

CTS

TESTING SERVICE TECHNOLOGY INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

# **EMC TEST REPORT**

TEST REPORT NUMBER : CNB3150810-00579-E



CE



Electromagnetic compatibility (EM	C) —Part 6-3: ( mercial and liq	T07+EAOR2011+AC2012 Generic standards — Er ht-industrial environmer 000-6-1:2007	nission standard for residential,
Electromagnetic compatibility com	(EMC) -Part		
Report Reference No	. CNB3150810	-00579-E	
Date of issue	. 21 August 20	15	
Testing Laboratory Name	.CTS	Testing Service Techn	ology Co., Ltd.
Testing location/ procedure	Partial applic	of Harmonised standard ation of Harmonised sta ard testing method D	
Applicant's name			
Address			
Test specification:			
Standard	EN 61000-6-	3:2007+A1:2011+AC:20	012, EN 61000-6-1:2007
		2:2014 ,EN 61000-3-3:	2013
Test Report Form No			
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Master TRF			
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Test item description	. Lifting Colum	า	
Trade Mark.	/		
Manufacturer			
Model/Type reference			
Ratings	.DC 24V, 50Hz	z, 80W	
Result	.PASSED		
Compiled by:	Supe	rvised by: Ruke	Approved by:
/File administrators	/	Technique principal	/Manager
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ERNATION



# EMC -- TEST REPORT

# Test Report No. : CNB3150810-00579-E

Type / Model..... CTD-A

EUT..... Lifting Column

Applicant .....

Aaaress

Manufacturer.....

Contact	1
Factory	
Aaaress	
Telephone	
Fax	
Contact	I

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21 August 2015 Date of issue



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# 1 TEST STANDARDS

The tests were performed according to following standards:

- EN 61000-6-3:2007+A1:2011+AC:2012 Electromagnetic compatibility (EMC) —Part 6-3: Generic standards Emission standard for residential, commercial and light-industrial environments
- EN 61000-6-1:2007 Electromagnetic compatibility (EMC) —Part 6-1: Generic standards Immunity for residential, commercial and light-industrial environments
- EN 61000-3-2:2014 Electromagnetic compatibility (EMC) Part 3-2: Limits Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).
- EN 61000-3-3: 2013 Electromagnetic compatibility (EMC) Part 3-3: Limits Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ^ 16 A per phase and not subject to conditional connection.

# 2 SUMMARY

## 2.1 GENERAL REMARKS

Date of receipt of test sample	17 August 2015		
Testing commenced on	17-21 August 2015		
Testing concluded on	21 August 2015		

## 2.2 FINAL ASSESSMENT

The EMC requirements pertaining to the technical standards and tested operation modes are

- fulfilled.
- □ -not fulfilled.

The equipment under test

- fulfils the EMC requirements cited on page 1.
- D does not fulfil the EMC requirements cited on page 1.



# 3 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage: 
a AC230V/50Hz
Others

## 3.2 Short description of the Equipment under Test (EUT)

1

Normal

Number of tested samples: Serial number: Prototype

## 3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

In the second second

Operating Mode:

Emissions tests.....: According to EN 61000-6-3, searching for the highest disturbance. Immunity tests.....: According to EN 61000-6-1, searching for the highest susceptivity. Harmonic current ......: According to EN 61000-3-2, searching for the highest disturbance.

Voltage fluctuation.....: According to EN 61000-3-3, searching for the highest disturbance.



## 3.4 EUT configuration

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurement:

Not Applicable

### 3.5 Performance level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level defined by its manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product.

## 3.6 Definition related to the performance level

#### based on the used product standard

□ based on the declaration of the manufacturer, requestor or purchaser

#### Criterion A:

Definition: normal performance within limits specified by the manufacturer, requestor or purchaser:

### Criterion B:

Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention:

### Criterion C:

Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention:

#### Criterion D:

Definition: loss of function or degradation of performance, which is not recoverable, owing to damage to hardware or software, or loss of data:



# 4 TEST ENVIRONMENT 4.1

### 4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS-Lab Code: L3394

CTS Testing Service Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

#### IC-Registration No.: 8374A

The 3m Alternate Test Site of CTS Testing Service Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on May 22, 2014.

#### FCC-Registration No.: 971995

CTS Testing Service Technology Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.971995, July 13, 2012.

#### 4.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 °C
Humidity:	25-75 %
Atmospheric pressure:	86-106 kPa

### 4.4 Definitions of symbols used in this test report

- The black square indicates that the listed condition,
  - standard or equipment is applicable for this report.
- The empty square indicates that the listed condition,
  - standard or equipment is not applicable for this report.

#### 4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report ace. to CISPR 16-4 "Specification for radio disturbance and immunity measuring apparatus and methods - Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system ace. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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## 4.6 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note	
Conduction disturbance	150kHz~30MHz	±1.22dB	(1)	
Power disturbance	30MHz~300MHz	±1.38dB	(1)	
Radiation emission (3m)	30MHz~300MHz	±3.14dB	(1)	
-	300MHz~1000MHz	±3.18dB	(1)	

(1)This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 4.7 Test Description

4.7.1 Description of Standards and Results

EMISSIO	ON (EN 61	000-6-3:2007+A1:2011+A	AC:2012)	
Description of Test Item	Limits	Results		
Conducted disturbance at mains terminals	EN61000-6-3:2007+A1:2011+AC:2012			PASS
Conducted disturbance at telecommunication port	EN61000	-6-3:2007+A1:2011+AC:20	012	N/A
Radiated disturbance	EN 61000	-6-3:2007+A1:2011 +AC:20	012	PASS
Harmonic current emissions		EN 61000-3-2:2014	Class A	PASS
Voltage fluctuations & flicker		EN 61000-3-3:2013		PASS
	IMMUNI	TY (EN 61000-6-1:2007)		
Description of Test Item		Basic Standard	Performance Criteria	Results
Electrostatic discharge (ESD)		IEC 61000-4-2: 2008	В	PASS
Radio-frequency, Continuous radiated disturbar	ice	IEC 61000-4-3:2006 +A1:2007+A2:2010	A	PASS
Electrical fast transient (EF	T)	IEC 61000-4-4:2012	В	PASS
Surge (Input a.c. power por	ts)	IEC 61000-4-5: 2005	В	PASS
Surge (Telecommunication po	orts)		В	N/A
Radio-frequency, Continuous conducted disturb	ance	IEC 61000-4-6: 2008	A	PASS
Power frequency magnetic field		IEC 61000-4-8: 2009	Α	PASS
Voltage dips, >95% reduction		IEC 61000-4-11: 2004	В	PASS
Voltage dips, 30% reduction	า	1	В	PASS
Voltage interruptions		1	С	PASS



# 5 TES T CONDI TIONS AND RESULTS 5.1

## Conducted disturbance

For test instruments and accessories used see section 6 part 6.2.

