

TEST REPORT UL 1082 STANDARD FOR SAFETY - Household Electric Coffee Makers and Brewing-Type Appliances	
Report Number :	220102065SZN-001
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Approved by (name + signature)..... :	Frank Li Assistant Manager
Date of issue..... :	2022-01-17
Total number of pages..... :	70
Applicant's name	GUANGZHOU MEIYI ELECTRIC APPLIANCE CO., LTD.
Address..... :	No.7,Lane 10,Hanxi Road, Zhongcun Street, Guangzhou, Guangdong, China
Testing Laboratory:	Intertek Testing Services Shenzhen Ltd. Longhua Branch
Testing location/ address	1F/2F, Building B, QiaoAn Scientific Technology Park, Shangkeng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China
Test specification:	
Standard..... :	UL 1082:2011
Test procedure	NRTL Safety report
Non-standard test method	N/A
Test Item description	Electrothermal Cup
Trade Mark	N/A
Manufacturer.....	Foshan Shunde Yowei Electric Appliance Co., Ltd. No.7.3rd Floor, No.6, Huajmei Road, Bianjiao Community, Ronggui Street Shunde District, Foshan City, Guangdong Province (Domicile Declaration)
Model/Type reference	HP-300E
Ratings	110-120V~, 50/60Hz, 300W
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List of Attachments (including a total number of pages in each attachment): N/A	
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 1082 When determining the test conclusion, the Measurement Uncertainty of test has been considered.	Testing location: Intertek Testing Services Shenzhen Ltd. Longhua Branch 1F/2F, Building B, QiaoAn Scientific Technology Park, Shangkeng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China
Summary of compliance with National Differences: List of countries addressed: /	
Copy of marking plate: The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.	
Electrothermal Cup Model: HP-300E Input: 110-120V~, 50/60Hz, 300W  Foshan Shunde Yowei Electric Appliance Co., Ltd. Made In China	
Remark: The above markings are the minimum requirements required by the safety standard. For the final production samples, the additional markings which do not give rise to misunderstanding may be added. - Minimum height of CE mark is 5mm, minimum height of WEEE mark is 7mm.	

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	Jan. 04, 2022
Date (s) of performance of tests.....	Jan. 04, 2022 to Jan. 17, 2022
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.	
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies)	Foshan Shunde Yowei Electric Appliance Co., Ltd. No.7.3rd Floor, No.6, Huajmei Road,Bianjiao Community,Ronggui Street Shunde District,Foshan City,Guangdong Province (Domicile Declaration)
GENERAL PRODUCT INFORMATION:	
Product Description 1. Input:110-120V~, 50/60Hz, 300W	
Model Differences: N/A	
Additional application considerations – (Considerations used to test a component or sub-assembly) –	

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
	CONSTRUCTION		P
6	General		P
6.1	Only materials that are acceptable for the particular use shall be used in an appliance. An appliance shall be made and finished with the degree of uniformity and grade of workmanship practicable in a well-equipped factory.		P
6.2	A component of a product covered by this Standard shall: a) Comply with the requirements for that component as indicated in the individual section covering that component; b) Be used in accordance with its rating established for the intended conditions of use; c) Be used within its established use limitations or conditions of acceptability; d) Additionally comply with the applicable requirements of this end product Standard; and e) Not contain mercury, unless used within a fluorescent, high intensity discharge, or neon lamp bulb.	No such equipment	N/A
6.3	A component that is also intended to perform other functions, such as over current protection, ground-fault circuit-interruption, surge suppression, any other similar functions, or any combination thereof, shall comply additionally with the requirements of the applicable UL standard that cover devices that provide those functions.	Portable equipment	N/A
6.4	A component not anticipated by the requirements of this end product Standard, not specifically covered by the component standards noted in this Standard, and that involves a risk of fire, electric shock, or injury to persons, shall be additionally investigated in accordance with the applicable UL standard, and shall comply with 6.2 (b) – (e).		P
6.5	With regard to a component being additionally investigated, reference to construction and performance requirements in another UL end product standard is suitable where that standard anticipates normal and abnormal use conditions consistent with the application of this end product Standard.		P
7	Frame and Enclosure		P
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 degree of resistance inherent in the appliance shall preclude total or partial collapse with the attendant reduction of spacings, loosening or displacement of parts, and other serious defects that alone or in combination constitute an increase in the risk of fire, electric shock, or injury to persons.	Plastic enclosure used, V-1	P

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Clause	Requirement – Test	Result – Remark	Verdict
7.2	An appliance shall be provided with an enclosure of material acceptable for the particular application. The enclosure shall house all electrical parts, except a supply cord, that may present a risk of fire, electric shock, or injury to persons under any conditions of use.	considered	P
7.3	Among the factors that shall be considered 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 under conditions of normal or abnormal use.		N/A
7.4	Cast- and sheet-metal portions of the enclosure shall be no thinner than indicated in Table 7.2 unless the enclosure is found to be acceptable when judged under considerations such as mentioned in 7.3.	Plastic enclosure used	N/A
7.5	Electrical parts of an appliance shall be located or enclosed so that protection against unintentional contact with uninsulated live parts is provided.	No such opening or hole on equipment	N/A
7.6	For an appliance as mentioned in 47.2.6.4, the enclosure mentioned in 7.5 shall be provided with drainholes located below the lowest live part.		P
7.7	The enclosure shall be constructed so that molten metal, burning insulation, flaming particles, or the like does not fall on the supporting surface.	V-1 plastic enclosure used.	P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
7.8	The requirement in 7.7 necessitates that an enclosure bottom with an opening be provided with a barrier above or below the opening if the opening is: 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 molten material falls to the surface that supports the appliance when the motor is energized under each 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. 3) The motor is provided with a thermal motor protector (a protective device that is sensitive to both temperature and current) that prevents the temperature of the motorwindings from becoming more than 125° C (257° F) under the maximum load under which the motor runs without causing the protector to cycle, and from becoming more than 150° C (302° F) with the rotor of the motor locked; or 4) The motor complies with the requirements for impedance-protected motors. b) Under wiring, unless the wiring complies with the VW-1 (FR-1) flame test or the Vertical Flame Test described in the Reference Standard for Electrical Wires, Cables, and Flexible Cords, UL 1581. c) Under an unenclosed switch, transformer, relay solenoid, and the like, unless it can be shown that malfunction of the component is not likely to result in a fire. d) Under field- and factory-made splices and overload and overcurrent protective devices.		N
7.9	The barrier mentioned in 7.8 shall be: a) Of metal, ceramic, or a material that would be acceptable as an enclosure in accordance with 7.3; b) Horizontal; and c) Located as indicated in Figure 7.1, and shall not have an area less than that described in Figure 7.1.		P

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Clause	Requirement – Test	Result – Remark	Verdict
7.10	An opening in the enclosure that has a minor dimension of less than 1 inch (25.4 mm) is acceptable if a probe as illustrated in Figure 7.2, inserted through the opening, cannot be made to touch any uninsulated live part of film-coated wire that involves the risk of electric shock. The probe shall be applied in all possible articulated positions before, during, and after insertion.		N/A
7.11	An opening that has a minor dimension of 1 inch (25.4 mm) or more, in an enclosure, as illustrated in Figure 7.3, is acceptable if, within the enclosure, there is no uninsulated live part or film-coated wire less than: a) R distance from the inside edge of the perimeter of the opening; and b) X distance from the plane of the opening.		P
7.12	If a marking draws attention of the user to a hole of any size in the enclosure for the adjustment of a thermostat or for a similar activity, it shall not be possible to damage insulation or contact uninsulated live parts through the hole with a 1/16-inch-diameter rod (1.6 mm).	Rigid plastic enclosure against electric shock, enclosure material complying with UL 746C, as well enclosure temperature tested complied	P
7.13	During the examination of an appliance in connection with the requirements in 8.2 – 8.4, any part of the enclosure is to be disregarded – that is, it will not be assumed that the part in question affords protection against electric shock or injury to persons – if it either: a) Must be opened or removed, with or without the use of tools, to perform manufacturer's recommended user servicing, maintenance, operating adjustments, attachment of accessories, or other instructions; or b) Can be opened or removed without the use of tools.		N/A
8	Assembly		N/A
8.1	A switch, lampholder, or plug-type connector provided as a part of an appliance shall be mounted securely and prevented from turning by means other than friction between surfaces.		N/A
8.2	A lock washer properly applied is acceptable as a means to prevent turning of a stem-mounted switch.		N/A
8.3	Uninsulated live parts shall be secured to the base or surface so that they are prevented from turning or shifting in position as the result of stresses if such motion may result in a reduction of spacings below the minimum required in 24.1.1 and 24.1.2.		N/A
8.4	Friction between surfaces is not acceptable as a means to prevent shifting or turning of live parts, but a lock washer properly applied is acceptable.		N/A
9	Handles		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
9.1	Unless determined to be acceptable for the purpose, fastening of the vessel handle assembly of an appliance shall not rely on cement or equivalent materials alone. Mechanical means, such as pressure clamping, bosses and lances, and the like, shall be provided.		P
9.2	A handle assembly that is utilized to lift and tilt a vessel, which is either integral to the appliance or a separate unit, to dispense a heated liquid shall comply with the requirements in 9.3 – 9.7, and Normal Temperature Tests, Section 33, and Handle Securement Tests, Section 41. The handle assembly of an integrally heated vessel shall also comply with 47.2.3.6.		N/A
9.3	For an appliance or separate vessel that is provided with a webbed handle – that is a solid handle that cannot be grasped by wrapping the fingers around it – the web shall be a minimum of 1 inch in width and 3.25 inches in length. See Figure 9.1.		P
9.4	No portion of a nonmetallic handle whose failure could result in the loss of handle strength or integrity is to be subjected to a temperature in excess of the mechanical temperature index (without impact) of the material when tested as indicated in Normal Temperature Tests, Section 33.		P
9.5	On a vessel where handle securement is accomplished by a band around the body of the vessel, the diameter of the vessel above and below the band securement area shall be larger than the diameter at the area of securement. A handle shall be fastened so that a positive stop, interference screw, rivet, or other arrangement is provided so that with minor loosening, disengagement of the handle from the vessel does not result.		N/A
9.6	Iron and steel parts of a handle assembly shall be provided with corrosion protection in accordance with 10.1 or shall be constructed of stainless steel or other noncorrosive metal acceptable for the application.		P
9.7	A handle secured by a single fastening means shall be prevented from rotating by means other than friction. A lockwasher alone shall not be sufficient		P
10	Corrosion Protection		P
10.1	Iron and steel parts shall be protected against corrosion by enameling, galvanizing, plating, or other equivalent means, if the deterioration of such unprotected parts increases the risk of fire or electric shock.		P
10.2	The aging characteristics of plating or other finish used in an appliance shall be such that deterioration of the finish does not result in unacceptable performance of the appliance.		P

