

Paulina Diaz
ABB

Subject: ABB Low Voltage Transformers Product Line Seismic Certification Letter
Pending OSP-0041-10 Renewal Review and Approval
Submitted to OSHPD November 2019 / Addressed Comments December 2021

We have prepared this letter to certify that the ABB QL/QC/FC Transformore, Encapsulated & Enclosed Servicenter, and Control Power IP Low Voltage Transformer Product Line meets the requirements for Special Seismic Certification as detailed in Section 1705A.13.3 of the CBC 2019, Section 13.2.2 of the ASCE7-16, and the 2015-ICC-ES AC156 standard. All components and subcomponents that are covered under this certification are detailed in the attached matrices and UUT summary sheets. Shake table tests were performed on a wide variety of transformer configurations at Clark Testing Laboratories in Pittsburgh, PA over the past 14 years. The results of the test are detailed in following test reports:

Test Report No.	Test Laboratory	Test Date	Representative Units Under Test
14-01293	Clark Testing Laboratory	November 2015	UUT _v -1 / UUT _v -2 / UUT _v -3
2665-R	Clark Testing Laboratory	September 2013	UUT _w -1 / UUT _w -2 / UUT _w -3 UUT _w -4 / UUT _w -5 / UUT _w -6 UUT _w -7 / UUT _w -8 / UUT _w -9 UUT _w -10 / UUT _w -11 / UUT _w -12 UUT _w -13 / UUT _w -14 / UUT _w -15
9872	Clark Testing Laboratory	October 2011	UUT _x -1
8428	Clark Testing Laboratory	February 2008	UUT _y -1 / UUT _y -2
6982	Clark Testing Laboratory	December 2005	UUT _z -1 / UUT _z -4

We have reviewed the test lab report for conformance with the requirements for Special Seismic Certification detailed in CBC 2019 Section 1705A.13.3, Section 13.2.2 of the ASCE7-16, and the 2015-ICC-ES AC156 standard. The Units Under Test were full of contents during testing and remained functional before and after the ICC-ES-AC156 test. The UUTs maintained structural integrity during and after the ICC-ES-AC156 test. Minor damage as allowed in the ICC-ES-AC156 standard occurred on a few UUT's at the seismic certification level as is detailed in the lab reports.

The enveloping requirements of the ICC-ES-AC156 tests were met for seismic certification limits set for the transformer configurations, see matrices for details. Additionally, the tests performed prior to 2011 did not meet the 90% A_{rig} requirements of the 2015-ICC-ES-AC156. This is considered acceptable as the 90% A_{rig} requirements did not exist at the time of the tests. Tests after 2011 were checked shown to meet the 90% A_{rig} requirement which did control the seismic rating for some cases (identified in the notes on the UUT summary sheets). The seismic parameters for each UUT are detailed on the UUT summary sheets while the seismic parameters for the product lines are limited to the UUT with the lowest seismic rating.

Based on our review of the above listed test reports, the ABB, Inc. QL/QC/FC Transformore, Encapsulated & Enclosed Servicenter, and Control Power IP transformer product lines (see attached matrices) meet the requirements for Special Seismic Certification as detailed in Section 1705A.13.3 of the CBC 2019 and Section 13.2.2 of the ASCE7-16. The seismic test reports and all supporting documentation was submitted to OSHPD in November of 2019 to renew OSP-0041-10. OSHPD Returned initial review comments in 2021 and their comments have been addressed and submitted back to OSHPD in December 2021.

Sincerely,

Travis E. Soppe, SE / PE / P.Eng
California SE 6115
President
W.E. Gundy & Associates Inc.

