FCC PART 15
Test Report

For

Finger print Security Lock

Model Name: MR22

Brand Name: ASTRO IMPERIAL

FCC ID: XC3MR22

Report No.: AGC11090904ZS02E5

Date of Issue: Apr.30, 2009

Prepared For

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Prepared By

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1. VERIFICATION OF COMPLIANCE

Equipment Under Test:	Finger print Security Lock
Model Name:	MR22
Trade Name:	ASTRO IMPERIAL
Applicant:	ZHONGSHAN TIESHEN LOCK INDUSTRAL CO., LTD. NO.13, Xiaolan Industrial Road, North, Xiaolan Zhongshan, Guangdong, China
Manufacturer:	ASTRO IMPERIAL TECHNOLOGY CO., LTD. No.11, III Floor, 1, South Industrial Building, 217-225 Main Road Avenida De Venceslau de Morais
Type of Test:	FCC Class B
Measurement Procedure:	ANSI C63.4: 2003
File Number:	AGC11090904ZS02E5
Date of test:	Apr.26~Apr.30, 2009
Deviation:	None
Condition of Test Sample:	Normal

The above equipment was tested by Shenzhen Attestation Of Global Compliance Science & Technology Co., Ltd. For compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003 This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Checked By : Tony Tian

Tony Tian Apr.30, 2009

Authorized By : King Zhang

King Zhang Apr.30, 2009

2. PRODUCT INFORMATION

Housing Type: Metal

Rating Voltage: DC 4.6V-7V

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	**Q'TY**	**Cable**	**Tested with**
DC Input Port	1	1	1
RS232	1	1	1

3. TEST FACILITY

Location:	1-2/F, Dachong Keji Building, No.28 of Tonggu Road, Nanshan District.
Description:	There is one 3m semi-anechoic chamber for final test, the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.
Site Filing:	Accredited by TUV Rheinland Shenzhen, May 10, 2004 FCC register No.: 276008 and IC register No.: 7700A-1
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For radiated emission test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

4. SUPPORT EQUIPMENT LIST

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
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**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

Grounding: Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.

5. SYSTEM DESCRIPTION

TEST PROCEDURE:

MODEL 1: STAND ALONE

1. Power on the EUT, the EUT begins to work.
2. Make sure the EUT operates normally during the test.

MODEL 2: PC CONNECTING

1. Connect EUT and peripheral devices.
2. Power on the EUT, the EUT begins to work.
3. Make sure the EUT operates normally during the test.

6. FCC RADIATED EMISSION TEST

6.1. TEST EQUIPMENT OF RADIATED EMISSION

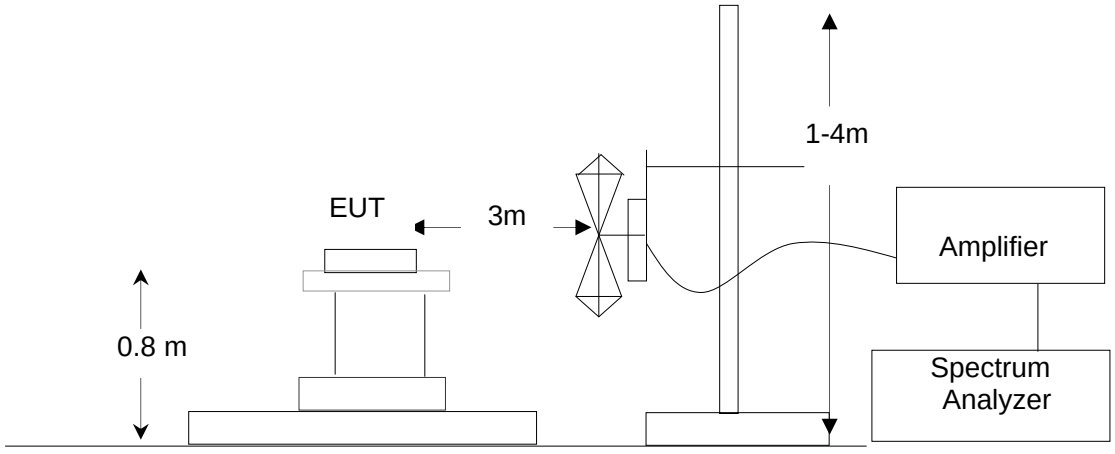
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI test receiver	R&S	ESCS30	100343	04/16/2009	04/15/2010
Amplifier	H.P.	HP8447E	2945A02715	04/16/2009	04/15/2010
Antenna	Sunol Sciences Corp.	JB3	A021907	04/16/2009	04/15/2010
CABLE	TIME MICROWAVE	LMR-400	N/A	06/29/2008	06/28/2009