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Clause	Requirement – Test	Result – Remark	Verdict
11	Supply Connections		P
11.1	General	No risk	P
11.1.1	An appliance shall be provided with a length of attached flexible cord and an attachment plug for connection to the supply circuit, or shall have male pin terminals that accommodate a detachable power-supply cord. The length of flexible cord shall be within the limits indicated in Table 11.1.		P
11.1.2	The rating (both current and voltage) of the cord and the fittings of a nondetachable and a detachable power supply cord, shall not be less than that of the appliance.		P
11.1.3	A 3- to 2-wire grounding-type adapter shall not be provided with an appliance.		N/A
11.1.4	An attached flexible cord and the cord in a detachable power-supply cord that is provided with an appliance shall be of a Type HPD, HPN, HSJ, HSJO, SP-2, SPE-2, SPT-2, SV, SVE, SVO, SVT, SVTO, SJ, SJE, SJO, SJT, or SJTO cord, or shall have such properties that are at least equally as serviceable for the particular application.		N/A
11.1.5	Supplementary insulation, if employed, shall not extend more than 1/2 inch (13 mm) outside the appliance (unless provided with additional mechanical protection), shall be prevented from fraying or unraveling, and shall not affect adversely the means for providing strain relief.		N/A
11.1.6	The attachment plug of the power supply cord of an appliance provided with a 15- or 20- ampere general use receptacle shall be of the 3-wire grounding type. The attachment plug of the power supply cord of an appliance provided with a manually operated, line-connected, single pole switch for appliance on-off operation, or an Edison base lampholder, shall be of the polarized or grounding type.		N/A
11.1.7	If a 3-wire grounding-type attachment plug or a 2-wire polarized attachment plug is provided, the attachment plug connection shall comply with Figure 11.1 and the polarity identification of the flexible cord shall comply with Table 11.3.		N/A
11.1.8	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
11.1.9	Attachment plugs, receptacles, appliance couplers, appliance inlets (motor attachment plugs), and appliance (flatiron) plugs, shall comply with the Standard for Attachment Plugs and Receptacles, UL 498.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
11.1.10	Female devices (such as receptacles, 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 specific type of load, when evaluated with its mating plug or connector. For example, an appliance coupler that can be used to interrupt the current of a motor load shall have a suitable horsepower rating when tested with its mating plug.		N/A
11.2	Strain relief		N/A
11.2.1	Strain relief shall be provided to reduce the risk of a mechanical stress on an attached flexible supply cord from being transmitted to terminals, splices, or interior wiring.		N/A
11.2.1.1	Insulating bushings serving as strain relief shall comply with the Standard for Insulating Bushings, UL 635. Tests specified in this Standard (e.g. Strain Relief Test) may still need to be performed to confirm the combination of the insulating bushing and the supporting part are suitable.		N/A
11.2.2	If wood, pressed board, or other fibrous material is used to secure the strain relief assembly, the fibrous material shall be secured to the appliance by a pin, setscrew, or other positive means.		N/A
11.2.3	Means shall be provided to reduce the likelihood of an attached supply cord or lead from being pushed into the enclosure of an appliance through the cord entry hole. To determine compliance with this requirement, the supply cord or lead shall be tested in accordance with Push-Back Relief Test, Section 38.		N/A
11.2.4	If a knot serves as strain relief in an attached flexible cord, any surface with which the knot may come in contact shall be free from projections, sharp edges, burrs, fins, and the like, which may cause abrasion of the insulation on the conductors.		N/A
11.3	Pin terminals		N/A
11.3.1	If an appliance is provided with pin terminals, the design of the appliance shall be such that no live parts are exposed to unintentional contact both during and after the placement of the plug on the pins, in the intended manner.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
11.3.2	A pin guard is required, such that: a) A straight edge placed in any position, across and in contact with edges of the plug opening without the plug in place, cannot be made to contact any current-carrying pin. b) With the plug aligned with the pins and the face of the plug in a plane located perpendicular to the end or ends of the farthest projecting current-carrying pin, the probe illustrated in Figure 7.2 shall not touch any current-carrying pin while the probe is inserted through any opening with the appliance in any position.		N/A
11.3.3	The plug used in 11.3.2(b) shall be the plug intended for use with the appliance.		N/A
11.3.4	If an appliance employs three or more pin terminals designed for use with a plug that covers all the pins, the terminals shall be spaced so that they do not accommodate a flatiron or appliance plug or cord-connector body. The plug which these pins accommodate shall be acceptable for the particular application.		N/A
11.3.5	An appliance provided with three pin terminals, one of which is for grounding, shall not be provided with or capable of being used with a two-conductor detachable power-supply cord.		N/A
11.3.6	An appliance provided with two pin terminals shall not be provided with or capable of being used with a three-conductor detachable power-supply cord employing a grounding conductor.		N/A
11.3.7	A pin terminal shall be securely and rigidly mounted and shall be prevented from shifting in position by means other than friction between surfaces.		N/A
11.3.8	The requirement in 11.3.7 is intended primarily to provide for the maintenance of spacings as given in 24.1.1 and to provide for the maintenance of proper spacings between pin terminals. Under this requirement, consideration is also to be given to the means for locking terminals in position to maintain tightness.		N/A
11.3.9	The dimensions of pins and their center-to-center spacings (including the corresponding spacings of the female contacts of general-use plugs which these arrangements of pins will accommodate) are as indicated in Table 11.2.		N/A
11.4	Bushings		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
11.4.1	At a point where a flexible cord passes through an opening in a wall, barrier, or enclosing case, there shall be a bushing or the equivalent which shall be substantial, reliably secured in place, and shall have a smooth, well-rounded surface against which the cord may bear. If Type SP-2, SPT-2, or other cord lighter than Type HSJ is employed, if the wall or barrier is of metal, and if the construction is such that the cord may be subjected to strain or motion, an insulating bushing shall be provided. The heat- and moisture-resistant properties of the bushing material shall be such that the bushing is acceptable for the particular application.		N/A
11.4.2	If the cord hole is in wood, porcelain, phenolic composition, or other acceptable nonconducting material, a smooth, well-rounded surface is considered to be equivalent to a bushing.		N/A
11.4.3	Ceramic materials and some molded compositions are acceptable generally for insulating bushings, but a separate bushing of wood, hot-molded shellac and tar composition, or rubber material (other than in a motor) is not acceptable. Vulcanized fiber may be employed if the bushing is not less than 3/64 inch (1.2 mm) thick and if it is so formed and secured in place that it will not be affected adversely by conditions of ordinary moisture.		N/A
11.4.4	An insulated metal grommet may be accepted in place of an insulating bushing if the insulating material used is not less than 1/32 inch thick (0.8 mm), and completely fills the space between the grommet and the metal in which it is mounted.		N/A
12	Current-Carrying Parts		P
12.1	Each current-carrying part shall be made of metal that is acceptable for the particular application.		P
12.2	Current-carrying parts made of corrosion-resistant alloys (for example, stainless steel) are acceptable regardless of temperature. Current-carrying parts made of ordinary iron and steel are not acceptable unless they are rendered corrosion-resistant by an appropriate coating and, even then, they are acceptable only as follows: a) Pin terminals. b) Parts whose normal operating temperature is higher than 100° C (212° F). c) Parts of a component that the requirements referred to in 6.2 – 6.5, indicate as being acceptable with coated iron and steel parts.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
12.3	If a reservoir is part of an appliance, all live parts shall be so located or protected that they will not be subject to dripping if the reservoir develops leaks, unless: a) The reservoir is adequately resistant to corrosion from the liquid intended for use in it; and b) The reservoir does not develop cracks as a result of aging.		N/A
13	Internal Wiring		P
13.1	General	46.5°C	P
13.1.1	The internal wiring of an appliance shall consist of wire of a size and type or types which are acceptable for the particular application, when considered with respect to the temperature and voltage to which the wiring is likely to be subjected.		P
13.1.2	There is no temperature limit applicable to glass fiber, beads of inorganic material, or the equivalent employed as conductor insulation.		N/A
13.1.4	Internal wiring composed of insulated conductors shall comply with the Standard for Appliance Wiring Material, UL 758.		N/A
13.2	Protection of wiring		N/A
13.2.1	If the wiring of an appliance is located so that it may be in proximity to combustible material or may be subjected to mechanical injury, it shall be protected.		N/A
13.2.2	Wires within an enclosure or the like shall be disposed or protected so that no damage to conductor insulation results from contact with any rough, sharp, or moving part.		N/A
13.2.3	A hole by means of which insulated wires pass through a sheet-metal wall within the over-all enclosure of an appliance shall be provided with a smooth, well-rounded bushing or shall have smooth, well-rounded surfaces upon which the wires may bear, to prevent abrasion of the insulation.		N/A
13.2.4	Insulated wires may be bunched and passed through a single opening in a metal wall within the enclosure of an appliance.		N/A
13.2.5	Wire positioning devices shall comply with the requirements in Electrical Insulation, Section 16. A device that complies with the Standard for Positioning Devices, UL 1565, is considered to comply with this requirement.		N/A
13.3	Splices		N/A
13.3.1	All splices and connections shall be mechanically secure and shall provide adequate and reliable electrical contact. A soldered connection shall be made mechanically secure before being soldered if breaking or loosening of the connection results in any risk of fire or electric shock.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
13.3.2	A splice shall be provided with insulation equivalent to that of the wires involved if permanence of spacing between the splice and other metal parts of the appliance is not reliably maintained.		N/A
13.3.3	Insulation consisting of two layers of friction tape, two layers of thermoplastic tape, or of one layer of friction tape on top of one layer of rubber tape, is acceptable on a splice. In determining whether splice insulation consisting of coated fabric, thermoplastic, or other type of tubing is acceptable, consideration is to be given to such factors as its dielectric properties, heat resistant and moisture-resistant characteristics. Thermoplastic tape wrapped over a sharp edge is not acceptable.		N/A
13.3.4	Where stranded internal wiring is connected to a wire-binding screw, loose strands of wire shall be positively prevented from contacting any other uninsulated live part that is not always of the same polarity as the wire, and from contacting any dead metal part. This may be accomplished by the use of pressure terminal connectors, soldering lugs, crimped eyelets, soldering all strands of the wire together, or other equivalent means.		N/A
13.3.5	Quick-connect type wire connectors shall be suitable for the wire size, type (solid or stranded), conductor material (copper or aluminum) and the number of conductors terminated. If insulated, they shall be rated for the voltage and temperature of the intended use. They shall be applied per the installation instructions of the wire connector manufacturer.		N/A
13.3.6	Quick-connect terminals, both connectors and tabs, for use with one or two 22 – 10 AWG copper conductors, having nominal widths of 2.8, 3.2, 4.8, 5.2, and 6.3 mm (0.110, 0.125, 0.187, 0.205, and 0.250 in), intended for internal wiring connections in appliances, or for the field termination of conductors to the appliance, shall comply with the Standard for Electrical Quick-Connect Terminals, UL 310.		N/A
13.3.7	Wire connectors shall comply with the Standard for Wire Connectors, UL 486A-486B.		N/A
13.3.8	Splicing wire connectors shall comply with the Standard for Splicing Wire Connectors, UL 486C		N/A
13.3.9	Single and multi-pole connectors for use in data, signal, control and power applications within and between electrical equipment, and that are intended for factory assembly to copper or copper alloy conductors, or for factory assembly to printed-wiring boards, shall comply with the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, UL 1977.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
13.3.10	Multi-pole splicing wire connectors that are intended to facilitate the connection of hard-wired utilization equipment to the branch-circuit conductors of buildings shall comply with the Standard for Multi-Pole Splicing Wire Connectors, UL 2459.		N/A
13.3.11	Equipment wiring terminals for use with all alloys of copper, aluminum, or copper-clad aluminum conductors, shall comply with the Standard for Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors, UL 486E.		N/A
13.3.12	Terminal blocks shall comply with the Standard for Terminal Blocks, UL 1059, and, if applicable, be suitably rated for field wiring.		N/A
14	Secondary Circuits		P
14.1	General		P
14.1.1	Each secondary circuit shall be judged under the requirements for line-voltage circuits.		P
14.1.2	Secondary circuits may be connected to the frame of the appliance. Except as noted in 14.1.3 and 14.2.6, the connection shall be made at only one point in the appliance or system.		N/A
14.1.3	A grounding bus of adequate ampacity that is used as the return for a secondary circuit other than as covered by 14.2.6 may be connected to the frame at more than one point.		N/A
14.1.4	If any secondary circuit having an open-circuit potential of more than 42.4 volts peak is connected to the frame of an appliance, all exposed dead metal parts that may become energized, and all dead metal parts within the enclosure that can be contacted during servicing and that may become energized, shall be reliably connected together.		N/A
14.2	Limited-energy secondary circuits		N/A
14.2.1	A limited-energy secondary circuit shall be supplied from: a) A Class 2 transformer; or b) An isolating transformer having an open-circuit sinusoidal potential of 30 volts, rms (42.4 volts, peak) or less, and that includes at least one of the following means, that limits the power available to the levels specified for a Class 2 transformer. 1) A reliable fixed impedance; 2) A noninterchangeable fuse – the largest fuse that fits in the fuseholder provided; 3) A nonadjustable manually reset circuit protector; or 4) A reliable regulating network.		N/A
14.2.2	The impedance, the fuse, the protector, or the regulating network and the wiring between them and the isolating transformer described in 14.2.1 shall be judged as if they were part of a line-voltage circuit.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
14.2.3	A fuse or a circuit protector used to limit the power as specified in 14.2.1 shall be rated or set at not more than 3.2 amperes for a circuit operating between 15 and 30 volts and at not more than 5.0 amperes for a 0 – 15 volt circuit.		N/A
14.2.4	An impedance or a regulating network that is used to limit the current shall be of such value or design as to limit the current under short-circuit conditions to not more than 8.0 amperes measured after 1 minute.		N/A
14.2.5	The performance of a regulating network used to limit the power in accordance with 14.2.1 shall not be adversely affected by either a short circuit or an open circuit between any two terminals of any single rectifier, capacitor, transistor, or similar component in the network.		N/A
14.2.6	The frame may be used as the return for a limited-energy secondary circuit.		N/A
14.2.7	The wiring in a limited-energy secondary circuit shall be routed away from the wiring of other circuits or shall be provided with insulation that is for use at the highest of the voltages in the other circuits.		N/A
14.2.8	The wiring in a limited-energy secondary circuit shall be routed away from the uninsulated live components of other circuits.		N/A
14.2.9	Wires and cables that are part of a limited-energy secondary circuit shall be provided with strain relief in accordance with 37.1 and 37.2 if stress on the wire or cable could cause the internal wiring of the circuits to contact uninsulated live parts of other circuits.		N/A
15	Heating Elements		N/A
15.1	A heating element shall be supported in a sturdy and reliable manner. It shall be protected against mechanical damage and contact with outside objects.		N/A
15.2	In determining that a heating element is adequately supported, consideration shall be given to sagging, loosening, and other adverse conditions of the element resulting from continuous heating. For an open-wire (uninsulated resistance wire) heating element, consideration shall also be given to breakage at any point.		N/A
15.3	An open-wire element, that is, uninsulated resistance wire, may be used in an appliance provided it complies with the following: a) It is enclosed or protected by barriers or covers that require tools for removal; b) It complies with the accessibility of live parts requirements specified in 7.5 – 7.13; and c) It complies with the Broken Element Test, Section 36.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
15.4	A sheathed heating element, rope heater, or the like shall be judged under the applicable requirements of this Standard.		N/A
15.4.1	Heating wire (e.g. rope heater) that complies with the Standard for Appliance Wiring Material, UL 758, and the requirements of this end product Standard are considered to fulfill this requirement.		N/A
15.4.2	Thermistor-type heaters (e.g. PTC and NTC heaters) shall comply with the Standard for Thermistor-Type Devices, UL 1434.		N/A
16	Electrical Insulation		N/A
16.1	Insulating washers, bushings, and the like that are integral parts of an appliance and bases or supports for the mounting of current-carrying parts shall be of a moisture-resistant material that is not damaged by the temperatures to which they are subjected under conditions of actual use. Molded parts shall be constructed so that they have the mechanical strength and rigidity necessary to withstand the stresses of actual service.	No mounting means.	N/A
16.2	Insulating material employed in an appliance shall be judged with respect to its acceptability for the particular application. Materials such as mica, some molded compounds, and certain refractory materials are usually acceptable for use as the direct support of live parts. Other materials which are not acceptable for general use, such as magnesium oxide, may be acceptable if used in conjunction with other more appropriate insulating materials or if located and protected against mechanical damage and the absorption of moisture is minimized. When it is necessary to investigate a material to determine whether it is acceptable, consideration is to be given to its mechanical strength, dielectric properties, insulation resistance, heat-resistant qualities, the degree to which it is enclosed or protected, and any other features having a bearing on the risk of fire, electric shock, or injury to persons involved, in conjunction with conditions of actual service. All of these factors are considered with respect to thermal aging. The appropriate tests in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C (see Temperature Considerations – General, Functional-Use Temperature Indices, and Generic Thermal Indices) are to be used to evaluate a material for the above-mentioned properties.		N/A
16.3	In the mounting or supporting of small fragile insulating parts, screws or other fastenings should not be tight enough to cause cracking or breaking of these parts with expansion and contraction. Generally, such parts should be slightly loose.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
16.4	Sleeving or tubing used as an insulator for uninsulated live parts (such as glass fiber in rope heaters) shall be so disposed or protected that no damage to the sleeving or tubing can result from contact with any rough, sharp, or moving part. The sleeving or tubing shall not be installed under a compression that renders it incapable of complying with the dielectric voltage-withstand requirements in 35.1.		N/A
16.5	The requirements for supplemental insulation (e.g. tape, sleeving or tubing) are not specified unless the insulation or device is required to fulfill the requirements of 16.4, or a performance requirement of this Standard. In such cases: a) Insulating tape shall comply with the Standard for Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape, UL 510; b) Sleeving shall comply with the Standard for Coated Electrical Sleeving, UL 1441; and c) Tubing shall comply with the Standard for Extruded Insulating Tubing, UL 224.		N/A
16.6	A printed-wiring board shall comply with the requirements in the Standard for Printed-Wiring Boards, UL 796. A printed-wiring board shall be rated V-1 or better.		N/A
16.7	Film-coated wire (magnet wire)		N/A
16.7.1	The component requirements for film coated wire and Class 105 (A) insulation systems are not specified.		N/A
16.7.2	Film coated wire in intimate combination with one or more insulators, and incorporated in an insulation system rated Class 120 (E) or higher, shall comply with the magnet wire requirements in the Standard for Systems of Insulating Materials – General, UL 1446, and shall have a suitable temperature class.		N/A
17	Thermal Insulation		P
17.1	Thermal insulation, if employed, shall be of such a nature and so located and mounted or supported that it is not adversely affected by any normal operation of the appliance.		P
17.2	Combustible or electrically conductive thermal insulation shall not make contact with uninsulated live parts of an appliance.		P
17.3	Some types of mineral-wool thermal insulation contain conductive impurities in the form of slag, which make its use unacceptable if in contact with uninsulated live parts. See 34.1.		N/A
18	Thermal Cutoffs		P

