



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

APPLICATION FOR HCAI SPECIAL SEISMIC
CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0719

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Rauland-Borg

Manufacturer's Technical Representative: Vernon Morris

Mailing Address: 1802 W Central Road, Mount Prospect, IL 60056

Telephone: (847) 632-8656

Email: Vernon.Morris@ametek.com

Product Information

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

Product Model Number(s): See Attachment

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

Product Sub-Category: Nurse Call Stations

General Description: Responder Nurse Call Systems: Responder 4000, Responder 5/ Responder Enterprise, and Responder 5000

Mounting Description: Wall Mounted Rigid

Tested Seismic Enhancements: None

Applicant Information

Applicant Company Name: DCL Labs, LLC

Contact Person: Nastya Veyngerova

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

Telephone: (775) 358-5085

Email: nastya.veyngerova@shaketest.com

Title: Seismic Test Engineer



**DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT**

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: NATIONAL TECHNICAL SYSTEMS (NTS)

Contact Person: anuj Kumar

Mailing Address: 38995 Cherry Street, Newark CA 94560

Telephone: (510) 578-3500 Email: anuj.kumar@nts.com

BY: Mohammad Karim

DATE: 12/02/2025



DEPARTMENT OF HEALTH CARE ACCESS AND INFORMATION
OFFICE OF STATEWIDE HOSPITAL PLANNING AND DEVELOPMENT

Seismic Parameters

Certified Response Spectral Acceleration Factors: (F_p/W_p)

Horizontal (A Flx-H), $g =$ 4.00 (A Rig-H), $g =$ 2.69

Vertical (A Flx-V), $g =$ 1.67 (A Rig-V), $g =$ 0.67

SDS (Design spectral response acceleration at short period, g) = 2.5

H_f (Force amplification height factor) = 3.5 at $z/h=1.0$; 1.0 at $z/h=0$

R_u (Structure ductility reduction factor) = 1.3 at $z/h=1.0$; 1.0 at $z/h=0$

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1

HCAI Approval (For Office Use Only) - Approval Expires on 12/02/2031

Date: 12/2/2025

Name: Mohammad Karim

Title: Supervisor, Health Facilities

Condition of Approval (if applicable): _____

OSP-0719

BY: Mohammad Karim

DATE: 12/02/2025

Special Seismic Certification

Table 1 - Certified Components



DCL Project Number: 59648-2501

Manufacturer: Rauland-Borg

Product Line: Responder 4000, Responder 5/ Responder Enterprise, and Responder 5000

Certified Product Construction: NEMA 1, 16 ga. Cold Formed Carbon Steel

Mounting: Rigid Wall Mount

Certified Seismic Levels: Sds=2.50 g with z/h=1.0 and z/h=0.0

Factors for Force Amplification and Structure Ductility Reduction: $H_f = 3.5$ at $z/h=1.0$; 1.0 at $z/h=0$ and $R_u = 1.3$ at $z/h=1.0$; 1.0 at $z/h=0$

Model Number	Cabinet Number	Max. Dimensions [in.]			Max. Weight [lb.]	Unit
		Depth	Width	Height		
Responder 4000 ¹						
351102-2	351102	4.3	14.5	28.0	42	EUT-02
351102-5	351102	5.0	14.4	28.0	50	UUT-09
NC2828-2	NC2828	6.0	27.8	27.8	67	EUT-01
NC2828-5	NC2828	5.5	28.0	28.0	101	UUT-10
Responder 5/Responder Enterprise & Responder 5000 ²						
351102-3	351102	5.0	14.5	28.0	36	EUT-04
351102-6 / 351102-6A ³	351102	4.8	14.4	28.0	37	UUT-03
351102-7 / 351102-7A ³	351102	4.8	14.4	28.0	37	UUT-04
351102-1 / 351102-1A ³	351102	5.0	14.5	28.0	41	UUT-02
351102-4 / 351102-4A ³	351102	5.0	14.4	28.0	51	UUT-07
NC2828-3	NC2828	6.0	27.8	27.8	66	EUT-03
NC2828-1 / NC2828-1A ³	NC2828	5.5	28.0	28.0	67	UUT-01
NC2828-4 / NC2828-4A ³	NC2828	5.5	28.0	28.0	92	UUT-08

Notes:

1. Responder 4000 panels can be configured to maximum weight of 101 lb.
2. Responder 5/Responder Enterprise & Responder 5000 panels can be configured to a maximum weight of 92 lb.
3. Difference between # and #A is software change only.

