

VERIFICATION OF COMPLIANCE

No.: GPSD GZES2207014217AT

Applicant: DFUN (Zhuhai) Co., Ltd.
No. 1, Keji 4 Road, Tangjia Hi-tech Zone, Zhuhai, 519085 Guangdong, China

Manufacturer: Same as applicant.

Product Name: Current Transformer

Model No.: QLC-16, QLC-32, QLC-45, QLC-70, QLC-90

Rating: See page 2

Protection against Electric Shock: Not classified

Additional Information (if any): Build-in equipment

Sufficient samples of the product have been tested and found to be in conformity with

Test Standard: EN 61010-1:2010 + A1: 2019
as shown in the GZES220701421701

Test Report Number(s):

This Verification of GPSD Compliance has been granted to the applicant based on the results of tests performed by Laboratory of SGS-CSTC Standards Technical Services Co., Ltd. on sample of the above-mentioned product in accordance with the provisions of the relevant specific standards and the General Product Safety Directive 2001/95/EC.


David Guo



Senior Technical Manager

2022-09-16

SGS-CSTC

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No.:

GPSD GZES2207014217AT

Other information added:

Rating:

Model	Rated Input (A)	Secondary Output	Ratio
QLC-16	10-100A	0,1A	1000:1
QLC-32	50-600A	0,1A	6000:1
QLC-45	100-1000A	0,1A	10000:1
QLC-70	600-2000A	0,1A	20000:1
QLC-90	1000-3000A	0,1A	30000:1



David Guo
Senior Technical Manager
SGS-CSTC

2022-09-16

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Test Report

Report No: GZES220701421701

Date: 2022-09-15

The following sample(s) was/were submitted and identified on behalf of the client as:

Applicant : DFUN (Zhuhai) Co., Ltd.
No. 1, Keji 4 Road, Tangjia Hi-tech Zone, Zhuhai, 519085 Guangdong, China

Manufacturing location (factory): Same as applicant.

Testing location/address: SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China

Test object : Current Transformer

Model : QLC-16, QLC-32, QLC-45, QLC-70, QLC-90

Test specifications / Test standard : EN 61010-1:2010 + A1: 2019

Purpose of examination : Test according to the test specification.

Test result : In the opinion of SGS-CSTC the presented appliance was found to be in compliance with the test specification.

Remark : Throughout this report a comma is used as the decimal separator

Anlay Dong
Project Reviewer
Safety Laboratory

Ben Tang
Project Engineer



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1. Function / Description :

Current Transformer is a device used for monitoring the induced current and intended for build-in.

Special enclosure consideration should be given to the end-use installation.

The end-use product should be reviewed to determine whether accessibility requirements are met for the end-use product.

Model difference

All models are identical in electrical and mechanical construction except for model name, input current, ratio, load and size, see below for details.

Model	Rated Input (A)	Secondary Output	Ratio	Load (Ω)	Accuracy	Size (mm)		
						A	B	C
QLC-16	10-100A	0,1A	1000:1	≤100	0,2	16,0	30,0	20,0
QLC-32	50-600A	0,1A	6000:1	≤200	0,2	32,0	60,0	20,0
QLC-45	100-1000A	0,1A	10000:1	≤200	0,2	45,0	88,0	24,0
QLC-70	600-2000A	0,1A	20000:1	≤200	0,2	70,5	105,5	20,3
QLC-90	1000-3000A	0,1A	30000:1	≤200	0,2	90,0	135,0	32,0



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2. Test item particulars :

Ratings	See model difference for details
Type of item	Measurement
Description of equipment function	Monitoring the induced current
Connection to mains supply	None
Overvoltage category	None
Pollution degree	2
Means of protection	Not classified
Environmental conditions	Ambient: -25 – +60 °C
For use in wet locations	No
Equipment mobility	Built in
Operating conditions	Continuous
Overall size of equipment (W x D x H)	See model difference for details
Mass of equipment (kg)	Models QLC-16: 0,04 Models QLC-45: 0,18 Models QLC-90: 0,60
Marked degree of protection to IEC 60529	N/A