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



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
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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	19.0	16.0	27.0	200	UUT_w-3
9T10A1001	15 kVA	18.0	17.0	29.0	214	UUT_v-1²
9T(61/62/63/64/73/83)	15 kVA	18.7	16.9	27.3	230	interpolated
9T(10/11/12/13/14)	11-225 kVA	18.7	16.9	29.3	231	
9T(61/62/63/64/83)	9-15 kVA	18.7	16.9	27.3	240	
9T(10/11/12/13/14)	15 kVA	18.7	16.9	27.3	240	
9T(83/33)	15 kVA	18.7	16.9	34.5	250	
9T(83/33)	15kVA	18.7	16.9	27.3	260	
9T(10/11/12/13/14)	15 kVA	18.7	16.9	36.5	261	
9T(10/11/12/13/14)	15-30 kVA	23.8	18.4	34.7	297	
9T(61/62/63/64/73/83)	15-30 kVA	23.8	18.4	32.1	315	
9T(83/33)	11-37.5 kVA	23.8	18.4	32.1	320	
9T33	15-25 kVA	23.8	18.4	34.7	320	
9T(10/11/12/13/14)	15-75 kVA	23.8	18.4	34.7	330	
9T(61/62/63/64/83)	11-34 kVA	23.8	18.4	32.1	334	
9T(10/11/12/13/14)	45 kVA	23.8	18.4	34.7	353	
9T(83/33)	30 kVA	23.8	18.4	32.1	355	
9T(83/33)	30 kVA	23.8	18.4	41.3	358	
9T(10/11/12/13/14)	30 kVA	23.8	18.4	43.8	360	
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	363	
9T(61/62/63/64/73/83)	30-45 kVA	23.8	18.4	32.2	380	
9T(83/33)	25-50 kVA	31.8	24.0	35.7	400	
9T(10/11/12/13/14)	34-45 kVA	23.8	18.4	34.7	407	
9T(61/62/63/64/83)	20-51 kVA	23.8	18.4	32.2	440	
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	444	
9T33	37.5 kVA	31.8	24.0	35.7	460	
9T(10/11/12/13/14)	45 kVA	23.8	18.4	43.8	474	
9T(33)	50 kVA	31.8	24.0	35.7	490	
9T(83/33)	37.5-50 kVA	31.8	24.0	35.7	500	

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



Identification	kVA Rating	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(83/33)	50-75 kVA	31.8	24.0	39.9	510	interpolated
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	537	
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	555	
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	561	
9T(33/64/73)	30-75 kVA	31.8	24.0	35.7	600	
9T33	75 kVA	31.8	24.0	42.2	600	
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	603	
9T(61/62/63/64/83)	25-75 kVA	31.8	24.0	35.7	620	
9T(83/33)	75 kVA	31.8	24.0	35.7	620	
9T(83/33)	75kVA	31.8	24.0	35.7	640	
9T(83/33)	75 kVA	31.8	24.0	44.8	660	
9T73	112.5 kVA	31.8	24.0	39.9	660	
9T(10/11/12/13/14)	112.5 kVA	31.8	24.0	51.4	722	
9T(10/11/12/13/14)	75-112.5 kVA	31.8	24.0	42.2	732	
9T(61/62/63/64/83)	45-112.5 kVA	31.8	24.0	39.9	765	
9T(83/33)	75 kVA	31.8	24.0	35.7	765	
9T(83/33)	112.5 kVA	31.8	24.0	42.2	765	
9T(83/33)	112.5 kVA	34.8	24.0	45.9	765	
9T(61/62/63/64/83)	75-112.5kVA	31.8	24.0	39.9	790	
9T(10/11/12/13/14)	75-112.5 kVA	34.8	24.0	45.8	830	
9T4	75-225 kVA	29.5	28.5	37.3	845	
9T(33/34)	75-150 kVA	29.4	28.5	37.4	850	
9T(10/11/12/13/14)	75-100 kVA	29.5	28.5	37.4	900	
9T(83/33)	75 kVA	29.5	28.5	37.4	900	
9T(10/11/12/13/14)	118-150 kVA	34.8	24.0	45.8	947	
9T33	75-100 kVA	29.5	28.5	37.4	950	
9T10	150 kVA	34.0	24.0	46.0	978	UUT_v-3

General Notes:

