



# ANSI/CAN/UL 3030:2018 (R2024)

JOINT CANADA-UNITED STATES  
NATIONAL STANDARD

## STANDARD FOR SAFETY Unmanned Aircraft Systems

ULNORM.COM : Click to view the full PDF of UL 3030 2024



ANSI/UL 3030-2018 (R2024)



## SCC FOREWORD

### National Standard of Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at [www.scc.ca](http://www.scc.ca).

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at [www.scc.ca](http://www.scc.ca).

ULNORM.COM : Click to view the full PDF of UL 3030 2024

UL Standard for Safety for Unmanned Aircraft Systems, ANSI/CAN/UL 3030

First Edition, Dated September 18, 2018

### **Summary of Topics**

***This revision of ANSI/CAN/UL 3030 dated August 30, 2024 is being issued to update the title page to reflect the latest ANSI and SCC approval dates as a Reaffirmed American National Standard (ANS) and National Standard of Canada (NSC). No changes in requirements are involved.***

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

The requirements are substantially in accordance with Proposal(s) on this subject dated May 31, 2024.

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 ULSE Inc. (ULSE).

ULSE 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 ULSE 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 ULSE or an authorized ULSE representative has been advised of the possibility of such damage. In no event shall ULSE'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 ULSE 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

[ULNORM.COM](https://ulnorm.com) : Click to view the full PDF of UL 3030 2024



ANSI/UL 3030-2018 (R2024)

**SEPTEMBER 18, 2018**  
(Title Page Reprinted: August 30, 2024)



1

ANSI/CAN/UL 3030:2018 (R2024)

**Standard for Unmanned Aircraft Systems**

**First Edition**

**September 18, 2018**

This ANSI/CAN/UL Safety Standard consists of the First Edition including revisions through August 30, 2024.

The most recent designation of ANSI/UL 3030 as a Reaffirmed American National Standard (ANS) occurred on August 30, 2024. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on August 30, 2024.

© 2024 ULSE Inc. All rights reserved.

No Text on This Page

[ULNORM.COM](https://ULNORM.COM) : Click to view the full PDF of UL 3030 2024

**CONTENTS**

<b>Preface .....</b>	<b>5</b>
----------------------	----------

**INTRODUCTION**

1 Scope .....	7
2 Components .....	7
3 Units of Measurement .....	8
4 Undated References .....	8
5 Normative References .....	8
6 Glossary .....	12

**CONSTRUCTION**

7 General .....	14
8 Nonmetallic Materials .....	14
9 Metallic Materials .....	16
10 Enclosures .....	16
11 Assembly .....	16
12 Internal Wiring and Terminals .....	17
13 Chargers .....	18
14 Insulation Levels and Protective Grounding .....	18
15 Protection Circuits and Safety Analysis .....	19
16 Printed Wiring Boards .....	21
17 Battery Cells and Battery Packs .....	21
17.1 General .....	21
17.2 Battery cells .....	21
17.3 Battery packs .....	21
18 Motors .....	22
19 Spacings and Separation of Circuits .....	22
20 Fuses .....	23
21 Accessories .....	23

**PROTECTION AGAINST INJURY**

22 Sharp Edges .....	23
23 Strength of Enclosures .....	23

**PERFORMANCE**

24 General .....	23
25 Tolerances .....	25
26 Post-Test Cycle .....	26
27 Input Verification .....	26
28 Temperature Test (Charging and Flying) .....	26
29 Dielectric Voltage Withstand Test .....	29
30 Isolation Resistance Test .....	30
31 Capacitor Discharge Test .....	31
32 Abnormal Operation .....	31
32.1 General .....	31
32.2 Component faults .....	32
32.3 Relay and solenoid burnout .....	32
32.4 Disconnected fans/blocked vents .....	32

