APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0362 – 10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Rauland-Borg Corporation

Manufacturer's Technical Representative: Vernon Morris

Mailing Address: 1802 West Central Road, Mt. Prospect, IL 60056

Telephone: (847) 590-7100 Email: vernon.morris@ametek.com

Product Information

Product Name: Responder Call Stations

Product Type: System Cabinets

Product Model Number: See Certified Product Table attached
(List all unique product identification numbers and/or part numbers)

General Description: Responder Nurse Call Stations consist of terminal cabinets containing the control and termination modules, network equipment, & power required to operate the stations. Seismic enhancements made to the test units and modifications required to address anomalies observed during the tests shall be incorporated into product units.

Mounting Description: Rigidly wall mounted

Applicant Information

Applicant Company Name: Rauland-Borg Corporation

Contact Person: Vernon Morris

Mailing Address: 1802 West Central Road, Mt. Prospect, IL 60056

Telephone: (847) 590-7100 Email: vernon.morris@ametek.com

I hereby agree to reimburse the Office of Statewide Health Planning and Development review fees in accordance with the California Administrative Code, 2016.

Signature of Applicant: Date: 10/11/2017

Title: Regulatory Compliance Engineer Company Name: Rauland-Borg Corporation

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

Company Name: Forell/Elsesser Engineers, Inc.

Name: Marco Scanu, SE California License Number: S4454

Mailing Address: 160 Pine St., 6th Flr., San Francisco, CA 94111

Telephone: (415) 837-0700 Email: m.scanu@forell.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: National Technical Systems

Contact Name: Ray Chavez

Mailing Address: 38995 Cherry Street, Newark, CA 94560

Telephone: (510) 578-3500 Email: _____

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.94

S_{DS} (Design spectral response acceleration at short period, g) = 2.58

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) = 2.0

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1

Equipment or Component Natural Frequencies (Hz) = See attachment, UUT Summary Sheets

Overall dimensions and weight (or range thereof) = See attachment, Certified Products Table

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, 2015: ☐ Yes ☒ No

List of Attachments Supporting Special Seismic Certification

☒ Test Report(s) ☐ Drawings ☒ Calculations ☒ Manufacturer's Catalog

☒ Other(s) (Please Specify): Certified Products Table, Certified Subcomponents Table, UUT Summary Sheets

OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2022

Signature: _____ Date: November 21, 2017

Print Name: Timothy J. Piland Title: SSE

Special Seismic Certification Valid Up to : S_{DS} (g) = 2.58 z/h = 1

Condition of Approval (if applicable):

Rauland-Borg Corporation - Responder Call Stations
I. Certified Product Table

Unit	Width	Depth	Height	Max. Weight	Construction Material[1,2]	Test Status
Responder 4000						
351102 Cabinet	14.375 in	4.75 in	28.0 in	42 lbs	16 ga CFS	PR054947.01 EUT-2
351102 Cabinet	14.375 in	4.75 in	28.0 in	50 lbs	16 ga CFS	PR064966.01 UUT-9
NC2828 Cabinet	28.0 in	5.50 in	28.0 in	67 lbs	16 ga CFS	PR054947.01 EUT-1
NC2828 Cabinet	28.0 in	5.50 in	28.0 in	101 lbs	16 ga CFS	PR064966.01 UUT-10
Responder 5 & 5000						
351102 Cabinet	14.375 in	4.75 in	28.0 in	36 lbs	16 ga CFS	PR054947.01 EUT-4
351102 Cabinet	14.375 in	4.75 in	28.0 in	41 lbs	16 ga CFS	R93329 UUT-2
351102 Cabinet	14.375 in	4.75 in	28.0 in	51 lbs	16 ga CFS	PR064966.01 UUT-7
NC2828 Cabinet	28.0 in	5.50 in	28.0 in	66 lbs	16 ga CFS	PR054947.01 EUT-3
NC2828 Cabinet	28.0 in	5.50 in	28.0 in	67 lbs	16 ga CFS	R93329 UUT-1
NC2828 Cabinet	28.0 in	5.50 in	28.0 in	92 lbs	16 ga CFS	PR064966.01 UUT-8

Notes

1. All enclosures are NEMA 1 rated.
2. CFS = cold-formed carbon steel.
3. All enclosures are rigid wall-mounted.
4. Responder 4000 panels can be configured to a maximum weight of 101 lbs.
5. Responder 5 & 5000 panels can be configured to a maximum weight of 92 lbs.

