



UL 497A

STANDARD FOR SAFETY

Secondary Protectors for Communications Circuits

UL Standard for Safety for Secondary Protectors for Communications Circuits, UL 497A

Third Edition, Dated March 20, 2001

Summary of Topics

This revision of ANSI/UL 497A, dated October 17, 2019, includes the addition of reference UL 62368-1 as an alternative to UL 60950-1.

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 revised requirements are substantially in accordance with Proposal(s) on this subject dated July 26, 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.

No Text on This Page

MARCH 20, 2001

(Title Page Reprinted: October 17, 2019)



ANSI/UL 497A-2019

1

UL 497A

Standard for Secondary Protectors for Communications Circuits

First Edition – January, 1990
Second Edition – January, 1996

Third Edition

March 20, 2001

This ANSI/UL Standard for Safety consists of the Third Edition including revisions through October 17, 2019.

The most recent designation of ANSI/UL 497A as an American National Standard (ANSI) occurred on October 1, 2019. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

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.

No Text on This Page

CONTENTS

INTRODUCTION

1	Scope	5
2	General	5
2.1	Components	5
2.2	Units of measurement	6
2.3	Undated references	6
3	Glossary	6

CONSTRUCTION

4	General	9
5	Product Assembly	9
6	Enclosures	10
6.1	General	10
6.2	Enclosure top openings	13
6.3	Enclosure side openings	13
6.4	Enclosure bottom openings	16
7	Internal Materials	16
8	Accessibility and Electric Shock	17
9	Mechanical Assembly	23
10	Protection Against Corrosion	23
11	Cords	24
11.1	Strain relief	24
11.2	Bushings	24
12	Current-Carrying Parts	25
13	Internal Wiring	25
13.1	General	25
13.2	Splices and connections	25
14	Interconnecting Cords and Cables	26
14.1	General	26
14.2	Separation of circuits	26
14.3	Terminal and connectors	27
15	Insulating Material	27
16	Printed-Circuit Board	27
17	Overcurrent (Overload) Devices	28
18	Spacings	28

RISK OF INJURY TO PERSONS

19	General	29
20	Modular Jacks	29
21	Sharp Edges	30
22	Stability	30
23	Protection of Service Personnel	31

PERFORMANCE

24	General	31
25	Breakdown Voltage Measurement Test	35
26	Impulse Voltage Measurement Test	36
27	Overvoltage Test	36

27.1	General	36
27.2	Test method	40
28	Endurance Conditioning	42
29	Component Temperature Test	43
30	Drop Test	45
31	Impact Test	46
32	Crush Test	46
33	Strain Relief Test	46
34	Leakage Current Test	47
35	Dielectric Voltage-Withstand Test	48
36	Rain Test	49
37	Maximum Moment Measurement Test	52
38	Weatherometer and Micro Tensile Strength Test	52
39	Thermal Aging and Flame Test	53
40	Electric Shock Current Test	53

MANUFACTURING AND PRODUCTION-LINE TEST

41	Dielectric Voltage-Withstand Test	57
----	---	----

MARKING

42	General	59
43	Installation Instructions	60
44	Instruction Manual	60

APPENDIX A

Standards for Components	65
--------------------------------	----

APPENDIX B – INFORMATION RELATING TO THE TESTING LABORATORY DIELECTRIC VOLTAGE-WITHSTAND TEST (TYPE TEST) AND THE PRODUCTION-LINE DIELECTRIC VOLTAGE-WITHSTAND TEST (ROUTINE TEST)

B1	Purpose	66
B2	Testing Laboratory Dielectric Voltage-Withstand Test (Type Test)	66
B3	Production-Line Dielectric Voltage-Withstand Test (Routine Test)	66
B4	Production-Line Dielectric Voltage-Withstand Tester Performance (Sensitivity)	67
B4.1	General	67
B4.2	Voltage Regulation (For the 1-Second Factory Test Only)	68

INTRODUCTION

1 Scope

1.1 These requirements cover secondary protectors for use in single- or multiple-pair-type communications circuits that are intended to be installed in accordance with Article 800 of the National Electrical Code, ANSI/NFPA 70.

1.2 Secondary protectors are intended to be used in the protected side of telecommunications networks that have an operating rms voltage to ground less than 150 volts and installed or used in accordance with the National Electrical Code, NFPA 70.

1.3 These requirements do not cover telephone protectors that are covered by the Standard for Protectors for Paired-Conductor Communications Circuits, UL 497. These requirements do not cover telephone equipment such as telephone answering devices, residential telephone instruments, telephone dialers, cordless telephones, key systems, and private-branch exchange equipment that is covered by the Standard for Information Technology Equipment – Safety – Part 1: General Requirements, UL 60950-1 or the Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements, UL 62368-1.

1.4 These requirements do not cover cellular telephones or other receiver/transmitter-type devices. Equipment of this type is covered by one of the following Standards:

- Standard for Audio, Video and Similar Electronic Apparatus – Safety Requirements, UL 60065
- Standard for Information Technology Equipment – Safety – Part 1: General Requirements, UL 60950-1; or
- Standard for Audio/Video, Information and Communication Technology Equipment – Part 1: Safety Requirements, UL 62368-1.

1.5 These requirements may be used, directly or by reference, to investigate portions of other equipment not classified as telecommunications equipment accessories and that may be connected to a telecommunications network, insofar as they may be applicable to such equipment.

1.6 These requirements do not cover wires and cables intended to be permanently installed in a building in accordance with Article 800 of the National Electrical Code, NFPA 70.

1.7 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

2 General

2.1 Components

2.1.1 Except as indicated in [2.1.2](#), a component of a product covered by this standard shall comply with the requirements for that component. See Appendix [A](#) for a list of standards covering components used in the products covered by this standard.