ECE TYPE-APPROVAL CERTIFICATE

E24

Concerning:[2] Approval granted
~~Approval extended~~
~~Approval refused~~
~~Approval withdrawn~~
~~Production definitively discontinued~~

Of a type of ~~vehicle~~/component/~~separate technical unit~~[2] with regard to Regulation No. 10.
Of a type of electrical/electronic sub-assembly[2] with regard to Regulation No.10.

Approval No: ***E24*10R06/03*6958*00***

Reason for extension:		***N/A***
1.	Make (trade name of manufacturer):	DEUTECMFG®
2.	Type and general commercial description:	***48.347EK-A*** *Towing Voltage Adaptor*
3.	Means of identification of type, if marked on the ~~vehicle~~/ component/~~separate technical unit~~[2]:	***Approval mark.***
3.1	Location of that marking:	***Stuck on the enclosure.***
4.	Category of vehicle:	***N/A***
5.	Name and address of manufacturer:	***Nanjing Deutec Industry Co., Ltd ZTE R&D Building-2#, Room 601/602, No.90 Huashen Avenue, Yuhuatai District, Nanjing City, Jiangsu Province, China.***
6.	In the case of components and separate technical units, location and method of affixing of the approval mark:	***Stuck on the enclosure.***
7.	Address(es) of assembly plant(s):	***Nanjing Deutec Industry Co., Ltd No.90 Huashen Avenue, Yuhuatai District, Nanjing City, Jiangsu Province, China.***

NSAI, 1 Swift Square, Northwood, Santry, Dublin 9, Ireland. Telephone: (+353+1) 807 3800, Facsimile: 01-807 3844

Approval No: ***E24*10R06/03*6958*00***

8.	Additional information (where applicable):	***See appendix below***
9.	Technical service responsible for carrying out the tests:	***CETOC Technical Service srl . Via della Bufalotta, 374, 00139 Roma***
10.	Date of test report:	***19.05.2025***
11.	Number of test report:	***CN-112-17-446-COM25-31355-IR***
12.	Remarks (if any):	***See Appendix below***
13.	Place:	***Dublin***
14.	Date:	***10th July, 2025***
15.	Signature:	

NATIONAL STANDARDS AUTHORITY OF IRELAND
NSAI Certification
TRANSPORT DEPARTMENT

16. The index to the information package lodged with the approval authority, which may be obtained on Request, is attached.

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1. Distinguishing number of the country which issued/extended/refused or withdrawn approval. (see Regulation, provisions on approval).
2. Strike out what does not apply.

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Approval No: ***E24*10R06/03*6958*00***

Appendix

To type-approval communication concerning the type approval
of an electrical/electronic sub-assembly under Regulation No.10.

1.	Additional information	
1.1.	Electrical system rated voltage:	***DC 24V, negative ground***
1.2.	This ESA can be used on any vehicle type with the following restrictions:	***See manufacturer's specifications.***
1.2.1	Installation conditions, if any:	***See manufacturer's specifications.***
1.3.	This ESA can only be used on the following vehicle types:	***N/A***
1.3.1	Installation conditions, if any:	***N/A***
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were:	***Bulk Current Injection Method:*** *Frequency: (20 – 400 MHz)* ***Free Field Method Test:*** *Frequency: (400 – 2000 MHz)*
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests:	***CETOC Technical Service srl.***
2.	Remarks:	***N/A***

Appendix to type-approval communication concerning the
type approval of a vehicle under Regulation No.10.

1.	Additional information	
2.	Electrical system rated voltage:	***N/A***
3.	Type of bodywork:	***N/A***
4.	List of electronic systems installed in the tested vehicle(s) not limited to the items in the information document:	***N/A***
4.1.	Vehicle equipped with 24 GHz short-range radar equipment (yes/no/optional)[2]:	***N/A***
5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests:	***N/A***
6.	Remarks:	***N/A***

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Approval No: ***E24*10R06/03*6958*00***

Index to the Information Package

Date of issue:	***10th July, 2025***
Date of latest amendment:	***N/A***
Reason for extension/revision:	***N/A***

1. Additional conditions, and advisory notes on legal alternatives.

2. Test report(s)

- numbers(s):	***CN-112-17-446-COM25-31355-IR***
- date of issue:	***19.05.2025***
- date of latest amendment:	***N/A***

3. Information document

- number(s):	***48.347EK-A-00***
- date of issue:	***25.04.2025***
- date of latest amendment:	***N/A***
Documentation:	***26 pages***

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Approval No: ***E24*10R06/03*6958*00***

Appendix: **Additional conditions, and advisory notes on legal alternatives**

A: Additional conditions:

1. The attached technical report, with any of its attachments, forms part of this Type Approval certificate.
2. Each device from series production shall be to the measurements specified in the attached drawings, and shall be manufactured only from the materials specified in the Approval documents.
3. Changes in the type are permitted only with the explicit permission of NSAI. Breaches of this requirement will lead to a withdrawal of the Type Approval, and in addition may be subject to criminal prosecution.
4. At regular intervals, any tests or associated checks prescribed by the applicable legislation to verify continued conformity with the approved type shall be carried out. The manufacturer shall demonstrate compliance with this by submitting to NSAI evidence of adequate arrangements and documented control plans for each type approved.
5. Any set of samples or test pieces showing evidence of non-conformity shall give rise to further sampling and testing and all steps shall be taken to restore conformity of production.
6. This Type Approval will expire when it is surrendered by the holder, or withdrawn by NSAI, or when the approved type no longer conforms to legal requirements. The recall of the Type Approval can be issued by NSAI when the conditions required for the issuing or continuation of the Type Approval are no longer current, or when the Approval holder is in breach of the duties attached to the Type Approval, or when it is established that the approved type no longer meets the requirements of traffic safety.
7. Changes in the company name, address or manufacturing site, as well as in any of the sales or other agents specified in the issuing of the approval must immediately be notified to NSAI.
8. The duties imposed by the issuing of this certificate are not transferable. The legal protection of third parties is not affected by this certificate.
9. When the manufacture or sale of the system, component or separate technical unit has not been started within one year of the date of issue of this certificate, then NSAI is to be informed. This requirement also applies when the manufacture or sale has been halted for more than one year, or when it ought to have been halted for more than one year. The initial commencement of manufacture or sale, or the resumption of manufacture or sale, shall then be notified to NSAI within one month of commencement or resumption.

B: Legal Options:

Any objection to the requirements set out in this certificate shall be made within one month of the date of issue. The objection shall be made, in writing, to NSAI in Dublin.

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CETOC TECHNICAL SERVICE S.R.L.
Via della Bufalotta, 374
00139 - Roma (RM) Italy

Inspection Report Nr.: CN-112-17-446-COM25-31355-IR
Manufacturer: Nanjing Deutec Industry Co., Ltd
Type: 48.347EK-A

01480

Electromagnetic Compatibility – ESA

0. Legislation:

0.1.	Requirements according to	:	UNECE Regulation 10.06 to Supplement 3

1. General

1.1.	Reason for Inspection Report	:	New approval /~~Extension of approval / Test report only / COP~~
1.2.	Manufacturer's Representative(s)	:	No attendance
1.3.	CETOC TS Representative(s)	:	Cheryl Deng
1.4.	Location of Test	:	GuangZhou ShunTai Quality Technical Service Co., Ltd. Room 101, Factory Building 1, No. 63, Punan Road, Huangpu District, Guangzhou, Guangdong, China.
1.5.	Date of test	:	18/05/2025

2. Manufacturer Details

2.1.	Make	:	DEUTECMFG®
2.2.	Type	:	48.347EK-A
2.3.	Variant/Version	:	48.347EK-A, 48.347EK-B, 48.347EK-C, 48.347EK-D, 48.347EK-E, 48.347EK-F, 48.347EK-G, 48.347EK-H
2.4.	Commercial Name	:	Towing Voltage Adaptor
2.5.	Category	:	Component
2.6.	Name and Address of manufacturer	:	Nanjing Deutec Industry Co., Ltd ZTE R&D Building-2#, Room 601/602, No.90 Huashen Avenue, Yuhuatai District, Nanjing City, Jiangsu Province, China.

3. Conclusion:

3.1.	Final conclusion of the inspection:	:	The above mentioned type was tested in accordance with the above mentioned legislation and was found to comply in all respects. This Inspection report relates only to the items tested.

Signature	:		
Name	:	Cheryl Deng	Marco Pagliari
Position	:	Type Approval Engineer	Tech. Mgr.
Place and date	:	Guangzhou, China. 19/05/2025	Roma, 19/05/2025

4. List of Appendixes:

Appendix Nr.	Page Nr.		Subject
Appendix 1	2	:	Test report history
Appendix 2	2	:	General specification
Appendix 3	4	:	Inspection results
Appendix 4	12	:	Test results

CETOC TECHNICAL SERVICE S.R.L.
Via della Bufalotta, 374
00139 - Roma (RM) Italy

APPENDIX 1 - TEST REPORT HISTORY

List this report and previous reports, with extension details.