Rauland-Borg Corporation - Responder Call Stations
II. Certified Subcomponents Table

Responder 4000

Components	Manufacturer	Part #	Testing Status
Cabinets			
28”Wx28”Hx5.5”D	Rauland-Borg	NC2828	PR054947.01 EUT-1 and PR064966.01 UUT-10
14.375”Wx28”Hx4.75”D	Rauland-Borg	351102	PR054947.01 EUT-2 and PR064966.01 UUT-9
Subcomponents			
Network Interface Module	Rauland-Borg	R4KNIM	PR054947.01 EUT-1 & EUT-2
Power Supply	Rauland-Borg	R4KPR400	PR054947.01 EUT-1 & EUT-2 and PR064966.01 UUT-9 & UUT-10
Battery Backup Kit	Rauland-Borg	R4KBK400	PR054947.01 EUT-1 & EUT-2 and PR064966.01 UUT-9 & UUT-10
Termination PCB	Rauland-Borg	R4KTMB	PR054947.01 EUT-1 & EUT-2
Paging Amplifier	Rauland-Borg	R4KPA25	PR054947.01 EUT-1 & EUT-2 and PR064966.01 UUT-10
X-Bus Adapter	Rauland-Borg	R4KXBA	PR054947.01 EUT-1

Rauland-Borg Corporation - Responder Call Stations
II. Certified Subcomponents Table

Responder 5 & 5000

Components	Manufacturer	Part #	Testing Status
Cabinets			
28”Wx28”Hx5.5”D	Rauland-Borg	NC2828	R93329 UUT-1 and PR064966.01 UUT-8 and PR054947.01 EUT-3
14.375”Wx28”Hx4.75”D	Rauland-Borg	351102	R93329 UUT-2 and PR064966.01 UUT-7 and PR054947.01 EUT-4
Subcomponents			
Branch Regional Controller	Rauland-Borg	351000	R93329 UUT-2
Branch Regional Controller v2	Rauland-Borg	351001	Interpolated[1]
Responder Network Concentrator	Rauland-Borg	351010	R93329 UUT-1
Power Supply and Battery	Rauland-Borg	351003	R93329 UUT-1 & UUT-2 and PR064966.01 UUT-7 & UUT-8
8 Port Ethernet Switch	Rauland-Borg	351004	R93329 UUT-2 and PR064966.01 UUT-8
Fiber Optic Adapter	Rauland-Borg	351006	R93329 UUT-1, UUT-2
Main System Controller	Rauland-Borg	R5KMSC	PR054947.01 EUT-3 & EUT-4
Adapter	Rauland-Borg	R5KL2KA	PR054947.01 EUT-3 & EUT-4
Power Supply (15V) w/Battery Backup	Rauland-Borg	R5KMPR15	PR054947.01 EUT-3 & EUT-4
Power Supply (36V) w/Battery Backup	Rauland-Borg	R5KMPR36	PR054947.01 EUT-3 & EUT-4
Ethernet Switch	Rauland-Borg	R5KM8PRT	PR054947.01 EUT-3
Termination PCB	Rauland-Borg	R5KMTRM	PR054947.01 EUT-3 & EUT-4

Notes:

1. The Branch Regional Controllers and Responder Network Concentrator are of similar construction, material, and configuration.

Test Report R93329 – UUT 1
Responder 5000 Cabinet
16 ga. Cold Formed Carbon Steel
28”W x 5.5”D x 28”H, 67 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts

Box-1

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	2.81	1	4.50	3.37	1.88	0.75

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	NC2828
Power Supply with Battery Backup	Rauland-Borg	351003
Fiber Optic Adapter Module	Rauland-Borg	351006
Responder Network Concentrator	Rauland-Borg	351010

