Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Prüfbericht / *Test Report*

Gemäß Richtlinie des Europäischen Parlamentes und des Rates über
According to the Directive of the European Parliament and of the Council relating to

Die Prüfung einer elektrischen/elektronischen Unterbaugruppe (EUB) hinsichtlich der von Fahrzeugen verursachten Funkstörungen (elektromagnetische Verträglichkeit)

The testing of an electrical/electronic sub-assembly (ESA) relating to the radio interferences of vehicles (electromagnetic compatibility)

ECE-R 10 vom / *of* **01.04.1969**

zuletzt geändert durch / *as last amended by*

Revision 5 vom / *of* **16.10.2014**

Genehmigungsstand / *approval status*		
☐	Erteilung einer Typgenehmigung *Granting of a type approval*	
☒	Erweiterung zur Typgenehmigung Nr. *Extension to type approval no. …*	**12558**
☐	Änderung zur Typgenehmigung Nr. ..... *Correction to type approval no. …*	

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Test report no. : 1-9847/15-01-02
Type identification : Cellocator
Test specification : ECE-R10

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

0 Allgemeine Angaben / *General*

0.1	Fabrikmarke / *Make*	:	Pointer Telocation Ltd.
0.2	Typ / *type*	:	Cellocator
0.2.1	ggf. Ausführungsformen *Versions, if applicable*	:	CT7700200-000 Cello-F CT7700210-000 Cello-R CT7700205-000 Cello-F CT7700215-000 Cello-R CC7700300-000 Cello-F CC7700310-000 Cello-R CT7701000-000 CR200 CT7701100-000 CR200B CT7700226-000 Cello-IQ 40 CT7700225-000 Cello-IQ 50 CT7800130-000 Cello-CANiQ CT7800140-000 Cello-CANiQ (3G) CT7800150-000 Cello-CANiQ (3G) CT7800122-000 Cello-IQ CT7801010-000 CR300 CT7801110-000 CR300B CT7801011-000 CR300 CT7801111-000 CR300B CT7801100-000 CR300E **CT7801200-000 CR300B 3G NA** **CT7801201-000 CR300B 2G** **CT7801202-000 CR300B 3G EU** **CT7801203-000 CR300 3G NA** **CT7801205-000 CR300B 2G** **CT7801206-000 CR300B 3G EU** **CT7801210-000 CR300B 3G NA** **CT7801211-000 CR300B 2G** **CT7801212-000 CR300B 3G**
0.3	Merkmal zur Typidentifizierung *Means of identification of type*	:	Selbstklebender Aufkleber mit der Typenbezeichnung *Self-adhesive label with the type designation*
0.3.1	Anbringungsstelle des Merkmals *Location of that marking*	:	**auf der Gehäuseoberseite** ***on the top side of the housing***
0.5	Name und Anschrift des Herstellers *Name and address of the manufacturer*	:	Pointer Telocation Ltd. 14 Ha°Melacha Street, Park Afek Rosh Ha°ayin, 48091 ISRAEL

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

0.5.1	ggf. Name und Anschrift des bevollmächtigten Vertreters *Name and address of representative, if applicable*	: N/A
0.7	Lage und Anbringungsart des EG-Genehmigungszeichens *Location and method of affixing of the EC approval mark*	: **Selbstklebender Aufkleber mit der Typenbezeichnung auf der Geräteoberseite** ***Self-adhesive label with the type designation on the top side of the housing***
0.8	Name und Anschrift der Fertigungsstätte(n) *Name and address of the assembly plant(s)*	: Pointer Telocation Ltd. 14 Ha°Melacha Street, Park Afek Rosh Ha°ayin, 48091 ISRAEL
0.9	Beschreibungsbogen *Information document*	
	No / *No*	: Cellocator
	Ausgabedatum / *Date of issue*	: 27.11.2011
	Letztes Änderungsdatum/-stand *Date/State of last change*	: 08.11.2015 Version 4.0

1 Prüfobjekt(e) / *Test object(s):*

1.1	Repräsentative EUB *Representative ESA*	: ja/~~nein~~ *yes/~~no~~*

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

ESA-1: CT7801201-000 CR300B 2G
S/N: 1211604
HW: October 2015

ESA-2: CT7801202-000 CR300B 3G EU
S/N: 1215049
HW: October 2015

Power supply: 12 V DC and 24 V DC

ESA with immunity related functions: ESA-1 and ESA-2
☒ yes ☐ no
Dallas Key

1.2	Beschreibung der EUB *Description of the ESA*	: Beschreibung der EUB siehe Herstellerdokumente *Description of the ESA see manufacturer documentation*
1.3	Bemerkungen *Remarks*	: Emission tests were measured always with the 2G and 3G EU version Immunity test were carried out only at the maximum version CR300B 3G EU

2 Prüfprotokoll / *Test record*

2.1	Ort der Prüfung / *Place of test*	: Saarbrücken, Germany
2.2	Datum der Prüfung / *Date of test*	: 19.-20.10.2015
2.3	Mess- und Prüfeinrichtungen *Equipment for measuring and testing*	: Die Prüfungen wurden auf Anlagen durchgeführt, die den Anforderungen der Richtlinie entsprechen. *The equipment, on which the tests were carried out, fulfilled the requirements of the Directive.*
2.4	Angaben zur Prüfung / *Details of test*	: **All test result of previous variants in the test report 4-3622/13-01-01 issued 13.06.2014 are still valid** During all tests the devices were set into maximum operating mode. ESA 1 were tested with 12 V DC in live GSM mode connected to a server. ESA 2 were tested with 24 V DC connected to test GSM network. During EMS tests changing of Dallas-key and GPS were monitored.

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Folgende Prüfungen wurden durchgeführt / *The following tests were executed*:

- Messungen von gestrahlten breitbandigen elektromagnetischen Störungen aus elektrischen/elektronischen Unterbaugruppen gemäß Anhang 7 der Richtlinie.
  Measurement of radiated broadband electromagnetic emissions from electrical/electronic subassemblies according to annex 7 of the Directive.

- Messungen von gestrahlten schmalbandigen elektromagnetischen Störungen aus elektrischen/ elektronischen Unterbaugruppen gemäß Anhang 8 der Richtlinie.
  Measurement of radiated narrowband electromagnetic emissions from electrical/electronic subassemblies according to annex 8 of the Directive.

- Prüfung der Störfestigkeit gegenüber eingestrahlten elektromagnetischen Feldern von elektrischen/ elektronischen Unterbaugruppen gemäß Anhang 9 der Richtlinie
  Testing for immunity against electromagnetic radiation of electrical/electronic subassemblies according to annex 9 of the Directive

- Prüfung der leitungsgeführten Störaussendungen an den Versorgungsleitungen von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie.
  Testing for emission of conducted disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.

- Prüfung der Störfestigkeit gegen leitungsgeführte Störungen, die von den Versorgungsleitungen übertragen werden, von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie.
  Testing for immunity against disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.

2.4.1 Messung von gestrahlten breitbandigen elektromagnetischen Störungen
Measurement of radiated broadband electromagnetic emissions:

2.4.1.1	Messverfahren *Measurement procedure*	: CISPR 25, 2nd Ed. 2002 + Cor. 2004 Quasi Peak – Detektor *Quasi Peak - Detector*
2.4.1.2	Messaufbau / *Measurement setup*	: mit Absorbermaterial ausgestatteter abgeschirmter Raum *with absorber equipped shielded chamber*
2.4.1.3	Messergebnisse *Measurement results*	: **Messungen bestanden / *Measurements passed.*** Siehe Anlage E / *see annex E*
2.4.1.4	Fotodokumentation des Messaufbaus *Photo documentation of the measurement setup*	: Siehe Anlage E / *see annex E*
2.4.1.5	Bemerkungen / *Remarks*	: Die Messungen für gestrahlte breitbandige sowie schmalbandige elektromagnetische Störungen werden in Anhang E zusammen in einem Diagramm dargestellt. *The Measurements for radiated broadband as well as narrowband electromagnetic distortions were in annex E described together in one diagram.*

2.4.2 Messung von gestrahlten schmalbandigen elektromagnetischen Störungen
Measurement of radiated narrowband electromagnetic emissions:

2.4.2.1	Messverfahren *Measurement procedure*	: CISPR 25, 2nd Ed. 2002 + Cor. 2004 Mittelwertdetektor *Avarage Detector*
2.4.2.2	Messaufbau / *Measurement setup*	: mit absorbermaterial ausgestatteter abgeschirmter Raum *with absorber equipped shielded chamber*
2.4.2.3	Messergebnisse *Measurement results*	: **Messungen bestanden / *Measurements passed.*** Siehe Anlage E / *see annex E*
2.4.2.4	Fotodokumentation des Messaufbaus *Photo documentation of the measurement setup*	: Siehe Anlage E / *see annex E*
2.4.2.5	Bemerkungen / *Remarks*	: Die Messungen für gestrahlte breitbandige sowie schmalbandige elektromagnetische Störungen werden in Anhang E zusammen in einem Diagramm dargestellt *The Measurements for radiated broadband as well as narrowband electromagnetic distortions were in annex E described together in one diagram.*

2.4.3 Prüfung der Störfestigkeit gegenüber eingestrahlten elektromagnetischen Feldern
Testing of the immunity to electromagnetic radiation:

2.4.3.1	Prüfverfahren / *Test procedure*	: ISO 11452-1, 3rd Ed 2005 + Amd 1: 2008 (General Description) ISO 11452-2, 2nd Ed 2004 (ALSE) ISO 11452-4, 3rd Ed 2005 + Cor 1: 2009 (BCI)
2.4.3.2	Prüfaufbau / *Test setup*	: 20 – 200 MHz; **60 mA**; AM 1 kHz 80% (BCI) 200 – 800 MHz; **30 V/m**; AM1 kHz 80 % (LogPer Ant.) 800 – 1000 MHz; **30 V/m**; PM 217 Hz, 577 µs (LogPer Ant.) 800 – 2000 MHz; **30 V/m**; PM 217 Hz, 577 µs (Horn Ant.)
2.4.3.3	Prüfergebnisse / *Test results*	: **Messungen bestanden / *Tests passed*** Siehe Anlage I / *see annex I*
2.4.3.4	Fotodokumentation des Prüfaufbaus *Photo documentation of the test setup*	: Siehe Anlage I / *see annex I*
2.4.3.5	Bemerkungen / *Remarks*	:

2.4.4 Prüfung der Störfestigkeit gegen leitungsgeführte Störungen, die von den Versorgungsleitungen übertragen werden
Testing for immunity against disturbances along supply lines

2.4.4.1	Prüfergebnisse / *Test results*	: **Prüfung bestanden / *Test passed*** Siehe Anlage P1 / *see annex P1*
2.4.4.2	Fotodokumentation des Prüfaufbaus *Photo documentation of the test setup*	: Siehe Anlage P1 / *see annex P1*
2.4.4.3	Bemerkungen / *Remarks*	:

2.4.5 Prüfung der leitungsgeführten Störaussendungen an den Versorgungsleitungen
Testing for emission of conducted disturbances along supply lines

2.4.5.1	Messergebnisse *Measurement results*	: **Prüfung bestanden / *Test passed*** Siehe Anlage P2 / *see annex P2*
2.4.5.2	Fotodokumentation des Prüfaufbaus *Photo documentation of the measurement setup*	: Siehe Anlage P2 / *see annex P2*
2.4.5.3	Bemerkungen / *Remarks*	:

3 Anlagen / *appendix:*

A	: Liste der Änderungen *List of modifications*
E	: Messungen von gestrahlten breitbandigen und schmalbandigen elektromagnetischen Störungen aus elektrischen/ elektronischen Unterbaugruppen gemäß Anhang 7 und 8 der Richtlinie. *Measurement of radiated broadband and narrowband electromagnetic emissions from electrical/electronic subassemblies according to annex 7 and 8 of the Directive.*
I	: Prüfung der Störfestigkeit von elektrischen/ elektronischen Unterbaugruppen gegenüber eingestrahlten elektromagnetischen Feldern gemäß Anhang 9 der Richtlinie *Testing for immunity of electrical/electronic subassemblies to electromagnetic radiation according to annex 9 of the Directive*
P1	: Prüfung der Störfestigkeit gegen leitungsgeführte Störungen, die von den Versorgungsleitungen übertragen werden, von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie. *Testing for immunity against disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.*
P2	: Prüfung der leitungsgeführten Störaussendungen an den Versorgungsleitungen von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie. *Testing for emission of conducted disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.*
Q	: Fotodokumentation der EUB *Photo documentation of the ESA*
T	: Prüfmittel *Test equipment*
W	: Beschreibungsbogen *Information document*
Y	: Beschreibungsmappe Information folder

4 Schlussbescheinigung / *Statement of conformity:*

Der unter Nr. 0.9 angegebene Beschreibungsbogen und der darin beschriebene Typ
- e n t s p r e c h e n - der o. a. Prüfgrundlage. Die Prüfungen wurden entsprechend den relevanten Anforderungen der DIN EN ISO/IEC 17025:2005 durchgeführt.
The information document as mentioned under No. 0.9 and the type described therein are
- i n c o m p l i a n c e - with the test specification mentioned above. The tests were carried out according the relevant requirements of DIN EN ISO/IEC 17025:2005

Die verwendeten Prüfmuster waren im Hinblick auf das erforderliche Leistungsniveau für den zu genehmigenden Typ repräsentativ (siehe Ziffer 1.1).
With regard to the required level of performance to be achieved, the tested items were representative for the type to be approved (see paragraph 1.1) .

