

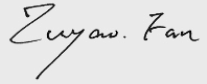
This report will not be used for social proof function in China market.

Test report No:

6063226.50

TEST REPORT

Electromagnetic Compatibility (EMC)

Identification of item tested	Rechargeable battery pump
Trademark	Bestway
Model and /or type reference	P3066
Ratings	Input DC 5V; for battery: DC 7,4V, 50W
Test Laboratory / address	DEKRA Testing and Certification (Shanghai) Ltd. 3 F., No. 250 Jiangchangsan Road, Jing'an District, Shanghai City, 200436, China
Applicant's name / address	Bestway (Hong Kong) International Ltd. Suite 713, 7/Floor, East Wing, Tsim Sha Tsui Center, 66 Mody Road, Kowloon, Hong Kong
Test method requested, standard	EN 55014-1: 2006+A1:2009+A2:2011 EN 55014-1:2017; EN 55014-2:2015;
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Xingyu He Test Engineer 
Approved by (name / position & signature)	Zuyao Fan Project Manager 
Date of issue	2020-05-07
Report template No	TRF_EN55014-1_EN55014-2 EMC01 V1.0

INDEX

	page
Competences and Guarantees.....	4
General conditions.....	4
Uncertainty.....	4
Environmental conditions.....	4
Possible test case verdicts	5
Definition of symbols used in this test report	5
Abbreviations	5
Document History	6
Remarks and Comments	6
1 General Information.....	7
1.1 General Description of the Item(s)	7
1.2 Environment	8
1.3 Test data	8
1.4 Classification according to EN 55014-2	9
2 Description of Test Setup	10
2.1 Operating mode(s) used for tests.....	10
2.2 Port(s) of the EUT	10
2.3 Support / Auxiliary equipment / unit / software for the EUT	10
2.4 Test Configuration / Block diagram used for tests	11
3 Verdict summary section	12
3.1 Standards	12
3.2 Deviation(s) from the Standard(s) / Test Specification(s)	12
3.3 Overview of results.....	13
4 Emission Test Results	14
4.1 Radiated electromagnetic disturbances (30 – 1000 MHz)	14
5 Immunity Test Results	17
5.1 Performance (Compliance) criteria	17
5.1.1 Performance criteria related to immunity tests	17
5.1.2 Manufacturer defined performance criteria.....	17
5.2 Monitored – Checked Functions / Parameters.....	18
5.3 Electrostatic discharge immunity.....	19
5.4 Radio-frequency electromagnetic fields immunity	20
6 Identification of the Equipment Under Test	21
7 Annex 1 – Measurement Uncertainties	22

8 Annex 2 – Used Equipment.....23

9 Annex 3 – Test Photos24

COMPETENCES AND GUARANTEES

DEKRA is a testing laboratory competent to carry out the tests described in this report.

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

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

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

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

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

GENERAL CONDITIONS

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

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%. Refer to the Annex 1 for further information.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	15 °C – 35 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

<input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.			
<input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.			
Decimal separator used in this report	<input type="checkbox"/>	Comma (,)	<input checked="" type="checkbox"/> Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
CAV	: CISPR Average
AV	: Average
CDN	: Coupling Decoupling Network
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
BW	: Bandwidth
AM	: Amplitude Modulation
PM	: Pulse Modulation
HCP	: Horizontal Coupling Plane
VCP	: Vertical Coupling Plane
U_N	: Nominal voltage
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report nr.	Date	Description
6063226.50	2020-05-07	First release.

REMARKS AND COMMENTS

The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).

The test results relate only to the samples tested.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	See page 1
Model / Type number.....	See page 1
Serial number	N/A
Trademark.....	See page 1
Manufacturer.....	Bestway (Hong Kong) International Ltd. Suite 713, 7/Floor, East Wing, Tsim Sha Tsui Center, 66 Mody Road, Kowloon, Hong Kong
Factory	Bestway (Nantong) Recreation Corp. No.8 Hui Min West Road, Economic Development Zone, Rugao, Jiangsu 226500, P.R. China

Clock frequencies	N/A
Other parameters.....	N/A
Mounting position.....	<input checked="" type="checkbox"/> Table top equipment
	<input type="checkbox"/> Wall/Ceiling mounted equipment
	<input type="checkbox"/> Floor standing equipment
	<input type="checkbox"/> Hand-held equipment
	<input type="checkbox"/> Other:

Intended use of the Equipment Under Test (EUT)
The apparatus as supplied for the test is Rechargeable battery pump, intended for residential and commercial use. These products have electronic control unit.