6.2. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

**Note: The lower limit shall apply at the transition frequency.

6.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST



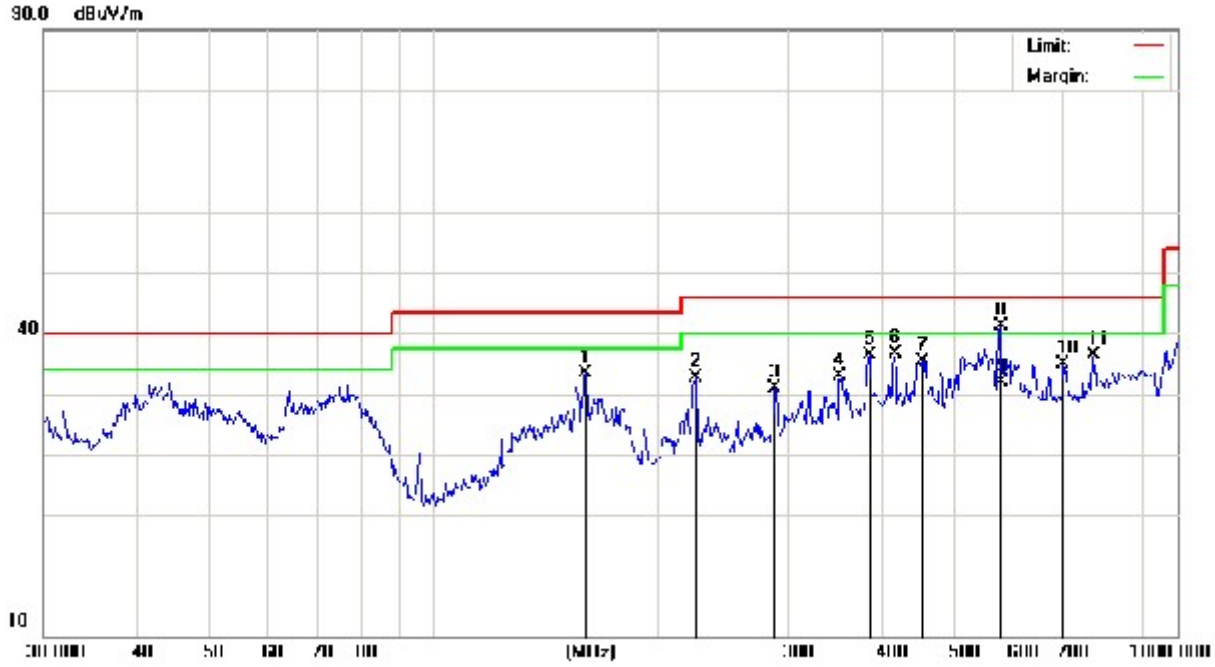
6.4 PROCEDURE OF RADIATED EMISSION TEST

1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2) Support equipment, if needed, was placed as per ANSI C63.4.
3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4) The EUT received 6V from the adapter. All support equipments received AC 120V/60Hz power from socket under the turntable, if any.
5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
7) The test mode(s) were scanned during the test:
8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

The test data of the worst case condition(s) was reported on the Summary Data page.