Dieser Prüfbericht - e n t s p r i c h t - dem Revisionsstand Nr. 01 der Vorgaben des Kraftfahrt-Bundesamtes für die Erstellung von Prüfberichten für dieses Genehmigungsobjekt.
This Test Report is - i n c o m p l i a n c e - with revision 01 of the guidelines issued by the Kraftfahrt-Bundesamt for this kind of products subject to approval.

Dieser Prüfbericht umfasst die Seiten 1 bis 8.
Eine auszugsweise Vervielfältigung und Veröffentlichung des Prüfberichtes ist nur nach schriftlicher Genehmigung des Prüflaboratoriums zulässig.
This report includes pages 1 to 8.
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PRÜFLABORATORIUM / *TEST LABORATORY*

anerkannt vom Kraftfahrt-Bundesamt,
Bundesrepublik Deutschland

accepted by the Kraftfahrt-Bundesamt,
Federal Republic of Germany

E13*10R00*10R05*12558*03
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Accréditation N° 5/001 (Portée communiquée sur demande)

Ort: Saarbrücken 30.11.2015

Projektnummer: 1-9847/15-1-2

Laborverantwortlicher
Technical Responsibility for Area of Testing

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Prüfer
Test Operator

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DIN EN ISO/IEC 17025 CETECOM Technischer Dienst CETECOM ICT Services Untertürkheimer Str. 6-10 DE-66117 Saarbrücken KBA-P 00070-97

Michael Schnedler

Typ / *Type*	:	**Cellocator**
Hersteller / *Manufacturer*	:	**Pointer Telocation Ltd.**

Liste der Änderungen
List of modifications

Anlage
Appendix A

Einzelheiten zum Antrag vom :
More details for application of

Datum / *Date*: Nov. 2015

Es wird berichtigt / *Correction of* : ---

Es wird geändert / *Modification of* : Update to ECE-R 10 Rev.05

Position of the label from bottom side to top side.

Es wird hinzugefügt / *Addition of* :

CT7801200-000	CR300B 3G NA
CT7801201-000	CR300B 2G
CT7801202-000	CR300B 3G EU
CT7801203-000	CR300 3G NA
CT7801205-000	CR300B 2G
CT7801206-000	CR300B 3G EU
CT7801210-000	CR300B 3G NA
CT7801211-000	CR300B 2G
CT7801212-000	CR300B 3G EU

Es entfällt / *Deletion of* : ---

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Messungen von gestrahlten breitbandigen und schmalbandigen elektromagnetischen Störungen aus elektrischen/ elektronischen Unterbaugruppen gemäß Anhang 7 und 8 der Richtlinie
Measurement of radiated broadband and narrowband electromagnetic emissions from electrical/electronic subassemblies according annex 7 and 8 of the Directive.

Anlage
Appendix ***E***

Prüfverfahren
Test procedure : CISPR 25, 2nd Ed. 2002 + Cor. 2004

Es wird eine Messung mit einem Messempfänger und Peak-Detektor in vertikaler und horizontaler Antennenposition durchgeführt. Werden keine Messwerte unterhalb einer Grenze von 10 dB unter dem Schmalbandgrenzwert gefunden, ist die Messung beendet, andernfalls werden diese dann mit Peak- und Avarage-Detektor, bzw. Quasi Peak-Detektor gemäß der CISPR 25 Pkt. 4.1.2 nachgemessen und bewertet.
A measurement with measure receiver and peak-detector in vertical and horizontal antenna polarisation is performed. If no measurement results exceed 10 dB below the narrowband limit, the measurement is concluded; else they are remeasured and rated with the peak- and average-detector, resp. quasi peak-detector in accordance to CISPR 25 *sub. 4.1.2.*

Antennenabstand
Antenna distance : 1 m

Antennenhöhe
Antenna height : 1 m

Antennenpolarität
Antenna polarity : Vertikal und Horizontal
Vertical and horizontal

Detektor
Detector : Peak
Average
Quasi Peak

Prüfmittel
Test equipment Siehe Anlage T
see appendix T

Prüfergebnisse
Test results : Prüfung bestanden.
Alle Messergebnisse unterhalb der Grenzwertkurve
Test pass
All Test results under the limit line

Bemerkungen
Remarks : ---

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

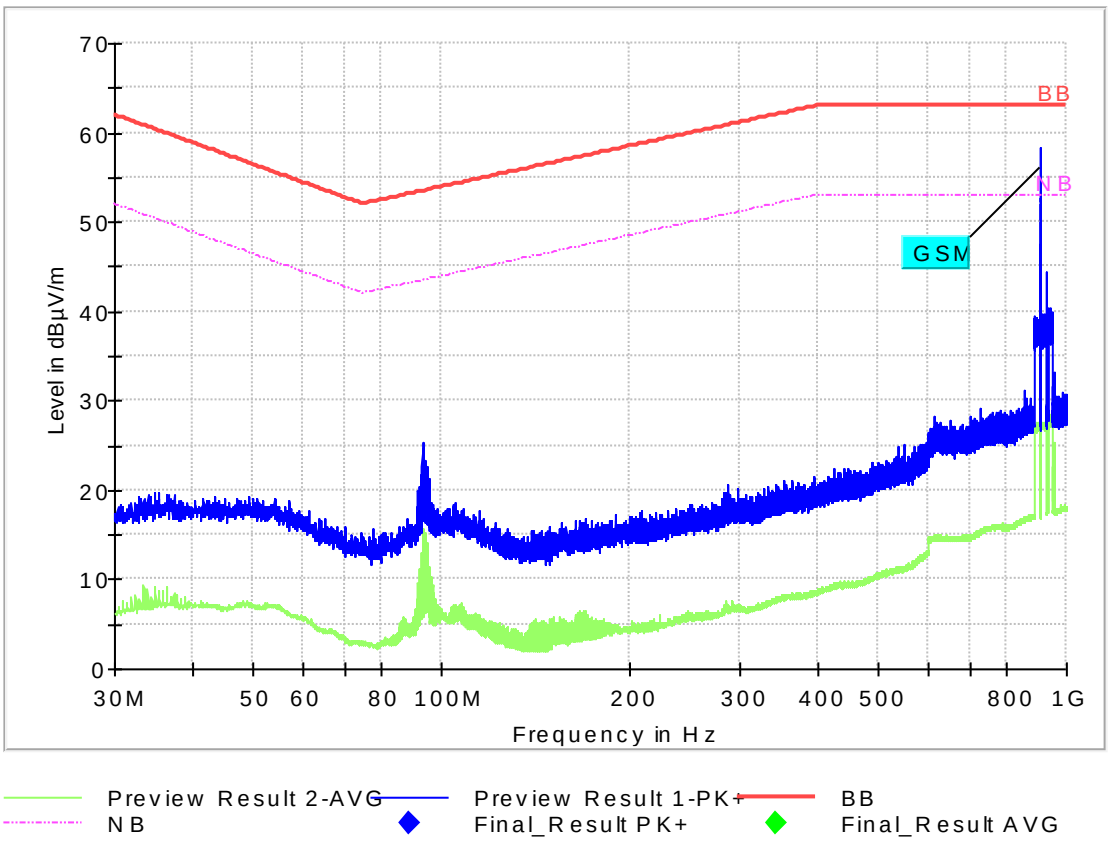
Messergebnisse
Measurement results

EMI 30-1000 MHz v+h CR300B 2G active

Common Information

Test Description:	CISPR25; 30-1000MHz
Operating Conditions:	Active real network and server from Pointer
Power supply:	12 V DC
Operator Name:	SCN
Comment:	With battery. Dallas Key activated

Full Spectrum



E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
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Typ / *Type* : **Cellocator**

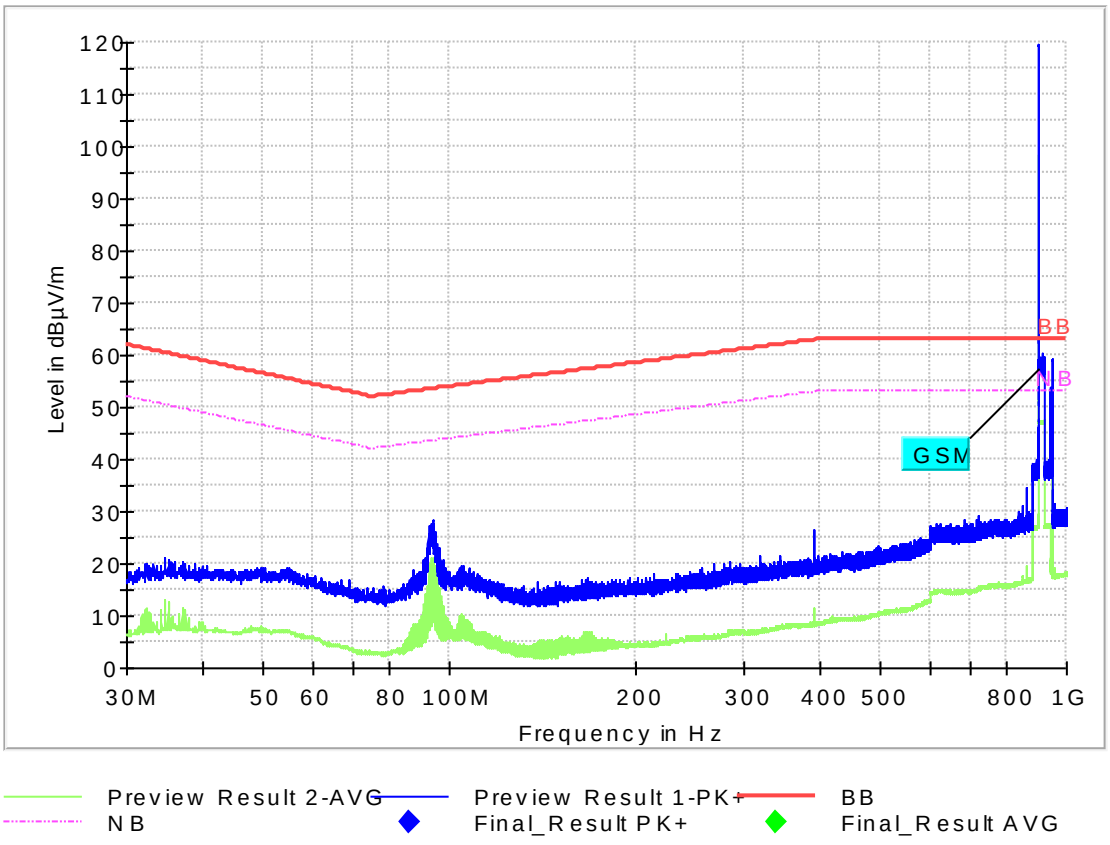
Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

EMI 30-1000 MHz v+h CR300B 3G EU active

Common Information

Test Description:	CISPR25; 30-1000MHz
Operating Conditions:	Active GPRS (transfer)
Power supply:	24 V DC
Operator Name:	SCN
Comment:	With battery.

