FCC PART 15 SUBPART B TEST REPORT

FCC PART 15 B

Report Reference No.....:	**TRE1309000502 R/C:18013**
FCC ID.....:	**Y2L00004**
Compiled by (position+printed name+signature) .:	File administrators Jerome Luo
Supervised by (position+printed name+signature) .:	Test Engineer Yuchao Wang
Approved by (position+printed name+signature) .:	Manager Wenliang Li
Date of issue.....:	Oct 14, 2013
Testing Laboratory Name.....:	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address .....:	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Applicant's name.....:	**Boly Media Communications (Asia) Co., Ltd.**
Address .....:	WORKSHOP B9,6/F,BLOCK B,CAMBRIDGE PLAZA NO.188 SAN WAN ROAD, SHEUNG SHUI,N.T.,HONG KONG
Manufacturer's name .....:	**Boly Media Communications (shenzhen) Co., Ltd.**
Address .....:	2F,Shanshui Building B,Yungu Innovation Industrial park,NO.1183,Liuxian Blvd, Nanshan District,Shenzhen..Guangdong,China
Test specification .....**:**	
Standard .....:	**FCC Part 15 B- Unintentional Radiators**
TRF Originator.....:	Shenzhen Huatongwei International Inspection CO., Ltd
Master TRF.....:	Dated 2006-06

Test item description .....:	MMS/GPRS Security Camera
Trade Mark .....:	BOLYGUARD/SCOUTGUARD
Manufacturer.....:	**Boly Media Communications (shenzhen) Co., Ltd.**
Model/Type reference .....:	BG500L
Listed Models .....:	BG500K/BG500L-HD/BG500K-HD
Ratings .....:	DC 5.00V Adapter from AC120V/60Hz
Result .....:	**Positive**

T E S T R E P O R T

Test Report No. :	TRE1309000502	Oct 14, 2013 Date of issue

Equipment under Test	:	MMS/GPRS Security Camera
Model /Type	:	BG500L
Listed Models	:	BG500K/BG500L-HD/BG500K-HD
Applicant	:	**Boly Media Communications (Asia) Co., Ltd.**
Address	:	WORKSHOP B9,6/F,BLOCK B,CAMBRIDGE PLAZA NO.188 SAN WAN ROAD, SHEUNG SHUI,N.T.,HONG KONG
Manufacturer		**Boly Media Communications (shenzhen) Co., Ltd.**
Address		2F,Shanshui Building B,Yungu Innovation Industrial park,NO.1183,Liuxian Blvd, Nanshan District,Shenzhen..Guangdong,China

Test Result according to the standards on page 4:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1. TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15 Subpart B - Unintentional Radiators

ANSI C63.4-2009: American National Standard for Methods of Measurement of Radio-Noise Emissions From Low Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Sep 01, 2013
Testing commenced on	:	Sep 01, 2013
Testing concluded on	:	Sep 19,2013

2.2. Product Description

The **Boly Media Communications (Shenzhen) Co., Ltd.**'s Model: BG500L or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

Name of EUT	MMS/GPRS Security Camera
Model Number	BG500L/ BG500K/BG500L-HD/BG500K-HD
FCC ID	Y2L00004
Modilation Type	GFSK for GPRS/EDGE
Antenna Type	External
GSM/EDGE/GPRS	Supported GPRS and EGPRS
Extreme temp. Tolerance	-30°C to +60°C
Extreme vol. Limits	4.25VDC to 5.75VDC (nominal: 5.00VDC)
GSM/GPRS Operation Frequency Band	GSM 850MHz/ PCS 1900MHz
GSM Release Version	R99
GPRS operation mode	Class B
GPRS Multislot Class	12
EGPRS Multislot Class	12

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	○	120V / 60 Hz	○	115V / 60Hz
		○	12 V DC	○	24 V DC
		●	Other (specified in blank below)		

DC 5.00V Adapter from AC 120V/60Hz

2.4. Short description of the Equipment under Test (EUT)

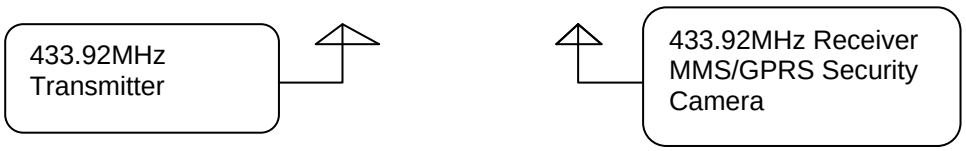
The Equipment Under Test (EUT) is a model of MMS/GPRS Security Camera with GPRS/EGPRS and 433.92MHz

receiver function and integrated antenna. Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the Client.

