APPLICATION FOR OSHPD SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY	
APPLICATION #:	OSP – 0215-10

OSHPD Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: Lutron Electronics, Inc.

Manufacturer's Technical Representative: Daniel J. Schlegel

Mailing Address: 7200 Suter Rd. Coopersburg, PA 18038

Telephone: 610.282.6551 Email: dschlegel@lutron.com

Product Information

Product Name: Lighting Control Panels

Product Type: Lighting Controller

Product Model Number: GP, GPF,CGP, GPD, HS, LCP, CLCP, DCI, XP, CXP, XPS, CXPS, LP, CLP, CCP, HW, Quantum QP, and Sivoia QS panel series (see Attachment A for certified models)
(List all unique product identification numbers and/or part numbers)

General Description: Light controlling panels that contain power, dimming, switching, fan-speed, motor, adaptive, 10-voltage, and/or voltage transformer modules. Seismic enhancements made to the test units required to address the anomalies observed during the tests shall be incorporated into the production units.

Mounting Description: Rigid wall mounted (surface or recess); Rigid wall and floor mounted; or Rigid floor mounted.
(See Attachment A for the mounting types of certified models)

Applicant Information

Applicant Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

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

Mailing Address: 960 SW Disk Dr. 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, 2016.

Signature of Applicant: Date: 12/09/2016

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

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

Company Name: TRU Compliance, LLC – A Tobolski Watkins Affiliate

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

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

Telephone: 844-878-0200 Email: mtobolskil@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: Clark Dynamic Test Laboratory

Contact Name: Robert Francis

Mailing Address: 1801 Route 51, Jefferson Hills, PA 15025

Telephone: 412.387.1001 Email: rfrancis@clarktesting.com

Seismic Parameters

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

Design Basis of Equipment or Components (F_p/W_p) = 1.13 (S_{DS} = 1.5 g, z/h=1.0); 1.9 (S_{DS} = 2.5 g, z/h=1.0)

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

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) = 1.0

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, 2015: ☐ 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, 2022

Signature: Date: 1/18/17

Print Name: M. R. Karim Title: SHFR

Special Seismic Certification Valid Up to : S_{DS} (g) = See Above z/h = 1.0

Condition of Approval (if applicable):

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16017

TRU COMPLIANCE

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels

TABLE 1

Certified Product Construction Summary:
16 Ga. Carbon Steel Encloure.

Certified Options Summary:
Wall mounted - Surface or Recessed; Voltage: 120 - 347V; Circuits: Fan speed, Remote pwr, Switching, Dimming, Adapative, 10-voltage modules; Voltage transformer; Branch circuit breakers
See Table 4 for an explanation of variations in separate model listings.

Mounting Configuration:
Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 ***Seismic Certification Limits:*** S_{DS} = 2.5g z/h = 1.0 I_P = 1.5

Model	Size	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Custom Panels (GP, CGP, LCP, CLCP, GPF, HS, DCI)	Mini Panel 3-4	6.3	11.0	21.1	30	UUT: GP4	1
	8-24	12.0	28.0	37.0	175	UUT2: CGP24 | UUT3: DCI3	2,3
Custom Panels (XP, XPS/Softswitch128, CXP, CXPS, LP, CLP, LCP, CLCP, HWBP, HWAP, CCP)	Mini Panel	4.3	15.9	24.5	32	UUT: XP16	7
	Standard Panel	4.3	15.9	59.5	60	UUT: CLCP-24	8
	Large Panel	6.3	23.5	63.5	165		Interp.
	Extra Large Panel	6.3	23.5	82.5	180	UUT: XPS32	9
CXPS Expan. module	CXPS-E	4.2	10.5	17.5	27	Identical to UUT 13	Interp.
XPS Expan. Module	XPS-E	4.2	10.5	17.5	27		13
Quantum	QP3	3.2	9.3	13.3	11	QP2 w/fewer processors & loops	Interp.
	QP2	5.8	15.8	31.5	40	UUT: (3) processors; (8) loops	11
Sivoia QS	QSPS-P1-10-60	3.9	10.3	18.3	24		12
GRAFIX 5000P/6000P/7000P	G5	3.5	14.4	34.8	50	G7 w/software change	Interp.
	G6	3.5	14.4	34.8	50	G7 w/software change	Interp.
	G7	3.5	14.4	34.8	50		10

Note: *S_{DS} for the unit shall be based on the lower of the approved S_{DS} level for components and sub-components.*

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16017

TRU COMPLIANCE

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels

TABLE 2

Certified Product Construction Summary:
16 Ga. Carbon Steel Encloure.