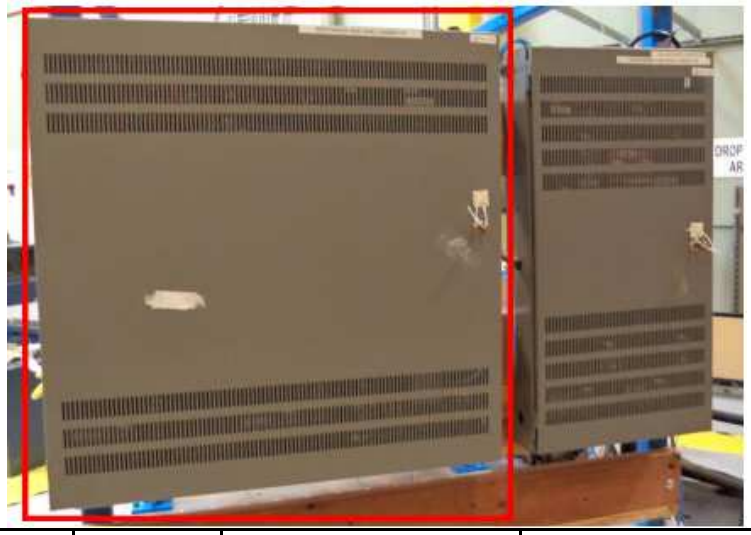
Test Report R93329 – UUT 2
Responder 5000 Cabinet
16 ga. Cold Formed Carbon Steel
14.375”W x 4.75”D x 28”H, 41 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts

Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	2.81	1	4.50	3.37	1.88	0.75

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	351102
Branch Regional Controller	Rauland-Borg	351000
Power Supply with Battery Backup	Rauland-Borg	351003
8 Port Ethernet Switch	Rauland-Borg	351004
Fiber Optic Adapter Module	Rauland-Borg	351006

Test Report PR054947.01 – EUT 1
Responder 4000 Cabinet
16 ga. Cold Formed Carbon Steel
28”W x 5.5”D x 28”H, 67 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts

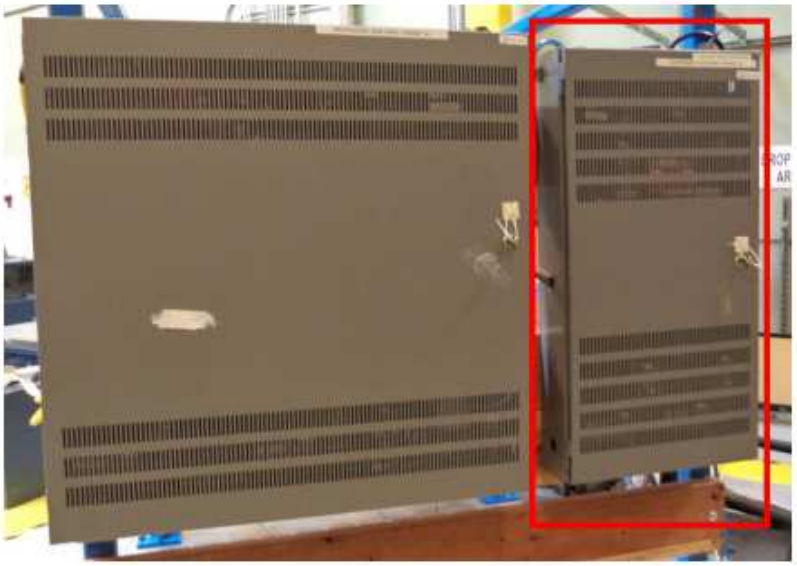


Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	3.00	1	4.80	3.60	2.01	0.80

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Network Interface Module	Rauland-Borg	R4KNIM
Power Supply	Rauland-Borg	R4KPR400
Battery Backup Kit	Rauland-Borg	R4KBK400
Termination PCB	Rauland-Borg	R4KTMB
Paging Amplifier	Rauland-Borg	R4KPA25
X-Bus Adapter	Rauland-Borg	R4KXBA

Test Report PR054947.01 – EUT 2
Responder 4000 Cabinet
16 ga. Cold Formed Carbon Steel
14.375”W x 4.75”D x 28”H, 42 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts
EUT-2 shown on the right