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_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	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	18.7	16.9	29.3	230	extrapolated
9T83C9870	15 kVA	19.0	17.0	28.0	238	UUT_w-2
9T(73/83)	15 kVA	18.7	16.9	27.3	240	interpolated
9T(61/62/63/64/83/33)	11-15 kVA	18.7	16.9	27.3	250	
9T(10/11/12/13/14)	15 kVA	18.7	16.9	36.5	260	
9T(83/33)	11-15 kVA	18.7	16.9	27.3	270	
9T(17)	15 kVA	27.4 / 18.7	16.9	27.3	270	
9T(10/11/12/13/14)	30 kVA	23.8	18.4	34.7	271	
9T(96/97)	15 kVA	23.8	18.4	32.2	315	
9T(76/77)	11-15 kVA	23.8	18.4	32.2	318	
9T(83/33)	15-25 kVA	23.8	18.4	32.1	350	
9T(33/83)	15-25 kVA	23.8	18.4	34.7	350	
9T(10/11/12/13/14)	15-30 kVA	23.8	18.4	34.7	353	
9T(61/62/63/64/83/73)	15 -30kVA	23.8	18.4	32.1	360	
9T(10/11/12/13/14)	30 kVA	23.8	18.4	43.8	360	
9T(61/62/63/64/83/33)	15-35 kVA	23.8	18.4	32.1	377	
9T(61/62/63/64/83)	30 kVA	23.8	18.4	32.1	395	
9T(83/33)	22.5 kVA	23.8 / 34.5	18.4 / 24.0	32.2	460	
9T(61/62/63/64/83/73)	30-45 kVA	23.8	18.4	32.2	460	
9T(83/33)	30 kVA	23.8 / 34.5	18.4 / 24.0	32.2	460	
9T(17)	22.5 kVA	23.8 / 34.5	18.4 / 24.0	32.2	469	
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	480	
9T(61/62/63/64/83/33)	25-51 kVA	23.8	18.4	32.2	490	
9T(17)	30 kVA	23.8 / 34.5	18.4 / 24.0	32.2	494	
9T(17)	22.5 kVA	23.8 / 32.1	18.4 / 24.0	34.7	496	
9T(33/83)	25-50 kVA	31.8	24.0	35.7	500	
9T(10/11/12/13/14)	50-75 kVA	31.8	24.0	35.7	503	
9T(83/33)	30-45 kVA	23.8	18.4	32.2	510	
9T(33/83)	37.5 kVA	31.8	24.0	35.7	510	
9T(10/11/12/13/14)	45 kVA	23.8	18.4	43.8	510	

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

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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	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)	50 kVA	31.8	24.0	35.7	520	interpolated	
9T(17)	30 kVA	23.8 / 32.1	18.4 / 24.0	34.7	521		
9T(10/11/12/13/14)	75 kVA	31.8	24.0	44.8	545		
9T(96/97)	30 kVA	31.8	24.0	35.7	550		
9T(76/77)	30 kVA	31.8	24.0	35.7	552		
9T(10/11/12/13/14)	75 kVA	31.8	24.0	35.7	555		
9T(83/33)	50-75 kVA	31.8	24.0	39.9	625		
9T(96/97)	45 kVA	31.8	24.0	35.7	640		
9T(76/77)	45 kVA	31.8	24.0	35.7	643		
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	661		
9T(10/11/12/13/14)	30 kVA	31.8	24.0	35.7	661		
9T(61/62/63/64/83/73)	30-75 kVA	31.8	24.0	35.7	690		
9T10C1004G31	75 kVA	32.0	24.0	36.0	694		UUT_v-2²
9T(61/62/63/64/83/33)	30-75 kVA	31.8	24.0	35.7	710		interpolated
9T(83/33)	45-75 kVA	31.8	24.0	35.7	730		
9T(10/11/12/13/14)	75 kVA	31.8	24.0	35.7	748		
9T(33/83)	75 kVA	31.8	24.0	42.2	750		
9T(10/11/12/13/14)	75-112.5 kVA	31.8	24.0	42.2	790		
9T(10/11/12/13/14)	112.5 kVA	31.8	24.0	51.4	832		
9T(61/62/63/64/83/73)	75-112.5 kVA	31.8	24.0	39.9	850		
9T(10/11/12/13/14)	75-112.5 kVA	31.8	24.0	42.2	900		
9T(61/62/63/64/83/33)	45-112.5 kVA	31.8	24.0	39.9	949		
9T(83/33)	75 kVA	31.8	24.0	35.7	949		
9T(83/33)	75-112.5 kVA	31.8	24.0	39.9	970		
9T4	112.5-225 kVA	29.5	28.5	37.3	980		
9T(83/33)	75-100 kVA	29.5	28.5	37.4	1050		
9T(96/97)	75 kVA	31.8	24.0	39.9	1050		
9T(76/77)	75 kVA	31.8	24.0	39.9	1053		
9T(10/11/12/13/14)	112.5-150 kVA	34.8	24.0	45.8	1085		
9T4	225-300 kVA	34.8	25.6	40.9	1160		

