

Produkte
Products

Prüfbericht - Nr.: 17025103 001

Test Report No.:

Seite 1 von 14

Page 1 of 14

Auftraggeber: SHUOYING DIGITAL SCIENCE&TECHNOLOGY (CHINA) CO., Ltd.
Client:
NO.187, 5th Binhai Road, Binhai Industrial Park,
Wenzhou, Zhejiang, China

Gegenstand der Prüfung: Digital Video Camera
Test item:

Bezeichnung: DV123S
Identification:
Serien-Nr.: n.a.
Serial No.:

Wareneingangs-Nr.: 163090083
Receipt No.:
Eingangsdatum: 2012-03-22
Date of receipt:

Zustand des Prüfgegenstandes bei Anlieferung:
Condition of test item at delivery:
Test samples received are sufficient
for testing and not damaged.

Prüfört: SHENZHEN EMTEK Co., Ltd.
Testing location:
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen,
Guangdong 518000, China
FCC Registration No.: 709623

Prüfgrundlage: FCC Part 15 Subpart B
Test specification: (ANSI C63.4: 2003)

Prüfergebnis: Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).
Test Result: The test item passed the test specification(s).

Prüflaboratorium: TÜV Rheinland (Shenzhen) Co., Ltd.
Testing Laboratory:

geprüft/ tested by:

kontrolliert/ reviewed by:

2012-04-09 Owen Tian/Project Manager

Datum **Name/Stellung** **Unterschrift**
Date Name/Position Signature

2012-04-09 Shawn Peng/Technical Certifier

Datum **Name/Stellung** **Unterschrift**
Date Name/Position Signature

Sonstiges/ Other Aspects:

Abkürzungen: P(ass) = entspricht Prüfgrundlage
F(ail) = entspricht nicht Prüfgrundlage
N/A = nicht anwendbar
N/T = nicht getestet

Abbreviations: P(ass) = passed
F(ail) = failed
N/A = not applicable
N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

Prüfbericht - Nr.: 17025103 001
Test Report No.

Seite 2 von 14
Page 2 of 14

TEST SUMMARY

5.1.1 CONDUCTED EMISSION

RESULT: Pass

5.2.1 RADIATED EMISSION

RESULT: Pass

Contents

1.	GENERAL REMARKS	4
1.1	COMPLEMENTARY MATERIALS	4
2.	TEST SITES	4
2.1	TEST FACILITIES.....	4
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS.....	5
2.3	TRACEABILITY	5
2.4	CALIBRATION	5
2.5	MEASUREMENT UNCERTAINTY	5
2.6	LOCATION OF ORIGINAL DATA	6
2.7	STATUS OF FACILITY USED FOR TESTING.....	6
2.8	TEST SETUP DIAGRAM.....	7
3.	GENERAL PRODUCT INFORMATION	8
3.1	PRODUCT FUNCTION AND INTENDED USE.....	8
3.2	RATINGS AND SYSTEM DETAILS	8
3.3	INDEPENDENT OPERATION MODES	8
3.4	NOISE GENERATING AND NOISE SUPPRESSING PARTS	8
3.5	SUBMITTED DOCUMENTS	8
4.	TEST SET-UP AND OPERATION MODES	9
4.1	PRINCIPLE OF CONFIGURATION SELECTION	9
4.2	TEST OPERATION AND TEST SOFTWARE.....	9
4.3	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT	9
4.4	COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....	9
5.	TEST RESULTS EMISSION	10
5.1	EMISSION IN THE FREQUENCY RANGE UP TO 30 MHz	10
5.1.1	<i>Conducted Emission</i>	<i>10</i>
5.2	EMISSION IN THE FREQUENCY RANGE ABOVE 30 MHz.....	11
5.2.1	<i>Radiated Emission</i>	<i>11</i>
6.	PHOTOGRAPHS OF THE TEST SET-UP	12
7.	LIST OF TABLES	14
8.	LIST OF PHOTOGRAPHS	14

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Result

2. Test Sites

2.1 Test Facilities

SHENZHEN EMTEK Co., Ltd.

Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen,
Guangdong 518000, China

The tests at the test sites have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Radiated Emission				
EMI Test Receiver	Rohde & Schwarz	ESU	1302.6005.2 6	2012-05-29
Pre-Amplifier	HP	8447D	2944A07999	2012-05-29
Bilog Antenna	Schwarzbeck	VULB9163	142	2012-05-29
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA91703 99	2012-05-29
Horn Antenna	Schwarzbeck	BBHA 9120	D143	2012-05-29
Cable	Schwarzbeck	AK9513	ACRX1	2012-05-29
Cable	Rosenberger	N/A	FP2RX2	2012-05-29
Cable	Schwarzbeck	AK9513	CRPX1	2012-05-29
Cable	Schwarzbeck	AK9513	CRRX2	2012-05-29
Conducted Emission				
Test Receiver	Rohde & Schwarz	ESCS30	100162	2012-05-29
L.I.S.N.	Rohde & Schwarz	ENV216	101161	2012-05-29
50Ω Coaxial Switch	Anritsu	MP59B	6100214550	2012-05-29
Voltage Probe	Rohde & Schwarz	TK9416	N/A	2012-05-29
I.S.N	Teseq GmbH	ISN T800	30327	2012-05-29
LCL adaoter	Teseq GmbH	ADT800-Cat.5	30327.01	2012-05-29
LCL adaoter	Teseq GmbH	ADT800-Cat.3	30327.02	2012-05-29
LCL adaoter	Teseq GmbH	ADT800-R	30327.02	2012-05-29

