



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

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

OFFICE USE ONLY

APPLICATION #: OSP – 0634

OSHPD Special Seismic Certification Preapproval (OSP)

Type: New Renewal

Manufacturer Information

Manufacturer: ENVIRCO- Johnson Controls

Manufacturer's Technical Representative: Adam O'Quinn

Mailing Address: 101 McNeil Road, Sanford, NC 27330

Telephone: 919-775-2201 Email: aoquinn@trioniaq.com

Product Information

Product Name: MAC 10 IQ and LEDC

Product Type: Air Terminal Device

Product Model Number: Varies (See attachment)
(List all unique product identification numbers and/or part numbers)

General Description: Ceiling suspended fan filter units

Mounting Description: Ceiling suspended - rigid

Applicant Information

Applicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

Contact Person: Stephen Reimus

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

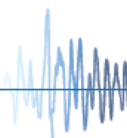
Telephone: 541-292-5820 Email: sreimus@structint.com

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: 12/19/2019

Title: Program Manager Company Name: TRU Compliance, by Structural Integrity Associates, Inc.

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





**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, by Structural Integrity Associates, Inc.

Name: Matt Tobolski, SE California License Number: S5648

Mailing Address: 5215 Hellyer Ave., Suite 210, San Jose, CA 95138

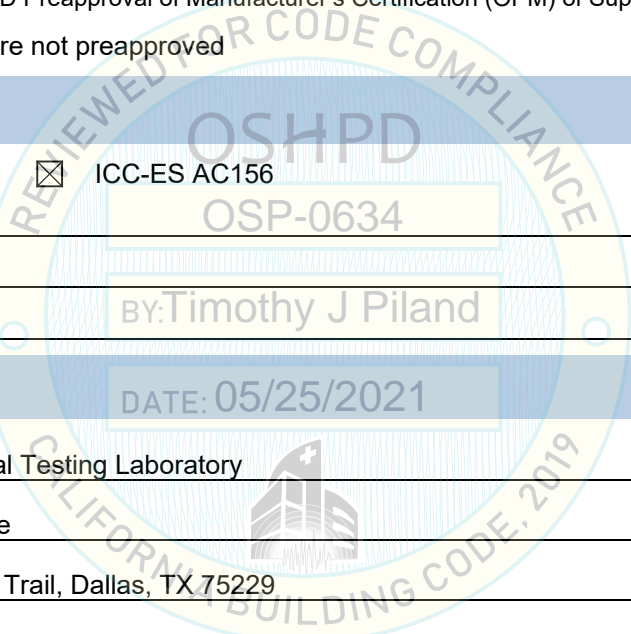
Telephone: 844-878-0200 Email: mtobolski@structint.com

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

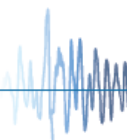
Company Name: Environmental Testing Laboratory

Contact Name: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas, TX 75229

Telephone: (972) 247-9657 Email: jeremy@etldallas.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) = 1.50 ($S_{DS} = 2.00$; $z/h = 1$); 1.13 ($S_{DS} = 2.50$; $z/h = 0$)

S_{DS} (Design spectral response acceleration at short period, g) = 2.00 ($z/h = 1$), 2.50 ($z/h = 0$)

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

I_p (Importance factor) = 1.5

z/h (Height factor ratio) = 1 ($S_{DS} = 2.00$), 0 ($S_{DS} = 2.50$)

Equipment or Component Natural Frequencies (Hz) = See Attachment

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

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): Product Matrices

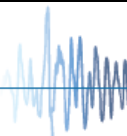
OSHPD Approval (For Office Use Only) – Approval Expires on December 31, 2025

Signature: Date: May 25, 2021

Print Name: Timothy J. Piland Title: SSE

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

Condition of Approval (if applicable): _____



SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 1
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
 Stainless Steel Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
 Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen

Mounting Configuration^{1,2}:
 Ceiling suspended/mounted - rigid

¹Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.
²Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.0 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>STD, 2x2, SST</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	23.63	14.70	66		Extrap.
	<u>RSR, 2x2, SST</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.93	23.93	16.81	70		Extrap.
	<u>RSRE, 2x2, SST</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.93	23.93	16.81	70		Extrap.
	<u>RSRC, 2x2, SST</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	23.63	17.82	70		Extrap.
	<u>STD, 2x3, SST</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	35.63	14.70	81		Extrap.
	<u>RSR, 2x3, SST</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	35.63	16.81	83		Extrap.
	<u>RSRE, 2x3, SST</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	35.63	16.81	83		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco					TABLE 1		
Model Line: MAC 10 IQ & LEDC							
Certified Product Construction Summary: Stainless Steel Housing; MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel							
Certified Options Summary: Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen							
Mounting Configuration^{1,2}: Ceiling suspended/mounted - rigid							
¹ Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
² Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.							
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.0 g \quad z/h=1.0$ $S_{DS} = 2.5 g \quad z/h=0.0$		
					$I_p = 1.5$		
Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>RSRC, 2x3, SST</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	35.63	17.82	83		Extrap.
	<u>STD, 2x3.5, SST</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	41.63	14.70	88		Extrap.
	<u>RSR, 2x3.5, SST</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	41.63	16.81	94		Extrap.
	<u>RSRE, 2x3.5, SST</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	41.63	16.81	94		Extrap.
	<u>RSRC, 2x3.5, SST</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	41.63	17.82	94		Extrap.
	<u>STD, 2x4, SST</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	47.63	14.70	99		Interp.
	<u>RSR, 2x4, SST</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	47.63	16.81	111.5	UUT: Foam pre-filter	2
³ Note: Weights listed correspond to weights of heaviest configuration.							

