

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

CATION FOR HCAI SPECIAL SEISMIC

OFFICE USE ONLY APPLICATION #- OSP-0412

CERTIFICATION FREAFFROVAL (03F)	AFFLICATION #: 03F-0412
HCAI Special Seismic Certification Preapproval (OSP)	
Type: New X Renewal	
Manufacturer Information	
Manufacturer: Caterpillar (N.I.) Ltd.	
Manufacturer's Technical Representative: Ciaran O'Flaherty	
Mailing Address: Old Glenarm Road, Larne, Northern Ireland, United King	jdom BT401EJ
Telephone: +44-28-2826-5348 Email: oflaherty_ciara	n@cat.com
Product Information	
Type: New Renewal Manufacturer Information Manufacturer: Caterpillar (N.I.) Ltd. Manufacturer's Technical Representative: Ciaran O'Flaherty Mailing Address: Old Glenarm Road, Larne, Northern Ireland, United Kingdom BT401EJ Telephone: +44-28-2826-5348 Email: oflaherty_ciaran@cat.com Product Information Product Information Product Information Product Name: Emergency and Standby Power Systems Product Name: Emergency and Standby Power Systems Product Category: Emergency and Standby Power Systems Product Category: Emergency and Standby Power Systems Product Sub-Category: Generators Generators Control Panels Product Category: General Description: See Certified Product Tables Product Category: See Certified Product Tables Tested Seismic Enhancements: Seismic enhancements made to the test units and/or modifications required to address anomalies during the tests shall be incorporated into the production units. Applicant Information Maplicant Company Name: TRU Compliance, by Structural Integrity Associates, Inc. Contact Person: Victoria Ahrens Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702 Email: vahrens@	
Product Model Number(s): C27/C32/3512/3516/C175	E.
Product Category: Emergency and Standby Power Systems 2	i chi
Product Sub-Category: Generators	
General Description: Diesel Powered Generators & Control Panels	
Mounting Description: See Certified Product Tables	
Applicant Information	
Applicant Company Name: TRU Compliance, by Structural Integrity Assoc	ciates, Inc.
Contact Person: Victoria Ahrens	
Mailing Address: 233 SW Wilson Ave, Suite 101, Bend, OR 97702	
Telephone: (541) 292-5820 Email: vahrens@structure	xtint.com
Title: Certification Engineer	



STATE OF CALIFORNIA - HEALTH AND HUMAN SERVICES AGENCY 07/01/2025

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OSP-0412



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: STRUCTURAL INTEGRITY ASSOCIATES, INC.	
Name: LACHEZAR HANDZHIYSKI California License Number: S6515	
Mailing Address: 5215 Hellyer Avenue, Suite 210, San Jose, CA 95138	
Telephone: (669) 437-0200 Email: Lhandzhiyski@StructInt.com	
Name: LACHEZAR HANDZHIYSKI California License Number: S6515 Mailing Address: 5215 Hellyer Avenue, Suite 210, San Jose, CA 95138 Telephone: (669) 437-0200 Email: Lhandzhiyski@StructInt.com Certification Method	
Certification Method	
GR-63-Core X ICC-ES AC156 IEEE 344 IEEE 693 NEBS 3	
Other (Please Specify):	
FOR CODE CO	
Testing Laboratory	
Contact Person: James Wilcoski OSP-0412	
Mailing Address: 2902 Newmark Dr., Champaign IL 61822-1076	
Telephone: (217) 373-4565 BY Email: James.wilcoski@usace.army.mil	
Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)	
Contact Person: Jeremy Lange	
Mailing Address: 11034 Indian Trail, Dallas TX 75229-3513	
Telephone: (972) 247-9657 Email: Jeremy@etIdallas.com	
Company Name: UNIVERSITY OF CALIFORNIA, BERKELEY (PEER)	
Contact Person: Amarnath Kasalanati	
Mailing Address: 325 Davis Hall, Berkeley CA 94720-1729	
Telephone: (510) 642-3437 Email: Amarnath1@berkeley.edu	
Company Name: UNIVERSITY OF NEVADA, RENO (UNR)	
Contact Person: Patrick N Laplace	
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Telephone: (775) 784-6937 Email: Laplace@unr.edu	

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY

OSP-0412



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

Seismic Parameters

Desig	n Basis of Equipment or Components	1			; 2.40 (Genset: SDS=3.20 @ z/h=0); =1); 1.44 (Ctrl Panel: SDS=3.20 @
	SDS (Design spectral response accele	ration at short	t period, g) = $2.00 (z/h)$	= 1); 3.20 (z/h = 0)
	ap (Amplification factor) =	2.5			
	Rp (Response modification factor) =	2.0 (Gensets	Isolated); 6.0 (Control	Panels)	
	Ω_0 (System overstrength factor) =	2.0			
	Ip (Importance factor) =	1.5			
	z/h (Height ratio factor) =	1 and 0			
	Natural frequencies (Hz) =	See Attachmo	ent ODE		
	Overall dimensions and weight =	See Attachme	ent		
	IE	H	ICAi 🔨	E.	
HCAI	Approval (For Office Use Only) -	Approval Ex	xpires on 07/01/2032	2	
Date:	7/1/2025				
Name	e: Mohammad Karim	BY: Mol	nammad Karim	Title:	Supervisor, Health Facilities
Specia	al Seismic Certification Valid Up to: SE	s (g) = _2.0	07/01/2025	z/h =	1

NG CODY

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STATE OF CALIFORNIA – HEALTH AND HUMAN SERVICES AGENCY

Condition of Approval (if applicable):

OSP-0412

TRU PROJECT NO. 2100427, Rev. 6



TABLE 1

Manufacturer: Model Line: Caterpillar Inc. C27/C32/3512/3516/C175 Generator Set

Certified Product Construction Summary:

Carbon Steel Base. Carbon Steel Enclosure (C27/C32). Carbon steel UL-142 fuel tank.

Certified Options Summary:

C27 & C32 available with and without fuel tank (1000 gal. or 2000 gal.) and enclosure. C175-16 available with and without radiator.

Mounting Configuration:

On fuel tank: base mounted - rigid with internal isolation. Off fuel tank: base mounted - isolated Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 202	2	Seismic (Certificatio	n Limits:	S _{DS} = 2.0 S _{DS} = 3.2	0g z/h=1.0 2g z/h=0.0	<i>I_p</i> = 1.5
Model Line	Model	Di	mensions (iń) 2	Weight		
Model Line	Model	Depth	Width	Height	(lbs.)	Notes	UUT
	Open – <mark>Min. p</mark> ackag <mark>e</mark>	163.1	ha <mark>72,0</mark> na	d 87.0rin	14,050		Extrap.
	Open – M <mark>ax. p</mark> ackage	172.0	84.0	86.0	14,050		Extrap.
C27 (≤800 kW)	Enclosed – No tank	300.0	100.0	111.9	22,827		Extrap.
	Enclosed – 1000 gal.	300.0	100.0	127.0	36,400		1
	Enclosed - 2000 gal.	300.0	100.0	136.0	43,660		Interp.
	Open – Min. package	166.7	79.1	85.0	18,200		Interp.
622	Open – Max. package	190.0	88.0	119.0	18,540		10
C32 (≤1250 kW)	Enclosed – No tank	300.0	100.0	111.9	25,300		Interp.
(21230 KW)	Enclosed – 1000 gal.	300.0	100.0	127.0	38,806		Interp.
	Enclosed - 2000 gal.	300.0	100.0	136.0	46,130		2
C32B	Open - Min. package	191.4	89.3	100.6	20,177		Interp.
(≤1500 kW)	Open - Max. package	200.0	96.0	100.6	21,750		20
	Min. package	199.0	77.8	93.2	34,620		Interp.
3512 (≤1250 kW)	Max. package	212.6	81.6	93.2	34,620		Interp.
3512B (≤1500 kW)	Max. package	231.0	78.0	93.0	33,204		Interp.
3512B-HD (≤1500 kW)	Max. package	231.0	78.0	93.0	33,689		Interp.
3512C (≤1500 kW)	Max. package	233.1	89.8	110.0	38,688		Interp.
3512C-HD (≤1750 kW)	Max. package	243.2	89.8	110.0	40,660		Interp.
	Min. package	232.9	90.0	93.2	41,796		Interp.
3516 (≤1600 kW)	Max. package	246.0	90.0	93.2	41,796		Interp.
3516B (≤2250 kW)	Max. package	275.0	102.0	98.0	39,666		Interp.
3516B-HD (≤2000 kW)	Max. package	272.0	90.0	98.0	39,913		Interp.
3516C	Min. package	253.3	93.7	116.5	44,708		Interp.
(≤2000 kW)	Max. package	271.9	93.7	116.5	44,708		Interp.

TRU Compliance, by Structural Integrity Associates, Inc.

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TRU PROJECT NO. 2100427, Rev. 6



TABLE 1

Manufacturer:

Caterpillar Inc.

Model Line: C27/C32/3512/3516/C175 Generator Set

Certified Product Construction Summary:

Carbon Steel Base. Carbon Steel Enclosure (C27/C32). Carbon steel UL-142 fuel tank.

Certified Options Summary:

C27 & C32 available with and without fuel tank (1000 gal. or 2000 gal.) and enclosure. C175-16 available with and without radiator.

Mounting Configuration:

On fuel tank: base mounted - rigid with internal isolation. Off fuel tank: base mounted - isolated Note: Installed mounting must be of similar configuration and equivalent strength and stiffness to those tested.