Inspection Report Number	Reason for Extension	Date of Issue
CN-112-17-446-COM25-31355-IR	N/A	19/05/2025

APPENDIX 2 – GENERAL SPECIFICATION

1. Worst Case Rationale : All variants have the same electronic circuit design and the same component list for each PCB, the difference among them are the appearance of plug and the socket. So, the 48.347EK-A is chosen as the worst-case to be tested under 24V system.

2. Significant Interpretations, Alternative Test Methods, New Technologies : N/A

3. Summary of test results

	PASS	FAIL	N/A	COVERED PREVIOUS EXTENSION	See approval/Report Nr.
Radiated Emissions:	☒	☐	☐	☐	
Radiated Immunity:	☒	☐	☐	☐	
BCI Immunity:	☒	☐	☐	☐	
Free Field Immunity:	☒	☐	☐	☐	
150 mm Stripline Immunity:	☐	☐	☒	☐	
800 mm Stripline Immunity:	☐	☐	☒	☐	
Transient Testing:	☒	☐	☐	☐	

4. Component Specification

Component Identification Number:	48.347EK-A

5. Facility and Equipment Checks

5.1. Calibration certificates checked and valid, recorded in the following table : Conform

5.2 All instruments are equipped with identification label : Yes

5.3 Calibration certificates are complete of calibration-chain with detailed information regarding primary used. : Yes

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Equipment	Serial / Certificate No.	Calibration due*
ALSE ROOM	CN J202206020680B-0006	20/07/2025
Injection probe	CN J202406171781A-0015	21/06/2025
L.I.S.N.	CN J202406171781A-0012	21/06/2025
L.I.S.N.	CN J202406171781A-0014	21/06/2025
Biconical antenna	CN 1GA23062713337-0068	05/07/2025
Log-periodic antenna	CN 1GA240719117044-0022	08/08/2025
Supply Voltage Change Simulator	CN J202406171781A-0001	21/06/2025
Load dump wave simulator	CN J202406171781A-0002	21/06/2025
Transient pulse disturbance simulator	CN J202406171781A-0003	21/06/2025
Scanning receiver	CN J202406171781A-0021	21/06/2025
Digital phosphor oscilloscope	CN J202406171781A-0004	21/06/2025

**Specify calibrated date + (interval) or calibration due date.*

APPENDIX 3 – INSPECTION RESULTS

		PASS	FAIL	N/A
	Radiated Emissions			
CISPR25, 4.5.	Measuring equipment complies with CISPR 16-1-4 (2010).	☒	☐	☐
	Test Location			
Ann 7, 3.1. *Ann 7, 3.3.*	Test performed in: - A.L.S.E (Absorber-lined Shielded Enclosure)* - ~~O.A.T.S (Open Area Test Site)*~~ **Strikethrough, as appropriate.*	☒	☐	☐
Ann 7, 3.3.	O.A.T.S level is a clear area, free from electromagnetic reflecting surfaces, within a circle of 15 m minimum radius.	☐	☐	☒
Ann 7, 3.3.	Measuring equipment is outside 15 m minimum radius circle.	☐	☐	☒
Ann 7, 3.4.	Ambient noise is at least 6 dB below reference limits, in either case.	☒	☐	☐
	Test Arrangements			
CISPR25, 4.4.2.	EUT and antenna are more than 2 m from the walls and ceiling, and 1 m from the nearest absorber material.	☒	☐	☐
CISPR25, 6.1.1.	Ground plane is 900 ± 50 mm high and made from 0.5 mm thick copper, brass or galvanised steel.	☒	☐	☐
CISPR25, 6.1.1.	Ground plane is at least 2,000 mm length x 1,000 mm width.	☒	☐	☐
CISPR25, 6.4.2.3.	ESA and harness are supported at 50 ± 5 mm above the ground plane on low relative permittivity material.	☒	☐	☐
CISPR25, 6.4.2.3.	Face of the ESA is within 200 mm ± 10 mm from the edge of the ground plane.	☒	☐	☐
CISPR25, 6.4.2.4.	Length of test harness, parallel to the front of the ground plane, is 1,500 ± 75 mm and does not exceed 2,000 mm.	☒	☐	☐
CISPR25, 6.4.2.4.	Long segment of test harness is located parallel to the edge of the ground plane, facing the antenna at a distance of 100 ± 10 mm from the edge.	☒	☐	☐
CISPR25, 6.1.2.	Power supply is Artificial Network (AN) rated at 5 Ω/50 µH.	☒	☐	☐
CISPR25, 6.1.2.	EUT is: - Remotely grounded (vehicle power return line longer than 200 mm): two artificial networks are required, one for the positive supply line and one for the power return line* - ~~Locally grounded (vehicle power return line 200 mm or shorter): one artificial network is required for the positive supply*~~ **Strikethrough, as appropriate.*			
CISPR25, 6.1.2.	Case of the ESA is: - ~~Grounded, simulating actual vehicle configuration*~~ - Not grounded, simulating actual vehicle configuration* **Strikethrough, as appropriate.*	☒	☐	☐
CISPR25, 6.1.2.	AN is electrically bonded to the ground plane.	☒	☐	☐

	Antenna			
CISPR25, 6.4.2.6.	Height of the phase centre is 100 ± 10 mm above the ground plane.	☒	☐	☐
CISPR25, 6.4.2.6.	No part of any antenna radiating element is closer than 250 mm to the floor.	☒	☐	☐
CISPR25, 6.4.2.6.	Radiating elements of the measuring antenna are not closer than 1,000 mm to any absorber material, except that used on the floor, and are not closer than 2,000 mm to the walls or ceiling of the shielded enclosure.	☒	☐	☐
CISPR25, 6.4.2.6.	Phase centre (for biconical) or tip (for log-periodic) is 1,000 ± 50 mm from the harness.	☒	☐	☐
CISPR25, 6.4.2.6.	Antenna calibrated for this distance to correct measuring point (phase centre or tip).	☒	☐	☐
CISPR25, 6.4.2.6.	Phase centre of the antenna is in line with the centre of the longitudinal part of the wiring harness.	☒	☐	☐
Ann 7, Ann 8, 4.3.	Pre-test sweep supplied to show compliance throughout frequency range 30 to 1,000 MHz.	☒	☐	☐
Ann 7, Ann 8, 4.3.	Test frequencies chosen from pre-test data.	☒	☐	☐
	Narrowband Test Results			
Ann 8, 2.	Operational mode of ESA: Normal operation	☒	☐	☐
Ann 8, 4.2.	Detector used and bandwidth: Average, 120kHz	☒	☐	☐
6.6.2.	ESA meets narrowband emissions limits, with both vertical and horizontal polarisations.	☒	☐	☐
	Broadband Test Results			
Ann 7, 2.	Operational mode of ESA: Normal operation	☒	☐	☐
Ann 7, 4.2.	Detector used and bandwidth: Peak, 120kHz	☒	☐	☐
6.5.2.	ESA meets broadband emissions limits, with both vertical and horizontal polarisations.	☒	☐	☐
	Radiated Immunity			
	Test Method(s) used and Frequency Range(s)			
ISO11452-4	BCI frequency range between 20 and 400 MHz:	☒	☐	☐
ISO11452-2	Free field frequency range between 400 and 2,000 MHz:	☒	☐	☐
ISO11452-3	TEM cell frequency range between 20 and 200 MHz:	☐	☐	☒
ISO11452-5	150 mm stripline frequency range between 20 and 400 MHz:	☐	☐	☒
ISO11452-5	800 mm stripline frequency range between 20 and 2,000 MHz:	☐	☐	☒

Maximum frequency step sizes do not exceed:

Frequency Band (MHz)	Linear Steps (MHz)	Log Steps (%)	Actual Steps Used
20 - 200	5	5	5%
200 - 400	10	5	5%
400 - 1000	20	2	2%
1000 - 2000	40	2	2%

Test Arrangements (General)

Ann 9, 2.2.	Operational mode of ESA: Normal operation	☒	☐	☐
Ann 9, 2.3.	Extraneous equipment in place during calibration.	☒	☐	☐
Ann 9, 2.4.	Test equipment used is the same as for calibration.	☒	☐	☐
Ann 9, 2.5.	Loads and actuators are as realistic as possible.	☒	☐	☐
Ann 9, 2.5.	Case of ESA is: - ~~Grounded, simulating actual vehicle configuration*~~ - Not grounded, simulating actual vehicle configuration* **Strikethrough, as appropriate.*	☒	☐	☐
Ann 9, 3.1.	Test frequency range is 20 to 2,000 MHz.	☒	☐	☐
Ann 9, 3.1.	Test signal is R.F. sine wave amplitude, modulated by a 1 kHz sine wave at a modulation depth of 0.8 ± 0.04, in the 20 - 800 MHz band and pulse modulation (time on 577 µs, period 4,600 µs) in the 800 – 2,000 MHz band.	☒	☐	☐
6.8.2.1.	Pre-test sweep supplied to show compliance throughout frequency range 20 to 2,000 MHz.	☒	☐	☐
Ann 9, 3.2.	Test frequencies chosen from pre-test data.	☒	☐	☐
6.8.2.2.	No degradation of immunity related functions during the tests.	☒	☐	☐