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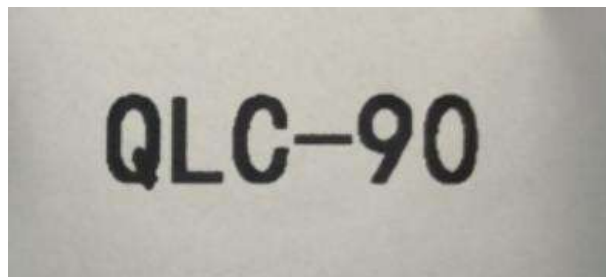
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3. Label :

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

For model QLC-90:



Remark:

1. The marking plate for the other models are identical with above except for model name and rating.
2. The Height of CE logo shall not be less than 5 mm; Height of WEEE logo shall not be less than 7 mm.
3. As declared by the applicant, the importer (and manufacturer, if it is different)'s name, registered trade name or registered trademark and the postal address will be marked on the products before being place on the market. The contact details shall be in a language easily understood by end-users and market surveillance authorities.
4. Marking on the packaging or in a document accompanying the electrical equipment is only acceptable if it is not possible to place such markings on the product.



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4. Test :

The test was done in the Electrical Safety Laboratory of SGS-CSTC in Guangzhou.

These tests fulfil the requirements of standard ISO/IEC 17025.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

After reviewed, models QLC-16, QLC-45 and QLC-90 were selected for the full test representative

The max. recommended ambient temperature is 60 °C declared by manufacturer.

As declared by manufacture, normal steady loading test status at below:

For model QLC-16: primary input current 100 A and secondary output current 0,1 A

For model QLC-45: primary input current 120 A and secondary output current 0,1 A

For model QLC-90: primary input current 120 A and secondary output current 0,1 A

Possible test case verdicts:

Test case does not apply to the test object : N/A (or N)

Test item does meet the requirement : P(ass)

Test item does not meet the requirement : F(ail)

Testing :

Date of receipt of test item : 2022-07-22

Date(s) of performance of tests : 2022-07-22 – 2022-09-13



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Clause	Requirement	Remarks	Verdict
4	Tests		P
5	Marking and documentation		P
6	Protection against electric shock	Build-in equipment, it shall be considered in the end-product.	N/A
7	Protection against mechanical HAZARDS	No sharp edges	P
8	Resistance to mechanical stresses	Build-in equipment, it shall be considered in the end-product.	N/A
9	Protection against the spread of fire		P
10	Equipment temperature limits and resistance to heat		P
11	Protection against HAZARDS from fluids		N/A
12	Protection against radiation, including laser sources, and against sonic and ultrasonic pressure		N/A
13	Protection against liberated gases and substances, explosion and implosion		N/A
14	Components and subassemblies		P
15	Protection by interlocks		N/A
16	HAZARDS resulting from application		N/A
17	RISK assessment		N/A
Annex A	Measuring circuits for touch current (see 6.3)		N/A
Annex B	Standard test fingers (see 6.2)		N/A
Annex C	Measurement of CLEARANCES and CREEPAGE DISTANCES		N/A
Annex D	Parts between which insulation requirements are specified (see 6.4 and 6.5.3)		N/A
Annex F	ROUTINE TESTS		N/A
Annex H	Qualification of conformal coatings for protection against POLLUTION		N/A
Annex K	Insulation requirements not covered by 6.7		N/A



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Test Report

Report No: GZES220701421701

Date: 2022-09-15

5.1.3c)	TABLE: MAINS supply				Form A.2	N/A
	Marked rating.....:		--	V		—
	Phase.....:		--			—
	Frequency.....:		--	Hz		—
	Current.....:		--	A		—
	Power.....:		--	W		—
	Power.....:		--	VA		—
Test No.	Voltage [V]	Frequency [Hz]	Current [mA]	Power [mW] [VA]		Comments
1	--	--	--	--	--	--
NOTE – Measurements are only required for marked ratings.						
Supplementary information:						