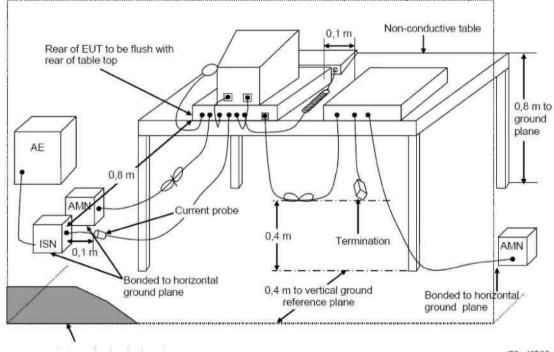
5.1.1 Description of the test location

Test location: Shielded room

- 5.1.2 Description of the test set-up
  - 5.1.2.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.1.2.2 Block Diagram of Test Setup



Vertical ground reference plane

IEC 467/05

5.1.3 Limits disturbance

Frequency Maximum RF Line Volta			oltage (dBuV)	
			Quasi-peak Level	Average Level
150kHz ~ 500kHz		66 ~ 56 *	56 ~ 46 *	
500kHz	~	5MHz	56	46
5MHz	~	30MHz	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.



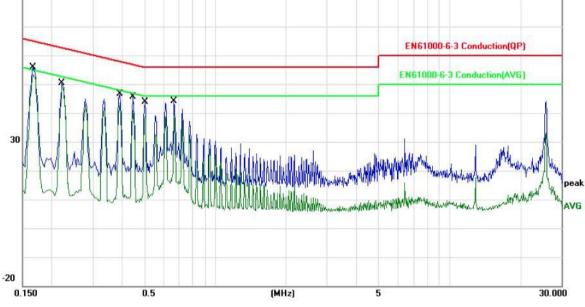


5.1.4 Test res	ult
The requirements are	Fulfilled
Band width	9kHz
Frequency range	0.15 MHz-30 MHz
Min. limit margin	>2.40dBat0.15-30MHz
Remar	ks: The limits are kept. For detailed results, please see the following page(s).



5.1.5 Test protocol

Test point L Operation mode Normal Remarks:		Result:	■ - passed □ - not passed	
EUT	Lifting Column			
MODEL NO.	CTD-A			
Operating Condition	AC 230V/50HZ			
Test Condition	Ambient Temperature	e: 24°C Hum	idity: 56%	
Operator	Eric			
80.0 dBu∀				



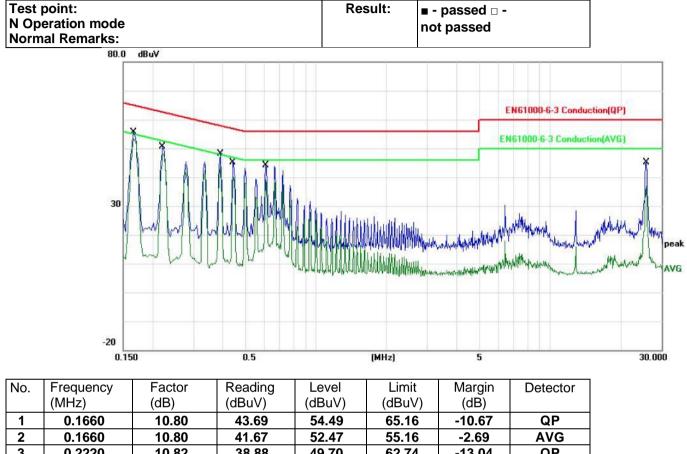
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1660	10.82	43.55	54.37	65.16	-10.79	QP
2	0.1660	10.82	41.94	52.76	55.16	-2.40	AVG
3	0.2220	10.84	38.g5	4g.7g	62.74	-12.95	QP
4	0.2220	10.84	37.g4	48.78	52.74	-3.96	AVG
5	o.3goo	10.88	35.57	46.45	58.06	-11.61	QP
6	o.3goo	10.88	32.80	43.68	48.06	-4.38	AVG
7	0.4460	10.90	32.42	43.32	56.g5	-13.63	QP
8	0.4460	10.90	2g.50	40.40	46.g5	-6.55	AVG
9	0.5020	10.91	30.8g	41.80	56.00	-14.20	QP
10	0.5020	10.91	27.48	38.3g	46.00	-7.61	AVG
11	0.6660	10.91	31.13	42.04	56.00	-13.96	QP
12	0.6660	10.91	27.g5	38.86	46.00	-7.14	AVG

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2	0.1660	10.80	41.67	52.47	55.16	-2.69	AVG
3	0.2220	10.82	38.88	49.70	62.74	-13.04	QP
4	0.2220	10.82	37.79	48.61	52.74	-4.13	AVG
5	0.3900	10.87	35.47	46.34	58.06	-11.72	QP
6	0.3900	10.87	32.81	43.68	48.06	-4.38	AVG
7	0.4420	10.88	30.86	41.74	57.02	-15.28	QP
8	0.4420	10.88	27.50	38.38	47.02	-8.64	AVG
9	0.6100	10.90	31.26	42.16	56.00	-13.84	QP
10	0.6100	10.90	27.82	38.72	46.00	-7.28	AVG
11	25.7420	11.10	29.87	40.97	60.00	-19.03	QP
12	25.7420	11.10	22.23	33.33	50.00	-16.67	AVG
12	25.7420	11.10	22.23	33.33	50.00	-16.67	AV

Note:I\_evel=Reading+Factor. Margin= Limit-Level



## 5.2 Radiated disturbance (electric field)

For test instruments and accessories used see section 6 part 6.1.