Certified Options Summary:
Voltage: 120 - 277V; Circuits: Fan speed, Remote pwr, Switching, Dimming, Adapative, 10-voltage modules; Voltage transformer; Branch circuit breakers
See Table 4 for an explanation of variations in separate model listings.

Mounting Configuration:
Floor/Wall mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 ***Seismic Certification Limits:*** S_{DS} = 1.5 g z/h = 1.0 I_P = 1.5

Model	Size	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Custom Panels (GP, HS, CGP)	36	14.2	26.2	87.0	325	UUT: GP36	4
	48	14.2	52.4	87.0	550		Interp.
	60	14.2	52.4	87.0	600		Interp.
	72	14.2	52.4	87.0	650	UUT: GP72	5

Note: *S_{DS} for the unit shall be based on the lower of the approved S_{DS} level for components and sub-components.*

SPECIAL SEISMIC CERTIFICATION
CERTIFIED COMPONENT MATRIX

TRU PROJECT NO. 16017

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels

TABLE 3

Certified Product Construction Summary:
16 Ga. Carbon Steel Encloure.

Certified Options Summary:
Voltage: 120 - 277V; Circuits: Fan speed, Remote pwr, Switching, Dimming, Adapative, 10-voltage modules; Voltage transformer; Branch circuit breakers
See Table 4 for an explanation of variations in separate model listings.

Mounting Configuration:
Floor mounted - rigid
Note: Installed mounting configuration must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2016 ***Seismic Certification Limits:*** S_{DS} = *1.5 g* *z/h = 1.0* I_P = *1.5*

Model	Size	Dimensions (in)			Weight (lb)	Notes	UUT
		Depth	Width	Height			
Custom Panels (GP, CGP)	144	28.3	52.4	87	1300	UUT: CGP144	6

Note: *S_{DS} for the unit shall be based on the lower of the approved S_{DS} level for components and sub-components.*

SPECIAL SEISMIC CERTIFICATION
MODEL LINE VARIATION EXPLANATION

TRU PROJECT NO. 16017

TRU COMPLIANCE

Manufacturer:	Lutron Electronics, Inc.	**TABLE 4**
Model Line:	Lighting Control Panels	

The following is provided by the manufacturer as a means of clarifying the variations in models listed.

Model	Summary	Notes
GP	Spec Grade Grafik Panel	Base model for this category
CGP	Custom Spec Grade Grafik Panel	Base model GP with a custom option nonrelated to internal components. Option is limited to a software change or changes on the scale of a different color wiring harness.
LCP	Spec Grade Dimming Panel (same construction as GP)	Identical to the base GP model panel with the exception of a different control interface. All other internal components are identical.
CLCP	Custom Spec Grade Dimming Panel (same construction as GP)	Base model GP with a custom option nonrelated to internal components. Option is limited to a software change or changes on the scale of a different color wiring harness.
GPF	Same as GP construction, reduced functionality	Identical to the base model GP with reduced software capability. This software has also been modified to provide the appropriate controls for fluorescent lighting.
HS	Spec Grade residential dimming panel (same construction as GP)	Base model GP with a software change. Units contain identical internal components.
DCI	DC Current Output dimming panel (Based on GP construction but different internal components)	Differs from base model GP panel and contains its own unique set of internal components for DC output.
XP	Modular Grafik Switching Panel	Base model for this category
XPS	Modular Switching Panel (same construction as XP)	Base model XP with a software change. Units contain identical internal components with the exception of a different controller. This controller option is included in both of the two tested units.
CXP	Custom Grafik Switching Panel (same construction as XP)	Base model XP with a custom option nonrelated to internal components. Option is limited to a software change or changes on the scale of a different color wiring harness.
CXPS	Custom Switching Panel (same construction as XP)	XP w/ custom option nonrelated to internal components. Option is limited to a software change or changes on the scale of a different color wiring harness. A 4-pole contactor is unique to the unit.
LP	Exactly the same except different naming for commercial reasons	Each model listed here is identical to XP panel and contains the same internal components with the exception of different modules. There is no other variation in these control panels.
CLP		
LPGP		
LCP	Same construction as LP/CLP/LPGP	Identical to XP panel with different functionality but identical internal components.

