Prüfbericht-Nr.: *Test Report No.:*	**50164846 002**	**Auftrags-Nr.:** *Order No.:*	1160051918	Seite 1 von 34 *Page 1 of 34*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	25.10.2018	
Auftraggeber: *Client:*	Ningbo Dahua Electric Appliance Co.,Ltd. Xiaodong Industrial Zone, Yuyao, Zhejiang 315408 P.R. China			
Prüfgegenstand: *Test item:*	Vacuum Cleaner			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	See page 2			
Auftrags-Inhalt: *Order content:*	Type Test			
Prüfgrundlage: *Test specification:*	EN 60335-1: 2012+A11+A13 EN 60335-2-2: 2010+A11+A1 EN 62233: 2008 AfPS GS 2014:01			

Wareneingangsdatum: *Date of receipt:*	16.11.2018
Prüfmuster-Nr.: *Test sample No.:*	A000829556
Prüfzeitraum: *Testing period:*	20.11.2018 – 23.11.2018
Ort der Prüfung: *Place of testing:*	TÜV Rheinland /CCIC (Ningbo) Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland /CCIC (Ningbo) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von / *tested by:*

Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*
2018.12.06	Wanda Xuan/PE	Wanda Xuan

kontrolliert von / *reviewed by:*

Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*
2018.12.06	Liwei Lang/TC	Liwei Lang

Sonstiges / *Other:*
Add alternative components listed in table 24.1
Update CDF
Attachment 1: Test equipment list (1 page)

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

V04

TEST REPORT
IEC 60335-2-2
Household and similar electrical appliances – Safety – Part 2-2: Particular requirements for vacuum cleaners and water-suction cleaning appliances

Report Number. .....:	See cover page
Date of issue .....:	See cover page
Total number of pages.....	See cover page
Applicant's name.....:	Ningbo Dahua Electric Appliance Co.,Ltd.
Address .....:	Xiaodong Industrial Zone, Yuyao, Zhejiang 315408 P.R. China
Test specification:	
Standard.....:	IEC 60335-2-2: 2009 (Sixth Edition) + A1 : 2012 in conjunction with IEC 60335-1:2010 (Fifth Edition) (incl. Corrigendum 1:2010)
Test procedure .....:	GS and CE-LVD approval
Non-standard test method……..:	N/A
Test Report Form No.....:	IEC60335_2_2F
Test Report Form(s) Originator.....:	LCIE
Master TRF.....:	Dated 2013-04

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description .....:	Vacuum Cleaner
Trade Mark .....:	N/A
Manufacturer.....:	Ningbo Dahua Electric Appliance Co.,Ltd. Xiaodong Industrial Zone, Yuyao, Zhejiang 315408 P.R. China
Model/Type reference .....:	SL594A45, SL594A05, SL594A06, SL592A05, SL592A06, SL585A04, SL585A06, SL585EA04, SL585EA06, SL585FA04, SL585FA06,SL585GA04, SL585GA06, SL585HA04, SL585HA06, SL585IA04, SL585IA06, SL585JA04, SL585JA06, SL585KA04, SL585KA06, SL586A04, SL586A06
Ratings .....:	AC 220-240V; 50/60Hz; Class II 400W: SL585A04, SL585EA04, SL585FA04, SL585GA04, SL585HA04, SL585IA04, SL585JA04, SL585KA04, SL586A04; 450W: SL594A45; 500W: SL592A05, SL594A05; 600W: SL592A06, SL594A06, SL585A06, SL585EA06, SL585FA06, SL585GA06, SL585HA06, SL585IA06, SL585JA06, SL585KA06, SL586A06;

Testing procedure and testing location:		
☒ **Testing Laboratory:**	TŰV Rheinland /CCIC (Ningbo) Co., Ltd.	
Testing location/ address.....:	3F, Building C13, R&D Park, No.32, Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R.China	
☐ **Associated CB Testing Laboratory:**		
Testing location/ address.....:		
Tested by (name + signature).....:	See cover page	
Approved by (name + signature).....:	See cover page	
☐ **Testing procedure: TMP**		
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature).....:		
☐ **Testing procedure: WMT**		
Testing location/ address.....:		
Tested by (name + signature).....:		
Witnessed by (name + signature) ....:		
Approved by (name + signature).....:		
☐ **Testing procedure: SMT**		
Testing location/ address.....:		
Tested by (name + signature).....:		
Approved by (name + signature).....:		
Supervised by (name + signature) ...:		

List of Attachments (including a total number of pages in each attachment):

See cover page

Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
SL585FA04 with motor DH-08-04 AL was subjected to tests of Cl,10, 11, 13, 15, 16, 19.10, 30 Alternative internal wires were subjected to test of Cl.23.5 Reasonable foreseeable use is covered by the standard and related EK decision applied.	TŰV Rheinland /CCIC (Ningbo) Co., Ltd. 3F, Building C13, R&D Park, No.32, Lane 299 Guanghua Road, National Hi-Tech Zone, Ningbo 315048, P.R.China

Summary of compliance with National Differences

List of countries addressed:

DE=Germany
EUROPEAN GROUP DIFFERENCES

☒ **The product fulfils the requirements of** EN 60335-1:2012+A11+A13,EN 60335-2-2:2010+A11+A1, EN 62233:2008, AfPS GS 2014:01

Copy of marking plate

Refer to test report 50164846 001

Test item particulars ..... :	
Classification of installation and use ..... :	Portable appliance
Supply Connection ..... :	Type Y attachment(power cord fitted with a plug)
..... :	
Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement .....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
Testing.....:	
Date of receipt of test item.....:	See cover page
Date (s) of performance of tests.....:	See cover page

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

☐ **Yes**

☒ **Not applicable**

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies).....:	Ningbo Dahua Electric Appliance Co.,Ltd. Xiaodong Industrial Zone, Yuyao, Zhejiang 315408 P.R. China

General product information:

1.The vacuum cleaners are handheld, dry pick-up vacuum cleaners for household use only.

2.For models SL585A04, SL585A06, except nameplates, they are same.

3.For models SL585EA04, SL585EA06, except nameplates, they are same.

4.For models SL585A04, SL585EA04, except the top enclosure, they are same

5.For models SL585HA04, SL585HA06, except nameplates, they are same.

6.For models SL585FA04, SL585FA06, SL585JA04, SL585JA06, except nameplates, they are same.

7.For models SL585GA04, SL585GA06, SL585IA04, SL585IA06, SL585KA04, SL585KA06, except nameplates, they are same.

8.For models SL585HA04, SL585FA04 and SL585GA04, except a little difference of enclosure, they are same.

9.For models SL586A04, SL586A06, except nameplates, they are same.

10.For models SL592A05, SL592A06, except nameplates, they are same.

11.For models SL594A45, SL594A05, SL594A06, except nameplates, they are same.

