

TEST REPORT for Declaration of Conformity

Product Name : Wireless Mouse Receiver
Trade Name : N/A
Model Number : WMXXXR Series
Report Number : SZEE090911430902
Date : October 27, 2009

Standards	Results
<input checked="" type="checkbox"/> FCC Part 15B: 2008	PASS

Prepared for:

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1. Declaration of Conformity

Applicant & Address: Advanced Sun Wah Electronic Co., Ltd
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Manufacturer Site: Advanced Sun Wah Electronic Co., Ltd
Unit 10,19F/,Kowloon Plaza, No.485 Castle Peak Road,
Lai Chi Kok, Kowloon,Hongkong,China

Type of Test: FCC Part 15B

Product Name: Wireless Mouse Receiver

Model Number: WMXXXR(XXX stand for 000-999)

Test Model: WM113R

Model Discrepancy : The models of Wireless Mouse Receiver is WMXXXR, all the models are identical except for the color, the appearance and the model name. And the test model is WM113R, all the test results are applicable to the other models.

Date of test: October 23, 2009 to October 27, 2009

Condition of Test Sample: Normal

The above equipment was tested by Centre Testing International for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart B and the measurement procedure according to ANSI C63.4.

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

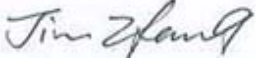
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Manager

Date

:

October 27, 2009



2. TEST SUMMARY

The EUT has been tested according to the following specifications:

EMISSION			
Standard	Test Type	Result	Remark
FCC Part 15	Conducted emission at AC power port	PASS	See clause 7 in this report
	Radiated emission	PASS	See clause 8 in this report

3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Measurement items	Value
Conducted emission	3.2 dB
Radiated emission	4.6 dB

4. PRODUCT INFORMATION

Technical Data: DC 5V by PC USB Port

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All measurement facilities used to collect the measurement data are located at Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen, Guangdong, China. The sites are constructed in conformance with the requirements of ANSI C63.4, and CISPR 16.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

3M Semi-anechoic Chamber — Radiation Test Site				
Equipment Type	Manufacturer	Model Number	Serial Number	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	01/29/2010
Spectrum Analyzer	Agilent	E4443A	MY46185649	01/29/2010
Biconilog Antenna	ETS-LINGREN	3142C	920250	01/29/2010
Multi device Controller	ETS-LINGREN	2090	00057230	01/29/2010

Shielding Room No. 1 — Conduction Test Site				
Equipment Type	Manufacturer	Model Number	Serial Number	Due Date
Receiver	R&S	ESCI	100435	08/25/2010
LISN	R&S	ENV216	100098	08/25/2010

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform radiated and conducted emissions tests are accredited by China National Accreditation Board for Laboratories (CNAS). Electromagnetic Interference tests according to ANSI C63.4 and CISPR 16 requirements.

6. SETUP OF EQUIPMENT UNDER TEST**6.1 SETUP CONFIGURATION OF EUT**

1. See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.
2. Make sure EUT work normally during the whole test.

6.2 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	Notebook PC	Sony	PCG-3G1T	282170999014058	Notebook PC	Sony

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

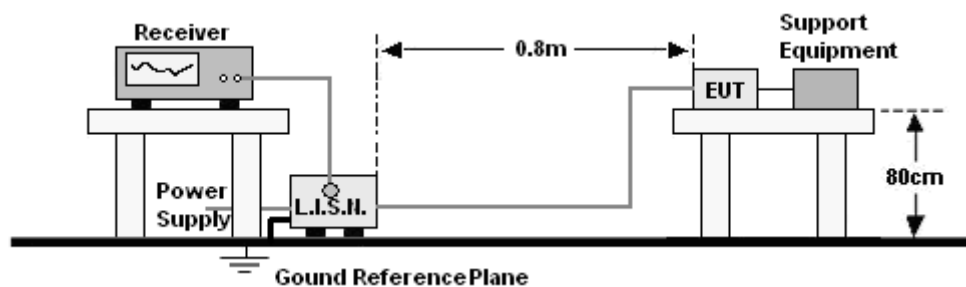
7. FCC CONDUCTED EMISSION TEST

7.1 LIMITS OF FCC CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

Note: the tighter limit applies at the band edges.