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6.7	TABLE: Insulation requirements- Clearances and Creepages					Form A.15				N/A		
6.2.2	Examination					6.5.4	Protective impedance				—	
6.4.2	ENCLOSURES and protective barriers					6.5.6	Current- or voltage-limiting device				—	
6.4.4	Impedance					9.6.1	BASIC INSULATION between opposite polarity				—	
Area	Location (See Form A.14)	Insulation type (NOTE 1)	WORKING VOLTAGE (NOTE 2)			Clearance		Creepage		CTI	Verdict	Comments
			RMS [V]	Peak [V]	Frequency [kHz]	Required [mm]	Measured [mm]	Required [mm]	Measured [mm]			
--	--	--	--	--	--	--	--	--	--	--	--	--
NOTE 1 – refer to Form A.14 for type of insulation shown in the insulation diagram used for definition of required insulation (see Form A.14)										NOTE 2 - to be		
Input supply voltage.....:		--	V	--	Hz							
Supplementary information:												



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6.7	TABLE: Insulation requirements- Clearances and Creepages							Form A.16		N/A			
6.4.2	ENCLOSURES OF PROTECTIVE BARRIERS							9.6.1	Overcurrent protection basic insulation between MAINS parts		—		
8	Mechanical resistance to shock and impact							10.5.1	Integrity of CLEARANCES and CREEPAGE distances		—		
Area	Location (See Form A.14)	Insulation type	Mechanical tests (NOTE)					Test at max.	Measured after test (if required)		Verdict	Comments	
			Applied force		Rigidity (8.2)		Drop (8.3)		RATED ambient	Clearance			Creepage distance
			N	Static (8.2.1)	Impact (8.2.2)	Normal (8.3.1)	Hand-held/ Plug-in	(10.5.1)	mm	mm			
--	--	--	--	--	--	--	--	--	--	--	--		
NOTE – Refer to Form A.18 for dielectric strength tests following the above tests.													
Supplementary information:													



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Test Report

Report No: GZES220701421701

Date: 2022-09-15

10.	TABLE : Temperature Measurements			Form A.26A	P	
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.3	Other temperature measurements				P	
Operating conditions:	For model QLC-16: as declared by manufacture, normal steady loading test status at primary input current 100 A and secondary current 0,1 A					
Frequency	-- Hz	Test room ambient temperature (ta) .. :		25 °C		
Voltage	-- V	Test duration..... :		2 h 07 min		
Part / Location		t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
Winding of Line filter		33,6	68,6	130	P	
Secondary output cord		29,2	64,2	80	P	
Non-metallic enclosure surface		29,4	64,4	Ref.	P	
<p>NOTE 1 - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 60$ °C max. RATED ambient) t_{max} = maximum permitted temperature</p> <p>NOTE 2 - see also 14.1 with reference to component operating conditions</p> <p>NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary</p> <p>NOTE 4 - see Form A.26B for details of winding temperature measurements</p>						
Supplementary information:						



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10.	TABLE : Temperature Measurements			Form A.26A	P	
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.3	Other temperature measurements				P	
Operating conditions:	For model QLC-45: as declared by manufacture, normal steady loading test status at primary input current 1000 A and secondary current 0,1 A					
Frequency	-- Hz	Test room ambient temperature (ta) .. :		25 °C		
Voltage	-- V	Test duration..... :		2 h 07 min		
Part / Location		t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
Winding of Line filter		35,7	70,7	130	P	
Secondary output cord		31,2	66,2	80	P	
Non-metallic enclosure surface		30,4	65,4	Ref.	P	
<p>NOTE 1 - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 60$ °C max. RATED ambient) t_{max} = maximum permitted temperature</p> <p>NOTE 2 - see also 14.1 with reference to component operating conditions</p> <p>NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary</p> <p>NOTE 4 - see Form A.26B for details of winding temperature measurements</p>						
Supplementary information:						