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO/IEC 17025 are:

Table 2: Measurement Uncertainty

Items		Extended Uncertainty
Conducted Emission (0.15-30MHz)	Disturbance Voltage (dBuV)	$U=\pm 2.8\text{dB}$, $k=2$, $\sigma=95\%$
Radiated Emission (30-1000MHz)	Field strength (dBuV/m)	$U=\pm 3.3\text{dB}$, $k=2$, $\sigma=95\%$

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The SHENZHEN EMTEK Co., Ltd. test facility located at Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong 518000, China' is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

2.8 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

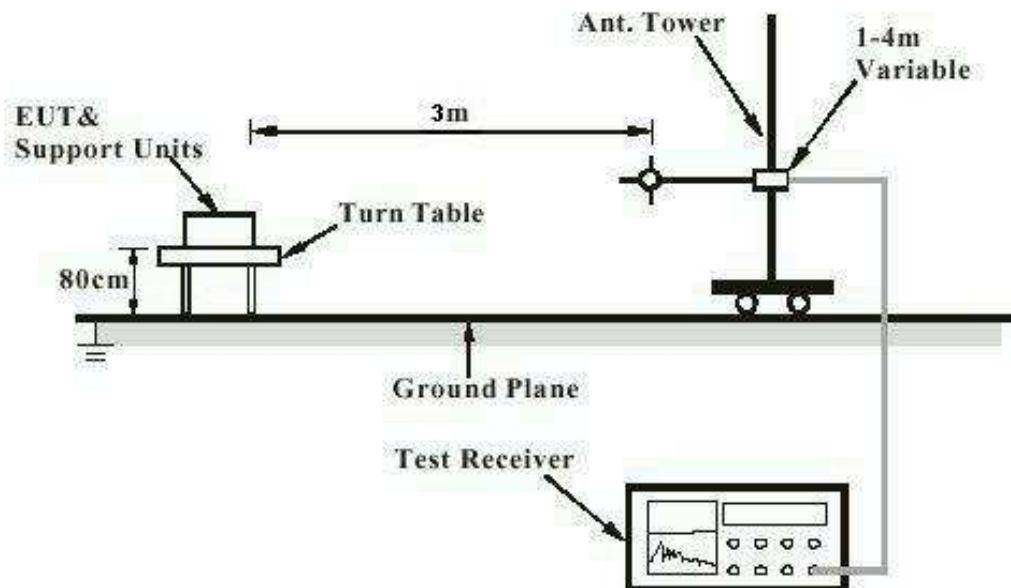
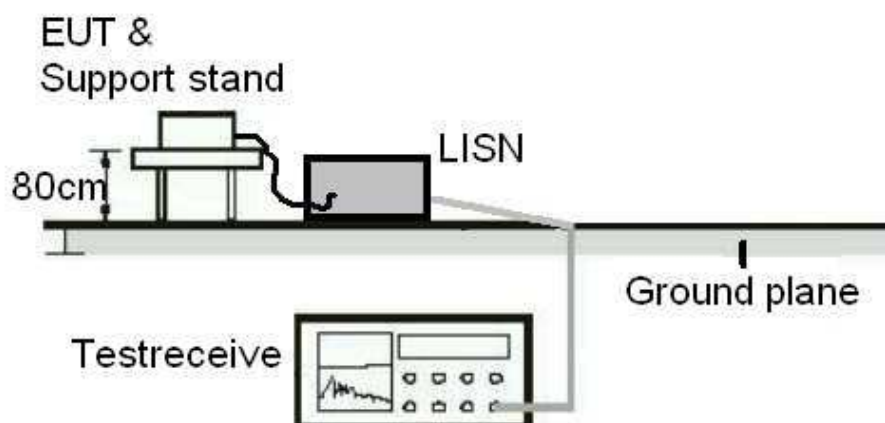


Diagram of Measurement Equipment Configuration for Conduction Measurement



3. General Product Information

3.1 Product Function and Intended Use

The **EUT** (Equipment Under Test) digital video camera used as video apparatus, which powered by battery, and can connect to PC.
For details refer to the Circuit Diagram & Instruction Manual.

3.2 Ratings and System Details

Rated voltage: 3.7V (via built-in rechargeable battery or USB port)
Rated current: A
Protection class: III

3.3 Independent Operation Modes

The basic operation modes are:

- A. On
 - 1. Playing (via built-in rechargeable battery)
 - 2. Recording (via built-in rechargeable battery)
 - 3. Connect to PC (via USB port)
- B. Off

3.4 Noise Generating and Noise Suppressing Parts

Integrated into to the circuit.

