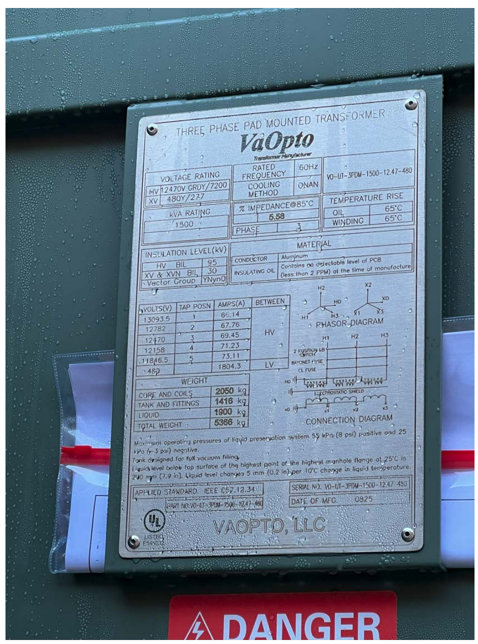
ASPLUNDH
ELECTRICAL TESTING

25 Forbes Boulevard, Suite 1
Foxboro, MA 02035
Phone: (781) 821-0121
www.asplundhtesting.com

VAOPTO
Conner – Emerson School
11 Eagle Lake Road
Test Report

December 29th, 2025
Revision 1
AET Project #: C250700



Prepared For:
VAOPTO
Conner – Emerson School
11 Eagle Lake Road
Bar Harbor, ME 04609

Prepared By:
Michael Krebs
Asplundh Electrical Testing
25 Forbes Boulevard, Suite 1
Foxboro, MA 02035

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1.0 Executive Summary

1.1 Purpose

VAOPTO contracted Asplundh Electrical Testing (AET) to perform acceptance testing and maintenance on a pad-mount transformer located at Conner – Emerson School 11 Eagle Lake Road Bar Harbor, ME 04609.

1.2 Scope

AET was contracted to perform the following testing:

1. Acceptance testing of transformers.

1.3 Methodology

All work was performed in accordance with the NETA Acceptance Testing Specifications, where applicable.

All test results are included in Section 2 at the conclusion of this report.

1.4 Summary of Findings

Based upon our visual examination and the testing performed, the results obtained by AET and as detailed within this report are acceptable.

2.0 Test Reports

VAOPTO V0-UT-3PDM-1500-1247-480_X2

Report Source **TwoWindingTransformer**

Session Test Date 11/4/2025 10:15:45 AM

Nameplate - Two-winding Transformer

Company	VAOPTO	**Serial Number**	V0-UT-3PDM-1500-12.47-480
Location	11 EAGLE LAKE ROAD BAR HARBOR ME	**Special ID**	PadMount Transformer
Division	TEST	**Circuit Designation**	
Manufacturer	(No MFR Listed)	**Configuration**	Y-Y
Year Manufactured	2025	**Tank Type**	Sealed
Mfr Location	CHINA	**Coolant**	Oil
Phases	Three	**Class**	ONAN/ONAF
Oil Volume	1900 KG	**BIL**	95 kV
Weight	5366 KG		
kV	12.47, 0.48	**VA Rating**	1500, *, *, *, KVA

Administration

Test Date	11/4/2025	**Test Time:**	10:15 AM	**Weather**	Partly Cloudy
Air Temperature	9°C	**Apparatus Temperature**	14°C	**Humidity**	49 %
Tester	JP/EM	**Work Order**		**Date Last Tested**	
Verified	RF	**Test Set Type**	M4000	**Date Retested**	
Verification Date	11/4/2025	**Set Top Serial #**	111020695	**Reason**	INITIAL NEW
Last Sheet #		**Set Bottom Serial #**		**Travel Time**	
Purchase Order		**Ins. Book #**		**Duration**	
Copies		**Sheet #**		**Crew Size**	2