No	Module/parts of test item	Type	Manufacturer
1	N/A		

No	Documents as provided by the applicant - Description	File name	Issue date
	N/A		

Modifications to the test item during testing	<input checked="" type="checkbox"/> N/A	<input type="checkbox"/> Supplemental information:
---	---	--

Copy of marking plate:

N/A

1.2 Environment

The requirements and standards apply to equipment intended for use in:

<input checked="" type="checkbox"/>	Residential (domestic) environment.
<input checked="" type="checkbox"/>	Commercial and light-industrial environment.
<input type="checkbox"/>	Industrial environment.

1.3 Test data

Test Location	DEKRA Testing and Certification (Suzhou) Co., Ltd. No. 99, Hongye Road, Suzhou Industrial Park, Suzhou, 215006, P. R. China.
Date(receive sample)	2020-05
Date (start test)	2020-05
Date (finish test)	2020-05

1.4 Classification according to EN 55014-2

The standard EN 55014-2 is subdivided in four categories. For each category, specific immunity requirements are formulated.

<input type="checkbox"/>	<p>Category I: Apparatus containing no electronic control circuitry.</p> <p><u>Examples:</u> Motor operated appliances, lighting toys, track sets without electronic control units, tools, heating appliances, UV and IR radiators and apparatus containing components such as electromechanical switches and thermostats.</p> <p>Electric circuits consisting of passive components (such as radio interference suppression capacitors or inductors, mains transformers and mains frequency rectifiers) are not considered to be electronic control circuitry.</p>
<input type="checkbox"/>	<p>Category II: transformer toys, dual supply toys, mains powered motor operated appliances, tools, heating appliances and similar electric apparatus (for example – UV radiators, IR radiators and microwave ovens) containing electronic control circuitry with no clock frequency higher than 15 MHz. (For toys, examples include educational computers, organs, track sets with electronic control units.)</p>
<input checked="" type="checkbox"/>	<p>Category III: equipment which in normal use, is not connected to a power network and has no cables attached. This category includes apparatus provided with rechargeable batteries, solar or other similar d.c. power sources which can be charged or operated by connecting the apparatus to the mains power. However, this apparatus shall also be tested as an apparatus in category II while it is connected to the mains network.(For toys, examples include musical soft toys, cord-controlled toys and motor-operated electronic toys.)</p>
<input type="checkbox"/>	<p>Category IV: All other apparatus covered by the scope of the EN 55014-2 standard.</p>
<p>Clock frequency: Fundamental frequency of any signal used in the device, excluding those which are solely used inside integrated circuits (IC).</p>	

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating mode	Operating mode description	Used for testing	
		Emission	Immunity
1	The EUT operates normally.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2		<input type="checkbox"/>	<input type="checkbox"/>
3		<input type="checkbox"/>	<input type="checkbox"/>
4		<input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/>	<input type="checkbox"/>
<u>Supplemental information:</u>			

2.2 Port(s) of the EUT

Port name and description	Connected to / Termination	Cable		
		Length used during test [m]	Attached during test	Shielded
N/A			<input checked="" type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>
<u>Supplemental information:</u>				