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



Identification	kVA Rating	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(61/62/63/64/83/73/33)	75-150 kVA	34.8	24.0	45.9	1190	interpolated
9T(10/11/12/13/14)	112.5-150 kVA	34.8	24.0	45.8	1240	
9T(61/62/63/64/83/33)	112.5-225 kVA	38.4	33.0	45.4	1400	
9T(10/11/12/13/14)	112.5-225 kVA	38.4	33.0	47.4	1610	
9T(83/33)	100-167 kVA	38.5	33.0	45.5	1675	
9T(83/33)	225 kVA	38.4	33.0	45.4	1700	
9T(61/62/63/64/73/83/33)	100-225 kVA	38.5	33.0	45.4	1710	
9T4	300-500 kVA	38.5	33.6	45.4	1780	
9T(10/11/12/13/14)	150-225 kVA	38.4	33.0	47.4	1847	
9T(10/11/12/13/14)	167 kVA	38.5	33.0	45.5	1960	
9T(83/33)	200-250 kVA	38.5	33.0	45.5	1960	
9T(10/11/12/13/14)	225-300 kVA	38.4	33.0	57.1	1970	
9T(96/97)	112.5-150 kVA	38.6	33.0	45.5	1975	
9T(76/77/78/79)	112.5 kVA	38.6	33.0	45.5	1980	
9T(10/11/12/13/14)	300 kVA	38.4	33.0	57.1	1985	
9T(76/77)	150 kVA	38.6	33.0	57.1	2125	
9T(10/11/12/13/14)	225-300 kVA	38.4	33.0	57.1	2150	
9T(61/62/63/64/83)	150-300 kVA	38.4	33.0	57.1	2480	
	300-500 kVA	47.1	38.0	65.7	2900	
9T(61/62/63/64/83/96)	112.5-300 kVA	38.5	33.0	57.1	3150	
9T(73/76/77/83/33)	150-300 kVA	38.5	33.0	57.1	3170	
9T(83/33)	500 kVA	47.1	38.0	65.7	3400	
9T(10/11/12/13/14)	225-500 kVA	46.5	37.8	65.7	3720	
9T4	500-1000 kVA	47.5	40.0	57.5	4030	
9T(61/62/63/64/83/33)	225-500 kVA	47.3	38.0	65.7	4050	
9T(61/62/63/64/76/73/83)	225-500 kVA	47.3	38.0	65.7	4070	
9T45G0011	1000 kVA	47.0	38.0	57.0	4290	UUT_w-8

General Notes:

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_v - 14-01293, _w - 2665-R, _y - 8428, _z - 6982

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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	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
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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	18.7	16.9	27.3	230	extrapolated	
9T(10/11/12/13/14)	11-225 kVA	18.7	16.9	29.3	231		
9T(61/62/63/64/83/33)	9-15 kVA	18.7	16.9	27.3	240		
9T(83/33)	15 kVA	18.7	16.9	34.5	250		
9T(10/11/12/13/14)	15 kVA	18.7	16.9	36.5	261		
9T(10/11/12/13/14)	15-30 kVA	23.8	18.4	34.7	297		
9T(61/62/63/64/83/73)	15-30 kVA	23.8	18.4	32.1	315		
9T(83/33)	15-37.5 kVA	23.8	18.4	32.1	320		
9T(33/83)	15-30 kVA	23.8	18.4	34.7	320		
9T(10/11/12/13/14)	15-75 kVA	23.8	18.4	34.7	330		
9T(61/62/63/64/83/33)	11-34 kVA	23.8	18.4	32.1	334		
9T(10/11/12/13/14)	45 kVA	23.8	18.4	34.7	353		
9T(83/33)	30 kVA	23.8	18.4	32.1	355		
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	363		
9T(61/62/63/64/83/73)	30-45 kVA	23.8	18.4	32.2	380		
9T(83/33)	25-50 kVA	31.8	24.0	35.7	400		
9T(10/11/12/13/14)	34-45 kVA	23.8	18.4	34.7	407		
9T(61/62/63/64/83/33)	20-51 kVA	23.8	18.4	32.2	415		
9T(61/62/63/64/83/33)	30-51 kVA	23.8	18.4	32.2	440		
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	444		
9T(83/33)	37.5 kVA	31.8	24.0	35.7	460		
9T(33/83)	50 kVA	31.8	24.0	35.7	490		
9T(83/33)	37.5-50 kVA	31.8	24.0	35.7	500		
9T(83/33)	50-75 kVA	31.8	24.0	39.9	510		
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	537		
9T83B3874	QL 75 kVA	29.0	28.0	37.0	550		UUT_z-1²
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	555		interpolated
9T(10/11/12/13/14)	45-75 kVA	31.8	24.0	35.7	561		
9T(73)	30-75 kVA	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