Bushing Nameplate

Designation	Serial #	Manufacturer	Type	C1 %PF	C1 Cap	C2 %PF	C2 Cap	Rated kV	Amps
H0	H0			*	*	*	*	*	*
H1	H1			*	*	*	*	*	*
H2	H2			*	*	*	*	*	*
H3	H3			*	*	*	*	*	*

Overall Tests

	Insulation	Test kV	mA	Watts	%PF Corr.	Corr Fctr	Cap (pF)	Manual
1	CH+CHL	10.000	28.790	1.307	0.455	1.003	7636.745	Good
2	CH	10.000	28.076	1.314	0.469	1.003	7447.610	Good
3	CHL(UST)	9.999	0.715	0.015	0.211	1.003	189.592	Good
4	CHL	0	0.714	-0.007	-0.099	1.003	189.135	Good
5	CL+CHL	0.500	55.076	1.977	0.360	1.003	14609.600	Good
6	CL	0.500	54.360	1.991	0.367	1.003	14419.950	Good
7	CHL(UST)	0.500	0.715	0.014	0.198	1.003	189.709	Good
8	CHL	0	0.716	-0.014	-0.194	1.003	189.650	Good

LSR	mA: 28.790/28.790, 1/1	Watts: 1.307/1.307, 1/1	Cap (pF): 7636.745/7636.745, 1/1
LSR	mA: 28.076/28.076, 1/1	Watts: 1.314/1.314, 1/1	Cap (pF): 7447.610/7447.610, 1/1
LSR	mA: 0.715/0.715, 1/1	Watts: 0.015/0.015, 1/1	Cap (pF): 189.592/189.592, 1/1
LSR	mA: 0.714/0.714, 1/1	Watts: -0.007/-0.007, 1/1	Cap (pF): 189.135/189.135, 1/1
LSR	mA: 55.076/55.076, 1/1	Watts: 1.977/1.977, 1/1	Cap (pF): 14609.600/14609.600, 1/1
LSR	mA: 54.360/54.360, 1/1	Watts: 1.991/1.991, 1/1	Cap (pF): 14419.950/14419.950, 1/1
LSR	mA: 0.715/0.715, 1/1	Watts: 0.014/0.014, 1/1	Cap (pF): 189.709/189.709, 1/1
LSR	mA: 0.716/0.716, 1/1	Watts: -0.014/-0.014, 1/1	Cap (pF): 189.650/189.650, 1/1

Exciting Current Tests

	Manufacturer	Type	Steps	Boost %	Buck %	Position Found	Position Left	Oil Volume
DETC	(No MFR Listed)					3	3	*

			H0 H1			H0 H2			H0 H3			
DETC	**LTC**	**Test kV**	**mA**	**Watts**	**X**	**mA**	**Watts**	**X**	**mA**	**Watts**	**X**	**Manual**
3		5	21.812	174.964	L	22.322	179.147	L	21.487	172.865	L	Good

LSR	mA: 21.812/21.812, 1/1	Watts: 174.964/174.964, 1/1	Cap (pF): */*, 1/1
LSR	mA: 22.322/22.322, 1/1	Watts: 179.147/179.147, 1/1	Cap (pF): */*, 1/1
LSR	mA: 21.487/21.487, 1/1	Watts: 172.865/172.865, 1/1	Cap (pF): */*, 1/1

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Transformer - Turn Ratio Test - PriSec

Customer	VAOPTO			**Job #**	C250700
Address	5178 West Patrick Lane	Las Vegas	NV	**Date**	11/4/2025
Owner / User	Conner - Emerson School			**Ambient Temp.**	49 °F **Humidity** 75 %
Address	11 Eagle Lake Road	Bar Harbor	ME	**Reference #**	
Equip Locations	TRANSFORMER PAD			**Device ID**	PadMount Transformer

