

31 October, 2011

SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD. NO.1 Shuoying Rd., Hebei Industry Area, Dalang, Longhua Town, Baoan, Shenzhen, China

Dear Tony Pan,

Enclosed you will find your file copy of a Part 15 report (FCC ID: XJN-DV359).

For your reference, TCB will normally take another one week for reviewing the report. Approval will then be granted when no query is sorted.

Please contact me if you have any questions regarding the enclosed material.

Sincerely,

Shawn Xing Manager

**Enclosure** 



#### SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Application
For
Certification
(FCC ID: XJN-DV359)

Computer Peripheral

Billy li

SZ11090331-1 Billy Li 31 October, 2011

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample
  may be said to have been obtained.
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- For Terms And Conditions of the services, it can be provided upon request.
- The evaluation data of the report will be kept for 3 years from the date of issuance.

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

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): XJN-DV359

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# **MEASUREMENT / TECHNICAL REPORT**

# SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD. – MODEL: DV359 Additional Model: HDV185 FCC ID: XJN-DV359

31 October, 2011

This report concerns (check one:)	Original Grant	Χ	_Class II Chanç	ge	
Equipment Type: <u>JBP-Class B Computin</u>	ng Device Periph	<u>eral</u>			
Deferred grant requested per 47 CFR 0.	457(d)(1)(ii)?	Yes		lo	X
	If yes, do	efer until	:date		
Company Name agrees to notify the Cor of the intended date of announcement of that date.					
Transition Rules Request per 15.37?		Yes		lo	X
If no, assumed Part 15, Subpart C for Edition] provision.	intentional radia	ator – th	e new 47 CFR	[10-1	-10
Report prepared by:					
	Shawn Xing Intertek Testir Kejiyuan Bran		es Shenzhen Lt	d.	oad

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

: XJN-DV359

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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

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# EXHIBIT 1 GENERAL DESCRIPTION

TRF No.: FCC 15C\_PC\_a

FCC ID: XJN-DV359

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#### 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 (with SD Card). The EUT is powered by DC 6.0V (4 x 1.5V"AAA") batteries.

The Model: HDV185 is the same as the Model: DV359 in hardware aspect. The models are difference in packaging and marketing purpose only.

#### 1.2 Related Submittal(s) Grants

This is an application for certification of a computer peripheral.

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#### 1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2003). 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 **Interterk 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.

TRF No.: FCC 15C\_PC\_a

# EXHIBIT 2 SYSTEM TEST CONFIGURATION

TRF No.: FCC 15C\_PC\_a

#### 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 (2003).

The device is powered by DC 6.0V (4 x 1.5V"AAA") new batteries 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

Shielding USB Cable and shielding AV cable are used.

#### 2.4 Equipment Modification

Any modifications installed previous to testing by SHUOYING INDUSTRIAL (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.

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#### 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	HP	2510P
Laptop	Lenovo	T61
Hard Disk	Smart.drive	HD-003
USB Cable	Smart.drive	Unshielded, Length 155cm
1394 Cable	Smart.drive	Unshielded, Length 180cm
SD Card	Sandisk	1G/ BB0723011986D
USB Cable	Shuoying	shielded, Length 80cm
AV Cable	ShuoYing	shielded, Length 150cm
Load Terminal	MTC	TL-01

All the items listed under section 2.0 of this report are

Confirmed by:

Shawn Xing Manager Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch Agent for SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Signature

31 October, 2011 Date

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# **EXHIBIT 3**

# **EMISSION RESULTS**

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FCC ID: XJN-DV359

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# 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.

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#### 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  $dB\mu V/m$ 

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:

$$FS = RA + AF + CF - AG + PD + AV$$

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#### 3.1 Field Strength Calculation (cont'd)

#### **Example**

Assume a receiver reading of  $62.0 dB\mu V$  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  $32dB\mu V/m$ . This value in  $dB\mu V/m$  was converted to its corresponding level in  $\mu V/m$ .

 $RA = 62.0dB\mu V$  AF = 7.4dB CF = 1.6dBAG = 29.0dB

AV = -10dB

PD = 0dB

 $FS = 62 + 7.4 + 1.6 - 29 + 0 + (-10) = 32dB\mu V/m$ 

Level in  $\mu V/m = Common Antilogarithm [(32dB<math>\mu V/m)/20] = 39.8 \mu V/m$ 

TRF No.: FCC 15C\_PC\_a

# 3.2 Radiated Emission Configuration Photograph

Worst Case Radiated Emission At 672.020MHz (PC Download Mode)

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

TRF No.: FCC 15C\_PC\_a

#### 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 1.3dB margin (PC Download Mode)

TEST PERSONNEL:
Billy li
Signature
Billy Li, Team Leader
Typed / Printed Name
31 October, 2011
Date

