APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0077

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Fike Corporation

Manufacturer's Technical Representative: Brent Mlika

Mailing Address: 704 SW 10th St, Blue Springs, MO 64015

Telephone: (816) 655-4720 Email: brent.mlika@fike.com

Product Information

Product Name: Electrical Control Panels on Life Safety/Critical Branch

Product Type: Fire Protection & Security Panels

Product Model Number: See Attached OSP Product Summary

General Description: The units are comprised of painted carbon steel enclosures (NEMA 1) and a combination of lights, switches, controllers, BUS devices, transformers, and batteries.

Mounting Description: Rigid, Wall Mounted

Tested Seismic Enhancements: None

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OSP-0077
BY
DATE: 04/26/2022
CALIFORNIA BUILDING CODE, 2019

Applicant Information

Applicant Company Name: Dynamic Certification Laboratories

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg Street, Suite 109, Sparks, NV 89431

Telephone: (775) 358-5085 Email: Kelly@shaketest.com

Title: Business Manager

California Licensed Structural Engineer Responsible for the Engineering and Test Report(s)

Company Name: THE VMC GROUP

Name: Kenneth Tarlow California License Number: S2851

Mailing Address: 980 9th Street, 16th Floor, Sacramento, CA 95814

Telephone: (832) 627-2214 Email: ken.tarlow@thevmcgroup.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: DYNAMIC CERTIFICATION LABORATORY (DCL)

Contact Person: Kelly Laplace

Mailing Address: 1315 Greg St., Ste 109, Sparks NV 89431

Telephone: (775) 358-5085 Email: Kelly@shaketest.com

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Seismic Parameters

Design Basis of Equipment or Components (F_p/W_p) = 1.50

S_{DS} (Design spectral response acceleration at short period, g) = 2.00

a_p (Amplification factor) = 2.5

R_p (Response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

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HCAI Approval (For Office Use Only) - Approval Expires on 04/26/2028

Date: 4/26/2022

Name: Mohammad Karim Title: Supervisor, Health Facilities

Special Seismic Certification Valid Up to: S_{DS} (g) = 2.00 z/h = 1

Condition of Approval (if applicable):

Special Seismic Certification
Table 1 - Certified Components

DCL Project Number: 28279-2201

Manufacturer: Fike

Product Line: Fire Detection Equipment Line

Mounting Configuration: Rigid Wall Mount

Test Levels: S_{DS} = 2.00g, z/h=1.0

Model Number	Manufacturer	Description	NEMA Rating	Max. Dimensions (in)			Max. Weight (lb.)	Unit
				Depth	Width	Height		
10-063-m-c-p	Fike	SHP Pro Control System	1	4.8	15.5	22.3	22	UUT1
10-071-c-p		Cheetah Xi 50 System	1	4.8	15.4	22.1	25	UUT3
10-071-c-p-d		Cheetah Xi 50 System	1	4.8	15.4	22.1	25	Interpolated
10-070-c-p		CyberCat 50 System	1	4.8	15.4	22.1	25	Interpolated
10-070-c-p-d		CyberCat 50 System	1	4.8	15.4	22.1	25	Interpolated
10-068-c-p		Cheetah Xi System	1	4.7	15.4	23.6	31	Interpolated
10-068-c-p-L		Cheetah Xi System	1	4.7	15.4	23.6	31	UUT2
10-064-c-p-L-d-o		CyberCat 1016 System	1	5.7	24.6	41.2	59	UUT4a
10-066-c-p-L-d-o		CyberCat 254 System	1	5.7	24.6	41.2	59	Interpolated
10-2154-c		Battery Enclosure	1	5.8	21.0	11.0	66	UUT4b
10-2236-c		Battery Enclosure	1	7.0	26.3	14.0	143	UUT4c
10-2690-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	14.0	14.0	15	UUT6
10-2691-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	24.0	24.0	25	Interpolated
10-2692H-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	36.0	24.0	38	Interpolated
10-2692V-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	24.0	36.0	38	Interpolated
10-2693H-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	36.0	30.0	67	Interpolated
10-2693V-B		Intelligent Smoke Control Graphic Annunciator	1	4.0	30.0	36.0	67	UUT5

