

# **VESDA-E VEU Detection Performance – Telco Environment**

## **Case Study**

July 2019  
Doc 26857\_01

This page has been left blank intentionally.

## Preface

Case study illustrates VESDA-E VEU detection performance to smouldering type smoke tests in a Telco environment with moderately high airflow. The VEU pipe network provided same coverage as two already installed VLP detectors.

## Related Products

VESDA-E VEU

---

This page has been left blank intentionally.

## Introduction

Case study illustrates VEU detection performance to smouldering type smoke tests in a Telco environment with moderately high airflow. The VEU pipe network was designed to provide the same coverage as two already installed VLP detectors.

## Test Area

The test area consists of two zones (Figure 1).

- Zone 1: 389m<sup>2</sup>
- Zone 2: 285m<sup>2</sup>

Ceiling height is 3m and ventilation is achieved by means of air handling units (AHU) located at perimeter of rooms. Each zone is protected by one VLP detector.

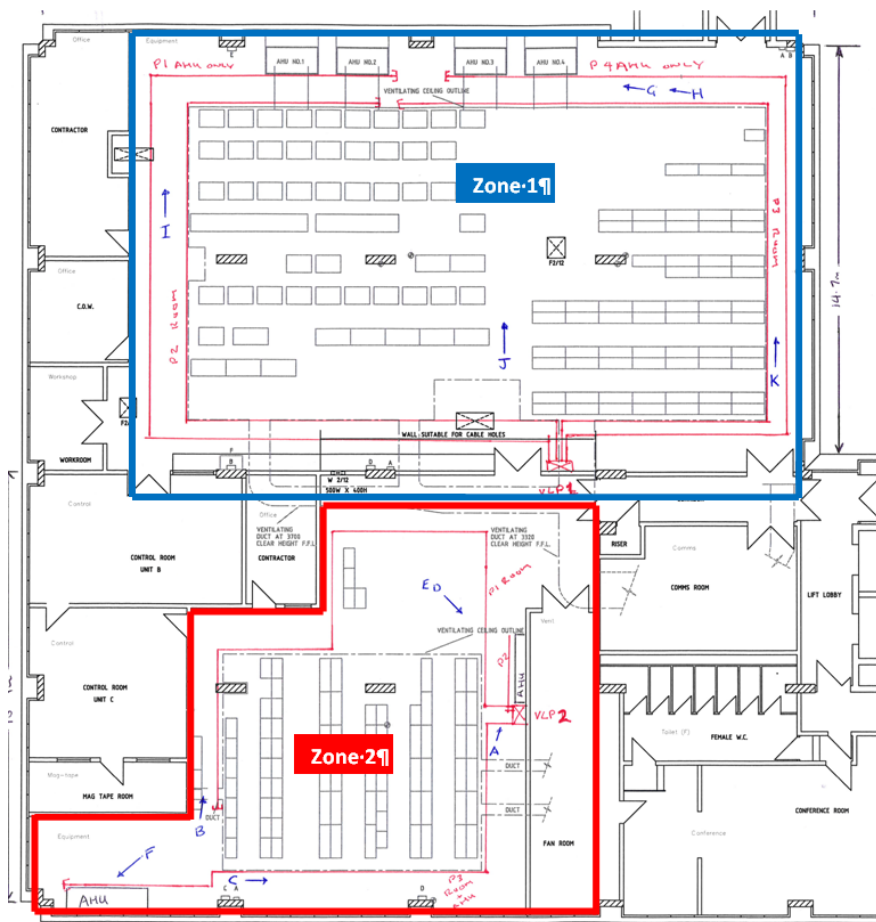


Figure 1 Test Area

## Detector Setup

The VEU pipe network was designed to provide the same coverage as two already installed VLP detectors for zones 1, 2 (Figure 2):

- Pipe 1 (Zone 1):
  - AHU: 8 x Ø3mm holes
  - Pressure relief vents: 11 x Ø2.5mm + Ø3mm end vent

- Pipe 2 (Zone 1):
  - Room perimeter: 13 x Ø2.5mm + Ø3.5mm end vent, 3m hole spacing
  - AHU: 8 x Ø3mm holes
  - Pressure relief vents: 11 x Ø2.5mm + Ø3mm end vent
- Pipe 3 (Zone 1): Room perimeter, 12 x Ø2.5mm + Ø3.5mm end vent, 3m hole spacing
- Pipe 4 (Zone 2):
  - Room: 23 x Ø2.5mm + Ø3.5mm end vent, 1m hole spacing
  - AHUs: 28 x Ø2mm holes + Ø3.5mm end vent
  - Room: 17 x Ø2.5mm holes
  - AHUs: 11 x Ø2mm + Ø3.5mm end vent

