

Prüfbericht-Nr.: <i>Test Report No.:</i>	50146301 001	Auftrags-Nr.: <i>Order No.:</i>	114074422	Seite 1 von 20 <i>Page 1 of 20</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	12-Feb-2018	
Auftraggeber: <i>Client:</i>	安東貿易股份有限公司., 臺北市大同區長安西路 201 號 1 樓			
Prüfgegenstand: <i>Test item:</i>	Rider Recognition System			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	RRS			
Auftrags-Inhalt: <i>Order content:</i>	NCC LP0002 Test report (134.5kHz)			
Prüfgrundlage: <i>Test specification:</i>	NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2018) Section 2.8			
Wareneingangsdatum: <i>Date of receipt:</i>	12-Feb-2018			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000698116 -001			
Prüfzeitraum: <i>Testing period:</i>	07-Mar-2018 - 07-Mar-2018			
Ort der Prüfung: <i>Place of testing:</i>	EMC/RF Laboratory Taipei			
Prüflaboratorium: <i>Testing laboratory:</i>	TUV Rheinland Taiwan Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
Report Date / tested by:		kontrolliert von / reviewed by:		
18-May-2018 Jack Chang / Project Manager		18-May-2018 Arvin Ho / Vice General Manager		
Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

TEST SUMMARY

5.1.1 FIELD STRENGTH OF FUNDAMENTAL

RESULT: Passed

5.1.2 SPURIOUS EMISSION

RESULT: Passed

5.2.1 CONDUCTED EMISSIONS LINE AND NEUTRAL

RESULT: Passed

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix P: Photo Documentation

(File Name: 50146301APPENDIX P)

Appendix D: Test Result of Radiated Emissions

(File Name: 50146301APPENDIX D)

Test Specifications

The following standards were applied.

Table 1: Applied Standard and Test Levels

Radio
NCC Low-power Radio-frequency Devices Technical Regulations LP0002(2018)(107 年 01 月 10 日)

2. Test Sites

2.1 Test Facilities

TUV Rheinland Taiwan Ltd.

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.
Taipei City 105
Taiwan (R.O.C.)

FCC Registration No.: 340738
TAF Accredited NCC Test Lab. No.:0759
TAF ISO17025 Certification effective periods: 2016-Jul-1st to 2019-Jun-30th



Testing Laboratory
0759

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manu-facturer	Type	S/N	Last Calibration	Next Calibration
Test Software	Farad	EZ_EMC	Ver. TUV3A1	N/A	N/A
EMI Test Receiver	R&S	ESR 7	101549	2017/11/10	2018/11/10
Spectrum Analyzer	Agilent	N9010A	MY53470241	2017/05/23	2018/05/22
Preamplifier (30MHz -1GHz)	HP	8447D	2944A09270	2017/08/22	2018/08/22
Preamplifier (18 GHz -40 GHz)	COM-POWER	PAM-840	461257	2018/01/18	2019/01/18
Pre-Amplifier (1GHz~18GHz)	EM Electronics	EM01G18G	060649	2017/07/28	2018/07/28
Bilog Antenna	TESEQ	CBL6111D	29804	2017/08/18	2018/08/18
Horn Antenna	ETS-Lindgren	3117	201918	2017/08/18	2018/08/18
Horn Antenna (18GHz~40GHz)	COM-POWER	AH-840	101029	2017/11/28	2018/11/28
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2017/06/14	2018/06/14
Temp. & Humid. Chamber	Giant Force	GCT-099-40-S	MAF0103-007	2017/03/09	2019/03/09
LISN (1 phase)	R&S	ENV216	101243	2017/06/18	2018/06/18
LISN	R&S	ENV216	101262	2017/06/22	2018/06/21

2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are $\pm 3\text{dB}$.

Table 3: Emission Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-7}$
RF power, conducted	$\pm 1.5 \text{ dB}$
RF power density, conducted	$\pm 3 \text{ dB}$
spurious emissions, conducted	$\pm 3 \text{ dB}$
all emissions, radiated	$\pm 6 \text{ dB}$
Temperature	$\pm 1 \text{ }^{\circ}\text{C}$
Humidity	$\pm 5 \%$

3. General Product Information

3.1 Product Function and Intended Use

The EUT is the Rider Recognition System (RRS) is a mechatronic system which fully integrated "Automatic Main Switch and Steering Lock" for motorbikes.
For details refer to the User Guide, Data Sheet and Circuit Diagram.

