Table 3: Point of Reception Noise Impact (Daytime)
SunE Westbrook Solar Farm, Westbrook, Ontario

Noise Source ID	Point of Reception V9		Point of Reception V10		Point of Reception V11		Point of Reception V12		Point of Reception V13		Point of Reception V14	
	Distance to V9 (m)	Sound Level at V9 (Leq) (dBA)	Distance to V10 (m)	Sound Level at V10 (Leq) (dBA)	Distance to V11 (m)	Sound Level at V11 (Leq) (dBA)	Distance to V12 (m)	Sound Level at V12 (Leq) (dBA)	Distance to V13 (m)	Sound Level at V13 (Leq) (dBA)	Distance to V14 (m)	Sound Level at V14 (Leq) (dBA)
H1T	1032.7	3.2	1068.0	2.9	1966.2	<1	2135.1	<1	832.3	5.6	1954.0	<1
H1I1	1037.1	6.8	1072.4	6.4	1970.4	<1	2138.6	<1	827.9	9.3	1958.8	<1
H1I2	1035.4	6.8	1070.7	6.5	1971.0	<1	2139.8	<1	829.6	9.2	1958.7	<1
H2T	1161.0	1.9	1198.0	1.6	1930.5	<1	2050.2	<1	727.3	7.0	1972.2	<1
H2I1	1165.1	5.5	1202.1	5.2	1935.0	<1	2053.9	<1	722.5	10.7	1977.1	<1
H2I2	1163.2	5.5	1200.2	5.2	1935.4	<1	2055.0	<1	723.8	10.7	1976.7	<1
H3T	1302.1	0.6	1340.2	0.3	1911.6	<1	1978.4	<1	656.6	8.1	2006.7	<1
H3I1	1306.0	4.2	1344.0	3.9	1916.2	<1	1982.4	<1	651.7	11.8	2011.6	<1
H3I2	1303.9	4.2	1341.9	3.9	1916.3	<1	1983.3	<1	652.4	11.8	2011.0	<1
H4T	1022.1	3.3	1061.2	2.9	1517.1	<1	1649.9	<1	1072.1	2.8	1591.0	<1
H4I1	1025.0	6.9	1064.1	6.5	1521.6	2.4	1653.4	1.4	1067.2	6.5	1595.9	1.9
H4I2	1022.7	7.0	1061.8	6.6	1522.0	2.4	1654.6	1.4	1067.9	6.5	1595.3	1.9
H5T	618.1	8.7	656.1	8.1	1642.2	<1	1913.6	<1	1267.9	0.9	1548.4	<1
H5I1	621.9	12.3	659.9	11.7	1646.0	1.5	1916.4	<1	1263.3	4.6	1553.0	2.2
H5I2	619.9	12.3	657.8	11.7	1647.0	1.5	1918.0	<1	1264.7	4.6	1553.1	2.2
H6T	801.5	6.0	838.6	5.5	1754.6	<1	1974.6	<1	1075.5	2.8	1707.3	<1
H6I1	805.6	9.6	842.7	9.1	1758.7	0.7	1977.7	<1	1071.0	6.5	1712.0	1.0
H6I2	803.7	9.6	840.7	9.1	1759.5	0.7	1979.1	<1	1072.5	6.4	1712.0	1.0
H7T	745.9	6.7	784.7	6.2	1587.0	<1	1817.2	<1	1186.7	1.7	1547.8	<1
H7I1	749.3	10.3	788.2	9.8	1591.1	1.9	1820.2	0.3	1182.0	5.4	1552.5	2.2
H7I2	747.1	10.4	785.9	9.8	1591.9	1.9	1821.8	0.3	1183.2	5.3	1552.4	2.2
H8T	876.2	5.0	915.3	4.6	1546.4	<1	1732.2	<1	1122.8	2.3	1561.3	<1
H8I1	879.4	8.6	918.4	8.1	1550.6	2.2	1735.4	0.9	1118.0	6.0	1566.1	2.1
H8I2	877.1	8.6	916.1	8.2	1551.2	2.2	1736.8	0.9	1119.0	6.0	1565.8	2.1
H9T	1135.7	2.2	1174.6	1.8	1702.1	<1	1803.6	<1	879.1	5.0	1784.3	<1
H9I1	1139.2	5.8	1178.0	5.4	1706.7	1.1	1807.3	0.4	874.2	8.7	1789.2	0.5
H9I2	1137.0	5.8	1175.8	5.4	1706.9	1.1	1808.4	0.4	874.9	8.7	1788.6	0.5
H10T	967.1	3.9	1004.6	3.5	1794.6	<1	1963.7	<1	925.5	4.4	1798.2	<1
H10I1	971.1	7.5	1008.6	7.1	1798.9	0.4	1967.1	<1	920.8	8.1	1803.0	0.4
H10I2	969.1	7.6	1006.6	7.1	1799.4	0.4	1968.4	<1	922.2	8.1	1802.8	0.4
ST	1117.1	15.0	1151.0	14.7	2086.9	7.6	2247.5	6.7	755.6	19.2	2073.8	7.7

Table 3: Point of Reception Noise Impact (Daytime)
SunE Westbrook Solar Farm, Westbrook, Ontario