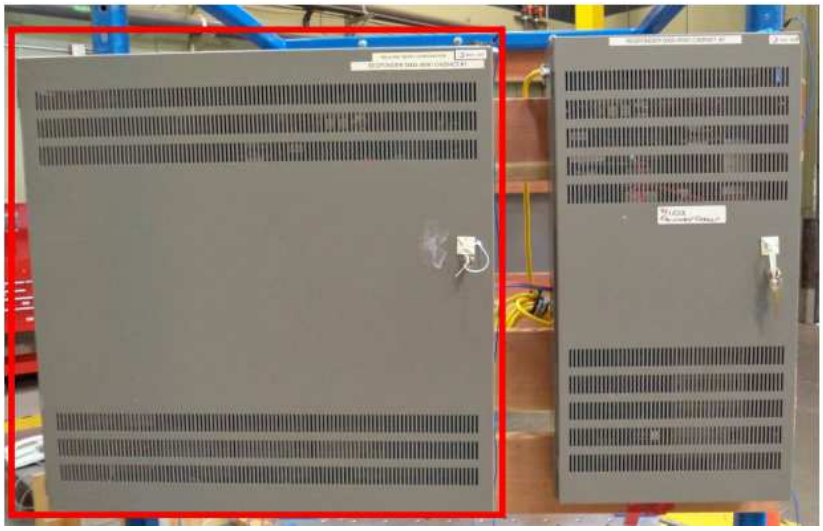


Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	3.00	1	4.80	3.60	2.01	0.80

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Network Interface Module	Rauland-Borg	R4KNIM
Power Supply	Rauland-Borg	R4KPR400
Battery Backup Kit	Rauland-Borg	R4KBK400
Termination PCB	Rauland-Borg	R4KTMB
Paging Amplifier	Rauland-Borg	R4KPA25

Test Report PR054947.01 – EUT 3
Responder 5000 Cabinet
16 ga. Cold Formed Carbon Steel
28”W x 5.5”D x 28”H, 66 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts
EUT-3 shown on the Left

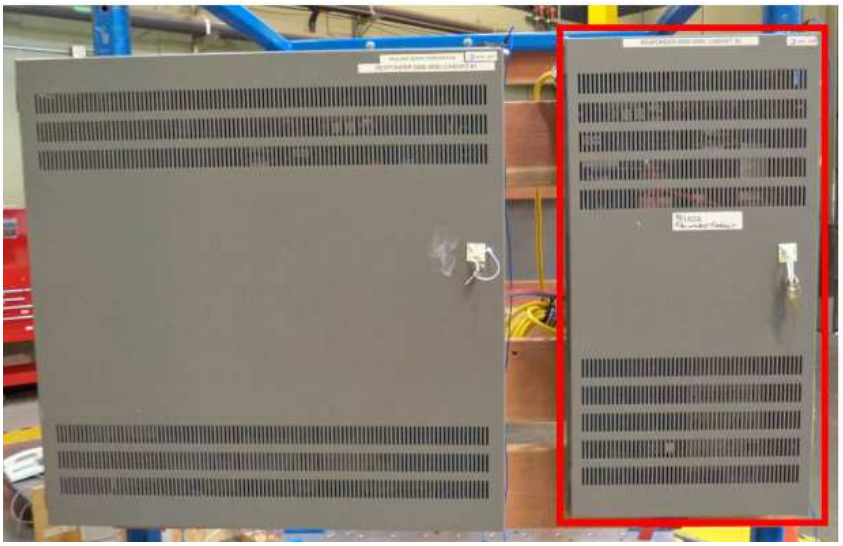


Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	3.00	1	4.80	3.60	2.01	0.80

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Main System Controller	Rauland-Borg	R5KMSC
Adapter	Rauland-Borg	R5KL2KA
Power Supply (15V) w/Battery Backup	Rauland-Borg	R5KMPR15
Power Supply (36V) w/Battery Backup	Rauland-Borg	R5KMPR36
Ethernet Switch	Rauland-Borg	R5KM8PRT
Termination PCB	Rauland-Borg	R5KMTRM

Test Report PR054947.01 – EUT 4
Responder 5000 Cabinet
16 ga. Cold Formed Carbon Steel
14.375”W x 4.75”D x 28”H, 36 lbs
Wall mounted using: (4) - 3/8” A307 Grade A bolts
EUT-4 shown on the right

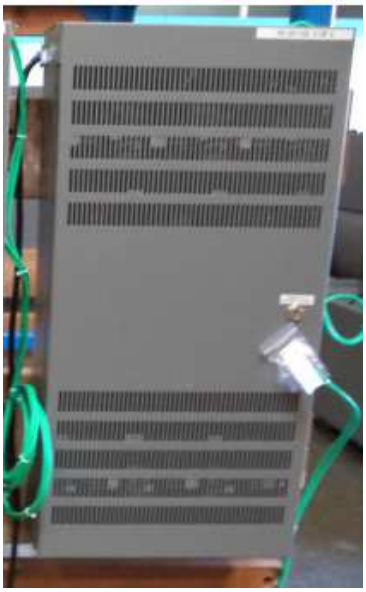


Building Code	Test Criteria	S_{DS} (g)	z/h	Horizontal		Vertical	
				A_{FLX-H}	A_{RIG-H}	A_{FLX-V}	A_{RIG-H}
CBC 2016	ICC-ES AC 156	3.00	1	4.80	3.60	2.01	0.80