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10.	TABLE : Temperature Measurements			Form A.26A	P	
10.1	Surface temperature limits – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.2	Temperature of windings – NORMAL CONDITION and / or SINGLE FAULT CONDITION				P	
10.3	Other temperature measurements				P	
Operating conditions:	For model QLC-90: as declared by manufacture, normal steady loading test status at primary input current 3000 A and secondary current 0,1 A					
Frequency	-- Hz	Test room ambient temperature (ta) .. :		25 °C		
Voltage	-- V	Test duration..... :		2 h 07 min		
Part / Location		t_m [°C]	t_c [°C]	t_{max} [°C]	Verdict	Comments
Winding of Line filter		38,1	73,1	130	P	
Secondary output cord		32,9	67,9	80	P	
Non-metallic enclosure surface		31,2	66,2	Ref.	P	
<p>NOTE 1 - t_m = measured temperature $t_c = t_m$ corrected ($t_m - t_a + 60$ °C max. RATED ambient) t_{max} = maximum permitted temperature</p> <p>NOTE 2 - see also 14.1 with reference to component operating conditions</p> <p>NOTE 3 - Record values for NORMAL CONDITION and / or SINGLE FAULT CONDITION in this Form use additional form if necessary</p> <p>NOTE 4 - see Form A.26B for details of winding temperature measurements</p>						
Supplementary information:						



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5. Component List

object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity ¹⁾
Plastic enclosure	CHANG CHUN PLASTICS CO LTD	4830	V-0, 75 °C, min. thickness 3,0 mm	--	UL (E59481)
Internal winding	SHANDONG SAINT ELECTRIC CO LTD	2UEW	Min. 130 °C	--	UL (E194410)
External cord	HIP TAI ELECTRIC WIRE CO	2464	300 V, 80 °C, min. 22 AWG	--	UL (E225804)



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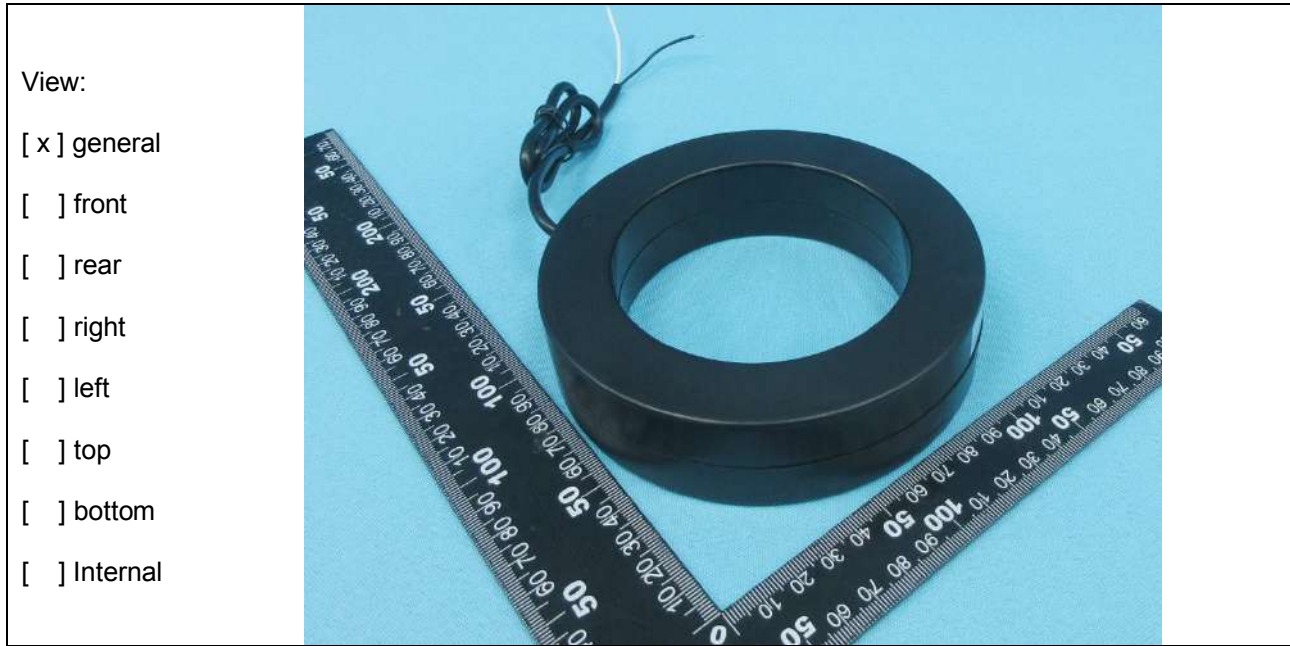
Test Report