BY: Mohammad Karim

DATE: 12/02/2025

Special Seismic Certification

Table 2 - Certified Subcomponents



DCL Project Number: 59645-2501

Certified Seismic Levels: Sds=2.50 g with z/h=1.0 and z/h=0.0

Responder 4000					
Model Number	Manufacturer	Description	Material	Weight [lb.]	Unit
Cabinets					
351102	Rauland-Borg	14.38"Wx28"Hx4.75"D Cabinet	NEMA 1, 16 ga. Cold Formed Carbon Steel	32	EUT-02, UUT-09
NC2828		28"Wx28"Hx5.5"D Cabinet		42	EUT-01, UUT-10
Other					
R4KTMB	Rauland-Borg	Termination PCB	NEMA 1, 18 ga. Cold Rolled Steel	<1	EUT-01, EUT-02
R4KNIM		Network Interface Module		3	EUT-01, EUT-02
R4KXBA		X-Bus Adapter		3	EUT-01
R4KPA25		Paging Amplifier		3	EUT-01, EUT-02, UUT-10
R4KBK400		Battery Backup Kit		4	EUT-01, EUT-02, UUT-09, UUT-10
R4KPR400		Power Supply		4	EUT-01, EUT-02, UUT-09, UUT-10
Responder 5/Responder Enterprise & Responder 5000					
Model Number	Manufacturer	Description	Material	Weight [lb.]	Unit
Cabinets					
351102	Rauland-Borg	14.38"Wx28"Hx4.75"D Cabinet	NEMA 1, 16 ga. Cold Formed Carbon Steel	32	UUT-02, UUT-07, EUT-04, UUT-03, UUT-04
NC2828		28"Wx28"Hx5.5"D Cabinet		42	UUT-01, UUT-08, EUT-03
Controllers					
R5KMSC	Rauland-Borg	Main System Controller	NEMA 1, 18 ga. Cold Rolled Steel	2	EUT-03, EUT-04
R5KMSCV3		Main System Controller		2	Interpolated
R5KMSCv2		Main System Controller		2	UUT-02
351000		Branch Regional Controller*		2	UUT-02
351001		Branch Regional Controller v2*		2	Interpolated
351005		Branch Regional Controller v3*		2	UUT-03
351007		Branch Regional Controller v4*		2	Interpolated
351008		Branch Regional Controller v5*		2	Interpolated
351010		Responder Network Concentrator*		2	UUT-01
351011		Responder Network Concentrator*		2	UUT-03
Others					
R5KMTRMV2	Rauland-Borg	Termination PCB	NEMA 1, 18 ga. Cold Rolled Steel	<1	Extrapolated
R5KMTRM		Termination PCB		<1	EUT-03, EUT-04, UUT-04
R5KL2KAV2		Adapter		1	Interpolated
R5KL2KA		Adapter		1	EUT-03, EUT-04, UUT-04
351006		Fiber Optic Adapter		1	UUT-01, UUT-02
R5KM8PRT		Ethernet Switch		2	EUT-03
351004		8 Port Ethernet Switch		2	UUT-02, UUT-08
351003GSA		Power Supply and Battery		4	Interpolated
351003		Power Supply and Battery		4	UUT-01, UUT-02, UUT-07, UUT-08, UUT-03
R5KMPR15GSA		Power Supply (15V) w/Battery Backup		4	Interpolated
R5KMPR15		Power Supply (15V) w/Battery Backup		4	EUT-03, EUT-04, UUT-04
R5KMPR36GSA		Power Supply (36V) w/Battery Backup		4	Interpolated
R5KMPR36		Power Supply (36V) w/Battery Backup		4	EUT-03, EUT-04, UUT-04

Note:

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

Special Seismic Certification

Table 3 - Tested Units



DCL Project Number: 59648-2501

Manufacturer: Rauland-Borg

Product Line: Responder 4000, Responder 5/ Responder Enterprise, and Responder 5000