6.5 TEST RESULT OF RADIATED EMISSION TEST

Mode1

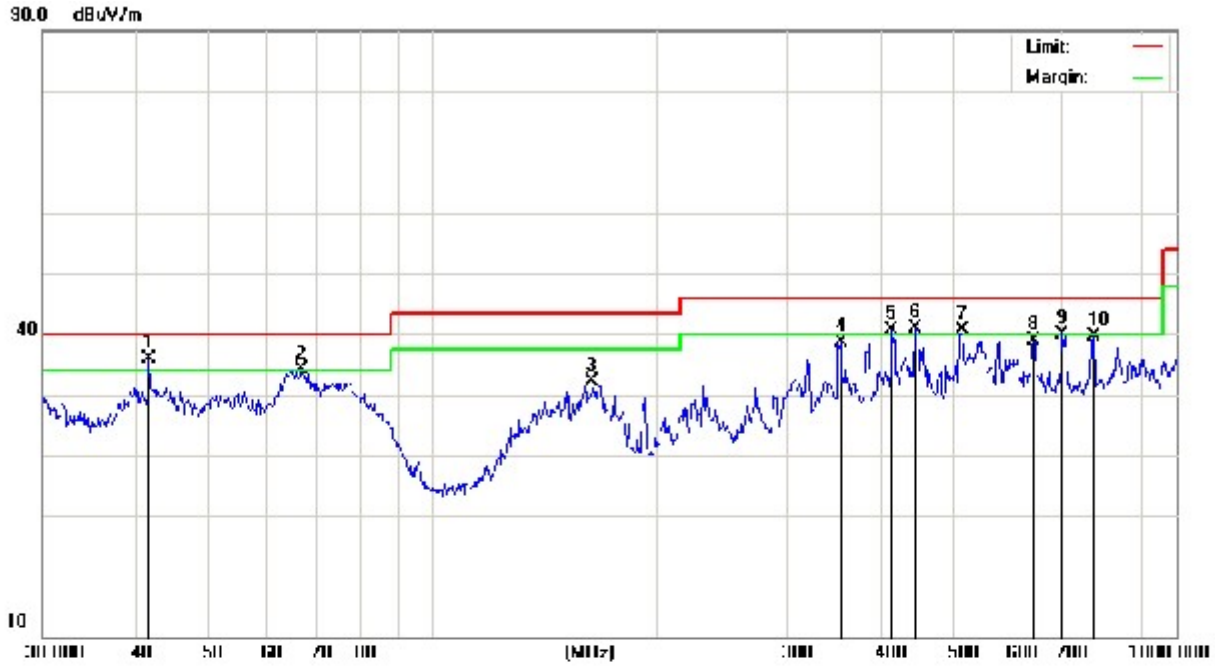


Site 966 Chamber #1
Limit: FCC Part15 RE-Class B_30-1000MHz
EUT:
M/N:
Mode:
Note:

Polarization: *Vertical*
Power:
Distance: 3m

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	Detector	cm	degree	Comment
1		160.3457	39.10	-5.65	33.45	43.50	-10.05	peak			
2		225.3080	39.72	-7.20	32.52	46.00	-13.48	peak			
3		287.9904	33.55	-2.78	30.77	46.00	-15.23	peak			
4		351.7079	34.69	-1.81	32.88	46.00	-13.12	peak			
5		385.2805	36.15	0.26	36.41	46.00	-9.59	peak			
6		417.6411	36.60	0.15	36.75	46.00	-9.25	peak			
7		454.3100	35.81	-0.31	35.50	46.00	-10.50	peak			
8	*	578.6699	41.01	0.08	41.09	46.00	-4.91	peak			
9		578.6699	31.90	0.08	31.98	46.00	-14.02	QP	99	360	
10		701.7610	31.82	3.13	34.95	46.00	-11.05	peak			



Site 966 Chamber #1
Limit: FCC Part15 RE-Class B_30-1000MHz
EUT:
M/N:
Mode:
Note:

Polarization: *Horizontal*
Power:
Distance: 3m

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	Detector	cm	degree	Comment
1	*	41.7130	39.62	-3.79	35.83	40.00	-4.17	peak			
2	!	66.7325	44.84	-10.76	34.08	40.00	-5.92	peak			
3		164.3302	38.52	-6.29	32.23	43.50	-11.27	peak			
4		354.1831	40.38	-1.77	38.61	46.00	-7.39	peak			
5	!	414.7223	40.40	0.34	40.74	46.00	-5.26	peak			
6	!	446.4141	41.66	-0.73	40.93	46.00	-5.07	peak			
7	!	515.4374	39.84	0.71	40.55	46.00	-5.45	peak			
8		642.8613	36.65	2.12	38.77	46.00	-7.23	peak			
9		701.7610	36.78	3.13	39.91	46.00	-6.09	peak			

Mode2

Site 966 Chamber #I
Limit: EN55022 RE-Class B 3M
EUT:
M/N:
Mode: NORMAL
Note:

Polarization: *Horizontal*
Power:
Distance: 3m

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	Detector	cm	degree	Comment
1	*	30.1691	23.06	4.78	27.84	40.00	-12.16	peak			
2		62.6366	29.65	-11.32	18.33	40.00	-21.67	peak			
3		85.8019	33.70	-10.78	22.92	40.00	-17.08	peak			
4		118.8629	29.92	-4.24	25.68	40.00	-14.32	peak			
5		130.0453	32.81	-5.90	26.91	40.00	-13.09	peak			
6		145.5140	33.33	-6.34	26.99	40.00	-13.01	peak			

Site 966 Chamber #1
Limit: EN55022 RE-Class B 3M
EUT:
M/N:
Mode: NORMAL
Note:

Polarization: *Vertical*
Power:
Distance: 3m

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	Detector	cm	degree	Comment
1	*	33.9479	34.14	-1.96	32.18	40.00	-7.82	peak			
2		42.2661	32.24	-4.46	27.78	40.00	-12.22	peak			
3		63.3445	37.59	-11.53	26.06	40.00	-13.94	peak			
4		69.3039	36.48	-10.41	26.07	40.00	-13.93	peak			
5		85.8019	34.57	-10.80	23.77	40.00	-16.23	peak			
6		140.6895	29.55	-5.51	24.04	40.00	-15.96	peak			

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP

FCC Radiated Emission Test Setup

Mode1

Mode2

APPENDIX 2
PHOTOGRAPHS OF EUT

All View of EUT

Front View of EUT 1

Back View of EUT 1

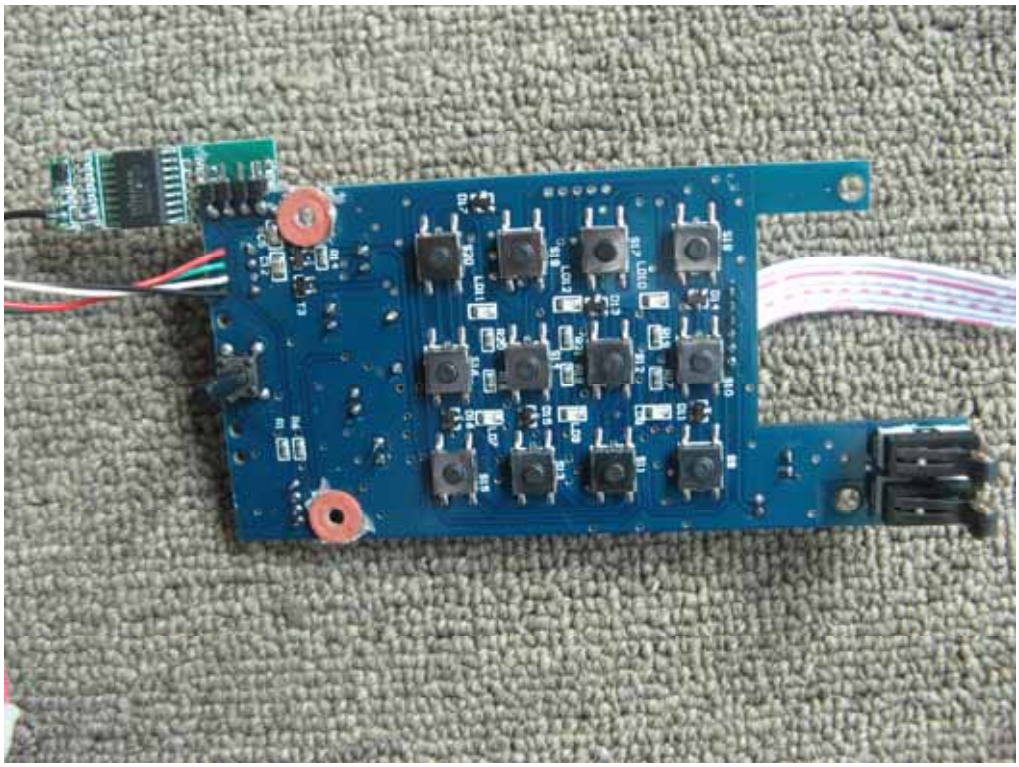
Front View of EUT 2

Back View of EUT 2

APPENDIX 3
INTERNAL PHOTOGRAPHS OF EUT

Internal View of EUT-1

Internal View of EUT-2



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