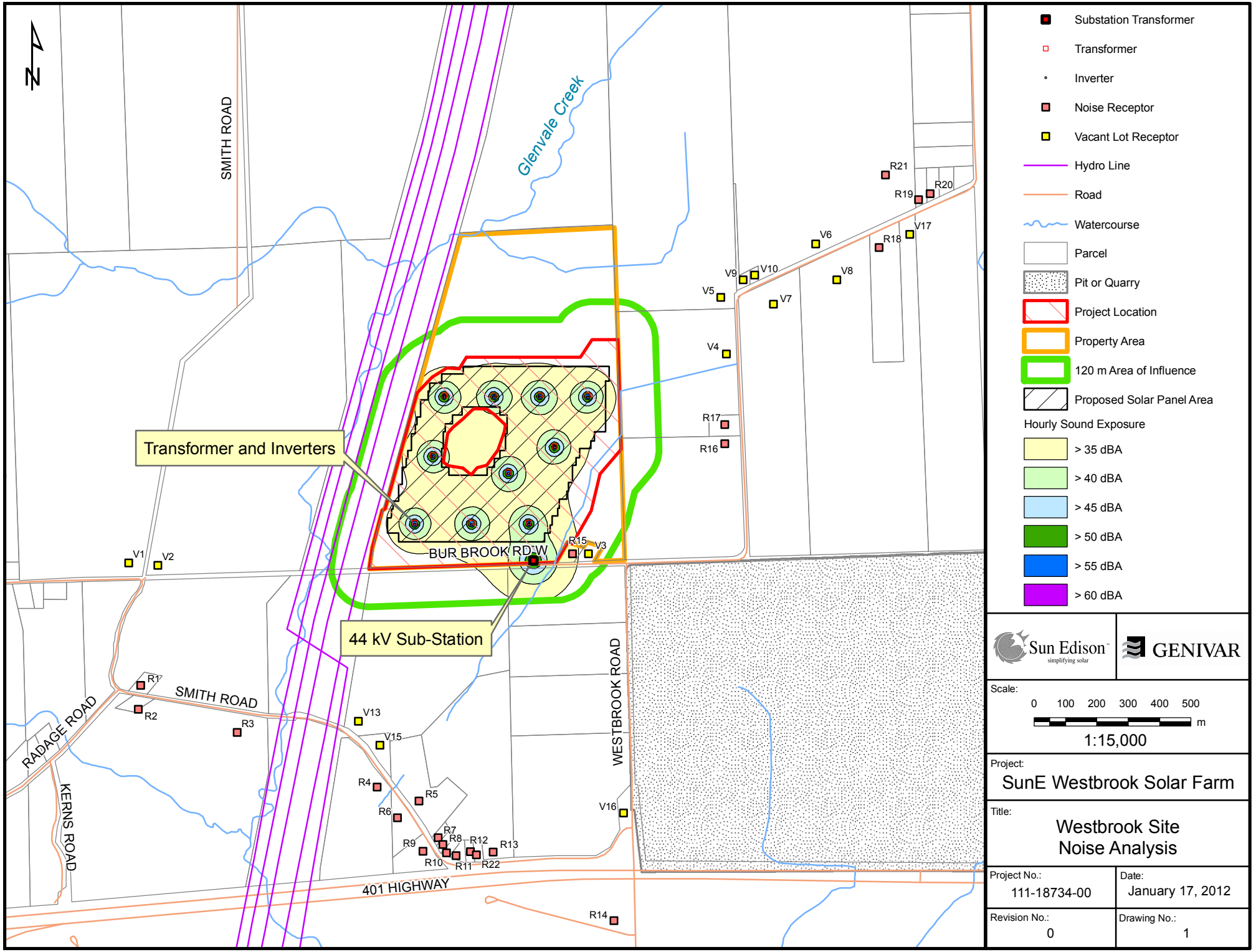
Noise Source ID	Point of Reception V15		Point of Reception V16		Point of Reception V17		Point of Reception V18		Point of Reception V19	
	Distance to V15 (m)	Sound Level at V15 (Leq) (dBA)	Distance to V16 (m)	Sound Level at V16 (Leq) (dBA)	Distance to V17 (m)	Sound Level at V17 (Leq) (dBA)	Distance to V18 (m)	Sound Level at V18 (Leq) (dBA)	Distance to V19 (m)	Sound Level at V19 (Leq) (dBA)
H1T	852.0	5.3	972.9	3.9	1522.1	<1	2004.3	<1	1975.3	<1
H1I1	847.4	9.0	968.8	7.6	1525.9	2.4	2008.4	<1	1980.1	<1
H1I2	848.8	9.0	968.1	7.6	1523.9	2.4	2009.2	<1	1979.8	<1
H2T	766.1	6.5	1043.8	3.1	1670.6	<1	1958.5	<1	2002.9	<1
H2I1	761.3	10.2	1040.2	6.8	1674.3	1.3	1962.9	<1	2007.7	<1
H2I2	762.3	10.1	1039.1	6.8	1672.2	1.3	1963.4	<1	2007.2	<1
H3T	717.0	7.2	1139.5	2.1	1825.2	<1	1928.9	<1	2046.3	<1
H3I1	712.1	10.9	1136.5	5.8	1828.6	0.2	1933.4	<1	2051.2	<1
H3I2	712.5	10.9	1135.0	5.8	1826.5	0.2	1933.7	<1	2050.4	<1
H4T	1132.0	2.2	1447.5	<1	1569.7	<1	1544.1	<1	1631.3	<1
H4I1	1127.2	5.9	1443.7	3.1	1572.5	2.0	1548.5	2.2	1636.2	1.6
H4I2	1127.6	5.9	1442.7	3.1	1570.1	2.1	1549.0	2.2	1635.5	1.6
H5T	1295.0	0.7	1334.7	0.3	1147.2	2.0	1698.9	<1	1559.2	<1
H5I1	1290.3	4.4	1330.1	4.0	1150.5	5.7	1702.5	1.1	1563.9	2.1
H5I2	1291.6	4.3	1329.9	4.0	1148.2	5.7	1703.7	1.1	1563.9	2.1
H6T	1102.7	2.5	1189.3	1.6	1317.1	0.5	1801.6	<1	1724.8	<1
H6I1	1098.0	6.2	1184.9	5.3	1320.6	4.1	1805.5	0.4	1729.6	0.9
H6I2	1099.3	6.2	1184.4	5.3	1318.5	4.1	1806.4	0.4	1729.4	0.9
H7T	1224.2	1.3	1356.3	0.1	1285.3	0.8	1634.8	<1	1568.8	<1
H7I1	1219.4	5.0	1351.9	3.8	1288.4	4.4	1638.7	1.6	1573.7	2.0
H7I2	1220.5	5.0	1351.4	3.8	1286.1	4.4	1639.6	1.5	1573.4	2.0
H8T	1171.0	1.8	1392.6	<1	1420.9	<1	1584.6	<1	1591.9	<1
H8I1	1166.1	5.5	1388.4	3.5	1423.8	3.2	1588.7	1.9	1596.8	1.9
H8I2	1166.9	5.5	1387.7	3.5	1421.4	3.2	1589.4	1.9	1596.3	1.9
H9T	938.4	4.3	1291.1	0.7	1673.7	<1	1724.6	<1	1823.8	<1
H9I1	933.6	8.0	1287.5	4.4	1676.9	1.3	1729.1	0.9	1828.7	0.2
H9I2	934.0	8.0	1286.3	4.4	1674.6	1.3	1729.5	0.9	1827.9	0.2
H10T	960.9	4.0	1146.0	2.1	1485.7	<1	1831.5	<1	1823.9	<1
H10I1	956.0	7.7	1141.9	5.7	1489.2	2.7	1835.7	0.2	1828.8	0.2
H10I2	957.1	7.7	1141.1	5.7	1487.0	2.7	1836.4	0.2	1828.4	0.2
ST	764.0	19.1	854.0	17.9	1586.6	11.0	2124.0	7.4	2093.9	7.6

Table 4: Acoustic Assessment Summary Table
SunE Westbrook Solar Farm, Westbrook, Ontario

