GRAND-DUCHÉ DE LUXEMBOURG

Ministère du Développement durable et des Infrastructures
Département des Transports

L-2938 Luxembourg

SOCIÉTÉ NATIONALE DE CERTIFICATION ET D'HOMOLOGATION
s.à r.l.
Registre de Commerce: B 27180

L-5201 Sandweiler

Référence: E13*10R00*10R05*13989*00

Annexes: - Rapport Technique
- Fiche de Renseignements du constructeur

Sandweiler, le 31 mai 2016

Communication concernant:[(2)]
Communication concerning:

- **la délivrance d'une homologation**
  approval granted
- ~~**l'extension d'homologation**~~
  ~~approval extended~~
- ~~**le refus d'homologation**~~
  ~~approval refused~~
- ~~**le retrait d'homologation**~~
  ~~approval withdrawn~~
- ~~**l'arrêt définitif de la production**~~
  ~~production definitely discontinued~~

d'un type de sous-ensemble ~~électrique~~/électronique[(2)] en ce qui concerne le Règlement N° 10
of a type of ~~electrical~~/electronic sub-assembly with regard to Regulation N° 10

Numéro d'homologation par type:
Approval number:
E13*10R00*10R05*13989*00

Marque d'homologation:
Approval mark:
E13 10R - 05 13989

1. **Fabricant: (marque commerciale du constructeur):**
Make (trade name of manufacturer):
Vecow Co., Ltd.

2. **Type:**
Type:
ECS-7700

Dénomination(s) commerciale(s) générale(s):
General commercial description(s):
High Performance Fanless, Embedded Computing System

Version(s)/Variante(s):
Version(s)/Variant(s):
ECS-7xxxxxxxxxxxxxxxxxx

3.	**Moyens d'identification du type, s'ils sont marqués sur le ~~véhicule~~ / composant / ~~entité technique~~[(2)]:** Means of identification of type, if marked on the ~~vehicle~~ / component / ~~separate technical unit~~:	See item 6.
3.1.	**Emplacement de ce marquage:** Location of that marking:	See item 6.
4.	**Catégorie du véhicule:** Category of vehicle:	Not applicable
5.	**Nom et adresse du constructeur:** Name and address of manufacturer:	Vecow Co., Ltd. 12F, No. 111, Zhongcheng Rd., Tucheng Dist., New Taipei City 23674, Taiwan (R.O.C.)
6.	**Dans le cas de composants ou d'entités techniques, emplacement et procédé de fixation de la marque de réception CEE:** In the case of components and separate technical units, location and method of affixing of the ECE approval mark:	Printed label durable fixed on housing of ESA or engraved on housing of ESA
7.	**Adresse(s) de l' (des) usine(s) d'assemblage:** Address(es) of assembly plant(s):	GBOX Technology Co., Ltd. 3F, No. 38, Ln. 305, Sec. 1, Xinnan Rd., Luzhu Township, Taoyuan County, Taiwan (R.O.C.)
8.	**Informations supplémentaires (s'il y a lieu):** Additional informations (where applicable):	See appendix
9.	***Autorité déléguée:*** *Assigned authority:*	*Société Nationale de Certification et d'Homologation* *L-5201 Sandweiler*
	Service technique responsable de l'exécution des essais: Technical service responsible for carrying out the tests:	Société Nationale de Certification et d'Homologation 11, rue de Luxembourg L-5230 Sandweiler
10.	**Date du rapport d'essai:** Date of test report:	20.05.2016
11.	**Numéro du rapport d'essai:** Number of test report:	27804_30032016_ECS7710
12.	**Remarques (s'il y a lieu):** Remarks (if any):	See appendix

13. **Lieu:** Sandweiler
Place:

14. **Date:** 31 mai 2016
Date:

15. **Signature:**
Signature:

Pour le Département des Transports **Pour la SNCH**

Marco FELTES
Inspecteur Principal 1er en rang

Claude LIESCH
Directeur

16. **L'index de l'ensemble des renseignements déposé chez l'autorité de réception, qui peut être obtenu sur demande, est joint.**
The index to the information package lodged with the approval authority, which may be obtained on request, is attached.

See index to type-approval report

17. **Raison(s) de l'extension:** Not applicable
Reason(s) for extension:

[2] **Biffer la mention inutile**
Strike out what does not apply

Appendice
Appendix

au certificat d'homologation par type N° E13*10R00*10R05*13989*00
to type-approval certificate N° E13*10R00*10R05*13989*00
concernant l'homologation par type d'un sous ensemble électrique/électronique selon le Règlement N° 10.
concerning the type-approval of an electrical/electronic sub-assembly under Regulation N° 10.

