FCC/IC Test Report

APPLICANT : Maestro Wireless Holdings Limited

EQUIPMENT : 3G WiFi Router

BRAND NAME : Maestro
MODEL NAME : E206XT
MARKETING NAME : E206XT

FCC ID : WN6-E206XT IC : 20055-E206XT

STANDARD : FCC 47 CFR FCC Part 15 Subpart B

ICES-003 Issue 5

CLASSIFICATION : Certification

The product was received on Mar. 17, 2015 and testing was completed on Apr. 02, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.

Reviewed by: Louis Wu / Manager

Louis Wu

Approved by: Jones Tsai / Manager

SPORTON INTERNATIONAL (SHENZHEN) INC.

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SPORTON INTERNATIONAL (SHENZHEN) INC.

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Testing Laboratory 2353

Report No. : FC531712

Report Issued Date : Apr. 23, 2015 Report Version : Rev. 01

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC531712	Rev. 01	Initial issue of report	Apr. 23, 2015

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SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.109	ICES003 Section 6.2	Radiated Emission	< 15.109 limits < ICES003 6.2 limits	PASS	Under limit 3.93 dB at 53.760 MHz for Quasi-Peak

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1. General Description

1.1. Applicant

Maestro Wireless Holdings Limited

FLAT A & B, 9/F, WING CHEONG FACTORY BUILDING, 121 KING LAM STREET, CHEUNG SHA WAN, HONG KONG

1.2. Manufacturer

Maestro Wireless Holdings Limited

FLAT A & B, 9/F, WING CHEONG FACTORY BUILDING, 121 KING LAM STREET, CHEUNG SHA WAN, HONG KONG

1.3. Product Feature of Equipment Under Test

	Product Feature
Equipment	3G WiFi Router
Brand Name	Maestro
Model Name	E206XT
Marketing Name	E206XT
FCC ID	WN6-E206XT
IC	20055-E206XT
Integrated WWAN Module	Brand Name: AirPrime
Integrated WWAN Module	Model Name: SL9090
EUT supports Radios application	GPRS/EGPRS/WCDMA/HSPA/
EUT Supports Radios application	WLAN2.4GHz 802.11b/g/n HT20/HT40
EUT Stage	Pre-Production

Remark:

The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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1.4. Product Specification subjective to this standard

Product Specifi	Product Specification subjective to this standard						
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz						
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz GPS: 1.57542 GHz						
Antenna Type	WWAN : Dipole Antenna WLAN : Dipole Antenna GPS : Ceramic Patch Antenna						
Type of Modulation	GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: QPSK (Uplink) HSUPA: QPSK (Uplink) 802.11b: DSSS (DBPSK / DQPSK / CCK) 802.11g/n: OFDM (BPSK / QPSK / 16QAM / 64QAM) GPS: BPSK						

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1.5. Modification of EUT

No modifications are made to the EUT during all test items.

1.6. Test Location

Test Site	SPORTON INTERNATIONAL (SHENZHEN)	INC.		
	No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan			
Test Site Location	warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China			
	TEL: +86-755- 3320-2398			
Took Site No	Sporton Site No.	FCC/IC Registration No.		
Test Site No.	03CH01-SZ	831040/4086F-1		

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1.7. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2009
- IC ICES-003 Issue 5
- IC RSS-Gen Issue 4

Remark:

- All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. The test results for FCC compliance, indicating that these results are deemed satisfactory evidence of compliance with Industry Canada Interference-Causing Equipment Standard ICES-003.

2. Test Configuration of Equipment Under Test

2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

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Frequency range investigated: radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

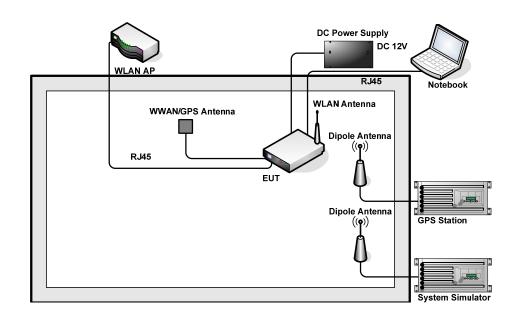
Itam	EUT Configuration	Test Condition
Item	EUT Configuration	EMI RE
1.	Operating Mode	\boxtimes

