APPLICATION FOR HCAI SPECIAL SEISMIC CERTIFICATION PREAPPROVAL (OSP)

OFFICE USE ONLY

APPLICATION #: OSP-0041

HCAI Special Seismic Certification Preapproval (OSP)

Type: ☐ New ☒ Renewal

Manufacturer Information

Manufacturer: ABB

Manufacturer's Technical Representative: Carla Calderon

Mailing Address: Av de los Nogales # 136, Nogales, So 84092

Telephone: (1631) 311-6429 Email: carla.balan@mx.abb.com

Product Information

Product Name: Transformers

Product Type: Transformers – Dry Type

Product Model Number: See Attachments

General Description: Low voltage vented/non-vented (dry type) transformers, enclosed & encapsulated and service center transformers, and control power transformers in carbon steel enclosures.

Mounting Description: Rigid, Floor/Wall Mounted

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

Applicant Company Name: W.E. Gundy & Associates, Inc.

Contact Person: Travis Soppe

Mailing Address: 1199 Shoreline Drive, Suite 310, Boise, ID 83702

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Title: President

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

Company Name: W.E. GUNDY & ASOCIATES INC.

Name: Travis Soppe California License Number: S6115

Mailing Address: P.O. Box 9121, Boise, ID 83707

Telephone: (208) 342-5989 Email: tsoppe@wegai.com

Certification Method

☐ GR-63-Core ☒ ICC-ES AC156 ☐ IEEE 344 ☐ IEEE 693 ☐ NEBS 3

☐ Other (Please Specify):

Testing Laboratory

Company Name: CLARK TESTING LABORATORY, INC.

Contact Person: Suzanne Mazon

Mailing Address: 1801 Route 51, Jefferson Hills PA 15025

Telephone: (412) 387-1001 Email: smazon@clarktesting.com

Company Name: ENVIRONMENTAL TESTING LABORATORIES, INC. (ETL)

Contact Person: Jeremy Lange

Mailing Address: 11034 Indian Trail, Dallas TX 752293513

Telephone: (972) 247-9657 Email: Jeremy@etldallas.com

Seismic Parameters

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

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

a_p (Amplification factor) = 1.0

R_p (Response modification factor) = 2.5

Ω_0 (System overstrength factor) = 2.0

I_p (Importance factor) = 1.5

z/h (Height ratio factor) = 1 and 0

Natural frequencies (Hz) = See Attachment

Overall dimensions and weight = See Attachment

HCAI Approval (For Office Use Only) - Approval Expires on 04/25/2029

Date: 4/25/2023

Name: Mohammad Karim Title: Supervisor, Health Facilities

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

Condition of Approval (if applicable):

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 1: - Vented/Non-Vented - Floor Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T83B3871	**15 kVA**	**CS**	**19.0**	**16.0**	**27.0**	**200**	**UUT_w-3**
9T10A1001	**15 kVA**	**CS**	**18.0**	**17.0**	**29.0**	**214**	**UUT_v-1 [2]**
9T(61/62/63/64/73/83)	15 kVA	CS / SS	18.7	16.9	27.3	230	interpolated
9T(10/11/12/13/14)	11-225 kVA	CS / SS	18.7	16.9	29.3	231	
9T(61/62/63/64/83)	9-15 kVA	CS / SS	18.7	16.9	27.3	240	
9T(10/11/12/13/14)	15 kVA	CS / SS	18.7	16.9	27.3	240	
9T(83/33)	15 kVA	CS / SS	18.7	16.9	34.5	250	
9T(83/33)	15kVA	CS / SS	18.7	16.9	27.3	260	
9T(10/11/12/13/14)	15 kVA	CS / SS	18.7	16.9	36.5	261	
9T(10/11/12/13/14)	15-30 kVA	CS / SS	23.8	18.4	34.7	297	
9T(61/62/63/64/73/83)	15-30 kVA	CS / SS	23.8	18.4	32.1	315	
9T(83/33)	11-37.5 kVA	CS / SS	23.8	18.4	32.1	320	
9T33	15-25 kVA	CS / SS	23.8	18.4	34.7	320	
9T(10/11/12/13/14)	15-75 kVA	CS / SS	23.8	18.4	34.7	330	
9T(61/62/63/64/83)	11-34 kVA	CS / SS	23.8	18.4	32.1	334	
9T(10/11/12/13/14)	45 kVA	CS / SS	23.8	18.4	34.7	353	
9T(83/33)	30 kVA	CS / SS	23.8	18.4	32.1	355	
9T(83/33)	30 kVA	CS / SS	23.8	18.4	41.3	358	
9T(10/11/12/13/14)	30 kVA	CS / SS	23.8	18.4	43.8	360	
9T(10/11/12/13/14)	30-45 kVA	CS / SS	23.8	18.4	34.7	363	
9T(61/62/63/64/73/83)	30-45 kVA	CS / SS	23.8	18.4	32.2	380	
9T(83/33)	25-50 kVA	CS / SS	31.8	24.0	35.7	400	
9T(10/11/12/13/14)	34-45 kVA	CS / SS	23.8	18.4	34.7	407	
9T(61/62/63/64/83)	20-51 kVA	CS / SS	23.8	18.4	32.2	440	
9T(10/11/12/13/14)	30-45 kVA	CS / SS	23.8	18.4	34.7	444	
9T33	37.5 kVA	CS / SS	31.8	24.0	35.7	460	
9T(10/11/12/13/14)	45 kVA	CS / SS	23.8	18.4	43.8	474	
9T(33)	50 kVA	CS / SS	31.8	24.0	35.7	490	
9T(83/33)	37.5-50 kVA	CS / SS	31.8	24.0	35.7	500	
9T(83/33)	50-75 kVA	CS / SS	31.8	24.0	39.9	510	

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{t}$ - 16690 Rev 1, $_{u}$ - 16668, $_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 1: - Vented/Non-Vented - Floor Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T(10/11/12/13/14)	45-75 kVA	CS / SS	31.8	24.0	35.7	537	
9T(10/11/12/13/14)	45-75 kVA	CS / SS	31.8	24.0	35.7	555	
9T(10/11/12/13/14)	45-75 kVA	CS / SS	31.8	24.0	35.7	561	
9T(33/64/73)	30-75 kVA	CS / SS	31.8	24.0	35.7	600	
9T33	75 kVA	CS / SS	31.8	24.0	42.2	600	
9T(10/11/12/13/14)	45-75 kVA	CS / SS	31.8	24.0	35.7	603	
9T(61/62/63/64/83)	25-75 kVA	CS / SS	31.8	24.0	35.7	620	
9T(83/33)	75 kVA	CS / SS	31.8	24.0	35.7	620	
9T(83/33)	75kVA	CS / SS	31.8	24.0	35.7	640	
9T(83/33)	75 kVA	CS / SS	31.8	24.0	44.8	660	
9T73	112.5 kVA	CS / SS	31.8	24.0	39.9	660	
9T(10/11/12/13/14)	112.5 kVA	CS / SS	31.8	24.0	51.4	722	
9T(10/11/12/13/14)	75-112.5 kVA	CS / SS	31.8	24.0	42.2	732	interpolated
9T(61/62/63/64/83)	45-112.5 kVA	CS / SS	31.8	24.0	39.9	765	
9T(83/33)	75 kVA	CS / SS	31.8	24.0	35.7	765	
9T(83/33)	112.5 kVA	CS / SS	31.8	24.0	42.2	765	
9T(83/33)	112.5 kVA	CS / SS	34.8	24.0	45.9	765	
9T(61/62/63/64/83)	75-112.5kVA	CS / SS	31.8	24.0	39.9	790	
9T(10/11/12/13/14)	75-112.5 kVA	CS / SS	34.8	24.0	45.8	830	
9T4	75-225 kVA	CS / SS	29.5	28.5	37.3	845	
9T(33/34)	75-150 kVA	CS / SS	29.4	28.5	37.4	850	
9T(10/11/12/13/14)	75-100 kVA	CS / SS	29.5	28.5	37.4	900	
9T(83/33)	75 kVA	CS / SS	29.5	28.5	37.4	900	
9T(10/11/12/13/14)	118-150 kVA	CS / SS	34.8	24.0	45.8	947	
9T33	75-100 kVA	CS / SS	29.5	28.5	37.4	950	
9T10A1006	**150 kVA**	**CS**	**34.0**	**24.0**	**46.0**	**978**	**UUT_v-3**
9T4	150-300 kVA	CS / SS	34.8	25.6	40.9	1020	
9T(33/34)	150-225 kVA	CS / SS	34.8	25.5	40.9	1020	
9T(10/11/12/13/14)	112.5-150 kVA	CS / SS	34.8	24.0	45.8	1030	interpolated
9T(61/62/63/64/73/83)	75-150 kVA	CS / SS	34.8	24.0	45.9	1070	
9T(83/33)	118-150 kVA	CS / SS	34.8	24.0	45.9	1090	

General Notes:

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[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 1: - Vented/Non-Vented - Floor Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T83S3876	**150 kVA**	**SS**	**34.8**	**24.0**	**45.9**	**1051**	**UUT_t-2**
9T(83/33)	150-225 kVA	CS / SS	38.4	33.0	45.4	1210	interpolated
9T(10/11/12/13/14)	112.5-150 kVA	CS / SS	38.4	33.0	47.4	1250	
9T(83/33)	100-167 kVA	CS / SS	38.5	33.0	45.5	1360	
9T(10/11/12/13/14)	150-225 kVA	CS / SS	38.4	33.0	47.4	1450	
9T(61/62/63/64/83)	150-300 kVA	CS / SS	38.4	33.0	57.1	1470	
9T4	225-500 kVA	CS / SS	38.5	33.6	45.4	1585	
9T(34/61/62/63/64/73/83)	93-300 kVA	CS / SS	38.5	33.0	45.4	1590	
9T(83/33)	225 kVA	CS / SS	38.5	33.0	45.5	1590	
9T(61/62/63/64/83)	225 kVA	CS / SS	34.8	33.0	70.2	1613	
9T(10/11/12/13/14)	300 kVA	CS / SS	38.4	33.0	57.1	1666	
9T(10/11/12/13/14)	150-300 kVA	CS / SS	38.4	33.0	57.1	1670	
9T(10/11/12/13/14)	112.5-225 kVA	CS / SS	38.4	33.0	47.4	1670	
9T(83/33)	167-250 kVA	CS / SS	38.5	33.0	45.5	1700	
9T(61/62/63/64/73/83/33)	150-300 kVA	CS / SS	38.5	33.0	57.1	1820	
9T(10/11/12/13/14)	225-300 kVA	CS / SS	38.4	33.0	57.1	1985	
9T(83/10)	300-500kVA	CS / SS	47.1	38.0	65.7	2265	
9T(10/11/12/13/14)	225-500 kVA	CS / SS	46.8	38.0	65.7	2713	
9T(10/11/12/13/14)	225-500 kVA	CS / SS	46.5	37.8	65.7	2900	
9T83B3389	**500 kVA**	**CS**	**47.3**	**38.0**	**65.7**	**2939**	**UUT_t-1**
9T4	500-1000 kVA	CS / SS	47.5	40.0	57.5	3250	
9T(83/33)	500 kVA	CS / SS	47.3	38.0	57.2	3250	
9T(34)	750 kVA	CS / SS	47.3	38.0	57.2	3250	
9T(61/62/63/64/73/83)	225-500 kVA	CS / SS	47.3	38.0	65.7	3400	
9T(61/62/63/64/83)	225-500 kVA	CS / SS	47.3	38.0	65.7	3400	
9T(10/11/12/13/14)	225-500 kVA	CS / SS	47.3	38.0	65.7	3400	
9T(83/33)	500-750 kVA	CS / SS	57.7	48.2	65.7	4100	
9T(10/11/12/13/14)	750 kVA	CS / SS	57.7	48.2	65.7	4100	
9T(10/11/12/13/14)	750 kVA	CS / SS	61.0	48.8	76.2	4160	
9T10A1302G03	**750 kVA**	**CS**	**61.0**	**47.0**	**76.0**	**4292**	**UUT_u-1**
9T(10/11/12/13/14)	750 kVA	CS / SS	61.0	48.8	76.2	4360	extrapolated

General Notes:

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[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 2: - Vented/Non-Vented - Floor Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T(10/11/12/13/14)	15 kVA	CS / SS	18.7	16.9	29.3	230	extrapolated
9T83C9870	**15 kVA**	**CS**	**19.0**	**17.0**	**28.0**	**238**	**UUT_w-2**
9T(73/83)	15 kVA	CS / SS	18.7	16.9	27.3	240	interpolated
9T(61/62/63/64/83/33)	11-15 kVA	CS / SS	18.7	16.9	27.3	250	
9T(10/11/12/13/14)	15 kVA	CS / SS	18.7	16.9	36.5	260	
9T(83/33)	11-15 kVA	CS / SS	18.7	16.9	27.3	270	
9T(10/11/12/13/14)	30 kVA	CS / SS	23.8	18.4	34.7	271	
9T(96/97)	15 kVA	CS / SS	23.8	18.4	32.2	315	
9T(76/77)	11-15 kVA	CS / SS	23.8	18.4	32.2	318	
9T(83/33)	15-25 kVA	CS / SS	23.8	18.4	32.1	350	
9T(33/83)	15-25 kVA	CS / SS	23.8	18.4	34.7	350	
9T(10/11/12/13/14)	15-30 kVA	CS / SS	23.8	18.4	34.7	353	
9T(61/62/63/64/83/73)	15 -30kVA	CS / SS	23.8	18.4	32.1	360	
9T(10/11/12/13/14)	30 kVA	CS / SS	23.8	18.4	43.8	360	
9T(61/62/63/64/83/33)	15-35 kVA	CS / SS	23.8	18.4	32.1	377	
9T(61/62/63/64/83)	30 kVA	CS / SS	23.8	18.4	32.1	395	
9T(83/33)	22.5 kVA	CS / SS	23.8 / 34.5	18.4 / 24.0	32.2	460	
9T(61/62/63/64/83/73)	30-45 kVA	CS / SS	23.8	18.4	32.2	460	
9T(83/33)	30 kVA	CS / SS	23.8 / 34.5	18.4 / 24.0	32.2	460	
9T(10/11/12/13/14)	30-45 kVA	CS / SS	23.8	18.4	34.7	480	
9T(61/62/63/64/83/33)	25-51 kVA	CS / SS	23.8	18.4	32.2	490	
9T(33/83)	25-50 kVA	CS / SS	31.8	24.0	35.7	500	
9T(10/11/12/13/14)	50-75 kVA	CS / SS	31.8	24.0	35.7	503	
9T(83/33)	30-45 kVA	CS / SS	23.8	18.4	32.2	510	
9T(33/83)	37.5 kVA	CS / SS	31.8	24.0	35.7	510	
9T(10/11/12/13/14)	45 kVA	CS / SS	23.8	18.4	43.8	510	
9T(83/33)	50 kVA	CS / SS	31.8	24.0	35.7	520	
9T(10/11/12/13/14)	75 kVA	CS / SS	31.8	24.0	44.8	545	
9T(96/97)	30 kVA	CS / SS	31.8	24.0	35.7	550	
9T(76/77)	30 kVA	CS / SS	31.8	24.0	35.7	552	

General Notes:

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[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
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STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 2: - Vented/Non-Vented - Floor Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T(10/11/12/13/14)	75 kVA	CS / SS	31.8	24.0	35.7	555	interpolated
9T(83/33)	50-75 kVA	CS / SS	31.8	24.0	39.9	625	
9T(96/97)	45 kVA	CS / SS	31.8	24.0	35.7	640	
9T(76/77)	45 kVA	CS / SS	31.8	24.0	35.7	643	
9T(10/11/12/13/14)	45-75 kVA	CS / SS	31.8	24.0	35.7	661	
9T(10/11/12/13/14)	30 kVA	CS / SS	31.8	24.0	35.7	661	
9T(61/62/63/64/83/73)	30-75 kVA	CS / SS	31.8	24.0	35.7	690	
9T10C1004G31	**75 kVA**	**CS**	**32.0**	**24.0**	**36.0**	**694**	**UUT_v-2 [2]**
9T(61/62/63/64/83/33)	30-75 kVA	CS / SS	31.8	24.0	35.7	710	interpolated
9T(83/33)	45-75 kVA	CS / SS	31.8	24.0	35.7	730	
9T(10/11/12/13/14)	75 kVA	CS / SS	31.8	24.0	35.7	748	
9T(33/83)	75 kVA	CS / SS	31.8	24.0	42.2	750	
9T(10/11/12/13/14)	75-112.5 kVA	CS / SS	31.8	24.0	42.2	790	
9T(10/11/12/13/14)	112.5 kVA	CS / SS	31.8	24.0	51.4	832	
9T(61/62/63/64/83/73)	75-112.5 kVA	CS / SS	31.8	24.0	39.9	850	
9T(10/11/12/13/14)	75-112.5 kVA	CS / SS	31.8	24.0	42.2	900	
9T(61/62/63/64/83/33)	45-112.5 kVA	CS / SS	31.8	24.0	39.9	949	
9T(83/33)	75 kVA	CS / SS	31.8	24.0	35.7	949	
9T(83/33)	75-112.5 kVA	CS / SS	31.8	24.0	39.9	970	
9T4	112.5-225 kVA	CS / SS	29.5	28.5	37.3	980	
9T10Z1006	**150 kVA**	**SS**	**37.3**	**24.0**	**45.8**	**1049**	**UUT_t-3**
9T(83/33)	75-100 kVA	CS / SS	29.5	28.5	37.4	1050	interpolated
9T(96/97)	75 kVA	CS / SS	31.8	24.0	39.9	1050	
9T(76/77)	75 kVA	CS / SS	31.8	24.0	39.9	1053	
9T(10/11/12/13/14)	112.5-150 kVA	CS / SS	34.8	24.0	45.8	1085	
9T4	225-300 kVA	CS / SS	34.8	25.6	40.9	1160	
9T(61/62/63/64/83/73/33)	75-150 kVA	CS / SS	34.8	24.0	45.9	1190	
9T(10/11/12/13/14)	112.5-150 kVA	CS / SS	34.8	24.0	45.8	1240	
9T(61/62/63/64/83/33)	112.5-225 kVA	CS / SS	38.4	33.0	45.4	1400	
9T(10/11/12/13/14)	112.5-225 kVA	CS / SS	38.4	33.0	47.4	1610	
9T(83/33)	100-167 kVA	CS / SS	38.5	33.0	45.5	1675	