SPECIAL SEISMIC CERTIFICATION
MODEL LINE VARIATION EXPLANATION

TRU PROJECT NO. 16017

Manufacturer:	Lutron Electronics, Inc.	**TABLE 4**
Model Line:	Lighting Control Panels	

The following is provided by the manufacturer as a means of clarifying the variations in models listed.

Model	Summary	Notes
CLCP	Custom LCP	LCP with a custom option nonrelated to internal components. Option is limited to a software change or changes on the scale of a different color wiring harness.
HWBP	Same as LP/CLP/LPGP construction	LCP with a different functionality of controller. No variation in internal components.
HWAP	Same as LP/CLP/LPGP construction	LCP with a different functionality of controller. No variation in internal components.
CCP	Custom Combination Panel (same construction as LP/CLP/LPGP)	Identical to LCP. The contriller module is the same as that in the basic LCP panel with the exception that the controller is made accessible from outside the panel to allow for user interface.
QP	Light Management Hub	Stand alone model
QSPS	Light Management Hub	Stand alone model
G	GRAFIX Processor Panel	Stand alone model. The variation of the three GRAFIX panels offered is somply related to changes in software and functionality.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16017

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels

Table Description: Electrical components

TABLE 5

Building Code: CBC 2016 ***Seismic Certification Limits:*** S_{DS} = 2.5 g z/h = 1.0 I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Breaker	Schneider Electric	QO1205264	10-200A, 1-3 poles, 120/240V		3,4,5,6,8
		EDB14020	20A, 1 pole, 277V		2,9
GP Choke	Lutron	162-103	17A, 1.5MH		1,2,4,5,6
GP Dimming Card	Lutron	RET-GPDIMMER	PCB, 100-277V, 300W max.		1,2,4,5,6
Circuit Selector	Lutron	GRX	Circuit Selector		1,2,3,4,5,6
Modules	Lutron	HW-RPM	PCB, 100-277V Remote power module		8
		LP-RPM	PCB, 100-277V Remote power module		8
		XP2-SM-4S	PCB, 100-277V, 16A, 1/3HP Switching module		7,9
		LP-RPM-4U	120/240V, 16A, 25/40W Dimming module		8
		LP-RPM-4A	120/220/240V Adaptive module		8
		TVM	0-10V Low voltage control module		2,8
Transformers	Tyco	4-1611453-0	24-120V Voltage transformer		3,8,10,11
		3-1672013-1	24-120/277v Dual Voltage Transformer		2,9,13

Note: S_{DS} for the unit shall be based on the lower of the approved S_{DS} level for components and sub-components.

SPECIAL SEISMIC CERTIFICATION
CERTIFIED SUBCOMPONENT MATRIX

TRU PROJECT NO. 16017

Manufacturer: Lutron Electronics, Inc. ***Table Description:*** Electrical components **TABLE 6**

Model Line: Lighting Control Panels

Building Code: CBC 2016 ***Seismic Certification Limits:*** S_{DS} = 1.5 g z/h = 1.0 I_P = 1.5

Component Type	Manufacturer	Model	Description	Notes	UUT
Module	Lutron	LP-RPM-4FSQ-120	PCB, 120V, 8A Fan speed module		8
		LP-RPM-4M-120	120V, 16A Motor control module		8

Note: S_{DS} for the unit shall be based on the lower of the approved S_{DS} level for components and sub-components.

UNIT UNDER TEST (UUT) SUMMARY SHEET

TRU PROJECT NO. 16017

UUT 1

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: GP4-120FTML-20 ***Serial Number:*** N/A

Product Construction Summary:
16 Ga. Carbon steel enclosure

Options/Subcomponent Summary:
120V Circuit Breaker, GP Choke, Circuit Selector/HS Controller, 0-10V module (TVM), 120-277 VAC, Feed Type (2, 3, 4 poles, or feed through).

