TESTING
CNAS L4122

SHUOYING DIGITAL SCIENCE&TECHNOLOGY (CHINA) Co., Ltd.

Application
For
Certification
FCC ID: YGB-DV378

DIGITAL VIDEO CAMERA

Model: DV378

Computer Peripheral

Report No.: SZ12060483-1

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-11]

Prepared and Checked by:	Approved by:
Sign on file	
Andy Yan Engineer	Billy Li Supervisor Date: 31 July, 2012

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MEASUREMENT / TECHNICAL REPORT

SHUOYING DIGITAL SCIENCE&TECHNOLOGY (CHINA) Co., Ltd.
MODEL: DV378
FCC ID: YGB-DV378

31 July, 2012

This report concerns (check one:) Original Grant ___X___ Class II Change _____

Equipment Type: JBP-Class B Computing Device Peripheral

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X___

If yes, defer until: _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ___X___

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-01-11 Edition] provision.

Report prepared by:

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Table of Contents

List of attached file

Exhibit Type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated photos	radiated photos.pdf
Test Setup Photo	Conducted photos	conducted photos.pdf
External Photo	External Photos	external photos.pdf
Internal Photo	Internal Photos	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
ID Label / Location	Label Artwork and Location	label.pdf
User Manual	User Manual	manual.pdf
Cover Letter	Letter of Agency	agency.pdf

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EXHIBIT 1

GENERAL DESCRIPTION

1.0 General Description

1.1 Product Description

The Equipment Under Test (EUT) is a DIGITAL VIDEO CAMERA. The device can be used to transfer data connecting PC by USB port. The EUT is powered by DC 4.5V (3 x 1.5V" AAA") batteries or PC USB port with PC download and PC camera mode.

1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). Radiated emission measurement was performed in Semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

1.4 Test Facility

The Semi-anechoic chamber and shielding room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

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EXHIBIT 2

SYSTEM TEST CONFIGURATION

2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The device is powered by DC 4.5V (3 x 1.5V" AAA") new batteries or PC USB port with PC download mode and PC camera mode during the test. The worst case data was reported in this report.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

The frequency range from 30MHz to 1GHz was searched for spurious emissions from the device. Only those emissions reported were detected. All other emissions were at least 20 dB below the applicable limits.

2.2 EUT Exercising Software

There is a CD attached to exercise the device.

2.3 Special Accessories

Shielded USB cable with ferrite ring. Shielded AV cable with ferrite ring.

2.4 Equipment Modification

Any modifications installed previous to testing by SHUOYING DIGITAL SCIENCE&TECHNOLOGY (CHINA) Co., Ltd. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

2.5 Measurement Uncertainty

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

2.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.
Laptop	Lenovo	T61
SD Card	SanDisk	33806
Hard Disk	Smart.drive	HD-003
USB Cable	Smart.drive	shielded, Length 100cm
1394 Cable	Smart.drive	shielded, Length 180cm
USB Cable	Shuoying	Shielded with ferrite ring, Length 80cm
AV out Cable	Shuoying	Shielded with ferrite ring, Length 122cm
Dummy Load	MTC	DL-002

EXHIBIT 3

EMISSION RESULTS

3.0 Emission Results

Data is included worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF – AG + PD + AV

where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in –dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF – AG + PD + AV

3.1 Field Strength Calculation (cont'd)

Example

Assume a receiver reading of 62.0dBμV is obtained. The antenna factor of 7.4dB and cable factor of 1.6dB is added. The amplifier gain of 29dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0dB, and the resultant average factor was –10dB. The net field strength for comparison to the appropriate emission limit is 32dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

RA = 62.0dBμV
AF = 7.4dB
CF = 1.6dB
AG = 29.0dB
PD = 0dB

AV = –10dB

FS = 62 + 7.4 + 1.6 – 29 + 0 + (–10) = 32dBμV/m

Level in μV/m = Common Antilogarithm [(32dBμV/m)/20] = 39.8μV/m

3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission
At
479.998MHz (PC download Mode)

For electronic filing, the worst case radiated emission configuration photograph is saved with filename: radiated photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 2.1dB margin (PC download Mode)

TEST PERSONNEL:

Sign on file

Andy Yan, Engineer
Typed/Printed Name

31 July, 2012
Date

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	672.140	41.6	20.0	22.0	43.6	46.0	-2.4
Horizontal	695.905	39.6	20.0	22.1	41.7	46.0	-4.3
Horizontal	960.240	39.0	20.0	26.4	45.4	54.0	-8.6
Vertical	288.020	32.2	20.0	14.3	26.5	46.0	-19.5
Vertical	672.120	34.4	20.0	22.0	36.4	46.0	-9.6
Vertical	960.230	28.8	20.0	26.4	35.2	54.0	-18.8

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit.

