



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

**APPLICATION FOR OSHPD SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)**

OFFICE USE ONLY

APPLICATION #: **OSP – 0438 – 10**

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: Harrington Signal and Evax Systems

Manufacturer's Technical Representative: Drew Keller

Mailing Address: 2519 4th Avenue, Moline, IL 61266

Telephone: (309) 762-0731 Email: akeller@harringtonsignal.com

Product Information

Product Name: Firespy Tracker and EF Series Fire Alarm Control Panels (FACP) & HAVE & EVAX/HMX Voice Panels

Product Type: Fire Alarm Control Panels

Product Model Number: Various (See Attachment)

(List all unique product identification numbers and/or part numbers)

General Description: Fire alarm control panels, voice evacuation systems and accessories. Harrington and Evax equivalent products are identical except for logo and branding

Mounting Description: Rigid wall mounted

Applicant Information

Applicant Company Name: TRU Compliance, LLC

Contact Person: Matthew J. Tobolski, Ph.D., S.E.

Mailing Address: 960 SW Disk Drive, Suite 104, Bend, OR 97702

Telephone: (844) 878-0200 Email: mtobolski@trucompliance.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2013.

Signature of Applicant:  Date: 07/07/2015

Title: President & CEO Company Name: TRU Compliance, LLC

"Access to Safe, Quality Healthcare Environments that Meet California's Diverse and Dynamic Needs"

STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY
OSH-FD-759 (REV 10/21/14)



OSHPD



**OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
FACILITIES DEVELOPMENT DIVISION**

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

Company Name: TRU Compliance, LLC

Name: Matthew J. Tobolski, Ph.D., S.E. California License Number: S5648

Mailing Address: 960 SW Disk Drive, Suite 104, Bend, OR 97702

Telephone: (844) 878-0200 Email: mtobolski@trucompliance.com

Supports and Attachments Preapproval

- Supports and attachments are preapproved under OPM- _____
(Separate application for OSHPD Preapproval of Manufacturer's Certification (OPM) of Supports and attachments is required)
- Supports and attachments are not preapproved

Certification Method

- Testing in accordance with: ICC-ES AC156
- Other (Please Specify): _____

Testing Laboratory

Company Name: UL, LLC

Contact Name: Michelle Henderson

Mailing Address: 12 Laboratory Park, Research Triangle Park, NC 27709

Telephone: (919) 549-1471 Email: michelle.t.henderson@ul.com

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Seismic Parameters

Design in accordance with ASCE 7-10 Chapter 13: Yes No

Design Basis of Equipment or Components (F_p/W_p) = 1.88

S_{DS} (Design spectral response acceleration at short period, g) = 2.5

a_p (In-structure equipment or component amplification factor) = 2.5

R_p (Equipment or component response modification factor) = 6.0

Ω_0 (System overstrength factor) = 2.5

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1.0

Equipment or Component Natural Frequencies (Hz) = See Attachments

Overall dimensions and weight (or range thereof) = See Attachments

Equipment or Components @ grade designed in accordance with ASCE 7-10 Chapter 15: Yes No

Design Basis of Equipment or Components (V/W) = _____

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

S_{D1} (Design spectral response acceleration at 1 second period, g) = _____

R (Response modification coefficient) = _____

Ω_0 (System overstrength factor) = _____

C_d (Deflection amplification factor) = _____

I_p (Importance factor) = 1.5

Height to Center of Gravity above base = _____

Equipment or Component Natural Frequencies (Hz) = _____

Overall dimensions and weight (or range thereof) = _____

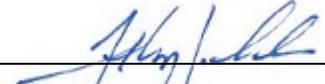
Tank(s) designed in accordance with ASME BPVC, 2010: Yes No

