





<b>TEST REPORT</b> <b>EN 61800-5-1</b> <b>Adjustable speed electrical power drive systems</b>	
<b>Report Reference No</b> .....	WUXH25073101139S
Date of issue .....	May 16, 2025
Total number of pages.....	22
<b>Testing Laboratory name</b> .....	<b>Shenzhen Wuxiang Testing (Group) Co., Ltd</b>
Address .....	Building B, Xinbaosheng, No.233, Xixiang Street, Bao'an District, Shenzhen, China
<b>Applicant's name</b>	
Name.....	<b>Wuxi Xinje Electric Co., Ltd.</b>
Address.....	No.816, Jianzhu West Road, Binhu District, Wuxi City, Jiangsu Province, China
<b>Test specification:</b>	
Standard.....	EN IEC 61800-1:2021; EN 61800-5-1:2007+A1:2017+A11:2021
Test procedure .....	Compliance with EN IEC 61800-1:2021 and EN 61800-5-1:2007+A1:2017+A11:2021
Non-standard test method .....	N/A
<b>Test Report Form No</b> .....	EN61800_5_1A
Master TRF.....	dated 2007-10
<b>Test item description</b> .....	Servo Driver
Trade Mark.....	<b>XINJE</b>
Manufacturer.....	Wuxi Xinje Electric Co., Ltd.
Address.....	No.816, Jianzhu West Road, Binhu District, Wuxi City, Jiangsu Province, China

	DS5C2-47P5-PTA
	DS5C5-45P5-PTA, DS5C5-47P5-PTA, DS5C2-45P5-PTA, DS5P-45P5-PTA, DS5P-47P5-PTA, DS5C1-45P5-PTA-FH, DS5C1-47P5-PTA-FH, DS5P-47P5-PTA-FH, DS5C2-45P5-PTA-FS, DS5C2-47P5-PTA-FS, DS5C2-415P0-PTA, DS5C2-432P0-PTA, DS5K2-45P5-PTA, DS5K2-47P5-PTA, DM6C-415P0-M, DS5C1-45P5-PTA, DS5C1-47P5-PTA, DS5C1-411P0-PTA, DS5C1-415P0-PTA, DS5C1-422P0-PTA, DS5C1-432P0-PTA, DS5K1-411P0-PTA, DS5K1-415P0-PTA, DS5F-45P5-PTA-H, DS5F-47P5-PTA-H, DS5C2-422P0-PTA, DS5C2-432P0-PTA, DS5K1-422P0-PTA-ZW, DS5K1-432P0-PTA-ZW
Model/Type reference.....	: PTA, DS5K2-47P5-PTA, DM6C-415P0-M, DS5C1-45P5-PTA, DS5C1-47P5-PTA, DS5C1-411P0-PTA, DS5C1-415P0-PTA, DS5C1-422P0-PTA, DS5C1-432P0-PTA, DS5K1-411P0-PTA, DS5K1-415P0-PTA, DS5F-45P5-PTA-H, DS5F-47P5-PTA-H, DS5C2-422P0-PTA, DS5C2-432P0-PTA, DS5K1-422P0-PTA-ZW, DS5K1-432P0-PTA-ZW
Ratings.....	: Input: 380-440V~, 50/60 Hz, 20A

**\*\*Modified History\*\***

<b>Revision</b>	<b>Description</b>	<b>Issued Data</b>	<b>Remark</b>
Revision 1.0	Initial Test Report Release	2025/5/16	Candy Zheng

<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>		
<input checked="" type="checkbox"/>	<b>Testing Laboratory:</b>	<b>Shenzhen Wuxiang Testing (Group) Co., Ltd.</b>
Testing location/ address.....:		Building B, Xinbaosheng, No.233, Xixiang Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:		Test Engineer Candy Zheng 
Approved by (name + signature).....:		Manager Tony Bi
<b>Summary of testing:</b>		
<b>Tests performed:</b> EN IEC 61800-1:2021; EN 61800-5-1:2007+A1:2017+A11:2021 The submitted samples were found to comply with the above specification.		<b>Testing location:</b> Shenzhen Wuxiang Testing (Group) Co., Ltd Building B, Xinbaosheng, No.233, Xixiang Street, Bao'an District, Shenzhen, China
<b>Summary of compliance with National Differences</b> N/A		
<b>Copy of marking plate</b> 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.		
<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Servo Driver Model:DS5C2-47P5-PTA Input: 380-440V~, 50/60 Hz, 20A</p> <p>  </p> <p>S/N: XXXXXX Importer: XXXXXX Address: XXXXXX Manufacturer: Wuxi Xinje Electric Co., Ltd. Address: No.816, Jianzhu West Road, Binhu District, Wuxi City, Jiangsu Province, China Made in China</p> </div>		
Remark on above marking:		
1, The height of CE symbols is more than 5 mm;		
2, The height of WEEE symbols is more than 7 mm;		
3, The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added.		