*Note: In model number, m relates to mode (1=all modes, 2=sprinkler mode only); c relates to enclosure color (B=black, G=gray, R=red); L=lexan; p relates to voltage (1=120V, 2= 240V); d=deadfront; o relates to overlay color (B=black, R=red)

Deadfront options (d):

Blank = standard enclosure – no dead-front

0 = standard enclosure – solid dead-front

3 = standard enclosure – 3 card dead-front

13 = extended enclosure – 13 card dead-front

19 = fire command center enclosure -19 card dead-front

23 = fire command center enclosure – 23 card dead-front

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Special Seismic Certification
Table 2 - Certified Subcomponents - Enclosures

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Enclosures									
Model Number	**Manufacturer**	**Type**	**Description**	**NEMA Rating**	**Dimensions (in)**			**Material**	**Unit**
					Depth	**Width**	**Height**		
10-2453-c	Fike	Shp Pro	Standard	1	4.8	15.5	22.3	Painted Carbon Steel	UUT1
10-2541-c		Cheetah Xi	Standard	1	4.7	15.4	23.6		UUT2
10-2541-c-L			Standard	1	4.7	15.4	23.6		Interpolated[1]
10-2621-c		CyberCat 50	Standard	1	4.8	15.4	22.1		Interpolated[2]
10-2621-c-d			Standard	1	4.8	15.4	22.1		Interpolated[2]
10-2623-c		Cheetah Xi 50	Standard	1	4.8	15.4	22.1		UUT3
10-2623-c-d			Deadfront	1	4.8	15.4	22.1		Interpolated[2]
10-2483-c-L-d-o		CyberCat 1016	Standard	1	5.7	24.6	41.2		UUT4a
10-2527-c-L-d-o		CyberCat 254	Standard	1	5.7	24.6	41.2		Interpolated[3]
10-2783-c-o		CyberCat 254 or 1016	Smoke 15 Card Dead front EXD-Enclosure Red/Black Overlay	1	5.6	24.6	24.5		Interpolated[3]
10-2753-c-o			Retrofit 16 Card Dead front Enclosure Red/Black Overlay	1	5.6	24.6	31.1		Interpolated[3]
10-2771-c fcc			w/21 Card Dead Front Enclosure Black Overlay	1	6.6	24.6	41.1		Interpolated[3]
10-2771-c-r fcc			w/21 Card Dead Front Enclosure Red Overlay	1	6.6	24.6	41.1		Interpolated[3]
10-2772-c fcc			w/25 Card Dead Front Enclosure Black Overlay	1	6.6	24.6	41.1		Interpolated[3]
10-2772-c-r fcc			w/25 Card Dead Front Enclosure Red Overlay	1	6.6	24.6	41.1		Interpolated[3]
10-2628-c			Deadfront, 50 Point Panel	1	1.3	14.3	23.0		Interpolated[3]
10-2695-c			Solid Deadfront Kit for Standard Enclosure	1	1.9	24.6	22.5		Interpolated[3]
10-2696-c			3 Module Deadfront Kit for Standard Enclosure	1	1.9	24.6	22.5		Interpolated[3]
10-2754-c			3 AMP Enclosure	1	5.7	24.6	41.2		Interpolated[3]
10-2755-c			5 AMP Enclosure	1	5.7	24.6	52.7		Extrapolated[4]

1. Represented by UUT2 test.
2. Represented by UUT3 test.
3. Represented by UUT4a test.
4. 10-2755-C, 5 AMP Enclosure is a larger box than the 3 AMP Enclosure to allow for 2 more AMPs to be installed. The hardware and structure for mounting the additional AMPS is identical as the 3 AMP enclosure. The larger box allows for more mounting hardware of the enclosure. For surface mount it has 2 more tear drop mounting holes in the back of the box and for flush mount allows for 2 more screw/bolt holes in the side of the enclosure.

