NORTHLAND POWER

Belleville South Solar Project

Noise Assessment Study Report

December 2, 2011

Northland Power Inc.
on behalf of
Northland Power Solar
Belleville South L.P.
Toronto, Ontario

Noise Assessment Study Report

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Executive Summary

This report presents the results of the Noise Assessment Study required for Solar Facilities under Ontario Regulation 359/09 and 521/10, as part of the Renewable Energy Approval (REA) Process. Northland Power Solar Belleville South L.P. ("Northland") is proposing to develop a 10-Megawatt (MW) solar photovoltaic (PV) project titled Belleville South Solar Project (the "Project"). The Project will be located on approximately 42 hectares (ha) of land within Prince Edward County, Ontario.

This Noise Assessment Study Report has been prepared based on the document entitled "Basic Comprehensive Certificates of Approval (Air) – User Guide" by the Ontario Ministry of the Environment (MOE, 2004). The sound pressure levels at the points of reception (POR) have been estimated using ISO 9613-2, implemented in the CADNA-A computer code. The performance limits used for verification of compliance correspond to the values for rural areas of 40 dBA. The results presented in this report are based on the best available information at this time. It is the intention that, in the detailed engineering phase of the project, certified noise data based on final plans and designs will confirm the conclusions of this noise impact assessment study.

The results obtained in this study show that the sound pressure levels at POR will not exceed MOE requirements for rural areas of 40 dBA.

Project Report

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Table of Contents

List of Tables

List of Figures

.

1. Introduction

1.1 Project Description

Northland Power Solar Belleville South L.P. ("Northland") is proposing to develop a 10-megawatt (MW) solar photovoltaic (PV) project titled Belleville South Solar Project (the "Project"). The Project will be located on approximately 42 ha of land within Prince Edward County, Ontario.

The proposed Project is a renewable energy generation facility which will use solar photovoltaic technology to generate electricity. Electricity generated by solar photovoltaic panels will be converted from Direct Current (DC) to Alternating Current (AC) by inverter clusters which will also step-up the voltage to 27.6 kV. A main transformer, located in the substation, will step up the voltage from the clusters to 44 kV prior to being transmitted to the existing local distribution line. In order to meet the Ontario Power Authority (OPA)'s Feed-In-Tariff (FIT) Program requirements, a specific percentage of equipment will be manufactured in Ontario.

The construction of the Project will begin once the Renewable Energy Approval (REA) has been obtained and a power purchase agreement is finalized with the OPA. The anticipated operational lifespan of the Project is 30 years.

1.2 Renewable Energy Approval Legislative Requirements

Ontario Regulation 359/09 and 521/10, made under the Environmental Protection Act identify the Renewable Energy Approval (REA) requirements for green energy projects in Ontario. As per Section 4 of these regulations, ground mounted solar facilities with a name plate capacity greater than 12 kilowatts (kW) are classified as a Class 3 solar facility, and therefore, require an REA.

Section 13 of the Ontario Regulation 359/09 requires proponents of Class 3 solar facilities to complete a Noise Study Report in accordance with Appendix A of the publication; "Basic Comprehensive Certificates of Approval (Air) – User Guide, 2004" by the Ministry of the Environment (MOE, 2004).

The Noise Study Report is to include a general description of the facility, sources and points of reception (POR), Assessment of compliance, as well as all the supporting information relevant to the Project. A draft of the Noise Study Report must be made available to the public, the local municipality and identified Aboriginal communities, at least 60 days prior to the final public consultation meeting in accordance with Ontario Regulation 359/09 and 521/10.

2. Facility Description

The Project will utilize photovoltaic (PV) panels installed on fixed racking structures mounted on the ground. The PV panels generate DC electricity which will be converted to AC electricity by inverters. The Project layout is based on seven inverter clusters each one containing two inverters and one medium-voltage (27.6-kV/1.6-MVA) transformer, and one 44-kV/10-MVA substation transformer. The 27.6-kV power, collected from the inverter clusters, will be stepped up to 44 kV by the substation transformer prior to being transmitted to the existing local distribution line.

Since the panels will be ground-mounted and the total nameplate capacity is over 12 kW, the Project is considered to be a Class 3 Solar Facility according to the classification presented in Ontario Regulation 521/10.

Table 2.1 General Project Description

Project Description	Ground-mounted Solar PV, Class 3
System Nameplate Capacity	10-MW AC
Local Distribution Company	Hydro One Networks Inc.

2.1 Project Location

The Project Location[1] will be sited on privately owned land totalling approximately 42 ha. The Project Location is zoned as rural land in accordance to the zoning by-law for the Township of Sophiasburg. Figure A.1 in Appendix A shows the zoning designation plan. Figure A.3 and Figure A.2 present the Project Area Location Plan, as well as the adjacent solar facilities proposed in the vicinity of the Project.

For modeling purposes, the vegetation that blocks some of the POR from the sources has not been incorporated.

2.2 Acoustical Environment

The Project will be surrounded by farmland, with some heavily forested areas to the south. Some traffic noise is expected from Highway 62 and Burr Road, mainly during day hours. Also, aircraft noise is expected in the area, due to the Mountain View Airfield (Department of National Defence) located 1 km north from the site. Mineral extraction operations performed in a quarry 3 km northwest of the site may also contribute significantly to the background sound levels of the area. The traffic volumes can also be affected by material transportation from/to the quarry.

The background noise levels are expected to be typical of rural areas, classified as a Class 3 based on Publication NPC-232 by the MOE.

2.3 Life of Project

The expected life of the Project is 30 years. The manufacturer's warranty on the PV modules is 25 years and the expected life of solar power plants of this type is typically 35 to 40 years. At that time (or earlier if the 20-yr power purchase agreement is not extended), the Project will be decommissioned or refurbished depending on market conditions and/or technological changes.

2.4 Operating Hours

Solar PV facilities produce electricity during the day hours, when the sun's rays are collected by the panels. After sunset the facility will not receive solar radiation to generate any electricity. Under these conditions the inverters will not produce any noise and the transformers will be energized, but not in operation (no fans in operation).

2.5 Approach to the Study

The sound pressure levels at the POR were predicted using procedures from ISO 9613-2, which is a widely used and generally accepted standard for the evaluation of noise impact in environmental Assessments. The sound power level for the inverters was provided by the manufacturer while the sound power level for the transformers was estimated. The software package CADNA-A, which implements ISO-9613-2, was used to predict the noise levels at the POR. This numerical modeling software is able to simulate sound sources as well as sound mitigation measures taking into account

[1] "Project Location" in the context of this study is an area occupied by the Project infrastructure.

atmospheric and ground attenuation. Some of the CADNA-A configurations used in the modeling are shown in Figure 2.1. The height contours for the site were taken from the Ontario Base Maps (OBM).

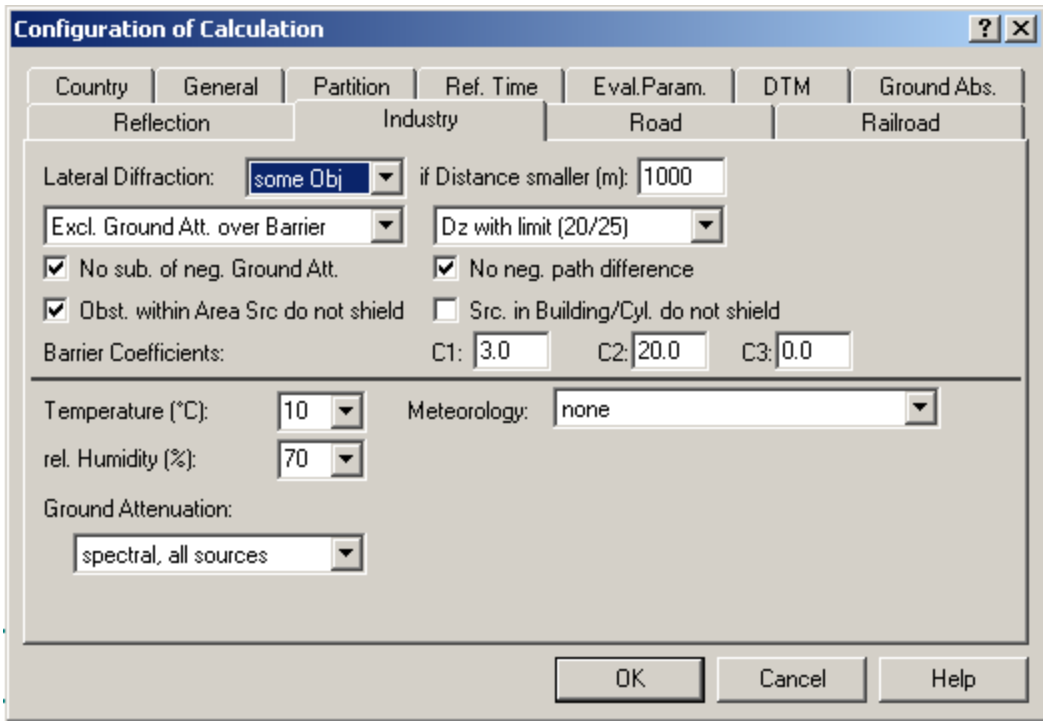

Figure 2.1 CADNA-A Configurations

3. Noise Sources

The main sources of noise from the Project will be seven inverter clusters, each one containing two inverters and one medium-voltage transformer, and a substation containing the main step-up transformer. The Project layout is provided in Figure A.3. The coordinates of each noise source are presented in Table B.1 of Appendix B.

All noise sources were modeled as non-directional point sources.

Switchgear and a small step-down transformer used for lighting, located at the substation, do not emit any significant noise and consequently have not been considered as sources of noise.

For the purpose of this study it is assumed that all inverters and transformers will be operating 24 hours at full capacity.

In addition to Belleville South Solar Project the contribution from one other adjacent solar project was taken into account in the study.

3.1 Substation Transformer

A 10-MVA step-up transformer that will step up the 27.6-kV power to 44 kV, required by the local distribution company, will be located in the substation. Since the transformer make and model has not been selected at this point (although it is known that the transformer will be of ONAF (oil natural

air forced) type), a conservative estimate of sound power level was based on the data from NEMA TRI – 1993 (2000) and 35-m^2 transformer surface area. This standard provides maximum sound level values for transformers, and manufacturers routinely meet this specification. Hence, the results based on NEMA may slightly overestimate the impact on POR since the actual transformer is expected to be quieter. The NEMA levels were then converted into frequency spectra using empirical correlations for transformer noise (Crocker, 2007). This calculation is available in Figure B.3 of Appendix B. The transformer configurations are expected to be similar to those shown in Figure B.2. Noise source height representing the transformer was assumed 3.5 m.

Power transformers are considered by the MOE to be tonal noise sources. A 5-dB penalty was added to the sound power spectrum, as recommended by Publication NPC-104, "Sound Level Adjustments" for tonality. Table B.3 in Appendix B shows the frequency spectrum used to model the substation transformer.

3.2 Inverter Clusters

Northland is planning to use inverters manufactured by SMA. Seven inverter clusters will be installed as part of the Project. Each cluster comprises of two SMA Sunny Central 800CP inverters and one medium voltage transformer. A schematic layout with approximate dimensions of such cluster is available in Figure 3.1, additional information regarding details of the inverter cluster can be found in Appendix B). The cluster components listed above were modeled as point sources shown in Figure 3.2. *Note that the planned enclosure over the inverters was not taken into account as a mitigation measure in the noise model.*

The installed capacity of each Sunny Central 800CP inverter is 800 kVA. SMA provided third-octave noise data for the Sunny Central 800CP inverter (Figure B.1 of Appendix B). The provided third octave spectrum was converted to a full octave spectrum and the contribution from two inverters was combined into a single sound power spectrum for use with CADNA-A model (calculations are available in Figure B.4 of Appendix B). A 5-dBA penalty was added to the frequency spectrum, as stipulated in Publication NPC-104, "Sound Level Adjustments," to allow for tonality. The frequency spectrum used to model combined noise emission from the two inverters located next to each other within the same cluster is shown in Table B.3 of Appendix B.

A 1.6-MVA transformer used to step-up the 360-V power from the inverters to 27.6 kV will be located in close proximity to the inverters. Since the transformer make and model have not been selected at this point (although it is known that the transformer will be of ONAN (oil natural air natural) type), the sound power levels resulting from the operation of the transformer were evaluated using data from NEMA TR 1-1993 (R2000) and 14.88-m^2 transformer surface area. The NEMA levels were then converted into frequency spectrum using empirical correlations for transformer noise (Crocker, 2007). This calculation is available in Figure B.5 of Appendix B. Power transformers are considered by the MOE to be tonal noise sources. A 5-dB penalty was added to the sound power spectrum, as recommended by Publication NPC-104, "Sound Level Adjustments" for tonality. Table B.3 in Appendix B shows the frequency spectrum used to model the transformers located in the clusters.

Although for the modeling purposes it was assumed that the facility will operate 24-h at full capacity, in reality at night the facility will be idle. Under these conditions the inverters do not produce noise. The transformers (at the substation and clusters) are energized and make some magnetostrictive noise at a reduced level, but no cooling fans are in operation.

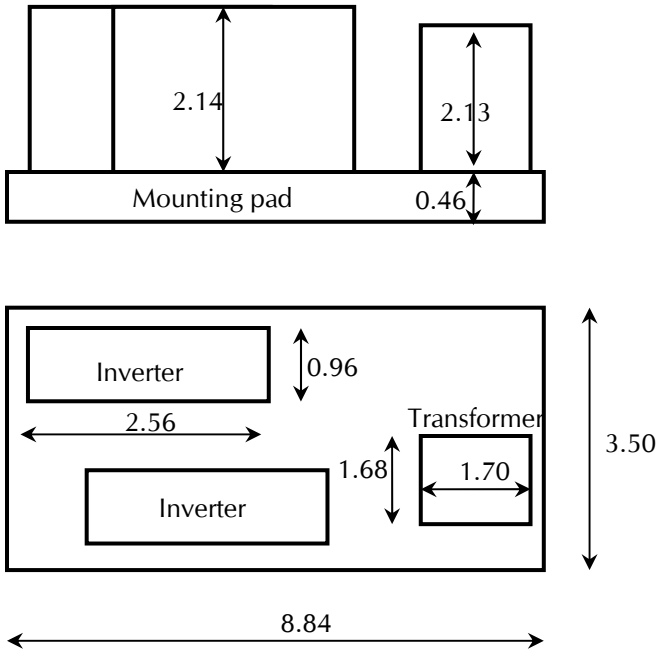

Figure 3.1 Schematic Inverter Cluster Layout
(all dimensions in metres)

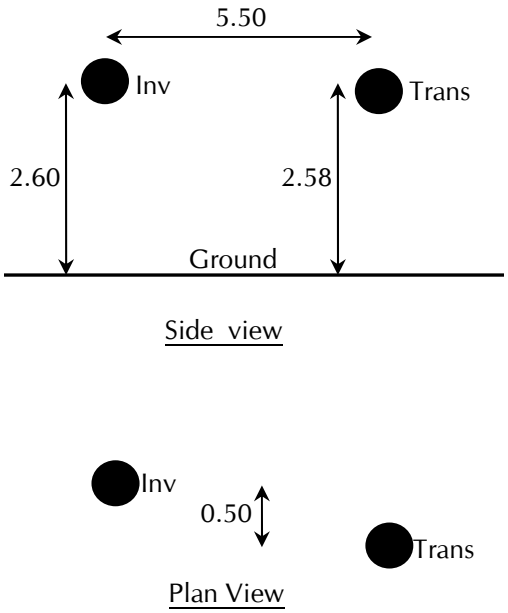

Figure 3.2 Inverter Cluster CADNA-A Acoustical Model

where: Inv = Noise Source Representing Two Sunny Central 800CP Inverters; and Trans = Noise Source Representing 27.6-kV/1.6-MVA Cluster Transformer (all dimensions in metres).

3.3 Noise Summary Table

A summary of the sound sources described above, including sound power level, characteristics and proposed noise control measures, is presented in Table 3.1.

Table 3.1 Noise Source Summary for Belleville South Solar Project

Source ID	Description	Total Sound Power Level (dBA)	Source Location	Sound Characteristics	Noise Control Measures
BS_Sub	44-kV/10-MVA substation transformer	90.8	O	S-T	U
BS_Inv1	Two Sunny Central 800CP inverters at Cluster 1	91.3	O	S-T	U
BS_Inv2	Two Sunny Central 800CP inverters at Cluster 2	91.3	O	S-T	U
BS_Inv3	Two Sunny Central 800CP inverters at Cluster 3	91.3	O	S-T	U
BS_Inv4	Two Sunny Central 800CP inverters at Cluster 4	91.3	O	S-T	U
BS_Inv5	Two Sunny Central 800CP inverters at Cluster 5	91.3	O	S-T	U
BS_Inv6	Two Sunny Central 800CP inverters at Cluster 6	91.3	O	S-T	U

Source ID	Description	Total Sound Power Level (dBA)	Source Location	Sound Characteristics	Noise Control Measures
BS_Inv7	Two Sunny Central 800CP inverters at Cluster 7	91.3	O	S-T	U
BS_Trans1	27.6-kV/1.6-MVA cluster transformer at Cluster 1	80.1	O	S-T	U
BS_Trans2	27.6-kV/1.6-MVA cluster transformer at Cluster 2	80.1	O	S-T	U
BS_Trans3	27.6-kV/1.6-MVA cluster transformer at Cluster 3	80.1	O	S-T	U
BS_Trans4	27.6-kV/1.6-MVA cluster transformer at Cluster 4	80.1	O	S-T	U
BS_Trans5	27.6-kV/1.6-MVA cluster transformer at Cluster 5	80.1	O	S-T	U
BS_Trans6	27.6-kV/1.6-MVA cluster transformer at Cluster 6	80.1	O	S-T	U
BS_Trans7	27.6-kV/1.6-MVA cluster transformer at Cluster 7	80.1	O	S-T	U

Notes:
1. A 5-dBA penalty is included in this table.
2. Location: Inside building (I), Outside building (O).
3. Sound Characteristics: Steady (S), Tonal (T), Impulsive (I), Quasi-Steady Impulsive (QSI).
4. Noise Control: Silencer (S), Acoustic lining (A), Barrier (B), Lagging (L), Enclosure (E), Other (O), Uncontrolled (U).

3.4 Adjacent Solar Projects

To identify the adjacent solar projects Hatch's internal database of solar projects and MOE records available in http://www.ene.gov.on.ca/environment/en/subject/renewable_energy/projects/index.htm were searched.

There is one other solar project, Belleville North, located in the proximity of the Belleville South Solar Project. Noise sources from this other project were taken into account in the study. Belleville South, owned by Northland with 10-MW capacity, is identical to Belleville South Solar Project. Coordinates for the inverter clusters and substation transformer were provided by Northland. All noise sources from this other project were assumed unmitigated and their coordinates, as well as sound power levels used for modeling, are included in Appendix B.

4. Points of Reception

The POR used in this study were identified from the OBM and Google Earth Pro aerial imagery (July 2002) within 1 km distance from the Project Site[2] boundary, and also from visual observations of the Project Site surroundings conducted in Summer 2010.

[2] "Project Site" in the context of this study is the complete area designated for the Project but not necessary occupied with the project infrastructure. Project Location is always contained within Project Site.

The POR corresponding to the vacant lots were added based on parcel information provided by First Base Solutions (Teranet Data) and located according to the requirements outlined in Ontario Regulation 359/09, and its amendment (Ontario Regulation 521/10).

The total number of POR within a 1-km distance from the Project Site of Belleville South Solar Project boundary is 131, including the vacant lots. Three of these noise receptors, identified in Table 4.1, were chosen as representative receptors for evaluating the noise contribution from each individual source. These three receptors were chosen in order to represent sound pressure level contributions on different areas around the Project Location. The complete set of results for all 131 noise receptors is provided in Table 6.2 including contribution from each individual project.

For this study, the elevation above ground used for the POR is 4.5 m. Also, noise compliance was verified within 30 m distance from any given POR located at 1.5 m above the ground level.