BCI Immunity

ISO11452-4, 5.	Shielded area used: Yes	☒	☐	☐
ISO11452-4, 8.3.2.1.	Forward power used to achieve specified current.	☒	☐	☐

Installation of ESA under Test

Ann 9, 4.3.2.	Current probe located 150 ± 10 mm from ESA connectors.	☒	☐	☐
Ann 9, 4.3.2.	ESA installed: - ~~In a vehicle, as per ISO 11451-4*~~ - On a ground plane, as per ISO 11452-4* **Strikethrough, as appropriate.*	☒	☐	☐
ISO11452-4, 7.1.	Ground plane is made from at least 0.5 mm thick copper, brass or galvanised steel.	☒	☐	☐
ISO11452-4, 7.1.	Minimum width of the ground plane is 1,000 mm and the minimum length is 1,500 mm, or length of the entire underneath of equipment plus 200 mm, whichever is greater.	☒	☐	☐

ISO11452-4, 7.1.	Height of the ground plane is 900 ± 100 mm.	☒	☐	☐
ISO11452-4, 7.1.	Ground plane is bonded to the shielded enclosure, with the straps at a distance no greater than 300 mm apart.	☒	☐	☐
ISO11452-4, 7.2.	- ESA remotely grounded (vehicle power return line longer than 200 mm): two artificial networks are required, one for the positive supply line and one for the power return line)* - ~~ESA locally grounded (vehicle power return line 200 mm or shorter): one artificial network is required, for the positive supply~~* **Strikethrough, as appropriate.*			
ISO11452-4, 7.2.	Power supply is Artificial Network (AN) rated at 50 Ω/5 µH.	☒	☐	☐
ISO11452-4, 7.3.	ESA and harness supported 50 ± 5 mm above ground plane, on low relative permittivity material.	☒	☐	☐
ISO11452-4, 7.3.	Face of the ESA within 100 mm from the edge of the ground plane.	☒	☐	☐
ISO11452-4, 7.3.	Distance of at least 500 mm between ESA and any metal parts, such as the walls of the shielded enclosure (exception is ground plane).	☒	☐	☐
ISO11452-4, 7.4.	Length of test harness is 1,700 + 300 mm, unless specified.	☒	☐	☐
	BCI Test Results			
6.8.2.1.	No malfunction at 60 mA.	☒	☐	☐
	Free Field Immunity			
ISO11452-2, 8.3.1.	Test field defined by: - Forward power* - ~~Another parameter, directly related~~* **Strikethrough, as appropriate.*	☒	☐	☐
ISO11452-2, 8.3.2.	Antenna is at a distance of 1,000 ± 10 mm from the reference point.	☒	☐	☐
ISO11452-2, 8.3.2.	Reference point is 150 ± 10 mm above the ground plane.	☒	☐	☐
ISO11452-2, 8.3.2.	Reference point is 100 ± 10mm from the edge of the ground plane.	☒	☐	☐
ISO11452-2, 8.3.2.	For frequencies from 80 - 1,000 MHz, the reference point is in the centre of the harness.	☒	☐	☐
ISO11452-2, 8.3.2.	For frequencies from 1,000 - 2,000 MHz, the reference point is in line with the ESA.	☒	☐	☐
	Test Arrangements			
ISO11452-2, 7.1.	Ground plane is made from at least 0.5 mm thick copper, brass or galvanised steel.	☒	☐	☐
ISO11452-2, 7.1.	Minimum width of the ground plane is 1,000 mm and the minimum length is 2,000 mm.	☒	☐	☐
ISO11452-2, 7.1.	Height of the ground plane is 900 ± 100 mm.	☒	☐	☐

ISO11452-2, 7.1.	Bonding straps are at a distance no greater than 300 mm apart.	☒	☐	☐
ISO11452-2, 7.2.	Power supply is Artificial Network (AN) rated at 50 Ω/5 µH.	☒	☐	☐
ISO11452-2, 7.2.	- ESA remotely grounded (vehicle power return line longer than 200 mm): two artificial networks are required, one for the positive supply line and one for the power return line)* - ~~ESA locally grounded (vehicle power return line 200 mm or shorter): one artificial network is required, for the positive supply~~* **Strikethrough, as appropriate.*			
ISO11452-2, 7.3.	AN mounted directly on the ground plane and cases bonded to the ground plane.	☒	☐	☐
ISO11452-2, 7.3.	ESA and harness supported 50 ± 5 mm above table, on low relative permittivity material.	☒	☐	☐
ISO11452-2, 7.3.	Face of the ESA located 200 ± 10 mm from the edge of the ground plane.	☒	☐	☐
ISO11452-2, 7.4.	Test harness parallel to the front edge of the ground plane.	☒	☐	☐
ISO11452-2, 7.4.	Total length of harness does not exceed 2,000 mm.	☒	☐	☐
ISO11452-2, 7.4.	Actual wiring harness length: N/A m or	☐	☐	☒
	Length is 1,500 ± 75 mm between ECU and AN.	☒	☐	☐
ISO11452-2, 7.4.	Harness is at a distance of 100 ± 10 mm from the edge of the ground plane.	☒	☐	☐
ISO11452-2, Fig 1	Front face of ESA is at least 1.0 m from all other conductive structures.	☒	☐	☐
ISO11452-2, Fig 1	ESA harness is at least 2.0 m forward from the chamber wall.	☒	☐	☐
	Antenna Type(s) and Frequency Range(s)			
Ann 9, 4.1.2.	Antenna is vertically polarised.	☒	☐	☐
ISO11452-2, 7.6.	Antenna is in the same position as the calibration.	☒	☐	☐
ISO11452-2, 7.6.	Phase centre is 100 ± 10 mm above the ground plane.	☒	☐	☐
ISO11452-2, 7.6.	Antenna elements are no closer than 250 mm to the floor of the facility, no closer than 0.5 m to any radio absorbent material, and no closer than 1.5 m to the wall of the facility.	☒	☐	☐
ISO11452-2, 7.6.	Distance between wiring harness and antenna is 1,000 mm ± 10 mm, measured from the phase-centre of the biconical antenna, or the nearest part of the log-periodic and horn antennas.	☒	☐	☐
Ann 9, 3.1.	Test signal modulation is: - AM, 1 kHz modulation, 80 % depth in 20 - 800 MHz frequency range; - PM, ton 577 μs, period 4,600 μs in 800 - 2,000 MHz frequency range.	☒	☐	☐
	Free Field Immunity Test Results			
6.8.2.	No malfunction at 30 V/m.	☒	☐	☐
	150 mm Stripline Immunity			
ISO11452-5, 5.3.1.	Stripline housed in a shielded room.	☐	☐	☒

ISO11452-5, 6.2.2.	Test field defined by: - Forward power* - Another parameter, directly related* **Strikethrough, as appropriate.*	☐	☐	☒
ISO11452-5, 6.2.3.	Field probe in the centre of stripline.			
	Installation of ESA under Test			
ISO11452-5, 5.3.1.	ESA is 200 + 20 - 0 mm from the edge of the active conductor.	☐	☐	☒
ISO11452-5, 5.3.1.	Peripherals are a minimum of 200 mm from the edge of the active conductor.	☐	☐	☒
ISO11452-5, 5.3.1.	Harness supported 50 mm above the ground plane and is placed in the centre of the stripline.	☐	☐	☒
ISO11452-5, 5.3.1.	Actual wiring harness length: N/A m or Minimum length under stripline is 1,000 mm.	☐ ☐	☐ ☐	☒ ☒
ISO11452-5, 5.3.1.	All wires in the harness are terminated or open, according to the vehicle application.	☐	☐	☒
ISO11452-5, 5.3.1.	Device and peripherals connected to the ground plane, as specified by the vehicle installation.	☐	☐	☒
ISO11452-5, 5.3.1.	Power supply is Artificial Network (AN) rated at 50 Ω/5 µH.	☐	☐	☒
ISO11452-5, 5.3.1.	- ESA remotely grounded (vehicle power return line longer than 200 mm): two artificial networks are required, one for the positive supply line and one for the power return line)* - ~~ESA locally grounded (vehicle power return line 200 mm or shorter): one artificial network is required, for the positive supply*~~ **Strikethrough, as appropriate.*			
	150 mm Stripline Test Results			
6.8.2.	No malfunction at 60 V/m.	☐	☐	☒
	800 mm Stripline Immunity			
Ann 9, 4.5.2.1.	Stripline housed in a screened room.	☐	☐	☒
Ann 9, 4.5.2.1.	Stripline positioned a minimum of 2,000 mm from the walls or metallic enclosure.	☐	☐	☒
Ann 9, 4.5.2.1.	Stripline placed on non-conducting supports at least 400 mm above the floor.	☐	☐	☒
Ann 9, 4.5.2.2.	Field probe positioned within the central one-third of the longitudinal, vertical and transverse dimensions of the space between the parallel plates, with the system under test absent.	☐	☐	☒
Ann 9, 4.5.2.2.	Test field defined by: - Forward power* - Another parameter, directly related* **Strikethrough, as appropriate.*	☐	☐	☒