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: 31 October, 2011

Model: DV359

Operating Mode: Video Record

Table 1
Radiated Emissions

Polarization	Frequency	Reading	Pre-	Antenna	Net	Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Horizontal	335.254	45.0	20.0	15.7	40.7	46.0	-5.3
Horizontal	821.357	39.8	20.0	21.6	41.4	46.0	-4.6
Horizontal	864.008	38.2	20.0	25.6	43.8	46.0	-2.2
Vertical	384.570	41.4	20.0	16.0	37.4	46.0	-8.6
Vertical	854.335	32.8	20.0	24.4	37.2	46.0	-8.8
Vertical	862.431	36.6	20.0	25.5	42.1	46.0	-3.9

NOTES: 1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 10 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 10 meter.

- 2. Negative value in the margin column shows emission below limit.
- 3. All emissions are below the QP limit.

Test Engineer: Billy Li

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: 31 October, 2011

Model: DV359

Worst Case Operating Mode: Playback with AV Out

Table 2

Radiated Emissions

Polarization	Frequency	Reading	Pre-	Antenna	Net	Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Horizontal	184.339	47.6	20.0	11.1	38.7	43.5	-4.8
Horizontal	362.571	43.6	20.0	16.0	39.6	46.0	-6.4
Horizontal	768.264	37.8	20.0	22.3	40.1	46.0	-5.9
Vertical	185.251	43.8	20.0	11.4	35.2	43.5	-8.3
Vertical	382.339	40.8	20.0	16.1	36.9	46.0	-9.1
Vertical	862.243	36.7	20.0	25.6	42.3	46.0	-3.7

NOTES: 1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 10 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 10 meter.

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

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3. All emissions are below the QP limit.

Test Engineer: Billy Li

TRF No.: FCC 15C\_PC\_a
FCC ID: XJN-DV359

Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: 31 October, 2011

Model: DV359

Operating Mode: PC Download with SD Card

Table 3
Radiated Emissions

Polarization	Frequency	Reading	Pre-	Antenna	Net	Limit	Margin
	(MHz)	(dBµV)	Amp	Factor	at 3m	at 3m	(dB)
			Gain	(dB)	(dBµV/m)	(dBµV/m)	
			(dB)				
Horizontal	288.020	42.5	20.0	14.8	37.3	46.0	-8.7
Horizontal	311.780	46.8	20.0	15.9	42.7	46.0	-3.3
Horizontal	360.020	48.2	20.0	16.3	44.5	46.0	-1.5
Vertical	648.020	41.1	20.0	21.5	42.6	46.0	-3.4
Vertical	672.020	41.8	20.0	22.9	44.7	46.0	-1.3
Vertical	702.340	35.7	20.0	23.5	39.2	46.0	-6.8

NOTES: 1. All measurements were made at 3 meters. Harmonic emissions not detected at the 3 meter distances were measured at 10 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 10 meter.

- 2. Negative value in the margin column shows emission below limit.
- 3. All emissions are below the QP limit.

Test Engineer: Billy Li

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

ID: XJN-DV359

# 3.4 Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration at 0.530 MHz

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

TRF No.: FCC 15C\_PC\_a

#### 3.5 Conducted Emission Data

Judgement: Passed by 16.4 dB margin

#### **TEST PERSONNEL:**

Signature

Billy Li, Team Leader

Typed/Printed Name

31 October, 2011

Date

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

D: XJN-DV359 17

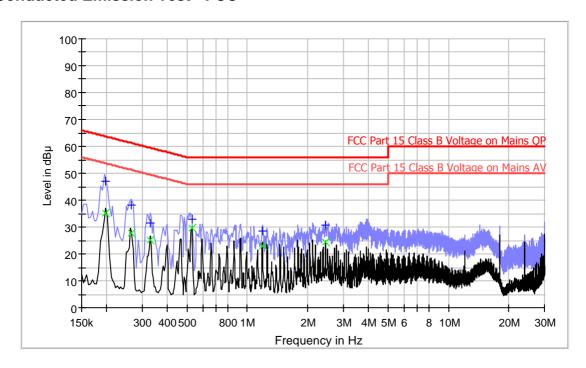
Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: 31 October, 2011

Model: DV359

Worst Case Operating Mode: PC Download with SD Card

#### **Conducted Emission Test - FCC**



# Result Table-QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.198000	46.9	L1	9.6	16.8	63.7
0.266000	38.3	L1	9.8	22.9	61.2
0.330000	31.3	L1	9.7	28.2	59.5
0.530000	32.9	L1	9.6	23.1	56.0
1.190000	28.6	L1	9.6	27.4	56.0
2.442000	30.6	L1	9.8	25.4	56.0

