Document number:	C003_CT001 rev. 8
Dated:	25-Nov-24
Expiry date:	25-Nov-26

IEC 61508 Functional Safety Capability Statement

Hochiki America Corporation Intelligent Analogue Addressable Optical Smoke Detector

Manufacturer:	Hochiki America Corporation 7051 Village Drive, Suite 100, Buena Park, CA 90621, US
Product:	Intelligent Analogue Addressable Optical Smoke Detector
Model:	ALN-E, ALN-E(WHT), ALN-EN, AL-EN(WHT), ALN-EN/SIL, ALN-EN(WHT)/SIL, ALN-EN(WHT)/RWY

Application:	Low Demand Mode Safety Instrumented Function
Safety Function:	Upon detection of communication failure of fire condition to the host system, action is initiated via the Addressable Optical Smoke Detector (Logic and final element subsystems not part of this analysis)
Applied standard:	IEC 61508 Ed2 2010 Parts 1-3
Systematic Capability:	Not Assessed
Applicable report:	Environmental Resources Management Ltd Report: C003_SV001 rev. 7

Assessment Route:	1_H
Hardware Fault Tolerance:	0
Type:	B
Application restrictions:	Host system will be configured to detect and alarm on loss of communications to the detector (loss of response to polls)

Model No.	λ (/hr)	λDU (/hr)	λDD (/hr)	λS (/hr)	SFF
ALN-E	5.0E-07	1.1E-08	4.9E-07	2.4E-09	98%

IMPORTANT: It should be noted that this assessment considers only the Hochiki America Corporation, Intelligent Analogue Addressable Optical Smoke Detector. It does not cover opening and closing time requirements and a random hardware failures assessment must be conducted for the entire safety function for each application as per the appropriate Safety Requirements Specification.

The Hochiki America Corporation, Intelligent Analogue Addressable Optical Smoke Detector has been assessed and is considered capable for use in a low demand mode safety function up to (and including) SIL 2 with regards to random hardware failures and architectural constraints.

Note 1: The SIL of a complete SIF (sensor, logic solver and final element subsystems) must be verified to calculate the required Probability of Failure on Demand (PFD) / Probability of Failure per Hour (PFH), considering any redundancy, Proof Test Interval (PTI), Proof Test Coverage (PTC), Mission Time and Mean Time To Restoration (MTTR) for all elements included in the SIF. Each subsystem should be verified to ensure compliance with the minimum HFT requirements.

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