12.For the difference of motors of all models, see following table:

Model	Motor
SL585A04, SL585EA04	DH-07-04 AL
SL585A06, SL585EA06	DH-07-06 AL
SL586A04	DH-08-04 AL
SL586A06	DH-08-06 AL
SL585FA04, SL585GA04, SL585HA04, SL585IA04, SL585JA04, SL585KA04,	DH-09-04 AL
SL594A45	DH-09-45 AL
SL594A05, SL592A05	DH-09-05AL
SL592A06, SL594A06, SL585FA06, SL585GA06, SL585HA06, SL585IA06, SL585JA06, SL585KA06	DH-09-06 AL

Remark:

1. Motor DH-07-04 AL, DH-07-06 AL are same except the motor marking plates.
2. Motor DH-08-04 AL, DH-08-06 AL are same except the motor marking plates.
   Motor DH-09-04 AL, DH-09-45 AL, DH-09-05 AL,DH-09-06 AL are same except the motor marking plates.

Amendment 1:
Add alternative components listed in table 24.1
Update CDF
Remove motor DH-08-04 AL,DH-08-06 AL, add alternative new motors for models as below table:

Model	Motor
SL586A04, SL585FA04, SL585GA04, SL585HA04, SL585IA04, SL585JA04, SL585KA04,	DH-08-04 AL
SL594A45	DH-08-45 AL
SL594A05, SL592A05	DH-08-05 AL
SL586A06, SL592A06, SL594A06, SL585FA06, SL585GA06, SL585HA06, SL585IA06, SL585JA06, SL585KA06	DH-08-06 AL

Remark:

Motor DH-08-04 AL, DH-08-45, DH-08-05 AL, DH-08-06 AL are same except the motor marking plates.