Point of Reception ID	Coordinates (height 4.5 m)		Daytime Sound Level at Point of Reception (Leq, dBA)	Verified by Acoustic Audit (Yes/No)	Performance Limit (Leq) (dBA)	Compliance with Performance Limit (Yes/No)	Niththime Sound Level at Point of Reception (Leq, dBA)	Verified by Acoustic Audit (Yes/No)	Performance Limit (Leq) (dBA)	Compliance with Performance Limit (Yes/No)
	X (m)	Y (m)								
R1	368452.8	4905660.5	19.3	No	45	Yes	15.1	No	40	Yes
R2	368445.2	4905583.4	18.9	No	45	Yes	14.7	No	40	Yes
R3	368759.6	4905509.6	20.8	No	45	Yes	16.9	No	40	Yes
R4	369205.6	4905336.6	22.1	No	45	Yes	18.8	No	40	Yes
R5	369338.7	4905291.1	22.2	No	45	Yes	19.1	No	40	Yes
R6	369271.0	4905237.8	21.4	No	45	Yes	18.2	No	40	Yes
R7	369399.9	4905174.5	21.1	No	45	Yes	18.1	No	40	Yes
R8	369415.8	4905153.2	20.9	No	45	Yes	17.9	No	40	Yes
R9	369352.3	4905130.9	20.6	No	45	Yes	17.4	No	40	Yes
R10	369426.1	4905126.4	20.7	No	45	Yes	17.6	No	40	Yes
R11	369457.7	4905117.3	20.7	No	45	Yes	17.6	No	40	Yes
R12	369503.2	4905129.7	20.8	No	45	Yes	17.8	No	40	Yes
R13	369575.4	4905129.1	20.9	No	45	Yes	17.9	No	40	Yes
R14	369960.6	4904911.0	18.5	No	45	Yes	15.5	No	40	Yes
R15	369827.3	4906078.6	37.4	No	45	Yes	36.3	No	40	Yes
R16	370313.5	4906429.8	26.3	No	45	Yes	21.9	No	40	Yes
R17	370313.5	4906490.2	26.3	No	45	Yes	21.6	No	40	Yes
R18	370804.1	4907053.9	18.8	No	45	Yes	14.1	No	40	Yes
R19	370929.9	4907206.5	17.2	No	45	Yes	12.6	No	40	Yes
R20	370966.9	4907225.3	16.9	No	45	Yes	12.3	No	40	Yes
R21	370825.3	4907285.0	17.5	No	45	Yes	12.8	No	40	Yes
R22	369522.2	4905119.8	20.8	No	45	Yes	17.8	No	40	Yes
V1	368413.9	4906049.3	20.2	No	45	Yes	15.6	No	40	Yes
V2	368507.6	4906041.5	21.1	No	45	Yes	16.5	No	40	Yes
V3	369878.4	4906079.3	34.9	No	45	Yes	33.3	No	40	Yes
V4	370317.9	4906715.7	25.3	No	45	Yes	20.2	No	40	Yes
V5	370300.8	4906895.2	24.2	No	45	Yes	19	No	40	Yes
V6	370602.8	4907066.1	20.3	No	45	Yes	15.4	No	40	Yes
V7	370468.0	4906873.6	22.6	No	45	Yes	17.7	No	40	Yes
V8	370669.6	4906951.8	20.3	No	45	Yes	15.6	No	40	Yes
V9	370371.7	4906951.8	23	No	45	Yes	17.9	No	40	Yes
V10	370407.9	4906966.8	22.6	No	45	Yes	17.5	No	40	Yes
V11	369215.2	4908086.1	15.6	No	45	Yes	10.5	No	40	Yes
V12	368619.8	4908026.3	14.5	No	45	Yes	9.4	No	40	Yes
V13	369146.5	4905545.7	24	No	45	Yes	20.5	No	40	Yes
V14	369793.6	4908128.9	15.6	No	45	Yes	10.5	No	40	Yes
V15	369215.0	4905469.1	23.6	No	45	Yes	20.3	No	40	Yes
V16	369990.6	4905253.0	21.6	No	45	Yes	18.8	No	40	Yes
V17	370902.0	4907096.0	17.9	No	45	Yes	13.3	No	40	Yes
V18	369098.4	4908093.3	15.4	No	45	Yes	10.3	No	40	Yes
V19	369899.0	4908141.7	15.4	No	45	Yes	10.4	No	40	Yes

Appendix A

Site Location Map


N
SMITH ROAD
Glenvale Creek
Transformer and Inverters
44 kV Sub-Station
BUR BROOK RD W
WESTBROOK ROAD
SMITH ROAD
RADAGE ROAD
KERNS ROAD
401 HIGHWAY
R1
R2
R3
R4
R5
R6
R7
R8
R9
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R13
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R15
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R20
R21
R22
V1
V2
V3
V4
V5
V6
V7
V8
V9
V10
V13
V15
V16
V17
Substation Transformer
Transformer
Inverter
Noise Receptor
Vacant Lot Receptor
Hydro Line
Road
Watercourse
Parcel
Pit or Quarry
Project Location
Property Area
120 m Area of Influence
Proposed Solar Panel Area
Hourly Sound Exposure
> 35 dBA
> 40 dBA
> 45 dBA
> 50 dBA
> 55 dBA
> 60 dBA
Sun Edison
simplifying solar
GENIVAR
Scale:
0 100 200 300 400 500
m
1:15,000
Project:
SunE Westbrook Solar Farm
Title:
Westbrook Site
Noise Analysis
Project No.:
111-18734-00
Date:
January 17, 2012
Revision No.:
0
Drawing No.:
1

Appendix B

Zoning / Land-Use Information

SunE Westbrook Solar Farm
Zoning: A2 and EPA

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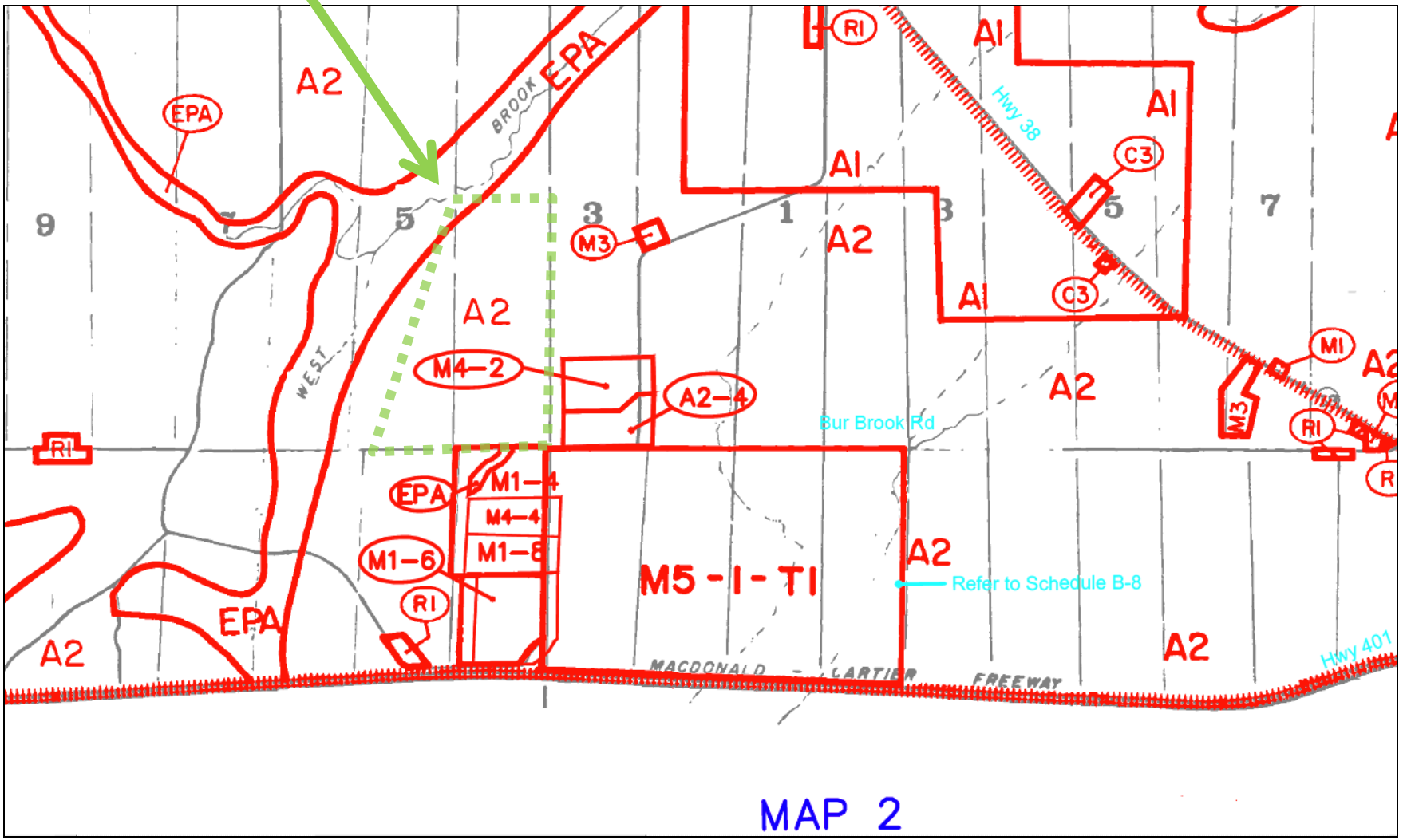

Appendix C

Satcon 500kW Inverter Datasheets

Satcon®

PowerGate® Plus 500 kW

PVS-500 (MVT)

PVS-500 (480 V)

PVS-500 (265 V) CE

Peak Efficiency 97.6%

Power Efficiency

Power Level	Output Power[1]	Efficiency[2]
10%	50 kW	92.2%
20%	100 kW	95.6%
30%	150 kW	96.2%
50%	250 kW	96.5%
75%	375 kW	96.4%
100%	500 kW	96.0%

[1] 320V minimum [2] 480V model

Power Efficiency without Transformer

Power Level	Output Power[1]	Efficiency
10%	50 kW	97.08%
20%	100 kW	97.52%
30%	150 kW	97.58%
50%	250 kW	97.46%
75%	375 kW	97.09%
100%	500 kW	96.52%

[1] 310V minimum

Unparalleled Performance

With their advanced system intelligence, next-generation Edge™ MPPT technology, and industrial-grade engineering, PowerGate Plus inverters maximize system uptime and power production, even in cloudy conditions.