5.2.1 Description of the test location

Test location Semi-Anechoic chamber

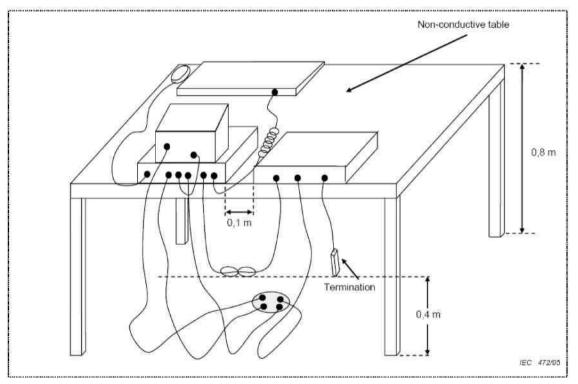
Test disturbance: 3 Meter

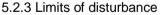
### 5.2.2 Description of the test set-up

5.2.2.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.2.2.2 Block Diagram of Test Setup





Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBpV/m)
30 ~ 230	3	40
230-1000	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.



5.2.4 Test result

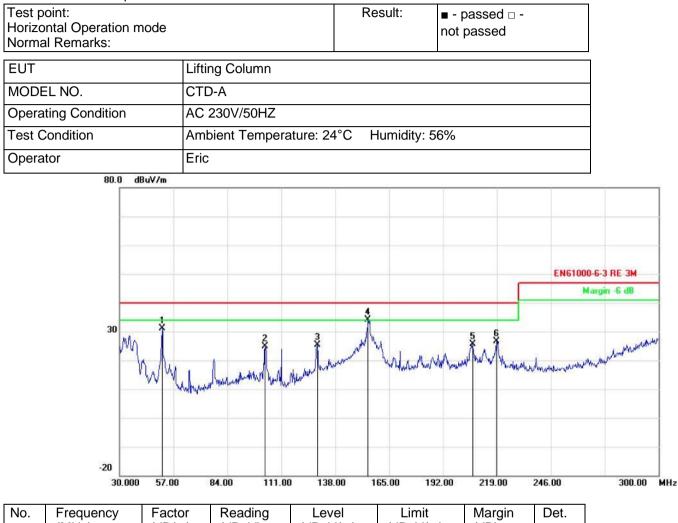
The requirements are	Fulfilled	
Band width	120kHz	
Frequency range	30 MHz-1000 MHz	
Min. limit margin	>4.01 dB at 30-1000 MHz	
Remarks:	The limits are kept. For detailed results, please see the following	g page(s).

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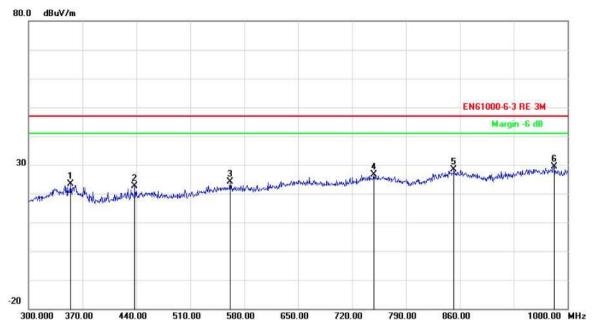


5.2.5 Test protocol



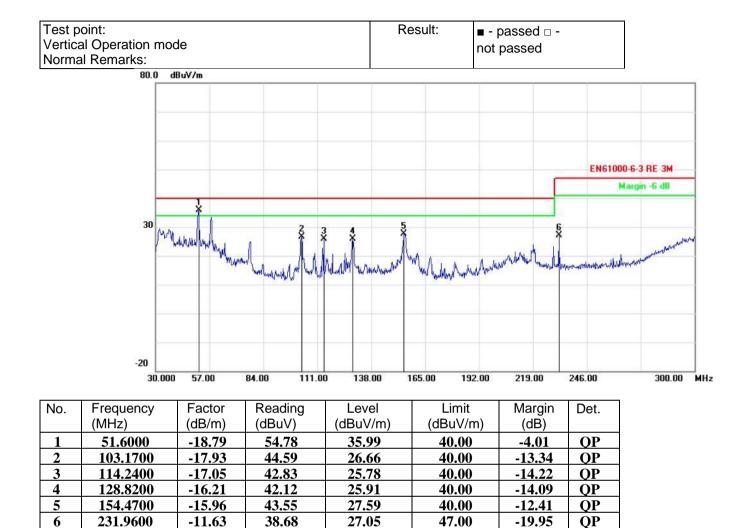
NO.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	51.3299	-18.76	49.77	31.01	40.00	-8.99	QP
2	102.9000	-17.95	42.84	24.89	40.00	-15.11	QP
3	129.0900	-16.19	41.56	25.37	40.00	-14.63	QP
4	154.4699	-15.96	50.04	34.08	40.00	-5.92	QP
5	206.8499	-10.85	36.43	25.58	40.00	-14.42	QP
6	218.7299	-10.83	37.42	26.59	40.00	-13.41	QP



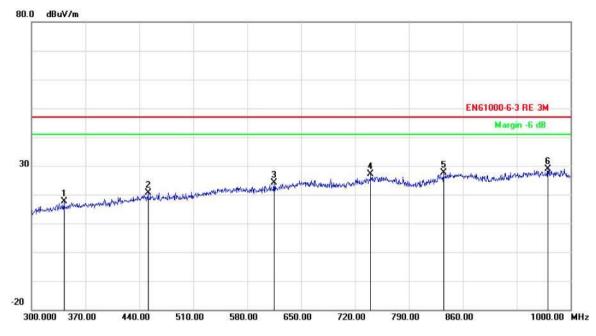


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	354.6000	-11.27	34.74	23.47	47.00	-23.53	QP
2	437.9000	-8.96	31.52	22.56	47.00	-24.44	QP
3	561.8000	-5.65	29.84	24.19	47.00	-22.81	QP
4	748.0000	-1.68	28.39	26.71	47.00	-20.29	QP
5	852.3000	-0.36	28.78	28.42	47.00	-18.58	QP
6	982.5000	0.11	29.24	29.35	47.00	-17.65	QP









No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	342.0000	-11.71	29.35	17.64	47.00	-29.36	QP
2	451.2000	-8.45	29.06	20.61	47.00	-26.39	QP
3	615.0000	-4.85	28.98	24.13	47.00	-22.87	QP
4	740.3000	-2.01	29.24	27.23	47.00	-19.77	QP
5	834.8000	-1.20	28.83	27.63	47.00	-19.37	QP
6	970.6000	0.23	28.54	28.77	47.00	-18.23	QP

Note:Level=Reading+Factor.

