



Test report No:
 NIE: 52723REM.004A1

Test report (Modification 1)

FCC Rules and Regulations CFR 47, Part 18, Subpart C (10-1-15 Edition) & ICES-003 ISSUE 6 (2016)

Identification of item tested	Wireless charger
Trademark	Delphi
Model and/or type reference.....	Volvo
Other identification of the product	S/N: Prototype
Final HW version.....	35052528
Final SW version	A
FCC ID	L2C0073TR
IC	3432A-0073TR
Features.....	Wireless Charging (Qi Standard) and NFC
Manufacturer.....	DELPHI ELECTRONIC & SAFETY 2151 Lincoln RD Kokomo IN 46901, USA
Test method requested, standard	Part 18, Subpart C (10-1-15 Edition) & ICES-003 ISSUE 6 (2016)
Summary	IN COMPLIANCE
Approved by (name / position & signature).....	Rafael López EMC Lab Manager
Date of issue	2018-01-25
Report template No.	FDT11_20

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Competences and guarantees

DEKRA Testing and Certification, S.A.U. is a testing laboratory accredited by the National Accreditation Body (ENAC - Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification, S.A.U. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification, S.A.U. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification, S.A.U. at the time of performance of the test.

DEKRA Testing and Certification, S.A.U. is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

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General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA Testing and Certification, S.A.U. and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the DEKRA Testing and Certification, S.A.U. internal document PODT000.

Usage of samples

Samples under test have been selected by: the Client.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial number	Reception date
52723/004	Wireless charger	Volvo	Prototype	2017-04-05

Auxiliary elements used with the sample S/01:

Control N°	Description	Model	Serial number	Reception date
52723/002	LaunchPad	DLP-7970ABP	---	2017-04-05
52723/011	Protector	---	---	2017-04-05

Test sample description

The sample consist in a wireless charger for cell phones.

Identification of the client

DELPHI ELECTRONIC & SAFETY
2151 Lincoln RD Kokomo IN 46901, USA

Testing period

The performed test started on 2017-05-05 and finished on 2017-05-18.
The tests have been performed at DEKRA Testing and Certification, S.A.U.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 30 % Max. = 60 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar

Modifications to the reference test report

It was introduced the following modifications in respect to the test report number 52723REM.004 related with the same samples, in the next clauses and sub-clauses:

By client requirement it was modified a typo in the FCC ID, IC codes and software version.

This modification test report cancels and replaces the test report 52723REM.004.

Remarks and comments

The tests have been performed by the technical personnel: Antonio Ruiz & Jorge Mora.

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 30 MHz to 1000 MHz is $I = \pm 4,9$ dB for quasi-peak measurements, $I = \pm 4,6$ dB for peak measurements ($k = 2$)

The total uncertainty of the measurement system for the measured radio disturbance characteristics of EUT from 1000 MHz to 26GHz is $I = \pm 2,6$ dB for peaks and average measurements ($k = 2$)

Testing verdicts (Legend)

Not applicable	N/A
Pass	P
Fail	F
Not measured	N/M

List of equipment used during the test

CONTROL NUMBER	DESCRIPTION	MANUFACTURER	MODEL	LAST CALIBRATION	NEXT CALIBRATION
1999	EMI TEST Receiver	ROHDE & SCHWARZ	ESIB26	2017-05-25	2019-05-25
5641	Bilog Antenna	ETS LINDGREN	3142E	2015-06-16	2018-06-16
0245	Horn Antenna	HEWLETT PACKARD	11966E	2014-09-19	2017-09-19
4729	Preamplifier	BONN ELEKTRONIK	BLMA 1840-1M	2015-12-02	2017-12-02
2932	Bilog Antenna	SUNOL SCIENCES CORPORATION	JB6	2014-07-01	2017-07-01
3548	Thermohigrometer	PICO TECHNOLOGY	HUMIDIPROBE	2017-04-17	2018-04-17
3545	Thermohigrometer	PICO TECHNOLOGY	HUMIDIPROBE	2017-04-04	2018-04-04
1975	Preamplifier	MITEQ	JS4-12002600-30-5A	2015-10-06	2017-10-06
0226	Absorption Clamp	ROHDE & SCHWARZ	MDS-21	2015-09-04	2017-09-04
1935	EMI TEST Receiver	ROHDE & SCHWARZ	ESPI3	2015-12-17	2017-12-17
1650	LISN 100A	SCHWARZBECK	NNLK8121	2015-09-15	2017-09-15
5151	Transitory Limiter	SCHWARZBECK	VTSD9561-F	2017-03-09	2019-03-09
4522	EMI software	ROHDE & SCHWARZ	EMC32	-	-

Appendix A – Test result

APPENDIX A CONTENT

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DESCRIPTION OF THE OPERATION MODES

The operation modes described in this paragraph constitute a functionality of the sample under test for itself. The operation modes used by the samples to which the present report refers, are shown in the following table:

OPERATION MODE	DESCRIPTION
OM#01	EUT ON. Signal HFC active. Power supply: 12Vdc.