Test Engineer: Andy Yan

Table 2

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	672.150	41.4	20.0	22.0	43.4	46.0	-2.6
Horizontal	695.905	38.2	20.0	22.1	40.3	46.0	-5.7
Horizontal	960.230	35.1	20.0	26.4	41.5	54.0	-12.5
Vertical	672.120	30.2	20.0	22.0	32.2	46.0	-13.8
Vertical	695.880	29.7	20.0	22.1	31.8	46.0	-14.2
Vertical	743.940	28.6	20.0	22.9	31.5	46.0	-14.5

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit.

Test Engineer: Andy Yan

Table 3

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	216.009	50.8	20.0	9.0	39.8	46.0	-6.2
Horizontal	647.890	38.8	20.0	20.7	39.5	46.0	-6.5
Horizontal	672.140	40.9	20.0	22.0	42.9	46.0	-3.1
Vertical	31.455	29.7	20.0	17.9	27.6	40.0	-12.4
Vertical	76.080	41.9	20.0	5.7	27.6	40.0	-12.4
Vertical	215.755	43.6	20.0	9.0	32.6	43.5	-10.9

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit.

Test Engineer: Andy Yan

Table 4

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	288.004	43.4	20.0	14.3	37.7	46.0	-8.3
Horizontal	479.998	45.4	20.0	18.5	43.9	46.0	-2.1
Horizontal	768.004	36.5	20.0	23.1	39.6	46.0	-6.4
Vertical	599.993	40.2	20.0	20.0	40.2	46.0	-5.8
Vertical	647.928	40.5	20.0	20.7	41.2	46.0	-4.8
Vertical	960.230	39.6	20.0	20.7	40.3	54.0	-13.7

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit.

Test Engineer: Andy Yan

Table 5

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	288.006	42.9	20.0	14.3	37.2	46.0	-8.8
Horizontal	479.993	43.0	20.0	18.5	41.5	46.0	-4.5
Horizontal	768.004	36.4	20.0	23.1	39.5	46.0	-6.5
Vertical	288.004	35.8	20.0	14.3	30.1	46.0	-15.9
Vertical	479.998	36.6	20.0	18.5	35.1	46.0	-10.9
Vertical	960.240	34.9	20.0	26.4	41.3	54.0	-12.7

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 0.3- meter and an inverse proportional extrapolation was performed to compare the signal level to the 3 meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. All emissions up to 1GHz are below the QP limit.

Test Engineer: Andy Yan

3.4 Conducted Emission Configuration Photograph

Worst Case Live-Conducted Configuration
at
0.190 MHz (PC Camera Mode)

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

Judgement: Passed by 4.3 dB margin (PC Camera Mode)

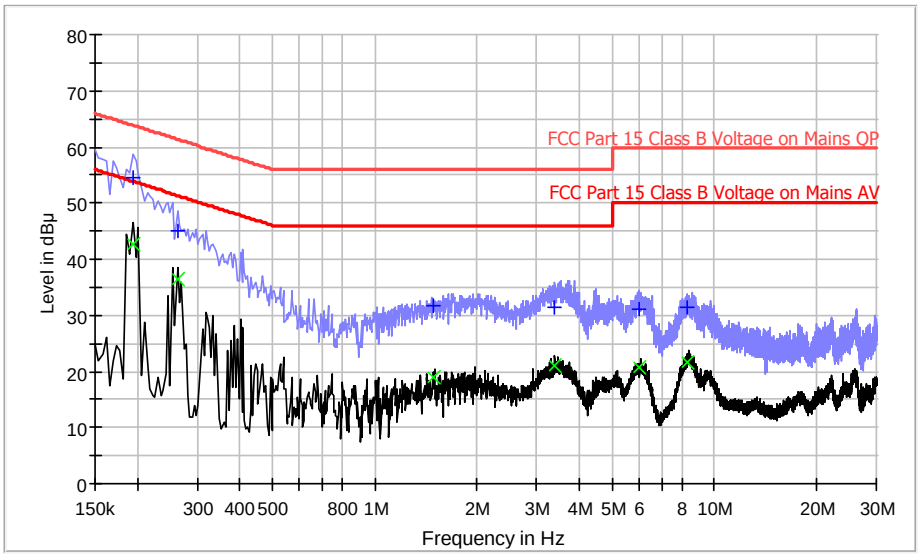
TEST PERSONNEL:

