | 100002 | 2008-01-25 | 2009-01-24 |
| Limiter | Rohde & Schwarz | ESH3-Z2 | 357.8810.52 | 2008-01-25 | 2009-01-24 |
| AMN | Rohde & Schwarz | ESH3-Z5 | 828304/014 | 2008-01-25 | 2009-01-24 |
| Spectrum Analyzer | Aglient | E4402B-ESA | US41192821 | 2008-01-25 | 2009-01-24 |

3.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.107 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 18° C |
| Relative Humidity: | 55% |
| ATM Pressure: | 1012 mbar |

3.6 Summary of Test Results/Plots

According to the data in section 3.8, the EUT complied with the FCC 15B Conducted margin for a Class B device, with the *worst* margin reading of:

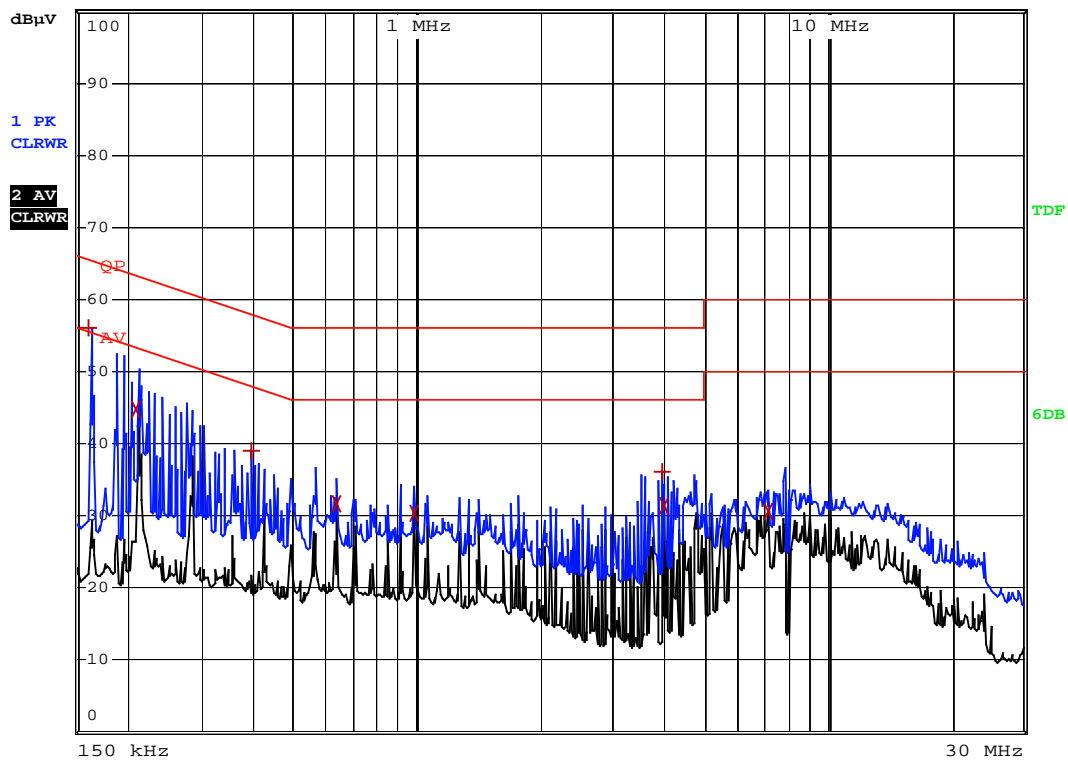
-8.4 dB μ V at 0.21MHz in the Neutral mode, 0.15-30MHz