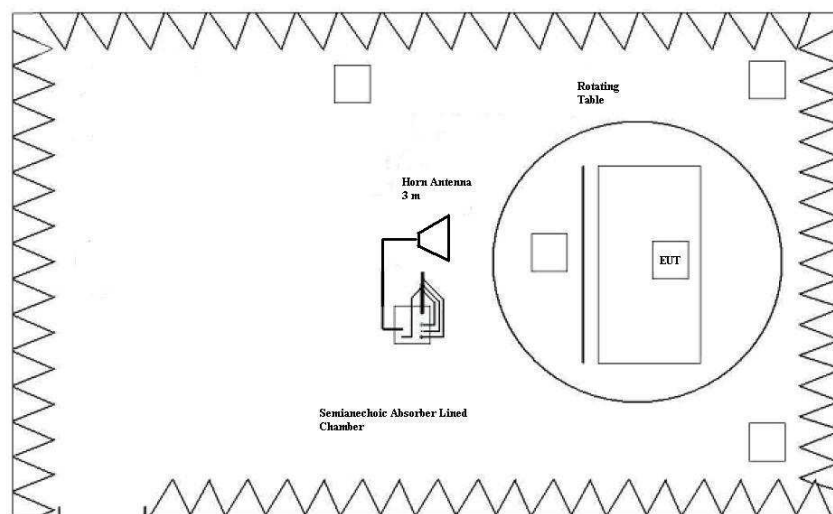
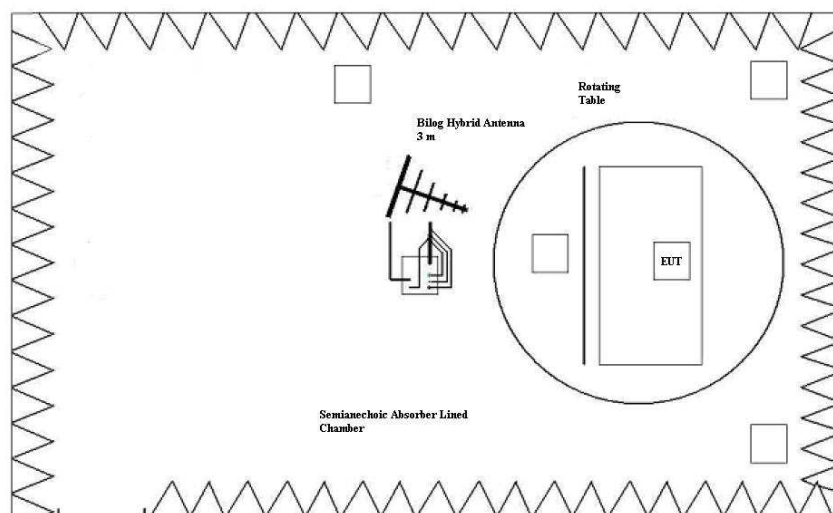
RADIATED EMISSION. ELECTROMAGNETIC FIELD MEASURE

LIMITS:	Product standard:	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.109 & ICES-003 Issue 6 (2016)
	Test standard:	FCC CFR 47, Part 15, Subpart B (10-1-15 Edition), Secs. 15.109 & ICES-003 Issue 6 (2016)

Limits of interference Class B

The applied limit for radiated emissions, 10 m distance, according with the requirements of FCC Rules and Regulations 47 CFR Part 18.305, Subpart C in the frequency range 30 MHz to 1 GHz, for Non-Consumer equipments, which is a transmitter in a band over 500 MHz, was:

Frequency range (MHz)	QP Limit for 10 m		QP Limit for 3 m	PK Limit for 3 m
	($\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)	(dB $\mu\text{V/m}$)
30 to 88	10	30	40	--
88 to 216	15	33.52	43.52	--
216 to 1000	20	36.02	46.02	--