Edge MPPT

Provides rapid and accurate control that boosts PV plant kilowatt yield

Provides a wide range of operation across all photovoltaic cell technologies

Printed Circuit Board Durability

Wide thermal operating range: -40° C (-40° F) to 85° C (185° F)

Conformal coated to withstand extreme humidity and air-pollution levels

PV Inverters | PowerGate® Plus 500 kW

Profitable PV Power

The Satcon® PowerGate® Plus 500 kW PV inverter has a significant impact on the profitability dynamic of large-scale solar PV systems. With its unparalleled system intelligence, next-generation Edge™ MPPT technology, and industrial-grade engineering, the PowerGate Plus 500 kW inverter maximizes system uptime and power production, even in the harshest environments.

Commercial and Utility Scale

The world's largest solar power installations depend on Satcon PowerGate Plus PV inverters to provide efficient and stable power—even in the harshest climates.

Advanced, Rugged, and Reliable

Engineered from the ground up to meet the demands of large-scale installations, Satcon PV inverters feature an outdoor-rated enclosure, advanced monitoring and control capabilities, and Edge,™ Satcon's next-generation MPPT solution.

Proven Performance

The proven leader in solar PV inverter solutions for commercial installations, Satcon sets the standards for efficient large-scale power conversion.

Increased PV Plant Yield

At the heart of PowerGate Plus is Edge, Satcon's next-generation power optimization solution. With rapid and accurate MPPT control, Edge increases PV plant kilowatt yield by extending the production window of arrays, enabling them to operate at optimal voltage and current levels for longer periods of time—even in varied sun conditions. To maximize efficiency, Edge improves the performance of all PV technologies, including fixed and tracking solar arrays, enabling you to get the most from your investment.

Satcon®

PowerGate® Plus 500 kW

Proven Reliability

Rugged and reliable, PowerGate Plus PV inverters are engineered from the ground up to meet the demands of large-scale installations.

Low Maintenance

- Modular components make service efficient
- Dual cooling fans

Safety

- UBC Seismic Zone 4 compliant
- Built-in DC and AC disconnect switches
- Integrated DC two-pole disconnect switch isolates the inverter (with the exception of the GFDI circuit) from the photovoltaic power system to allow inspection and maintenance
- Protective covers over exposed power connections

PowerGate Plus 500 kW Specifications			UL/CSA	CE
Input Parameters				
Maximum Array Input Voltage	600 VDC		▪	
	900 VDC			▪
PV Array Configuration	Positive Ground		○	○
	Negative Ground		▪	○
	Floating			▪
Input Voltage Range (MPPT; Full Power)	320/333–600 VDC	200/208 VAC[1]	▪	
	420–850 VDC	265 VAC[1]		▪
	320–600 VDC	480 VAC	▪	
Maximum Input Current	1,628 ADC/ 1,565 ADC	200/208 VAC[1]	▪	
	1,228 ADC	265 VAC[1]		▪
	1,628 ADC	480 VAC	▪	
Output Parameters				
Output Voltage Range (L-L)	176–220 VAC/ 183-229 VAC	200/208 VAC[1]	▪	
	233–292 VAC	265 VAC[1]		▪
	422–528 VAC	480 VAC	▪	
Nominal Output Voltage	200/208 VAC[1]		▪	
	265 VAC[1]			▪
	480 VAC		▪	
Output Frequency Range	59.3–60.5 Hz		▪	
	49.3–50.5 Hz			▪
AC Voltage Range (Standard)	-12%/+10%		▪	▪
Nominal Output Frequency	60 Hz		▪	
	50 Hz			▪
Number of Phases	3		▪	▪
Maximum Output Current per Phase	1,443/1,388 A	200/208 VAC[1]	▪	
	1090 A	265 VAC[1]		▪
	602 A	480 VAC	▪	

▪ Standard ○ Optional

The integrated external transformer is standard on the 480 VAC models only; custom transformer solutions are also available.

Satcon®

PowerGate® Plus 500 kW

Streamlined Design

With all components encased in a single, space-saving enclosure, PowerGate Plus PV inverters are easy to install, operate, and maintain.

Single Cabinet with Small Footprint

Convenient access to all components

Large in-floor cable glands make access to DC and AC cables easy

Rugged Construction

Engineered for outdoor environments

Output Transformer

Provides galvanic isolation

Matches the output voltage of the PV inverter to the grid

Quiet Operation

65 dB(A) standard

PowerGate Plus 500 kW Specifications			UL/CSA	CE
Peak Efficiency	**97.6%**			
CEC-Weighted Efficiency[3]	97%	200/208 VAC[1]	▪	
	97%	265 VAC[1]		▪
	96%	480 VAC	▪	
Maximum Continuous Output Power	500 kW (500 kVA)		▪	▪
Tare Losses	138.12 W	200/208 VAC[1]	▪	
	170 W	265 VAC[1]		▪
	138.12 W	480 VAC	▪	
Power Factor at Full Load	>0.99		▪	▪
Harmonic Distortion	<3% THD		▪	▪
Temperature				
Operating Ambient Temperature Range (Full Power)	-20° C to +50° C		▪	▪
Storage Temperature Range	-30° C to +70° C		▪	▪
Cooling	Forced Air		▪	▪
Noise				
Noise Level	<65 dB(A)		▪	▪
Combiner				
Number of Inputs and Fuse Rating (2 fuses/input for floating)	20 (160 ADC)		○	
	30 (100 ADC)		○	
	20 (160 ADC)			○
	20 (125 ADC)			○
Transformer				
Integrated External Transformer		480 VAC	▪	
Low Tap Voltage[2]	20%		▪	
External Transformer[2]			○	○
Inverter and Integrated External Transformer Cabinets				
Enclosure Rating	NEMA 3R		▪	
	IP54			▪
Enclosure Finish (11 Gauge CRS, painted, base zinc coated)	RAL-7032		▪	▪
Stainless Steel Finish			○	○
Cabinet Dimensions (Height x Width x Depth)	Inverter		92.6" x 138.8" x 43.1" (235 cm x 352 cm x 109 cm)	92.6" x 153.8" x 43.1" (235 cm x 391 cm x 109 cm)
	Transformer	480 VAC	77" x 49" x 30.5" (195.58 cm x 124.46 cm x 77.47 cm)	
Cabinet Weight	Inverter		5,900 lbs.	2,676 kg
	Transformer	480 VAC	3,200 lbs.	1,451 kg

▪ Standard ○ Optional

Satcon®

PowerGate® Plus 500 kW

Output Options

PowerGate Plus 500 kW	
UL/CSA	208 VAC[1] Output
	480 VAC Output
CE	265 VAC[1] Output

[1] External transformer

PowerGate Plus 500 kW Specifications	UL/CSA	CE
Testing and Certification		
UL1741, CSA 107.1-01, IEEE 1547, IEEE C62.41.2, IEEE C62.45, IEEE C37.90.1, IEEE C37.90.2	●	
CE Certification (EN 50178, EN 61000-6-2, EN 61000-6-4)		●
UBC Zone 4 Seismic Rating	●	●
Warranty		
Five Years	●	●
Extended Warranty (up to 10, 15, or 20 years)	○	○
Extended Service Agreement	○	○
Uptime Guarantee	○	○
Intelligent Monitoring		
Satcon PV View® Plus	○	○
Satcon PV Zone	○	○
Third-Party Compatibility	●	●

▫ Standard
○ Optional

[1] Options designed to be used with external transformer.