Identification	kVA Rating	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	31.8	24.0	35.7	603	interpolated
9T(61/62/63/64/83/33)	25-75 kVA	31.8	24.0	35.7	620	
9T(61/62/63/64/83/73)	75-112.5 kVA	31.8	24.0	39.9	660	
9T(10/11/12/13/14)	75-112.5 kVA	31.8	24.0	42.2	680	
9T83B3875	QL 112.5 kVA	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



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
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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	18.7	16.9	29.3	230	extrapolated
9T(73/83)	15 kVA	18.7	16.9	27.3	240	
9T(61/62/63/64/83)	11 -15 kVA	18.7	16.9	27.3	250	
9T(10/11/12/13/14)	15 kVA	18.7	16.9	36.5	260	
9T(10/11/12/13/14)	30 kVA	23.8	18.4	34.7	271	
9T83C9870	11 kVA	19.0	17.0	28.0	276	UUT_w-9
9T(96/97)	15 kVA	23.8	18.4	32.2	315	interpolated
9T(76/77)	11 -15 kVA	23.8	18.4	32.2	318	
9T(33/83)	15-25kVA	23.8	18.4	34.7	350	
9T(10/11/12/13/14)	15-30 kVA	23.8	18.4	34.7	353	
9T(61/62/63/64/73/83)	15 -30kVA	23.8	18.4	32.1	360	
9T(61/62/63/64/83/33)	15-34 kVA	23.8	18.4	32.1	377	
9T(61/62/63/64/83)	30 kVA	23.8	18.4	32.1	395	
9T(61/62/63/64/73/83)	30-45 kVA	23.8	18.4	32.2	460	
9T(10/11/12/13/14)	30-45 kVA	23.8	18.4	34.7	480	
9T(61/62/63/64/83/33)	25-51 kVA	23.8	18.4	32.2	490	
9T(33/83)	25-50 kVA	31.8	24.0	35.7	500	
9T(10/11/12/13/14)	50-75 kVA	31.8	24.0	35.7	503	
9T(83/33)	30-45 kVA	23.8	18.4	32.2	510	
9T(33/83)	37.5 kVA	31.8	24.0	35.7	510	
9T(83/33)	50 kVA	31.8	24.0	35.7	520	
9T(96/97)	30 kVA	31.8	24.0	35.7	550	
9T(76/77)	30 kVA	31.8	24.0	35.7	552	
9T(77)	30 kVA	31.8	24.0	35.7	552	
9T(10/11/12/13/14)	75 kVA	31.8	24.0	35.7	555	
9T(83/33)	50-75 kVA	31.8	24.0	39.9	625	
9T(83/33)	50-75 kVA	31.8	24.0	39.9	635	
9T(96/97)	45 kVA	31.8	24.0	35.7	640	
9T(76/77)	45 kVA	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



Identification	kVA Rating	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	31.8	24.0	35.7	661	interpolated
9T(10/11/12/13/14)	30 kVA	31.8	24.0	35.7	661	
9T(61/62/63/64/73/83)	30-75 kVA	31.8	24.0	35.7	690	
9T(10/11/12/13/14)	75 kVA	32.0	24.0	36.0	694	
9T(61/62/63/64/83/33)	30 -75kVA	31.8	24.0	35.7	710	
9T(10/11/12/13/14)	75 kVA	31.8	24.0	35.7	748	
9T(10/11/12/13/14)	75-112.5 kVA	31.8	24.0	42.2	790	
9T(61/62/63/64/83)	75 kVA	31.8	24.0	29.9	850	
9T(61/62/63/64/73/83)	75-112.5 kVA	31.8	24.0	39.9	850	
9T(10/11/12/13/14)	112.5 kVA	31.8	24.0	42.2	900	
9T(61/62/63/64/83/33)	45-112.5 kVA	31.8	24.0	39.9	949	
9T4	112.5-225 kVA	29.5	28.5	37.3	976	
9T83C9875	112.5 kVA	32.0	24.0	40.0	1018	UUT_v-2²

