TEST REPORT

UL 982

Motor-Operated Household Food Preparing Machines

Report Number.....:	PTC26031219002S-UL01
Tested by (printed name and signature).....:	Ian Sun/Project Engineer
Approved by (printed name and signature).....:	Rocky Mao/Reviewer
Date of issue.....:	2026-04-28
Total number of pages.....:	81 pages
Testing laboratory name.....:	Precise Testing & Certification (Guangdong) Co., Ltd.
Address.....:	Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China
Applicant's name.....:	Zhongshan Raymi Intelligent Technology Co., Ltd
Address.....:	No.158 Shengping North Road, Nantou Town,Zhongshan City, Guangdong
Manufacturer's name.....:	Zhongshan Raymi Intelligent Technology Co., Ltd
Address.....:	No.158 Shengping North Road, Nantou Town,Zhongshan City, Guangdong
Test specification:	
Standard.....:	UL 982: 2019 Ed.8+R:23Apr2024
Test procedure.....:	PTC
Non-standard test method.....:	N/A

General disclaimer:

This report is only for applicant use. Any copying this report to/for any other person or entity, and use our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Test Item description .....:	Slow Juicer
Trade Mark ..... :	N/A
Model/Type reference .....:	JS2401, JS2301, JS2302, JS2303, JS2304, JS2305, JS2306, JS2307, JS2308, JS2309, JS2310, JS2311, JS2312, JS2301-13, JS2302-13, JS2303-13, JS2304-13, JS2305-13, JS2306-13, JS2307-13, JS2308-13, JS2309-13, JS2310-13, JS2311-13, JS2312-13, JS2401, JS2402, JS2403, JS2404, JS2405, JS2406, JS2407, JS2408, JS2409, JS2410, JS2411, JS2412, JS2401-18, JS2402-18, JS2403-18, JS2404-18, JS2405-18, JS2406-18, JS2407-18, JS2408-18, JS2409-18, JS2410-18, JS2411-18, JS2412-18, IC3001, IC3002, IC3003, IC3004, IC3005, IC3006, IC3007, IC3008, IC3009, IC3010, IC3011, IC3012
Ratings ..... :	120V~, 60Hz, 300W Max. Locked Power: 600W

Summary of construction and testing:

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes ☒ No

If Yes, list the related test items and lab information:

Test items:

Lab information:

Summary of testing: All tests were measured under the most severe condition and the test conditions.	
Tests performed (name of test and test clause): The sample(s) tested complies with the requirements of UL 982: 2019 Ed.8+R:23Apr2024 When determining the test conclusion, the Measurement Uncertainty of test has been considered. All full tests were carried out on model JS2401.	**Testing location:** Precise Testing & Certification (Guangdong) Co., Ltd. Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China
Summary of compliance with National Differences: N/A	

Copy of marking plate:

Slow Juicer
Model:JS2401
Input:120V~, 60Hz, 300W
Max. Locked Power: 600W
SN:XXXXXXXXXX
Production Date: XXXXXX
Manufacturer:Zhongshan Raymi Intelligent Technology Co., Ltd
Made in China

Cautionary marking:

For Indoor Use Only

WARNING:
Unplug before assembling or removing parts
Unplug before cleaning
Read instructions before using
Sharp Blade – Always use food pusher

Note:
- Labels of other models' are the same as label of JS2401, except model name.

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.....:	2026-03-16
Date (s) of performance of tests.....:	2026-03-16 to 2026-04-28

GENERAL REMARKS:

"(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.

General product information and other remarks:
The appliance is Slow Juicer for household and indoor use only.

Model Differences –
All models have same construction, circuit and motor. The main differences are themodel name.

Additional application considerations – (Considerations used to test a component or sub-assembly) –
N/A

Name and address of factory (ies) :	Zhongshan Raymi Intelligent Technology Co., Ltd No.158 Shengping North Road, Nantou Town,Zhongshan City, Guangdong

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

	CONSTRUCTION		**P**
5	**General**		**P**
5.1	An appliance shall employ materials that are intended for the particular use and shall be made andfinished with the degree of uniformity and grade of workmanship practicable in a well-equipped factory.		P
6	**Components**		**P**
6.1	General		P
6.1.1	Except as indicated in 6.1.2, a component of a product covered by this standard shall comply with the requirements for that component, as indicated in 6.2 – 6.20 and the additional component requirements of this standard.		P
6.1.2	A component is not required to comply with a specific requirement that: a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, b) Is superseded by a requirement in this standard, orc) Is separately investigated when forming part of another component, provided the component is used within its established ratings and limitations.		P
6.1.3	A component shall be used in accordance with its rating established for the intended conditions of use		P
6.1.4	Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.		N/A
6.1.5	A component not anticipated by the requirements of this standard, not specifically covered by the component standards specified in this standard and that involves a potential risk of electric shock, fire, orpersonal injury, shall be additionally investigated.		P
6.1.6	With respect to 6.1.5, reference to construction and performance requirements in another UL end product standard is appropriate where that standard anticipates normal and abnormal use conditionsconsistent with the application of motor-operated household food preparing machines.		P
6.1.7	Unless otherwise specified, components that do not present a risk of electric shock, fire of injury topersons, such as connectors in a low voltage circuit, are not required to meet the specified component standards.		N/A
6.2	Attachment plugs, receptacles, connectors, and terminals		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.2.1	Attachment plugs, appliance couplers, and appliance inlets (motor attachment plugs) shall complywith the Standard for Attachment Plugs and Receptacles, UL 498 or the Standard for Appliance Couplersfor Household and Similar General Purposes – Part 1: General Requirements, UL 60320-1.		P
6.2.2	Female devices (such as appliance couplers and connectors) that are intended, or that may be used, to interrupt current in the end product, shall be suitably rated for current interruption of the specifictype of load, when evaluated with its mating plug or connector. For example, an appliance coupler that canbe used to interrupt the current of a motor load shall have a suitable horsepower rating when tested withits mating plug.		P
6.2.3	Quick-connect terminals, both connectors and tabs, shall comply with the Standard for Electrical Quick-Connect Terminals, UL 310, and shall be suitable for the wire size, type (solid or stranded), conductor material (copper or aluminum) and the number of conductors terminated. If insulated, the ratedvoltage and temperature shall be suitable for the intended use. Quick-connect terminals shall be appliedper the installation instructions of the quick-connect terminal manufacturer.		N/A
6.2.4	Single and multipole connectors for use in data, signal, control and power applications within the appliance intended for factory assembly to copper or copper alloy conductors or for factory assembly toprinted wiring boards, shall comply with the Standard for Component Connectors for Use in Data, Signal,Control and Power Applications, UL 1977.		N/A
6.2.5	Wire connectors shall comply with the Standard for Wiring Connectors, UL 486A-486B, the Standard for Splicing Wire Connectors, UL 486C, or the Standard for Equipment Wiring Terminals for Usewith Aluminum and/or Copper Conductors, UL 486E, and shall be suitable for the wire size, type (solid orstranded), conductor material (copper or aluminum) and the number of conductors terminated. If insulated, the rated voltage and temperature shall be suitable for the intended use. Wire connectors shall be appliedper the installation instructions of the wire connector manufacturer.		N/A
6.2.6	Terminal blocks shall comply with the Standard for Terminal Blocks, UL 1059, and, if applicable, besuitably rated for field wiring. A terminal block shall be suitable for the number of conductors pertermination, wire size, type (solid or stranded), conductor material (copper or aluminum), voltage andcurrent of the intended use.		N/A
6.3	Batteries and battery chargers		N/A
6.3.1	Lithium ion (Li-Ion) single cell batteries shall comply with the requirements for secondary lithiumcells outlined in the Standard for Lithium Batteries, UL 1642. Lithium ion multiple cell batteries or lithiumion battery packs shall comply with the Standard for Household and Commercial Batteries, UL 2054.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.3.2	Rechargeable nickel cadmium (Ni-Cad) cells and battery packs shall comply with the applicable construction and performance requirements of this end product standard.		N/A
6.3.3	Rechargeable nickel metal-hydride (Ni-MH) battery cells and packs shall comply with the applicable construction and performance requirements of this end-product standard or the applicablerequirements for secondary cells or battery packs in the Standard for Household and CommercialBatteries, UL 2054.	No such components.	N/A
6.3.4	Primary batteries (non-rechargeable) that comply with the relevant UL standard, as applicable, and 6.1 are considered to fulfill the requirements of this standard.	No such barrier.	N/A
6.3.5	Class 2 battery charger shall comply with the Standard for Class 2 Power Units, UL 1310.		N/A
6.3.6	A battery charger integral to the appliance or an induction charger shall comply with the applicable construction and performance requirements of this end-product standard. See also Section 12 for directplug-in rechargeable appliances.		N/A
6.4	Capacitors and filters		N/A
6.4.1	Capacitors that are connected between the ungrounded and grounded conductors (across the line)or from one of these conductors to accessible dead metal of the appliance shall comply with: a) The Standard for Electromagnetic Interference Filters, UL 1283; or b) b) The Standard for Safety Requirements for Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppressionand Connection to the Supply Mains, UL 60384-14		N/A
6.4.2	A capacitor of a capacitor motor and a capacitor connected across the line (such as a capacitor for radio-interference elimination) shall be housed within an enclosure or container that protects the platesagainst physical damage and prevents the emission of flame or molten material resulting from failure ofthe capacitor. Except as noted in 6.4.3 and 6.4.5 the container shall be sheet steel having an averagethickness of 0.020 inch (0.51 mm) or shall be so constructed as to afford equivalent protection.		N/A
6.4.3	The container of a capacitor may be of sheet metal less in thickness than that mentioned in 6.4.2 orof other appropriate material if the capacitor is mounted in an enclosure that houses other parts of theappliance that is acceptable for the enclosure of live parts.		N/A
6.4.4	Under both normal and abnormal conditions of use, a capacitor employing a dielectric medium more combustible than askarel shall not cause or increase a risk of electric shock or fire and shall be protected against expulsion of the dielectric medium		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.4.5	The individual enclosure of an electrolytic capacitor with means for venting is required to be suchas to provide protection against physical injury only and the requirement for minimum enclosure thicknessdoes not apply. The individual enclosure of an electrolytic capacitor not provided with means for ventingand with an opening more than 1/16 inch (1.6 mm) wide between the capacitor enclosure and the motor need not comply with the requirement for enclosure thickness given in 6.4.2, if the capacitor does notpresent a risk of fire when subjected to the Capacitor Failure Test, Section 50.		N/A
6.4.6	The voltage rating of a capacitor, other than a motor capacitor, shall be no less than the maximumsteady-state potential to which the capacitor is subjected during operation of the appliance.		N/A
6.5	Controls		P
6.5.1	General		P
6.5.1.1	Components, wiring, printed wiring assemblies, insulation materials, and the like, and associated circuitry employed in controls shall be investigated and found acceptable for the application in accordancewith the specific control standards with respect to the risk of electric shock, fire and injury to persons.		P
6.5.1.2	Auxiliary controls shall be evaluated in accordance with the applicable construction and performance requirements of this end-product standard. Auxiliary controls evaluated to the requirementsspecified for operating controls in 6.5.2 are considered to comply with this end-product standard.		N/A
6.5.1.3	A control regulating the motor speed and any other control not relied upon for compliance with this standard shall be evaluated as an auxiliary control.		N/A
6.5.2	Operating controls		N/A
6.5.2.1	Operating controls shall comply with: a) The Standard for Solid-State Controls for Appliances, UL 244A; b) The Standard for Temperature-Indicating and -Regulating Devices, UL 873; or c) The Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1, and, where applicable, the relevant Part 2 standard from the UL 60730 series.		N/A
6.5.2.2	A control limiting the operating time during normal operation, starting or stopping the motor, andany control required for compliance with this standard during normal operation of the appliance shall beevaluated as an operating control.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.5.2.3	A capacitive touch screen control on a blender with a two-step ON function as specified in 30.4.6.3 shall additionally be subjected to the following without loss of the two-step ON function: a) Electronic Control Circuits Test of Section 53, b) Electrostatic Discharge of in accordance with Electromagnetic compatibility (EMC) – Part 4-2: Testing and Measurement Techniques – Electrostatic Discharge Immunity Test, IEC 61000-4-2,test level 4 being applicable. Ten discharges having a positive polarity and ten discharges having anegative polarity are applied at each preselected point, andc) Radiated Fields in accordance with Electromagnetic compatibility (EMC) – Part 4-3: Testing andMeasurement Techniques – Radiated, Radio-Frequency, Electromagnetic Field Immunity Test, IEC 61000-4-3, test level 3 being applicable.		N/A
6.5.2.4	Operating Control Parameters		N/A
6.5.3	Protective controls		P
6.5.3.1	Protective controls shall comply with: a) The Standard for Solid-State Controls for Appliances, UL 244A; b) The Standard for Temperature-Indicating and -Regulating Devices, UL 873; c) The Standard for Thermal-Links – Requirements and Application Guide, UL 60691; ord) The Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1,and, where applicable, the relevant Part 2 standard from the UL 60730 series.		P
6.5.3.2	In addition to the standards referenced in 6.5.3.1, electronic protective controls shall also be evaluated for reliability in accordance with: a) The Standard for Tests for Safety-Related Controls Employing Solid-State Devices, UL 991; orb) The Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1,except Clause H 11.12 (Controls using software).		P
6.5.3.3	In addition to the standards referenced in 6.5.3.1 and 6.5.3.2, electronic protective controls relying upon software as a protective component shall also comply with: a) The Standard for Software in Programmable Components, UL 1998; or b) The Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1.		P
6.5.3.4	A control serving as motor overload protection required in accordance with 6.10, limiting the operating time under abnormal operating conditions or acting as an interlock required for compliance withthis standard, and any other control relied upon for compliance with this standard shall be evaluated as a protective control.		P
6.5.3.5	Protective Control Parameters		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.6	Cords, cables, and internal wiring		P
6.6.1	A power supply cord shall comply with the Standard for Cord Sets and Power Supply Cords, UL817.		P
6.6.2	Flexible cords and cables shall comply with the Standard for Flexible Cords and Cables, UL 62. Flexible cord and cables are considered to fulfill this requirement when preassembled in a power supplycord complying with the Standard for Cord Sets and Power Supply Cords, UL 817.		P
6.6.3	Internal wiring composed of insulated conductors shall comply with the Standard for Appliance Wiring Material, UL 758. Exception No. 1: Insulated conductors need not comply with UL 758 if they comply with: a) The Standard for Thermoset-Insulated Wires and Cables, UL 44; b) The Standard for Thermoplastic-Insulated Wires and Cables, UL 83; or c) The Standard for Fixture Wire, UL 66.		P
6.7	Cord reels		N/A
6.8	Lampholders and indicating lamps		N/A
6.9	Motors		P
6.9.1	A motor shall be acceptable for the particular application, and shall be capable of handling the maximum normal load of the appliance as described in 36.1.12 – 36.26 without introducing a risk of fire,electric shock, or injury to persons.		P
6.9.2	A motor shall comply with: a) The Standard for Rotating Electrical Machines – General Requirements, UL 1004-1, or b) The construction and performance requirements of this standard, when tested in conjunctionwith the appliance.		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.9.3	With respect to evaluation of a motor to the Standard for Rotating Electrical Machines – GeneralRequirements, UL 1004-1 per 6.9.2(a), the following exceptions shall be applied: a) Motor controls shall be evaluated in accordance with 6.5. b) Parts of phenolic material in contact with live parts, other than magnet wire, such as brush holders or commutator insulation, shall be considered suitable without further evaluation of thematerial's electrical insulating properties if the material has: 1) A flammability rating of at least HB, and 2) A suitable relative thermal index (RTI) for the temperatures obtained during the Normal Temperature Test. Exception: Phenolic material with an RTI of min 150° C (Electrical) is considered to meet this requirement for commutator insulation. c) Parts of other materials in contact with live parts, other than magnet wire, shall be evaluated inaccordance with Spacings to enclosure, 64.10. d) For motors used in attended, portable, intermittent-duty appliances utilizing alternative spacingsspecified in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, conditions and requirements for Pollution Degree 2shall be applied		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.9.4	With respect to evaluation of a motor to this standard per 6.9.2 (b), the following additional requirements shall be applied: a) A motor winding shall be resistant to the absorption of moisture and shall be formed and assembled in a uniform manner, such as free of loose turns, irregular crossovers, and poor ties. Magnet wire is not required to be additionally treated to resist absorption of moisture, but fiber slotliners, cloth coil wrap and similar moisture-absorptive materials should be provided with impregnation or otherwise treated to resist moisture absorption. b) A brush holder assembly shall be constructed so that if a carbon brush becomes worn away to the maximum possible extent, the spring or other parts of the assembly shall not defeat the required spacings between live parts and dead metal parts, or result in a live part becoming accessible. c) Motors that are provided with thermoplastic coil forms or thermoplastic insulating material shall comply with the requirements for Thermoplastic Coil Forms and Thermoplastic Insulating Material, Section 66. d) Resilient elastomer (e.g. rubber), thermoplastic, or non-metallic mounting of a motor relied upon for bonding of the motor in an appliance provided with grounding shall comply with the respective requirements of Standard for Rotating Electrical Machines – General Requirements, UL 1004-1, ifthe dead metal parts of the motor are accessible during normal use or servicing of the appliance. e) A starting or running capacitor of a motor in a permanently-connected appliance shall comply with UL 1004-1 with respect to the maximum available fault current. f) A motor shall be marked with the motor manufacturer name or identification, catalog or modelnumber, rated voltage and rated frequency.		P
	g) All insulation systems employing integral ground insulation shall comply with the requirements specified in the Standard for Systems of Insulating Materials – General, UL 1446. h) A motor requiring a motor insulation system greater than Class 105 (A) due to motor winding temperatures obtained during appliance testing shall comply with UL 1446 for the Class insulation required. i) All motor materials shall be evaluated with respect to corrosion protection and galvanic compatibility. (See 9.3.) Winding terminal materials shall be suitable for the connection of motorleads. Wire connectors used to join live parts of dissimilar materials shall comply with the Standardfor Wire Connectors, UL 486A-486B.		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.10	Motor overload protection		P
6.10.1	An appliance shall incorporate thermal or overcurrent protection in accordance with 6.10.6 if theappliance is unattended or remotely or automatically controlled. See 4.9 and 4.47.		P
6.10.2	An automatically controlled blender is considered to comply with 6.10.1 if it is provided with locked-rotor protection in accordance with 6.10.6.		N/A
6.10.3	The motor of an ice cream freezer (bucket type), butter churn or pasta mixer-extruder shall comply with the locked rotor protection in 6.10.6.		N/A
6.10.4	A motor intended to move air only by means of an air-moving fan that is integrally attached, keyed, or otherwise fixed to the motor shaft is not required to have running-overload protection.		N/A
6.10.5	A shaded-pole motor with a 2:1 or smaller ratio between locked-rotor and no-load currents and a 1 A or smaller difference between no-load and locked-rotor currents is considered to have acceptableoverload protection if it is protected against locked-rotor conditions only.		N/A
6.10.6	Motor-overload protection required for an appliance shall consist of one of the following: a) Thermal motor protection complying with the Standard for Thermally Protected Motors, UL 1004-3. b) Impedance motor protection complying with (when the motor is tested as used in the appliance under locked-rotor conditions) the Standard for Impedance Protected Motors, UL 1004-2. c) Electronic motor protection complying with the Standard for Electronically Protected Motors, UL 1004-7. d) Other protection that is shown by test to be equivalent to the protection as specified in (a).		N/A
6.10.7	With respect to 6.10.6, for an appliance that includes a control that positively and reliably limits thelength of the time the appliance can operate under normal operation, the duration of the temperature testand the endurance test, both under locked-rotor conditions, may be less than that specified but shall notbe less than the time the appliance can operate. If an electronic control operates only under abnormalconditions to end the test or limit the motor temperatures, the control shall be evaluated as electronic motor protection per 6.10.6(c) or the test shall be repeated with the electronic control defeated.		N/A
6.10.8	With respect to 6.10.6 (a), a thermal link provided for motor overload protection need not be evaluated in accordance with the Standard for Thermally Protected Motors, UL 1004-3 if it complies withthe Standard for Thermal Links – Requirements and Application Guide, UL 60691, and the appliancecomplies with this standard.		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.10.9	With respect to the evaluation of electronic motor protection in accordance with 6.10.6 (c), the control shall be evaluated in accordance with 6.5 as a protective control.		N/A
6.10.10	The functioning of a motor-protective device provided as part of an appliance (whether such device is required or not) shall not result in a risk of fire or injury to persons. Compliance shall be determined by the following as applicable: a) For automatically-controlled appliances, compliance with 6.10.1; b) For appliances actuated by a momentary contact switch, compliance with the Continuous Operation Test, Section 48; c) For appliances with metal or partly-metallic enclosures, compliance with the Metal Enclosure Abnormal Locked Rotor Test, Section 49.1; d) For appliances with polymeric enclosures, compliance with the Enclosures of Polymeric Material for Portable Appliances, Section 64. e) For appliances provided with an automatic reset overload-protective device, automatic restarting shall not result in injury to persons. See 27.2; and f) For appliances provided with a self-holding protector, where automatic restarting would result in arisk of injury to persons, compliance with the Self-Holding Protector Abnormal Locked Rotor Test,Section 49.2.		P
6.11	Overcurrent protection		N/A
6.11.1	Fuses shall comply with the Standard for Low-Voltage Fuses – Part 1: General Requirements, UL248-1; and the applicable Part of the UL 248 series for the specific fuse type.		N/A
6.11.2	Fuseholders shall comply with the Standard for Fuseholders – Part 1: General Requirements, UL4248-1, and the applicable Part of the UL 4248 series for the specific fuseholder type.		N/A
6.11.3	Supplementary protectors shall comply with the Standard for Supplementary Protectors for Use in Electrical Equipment, UL 1077.		N/A
6.11.4	A protective device shall be wholly inaccessible from outside the appliance except that the operating handle of a circuit breaker, the operating button of a manually operable motor protector, andsimilar parts may project outside the appliance enclosure.		N/A
6.11.5	If an appliance is provided with a single-pole overcurrent protective device and is required to employ a polarized plug, the overcurrent protective device shall be connected to the ungroundedconductor of the power-supply cord of an appliance. Table 10.3 specifies the polarity identification of thepower-supply cord conductors.		N/A
6.12	Polymeric materials and enclosures		P