Installation of ESA under Test

Ann 9, 4.5.2.3.	ESA is within the central one-third of the stripline.	☐	☐	☒
Ann 9, 4.5.2.3.	ESA is supported on non-conducting material.	☐	☐	☒
Ann 9, 4.5.2.4.	Wiring loom is arranged as per Appendix 1, Figure 3.	☐	☐	☒
Ann 9, 4.5.2.4.	Associated equipment is a minimum of 1,000 mm from stripline.	☐	☐	☒

800 mm Stripline Test Results

Frequency Suggested (MHz)	Frequency (MHz)	Forward Power		Output Level		Field Strength (V/m)
		Cal. (w)	Test (w)	Cal. (dBm)	Test (dBm)	
N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A	N/A

6.8.2.	No malfunction at 15 V/m.	☐	☐	☒

Transient Testing

	Case of ESA is: - ~~Grounded, simulating actual vehicle configuration*~~ - Not grounded, simulating actual vehicle configuration* **Strikethrough, as appropriate.*	☒	☐	☐

Transient Immunity

6.9.1.	Test set up according to ISO 7637-2 (second edition 2004 and Amd.1:2008).	☒	☐	☐
Ann 10, 2.	Supply lines and other lines, which may be connected to supply lines, are tested.	☒	☐	☐
	Test voltage and time parameters are within allowed envelopes.	☒	☐	☐
	Test pulses and duration according to the following:	☒	☐	☐

Test Pulse	Immunity Test Level	Functional Status for Systems		Test Duration
		Related to Immunity-related Functions	Not Related to Immunity-related Functions	
1	III	C	D	5000 pulses
2a	III	B	D	5000 pulses
2b	III	C	D	10 pulses
3a	III	A	D	1 hour
3b	III	A	D	1 hour
4	III	B *(for ESA, which must be operational during engine start, or C, for other ESA)*	D	1 pulse

	ESA operational after the tests, according to the above classification.	☒	☐	☐

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Emission of Conducted Disturbances

6.9.1.	Test set up according to ISO 7637-2.	☒	☐	☐
Ann 10, 3.	Supply lines and other lines, which may be connected to supply lines, are tested.	☒	☐	☐
	Slow pulses and fast pulses tested on both powering up and powering down.	☒	☐	☐

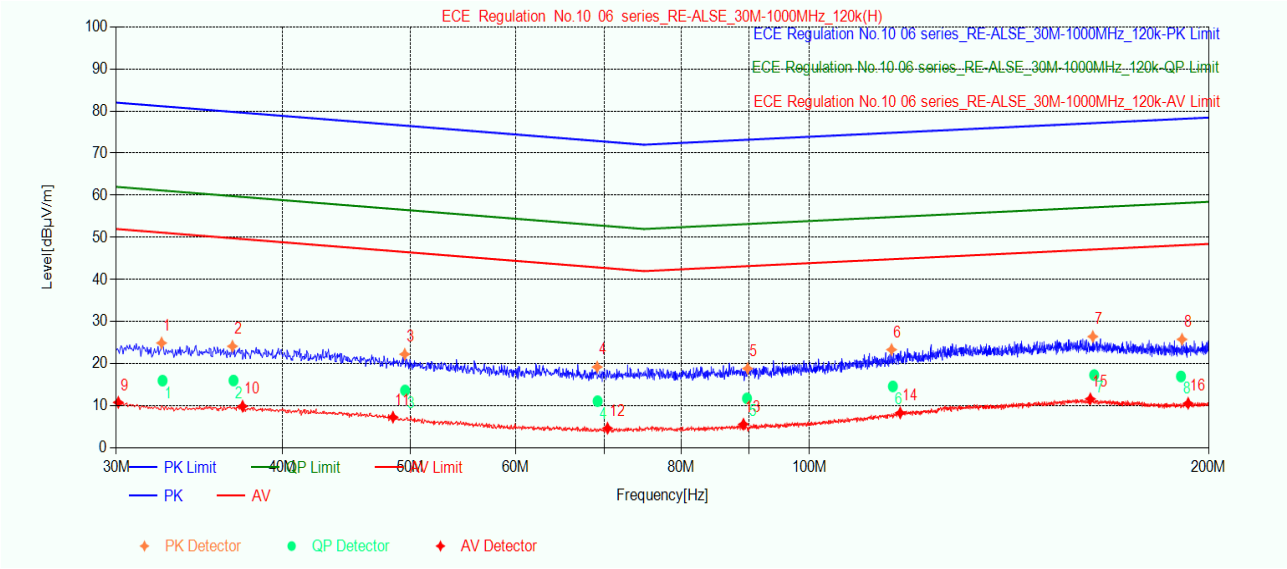
Polarity of Pulse Amplitude	Maximum Allowed Pulse Amplitude	
	Vehicles with 12 V systems	Vehicles with 24 V system
Positive	+ 75 V	+ 150 V
Negative	- 100 V	- 450 V