1.	**Informations supplémentaires.** Additional information.	
1.1.	**Tension nominale du système électrique [V]:** Electrical system rated voltage [V]:	12V / 24V DC
	Masse: Ground:	Negative / ~~Positive~~ (2)
1.2.	**Ce SEEE peut être utilisé sur n'importe quel type de véhicule avec les restrictions suivantes:** This ESA can be used on any vehicle type with the following restrictions:	Not applicable
1.2.1.	**Conditions d'installation, s'il y a lieu:** Installation conditions, if any:	Not applicable
1.3.	**CE SEEE peut seulement être utilisé sur les types de véhicules suivants:** This ESA can be used only on the following vehicle types:	Not applicable
1.3.1.	**Conditions d'installation, s'il y a lieu:** Installation conditions, if any:	Not applicable
1.4.	**La (les) méthode(s) spécifique(s) d'essais utilisée(s) et les bandes de fréquences couvertes pour déterminer l'immunité étai(ent): (indiquez s'il vous plaît à partir de l'annexe 9 la méthode précise utilisée).** The specific test method(s) used and the frequency ranges covered to determine immunity were: (Please specify precise method used from annex 9).	Not applicable
1.5.	**Laboratoire accrédité au titre de la norme ISO 17025 et reconnu par l'autorité d'homologation chargé d'effectuer les essais:** Laboratory accredited to ISO 17025 and recognized by the Approval Authority responsible for carrying out the tests:	SGS-TÜV SAARLAND FORSTER GmbH Saarbrücker Strasse 1 D-66706 Perl-Sinz
2.	**Commentaires:** Remarks:	Not applicable

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Registre de Commerce: B 27180

L-5201 Sandweiler

Référence: E13*10R00*10R05*13989*00

Annexes: - Rapport Technique
- Fiche de Renseignements du constructeur

Sandweiler, le 31 mai 2016

Index du dossier d'homologation

Index to type-approval report

	Numéro d'homologation: Approval number:	E13*10R00*10R05*13989*00
	Révision: Revision:	00
	Marque de fabrique ou de commerce: *Trade name or mark:*	*Vecow Co., Ltd.*
	Type: *Type:*	*ECS-7700*
1.	**Procès-verbal d'essai:** Test report:	N° 27804_30032016_ECS7710
	- Compilation: - Information sheet: - Test report:	Page 1 Attachment 1 - Page 2 & 3 Attachment 2 - Page 4 to 14
2.	**Dossier du constructeur:** Report of the manufacturer:	Attachment 3
	- Content:	Refer to 1st page
3.	**Autres documents annexés:** Other documents annexed:	Not applicable
4.	**Date de délivrance de l'homologation initiale:** Date of issue of initial type approval:	31.05.2016
5.	**Date de la dernière délivrance de pages révisées:** Date of last issue of revised pages:	Not applicable
6.	**Date de la dernière délivrance d'une homologation révisée:** Date of last extension:	Not applicable

Compilation No.: 27804_30032016_ECS7710

Attachment 1

Technical information about the ESA type according to ECE Reg. No. 10R00, 05 series of amendments from 16.10.2014

SECTION I

1.	Make (trade name of manufacturer):	Vecow Co., Ltd.
2.	Type/ Brand name: General commercial description(s):	ECS-7700 Vecow High Performance Fanless, Embedded Computing System
	Version(s)/Variant(s): *Brand name:*	*ECS-7xxxxxxxxxxxxxxxxxx* Vecow
3.	Means of identification of type, if marked on the ~~vehicle~~ / component / ~~separate technical unit~~:	Printed label, fixed durable on housing of ESA or engraved on housing of ESA
3.1.	Location of that marking:	Printed label, fixed durable on housing of ESA or engraved on housing of ESA
4.	Category of vehicle:	n.a.
5.	Name and address of manufacturer:	Vecow Co., Ltd. 12F, No. 111, Zhongcheng Rd., Tucheng Dist., New Taipei City 23674, Taiwan (R.O.C.)
5.1	Representant	n. a.
6.	In the case of components and separate technical units, location and method of affixing of the EC approval-mark:	Printed label fixed durable on housing of ESA or engraved on housing of ESA
7.	Address(es) of assembly plant(s)	GBOX Technology Co., Ltd. 3F, No. 38, Ln. 305, Sec. 1, Xinnan Rd., Luzhu Township, Taoyuan County, Taiwan Republic of China
8.	Additional information (where applicable):	see appendix
9.	Assigned authority:	Société Nationale de Certification et d´Homologation L-5201 Sandweiler
	Technical service responsible for conducting approval tests	Société Nationale de Certification et d´Homologation 11, rue de Luxembourg L-5230 Sandweiler

10.	Date of test report:	20.05.2016
11.	Number of test report	27804_30032016_ECS7710
12.	Remarks (if any):	see appendix

Appendix

1.	Additional information:	not applicable
1.1.	Electrical system rated voltage [V]:	12V / 24V DC
	Ground:	Negative
1.2.	This ESA can be used on any vehicle type with the following restrictions:	not applicable
1.2.1.	Installation conditions, if any:	not applicable
1.3.	This ESA can be used only on the following vehicle types:	not applicable
1.3.1.	Installation conditions, if any:	not applicable
1.4.	The specific test method(s) used and the frequency ranges covered to determine immunity were:	not applicable
1.5.	Laboratory accredited to ISO 17025 and Recognized by the Approval Authority Responsible for carrying out the tests:	SGS-TÜV Saarland Forster GmbH Saarbrücker Strasse 1 66706 Perl- Sinz
2.	Remarks:	not applicable

Attachment 2

Test report #.: 27804_30032016_ECS7710

Tests on electronic parts in vehicles (electromagnetic compatibility) per ECE Regulation No. 10R00, 05 series of amendments from 16.10.2014

0. General declaration:

0.1. Model name: High Performance Fanless, Embedded Computing System

0.2. Type/ Brand name(s): ECS-7700 / Vecow

Version's/ Brand name(s): ECS-7xxxxxxxxxxxxxxxxxx / Vecow

0.3. Type identification, place of type plate:
Type plate with print or engraved to identify;
Type plate is permanent fixed or engraved on housing of product.