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Clause	Requirement – Test	Result – Remark	Verdict
6.12.1	Polymeric materials shall have: a) A suitable flammability rating in accordance with the Standard for Test for Flammability of PlasticMaterials for Parts in Devices and Appliances, UL 94, as specified in Section 64 for portableappliances or Section 65 for stationary and fixed appliances, and b) A suitable Functional-Use Temperature Index, Generic Thermal Index, or Relative Thermal Index (RTI) in accordance with Standard for Polymeric Materials – Use in Electrical EquipmentEvaluations, UL 746C.		P
6.12.2	Metallized polymeric parts or enclosures shall comply with the applicable requirements of the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C. This requirement isnot applicable to metallized coating applied only to the exterior surfaces of the appliance such that flakingof the coating is not likely to enter the electrical enclosure of the appliance.		N/A
6.13	Power supplies		N/A
6.14	Printed wiring boards		N/A
6.15	Pumps		N/A
6.16	Semiconductors, relays and small electrical and electronic components		N/A
6.17	Solenoids and electrically operated valves		N/A
6.18	Supplemental insulation, insulating bushings and assembly aids		P
6.19	Switches, timers and interlocks		P
6.19.1	Switches		P
6.19.1.1	Switches shall comply with: a) The Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1; b) The Standard for General-Use Snap Switches, UL 20; or c) The construction and performance requirements of this standard, when tested in conjunctionwith the appliance.		P
6.19.1.2	With respect to evaluation of a switch to this standard per 6.19.1.1(c), a switch shall comply withthe Switch Overload Test of 56.1 and the Switch Endurance Test of 57.1.		P
6.19.3	A switch evaluated in accordance with 6.19.1.1 (a) or (b) shall be appropriate for the particular application, and shall have a current and voltage rating not less than that of the load which it controls whenthe appliance is operated normally.		P
6.19.4	In applying the requirement in 6.19.1.3 to a switch controlling a motor, the switch shall have a horsepower rating not less than that of the controlled motor.		N/A
6.19.5	With reference to the requirement in 6.19.1.3, the resistive current rating of a switch that controls an inductive load other than a motor, such as a transformer or relay, shall not be less than twicethe rated full-load current of the inductive load.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
6.19.6	If, when energized, an appliance has moving parts that are likely to cause injury to persons, a motor control switch shall be provided on the appliance and shall have a plainly identified OFF position, orON and OFF positions, in accordance with 6.19.1.7 and 6.19.1.8 as applicable. See also Exception No. 2of 6.5.2.2 for electronic controls employed in place of a motor control OFF switch.		N/A
6.19.7	With reference to the requirement in 6.19.1.6, the OFF position of the switch shall be marked with either one or both of the following: a) The word "OFF", or b) The symbol shown in Figure 6.1. See also 74.6.		P
6.19.8	With reference to the requirement in 6.19.1.6, the ON position of the switch, when identified, shall be marked with one or both of the following, as determined by the marking of the OFF position of theswitch: a) The word "ON" when the OFF position of the switch is marked with the word "OFF", or b) The symbol shown in Figure 6.2, when the OFF position of the switch is marked with the symbolshown in Figure 6.1. See also 74.6.		P
6.19.1.9	If a portable appliance employs a motor rated at more than 1/3 horsepower, a motor-control switch for the motor shall be provided in the appliance. See 17.8.		N/A
6.19.1.10	An appliance shall not employ a through-cord switch.		N/A
6.19.1.11	A manually operated, line-connected, single pole switch, a triac controlling a motor, or other control device, intended for appliance ON-OFF operation shall be connected to the ungrounded conductorof the power-supply cord. Table 10.3 specifies the polarity identification of the power-supply cordconductors.		P
6.19.2	Timing switches and controls		N/A
6.19.2.1	A clock-operated switch, in which the switching contacts are actuated by a clock-work, by a gear-train, by electrically-wound spring motors, by electric clock-type motors, or by equivalent electromechanicalarrangements shall comply with: a) The Standard for Clock-Operated Switches, UL 917; or b) Standard for Automatic Electrical Controls – Part 1: General Requirements, UL 60730-1, and, where applicable, the relevant Part 2 standard from the UL 60730 series.		N/A
6.19.2.2	A timer or time switch, incorporating electronic timing circuits or switching circuits, with or without separable contacts, shall be evaluated in accordance with 6.5.		N/A
6.19.3	Interlock systems		N/A
6.20	Transformers		N/A
7	**Frame and Enclosure**		**P**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
7.1	The frame and enclosure of an appliance shall be strong and rigid enough to resist the abuses likely to be encountered during normal service. The construction of the appliance shall preclude total or partialcollapse with the attendant reduction of required minimum acceptable spacings, loosening ordisplacement of parts, and other serious defects which alone or in combination constitute an increase inthe risk of fire, electric shock, or injury to persons.		P
7.2	An appliance shall be provided with enclosures of material acceptable for the particular application that shall house all electrical parts that may present a risk of fire or injury to persons under normal use andunder reasonably foreseeable misuse		P
7.3	Among the factors taken into consideration when an enclosure is being judged for acceptability are its: a) Physical strength; b) Resistance to impact; c) Moisture-absorptive properties; d) Combustibility; e) Resistance to corrosion; and f) Resistance to distortion at temperatures to which the enclosure may be subjected during conditions of normal or abnormal use.		P
7.4	If a blender has an exterior surface of glass or comparably brittle material, such as a capacitive touchscreen, which is part of the enclosure of live parts, the material shall be capable of withstanding thestresses likely to be encountered in actual service. Such parts shall be subjected to the Impact Test inaccordance with 64.5.1.4.		N/A
7.5	The appliance enclosure shall house all moving parts except for those which need be exposed to perform their intended function, such as the beater blades to a mixer. See PROTECTION AGAINSTPERSONAL INJURY.		P
7.6	Electrical parts of an appliance shall be so located or enclosed that protection against unintentionalcontact with uninsulated live parts will be provided.		P
7.7	The construction of an enclosure of a knife-sharpener (or a combination appliance having a knifesharpeningfunction, including an appliance provided with a mechanical sharpening block that is open tothe motor or electrical compartment) shall preclude the drawing-in of filings developed during thesharpening function if such an event introduces a risk of fire or electric shock. See 39.3 – 39.5.		N/A
7.8	The construction of an appliance intended for outdoor use shall be such as to prevent water fromcoming into contact with uninsulated live parts when the appliance is subjected to a test to simulateconditions that might occur during actual use. See Resistance to Moisture Test, Section 47.		N/A
7.9	An opening smaller than 1 inch (25.4 mm) in an enclosure is acceptable if a probe, as illustrated inFigure 7.1 when inserted point first into an opening, cannot be made to touch any uninsulated live part orfilm-coated wire. The probe shall be applied in all possible articulated positions.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
7.10	An opening provided for hanging or mounting an appliance shall be so located or guarded that a nail, hook, or the like does not displace a part that creates a risk of fire or electric shock and does notcontact one of the following: a) An uninsulated live metal part; b) Magnet wire; c) Internal wiring; d) Moving parts; or e) Any other part likely to create a risk of fire or electrical shock.		N/A
7.11	An opening 1 inch (25.4 mm) or larger in an enclosure as illustrated in Figure 7.2 is acceptable if,within the enclosure, there is no uninsulated live part or magnet wire: a) Less than X distance from the perimeter of the opening; as well as b) Within the volume generated by projecting the perimeter X distance normal to its plane.		N/A
7.12	During the examination of an appliance in connection with the requirements in 7.2 – 7.6 any part ofthe enclosure is to be disregarded – that is, it will not be assumed that the part in question affordsprotection against electric shock or injury to persons – if it either:		N/A
7.13	If a part of an enclosure that relies for mechanical securement on non-metallic parts, such as plastic tabs or snap-action inserts and post, complies with the requirements for Non-Metallic Enclosure FastenersTest of 64.15 the part is considered to require a tool for removal.		P
7.14	The enclosure of a remotely or automatically controlled appliance or a blender with a heating function provided with a heating element shall prevent molten metal, burning insulation, flaming particles,or the like from falling on combustible materials, including the surface upon which the appliance issupported. See 4.9 and 4.46.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
7.15	The requirement in 7.14 will necessitate the use of a barrier material that resists ignition: a) Under a motor unless: 1) The structural parts of the motor or of the appliance provide the equivalent of such a barrier; 2) The protection provided with the motor is such that no burning insulation or moltenmaterial falls to the surface that supports the appliance when the motor is energized undereach of the following fault conditions: i) Open main winding; ii) Open starting winding; iii) Starting switch short-circuited; and iv) For a permanent-split-capacitor motor the capacitor is short circuited. The short circuit is to be applied before the motor is energized and the rotor is to be blocked; or 3) The motor is provided with a thermal motor protector (a protective device that is sensitive to temperature and current) that will prevent the temperature of the motor windings from becoming more than 125° C (257° F) under the maximum load under which the motor will run without causing the protector to cycle and from becoming more than 150° C (302° F) with the rotor of the motor locked; and b) Under wiring, unless it is neoprene- or thermoplastic-insulated.		N/A
7.16	The barrier mentioned in 7.15 shall be horizontal, shall be located as indicated in Figure 7.3, and shall not be an area less than that described in that illustration. Openings for drainage, ventilation, and thelike may be employed in the barrier, provided that such openings would not permit molten metal, burninginsulation or the like to fall on combustible material.		N/A
7.17	The arrangement and guarding of parts of an appliance shall permit easy and proper installationand removal of strainers, baskets, and the like that must be removed, cleaned, and refilled by the user.The removal and replacement of these vessels and their ingredients shall not result in damage to orcontamination of wiring, electrical components, or other parts.		P
7.18	The assembly described in 7.17 shall be such as to minimize the likelihood of spillage on live parts, including magnet wire.		P
7.19	Cast- and sheet-metal portions of the enclosure shall not be thinner than indicated in Table 7.1 unless the enclosure is found to be acceptable when judged under considerations such as those mentioned in 7.3 and 7.20.		N/A
7.20	In addition to being considered with reference to the factors mentioned in 7.3 an enclosure of sheetmetal is to be judged with respect to its size, shape, and the thickness of metal considering the intendeduse of the appliance.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
7.21	A cord-connected appliance that is provided with keyhole slots, notches, hanger holes, and the like for hanging on a wall shall be constructed in such a manner that the hanging means shall not be accessible without removing the appliance from the wall.		N/A
7.22	Cord connected wall-mounted appliances employing a permanently fastened mounting bracketshall be removable from the bracket without the use of a tool.		N/A
8	**Mechanical Assembly**		**P**
8.1	An appliance shall be so assembled that it will not be affected adversely by the vibration of normaloperation. Brush caps shall be tightly threaded or otherwise designed to prevent loosening.	No risk	P
8.2	A switch, a lampholder, and attachment-plug receptacle, a motor-attachment plug, or similar components shall be mounted securely, and, except as noted in 8.3 and 8.4, shall be prevented from turning. See 8.5.		P
8.3	The requirement that a switch be prevented from turning may be waived if all four of the following conditions are met: a) The switch is to be of a plunger or other type that does not tend to rotate when operated (a toggle switch is considered to be subject to forces that tend to turn the switch during normal operation of the switch); b) The means for mounting the switch makes it unlikely that operation of the switch will loosen it; c) The spacings are not to be reduced below the minimum required if the switch rotates; and d) The normal operation of the switch is to be by mechanical means rather than by direct contact bypersons.		P
8.4	A lampholder of the type in which the lamp cannot be replaced (such as a neon pilot or indicator lightin which the lamp is sealed in a nonremovable jewel) need not be prevented from turning if rotation cannotreduce spacings below the minimum required values.		N/A
8.5	The means for preventing the turning mentioned in 8.2 is to consist of more than friction between surfaces – for example, a lock washer, properly applied, is acceptable as the means for preventing a smallstem-mounted switch or other device having a single-hole mounting means from turning.		N/A
8.6	Small molded parts such as brush caps, shall be constructed to have the mechanical strength and rigidity to withstand the stresses of actual service. Brush caps shall be secured or located to be protectedfrom mechanical damage which might result during normal use.		P
8.7	Receptacles mounted to and supported by a cover shall be secured by more than one screw or shallbe a device assembly or box cover intended for securing by a single screw.		P
9	**Protection Against Corrosion**		**N/A**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
9.1	Except as noted in 9.2, iron and steel parts shall be protected against corrosion by enameling, galvanizing, plating, or other equivalent means, if the failure of such unprotected parts would be likely toresult in a condition that can cause risk of fire, electric shock or injury to persons.		N/A
9.2	In certain instances where the oxidation of iron or steel due to the exposure of the metal to air and moisture is not likely to be appreciable – thickness of metal and temperature also being factors – surfacesof sheet steel within an enclosure and the inside surface of sheet steel enclosures may not be required tobe protected against corrosion. The requirement in 9.1 does not apply to bearings, cast-iron parts,laminations, and shafts or to minor parts of iron or steel as washers, screws, and the like.		N/A
9.3	Metal shall be used in combinations that are galvanically compatible and shall not be subject to significant corrosion due to electrochemical action within the appliance. Compliance is checked by inspection and by reference to Figure 9.1. Combinations above the line in the table shown in Figure 9.1shall be avoided. Corrosion resistance may be achieved by a suitable plating or coating process.		N/A
10	**Power Supply Connections – Cord-Connected Appliances**		**P**
10.1	Cords and plugs		P
10.1.1	A cord-connected appliance (an appliance intended to be connected to the power-supply circuitby means of a flexible cord) shall be provided with an appropriate length of flexible cord and an attachmentplug for connection to the supply circuit.		P
10.1.2	The flexible cord may be attached permanently to an appliance or may be in the form of a detachable power-supply cord with appropriate means for connection to the appliance. A hand-supportedappliance employing a detachable power-supply cord shall include a positive means for retaining theappliance coupler body to the appliance during use. Typical retaining means may include a friction type fitcoupled with a rib-type construction, snap-type fit or similar techniques. Friction type fit alone does notmeet the intent of the requirement.		P
10.1.3	Except as noted in 10.1.4, 10.1.5, 10.1.6 and 10.1.14, the flexible cord provided on a portable, under-cabinet or wall-mounted appliance shall be Type HPN, SPT-2, SVO, SVT, SVTO, or shall be of atype at least equally as serviceable for the particular application including its resistance to oil for theparticular application. Rubber insulated cords shall be an oil resistant type. See 11.1.3 for cord typesallowable for stationary appliances.		P
10.1.4	The flexible cord on a knife sharpener and on a battery-charger unit from which a batteryoperated appliance is removed for use may be Type SPT-1.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
10.1.5	A hand-supported product weighing 1.50 lb (0.68 kg) or less and having a power supply cord of the coiled type and a maximum extended length of 7.0 ft (2.1 m), may employ a Type SPT-1 cord, or shallbe of a type at least equally as serviceable for the particular application including its resistance to oil.		N/A
10.1.6	A flexible cord on an appliance intended for outdoor use, shall be: a) An outdoor use type (suffix W); and b) At least a Type SJW or SJTW.		N/A
10.1.7	The flexible power-supply cord shall not be smaller than 18 AWG (0.82 mm2), shall be rated foruse at a voltage not less than the rated voltage of the appliance, and shall have an ampacity as given inTable 400-5 (A) of the National Electrical Code, ANSI/NFPA 70, not less than the current rating of theappliance. For reference purposes, an abbreviated table showing the ampacities for flexible cord with two current-carrying copper conductors is shown in Table 10.1.		N/A
10.1.8	The power supply cord length shall be as outlined in Table 10.2. The power supply cord length of a blender with a heating function shall not be longer than 3.0 ft (0.9 m) if the appliance is lifted and tilted todispense the liquid and 7.0 ft (2.1 m) if the appliance has a separable blender container or a spigot fordispensing the liquid.		N/A
10.1.9	The attachment plug shall be of a type with a current rating not less than the rated current of theappliance and the voltage rating equal to the rated voltage of the appliance. When an appliance is able tobe adapted for use on two or more different values of voltage by field alteration of internal connections, theattachment plug provided with the appliance shall be rated for the voltage for which the appliance is connected when shipped from the factory.		P
10.1.10	The attachment plug of the power-supply cord of an appliance intended to be connected to a nominal 120 V circuit, and provided with a 15- or 20-ampere general-use receptacle shall be of the 3-wiregrounding type. The attachment plug of the power-supply cord of an appliance provided with a manuallyoperated, line-connected, single pole switch for appliance ON-OFF operation or an Edison-baselampholder shall be of the 2-wire polarized or 3-wire grounding type.		P
10.1.11	If a 3-wire grounding-type attachment plug or a 2-wire polarized attachment plug is provided on an appliance intended to be connected to a nominal 120 V circuit, the attachment plug connections shallcomply with Figure 10.1 and the polarity identification of the flexible cord shall comply with Table 10.3.		N/A
10.1.12	The conductor of the power-supply cord that is intended to be grounded shall have the following items connected to it: a) The screw shell of an Edison-base lampholder; and b) The terminal or lead of a receptacle intended to be grounded.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
10.1.13	An appliance employing a polarized detachable power-supply cord shall not accommodate a non-polarized cord.		N/A
10.1.14	For blenders with a heating function, where temperatures exceed 121° C (250° F) on any surfacethe power supply cord is likely to touch when the appliance is used as intended, the cord type shall beHPD, HPN, HSJ, HSJO or at least equally as serviceable.		N/A
10.2	Pin terminals		N/A
10.3	Strain relief		P
10.4	Cord bushings		N/A
10.5	Mechanical protection		P
11	**Power Supply Connections – Permanently-Connected Appliances**		**N/A**
11.1	General		N/A
11.2	Wiring terminals		N/A
11.3	Grounded terminals and leads		N/A
12	**Direct Plug-In Rechargeable Appliances**		**N/A**
13	**Internal Wiring**		**P**
13.1	The internal wiring and connections between parts of an appliance shall be enclosed or guarded,except that a length of flexible cord may be employed for external connections if flexibility is essential.		P
13.2	For the purpose of these requirements the internal wiring of an appliance is considered to be all theinterconnecting wiring from the point where the power-supply cord of a cord-connected appliance entersthe enclosure, or from the wiring terminals or leads for power-supply connections of a fixed appliance,even though some of this may be in the form of flexible cord.		P
13.3	The protection of insulated wiring and of wire providing grounding continuity, as required by 13.1, isconsidered to exist if, when judged as though it were magnet wire, the wiring is acceptable according to7.9. Internal wiring not so protected may be accepted if it is so secured within the enclosure that it isunlikely to be subjected to stress or physical abuse.		N/A
13.4	Consist of wire that is apropriate for the particular application a) The temperature and voltage to which the wiring is likely to be subjected; b) Exposure to oil, grease, or other substances likely to have a deleterious effect on the insulation; c) Exposure to moisture; and d) Other conditions of service to which it is likely to be subjected.		N/A
13.5	Wiring shall be protected from sharp edges (including male screw threads), burrs, fins, movingparts, and other agents that might abrade the insulation of conductors.		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
13.6	A hole by which insulated wires pass through a sheet metal wall within the overall enclosure shall be provided with a smoothly rounded bushing or shall have smooth surfaces, free of burrs, fins, sharpedges, and the like, upon which the wires may bear, to prevent abrasion of the insulation.		P
13.7	Insulated wires may be bunched and passed through a single opening in a metal wall within the enclosure of the appliance.		N/A
13.8	All splices and connections shall be mechanically secure and shall provide an effective electrical contact.		P
13.9	A soldered connection shall be such that mechanical security will be provided. If the nature orlocation of a soldered connection is such that loosening of the solder is likely to occur, and if suchloosening of the solder will result in any grounding or short-circuiting of live parts or other adversecondition, the connection shall be made mechanically secure before being soldered.		P
13.10	A wire-binding screw or nut shall be provided with means to prevent it from being loosened due to vibration if such loosening might result in a risk of fire, electric shock or injury to persons.		P
13.11	A risk of fire, electric shock or injury to persons is not considered to result if a spade lug with upturned ends or a closed-loop lug is used.		N/A
13.12	Unless spacings cannot be reduced so as to create a risk of fire, electric shock or injury to persons, a splice shall be provided with insulation equivalent to that of the wires involved.		N/A
13.13	In a determination of whether or not splice insulation consisting of coated-fabric, thermoplastic, orother material is acceptable, consideration is to be given to such factors as its dielectric properties, heatresistanceand moisture-resistance characteristics, and the like. Thermoplastic insulating tape wrapped over a sharp edge is not acceptable. An insulated splicing device is acceptable within the limits of its voltage and temperature ratings.		N/A
13.14	Stranded internal wiring shall be so connected to a wire-binding screw that loose strands of wire will be prevented from contacting other live parts not always of the same polarity as the wire and fromcontacting dead metal parts. This may be accomplished by use of pressure thermal connectors, solderinglugs, crimped eyelets, soldering all strands of the wire together, or other equivalent means.		N/A
13.15	An internal wiring bushing of neoprene or polyvinyl chloride may be used anywhere inside anappliance if the edges of the hole in which the bushing is mounted are smooth and free from burrs, finsand the like.		P
13.16	Where the normal operation of an appliance causes movement of the internal wiring, the applianceshall comply with the Wiring Flexing Test, Section 61, unless the wiring is located in a low-voltage circuitthe functioning of which is not relied upon for compliance with this standard		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

