

FCC Test Report

E4128075001DW

Type / Model Name: 60644

Product Description: DIGITAL CAMERA MODULE
(MINOX/KOWA MOUNTING)

Applicant: GRANDTECH INDUSTRIAL LIMITED

FCC ID: WMD60648

FCC -- T E S T R E P O R T

Test Report No. :	E4128075001DW	November 24, 2008
<hr/>		Date of issue

Type / Model Name : 60644

Product Description : DIGITAL CAMERA MODULE
(MINOX/KOWA MOUNTING)

Applicant : GRANDTECH INDUSTRIAL LIMITED

Address : Flat A1-2, 11/F., Block A
Yee Lim Industrial Centre,
2-28 Kwai Lok Street, Kwai Chung,
N.T., Hong Kong

Test Result according to the standards listed in clause 1 test standards:	PASS
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 15, July 10, 2008

Federal Communications Commission, Part 15 – Radio Frequency Device

ANSI C63.4:2003

Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

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2 SUMMARY

GENERAL REMARKS:

None

FINAL ASSESSMENT:

The equipment under test fulfils the technical requirement cited in FCC Part 15 subpart B

Date of receipt of test sample : October 20, 2008

Testing commenced on : October 20, 2008

Testing concluded on : November 24, 2008

Reviewed by:



Wilson Loke
Senior Manager

Prepared by:



Davis Wei
Engineer

3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EuT



Front View



Back View

3.2 Power supply system utilised

Power supply voltage: 3.7VDC (Li-ion battery)

3.3 Short description of the Equipment under Test (EuT)

The Equipment under test (EUT) is digital camera module used with telescope and powerd by 3.7Vdc Li-ion battery which is rechargeable by the USB port. The EuT can take the digital picture and playback. The digital image can be stored in the internal memory and SD card. The digital photo can be download to the PC thru the USB port.

Number of tested samples: One
Serial number: Not Labelled
Dimensions: L: 6.8cm W: 7.0cm H: 6.5cm

EuT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- Operation mode 1: Download mode

- Operation mode 2: N/A

- Operation mode 3: N/A

EuT configuration:

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurements:

- Notebook PC Model : DELL INSPIRON 510m
- 1m USB cable Model : N/A
- 1m parallel cable Model : N/A
- 1m serial cable Model : N/A
- Equipment with serial and parallel port Model : N/A
- Model :

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**emitel (Shenzhen) Limited
Building 2, 171 Meihua Road,
Futian District,
Shenzhen, 518049
China**

FCC Registration No.: 746887

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 /11.2003 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to ISO 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

5 TEST CONDITIONS AND RESULTS

5.1 Conducted Emission

For test instruments and accessories used see section 6.

5.1.1 Description of the test location

Test location: Shield room

5.1.2 Photo documentation of test



5.1.3 Test result

Frequency range: 0.15MHz to 30MHz

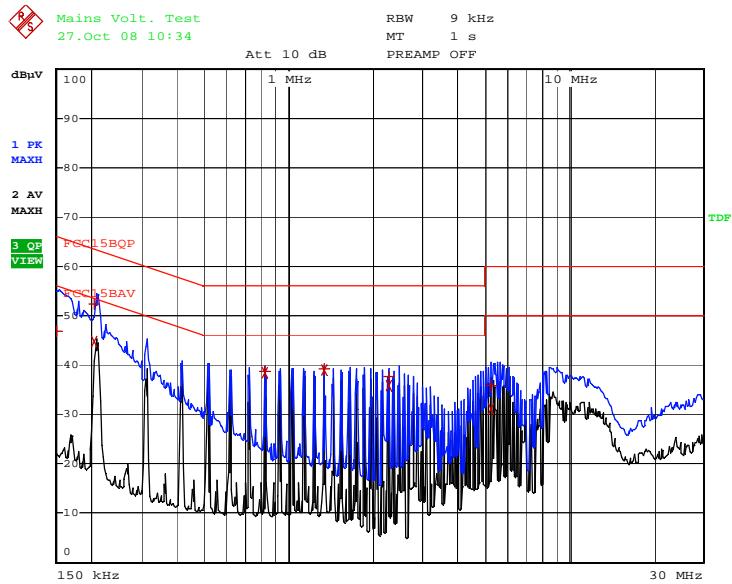
Min. limit margin: 6.99dB at 1.432MHz

The requirements of section 15.107 are **FULFILLED**.

