

TEST REPORT

For

RFID Reader module

Model No.: CL7206A5

Trademark: Hopeland

Report No.: ES180728001W03

Issue Date: October 18, 2018

Prepared for
SHENZHEN HOPELAND TECHNOLOGIES CO., LTD.

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TEST REPORT DESCRIPTION

Applicant : SHENZHEN HOPELAND TECHNOLOGIES CO., LTD.
17/F, Block A, Clou Bldg, Baoshen Road, Hitech Industrial Park North,
Nanshan District, 518007, Shenzhen, China

Manufacturer : SHENZHEN HOPELAND TECHNOLOGIES CO., LTD.
17/F, Block A, Clou Bldg, Baoshen Road, Hitech Industrial Park North,
Nanshan District, 518007, Shenzhen, China

EUT : RFID Reader module

Model Name : CL7206A5

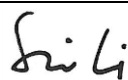
Trademark : Hopeland

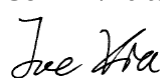
Test Procedure Used:
EN62311: 2008

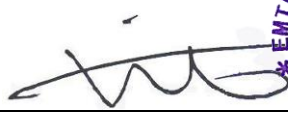
The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. This report shows the EUT to be technically compliant with the EN62311: 2008 requirements. The test results are contained in this report and EMTEK (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (SHENZHEN) CO., LTD.

Date of Test : July 29, 2018 to October 18, 2018

Prepared by : 
Sevin Li/Editor

Reviewer : 
Joe Xia/Supervisor

Approve & Authorized Signer : 
Lisa Wang/Manager



Modified History

Version	Report No.	Revision Date	Summary
Ver.1.0	ES180728001W03	/	Original Version

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

Equipment Style	Fixed Interrogators
Product Name	RFID Reader module
Model Number	CL7206A5
Power Supply	DC 24V from adapter
Adapter	Model: FSP060-DAAN2 Input: 100-240V~, 1.5A, 50-60Hz Output: DC 24V, 2.5 Max
Operating Frequency	865.7MHz – 867.5MHz
Modulation	ASK
Transmit Power Max	26.24dBm
Number of Channels	4
Antenna Type	Panel Antenna
Max Antenna Gain	9 dBi
Temperature Range	-20°C ~ +70°C

Note: for more details, please refer to the User's manual of the EUT.

1.2 Test Facility

Site Description	
EMC Lab.	: Accredited by CNAS, 2016.10.24 The certificate is valid until 2022.10.28 The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L2291. Accredited by TUV Rheinland Shenzhen 2016.05.19 The Laboratory has been assessed according to the requirements ISO/IEC 17025. Accredited by FCC, August 06, 2018 The certificate is valid until August 07, 2020 Designation Number: CN1204 Test Firm Registration Number: 882943 Accredited by Industry Canada, November 24, 2015 The Certificate Registration Number is 4480A.
Name of Firm	: EMTEK (SHENZHEN) CO., LTD.
Site Location	: Bldg 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

2. GENERAL PRODUCT INFORMATION

2.1 Basic Restriction

The essential requirements of Directive 2014/53/EU in the article 3.1(a) and the limits must be taken from Council Recommendation 99/519/EC for General Population or from the ICNIRP Guidelines for Occupational Exposure. EN 62479:2010 Generic standard to demonstrate the compliance of low power electronic and electrical apparatus with the basic restrictions related to human exposure to electromagnetic fields. The average power of EUT is less than 20mW then comply with basic restriction (1999/519/EC) without test.

3. TEST RESULT

3.1. EMF Exposure Measurement

3.1.1 Limit

Basic Restrictions

Council Recommendation 99/519/EC Annex II

Basic restrictions for electric, magnetic and electromagnetic fields (0 Hz to 300 GHz)

Frequency range	Magnetic flux density (mT)	Current density (mA/m ²) (rms)	Whole body average SAR (W/kg)	Localized SAR (head and trunk) (W/kg)	Localized SAR (limbs) (W/kg)	Power density, S (W/m ²)
0Hz	40	-	-	-	-	-
>0-1Hz	-	8	-	-	-	-
1-4Hz	-	8/f	-	-	-	-
4Hz-1000Hz	-	2	-	-	-	-
1000Hz-100kHz	-	f/500	-	-	-	-
100kHz-10MHz	-	f/500	0.08	2	4	-
10MHz-10GHz	-	-	0.08	2	4	-
10GHz-300GHz	-	-	-	-	-	10