14	**Live Parts**		**P**
14.1	A current-carrying part shall be of silver, copper, a copper alloy or other material equivalent for the purpose.		P
14.2	Plated iron or steel may be used for a current-carrying part: a) Whose temperature during normal operation is more than 100° C (212° F); b) Within a motor or associated governor; or c) If acceptable in accordance with 6.1.1.		N/A
14.3	An uninsulated live part shall be so secured to the base or mounting surface that it will be prevented from turning or shifting in position if such motion may result in a reduction of spacings below the minimumacceptable values.		N/A
14.4	Friction between surfaces is not acceptable as the sole means to prevent the turning of a live part,but a lock washer properly applied is acceptable for this purpose.		N/A
15	**Electrical Insulation**		**P**
15.1	Insulating washers, bushings, and the like, and bases or supports for the mounting of live parts shallbe of a moisture-resistant material that is acceptable for the particular application.		P
15.2	Insulating material employed in an appliance is judged with respect to its use in the particular application. Materials such as mica, some molding compounds, and certain refractory materials arecapable of being used as the sole support of current-carrying parts; and some other materials that are notintended for general use, such as magnesium oxide, are capable of being used in conjunction with otherinsulating materials when so located and protected such that the risk of physical injury and the absorptionof moisture are reduced. If a separate investigation is required to determine the fitness of a material as aninsulator, the key factors to be examined are its physical strength, dielectric-properties, insulationresistance,heat-resistant qualities, the degree to which it is enclosed or protected, and any other featurespertinent to the risk of electric shock, fire and injury to persons involved, in conjunction with the conditionsof actual service. All of the properties mentioned above are to be investigated with respect to the effects of thermal aging.		P
15.3	Screws or other fastenings used to mount or support small fragile, insulating parts are not to be sotight as to crack or break such parts with expansion and contraction.		N/A
15.4	Vulcanized fiber may be used for insulating bushings, washers, separators, and barriers, but not asthe sole support for uninsulated live parts if shrinkage, moisture absorption, or warpage may introducecurrent leakage or other adverse conditions.		N/A
15.5	A small molded part, such as a terminal block, shall have such physical strength and rigidity that itwill withstand the stresses of actual service.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
15.6	Thermoplastic materials in direct contact or close proximity to live parts, other than magnet wire, shall have physical strength and rigidity, resistance to heat, resistance to flame propagation, dielectricstrength, and other properties appropriate for the application. All of the properties mentioned above are to be considered		N/A
16	**Thermal and Acoustic Insulation**		**N/A**
16.1	Thermal and acoustic insulation, if employed, shall be of such a nature and so located and mountedor supported that it is not adversely affected by any normal operation of the appliance.		N/A
16.2	Combustible or electrically conductive thermal or acoustic insulation shall not make contact with uninsulated live parts of an appliance. Some types of mineral-wool thermal insulation contain conductiveimpurities in the form of slag, which make its use unacceptable if in contact with uninsulated live parts. See38.1 and 64.10.6.		N/A
17	**Spacings**		**P**
17.1	A circuit derived from a source of supply classified in 4.37 as a line-voltage circuit by connecting a resistance in series with the supply circuit as a means for limiting the voltage and current, is not considered to be a low-voltage circuit as described in 4.39.		P
17.2	All uninsulated live parts connected to different (line-voltage, low-voltage) circuits		P
17.3	The spacing between uninsulated live parts of opposite polarity and between such parts and deadmetal		P
17.4	The spacing between wiring terminals (see 11.2.1) of opposite polarity, and the spacing between awiring terminal and any other uninsulated metal part (dead or alive) not of the same polarity,		N/A
17.5	Except as noted in 17.7 and 17.9, the spacing between uninsulated live parts of opposite polarity,uninsulated live parts and a dead metal part that is exposed to contact by persons or that may begrounded, and uninsulated live parts and uninsulated (or not acceptably insulated) parts in the secondarycircuit, shall not be less than the value indicated in Table 17.1. If an uninsulated live part is not rigidly fixedin position (by means other than friction between surfaces), or if a movable dead metal part is in proximityto an uninsulated live part, the construction shall be such that the required minimum spacing will be maintained.		N/A
17.6	In applying Table 17.1 to an appliance incorporating two or more motors of different sizes, thespacings inside each motor are judged on the basis of the size of that motor and the spacings elsewherein the appliance are judged on the basis of the size of the largest motor in the appliance.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
17.7	The spacing requirements given in 17.4 do not apply to the inherent spacings of a component of theappliance, such as a snap switch; such spacings are judged on the basis of the requirements for thecomponent.		N/A
17.8	In the application of 6.10.1 and Table 17.1 to a motor not rated in horsepower, use is to be made ofthe appropriate table of the National Electrical Code, ANSI/NFPA 70 which gives the relationship betweenhorsepower and full-load currents for motors. For a universal motor, the table applying to a single-phase,alternating current motor is to be used if the appliance is marked for use on alternating current only; otherwise, the table applying to direct-current motors is to be used.		P
17.9	If an isolated dead metal part is interposed between or is in close proximity to live parts of oppositepolarity, to a live part and an accessible dead metal part, or to a live part and a dead metal part that maybe grounded, the spacing may not be less than 3/64 inch (1.2 mm) between the isolated dead metal partand any one of the other parts previously mentioned, provided the total spacing between the isolated deadmetal part and the two other parts is not less than the value indicated in Table 17.1.		N/A
17.10	Except as indicated in 17.11, an insulating lining or barrier of vulcanized fiber or similar materials employed where spacings would otherwise be unacceptable shall not be less than 1/32 inch (0.8 mm)thick and shall be so located or of such material that it will not be adversely affected by arcing; except thatvulcanized fiber not less than 1/64 inch (0.4 mm) thick may be used in conjunction with an air spacing ofnot less than 50 percent of the spacing required for air alone.		P
17.11	Insulating material having a thickness less than that indicated in 17.10 may be used if, upon investigation, it is found to be appropriate for the particular application.		N/A
17.12	A printed wiring board with spacings between opposite polarity circuits (other than a low-voltage circuit		P
17.13	An expansion type protected capacitor shall have additional through-air expansion spacings in the axial direction to allow for movement of the terminals. The additional expansion spacing shall be at least12.7 mm (1/2 inch) through air in addition to the applicable electrical spacings.		N/A
18	**Alternate Spacings – Clearances and Creepage Distances**		**P**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
18.1	As an alternative to the specified spacing requirements in Spacings, Section 17, the spacingrequirements in the Standard for Insulation Coordination Including Clearances and Creepage Distancesfor Electrical Equipment, UL 840, may be used. The spacing requirements in UL 840 shall not be used forspacings between field wiring terminals or between uninsulated live parts and a metal enclosure. Indetermining the pollution degree and overvoltage category, the end-use application is to be consideredand may modify those characteristics given in 18.2 – 18.5.		P
18.2	When applying specific requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, it is anticipated that the degrees ofpollution expected or controlled will be as indicated in Table 18.1. Household food preparing machines aregenerally considered Pollution Degree 2		N/A
18.3	When applying specific requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, it is anticipated that the equipmentwill be identified by overvoltage categories as indicated in Table 18.2.		N/A
18.4	In order to evaluate clearances where the levels of overvoltage are controlled, control of overvoltage shall be achieved by providing an overvoltage device or system as an integral part of theproduct. The equipment shall be evaluated for the rated impulse withstand voltage specified in theStandard for Insulation Coordination Including Clearances and Creepage Distances for ElectricalEquipment, UL 840.		N/A
18.5	Printed wiring boards		N/A
19	**Grounding**		**N/A**
19.1	Required grounding		N/A
19.2	Continuity		N/A
19.3	Grounding identification		N/A
20	**Flooding of Live Parts**		**P**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
20.1	An appliance shall preclude the following actions when such action would result in risk of fire or electric shock. Compliance shall be determined by the Flooding of Live Parts Tests, Section 40, the Testfor Deterioration of Parts Subject to Flexing, Section 41, the Test for Reliability of Parts Not Subject toFlexing, Section 42, and the Insulation Resistance Test, Section 43: a) Overflow of liquids into the electrical or motor enclosure of the appliance (40.1); b) Drawing of liquids into the electrical or motor enclosure of the appliance (40.2); and c) Malfunction of a timer switch or of a float- or pressure-operated switch, deterioration or damage of a boot or diaphragm, or the deterioration and reliability of seals and gaskets, resulting in the entrance of liquid into the electrical or motor enclosure of the appliance (Sections 41, 42, and 43).		P
20.2	If the failure of a liquid container provided as part of an appliance would result in a risk of fire or electric shock, the container shall be of a material which is compatible with the liquid intended to be usedtherein.		N/A
20.3	With respect to 20.1(b), a vacuum blender shall be provided with a means to prevent the vacuum pump from picking up liquid in the blender container if it increases the risk of electric shock or fire. TheIngress Test of 40.2.2 shall be conducted to determine if liquid ingress results in a risk of fire or electricshock. If the backflow prevention means is removable without the use of tools or the user is instructed toremove it for cleaning, the blender shall be subjected to the Ingress Test of 40.2.2 without the backflowprevention means in place.		P
PROTECTION AGAINST PERSONAL INJURY			--
21	**General**		**P**
21.1	If the operation and maintenance of an appliance by the user involves possible personal injury, protection shall be provided for the reduction of such a condition to an acceptable degree.		P
21.2	In applying the requirement of 21.1 consideration shall be given to reasonably foreseeable misuse of the appliance.		P
21.3	The acceptability of a guard, a safety release, an interlock, and the like and whether or not such a device is required, is to be determined from a study of the complete appliance, its operating characteristics, and the likelihood of an injury resulting from a cause other than gross negligence. Thestudy is to include consideration of the results of a malfunction of any one component, but not more thanone component at a time unless one malfunction contributes to another. If the study shows that amalfunction of a particular component can result in a risk of injury to persons, that component is to be investigated for reliability.		P

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Clause	Requirement – Test	Result – Remark	Verdict
21.4	Specific tests, constructions, markings, guards, and the like are detailed for some appliances. Suchdetailed requirements apply to common constructions; specific features and appliances not covered hereinare to be given separate consideration.		P
21.5	An enclosure, a frame, a guard, a handle, or the like shall not be sufficiently sharp to constitute a risk of injury to persons during normal maintenance and use.		P
21.6	Compliance with the requirement of 21.5 is determined by applying the test procedures, equipment,and acceptance criteria described in the Standard for Tests for Sharpness of Edges on Equipment, UL1439.		N/A
22	**Attachments**		**P**
22.1	Various functional attachments that are made available or recommended by the manufacturer foruse with the basic appliance shall be included in the evaluation of the appliance. Unless recommended bythe manufacturer, not more than one attachment shall be evaluated at a time with the appliance.		P
22.2	The literature accompanying a package containing a basic appliance and various attachments intended to be marketed as a complete unit shall indicate what attachments are intended for use with thebasic appliance.		P
22.3	If an attachment is packaged and marketed separately from the basic appliance and recommendedfor use with it by the manufacturer of the basic appliance, it shall have an assigned catalog number (orequivalent). Also, information packaged with the basic appliance shall identify by catalog number, seriesnumber, or the like, the attachments which are intended for use with the basic appliance. Identification[catalog number (s), model number (s), series, and the like] of the basic appliance with which theattachment is intended to be used shall appear at the following locations:a) On the package housing the attachment; andb) On information material furnished with the attachment or on the attachment itself.		N/A
22.4	The important safeguards, where applicable to the attachment, shall be packaged with theattachment.		N/A
23	**Moving Members**		**P**
23.1	A moving external member and its attachment to the appliance shall be constructed of such material, and in such manner, as to reduce the likelihood of its malfunction, its unintentional release, andits loosening of a part that can become a risk of injury to persons.		P
23.2	To determine if an appliance with a series motor complies with the requirement in 23.1, the appliance is to be operated at a voltage equal to 1.3 times the rated voltage for 1 minute with no externallyadded load. After the test, parts that can cause an injury shall not have worked loose.		P
23.3	An appliance employing a moving part which, if it becomes disengaged would create a risk of injury to persons, shall be provided with a means to retain the part in place under conditions of use.		P
23.4	To determine if a centrifugal juice extractor complies with the requirement in 23.1, the applianceshall be subjected to the Cut Strainer/Enclosure Stress Withstand Test and the Operational		P

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Clause	Requirement – Test	Result – Remark	Verdict
23.5	To determine if a blender complies with the requirement in 23.1, the appliance shall be subjected to the Blender Blade Endurance Test, Section 46.		P
24	**Stability**		**P**
24.1	The stability of a counter-top appliance shall be such that it will not be overturned readily while in any position that might be encountered during normal use of the appliance, including positions that mightbe encountered prior to and after operation.		P
24.2	To determine if an appliance complies with the requirement in 24.1, the appliance is to be placed, with the motor switched off, in a position as described in 24.4 on a plane inclined at an angle of 10 degreesto the horizontal, the power-supply cord resting on the inclined plane in the most unfavorable position. If,however, the appliance is such that, were it to be tilted to an angle of 10 degrees when standing on ahorizontal plane, a part of it not normally in contact with the supporting surface would touch the horizontalplane, the appliance is to be placed on a horizontal support and tilted in the most unfavorable direction through an angle of 10 degrees. The results are considered to be acceptable if the appliance does notoverturn. Combination appliances shall be tested for the most unfavorable condition. One attachment willbe used at a time.		P
24.3	An appliance intended to be filled with liquid by the user in normal use, is to be filled with water to its rated capacity, or if unmarked it is to be filled to the top. A can opener is to be tested without the can in place. A salad maker or food grinder is to be tested empty.		N/A
24.4	Tests are to be conducted under the most unfavorable conditions but with the appliance unenergized. The appliance is to be placed on an inclined plane with all doors, drawers, and other movable or adjustable parts in the position tending to decrease the stability. If tested on a horizontal planethe appliance is to be tipped in the direction of least stability. The appliance is to be tested in all possiblepositions that might typically be encountered while the appliance: a) Is in a position of being assembled or prepared prior to operation – for example, positioning parts of the appliance prior to adding food or functional attachments; b) Is in a position as if being used to perform one of its intended functions – for example, blending, or mixing; and c) Is in a position of being disassembled or cleaned after operation – for example, with functionalattachments removed.		P