[2] The 20% boost tap on the isolation transformer increases the AC voltage output range for applications where the solar array DC operating voltage is at or near the lower end of the DC input range. This boost allows for continued inverter operation at lower DC voltage input levels.

[3] For 265 VAC and 200/208 VAC models efficiency is listed as "Inverter Only" efficiency.

Note: Specifications are subject to change.

PG500210.1

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Prism MVP 1

Two-piece, pre-packaged MV system for grounded 1,000VDC arrays:

- 2 x PVS-500kW NEMA 1 inverters
- Prefabricated weather-tight outdoor enclosure with dual entrances houses inverters
- Corresponding 1000kVA transformer with dual secondary-side windings and integral MV disconnect switch
- Transformer configurable to meet any primary side voltage
- Two-piece installation allows for separation of the inverter and transformer to suit site requirements

Prism MVP 2

One piece, factory integrated MV system for grounded 1,000 VDC arrays:

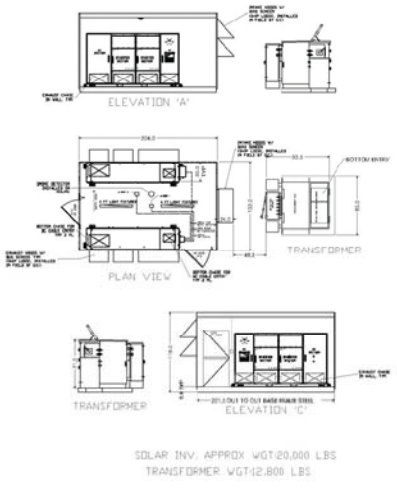
- 2 x PVS-500 kW NEMA 1 inverters
- Prefabricated weather-tight outdoor enclosure with dual entrances houses inverters
- Corresponding 1000 kVA transformer with dual secondary-side windings and integral MV disconnect switch
- Transformer configurable to meet any primary side voltage
- One piece design with inverter and transformer on same transportable chassis allows for "ship and drop" installation with minimal site preparation

Satcon Prism 1 MW Medium Voltage Solution

Satcon Prism a fully integrated one megawatt medium voltage (MV) solution optimized for utility scale solar PV installations. Leveraging Satcon's industry standard setting PowerGate® Plus 500kW solar PV inverters, Prism is a utility grade one megawatt platform, complete with factory integrated step-up transformers, MV disconnect switches, and power conversion electronics.

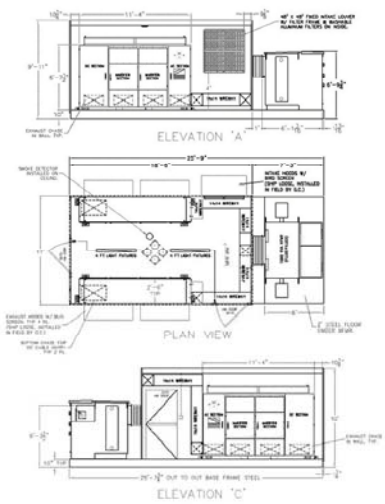
The solution is delivered in two configurations; both complete with an all-climate outdoor enclosure and ready to connect to the PV array and utility grid, enabling rapid installation through a modular prepackaged design.

Satcon Prism MVP 1



Two-Piece, pre-packaged MV system for grounded 1,000VDC array systems

Satcon Prism MVP 2



Pre-packaged, 1MW, integrated, one – piece MV solution for grounded, 1,000VDC PV array systems

• Standard o Optional

Appendix D

Inverter Sound Level Testing

VACC, Inc. DBA
VIBRO-ACOUSTIC CONSULTANTS

490 POST STREET • SUITE • 427
SAN FRANCISCO • CA • 94•02 • USA
TEL / FAX: (+•) 4• 5-693-0424 / • 398
http://www.va-consult.com

Inverter Sound Power Level Testing

Advanced Energy Industries, Fort Collins, CO

Prepared by: Tyler Rynberg, PE

Vibro-Acoustic Consultants

tyler@va-consult.com

Date: 14 April 2010

Table of Contents

1. Background

Advanced Energy Industries (AEI) wishes to document the sound power levels generated by the Solaron 500, a 500 kW inverter. AEI has requested that the testing of the fuel cell be performed per the ISO 3744•1994 Standard. We visited the AEI facility on Thursday, 1 April 2010, to perform the testing.

Since sound power is a property of the source being tested (rather than the cumulative result of multiple sources interacting with the environment), these data are applicable to many different installation conditions. In this document, we report the measured sound power levels and sound pressure levels and provide commentary on how we would insert this source into computer•based noise propagation models.

2. Description of Inverter

The device under test was designated as Solaron 500 model number 3159500•0000 A1 (with 3R enclosure), a 500 kW inverter, manufactured by AEI in March 2010. The inverter had a serial number of 750385 F/R A1. The inverter was 1.83m wide x 0.97m deep x 2m high.

The inverter was mounted on a rigid wood platform constructed using 2x4 studs and rigid foam. The platform raised the inverter 0.2m off the floor. The reference box established for the inverter had the following dimensions: L1 = 1.83m, L2 = 0.97m, L3 = 2.21m.

The inverter was supplied DC input voltage by power generation equipment located in an adjacent room.

3. General Methodology

We measured the sound pressure levels generated by the inverter per the ISO 3744•1994 Standard. During the measurements, we collected the overall un•weighted equivalent continuous sound level (L_{EQ}), as well as the un•weighted 1/3•octave band spectra from both the inverter and ambient conditions. The measurement duration at each microphone position was 60 seconds.

To measure the inverter, we established a parallelepiped measurement surface 1 meter from the reference box. The resultant measurement surface had the following dimensions: L1 = 3.83m, L2 = 2.97m, L3 = 3.21m, and totaled 55.01 square meters. We used 9 microphone positions, per Figure C2 of the ISO 3744•1994 Standard. For all 9 positions, the fixed microphone position technique was used.

We tested four operating configurations of the inverter. As an exploratory test, we also measured a fifth configuration at only one microphone position. The tested configurations are shown in the following table:

Configuration	Input Voltage	Output Power	Blower Setting
1	790V	100% (500kW)	Maximum
2	850V	100% (500kW)	Maximum
3	730~745V[1]	100% (500kW)	Maximum
4	790V	50% (250kW)	Maximum
5	850V	50% (250kW)	Maximum

[1]During this measurement, the voltage regulator was not operating properly. The input voltage was observed to oscillate between 730V and 745V.

We understand from our discussions with AEI personnel that the operating conditions tested are representative of a real•world installation.

4. Data Collection

4.1 Measurement System Parameters

We measured the sound power levels using our standard testing suite:

Instrument	Make / Model	Identification
Microphone Calibrator	Bruel & Kjaer 4231	S/N 2292439
Noise Meter	Norsonic N-140	S/N 1403581
Microphone Preamplifier	Norsonic N-1209	S/N 12749
Microphone	Norsonic N-1225	S/N 96063

The noise meter was calibrated to 94 dB at 1 kHz before and after the measurements. The microphone windscreen was used. The Norsonic N•140 has an internal correction filter to correct for the effects of the windscreen.

