FCC Test Report

E4128102401KYS1

Type / Model Name:	**60651**
Product Description:	**DIGITAL SPY CAMERA**
Applicant:	**GRANDTECH INDUSTRIAL LTD.**
FCC ID:	**WMD60651**

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

Test Report No. : E4128102401KYS1	May 14, 2010 Date of issue

This report supercedes our previous report, E4128102401KY, dated April 22, 2010

Type / Model Name : 60651

Product Description : DIGITAL SPY CAMERA

Applicant GRANDTECH INDUSTRIAL LTD.

Address FLAT A1-2, 11/F., BLK. A,
YEE LIM INDUSTRIAL CENTRE,
2-28 KWAI LOK STREET, KWAI CHUNG,
N.T., HONG KONG

Buyer : MINOX GmbH

Address : Walter-Zapp-Strabe 4,
D-35578 Wetzlar,
GERMANY

Test Result according to the standards listed in clause 1 test standards:	**PASS**

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.

Contents

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 15 Subpart B:2007-9-20	Radio frequency devices-Unintentional Radiators
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

2 SUMMARY

GENERAL REMARKS:

None

FINAL ASSESSMENT:

The equipment under fulfils the FCC requirements cited in test standard listed in section 1.

Date of receipt of test sample : October 29, 2009

Testing commenced on : October 29, 2009

Testing concluded on : April 29, 2010

Reviewed by:

Digitally signed by Wilson Loke

Wilson Loke
Senior Manager

Prepared by:

Digitally signed by kidd

Kidd Yang
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: DC 3.7V(250mAh lithium polymer battery pack)

3.3 Short description of the Equipment under Test (EuT)

The EuT is a digital camera powered by a DC 3.7V 250mAh lithium polymer battery and recharged thru the USB port. It is used for digital photo taking and can download the photo to the PC thru the USB port.

Number of tested samples: One
Serial number: Not Labelled
Dimensions: L: 9.0cm W: 3.0cm H: 2.5cm

EuT operation mode:

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

- Operation mode 1: Download mode

- Operation mode 2: Photo mode

-

EuT configuration:

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

Interface cables:

Interface cable	Length [m]	Type	Line		Line termination
			shielded	unshielded	
Serial Cable connect to PC	3.0	Serial port Cable	☒	☐	Switch Simulator
Power Cable of PC	2.0	3 wires	☐	☒	LISN
Parallel Cable connect to PC	3.0	Parallel port cable	☒	☐	Switch Simulator
USB Cable connect to EuT and PC	0.6	USB cable	☒	☐	PC

Peripheral devices:

Kind of equipment	Model and/or Manufacturer
PC	DELL
Switch Simulator	Schaffner

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

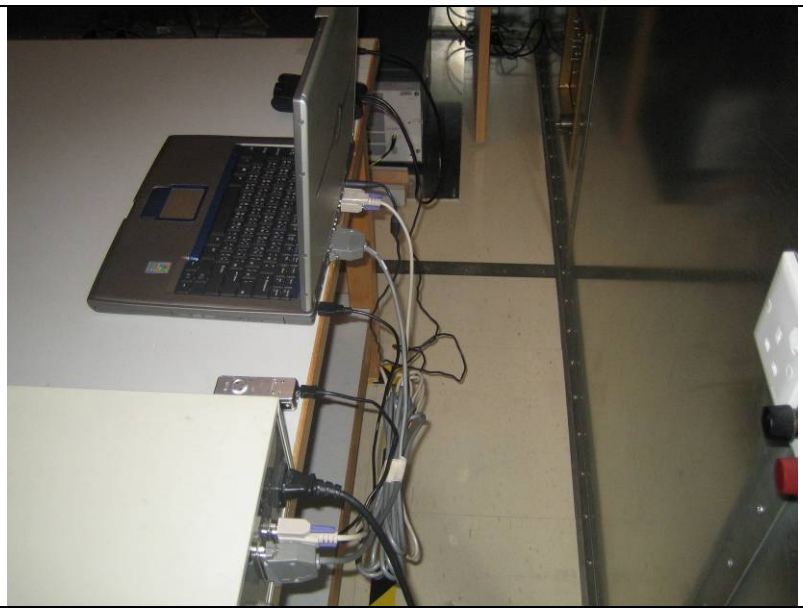
5.1 Conducted disturbance

For test instruments and accessories used see section 6 Part **I1**.

