The certification of an electronically operated, targeted, domestic water mist system to UL 2167A for compliance with NFPA 750

SEPTEMBER 2025

WILLIAM MAKANT

automist®

Plumis

UL Solutions

Testing and Certification

Simon Ince
Program Manager - Codes and Regulatory Services

WORKING FOR A SAFER WORLD SINCE 1894

WILLIAM HENRY MERRILL

Advancing industry's drive to achieve both safety and innovation

True stories are all about the facts –

True stories are all about the facts –

UL Solutions proves the facts, through science!

Agenda

What is an electronically controlled targeted system

The challenges for UL to test such a system

The test protocols that had to be developed

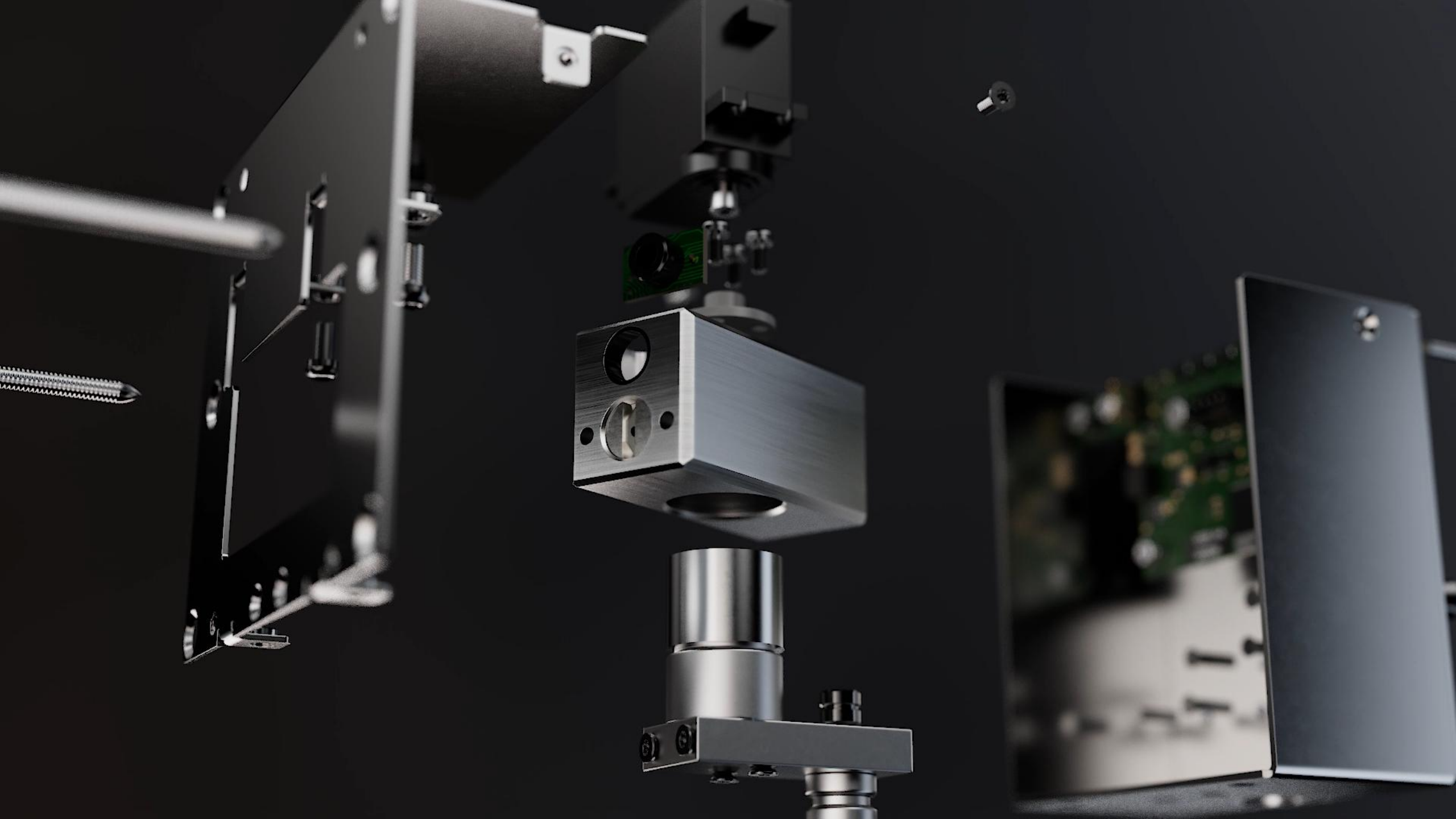
The challenges for Plumis with such a process