4.2 Measurement Locations and Site Conditions

We collected data in the Solaron testing lab adjacent to the main fabrication area at the AEI facility in Fort Collins, CO. The testing lab measured approximately 13.41m x 19.51m x 3.35m. The floor is an exposed concrete slab; three of the walls are constructed using vinyl•faced gypsum board on stud•framing; the remaining wall was open to the main fabrication area; the ceiling is a suspended grid containing vinyl•faced gypsum board panels. The testing area contains several workstations and other inverters. The inverter was placed near the center of the testing lab space, at least 5.5m from any of the lab walls. No workstations or other inverters were located within 4m of the inverter. However, the top of the inverter was only 1.14m below the suspended gypsum board ceiling. In an effort to reduce the effects of the ceiling on the measurements, several ceiling tiles above the

inverter were removed. This roof deck is approximately 2.8m above the suspended ceiling, providing a vertical clearance of 3.9m.

The temperature in the fabrication area was estimated to be 22°C. The relative humidity was typical of an indoor air•conditioned environment.

4.3 Qualification of Acoustical Environment

Ambient Noise Correction Factor K_1

In the majority of 1/3 octave bands, the ambient noise levels were greater than 6 dB below the test conditions. In the 50~80Hz, 630Hz, and 2~6.3kHz 1/3 octave bands, the ambient noise was frequently only 1~4 dB below the test conditions. Generally, the "middle" four measurement positions had a greater signal•to•noise ratio than the "top" five positions.

Acoustical Correction Factor K_2

The reflecting plane extended a minimum of 4.5m from the measurement surface in all directions, which meets the ISO•3744 Standard for the 50 Hz lower boundary of the presented data. The reflecting plane was concrete slab•on•grade and was estimated to have an absorption coefficient of 0.05 or less in the frequency bands of interest.

The Approximate Method was used to determine the environmental correction factor, K_2. Our calculations show that the highest value for K_2 is 9.6 dB and occurs in the 500Hz octave band. The environment does not meet the ISO•3744 Standard requirement of $K_2 < 2$ dB. The following table presents the calculated octave band K_2 values:

Calculated K_2	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
	5.2 dB	4.6 dB	6.8 dB	9.6 dB	9.3 dB	8.6 dB	7.1 dB	6.2 dB

While the values for K_2 exceed the ISO Standard in all octave bands, the Standard allows for compliance by using a maximum correction factor of 2 dB. Values for which the correction factor is limited to 2 dB therefore represent a "worst•case" or upper boundary for the actual performance of the device under test.

4.4 Data Presentation

Data are presented in Tables 1~7. For each configuration, we present the overall A•weighted (LwA) and the un•weighted 1/3 octave band sound power levels in decibels referenced to $1x10^{-12}$ W. We also present the overall A•weighted (dBA) and the un•weighted 1/3 octave band sound pressure levels in decibels referenced to 20 μPa for each configuration.

5. Discussion

Non•Compliance Sound Pressure Levels

The noise generated in the 50~80Hz, 630Hz, and 2~6.3kHz 1/3 octave bands do not exceed the ambient conditions by the minimum 6 dB required by the ISO•3744 Standard. The published levels in these bands should be considered to be the upper boundary of the exact level – the true level is likely to be lower in level than the calculated values. The overall sound power level, LwA, does meet the requirements of the ISO•3744 Standard, in terms of ambient noise. However, the acoustical environment does not meet the ISO•3744 Standard in any of the 1/3 octave bands. Therefore, the published levels in all of the bands, including the overall LwA, should be considered as the upper boundary of the actual level.

Configurations

There was no significant difference in sound power level between the configurations. The only statistically important variation was the amplitude of a 9kHz tone, which was highest with Configuration 2. This tone could be a sub•harmonic of the switching circuitry, which runs at 18kHz.

Noise Modeling

In all of the configurations tested, the relatively broadband noise from the blower dominated the noise character. There is also significant tonality at the 160 Hz band from the blower. The directionality in the noise generation appears to be modest, with all four sides fitting within a 2 dB window. The relatively uniform directivity is due to the presence of air inlets or outlets on all four sides as well as at the bottom of the inverter. As there are no openings in the top of the inverter, the levels at the top typically measured 7 dB lower than the sides of the unit.

With the configurations tested, we would model the unit as a box with uniform directivity at an elevation of approximately 1m.

• • •

Please feel free to call if you have any questions; we may be reached in our San Francisco office by telephone at (+1) 415•693•0424 or via email at tyler@va consult.com.

Sincerely,

Tyler Rynberg, PE

Vibro Acoustic Consultants

Table 1: AEI Solaron 500 Sound Power Measurements – Calculated Sound Power Levels in dB, re: $1x10^{-12}$ W

Configuration	LwA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
1	83.5	77.5	81.0	77.0	80.0	84.0	87.5	79.0	75.5	77.0	76.0	77.5	73.0	74.0	74.0	71.0	70.0	68.0	65.0	64.5	64.5	63.0	58.5	67.5	66.5
2	84.0	77.5	80.5	77.0	80.0	84.0	87.5	78.5	75.5	76.5	76.0	78.0	73.5	74.0	74.0	71.0	70.0	68.0	66.0	66.0	65.5	65.0	62.5	72.0	72.0
3	83.5	77.0	80.5	76.5	80.0	83.5	87.5	78.5	75.5	76.5	77.5	78.0	73.5	74.5	74.0	71.5	72.0	69.5	66.5	65.5	64.5	63.0	58.0	63.0	61.5
4	83.0	77.0	77.0	76.5	80.0	83.5	87.5	78.5	73.5	76.5	76.0	77.5	73.5	74.0	74.0	71.0	70.0	67.5	65.0	64.5	64.5	63.0	58.0	61.5	61.5

*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 2: AEI Solaron 500 Configuration 1 – Measured Sound Pressure Level at 1m in dB, re: 20µPa

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.7	61.0	69.0	61.0	63.9	68.4	75.2	61.7	57.2	59.5	58.5	59.7	55.9	58.1	57.7	56.1	54.5	51.3	49.5	49.5	48.9	48.1	43.6	52.2	51.1
Left	66.1	59.0	61.1	61.9	65.0	67.4	66.0	59.1	61.0	60.4	61.5	61.9	57.3	56.7	56.4	53.2	52.5	50.3	47.9	46.6	45.8	42.8	39.3	49.3	48.5
Rear	67.8	61.0	65.5	60.1	62.4	65.9	68.3	64.4	59.9	59.4	59.3	59.9	57.3	58.9	60.1	56.3	55.4	52.2	50.7	49.5	49.6	48.7	44.0	54.3	54.7
Right	67.7	58.2	65.6	57.1	63.1	68.7	75.0	66.6	58.9	63.5	58.2	60.8	57.0	56.7	57.1	54.1	52.6	50.2	47.5	46.9	46.9	47.0	41.5	51.9	51.3
Front Top	64.3	60.6	59.4	59.2	61.2	66.7	67.9	56.7	56.2	56.9	57.7	59.5	54.3	55.3	54.5	51.9	51.2	49.3	46.7	45.8	45.5	43.0	39.1	48.2	43.7
Left Top	63.9	60.7	60.6	59.6	59.8	63.0	62.6	55.7	54.2	58.3	56.9	59.7	55.2	55.8	55.0	52.3	50.4	49.3	46.2	45.1	45.0	42.5	38.0	46.7	42.9
Rear Top	64.8	59.5	60.1	57.4	62.5	65.8	62.5	55.8	56.8	58.9	59.3	60.7	55.9	55.1	56.5	52.7	52.2	50.7	46.6	45.9	46.8	45.1	39.7	47.2	43.3
Right Top	64.9	59.8	60.3	56.9	63.4	67.5	67.5	59.4	54.3	56.8	56.3	60.1	55.0	55.4	56.1	52.7	52.7	51.0	47.9	47.2	47.0	46.1	40.9	45.5	43.8
Top	62.3	60.6	59.6	58.3	60.9	64.3	67.7	59.1	57.5	55.8	56.6	56.4	52.5	52.3	52.3	49.9	48.4	49.5	44.4	43.3	46.3	42.7	35.8	41.3	38.5