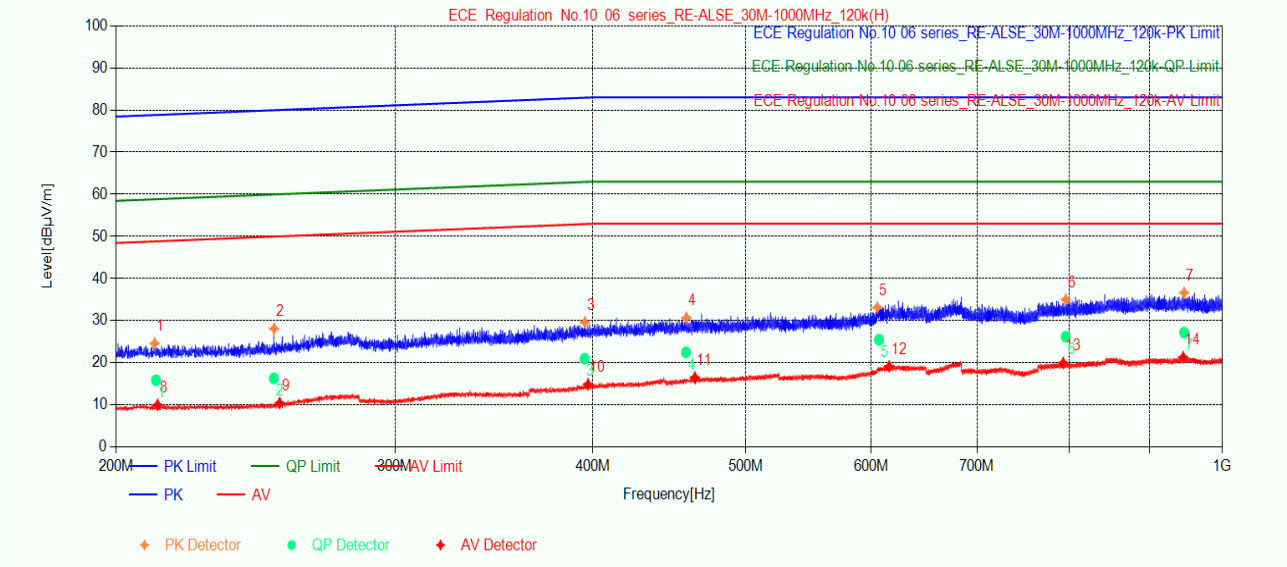
APPENDIX 4 – TEST RESULTS

APPENDIX 4.1 Radiated Emissions

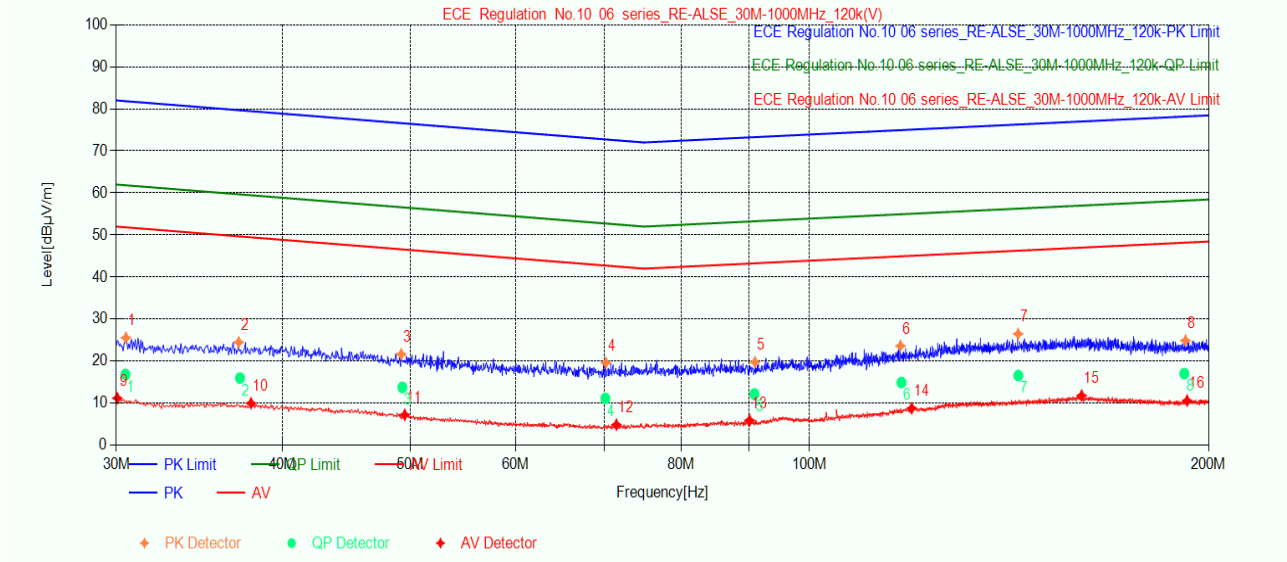
Vehicles with 24V systems

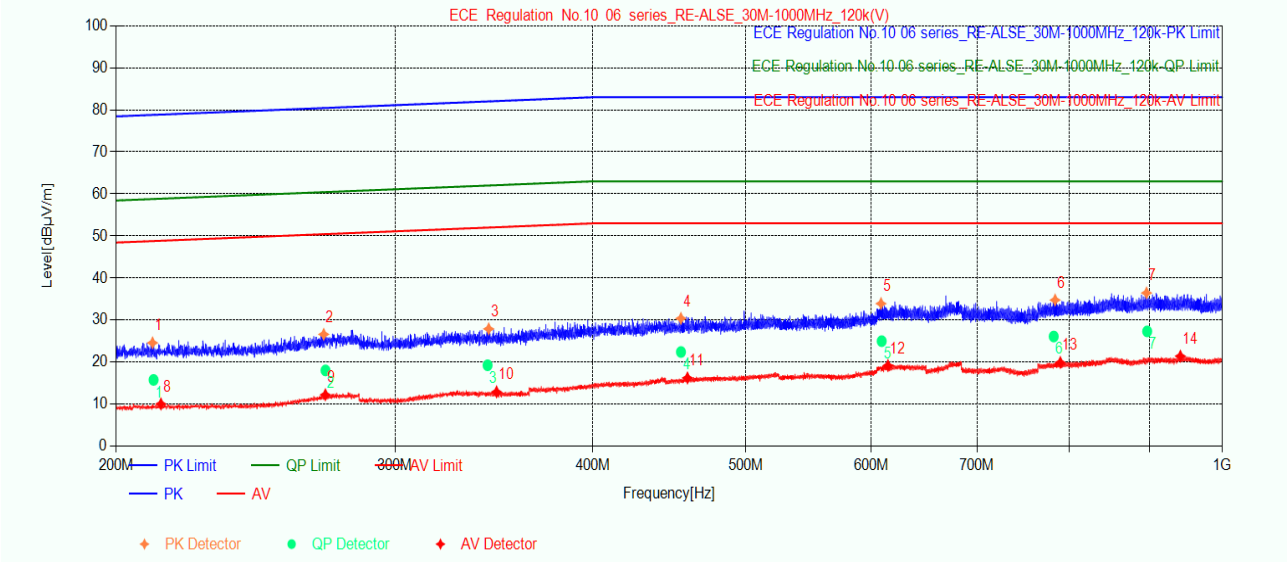
Horizontal Polarisation
30MHz to 1GHz





Vertical Polarisation
30MHz to 1GHz





APPENDIX 4.2 Radiated Immunity

Frequency (MHz)	Level (V/m)	Modulation	Polarity	Accept Status	Test Result	
					Vehicles with 12V systems	Vehicles with 24V systems
400-800	30	AM (1kHz,80%)	V	I	N/A	A
800-1000	30	PM	V	I	N/A	A
1000-2000	30	PM	V	I	N/A	A

APPENDIX 4.3 BCI Immunity

Frequency (MHz)	Level (mA)	Modulation	Injection place	Test Result	
				Vehicles with 12V systems	Vehicles with 24V systems
20-400	60	AM (1kHz,80%)	150mm	N/A	A

APPENDIX 4.4 Transient Immunity

Test Pulse	Immunity Test Level	Functional Status for Systems		Test results	
		Related to Immunity-related Functions	~~Not Related to Immunity-related Functions~~	Vehicles with 12V systems	Vehicles with 24V systems
1	III	C	~~D~~	N/A	C
2a	III	B	~~D~~	N/A	A
2b	III	C	~~D~~	N/A	C
3a	III	A	~~D~~	N/A	A
3b	III	A	~~D~~	N/A	A
4	III	C	~~D~~	N/A	C

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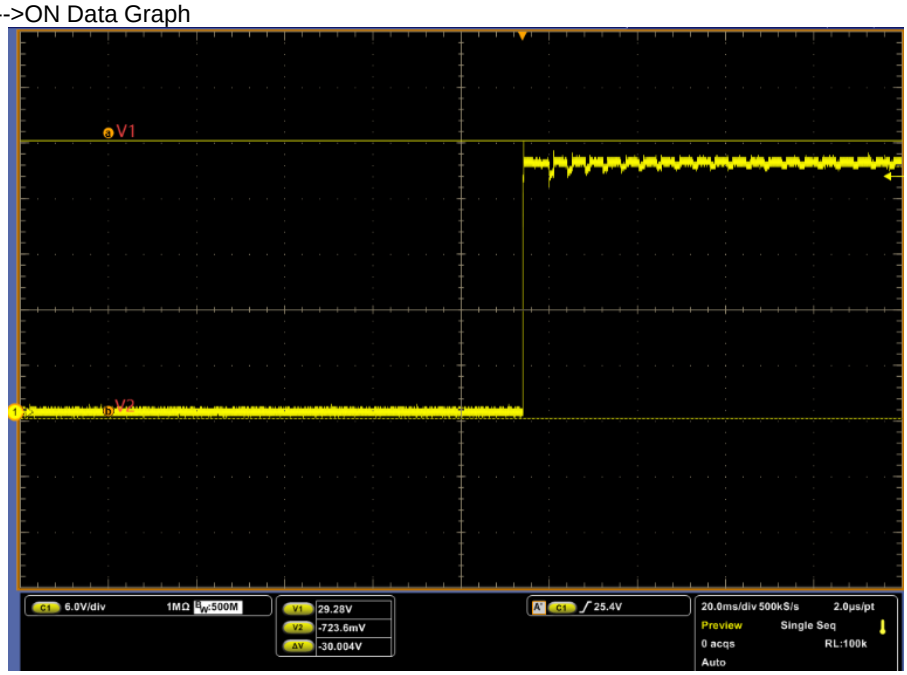
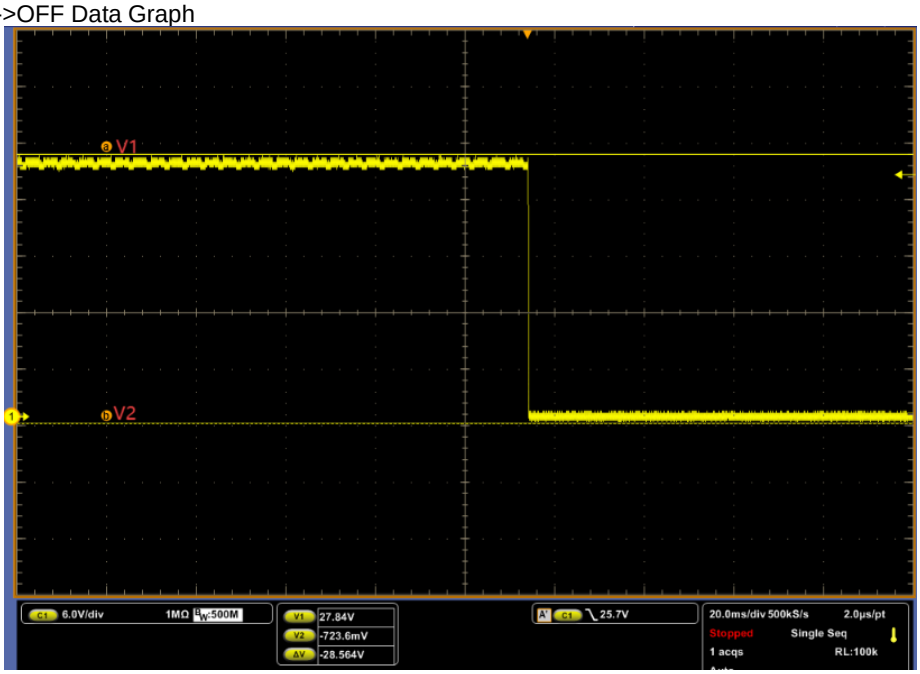
APPENDIX 4.5 Emission of Conducted Disturbances