A complete list of 173 POR located within 1 km from either of the two solar projects under consideration is provided in Table C.1 of Appendix C.

Table 4.1 Point of Reception Noise Impact from Individual Noise Sources of Belleville South Solar Project

Source ID	POR 76		POR 92		POR 99	
	Distance (m)	L_{eq} Sound Level (dBA)	Distance (m)	L_{eq} Sound Level (dBA)	Distance (m)	L_{eq} Sound Level (dBA)
BS_Sub	348	28.5	159	35.6	266	30.9
BS_Inv1	171	34.8	415	26.8	462	25.8
BS_Inv2	270	30.7	534	24.4	513	24.8
BS_Inv3	459	25.9	714	21.6	608	23.2
BS_Inv4	640	22.7	761	20.9	503	25.0
BS_Inv5	600	23.3	675	22.1	398	27.2
BS_Inv6	510	24.9	561	24.0	307	29.5
BS_Inv7	421	26.7	416	26.8	214	32.7
BS_Trans1	175	23.7	414	15.9	457	15.0
BS_Trans2	273	19.7	533	13.5	509	13.9
BS_Trans3	462	14.9	714	10.6	604	12.2
BS_Trans4	636	11.7	759	9.9	504	14.0
BS_Trans5	596	12.4	673	11.2	399	16.3
BS_Trans6	505	14.0	559	13.0	309	18.6
BS_Trans7	416	15.9	413	15.9	218	21.7

5. Mitigation Measures

The analysis indicates that no mitigation measures are necessary to meet the MOE requirement of 40 dBA for all POR.

6. Impact Assessment

The purpose of the acoustic Assessment report is to demonstrate that the facility is in compliance with the noise performance limits. The Project will be located in a Class 3 Area, based on the classification defined in Publication NPC-232 by the MOE. Class 3 area means a rural area with an acoustical environment that is dominated by natural sounds, with little or no traffic noise, such as an agricultural area.

Table 6.1 shows the performance limits set by the MOE for Class 3 Areas, according to Publication NPC-232.

Table 6.1 Performance Limits (One-Hour L_{eq}) by Time of Day for Class 3 Areas.

Time of Day	One Hour L_{eq} (dBA) Class 3 Area
07:00 to 19:00	45.0
19:00 to 23:00	40.0
23:00 to 07:00	40.0

The solar facility will be operating during daylight hours; assumed to be until 19:00 during most days of the year. It is noted that in the summer months the sun may shine until past 21:00, however the inverters will be well below 100% loading conditions. As such, during the summer the facility will be operating at the time the applicable performance limit changes from 45 dBA to 40 dBA. Also, the transformers remain energized at night. In order to account for this the noise model assumes that the cluster transformers and substation transformer will be operating 24 hours and compares the impact from the facility with the 40-dBA limit. In reality, the cooling fans will not be in operation at night.

For this study, the overall ground attenuation coefficient was estimated to be 0.7. Appendix D includes a list of all the parameters used in the CADNA-A model to predict the sound pressure levels at the POR.

The modelling does not consider the effect of the solar panels on the predicted sound pressure levels at the points of reception. The solar panels may act as barriers to further reduce noise at the POR.

6.1 Compliance With Performance Limits

Table 6.2 presents the predicted sound pressure levels for the POR located within 1-km from the Project Site. Sound pressure contours at 4.5-m and 1.5-m are available in Figure C.1 and Figure C.2. Appendix D includes a detailed calculation log of the representative POR with the highest Sound Pressure Level.

Effect of the noise emissions at the POR was also accessed by intersecting the 40-dBA sound pressure contours calculated at 1.5 m above ground with 30-m radius circles placed around the POR (Figure C.2). The results show that none of the 30-m radius zones are affected by the noise emissions.

Table 6.2 Calculated Sound Pressure Levels at POR within 1-km of Belleville South Solar Project

(Shaded rows correspond to representative POR)
Existing = Existing dwelling, Vacant = Vacant Lot.
The performance limit is 40.0-dBA**.** Empty cells represent projects where all sources are further than 3000-m from the POR.

POR ID	Description	Sound Pressure Contribution (dBA) from Projects			Performance Limit (dBA)	POR Height (m)	Min distance to Source (m)	UTM Coordinates NAD 83 (m)		
		Belleville North	Belleville South	Belleville North Total				X	Y	Z
33	Vacant	38.0	22.1	38.1	40.0	4.5	1421	312984	4881793	110.4
39	Existing	34.5	26.0	35.1	40.0	4.5	977	313445	4881196	109.5
40	Existing	34.4	26.0	35.0	40.0	4.5	974	313452	4881183	109.5
42	Existing	34.1	26.1	34.8	40.0	4.5	962	313472	4881127	109.5
43	Existing	33.5	26.4	34.3	40.0	4.5	934	313487	4881209	109.5
44	Existing	26.1	24.0	28.2	40.0	4.5	1167	313516	4882351	110.8
45	Existing	32.7	26.8	33.7	40.0	4.5	890	313528	4881224	109.5
48	Existing	32.3	27.1	33.4	40.0	4.5	869	313544	4881246	109.5
49	Existing	32.4	26.9	33.4	40.0	4.5	881	313551	4881144	109.5
51	Existing	25.2	23.9	27.6	40.0	4.5	1186	313574	4882438	111.4
52	Existing	31.6	27.3	33.0	40.0	4.5	840	313590	4881166	109.5
53	Existing	25.2	24.2	27.8	40.0	4.5	1148	313599	4882409	111.2
54	Existing	31.1	27.9	32.8	40.0	4.5	792	313608	4881314	109.5
55	Existing	31.1	27.8	32.8	40.0	4.5	806	313618	4881215	109.5
57	Vacant	30.3	28.4	32.5	40.0	4.5	747	313671	4881243	109.5
58	Vacant	29.7	27.3	31.7	40.0	4.5	809	313671	4880966	111.5
59	Existing	29.8	29.0	32.4	40.0	4.5	699	313698	4881344	109.5
60	Existing	29.5	29.3	32.4	40.0	4.5	677	313725	4881319	109.5
61	Existing	29.1	29.6	32.4	40.0	4.5	648	313752	4881330	109.5
62	Vacant	28.9	29.8	32.4	40.0	4.5	630	313760	4881405	109.5
63	Existing	28.0	30.8	32.6	40.0	4.5	559	313830	4881476	109.5
64	Existing	27.4	31.4	32.8	40.0	4.5	517	313873	4881540	109.5
65	Existing	27.0	32.0	33.2	40.0	4.5	481	313909	4881549	109.5
66	Existing	26.8	32.6	33.6	40.0	4.5	443	313945	4881437	109.5
67	Existing	25.9	33.0	33.8	40.0	4.5	400	313996	4881652	109.5
68	Existing	25.5	33.6	34.2	40.0	4.5	366	314033	4881665	109.5
69	Existing	21.0	24.0	25.8	40.0	4.5	1082	314035	4882750	114.5
70	Existing	25.5	34.0	34.6	40.0	4.5	349	314044	4881631	109.5
71	Vacant	25.6	34.8	35.3	40.0	4.5	332	314060	4881500	109.5
72	Vacant	24.2	34.5	34.9	40.0	4.5	318	314157	4881795	109.5
73	Vacant	23.9	37.7	37.9	40.0	4.5	191	314222	4881670	109.5
74	Existing	20.7	25.6	26.8	40.0	4.5	886	314231	4882630	114.5
75	Vacant	23.4	35.5	35.7	40.0	4.5	290	314248	4881829	109.5
76	Vacant	23.6	38.4	38.5	40.0	4.5	171	314262	4881690	109.5
77	Existing	22.9	35.8	36.0	40.0	4.5	285	314303	4881859	109.5

POR ID	Description	Sound Pressure Contribution (dBA) from Projects			Performance Limit (dBA)	POR Height (m)	Min distance to Source (m)	UTM Coordinates NAD 83 (m)		
		Belleville North	Belleville South	Belleville North Total				X	Y	Z
78	Existing	22.8	35.4	35.6	40.0	4.5	290	314304	4881888	109.5
79	Existing	20.3	26.1	27.1	40.0	4.5	832	314324	4882608	114.5
80	Existing	20.9	27.7	28.6	40.0	4.5	679	314326	4882446	112.0
81	Existing	20.9	28.0	28.7	40.0	4.5	660	314336	4882430	111.8
82	Vacant	22.3	34.4	34.7	40.0	4.5	289	314345	4881979	109.5
83	Existing	22.4	36.2	36.4	40.0	4.5	233	314364	4881891	109.5
84	Existing	22.4	36.8	37.0	40.0	4.5	217	314375	4881870	109.5
85	Existing	22.2	36.5	36.7	40.0	4.5	215	314386	4881899	109.5
86	Existing	22.1	37.1	37.2	40.0	4.5	194	314407	4881894	109.5
87	Existing	19.8	26.1	27.0	40.0	4.5	818	314410	4882618	114.5
88	Existing	21.9	36.4	36.6	40.0	4.5	203	314418	4881934	108.8
89	Existing	21.8	37.8	37.9	40.0	4.5	164	314446	4881905	109.1
90	Existing	21.8	37.4	37.5	40.0	4.5	172	314449	4881924	108.6
91	Existing	21.2	36.7	36.8	40.0	4.5	181	314517	4881986	106.9
92	Existing	21.2	37.5	37.6	40.0	4.5	159	314528	4881967	106.7
93	Existing	20.7	35.4	35.6	40.0	4.5	215	314573	4882033	105.6
94	Existing	20.3	34.3	34.5	40.0	4.5	253	314633	4882067	104.5
95	Existing	20.2	34.5	34.6	40.0	4.5	248	314646	4882059	104.5
96	Vacant	19.8	35.4	35.5	40.0	4.5	219	314683	4882015	104.5
97	Existing	18.9	30.0	30.3	40.0	4.5	496	314798	4882267	104.1
98	Existing	19.1	32.0	32.2	40.0	4.5	379	314812	4882122	104.5
99	Existing	19.7	37.8	37.9	40.0	4.5	214	314830	4881714	109.5
100	Existing	18.6	29.4	29.8	40.0	4.5	541	314835	4882298	104.1
101	Existing	19.0	31.7	31.9	40.0	4.5	399	314836	4882129	104.5
102	Existing	19.6	37.8	37.9	40.0	4.5	214	314838	4881704	109.5
103	Existing	14.9	28.8	29.0	40.0	4.5	477	314842	4882221	100.2
104	Existing	14.9	28.9	29.1	40.0	4.5	470	314847	4882209	100.5
105	Existing	18.7	31.4	31.6	40.0	4.5	427	314882	4882126	105.1
106	Existing	18.6	30.9	31.1	40.0	4.5	458	314897	4882154	105.0
107	Vacant	14.2	27.7	27.8	40.0	4.5	655	314915	4882384	102.1
108	Existing	18.4	30.6	30.9	40.0	4.5	479	314923	4882158	105.2
109	Existing	18.3	30.4	30.7	40.0	4.5	496	314939	4882166	105.6
110	Existing	18.3	30.2	30.4	40.0	4.5	511	314943	4882183	105.7
111	Existing	17.9	29.4	29.7	40.0	4.5	572	315002	4882210	107.8
112	Existing	17.9	29.6	29.9	40.0	4.5	561	315014	4882180	108.2
113	Vacant	13.7	26.3	26.5	40.0	4.5	677	315031	4882328	101.9
114	Vacant	18.6	35.6	35.7	40.0	4.5	303	315041	4881350	109.5
115	Existing	17.6	28.6	28.9	40.0	4.5	638	315053	4882253	108.1
116	Existing	17.4	28.1	28.4	40.0	4.5	680	315080	4882285	107.0
117	Vacant	17.1	27.6	27.9	40.0	4.5	729	315116	4882317	107.6
118	Existing	16.9	27.0	27.4	40.0	4.5	777	315149	4882354	108.2

POR ID	Description	Sound Pressure Contribution (dBA) from Projects			Performance Limit (dBA)	POR Height (m)	Min distance to Source (m)	UTM Coordinates NAD 83 (m)		
		Belleville North	Belleville South	Belleville North Total				X	Y	Z
119	Existing	17.6	30.3	30.5	40.0	4.5	562	315167	4880909	109.5
120	Existing	16.6	26.1	26.6	40.0	4.5	861	315170	4882450	106.1
121	Existing	16.7	26.5	26.9	40.0	4.5	827	315181	4882392	109.1
122	Vacant	16.5	25.8	26.3	40.0	4.5	890	315181	4882480	105.2
123	Existing	17.5	29.8	30.1	40.0	4.5	596	315185	4880875	109.5
124	Existing	17.3	29.4	29.6	40.0	4.5	630	315203	4880843	110.2
125	Existing	17.3	29.1	29.4	40.0	4.5	648	315216	4880831	110.8
126	Vacant	17.1	28.7	29.0	40.0	4.5	682	315234	4880799	112.2
127	Existing	16.4	26.1	26.6	40.0	4.5	873	315236	4882400	109.5
128	Existing	16.3	25.7	26.2	40.0	4.5	907	315242	4882444	109.5
129	Existing	16.9	27.7	28.1	40.0	4.5	757	315253	4880707	114.5
130	Existing	16.3	25.8	26.2	40.0	4.5	905	315253	4882429	109.5
131	Vacant	15.9	24.6	25.2	40.0	4.5	1018	315260	4882581	106.3
132	Existing	16.9	28.2	28.5	40.0	4.5	724	315261	4880765	113.6
133	Existing	16.8	27.6	27.9	40.0	4.5	771	315280	4880715	114.5
134	Vacant	16.7	27.2	27.6	40.0	4.5	804	315285	4880672	114.5
135	Existing	16.9	29.2	29.4	40.0	4.5	658	315299	4880947	109.9
136	Existing	16.7	28.5	28.8	40.0	4.5	709	315335	4880906	111.1
137	Existing	16.3	26.6	27.0	40.0	4.5	863	315346	4880651	114.5
138	Existing	16.5	28.0	28.3	40.0	4.5	753	315357	4880853	112.2
139	Existing	16.2	26.2	26.6	40.0	4.5	903	315369	4880617	114.5
140	Existing	16.4	27.5	27.8	40.0	4.5	794	315383	4880816	113.1
141	Vacant	15.5	25.5	25.9	40.0	4.5	979	315405	4880544	114.5
142	Vacant	16.2	27.1	27.4	40.0	4.5	831	315405	4880783	113.8
143	Existing	15.3	24.9	25.3	40.0	4.5	1043	315430	4880479	114.5
144	Vacant	16.0	26.6	27.0	40.0	4.5	875	315433	4880744	114.3
145	Existing	15.1	24.5	25.0	40.0	4.5	1083	315454	4880447	114.5
146	Vacant	15.5	26.1	26.5	40.0	4.5	917	315459	4880707	114.5
147	Existing	15.3	25.7	26.1	40.0	4.5	959	315480	4880665	114.5
148	Existing	14.0	23.1	23.6	40.0	4.5	1254	315511	4880268	112.1
149	Vacant	15.0	25.0	25.4	40.0	4.5	1033	315522	4880596	114.5
150	Existing	14.1	23.4	23.9	40.0	4.5	1215	315528	4880335	113.7
151	Existing	14.8	24.5	24.9	40.0	4.5	1090	315554	4880545	114.5
152	Existing	14.1	24.2	24.6	40.0	4.5	1129	315579	4880515	114.5
153	Existing	12.3	20.7	21.3	40.0	4.5	1301	315583	4880269	111.5
154	Existing	8.2	18.5	18.9	40.0	4.5	1339	315632	4880262	110.5
155	Existing	12.3	23.4	23.7	40.0	4.5	1224	315636	4880435	114.5
156	Existing	12.2	23.1	23.4	40.0	4.5	1261	315652	4880397	113.8
157	Existing	10.8	18.8	19.4	40.0	4.5	1365	315704	4880299	110.9
158	Existing	10.6	19.8	20.3	40.0	4.5	1370	315747	4880339	111.2
159	Existing	10.6	19.4	19.9	40.0	4.5	1377	315770	4880356	111.1

POR ID	Description	Sound Pressure Contribution (dBA) from Projects			Performance Limit (dBA)	POR Height (m)	Min distance to Source (m)	UTM Coordinates NAD 83 (m)		
		Belleville North	Belleville South	Belleville North Total				X	Y	Z
160	Existing	10.7	22.8	23.1	40.0	4.5	1302	315775	4880488	113.8
161	Existing	6.3	18.6	18.9	40.0	4.5	1401	315806	4880363	110.9
162	Existing	10.6	22.7	23.0	40.0	4.5	1318	315810	4880513	113.6
163	Existing	6.1	22.1	22.2	40.0	4.5	1398	315888	4880486	112.2
164	Existing	6.0	21.0	21.1	40.0	4.5	1437	315901	4880433	111.0
165	Existing	6.0	22.1	22.2	40.0	4.5	1405	315908	4880504	112.3
166	Existing	5.8	20.9	21.0	40.0	4.5	1453	315927	4880444	111.0
167	Existing	5.7	20.8	20.9	40.0	4.5	1472	315962	4880465	110.9
168	Existing	5.7	21.8	21.9	40.0	4.5	1445	315970	4880532	112.0
169	Existing	5.5	21.5	21.6	40.0	4.5	1484	316008	4880520	111.3
170	Existing	5.4	21.4	21.5	40.0	4.5	1502	316029	4880521	111.1
171	Existing	5.4	21.7	21.8	40.0	4.5	1472	316078	4880699	111.8
172	Existing	5.2	21.6	21.7	40.0	4.5	1497	316103	4880697	111.5
173	Existing		19.7	19.7	40.0	4.5	1738	316357	4880691	108.9

The results of this study show that all POR are compliant with MOE guidelines based on the performance limit of 40-dBA.

7. Conclusions and Recommendations

For the Belleville South Solar Project, the sound pressure levels at the POR have been estimated using the CADNA-A model, based on ISO 9613-2. It has been determined that no mitigation measures are needed for the Project operation in accordance with Ontario Regulation 359/09 and 521/10.

Based on the results obtained in this study, it is concluded that the sound pressure levels at the POR will be below MOE requirements for Class 3 areas of 40-dBA at all times.

8. Signatures

Report Prepared By

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Report Reviewed and Approved By

LICENSED PROFESSIONAL ENGINEER
O. BELASHOV
100158128
PROVINCE OF ONTARIO

DEC 05, 2011

Oleg Belashov, M.A.Sc., P.Eng.

9. References

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International Organization for Standardization (ISO). Standard 1913-2: Acoustics – Attenuation of sound during propagation outdoors – Part 2: General Method of Calculation.

