



**TEST REPORT CONCERNING THE COMPLIANCE OF
A RECEIVER FOR A REMOTE KEYLESS ENTRY
SYSTEM (RKE), BRAND TRW, MODEL 41R,
WITH 47 CFR PART 15 (10-1-07).**

FCC listed : 90828
Industry Canada : IC3501
VCCI registered : R-1518, C-1598

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MEASUREMENT/TECHNICAL REPORT

TRW Automotive

Model : 41R

FCC ID: GQ4-41R

March 04, 2008

This report concerns: Original grant/certification Class 2 change Verification			
Equipment type:		Receiver for a Remote Keyless Entry System (RKE)	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii) ?			
	Yes	No	n.a.
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The data taken for this test and report herein was done in accordance with 47 CFR Part 15 and the measurement procedures of ANSI C63.4-2003. TÜV Rheinland EPS B.V. at Niekerk, The Netherlands, certifies that the data is accurate and contains a true representation of the emission profile of the Equipment Under Test (EUT) on the date of the test as noted in the test report. I have reviewed the test report and find it to be an accurate description of the test(s) performed and the EUT so tested.

Date: March 04, 2008

Signature:



H.J. Pieters
Project Manager TÜV Rheinland EPS B.V.



Description of test item

Test item : Receiver for a Remote Keyless Entry System (RKE)
Manufacturer : TRW Automotive
Brand : TRW
Model : 41R
Serial number(s) : -
Revision : -
Receipt date : February 26, 2008

Applicant information

Applicant's representative : Mr. R. Tiné
Company : RFC TECHNOLOGY & NORMS
Address : 5, rue du Chant de Oiseaux
Postal code : 78320
City : Montesson
PO-box : -
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City : -
Country : France
Telephone number : +33 1 30157898
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Test(s) performed

Location : Niekerk
:
Test(s) started : February 29, 2008
Test(s) completed : March 04, 2008
:
Purpose of test(s) : Equipment Authorisation (Certification).
:
Test specification(s) : 47 CFR Part 15 (2007-10-01)
Test engineers :
R. van der Meer 
Report written by :
R. van der Meer 
Report date : March 04, 2008

This report is in conformity with NEN-EN-ISO/IEC 17025: 2005.
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The test results relate only to the item(s) tested.

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1 General information.

1.1 Product description.

1.1.1 Introduction.

The EUT is a receiver for a Radio Frequency (RF) Remote Keyless Entry System (RKE) that allows the driver to remotely control the door locking and unlocking of his vehicle.

1.2 Related submittal(s) and/or Grant(s).

Not applicable.

1.3 Tested system details.

Details and an overview of the system and all of its components, as it has been tested, may be found below.

EUT	:	Receiver for a Remote Keyless Entry System (RKE)
Manufacturer	:	TRW Automotive
Brand	:	TRW
Model	:	41R
Serial number	:	-
Voltage input rating	:	12 VDC
Current input rating	:	--
Frequency	:	315 MHz (314.5 MHz to 315.5 MHz)
Antenna	:	internal
Remarks	:	none



Receiver, brand TRW, model 41R

1.3.1 Description of input and output ports.

The EUT is operated from a 12 VDC car battery.
The EUT has an open collector output for a serial data link.

1.4 Test methodology.

The test methodology used is based on the requirements of 47 CFR Part 15 (2007-10-01), sections 15.109.

The test methods, which have been used, are based on ANSI C63.4: 2003.

Radiated emission tests above 30 MHz were performed at a measurement distance of 3 meters.
Radiated emission tests below 30 MHz were performed at a measurement distance of 3 meters and if necessary at 10 and 30 meters. To calculate the field strength level from these results to the appropriate distance at which the limit is specified, the computation method in appendix 1 has been applied.

1.5 Test facility.

The Federal Communications Commission has reviewed the technical characteristics of the test facilities at TÜV Rheinland EPS B.V., located in Niekerk, 9822 TL Smidshornerweg 18, The Netherlands, and has found these test facilities to be in compliance with the requirements of 47 CFR Part 2, section 2.948.

The description of the test facilities has been filed at the Office of the Federal Communications Commission under registration number 90828. The facility has been added to the list of laboratories performing these test services for the public on a fee basis.

The list of all public test facilities is available on the Internet at <http://www.fcc.gov>.

1.6 Test conditions.

Normal test conditions.

