XiangDe Electronic Tech(shenzhen)Co., Ltd.

Application
For
Certification
FCC ID: QD4-HDHM

DIGITAL VIDEO CAMERA

Model: HDHM

Computer Peripheral

Report No.: SZ12060485-1

Prepared and Checked by:	Approved by:
Sign on file	Digitally signed by Billy Li Location: Intertek Testing Services
Eason He Engineer	Billy Li Supervisor Date: 1 November, 2012

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LIST OF EXHIBITS

MEASUREMENT / TECHNICAL REPORT

XiangDe Electronic Tech(shenzhen)Co., Ltd.
MODEL: HDHM
FCC ID: QD4-HDHM

1 November, 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 B for unintentional radiator – the new 47 CFR [10-01-11 Edition] provision.

Report prepared by:

Billy Li
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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
Cover Letter	Certification Agreement	agreement.pdf

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 directly by USB port. The EUT is powered by DC 4.5V (3 x 1.5Vdc “AAA” batteries).

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).

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 new 3 x 1.5Vdc “AAA” batteries and connected to PC directly. 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 2GHz 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

Attached one shielded AV cable with one ferrite ring.

2.4 Equipment Modification

Any modifications installed previous to testing by XiangDe Electronic Tech(shenzhen)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
Mini SD Card	SanDisk	406
Hard Disk	Smart.drive	HD-003
USB Cable	Smart.drive	Shielded, Length 100cm
1394 Cable	Smart.drive	Shielded, Length 180cm
AV Cable	Shuoying	Shielded with one 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
240.014MHz (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 2.6dB margin (PC download Mode)

TEST PERSONNEL:

Sign on file

Eason He, Engineer
Typed/Printed Name

1 November, 2012
Date

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Worst case Operating Mode: PC Download

Radiated Emissions (30MHz~2GHz)

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	191.994	39.4	20.0	8.3	27.7	43.5	-15.8
Horizontal	216.008	48.5	20.0	9.0	37.5	46.0	-8.5
Horizontal	240.014	51.4	20.0	12.0	43.4	46.0	-2.6
Vertical	67.345	38.5	20.0	5.2	23.7	40.0	-16.3
Vertical	240.005	37.4	20.0	12.0	29.4	46.0	-16.6
Vertical	666.203	35.2	20.0	21.7	36.9	46.0	-9.1
Vertical	1820.250	36.4	20.0	30.1	46.5	54.0	-7.5

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz. Peak detector is used for frequency above 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. All emissions above 1GHz are below the AV limit.

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: PC Camera

Radiated Emissions (30MHz~2GHz)

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	130.395	42.0	20.0	7.7	29.7	43.5	-13.8
Horizontal	238.065	41.4	20.0	11.8	33.2	46.0	-12.8
Horizontal	261.018	44.5	20.0	12.8	37.3	46.0	-8.7
Vertical	32.500	31.8	20.0	17.7	29.5	40.0	-10.5
Vertical	168.120	36.3	20.0	8.5	24.8	43.5	-18.7
Vertical	510.250	34.4	20.0	18.1	32.5	46.0	-13.5
Vertical	1545.352	36.4	20.0	26.8	43.2	54.0	-10.8

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz. Peak detector is used for frequency above 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. All emissions above 1GHz are below the AV limit.

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: Play back

Radiated Emissions (30MHz~2GHz)

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	260.840	39.6	20.0	12.7	32.3	46.0	-13.7
Horizontal	470.380	26.1	20.0	18.0	24.1	46.0	-21.9
Horizontal	521.790	36.7	20.0	18.4	35.1	46.0	-10.9
Vertical	260.860	34.6	20.0	12.7	27.3	46.0	-18.7
Vertical	522.275	37.9	20.0	18.4	36.3	46.0	-9.7
Vertical	901.040	35.8	20.0	24.5	40.3	46.0	-5.7
Vertical	1530.450	35.5	20.0	28.3	43.8	54.0	-10.2

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz. Peak detector is used for frequency above 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. All emissions above 1GHz are below the AV limit.

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: AV Out

Radiated Emissions (30MHz~2GHz)

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	163.860	32.2	20.0	10.1	22.3	43.5	-21.2
Horizontal	283.543	45.0	20.0	14.1	39.1	46.0	-6.9
Horizontal	783.205	33.8	20.0	23.1	36.9	46.0	-9.1
Vertical	30.980	35.4	20.0	18.2	33.6	40.0	-6.4
Vertical	76.560	36.4	20.0	5.7	22.1	40.0	-17.9
Vertical	327.305	36.9	20.0	15.4	32.3	46.0	-13.7
Vertical	1819.380	35.1	20.0	30.1	45.2	54.0	-8.8

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz. Peak detector is used for frequency above 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. All emissions above 1GHz are below the AV limit.