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_t$ - 16690 Rev 1, $_v$ - 14-01293, $_w$ - 2665-R, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 2: - Vented/Non-Vented - Floor Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 1.18 at $^{z}/_{h}$ = 1 : F_p = 0.85g and S_{DS} = 1.89 at $^{z}/_{h}$ = 0 : F_p = 0.85g							
9T(83/33)	225 kVA	CS / SS	38.4	33.0	45.4	1700	
9T(61/62/63/64/73/83/33)	100-225 kVA	CS / SS	38.5	33.0	45.4	1710	
9T4	300-500 kVA	CS / SS	38.5	33.6	45.4	1780	
9T(10/11/12/13/14)	150-225 kVA	CS / SS	38.4	33.0	47.4	1847	
9T(10/11/12/13/14)	167 kVA	CS / SS	38.5	33.0	45.5	1960	
9T(83/33)	200-250 kVA	CS / SS	38.5	33.0	45.5	1960	
9T(10/11/12/13/14)	225-300 kVA	CS / SS	38.4	33.0	57.1	1970	
9T(96/97)	112.5-150 kVA	CS / SS	38.6	33.0	45.5	1975	
9T(76/77/78/79)	112.5 kVA	CS / SS	38.6	33.0	45.5	1980	
9T(10/11/12/13/14)	300 kVA	CS / SS	38.4	33.0	57.1	1985	
9T(76/77)	150 kVA	CS / SS	38.6	33.0	57.1	2125	interpolated
9T(10/11/12/13/14)	225-300 kVA	CS / SS	38.4	33.0	57.1	2150	
9T(61/62/63/64/83)	150-300 kVA	CS / SS	38.4	33.0	57.1	2480	
	300-500 kVA	CS / SS	47.1	38.0	65.7	2900	
9T(61/62/63/64/83/96)	112.5-300 kVA	CS / SS	38.5	33.0	57.1	3150	
9T(73/76/77/83/33)	150-300 kVA	CS / SS	38.5	33.0	57.1	3170	
9T(83/33)	500 kVA	CS / SS	47.1	38.0	65.7	3400	
9T(10/11/12/13/14)	225-500 kVA	CS / SS	46.5	37.8	65.7	3720	
9T4	500-1000 kVA	CS / SS	47.5	40.0	57.5	4030	
9T(61/62/63/64/83/33)	225-500 kVA	CS / SS	47.3	38.0	65.7	4050	
9T(61/62/63/64/76/73/83)	225-500 kVA	CS / SS	47.3	38.0	65.7	4070	
9T45G0011	**1000 kVA**	**CS**	**47.0**	**38.0**	**57.0**	**4290**	**UUT_w-8**

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{t}$ - 16690 Rev 1, $_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 3: - Vented/Non-Vented - Wall Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 1.20 at $^{z}/_{h}$ = 1 : F_p = 0.86g and S_{DS} = 1.92 at $^{z}/_{h}$ = 0 : F_p = 0.86g							
9T(61/62/63/64/83/73)	15 kVA	CS	18.7	16.9	27.3	230	
9T(10/11/12/13/14)	11-225 kVA	CS	18.7	16.9	29.3	231	
9T(61/62/63/64/83/33)	9-15 kVA	CS	18.7	16.9	27.3	240	
9T(83/33)	15 kVA	CS	18.7	16.9	34.5	250	
9T(10/11/12/13/14)	15 kVA	CS	18.7	16.9	36.5	261	
9T(10/11/12/13/14)	15-30 kVA	CS	23.8	18.4	34.7	297	
9T(61/62/63/64/83/73)	15-30 kVA	CS	23.8	18.4	32.1	315	
9T(83/33)	15-37.5 kVA	CS	23.8	18.4	32.1	320	
9T(33/83)	15-30 kVA	CS	23.8	18.4	34.7	320	
9T(10/11/12/13/14)	15-75 kVA	CS	23.8	18.4	34.7	330	
9T(61/62/63/64/83/33)	11-34 kVA	CS	23.8	18.4	32.1	334	
9T(10/11/12/13/14)	45 kVA	CS	23.8	18.4	34.7	353	
9T(83/33)	30 kVA	CS	23.8	18.4	32.1	355	extrapolated
9T(10/11/12/13/14)	30-45 kVA	CS	23.8	18.4	34.7	363	
9T(61/62/63/64/83/73)	30-45 kVA	CS	23.8	18.4	32.2	380	
9T(83/33)	25-50 kVA	CS	31.8	24.0	35.7	400	
9T(10/11/12/13/14)	34-45 kVA	CS	23.8	18.4	34.7	407	
9T(61/62/63/64/83/33)	20-51 kVA	CS	23.8	18.4	32.2	415	
9T(61/62/63/64/83/33)	30-51 kVA	CS	23.8	18.4	32.2	440	
9T(10/11/12/13/14)	30-45 kVA	CS	23.8	18.4	34.7	444	
9T(83/33)	37.5 kVA	CS	31.8	24.0	35.7	460	
9T(33/83)	50 kVA	CS	31.8	24.0	35.7	490	
9T(83/33)	37.5-50 kVA	CS	31.8	24.0	35.7	500	
9T(83/33)	50-75 kVA	CS	31.8	24.0	39.9	510	
9T(10/11/12/13/14)	45-75 kVA	CS	31.8	24.0	35.7	537	
9T83B3874	**QL 75 kVA**	**CS**	**29.0**	**28.0**	**37.0**	**550**	**UUT_z-1 [2]**
9T(10/11/12/13/14)	45-75 kVA	CS	31.8	24.0	35.7	555	
9T(10/11/12/13/14)	45-75 kVA	CS	31.8	24.0	35.7	561	interpolated
9T(73)	30-75 kVA	CS	31.8	24.0	35.7	600	

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 3: - Vented/Non-Vented - Wall Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 1.20 at $^{z}/_{h}$ = 1 : F_p = 0.86g and S_{DS} = 1.92 at $^{z}/_{h}$ = 0 : F_p = 0.86g							
9T(10/11/12/13/14)	45-75 kVA	CS	31.8	24.0	35.7	603	interpolated
9T(61/62/63/64/83/33)	25-75 kVA	CS	31.8	24.0	35.7	620	
9T(61/62/63/64/83/73)	75-112.5 kVA	CS	31.8	24.0	39.9	660	
9T(10/11/12/13/14)	75-112.5 kVA	CS	31.8	24.0	42.2	680	
9T83B3875	**QL 112.5 kVA**	**CS**	**32.0**	**24.0**	**40.0**	**756**	**UUT_w-15**

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 4: - Vented/Non-Vented - Wall Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 1.16 at $^{z}/_{h}$ = 1 : F_p = 0.84g and S_{DS} = 1.86 at $^{z}/_{h}$ = 0 : F_p = 0.84g							
9T(10/11/12/13/14)	15 kVA	CS	18.7	16.9	29.3	230	extrapolated
9T(73/83)	15 kVA	CS	18.7	16.9	27.3	240	
9T(61/62/63/64/83)	11 -15 kVA	CS	18.7	16.9	27.3	250	
9T(10/11/12/13/14)	15 kVA	CS	18.7	16.9	36.5	260	
9T(10/11/12/13/14)	30 kVA	CS	23.8	18.4	34.7	271	
9T83C9870	**11 kVA**	**CS**	**19.0**	**17.0**	**28.0**	**276**	**UUT_w-9**
9T(96/97)	15 kVA	CS	23.8	18.4	32.2	315	interpolated
9T(76/77)	11 -15 kVA	CS	23.8	18.4	32.2	318	
9T(33/83)	15-25kVA	CS	23.8	18.4	34.7	350	
9T(10/11/12/13/14)	15-30 kVA	CS	23.8	18.4	34.7	353	
9T(61/62/63/64/73/83)	15 -30kVA	CS	23.8	18.4	32.1	360	
9T(61/62/63/64/83/33)	15-34 kVA	CS	23.8	18.4	32.1	377	
9T(61/62/63/64/83)	30 kVA	CS	23.8	18.4	32.1	395	
9T(61/62/63/64/73/83)	30-45 kVA	CS	23.8	18.4	32.2	460	
9T(10/11/12/13/14)	30-45 kVA	CS	23.8	18.4	34.7	480	
9T(61/62/63/64/83/33)	25-51 kVA	CS	23.8	18.4	32.2	490	
9T(33/83)	25-50 kVA	CS	31.8	24.0	35.7	500	
9T(10/11/12/13/14)	50-75 kVA	CS	31.8	24.0	35.7	503	
9T(83/33)	30-45 kVA	CS	23.8	18.4	32.2	510	
9T(33/83)	37.5 kVA	CS	31.8	24.0	35.7	510	
9T(83/33)	50 kVA	CS	31.8	24.0	35.7	520	
9T(96/97)	30 kVA	CS	31.8	24.0	35.7	550	
9T(76/77)	30 kVA	CS	31.8	24.0	35.7	552	
9T(77)	30 kVA	CS	31.8	24.0	35.7	552	
9T(10/11/12/13/14)	75 kVA	CS	31.8	24.0	35.7	555	
9T(83/33)	50-75 kVA	CS	31.8	24.0	39.9	625	
9T(83/33)	50-75 kVA	CS	31.8	24.0	39.9	635	
9T(96/97)	45 kVA	CS	31.8	24.0	35.7	640	
9T(76/77)	45 kVA	CS	31.8	24.0	35.7	643	

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB QL, QF, AND FC TRANSFORMORE TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 4: - Vented/Non-Vented - Wall Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 1.16 at $^{z}/_{h}$ = 1 : F_p = 0.84g and S_{DS} = 1.86 at $^{z}/_{h}$ = 0 : F_p = 0.84g							
9T(10/11/12/13/14)	45-75 kVA	CS	31.8	24.0	35.7	661	interpolated
9T(10/11/12/13/14)	30 kVA	CS	31.8	24.0	35.7	661	
9T(61/62/63/64/73/83)	30-75 kVA	CS	31.8	24.0	35.7	690	
9T(10/11/12/13/14)	75 kVA	CS	32.0	24.0	36.0	694	
9T(61/62/63/64/83/33)	30 -75kVA	CS	31.8	24.0	35.7	710	
9T(10/11/12/13/14)	75 kVA	CS	31.8	24.0	35.7	748	
9T(10/11/12/13/14)	75-112.5 kVA	CS	31.8	24.0	42.2	790	
9T(61/62/63/64/83)	75 kVA	CS	31.8	24.0	29.9	850	
9T(61/62/63/64/73/83)	75-112.5 kVA	CS	31.8	24.0	39.9	850	
9T(10/11/12/13/14)	112.5 kVA	CS	31.8	24.0	42.2	900	
9T(61/62/63/64/83/33)	45-112.5 kVA	CS	31.8	24.0	39.9	949	
9T4	112.5-225 kVA	CS	29.5	28.5	37.3	976	
9T83C9875	**112.5 kVA**	**CS**	**32.0**	**24.0**	**40.0**	**1018**	**UUT_v-2 [2]**