7.2 BLOCK DIAGRAM OF TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

7.3 PROCEDURE OF CONDUCTED EMISSION TEST

- The EUT was placed 0.4 meters from the conducting wall of the shielded room and connected to the main through Line Impedance Stability Network (LISN). This provided a 50ohm coupling impedance for the tested equipments.
- The bandwidth of the field strength meter (Receiver) was set at 9kHz in 150kHz ~ 30MHz.
- The disturbance levels and the frequencies of at least two highest disturbances were recorded from each power line which comprises the EUT.

7.4 TEST RESULT OF CONDUCTED EMISSION TEST

EUT : Wireless Mouse Receiver **Voltage** : AC120V/ 60Hz
M/N : WM113R **Temperature** : 26°C
Mode : NORMAL **Humidity** : 50%

FCC Conducted Emission Test Result													
Frequency (MHz)	Reading Level (dBuV)			Correct Factor (dB)	Measurement (dBuV)			Limits (dBuV)		Margin		Result (P/F)	Remarks (L/N)
	Peak	Q.P.	Avg.		Peak	Q.P.	Avg.	Q.P.	Avg.	Q.P.	Avg.		
0.1860	22.82	--	-5.22	22.01	44.83	--	16.79	64.21	54.21	<-10	-37.42	P	L
0.4580	20.64	--	-7.37	21.62	42.26	--	14.25	56.73	46.73	<-10	-32.48	P	L
2.7340	18.26	13.78	8.51	20.50	38.76	34.28	29.01	56.00	46.00	-21.72	-16.99	P	L
4.9900	17.38	--	6.11	20.37	37.75	--	26.48	56.00	46.00	<-10	-19.52	P	L
6.8380	18.72	--	2.63	20.37	39.09	--	23.00	60.00	50.00	<-10	-27.00	P	L
16.4860	21.32	--	14.32	20.78	42.10	--	35.10	60.00	50.00	<-10	-14.90	P	L
0.2316	23.39	--	6.93	22.06	45.45	--	28.99	62.39	52.39	<-10	-23.40	P	N
0.9420	12.07	--	9.12	21.56	33.63	--	11.09	56.00	46.00	<-10	-34.91	P	N
2.0580	17.74	--	-8.39	20.90	38.64	--	12.51	56.00	46.00	<-10	-33.49	P	N
2.8060	18.09	--	9.61	20.45	38.54	--	30.06	56.00	46.00	<-10	-15.94	P	N
16.8260	23.04	16.52	12.52	20.83	43.87	37.35	33.35	60.00	50.00	-22.65	-16.65	P	N
24.4540	20.08	--	6.51	22.52	42.60	--	29.03	60.00	50.00	<-10	-20.97	P	N

Frequency

Reading level

Correct Factor

Measurement

Limit (dBuV)

Margin(dB)

“--”

= Emission frequency in MHz

= Uncorrected receiver reading

= Cable loss + LISN inserting loss

= Reading level + Factor

= Limit stated in standard

= Reading in reference to limit

= The emission level complied with the
Average limits, with at least 10 dB margin,
so no further recheck.