2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



2.6. EUT configuration

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

● supplied by the manufacturer

○ - supplied by the lab

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Boly Media Communications (shenzhen) Co., Ltd.	REMOTE TRANSMITTER	ZABY1-4	N/A	Y2L00030

2.7. EUT operation mode

The EUT has been tested under typical operating condition.

2.8. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID:Y2L00004** filing to comply with the FCC Part 15, Subpart B Rules.

2.9. Modifications

No modifications were implemented to meet testing criteria.

2.10. Note

1. The EUT is a MMS/GPRS Security Camera with GPRS/EDGE and 433.92MHz receiver function,The functions of the EUT listed as below:

	Test Standards	Reference Report
GPRS/EDGE	FCC Part 22/FCC Part 24	TRE1309000501
433.92MHz Receiver	FCC Part 15B	TRE1309000502
USB	FCC Part 15B	TRE1309000503
MPE	FCC Part 2.1091(d)	TRE1309000504

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 01, 2012. Valid time is until Feb 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2015.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date Jun. 01, 2012, valid time is until Jun. 01, 2015.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2010. Valid time is until Dec. 23, 2016.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

3.3. Environmental conditions

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

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. 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 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 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.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.65 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.5. Test Description

Test Items	Clause in FCC rules	Verdict
AC Conducted Emission	15.107	PASS
Radiated Spurious Emission	15.109	PASS

3.6. Equipments Used during the Test

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	Rohde&Schwarz	ESCI	100106	2012/10/27
2	Artificial Mains	Rohde&Schwarz	ESH2-Z5	100028	2012/10/27
3	Pulse Limiter	Rohde&Schwarz	ESHSZ2	100044	2012/10/27
4	EMI Test Software	Rohde&Schwarz	ESK1	N/A	N/A
5	Universal Radio Communication Tester	Rohde&Schwarz	CMU200	112012	2012/10/27

Radiated Emission& Spurious Emissions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	Rohde&Schwarz	HL562	100015	2012/10/27
2	EMI TEST RECEIVER	Rohde&Schwarz	ESI 26	100009	2012/10/27
3	TURNTABLE	ETS	2088	2149	N/A
4	ANTENNA MAST	ETS	2075	2346	N/A
5	EMI Test Software	Rohde&Schwarz	ESK1	N/A	N/A
6	HORN ANTENNA	Rohde&Schwarz	HF906	100039	2012/10/27
7	Amplifer	Sonoma	310N	E009-13	2012/10/27
8	JS amplifer	Rohde&Schwarz	JS4-00101800-28-5A	F201504	2012/10/27
9	Broad-Band Horn	Schwarzbeck	BBHA9170	470	2012/10/27

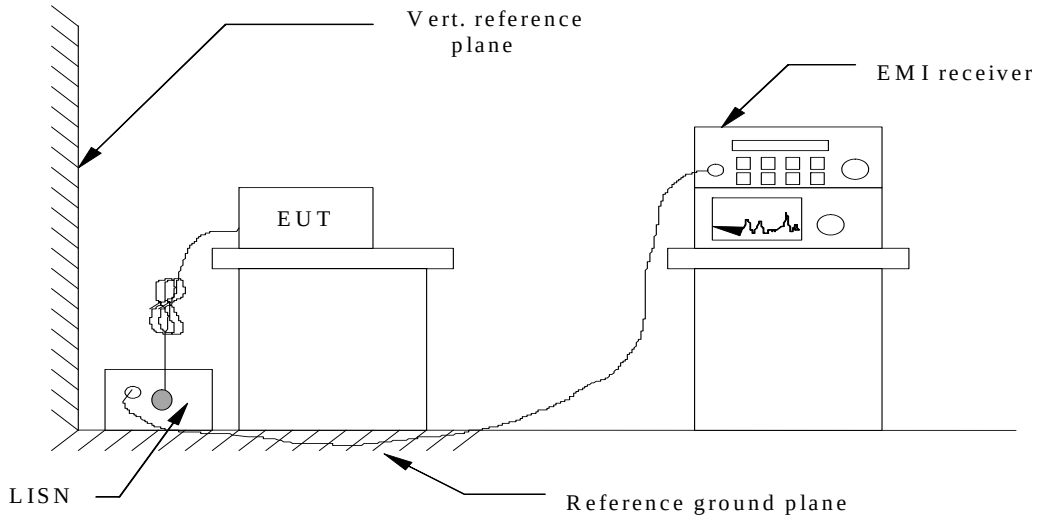
	Antenna				
10	HORN ANTENNA	ShwarzBeck	9120D	1011	2012/10/27
11	TURNTABLE	MATURO	TT2.0	----	N/A
12	ANTENNA MAST	MATURO	TAM-4.0-P	----	N/A
13	EMI Test Software	Audix	E3	N/A	N/A