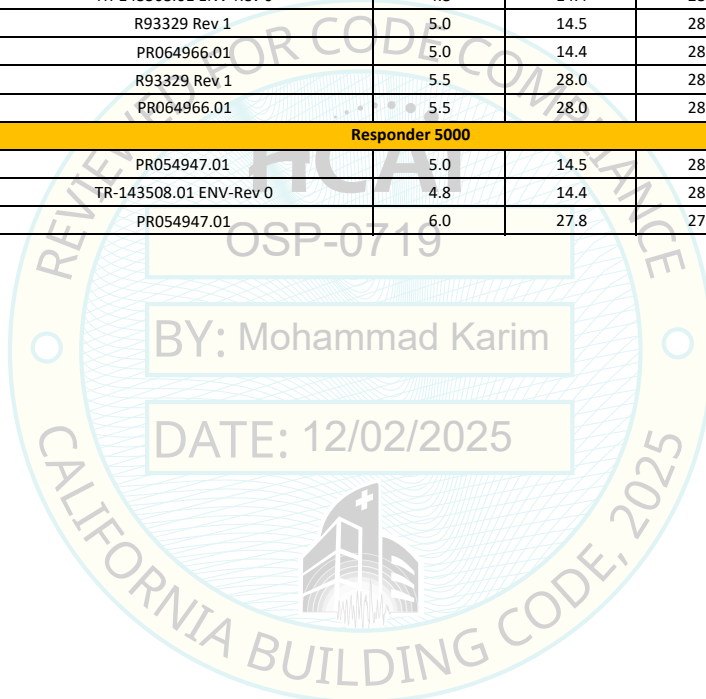
Certified Product Construction: NEMA 1, 16 ga. Cold Formed Carbon Steel

Mounting: Rigid Wall Mount

Certified Seismic Levels: Sds=2.50 g with z/h=1.0 and z/h=0.0

Factors for Force Amplification and Structure Ductility Reduction: $H_f = 3.5$ at $z/h=1.0$; 1.0 at $z/h=0$ and $R_u = 1.3$ at $z/h=1.0$; 1.0 at $z/h=0$

Model Number	NTS Report Number	Dimensions [in.]			Weight [lb.]	Unit
		Length	Width	Height		
Responder 4000						
351102-2	PR054947.01	4.3	14.5	28.0	42	EUT-02
351102-5	PR064966.01	5.0	14.4	28.0	50	UUT-09
NC2828-2	PR054947.01	6.0	27.8	27.8	67	EUT-01
NC2828-5	PR064966.01	5.5	28.0	28.0	101	UUT-10
Responder 5/Responder Enterprise						
351102-6 /351102-6A	TR-143508.01 ENV-Rev 0	4.8	14.4	28.0	37	UUT-03
351102-1 /351102-1A	R93329 Rev 1	5.0	14.5	28.0	41	UUT-02
351102-4 /351102-4A	PR064966.01	5.0	14.4	28.0	51	UUT-07
NC2828-1 /NC2828-1A	R93329 Rev 1	5.5	28.0	28.0	67	UUT-01
NC2828-4 /NC2828-4A	PR064966.01	5.5	28.0	28.0	92	UUT-08
Responder 5000						
351102-3	PR054947.01	5.0	14.5	28.0	36	EUT-04
351102-7 /351102-7A	TR-143508.01 ENV-Rev 0	4.8	14.4	28.0	37	UUT-04
NC2828-3	PR054947.01	6.0	27.8	27.8	66	EUT-03



UNIT UNDER TEST (UUT) Summary Sheet



EUT-02

NTL Repot Number: PR054947.01

Test Dates: 11/29/16 - 11/30/16

Manufacturer: Rauland-Borg

Product Line: Responder 4000

Model Number: 351102-2

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg termination PCB (R4KTMB), Network Interface Module (R4KNIM), paging amplifier (R4KPA25), battery backup kit (R4KBK400), power supply (R4KPR400)

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 before and after the AC 156 test.