Appendix A

Land Use Zoning Designation Plan and Area Location Plan

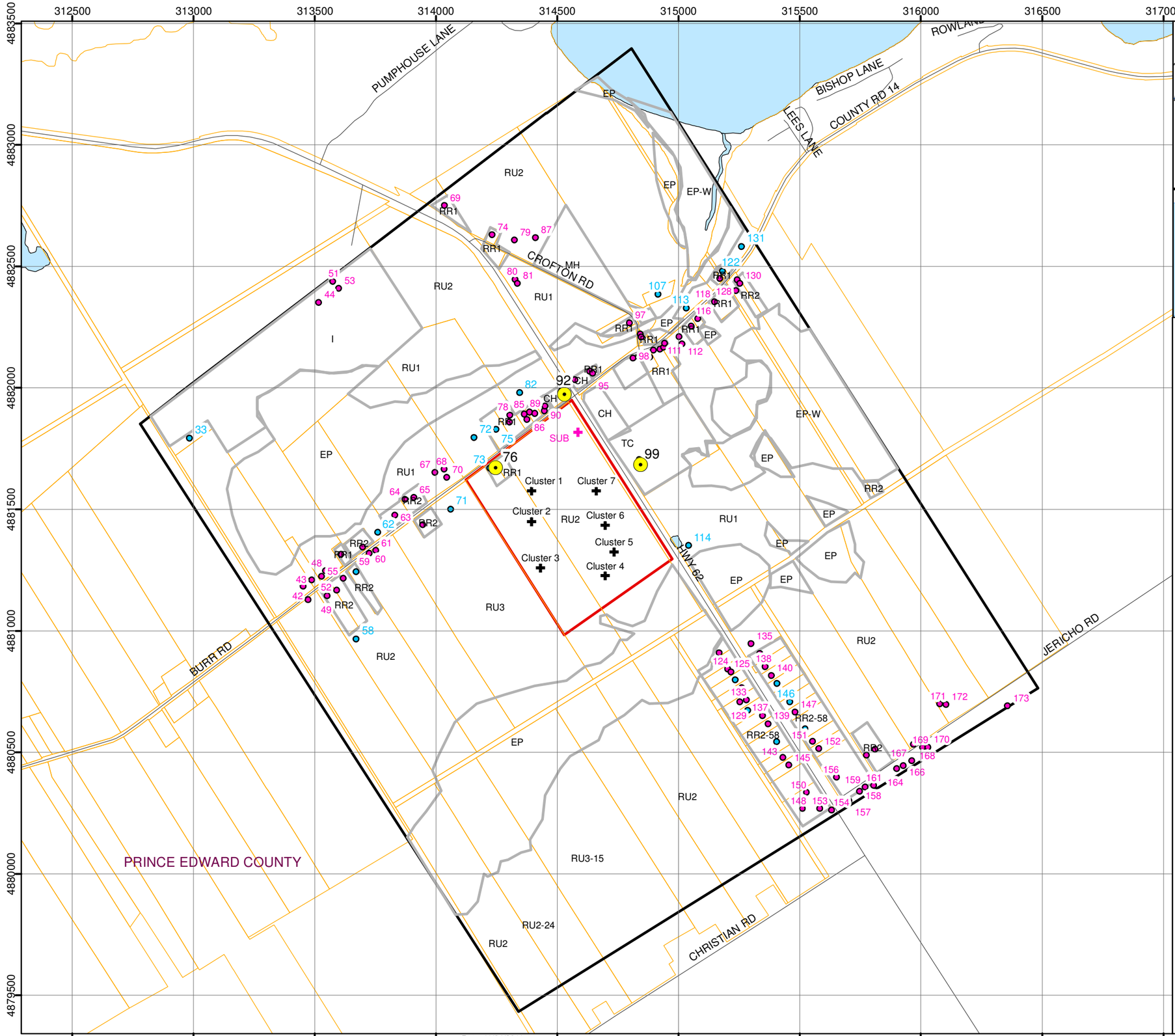


Figure A.1
Northland Power Inc.
Belleville South Solar Project
Zoning Designation Plan

HATCH™

311000 312000 313000 314000 315000 316000 317000

4884000 4883000 4882000 4881000 4880000 4879000

Muscote Bay

PUMPHOUSE LANE

ROWLANDS LANE

E BISHOP LANE

ESSA LANE

COUNTY RD 14

COUNTY RD 2

CROFTON RD

BURR RD

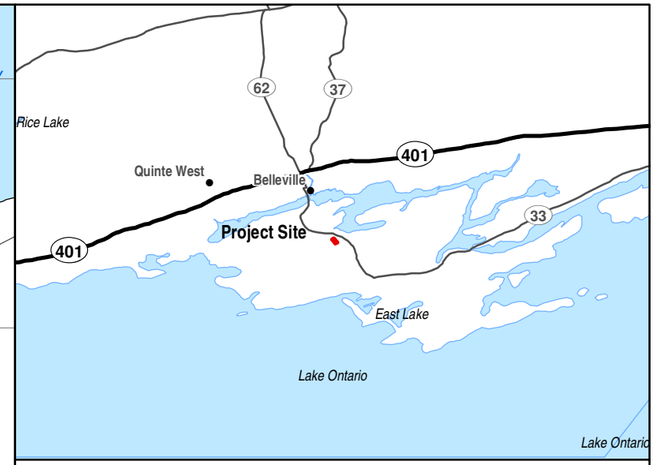
HWY 62

JERICHO RD

ORAM RD

CHRISTIAN RD

COUNTY RD 4



Legend

- Road
- Belleville South Project Site
- Belleville North Project Site
- 1000 m from Project Site
- Waterbody

Notes:
1. Produced by Hatch under licence from Ontario Ministry of Natural Resources, Copyright (c) Queens Printer 2011.
2. Spatial referencing UTM NAD 83.

0 250 500 1,000 Metres

NORTH

1:24,000

Figure A.2
Northland Power Inc.
Belleville South Solar Project
Scaled Area Location Plan
- Adjacent Projects

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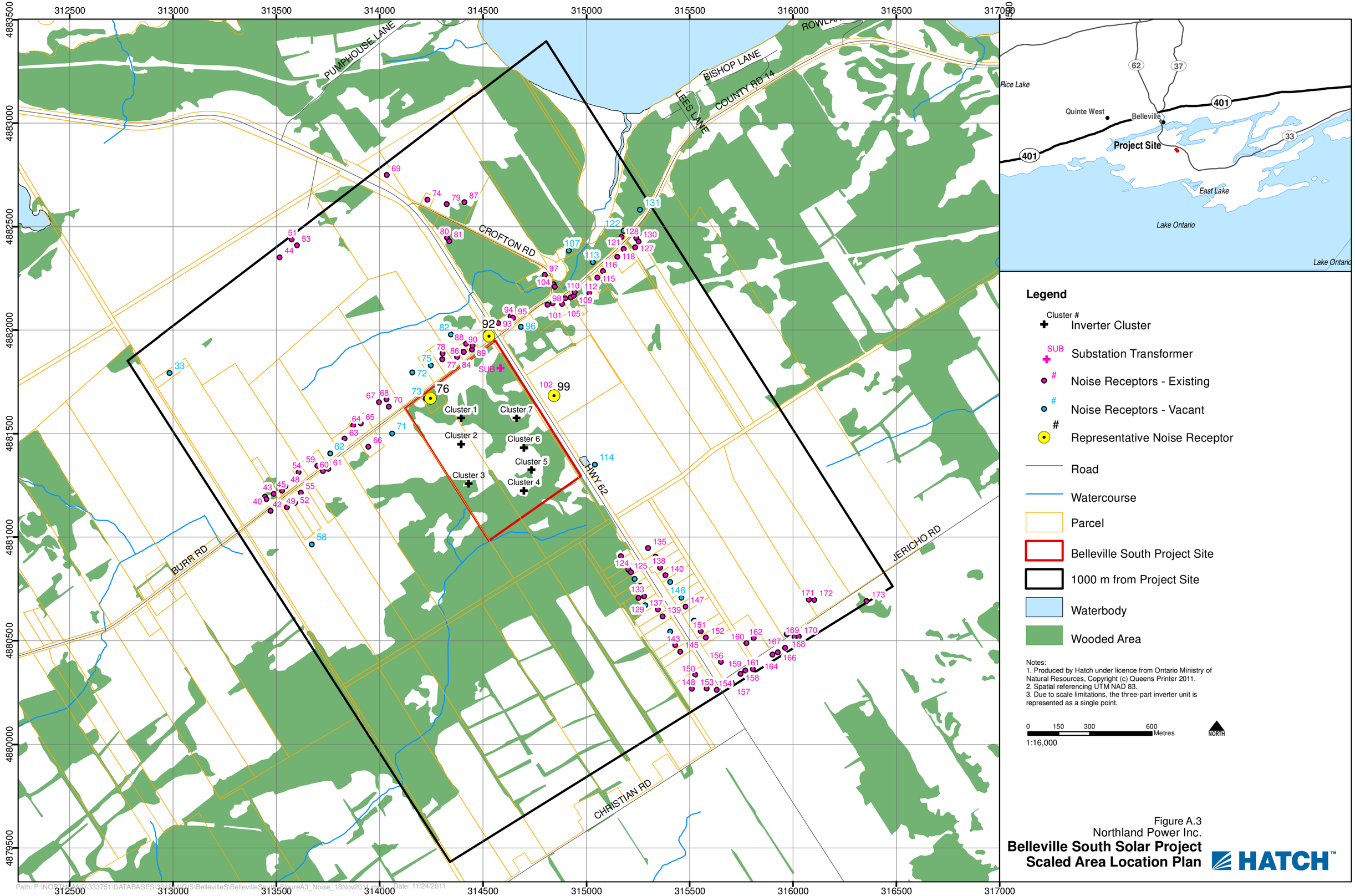

Figure A.3
Northland Power Inc.
Belleville South Solar Project
Scaled Area Location Plan

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Appendix B

Noise Sources

Table B.1 Point Sources from Belleville South Solar Project Used in CADNA-A, Includes Tonality Penalty of 5.0-dBA.

Source ID	Description	Spectra ID	Total sound power level (dBA)	Correction (dB)	Height (m)	Coordinates, UTM NAD 83 (m)		
						X	Y	Z
BS_Sub	44-kV/10-MVA substation transformer	T44kV_10MVA	90.8	5.0	3.50	314585	4881818	108.5
BS_Inv1	Two Sunny Central 800CP inverters at Cluster 1	SMA_SC800CPX2	91.3	5.0	2.60	314388	4881576	107.6
BS_Inv2	Two Sunny Central 800CP inverters at Cluster 2	SMA_SC800CPX2	91.3	5.0	2.60	314388	4881452	107.6
BS_Inv3	Two Sunny Central 800CP inverters at Cluster 3	SMA_SC800CPX2	91.3	5.0	2.60	314425	4881261	107.6
BS_Inv4	Two Sunny Central 800CP inverters at Cluster 4	SMA_SC800CPX2	91.3	5.0	2.60	314703	4881227	107.6
BS_Inv5	Two Sunny Central 800CP inverters at Cluster 5	SMA_SC800CPX2	91.3	5.0	2.60	314739	4881326	107.6
BS_Inv6	Two Sunny Central 800CP inverters at Cluster 6	SMA_SC800CPX2	91.3	5.0	2.60	314703	4881434	107.6
BS_Inv7	Two Sunny Central 800CP inverters at Cluster 7	SMA_SC800CPX2	91.3	5.0	2.60	314667	4881575	107.6
BS_Trans1	27.6-kV/1.6-MVA cluster transformer at Cluster 1	T27.6kV_1.6MVA	80.1	5.0	2.58	314394	4881576	107.6
BS_Trans2	27.6-kV/1.6-MVA cluster transformer at Cluster 2	T27.6kV_1.6MVA	80.1	5.0	2.58	314394	4881451	107.6
BS_Trans3	27.6-kV/1.6-MVA cluster transformer at Cluster 3	T27.6kV_1.6MVA	80.1	5.0	2.58	314430	4881260	107.6
BS_Trans4	27.6-kV/1.6-MVA cluster transformer at Cluster 4	T27.6kV_1.6MVA	80.1	5.0	2.58	314697	4881227	107.6
BS_Trans5	27.6-kV/1.6-MVA cluster transformer at Cluster 5	T27.6kV_1.6MVA	80.1	5.0	2.58	314734	4881327	107.6
BS_Trans6	27.6-kV/1.6-MVA cluster transformer at Cluster 6	T27.6kV_1.6MVA	80.1	5.0	2.58	314697	4881435	107.6
BS_Trans7	27.6-kV/1.6-MVA cluster transformer at Cluster 7	T27.6kV_1.6MVA	80.1	5.0	2.58	314661	4881576	107.6

Table B.2 Point Sources from Belleville North Solar Project Used in CADNA-A, Includes Tonality Penalty of 5.0-dBA.

Source ID	Spectra ID	Total sound power level (dBA)	Correction (dB)	Height (m)	Coordinates, UTM NAD 83		
					X	Y	Z
BN_Sub	T44kV_10MVA	90.8	5.0	3.50	313234	4881082	108.5
BN_Inv_1	SMA_SC800CPX2	91.3	5.0	2.60	312591	4881643	110.2
BN_Inv_2	SMA_SC800CPX2	91.3	5.0	2.60	312797	4881725	109.3
BN_Inv_3	SMA_SC800CPX2	91.3	5.0	2.60	312833	4881596	108.8
BN_Inv_4	SMA_SC800CPX2	91.3	5.0	2.60	312797	4881468	108.6
BN_Inv_5	SMA_SC800CPX2	91.3	5.0	2.60	312967	4881393	107.6
BN_Inv_6	SMA_SC800CPX2	91.3	5.0	2.60	312833	4881331	107.8
BN_Inv_7	SMA_SC800CPX2	91.3	5.0	2.60	312931	4881256	107.6
BN_Trans_1	T27.6kV_1.6MVA	80.1	5.0	2.58	312597	4881642	110.1
BN_Trans_2	T27.6kV_1.6MVA	80.1	5.0	2.58	312792	4881726	109.3
BN_Trans_3	T27.6kV_1.6MVA	80.1	5.0	2.58	312827	4881597	108.8
BN_Trans_4	T27.6kV_1.6MVA	80.1	5.0	2.58	312792	4881468	108.6
BN_Trans_5	T27.6kV_1.6MVA	80.1	5.0	2.58	312973	4881392	107.6
BN_Trans_6	T27.6kV_1.6MVA	80.1	5.0	2.58	312828	4881331	107.8
BN_Trans_7	T27.6kV_1.6MVA	80.1	5.0	2.58	312936	4881255	107.6

Table B.3 Frequency Spectra Used for Modelling the Noise Sources, Not Including Tonality Penalty.

Spectra ID	Octave Spectrum (dBA)										
	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
SMA_SC800CPX2		63.1	73.9	80.5	82.3	78.7	74.1	65.0	72.7	86.3	95.0
T27.6kV_1.6MVA	32.3	51.5	63.6	66.1	71.5	68.7	64.9	59.7	50.6	75.1	83.7
T44kV_10MVA	43.0	62.2	74.3	76.8	82.2	79.4	75.6	70.4	61.3	85.8	94.4

SC 720CP-10 / SC 760CP-10 / SC 800CP-10

Economic

- Direct deployment in the field due to outdoor enclosure
- Simplified shipping without concrete substation

Efficient

- Full nominal power at ambient temperatures up to 50 °C
- 10 % additional power for constant operation at ambient temperatures up to 25 °C

Flexible

- Powerful grid management functions (including LVRT)
- DC voltage range configurable

Reliable

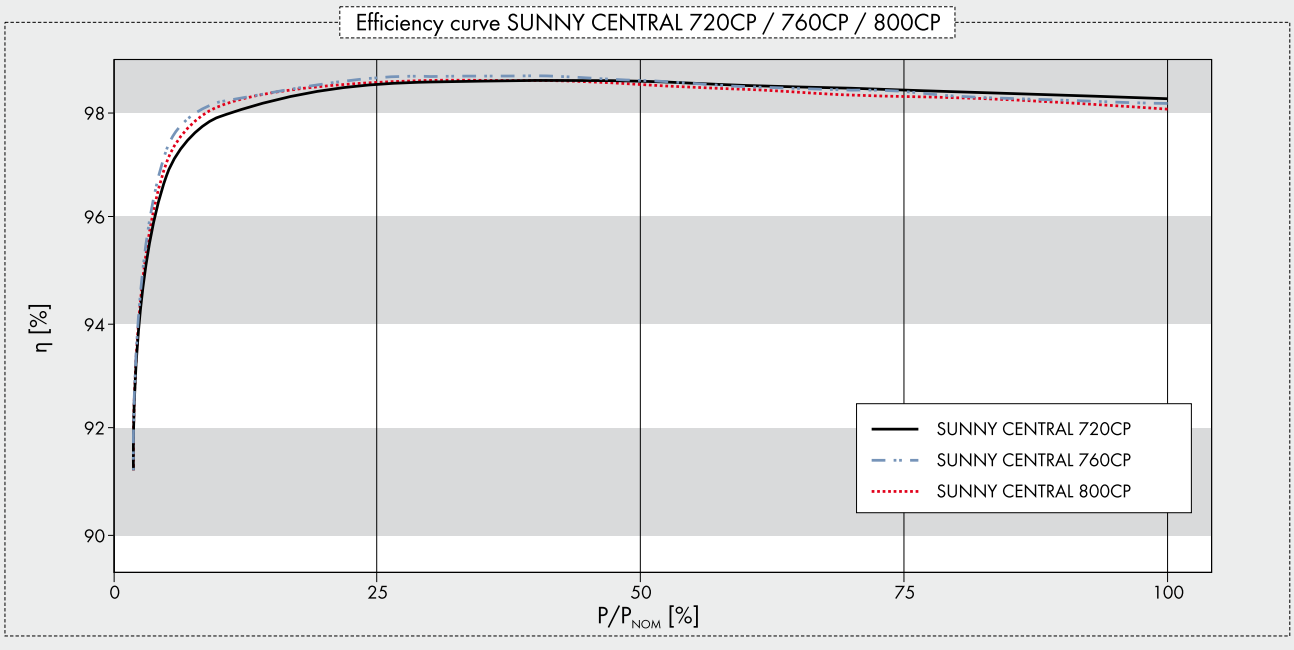
- Easy and safe installation due to a separate connection area
- Optional: extended input voltage range up to 1,100 V

SUNNY CENTRAL 720CP / 760CP / 800CP

High performance as standard

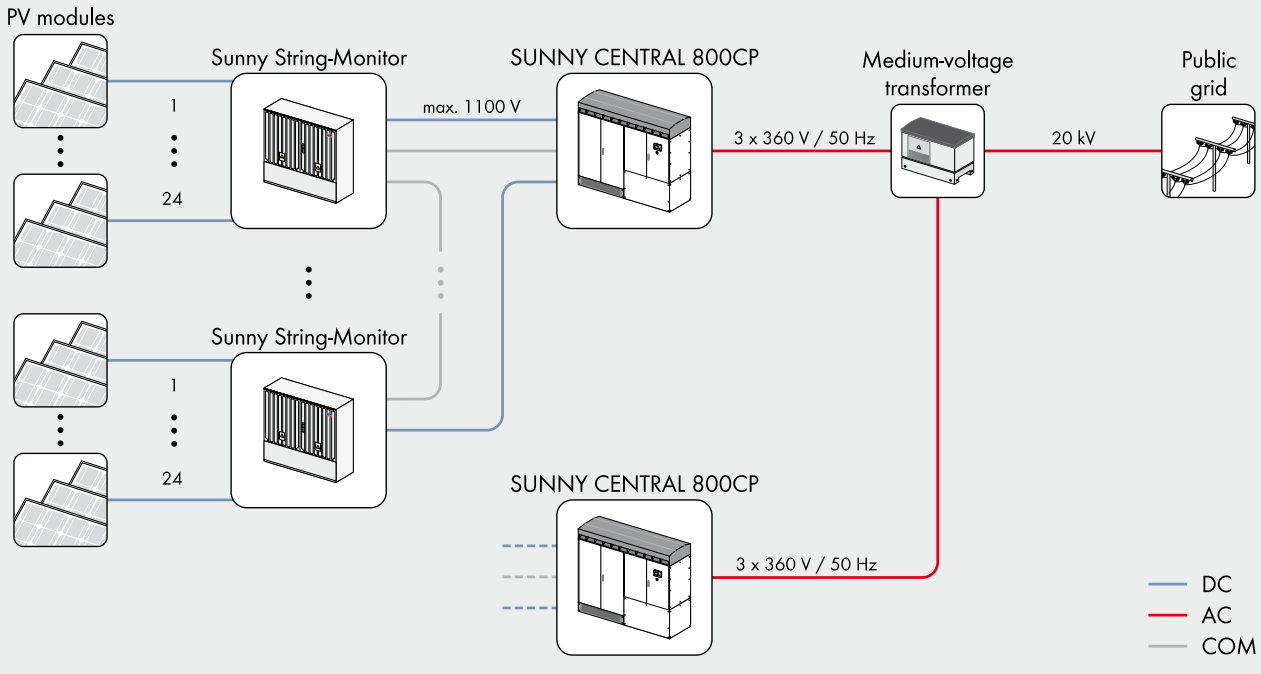
The completely new design of the Sunny Central CP series saves you real money. The compact and weatherproof enclosure is easy to load and transport and can be installed almost anywhere – there is no need for heavy protective concrete substations any longer. The innovative cooling concept OptiCool allows it to operate at full nominal power with ambient temperatures up to 50 °C. With the powerful grid management functions you are perfectly prepared for today's utility requirements as well as those still to come. The intelligent power management is the most important feature: in continuous operation, the Sunny Central 800CP can feed 880 kVA to the grid at ambient temperatures of up to 25 °C – that's 10 % more than the rated nominal power.