Margin= Limit-Level



### 5.3 Harmonic current

For test instruments and accessories used see section 6 part 6.3.

5.3.1 Description of the test location

Test location : Test location no. 1

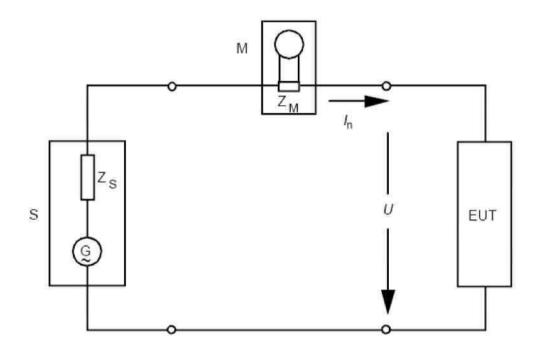
5.3.2 Limits of harmonic current

Test configuration and procedure see clause 7.1 of standard EN 61000-3-2:2014.

- 5.3.3 Description of the test set-up
  - 5.3.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.3.3.2 Block Diagram of Test Setup



5.3.4 Test result

The requirements are Fulfilled

Remarks: The limits are kept. For detailed results, please see the following page(s).



5.3.5 Test protocol

Operation mode Normal Remarks:		Result:	■ - passed □ - not passed
Standard used:	EN 61000-3-2 Out	asi-Stationary - Equ	
Observation time:	5 min		
Windows width:	10 periods - (EN/I	EC 61000-4-7 Editi	on 2002)
Mains supply voltage:	AC 230V/50HZ		
Ambient Temperature:	24 °C		
Humidity:	56%		
Barometric Pressure:	86~106KPa		
E. U. T.:	Lifting Column		
M/N:	CTD-A		
Date of test:	18 August 2015		
Tester:	Eric		

Test result	
E. U.T.:	PASS
Power Source:	PASS

Check harmonics 2..40 [exception odd 21..39]:

Т

Harmonic(s)> 150%:	
Order (n):	None
Harmonic(s) with average > 10	0%:
Order (n):	None

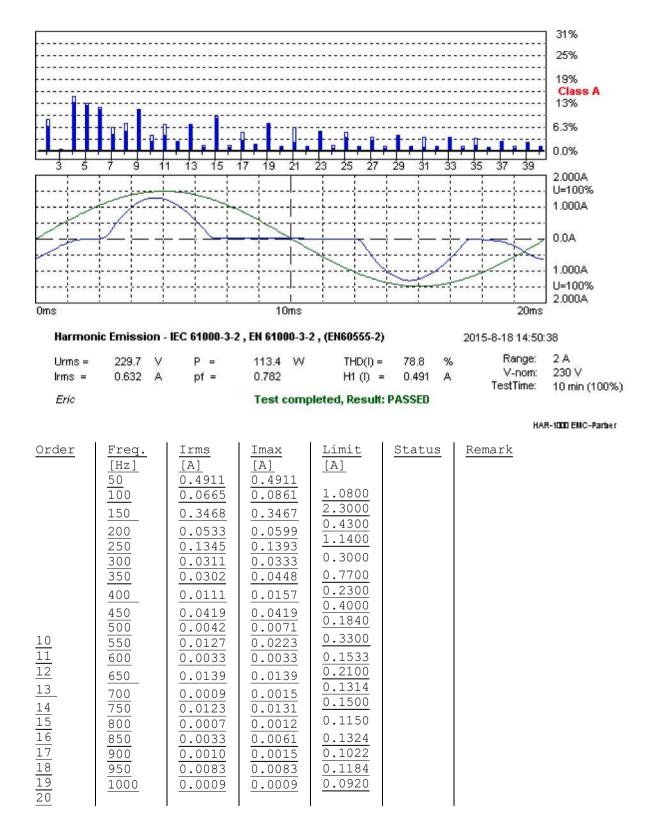
Check odd harmonics 21..39:

All Partial Odd Harmonics below partial limits.

Harmonic(s) > 150%: Order (n): None

Harmonic(s) with average > 150%: Order (n): None





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$ \begin{array}{r}  21 \\  22 \\  23 \\  24 \\  25 \\  26 \\ \end{array} $	$     \begin{array}{r}         & 1050 \\             1100 \\             1150 \\             1200 \\             1250 \\             1300 \\         \end{array}     $	$     \begin{array}{r}       0.0021 \\       0.0007 \\       0.0048 \\       0.0002 \\       0.0031 \\       0.0006 \\       \end{array} $	$     \begin{array}{r}       0.0063 \\       0.0007 \\       0.0048 \\       0.0007 \\       0.0042 \\       0.0006 \\       \end{array} $	$ \begin{array}{r}     \underbrace{0.1071} \\     0.0836 \\     \hline     0.0978 \\     \hline     0.0767 \\     \hline     0.0900 \\     \overline{0.0708} \\   \end{array} $
26 27 28 29 30	$     \begin{array}{r} 1350 \\             1400 \\             1450 \\             1500 \\             \end{array}     $	0.0021 0.0002 0.0029 0.0005	0.0028 0.0006 0.0029 0.0005	0.0833 0.0657 0.0776 0.0613
$     \frac{31}{32}     \frac{33}{34}     35 $	$     \frac{1550}{1600} \\     \frac{1650}{1700} \\     1750   $	$     \begin{array}{r}             0.0005 \\             \underline{0.0004} \\             0.0023 \\             \underline{0.0002} \\             0.0007 \\             \hline             0.0007             \end{array}     $	$     \begin{array}{r}       0.0024 \\       0.0005 \\       0.0023 \\       0.0005 \\       0.0018 \\     \end{array} $	$     \begin{array}{r}       0.0726 \\       0.0575 \\       0.0682 \\       0.0541 \\       0.0643     \end{array} $
$     \begin{array}{r}       36 \\       37 \\       38 \\       39 \\       40     \end{array} $	$     \begin{array}{r}         & 1800 \\             1850 \\             1900 \\             1950 \\             2000 \\         \end{array}     $	$     \begin{array}{r}       0.0004 \\       0.0013 \\       0.0002 \\       0.0011 \\       0.0004     \end{array} $	$     \begin{array}{r}       0.0004 \\       0.0015 \\       0.0004 \\       0.0011 \\       0.0004 \\       0.0004 \\       \hline       0.0004 \\       0.0004 \\       \hline       0.0004 \\       0.0004 \\       \hline       0.0004 \\ $	$     \begin{array}{r}         \hline         0.0511 \\         0.0608 \\         \hline         0.0484 \\         0.0577 \\         \overline{ 0.0460 }         \end{array}     $

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5.4 Voltage fluctuations and flicker

For test instruments and accessories used see section 6 part 6.4.

