EXHIBIT V
WASTE MINIMIZATION

OAR 345-021-0010(1)(v)

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OAR 345-021-0010(1)(v) *Information about the applicant's plans to minimize the generation of solid waste and wastewater and to recycle or reuse solid waste and wastewater, providing evidence to support a finding by the Council as required by OAR 345-022-0120. The applicant shall include:*

Response: This Exhibit demonstrates how Boardman Solar Energy LLC (Applicant) will minimize solid waste and wastewater generated during construction and operation of the Boardman Solar Energy Facility (Facility). The Applicant will recycle and reuse solid waste, as outlined in the Applicant's solid waste and wastewater plans that are described in this Exhibit. In addition, the Applicant will manage solid wastes in a manner that will result in minimal impacts on surrounding and adjacent areas.

OAR 345-021-0010(1)(v) *requires that the site certificate application for the Facility address waste minimization in accordance with OAR 345-022-0120, which requires that:*

> *…[T]o issue a site certificate, the Council must find that, to the extent reasonably practicable:*
>
> *(a) The applicant's solid waste and wastewater plans are likely to minimize generation of solid waste and wastewater in the construction and operation of the facility, and when solid waste or wastewater is generated, to result in recycling and reuse of such wastes; [and]*
>
> *(b) The applicant's plans to manage the accumulation, storage, disposal and transportation of waste generated by the construction and operation of the facility are likely to result in minimal adverse impact on surrounding and adjacent areas.*

The information presented in this Exhibit is generally organized in accordance with OAR 345-021-0010(1)(v) and provides evidence needed to support a finding by the Council (as required by OAR 345-022-0120).

V.1 MAJOR TYPES OF WASTE PRODUCED WITH QUANTITY ESTIMATES

OAR 345-021-0010(1)(v)(A) *A description of the major types of solid waste and wastewater that construction, operation and retirement of the facility are likely to generate, including an estimate of the amount of solid waste and wastewater.*

Response: The major types of solid waste and wastewater likely to be generated by the Facility are nonhazardous construction or demolition debris, construction and operation-related wastewater, and office waste. The following sections provide additional details of the major types of waste generated and volume estimates.

V.1.1 Construction

As presented in Exhibit G, nonhazardous construction waste will be generated. Primary sources of waste include general construction debris such as scrap steel, waste concrete, and excavated soil. Other materials such as packaging from the installed solar photovoltaic modules and associated electrical equipment and erosion control material (e.g., silt fencing and straw wattles) may also be generated during construction. The nonhazardous waste produced during construction will be accommodated by a local solid waste hauler. Estimated volume of construction waste will be one 40-cubic-yard roll-off per week during active construction.

Wastewater generated during construction will result from portable toilets. Portable toilets will be managed by a local contractor and wastewater will be disposed of in accordance with state law. An average of 15 portable toilets will be onsite during construction, including 40 portable toilets during peak construction.

V.1.2 Operations

During operations, the primary waste generated will be office waste in the operations and maintenance building. Office waste will be solid waste primarily composed of paper, packaging, and food scraps. Disposal of materials for routine maintenance and housekeeping, such as lubrication oils and cleaning supplies, will be managed according to the pertinent regulations and the guidelines outlined in Exhibit G.

Industrial wastewater will not be generated through Facility operation. Sanitary wastewater that is generated onsite will be disposed of and treated using an onsite septic system and drain field.

Waste such as universal waste (for example, lightbulbs) and batteries will be recycled according to applicable regulations.

V.1.3 Retirement

When the Facility is retired, aboveground equipment will be removed and sold for scrap, reused, or disposed of at a local landfill. Aboveground and underground electrical cables will be rendered inert and underground electrical cables will be left in place. To allow for agricultural activities, concrete foundations will be removed and replaced by suitable clean fill.

V.2 STRUCTURES, SYSTEMS, AND EQUIPMENT TO MANAGE AND DISPOSE OF WASTE

OAR 345-021-0010(1)(v)(B) *A description of any structures, systems and equipment for management and disposal of solid waste, wastewater and storm water.*

Response: Construction waste minimization practices will be implemented to minimize the amount of solid waste generated. The practices will include implementing a detailed material usage estimating and procurement system to minimize the amount of excess materials ordered. In addition, a general procedure will be implemented to separate recyclable material from solid waste. Solid waste and recyclables generated during construction will be provided by local commercial haulers. The public landfill nearest to the Facility site is the Arlington Landfill operated by Waste Management, Inc. (see Exhibit U).

Recyclable materials consisting of scrap steel, cardboard, general packaging materials, and wood will be segregated from solid waste and transported to a recycling facility. Waste concrete and hardened concrete from concrete washout areas will be incorporated into the foundation excavations, or transported offsite and disposed of at the Arlington Landfill. Solid waste that is not recyclable will be collected, sorted, and transported offsite for disposal at the Arlington Landfill.

V.2.1 Construction

During construction, several structural and nonstructural best management practices (BMPs) will be implemented to prevent erosion and control sedimentation. As described in Section I.4 of Exhibit I, construction of access roads, foundations, and other facilities will be regulated by an erosion and sediment control plan and a 1200-C Construction Stormwater NPDES Permit (see Attachment I-1 to Exhibit I) that will require BMPs to minimize possible impacts from erosion or

other impacts to soils. A summary of the BMPs provided in Attachment I-1 and Section I.4 to be implemented during Facility construction include the following:

Runoff Control: Runoff controls will be installed to minimize stormwater velocity. Runoff controls will primarily consist of silt fencing and fiber rolls. Silt fencing will be installed on contours downgradient of land-disturbing activities.

Erosion Prevention: During construction, the focus will be on preventing erosion, rather than on implementing sediment control after erosion has already occurred. The types of BMPs that will be implemented during land-disturbing activities include mulching, deploying erosion control matting, and applying soil binders and tackifiers.

Wind Erosion and Dust Control: As a result of the arid weather conditions at the Facility site, the primary mechanism for soil and sediment transport will be wind. Dust suppression techniques will be used to minimize this transportation pathway. Water will be primarily applied to the graveled or rocked access roads for the duration of the dry months of construction. Additional BMPs, including the use of additives, will be implemented if water alone does not sufficiently address wind erosion or visible dust.

Vegetative Erosion Control: As feasible, existing vegetation will be preserved, and buffered to minimize erosion. The use of natural vegetative barriers will be implemented in conjunction with sediment controls (for example, silt fencing). Vegetative buffers minimize stormwater velocity and can effectively capture suspended particulate that mobilized through stormwater runoff.

Sediment Tracking Control: To prevent sediment discharge onto public roads, a stabilized construction entrance/exit will be installed and maintained at locations where newly constructed Facility access roads intersect existing paved roads, and at the construction staging areas. As part of the inspection protocol, these intersections will be routinely inspected. Additional BMPs may be implemented, including street sweeping and tire wheel wash, if sediment tracking is observed.

Stockpile Management: Stockpiled material will use silt fencing or fiber rolls as perimeter control, and the material will be covered either with a thick layer of mulch or plastic sheeting.

Pollutant Management: Potential pollutants will be stored within the contractor staging area with secondary containment. Construction vehicles will be fueled and maintained only in staging areas, with containment BMPs in place. Handling, storage, and disposal of materials will be consistent with federal, state, and local ordinances.

V.2.2 Operations

During operations, a small amount of office waste will be produced. Solid waste generated during Facility operations will be disposed of though local haulers, and will ultimately be disposed of at the Arlington Landfill. Solid waste during operations will likely consist of paper, packaging, and food scraps. To the extent feasible, recyclable material will be separated for disposal at a recycling facility.

V.2.3 Retirement

Waste minimization during Facility retirement will consist largely of the same measures employed during Facility construction. To the extent practicable, Facility components will be

sold for reuse or scrap, which will minimize the amount of waste requiring disposal at a solid waste facility. Similar BMPs will be implemented to protect stormwater quality.

V.3 WATER USE REDUCTION

OAR 345-021-0010(1)(v)(C) *A discussion of any actions or restrictions proposed by the applicant to reduce consumptive water use during construction and operation of the facility.*

Response: Water use reduction actions will be implemented during construction and operation of the Facility. The following sections provide additional details.

V.3.1 Construction

Water will be used on an as-needed basis to construct concrete foundations, suppress dust on the roads (and other areas disturbed as a result of grading). To reduce the water used for dust suppression during construction, stabilization materials such as mulch, soil tackifiers, and soil binders may be placed on exposed soils to minimize dust generation without the use of daily water.

V.3.2 Operations

During Facility operation, water will be trucked to the Facility and held in a water tank. Water minimization practices and devices will be implemented in order to conserve water, such as installation of low-flow toilets and faucets.

V.4 PLANS FOR RECYCLING AND REUSE

OAR 345-021-0010(1)(v)(D) *The applicant's plans to minimize, recycle or reuse the solid waste and wastewater described in (A).*

Response: Waste generated during construction will be minimized by implementing efficient construction practices and detailed estimates of material needed. Waste generated through construction, operation, and retirement of the Facility will be recycled as appropriate and feasible. Waste that can be recycled includes metals, glass, paper, and yard debris. Recyclable waste will be sorted, stored in dumpsters or other suitable containers, and then transported to a local transfer station or other recycling facility for recycling.

Wastewater generated during construction within the portable toilets will be regularly pumped and sent to a treatment facility. Wastewater generated during operation will be disposed of and treated using an onsite septic system and drain field.

V.5 ADVERSE IMPACTS OF WASTE DISPOSAL

OAR 345-021-0010(1)(v)(E) *A description of any adverse impact on surrounding and adjacent areas from the accumulation, storage, disposal and transportation of solid waste, wastewater and stormwater during construction and operation of the facility.*

Response: Adverse impacts on surrounding and adjacent areas, as a result of the construction and operation of the Facility, are not anticipated. A minimal amount of solid waste, wastewater, and stormwater is anticipated to be accumulated, disposed of, and transported from the construction and operation of this Facility. Additionally, a hazardous material spill prevention program will be implemented, as described in Exhibit G. Solid waste disposed of at landfills will be minimized through recycling and waste minimization practices employed during construction. The Facility will generate approximately one 40-cubic-yard roll-off per week during

construction and one 8-cubic-yard dumpster per month during operation. Therefore, the solid waste generated will not adversely affect the capacity at local landfills.

Wastewater will be captured and treated using an onsite septic tank and drain field during operation of the Facility. Therefore, no aboveground accumulation or transportation of this waste will be needed. During construction, portable toilets will be serviced a minimum of once per week. Wastewater generated during construction will be transported via trucks by a local contractor to a treatment facility. Water used for dust suppression will percolate into the ground.

Stormwater generated onsite during construction and operation is expected to be minimal. Stormwater controls will be implemented onsite as needed. During operation, the stormwater will infiltrate into the ground.

V.6 EVIDENCE THAT ADVERSE IMPACTS WILL BE MINIMAL

OAR 345-021-0010(1)(v)(F) *Evidence that adverse impacts described in (D) are likely to be minimal, taking into account any measures the applicant proposes to avoid, reduce or otherwise mitigate the impacts.*

Response: The Applicant's proposed measures to avoid, reduce, or otherwise mitigate any possible impacts on the site or surrounding and adjacent areas (as discussed in this Exhibit and in Exhibit G) will result in minimal impacts caused by the construction, operation, and retirement of the Facility. Examples of such measures include a hazardous materials spill prevention program and recycling measures that will be implemented to minimize the amount of waste that is disposed of as landfill waste. Furthermore, waste will be disposed of at a properly licensed facility and by a licensed contractor.

Solid waste that is generated during construction, operation, and retirement of the Facility will be sorted for recycling and then transported offsite for disposal. Wastewater generated during construction will be pumped from portable toilets and removed regularly. Wastewater generated during operation will be disposed of and treated using an onsite septic tank and drain field.

V.7 PROPOSED MONITORING PROGRAM

OAR 345-021-0010(1)(v)(G) *The applicant's proposed monitoring program, if any, for minimization of solid waste and wastewater impacts*

Response: Given the minimal generation of solid waste and wastewater, and proposed recycling measures and waste minimization practices, the Facility is not expected to incur significant effects onsite or on surrounding and adjacent areas. Therefore, no monitoring program is proposed. Waste management practices will comply with applicable regulations and will be inspected periodically by the Applicant.

V.8 SUMMARY

The evidence provided in this Exhibit demonstrates that the Council's waste minimization standard (OAR 345-022-0120) is met because waste will be minimized, reused, or recycled where feasible and because minimal adverse impacts on the surrounding or adjacent areas will result from the management of waste related to the Facility.

EXHIBIT W
RETIREMENT AND RESTORATION

OAR 345-021-0010(1)(w)

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ATTACHMENT

OAR 345-021-0010(1)(w) *Information about site restoration, providing evidence to support a finding by the Council as required by OAR 345-022-0050(1). The applicant shall include:*

W.1 USEFUL LIFE

OAR 345-021-0010(1)(w)(A) *The estimated useful life of the proposed facility.*

Response: The estimated useful life of the proposed Boardman Solar Energy Facility (Facility) is 30 years. However, the Facility will operate for as long as there is a market for the production of electrical energy. Facility upgrades may be implemented to prolong operation well beyond 30 years.

Boardman Solar Energy LLC (Applicant) plans to secure a Power Purchase Agreement to sell the energy and environmental attributes from the Facility to a reputable entity. The Applicant will use the Power Purchase Agreement to secure financing for Facility construction.

W.2 RETIREMENT AND RESTORATION ACTIONS

OAR 345-021-0010(1)(w)(B) *Specific actions and tasks to restore the site to a useful, non-hazardous condition.*

Response: The Facility will be constructed with materials consisting of steel, aluminum, concrete, solar modules, cable, transformer insulating oil, and plastics. When the Facility reaches the end of its operational life, the components will be disassembled and component materials will be recycled, sold for scrap, or taken to a landfill. Retirement and restoration will be accomplished using conventional construction equipment with the objective of maximizing the recycling of materials and minimizing the amount of waste to be disposed. Demolition debris will be placed in temporary onsite, secured, storage areas pending final transportation and disposal or recycling according to the following steps:

1. The first step in the retirement and restoration process is the assessment of existing site conditions and preparation of the Facility site. Internal service roads and access road, fencing, and electrical power will remain in place for use by the retirement and restoration workers until no longer needed. The necessary permits, such as for land use or road access, will be obtained before conducting any retirement and restoration work.
2. The retirement and restoration of the Facility will then proceed in reverse order of its construction and commissioning. The Facility will be disconnected from the transmission system. Solar modules will be disconnected, collected, packed, and sent to the original manufacturer or a local recycler. Site equipment will be disconnected from underground cables. The underground cables will be removed and transported offsite to an approved recycling facility or landfill. The solar module steel racking system will be removed and transported offsite to a recycling facility. Electrical and electronic devices, including medium voltage step-up transformers and solar inverters, will be removed and transported offsite to a recycling facility. Disconnect switches will be removed and sold for reuse, recycled, or sent to a landfill. Concrete foundations will be removed to a minimum depth of 3 feet and then transported offsite and recycled, recycled by portable recycling equipment brought onsite, or taken to a landfill.
3. The last step, treatment of internal service roads and access road, fences, gates, and the transmission line, will depend on whether there is a planned next use of the land. If there is a need for these improvements, they will be left in place and maintained. If there is not, they will be removed and the land will be restored. Because the area will be minimally graded for construction, it will only be necessary to restore the original grading in certain

locations. The land will be revegetated with plants or plant seed mix consistent with the landowner's needs and the weed control plan approved by Morrow and Gilliam counties.

W.3 RETIREMENT AND RESTORATION COST ESTIMATE

OAR 345-021-0010(1)(w)(C) *An estimate, in current dollars, of the total and unit costs of restoring the site to a useful, non-hazardous condition*.

Response: Attachment W-1 provides a detailed cost estimate for Facility retirement and restoration. The estimated cost, in fourth quarter 2016 dollars, is approximately $4.5 million. The estimate assumes removal of all improvements to restore the Facility to preconstruction condition. It was prepared using Oregon Department of Energy (ODOE) 2011 guidelines. ODOE does not have a guidance document for estimating retirement and restoration costs for solar energy facilities, but the key components of Facility retirement and restoration will be similar to those of a wind energy facility. For example, the unit cost for grading, seeding, electrical transmission line removal, transport, and disposal will be the same for solar and wind energy facilities. As such, the cost estimate presented in Attachment W-1 relies on the unit costs developed by ODOE in the wind energy facility guidance document titled *Site Restoration Cost Estimating Guide* (ODOE, 2011), and on specific unit costs developed for components that apply to a solar energy facility. The solar unit costs were developed based on standard industrial practice.

OAR 345-021-0010(1)(w)(D) *A discussion and justification of the methods and assumptions used to estimate site restoration costs.*

Response: The Applicant made the following assumptions to estimate site restoration costs:

- Demolition debris will be removed to a licensed landfill that will accept construction materials.
- Steel, concrete, and other components will be recycled, to the extent possible.
- Underground material below 3 feet will be left in place. This will include concrete foundations for the solar module posts, and a portion of the posts themselves.
- Before removing the main transformer, oil will be removed and disposed of appropriately. Inverters and transformers will be removed with oils in place.
- Bare ground portions will be seeded in accordance with the *Revegetation and Noxious Weed Control Plan* (Exhibit P, Attachment P-6) once retirement and restoration are complete. Owing to the nature of the retirement and restoration activities, site grading will not be required prior to seeding. During Facility operations, noxious weeds will be controlled to promote establishment of native vegetation. During Facility retirement and restoration, care will be taken to minimize the disturbance to existing vegetation. To be conservative, this estimate assumes that the entire area occupied by the solar modules (approximately 453 acres) will be reseeded (or likely over-seeded).
- The operations and maintenance (O&M) facility will be removed, and the surrounding graveled area will be removed, regraded, and reseeded.
- The site perimeter fence, O&M fence, and substation fence will be removed and recycled.
- Internal services roads and access road will be removed, regraded, and reseeded as part of retirement and restoration activities. During retirement and restoration of the module blocks, the internal service roads and access road will be used to minimize the disturbance to the surrounding areas.

- Salvage value of Facility materials is not included, but should be considered if Energy Facility Siting Council policy or rules change to allow credit for these values.
- The estimate includes a 10 percent administration and project management allowance and a 10 percent future developments contingency allowance.