*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 3: AEI Solaron 500 Configuration 2 – Measured Sound Pressure Level at 1m in dB, re: 20µPa

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	68.3	60.9	67.3	61.5	64.2	68.2	74.7	61.9	57.4	59.1	58.8	61.4	56.7	58.7	57.8	55.8	54.8	51.6	50.7	50.6	49.8	49.4	47.5	57.4	57.6
Left	66.7	58.7	61.1	62.0	65.0	67.5	65.7	58.8	62.6	59.5	62.1	62.1	56.9	57.3	56.7	53.3	52.3	50.3	48.9	48.4	47.4	45.4	44.6	53.9	48.5
Rear	68.1	61.0	65.1	60.2	62.3	64.7	67.4	63.1	58.2	59.0	59.8	60.1	57.7	59.1	59.9	55.9	55.2	52.1	51.3	51.1	50.3	50.6	48.4	57.1	59.5
Right	68.1	58.3	65.5	57.0	63.0	68.5	74.6	66.5	59.6	63.3	58.2	61.0	56.9	56.6	56.8	54.0	52.6	50.3	49.1	49.2	48.3	48.9	46.6	56.9	57.1
Front Top	64.7	60.8	59.2	58.8	61.2	67.0	68.4	56.6	55.7	56.6	57.7	59.9	53.9	55.4	55.0	52.6	51.3	49.6	47.7	47.4	46.2	44.9	43.0	51.8	49.3
Left Top	64.6	59.9	60.7	59.3	58.8	62.2	65.7	57.4	56.0	57.2	57.4	60.6	56.5	54.7	54.7	52.4	50.4	49.5	47.1	47.5	47.0	45.8	43.3	53.0	50.3
Rear Top	65.1	60.2	59.9	57.2	61.8	65.4	62.0	56.9	56.6	59.2	59.2	60.1	56.1	56.1	55.5	52.9	52.4	50.5	48.0	47.6	47.8	46.8	42.9	50.2	49.8
Right Top	65.1	59.5	59.7	56.8	63.7	67.1	68.1	60.1	54.2	57.3	56.3	59.9	55.2	55.5	55.5	52.7	52.9	50.4	48.5	48.4	47.5	47.3	44.2	51.4	49.2
Top	62.5	60.1	58.8	58.2	61.3	63.9	67.6	59.0	56.3	56.2	56.6	57.0	52.5	51.9	52.5	50.3	48.8	49.3	45.1	44.3	46.4	43.5	38.8	48.2	44.7

*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 4: AEI Solaron 500 Configuration 3 – Measured Sound Pressure Level at 1m in dB, re: 20µPa

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	68.0	60.8	67.6	61.4	64.0	68.3	74.8	62.0	57.2	58.7	58.4	60.9	57.0	58.7	58.1	56.2	57.5	52.4	50.9	50.2	48.9	47.6	43.0	48.6	46.1
Left	67.0	58.5	61.2	61.6	64.7	67.1	66.3	59.0	62.3	60.7	63.9	63.5	56.6	56.5	56.7	53.7	54.8	52.5	49.3	47.6	45.8	42.8	38.7	45.2	43.7
Rear	67.9	61.2	65.8	60.2	62.3	64.4	67.4	63.1	58.7	58.6	60.0	60.4	58.0	60.2	59.9	56.4	56.2	55.3	51.3	50.6	49.5	49.0	43.8	49.4	49.0
Right	67.3	58.6	66.1	57.5	62.3	68.2	74.1	66.2	59.6	62.8	58.7	59.5	57.1	57.1	57.0	54.1	53.7	51.5	50.1	48.4	46.9	47.0	41.5	48.0	47.0
Front Top	65.1	60.2	58.7	59.0	61.5	67.3	68.5	56.6	55.8	57.7	59.4	59.9	55.0	55.5	55.1	53.9	53.6	50.9	48.2	46.5	45.3	43.1	38.2	42.9	39.7
Left Top	64.8	59.7	60.3	58.9	58.1	61.9	65.4	58.0	55.6	58.1	58.5	59.8	55.3	55.9	55.2	53.3	55.4	51.0	47.3	46.1	45.6	42.9	37.5	42.6	39.6
Rear Top	65.5	58.5	58.9	55.3	61.3	64.2	61.1	55.3	58.4	59.0	60.0	61.5	56.6	56.8	56.5	53.3	54.1	51.8	48.3	46.5	47.2	45.5	39.3	42.5	39.3
Right Top	65.6	59.0	60.4	56.6	63.1	66.4	67.6	58.9	52.9	58.4	58.9	61.2	55.2	56.1	56.2	54.3	54.3	52.1	48.8	47.5	47.0	46.1	40.9	43.2	40.1
Top	62.7	59.5	58.5	57.7	61.3	64.6	67.6	58.8	56.1	56.3	56.8	57.2	53.2	52.5	53.1	50.3	49.7	50.1	45.1	43.7	45.7	42.4	35.0	37.1	33.7

*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 5: AEI Solaron 500 Configuration 4 – Measured Sound Pressure Level at 1m in dB, re: 20µPa

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.5	59.6	62.3	61.0	64.0	68.2	75.2	61.9	55.6	58.9	58.2	60.3	56.0	58.0	57.9	55.8	54.7	51.2	49.1	49.2	49.1	47.8	43.1	46.9	47.5
Left	65.6	57.9	59.9	61.9	64.9	67.1	66.3	58.2	56.8	59.4	61.2	61.3	56.9	56.7	56.1	53.2	52.5	50.2	47.5	46.4	45.8	42.4	38.7	45.5	43.8
Rear	67.0	60.3	61.2	60.0	62.0	64.4	67.6	63.8	59.3	58.2	59.1	59.8	56.8	58.8	59.7	55.9	55.0	51.6	50.1	49.4	49.4	48.5	43.5	47.2	48.8
Right	66.8	56.4	59.8	56.6	62.2	67.6	73.8	65.8	57.7	63.7	58.8	58.8	57.1	56.1	57.0	53.8	52.3	49.7	46.7	46.9	46.8	46.6	41.1	46.3	46.2
Front Top	64.1	60.8	58.7	58.7	61.1	65.5	68.1	56.0	54.7	57.0	57.8	59.5	54.8	56.1	54.7	51.8	50.2	49.1	46.1	45.7	45.3	42.7	37.8	41.4	39.5
Left Top	64.0	59.2	58.6	59.1	58.3	62.1	65.6	57.9	55.7	57.6	57.3	60.1	55.5	55.6	54.7	52.1	50.8	49.0	45.7	45.1	45.7	42.9	37.6	42.7	40.0
Rear Top	64.8	59.8	59.0	58.0	63.1	65.3	63.4	56.7	54.3	57.2	58.1	60.8	56.1	55.5	56.8	53.9	51.8	50.2	46.6	45.7	47.0	46.0	39.4	40.5	38.9
Right Top	65.0	59.8	57.9	57.6	64.4	67.4	68.1	60.3	53.4	57.2	55.4	59.9	57.1	55.6	55.9	54.2	52.9	50.2	47.6	47.0	46.8	46.1	40.5	41.7	40.9
Top	62.3	60.3	58.4	58.4	61.1	63.0	67.1	58.7	53.3	56.1	56.8	57.5	53.0	52.8	53.0	49.6	47.6	49.5	44.2	43.0	45.9	42.3	34.9	35.3	34.3