3.7 Conducted Emissions Test Data

| LINE CONDUCTED EMISSIONS | | | | FCC 15B CLASS B | |
|--------------------------|------------|-----------|--------------|-----------------|--------|
| Frequency | Amplitude | Detector | Phase | Limit | Margin |
| MHz | dB μ V | QP/Ave/Pk | Line/Neutral | dB μ V | dB |
| 0.21 | 44.85 | Ave | Neutral | 53.21 | -8.4 |
| 0.162 | 56.1 | Pk | Neutral | 65.36 | -9.3 |
| 0.154 | 54.83 | Pk | Line | 65.78 | -11.0 |
| 0.21 | 39.85 | Ave | Line | 53.21 | -13.4 |
| 0.634 | 31.70 | Ave | Neutral | 46 | -14.3 |
| 4.086 | 31.68 | Ave | Line | 46 | -14.3 |
| 4.018 | 31.35 | Ave | Neutral | 46 | -14.7 |
| 0.634 | 31.05 | Ave | Line | 46 | -15.0 |
| 0.986 | 30.42 | Ave | Neutral | 46 | -15.6 |
| 0.986 | 29.03 | Ave | Line | 46 | -17.0 |
| 3.946 | 37.87 | Pk | Line | 56 | -18.1 |
| 6.762 | 31.48 | Ave | Line | 50 | -18.5 |
| 0.394 | 39.01 | Pk | Neutral | 57.98 | -19.0 |
| 0.382 | 39.02 | Pk | Line | 58.24 | -19.2 |
| 7.19 | 30.55 | Ave | Neutral | 50 | -19.5 |
| 3.95 | 36.20 | Pk | Neutral | 56 | -19.8 |

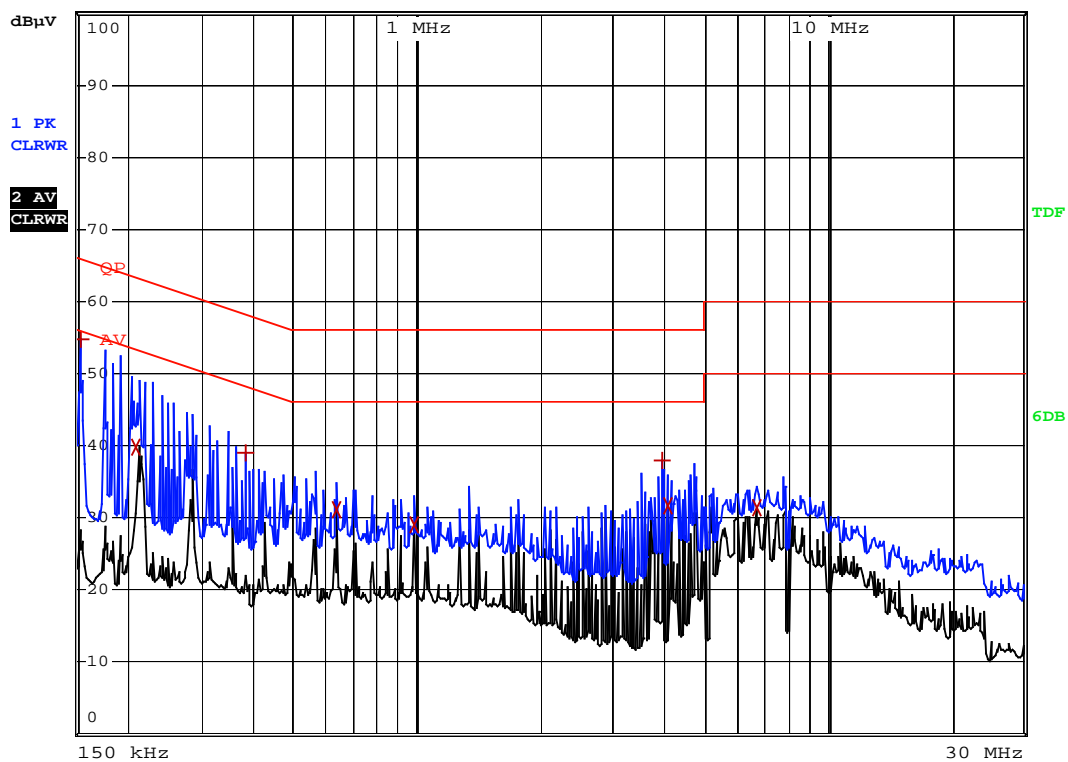
Plot of Conducted Emissions Test Data*Conducted Disturbance**EUT: DIGITAL PHOTO FRAME**M/N: DPF4000**Operating Condition: Downloading**Test Specification: N**Comment: Connect to PC*RBW 9 kHz
MT 4 ms