W.4 MONITORING PLAN

OAR 345-021-0010(1)(w)(E) *For facilities that might produce site contamination by hazardous materials, a proposed monitoring plan, such as periodic environmental site assessment and reporting, or an explanation why a monitoring plan is unnecessary.*

Response: The Facility is not expected to cause site contamination by hazardous materials, and therefore no monitoring plan is proposed or required. Hazardous materials associated with the Facility will be limited to transformer oils that will either be pumped out to a specialized vehicle for recycling before removing the transformers, or removed with the equipment. The Facility will not have any fuel storage tanks, and any small quantities of lubricants or fuel from passing vehicles are highly unlikely to result in soil contamination.

Attachment W-1
Boardman Solar Energy Facility
Estimated Retirement and Restoration Cost

Boardman Solar Energy Facility

COST ESTIMATE FOR FACILITY SITE RETIREMENT AND RESTORATION

(Unit Costs in 2nd Quarter 2010 Dollars)

Adjustment Factor: 1.10495 **Current Quarter:** **4Q 2016**

GDP Index 2nd Quarter 2010: **101** http://www.oregon.gov/DAS/OEA/Pages/Index.aspx

GDP Index Current Quarter: **111.6**

Cost Estimate Component	Quantity	Unit Cost	Extension
Module Blocks			
Disconnect electrical and ready for disassembly	1	$14,010	$14,010
Remove solar facilities (per block)	30	$6,113	$183,388
Remove steel posts (per ton)	2,133	$82	$174,891
Remove post foundation (per CY)	0	$0	$0
Remove inverter/transformer and foundation (per block)	30	$2,506	$75,184
Restore module site (per block)	30	$51,306	$1,539,192
O&M Facilities			
Remove O&M facility and fences/gates	1	$305,126	$305,126
Substations			
Remove substation or substations	2	$14,994	$29,988
Transmission Lines			
Remove 34.5-kV collector, single-circuit (per mile)	0	$0	$0
Remove 34.5-kV collector, double-circuit (per mile)	0	$0	$0
Remove aboveground high-voltage transmission line (per mile)	2.1	$120,869	$253,825
Remove collector system junction boxes (each)	14	$51	$719
Road Restoration			
Internal service roads (Mi)	11.64	$29,443	$342,711
Access road (Mi)	0.28	$38,046	$10,653
Restore Additional Areas Disturbed by Facility Removal			
Grading and seeding			
Temporary Disturbance - staging areas (per acre)	10	$8,706	$91,065
General Costs			
- Permits, mobilization, engineering, overhead			$339,262
Subtotal			**$3,360,014**
Subtotal Adjusted to Current Dollars **4Q 2016**			**$3,712,649**
Performance Bond @ 1%			$37,126
Gross Cost (Adjusted)			**$3,749,775**
Administration and Project Management @ 10%			$374,978
Future Developments Contingency @ 10%			$374,978
Total Site Restoration Cost (current dollars)			**$4,499,730**
Total Site Restoration Cost (rounded to nearest $1,000)			**$4,500,000**

EXHIBIT X
NOISE

OAR 345-02100010(1)(x)

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OAR 345-021-0010(1)(x)*:* *Information about noise generated by construction and operation of the proposed facility, providing evidence to support a finding by the Council that the proposed facility complies with the Oregon Department of Environmental Quality's noise control standards in OAR 340-035-0035.*

Response: This Exhibit provides a noise assessment consistent with the requirements of OAR 345-021-0010(1)(x). The evidence provided in this Exhibit demonstrates that Boardman Solar Energy LLC (Applicant) has a reasonable likelihood of designing and operating the Boardman Solar Energy Facility (Facility) in compliance with the Oregon Department of Environmental Quality's (DEQ's) noise control standards in OAR 340-035-0035, Noise Control Regulations for Industry and Commerce.

X.1 BACKGROUND INFORMATION ABOUT NOISE

An understanding of how noise is defined and measured provides useful background for this Exhibit. Noise is defined as unwanted sound. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. There are several different ways to measure noise, depending on the source of the noise, the receiver, and the reason for the noise measurement. Table X-1 summarizes the technical noise terms used in this Exhibit.

Table X-1. Definitions of Acoustical Terms

Term	Definition
Ambient noise level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Decibel (dB)	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the measured pressure to the reference pressure, which is 20 micropascals.
A-weighted sound pressure level (dBA)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighted filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise. All sound levels in this report are A-weighted.
Statistical noise level (L_n)	The noise level exceeded during n percent of the measurement period, where n is a number between 0 and 100 (for example, L_{50} is the level exceeded 50 percent of the time).

Table X-2 shows the relative A-weighted noise levels of common sounds measured in the environment and in industry for various sound levels.

Table X-2. Typical Sound Levels Measured in the Environment and Industry

Noise Source At a Given Distance	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
Civil defense siren (100 ft)	130		
Jet takeoff (200 ft)	120		Pain threshold
	110	Rock music concert	
Pile driver (50 ft)	100		Very loud
Ambulance siren (100 ft)			
	90	Boiler room	
Freight cars (50 ft)		Printing press plant	

Table X-2. Typical Sound Levels Measured in the Environment and Industry

Noise Source At a Given Distance	A-Weighted Sound Level in Decibels	Noise Environments	Subjective Impression
Pneumatic drill (50 ft)	80	In kitchen with garbage disposal running	
Freeway (100 ft)			
	70		Moderately loud
Vacuum cleaner (10 ft)	60	Data processing center	
Department Store; Light traffic (100 ft)	50	Private business office	
Large transformer (200 ft)	40		Quiet
Soft whisper (5 ft)	30	Quiet bedroom	
	20	Recording studio	
	10		Hearing threshold

ft = feet
Source: Beranek, 1988

An understanding of the difference between a sound *pressure* level (or noise level) and a sound *power* level also can be useful. A sound power level (commonly abbreviated as PWL or Lw) is analogous to the wattage of a light bulb; it is a measure of the acoustical energy emitted by the source and is, therefore, independent of distance. A sound pressure level is analogous to the brightness or intensity of light experienced at a specific distance from a source and is measured directly with a sound-level meter. Sound pressure levels always should be specified with a location or distance from the noise source.

Sound power level data are used in acoustic models to predict sound pressure levels. This is because sound power levels take into account the size of the acoustical source and account for the total acoustical energy emitted by the source.

It is also important to note that decibels cannot be directly added arithmetically, that is, 50 dBA + 50 dBA does not equal 100 dBA. When two sources of equal level are added together the result will always be 3 dB greater; that is 50 dBA + 50 dBA = 53 dBA and 70 dBA + 70 dBA = 73 dBA. If the difference between the two sources is 10 dBA, the level (when rounded to the nearest whole decibel) will not increase; that is 40 dBA + 50 dBA=50 dBA and 60 dBA + 70 dBA=70 dBA.

The decrease in sound level caused by distance from any single sound source normally follows the inverse square law; that is, the sound pressure level changes in inverse proportion to the square of the distance from the sound source. In a large open area with no obstructive or reflective surfaces, it is a general rule that at distances greater than approximately the largest dimension of the noise-emitting surface, the sound pressure level from a single source of sound drops off at a rate of 6 dB with each doubling of the distance from the source. Sound energy is absorbed in the air as a function of temperature, humidity, and the frequency of the sound. This attenuation can be up to 2 dB over 1,000 feet. The drop-off rate will also vary based on terrain conditions and the presence of obstructions in the sound's propagation path. These factors are considered in the development of the acoustical model.

X.2 SITE BOUNDARY AND ANALYSIS AREA

The approximately 798-acre Facility site boundary encompasses exclusively private land that is located south of Interstate 84 and historically has been used for winter and spring cattle grazing. The Applicant has negotiated a long-term lease for land within the site boundary. The analysis area consists of any area within the vicinity of the Facility site boundary that could be affected by noise from Facility construction or operation.

X.3 REGULATORY REQUIREMENTS

OAR 340-035-0035(1)(b)(B)(i) *No person owning or controlling a new industrial or commercial noise source located on a previously unused industrial or commercial site shall cause or permit the operation of that noise source if the noise levels generated or indirectly caused by that noise source increase the ambient statistical noise levels, L_{10} or L_{50}, by more than 10 dBA in any one hour, or exceed the levels specified in Table 8, as measured at an appropriate measurement point, as specified in subsection (3)(b) of this rule.*

Response: Noise standards promulgated by DEQ are contained in OAR 340-035-0035, Noise Control Regulations for Industry and Commerce (DEQ Noise Rules). The DEQ Noise Rules provide two types of noise limits for new industrial or commercial noise sources on a previously unused site.[1] Specifically, OAR 340-035-0035(1)(b)(B)(i) limits the increase over existing ambient levels to 10 dBA while ensuring that a given project does not exceed the levels identified in Table 8 of the OAR.

Table X-3 contains the "Table 8" statistical noise limits referenced in the DEQ Noise Rules. The L_{50} is the median sound level (50 percent of the measurement interval is above this level and 50 percent is below).

Table X-3. New Industrial and Commercial Noise Source Standards

Statistical Descriptor	Daytime (7 a.m. – 10 p.m.) (dBA)	Nighttime (10 p.m. – 7 a.m.) (dBA)
L_{50}	55	50
L_{10}	60	55
L_1	75	60

Source: OAR 340-35-0035, Table 8.
http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_035.html

In addition, OAR 340-035-0035(1)(f) establishes standards that regulate octave band sound pressure levels and audible discrete tones. Such standards can be applied by DEQ when it believes the limits discussed above do not adequately protect the health, safety, or welfare of the public[2].

OAR 340-035-0035(5) provides exemptions for emergency equipment, warning devices not operating continuously for more than 5 minutes, sounds that originate on construction sites, and sounds created in construction or maintenance of capital equipment.

[1] A "previously unused industrial or commercial site" is defined in OAR 340-035-0015(47) as property which has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of construction of a new industrial or commercial source on that property.

[2] Impulse noise is also regulated in OAR 340-35-0035(1)(d), but solar facilities do not generate impulsive sounds such as those associated with blasting, gunfire, pile-driving, riveting, hammering, or stamping.

The noise limits apply at "appropriate measurement points" on "noise-sensitive property." The "appropriate measurement point" is defined as whichever of the following is farther from the noise source:

- 25 feet (7.6 meters) toward the noise source from that point on the noise-sensitive building nearest the noise source
- That point on the noise-sensitive property line nearest the noise source

"Noise-sensitive property" is defined as "real property normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries. Property used in industrial or agricultural activities is not noise-sensitive property unless it meets the foregoing criteria in more than an incidental manner."

Noise-sensitive properties in the Facility area are shown on Figure X-1. The closest residential receptor to the solar array or substation is more than 2 miles away. The closest residential receptor to the transmission line is more than 1 mile away.

X.4 NOISE ANALYSIS METHODOLOGY

This Exhibit analyzes potential noise impacts from construction and operation of the proposed solar array and associated inverters as well as related or supporting facilities consisting of a substation transformer and 115-kilovolt (kV) transmission line.

There are very few sources of noise associated with solar facilities and they are generally minor compared to other energy facilities. The primary noise sources are inverters and transformers. The current produced by solar modules is in the form of direct current (DC). In order to be sent to the electrical grid, the DC current must be converted into alternating current (AC) power, and inverters serve this function. Transformers increase the voltage to ensure the power is efficiently transmitted to the grid.

X.5 IMPACTS OF THE PROPOSED FACILITY

The applicant shall include: **OAR 345-021-0010(1)(x)(A)** *Predicted noise levels resulting from construction and operation of the proposed facility.*

OAR 345-021-0010(1)(x)(B) *An analysis of the proposed facility's compliance with the applicable noise regulations in OAR 340-035-0035, including a discussion and justification of the methods and assumptions used in the analysis.*

Response:

X.5.1 Construction

OAR 340-035-0035(5)(g) specifically exempts construction activity. Therefore, by regulatory definition, there will be no construction noise impacts. Regardless, the following presents potential construction noise levels at the residential receptors nearest to the Facility, the closest of which is more than 1 mile away, as stated in Section X.3.

Table X-4 documents the results of a U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control analysis of noise from construction equipment, power plant construction sites, and other types of facilities (EPA, 1971). Data from the EPA study have been used as a basis for Facility analysis in the absence of specific information about types, quantities, and operating schedules of construction equipment. The EPA data are conservative because the

evolution of construction equipment has generally been toward quieter design. Use of these data is reasonable for estimating noise levels, given that they are still widely used by acoustical professionals.

Table X-4. Average Noise Levels from Common Construction at a Reference Distance of 50 feet

Construction Equipment	Typical Average Noise Level at 50 feet (dBA)
Air compressor	81
Backhoe	85
Concrete mixer	85
Concrete pump	82
Crane, mobile	83
Dozer	80
Generator	78
Grader	85
Loader	79
Paver	89
Pile driver	101
Pneumatic tool	85
Pump	76
Rock drill	98
Saw	78
Scraper	88
Shovel	82
Truck	91

Source: EPA, 1971.

Table X-5 shows the total composite noise level at a reference distance of 50 feet as well as additional distances, based on typical equipment operating during each phase of construction and the typical usage factor for each piece of equipment. The predicted construction noise levels at 1 and 2 miles are also shown. The calculated levels are likely conservative, because the only attenuating mechanism considered was geometric spreading, which results in an attenuation rate of 6 dBA per doubling of distance; attenuation related to the presence of structures, trees or vegetation, ground effects, and terrain is not considered.

Table X-5. Composite Construction Site Noise Levels

Construction Phase	50 feet (dBA)	100 feet (dBA)	200 feet (dBA)	400 feet (dBA)	1 mile (dBA)	2 miles (dBA)
Clearing	88	82	76	70	48	42
Excavation	90	84	78	72	50	44
Foundation	89	83	77	71	49	43
Erection	84	78	72	66	44	38
Finishing	89	83	77	71	49	43

X.5.2 Operations

A noise model of the proposed Facility was developed using source input levels derived from data supplied by manufacturers, or information found in the technical literature. The noise levels presented represent the anticipated steady-state level from the Facility with essentially all equipment operating.

Standard acoustical engineering methods were used in the noise analysis. The noise model, CADNA/A by DataKustik GmbH of Munich, Germany, is a sophisticated device that enables one to fully model complex industrial plants. The sound propagation factors used in the model have been adopted from ISO 9613-2 *Acoustics—Sound Attenuation During Propagation Outdoors*. Atmospheric absorption was estimated for conditions of 10 degrees Celsius (°C) and 70 percent relative humidity (conditions that favor propagation) and computed in accordance with ISO 9613-1. The model divides the proposed Facility into a list of individual noise sources representing each piece of equipment that produces a significant amount of noise. The sound power levels representing the standard performance of each of these components are assigned based on data supplied by manufacturers or information found in the technical literature. Using these sound power levels as a basis, the model calculates the sound pressure level that would occur at each receptor from each source after losses from distance, air absorption and other factors are considered. The sum of all these individual levels is the total plant level at the modeling point.

The sound power levels used in the model are summarized in Table X-6. As noted above, sound power level data are used in acoustic models to predict sound pressure levels. This is because sound power levels take into account the size of the acoustical source and account for the total acoustical energy emitted by the source. The approximate sound pressure level at 400 feet, the sound level one would measure or hear, is 44 dBA less than the levels identified in Table X-6.

As is typical at this stage of a project, these data are preliminary and detailed vendor specifications will ultimately be developed to ensure the Facility complies with the conditions of certification.

Table X-6. Sound Power Levels Used to Model the Facility

Plant Component	Sound Power Level (dBA)
Inverter	92
Transformer	97

Given the low level of sound emitted from Facility components and the vast distance to the closest residence (over 2 miles), the predicted sound levels attributable to Facility operations is less than 20 dBA. This is an extraordinarily low sound level that is not expected to be discernible at the residences, particularly given that traffic on the adjacent Interstate 84 represents a more substantial source of noise than the proposed Facility. Noise generated during the testing and commissioning phase of the Facility is not expected to be substantially different from that produced during normal full-load operation.

X.5.3 Transmission Line

Corona is the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware because of very high electric field strength. Corona may result in audible noise produced by the transmission lines. The amount of corona produced by an overhead transmission line is a function of the voltage of the line, the diameter of the

conductors, the locations of the conductors in relation to each other, the elevation of the line above sea level, the condition of the conductors and hardware, and the local weather conditions. Power flow does not affect the amount of corona produced by a transmission line. Corona is generally a design concern with transmission lines of 345 kV and higher. The Applicant is proposing a 115-kV transmission line, which is not a substantial source of corona noise to start. As discussed in Exhibit AA, the proposed 115-kV line would parallel an existing 230-kV transmission line owned by Portland General Electric and both lines are more than 1 mile from the closest residences. As shown in Exhibit AA, the proposed addition of the 115-kV line is not predicted to result in a discernible increase in corona-related noise.

X.6 PROPOSED MITIGATION MEASURES

OAR 345-021-0010(1)(x)(C*)* *Any measures the applicant proposes to reduce noise levels or noise impacts or to address public complaints about noise from the facility.*

Response: The Applicant proposes to employ the equipment selection and specification criteria necessary to ensure compliance with the Oregon noise standards (OAR 340-035-0035). While the Facility is anticipated to operate in compliance with the Oregon noise standards without unusual noise mitigation measures, the Applicant has many measures available to ensure compliance is achieved during detailed design. Such measures include specifying quieter equipment (when available) and installing improved acoustical enclosures or barriers. Therefore, no significant noise impacts from the operations are anticipated and no additional mitigation is planned.

X.7 PROPOSED MONITORING MEASURES

OAR 345-021-0010(1)(x)(D*)* *Any measures the applicant proposes to monitor noise generated by operation of the facility.*

Response: Given the greater-than-2-mile distance to the closest noise-sensitive areas from the Facility's primary noise sources, the proximity of Interstate 84, and the low level of noise associated with solar equipment and the 115-kV line, the Applicant intends to monitor noise only in response to a legitimate noise complaint.

X.8 NOISE-SENSITIVE PROPERTIES

OAR 345-021-0010(1)(x)(E) *A list of the names and addresses of all owners of noise sensitive property, as defined in OAR 340-035-0015, within one mile of the proposed site boundary.*

Response: No noise-sensitive properties, as defined in OAR 340-035-0015, are located within 1 mile of the proposed site boundary. The Applicant's consultants reviewed aerial photography and conducted a field visit on November 16 and 17, 2016.