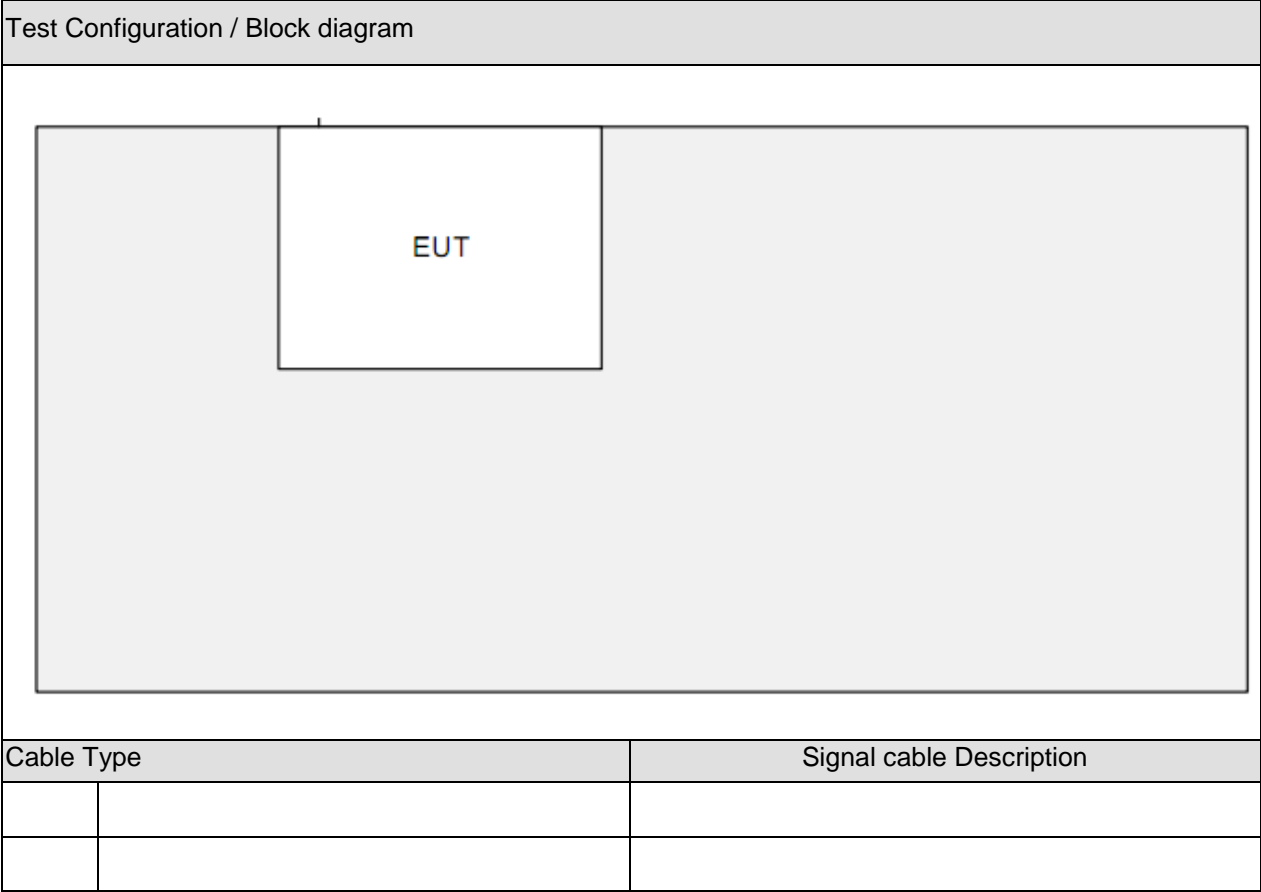
2.3 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
N/A			Applicant
			DEKRA
<u>Supplemental information:</u>			

2.4 **Test Configuration / Block diagram used for tests**

The following test setup / configuration / block diagram has been used during the tests:



3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
EN 55014-1 A1 A2	2006 2009 2011	Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission.
EN 55014-1	2017	
EN 55016-2-1	2014	Methods of measurement of disturbances and immunity - Conducted disturbance measurements.
EN 55016-2-2	2010	Methods of measurement of disturbances and immunity – Measurement of disturbance power.
EN 55016-2-3 +A1 +A2	2010 2010 2014	Methods of measurement of disturbances and immunity - Radiated disturbance measurements.
EN 61000-3-2	2014	Limits for harmonic current emissions (equipment input current ≤ 16 A per phase).
EN IEC 61000-3-2	2019	
EN 61000-3-3 A1	2013 2019	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.
EN 55014-2	2015	Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity – Product family standard.
EN 61000-4-2	2009	Electrostatic discharge immunity test.
EN 61000-4-3 +A1 +A2	2006 2008 2010	Radiated, radio-frequency, electromagnetic field immunity test.
EN 61000-4-4	2012	Electrical fast transient/burst immunity test.
EN 61000-4-5	2014	Surge immunity test.
EN 61000-4-6	2014	Immunity to conducted disturbances, induced by radio-frequency fields.
EN 61000-4-11	2004	Voltage dips, short interruptions and voltage variations immunity tests.

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards:

N/A.