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Clause	Requirement – Test	Result – Remark	Verdict
24.5	An appliance that is adjustable in dimensions is to be adjusted to the position most likely to cause it to overturn.		N/A
24.6	An appliance provided with feet removable without the use of tools shall also be tested with the feet removed if this may increase the risk of overturning.		N/A
25	**Stability – Floor Supported Carts and Stands**		**N/A**
25.1	A floor-supported appliance cart or stand employing polymeric materials in its construction shall withstand the temperature-stability condition described in 25.2 without any shrinkage, warpage, or other distortion of the polymeric materials that results in an appliance cart or stand performing unacceptably when subjected to the requirements of 25.3 – 25.10.		N/A
25.2	The complete assembly, appliance and cart or stand, shall be placed in an air-circulating oven for 7 hours. The oven is to be maintained at a temperature of 70° C (158° F). The appliance is not to be operating during the test.		N/A
25.3	During the temperature-stability test described in 25.2, an appliance intended for use with a companion cart or stand is to be positioned on the cart or stand in accordance with the recommended instructions.		N/A
25.4	A cart or stand with the intended appliance in place, that weighs 10 lb (4.5 kg) or more shall not tipover when it is placed at the center of an inclined plane that makes an angle of 10 degrees with thehorizontal and turned to the position most likely to cause tip-over.		N/A
25.5	The test mentioned in 25.4 is to be separately conducted under conditions most likely to cause tipover.If the appliance is positioned on the stand or cart, consideration shall be given to all accessories oroptions intended for use with the appliance. The cart or stand, with or without the appliance, shall bearranged in its intended position with all doors, drawers, casters, wheels, and other appurtenances in theposition that results in the least stability. The assembly is to be tipped in the direction most likely tooverturn the cart or stand, or the combination of an appliance with either the cart or stand. Legs and othermeans of support may be blocked to preclude the cart or stand from sliding.		N/A
25.6	A cart or stand intended to be floor supported shall be constructed so that permanent deformationor damage that results in a risk of injury to persons does not occur when it is subjected to the following: a) A weight that exerts a force of three times its intended appliance load or 100 lbf (444.8 N) whichever is greater, and an evenly distributed load that exerts a 25 lbf (111.2 N) on each shelf ordrawer. A drawer shall be in fully opened position. b) A force of 50 lb (222.4 N) applied for 1 minute to any appurtenance accessible to a child.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
25.7	To determine compliance with 25.6(a), the appliance is to be placed on the cart or stand and theadditional weight added to the top of the appliance.		N/A
25.8	To determine compliance with 25.6(b), the force is to be applied through the end of a 2 inch (50.8 mm) diameter right circular cylinder.		N/A
25.9	A cart or stand shall withstand a single impact of 5 ft-lbf (6.8 N • m) without resulting in a risk of injuryto persons or adversely affecting the stability.		N/A
25.10	The impact force is to be imparted by swinging a 2-inches (50.8-mm) diameter steel sphere weighing 1.18 lb (0.535 kg) from a height		N/A
25.11	An appliance cart or stand provided with wheels or casters, for mobility, shall employ a mechanical means other than friction, to secure the wheels or casters in place.		N/A
26	**Enclosure and Guards**		**P**
26.1	Except as indicated in 26.2, moving parts that may cause injury, shall be enclosed. See also 26.5.		P
26.2	Moving parts that are necessarily exposed to perform the work function need not be enclosed but,when necessary, guarding is to be provided. The extent of guarding is to be based on the following factors: a) The degree of exposure needed; b) Sharpness of moving parts; c) Likelihood of unintentional contact therewith; d) Speed of the moving part; and e) Likelihood that parts of the body or clothing would be endangered by the moving part.		P
26.3	Among the factors to be considered in judging the acceptability of a guard are: a) Removability without the use of tools; b) Removability for user servicing and the need for and ease of replacement; c) Strength and rigidity; d) Completeness; e) Creation of additional risks of personal injury such as pinch points; and f) The necessity for additional handling because of the increased need for user servicing (such as for cleaning and unjamming).		P
26.4	With respect to 26.3 (c), guards formed of nonmetallic materials, such as polymeric materials,ceramic and glass, shall be subjected to the Impact Test in accordance with 64.5.1.3.		P
26.5	A moving part is considered to be acceptably enclosed if it cannot be contacted with the probe illustrated in Figure 7.1 when food pushers and interlocked covers and guards are left in place.		P

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Clause	Requirement – Test	Result – Remark	Verdict
26.6	If complete guarding of an obvious moving part that may cause injury to persons defeats the utility of the appliance, such as the cutting blades of a knife: a) An appropriate control shall be provided; and b) An appropriate caution marking shall be provided in the instruction booklet warning the user against the potential risk of injury		N/A
26.7	A feeding mechanism, either manual or automatic, shall be so constructed or guarded to reduce to an acceptable degree, the likelihood or necessity of the operator's fingers being in an area that could afford injury		P
26.8	Feed opening		P
26.9	When determining compliance with 26.8 (b) or (c) for a feed opening with notches for alignment of the food pusher, the notches are not included in the maximum and average dimensions if there are no more than two notches provided and the maximum depth and width are less than 1/4 inch (6 mm) each.		N/A
26.10	When determining compliance with 26.8 (a) for a feed opening with projecting tabs,		N/A
26.11	When determining compliance with 26.8 (b) or (c) for a feed opening with projecting tabs, the tabs are disregarded when taking the measurements.		N/A
26.12	The dimensions at a narrowed section of the feed chute may be used for the average inside diameter if moving parts capable of causing injury are recessed below the narrowed section by not less than the distance specified in 26.8 (b) or (c), as applicable.		N/A
26.13	A pusher shall be provided when continuous manual feeding of an appliance is necessary.		N/A
26.14	An appliance provided with a discharge chute		N/A
27	**Switches, Controls, and Interlocks**		**P**
27.1	A device that automatically starts an appliance shall not be employed unless it can be demonstrated that automatic starting can not result in injury to persons.		N/A
27.2	The requirement in 27.1 necessitates the use of an interlock (see 4.36), if movable parts or the likemight involve risk of injury upon the automatic starting or restarting of the motor.		P
27.3	The OFF position of a main ON/OFF switch other than a momentary-contact type shall be such that the operator can determine by visual inspection that the appliance is off.		P
27.4	If an interlock is actuated by movement of a guard, the construction shall be such that the guard isin place when the switch permits operation of the parts being guarded. With the guard removed, theconstruction shall comply with 27.6.		P
27.5	For a multiple-purpose appliance, operation of a switch for one function shall not cause a risk of injury at another function.		N/A
27.6	The actuator for an interlock shall be so located that unintentional operation is unlikely		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
27.7	The actuator described in 27.6 may be guarded by recessing, ribs, barriers, or the like.		N/A
27.8	Operation in normal use shall not inconvenience the operator so as to encourage deliberate defeat of an interlock.		N/A
27.9	An interlock shall not be capable of being defeated by food materials that could accumulate withnormal use of the appliance. For the purpose of this requirement, the interlock mechanisms shall not belocated: a) Within the food processing area; b) On surfaces over which food materials may be poured when emptying food materials from the food processing area; or c) On surfaces which are subjected to spillage or leakage of food materials during the Overflow Test of 40.1 or the Test of Deterioration of Parts Subject to Flexing of 41.1 that could accumulate todefeat the interlock.		N/A
27.10	An interlock shall not be capable of being defeated readily: a) Without damaging the appliance; b) Without making wiring connections or alternations; or c) By using materials that are readily available.		N/A
27.11	For a magnetic interlock, common magnets are considered readily available with respect to 27.10(c). A magnetic interlock is considered to comply with 27.10(c) if common magnets are not able todefeat the interlock by a construction with: a) An actuating magnet requiring a higher magnetic flux density than common household magnetsto actuate the interlock, such as by use of a rare earth magnets; b) A coded actuating magnet with a special pole arrangement, such as North-South-North; c) Recessing or guarding of the area where the actuating magnet must be located; or d) More than one magnetic interlock where magnets will not stay in place but must be held in placein order to activate the interlock due to the location or shape of the enclosure or the pole orientationof the magnet (requiring an opposing force).		N/A
27.12	With respect to 27.11, Table 27.1 defines the typical magnetic flux densities for various types of common and rare earth magnets.		N/A
27.13	An appliance employing a switch with an auto-pulse function (such as an ice pulse function on a blender) shall be constructed so that the blades do not fully stop rotating between pulses. The blades shallfully stop rotating only when the appliance switch is in the OFF position.		P
27.14	A malfunction or breakdown of any single electronic component, located in any circuit of the product, shall not result in increased risk of injury to persons, such as a loss of OFF control or unexpectedoperation. See 6.5.		P
28	**Surface Temperatures**		**P**
28.1	During the temperature test, a temperature on the surface of an appliance that may be contacted by the user		P

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Clause	Requirement – Test	Result – Remark	Verdict
28.2	Blenderswith a heating function		N/A
29	**Button or Coin Cell Batteries of Lithium Technologies**		**N/A**
29.1	To reduce the risk of injury due to battery ingestion, the battery compartment of an appliance or anyaccessory, such as a wireless control, incorporating one or more replaceable coin cell batteries of lithium technologies		N/A
30	**Appliances**		**P**
30.1	All knives		P
30.2	Cord-connected knives		N/A
30.3	Battery-operated knives		N/A
30.4	Blenders		N/A
30.4.1	Blade accessibility		N/A
30.4.2	Blade securement		N/A
30.4.3	Cover opening		N/A
30.4.4	Blender container abuse.		N/A
30.4.5	Blender tamper		N/A
30.4.6	Blender touch screen control		N/A
30.4.7	Blenders with a heating function		N/A
30.5	Food processors including food choppers		N/A
30.6	Coffee or grain grinders		N/A
30.7	Vegetable shredders/slicers and centrifugal juicers		P
30.8	Ice-cube crushers		N/A
30.9	Wand-type mixers		N/A
30.10	Coffee or grain mills		N/A
30.11	Pasta mixer-extruders		N/A
PERFORMANCE			--
31	**General**		**N/A**
31.1	Values of voltage and current are root-mean-square values, unless otherwise stated.		N/A
31.2	An appliance having both alternating-current and direct-current ratings is to be tested with theappliance connected to an alternating-current supply and again to a direct-current supply, unless it can beestablished that one test will result in the maximum operating conditions.		N/A
30.1.3	Operationaltests		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
30.1.4	An appliance rated 50 – 60 Hz is to be tested both at 50 and 60 Hz, where performance is frequency dependent, unless it can be established that one test will result in the maximum operatingconditions. Universal motors are generally considered not frequency dependent.		N/A
30.1.5	cloth is mentioned in the abnormal tests,		N/A
32	**Leakage Current Test**		**P**
32.1	The leakage current of a cord-connected appliance rated for a nominal 120 V supply when tested inaccordance with 32.3 – 32.7 shall not be more than: a) 0.5 mA for an ungrounded (two-wire) portable, stationary, or fixed appliance; b) 0.5 mA for a grounded (three-wire) portable appliance; and c) 0.75 mA for a grounded (three-wire) 3-wire or 4-wire stationary or fixed appliance employing a standard attachment plug rated 20 A or less.		P
32.2	Leakage current refers to all currents, including capacitively coupled currents, which may be conveyed between accessible conductive surfaces of an appliance and ground or other accessibleconductive surfaces of an appliance.		P
32.3	All accessible conductive surfaces are to be tested for leakage currents. The leakage currents fromthese surfaces are to be measured to the grounded supply conductor individually as well as collectivelywhere simultaneously accessible and from one surface to another where simultaneously accessible. Partsare considered to be accessible surfaces unless guarded by an enclosure considered to provide protection against the risk of electric shock as defined in 7.6 – 7.12. Surfaces are considered to be simultaneouslyaccessible when they can be readily contacted by one or both hands of a person at the same time. Thesemeasurements do not apply to terminals operating at voltages which are not considered to involve the risk of electric shock.		N/A
32.4	If a conductive surface other than metal is used for the enclosure or part of the enclosure, the leakage current is to be measured using a metal foil with an area of 10 by 20 cm (3.9 by 7.9 inches) incontact with the surface. Where the surface is less than 10 by 20 cm, the metal foil is to be the same sizeas the surface. The metal foil is not to remain in place long enough to affect the temperature of theappliance.		N/A
32.5	The measurement circuit for leakage current		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
32.6	A representative appliance is to be tested for leakage current starting with the as-received conditionbut with its grounding conductor, if any, open at the attachment plug. The as-received condition is without prior energization except as occurring as part of the production-line testing. The supply voltage is to beadjusted to 120 V. The test sequence, with reference to the measuring circuit (Figure 32.1) is to be asfollows: a) With switch S1 open, the appliance is to be connected to the measuring circuit. Leakage currentis to be measured using both positions of switch S2 and with the appliance switching devices in alltheir normal operating positions. b) Switch S1 is then to be closed energizing the appliance, and within a period of 5 seconds, the leakage current is to be measured using both positions of switch S2, and with the appliance switching device in all their normal operating positions. c) The leakage current is to be monitored until thermal stabilization. Both positions of switch S2 areto be used in determining this measurement. Thermal stabilization is to be obtained by operation asin the Normal Temperature Test, Section 36.		N/A
32.7	Normally a representative appliance		P
33	**Operational Tests**		**P**
33.1	Operation of an appliance while simulating anticipated conditions of use shall not increase the riskof fire, electric shock, or injury to persons.		P
33.2	In conducting the test, the conditions mentioned in the manufacturer's instructions, including cleaning, maintenance, and the use of accessories may be included or omitted so as to simulatereasonably foreseeable actions of the user.		P
34	**Starting Current Test**		**N/A**
34.1	Protection by fuses		N/A
34.2	Other overcurrent protection		N/A
35	**Input Test**		**P**
35.1	The measured input in watts or amperes to an appliance shall not exceed the marked rating by anamount greater than the deviation shown in Table 35.1 when the appliance is operated under a conditionof maximum normal load as described in 36.1.12 – 36.26. Unless otherwise indicated, the input is themaximum input while processing the load specified, but disregarding the initial starting current.		P
35.2	If an appliance is provided with various functional attachments, or attachments are sold separately for use with the appliance, the marked electrical rating is determined per 35.1 when the appliance isoperated with the attachment which results in the highest input. See 71.4 and 74.4.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
35.3	The measured input in watts or amperes to an appliance may be less than the marked rating a) Recommended for use at the highest speed, or b) Resulting in higher inputs than functions operating at the highest speed.		N/A
35.4	For an appliance having a single voltage rating (such as 115 V) rather than being rated for a rangeof voltages (such as 110 – 120 V), maximum rated voltage is considered to be that single value of voltage. If the rating is given in terms of a range of voltages, maximum rated voltage is considered to be the highestvalue of the range.		P
36	**Normal Temperature Test**		**P**
36.1	General		P
36.2	Food mixers		N/A
36.3	Blending mixers		N/A
36.4	Liquid mixers		N/A
36.5	Reamer juicers		N/A
36.6	Centrifugal juicers and masticating juicers		P
36.7	Meat grinders		N/A
36.8	Baby food grinders		N/A
36.9	Baby food choppers		N/A
36.10	Meat slicers		N/A
36.11	Churns		N/A
36.12	Knife sharpeners		N/A
36.13	Can openers		N/A
36.14	Ice crushers and ice shavers		N/A
36.15	Vegetable shredder/slicers		N/A
36.16	Ice cream mixer freezers (bucket type)		N/A
36.17	Mills and grinders, other than meat grinders		N/A
36.18	Knives		N/A
36.19	Food processors including food choppers		N/A
36.20	Battery-operated appliances		N/A
36.21	Under-cabinet or wall-mounted appliances		N/A
36.22	Wand-type mixers		N/A
36.23	Wand-type mixers with a milk shake attachment		N/A
36.24	Pasta mixer-extruders		N/A
36.25	Pasta extruding attachments		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
36.26	Handheld pizza cutters		N/A
37	**Dielectric Voltage-Withstand Test**		**P**
37.1	An appliance shall be capable of withstanding for 1 minute without an indication of unacceptable performance the application of a potential applied between live parts and accessible metal parts andbetween any points of the primary and secondary circuits. The appliance is to be at the maximumoperating temperature reached in normal use. Except as noted in 37.5, the test potential shall be asindicated in Table 37.1.		P
37.2	An appliance shall be capable of withstanding for 1 minute without an indication of unacceptable performance the application of a potential applied between the terminals of a capacitor used for electromagnetic interference (EMI) reduction or arc suppression. The test potential shall be as indicated inTable 37.1 (a) or (b), as applicable.		P
37.3	With respect to 37.1, an appliance having an enclosure construction partially or totally of insulatingmaterial is to have accessible surfaces of the insulating material closely wrapped in metal foil. The testpotential is to be applied between live parts and the foil.		P
37.4	With respect to 37.1 and 37.3, a part is considered to be accessible if it can be contacted by theprobe illustrated in Figure 7.1 when applied in all possible articulated positions, with and without the partsreferenced in 7.12 in place.		N/A
37.5	When the appliance involves an isolating transformer or an autotransformer, the test potential for the secondary circuit is to be: a) 1000 V AC or 1400 V DC when the secondary operates at 51 – 125 V; or b) 500 V AC or 700 V DC when the secondary operates at 50 V or less, except that this test does not apply when the secondary circuit is supplied from a Class 2 transformer.		N/A
37.6	To determine whether an appliance complies with the requirement in 37.1 and 37.5, the test potential is to be applied as described in 37.8 by means of test equipment having the characteristics outlined in 37.7.		N/A
37.7	The test equipment for conducting the dielectric voltage-withstand test		N/A
37.8	The method of applying the test voltage to the appliance is to be such that there are not any transient voltages that result in the instantaneous voltage applied to the appliance exceeding 105 percentof the peak value of the specified test voltage. The applied potential is to be increased from zero at asubstantially uniform rate so as to arrive at the specified test potential in approximately five seconds, and then, is to be maintained at the test potential for 1 minute. Manual control of the rate of rise may be used.		P