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Clause	Requirement – Test	Result – Remark	Verdict
18.1	If an appliance is provided with a thermal cutoff, it shall be secured in place and be located so that it is accessible for replacement without damaging connections or internal wiring. See 54.6.		P
18.2	If an appliance is provided with a thermal cutoff, it shall be capable of opening the circuit in the intended manner without causing the short-circuiting of live parts and without causing live parts to become grounded to the enclosure when the appliance is connected to a circuit of voltage in accordance with 33.1.11, and operated in a normal position to cause abnormal heating.		P
18.3	To determine whether or not a thermal cutoff complies with the requirement in 18.2, the appliance is to be operated with separate cutoffs five times as described in 18.2 while any other thermally operated control devices in the appliance are short-circuited. Each cutoff is required to perform acceptably. During the test, the enclosure is to be connected through a 3-A fuse to a supply conductor not containing the thermal cutoff.		N/A
19	Lampholders		P
19.1	If an appliance is equipped with a polarized attachment plug, a lampholder supplied as a part of the appliance shall be wired so that the screw shell is connected to the grounded conductor.		P
19.2	A lampholder shall be constructed and installed so that uninsulated live parts other than the screw shell are not exposed to contact by persons removing or replacing lamps in normal service.		P
19.3	Lampholders and indicating lamps with integral lamp/lampholder (e.g. neon pilot lamp) shall comply with the Standard for Lampholders, UL 496.		P
20	Switches		P
20.1	A switch or other control device provided as a part of an appliance shall be of a type intended for the particular application and shall have a current and voltage rating not less than that of the circuit (load) which it controls.	100-240V, 25W	P
20.2	A switch employed on an appliance shall be located or protected so that it is not subjected to mechanical damage during use.		N/A
20.3	A manually operated, line-connected, single pole switch for appliance on-off operation shall not be connected to the conductor of the power supply cord intended to be grounded. Table 11.3 specifies the identification of the power-supply cord conductor intended to be grounded.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
20.4	Manually operated snap-switches shall comply with one of the following, as applicable: a) The Standard for Switches for Appliances – Part 1: General Requirements, UL 61058-1; b) The Standard for Special-Use Switches, UL 1054; c) The Standard for General-Use Snap Switches, UL 20; or d) The Standard for Non-industrial Photoelectric Switches for Lighting Control, UL 773A.		N/A
20.5	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 arrangements shall comply with one of the following: a) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches, UL 60730-2-7; or b) The Standard for Clock-Operated Switches, UL 917.		N/A
20.6	A timer or time switch, incorporating electronic timing circuits or switching circuits, with or without separable contacts, shall comply with the requirements for an operating control with Type 1 action for 6000 cycles of operation, or as a manual control for 5000 cycles of operation, in accordance with the one of the following: a) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches, UL 60730-2-7; or b) The Standard for Solid-State Controls for Appliances, UL 244A.		N/A
21	Dual Voltage Appliance	Portable appliance	N/A
21.1	The construction of the circuit voltage selector shall be such that the circuit voltage setting cannot be changed inadvertently.		N/A
21.2	If the appliance is so constructed that the supply circuit voltage selector can be changed, the action of changing the voltage selector setting shall also change the supply circuit voltage indication.		N/A
21.3	An appliance that can be set to different rated supply circuit voltages shall be provided with the statement required by 58.5.		N/A
22	Controls and Control Circuits		P

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Clause	Requirement – Test	Result – Remark	Verdict
22.1	A safety or temperature-limiting control constructed to reduce the risk of fire or electric shock shall be operative whenever the appliance is connected to its power supply.		P
22.2	A control device shall not be constructed to deliberately overload the branch-circuit protective device as a means of disconnecting the appliance from the supply.		N/A
22.3	The terminals of a safety device within the enclosure of an appliance shall be so located or further enclosed that they will be protected against unintentional short-circuiting and damage.		P
22.4	Auxiliary controls shall be evaluated in accordance with the applicable requirements of this end product Standard and the parameters in Controls – End Product Test Parameters, Section 22B, unless otherwise specified in this end product Standard; see 22.10.		N/A
22.5	Operating (regulating) controls shall be evaluated in accordance with the applicable component standard requirements specified in Electromechanical and Electronic Controls, Section 22A, if applicable, and the parameters in Controls – End Product Test Parameters, Section 22B, unless otherwise specified in this end product Standard; see 22.10.		N/A
22.6	Operating controls that rely upon software for the normal operation of the end product where deviation or drift of the control may result in a risk of fire, electric shock, or injury to persons, such as a speed control unexpectedly changing its output, shall comply with one of the following: a) The Standard for Tests for Safety-Related Controls Employing Solid-State Devices, UL 991, and the Standard for Software in Programmable Components, UL 1998; or b) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1.		N/A
22.7	Protective (limiting) controls shall be evaluated in accordance with the applicable component standard requirements specified in Electromechanical and Electronic Controls, Section 22A, and if applicable, the parameters in Controls – End Product Test Parameters, Section 22B, unless otherwise specified in this end product Standard.		P

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Clause	Requirement – Test	Result – Remark	Verdict
22.8	Solid-state protective controls that do not rely upon software as a protective component shall comply with one of the following: a) The Standard for Tests for Safety-Related Controls Employing Solid-State Devices, UL 991; or b) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1, except the Controls Using Software requirements in Annex H.		N/A
22.9	Solid-state protective controls that rely upon software as a protective component shall comply with one of the following: a) The Standard for Tests for Safety-Related Controls Employing Solid-State Devices, UL 991, and the Standard for Software in Programmable Components, UL 1998; or b) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1.		N/A
22.10	An electronic, auxiliary or operating control (e.g. a non-protective control), the failure of which would not increase the risk of fire, electric shock, or injury to persons, need only be subjected to the applicable requirements of this end product Standard.		N/A
22A	Electromechanical and Electronic Controls		N/A
22A.1	A temperature control shall comply with one of the following: a) The Standard for Solid-State Controls for Appliances, UL 244A; b) The Standard for Temperature-Indicating and -Regulating Equipment, UL 873; or c) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9.		N/A
22A.2	A temperature sensing positive temperature coefficient (PTC) or a negative temperature coefficient (NTC) thermistor, that performs the same function as an operating or protective control shall comply with one of the following: a) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9, with Annex J; or b) The Standard for Thermistor-Type Devices, UL 1434.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
22A.3	A thermal cutoff shall comply with the Standard for Thermal-Links (Thermal Cutoffs) for Use in Electrical Appliances and Components, UL 60691.		N/A
22B	Controls – End Product Test Parameters		N/A
22B1	General		N/A
22B.1.1	Spacings of controls shall comply with the electrical spacing, or clearances and clearance distance requirements of the applicable control standard as determined in Spacings, Section 24.		N/A
22B.1.2	Where reference is made to declared deviation and drift, this indicates the manufacturer’ s declaration of the control’ s tolerance before and after certain conditioning tests.		N/A
22B.2	Auxiliary controls		N/A
22B.2.1	Auxiliary controls shall not introduce a risk of electric shock, fire, or personal injury.		N/A
22B.2.2	Auxiliary controls shall comply with the requirements of this end product Standard.		N/A
22B.3	Operating controls (regulating controls)		N/A
22B.3.1	The following test parameters shall be among the items considered when judging the acceptability of an operating control investigated using the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1: a) Control action Types 1 or 2; b) Unless otherwise specified in this Standard, manual and automatic controls shall be tested for 6,000 cycles with under maximum normal load conditions, and 50 cycles under overload conditions; c) Installation Class 2 as described in the Standard for Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test, IEC 61000-4-5; d) For the applicable Overvoltage Category, see Table 22B.1; e) For the applicable Material Group, see Table 22B.2; and f) For the applicable Pollution Degree, see Table 22B.3.		N/A
22B.4	Protective controls (limiting controls)		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
22B.4.1	An electronic control that performs a protective function shall comply with the applicable requirements in Controls and Control Circuits, Section 22, while tested using the parameters in this section. Examples of protective controls are as follows: a) A control used to sense abnormal temperatures of components within the appliance; b) An interlock function to de-energize a motor; c) Temperature protection of the motor due to locked rotor, running overload, loss of phase; or d) Other function intended to reduce the risk of electric shock, fire, or injury to persons		N/A
22B.4.2	The following test parameters shall be among the items considered when determining the acceptability of an electronic protective control investigated using the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1: a) Failure-Mode and Effect Analysis (FMEA) or equivalent Risk Analysis method; b) Power Supply Voltage Dips, Variation and Interruptions within a temperature range of 10° C (18° F) and the maximum ambient temperature determined by conducting the Temperature Test; see Normal Temperature Tests, Section 33; c) Surge Immunity Test – installation Class 3 shall be used; d) Electrical Fast Transient/Burst Test, a test level 3 shall be used; e) Electrostatic Discharge Test; f) Radio-Frequency Electromagnetic Field Immunity: 1) Immunity to conducted disturbances – When applicable, test level 3 shall be used; and 2) Immunity to radiated electromagnetic fields; field strength of 3 V/m shall be used; g) Thermal Cycling Test shall be conducted at ambient temperatures of 10.0 ± 2° C (50.0 ± 3° F) and the maximum ambient temperature determined by conducting the Temperature Test; see Normal Temperature Tests, Section 33. The test shall be conducted for 14 days; h) Overload shall be conducted based on the maximum declared ambient temperature (Tmax) or as determined by conducting the Temperature Test; see Normal Temperature Test, Section 33; and i) If software is relied upon as part of the protective electronic control, it shall be evaluated as software Class B		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
22B.4.3	The test parameters and conditions used in the investigation of the circuit covered by 22B.4.1, shall be as specified in the Standard for Tests for Safety-Related Controls Employing Solid-State Devices UL 991, using the following test parameters: a) With regard to electrical supervision of critical components, for attended appliances, a motor operated system becoming permanently inoperative with respect to movement of an exposed portion of the appliance meets the criteria for trouble indication. For unattended appliances, electrical supervision of critical components may not rely on trouble indication; b) A field strength of 3 V/m is to be used for the Radiated EMI Test; c) The Composite Operational and Cycling Test is to be conducted for 14 days at temperature extremes of 0° C (32° F) and 70° C (158° F); d) The Humidity Class is to be based on the appliance' s intended end use and is to be used for the Humidity Test; e) A vibration level of 5 g is to be used for the Vibration Test; f) The Computational Investigation is not applicable to appliances covered by this end product Standard; g) For the Demonstrated Method Test, the multiplier for the test acceleration factor is to be 576.30 for intermittent use appliances, or 5,763.00 for continuous use appliances. The test acceleration factor equation is to be based on a 25° C (77° F) use ambient; h) The Endurance Test is to be conducted concurrently with the Operational Test. The control shall perform its intended function while being conditioned for 14 days in an ambient air temperature of 60° C (140° F) or 10° C (18° F) greater than the operating temperature of the control, whichever is higher. During the test, the control is to be operated in a manner representing normal use; i) For the Electrical Fast Transient Burst Test, test level 1 is to be used; j) Conduct a failure-mode and effect analysis (FMEA); and k) If software is relied upon as part of the protective electronic control, it shall be evaluated as software Class 1 in accordance with the Standard for Software in Programmable Components, UL 1998.		N/A
22B.4.4	Unless otherwise specified in this Standard, protective controls shall be evaluated for 100,000 cycles for Type 2 devices and 6,000 cycles for Type 1 devices with rated current.		N/A
22B.5	Controls using a temperature sensing device		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
22B.5.1	A temperature sensing positive temperature coefficient (PTC) or a negative temperature coefficient (NTC) thermistor, that performs the same function as an operating or protective control, shall be tested using the following number of cycles when testing a sensing device in accordance with the endurance test: a) For a device employed as a operating device – 6,000 cycles; b) For a device employed as a protective device – 100,000 cycles; and c) For a device employed as a combination operating and protective device – 100,000 cycles.		N/A
23	Overheating Protection		P
23.1	The requirements in this section are applicable to all products. These requirements are in addition to or modify the applicable requirements in the Automatic Controls Test, Section 49.		P
23.2	An appliance shall be provided with a separate and distinct temperature-limiting device to limit temperatures within the appliance. A single combination regulating-limiting control is unacceptable for this purpose.		P
23.3	A limiting-type device shall be a thermal cutoff, a single-operation thermostat or a manual-reset thermostat that is inaccessible to the user without the use of tools.		P
23.4	A single-operation thermostat or a manual-reset thermostat that is provided as the thermal limiting device shall comply with the applicable requirements in the Standard for Temperature-Indicating and Regulating Equipment, UL 873 for limiting controls. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1, and/or the applicable Part 2 standard from the UL 60730 series fulfills these requirements.		P
23.5	A thermal cutoff shall comply with the applicable requirements in the Standard for Thermal-Links – Requirements and Application Guide, UL 60691.		P
23.6	If a grounding-type attachment plug is provided or the enclosure of the appliance has metal parts that are likely to become grounded, such as a metal bottom with bumped-out metal feet, the limiting-type device shall be located in one supply conductor and the temperature-regulating control shall be located in the other supply conductor. If identifiable, the ungrounded supply conductor shall contain the limiting-type device.		N/A
24	Spacings		P
24.1	General		P