Vehicles with 24 V systems

Slow Pulse: OFF-->ON Data Graph



Slow Pulse: ON-->OFF Data Graph



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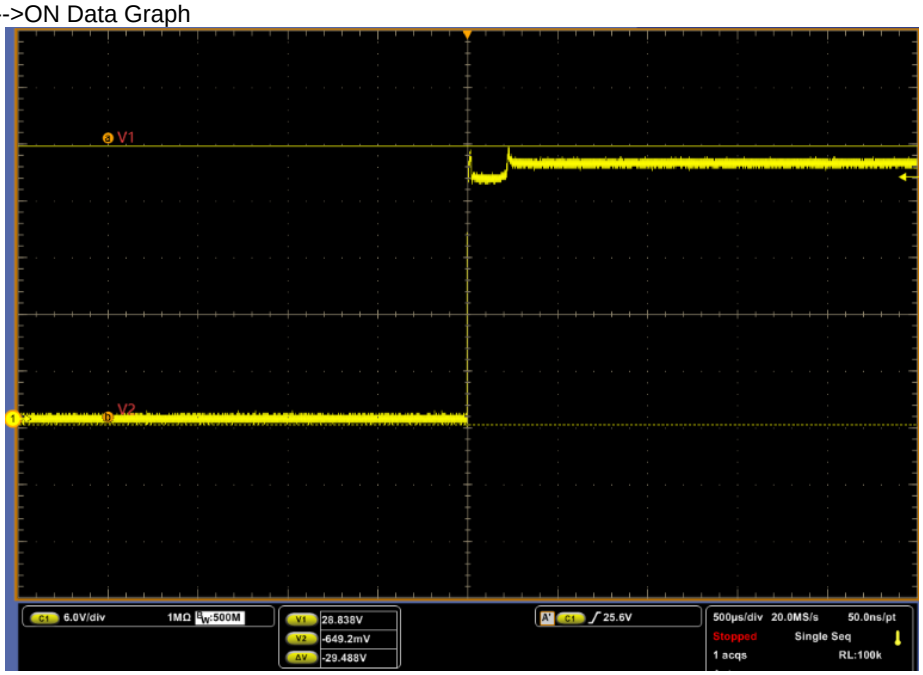
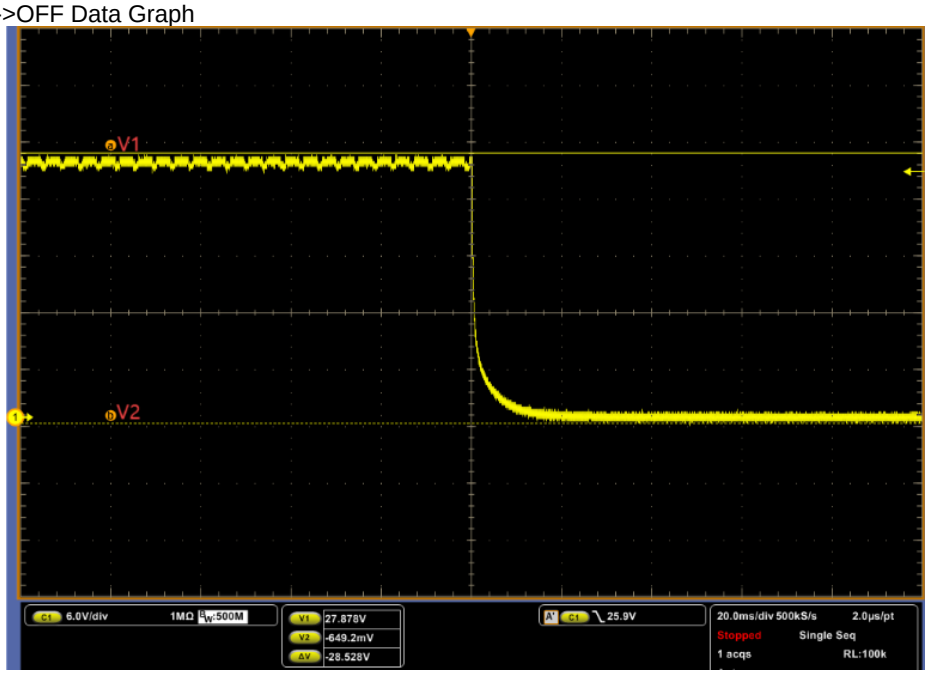
Fast Pulse: OFF-->ON Data Graph



Fast Pulse: ON-->OFF Data Graph



Remarks

None

Note: CETOC TS apply measurement uncertainty to calibrated items but not test results.

Information document no. 48.347EK-A-00 relating to type-approval of an electronic subassembly with respect to electromagnetic compatibility (ECE Regulation 10.06 to Supplement 3)

Type	:	48.347EK-A
Manufacturer	:	Nanjing Deutec Industry Co., Ltd
Date	:	25/04/2025

INDEX

GENERAL

1. Make (trade name of manufacturer):

DEUTECMFG®

2. Type: **48.347EK-A**
Variants: 48.347EK-A, 48.347EK-B, 48.347EK-C, 48.347EK-D, 48.347EK-E, 48.347EK-F, 48.347EK-G, 48.347EK-H
Above variants have the same electronic circuit design and the same component list for each PCB, the difference among them are the appearance of plug and the socket.
General commercial description(s):
Towing Voltage Adaptor

3. Means of identification of type, if marked on the component:
Approval mark

3.1 Location of that marking:
Stuck on the enclosure, See Drawings of the ESA

4. Name and address of manufacturer:
Nanjing Deutec Industry Co., Ltd
ZTE R&D Building-2#, Room 601/602, No.90 Huashen Avenue, Yuhuatai District, Nanjing City, Jiangsu Province, China.

Name and address of authorised representative, if any:**N/A**

5. In the case of components and separate technical units, location and method of affixing of the approval mark:
Stuck on the enclosure, See Drawings of the ESA.

6. Address(es) of assembly plant(s):
Nanjing Deutec Industry Co., Ltd
No.90 Huashen Avenue, Yuhuatai District, Nanjing City, Jiangsu Province, China.

7. This ESA shall be approved as a component.

8. Any restrictions of use and conditions for fitting:
N/A

9. Electrical system rated voltage:
DC 24V, negative ground.

Appendix 1: Description of the ESA chosen to represent the type (electronic block diagram and list of main component constituting the ESA (e.g. make and type of microprocessor, crystal, etc.).
See electronic block diagram and list of main component constituting the ESA for details.

Appendix 2: Relevant test report(s) supplied by the manufacturer from a test laboratory accredited to ISO 17025 and recognized by the Type Approval Authority for the purpose of drawing up the type approval certificate.
N/A