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Clause	Requirement – Test	Result – Remark	Verdict
37.9	The printed foil pattern of a printed wiring board provided with a conformal coating as mentioned in17.12 (a), shall withstand the potential specified in 37.1 (a) applied between printed wiring traces ofopposite polarity for 1 minute without breakdown. Clean dry samples with the conformal coating are to betested. The samples shall have been subjected to the production-soldering process. The components may be omitted for this test.		N/A
38	**Leakage Current Following Humidity Tests**		**P**
38.1	cord-connected appliance a) The appliance is to be at a temperature just above the test chamber temperature when it is placed in a humidity room. b) The appliance is to remain in the humidity chamber for 48 hours. c) Following this exposure, while still in the test chamber, the sample is to be tested unenergized asindicated in 32.6(a) d) The sample is then to be tested energized as indicated in 32.6 (b) and (c), except that the test may be discontinued when the leakage current has stabilized or decreased. This test may be made in the test chamber or immediately after the sample has been removed from the test chamber.		P
39	**Leakage Current and Dielectric Voltage-Withstand Test (Repeated)**		**P**
39.1	After exposure as described in 39.2, an electric knife or wand-type mixer shall comply with the requirement in 32.1 in a repeat leakage current test, except that the test shall be discontinued when theleakage current stabilizes.		P
39.2	An electric knife or wand-type mixer is to be connected to a supply circuit as described in 31.3 andthe blades or shaft are to be immersed in a salt water solution (1/2 gram of sodium chloride per liter ofdistilled water) and then tilted upward appropriately 105 degrees to allow the water to run down the bladesor shaft toward the enclosure. Twenty-five such operations are to be conducted at the rate of 10operations per minute. This test is to be repeated on a second sample with the knife or wand-type mixer not operating..		P
40	**Flooding of Live Parts Tests**		**N/A**
40.1	Overflow test		N/A
40.1.1	To determine if an appliance that is provided with a container into which liquid is intended to be added by the user complies with 20.1 (a) with respect to overflow, the appliance is to be positioned asintended for normal use, cover on but fill-hole or fill-holes open.		N/A
40.2	**Ingress test**		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
40.2.1	To determine if a counter-top appliance complies with 20.1 (b) with respect to the drawing of liquids into the enclosure, the appliance is to be placed in a smooth bottomed shallow pan having at leasttwice the length and width of the bottom of the appliance being tested. Feet removable without use of toolsshall be removed unless it is determined their removal will not affect the results. The pan is to be filled to adepth of 1/16 inch (1.6 mm) with a salt-water solution (1/2 gram of NaCl per liter of distilled water), and the appliance operated at maximum speed for 1 minute. During this conditioning, the appliance shall complywith the Leakage Current Test, Section 32. Following this conditioning, the appliance shall comply with theDielectric Voltage-Withstand Test, Section 37.See also 31.3.		N/A
35.5	To determine if a vacuum blender complies with 20.3, the blender container is to be filled tomaximum capacity with the salt water solution of 40.2.1. The blender cover is to be secured in place, theblender connected to a supply circuit as specified in 31.3 and the vacuum pump operated for one cycle oruntil water is no longer picked up. If the vacuum pump can operate at the same time as the blender, thetest is to be repeated with the blender and the pump operating simultaneously. During the test, the appliance shall comply with the Leakage Current Test, Section 32. Following the test, the appliance shallcomply with the Dielectric Voltage-Withstand Test, Section 37.		N/A
41	**Test for Deterioration of Parts Subject to Flexing**		**N/A**
41.1	The deterioration of a part made of rubber, plastic, or a similar material, which is subject to flexingshall not result in a risk of electric shock when subjected to the test described in 41.2. A gasket, which isremovable without the use of tools or is recommended to be removed for cleaning, is considered a partsubject to flexing.		N/A
41.2	To determine whether an appliance complies with 41.1, the part subject to flexing is to be completely removed to simulate its deterioration. The appliance is to be subjected to the following tests asapplicable to determine compliance with 41.1: a) One complete cycle of operation; b) Flooding Test described in 40.1 or 40.2; c) Leakage Current and Dielectric Withstand (Repeated) Test per 39.1 for an electric knife or wandtypemixer; and d) Moisture Resistance Test described in 47.1 for an outdoor use appliance.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
41.1.3	The appliance is to be tested after operation per 41.2(a) as follows: a) A cord-connected appliance shall comply with the Leakage Current Test, Section 32, and theDielectric Voltage-Withstand Test, Section 37. b) A permanently-connected appliance shall comply with the Insulation Resistance Test, Section43, and the Dielectric Voltage-Withstand Test, Section 37		N/A
41.1.4	If during the Flooding Test of 40.1, the liquid container cannot be overfilled due to leakage when thegasket or seal is removed, the test is conducted by using 115 percent of the maximum capacity of thecontainer. The test is discontinued when the liquid container has emptied or the leakage has stopped.		N/A
42	**Test for Reliability of Parts Not Subject to Flexing**		**N/A**
42.1	After the conditioning described in 42.2, a polymeric or elastomeric material used for a gasket,diaphragm, seal, or similar part, or a rubber part subject to hot soapy water during cleaning shall have atensile strength of not less than 75 percent and elongation of not less than 60 percent of the valuesdetermined before conditioning. At the conclusion of the tests, there shall not be visible deterioration,deformation, melting, or cracking of the material and the material shall not harden as determined bynormal hand flexing.		N/A
42.2	A total of 20 pieces of each representative material is required for this test. Five pieces are to be tested for elongation in the as-received condition and 5 pieces are to be tested for tensile strength in theas-received condition. The 10 remaining pieces are to placed in a circulating-air oven at a temperature of69 – 70° C (156 – 158° F) for 168 hours. Five of the conditioned pieces are to be tested for elongation andthe other 5 pieces are to be tested for tensile strength. The test methods and apparatus are described inthe Standard for Test Methods for Rubber Properties in Tension, ASTM D412.		N/A
42.3	A gasket of material other than mentioned in 42.1, such as bonded cork or impregnated fiber, that is not known to be reliable, shall be investigated for equivalent resistance to aging and temperature. Absorptive materials, such as cork or fiber shall not be used where they contact a live part.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
42.4	To determine compliance with Exception No. 1 to 42.1, one sample of a gasket, a diaphragm, or a seal of an appliance is to be oven conditioned as specified in 42.2. After the oven conditioning, instead ofthe tensile and elongation testing, the gasket, diaphragm, or seal is then to be installed in the associatedappliance and subjected to the following tests to determine the suitability of the gasket, diaphragm or seal. As an alternate test method, one entire representative appliance is to be subjected to the ovenconditioning described in 42.2. When an entire appliance is subjected to the oven conditioning describedin 42.2, the diaphragm or seal temperature shall be monitored and maintained at the oven temperature value indicated in 42.2. The entire appliance is then to be subjected to the following tests as applicable todetermine the suitability of the gasket, diaphragm or seal: a) One complete cycle of operation; b) Flooding of Live Parts Tests described in 40.1 or 40.2; c) Leakage Current and Dielectric Withstand (Repeated) Test per 39.1 for an electric knife or wandtypemixer; and d) Moisture Resistance Test described in 47.1 for an outdoor use appliance.		N/A
42.5	The appliance is to be tested after operation		N/A
43	**Insulation Resistance Test**		**N/A**
43.1	Following the Test for Deterioration of Parts Subject to Flexing, Section 41, a permanentlyconnectedappliance shall have an insulation resistance of at least 50,000 ohms between current-carrying parts and noncurrent-carrying parts.		N/A
43.2	Insulation resistance is to be measured by applying a direct-current potential of 250 volts betweenlive parts and the enclosure and other accessible dead metal parts		N/A
44	**Blender Cover Opening Splash Test**		**N/A**
44.1	To determine compliance with 30.4.3.2 for a blender provided with an opening in the cover intendedfor pouring, the blender is to be tested in accordance with 44.2 and 44.3 in order to determine the ability of the blender cover to keep the contents of the blender container from splashing out.		N/A
44.2	The container of a representative blender is to be filled as indicated in 44.4 with water at a temperature of 93.3 ±5.5° C (200 ±10° F). The exterior of the blender is to be wiped dry. The blendercontainer is to be mounted on the blender and the blender is to be placed on a horizontal work surface thatis dry. The cover opening intended for pouring is then to be opened and the blender operated for 3 cyclesof operation consisting of 15 seconds at the highest speed setting available.		N/A
44.3	No water shall be observed splashing out of the cover opening. The work surface and blender exterior shall remain dry.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
44.4	The blender container shall be filled to the maximum fill line. If the blender container is not providedwith a maximum fill line, the container shall be filled to the maximum level recommended in theinstructions. If a separate fill line is clearly marked on the blender container for the blending of hot liquids,the container shall be filled to this level or the maximum recommended level for blending hot liquids in the instructions, whichever is greater.		N/A
45	**Blender Vented Lid Test**		**N/A**
45.1	With respect to 30.4.3.3, the blender container shall remain intact and the cover and vented lid shallremain in place when operated as described in 45.2.		N/A
45.2	The container of a representative blender		N/A
46	**Blender Blade Endurance Test**		**N/A**
46.1	The following procedure is to be performed on each unique blender blade and container construction combination. Each combination shall be tested with the motor assembly that results in thehighest measured input during the Input Test, Section 35.		N/A
46.2	Three samples of each representative blender container and blade assembly shall be subjected to500 cycles of ice crushing operation wherein the blender blade assembly shall not break, separate intopieces, crack, become loose or show any signs of deterioration, as seen without magnification. Each cycleof ice crushing shall consist of 5 pulses of 0.4 ±0.1 seconds ON, at the highest speed setting, followed by 3 seconds OFF. For each cycle, the blender container shall be loaded with ice and tap water to the levelsdetermined in 46.3. At the end of each cycle, the crushed ice and water mixture shall be emptied. If theblender has controls that gradually increase the speed to maximum power, the speed at maximum power,each pulse shall be ON for the time to reach maximum speed at maximum power, or 0.4 ±0.1 seconds,whichever is greater. If the manufacturer prefers, an electronic speed control may be bypassed to verifythat the control is not relied upon to pass the test.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
46.3	To determine the volume of ice and water to be used, the container shall be loaded with a ratio of 2:1 by volume [e. g. 2 cups (473.2 ml) of ice and 1 cup (236.6 ml) of water]. A cup of ice (236.6 ml) by volume should weigh approximately 5.25 oz (150 g). The ice should fill the container to approximately 1/3of the marked capacity of the container. The ice may include both broken pieces and whole pieces, butmust contain some pieces with the major dimension greater than or equal to 1 inch (25.4 mm) and a minordimension greater than or equal to 0.5 inch (12 mm). The container assembly shall then be subjected to 1cycle of 5 pulses. At the end of the cycle, the mixture must contain some pieces with the major dimension greater than 0.25 inch (6.3 mm). If the ice is not impacted for all 5 pulses, cavitation occurs, or the mixturedoes not contain pieces with a major dimension greater than 0.25 inch (6.3 mm) at the end of the cycle,then the size of the ice, volume of the ice, and/or volume of the water shall be adjusted until the resultingmixture is acceptable.		N/A
46.4	The container may be marked with the level of ice and water to be added based on the measured volume of ice and water determined in 46.3 to facilitate loading the container for each cycle. For the first 10cycles of the test, and every 50 cycles of the test, the resulting ice crushed shall be checked to ensure thatthe mixture contains some pieces with the major dimension greater than 0.25 inch (6.3 mm).If at any pointduring the test the ice is not impacted for all 5 pulses, or if the brand of ice or method of making icechanges, the volume of ice and water shall be re-adjusted, and the resulting ice mixture checked for 10cycles.		N/A
46.5	The ice shall be maintained at a temperature of -10° C (14° F) or less for at least 8 hours prior to thetest. The ice, when moved from storage, shall be used within 5 minutes.		N/A
47	**Resistance to Moisture Test**		**N/A**
47.1	In a test to determine that an appliance intended for outdoor use complies with the requirement in 7.8, the appliance is to be subjected to a water spray test as described in 47.2. There shall be no obviouswetting of any electrical component, as evidenced by droplets of water on the component, and no watershall enter a compartment that houses field-installed wiring as a result of the water-spray test.		N/A
47.2	Compliance with the requirement in 47.1 is to be determined by mounting the appliance under the apparatus described in 47.3 and illustrated in Figure 47.1 and Figure 47.2.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
47.3	The water-spray test apparatus is to consist of three spray heads constructed in accordance with the details shown in Figure 47.1 and mounted in a water-supply pipe rack as shown in Figure 47.2. Thewater pressure is to be maintained at each spray head at approximately 5 lbf/in2 (35 kN/m2). The distancebetween the center nozzle and the appliance is to be brought into a focal area of the three spray heads insuch a position and under such conditions that water is most likely to enter, except that consideration is tobe given to the normal mounting position.		N/A
48	**Continuous Operation Test**		**N/A**
48.1	A product, that is only actuated by a momentary contact switch and employs a shaded-pole motor shall not produce a fire or electric shock when tested in accordance with 48.2. Included is any appliancethat employs a momentary contact switch that initiates an automatic cycle or a momentary contact switchthat can be locked in the ON position by a mechanical feature.		N/A
48.2	The appliance is to be: a) Connected to a supply circuit as described in 31.3 in series with a 20 A time-delay plug fuse; b) Placed on a white tissue paper covered softwood surface; c) Draped with a double layer of cheesecloth over the whole appliance with the cloth within 1/8 inch (3.2 mm) of the openings (if any) in the enclosure; and d) Grounded by means of a 3 A non-time-delay plug fuse connected between exposed metal parts and earth ground.		N/A
49	**Abnormal Operation Test**		**P**
49.1	Metal enclosure abnormal locked rotor test		P
49.1.1	For a portable appliance having a completely polymeric enclosure, the test of 49.1 is not applicable and the appliance is subjected to the requirements for Enclosures of Polymeric Material forPortable Appliances, Section 64.		N/A
49.1.2	An appliance having a polymeric enclosure that is part metallic (having some accessible dead metal) is to comply with: a) Enclosures of Polymeric Material for Portable Appliances, Section 64, for the part of the enclosure that is polymeric; and b)49.1.3 for that part of the enclosure having accessible dead metal		P
49.1.3	49.1.3 An appliance having an enclosure that is of metal (accessible dead metal) after being tested in accordance with 49.1.4 shall: a) Comply with the Dielectric Voltage-Withstand Test, Section 37, with the potential applied between live parts and accessible metal parts; b) Not result in opening of the 3 A fuse; c) Not result in access to live parts; and d) Not result in ignition of the mounting surface or the cheesecloth as a result of emission of glowing or flaming materials.		P