0.4. Name and address of manufacturer: Vecow Co., Ltd.
12F, No. 111, Zhongcheng Rd., Tucheng Dist.,
New Taipei City 23674, Taiwan (R.O.C.)

0.5. Number of description map: 001
date and change: 20.05.2016

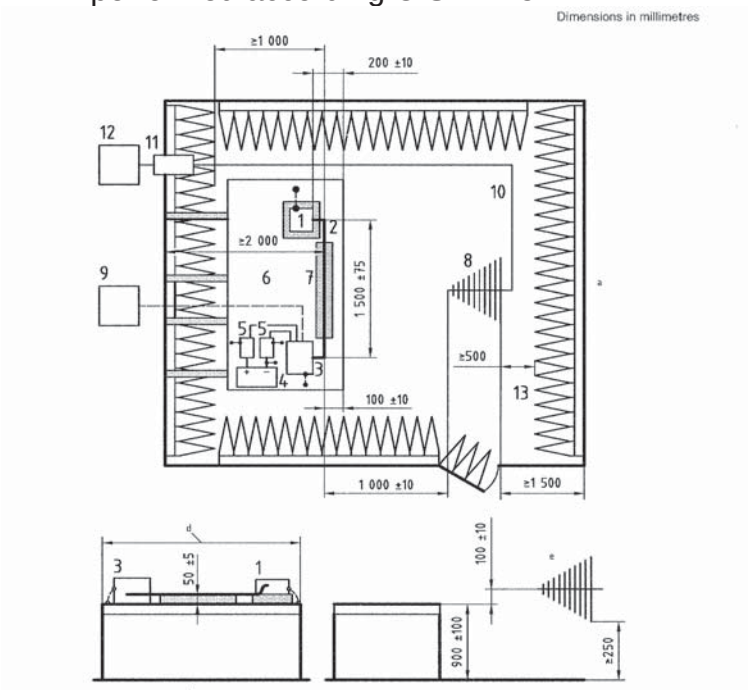
1. Details to equipment under test:

1.1. Representative EUT: tested model was ECS-7710-610M
1.2. Description of EUT: High Performance Fanless, Embedded Computing System

2. Test protocol:

2.1. Measurements radiated broadband electromagnetic emissions (annex 7)

2.1.1. Details to test: Power supply of E.U.T. with car battery and were measured and observed with digital voltmeter METEX, type M2750. Power supply voltage comes over L.I.S.N. (5µH/50Ω) and were connected with original cable from E. U. T.. Ground plane were connected to earth ground system. E. U. T. were isolated with 50mm isolation from ground plane. Ground plane is a copper plate with dimension of 3x1.5m (L x W). Operation mode were with original cables during tests, works in operation mode with worst case parameter in horizontal and vertical polarisation. Test was performed according CISPR 25.



2.1.2 Test results: passed, broadband emissions

2.2. Measurements radiated narrowband electromagnetic emissions (annex 8)

2.2.2 Details to tests: see pt.2.1.1

2.2.3 Test results: passed, narrowband emissions

SGS-TÜV Saarland Forster GmbH 05.04.2016

Test Report

EUT Information

EUT Name:	High Performace Fanless Embedded Computing System
Manufacturer:	Vecow Co., Ltd.
Model:	ECS-7710-610M
S/N.:	E14A715107
HW.-Rev.	03/2016
SW.-Rev.	None
Operating cond.:	Burn-in Test
Operator:	Dipl. -Ing. (FH) Sven Eric Weber
Test spec.:	Vehicle Directive
Test Side:	SAC1
Supply:	DC 24V over battery
Polarization:	Vertical/Horizontal
Line:	None
Project No.:	27804_30032016_ECS7710
Connected Device:	DC-Power-Line, DVI, COM, USB, Network
Comment:	None

EMI Auto Test Template: Automotive Components

Hardware Setup:	Automotive Components
Measurement Type:	EN 55025 (2008) Automotive
Frequency Range:	30 MHz - 1 GHz
Graphics Level Range:	0 dBµV/m - 80 dBµV/m
Preview Measurements:	
Scan Test Template:	Automotive Field Strength Prescan
Data Reduction:	
Limit Line #1:	Automotive Components BB QP
Limit Line #2:	Automotive Components NB AV
Peak Search:	6 dB , Maximum Results: 20
Subrange Maxima:	30 Subranges , Maxima per Subrange: 1
Acceptance Offset:	-20 dB
Maximum Number of Results:	30
After Data Reduction:	Interactive data reduction
Final Measurements:	
Template for Single Meas.:	Automotive Field Strength Final

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 1 GHz	40 kHz	QPK; AVG	120 kHz	10 s	20 dB