Report No: GZES220701421701

Date: 2022-09-15

6. Photo document

Details of: Model QLC-90



Details of: Model QLC-90



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Test Report

Report No: GZES220701421701

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Details of: Model QLC-90



Details of: Model QLC-90



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Date: 2022-09-15

Details of: Model QLC-45



Details of: Model QLC-45



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Details of: Model QLC-16



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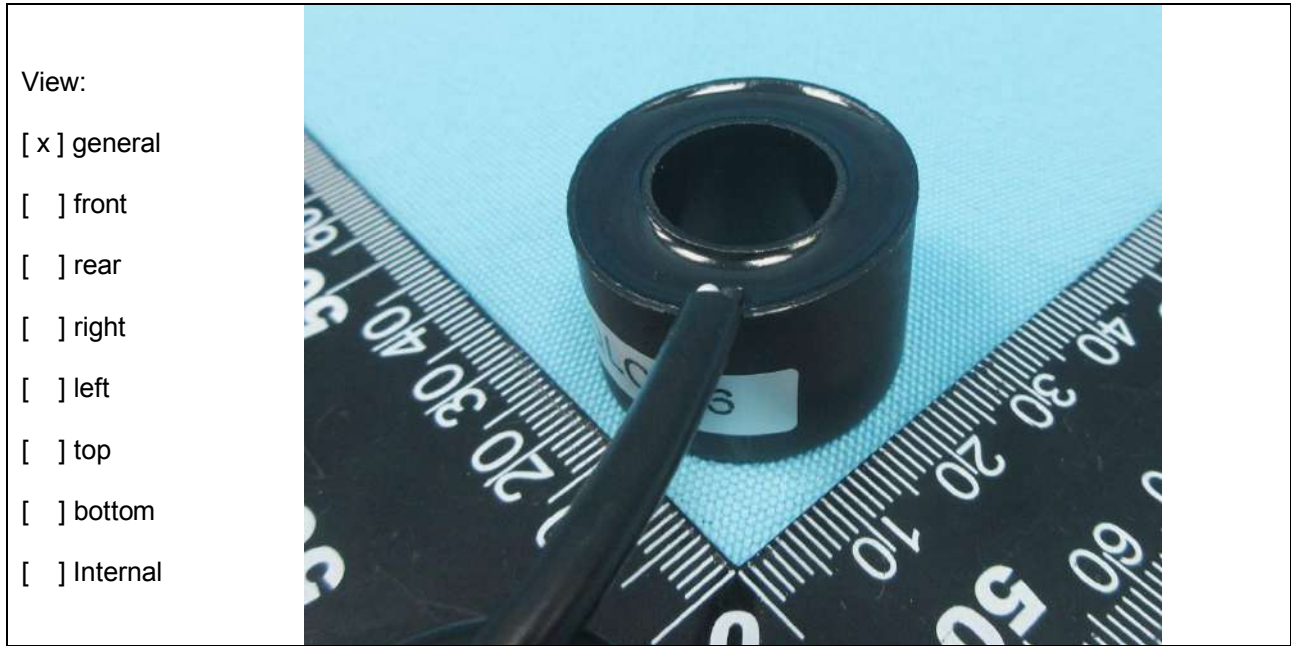
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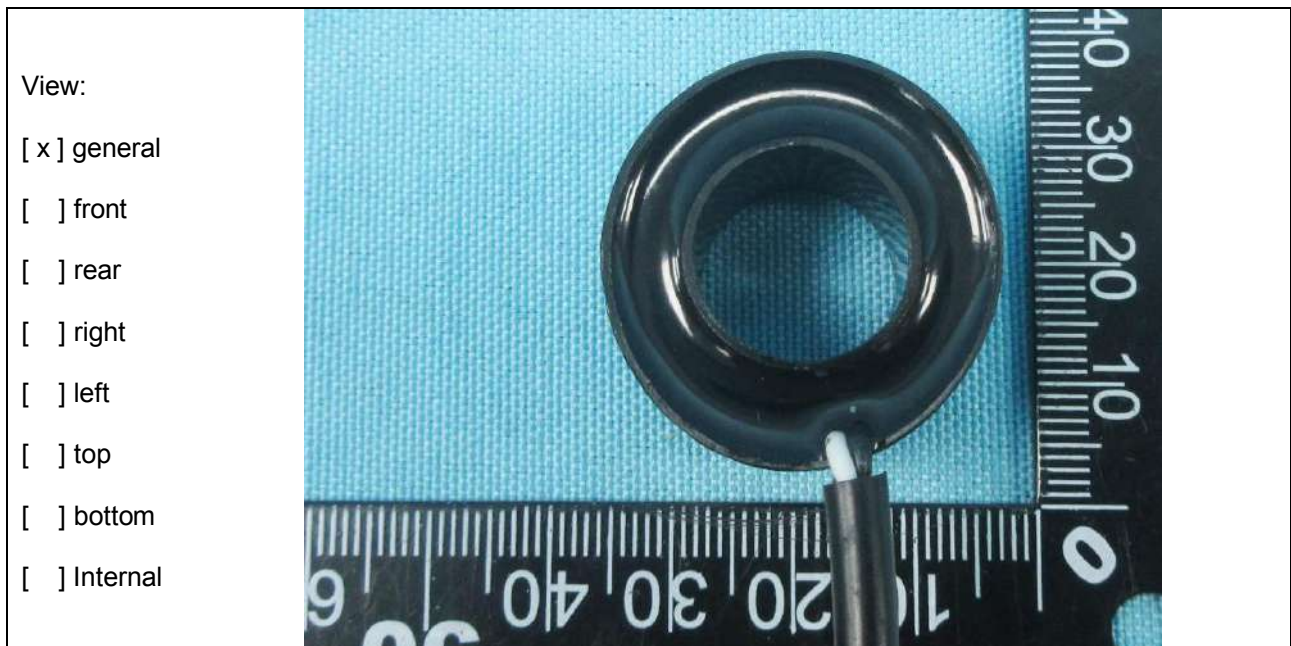
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Details of: Model QLC-16



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1. The following language(s) of marking(s) and instruction sheets were submitted during the test application:
 - English
 - Throughout this report a comma is used as the decimal separator.

According to the standard, instruction sheets and other texts required by the standard should be written in the official language(s) of the country in which the product is to be sold. The applicant should ensure that the product in future production fulfils the receptive standard requirements.

2. The components performed satisfactorily during testing and are considered to be suitable for use in the sample tested. Acceptances of the safety critical components and materials were based on:
 - the certification record(s) and/or test report submitted by the applicant; or
 - component / material tested with the appliance
3. Plug (and socket) used in this product must be compiled with the local plug and socket regulation of the respective country.

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