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Clause	Requirement – Test	Result – Remark	Verdict
49.1.4	The appliance is to be: a) Connected to a supply circuit as described in 31.3 (in series with a 30 A time-delay plug fuse); b) Placed on a white tissue paper covered soft wood surface; c) Draped with a single layer of cheesecloth shaped so that it touches the surface completely around the appliance and draped loosely over the appliance; and d) Grounded by means of a 3 A non-time-delay plug fuse connected between accessible metal parts and earth ground.		N/A
49.1.5	With respect to 49.1.3 and 49.1.4, a metal part is considered to be accessible if it can be contacted by the probe illustrated in Figure 7.1 when applied in all possible articulated positions, with or without the parts referenced in 7.12 in place.		N/A
49.1.6	Appliances that are hand held or hand supported, those which have to be kept switched on by hand or those which are continuously loaded by hand shall be tested for 30 seconds locked rotor operation. Appliances that are intended to be used unattended and do not have motors intended to be remotely or automatically controlled shall be tested for 5 minutes locked rotor operation.		N/A
49.2	Self-holding protector abnormal locked rotor test		N/A
50	**Capacitor Failure Test**		**N/A**
51	**Power Supplies and Battery Chargers Test**		**N/A**
51.1	A power supply or battery-charging circuit for an appliance shall not produce a potential fire or electric shock condition should the battery or rectifier malfunction.		N/A
51.2	The appliance of 51.1 is to be tested on a 120 V, 60 Hz supply circuit in series with a 20 A, timedelayplug fuse. The appliance is to be placed on a white tissue paper covered softwood surface.		N/A
51.3	The appliance of 51.1 is to have its transformer secondary windings short-circuited. A 3 A non-timedelayplug fuse is to be connected between the dead metal of the transformer core and earth ground.Operation is to be continued until temperatures stabilize or burnout occurs. Results are considered to beacceptable if: a) Grounding and line fuses are not opened; b) The results of a repeated dielectric voltage-withstand test as described in 37.1 are acceptable; and c) There is no ignition of the tissue paper.		N/A
51.4	The appliance of 51.1 is to have its battery connections short-circuited at the battery. A 3 A nontime-delay fuse is to be connected between the dead metal of the transformer core and earth ground.		N/A
52	**Direct Plug-In Appliance Testing**		**N/A**
52.1	Weights and moments test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
52.2	Blade security pull test		N/A
52.3	Blade security push test		N/A
52.4	Blade flexing test		N/A
53	**Electronic Control Circuits Test**		**N/A**
53.1	Solid-state device.		N/A
53.2	If an appliance employs one or more solid-state devices, a resistor or a similar component, no risk of fire, electric shock or risk of injury to persons shall develop when the circuit between any two terminalsof any such component is opened or shorted; except that wire wound resistors are not to be shorted. If theappliance employs a capacitor in combination with one of the above-mentioned components, no risk of fire, electric shock or risk of injury to persons shall develop when the capacitor is short-circuited. Only oneof the simulated fault conditions described above is to be imposed at one time. Accessible dead-metalparts of the appliance are to be connected through a 3 A fuse and the results are unacceptable if the fuse opens during the test. The test is to be conducted three times using new components when necessaryonly if burnout occurs.		N/A
53.3	Short-circuit tests for determining whether or not an appliance complies with the requirements in 53.2 are to take into account the normal usage of the appliance. For example, if the appliance is providedwith a momentary-contact switch having no provision for being locked in the ON position, and if there isindication of malfunction (abnormal operation of the appliance, emission of smoke, failure of the applianceto operate in the normal manner, or other indication), the test is to be discontinued when the malfunctionbecomes evident. Otherwise the test is to be continued until ultimate results occur which usually requires 7 to 8 hours.		N/A
53.4	If an appliance is provided with means for controlling the speed, the test is to be conducted at boththe maximum and minimum-speed settings of the control and can be conducted at interim speed settings.		N/A
54	**Cut Strainer/Enclosure Stress Withstand Test**		**N/A**
54.1	The following procedures are to be performed for a centrifugal juice extractor that uses a cutter strainer basket with a polymeric rim.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
54.2	One group of three representative centrifugal juice extractor appliances is to be in as-received condition. Three equally spaced notches are to be cut into the plastic rim (or top ring) of the cutter strainerbasket from each juice extractor to a depth not exceeding 0.12 inches (3.05 mm). The strainer basket is tobe installed in the juice extractor as appropriate for normal operation. A juicer provided with a pulpdischarge opening and a separate pulp container shall be operated with the pulp container in place. Theappliance is then to be placed inside a protective enclosure, and is to be operated at its rated voltage for30 seconds with the speed controls set at the highest speed.		N/A
54.3	If the strainer basket retains its structure after this operation, the depth of the notches is to be increased in 0.03 inch (0.76 mm) increments and operated in accordance with 54.2 until the strainerbasket disintegrates. As required, the mesh is also to be deliberately damaged in order to induce thedisintegration of the strainer basket.		N/A
54.4	Each of three additional representative strainer baskets and three juice extractor covers are to be immersed in a solution of Detergent Type B (as specified in IEC 60436), at a concentration of 3 grams/literand a temperature of 65 ±1° C (140 ±1.8° F) for 48 hours; see 55.2 for composition of solution. Theimmersed strainer baskets and covers are then to be removed from the solution, rinsed with water, andstored at room temperature for 14 days.		N/A
54.5	Each of the strainer baskets conditioned in 54.4 are to be subjected to the procedures described in54.2 and 54.3. Each conditioned juice extractor cover is to be installed on a juice extractor appliance thatis intended to operate with that cover.		N/A
54.6	No parts of the strainer basket or other components of the juice extractor shall be ejected from theappliance. The top cover of the juice extractor shall also remain intact.		N/A
55	**Operational Test Following Environmental Conditionings**		**N/A**
55.1	The following procedures are to be performed, in the order shown, for a centrifugal juice extractor that uses a cutter strainer basket with either a polymeric or metallic rim. Each of three representativestrainer baskets is to be tested.		N/A
55.2	Chemical stress test: Each strainer basket is to be immersed in a detergent solution (corresponding to Detergent Type B) at a concentration of 3 grams/liter and a temperature of 65 ±1° C (140 ±1.8° F) for 48hours, then removed from the solution, rinsed with water, and stored at room temperature for 14 days.		N/A
55.3	Thermal stress test: Each strainer basket is to be placed in a dry atmosphere at a temperature of 83 ±2° C (181.4 ±3.6° F) for one hour, then immersed in water at a temperature of 20 ±2° C (68 ±3.6° F). Thisprocedure is to be performed a total of three times.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
55.4	Impact test: Each strainer basket are dropped from a height of one meter onto a wooden floor in such a way that the axis of rotation is horizontal at the moment of impact. This procedure is to be performed a total of 12 times, with the strainer baskets being rotated by 30 degrees in each successiveiteration to obtain 12 different points of impact.		N/A
55.5	Starting test: Each strainer basket is to be placed in a juice extractor appliance that is intended to operate with the strainer basket. The appliance is to be supplied with 1.06 times the rated voltage and thenis to be operated for 15 seconds with the speed controls set at the highest speed, followed by a restinterval of 45 seconds. This procedure is to be performed a total of 25 times for each strainer basket.		N/A
55.6	A centrifugal juice extractor shall be capable of withstanding the stresses encountered during normal operation of the appliance. No parts of the strainer basket or other components of the juice extractor shall be ejected from the appliance. No cracks or other damage to any part of the assembledjuice extractor shall be visible to the naked eye upon inspection.		N/A
56	**Switch Overload Test**		**N/A**
56.1	To determine compliance with 6.19.1.2 or Exception Nos. 1 and 2 of 6.19.1.4, a switch or otherdevice without current and voltage ratings or that controls a motor and has not been shown to beinvestigated for that purpose shall perform acceptably when subjected to an overload test consisting of 50cycles of operation, making and breaking the locked-rotor current of the motor. The power factor of the testload controlled by the switch shall be not more than the power factor under locked-rotor conditions of theappliance. There shall not be electrical or mechanical malfunction of the device or undue pitting or burningof the contacts as a result of the overload test.		N/A
56.2	In a test to determine if a switch or other control device is capable of performing acceptably in the overload test mentioned in 56.1, the appliance is to be connected to a grounded power-supply circuit ofrated frequency and voltage, with the rotor of the motor locked in position. During the test, accessible deadmetal parts of the device are to be connected to ground through a 3 A non-time-delay plug fuse and theconnection is to be such that any single-pole current interrupting device is in an ungrounded conductor ofthe supply circuit. If the machine is intended for use on direct current, accessible dead metal parts of themachine are to be so connected as to be positive with respect to a single-pole, current interrupting device.The device is to be operated at the rate of no more than 10 cycles per minute, except that a faster rate of operation is to be employed if agreeable to all concerned. The performance is unacceptable if the fuse inthe grounding connection is opened.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
56.3	A switch or other device that controls a solenoid, relay coil, or the like and has not been shown to be investigated for that purpose shall perform acceptably when subjected to an overload test consisting of 50 cycles of operation as described in 56.4. There shall not be electrical or mechanical malfunction of the device, nor undue burning or pitting of the contacts as a result of the overload test.		N/A
56.4	In a test to determine if a switch or other control device complies with the requirements in 56.3, the appliance is to be connected to a supply circuit of rated frequency and 110 percent of maximum ratedvoltage. The load on the device under test is to be the same as that which is intended to control in normalservice. During the test, accessible dead metal parts of the machine are to be connected to groundthrough a 3 A non-time-delay plug fuse, and the connection is to be such that any single-pole currentinterrupting device is in an ungrounded conductor of the supply circuit. The device is to be operated at arate of not more than 10 cycles per minute except that a faster rate of operation is to be employed ifagreeable to all concerned. The performance is unacceptable if the fuse in the grounding connection isopened during the test.		N/A
57	**Switch Endurance Test**		**N/A**
57.1	To determine compliance with 6.19.1.2, the switch shall be subjected to an endurance test consisting of 6000 cycles of operation, making and breaking the rated current of the appliance. If theappliance is not marked with a rated current, the test current shall be the input current measured undermaximum normal load conditions as specified for the Input Test of Section 35, but not less than the measured input current with the unit loaded to its maximum marked wattage rating. As a result of theendurance test there shall not be any electrical or mechanical malfunction of the device or undue pitting orburning of the contacts; and the fuse in the grounding connection shall not open.		N/A
57.2	To determine		N/A
58	**Interlock System Testing**		**P**
58.1	Cutter stopping time determination test		P
58.2	Interlock system endurance test		P
58.3	Cover/Guard misalignment test		P
59	**Strain Relief Test**		**P**
59.1	The strain relief means provided on an attached flexible cord, when tested in accordance with 59.2,shall withstand for 1 minute without displacement a direct pull of 35 lbf (156 N) applied to the cord, with theconnections within the appliance disconnected.		P

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Clause	Requirement – Test	Result – Remark	Verdict
59.2	A 35 lb (15.9 kg) weight is to be suspended on the cord and so supported by the appliance that thestrain-relief means will be stressed from any angle which the construction of the appliance permits. Thestrain relief is not acceptable if, at the point of disconnection of the conductors, there is such movement ofthe cord as to indicate that stress would have resulted on the connections.		P
59.3	For the investigation mentioned in 10.3.2, each of six samples of the clamp that have been applied to the cord in the intended manner are to be used. One group of three samples are to be subjected to thedielectric voltage-withstand and strain relief tests in the as-received condition. The other group of threesamples are to be placed in an air oven for 168 hours. The oven temperature is to be 10° C (18° F) higherthan the maximum temperature measured on the cord at the strain relief device under normal operatingconditions, but not less than 70° C (158° F) in any case. The samples, after being conditioned in the oven,are to be subjected to the dielectric voltage-withstand and strain relief tests. The value of the applied potential is to be as indicated in 37.1. The potential is to be applied between the conductors and, if the clamp is metal, the potential is to be applied between the conductors and the clamp. After cooling to roomtemperature the conditioned samples are to comply with the strain relief test requirements in 59.1 and thedielectric voltage-withstand requirements in 37.1.		P
60	**Push Back Relief Test**		**P**
60.1	To determine compliance with 10.3.3, a product shall be tested in accordance with 60.2 without occurrence of any of the conditions specified in 10.3.3 (a) – (d).		P
60.2	The supply cord is to be held up to 1 inch (25.4 mm) from the point		P
61	**Wiring Flexing Test**		**N/A**
61.1	In accordance with 13.16, if the normal operation of an appliance causes movement of the internal wiring, the appliance shall be capable of operating for 6000 cycles in the intended manner while connectedto a supply circuit of the voltage indicated in 31.3. There shall be no electrical or mechanical malfunctionand, after the test, the appliance shall comply with the requirements for Dielectric Voltage-withstand Test,Section 37, with the wiring under test wrapped in metal foil and the movable member operating through the maximum limits of travel in both directions.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
61.2	In a test to determine whether an appliance complies with the requirement in 61.1: a) The electrical load applied to the internal wiring may be simulated to represent the voltage, current, and power factor of the load seen by the internal wiring under maximum normal operating conditions when subjected to flexing; b) The cycling rate shall be: 1) Representative of the maximum speed of the movable member of the appliance during normal operation where the movable member is controlled by the motor, or 2) 12 cycles per minute where the movable member is operated manually; and c) The movable member is to be so operated that it will reach the maximum limits of travel in both directions, each cycle.		N/A
61.3	A section of a pressure system constructed of continuous tubing or lengths of tubing connected byhard soldered, brazed, or welded joints shall be considered to comply with the requirements in Clause47.2 if the thickness of tubing is not less than the applicable value specified in Table 14.		N/A
62	**Appliance Coupler Retention**		**N/A**
62.1	If a handheld appliance rated over 30 V (42 V peak) employs a detachable power-supply cord without a positive means of retention, the retention means shall comply with the endurance test specifiedin 62.2. At the end of this test the retention means shall withstand for 1 minute a 1 lb (4.4 N) withdrawalforce axially applied to the cord, without the appliance coupler becoming disengaged from the retentionsystem.		N/A
62.2	The retention means is to be subjected to 1000 cycles of appliance coupler insertion and removal,with each cycle consisting of an insertion into and removal from the appliance. The insertion and removalof the appliance coupler is to be done at a rate not exceeding ten cycles per minute unless the manufacturer agrees to a faster rate. The appliance is not to be energized during the test.		N/A
63	**Metal Enclosure Impact Tests**		**P**
63.1	An appliance having an enclosure that is of metal shall comply with the tests outlined in 64.5.1.1 – 64.5.3.5, except that the ball impact value is to be 1.5 ft-lbf (2.03 J).		P
64	**Enclosures of Polymeric Material for Portable Appliances**		**P**
64.1.1	These requirements cover polymeric enclosures or parts of enclosures, of portable cordconnected food preparing appliances.		P
64.1.2	These requirements also cover polymeric decorative and similar parts that do not serve as part of the enclosure for electrical parts or provide for protection against injury to persons.		P

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Clause	Requirement – Test	Result – Remark	Verdict
64.2	General		P
64.2.1	A portable cord-connected food-preparing machine having an enclosure of polymeric material, shall comply with thermal-aging 64.13.1 and the applicable requirements from Figure 64.1.The following steps are to be followed in the use of Figure 64.1. a) Select the appropriate path determined from the flow chart in Part 1 of Figure 64.1 that matches the conditions of use for the polymeric material under consideration. b) Remaining within the confines of the Column I, II, or III determined in Part 1, proceed to Part 2 of Figure 64.1. Pick out the letter or letters (denoting a material's flammability class; refer to Figure 64.1 (legend) that are acceptable for the use application. c) The applicable requirements can be found in Part 3 of Figure 64.1 and those determined consistent with the conditions of use and the material flammability class found in Parts 1 and 2.		P
64.2.2	An external polymeric decorative part of the appliance, a polymeric part extending through the enclosure wall and considered likely to propagate flame, or a similar polymeric part not involved withprotection against risk of fire, electric shock, or injury to persons shall be classified as HB, V-0, V-1, or V-2as defined by the appropriate burning test in the Standard for Test for Flammability of Plastic Materials forParts in Devices and Appliances, UL 94, or the polymeric part as used in the appliance shall comply with the flame test of 64.3.1.		P
64.3	Flammability of enclosure		P
64.3.1	When tested in accordance with 64.3.2 – 64.3.5, the enclosure shall not support combustion for more than 1 minute after the second application of the test flame as stated in 64.3.4. The results are notacceptable if complete consumption of the sample occurs during the application of the flame or within 1minute after the application of the flame.		P
64.3.2	Three samples of the appliance are to be placed in a circulating-air oven maintained at a uniformtemperature not less than 10° C (18° F) higher than the maximum temperature of the material measuredunder normal operating conditions, but not less than 70° C (158° F) in any case. The samples are to remainin the oven for 168 hours. After being allowed to cool to room temperature, the samples are to be tested inaccordance with 64.3.3 – 64.3.5.		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
64.3.3	Three sections of the enclosure of the appliance most likely to be ignited are to be subject to the flame test described in 64.3.4. A different sample of the appliance is to be used for each section tested. Inthe performance of the test, the appliance is to be supported in its normal operating position in a draft-freelocation, and nonpolymeric portions of the enclosure in contact with or fastened to the polymeric portionsare not to be removed. Insofar as possible, the internal mechanism of the appliance is to be in place.		P
64.3.4	The flame of the Bunsen burner is to be adjusted to have a 3/4 inch (19 mm) high yellow flame with no blue cone. Two 30 second applications of the tip of the flame are to be made to each section of theenclosure selected as indicated in 64.3.3, with a 1 minute interval between the applications.		P
64.3.5	With reference to 64.3.3, the sections most likely to be ignited are considered as those adjacent to coil windings, splices, open-type switches, component terminals and other arcing or sparking parts.		P
64.4	Resistance to hot-wire ignition		P
64.5	Impact		P
64.5.1	General		P
64.5.2	Hand-supported appliances		N/A
64.5.3	Counter-supported appliances		P
64.5.4	Feed opening tab strength		P
64.5.4.2	Impact hammer test		P
64.5.4.3	Applied force test		P
64.6	Stress-relief distortion		P
64.7	Input (repeated)		P
64.8	Strain relief (repeated)		P
64.9	Accessibility		P
64.10	Spacings to enclosure		P
64.11	Abnormal operation		P
64.12	Severe-use conditions		P
64.13	Thermal aging		P
64.14	Load test		P
64.15	Non-metallic enclosure fasteners test		P
65	**Enclosures of Polymeric Material for Stationary or Fixed Appliances**		**N/A**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
65.1	A stationary or fixed appliance that has an enclosure of polymeric material shall comply with theapplicable requirements contained in the Standard for Polymeric Materials – Use in Electrical EquipmentEvaluations, UL 746C.		N/A
66	**Thermoplastic Coil Forms and Thermoplastic Insulating Material**		**P**
66.1	General		P
66.2	Normal conditioning		P
66.3	Abnormal conditioning		P
66.4	Running-burnout conditioning		N/A
53	**Humidity-Conditioning Test**		**P**
53.1	A product shall be conditioned for 48 hours in air having a relative humidity of 88 ± 2 percent at a temperature of 32 ±2°C (90 ±4°F). After conditioning: a) A cord-connected product rated for a nominal 240 V supply or less shall comply with the requirements in Clause 52.1 in a repeated leakage current test; and b) A product other than as mentioned in (a) shall have an insulation resistance of 50,000 ohms or more between live parts and interconnected non-current-carrying metal parts.	89%, 32°C, 48hours	P
53.2	A sample of the product shall be heated to a temperature just above 34°C (93°F) to reduce the likelihood of condensation of moisture during conditioning. The heated sample shall be placed in thehumidity chamber and conditioned as specified in Clause 53.1.		N/A
53.3	Following conditioning: a) A cord-connected product rated for a nominal 240 V supply or less shall be tested as described in Clause 52.6. The test shall be discontinued when the leakage current stabilizes ordecreases; b) The insulation resistance of a product other than as described in (a) shall be measured as described in Clause 53.4.		N/A
53.4	Ordinarily, insulation resistance shall be determined by using a high-resistance voltmeter and a 250V, direct-current circuit		N/A
MANUFACTURING AND PRODUCTION TESTS			
67	**Dielectric Voltage-Withstand Test**		**N/A**
67.1	Each appliance shall withstand without breakdown as a routine production-line test, the applicationof an AC potential at a frequency within the range of 40 – 70 hertz or a DC potential between: a) The primary wiring, including connected components, and accessible metal parts that are capable of becoming energized; and b) Primary wiring and accessible low voltage (42.4 V peak or less) metal parts, including terminals.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
67.2	The production-line test		N/A
67.3	For an electric knife or wand-type mixer the test potential shall be: a) 2500 V AC or 3500 V DC applied for one minute, b) or 3000 V AC or 4200 V DC applied for one second.		N/A
67.4	The appliance may be in a heated or unheated condition for the test.		N/A
67.5	The test shall be conducted with the appliance complete – fully assembled. It is not intended thatthe appliance be unwired, modified, or disassembled for the test.		N/A
67.6	If the appliance employs a solid-state component that can be damaged by the test potential, the teston each appliance may be conducted before the component is electrically connected. In such a case,additional testing is to be made of a random sampling of each day's production with the circuitryrearranged to reduce the likelihood of damage to any solid-state component but retaining representativedielectric stress of the circuit.		N/A
67.7	Test equipment		N/A
67.8	The specified control of the applied voltage, manual or automatic, shall be maintained under conditions of varying line voltage. Higher test potentials may be used if the higher dielectric stress is not likely to adversely affect the insulating systems of the product.		N/A
67.9	In addition to the characteristics indicated in 67.7, the test equipment is to have the following features and characteristics: a) A means of indicating the test voltage that is being applied to the appliance under test. This may be accomplished by sensing the voltage at the test leads or by an equivalent means. b) An output voltage that: 1) Has a sinusoidal waveform; 2) Has a frequency that is within the range of 40 – 70 Hz; and 3) Has a peak value of the waveform that is not to be less than 1.3 and not more than 1.5 times the root-mean-square value. c) A means of effectively indicating unacceptable performance. The indication is to be: 1) Auditory if it can be readily heard above the background noise level; 2) Visual if it commands the attention of the operator; or 3) A device that automatically rejects an unacceptable product. If the indication of unacceptable performance is auditory or visual, the indication is to remain active and conspicuous until the test equipment is reset manually. d) When the test equipment is adjusted to produce the test voltage and a resistance of 120,000 ohms is connected across the output, the test equipment is to indicate an unacceptable performance within 0.5 second. A resistance of more than 120,000 ohms may be used to produce an indication of unacceptable performance, if the manufacturer elects to use a tester having higher sensitivity.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
67.10	There is not to be any transient voltage applied to the appliance		N/A
67.11	During the test, enough of the primary switching components shall be in the ON position so that all primary circuitry will be stressed. Both sides of the primary circuit of the appliance are to be connected together to one terminal of the test equipment. The second equipment terminal is to be connected to accessible metal.		N/A
68	**Grounding Continuity Test**		**N/A**
68.1	Each cord-connected appliance having provision for grounding shall be tested, as a routine production-line test, to determine grounding continuity between the grounding blade of the attachmentplug and the accessible metal parts of the appliance that are likely to become energized.		N/A
68.2	Only a single test need be made if the accessible metal selected is conductively connected by design to all other accessible metal.		N/A
69	**Polarization Test**		**N/A**
69.1	As a routine production-line verification, each cord-connected appliance provided with a 2-wire polarized or 3-wire grounding attachment plug, shall be examined or tested for electrical continuitybetween the ungrounded circuit supply conductor of the attachment plug (see Figure 10.1 for attachmentplug blade connections) and all components intended to be connected to the ungrounded conductor. If thecontinuity cannot be readily determined by visual inspection and component checking, an electrical continuity test is to be conducted.		N/A
70	**Electrical Indicating Device**		**P**
70.1	Any indicating device (an ohmmeter, a battery-and-buzzer combination, or the like) may be used todetermine compliance with the continuity requirements in 68.1 and 69.1.		P
MARKINGS			
71	**General**		**P**
71.1	An appliance shall be plainly marked where readily visible with: a) The manufacturer's name, trade name, or trademark; b) The date or other dating period of manufacture not exceeding any three consecutive months; c) A distinctive catalog number or the equivalent; and d) The electrical rating.		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
71.2	With respect to 71.1, the date code marking may be die-stamp impressed, etched, or engraved on the power supply cord or attachment plug, provided that: a) The appliance is not provided with a detachable power supply cord; b) The recessed impression is no deeper than is needed for legibility; c) The marking process does not emboss or raise the surface of the blade; d) The specific dimensions of the blade, or configuration with respect to the plug face, are notaltered during the marking process; and e) The appliance shall not include instructions for removal, replacement or servicing of the supply cord or attachment plug, nor for conversion of the plug for different voltages (see 75.2 and 77.4).		P
71.3	An appliance shall be marked, where readily visible, to indicate that the appliance is intended forhousehold type usage, such as, "Household Use Only", "Household Type", and the like. Lettering shall notbe less than 3/32 inch (2.4 mm) high.		P
71.4	The electrical rating shall include the voltage, frequency, and input amperes or watts. An appliance,other than a battery-operated appliance, shall be provided with a rated voltage between 110 – 120 V, orshall be provided with a voltage range that includes 120 V. The ampere rating shall be included unless thefull-load power factor is 80 percent or more or, for a cord-connected appliance, unless the rating is 50 W or less. If the input of a multipurpose appliance when using functional attachment is less than the minimumvalue in Table 35.1, including the allowable deviation, the input rating shall include the word "maximum", or "max."		P
71.5	A required marking shall be permanent (see 72.1.5) and shall comply with the Standard for Markingand Labeling Systems, UL 969. The markings shall be located on a part that cannot be removed withoutimpairing the operation of the appliance unless the requirement specifically indicates otherwise.		P
71.6	A motorized, hand-supported part of a battery-type appliance shall be marked with the name or other identification of the manufacturer, and with the catalog number or equivalent indication of the appliance with which it is intended to be used, unless the part is integral with or is permanently electricallyconnected to the appliance.		N/A
71.7	If a manufacturer produces or assembles appliances at more than one factory, each finishedappliance shall have a distinctive marking – which may be in code – by means of which it may be identifiedas the product of a particular factory.		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
71.8	If the design of an appliance contemplates cleaning or servicing (such as the replacement of pilotlamps or fuses) by the user, and if such cleaning or servicing would involve the exposure of a normallyenclosed or protected live part to unintentional contact, the appliance shall be plainly marked to indicatethat such servicing or cleaning be done with the appliance disconnected from the supply circuit.		N/A
71.9	If an appliance will not start and attain normal running speed when connected to a circuit protectedby an ordinary (not a time-delay) fuse as described in 34.1.1, the appliance shall be plainly marked withthe words "If connected to a circuit protected by fuses, use time-delay fuses with this appliance" or with anequivalent wording.		N/A
71.10	If any point within a terminal box or wiring compartment of a permanently connected appliance inwhich the power-supply conductors are intended to be connected		N/A
71.11	An appliance shall not be marked with a double insulation symbol (a square within a square), the words "double insulation," or the equivalent unless it complies with the requirements for double-insulatedappliances.		N/A
72	**Cautionary**		**P**
72.1	General		P
72.2	Food mixer		N/A
72.3	Blending mixer		N/A
72.4	Cord-connected knife		N/A
72.5	Battery-operated knife		N/A
72.6	Combination cleaver-meat tenderizer		N/A
72.7	Vegetable shredder/slicer (cone type)		N/A
72.8	Vegetable shredder/slicer (disc type)		N/A
72.9	Food processor, food chopper, and baby-food chopper		N/A
72.10	Baby-food grinder		N/A
72.11	Juice extractor (centrifugal type)		P
72.12	Slicer		N/A
72.13	Ice crushing appliance and ice-crushing attachment		N/A
72.14	Appliance with a lamp		N/A
72.15	Appliance (outdoor-use type)		N/A
72.16	Multi-speed appliance		N/A
72.17	Appliance cart or stand		N/A
72.18	Wand-type mixer		N/A
72.19	Product with detachable battery/battery pack		N/A
72.20	Blender with capacitive touch screen and appliance with stand-by mode		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
72.21	Appliances with a jar grasping function		N/A
73	**Carton Marking**		**P**
73.1	A carton (individual marketing container) for an appliance shall be marked to indicate that the product is intended for household type usage, such as, "Household Use Only", "Household Type", and thelike. The marking shall: a) Be located on at least one outside surface; and b) Appear in lettering not less than the height specified in Table 73.1.		P
INSTRUCTION MANUAL			
74	**General**		**P**
74.1	An instruction manual or the equivalent shall be provided with the appliance. The manual shall specifically warn the user against each potential risk of fire, electric shock, and injury to persons; and statethe precautions that should be taken to guard against that condition. The safety instructions shall be apermanent part of the manual but separated in format from the other instructions, and shall appear beforethe operating instructions in the man		P
74.2	The height of lettering in the text and illustrations of the safety instructions shall be as follows: a) Upper case letters shall not be less than 5/64 inch (2.0 mm) high; b) Lower case letters shall not be less than 1/16 inch (1.6 mm) high; and c) The phrases "IMPORTANT SAFEGUARDS" and "SAVE THESE INSTRUCTIONS" shall be in letters not less than 3/16 inch (4.8 mm) hig		P
74.3	The instruction manual shall include the important safeguards in 74.5 and the appropriate text from Sections 75 and 76.		P
74.4	If the input when using any functional attachment is less than the minimum value in Table 35.1, including the allowable deviation, the instruction manual for a multipurpose appliance shall include information indicating that the maximum rating is based on the attachment that draws the greatest load(power or current) and that other recommended attachments may draw significantly less power or current.		P
74.5	Unless otherwise indicated, the text of the instructions shall be verbatim to, or in equally definitiveterminology as, Sections 75 and 76, except where specific conflict of the application to a product exists.The items may be numbered, and the phrases "Read all instructions" and "SAVE THESEINSTRUCTIONS" shall be first and last, respectively, in a list of items. Other important and additionalsafeguard items considered appropriate by the manufacturer may be inserted.		P
74.6	With reference to the requirements in 6.19.1.7 and 6.19.1.8, when the international symbols specified in Figure 6.1 and Figure 6.2 are used in place of the words ON and OFF, the significance ofthese symbols shall be explained in the instructions provided with the appliance.		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