32.5	Internal battery reverse polarity .....	32
32.6	Overcharge .....	33
32.7	Short circuit .....	33
32.8	Imbalanced charging .....	34
32.9	Shock test .....	34
32.10	Thermal cycling .....	35
33	Vibration Test .....	36
33.1	Batteries/battery packs .....	36
33.2	Complete UAS .....	36
34	Strength of Enclosures Tests .....	37
34.1	Impact .....	37
34.2	Drop .....	37
35	Mold Stress .....	38
36	Water Exposure Tests .....	38
36.1	IPX4 code rating .....	38
36.2	Temporary immersion .....	39
37	Accelerated Aging of Gaskets .....	39
38	Permanence of Marking .....	41
39	Motor Overload .....	41

## MARKINGS

40	Identification Markings .....	42
41	Cautionary Markings .....	42

## INSTRUCTIONS

42	General .....	43
43	Instructions Pertaining to Risk of Fire, Electric Shock, or Injury to Persons .....	43
44	Installation Instructions .....	44
45	Operating Instructions .....	44
46	User Maintenance Instructions .....	45
47	Moving and Storage Instructions .....	45

## Appendix A – French Translations of Safety Markings (Normative)

A1	French Translations of Safety Markings .....	46
----	--	----

## Preface

This is the First Edition of the ANSI/CAN/UL 3030 Standard for Safety for Unmanned Aircraft Systems.

ULSE is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

This ANSI/CAN/UL 3030 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

Annex [A](#) is identified as Normative, as such, forms mandatory parts of this Standard.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

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

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

This Edition of the Standard has been formally approved by the Technical Committee (TC) on Unmanned Aircraft Systems, TC 3030.

This list represents the TC 3030 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

### TC 3030 Membership

Name	Representing	Interest Category	Region
Albuquerque, Paul V	Federal Aviation Administration	Government	USA
Caina, Javier	DJI Research LLC	Producer	USA
Chou, Mike	Great Consultant Service (GCS) Co., Ltd.	General Interest	Taiwan
Feng, Drew	Xiamen Ampace Technology Limited	Supply Chain	China
Haines, Eric C	NUAIR Alliance	Commercial / Industrial User	USA
Karol, Thomas	NAMIC	General Interest	USA
Kenul, Philip M	Trivector Services	Producer	USA
Koo, Shaun	H3zoom.ai	Commercial / Industrial User	Singapore
Leber, Jody	CSA Group	Testing & Standards Org.	Canada

TC 3030 Membership Continued on Next Page

### TC 3030 Membership Continued

Name	Representing	Interest Category	Region
Lee, V-bond	Advanced Mobility Products Inc.	Supply Chain	Canada
Lucius, William C	Air Line Pilots Association	General Interest	USA
Martin, Oliver	Air Line Pilots Association	General Interest	USA
McLaughlin, Brent E	Asylon, Inc.	Commercial / Industrial User	USA
Mellon, Tyrone	Persistent Systems LLC	Supply Chain	USA
Palombo, David S	Aveox Inc.	Supply Chain	USA
Jordan Pappas, Diana	UL Standards & Engagement	TC Chair (Non-Voting)	USA
Sasso, Nick	State of Wyoming	Authorities Having Jurisdiction	USA
Tiwary, Sumit	Clark County, Nevada	Authorities Having Jurisdiction	USA
Wang, Jiangdong	CQC	Testing & Standards Org.	China
Yang, Shuping	Beijing Research Institute of Automation for Machinery Industry	International Delegate	China
Zheng, Junqi	SEARI	Testing & Standards Org.	China
Zheng, Aaron	UL Standards & Engagement	Project Manager (Non-Voting)	USA

International Classification for Standards (ICS): 49.020; 29.220

For information on ULSE Standards, visit <https://www.shopulstandards.com>, call toll free 1-888-853-3503 or email us at [ClientService@shopULStandards.com](mailto:ClientService@shopULStandards.com).

This Standard is intended to be used for conformity assessment.

The intended primary application of this standard is stated in its scope. It is important to note that it remains the responsibility of the user of the standard to judge its suitability for this particular application.

CETTE NORME NATIONALE DU CANADA EST DISPONIBLE EN VERSIONS FRANÇAISE ET ANGLAISE.