Manufacturer	VaOpto	Serial #	V0-UT-3PDM-1500-12.47-480	Type/Class	ONAN
Insulation Type	INSULATING OIL	Age	08/25	Date of Last Test	INITIAL
Impedence	5.58	Temp. Rise	65 °C	Phase	3
Winding Polarity	SUB	Winding Material	AL	Free Breathing	☐
Sealed	☑	Gas Blanketed	☐	Conservator	☐
Gallons of Oil	1900 KG	KVA	1500	K Factor	
BIL	95	KV Pri	30	KV Sec	
High Side KV	12.47 / 69.45 amps	Low Side KV	.48 / 1804.3 amps		
Connection Type	WYE/STRESS CONES	Connection Type	WYE, CRIMPED LUGS		

Pri Tap Voltage	13093.5	12782	12470	12158	11846.5		
Tap Connections	1	2	3	4	5		

Tap Changer: ☑ Internal ☐ External

ELECTRICAL TESTS

Tap	Voltages		Calculated	Measured Ratio		
Position	Primary	Secondary	Ratio	H1 H2 X1 X2	H2 H3 X2 X3	H3 H1 X0 X1
1	7559.757	277.136	27.278	27.312	27.314	27.313
2	7379.907	277.136	26.629	26.621	26.620	26.621
3	7199.769	277.136	25.979	26.004	26.005	26.005
4	7019.630	277.136	25.329	25.314	25.313	25.314
5	6839.780	277.136	24.680	24.695	24.695	24.695

Working Tap Primary - AF	3	AL	3

SEE RELATED TESTS ☑

Comments	TEST RESULTS ARE SATISFACTORY
Deficiencies	
Test Equip. IDs	AET# 3204, 6768, 1186, 5812 — 0
Tested By	JP/EM

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Transformer - Liquid Filled

NETA

Customer	VAOPTO			**Job #**	C250700
Address	5178 West Patrick Lane	Las Vegas	NV	**Date**	11/4/2025
Owner / User	Conner - Emerson School			**Ambient Temp.**	49 °F **Humidity** 75 %
Address	11 Eagle Lake Road	Bar Harbor	ME	**Reference #**	
Equip Locations	TRANSFORMER PAD			**Device ID**	PadMount Transformer

Manufacturer	VaOpto	Serial #	V0-UT-3PDM-1500-2.47-480			Type/Class	ONAN
Insulation Type	INSULATING OIL	Age	08/25	Date of Last Test	INITIAL	Impedence	5.58
Temp. Rise	65 °C	Phase	3	Winding Polarity	SUB	Winding Material	AL
Free Breathing	☐	Sealed	☑	Gas Blanketed	☐	Conservator ☐ / Gallons of Oil	1900 KG
KVA	1500	K Factor		BIL	95	KV Pri	65 KV Sec
High Side KV	12.47 / 69.45 amps	Low Side KV	.48 / 1804.3 amps	Tertiary KV	/ amps		
Connection Type	WYE / STRESS CONES	Connection Type	WYE / CRIMPED LUGS				

Pri Tap Voltage	13093.5	12782	12470	12158	11846.5			**Tap Changer**
Tap Connections	1	2	3	4	5			☑ Internal ☐ External

Compare nameplate data with drawings and specifications.**	☑
Inspect physical and mechanical condition.	☑
Verify removal of any shipping bracing after final placement. **	☐
Inspect anchorage, alignment, and grounding.	☑
Inspect impact recorder prior to unloading if applicable. **	☐
Verify settings and operation of all temperature devices. **	☐
Verify that fan and pump motors have correct overcurrent protection. **	☐
Verify that cooling fans and/or pumps operate correctly.	☐
Verify operation of all alarm, control, and trip circuits for temperature and level indicators, pressure relief device, and fault pressure relay.	☐
Verify presence of PCB labeling.***	☑
Inspect all bolted electrical connections for high resistance using one or more of the following methods:	☐
Low Resistance Ohmmeter ☐ / Torque Wrench ☐ / Thermographic Survey	☐
Verify correct liquid level in all tanks and bushings.	☐
Verify positive pressure maintained on nitrogen-blanketed transformers.	☐
Perform specific inspections and mechanical tests as recommended by manufacturer.	☐
Clean bushings and control cabinets prior to testing unless as-found and as-left tests are required.***	☑
Test load tap-changer in accordance with specsif applicable.	☐
Verify the presence of transformer surge arresters.	☐

