



**SAFER  
BUILDINGS  
COALITION**

# Safer Buildings Coalition Members-Only Webinar:

UL 2524: Outline of Investigation for  
In-building 2-Way Emergency Radio  
Communication Enhancement Systems

October 4, 2018 at 1:00 p.m.

UL 2524



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## User Instructions

1. You will receive a copy of the slides after the presentation
2. Use the Q&A button to ask questions
3. Use the Chat window to alert the webinar host to any technical issues
4. A Recording is being made of this Webinar and will be made available

# Today's Speakers



**Moderated by:**

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General Manager  
Safer Buildings Coalition**



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Principal Engineer -  
Life Safety Technologies  
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**Chief Alan W. Perdue  
Executive Director  
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**Bruce E. Johnson  
Senior Regulatory Engineer  
Codes and Regulatory Services  
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# What Will the Codes Require?

**11.10.2.1 Two-way radio communication enhancement systems installed within buildings shall be listed and labeled in accordance with UL 2524 Standard for In-building 2-Way Emergency Radio Communication Enhancement Systems.**

**Chapter 2:**

**UL 2524, Standard for In-building 2-Way Emergency Radio Communication Enhancement Systems, (month, 2018)**



**NFPA 1  
NFPA 101  
International Fire Code**





## Key Takeaways For Today's Webinar

- **What are the Fire Code Requirements for Listing**
- **What is the Listing Standard**
- **What Happens When Versions of the Listing Standard Changes**
- **Who can List Public Safety In-Building Components**
- **What is the Process for Obtaining Listing**
- **What is the Anticipated Timeline for Obtaining Listing**
- **Navigating the UL Website for Listed Equipment**

*In-Building 2-Way Emergency  
Radio Communication  
Enhancement Systems*

UL 2524



# Agenda

1. About UL
2. Standard development process
3. Overview of UL 2524
4. Certification process
5. Getting started with UL
6. Frequently Asked Questions



About UL





# UL Overview

- Founded in 1894
- 22 billion UL Marks applied annually
- 96,000 annual product evaluations
- 170 UL testing and certification facilities
- 104 countries with UL customers
- 11,600 employees in 40 countries
- 1,614 current standards for safety