3.3 Overview of results

EMISSION TESTS – EN 55014-1			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Conducted disturbance voltage at mains terminals (150 KHz – 30 MHz)	EN 55016-2-1	N/A	---
Conducted disturbance voltage at load terminals (150 KHz – 30 MHz)	EN 55016-2-1	N/A	---
Conducted disturbance voltage at additional terminals (150 KHz – 30 MHz)	EN 55016-2-1	N/A	---
Disturbance power (30 MHz to 300 MHz)	EN 55016-2-2	N/A	See 3)
Radiated electromagnetic disturbances (30 - 1000 MHz)	EN 55016-2-3	PASS	---
Discontinuous disturbance (clicks) on AC power leads	EN 55014-1	N/A	See 1)
<u>Supplementary information:</u> 1) Exemptions from click measurements applicable (clause 4.2.3). 2) Not applicable because no test requirements have been specified for DC/battery powered apparatus. 3) According to clause 4.3.4.2 procedure (a) of the CISRP 14-1 standard the EUT is deemed to comply in the frequency range from 300 MHz to 1000 MHz without further measurements.			

EMISSION TESTS – EN 61000-3-2, EN 61000-3-3			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Harmonic current emissions	EN 61000-3-2	N/A	---
Voltage changes, voltage fluctuations and flicker	EN 61000-3-3	N/A	---
<u>Supplementary information:</u> 1) The EUT is regarded as an "Equipment with rated power of ≤ 75 W". According to "Clause 7, Figure 1 - Flowchart for determining conformity" the EUT is deemed to comply with the requirements of the EN 61000-3-2 standard. 2) The EUT is regarded as a professional equipment with a total rated power greater than 1 KW. The test is not applicable.			

IMMUNITY TESTS – EN 55014-2			
Requirement – Test case	Basic standard(s)	Verdict	Remark
Electrostatic discharge	EN 61000-4-2	PASS	---
Radio-frequency electromagnetic fields	EN 61000-4-3	PASS	---
Fast transients	EN 61000-4-4	N/A	---
Surge transient	EN 61000-4-5	N/A	---
Injected currents (radio-frequency common mode)	EN 61000-4-6	N/A	---
Voltage dips and short interruptions	EN 61000-4-11	N/A	---
<u>Supplementary information:</u> 1) Not applicable because no test requirements have been specified for DC/battery powered apparatus. 2) The equipment is classified as category 1 equipment according to EN 55014-2; no immunity tests are applicable.			

4 EMISSION TEST RESULTS

4.1 Radiated electromagnetic disturbances (30 – 1000 MHz)	VERDICT: PASS
---	---------------

Standard	EN 55014-1
Basic standard	EN 55016-2-3
Test method	Antenna method according to EN 55016-2-3 standard.

Limits

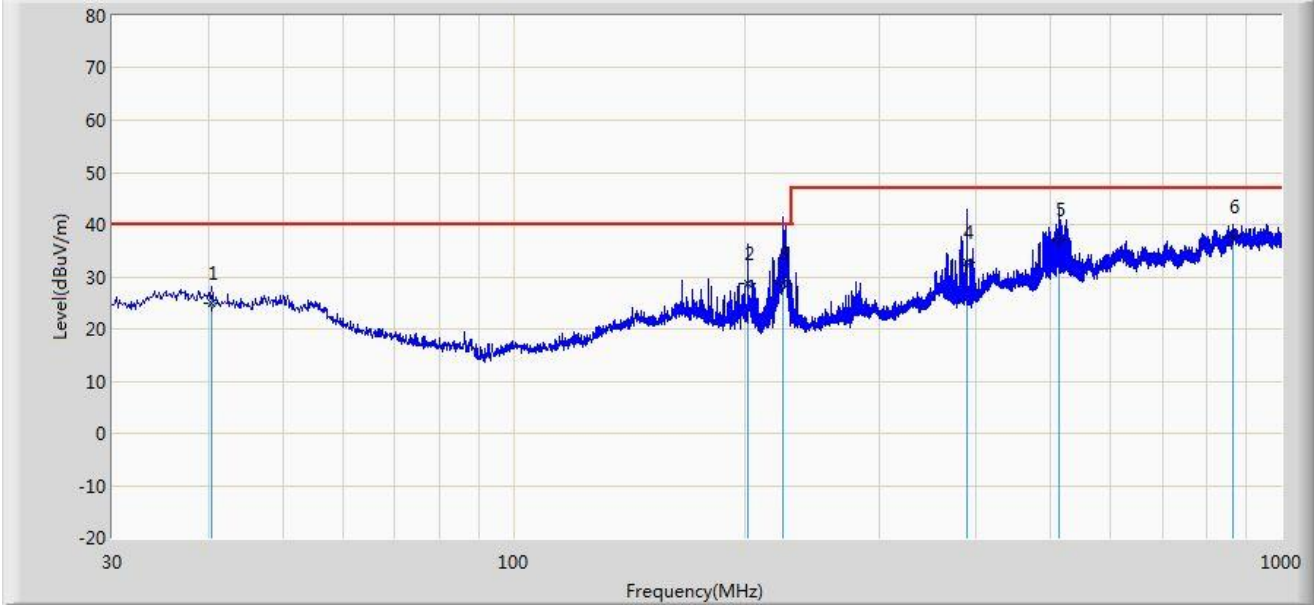
Frequency [MHz]	Limit: QP [dB(μV/m) ¹⁾]			IF BW	Detector
	@3 m.	@5 m.	@10 m.		
30 - 230	40	36	30	120 KHz	QP
230 - 1000	47	43	37	120 KHz	QP