Sign on file

Andy Yan, Engineer
Typed/Printed Name

31 July, 2012
Date

Conducted Emission Test - FCC



Result Table QP

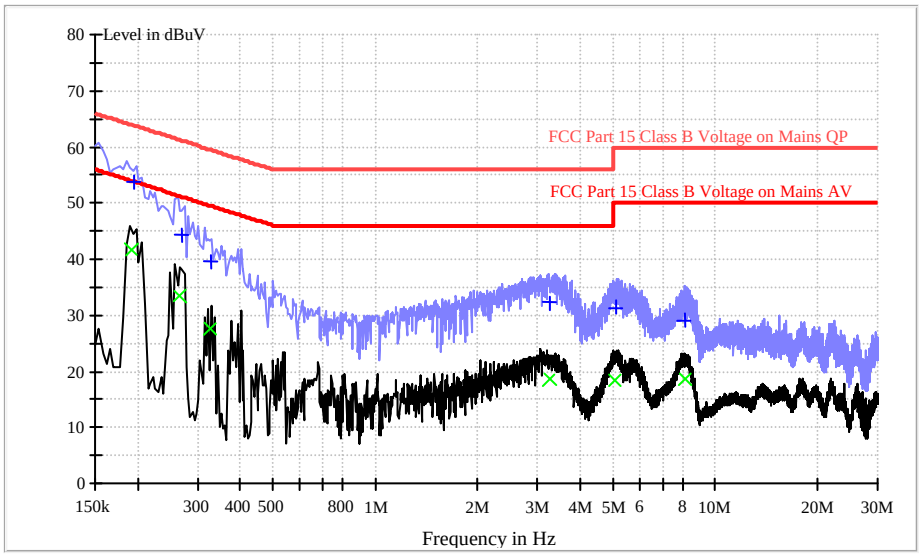
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.194	54.5	L1	9.6	9.4	63.9
0.262	45.1	L1	9.6	16.3	61.4
1.482	31.6	L1	9.7	24.4	56.0
3.402	31.3	L1	9.7	24.7	56.0
5.998	31.2	L1	9.9	28.8	60.0
8.294	31.3	L1	9.9	28.7	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.194	42.6	L1	9.6	11.3	53.9
0.262	36.5	L1	9.6	14.9	51.4
1.482	19.0	L1	9.7	27.0	46.0
3.402	21.1	L1	9.7	24.9	46.0
5.998	20.8	L1	9.9	29.2	50.0
8.294	21.8	L1	9.9	28.2	50.0

Test Engineer: Andy Yan

Conducted Emission Test - FCC



Result Table QP

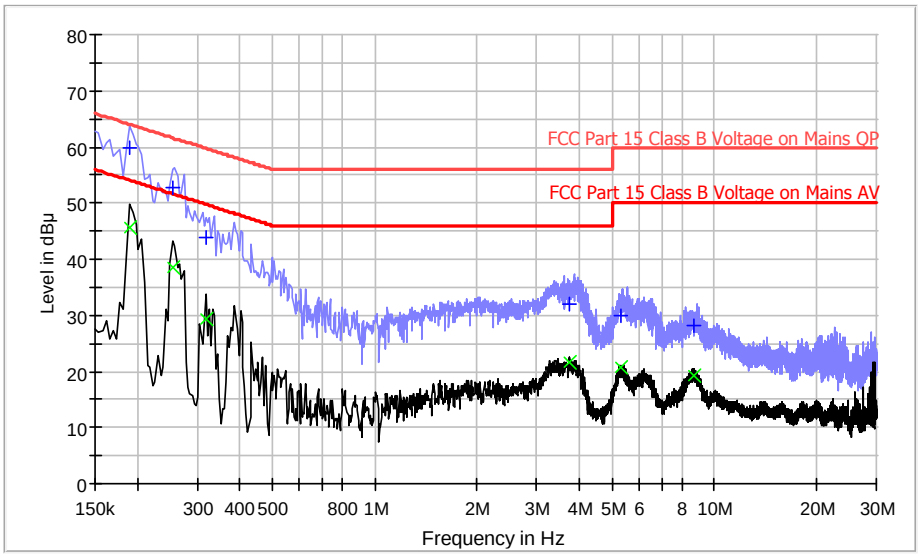
Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.198	54.2	N	9.6	10.6	64.8
0.268	44.0	N	9.6	17.0	61.0
0.315	39.8	N	9.7	18.8	58.6
3.102	32.6	N	9.7	23.4	56.0
5.051	30.8	N	9.9	29.2	60.0
8.012	28.6	N	9.9	31.4	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.198	42.2	N	9.6	12.6	54.8
0.268	33.5	N	9.6	17.5	51.0
0.315	27.5	N	9.7	21.1	48.6
3.102	19.8	N	9.7	26.2	46.0
5.051	17.8	N	9.9	32.2	50.0
8.012	18.0	N	9.9	32.0	50.0