Abbreviations:

EMI RE: EUT radiated emissions

Test Items	EUT Configure Mode	Function Type
Radiated Emissions	1	Mode 1: GPRS850 Idle + WLAN Idle + GPS Rx + WAN Link + LAN Link + DC Power 12V

2.2. Connection Diagram of Test System



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2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Agilent	E5515C	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
3.	GPS Station	ADIVIC	MP9000	N/A	N/A	Unshielded, 1.8 m
4.	WLAN AP	D-Link	DIR-815	KA2IR815A1	N/A	Unshielded, 1.8 m
5.	Notebook	Lenovo	G480	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
6.	WLAN Antenna	N/A	N/A	N/A	N/A	N/A
7.	WWAN/GPS Antenna	N/A	N/A	N/A	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GPRS idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

- 1. The Notebook controls to data link with EUT and Router via RJ-45. Execute "Ping" and link with Notebook via RJ-45 Cable.
- 2. Turn on GPS function to make the EUT receive continuous signals from GPS station.

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3. Test Result

3.1. Test of Radiated Emission Measurement

3.1.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

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Frequency	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(meters)		
30 – 88	100	3		
88 – 216	150	3		
216 - 960	200	3		
Above 960	500	3		

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3.1.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

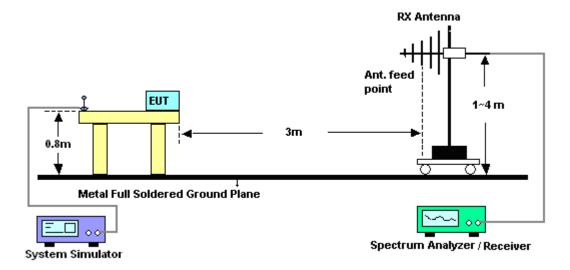
3.1.3. Test Procedures

- 1. The EUT was placed on a turntable with 0.8 meter above ground.
- 2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 3. The table was rotated 360 degrees to determine the position of the highest radiation.
- 4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
- 5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
- 6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
- 7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
- 8. Emission level $(dB\mu V/m) = 20 \log Emission level (\mu V/m)$
- 9. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level

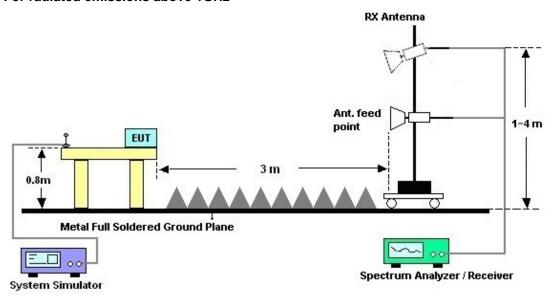
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3.1.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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3.1.5. Test Result of Radiated Emission



			Over	Limit	Read/	Intenna	Cable	Preamp	A/Pos	T/Pos	
	Freq	Level	Limit	Line	Level	Factor	Loss	Factor			Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	31.35	34.32	-5.68	40.00	40.43	19.09	0.86	26.06			Peak
2	106.68	33.32	-10.18	43.50	44.80	12.67	1.59	25.74			Peak
3	250.05	42.93	-3.07	46.00	53.19	12.40	2.48	25.14	100	360	Peak
4	360.20	35.14	-10.86	46.00	42.75	14.88	3.01	25.50			Peak
5	374.90	37.27	-8.73	46.00	44.73	15.08	3.08	25.62			Peak
6	500.20	34.44	-11.56	46.00	37.81	19.40	3.57	26.34			Peak
7	881.70	37.28			36.55	21.77	4.89	25.93			Peak
8	2676.00	41.71	-32.29	74.00	50.27	32.85	9.19	50.60			Peak
9	3536.00	43.90	-30.10	74.00	49.88	33.43	11.07	50.48			Peak
10	6502.00	46.79	-27.21	74.00	46.40	36.30	14.41	50.32			Peak
11	7696.00	46.73	-27.27	74.00	45.56	36.38	15.46	50.67			Peak
12	9946.00	47.33	-26.67	74.00	41.15	38.04	18.06	49.92			Peak
13	11918.00	48.46	-25.54	74.00	40.57	39.45	18.41	49.97	100	360	Peak