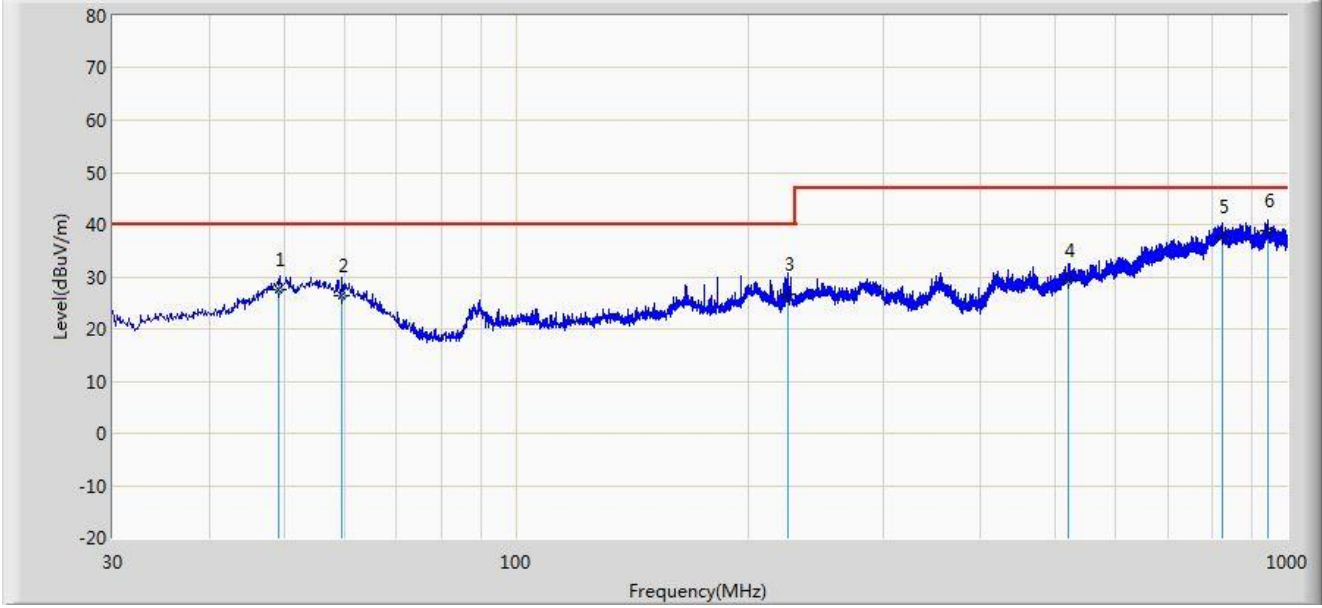
¹⁾ At the transition frequency, the lower limit applies.

Performed measurements

Port under test	Enclosure	
Voltage – Mains [V]	---	
Frequency – Mains [Hz]	---	
Test method applied	<input checked="" type="checkbox"/>	OATS or SAC with measurement distance [m]: 3 m.
	<input type="checkbox"/>	OATS or SAC with measurement distance [m]: 5 m.
	<input type="checkbox"/>	OATS or SAC with measurement distance [m]: 10 m.
Test setup	<input checked="" type="checkbox"/>	Equipment on a table of 80 cm height
	<input type="checkbox"/>	Equipment on the floor (insulated from ground plane)
	<input type="checkbox"/>	Other:
	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1	
Remark	---	

See next page.