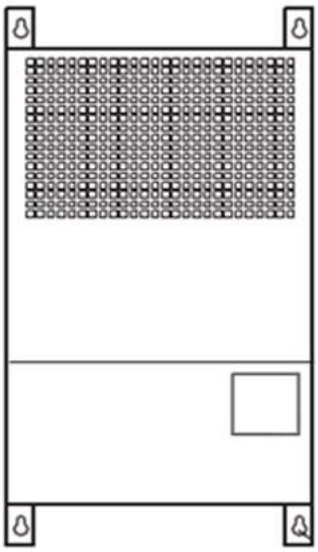
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
22	6.3	11	21.1	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted using four (4) 5/16" hex head screws.
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

TRU PROJECT NO. 16017

UUT 2

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: CGP24-2774T24-ML-20-CGP2429 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure

Options/Subcomponent Summary:
120V Circuit Breaker, 277v circuit breaker, GP Choke, GP dimming card, Circuit selector/HS controller, TVM modules for 0-10V dimming, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through), Fuse blocks, Class 2 Transformer.

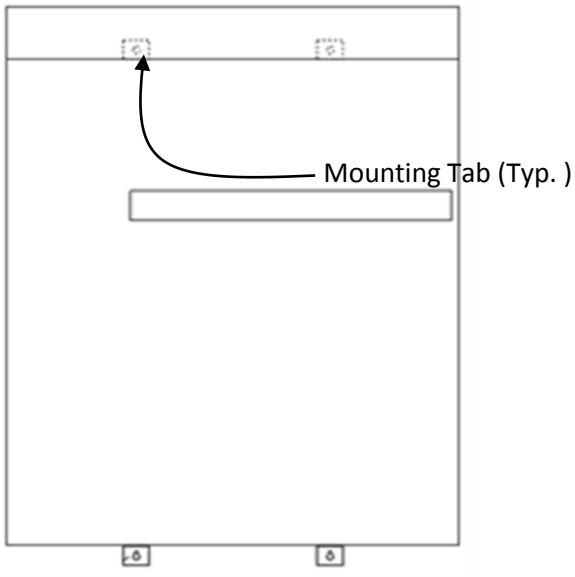
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
155	6.3	11	21.1	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted using four (4) 5/16" hex head screws.
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

TRU PROJECT NO. 16017

UUT 3

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: DCI3-1202M-20 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure

Options/Subcomponent Summary:
120V Circuit Breaker, DCI Module, Circuit selector/HS controller, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through), Fuse blocks, Class 2 Transformer.

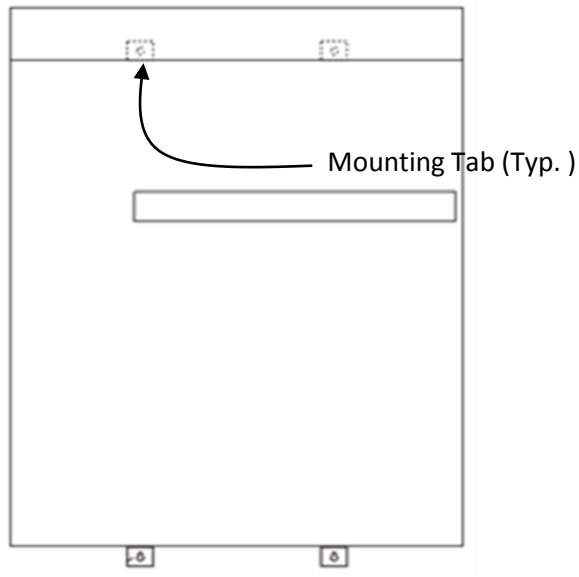
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
175	12	28	35	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted using four (4) 5/16" hex head screws.
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

TRU PROJECT NO. 16017

UUT 4

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: GP36-1204ML-20 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120V Circuit Breaker, GP Choke, GP Dimming Module, Circuit selector/HS controller, Class 2 Transformer. Up to 36 circuits, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through).

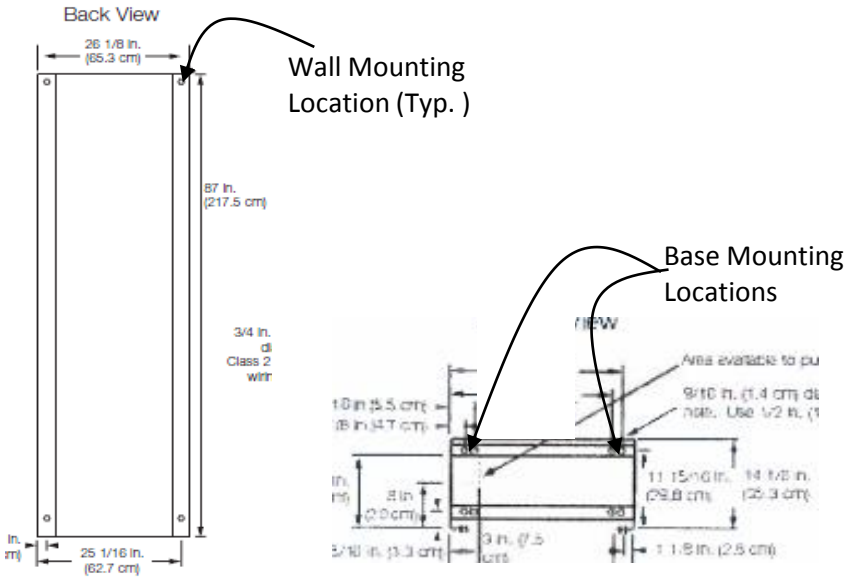
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
305	14.1	25.1	80	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 2016	ICC-ES AC156	1.5	1.0	1.5	2.4	1.8	1.0	0.4