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB ENCAPSULATED AND ENCLOSED SERVICENTER TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX WITH EXTERIOR JUNCTION BOX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification[4]	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 5: Floor Mounted (Aluminum Windings)							
Seismic Certification Limits: S_{DS} = 2.25 at $^z/_h$ = 1 : F_p = 1.62g and S_{DS} = 2.50 at $^z/_h$ = 0 : F_p = 1.13g							
9T21	5 kVA	CS / SS	10.8	11.1	32.5	103	extrapolated
9T21S1050	**5 kVA**	**CS**	**11.0**	**11.0**	**33.0**	**130**	**UUT_w-4**
9T21	7.5 kVA	CS / SS	10.8	11.1	32.5	147	interpolated
9T21	5 kVA	CS / SS	10.5	11.0	14.4	150	
9T21	3-10 kVA	CS / SS	10.5	11.0	14.4	150	
9T21	7.5KVA	CS / SS	10.5	11.0	17.0	150	
9T21	5-15 KVA	CS / SS	10.5	11.0	17.0	150	
9T21	10 kVA	CS / SS	12.6	12.6	35.0	198	
9T21	5-15 kVA	CS / SS	12.4	12.4	17.0	200	
9T21	15 kVA	CS / SS	12.6	12.6	35.0	220	
9T21	10-25 kVA	CS / SS	12.4	12.4	17.0	270	
9T17x00	15 kVA	CS / SS	18.7 / 27.4	16.9	27.3	275	
9T17x00 / 9T83x00	15 kVA	CS / SS	27.4	16.9	27.3	280	
9T21	10-15 kVA	CS / SS	12.6	12.6	35.0	300	
9T21	10-15 kVA	CS / SS	12.6	12.6	35.0	300	
9T17x00	15kVA	CS / SS	25.6	16.9	29.3	301	
9T21	25 kVA	CS / SS	16.8	16.0	44.8	388	
9T21	25kVA	CS / SS	16.6	15.9	20.8	400	
9T21	25 kVA	CS / SS	16.6	15.9	20.8	400	
9T17S0013	**30 kVA**	**SS**	**32.1**	**24.0**	**34.7**	**405**	**UUT_t-6**
9T17A0013	**30 kVA**	**CS**	**34.5**	**24.0**	**32.2**	**411**	**UUT_t-4**
9T17x00	22.5-30 kVA	CS / SS	23.8 / 34.5	18.4 / 24.0	32.2	413	interpolated
9T17x00	22.5-30 kVA	CS / SS	34.5	24.0	32.2	430	
9T83B0013	**30 kVA**	**CS**	**35.0**	**35.0**	**32.0**	**432**	**UUT_w-5[2]**
9T17	30 kVA	CS / SS	23.8 / 34.5	18.4 / 24.0	32.2	440	extrapolated

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_t$ - 16690 Rev 1, $_v$ - 14-01293, $_w$ - 2665-R, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

[4] Note that the 9T83x00 and 9T17x00 service center transformers are distinguished from the 9T83 and 9T17 QL, QF, QC transformers by the "00" in the 6th and 7th digits of the identification number.

ABB ENCAPSULATED AND ENCLOSED SERVICENTER TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX WITH EXTERIOR JUNCTION BOX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification[4]	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 6: Floor Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 2.25 at $^{z}/_{h}$ = 1 : F_p = 1.62g and S_{DS} = 2.50 at $^{z}/_{h}$ = 0 : F_p = 1.13g							
9T51	0.05-.25 kVA	CS / SS	5.0	3.1	6.2	6	extrapolated
9T51	0.08-2 kVA	CS / SS	6.0	4.3	7.3	10	
9T51	0.15-5 kVA	CS / SS	6.8	4.9	8.3	16	
9T51	0.5-10 kVA	CS / SS	7.8	5.5	9.5	25	
9T51	1-25 kVA	CS / SS	9.3	6.8	11.0	50	
9T51	2.44 kVA	CS / SS	9.3	6.8	13.0	60	
9T21	3-10 kVA	CS / SS	10.5	11.0	14.4	150	
9T21	5-15 kVA	CS / SS	10.5	11.0	17.0	150	
9T21	5-15 kVA	CS / SS	12.4	12.4	17.0	200	
9T21	10-25 kVA	CS / SS	12.4	12.4	17.0	270	
9T83x00	15 kVA	CS / SS	27.4	16.9	27.3	280	
9T83C0011	**15 kVA**	**CS**	**27.0**	**17.0**	**27.0**	**289**	**UUT_w-7**
9T83x00	15 kVA	CS / SS	27.0	17.0	27.0	289	interpolated
9T17x00	15kVA	CS / SS	27.4	16.9	27.3	290	
9T83x00	15 kVA	CS / SS	27.4	16.9	27.3	290	
9T17x00	15 kVA	CS / SS	25.6	16.9	29.3	300	
9T83x00	15 kVA	CS / SS	27.0	17.0	27.0	326	
9T21	25 kVA	CS / SS	16.6	15.9	20.8	400	
9T17S0016	**30 kVA**	**SS**	**32.1**	**24.0**	**34.7**	**431**	**UUT_t-7**
9T17C0016	**30 kVA**	**CS**	**34.5**	**24.0**	**32.2**	**437**	**UUT_t-5**
9T17x00	22.5-30kVA	CS / SS	34.5	24.0	32.2	460	interpolated
9T83x00	30 kVA	CS / SS	27.0	17.0	17.0	462	
9T83C0013	**30kVA**	**CS**	**27.0**	**17.0**	**27.0**	**462**	**UUT_w-6[2]**

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_t$ - 16690 Rev 1, $_v$ - 14-01293, $_w$ - 2665-R, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

[4] Note that the 9T83x00 and 9T17x00 service center transformers are distinguished from the 9T83 and 9T17 QL, QF, QC transformers by the "00" in the 6th and 7th digits of the identification number.

ABB ENCAPSULATED AND ENCLOSED SERVICENTER TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX WITH EXTERIOR JUNCTION BOX

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W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 7: Wall Mounted (Aluminum Windings) **Seismic Certification Limits: S_{DS} = 2.50 at $^{z}/_{h}$ = 1 : F_p = 1.80g**							
9T21	5 kVA	CS	10.8	11.1	32.5	103	extrapolated
9T21S1050	**5 kVA**	**CS**	**11.0**	**11.0**	**33.0**	**130**	**UUT_w-10**
9T21	7.5 kVA	CS	10.8	11.1	32.5	147	interpolated
9T21	5 kVA	CS	10.5	11.0	14.4	150	
9T21	7.5 kVA	CS	10.5	11.0	17.0	150	
9T21	10 kVA	CS	12.6	12.6	35.0	198	
9T21	15 kVA	CS	12.6	12.6	35.0	220	
9T17x00	15 kVA	CS	27.4	16.9	27.3	280	
9T21	10-15 kVA	CS	12.6	12.6	35.0	300	
9T21	25 kVA	CS	16.8	16.0	44.8	388	
9T21	25 kVA	CS	16.6	15.9	20.8	400	
9T17x00	22.5-30 kVA	CS	34.5	24.0	32.2	430	
9T83B0013	**30 kVA**	**CS**	**35.0**	**35.0**	**32.0**	**468**	**UUT_w-11**

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_v$ - 14-01293, $_w$ - 2665-R, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

[4] Note that the 9T83x00 and 9T17x00 service center transformers are distinguished from the 9T83 and 9T17 QL, QF, QC transformers by the "00" in the 6th and 7th digits of the identification number.

ABB ENCAPSULATED AND ENCLOSED SERVICENTER TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX WITH EXTERIOR JUNCTION BOX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Enclosure Material	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 8: - Encapsulated & Enclosed Servicenter - Wall Mounted (Copper Windings)							
Seismic Certification Limits: S_{DS} = 2.50 at $^{z}/_{h}$ = 1 : F_p = 1.80g							
9T51	0.05-0.1 kVA	CS	5.02	3.13	6.2	6	extrapolated
9T51	0.08-2 kVA	CS	6.02	4.25	7.3	10	
9T51	0.25-5 kVA	CS	6.76	4.88	8.3	16	
9T51	0.5-10 kVA	CS	7.76	5.5	9.5	25	
9T51	1-25 kVA	CS	9.3	6.8	11.0	50	
9T51	2.44 kVA	CS	9.3	6.8	13.0	60	
9T83x00	15 kVA	CS	27.4	16.9	27.3	280	
9T83x00	15 kVA	CS	27.0	17.0	27.0	289	
9T17x00 / 9T83x00	15 kVA	CS	27.4	16.9	27.3	290	
9T17x00	15 kVA	CS	25.6	16.9	29.3	300	
9T83C0011	**15 kVA**	**CS**	**27.0**	**17.0**	**27.0**	**326**	**UUT_w-13**
9T83x00	15 kVA	CS	27.0	17.0	27.0	326	interpolated
9T17x00	22.5-30 kVA	CS	34.5	24.0	32.2	460	
9T83x00	30 kVA	CS	27.0	17.0	17.0	462	
9T83C0013	**30 kVA**	**CS**	**27.0**	**17.0**	**27.0**	**500**	**UUT_w-12**

General Notes:

[1] Subscripts $_{v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_v$ - 14-01293, $_w$ - 2665-R, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

[4] Note that the 9T83x00 and 9T17x00 service center transformers are distinguished from the 9T83 and 9T17 QL, QF, QC transformers by the "00" in the 6th and 7th digits of the idenfication number.