3.5 Submitted Documents

- Schematic Diagram
- Instruction Manual
- Marking Label
- PCB Layout
- Bill of Material (BOM)

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

Item	Manufacturer	Model	S/N
PC	Lenovo	9702	L3C4410
Mouse	Lenovo	MO28UOL	44G7862 068
Keyboard	Lenovo	KU-0225	0585494
Printer	HP	C89520	CN25S182N6

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Conducted Emission

RESULT:**Pass**

Date of testing	:	2012-03-06
Test specification	:	FCC Part 15 Per Section 15.107(a)
Frequency range	:	0.15 - 30MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003
Deviations from standard test procedure	:	None
Kind of test site	:	Shielded room

Test setup

Input Voltage	:	AC 120V, 60Hz (AC input of PC)
Operation mode	:	A.3
Earthing	:	Connected

Test data refer to Appendix 1.

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Emission

RESULT:**Pass**

Date of testing	:	2012-03-16
Test standard	:	FCC Part 15 Subpart B
Test procedure	:	ANSI C63.4:2003
Deviations from standard test procedure	:	None
Frequency range	:	30 - 1000MHz
Equipment Classification	:	Class B
Limits	:	Section 15.109(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	DC 3.7V
Operation mode	:	A
Earthing	:	Not connected

*- The EUT's highest frequency generated and used is less than 96 MHz, hence the test above 1GHz is not necessary to be carried out.

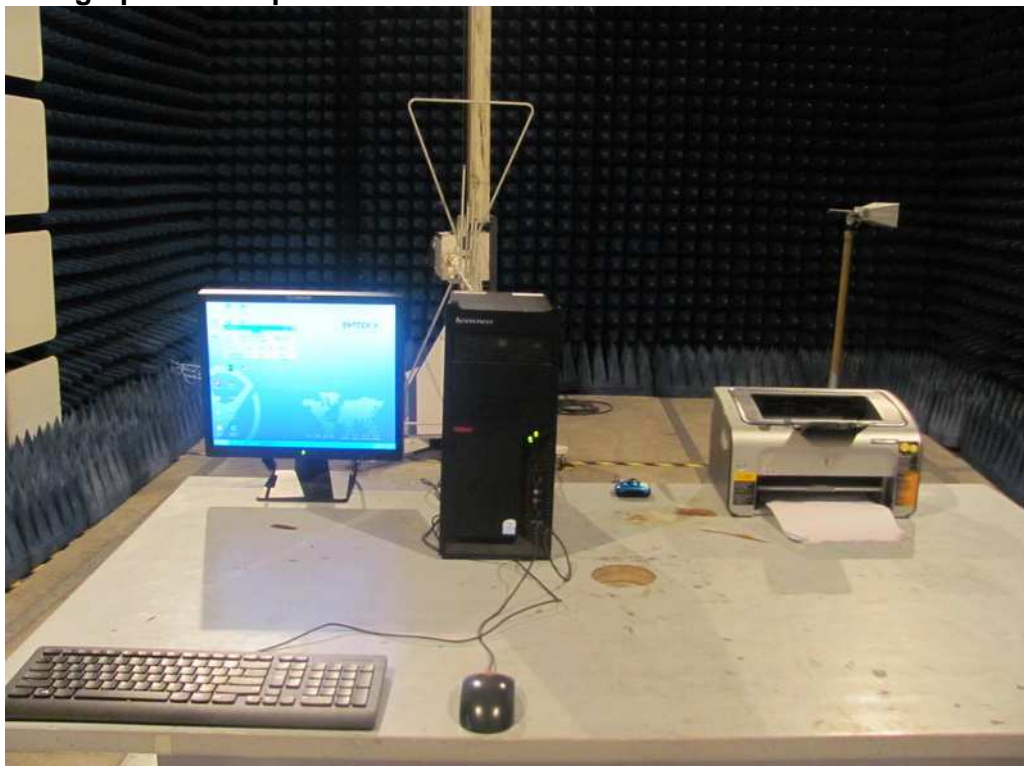
Test data refer to Appendix 1.