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**



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
Table 1: Floor Mounted (Aluminum Windings)						
Seismic Certification Limits: $S_{DS} = 2.42$ at $z/h = 1$: $F_p = 1.74g$						
9T21	5 kVA	10.8	11.1	32.5	103	extrapolated
9T21S1050	5 kVA	11.0	11.0	33.0	130	UUT_w-4
9T21	7.5 kVA	10.8	11.1	32.5	147	interpolated
9T21	5 kVA	10.5	11.0	14.4	150	
9T21	3-10 kVA	10.5	11.0	14.4	150	
9T21	7.5KVA	10.5	11.0	17.0	150	
9T21	5-15 KVA	10.5	11.0	17.0	150	
9T21	10 kVA	12.6	12.6	35.0	198	
9T21	5-15 kVA	12.4	12.4	17.0	200	
9T21	15 kVA	12.6	12.6	35.0	220	
9T21	10-25 kVA	12.4	12.4	17.0	270	
9T17	15 kVA	18.7 / 27.4	16.9	27.3	275	
9T(17/83)	15 kVA	27.4	16.9	27.3	280	
9T21	10-15 kVA	12.6	12.6	35.0	300	
9T21	10-15 kVA	12.6	12.6	35.0	300	
9T17	15kVA	25.6	16.9	29.3	301	
9T21	25 kVA	16.8	16.0	44.8	388	
9T21	25kVA	16.6	15.9	20.8	400	
9T21	25 kVA	16.6	15.9	20.8	400	
9T17	22.5-30 kVA	23.8 / 34.5	18.4 / 24.0	32.2	413	
9T17	22.5-30 kVA	34.5	24.0	32.2	430	
9T83B0013	30 kVA	35.0	35.0	32.0	432	

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**



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹	
Table 2: Floor Mounted (Copper Windings)							
Seismic Certification Limits: $S_{DS} = 2.42$ at $z/h = 1$: $F_p = 1.74g$							
9T51	0.05-25 kVA	5.0	3.1	6.2	6	extrapolated	
9T51	0.08-2 kVA	6.0	4.3	7.3	10		
9T51	0.15-5 kVA	6.8	4.9	8.3	16		
9T51	0.5-10 kVA	7.8	5.5	9.5	25		
9T51	1-25 kVA	9.3	6.8	11.0	50		
9T51	2.44 kVA	9.3	6.8	13.0	60		
9T21	3-10 kVA	10.5	11.0	14.4	150		
9T21	5-15 kVA	10.5	11.0	17.0	150		
9T21	5-15 kVA	12.4	12.4	17.0	200		
9T21	10-25 kVA	12.4	12.4	17.0	270		
9T83	15 kVA	27.4	16.9	27.3	280		
9T83C0011	15 kVA	27.0	17.0	27.0	289		UUT_w-7
9T83	15 kVA	27.0	17.0	27.0	289		interpolated
9T17	15kVA	27.4	16.9	27.3	290		
9T83	15 kVA	27.4	16.9	27.3	290		
9T17	15 kVA	25.6	16.9	29.3	300		
9T83	15 kVA	27.0	17.0	27.0	326		
9T21	25 kVA	16.6	15.9	20.8	400		
9T17	22.5-30kVA	34.5	24.0	32.2	460		
9T83	30 kVA	27.0	17.0	17.0	462		
9T83C0013	30kVA	27.0	17.0	27.0	462	UUT_w-6²	

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**



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
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Table 3: Wall Mounted (Aluminum Windings)

Seismic Certification Limits: $S_{DS} = 2.50$ at $z/h = 1 : F_p = 1.80g$

9T21	5 kVA	10.8	11.1	32.5	103	extrapolated
9T21S1050	5 kVA	11.0	11.0	33.0	130	UUT_w-10
9T21	7.5 kVA	10.8	11.1	32.5	147	interpolated
9T21	5 kVA	10.5	11.0	14.4	150	
9T21	7.5 kVA	10.5	11.0	17.0	150	
9T21	10 kVA	12.6	12.6	35.0	198	
9T21	15 kVA	12.6	12.6	35.0	220	
9T17	15 kVA	27.4	16.9	27.3	280	
9T21	10-15 kVA	12.6	12.6	35.0	300	
9T21	25 kVA	16.8	16.0	44.8	388	
9T21	25 kVA	16.6	15.9	20.8	400	
9T17	22.5-30 kVA	34.5	24.0	32.2	430	
9T83B0013	30 kVA	35.0	35.0	32.0	468	UUT_w-11