The Calibration Interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1 The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
2 Support equipment, if needed, was placed as per ANSI C63.4-2009.
3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
4 The EUT received the AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5 All support equipments received AC power from a second LISN, if any.
6 The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7 Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8 During the above scans, the emissions were maximized by cable manipulation.

Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

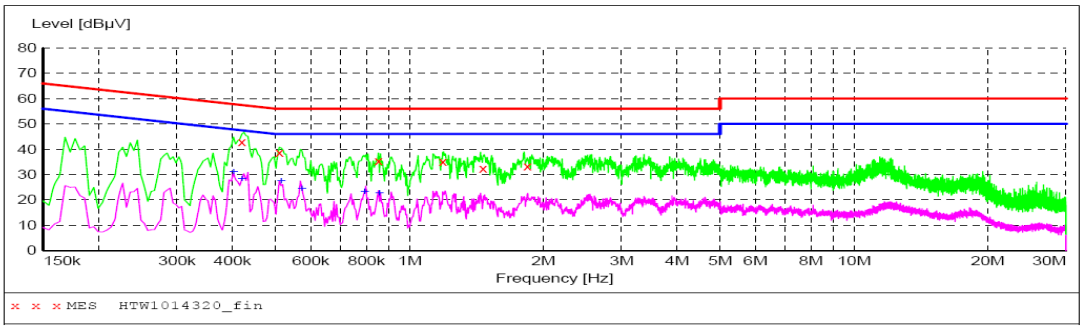
Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

For 433.92MHz Receiver

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW1014320_fin"

10/14/2013 3:35PM

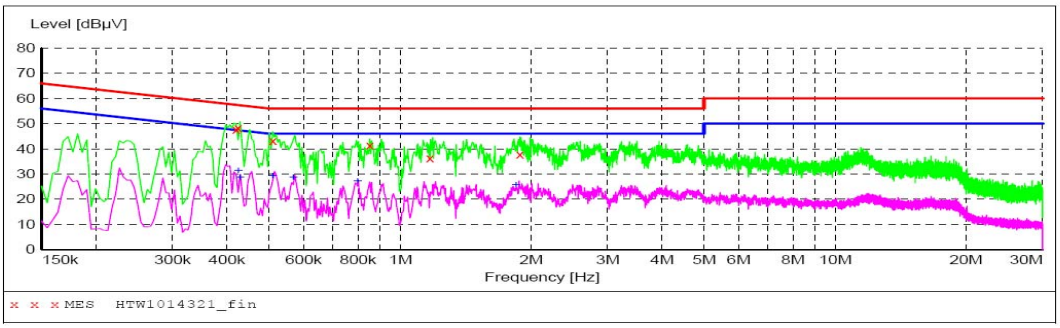
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.420000	42.80	10.1	57	14.6	QP	N	GND
0.510000	38.80	10.1	56	17.2	QP	N	GND
0.852000	35.50	10.2	56	20.5	QP	N	GND
1.189500	35.20	10.3	56	20.8	QP	N	GND
1.464000	32.40	10.3	56	23.6	QP	N	GND
1.842000	33.40	10.3	56	22.6	QP	N	GND

MEASUREMENT RESULT: "HTW1014320_fin2"

10/14/2013 3:35PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.402000	30.80	10.1	48	17.0	AV	N	GND
0.420000	28.20	10.1	47	19.2	AV	N	GND
0.514500	27.40	10.1	46	18.6	AV	N	GND
0.573000	24.30	10.1	46	21.7	AV	N	GND
0.793500	23.10	10.2	46	22.9	AV	N	GND
0.856500	22.50	10.2	46	23.5	AV	N	GND