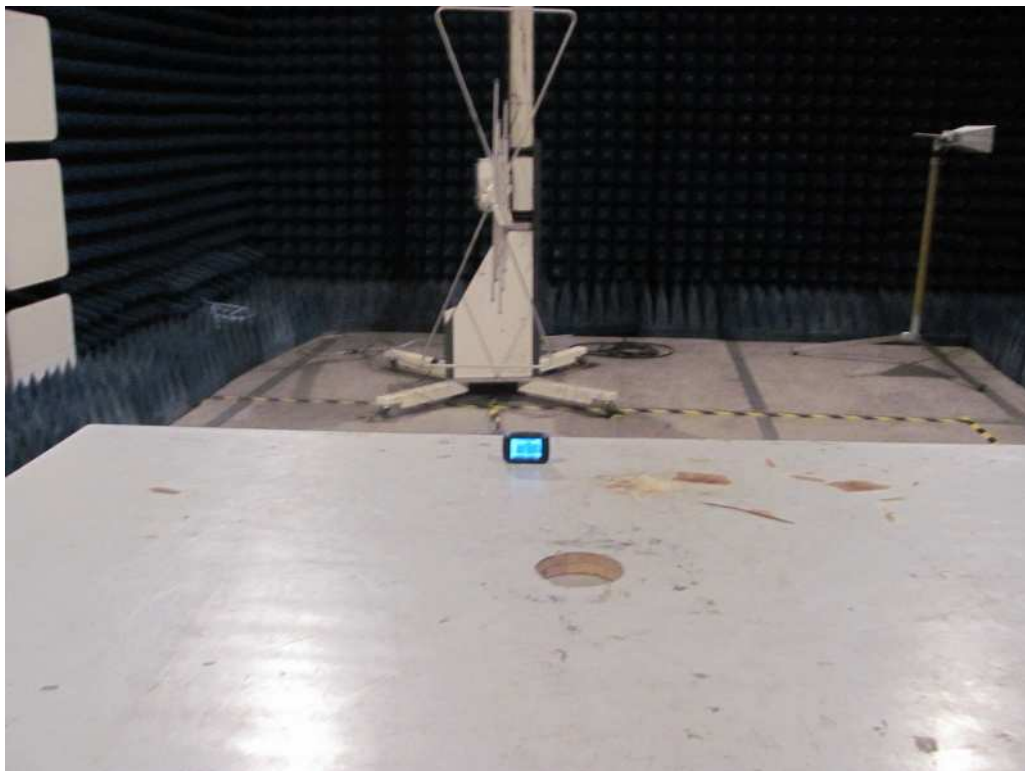
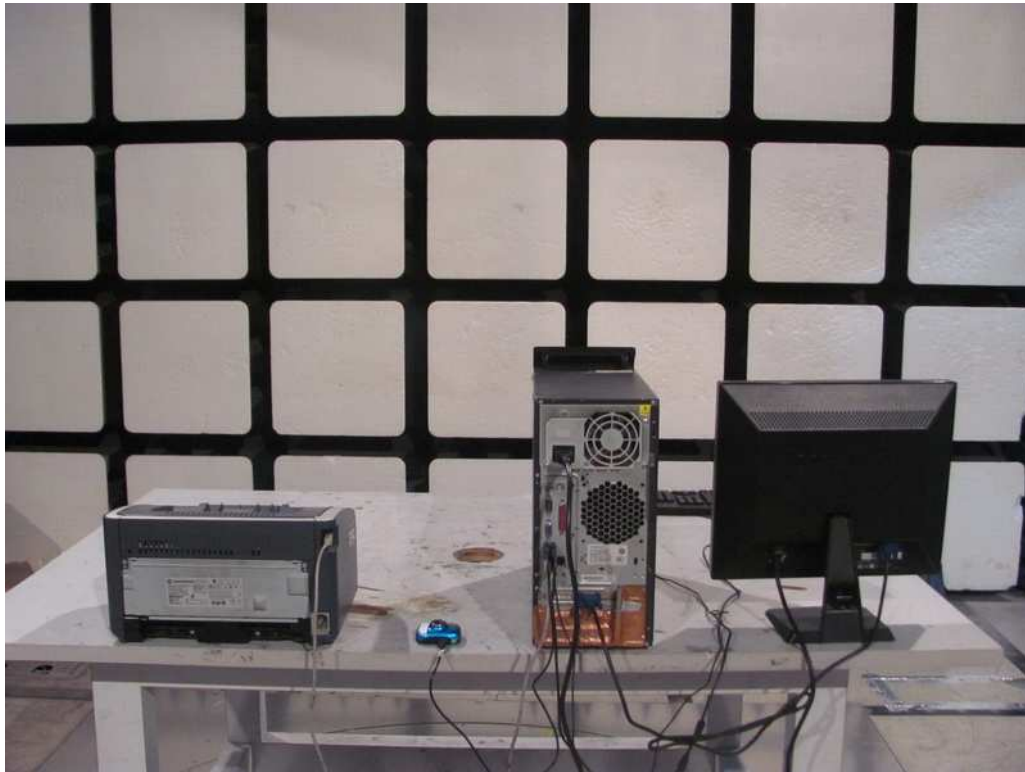
6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission



Photograph 2: Set-up for Radiated Emission





7. List of Tables

Table 1: List of Test and Measurement Equipment.....	5
Table 2: Measurement Uncertainty	6

8. List of Photographs

Photograph 1: Set-up for Conducted Emission	12
Photograph 2: Set-up for Radiated Emission	12