Natural Frequencies			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Main System Controller	Rauland-Borg	R5KMSC
Adapter	Rauland-Borg	R5KL2KA
Power Supply (15V) w/Battery Backup	Rauland-Borg	R5KMPR15
Power Supply (36V) w/Battery Backup	Rauland-Borg	R5KMPR36
Termination PCB	Rauland-Borg	R5KMTRM

Test Report PR064966.01 – UUT 7
Responder 5 Cabinet
16 ga. Cold Formed Carbon Steel
14.375”W x 4.75”D x 28”H, 51 lbs
Wall mounted using: (4) -#10 Pan Head 1” long Screw

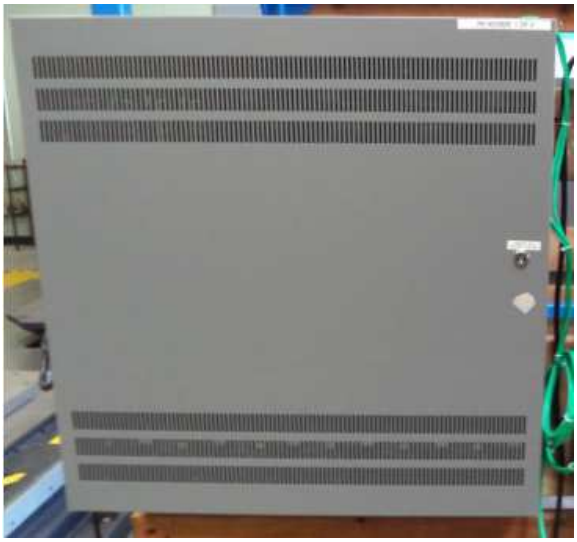


Building Code	Test Criteria	S_{DS} (g)	z/h	I_p	Horizontal		Vertical	
					A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC 156	2.58	1.0	1.5	4.13	3.10	1.73	0.69

Natural Frequencies (Hz)			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	351102
Power Supply and Battery	Rauland-Borg	351003

Test Report PR064966.01 – UUT 8
Responder 5 Cabinet
16 ga. Cold Formed Carbon Steel
28”W x 5.5”D x 28”H, 92 lbs
Wall mounted using: (4) -#10 Pan Head 1” long Screw



Building Code	Test Criteria	S_{DS} (g)	z/h	I_p	Horizontal		Vertical	
					A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC 156	2.58	1.0	1.5	4.13	3.10	1.73	0.69

Natural Frequencies (Hz)			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	NC2828
Power Supply and Battery	Rauland-Borg	351003
8 Port Ethernet Switch	Rauland-Borg	351004

Test Report PR064966.01 – UUT 9
Responder 4000 Cabinet
16 ga. Cold Formed Carbon Steel
14.375”W x 4.75”D x 28”H, 50 lbs
Wall mounted using: (4) -#10 Pan Head 1” long Screw

Building Code	Test Criteria	S_{DS} (g)	z/h	I_p	Horizontal		Vertical	
					A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC 156	2.58	1.0	1.5	4.13	3.10	1.73	0.69

Natural Frequencies (Hz)			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	351102
Power Supply	Rauland-Borg	R4KPR400
Battery Backup Kit	Rauland-Borg	R4KBK400

Test Report PR064966.01 – UUT 10
Responder 4000 Cabinet
16 ga. Cold Formed Carbon Steel
28”W x 5.5”D x 28”H, 101 lbs
Wall mounted using: (4) -#10 Pan Head 1” Screws

Building Code	Test Criteria	S_{DS} (g)	z/h	I_p	Horizontal		Vertical	
					A_{FLX-H} (g)	A_{RIG-H} (g)	A_{FLX-V} (g)	A_{RIG-V} (g)
CBC 2016	ICC-ES AC 156	2.58	1.0	1.5	4.13	3.10	1.73	0.69

Natural Frequencies (Hz)			Test Results
F-B	S-S	V	The UUT maintained structural integrity and functionality after the AC156 test. UUT full of contents during testing.
n/a	n/a	n/a	

Subcomponents	Manufacturer	Part #
Cabinet	Rauland-Borg	NC2828
Power Supply	Rauland-Borg	R4KPR400
Battery Backup Kit	Rauland-Borg	R4KBK400
Paging Amplifier	Rauland-Borg	R4KPA25