5.1.1 Description of the test location

Test location: Shield Room

5.1.2 Photo documentation of the test set-up



5.1.3 Test result

Frequency range: 0.15MHz – 30.00MHz

The test was carried out in the following operation mode(s):
- Download mode
- Photo mode

Min. limit margin -7.9dB at 0.206MHz.

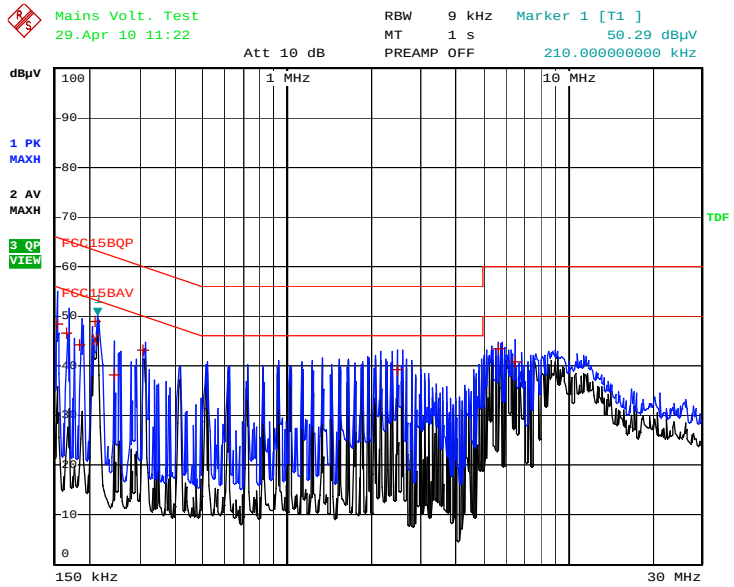
The requirements are **FULFILLED**

Remarks: _____

_____

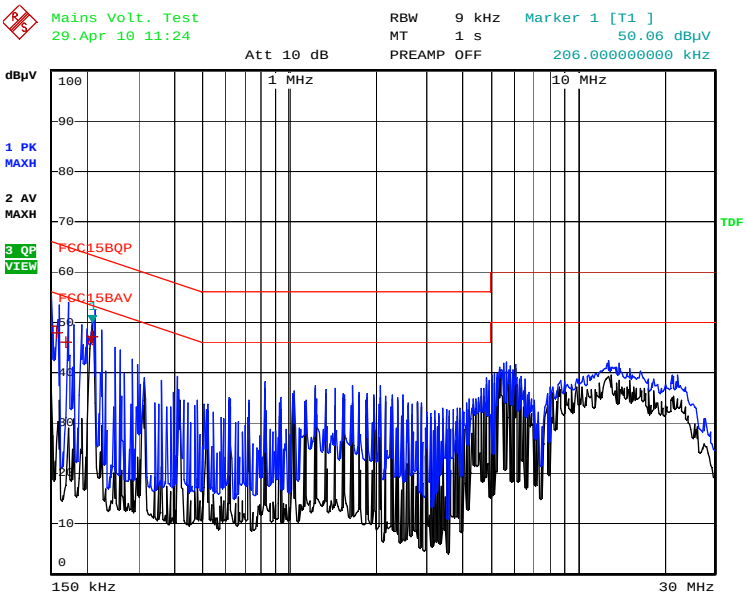
5.1.4 Test protocol

Product Description	:	Digital spy camera	Result: **PASS**
Model	:	60651	
Test mode		Download mode(worst case)	
Date	:	29-04-2010	



Date: 29.APR.2010 11:22:24

N



Date: 29.APR.2010 11:24:47

L1

LINE	Frequency [MHz]	Measured QP Value [dBµV]	Limit [dBµV/m]	Margin [dB]
L1	0.150	49.3	66.0	-16.7
L1	0.158	47.9	65.8	-17.9
L1	0.170	46.1	65.4	-19.3
L1	0.210	47.2	64.3	-17.1
N	0.154	48.5	65.9	-17.4
N	0.166	46.5	65.5	-19.0
N	0.186	44.1	65.0	-20.9
N	0.210	48.9	64.3	-15.4
N	0.242	38.2	63.4	-25.2
N	0.310	43.2	61.4	-18.2
N	2.470	39.2	56.0	-16.8
N	5.674	43.4	60.0	-16.6
N	6.498	40.7	60.0	-19.3

LINE	Frequency [MHz]	Measured AV Value [dBµV]	Limit [dBµV/m]	Margin [dB]
L1	0.206	46.5	54.4	-7.9
N	0.210	45.1	54.3	-9.2

Remark: Other emission with more than 10dB maring below the limit is not measured.