<b>Test items particulars:</b>	
Equipment mobility .....	Movable
Tested for IT power systems .....	No
IT testing, phase-phase voltage (V) .....	N/A
Class of equipment.....	Class I
Protection against ingress of water .....	IP20
<b>Possible test case verdicts:</b>	
-test case does not apply to the test object .....	N (Not Applicable)
-test object does meet the requirement.....	P (Pass)
-test object does not meet the requirement .....	F (Fail)
<b>Testing</b>	
Date of receipt of test item .....	May 8, 2025
Date(s) of performance of tests .....	May 8, 2025 to May 15, 2025
<b>General remarks:</b>	
<p>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.</p> <p>"(see Enclosure #)" refers to additional information appended to the report.  "(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a comma (point) is used as the decimal separator.</p>	
<b>General product information:</b>	
<p>DS5C2-47P5-PTA is tested model, other models are derivative models .The models are identical in circuit, only different on the model names. So the test data of DS5C2-47P5-PTA can represent the remaining models.</p>	

EN 61800-5-1			
Clause	Requirement – Test	Result – Remark	Verdict
<b>4</b>	<b>PROTECTION AGAINST ELECTRIC SHOCK, THERMAL, AND ENERGY HAZARDS</b>		P
4.1	General		P
4.2	Fault conditions		P
4.3	Protection against electric shock		P
4.3.1	Decisive voltage classification		P
4.3.1.1	Use of decisive voltage class	Class C	P
4.3.1.2	Limits of DVC		P
4.3.1.3	Requirements for protection		P
4.3.1.4	Circuit evaluation		P
4.3.1.4.1	General		P
4.3.1.4.2	AC working voltage		N
4.3.1.4.3	DC working voltage		P
4.3.1.4.4	Pulsating working voltage		P
4.3.2	Protective Separation	By reinforced insulation	P
4.3.3	Protection against direct contact		P
4.3.3.1	General		P
4.3.3.2	Protection by means of insulation of live parts		P
4.3.3.3	Protection by means of enclosures and barriers		N
4.3.4	Protection in case of direct contact		P
4.3.4.1	General		P
4.3.4.2	Protection using DVC A		N
4.3.4.3	Protection by means of protective impedance		P
4.3.4.4	Protection by means of using limited voltage		N
4.3.5	Protection against indirect contact		P
4.3.5.1	General		P
4.3.5.2	Insulation between live parts and exposed conductive parts		N
4.3.5.3	Protective bonding circuit		P
4.3.5.3.1	General		P
4.3.5.3.2	Rating of protective bonding		P
4.3.5.3.3	Protective bonding impedance		N
4.3.5.4	Protective earthing conductor		P