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4260 Fax: +86-755-2695 4262



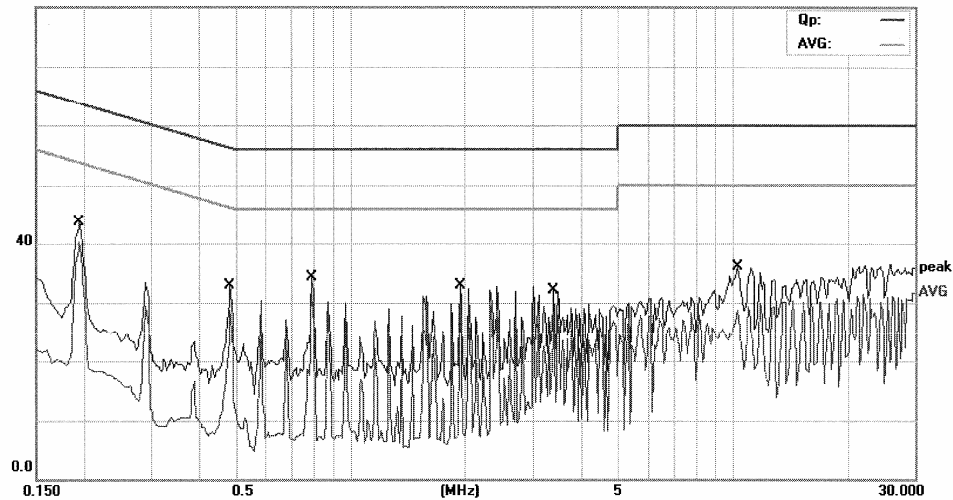
Conducted Emission Measurement

File: Shuoying
80.0 dBuV

Data: #25

Date: 12/03/06/

Time: 4/59/20



Site: Conduction #1

Phase: L1

Temperature: 26

Limit: (CE)FCC PART 15 class B_QP

Power: DC3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode: Connect to PC

Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1950	43.78	0.00	43.78	63.82	-20.04	QP	
2	0.1950	40.27	0.00	40.27	53.82	-13.55	AVG	
3	0.4850	32.86	0.00	32.86	56.25	-23.39	QP	
4	0.4850	28.66	0.00	28.66	46.25	-17.59	AVG	
5	0.7950	34.32	0.00	34.32	56.00	-21.68	QP	
6 *	0.7950	33.14	0.00	33.14	46.00	-12.86	AVG	
7	1.9400	32.96	0.00	32.96	56.00	-23.04	QP	
8	1.9400	29.86	0.00	29.86	46.00	-16.14	AVG	
9	3.4000	32.09	0.00	32.09	56.00	-23.91	QP	
10	3.4000	28.31	0.00	28.31	46.00	-17.69	AVG	
11	10.3000	36.01	0.00	36.01	60.00	-23.99	QP	
12	10.3000	28.73	0.00	28.73	50.00	-21.27	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: WOLF

File :ShuoyingData :#25

Page: 1

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4260 Fax: +86-755-2695 4262



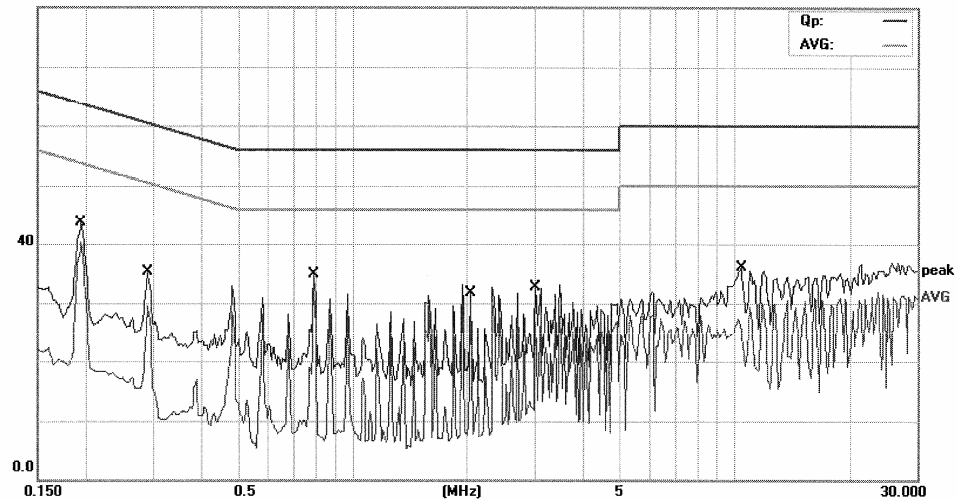
Conducted Emission Measurement

File: Shuoying
80.0 dBuV

Data: #24

Date: 12/03/06/

Time: 4/56/45



Site: Conduction #1

Phase: N

Temperature: 26

Limit: (CE)FCC PART 15 class B_QP

Power: DC3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode: Connect to PC

Note:

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1950	43.74	0.00	43.74	63.82	-20.08	QP	
2	0.1950	40.22	0.00	40.22	53.82	-13.60	AVG	
3	0.2900	35.27	0.00	35.27	60.52	-25.25	QP	
4	0.2900	29.53	0.00	29.53	50.52	-20.99	AVG	
5	0.7950	34.85	0.00	34.85	56.00	-21.15	QP	
6 *	0.7950	33.26	0.00	33.26	46.00	-12.74	AVG	
7	2.0400	33.02	0.00	33.02	56.00	-22.98	QP	
8	2.0400	30.04	0.00	30.04	46.00	-15.96	AVG	
9	3.0100	32.64	0.00	32.64	56.00	-23.36	QP	
10	3.0100	28.59	0.00	28.59	46.00	-17.41	AVG	
11	10.4000	36.16	0.00	36.16	60.00	-23.84	QP	
12	10.4000	27.21	0.00	27.21	50.00	-22.79	AVG	

*:Maximum data x:Over limit !:over margin Comment: Factor build in receiver. Operator: WOLF

File :ShuoyingData :#24

Page: 1

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P. R. China
www.emtek.com.cn Tel: +86-755-2695 4260 Fax: +86-755-2695 4262