*Note: In model number, c relates to enclosure color (B=black, G=gray, R=red); L=lexan; p relates to voltage (1=120V, 2= 240V); d=deadfront; o relates to overlay color (B=black, R=red)
Deadfront options (d)
Blank = standard enclosure – no dead-front
0 = standard enclosure – solid dead-front
3 = standard enclosure – 3 card dead-front
13 = extended enclosure – 13 card dead-front
19 = fire command center enclosure -19 card dead-front
23 = fire command center enclosure – 23 card dead-front

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Special Seismic Certification
Table 2 - Certified Subcomponents - Enclosures - Continued

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Enclosures									
Model Number	**Manufacturer**	**Type**	**Description**	**NEMA Rating**	**Dimensions (in)**			**Material**	**Unit**
					Depth	**Width**	**Height**		
10-2690-B	Gemcom	Intelligent Smoke Control Graphic Annunciator	Graph Ann 14"x14" w/ 10"x10" viewing window	1	4.0	14.0	14.0	Painted carbon steel	UUT6
10-2691-B			Graph Ann 24"x24" w/ 20"x20" viewing window	1	4.0	24.0	24.0		Interpolated
10-2692H-B			Graph Ann 36"x24" w/ 32"x20" viewing window	1	4.0	36.0	24.0		Interpolated
10-2692V-B			Graph Ann 24"x36" w/ 20"x32" viewing window	1	4.0	24.0	36.0		Interpolated
10-2693H-B			Graph Ann 36"x30" w/ 32"x26" viewing window	1	4.0	36.0	30.0		Interpolated
10-2693V-B			Graph Ann 30"x36" w/ 26"x32" viewing window	1	4.0	30.0	36.0		UUT5
10-2588-B			Backbox 14"x14" for part # 10-2690-B	1	N/A	14.0	14.0		UUT6
10-2589-B			Backbox 24"x24" for part # 10-2691-B	1	N/A	24.0	24.0		Interpolated
10-2590H-B			Backbox 36"x24" for part # 10-2692H-B	1	N/A	36.0	24.0		Interpolated
10-2590V-B			Backbox 24"x36" for part # 10-2692V-B	1	N/A	24.0	36.0		Interpolated
10-2591H-B			Backbox 36"x30" for part # 10-2591H-B	1	N/A	36.0	30.0		Interpolated
10-2591V-B			Backbox 30"x36" for part # 10-2693V-B	1	N/A	30.0	36.0		UUT5
10-2154-R	Fike	Battery Enclosure	Red	1	5.8	21.0	11.0		UUT4c
10-2154-G			Gray	1	5.8	21.0	11.0		Extrapolated[1]
10-2236-R			Red	1	7.0	26.3	14.0		UUT4b
10-2236-G			Gray	1	7.0	26.3	14.0		Extrapolated[1]

1. Color change only from tested subcomponent.

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Table 3 - Certified Subcomponents - Light-Emitting Diodes

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Light-Emitting Diodes					
Model Number	**Manufacturer**	**Description**	**Material**	**Weight (lb.)**	**Unit**
02-12216	Gemcom	Red LED	Plastic	>1.0	UUT5, UUT6
02-12218		Green LED	Plastic	>1.0	UUT5, UUT6
02-12219		Yellow LED	Plastic	>1.0	UUT5, UUT6
02-12220		White LED	Plastic	>1.0	UUT5, UUT6