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
10	POWER INPUT AND CURRENT		P
10.1	Power input at normal operating temperature, rated voltage and normal operation not deviating from rated power input by more than shown in table 1..:	(see appended table)	P
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated power input is related to the arithmetic mean value		P
	Power input of motorized cleaning heads measured separately without booster settings (IEC 60335-2-2)		N/A
10.2	Current at normal operating temperature, rated voltage and normal operation not deviating from rated current by more than shown in table 2 .....:	(see appended table)	N/A
	Test carried out at upper and lower limits of the ranges for appliances with one or more rated voltage ranges, unless		N/A
	the rated current is related to the arithmetic mean value of the range		N/A
11	HEATING		P
11.1	No excessive temperatures in normal use		P
11.2	The appliance is held, placed or fixed in position as described .....:		P
11.3	Temperature rises, other than of windings, determined by thermocouples		P
	Temperature rises of windings determined by resistance method, unless	Stator winding	P
	the windings are non-uniform or it is difficult to make the necessary connections	Rotor winding	P
11.4	Heating appliances operated under normal operation at 1.15 times rated power input (W) .....:		N/A
11.5	Motor-operated appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....:	254,4 is more unfavourable	P
	Booster settings activated during test as often as allowed..... (IEC 60335-2-2):		N/A
	Docking stations of automatic battery-powered cleaners are operated at 0,94 or 1,06 times rated voltage, whichever is the most unfavourable ..... (IEC 60335-2-2):		N/A
	If a suction mode is incorporated in docking stations of automatic battery-powered cleaners, the test conditions of 3.1.9 are applied ..... (IEC 60335-2-2):		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
11.6	Combined appliances operated under normal operation at most unfavourable voltage between 0.94 and 1.06 times rated voltage (V) .....:		N/A
11.7	Operation duration corresponding to the most unfavourable conditions of normal use		P
	Until steady conditions are established (IEC 60335-2-2)		P
	Appliances incorporating an automatic cord reel are operated first during 30 min with one third of cord unreeled (IEC 60335-2-2)		P
11.8	Temperature rises monitored continuously and not exceeding the values in table 3 .....:	(see appended table)	P
	If the temperature rise of a motor winding exceeds the value of table 3, or		N/A
	if there is doubt with regard to classification of insulation,		N/A
	tests of Annex C are carried out		N/A
	Sealing compound does not flow out		N/A
	Protective devices do not operate, except		P
	components in protective electronic circuits tested for the number of cycles specified in 24.1.4		N/A
	Modification: During the test, the temperature rises are monitored continuously and do not exceed the values shown in Table 3 and Table Z101".		P
	Footnotes to "External enclosure of motor-operated appliances" to be taken into account		P
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		P
13.1	Leakage current not excessive and electric strength adequate		P
	Heating appliances operated at 1.15 times the rated power input (W) .....:		N/A
	Motor-operated appliances and combined appliances supplied at 1.06 times the rated voltage (V).....:	254,4V	P
	Protective impedance and radio interference filters disconnected before carrying out the tests		P
	Booster settings not used (IEC 60335-2-2)		N/A
13.2	For class 0, class II and class III appliances, leakage current measured by means of the circuit described in figure 4 of IEC 60990		P
	For other appliances, a low impedance ammeter may be used		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	Leakage current measurements .....:	(see appended table)	P
13.3	The appliance is disconnected from the supply		P
	Electric strength tests according to table 4.....:	(see appended table)	P
	No breakdown during the tests		P
15	MOISTURE RESISTANCE		P
15.1	Enclosure provides the degree of moisture protection according to classification of the appliance	IP20	N/A
	Compliance checked as specified in 15.1.1, taking into account 15.1.2, followed by the electric strength test of 16.3		N/A
	No trace of water on insulation which can result in a reduction of clearances or creepage distances below values specified in clause 29		N/A
15.1.1	Appliances, other than IPX0, subjected to tests as specified in IEC 60529.....:		N/A
	Water valves containing live parts in external hoses for connection of an appliance to the water mains tested as specified for IPX7 appliances		N/A
15.1.2	Hand-held appliance turned continuously through the most unfavourable positions during the test		N/A
	Built-in appliances installed according to the instructions		N/A
	Appliances placed or used on the floor or table placed on a horizontal unperforated support		N/A
	Appliances normally fixed to a wall and appliances with pins for insertion into socket-outlets are mounted on a wooden board		N/A
	For IPX3 appliances, the base of wall mounted appliances is placed at the same level as the pivot axis of the oscillating tube		N/A
	For IPX4 appliances, the horizontal centre line of the appliance is aligned with the pivot axis of the oscillating tube, and		N/A
	for appliances normally used on the floor or table, the movement is limited to two times 90° for a period of 5 min, the support being placed at the level of the pivot axis of the oscillating tube		N/A
	Wall-mounted appliances, take into account the distance to the floor stated in the instructions		N/A
	Appliances normally fixed to a ceiling are mounted underneath a horizontal unperforated support, the pivot axis of the oscillating tube located at the level of the underside of the support, and		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	for IPX4 appliances, the movement of the tube is limited to two times 90° from the vertical for a period of 5 min		N/A
	Appliances with type X attachment fitted with a flexible cord as described		N/A
	Detachable parts subjected to the relevant treatment with the main part		N/A
	However, if a part has to be removed for user maintenance and a tool is needed, this part is not removed		N/A
	Appliances with an automatic cord reel tested with the cord in the most unfavourable position so that the reeling of the wet cord may affect electrical insulation during operation, the cord not being dried before reeling		N/A
15.2	Spillage of liquid due to overfilling, and due to overturning of appliances liable to be overturned in normal use does not affect the electrical insulation in normal use and, (IEC 60335-2-2)		N/A
	Appliances with type X attachment fitted with the lightest flexible cord of the smallest cross-sectional area specified in table 13 (IEC 60335-2-2)		N/A
	Appliances incorporating an appliance inlet tested with or without an connector in position, whichever is most unfavourable (IEC 60335-2-2)		N/A
	Overfilling test with additional amount of water, over a period of 1 min (l) (IEC 60335-2-2)		N/A
	Containers of hand-held appliances and other appliances liable to be overturned in normal use are completely filled, the cover being closed. The appliance is then overturned and left in that position for 5 min, unless it returns automatically to its normal position of use. (IEC 60335-2-2)		N/A
	Operation of water suction cleaning appliance until its liquid container is completely full and for a further 5 min, with nozzle placed in a container with a detergent solution (IEC 60335-2-2)		N/A
	The appliance withstands the electric strength test of 16.3 (IEC 60335-2-2)		N/A
	No trace of liquid on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29 (IEC 60335-2-2)		N/A
15.3	Appliances proof against humid conditions		P
	Checked by test Cab: Damp heat steady state in IEC 60068-2-78		P
	Detachable parts removed and subjected, if necessary, to the humidity test with the main part		P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	Humidity test for 48 h in a humidity cabinet		P
	Reassembly of those parts that may have been removed		P
	The appliance withstands the tests of clause 16		P
15.101	Motorized cleaning heads of water-suction cleaning appliances resist contacting liquids (IEC 60335-2-2)		N/A
	Impact test according to IEC 60068-2-75, impact being 2 J (IEC 60335-2-2)		N/A
	Free-fall test according IEC 60068-2-32, dropped 4000 times (IEC 60335-2-2)		N/A
	Motorized cleaning head subjected to test 14.2.7 as specified in IEC 60529 (IEC 60335-2-2)		N/A
	The appliance withstands the electric strength test of 16.3 (IEC 60335-2-2)		N/A
	No trace of liquid on insulation that can result in a reduction of clearances and creepage distances below values specified in clause 29 (IEC 60335-2-2)		N/A
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		P
16.1	Leakage current not excessive and electric strength adequate		P
	Protective impedance disconnected from live parts before carrying out the tests		N/A
	Tests carried out at room temperature and not connected to the supply		P
16.2	Single-phase appliances: test voltage 1.06 times rated voltage (V).....:	254,4V	P
	Three-phase appliances: test voltage 1.06 times rated voltage divided by √3 (V).....:		N/A
	Leakage current measurements .....:	(see appended table)	P
	Limit values doubled if:		N/A
	- all controls have an off position in all poles, or		N/A
	- the appliance has no control other than a thermal cut-out, or		N/A
	- all thermostats, temperature limiters and energy regulators do not have an off position, or		N/A
	- the appliance has radio interference filters		N/A
	With the radio interference filters disconnected, the leakage current do not exceed limits specified.....:	(see appended table)	P
16.3	Electric strength tests according to table 7.....:	(see appended table)	P
	Test voltage applied between the supply cord and inlet bushing and cord guard and cord anchorage as specified.....:	(see appended table)	P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	Tests for current-carrying hoses immersed for 1 h ..... (IEC 60335-2-2)		N/A
	- electric strength test 2000 V		N/A
	- electric strength test 3000 V		N/A
	No breakdown during the tests		P
19	ABNORMAL OPERATION		P
19.10	Series motors operated at 1,3 times rated voltage for 30 s with the air inlet blocked, rotating brushers and similar devices being removed..... (IEC 60335-2-2)		P
	Safety not impaired, windings and connections have not worked loose (IEC 60335-2-2)		P
22	CONSTRUCTION		P
22.1	Appliance marked with the first numeral of the IP system, relevant requirements of IEC 60529 are fulfilled	IP20	N/A
22.2	Stationary appliance: means to ensure all-pole disconnection from the supply being provided:		N/A
	- a supply cord fitted with a plug, or		N/A
	- a switch complying with 24.3, or		N/A
	- a statement in the instruction sheet that a disconnection incorporated in the fixed wiring is to be provided, or		N/A
	- an appliance inlet		N/A
	Singe-pole switches and single-pole protective devices for the disconnection of heating elements in single-phase, permanently connected class 01 and class I appliances, connected to the phase conductor		N/A
22.3	Appliance provided with pins: no undue strain on socket-outlets		N/A
	Applied torque not exceeding 0.25 Nm		N/A
	Pull force of 50N to each pin after the appliance has being placed in the heating cabinet; when cooled to room temperature the pins are not displaced by more than 1mm		N/A
	Each pin subjected to a torque of 0.4Nm; the pins are not rotating, unless		N/A
	rotating does not impair compliance with this standard		N/A
22.4	Appliance for heating liquids and appliance causing undue vibration not provided with pins for insertion into socket-outlets		P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
22.5	No risk of electric shock when touching the pins of the plug, for appliances having a capacitor with rated capacitance exceeding 0,1μF, the appliance being disconnected from the supply at the instant of voltage peak		P