ABB CONTROL POWER IP TRANSFORMERS
CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1]
Table 9: - Control Power IP - Floor Mounted (Copper Windings)						
Seismic Certification Limits: S_{DS} = 2.25 at $^{z}/_{h}$ = 1 : F_p = 1.62g and S_{DS} = 2.50 at $^{z}/_{h}$ = 0 : F_p = 1.13g						
9T58R0042	**0.05 kVA**	**3.0**	**3.0**	**4.0**	**2.5**	**UUT_w-1**
9T58	0.05 kVA	3.0	3.8	2.7	2.4	interpolated
9T58	0.025-0.060 kVA	3.1	4.0	2.7	2.6	
9T58	0.05-1.4 kVA	3.1	3.3	2.7	2.6	
9T58	0.05-0.075 kVA	3.1	3.5	2.7	2.6	
9T58	0.5 kVA	3.1	4.0	2.7	2.6	
9T58	0.05-0.075 kVA	3.1	4.0	2.7	3.0	
9T58	0.075 kVA	3.1	4.3	2.7	3.0	
9T58	0.05-0.075 kVA	3.1	4.0	2.7	3.4	
9T58	0.05 kVA	3.1	4.5	2.7	3.4	
9T58	0.075-0.165 kVA	3.8	4.1	3.3	3.9	
9T58	0.1 kVA	3.8	3.4	3.3	3.9	
9T58	0.1-0.15 kVA	3.8	4.6	3.3	5.5	
9T58	0.1-0.15 kVA	3.8	3.9	3.3	5.5	
9T58	0.15 kVA	3.8	3.9	3.3	5.5	
9T58	0.05-0.2 kVA	3.8	4.9	3.3	6.3	
9T58	0.1-0.2 kVA	3.8	4.2	3.3	6.3	
9T58	0.1-0.3 kVA	3.8	5.1	3.3	7.0	
9T58	0.05-0.3 kVA	3.8	4.4	3.3	7.0	
9T58	0.1-0.375 kVA	3.8	5.6	3.3	8.3	
9T58	0.25-0.375 kVA	3.8	4.9	3.3	8.3	
9T58K0707G37	**0.30 kVA**	**3.8**	**4.9**	**3.3**	**8.5**	**UUT_t-8**
9T58	0.15-0.55 kVA	4.6	5.8	3.9	11.6	interpolated
9T58	0.25-0.5 kVA	4.6	5.8	3.9	11.6	
9T58	0.15-0.75 kVA	5.3	5.8	4.6	13.0	
9T58	0.75 kVA	5.3	6.6	4.5	16.1	
9T58	0.5-1.65 kVA	5.3	6.6	4.6	17.5	
9T58	0.05 kVA	7.8	5.5	9.5	25.0	
9T58	0.75-1.5 kVA	6.8	6.3	5.8	29.0	
9T58	1.50 kVA	6.8	7.3	5.8	32.7	
9T58	1-2 kVA	6.8	7.1	5.8	35.5	
9T58	2.0 kVA	6.8	9.0	5.8	47.0	
9T58	0.25-3 kVA	6.8	8.8	5.8	47.0	
9T58R005	**3 kVA**	**7.0**	**9.0**	**6.0**	**47.0**	**UUT_x-1**
9T58K2815	**3 kVA**	**6.8**	**8.8**	**5.8**	**51.5**	**UUT_t-9[2]**

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_z$ indicate the test report in which the units were qualified:
$_t$ - 16690 Rev 1, $_v$ - 14-01293, $_w$ - 2665-R, $_x$ - 9872, $_y$ - 8428, $_z$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB CONTROL POWER IP TRANSFORMERS
CERTIFIED PRODUCT LINE MATRIX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT [1)]
Table 10: Wall Mounted (Copper Windings)						
Seismic Certification Limits: S_{DS} = 1.81 at $^{z}/_{h}$ = 1 : F_p = 1.30g and S_{DS} = 2.50 at $^{z}/_{h}$ = 0 : F_p = 1.13g						
9T58R0042	**0.05 kVA**	**3.0**	**4.0**	**3.0**	**2.5**	**UUT_w-14**
9T58	0.05 kVA	3.0	3.8	2.7	2.5	
9T58	0.025-0.060 kVA	3.1	4.0	2.7	2.6	
9T58	0.05-1.4 kVA	3.1	3.3	2.7	2.6	
9T58	0.05-0.075 kVA	3.1	3.5	2.7	2.6	
9T58	0.5 kVA	3.1	4.0	2.7	2.6	
9T58	0.05-0.075 kVA	3.1	4.0	2.7	3.0	
9T58	0.075 kVA	3.1	4.3	2.7	3.0	
9T58	0.05-0.075 kVA	3.1	4.0	2.7	3.4	
9T58	0.05 kVA	3.1	4.5	2.7	3.4	
9T58	0.075-0.165 kVA	3.8	4.1	3.3	3.9	
9T58	0.1 kVA	3.8	3.4	3.3	3.9	
9T58	0.1-0.15 kVA	3.8	4.6	3.3	5.5	
9T58	0.1-0.15 kVA	3.8	3.9	3.3	5.5	
9T58	0.15 kVA	3.8	3.9	3.3	5.5	
9T58	0.05-0.2 kVA	3.8	4.9	3.3	6.3	
9T58	0.1-0.2 kVA	3.8	4.2	3.3	6.3	interpolated
9T58	0.1-0.3 kVA	3.8	5.1	3.3	7.0	
9T58	0.05-0.3 kVA	3.8	4.4	3.3	7.0	
9T58	0.1-0.375 kVA	3.8	5.6	3.3	8.3	
9T58	0.25-0.375 kVA	3.8	4.9	3.3	8.3	
9T58	0.15-0.55 kVA	4.6	5.8	3.9	11.6	
9T58	0.25-0.5 kVA	4.6	5.8	3.9	11.6	
9T58	0.15-0.75 kVA	5.3	5.8	4.6	13.0	
9T58	0.75 kVA	5.3	6.6	4.5	16.1	
9T58	0.5-1.65 kVA	5.3	6.6	4.6	17.5	
9T58	0.05 kVA	7.8	5.5	9.5	25.0	
9T58	0.75-1.5 kVA	6.8	6.3	5.8	29.0	
9T58	1.50 kVA	6.8	7.3	5.8	32.7	
9T58	1-2 kVA	6.8	7.1	5.8	35.5	
9T58	2.0 kVA	6.8	9.0	5.8	47.4	
9T58	0.25-3 kVA	6.8	8.8	5.8	50.0	
9T58R0055	**3 kVA**	**9.0**	**7.0**	**6.0**	**50.0**	**UUT_z-4[2)]**

General Notes:

[1] Subscripts $_{t, v, w, y,}$ and $_{z}$ indicate the test report in which the units were qualified:
$_{v}$ - 14-01293, $_{w}$ - 2665-R, $_{y}$ - 8428, $_{z}$ - 6982

[2] Denotes the controlling UUT for the product family seismic rating (lowest tested S_{DS})

[3] F_p calculated using a_p = 1.0, R_p = 2.5, and I_p = 1.5

ABB LV TRANSFORMER CERTIFIED COMPONENTS
UNIT UNDER TEST INDEX

WEGAI
W.E. GUNDY & ASSOCIATES, INC.
STRUCTURAL & EARTHQUAKE ENGINEERING

UUT	Identification	kVA Rating	Test Date	Report #	Lab	Tested S_{DS}	
						z / h = 1	z / h = 0
Table 1: QL, QF, and FC Vented/Non-Vented - Floor Mounted (Aluminum Windings)							
UUT_w-3	9T83B3871	15 kVA	Sep-13	2665-R	Clark	2.42	2.50
UUT_v-1	9T10A1001	15 kVA	Nov-15	14-01293	Clark	1.18	1.89
UUT_v-3	9T10A1006	150 kVA	Nov-15	14-01293	Clark	1.18	1.89
UUT_t-2	9T83S3876	150 kVA	Oct-22	116690 Rev 1	ETL	1.50	2.40
UUT_t-1	9T83B3389	500 kVA	Oct-22	116690 Rev 1	ETL	1.50	2.40
UUT_u-1	9T10A1302G03	750 kVA	Jul-22	16668 Rev 1	ETL	1.25	2.00
Table 2: QL, QF, and FC Vented/Non-Vented - Floor Mounted (Copper Windings)							
UUT_w-2	9T83C9870	15 kVA	Sep-13	2665-R	Clark	2.42	2.50
UUT_v-2	9T10C1004G31	75 kVA	Nov-15	14-01293	Clark	1.18	1.89
UUT_t-3	9T10Z1006	150 kVA	Oct-22	116690 Rev 1	ETL	1.50	2.40
UUT_w-8	9T45G0011	1000 kVA	Sep-13	2665-R	Clark	2.19	2.50
Table 3: QL, QF, and FC Vented/Non-Vented - Wall Mounted (Aluminum Windings)							
UUT_z-1	9T83B3874	75 kVA	Dec-05	6982.0	Clark	1.20	1.92
UUT_w-15	9T83B3875	112.5 kVA	Sep-13	2665-R	Clark	2.08	2.50
Table 4: QL, QF, and FC Vented/Non-Vented - Wall Mounted (Copper Windings)							
UUT_w-9	9T83C9870	11 kVA	Sep-13	2665-R	Clark	2.50	2.50
UUT_y-2	9T83C9875	112.5 kVA	Feb-08	8428	Clark	1.16	1.86
Table 5: Encapsulated & Enclosed Servicenter - Floor Mounted (Aluminum Windings)							
UUT_w-4	9T21S1050	5 kVA	Sep-13	2665-R	Clark	2.42	2.50
UUT_t-6	9T17S0013	30 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
UUT_t-4	9T17A0013	30 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
UUT_w-5	9T83B0013	30 kVA	Sep-13	2665-R	Clark	2.42	2.50
Table 6: Encapsulated & Enclosed Servicenter - Floor Mounted (Copper Windings)							
UUT_w-7	9T83C0011	15 kVA	Sep-13	2665-R	Clark	2.50	2.50
UUT_t-7	9T17S0016	30 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
UUT_t-5	9T17C0016	30 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
UUT_w-6	9T83C0013	30kVA	Sep-13	2665-R	Clark	2.42	2.50
Table 7: Encapsulated & Enclosed Servicenter - Wall Mounted (Aluminum Windings)							
UUT_w-10	9T21S1050	5 kVA	Sep-13	2665-R	Clark	2.50	2.50
UUT_w-11	9T83B0013	30 kVA	Sep-13	2665-R	Clark	2.50	2.50
Table 8: Encapsulated & Enclosed Servicenter - Wall Mounted (Copper Windings)							
UUT_w-13	9T83C0011	15 kVA	Sep-13	2665-R	Clark	2.50	2.50
UUT_w-12	9T83C0013	30 kVA	Sep-13	2665-R	Clark	2.50	2.50
Table 9: Control Power IP - Floor Mounted (Copper Windings)							
UUT_w-1	9T58R0042	0.05 kVA	Sep-13	2665-R	Clark	2.42	2.50
UUT_t-8	9T58K0707G37	0.30 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
UUT_x-1	9T58R005	3 kVA	Oct-11	9872.0	Clark	2.31	2.50
UUT_t-9	9T58K2815	3 kVA	Oct-22	116690 Rev 1	ETL	2.25	2.50
Table 10: Control Power IP - Wall Mounted (Copper Windings)							
UUT_w-14	9T58R0042	0.05 kVA	Sep-13	2665-R	Clark	2.50	2.50
UUT_z-4	9T58R0055	3 kVA	Dec-05	6982.0	Clark	1.81	2.50

UUT_w-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** September 2013
Model Number: 9T83B3871	**Report Number:** 2665-R

UUT Function: Power distribution system.