# UL NFP

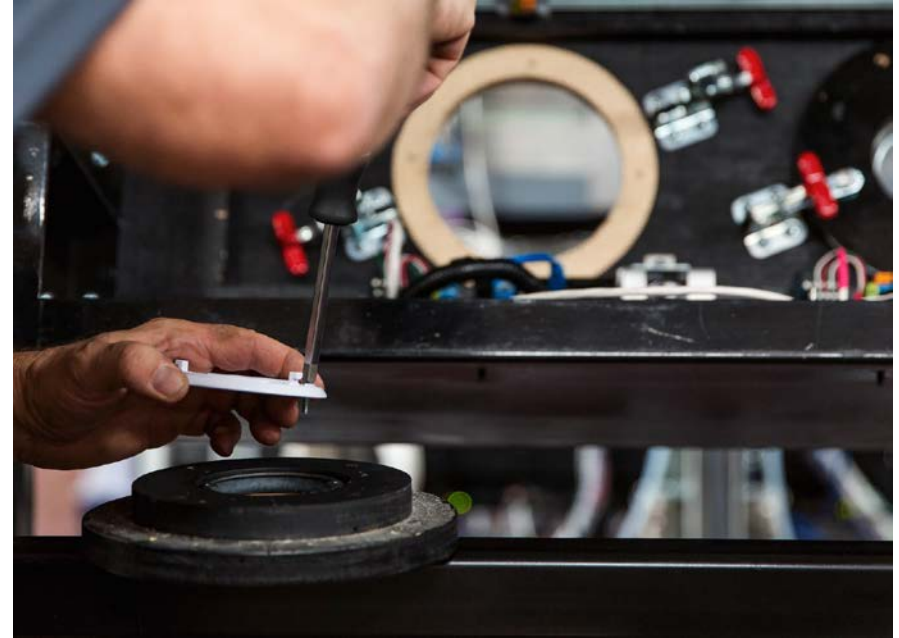
- ❑ Research
- ❑ Standard development



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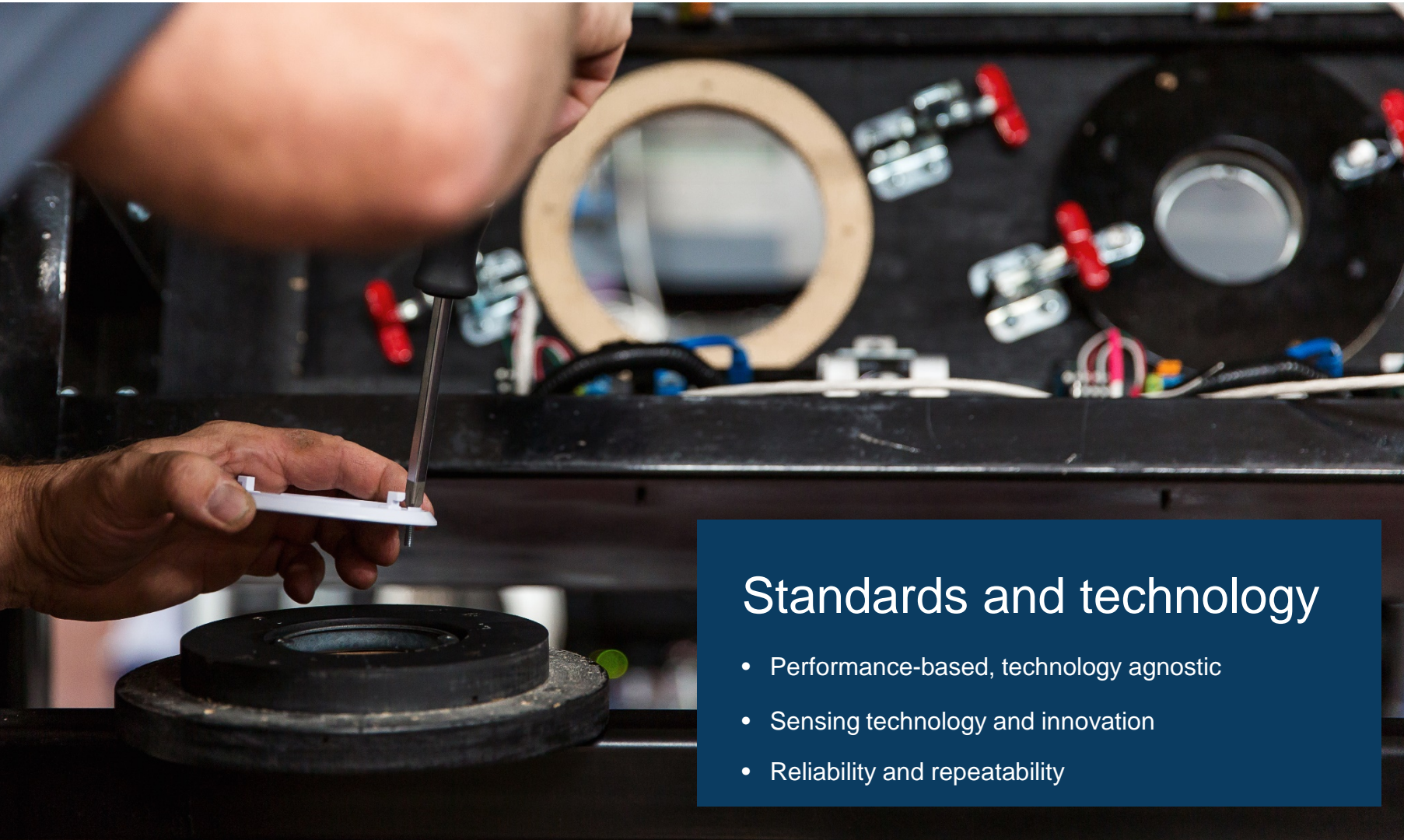
# UL, LLC

- ❑ Nationally Recognized Testing Laboratory (NRTL)
  - ✓ State of the art laboratories
  - ✓ Technical expertise
- ❑ International accreditation



# UL Standard development process





## Standards and technology

- Performance-based, technology agnostic
- Sensing technology and innovation
- Reliability and repeatability

# UL Standard Development Process

UL's Collaborative Standards Development System (CSDS) provides online access to review and submit proposals for UL's Standards development process.