Full Spectrum



E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Fotodokumentation Messaufbau
Photo documentation test set-up

Photo 1: Test Setup Radiated Emission 30 – 1000 MHz

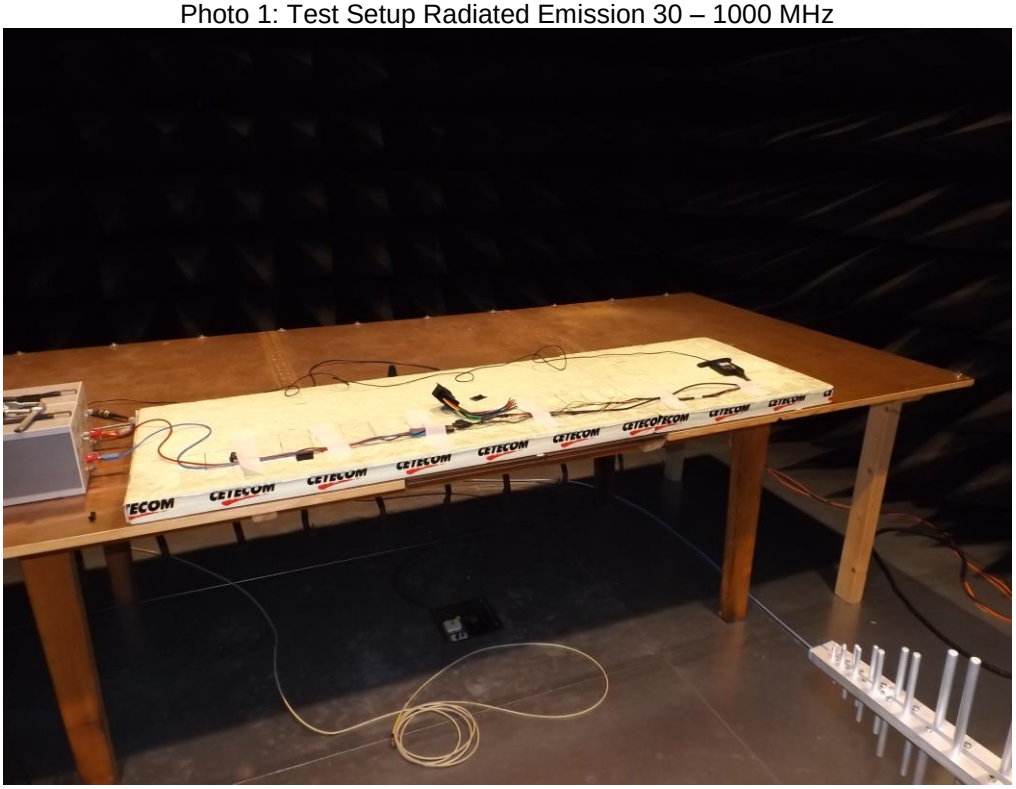


Photo 2: ESA 1

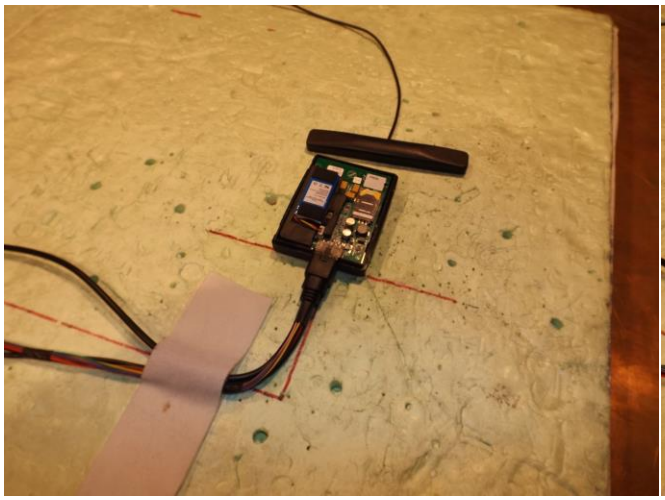
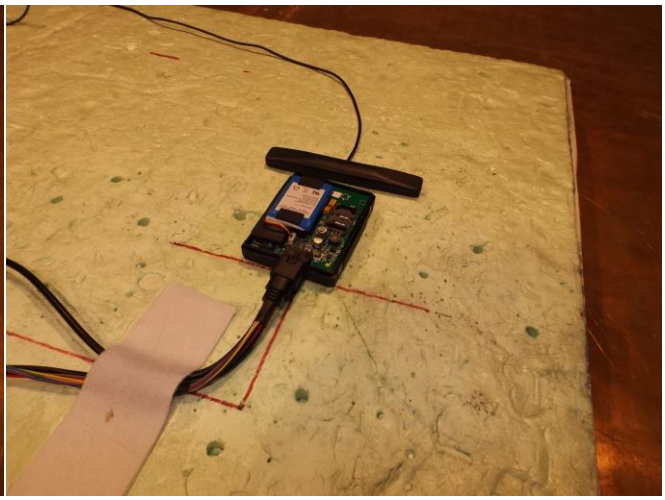


Photo 3: ESA 2



E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
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Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Prüfung der Störfestigkeit von elektrischen/ elektronischen Unterbaugruppen gegenüber eingestrahlten elektromagnetischen Feldern gemäß ECE-R10, Anhang 9
Testing for immunity of electrical/electronic subassemblies to electromagnetic radiation according to ECE-R10, annex 9

Anlage
Appendix I

Prüfverfahren ***Test procedure***	:	ISO 11452-1, 3rd Ed 2005 + Amd 1: 2008 (General Description) ISO 11452-2, 2nd Ed 2004 (ALSE) ISO 11452-4, 3rd Ed 2005 + Cor 1: 2009 (BCI)
Prüfmittel ***Test equipment***		Siehe Anlage T *see appendix T*
Prüfmethode *Test method* Regelung *Power adjustment* Einstellungen *Settings*		Substitution Methode *Substitution method* Vorwärtsleistung *Forward power* 20 – 200 MHz; **60 mA**; AM 1 kHz 80% (BCI) 200 – 800 MHz; **30 V/m**; AM1 kHz 80 % (LogPer Antenna) 800 – 2000 MHz; **30 V/m**; PM 217 Hz, 577 µs (Horn Antenna)
Antennenabstand *Antenna distance*	:	1 m
Antennenhöhe *Antenna heigth*	:	1 m
Prüfergebnisse ***Test results***	:	Die EUB wies keine Störungen auf, die eine Verminderung des Leistungsverhaltens bewirken würde, die andere Verkehrsteilnehmer verwirren könnte oder irgendeine Beeinträchtigung der unmittelbaren Kontrolle des Fahrers über ein Fahrzeug, das mit der EUB ausgerüstet ist, bewirken könnte. *The ESA didn't show any malfunctions which would cause any degradation of performance which could cause confusion to other road users or any degradation in the driver's direct control of a vehicle fitted with the ESA.*

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
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Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Messergebnisse
Measurement results

EUT:	CR300B 3G EU; CT7801202-000
Operating mode:	GPRS transfer mode; GPS active, Dallas-key
Monitoring:	GPS and Dallas-key
Result:	No malfunction detected!

Antenna	Frequency range	Modulation	Field Strength tested	Result
BCI	20 – 200 MHz	AM: 80%; 1 kHz	60 mA	**pass**
Log. Per. Antenna	200 – 800 MHz	AM: 80%; 1 kHz	30 V/m	**pass**
Log. Per. Antenna	800 – 1000 MHz	PM: 217 Hz, 577 µs	30 V/m	**pass**
Horn Antenna	800 – 2000 MHz	PM: 217 Hz, 577 µs	30 V/m	**pass**
Remark:				

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Fotodokumentation Messaufbau
Photo documentation test set-up

