

UL 484

STANDARD FOR SAFETY

Room Air Conditioners



MAY 15, 2019 – UL 484 tr1

UL Standard for Safety for Room Air Conditioners, UL 484

Ninth Edition, Dated February 7, 2014

Summary of Topics

This revision to ANSI/UL 484 dated May 15, 2019 includes the following changes in requirements:

Revision of Dielectric Strength Requirements in Clause 50

Correcting a typo in the definition for electrical circuits, clause 3.6.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated February 22, 2019.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

tr2 MAY 15, 2019 – UL 484

No Text on This Page

This is a preview. Click here to purchase the full publication.

FEBRUARY 7, 2014

(Title Page Reprinted: May 15, 2019)



1

UL 484

Standard for Room Air Conditioners

First Edition – August, 1954
Second Edition – September, 1957
Third Edition – December, 1961
Fourth Edition – January, 1972
Fifth Edition – March, 1973
Sixth Edition – March, 1982
Seventh Edition – April, 1993
Eighth Edition – December, 2007

Ninth Edition

February 7, 2014

This ANSI/UL Standard for Safety consists of the Ninth Edition including revisions through May 15, 2019.

The most recent designation of ANSI/UL 484 as an American National Standard (ANSI) occurred on May 15, 2019. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 484 on February 5, 1993. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

COPYRIGHT © 2019 UNDERWRITERS LABORATORIES INC.

This is a preview. Click here to purchase the full publication.

No Text on This Page

CONTENTS

INIT	DC.	וחו	ICT	TION
1141	nu	יטי	וטע	IUII

1 Scope	
2 General	
2.1 Units of measurement	
2.2 Terminology	
2.3 Undated references	8A
3 Glossary	8A
CONSTRUCTION	
4 General	10
5 Assembly	
6 Accessories	
7 Enclosures	
7.1 General	
7.2 Enclosures exposed to weather	
8.1 General	
8.2 Material classification	
8.3 Ignition sources	
8.4 Material application	
9 Mounting Hardware	
10 Field Supply Connections	
10.1 Permanently-connected units	
10.2 Cord-connected units	
10.3 Grounding	
11 Internal Wiring	
11.1 General	
11.2 High-voltage circuits	
11.3 Low-voltage circuits	
11.5 Short circuit protection	
12 Secondary Circuits	
12.1 General	
12.2 Class 2 circuits	
12.3 Limited voltage/current circuits	
13 Separation of Circuits	
14 Bonding for Grounding	
,	
15.1 General	47
15.2 Equipment employing drop-out ceilings used beneath automatic sprinklers	4/
ELECTRICAL COMPONENTS	
16 Capacitors	
17 Current-Carrying Parts	
18 Electric Air Heaters	
18.1 Heater elements	
18.2 Heater overtemperature control	

		18.3 Heater overcurrent protection	51
	19	Fuseholders and Circuit Breakers	52
		19.1 Fuseholders	52
		19.2 Circuit breakers	
	20	Fuses and Supplementary Protectors	
		Insulating Material	
		Motors	
	23	Motor Protection	
		23.1 General	
		23.2 Protection of single-phase nonhermetic motors	
		23.3 Protection of three-phase motors	59
		23.4 Protection of hermetic refrigerant motor-compressors	60
	24	Switches and Controllers	60
	25	Valves and Solenoids	65
		Outlet Boxes, Electrical Cable, Conduit and Tubing	
		Electromagnetic Interference Filters	
		Relays and Contactors	
		Optical Isolators and Semiconductor Devices	
		Terminal Blocks	
	31	Transformer Protection	
		31.1 High-voltage transformer	
		31.2 Overcurrent protective device	
	32	High-Voltage Control Circuit Conductor Overcurrent Protection	
		32.1 General	
		32.2 Direct-connected high-voltage control circuit	
		32.3 Tapped high-voltage control circuit	70
		32.4 Overcurrent protective device	.70A
	32/	A Button or Coin Cell Batteries of Lithium Technologies	.70B
ELE	CTF	RICAL SPACINGS	
	33	High-Voltage Circuits	70B
		Low-Voltage Circuits	
		Alternate Spacings – Clearances and Creepage Distances	
	00	Alternate opacings Olearanees and Olechage Distances	/ ¬
DEE	DIC	ERATION SYSTEM	
NLI	nia	ENATION STSTEM	
	26	Defrigorent	75
		Refrigerant	
		Pump-Down Capacity	
		Refrigerant Tubing and Fittings	
		Refrigerant-Containing Parts	
		Pressure-Limiting Device	
	41	Pressure Relief	
		41.1 General	78
		41.2 Relief valves	79
		41.3 Fusible plugs or rupture members	79
PER	FOF	RMANCE	
	42	Instrumentation	79
		42.1 Temperature measurements	
		42.2 Pressure measurements	
		Test Voltage	
	40		