Table 4: - 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	5.02	3.13	6.2	6	extrapolated
9T51	0.08-2 kVA	6.02	4.25	7.3	10	
9T51	0.25-5 kVA	6.76	4.88	8.3	16	
9T51	0.5-10 kVA	7.76	5.5	9.5	25	
9T51	1-25 kVA	9.3	6.8	11.0	50	
9T51	2.44 kVA	9.3	6.8	13.0	60	
9T83	15 kVA	27.4	16.9	27.3	280	
9T83	15 kVA	27.0	17.0	27.0	289	
9T(17/83)	15 kVA	27.4	16.9	27.3	290	
9T17	15 kVA	25.6	16.9	29.3	300	
9T83C0011	15 kVA	27.0	17.0	27.0	326	UUT_w-13
9T83	15 kVA	27.0	17.0	27.0	326	interpolated
9T17	22.5-30 kVA	34.5	24.0	32.2	460	
9T83	30 kVA	27.0	17.0	17.0	462	
9T83C0013	30 kVA	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 $I_p = 1.5$

ABB CONTROL POWER IP TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹
Table 1: - Control Power IP - Floor Mounted (Copper Windings)						
Seismic Certification Limits: $S_{DS} = 2.21$ at $z/h = 1$: $F_p = 1.66g$						
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	
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	47.0	
9T58	0.25-3 kVA	6.8	8.8	5.8	47.0	
9T58R005	3 kVA	9.0	7.0	6.0	47.0	UUT_x-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 $I_p = 1.5$

ABB CONTROL POWER IP TRANSFORMERS CERTIFIED PRODUCT LINE MATRIX



Identification	kVA Rating	Width (in)	Depth (in)	Height (in)	Weight (lbs)	Representative UUT ¹⁾
Table 2: 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	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	
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-4²⁾

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 $I_p = 1.5$

UUT_w-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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_w-3

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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**



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 2019 / 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-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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_v-3

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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_y-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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



Manufacturer: ABB	Test Location: Clark Test Laboratory
Product Line: QL, QF, FC Transformore - Floor Mounted	Test Date: February 2008
Model Number: 9T40G0009	Report Number: 8428
UUT Function: Power distribution system	
UUT Description: FCT 500 kVA Dry Type Transformer. The unit is comprised of a floor mounted NEMA type 1 enclosure consisting of (1) 500 kVA Dry Type Transformer	
UUT Components: NEMA1 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
1,590	45.0	38.0	33.0	17.2	7.0	>33

SEISMIC TEST PARAMETERS - Run #3

Test Criteria	S _{DS} (g)	z / h	I _p	A _{FLEX-H} (g)	A _{RIG-H} (g)	A _{FLEX-V} (g)	A _{RIG-V} (g)
CBC 2019 / ICC-ES-AC156	1.36	1.0	1.5	2.18	1.63		
	2.18	0.0	1.5			1.46	0.59

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-8

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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_w-9

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / ICC-ES-AC156	2.50	1.0	1.5	4.00	3.00		
	2.50	0.0	1.5			1.67	0.67

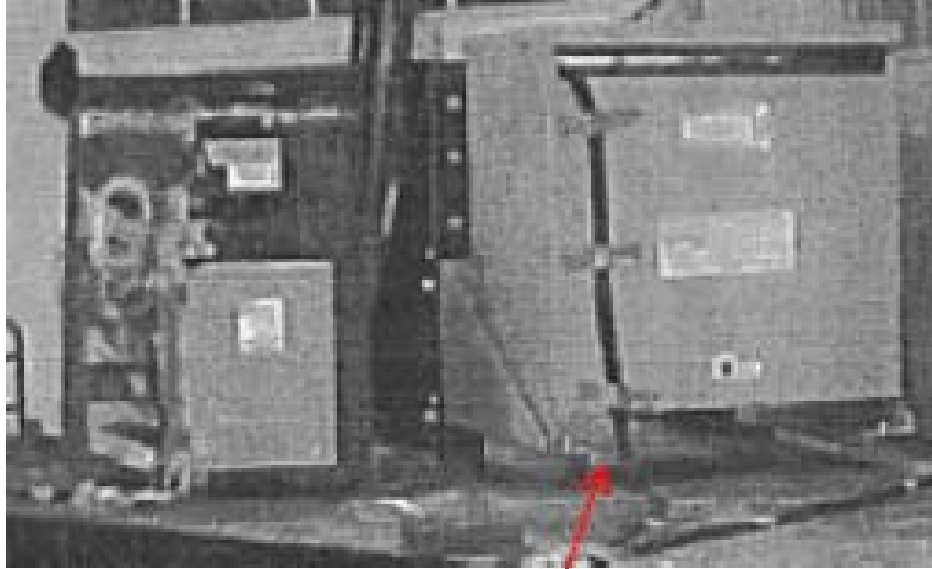
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. UUT was tested at the level shown on this sheet however the product family is limited to a lower level based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