General access is available for information on STP meetings, submitting proposals, and access to free proposals.

Details on the UL standards development process are included on the Standards web page



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## Underwriters Laboratories Code Authorities

Remember my Discipline

**CHOOSE A SUBJECT OF INTEREST:**

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Perspectives Industries Services

Home > Perspectives > Code Authorities > **UL Standards for Safety**

## UL Standards for Safety

Code authorities occasionally have questions related to UL Standards for Safety. The following links address most of these questions and concerns.

### UL Standards Scopes

Scopes of all current UL Standards can be found at the [UL Standards Infonet](#).

### Outlines of Investigation Scopes

Scopes of all current UL Outlines of Investigation can be found at the [UL Standards Infonet](#).

### Standards Technical Panel

Information on UL's STPs that develop and update UL Standards, how to join an STP, and more. [Learn more](#).

### What's new

[Sign up](#) to receive bimonthly email notifications on updated UL Standards for Safety.

### Catalog of Standards

The [Catalog of Standards](#) includes a list of UL Standards including price code, scopes, edition dates, purchasing guide and more.

### Purchase UL Standards

You can purchase UL Standards online from [Comm-2000](#).

**Product compliance questions? Ask UL...**

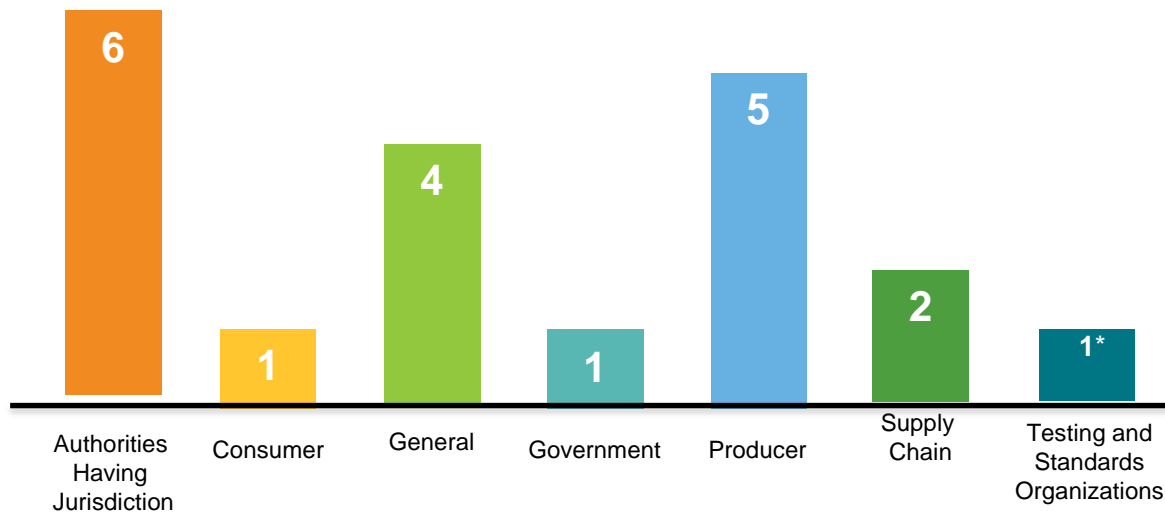
**Ultimate E-mail**  
Customized, free notifications of UL content changes keep you up-to-date

**Code Correlation Database**  
A powerful tool for achieving safe, code compliant installations

Local intranet

# UL 2524 Standards Technical Panel (STP)

NUMBER OF VOTING SEATS HELD – 20 TOTAL



GROUPS REPRESENTED

\* UL holds the one voting seat in this category





# Overview of UL 2524

Planned Bi-National ANSI Standard



# UL 2524 Timeline

December 2017: UL 2524 published as an Outline of Investigation

December 2017: Product testing begins

Spring 2018: Standards Technical Panel (STP) formed for US/CAN

June – July 2018: UL 2524 proposal balloted

August 2018: STP meets to review negative ballots and public comments

August – October 8<sup>th</sup>: Recirculation of revisions to proposal

October 2018: Publish standard

Listing information: <http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/index.html>