Building Code: CBC 2022	H	Seismic (Certificatio	on Limits:			z/h=1.0 z/h=0.0	<i>I_p</i> = 1.5
Model Line	Model	Di	nensions	(in) 2	Weight		Notes	UUT
Model Line	Model	Depth	Width	Height	(lbs.)		Notes	001
	Min. <mark>pack</mark> age	257.3	100.9	d 123.2 in	43,139			12
3516C-HD (≤2500 kW) -	Max. package	277.0	120.0	109.0	44,175			3
3516E (≤2750 kW)	Max. package	324.0	104.0	128.0	51,000			11
C175-16 (≤3100 kW)	Min. package	300.8	108.5	130.2	61,192	\mathbf{N}		Interp.
C172-16 (23100 KW) -	Max. package	307.0	114.0	134.0	61,192	>/		4
				HHHH				
					\mathcal{O}^{\vee}			
		AD						
		·D	UILD	NO				

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Manufacturer:	Caterpillar Inc.					TADU	
Model Line:	C27/C32/3512/3516/C17	75 Generat	or Set			TABLI	z Z
Certified Product Cons	=						
Carbon Steel Enclosure	5						
Certified Options Sum	marv:						
ICE Box: Small or Large	-						
Mounting Configuration	201		COD	-			
Wall mounted - rigid or		FOR		ECO	1		
-	ust be of similar configuration	and equivale	nt strength a	nd stiffness	to those test	ed.	
Building Code: CBC 20.	22	Seismic (Certificatio	on Limits:		2.0 g z/h=1.0	= 1.5
5				XXXX////YXXXX		3.2 g z/h=0.0	1
Model Line	Model	Depth	nensions Width	Height	Weight (lbs.)	Notes	UUT
ICE Control Danol w/	ICE - Small Display	8Y _{16.0} 0	ha <u>28.0</u> 1a	d K _{18.0} in		UUT6 on equipment	6, 8
ICE Control Panel w/ EMCP 4 Controller (Caterpillar) ¹			20.0	10.0	105	UUT8 wall mount	0,0
	ICE - Large Display	<u> </u>	()28.0) 1	/218.05	110	UUT7 on equipment UUT9 wall mount	7,9
	Cat ECS 100 (622-3612 & 621-9888) Cat ECS 200	0.5	20.0	10.5		UUT23 on equipment	22.24
		8.5	28.0	18.5	64	UUT24 wall mount	23, 24
Caterpillar [®] Energy Control System (ECS)		8.5	28.0	18.5	95	UUT16 on equipment UUT17 wall mount	16, 17
Control System (ECS)		A BU	JI DI	NGC		UUT16 on equipment	
	(631-2323)	8.5	28.0	53.0	154	UUT19 wall mount	16, 19
Cat GCCP Controller	Cat GCCP1.2	8.5	28.0	18.5	68	UUT16 & UUT20 on equipment	16, 18, 20
	(634-5258)					UUT18 wall mount	,,
<u>-</u>							

TRU PROJECT NO. 2100427, Rev. 6



Manufacturer: Model Line:	Caterpillar Inc. C27/C32/3512/3516/C175 0	approtor Sot	Table Description: Standard Compone	nts	TABLE 3
Building Code: CBC 2		Seismic Certific	ation Limits: $S_{DS} = 2.0 g z/h = 1.0$ $S_{DS} = 3.2 g z/h = 0.0$	I _P = 1.5	
Component Type	Manufacturer	Model	CODE Description	Notes	υυτ
		25.5SF		939 lbs.	1
		27.5SF		1,433 lbs.	2
	AKG	AB23	508-8112 / 508-8113	701 lbs. / 792 lbs.	Interp.
		AB24	OSP-0412	1236 lbs.	15a
		AB26		1355 lbs.	15b
		44SF BY	Mohammad Karim	6,356 lbs.	Extrap
		50SF		7,535 lbs.	Extrap
	Young Touchstone	56SF		8,008 lbs.	3
		-64SF	IE: 0//01/2025	8,645 lbs.	Interp
1		73SF		9,324 lbs.	Interp
Radiator ¹		84SF		12,400 lbs.	4
		25SF		1,774 lbs.	10
	Modine	A38AV		2,161 lbs.	20
		A48	Caterpillar designed with Modine coolers	2,428 lbs.	14a
		A59 ²	Caterpillar designed with Yinlun coolers	4,150 lbs.	21
		A59	Caterpillar designed with Modine coolers	4,758 lbs.	Interp
	Caterpillar Inc.	A68 ²	Caterpillar designed with Yinlun coolers	4,800 lbs.	22
		A68	Caterpillar designed with Modine coolers	5,102 lbs.	12
		69SF	Caterpillar designed with Modine coolers	8,884 lbs.	Interp
		81SF	Caterpillar designed with Modine coolers	9,965 lbs.	11

1. Radiators are documented with dry weight.

2. Radiators shall not have any rigid connections to other components, except for the tested connections at the base.



Manufacturer: Model Line:	Caterpillar Inc. C27/C32/3512/3516/C175	Generator Set	nts	TABLE 3	
Building Code: CBC 2	<u> </u>	Seismic Certificat	ion Limits: $S_{DS} = 2.0 g z/h = 1.0$ $S_{DS} = 3.2 g z/h = 0.0$	I _P = 1.5	
Component Type	Manufacturer	Model	RCODE Description	Not	es UUT
		37CT	Caterpillar designed with Modine coolers	2,258 lbs.	Interp.
		37CTD	Caterpillar designed with Modine coolers	2,258 lbs.	Interp.
	Cataraillar Inc	44CT	Caterpillar designed with Modine coolers	2,427 lbs.	Interp.
Radiator ¹	Caterpillar Inc. —	44CTD	Caterpillar designed with Modine coolers	2,427 lbs.	Interp.
		48 CTD	Caterpillar designed with Modine coolers	2,463 lbs.	Interp.
		59CTD BY.	Caterpillar designed with Modine coolers	3,380 lbs.	14b
		1200 Frame		5,155 lbs.	1
		1400 Frame	. 07/01/2025	7,277 lbs.	2,10
		1600 Frame	0/10/12025	10,496 lbs.	Interp.
Generator	Leroy-Somer	1646 Frame		8,514 lbs.	20
		1800 Frame		12,924 lbs	Interp.
		2700 Frame		16,178 lbs.	Interp.
		3000 Frame	SUIDING	20,043 lbs.	3, 4, 11, 2
			OILDIN		
Notes:	mented with dry weight.				

TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpillar Inc.		rols	TABLE 4	
Model Line: Building Code: CBC 20	C27/C32/3512/3516/C1	75 Generator Set Seismic Certifica	tion Limits: $S_{DS} = 2.0 g z/h = 1.0$ $S_{DS} = 3.2 g z/h = 0.0$	I _P = 1.5	
Component Type	Manufacturer	Model	R CODE Description	Note	es UUT
Global Design Box		Base	Global Design Box controller		1, 2
w/ EMCP 4 Controller	r Caterpillar	Side Ext <mark>ension</mark> Box	Side Extension for Global Design Box		1, 2
		Rear Extension Box	Rear Extension for Global Design Box		2
		NSJ Frame	14 lbs., 600A max		Extrap.
		L Frame	14 lbs., 600A max		Extrap.
Molded Case Circuit	Schneider	P Frame BY	32 lbs., 1,200A max		1
Breaker		R Frame	52 lbs., 3,000A max		7
		NT Frame	245 lbs., 5,000A max		2,7
		Base	ICE Box Controller		6,7
		Side Extension Box	Side Extension Box for ICE Box	UUT7: Qty (2)	7
ICE Box	Caterpillar	Rear Extension Box	Rear Extension Box for ICE Box	UUT7: Qty (1)	6
		ICE Box - small display	ICE Control Panel w/ EMCP 4 Controller	On equipment or remote	mount 6, 8
		ICE Box - large display	ICE Control Panel w/ EMCP 4 Controller	On equipment or remote	mount 7, 9, 10
			UILDING		

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TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpillar Inc.		Table Description: Optional Components	T			
Model Line:	C27/C32/3512/3516/C17	5 Generator Set			TABLE 5		
Building Code: CBC 2022		Seismic Certificat	Seismic Certification Limits: $S_{DS} = 2.0 g z/h = 1.0$ $S_{DS} = 3.2 g z/h = 0.0$ $I_{P} = 1.5$				
Component Type	Manufacturer	Model	R CODE Description	Note	es UUT		
Silencer	Miratech	3972005	Exhaust Silencer		1		
Silencer	Silex	3906968	Exhaust Silencer		2		
Space Heater	Berko	HUHAA	480V 3-phase Heater		1, 2		
Louvers	Ruskin	<mark>396-5</mark> 818	Motorized Louver		1, 2		
Jacket Water Heater	Hotstart	CS <mark>M Hotf</mark> low - 9kW	9KW Coolant Preheater		1, 2, 3		
Jackel Waler Healer	HOISIAN	CSM Hotflow - 12kW	12KW Coolant Preheater		4		
Electrical Panel	Square D	Q <mark>O Loa</mark> d Center	Electrical Panel Enclosure		1, 2		
Battery Charger	Stored Energy Sys.	NRG 24	Genset Engine Start Battery Charger		1, 2		
Converter	MOXA	MGate MB3170I-T	Din Rail Type		23, 24		
		P					
		A	Durante				
			OILDING				

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TRU PROJECT NO. 2100427, Rev. 6

Manuf	Caterpillar Inc.							
Model	Line: C27/C32/3512/	3516/C175 Generator	Set					
υυτ	Unit Description (Mounting)	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	I _P
1	C27 Gen. Set - Enclosed w/ 1000 Gal. Tank (base mounted - rigid)	2013-0764-TR-001 (UUT1)	ERDC-CERL	2014	No ¹	2.00 3.20	1.0 0.0	1.5
2	C32 Gen. Set - Enclosed w/ 2000 Gal. Tank (base mounted - rigid)	2013-0764-TR-001 (UUT2)	ERDC-CERL	2014	No ¹	2.00 3.20	1.0 0.0	1.5
3	3516C HD Generator Set (base mounted - isolated)	2013-0764-TR-001 (UUT3)	ERDC-CERLO	2014	No ¹	2.00 3.20	1.0 0.0	1.5
4	C175-16 Generator Set (base mounted - isolated)	2013-0764-TR-001 (UUT4)	ERDC-CERL P-0412	2014	No ¹	2.00 3.20	1.0 0.0	1.5
5	C	BY: Moh	amNOTUSEDrim		0			
6a	ICE Box - min (base mounted - rigid)	14175, Rev. 1 (UUT6 Rigid)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
6b	ICE Box - min (base mounted - isolated)	14175, Rev. 1 (UUT6 Isolated)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
7a	ICE Box - max (base mounted - rigid)	14175, Rev. 1 (UUT7 Rigid)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
7b	ICE Box - max (base mounted - isolated)	14175, Rev. 1 (UUT7 Isolated)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
8	ICE Box 1 (wall mounted - rigid)	14175, Rev. 1 (UUT8)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
9	ICE Box 2 (wall mounted - rigid)	14175, Rev. 1 (UUT9)	Environmental Testing Lab (ETL)	2016	Yes	2.00 3.20	1.0 0.0	1.5
Notes:								

Notes:

1. ERDC-CERL is not ISO 17025 accredited but has been reviewed by TRU Compliance and found to meet the requirements for ICC-ES AC156 testing. Review form is on file with TRU Compliance.