4.3.5.5	Means of connection for the protective earthing conductor		P
4.3.5.5.1	General		P
4.3.5.5.2	Touch current in case of failure of protective earthing conductor		P
4.3.5.6	Special features in equipment for protection class II		N
4.3.6	Insulation		P
4.3.6.1	General		P
4.3.6.1.1	Influencing factors		P
4.3.6.1.2	Pollution degree	Pollution degree 2	P
4.3.6.1.3	Overvoltage Category	Category II	P
4.3.6.1.4	Supply earthing systems		P
4.3.6.1.5	Insulation voltages		P
4.3.6.2	Insulation to the surroundings		P
4.3.6.2.1	General		P
4.3.6.2.2	Circuits connected directly to the supply mains		P
4.3.6.2.3	Circuits not connected directly to the supply mains		N
4.3.6.2.4	Insulation between circuits		P
4.3.6.3	Functional insulation		P
4.3.6.4	Clearance distances		P
4.3.6.4.1	Determination		P
4.3.6.4.2	Electric field homogeneity		P
4.3.6.4.3	Clearance to conductive enclosures		P
4.3.6.5	Creepage distance		P
4.3.6.5.1	General		P
4.3.6.5.2	Materials		P
4.3.6.6	Coating		P
4.3.6.7	PWB spacings for functional insulation		P
4.3.6.8	Solid insulation		P
4.3.6.8.1	General		P
4.3.6.8.2	Requirements for electrical withstand capability		P
4.3.6.8.2.1	Basic- and Supplementary Insulation		P
4.3.6.8.2.2	Double- and Reinforced Insulation		P
4.3.6.8.2.3	Functional insulation		P
4.3.6.8.3	Thin sheet or tape material		P
4.3.6.8.3.1	General		P
4.3.6.8.3.2	Material thickness not less than 0,2 mm		P

4.3.6.8.3.3	Material thickness less than 0,2 mm		N
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4.3.6.8.3.4	Compliance		P
4.3.6.8.4	Printed wiring boards (PWBs)		P
4.3.6.8.4.1	General		P
4.3.6.8.4.2	Use of coating materials		P
4.3.6.8.5	Wound components		P
4.3.6.8.6	Potting materials		N
4.3.6.9	Insulation requirements above 30 kHz		N
4.3.7	Enclosures		P
4.3.7.1	General		P
4.3.7.2	Cast metal		N
4.3.7.3	Sheet metal		N
4.3.8	Wiring and Connections		P
4.3.8.1	General		P
4.3.8.2	Routing		N
4.3.8.3	Color coding		P
4.3.8.4	Splices and connections		P
4.3.8.5	Accessible connections		N
4.3.8.6	Interconnections between parts of the PDS		P
4.3.8.7	Supply connections		P
4.3.8.8	Terminals		P
4.3.8.8.1	Construction requirements		P
4.3.8.8.2	Connecting capacity		P
4.3.8.8.3	Connection		P
4.3.8.8.4	Wire bending space for wires 10 mm <sup>2</sup> and greater		P
4.3.9	Short Circuit Requirements		P
4.3.10	Residual current-operated protective (RCD) or monitoring (RCM) device compatibility		P
4.3.11	Capacitor Discharge		P
4.3.12	Access conditions for high-voltage PDS		P

4.4	Protection against thermal hazards		P
4.4.1	Minimizing the risk of ignition		P
4.4.2	Insulation Materials	Complied	P
4.4.2.1	General		P

4.4.2.2	Material requirements		P
4.4.3	Flammability of enclosure materials		P
4.4.4	Temperature limits		P
4.4.4.1	Internal parts		P

4.4.4.2	External parts of CDM		P
4.4.5	Specific requirements for liquid cooled PDS		N
4.4.5.1	Coolant	No coolant	N
4.4.5.2	Design requirements		N
4.4.5.2.1	Corrosion resistance		N
4.4.5.2.2	Tubing, joints and seals		N
4.4.5.2.3	Provision for condensation		N
4.4.5.2.4	Leakage of coolant		N
4.4.5.2.5	Loss of coolant		N
4.4.5.2.6	Conductivity of coolant		N
4.4.5.2.7	Insulation requirements for coolant hoses		N

4.5	Protection against energy hazards		P
4.5.1	Electrical energy hazards	Complied	P
4.5.2	Mechanical energy hazards	Complied	P
4.5.2.1	General		P
4.5.2.2	Critical torsional speed		N
4.5.2.3	Transient torque analysis		N
4.5.3	Acoustic noise emission	Under consideration	N
4.5.6	Protection against environmental stresses	Complied	P

<b>5</b>	<b>TEST REQUIREMENTS</b>		P
5.1	General		P
5.1.1	Test objectives and classification	Type test	P
5.1.2	Selection of test samples		P
5.1.3	Sequence of tests	No required	N
5.1.4	Earthing Conditions		P
5.1.5	Compliance		P
5.1.6	Test Overview		P