Test Engineer: Andy Yan

Conducted Emission Test - FCC



Result Table QP

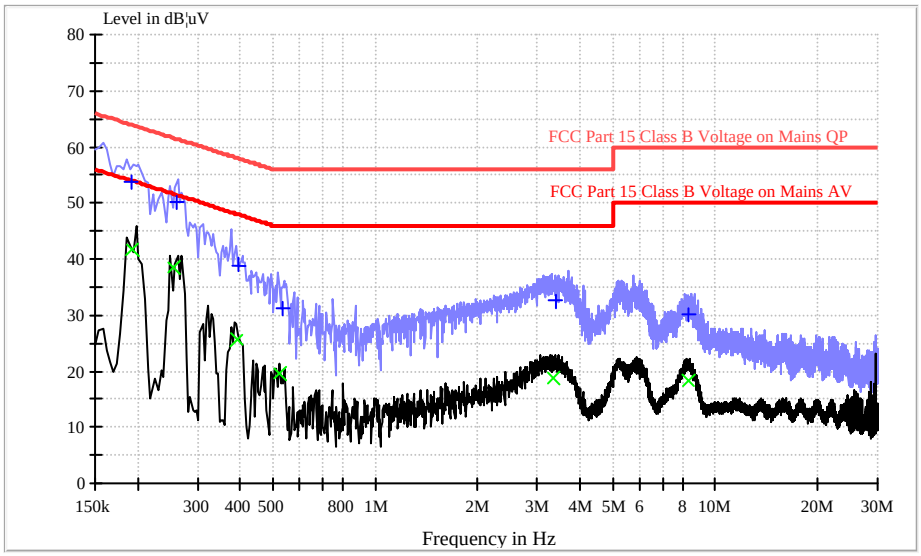
Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.190	59.7	L1	9.6	4.3	64.0
0.254	52.8	L1	9.6	8.8	61.6
0.318	43.8	L1	9.6	16.0	59.8
3.742	32.1	L1	9.7	23.9	56.0
5.322	29.8	L1	9.8	30.2	60.0
8.726	28.2	L1	10.1	31.8	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.190	45.7	L1	9.6	8.3	54.0
0.254	38.6	L1	9.6	13.0	51.6
0.318	29.5	L1	9.6	20.3	49.8
3.742	21.6	L1	9.7	24.4	46.0
5.322	20.7	L1	9.8	29.3	50.0
8.726	19.2	L1	10.1	30.8	50.0

Test Engineer: Andy Yan

Conducted Emission Test – FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.191	59.3	N	9.6	4.5	63.8
0.248	49.8	N	9.6	11.2	61.0
0.399	39.9	N	9.6	17.9	57.8
0.512	31.0	N	9.7	25.0	56.0
2.410	33.0	N	9.8	23.0	56.0
8.110	30.1	N	10.1	29.9	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.191	42.3	N	9.6	11.5	53.8
0.248	38.6	N	9.6	12.4	51.0
0.399	25.3	N	9.6	22.5	47.8
0.512	19.6	N	9.7	26.4	46.0
2.410	18.7	N	9.8	27.3	46.0
8.110	18.2	N	10.1	31.8	50.0

Test Engineer: Andy Yan

EXHIBIT 4

EQUIPMENT PHOTOGRAPHS

4.0 Equipment Photographs

For electronic filing, photographs of the tested EUT are saved with filename: external photos.pdf and internal photos.pdf.

EXHIBIT 5

PRODUCT LABELLING

5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

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EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

For electronic filing, the block diagram of the tested EUT is saved with filename: block.pdf.

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EXHIBIT 7

INSTRUCTION MANUAL

7.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold / leased in the United States.

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EXHIBIT 8

MISCELLANEOUS INFORMATION

8.0 **Miscellaneous Information**

This miscellaneous information includes emission measuring procedure.

8.1 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of computer peripheral operating under Part 15, Subpart B rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 – 2009.

The computer peripheral equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The antenna height and polarization are varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions are in QP mode from the frequency band 30MHz to 1GHz with RBW setting 120kHz. Detector function for conducted emissions are in QP & AV mode and IFBW setting is 9kHz from the frequency band 150kHz to 30MHz.

For radiated emission, the frequency range scanned is 30MHz to 1GHz. For line-conducted emissions, the range scanned is 150kHz to 30MHz.

8.1 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

Conducted measurements are made as described in ANSI C63.4 – 2009.

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EXHIBIT 9

TEST EQUIPMENT LIST

9.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	30-Jun-12	30-Jun-13
SZ185-01	EMI Receiver	R&S	ESCI	100547	11-Mar-12	11-Mar-13
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	03-Mar-12	03-Mar-13
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	12-Nov-11	12-Nov-12
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	12-Nov-11	12-Nov-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-11	16-Sep-12