Note:

1. f is the frequency in Hz.
2. The basic restriction on the current density is intended to protect against acute exposure effects on central nervous system tissues in the head and trunk of the body and includes a safety factor. The basic restrictions for ELF fields are based on established adverse effects on the central nervous system. Such acute effects are essentially instantaneous and there is no scientific justification to modify the basic restrictions for exposure of short duration. However, since the basic restriction refers to adverse effects on the central nervous system, this basic restriction may permit higher current densities in body tissues other than the central nervous system under the same exposure conditions.
3. Because of electrical inhomogeneity of the body, current densities should be averaged over a cross section of 1 cm² perpendicular to the current direction.
4. For frequencies up to 100kHz, AV current density values can be obtained by multiplying the rms value by $\sqrt{2}$ (=1.414). For pulses of duration t_p the equivalent frequency to apply in the basic restrictions should be calculated as $1/(2t_p)$.
5. For frequencies up to 100kHz and for pulsed magnetic fields, the maximum current density associated with the pulses can be calculated from the rise/fall times and the maximum rate of change of magnetic flux density. The induced current density can then be compared with the appropriate basic restriction.
6. All SAR values are to be averaged over any six-minute period.
7. Localised SAR averaging Mass is any 10g of contiguous tissue; the maximum SAR so obtained should be the value used for the estimation of exposure. These 10g of tissue are intended to be a mass of contiguous tissue with nearly homogeneous electrical properties. In specifying a contiguous mass of tissue, it is recognized that this concept can be used in computational dissymmetry but may present

difficulties for direct physical measurements. A simple geometry such as cubic tissue mass can be used provided that the calculated dissymmetric quantities have conservative values relative to the exposure guidelines.

8. For pulses of duration t_p the equivalent frequency to apply in the basic restrictions should be calculated $f_{eq}=1/(2t_p)$. Additionally, for pulsed exposures, in the frequency range 0.3 to 10GHz and for localized exposure of the head, in order to limit and avoid auditory effects caused by thermoplastic expansion, an additional basic restriction is recommended. This is that the SA should not exceed 2mJ kg⁻¹ averaged over 10g of tissue.

Reference Levels

Council Recommendation 99/519/EC Annex III

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300GHz)