Only applicable for charging systems: **N/A**

10. Charger:
N/A

11. Charging current:
N/A

12. Maximal nominal current (in each mode if necessary) :
N/A

13. Nominal charging voltage:
N/A

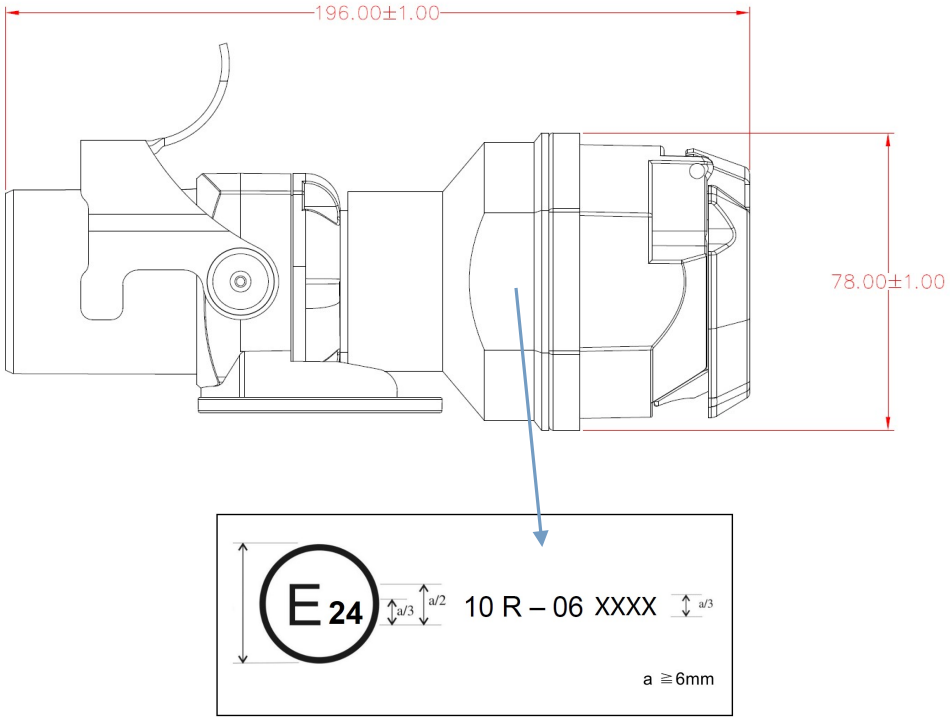
14. Basic ESA interface functions:
N/A

15. Minimum R_{sce} value (see paragraph 7.11. of this Regulation):
N/A

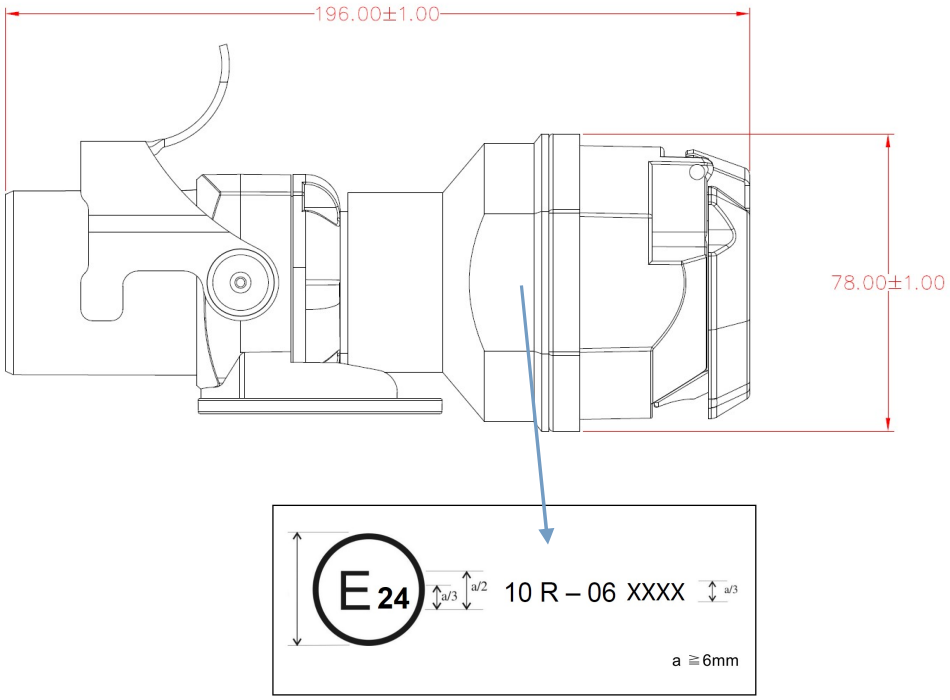
Drawings of the ESA

Location of the ECE approval mark
Unit: mm

48.347EK-A



48.347EK-B



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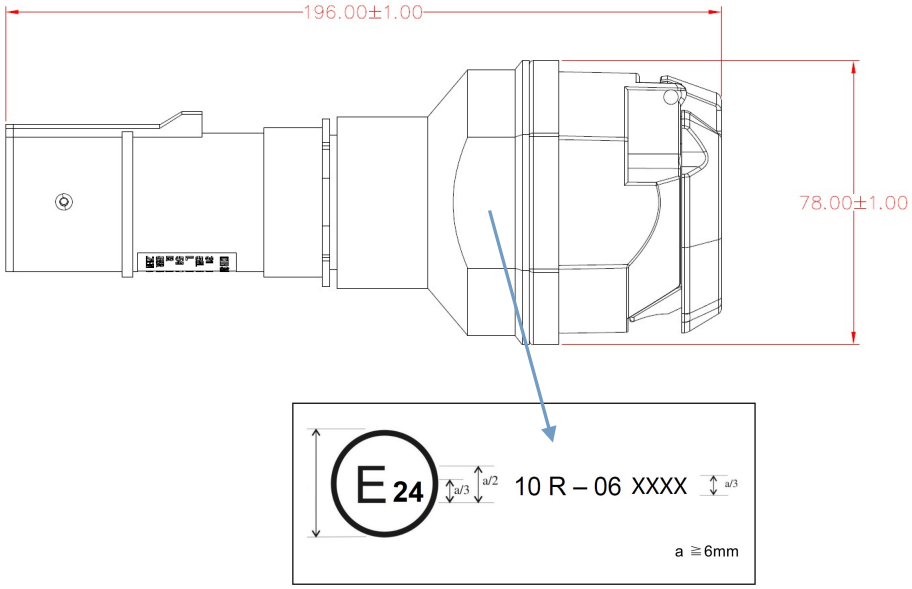

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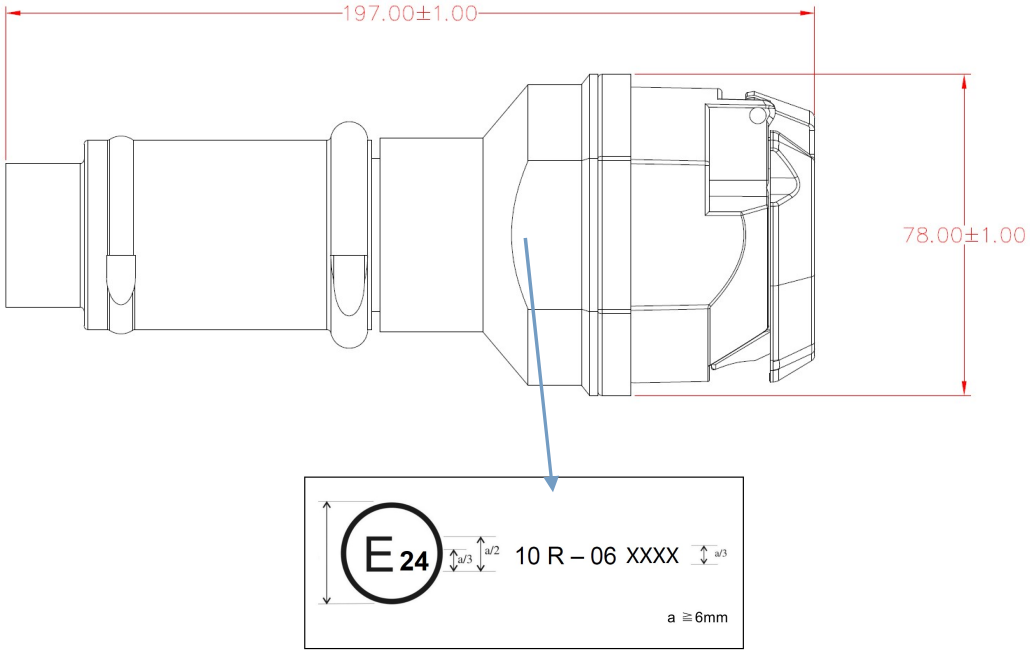

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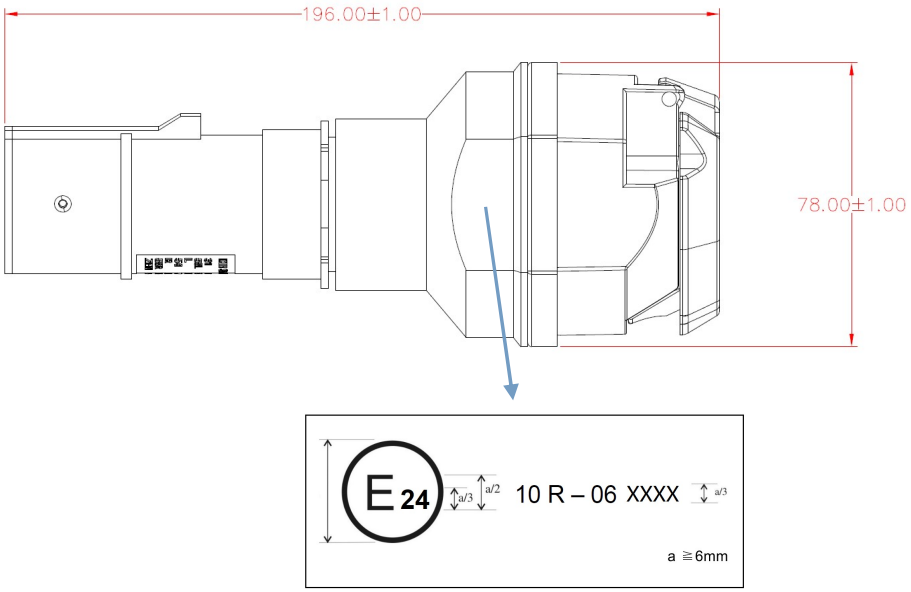