5.2	Test specifications		P
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5.2.1	Visual Inspections (type test, sample test and routine test)	Type test	P
5.2.2	Mechanical tests		P
5.2.2.1	Clearance and creepage distance (type test)		P
5.2.2.2	PWB short-circuit test (type test)		P
5.2.2.3	Non -accessibility test (type test)		N
5.2.2.4	Enclosure integrity test (type test)		N

5.2.2.5	Deformation tests		P
5.2.2.5.1	General		P
5.2.2.5.2	Deflection test (type test)		P
5.2.2.5.3	Impact test (type test)	250N applied for 5s	P
5.2.3	Electrical tests		P
5.2.3.1	Impulse voltage test (type test and sample test)		P
5.2.3.2	AC or DC voltage test (type and routine test)		P
5.2.3.2.1	Purpose of test		P
5.2.3.2.2	Value and type of test voltage		P
5.2.3.2.3	Performing the voltage test		P
5.2.3.2.4	Duration of the AC or DC voltage test		P
5.2.3.2.5	Verification of the AC or DC voltage test		P
5.2.3.3	Partial Discharge Test (type test, sample test)		P
5.2.3.4	Protective impedance (type test and routine test)		P
5.2.3.5	Touch current measurement (type test)		P
5.2.3.6	Short-circuit test and Breakdown of components test (type tests)		P
5.2.3.6.1	General		P
5.2.3.6.2	Test configuration		P
5.2.3.6.2.1	Supply voltage and current		P
5.2.3.6.3	Short-circuit test		P
5.2.3.6.3.1	Load conditions		P
5.2.3.6.3.2	Location of short-circuit		P
5.2.3.6.4	Breakdown of components test		P
5.2.3.6.4.1	Load conditions		P
5.2.3.6.4.2	Application of short-circuit or open-circuit		P
5.2.3.6.5	Test sequence		N
5.2.3.6.6	Pass criteria		P

5.2.3.7	Capacitor discharge (type test)		P
5.2.3.8	Temperature rise test (type test)		P
5.2.3.9	Protective bounding (type test and routine test)		P
5.2.4	Abnormal operation tests		P
5.2.4.1	General		P
5.2.4.2	Test duration		P
5.2.4.3	Pass criteria		P
5.2.4.4	Loss of phase (type test)		N
5.2.4.5	Cooling failure tests (type tests)		N
5.2.4.5.1	General		N

5.2.4.5.2	Inoperative blower motor		N
5.2.4.5.3	Clogged filter		N
5.2.4.5.4	Loss of coolant		N
5.2.5	Material tests		P
5.2.5.1	High current arcing ignition test (type test)		P
5.2.5.2	Glow-wire test (type test)		P
5.2.5.3	Hot wire ignition test (type test - alternative to glow-wire test)		N
5.2.5.4	Flammability test (type test)		P
5.2.6	Environmental tests (type tests)		N
5.2.6.1	General		N
5.2.6.2	Acceptance criteria		N
5.2.6.3	Climatic tests		N
5.2.6.3.1	Dry heat test (steady state)		N
5.2.6.3.2	Damp heat test (steady state)		N
5.2.6.4	Vibration test (type test)		N
5.2.7	Hydrostatic pressure (type test and routine test)		N

<b>6</b>	<b>Information and marking requirements</b>		P
6.1	General		P

6.2	Information for selection		P
	Name of manufacturer, supplier or importer	See the marking plate	P
	Catalogue number or equivalent	See the marking plate	P
	input and output voltage range, current, and power rating information	See the marking plate	P

	protective class		P
	the type of electrical supply system to which the PDS/CDM/BDM		P
	prospective short-circuit current rating(s) and protective device characteristics		P
	field supply requirements		N
	coolant type and design pressure for liquid cooled product		N
	IP rating		N
	Operating and storage environment		P
	Reverence to relevant standards		P

	date code, or serial number from which the date of manufacture can be determined		P
	Reverence to instructions for installation, use and maintenance		P