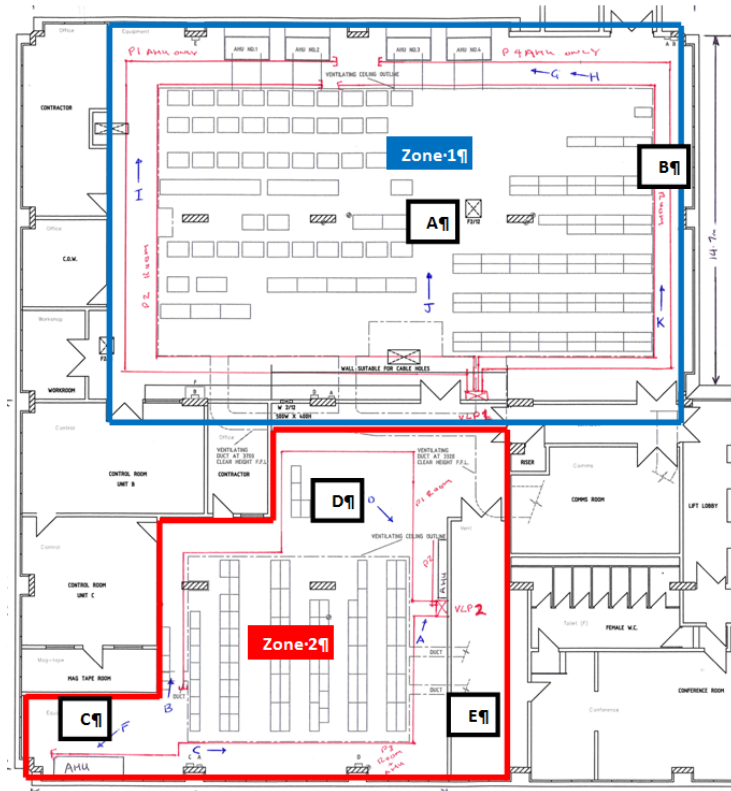


Figure 2 VEU Pipe Network with Smoke Test Locations

VEU aspirator speed was set to 3900rpm and maximum smoke transport times were measured as follows:

Table 1 VUE Maximum Smoke Transport Times

Pipe Layout	VEU
Pipe 1	53
Pipe 2	67
Pipe 3	52
Pipe 4	120

VEU alarm thresholds were set as follows (alarm delay set to 10sec):

*Table 2 VUE Alarm Thresholds*

<b>Alarm Thresholds</b>	<b>VEU</b>
Alert (%/m)	0.005
Action (%/m)	0.01
Fire 1 (%/m)	0.03
Fire 2 (%/m)	0.1

## Smoke Test Method

Overheated PVC wire (1m) performance test described in Fire Industry Association “Design, Installation, Commissioning & Maintenance of Aspirating Smoke Detector (ASD) Systems” Code of Practice, 2012, (Appendix E – E.1)

Smoke test locations shown in Figure 2.

## Results

The recorded VEU detector response is shown in Table 3.

*Table 3 VUE Alarm Response*

<b>Test Location</b>	<b>VEU</b>
<b>A</b> (Room Center)	Alert
<b>B</b> (Front of AHU)	Action
<b>C</b> (Room perimeter close to AHU)	15% above background level
<b>D</b> (Room Center)	Fire 1
<b>E</b> (Front of AHU)	Alert

## Conclusion

VESDA-E VEU with its ultra-high sensitivity, attributed to Flair™ Detection Technology, proved through this field trial in a Telco environment with moderately high airflow, that it can cover the same area as two already installed VLPs and respond to a smouldering type smoke test (1m overheated PVC coated wire).

## **Disclaimer on the Provision of General System Design Recommendations**

Any recommendation on system design provided by Xtralis is an indication only of what is considered to be the most suitable solution to meet the needs of the common application environments described.

In some cases the recommendations on system design provided may not suit the unique set of conditions experienced in a particular application environment. Xtralis has made no inquiry nor undertaken any due diligence that any of the recommendations supplied will meet any particular application. Xtralis makes no warranty as to the suitability or performance of any recommendation on system design. Xtralis has not assessed the recommendation on system design for compliance with any codes or standards that may apply nor have any tests been conducted to assess the appropriateness of any recommendations on system design. Any person or organization accessing or using a recommendation on system design should, at its own cost and expense, procure that the recommendation on system design complies in all respects with the provision of all legislation, acts of government, regulations, rules and by-laws for the time being in force and all orders or directions which may be made or given by any statutory or any other competent authority in respect of or affecting the recommendation on system design in any jurisdiction in which it may be implemented.

Xtralis products must only be installed, configured and used strictly in accordance with the General Terms and Conditions, User Manual and product documents available from Xtralis. Xtralis accepts no liability for the performance of the recommendation on system design or for any products utilized in the implementation of the recommendation on system design, aside from the General Terms and Conditions, User Manual and product documents.

No statement of fact, drawing or representation made by Xtralis either in this document or orally in relation to this recommendation on system design is to be construed as a representation, undertaking or warranty.

To the extent permitted by law, Xtralis excludes liability for all indirect and consequential damages however arising. For the purposes of this clause, 'consequential damage' shall include, but not be limited to, loss of profit or goodwill or similar financial loss or any payment made or due to any third party.

Recommendations on system design are provided exclusively to assist in design of systems using Xtralis products. No portion of this recommendation on system design can be reproduced without the prior approval in writing of Xtralis. Copyright and any associated intellectual property in any such recommendations on system design or documentation remains the property of Xtralis.



[www.xtralis.com](http://www.xtralis.com)

**UK and Europe +44 1442 242 330**  
**Asia +86 21 5240 0077**

**The Americas +1 800 229 4434**  
**Australia & New Zealand +61 3 9936 7000**

**Middle East +962 6 588 5622**

The contents of this document are provided on an "as is" basis. No representation or warranty (either express or implied) is made as to the completeness, accuracy or reliability of the contents of this document. The manufacturer reserves the right to change designs or specifications without obligation and without further notice. Except as otherwise provided, all warranties, express or implied, including without limitation any implied warranties of merchantability and fitness for a particular purpose are expressly excluded.

Xtralis, the Xtralis logo, The Sooner You Know, VESDA-E, VESDA, ICAM, ECO, OSID, and Sensepoint are trademarks and/or registered trademarks of Xtralis and/or its subsidiaries in the United States and/or other countries. Other brand names mentioned herein are for identification purposes only and may be trademarks of their respective holder(s). Your use of this document does not constitute or create a licence or any other right to use the name and/or trademark and/or label.

This document is subject to copyright owned by Xtralis. You agree not to copy, communicate to the public, adapt, distribute, transfer, sell, modify or publish any contents of this document without the express prior written consent of Xtralis.

Doc: 26857\_01, July 2019