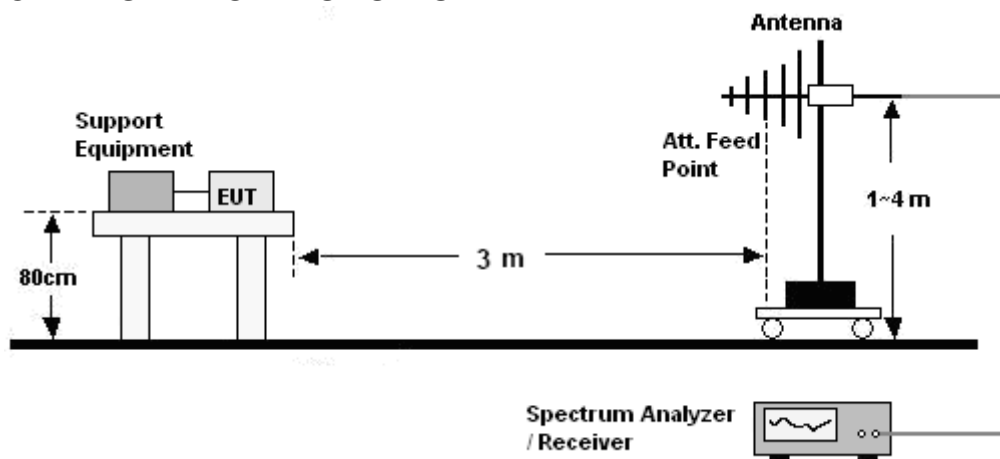
8. FCC RADIATED EMISSION TEST

8.1 LIMITS OF FCC 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 tighter limit applies at the band edges.

8.2 BLOCK DIAGRAM OF TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

8.3 PROCEDURE OF RADIATED EMISSION TEST

- The EUT was placed on the top of a turntable 0.8 meters above the ground in the chamber, 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The table was rotated 360 degrees and the broadband antenna is varied from one to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the turn table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

8.4 TEST RESULT OF RADIATED EMISSION TEST

EUT : Wireless Mouse Receiver **Voltage** : AC 120V/60Hz
M/N : WM113R **Temperature** : 26°C
Mode : NORMAL **Humidity** : 60%

FCC Radiated Emission Test Result													
Frequency (MHz)	Reading Level (dBuV)			Correct Factor (dB)	Measurement (dBuV/m)			Limit (dBuV/m)		Margin (dB)		Result (P/F)	Remarks (H/V)
	Peak	Q.P.	Avg.		Peak	Q.P.	Avg.	Q.P.	Avg.	QP	Avg		
91.4333	9.36	--	--	10.04	19.40	--	--	43.50	--	<-10	--	P	H
308.0667	9.49	--	--	16.16	25.65	--	--	46.00	--	<-10	--	P	H
469.7332	9.43	--	--	19.88	29.31	--	--	46.00	--	<-10	--	P	H
629.7833	10.09	--	--	23.27	33.36	--	--	46.00	--	<-10	--	P	H
747.7999	9.90	--	--	24.66	34.56	--	--	46.00	--	<-10	--	P	H
891.6833	9.98	--	--	26.46	36.44	--	--	46.00	--	<-10	--	P	H
57.4833	11.71	--	--	8.54	20.25	--	--	40.00	--	<-10	--	P	V
128.6167	14.43	11.02	--	9.07	23.50	20.09	--	43.50	--	-23.41	--	P	V
290.2833	9.00	--	--	15.43	24.43	--	--	46.00	--	<-10	--	P	V
542.4833	8.95	--	--	21.27	30.22	--	--	46.00	--	<-10	--	P	V
699.3000	9.39	--	--	24.72	34.11	--	--	46.00	--	<-10	--	P	V
869.0500	9.79	--	--	25.97	35.76	--	--	46.00	--	<-10	--	P	V