#### Result Table-AV

Frequency	Average	Line	Corr.	Margin	Limit
(MHz)	(dB µ V)		(dB)	(dB)	(dB µ V)
0.198000	35.3	L1	9.6	18.4	53.7
0.266000	27.6	L1	9.8	23.6	51.2
0.330000	25.3	L1	9.7	24.2	49.5
0.530000	29.6	L1	9.6	16.4	46.0
1.190000	22.9	L1	9.6	23.1	46.0
2.442000	24.5	L1	9.8	21.5	46.0

Test Engineer: Billy Li

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

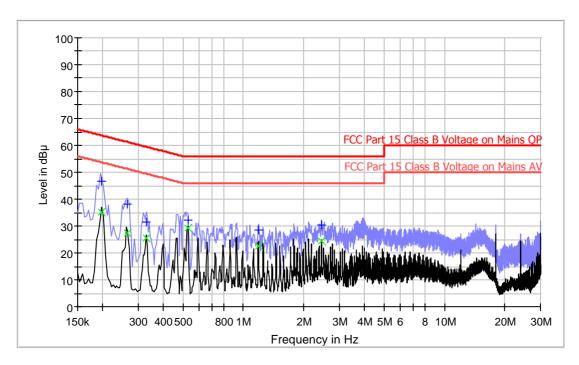
Company: SHUOYING INDUSTRIAL (SHENZHEN) CO., LTD.

Date of Test: 31 October, 2011

Model: DV359

Worst Case Operating Mode: PC Download with SD Card

#### **Conducted Emission Test - FCC**



# Result Table-QP

Frequency (MHz)	QuasiPeak (dB µ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.198000	46.5	N	9.6	17.2	63.7
0.266000	38.2	N	9.8	23.0	61.2
0.330000	31.3	N	9.7	28.2	59.5
0.530000	32.4	N	9.6	23.6	56.0
1.190000	28.4	N	9.6	27.6	56.0
2.442000	30.5	N	9.8	25.5	56.0

#### Result Table-AV

Frequency	Average	Line	Corr.	Margin	Limit
(MHz)	(dB µ V)		(dB)	(dB)	(dB µ V)
0.198000	35.2	N	9.6	18.5	53.7
0.266000	27.5	N	9.8	23.7	51.2
0.330000	25.4	N	9.7	24.1	49.5
0.530000	29.3	N	9.6	16.7	46.0
1.190000	22.6	N	9.6	23.4	46.0
2.442000	24.3	Ν	9.8	21.7	46.0

Test Engineer: Billy Li

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# EXHIBIT 4 EQUIPMENT PHOTOGRAPHS

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# 4.0 **Equipment Photographs**

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

TRF No.: FCC 15C\_PC\_a

# EXHIBIT 5 PRODUCT LABELLING

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# 5.0 **Product Labelling**

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

TRF No.: FCC 15C\_PC\_a

# EXHIBIT 6 TECHNICAL SPECIFICATIONS

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# 6.0 **Technical Specifications**

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

TRF No.: FCC 15C\_PC\_a

# EXHIBIT 7 INSTRUCTION MANUAL

TRF No.: FCC 15C\_PC\_a

#### 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.

TRF No.: FCC 15C\_PC\_a

# EXHIBIT 8

# **MISCELLANEOUS INFORMATION**

TRF No.: FCC 15C\_PC\_a

# 8.0 <u>Miscellaneous Information</u>

This miscellaneous information includes emission measuring procedure.

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

#### 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 – 2003.

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 is in QP mode from the frequency band 30MHz to 1GHz and RBW setting is 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.

TRF No.: FCC 15C\_PC\_a

# 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 – 2003.

TRF No.: FCC 15C\_PC\_a

# **EXHIBIT 9**

# **TEST EQUIPMENT LIST**

TRF No.: FCC 15C\_PC\_a FCC ID: XJN-DV359

# 9.0 **Test Equipment List**

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	02-Jul-11	02-Jan-13
SZ185-01	EMI Receiver	R&S	ESCI	100547	08-Mar-11	08-Mar-12
SZ188-01	Anechoic Chamber	ETS	RFD-F/A- 100	4102	15-Jan-11	15-Jan-12
SZ062-04	RF Cable	RADIALL	RG 213U		30-Mar-11	30-Mar-12
SZ062-06	RF Cable	RADIALL	0.04- 26.5GHz	083388	16-Sep-11	16-Sep-12
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	12-Nov-10	12-Nov-11
SZ187-01	Two-Line V- Network	R&S	ENV216	100072	12-Nov-10	12-Nov-11
SZ188-03	Shielding Room	ETS	RFD-100	4100	16-Sep-11	16-Sep-12

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