Remarks:

5.1.4 Test protocol

Test point L1
 Operation mode: Download mode
 Date: Oct 27, 2008
 Tested by: Davis Wei



Date: 27.OCT.2008 10:34:11

EDIT PEAK LIST (Final Measurement Results)			
Trace1:	FCC15BQP		
Trace2:	FCC15BAV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	150 kHz	46.85	-19.14
1 Quasi Peak	206 kHz	52.24	-11.11
2 Average	206 kHz	44.74	-8.62
1 Quasi Peak	826 kHz	38.59	-17.40
2 Average	826 kHz	38.38	-7.61
1 Quasi Peak	1.342 MHz	39.21	-16.78
2 Average	1.342 MHz	39.00	-6.99
1 Quasi Peak	2.27 MHz	37.77	-18.22
2 Average	2.27 MHz	35.84	-10.15
1 Quasi Peak	5.262 MHz	35.77	-24.22
2 Average	5.262 MHz	31.12	-18.87

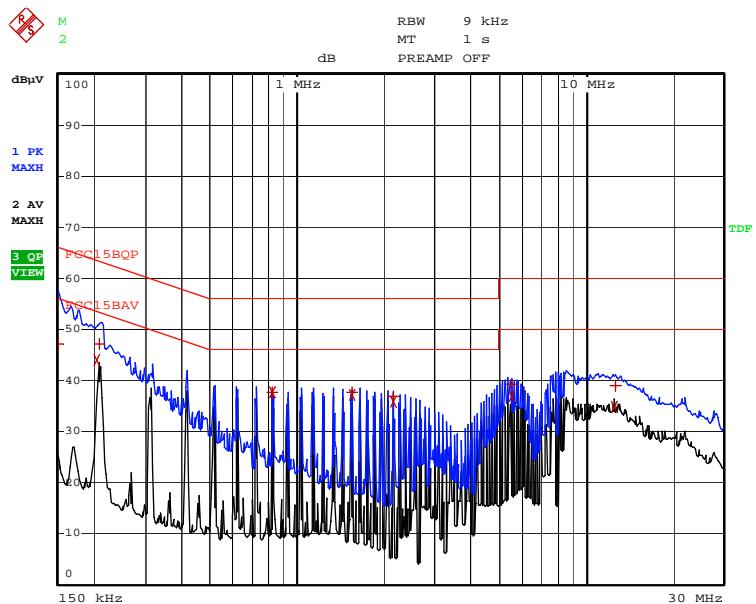
Date: 27.OCT.2008 10:34:21

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Test point N
 Operation mode: Download mode
 Date: Sept 25, 2008
 Tested by: Davis Wei

Result: Pass



Date: 27.OCT.2008 10:38:06

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15BQP			
Trace2:	FCC15BAV			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBµV	DELTA	LIMIT dB
1 Quasi Peak	150 kHz	47.21	-18.78	
2 Average	206 kHz	43.92	-9.43	
1 Quasi Peak	210 kHz	47.20	-15.99	
1 Quasi Peak	826 kHz	37.74	-18.25	
2 Average	826 kHz	37.62	-8.37	
1 Quasi Peak	1.55 MHz	37.72	-18.27	
2 Average	1.55 MHz	37.25	-8.74	
1 Quasi Peak	2.17 MHz	36.90	-19.09	
2 Average	2.17 MHz	35.76	-10.23	
1 Quasi Peak	5.578 MHz	39.16	-20.83	
2 Average	5.578 MHz	36.74	-13.25	
2 Average	12.602 MHz	34.85	-15.14	
1 Quasi Peak	12.71 MHz	38.98	-21.01	

Date: 27.OCT.2008 10:37:56

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5.2 Radiated Emission

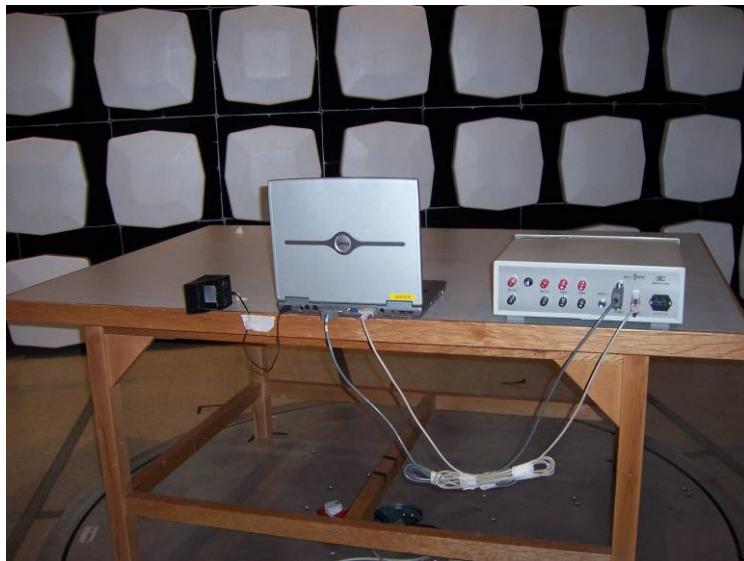
For test instruments and accessories used see section 6.

5.2.1 Description of the test location

Test location: Semi-anechoic Chamber

Test distance: 3m

5.2.2 Photo documentation of test



5.2.3 Test result

Frequency range: 30MHz to 1000MHz

Min. limit margin: 2.4dB at 432MHz

The requirements of section 15.109 are **FULFILLED**.