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco					TABLE 1		
Model Line: MAC 10 IQ & LEDC							
Certified Product Construction Summary: Stainless Steel Housing; MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel							
Certified Options Summary: Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen							
Mounting Configuration^{1,2}: Ceiling suspended/mounted - rigid ¹ Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested. ² Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.							
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.0 g \quad z/h=1.0$ $S_{DS} = 2.5 g \quad z/h=0.0$		$I_p = 1.5$
Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>RSRE, 2x4, SST</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	47.63	16.81	105		Interp.
	<u>RSRC, 2x4, SST</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	47.63	17.82	105		Interp.
MAC10 LEDC	<u>STD, 2x2, SST</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	23.63	14.70	66		Extrap.
	<u>RSR, 2x2, SST</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.93	23.93	18.31	70		Extrap.
	<u>RSRE, 2x2, SST</u> Envirco: MDRE Titus: FFLDRA Krueger: CRFF-L_ARSM	23.93	23.93	18.31	70		Extrap.
	<u>RSRC, 2x2, SST</u> Envirco: MDRC Titus: FFLDRC Krueger: CRFF-L-ARSC	23.63	23.63	17.82	70		Extrap.
	<u>STD, 2x3, SST</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	35.63	14.70	81		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco					TABLE 1		
Model Line: MAC 10 IQ & LEDC							
Certified Product Construction Summary: Stainless Steel Housing; MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel							
Certified Options Summary: Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen							
Mounting Configuration^{1,2}: Ceiling suspended/mounted - rigid							
¹ Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.							
² Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.							
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.0 g \quad z/h = 1.0$ $S_{DS} = 2.5 g \quad z/h = 0.0$		
					$I_p = 1.5$		
Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 LEDC	<u>RSR, 2x3, SST</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	35.63	18.31	83		Extrap.
	<u>RSRE, 2x3, SST</u> Envirco: MDRE Titus: FFLDRA Krueger: CRFF-L_ARSM	23.63	35.63	16.81	83		Extrap.
	<u>RSRC, 2x3, SST</u> Envirco: MDRC Titus: FFLDRC Krueger: CRFF-L-ARSC	23.63	35.63	17.82	83		Extrap.
	<u>STD, 2x3.5, SST</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	41.63	14.70	88		Extrap.
	<u>RSR, 2x3.5, SST</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	41.63	18.31	94		Extrap.
	<u>RSRE, 2x3.5, SST</u> Envirco: MDRE Titus: FFLDRA Krueger: CRFF-L_ARSM	23.63	41.63	18.31	94		Extrap.
	<u>RSRC, 2x3.5, SST</u> Envirco: MDRC Titus: FFLDRC Krueger: CRFF-L-ARSC	23.63	41.63	17.82	94		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Enviroco	TABLE 1
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
Stainless Steel Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen

Mounting Configuration^{1,2}:
Ceiling suspended/mounted - rigid

¹Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.
²Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.0\text{ g}$ $z/h=1.0$ $I_p = 1.5$
 $S_{DS} = 2.5\text{ g}$ $z/h=0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 LEDC	<u>STD, 2x4, SST</u> Enviroco: MDS Titus: FFDL Krueger: CRFF-L	23.63	47.63	14.70	96.0	UUT: 10" Duct Collar	5
	<u>RSR, 2x4, SST</u> Enviroco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	47.63	18.31	105		Interp.
	<u>RSRE, 2x4, SST</u> Enviroco: MDRE Titus: FFLDRA Krueger: CRFF-L_ARSM	23.63	47.63	18.31	105		Interp.
	<u>RSRC, 2x4, SST</u> Enviroco: MDRC Titus: FFLDRC Krueger: CRFF-L-ARSC	23.63	47.63	17.82	115.0	UUT: Foam Pre-filter w/ SS frame	4

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 2
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
 Aluminum Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
 Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen

Mounting Configuration^{1,2}:
 Ceiling suspended/mounted - rigid

¹Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.
²Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.0 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>STD, 2x2, Al</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	23.63	14.32	66		Extrap.
	<u>RSR, 2x2, Al</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.93	23.93	16.43	57		Extrap.
	<u>RSRE, 2x2, Al</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.93	23.93	16.43	57		Extrap.
	<u>RSRC, 2x2, Al</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	23.63	17.44	57		Extrap.
	<u>STD, 2x3, Al</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	35.63	14.32	68		Extrap.
	<u>RSR, 2x3, Al</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	35.63	16.43	70		Extrap.
	<u>RSRE, 2x3, Al</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	35.63	16.43	70		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 2
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
 Aluminum Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
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 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>RSRC, 2x3, Al</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	35.63	17.44	70		Extrap.
	<u>STD, 2x3.5, Al</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	41.63	14.32	75		Extrap.
	<u>RSR, 2x3.5, Al</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	41.63	16.43	81		Extrap.
	<u>RSRE, 2x3.5, Al</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	41.63	16.43	81		Extrap.
	<u>RSRC, 2x3.5, Al</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	41.63	17.44	81		Extrap.
	<u>STD, 2x4, Al</u> Envirco: MQS Titus: FFDE Krueger: CRFF-E	23.63	47.63	14.32	86		Interp.
	<u>RSR, 2x4, Al</u> Envirco: MQR Titus: FFDER Krueger: CRFF-E-ARS	23.63	47.63	16.43	88		Interp.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 2
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 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 IQ	<u>RSRE, 2x4, Al</u> Envirco: MQRE Titus: FFDERA Krueger: CRFF-E-ARSM	23.63	47.63	16.43	88		Interp.
	<u>RSRC, 2x4, Al</u> Envirco: MQRC Titus: FFDERC Krueger: CRFF-E-ARSC	23.63	47.63	17.44	88.5	UUT: Finger Guard	1
MAC10 LEDC	<u>STD, 2x2, Al</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	23.63	14.32	66		Extrap.
	<u>RSR, 2x2, Al</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.93	23.93	17.93	57		Extrap.
	<u>RSRE, 2x2, Al</u> Envirco: MDRE Titus: FFDLRA Krueger: CRFF-L-ARSM	23.93	23.93	17.93	57		Extrap.
	<u>RSRC, 2x2, Al</u> Envirco: MDRC Titus: FFDLRC Krueger: CRFF-L-ARSC	23.63	23.63	17.44	57		Extrap.
	<u>STD, 2x3, Al</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	35.63	14.32	68		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 2
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
 Aluminum Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
 Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen

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 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 LEDC	<u>RSR, 2x3, Al</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	35.63	17.93	70		Extrap.
	<u>RSRE, 2x3, Al</u> Envirco: MDRE Titus: FFDLRA Krueger: CRFF-L-ARSM	23.63	35.63	17.93	70		Extrap.
	<u>RSRC, 2x3, Al</u> Envirco: MDRC Titus: FFDLRC Krueger: CRFF-L-ARSC	23.63	35.63	17.44	70		Extrap.
	<u>STD, 2x3.5, Al</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	41.63	14.32	75		Extrap.
	<u>RSR, 2x3.5, Al</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	41.63	17.93	81		Extrap.
	<u>RSRE, 2x3.5, Al</u> Envirco: MDRE Titus: FFDLRA Krueger: CRFF-L-ARSM	23.63	41.63	17.93	81		Extrap.
	<u>RSRC, 2x3.5, Al</u> Envirco: MDRC Titus: FFDLRC Krueger: CRFF-L-ARSC	23.63	41.63	17.44	81		Extrap.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED COMPONENT MATRIX



1701485-CR-001-R2

Manufacturer: Envirco	TABLE 2
Model Line: MAC 10 IQ & LEDC	

Certified Product Construction Summary:
 Aluminum Housing;
MAC10 IQ: Forward Curved Fan Wheel; MAC10 LEDC: Backward Inclined Fan Wheel

Certified Options Summary:
 Foam & Pleated Pre-filter (UUTs 2, 3, 4); HEPA, ULPA, PTFE Filter; Aluminum Duct Collar (UUT 5); Finger Guard (UUT 1); Stainless Steel or Aluminum Room Side Screen

Mounting Configuration^{1,2}:
 Ceiling suspended/mounted - rigid

¹Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.
²Note: Units with maximum aspect ratios ≤ 1.5 are required to have (2) cable braces at each corner. See UUT Summary for cables configuration tested.

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.0 g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5 g$ $z/h = 0.0$

Model Line	Model	Dimensions (in) ^{3,4}			Weight (lb) ³	Notes	UUT
		Depth	Width	Height			
MAC10 LEDC	<u>STD, 2x4, Al</u> Envirco: MDS Titus: FFDL Krueger: CRFF-L	23.63	47.63	14.32	86		Interp.
	<u>RSR, 2x4, Al</u> Envirco: MDR Titus: FFDLR Krueger: CRFF-L-ARS	23.63	47.63	17.93	85		Interp.
	<u>RSRE, 2x4, Al</u> Envirco: MDRE Titus: FFDLRA Krueger: CRFF-L-ARSM	23.63	47.63	17.93	84.5	UUT: Pleated Pre-Filter	3
	<u>RSRC, 2x4, Al</u> Envirco: MDRC Titus: FFDLRC Krueger: CRFF-L-ARSC	23.63	47.63	17.44	88		Interp.