X.9 SUMMARY

The noise analysis presented in this Exhibit provides sufficient evidence to support a Council finding that Facility construction and operation can comply with applicable DEQ noise control standards in OAR 340-035-0035.

Specifically, the Applicant has provided information about the predicted noise levels during the Facility's construction and operations in accordance with OAR 345-021-0010(1)(x)(A), and included an analysis of the Facility's compliance with applicable DEQ noise regulations per OAR 345-021-0010(1)(x)(B). The Applicant has employed reasonable assumptions into its noise

modeling analysis to demonstrate that the final Facility is capable of complying with the DEQ noise standard.

Accordingly, the Applicant has provided sufficient evidence to support an Energy Facility Siting Council finding that the Facility complies with applicable DEQ noise control standards in OAR 340-035-0035. The Applicant is committed to designing and operating the Facility in full compliance with the applicable requirements.

X.10 REFERENCES

Beranek, L.L. 1988. *Acoustical Measurements*. American Institute of Physics. Woodbury, New York.

CADNA/A Version 4.1. 2011. DataKustik, GmbH, Munich, Germany. http://www.datakustik.de/frameset.php?lang=en.

U.S. Environmental Protection Agency (EPA). 1971. *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*.

Figure

VICINITY MAP

LEGEND

- Noise-Sensitive Properties
- Facility Site Boundary
- Facilty Module Blocks
- Substation
- Facility Transmission Line
- Facility Perimeter Fence
- Facility Service Roads
- County

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
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N

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Feet

FIGURE X-1
Noise-Sensitive Properties
Boardman Solar Energy Facility
Application for Site Certificate
Morrow and Gilliam Counties, Oregon

Invenergy
ch2m

EXHIBIT Y
CARBON DIOXIDE EMISSIONS

OAR 345-021-0010(1)(y)

Exhibit Y requires information about a base load gas plant, a non-base load power plant, or a nongenerating energy facility that emits carbon dioxide. Exhibit Y is not required for this application because Boardman Solar Energy LLC (Applicant) is not proposing to construct any facilities that emit carbon dioxide.

EXHIBIT Z
EVAPORATIVE COOLING TOWERS

OAR 345-021-0010(1)(z)

Exhibit Z requires information about evaporative cooling towers and cooling tower plumes. Exhibit Z is not required for this application because Boardman Solar Energy LLC (Applicant) is not proposing to construct an evaporative cooling tower.

EXHIBIT AA
ELECTRIC TRANSMISSION LINE

OAR 345-021-0010(1)(aa)
OAR 345-024-0090(1),(2)

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OAR 345-021-0010(1)(aa) *If the proposed energy facility is a transmission line or has, as a related or supporting facility, a transmission line of any size:*

Response: The proposed Boardman Solar Energy Facility (Facility) will consist of approximately 75 megawatts (MW) of nominal and average electric generating capacity with an associated 2.1-mile-long, single-circuit, 115-kilovolt (kV) overhead transmission line that parallels an existing 230-kV transmission line. The Facility's projected maximum load of 75 MW is used in this Exhibit to calculate electric and magnetic fields (EMFs). The 115-kV transmission line will be installed from a new, proposed Facility substation to the point of interconnection with the existing electrical grid.

Collection cables will be located completely within the Facility. The cables will be underground and will not be accessible to the public. As such, these lines are not subject to the 9-kilovolt per meter (kV/m) standard found within OAR 345-024-0090 and modeling of the lines is not required to demonstrate compliance with the standard.

AA.1 ELECTRIC AND MAGNETIC FIELDS

OAR 345-021-0010(1)(aa)(A) *Information about the expected electric and magnetic fields (EMFs), including:*

AA.1.1 Distance from Transmission Line Centerline to Edge of Right-of-Way

(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way.

Response: The right-of-way (ROW) will be 50 feet wide in each direction from the centerline of the proposed transmission line for a total of 100 feet in width.

AA.1.2 Types of Occupied Structures within 200 Feet of Proposed Transmission Line Centerline

(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line.

(iii) The approximate distance in feet from the proposed center line to each structure identified in (A).

Response: There are no occupied structures within 200 feet on each side of the centerline of the proposed transmission line based on a desktop evaluation of the proposed route.

AA.1.3 Graphs of Electric and Magnetic Field Levels

(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line.

Response:

AA.1.3.1 Overview of EMFs Produced by Transmission Lines

All electric utility wires and devices generate alternating EMFs. The earth itself generates steady state EMFs. The EMF produced by the alternating current (AC) electrical power system in the United States has a frequency of 60 hertz (Hz), meaning that the fields change from positive to negative and back to positive, 60 times per second.

In AC power systems, voltage swings positive to negative and back to positive, a 360-degree cycle, 60 times every second. Current follows the voltage, flowing forward, reversing direction, and returning to the forward direction, again a 360-degree cycle, 60 times every second. Each AC three-phase circuit carries power over three conductors. One phase of the circuit is carried by each of the three conductors. The AC voltage and current in each phase conductor is out of sync with the other two phases by 120 degrees, or one-third of the 360-degree cycle. The fields from these conductors tend to cancel out because of the phase difference. However, when a person stands under a transmission line or over a buried circuit of underground lines, one conductor is always significantly closer and will most likely contribute a net uncancelled field at the person's location, assuming the three-phase currents are equal.

Electric Fields

Electric fields around transmission lines are produced by electrical charges, measured as voltage, on the energized conductor. Electric field strength is directly proportional to the line's voltage; that is, increased voltage produces a stronger electric field. The electric field is inversely proportional to the distance a sensor is from the conductors, so that the electric field strength decreases as the distance from the conductor increases. For the proposed Facility's transmission line, the voltage and electric field alternate at a frequency of 60 Hz. The strength of the electric field is measured in units of kV/m. The voltage, and therefore the electric field, around a transmission line remains practically steady and is not affected by the common daily and seasonal fluctuations in usage of electricity by customers.

Magnetic Fields

Magnetic fields around transmission lines are produced by the electrical load, or the amount of current flow through the conductors measured in terms of amperage. Like the electric field, the magnetic field alternates at a frequency of 60 Hz. The magnetic field strength is directly proportional to the amperage; that is, increased power flow results in increased amperage, which produces a stronger magnetic field. The magnetic field is inversely proportional to the sensor's distance from the conductors. Also, like the electric field, the magnetic field strength decreases as the distance from the conductor increases. Magnetic fields are expressed in units of milligauss (mG). However, unlike voltage, the amperage and therefore the magnetic field around a transmission line fluctuate hourly and daily as the amount of current flow varies. The strength of the magnetic field depends on the current in the conductor, the geometry of the construction, the degree of cancellation from other conductors, and the distance from the conductors or cables.

AA.1.3.2 EMF Calculations for 115-kV Overhead Transmission Line

The route that is being examined by Boardman Solar Energy LLC (Applicant) for connecting the 115-kV transmission line to an existing interconnection substation uses a typical monopole overhead structural configuration. The 100-foot ROW overall width is the same for the entire 2.1-mile length, and a single route is proposed by the Applicant that was modeled alone and

with the existing, adjacent 230-kV transmission line owned by Portland General Electric (PGE), whose centerline is 112.5 feet from the centerline of the proposed 115-kV transmission line.

Line Loads for EMF Calculation

Of importance to note is that any discussion of EMFs includes the assumptions used to calculate these fields. Of additional importance is that the EMF in the vicinity of the transmission lines varies with regard to line design, line loading, distance from the line, and other factors. The electric field depends on line voltage, which remains nearly constant for a transmission line in normal operation. The magnetic field is proportional to line loading (amperage), which varies as power generation is changed by the intensity of the Facility. Maximum magnetic fields are produced at the maximum (peak) conductor currents.

The 115-kV transmission line proposed in this study is rated for a nominal voltage of 115 kV measured phase to phase. The peak line loading value assumed for the single overhead circuit is 369.4 amperes per phase conductor based on the maximum line loading. Each phase conductor was modeled as an assumed single conductor of 795 thousand circular-mil aluminum-conductor-steel-reinforced “drake” with a diameter of 1.108 inches. The ground wire was modeled as an assumed single conductor of extra high strength “7/16EHS” with a diameter of 0.4356 inches.

Owing to the lack of available information concerning the existing, adjacent 230-kV transmission line, the existing 230-kV transmission line was modeled as a wooden H-frame design with single-phase conductors of 1,192 thousand circular-mil aluminum-conductor-steel-reinforced “bunting” with a diameter of 1.302 inches. The ground wires were assumed to be single conductors constructed of extra high strength “7/16EHS” with diameters of 0.4356 inches centered on top of the structure’s poles. An amperage of 1,000 amperes per phase conductor was assumed for the existing line.

Calculation Methods

The calculation methods used for the analysis are provided in Chapter 7 of the *Transmission Line Reference Book, 200-kV and Above* (EPRI, 2005).

The software program used to model the transmission line, called “EMFWorkstation: ENVIRO (Version 3.52),” is a Windows-based model developed by the Electric Power Research Institute (EPRI). The EMF and corona results were calculated in the ENVIRO program, which uses the methodology developed by Bonneville Power Administration (BPA). Measurements of corona effects from many operating transmission lines were used to develop empirical equations that were programmed by BPA into a computer model called Corona. The Corona model was in turn programmed into the ENVIRO model to predict EMF and corona effects from transmission lines. The inputs and outputs (results) of the ENVIRO program are provided in Attachment AA-1.

To estimate the maximum fields, the calculations in the model are performed at mid-span where the conductors have sagged to their lowest point between structures (the estimated maximum sag point, or minimum ground clearance). These estimates are computed for a height of 3.3 feet (1 meter) above the ground on the proposed transmission line route. The actual magnetic field values vary, as load varies hourly, daily, seasonally, and as conductor sag changes with ambient temperature and where the receptor is located between the transmission structures (the magnetic fields will be less at the structures because the conductors will be higher off the ground). The levels shown represent the highest magnetic fields expected for the

proposed Facility. Average fields along the ground between poles, and over a year's time, will be considerably less than the peak values shown.

Results of 115-kV Overhead EMF Calculations

As stated in Section AA.1.3.2, a single route is proposed by the Applicant and was modeled alone and with the existing, adjacent 230-kV transmission line, whose centerline is 112.5 feet from the centerline of the proposed transmission line. Table AA-1 presents the calculated values of the EMF at the ROW edges for each case and the maximum calculated value.

Table AA-1. Electric and Magnetic Field Modeling Results for Proposed Overhead 115-kV Transmission Line

	Left/West ROW Edge (50 ft)	Maximum Calculated Field	Right/East ROW Edge (50 ft)
Case 1 – Existing 230-kV Transmission Line without Proposed 115-kV Line			
Electric Field (kV/m)	0.06	3.08	0.83
Magnetic Field (mG)	9.10	258.15	55.35
Case 2 – Proposed Transmission Line without Existing Adjacent 230-kV Line			
Electric Field (kV/m)	0.26	1.38	0.22
Magnetic Field (mG)	11.27	59.56	13.45
Case 3 – Proposed Transmission Line with Existing Adjacent 230-kV Line			
Electric Field (kV/m)	0.25	3.11	0.93
Magnetic Field (mG)	10.48	257.11	65.87

The maximum calculated magnetic field shown in Table AA-1 occurs at approximately 5 feet to the right (east) of the centerline of the proposed 115-kV overhead transmission line when modeled alone and 115 feet to the right (east) of the centerline when modeled with the existing, adjacent 230-kV transmission line. The maximum calculated electric field shown in Table AA-1 occurs approximately 10 feet to the right (east) when modeled alone and 135 feet to the right (east) of the centerline when modeled with the existing, adjacent 230-kV transmission line because of the structural configuration of the proposed 115-kV overhead transmission line.

The results are plotted on the graphs shown in Figures AA-1 and AA-2.

AA.1.3.3 Overview of Corona Audible Noise Produced by Transmission Lines

Corona is the electrical ionization of the air that occurs near the surface of the energized conductor and suspension hardware because of very high electric field strength. Corona may result in audible noise being produced by the transmission lines.

The amount of corona produced by an overhead transmission line is a function of the voltage of the line, the diameter of the conductors, the locations of the conductors in relation to each other, the elevation of the line above sea level, the condition of the conductors and hardware, and the local weather conditions. Power flow does not affect the amount of corona produced by a transmission line.

Corona also increases at higher elevations, where the atmosphere is less dense than at sea level. The 115-kV transmission line does not traverse high elevations. Accordingly, the effects of elevation are minimal and the line was modeled with an elevation of 300 feet (100 meters).

Raindrops, snow, fog, hoarfrost, and condensation accumulated on the conductor surface are also sources of surface irregularities that can increase corona. During fair weather, the number of these condensed water droplets or ice crystals is usually small and the corona effect is also small. However, during wet weather, the number of these sources increases (such as when raindrops stand on the conductor) and corona effects are therefore greater. During wet or foul weather conditions, the conductor will produce the greatest amount of corona noise. However, during heavy rain, the noise generated by the falling raindrops hitting the ground typically will be greater than the noise generated by corona and thus will mask the audible noise from the transmission line.

AA.1.3.4 Corona Audible Noise Calculations for 115-kV Overhead Transmission Line

The data needed to model audible noise include elevation and the same information needed to model EMF (voltage, number of circuits, and geometry of the conductors and the transmission structure itself). Audible noise does not vary with the amount of current flow. A single route is proposed by the Applicant and was modeled alone and with the existing, adjacent 230-kV transmission line whose centerline is 112.5 feet from the centerline of the proposed transmission line.

Calculation Methods

The audible noise from the proposed transmission line was predicted using EMF Workstation: ENVIRO (Version 3.52), the same program used for the EMF analyses. The results of the ENVIRO Program are provided in Attachment AA-1.

To estimate the maximum noise, the calculations in the model are performed at mid-span where the conductors have sagged to their lowest point between structures (the estimated maximum sag point, or minimum ground clearance). These estimates are computed for a height of 3.3 feet (1 meter) above the ground on the proposed transmission line route. Because the equations that predict audible noise were created from empirical measurements, the accuracy of the model is as good as these measurements that produced the original equations.

Results of 115-kV Overhead Corona Noise Calculations

As stated in Section AA.1.3.2, a single route is proposed by the Applicant that was modeled alone and with the existing, adjacent 230-kV transmission line, whose centerline is 112.5 feet from the centerline of the proposed transmission line. Table AA-2 presents the calculated levels of corona noise at the ROW edges for each case and the maximum calculated levels.

Table AA-2 also presents the anticipated levels of corona noise from the proposed 115-kV transmission line. Analysis results show that under the more typical fair-weather conditions, the maximum level of corona noise from the 115-kV transmission line is predicted to be less than 19 decibels on an A-weighted scale (dBA) when modeled with the existing, adjacent 230-kV transmission line. These levels are below the allowable statistical noise levels for new industrial and commercial noise sources found in Table 8 to OAR 340-035-0035. The results are plotted on the graph shown in Figures AA-3 and AA-4.

Table AA-2. Calculated Corona Audible Noise Values for 115-kV Overhead Transmission Line

	Distance from Centerline to 50 dBA (Left/West Side of Centerline) (ft)	Left/West ROW Edge (50 ft) (dBA)	Maximum (dBA)	Right/East ROW Edge (50 ft) (dBA)	Distance from Centerline to 50 dBA (Right/East Side of Centerline) (ft)
Case 1 – Existing 230-kV Transmission Line without Proposed 115-kV Line					
Fair Weather	N/A	10	19	15	N/A
Wet Weather	N/A	38	48	43	N/A
Case 2 – Proposed Transmission Line without Existing, Adjacent 230-kV Line					
Fair Weather	N/A	0.0	0.0	0	N/A
Wet Weather	N/A	15	19	15	N/A
Case 3 – Proposed Transmission Line with Existing, Adjacent 230-kV Line					
Fair Weather	N/A	10	19	15	N/A
Wet Weather	N/A	38	48	43	N/A

N/A = not applicable

AA.1.3.5 Measures Proposed to Reduce EMF Levels

(v) Any measures the applicant proposes to reduce electric or magnetic field levels.

Response: EMF levels will be reduced by the use of a delta configuration of the phase conductors. This arrangement brings the conductors close together and results in the most cancellation of magnetic fields.

AA.1.3.6 Assumptions and Methods Used in EMF Analyses

(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line.

Response: See Section AA.2.3.2. Attachment AA-1 shows the data inputs and assumptions used in the EMF, and the audible noise analysis conducted using the EPRI EMF Workstation: ENVIRO (Version 3.52) program.

AA.1.3.7 Monitoring Program

(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels.

Response: The Applicant is not proposing to conduct a post-construction monitoring program for EMFs.

AA.2 ALTERNATING CURRENT ELECTRIC FIELDS

OAR 345-024-0090 *To issue a site certificate for a facility that includes any transmission line under Council jurisdiction, the Council must find that the applicant:*

(1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;

Response: The electric fields calculated for the proposed 115-kV single-circuit transmission line do not exceed 9 kV per meter when modeled alone or with the existing, adjacent 230-kV transmission line. Figure AA-1 demonstrates that the maximum electric field modeled is less than 3.3 kV per meter, which is approximately one third of the 9-kV–per-meter standard set forth in OAR 345-024-0090(1).

AA.3 INDUCED VOLTAGE AND CURRENT

OAR 345-024-0090 *To issue a site certificate for a facility that includes any transmission line under Council jurisdiction, the Council must find that the applicant:*

(2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable.

Response: The Applicant has designed the transmission line so that induced currents will be as low as reasonably achievable. Below is an analysis of the risk of induced currents from the proposed overhead line.

AA.3.1 Induced Voltage

Voltage is the electrical pressure that pushes current through a conducting wire or object. An object such as a bird, person, vehicle, pipeline, or barbed-wire fence that is insulated from ground and in an electric field will possess an induced voltage. A bird flying through the field is safe because the induced voltage cannot make current flow through the bird, unless there is a conducting path for the current. Induced voltages can only be a hazard when the object is shorted to ground, allowing a path for current to flow. The conductivity of the air around the overhead conductor will determine the upper limit of the current that can flow when the object is shorted to ground.

A common induced voltage hazard occurs on wire fences that parallel overhead transmission lines. If the fence is ungrounded, it possesses the voltage of the net electric field of the overhead conductors at the location of the fence. A person touching such a fence becomes a conducting path for the current to flow to ground and will feel a momentary shock. The AC static voltage on the fence bleeds off quickly but can be annoying. This hazard is easily removed by bonding the fence wires along the length of the fence to grounding rods that are driven into the soil.