List of Attachments Supporting Special Seismic Certification

Test Report(s) Drawings Calculations Manufacturer's Catalog

Other(s) (Please Specify): Attachments

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2019

Signature:  Date: August 10, 2015

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.50 z/h = 1

Condition of Approval (if applicable): _____





A TOBOLSKI WATKINS AFFILIATE

Table 1

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer:	Harrington Signal
Model Line:	Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels
Certified Product Construction Summary:	16 gauge cold rolled carbon steel - All products except LDV 0.080" extruded aluminum - LDV only
Certified Options Summary:	FACP Systems - Class A or B; w/ network card; w/ universal dialer board; 1 to 4 addressable SLC's; 5 or 10 zones; 25W to 100W voice amplifier HAVE Systems - 1 to 16 zones; 25W to 100W voice amplifier; w/ digital message; w/ paging mic; 16 to 96 switches; single or dual channel; w/ fire phone, 25W to 100W expander modules, and 100W to 200W mass notification modules
Mounting Configuration:	Rigid wall mounted Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0 \text{ to } 1.0$ $I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Firespy Tracker Fire Alarm Control Panel	T1000	4	14.5	23.5	26.6		1
	T2000	4	14.5	23.5	28.8		3
	T8000	4	14.5	23.5	29.1		2
	T1000E	4	18	32	58.8		4
	T-ANN	2	10	8.5	6.6		5
	HS-ZBC-12	7	16.5	9	32.8		6
	HS-ZBC-20				42.5		7
	HS-ZBC-40				73.5		8
	LDV in XL8 cabinet	3.43	30.5	23.5	38.8		9
Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels	HAVE-25 ⁽¹⁾	4	14.5	18	26		10
	HAVE-50 ⁽¹⁾				30	Interpolated	
	HAVE-100 ^(1,2)	4	14.5	27	42.9		11
	HAVE-150 ⁽¹⁾				54	Same components as HAVE-100	
	HAVE-200 ^(1,2)				54	Same components as HAVE-100	
	HAVE-MP				36.2		12
	HAVE-DP	32.4		13			
	M-RM	3	8	10	6.6		14

¹Equivalent expander (E) module is also qualified. See Subcomponent Matrix.

²Equivalent mass notification (M) module is also qualified. See Subcomponent Matrix.



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Table 2

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0 \text{ to } 1.0$ $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Main Chassis Assemblies	Harrington Signal	T1-MB	Main Control Assbly. incl. chassis, MCC, LCU, PDC, PC, & power supply RL980, 120VAC		1
		T8-MBC	Main Control Assembly, includes chassis, MCC, PDC, PC and power supply RL980, 120VAC		2
		T2-MBCLC	Main Control Assbly. incl. chassis, MCC, LCU, PDC, PC, & power supply RL980, 120VAC		3,4
Motherboards	Harrington Signal	T1-MC	T1000 motherboard		1
		T8-MCC	T8000 motherboard		2
		T2-MCCLC	T2000 motherboard		3,4
Network Communication Adaptor	Harrington Signal	T-NCA	Network Module Board		1
Serial Relay Module	Harrington Signal	T-SRM	Serial Relay Module Board w/ 8 Programmable Relays		1
DACT Module	Harrington Signal	T-UDACT	Universal Dialer Board (SIA or Contact ID)		2
Loop Card	Harrington Signal	T-LCU	2 Loop Addressable SLC Board for Class B or Class A (System Sensor / I-Spy / XP95)		2



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Table 2

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Conventional Zone Module	Harrington Signal	T-CM	Conventional Module Board w/ 10 Zones Class B or 5 Zones Class A		2
Zone Splitters	Evax Systems	ZSC-4B	4 zone splitter		4
		ZSC-2A	2 zone splitter		4
Remote Annunciators	Harrington Signal	T-PDC/T-PDCR	Remote LCD Annunciator Board for the T2000 and T8000, Red	PDCR is identical to PDC but has extra terminal blocks for wiring connections.	1,5
Lamp Driver Board	Harrington Signal	T-LDV	Lamp Driver Module Board w/ up to 250 outputs, LED's or Lamps		9
Relay Card	Harrington Signal	T-RC	Relay Boards w/ 2 Programmable Relays, connects off the MCC or CM Module Boards.		3
Batteries	PowerSonic	PS12-120	12 AH Battery		6
		PS12-200	20 AH Battery		7
		PS12-400	40 AH Battery		8
Transformer	Evax Systems	TRF	Power Transformer		4,11,12,13
Enclosures	Harrington Signal	T1-CAB	T1000 cabinet		1
		T8-CAB	T8000 cabinet		2
		T2-CAB	T2000 cabinet		3
		T1E-CAB	T1000E cabinet		4