Coolant Temp	14	°C	Coolant Level	NORMA	Maximum Temp	26	°C	Pressure/Vaccum	-1	LTC Counter	
Other Guages											

INSULATION RESISTANCE in :	Megohms					
Minutes	Pri to Sec	Pri to Gnd	Sec to Gnd	Pri to Ter	Sec to Ter	Ter to Gnd
Test KV	5	5	1			
0.50	687000	65800	33500			
1.00	947000	73000	45000			
10.00	538000	102300	95700			
DA (1min/.5min)	1.378	1.109	1.343			
PI (10min/1min)	0.568	1.401	2.127			

WINDING RESISTANCE TEST in:	MilliOhms																		
Primary Winding						Secondary Winding						Tertiary Winding							
H	0	H	1	=	353.7	X	0	X	1	=	.462	Y		Y		=			
H	0	H	2	=	353.5	X	0	X	2	=	.457	Y		Y		=			
H	0	H	3	=	351.4	X	0	X	3	=	.451	Y		Y		=			

TURNS RATIO AND POLARITY TEST						
Calculated Turns Ratio	25.979					
Actual Turns Ratio	Ph A	26.004	Ph B	26.005	Ph C	26.005
Tap positions	1-5		Polarity	SUB		
Working Tap - AF	3	AL	3			

% of Oxygen in Nitrogen Blanket - if applicable		%
Core Ground @ 500 VDC		Megohms
Remove a sample of insulating liquid	DGA: X	LQS:

SEE RELATED TESTS ☑

BOLTED CONNECTION RESISTANCE MEASUREMENTS in								
	H1:	H2:	H3:	H0:	X1:	X2:	X3:	X0:
As Found								
As Left								

Comments	TEST RESULTS ARE SATISFACTORY
Deficiencies	
Test Equip. IDs	AET# 3204, 6768, 1186, 5812 0 **Tested By** JP,EM

Laboratory Analysis Report

327747

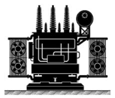
Asplundh Electrical Testing

CUSTOMER INFORMATION		ORDER INFORMATION		REPORT AUTHORIZATION	
Address:	Asplundh Electrical Testing	Purchase Order:	037518	Authorized By:	Turner, Chase
	25 Forbes Blvd Unit 1	Submitter Ref:		Email:	CTurner@doble.com
	Foxboro, MA, 02035-2873,	Date Received:	2025-11-07	Date Report Issued:	2025-11-10
Primary Contact:		Report Revision:		Authorization Signature:	Chase M. Turner
Primary Email:					

Thank you for using Doble Engineering analytical laboratory services, we greatly appreciate the opportunity to serve you and value your business. In accordance with your request, we have performed testing on the sample(s) provided. If the sampling date is not provided, the sample receipt date is used to provide chronological information. Should you have any comments, suggestions or questions please feel free to contact us at the Email listed above.