TRU PROJECT NO. 2100427, Rev. 6

	acturer: Caterpillar Inc.							
Model	Line: C27/C32/3512/	3516/C175 Generator	Set					
υυτ	Unit Description (Mounting)	Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	Ι _Ρ
10	C32 - Generator Set (base mounted - isolated)	1700630-TR-001 (UUT10)	Pacific Earthquake (PEER)	2017	Yes	2.00 3.20	1.0 0.0	1.5
11	3516E - Generator Set (base mounted - isolated)	1700630-TR-001 (UUT11)	Pacific Earthquake (PEER)	2017	Yes	2.00 3.20	1.0 0.0	1.5
12	3516C - Generator Set (base mounted - isolated)	1900323-TR-001 (UUT1)	ERDC-CERLO	2020	No ¹	2.00 3.20	1.0 0.0	1.5
13	4		NOT USED	E ST				
14a	3512 Opt Radiator (base mounted - isolated)	2100427-TR-001 (UUT1.1)	Environmental Testing Lab (ETL)	2022	O Yes	2.00 3.20	1.0 0.0	1.5
14b	3512 Fresco Rad (base mounted - isolated)	2100427-TR-001 (UUT1.2)	Environmental Testing Lab (ETL)	2022	Yes	2.00 3.20	1.0 0.0	1.5
15a	C32 49CTD Rad. (base mounted - isolated)	2100427-TR-001 (UUT2.1)	Environmental Testing Lab (ETL)	2022	Yes	2.00 3.20	1.0 0.0	1.5
15b	C32 49CTD Rad. (base mounted - isolated)	2100427-TR-001 (UUT2.2)	Environmental Testing Lab (ETL)	2022	Yes	2.00 3.20	1.0 0.0	1.5
16	Doghouse w/ ECS 100, ECS 200 & GCCP1.2 (base mounted - isolated)	2300056-TR-001 (UUT1)	Environmental Testing Lab (ETL)	2023	Yes	2.00 3.20	1.0 0.0	1.5
17	Cat ECS 100 (622-3612 & 621-9888) (wall mounted - rigid)	2300056-TR-001 (UUT2)	Environmental Testing Lab (ETL)	2023	Yes	2.00 3.20	1.0 0.0	1.5
18	Cat GCCP1.2 (634-5258) (wall mounted - rigid)	2300056-TR-001 (UUT3)	Environmental Testing Lab (ETL)	2023	Yes	2.00 3.20	1.0 0.0	1.5
Notes								

Notes:

1. ERDC-CERL is not ISO 17025 accredited but has been reviewed by TRU Compliance and found to meet the requirements for ICC-ES AC156 testing. Review form is on file with TRU Compliance.



TRU PROJECT NO. 2100427, Rev. 6

Manuf Model	Caterpillar Inc.	2510/C175 Concreter	· Cot					
UUT	Unit Description (Mounting)	3516/C175 Generator Report Number (UUT#)	Testing Lab	Year Tested	ISO 17025 Accredited?	S _{DS}	z/h	IP
19	Cat ECS 200 (631-2323) (wall mounted - rigid)	2300056-TR-001 (UUT4)	Environmental Testing Lab (ETL)	2023	Yes	2.00 3.20	1.0 0.0	1.5
20	C32B Gen. Set (base mounted - isolated)	2301377-TR-001 (UUT1)	ERDC-CERL	2024	No ¹	2.00 3.20	1.0 0.0	1.5
21	A59 Radiator (base mounted - isolated)	2400776-TR-001 (UUT1)	ERDC-CERLO	2024	No ¹	2.00 3.20	1.0 0.0	1.5
22	A68 Radiator (base mounted - isolated)	2400776-TR-001 (UUT2)	ERDC-CERL	2024	No ¹	2.00 3.20	1.0 0.0	1.5
23	Doghouse w/ ECS 100 Panel with RS485 Module (base mounted - isolated)	2551830-TR-001 (UUT1) MON	University of Nevada, Reno (UNR)	2025	Yes	2.00 3.20	1.0 0.0	1.5
24	ECS100 Panel with RS485 Module (wall mounted - rigid)	2551830-TR-001 (UUT2)	University of Nevada, Reno (UNR)	2025	Yes	2.00 3.20	1.0 0.0	1.5
		CORNIA BU		DDE!				
		· BU	ILDING					
Notes:								

1. ERDC-CERL is not ISO 17025 accredited but has been reviewed by TRU Compliance and found to meet the requirements for ICC-ES AC156 testing. Review form is on file with TRU Compliance.



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator Se	≏t					JUT	1
Model Number:	C27 Generator Set – E								
Serial Number:	N/A	inclosed w/ 1000		Test Re	nort·	2013-076	54_TR_00	1 (111171)	
Senat Number.	МЛ		T Properties	Test Ke	ροι ι.	2013-070	54-11-00.	1 (0071)	
Weight		Dimension (in			Lowos	t Natural	Eroquoi))) (H7)	
(lbs.)	Depth	Width	Height	Eron	t-Back	-	-Side		tical
36,400	300.0	100.0	127.0		1.6	-	.0		.0
50,400			ed Seismic Run Info			4	.0	0	.0
Building Code		Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	Δ	Δ(σ)	Δ
Duitung cout		cinteria	2.0	1.0	чр	7FLX-H \6/	~RIG-H \6/	~FLX-V \6/	~RIG-V \6/
CBC 2022	ICC-E	S AC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summary:	0	Test Mounting I	Λ					
	ire, carbon steel base, o	arbon steel III -	Test Mounting I	Jetans.					
142 fuel tank.	ine, carbon steet base, (XZ	7				
Options/Subcompo	nent Summary	20						100	
Description	Part N	umber				-11		1	
Description		DV		-	0	1 month	-	1	WE
C27 (≤800 kW)	Enclose	ed - 1000 gal ^{ona}		1.1					-
Battery Charger	NRG 24	DATE.						1	-
(Stored Energy Syste	n)	DATE. C						-	-
Electrical Panel	00100	d Center	1 1 1					-	Contra la
(Square D)	Q0 L00	d center		-0		10.00			12
Generator	1200 Fr	PANA				1		1	
(Leroy-Somer)	1200 FI	une A Du							
Global Design Box w/	EMCP 4	nd side extension			-	-			The second
Controller	box	na side extension	-			1 204	- B -		U-I-
(Caterpillar)	DOX		- In -	-					-
Jacket Water Heater	CSM H	otflow - 9kW	- gene	3					-
(Hotstart)				1	2.	1.	-	-	
Louvers	396-58.	18		-	7	M	TI	-	
(Ruskin)					1	IL	1		1
Molded Case Circuit I	Breaker P Fram	۵				-			-
(Schneider)									
Radiator	25.5 SF								
(AKG)	20.0 Sr		UUT1 was base m		-		-		
Silencer	397200	5	Grade 8 bolts and						
(Miratech)	397200	5	spring isolators. — mount the isolate	-			e & DOITS a	are used t	το
Spacer Heater			Unit maintained				ained fur	nctional r	per
(Berko)	HUHAA		manufacturer rec		-				
			included in testin	-					

TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpi	llar Inc.								
Model Line:	•		75 Generator Se	et				l	JUT	2
Model Number:	C32 Ger	nerator Set – En	closed w/ 2000	Gal. Tank						
Serial Number:	N/A				Test Re	port:	2013-07	64-TR-00	1 (UUT2)	
			UU	T Properties						
Weight			Dimension (in)		Lowes	st Natural	Freque	ncy (Hz)	
(lbs.)		Depth	Width	Height	Fron	t-Back	Side	-Side	Ver	tical
46,130		300.0	100.0	136.0	4	1.3	3	.8	8	.0
		UU	T Highest Passe	ed Seismic Run Inf	ormatio	n				
Building Cod	e	Test C	riteria	S _{DS} (g)	z/h	l _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022		ICC-ES	AC156 OR	2.0	1.0	1.5	3.20	2.40	2.13	0.85
				3.2-0	0.0	1.5	0.20	2.10	2.10	0.00
Product Construct				Test Mounting	Details:					
Carbon steel enclos	ure, carbo	n steel base, ca	rbon steel UL-							
142 fuel tank.		NY.								
Options/Subcomp	onent Sum		05					1		
Description		Part Nui	nber							
C32 (≤1250 kW)		Enclosed	2000 gal.	m	-					
Battery Charger		NRG 24		7	CAT		-	-		-
(Stored Energy Syste	em)	NRG 24	DATE. C	1					-4	
Electrical Panel (Square D)		QO Load	Center						-	
Generator (Leroy-Somer)		1400 Fra	me					- 1		
Global Design Box w Controller (Caterpillar)	ı/ EMCP 4	Base, sia extensio	e and rear n box			T			P	
Jacket Water Heate (Hotstart)	r	CSM Hot	flow - 9kW						1	
Louvers (Ruskin)		396-5818	1		12	P				K
Molded Case Circuit (Schneider)	Breaker	NT Fram	ē							
Radiator (AKG)		27.5 SF		UUT2 was base n		-		-		
Silencer (Silex)		3906968		Grade 8 bolts and spring isolators. the isolators to t	Twenty-f	our (24)				
Spacer Heater (Berko)		HUHAA		Unit maintained manufacturer rec	structura	ıl integri	-		-	
				included in testir	-					