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Table 2

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Enclosures	Harrington Signal	T-ACAB	Annunciator enclosure		5
		T-EXP	Medium expansion cabinet	Interpolated between T-ACAB and T1-CAB	
		T-EXP5	Large expansion cabinet	Interpolated between T-ACAB and T1-CAB	
		T-EXP5N	Expansion cabinet for up to 5 T-RC's	Interpolated between T-ACAB and T1-CAB	
		T-EXPL	Expansion cabinet for T-LCU	Interpolated between T-ACAB and T1-CAB	
		T-EXPD	Expansion cabinet for T-UDACT	Interpolated between T-ACAB and T1-CAB	
		HS-ZBC-12	Seismic battery box w/ 12 AH capacity		6
		HS-ZBC-20	Seismic battery box w/ 20 AH capacity		7
	HS-ZBC-40	Seismic battery box w/ 40 AH capacity		8	
	Space Age	XL8-A	XL8 custom cabinet for LDV, A size	Same as XL8-F (shortened)	
		XL8-B	XL8 custom cabinet for LDV, B size	Same as XL8-F (shortened)	
		XL8-C	XL8 custom cabinet for LDV, C size	Same as XL8-F (shortened)	
		XL8-D	XL8 custom cabinet for LDV, D size	Same as XL8-F (shortened)	
		XL8-F	XL8 custom cabinet for LDV, F size		9
XL8-H		XL8 custom cabinet for LDV, H size	Same as XL8-F (lengthened)		
XL8-J	XL8 custom cabinet for LDV, J size	Same as XL8-F (lengthened)			



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Table 2

**Special Seismic Certification
Certified Subcomponent Matrix**

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Voice Amplifiers	Evax Systems	M-25	25 Watt Module, digital message repeater, paging mic		4,10
		M-50	50 Watt Module, digital message repeater, paging mic	Same as M-100M (depopulated)	
		M-100	100 Watt Module, digital message repeater, paging mic	Same as M-100M (depopulated)	
		M-25E	25 Watt Expander Module		13
		M-50E	50 Watt Expander Module	Same as M-100M (depopulated)	
		M-100E	100 Watt Expander Module	Same as M-100M (depopulated)	
		M-100M	Mass notification module		11
Enclosures	Evax Systems	M-CAB	HAVE-25, HAVE-50, & HAVE-100 cabinet		10
		M-CAB2	HAVE-150, 200, 100M, 200M, HAVE-MP and HAVE-DP cabinet		11,12,13
		M-CABRM	M-RM8, RM16, M-RM cabinet		14



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Table 2

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0 \text{ to } 1.0$ $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT	
Optional Components	Evax Systems	HAVE-FH	Fireman's handset		12	
		HAVE-PWR	Power Supply		12	
		HAVE-MFP	Master Fire Phone Interface		12	
		HAVE-DCC	Data communication control card		12,13	
		HAVE-SSC	Switch Scan Card		12	
		HAVE-MMC	Microphone Master Control Card		12	
		HAVE-II	Input Interface		12	
		HAVE-SLC	Switch/LED Card		12	
		HAVE-MFH	Master Fire Phone Handset Card		12	
		HAVE-MBR	Motherboard Card		13	
		HAVE-AMI	Audio/Module Interface		13	
		HAVE-FPI	Fire Phone Interface		13	
		HAVE-MBK	Mother Board Relays		13	
		HAVE-ASC	Audio System Control Card		12	
		HAVE-ISO	Isolator RS232		Interpolated	
		HAVE-LLC	LED Lamp Card		Interpolated	
		HAVE-BRK	Break-out card (Contains no circuitry)		Interpolated	
		HAVE-FO	Fiber optic transceiver		Interpolated	
		HAVE-BA	Backup amplifier switching relay		Interpolated	
		HAVE-OI	Output interface		Interpolated	
HAVE-XO	Extended output interface		Interpolated			