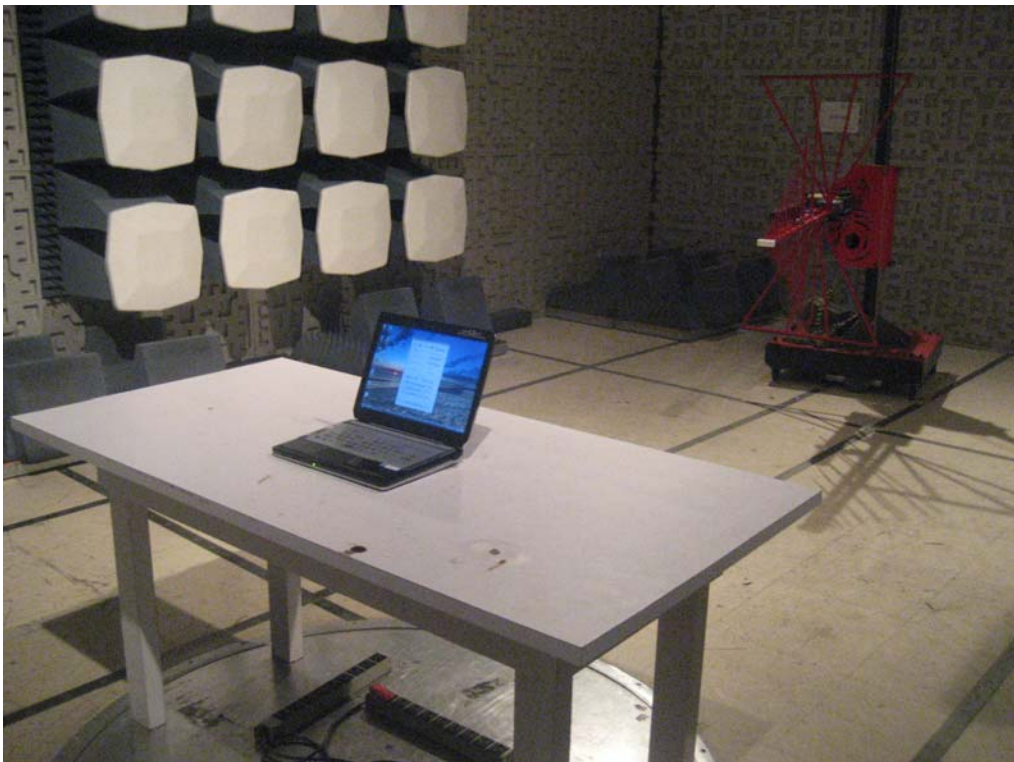
Frequency = Emission frequency in MHz
Reading level = Uncorrected frequency analyzer reading
Correct Factor = Correction factors of antenna factor and cable loss
Measurement = Reading level + Correct factor
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Reading in reference to limit
PK = Peak
QP = Quasi-peak