6.3	Information for installing and commissioning		P
6.3.1	General		P
6.3.2	Mechanical considerations		P
6.3.3	Environment		P
6.3.4	Handling and mounting		P
6.3.5	Motor and driven equipment		N
6.3.5.1	Motor selection		N
6.3.5.2	Motor integrated sensors		N
6.3.5.3	Critical torsional speeds		N
6.3.5.4	Transient torque analysis		N
6.3.6	Connections		P
6.3.6.1	General		P
6.3.6.2	Interconnection and wiring diagrams		P
6.3.6.3	Conductor (cable) selection		P
6.3.6.4	Terminal capacity and identification		P
6.3.6.5	Protection requirements		P
6.3.6.6	Earthing		P
6.3.6.7	Protective earthing conductor current		P
6.3.6.8	Special requirements		P
6.3.7	Overcurrent or short-circuit protection		P



6.3.8	Motor overload protection		N
6.3.9	Commissioning		N

6.4	Information for use		P
6.4.1	General		P
6.4.2	Adjustment		P
6.4.3	Labels, signs and signals		P
6.4.3.1	General		P
6.4.3.2	Isolators		P
6.4.3.3	Visual and audible signals		P
6.4.3.4	Hot surface		N
6.4.3.5	Equipment marking		P

6.5	Information for maintenance		N
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6.5.1	General		N
6.5.2	Capacitor discharge		N
6.5.3	Auto restart/bypass connection		N
6.5.4	PT/CT connections		N
6.5.5	Other hazards		N

Annex A	Examples of protection in case of direct contact	Considered	P
Annex B	Examples of overvoltage category reduction	Considered	P
Annex C	Measurement of clearance and creepage distances	Considered	P
Annex D	Altitude correction for clearances	Considered	P
Annex E	Clearance and creepage distance determination for frequencies greater than 30 kHz	Considered	P
Annex F	Cross sections of round conductors	Considered	P
Annex G	Guidelines for RCD compatibility	Considered	P
Annex H	Symbols referred to in this part of IEC 61800	Considered	P

5.2.3.8	Temperature rise test (type test)		P	
	test voltage (V) .....	342V/484V	—	
	t1 (°C).....	24.6	—	
	t2 (°C) .....	24.2	—	
temperature rise dT of part/at:		dT (K)	permitted dT (K)	
PCB near U11		66.8	58.0	Ref
PCB near U7		70.6	60.6	85
PCB near U1		69.2	55.9	Ref
Terminal		43.4	41.3	55
Internal wire		50.3	46.5	55
T1 core		59.6	45.5	Ref.
T1 coil		62.5	49.5	95
CY1		44.3	40.7	100
C1		59.2	37.1	80
C2		61.3	50.3	80
Enclosure outside near IC1		41.7	36.5	70

temperature rise dT of winding:	R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)	dT (K)	permitted dT (K)	insulation class
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4.3.6.8 4.3.8.7 4.4	TABLE: list of critical components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity <sup>1)</sup>	
Enclosure	KINGFA SCI & TECH CO LTD	JH960 6200	V-0 or Better, 105°C, min. 2.5mm	UL 94	UL	
PCB	Interchangeable	Interchangeabl e	94V-0, 130°C	UL94	UL	
Terminal block	Heavy power co.. ltd	DP952	10A/500V	UL1059	UL	
Y capacitor	Shaanxi Huaxing Electronic Development Co.,Ltd	CT7	AC250V, Max.4700pF, Y1, 85°C	EN 60384-14	VDE	