	Leakage Current Test – Cord-Connected Room Air Conditioners	
	Test Conditions for Input Test and Temperature-Pressure Test	
	Input Test	
	47.1 General	
	47.2 Cooling load	
	47.3 Heating load (reverse cycle heat only)	
	47.4 Heating load (resistance heat only)	
	47.5 Heating load (combination reverse cycle and resistance heat)	
48	Temperature and Pressure Test	
	Starting Test	
	Dielectric Voltage-Withstand Test	
	Condenser Fan Motor Failure Test	
	Condenser Water Failure Test	
	Temperature Test – Steam Or Hot Water Heat	
	Temperature Test – Resistance Heat	
	Abnormal Tests – Resistance Heat	
	55.1 General	
	55.2 Blocked outlet	
	55.3 Restricted inlet	99
	55.4 Fan Failure	
56	Static Loading Test	99
57	Stability Test	100
58	Overflow Test	100
59	Spillage Test	100
60	Heater Temperature-Limiting Control Tests	101
	60.1 Endurance test	
	60.2 Calibration test	
	Maximum Continuous Current Test- Motor-Compressor Protection Devices	
62	Limited Short-Circuit Test	
	62.1 General	
	62.2 Motor overload protective devices	
	62.3 Bonding conductors and connections	
	62.4 Motor circuit conductors and connections	
	Current Overload Test – Bonding Conductors and Connections	
	Overvoltage and Undervoltage Tests	
65	Insulation Resistance Test	
	65.1 Sheath-type heaters	
00	65.2 Thermal and acoustical insulation material	
	Accelerated Aging Test – Electric Heaters	
	Reliability Test – Heater Terminations	
	Accelerated Aging Tests On Gaskets Sealing Compounds, And Adhesives	
	Metallic Coating Thickness Test	
	Fatigue Test Analysis	
/ 1	71.1 General	
	71.2 Test specifications	
	71.3 Material specifications	
	71.5 Test method	
	71.6 Test method	
	71.7 Cycle test pressure specification	
72	Strain Relief Test	

/3 Burnout Tests – Electromagnetic Components	
POLYMERIC MATERIALS – PERFORMANCE	
74 Heat Deflection or Mold Stress-Relief Test	
75 Water Absorption Test	
76 Environmental Exposure	
76.1 Air oven aging	
76.2 Ultraviolet light and water exposure	
76.3 Water immersion	
77 Tensile Strength Test	
78 Flexural Strength Test	
79 Izod Impact Test	
80 Burnout Test – High-Voltage Transformers	
81 Overload Test – High-Voltage Transformers	
82 Tensile Impact Test	
83 Impact Test	
84 Volume Resistivity Test	
MANUFACTURING AND PRODUCTION TESTS	
85 Pressure Tests	123
86 Production Line Dielectric Voltage-Withstand Test	124
87 Production Line Grounding Continuity Test	
MARKING	
88 General	
89 Permanently-Connected Units	
90 Cord-Connected Units	
INSTRUCTIONS	
91 Installation and Operating Instructions	138
SUPPLEMENT SA - REQUIREMENTS FOR ROOM AIR CONDITIONERS FLAMMABLE REFRIGERANT IN THE REFRIGERATING SYSTEM	S EMPLOYING A
SA1 Scope	<u>S</u> Δ1
SA2 Definitions	
SA3 General	
SA4 Construction	
SA4.1 Refrigeration system	
SA4.2 Resistance to corrosion	
SA5 Performance	
SA5.1 Leakage test	SA3
SA5.2 Ignition protection test	
SA5.3 Temperature test	
SA6 Marking, Installation and Operating Instructions	
SA6.1 Marking	
SA6.2 Installation and operating instructions	SA6

SUPPLEI	MENT 5B - REQUIREMENTS FOR SMART ENABLED ROOM AIR CONDITIONER	15
	Scope	
	General	
	Functional Safety	
	Resistance to Electro Magnetic Phenomena (Immunity)	
SB5	Marking and Instructions	SB5
SUPPLEM	MENT SC - ALTERNATIVE PATH FOR ELECTRONIC CONTROLS REQUIREMEN	ITS
INTRODU	ICTION	
SC1	Scope	SC1
	General	
SC3	Definitions	SC2
CONSTR	UCTION	
SC4	Components	
	SC4.1 Temperature sensing, thermistor devices	
	SC4.2 Printed wiring boards	
	Enclosures	
	Field Connections	
	Electrical Spacing	
	Electrical Insulation	
509	Control Functions	
	SC9.1 General	
	SC9.3 Operating controls or circuits that perform safety critical functions	
SC1	O Evaluation of the Different Types of Control Circuits	
	Protective Electronic Circuits	
	2 Operating Controls or Circuits that Perform Safety Critical Functions	
PERFORI	MANCE	
SC1	3 General Conditions for the Tests	SC8
	SC13.1 Details	
	SC13.2 Intentionally weak parts	
	SC13.3 Test results determined by overcurrent protection operation	
SC1	4 Low-Power Circuits	
	SC14.1 Low-power circuit determination	
	SC14.2 Low-power circuit fire tests	
SC1	5 Abnormal Operation and Fault Tests	SC11
	6 Programmable Component Reduced Supply Voltage Test	
SC1	7 Electromagnetic Compatibility (EMC) Requirements - Immunity	SC13
MANUFA	CTURING AND PRODUCTION LINE TESTING	
SC1	8 General	SC14