Temperature (*)	: +15°C to +35°C
Relative humidity(*)	: 20 % to 75 %
Supply voltage	: not applicable, the equipment under test is battery operated
Air pressure	: 950 – 1050 hPa

* When it was impracticable to carry out the tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests are stated separately.

2 System test configuration.

2.1 Justification.

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.4: 2003.

2.2 EUT mode of operation.

The EUT has been tested in receive mode.

All test set ups have been documented in pictures in the documentation package which will be submitted to the Commission

2.3 Special accessories.

No special accessories are used and/or needed to achieve compliance with the applicable sections of 47 CFR Part 15.

2.4 Equipment modifications.

No modifications have been made to the equipment in order to achieve compliance with the appropriate sections of 47 CFR Part 15.

2.5 Block diagram of the EUT.

The block diagram is available in the technical documentation package which will be submitted to the Commission.

2.6 Schematics of the EUT.

The schematics are available in the technical documentation package which will be submitted to the Commission.

2.7 Part list of the EUT.

The part list is available in the technical documentation package which will be submitted to the Commission.

3 Radiated emission data.

3.1 Radiated field strength measurements (30 MHz – 4000 MHz, E-field).

3.1.1 Average and Quasi peak values of the emissions

Frequency (MHz)	Measurement results dB(μV)/m @ 3 metres		Detector	Limits dB(μV)/m @ 3 metres	Margin (dB)		Result
	Vertical	Horizontal			Vertical	Horizontal	
30-1000	< 20.0	< 20.0	QP	40.0-54	< -20.0	< -20.0	PASS
1000-4000	< 46.7	< 46.7	AV	54	< -7.3	< -7.3	PASS

Table 1: Radiated emissions of the EUT, Average and Quasi peak values.

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15, section 15.109, are depicted in table 1.

Notes:

1. (AV) average detector
2. (QP) quasi peak detector
3. The reported field strength values are the worst case values at the indicated frequency, obtained by rotation of the EUT and orientation of the antenna.

Test engineer

Signature : 

Name : R. van der Meer

Date : February 29, 2008

3.1.2 Peak values of the emissions

Frequency (MHz)	Measurement results dB(μ V)/m @ 3 metres		Detector	Limits dB(μ V)/m @ 3 metres	Margin (dB)		Result
	Vertical	Horizontal			Vertical	Horizontal	
1000-4000	< 47.5	< 47.5	PK	74	< -26.5	< -26.5	PASS

Table 2: Radiated emissions of the EUT, Peak values.

The results of the radiated emission tests, carried out in accordance with 47 CFR Part 15, section 15.35, are depicted in table 2.

Notes:

1. (PK) peak detector.
2. Only for frequencies where average radiated emission measurements are specified.
3. The reported field strength values are the worst case values at the indicated frequency, obtained by rotation of the EUT and orientation of the antenna.

Test engineer



signature :

Name : R. van der Meer

Date : February 29, 2008

4 List of utilized test equipment.

Inventory Number	Description	Brand	Model	Last cal.	Next cal.
12476	Antenna mast	EMCO	TR3	N.A.	N.A.
12477	Antenna mast 1-4 mtr	Poelstra	N.A.	N.A.	N.A.
12483	Guidehorn	EMCO	3115	03/2007	03/2008
13664	Spectrum analyzer	HP	HP8593E	09/2007	09/2008
99580	Open Area testsite	Comtest	N.A.	09/2006	09/2009
13954	Preamp. 10-25GHz	Miteq	AMF-6D-100250-10p	N.A.	N.A.
14051	Anechoic room	Comtest	N.A.	N.A.	N.A.
15633	Biconilog Testantenna	Chase	CBL 6111B	02/2008	02/2009
15667	Measuring receiver	R&S	ESCS 30	04/2007	04/2008
99070	Coax 15m RG213 OATS	NMi Certin B.V.	KABEL 15M OATS	02/2008	02/2009
99071	Coax OATS ground	NMi Certin B.V.	KABEL GROND OATS	10/2007	10/2008
99552	WLAN Software	N.A.	N.A.	N.A.	N.A.
99622	Power supply	Voltcraft	PS 303 Pro	12/2007	12/2008
99623	Power supply	EA	PS 2016-050	12/2007	12/2008
99662	Laptop tbv Telecom metingen	DELL	Latitude	N.A.	N.A.

N.A. = Not Applicable