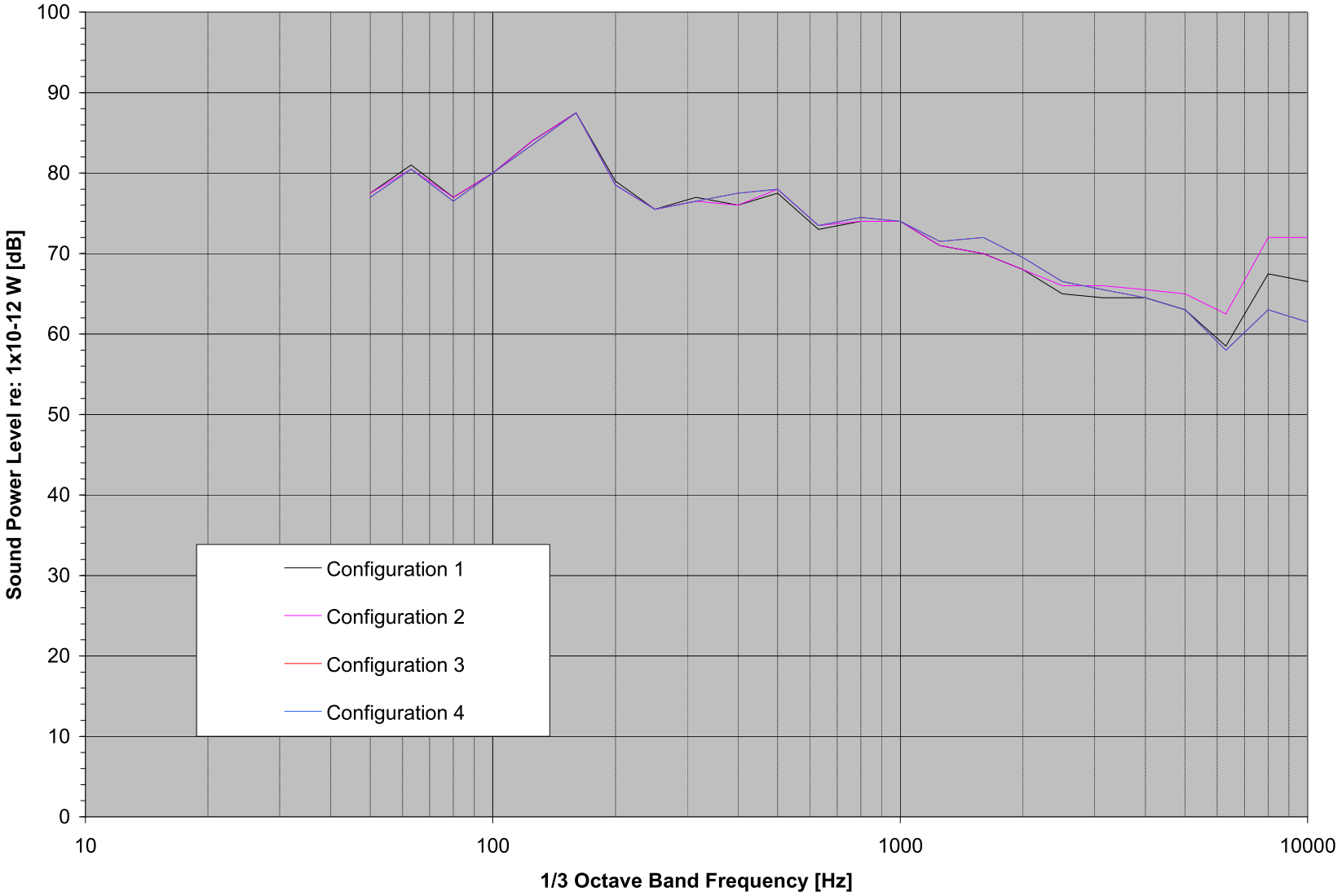
*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 6: AEI Solaron 500 Configuration 5 – Measured Sound Pressure Level at 1m in dB, re: 20µPa

Mic Position	dBA	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1 kHz	1.25 kHz	1.6 kHz	2 kHz	2.5 kHz	3.15 kHz	4 kHz	5 kHz	6.3 kHz	8 kHz	10 kHz
Front	67.4	60.5	63.3	61.3	63.9	68.1	74.6	61.9	56.2	58.9	58.5	61.2	56.1	58.2	57.4	55.8	54.8	51.5	49.2	48.8	48.6	47.5	42.6	45.6	45.3

*The testing environment did not meet the requirements in the ISO-3744 Standard. The presented data in all 1/3 octave bands should be considered as the upper boundary of the exact sound power levels.

Table 7: AEI Solaron 500 – 1/3 Octave Band Sound Power Levels in dB, re: $1x10^{-12}$ W



Preliminary Sound Level Measurements PV GEN II
Measuements are in dBA

Model		No Power 1 meter	No Power 3 meters	Full Power 1 meter	Full Power 3 meters	Date	NOTES
30kw	Back	55		58.5	57	10/23/08	LOAD IN WAY
	Right Side	55.1		58.7		10/23/08	WATER NOISE
	Front	55.4		58.7	57.6	10/23/08	
	Left Side	55.2		59.5		10/23/08	LOAD IN WAY
50kw COASTAL	Back	55.7		62.5		10/23/08	LOAD IN WAY
	Right Side	55.1		62.6		10/23/08	EQUIPMENT IN WAY
	Front	54.1		67.2	61.6	10/23/08	
	Left Side	53.2		60.2		10/23/08	EQUIPMENT IN WAY
50kw	Back	53.9	52.9	62.4	60.9	10/24/08	
	Right Side	52.6	52	63.2	58.8	10/24/08	
	Front	52.7	52.2	67.6	63.3	10/24/08	
	Left Side	52.1	51.5	61.2	58.7	10/24/08	
75kw	Back	54.6	53	65.5	63.8	10/24/08	
	Right Side	55.8	52.8	66.5	61.9	10/24/08	
	Front	56.4	55.9	73.8	67.1	10/24/08	
	Left Side	56.2	55.9	65.4	63.3	10/24/08	
100kw	Back						use 75 kw
	Right Side						
	Front						
	Left Side						
135kw	Back	58.5		62.7		10/23/08	LOAD IN WAY WATER NOISE
	Right Side	58.6		62.4		10/23/08	WALL IN WAY WATER NOISE
	Front	56.5		63	60.4	10/23/08	
	Left Side	57.5		61	60.4	10/23/08	
250kw	Back						use 375 kw
	Right Side						
	Front						
	Left Side						
375kw	Front DC	53.7	52.4	70.1	65	10/24/08	
	Front IV	53.8	52.7	70	65.4	10/24/08	
	Front AC	53.4	52.6	69.5	65.8	10/24/08	
	Front TRO	53.5	52.9	68.3	65	10/24/08	
500kw	Back	61.1	63.8	72	71.5	10/21/08	
	Right Side	60	57.6	72.5	68.4	10/21/08	
	Front	58.2	56.9	68.7	68	10/21/08	
	Left Side	60.4	59.6	68	69.5	10/21/08	