Photo 4: Test Setup BCI 20 – 200 MHz

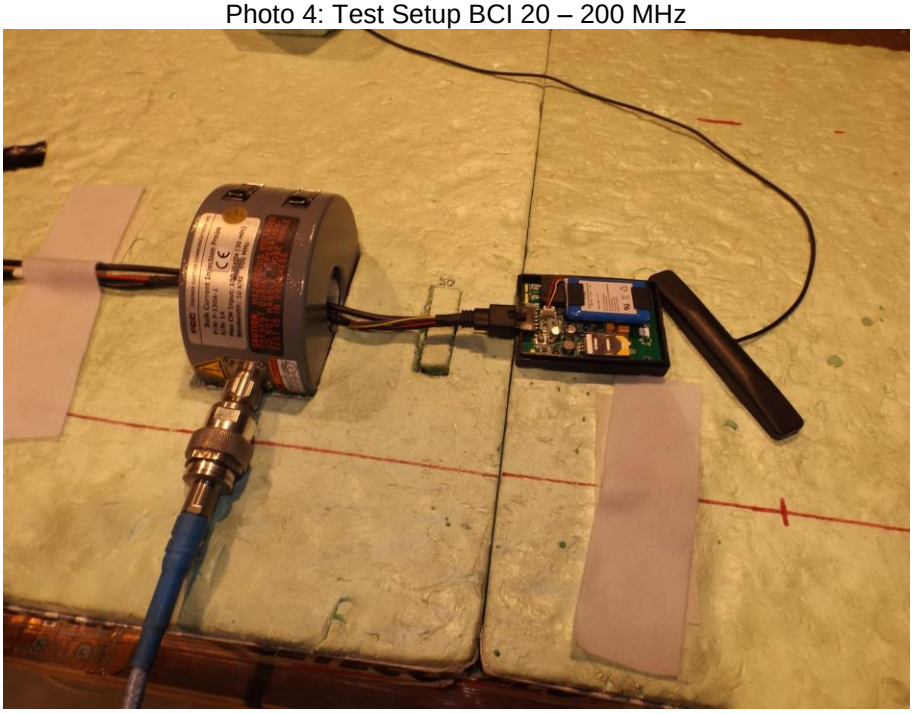


Photo 5: Test Setup Radiated Immunity Log. Per. antenna 200 – 800 MHz

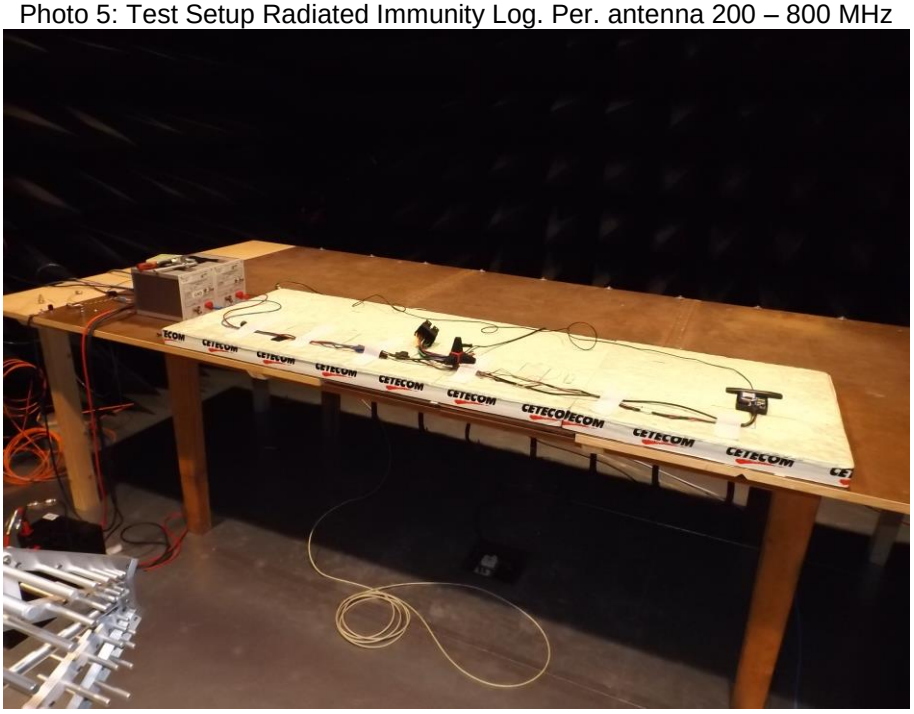
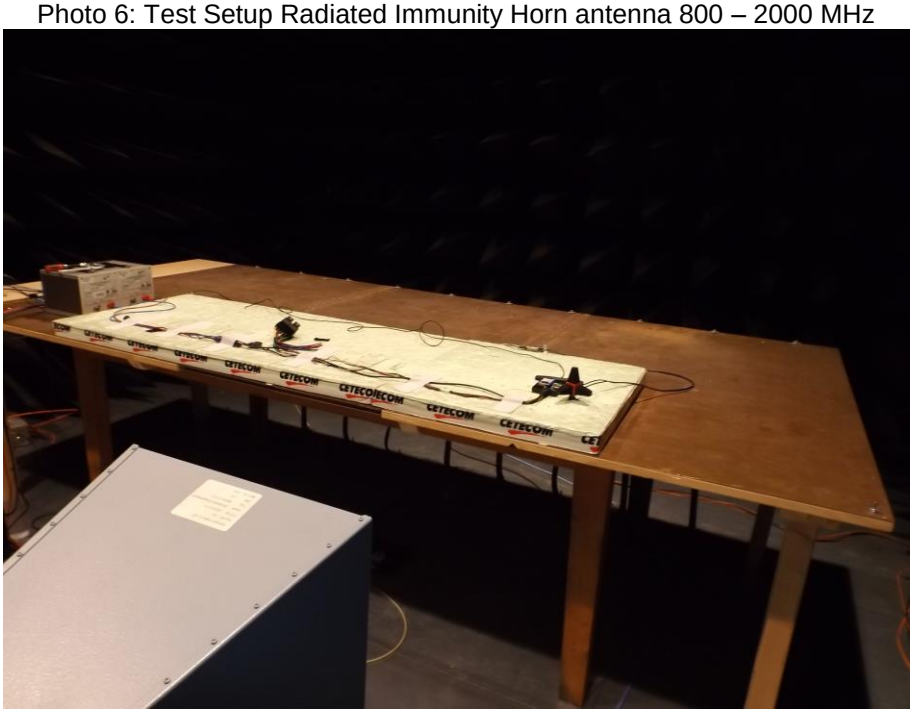


Photo 6: Test Setup Radiated Immunity Horn antenna 800 – 2000 MHz



E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Prüfung der Störfestigkeit gegen leitungsgeführte Störungen, die von den Versorgungsleitungen übertragen werden, von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie.
Testing for immunity against disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.

Anlage
Appendix ***P1***

Prüfverfahren
Test procedure : ISO 7637-2:2004

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Prüfmittel
Test equipment Siehe Anlage T
see appendix T

Prüfergebnisse *Test results* : **Prüfung bestanden**
Test pass

12 V DC

Test pulse	Test level		Functional status	Number of pulses or test time	Result
Pulse 1	Level III	-75 V	C	5000 pulse	A
Pulse 2a	Level III	+37 V	B	5000 pulse	n.a. *1
Pulse 2b	Level III	+10 V	C	10 pulse	A
Pulse 3a	Level III	-112 V	A	1 hour	n.a. *1
Pulse 3b	Level III	+75 V	A	1 hour	n.a. *1
Pulse 4	Level III	-6 V	B(C)	1 pulse	A

24 V DC

Test pulse	Test level		Functional status	Number of pulses or test time	Result
Pulse 1	Level III	-450 V	C	5000 pulse	C
Pulse 2a	Level III	+37 V	B	5000 pulse	A
Pulse 2b	Level III	+20 V	C	10 pulse	C
Pulse 3a	Level III	-150 V	A	1 hour	A
Pulse 3b	Level III	+150 V	A	1 hour	A
Pulse 4	Level III	-12 V	B(C)	1 pulse	A

Classification of Functional status

Class A: All functions of a device/system perform as designed during and after exposure to disturbance.

Class B: All functions of a device/system perform as designed during exposure. However, one or more of them can go beyond specified tolerance. All functions return automatically to within normal limits after exposure is removed. Memory functions shall remain class A.

Class C: One or more functions of a device/system do not perform as designed during exposure but return automatically to normal operation after exposure is removed

Class D: One or more functions of a device/system do not perform as designed during exposure and do not return to normal operation until exposure is removed and device/system is reset by simple “operator/use” action

Class E: One or more functions of a device/system do not perform as designed during and after exposure and cannot be returned to proper operation without repairing or replacing the device/system

Note: The word “function” in this context refers only to the function performed by the electronic system.

*1

Siehe Hinweis nächste Seite
see remark next page

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

EUT:	CR300B 3G EU; CT7801202-000
Operating mode:	GPRS transfer mode; GPS active, Dallas-key
Monitoring:	GPS and Dallas-key
Remark:	The tests with 12 V DC (1, 2b and 4) were tested with connected backup battery. The tests with 24 V DC (1, 2a, 2b, 3a/3b and 4) were tested without backup battery. In normal mode the GSM connection will be managed automatically by the software. If the connection is lost, the software will reconnect it. In case of testing the GSM connection must be established manually by the test engineer end will not reconnected automatically after they is lost.

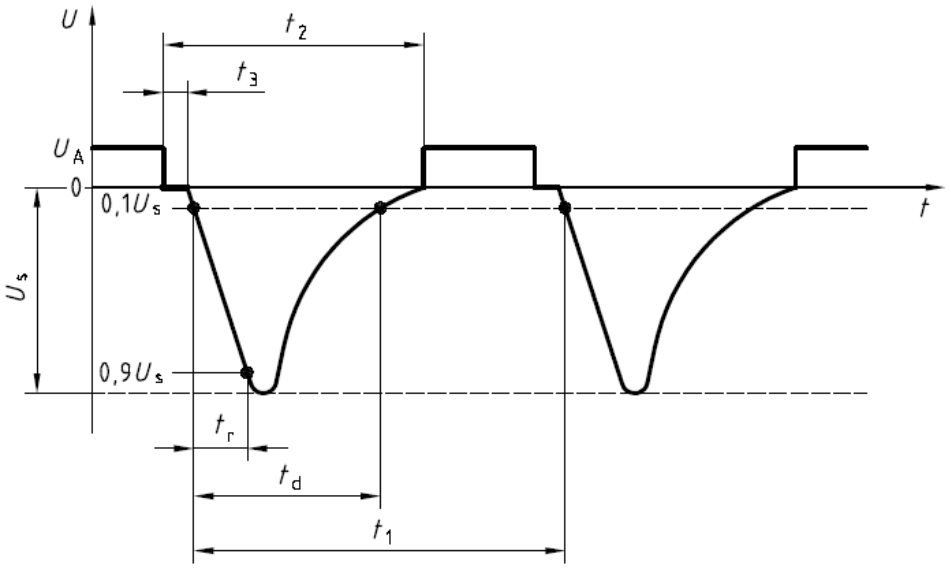
Hinweis: *Remark:*	The pulses **2a, 3a** and **3b** were only tested for 24 V systems. For these pulses is the test level for 24 V systems similar or even higher as for 12 V systems. Therefore it will be impute that the requirements for 12 V Systems for these pulses are also fulfilled.

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Test pulse 1



Settings Test pulse 1, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	-75 V	-450 V	5000 pulses
Ri	10 Ohm	50 Ohm	
td	2 ms	1 ms	
tr	1 µs	3 µs	
t1	0,5 s	1 s	
t2	200 ms		
t3	< 100 µs		

Test result:

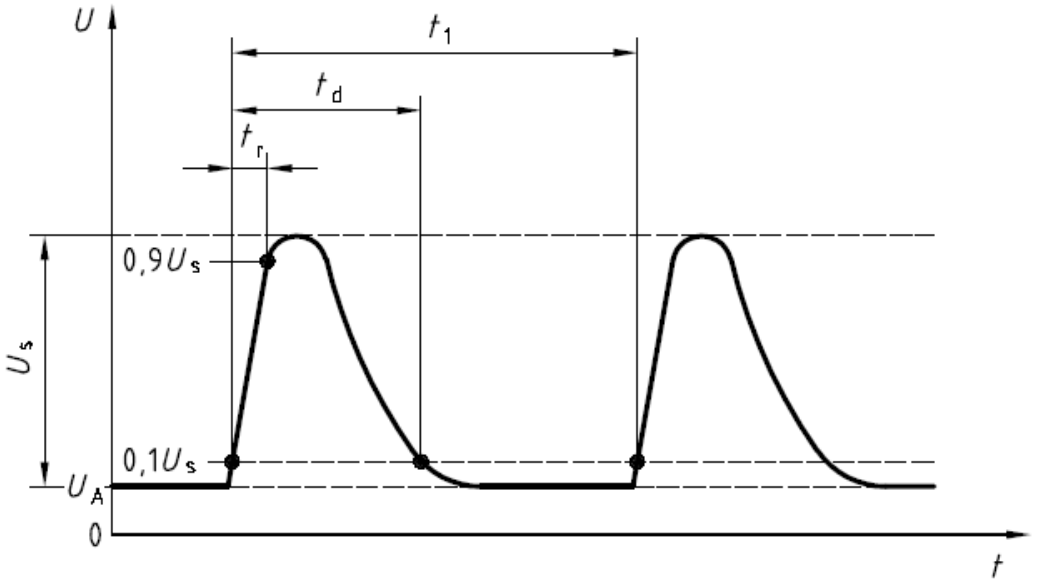
	12 V system (with backup battery)	24 V system (without backup battery)
Functional status	Class A	Class C
Result	No malfunction	During pulses no communication; After test OK

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Test pulse 2a



Settings Test pulse 2a, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	+37 V		5000 pulses
Ri	2 Ohm		
td	0,05 ms		
tr	1 µs		
t1	0,5 s		

Test result:

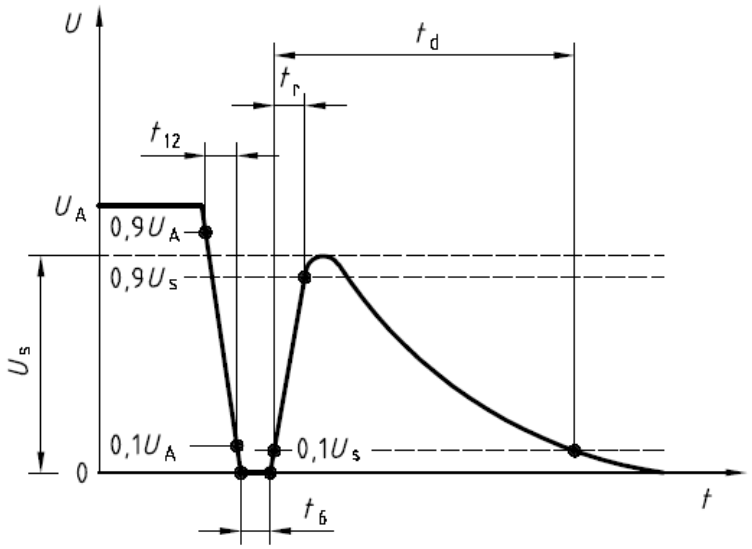
	12 V system	24 V system (without backup battery)
Functional status	---	Class A
Result	---	No malfunction