# UL 2524 Technical Requirements

This standard addresses the following areas:

- Safety (risk of fire and risk of shock) requirements – construction and testing
- Compliance with specific performance requirements in accordance with the IFC-2018 & NFPA 1221-2016 (2019)
- Reliability performance requirements applicable for life safety systems – construction and testing
- Product marking and installation documentation



# UL 2524 Technical Requirements - continued

## Scope:

Cover products (e.g. repeater, transmitter, receiver, signal booster components, remote annunciators and operational consoles, power supply, and battery charging system components) used for in-building 2-way radio emergency radio communication enhancement systems installed in a location to improve wireless communication at that location.



# UL 2524 Technical Requirements - continued

## Scope:

Does not cover passive RF components which are defined in the standard as “any device that RF passes through that does not have an active electronic component that requires external power. This includes, antennas, splitters, couplers, coaxial cable and connectors. Passive components cannot amplify RF signals.”



# UL 2524 Technical Requirements - continued

## Construction:

- NEMA Type 4 or 4X for all repeater, transmitter, receiver, signal booster components, external filters, and battery system components
  - ❖ *Rechargeable standby batteries are permitted to be contained in enclosures that comply with the requirements for a Type 3R*
- The system shall be sufficiently modular to have the capability to support revised and/or additional system frequencies within the same frequency band of the bi-directional amplifier supplied to maintain radio system coverage as it was originally intended without the need to replace the system.



# UL 2524 Technical Requirements - continued

## Performance - Operation:

- a) Normal AC power
- b) Loss of normal AC power \*
- c) Battery charger failure \*
- d) Loss of battery capacity (to 70 percent depletion) \*
- e) Donor antenna disconnection \*
- f) Active RF emitting device malfunction \*
- g) System component malfunction, other than passive RF component, which affects system performance \*
- h) Donor antenna malfunction \*\*

\* = Visual and Audible annunciation within 200 sec of fault

\*\* = Visual and Audible annunciation within 24 hrs. of fault



# Technical Requirements - continued

## Reliability:

- a) Variable Voltage Operation Test
- b) Variable Ambient Temperature and Humidity Tests
- c) Component Temperatures Test
- d) Charging Current Test
- e) Transient Testing



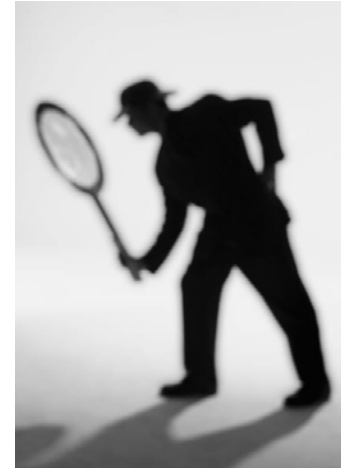
# Certification process



# Typical Product Investigation

*Request for certification (listing) by UL*

- ✓ Initial manufacturer request received
- ✓ UL provides application for Listing forms
- ✓ Investigation opened
- ✓ Early Engagement Program (option)
- ✓ Successful investigation results in product listing
- ✓ A separate investigation may be needed to address non-compliance issues
- ✓ Typical time frame



Getting started with UL



# How to initiate a product investigation for UL certification

- I. Submittal to [firesafetyquote@ul.com](mailto:firesafetyquote@ul.com) or [ssquote@ul.com](mailto:ssquote@ul.com).
- II. Product Submittal Form to complete or provide initial information (if available) for initial engineering review:
  - a. product description
  - b. product specifications
  - c. Installation Instructions
  - d. BOM
  - e. Component Layout
- III. Sales Support team to create quote number and review with Engineering to determine scope of work, assumptions, price, etc.
- IV. A formal quotation will be issued after the review with Engineering.



# Frequently Asked Questions



## FAQs

- ❖ Should I certify now or wait until UL 2524 is finalized as an ANSI Standard?
- ❖ What happens when there is an update to UL 2524?
- ❖ Can I have my system components certified in the field if already installed?
- ❖ What if all my components are listed by another certification lab?
- ❖ How long will the investigation of my product take?



Thank You

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