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator Se	et				l	JUT	3
Model Number:	3516C HD Generator S								•
Serial Number:	N/A			Test Re	port:	2013-07	64-TR-00	1 (UUT3)	
		UU	T Properties						
Weight		Dimension (in	i)		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front	-Back	Side	-Side	Ver	tical
44,175	277.0	120.0	109.0	3	.7	3	.9	8	.2
	U	JT Highest Passe	ed Seismic Run Infe	ormatior	1				
Building Code	e 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 2022	ICC-F	SAC156	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CDC 2022		37/12130	3.2 0	0.0	1.5	5.20	2.40	2.15	0.05
Product Constructi	on Summary:		Test Mounting I	Details:					
Carbon Steel Base	L.								
	N			727					
Options/Subcompo		OS	P-0412						
Description	Part Nu	ımber							
3516C-HD (≤2500 kW,) Max. Pc	ackage: Moha				-		L	NEST
Generator (Leroy-Somer)	3000 Fr	aneATE: 0			-				
Jacket Water Heater (Hotstart)	CSM Ho	tflow - 9kW	16		1				1
Radiator	56SF	PAL		2.2	100	1		1	-
(Young Touchstone)		ABI				- 11			-
			3 POINT				-		and the second second
			50	7		and the second	1400		
			-						
			-						
			-						
			UUT3 was base m					-	
			VMC M2SSH-1E s	-				rade 8 bo	olts are
			used to mount th Unit maintained s					nctional	or
			manufacturer rec		-				
			included in testin	-					
	I			Complia					



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C1	175 Generator S	et				L	JUT	4
Model Number:	C175-16 Generator Set								•
Serial Number:	N/A			Test Repo	ort:	2013-07	64-TR-00	1 (UUT4)	
		UU	IT Properties	-					
Weight		Dimension (in	ı)	L	owes	t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front-E	Back	Side	-Side	Ver	tical
61,192	307.0	114.0	134.0	3.5		3	.3	7	.7
	UU	T Highest Pass	ed Seismic Run Inf	ormation		-			
Building Code	e Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES	AC156 OR	3.2	1.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summary:		Test Mounting	1					
Carbon Steel Base	E		<u>CAi</u>	É					
Options/Subcompo		OS	P-0412						
Description	Part Nu	mber							
C175-16 (≤3100 kW)	Max. Pa	ckage : Moha	an <mark>isse Karin</mark>					-	
Generator (Leroy-Somer)	3000 Fra	Meate: (-		WEST		
Jacket Water Heater (Hotstart)	CSM Hot	tflow - 12kW		A.			Media		
Radiator (Young Touchstone)	84SF	WIA BU							
			UUT4 was base n VMC M2SSH-1E s are used to mour Unit maintained manufacturer rec included in testir	oring isolate It the isolat structural in Juirement a	ors. Se fors to ntegrit after sh	eventy-two the test fin y and rem nake table	o (72) 3/4 xture. ained fur test. Cor	" Grade 8 nctional p	bolts ber



Manufacturer:	Caterpillar	Inc.								
Model Line:	•		75 Generator Set					U	UT 6	เล
Model Number:	ICE Box - M							Ŭ		
Serial Number:	N/A				Test Rep	port:	14175 (U	IUT6 Riai	d)	
	/		UUT	Properties			- (-	<u> </u>	- /	
Weight			Dimension (in)	-		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.) ¹		Depth	Width	Height	Front	-Back	1	-Side		tical
3,270		45.0	37.0	66.0	8.	26	13	.93	14	.83
		UU	T Highest Passed	l Seismic Run Info	ormation	1				
Building Cod	e	Test C	-	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
			DDC	002.0	1.0					
CBC 2022		ICC-ES	AC156	3.2 0	0.0	1.5	3.20	2.40	2.13	0.85
Product Construct	on Summary			Test Mounting [Details:					
Carbon Steel Enclos	ure	1.5								
		N.S.				1				
Options/Subcompo	onent Summa	ary:	OSF	P-0	-					
Description		Part Nu	mber	0	2	-0	-	-	_	
ICE Box (Caterpillar)			ntroller, rear har n box, and small	nm						
ICE Control Panel w/ Controller (Caterpillar) Test Mounting Deta	ails:		PNIA BUI							
¹ Weight is of mounting skie		equipiner		UUT6a was base Grade 8 bolts. Unit maintained s manufacturer req included in testin	structura Juirement	l integrit t after sł	y and rem take table	ained fur test. Con	nctional p	ber



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator Sot						UT e	:h
Model Number:	ICE Box - Min	ing Generator Set					U		, D
Serial Number:	N/A			Test Re	nort·	1 <i>4</i> 175 (I	JUT6 Isol	ated)	
	14/11	UUT	Properties	restre		14115 (0	0101301		
Weight		Dimension (in)			Lowes	t Natural	Freque	ncv (Hz)	
(lbs.) ¹	Depth	Width	Height	Front	-Back	1	-Side		tical
3,270	45.0	37.0	66.0		15	-	00		74
,	U	IT Highest Passed	Seismic Run Info	ormatio	n				
Building Code		riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
	100 50	DDC	002.0	1.0					
CBC 2022	ICC-ES	AC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Constructio	n Summary:		Test Mounting D	etails:			<u>.</u>		
Carbon Steel Enclosu	re						-	100	
	S	1	1000	10	-	1	11		
Options/Subcompon	ent Summary:	OSF		F	- 345	100			
Description	Part Nu	mber						1 -	
	Base co	ntroller, rear			9.6-9.8				
ICE Box		on box, and small					1.0	1	1
(Caterpillar)	display display	DATE. O	7						
ICE Control Panel w/ E	MCP 4	DATE: U	ter sin				4	1000	
Controller	Small D	isplay	And A					1000	
(Caterpillar)						1		-	17
		P. UNIT		Section of the	1		AND	-	14
			T		1			_ 1	
		PNIA BUI		-				-	Concernent of
				100			-		
				-			- 9	-	
								-	-
							100	1	
				15-			-7-	4	
Test Mounting Detai	s:		1. A.					20	80 V
									-
¹ Weight is of U	UT and the equipme	nt							
mounting skid.									
			UUT6b was base i	mounted	l - isolate	ed to the fi	ixture usi	ng six (6)	Mason
			SSLFH-C-1750 iso					-	
			isolators were mo						
			each.						
			Unit maintained s		-				
			manufacturer req					itents we	re
L			included in testin	g per ope	erating c	onditions	•		



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator Se	et .					UT 7	7a
Model Number:	ICE Box - Max							••••	u
Serial Number:	N/A			Test Re	port:	14175 (L	JUT7 Rigi	id)	
	,	UU	T Properties			,		,	
Weight		Dimension (in)	2		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.) ¹	Depth	Width	Height	Front	-Back	Side	-Side	Ver	tical
3,270	45.0	84.0	66.0	5.	99	7.	62	31	.02
	U	UT Highest Passe	d Seismic Run Inf	ormatio	1				
Building Code	e Test	Criteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-F	SAC156	2.0	1.0	1.5	3.20	2.40	2.13	0.85
		3710130	3.2-0	0.0	1.5	5.20	2.10	2.15	0.00
Product Constructi		E P	Test Mounting	Details:					
Carbon Steel Enclos	ure								
				727	3				
Options/Subcompo		05	P- <u>0412</u>	Deede V	a diama dia				-
Description	Part N	N							1
Molded Case Circuit I (Schneider)	Breaker	BY: Moha			K				
ICE Box (Caterpillar)		ontroller, side on box, and large	ſ		Ŧ	Ø	99 99		
ICE Control Panel w/ Controller (Caterpillar)		Display A BUI						100 Million	
Test Mounting Deta	ils:		the second second			_	-		T
¹ Weight is of mounting skic	UUT and the equipme I.	ent							
² The width di	mension is the combi	nation of							
the Box and P	anel.		UUT7a was base Grade 8 bolts. Unit maintained a manufacturer rec	structura	l integrit	ty and rem	iained fui	nctional p	ber
			included in testin	-					



Manufacturer:	Caterpillar Inc.								
Model Line:	·	516/C175 Generator	Set				U U	UT 7	7h
Model Number:	ICE Box - Max	-,						••••	
Serial Number:	N/A			Test Re	port:	14175 (L	JUT7 Isol	ated)	
	,	U	UT Properties		•	,		,	
Weight		Dimension (i	n) ²		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.) ¹	Depth		Height	Fron	t-Back	1	-Side	1	tical
3,270	45.0	84.0	66.0	3	.15	5.	.83	4.	88
		UUT Highest Pas	sed Seismic Run In	formatio	n				
Building Cod	e 1	Test Criteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	А _{rig-н} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CDC 2022			COD 2.0	1.0	1.5	2.20	2.40	2.12	0.05
CBC 2022	1	CC-ES AC156	3.2 0	0.0	1.5	3.20	2.40	2.13	0.85
Product Construct	ion Summary:	E	Test Mounting	Details:		•	•	•	
Carbon Steel Enclos	sure								
				-					
Options/Subcomp	onent Summary:	/// OS	SP-0	1	1 Int	100			
Description	Po	rt Number		200	HIR.		•		
Molded Case Circuit (Schneider)	R	BY: Moh and NT Frame	$\frac{1}{07}/0$	1			-	1	
ICE Box (Caterpillar)	ex	se controller, side tension box, and larg play	ge	1					
ICE Control Panel w, Controller (Caterpillar)		rge Display A BL	<u>/ILD</u>				重り	E	
Test Mounting Det	ails:					The second	1		
¹ Weight is of mounting ski	UUT and the equi d.	pment							
² The width d the Box and F	imension is the co Panel.	mbination of	UUT7b was bas SSLFH-C-1750 is isolators were n each.	solators us nounted to	ing one the tab	(1) 5/8" Gr le using tv	ade 8 bo vo (2) 5/8	lt each. T " Grade 8	he bolts
			Unit maintained		-				
			manufacturer re	•				itents we	re
			included in test	ing per op U Complia	-				