Technical data	Sunny Central 720CP	Sunny Central 760CP	Sunny Central 800CP
Input Data			
MPP voltage range	515 V – 820 V [3] [5]	545 V – 820 V [3] [5]	570 V – 820 V [3] [5]
Max. DC voltage		1000 V / 1100 V [1] Optional	
Max. DC current	1400 A	1400 A	1400 A
Number of DC inputs		9 fused inputs	
Output Values			
Nominal AC output @ 50 °C	720 kVA	760 kVA	800 kVA
Continuous AC power @ 25 °C	792 kVA	836 kVA	880 kVA
Max. AC current	1411 A	1411 A	1411 A
Nominal AC-current	1283 A	1283 A	1283 A
Nominal AC-voltage ±10 %	324 V	342 V	360 V
AC grid frequency 50 Hz	●	●	●
AC grid frequency 60 Hz	●	●	●
Power factor (cos φ)		0.9 leading ... 0.9 lagging	
Max. THD	< 3 %	< 3 %	< 3 %
Power consumption			
Internal consumption in operation	< 1500 W [4]	< 1500 W [4]	< 1500 W [4]
Standby consumption	< 100 W	< 100 W	< 100 W
External auxiliary voltage	3 x 230 V, 50 / 60 Hz	3 x 230 V, 50 / 60 Hz	3 x 230 V, 50 / 60 Hz
Dimensions and Weight			
Dimensions (W / H / D) in mm	2562 / 2279 / 956	2562 / 2279 / 956	2562 / 2279 / 956
Weight	1800 kg	1800 kg	1800 kg
Efficiency [2]			
Max. efficiency	98.6 %	98.6 %	98.6 %
Euro ETA	98.4 %	98.4 %	98.4 %
CEC-eta	98.4 %	98.4 %	98.4 %
Protection Rating and Ambient Conditions			
Protection rating (as per IEC 60529)	IP54	IP54	IP54
Protection rating (as per IEC 60721-3-3) Ambient conditions: fixed location, with protection against wind and weather	• Classification of chemically active substances: 3C2 • Classification of mechanically active substances: 3S2		
Operation temperature range	–20 °C ... +50 °C	–20 °C ... +50 °C	–20 °C ... +50 °C
Rel. humidity	15 % ... 95 %	15 % ... 95 %	15 % ... 95 %
Fresh air consumption	3000 m³/h	3000 m³/h	3000 m³/h
Max. altitude above sea level	2000 m	2000 m	2000 m

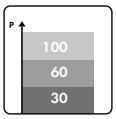


	Sunny Central 720CP	Sunny Central 760CP	Sunny Central 800CP
Features			
Sunny WebBox	●	●	●
Communication	Ethernet (optical fiber optional)	Ethernet (optical fiber optional)	Ethernet (optical fiber optional)
Communication with Sunny String-Monitor	RS485	RS485	RS485
LCD graphic display	●	●	●
Enclosure color	RAL 9016	RAL 9016	RAL 9016
Color of base	RAL 7005	RAL 7005	RAL 7005
Color of roof	RAL 7004	RAL 7004	RAL 7004
Ground fault monitoring / insulation monitoring	●	●	●
Circuit breaker AC side	●	●	●
Motor driven load disconnection switch on DC side	●	●	●
AC overvoltage protector	●	●	●
DC overvoltage protector	●	●	●
Overvoltage protectors for auxiliary supply	●	●	●
Certificates / Listings			
EMC	EN 61000-6-2 EN 61000-6-4		
CE conformity	●	●	●
BDEW-MSRL / FGW / TR8 [6]	●	●	●
RD 1633 / 2000	●	●	●
Arrêté du 23 / 04 / 08	●	●	●
● Standard features ❍ Optional features – Not available			
Type name	SC 720CP-10	SC 760CP-10	SC 800CP-10

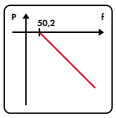
1) Startup at DC voltage < 1000 V
2) Efficiency measured without internal power supply
3) Further AC voltages, DC voltages and power classes can be configured (For detailed information see Technical Information „Innovations_CP“ at www.SMA.de)
4) Internal consumption at nominal power
5) At 1.05 $U_{AC,nom}$ and cos φ= 1
6) With complete dynamic grid support



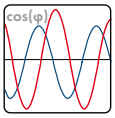
POWERFUL GRID MANAGEMENT FUNCTIONS



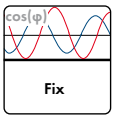
Remote controlled power reduction in case of grid overload
In order to avoid short-term grid overload, the grid operator presets a nominal active power value which the inverter will implement within 60 seconds. The nominal value is transmitted to the inverters via a ripple control receiver in combination with the SMA Power Reducer Box. Typical limit values are 100, 60, 30 or 0 per cent of the nominal power.



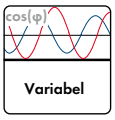
Frequency-dependent control of active power
As of a grid frequency of 50.2 Hz, the inverter automatically reduces the fed-in of active power according to a definable characteristic curve which thereby contributes to the stabilization of the grid frequency.



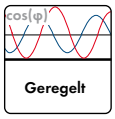
Static voltage support based on reactive power
To stabilize the grid voltage, SMA inverters feed reactive power (leading or lagging) into the grid. Three different modes are available:



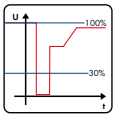
a) Fixed definition of the reactive power by the grid operator
The grid operator defines a fixed reactive power value or a fixed displacement factor between $\cos(\varphi)_{leading}$= 0.90 and $\cos(\varphi)_{lagging}$= 0.90.



b) Definition of a dynamic setpoint of the reactive power by the utility operator
The grid operator defines a dynamic displacement factor - any value between $\cos(\varphi)_{leading}$= 0.90 und $\cos(\varphi)_{lagging}$= 0.90. It is transmitted either through a communication unit the evaluation can e.g. be evaluated and processed by the SMA Power Reducer Box.

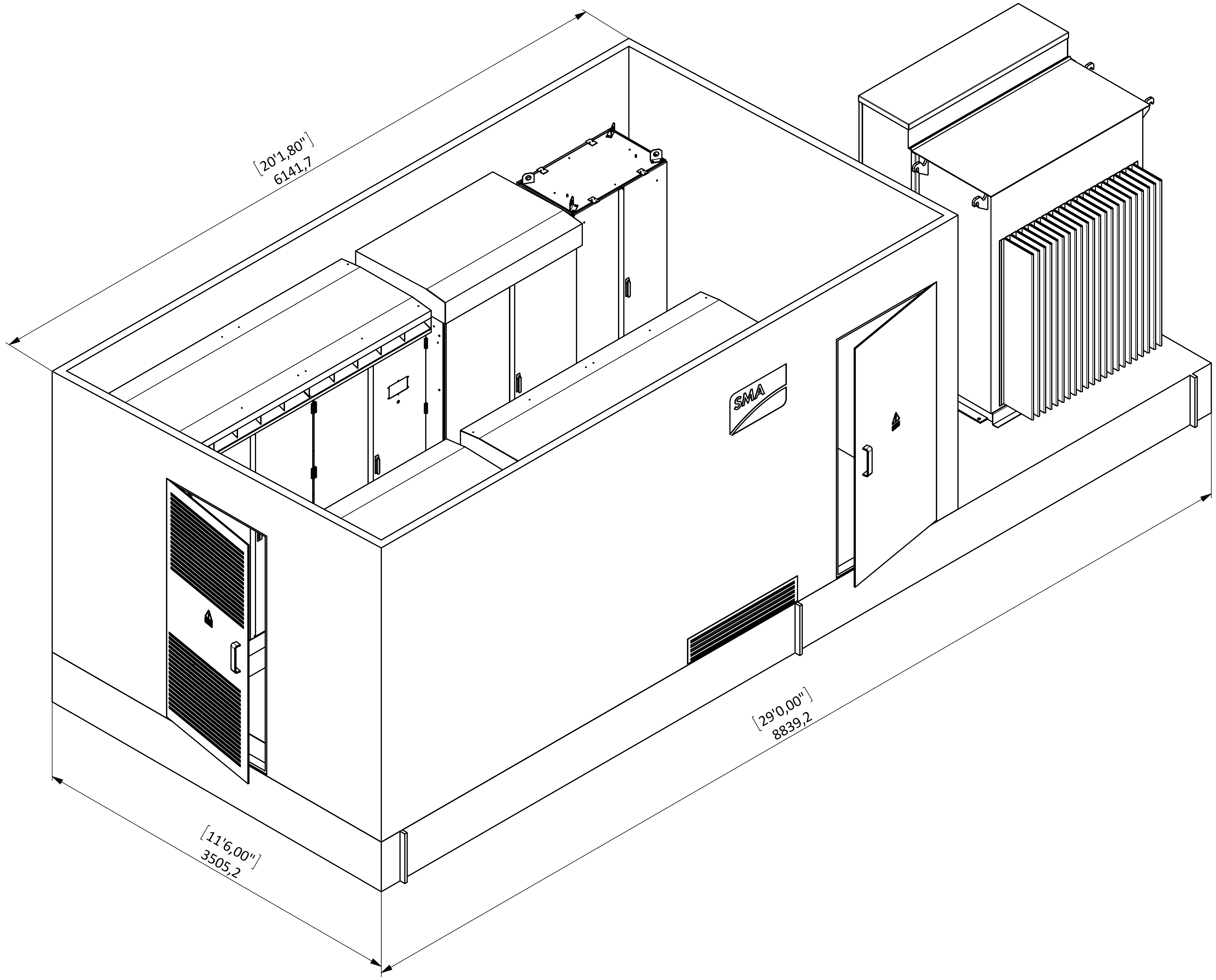


c) Control of the reactive power over a characteristic curve
The reactive power or the phase shift is controlled by a pre-defined characteristic curve – depending on the active power fed into the grid or the grid voltage.

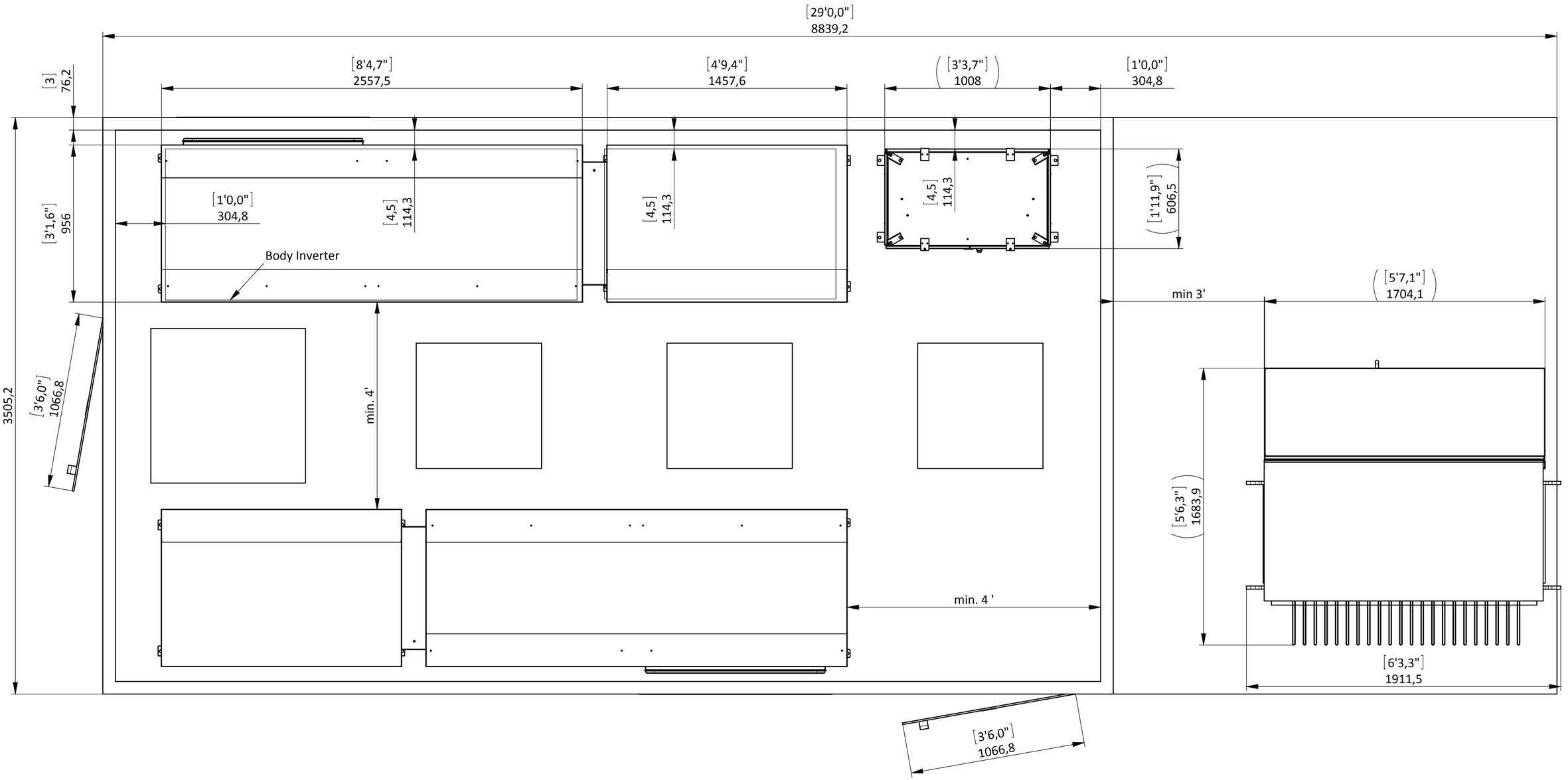


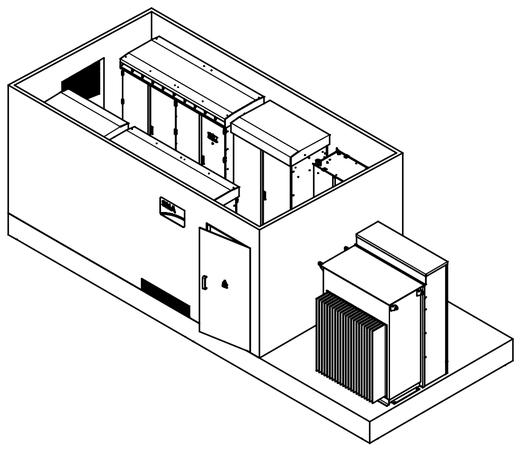
Limited Dynamic Grid Support
The inverter continues to feed to the grid after short term voltage drops – as long as the grid voltage is within a defined voltage window.

Dynamic Grid Support
LVRT (Low-Voltage Ride Through): The inverter stays connected to the grid during voltage drops and supports the grid by feeding reactive power.



Verwendbar für: / To be used for: **SMA SKID**			all dimensions and tolerances are in millimeters [feet / inches] alle Maß- und Toleranzangaben sind in mm [feet / inches]
	Datum / Date	Name	**Layout enclosure**
Bearb.	25.02.2011	Mihelic	
Gepr.			
Norm			
Freigabe			
SMA Solar Technology AG Sonnenallee 1 34266 Niestetal Tel.: +49 561 9522-0			Z-Nr.: D.-No.: A2 Blatt Page 1
			EDV-Nr.: Bl. / o.P. 1
Rev. / Datum / Name	Urspr.: / Origin.:		Name : Erstellt mit SolidWorks





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Verwendbar für: / To be used for:

SMA SKID

all dimensions and tolerances are in millimeters [feet / inches]
alle Maß- und Toleranzangaben sind in mm [feet / inches]

Clearance

				Datum / Date	Name
			Bearb.	25.02.2011	Mihelic
			Gepr.		
			Norm		
			Freigabe		

SMA Solar Technology AG
Sonnenallee 1
34266 Niestetal
Tel.: +49 561 9522-0

Rev.	Datum	Name	Urspr.: / Origin.:

Z-Nr.:
D.-No.:
EDV-Nr.:
Name :

A2

Blatt
Page 1
Bl. / o.P. 1

Erstellt mit SolidWorks

Terz-midle-frequency [kHz]	Soundpower-level L_{xpA} [dB_A]500kW	Soundpower-level L_{xpA} [dB_A]640kW	Soundpower-level L_{xpA} [dB_A]720kW	Soundpower-level L_{xpA} [dB_A]760kW	Soundpower level L_{xpA} [dB_A]800kW
0,05	63,30	55,30	57,70	67,00	56,50
0,063	60,80	53,10	56,80	63,20	54,00
0,08	63,90	56,30	56,50	59,50	55,20
0,1	64,10	66,20	65,00	66,50	68,10
0,125	65,70	64,50	60,60	65,20	62,00
0,16	72,30	65,80	65,50	63,20	66,40
0,2	67,30	64,60	66,80	64,90	67,80
0,25	66,10	76,20	77,50	70,80	72,40
0,315	78,40	79,80	77,70	82,20	75,10
0,4	73,70	73,90	73,90	72,80	66,70
0,5	77,80	78,70	77,70	77,40	74,70
0,63	78,90	78,90	74,60	77,40	77,00
0,8	70,60	72,50	74,10	70,60	72,00
1	72,20	71,00	70,00	68,90	67,90
1,25	72,40	72,00	71,50	70,80	71,80
1,6	67,30	68,30	76,70	68,60	68,50
2	69,30	66,30	66,50	67,20	65,30
2,5	65,10	66,80	64,60	64,80	63,90
3,15	62,60	64,30	65,00	63,20	61,00
4,0	53,50	54,20	54,70	52,30	53,80
5,0	51,30	49,50	50,50	51,20	49,80
6,3	68,90	72,60	73,50	73,50	69,70