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Clause	Requirement – Test	Result – Remark	Verdict
24.1.2	At closed-in points only, such as the screw-and-washer construction of an insulated terminal mounted in metal, a spacing of 3/64 inch (1.2 mm) is acceptable. Within a thermostat, except at contacts, the spacings between uninsulated live parts on opposite sides of the contacts are to be not less than 1/32 inch (0.8 mm) through air and 3/64 inch (1.2 mm) over the surface of insulating material, and the construction is to be such that the spacings are maintained permanently.		P
24.2	An insulating liner or barrier of fiber or similar material 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 cannot be adversely affected by arcing, except that fiber not less than 1/64 inch (0.4 mm) thick may be used in conjunction with an air spacing of not less than 50 percent of the spacing required for air alone.		N/A
24.3	Unless protected from mechanical abuse during assembly and functioning of an appliance, a barrier of mica shall be 0.010 inch (0.25 mm) or thicker.		N/A
24A	Spacings on Printed-Wiring Boards		N/A
24A.1	As an alternative to the spacing requirements of 24.1.1, a printed-wiring board with spacings between opposite polarity circuits (other than a low-voltage circuit) less than those required is acceptable provided that the spacings: a) Are located on a portion of the printed wiring board provided with a conformal coating that complies with the requirements in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, and the dielectric voltage-withstand test described in Dielectric Voltage-Withstand Test, Section 35; b) Are located on the load side of a resistor such that a short circuit from the load side of the resistor to the other side of the line does not result in the resistor power dissipation exceeding the resistor wattage rating; c) Comply with the spacing requirements in the Standard for Solid-State Controls for Appliances, UL 244A. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1, and/or the applicable Part 2 standard from the UL 60730 series fulfills these requirements; or d) Comply with the spacing requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840. The spacing requirements of UL 840 shall not be used for field wiring terminals and spacings to a dead metal enclosure.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
24A.2	When conducting evaluations in accordance with the requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, the following guidelines shall be used: a) A household electric cooking appliance is to be categorized as Overvoltage Category II, see Table 22B.1; b) The applicable Material Group per Table 22B.2; c) The Pollution degree shall be Pollution Degree 2, see Table 22B.3; and d) Any printed-wiring board which complies with the requirements in the Standard for Printed-Wiring Boards, UL 796, shall be determined to provide a Comparative Tracking Index (CTI) of 100, and when it further complies with the requirements for Direct Support in UL 796, then it shall be determined to provide a CTI of 175.		N/A
24A.3	In order to apply Clearance B (controlled overvoltage) clearances, control of overvoltage shall be achieved by providing an overvoltage device or system as an integral part of the product. This voltage limiting device or system shall comply with the Standard for Surge Protective Devices, UL 1449.		N/A
25	Grounding		N/A
25.1	On an appliance where grounding is provided, the flexible cord shall include a grounding conductor that shall be: a) Green, with or without one or more yellow stripes; b) Connected to the grounding blade of an attachment plug of a grounding type; and c) Connected to the enclosure of the appliance by means of a screw not likely to be removed during ordinary servicing, or by other reliable means. Solder alone is not acceptable for making this connection.		N/A
25.2	All exposed dead metal parts of a cord-connected appliance that is equipped with a grounding conductor, and all dead metal parts within the enclosure that are exposed to contact during any user servicing and are likely to become energized, shall be conductively connected to the grounding conductor of the power-supply cord. The grounding means shall comply with the requirements in Resistance of Grounding Test, Section 29.		N/A
25.3	A separable connecting device provided with a grounding connection shall be such that the appliance grounding connection is made before connection to, and broken after disconnection from the supply circuit.		N/A
26	Protection Against Injury to Persons		P

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Clause	Requirement – Test	Result – Remark	Verdict
26.1	Materials employed in the construction of the appliance depended upon for protection against personal injury shall be appropriate for the particular use. See 7.1 and 7.3.		P
26.2	An enclosure, a frame, a guard, a handle, or the like shall not be sharp enough to constitute a risk of injury to persons during normal maintenance and use.		P
26.3	Compliance with the requirement of 26.2 shall be determined by applying the test procedures, equipment, and acceptance criteria specified in the Standard for Tests for Sharpness of Edges on Equipment, UL 1439.		N/A
26.4	The stability of an appliance shall be such that it will not be overturned readily in normal use. The appliance shall be subjected to the Stability Test, Section 44.		N/A
26.5	If any part of an appliance requires proper assembly, for example fully inserting a lid or engagement of a twist-lock part, in order to reduce a risk of injury to persons, then improper assembly that may result in a risk of injury to persons shall be clearly visible to the user.		N/A
26.6	A coffee urn or similar water-heating appliance that is not lifted or tilted to dispense the liquid and that has a capacity of more than 17.5 oz (520 mL) shall be: a) Provided with such a lid as described in 26.5; and b) Subjected to the Tip Over Test, Section 45, wherein the lid does not become dislodged.		N/A
26.7	The construction of an appliance shall be such as to minimize the possibility of physical injury when pouring under conditions simulating intended normal use. The pouring spout shall be constructed so that the direction and rate of liquid flowing from the spout will be as anticipated. Liquid shall not be emitted from other than the spout in the intended use.		N/A
26.8	An appliance, or that part of an appliance (such as a carafe), that requires lifting and tilting to dispense the liquid and that has a capacity of more than 17.5 fluid oz (520 mL) shall be subjected to the Tip Over Test, Section 45.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
26.8	The release mechanism for detachable handles shall be: a) Located and/or guarded so that inadvertent detachment of the handle does not occur during normal use of the appliance; and b) Constructed so that complete and proper engagement of the handle is obvious to the user during the operation of attaching the handle.		N/A
26A	Ground-Fault, Arc-Fault, and Leakage Current Detectors/Interrupters		P
26A.1	Ground-fault circuit-interrupters (GFCI) shall comply with the Standard for Ground-Fault Circuit-Interrupters, UL 943. The following statement, or equivalent, shall be included as a marking near the GFCI, or as an instruction in the manual: ² Press the TEST button (then RESET button) every month to assure proper operation.		P
26A.2	Appliance-leakage-current interrupters (ALCI) shall comply with the Standard for Appliance-Leakage-Current Interrupters, UL 943B. An ALCI is not considered an acceptable substitute for a GFCI when a GFCI is required by the National Electrical Code, NFPA 70.		P
26A.3	Equipment ground-fault protective devices shall comply with the Standard for Ground-Fault Sensing and Relaying Equipment, UL 1053 , and applicable requirements of the Standard for Ground-Fault Circuit-Interrupters, UL 943.		N/A
26A.4	Arc-fault circuit-interrupters (AFCI) shall comply with the Standard for Arc-Fault Circuit-Interrupters, UL 1699.		N/A
26A.5	Leakage-current detector-interrupters (LCDI) and any shielded cord between the LCDI and appliance shall comply with Standard for Arc-Fault Circuit-Interrupters, UL 1699.		N/A
26A.6	An arc-fault circuit-interrupter (AFCI) or leakage-current detector-interrupter (LCDI), when used on equipment having a power supply cord and plug, shall be installed as an integral part of the attachment plug or located in the supply cord within 4 inches (102 mm) of the attachment plug.		N/A
26A.7	Arc fault detection testing shall include the applicable tests required for cord-type arc-fault circuit-interrupters, found in the Standard for Arc-Fault Circuit-Interrupters, UL 1699.		P
26B	Surge Protective Device		P
26B.1	A device providing surge protection or transient suppression shall comply with the Standard for Surge Protective Devices, UL 1449.		P
27	Pressure Vessels and Parts Subject to Pressure		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
27.1	Espresso coffee makers shall be constructed so that the coffee filter cannot be removed by a simple or unintentional operation when the vessel is pressurized. A coffee filter that can only be removed after having been rotated through an angle of at least 30 degrees is considered to comply with this requirement. A coffee filter holder provided with two separate and distinct means for securement onto the machine, accomplished either manually or by an automatic process, is also acceptable.		P
27.2	An espresso maker shall include a distinctive marking, such as an arrow, vertical bar, dot, or other equivalent marking, or the word ² lock ² , which clearly indicates the proper position to secure the coffee filter holder during the brewing cycle. This marking shall be located directly above the position of the filter holder handle when the filter holder is properly secured.		N/A
27.3	Except as noted in 27.4, a pressure vessel having an inside diameter of more than 6 inches (152 mm) and subject to a gauge pressure of more than 15 lbf/in ² (103 kN/cm ² or 10.5 gf/mm ²) shall be certified by the National Board of Boiler and Pressure-Vessel Inspectors and marked in accordance with the appropriate boiler and pressure vessel code symbol of the American Society of Mechanical Engineers (ASME) (² H ² , ² M ² , ² S ² , or ² U ²) for a working pressure not less than the pressure determined by applying 27.5.		N/A
27.4	If a pressure vessel, because of its application, is not covered under the inspection procedures of the ASME code, it shall be so designed and constructed that it complies with the requirements in 27.4 – 27.8.		N/A
27.5	The espresso-coffee maker is to be operated until maximum pressure is attained, by any combination of functional controls, at rated voltage or at the upper limit of a rated voltage range, with the coffee-filter both un-blocked and blocked and the steam valve, if provided, closed, except that, during the period that steam is produced, the supply voltage shall be such that the input is equal to the maximum rated input. If the steam valve is linked to the switch used for starting the production of steam, this link must not be disturbed during determination of maximum pressure. The maximum pressures are to be noted.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
27.6	The espresso-coffee maker is then to be subjected for five minutes, to a pressure equal to twice the maximum pressure noted with the coffee-filter blocked. The over pressure may be supplied from an external source, care being taken to ensure that the espresso-coffee maker is at its intended operating temperature for starting the brewing period.		N/A
27.7	The steam system of an espresso-coffee maker, which is normally open to ambient pressures, shall be subjected for five minutes, to a pressure equal to twice the maximum pressure noted with the coffee-filter not blocked. During the test, the system under test (pressure system) is not to be altered or modified, the steam outlet tube is to be blocked, and the steam valve is to be opened. The over pressure may be supplied from an external source, care being taken to ensure that the espresso-coffee maker is at its intended operating temperature for starting the steaming period.		N/A
27.8	During the tests described in 27.6 and 27.7, the espresso maker shall not rupture and there shall be no leakage other than at places intended for that purpose. Leakage is only acceptable through a self-resetting overpressure relief. At the conclusion of the tests described in 27.6 and 27.7 the coffee-maker shall perform in its intended manner.		N/A
27.9	Following the test specified in 27.6, the coffee-maker is to be subjected to the same pressure as described in 27.6 except with any means for limiting the pressure during determination of the maximum pressure made inoperative. During this test the steam outlet is blocked, as it is regarded as the limiting device during determining the maximum pressure. The coffee-maker shall withstand this test without exploding or emitting hazardous jets of fluid.		N/A
27.10	If an intentionally weak part ruptures during the test in 27.9, a second sample is to be tested with identical results. Rupture of an intentionally weak part shall render the coffee-maker unfit for further use and not pose a risk of personal injury, electrical shock, or fire hazard.		N/A
27.11	A means for relieving pressure shall be provided for all parts in which pressure might be generated in the event of fire.		N/A
27.12	Pressure-relief devices (see 27.18), fusible plugs, soldered joints, nonmetallic tubing, or other pressure-relief means or the equivalent may be employed to comply with the requirements in 27.11.		N/A
27.13	There shall be no shut-off valve between the pressure-relief means and the parts that it is intended to protect.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
27.14	A vessel having an inside diameter of more than 3.0 inches (76.2 mm) and subject to air or steam pressure generated or stored within the appliance shall be protected by a pressure-relief device.		N/A
27.15	The start-to-discharge pressure setting of the pressure-relief device shall not be higher than the working pressure marked on the vessel. The discharge rate of the device shall acceptably relieve the pressure.		N/A
27.16	A pressure-relief device shall comply with all four of the following: a) Shall be connected as close as possible to the pressure vessel or parts of the system that it is intended to protect; b) Shall be installed so that it is readily accessible for inspection and repair and cannot be readily rendered inoperative; c) Shall have its discharge opening located and directed so that the risk of scalding is reduced to a minimum; and d) Shall have its discharge opening located and directed so that operation of the device does not deposit moisture on bare live parts or on insulation or components affected detrimentally by moisture.		N/A
27.17	A pressure-relief device having an adjustable setting is judged on the basis of its maximum setting unless the adjusting means is sealed at a lower setting.		N/A
27.18	A pressure-relief device is considered to be a pressure-actuated valve or rupture member intended to relieve excessive pressures automatically.		N/A
27.19	Where a pressure-relief device is required, the control responsible for limiting the pressure in the vessel shall be capable of performing under rated load for 100,000 cycles of operation and shall prevent the pressure from exceeding 90 percent of the relief device setting under any condition of normal operation.		N/A
PERFORMANCE			
28	General		P
28.1	The performance of an appliance shall be investigated by subjecting the required number of appliances to all the applicable tests as described in Sections 29 – 49. Appliances employed for leakage-current tests shall be first tested for leakage prior to employing them for other tests.		P
29	Resistance of Grounding Test		P
29.1	The resistance between the point of connection of the equipment-grounding means at or within the appliance and any other point in the grounding circuit of the appliance shall not exceed 0.1 ohms.		P