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23~25°C Test Mode: Mode 1 Temperature: Test Engineer: Gavin Zhang **Relative Humidity:** 48~52% Test Distance: Polarization: 3m Vertical GPRS850 Idle + WLAN Idle + GPS Rx + WAN Link + LAN Link + DC Power 12V Function Type: Remark: #7 is system simulator signal which can be ignored. 117 Level (dBuV/m) Date: 2015-04-02 102.4 87.8 FCC CLASS-B 73.1 58.5 FCC CLASS-B (AVG) 10 43.9 29.3 14.6 1000. 3000. 5000. 7000. 9000. 11000. 13000 Frequency (MHz) Site : 03CH01-SZ : FCC CLASS-B 3m LF_ANT_141107 VERTICAL Condition Project : (FC) 531712 Mode : Mode 1 Over Limit ReadAntenna Cable Preamp A/Pos T/Pos Remark Freq Level Limit Line Level Factor Loss Factor MHz dBuV/m dB dBuV/m dBuV dB/m dB dB cm deg 53.76 36.07 -3.93 40.00 51.45 9.48 25.97 107 76 QP 1.11 --- Peak --- Peak 125.04 39.89 -3.61 43.50 49.38 14.43 1.73 25.65 250.05 34.58 -11.42 46.00 44.84 12.40 2.48 25.14 360.20 36.94 -9.06 46.00 44.55 14.88 3.01 25.50 --- Peak --- Peak 35.95 -10.05 374.90 46.00 43.41 15.08 3.08 25.62 500.20 34.48 -11.52 46.00 37.85 19.40 3.57 Peak 26.34 881.70 38.86 38.13 21.77 4.89 Peak 2066.00 40.47 -33.53 74.00 51.08 32.27 8.07 50.95 --- Peak 3460.00 42.77 -31.23 74.00 48.96 33.38 10.85 50.42 ------Peak 6474.00 45.48 -28.52 74.00 45.13 36.27 ------ Peak 10 14.36 50.28 11 7700.00 46.41 -27.59 74.00 45.24 36.38 15.46 50.67 --- Peak 10310.00 47.79 -26.21 74.00 42.22 38.35 17.46 50.24

12740.00

48.64 -25.36

74.00

40.71

39.15

18.68

49.90

100

230 Peak

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4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI TEST Receiver	R&S	ESCI7	100768	9kHz~3GHz	May 04, 2014	Apr. 02, 2015	May 03, 2015	Radiation (03CH01-SZ)
Spectrum Analyzer	Agilent Technologies	N9038A	MY52260185	20Hz~26.5GHz	May 26, 2014	Apr. 02, 2015	May 25, 2015	Radiation (03CH01-SZ)
Bilog Antenna	TESEQ	CBL 6112D	37877	30MHz~2GHz	Oct. 15, 2014	Apr. 02, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS Lindgren	3117	00119436	1GHz~18GHz	Oct. 15, 2014	Apr. 02, 2015	Oct. 14, 2015	Radiation (03CH01-SZ)
Amplifier	com-power	PA-103A	161069	1~1000MHz	May 04, 2014	Apr. 02, 2015	May 03, 2015	Radiation (03CH01-SZ)
Amplifier	Yiai	AV3860B	04030	2GHz~26.5GHz	May 08, 2014	Apr. 02, 2015	May 07, 2015	Radiation (03CH01-SZ)
AC Source	Chroma	61601ACSOU RCE	61601000247 0	100Vac~240Vac	NCR	Apr. 02, 2015	NCR	Radiation (03CH01-SZ)
Turn Table	EM Electronics	EM 1000	N/A	0~360 degree	NCR	Apr. 02, 2015	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM Electronics	EM 1000	N/A	1 m~4 m	NCR	Apr. 02, 2015	NCR	Radiation (03CH01-SZ)

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5. Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.9dB
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