5.4.1 Description of the test location

Test location : Test location no. 1

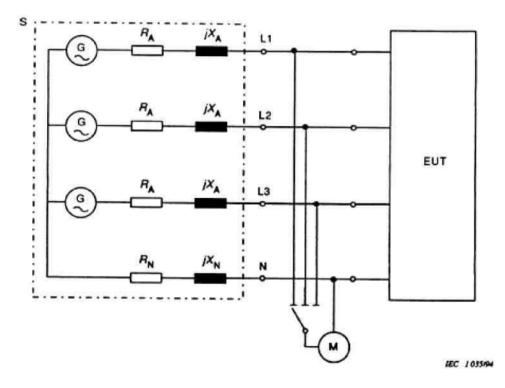
5.4.2 Limits of voltage fluctuation and flicker

Test configuration and procedure see clause 5 of standard EN 61000-3-3: 2013.

- 5.4.3 Description of the test set-up
  - 5.4.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.4.3.2 Block Diagram of Test Setup





5.4.4 Test result

The requirements are Fulfilled

Remarks: The limits are kept. For detailed results, please see the following page(s).

5.4.5 Test protocol

Operation mode	Result:	∎ - passed □ -
Normal Remarks:		not passed

Standard used:	EN 61000-3-3 Flicker
Short time (Pst):	1 min
Observation time:	10 min (1 Flicker measurement)
Flickermeter:	AC 230V/50HZ
Ambient Temperature:	24 °C
Humidity:	56%
Barometric Pressure:	86~106KPa
E. U.T.:	Lifting Column
M/N:	CTD-A
Date of test:	18 August 2015
Tester:	Eric

## Maximum Flicker results

	EUT values	Limit	Result
Pst	0.07	1.00	PASS
dc [%]	0.00	3.30	PASS
dmax [%]	0.00	4.00	PASS
dt[s]	0.00	0.50	PASS



Flickerm		1	101		101501	12			1	100%	Actual Flicker (Fli):	0.00
					-+			+++	·+	80%	Short-term Flicker (Pst): Limit (Pst):	<b>0.11</b> 1.00
	++-	$\left  \cdot \right $		+				-+-+			Long-term Flicker (Plt): Limit (Plt):	<b>0.11</b> 0.65
				$\downarrow$				11		60%	Maximum Relative Volt. Change (dmax):	0.25%
		$\downarrow$		$\downarrow \downarrow$				-+-+		40%	Limit (dmax):	4.00%
	++-	++		++					. <b>-</b>	1.0.000	Relative Steady-state Voltage Change (dc):	0.19%
╍┿╍┿	-++-	+-+		+-+				-+-+		20%	Limit (dc):	3.30%
				+				-+-+		0%		0.00ms
).01	0.1 02 0	<sup>15</sup> 1	2	s ' 10	[	100		, 1000	100	IOO Class	Limit (dt>Lim):	200ms
Flick	er Emis	sion	- IEC	61000	)-3-3,	EN 610	00-3	-3 , (EN6	0555-	3)	2015-8-18 14:38:2	6
Urms Irms		29.5 .544	V A	P p1	=	94. 0.7	000	W			V-nom:	2 A 230 V 10 min (100%
Eric						Te	st co	omplete	ed, Re	sult: PAS		

HAR-1000 EMC-Parber



## 5.5 Electrostatic discharge

For test instruments and accessories used see section 6 part 6.5.

### 5.5.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

## 5.5.2 Severity of levels electrostatic discharge

5.5.2.1 Severity level: Contact discharge at +4KV air discharge at +8KV

Level	Test Voltage Contact Discharge (kV)	Test Voltage Air Discharge (kV)
1	2	2
2	4	4
3	6	8
4	8	15
Х	Special	Special

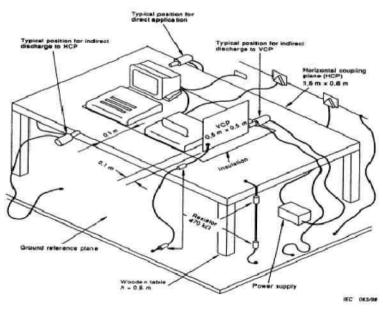
5.5.2.2 Performance criterion: B

5.5.3 Description of the test set-up

5.5.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

## 5.5.3.2 Block Diagram of Test Setup







5.5.4 Test specifi	cation:			
Contact discharge voltage	ge:   ∎ 2 kV	<b>4</b>	kV	
Air discharge voltage:	∎ 2 kV	■ 4 kV	∎ 8 kV	
Discharge impedance:	∎ 330 Q /15	0 pF		
Discharge factor:	∎ > 1 sec			
Number of discharges	1 10			
Number of discharges:	∎ > 10			
Type of discharge:	Direct discharge	= Air c	lischarge	
			tact discharge	
	Indirect discharge		tact discharge	
			aor alsonarge	
Polarity:	■ Positive	■ Nega	ative	
Discharge location:	Bsee photo doc	umentation	of the test set-up	
	Ball external loc	ations acces	ssible by hand	
	■horizontal plate	(HCP)		
-				
	∎vertical couplin	ng plate (VC	CP)	

5.5.5 Test result

The requirements are Fulfilled

Performance Criterion: B

Remarks: During the test no deviation was detected to the selected operation mode(s).





## 5.6 Radiated, radio-frequency, electromagnetic field

For test instruments and accessories used see section 6 part 6.6.