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Clause	Requirement – Test	Result – Remark	Verdict
29.2	Compliance with the requirement in 29.1 is to be determined by: a) A resistance-measuring instrument; or b) Passing an alternating current of at least 30 amperes from a power supply of not more than 12 volts from the grounding pin of the attachment plug cap to a point in the grounding circuit, and then measuring the resulting drop in potential between the two points. The resistance in ohms is to be determined by dividing the drop in potential in volts by the current in amperes passing between the two points.		N/A
30	Power Input		P
30.1	The power input to an appliance shall not be more than 105 or less than 90 percent of its marked rating.		P
30.2	To determine if an appliance complies with the requirement in 30.1, the power input is to be measured with the appliance at normal operating temperature under full-load conditions and while connected to a supply circuit adjusted to the highest voltage of the following: a) The marked voltage rating; or b) 120 V, whichever is appropriate for the appliance.		P
31	Leakage Current Test		N/A
31.1	The leakage current of a cord-connected appliance rated for a nominal 120-V or 240-V supply when tested in accordance with 31.1 – 31.7 shall not be more than: a) 0.5 mA for an ungrounded (2-wire) appliance; b) 0.5 mA for a grounded (3-wire) appliance that is easily carried or conveyed by hand; and c) 0.75 mA for a grounded (3-wire) permanently connected appliance, or a cord connected appliance that is intended to be fastened in place or located in a dedicated space and employing a standard attachment plug rated 20 A or less.	Class II equipment	N/A
31.2	Leakage current refers to all currents, including capacitively coupled currents, that may be conveyed between exposed conductive surfaces of an appliance and ground or other exposed conductive surfaces of an appliance.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
31.3	All exposed conductive surfaces are to be tested for leakage currents. The leakage currents from these surfaces are to be measured to the grounded supply conductor individually as well as collectively where simultaneously accessible and from one surface to another where simultaneously accessible. Parts are considered to be exposed surfaces unless guarded by an enclosure considered acceptable for protection against electric shock as defined in 7.1 – 7.13. Surfaces are considered to be simultaneously accessible when they can be readily contacted by one or both hands of a person at the same time. These measurements do not apply to terminals operating at voltages which are not considered to involve electric shock.		N/A
31.4	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) in contact with the surface. Where the surface is less than 10 by 20 cm, the metal foil is to be the same size as the surface. The metal foil is not to remain in place long enough to affect the temperature of the appliance.		N/A
31.5	The measurement circuit for leakage current is to be as shown in Figure 31.1. The ideal measurement instrument is defined in (a) – (d). The meter which is actually used for a measurement need only indicate the same numerical value for a particular measurement as would the ideal instrument. The meter used need not have all the attributes of the ideal instrument. a) The meter is to have an input impedance of 1500 ohms resistive shunted by a capacitance of 0.15 μ F. b) The meter is to indicate 1.11 times the average of the full-wave rectified composite waveform of voltage across the resistor or current through the resistor. c) Over a frequency range of 0 – 100 kHz, the measurement circuitry is to have a frequency response (ratio of indicated to actual value of current) that is equal to the ratio of the impedance of a 1500 ohm resistor shunted by a 0.15 microfarad capacitor to 1500 ohms. At an indication of 0.5 mA, the measurement is to have an error of not more than 5 percent at 60 Hz. d) Unless the meter is being used to measure leakage from one part of an appliance to another, the meter is to be connected between the accessible parts and the grounded supply conductor.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
31.6	A sample of the appliance is to be tested for leakage current starting with the ² as received² condition with all its switches and thermostats closed, but its grounding conductor, if any, open at the attachment plug. The ² as received² condition being without prior energization, except as may occur as part of the production line testing. The supply voltages is to be 120- to 240V. The test sequence, with reference to the measuring circuit (Figure 31.1), is to be as follows: a) With switch S1 open, the appliance is to be connected to the measuring circuit. Leakage current is to be measured using both positions of switch S2. 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 operated at the maximum heat setting of controls. c) Leakage current is to be monitored until thermal stabilization under the maximum heat condition. Both positions of switch S2 are to be used. The equivalent of thermal stabilization is considered to be obtained as in the normal temperature test. If any thermostat does not cycle at the maximum heat setting, it is to be adjusted until it does cycle before the final measurements at thermal stabilization are taken. Measurements are to be made with the thermostat, if any, open and closed. Upon evidence of stabilizing readings, monitoring periods may be increased. d) If the appliance employs a single pole switch, monitoring of leakage current is to continue until the leakage current stabilizes or decreases after the appliance is turned off.		N/A
31.7	Normally a sample will be carried through the complete leakage current test program as covered by 31.6, without interruption for other tests. With the concurrence of those concerned, the leakage current tests may be interrupted for the purpose of conducting other nondestructive tests.		N/A
32	Operational Tests		N/A
32.1	Operation of an appliance while simulating anticipated conditions of use shall not increase the risk of fire, electric shock, or injury to persons.		N/A
32.2	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 to simulate reasonably foreseeable actions of the user.		N/A
33	Normal Temperature Tests		N/A
33.1	General	No such capacitor	N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
33.1.1	An appliance, when tested under the conditions described in 33.1.3 – 33.2.4.1, shall comply with all three of the following conditions: a) The appliance shall not attain at any point a temperature sufficiently high to constitute a risk of fire or to damage any materials employed in the appliance. b) At any time during the test – other than as indicated in 33.1.2 – temperature rises at specific points shall not be greater than indicated in Table 33.1. c) The appliance shall comply with the requirement in 7.1.	No such capacitor	N/A
33.1.2	Initial temperature transients may be in excess of the value shown in Table 33.1 if the duration and extent of the excursion do not result in material property changes to the extent that risk of fire or electric shock results.		N/A
33.1.3	All values in Table 33.1 are based on an assumed ambient (room) temperature of 25° C (77° F), but a test may be conducted at any ambient temperature within the range of 10 – 40° C (50 – 104° F). However, if the operation of an automatic thermal control during the test limits the temperatures under observation, no temperature higher than 25° C (77° F) plus the specified maximum rise is acceptable.		N/A
33.1.4	A gasket which is depended upon to prevent the entrance of water into an appliance during cleaning shall not become hard or brittle, shall not crack, and shall show no other signs of deterioration as a result of an accelerated-aging test in which the gasket is subjected to elevated temperatures. See 34.5.		N/A
33.1.5	The temperature to which the gasket is subjected during the test, as well as the duration of the test, is to be determined in accordance with the material of the gasket, the temperature to which it is subjected during operation, and other conditions of the particular application. Normally the appliance is to be operated dry and for a period of 240 hours, except that an automatic coffee maker is to be initially filled with water.		N/A
33.1.6	Following the accelerated aging, the sample is to be immersed, tested, and examined for the entrance of water in accordance with 34.7.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
33.1.7	Temperatures are to be measured by thermocouples consisting of wires no larger than 24 AWG and no smaller than 30 AWG, except that a coil temperature may be determined by the change-of-resistance method if the coil is inaccessible for mounting thermocouples. When thermocouples are used in determining temperatures in electrical equipment, it is standard practice to employ thermocouples consisting of 30 AWG iron and constantan wire and a potentiometer-type instrument, and such equipment is to be used whenever referee temperature measurements by thermocouples are necessary. The thermocouple wire is to conform with the requirements specified in the Initial Calibration Tolerances for Thermocouples table in Temperature Measurement Thermocouples, ANSI/ISA MC96.1.		N/A
33.1.8	For tests that are to be continued until constant temperatures are attained, thermal equilibrium is to be considered to exist only if three successive readings indicate no change when taken at the conclusion of each of three consecutive equal intervals of time, the duration of each interval being whichever of the following is longer: a) 5 minutes; or b) 10 percent of the total test time elapsed previous to the start of the first interval.		N/A
33.1.9	A thermocouple junction and adjacent thermocouple lead wire are to be securely held in good thermal contact with the surface of the material whose temperature is being measured. In most cases, good thermal contact will result from securely taping or cementing the thermocouple in place but, if a metal surface is involved, brazing, welding or soldering the thermocouple to the metal may be necessary.		N/A
33.1.10	To determine whether an appliance complies with the requirements in 33.1.1, the appliance is to be operated continuously until constant temperatures have been reached.		N/A
33.1.11	The test voltage is to be the highest of the following: a) The marked voltage rating; b) 120 V; or c) The voltage that results in the appliance operating at rated wattage.		N/A
33.1.12	In conducting a test to determine whether or not an appliance complies with the temperature requirements, it is to be mounted or supported as in service and tested under conditions approximating those of normal operation, except as otherwise noted. Temperatures are to be observed on nearby surfaces, on the supporting surface, at points of support, on attachment plugs, and at other points as may be necessary.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
33.1.13	A counter-top appliance is to be supported on two layers of white tissue paper on a softwood surface.		N/A
33.1.14	A counter-top appliance is to be tested in a test corner with the appliance located 4 inches (100 mm) away from the side and rear walls of the test corner. The 4-inch (100-mm) spacing is to be measured from the outer-most extremity of the appliance. The test corner is to consist of dull black-painted fir plywood not less than 3/8 inch (9.5 mm) thick, having such width and height that the walls extend not less than 2 ft (0.61 m) beyond the physical limits of the appliance. The vertical walls are to meet at a right angle.		N/A
33.1.15	A cord-connected wall or under-cabinet mounted appliance is to be mounted on one wall or cabinet bottom of a test corner consisting of dull black-painted fir plywood not less than 3/8 inch (9.5 mm) thick, having such a width and height that the walls extend not less than 2 ft (0.61 m) beyond the physical limits of the appliance. The vertical walls are to meet at a right angle. Unless marked as described in 54.12, the appliance is to be placed as close to the corner wall as the construction will permit, and an under-cabinet appliance is to be in contact with the rear wall while a wall-mounted appliance is to be in contact with either the cabinet bottom or the counter, whichever results in the highest temperature. The cabinet bottom is to be 12 inches (300 mm) deep, located 16 inches (400 mm) above the counter top. The surface beneath the unit is to be softwood covered with a double layer of white tissue paper.		N/A
33.1.16	Thermocouples are to be mounted on wood surfaces using the method illustrated in Figure 33.2 or the equivalent. Starting in the corner, thermocouples are to be placed every 3 inches (76 mm) on each surface (Figure 33.3) so that a minimum area of 18 by 18 inches (460 by 460 mm) is covered by the thermocouples on each surface.		N/A
33.1.17	During the normal temperature test, a temperature-limiting device provided for overheating protection shall not operate.		N/A
33.1.18	An automatic temperature-regulating or -limiting control or other protective device provided as a part of an appliance is to be shunted out of the circuit, unless the device is suitable for the application as required by 49.2.1 and the control is unlikely to be defeated by the user.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
33.1.19	If the construction of an appliance is such that cooking or heating of a liquid is a determining factor in the temperature attained, the intended duty of an appliance is to be taken into consideration. Accordingly, in determining whether an appliance complies with the requirements in 33.1.1, actual service conditions or an approximation thereof are to be employed. If the appliance is controlled by an adjustable thermostat, the thermostat is to be set to give maximum temperatures. If the appliance is controlled by a nonadjustable thermostat, it is to be allowed to operate at whatever temperature the thermostat permits. In each case, operation is to be continued until temperatures are stabilized.		N/A
33.1.20	With reference to Item 13 of Table 33.1, points likely to be contacted by hand or fingers include those points on the gripping surface, and adjacent surfaces close enough to be touched while supporting the appliance in the normal intended manner. See 33.1.21 – 33.1.24.		N/A
33.1.21	The length of the gripping surface of a handle is considered to be as follows: a) Four inches (102 mm) for an open or D-shaped handle. b) The entire handle for a webbed type handle.		N/A
33.1.22	Points on the surface of an appliance employing an open or D-shaped handle are not considered likely to be contacted if: a) They are protected by a barrier not less than 5/8 inch (15.9 mm) wide on which the temperature rise does not exceed the value indicated in Item 13 of Table 33.1; or b) A through-air spacing of not less than 1.5 inch (38 mm) at the index finger, tapering to 1.25 inch (32 mm) at the other end of the hand, is provided from the gripping surface to the hot part.		N/A
33.1.23	Points on the surface of an appliance employing a webbed type handle are not considered likely to be contacted if: a) They are protected by a barrier extending not less than 1/2 inch (12.7 mm) on either side of the web on which the temperature rise does not exceed the value indicated in Item 13 of Table 33.1; or b) The length $^2 \times ^2$ indicated in Figure 33.4 is not less than 4.25 inches.		N/A
33.1.24	If the temperature rise on a rivet or screw in a barrier or handle, which would be touched in the normal gripping or lifting action, exceeds the value given in Item 13 of Table 33.1, it is to be recessed at least half the diameter of the hole, and the hole is to be no larger than 3/8 inch (9.5 mm) in diameter.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
33.1.25	To determine if the strength of a thermoplastic handle is adequate to maintain the minimum spacing to a hot surface mentioned in 33.1.22(b) or 33.1.23(b) while in a heated condition, the following test is to be conducted. The spacing is to be maintained after the vessel has been conditioned for one hour with water maintained at a temperature equal to the maximum temperature measured during the temperature test, including the ² keep warm ² cycle, or that temperature that occurs when a separate vessel is filled following a ² brew ² cycle. The spacing is to be measured while supporting the vessel with a 2 inch (51 mm) wide gripping area (centered over the intended gripping area) and after the vessel has been supported and maintained in a vertical position for one minute. See Figure 33.1.		N/A
33.2	Specific test conditions		N/A
33.2.1	General		N/A
33.2.2	Vacuum-type coffee makers		N/A
33.2.3	Automatic type appliances		N/A
33.2.4	Nonautomatic type appliances		N/A
34	Leakage Current as a Result of Moisture Tests		P
34.1	An appliance employing insulation material liable to be affected adversely by moisture under condition of normal use shall be conditioned for 48 hours in moist air having a relative humidity of 88 ± 2 percent at a temperature of $32.0 \pm 2.0^{\circ} \text{C}$ ($89.6 \pm 3.6^{\circ} \text{F}$). After the conditioning, the appliance shall comply with the requirement in 31.1 in a repeat leakage current test, except that the test shall be discontinued when leakage current stabilizes.		P
34.2	An additional sample of the appliance shall be tested as follows, if glass fiber sleeving is used as electrical insulation in a rope heater assembly. The appliance is to be operated for 96 continuous hours under the condition resulting in the maximum temperature on the sleeving, as determined from the normal temperature test, following which it shall be conditioned for 48 hours in moist air having a relative humidity of 88 ± 2 percent at a temperature of $32.0 \pm 2.0^{\circ} \text{C}$ ($89.6 \pm 3.6^{\circ} \text{F}$). After the conditioning, the appliance shall comply with the requirement in 31.1 in a repeat leakage test, except that the test shall be discontinued when the leakage current stabilizes. Following the leakage current test, the appliance shall also comply with the dielectric voltage-withstand test requirement of 35.1.		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
34.3	An appliance which is likely to be immersed in water for cleaning shall show a leakage current of no more than 0.5 mA and shall be capable of withstanding a potential of 1000 V when tested in accordance with 34.4 – 34.8. The test shall not result in the entrance of water into the interior of the appliance such that the water might come into contact with uninsulated live parts.		N/A
34.4	Three samples of the appliance are to be heated as described in 34.6 and are then to be immersed immediately in water at a temperature of 10 – 25° C (50 – 77° F). The immersion is to be complete unless the appliance is marked to indicate that it is intended for partial immersion only (see 54.9), in which case each appliance is to be immersed only to the extent indicated. After 1 hour of immersion, the samples are to be removed from the water, dried with a soft cloth to remove all surface moisture, including surface moisture from terminal pins, and the samples are to be tested for leakage current.		N/A
34.5	The entire procedure of immersion and leakage current measurement is to be repeated four times, immediately following which each sample is to be subjected to a 1000-V dielectric voltage-withstand test as described in 35.1. The three samples are to be used for aging tests, and are required to comply with the requirements in 33.1.4 – 33.1.6. If there is an air cavity having electrical components, the three samples are to be disassembled and the internal parts visually examined for the presence of water. (See 34.3 and Table 34.1).		N/A
34.6	A nonautomatic coffee maker is to be operated as described in 33.2.4.1. An automatic coffee maker is to be heated in accordance with 34.9.		N/A
34.7	Two additional samples of an automatic coffee maker, initially at room temperature, are to be operated dry until the thermostat automatically switches to the “low” or “off” position, and are then to be immersed immediately in water at a temperature of 10 – 25° C (50 – 77° F). After 1 hour of immersion, the leakage current of each of the two samples is to be measured, and each sample is to be subjected to a 1000-V dielectric voltage-withstand test as described in 35.1. If there is an air cavity having electrical components, both samples are to be disassembled and the internal parts visually examined for the presence of water (see 34.3).		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
34.8	One of the samples tested in accordance with 34.7 (or an additional sample, if necessary) is to be reassembled, filled with the intended amount of water, and operated with the thermostat at the maximum setting until the temperature of a gasket or seal becomes stabilized. The temperature of the gasket or seal is to be noted when the thermostat automatically switches to the “low” or “off” position. Without disconnecting the appliance from the supply circuit, the utensil is to be emptied and operation without water continued until the temperature of the gasket or seal again becomes stabilized.		N/A
34.9	The three samples to be used for the tests described in 34.4 and 34.5 are to be operated, as described in 34.8, to the point at which the maximum temperature was observed.		N/A
35	Dielectric Voltage-Withstand Test	No heating elements	N/A
35.1	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. The appliance is to be at its maximum normal operating temperature. The test potential shall be 1000 V.		N/A
35.2	With respect to 35.1, an appliance having an enclosure constructed partly or totally of insulating material is to have accessible surfaces of the material closely wrapped in metal foil. The test potential is to be applied between live parts and the foil.		N/A
35.3	With respect to 35.1 and 35.2, a part is considered to be accessible if it can be contacted by the probe illustrated in Figure 7.2 when applied in all possible articulated positions, with and without the parts referenced in 7.13 in place.		N/A
35.4	To determine whether an appliance complies with the requirements in 35.1, the test potential is to be applied as described in 35.6, by means of test equipment having the characteristics specified in 35.5.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
35.5	The test equipment for conducting the dielectric voltage-withstand test is to have the following features and characteristics: a) A means for 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 less than 1.3 and not more than 1.5 times the root-mean-square value. c) A sensitivity of the test equipment that is such that when a resistor of 120,000 ohms is connected across the output, the test equipment does not indicate unacceptable performance for any output voltage less than the specified test voltage, and the test equipment does indicate unacceptable performance for any output voltage equal to or greater than the specified test value. The resistance of the calibrating resistor is to be adjusted as close to 120,000 ohms as instrument accuracy can provide, but never more than 120,000 ohms.		N/A
35.6	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 percent of the peak value of the specified test voltage. The applied potential is to be increased from zero at a substantially uniform rate so as to arrive at the specified test potential in approximately 5 seconds, and then is to be maintained at the test potential for one minute. Manual control of the rate of rise may be used.		N/A
36	Broken Element Test	No motors	N/A
36.1	An open-wire heating element in an appliance shall be constructed and supported so that if the wire is cut at any point there shall be no reduction of electrical spacings below the limits specified in this standard. After being cut, no portion of the heating element wire shall be accessible to contact by the articulate probe through any opening in the enclosure.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
36.2	To determine compliance with 36.1: a) The appliance is first to have been operated until fully heated as in the Power Input or Temperature Tests; and b) After cutting the heating element, the appliance is to be rotated 360° in the direction most likely to cause contact between the heating element and accessible metal parts.		N/A
37	Strain Relief Test		
37.1	The strain-relief means provided on an attached flexible cord, when tested in accordance with 37.2, shall be capable of withstanding for 1 minute, without displacement, a pull of 35 lbf (156 N) applied to the cord, with the connections within the appliance disconnected.		N/A
37.2	The specified force is to be applied to the cord and so supported by the appliance that the strain-relief means is stressed from any angle that the construction of the appliance permits. The strain relief is not acceptable if, at the point of disconnection of the conductors, there is sufficient movement of the cord to indicate that stress on the connections has resulted.		N/A
38	Push-Back Relief Test		P
38.1	To determine compliance with 11.2.3, a product shall be tested in accordance with 38.2 without occurrence of any of the following conditions: a) Subjecting the supply cord or lead to mechanical damage; b) Exposing the supply cord or lead to a temperature higher than that for which it is rated; c) Reducing spacings (such as to a metal strain-relief clamp) below the minimum required values; or d) Damaging internal connections or components.		P
38.2	The supply cord or lead is to be held 1 inch (25.4 mm) from the point where the cord emerges from the product and is then to be pushed back into the product. The cord or lead is to be pushed back into the product in 1 inch (25.4 mm) increments until the cord buckles or the force to push the cord into the product exceeds 6 pounds-force (26.7 N). The supply cord or lead within the product is to be manipulated to determine compliance with 11.2.3.		N/A
398	Metal Enclosure Impact Tests		P
38.1	A metal enclosure part shall comply with the tests specified in 39.2 – 39.5. For polymeric enclosure parts, see the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C.		P