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Table 2

**Special Seismic Certification
Certified Subcomponent Matrix**

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Optional Components	Evax Systems	HAVE-XI	Extended input interface	Interpolated	
		M-SC	Supervisory Card	Interpolated	
		M-MIC	Microphone		10,11,12,14
		M-BAB	Backup Module	Interpolated	
		M-ZM	Zone Module		11
		M-SL8	Switch Card		11
		M-IL8	Input Card		11
		M-OL8	Output Card		11
		M-RM8	Remote Microphone Card		14



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Table 3

Special Seismic Certification Certified Product Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Evax Systems

Model Line: EF Series Fire Alarm Control Panels (FACP) and EVAX/HMX Series Voice and Mass Notification Panels

Certified Product Construction Summary:

16 gauge cold rolled carbon steel - All products except LDV

0.080" extruded aluminum - LDV only

Certified Options Summary:

FACP Systems - Class A or B; w/ network card; w/ universal dialer board; 1 to 4 addressable SLC's; 5 or 10 zones; 25W to 100W voice amplifier

Voice Systems - 1 to 16 zones; 25W to 100W voice amplifier; w/ digital message; w/ paging mic; 16 to 96 switches; single or dual channel; w/ fire phone, 25W to 100W expander modules, and 100W to 200W mass notification modules

Rigid wall mounted

Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2013

Seismic Certification Limits: $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Model Line	Model	Dimension (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
EF Series Fire Alarm Control Panels	EF3	4	14.5	23.5	26.6		1
	EF2	4	14.5	23.5	28.8		3
	EF1	4	14.5	23.5	29.1		2
	EF3V	4	18	32	58.8		4
	EV-ANN	2	10	8.5	6.6		5
	EF-ZBC-12	7	16.5	9	32.8		6
	EF-ZBC-20				42.5		7
	EF-ZBC-40				73.5		8
	LDV in XL8 cabinet	3.43	30.5	23.5	38.8		9
EVAX/HMX Series Voice and Mass Notification Panels	EVAX25 ⁽¹⁾	4	14.5	18	26		10
	EVAX50 ⁽¹⁾				30	Interpolated	
	EVAX-100 ^(1,2)	4	14.5	27	42.9		11
	EVAX-150 ⁽¹⁾				54	Same components as HAVE-100	
	EVAX-200 ^(1,2)				54	Same components as HAVE-100	
	HMX-MP				36.2		12
	HMX-DP				32.4		13
	EVX-RM	3	8	10	6.6		14

¹Equivalent expander (E) module is also qualified. See Subcomponent Matrix.

²Equivalent mass notification (M) module is also qualified. See Subcomponent Matrix.



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Table 4

**Special Seismic Certification
Certified Subcomponent Matrix**

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Evax Systems

Model Line: EF Series Fire Alarm Control Panels (FACP) and EVAX/HMX Series Voice and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0 \text{ to } 1.0$ $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Main Chassis Assemblies	Harrington Signal	EF3-MB	Main Control Assbly. incl. chassis, MCC, LCU, PDC, PC, & power supply RL980, 120VAC		1
		EF1-MBC	Main Control Assembly, includes chassis, MCC, PDC, PC and power supply RL980, 120VAC		2
		EF2-MBCLC	Main Control Assbly. incl. chassis, MCC, LCU, PDC, PC, & power supply RL980, 120VAC		3,4
Motherboards	Harrington Signal	EF3-MC	EF3 motherboard		1
		EF1-MCC	EF1 motherboard		2
		EF2-MCCLC	EF2 motherboard		3,4
Network Communication Adaptor	Harrington Signal	EF-NTWK	Network Module Board		1
Serial Relay Module	Harrington Signal	EF-SRM	Serial Relay Module Board w/ 8 Programmable Relays		1
DACT Module	Harrington Signal	EF-UDACT	Universal Dialer Board (SIA or Contact ID)		2
Loop Card	Harrington Signal	EF-LCU	2 Loop Addressable SLC Board for Class B or Class A (System Sensor / I-Spy / XP95)		2