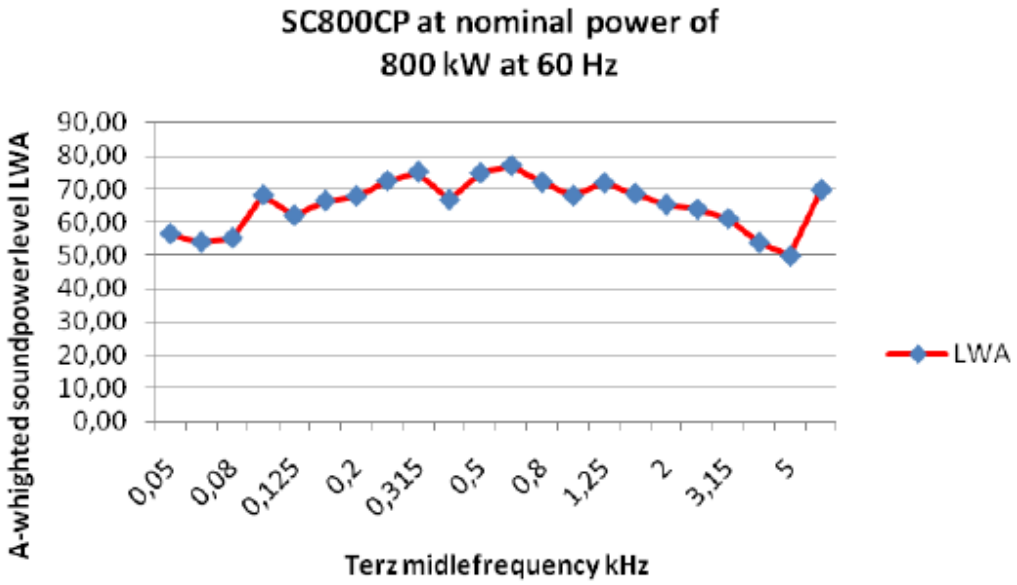
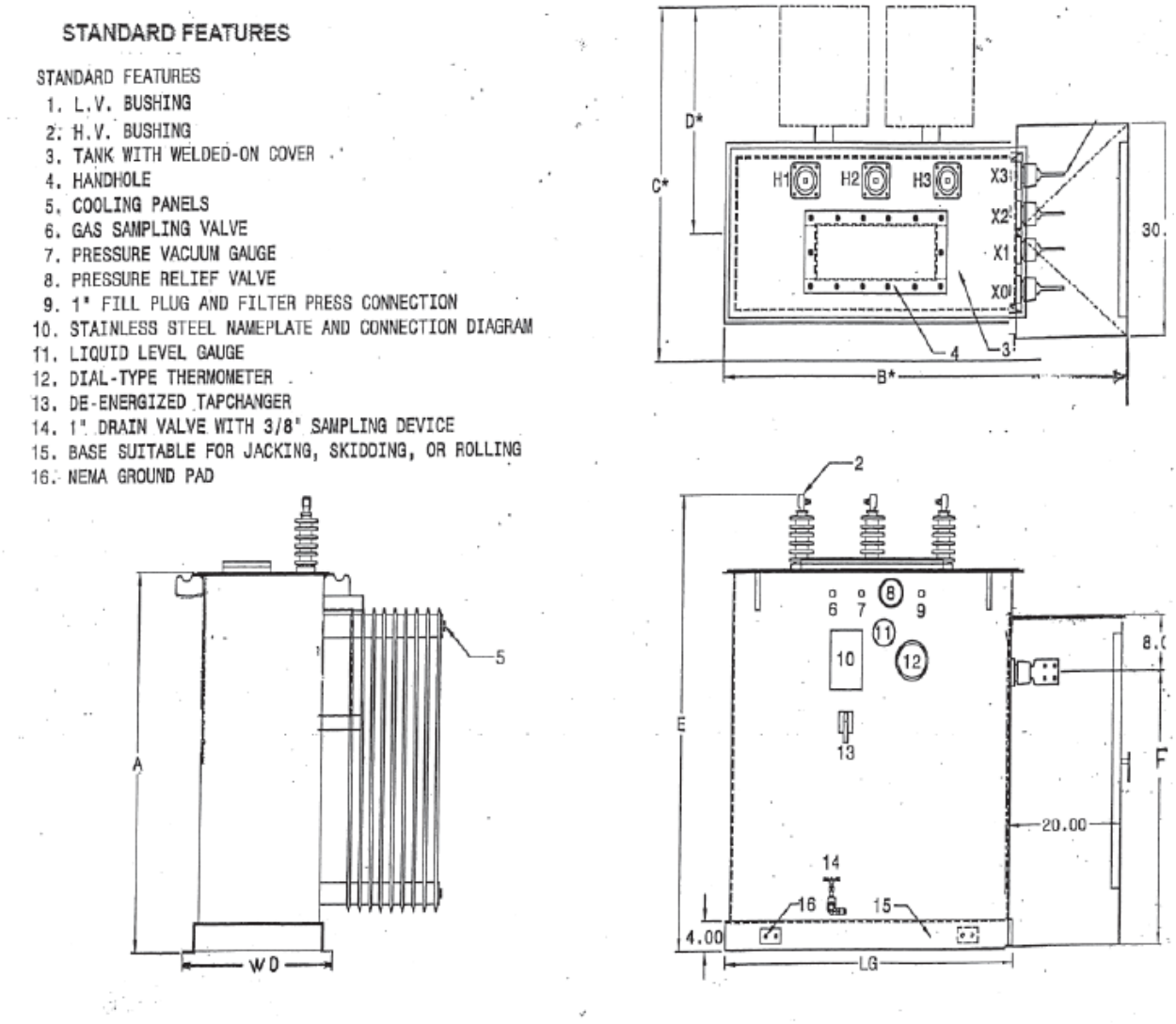


Figure B.1 SC800CP Inverter Sound Power Level as Provided by SMA. Note that the Header in the Table above Represents Various Inverter Models of CS###CP Series.



KVA	Fluid	Cond	HV BIL	LV BIL	WD	LG	A	B	C	D	E	F	Gal Liquid	Weight
10000	O	C	250	150	48	95	111	113	138	TBD	132	82	1530	37597

Figure B.2 44-kVA/10-MVA Substation Transformer Catalogue Dimensions (inches).

Estimated Frequency Spectra for Transformers

Transformer - 44kV/10MVA

From Handbook of Noise and Vibration Control (Crocker, 2007, page 1335-1336, Eq. 18 and Table 20)

Average LpA	68 dBA	Based on NEMA TR1-1993 (R2000), Table 0-2
Estimated surface area	35 m^2	Estimated based on similar transformer dimensions

Correction factors are in dB

Freq. (Hz)	31	63	125	250	500	1000	2000	4000	8000	Notes
C1	-11.0	-5.0	-3.0	-8.0	-8.0	-14.0	-19.0	-24.0	-31.0	Outdoors, indoors in mechanical room over 140 m^3
C2	-11	-2	3	-2	-2	-11	-19	-24	-31	Indoors
C3	-11	-2	3	2	2	-4	-9	-14	-21	Serious Noise Problems

Sound Power Level calculated as Lw=Average LpA + 10*log(Estimated surface area) + C + 10

Freq. (Hz)	31	63	125	250	500	1000	2000	4000	8000	Combined [dB]
C1 based [dB]	82.4	88.4	90.4	85.4	85.4	79.4	74.4	69.4	62.4	**94.5**
C2 based [dB]	82.4	91.4	96.4	91.4	91.4	82.4	74.4	69.4	62.4	**99.5**
C3 based [dB]	82.4	91.4	96.4	95.4	95.4	89.4	84.4	79.4	72.4	**101.5**

Resulting A-weighted sound power level

Freq. (Hz)	A-Weight	C1 based [dBA]	C2 based [dBA]	C2 based [dBA]
31	-39.4	43.0	52.0	57.0
63	-26.2	62.2	65.2	65.2
125	-16.1	74.3	80.3	80.3
250	-8.6	76.8	82.8	86.8
500	-3.2	82.2	88.2	92.2
1000	0	79.4	82.4	89.4
2000	1.2	75.6	75.6	85.6
4000	1	70.4	70.4	80.4
8000	-1.1	61.3	61.3	71.3
LwA [dBA]		**85.8**	**90.8**	**95.6**

Used in the study

Figure B.3 Sound Power Level Calculation for 44-kV/10-MVA Substation Transformer.

Sound Power Level Calculation for SMA Sunny Central 800CP, 100% LOAD

Third octave, as provided		
Freq #	Freq (Hz)	LwA (dBA)
1	25	
2	31.5	
3	40	
4	50	56.5
5	63	54.0
6	80	55.2
7	100	68.1
8	125	62.0
9	160	66.4
10	200	67.8
11	250	72.4
12	315	75.1
13	400	66.7
14	500	74.7
15	630	77.0
16	800	72.0
17	1000	67.9
18	1250	71.8
19	1600	68.5
20	2000	65.3
21	2500	63.9
22	3150	61.0
23	4000	53.8
24	5000	49.8
25	6300	69.7
26	8000	
27	10000	
	Total LwA	**83.3**

Full octave, as used in CADNA-A model			
Freq #	Freq (Hz)	LwA 1 inverter (dBA)	LwA 2 inverters (dBA)
	31.5		
5	63	60.1	63.1
8	125	70.9	73.9
11	250	77.5	80.5
14	500	79.3	82.3
17	1000	75.7	78.7
20	2000	71.1	74.1
23	4000	62.0	65.0
26	8000	69.7	72.7
	Total LwA	**83.3**	**86.3**

$$10\log\left(10^{\frac{56.5}{10}}+10^{\frac{54.0}{10}}+10^{\frac{55.2}{10}}\right)=60.1dBA$$

$$10\log\left(10^{\frac{60.1}{10}}+10^{\frac{60.1}{10}}\right)=63.1dBA$$

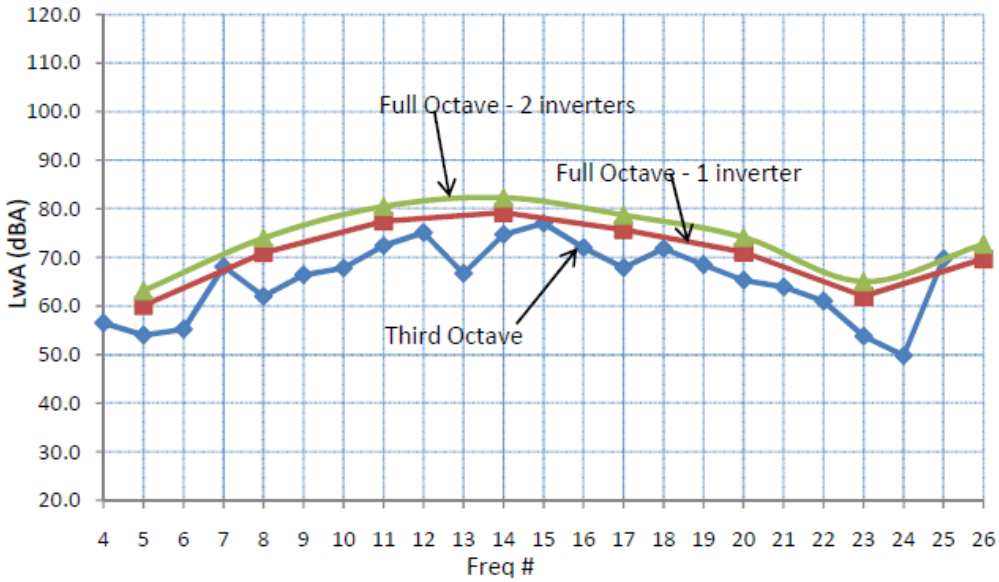


Figure B.4 Sound Power Level Calculation for SMA Sunny Central 800CP, 100% LOAD.

Estimated Frequency Spectra for Transformers

Transformer - 27.6kV/1.6MVA

From Handbook of Noise and Vibration Control (Crocker, 2007, page 1335-1336, Eq. 18 and Table 20)

Average LpA	61 dBA	Based on NEMA TR1-1993 (R2000), Table 0-2
Estimated surface area	14.872 m^2	Estimated based on client transformer drawings

Correction factors are in dB

Freq. (Hz)	31	63	125	250	500	1000	2000	4000	8000	Notes
C1	-11.0	-5.0	-3.0	-8.0	-8.0	-14.0	-19.0	-24.0	-31.0	Outdoors, indoors in mechanical room over 140 m^3
C2	-11	-2	3	-2	-2	-11	-19	-24	-31	Indoors
C3	-11	-2	3	2	2	-4	-9	-14	-21	Serious Noise Problems

Sound Power Level calculated as Lw=Average LpA + 10*log(Estimated surface area) + C + 10

Freq. (Hz)	31	63	125	250	500	1000	2000	4000	8000	Combined [dB]
C1 based [dB]	71.7	77.7	79.7	74.7	74.7	68.7	63.7	58.7	51.7	**83.8**
C2 based [dB]	71.7	80.7	85.7	80.7	80.7	71.7	63.7	58.7	51.7	**88.8**
C3 based [dB]	71.7	80.7	85.7	84.7	84.7	78.7	73.7	68.7	61.7	**90.8**

Resulting A-weighted sound power level

Freq. (Hz)	A-Weight	C1 based [dBA]	C2 based [dBA]	C2 based [dBA]
31	-39.4	32.3	41.3	46.3
63	-26.2	51.5	54.5	54.5
125	-16.1	63.6	69.6	69.6
250	-8.6	66.1	72.1	76.1
500	-3.2	71.5	77.5	81.5
1000	0	68.7	71.7	78.7
2000	1.2	64.9	64.9	74.9
4000	1	59.7	59.7	69.7
8000	-1.1	50.6	50.6	60.6
LwA [dBA]		**75.1**	**80.1**	**84.9**

Used in the study

Figure B.5 Sound Power Level Calculation for 27.6-kV/1.6-MVA Cluster Transformer.

Appendix C

Points of Reception Coordinates and Noise Maps from CADNA-A

Table C.1 List of all receptors considered for the combined noise study from the two solar projects

ID	Description	UTM Coordinates NAD 83 (m)	
		X	Y
1	Existing	312074	4880408
2	Existing	312076	4880421
3	Existing	312170	4880525
4	Existing	312190	4880491
5	Existing	312209	4880547
6	Vacant Lot	312215	4880377
7	Existing	312281	4880561
8	Existing	312324	4880490
9	Existing	312384	4880434
10	Existing	312385	4880593
11	Existing	312392	4880584
12	Existing	312405	4880562
13	Existing	312413	4880446
14	Existing	312421	4880517
15	Existing	312457	4880430
16	Existing	312591	4880520
17	Existing	312601	4880558
18	Existing	312609	4880507
19	Existing	312620	4880564
20	Existing	312633	4880569
21	Existing	312645	4880582
22	Existing	312722	4880613
23	Existing	312745	4880615
24	Existing	312757	4880626
25	Existing	312772	4880589
26	Existing	312776	4880611
27	Existing	312865	4880731
28	Existing	312874	4880763
29	Vacant Lot	312881	4880595
30	Existing	312881	4880770
31	Vacant Lot	312947	4880688
32	Existing	312956	4880783
33	Vacant Lot	312984	4881793
34	Existing	313028	4880756
35	Existing	313043	4880860
36	Existing	313129	4880926

ID	Description	UTM Coordinates NAD 83 (m)	
		X	Y
37	Vacant Lot	313169	4880863
38	Existing	313170	4880948
39	Existing	313445	4881196
40	Existing	313452	4881183
41	Existing	313456	4882543
42	Existing	313472	4881127
43	Existing	313487	4881209
44	Existing	313516	4882351
45	Existing	313528	4881224
46	Existing	313535	4882529
47	Existing	313539	4882514
48	Existing	313544	4881246
49	Existing	313551	4881144
50	Existing	313551	4882523
51	Existing	313574	4882438
52	Existing	313590	4881166
53	Existing	313599	4882409
54	Existing	313608	4881314
55	Existing	313618	4881215
56	Existing	313652	4882538
57	Vacant Lot	313671	4881243
58	Vacant Lot	313671	4880966
59	Existing	313698	4881344
60	Existing	313725	4881319
61	Existing	313752	4881330
62	Vacant Lot	313760	4881405
63	Existing	313830	4881476
64	Existing	313873	4881540
65	Existing	313909	4881549
66	Existing	313945	4881437
67	Existing	313996	4881652
68	Existing	314033	4881665
69	Existing	314035	4882750
70	Existing	314044	4881631
71	Vacant Lot	314060	4881500
72	Vacant Lot	314157	4881795
73	Vacant Lot	314222	4881670
74	Existing	314231	4882630

ID	Description	UTM Coordinates NAD 83 (m)	
		X	Y
75	Vacant Lot	314248	4881829
76	Vacant Lot	314262	4881690
77	Existing	314303	4881859
78	Existing	314304	4881888
79	Existing	314324	4882608
80	Existing	314326	4882446
81	Existing	314336	4882430
82	Vacant Lot	314345	4881979
83	Existing	314364	4881891
84	Existing	314375	4881870
85	Existing	314386	4881899
86	Existing	314407	4881894
87	Existing	314410	4882618
88	Existing	314418	4881934
89	Existing	314446	4881905
90	Existing	314449	4881924
91	Existing	314517	4881986
92	Existing	314528	4881967
93	Existing	314573	4882033
94	Existing	314633	4882067
95	Existing	314646	4882059
96	Vacant Lot	314683	4882015
97	Existing	314798	4882267
98	Existing	314812	4882122
99	Existing	314830	4881714
100	Existing	314835	4882298
101	Existing	314836	4882129
102	Existing	314838	4881704
103	Existing	314842	4882221
104	Existing	314847	4882209
105	Existing	314882	4882126
106	Existing	314897	4882154
107	Vacant Lot	314915	4882384
108	Existing	314923	4882158
109	Existing	314939	4882166
110	Existing	314943	4882183
111	Existing	315002	4882210
112	Existing	315014	4882180

ID	Description	UTM Coordinates NAD 83 (m)	
		X	Y
113	Vacant Lot	315031	4882328
114	Vacant Lot	315041	4881350
115	Existing	315053	4882253
116	Existing	315080	4882285
117	Vacant Lot	315116	4882317
118	Existing	315149	4882354
119	Existing	315167	4880909
120	Existing	315170	4882450
121	Existing	315181	4882392
122	Vacant Lot	315181	4882480
123	Existing	315185	4880875
124	Existing	315203	4880843
125	Existing	315216	4880831
126	Vacant Lot	315234	4880799
127	Existing	315236	4882400
128	Existing	315242	4882444
129	Existing	315253	4880707
130	Existing	315253	4882429
131	Vacant Lot	315260	4882581
132	Existing	315261	4880765
133	Existing	315280	4880715
134	Vacant Lot	315285	4880672
135	Existing	315299	4880947
136	Existing	315335	4880906
137	Existing	315346	4880651
138	Existing	315357	4880853
139	Existing	315369	4880617
140	Existing	315383	4880816
141	Vacant Lot	315405	4880544
142	Vacant Lot	315405	4880783
143	Existing	315430	4880479
144	Vacant Lot	315433	4880744
145	Existing	315454	4880447
146	Vacant Lot	315459	4880707
147	Existing	315480	4880665
148	Existing	315511	4880268
149	Vacant Lot	315522	4880596
150	Existing	315528	4880335

ID	Description	UTM Coordinates NAD 83 (m)	
		X	Y
151	Existing	315554	4880545
152	Existing	315579	4880515
153	Existing	315583	4880269
154	Existing	315632	4880262
155	Existing	315636	4880435
156	Existing	315652	4880397
157	Existing	315704	4880299
158	Existing	315747	4880339
159	Existing	315770	4880356
160	Existing	315775	4880488
161	Existing	315806	4880363
162	Existing	315810	4880513
163	Existing	315888	4880486
164	Existing	315901	4880433
165	Existing	315908	4880504
166	Existing	315927	4880444
167	Existing	315963	4880465
168	Existing	315970	4880532
169	Existing	316008	4880520
170	Existing	316029	4880521
171	Existing	316078	4880699
172	Existing	316103	4880697
173	Existing	316357	4880691