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Test pulse 2b



Settings Test pulse 2b, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	+10 V	+20 V	10 pulses
Ri	0,05 Ohm		
td	0,2 s		
tr	1m s		
t12	1m s		
t6	1m s		

Test result:

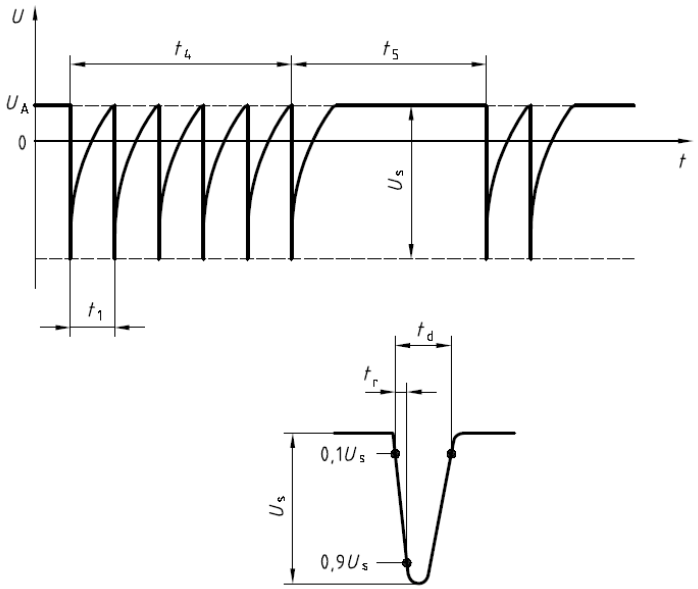
	12 V system (with backup battery)	24 V system (without backup battery)
Functional status	Class A	Class C
Result	No malfunction	During pulses no communication; After test OK

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Test pulse 3a



Settings Test pulse 3a, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	-112 V	-150V	1 h
Ri	50 Ohm		
td	0,1 µs		
tr	5 ns		
t1	100 µs		
t4	10 ms		
t5	90 ms		

Test result:

	12 V system	24 V system (without backup battery)
Functional status	---	Class A
Result	---	No malfunction

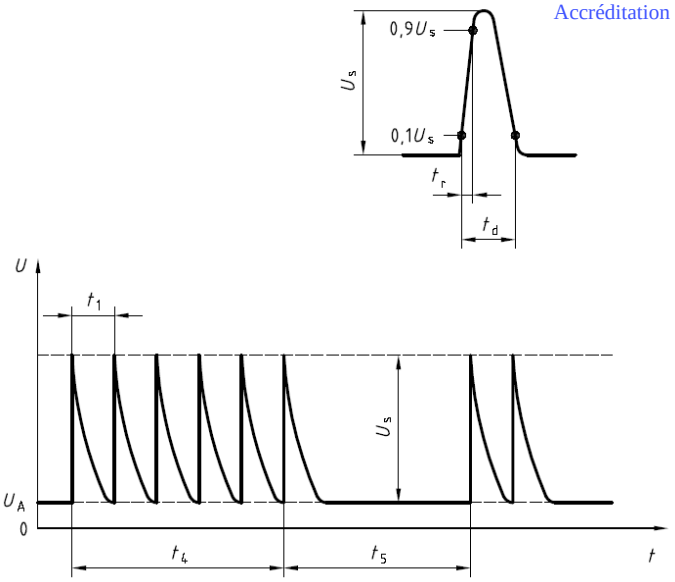
E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Test pulse 3b

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)



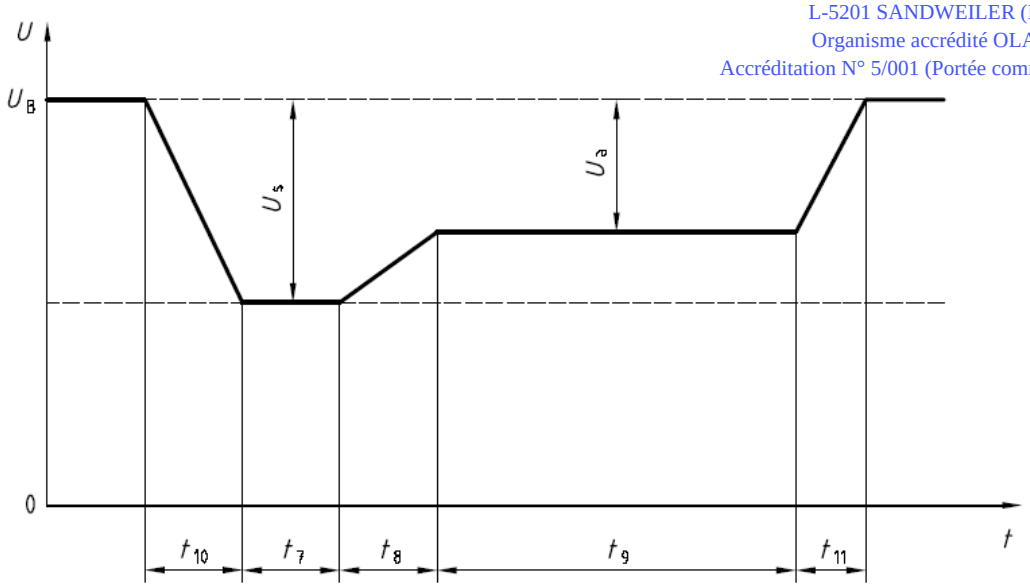
Settings Test pulse 3b, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	+75 V	+150V	1 h
Ri	50 Ohm		
td	0,1µs		
tr	5 ns		
t1	100 µs		
t4	10 ms		
t5	90 ms		

Test result:

	12 V system	24 V system (without backup battery)
Functional status	---	Class A
Result	---	No malfunction

Test pulse 4



Settings Test pulse 4, Test Level III 12V / 24 V

	12 V System	24 V System	Remark
Us	-6 V	-12 V	min. 1 pulse
Ua	-2,5 V	-5 V	
Ri	0,02 Ohm		
t7	15 ms	50 ms	
t8	50 ms		
t9	0,5 s		
t10	5 ms	10 ms	
t11	5 ms	10 ms	

Test result:

	12 V system (with backup battery)	24 V system (without backup battery)
Functional status	Class A	Class A
Result	No malfunction	

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Fotodokumentation Messaufbau
Photo documentation test set-up

Photo 7: Test Setup Transient Immunity 12 V DC (with backup battery)

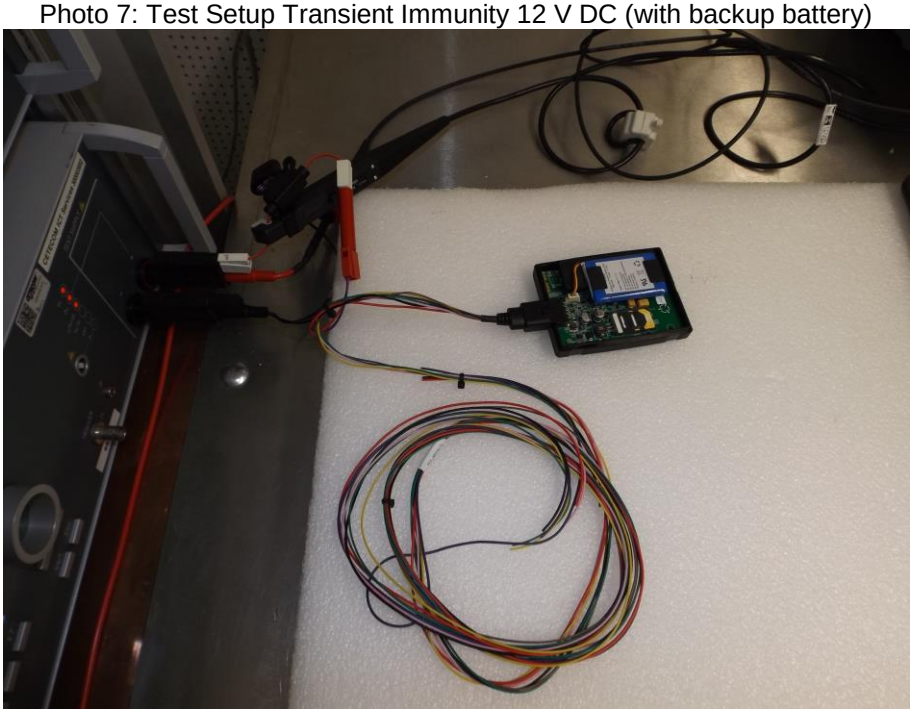
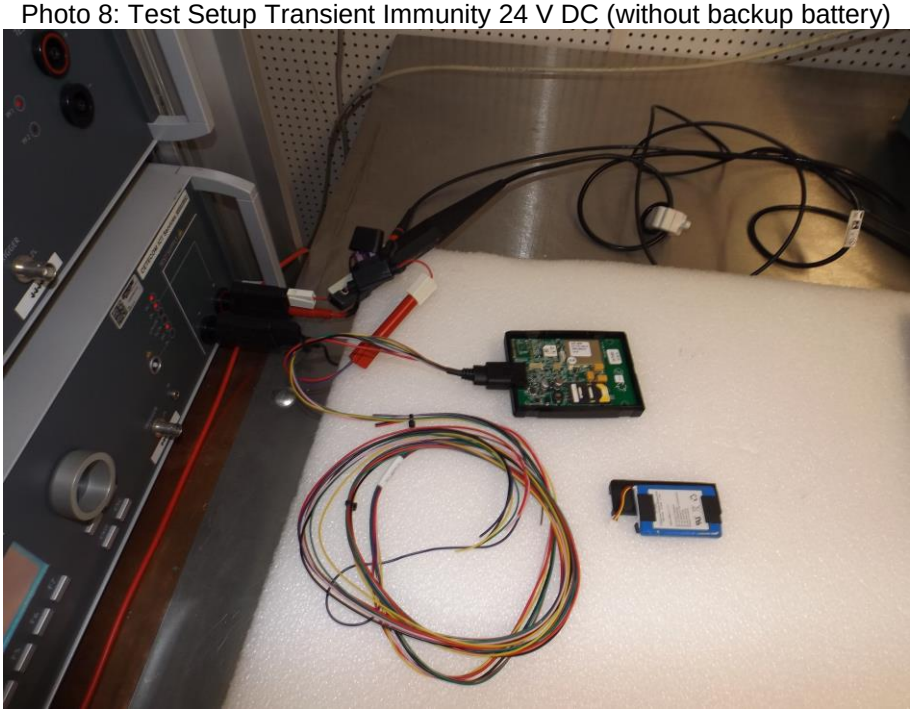


Photo 8: Test Setup Transient Immunity 24 V DC (without backup battery)



Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Prüfung der leitungsgeführten Störaussendungen an den Versorgungsleitungen von elektrischen/elektronischen Unterbaugruppen gemäß Anhang 10 der Richtlinie.
Testing for emission of conducted disturbances along supply lines of electrical/electronic subassemblies according to annex 10 of the Directive.