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: Video Record

Radiated Emissions (30MHz~2GHz)

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	260.860	40.8	20.0	12.7	33.5	46.0	-12.5
Horizontal	522.275	37.7	20.0	18.4	36.1	46.0	-9.9
Horizontal	783.205	35.4	20.0	23.1	38.5	46.0	-7.5
Vertical	35.260	23.3	20.0	16.5	19.8	40.0	-20.2
Vertical	262.350	32.0	20.0	12.3	24.3	46.0	-21.7
Vertical	782.550	32.6	20.0	21.6	34.2	46.0	-11.8
Vertical	1825.325	35.6	20.0	30.2	45.8	54.0	-8.2

NOTES:

1. Quasi-Peak detector is used for frequency up to 1GHz. Peak detector is used for frequency above 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. All emissions above 1GHz are below the AV limit.

Test Engineer: Eason He

3.4 Conducted Emission Configuration Photograph

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

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

3.5 Conducted Emission Data

Judgement: Passed by 4.9 dB margin (PC Camera Mode)

TEST PERSONNEL:

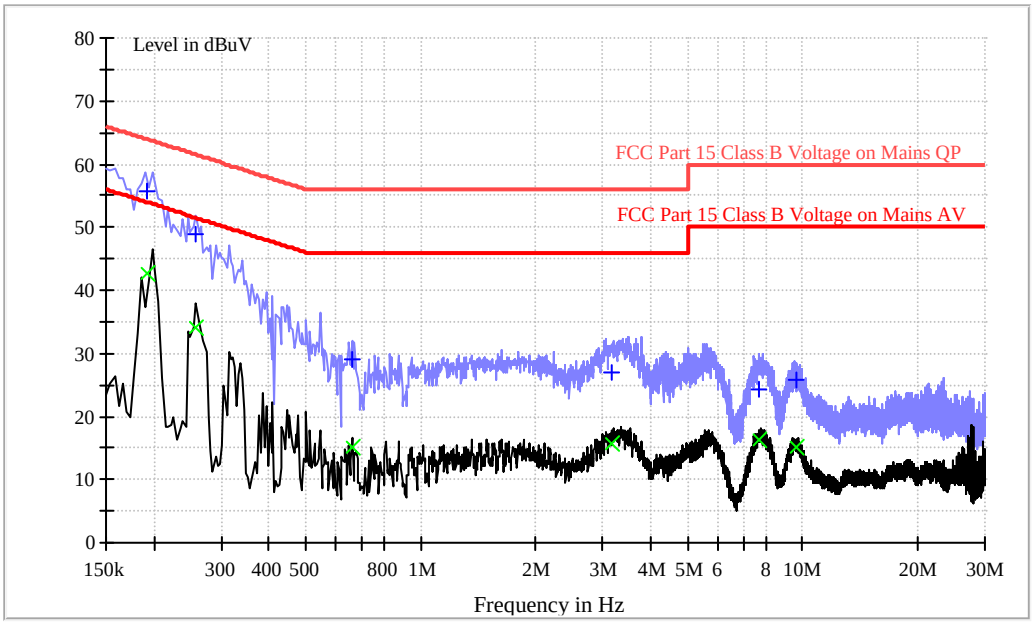
Sign on file

Eason He, Engineer
Typed/Printed Name

1 November, 2012
Date

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: PC Download

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.193	55.8	L1	9.6	8.1	63.9
0.258	48.9	L1	9.6	12.6	61.5
0.661	29.1	L1	9.7	26.9	56.0
3.178	27.0	L1	9.7	29.0	56.0
7.722	24.3	L1	9.9	35.7	60.0
9.590	25.7	L1	9.9	34.3	60.0