Manufacturer:	Caterpillar	Inc.								
Model Line:	C27/C32/3	512/3516/C17	75 Generator Se	t				L	JUT	8
Model Number:	ICE Box 1									•
Serial Number:	N/A				Test Rep	oort:	14175 (L	JUT8)		
			נטט	Properties						
Weight			Dimension (in)			Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)		Depth	Width	Height	Front	-Back	Side	-Side	Ver	tical
105		16.0	28.0	18.0	N	/A	N	/A	N	/A
		UUT	Highest Passe	d Seismic Run Int	formation	1				
Building Cod	e	Test Cr	iteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022			ACTEC OB (2.0	1.0	1 5				
CBC 2022		ICC-ES A	40156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Construct	ion Summary	<i>.</i>		Test Mounting	Details:		•			
Carbon Steel Enclos	sure	Y			N/Z					
Options/Subcomp	onent Summa	arv:	OS	P-0412		5				
Description		Part Num	ıber			m				
ICE Box (Caterpillar)		Small Dis	Py :Moha	nm alan a.	E P			(). e	NE	1
ICE Control Panel w/ Controller (Caterpillar)	/ EMCP 4	Small Dis	DATE: 0	7/0						
			VIA BUI							
				-						

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator S	et				l	JUT	9
Model Number:	ICE Box 2								•
Serial Number:	N/A			Test Rep	ort:	14175 (L	IUT9)		
		UU	T Properties						
Weight		Dimension (in)		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front-	Back	Side	-Side	Ver	tical
110	16.0	28.0	18.0	N/	A	N	/A	N	/A
	UL	IT Highest Pass	ed Seismic Run Infe	ormation					
Building Code	e Test C	Criteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022		AC156 R	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CBC 2022	ICC-EC	5AC136	3.2 0	0.0	1.5	5.20	2.40	2.15	0.85
Product Constructi	on Summary:		Test Mounting I	Details:					
Carbon Steel Enclos	ure								
	S			-2	-				
Options/Subcompo		OS	P-0412		$\dot{\pi}$				
Description	Part Nu	mber			-		-		Contraction of the
ICE Box (Caterpillar)	Large D	isplay : Moha	inr in				E.r	1	T
ICE Control Panel w/	EMCP 4	DATE.		1		120	100	and the second second	有厚
Controller	Large D	isplay							
(Caterpillar)			A N						10.000
		RAVIA BU							
			 UUT9 was wall m						

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C1	75 Generator Se	et				U	UT 1	10
Model Number:	C32 - Generator Set							• • •	
Serial Number:	N/A			Test Re	port:	1700630)-TR-001	(UUT10)	
		UU	T Properties		-				
Weight		Dimension (in	i)		Lowes	st Natura	l Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Fron	t-Back	Side	-Side	Ver	tical
18,540	190.0	88.0	119.0	2	2.9	2	.0	4	.5
	UU	T Highest Passe	ed Seismic Run Info	ormatio	n				
Building Code	Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES	ACIECOR	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CBC 2022	ICC-ES	AC136	3.2 0	0.0	1.5	5.20	2.40	2.15	0.85
Product Construction	on Summary:		Test Mounting I	Details:		·			
Carbon Steel Base	L.								
	N.			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2				
Options/Subcompo	nent Summary:	OS	P-0412		2				
Description	Part Nui	nber							
C32 (≤1250 kW)	Open - M	ax. Package	ammad Karim						
Generator (Leroy-Somer)	1400 Fra	Meate: 0							Ĩ
ICE Box (Caterpillar)	Large Dis	splay			-		∇	* 5	
Radiator (Modine)	25SF	NIA BU							
			_			r., .	. (6)		
			UUT10 was base 5150 spring isolat 8 bolts are used t Unit maintained s manufacturer rec	tors (and o mount structura quiremen	include the isola I integrit t after sl	d hardwar ators to th ty and rem hake table	e). Twelv e test fixt nained fu test. Cor	e (12) 3/4 ture. nctional p	." Grade Der
			included in testin	ig per op	erating o	conditions	•		



Indel Line: C27/C32/3512/3516/C175 Generator Set Indel Number: 3516E - Generator Set erial Number: N/A Test Report: 1700630-TR-001 (UUT11) UUT Properties Weight Dimension (in) Lowest Natural Frequency (Hz) (lbs.) Depth Width Height Front-Back Side-Side Vertical 51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seismic Run Information Building Code Test Criteria Sos(g) Z/h Ip AFLEXH (g) AFLEX	Manufacturer:	Caterpillar Inc.								
Indel Number: 35.16E - Generator Set UUT Properties 1700630-TR-001 (UUT11) UUT Properties 1700630-TR-001 (UUT11) Weight Depth Witht Height Front-Back Side-Side Vertical (Ibs.) Depth Witht Height Front-Back Side-Side Vertical 51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seisnic Run Information UUT Highest Passed Seisnic Run Information 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mounting Details: arton Steel Base 3.20 1.00 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mounting Details: arton Steel Base arton		•	175 Generator Se	≏t					IIT 1	11
erial Number: N/A Test Report: 1700630-TR-001 (UUT11) UUT Properties Weight Dimension (in) Lowest Natural Frequency (Hz) (lbs.) Depth Width Height Front-Back Side-Side Vertical 51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seisnic Run Information Building Code Test Criteria Sog(g) 2/h lp Ansard (g) Ans										
UUT Properties Weight Dimension (in) Lowest Natural Frequency (Hz) (lbs.) Depth Width Height Front-Back Side-Side Vertical 51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seismic Run Information Building Code Test Criteria Sos(B) z/h lp Answit (B A	Serial Number:				Test Re	port:	1700630	-TR-001	(UUT11)	
Weight (lbs.) Dimension (in) Lowest Natural Frequency (Hz) (lbs.) Depth Width Height Front-Back Side-Side Vertical 51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seisnic Run Information Building Code Test Criteria Sp.(g) 2/h h Arture (g) Amter (g) Amter (g) Amter (g) CBC 2022 ICC-ES AC156 Q.2.0 1.0 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mumber SIGE (s2750 kW) Mark Package Moha all sts all sts all sts all sts all sts UUT11 was base mounted to test fixture using fourteen (14) VMC WZSSH-1E 5150 spring isolators (and included hardware). The isolator urg colspan="4">all system utgrit and system isolator were weided to the test fixture using fourteen (14) VMC Mark Still was base mounted to test fixtu			UU	T Properties			1.00000		(00/22)	
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51,000 324.0 104.0 128.0 3.0 2.3 4.2 UUT Highest Passed Seismic Run Information Building Code Test Criteria Sps(g) 2/h Ip Aruse (g) Aruse (g) Aruse (g) Aruse v(g) Aruse v(g) CBC 2022 ICC-ES AC156 2.0 1.0 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mounting Details: artson Steel Base 3.0 7.40 1.5 3.20 2.40 2.13 0.85 ptions/Subcomponent Summary: OS 7.50 7.60	-	Depth	· ·		Fron		1			
UUT Highest Passed Seismic Run Information Building Code Test Criteria Sps(g) I/h Ip Arxxv(g) Avexv(g)	51,000		104.0	-	3	3.0	2	.3	4	.2
CBC 2022 ICC-ES AC156 1.0 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mounting Details: arbon Steel Base Part Number pitions/Subcomponent Summary: Ostation Part Number 516E (s2750 kW) Mox. Package Mone Part Number adiator 3000 Frame ATE: 0 Part Number adiator 815F Part Number UUT11 was base mounted to test fixture using fourteen (14) VMC WZSSH-1E 5150 spring isolators (and included hardware). The isolator were weeded to the test fixture using fourteen (14) VMC WZSSH-1E 5150 spring isolators (and included hardware). The isolator were manufacturer requirement after shake table test. Contents were		U	T Highest Passe	ed Seismic Run Info	ormatio	n				
CBC 2022 ICC-ES AC156 1.0 1.5 3.20 2.40 2.13 0.85 roduct Construction Summary: Test Mounting Details: arbon Steel Base Part Number pitions/Subcomponent Summary: Ostation Part Number 516E (s2750 kW) Mox. Package Mone Part Number adiator 3000 Frame ATE: 0 Part Number adiator 815F Part Number UUT11 was base mounted to test fixture using fourteen (14) VMC WZSSH-1E 5150 spring isolators (and included hardware). The isolator were weeded to the test fixture using fourteen (14) VMC WZSSH-1E 5150 spring isolators (and included hardware). The isolator were manufacturer requirement after shake table test. Contents were	Building Code	e Test C	riteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g
3.2 0.0 roduct Construction Summary: Test Mounting Details: arbon Steel Base Part Number 516E (s2750 kW) Max. Package ienerator 3000 Frame ATE: 0 adiator 3000 Frame ATE: 0 adiator 815F Caterpillar) 0 UUT11 was base mounted to test fixture using fourteen (14) VMC W2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using from the isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the entire length of the short sides. UNT1 maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were			D	002.0	1.0	4.5				
arbon Steel Base ptions/Subcomponent Summary: Stafe (s2750 kW) enerator eroy-Somer) adiator Caterpillar) UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolator were welded to the test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolator were welded to the test fixture using three (3) 1" long 5/16" fillet welde along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	CBC 2022	ICC-ES	AC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
prions/Subcomponent Summary: OS escription Part Number 516E (s2750 kW) Max. Package Mone acoustic action and action action and action a	Product Construction	on Summary:		Test Mounting	Details:					
Part Number 516E (s2750 kW) Max. Package · Moha ienerator 3000 Frame ATE : 0 adiator 815F Caterpillar) But for the source of	Carbon Steel Base									
Part Number 516E (s2750 kW) Max. Package · Moha ienerator 3000 Frame ATE : 0 adiator 815F Caterpillar) But for the source of		S	14444.004-00-00			2				
516E (±2750 kW) Max. Package Mone generator 3000 Frame ATE:0 adiator adiator 815F adiator Caterpillar) 815F adiator UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welda along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	Options/Subcompo	nent Summary:	OS				THE OWNER			
Inder (2010 MV) Inder (100 Mg) enerator eroy-Somer) 3000 Frame ATE: 0 adiator Caterpillar) 815F UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	Description	Part Nu	mber					X		
adiator 815F Caterpillar) 815F UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolator: were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	C516E (≤2750 kW)	Max. Pa	ckage: Moha		1	1	-			
ediator 81sf Caterpillar) 81sf UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolator: were welded to the test fixture using flue weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	Generator		DATE			Test	6/4	JF"	Same	
Caterpillar) 815F Staterpillar) Staterpillar Utilit was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	(Leroy-Somer)	3000 Fro	meAIE: C		18 C. 19	-	ET AH			
UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	Radiator			Constanting to	THE R.					
UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were	(Caterpillar)	815F		1 Start		57			1 1 4	Stat
UUT11 was base mounted to test fixture using fourteen (14) VMC UUT11 was base mounted to test fixture using fourteen (14) VMC M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were			P			11.10	(A COLOR			
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M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were			, BUJ		-	-	-			1 C
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were				STATISTICS.					1	1
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were						4	-	. 1	t	2
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were					1	-	2	1	1	S
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were				1	T		-	-	10	E I
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were					14	10 100				
M2SSH-1E 5150 spring isolators (and included hardware). The isolators were welded to the test fixture using three (3) 1" long 5/16" fillet welds along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were										
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along the long sides, and a 5/16" fillet weld along the entire length of the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were								-		
the short sides. Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were							-	-		
Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were					des, and a	a 5/16" fi	llet weld a	along the	entire le	ngth of
manufacturer requirement after shake table test. Contents were					-++	lintori	wand ram	ainad f	actional	oor
						-				
Inicialed in results beloderating conditions.					-				iterits we	10



