

EN 62479: 2010 / EMF TEST REPORT

for

OBD Automobile Malfunction Tester

Shenzhen Jiawei Hengxin Electronic Technology CO.,LTD

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Date of receipt of test sample : March 26, 2019
Number of tested samples : 1
Serial number : Prototype
Date of Test : March 26, 2019 - April 04, 2019
Date of Report : April 04, 2019

Tested By _____

(Jack Li)

Reviewed By _____

(Levis Li)

The results detailed in this test report relate only to the specific sample(s) tested. It is the Application's responsibility to ensure that all production units are manufactured with equivalent EMF characteristics. This report is not to be reproduced except in full, without written approval from TCD Testing Technology.

1.0 General Information

1.1 Client Information

Application:	Shenzhen Jiawei Hengxin Electronic Technology CO.,LTD
Address of Application:	4/F, Building 6, No.49 Education North Road, Gaoqiao Community, Pingdi Street, Longgang District, Shenzhen, China
Manufacturer:	Shenzhen Jiawei Hengxin Electronic Technology CO.,LTD
Address of Manufacturer:	4/F, Building 6, No.49 Education North Road, Gaoqiao Community, Pingdi Street, Longgang District, Shenzhen, China

1.2 General Description of E.U.T.

Product Name:	OBD Automobile Malfunction Tester
Model:	KW901
Additional Model:	KW901,KW902,KW903,KW904,KW905,KW906,KW907,KW908 KW909,KW910,KW912,KW913,KW915,KW916,KW918,KW919 KW920,KW921,KW922,KW923,KW925,KW926,KW928,KW929 KW930,KW931,KW932,KW933,KW935,KW936,KW938,KW939 KW942,327A,327B,327C,327D,327E,327F,327L,327M,327USB,327USB-B
Modulation:	GFSK, $\pi/4$ -DQPSK, 8-DPSK
Trade Mark:	KONNWEI
Operating Frequency Range:	2402~2480MHz
Rates:	DC 12.0 V from battery
Model Difference:	The model in the model family (KW901,KW902,KW903,KW904,KW905,KW906, KW920,KW921,KW922,KW923,KW925,KW926,KW928,KW929,KW930,KW931, KW932,KW933,KW935,KW936,KW938,KW939,KW942,327A,327B,327C,327D, 327E,327F,327L,327M,327USB,327USB-B are identical on hardware & Software version except model designation, shapes and size.

Remark: In this report, N.A. means Not Applicable;

E.U.T. means Equipment Under Test;

N.R.R. means No Reaction Recognized.

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1. SUMMARY

1.1. EUT configuration

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

- o - supplied by the manufacturer
- - supplied by the lab

1.2. NOTE

1. The EUT is a wireless device work at 2400~2483.5MHz, The functions of the EUT listed as below:

EUT Model	Test Standards	Reference Report
KW901	EN 62479: 2010	TCD20190404103033WF-1

2. The EUT incorporates a wireless device work at 2400~2483.5MHz, moved; the EUT provides completed transmitter and one receiver.

Modulation Mode	TX Function
GFSK(1Mbps)	1TX

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Name :	Shenzhen TCD Testing Technology Co.,Ltd.
Address:	4/F,B2 Building,Chuangke Business Center,Gushu Hongwan, Baoan District,Shenzhen,China
Tel:	0755-2976 0321
Fax:	0755-2978 1725

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

2.2. Environmental conditions

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

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

2.3. Statement of the measurement uncertainty

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)

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

3. Method of measurement

3.1. Applicable Standard

EN 62479: 2010: Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)

Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0Hz to 300GHz) (Official Journal L 197 of 30 July 1999).

Frequency Range	E-field Strength (V/m)	H-field Strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m2)
0-1 Hz	–	3.2×10^4	4×10^4	–
1-8 Hz	10000	$3.2 \times 10^4/f^2$	$4 \times 10^4/f^2$	–
8-25 Hz	10000	$4000/f$	$5000/f$	–
0.025-0.8 kHz	$250/f$	$4/f$	$5/f$	–
0.8-3 kHz	$250/f$	5	6.25	–
3-150 kHz	87	5	6.25	–
0.15-1 MHz	87	$0.73/f$	$0.92/f$	–
1-10 MHz	$87/f^{1/2}$	$0.73/f$	$0.92/f$	–
10-400 MHz	28	0.73	0.092	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f/200$
2-300G Hz	61	0.16	0.20	10

Note:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, Seq, E2, H2 and B2 are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E2, H2 and B2 are to be averaged over any 68 / f1.05 minute period (f in GHz).

3.2. Introduction

This generic standard applies to low power electronic and electrical apparatus for which no dedicated product – or product family standard regarding human exposure to electromagnetic fields applies. The frequency range covered is 10 MHz to 300 GHz. The object of this standard is to demonstrate the compliance of such apparatus with the basic restrictions on exposure of the general public to electric, magnetic and electromagnetic fields and contact current.

3.3. RF Exposure calculations

From Council Recommendation 1999/519/EC table 2, the maximum power density is 10 W/m. Power density (S) is calculated by the following formula:

$$S = (P \cdot G) / 4 \pi R^2$$

Where, S = Power density (mW/cm²), P = Output power to antenna (mW), R = Distance between radiating structure and observation point (cm), G = Gain of antenna in numeric $\pi = 3.1416$

4. Test Result of RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0dBi in linear scale.
The maximum output power(EIRP) is 3.18 dBm work at 2402MHz.

Model	Channel Frequency (MHz)	AV Power (ERP) (dBm)	Correct factor (dB)	AV Power (ERP) (mW)	AV Power Limit (ERP) (mW)	AV Power Limit (ERP) (dBm)	Results
W901	2402	1.03	0	1.27	20	13	Pass

Note:

1. Average power in EN 300 328 test report is measured under full load condition, so the average power shall be calibrated from the duty cycle. The formula is average power +10 log (duty cycle)
2. Correct factor=10 log (duty cycle)
3. The duty cycle = 100% is declared by manufacture under normal traffic load represents.

5. Conclusion

The measurement results comply with the relevant limits for general public exposure specified as reference levels in the Council Recommendation 1999/519/EC.

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