75	All Appliances		P
75.1	The following shall be included in the instruction manual for all appliances: **IMPORTANT SAFEGUARDS** When using electrical appliances, basic safety precautions should always be followed including thefollowing: a) Read all instructions. b) Portable – To protect against risk of electrical shock do not put (state specific part or parts in question) in water or other liquid. c) This appliance is not intended for use by persons (including children) with reduced physical,sensory, or mental capabilities, or lack of experience and knowledge, unless they are closelysupervised and instructed concerning use of the appliance by a person responsible for their safety. d)		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
	d) Portable – Turn the appliance OFF, then unplug from the outlet when not in use, before assembling or disassembling parts and before cleaning. To unplug, grasp the plug and pull from the outlet. Never pull from the power cord. Permanently Installed – Make sure appliance is OFFwhen not in use, before putting on or taking off parts, and before cleaning. e) Avoid contacting moving parts. f) Portable – Do not operate any appliance with a damaged cord or plug or after the appliance malfunctions, or is dropped or damaged in any manner. Contact the manufacturer at their customerservice telephone number for information on examination, repair, or adjustment. (Domesticcustomer service telephone number must be stated in the instruction manual, literature containedwithin the product's packaging or permanently marked on the appliance).Exception No. 1: If the manufacturer elects, a customer service email address or a website with acontact form may be used instead of a domestic customer service telephone number. The email orwebsite address must be stated in the instruction manual, literature contained within the product'spackaging, or permanently marked on the appliance. Exception No. 2: If the manufacturer has authorized service facilities, instruction to return theappliance to the nearest authorized service facility may be used instead of instructing the user tocontact the manufacturer at the customer service phone number. g) The use of attachments not recommended or sold by the manufacturer may cause fire, electric shock or injury. h) Do not use outdoors (this may be omitted if it is specially designed for outdoor use). i) Portable – Do not let cord hang over edge of table or counter. j) Hand-held, other than cordless types – Do not let cord contact hot surface, including the stove. k) SAVE THESE INSTRUCTIONS		P
75.2	For appliances employing date code marking on power supply cord attachment plug blade in accordance with 71.2, the instructions specified in 75.1 (f) shall additionally state “This appliance hasimportant markings on the plug blade. The attachment plug or entire cordset (if plug is molded onto cord)is not suitable for replacement. If damaged, the appliance shall be replaced.” (See also 77.4.)		P
76	**Specific Appliances**		**P**
76.1	Food mixers		P
76.2	Blending mixers		N/A
76.3	Liquid mixers		N/A
76.4	Cord-connected knives		N/A
76.5	Battery-operated knives		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
76.6	Can openers		N/A
76.7	Knife sharpeners		N/A
76.8	Combination cleaver-meat tenderizers		N/A
76.9	Vegetable shredders (cone type)		N/A
76.10	Vegetable shredder/slicers (disc type)		N/A
76.11	Meat grinders		N/A
76.12	Baby-food chopper		N/A
76.13	Baby-food grinders		N/A
76.14	Ice cream freezers		N/A
76.15	Ice crushers		N/A
76.16	Juicers (reamer type)		N/A
76.17	Juicers or juice extractors (centrifugal type)		P
76.18	Slicers		N/A
76.19	Food processors		N/A
76.20	Food choppers		N/A
76.21	Coffee or grain mills		N/A
76.22	Outdoor-use appliances		N/A
76.23	Appliances intended for use with a cart or stand		N/A
76.24	Appliance carts or stands		N/A
76.25	Multi-speed appliances		N/A
76.26	Battery operated appliances (with separate chargers)		N/A
76.27	Battery operated appliances		N/A
76.28	Under-cabinet and wall-mounted products, and appliances provided with a hanging means		N/A
76.29	Pasta mixers-extruders		N/A
76.30	Pasta extruding attachments and masticating juicers		N/A
76.31	Wand-type mixers		N/A
76.32	Blender with capacitive touch screen and appliances with stand-by mode		N/A
77	**User Maintenance**		**P**
77.1	The instruction manual shall include instructions and caution statements for cleaning and usermaintenance(such as lubrication or nonlubrication) operations recommended by the manufacturer. If themanufacturer has authorized service representatives, the manual shall also warn a user that any otherservicing should be performed by an authorized service representative. The manual or other literature packaged with the product shall also indicate that the product is for household use.		P

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
77.2	For a battery operated appliance the instruction manual shall indicate that the appliance should onlybe used with the battery charger/base model packaged with the appliance or those battery charger/basemodels recommended by the manufacturer and evaluated for use with the product.		N/A
77.3	For a Battery Operated Appliance (provided with a separate charger) the instruction manual shall indicate the battery charger/base that is for use with the battery operated appliance, and conversely, thebattery operated appliance that is for use with the battery charger/base.		N/A
77.4	For appliances employing the date code marking on the power supply cord attachment plug blade in accordance with 71.2, the instructions shall not include removal, replacement or servicing of the supplycord or attachment plug, or conversion of the plug for different voltages. (See also 75.2.)		P
78	**Mounting Instructions**		**P**
78.1	Under-Cabinet and Wall-Mounted Products – The marking mentioned in 36.21.1 shall consist of "Do not install closer than ___ inches (or ___ millimeters) to a (vertical, horizontal, and the like) surface",or an equivalent wording. A diagram indicating the spacings is also acceptable.		N/A
78.2	Under-Cabinet and Wall-Mounted Products and Appliances Provided with a Hanging Means – Instruction for installation, including the recommended hardware and mounting surfaces, shall beprovided. 76.28.1(b) shall also be included at the beginning of the installation instructions.		P
79	**Appliance-Outdoor Use**		**N/A**
79.1	The following shall be included in the instruction manual: GROUNDING INSTRUCTIONS This appliance must be grounded while in use to protect the operator from electrical shock. The applianceis equipped with a 3-conductor cord and a 3-prong grounding-type plug to fit the proper grounding-typereceptacle. The appliance has a plug that looks like sketch A in Figure 79.1. An adaptor, sketch B, shouldbe used for connecting sketch-A plugs to two-prong receptacles. The grounding tab which extends from the adaptor must be connected to a permanent ground such as a properly grounded outlet box as shown in sketch C using a metal screw.		N/A
80	**Polarization**		**N/A**
80.1	Each appliance provided with a 2-wire polarized attachment plug shall be provided with the following instructions or the equivalent: "This appliance has a polarized plug (one blade is wider than theother). To reduce the risk of electric shock, this plug will fit in a polarized outlet only one way. If the plugdoes not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Do notmodify the plug in any way."		N/A

UL982			
Clause	Requirement – Test	Result – Remark	Verdict
SUPPLEMENT SA	**HOUSEHOLD AND HOSPITALITY-USE SINGLE-SERVING COLD BEVERAGE DISPENSERS**		**N/A**
SUPPLEMENT SB	**SAFETY OF SMART ENABLED HOUSEHOLD FOOD PREPARING MACHINES INTRODUCTION**		**P**

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

TABLE: Critical components information

Object/part no.	Manufacturer/ Trademark	Type/Model	Technical Data	Standard	Mark(s) of Conformity
Plug	ZHONGSHAN CITY BAICHUANG WIRE & CABLE CO LTD	BC-02	AC 125V, 10A	UL 817	UR E491385
Power cord	ZHONGSHAN CITY BAICHUANG WIRE & CABLE CO LTD	SPT-2	2*18AWG, 300V, T105, VW-1	UL 62	UR E491386
Rotaryswitch	DONGGUAN GANHAD INDUSTRIAL.,LTD	RV00X-308	125/250 Vac , 10(3) A, T125	UL 61058-1	UR E335523
(Alternative)	DongGuan GanHad Industrial Co Ltd	RV00X Series	125/250 Vac , 10(3) A, T125	UL 61058-1	UR E335712
(Alternative)	DongGuan GanHad Industrial Co Ltd	RV000 Series	125/250 Vac , 10(3) A, T125	UL 61058-1	UR E331211
(Alternative)	Guangzhou Taiheng Electric Appliance Co.,Ltd.	TH3	125/250 Vac , 10(3) A, T125	UL 61058-1	UR E330516
(Alternative)	Guangzhou Taiheng Electric Appliance Co., Ltd.	TX1	AC 250 V, 15 A, 1E4, T120	UL 61058-1	UR E334721
(Alternative)	Foshan Shunde Shunshen Electric Appliance., Ltd.	SK1	125/250V, 6/10/16A, T120/55	UL 61058-1	UR E339504
Interlock switch	Yueqing Tianma Electric Co.Ltd.	KA4A(S)	5(2)A 250V AC T125	UL 61058-1	UR E322976
(Alternative)	Guangzhou Bevan Electric Appliance Co.,Ltd	BWD-5	5A 125/250V AC T125	UL 61058-1	UR E332683
(Alternative)	Jufond Switches CO., LTD.	SW312	5A 125/250V AC T125	UL 61058-1	UR E352586
(Alternative)	Guangdong Yushun Electric Appliance Ltd.	KW-5	5A 125/250V AC T125	UL 61058-1	UR E335523

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Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	Foshan Shunde Shuda Electric Appliance Co.,Ltd	KW-5	5A 125/250V AC T125	UL 61058-1	UR E331513
(Alternative)	Zhejiang Yinhong ElectronicsCo., Ltd.	KW2-4	5A 125/250V AC T125	UL 61058-1	UR E355436
(Alternative)	Foshan Shunde Yushun ElectricAppliance Ltd	KW-5	5A 125/250V AC T125	UL 61058-1	UR E359427
(Alternative)	FoShan City HaoBao Electrical Co. Ltd.	BW-9700	5A 125/250V AC T125	UL 61058-1	UR E334116
(Alternative)	Nanjing Shao Di Electronic Co, Ltd.	KW series	5A 125/250V AC T125	UL 61058-1	UR E331598
PCB	Kingboard Laminates Holdings Ltd.	FR-1-KB-3151C / FR-1-KB-3152	V-0, 130 ℃	UL 796	UR E123995
(Alternative)	SHANDONG JINBAO ELECTRONICS CO LTD	ZD-90F	V-0, 130 ℃	UL 796	UR E141940
Current fuse	Dongguan Hongda Electronic Technology Co., Ltd.	31TC	5A, AC250V	UL 248	UR E145316
(Alternative)	Dongguan Hongda Electronic Technology Co., Ltd.	31TD	5A, AC250V	UL 248	UR E248779
(Alternative)	Dongguan Better Electronics Technology Co., Ltd.	932	5A, AC250V	UL 248	UR E300003
(Alternative)	XC Electronics (Shen Zhen) Corp. Ltd.	3T-Serie(s)	5A, AC250V	UL 248	UR E249609
(Alternative)	Xuyi Sanwei Electric Co. Ltd.	3.6*10	5A, AC250V	UL 248	UR E249301
(Alternative)	Shenzhen Lanson Electronics	3KT	5A, AC250V	UL 248	UR E349359

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	YuduYudu Baonaier Electronic Co., Ltd.	652	5A, AC250V	UL 248	UR E339412
(Alternative)	Dongguan Reomax Electronics Co., Ltd.	MTS	5A, AC250V	UL 248	UR E308417
Varistor	DongGuan QinHong(QNR) Electronic Technology Co LTD	10D431K	AC430V T85 or T125	UL 1449	UR E541298
(Alternative)	Hui Zhou Shi Hui Yang QuSong Long Electronics Co., Ltd.	VDR10D271K	AC 250 V, T85	UL 1449	UR E332741
(Alternative)	Guangxi New Future Information Industry Co., Ltd.	10D271K	AC 250 V, T85	UL 1449	UR E314753
(Alternative)	Cerglass MFG Inc	10D271K	AC 270 V, T85	UL 1449	UR E317616
(Alternative)	Dongguan City DafuElectronics Co. Ltd.	NDF10D271K	AC 270 V, T85	UL 1449	UR E502211
(Alternative)	DongGuan City Jiankun Electronics Technology Co. Ltd	10D271K	AC 250 V, T125	UL 1449	UR E377596
(Alternative)	Haohua Electronic Co.	HVR 10K271	AC 2500 V, T85 or T125	UL 1449	UR E504601
(Alternative)	Hongzhi Enterprises Ltd.	10D271K	AC 2500 V, T125	UL 1449	UR E507963
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	JEC10D271K	AC 270 V, T85	UL 1449	UR E334195
(Alternative)	DongGuan City Jiankun Electronics Technology Co. Ltd	10D271K	AC 2500 V, T125	UL 1449	UR E544136