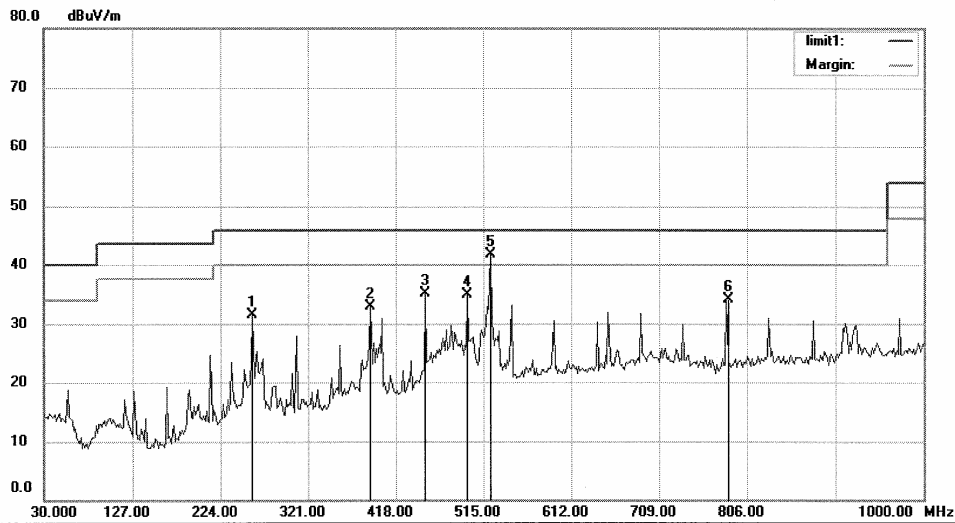
Radiated Emission Measurement

File :SHUOYING

Data :#231

Date: 2012/03/05

Time: 23:43:19



Site site #1

Limit: (RE)FCC PART 15 CLASS B

EUT: Digital Video Camera

M/N: DV123S

Mode:playing

Note:

Polarization: *Horizontal*

Power: DC 3.7V

Temperature: 26

Humidity: 60 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	260.0641	18.69	12.80	31.49	46.00	-14.51	QP		
2	390.6410	16.13	16.82	32.95	46.00	-13.05	QP		
3	451.2660	16.21	18.81	35.02	46.00	-10.98	QP		
4	497.9006	16.17	18.75	34.92	46.00	-11.08	QP		
5 *	522.7723	22.40	19.39	41.79	46.00	-4.21	QP		
6	783.9263	12.13	22.07	34.20	46.00	-11.80	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File :SHUOYING\Data :#231

Page: 1

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518062 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4288 Fax: +86-755-2695 4282



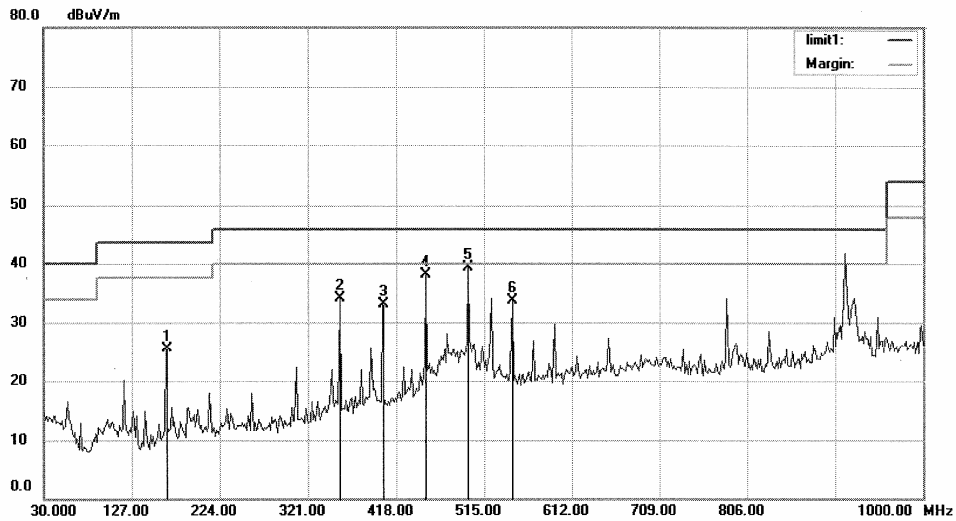
Radiated Emission Measurement

File: SHUOYING

Data: #230

Date: 2012/03/05

Time: 23:39:01



Site site #1

Polarization: **Vertical**

Temperature: 26

Limit: (RE)FCC PART 15 CLASS B

Power: DC3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode: playing

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		165.2404	15.87	9.59	25.46	43.50	-18.04	QP		
2		356.4423	17.78	16.23	34.01	46.00	-11.99	QP		
3		403.0770	16.07	17.12	33.19	46.00	-12.81	QP		
4		451.2660	19.33	18.81	38.14	46.00	-7.86	QP		
5	*	497.9006	20.63	18.75	39.38	46.00	-6.62	QP		
6		546.0897	13.68	20.02	33.70	46.00	-12.30	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File :SHUOYING\Data :#230

Page: 1

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2095 4280 Fax: +86-755-2095 4282