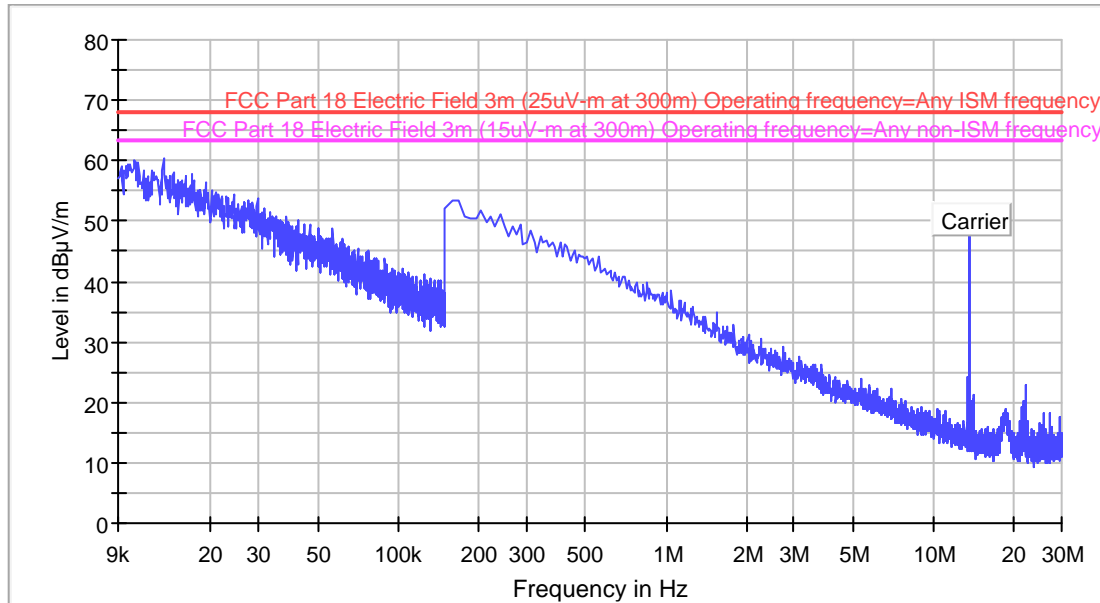


TESTED SAMPLE:	S#01												
TESTED OPERATION MODES:	OM#01												
TEST RESULTS:	CRmmnnRRPP: CR, Radiation Condition; mm: Sample number; nn: Operation mode; RR: Range; PP: Polarization.												
<table border="1"><thead><tr><th>CRmmnnRRPP</th><th>Description</th><th>Result</th></tr></thead><tbody><tr><td>CR0101LR</td><td>Range: 9 KHz - 30 MHz.</td><td>P</td></tr><tr><td>CR0101</td><td>Range: 30 MHz - 1000 MHz.</td><td>P</td></tr><tr><td>CR0101_II</td><td>Range: 30 MHz - 1000 MHz.</td><td>P</td></tr></tbody></table>		CRmmnnRRPP	Description	Result	CR0101LR	Range: 9 KHz - 30 MHz.	P	CR0101	Range: 30 MHz - 1000 MHz.	P	CR0101_II	Range: 30 MHz - 1000 MHz.	P
CRmmnnRRPP	Description	Result											
CR0101LR	Range: 9 KHz - 30 MHz.	P											
CR0101	Range: 30 MHz - 1000 MHz.	P											
CR0101_II	Range: 30 MHz - 1000 MHz.	P											

Radiated Emission. CR0101LR

Project: 52723REM.004
 Company: AT4 USA
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Signal NFC active. Power Supply 12VDC.

ER FCC 18 9KHz- 30MHz



- FCC Part 18 Electric Field 3m (25uV-m at 300m) Operating frequency=Any ISM frequency
- FCC Part 18 Electric Field 3m (15uV-m at 300m) Operating frequency=Any non-ISM frequency
- Peak Scan