Att 10 dB AUTO



Plot of Conducted Emissions Test Data*Conducted Disturbance**EUT: DIGITAL PHOTO FRAME**M/N: DPF4000**Operating Condition: Downloading**Test Specification: L**Comment: Connect to PC*RBW 9 kHz
MT 4 ms

Att 10 dB AUTO



4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

| Manufacturer | Description | Model | Serial Number | Cal. Date | Due. Date |
|--------------------------|---------------|-----------|---------------|------------|------------|
| Spectrum Analyzer | ROHDE&SCHWARZ | FSEA20 | DE25181 | 2008-01-25 | 2009-01-24 |
| Positioning Controller | C&C | CC-C-1F | N/A | 2008-01-25 | 2009-01-24 |
| Trilog Broadband Antenna | SCHWARZBECK | VULB9163 | 9163-333 | 2008-01-25 | 2009-01-24 |
| Horn Antenna | SCHWARZBECK | BBHX 9120 | 9120-426 | 2008-01-25 | 2009-01-24 |
| RF Switch | EM | EMSW18 | SW060023 | 2008-01-25 | 2009-01-24 |
| Amplifier | Agilent | 8447F | 3113A06717 | 2008-01-25 | 2009-01-24 |
| Coaxial Cable | SCHWARZBECK | AK9513 | 9513-10 | 2008-01-25 | 2009-01-24 |
| EMI Test Receiver | ROHDE&SCHWARZ | ESPI | 25498514 | 2008-01-25 | 2009-01-24 |

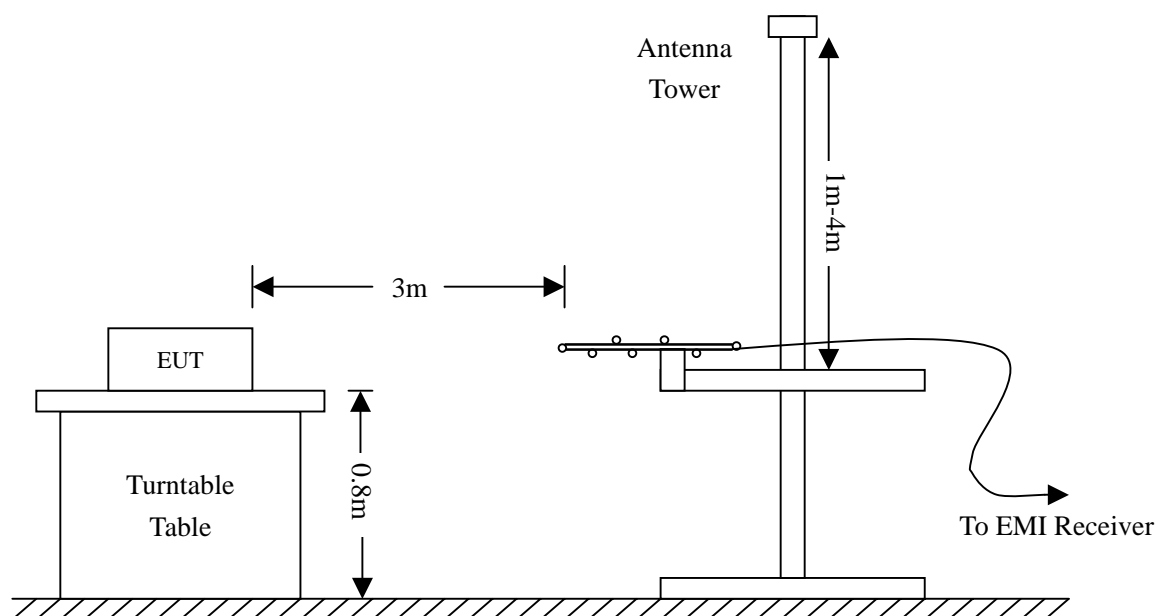
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.0 dB.

