

TEST REPORT For FCC

Test Report No. : TK-FR9017

Date of Issue : 09/24/2009

Description of Product : 2.4GHz WIRELESS CAMERA SYSTEM

Model No. : WXC-24

Applicant : **XM.CO.,LTD.**
6-4B,1L, 4-Complex,Gumi National Industrial, SinDang-ri,
Sandong-myein, Gumi-city, Gyeongbuk, KOREA

Manufacturer : **XM.CO.,LTD.**
6-4B,1L, 4-Complex,Gumi National Industrial, SinDang-ri,
Sandong-myein, Gumi-city, Gyeongbuk, KOREA


Standards : FCC Part 15 Subpart C §15.249

Test Date : 09/24/2009 ~ 10/07/2009

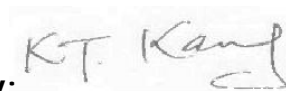
Test Results : ☒ PASS ☐ FAIL

The test results relate only to the items tested.

Tested by:


Kyu-Chul Shin
Test Engineer
Date:10/07/2009

Reviewed by:


KT Kang
Technical Manager
Date: 10/07/2009

THRU-KES CO.,LTD.

477-6, Hager-Ri, Yaju-Up, Yaju-Gun Kyunggi-Do, 469-803, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450

TABLE OF CONTENTS

1.0	General Product Description	3
1.1	Tested Frequency	3
1.2	Model Differences	4
1.3	Device Modifications	4
1.4	Peripheral Devices	4
1.5	Calibration Details of Equipment Used for Measurement	4
1.6	Test Facility.....	4
2.0	Summary of test Results.....	5
2.1.1	Radiated Emission Test	6
2.1.2	Conducted Emission Test	10
2.1.4	Band-Edge Testing	11
APPENDIX A – Test Equipment Used For Tests		13

1.0 General Product Description

Discription : 2.4GHz WIRELESS CAMERA SYSTEM

Equipment model name : WXC-24

Serial number : Prototype

EUT condition : Pre-production, not damaged

Frequency Range : 2450 MHz

Number of channels : 1channel(2450MHz)

Antenna Designation : Non-User Replaceable

Type of Modulation : FM

Power Source : 12VDC

1.1 Tested Frequency

		CH1	
Frequency (MHz)		2450	

1.2 Model Differences

Not applicable

1.3 Device Modifications

The following modifications were necessary for compliance:

Not applicable

1.4 Peripheral Devices

Device	Manufacturer	Model No.	Serial No.	FCC ID or DoC
EUT	X M . C O . , L T D .	WXC-24	-	-
Camera	X M . C O . , L T D .	-	-	-

* note : This camera is setted outside of the test site during testing

1.5 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

1.6 Test Facility

THRU-KES Co.,Ltd. (Test Site # : 343818)
477-6, Hager-Ri, Yoju-Up, Yoju-Gun Kyunggi-Do, 469-803, Korea

2.0 Summary of test Results

FCC Part Section(s)	Description Of Tests	Status (note 1)
15.209(a) 15.249(a)	Radiated Emission	C
15.207(a)	Conducted Emission	NA
15.249(d)	Band Edge Testing	C

Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

Note 2: The data in this test report are traceable to the national or international standards.

The sample was tested according to the following specification:
- FCC Part 15.249, ANSI C63.4-2003

2.1.1 Radiated Emission Test

Test Location

☒ Testing was performed at a test distance of 3 meter Open Area Test Site

Test Procedures

The height of the measuring antenna was varied between 1 to 4 m and the table was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

The spectrum analyzer is set to:

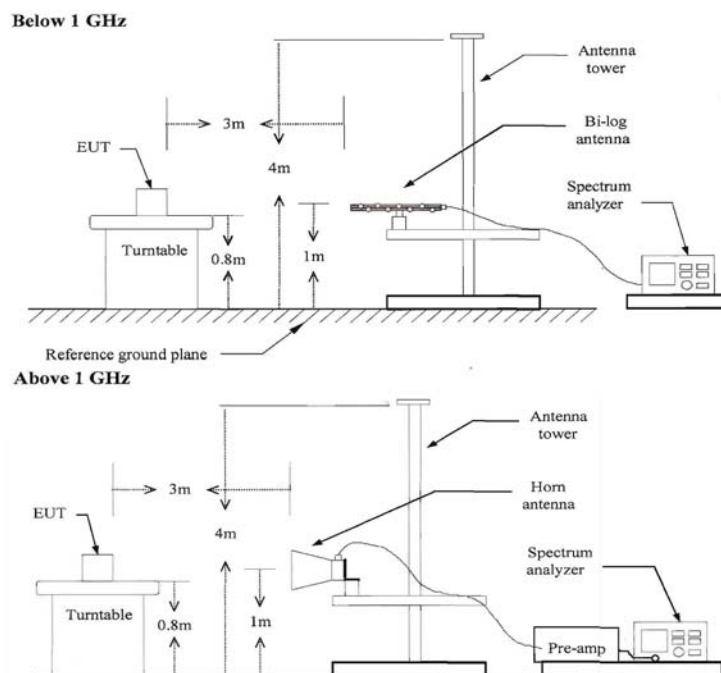
Below 1GHz :

RBW=100KHz/VBW=300KHz/Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz/Sweep=AUTO

(b) AVERAGE: RBW=1MHz/VBW=10Hz/Sweep=AUTO



Limit

-15.249(a)

Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25GHz	250	2500

- 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m
30-88	100**	40
88-216	150**	43.5
216-960	200**	46
Above 960	500	54

** Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.

Test Results

EUT	2.4GHz WIRELESS CAMERA SYSTEM	Measurement Detail	
Model	WXC-24	Frequency Range	Below 1000MHz
Channel	-	Detector function	Quasi-Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
53.80	30.1	9.9	Quasi-Peak

Test Data

No	Emission Frequency (MHz)	Meter Reading dBuV/m	Ant. Polarity	Correction Factor dB	Cable Loss dB	Field Strength (dBuV/m)	Margin (dBuV)	Limit (dBuV/m)
1	49.60	11.5	V	13.6	4.0	29.0	-11.0	40.0
2	53.80	12.6	V	13.2	4.2	30.1	-9.9	40.0
3	67.80	10.9	H	11.2	3.4	25.6	-14.4	40.0
4	118.40	13.2	V	12.1	2.4	27.7	-15.8	43.5
5	130.70	14.7	V	12.8	2.4	30.0	-13.5	43.5

Test Results

EUT	2.4GHz WIRELESS CAMERA SYSTEM	Measurement Detail	
Model	WXC-24	Frequency Range	1-25GHz
Channel	Channel 1	Detector function	Peak

The requirements are:

☒ Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2450.00	91.40	2.6	Peak

Test Data

Frequency [MHz]	Reading [dBuV/m]	Pol.	Height [m]	Correction Factor			Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
				Antenna	Amp. Gain	Cable			
2450.00	91.1	V	1.3	28.2	35.3	7.4	94.0	91.4	2.6
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-