Remarks:

5.2.4 Test protocol

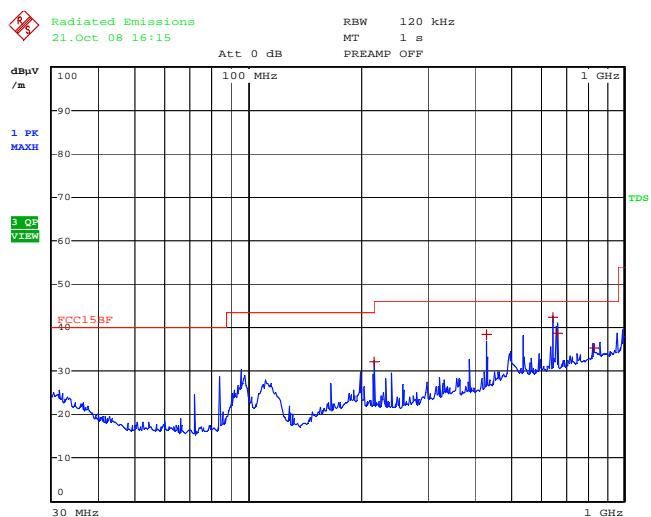
Worst Case Operation mode: Download mode

Result: PASS

Polarization: Horizontal

Date: Oct 21, 2008

Tested by: Davis Wei



Date: 21.OCT.2008 16:15:12

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15BF			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA	LIMIT dB
1 Quasi Peak	216 MHz	32.10	-13.89	
1 Quasi Peak	432.04 MHz	38.32	-7.67	
1 Quasi Peak	648.04 MHz	42.50	-3.50	
1 Quasi Peak	665.6 MHz	38.59	-7.40	
1 Quasi Peak	832.24 MHz	35.23	-10.76	

Date: 21.OCT.2008 16:15:01

Remark: 1) The emissions lower than 20dB below the limit are not measured.

2) Correction Factor is including the antenna factor and cable factor.

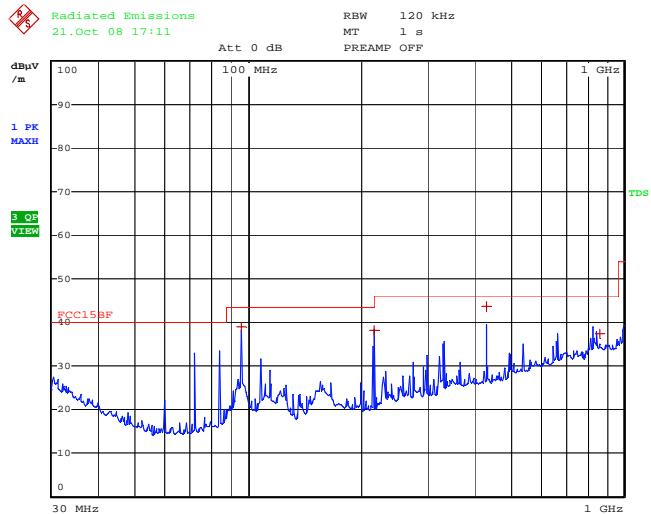
3) Result = Measured data + Correction factor.

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Worst Case Operation mode: Download mode
 Polarization: Horizontal
 Date: Oct 21, 2008
 Tested by: Davis Wei

Result: PASS



Date: 21.OCT.2008 17:11:34

EDIT PEAK LIST (Final Measurement Results)				
Trace1:	FCC15BF			
Trace2:	---			
Trace3:	---			
TRACE	FREQUENCY	LEVEL dBμV/m	DELTA	LIMIT dB
1 Quasi Peak	96 MHz	38.91	-4.58	
1 Quasi Peak	216 MHz	38.30	-7.69	
1 Quasi Peak	432 MHz	43.59	-2.40	
1 Quasi Peak	864.04 MHz	37.34	-8.65	

Date: 21.OCT.2008 17:11:19

Remark: 1) The emissions lower than 20dB below the limit are not measured.
 2) Correction Factor is including the antenna factor and cable factor.
 3) Result = Measured data + Correction factor.

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6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test Item	Model / Type	Kind of Equipment	Manufacturer	Equipment No.
Radiated Emission	ESPI3	EMI Test Receiver	Rohde & Schwarz	04-02/03-06-002
	U3772	Spectrum Analyzer	Advantest	04-02/11-08-001
	3142C	Biconilog Antenna	EMCO	04-02/24-06-001
	3117	Horn Antenna	ETS Lindgren	04-02/24-07-001
Conducted Emission	ESPI3	EMI Test Receiver	Rohde & Schwarz	04-02/03-06-002
	ESH2-Z5	LISN	Rohde & Schwarz	04-02/03-06-001