Test Mounting Details:



Rigid wall and floor mounted using six (6) 1/2" Grade 5 bolts: four (4) to the wall fixture, and two (2) into the shake table platen along the front of the unit.
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

TRU PROJECT NO. 16017

UUT 5

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: GP72-1204ML-20 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120v circuit breaker, 72 clip on style breakers, GP Choke, GP Dimming Card, Circuit Selector/HS Controller, Class 2 Transformer, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through).

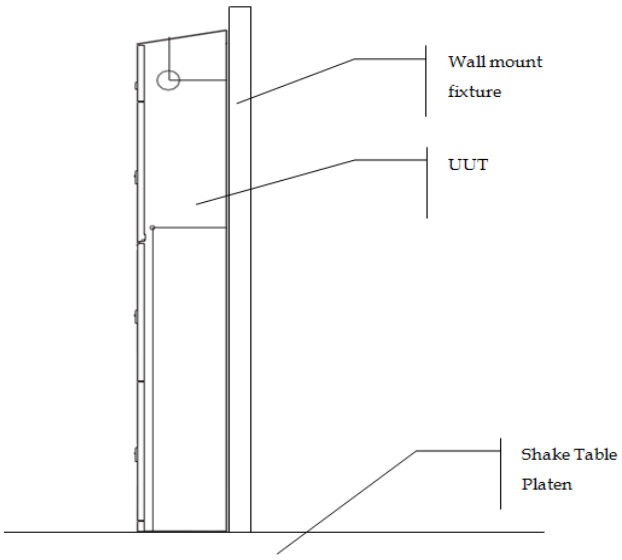
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
635	14.1	51.1	80	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall and base mounted with eight (8) 1/2" Grade 5 bolts: four (4) to the wall fixture, and four (4) into the table.
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

TRU PROJECT NO. 16017

UUT 6

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: CGP144-1204ML-20-CGP1112 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120v circuit breaker, GP Choke, GP Dimming Panel, Circuit Selector/HS Controller, 0-10v module, Fuse Blocks, Class 2 Transformer, 144 clip-on style breakers, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through).

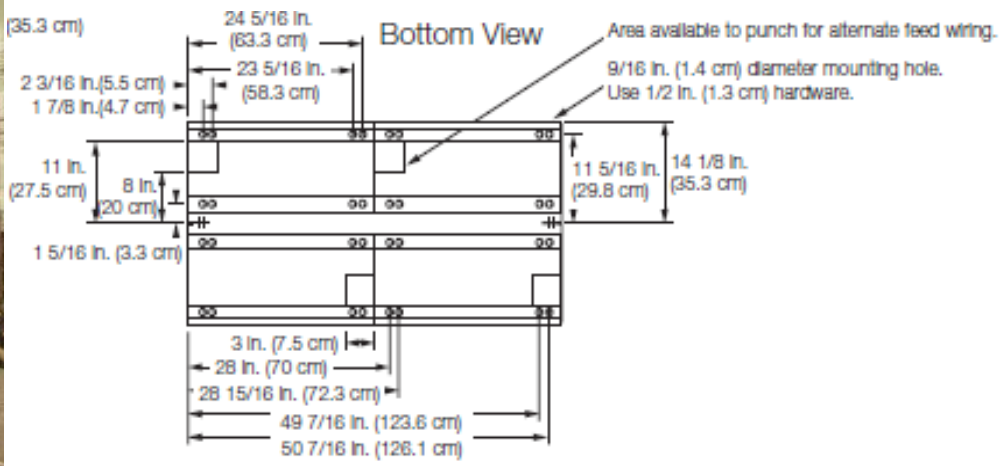
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
1295	28.3	51.1	80	8.9	7.7	>33