Measurement data	<input checked="" type="checkbox"/>	Horizontal	<input type="checkbox"/>	Vertical							
Operating mode / voltage / frequency used during the test		Mode 1									
Horizontal:											
											
No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	40.359	24.869	2.500	-15.131	40.000	15.947	6.423	0.000	100	158	QP
2	202.138	28.826	10.400	-11.174	40.000	11.218	7.209	0.000	100	132	QP
3	224.452	28.719	10.500	-11.281	40.000	10.927	7.291	0.000	100	274	QP
4	389.136	32.677	9.800	-14.323	47.000	15.033	7.844	0.000	100	114	QP
5	513.580	37.103	8.700	-9.897	47.000	20.194	8.209	0.000	100	148	QP
6	865.136	37.658	2.800	-9.342	47.000	25.767	9.092	0.000	100	168	QP
Note: 1. All Readings below 1GHz are performed with Quasi-Peak measurements as necessary. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).											

Measurement data	<input type="checkbox"/>	Horizontal	<input checked="" type="checkbox"/>	Vertical							
Operating mode / voltage / frequency used during the test		Mode 1									
Vertical:											
											
No	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	49.326	27.661	2.500	-12.339	40.000	18.673	6.488	0.000	100	132	QP
2	59.469	26.351	2.100	-13.649	40.000	17.699	6.552	0.000	100	135	QP
3	225.136	26.650	4.100	-13.350	40.000	15.256	7.294	0.000	100	120	QP
4	520.599	29.396	2.100	-17.604	47.000	19.069	8.228	0.000	100	205	QP
5	823.139	37.716	2.800	-9.284	47.000	25.918	8.998	0.000	200	98	QP
6	943.266	38.756	3.100	-8.244	47.000	26.383	9.273	0.000	100	118	QP
Note: 1. All Readings below 1GHz are performed with Quasi-Peak measurements as necessary. 2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).											
Remark	---										

5 IMMUNITY TEST RESULTS

5.1 Performance (Compliance) criteria

[According to EN 55014-2 (CISPR 14-2)]

Performance criteria A : The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and from what the user may reasonably expect from the apparatus if used as intended.

Performance criteria B : The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer when the apparatus is used as intended. During the test, degradation of performance is allowed however no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer then either of these may be derived from the product description and documentation and from what the user may reasonable expect from the apparatus if used as intended.

Performance criteria C : Temporary loss of function is allowed provided the function is self- recoverable or can be restored by the operation of the controls or by any operation specified in the instruction for use.

5.1.1 Performance criteria related to immunity tests

Immunity test	Performance criteria
Electrostatic discharge	B
Radio-frequency electromagnetic fields	A
Fast transients	B
Surge transient	B
Injected currents (radio-frequency common mode)	A
Voltage dips and short interruptions	C

5.1.2 Manufacturer defined performance criteria

Not provided.

5.2 Monitored – Checked Functions / Parameters

During the immunity tests the following functions of the EUT has/have been monitored/checked.

<input checked="" type="checkbox"/>	Motor speed	<input type="checkbox"/>	Display data
<input type="checkbox"/>	Switching	<input type="checkbox"/>	Data storage
<input type="checkbox"/>	Standby mode	<input type="checkbox"/>	Sensor functions
<input type="checkbox"/>	Temperature	<input type="checkbox"/>	Audible signals
<input type="checkbox"/>	Power consumption	<input type="checkbox"/>	Others : LED's
<input type="checkbox"/>	AC mains input current	<input type="checkbox"/>	Others :
<input type="checkbox"/>	Timing	<input type="checkbox"/>	Others :
<input type="checkbox"/>	Illumination	<input type="checkbox"/>	Others :
<u>Supplementary information</u> : ---			

Immunity test	Monitored - Checked function(s)/parameter(s) during / after the test	Method
Electrostatic discharge	Motor speed	Visual
Radio-frequency electromagnetic fields	Motor speed	Visual / Camera
Fast transients	---	Visual
Surge transient	---	Visual
Injected currents (radio-frequency common mode)	---	Visual
Voltage dips and short interruptions	---	Visual
<u>Supplementary information</u> : ---		

5.3 Electrostatic discharge immunity	VERDICT: PASS
---	----------------------

Electrostatic discharges (ESD) are the result of persons or objects that accumulate static electricity due to for instance walking on synthetic carpets. The ESD can influence the operation of equipment or damage its electronics, either by a direct discharge or indirectly by coupling or radiation. Both effects are simulated during the tests.