The opportunity that has been created


automist
KEEP CLEAR · DO NOT COVER


automist
KEEP CLEAR · DO NOT COVER


Servo motor
sensor
nozzle
Spray head
main body
Spray head
pivot



Key curveballs to UL

A spray head assembly in lieu of a traditional frangible bulb nozzle

A targeted discharge instead of a distributed discharge

An area of operation of 1 (one) nozzle

A horizontal discharge

The integration of 3 industry silos: suppression, detection, controllers

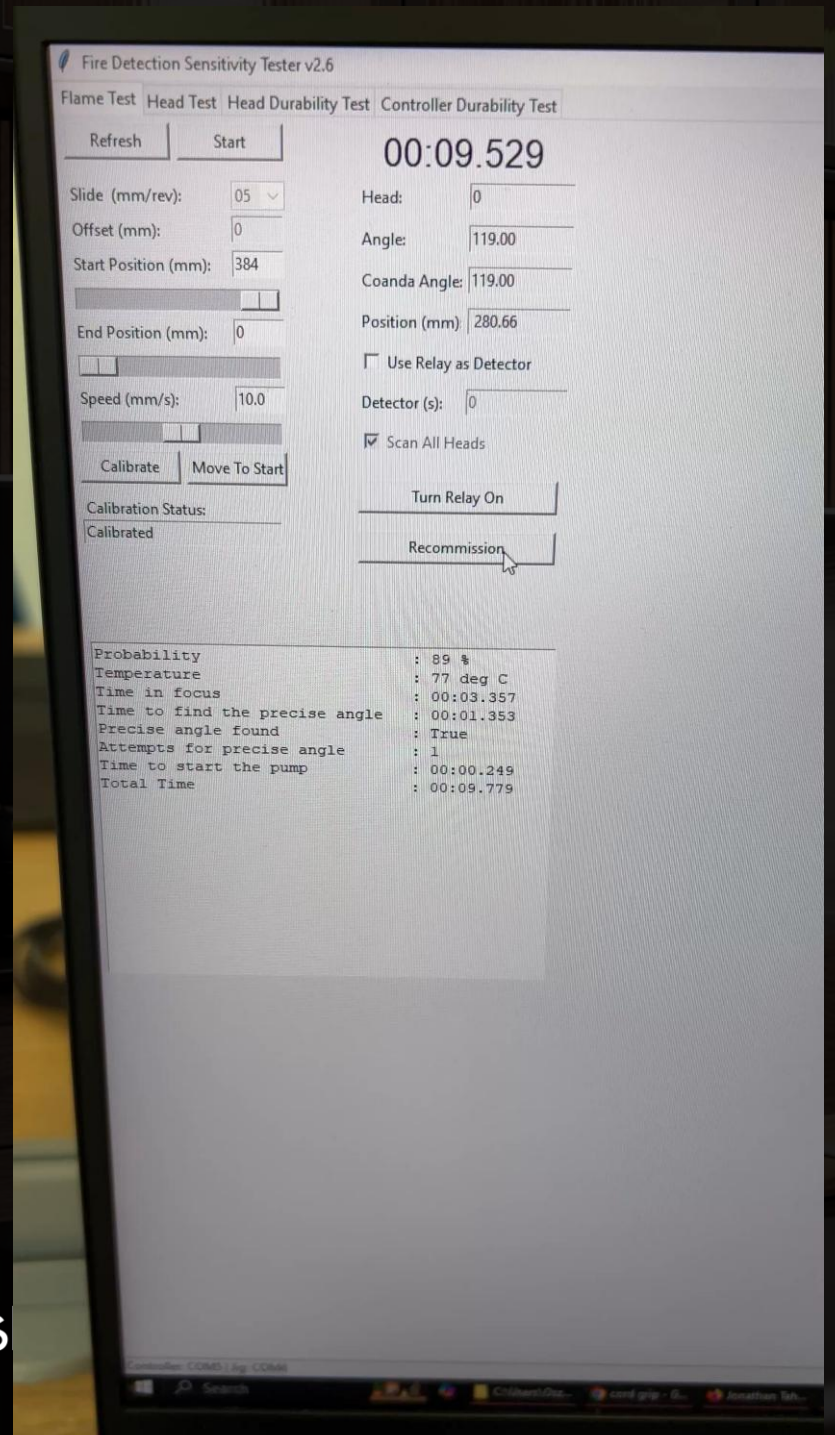
A spray head assembly in lieu of a traditional frangible bulb nozzle