UUT Description: QL 15kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 15 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 15 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
200	19.0	16.0	27.0	7.0	20.6	>33

SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_v-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** November 2015
Model Number: 9T10A1001	**Report Number:** 14-01293

UUT Function: Voltage regulation

UUT Description: QL 15 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 15 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 15 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
214	18.0	17.0	29.0	15.9	22.9	>33

SEISMIC TEST PARAMETERS - Run #3

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-ES-AC156	1.18	1.0	1.5	1.89	1.42		
	1.89	0.0	1.5			1.26	0.51

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_v-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** November 2015
Model Number: 9T10A1006	**Report Number:** 14-01293

UUT Function: Voltage regulation

UUT Description: QL 150 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 150 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 150 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
978	24.0	34.0	46.0	17.7	22.3	>33

SEISMIC TEST PARAMETERS - Run #7

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-ES-AC156	1.18	1.0	1.5	1.89	1.42		
	1.89	0.0	1.5			1.26	0.51

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_t-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** October 2022
Model Number: 9T83S3876	**Report Number:** 116690 Rev 1

UUT Function: Voltage regulation

UUT Description: QL 150 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 3R enclosure with 150 kVA internal 3 phase dry type transformer.

UUT Components: NEMA 3R 12ga Stainless Steel Enclosure; 150 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,051	34.8	24.0	45.9	2.5	7.6	12.3

SEISMIC TEST PARAMETERS

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-ES-AC156	1.50	1.0	1.5	2.40	1.8		
	2.40	0.0	1.5			1.60	0.64

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-1.

UUT_t-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** October 2022
Model Number: 9T83B3389	**Report Number:** 116690 Rev 1

UUT Function: Voltage regulation

UUT Description: QL 500 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure with 500 kVA internal 3 phase dry type transformer.

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 500 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
2,939	47.3	38.0	65.7	14.9	5.3	15.5

SEISMIC TEST PARAMETERS

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-ES-AC156	1.50	1.0	1.5	2.40	1.8		
	2.40	0.0	1.5			1.60	0.64

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-1.

UUT_u-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Inc.
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** July 2022
Model Number: 9T10A1302G03	**Report Number:** 16668 Rev 1

UUT Function: Voltage regulation

UUT Description: QL 750 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure with 750 kVA internal 3 phase dry type transformer.

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 750 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,292	61.0	47.0	76.0	15.3	6.7	9.3

SEISMIC TEST PARAMETERS - Run #2

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-ES-AC156	1.25	1.0	1.5	2.00	1.5		
	2.00	0.0	1.5			1.33	0.53

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_w-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** September 2013
Model Number: 9T83C9870	**Report Number:** 2665-R
UUT Function: Power distribution system	
UUT Description: QL 11 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 11 kVA Dry Type Transformer	
UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 11 kVA Dry Type Transformer, Copper Windings	

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
238	19.0	17.0	28.0	8.2	17.6	>33

SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_V-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** November 2015
Model Number: 9T10C1004G31	**Report Number:** 14-01293

UUT Function: Voltage regulation

UUT Description: QL 75 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 75 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 75 kVA Dry Type Transformer, Copper Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
694	32.0	24.0	36.0	18.2	19.2	>33

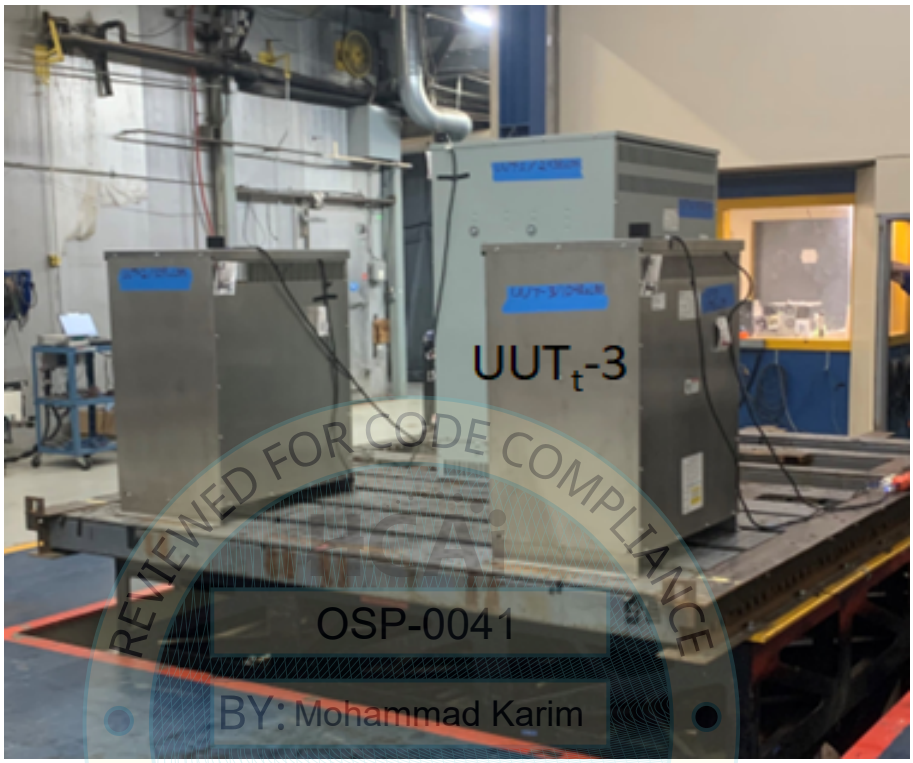
SEISMIC TEST PARAMETERS - Run #5

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-ES-AC156	1.18	1.0	1.5	1.89	1.42		
	1.89	0.0	1.5			1.26	0.51

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the QL, QF, FC Transformer product line in the floor mounted configuration. The seismic parameters are limited based on 90% A_{RIG}.

UUT_t-3	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.



Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** October 2022
Model Number: 9T10Z1006	**Report Number:** 116690 Rev 1

UUT Function: Voltage regulation

UUT Description: QL 150 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 3R enclosure with 150 kVA internal 3 phase dry type transformer.

UUT Components: NEMA 3R 12ga Stainless Steel Enclosure; 150 kVA Dry Type Transformer, Copper Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,049	37.3	24.0	45.8	16.7	8.7	15.7

SEISMIC TEST PARAMETERS

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-ES-AC156	1.50	1.0	1.5	2.40	1.8		
	2.40	0.0	1.5			1.60	0.64

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-3.

UUT_w-8	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	**Test Date:** October 2013
Model Number: 9T45G0011	**Report Number:** 2665-R

UUT Function: Power distribution system

UUT Description: FC 1000 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 1 enclosure consisting of (1) 1000 kVA Dry Type Transformer

UUT Components: NEMA 1 12ga Carbon Steel Enclosure; 1000 kVA Dry Type Transformer, Copper Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
4,290	47.0	38.0	57.0	18.5	4.7	28.7

SEISMIC TEST PARAMETERS - Run #9

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-ES-AC156	2.19	1.0	1.5	3.50	2.63		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_v-2.

UUT_z-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (4) 1/2" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Wall Mounted	**Test Date:** December 2005
Model Number: 9T23B3874	**Report Number:** 6982

UUT Function: Power distribution system

UUT Description: QL 75 kVA Dry Type Transformer. The unit is comprised of a wall mounted NEMA type 2 enclosure consisting of (1) 75 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 75 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
550	29.0	28.0	37.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #3

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-ES-AC156	1.20	1.0	1.5	1.92	1.44		
	1.92	0.0	1.5			1.29	0.52

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_y-2.

UUT_w-15	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Wall Mounted	**Test Date:** September 2013
Model Number: 9T83B3875	**Report Number:** 2665-R

UUT Function: Power distribution system

UUT Description: QL 112.5 kVA Dry Type Transformer. The unit is comprised of a wall mounted NEMA type 2 enclosure consisting of (1) 112.5 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 112.5 kVA Dry Type Transformer, Aluminum Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
756	32.0	24.0	40.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #2

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-ES-AC156	2.08	1.0	1.5	3.33	2.5		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_y-2.

UUT_w-9	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Wall Mounted	**Test Date:** September 2013
Model Number: 9T83C9870	**Report Number:** 2665-R

UUT Function: Power distribution system

UUT Description: QL 11 kVA Dry Type Transformer. The unit is comprised of a wall mounted NEMA type 2 enclosure consisting of (1) GE 11 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; GE 11 kVA Dry Type Transformer, Copper Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
276	19.0	17.0	28.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #4

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_y-2.