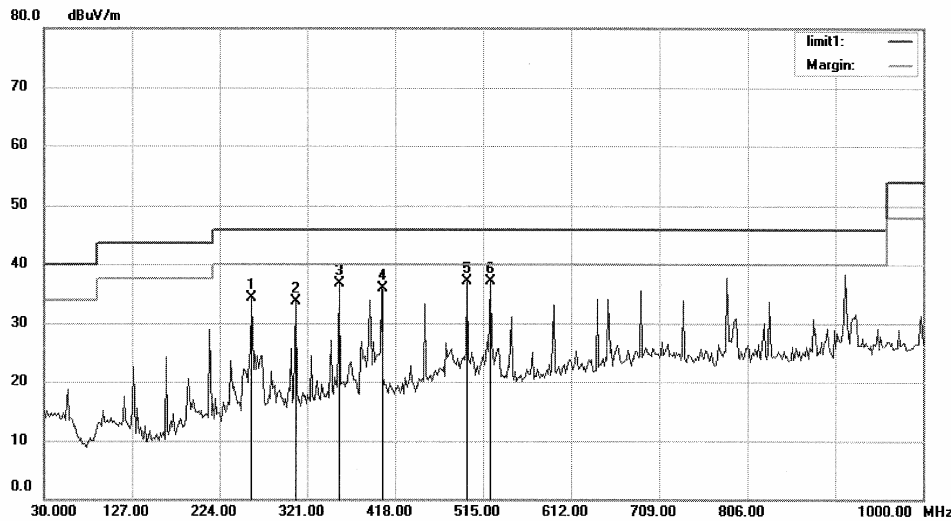
Radiated Emission Measurement

File: SHUOYING

Data: #232

Date: 2012/03/05

Time: 23:47:26



Site site #1

Polarization: **Horizontal**

Temperature: 26

Limit: (RE)FCC PART 15 CLASS B

Power: DC 3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode: Camera Recording

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		260.0641	21.56	12.80	34.36	46.00	-11.64	QP		
2		308.2532	19.63	14.15	33.78	46.00	-12.22	QP		
3		356.4423	20.49	16.23	36.72	46.00	-9.28	QP		
4		403.0770	18.70	17.12	35.82	46.00	-10.18	QP		
5	*	497.9006	18.35	18.75	37.10	46.00	-8.90	QP		
6		522.7723	17.69	19.39	37.08	46.00	-8.92	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File : SHUOYING\Data :#232

Page: 1

Shenzhen EMTEK Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4260 Fax: +86-755-2695 4262



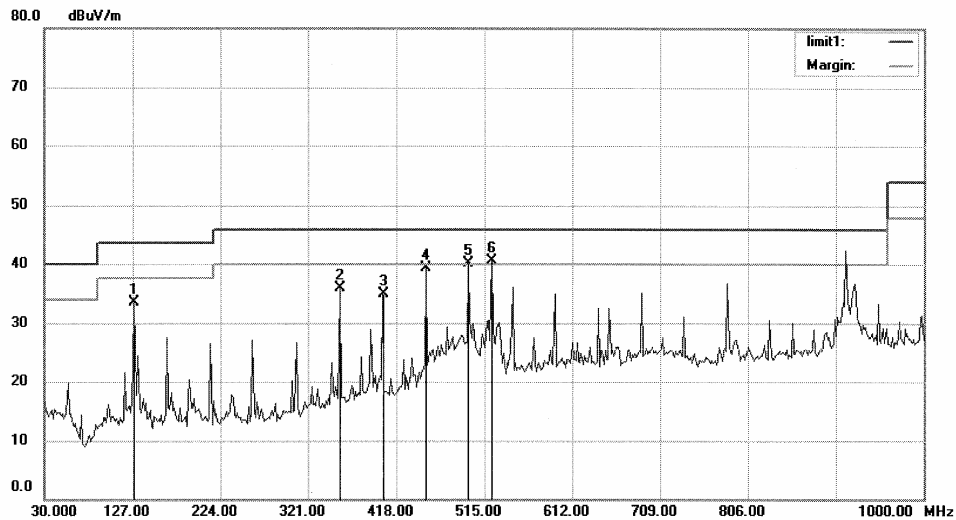
Radiated Emission Measurement

File: SHUOYING

Data: #233

Date: 2012/03/05

Time: 23:52:40



Site site #1

Limit: (RE)FCC PART 15 CLASS B

EUT: Digital Video Camera

M/N: DV123S

Mode: Camera Recording

Note:

Polarization: **Vertical**

Power: DC 3.7V

Temperature: 26

Humidity: 60 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		129.4871	23.19	10.35	33.54	43.50	-9.96	QP		
2		356.4423	19.62	16.23	35.85	46.00	-10.15	QP		
3		403.0770	17.78	17.12	34.90	46.00	-11.10	QP		
4		451.2660	20.50	18.81	39.31	46.00	-6.69	QP		
5	!	497.9006	21.30	18.75	40.05	46.00	-5.95	QP		
6	*	522.7723	21.21	19.39	40.60	46.00	-5.40	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File: SHUOYING\Data: #233

Page: 1

Shenzhen EMTek Co., Ltd.
Bldg. 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4260 Fax: +86-755-2695 4262