	Voltage not exceeding 34 V (V).....:	Refer to 50164846 001	P
22.6	Electrical insulation not affected by condensing water or leaking liquid		N/A
	Electrical insulation of Class II appliances not affected if a hose ruptures or seal leaks		N/A
	In case of doubt, test as described		N/A
22.7	Adequate safeguards against the risk of excessive pressure in appliances containing liquid or gases or having steam-producing devices		N/A
22.8	Electrical connections not subject to pulling during cleaning of compartments to which access can be gained without the aid of a tool, and that are likely to be cleaned in normal use		P
22.9	Insulation, internal wiring, windings, commutators and slip rings not exposed to oil, grease or similar substances, unless		P
	the substance has adequate insulating properties		N/A
22.10	Not possible to reset voltage-maintained non-self-resetting thermal cut-outs by the operation of an automatic switching device incorporated within the appliance, if:		N/A
	- a non-self-resetting thermal cut-out is required by the standard, and		N/A
	- a voltage maintained non-self-resetting thermal cut-out is used to meet it		N/A
	Non-self-resetting thermal motor protectors have a trip-free action, unless		N/A
	they are voltage maintained		N/A
	Reset buttons of non-self-resetting controls so located or protected that accidental resetting is unlikely		N/A
22.11	Reliable fixing of non-detachable parts that provide the necessary degree of protection against electric shock, moisture or contact with moving parts		P
	Obvious locked position of snap-in devices used for fixing such parts		N/A
	No deterioration of the fixing properties of snap-in devices used in parts that are likely to be removed during installation or servicing		N/A
	Tests as described		P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
22.12	Handles, knobs etc. fixed in a reliable manner		P
	Fixing in wrong position of handles, knobs etc. indicating position of switches or similar components not possible		P
	Axial force 15 N applied to parts, the shape being so that an axial pull is unlikely to be applied		P
	Axial force 30 N applied to parts, the shape being so that an axial pull is likely to be applied		P
22.13	Unlikely that handles, when gripped as in normal use, make the operator's hand touch parts having a temperature rise exceeding the value specified for handles which are held for short periods only		P
22.14	No ragged or sharp edges creating a hazard for the user in normal use, or during user maintenance		P
	No exposed pointed ends of self-tapping screws or other fasteners, likely to be touched by the user in normal use or during user maintenance		P
22.15	Storage hooks and the like for flexible cords smooth and well rounded		P
22.16	Automatic cord reels cause no undue abrasion or damage to the sheath of the flexible cord, no breakage of conductors strands and no undue wear of contacts		N/A
	Cord reel tested with 6000 operations, as specified		N/A
	Electric strength test of 16.3, voltage of 1000 V applied		N/A
22.17	Spacers not removable from the outside by hand or by means of a screwdriver or a spanner		N/A
22.18	Current-carrying parts and other metal parts resistant to corrosion		P
22.19	Driving belts not relied upon to provide the required level of insulation, unless		N/A
	constructed to prevent inappropriate replacement		N/A
22.20	Direct contact between live parts and thermal insulation effectively prevented, unless		N/A
	material used is non-corrosive, non-hygroscopic and non-combustible		N/A
22.21	Wood, cotton, silk, ordinary paper and fibrous or hygroscopic material not used as insulation, unless		P
	impregnated		N/A
	This requirement does not apply to magnesium oxide and mineral ceramic fibres used for the electrical insulation of heating elements		N/A
22.22	Appliances not containing asbestos		P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
22.23	Oils containing polychlorinated biphenyl (PCB) not used		P
22.24	Bare heating elements, except in class III appliances or class III constructions that do not contain live parts, adequately supported		N/A
	In case of rupture, the heating conductor is unlikely to come in contact with accessible metal parts		N/A
22.25	Sagging heating conductors, except in class III appliances or class III constructions that do not contain live parts, cannot come into contact with accessible metal parts		N/A
22.26	For class III constructions the insulation between parts operating at safety extra-low voltage and other live parts complies with the requirements for double or reinforced insulation		N/A
22.27	Parts connected by protective impedance separated by double or reinforced insulation		N/A
22.28	Metal parts of Class II appliances conductively connected to gas pipes or in contact with water, separated from live parts by double or reinforced insulation		N/A
22.29	Class II appliances permanently connected to fixed wiring so constructed that the required degree of access to live parts is maintained after installation		N/A
22.30	Parts serving as supplementary or reinforced insulation fixed so that they cannot be removed without being seriously damaged, or		P
	so constructed that they cannot be replaced in an incorrect position, and so that if they are omitted, the appliance is rendered inoperable or manifestly incomplete		P
22.31	Neither clearances nor creepage distances over supplementary and reinforced insulation reduced below values specified in clause 29 as a result of wear		P
	Neither clearances nor creepage distances between live parts and accessible parts reduced below values for supplementary insulation if wires, screws etc. become loose		P
22.32	Supplementary and reinforced insulation constructed or protected against pollution so that clearances or creepage distances are not reduced below the values in clause 29		P
	Supplementary insulation of natural or synthetic rubber resistant to ageing, or arranged and dimensioned so that creepage distances are not reduced below values specified in 29.2		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
	Ceramic material not tightly sintered, similar materials or beads alone not used as supplementary or reinforced insulation		N/A
	Insulating material in which heating conductors are embedded is considered to be basic insulation, not reinforced insulation		N/A
	Oxygen bomb test at 70 °C for 96 h and 16 h at room temperature		N/A
	Vacuum cleaners constructed so that internal parts of motors and electrical connections protected against deposition of dust due to passage of air (IEC 60335-2-2)		P
22.33	Conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts are not in direct contact with live parts		N/A
	Electrodes not used for heating liquids		N/A
	For class II constructions, conductive liquids that are or may become accessible in normal use and conductive liquids that are in contact with unearthed accessible metal parts, not in direct contact with basic or reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	For class II constructions, conductive liquids which are in contact with live parts, not in direct contact with reinforced insulation, unless		N/A
	the reinforced insulation consists of at least 3 layers		N/A
	An air layer not used as basic or supplementary insulation in a double insulation system if likely to be bridged by leaking liquid		N/A
22.34	Shafts of operating knobs, handles, levers etc. not live, unless		P
	the shaft is not accessible when the part is removed		N/A
22.35	For other than class III constructions, handles, levers and knobs, held or actuated in normal use, not becoming live in the event of a failure of basic insulation		P
	Such parts being of metal, and their shafts or fixings are likely to become live in the event of a failure of basic insulation, are either adequately covered by insulation material or their accessible parts are separated from their shafts or fixings by supplementary insulation		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	This requirement does not apply to handles, levers and knobs on stationary appliances, other than those of electrical components, provided they are reliably connected to an earthing terminal or earthing contact, or separated from live parts by earthed metal		N/A
	Insulating material covering metal handles, levers and knobs withstand the electric strength test of 16.3 for supplementary insulation		N/A
22.36	For appliances other than class III, handles continuously held in the hand in normal use so constructed that when gripped as in normal use, the operators hand is not likely to touch metal parts, unless		P
	they are separated from live parts by double or reinforced insulation		N/A
22.37	Capacitors in Class II appliances not connected to accessible metal parts and their casings, if of metal, separated from accessible metal parts by supplementary insulation, unless		P
	the capacitors comply with 22.42		N/A
22.38	Capacitors not connected between the contacts of a thermal cut-out		P
22.39	Lamp holders used only for the connection of lamps		N/A
22.40	Motor-operated appliances and combined appliances intended to be moved while in operation, or having accessible moving parts, fitted with a switch to control the motor. The actuating member of the switch being easily visible and accessible		P
	If the appliance cannot operate continuously, automatically or remotely without giving rise to a hazard, appliances for remote operation being fitted with a switch for stopping the operation. The actuating member of the switch being easily visible and accessible		N/A
22.41	No components, other than lamps, containing mercury		P
22.42	Protective impedance consisting of at least two separate components		N/A
	Values specified in 8.1.4 not exceeded if any one of the components are short-circuited or open-circuited		N/A
	Resistors checked by the test of 14.1 a) in IEC 60065		N/A
	Capacitors checked by the tests for class Y capacitors in IEC 60384-14		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
22.43	Appliances adjustable for different voltages, accidental changing of the setting of the voltage unlikely to occur		N/A
22.44	Appliances not having an enclosure that is shaped or decorated like a toy		P
22.45	When air is used as reinforced insulation, clearances not reduced below the values specified in 29.1.3 due to deformation as a result of an external force applied to the enclosure		P
22.46	For programmable protective electronic circuits used to ensure compliance with the standard, the software contains measures to control the fault/error conditions in table R.1		N/A
	Software that contains measures to control the fault/error conditions specified in table R.2 is to be specified in parts 2 for particular constructions or to address specific hazards		N/A
	These requirements are not applicable to software used for functional purpose or compliance with clause 11		N/A
22.47	Appliances connected to the water mains withstand the water pressure expected in normal use		N/A
	No leakage from any part, including any inlet water hose		N/A
22.48	Appliances connected to the water mains constructed to prevent backsiphonage of non-potable water		N/A
22.49	For remote operation, the duration of operation is to be set before the appliance can be started, unless		N/A
	the appliance switches off automatically or can operate continuously without hazard		N/A
22.50	Controls incorporated in the appliance take priority over controls actuated by remote operation		N/A
22.51	There is a control on the appliance manually adjusted to the setting for remote operation before the appliance can be operated in this mode		N/A
	There is a visual indication showing that the appliance is adjusted for remote operation		N/A
	These requirements not necessary on appliances that can operate as follows, without giving rise to a hazard:		N/A
	- continuously, or		N/A
	- automatically, or		N/A
	- remotely		N/A
22.52	Socket-outlets on appliances accessible to the user in accordance with the socket-outlet system used in the country in which the appliance is sold		N/A