Receiver: [ESU 26]

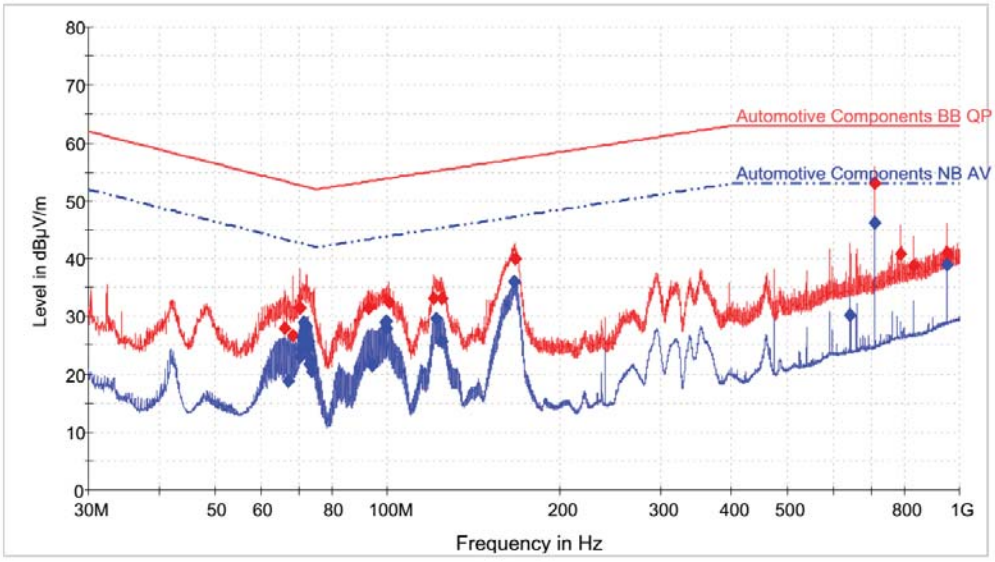
Report Settings:	
Report Template:	AutomotiveTest Report
Create Electronic Report:	PDF
Document Name:	Automotive Components Test Report

Actions:
Test stop
Protect Receivers

Page: 1 Time: 13:08:42

SGS-TÜV Saarland Forster GmbH 05.04.2016

Automotive Components



Automotive Components BB QP
Automotive Components NB AV
Preview Result 1-PK+
Preview Result 2-AVG
Final Result 1-QPK
Final Result 2-AVG

Page: 3 Time: 13:08:42
SGS-TÜV Saarland Forster GmbH 05.04.2016

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
66.240000	27.9	V	10.6	25.5	53.4	
68.280000	26.6	V	10.2	26.4	53.0	
70.240000	31.5	V	9.8	21.3	52.7	
92.720000	31.5	V	9.7	21.8	53.4	
100.320000	32.6	V	10.2	21.3	53.9	
120.280000	33.1	V	12.2	22.0	55.1	
124.280000	33.2	V	12.4	22.1	55.3	
167.040000	39.9	H	13.4	17.3	57.3	
711.080000	53.1	H	22.5	9.9	63.0	
790.080000	40.9	H	23.8	22.1	63.0	
829.600000	38.9	H	24.2	24.1	63.0	
948.040000	40.9	H	25.6	22.1	63.0	

Final Result 2

Frequency (MHz)	Average (dBµV/m)	Polarization	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
66.920000	18.8	V	10.4	24.5	43.2	
70.240000	22.9	V	9.8	19.8	42.7	
70.680000	24.4	V	9.8	18.3	42.6	
71.120000	26.5	V	9.7	16.1	42.6	
71.320000	28.9	V	9.7	13.6	42.5	
71.560000	28.6	V	9.6	13.9	42.5	
71.760000	27.8	V	9.6	14.7	42.5	
72.000000	28.4	V	9.5	14.0	42.4	
72.200000	24.9	V	9.5	17.5	42.4	
72.440000	24.4	V	9.5	18.0	42.4	
72.680000	25.8	V	9.4	16.6	42.3	
72.880000	21.8	V	9.4	20.5	42.3	
73.120000	21.8	V	9.4	20.4	42.3	
73.360000	22.5	V	9.3	19.8	42.2	
73.560000	20.5	V	9.3	21.7	42.2	
94.120000	21.5	V	9.7	22.0	43.5	
98.960000	29.0	V	10.1	14.8	43.8	
99.400000	29.2	V	10.1	14.7	43.9	
99.600000	28.0	V	10.1	15.9	43.9	
121.320000	29.7	V	12.3	15.4	45.2	
124.400000	25.7	V	12.4	19.6	45.3	
166.320000	36.1	H	13.5	11.2	47.2	
643.280000	30.2	H	21.6	22.8	53.0	
711.080000	46.2	H	22.5	6.8	53.0	
948.080000	39.0	H	25.6	14.0	53.0	

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2.3. Tests to immunity against radiated electromagnetic fields (annex 9)