UUT_y-2	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Wall Mounted	**Test Date:** February 2008
Model Number: 9T83C9875	**Report Number:** 8428

UUT Function: Power distribution system

UUT Description: QL 112.5 kVA Dry Type Transformer. The unit is comprised of a wall mounted NEMA type 2 enclosure consisting of (1) 112.5 kVA Dry Type Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 112.5 kVA Dry Type Transformer, Copper Windings

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
1,018	32.0	24.0	39.9	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #2

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-ES-AC156	1.16	1.0	1.5	1.86	1.39		
	1.86	0.0	1.5			1.24	0.50

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the QL, QF, FC Transformer product line in the wall mounted configuration.

UUT_w-4	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T21S1050	**UUT Function:** Power distribution system

UUT Description: Service Center 5 kVA Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 5 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 5 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 5 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
130	11.0	11.0	33.0	23.2	21.8	>33

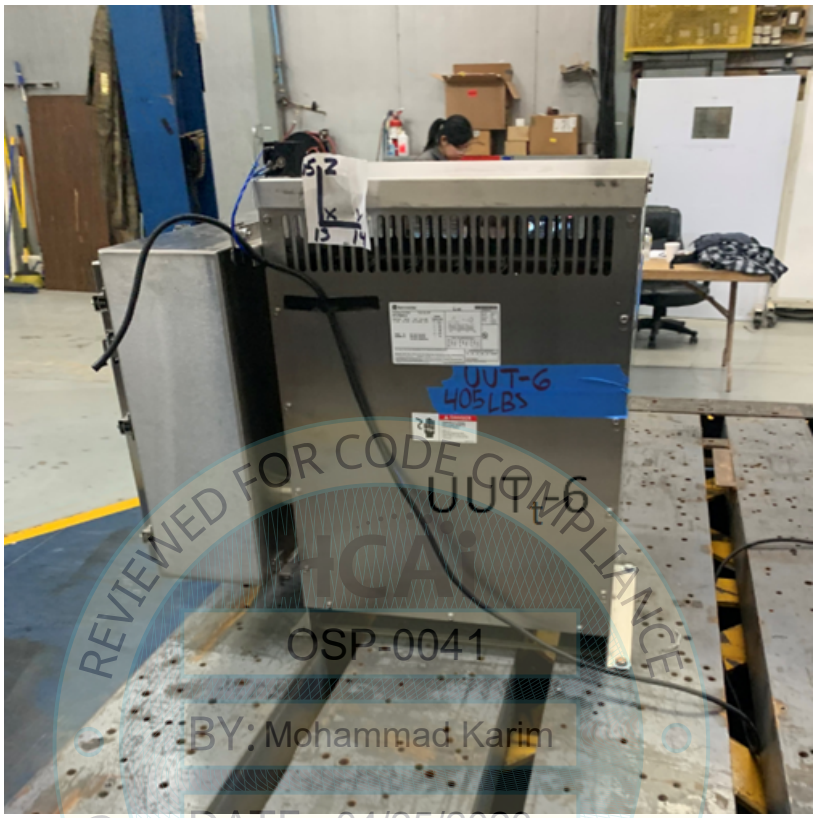
SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_w-6.

UUT_t-6	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.



Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T17S0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Stainless Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
405	32.1	24.0	34.7	23.3	19.3	20.2

SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_w-5.

UUT_t-4	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T17A0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
411	34.5	24.0	32.2	19.5	20.1	16.0

SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_w-5.

UUT_w-5	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83B0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 3R enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
432	35.0	35.0	32.0	6.6	13.4	22.5

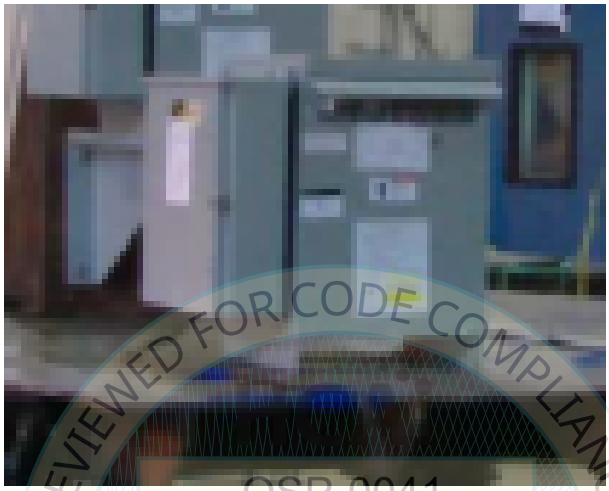
SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUTw-6.

UUT_w-7	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.



Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83C0011	**UUT Function:** Power distribution system

UUT Description: Service Center 15 kVA Transformer. The unit is comprised of a floor mounted NEMA type 3R enclosure consisting of (1) 15 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 15 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 15 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
289	27.0	17.0	27.0	8.1	15.8	>33

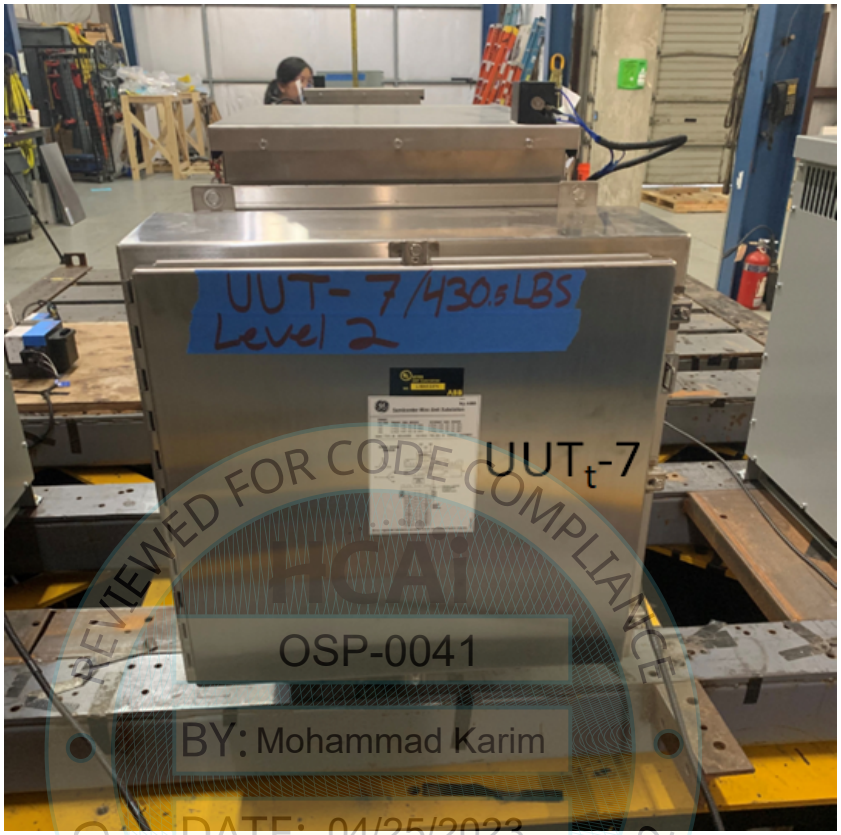
SEISMIC TEST PARAMETERS - Run #5

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUTw-6.

UUT_t-7	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/2" diameter grade 5 bolts.



Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T17S0016	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Stainless Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
431	32.1	24.0	34.7	20.6	14.2	19.7

SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_w-6.

UUT_t-5	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T17C0016	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 2 enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
437	34.5	24.0	32.2	5.4	11.9	22.5

SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_w-6.

UUT_w-6	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 3/8" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Floor Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83C0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a floor mounted NEMA type 3R enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
462	27.0	17.0	27.0	5.2	12.0	26.9

SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the Encapsolated & Enclosed Servicenter Transformer product line in the floor mounted configuration.

UUT_w-10	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (1) 3/8" diameter grade 5 bolt, (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Wall Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T21S1050	**UUT Function:** Power distribution system

UUT Description: Service Center 5 kVA Transformer. The unit is comprised of a wall mounted NEMA type 2 enclosure consisting of (1) 5 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 2 12ga Carbon Steel Enclosure; 5 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 5 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
130	11.0	11.0	33.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #6

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT_w-11	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Wall Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83B0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a wall mounted NEMA type 3R enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Aluminum Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
468	25.0	25.0	32.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #4

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT_w-13	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Wall Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83C0011	**UUT Function:** Power distribution system

UUT Description: Service Center 15 kVA Transformer. The unit is comprised of a wall mounted NEMA type 3R enclosure consisting of (1) 15 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 15 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 15 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
326	27.0	17.0	27.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #5

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT_w-12	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (3) 1/2" diameter grade 5 bolts and (1) 1/2" strain bolt.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Encapsulated & Enclosed Service Center Transformers - Wall Mounted	**Test Date:** September 2013
	Report Number: 2665-R
Model Number: 9T83C0013	**UUT Function:** Power distribution system

UUT Description: Service Center 30 kVA Transformer. The unit is comprised of a wall mounted NEMA type 3R enclosure consisting of (1) 30 kVA Enclosed & Encapsulated Transformer

UUT Components: NEMA 3R 12ga Carbon Steel Enclosure; 30 kVA Enclosed & Encapsulated Transformer, Copper Windings, Junction Box for 30 kVA Service Center

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
500	27.0	17.0	27.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #3

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test.