AA.3.2 Induced Current

Induced currents for 115-kV transmission lines are not a hazard to people because almost no voltage is involved. A current carrying conductor will induce a current to flow in another conductor that is parallel to it. Induced currents result from the net AC magnetic field. In the common case cited under Induced Voltage above, grounded fences create electrical loops in which induced currents can flow. The value of the induced current will depend on the magnetic field strength, the size, shape, and location of the conducting object, and the object-to-ground resistance.

Where possible, sufficient distance will be maintained between such facilities and the proposed transmission line to avoid induced current. Any metal fences that parallel and are close to a transmission line will be grounded to prevent electrical loops and circulating current from occurring.

AA.4 RADIO AND TV INTERFERENCE

OAR 345-021-0010(1)(aa)(B) *An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways.*

Response: This OAR is not applicable. Radio and TV interference typically is not an issue for transmission lines 230 kV and lower, particularly when the line is at a low elevation such as this one. Overhead transmission lines of higher voltage or elevation can generate random corona radiation during wet weather as a result of raindrops on the wire or to a lesser amount in dry weather as a result of dust, insects, or sharp points on the conductors or suspension hardware that would result in radio and TV interference.

AA.5 SUMMARY

Based on the above information, the Applicant has satisfied the requirement of OAR 345-021-0010(1)(aa), and the Council may find that the standards contained in OAR 345-024-0090 have been satisfied.

AA.6 REFERENCE

Electric Power Research Institute (EPRI). 2005. *Transmission Line Reference Book, 200-kV and Above*. Third Edition.

Figures

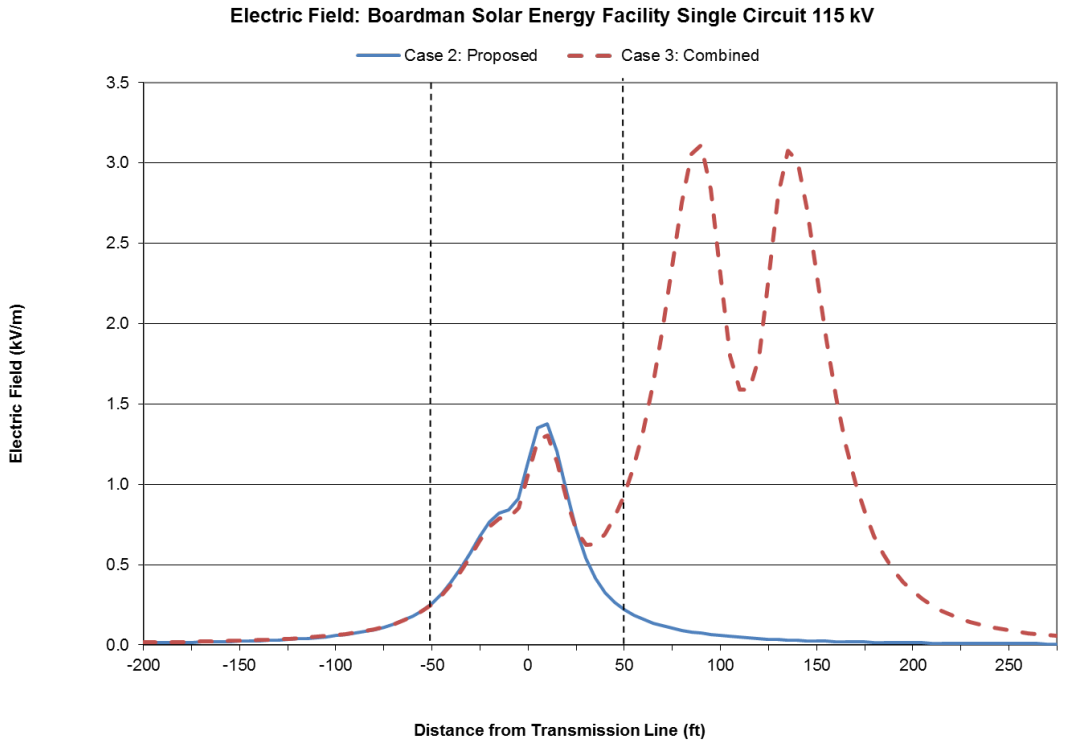

Figure AA-1. Electric Field Profile for 115-kV Single-Circuit, Monopole Support Structure

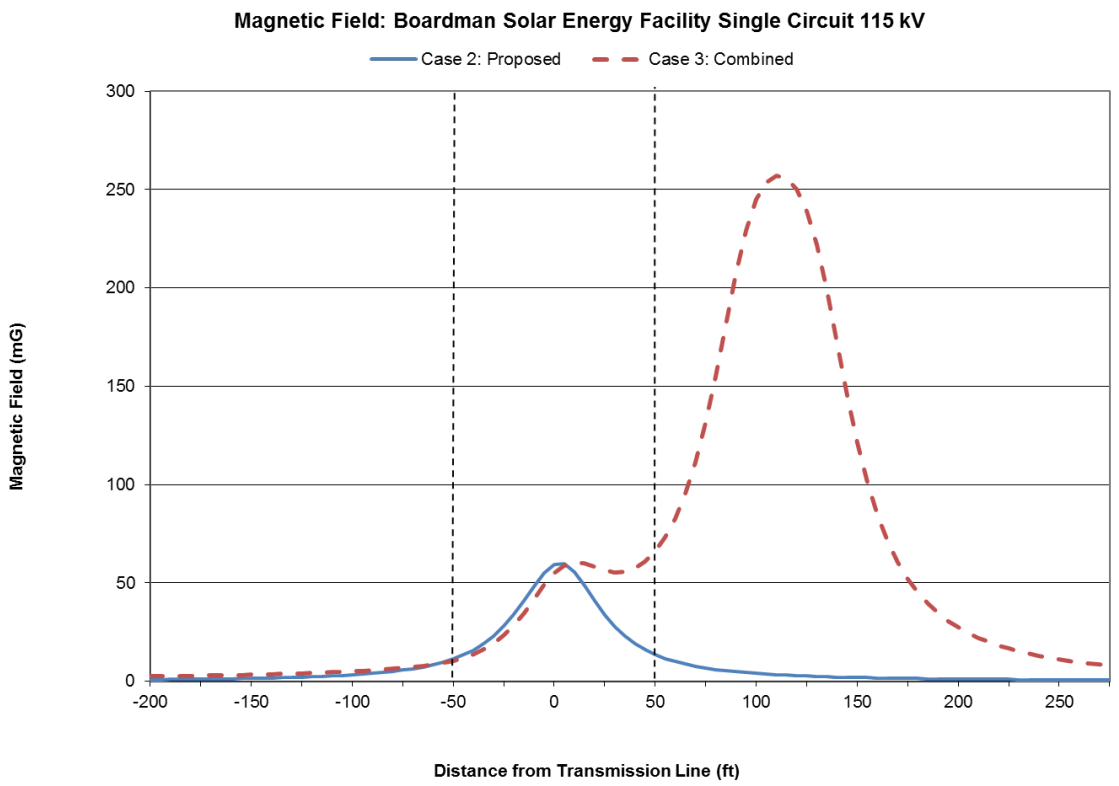

Figure AA-2. Magnetic Field Profile for 115-kV Single-Circuit, Monopole Support Structure

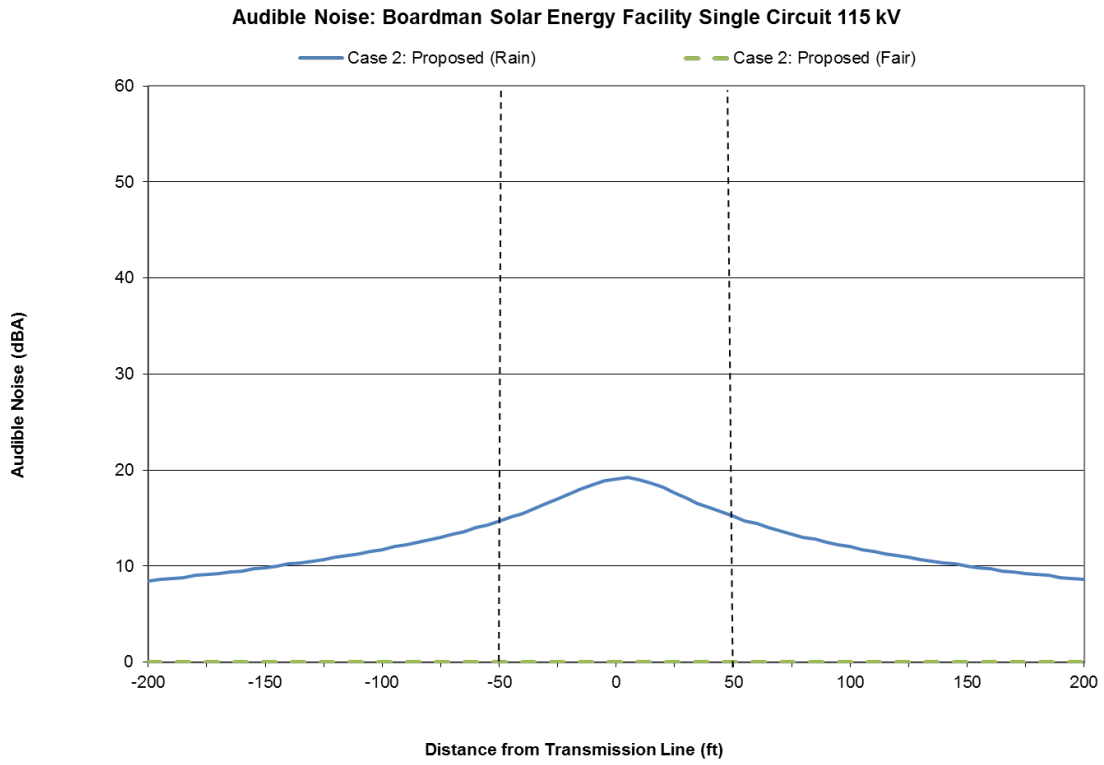

Figure AA-3. Audible Noise Profile for 115-kV Single-Circuit, Monopole Support Structure

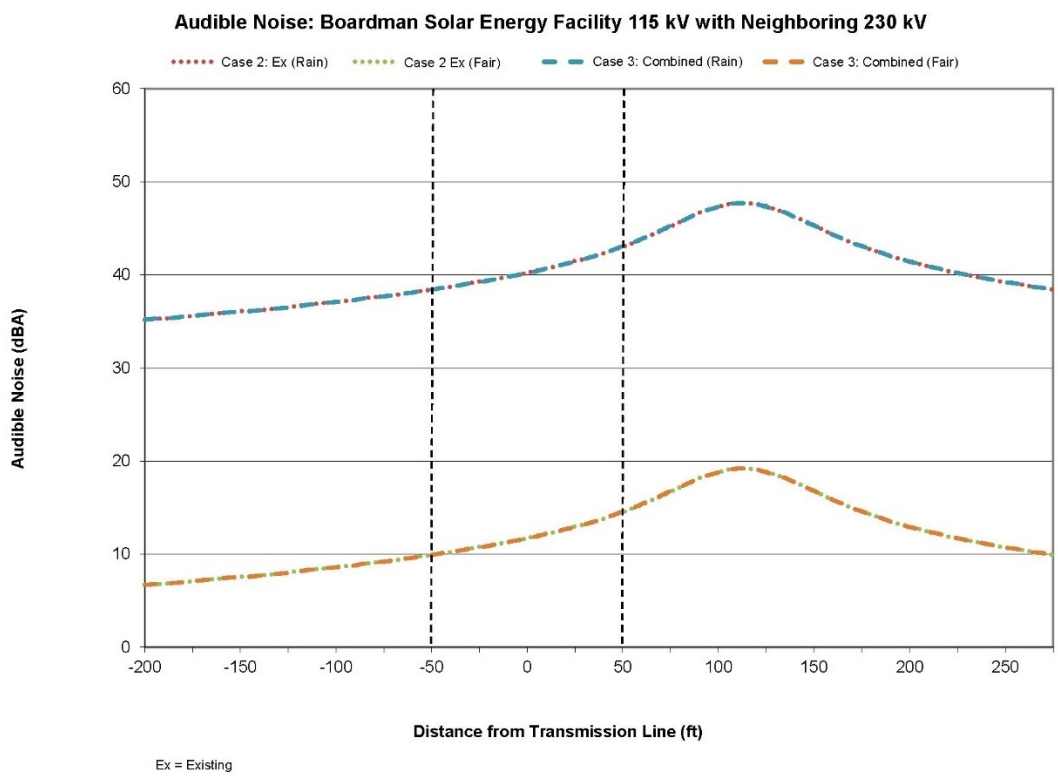

Figure AA-4. Audible Noise Profile for 115-kV Single-Circuit, Monopole Support Structure with Existing Neighboring 230-kV Line

Attachment AA-1
Results of the EPRI Electric and Magnetic Fields Workstation: ENVIRO Program

RESULTS OF ENVIRO PROGRAM

STUDY FILE NAME: C:\USERS\JKOSTA1\DESKTOP\EMF\INVENE~1\ITSAA004\ITSAA004.I01
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Rev4 Ave ITS

****
* BUNDLE INFORMAT *
****

BNDL	CIR #	VOLTAGE (kV)	ANGLE (DEG)	VOLTAGE #	ANGLE (DEG)	CURRENT # LOAD (AMPS)	COORDINA OF (DEG)	X	Y COND	PHASE (FT)	(FT)	(FT)	
1	1	1	0	1	0	0	0	0	1	102.8	32	GND	
2	1	1	0	1	0	0	0	0	1	122.3	32	GND	
3	1	1	230	1	0	1000	0	120	1	93	27	A	
4	1	1	230	1	240	1000	120	240	1	112.5	27	B	
5	1	1	230	1	120	1000	240	132	1	132	27	C	

****
* MINIMUM GROUND CLEARANC = 27 FT. *
****

****
* SUBCONDI INFORMAT - REGULAR BUNDLES *
****

BNDL #	DIAMETER (IN)	SPACING (IN)	DC RESIST. (OHMS/MI	AC RESIST. (OHMS/MI	AC REACT. (OHMS/MI
3	1.302	0	0.0777	0.0805	0.382
4	1.302	0	0.0777	0.0805	0.382
5	1.302	0	0.0777	0.0805	0.382
1	0.435	0	4.61	4.74	1.28
2	0.435	0	4.61	4.74	1.28

****
*
* MAXIMUM SURFACE GRADIENT (kV/cm) *
*
****

BNDL #	Type	ACrms	PEAK(+)	PEAK(-)
3	AC	13.28	18.78	-18.78
4	AC	14.22	20.11	-20.11
5	AC	13.28	18.78	-18.78
1	Ground Wire	4.73	6.69	-6.69
2	Ground Wire	4.73	6.69	-6.69

****
*
* AC ELECTRIC FIELD PROFILE *
* at 3.28 feet above ground *
*

****

LATERAL DISTANCE (feet)	MAXIMUM FIELD (meters)	MINOR/MA ELLIPSE (kV/m)	SPACE AXES (ratio)	VERTICAL (kV/m)	HORIZONT (kV/m)	POTENTIAL (kV)
-500	-152.4	0.002	0.002	0.002	0	0.002
-495	-150.88	0.002	0.002	0.002	0	0.002
-490	-149.35	0.002	0.002	0.002	0	0.002
-485	-147.83	0.002	0.002	0.002	0	0.002
-480	-146.3	0.002	0.003	0.002	0	0.002
-475	-144.78	0.002	0.003	0.002	0	0.002
-470	-143.26	0.002	0.003	0.002	0	0.002
-465	-141.73	0.002	0.003	0.002	0	0.002
-460	-140.21	0.002	0.003	0.002	0	0.002
-455	-138.68	0.002	0.003	0.002	0	0.002
-450	-137.16	0.002	0.003	0.002	0	0.002
-445	-135.64	0.002	0.003	0.002	0	0.002
-440	-134.11	0.002	0.003	0.002	0	0.002
-435	-132.59	0.002	0.003	0.002	0	0.002
-430	-131.06	0.002	0.003	0.002	0	0.002
-425	-129.54	0.002	0.003	0.002	0	0.002
-420	-128.02	0.002	0.003	0.002	0	0.002
-415	-126.49	0.003	0.003	0.003	0	0.003
-410	-124.97	0.003	0.003	0.003	0	0.003
-405	-123.44	0.003	0.003	0.003	0	0.003
-400	-121.92	0.003	0.003	0.003	0	0.003
-395	-120.4	0.003	0.003	0.003	0	0.003
-390	-118.87	0.003	0.003	0.003	0	0.003
-385	-117.35	0.003	0.003	0.003	0	0.003
-380	-115.82	0.003	0.003	0.003	0	0.003
-375	-114.3	0.003	0.003	0.003	0	0.003
-370	-112.78	0.003	0.003	0.003	0	0.003
-365	-111.25	0.003	0.003	0.003	0	0.003
-360	-109.73	0.003	0.003	0.003	0	0.003
-355	-108.2	0.003	0.003	0.003	0	0.003
-350	-106.68	0.003	0.003	0.003	0	0.003
-345	-105.16	0.004	0.003	0.004	0	0.004
-340	-103.63	0.004	0.003	0.004	0	0.004
-335	-102.11	0.004	0.003	0.004	0	0.004
-330	-100.58	0.004	0.003	0.004	0	0.004
-325	-99.06	0.004	0.003	0.004	0	0.004
-320	-97.54	0.004	0.003	0.004	0	0.004
-315	-96.01	0.004	0.003	0.004	0	0.004
-310	-94.49	0.004	0.004	0.004	0	0.004
-305	-92.96	0.005	0.004	0.005	0	0.005
-300	-91.44	0.005	0.004	0.005	0	0.005
-295	-89.92	0.005	0.004	0.005	0	0.005
-290	-88.39	0.005	0.004	0.005	0	0.005
-285	-86.87	0.005	0.004	0.005	0	0.005
-280	-85.34	0.005	0.004	0.005	0	0.005
-275	-83.82	0.005	0.004	0.005	0	0.005
-270	-82.3	0.006	0.004	0.006	0	0.006
-265	-80.77	0.006	0.004	0.006	0	0.006
-260	-79.25	0.006	0.004	0.006	0	0.006
-255	-77.72	0.006	0.004	0.006	0	0.006
-250	-76.2	0.007	0.004	0.006	0	0.006
-245	-74.68	0.007	0.004	0.007	0	0.007
-240	-73.15	0.007	0.004	0.007	0	0.007
-235	-71.63	0.007	0.004	0.007	0	0.007