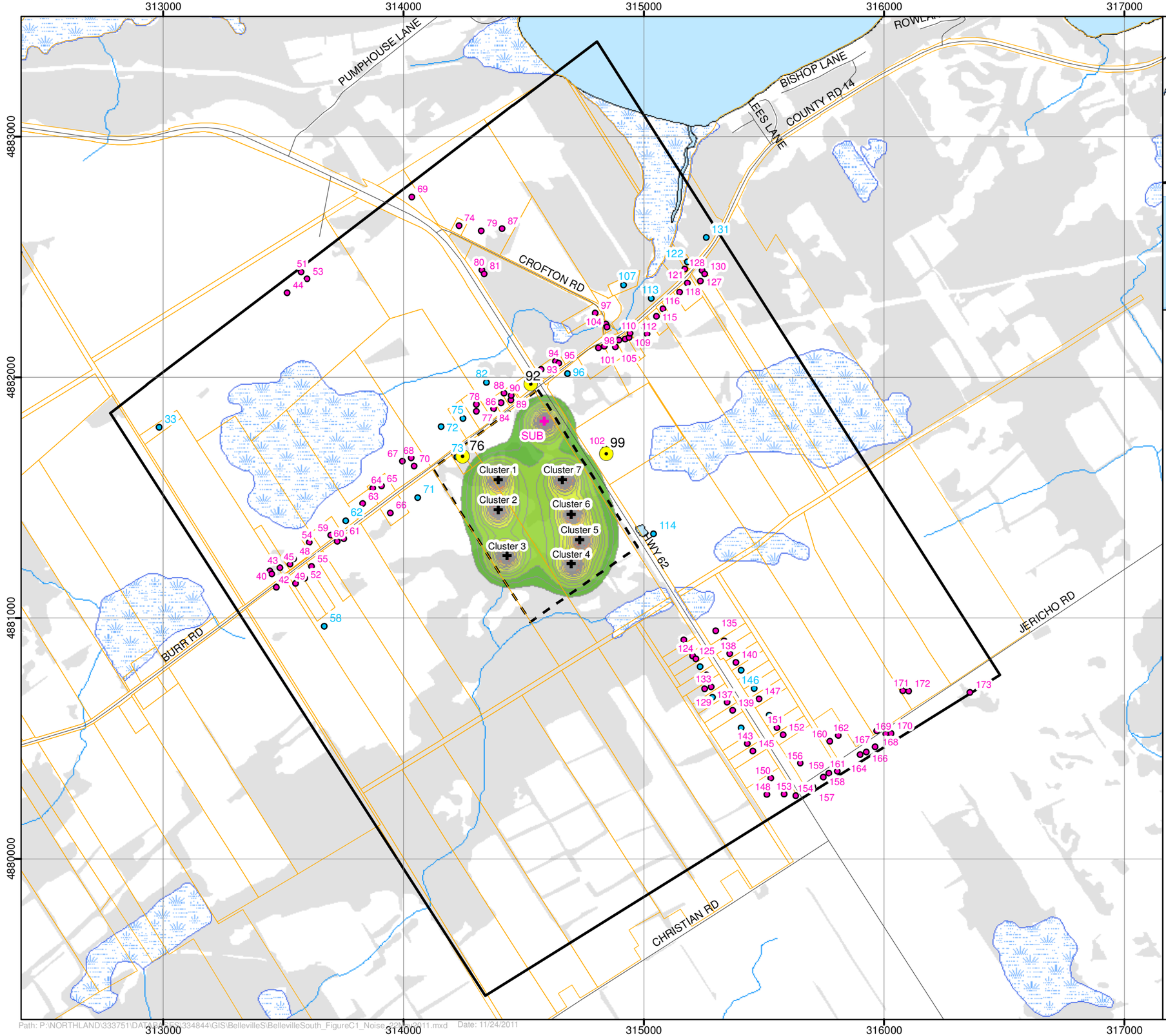
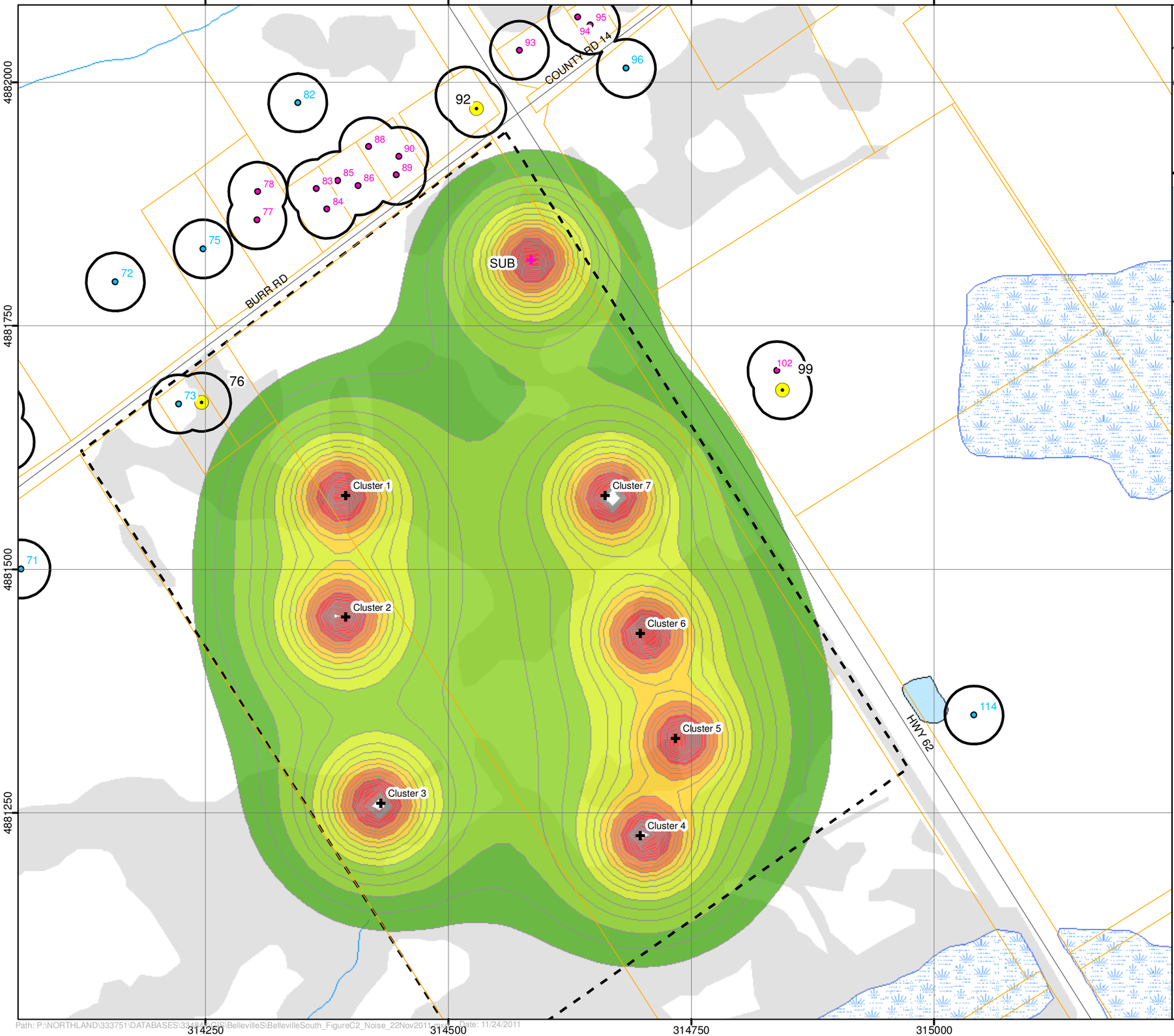
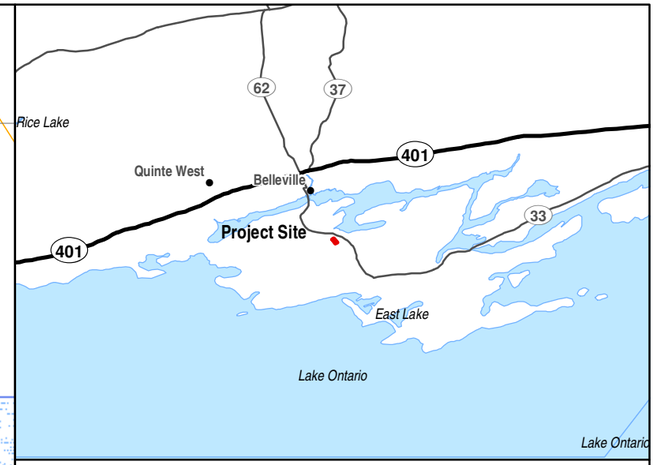


Figure C.1
Northland Power Inc.
Belleville South Solar Project
Noise Contours at 4.5 m

HATCH

Path: P:\NORTHLAND\333751\DATA\EIS\334844\GIS\BellevilleS\BellevilleSouth_FigureC1_Noise_4m_20111111.mxd Date: 11/24/2011





Legend

- Cluster # — Inverter Cluster
- SUB — Substation Transformer
- # — Noise Receptors - Existing
- # — Noise Receptors - Vacant
- # — Representative Noise Receptor
- Road
- Watercourse
- Parcel
- Belleville South Project Site
- 30 m from Receptors
- Wetland
- Waterbody
- Wooded Area

Sound Pressure Level (dBA)

40.0 - 41.0 | 41.1 - 44.0 | 44.1 - 47.0 | 47.1 - 49.0 | 49.1 - 52.0 | 52.1 - 63.0

Notes:
1. Produced by Hatch under licence from Ontario Ministry of Natural Resources, Copyright (c) Queens Printer 2011.
2. Spatial referencing UTM NAD 83.
3. Due to scale limitations, the three-part inverter unit is represented as a single point.

0 37.5 75 150 Metres

1:4,000

NORTH

Figure C.2
Northland Power Inc.
Belleville South Solar Project
Noise Contours at 1.5 m

HATCH™

Appendix D

CADNA-A Sample Calculations

Configuration	
Parameter	Value
General	
Country	(user defined)
Max. Error (dB)	0.00
Max. Search Radius (m)	3000.00
Min. Dist Src to Rcvr	0.00
Partition	
Raster Factor	0.50
Max. Length of Section (m)	1000.00
Min. Length of Section (m)	1.00
Min. Length of Section (%)	0.00
Proj. Line Sources	On
Proj. Area Sources	On
Ref. Time	
Reference Time Day (min)	960.00
Reference Time Night (min)	480.00
Daytime Penalty (dB)	0.00
Recr. Time Penalty (dB)	0.00
Night-time Penalty (dB)	0.00
DTM	
Standard Height (m)	0.00
Model of Terrain	Triangulation
Reflection	
max. Order of Reflection	1
Search Radius Src	100.00
Search Radius Rcvr	100.00
Max. Distance Source - Rcvr	1000.00 1000.00
Min. Distance Rvcr - Reflector	1.00 1.00
Min. Distance Source - Reflector	0.10
Industrial (ISO 9613)	
Lateral Diffraction	some Obj
Obst. within Area Src do not shield	On
Screening	Excl. Ground Att. over Barrier
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	3.0 20.0 0.0
Temperature (°C)	10
rel. Humidity (%)	70
Ground Absorption G	0.70
Wind Speed for Dir. (m/s)	3.0
Roads (RLS-90)	
Strictly acc. to RLS-90	
Railways (Schall 03)	
Strictly acc. to Schall 03 / Schall-Transrapid	
Aircraft (???)	
Strictly acc. to AzB	

Receiver
Name: 76.0
ID: 76.0
X: 314261.53
Y: 4881690.13
Z: 109.50

Point Source, ISO 9613, Name: "BN_Inv1", ID: "BN_Inv1"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312591.20	4881642.66	110.17	0	63	68.1	-88.0	0.0	0.0	75.5	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-2.0	-88.0
2	312591.20	4881642.66	110.17	0	125	78.9	-88.0	0.0	0.0	75.5	0.7	4.2	0.0	0.0	0.0	0.0	-0.0	-1.5	-88.0
3	312591.20	4881642.66	110.17	0	250	85.5	-88.0	0.0	0.0	75.5	1.7	2.6	0.0	0.0	0.0	0.0	-0.0	5.7	-88.0
4	312591.20	4881642.66	110.17	0	500	87.3	-88.0	0.0	0.0	75.5	3.2	-1.3	0.0	0.0	0.0	0.0	-0.0	9.9	-88.0
5	312591.20	4881642.66	110.17	0	1000	83.7	-88.0	0.0	0.0	75.5	6.1	-1.7	0.0	0.0	0.0	0.0	-0.0	3.8	-88.0
6	312591.20	4881642.66	110.17	0	2000	79.1	-88.0	0.0	0.0	75.5	16.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-10.8	-88.0
7	312591.20	4881642.66	110.17	0	4000	70.0	-88.0	0.0	0.0	75.5	54.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-58.5	-88.0
8	312591.20	4881642.66	110.17	0	8000	77.7	-88.0	0.0	0.0	75.5	195.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-191.4	-88.0

Point Source, ISO 9613, Name: "BN_Inv2", ID: "BN_Inv2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312797.00	4881725.26	109.29	0	63	68.1	-88.0	0.0	0.0	74.3	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-0.8	-88.0
2	312797.00	4881725.26	109.29	0	125	78.9	-88.0	0.0	0.0	74.3	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-0.3	-88.0
3	312797.00	4881725.26	109.29	0	250	85.5	-88.0	0.0	0.0	74.3	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	7.1	-88.0
4	312797.00	4881725.26	109.29	0	500	87.3	-88.0	0.0	0.0	74.3	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	11.4	-88.0
5	312797.00	4881725.26	109.29	0	1000	83.7	-88.0	0.0	0.0	74.3	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	5.7	-88.0
6	312797.00	4881725.26	109.29	0	2000	79.1	-88.0	0.0	0.0	74.3	14.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-7.7	-88.0
7	312797.00	4881725.26	109.29	0	4000	70.0	-88.0	0.0	0.0	74.3	48.0	-1.7	0.0	0.0	0.0	0.0	-0.0	-50.6	-88.0
8	312797.00	4881725.26	109.29	0	8000	77.7	-88.0	0.0	0.0	74.3	171.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-166.2	-88.0

Point Source, ISO 9613, Name: "BN_Inv3", ID: "BN_Inv3"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312832.88	4881596.06	108.75	0	63	68.1	-88.0	0.0	0.0	74.1	0.2	-5.5	0.0	0.0	0.0	0.0	-0.0	-0.6	-88.0
2	312832.88	4881596.06	108.75	0	125	78.9	-88.0	0.0	0.0	74.1	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-0.0	-88.0
3	312832.88	4881596.06	108.75	0	250	85.5	-88.0	0.0	0.0	74.1	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	7.3	-88.0
4	312832.88	4881596.06	108.75	0	500	87.3	-88.0	0.0	0.0	74.1	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	11.7	-88.0
5	312832.88	4881596.06	108.75	0	1000	83.7	-88.0	0.0	0.0	74.1	5.2	-1.7	0.0	0.0	0.0	0.0	-0.0	6.0	-88.0
6	312832.88	4881596.06	108.75	0	2000	79.1	-88.0	0.0	0.0	74.1	13.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-7.2	-88.0
7	312832.88	4881596.06	108.75	0	4000	70.0	-88.0	0.0	0.0	74.1	46.9	-1.7	0.0	0.0	0.0	0.0	-0.0	-49.4	-88.0
8	312832.88	4881596.06	108.75	0	8000	77.7	-88.0	0.0	0.0	74.1	167.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-162.1	-88.0

Point Source, ISO 9613, Name: "BN_Inv4", ID: "BN_Inv4"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312797.00	4881467.66	108.56	0	63	68.1	-88.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-0.9	-88.0
2	312797.00	4881467.66	108.56	0	125	78.9	-88.0	0.0	0.0	74.4	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-0.4	-88.0
3	312797.00	4881467.66	108.56	0	250	85.5	-88.0	0.0	0.0	74.4	1.6	2.6	0.0	0.0	0.0	0.0	-0.0	7.0	-88.0
4	312797.00	4881467.66	108.56	0	500	87.3	-88.0	0.0	0.0	74.4	2.9	-1.2	0.0	0.0	0.0	0.0	-0.0	11.3	-88.0
5	312797.00	4881467.66	108.56	0	1000	83.7	-88.0	0.0	0.0	74.4	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	5.5	-88.0
6	312797.00	4881467.66	108.56	0	2000	79.1	-88.0	0.0	0.0	74.4	14.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-8.0	-88.0
7	312797.00	4881467.66	108.56	0	4000	70.0	-88.0	0.0	0.0	74.4	48.5	-1.7	0.0	0.0	0.0	0.0	-0.0	-51.3	-88.0
8	312797.00	4881467.66	108.56	0	8000	77.7	-88.0	0.0	0.0	74.4	173.1	-1.7	0.0	0.0	0.0	0.0	-0.0	-168.2	-88.0

Point Source, ISO 9613, Name: "BN_Inv5", ID: "BN_Inv5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312967.00	4881392.66	107.60	0	63	68.1	-88.0	0.0	0.0	73.5	0.2	-5.5	0.0	0.0	0.0	0.0	-0.0	-0.0	-88.0
2	312967.00	4881392.66	107.60	0	125	78.9	-88.0	0.0	0.0	73.5	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	0.7	-88.0
3	312967.00	4881392.66	107.60	0	250	85.5	-88.0	0.0	0.0	73.5	1.4	2.6	0.0	0.0	0.0	0.0	-0.0	8.1	-88.0
4	312967.00	4881392.66	107.60	0	500	87.3	-88.0	0.0	0.0	73.5	2.6	-1.2	0.0	0.0	0.0	0.0	-0.0	12.5	-88.0
5	312967.00	4881392.66	107.60	0	1000	83.7	-88.0	0.0	0.0	73.5	4.9	-1.7	0.0	0.0	0.0	0.0	-0.0	7.0	-88.0

Point Source, ISO 9613, Name: "BN_Inv5", ID: "BN_Inv5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
6	312967.00	4881392.66	107.60	0	2000	79.1	-88.0	0.0	0.0	73.5	12.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-5.5	-88.0
7	312967.00	4881392.66	107.60	0	4000	70.0	-88.0	0.0	0.0	73.5	43.5	-1.7	0.0	0.0	0.0	0.0	-0.0	-45.3	-88.0
8	312967.00	4881392.66	107.60	0	8000	77.7	-88.0	0.0	0.0	73.5	155.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-149.4	-88.0

Point Source, ISO 9613, Name: "BN_Inv6", ID: "BN_Inv6"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312833.20	4881330.86	107.82	0	63	68.1	-88.0	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-0.9	-88.0
2	312833.20	4881330.86	107.82	0	125	78.9	-88.0	0.0	0.0	74.4	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-0.3	-88.0
3	312833.20	4881330.86	107.82	0	250	85.5	-88.0	0.0	0.0	74.4	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	7.0	-88.0
4	312833.20	4881330.86	107.82	0	500	87.3	-88.0	0.0	0.0	74.4	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	11.3	-88.0
5	312833.20	4881330.86	107.82	0	1000	83.7	-88.0	0.0	0.0	74.4	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	5.6	-88.0
6	312833.20	4881330.86	107.82	0	2000	79.1	-88.0	0.0	0.0	74.4	14.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-7.8	-88.0
7	312833.20	4881330.86	107.82	0	4000	70.0	-88.0	0.0	0.0	74.4	48.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-51.0	-88.0
8	312833.20	4881330.86	107.82	0	8000	77.7	-88.0	0.0	0.0	74.4	172.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-167.1	-88.0

Point Source, ISO 9613, Name: "BN_Inv7", ID: "BN_Inv7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312930.80	4881255.86	107.60	0	63	68.1	-88.0	0.0	0.0	73.9	0.2	-5.5	0.0	0.0	0.0	0.0	-0.0	-0.5	-88.0
2	312930.80	4881255.86	107.60	0	125	78.9	-88.0	0.0	0.0	73.9	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	0.2	-88.0
3	312930.80	4881255.86	107.60	0	250	85.5	-88.0	0.0	0.0	73.9	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	7.5	-88.0
4	312930.80	4881255.86	107.60	0	500	87.3	-88.0	0.0	0.0	73.9	2.7	-1.2	0.0	0.0	0.0	0.0	-0.0	11.9	-88.0
5	312930.80	4881255.86	107.60	0	1000	83.7	-88.0	0.0	0.0	73.9	5.1	-1.7	0.0	0.0	0.0	0.0	-0.0	6.3	-88.0
6	312930.80	4881255.86	107.60	0	2000	79.1	-88.0	0.0	0.0	73.9	13.5	-1.7	0.0	0.0	0.0	0.0	-0.0	-6.7	-88.0
7	312930.80	4881255.86	107.60	0	4000	70.0	-88.0	0.0	0.0	73.9	45.9	-1.7	0.0	0.0	0.0	0.0	-0.0	-48.1	-88.0
8	312930.80	4881255.86	107.60	0	8000	77.7	-88.0	0.0	0.0	73.9	163.6	-1.7	0.0	0.0	0.0	0.0	-0.0	-158.2	-88.0