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	Shantou High-New Technology Dev. Zone Songtian Enterprise Co., Ltd.	STE10D271K	270V, T85	UL 1449	UR E330837
X capacitor	DongGuan QinHong(QNR) Electronic Technology Co LTD	MPX	0.68μF, T110 275VAC X2	UL 60384-14	UR E218359
(Alternative)	GUANGDONG FENGMING ELECTRONIC TECH. CO., LTD.	MKP-X2	0.68μF, T105 275VAC X2	UL 60384-14	UR E487532
(Alternative)	Foshan City Xin Yuan Electronic Co., Ltd.	MKP-X2	0.68μF, T105 275VAC X2	UL 60384-14	UR E446515
(Alternative)	Dongguan City DafuElectronics Co. Ltd.	MPX	0.68μF, T105 275VAC X2	UL 60384-14	UR E465278
(Alternative)	Shantou High-New Technology DEV. Zone Songtian Enterprise.CO., Ltd.	MPX	0.68μF, T110 275VAC X2	UL 60384-14	UR E208107
(Alternative)	Tenta Electric Industrial Co. Ltd.	MKP/MEX	0.68μF, T100 275VAC X2	UL 60384-14	UR E222911
(Alternative)	Dain Electronics Co., Ltd	MPX	AC275V, 0.68μF, T110	UL 60384-14	UR E147776
(Alternative)	Dongguan Yi Deng Electronics Co., Ltd	MPX	AC275V, 0.68μF, T110	UL 60384-14	UR E501652
(Alternative)	JYH HSU (JEC) ELECTRONICS LTD	MPX	AC275V, 0.68μF, T110	UL 60384-14	UR E453612
PTC	SHENZHEN GUANRUIDA ELECTRONIC TECHNOLOGY CO LTD	GR135	AC265V 85℃	UL 1434	UR E339514
Internal wire	ZHONGSHAN CITY BOYU WIRE CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E314089

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	GUANG DONG XIN LONG ENTERPEISE CO	1015	18-22AWG, 105℃, 600V	UL 758	UR E207567
(Alternative)	SHEN ZHEN MYSUN INSULATLON MATERIALS CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E239689
(Alternative)	HONG SHUN WIRE & CABLE FLUOROPLASTL CSFACTORY	1015	18-22AWG, 105℃, 600V	UL 758	UR E238396
(Alternative)	ZHONG SHAN HE YI ELECTRICAL APPLIANCES FACTORY	1015	18-22AWG, 105℃, 600V	UL 758	UR E313976
(Alternative)	GUANGDONG FUYUANTONG CABLE TECHNOLOGY CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E241989
(Alternative)	ZHONGSHAN CITY BOYU WIRE CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E314089
(Alternative)	GUANGDONG DONGJU WIRE & CABLE CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E189674
(Alternative)	WUXI SWELL ELECTRIC CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E484530
(Alternative)	WUJIANG SHENJIANG WIRE & CABLE CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E225667
(Alternative)	QIFURUI ELECTRONICS CO	1015	18-22AWG, 105℃, 600V	UL 758	UR E211048
(Alternative)	ZHONGSHAN YUTAILONG ELECTRONIC CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E511719

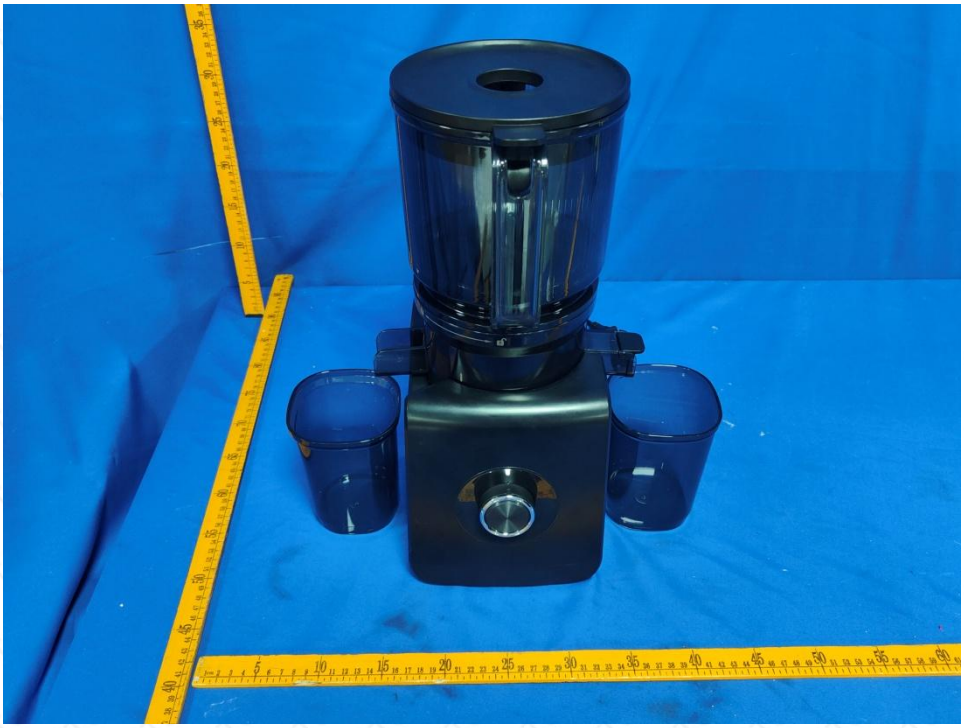
UL982			
Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	GUANGDONG YONGROI CABLE TECHNOLOGY CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E204893
(Alternative)	ZHONGSHAN YUXUAN ELECTRONICS CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E316286
(Alternative)	XIN SHENG HUA WIRE CO LTD	1015	18-22AWG, 105℃, 600V	UL 758	UR E337618
(Alternative)	Xin Sheng Terminal Mfg Ltd	1015	18-22AWG, 105℃, 600V	UL 758	UR E238303
(Alternative)	XIANGSHAN FAHUA ELECTRIC WIRE & CABLE CO LED	3122	200℃, 300 V, 18-22 AWG	UL 758	UR E222362
(Alternative)	QIFURUI ELECTRONICS CO	3122	200℃, 300 V, 18-22 AWG	UL 758	UR E211048
(Alternative)	ZHONGSHAN CITY DINGXIANG ELECTRICAL CO LTD	3122	200℃, 300 V, 18-22 AWG	UL 758	UR E354487
(Alternative)	HONG SHUN WIRE & CABLE FLUOROPLASTICS FACTORY	3122	200℃, 300 V, 18-22 AWG	UL 758	UR E238396
(Alternative)	WUXI HENGCHANG WIRE & CABLE CO LTD	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E220550
(Alternative)	Zhongshan City Boyu Wire Co Ltd	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E314089
(Alternative)	SHENZHEN MYSUN INSULATION MATERIALS CO LTD	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E239689
(Alternative)	GUANGZHOU FENGTAI MEIHUA CABLE CO LTD	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E204798

UL982			
Clause	Requirement – Test	Result – Remark	Verdict

(Alternative)	HONG SHUN WIRE & CABLE FLUOROPLASTICS FACTORY	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E238396
(Alternative)	GUANGDONG YONGROI CABLE TECHNOLOGY CO LTD	3135	200℃, 600 V, 18-22 AWG	UL 758	UR E204893
Motor	Zhongshan Raymi Intelligent Technology Co., Ltd	3435	120V DC, 60Hz, Class 180	UL 1004	UR
Motor thermal protector	Foshan Changhong Tongli Electric Appliance Co.,Ltd	KW-C1	95℃ / 8A	UL 60730-2-9	UR E309547
(Alternative)	NANJING SHAODI ELECTRONIC CO.,LTD.	KW-C2	95℃ / 5A	UL 60730-2-9	UR E524414
Enclosure / Knob / Handle	LG CHEM LTD	HI121H	ABS, HB	UL 94	UR E67171
(Alternative)	Hanwha TotalEnergies Petrochemical Co Ltd	PP	PP HJ730	UL 94	UR E140331

Photograph Document



Overall view (Model No. JS2401)



Overall view (Model No. JS2401)

Photograph Document



Overall view (Model No. JS2401)



Overall view (Model No. JS2401)

Photograph Document

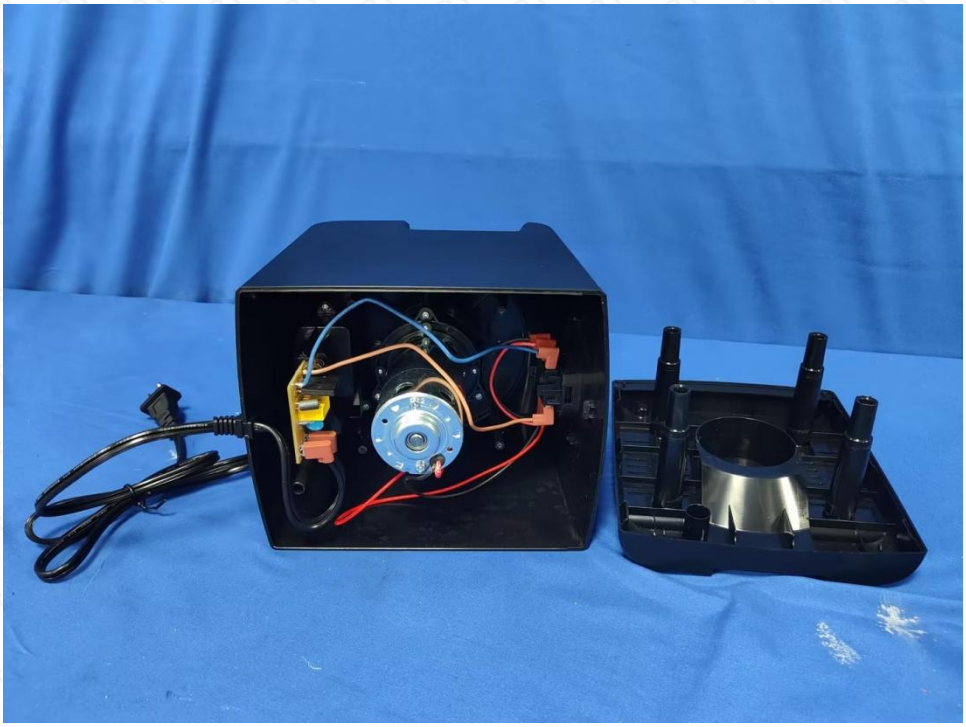


Overall view (Model No. JS2401)

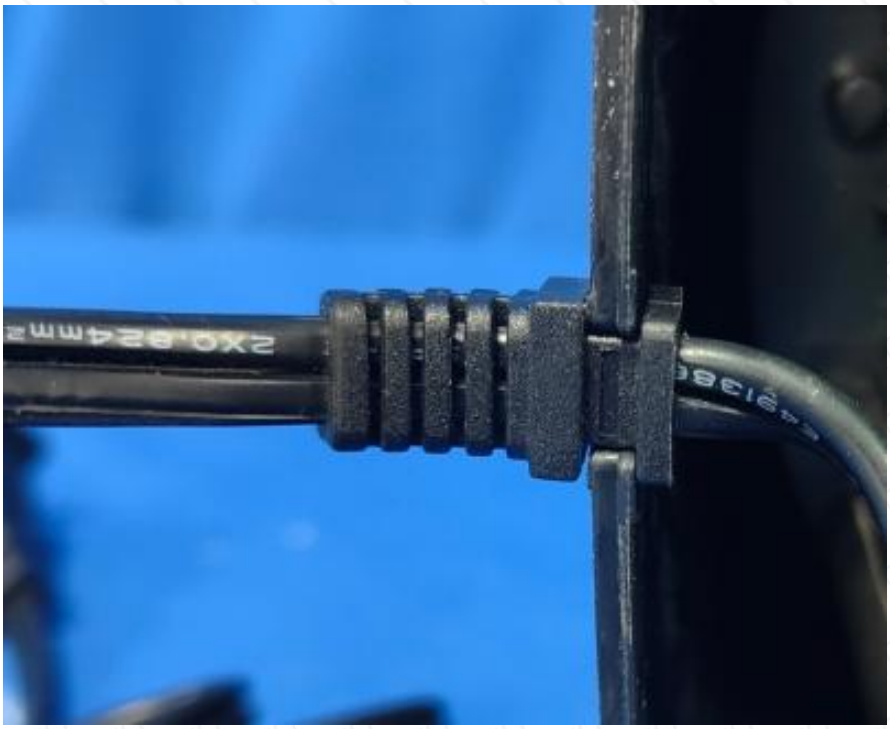


Control panel view (Model No. JS2401)

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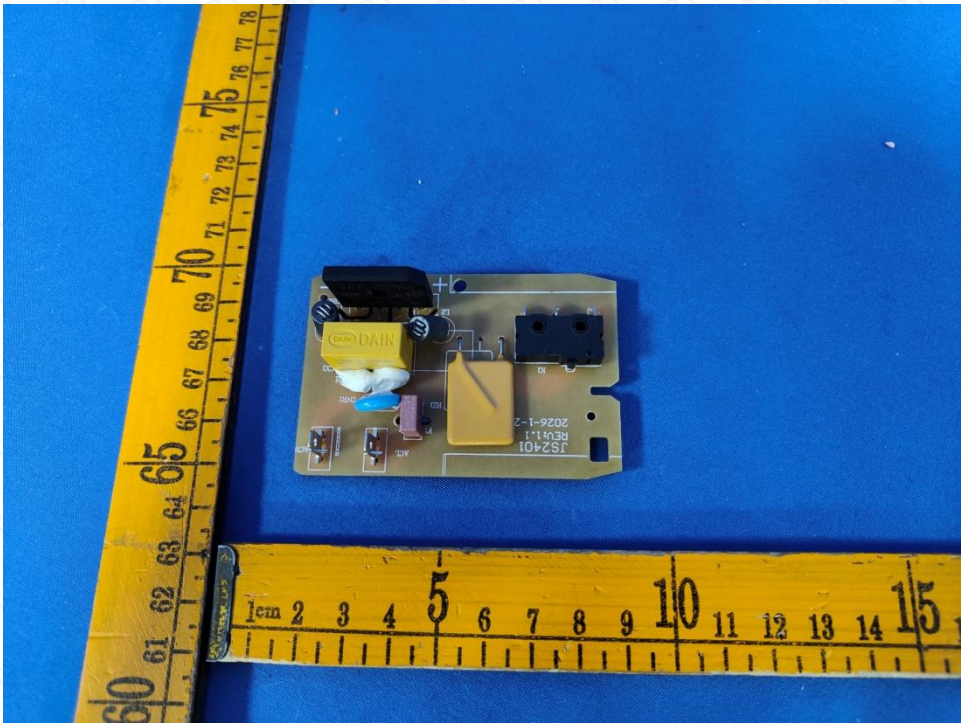


Internal view (Model No. JS2401)

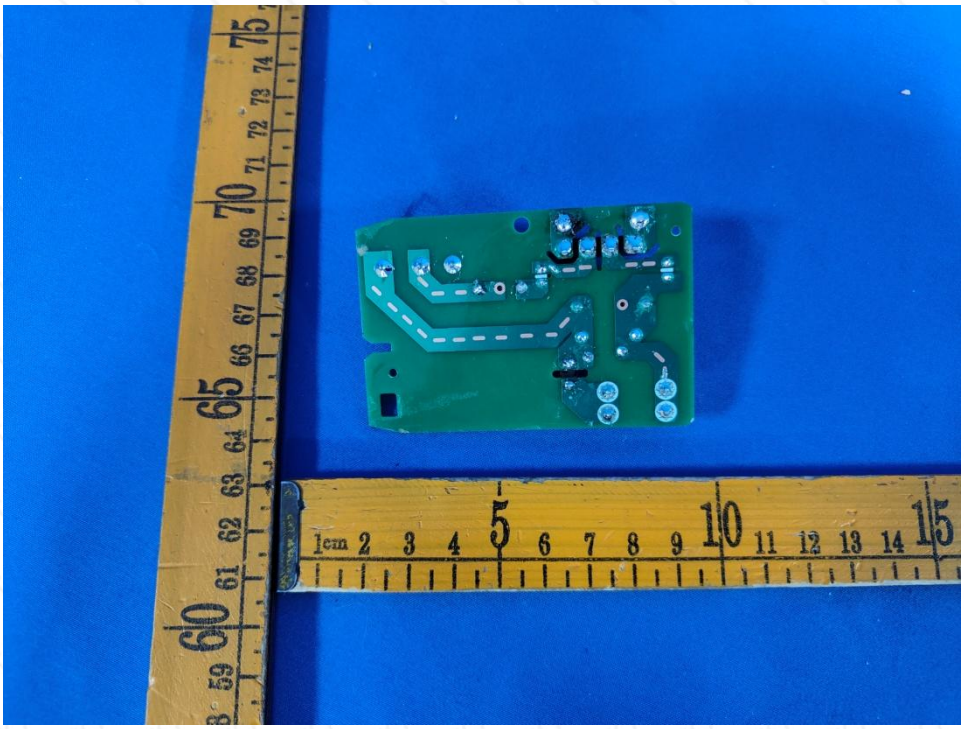


Cord anchorage view (Model No. JS2401)

Photograph Document

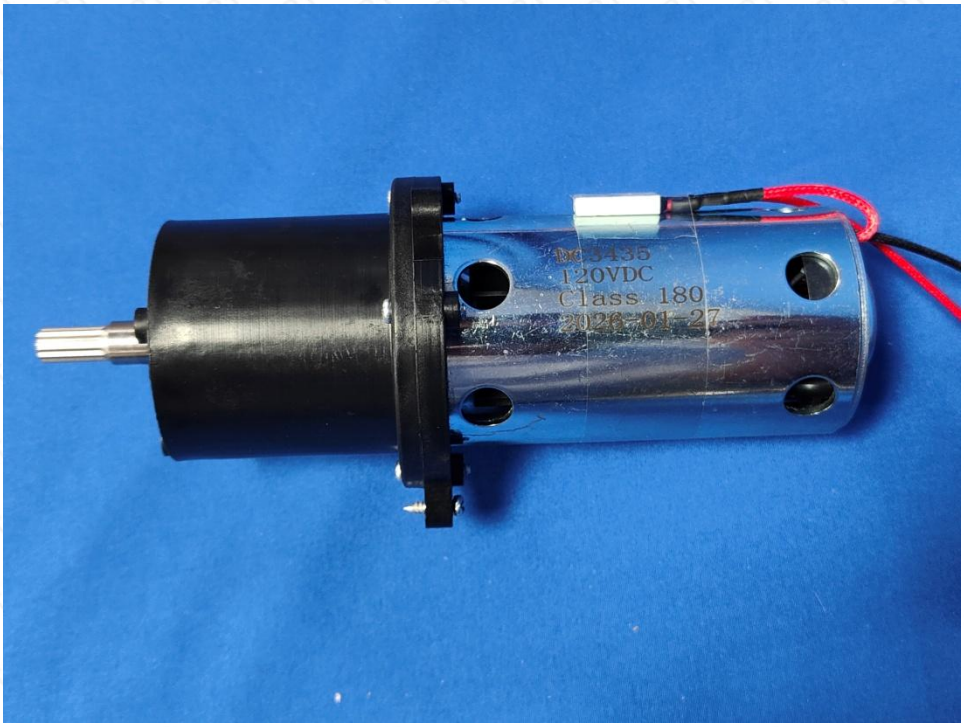


PCB view (Model No. JS2401)



PCB view (Model No. JS2401)

Photograph Document



Motor view (Model No. JS2401)

******END OF TEST REPORT******