-230	-70.1	0.008	0.004	0.008	0	0.008
-225	-68.58	0.008	0.004	0.008	0	0.008
-220	-67.06	0.008	0.004	0.008	0	0.008
-215	-65.53	0.008	0.004	0.008	0	0.008
-210	-64.01	0.009	0.004	0.009	0	0.009
-205	-62.48	0.009	0.004	0.009	0	0.009
-200	-60.96	0.01	0.004	0.01	0	0.01
-195	-59.44	0.01	0.004	0.01	0	0.01
-190	-57.91	0.011	0.004	0.011	0	0.011
-185	-56.39	0.011	0.004	0.011	0	0.011
-180	-54.86	0.012	0.004	0.012	0	0.012
-175	-53.34	0.012	0.004	0.012	0	0.012
-170	-51.82	0.013	0.004	0.013	0	0.013
-165	-50.29	0.013	0.004	0.013	0	0.013
-160	-48.77	0.014	0.004	0.014	0	0.014
-155	-47.24	0.015	0.004	0.015	0	0.015
-150	-45.72	0.015	0.004	0.015	0.001	0.015
-145	-44.2	0.016	0.004	0.016	0.001	0.016
-140	-42.67	0.017	0.005	0.017	0.001	0.017
-135	-41.15	0.018	0.005	0.018	0.001	0.018
-130	-39.62	0.019	0.005	0.019	0.001	0.019
-125	-38.1	0.02	0.005	0.02	0.001	0.02
-120	-36.58	0.022	0.005	0.022	0.001	0.022
-115	-35.05	0.023	0.005	0.023	0.001	0.023
-110	-33.53	0.024	0.005	0.024	0.001	0.024
-105	-32	0.026	0.005	0.026	0.001	0.026
-100	-30.48	0.028	0.005	0.028	0.001	0.028
-95	-28.96	0.03	0.005	0.03	0.001	0.03
-90	-27.43	0.032	0.004	0.032	0.001	0.032
-85	-25.91	0.034	0.004	0.034	0.002	0.034
-80	-24.38	0.037	0.004	0.037	0.002	0.037
-75	-22.86	0.04	0.004	0.039	0.002	0.039
-70	-21.34	0.043	0.004	0.043	0.002	0.043
-65	-19.81	0.046	0.004	0.046	0.002	0.046
-60	-18.29	0.05	0.004	0.05	0.003	0.05
-55	-16.76	0.054	0.004	0.054	0.003	0.054
-50	-15.24	0.059	0.004	0.059	0.003	0.059
-45	-13.72	0.065	0.004	0.065	0.004	0.065
-40	-12.19	0.071	0.004	0.071	0.004	0.071
-35	-10.67	0.078	0.004	0.078	0.005	0.078
-30	-9.14	0.086	0.004	0.086	0.006	0.086
-25	-7.62	0.095	0.004	0.095	0.007	0.095
-20	-6.1	0.106	0.004	0.106	0.008	0.106
-15	-4.57	0.118	0.003	0.118	0.009	0.118
-10	-3.05	0.133	0.003	0.132	0.01	0.133
-5	-1.52	0.149	0.003	0.149	0.012	0.149
0	0	0.169	0.003	0.169	0.014	0.169
5	1.52	0.192	0.003	0.192	0.017	0.192
10	3.05	0.22	0.002	0.219	0.02	0.22
15	4.57	0.253	0.002	0.252	0.024	0.253
20	6.1	0.293	0.002	0.292	0.029	0.293
25	7.62	0.342	0.002	0.34	0.035	0.342
30	9.14	0.402	0.001	0.4	0.044	0.402
35	10.67	0.476	0.001	0.473	0.054	0.476
40	12.19	0.569	0.001	0.565	0.068	0.568
45	13.72	0.685	0	0.68	0.085	0.684
50	15.24	0.832	0	0.825	0.108	0.83
55	16.76	1.018	0.001	1.009	0.136	1.015
60	18.29	1.253	0.001	1.241	0.172	1.249
65	19.81	1.547	0.002	1.532	0.211	1.541

70	21.34	1.903	0.005	1.886	0.249	1.893
75	22.86	2.308	0.009	2.292	0.269	2.291
80	24.38	2.713	0.018	2.702	0.244	2.687
85	25.91	3.017	0.034	3.015	0.162	2.978
90	27.43	3.082	0.063	3.081	0.209	3.027
95	28.96	2.814	0.12	2.799	0.444	2.748
100	30.48	2.294	0.223	2.263	0.634	2.228
105	32	1.799	0.356	1.782	0.685	1.747
110	33.53	1.598	0.4	1.598	0.641	1.537
115	35.05	1.598	0.4	1.598	0.641	1.537
120	36.58	1.799	0.356	1.782	0.685	1.747
125	38.1	2.294	0.223	2.263	0.634	2.228
130	39.62	2.814	0.12	2.799	0.444	2.748
135	41.15	3.082	0.063	3.081	0.209	3.027
140	42.67	3.017	0.034	3.015	0.162	2.978
145	44.2	2.713	0.018	2.702	0.244	2.687
150	45.72	2.308	0.009	2.292	0.269	2.291
155	47.24	1.903	0.005	1.886	0.249	1.893
160	48.77	1.547	0.002	1.532	0.211	1.541
165	50.29	1.253	0.001	1.241	0.172	1.249
170	51.82	1.018	0.001	1.009	0.136	1.015
175	53.34	0.832	0	0.825	0.108	0.83
180	54.86	0.685	0	0.68	0.085	0.684
185	56.39	0.569	0.001	0.565	0.068	0.568
190	57.91	0.476	0.001	0.473	0.054	0.476
195	59.44	0.402	0.001	0.4	0.044	0.402
200	60.96	0.342	0.002	0.34	0.035	0.342
205	62.48	0.293	0.002	0.292	0.029	0.293
210	64.01	0.253	0.002	0.252	0.024	0.253
215	65.53	0.22	0.002	0.219	0.02	0.22
220	67.06	0.192	0.003	0.192	0.017	0.192
225	68.58	0.169	0.003	0.169	0.014	0.169
230	70.1	0.149	0.003	0.149	0.012	0.149
235	71.63	0.133	0.003	0.132	0.01	0.133
240	73.15	0.118	0.003	0.118	0.009	0.118
245	74.68	0.106	0.004	0.106	0.008	0.106
250	76.2	0.095	0.004	0.095	0.007	0.095
255	77.72	0.086	0.004	0.086	0.006	0.086
260	79.25	0.078	0.004	0.078	0.005	0.078
265	80.77	0.071	0.004	0.071	0.004	0.071
270	82.3	0.065	0.004	0.065	0.004	0.065
275	83.82	0.059	0.004	0.059	0.003	0.059
280	85.34	0.054	0.004	0.054	0.003	0.054
285	86.87	0.05	0.004	0.05	0.003	0.05
290	88.39	0.046	0.004	0.046	0.002	0.046
295	89.92	0.043	0.004	0.043	0.002	0.043
300	91.44	0.04	0.004	0.039	0.002	0.039
305	92.96	0.037	0.004	0.037	0.002	0.037
310	94.49	0.034	0.004	0.034	0.002	0.034
315	96.01	0.032	0.004	0.032	0.001	0.032
320	97.54	0.03	0.005	0.03	0.001	0.03
325	99.06	0.028	0.005	0.028	0.001	0.028
330	100.58	0.026	0.005	0.026	0.001	0.026
335	102.11	0.024	0.005	0.024	0.001	0.024
340	103.63	0.023	0.005	0.023	0.001	0.023
345	105.16	0.022	0.005	0.022	0.001	0.022
350	106.68	0.02	0.005	0.02	0.001	0.02
355	108.2	0.019	0.005	0.019	0.001	0.019
360	109.73	0.018	0.005	0.018	0.001	0.018
365	111.25	0.017	0.004	0.017	0.001	0.017

370	112.78	0.016	0.004	0.016	0.001	0.016
375	114.3	0.015	0.004	0.015	0.001	0.015
380	115.82	0.015	0.004	0.015	0	0.015
385	117.35	0.014	0.004	0.014	0	0.014
390	118.87	0.013	0.004	0.013	0	0.013
395	120.4	0.013	0.004	0.013	0	0.013
400	121.92	0.012	0.004	0.012	0	0.012
405	123.44	0.012	0.004	0.012	0	0.012
410	124.97	0.011	0.004	0.011	0	0.011
415	126.49	0.011	0.004	0.011	0	0.011
420	128.02	0.01	0.004	0.01	0	0.01
425	129.54	0.01	0.004	0.01	0	0.01
430	131.06	0.009	0.004	0.009	0	0.009
435	132.59	0.009	0.004	0.009	0	0.009
440	134.11	0.008	0.004	0.008	0	0.008
445	135.64	0.008	0.004	0.008	0	0.008
450	137.16	0.008	0.004	0.008	0	0.008
455	138.68	0.008	0.004	0.008	0	0.008
460	140.21	0.007	0.004	0.007	0	0.007
465	141.73	0.007	0.004	0.007	0	0.007
470	143.26	0.007	0.004	0.007	0	0.007
475	144.78	0.007	0.004	0.006	0	0.006
480	146.3	0.006	0.004	0.006	0	0.006
485	147.83	0.006	0.004	0.006	0	0.006
490	149.35	0.006	0.004	0.006	0	0.006
495	150.88	0.006	0.004	0.006	0	0.006
500	152.4	0.005	0.004	0.005	0	0.005

AC CURRENTS IN EACH BUNDLE:

-----	AC	CURRENTS (Amperes)		-----	BUNDLE	POSITION
BNDL #	REAL	IMAGINAR	TOTAL	X-COORD	Y-COORD	
----	---	---	---	---	---	
3	1000	0	1000	93	27	
4	-500	866.03	1000	112.5	27	
5	-500	-866.03	1000	132	27	
1	14.57	-20.5	25.15	102.75	32	
2	6.67	20.48	21.54	122.25	32	

****
* *
* MAGNETIC FIELD PROFILE *
* at 3.28 feet above ground *
* *
****

<----------	AC	MAGNETIC	FIELD	---------->		
LATERAL DISTANCE (feet)	MAJOR AXIS (meters)	MINOR/ MAJOR (mG)	VERTICAL COMP (RATIO)	HORIZONT COMP (mG)	RMS RESULTANT (mG)	(mG)
---	---	---	---	---	---	---
-500	-152.4	0.79	0.026	0.78	0.13	0.79
-495	-150.88	0.8	0.026	0.79	0.13	0.8
-490	-149.35	0.81	0.025	0.8	0.13	0.81

-485	-147.83	0.83	0.025	0.81	0.13	0.83
-480	-146.3	0.84	0.024	0.83	0.13	0.84
-475	-144.78	0.85	0.024	0.84	0.13	0.85
-470	-143.26	0.86	0.024	0.85	0.13	0.86
-465	-141.73	0.88	0.023	0.87	0.14	0.88
-460	-140.21	0.89	0.023	0.88	0.14	0.89
-455	-138.68	0.9	0.022	0.89	0.14	0.9
-450	-137.16	0.92	0.022	0.91	0.14	0.92
-445	-135.64	0.93	0.022	0.92	0.14	0.93
-440	-134.11	0.95	0.021	0.94	0.14	0.95
-435	-132.59	0.96	0.021	0.95	0.15	0.96
-430	-131.06	0.98	0.021	0.97	0.15	0.98
-425	-129.54	1	0.02	0.98	0.15	1
-420	-128.02	1.01	0.02	1	0.15	1.01
-415	-126.49	1.03	0.02	1.02	0.15	1.03
-410	-124.97	1.05	0.019	1.04	0.16	1.05
-405	-123.44	1.06	0.019	1.05	0.16	1.06
-400	-121.92	1.08	0.019	1.07	0.16	1.08
-395	-120.4	1.1	0.018	1.09	0.16	1.1
-390	-118.87	1.12	0.018	1.11	0.17	1.12
-385	-117.35	1.14	0.018	1.13	0.17	1.14
-380	-115.82	1.16	0.017	1.15	0.17	1.16
-375	-114.3	1.18	0.017	1.17	0.17	1.18
-370	-112.78	1.21	0.017	1.19	0.18	1.21
-365	-111.25	1.23	0.016	1.22	0.18	1.23
-360	-109.73	1.25	0.016	1.24	0.18	1.25
-355	-108.2	1.28	0.016	1.26	0.19	1.28
-350	-106.68	1.3	0.015	1.29	0.19	1.3
-345	-105.16	1.33	0.015	1.31	0.19	1.33
-340	-103.63	1.35	0.015	1.34	0.2	1.35
-335	-102.11	1.38	0.014	1.37	0.2	1.38
-330	-100.58	1.41	0.014	1.4	0.21	1.41
-325	-99.06	1.44	0.014	1.42	0.21	1.44
-320	-97.54	1.47	0.014	1.45	0.22	1.47
-315	-96.01	1.5	0.013	1.48	0.22	1.5
-310	-94.49	1.53	0.013	1.52	0.23	1.53
-305	-92.96	1.57	0.013	1.55	0.23	1.57
-300	-91.44	1.6	0.012	1.58	0.24	1.6
-295	-89.92	1.64	0.012	1.62	0.24	1.64
-290	-88.39	1.67	0.012	1.66	0.25	1.67
-285	-86.87	1.71	0.012	1.69	0.26	1.71
-280	-85.34	1.75	0.011	1.73	0.26	1.75
-275	-83.82	1.79	0.011	1.77	0.27	1.79
-270	-82.3	1.84	0.011	1.82	0.28	1.84
-265	-80.77	1.88	0.011	1.86	0.29	1.88
-260	-79.25	1.93	0.01	1.91	0.29	1.93
-255	-77.72	1.98	0.01	1.95	0.3	1.98
-250	-76.2	2.03	0.01	2	0.31	2.03
-245	-74.68	2.08	0.01	2.05	0.32	2.08
-240	-73.15	2.13	0.009	2.11	0.33	2.13
-235	-71.63	2.19	0.009	2.16	0.34	2.19
-230	-70.1	2.25	0.009	2.22	0.36	2.25
-225	-68.58	2.31	0.009	2.28	0.37	2.31
-220	-67.06	2.37	0.008	2.34	0.38	2.38
-215	-65.53	2.44	0.008	2.41	0.4	2.44
-210	-64.01	2.51	0.008	2.48	0.41	2.51
-205	-62.48	2.59	0.007	2.55	0.43	2.59
-200	-60.96	2.66	0.007	2.63	0.44	2.66
-195	-59.44	2.74	0.007	2.7	0.46	2.74
-190	-57.91	2.83	0.007	2.79	0.48	2.83

-185	-56.39	2.92	0.006	2.87	0.5	2.92
-180	-54.86	3.01	0.006	2.96	0.52	3.01
-175	-53.34	3.11	0.006	3.06	0.55	3.11
-170	-51.82	3.21	0.006	3.16	0.57	3.21
-165	-50.29	3.32	0.005	3.27	0.6	3.32
-160	-48.77	3.43	0.005	3.38	0.63	3.43
-155	-47.24	3.55	0.005	3.49	0.66	3.55
-150	-45.72	3.68	0.004	3.62	0.69	3.68
-145	-44.2	3.82	0.004	3.75	0.73	3.82
-140	-42.67	3.96	0.004	3.88	0.77	3.96
-135	-41.15	4.11	0.004	4.03	0.81	4.11
-130	-39.62	4.27	0.003	4.18	0.85	4.27
-125	-38.1	4.44	0.003	4.35	0.9	4.44
-120	-36.58	4.62	0.003	4.52	0.96	4.62
-115	-35.05	4.81	0.002	4.71	1.02	4.81
-110	-33.53	5.02	0.002	4.9	1.08	5.02
-105	-32	5.24	0.002	5.11	1.15	5.24
-100	-30.48	5.47	0.001	5.34	1.23	5.47
-95	-28.96	5.73	0.001	5.57	1.31	5.73
-90	-27.43	6	0	5.83	1.4	6
-85	-25.91	6.29	0	6.1	1.5	6.29
-80	-24.38	6.6	0.001	6.4	1.62	6.6
-75	-22.86	6.94	0.001	6.71	1.74	6.94
-70	-21.34	7.3	0.002	7.05	1.88	7.3
-65	-19.81	7.7	0.002	7.42	2.03	7.7
-60	-18.29	8.13	0.003	7.82	2.21	8.13
-55	-16.76	8.59	0.003	8.25	2.4	8.59
-50	-15.24	9.1	0.004	8.72	2.61	9.1
-45	-13.72	9.66	0.005	9.23	2.86	9.66
-40	-12.19	10.27	0.005	9.78	3.14	10.27
-35	-10.67	10.95	0.006	10.39	3.45	10.95
-30	-9.14	11.69	0.007	11.05	3.81	11.69
-25	-7.62	12.52	0.008	11.78	4.22	12.52
-20	-6.1	13.43	0.009	12.59	4.7	13.44
-15	-4.57	14.46	0.01	13.47	5.25	14.46
-10	-3.05	15.61	0.012	14.45	5.89	15.61
-5	-1.52	16.9	0.013	15.54	6.64	16.9
0	0	18.36	0.015	16.75	7.53	18.37
5	1.52	20.03	0.017	18.1	8.58	20.03
10	3.05	21.93	0.019	19.6	9.84	21.94
15	4.57	24.12	0.021	21.28	11.36	24.13
20	6.1	26.66	0.024	23.17	13.21	26.67
25	7.62	29.62	0.027	25.27	15.47	29.63
30	9.14	33.09	0.031	27.61	18.27	33.11
35	10.67	37.21	0.035	30.21	21.77	37.24
40	12.19	42.13	0.04	33.04	26.2	42.17
45	13.72	48.06	0.046	36.07	31.84	48.11
50	15.24	55.27	0.053	39.16	39.12	55.35
55	16.76	64.12	0.062	42.05	48.57	64.24
60	18.29	75.03	0.072	44.19	60.89	75.23
65	19.81	88.56	0.086	44.59	76.89	88.89
70	21.34	105.26	0.102	41.6	97.29	105.81
75	22.86	125.54	0.123	33.24	122.04	126.49
80	24.38	149.23	0.15	23.56	149.06	150.91
85	25.91	174.94	0.184	44.12	172.34	177.9
90	27.43	199.55	0.228	93.55	182.05	204.68
95	28.96	218.99	0.283	150.65	170.6	227.6
100	30.48	230.55	0.348	197.77	143.07	244.09
105	32	234.62	0.414	224.45	118.76	253.93
110	33.53	234.49	0.46	233.37	110.38	258.15