Anlage ***Appendix*** ***P2***

Prüfverfahren : ISO 7637-2:2004
Test procedure

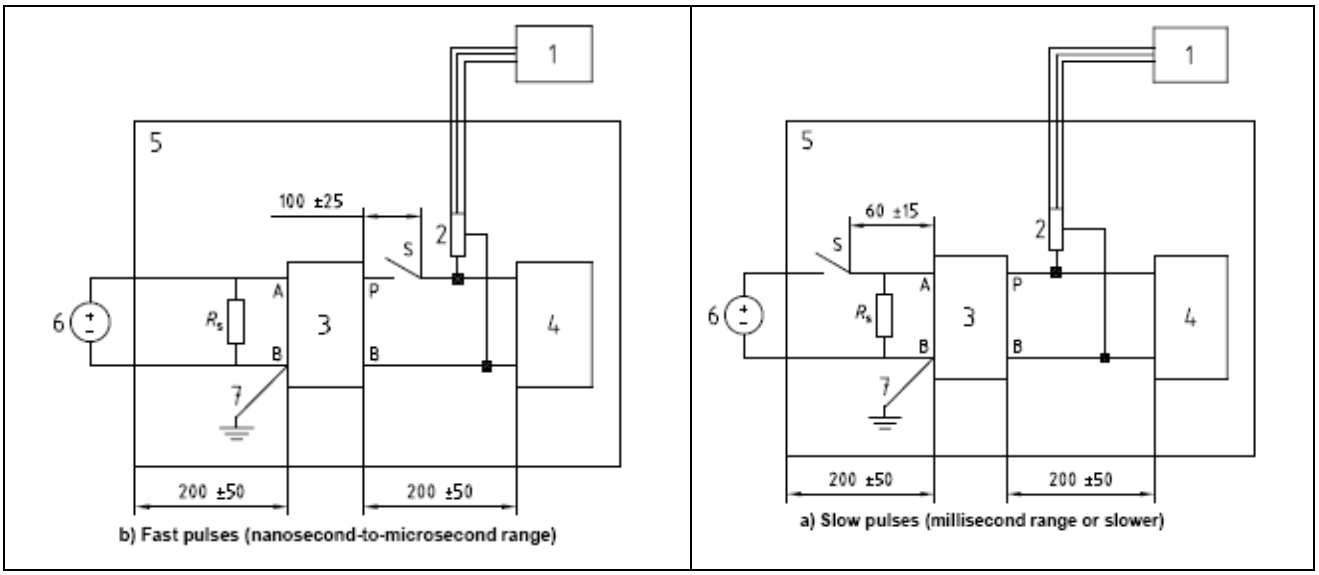
Prüfmittel Siehe Anlage T
Test equipment *see appendix T*

Prüfergebnisse ***Test results*** : **Prüfung bestanden**
Test pass

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Zu messen ist mit dem elektronischen Schalter vor und nach der Bordnetznachbildung.
It is to measure with the electronic switch before and behind the artificial network.

R_s = off (worst case)
Tastkopf: 1:100



Suggested limits for the classification

Pulse amplitude (U_s)		Suggested limits for U_s for the classification			
		IV	III	II	I
12 V	Positive	+100 V	+75 V	+50 V	+25 V
	Negative	-150 V	-100 V	-50 V	-25 V
24 V	Positive	+200 V	+150 V	+100 V	+50 V
	Negative	-600 V	-450 V	-300 V	-150 V

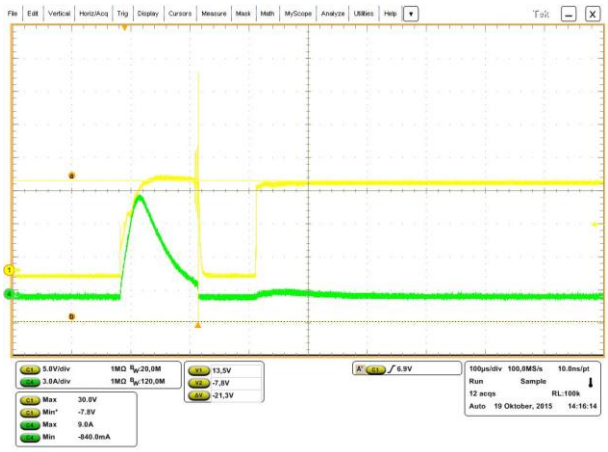
Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Messergebnisse Pulse
Measurement results pulses

12 V DC (with backup battery)

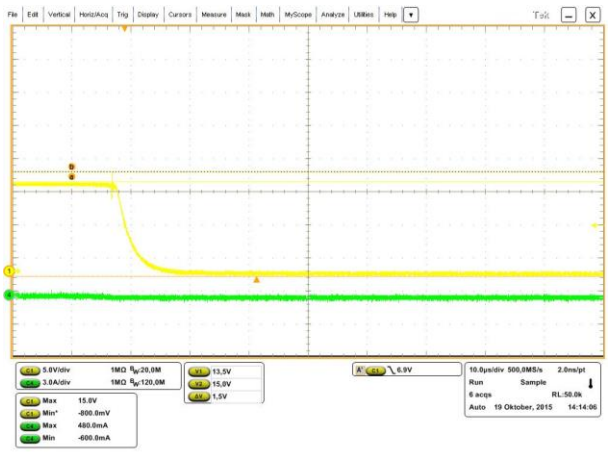
1.) KL 30 on



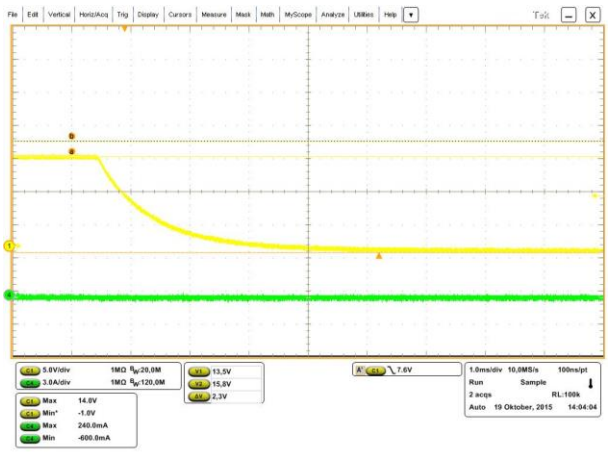
fast pulse
Max voltage positive: 30,0 V negative: -21,3 V

slow pulse
Max voltage positive: 15,8 V negative: --- V

2.) KL 30 off



fast pulse
Max voltage positive: 15,0 V negative: --- V



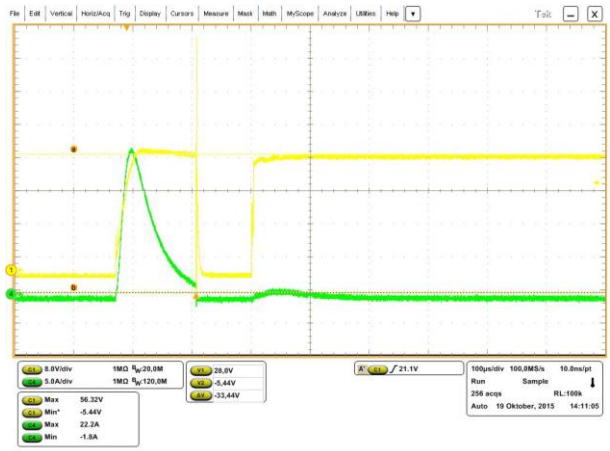
slow pulse
Max voltage positive: 14,0 V negative: --- V

Typ / *Type* : **Cellocator**

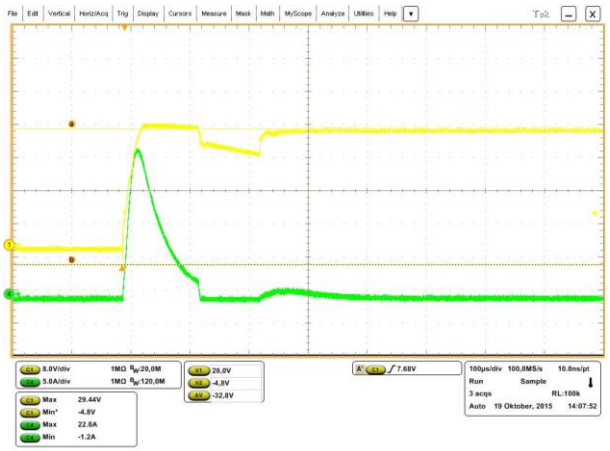
Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

24 V DC (with backup battery)

1.) KL 30 on

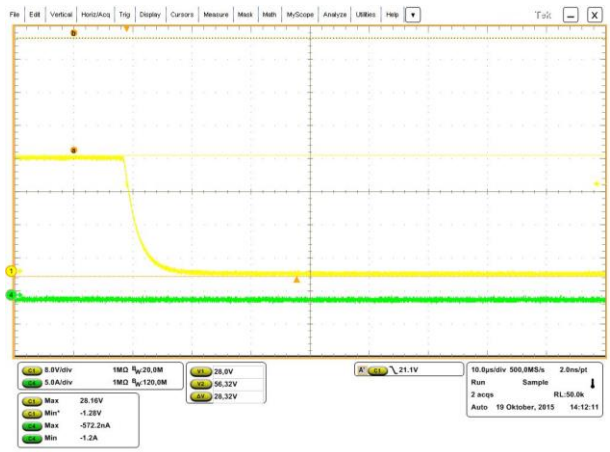


fast pulse
Max voltage positive: 56,3 V negative: -33,4 V

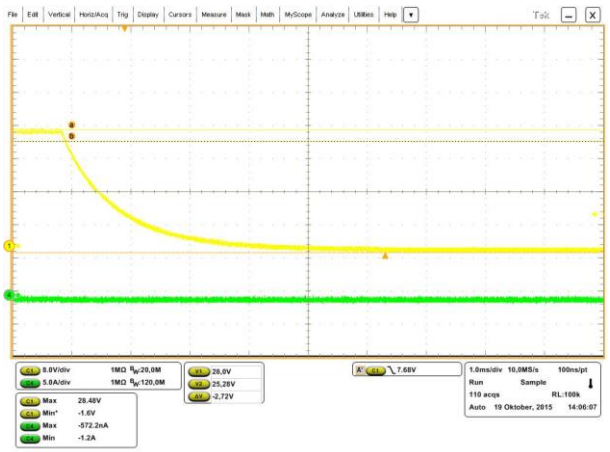


slow pulse
Max voltage positive: 29,4 V negative: -32,8 V

2.) KL 30 off



fast pulse
Max voltage positive: 28,0 V negative: --- V



slow pulse
Max voltage positive: 28,0 V negative: --- V

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Fotodokumentation Messaufbau
Photo documentation test set-up

Photo 9: Test Setup Transient Emission (Fast pulses)