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

TEST SETUP OF CONDUCTED EMISSION



TEST SETUP OF RADIATED EMISSION



APPENDIX 2 EXTERNAL PHOTOS OF EUT

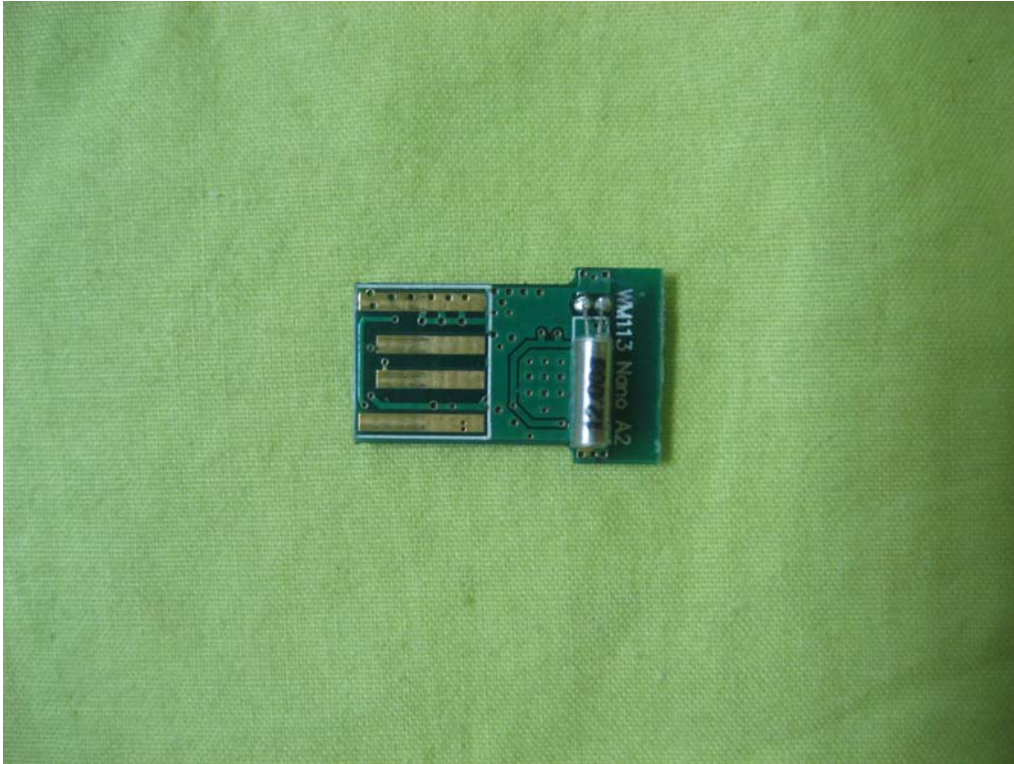


View of EUT-1

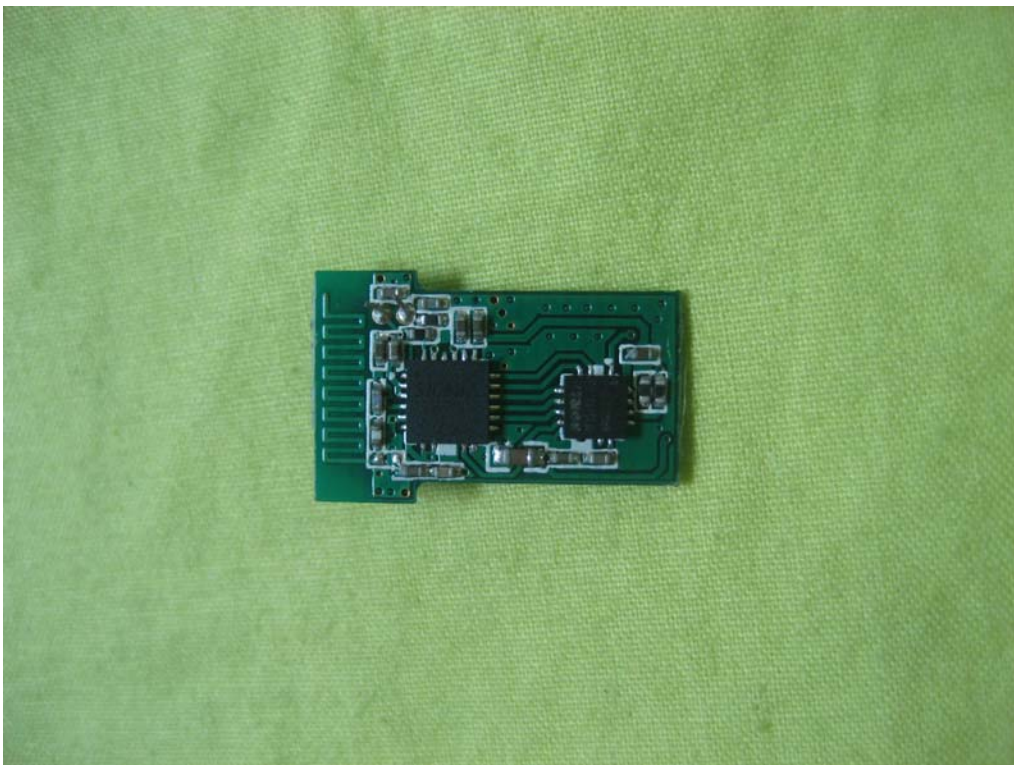


View of EUT-2

APPENDIX 3 INTERNAL PHOTOS OF EUT



Uncovered View of EUT-1



Uncovered View of EUT-2

----- End of report -----