### 5.6.1 Description of the test location

Test location :	GTEM chamber
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

# 5.6.2 Severity levels of radiated, Radio-frequency, electromagnetic field

5.6.2.1 Severity level: 3V/m and 1 V/m

Level	Field strenght(V/m)
1	1
2	3
3	10
X	Special

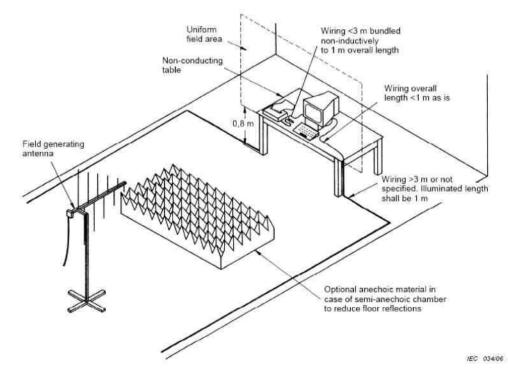
5.6.2.2 Performance criterion: A

5.6.3 Description of the test set-up

5.6.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.6.3.2 Block Diagram of Test Setup





■ 3V/m ■ 3m	
■ 3m	
■ AM: 80% ■ sinusoidal 1000Hz	
1 % with 3 s dwell time	
■ horizontal ■ vertical	
■ 1400 MHz to 2000 MHz	
■ 3V/m	
■ 3m	
■ AM: 80% ■ sinusoidal 1000Hz	
1 % with 3 s dwell time	
■ horizontal ■ vertical	
■ 2000 MHz to 2700 MHz	
■ 1 V/m	
■ 3m	
■ AM: 80% ■ sinusoidal 1000Hz	
1 % with 3 s dwell time	
■ horizontal ■ vertical	
	<ul> <li>sinusoidal 1000Hz</li> <li>1 % with 3 s dwell time</li> <li>horizontal vertical</li> <li>1400 MHz to 2000 MHz</li></ul>

5.6.5 Test result

The requirements are Fulfilled

Performance Criterion: A

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 5.7 Electrical fast transients / Burst

For test instruments and accessories used see section 6 part 6.7.

### 5.7.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

5.7.2 Severity levels of electrical fast transients / Burst

5.7.2.1 Severity level: ± 1000V for AC power supply lines

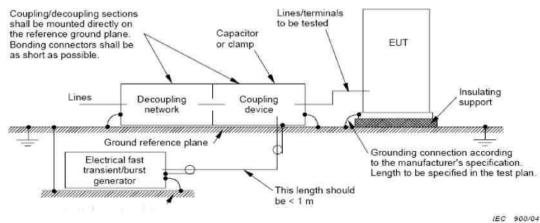
	Open circuit output test voltage and repetition rate of the impulses						
Level	On pov	ver port, PE	On I/O signal, data and control ports				
	V peak (KV)	Repetition rate (KHz)	Voltage peak	Repetition rate (KHz)			
1	0.5	5 or 100	0.25	5 or 100			
2	1	5 or 100	0.5	5 or 100			
3	2	5 or 100	1	5 or 100			
4	4 5 or 100		2	5 or 100			
Х	Special	Special	Special	Special			

5.7.2.2 Performance criterion: B

5.7.3 Description of the test set-up

5.7.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded



## 5.7.3.2 Block Diagram of Test Setup

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## Report No.: CNB3150810-00579-E



5.7.4 Test specif	ication:			
Coupling network:	■ 0.5 kV	■ 1 kV	□ 2 kV	
Coupling clamp:	□ 0.5 kV	□ <b>1 kV</b>		
Burst frequency:	■ 5.0 kHz			
Coupling duration:	∎ -60s			
Polarity:	■ positive			•

5.7.5 Coupling points

Cable description:	AC power line:	L, N, L+N	
Screening:	screened	unscreened	
Status:	D passive	■ active	
Signal transmission:	analogue	D digital	
Length:	∎ 1.5m		

5.7.6 Test result

The requirements are Fulfilled

Performance Criterion: B

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 5.8 Surge

### For test instruments and accessories used see section 6 part 6.8.

5.8.1 Description of the test location

Test location :	Test location no. 2	
Power supply:	AC 230V/50HZ	
Test condition:	Ambient Temperature: 24 °C, Humidity:56%	
Date of test	17-21 August 2015	
Operator	Eric	

## 5.8.2 Severity levels of surge

### 5.8.2.1 Severity level: Line to line: +1KV Line to earth: ±2KV

Level	Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
X	Special

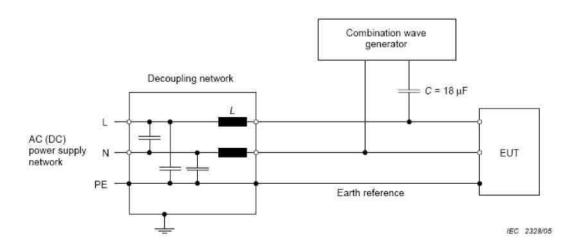
## 5.8.2.2 Performance Criterion: B

5.8.3 Description of the test set-up

## 5.8.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

## 5.8.3.2 Block Diagram of Test Setup





5.8.4 Test specification:

Pulse amplitude-Power line sym.: Source impedance: 2 Q + 18uF	■ 0.5 kV	■ 1 kV	□ 2 kV	□ 4 kV
Pulse amplitude-Power line unsym: Source impedance: 12 Q + 9uF	□ 0.5 kV	□ 1 kV	□ 2 kV	□ 4 kV
Number of surges:	■ 5 Surges	/Phase angle		
Phase angle:	■ 0°_	■ 90°		180°
Repetition rate:	■ 60s			
Polarity:	■ positive		∎ ne	egative

5.8.5 Coupling points		
Cable description:	AC power line:	L+N
Screening:	screened	unscreened
Status:	passive	■ active
Signal transmission:	analogue	D digital
Length:	∎ 1.5 m	

5.8.6 Test result

The requirements are Fulfilled

Performance Criterion: B

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 5.9 Conducted disturbances induced by radio-frequency fields

For test instruments and accessories used see section 6 part 6.9

#### 5.9.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

5.9.2 Severity levels of conducted disturbances induced by radio-frequency fields discharge 5.9.2.1 Severity Level: 3V

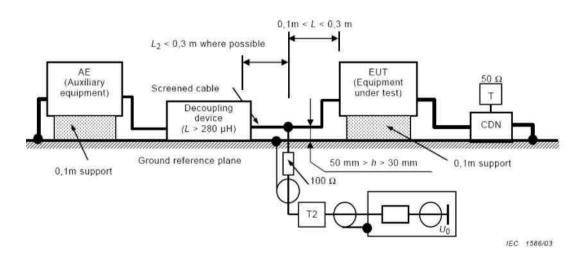
Level	Field Strength (V)
1	1
2	3
3	10
Х	Special

5.9.2.2 Performance Criterion: A

5.9.3 Description of the test set-up

5.9.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded 5.9.3.2 Block Diagram of Test Setup





5.9.4 Test speci	fication:
Frequency range:	■ 0.15 MHz to 80 MHz
Test voltage:	■ 3V
Modulation:	■ AM: 80% ■ sinusoidal 1000Hz
Frequency step:	■ 1 % with 3 s dwell time

5.9.5 Coupling points

Cable description (Portl):	AC power line:	AC power line: L+N	
Screening:	screened	unscreened	
Status:	passive	■ active	
Signal transmission:	■ analogue	🗆 digital	
Length:	∎ 0.3 m		

5.9.6 Test result

The requirements are Fulfilled

Performance Criterion: A

Remarks:

During the test no deviation was detected to the selected operation mode(s).