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C.	175 Generator S	ot					UT 1	12
Model Number:	3516C - Generator Set	LIS Generator S					U		LZ
Serial Number:	N/A			Test Re	nort·	1000222	-TR-001-		1)
Serial Nalliber.	N/A		T Properties	Test Re	ροι ι.	1900323	-1K-001-		-)
Weight		Dimension (in	-			t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Eron	t-Back	-	-Side		tical
43,139	257.3	100.9	123.2		3.3		.3		.6
13,133			ed Seismic Run Info						
Building Code		riteria	S _{DS} (g)	z/h	I _P	Arivii (g)	A _{RIG-H} (g)	A _{rtv} v(g)	Anc v (g)
		0	2.0	1.0			RIG-H (8/	· -FLX-V (8/	
CBC 2022	ICC-ES	AC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Construction	on Summary:		Test Mounting I	1	,				
Carbon Steel Base	Sector Se								
		111111111111111111111111111111111111111		XXX	2				
Options/Subcompo	nent Summary:	OS	P-0412		$\hat{\mathbf{C}}$				
Description	Part Nu	mber			m				
		DVANA	arnmad Karim						
C516C-HD (≤2500 kW)	Min. Pac	kage MONA							
Generator				-	-				17
(Leroy-Somer)	3000 Fro	meAIE: (He T			-	-
Radiator			1 1 1 1 1		TTO TO			-147	
(Caterpillar)	A68				170	1 -			
		o, unit			- 0	11-			-
		NIA DI	I The state					ANT LICE	
		BU							
			Canal Contract	- 100	-				
			and a	1.50	THE OWNER OF	3			
			- 10		2		1 1		
			-1						
			-1						
			UUT12 was base 6500 spring isolat				-		
			under engine and	-					
			isolators (with ind		-				
			radiator). The iso						
			2" long 5/16" fille					-	
			along the entire l	-					
			Unit maintained						
			manufacturer rec	-				itents we	re
			included in testin	ig per op	erating c	onditions	•		

TRU PROJECT NO. 2100427, Rev. 6



	Caterpillar Inc.								-
	3512 Opt Radiat	or					UU	JT 1	4a
	607-9886								
Serial Number:	2611476604			Test Re	port:	2100427	-TR-001-	R0 (UUT	1.1)
			T Properties	-					
Weight		Dimension (in				t Natural			
(lbs.)	Depth	n Width	Height	Front	t-Back	Side	-Side	Ver	tical
2,428	89.0	27.0	100.0	8.	.41	9.	72	7.	.99
		UUT Highest Pass	ed Seismic Run In	formatio	n		_		-
Building Code	1	Fest Criteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022		CC-ES AC156 OR	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CDC 2022	1	CC-LJ ACIJO	3.2	0.0	1.5	5.20	2.40	2.15	0.05
Product Construction	Summary:	LEV.	Test Mounting	Details:					
Carbon Steel Base									
					K		SI)	0	
Options/Subcompone	ent Summary:	?/// OS	P-041				- AN		
Description	Po	nrt Number					- W.	1	
3512 Opt. Radiator	A4	8 BY: Moha	ammad AC	ANT			T		
(Caterpillar with Modin	e coolers)				Z				
				And Ball	170				
		DATE.			1/_/				
	F						· · · ·		
				12/				-	
		P			100	(Lineso)		1	
		ARI				-		1	
		DU.				in		a e	
					1			1 miles	
Test Mounting Details	:			- wi		And the		173	
				-	ties of	Store .			
		Cherry -	0 A	1 . 0	- Di				
' up				41			iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii	-	
			Praz ant	50		A Second		the second second	
			1 and	1005 A.S.	The She		10		
			4.45	a de	1. A.			/	
The second s									
			UUT14a was ba		-				
			mounted to the				-		
			specs. Each isol				ike table	with two	(2) 3/4"
			Grade 5 Bolts ar Unit maintained		-	-	nained fur	nctional	her
			manufacturer re		-				
alon	dan a	H R 1	included in test						
				010.00					

TRU Compliance, by Structural Integrity Associates, Inc. 844-TRU-0200 | info@trucompliance.com Page 27 of 50







Manufacturer:	Caterpillar I	nc.								
Model Line:	3512 Fresco	Rad						υι	JT 1	4b
Model Number:	572-8370									
Serial Number:	2202-190300	00201			Test Re	port:	2100427	-TR-001-	R0 (UUT1	.2)
			UUT	Properties						
Weight			Lowes	t Natura	Frequer	ncy (Hz)				
(lbs.)	D	epth	Width	Height	Front	-Back	Side	-Side	Ver	tical
3,380	ç	98.0	25.0	108.0	5.	84	9.	.49	9.	57
		UL	IT Highest Passe	d Seismic Run Infe	ormatio	า				
Building Code		Test C	Criteria	S _{DS} (g)	z/h	l _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022			AC156 RC	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CDC 2022		ICC-ES	5 AC136	3.2 0	0.0	1.5	5.20	2.40	2.15	0.85
Product Constructio	n Summary:			Test Mounting	Details:					
Carbon Steel Base		E.				Y VAL		- 11	-	
		NZ.			SAL-	A		1		
Options/Subcompon	ent Summa	'y:	OSF	P-0	The second	4	-		-5	
Description		Part Nu	ımber				-	97		
Fresco Radiator		59CTD	BY : Mohar	nm			e a	-	5951/	
(Caterpillar with Modi	ne coolers)	59010					1	14/2	115 10	
			DATE. A							
			DATE: U					TH)	-	
		12.V						10	1-17	
					1			8	-	
							A	PO		
			VI			- 6				
			BUI							
Test Mounting Detai				- 0 0	and the second	26.00		-	7	
Test mounting Detail										
	X		22	-	and the second	E 7/		1	the second	
13		-			and the second	-		-		
							and a			
				11						
17 - Andrew State	-									
			/							
		<u>í</u>	1	UUT14b was base	e mounte	d using f	our (4) CA	T 348-478	35 isolato	ors were
		10		mounted to the b				-		
				specs. Each isola				ake table v	with two	(2) 3/4"
-	A VALUE AND AND A POINT	1		Grade 5 Bolts and						
i i				Unit maintained		-				
1200		TC		manufacturer rec included in testin					tents we	re





TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpillar Inc.									
Model Line:	C32 49CTD Rad	<i>l</i> .						U	JT 1	5a
Model Number:	508-8110									
Serial Number:	N/A				Test Rep	oort:	2100427	-TR-001-	R0 (UUT2	2.1)
			υυτ	Properties						
Weight			Dimension (in)			Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)	Dep	th	Width	Height	Front	-Back	Side	-Side	Ver	tical
1,236	66.	0	20.0	85.0	7.	02	10	.95	8.	34
		UU	T Highest Passed	d Seismic Run In	formation	1				
Building Cod	e	Test C	riteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022			AC156 OR C	002.0	1.0	1.5	3.20	2.40	2.13	0.85
CBC 2022		ICC-ES	AC136	3.2	0.0	1.5	5.20	2.40	2.15	0.85
Product Construct	ion Summary:	~		Test Mounting	Details:					
Carbon Steel Base										
		2			FR.	+	-, "T.		1	
Options/Subcomp	onent Summary:	5	OSF	P-04						-
Description		Part Nu	mber	ALL DE LE			-12			-
C32 Radiator		AB24	BY : Mohar	nma	-	S.				L
(AKG)		ABZ4			Cart		0 t ¥		The second	
				7/01				·		_
	\ <u>{</u>		DATE: U				1.1	6 65		
		2.1								
							//	-0-		
		Y	P. MANNE				CELLER	9		5
			VA DU		A V	/		-		
			, BUI		N/A	\bigvee	1 1/	•	il and _	
				3.000		1 /			-	
Test Mounting Det	ails:					-		*.		
	· · · ·	L-1		-		A	L	22	•	
9 V.		9	-		-	-	- 0			
		in the second				S		1	The second	
ASA - ANNI	M	4					- Ur	1	-It	10-
	1					· · ··································		1 11	1-1	la.
1 1 1										
	*									
				UUT15a was bas	se mounte	d using t	wo (2) CA	T 353-902	20 isolato	rs were
	-			mounted to the		-				
	-			specs. Each isol				ke table	with two	(2) 3/4"
				Grade 5 Bolts ar		• •				
			-/	Unit maintained		-				
- El Alice		2		manufacturer re					itents we	re
				included in testi	ing per ope	erating c	onaitions.			