UUT Properties

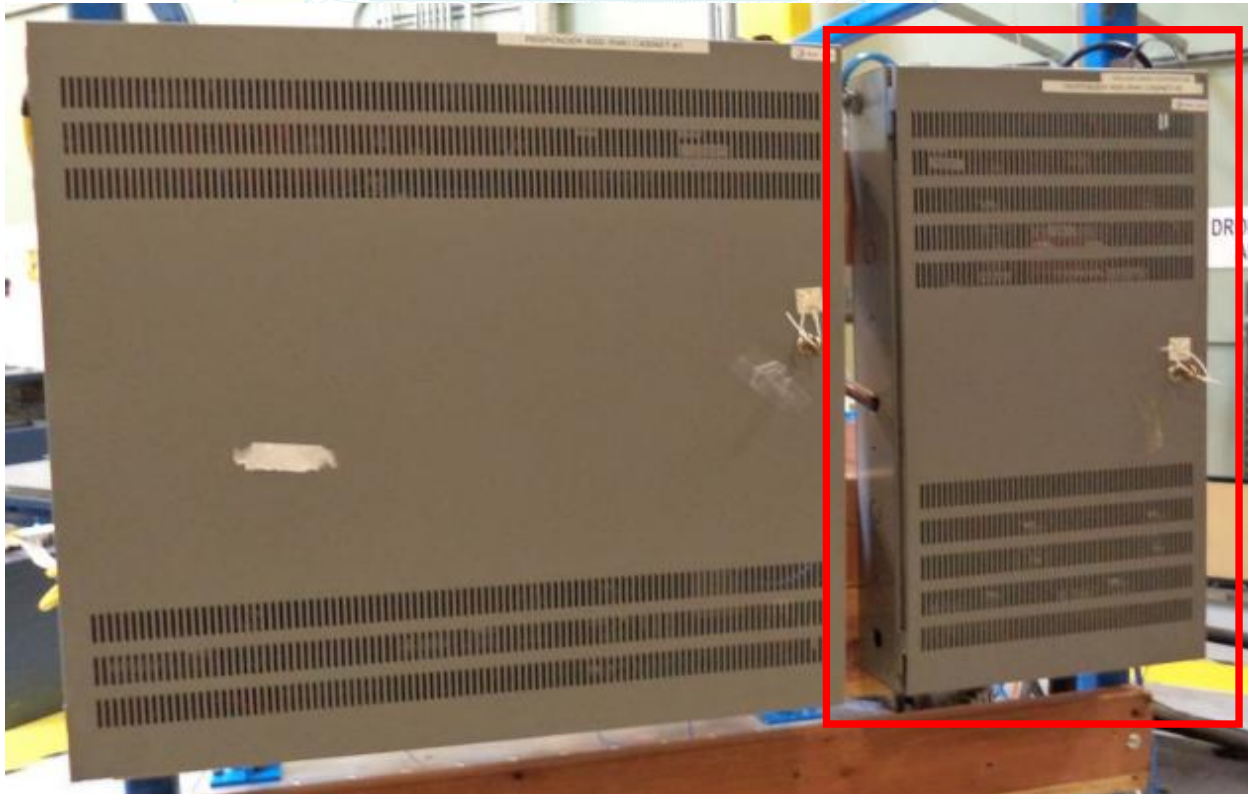
Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
42	4.3	14.5	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: EUT-02 was rigid wall mounted with (4) 3/8" A307 grade A bolts.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-09

NTL Repot Number: PR064966.01

Test Dates: 7/18/17 - 7/19/17

Manufacturer: Rauland-Borg

Product Line: Responder 4000

Model Number: 351102-5

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg battery backup kit (R4KBK400) and power supply (R4KPR400)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
50	5.0	14.4	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-09 was rigidly wall mounted with (4) #10 pan head 1" long screws.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



EUT-01

NTL Repot Number: PR054947.01

Test Dates: 11/29/16 - 11/30/16

Manufacturer: Rauland-Borg

Product Line: Responder 4000

Model Number: NC2828-2

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg termination PCB (R4KTMB), X-bus adapter (R4KXBA), Network Interface Module (R4KNIM), paging amplifier (R4KPA25), battery backup kit (R4KBK400), power supply (R4KPR400)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
67	6.0	27.8	27.8	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: EUT-01 was rigidly wall mounted with (4) 3/8" A307 grade A bolts.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-10

NTL Repot Number: PR064966.01

Test Dates: 7/18/17 - 7/19/17

Manufacturer: Rauland-Borg

Product Line: Responder 4000

Model Number: NC2828-5

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg paging amplifier (R4KPA25), battery backup kit (R4KBK400), power supply (R4KPR400)

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 before and after the AC 156 test.