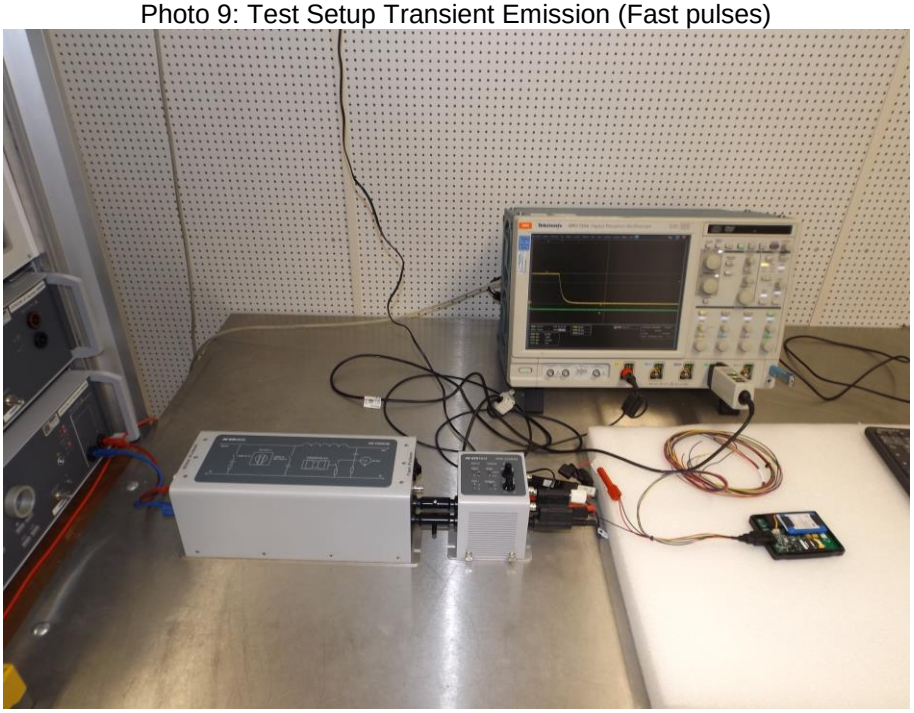
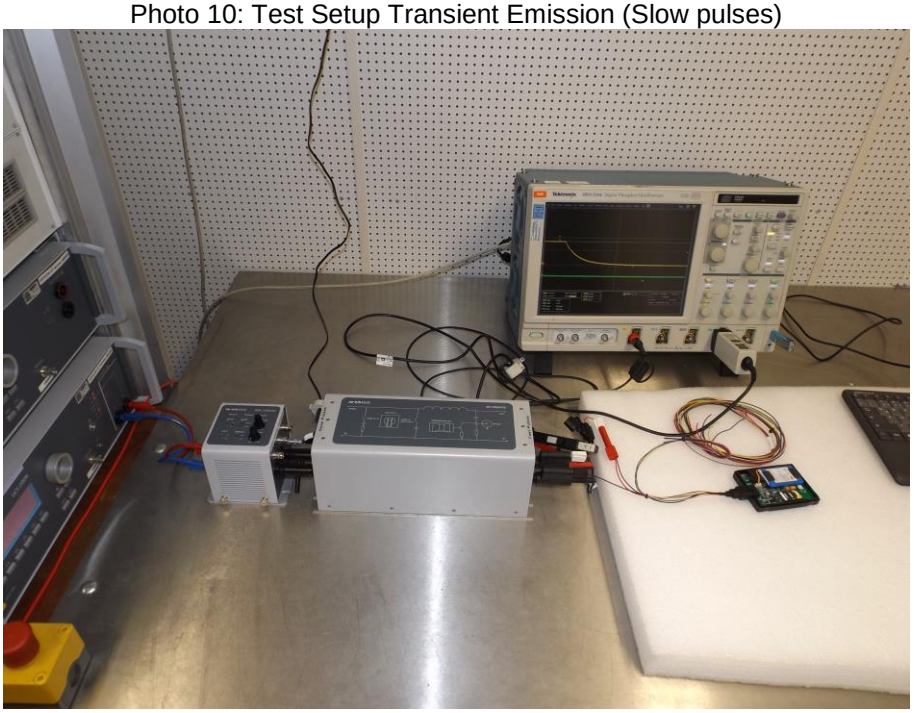


Photo 10: Test Setup Transient Emission (Slow pulses)



Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Fotodokumentation der EUB
Photo documentation of the ESA

Anlage
Appendix ***Q***

Photo 11: ESA-1 Upside with Label

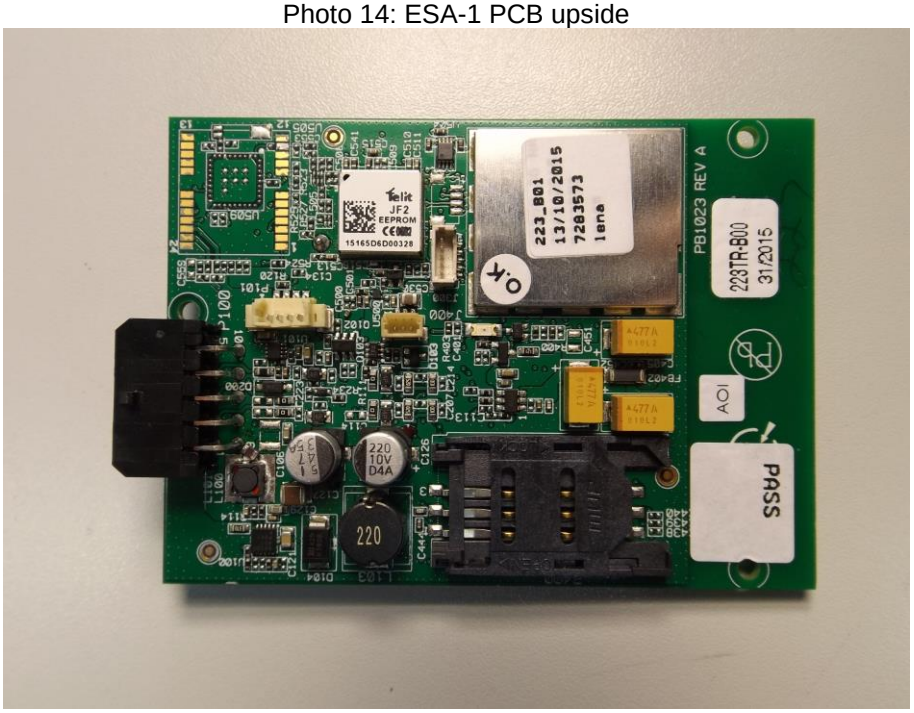
Photo 12: ESA-1 bottom side

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Photo 13: ESA-1 with battery; without housing

Photo 14: ESA-1 PCB upside



Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Photo 15: ESA-1 PCB bottom side

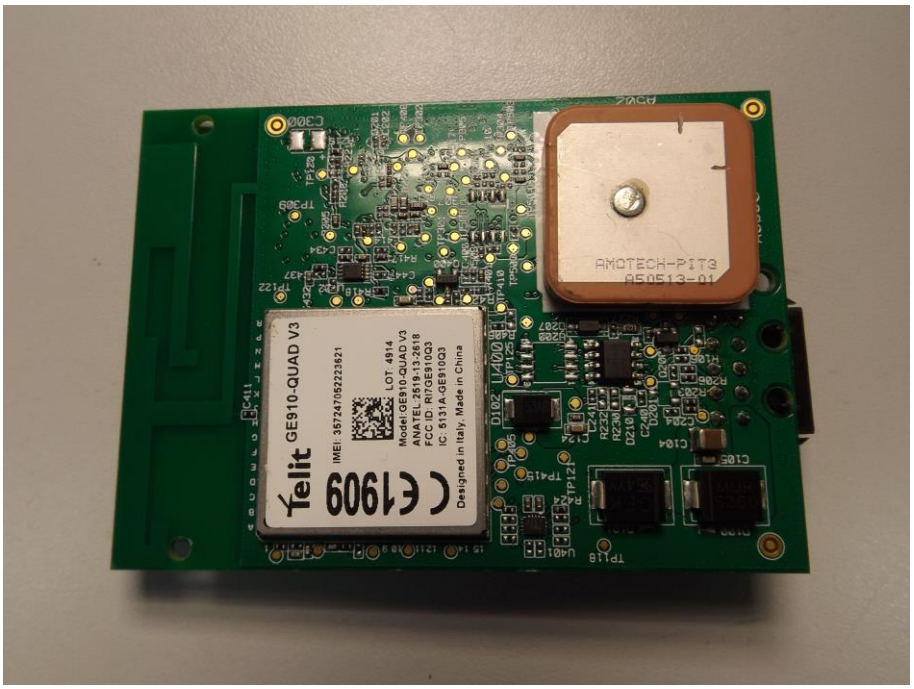


Photo 16: ESA-2 Upside with Label

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Photo 17: ESA-2 bottom side

Photo 18: ESA-2 with battery; without housing

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Photo 19: ESA-2 PCB upside

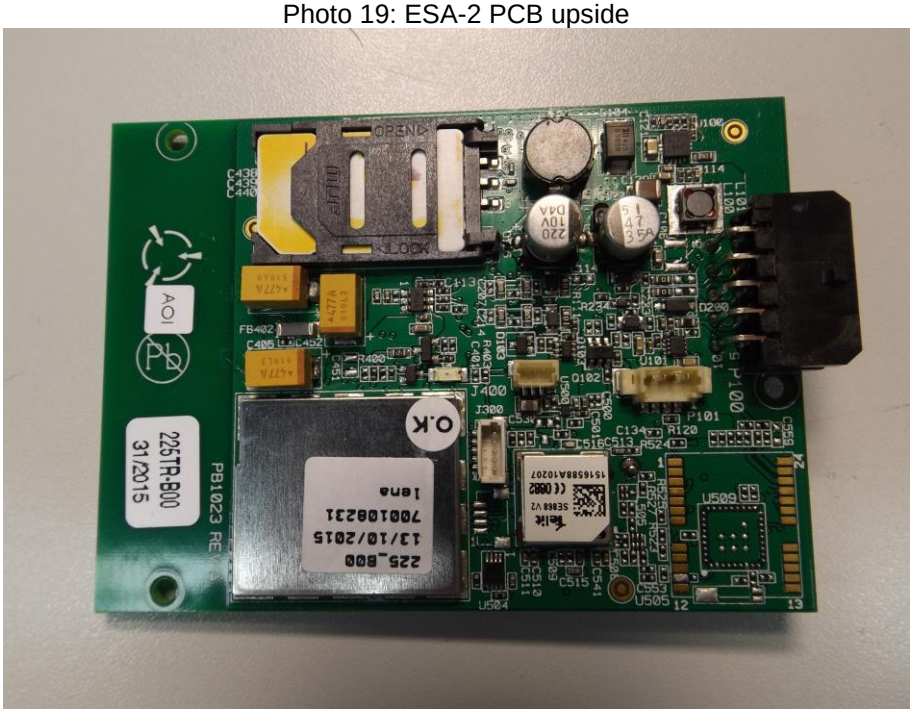
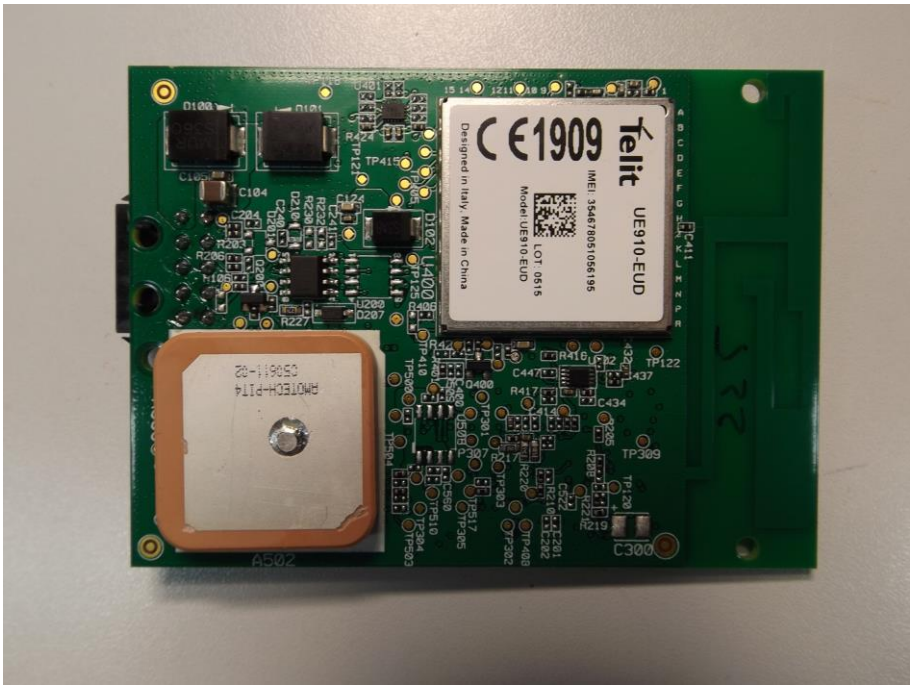