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TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpillar Inc.								
Model Line:	C32 49CTD Rad.						UI	JT 1	5h
Model Number:	508-8111								
Serial Number:	N/A			Test Re	nort:	2100427	 -TR-001-	R0 (UUT2	2)
		UU	T Properties			2100 121		10 (0012	/
Weight		Dimension (in	•		Lowes	t Natural	Freque	ncv (Hz)	
(lbs.)	Depth	Width	, Height	Front	-Back	-	-Side	- · · ·	tical
1,355	72.0	21.0	85.0	-	.02	-	73		.75
,			ed Seismic Run Inf				-		
Building Code		riteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	А _{гід-н} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
		DD (002.0	1.0	1				
CBC 2022	ICC-ES	AC156	3.2 0	0.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summary:		Test Mounting	Details:					
Carbon Steel Base									
	N. S.			15	~		ALC: UP OF		
Options/Subcompo	nent Summary:	OS	P-04						
Description	Part Nu	mber		and a second	1-4			15	
C32 Radiator		BY: Moha	mmac	5 *				57	
(AKG)	AB26							K.	
				No.			11.	i A	
		DAIE: ()//01/				N. V.		
				THE				A 3	
							454165		
		O. MARK		1-1		12 Sealer		1	
	· · · · · · · · · · · · · · · · · · ·			• •			1		
		BII			1	MIK		6	
					4.1	e 🅰	12,7	*/	
				Q-T	1 1	5-E		-	
Test Mounting Deta	ills:						*		
		23		1					
			1	S: WE					
ALL IN		1.1			X	-			
		A		-					
	A CONTRACTOR OF THE OWNER								
			UUT15b was bas	e mounte	d using	two (2) CA	T 353-902	20 isolato	rs were
		412	mounted to the l				-		
		° (e	specs. Each isola				ike table	with two	(2) 3/4"
TTO A			Grade 5 Bolts and						
			Unit maintained		-				
			manufacturer re					itents we	re
			included in testir	ng per ope	erating c	onditions.			

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C1	75 Generator Se	et				U	UT 1	L6
Model Number:	Doghouse						•	• • •	
Serial Number:	N/A			Test Re	port:	2300056	-TR-001 (UUT1)	
		UU	T Properties						
Weight		Dimension (in))		Lowest	t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front	-Back	Side	Side	Ver	tical
1,982	60.3	38.3	53.0	7.	82	5.	24	15	.85
	UU	T Highest Passe	d Seismic Run Inf	formatio	า	•			
Building Cod	e Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CBC 2022	ICC-ES	AC156 OR	3.2	1.0	1.5	3.20	2.40	2.13	0.85
Product Construct	on Summary:		Test Mounting	Details:		<u>.</u>			
Carbon Steel Enclos	ure		GAN	× Z	2				
Options/Subcompo	onent Summary:	OS	P-0412		2				
Description	Part Nu	mber				The second	T.T.	- la	1 10-
Cat ECS 100	622-3612 621-9888		m	1		10			
Cat ECS 200	631-232	DATE: 0	7/	-	119 .		I T		1.
Cat GCCP1.2	634-5258	3			٠			Slider ra	ail
		NIAD		1	•				
		· BUI			-				
				5					
			Base rails		-	Vibratio	on isolators		
Test Mounting Deta	ails Continued:						n doghous		
The decharge	is connected to alider	raile				L			
U U	e is connected to slider nnect to the base rails.	-							
	and the doghouse are		UUT16 was base			-			
	ry Controls Div, Barry W		spring isolators (-
•	275-2). A complete gen	•	(1) 3/4" Grade 8 I						
	configuration (includi		using four (4) 3/4 total)	F Grade 8	bolts an	u wasners	seach (th	venty-fol	ır (24)
base rails).		-	Unit maintained	structura	l integrit [,]	v and rem	ained fur	nctional	per
			manufacturer re						
			included in testi	-					-
					-	Structura		N Accoci	-

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	0 · · · · · · · · · · · · · · · · · · ·							·		
Manufacturer: Model Line:	Caterpillar		75 Comprator Sc	- 1			I			ı 7
Model Line: Model Number			75 Generator Se	ιt.			I	U	UT 1	
Model Number: Serial Number:		00 (622-3612 8	\$ 621-9888 <i>)</i>		Toot De	- art.	2200056		(11117)	
Serial Number:	N/A			T Properties	Test Re	port:	2300030	6-TR-001 (0012)	
Waight			Dimension (in)	-			+ Natura	Eroquo		
Weight (lbs.)		Depth	Width) Height	Eron	t-Back	st Natural	-Side		tical
95		8.5	28.0	18.5	-	т-васк N/А	_	I/A		l/A
35				ed Seismic Run Info			11	/A	IN,	/A
Building Code	~	Test Cr		S _{DS} (g)	1	1		(g)	A (g)	(g)
Dullullig Cou	e	1621 (1	Iteria	3 _{DS} (g)	z/h 1.0	I _P	AFLX-H (B/) A _{RIG-H} (g)	A _{FLX-V} (8)	A _{RIG-V} (5)
CBC 2022		ICC-ES	AC156 R	3.2		1.5	3.20	2.40	2.13	0.85
Product Constructi	ion Summari		.9	3.2 Test Mounting	0.0			<u> </u>	<u> </u>	
Carbon Steel Enclos		<u>/:</u>		Test Mounting L	Jetans.	<u> </u>				
	ure	Y				PACK ISK	ST. TANA			
Options/Subcompo	+ Cumm		OS			TTT	1111			
Description	Ment Summ	Part Nun	03							
Description					1	A A A A DE A ANDER A DU ANA ANDER A	(Internet and a second s	Z U	M.	
N/A		N/A	BY: Moha					J.	×/ · · ·	
								0	4	6
			DATE: 0	0/7/0					Col Carl	
		Z							1 AT PE	it is
						0 8	Ø	0	ala an	The second
		- O				00	1		Mar add and	
		1	Vi					TRU		
			BIII					4		and the second
								0		
									1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	TT .
				- 5						
				F						
									The second	
								•		and the second s
					1					
							ST. SHERE	4 1	1	
					a · · ntad	rigid to	the firtur		:	101100
				UUT17 was wall n screws and washe		- rigia to	the fixtur	e using m	ine (9) 5/.	16" lag
				Unit maintained s		al integrit	ty and rem	vained fur	octional r	her
				manufacturer req		-				
				included in testin						

TRU PROJECT NO. 2100427, Rev. 6



Manufacturer: Cate	erpillar Inc.										
Model Line: C27/	/C32/3512/3516/C	175 Generator Se	t				U	UT 1	L 8		
Model Number: Cat	GCCP1.2 (634-5258	3)									
Serial Number: N/A				Test Re	port:	2300056	6-TR-001 (UUT3)			
		דטט	Properties								
Weight		Dimension (in)			Lowes	t Natural	Frequer	ncy (Hz)			
(lbs.)	Depth	Width	Height	Front	t-Back	Side	-Side	Ver	tical		
68	8.5	28.0	18.5	N	/A	N	/A	N	/A		
	U	T Highest Passe	d Seismic Run Info	ormatio	n						
Building Code	Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)		
CBC 2022		AC156 OR C	2.0	1.0	1.5	3.20	2.40	2.13	0.85		
		Me130	3.2 0	0.0	1.5	5.20	2.40	2.15	0.05		
Product Construction Sur	nmary:		Test Mounting [Details:							
Carbon Steel Enclosure	IF.			N Z	2						
Options/Subcomponent S	Summary:	OS	P-0412								
Description	Part Nu	mber							a and a second		
N/A	N/A	BY: Mohai									
		ολτε. Ο	7/0								
		DAIL. V		-	1 Cont	CAT					
				And a second sec			The second secon		Sherry H		
				٥				·	Lieff		
		PAIR	The second second			-		14			
		ARUT			•			•			
		DUI	3						0		
					Skinak			1	energia († 15) Politika († 15)		
						-					
			-								
			-								
			-								
			UUT18 was wall n	nounted	- rigid to	the fixtur	e using ei	ght (8) 5/	/16" lag		
			screws and wash			e incui		0 (0, 0,			
					l integrit	y and rem	ained fur	ictional p	ber		
								tents we	re		
			included in testin	g per ope	erating co	onditions	•	using eight (8) 5/16" la ned functional per est. Contents were			



Manufacturer:	Caterpillar In	с.								
Model Line:	C27/C32/3512	2/3516/C	175 Generator Sei	t				U	UT 1	L 9
Model Number:	Cat ECS 200 (631-2323	3)					•	· · ·	
Serial Number:	N/A				Test Re	port:	2300056	-TR-001 (UUT4)	
			UUT	Properties						
Weight			Dimension (in)			Lowest	t Natural	Freque	ncy (Hz)	
(lbs.) ¹	De	pth	Width	Height ¹	Front	-Back	Side	-Side	Ver	tical
154	8	8.5	28.0	53.0	N	/A	N	/A	N	/A
		UL	IT Highest Passe	d Seismic Run Info	ormatio	า				
Building Code	e	Test C	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 2022		ICC-ES	AC156 OR C	3.2 0	1.0 0.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summary:			Test Mounting D	etails:					
Carbon Steel Enclos	ure	E.	H						NIN PRIMI IN A 11	
Options/Subcompo	onent Summary		OSF					and the state of the		
Description		Part Nu	ımber				ALL STATIS	U Z		and the state of
N/A		N/A	BY: Mohar DATE: 0	nm. 2 7/0						
			PNIA BUI					4		
UUT2 and UU	and height are									
height of 34.5				UUT19 was wall n 5/16" lag screws a Unit maintained s manufacturer req included in testin	and wash structura uiremen	iers. l integrit t after sh	y and rem ake table	ained fur test. Con	nctional p	ber



Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C1	175 Generator Se	et				U	UT 2	20
Model Number:	C32B Generator Set						Ŭ	• • •	
Serial Number:	N/A			Test Rep	oort:	2301377	-TR-001	(UUT1)	
		UU	T Properties				,	,	
Weight		Dimension (in	ı)		Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front	-Back	Side	-Side	Ver	tical
21,750	200.0	96.0	100.6	3.	75	4.	05	7.	81
	UU	T Highest Pass	ed Seismic Run Int	formation	1				
Building Cod	le Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CDC 2022		ACTECOR	2.0	1.0	1 5	2.20	2.40	2.12	0.05
CBC 2022	ICC-ES	AC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Construct	ion Summary:		Test Mounting	Details:					
Carbon Steel Base	E Starten Star		CAI	É					
Options/Subcomp	onent Summary:	OS	P -0412		2				
Description	Part Nu	mber					1	A Lower L	
C32B (≤1500 kW)	Max. Pa	ckage: Moha				F		TWES'	
Generator (Leroy-Somer)	1646 Fro	Meate: (
Cat GCCP1.2 Contro (Caterpillar)	ller 634-5250	8						1	Harrison State
Radiator (Modine)	A38AV	NIA BU		2 cm - c					
Test Mounting Det	ails:								
			UUT20 was base M2SSH-1E-6500 M2SSH-1E-5150 skid using one (1 were welded to t fillet welds along Unit maintained manufacturer re included in testi	(CAT: P/N (CAT: P/N I) 3/4" Gra the test fix g the long structural quirement	348-552 353-902 de 8 bol ture usin sides. l integrit t after sh	6) spring i: 0) spring i: t for each ng two (2) ty and rem nake table	solators a solators f isolator. 1" long 5 ained fur test. Cor	and four to the equ The isola /16" con nctional p	(4) VMC uipment tors tinuous per

TRU COMPLIANCE

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TRU PROJECT NO. 2100427, Rev. 6



	<u> </u>									
Manufacturer:	Caterpillar	Inc.								1
Model Line:	A59 Rad.							U	UT 2	21
Model Number:	565-5542								<u> </u>	- 1
Serial Number:	N/A				Test Rep	oort:	2400776	-TR-001-	R0 (UUT)	[)
				Properties	1			_	<i></i>	
Weight	<u> </u>		Dimension (in)	11.2.4.4			t Natural			
(lbs.)		Depth	Width	Height	Front			-Side		tical
4,150		90.0	86.5	118.0	4.		3.	99	10	.26
Duilding Cod			<i>IT Highest Passe</i> Criteria		1		A (~)	A (-)	A (-)	A /-
Building Code	2	Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g
CBC 2022		ICC-ES	AC156 R	3.2	1.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summariu			Test Mounting	0.0					
Carbon Steel Base	on Summary			Test Mounting	Detaits.	X	4			
carbon steet base		No.			1 H				FE	
Options/Subcompo	nent Summa	rv.	OSE	-041	X		X	AL	H	
Description		Part Nu	mber					A PI	al a	
A59 Radiator			BY: Mohar				0.7		- TF	
(Caterpillar with Yinlur	n coolers)	A59	DT. Wonar				No T			
· ,										
			DATE: 0	7/01/2	Rest 1				-	
		12.				Alexand .		- Seller		
						-			-	
			P. UNIN		20				1	
			NIA BUT				LAT VS			
			BUI					-		
						C. C. P. S.	1 8		1	
Test Mounting Deta	ails:	·						and the	and the second	
					1	BAN		1		
	9			20		1.3		1 de	a las	
-					a sta					
	LA-J-									
			11							
1		-	lane and	UUT21 was base					-	
		3		VMC M2SSH-1E-4				-		
1 Com	A.	5	L à	equipment skid u isolators were m	-					
	-	and and the	S ,	bolts for each isc		the test	inture us	ing iour	(+) 3/4 0	aue o
	-	and the second second		Unit maintained		integrit	y and rem	ained fu	nctional	ber
				manufacturer ree		-				

included in testing per operating conditions.

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TRU PROJECT NO. 2100427, Rev. 6



Manufacturer:	Caterpillar	Inc.								
Model Line:	A68 Rad.							U	UT 2	22
Model Number:	564-1955									
Serial Number:	N/A				Test Rep	oort:	2400776	-TR-001-	RO (UUT2	<u>?)</u>
			UUT	Properties						
Weight			Dimension (in)			Lowes	t Natural	Freque	ncy (Hz)	
(lbs.)		Depth	Width	Height	Front	-Back	Side	-Side	Ver	tical
4,800		101.0	72.0	139.0	4.	16	3.	94	10	.25
		U	UT Highest Passed	d Seismic Run Info	ormation	1				
Building Code	9	Test	Criteria	S _{DS} (g)	z/h	Ι _Ρ	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g
_			DDC	002.0	1.0					
CBC 2022		ICC-E	S AC156	3.2 0	0.0	1.5	3.20	2.40	2.13	0.85
Product Construction	on Summary	:		Test Mounting I	Details:					<u>I</u>
Options/Subcompo <i>Description</i> A68 Radiator (Caterpillar with Yinlun		Part N	BY: Mohar DATE: 0	nmad I						
Test Mounting Deta	ils:									
and the second second	-1	-		UUT22 was base	mounted	- isolate	d to the te	st fixture	using si	x (6) VM

UUT22 was base mounted - isolated to the test fixture using six (6) VMC M2SSH-1E-4000 (CAT: P/N 348-5526) spring isolators to the equipment skid using one (1) 3/4" Grade 8 bolt for each isolator. The isolators were mounted to the test fixture using four (4) 3/4" Grade 8 bolts for each isolator.

Unit maintained structural integrity and remained functional per manufacturer requirement after shake table test. Contents were included in testing per operating conditions.

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C	175 Generator S	et				U	UT 2	23
Model Number:	Doghouse w/ ECS 100	Panel with RS48	35 Module					•	
Serial Number:	N/A			Test Re	port:	2551830	-TR-001	(UUT1)	
		UU	IT Properties		-				
Weight		Dimension (ir	ı)		Lowes	st Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front	t-Back	Side	-Side	Ver	tical
1,550	114.0	60.0	69.1	5.	.07	5.	.81	12	.59
	U	JT Highest Pass	ed Seismic Run Inf	ormatio	n				
Building Cod	e Test (Criteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	А _{rig-н} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
		ACTEOR	2.0	1.0	1.5				
CBC 2022	ICC-E	SAC156	3.2	0.0	1.5	3.20	2.40	2.13	0.85
Product Constructi	on Summary:		Test Mounting	Details:					
Carbon Steel Enclos	ure								
	S				2				
Options/Subcompo	onent Summary:	OS	P-0412		C				
Description	Part Nu	ımber						1	19181
C. I. F.C.C. 100	622-361	² BY: Moha	ar · · ·						
Cat ECS 100	621-988	8						-	_
			. 11	- HO		1	-		
RS485 Module Conve	MGate I	MB3170I-T				-		. and	
						1.			
				5-41				-	
		P. WINN		C. Star				-	
		VIA	Slider rail				50 .		
		BU		1		1 th			
				X	1			1 Sec.	R E
				1		6			F
			Ba	se rails			A Ch		
						and a	200	ation isolat veen dogho	
						a she day	and	slider rails	
Test Mounting Deta	ails Continued:		-						
			-						
The doghouse	e is connected to slide	rails,							
U U	nect to the base rails.		UUT23 was base	mounted	- isolat	od using ci	v (6) VMC	моссц 1	E_5150
	and the doghouse are		spring isolators (-			
isolators (Bar	•	(1) 3/4" Grade 8 l						-	
	275-2). A complete ger		using four (4) 3/4						
-	configuration (includi	ng the	total)					-	
base rails).			Unit maintained		-	-		-	
			manufacturer re	-				itents we	re
			included in testir			conditions			

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Manufacturer:	Caterpillar Inc.								
Model Line:	C27/C32/3512/3516/C.	175 Generator Se	et				U	UT 2) 4
Model Number:	ECS100 Panel with RS4						Ŭ		
Serial Number:	N/A			Test Re	port:	2551830	-TR-001	(UUT2)	
	, , , , , , , , , , , , , , , , , , ,	UU	T Properties	-			,		
Weight		Dimension (in	-		Lowes	st Natural	Freque	ncy (Hz)	
(lbs.)	Depth	Width	Height	Front	-Back	Side	-Side	Vertical	
64	8.5	28.0	18.5	N	/A	N	/A	N/2	
	UU	T Highest Passe	ed Seismic Run Infe	ormatio	n				
Building Code	e Test C	riteria	S _{DS} (g)	z/h	I _P	A _{FLX-H} (g)	A _{RIG-H} (g)	A _{FLX-V} (g)	A _{RIG-V} (g)
CDC 2022		ACTECOR	002.0	1.0	1.5	2.20	2.40	2.13	0.05
CBC 2022	ICC-ES	AC156	3.2 0	0.0	1.5	3.20	3.20 2.40 2.1		0.85
Product Constructi	on Summary:		Test Mounting I	Details:			•	-	-
Carbon Steel Enclos	ure								
	'Z			•			5		
Options/Subcompo	nent Summary:	OS	P-04			10.000		-	
Description	Part Nu	mber		1.1.1.1		ferr.		-	
RS485 Module Conve	rter MGate N	1B3170i-T	mmac				•	-	
			TT			10 P	0		7
		DATE: 0	7/01	2			(1
	Z								1
				严	9	• 9	° <u>-</u>		19
				a The All					
				-			1 2	1.45	
		BII		-					
							1.0		12
				-/-					-
			1 . 20		-			20.40	
				100	224				
			~	1			e searce	CIA	19
			They a				1900	C. C. M	1
			19 33	155		2 ()	1970		6
				a a har	100		1.9 1.8 +		3
			_						
			UUT24 was wall r	nounted	- rigid to	o the fixtur	e using s	even (7) 5	6/16" lag
			screws and wash		Ŭ		U		. 0
			Unit maintained s		-				
			manufacturer rec					itents we	re
			included in testin	g per ope	-		•		