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW1014321_fin"

10/14/2013 3:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.420000	47.80	10.1	57	9.6	QP	L1	GND
0.424500	48.40	10.1	57	9.0	QP	L1	GND
0.510000	43.30	10.1	56	12.7	QP	L1	GND
0.852000	41.40	10.2	56	14.6	QP	L1	GND
1.171500	36.40	10.3	56	19.6	QP	L1	GND
1.887000	37.80	10.3	56	18.2	QP	L1	GND

MEASUREMENT RESULT: "HTW1014321_fin2"

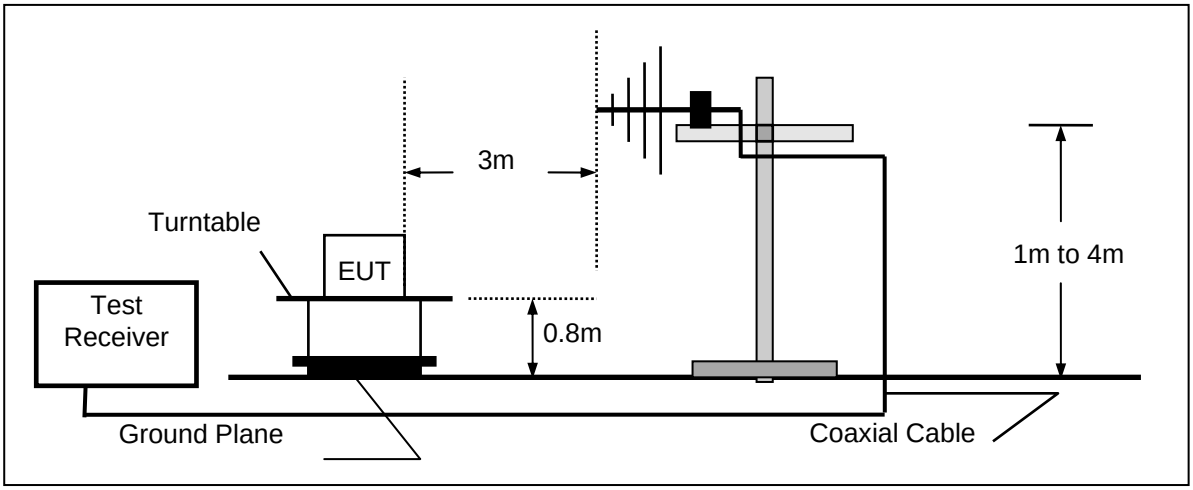
10/14/2013 3:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.424500	31.10	10.1	47	16.3	AV	L1	GND
0.429000	28.60	10.1	47	18.7	AV	L1	GND
0.510000	29.10	10.1	46	16.9	AV	L1	GND
0.568500	28.40	10.1	46	17.6	AV	L1	GND
0.798000	26.90	10.2	46	19.1	AV	L1	GND
1.846500	25.50	10.3	46	20.5	AV	L1	GND