3.2 Ratings and System Details

Table 4: Basic Information of EUT

Item	EUT information
Kind of Equipment	Rider Recognition System
Brand Name	Zadi
Type Designation	RRS

Table 5: Technical Specification of EUT

Item	Value
Operating Frequency	134.5kHz
Channel Spacing	N/A
Operation Voltage	12Vdc
Modulation	ASK

3.3 Independent Operation Modes

Basic operation modes are:

- A. Transmitting and receiving at fundamental frequency

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum emission level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Setup for testing: The key authentication is separated in a request in the LF band at 134,5kHz which lasts around 110msec and the response from the transponder in HF band at 433.92MHz for around 20msec.

4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

N/A

4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

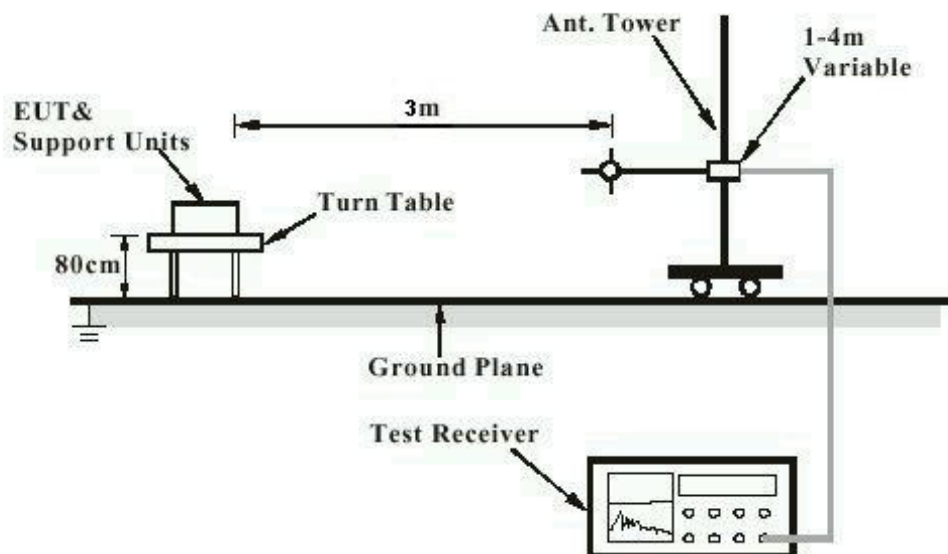
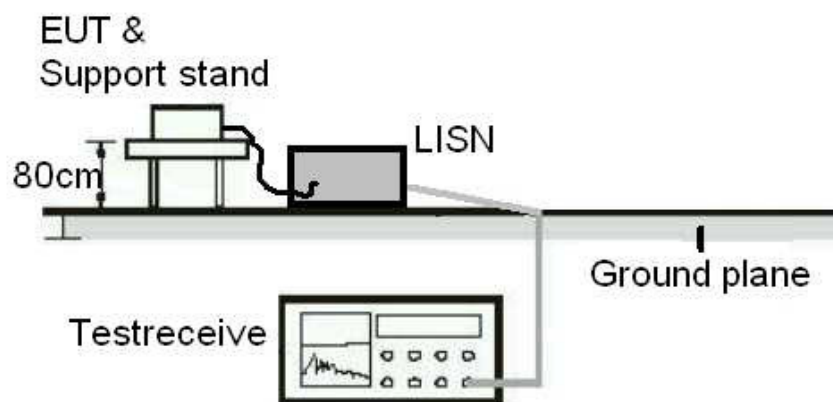


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)