Special Seismic Certification
Table 4 - Certified Subcomponents - Switches

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Switches					
Model Number	**Manufacturer**	**Description**	**Material**	**Weight (lb.)**	**Unit**
02-12245	Galco	Two-Position Toggle Switch	Plastic	>1.0	Extrapolated
02-12172		Three-Position Rotary Selector Switch	Plastic	>1.0	UUT5, UUT6
02-12171		Three-Position Toggle Switch	Plastic	>1.0	UUT5, UUT6
02-12246		Four-Position Rotary Switch	Plastic	>1.0	Extrapolated [1]
10-1903		34-PIN Ribbon Cable, Cntrol-Driver 24"	Plastic	>1.0	UUT5, UUT6
10-1950		34-PIN Ribbon Cable, Cntrol-Driver 48"	Plastic	>1.0	UUT5, UUT6

1. The three position rotary switch 02-12172 is larger than the four position rotary switch.

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Table 5 - Certified Subcomponents - Controllers

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Controllers				
Model Number	**Manufacturer**	**Description**	**Material**	**Unit**
10-2452-1	Fike	SHP Pro Control Board all modes	Circuit Board	UUT1
10-2452-2		SHP Pro Control Board sprinkler mode only	Circuit Board	Same as UUT1[1]
10-2472		CyberCat 1016 Control Board w/Mounted Display	Circuit Board	Same as UUT2[1]
10-2472-EXD		CyberCat 1016 Control Board w/Dead-Front Mount Display	Circuit Board	UUT4a
10-2525		CyberCat 254 Control Board w/Mounted Display	Circuit Board	Same as UUT2[1]
10-2525-EXD		CyberCat 254 Control Board w/Dead-Front Mount Display	Circuit Board	Same as UUT4a[1]
10-2620		Cybercat 50 Control Board	Circuit Board	Same as UUT3[1]
10-2542		Cheetah Xi Control Board	Circuit Board	UUT2
10-2622		Cheetah Xi 50 Control Board	Circuit Board	UUT3
10-2450		Class A Input Module	Circuit Board	UUT1
10-2448		Class A Output Module	Circuit Board	UUT1
10-2473		SLM - Supplemental Loop Module (adds 2 loops 254 devices each)	Circuit Board	UUT2
10-2482		Network Module	Circuit Board	UUT2
10-2624		Fiber Optic Network Module	Circuit Board	UUT2
10-2204		CRM4 - Relay Module	Circuit Board	UUT1
10-2254		CRPM - Reverse Polarity Module	Circuit Board	UUT2
10-2627		Ethernet Module	Circuit Board	UUT3
10-2583		Multi-Interface Module	Circuit Board	UUT4a
10-2746		Class A Speaker Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2727		Digital Paging Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2741		Paging Control Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2751		Digital Paging Assembly (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2663		Smoke Control Graphics Controller	Circuit Board	UUT5, UUT6
10-2665		Smoke Control Graphics Driver Card	Circuit Board	UUT5, UUT6
10-2528	Bosch	BOSCH DACT, 5 zone with serial inter-face	Circuit Board	UUT1[2]

1. Software change only.

2. Subcomponent manufacturing process is ISO 9001 certified.

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Table 6 - Certified Subcomponents - Peripheral BUS Devices

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Peripheral BUS Devices				
Model Number	**Manufacturer**	**Description**	**Material**	**Unit**
10-2658	Fike	6 Zone Smoke Control Module (dead-front mount)	Circuit Board	UUT4a
10-2659		Input/Output Module (dead-front mount)	Circuit Board	UUT4a
10-2660		Twenty Zone Annunciator Module (dead-front mount)	Circuit Board	UUT4a
10-2726		Amplifier Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2661		Audio Control Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2728		Fire-Phone Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2730		Supplemental Fire-Phone Card (Emergency Voice Communication System)	Circuit Board	UUT4a
10-2474		SPS - Supplemental Power Supply	Circuit Board	UUT2

Special Seismic Certification
Table 7 - Certified Subcomponents - Transformers and Supplemental Power Supplies

