

Test report

20133518300rev2.0

based on:
FCC Part 15 Subpart C, section 15.209; (10-1-12
Edition); RSS-210, Issue 8 (Dec. 2010 edition)

Immobilizer
JOHNSON CONTROLS
CMFIMMO

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Main module

1. Introduction

This report contains the result of tests performed by:

Telefication bv
Edisonstraat 12a
6902 PK Zevenaar
The Netherlands

Telefication complies with the accreditation criteria for test laboratories as laid down in ISO/IEC 17025:2005. The accreditation covers the quality system of the laboratory as well as the specific activities as described in the authorized annex bearing the accreditation number L021 and is granted on 30 November 1990 by the Dutch Council For Accreditation (RvA: Raad voor Accreditatie).

Telefication is designated by the FCC as an Accredited Test Firm for compliance testing of equipment subject to Certification under Parts 15 & 18. The Registration Number is: 282250.

The Industry Canada number for the Open Area Test Site of Telefication is: 4173A-1.

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Ordering party:

Company name : JOHNSON CONTROLS Automotive Electronics SAS
Address : Parc Saint Christoph 10, Avenue de l'Entreprise
Zipcode : 95892
City/town : CERGY PONTOISE
Country : France
Date of order : 29 April 2013

2. Product

A sample of the following product was submitted for testing:

Product name	:	Immobilizer
Product category	:	Intentional radiators
Manufacturer	:	JOHNSON CONTROLS Automotive Electronics SAS
Trade mark	:	JOHNSON CONTROLS
Type designation	:	CMFIMMO
FCC ID	:	QI8- CMFIMMO
IC ID	:	4419A
Emission designator	:	--
Hardware version	:	--
Software version	:	1127556-2
Serial number	:	--

3. Test schedule

Tests were carried out in accordance with the specification detailed in chapter 6 "Summary" of this report.

Tests were carried out at the following location:

- Telefication, Zevenaar

The sample of the product was received on:

- 24 May 2013

Tests were carried out on:

- 20 June 2013
-

4. Product documentation

For production of this report NO product documentation was used.

5. Observations and comments

None

6. Summary

The product is intended for use in the following application area:

VEHICULAR ENVIRONMENT

The sample was tested according to the following specifications:

FCC Part 15 Subpart C, section 15.209 (10-1-12 Edition);
RSS-210, Issue 8 (Dec. 2010 edition)

7. Conclusions

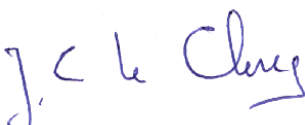
The sample of the product showed **NO NON-COMPLIANCES** to the specification stated in chapter 6 of this report.

The results of the tests as stated in this report, are exclusively applicable to the product item as identified in this report. Telefication does not accept any responsibility for the results stated in this report, with respect to the properties of product items not involved in these tests.

All tests are performed by:

name : ing. J.C. le Clercq

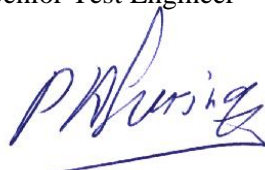
function : Test Engineer

signature : 

Review of test methods and report by:

name : ing. P.A. Suringa

function : Senior Test Engineer


signature : 

The above conclusions have been verified by the following signatory:

date : 18 July 2013

name : ing. A. van der Valk

function : Manager Laboratory

signature : 

Test results module

1. Summary

According to FCC Part 15 subpart C, section 15.209 the following tests have been performed:

Port	Reference	Phenomena	Result
Enclosure	section 15.209	Radiated emissions	P

Results:

P = pass
F = fail

NA = not applicable
NP = not performed

2. Emission tests

2.1 Field strength of emissions (< 30 MHz)

Compliance standard : FCC part 15, subpart C, section 15.209.
Method of test : ANSI C63.4-2009, sections 5.3 & 8.2.1; FCC part 15, subpart A, section 15.31 (f)(2), 15.33, 15.35.
Justification : Compliance measurements have been carried out at 3 m distance in a Semi Anechoic Chamber.
An inverse linear distance extrapolation factor of -40 dB/decade has been applied to determine the result at a distance of 30/300 meters.