UUT_z-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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



UUT 1

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 2019 / 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**



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 2019 / 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_v-2.

UUT_y-2

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 2019 / 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**



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 Frequency (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 2019 / 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_w-7

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / 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_w-5

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / 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-6

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / 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 Encapsulated & Enclosed Servicenter Transformer product line in the floor mounted configuration.

UUT_w-10

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / 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**



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 Frequency (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 2019 / 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**



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 Frequency (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 2019 / 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**



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 Frequency (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 2019 / 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**



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 Frequency (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 2019 / 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_x-1

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / ICC-ES-AC156	2.31	1.0	1.5	3.70	2.77		
	2.50	0.0	1.5			1.67	0.67

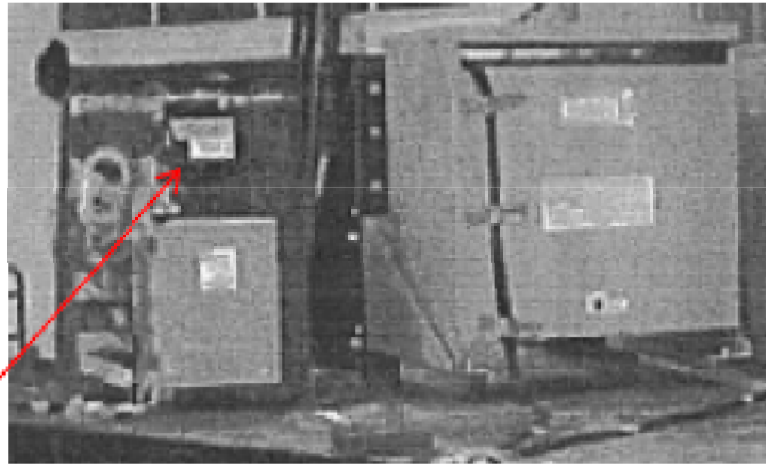
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the Control Power IP Transformer product line in the floor mounted configuration.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

UUT_z-4

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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



UUT 4

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 Frequency (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 2019 / ICC-ES-AC156	1.81	1.0	1.5	2.90	2.17		
	2.50	0.0	1.5			1.67	0.67

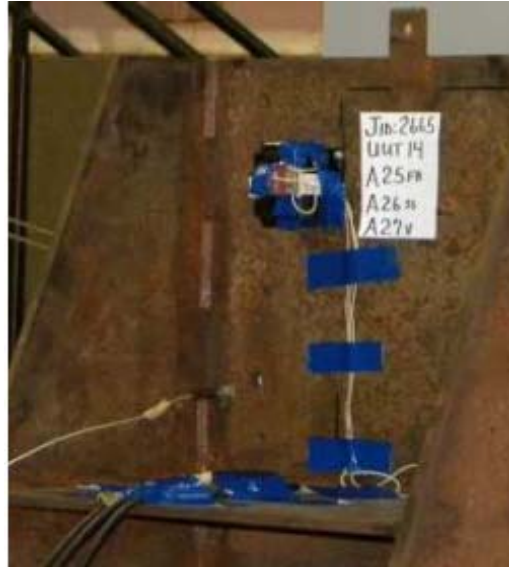
Note: The unit was full of contents during testing and remained functional before and after the ICC-ES AC156 test. The unit maintained structural integrity during and after the ICC-ES AC156 Test. This is the controlling UUT for the Control Power IP Transformer product line in the wall mounted configuration.

UUT_w-14

**UNIT UNDER TEST (UUT)
SUMMARY SHEET**



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 Frequency (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 2019 / 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.