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Transformers and Supplemental Power Supplies				
Model Number	**Manufacturer**	**Description**	**Material**	**Unit**
B 170716	Hammond Power Solutions	Transformer, 120VAC, primary	Copper Winding	UUT1, UUT2, UUT3, UUT4a
2-51-0919	MCI Transformer	Transformer, 110VAC, Audio	Copper Winding	UUT4a

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Table 8 - Certified Subcomponents - Batteries

DCL Project Number: 28279-2201

Certified seismic level : S_{DS} = 2.00g, z/h=1.0

Batteries				
Model Number	**Manufacturer**	**Description**	**Material**	**Unit**
SEC 1075	REMCO/ Interstate	Battery, 12V, 7AH (requires 2 each)	Absorbed Glass Mat (AGM)	UUT1, UUT3, UUT4a
SLA1104	REMCO/ Interstate	Battery, 12V, 12AH (requires 2 each)	Absorbed Glass Mat (AGM)	Interpolated[1]
PC 12180	REMCO/ Interstate	Battery, 12V, 18 AH (requires 2 each)	Absorbed Glass Mat (AGM)	UUT1, UUT2, UUT4a
DCM0035L	REMCO/ Interstate	Battery, 12V, 33AH (requires 2 each)	Absorbed Glass Mat (AGM)	UUT4b (x2)
DCM0075U	REMCO/ Interstate	Battery, 12V, 75AH (requires 2 each)	Absorbed Glass Mat (AGM)	UUT4c (x2)

1. Subcomponent is represented by batteries tested in UUT1 and UUT4.

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Special Seismic Certification
Table 9 - Tested Units

DCL Project Number: 28279-2201

Manufacturer: Fike

Product Line: Fire Detection Equipment Line

Model Number	Manufacturer	Description	NEMA Rating	Dimensions (in)			Weight (lb.)	Mounting Configuration	Sds (g) z/h=1	Unit
				Depth	Width	Height				
10-063-1-R-1	Fike	SHP Pro	1	4.8	15.5	22.3	22	Rigid Wall Mount	2.00	UUT1
10-068-R-1-L	Fike	Cheetah Xi	1	4.7	15.4	23.6	31	Rigid Wall Mount	2.00	UUT2
10-071-R-1	Fike	Cheetah Xi 50	1	4.8	15.4	22.1	25	Rigid Wall Mount	2.00	UUT3
10-064-R-1-L-23	Fike	CyberCat 1016	1	5.7	24.6	41.2	59	Rigid Wall Mount	2.00	UUT4a
10-2154-R	Fike	Small Battery Enclosure	1	5.8	21.0	11.0	66	Rigid Wall Mount	2.00	UUT4b
10-2236-R	Fike	Large Battery Enclosure	1	7.0	26.3	14.0	143	Rigid Wall Mount	2.00	UUT4c
10-2693V-B	Fike	Intelligent Smoke Control Graphic Annunciator	1	4.0	30.0	36.0	67	Rigid Wall Mount	2.00	UUT5
10-2690-B	Fike	Intelligent Smoke Control Graphic Annunciator	1	4.0	14.0	14.0	15	Rigid Wall Mount	2.00	UUT6

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UUT1
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer:	Fike
Product Line:	Fire Detection Equipment Line
Model Number:	SHP Pro, Model 10-063-1-R-1

Product Construction Summary:
Painted carbon steel enclosure, NEMA 1

Options / Component Summary:
Fike SHP control board, Bosch DACT 5-zone controller with serial interface, Fike Class A input/output modules, Fike CRM4 relay module, Hammond 120VAC transformer, 2 Remco 12V 7AH batteries with Fike wiring assembly

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
22	4.8	15.5	22.3	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:
The unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure spaced at approximately 14'' in width and 21'' in height on center.