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Table 4

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Evax Systems

Model Line: EF Series Fire Alarm Control Panels (FACP) and EVAX/HMX Series Voice and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Conventional Zone Module	Harrington Signal	EF-CM	Conventional Module Board w/ 10 Zones Class B or 5 Zones Class A		2
Zone Splitters	Evax Systems	ZSC-4B	4 zone splitter		4
		ZSC-2A	2 zone splitter		4
Remote Annunciators	Harrington Signal	EF-PDC/EF-PDCR	Remote LCD Annunciator Board for the EF2 and EF1, Red	PDCR is identical to PDC but has extra terminal blocks for wiring connections.	1,5
Lamp Driver Board	Harrington Signal	EF-LDV	Lamp Driver Module Board w/ up to 250 outputs, LED's or Lamps		9
Relay Card	Harrington Signal	EF-RC	Relay Boards w/ 2 Programmable Relays, connects off the MCC or CM Module Boards.		3
Batteries	PowerSonic	PS12-120	12 AH Battery		6
		PS12-200	20 AH Battery		7
		PS12-400	40 AH Battery		8
Transformer	Evax Systems	TRF	Power Transformer		4,11,12,13
Enclosures	Harrington Signal	EF3-CAB	EF3 cabinet		1
		EF1-CAB	EF1 cabinet		2
		EF2-CAB	EF2 cabinet		3
		EF3V-CAB	EF3V cabinet		4



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Table 4

Special Seismic Certification Certified Subcomponent Matrix

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Evax Systems

Model Line: EF Series Fire Alarm Control Panels (FACP) and EVAX/HMX Series Voice and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Enclosures	Harrington Signal	EF-ACAB	Annunciator enclosure		5
		EF-EXP	Medium expansion cabinet	Interpolated between EF-ACAB and EF3-CAB	
		EF-EXP5	Large expansion cabinet	Interpolated between EF-ACAB and EF3-CAB	
		EF-EXP5N	Expansion cabinet for up to 5 EF-RC's	Interpolated between EF-ACAB and EF3-CAB	
		EF-EXPL	Expansion cabinet for EF-LCU	Interpolated between EF-ACAB and EF3-CAB	
		EF-EXPD	Expansion cabinet for EF-UDACT	Interpolated between EF-ACAB and EF3-CAB	
		EF-ZBC-12	Seismic battery box w/ 12 AH capacity		6
		EF-ZBC-20	Seismic battery box w/ 20 AH capacity		7
	EF-ZBC-40	Seismic battery box w/ 40 AH capacity		8	
	Space Age	XL8-A	XL8 custom cabinet for LDV, A size	Same as XL8-F (shortened)	
		XL8-B	XL8 custom cabinet for LDV, B size	Same as XL8-F (shortened)	
		XL8-C	XL8 custom cabinet for LDV, C size	Same as XL8-F (shortened)	
		XL8-D	XL8 custom cabinet for LDV, D size	Same as XL8-F (shortened)	
		XL8-F	XL8 custom cabinet for LDV, F size		9
XL8-H		XL8 custom cabinet for LDV, H size	Same as XL8-F (lengthened)		
XL8-J	XL8 custom cabinet for LDV, J size	Same as XL8-F (lengthened)			



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**Special Seismic Certification
Certified Subcomponent Matrix**

TWEI Project No.: 2014-0879-CO-001

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Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Voice Amplifiers	Evax Systems	EVX25	25 Watt Module, digital message repeater, paging mic		4,10
		EVX50	50 Watt Module, digital message repeater, paging mic	Same as EVX-100M (depopulated)	
		EVX100	100 Watt Module, digital message repeater, paging mic	Same as EVX-100M (depopulated)	
		EVX25E	25 Watt Expander Module		13
		EVX50E	50 Watt Expander Module	Same as EVX-100M (depopulated)	
		EVX100E	100 Watt Expander Module	Same as EVX-100M (depopulated)	
		EVX-100M	Mass notification module		11
Enclosures	Evax Systems	EVX-CAB	EVAX-25, EVAX-50, & EVAX-100 cabinet		10
		EVX-CAB2	EVAX-150, 200, 100M, 200M, HMX-MP and HMX-DP cabinet		11,12,13
		EVX-CABRM	EVX-RM8, RM16, EVX-RM cabinet		14



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Special Seismic Certification Certified Subcomponent Matrix