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Clause	Requirement - Test	Result - Remark	Verdict
22.101	Motorized cleaning heads for use with appliances that have a water-suction cleaning mode, except those of class III construction having a working voltage up to 24 V, shall be motorized cleaning heads for water-suction cleaning appliances (IEC 60335-2-2)		N/A
21.Z101	Addition: Hand-held appliances meets the following requirements:		P
	The appliance is not damaged to such an extent that compliance with this European Standard is impaired.		P
	In particular, the appliance does not emit flames or molten metal and the requirements of Clauses 8 and 29 are fulfilled.		P
22.Z101	Addition: Hinged handles of vacuum cleaners intended to be free standing require a specific action to operate them, such as a lever, the handle release mechanism or similar.		N/A
22.Z102	Addition: Supply cords of appliances not damaged by the appliance running over them.		N/A
	The functional openings of power rotating brushes, driven by the main suction motor, do not exceed 120 mm along the major dimension of the opening.		N/A
	Measurement (mm)……...…:		N/A
23	INTERNAL WIRING		P
23.5	The insulation of internal wiring subjected to the supply mains voltage withstanding the electrical stress likely to occur in normal use		P
	Basic insulation electrically equivalent to the basic insulation of cords complying with IEC 60227 or IEC 60245, or		N/A
	no breakdown when a voltage of 2000 V is applied for 15 min between the conductor and metal foil wrapped around the insulation		P
24	COMPONENTS		P
24.1	Components comply with safety requirements in relevant IEC standards		P
	List of components .....:	(see appended table)	P
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		P
	Clearances, creepage distances and solid insulation withstand electrical stress		P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	For coatings used on printed circuits boards to protect the microenvironment (Type 1) or to provide basic insulation (Type 2), Annex J applies .....:		N/A
	The microenvironment is pollution degree 1 under type 1 protection		N/A
	For type 2 protection, the spacing between the conductors before the protection is applied is not less than the values specified in Table 1 of IEC 60664-3		N/A
	These values apply to functional, basic, supplementary and reinforced insulation.....:		N/A
29.1	Clearances not less than the values specified in table 16, taking into account the rated impulse voltage for the overvoltage categories of table 15, unless .....:	(see appended table)	P
	for basic insulation and functional insulation they comply with the impulse voltage test of clause 14		N/A
	However, if the distances are affected by wear, distortion, movement of the parts or during assembly, the clearances for rated impulse voltages of 1500V and above are increased by 0,5 mm and the impulse voltage test is not applicable		P
	Impulse voltage test is not applicable:		P
	- when the microenvironment is pollution degree 3, or		P
	- for basic insulation of class 0 and class 01 appliances		N/A
	Appliances are in overvoltage category II		P
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
29.1.1	Clearances of basic insulation withstand the overvoltages, taking into account the rated impulse voltage		P
	The values of table 16 or the impulse voltage test of clause 14 are applicable.....:	(see appended table)	P
	Clearance at the terminals of tubular sheathed heating elements may be reduced to 1,0 mm if the microenvironment is pollution degree 1		N/A
	Lacquered conductors of windings considered to be bare conductors		P
29.1.2	Clearances of supplementary insulation not less than those specified for basic insulation in table 16:	(see appended table)	P
29.1.3	Clearances of reinforced insulation not less than those specified for basic insulation in table 16, using the next higher step for rated impulse voltage .....:	(see appended table)	P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	For double insulation, with no intermediate conductive part between basic and supplementary insulation, clearances are measured between live parts and the accessible surface, and the insulation system is treated as reinforced insulation		P
29.1.4	Clearances for functional insulation are the largest values determined from:		P
	- table 16 based on the rated impulse voltage.....:	(see appended table)	P
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		P
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If values of table 16 are largest, the impulse voltage test of clause 14 may be applied instead, unless		N/A
	the microenvironment is pollution degree 3, or		P
	the distances can be affected by wear, distortion, movement of the parts or during assembly		P
	However, clearances are not specified if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
	Lacquered conductors of windings considered to be bare conductors		P
	However, clearances at crossover points are not measured		P
	Clearance between surfaces of PTC heating elements may be reduced to 1mm		N/A
29.1.5	Appliances having higher working voltages than rated voltage, clearances for basic insulation are the largest values determined from:		N/A
	- table 16 based on the rated impulse voltage.....:		N/A
	- table F.7a in IEC 60664-1, frequency not exceeding 30 kHz		N/A
	- clause 4 of IEC 60664-4, frequency exceeding 30 kHz		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1 or Clause 4 of IEC 60664-4, the clearances of supplementary insulation are not less than those specified for basic insulation		N/A
	If clearances for basic insulation are selected from Table F.7a of IEC 60664-1, the clearances of reinforced insulation dimensioned as specified in Table F.7a are to withstand 160% of the withstand voltage required for basic insulation		N/A
	If clearances for basic insulation are selected from Clause 4 of IEC 60664-4, the clearances of reinforced insulation are twice the value required for basic insulation		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	If the secondary winding of a step-down transformer is earthed, or if there is an earthed screen between the primary and secondary windings, clearances of basic insulation on the secondary side not less than those specified in table 16, but using the next lower step for rated impulse voltage		N/A
	Circuits supplied with a voltage lower than rated voltage, clearances of functional insulation are based on the working voltage used as the rated voltage in table 15		N/A
29.2	Creepage distances not less than those appropriate for the working voltage, taking into account the material group and the pollution degree .....:	(see appended table)	P
	Pollution degree 2 applies, unless		N/A
	- precautions taken to protect the insulation; pollution degree 1		N/A
	- insulation subjected to conductive pollution; pollution degree 3		P
	A force of 2 N is applied to bare conductors, other than heating elements		N/A
	A force of 30 N is applied to accessible surfaces		P
	In a double insulation system, the working voltage for both the basic and supplementary insulation is taken as the working voltage across the complete double insulation system		P
29.2.1	Creepage distances of basic insulation not less than specified in table 17 .....:	(see appended table)	P
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 17 .....:		N/A
	Except for pollution degree 1, corresponding creepage distance not less than the minimum specified for the clearance in table 16, if the clearance has been checked according to the test of clause 14 .....:		N/A
29.2.2	Creepage distances of supplementary insulation at least those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....:		N/A
29.2.3	Creepage distances of reinforced insulation at least double those specified for basic insulation in table 17, or .....:	(see appended table)	P
	Table 2 of IEC 60664-4, as applicable .....:		N/A
29.2.4	Creepage distances of functional insulation not less than specified in table 18 .....:	(see appended table)	P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	However, if the working voltage is periodic and has a frequency exceeding 30 kHz, the creepage distances are also determined from table 2 of IEC 60664-4, these values being used if exceeding the values in table 18.....:		N/A
	Creepage distances may be reduced if the appliance complies with clause 19 with the functional insulation short-circuited		N/A
29.3	Supplementary and reinforced insulation have adequate thickness, or a sufficient number of layers, to withstand the electrical stresses		P
	Compliance checked:		P
	- by measurement, in accordance with 29.3.1, or		P
	- by an electric strength test in accordance with 29.3.2, or		N/A
	- by an assessment of the thermal quality of the material combined with an electric strength test, in accordance with 29.3.3, and		N/A
	for accessible parts of reinforced insulation consisting of a single layer, by measurement in accordance with 29.3.4, or		N/A
	- as specified in subclause 6.3 of IEC 60664-4 for insulation that is subjected to any periodic voltage having a frequency exceeding 30 kHz		N/A
29.3.1	Supplementary insulation have a thickness of at least 1 mm		P
	Reinforced insulation have a thickness of at least 2 mm		P
29.3.2	Each layer of material withstand the electric strength test of 16.3 for supplementary insulation		N/A
	Supplementary insulation consist of at least 2 layers		N/A
	Reinforced insulation consist of at least 3 layers		N/A
29.3.3	The insulation is subjected to the dry heat test Bb of IEC 60068-2-2, followed by		N/A
	the electric strength test of 16.3		N/A
	If the temperature rise during the tests of clause 19 does not exceed the value specified in table 3, the test of IEC 60068-2-2 is not carried out		N/A
29.3.4	Thickness of accessible parts of reinforced insulation consisting of a single layer not less than specified in table 19.....:		N/A
29.3.Z1	Appliance constructed so that if there is a possibility of damaging the insulation during installation, the insulation withstands the scratch and penetration test of 21.2		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
30	RESISTANCE TO HEAT AND FIRE		P
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2	Motor bobbin and carbon brush holder applied, others refer to 50164846 001	P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts supporting live parts tested at 40°C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C).....:	(see appended table)	P
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C) .....:	(see appended table)	P
30.2	Parts of non-metallic material resistant to ignition and spread of fire		P
	This requirement does not apply to:		P
	parts having a mass not exceeding 0,5 g, provided the cumulative effect is unlikely to propagate flames that originate inside the appliance by propagating flames from one part to another, or		P
	decorative trims, knobs and other parts unlikely to be ignited or to propagate flames that originate inside the appliance		P
	Compliance checked by the test of 30.2.1, and in addition:		P
	- for attended appliances, 30.2.2 applies		P
	- for unattended appliances, 30.2.3 applies		N/A
	For appliances for remote operation, 30.2.3 applies		N/A
	For base material of printed circuit boards, 30.2.4 applies		N/A
	Centrally-sited vacuum cleaners, 30.2.3 applicable (IEC 60335-2-2)		N/A
	Other appliances, 30.2.2 applicable (IEC 60335-2-2)		P
30.2.1	Parts of non-metallic material subjected to the glow-wire test of IEC 60695-2-11 at 550 °C	Motor bobbin and carbon brush holder applied, others refer to 50164846 001	P