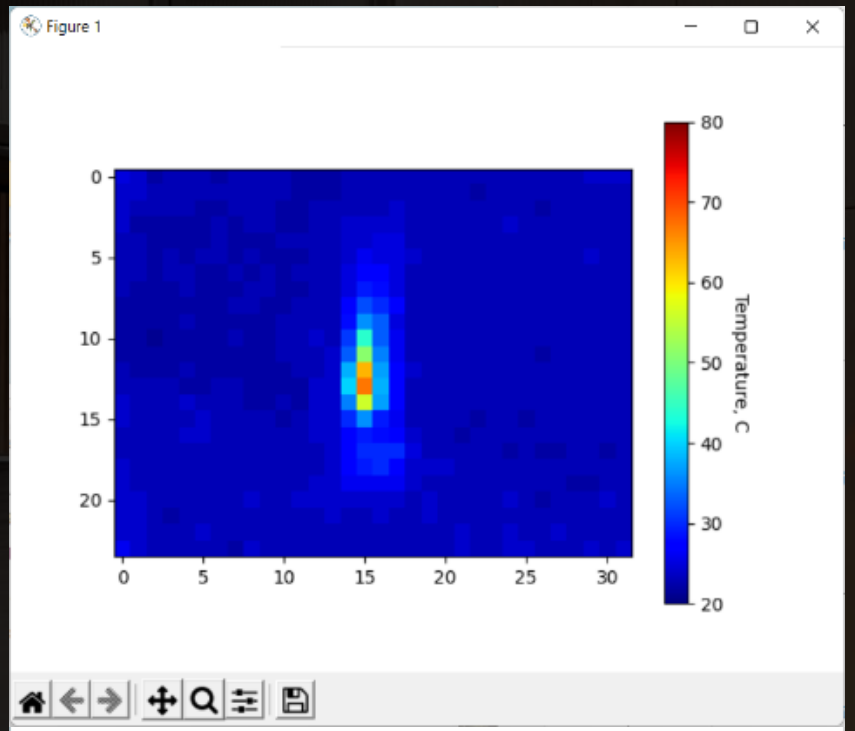
An assembly which contains electronics (and 2 o-rings!)

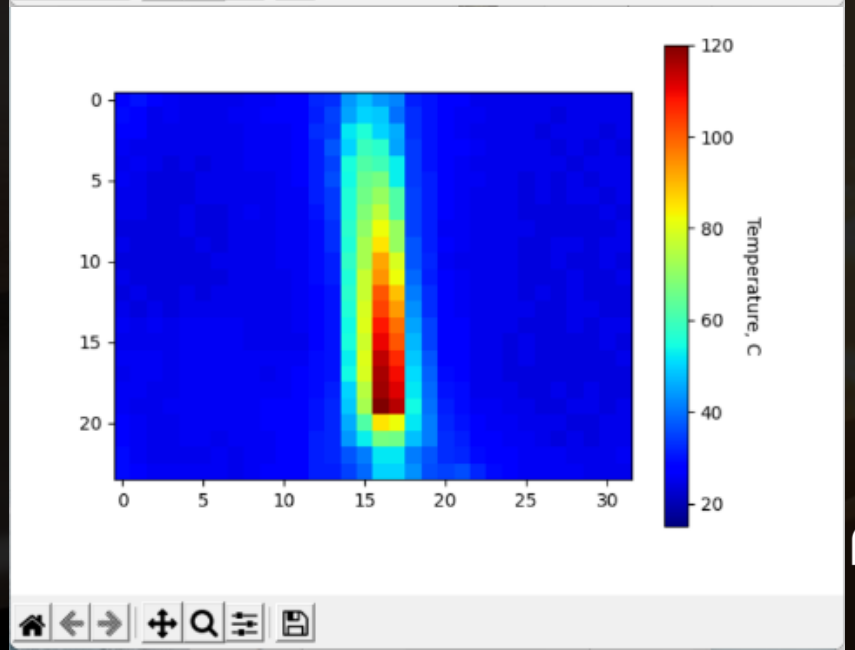
A selective application of tests from UL 2167 (similar to BS 8663 / EN 17450). For example, high temperature test excluded.