³Note: Weights listed correspond to weights of heaviest configuration.

SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

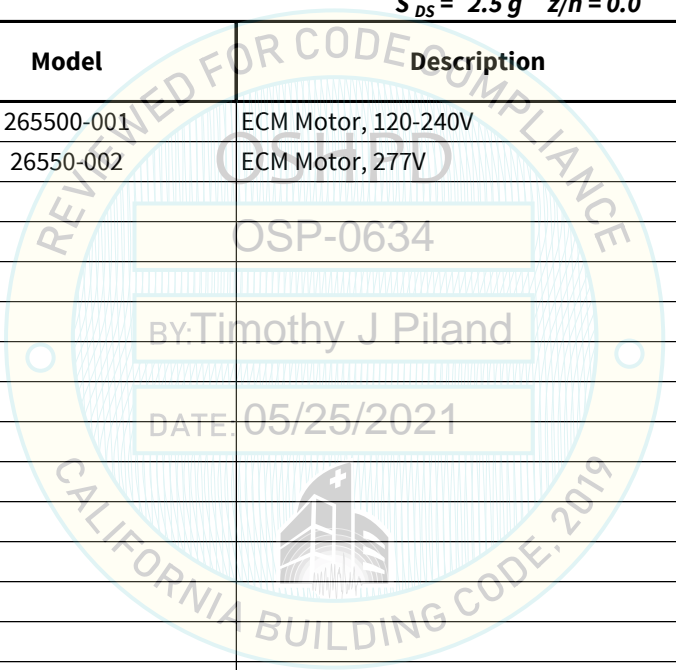
1701485-CR-001-R2



Manufacturer:	Envirco	Table Description:	Motors	TABLE 3
Model Line:	MAC 10 IQ & LEDC			

Building Code: CBC 2019 **Seismic Certification Limits:** $S_{DS} = 2.0g$ $z/h = 1.0$ $I_p = 1.5$
 $S_{DS} = 2.5g$ $z/h = 0.0$

Component Type	Manufacturer	Model	Description	Notes	UUT
Motor	Nidec	265500-001	ECM Motor, 120-240V	Weight: 10.8 lbs	2,3,5
		26550-002	ECM Motor, 277V	Weight: 11.05 lbs	1,4



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1701485-CR-001-R2



Manufacturer: Envirco	Table Description: Filters	TABLE 4
Model Line: MAC 10 IQ & LEDC		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.0 g$ $z/h = 1.0$	$I_P = 1.5$
		$S_{DS} = 2.5 g$ $z/h = 0.0$	

Component Type	Manufacturer	Model	Description	Notes	UUT			
STD HEPA Filter	Camfil	69600S-XXXXXXXX	2X2, 53 mm pack	Weight: 17.25 lbs	Extrap.			
			2X3, 53 mm pack	Weight: 22.75 lbs	Extrap.			
			2X3.5, 53 mm pack	Weight: 25.5 lbs	Extrap.			
			2X4, 53 mm pack	Weight: 28 lbs	Extrap.			
		69514-XXX	2X2, 70 mm pack	Weight: 17.5 lbs	Extrap.			
			2X3, 70 mm pack	Weight: 23.5 lbs	Extrap.			
			2X3.5, 70 mm pack	Weight: 26.5 lbs	Extrap.			
			2X4, 70 mm pack	Weight: 29 lbs	Extrap.			
			STD ULPA Filter	Camfil	69600S-XXXXXXXX	2X2, 53 mm pack	Weight: 17.75 lbs	Extrap.
						2X3, 53 mm pack	Weight: 23.75 lbs	Extrap.
2X3.5, 53 mm pack	Weight: 26.75 lbs	Extrap.						
2X4, 53 mm pack	Weight: 29.25 lbs	Extrap.						
69514-XXX	2X2, 70 mm pack	Weight: 18 lbs			Extrap.			
	2X3, 70 mm pack	Weight: 24 lbs			Extrap.			
	2X3.5, 70 mm pack	Weight: 27.25 lbs			Extrap.			
	2X4, 70 mm pack	Weight: 29.75 lbs			5			
	STD PTFE Filter	Camfil			69549-XXX	2X2, 45mm pack	Weight: 16.75 lbs	Extrap.
						2X3, 45mm pack	Weight: 23.25 lbs	Extrap.
2X3.5, 45mm pack			Weight: 22.75 lbs	Extrap.				
2X4, 45mm pack			Weight: 25.25 lbs	Extrap.				
GSF HEPA Filter	Camfil	69601-XXXX	2X2, 53 mm pack	Weight: 10.5 lbs	Extrap.			
			2X3, 53 mm pack	Weight: 15.5 lbs	Extrap.			
			2X3.5, 53 mm pack	Weight: 17.5 lbs	Extrap.			