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	However, test not carried out if the material is classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 550 °C, or		N/A
	the material is classified at least HB40 according to IEC 60695-11-10		N/A
	Parts for which the glow-wire test cannot be carried out need to meet the requirements in ISO 9772 for material classified HBF		N/A
30.2.2	Appliances operated while attended, parts of non-metallic material supporting current-carrying connections, and		N/A
	parts of non-metallic material within a distance of 3mm of such connections,		N/A
	subjected to the glow-wire test of IEC 60695-2-11		N/A
	The test severity is:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,5 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C, or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10.....:		N/A
	Glow-wire test not applicable to conditions as specified .....:	Hand-held appliance	P
30.2.3	Appliances operated while unattended, tested as specified in 30.2.3.1 and 30.2.3.2		N/A
	The tests are not applicable to conditions as specified .....:		N/A
30.2.3.1	Parts of non-metallic material supporting connections carrying a current exceeding 0,2 A during normal operation, and		N/A
	parts of non-metallic material, other than small parts, within a distance of 3 mm,		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	subjected to the glow-wire test of IEC 60695-2-11 with a test severity of 850 °C		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	The glow-wire test is not carried out on parts of material classified as having a glow-wire flammability index according to IEC 60695-2-12 of at least 850 °C		N/A
30.2.3.2	Parts of non-metallic material supporting connections, and		N/A
	parts of non-metallic material within a distance of 3mm,		N/A
	subjected to glow-wire test of IEC 60695-2-11		N/A
	The test severity is:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	Glow-wire applied to an interposed shielding material, if relevant		N/A
	However, the glow-wire test of 750 °C or 650 °C as appropriate, is not carried out on parts of material fulfilling both or either of the following classifications:		N/A
	- a glow-wire ignition temperature according to IEC 60695-2-13 of at least:		N/A
	• 775 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	• 675 °C, for other connections		N/A
	- a glow-wire flammability index according to IEC 60695-2-12 of at least:		N/A
	- 750 °C, for connections carrying a current exceeding 0,2 A during normal operation		N/A
	- 650 °C, for other connections		N/A
	The glow-wire test is also not carried out on small parts. These parts are to:		N/A
	- comprise material having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- comprise material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- comply with the needle-flame test of Annex E, or		N/A
	- comprise material classified as V-0 or V-1 according to IEC 60695-11-10		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict
	The consequential needle-flame test of Annex E applied to non-metallic parts that encroach within the vertical cylinder placed above the centre of the connection zone and on top of the non-metallic parts supporting current-carrying connections, and parts of non-metallic material within a distance of 3 mm of such connections if these parts are those:		N/A
	- parts that withstood the glow-wire test of IEC 60695-2-11 of 750 °C or 650 °C as appropriate, but produce a flame that persist longer than 2 s, or		N/A
	- parts that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts, that comprised material having a glow-wire flammability index of at least 750 °C or 650 °C as appropriate, or		N/A
	- small parts for which the needle-flame test of Annex E was applied, or		N/A
	- small parts for which a material classification of V-0 or V-1 was applied		N/A
	However, the consequential needle-flame test is not carried out on non-metallic parts, including small parts, within the cylinder that are:		N/A
	- parts having a glow-wire ignition temperature of at least 775 °C or 675 °C as appropriate, or		N/A
	- parts comprising material classified as V-0 or V-1 according to IEC 60695-11-10, or		N/A
	- parts shielded by a flame barrier that meets the needle-flame test of Annex E or that comprises material classified as V-0 or V-1 according to IEC 60695-11-10		N/A
30.2.4	Base material of printed circuit boards subjected to the needle-flame test of Annex E		N/A
	Test not applicable to conditions as specified .....:		N/A