UUT Properties

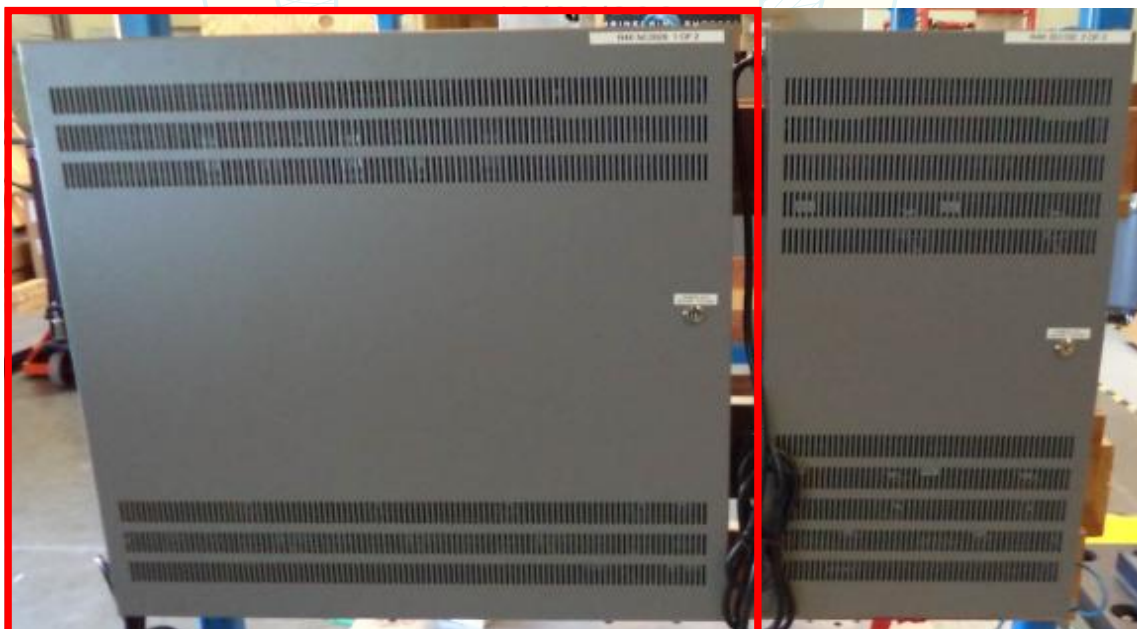
Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
101	5.5	28.0	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-10 was rigidly wall mounted with (4) #10 pan head 1" long screws.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-03

NTL Repot Number: TR-143508.01 ENV-Rev 0 (UUT-01 on the report)

Test Dates: 8/30/21 - 9/2/21

Manufacturer: Rauland-Borg

Product Line: Responder 5/Responder Enterprise

Model Number: 351102-6 /351102-6A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg branch regional controller v3 (351005), responder network concentrator (351011), power supply and battery (351003)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
37	4.8	14.4	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156-24	3.00	1.0	3.5	1.3	1.5	4.80	3.60	N/A	N/A
		3.00	0.0	1.0	1.0		N/A	N/A	2.01	0.80

Unit Mounting Description: UUT-03 was rigidly wall mounted with (4) #10 pan head anchor bolts.



BY: Mohammad Karim

DATE: 12/02/2025

UNIT UNDER TEST (UUT) Summary Sheet



UUT-02

NTL Repot Number: R93329 Rev 1

Test Date: 8/15/13

Manufacturer: Rauland-Borg

Product Line: Responder 5/Responder Enterprise

Model Number: 351102-1 /351102-1A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg main system controller (R5KMSCv2), branch regional controller (351000), fiber optic adapter (351006), 8 port ethernet switch (351004), power supply and battery (351003)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
41	5.0	14.5	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES AC156-24	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
		2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-02 was rigidly wall mounted with (4) 3/8" A307 grade A bolts .

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-07

NTL Repot Number: PR064966.01

Test Dates: 7/18/17 - 7/19/17

Manufacturer: Rauland-Borg

Product Line: Responder 5/Responder Enterprise

Model Number: 351102-4 /351102-4A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg power supply and battery (351003)

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 before and after the AC 156 test.