2.3.1. Test methods: n. a., no immunity-related functions acc. pt.6.10.3.

2.4. Tests to immunity against transients disturbances (annex 10)

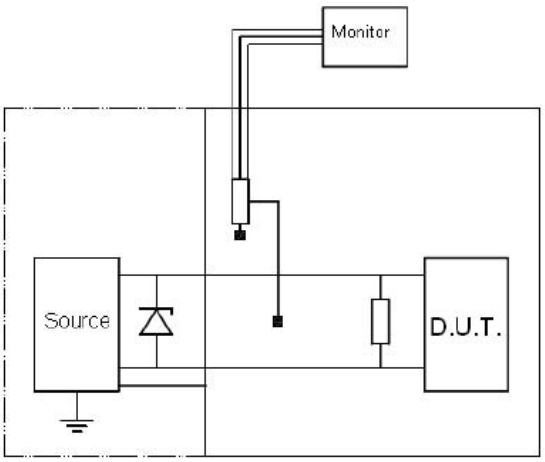
2.4.1. Test methods: tests were performed acc. ISO 7637-2 as described in Annex 10 with required test levels given in table 1.

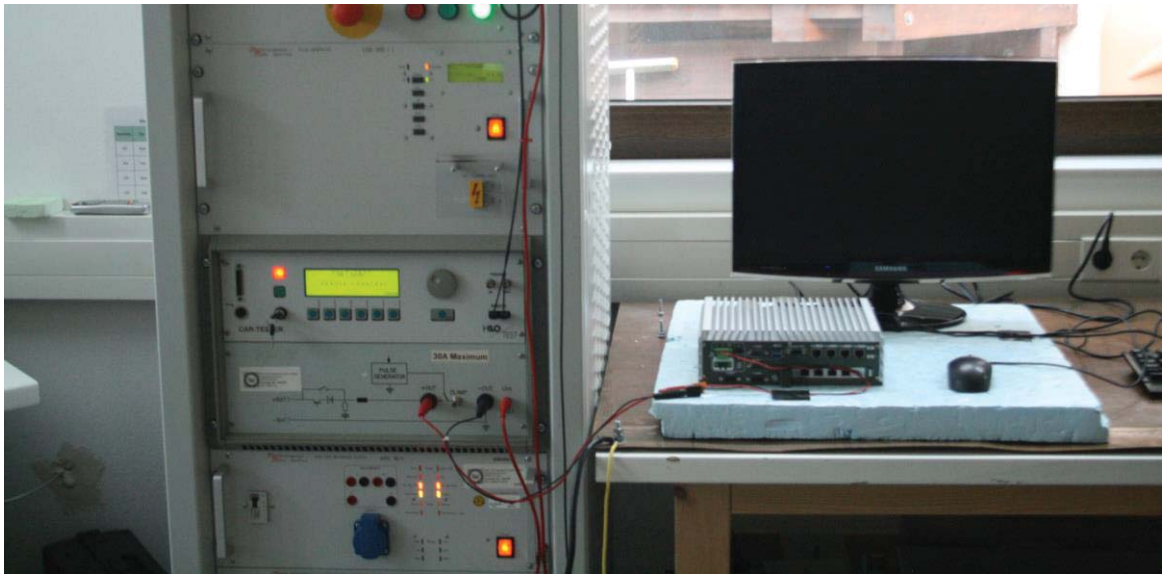
2.4.1.1. Details to test: E.S.A were connected to car battery and observed with CCD camera during operations and tests.

ISO7637-2 Electrical disturbance

Conduction and coupling along supply lines

1. **Transient immunity test-setup** (Pulse injection)





Test Overview – Immunity against transient disturbances	
Company:	SGS-TÜV Saarland Forster GmbH
Operator:	S. Weber
Manufacturer:	Vecow Co., Ltd.
Model No.:	ECS-7710-610M
Operating Mode:	Burn-In Test
Date of Test:	30.03.2016
Nominal Voltage:	24.00 Volt (DC)
Test Voltage:	27.00 Volt (DC)
Shunt resisitor Rs:	No Shunt
Test Level:	ISO 7637 Level 3

Voltage	***Pulse***	***functional status to be maintained***			***actual functional status***	***Remark (reaction of the test sample)***
		☐	☐	☒		
24 V	1	C	C	D	C	Reset
	2a	B	B	D	A	Normal operation
	2b	C	C	D	C	Reset
	3a	A	A	D	A	Normal operation
	3b	A	A	D	A	Normal operation
	4	B	C	D	C	Reset

Test Overview – Immunity against transient disturbances	
Company:	SGS-TÜV Saarland Forster GmbH
Operator:	S. Weber
Manufacturer:	Vecow Co., Ltd.
Model No.:	ECS-7710-610M
Operating Mode:	Burn-In Test
Date of Test:	30.03.2016
Nominal Voltage:	12.00 Volt (DC)
Test Voltage:	13.50 Volt (DC)
Shunt resisitor Rs:	No Shunt
Test Level:	ISO 7637 Level 3

Voltage	***Pulse***	***functional status to be maintained***			***actual functional status***	***Remark (reaction of the test sample)***
		☐	☐	☒		
12 V	1	C	C	D	C	Reset
	2a	B	B	D	A	Normal operation
	2b	C	C	D	C	Reset
	3a	A	A	D	A	Normal operation
	3b	A	A	D	A	Normal operation
	4	B	C	D	C	Reset