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

10.1	TABLE: Power input deviation					P
Input deviation of/at:		P rated (W)	P measured (W)	dP (W, %)	Required dP (W, %)	Remark
SL585FA04:AC 230V,50Hz		400	392	-2,0%	+15%	Motor DH-08-04 AL
SL585FA04:AC 230V,60Hz		400	390	-2,5%	+15%	Motor DH-08-04 AL
Supplementary information:						

11.8	TABLE: Heating test, thermocouple measurements		P
	Test voltage (V) .....:	254,4	—
	Ambient (°C).....:	20,7	—

Thermocouple locations	Max. temperature rise measured, dT (K)	Max.temperature rise limit, dT (K)
Power cord	35,2	50
Stator winding	74,8	80
Internal wire for motor connection	67,2	T-25=80
Internal wire for others close to motor	53,7	T-25=60
X2 Capacitor	36,5	T-25=60
External enclosure(air outlet)	53,3	Cl.30.1
Plastic enclosure(inner)	40,0	Cl.30.1
Handle	30,0	50
Switch knob	37,0	60
Ambient of switch	57,9	T-25=80
Supplementary information:		

11.8	TABLE: Heating test, resistance method		P
	Test voltage (V) .....:	254,4	—
	Ambient, t1 (°C).....:	20,3	—
	Ambient, t2 (°C).....:	20,7	—

Temperature rise of winding	R1 (Ω)	R2 (Ω)	dT (K)	Max. dT (K)	Insulation class
Stator winding	3,052	4,051	79,9	90	120
Supplementary information:					

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

13.2	**TABLE: Leakage current**		P
	Heating appliances: 1.15 x rated input (W).....:		—
	Motor-operated and combined appliances: 1.06 x rated voltage (V).....:	254,4	—

Leakage current between	I (mA)	Max. allowed I (mA)
L/N-accessible parts	0,016	0,35 peak

Supplementary information:

13.3	**TABLE: Electric strength**		P

Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
L/N-accessible parts	3000	No

Supplementary information:

16.2	**TABLE: Leakage current**		P
	Single phase appliances: 1.06 x rated voltage (V) .....:	254,4	—
	Three phase appliances 1.06 x rated voltage divided by √3 (V) .....:		—

Leakage current between	I (mA)	Max. allowed I (mA)
L/N-accessible parts	0,023	0,25

Supplementary information:

16.3	**TABLE: Electric strength**		P

Test voltage applied between:	Voltage (V)	Breakdown (Yes/No)
L/N-accessible parts	3000	No

Supplementary information:

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

24.1	TABLE: Components information				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1])
Power plug	Yuyao Haidebao Electrical Appliance Co., Ltd.	HDB-02	AC 250V,16A	DIN VDE 0620-2-1	VDE 40034743
Power cord	Yuyao Haidebao Electrical Appliance Co., Ltd.	H05VV-F	2X0.75mm^2, 2X1,0mm^2	EN 50525-2-11	VDE 40034583
	Chau's Electrical Co., Ltd.	H05VV-F	2X0.75mm^2, 2X1,0mm^2	EN 50525-2-11	VDE 40022055
Internal wire(motor lead wire)	SUZHOU LONG CHANG PLASTIC & CABLE CO LTD	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E233980*
	Yuyao Donghai Special Wire Factory	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E212811*
	WUXI VIGOROUS ELECTRIC CO LTD	1015	600V;18AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E339228*
Internal wire(except for motor)	1.Yuyao Donghai Special Wire Factory	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E212811*
	2.Kelin Wire Co.,Ltd. (Dongguan)	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E250866*
	3.Yuyao Zhenhua Wire & Cable Co LTD	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E235204*
	4.Ningbo Huierna Cable Electrical Co LTD	1015	600V;20AWG; 105°C	EN 60335-1 EN 60335-2-2	UL E354214*
Motor used in SL586A04, SL585FA04, SL585GA04, SL585HA04, SL585IA04, SL585JA04, SL585KA04	Ningbo Dahua Electric Appliance Co., Ltd.	DH-08-04 AL	220/230/240V; 50/60Hz,400W Class 120; Stator winding: 3,052Ω(20,3°C), Rotor winding: 5,37Ω(20,3°C)	EN 60335-1 EN 60335-2-2	Tested with appliance
Motor used in SL594A45	Ningbo Dahua Electric Appliance Co., Ltd.	DH-08-45 AL	220/230/240V; 50/60Hz,450W Class 120; Stator winding: 3,052Ω(20,3°C), Rotor winding: 5,37Ω(20,3°C)	EN 60335-1 EN 60335-2-2	Tested with appliance

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

Motor used in SL594A05, SL592A05	Ningbo Dahua Electric Appliance Co., Ltd.	DH-08-05 AL	220/230/240V; 50/60Hz,500W Class 120; Stator winding: 3,052Ω(20,3°C), Rotor winding: 5,37Ω(20,3°C)	EN 60335-1 EN 60335-2-2	Tested with appliance
Motor used in SL586A06, SL592A06, SL594A06, SL585FA06, SL585GA06, SL585HA06, SL585IA06, SL585JA06, SL585KA06	Ningbo Dahua Electric Appliance Co., Ltd.	DH-08-06 AL	220/230/240V; 50/60Hz,600W Class 120; Stator winding: 3,052Ω(20,3°C), Rotor winding: 5,37Ω(20,3°C)	EN 60335-1 EN 60335-2-2	Tested with appliance
Supplementary information: 1)* meaning the component is tested with appliances					

29.1	TABLE: Clearances					P
	Overvoltage category .... :			II		—
		Type of insulation:				
Rated impulse voltage (V):	Min. cl (mm)	Basic (mm)	Supplementary (mm)	Reinforced (mm)	Functional (mm)	Verdict / Remark
330	0,2* / 0,5 / 0,8**					N/A
500	0,2* / 0,5 / 0,8**					N/A
800	0,2* / 0,5 / 0,8**					N/A
1 500	0,5 / 0,8** / 1,0***					N/A
2 500	1,5 / 2,0***	Note 1	Note 2		Note 2	P
4 000	3,0 / 3,5***			Note 2		P
6 000	5,5 / 6,0***					N/A
8 000	8,0 / 8,5***					N/A
10 000	11,0 / 11,5***					N/A

Supplementary information:

*) For tracks on printed circuit boards if pollution degree 1 and 2
**) For pollution degree 3
***) If the construction is affected by wear, distortion, movement of the parts or during assembly

Note1: Winding of stator-metal core: 3,3mm
Note2: Refer to test report 50164846 001