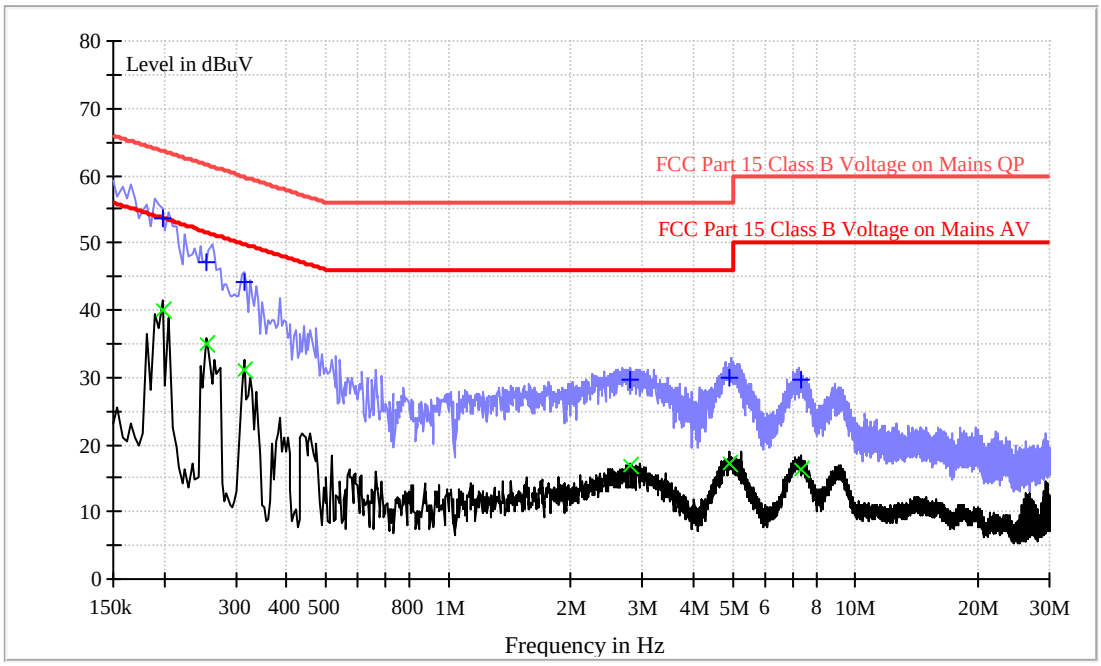
Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.193	42.5	L1	9.6	11.4	53.9
0.258	34.1	L1	9.6	17.4	51.5
0.661	15.0	L1	9.7	31.0	46.0
3.178	15.7	L1	9.7	30.3	46.0
7.722	16.2	L1	9.9	33.8	50.0
9.590	15.2	L1	9.9	34.8	50.0

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Operating Mode: PC Download

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.198	53.6	N	9.6	10.1	63.7
0.254	47.1	N	9.6	14.5	61.6
0.314	44.1	N	9.6	15.8	59.9
2.782	29.7	N	9.7	26.3	56.0
4.882	29.9	N	9.9	26.1	56.0
7.382	29.5	N	9.9	30.5	60.0

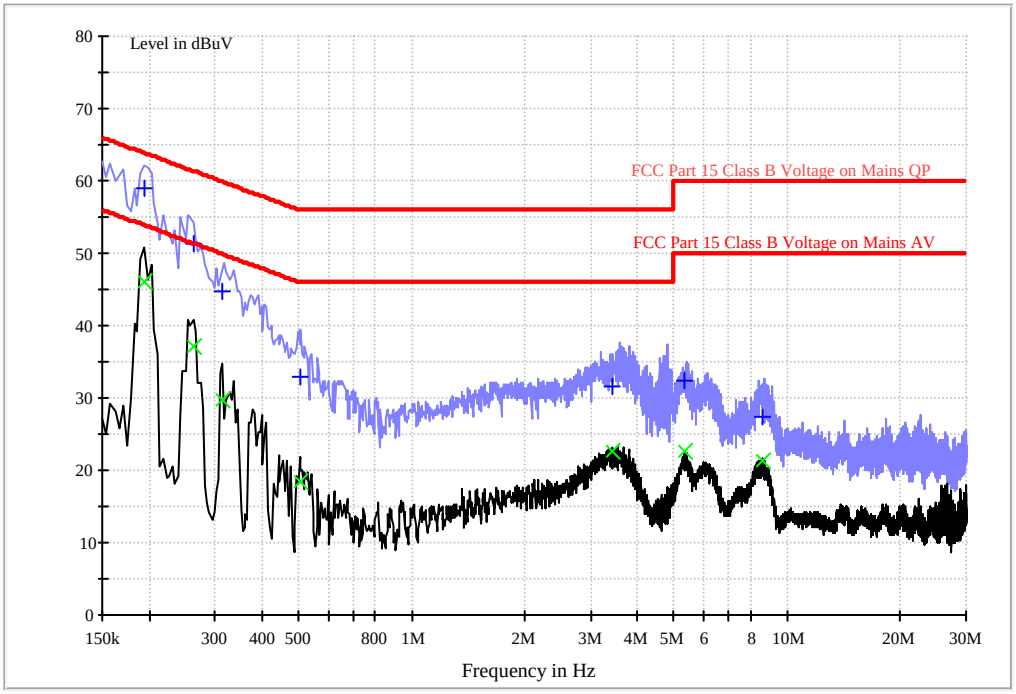
Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.198	40.1	N	9.6	13.6	53.7
0.254	35.1	N	9.6	16.5	51.6
0.314	31.1	N	9.6	18.8	49.9
2.782	16.8	N	9.7	29.2	46.0
4.882	17.2	N	9.9	28.8	46.0
7.382	16.3	N	9.9	33.7	50.0