Overall view of UUT1

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UUT2
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer:	Fike
Product Line:	Fire Detection Equipment Line
Model Number:	Cheetah Xi, Model 10-068-R-1-L

Product Construction Summary:
Painted carbon steel enclosure, NEMA 1

Options / Component Summary:
Fike Cheetah Xi control board, Fike supplemental loop module, Fike Network module, Fike fiber optic network module, Fike reverse polarity module, Fike supplemental power supply BUS device, Hammond 120VAC transformer, 2 Remco 12V 18AH batteries

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
31	4.7	15.4	23.6	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:
The unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure spaced at approximately 14'' in width and 21'' in height on center.





Overall view of UUT2

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UUT3
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer:	Fike
Product Line:	Fire Detection Equipment Line
Model Number:	Cheetah Xi 50, Model 10-071-R-1

Product Construction Summary:
Painted carbon steel enclosure, NEMA 1

Options / Component Summary:
Fike Cheetah Zi 50 control board, Fike ethernet module, Hammond 120VAC transformer, 2 Remco 12V 7AH batteries

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
25	4.8	15.4	22.1	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:
The unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure spaced at approximately 14'' in width and 21'' in height on center.





Overall view of UUT3

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BY: Mohammad Kazemi
DATE: 04/26/2022
CALIFORNIA BUILDING CODE, 2019

UUT4a,b,c
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer: Fike

Product Line: Fire Detection Equipment Line

Model Number: Cheetah Xi 50, Model 10-071-R-1

Product Construction Summary:

Painted carbon steel enclosure, NEMA 1

Options / Component Summary:

UUT4a: Fike CyberCat 1016 control board w/ dead-front mount display, Fike multi-interface module, Fike class A speaker card, Fike digital paging card, Fike paging control board, Fike digital paging assembly, Fike 6 zone smoke control module, Fike input/output module, Fike twenty zone annunciator module, Fike amplifier card, Fike audio control card, Fike fire-phone card and supplemental fire-phone card, Hammond 120VAC transformer, MCI 110VA transformer, Remco 12V 7AH battery, Remco 12V 18AH battery

UUT4b: 2 Remco 12V 33AH batteries

UUT4c: 2 Remco 12V 75AH batteries

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

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UUT Properties

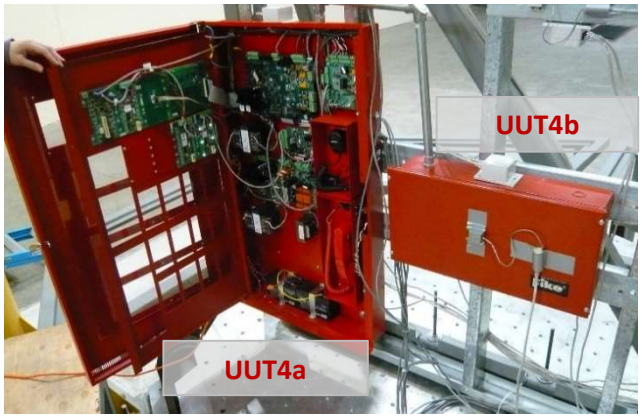
UUT	Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
		Depth	Width	Height	Front-Back	Side-Side	Vertical
UUT4a	59	5.7	24.6	41.2	N/A	N/A	N/A
UUT4b	66	5.8	21.0	11.0	N/A	N/A	N/A
UUT4c	143	7.0	26.3	14.0	N/A	N/A	N/A

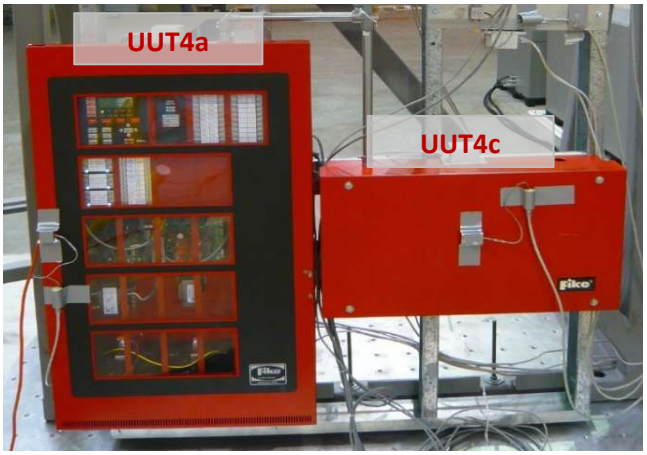
Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:

Each unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure. Bolts were spaced at approximately 23'' in width and 40'' in height on center for UUT4a, 20'' in width and 10'' in height on center for UUT4b, and 25'' in width and131'' in height on center for UUT4c.





Overall view of UUT4a, UUT4b, UUT4c

UUT5
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer:	Fike
Product Line:	Fire Detection Equipment Line
Model Number:	Intelligent Smoke Control Graphic Annunciator

Product Construction Summary:
Painted carbon steel enclosure, NEMA 1

Options / Component Summary:
LEDs, three position rotary selector switch, three position toggle switch, smoke control module, switch/LED driver module, 34-PIN ribbon cable (24" and 48") and Fike smoke control graphics controller and smoke control graphics driver card

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
67	4.0	30.0	36.0	N/A	N/A	N/A

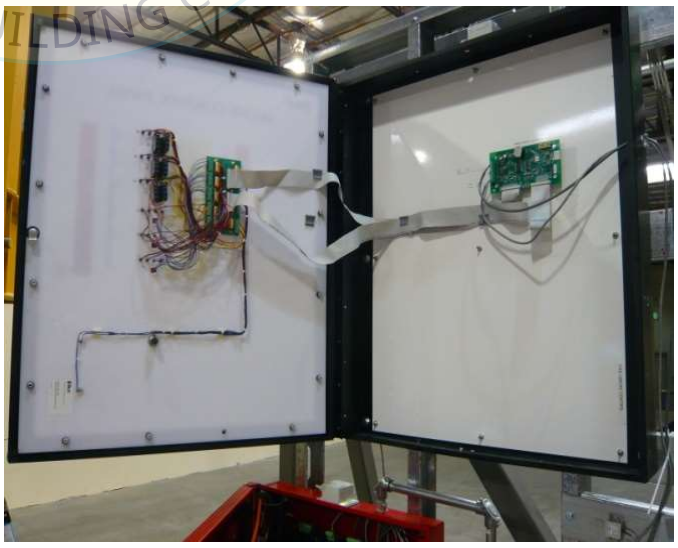
Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:
The unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure spaced at approximately 28'' in width and 34'' in height on center.

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Overall view of UUT5

UUT6
UNIT UNDER TEST (UUT)
Summary Sheet

DCL Project Number: 28279-2201

Manufacturer:	Fike
Product Line:	Fire Detection Equipment Line
Model Number:	Intelligent Smoke Control Graphic Annunciator

Product Construction Summary:
Painted carbon steel enclosure, NEMA 1

Options / Component Summary:
LEDs, three position rotary selector switch, three position toggle switch, smoke control module, switch/LED driver module, 34-PIN ribbon cable (24" and 48") and Fike smoke control graphics controller and smoke control graphics driver card

Note: The UUT was operational before and after shaking and was full of operating content during the tests. The structural integrity of the component attachment system and force-resisting systems was maintained.

UUT Properties

Operating Weight (lb)	Dimensions (inches)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
15	4.0	14.0	14.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	Ip	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2019	ICC-ES AC156	2.00	1.0	1.5	3.20	2.40	1.34	0.54

Unit Mounting Description:
The unit was attached to the DCL shake table interface frame with four 3/8-inch diameter Grade 5 bolts, using the manufacturer-provided holes in the back of the enclosure spaced at approximately 11'' in width and 11'' in height on center.

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Overall view of UUT6