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, basic, supplementary and reinforced insulation										P
Working voltage (V)	Creepage distance (mm) Pollution degree										
	1	2			3			Type of insulation			
		Material group			Material group						
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	B**)	S**)	R**)	Verdict
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9		—	—	N/A
≤50	0,18	0,6	0,85	1,2	1,5	1,7	1,9	—		—	N/A
≤50	0,36	1,2	1,7	2,4	3,0	3,4	3,8	—	—		N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4		—	—	N/A
125	0,28	0,75	1,05	1,5	1,9	2,1	2,4	—		—	N/A
125	0,56	1,5	2,1	3,0	3,8	4,2	4,8	—	—		N/A
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	Note 1	—	—	P
250	0,56	1,25	1,8	2,5	3,2	3,6	4,0	—	Note 2	—	P
250	1,12	2,5	3,6	5,0	6,4	7,2	8,0	—	—	Note 2	P
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3		—	—	N/A
400	1,0	2,0	2,8	4,0	5,0	5,6	6,3	—		—	N/A
400	2,0	4,0	5,6	8,0	10,0	11,2	12,6	—	—		N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0		—	—	N/A
500	1,3	2,5	3,6	5,0	6,3	7,1	8,0	—		—	N/A
500	2,6	5,0	7,2	10,0	12,6	14,2	16,0	—	—		N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0		—	—	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	—		—	N/A
>630 and ≤800	3,6	6,4	9,0	12,6	16,0	18,0	20,0	—	—		N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5		—	—	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	—		—	N/A
>800 and ≤1000	4,8	8,0	11,2	16,0	20,0	22,0	25,0	—	—		N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0		—	—	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	—		—	N/A
>1000 and ≤1250	6,4	10,0	14,2	20,0	25,0	28,0	32,0	—	—		N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0		—	—	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	—		—	N/A
>1250 and ≤1600	8,4	12,6	18,0	25,0	32,0	36,0	40,0	—	—		N/A

IEC 60335-2-2											
Clause	Requirement - Test							Result - Remark			Verdict
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0		—	—	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	—		—	N/A
>1600 and ≤2000	11,2	16,0	22,0	32,0	40,0	44,0	50,0	—	—		N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0		—	—	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	—		—	N/A
>2000 and ≤2500	15,0	20,0	28,0	40,0	50,0	56,0	64,0	—	—		N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0		—	—	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	—		—	N/A
>2500 and ≤3200	20,0	25,0	36,0	50,0	64,0	72,0	80,0	—	—		N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0		—	—	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	—		—	N/A
>3200 and ≤4000	25,0	32,0	44,0	64,0	80,0	90,0	100,0	—	—		N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0		—	—	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	—		—	N/A
>4000 and ≤5000	32,0	40,0	56,0	80,0	100,0	112,0	126,0	—	—		N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0		—	—	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	—		—	N/A
>5000 and ≤6300	40,0	50,0	72,0	100,0	126,0	142,0	160,0	—	—		N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0		—	—	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	—		—	N/A
>6300 and ≤8000	50,0	64,0	90,0	126,0	160,0	180,0	200,0	—	—		N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0		—	—	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	—		—	N/A
>8000 and ≤10000	64,0	80,0	112,0	160,0	200,0	220,0	250,0	—	—		N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0		—	—	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	—		—	N/A
>10000 and ≤12500	80,0	100,0	142,0	200,0	250,0	280,0	320,0	—	—		N/A
Supplementary information: *) Material group IIIb is allowed if the working voltage does not exceed 50 V **) B = Basic insulation, S = Supplementary insulation, R = Reinforced insulation Note1: Winding of stator-metal core: 3,3mm Note2: Refer to test report 50164846 001											

IEC 60335-2-2			
Clause	Requirement - Test	Result - Remark	Verdict

29.2	TABLE: Creepage distances, functional insulation							P
Working voltage (V)	Creepage distance (mm) Pollution degree							
	1	2			3			
		Material group			Material group			
		I	II	IIIa/IIIb	I	II	IIIa/IIIb*)	Verdict / Remark
≤10	0,08	0,4	0,4	0,4	1,0	1,0	1,0	N/A
50	0,16	0,56	0,8	1,0	1,4	1,6	1,8	N/A
125	0,25	0,71	1,0	1,4	1,8	2,0	2,2	N/A
250	0,42	1,0	1,4	2,0	2,5	2,8	3,2	P
400	0,75	1,6	2,2	3,2	4,0	4,5	5,0	N/A
500	1,0	2,0	2,8	4,0	5,0	5,6	6,3	N/A
>630 and ≤800	1,8	3,2	4,5	6,3	8,0	9,0	10,0	N/A
>800 and ≤1000	2,4	4,0	5,6	8,0	10,0	11,0	12,5	N/A
>1000 and ≤1250	3,2	5,0	7,1	10,0	12,5	14,0	16,0	N/A
>1250 and ≤1600	4,2	6,3	9,0	12,5	16,0	18,0	20,0	N/A
>1600 and ≤2000	5,6	8,0	11,0	16,0	20,0	22,0	25,0	N/A
>2000 and ≤2500	7,5	10,0	14,0	20,0	25,0	28,0	32,0	N/A
>2500 and ≤3200	10,0	12,5	18,0	25,0	32,0	36,0	40,0	N/A
>3200 and ≤4000	12,5	16,0	22,0	32,0	40,0	45,0	50,0	N/A
>4000 and ≤5000	16,0	20,0	28,0	40,0	50,0	56,0	63,0	N/A
>5000 and ≤6300	20,0	25,0	36,0	50,0	63,0	71,0	80,0	N/A
>6300 and ≤8000	25,0	32,0	45,0	63,0	80,0	90,0	100,0	N/A
>8000 and ≤10000	32,0	40,0	56,0	80,0	100,0	110,0	125,0	N/A
>10000 and ≤12500	40,0	50,0	71,0	100,0	125,0	140,0	160,0	N/A

Supplementary information:

*) Material group IIIb is allowed if the working voltage does not exceed 50 V

Note: Refer to test report 50164846 001

END OF TEST REPORT

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Measurement Equipment List

Testing Start Date 20.11.2018
Testing end date 23.11.2018

Project Manager Wanda Xuan

Test Report Number 50164846 002
Order Item Number 1160051918A00070

Customer Ningbo Dahua Electric
Product Name Vacuum Cleaner
Comment

Old ID	Equip.	Description	Model	Manufacturer	Inte. (mon)	Due Date
1.437B	1809901	Power meter	WT310E-C1-H	YOKOGAWA	12	03.01.2019
1.243	1809691	Temp. & Humidity recorder	175H1	Testo	12	16.01.2019
1.056F	1810416	Stopwatch	HW30	EXTECH	12	16.07.2019
1.031	1809473	Data acquisition unit	34970A	Agilent	12	10.10.2019
1.009	1809443	Digital m# meter	3540	HIOKI	12	11.07.2019
1.013A	1817245	Leakage current tester	7630	EXTECH	12	08.02.2019
1.006B	1809438	Withstanding voltage tester	TOS5051A	KIKUSUI	12	03.01.2019
1.357	1809768	Climate chamber	SETH-Z-042L	ESPEC	12	12.04.2019
1.219	1809686	True RMS multimeter	Flueke287	Fluke	12	03.01.2019
1.437C	1809902	Power meter	WT310E-C1-H	YOKOGAWA	12	03.01.2019
1.384	1809801	Oven	ST-120B1	ESPEC	12	12.01.2019
1.035B	1809480	Ball pressure tester	QK1	SHQK	36	02.02.2019
1.655	1810014	Microscope	AM3113	Dino-lite	36	18.07.2020
1.014A	1809451	Glow-wire tester	F3-3020	Safequipment	12	12.04.2019
1.215C	1809673	Temp. & Humidity recorder	175H1	Testo	12	13.04.2019

* No entry for devices that are not subject to regular calibration or require initial verification/calibration only.

Signature: Wanda Xuan