UUT Properties

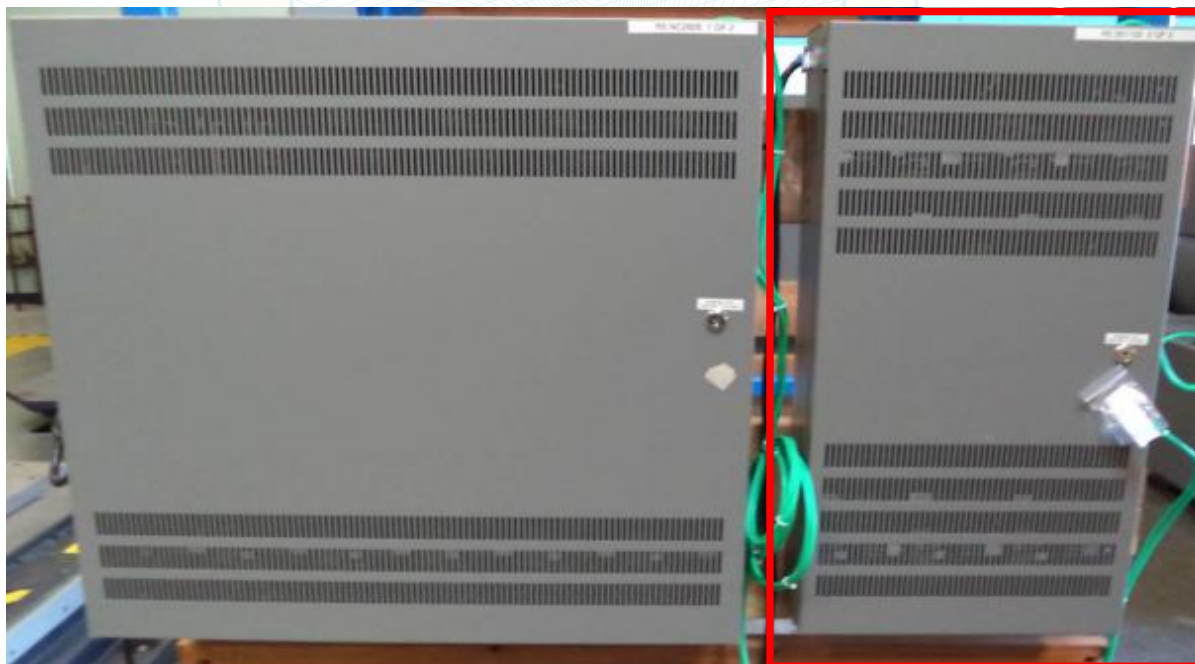
Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
51	5.0	14.4	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	S _{ds} (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-07 was rigidly wall mounted with (4) #10 pan head 1" long screws.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-01

NTL Repot Number: R93329 Rev 1

Test Date: 8/15/13

Manufacturer: Rauland-Borg

Product Line: Responder 5/Responder Enterprise

Model Number: NC2828-1 /NC2828-1A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg responder network concentrator (35010), fiber optic adapter (351006), power supply and battery (351003)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
67	5.5	28.0	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-01 was rigidly wall mounted with (4) 3/8" A307 grade A bolts.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-08

NTL Repot Number: PR064966.01

Test Dates: 7/18/17 - 7/19/17

Manufacturer: Rauland-Borg

Product Line: Responder 5/Responder Enterprise

Model Number: NC2828-4 /NC2828-4A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg 8 port ethernet switch (351004), power supply and battery (351003)

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 before and after the AC 156 test.

UUT Properties

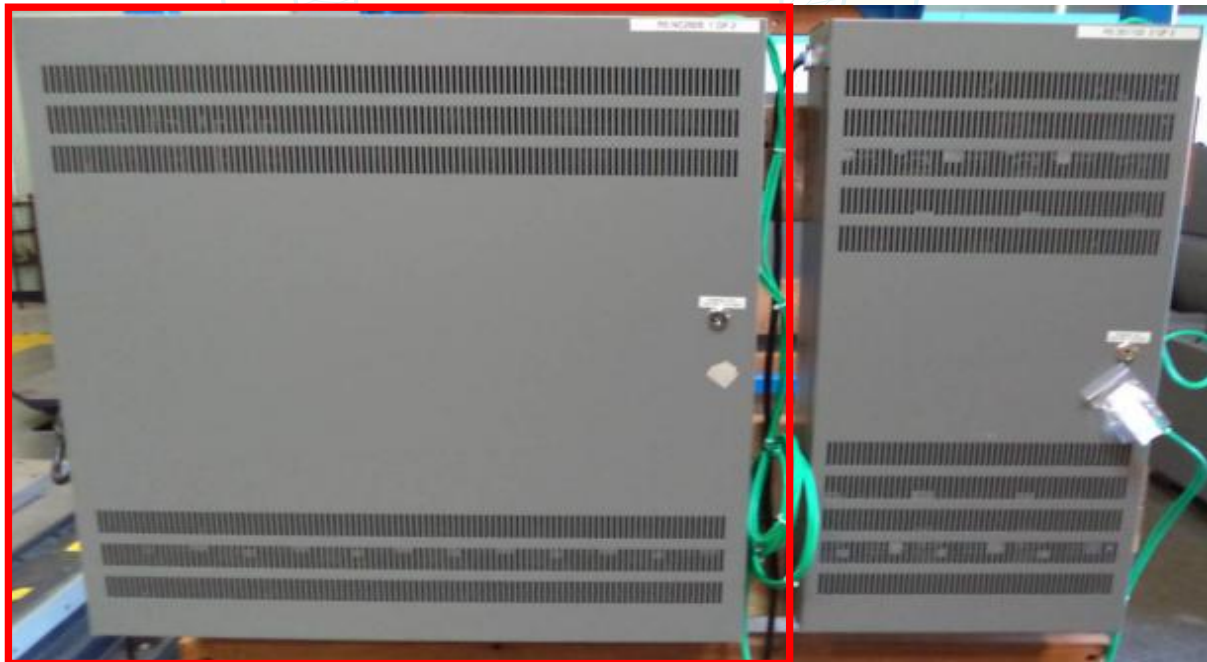
Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
92	5.5	28.0	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _r	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: UUT-08 was rigidly wall mounted with (4) #10 pan head 1" long screws.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