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Worst case Operating Mode: PC Camera

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.194	59.0	L1	9.6	4.9	63.9
0.262	51.2	L1	9.6	10.2	61.4
0.314	44.7	L1	9.6	15.2	59.9
0.502	32.8	L1	9.6	23.2	56.0
5.334	32.3	L1	9.8	27.7	60.0
8.578	27.4	L1	9.9	32.6	60.0

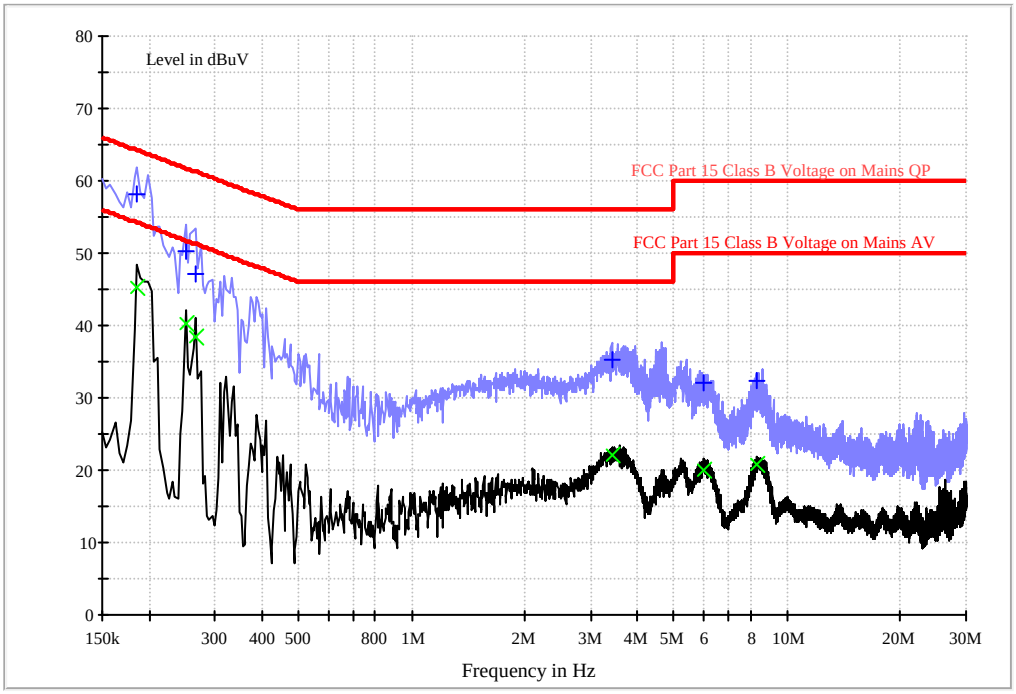
Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.194	46.1	L1	9.6	7.8	53.9
0.262	37.0	L1	9.6	14.4	51.4
0.314	29.7	L1	9.6	20.2	49.9
0.502	18.4	L1	9.6	27.6	46.0
5.334	22.7	L1	9.8	27.3	50.0
8.578	21.2	L1	9.9	28.8	50.0

Test Engineer: Eason He

Company: XiangDe Electronic Tech(shenzhen)Co., Ltd.
Date of Test: 1 November, 2012
Model: HDHM
Worst case Operating Mode: PC Camera

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.186	58.1	N	9.6	6.1	64.2
0.250	50.2	N	9.6	11.6	61.8
0.266	47.2	N	9.6	14.0	61.2
3.406	35.2	N	9.6	20.8	56.0
5.994	32.1	N	9.8	27.9	60.0
8.318	32.5	N	9.8	27.5	60.0

Result Table AV

Frequency (MHz)	Average (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.186	45.2	N	9.6	9.0	54.2
0.250	40.2	N	9.6	11.6	51.8
0.266	38.5	N	9.6	12.7	51.2
3.406	22.1	N	9.6	23.9	46.0
5.994	20.1	N	9.8	29.9	50.0
8.318	20.8	N	9.8	29.2	50.0

Test Engineer: Eason He

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.

EXHIBIT 6

TECHNICAL SPECIFICATIONS

6.0 Technical Specifications

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

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.

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 radiated emissions are in PK&AV mode from the frequency band above 1GHz with RBW setting 1MHz. 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 2GHz. 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.

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
SZ062-04	RF Cable	RADIALL	RG 213U	--	11-Mar-12	11-Mar-13
SZ062-06	RF Cable	RADIALL	0.04-26.5GHz	083388	11-Mar-12	11-Mar-13
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	05-Nov-11	05-Nov-12
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	05-Nov-11	05-Nov-12
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	05-Nov-11	05-Nov-12
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-12	16-Sep-13