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SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1701485-CR-001-R2



Manufacturer: Envirco Model Line: MAC 10 IQ & LEDC		Table Description: Filters			TABLE 4		
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.0g \quad z/h = 1.0$ $S_{DS} = 2.5g \quad z/h = 0.0$		
					$I_P = 1.5$		
Component Type	Manufacturer	Model	Description	Notes	UUT		
GSF HEPA Filter	Camfil	69601-XXXX	2X4, 53 mm pack	Weight: 19.75 lbs	Extrap.		
			2X2, 70 mm pack	Weight: 10.75 lbs	Extrap.		
		93997-XXX	2X3, 70 mm pack	Weight: 16 lbs	Extrap.		
			2X3.5, 70 mm pack	Weight: 18.25 lbs	Extrap.		
			2X4, 70 mm pack	Weight: 20.5 lbs	Extrap.		
		69617-XXXX	2X2, 100 mm pack	Weight: 11.25 lbs	Extrap.		
			2X3, 100 mm pack	Weight: 15.25 lbs	Extrap.		
			2X3.5, 100 mm pack	Weight: 17.5 lbs	Extrap.		
			2X4, 100 mm pack	Weight: 20.75 lbs	3		
		GSF ULPA Filter	Camfil	69601-XXXX	2X2, 53 mm pack	Weight: 11.5 lbs	Extrap.
					2X3, 53 mm pack	Weight: 15.5 lbs	Extrap.
					2X3.5, 53 mm pack	Weight: 17.75 lbs	Extrap.
2X4, 53 mm pack	Weight: 21.25 lbs				Extrap.		
93997-XXX	2X2, 70 mm pack			Weight: 13.5 lbs	Extrap.		
	2X3, 70 mm pack			Weight: 19.5 lbs	Extrap.		
	2X3.5, 70 mm pack			Weight: 22.25 lbs	Extrap.		
	2X4, 70 mm pack			Weight: 25.25 lbs	Extrap.		
69617-XXXX	2X2, 100 mm pack			Weight: 13.75 lbs	Extrap.		
	2X3, 100 mm pack			Weight: 19.75 lbs	Extrap.		
	2X3.5, 100 mm pack			Weight: 22.75 lbs	Interp.		
	2X4, 100 mm pack			Weight: 25.75 lbs	1		

**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

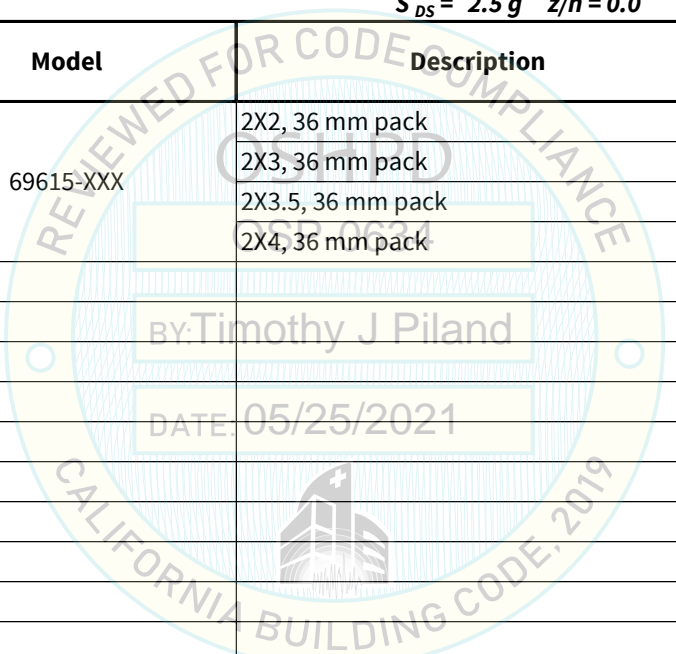


1701485-CR-001-R2

Manufacturer: Envirco	Table Description: Filters	TABLE 4
Model Line: MAC 10 IQ & LEDC		

Building Code: CBC 2019	Seismic Certification Limits: $S_{DS} = 2.0\text{ g}$ $z/h = 1.0$ $S_{DS} = 2.5\text{ g}$ $z/h = 0.0$	$I_p = 1.5$
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Component Type	Manufacturer	Model	Description	Notes	UUT
GSF PTFE Filter	Camfil	69615-XXX	2X2, 36 mm pack	Weight: 11.75 lbs	Extrap.
			2X3, 36 mm pack	Weight: 14.75 lbs	Extrap.
			2X3.5, 36 mm pack	Weight: 16.75 lbs	Extrap.
			2X4, 36 mm pack	Weight: 20.25 lbs	2, 4



