

RF Exposure Evaluation Report

Product : TPMS SENSOR
Trade mark : VALOR, DIGITIRE
Model/Type reference : QY1204AC1
Serial Number : N/A
Report Number : EED32J00062802
FCC ID : Z9F-TPMSCA
Date of Issue : May 03, 2017
47 CFR Part 1.1307(2015)
Test Standards : 47 CFR Part 1.1310(2015)
KDB447498D01v06
Test result : PASS

Prepared for:

Shanghai Baolong Automotive Corporation
5500, Shenzhuan Rd., Songjiang District, Shanghai 201619, China

Prepared by:

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2 Version

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3 Contents

	Page
1 COVER PAGE	1
2 VERSION	2
3 CONTENTS	3
4 GENERAL INFORMATION	4
4.1 CLIENT INFORMATION.....	4
4.2 GENERAL DESCRIPTION OF EUT.....	4
4.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD.....	4
4.4 TEST LOCATION.....	4
4.5 TEST FACILITY.....	4
4.6 DEVIATION FROM STANDARDS.....	5
4.7 ABNORMALITIES FROM STANDARD CONDITIONS.....	5
4.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	5
5 RF EXPOSURE EVALUATION	5
5.1 RF EXPOSURE COMPLIANCE REQUIREMENT.....	5
5.1.1 Limits.....	5
5.1.2 Test Procedure.....	7
5.1.3 EUT RF Exposure Evaluation.....	7
PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	8

4 General Information

4.1 Client Information

Applicant:	Shanghai Baolong Automotive Corporation
Address of Applicant:	5500, Shenzhuan Rd., Songjiang District, Shanghai 201619, China
Manufacturer:	Shanghai Qunying Auto Electronics Co., Ltd.
Address of Manufacturer:	5500, Shenzhuan Rd., Songjiang District, Shanghai 201619, China

4.2 General Description of EUT

Product Name:	TPMS SENSOR
Model No.(EUT):	QY1204AC1
Trade Mark:	VALOR, DIGITIRE
EUT Supports Radios application:	315MHz
Power Supply:	LITHIUM BATTERY:1x3V(CR2050W)=3V

4.3 Product Specification subjective to this standard

Operation Frequency:	315MHz
Type of Modulation:	FSK
Test Voltage:	LITHIUM BATTERY:1x3V(CR2050W)=3V
Sample Received Date:	Apr. 11, 2017
Sample tested Date:	Apr. 11, 2017 to May 03, 2017

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax:+86 (0) 755 3368 3385

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1910

Centre Testing International Group Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories..

A2LA-Lab Cert. No. 3061.01

Centre Testing International Group Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 886427

Centre Testing International Group Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 886427.

IC-Registration No.: 7408A-2

The 3m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408A-2 .

IC-Registration No.: 7408B-1

The 10m Alternate Test Site of Centre Testing International Group Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 7408B-1.

NEMKO-Aut. No.: ELA503

Centre Testing International Group Co., Ltd. has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10.

VCCI

The Radiation 3 &10 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-4096.

Main Ports Conducted Interference Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-4563.

Telecommunication Ports Conducted Disturbance Measurement of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-2146.

The Radiation 3 meters site of Centre Testing International Group Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-758

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

4.8 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
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
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	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

A rough estimation of the expected exposure in power flux density on a given point can be made with the following equation:

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

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

R= distance to the centre of radiation of the antenna

EIRP = P*G

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user.

Warning statement to the user for keeping at least 20cm separation distance and the prohibition of operating to a person has been printed on the user’s manual. Therefore, the S of the device is calculated with R=20cm, and if it is below the limit S, then we can conclude the device complies with the rules.

5.1.2 Test Procedure

This transmitter is operated by automatic activation, and the duration of each transmission and silent period between transmissions will be controlled by software.

5.1.3 EUT RF Exposure Evaluation

Frequency (MHz)	EIRP(dB μ V/m)	EIRP(dBm)	EIRP (mW)	R (cm)	S (mW/cm ²)	Limit (mW/cm ²)	Result
315	59.26	-35.94	0.00026	20	0	0.21	Pass

Note: EIRP refer from report No. EED32J00062801.

PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32J00062801 for EUT external and internal photos.

*** End of Report ***

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