4.2 Test Equipment List and Details

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 and FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency 30 MHz
 Stop Frequency 1000 MHz
 Sweep Speed Auto
 IF Bandwidth 10 kHz
 Quasi-Peak Adapter Bandwidth 120 kHz
 Quasi-Peak Adapter Mode Normal

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15B Limit}$$

4.6 Environmental Conditions

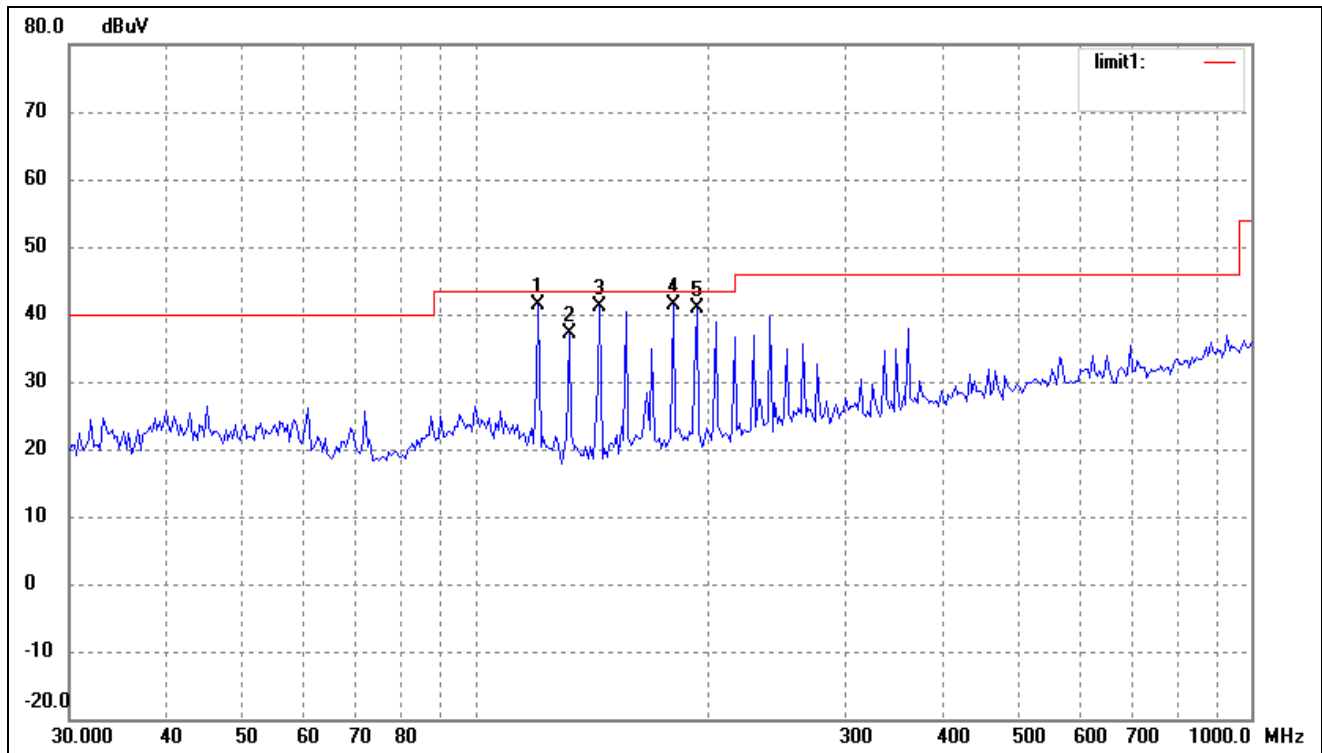
| | |
|--------------------|-----------|
| Temperature: | 22° C |
| Relative Humidity: | 52% |
| ATM Pressure: | 1011 mbar |