UUT_w-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 10-32 screws.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Control Power IP Transformer - Floor Mount	**Test Date:** September 2013
Model Number: 9T58R0042	**Report Number:** 2665-R

UUT Function: Voltage regulation

UUT Description: IP 0.05 kVA Control Power Transformer. The unit is comprised of (1) 0.05 kVA Control Power Transformer

UUT Components: 0.05 kVA Power Transformer, Copper Windings, NEMA 2

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3	3.0	3.0	4.0	23.1	21.1	>33

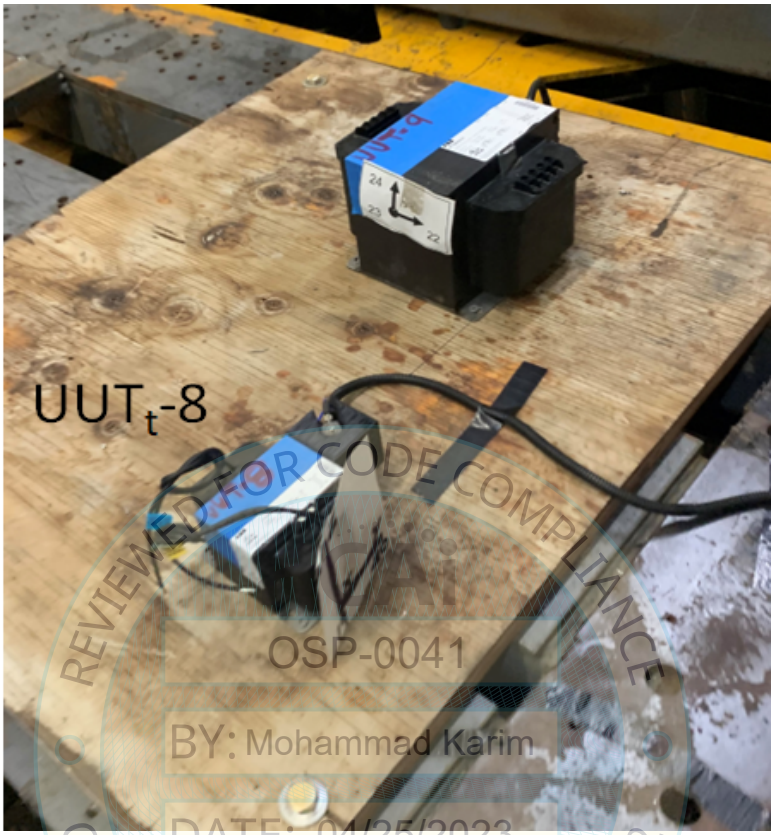
SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.42	1.0	1.5	3.87	2.90		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_x-1.

UUT_t-8	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 10-32 screws.



Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Control Power IP Transformer Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T58K0707G37	**UUT Function:** Voltage Regulation

UUT Description: IP 0.30 kVA Control Power Transformer. The unit is comprised of (1) 0.30 kVA Control Power Transformer

UUT Components: 0.30 kVA Power Transformer, Copper Windings, NEMA 2

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
9	3.8	4.9	3.3	>33	>33	22.3

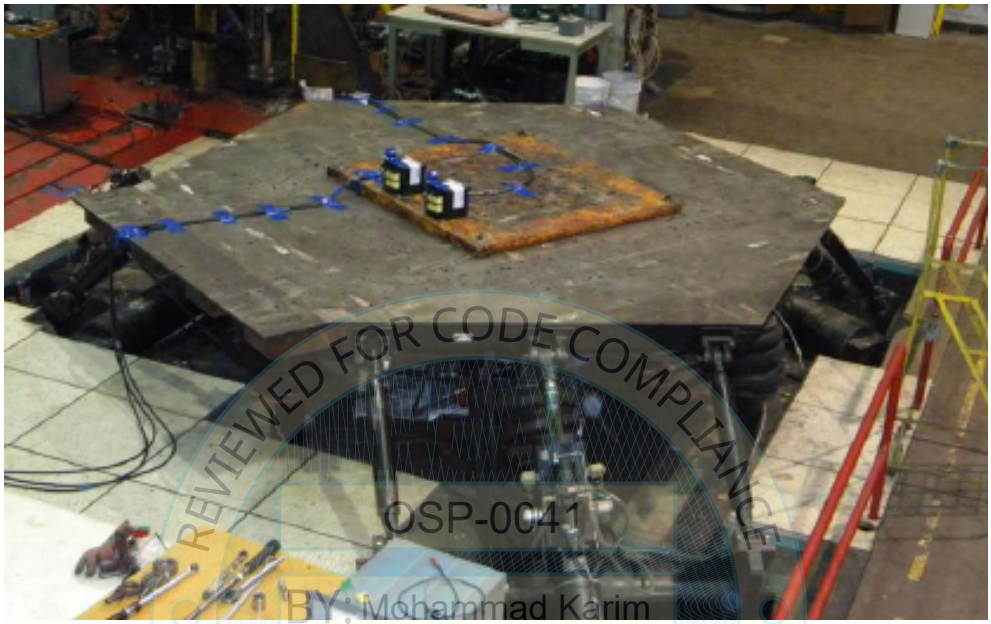
SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_x-1.

UUT_x-1	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 1/4" diameter grade 5 bolts.



Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Control Power IP Transformer - Floor Mount	**Test Date:** October 2011
Model Number: 9T58R005	**Report Number:** 9872

UUT Function: Voltage regulation

UUT Description: IP 3.0 kVA Control Power Transformer. The unit is comprised of (1) 3.0 kVA Control Power Transformer

UUT Components: 3.0 kVA Power Transformer, Copper Windings, NEMA 1

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
47	9.0	7.0	6.0	25.0	26.5	>33

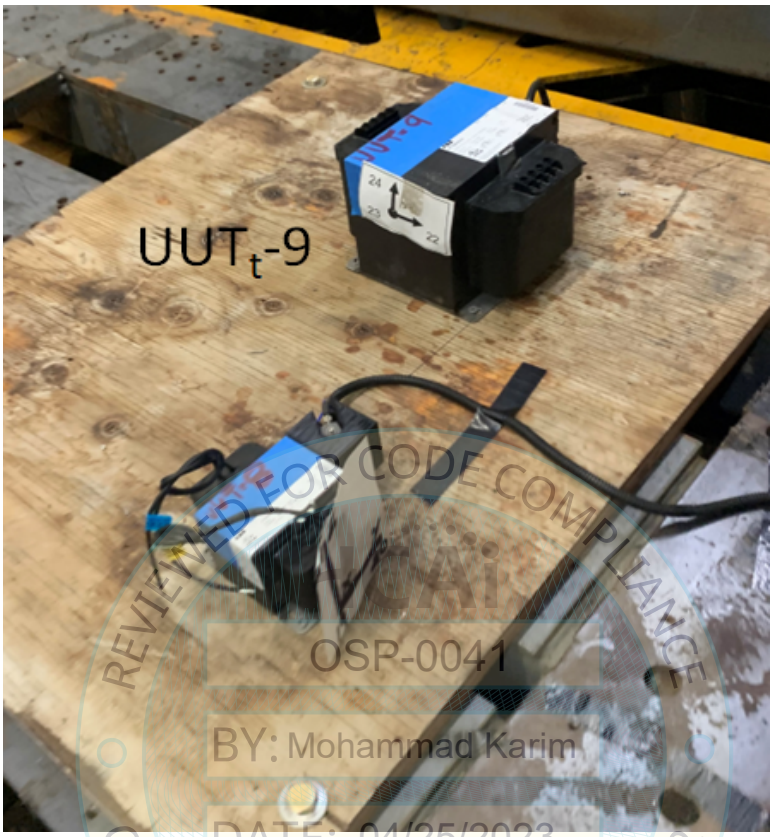
SEISMIC TEST PARAMETERS - Run #1

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-ES-AC156	2.31	1.0	1.5	3.70	2.77		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the Control Power IP Transformer product line in the floor mounted configuration. The seismic parameters are limited based on 90% ARIG.

UUT_t-9	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Floor mounted with (4) 10-32 screws.



Manufacturer: ABB	**Test Location:** Environmental Testing Laboratory, Ir
Product Line: Control Power IP Transformer Floor Mounted	**Test Date:** October 2022
	Report Number: 116690 Rev 1
Model Number: 9T58K2815	**UUT Function:** Voltage Regulation

UUT Description: IP 3 kVA Control Power Transformer. The unit is comprised of (1) 3 kVA Control Power Transformer

UUT Components: 3 kVA Power Transformer, Copper Windings, NEMA 2

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
52	6.8	8.8	5.8	>33	>33	22.3

SEISMIC TEST PARAMETERS

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-ES-AC156	2.25	1.0	1.5	3.60	2.7		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_x-1.

UUT_w-14	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (4) 10-32 screws.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Control Power IP Transformer - Wall Mount	**Test Date:** September 2013
Model Number: 9T58R0042	**Report Number:** 2665-R

UUT Function: Voltage regulation

UUT Description: IP 0.05 kVA Control Power Transformer. The unit is comprised of (1) 0.05 kVA Control Power Transformer

UUT Components: 0.05 kVA Power Transformer, Copper Windings, NEMA 2

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
3	3.0	4.0	3.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #3

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-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based on testing of UUT_z-4.

UUT_z-4	UNIT UNDER TEST (UUT) SUMMARY SHEET	WEGAI W.E. GUNDY & ASSOCIATES, INC. STRUCTURAL & EARTHQUAKE ENGINEERING

Mounting Details: Wall mounted with (4) 1/4" diameter grade 5 bolts.

Manufacturer: ABB	**Test Location:** Clark Test Laboratory
Product Line: Control Power IP Transformer - Wall Mount	**Test Date:** December 2005
Model Number: 9T58K0055	**Report Number:** 6982

UUT Function: Voltage regulation

UUT Description: IP 3.0 kVA Control Power Transformer. The unit is comprised of (1) 3.0 kVA Control Power Transformer

UUT Components: 3.0 kVA Power Transformer, Copper Windings, NEMA 1

UUT PROPERTIES

Weight (lb)	Dimensions (inches)			Natural Fequency (Hz)		
	Enclosure Width	Enclosure Depth	Enclosure Height	FB	SS	V
50	9.0	7.0	6.0	N/A	N/A	N/A

SEISMIC TEST PARAMETERS - Run #5

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-ES-AC156	1.81	1.0	1.5	2.90	2.17		
	2.50	0.0	1.5			1.67	0.67

Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the Control Power IP Transformer product line in the wall mounted configuration.