115	35.05	233.92	0.461	233.29	109.16	257.57
120	36.58	232.95	0.415	224.51	114.91	252.21
125	38.1	227.88	0.349	198.44	137.33	241.32
130	39.62	215.45	0.284	152.12	164.35	223.94
135	41.15	195.36	0.228	95.58	176.12	200.38
140	42.67	170.38	0.184	45.86	167.06	173.24
145	44.2	144.55	0.149	21.83	144.5	146.14
150	45.72	120.91	0.122	29.53	118.17	121.8
155	47.24	100.8	0.1	37.77	94	101.31
160	48.77	84.32	0.084	40.85	74.1	84.61
165	50.29	71.03	0.07	40.6	58.5	71.2
170	51.82	60.35	0.059	38.62	46.5	60.45
175	53.34	51.72	0.05	35.9	37.32	51.79
180	54.86	44.72	0.043	32.97	30.27	44.76
185	56.39	38.98	0.037	30.1	24.8	39
190	57.91	34.23	0.032	27.41	20.53	34.25
195	59.44	30.27	0.027	24.95	17.15	30.28
200	60.96	26.93	0.024	22.73	14.46	26.94
205	62.48	24.11	0.02	20.74	12.29	24.11
210	64.01	21.69	0.018	18.97	10.52	21.69
215	65.53	19.61	0.015	17.39	9.07	19.61
220	67.06	17.81	0.013	15.97	7.87	17.81
225	68.58	16.23	0.011	14.71	6.87	16.24
230	70.1	14.86	0.009	13.58	6.03	14.86
235	71.63	13.64	0.008	12.57	5.31	13.64
240	73.15	12.57	0.006	11.65	4.71	12.57
245	74.68	11.61	0.005	10.83	4.19	11.61
250	76.2	10.76	0.004	10.09	3.74	10.76
255	77.72	10	0.003	9.42	3.35	10
260	79.25	9.31	0.002	8.8	3.02	9.31
265	80.77	8.69	0.001	8.25	2.72	8.69
270	82.3	8.12	0	7.74	2.46	8.12
275	83.82	7.61	0.001	7.27	2.24	7.61
280	85.34	7.14	0.002	6.85	2.03	7.14
285	86.87	6.72	0.002	6.46	1.86	6.72
290	88.39	6.33	0.003	6.1	1.7	6.33
295	89.92	5.97	0.004	5.76	1.55	5.97
300	91.44	5.64	0.004	5.46	1.43	5.64
305	92.96	5.34	0.005	5.17	1.31	5.34
310	94.49	5.06	0.006	4.91	1.21	5.06
315	96.01	4.8	0.006	4.66	1.12	4.8
320	97.54	4.56	0.007	4.44	1.03	4.56
325	99.06	4.33	0.007	4.22	0.96	4.33
330	100.58	4.12	0.008	4.03	0.89	4.12
335	102.11	3.93	0.009	3.84	0.82	3.93
340	103.63	3.75	0.009	3.67	0.77	3.75
345	105.16	3.58	0.01	3.51	0.71	3.58
350	106.68	3.42	0.01	3.35	0.66	3.42
355	108.2	3.27	0.011	3.21	0.62	3.27
360	109.73	3.13	0.011	3.08	0.58	3.13
365	111.25	3	0.012	2.95	0.54	3
370	112.78	2.88	0.012	2.83	0.51	2.88
375	114.3	2.76	0.013	2.72	0.47	2.76
380	115.82	2.65	0.013	2.61	0.45	2.65
385	117.35	2.55	0.014	2.51	0.42	2.55
390	118.87	2.45	0.014	2.42	0.39	2.45
395	120.4	2.35	0.015	2.33	0.37	2.36
400	121.92	2.27	0.015	2.24	0.35	2.27
405	123.44	2.18	0.016	2.16	0.33	2.18
410	124.97	2.11	0.016	2.08	0.31	2.11

415	126.49	2.03	0.017	2.01	0.29	2.03
420	128.02	1.96	0.017	1.94	0.27	1.96
425	129.54	1.89	0.018	1.87	0.26	1.89
430	131.06	1.83	0.018	1.81	0.24	1.83
435	132.59	1.77	0.019	1.75	0.23	1.77
440	134.11	1.71	0.019	1.69	0.21	1.71
445	135.64	1.65	0.02	1.64	0.2	1.65
450	137.16	1.6	0.02	1.59	0.19	1.6
455	138.68	1.55	0.021	1.54	0.18	1.55
460	140.21	1.5	0.021	1.49	0.17	1.5
465	141.73	1.45	0.022	1.44	0.16	1.45
470	143.26	1.41	0.022	1.4	0.15	1.41
475	144.78	1.37	0.023	1.36	0.14	1.37
480	146.3	1.33	0.023	1.32	0.14	1.33
485	147.83	1.29	0.024	1.28	0.13	1.29
490	149.35	1.25	0.025	1.24	0.12	1.25
495	150.88	1.21	0.025	1.21	0.11	1.21
500	152.4	1.18	0.026	1.17	0.11	1.18

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**********************************
*          *
*          AUDIBLE   NOISE      *
*          GENERATE ACOUSTIC POWER    *
*          (dB       above      1uW/m)  *
*          *
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L5 BNDL	L50 #	Type	Summer	Fair	RAIN	RAIN
3	AC	-80.91	-58.83	-70.21		
4	AC	-75.6	-55.52	-65.61		
5	AC	-80.91	-58.83	-70.21		
1	Ground	Wire	******	******	******	
2	Ground	Wire	******	******	******	

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*******************************************
*          *
*          AUDIBLE   NOISE      *
*          *
*          Microphor is                5 feet      above     ground    *
*          Altitude              0 ft        *
*          *
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<------ LATERAL DISTANCE (feet)	BPA FAIR WEATHER (meters)	METHOD L5 RAIN dB(A)	-------> L50 RAIN dB(A)	<- AVERAGE Ldn dB(A)	CRIEPI L5 FAIR dB(A)	--> L5 RAIN dB(A)	EdF L5 RAIN dB(A)	ENEL L5 RAIN dB(A)	IREQ RAIN dB(A)	dB(A)
-500	-152.4	3.4	31.9	28.4	0	0	0	33	33.9	0
-495	-150.88	3.4	31.9	28.4	0	0	0	33	33.9	0
-490	-149.35	3.4	31.9	28.4	0	0	0	33	34	0
-485	-147.83	3.5	32	28.5	0	0	0	33.1	34	0
-480	-146.3	3.5	32	28.5	0	0	0	33.1	34.1	0
-475	-144.78	3.6	32.1	28.6	0	0	0	33.1	34.1	0
-470	-143.26	3.6	32.1	28.6	0	0	0	33.2	34.1	0
-465	-141.73	3.6	32.1	28.6	0	0	0	33.2	34.2	0
-460	-140.21	3.7	32.2	28.7	0	0	0	33.3	34.2	0

-455	-138.68	3.7	32.2	28.7	0	0	0	33.3	34.2	0
-450	-137.16	3.8	32.3	28.8	0	0	0	33.3	34.3	0
-445	-135.64	3.8	32.3	28.8	0	0	0	33.4	34.3	0
-440	-134.11	3.9	32.4	28.9	0	0	0	33.4	34.4	0
-435	-132.59	3.9	32.4	28.9	0	0	0	33.4	34.4	0
-430	-131.06	4	32.5	29	0	0	0	33.5	34.4	0
-425	-129.54	4	32.5	29	0	0	0	33.5	34.5	0
-420	-128.02	4.1	32.5	29.1	0	0	0	33.6	34.5	0
-415	-126.49	4.1	32.6	29.1	0	0	0	33.6	34.6	0
-410	-124.97	4.1	32.6	29.1	0	0	0	33.6	34.6	0
-405	-123.44	4.2	32.7	29.2	0	0	0	33.7	34.6	0
-400	-121.92	4.2	32.7	29.2	0	0	0	33.7	34.7	0
-395	-120.4	4.3	32.8	29.3	0	0	0	33.8	34.7	0
-390	-118.87	4.3	32.8	29.3	0	0	0	33.8	34.8	0
-385	-117.35	4.4	32.9	29.4	0	0	0	33.9	34.8	0
-380	-115.82	4.4	32.9	29.4	0	0	0	33.9	34.9	0
-375	-114.3	4.5	33	29.5	0	0	0	33.9	34.9	0
-370	-112.78	4.5	33	29.5	0	0	0	34	34.9	0
-365	-111.25	4.6	33.1	29.6	0	0	0	34	35	0
-360	-109.73	4.6	33.1	29.6	0	0	0	34.1	35	0
-355	-108.2	4.7	33.2	29.7	0	0	0	34.1	35.1	0
-350	-106.68	4.7	33.2	29.7	0	0	0	34.2	35.1	0
-345	-105.16	4.8	33.3	29.8	0	0	0	34.2	35.2	0
-340	-103.63	4.9	33.4	29.9	0	0	0	34.3	35.2	0
-335	-102.11	4.9	33.4	29.9	0	0	0	34.3	35.3	0
-330	-100.58	5	33.5	30	0	0	0	34.4	35.3	0
-325	-99.06	5	33.5	30	0	0	0	34.4	35.4	0
-320	-97.54	5.1	33.6	30.1	0	0	0	34.5	35.4	0
-315	-96.01	5.1	33.6	30.1	0	0	0	34.5	35.5	0
-310	-94.49	5.2	33.7	30.2	0	0	0	34.6	35.5	0
-305	-92.96	5.3	33.8	30.3	0	0	0	34.6	35.6	0
-300	-91.44	5.3	33.8	30.3	0	0	0	34.7	35.6	0
-295	-89.92	5.4	33.9	30.4	0	0	0	34.7	35.7	0
-290	-88.39	5.4	33.9	30.4	0	0	0	34.8	35.7	0
-285	-86.87	5.5	34	30.5	0	0	0	34.8	35.8	0
-280	-85.34	5.6	34.1	30.6	0	0	0	34.9	35.8	0
-275	-83.82	5.6	34.1	30.6	0	0	0	34.9	35.9	0
-270	-82.3	5.7	34.2	30.7	0	0	0	35	36	0
-265	-80.77	5.8	34.3	30.8	0	0	0	35.1	36	0
-260	-79.25	5.8	34.3	30.8	0	0	0	35.1	36.1	0
-255	-77.72	5.9	34.4	30.9	0	0	0	35.2	36.1	0
-250	-76.2	6	34.5	31	0	0	0	35.2	36.2	0
-245	-74.68	6	34.5	31	0	0	0	35.3	36.2	0
-240	-73.15	6.1	34.6	31.1	0	0	0	35.4	36.3	0
-235	-71.63	6.2	34.7	31.2	0	0	0	35.4	36.4	0
-230	-70.1	6.2	34.7	31.2	0	0	0	35.5	36.4	0
-225	-68.58	6.3	34.8	31.3	0	0	0	35.5	36.5	0
-220	-67.06	6.4	34.9	31.4	0	0	0	35.6	36.6	0
-215	-65.53	6.5	35	31.5	0	0	0	35.7	36.6	0
-210	-64.01	6.5	35	31.5	0	0	0	35.7	36.7	0
-205	-62.48	6.6	35.1	31.6	0	0	0	35.8	36.8	0
-200	-60.96	6.7	35.2	31.7	0	0	0	35.9	36.8	0
-195	-59.44	6.8	35.3	31.8	0	0	0	35.9	36.9	0
-190	-57.91	6.8	35.3	31.8	0	0	0	36	37	0
-185	-56.39	6.9	35.4	31.9	0	0	0	36.1	37	0
-180	-54.86	7	35.5	32	0	0	0	36.2	37.1	0
-175	-53.34	7.1	35.6	32.1	0	0	0	36.2	37.2	0
-170	-51.82	7.2	35.7	32.2	0	0	0	36.3	37.3	0
-165	-50.29	7.3	35.8	32.3	0	0	0	36.4	37.3	0
-160	-48.77	7.4	35.9	32.4	0	0	0	36.5	37.4	0

-155	-47.24	7.5	36	32.5	0	0	0	36.6	37.5	0
-150	-45.72	7.5	36	32.5	0	0	0	36.6	37.6	0
-145	-44.2	7.6	36.1	32.6	0	0	0	36.7	37.7	0
-140	-42.67	7.7	36.2	32.7	0	0	0	36.8	37.8	0
-135	-41.15	7.8	36.3	32.8	0	0	0	36.9	37.8	0
-130	-39.62	7.9	36.4	32.9	0	0	0	37	37.9	0
-125	-38.1	8	36.5	33	0	0	0	37.1	38	0
-120	-36.58	8.1	36.6	33.1	0	0	0	37.2	38.1	0
-115	-35.05	8.3	36.8	33.3	0	0	0	37.3	38.2	0
-110	-33.53	8.4	36.9	33.4	0	0	0	37.4	38.3	0
-105	-32	8.5	37	33.5	0	0	0	37.5	38.4	0
-100	-30.48	8.6	37.1	33.6	0	0	0	37.6	38.5	0
-95	-28.96	8.7	37.2	33.7	0	0	0	37.7	38.6	0
-90	-27.43	8.8	37.3	33.8	0	0	0	37.8	38.7	0
-85	-25.91	9	37.5	34	0	0	0	37.9	38.8	0
-80	-24.38	9.1	37.6	34.1	0	0	0	38	38.9	0
-75	-22.86	9.2	37.7	34.2	0	0	0	38.1	39	0
-70	-21.34	9.3	37.8	34.3	0	0	0	38.2	39.2	0
-65	-19.81	9.5	38	34.5	0	0	0	38.3	39.3	0
-60	-18.29	9.6	38.1	34.6	0	0	0	38.5	39.4	0
-55	-16.76	9.8	38.3	34.8	0	0	0	38.6	39.5	0
-50	-15.24	9.9	38.4	34.9	0	0	0	38.7	39.7	0
-45	-13.72	10.1	38.6	35.1	0	0	0	38.8	39.8	0
-40	-12.19	10.2	38.7	35.2	0	0	0	39	39.9	0
-35	-10.67	10.4	38.9	35.4	0	0	0	39.1	40.1	0
-30	-9.14	10.6	39.1	35.6	0	0	0	39.3	40.2	0
-25	-7.62	10.7	39.2	35.7	0	0	0	39.4	40.4	0
-20	-6.1	10.9	39.4	35.9	0	0	0	39.6	40.5	0
-15	-4.57	11.1	39.6	36.1	0	0	0	39.8	40.7	0
-10	-3.05	11.3	39.8	36.3	0	0	0	39.9	40.9	0
-5	-1.52	11.5	40	36.5	0	0	0	40.1	41.1	0
0	0	11.7	40.2	36.7	0	0	0	40.3	41.3	0
5	1.52	11.9	40.4	36.9	0	0	0	40.5	41.4	0
10	3.05	12.2	40.7	37.2	0	0	0	40.7	41.7	0
15	4.57	12.4	40.9	37.4	0	0	0	40.9	41.9	0
20	6.1	12.7	41.2	37.7	0	0	0	41.1	42.1	0
25	7.62	12.9	41.4	37.9	0	0	0	41.4	42.3	0
30	9.14	13.2	41.7	38.2	0	0	0	41.6	42.6	0
35	10.67	13.5	42	38.5	0	0	0	41.9	42.8	0
40	12.19	13.9	42.4	38.9	0	0	0	42.2	43.1	0
45	13.72	14.2	42.7	39.2	0	0	0	42.5	43.4	0
50	15.24	14.6	43.1	39.6	0	0	0	42.8	43.7	0
55	16.76	14.9	43.4	39.9	0	0	0	43.1	44.1	0
60	18.29	15.4	43.9	40.4	0	0	0	43.5	44.4	0
65	19.81	15.8	44.3	40.8	0	0	0	43.9	44.8	0
70	21.34	16.3	44.8	41.3	0	0	0	44.3	45.2	0
75	22.86	16.8	45.3	41.8	0	0	0	44.7	45.7	0
80	24.38	17.2	45.7	42.2	0	0	0	45.2	46.1	0
85	25.91	17.7	46.2	42.7	0	0	0	45.6	46.5	0
90	27.43	18.2	46.7	43.2	0	0	0	45.9	46.9	0
95	28.96	18.5	47	43.5	0	0	0	46.3	47.2	0
100	30.48	18.8	47.3	43.8	0	0	0	46.5	47.5	0
105	32	19.1	47.6	44.1	0	0	0	46.7	47.6	0
110	33.53	19.2	47.7	44.2	0	0	0	46.8	47.7	0
115	35.05	19.2	47.7	44.2	0	0	0	46.8	47.7	0
120	36.58	19.1	47.6	44.1	0	0	0	46.7	47.6	0
125	38.1	18.8	47.3	43.8	0	0	0	46.5	47.5	0
130	39.62	18.5	47	43.5	0	0	0	46.3	47.2	0
135	41.15	18.2	46.7	43.2	0	0	0	45.9	46.9	0
140	42.67	17.7	46.2	42.7	0	0	0	45.6	46.5	0