4.7 Summary of Test Results/Plots

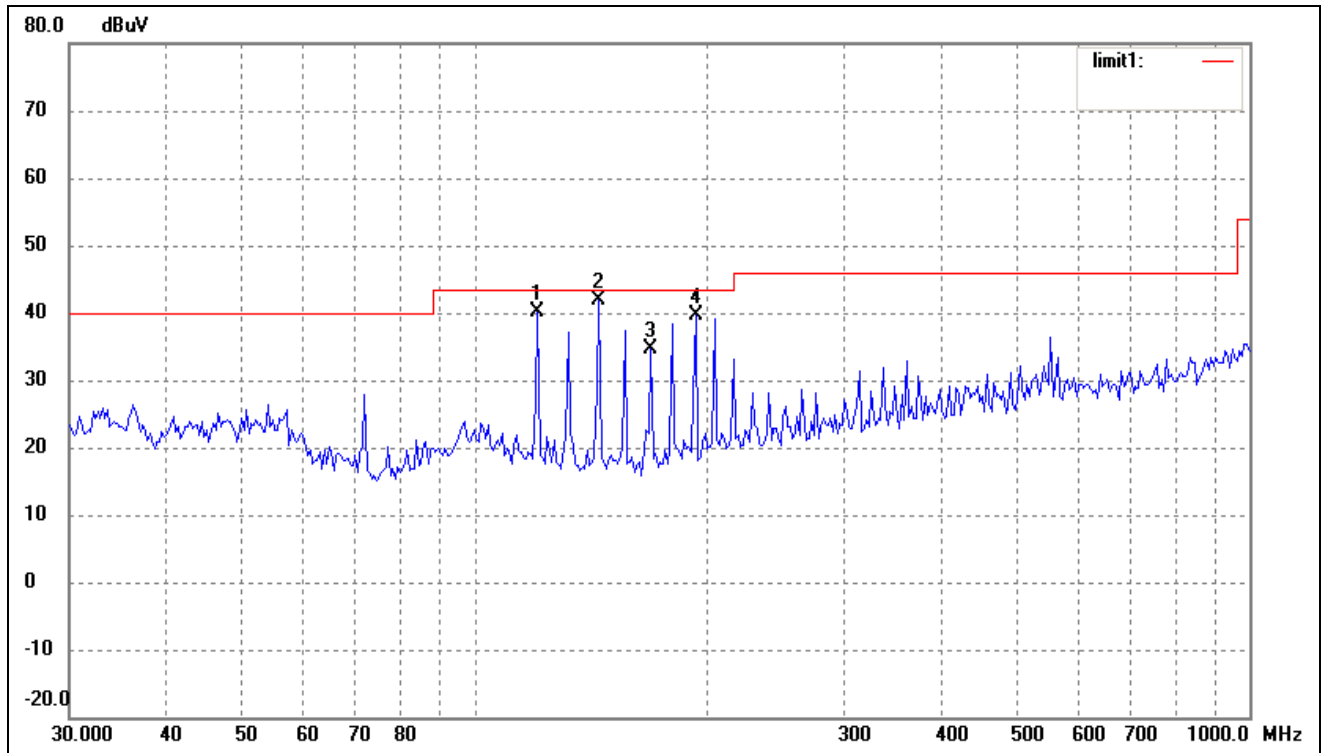
According to the data, the EUT complied with the FCC 15B Class B standards, and had the worst margin of:

-1.69 dB μ V at 144.7898 MHz in the Vertical polarization, Downloading Mode, 30 MHz to 1 GHz, 3Meters

-14.29 dB μ V at 182.5785 MHz in the Horizontal polarization, Playing Mode, 30 MHz to 1 GHz, 3Meters