2.4.1.2 Tests result: no degradation of any performance were registered during tests.

2.3. Tests to emissions of conducted disturbances (annex 10)

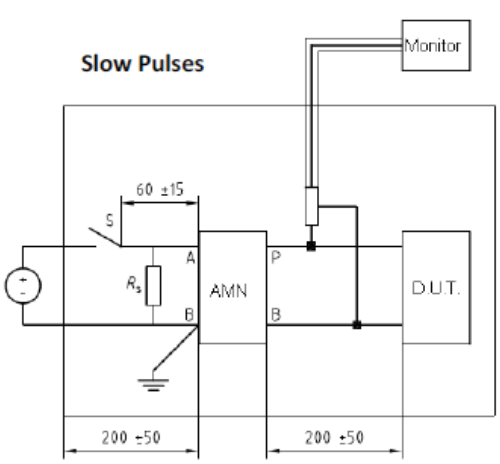
2.5.1. Test methods: tests were performed acc. ISO 7637-2 as described in Annex 10 with required test levels given in table 2.

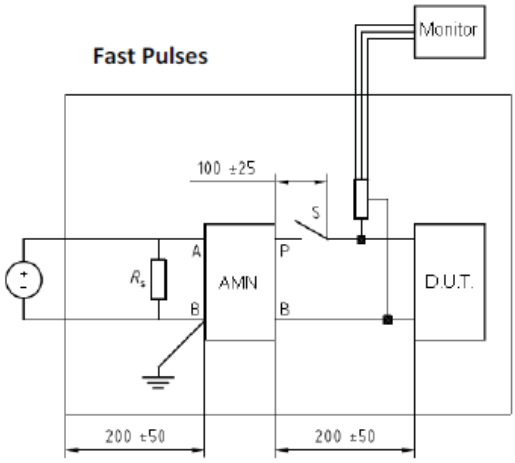
2.5.1.1. Details to test: E.S.A were connected to car battery and observed with CCD camera during operations and tests.