Test results :

Orientation of EUT: plane of EUT's loop parallel to plane of receive loop antenna					
Frequency (kHz)	Test result @ 3 m distance (dBμV/m) PK	Extrapolation to 30 m distance (dBμV/m)	Limit (dBμV/m)	Extrapolation to 300 m distance (dBμV/m)	Limit (dBμV/m)
125	81.69	--	--	1.69	25.67
263	44.99	--	--	-35.01	19.21
625	37.28	-2.72	11.69	--	--
875	34.91	-5.09	8.76	--	--
1125	33.94	-6.06	6.58	--	--
1375	35.20	-4.80	4.84	--	--
1625	37.85	-2.15	4.39	--	--
3984	34.20	-5.80	29.54	--	--

Remark: results due to other EUT orientations proved to be considerably lower than the results above.

Test equipment used: (Item numbers)	4, 41, 47, 48.
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Item numbers refer to the used test equipment module.

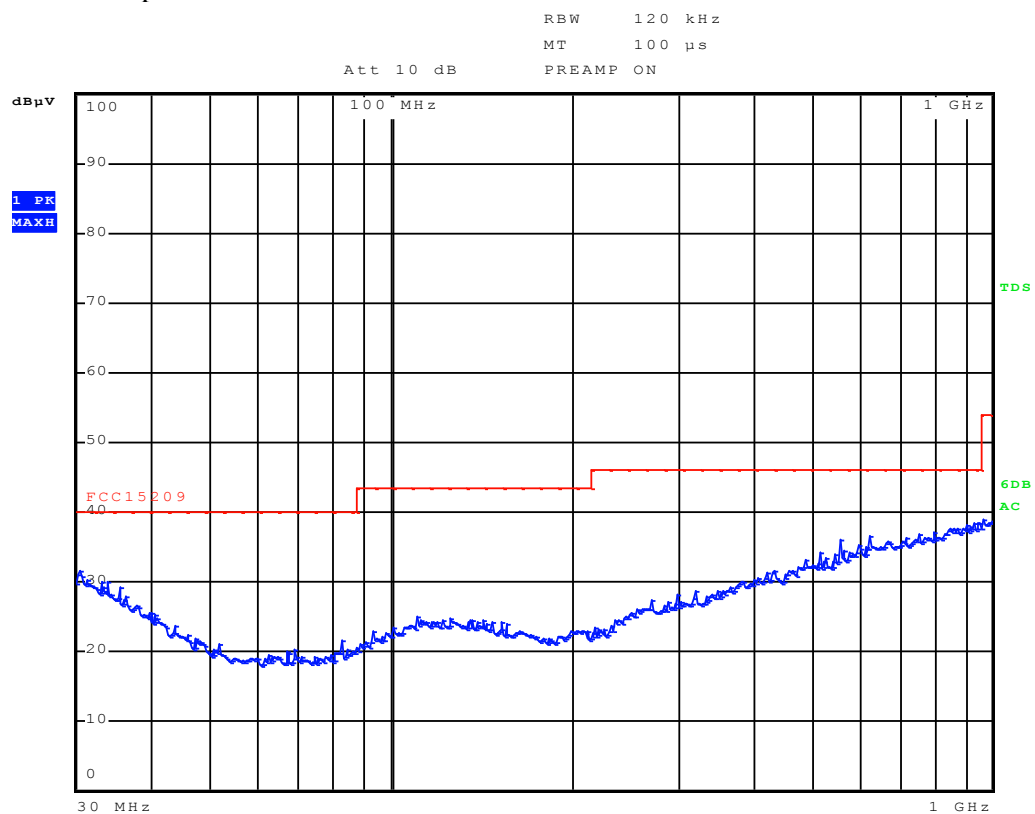
2.2 Field strength of unwanted emissions (< 30 MHz)

Compliance standard : FCC part 15, subpart C, section 15.209

Method of test : ANSI C63.4-2009, sections 5.4, 8.2.3 & 8.3.1.2; FCC part 15, subpart A, section 15.31 (f)(2), 15.33, 15.35.