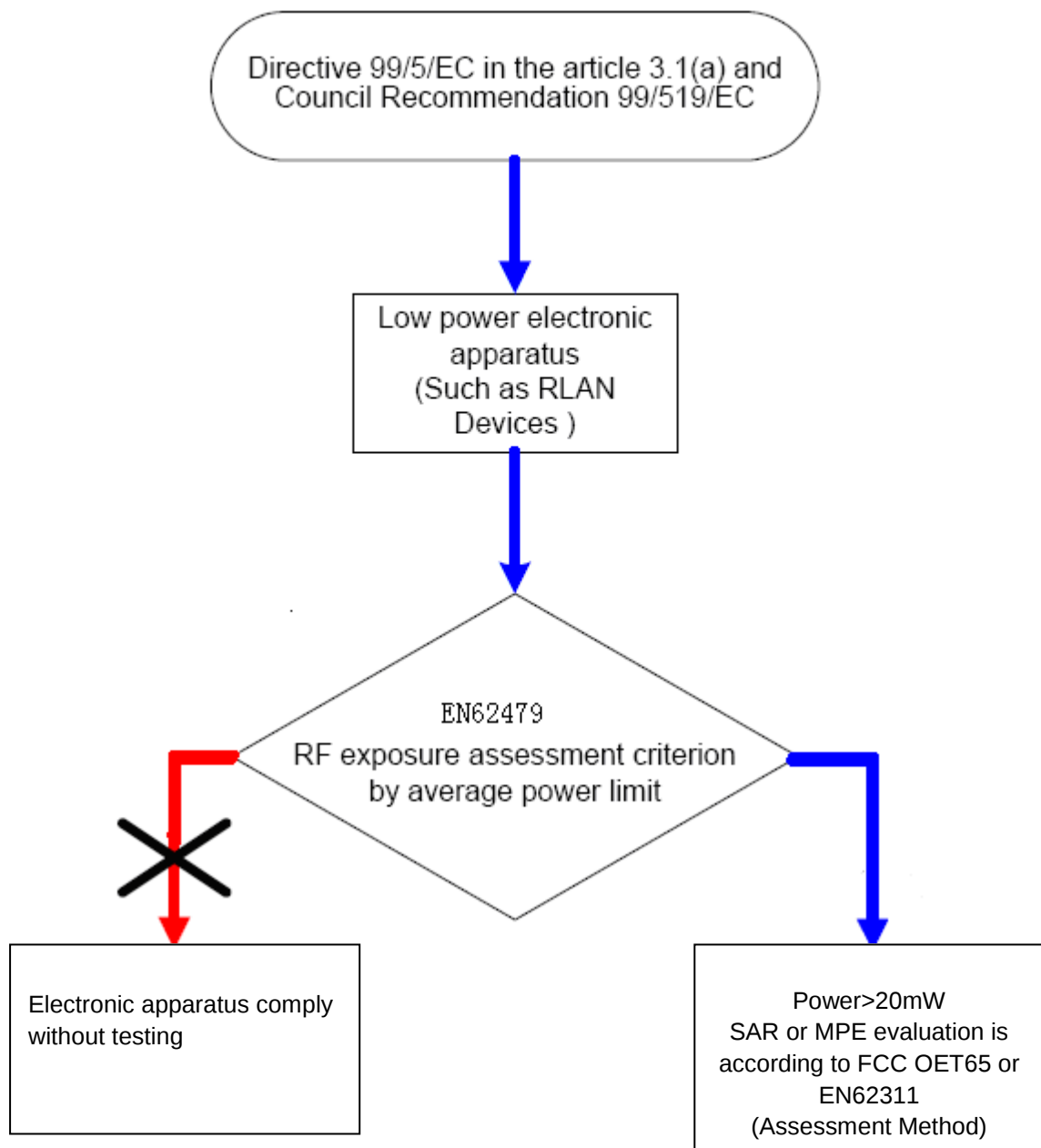
Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m ²)
0-1 Hz	-	3.2×10^4	4×10^4	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	$4000 / f$	$5000 / f$	-
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	-
0.8-3 kHz	$250 / f$	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	0.073	0.095	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.2	10

Notes:

1. As indicated in the frequency range column.
2. For frequencies between 100kHz 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 averaged over any 68/1.05-minute period (in GHz).
4. No E-field value is provided for frequencies <1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

3.1.2. Evaluation Routine

Low Power Electronic Apparatus for RF exposure evaluation routine



3.1.3. EMF Exposure Levels Calculated

3.2 Detailed results

3.2.1 Summary of Results

Frequency Band	Limit (W/ m ²)	Result (W/ m ²)	Verdict
865.7MHz-867.5MHz	10	0.8369	passed

3.2.2 Measurement of RF EIRP Power

Frequency Band	Max EIRP Power (dBm)
865.7MHz-867.5MHz	26.24

Note: The test power data see the RF report

3.2.3 MPE Evaluation

$S = PG(EIRP) * \text{Duty factor} / 4\pi R^2$

P = AV Power Input to antenna (Watts)

G =Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) = 0.20 m

Note:

1) $P \text{ (Watts)} = (10^{(dBm / 10)}) / 1000$

2) $G \text{ (Antenna gain in numeric)} = 10^{(\text{Antenna gain in dBi} / 10)}$

3) $\pi = 3.142$

1) The maximum power density at a distance of 0.2 m for RFID is shown as below:

Mode	Output Power EIRP (dBm)	Output Power EIRP (W)	Duty factor	Calculated RF Exposure (W/ m ²)	Limit (W/ m ²)
RFID	26.24	0.4207	1	0.8369	10

3.2.5 Measurement Uncertainty

Extended Uncertainty (k=2) 95% 0.5dB

END OF REPORT