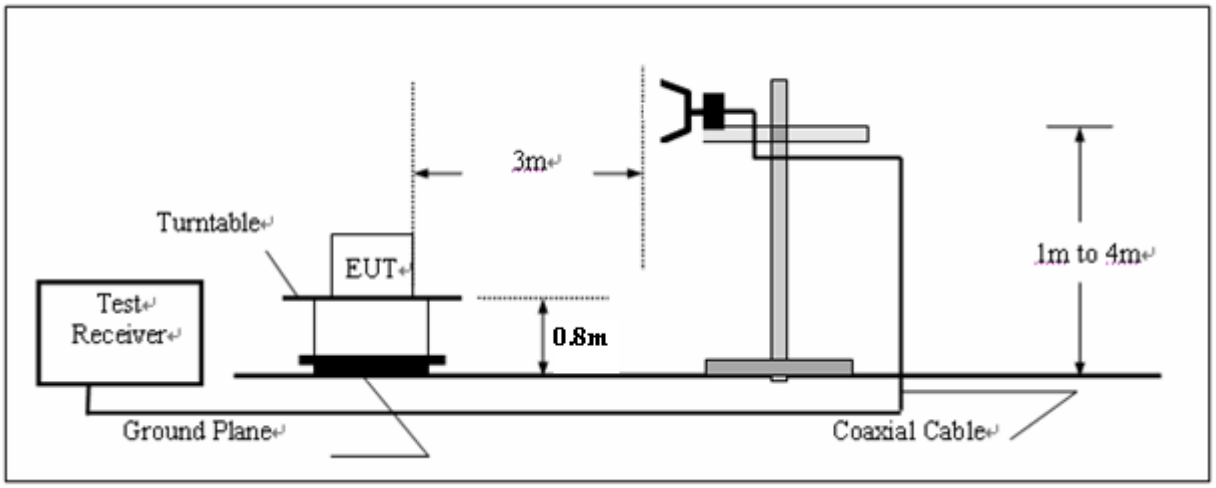
4.2. Radiated Emission Test

TEST CONFIGURATION

(A) Radiated Emission Test Set-Up, Frequency below 1000MHz



(B) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1 The EUT was placed on a turn table which is 0.8m above ground plane.
2 Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

RADIATION LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

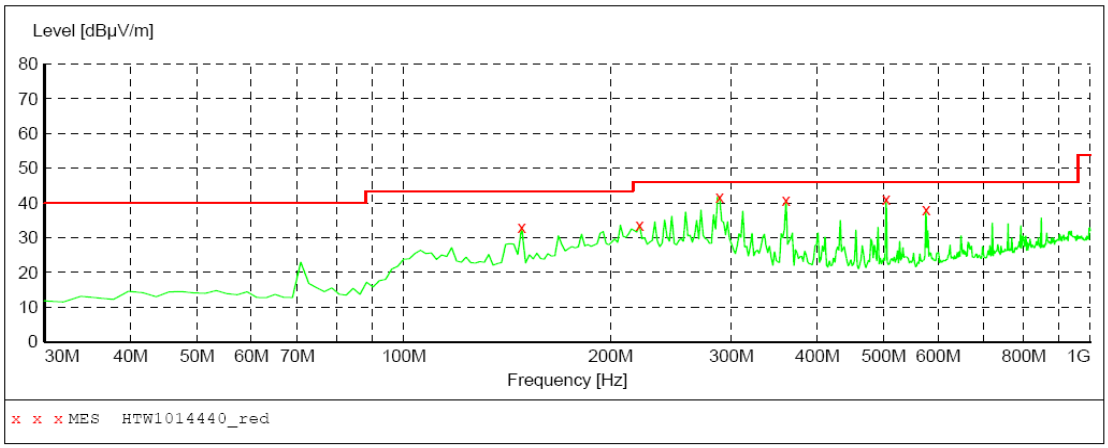
TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. the highest crystal frequency is 433.9MHz So the radiation emissions frequency range were tested from 30MHz to 5GHz.

TEST RESULTS

From 30MHz to 1GHz

SWEEP TABLE: "test (30M-1G)"
Short Description: Field Strength

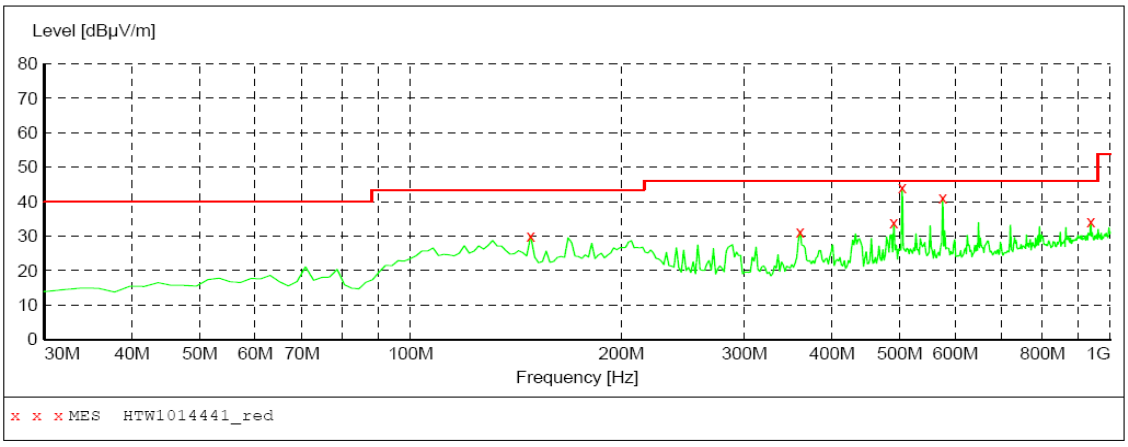


MEASUREMENT RESULT: "HTW1014440_red"