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

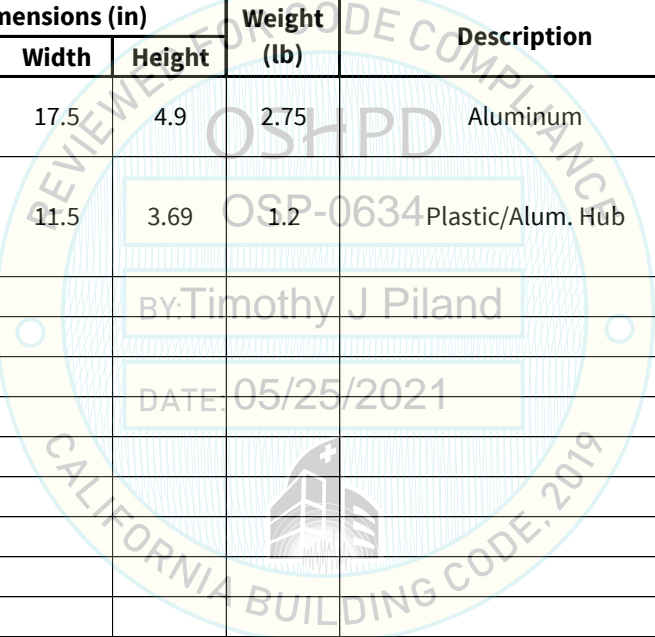
1701485-CR-001-R2



Manufacturer: Envirco	Table Description: Fan Wheels	TABLE 5
Model Line: MAC 10 IQ & LEDC		

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.0g \quad z/h = 1.0$	$I_p = 1.5$
		$S_{DS} = 2.5g \quad z/h = 0.0$	

Model Line (Manufacturer)	Model	Dimensions (in)			Weight (lb)	Description	Notes	UUT
		Depth	Width	Height				
Backward Inclined (Fans-Tech)	64015	17.5	17.5	4.9	2.75	Aluminum		3, 4, 5
Forward Curved (Kunshan Sunwill Electric Appliance)	63270	11.5	11.5	3.69	1.2	Plastic/Alum. Hub		1, 2



SPECIAL SEISMIC CERTIFICATION CERTIFIED SUBCOMPONENT MATRIX

1701485-CR-001-R2



Manufacturer: Envirco Model Line: MAC 10 IQ & LEDC		Table Description: Fan Wheels			TABLE 6		
Building Code: CBC 2019		Seismic Certification Limits:			$S_{DS} = 2.0g \quad z/h = 1.0$ $S_{DS} = 2.5g \quad z/h = 0.0$		
					$I_p = 1.5$		
Component Type	Manufacturer	Model	Description	Notes	UUT		
Screen	Envirco	38521-XXX	2x2 Aluminum; Weight: 1.62 lbs	Mounted w/ screws on RSR & RSRE	Extrap.		
			2x3 Aluminum; Weight: 2.5 lbs		Extrap.		
			2x3.5 Aluminum; Weight: 2.9 lbs		Extrap.		
			2x4 Aluminum; Weight: 3.3 lbs		3		
			2x2 Stainless Steel; Weight: 3.6 lbs		Interp.		
			2x3 Stainless Steel; Weight: 5.5 lbs		Interp.		
			2x3.5 Stainless Steel; Weight: 6.5 lbs		Interp.		
			2x4 Stainless Steel; Weight: 7.4 lbs		2		
			2x2 Aluminum; Weight: 2.27 lbs		Extrap.		
		2x3 Aluminum; Weight: 3.15 lbs	Extrap.				
		2x3.5 Aluminum; Weight: 3.55 lbs	Extrap.				
		2x4 Aluminum; Weight: 3.95 lbs	1				
		2x2 Stainless Steel; Weight: 4.27 lbs	Interp.				
		2x3 Stainless Steel; Weight: 6.15 lbs	Interp.				
		2x3.5 Stainless Steel; Weight: 7.15 lbs	Interp.				
		2x4 Stainless Steel; Weight: 8.05 lbs	4				

**SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX**

1701485-CR-001-R2



Manufacturer:	Envirco	Table Description:	Fan Wheels
Model Line:	MAC 10 IQ & LEDC	TABLE 7	

Building Code: CBC 2019	Seismic Certification Limits:	$S_{DS} = 2.0\text{ g}$	$z/h = 1.0$	$I_P = 1.5$
		$S_{DS} = 2.5\text{ g}$	$z/h = 0.0$	

Component Type	Manufacturer	Model	Description	Notes	UUT
Controls	Aircare Automation	265888	Universal Control Card	Under 10 lbs.	1, 4, 5
	Evolution Controls	63758	Room Side Infrared Speed Control	Under 10 lbs.	3, 2
Indicators	Envirco	63764-004	IL-"Green" Indicator Light	Under 10 lbs.	1, 4
		63820-004	ILS-PSS-"RED" Filter Load Indicator Light	Under 10 lbs.	1, 2, 3, 4
Pressure Transducer	Setra	64078	Continuous filter monitoring	Under 10 lbs.	1, 4
Pressure switch	MPL	63027	Filter Load pressure switch	Under 10 lbs.	1, 4
Transformer	Hartland Controls	63665	277V	Under 10 lbs.	1, 4
		63666	240V	Under 10 lbs.	3
		63667	120V	Under 10 lbs.	2, 5
Choke	Hartland Controls	63720	600V, 3A, 60 Hz, 10.6 millihenries	Under 10 lbs.	1, 2, 3, 4, 5
Rocker Switch	Carlingswitch	63739-002	FFU power on/off switch	Under 10 lbs.	1, 2, 3, 4, 5