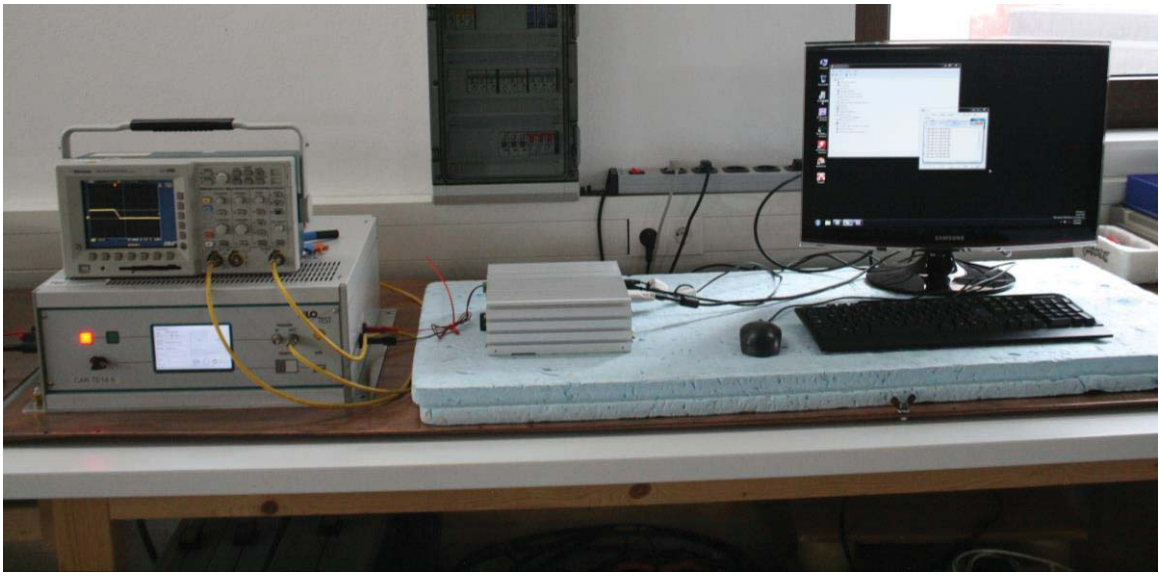
ISO7637-2 Electrical disturbance

Conduction and coupling along supply lines

2. Transient emission test-setup (Slow and Fast Pulses)





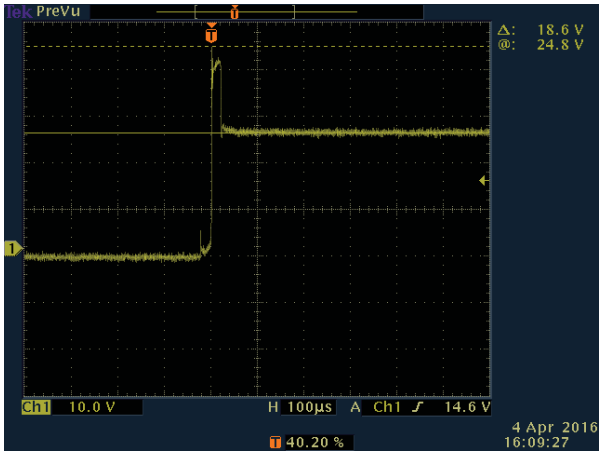


2.5.1.2 **Tests result:** passed conducted disturbances

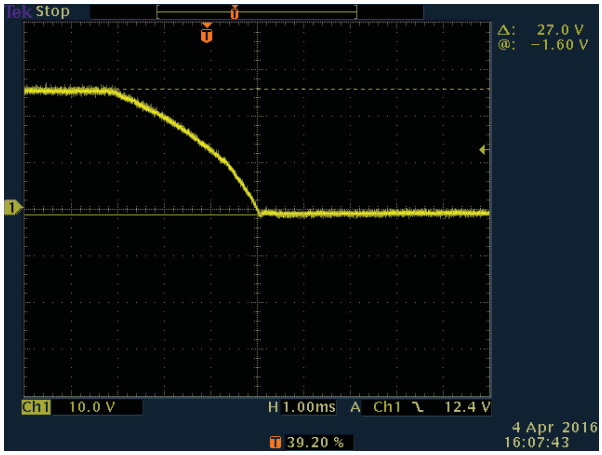
Test Overview – Immunity against transient disturbances	
Company:	SGS-TÜV Saarland Forster GmbH
Operator:	S. Weber
Manufacturer:	Vecow Co., Ltd.
Model No.:	ECS-7710-610M
Operating Mode:	Burn-In Test
Date of Test:	30.03.2016
Nominal Voltage:	24.00 Volt (DC)
Test Voltage:	27.00 Volt (DC)
Shunt resisitor Rs:	No Shunt
Test Level:	10 transients, 3 sec switch off, 10 sec delay time between repetitions

Fast Transients:

On:

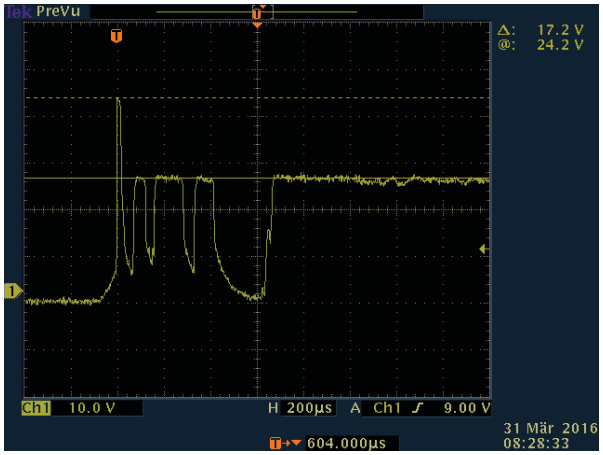


Off:



Slow Transients:

On:



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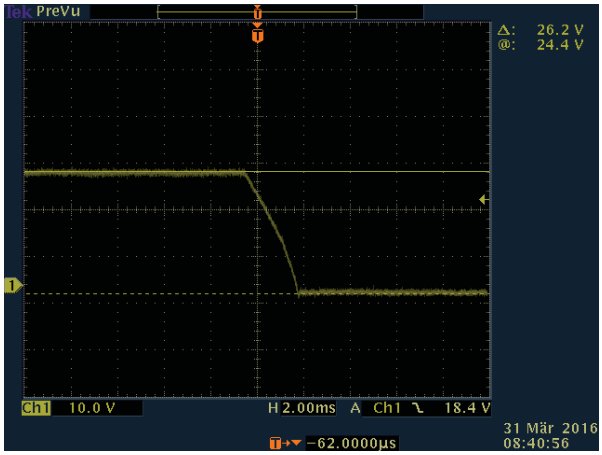
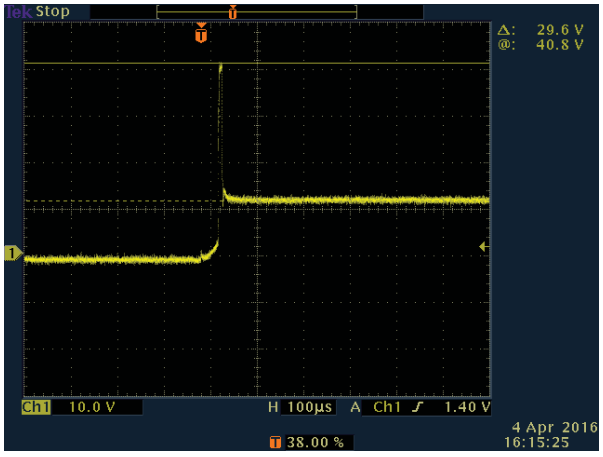