Inclusion of UL 217 durability tests for the electronics

Inclusion of detection consistency tests using FM protocols for flame detectors







automis

Plumis

FM 3260 test protocols using Bunsen burner

Test	FM 3260, Clause
Specifications	3.7
Baseline Sensitiivty	4.1
Flame Response	4.2
False Stimuli	4.3
Field of View	4.4
Switching	4.5
Humidity Cycling and Conditioning	4.6
Voltage Variation	4.7
Temperature Extremes	4.8
Vibration	4.9
Dielectric Strength	4.10
~~Bonding~~	~~4.11~~
Durability	4.12
Stability	4.13
~~Extraneous Transients~~	~~4.14~~
Surge Tranients	4.15
Construction Review	-

automist®

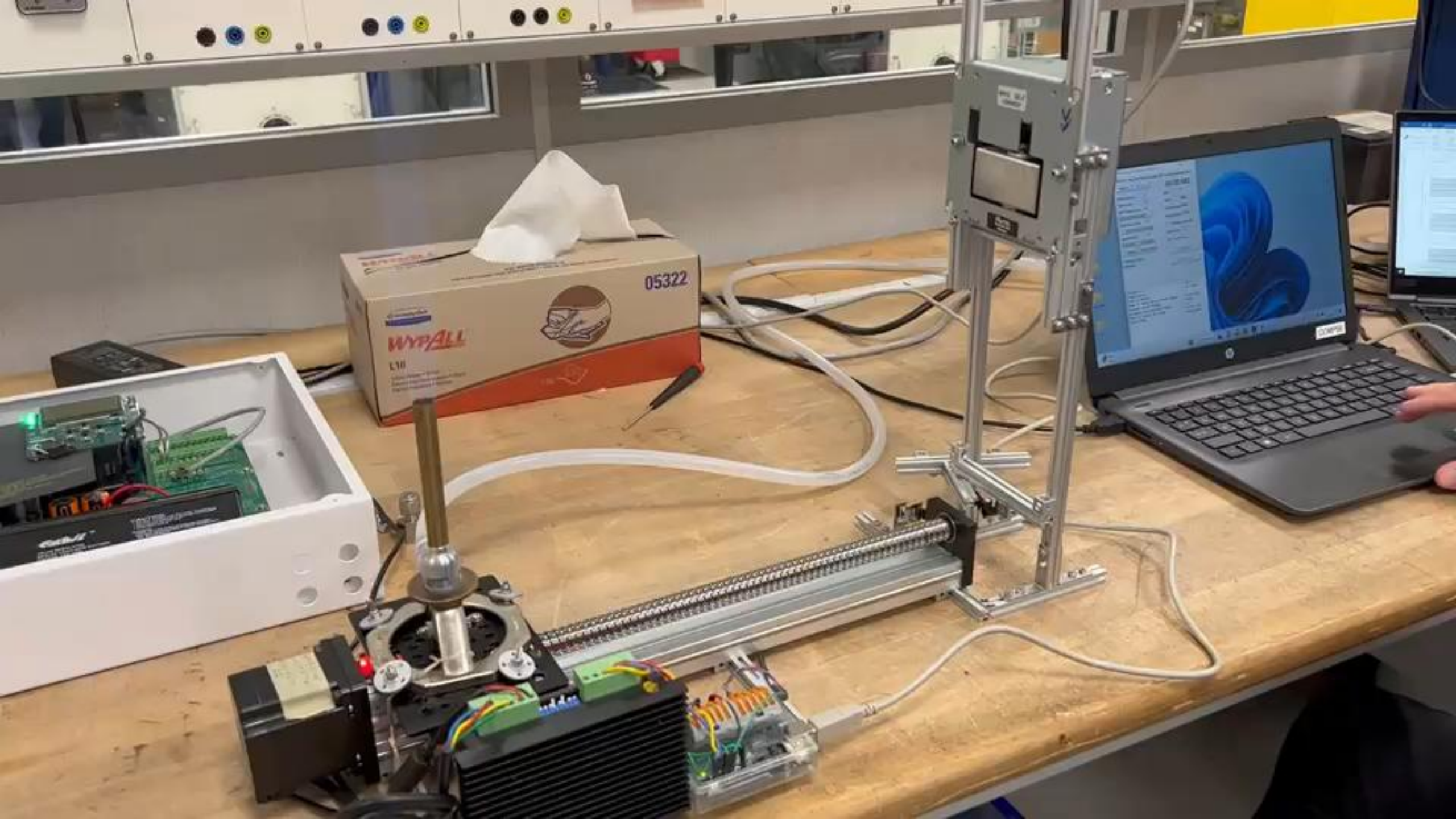
Plumis

FM 3260 test protocols using Bunsen burner

Test	FM 3260, Clause
Servicing and Maintenance Protection	-
Enclosure	-
Corrosion Protection	-
Field Wiring Connections	-
Remote Power Supply	-
Internal Wiring	-
~~Bonding for Grounding~~	-
Components	-
Bushings	-
Electrical Insulating Materials	-
Lampholders and Lamps	-
~~Photocell Illuminating Lamps and Light Emitting Diodes (LEDs)~~	-
Protective Devices	-
Printed Wiring Boards	-
Switches	-

automist®

Plumis


WYPALL
05322

A targeted discharge instead of a distributed discharge
An area of operation of 1 nozzle
A horizontal discharge

New failure mode: a travelling fire along a couch ->

Development of new test protocols:

Test No.	Fuel package	Location of fire in regards to the nozzle	Nozzle obstructed?	Room size