Point Source, ISO 9613, Name: "BN_Sub", ID: "BN_Sub"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	313233.99	4881081.77	108.50	0	32	48.0	48.0	0.0	0.0	72.5	0.0	-5.4	0.0	0.0	0.0	0.0	-0.0	-19.2	-19.2
2	313233.99	4881081.77	108.50	0	63	67.2	67.2	0.0	0.0	72.5	0.2	-5.4	0.0	0.0	0.0	0.0	-0.0	-0.1	-0.1
3	313233.99	4881081.77	108.50	0	125	79.3	79.3	0.0	0.0	72.5	0.5	4.0	0.0	0.0	0.0	0.0	-0.0	2.3	2.3
4	313233.99	4881081.77	108.50	0	250	81.8	81.8	0.0	0.0	72.5	1.3	1.4	0.0	0.0	0.0	0.0	-0.0	6.7	6.7
5	313233.99	4881081.77	108.50	0	500	87.2	87.2	0.0	0.0	72.5	2.3	-1.6	0.0	0.0	0.0	0.0	-0.0	13.9	13.9
6	313233.99	4881081.77	108.50	0	1000	84.4	84.4	0.0	0.0	72.5	4.4	-1.6	0.0	0.0	0.0	0.0	-0.0	9.1	9.1
7	313233.99	4881081.77	108.50	0	2000	80.6	80.6	0.0	0.0	72.5	11.5	-1.6	0.0	0.0	0.0	0.0	-0.0	-1.9	-1.9
8	313233.99	4881081.77	108.50	0	4000	75.4	75.4	0.0	0.0	72.5	39.1	-1.6	0.0	0.0	0.0	0.0	-0.0	-34.6	-34.6
9	313233.99	4881081.77	108.50	0	8000	66.3	66.3	0.0	0.0	72.5	139.6	-1.6	0.0	0.0	0.0	0.0	-0.0	-144.2	-144.2

Point Source, ISO 9613, Name: "BN_Trans1", ID: "BN_Trans1"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312596.70	4881642.16	110.12	0	32	37.3	37.3	0.0	0.0	75.4	0.1	-5.6	0.0	0.0	0.0	0.0	-0.0	-32.6	-32.6
2	312596.70	4881642.16	110.12	0	63	56.5	56.5	0.0	0.0	75.4	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-13.5	-13.5
3	312596.70	4881642.16	110.12	0	125	68.6	68.6	0.0	0.0	75.4	0.7	4.2	0.0	0.0	0.0	0.0	-0.0	-11.7	-11.7
4	312596.70	4881642.16	110.12	0	250	71.1	71.1	0.0	0.0	75.4	1.7	2.6	0.0	0.0	0.0	0.0	-0.0	-8.7	-8.7
5	312596.70	4881642.16	110.12	0	500	76.5	76.5	0.0	0.0	75.4	3.2	-1.2	0.0	0.0	0.0	0.0	-0.0	-0.9	-0.9
6	312596.70	4881642.16	110.12	0	1000	73.7	73.7	0.0	0.0	75.4	6.1	-1.7	0.0	0.0	0.0	0.0	-0.0	-6.1	-6.1
7	312596.70	4881642.16	110.12	0	2000	69.9	69.9	0.0	0.0	75.4	16.1	-1.7	0.0	0.0	0.0	0.0	-0.0	-19.9	-19.9
8	312596.70	4881642.16	110.12	0	4000	64.7	64.7	0.0	0.0	75.4	54.6	-1.7	0.0	0.0	0.0	0.0	-0.0	-63.6	-63.6
9	312596.70	4881642.16	110.12	0	8000	55.6	55.6	0.0	0.0	75.4	194.7	-1.7	0.0	0.0	0.0	0.0	-0.0	-212.8	-212.8

Point Source, ISO 9613, Name: "BN_Trans2", ID: "BN_Trans2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312791.50	4881725.76	109.29	0	32	37.3	37.3	0.0	0.0	74.3	0.1	-5.6	0.0	0.0	0.0	0.0	-0.0	-31.5	-31.5
2	312791.50	4881725.76	109.29	0	63	56.5	56.5	0.0	0.0	74.3	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-12.5	-12.5
3	312791.50	4881725.76	109.29	0	125	68.6	68.6	0.0	0.0	74.3	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-10.6	-10.6
4	312791.50	4881725.76	109.29	0	250	71.1	71.1	0.0	0.0	74.3	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	-7.4	-7.4
5	312791.50	4881725.76	109.29	0	500	76.5	76.5	0.0	0.0	74.3	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	0.5	0.5
6	312791.50	4881725.76	109.29	0	1000	73.7	73.7	0.0	0.0	74.3	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-4.4	-4.4

Point Source, ISO 9613, Name: "BN_Trans2", ID: "BN_Trans2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
7	312791.50	4881725.76	109.29	0	2000	69.9	69.9	0.0	0.0	74.3	14.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-17.0	-17.0
8	312791.50	4881725.76	109.29	0	4000	64.7	64.7	0.0	0.0	74.3	48.2	-1.7	0.0	0.0	0.0	0.0	-0.0	-56.2	-56.2
9	312791.50	4881725.76	109.29	0	8000	55.6	55.6	0.0	0.0	74.3	171.9	-1.7	0.0	0.0	0.0	0.0	-0.0	-189.0	-189.0

Point Source, ISO 9613, Name: "BN_Trans3", ID: "BN_Trans3"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312827.38	4881596.56	108.76	0	32	37.3	37.3	0.0	0.0	74.1	0.1	-5.6	0.0	0.0	0.0	0.0	-0.0	-31.3	-31.3
2	312827.38	4881596.56	108.76	0	63	56.5	56.5	0.0	0.0	74.1	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-12.3	-12.3
3	312827.38	4881596.56	108.76	0	125	68.6	68.6	0.0	0.0	74.1	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-10.4	-10.4
4	312827.38	4881596.56	108.76	0	250	71.1	71.1	0.0	0.0	74.1	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	-7.2	-7.2
5	312827.38	4881596.56	108.76	0	500	76.5	76.5	0.0	0.0	74.1	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	0.8	0.8
6	312827.38	4881596.56	108.76	0	1000	73.7	73.7	0.0	0.0	74.1	5.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-4.0	-4.0
7	312827.38	4881596.56	108.76	0	2000	69.9	69.9	0.0	0.0	74.1	13.9	-1.7	0.0	0.0	0.0	0.0	-0.0	-16.5	-16.5
8	312827.38	4881596.56	108.76	0	4000	64.7	64.7	0.0	0.0	74.1	47.1	-1.7	0.0	0.0	0.0	0.0	-0.0	-54.9	-54.9
9	312827.38	4881596.56	108.76	0	8000	55.6	55.6	0.0	0.0	74.1	168.0	-1.7	0.0	0.0	0.0	0.0	-0.0	-184.9	-184.9

Point Source, ISO 9613, Name: "BN_Trans4", ID: "BN_Trans4"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312791.50	4881468.16	108.57	0	32	37.3	37.3	0.0	0.0	74.4	0.1	-5.6	0.0	0.0	0.0	0.0	-0.0	-31.6	-31.6
2	312791.50	4881468.16	108.57	0	63	56.5	56.5	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-12.6	-12.6
3	312791.50	4881468.16	108.57	0	125	68.6	68.6	0.0	0.0	74.4	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-10.7	-10.7
4	312791.50	4881468.16	108.57	0	250	71.1	71.1	0.0	0.0	74.4	1.6	2.6	0.0	0.0	0.0	0.0	-0.0	-7.5	-7.5
5	312791.50	4881468.16	108.57	0	500	76.5	76.5	0.0	0.0	74.4	2.9	-1.2	0.0	0.0	0.0	0.0	-0.0	0.4	0.4
6	312791.50	4881468.16	108.57	0	1000	73.7	73.7	0.0	0.0	74.4	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-4.5	-4.5
7	312791.50	4881468.16	108.57	0	2000	69.9	69.9	0.0	0.0	74.4	14.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-17.2	-17.2
8	312791.50	4881468.16	108.57	0	4000	64.7	64.7	0.0	0.0	74.4	48.7	-1.7	0.0	0.0	0.0	0.0	-0.0	-56.8	-56.8
9	312791.50	4881468.16	108.57	0	8000	55.6	55.6	0.0	0.0	74.4	173.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-190.9	-190.9

Point Source, ISO 9613, Name: "BN_Trans5", ID: "BN_Trans5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312972.50	4881392.16	107.58	0	32	37.3	37.3	0.0	0.0	73.4	0.0	-5.5	0.0	0.0	0.0	0.0	-0.0	-30.7	-30.7
2	312972.50	4881392.16	107.58	0	63	56.5	56.5	0.0	0.0	73.4	0.2	-5.5	0.0	0.0	0.0	0.0	-0.0	-11.6	-11.6
3	312972.50	4881392.16	107.58	0	125	68.6	68.6	0.0	0.0	73.4	0.5	4.2	0.0	0.0	0.0	0.0	-0.0	-9.6	-9.6
4	312972.50	4881392.16	107.58	0	250	71.1	71.1	0.0	0.0	73.4	1.4	2.6	0.0	0.0	0.0	0.0	-0.0	-6.3	-6.3
5	312972.50	4881392.16	107.58	0	500	76.5	76.5	0.0	0.0	73.4	2.5	-1.2	0.0	0.0	0.0	0.0	-0.0	1.7	1.7
6	312972.50	4881392.16	107.58	0	1000	73.7	73.7	0.0	0.0	73.4	4.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-2.9	-2.9
7	312972.50	4881392.16	107.58	0	2000	69.9	69.9	0.0	0.0	73.4	12.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-14.7	-14.7
8	312972.50	4881392.16	107.58	0	4000	64.7	64.7	0.0	0.0	73.4	43.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-50.4	-50.4
9	312972.50	4881392.16	107.58	0	8000	55.6	55.6	0.0	0.0	73.4	154.6	-1.7	0.0	0.0	0.0	0.0	-0.0	-170.8	-170.8

Point Source, ISO 9613, Name: "BN_Trans6", ID: "BN_Trans6"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312827.70	4881331.36	107.84	0	32	37.3	37.3	0.0	0.0	74.4	0.1	-5.6	0.0	0.0	0.0	0.0	-0.0	-31.6	-31.6
2	312827.70	4881331.36	107.84	0	63	56.5	56.5	0.0	0.0	74.4	0.2	-5.6	0.0	0.0	0.0	0.0	-0.0	-12.5	-12.5
3	312827.70	4881331.36	107.84	0	125	68.6	68.6	0.0	0.0	74.4	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-10.6	-10.6
4	312827.70	4881331.36	107.84	0	250	71.1	71.1	0.0	0.0	74.4	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	-7.5	-7.5
5	312827.70	4881331.36	107.84	0	500	76.5	76.5	0.0	0.0	74.4	2.8	-1.2	0.0	0.0	0.0	0.0	-0.0	0.5	0.5
6	312827.70	4881331.36	107.84	0	1000	73.7	73.7	0.0	0.0	74.4	5.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-4.4	-4.4
7	312827.70	4881331.36	107.84	0	2000	69.9	69.9	0.0	0.0	74.4	14.3	-1.7	0.0	0.0	0.0	0.0	-0.0	-17.1	-17.1
8	312827.70	4881331.36	107.84	0	4000	64.7	64.7	0.0	0.0	74.4	48.4	-1.7	0.0	0.0	0.0	0.0	-0.0	-56.5	-56.5
9	312827.70	4881331.36	107.84	0	8000	55.6	55.6	0.0	0.0	74.4	172.8	-1.7	0.0	0.0	0.0	0.0	-0.0	-189.9	-189.9

Point Source, ISO 9613, Name: "BN_Trans7", ID: "BN_Trans7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	312936.30	4881255.36	107.58	0	32	37.3	37.3	0.0	0.0	73.9	0.0	-5.5	0.0	0.0	0.0	0.0	-0.0	-31.1	-31.1
2	312936.30	4881255.36	107.58	0	63	56.5	56.5	0.0	0.0	73.9	0.2	-5.5	0.0	0.0	0.0	0.0	-0.0	-12.0	-12.0
3	312936.30	4881255.36	107.58	0	125	68.6	68.6	0.0	0.0	73.9	0.6	4.2	0.0	0.0	0.0	0.0	-0.0	-10.1	-10.1
4	312936.30	4881255.36	107.58	0	250	71.1	71.1	0.0	0.0	73.9	1.5	2.6	0.0	0.0	0.0	0.0	-0.0	-6.9	-6.9

Point Source, ISO 9613, Name: "BN_Trans7", ID: "BN_Trans7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
5	312936.30	4881255.36	107.58	0	500	76.5	76.5	0.0	0.0	73.9	2.7	-1.2	0.0	0.0	0.0	0.0	-0.0	1.1	1.1
6	312936.30	4881255.36	107.58	0	1000	73.7	73.7	0.0	0.0	73.9	5.1	-1.7	0.0	0.0	0.0	0.0	-0.0	-3.6	-3.6
7	312936.30	4881255.36	107.58	0	2000	69.9	69.9	0.0	0.0	73.9	13.5	-1.7	0.0	0.0	0.0	0.0	-0.0	-15.8	-15.8
8	312936.30	4881255.36	107.58	0	4000	64.7	64.7	0.0	0.0	73.9	45.7	-1.7	0.0	0.0	0.0	0.0	-0.0	-53.2	-53.2
9	312936.30	4881255.36	107.58	0	8000	55.6	55.6	0.0	0.0	73.9	163.0	-1.7	0.0	0.0	0.0	0.0	-0.0	-179.7	-179.7

Point Source, ISO 9613, Name: "BS_Inv1", ID: "BS_Inv1"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314388.47	4881576.12	107.60	0	63	68.1	-88.0	0.0	0.0	55.6	0.0	-3.0	0.0	0.0	0.0	0.0	-0.0	15.4	-88.0
2	314388.47	4881576.12	107.60	0	125	78.9	-88.0	0.0	0.0	55.6	0.1	2.3	0.0	0.0	0.0	0.0	-0.0	20.9	-88.0
3	314388.47	4881576.12	107.60	0	250	85.5	-88.0	0.0	0.0	55.6	0.2	3.2	0.0	0.0	0.0	0.0	-0.0	26.5	-88.0
4	314388.47	4881576.12	107.60	0	500	87.3	-88.0	0.0	0.0	55.6	0.3	-0.5	0.0	0.0	0.0	0.0	-0.0	31.8	-88.0
5	314388.47	4881576.12	107.60	0	1000	83.7	-88.0	0.0	0.0	55.6	0.6	-0.9	0.0	0.0	0.0	0.0	-0.0	28.3	-88.0
6	314388.47	4881576.12	107.60	0	2000	79.1	-88.0	0.0	0.0	55.6	1.7	-0.9	0.0	0.0	0.0	0.0	-0.0	22.7	-88.0
7	314388.47	4881576.12	107.60	0	4000	70.0	-88.0	0.0	0.0	55.6	5.6	-0.9	0.0	0.0	0.0	0.0	-0.0	9.7	-88.0
8	314388.47	4881576.12	107.60	0	8000	77.7	-88.0	0.0	0.0	55.6	19.9	-0.9	0.0	0.0	0.0	0.0	-0.0	3.0	-88.0

Point Source, ISO 9613, Name: "BS_Inv2", ID: "BS_Inv2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314388.47	4881451.62	107.60	0	63	68.1	-88.0	0.0	0.0	59.6	0.0	-3.6	0.0	0.0	0.0	0.0	-0.0	12.1	-88.0
2	314388.47	4881451.62	107.60	0	125	78.9	-88.0	0.0	0.0	59.6	0.1	2.5	0.0	0.0	0.0	0.0	-0.0	16.7	-88.0
3	314388.47	4881451.62	107.60	0	250	85.5	-88.0	0.0	0.0	59.6	0.3	3.1	0.0	0.0	0.0	0.0	-0.0	22.4	-88.0
4	314388.47	4881451.62	107.60	0	500	87.3	-88.0	0.0	0.0	59.6	0.5	-0.7	0.0	0.0	0.0	0.0	-0.0	27.8	-88.0
5	314388.47	4881451.62	107.60	0	1000	83.7	-88.0	0.0	0.0	59.6	1.0	-1.1	0.0	0.0	0.0	0.0	-0.0	24.2	-88.0
6	314388.47	4881451.62	107.60	0	2000	79.1	-88.0	0.0	0.0	59.6	2.6	-1.1	0.0	0.0	0.0	0.0	-0.0	17.9	-88.0
7	314388.47	4881451.62	107.60	0	4000	70.0	-88.0	0.0	0.0	59.6	8.9	-1.1	0.0	0.0	0.0	0.0	-0.0	2.6	-88.0
8	314388.47	4881451.62	107.60	0	8000	77.7	-88.0	0.0	0.0	59.6	31.6	-1.1	0.0	0.0	0.0	0.0	-0.0	-12.4	-88.0

Point Source, ISO 9613, Name: "BS_Inv3", ID: "BS_Inv3"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314424.67	4881260.72	107.60	0	63	68.1	-88.0	0.0	0.0	64.2	0.1	-4.6	0.0	0.0	0.0	0.0	-0.0	8.4	-88.0
2	314424.67	4881260.72	107.60	0	125	78.9	-88.0	0.0	0.0	64.2	0.2	3.0	0.0	0.0	0.0	0.0	-0.0	11.5	-88.0
3	314424.67	4881260.72	107.60	0	250	85.5	-88.0	0.0	0.0	64.2	0.5	2.9	0.0	0.0	0.0	0.0	-0.0	17.9	-88.0
4	314424.67	4881260.72	107.60	0	500	87.3	-88.0	0.0	0.0	64.2	0.9	-0.9	0.0	0.0	0.0	0.0	-0.0	23.1	-88.0
5	314424.67	4881260.72	107.60	0	1000	83.7	-88.0	0.0	0.0	64.2	1.7	-1.4	0.0	0.0	0.0	0.0	-0.0	19.2	-88.0
6	314424.67	4881260.72	107.60	0	2000	79.1	-88.0	0.0	0.0	64.2	4.4	-1.4	0.0	0.0	0.0	0.0	-0.0	11.8	-88.0
7	314424.67	4881260.72	107.60	0	4000	70.0	-88.0	0.0	0.0	64.2	15.1	-1.4	0.0	0.0	0.0	0.0	-0.0	-7.9	-88.0
8	314424.67	4881260.72	107.60	0	8000	77.7	-88.0	0.0	0.0	64.2	53.7	-1.4	0.0	0.0	0.0	0.0	-0.0	-38.8	-88.0

Point Source, ISO 9613, Name: "BS_Inv4", ID: "BS_Inv4"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314702.87	4881226.52	107.60	0	63	68.1	-88.0	0.0	0.0	67.1	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	5.9	-88.0
2	314702.87	4881226.52	107.60	0	125	78.9	-88.0	0.0	0.0	67.1	0.3	3.5	0.0	0.0	0.0	0.0	-0.0	8.0	-88.0
3	314702.87	4881226.52	107.60	0	250	85.5	-88.0	0.0	0.0	67.1	0.7	2.8	0.0	0.0	0.0	0.0	-0.0	15.0	-88.0
4	314702.87	4881226.52	107.60	0	500	87.3	-88.0	0.0	0.0	67.1	1.2	-1.1	0.0	0.0	0.0	0.0	-0.0	20.0	-88.0
5	314702.87	4881226.52	107.60	0	1000	83.7	-88.0	0.0	0.0	67.1	2.3	-1.5	0.0	0.0	0.0	0.0	-0.0	15.7	-88.0
6	314702.87	4881226.52	107.60	0	2000	79.1	-88.0	0.0	0.0	67.1	6.2	-1.5	0.0	0.0	0.0	0.0	-0.0	7.3	-88.0
7	314702.87	4881226.52	107.60	0	4000	70.0	-88.0	0.0	0.0	67.1	21.0	-1.5	0.0	0.0	0.0	0.0	-0.0	-16.6	-88.0
8	314702.87	4881226.52	107.60	0	8000	77.7	-88.0	0.0	0.0	67.1	74.8	-1.5	0.0	0.0	0.0	0.0	-0.0	-62.7	-88.0