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Clause	Requirement – Test	Result – Remark	Verdict
39.2	A metal enclosure part shall withstand the ball impact, with the appliance restrained, as described in 39.3 without occurrence of any one of the following conditions: a) Making live parts accessible to contact with the articulate probe, see 7.11 and 7.12. b) Producing any other condition that results in damage of the enclosure so as to adversely affect the function of any safety or constructional feature, such as thermostats, overloadprotective devices or strain relief. c) Producing other conditions so that the appliance does not comply with the dielectric voltage withstand requirements in Dielectric Voltage-Withstand Test, Section 35, after being subjected to the impact.		N/A
39.3	Each of three samples of the appliance is to be subjected to one impact. This impact is to be imparted by dropping or swinging a 2-inch (50.8-mm) diameter steel sphere, weighing 1.18 lbf (0.535 kg) from a height that will produce an impact of 1.5 ft-lbf (2.03 J). The sample is to be rigidly supported and the impact is to be made perpendicular to the most vulnerable spots on the appliance enclosure that are exposed to a blow during intended use. A different spot on the enclosure is to be selected for each impact. See Figure 39.2 with respect to the ball drop impact test and Figure 39.3 for the ball pendulum impact test.		N/A
39.4	With reference to Figures 39.2 and 39.3, the $^2 H^2$ designation represents the vertical distance the sphere must travel to produce the desired impact. For the pendulum impact, the sphere is to contact the test sample when the string is in the vertical position. The supporting surface is to be as described in 39.5. The backing surface for the pendulum impact is to consist of 3/4-inch (18 mm) plywood over a rigid surface of concrete or an equivalent nonresilient backing surface may be used.		N/A
39.5	The supporting surface mentioned in 39.4 is to consist of a layer of tongue-and-groove oak flooring mounted on two layers of 3/4-inch (18-mm) thick plywood. The oak flooring is to be 3/4- by 2-1/4-inch (18- by 57-mm). The assembly is to rest on a concrete floor or an equivalent nonresilient surface.		N/A
40	Thermal Degradation		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
40.1	A thermoset material used for a part of an appliance where risk of fire, electric shock, or injury to persons is involved shall be resistant to thermal degradation at the maximum temperature to which it is exposed during normal use of the appliance. The thermal-aging characteristics of the material may be investigated by any one of the following procedures: a) The material shall have a temperature index, based on historical data or a long term thermal aging program, described in the Standard for Polymeric Materials – Long Term Property Evaluations, UL 746B, which indicates acceptability for use at the temperature involved; or b) The product shall be operated with the input voltage adjusted so that the part in question operates at the maximum temperature obtained during the normal temperature test. The test is to be conducted with all temperature controls by-passed for a period of 1000 hours. There shall be no visible degradation of parts at the conclusion of the 1000 hours.		N/A
41	Handle Securement Tests	Operation buttons only, no risks involved	P
41.1	General		P
41.1.1	A handle assembly shall not deteriorate so as to increase the risk of potential injury as a result of being subjected to the test described in 41.2.1 – 41.6.3. Three samples are to be subjected to each test unless otherwise specified in accordance with Figure 41.4.		N/A
41.2	Oven conditioning		N/A
41.2.1	Prior to conducting any of the tests in this Section, three samples of a vessel and handle assembly incorporating thermoplastic parts shall be conditioned in a full-draft circulating-air oven maintained at the maximum handle temperature recorded during the normal temperature test or the maximum handle temperature reached on a nonheated vessel within 5 minutes after it is filled following the brew cycle. The samples are to remain in the oven for 168 hours. Following the conditioning and after the samples have cooled to room temperature, the samples are to be tested in accordance with 41.3.1 – 41.6.3..		N/A
41.2.2	If the temperature of the handle assembly exceeds the maximum assigned temperature rating of the material during the normal temperature test, the test in 41.2.3 is to be conducted in lieu of the test in 41.2.1.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
41.2.3	Three vessels with handle assemblies are to be placed in a full-draft circulating-air oven for a period of 240 hours maintained at the maximum temperature recorded on the handle during the Normal Temperature Test or at the maximum temperature reached on a non-heated vessel within five minutes after it is filled following the brew cycle. During this time period, the vessels are to be removed from the oven and allowed to cool for five separate one-hour periods, at intervals not less than 24 hours. The 240-hour period is actual in-oven time and does not include the cool down periods. During each of the cool down periods, the vessels are to be supported by the handle assembly in the intended manner while loaded with No. 7 or No. 7-1/2 shot having a weight of the maximum intended capacity of water. Following the conditioning and after the vessels have cooled to room temperature, the vessels are to be tested in accordance with 41.3.1 – 41.6.3.		N/A
41.3	Dishwashing		N/A
41.3.1	Following the test of 41.2.1, an immersible vessel incorporating thermoplastic parts shall be conditioned as follows to simulate dishwasher cleaning. It shall be immersed in a commercially available dishwasher detergent solution using 25 g/L of water for 1 hour at 150° F. Following this, it is to be removed, kept at room temperature for 1 hour, oven aged at 160° F for 1 hour, and then cooled to room temperature for 1 hour.		N/A
41.4	Flexing test		N/A
41.4.1	The three samples of the vessel are to be supported in the intended manner by the handle assembly while loaded with a mixture of water and gelatin having a weight equivalent to its maximum intended capacity of water. The test load is to be distributed such that the normal center of gravity is not changed. The handle assemblies are then to be flexed for 12,000 cycles in the normal plane of pouring, forward 45 degrees from the vertical and backwards 45 degrees from the vertical. Each cycle consists of tipping the vessel forward 45 degrees, back to the vertical position, then back 45 degrees and then forward to the vertical position. Following the above, the test is to be repeated for an additional 12,000 cycles with the flexing being performed from side to side, that is, 45 degrees to the left and 45 degrees to the right of the normal vertical position. The cycle rate is to be 6 – 8 cycles per minute.		N/A
41.5	Static load		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
41.6	Static force		N/A
41.6.1	A force equal to two times the force exerted by the maximum intended capacity of water is to be applied for 1 minute to the handle at an angle perpendicular to the side of the handle and parallel to the bottom of the vessel at a point as close to the point of securement as possible. The vessel is to be prevented from rotating while the force is applied. The force is to be applied with a 1/2 inch (12.7 mm) diameter rod terminating in a hemispherical end. See Figure 41.1.		N/A
41.6.2	The test indicated in 41.6.1 is to be repeated with the force being applied in the same manner except that the point of application shall be such that the greatest torque is at the point of securement, or at two securement points for a $^2 D^2$ handle, see Figure 41.2.		N/A
41.6.3	A force equal to two times the force exerted by the maximum intended capacity of water is to be applied for 1 minute at the farthest extremity of the handle in a horizontal direction first pulling away from the vessel, and then repeated pushing toward the vessel. The vessel is held for each test. See Figure 41.3		N/A
41	Under-Cabinet and Wall Mounted Appliances-Impact Test		N/A
42.1	The impact test of 42.2 shall be conducted on all under-cabinet and wall mounted appliances without occurrence of any of the following conditions: a) Making live parts accessible to contact with the articulate probe, see 7.10 and 7.11. b) Producing any other condition that results in damage of the enclosure so as to adversely affect the function of any safety or constructional feature, such as thermostats, overloadprotective devices or strain relief. c) Producing other conditions so that the appliance does not comply with the dielectric voltage withstand requirements in Dielectric Voltage-Withstand Test, Section 35, after being subjected to the impact. d) Dislodging of the appliance or separable parts of the appliance.		N/A
42.2	A 1.5 ft-lbf (2.03 J) impact is to be performed on all exposed sections of the enclosure, while the unit is installed under a cabinet or on a wall. Each of three samples is to be subjected to one impact on each surface. The impact is to be imparted by swinging a 2-inch (50.8 mm) diameter steel sphere, weighing 1.18 lb (0.535 kg) from a height that will produce an impact of 1.5 ft-lbf (2.03 J).		N/A
43	Loading Test		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
43.1	A loading test is to be performed on the mounting brackets of an under-cabinet or wall mounted appliance with the appliance mounted in accordance with the manufacturer's installation instructions, using the hardware and construction as described. A bracket shall not break, loosen, or pull out of the wall nor shall any portion of the unit attached to the mounting means be adversely affected as a result of this test.		P
43.2	The test load is to consist of the weight of the appliance plus three times the maximum normal load (food load, water, grounds, basket, and the like, based on cavity size and maximum recipe book weight recommendations). A gradually increasing force is to be applied to act vertically through the center of the gravity of the unit. The force is to be increased in a 5 to 10 second interval until the test load is applied to the mounting system and is to be sustained for a period of 1 minute. For this test, an under-cabinet unit is to be mounted on a wood board with a minimum thickness as specified by the manufacturer and a wall unit is to be mounted on 3/8 inch (4.8 mm) thick wall board.		P
43.3	If the mounting brackets are constructed of a thermoplastic material, they are to be conditioned for 7 hours in an air circulating oven maintained at 70° C (158° F) or 10° C (18° F) higher than that measured during the normal temperature test, whichever is higher, prior to performing the loading test.		N/A
44	Stability Test		P
44.1	To determine compliance with 26.4, the appliance is to be placed on a plane inclined at an angle of 15 degrees to the horizontal. The appliance is to be positioned and loaded with whatever combination of separable components, liquid, saturated grounds, or other media (material) that results in the maximum tendency to overturn under conditions of normal use. Saturated grounds are to be obtained from a normal brewing cycle. The appliance is to contain a minimum of 5 oz (148 mL) of liquid. The volume of liquid in the unit is to be increased from the minimum 5 oz (148 mL) of liquid in the reservoir to its full capacity, as marked on the unit or then as indicated in the user manual. The appliance shall reduce the risk of sliding on the inclined surface. The appliance shall not overturn as a result of this test.		P
45	Tip Over Test		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
45.1	To determine compliance with 26.6 or 26.8, a total of three samples are to be tested and each sample is to be tested three times. Each sample of the appliance, while in the well-heated condition, is to be placed on a horizontal surface of laminated thermosetting counter-top-type material. The appliances are to be oriented in a position that is likely to occur in normal use, and are to contain whatever combination of separable components, liquid, saturated grounds, or other media that results in the most adverse condition for this test. The sample is then to be tilted such that, when released from its critical angle of balance, it will tip over due only to the force of gravity (that is, free fall). For the first test, the volume of liquid in the unit is to be at its full capacity, as marked on the unit or then as indicated in the user manual. Each unit is to be subjected to two additional tipovers without refilling or adjusting the lid.		N/A
45.2	Compliance with the tip over test, described in 45.1, shall be determined based on the following results: a) The lid, if provided, shall stay in place; b) The average rate of liquid emitted during the first 5 seconds from the appliance during any tip over shall not be more than 4-1/2 oz (133 mL)/s. The average of the average rates of liquid emitted for all tip overs shall not be more than 3-1/2 oz (104 mL)/s. The rate shall be computed by using the time period of 5 seconds.		N/A
46	Dynamic Stability Test		N/A
46.1	To determine compliance with Exception No. 2 to 26.8, an appliance, container, and the like is to be subjected to the impact of 0.75 ft-lbf (1.02 N • m) on a horizontal surface consisting of laminated thermosetting counter-top-type material adhered to a wood base surface rigidly fixed for the intended use. A 1/8-inch (3.2-mm) thick (uncompressed) polyurethane foam material, such as that used for packing, is to be placed under the bottom of the appliance to prevent sliding. The appliance is to be positioned and loaded to full capacity with the combination of materials specified in 44.1. If a lid is provided, it is to be placed on the appliance in the intended manner. A sphere, illustrated in Figure 46.1, is to be suspended from a cord and allowed to swing as a pendulum in such a manner as to strike the appliance with an impact of 0.75 ft-lbf (1.02 N • m) at a point most likely to cause tip-over. See Figures 46.2 and 46.3.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
46.2	Compliance of the dynamic stability test, described in 46.1, shall be determined based on compliance with either (a) or (b) as follows: a) If tip-over does not occur, the appliance, container, and the like is not to emit more than 3-1/2 oz (104 mL) of liquid as a result of any one impact. b) If tip-over occurs, the appliance or separate vessel shall comply with the requirements in 45.2 (a) and (b), oriented in the position that caused the tip-over.		N/A
47	Abnormal Operation Tests	No pressure related devices	N/A
47.1	General		N/A
47.1.1	If the conditions of normal operation are not representative also of abnormal conditions likely to be obtained in actual service, an appliance shall not involve a risk of fire or electric shock when operated continuously under such abnormal conditions.		N/A
47.1.2	The appliance shall have its voltage selector switch set in any supply circuit voltage position being connected to any one of the rated supply circuits. The combination of selector settings and supply circuit to which the equipment is connected is to be that which develops the most severe operating conditions.		N/A
47.1.3	If provided, an externally operable input voltage selector is to be operated for 25 cycles with the appliance operating at the minimum rated voltage and for 25 cycles with the appliance at the maximum rated voltage. Each cycle consisting of moving the voltage selector to its alternate position and back at the rate of six cycles per minute with the voltage selector in each position for 5 seconds. The operating and temperature controls are to be set to result in the most adverse operating conditions.		N/A
47.1.4	For an externally operable voltage selector switch that interlocks with the power switch and cannot be operated with the power switch in the “on” position, the voltage selector is to be operated for 25 cycles each at the maximum and minimum voltages. Each cycle is to consist of the following steps: a) With the power switch in the “off” position, move the voltage selector to the alternate position; b) Turn the power switch “on” and operate the appliance for 5 seconds; c) Turn the power switch “off” ; d) Move the voltage selector to the original position; and e) Turn the power switch on and operate the appliance for 5 seconds.		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
47.1.5	To determine whether a risk of fire or electric shock actually exists, a separate burnout or abnormal test is to be conducted with the appliance operating continuously until the ultimate result has been observed. Unless otherwise indicated, the test is to be conducted on one sample with the applied voltage, method of mounting, and thermostat connection in accordance with 33.1.10 – 33.1.18. Accessible metal parts, those that can be contacted by the probe in Figure 7.2, and metal parts accessible during user servicing are to be connected to ground through a 3-A fuse. In most cases, continuous operation for 7 to 8 hours will be necessary to determine that the ultimate result has been observed.		N/A
47.1.6	An appliance is to be located as close to the walls of the test corner as the construction permits. The test corner is also to be provided with a 12-inch (340-mm) simulated cabinet bottom, located 16 inches (400 mm) above the counter top. The cabinet bottom is to consist of a dull black-painted fir plywood 3/8 inch (9.5 mm) thick.		N/A
47.1.7	When operated under such abnormal conditions, an appliance is considered to involve a risk of fire if there is any emission of flame or molten metal (other than drops of melted solder), or if the operation of the appliance results in the glowing or flaming of combustible material upon which the appliance may be placed, or that may be adjacent to the appliance.		N/A
47.1.8	An appliance is considered to involve a risk of electric shock if the 3-A fuse connected from accessible metal parts of the appliance to ground opens during the test.		N/A
47.1.9	After having been subjected to an abnormal test, the appliance is considered to involve a risk of electric shock if the current measured through a 500 ohm resistor between an accessible part and ground is more than 5 mA. A solution of hard water (1/2 g of calcium sulphate $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ per liter of distilled water) in an amount equal to the capacity of the container, is to be poured into the container and the current is to be measured as quickly as possible thereafter. Liquid need not be added if it is obviously apparent that the appliance will not hold liquid.		N/A
47.2	Specific test conditions		N/A
47.2.1	General		N/A
47.2.1.1	For most of the common types of heating appliances, standardized abnormal test conditions are given in 47.2.4.1 – 47.3.1.		N/A
47.2.2	Appliances with breakable exterior surfaces		N/A