1	Fabricated sofa with combustible wall (A)	Far wall – see Figure 9	No	Small
2	Fabricated sofa with combustible wall (A)	Near wall – see Figure 9	No	Small
3	Fabricated sofa with combustible wall (A)	Near wall – see Figure 10	No	Small
4	Corner fire (B)	Far corner – see Figure 11	No	Small
5	Corner fire (B)	Near corner – see Figure 11	No	Small
6	Same as Test No. 4 with drapes in lieu of plywood walls (B)	Far corner – see Figure 12	No	Small
7	Same as Test No. 5 with drapes in lieu of plywood walls (B)	Near corner – see Figure 12	No	Small
8	Cooking oil (C)	Near wall – see Figure 13	No	Small
9	Cooking oil (C)	Far wall – see Figure 13	No	Small
10	Fire considered to be closest to failure from Test No. 1 to Test No. 7	Far wall or corner – obstruction near nozzle	Yes	Small
11	Fire considered to be closest to failure from Test No. 1 to Test No. 7	Near wall of corner – obstruction near nozzle	Yes	Small
12	Fire considered to be closest to failure from Test No. 1 to Test No. 7	Far wall or corner – obstruction near fuel package	Yes	Small
13	Fire considered to be closest to failure from Test No. 1 to Test No. 7	Near wall or corner – obstruction near fuel package	Yes	Small
14	Fabricated sofa with combustible wall (A)	See Figure 14	No	Large
15	Corner fire (B)	See Figure 15	No	Large
16	Fabricated sofa with combustible wall (A)	See Figure 16	Yes	Large
17	Corner fire (B)	See Figure 17	Yes	Large


