

VESDA ASD NOISE EMISSION LEVELS APPLICATION NOTE

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1 Scope

This Application Note presents sound (noise) level measurements for VEU, VEP, VLI, VEA detectors. It is anticipated that the reported sound levels cover most pipe network configurations in the field.

2 Results

Detectors sound level measurements (A-weighted Sound Power Level) are shown below. Measurements were conducted at 1m in front of the samples in an anechoic chamber¹ under the following test conditions:

1. Detectors sample holes located outside detector operating area.
2. Detectors tested with exhaust inside and outside detector operating area. For exhaust outside the operating area, detectors were connected to 2m (6.6ft) exhaust pipe/tube.
3. VEU, VEP, VLI detectors tested with min / max pipe inlets, and low / high flowrates.
4. VEA detector tested with 40 micro bore tubes 30 to 100m (100 to 330ft).

Table 1: VEU, VEP, VLI Detectors Sound Levels (dB A)

Detector	Exhaust-out		Exhaust-in
	Low-Flow	High-Flow	High-Flow
VEU	40.4	42.0	51.0
VEP	39.5	43.1	45.9
VLI	29.8	32.2	62.0

Table 2: VEA Detector Sound Levels (dB A)

Operation Mode	Exhaust Location	Tube Length (m)			
		30	50	70	100
Normal	Outside	45.6	46.3	46.8	47.1s
	Inside	50.2	50.3	50.6	50.7
Scanning	Outside	59.8	60.3	60.6	61.1
	Inside	58.7	58.7	61.7	62.2

3 Conclusion

VEU, VEP, VLI sound levels increase with higher flowrates (i.e. higher fan speeds for given pipe network or less restrictive pipe networks for given fan speed).

VEA sound levels marginally increase with longer micro bore tube lengths (<2dBA). Higher sound levels (up to 14dBA) occur under scanning initiated during flow scan or smoke alarm condition.

All detectors sound levels reduce when exhaust is routed outside the detector operating area. Up to 3, 4.6, 10 and 30dBA reduction was recorded for VEP, VEA, VEU and VLI respectively.

Sound level measurements presented in this Application Note should only be used as reference. Detectors sound levels in the field will be affected from detector operating environment (room shape/size, construction, obstructions), detector mounting surface, etc.

¹ Sound Level Meter: Brüel & Kjær Type 2260, Microphone: Brüel & Kjær Type 4189

4 Recommendations – Noise Reduction

The following should be considered to assist with the reduction of VESDA detectors noise levels in the field:

- Exhausting the sampled air outside the detector operating area – ensure system parameters (sample holes pressure/flow rate, smoke transport time) are verified in ASPIRE.
- Opting for reduced detector fan speeds during the design phase.
- Opting for less restrictive pipe networks during the design phase.

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