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Clause	Requirement – Test	Result – Remark	Verdict
47.2.2.1	If an appliance has an exterior surface of glass, ceramic, or comparably brittle material in or on which the heating element is mounted or that is an essential part of the enclosure of live parts, the material shall be capable of withstanding the stresses to be encountered in actual service.		N/A
47.2.2.2	Certain specific tests are described in 47.2.2.3 but other tests may be necessitated by the construction or intended operation of the appliance.		N/A
47.2.2.3	The glass or ceramic surface shall withstand without cracking or breaking the application of a cloth fully saturated with water (the hard water solution described in 47.1.9) at room temperature, with the appliance in the fully heated condition. The quantity of water involved shall be sufficient to wet the surface completely. The appliance shall then comply with the requirement in 31.1 in a repeat leakage current test, except that the test shall be discontinued when leakage current stabilizes.		N/A
47.2.3	Dry operation		N/A
47.2.3.1	The appliance shall be tested as follows, with all temperature controls or protective devices shunted out of the circuit, except as noted in 33.1.18. a) An appliance that incorporates a device to limit temperatures shall be tested in accordance with 47.2.3.3. b) An appliance that does not incorporate a device to limit temperatures shall be tested in accordance with 47.2.3.4.		N/A
47.2.3.2	If the appliance breaks, melts, or is otherwise damaged during the heating described in 47.2.3.3, 47.2.3.4 or 47.2.5.2 to the extent that it would be obvious to the user that the appliance is no longer useable and thereby likely to be discarded, the test is to be discontinued. The appliance is then to be tested for risk of electric shock in accordance with 47.1.9.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
47.2.3.3	One sample of an appliance that incorporates a device to limit temperatures is to be operated dry for one hour. After one hour of operation, (or less if heating element burnout or other cease-to-operate condition occurs), the appliance shall be disconnected from the source of supply and immediately filled with 10 – 20° C (50 – 68° F) tap water, then emptied and wiped dry simulating a cleaning operation. If the appliance utilizes a detachable power-supply cord, the plug is to be removed and replaced on the pin terminals five times. The appliance is then to be half-filled with hard water and tested for risk of electric shock in accordance with 47.1.9. If the sample is still operable and the leakage current did not exceed 5.0 mA, the sample is to be emptied, let cool to room temperature and the entire test procedure repeated, until a maximum of five such operations has been completed. After the fifth operation, the sample shall also be subjected to the dielectric voltage-withstand test described in Dielectric Voltage-Withstand Test, Section 35.		N/A
47.2.3.4	Three samples of an appliance that does not incorporate a device to limit temperatures are to be tested in accordance with 47.2.3.3 except that one sample is to be operated dry for 5 minutes, the second sample for 15 minutes and the third sample for 30 minutes for each cycle rather than one hour.		N/A
47.2.3.5	The appliance is to be filled to normal capacity with liquid and saturated grounds or other media, and operated at 110 percent of the voltage as determined from 33.1.11. All automatic controls shall be shunted out of the circuit except as noted in 33.1.18. The result is not acceptable if the container is pressurized so as to spit liquid from any opening including the spout.		N/A
47.2.3.6	A handle assembly that is utilized to lift and tilt a vessel to dispense a liquid shall be tested in accordance with 47.2.3.1 while being supported by the handle. The handle is to be gripped with a 2-inch (51-mm) gripping area (centered over the intended gripping area) for this test. The handle assembly shall not loosen, break, soften, deform, warp or otherwise deteriorate so as to increase the risk of injury to persons. This test is not applicable to a carafe or other nonintegrally heated vessel.		N/A
47.2.4	Overfill		N/A
47.2.5	Boil dry operation		N/A
47.2.6	Gaskets and seals		N/A
47.3	Dual voltage appliances		N/A
48	Secondary Circuit Component Failure Test		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
48.1	48.1 If an appliance employs one or more rectifiers, transistors, or similar solid-state components in a secondary circuit, a risk of fire or electric shock shall not develop when the circuit between any two terminals of any such component is open-circuited or short-circuited. If the appliance employs a capacitor in combination with one or more of the above-mentioned components, a risk of fire or electric shock shall not develop when the capacitor is short-circuited. Only one of the simulated fault conditions described above is to be imposed at one time. See 48.2 – 48.5.		P
48.2	If a semiconductor rectifier is employed, three appliances are to be tested with the rectifier terminals connected together. Three additional appliances are to be tested with the terminals of the electrolytic capacitor connected together.		N/A
48.3	Three complete tests are to be made under each of the conditions described in 48.2 using new components in each test. The appliance to be tested is to be connected as indicated in 47.1.5.		P
48.4	An unacceptable condition exists if flame is emitted from the overall enclosure of the appliance or if a permanently conductive path is established between live parts and exposed dead metal.		P-
48.5	The tests described in 48.1 – 48.3 may be omitted if one or both of the following conditions exist: a) There is 10,000 ohms or more of additional series impedance in a circuit in which the voltage does not exceed 125 V; or b) There is 20,000 ohms or more of additional series impedance in a circuit in which the voltage may be more than 125 but is no more than 250 V.		P
49	Automatic Controls Test		N/A
49.1	General		N/A
49.1.1	An automatic control for temperature regulating or temperature limiting shall be capable of performing successfully for 50 cycles of operation, when the appliance is connected to a supply circuit having a potential of 120 percent of the voltage specified in 33.1.11. There shall be neither electrical nor mechanical malfunction of the control, nor undue burning, pitting, or welding of the contacts.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
49.1.2	In tests to determine an automatic control complies with the requirements in 49.1.1, the appliance is to be connected to a grounded supply circuit; the enclosure of the appliance, if of metal, is to be connected to ground through a 3-A fuse; and the control, if single-pole is to be connected in an ungrounded conductor of the circuit. The device is to be operated at the rate of 10 cycles per minute, except that a faster rate of operation may be employed if agreeable to all concerned. The performance is unacceptable if the fuse in the grounding connection opens during the test.		N/A
49.2	Endurance		N/A
49.2.1	A thermostat shall be capable of withstanding an endurance test which shall consist of the number of cycles indicated in Table 49.1. Unless it is specified that the test be made without load, the thermostat shall make and break the rated current of the appliance while connected to a circuit of rated voltage. There shall be neither electrical nor mechanical malfunction of the thermostat, nor undue burning, pitting, or welding of the contacts.		N/A
50	Permanence of Marking Tests		N/A
50.1	A required marking shall be molded, die-stamped, paint-stenciled, stamped or etched metal that is permanently secured, or indelibly stamped lettering on a pressure-sensitive label secured by adhesive that upon investigation is found to be acceptable for the application. Ordinary usage (including the likely exposure to weather and other ambient conditions), handling, storage, and the like of the equipment is to be considered in the determination of the acceptability of the application.		N/A
50.2	Unless it has been investigated and found to be acceptable for the application, a pressure-sensitive label or label that is secured by cement or adhesive shall comply with the adhesion requirements in the Table for Exposure Conditions for Indoor Use, and the Table for Additional Exposure Conditions for Indoor Use and Outdoor Use in the Standard for Marking and Labeling Systems, UL 969.		N/A
50.3	Unless otherwise indicated, a required cautionary marking shall be located on a part that would require tools for removal or that cannot be removed without impairing the operation of the product.		N/A
MANUFACTURING AND PRODUCTION-LINE TESTS			
51	Dielectric Voltage-Withstand Test		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
51.1	Each appliance shall withstand without an indication of unacceptable performance as a routine production-line test, the application of a potential between: a) The primary wiring, including connected components, and accessible metal parts that are likely to become energized; and b) Between primary wiring and accessible low voltage (42.4 V peak or less) metal parts, including terminals. The test potential shall be: 1) 1200 V applied for 1 second; or 2) 1000 V applied for 1 minute.		P
51.2	The appliance may be in a heated or unheated condition for the test.		P
51.3	The test shall be conducted with the appliance complete – fully assembled. It is not intended that the appliance be unwired, modified, or disassembled for the test.		P
51.4	If the appliance employs a solid-state component that can be damaged by the test potential, the test on 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 circuitry rearranged to reduce the likelihood of damage to any solid-state component but retaining representative dielectric stress of the circuit.		P
51.5	The test equipment, when adjusted for production-line testing, is to produce an output voltage that is not less than the factory test value specified, nor is the magnitude of the test voltage to be greater than 120 percent of the specified test potential when the tester is used in each of the following conditions: a) If the test duration is one second, the output voltage is to be maintained within the specified range: 1) When only a voltmeter having an input impedance of at least 2 megohms and a specimen of the product being tested are connected to the output terminals; and 2) When a relatively high resistance is connected in parallel with the voltmeter and the product being tested, and the value of the resistance is gradually reduced to the point where an indication of unacceptable performance just occurs. b) If the test duration is one minute, the output voltage is to be maintained within the specified range, by manual or automatic means, throughout the one minute duration of the test or until there is an indication of unacceptable performance.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
51.6	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 higher dielectric stress is not likely to adversely affect the insulating systems of the product.		N/A
51.7	In addition to the characteristics indicated in 51.5, the test equipment is to have the following features and characteristics: a) A means of indicating the test voltage that is applied to the product under test. This may be accomplished by sensing the voltage at the leads or by 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 appliance. 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 a higher sensitivity		N/A
51.8	There is not to be any transient voltage applied to the appliance under test that results in the instantaneous voltage applied to the product exceeding 120 percent of the peak value of the test voltage that the manufacturer elects to use for this test. This requirement applies for the entire duration of the test, including the time that the voltage is first applied to the product and the time that the voltage is removed from the product.		N/A
51.9	During the test, a sufficient number of primary switching components shall be in the ² on ² 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 dead metal.		N/A
52	Polarization and Grounding Continuity Tests		P
52.1	Polarization test	0.03mA	P