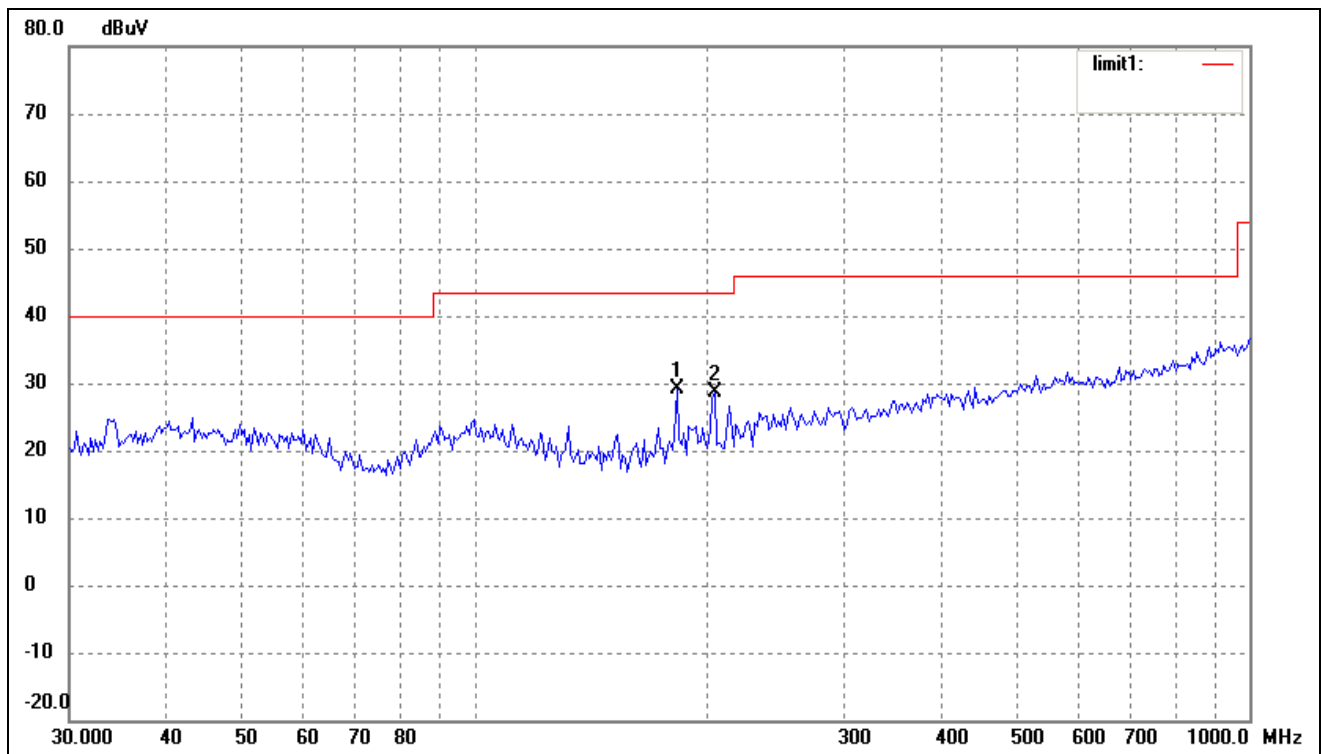
Plot of Radiation Emissions Test Data*Radiated Emission**EUT: DIGITAL PHOTO FRAME**M/N: DPF4000**Operating Condition: Downloading & Playing**Test Specification: Horizontal & Vertical**Downloading (Horizontal)*

| No. | Frequency | Reading | Correct | Result | Limit | Margin | Degree | Height | Remark |
|-----|-----------|---------|------------|--------|--------|--------|--------|--------|--------|
| | (MHz) | (dBuV) | Factor(dB) | (dBuV) | (dBuV) | (dB) | (°) | (cm) | |
| 1 | 120.6118 | 35.49 | 5.87 | 41.36 | 43.50 | -2.14 | 120 | 130 | peak |
| 2 | 132.1490 | 32.78 | 4.43 | 37.21 | 43.50 | -6.29 | 270 | 120 | peak |
| 3 | 144.7898 | 37.20 | 4.01 | 41.21 | 43.50 | -2.29 | 60 | 100 | peak |
| 4 | 180.0303 | 35.86 | 5.64 | 41.50 | 43.50 | -2.00 | 180 | 110 | peak |
| 5 | 193.1365 | 34.32 | 6.56 | 40.88 | 43.50 | -2.62 | 90 | 110 | peak |

Downloading (Vertical)