145	44.2	17.2	45.7	42.2	0	0	0	45.2	46.1	0
150	45.72	16.8	45.3	41.8	0	0	0	44.7	45.7	0
155	47.24	16.3	44.8	41.3	0	0	0	44.3	45.2	0
160	48.77	15.8	44.3	40.8	0	0	0	43.9	44.8	0
165	50.29	15.4	43.9	40.4	0	0	0	43.5	44.4	0
170	51.82	14.9	43.4	39.9	0	0	0	43.1	44.1	0
175	53.34	14.6	43.1	39.6	0	0	0	42.8	43.7	0
180	54.86	14.2	42.7	39.2	0	0	0	42.5	43.4	0
185	56.39	13.9	42.4	38.9	0	0	0	42.2	43.1	0
190	57.91	13.5	42	38.5	0	0	0	41.9	42.8	0
195	59.44	13.2	41.7	38.2	0	0	0	41.6	42.6	0
200	60.96	12.9	41.4	37.9	0	0	0	41.4	42.3	0
205	62.48	12.7	41.2	37.7	0	0	0	41.1	42.1	0
210	64.01	12.4	40.9	37.4	0	0	0	40.9	41.9	0
215	65.53	12.2	40.7	37.2	0	0	0	40.7	41.7	0
220	67.06	11.9	40.4	36.9	0	0	0	40.5	41.4	0
225	68.58	11.7	40.2	36.7	0	0	0	40.3	41.3	0
230	70.1	11.5	40	36.5	0	0	0	40.1	41.1	0
235	71.63	11.3	39.8	36.3	0	0	0	39.9	40.9	0
240	73.15	11.1	39.6	36.1	0	0	0	39.8	40.7	0
245	74.68	10.9	39.4	35.9	0	0	0	39.6	40.5	0
250	76.2	10.7	39.2	35.7	0	0	0	39.4	40.4	0
255	77.72	10.6	39.1	35.6	0	0	0	39.3	40.2	0
260	79.25	10.4	38.9	35.4	0	0	0	39.1	40.1	0
265	80.77	10.2	38.7	35.2	0	0	0	39	39.9	0
270	82.3	10.1	38.6	35.1	0	0	0	38.8	39.8	0
275	83.82	9.9	38.4	34.9	0	0	0	38.7	39.7	0
280	85.34	9.8	38.3	34.8	0	0	0	38.6	39.5	0
285	86.87	9.6	38.1	34.6	0	0	0	38.5	39.4	0
290	88.39	9.5	38	34.5	0	0	0	38.3	39.3	0
295	89.92	9.3	37.8	34.3	0	0	0	38.2	39.2	0
300	91.44	9.2	37.7	34.2	0	0	0	38.1	39	0
305	92.96	9.1	37.6	34.1	0	0	0	38	38.9	0
310	94.49	9	37.5	34	0	0	0	37.9	38.8	0
315	96.01	8.8	37.3	33.8	0	0	0	37.8	38.7	0
320	97.54	8.7	37.2	33.7	0	0	0	37.7	38.6	0
325	99.06	8.6	37.1	33.6	0	0	0	37.6	38.5	0
330	100.58	8.5	37	33.5	0	0	0	37.5	38.4	0
335	102.11	8.4	36.9	33.4	0	0	0	37.4	38.3	0
340	103.63	8.3	36.8	33.3	0	0	0	37.3	38.2	0
345	105.16	8.1	36.6	33.1	0	0	0	37.2	38.1	0
350	106.68	8	36.5	33	0	0	0	37.1	38	0
355	108.2	7.9	36.4	32.9	0	0	0	37	37.9	0
360	109.73	7.8	36.3	32.8	0	0	0	36.9	37.8	0
365	111.25	7.7	36.2	32.7	0	0	0	36.8	37.8	0
370	112.78	7.6	36.1	32.6	0	0	0	36.7	37.7	0
375	114.3	7.5	36	32.5	0	0	0	36.6	37.6	0
380	115.82	7.5	36	32.5	0	0	0	36.6	37.5	0
385	117.35	7.4	35.9	32.4	0	0	0	36.5	37.4	0
390	118.87	7.3	35.8	32.3	0	0	0	36.4	37.3	0
395	120.4	7.2	35.7	32.2	0	0	0	36.3	37.3	0
400	121.92	7.1	35.6	32.1	0	0	0	36.2	37.2	0
405	123.44	7	35.5	32	0	0	0	36.2	37.1	0
410	124.97	6.9	35.4	31.9	0	0	0	36.1	37	0
415	126.49	6.8	35.3	31.8	0	0	0	36	37	0
420	128.02	6.8	35.3	31.8	0	0	0	35.9	36.9	0
425	129.54	6.7	35.2	31.7	0	0	0	35.9	36.8	0
430	131.06	6.6	35.1	31.6	0	0	0	35.8	36.8	0
435	132.59	6.5	35	31.5	0	0	0	35.7	36.7	0
440	134.11	6.5	35	31.5	0	0	0	35.7	36.6	0

445	135.64	6.4	34.9	31.4	0	0	0	35.6	36.6	0
450	137.16	6.3	34.8	31.3	0	0	0	35.5	36.5	0
455	138.68	6.2	34.7	31.2	0	0	0	35.5	36.4	0
460	140.21	6.2	34.7	31.2	0	0	0	35.4	36.4	0
465	141.73	6.1	34.6	31.1	0	0	0	35.4	36.3	0
470	143.26	6	34.5	31	0	0	0	35.3	36.2	0
475	144.78	6	34.5	31	0	0	0	35.2	36.2	0
480	146.3	5.9	34.4	30.9	0	0	0	35.2	36.1	0
485	147.83	5.8	34.3	30.8	0	0	0	35.1	36.1	0
490	149.35	5.8	34.3	30.8	0	0	0	35.1	36	0
495	150.88	5.7	34.2	30.7	0	0	0	35	36	0
500	152.4	5.6	34.1	30.6	0	0	0	34.9	35.9	0

Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions If a prediction method does not apply, the appropriat output data column will be zeros.

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RESULTS   OF        ENVIRO    PROGRAM

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STUDY     FILE      NAME:     C:\USERS\JKOSTA1\DESKTOP\EMF\INVENE~1\ITSAA003\ITSAA003.I01
DATE:     ########  TIME:          9:27


Rev3      Ave       ITS


*****************************************************************************
*         BUNDLE    INFORMAT *
*****************************************************************************
|         |         |         |VOLTAGE |CURRENT #        |         COORDINA |         |
|BNDL|CIR VOLTAGE| ANGLE     |        |LOAD     |       |ANGLE    |        OF |         |X        |         Y |         |PHASE    |
|         #         |         #         |         |(kV)     |         |(DEG)    |         |(AMPS)   |         |(DEG)    |COND|    (FT)  |         |(FT)     |         |
*****************************************************************************
|                 1 |                 1 |                 0 |                 0 |                 0 |                 0 |                 1 |                 0 |                41 |         GND     |
|                 2 |                 1 |               115 |                 0 |             369.4 |                 0 |                 1 |                 6 |                35 |         A       |
|                 3 |                 1 |               115 |               240 |             369.4 |               120 |                 1 |                -6 |                29 |         B       |
|                 4 |                 1 |               115 |               120 |             369.4 |               240 |                 1 |                 6 |                23 |         C       |
*****************************************************************************
*         MINIMUM GROUND   CLEARANC =                23 FT.        *
*****************************************************************************


*************************************************************************
*         SUBCONDI INFORMAT -       REGULAR   BUNDLES  *
*************************************************************************
|BNDL     |         DIAMETER |        SPACING  |         DC      RESIST.   |         AC      RESIST.   |         AC      REACT.    |
|         #         |         (IN)      |         (IN)      |         (OHMS/MI |         (OHMS/MI |
*************************************************************************
|                 2 |             1.108 |                 0 |            0.1152 |             0.117 |             0.399 |
|                 3 |             1.108 |                 0 |            0.1152 |             0.117 |             0.399 |
|                 4 |             1.108 |                 0 |            0.1152 |             0.117 |             0.399 |
|                 1 |             0.435 |                 0 |              4.61 |              4.74 |              1.28 |
*************************************************************************

************************************
*         *
*         MAXIMUM SURFACE   GRADIENT (kV/cm)    *
*         *
************************************

BNDL      #         Type      ACrms     PEAK(+)   PEAK(-)
------    ---------   ------    -------   -------
        2 AC              8.52      12.04     -12.04
        3 AC              8.32      11.77     -11.77
        4 AC              8.54      12.07     -12.07
        1 Ground    Wire            2.19       3.1       -3.1
*****************************************
*         *
*         AC        ELECTRIC  FIELD     PROFILE   *
*         at              3.28 feet      above     ground    *
*         *
*****************************************