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 2016	ICC-ES AC156	1.5	1.0	1.5	2.4	1.8	1.0	0.4

Test Mounting Details:



Rigid base mounted with eight (8) 1/2" Grade 5 bolts: four (4) along the front and four (4) along the back side of the unit.
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

TRU PROJECT NO. 16017

UUT 7

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: XP16-FT ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120VAC-277VAC, Circuit Selector/HS Controller, XP Switching Module, Class 2 Transformer, 16 circuits, Feed type (2 pole, 3 pole, 4 pole, feed through).

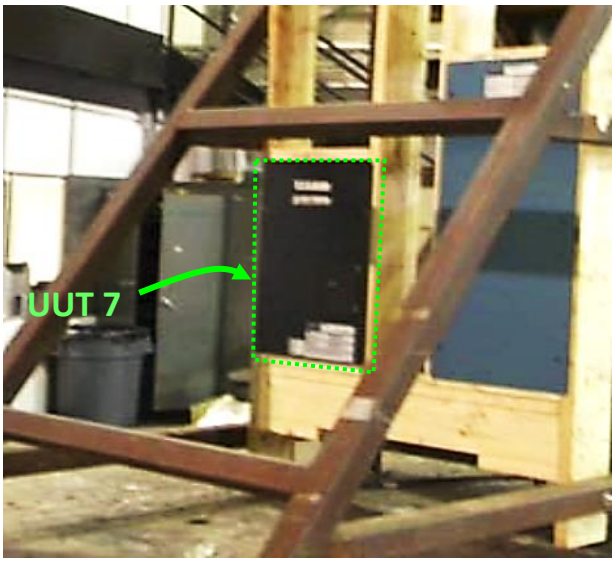
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
32	4.2	15.9	59	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted - recessed using four (4) 1.25" long deck screws into the wood wall framing.
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

TRU PROJECT NO. 16017

UUT 8

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: LCP-2Q1A1M1F4T-1204/ML-20 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120v Circuit Breaker, LCP/XPS Controller, RPM Control Module, XP Switching Module, Fan Speed Module, Motor Control Module, 0-10v module (TVM), Class 2 Transformer, incandescent dimming module, Adaptive dimming module.

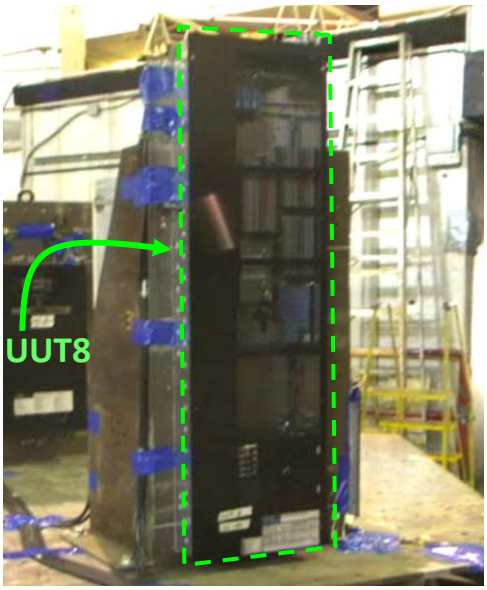
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
60	4.2	15.9	59.5	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted with four (4) 5/16" Grade 5 bolts.
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

TRU PROJECT NO. 16017

UUT 9

Manufacturer:	Lutron Electronics, Inc.		
Model Line:	Lighting Control Panels		
Model Number:	LCP-2Q1A1M1F4T-1204/ML-20	***Serial Number:***	N.A.

Product Construction Summary:

16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:

120VAC-277VAC, LCP/XPS Controller, XP Switching Module, Relay Contractor (4 pole), 32 Circuits, Feed type (2 pole, 3 pole, 4 pole, feed through).