Samples Requiring Immediate Attention			
Sample Id	Apparatus Type	Serial No	Miscellaneous Id

APPARATUS DETAIL						SAMPLING INFORMATION			
Serial Number:	VOUT3PDM15001247480	Cooling:		Temp Rise C:	65	Syringe No:	IET852	Sampled By:	
Equipment No.:		Max KV:	13.01	Preservation:	Gas Blanketed	Misc. ID:		Part Position:	Bottom
XFMR/TRN Name:		Max MVA:	1.5	Liquid Type:	Mineral	Work Order:		Top Oil Temp C:	25
Substation:	Middle School	XFMR/TRN Type:	XFMR	Volume:	1900	Sample Date:	2025-11-04	Humidity:	74
Manufacturer		Design Type:	Core Type	Vol Units:	Kilograms	Sample Time:		Amb Temp C:	14
Year Made:	2025	1 or 3 Phase:	No			Report Type:	XFMR-Bottom		



Sample Id:	327747-001	Serial Number:	VOUT3PDM15001247480	Misc Id:	

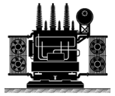
Dissolved Gas Analysis

	Sample Date:	2025-11-04
	Analysis Date:	2025-11-10
	Doble Sample Id:	327747-001
	Top Oil Temperature:	25
Hydrogen (H2)	ASTM D3612 IEC 60567(ppm) ^	1.4
Oxygen (O2)	ASTM D3612 IEC 60567(ppm) ^	24500
Nitrogen (N2)	ASTM D3612 IEC 60567(ppm) ^	75700
Methane (CH4)	ASTM D3612 IEC 60567(ppm) ^	2.1
Carbon Monox. (CO)	ASTM D3612 IEC 60567(ppm) ^	22
Ethane (C2H6)	ASTM D3612 IEC 60567(ppm) ^	0.1
Carbon Dioxide (CO2)	ASTM D3612 IEC 60567(ppm) ^	328
Ethylene (C2H4)	ASTM D3612 IEC 60567(ppm) ^	0.1
Acetylene (C2H2)	ASTM D3612 IEC 60567(ppm) ^	0
Total Gas	(ppm) ^	100554
Comb. Gas	(ppm) ^	26
Est. TCG, % of Gas Space	^	0.02
Ethylene-Acetylene Ratio	^	0.00
H2+C2H2:TCG-CO Ratio		0.35
PPM/Day	(ppm/day) ^	Need Data

CRITICALITY: Condition is of no immediate concern.

Resample Frequency: 1 year

Comments: The results indicate that there is a low volume of combustible gas present.



APPARATUS DETAIL						SAMPLING INFORMATION			
Serial Number:	VOUT3PDM15001247480	Cooling:		Temp Rise C:	65	Syringe No:	IET852	Sampled By:	
Equipment No.:		Max KV:	13.01	Preservation:	Gas Blanketed	Misc. ID:		Part Position:	Bottom
XFMR/TRN Name:		Max MVA:	1.5	Liquid Type:	Mineral	Work Order:		Top Oil Temp C:	25
Substation:	Middle School	XFMR/TRN Type:	XFMR	Volume:	1900	Sample Date:	2025-11-04	Humidity:	74
Manufacturer		Design Type:	Core Type	Vol Units:	Kilograms	Sample Time:		Amb Temp C:	14
Year Made:	2025	1 or 3 Phase:	No			Report Type:	XFMR-Bottom		

Sample Id:	327747-001	Serial Number:	VOUT3PDM15001247480	Misc Id:	

Oil Quality Tests

	Sample Date:	2025-11-04
	Analysis Date:	2025-11-10
	Doble Sample Id:	327747-001
	Top Oil Temperature:	25
Water Content	D1533 IEC 60814(ppm) ^	7
Relative Saturation	(%) ^	10.3
Color D1500	D1500 ^	L0.5
Dielectric, D 1816, 1mm gap	D1816(kV) ^	32
Interfacial Tension	D971 (mN/m) ^	51.1
Neut. Number	D974(mgKOH/g) ^	< 0.01
Power Factor @ RT	D924(%) ^	0.004
Power Factor @ 100°C	D924(%) ^	0.062
Specific Gravity By D4052	D4052(60/60) ^	0.8404
Visual Examination	D1524 ^	C&B

Comments: All results are acceptable for in service fluid.