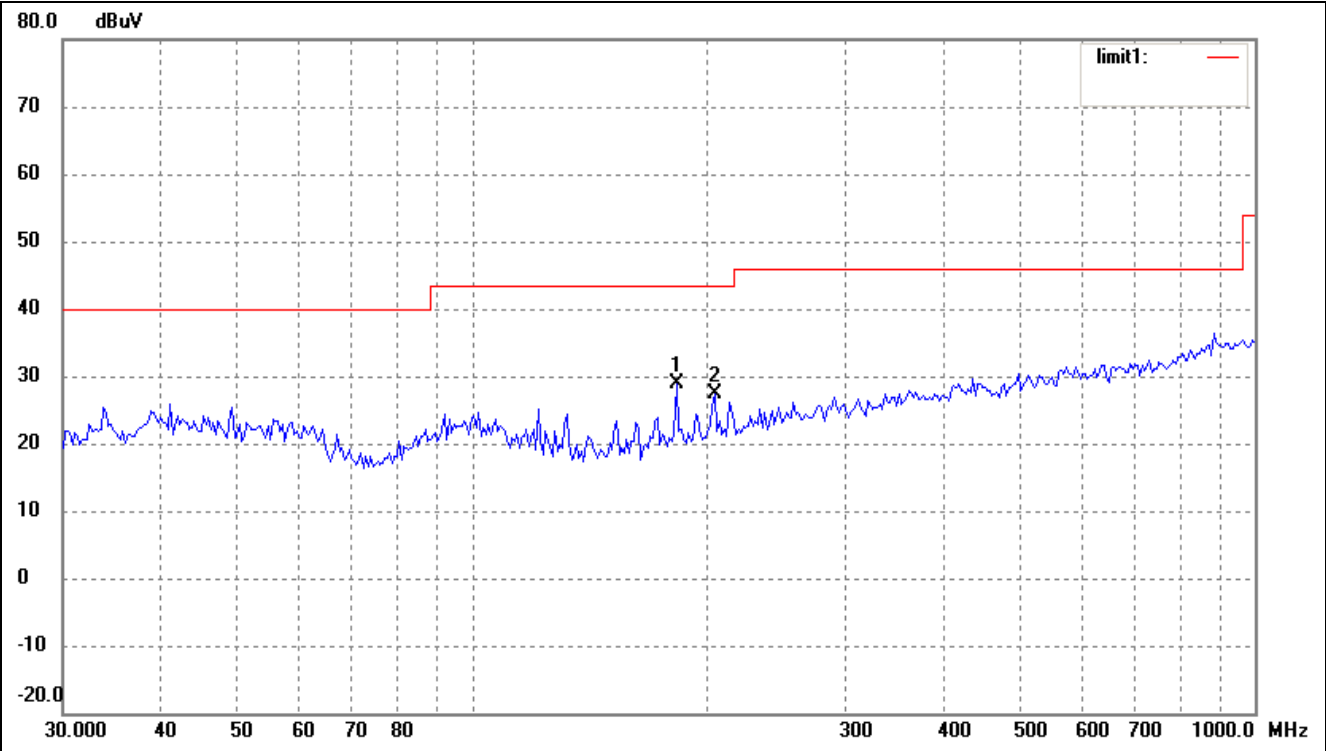
| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Degree (°) | Height (cm) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|----------------|----------------|--------|
| 1 | 120.6118 | 34.18 | 5.87 | 40.05 | 43.50 | -3.45 | 270 | 110 | peak |
| 2 | 144.7898 | 37.80 | 4.01 | 41.81 | 43.50 | -1.69 | 60 | 110 | peak |
| 3 | 168.9970 | 29.66 | 4.85 | 34.51 | 43.50 | -8.99 | 180 | 120 | peak |
| 4 | 193.1365 | 33.06 | 6.56 | 39.62 | 43.50 | -3.88 | 120 | 100 | peak |

Playing (Horizontal)



| No. | Frequency (MHz) | Reading (dBuV) | Correct Factor(dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Degree (°) | Height (cm) | Remark |
|-----|--------------------|-------------------|-----------------------|------------------|-----------------|----------------|----------------|----------------|--------|
| 1 | 182.5785 | 23.33 | 5.88 | 29.21 | 43.50 | -14.29 | 120 | 115 | peak |
| 2 | 204.3052 | 21.79 | 6.73 | 28.52 | 43.50 | -14.98 | 45 | 110 | peak |

Playing (Vertical)



| No. | Frequency | Reading | Correct | Result | Limit | Margin | Degree | Height | Remark |
|-----|-----------|---------|------------|--------|--------|--------|--------|--------|--------|
| | (MHz) | (dBuV) | Factor(dB) | (dBuV) | (dBuV) | (dB) | (°) | (cm) | |
| 1 | 182.5785 | 23.00 | 5.88 | 28.88 | 43.50 | -14.62 | 90 | 120 | peak |
| 2 | 204.3052 | 20.60 | 6.73 | 27.33 | 43.50 | -16.17 | 60 | 110 | peak |