EUT-04

NTL Repot Number: PR054947.01

Test Date: 8/15/13

Manufacturer: Rauland-Borg

Product Line: Responder 5000

Model Number: 351102-3

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (351102), NEMA 1 18 ga. cold rolled steel Rauland-Borg main system controller (R5KMSC), termination PCB (R5KMTRM), adapter (R5KL2KA), power supply (15V) w/ battery backup (R5KMPPR15), power supply (36V) w/ battery backup (R5KMPPR36)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
36	5.0	14.5	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _i	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: EUT-04 was rigidly wall mounted with (4) 3/8" A307 grade A bolts.

BY: Mohammad Karim



UNIT UNDER TEST (UUT) Summary Sheet



UUT-04

NTL Repot Number: TR-143508.01 ENV-Rev 0 (UUT-02 on the report)

Test Dates: 8/30/21 - 9/2/21

Manufacturer: Rauland-Borg

Product Line: Responder 5000

Model Number: 351102-7 /351102-7A

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg termination PCB (R5KMTRM), adapter (R5KL2KA), power supply (15V) w/ battery backup (R5KMPR15), power supply (36V) w/ battery backup (R5KMPR36)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
37	4.8	14.4	28.0	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _f	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	3.00	1.0	3.5	1.3	1.5	4.80	3.60	N/A	N/A
	AC156-24	3.00	0.0	1.0	1.0		N/A	N/A	2.01	0.80

Unit Mounting Description: UUT-04 was rigidly wall mounted with (4) #10 pan head anchor bolts.



UNIT UNDER TEST (UUT) Summary Sheet



EUT-03

NTL Repot Number: PR054947.01

Test Date: 8/15/13

Manufacturer: Rauland-Borg

Product Line: Responder 5000

Model Number: NC2828-3

Product Construction Summary: 16 ga. Cold Formed Carbon Steel

Options / Component Summary: NEMA 1 16 ga. cold formed carbon steel Rauland-Borg cabinet (NC2828), NEMA 1 18 ga. cold rolled steel Rauland-Borg main system controller (R5KMSC), termination PCB (R5KMTRM), adapter (R5KL2KA), power supply (15V) w/ battery backup (R5KMMPR15), power supply (36V) w/ battery backup (R5KMMPR36)

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 before and after the AC 156 test.

UUT Properties

Operating Weight (lb)	Dimensions (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
66	6.0	27.8	27.8	N/A	N/A	N/A

Seismic Test Parameters

Building Code	Test Criteria	Sds (g)	z/h	H _i	R _μ	I _p	Aflx-H (g)	Arig-H (g)	Aflx-V (g)	Arig-V (g)
CBC 2025	ICC-ES	2.50	1.0	3.5	1.3	1.5	4.00	3.00	N/A	N/A
	AC156-24	2.50	0.0	1.0	1.0		N/A	N/A	1.67	0.67

Unit Mounting Description: EUT-03 was rigidly wall mounted with (4) 3/8" A307 grade A bolts.

BY: Mohammad Karim