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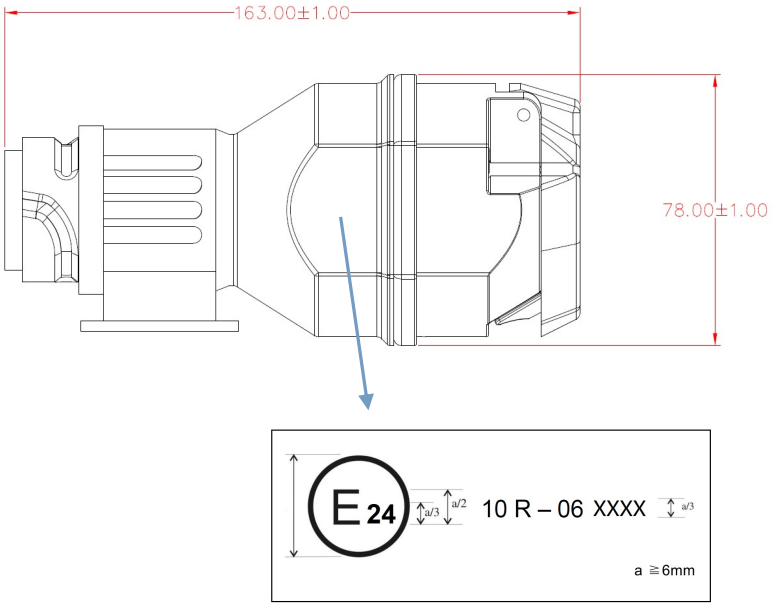

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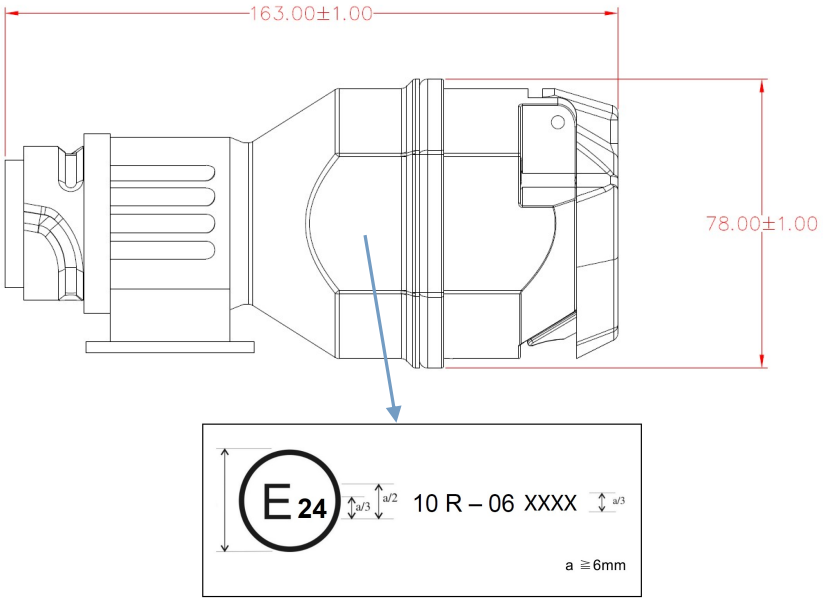

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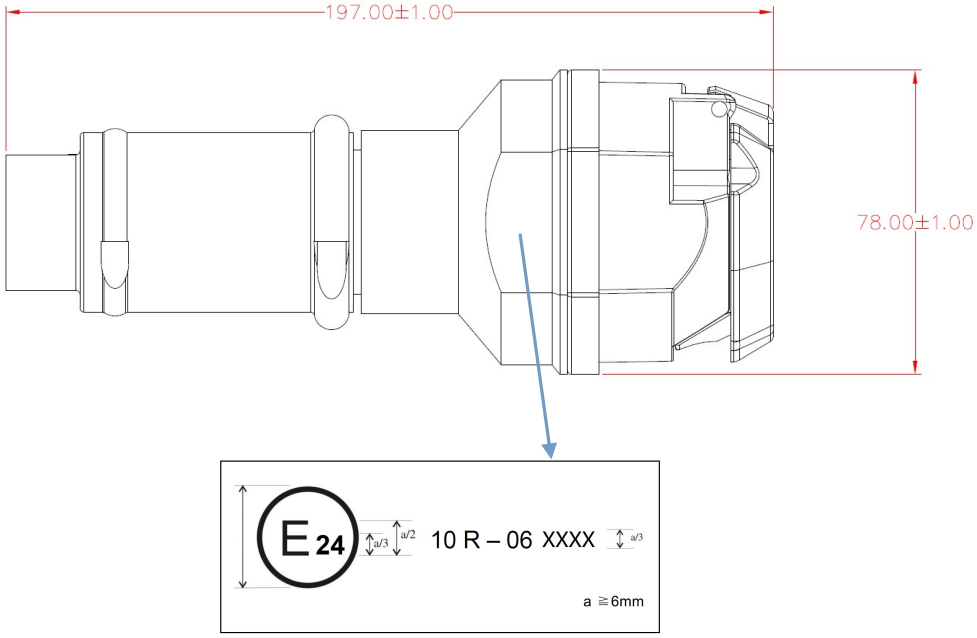
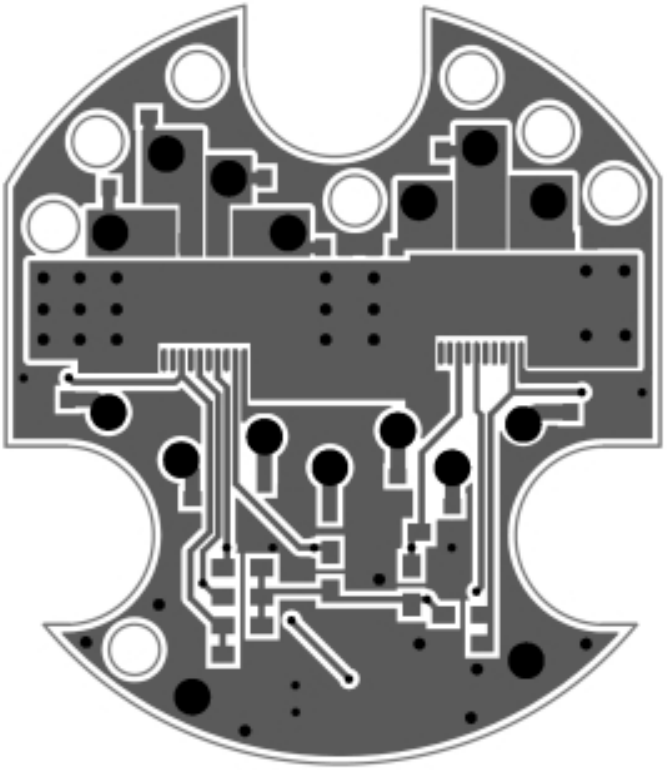
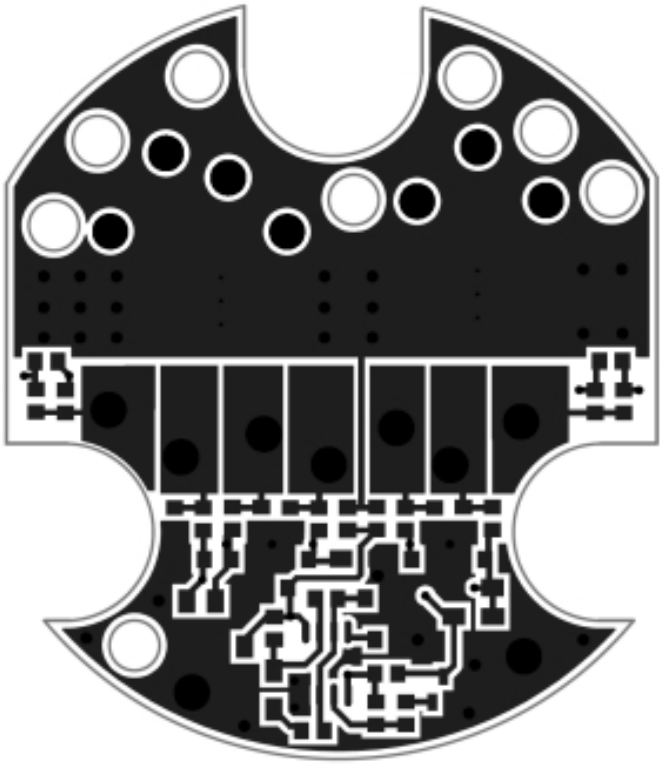


Electronic Block Diagram





List of main component constituting the ESA

Name	Specification	Qty.
High Side Driver	VNQ5050K	2
Power Diode	MSR2040/2060	4
Zener Diode	ZMM5232	8
Fast Switching Diode	LL4148	8
Single Timer	NE555	1
Transistor	S8050	1
TVS Diode	SMF33A	1