



MPE TEST REPORT

FCC Per 47 CFR 2.1091(b)

Report Reference No. : TRE1309009702 R/C:82060

FCC ID : RVZHYM730

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Date of issue : Nov 28, 2013

Testing Laboratory Name : Shenzhen Huatongwei International Inspection Co., Ltd

Address : Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

Applicant's name : Winnix Technologies Co., Limited

Address : 4/F R2-B Building, Hi-tech Park, NanShan District, ShenZhen, Guangdong, China

Test specification:

Standard : FCC Per 47 CFR 2.1091(b)
KDB447498 D01 v05r01

TRF Originator : Shenzhen Huatongwei International Inspection CO., Ltd

Master TRF : Dated 2006-06

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Test item description : UHF RFID Reader Module

Trade Mark : /

Model/Type reference : HYM730

Modulation : GFSK

Manufacturer : RealID technology Co.,LTD.

Listed Models : /

Ratings : DC 5.0 V

Operation Frequency : From 902.75MHz to 927.25MHz

Result : PASS

TEST REPORT

Test Report No. : TRE1309009702	Nov 28, 2013
	Date of issue

Equipment under Test : UHF RFID Reader Module

Model /Type : HYM730

Listed Models : /

Applicant : **Winnix Technologies Co., Limited.**

Address : 4/F R2-B Building,Hi-tech Park,NanShan
District,ShenZhen, GuangDong,China

Manufacturer : **REALID TECHNOLOGY CO., LTD.**

Address : Unit04,7/F,Bright way tower,NO.33 Mong KOK
Road,Kowlood,HK.

Test Result	PASS
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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.

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1. SUMMARY

1.1. EUT configuration

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

● - supplied by the manufacturer

○ - supplied by the lab

○ Power Cable	Length (m) :	/
	Shield :	/
	Detachable :	/
○ Multimeter	Manufacturer :	/
	Model No. :	/

1.2. Power supply system utilised

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

DC 5.0V

1.3. Description of the test mode

The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing. There are 50 channels of EUT, and the test carried out at the lowest channel, middle channel and highest channel.

Frequency Range:	902-928MHz
Channel number:	50 channels
Modulation type:	GFSK
Antenna:	External Antenna

Description of the test mode

There are fifty channels provide to the EUT.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	902.75	26	915.25
2	903.25	27	915.75
3	903.75	28	916.25
4	904.25	29	916.75
5	904.75	30	917.25
6	905.25	31	917.75
7	905.75	32	918.25
8	906.25	33	918.75
9	906.75	34	919.25
10	907.25	35	919.75
11	907.75	36	920.25
12	908.25	37	920.75
13	908.75	38	921.25
14	909.25	39	921.75
15	909.75	40	922.25
16	910.25	41	922.75
17	910.75	42	923.25
18	911.25	43	923.75

19	911.75	44	924.25
20	912.25	45	924.75
21	912.75	46	925.25
22	913.25	47	925.75
23	913.75	48	926.25
24	914.25	49	926.75
25	914.75	50	927.25

1.4. Modifications

No modifications were implemented to meet testing criteria.

1.5. NOTE

1. The EUT is a UHF RFID Reader Module. The functions of the EUT are listed as below:

	Test Standards	Reference Report
Radio	FCC Part 15 Subpart C (Section15.247)	TRE1309009701
RF Exposure	OET 65	TRE1309009702

2. The frequency bands used in this EUT are listed as follows:

Frequency Band(MHz)	902-928	2400-2483.5	5470-5725	5725-5850
EUT	√	—	—	—

2. TEST ENVIRONMENT

2.1. 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.

2.2. Environmental conditions

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

Temperature:	<u>15-35 ° C</u>
Humidity:	<u>30-60 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

2.3. 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 TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " 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 Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §RSS-102, Devices that have a radiating element normally operating at separation distances greater than 20 cm between the user and the device shall undergo an RF exposure evaluation. SAR evaluation may be performed in lieu of an RF exposure evaluation for devices operating below 6 GHz with a separation distance of greater than 20 cm between the user and the device.

According to §1.1310 and §2.1091 RF exposure is calculated.

OET Bulletin 65 Supplement C [June 2001]: Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields

KDB447498 D01 General RF Exposure Guidance v05r01:Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f ²)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

3.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

From the peak EUT RF output power, the minimum mobile separation distance, d=0.25m, as well as the gain of the used antenna is 9.00dBi, the RF power density can be obtained.

TEST RESULTS

Test Frequency (MHz)	Minimum Separation Distance	Output Power (dBm)	Output Power (mW)	Antenna Gain (Numeric)	Power Density Limit (mW/cm ²)	Power Density At 25 cm (mW/cm ²)	Test Results
902.75	25.00	25.61	363.9150	7.9433	0.6018	0.3681	PASS
914.75	25.00	25.37	344.3499	7.9433	0.6098	0.3483	PASS
927.25	25.00	24.96	313.3286	7.9433	0.6182	0.3169	PASS

4. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 (b) for the uncontrolled RF Exposure.

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