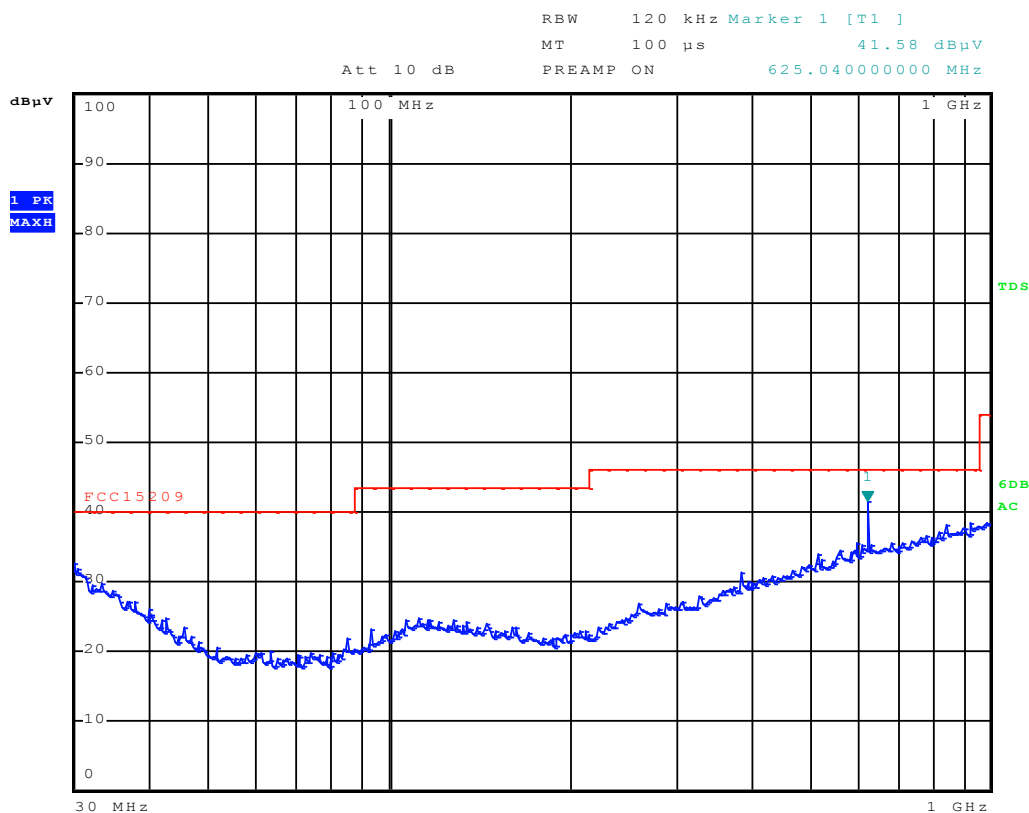
Test results

Horizontal polarization



Test results module

Vertical polarization



Test results :

Frequency (MHz)	Polarization (H/V)	Test result @ 3 m distance (dB μ V/m)	Limit (dB μ V/m)
--	--	--	--
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Note: the signal on 625 MHz is a local ambient signal.

Test equipment used: (Item numbers)	4, 41, 48, 49.
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Item numbers refer to the used test equipment module.

Used test equipment module

Item	Test equipment	Manufacturer	Type	ID
RF Measurement Equipment				
1	Spectrum Analyser	Hewlett Packard	HP8562E	TE 00099
2	RF Preamplifier 1 – 26.5 GHz	Hewlett Packard	HP8449B	TE 00092
3	Pre-amplifier 10 dB	Rohde & Schwarz	ESV-Z3	TE 00098
4	EMI test receiver	Rohde & Schwarz	ESCI	TE 11128
5				
6				
7				
8				
9				
10				
General Measurement Equipment				
21	Digital Multimeter	Hewlett Packard	HP3438A	TE 00215
22	Digital Thermometer	Fluke	Fluke 51	TE 00388
23				
24				
Auxiliaries				
41	Power Supply	Delta	E030-10	TE 00550
42	Climate Chamber	CTS	C-40/350	TE 00741
43	Climate Chamber	Vötsch	VEM 03/500	-
44	Horn Antenna	EMCO	3115	TE 00532
45	Biconilog Antenna	EMCO	3143	TE 00700
46	Large Loop Antenna	Telefication	CSPR16	TE 00912
47	Loop antenne	Rohde & Schwarz	HFH2-Z2	TE 00746
48	Semi Anechoic Chamber (SAR)	Euroshield	RFD-F-100	TE 01064
49	Biconilog Antenna	Chase	CBL6112A	TE 00967

Cross reference table

Transmitter	
CNR RSS-210 Issue 8	FCC 47 CFR Ch. 1 part 15, subpart C (10-1-12 Edition)
CNR RSS-Gen Issue 3	
Tables 5, 6	§ 15.209

Revision history

REVISION	DATE	REMARKS	REVISED BY
1.0	July 12 2013	On page 4, corrected/added the following: <ul style="list-style-type: none">• Changed Type designation CMF-I-MMO to CMFIMMO• Added QI8 for FCC ID• Added 4419A for IC ID	A. van der Valk
2.0	July 18 2013	On page 4 : changed FCC ID: QI8 to FCC ID: QI8- CMFIMMO	A. van der Valk