Requirements

Standard	EN 55014-2							
Basic standard	EN 61000-4-2							
Port under test	Enclosure							
Air discharges ¹⁾	<input type="checkbox"/>	±2 kV	<input type="checkbox"/>	±4 kV	<input checked="" type="checkbox"/>	±8 kV	<input type="checkbox"/>	kV
Contact discharges ¹⁾	<input type="checkbox"/>	±2 kV	<input checked="" type="checkbox"/>	±4 kV	<input type="checkbox"/>	±8 kV	<input type="checkbox"/>	kV
Number of discharges	≥ 10 per polarity with ≥ 1 sec interval.							
¹⁾ Tests with lower voltages are not required.								

Performed tests

Set-up	<input checked="" type="checkbox"/>	Table-top	<input type="checkbox"/>	Floor standing
Ambient temperature [°C]	20°C		Relative Humidity air [%]	48%
Voltage – Mains [V]	---			
Frequency – Mains [Hz]	---			
Operating mode(s) used	Mode 1			

Test Point		Test Voltage [kV] & Polarity	Coupling type	# of applied discharges / polarity	Discharge interval [s]
☒	Points on conductive surface.	±4	Contact	10	1
☒	Points on non-conductive surface.	±8	Air	10	1
☒	HCP top side.	±4	Contact	10	1
☒	HCP bottom side.	±4	Contact	10	1
☒	VCP right side.	±4	Contact	10	1
☒	VCP left side.	±4	Contact	10	1
☒	VCP front side.	±4	Contact	10	1
☒	VCP rear side.	±4	Contact	10	1
Observation(s)		During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance or data was observed.			
Supplementary information: ---					

5.4	Radio-frequency electromagnetic fields immunity	VERDICT: PASS
-----	--	----------------------

During the test it is verified if the equipment under test (EUT) has sufficient immunity against radiated electromagnetic fields. Industrial electromagnetic sources, walkie-talkies, radio transmitters, television transmitters and telecommunication equipment including cellular telephones and other emitting devices can generate these fields.

Requirements

Standard	EN 55014-2			
Basic standard	EN 61000-4-3			
Port under test	Enclosure			
Frequency range	Test level	Modulation	Dwell time	Step size
80 – 1000 MHz	3 V/m	80% AM (1kHz)	≥ 0,5 s	≤ 1%
Supplementary information: ---				

Performed tests

Test method	<input checked="" type="checkbox"/>	EN 61000-4-3	<input type="checkbox"/>	EN 61000-4-20		
Test set-up	<input checked="" type="checkbox"/>	Equipment on the table (0,8 m height)				
(see Annex 3 for photo)	<input type="checkbox"/>	Equipment standing on floor (0,05 – 0,15 m height)				
Voltage – Mains [V]	---					
Frequency – Mains [Hz]	---					
Operating mode(s) used	Mode 1					
Frequency range (applied)	Antenna Polarization	Test level (applied)	Modulation (applied)		Dwell time (applied)	Remark
80 – 1000 MHz (step size 1%)	H	3 V/m	80% AM (1kHz)		3 s	---
	V	3 V/m	80% AM (1kHz)		3 s	---
Exposed side of the EUT	<input checked="" type="checkbox"/>	Front (0°)	<input checked="" type="checkbox"/>	Right (90°)	<input checked="" type="checkbox"/>	Top
	<input checked="" type="checkbox"/>	Rear (180°)	<input checked="" type="checkbox"/>	Left (270°)	<input checked="" type="checkbox"/>	Bottom
Observation(s)	During the test no loss of performance was observed. After the test the EUT functioned as intended. No unacceptable loss of performance was observed.					
<u>Supplementary information:</u> ---						