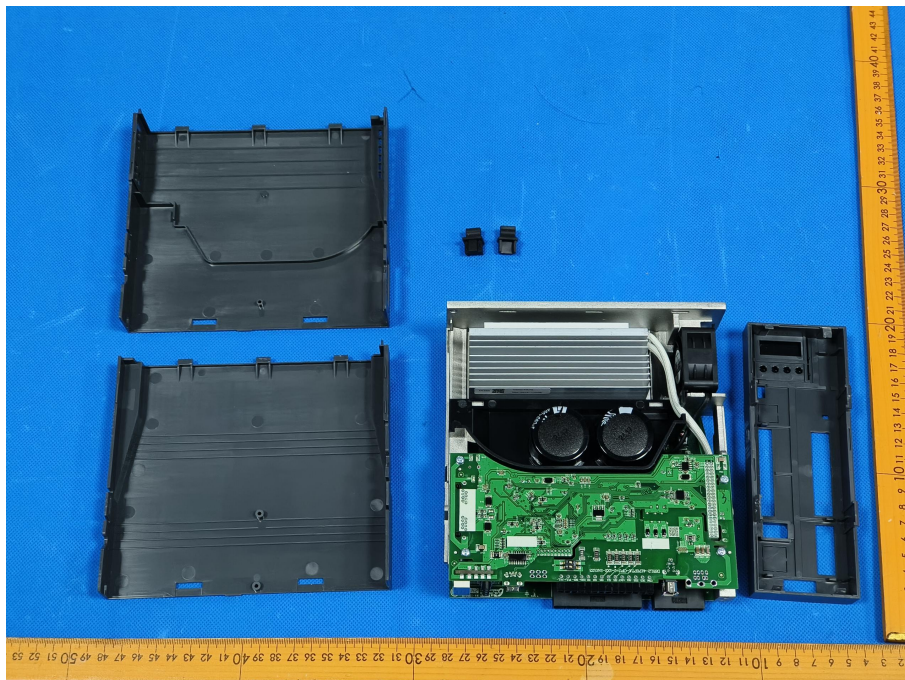


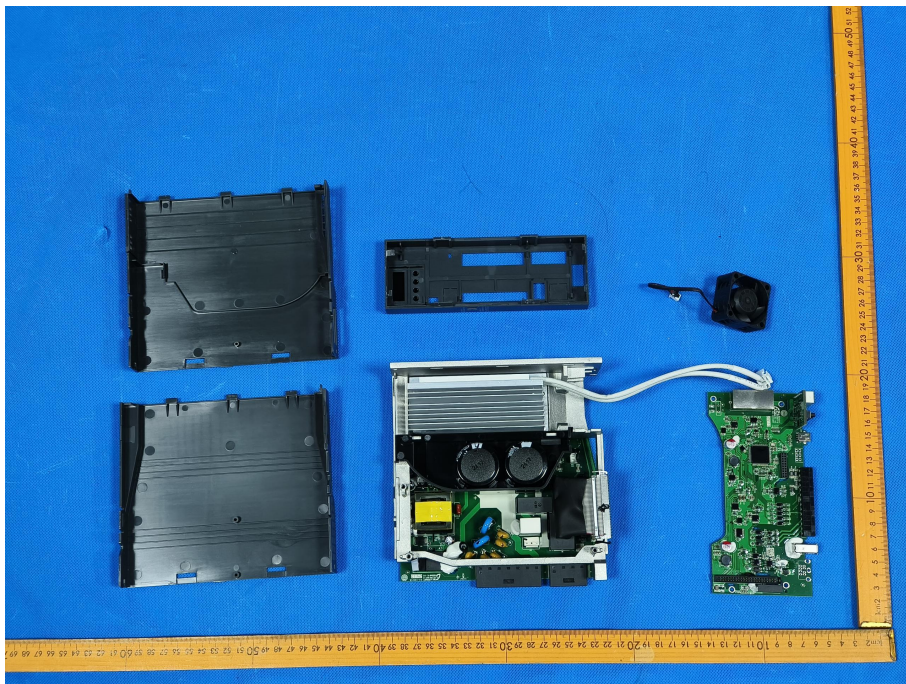
4.3.6.8 4.3.8.7 4.4		TABLE: list of critical components				P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity <sup>1)</sup>	
DC FAN	NIDEC AMERICA CORP	XMC602524HB 2	24V DC 0.3A	IEC/EN 60950-1; UL507	UL	
Transformer (TR1)	Shenzhen Meikai Electronics Stock Co., Ltd.	KD-40GT	See below for detail	--	Tested with appliance	
Bobbin	Changchun Plastic Co., Ltd.	T375J	V-0, Phenolic, 130°C	--	UL	
Winding	Various	Various	Polyurethane, 130°C	--	UL	
Insulation tape	Jingjiang Yahua Pressure Sensitive Glue Co., Ltd.	CT	Polyethylene, 130°C	--	UL	
Triple insulation Wire	Totoku Electric Co Ltd	TIW-2 TIW-3	Min. 130°C	EN 60950-1	VDE	
Internal wire	Shenzhen Zhengerya Cabe Co.,Ltd.	2648	22AWG, 80°C, 300V	UL 758	UL	
Heat shrinkable tube	Dongguan Liaobu Sanlian Plastic Co.,Ltd.	SALIPT S-901	125°C, 600V	UL 224	UL	
1) an asterisk indicates a mark which assures the agreed level of surveillance						