5.2 Radiated disturbance (electric field)

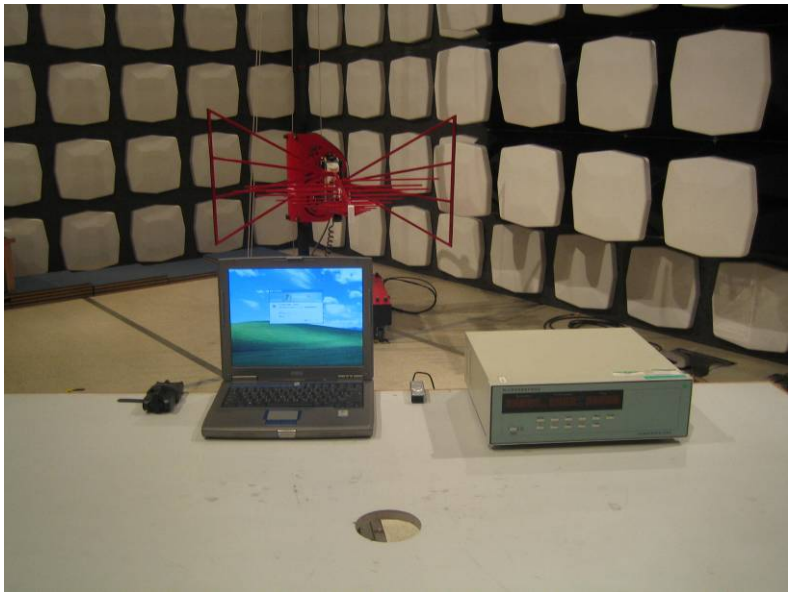
For test instruments and accessories used see section 6 Part **I2.**

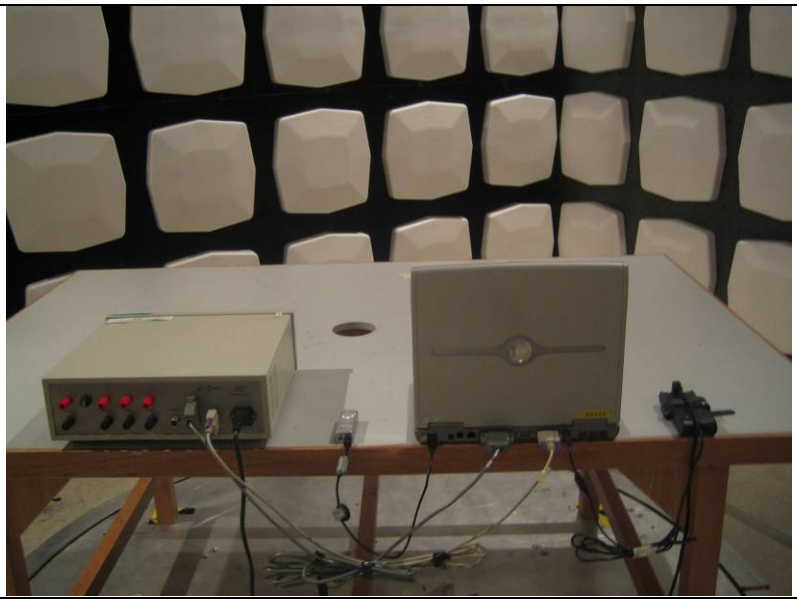
5.2.1 Description of the test location

Test location: Semi-Anechoic Chamber

Test distance: 3m

5.2.2 Photo documentation of the test set-up





5.2.3 Test result

The test was carried out in the following operation mode(s):
- Download mode (worst case)
- Photo mode

Frequency range: 30MHz to 1000MHz

Min. limit margin -1.2dB at 648.0MHz.