Photo 20: ESA-2 PCB bottom side



Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

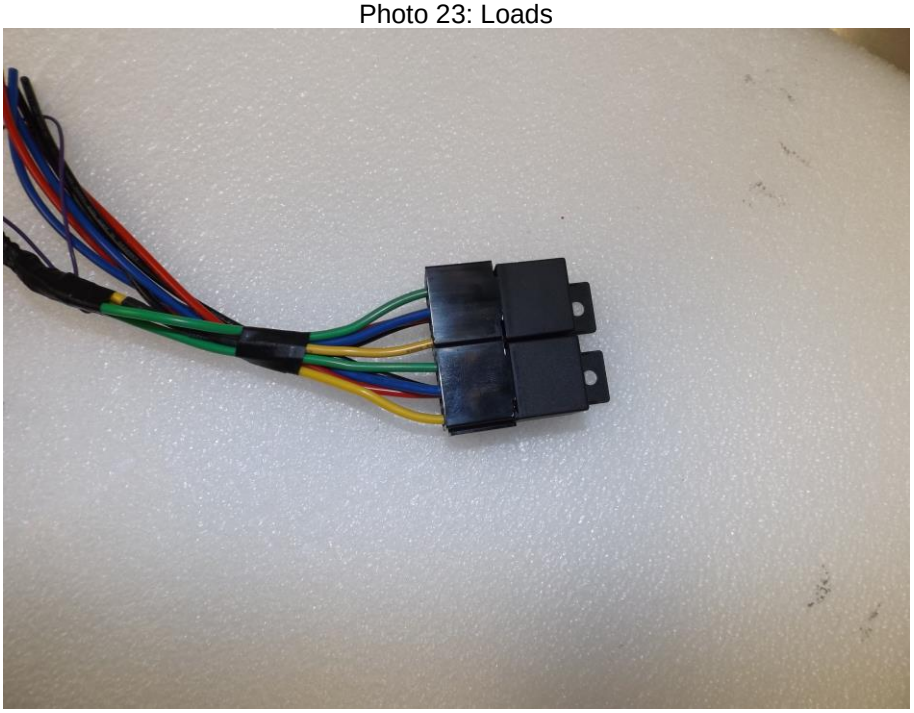
Photo 21: Dallas key

Photo 22: Harness

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Photo 23: Loads



Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Prüfmittelliste
List of test equipment

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Anlage
Appendix T

No.	Instrument/Ancillary	Manufacturer	Type	Serial-No.	Internal identification
	Radiated immunity – annex I				
D-1	Signal Generator	Rohde & Schwarz	SMHU52	860 292/019	300002232
D-2	Function Generator	Rohde & Schwarz	AFGU	832063/002	300002037
D-3	Log per antenna	Schwarzbeck	STLP 9128C	033	300003213
D-4	Double Ridged Broadband Horn	Schwarzbeck	BBHA 9120E	212	300003214
D-5	RF-Amplifier 0.01-220 MHz	Amplifier Research	250L	13163	300002180
D-6	Directional Coupler Unit	Rohde & Schwarz	DCU	316 790/005	300002242
D-7	RF-Amplifier 200-1000 MHz	Bonn	BLWA 2010-1000/700D	076820A	300003782
D-8	RF-Amplifier 0,8-4 GHz	Bonn	BLMA 0840-200/100D	076820B	300003783
D-9	Switch Unit 1	Rohde & Schwarz	RSU 15	316 790/001	300002241
D-10	Switch Unit 2	Rohde & Schwarz	RSU 11	316 790/001	300002220
D-11	Power Meter	Rohde & Schwarz	NRV	830 007/002	300002323
D-12	Power Sensor A	Rohde & Schwarz	NRV-Z4	829 714/011	300002323.01
D-13	Power Sensor B	Rohde & Schwarz	NRV-Z4	829 714/012	300002323.02
D-14	Relay Interface	ICS	4874B	112904	300002189
D-15	Cabling Unit	Rohde & Schwarz	CU	316 790/001	300002244
D-16	Pneumatic Manipulator	Heiden	2004-300	001402	300002199
D-17	Switch Control Unit	Hewlett Packard	3488A	---	---
D-18	Attenuator 30dB/500W	Tennline	8325	1530	40000XXXX
D-19	Stripline	Stimpfel	Stripline 150cm / 90 Ω	---	300003224
D-20	Bulk Current Injection Probe	FCC	F-130A-1	14	300003220
D-21	RF Current Probe	FCC	F-55	77	300003225
D-22	Calibration fixture	FCC	FCC-BCICF-1	---	300000537
D-23	Power Meter	Rohde & Schwarz	URV5	833658/004	300002233
D-24	Power Sensor	Rohde & Schwarz	URV5-Z2	8320874/022	300002240
D-25	DC Power Supply	Agilent	N5767A	US26C4305J	300003840
D-26	Function Generator	Rohde & Schwarz	AFGU	862490/032	300001201
D-27	Audio Amplifier	Crown	Macro Tech 5002 VZ	8001641218	300004094
D-28	Shunt	Schwarzbeck	Shunt 9570	9570118	300004107
D-29	Coil	Schwarzbeck	FESP 5133-7/41	043	300004106
	Radiated emission – annex E				
D-100	EMI Test Receiver	Rohde & Schwarz	ESU 8	100217	300003912
D-101	Log per antenna	Schwarzbeck	VULB 9163	216	300003288
D-102	Double Ridged Broadband Horn	Schwarzbeck	BBHA 9120E	212	300003214
D-103	Artificial Mains Network	Schwarzbeck	NNBM 8125	8125401	300000567
D-104	Artificial Mains Network	Schwarzbeck	NNBM 8125	8125399	300000945
	Car Pulse equipment – annex P1 and P2				
D-200	Ultra Compact Simulator	EM Test	UCS 200N	V0936105110	300003952
D-201	Power Fail Simulator	EM Test	PFS 200N50	V1017106389	300004053
D-202	Load Dump Generator	EM Test	LD 200N	V1026106853	300004076
D-203	Voltage Drop Generator	EM Test	VDS 200	000 009	300002280
D-204	Voltage Drop Generator	EM Test	VDS 200N50	V0936105111	300003953
D-205	Arbitrary Generator	EM Test	Auto wave	V1026106852	300004075
D-206	Capacitive Coupling Clamp	EM Test	ACC	0495-01	300002281
D-207	Termination resistor for ACC	EM Test	Kw 50 Ohm	--	40000
D-208	4 Channel Digital Oscilloscope	LeCroy	WaveJet 354	LCRY0101J27217	300003858
D-209	Digital Phosphor Oscilloscope	Tektronix	DPO 7254	B022702	300003573
D-210	AC/DC Current Probe	Chauvin Arnoux		129336 FEV	40000XXXX
D-211	Car Switch	Hilo	CAR-SWITCH	20043048	300003222
D-212	DC Power Supply	Agilent	N5767A	US26S7337F	300003839

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Mitteilungsblatt (nach Anhang 3B)
Communication form (acc. Annex 3B)

E13*10R00*10R05*12558*03
Société Nationale de Certification et d'Homologation
L-5201 SANDWEILER (Luxembourg)
Organisme accrédité OLAS EN 45011
Accréditation N° 5/001 (Portée communiquée sur demande)

Anlage
Appendix W

Reason(s) for extension: **See annex A of the technical report**

1. Make (trade name of manufacturer): Pointer Telocation Ltd.

2. Type: Cellocator

General commercial description(s): Tracking device

Version(s)/Variant(s):

CT7700200-000	Cello-F
CT7700210-000	Cello-R
CT7700205-000	Cello-F
CT7700215-000	Cello-R
CC7700300-000	Cello-F
CC7700310-000	Cello-R
CT7701000-000	CR200
CT7701100-000	CR200B
CT7700226-000	Cello-IQ 40
CT7700225-000	Cello-IQ 50
CT7800130-000	Cello-CANiQ
CT7800140-000	Cello-CANiQ (3G)
CT7800150-000	Cello-CANiQ (3G)
CT7800122-000	Cello-IQ
CT7801010-000	CR300
CT7801110-000	CR300B
CT7801011-000	CR300
CT7801111-000	CR300B
CT7801100-000	CR300E
CT7801200-000	**CR300B 3G NA**
CT7801201-000	**CR300B 2G**
CT7801202-000	**CR300B 3G EU**
CT7801203-000	**CR300 3G NA**
CT7801205-000	**CR300B 2G**
CT7801206-000	**CR300B 3G EU**
CT7801210-000	**CR300B 3G NA**
CT7801211-000	**CR300B 2G**
CT7801212-000	**CR300B 3G EU**

3.	Means of identification of type, if marked on the vehicle / component / separate technical unit:	See item 6
3.1.	Location of that marking:	See item 6
4.	Category of vehicle:	N/A
5.	Name and address of manufacturer:	Pointer Telocation Ltd. 14 Ha°Melacha Street, Park Afek Rosh Ha°ayin, 48091 ISRAEL
6.	In the case of components and separate technical units, location and method of affixing of the ECE approval mark:	**On the self-adhesive type label on the top side of the ESA**
7.	Address(es) of assembly plant(s):	Pointer Telocation Ltd. 14 Ha°Melacha Street, Park Afek Rosh Ha°ayin, 48091 ISRAEL
8.	Additional informations (where applicable):	See appendix
9.	Assigned authority:	Société Nationale de Certification et d'Homologation L-5201 Sandweiler
	Technical service responsible for carrying out the tests:	Société Nationale de Certification et d'Homologation 11, route de Luxembourg L-5230 Sandweiler

E13*10R00*10R05*12558*03
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10.	Date of test report:	**30.11.2015**
11.	Number of test report:	**1-9847/15-01-02**
12.	Remarks (if any):	See appendix

Appendix

1.	Additional informations	
1.1.	Electrical system rated voltage [V]:	12 V / 24 V
	Ground:	Negative
1.2.	This ESA can be used on any vehicle type with the following restrictions:	12 V and 24 V battery powered electrical system
1.2.1.	Installation conditions, if any:	Refer to manufacturer's installation manual
1.3.	This ESA can be used only 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: (Please specify precise method used from annex 9)	ISO 11452-1, /-2 and /-4 20 – 200 MHz; 60 mA; AM 1 kHz 80% (BCI) 200–1000 MHz; 30 V/m; 1 kHz 80 % LogPer Ant. 800–2000 MHz; 30 V/m; PM 217 Hz 577 µs Horn Ant.
1.5.	Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests:	CETECOM ICT Services GmbH
2.	Remarks:	---

Index to type-approval

3rd Extension

1.	Test report:	1-9847/15-01-02
	– Test report:	Page 1 to 8;
	– List of modifications:	Appendix A – 1 Page
	– Test procedure EMI:	Appendix E – Page 1 to 4;
	– Test procedure EMS:	Appendix I – Page 1 to 4;
	– Test procedure ISO 7637-2:2004	Appendix P1 – Page 1 to 9;
	– Test procedure ISO 7637-2:2004	Appendix P2 – Page 1 to 4
	– Photo documentation of the ESA	Appendix Q – Page 1 to 7;
	– List of test equipment	Appendix T – 1 Page
	– Annex 3B:	Appendix W – Page 1 to 4
2.	Report of the manufacturer:	Appendix Y
	– Cover page/Table of contents:	3 Pages;
	– Attachments:	Refer to content
3.	Other documents annexed:	Not applicable

Typ / *Type* : **Cellocator**

Hersteller / *Manufacturer* : **Pointer Telocation Ltd.**

Beschreibungsmappe
Information folder

Anlage
Appendix ***Y***

Typ / Type	Cellocator
Hersteller / Manufacturer	Pointer Telocation Ltd.
Datum / Date	27.11.2011
Änderungsdatum / Change date	08.11.2015 (Vers. 4.0)

Anlagen Enclosure	Anlageverzeichnis zur Beschreibungsmappe List of enclosures of the information document	Cellocator (Vers. 4.0)

gültig für valid for	**CT7801200-000 CR300B 3G NA** **CT7801201-000 CR300B 2G** **CT7801202-000 CR300B 3G EU** **CT7801203-000 CR300 3G NA** **CT7801205-000 CR300B 2G** **CT7801206-000 CR300B 3G EU** **CT7801210-000 CR300B 3G NA** **CT7801211-000 CR300B 2G** **CT7801212-000 CR300B 3G EU**

E13*10R00*10R05*12558*03
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