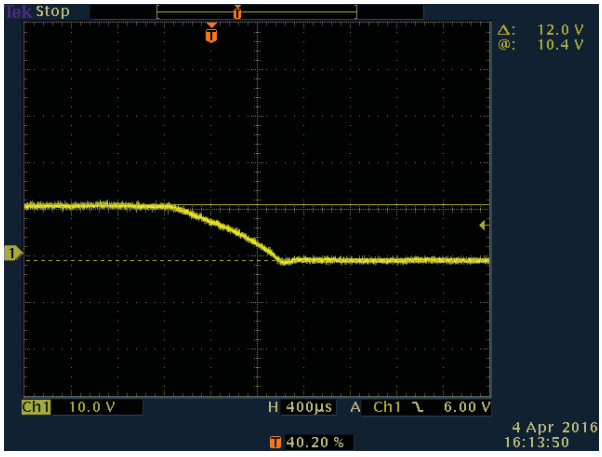
Test Overview – Immunity against transient disturbances	
Company:	SGS-TÜV Saarland Forster GmbH
Operator:	S. Weber
Manufacturer:	Vecow Co., Ltd.
Model No.:	ECS-7710-610M
Operating Mode:	Burn-In Test
Date of Test:	30.03.2016 & 04.04.2016
Nominal Voltage:	12.00 Volt (DC)
Test Voltage:	13.50 Volt (DC)
Shunt resisitor Rs:	No Shunt
Test Level:	10 transients, 3 sec switch off, 10 sec delay time between repetitions

Fast Transients:

On:

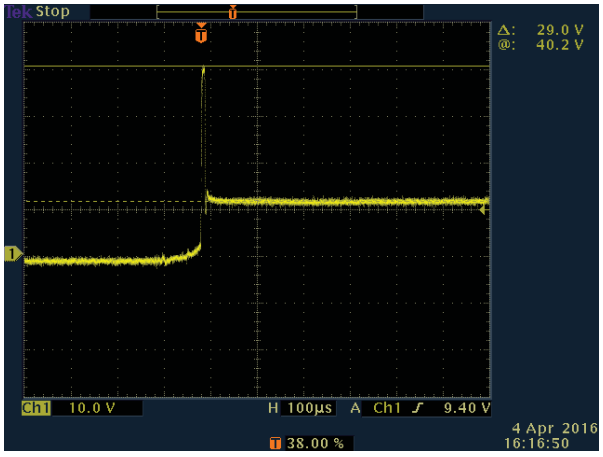


Off:

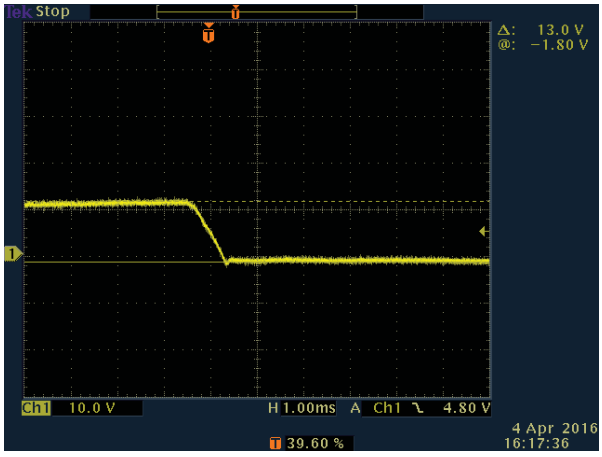


Slow Transients:

On:



Off:



24 V				
Limit value	**measured value**			
	slow switch on	**slow switch off**	**fast switch on**	**fast switch off**
150 V	17,2V	0V	19,2V	0V
- 450 V	-27,0V	-26,2V	-27,0V	-27,0V

12 V				
Limit value	**measured value**			
	slow switch on	**slow switch off**	**fast switch on**	**fast switch off**
75 V	29,0V	0V	29,6V	0V
- 100 V	-13,0V	-13,0V	-12,6V	-12,0V

2.6	**Date of tests:**	30.03.2016 & 04.04.2016
2.7	**Place of tests:**	SGS-TÜV Saarland Forster GmbH Saarbrücker Str. 1 66706 Perl- Sinz
2.8	**Remarks:**	all versions as stated in the test report are covered with test object(s) respectively. No further tests were necessary. Tested model was ECS-7710-610M.

3. Annex

3.1. not applicable
3.2. not applicable

4. Final statement

The description map and in that described type comply with above standards. Test lab is recognized from recognition body of Federal Office for Vehicles, Germany under the registration number: KBA-P 00029-98. Parts of this report are not allowed to reproduced or published without written permission from test lab.
This report covers complete sheet 4-14.

Perl , 20.05.2016
(Place) (date)

Digital signiert von K_-H_Forster
AN: CN=K_-H_Forster, C=DE, OU=Laborleiter, O=SGS-TÜV Saarland Forster GmbH, E=emv-forster@t-online.de
Grund: Ich genehmige dieses Dokument
Ort: Perl-Sinz
Datum: 31-05-2016 08:49:42

Karl-Heinz Forster
(Authorised Person) (signature)

(stamp of test lab)

Report of the manufacturer

Report/Application No.: 27804_30032016_ECS7710

Make (trade name of manufacturer):	Vecow Co., Ltd.
Type	ECS-7700
General commercial description(s):	High Performance Fanless, Embedded Computing System
Version(s)/Variant(s):	ECS-7xxxxxxxxxxxxxxxxxx
Name and address of manufacturer:	Vecow Co., Ltd. 12F, No. 111, Zhongcheng Rd., Tucheng Dist., Taipei City 23674,Taiwan, R.O.C.

Contents

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Description	Description from User Manual	3
Photo E.u.T.	Photo	1