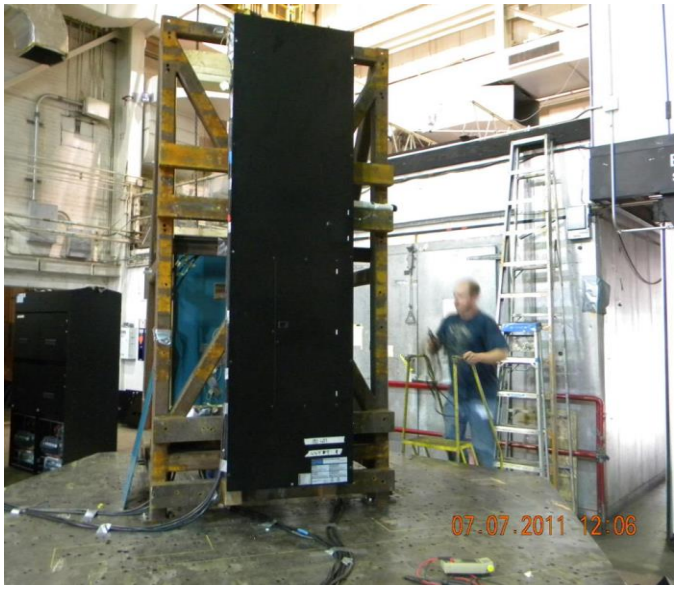
UUT Properties

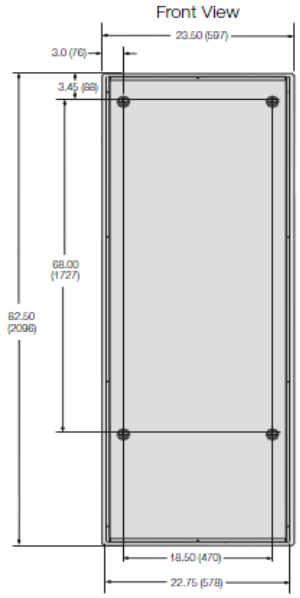
Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
180	6.1	23.5	82.5	N/A	N/A	N/A

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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:





Rigid wall mounted with four (4) 5/16" Grade 5 bolts using the anchor layout as shown above.
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

TRU PROJECT NO. 16017

UUT 10

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: G7-AR-WW00-0-120 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
Class 2 Transformer, GRAFIK 7000 processor 120v.

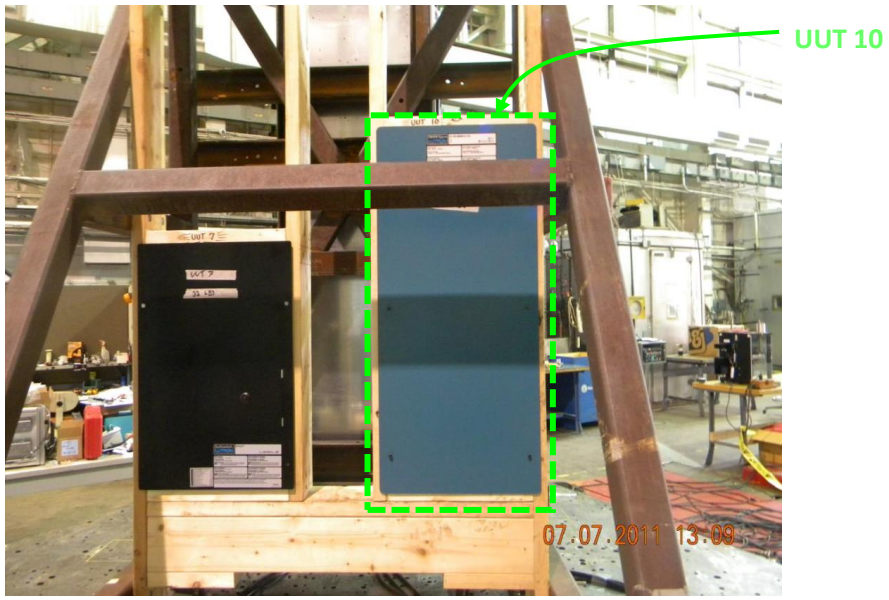
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
45	3.5	14.4	34.8	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted - recessed using four (4) 1.25"-long deck screws: one (1) screw at each corner.
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

TRU PROJECT NO. 16017

UUT 11

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: QP2-2P8CSE-120 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
Class 2 Transformer, Quantum processor panel, 120v, full functionality, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through).