## 5.10 Power frequency magnetic field

For test instruments and accessories used see section 6 part 6.10.

#### 5.10.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

### 5.10.2 Severity levels of magnetic field immunity

#### 5.10.2.1 Severity Level: 3A/m

Level	Magnetic Field Strength (A/m)
1	1
2	3
3	10
4	30
5	100
Х	Special

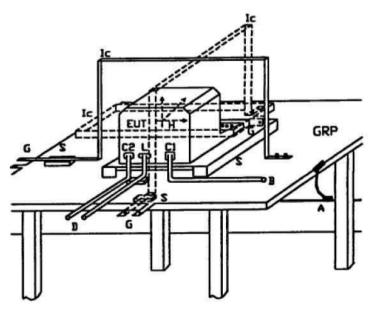
5.10.2.2 Performance Criterion: A

5.10.3 Description of the test set-up

5.10.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.10.3.2 Block Diagram of Test Setup







5.10.4 Test specification:

Test frequency:	■ 50 Hz
-	
Continuous field:	■ 3A/m
Duration (Continuous field):	■ 60 s each Axis
Duration (Continuous neid).	
Short duration (1-3s):	∎ 3s
Axis:	∎ x-axis  ∎ y-axis  ∎ z-axis

5.10.5 Test result

The requirements are Fulfilled

Performance Criterion: A

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 5.11 Voltage dips

For test instruments and accessories used see section 6 part 6.11.

5.11.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

#### 5.11.2 Severity levels of voltage dips

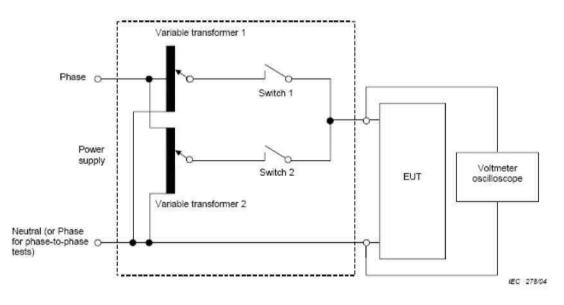
Test Level (%Ut)	Voltage Dips (%Ut)	Performance Criterion	Duration (in period)
0	100	В	0.5
0	100	В	1
70	30	В	25

5.11.3 Description of the test set-up

5.11.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.11.3.2 Block Diagram of Test Setup







5.11.4 Test specification:	
Nominal Mains Voltage (V <sub>N</sub> ):	■ AC 230V
Number of voltage fluctuations:	∎ 3
Level of reduction(dip) / duration:	■ 100% /10ms and 20ms
Level of reduction(dip) / duration:	■ 30%/500ms

5.11.5 Test result

The requirements are FulfilledPerformance Criterion: B

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 5.12 Voltage Short interruptions

For test instruments and accessories used see section 6 part 6.12.

#### 5.12.1 Description of the test location

Test location :	Test location no. 2
Power supply:	AC 230V/50HZ
Test condition:	Ambient Temperature: 24°C, Humidity:56%
Date of test	17-21 August 2015
Operator	Eric

5.12.2 Severity levels of voltage short interruptions

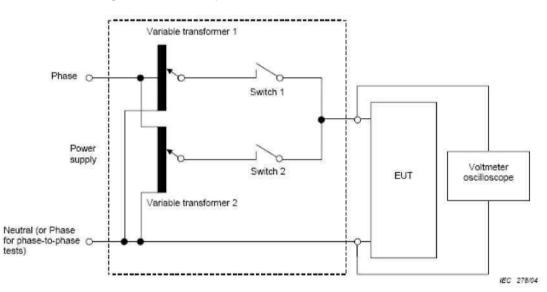
Test Level (%Ut)	Voltage Short Interruptions (%Ut)	Performance Criterion	Duration (in period)
0	100	С	250

5.12.3 Description of the test set-up

5.12.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.12.3.2 Block Diagram of Test Setup





### 5.12.4 Test specification:

Nominal Mains Voltage (V <sub>N</sub> ):	■ AC 230 V
Number of voltage fluctuations:	<b>3</b>
Level of reduction(dip) / duration:	∎ 5000 ms

5.12.5 Test result

The requirements are Fulfilled Performance Criterion: C

Remarks: During the test no deviation was detected to the selected operation mode(s).



## 6 USED TEST EQUIPMENT

I

	6.1							
Radia	Radiated disturbance (Electric field)							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.			
1	Signal analyzer	ROHDE & SCHWARZ	FSIQ26	100311	2015/03/24			
2	EMI Test Receiver	ROHDE & SCHWARZ	ESVS 10	842885/001	2014/11/04			
3	Biconical Antenna	ROHDE & SCHWARZ	HK116	100221	2015/03/24			
4	Log per Antenna	ROHDE & SCHWARZ	HL223	100226	2015/03/24			
5	Log per Antenna	ROHDE & SCHWARZ	HL050	100186	2015/03/24			
6	Pre-Amplifier	EMC	EMC330	980113	2015/03/24			
7	Pre-Amplifier	EMC	EMC012645	980114	2015/03/24			
8	EMI Test Software	Farad	EZ-EMC	N/A	N/A			

\_6.2

	012					
Con	ucted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	100868	2014/11/04	
2	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z5	832479/025	2014/11/04	
3	Artificial Mains	ROHDE & SCHWARZ	ESH3-Z6	100140	2014/11/04	
4	Pulse Limiter	ROHDE & SCHWARZ	ESHS-Z2	100301	2014/11/04	
5	EMI Test Software	Farad	EZ-EMC	N/A	N/A	

	6.3						
Harm	Harmonic Current						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	Harmonic And Flicker Analyzer	EMC Partner	Harmonicsl 000-1P	103488	2014/11/04		
2	Harmonics-1000	EMC Partner	N/A	N/A	N/A		