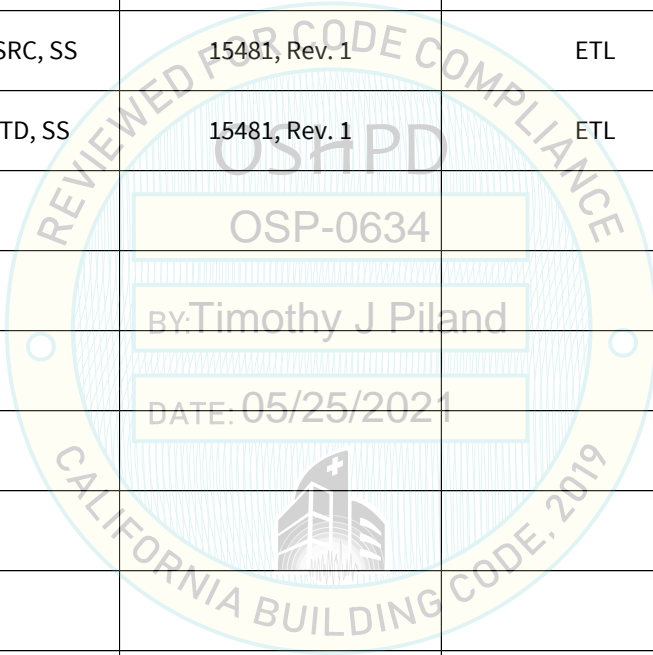
UNIT UNDER TEST (UUT) SUMMARY SHEET

1701485-CR-001-R2



Manufacturer: Enviroco
Model Line: MAC 10 IQ & LEDC

UUT	Unit Description	Report Number	Testing Laboratory	S _{DS}	z/h	I _p
1	2x4 MAC10 IQ RSRC, AI	15481, Rev. 1	ETL	2.0 2.5	1.0 0.0	1.5
2	2x4 MAC10 IQ RSR, SS	15481, Rev. 1	ETL	2.0 2.5	1.0 0.0	1.5
3	2x4 MAC10 LEDC RSRE, AI	15481, Rev. 1	ETL	2.0 2.5	1.0 0.0	1.5
4	2x4 MAC10 LEDC RSRC, SS	15481, Rev. 1	ETL	2.0 2.5	1.0 0.0	1.5
5	2x4 MAC10 LEDC STD, SS	15481, Rev. 1	ETL	2.0 2.5	1.0 0.0	1.5



Notes:

UNIT UNDER TEST (UUT) SUMMARY SHEET



1701485-CR-001-R2

Manufacturer: Enviroco	UUT 1
Model Line: MAC 10 IQ & LEDC	
Model Number: 2x4 MAC10 IQ RSRC, Al	
Serial Number: 69617-001U	

Product Construction Summary:
Housing: Aluminum

Options/Subcomponent Summary:
Motor: Nidec 277V ECM Motor; **Fan Wheel:** Forward Curve; **Filter:** Camfil GSF ULPA 2x4 100mm; **Finger Guard:** 2x4 RSRC Finger Guard; **Screen:** Enviroco 2x4 Aluminum Quarter Turn; **Controls:** Aircare Automation Universal Control Card; **Indicators:** Enviroco ILS-PSS-"Red" Filter Load & IL "Green" Indicator Lights; **Transformer:** Hartland Controls 277V; **Pressure Transducer:** Setra Continuous Filter Monitoring; **Pressure Switch:** MPL Filter Load Pressure Switch; **Choke:** Hartland Controls; **Rocker Switch:** Carlingswitch

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
88.5	24	48	17	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2019	ICC-ES AC156 (2018)	2.0	1.0	1.5	3.20	2.40	1.67	0.67	
		2.5	0.0						

Test Mounting Details:



Unit was mounted to test fixture using (4) 3/8" threaded rods w/ rod stiffeners & (4) Mason SCB-0/SCBH-0 cable assemblies (1 rod/cable at each corner) with pre-stretched gal. aircraft cable 3/32"φ.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



1701485-CR-001-R2

Manufacturer: Enviroco	UUT 2
Model Line: MAC 10 IQ & LEDC	
Model Number: 2x4 MAC10 IQ RSR, SS Serial Number: 69615-001	

Product Construction Summary:
Housing: Stainless Steel

Options/Subcomponent Summary:
Motor: Nidec 120V ECM Motor; **Fan Wheel:** Forward Curve; **Filter:** Camfil PTFE 2x4; **Pre-Filter:** Le Groupe PNF foam pre-filter;
Screen: Enviroco 2x4 Stainless Screw Mounted; **Controls:** Evolution Controls Room Side Infrared Speed Control; **Indicators:** Enviroco ILS-PSS-"Red" Filter Load Indicator Light; **Transformer:** Hartland Controls 120V; **Choke:** Hartland Controls; **Rocker Switch:** Carlingswitch