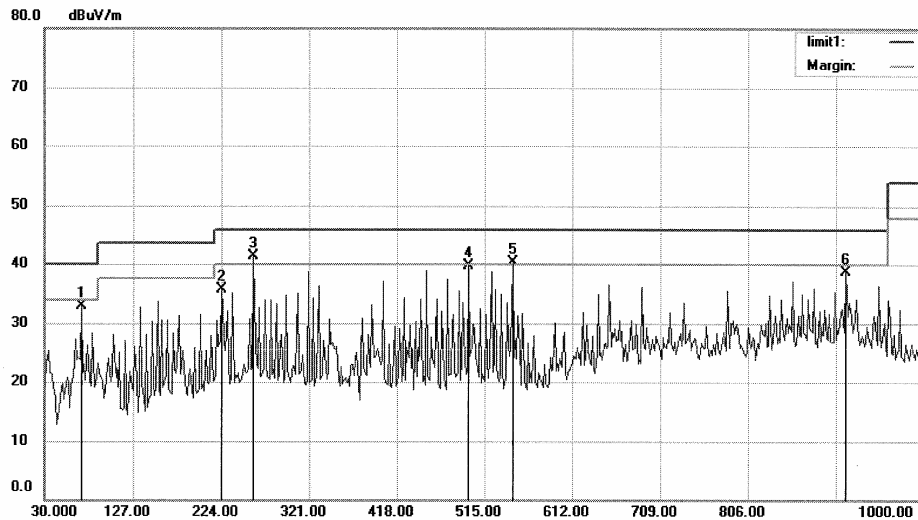
Radiated Emission Measurement

File :SHUOYING

Data :#238

Date: 2012/03/16

Time: 08:56:32



Site site #1

Polarization: **Horizontal**

Temperature: 26

Limit: (RE)FCC PART 15 CLASS B

Power: DC 3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode:Connect to pc

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		70.4166	22.11	10.80	32.91	40.00	-7.09	QP		
2		224.3108	23.58	12.13	35.71	46.00	-10.29	QP		
3	*	260.0640	27.19	14.09	41.28	46.00	-4.72	QP		
4		497.9006	20.87	18.75	39.62	46.00	-6.38	QP		
5	!	546.0897	20.34	20.02	40.36	46.00	-5.64	QP		
6		914.5032	14.75	24.01	38.76	46.00	-7.24	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File :SHUOYING\Data :#238

Page: 1

Shenzhen EMTek Co., Ltd.
Bldg. 69, Majiaolong Industry Zone, Nanshan District, Shenzhen, Guangdong, 518052 P.R. China
www.emtek.com.cn Tel: +86-755-2695 4266 Fax: +86-755-2695 4262



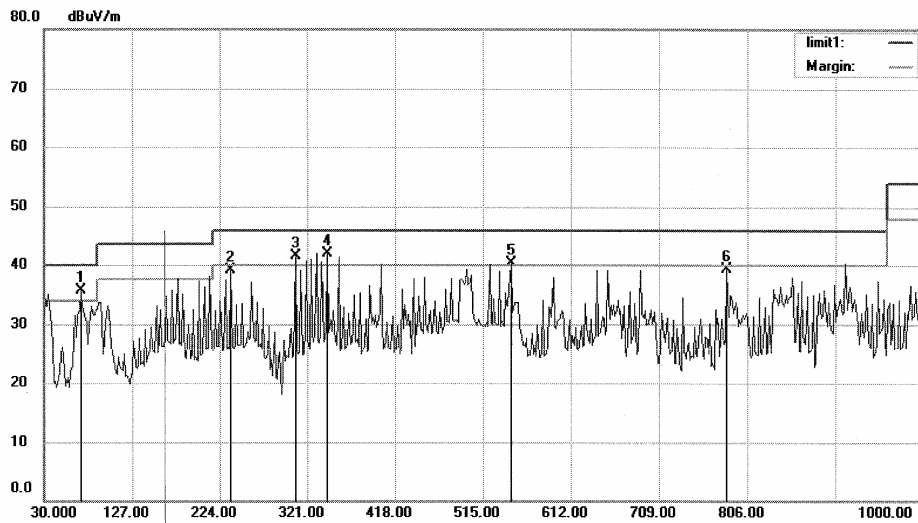
Radiated Emission Measurement

File: SHUOYING

Data: #239

Date: 2012/03/16

Time: 09:02:52



Site site #1

Polarization: **Vertical**

Temperature: 26

Limit: (RE)FCC PART 15 CLASS B

Power: DC 3.7V

Humidity: 60 %

EUT: Digital Video Camera

M/N: DV123S

Mode: Connect to pc

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1	!	70.4166	24.86	10.80	35.66	40.00	-4.34	QP		
2		236.7467	26.12	12.94	39.06	46.00	-6.94	QP		
3	!	308.2532	27.51	14.07	41.58	46.00	-4.42	QP		
4	*	344.0064	26.07	15.86	41.93	46.00	-4.07	QP		
5	!	546.0897	20.30	20.02	40.32	46.00	-5.68	QP		
6		783.9262	16.17	23.10	39.27	46.00	-6.73	QP		

*:Maximum data x:Over limit !:over margin

Operator:

File : SHUOYING\Data : #239

Page: 1