Freeburn
00:00

Corner fire with obstructions

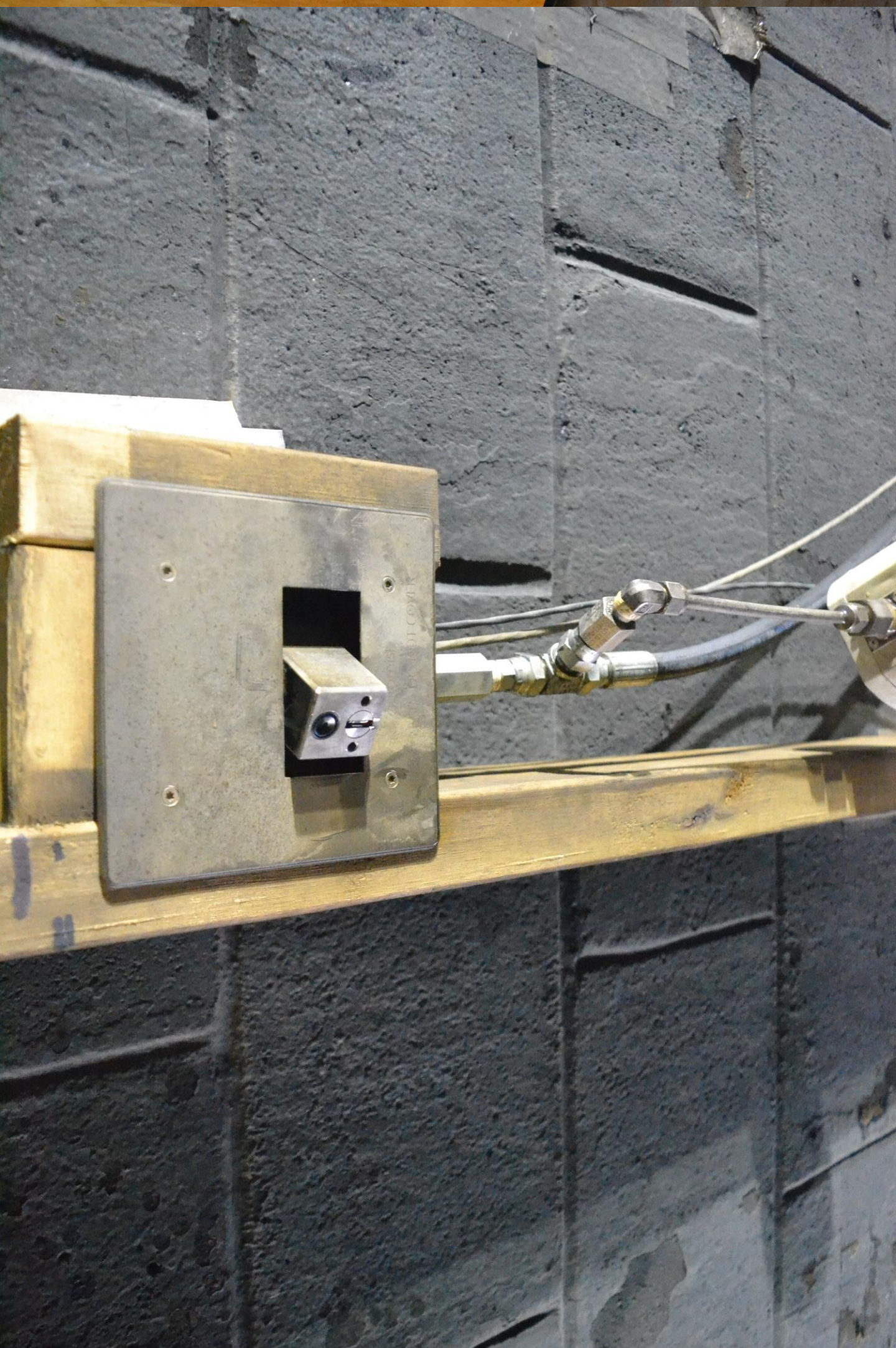
Corner fires with drapes

automis

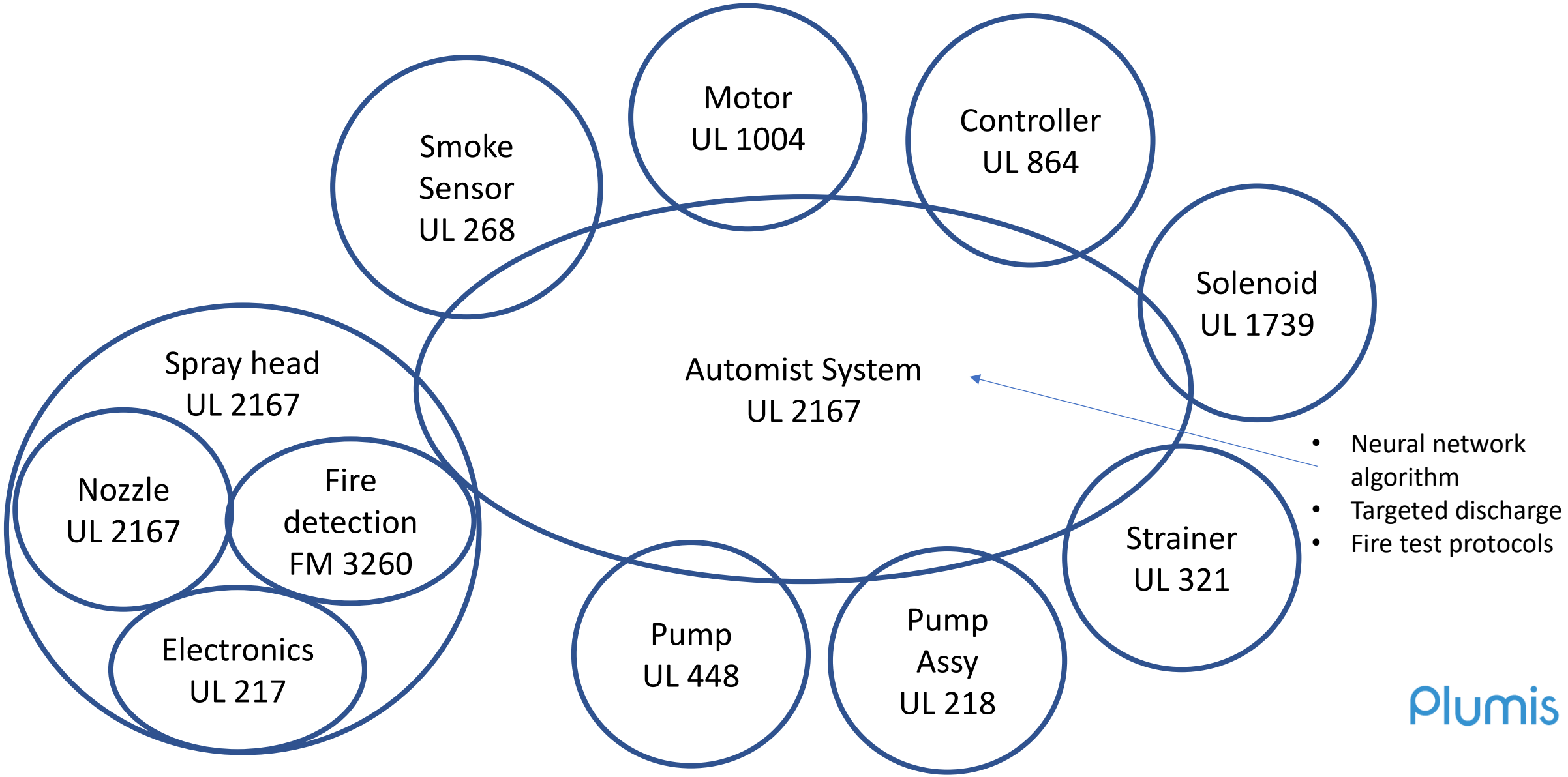
Plumis

Couch on centre of room

Oil cooking fire



Targeted domestic suppression **system**



Plumis

The challenges for Plumis with such a process

23 separate projects with UL including

7 years formal process, 6 years to be accepted into process

$6M investment with a moving target

We are UL's biggest fans!

The challenges for Plumis with such a process

The innovators penalty vs the legacy's advantage

Fire tests for residential sprinklers UL 199: 2

Fire tests for residential water mist EN 14972: 5

Fire tests for targeted mist: 17 (with obstructions!)

Would traditional sprinklers and water mist pass these 17 tests?

After approval: standard creation, education etc…

The opportunities for the industry with such a process

A protocol is in place: encouragement as opposed to deterrent to innovate

Enabler for the prEN 14972-22

Electronic systems create new previously unthinkable attributes

- Water storage/high flow not a requirement
- Stop and start: truly minimum water damage
- Wildfire ember fires in multiple rooms

Contacts:

William Makant william@plumis.com

Stephen Lyon stephen.lyon@ul.com

Scott Franson scott.franson@ul.com