* No emissions were detected at a level greater than 20dB below limit

2.1.2 Conducted Emission Test

Not Applicable, as it's power was supplied from DC Power Supply

2.1.4 Band-Edge Testing

Test Standard

FCC Part 15 15.249 :2005

Band Edge FCC 15.249(d) Limit

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation

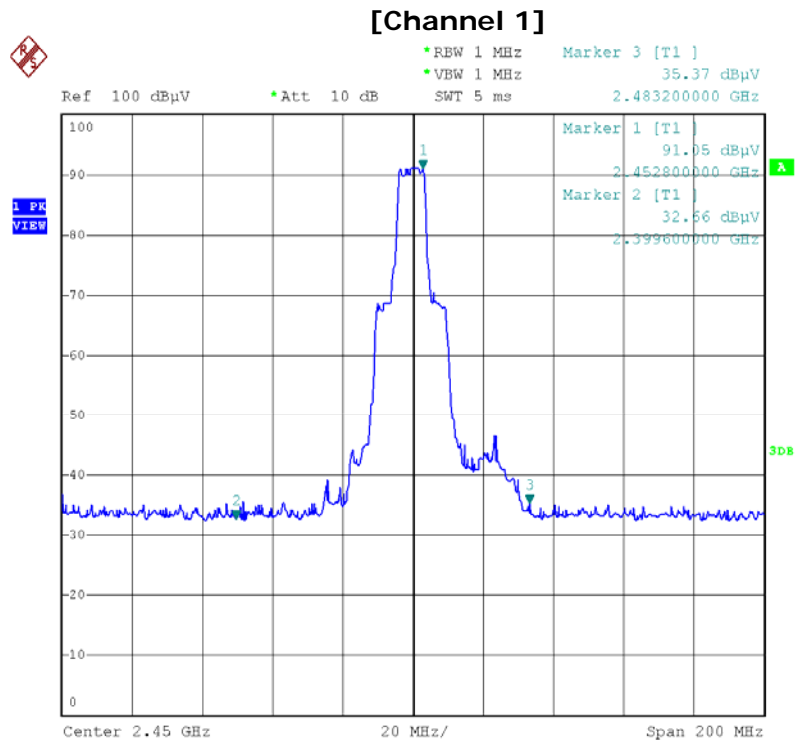
Test Procedures

With the EUT's antenna attached, the EUT's radiated emission power was received by the test antenna which was connected to the spectrum analyzer with operation band.

Test Results

Band-Edge Testing	Result
	Complies

See next pages for actual measured spectrum plots.



APPENDIX A – Test Equipment Used For Tests

No	Description	Manufacturer	Model No.	Serial No.	Due Cal.
1	Test Receiver	Rohde &	ESHS 10	862970/018	2010.06.11
2	Test Receiver	Rohde &	ESVS 10	826008/014	2010.05.20
3	Spectrum Analyzer	Hewlett Packard	8566B	2311A02394	2010.05.15
4	Spectrum Analyzer	Rohde &	FSP13	100130	2010.05.15
5	Modulation Analyzer	Hewlett Packard	8901B	3438A05094	2010.05.15
6	Audio analyzer	Hewlett Packard	8903B	3011A12915	2010.05.15
7	Preamplifier	Hewlett Packard	8447F	2805A02570	2010.05.15
8	Preamplifier	A.H. Systems	PAM-0118	164	2010.04.17
9	Signal Generator	Hewlett Packard	8673D	2708A00448	2010.05.15
10	Power Meter	Hewlett Packard	437B	312U24787	2010.04.21
11	Power Sensor	Hewlett Packard	8482B	3318A06943	2010.05.15
12	Loop Antenna	Rohde &	HFH2-Z2.335.4711.52	826532/006	2011.02.06
13	Dipole Antenna	Rohde &	VHAP	574	2010.07.07
14	Dipole Antenna	Rohde &	VHAP	575	2010.07.17
15	Dipole Antenna	Rohde &	UHAP	545	2010.07.17
16	Dipole Antenna	Rohde &	UHAP	546	2010.07.07
17	Biconical Antenna	Eaton Corp.	94455-1	0977	2010.07.03
18	Biconical Antenna	EMCO	3104C	9111-2468	2010.07.03
19	Log Periodic Antenna	EMCO	3146	2051	2010.06.05
20	Log Periodic Antenna	EMCO	3146	8901-2320	2010.07.03
21	Horn Antenna	A.H. Systems	SAS-571	414	2011.03.16
22	LISN	EMCO	3810/2	2228	2010.05.15
23	Waveform Generator	Hewlett Packard	33120A	US34001190	2010.05.15
24	Digital Oscilloscope	Tektronix	TDS 340A	B012287	2010.05.15
25	Dummy Load	Bird Electronics	8251	11511	2010.04.17
26	Spectrum Analyzer	Rohde &	FSP40	-	2009.10.30
27	Double Ridged Guide Antenna	ETS-Lindgren	3116	00062916	200912.19
28	Double Ridged Guide Antenna	ETS-Lindgren	3116	00062504	200912.19