	6.4						
Volta	Voltage Fluctuation and Flicker						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	Harmonic And Flicker Analyzer	EMC Partner	Harmonicsl 000-1P	103488	2014/11/04		
2	Harmonics-1000	EMC Partner	N/A	N/A	N/A		

	6.5					
Elect	Electrostatic Discharge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	
1	ESD Simulator	Schloder	SESD 200	0302016	2015/03/24	



	6.6							
RF F	RF Field Strength Susceptibi ity							
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.			
1	Signal Generator	ROHDE & SCHWARZ	SMY01	843215/014	2014/11/04			
2	Signal Generator	ROHDE & SCHWARZ	SML03	102986	2014/11/04			
3	Amplifier	KALMUS	713FC	7385-1	2014/11/04			
4	Power Meter	ROHDE & SCHWARZ	NRVS	842856/049	2014/11/04			
5	Field Probe	ETS	HI-6005	00075047	2014/11/11			
6	RS Test Software	Farad	EZ-RS	N/A	N/A			

	6.7						
Elect	rical Fast Transient/Bur	st					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	EMC test system Transient-1000	EMC Partner	Transient-1000	HAR1000-78	2014/11/04		
2	3-Phase Coupling Network	EMC Partner	CDN1000	CDN1000-08	2014/11/04		
3	Coupling Clamp	EMC Partner	SFT410	0302015	2014/11/04		
4	Genecs Software	EMC Partner	N/A	N/A	N/A		

	6.8						
Surg	е						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	EMC test system Transient-1000	EMC Partner	Transient-1000	HAR1000-78	2014/11/04		
2	3-Phase Coupling Network	EMC Partner	CDN1000	CDN 1000-08	2014/11/04		
3	Coupling Clamp	EMC Partner	SFT410	0302015	2013/11/05		
4	Genecs Software	EMC Partner	N/A	N/A	N/A		

	6.9						
Cond	ducted Susceptibility						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.		
1	RF generator / amplifier	Schlbder	CDG 6000	HU906007	2014/11/04		
2	CDN	Schlbder	CDNM3	A3003008	2014/11/04		
3	CDN	Schlbde	CDNT2	A3010005	2014/11/04		
4	Attenuator	Abschwacher	DC-500MHZ	N/A	2014/11/04		
5	EM injection clamp	Liithi	EM101	35670	2013/11/06		
6	CDG-6000 Software	Schlbder	N/A	N/A	N/A		



6.10								
Power Frequency Magnetic Field Susceptibility								
ltem	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.			
1	Power frequency mag-field generator	EM TEST	EMS61000-8K	409001	2014/11/04			

	6.11								
Voltage Dips									
ltem	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.				
1	EMC test system Transient-1000	EMC Partner	Transient-1000	HAR1000-78	2014/11/04				
2	3-Phase Coupling Network	EMC Partner	CDN1000	CDN1000-08	2014/11/04				
3	GenecsSoftware	EMC Partner	N/A	N/A	N/A				

	6.12									
Voltage Short Interruptions										
ltem	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.					
1	EMC test system Transient-1000	EMC Partner	Transient-1000	HAR1000-78	2014/11/04					
2	3-Phase Coupling Network	EMC Partner	CDN1000	CDN 1000-08	2014/11/04					
3	GenecsSoftware	EMC Partner	N/A	N/A	N/A					

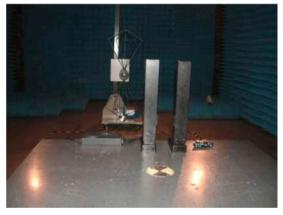


## 7 TEST PHOTOGRAPHS

7.1. Photo of power line conducted emission measurement (C.E.)



7.2. Photo of radiated emission measurement (R.E. Electric field)



7.3. Photo of harmonic current and flicker emission measurement (H.&F.)







7.4. Photo of electrostatic discharge Immunity measurement (E.S.D.)



7.5. Photo of RF field strength Immunity measurement (R.S.)



7.6. Photo of EFT/surge/Dips immunity measurement (E.F.T./Surge./Dips.)



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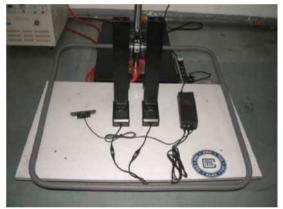




7.7. Photo of conducted disturbance Immunity measurement (C.S.)



7.8. Photo of PFM field immunity measurement (P.F.M.F.)







## 8 External and Internal Photos of the EUT



External view 1



External view 2



External view 3

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External view 4



External view 5



External view 6





External view 7

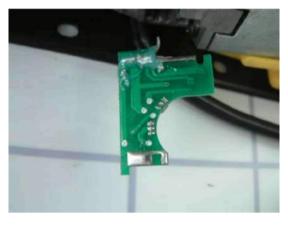


External view 8



Internal view





PCB view 1



PCB view 2





## 9 Manufacturer / Approval holder De claration

The following identical model(s):

CTD-В

Belong to the tested device:

Product description: Lifting Column Model name: CTD-A



## CTS TESTING SERVICE TECHNOLOGY OPERATE ACCORDING TO ISO/IEC 17025

## EC DECLARATION OF CONFORMTY

EU - ELECTROMAGNETIC COMPATIBILITY DIRECTIVE -

This declares that the following designated product

## Lifting Column Model N^

(Product identification)

Complies with the essential protection requirements of the European Parliament and of the Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

This declaration applies to all specimens manufactured in accordance with the attached manufacturing drawings which form part of this declaration.

Assessment of compliance of the product with the requirements relating to electromagnetic compatibility was based on the following standards:

## EN 61000-6-3: 2007+A1:2011+AC:2012 EN 61000-3-2: 2014, EN 61000-3-3: 2013 bEN 61000-6-1: 2007

(Identification of regulations / standards) This declaration is the responsibility of the Applicant / importer



THIS DOC IS ONLY VALID IN CONNECTION WTH TEST REPORT NUMBER: CNB3150810-00579-E

### MANUFACTURER / IMPORTER

TEST LABORATORY

This is the result of test, that was carried out from he submtted type-samples of a product in conformity with he specifiation of the respective standards The declaraton holder has the right o fix the CE-mark for EMC on he product complying wih he nspecton sample





Date)

Surname, forename) Company stamp) Company stamp)