The requirements are **FULFILLED**

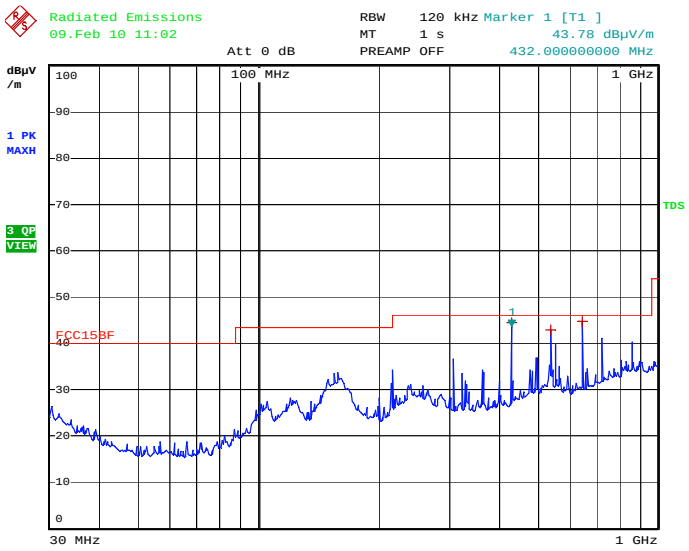
Remarks: 1) According to FCC part 15.33(b), since the EuT is used 12MHz oscillator in the device, the upper frequency of measurement is up to 1000MHz.

2) During photo mode test, EUT is rolated through three orthogonal axes to determine the maximum emission.

5.2.4 Test protocol

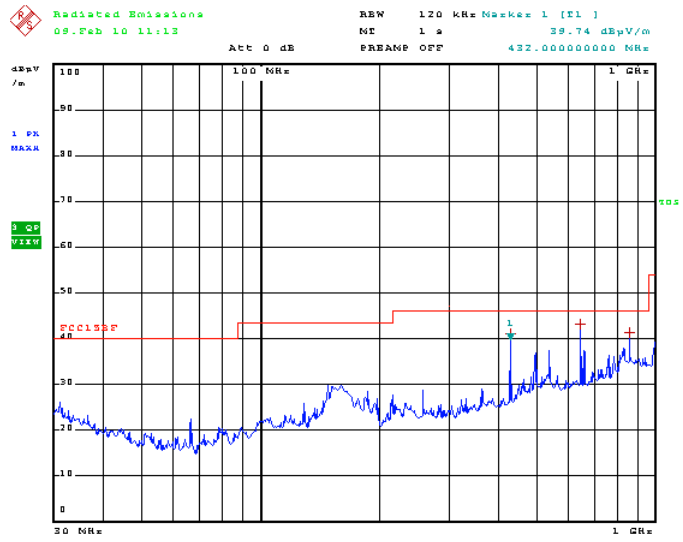
Product Description	:	Digital spy camera	Result: **PASS**
Model	:	60651	
Test mode		Download mode(worst case)	
Date	:	09-02-2010	

Start frequency [MHZ]	Stop frequency [MHZ]	Resolution bandwidth	step size	Measurement time	Detector
30	1000	120 kHz	40 kHz	1s	QP



Date: 9.FEB.2010 11:02:10

Horizontal



Date: 9.FEB.2010 11:14:00

Vertical

Polarization	Frequency (MHz)	Read Value (dBuV/m)	Antenna Factor (dB)	Cable Loss (dB)	Measured Result (dBuV/m)	QP limit (dBuV/m)	margin (dB)
H	432.0	26.2	16.6	1.6	44.4	46.0	-1.6
H	340.0	25.9	15.6	1.5	43.0	46.0	-3.0
H	648.0	22.4	20.5	1.9	44.8	46.0	-1.2
V	432.0	23.2	16.3	1.6	41.1	46.0	-4.9
V	648.0	22.0	19.3	1.9	43.2	46.0	-2.8
V	864.0	16.4	22.5	2.4	41.3	46.0	-4.7

Remark: Other emission with more than 10dB maring below the limit is not measured.

6 USED TEST EQUIPMENT AND ACCESSORIES

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

Test ID	Model / Type	Kind of Equipment	Manufacturer	Equipment No.
I1	Test Receiver	ESPI3	Rohde & Schwarz	04-02/03-06-002
	LISN	ESH2-Z5	Rohde & Schwarz	04-02/20-06-001
	Coaxial cable	C009	emitel	N/A
	Coaxial cable	C010	emitel	N/A
I2	Test Receiver	ESPI3	Rohe & Schwarz	04-02/03-06-002
	BicoNILog Antenna	3142C	EMCO	04-02/24-06-001
	MiniMast	2175	ETS LINDGREN	04-02/30-06-001
	Mulit-Device Controller	2091	EMCO	04-02/30-06-002
	Turntable	2087	ETS LINDGREN	04-02/03-06-003