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
111.5	24	48	17	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2019	ICC-ES AC156 (2018)	2.0	1.0	1.5	3.20	2.40	1.67	0.67	
		2.5	0.0						

Test Mounting Details:



Unit was mounted to test fixture using (4) 3/8" threaded rods w/ rod stiffeners & (4) Mason SCB-0/SCBH-0 cable assemblies (1 rod/cable at each corner) with pre-stretched gal. aircraft cable 3/32"φ.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



1701485-CR-001-R2

Manufacturer: Envirco	UUT 3
Model Line: MAC 10 IQ & LEDC	
Model Number: 2x4 MAC10 LEDC RSRE, AI Serial Number: 69617-001H	

Product Construction Summary:
Housing: Aluminum

Options/Subcomponent Summary:
Motor: Nidec 240V ECM Motor; **Fan Wheel:** Backward Inclined; **Filter:** Camfil GSF HEPA 2x4 100mm; **Pre-Filter:** Koch pleated pre filter; **Screen:** Envirco 2x4 Aluminum Screw Mounted; **Controls:** Evolution Controls Room Side Infrared Speed Control; **Indicators:** Envirco ILS-PSS-"Red" Filter Load Indicator Light; **Transformer:** Hartland Controls 240V; **Choke:** Hartland Controls; **Rocker Switch:** Carlingswitch

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
84.5	24	48	18	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2019	ICC-ES AC156 (2018)	2.0	1.0	1.5	3.20	2.40	1.67	0.67	
		2.5	0.0						

Test Mounting Details:



Unit was mounted to test fixture using (4) 3/8" threaded rods w/ rod stiffeners & (4) Mason SCB-0/SCBH-0 cable assemblies (1 rod/cable at each corner) with pre-stretched gal. aircraft cable 3/32"φ.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



1701485-CR-001-R2

Manufacturer: Envirco	UUT 4
Model Line: MAC 10 IQ & LEDC	
Model Number: 2x4 MAC10 LEDC RSRC, SS Serial Number: 69615-001	

Product Construction Summary:
Housing: Stainless Steel;

Options/Subcomponent Summary:
Motor: Nidec 277V ECM Motor; **Fan Wheel:** Backward Inclined; **Filter:** Camfil PTFE 2x4; **Pre-Filter:** Le Groupe PNF foam pre-filter w/ stainless steel frame; **Screen:** Envirco 2x4 Stainless Quarter Turn; **Controls:** Aircare Automation Universal Control Card; **Indicators:** Envirco ILS-PSS-"Red" Filter Load & IL "Green" Indicator Lights; **Transformer:** Hartland Controls 277V; **Choke:** Hartland Controls; **Pressure Transducer:** Setra Continuous Filter Monitoring; **Pressure Switch:** MPL Filter Load Pressure Switch; **Choke:** Hartland Controls; **Rocker Switch:** Carlingswitch

UUT Properties						
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
115	24	48	18	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information									
Building Code	Test Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)	
CBC 2019	ICC-ES AC156 (2018)	2.0	1.0	1.5	3.20	2.40	1.67	0.67	
		2.5	0.0						

Test Mounting Details:



Unit was mounted to test fixture using (4) 3/8" threaded rods w/ rod stiffeners & (4) Mason SCB-0/SCBH-0 cable assemblies (1 rod/cable at each corner) with pre-stretched gal. aircraft cable 3/32"φ.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.

UNIT UNDER TEST (UUT) SUMMARY SHEET



1701485-CR-001-R2

Manufacturer: Enviroco	UUT 5
Model Line: MAC 10 IQ & LEDC	
Model Number: 2x4 MAC10 LEDC STD, SS Serial Number: 69619S-001USSXX	

Product Construction Summary:
Housing: Stainless Steel;

Options/Subcomponent Summary:
Motor: Nidec 120V ECM Motor; **Fan Wheel:** Backward Inclined; **Filter:** Camfil STD ULPA 2x4 70mm; **Duct Collar:** Trion/Enviroco 10" duct collar; **Controls:** Aircare Automation Universal Control Card; **Transformer:** Hartland Controls 120V; **Choke:** Hartland Controls; **Rocker Switch:** Carlingswitch

UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
96	24	48	15	N/A	N/A	N/A

UUT Highest Passed Seismic Run Information

Building Code	Test Criteria	S _{DS} (g)	z/h	I _p	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2019	ICC-ES AC156 (2018)	2.0	1.0	1.5	3.20	2.40	1.67	0.67
		2.5	0.0					

Test Mounting Details:



Unit was mounted to test fixture using (4) 3/8" threaded rods w/ rod stiffeners & (4) Mason SCB-0/SCBH-0 cable assemblies (1 rod/cable at each corner) with pre-stretched gal. aircraft cable 3/32"φ.
 Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
 Contents were included in testing per operating conditions.