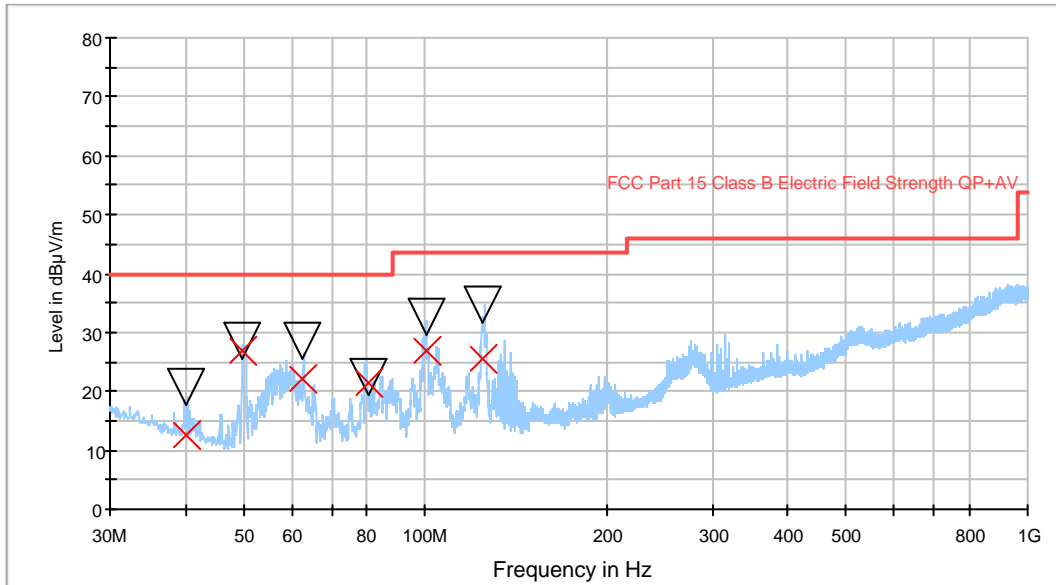
Subrange Maxima

Frequency (MHz)	PK+ CLRWR (dBµV/m)
0.013320	60.6
0.021080	54.8
0.046680	49.4
0.168000	53.5
0.240000	51.2
0.564000	44.1
1.176000	36.6
2.733000	29.2
13.281000	24.2
13.560000	47.3

Radiated Emission. CR0101

Project: 52723REM.004
 Company: AT4 USA - DELPHI
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. SIGNAL NFC ACTIVE. POWER SUPPLY 12VDC.

FCC class B



— FCC Part 15 Class B Electric Field Strength QP+AV
 ▽ MaxPeak
 — Peak Preview
 X QuasiPeak

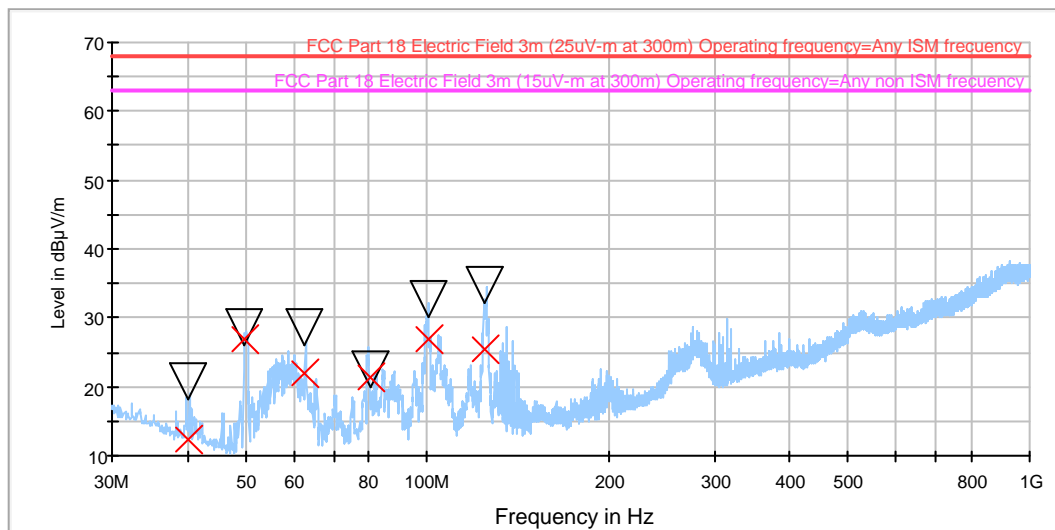
Maximizations

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)
40.174749	20.8	12.4	98.0	V	92.0
49.761523	28.6	27.0	98.0	V	329.0
62.720240	28.6	22.0	106.0	V	200.0
80.621844	22.6	21.3	152.0	H	194.0
100.684970	32.8	26.8	342.0	V	178.0
124.809018	34.8	25.5	150.0	H	113.0

Radiated Emission. CR0101_II

Project: 52723REM.004
 Company: AT4 USA - DELPHI
 Sample: S/01
 Operation mode: OM#01
 Description: EUT ON. Signal NFC active. Power Supply 12VDC.

FCC Part 18 Electric Field



- FCC Part 18 Electric Field 3m (25µV-m at 300m) Operating frequency=Any ISM frequency
- Peak Scan
- ▽ MaxPeak
- × QuasiPeak
- FCC Part 18 Electric Field 3m (15µV-m at 300m) Operating frequency=Any non ISM frequency

Maximizations

Frequency (MHz)	MaxPeak (dBµV/m)	QuasiPeak (dBµV/m)	Height (cm)	Polarization	Azimuth (deg)
40.174749	20.8	12.4	98.0	V	92.0
49.761523	28.6	27.0	98.0	V	329.0
62.720240	28.6	22.0	106.0	V	200.0
80.621844	22.6	21.3	152.0	H	194.0
100.684970	32.8	26.8	342.0	V	178.0
124.809018	34.8	25.5	150.0	H	113.0