Point Source, ISO 9613, Name: "BS_Inv5", ID: "BS_Inv5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314739.07	4881326.12	107.60	0	63	68.1	-88.0	0.0	0.0	66.6	0.1	-4.9	0.0	0.0	0.0	0.0	-0.0	6.4	-88.0
2	314739.07	4881326.12	107.60	0	125	78.9	-88.0	0.0	0.0	66.6	0.3	3.4	0.0	0.0	0.0	0.0	-0.0	8.7	-88.0
3	314739.07	4881326.12	107.60	0	250	85.5	-88.0	0.0	0.0	66.6	0.6	2.8	0.0	0.0	0.0	0.0	-0.0	15.5	-88.0
4	314739.07	4881326.12	107.60	0	500	87.3	-88.0	0.0	0.0	66.6	1.2	-1.0	0.0	0.0	0.0	0.0	-0.0	20.6	-88.0
5	314739.07	4881326.12	107.60	0	1000	83.7	-88.0	0.0	0.0	66.6	2.2	-1.5	0.0	0.0	0.0	0.0	-0.0	16.4	-88.0
6	314739.07	4881326.12	107.60	0	2000	79.1	-88.0	0.0	0.0	66.6	5.8	-1.5	0.0	0.0	0.0	0.0	-0.0	8.2	-88.0

Point Source, ISO 9613, Name: "BS_Inv5", ID: "BS_Inv5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
7	314739.07	4881326.12	107.60	0	4000	70.0	-88.0	0.0	0.0	66.6	19.7	-1.5	0.0	0.0	0.0	0.0	-0.0	-14.8	-88.0
8	314739.07	4881326.12	107.60	0	8000	77.7	-88.0	0.0	0.0	66.6	70.2	-1.5	0.0	0.0	0.0	0.0	-0.0	-57.6	-88.0

Point Source, ISO 9613, Name: "BS_Inv6", ID: "BS_Inv6"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314702.87	4881434.02	107.60	0	63	68.1	-88.0	0.0	0.0	65.2	0.1	-4.8	0.0	0.0	0.0	0.0	-0.0	7.6	-88.0
2	314702.87	4881434.02	107.60	0	125	78.9	-88.0	0.0	0.0	65.2	0.2	3.1	0.0	0.0	0.0	0.0	-0.0	10.4	-88.0
3	314702.87	4881434.02	107.60	0	250	85.5	-88.0	0.0	0.0	65.2	0.5	2.8	0.0	0.0	0.0	0.0	-0.0	17.0	-88.0
4	314702.87	4881434.02	107.60	0	500	87.3	-88.0	0.0	0.0	65.2	1.0	-1.0	0.0	0.0	0.0	0.0	-0.0	22.2	-88.0
5	314702.87	4881434.02	107.60	0	1000	83.7	-88.0	0.0	0.0	65.2	1.9	-1.4	0.0	0.0	0.0	0.0	-0.0	18.1	-88.0
6	314702.87	4881434.02	107.60	0	2000	79.1	-88.0	0.0	0.0	65.2	4.9	-1.4	0.0	0.0	0.0	0.0	-0.0	10.4	-88.0
7	314702.87	4881434.02	107.60	0	4000	70.0	-88.0	0.0	0.0	65.2	16.7	-1.4	0.0	0.0	0.0	0.0	-0.0	-10.5	-88.0
8	314702.87	4881434.02	107.60	0	8000	77.7	-88.0	0.0	0.0	65.2	59.6	-1.4	0.0	0.0	0.0	0.0	-0.0	-45.7	-88.0

Point Source, ISO 9613, Name: "BS_Inv7", ID: "BS_Inv7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314666.67	4881575.12	107.60	0	63	68.1	-88.0	0.0	0.0	63.5	0.1	-4.5	0.0	0.0	0.0	0.0	-0.0	9.0	-88.0
2	314666.67	4881575.12	107.60	0	125	78.9	-88.0	0.0	0.0	63.5	0.2	2.8	0.0	0.0	0.0	0.0	-0.0	12.4	-88.0
3	314666.67	4881575.12	107.60	0	250	85.5	-88.0	0.0	0.0	63.5	0.4	2.9	0.0	0.0	0.0	0.0	-0.0	18.7	-88.0
4	314666.67	4881575.12	107.60	0	500	87.3	-88.0	0.0	0.0	63.5	0.8	-0.9	0.0	0.0	0.0	0.0	-0.0	23.9	-88.0
5	314666.67	4881575.12	107.60	0	1000	83.7	-88.0	0.0	0.0	63.5	1.5	-1.3	0.0	0.0	0.0	0.0	-0.0	20.0	-88.0
6	314666.67	4881575.12	107.60	0	2000	79.1	-88.0	0.0	0.0	63.5	4.1	-1.3	0.0	0.0	0.0	0.0	-0.0	12.9	-88.0
7	314666.67	4881575.12	107.60	0	4000	70.0	-88.0	0.0	0.0	63.5	13.8	-1.3	0.0	0.0	0.0	0.0	-0.0	-6.0	-88.0
8	314666.67	4881575.12	107.60	0	8000	77.7	-88.0	0.0	0.0	63.5	49.2	-1.3	0.0	0.0	0.0	0.0	-0.0	-33.7	-88.0

Point Source, ISO 9613, Name: "BS_Sub", ID: "BS_Sub"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314585.44	4881818.49	108.50	0	32	48.0	48.0	0.0	0.0	61.8	0.0	-3.9	0.0	0.0	0.0	0.0	-0.0	-9.9	-9.9
2	314585.44	4881818.49	108.50	0	63	67.2	67.2	0.0	0.0	61.8	0.0	-3.9	0.0	0.0	0.0	0.0	-0.0	9.3	9.3
3	314585.44	4881818.49	108.50	0	125	79.3	79.3	0.0	0.0	61.8	0.1	3.0	0.0	0.0	0.0	0.0	-0.0	14.3	14.3
4	314585.44	4881818.49	108.50	0	250	81.8	81.8	0.0	0.0	61.8	0.4	1.8	0.0	0.0	0.0	0.0	-0.0	17.8	17.8
5	314585.44	4881818.49	108.50	0	500	87.2	87.2	0.0	0.0	61.8	0.7	-1.1	0.0	0.0	0.0	0.0	-0.0	25.8	25.8
6	314585.44	4881818.49	108.50	0	1000	84.4	84.4	0.0	0.0	61.8	1.3	-1.2	0.0	0.0	0.0	0.0	-0.0	22.5	22.5
7	314585.44	4881818.49	108.50	0	2000	80.6	80.6	0.0	0.0	61.8	3.4	-1.2	0.0	0.0	0.0	0.0	-0.0	16.6	16.6
8	314585.44	4881818.49	108.50	0	4000	75.4	75.4	0.0	0.0	61.8	11.4	-1.2	0.0	0.0	0.0	0.0	-0.0	3.3	3.3
9	314585.44	4881818.49	108.50	0	8000	66.3	66.3	0.0	0.0	61.8	40.7	-1.2	0.0	0.0	0.0	0.0	-0.0	-35.1	-35.1

Point Source, ISO 9613, Name: "BS_Trans1", ID: "BS_Trans1"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314393.97	4881575.62	107.58	0	32	37.3	37.3	0.0	0.0	55.9	0.0	-3.0	0.0	0.0	0.0	0.0	-0.0	-15.6	-15.6
2	314393.97	4881575.62	107.58	0	63	56.5	56.5	0.0	0.0	55.9	0.0	-3.0	0.0	0.0	0.0	0.0	-0.0	3.6	3.6
3	314393.97	4881575.62	107.58	0	125	68.6	68.6	0.0	0.0	55.9	0.1	2.3	0.0	0.0	0.0	0.0	-0.0	10.3	10.3
4	314393.97	4881575.62	107.58	0	250	71.1	71.1	0.0	0.0	55.9	0.2	3.3	0.0	0.0	0.0	0.0	-0.0	11.8	11.8
5	314393.97	4881575.62	107.58	0	500	76.5	76.5	0.0	0.0	55.9	0.3	-0.5	0.0	0.0	0.0	0.0	-0.0	20.8	20.8
6	314393.97	4881575.62	107.58	0	1000	73.7	73.7	0.0	0.0	55.9	0.6	-0.9	0.0	0.0	0.0	0.0	-0.0	18.1	18.1
7	314393.97	4881575.62	107.58	0	2000	69.9	69.9	0.0	0.0	55.9	1.7	-0.9	0.0	0.0	0.0	0.0	-0.0	13.2	13.2
8	314393.97	4881575.62	107.58	0	4000	64.7	64.7	0.0	0.0	55.9	5.7	-0.9	0.0	0.0	0.0	0.0	-0.0	4.0	4.0
9	314393.97	4881575.62	107.58	0	8000	55.6	55.6	0.0	0.0	55.9	20.5	-0.9	0.0	0.0	0.0	0.0	-0.0	-19.8	-19.8

Point Source, ISO 9613, Name: "BS_Trans2", ID: "BS_Trans2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314393.97	4881451.12	107.58	0	32	37.3	37.3	0.0	0.0	59.7	0.0	-3.7	0.0	0.0	0.0	0.0	-0.0	-18.8	-18.8
2	314393.97	4881451.12	107.58	0	63	56.5	56.5	0.0	0.0	59.7	0.0	-3.7	0.0	0.0	0.0	0.0	-0.0	0.4	0.4
3	314393.97	4881451.12	107.58	0	125	68.6	68.6	0.0	0.0	59.7	0.1	2.5	0.0	0.0	0.0	0.0	-0.0	6.3	6.3
4	314393.97	4881451.12	107.58	0	250	71.1	71.1	0.0	0.0	59.7	0.3	3.2	0.0	0.0	0.0	0.0	-0.0	7.9	7.9
5	314393.97	4881451.12	107.58	0	500	76.5	76.5	0.0	0.0	59.7	0.5	-0.6	0.0	0.0	0.0	0.0	-0.0	16.9	16.9
6	314393.97	4881451.12	107.58	0	1000	73.7	73.7	0.0	0.0	59.7	1.0	-1.1	0.0	0.0	0.0	0.0	-0.0	14.1	14.1
7	314393.97	4881451.12	107.58	0	2000	69.9	69.9	0.0	0.0	59.7	2.6	-1.1	0.0	0.0	0.0	0.0	-0.0	8.6	8.6

Point Source, ISO 9613, Name: "BS_Trans2", ID: "BS_Trans2"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
8	314393.97	4881451.12	107.58	0	4000	64.7	64.7	0.0	0.0	59.7	9.0	-1.1	0.0	0.0	0.0	0.0	-0.0	-2.9	-2.9
9	314393.97	4881451.12	107.58	0	8000	55.6	55.6	0.0	0.0	59.7	31.9	-1.1	0.0	0.0	0.0	0.0	-0.0	-35.0	-35.0

Point Source, ISO 9613, Name: "BS_Trans3", ID: "BS_Trans3"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314430.17	4881260.22	107.58	0	32	37.3	37.3	0.0	0.0	64.3	0.0	-4.6	0.0	0.0	0.0	0.0	-0.0	-22.4	-22.4
2	314430.17	4881260.22	107.58	0	63	56.5	56.5	0.0	0.0	64.3	0.1	-4.6	0.0	0.0	0.0	0.0	-0.0	-3.2	-3.2
3	314430.17	4881260.22	107.58	0	125	68.6	68.6	0.0	0.0	64.3	0.2	3.0	0.0	0.0	0.0	0.0	-0.0	1.2	1.2
4	314430.17	4881260.22	107.58	0	250	71.1	71.1	0.0	0.0	64.3	0.5	2.9	0.0	0.0	0.0	0.0	-0.0	3.4	3.4
5	314430.17	4881260.22	107.58	0	500	76.5	76.5	0.0	0.0	64.3	0.9	-0.9	0.0	0.0	0.0	0.0	-0.0	12.3	12.3
6	314430.17	4881260.22	107.58	0	1000	73.7	73.7	0.0	0.0	64.3	1.7	-1.4	0.0	0.0	0.0	0.0	-0.0	9.1	9.1
7	314430.17	4881260.22	107.58	0	2000	69.9	69.9	0.0	0.0	64.3	4.5	-1.4	0.0	0.0	0.0	0.0	-0.0	2.5	2.5
8	314430.17	4881260.22	107.58	0	4000	64.7	64.7	0.0	0.0	64.3	15.1	-1.4	0.0	0.0	0.0	0.0	-0.0	-13.3	-13.3
9	314430.17	4881260.22	107.58	0	8000	55.6	55.6	0.0	0.0	64.3	54.0	-1.4	0.0	0.0	0.0	0.0	-0.0	-61.3	-61.3

Point Source, ISO 9613, Name: "BS_Trans4", ID: "BS_Trans4"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314697.37	4881227.02	107.58	0	32	37.3	37.3	0.0	0.0	67.1	0.0	-5.0	0.0	0.0	0.0	0.0	-0.0	-24.8	-24.8
2	314697.37	4881227.02	107.58	0	63	56.5	56.5	0.0	0.0	67.1	0.1	-5.0	0.0	0.0	0.0	0.0	-0.0	-5.6	-5.6
3	314697.37	4881227.02	107.58	0	125	68.6	68.6	0.0	0.0	67.1	0.3	3.5	0.0	0.0	0.0	0.0	-0.0	-2.2	-2.2
4	314697.37	4881227.02	107.58	0	250	71.1	71.1	0.0	0.0	67.1	0.7	2.8	0.0	0.0	0.0	0.0	-0.0	0.6	0.6
5	314697.37	4881227.02	107.58	0	500	76.5	76.5	0.0	0.0	67.1	1.2	-1.0	0.0	0.0	0.0	0.0	-0.0	9.3	9.3
6	314697.37	4881227.02	107.58	0	1000	73.7	73.7	0.0	0.0	67.1	2.3	-1.5	0.0	0.0	0.0	0.0	-0.0	5.8	5.8
7	314697.37	4881227.02	107.58	0	2000	69.9	69.9	0.0	0.0	67.1	6.1	-1.5	0.0	0.0	0.0	0.0	-0.0	-1.8	-1.8
8	314697.37	4881227.02	107.58	0	4000	64.7	64.7	0.0	0.0	67.1	20.8	-1.5	0.0	0.0	0.0	0.0	-0.0	-21.7	-21.7
9	314697.37	4881227.02	107.58	0	8000	55.6	55.6	0.0	0.0	67.1	74.3	-1.5	0.0	0.0	0.0	0.0	-0.0	-84.3	-84.3

Point Source, ISO 9613, Name: "BS_Trans5", ID: "BS_Trans5"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314733.57	4881326.62	107.58	0	32	37.3	37.3	0.0	0.0	66.5	0.0	-4.9	0.0	0.0	0.0	0.0	-0.0	-24.3	-24.3
2	314733.57	4881326.62	107.58	0	63	56.5	56.5	0.0	0.0	66.5	0.1	-4.9	0.0	0.0	0.0	0.0	-0.0	-5.1	-5.1
3	314733.57	4881326.62	107.58	0	125	68.6	68.6	0.0	0.0	66.5	0.2	3.4	0.0	0.0	0.0	0.0	-0.0	-1.5	-1.5
4	314733.57	4881326.62	107.58	0	250	71.1	71.1	0.0	0.0	66.5	0.6	2.8	0.0	0.0	0.0	0.0	-0.0	1.2	1.2
5	314733.57	4881326.62	107.58	0	500	76.5	76.5	0.0	0.0	66.5	1.2	-1.0	0.0	0.0	0.0	0.0	-0.0	9.9	9.9
6	314733.57	4881326.62	107.58	0	1000	73.7	73.7	0.0	0.0	66.5	2.2	-1.5	0.0	0.0	0.0	0.0	-0.0	6.5	6.5
7	314733.57	4881326.62	107.58	0	2000	69.9	69.9	0.0	0.0	66.5	5.8	-1.5	0.0	0.0	0.0	0.0	-0.0	-0.9	-0.9
8	314733.57	4881326.62	107.58	0	4000	64.7	64.7	0.0	0.0	66.5	19.5	-1.5	0.0	0.0	0.0	0.0	-0.0	-19.9	-19.9
9	314733.57	4881326.62	107.58	0	8000	55.6	55.6	0.0	0.0	66.5	69.6	-1.5	0.0	0.0	0.0	0.0	-0.0	-79.1	-79.1

Point Source, ISO 9613, Name: "BS_Trans6", ID: "BS_Trans6"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314697.37	4881434.52	107.58	0	32	37.3	37.3	0.0	0.0	65.1	0.0	-4.7	0.0	0.0	0.0	0.0	-0.0	-23.1	-23.1
2	314697.37	4881434.52	107.58	0	63	56.5	56.5	0.0	0.0	65.1	0.1	-4.7	0.0	0.0	0.0	0.0	-0.0	-3.9	-3.9
3	314697.37	4881434.52	107.58	0	125	68.6	68.6	0.0	0.0	65.1	0.2	3.1	0.0	0.0	0.0	0.0	-0.0	0.2	0.2
4	314697.37	4881434.52	107.58	0	250	71.1	71.1	0.0	0.0	65.1	0.5	2.9	0.0	0.0	0.0	0.0	-0.0	2.6	2.6
5	314697.37	4881434.52	107.58	0	500	76.5	76.5	0.0	0.0	65.1	1.0	-1.0	0.0	0.0	0.0	0.0	-0.0	11.4	11.4
6	314697.37	4881434.52	107.58	0	1000	73.7	73.7	0.0	0.0	65.1	1.9	-1.4	0.0	0.0	0.0	0.0	-0.0	8.2	8.2
7	314697.37	4881434.52	107.58	0	2000	69.9	69.9	0.0	0.0	65.1	4.9	-1.4	0.0	0.0	0.0	0.0	-0.0	1.4	1.4
8	314697.37	4881434.52	107.58	0	4000	64.7	64.7	0.0	0.0	65.1	16.6	-1.4	0.0	0.0	0.0	0.0	-0.0	-15.5	-15.5
9	314697.37	4881434.52	107.58	0	8000	55.6	55.6	0.0	0.0	65.1	59.1	-1.4	0.0	0.0	0.0	0.0	-0.0	-67.1	-67.1

Point Source, ISO 9613, Name: "BS_Trans7", ID: "BS_Trans7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
1	314661.17	4881575.62	107.58	0	32	37.3	37.3	0.0	0.0	63.4	0.0	-4.5	0.0	0.0	0.0	0.0	-0.0	-21.6	-21.6
2	314661.17	4881575.62	107.58	0	63	56.5	56.5	0.0	0.0	63.4	0.1	-4.5	0.0	0.0	0.0	0.0	-0.0	-2.5	-2.5
3	314661.17	4881575.62	107.58	0	125	68.6	68.6	0.0	0.0	63.4	0.2	2.8	0.0	0.0	0.0	0.0	-0.0	2.2	2.2
4	314661.17	4881575.62	107.58	0	250	71.1	71.1	0.0	0.0	63.4	0.4	2.9	0.0	0.0	0.0	0.0	-0.0	4.3	4.3
5	314661.17	4881575.62	107.58	0	500	76.5	76.5	0.0	0.0	63.4	0.8	-0.9	0.0	0.0	0.0	0.0	-0.0	13.2	13.2

Point Source, ISO 9613, Name: "BS_Trans7", ID: "BS_Trans7"																			
Nr.	X	Y	Z	Refl.	Freq.	LxT	LxN	K0	Dc	Adiv	Aatm	Agr	Afol	Ahous	Abar	Cmet	RL	LrT	LrN
	(m)	(m)	(m)		(Hz)	dB(A)	dB(A)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	dB(A)	dB(A)
6	314661.17	4881575.62	107.58	0	1000	73.7	73.7	0.0	0.0	63.4	1.5	-1.3	0.0	0.0	0.0	0.0	-0.0	10.1	10.1
7	314661.17	4881575.62	107.58	0	2000	69.9	69.9	0.0	0.0	63.4	4.0	-1.3	0.0	0.0	0.0	0.0	-0.0	3.8	3.8
8	314661.17	4881575.62	107.58	0	4000	64.7	64.7	0.0	0.0	63.4	13.6	-1.3	0.0	0.0	0.0	0.0	-0.0	-11.0	-11.0
9	314661.17	4881575.62	107.58	0	8000	55.6	55.6	0.0	0.0	63.4	48.6	-1.3	0.0	0.0	0.0	0.0	-0.0	-55.0	-55.0