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Clause	Requirement – Test	Result – Remark	Verdict
52.1.1	Each appliance provided with a polarized attachment plug (2-wire plug with one blade wider than the other) shall be tested for electrical-continuity between the grounded supply-circuit conductor of the attachment plug (wide blade of a 2-wire plug) and the part of the appliance that is intended to be connected to the grounded supply-circuit conductor. If the continuity cannot be readily determined by visual inspection and component checking, an electrical-continuity test is to be made.		P
52.2	Continuity of grounding connection		P
52.2.1	Each cord-connected appliance having provision for grounding shall be tested, as a routine production-line test, to determine that grounding continuity exists between the ground blade of the attachment plug and the accessible dead metal parts of the appliance that are likely to become energized.		P
52.2.2	Only a single test need be conducted if the accessible metal selected is conductively connected by design to all other accessible metal.		P
52.3	Electrical indicating device		N/A
52.3.1	Any indicating device, such as an ohmmeter, a battery and buzzer combination, or the like, may be used to determine compliance with the tests described in 52.1.1 – 52.2.2.		N/A
RATINGS			
53	Details		P
53.1	A heating appliance shall be rated in amperes, volt-amperes, or watts, and also in volts, and may be rated for alternating current only. The rating shall include the frequency if necessary because of control devices.	89%, 32°C, 48hours	P
MARKINGS			
54	Details		P
54.1	A warning or caution marking shall comply with all of the following requirements: a) The marking shall be permanently attached. b) The marking shall not be attached to parts removable by hand. c) The marking shall be attached to parts that cannot be removed without impairing the operation of the appliance or left off the appliance without being readily apparent. d) The marking shall have lettering that complies with the following requirements: 1) The precautionary signal word (such as ² DANGER ² , ² WARNING ² , OR ² CAUTION ²) shall be in letters not less than 3/32 inch (2.4 mm) high. 2) If contrasting color is used, lettering other than signal words can be a minimum of 1/16 inch (1.6 mm) high		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
54.2	All other markings required in this Section shall be such that the marking is clear and legible under conditions of intended use of the appliance.		P
54.3	An appliance shall be legibly and permanently marked with: a) The manufacturer' s name, trade name, trademark, or other descriptive marking by which the organization responsible for the product may be identified; b) The date or other dating period of manufacture not exceeding any three consecutive months, which may be abbreviated or in a nationally accepted conventional code, or, in a code affirmed by the manufacturer; c) A distinctive (catalog) (model) number or the equivalent; and d) The electrical rating.		N/A
54.4	An appliance shall be marked, where readily-visible, to indicate that the appliance is intended for household type usage, such as, ² Household Use Only ² , ² Household Type ² , and the like. Lettering shall be not less than 3/32 inch (2.4 mm) high.		N/A
54.5	If a manufacturer produces or assembles appliances at more than one factory, each finished appliance shall have a distinctive marking – which may be in code – by which it may be identified as the product of a particular factory.		N/A
54.6	If the construction of an appliance contemplates disassembly by means of a tool for the purpose of cleaning or similar servicing by the user (including replacement of a thermal cutoff) and, if such disassembly involves the exposure of persons to unintentional contact with any normally enclosed or protected live part, the appliance shall be plainly marked with a warning that such servicing should be done only while the appliance is disconnected from the supply circuit. See also 7.13.		N/A
54.7	An appliance with an attached cord or detachable power-supply cord 4-1/2 ft (1.4 m) or longer in length shall be provided with specific instructions, which are not part of Important Safeguards, that state: ² To reduce the risk of injury, do not drape cord over the counter top or table top where it can be pulled on by children or tripped over unintentionally ² or an equivalent wording.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
54.8	An appliance with an attached cord or detachable power-supply cord less than 4-1/2 ft (1.4 m) in length shall be provided with instructions, which are not part of Important Safeguards, that include the following information: a) A short power-supply cord (or detachable power-supply cord) is to be provided to reduce risks resulting from becoming entangled in or tripping over a longer cord. b) Longer detachable power-supply cords or extension cords are available and may be used if care is exercised in their use. c) If a long detachable power-supply cord or extension cord is used: 1) The marked electrical rating of the detachable power-supply cord or extension cord should be at least as great as the electrical rating of the appliance; 2) If the appliance is of the grounded type, the extension cord should be a groundingtype 3-wire cord; and 3) The longer cord should be arranged so that it will not drape over the counter top or table top where it can be pulled on by children or tripped over.		N/A
54.9	An appliance that is likely to be lifted and handled for cleaning purposes and has not been subjected to the Immersion Tests, in accordance with 33.1.4 and 34.3 shall be marked ² Do not immerse in water² or with an equivalent wording. If the appliance is intended for partial immersion but not for complete immersion, it shall be marked ² Do not immerse beyond this point² or with an equivalent wording to show the point beyond which it should not be immersed.		N/A
54.10	An appliance that utilizes a detachable power-supply cord shall be provided with the following: a) The appropriate detachable power-supply cord as indicated in Supply Connections, Section 11; or b) Instructions that: 1) Advise the consumer that the appropriate detachable power-supply cord is not provided; and 2) Specify which detachable power-supply cord or cords are appropriate. If long and short detachable power-supply cords are available, the instructions shall include information regarding the problems attendant with each.		N/A
54.11	The instructions in 54.10(b) shall be marked on the outer packaging material of the product, and in the instruction manual provided with the appliance.		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
54.12	If a specific spacing between a cord-connected wall or an under-cabinet mounted appliance and an adjacent surface is necessary so that temperatures higher than 90° C (194° F) are not obtained when the appliance is operated as intended, the appliance shall be marked ² Do not install closer than ____ inches (____ mm) to a (vertical, horizontal, and the like) surface ² or the equivalent. The value of the spacing to be used in the statement or the diagram shall not be less than that necessary so that temperatures higher than 90° C (194° F) are not obtained on the wall when the appliance is tested in the corner as described in 33.1.15. The statement or the diagram shall be legible and located so that it will be clearly visible during installation.		N/A
54.13	An under-cabinet or wall mounted appliance shall be permanently marked with the following or equivalent ² CAUTION – To reduce the risk of fire, do not place any heating or cooking appliance beneath this unit ² . The marking is to be in lettering minimum 3/32 inch (2.4 mm) high, on the front of the appliance, or the front leading edge of the mounting bracket and shall be visible after the appliance is mounted. The lettering is to be on a contrasting background, or the letters are to be raised, or the equivalent so that the marking is readily readable.		N/A
55	Carton Marking		P
55.1	A carton (individual marketing container) for an appliance shall be marked to indicate that the appliance is intended for household type usage, such as, ² Household Use Only ² , ² Household Type ² , and the like. 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 55.1.		P
INSTRUCTION MANUAL			
56	General		P
56.1	An instruction manual or the equivalent shall be provided with the appliance. The manual shall specifically warn the user against each potential risk and state the precautions that should be taken to guard against each risk. The safety instructions shall be a permanent part of the manual but separated in format from the other instructions, and shall appear before the operating instructions in the manual.		P
56.2	The instruction manual shall include instructions or illustrations to identify important safety features.		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
56.3	The height of lettering in the text and illustrations of the safety instructions shall be as follows: a) Upper case letters shall be not less than 1/12 inch (2.1 mm) in height; b) Lower case letters shall be not less than 1/16 inch (1.6 mm) in height; c) The phrases ² IMPORTANT SAFEGUARDS² and ² SAVE THESE INSTRUCTIONS² shall be in letters no less than 3/16 inch (4.8 mm) in height		N/A
56.4	The instruction manual shall include the safety instructions in All Appliances, Section 57, and the appropriate text from Specific Appliances, Section 58.		N/A
56.5	Unless otherwise indicated, the text of the instructions shall be verbatim to, or in equally definitive terminology as All Appliances, Section 57, and Specific Appliances, Section 58, except where specific conflict exists in the application of the text to a product or where the risk alluded to has been reduced. The items may be numbered, and the phrases ² Read all Instructions² and ² Save these Instructions² shall be first and last, respectively, in a list of items. Other important and safety instruction items considered appropriate by the manufacturer may be inserted.		N/A
56.6	For a dual voltage rated appliance, procedures to be followed in changing the voltage selector, if provided and providing the correct supply connection means for each voltage setting shall be provided. In addition, the following wording or equivalent shall be provided: ² For use in the U.S.A., the voltage selector switch should be placed in the 120 V position. For use in several countries overseas, the voltage selector may need to be placed in the 240 V position. Confirm the voltage available at each overseas location before using the appliance. For connection to a 240 V supply, use an attachment plug adapter of the proper configuration for the power supply receptacle.²		N/A
56.7	An appliance provided with a 2-wire polarized attachment plug shall include the following or equivalent wording: ² This appliance has a polarized plug (one blade is wider than the other). To reduce the risk of electric shock, this plug is intended to fit into a polarized outlet only one way. If the plug does not fit fully into the outlet, reverse the plug. If it still does not fit, contact a qualified electrician. Do not attempt to modify the plug in any way		N/A

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
57	All Appliances		P
57.1	The following applies to all appliances: 1. Read all Instructions. 2. Do not touch hot surfaces. Use handles or knobs. 3. To protect against fire, electric shock and injury to persons do not immerse cord, plugs, or (state specific part or parts in question) in water or other liquid. 4. Close supervision is necessary when any appliance is used by or near children. 5. Unplug from outlet when not in use and before cleaning. Allow to cool before putting on or taking off parts, and before cleaning the appliance. 6. Do not operate any appliance with a damaged cord or plug or after the appliance malfunctions, or has been damaged in any manner. Return appliance to the nearest authorized service facility for examination, repair or adjustment. 7. The use of accessory attachments not recommended by the appliance manufacturer may result in fire, electric shock or injury to persons. 8. Do not use outdoors (this item may be omitted if the product is specifically designed for outdoor use). 9. Do not let cord hang over edge of table or counter, or touch hot surfaces. 10. Do not place on or near a hot gas or electric burner, or in a heated oven. 11. Always attach plug to appliance first, then plug cord into the wall outlet. To disconnect, turn any control to ² off,² then remove plug from wall outlet. 12. Do not use appliance for other than intended use. 13. Save these Instructions.		P
58	Specific Appliances		P
58.1	Coffee makers, liquid heaters 1. (Special instructions covering lid placement and removal. Wording may vary.) 2. Scalding may occur if the lid is removed during the brewing cycles.		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
58.2	Appliances with detachable handles 1. Be sure that handles are assembled and fastened properly. 2. (The manufacturer shall supply explicit instructions detailing the proper assembly of the handles.) 3. (The manufacturer shall explain how improper assembly of the handles can be determined.)		N/A
58.3	Under cabinet and wall mounted appliances a) To reduce the risk of fire, do not place any heating or cooking appliance beneath the appliance. b) To reduce the risk of fire, do not mount unit over or near any portion of a heating or cooking appliance. c) To reduce the risk of electric shock, do not mount over a sink. d) To reduce the risk of fire, do not store anything directly on top of the appliance surface when the appliance is in operation.		N/A
58.4	A cautionary marking that is required to be on an appliance shall be repeated in its entirety or with an equivalent wording in the instruction manual. The marking may be included in the Important Safeguards.		N/A
58.5	Dual voltage rated appliances 1. Be sure dual voltage selector, if provided, is in correct voltage position before operating. Before plugging in, read the information about the dual voltage contained in instruction section of this manual. 2. ² This appliance was set at the factory to be operated at ____ V. Refer to operating instructions section of this manual for conversion to ____ V operation ² or equivalent. The blanks are to be filled in with the appropriate voltage information.		N/A
59	User Maintenance		P
59.1	The instruction manual shall include appropriate instructions and caution statements for cleaning, user-maintenance (such as lubrication or nonlubrication) operations recommended by the manufacturer, and shall warn a user that any other servicing 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
59.2	Instructions for mounting an under-cabinet or wall mounted appliance shall be provided. The actual instructions shall be located on the appliance, or in the literature packed with the appliance. The actual instructions shall not be in the Important Safeguards, however, there may be a reference to them in the Important Safeguards. (Such as ² Wall or under-the-cabinet mounting should follow the directions in the installation instructions ²).		P

UL1082			
Clause	Requirement – Test	Result – Remark	Verdict
SUPPLEME NT SA	HOUSEHOLD ELECTRIC DRIP-TYPE COFFEE MAKERS AND SIMILAR DRIP- TYPE BREWING APPLIANCES		N/A
SUPPLEME NT SB	HOSPITALITY-USE DRIP-TYPE COFFEE MAKERS		P

30	TABLE: Power Input Test					P
Input deviation of/at:	P rated (W)	P measured (W)	ΔP	Required ΔP	Remark	
110V	300	276.2	-7.93%	+5% , -10%	Normal condition	
120V	300	282.5	-5.83%	+5% , -10%	Normal condition	
					--	
					--	
Supplementary information:						

31	Table: Leakage-Current Test			N
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	

33	TABLE: Normal-Temperature Test						P
	Supply voltage (V)	100	240	--	--	--	—
	Ambient T_{min} (°C)	24.0	24.3	--	--	--	—
	Ambient T_{max} (°C)	24.5	25.3	--	--	--	—
Maximum measured temperature T of part/at::		T (°C)					Allowed T_{max} (°C)
RV1 body		69.6	55.8	--	--	--	85
EC1 Body		70.3	54.9	--	--	--	105
Supply cord		52.8	52.2	--	--	--	80
L1 winding		82.2	57.3	--	--	--	110
EC2 body		74	61.1	--	--	--	105
PCB near U1		95.8	81.2	--	--	--	130
CY2 body		79.5	76.9	--	--	--	125
T1 winding		83.3	80.8	--	--	--	90
T1 core		80	78.9	--	--	--	90
EC5 Body		69.3	78.7	--	--	--	105
PCB near DA		80.4	92.6	--	--	--	130
Internal wire		49.0	53.2	--	--	--	80
L2 wingding		69.7	84.6	--	--	--	110
PCB near Q2		60.1	76.2	--	--	--	130
PCB near D1		95.6	83.4	--	--	--	130
Test Conner		44.5	46.6	--	--	--	65
Ambient		40.0	40.0	--	--	--	--

Pictures:



Fig. 1 Overview



Fig. 2 Overview

Pictures:



Fig. 3 Internal View



Fig. 4 Connector View

-- End of Test Report --