10/14/2013 3:10PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
148.577154	33.00	-20.4	43.5	10.50	Peak	300.0	0.00	HORIZONTAL
220.501002	33.60	-17.1	43.5	9.9	Peak	100.0	206.00	HORIZONTAL
288.537074	41.80	-15.2	46.0	4.2	Peak	100.0	88.00	HORIZONTAL
360.460922	40.70	-13.0	46.0	5.3	Peak	100.0	158.00	HORIZONTAL
504.308617	41.10	-10.7	46.0	4.9	Peak	100.0	282.00	HORIZONTAL
576.232465	38.20	-8.7	46.0	7.8	Peak	300.0	244.00	HORIZONTAL

SWEEP TABLE: "test (30M-1G)"
Short Description: Field Strength

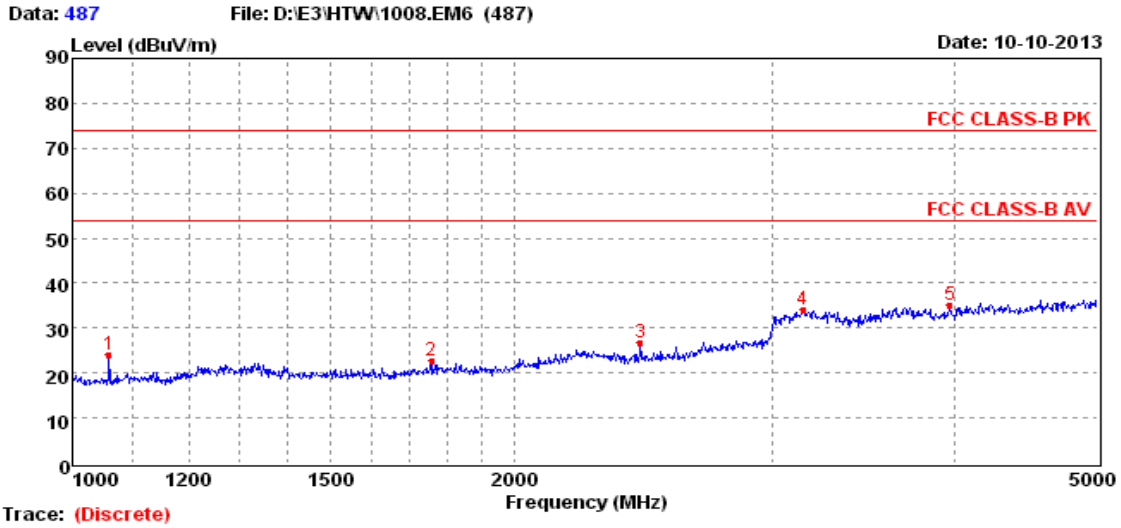


MEASUREMENT RESULT: "HTW1014441_red"