6 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

EUT PHOTOS



7 ANNEX 1 – MEASUREMENT UNCERTAINTIES

The table(s) below show(s) measurement uncertainties of the EMC test set-ups. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Emission tests		Uncertainty	Ucisp
Conducted disturbance (mains port), 9 kHz – 30MHz		3,08 dB	3,83 dB
Conducted disturbance using an AAN, 150kHz – 30MHz		4,04 dB 4,44 dB	4,20 dB 4,59 dB
Conducted disturbance using a VP, 150kHz – 30MHz		1,82 dB	2,91 dB
Conducted disturbance using a CVP, 150kHz – 30MHz		3,44 dB	3,85 dB
Conducted disturbance using a CP, 150kHz – 30MHz		2,06 dB	2,89 dB
CDNE, 30MHz – 300MHz		3,34 dB	3,79 dB
Disturbance power, 30 MHz – 300 MHz		3,76 dB	4,52 dB
Radiated electromagnetic disturbances, (9 KHz – 30 MHz)		2,62 dB	3,3 dB
Radiated emissions; (Horz.)	30 MHz – 300 MHz	3,60 dB	5,34 dB
	300 MHz – 1000 MHz	3,10 dB	
Radiated emissions; (Vert.)	30 MHz – 300 MHz	3,20 dB	6,32 dB
	300 MHz – 1000 MHz	3,20 dB	
LF harmonic current emissions		0,2%	na
LF voltage fluctuations		2,5%	na
EMF		2,02 dB	na

Immunity tests	Uncertainty
Electrostatic discharge	$U_{peak}=6\%$, $U_{30ns}=6\%$, $U_{60ns}=6\%$, $U_{rt}=13\%$
Radio-frequency electromagnetic fields	1,48 dB
Fast transients	$U_{tr}=6,2\%$, $U_{pw}=3\%$, $U_{bp}=3\%$, $U_{bd}=3\%$
Surges	$U_{peak}=3,3\%$, $U_{ft}=3\%$, $U_{dt}=3\%$
Injected currents (radio-frequency common mode)	1,71 dB
Voltage dips and short interruptions	$U_{out}=0,4\%$, $U_f=3\%$, $U_{r-d}=3\%$

8 ANNEX 2 – USED EQUIPMENT

Instrument	Manufacturer	Model No.	Serial No.	Cali. Due Date
EMI Test Receiver	R&S	ESCI	100573	2021/03/04
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2020/06/09
Coaxial Cable	Huber+Suhner	RG 214	AC2-C	2021/02/28
Temperature/Humidity Meter	RTS	RTS-8S	AC2-TH	2020/01/09
Signal Generator	R&S	SMB100A	114728	2020/11/16
Power Meter	R&S	NRP2	106362	2020/11/05
Power Sensor	R&S	NRP6A	101411	2020/11/13
Power Sensor	R&S	NRP6B	101412	2020/11/13
RF Switch	R&S	OPS120	101944	2020/11/14
Power Amplifier	R&S	BBA150 BC500	102912	2021/01/24
LOG Antenna	R&S	HL046E	100257	N/A
Filed Probe	AR	FL7006/KIT	350261	2021/09/19
Temperature/Humidity Meter	RTS	RTS-8S	AC4-TH	2020/01/09

9 ANNEX 3 – TEST PHOTOS

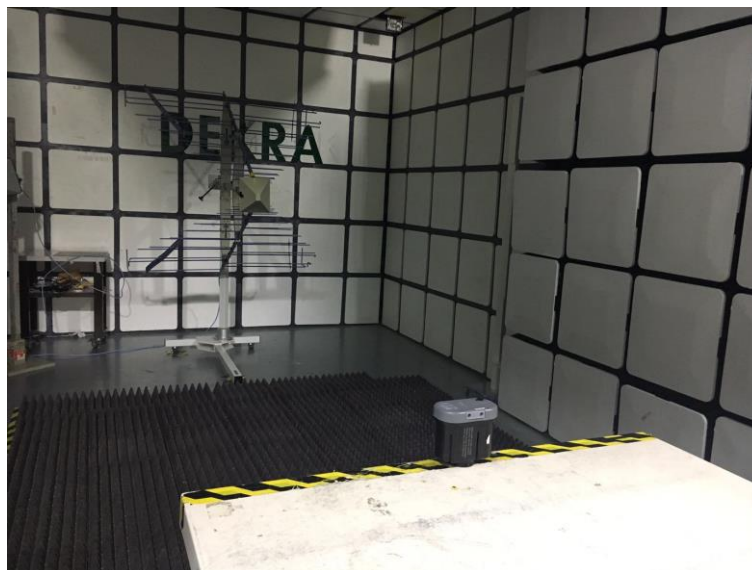
Radiated electromagnetic disturbances (30 MHz to 1000 MHz)



Electrostatic discharge immunity



Radiated EM Field Immunity



End of the report