5. Test Results

5.1 Transmitter Requirement & Test Suites

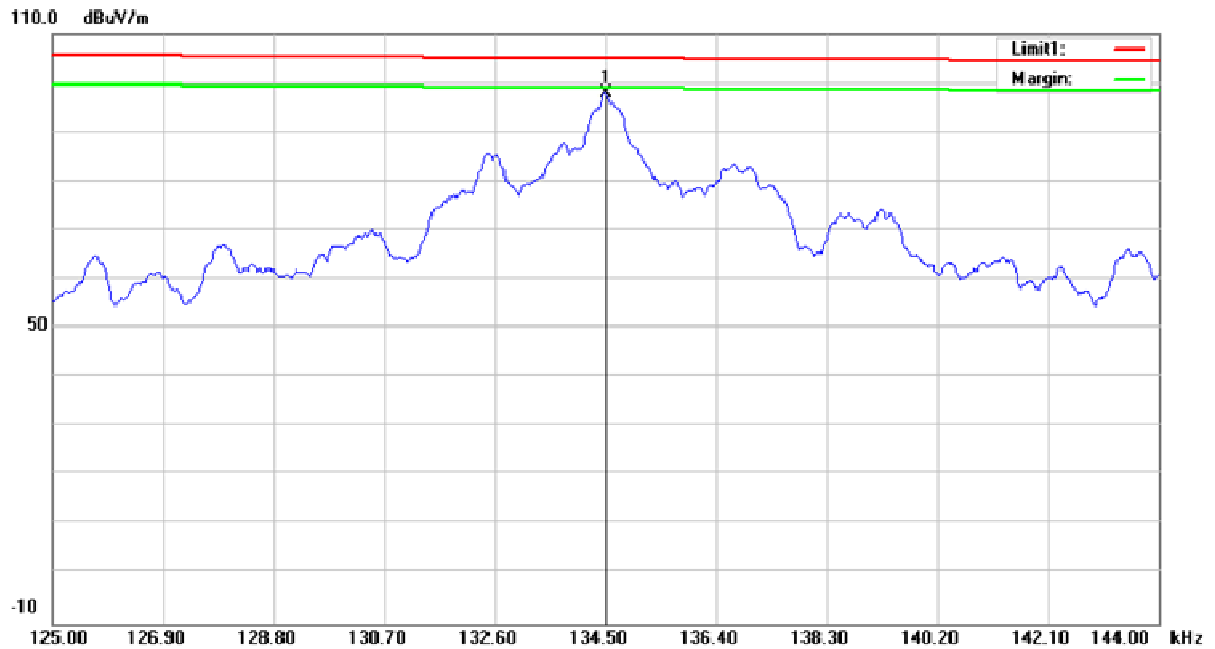
5.1.1 Field strength of fundamental

RESULT:**Passed**

Date of testing	:	Refer to Screenshot
Test standard	:	LP0002(2018) 2.8
Basic standard	:	LP0002(2018) 5.5

Test setup

Operation Mode	:	A
Atmospheric pressure	:	100-103 kPa


Table 6: Field strength of fundamental

Frequency (kHz)	Level(3m) (dBuV/m)	Detector	Limit(3m) (dBuV/m)	Level(300m) (dBuV/m)	Limit(300m) (dBuV/m)	Remark	Result
134.5	98.00	Peak	104.99	18.00	24.99	--	Pass
134.5	<98.00	average	84.99	<18.00	4.99	--	Pass

5.1.2 Spurious Emission

RESULT:**Passed**

Date of testing : Refer to AppendixD

Test standard : LP0002(2018) 2.8

Basic standard : LP0002(2018) 5.5

Limits : Radiated emissions which fall in the restricted bands, as defined in LP0002 2.8 must comply with the radiated emission limits specified in LP0002 2.8 Emission radiated outside the specified frequency bands must comply with the radiated emission limits specified in LP0002 2.8

Kind of test site : 3m Semi-Anechoic Chamber

Test setup

Operation mode : A

For details refer to Appendix D.

The Radiated Emissions testing was performed in the X, Y and Z axis orientation.