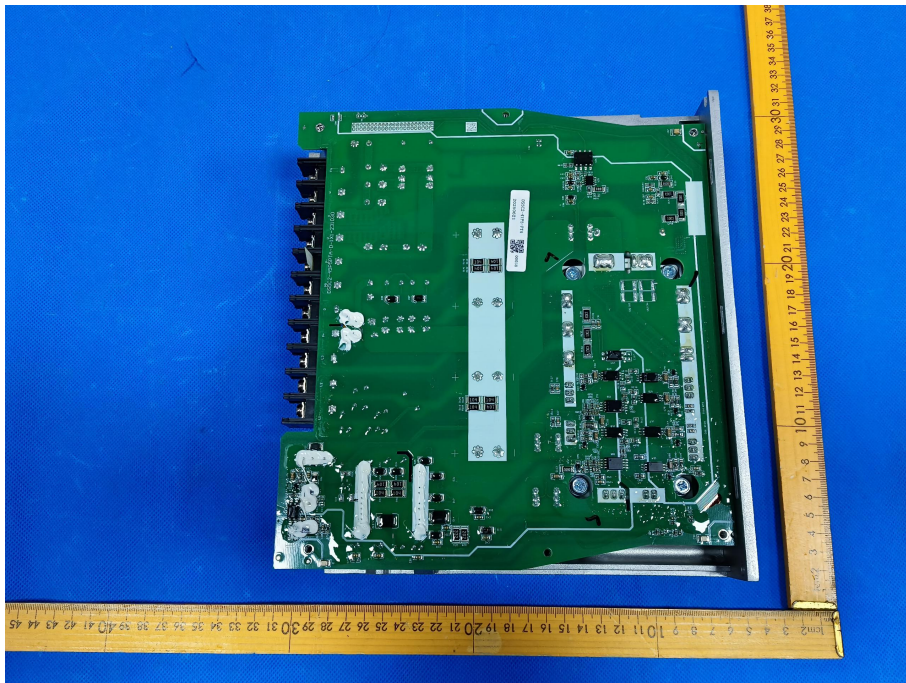
**Attachment 2: Photos of test samples**

