

# **VEU / VLP Detection Performance – Telco Environment**

## **Case Study**

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## Preface

Case study presents a comparative assessment of VEU and VLP detection performance to smouldering type smoke tests in a Telco environment with moderately high airflow.

## Related Products

VEU, VLP

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## Introduction

Case study presents a comparative assessment of VEU and existing VLP system detection performance to smouldering type smoke tests in a Telco environment with moderately high airflow.

## Test Area

The test area is 389m<sup>2</sup>. (24.6m x 15.8m), ceiling height: 3m and comprises server racks (Figure 1). Ventilation is achieved by means of air handling units (AHU) located at perimeter of room.

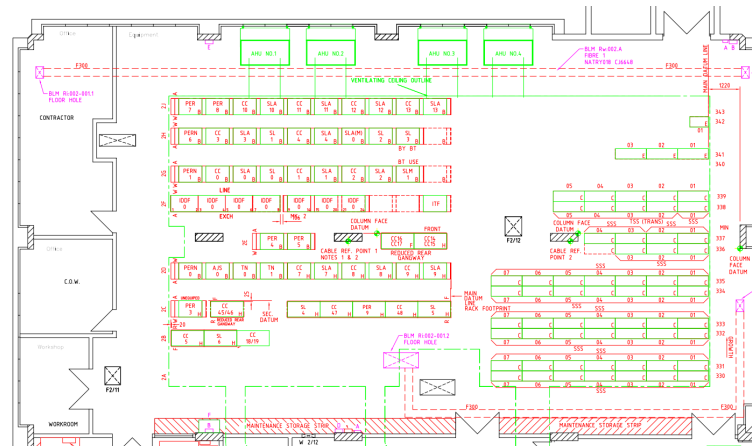


Figure 1 Test Area

## Detectors Setup

For the purpose of the comparative assessment, the VEU was setup with pipe network identical to the existing VLP system with both detectors' sampling holes adjacent to each other (Figure 2).

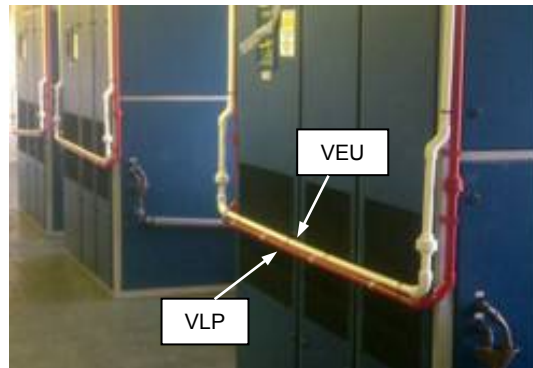


Figure 2 VEU/VLP Sampling Holes – AHU protection

Pipe network configuration (Figure 3):

- Pipe 1:
  - AHU: 8 x Ø3mm holes
  - Pressure relief vents: 11 x Ø2.5mm + Ø3mm end vent
- Pipe 2: Room perimeter: 13 x Ø2.5mm + Ø3.5mm end vent, 3m hole spacing
- Pipe 3: Room perimeter: 12 x Ø2.5mm + Ø3.5mm end vent, 3m hole spacing
- Pipe 4: Identical to Pipe 1

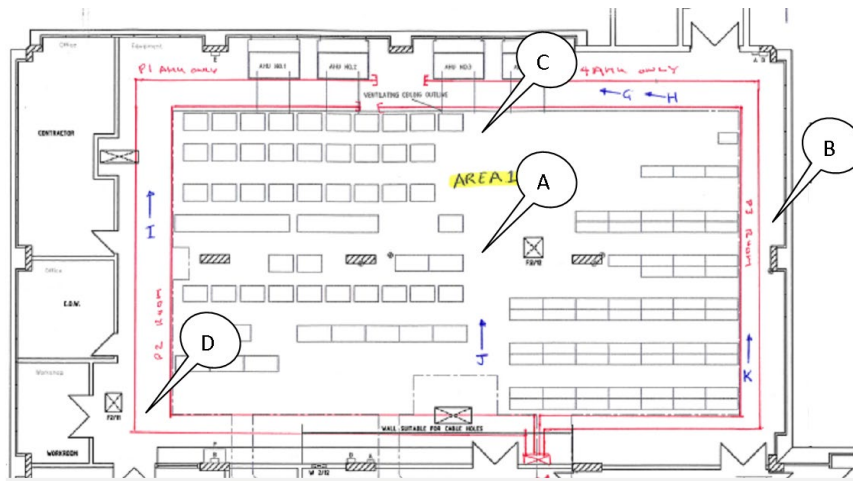


Figure 3 VEU/VLP Pipe Networks with Smoke Test Locations

Detectors smoke transport times were measured as follows:

Table 1 VUE/VLP Smoke Transport Time

	VUE	VLP
Pipe 1	55	50
Pipe 2	72	65
Pipe 3	55	50
Pipe 4	73	66

Detectors alarm thresholds were set as follows:

Table 2 VUE/VLP Alarm Thresholds

Alarm Thresholds	VEU	VLP
Alert (%/m)	0.01	0.08
Action (%/m)	0.02	0.14
Fire 1 (%/m)	0.04	0.2
Fire 2 (%/m)	0.1	2

## Smoke Test Method

Overheated PVC wire 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 3.

## Results

The recorded detectors' response is shown in Table 3.

*Table 3 VUE/VLP Alarm Response*

<b>Test Location</b>	<b>VEU</b>	<b>VLP</b>
<b>A</b> (Room Center)	Action	No Alarm
<b>B</b> (Room Perimeter)	Action	No Alarm
<b>C</b> (Front of AHU)	Fire 2	Fire 1
<b>D</b> (Room Perimeter)	Alert	No Alarm

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