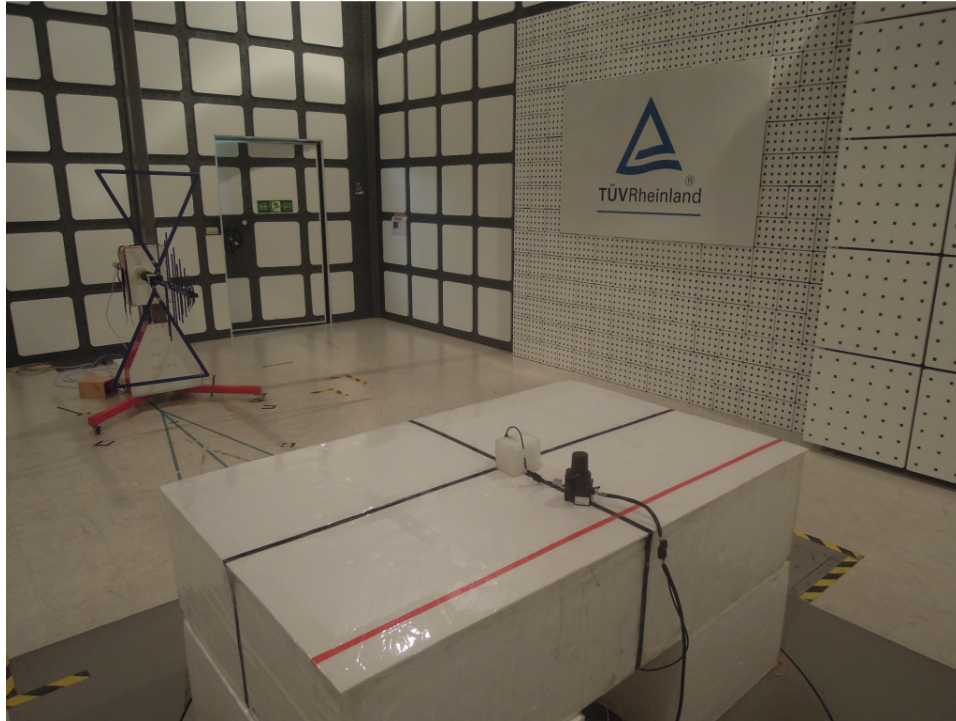
The worst-case and recorded in this test report.

6. Photographs of the Test Set-Up

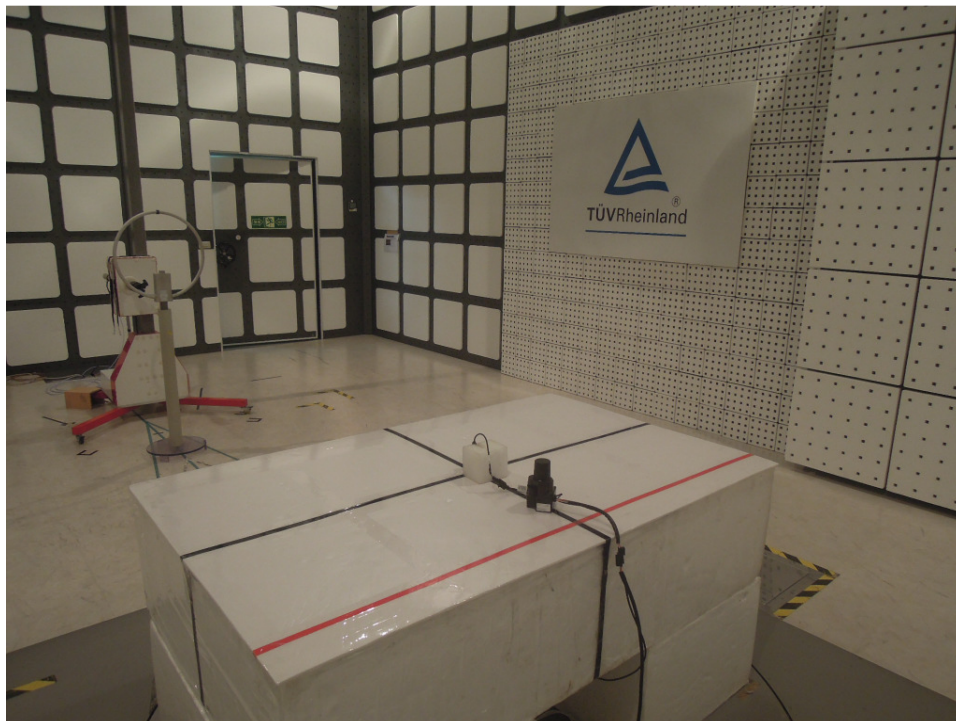
Photograph 1: Set-up for Spurious Emissions (Front View)



Photograph 2: Set-up for Spurious Emissions (Back View 1)



Photograph 3: Set-up for Spurious Emissions (Back View 2)



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