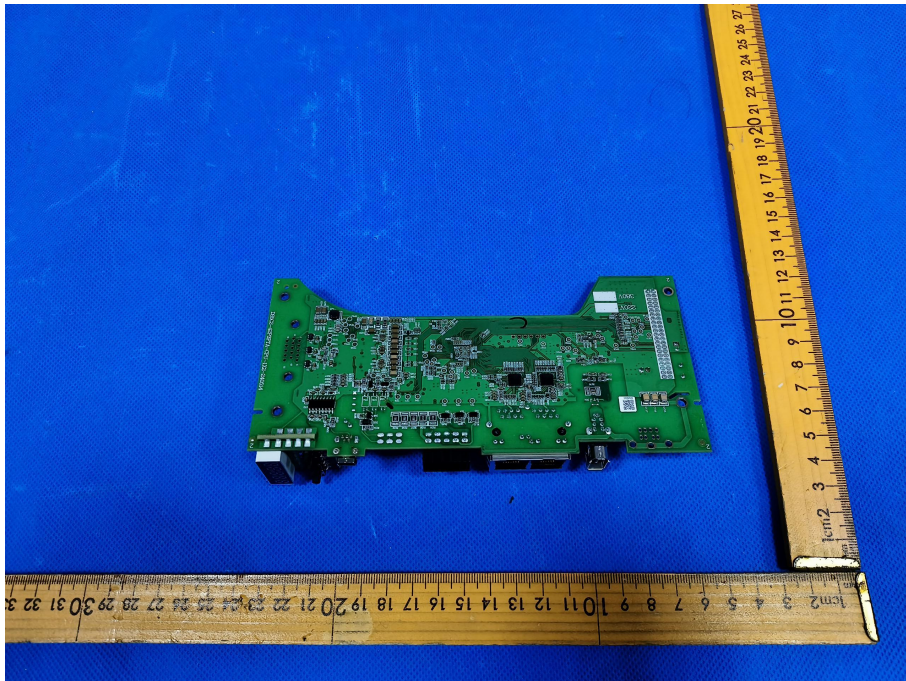
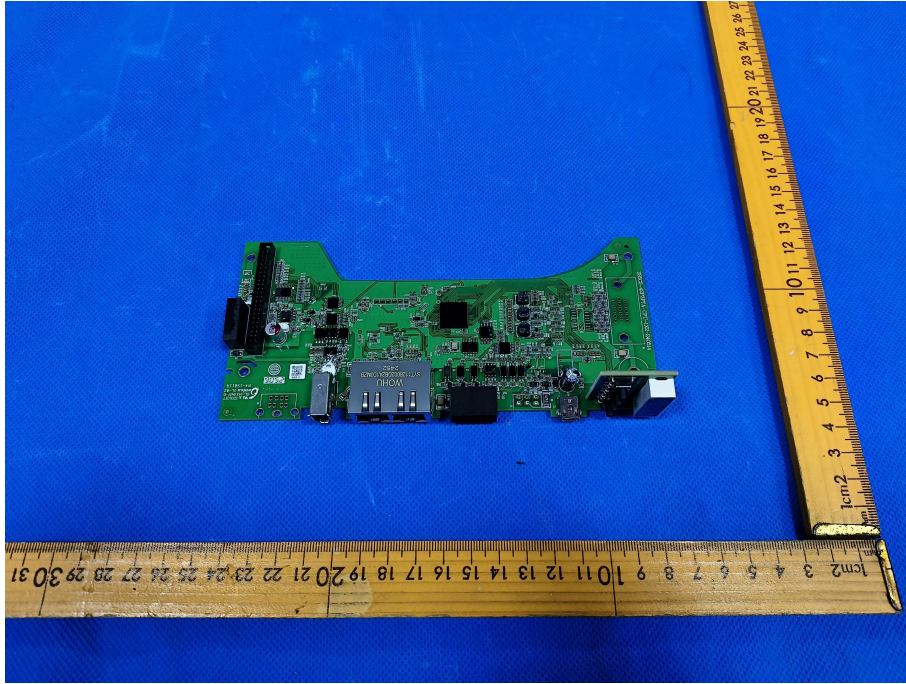


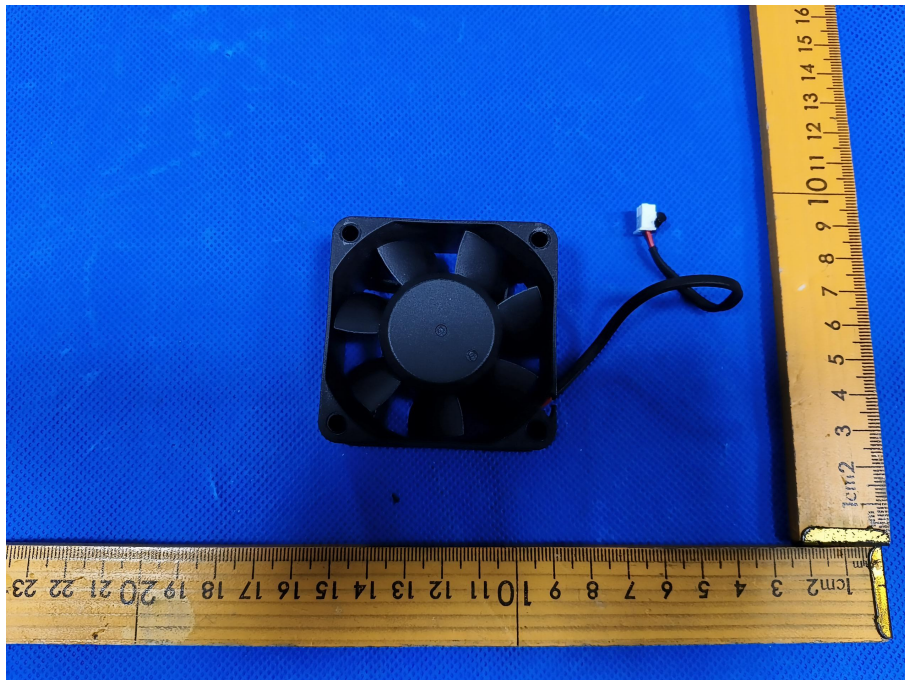












END OF REPORT