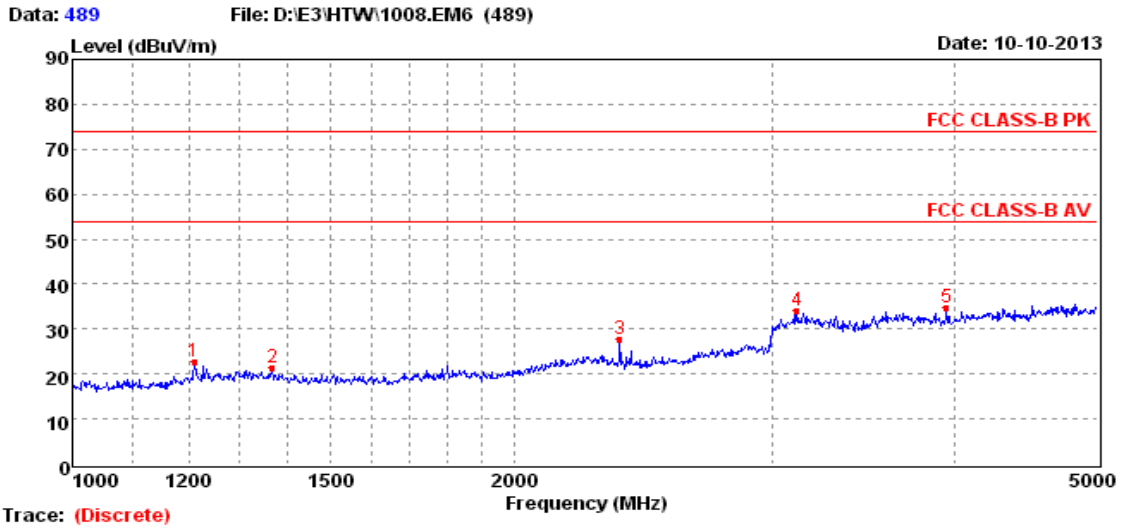
10/14/2013 3:12PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
148.577154	30.10	-20.4	43.5	13.4	Peak	100.0	265.00	VERTICAL
360.460922	31.40	-13.0	46.0	14.6	Peak	100.0	187.00	VERTICAL
490.701403	33.90	-11.0	46.0	12.1	Peak	100.0	205.00	VERTICAL
504.308617	43.00	-10.7	46.0	3.0	Peak	100.0	193.00	VERTICAL
576.232465	41.30	-8.7	46.0	4.7	Peak	100.0	199.00	VERTICAL
937.795591	34.20	-4.0	46.0	11.8	Peak	100.0	45.00	VERTICAL

For 1GHz-

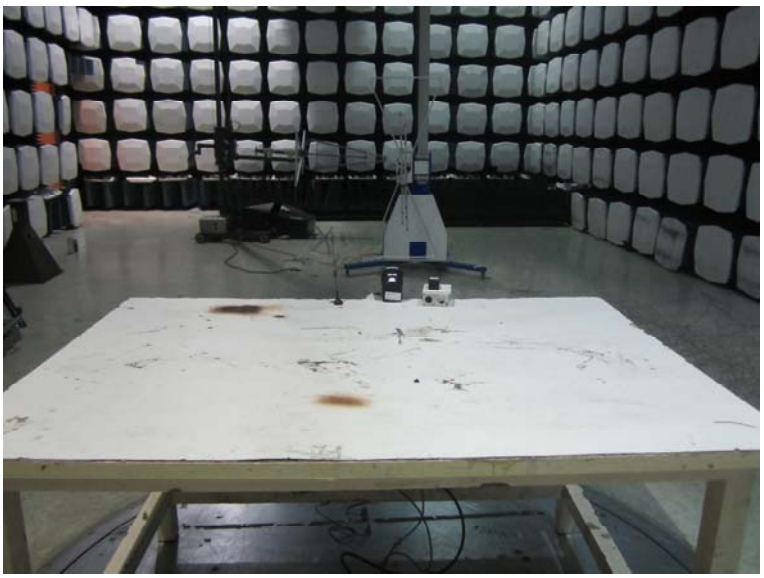


Mark	Frequency MHz	Level dBuV/m	Factor dB	Reading dBuV/m	Limit dBuV/m	Margin dB	Polarization	Det.
1	1059.65	24.12	-9.83	33.95	74.00	49.88	HORIZONTAL	Peak
2	1756.47	22.85	-8.35	31.20	74.00	51.15	HORIZONTAL	Peak
3	2439.10	26.70	-5.26	31.96	74.00	47.30	HORIZONTAL	Peak
4	3150.40	34.10	-2.81	36.91	74.00	39.90	HORIZONTAL	Peak
5	3965.69	34.96	-0.63	35.59	74.00	39.04	HORIZONTAL	Peak



Mark	Frequency MHz	Level dBuV/m	Factor dB	Reading dBuV/m	Limit dBuV/m	Margin dB	Polarization	Det.
1	1211.09	22.62	-8.89	31.51	74.00	51.38	VERTICAL	Peak
2	1368.67	21.36	-8.04	29.40	74.00	52.64	VERTICAL	Peak
3	2361.84	27.76	-5.20	32.96	74.00	46.24	VERTICAL	Peak
4	3120.12	34.16	-2.82	36.98	74.00	39.84	VERTICAL	Peak
5	3946.58	34.78	-0.70	35.48	74.00	39.22	VERTICAL	Peak

5. Test Setup Photos of the EUT



.....End of Report.....