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Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0 \text{ to } 1.0$ $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Optional Components	Evax Systems	MX-FH	Fireman's handset		12
		MX-PWR	Power Supply		12
		MX-MFP	Master Fire Phone Interface		12
		MX-DCC	Data communication control card		12,13
		MX-SSC	Switch Scan Card		12
		MX-MMC	Microphone Master Control Card		12
		MX-II	Input Interface		12
		MX-SLC	Switch/LED Card		12
		MX-MFH	Master Fire Phone Handset Card		12
		MX-MBR	Motherboard Card		13
		MX-AMI	Audio/Module Interface		13
		MX-FPI	Fire Phone Interface		13
		MX-MBK	Mother Board Relays		13
		MX-ASC	Audio System Control Card		12
		MX-ISO	Isolator RS232		Interpolated
		MX-LLC	LED Lamp Card		Interpolated
		MX-BRK	Break-out card (Contains no circuitry)		Interpolated
		MX-FO	Fiber optic transceiver		Interpolated
		MX-BA	Backup amplifier switching relay		Interpolated
		MX-OI	Output interface		Interpolated
MX-XO	Extended output interface		Interpolated		



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Table 4

**Special Seismic Certification
Certified Subcomponent Matrix**

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Evax Systems

Model Line: EF Series Fire Alarm Control Panels (FACP) and EVAX/HMX Series Voice and Mass Notification Panels

Building Code: CBC 2013 **Seismic Certification Limits:** $S_{DS} = 2.5$ $z/h = 0$ to 1.0 $I_p = 1.5$

Component Type	Manufacturer	Model	Description	Notes	UUT
Optional Components	Evax Systems	MX-XI	Extended input interface	Interpolated	
		EVX-SC	Supervisory Card	Interpolated	
		EVX-MIC	Microphone		10,11, 12,14
		EVX-BAB	Backup Module	Interpolated	
		EVX-ZM	Zone Module		11
		EVX-SL8	Switch Card		11
		EVX-IL8	Input Card		11
		EVX-OL8	Output Card		11
		EVX-RM8	Remote Microphone Card		14



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UUT - 1

Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: T1000 FACP **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
T1-CAB enclosure with T-PDC annunciator on door and containing T1-MB main assembly on T1-MC motherboard, T-NCA network module board, and T-SRM serial relay module board

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
26.6	4	14.5	23.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



A TOBOLSKI WATKINS AFFILIATE

UUT - 2

Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: T8000 FACP **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
T8-CAB cabinet containing T-MBC main assembly on T8-MCC motherboard, T-UDACT universal dialer board, T-LCU addressable SLC board, and T-CM conventional module board

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
29.1	4	14.5	23.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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UUT - 3

Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: T2000 FACP **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
T2-CAB cabinet containing T2-MBCLC main assembly on T2-MCCLC motherboard and T-RC relay board

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
28.8	4	14.5	23.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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UUT - 4

Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: T1000E Fire and Audio Panel **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
T1E-CAB cabinet containing T1-MB main assembly on T1-MC motherboard, TRF transformer, M-25 annunciator, ZSC-4B and ZSC-2A zone splitters

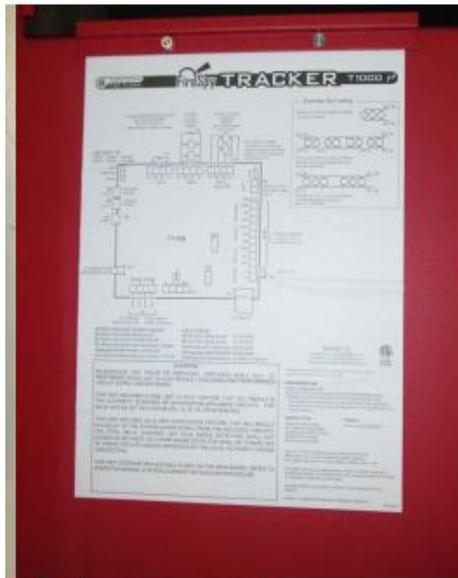
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
58.8	4	18	32	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 5 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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UUT - 5

Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: T-ANN Annunciator **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
T-ACAB annunciator cabinet with T-PDCR LCD annunciator board

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6.6	2	10	8.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HS-ZBC-12 Battery Enclosure **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
Seismic battery box w/ 12 AH capacity (PS12-120)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
32.8	7	16.5	9	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HS-ZBC-20 Battery Enclosure **Serial Number:**

Product Construction Summary:

16 gauge cold rolled carbon steel

Options/Subcomponent Summary:

Seismic battery box w/ 20 AH capacity (PS12-200)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
42.5	7	16.5	9	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws

Unit maintained structural integrity and remained functional per manufacturer requirement.

Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HS-ZBC-40 Battery Enclosure **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
Seismic battery box w/ 40 AH capacity (PS12-400)

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
73.5	7	16.5	9	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: LDV **Serial Number:**

Product Construction Summary:
0.080" extruded aluminum

Options/Subcomponent Summary:
LDV in XL8-F cabinet

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
38.8	3.43	30.5	23.5	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 4 x 1/4" Lag Screws
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HAVE-25 Voice System **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
M-CAB enclosure containing M-25 voice amplifier and transformer

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
26	4	14.5	18	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 5 x 1/4" Lag Screws
 Unit maintained structural integrity and remained functional per manufacturer requirement.
 Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HAVE-100M Mass Notification **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
M-CAB2 enclosure containing M-100M voice amplifier, M-SL8 switch card, M-ZM zone module, M-IL8 input card, and M-OL8 output card

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
42.9	4	14.5	27	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 5 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HAVED-MP16/P Master Panel **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
M-CAB2 enclosure containing HAVE-MFP master fire phone interface, HAVE-DCC data communication card, HAVE-ASC audio system card, HAVE-SSC switch scan card, HAVE-PWR power supply, HAVE-II input interface, and TRF transformer. HAVE-MMC microphone master control card, HAVE-SLC switch/LED card, and HAVE-MFH master fire phone handset card mounted to the door.

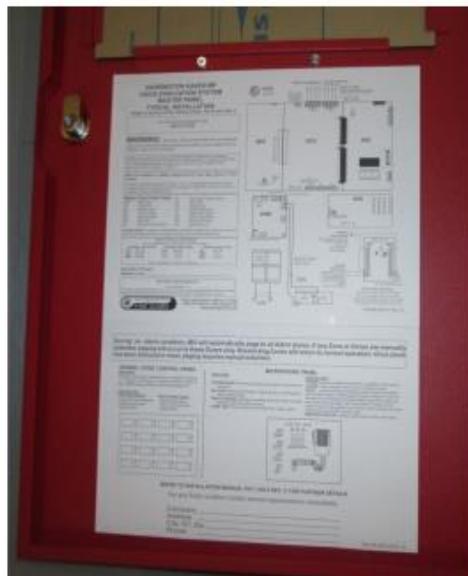
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
36.2	4	14.5	27	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 5 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: HAVED-DPS25/P Distributor Panel **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
M-CAB2 enclosure containing HAVE-MBR mother board card mounted with HAVE-MBK motherboard/relay card, HAVE-FPI fire phone interface card, HAVE-AMI audio module interface card, HAVE-DCC data communication card, TRF transformer, and M-25E expander module

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
32.4	4	14.5	27	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 5 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.



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Unit Under Test (UUT) Summary Sheet

TWEI Project No.: 2014-0879-CO-001

Manufacturer: Harrington Signal and Evax Systems

Model Line: Firespy Tracker Fire Alarm Control Panels (FACP) and Harrington Advanced Voice Evacuation (HAVE) and Mass Notification Panels

Model Number: M-RM8 Remote Microphone **Serial Number:**

Product Construction Summary:
16 gauge cold rolled carbon steel

Options/Subcomponent Summary:
M-CABRM enclosure containing M-RM8 remote microphone connected to HAVE-100M, UUT11

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
6.6	3	8	10	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS}	z/h	I _p	A _{FLX-H}	A _{RIG-H}	A _{FLX-V}	A _{RIG-V}
CBC 2013	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with 3 x 1/4" Lag Screws
Unit maintained structural integrity and remained functional per manufacturer requirement.
Contents were included in testing per operating conditions.