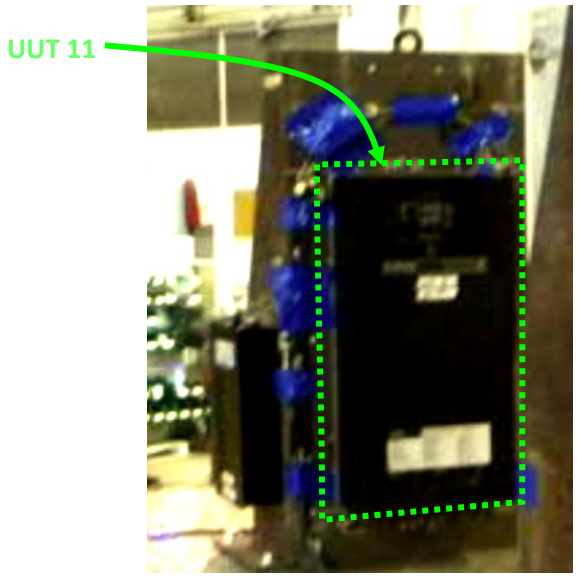
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
40	5.8	15.8	31.5	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted - recessed using four (4) 5/16" Grade 5 bolts: one (1) at each corner.
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

TRU PROJECT NO. 16017

UUT 12

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: QSPS-P1-10-60 ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120v 10 output power supply, 120VAC-277VAC, Feed type (2 pole, 3 pole, 4 pole, feed through).

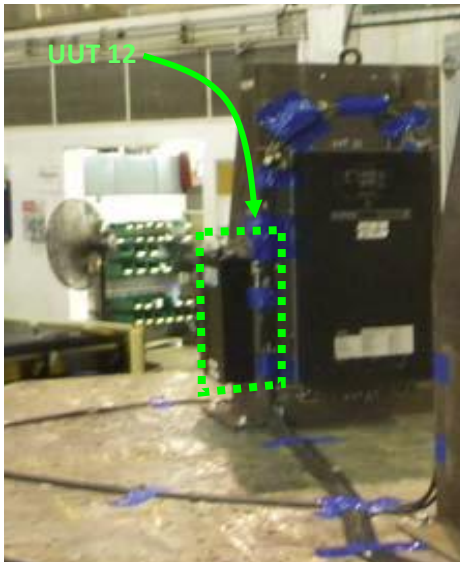
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
24	3.9	10.3	18.3	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted - recessed using four (4) 5/16"Grade 5 bolts: one (1) at each corner.
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

TRU PROJECT NO. 16017

UUT 13

Manufacturer: Lutron Electronics, Inc.
Model Line: Lighting Control Panels
Model Number: XPS-E-120/277-FT ***Serial Number:*** N.A.

Product Construction Summary:
16 Ga. Carbon steel enclosure.

Options/Subcomponent Summary:
120VAC-277VAC, LCP/XPS Controller, XP Switching Module, Relay Contactor (4-pole), class 2 transformer, Feed type (2 pole, 3 pole, 4 pole, feed through).

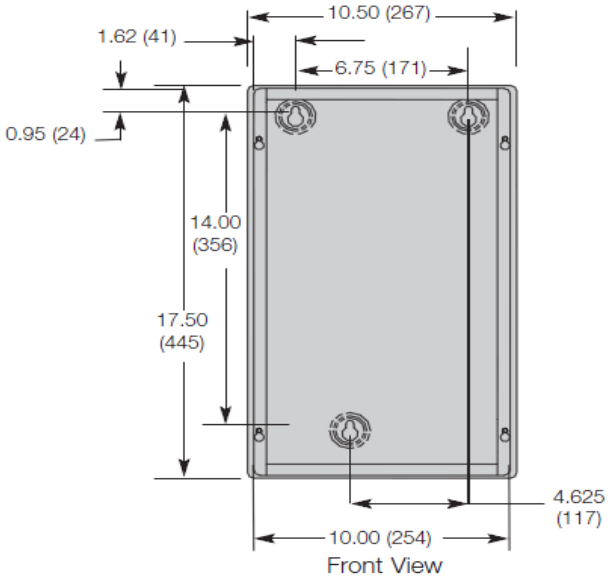
UUT Properties

Weight (lb)	Dimension (in)			Lowest Natural Frequency (Hz)		
	Depth	Width	Height	Front-Back	Side-Side	Vertical
15	4.2	10.3	17.5	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 2016	ICC-ES AC156	2.5	1.0	1.5	4.0	3.0	1.67	0.67

Test Mounting Details:



Rigid wall mounted - recessed using three (3) 5/16"Grade 5 bolts at the locations as shown in the above layout.
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test.
Contents were included in testing per operating conditions.