LATERAL   MAXIMUM MINOR/MI SPACE
```

DISTANCE (feet)	FIELD (meters)	ELLIPSE (kV/m)	AXES (ratio)	VERTICAL (kV/m)	HORIZONT (kV/m)	POTENTIAL (kV)
-500	-152.4	0.002	0.001	0.002	0	0.002
-495	-150.88	0.002	0.002	0.002	0	0.002
-490	-149.35	0.002	0.002	0.002	0	0.002
-485	-147.83	0.002	0.002	0.002	0	0.002
-480	-146.3	0.002	0.002	0.002	0	0.002
-475	-144.78	0.002	0.002	0.002	0	0.002
-470	-143.26	0.002	0.002	0.002	0	0.002
-465	-141.73	0.002	0.002	0.002	0	0.002
-460	-140.21	0.002	0.002	0.002	0	0.002
-455	-138.68	0.002	0.002	0.002	0	0.002
-450	-137.16	0.002	0.002	0.002	0	0.002
-445	-135.64	0.002	0.002	0.002	0	0.002
-440	-134.11	0.003	0.002	0.003	0	0.003
-435	-132.59	0.003	0.002	0.003	0	0.003
-430	-131.06	0.003	0.002	0.003	0	0.003
-425	-129.54	0.003	0.002	0.003	0	0.003
-420	-128.02	0.003	0.002	0.003	0	0.003
-415	-126.49	0.003	0.002	0.003	0	0.003
-410	-124.97	0.003	0.002	0.003	0	0.003
-405	-123.44	0.003	0.002	0.003	0	0.003
-400	-121.92	0.003	0.002	0.003	0	0.003
-395	-120.4	0.003	0.002	0.003	0	0.003
-390	-118.87	0.003	0.002	0.003	0	0.003
-385	-117.35	0.003	0.002	0.003	0	0.003
-380	-115.82	0.003	0.003	0.003	0	0.003
-375	-114.3	0.003	0.003	0.003	0	0.003
-370	-112.78	0.004	0.003	0.004	0	0.004
-365	-111.25	0.004	0.003	0.004	0	0.004
-360	-109.73	0.004	0.003	0.004	0	0.004
-355	-108.2	0.004	0.003	0.004	0	0.004
-350	-106.68	0.004	0.003	0.004	0	0.004
-345	-105.16	0.004	0.003	0.004	0	0.004
-340	-103.63	0.004	0.003	0.004	0	0.004
-335	-102.11	0.004	0.003	0.004	0	0.004
-330	-100.58	0.004	0.003	0.004	0	0.004
-325	-99.06	0.005	0.003	0.005	0	0.005
-320	-97.54	0.005	0.004	0.005	0	0.005
-315	-96.01	0.005	0.004	0.005	0	0.005
-310	-94.49	0.005	0.004	0.005	0	0.005
-305	-92.96	0.005	0.004	0.005	0	0.005
-300	-91.44	0.005	0.004	0.005	0	0.005
-295	-89.92	0.006	0.004	0.006	0	0.006
-290	-88.39	0.006	0.004	0.006	0	0.006
-285	-86.87	0.006	0.004	0.006	0	0.006
-280	-85.34	0.006	0.005	0.006	0	0.006
-275	-83.82	0.007	0.005	0.007	0	0.007
-270	-82.3	0.007	0.005	0.007	0	0.007
-265	-80.77	0.007	0.005	0.007	0	0.007
-260	-79.25	0.007	0.005	0.007	0	0.007
-255	-77.72	0.008	0.005	0.008	0	0.008
-250	-76.2	0.008	0.006	0.008	0	0.008
-245	-74.68	0.008	0.006	0.008	0	0.008
-240	-73.15	0.009	0.006	0.009	0	0.009
-235	-71.63	0.009	0.006	0.009	0	0.009
-230	-70.1	0.009	0.007	0.009	0	0.009
-225	-68.58	0.01	0.007	0.01	0	0.01
-220	-67.06	0.01	0.007	0.01	0	0.01

-215	-65.53	0.011	0.007	0.011	0	0.011
-210	-64.01	0.011	0.008	0.011	0	0.011
-205	-62.48	0.012	0.008	0.012	0	0.012
-200	-60.96	0.013	0.008	0.013	0	0.013
-195	-59.44	0.013	0.009	0.013	0	0.013
-190	-57.91	0.014	0.009	0.014	0.001	0.014
-185	-56.39	0.015	0.01	0.015	0.001	0.015
-180	-54.86	0.016	0.01	0.016	0.001	0.016
-175	-53.34	0.017	0.01	0.017	0.001	0.017
-170	-51.82	0.018	0.011	0.018	0.001	0.018
-165	-50.29	0.019	0.011	0.019	0.001	0.019
-160	-48.77	0.02	0.012	0.02	0.001	0.02
-155	-47.24	0.022	0.012	0.022	0.001	0.022
-150	-45.72	0.023	0.013	0.023	0.001	0.023
-145	-44.2	0.025	0.014	0.025	0.001	0.025
-140	-42.67	0.027	0.014	0.027	0.001	0.027
-135	-41.15	0.029	0.015	0.029	0.002	0.029
-130	-39.62	0.032	0.016	0.032	0.002	0.032
-125	-38.1	0.035	0.017	0.035	0.002	0.035
-120	-36.58	0.038	0.017	0.038	0.002	0.038
-115	-35.05	0.042	0.018	0.042	0.003	0.042
-110	-33.53	0.047	0.019	0.047	0.003	0.047
-105	-32	0.052	0.02	0.052	0.004	0.052
-100	-30.48	0.058	0.021	0.058	0.005	0.058
-95	-28.96	0.065	0.022	0.065	0.005	0.065
-90	-27.43	0.074	0.023	0.074	0.006	0.074
-85	-25.91	0.084	0.024	0.084	0.008	0.084
-80	-24.38	0.096	0.025	0.096	0.009	0.096
-75	-22.86	0.112	0.026	0.111	0.011	0.111
-70	-21.34	0.13	0.027	0.129	0.014	0.13
-65	-19.81	0.153	0.028	0.152	0.017	0.153
-60	-18.29	0.182	0.029	0.18	0.022	0.181
-55	-16.76	0.217	0.03	0.216	0.027	0.217
-50	-15.24	0.262	0.031	0.26	0.034	0.262
-45	-13.72	0.319	0.033	0.316	0.042	0.318
-40	-12.19	0.389	0.036	0.385	0.052	0.387
-35	-10.67	0.473	0.041	0.469	0.063	0.471
-30	-9.14	0.571	0.049	0.567	0.072	0.567
-25	-7.62	0.674	0.064	0.671	0.077	0.668
-20	-6.1	0.765	0.094	0.763	0.086	0.755
-15	-4.57	0.82	0.154	0.82	0.127	0.807
-10	-3.05	0.839	0.251	0.839	0.211	0.828
-5	-1.52	0.913	0.305	0.908	0.293	0.901
0	0	1.134	0.221	1.122	0.298	1.104
5	1.52	1.349	0.136	1.346	0.206	1.31
10	3.05	1.376	0.099	1.375	0.144	1.342
15	4.57	1.206	0.092	1.198	0.183	1.182
20	6.1	0.955	0.1	0.941	0.187	0.94
25	7.62	0.72	0.11	0.708	0.155	0.712
30	9.14	0.541	0.115	0.532	0.115	0.537
35	10.67	0.414	0.112	0.409	0.082	0.412
40	12.19	0.327	0.103	0.323	0.058	0.326
45	13.72	0.265	0.09	0.263	0.042	0.264
50	15.24	0.219	0.077	0.218	0.031	0.219
55	16.76	0.185	0.065	0.184	0.023	0.185
60	18.29	0.158	0.055	0.157	0.018	0.158
65	19.81	0.136	0.047	0.136	0.014	0.136
70	21.34	0.118	0.041	0.118	0.012	0.118
75	22.86	0.104	0.036	0.103	0.009	0.104
80	24.38	0.092	0.032	0.091	0.008	0.092

85	25.91	0.081	0.028	0.081	0.007	0.081
90	27.43	0.073	0.026	0.072	0.006	0.072
95	28.96	0.065	0.023	0.065	0.005	0.065
100	30.48	0.059	0.021	0.058	0.004	0.059
105	32	0.053	0.019	0.053	0.004	0.053
110	33.53	0.048	0.018	0.048	0.003	0.048
115	35.05	0.044	0.017	0.044	0.003	0.044
120	36.58	0.04	0.015	0.04	0.002	0.04
125	38.1	0.037	0.014	0.037	0.002	0.037
130	39.62	0.034	0.014	0.034	0.002	0.034
135	41.15	0.031	0.013	0.031	0.002	0.031
140	42.67	0.029	0.012	0.029	0.001	0.029
145	44.2	0.027	0.011	0.027	0.001	0.027
150	45.72	0.025	0.011	0.025	0.001	0.025
155	47.24	0.023	0.01	0.023	0.001	0.023
160	48.77	0.022	0.01	0.022	0.001	0.022
165	50.29	0.021	0.009	0.021	0.001	0.021
170	51.82	0.019	0.009	0.019	0.001	0.019
175	53.34	0.018	0.008	0.018	0.001	0.018
180	54.86	0.017	0.008	0.017	0.001	0.017
185	56.39	0.016	0.008	0.016	0.001	0.016
190	57.91	0.015	0.007	0.015	0.001	0.015
195	59.44	0.014	0.007	0.014	0.001	0.014
200	60.96	0.014	0.007	0.014	0	0.014
205	62.48	0.013	0.006	0.013	0	0.013
210	64.01	0.012	0.006	0.012	0	0.012
215	65.53	0.012	0.006	0.012	0	0.012
220	67.06	0.011	0.006	0.011	0	0.011
225	68.58	0.011	0.005	0.011	0	0.011
230	70.1	0.01	0.005	0.01	0	0.01
235	71.63	0.01	0.005	0.01	0	0.01
240	73.15	0.009	0.005	0.009	0	0.009
245	74.68	0.009	0.005	0.009	0	0.009
250	76.2	0.009	0.005	0.009	0	0.009
255	77.72	0.008	0.004	0.008	0	0.008
260	79.25	0.008	0.004	0.008	0	0.008
265	80.77	0.008	0.004	0.008	0	0.008
270	82.3	0.007	0.004	0.007	0	0.007
275	83.82	0.007	0.004	0.007	0	0.007
280	85.34	0.007	0.004	0.007	0	0.007
285	86.87	0.007	0.004	0.007	0	0.007
290	88.39	0.006	0.003	0.006	0	0.006
295	89.92	0.006	0.003	0.006	0	0.006
300	91.44	0.006	0.003	0.006	0	0.006
305	92.96	0.006	0.003	0.006	0	0.006
310	94.49	0.005	0.003	0.005	0	0.005
315	96.01	0.005	0.003	0.005	0	0.005
320	97.54	0.005	0.003	0.005	0	0.005
325	99.06	0.005	0.003	0.005	0	0.005
330	100.58	0.005	0.003	0.005	0	0.005
335	102.11	0.005	0.003	0.005	0	0.005
340	103.63	0.005	0.003	0.005	0	0.005
345	105.16	0.004	0.003	0.004	0	0.004
350	106.68	0.004	0.002	0.004	0	0.004
355	108.2	0.004	0.002	0.004	0	0.004
360	109.73	0.004	0.002	0.004	0	0.004
365	111.25	0.004	0.002	0.004	0	0.004
370	112.78	0.004	0.002	0.004	0	0.004
375	114.3	0.004	0.002	0.004	0	0.004
380	115.82	0.004	0.002	0.004	0	0.004

385	117.35	0.004	0.002	0.004	0	0.004
390	118.87	0.003	0.002	0.003	0	0.003
395	120.4	0.003	0.002	0.003	0	0.003
400	121.92	0.003	0.002	0.003	0	0.003
405	123.44	0.003	0.002	0.003	0	0.003
410	124.97	0.003	0.002	0.003	0	0.003
415	126.49	0.003	0.002	0.003	0	0.003
420	128.02	0.003	0.002	0.003	0	0.003
425	129.54	0.003	0.002	0.003	0	0.003
430	131.06	0.003	0.002	0.003	0	0.003
435	132.59	0.003	0.002	0.003	0	0.003
440	134.11	0.003	0.002	0.003	0	0.003
445	135.64	0.003	0.002	0.003	0	0.003
450	137.16	0.003	0.002	0.003	0	0.003
455	138.68	0.002	0.002	0.002	0	0.002
460	140.21	0.002	0.002	0.002	0	0.002
465	141.73	0.002	0.001	0.002	0	0.002
470	143.26	0.002	0.001	0.002	0	0.002
475	144.78	0.002	0.001	0.002	0	0.002
480	146.3	0.002	0.001	0.002	0	0.002
485	147.83	0.002	0.001	0.002	0	0.002
490	149.35	0.002	0.001	0.002	0	0.002
495	150.88	0.002	0.001	0.002	0	0.002
500	152.4	0.002	0.001	0.002	0	0.002

AC CURRENTS IN EACH BUNDLE:

----- BNDL #	AC CURRENTS (Amperes) ----- REAL	IMAGINAR	TOTAL	BUNDLE POSITION X-COORD	Y-COORD
2	369.35	0	369.35	6	35
3	-184.68	319.87	369.35	-6	29
4	-184.67	-319.87	369.35	6	23
1	0.08	-5.9	5.9	0	41

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* *
* MAGNETIC FIELD PROFILE *
* at 3.28 feet above ground *
* *
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<---------- LATERAL DISTANCE (feet)	AC MAGNETIC FIELD MAJOR AXIS (meters)	MINOR/ MAJOR (mG)	VERTICAL COMP (RATIO)	----------> HORIZONT COMP (mG)	RMS RESULTANT (mG)	(mG)
-500	-152.4	0.11	0.36	0.07	0.09	0.12
-495	-150.88	0.11	0.367	0.08	0.09	0.12
-490	-149.35	0.11	0.375	0.08	0.09	0.12
-485	-147.83	0.12	0.383	0.08	0.1	0.12
-480	-146.3	0.12	0.39	0.08	0.1	0.13
-475	-144.78	0.12	0.398	0.08	0.1	0.13
-470	-143.26	0.12	0.406	0.08	0.1	0.13

-465	-141.73	0.13	0.414	0.09	0.11	0.14
-460	-140.21	0.13	0.421	0.09	0.11	0.14
-455	-138.68	0.13	0.429	0.09	0.11	0.14
-450	-137.16	0.13	0.437	0.09	0.11	0.15
-445	-135.64	0.14	0.445	0.1	0.11	0.15
-440	-134.11	0.14	0.453	0.1	0.12	0.15
-435	-132.59	0.14	0.461	0.1	0.12	0.16
-430	-131.06	0.15	0.468	0.1	0.12	0.16
-425	-129.54	0.15	0.476	0.11	0.13	0.16
-420	-128.02	0.15	0.484	0.11	0.13	0.17
-415	-126.49	0.16	0.492	0.11	0.13	0.17
-410	-124.97	0.16	0.5	0.11	0.14	0.18
-405	-123.44	0.16	0.508	0.12	0.14	0.18
-400	-121.92	0.17	0.516	0.12	0.14	0.19
-395	-120.4	0.17	0.524	0.13	0.15	0.19
-390	-118.87	0.17	0.532	0.13	0.15	0.2
-385	-117.35	0.18	0.54	0.13	0.15	0.2
-380	-115.82	0.18	0.548	0.14	0.16	0.21
-375	-114.3	0.19	0.556	0.14	0.16	0.21
-370	-112.78	0.19	0.564	0.15	0.17	0.22
-365	-111.25	0.2	0.572	0.15	0.17	0.23
-360	-109.73	0.2	0.581	0.16	0.18	0.23
-355	-108.2	0.21	0.589	0.16	0.18	0.24
-350	-106.68	0.21	0.597	0.17	0.19	0.25
-345	-105.16	0.22	0.605	0.17	0.19	0.26
-340	-103.63	0.23	0.613	0.18	0.2	0.27
-335	-102.11	0.23	0.621	0.18	0.2	0.27
-330	-100.58	0.24	0.629	0.19	0.21	0.28
-325	-99.06	0.25	0.638	0.2	0.22	0.29
-320	-97.54	0.25	0.646	0.2	0.22	0.3
-315	-96.01	0.26	0.654	0.21	0.23	0.31
-310	-94.49	0.27	0.662	0.22	0.24	0.32
-305	-92.96	0.28	0.671	0.23	0.24	0.33
-300	-91.44	0.29	0.679	0.24	0.25	0.35
-295	-89.92	0.3	0.687	0.25	0.26	0.36
-290	-88.39	0.31	0.695	0.26	0.27	0.37
-285	-86.87	0.32	0.704	0.27	0.28	0.39
-280	-85.34	0.33	0.712	0.28	0.29	0.4
-275	-83.82	0.34	0.72	0.29	0.3	0.42
-270	-82.3	0.35	0.729	0.3	0.31	0.43
-265	-80.77	0.36	0.737	0.32	0.32	0.45
-260	-79.25	0.38	0.745	0.33	0.34	0.47
-255	-77.72	0.39	0.754	0.34	0.35	0.49
-250	-76.2	0.41	0.762	0.36	0.36	0.51
-245	-74.68	0.42	0.77	0.38	0.38	0.53
-240	-73.15	0.44	0.779	0.39	0.39	0.56
-235	-71.63	0.46	0.787	0.41	0.41	0.58
-230	-70.1	0.48	0.795	0.43	0.43	0.61
-225	-68.58	0.5	0.803	0.46	0.45	0.64
-220	-67.06	0.52	0.811	0.48	0.47	0.67
-215	-65.53	0.54	0.819	0.5	0.49	0.7
-210	-64.01	0.57	0.827	0.53	0.51	0.74
-205	-62.48	0.59	0.835	0.56	0.54	0.77
-200	-60.96	0.62	0.843	0.59	0.56	0.81
-195	-59.44	0.65	0.85	0.62	0.59	0.86
-190	-57.91	0.69	0.858	0.66	0.62	0.91
-185	-56.39	0.72	0.865	0.7	0.65	0.96
-180	-54.86	0.76	0.871	0.74	0.69	1.01
-175	-53.34	0.81	0.878	0.79	0.73	1.07
-170	-51.82	0.85	0.883	0.84	0.77	1.14

-165	-50.29	0.91	0.888	0.89	0.82	1.21
-160	-48.77	0.96	0.893	0.95	0.87	1.29
-155	-47.24	1.02	0.896	1.02	0.93	1.38
-150	-45.72	1.09	0.898	1.09	0.99	1.47
-145	-44.2	1.17	0.9	1.17	1.06	1.57
-140	-42.67	1.26	0.9	1.26	1.13	1.69
-135	-41.15	1.35	0.898	1.35	1.21	1.82
-130	-39.62	1.46	0.896	1.46	1.31	1.96
-125	-38.1	1.58	0.892	1.58	1.41	2.12
-120	-36.58	1.72	0.887	1.71	1.53	2.3
-115	-35.05	1.87	0.881	1.86	1.67	2.5
-110	-33.53	2.05	0.874	2.03	1.82	2.72
-105	-32	2.25	0.866	2.22	1.99	2.98
-100	-30.48	2.49	0.857	2.43	2.2	3.28
-95	-28.96	2.76	0.847	2.67	2.43	3.61
-90	-27.43	3.07	0.837	2.95	2.71	4
-85	-25.91	3.44	0.826	3.26	3.04	4.46
-80	-24.38	3.87	0.814	3.62	3.43	4.99
-75	-22.86	4.38	0.801	4.04	3.9	5.62
-70	-21.34	5	0.787	4.51	4.48	6.36
-65	-19.81	5.74	0.773	5.06	5.2	7.25
-60	-18.29	6.64	0.757	5.69	6.09	8.33
-55	-16.76	7.75	0.741	6.4	7.22	9.65
-50	-15.24	9.13	0.723	7.22	8.66	11.27
-45	-13.72	10.87	0.704	8.14	10.5	13.29
-40	-12.19	13.06	0.683	9.21	12.85	15.81
-35	-10.67	15.84	0.66	10.53	15.8	18.99
-30	-9.14	19.39	0.637	12.39	19.36	22.98
-25	-7.62	23.86	0.611	15.53	23.26	27.97
-20	-6.1	29.35	0.586	21.09	26.69	34.02
-15	-4.57	35.75	0.561	29.82	28.14	41
-10	-3.05	42.53	0.541	40.46	26.47	48.36
-5	-1.52	48.61	0.528	48.59	25.7	54.97
0	0	52.39	0.527	48.25	34.36	59.23
5	1.52	52.38	0.541	38.4	45.53	59.56
10	3.05	48.3	0.568	28.31	47.79	55.54
15	4.57	41.58	0.604	26.23	40.9	48.58
20	6.1	34.29	0.644	26.25	31.22	40.79
25	7.62	27.74	0.685	24.29	23.23	33.62
30	9.14	22.36	0.723	21.07	17.82	27.59
35	10.67	18.13	0.757	17.7	14.28	22.74
40	12.19	14.85	0.787	14.73	11.85	18.9
45	13.72	12.31	0.813	12.28	10.04	15.86
50	15.24	10.33	0.834	10.32	8.62	13.45
55	16.76	8.77	0.851	8.77	7.46	11.51
60	18.29	7.53	0.864	7.53	6.5	9.95
65	19.81	6.53	0.872	6.53	5.7	8.67
70	21.34	5.72	0.877	5.72	5.02	7.61
75	22.86	5.06	0.878	5.06	4.45	6.74
80	24.38	4.51	0.877	4.51	3.96	6
85	25.91	4.05	0.874	4.04	3.54	5.38
90	27.43	3.66	0.869	3.65	3.18	4.84
95	28.96	3.32	0.864	3.31	2.87	4.39
100	30.48	3.03	0.857	3.02	2.61	3.99
105	32	2.78	0.851	2.77	2.37	3.65
110	33.53	2.56	0.844	2.55	2.17	3.35
115	35.05	2.36	0.837	2.36	1.98	3.08
120	36.58	2.19	0.83	2.18	1.82	2.85
125	38.1	2.04	0.823	2.03	1.68	2.64
130	39.62	1.9	0.816	1.89	1.56	2.45

135	41.15	1.78	0.809	1.77	1.44	2.28
140	42.67	1.66	0.803	1.66	1.34	2.13
145	44.2	1.56	0.796	1.56	1.25	2
150	45.72	1.47	0.79	1.47	1.17	1.88
155	47.24	1.39	0.784	1.39	1.09	1.76
160	48.77	1.31	0.777	1.31	1.02	1.66
165	50.29	1.24	0.771	1.24	0.96	1.57
170	51.82	1.18	0.766	1.18	0.91	1.48
175	53.34	1.12	0.76	1.12	0.85	1.41
180	54.86	1.06	0.754	1.06	0.81	1.33
185	56.39	1.01	0.749	1.01	0.76	1.27
190	57.91	0.97	0.744	0.97	0.72	1.21
195	59.44	0.92	0.738	0.92	0.68	1.15
200	60.96	0.88	0.733	0.88	0.65	1.1
205	62.48	0.85	0.728	0.85	0.62	1.05
210	64.01	0.81	0.723	0.81	0.59	1
215	65.53	0.78	0.718	0.78	0.56	0.96
220	67.06	0.75	0.714	0.75	0.53	0.92
225	68.58	0.72	0.709	0.72	0.51	0.88
230	70.1	0.69	0.704	0.69	0.49	0.85
235	71.63	0.67	0.7	0.67	0.47	0.81
240	73.15	0.64	0.695	0.64	0.45	0.78
245	74.68	0.62	0.691	0.62	0.43	0.75
250	76.2	0.6	0.687	0.6	0.41	0.73
255	77.72	0.58	0.683	0.58	0.39	0.7
260	79.25	0.56	0.678	0.56	0.38	0.67
265	80.77	0.54	0.674	0.54	0.36	0.65
270	82.3	0.52	0.67	0.52	0.35	0.63
275	83.82	0.51	0.666	0.51	0.34	0.61
280	85.34	0.49	0.662	0.49	0.33	0.59
285	86.87	0.48	0.658	0.48	0.31	0.57
290	88.39	0.46	0.655	0.46	0.3	0.55
295	89.92	0.45	0.651	0.45	0.29	0.54
300	91.44	0.44	0.647	0.44	0.28	0.52
305	92.96	0.42	0.644	0.42	0.27	0.5
310	94.49	0.41	0.64	0.41	0.26	0.49
315	96.01	0.4	0.636	0.4	0.26	0.48
320	97.54	0.39	0.633	0.39	0.25	0.46
325	99.06	0.38	0.629	0.38	0.24	0.45
330	100.58	0.37	0.626	0.37	0.23	0.44
335	102.11	0.36	0.623	0.36	0.23	0.43
340	103.63	0.35	0.619	0.35	0.22	0.41
345	105.16	0.34	0.616	0.34	0.21	0.4
350	106.68	0.34	0.613	0.34	0.21	0.39
355	108.2	0.33	0.61	0.33	0.2	0.38
360	109.73	0.32	0.606	0.32	0.19	0.37
365	111.25	0.31	0.603	0.31	0.19	0.36
370	112.78	0.31	0.6	0.3	0.18	0.36
375	114.3	0.3	0.597	0.3	0.18	0.35
380	115.82	0.29	0.594	0.29	0.17	0.34
385	117.35	0.29	0.591	0.29	0.17	0.33
390	118.87	0.28	0.588	0.28	0.16	0.32
395	120.4	0.27	0.585	0.27	0.16	0.32
400	121.92	0.27	0.582	0.27	0.16	0.31
405	123.44	0.26	0.579	0.26	0.15	0.3
410	124.97	0.26	0.577	0.26	0.15	0.3
415	126.49	0.25	0.574	0.25	0.14	0.29
420	128.02	0.25	0.571	0.25	0.14	0.28
425	129.54	0.24	0.568	0.24	0.14	0.28
430	131.06	0.24	0.566	0.24	0.13	0.27

435	132.59	0.23	0.563	0.23	0.13	0.27
440	134.11	0.23	0.56	0.23	0.13	0.26
445	135.64	0.22	0.558	0.22	0.13	0.26
450	137.16	0.22	0.555	0.22	0.12	0.25
455	138.68	0.22	0.553	0.22	0.12	0.25
460	140.21	0.21	0.55	0.21	0.12	0.24
465	141.73	0.21	0.548	0.21	0.11	0.24
470	143.26	0.2	0.545	0.2	0.11	0.23
475	144.78	0.2	0.543	0.2	0.11	0.23
480	146.3	0.2	0.54	0.2	0.11	0.22
485	147.83	0.19	0.538	0.19	0.1	0.22
490	149.35	0.19	0.536	0.19	0.1	0.22
495	150.88	0.19	0.533	0.19	0.1	0.21
500	152.4	0.18	0.531	0.18	0.1	0.21

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**********************************
*          *
*          AUDIBLE   NOISE      *
*          GENERATE ACOUSTIC POWER    *
*          (dB       above      1uW/m)  *
*          *
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L5 BNDL	L50 #	Type	Summer	Fair	RAIN	RAIN
2	AC	******	-89.92	******		
3	AC	******	-91.76	******		
4	AC	******	-89.72	******		
1	Ground	Wire	******	******	******	

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*******************************************
*          *
*          AUDIBLE   NOISE      *
*          *
*          Microphor is                5 feet      above     ground    *
*          Altitude             0 ft        *
*          *
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<------ LATERAL DISTANCE (feet)	BPA FAIR WEATHER (meters)	METHOD L5 RAIN dB(A)	-------> L50 RAIN dB(A)	<- AVERAGE Ldn dB(A)	CRIEPI L5 FAIR dB(A)	--> L5 RAIN dB(A)	EdF L5 RAIN dB(A)	ENEL L5 RAIN dB(A)	IREQ RAIN dB(A)	dB(A)
-500	-152.4	0	4	0.5	0	0	0	15.2	14	0
-495	-150.88	0	4	0.5	0	0	0	15.2	14	0
-490	-149.35	0	4.1	0.6	0	0	0	15.2	14.1	0
-485	-147.83	0	4.1	0.6	0	0	0	15.3	14.1	0
-480	-146.3	0	4.2	0.7	0	0	0	15.3	14.1	0
-475	-144.78	0	4.2	0.7	0	0	0	15.4	14.2	0
-470	-143.26	0	4.3	0.8	0	0	0	15.4	14.2	0
-465	-141.73	0	4.3	0.8	0	0	0	15.5	14.3	0
-460	-140.21	0	4.4	0.9	0	0	0	15.5	14.3	0
-455	-138.68	0	4.4	0.9	0	0	0	15.6	14.4	0
-450	-137.16	0	4.5	1	0	0	0	15.6	14.4	0
-445	-135.64	0	4.5	1	0	0	0	15.7	14.5	0
-440	-134.11	0	4.6	1.1	0	0	0	15.7	14.5	0
-435	-132.59	0	4.7	1.2	0	0	0	15.8	14.6	0
-430	-131.06	0	4.7	1.2	0	0	0	15.8	14.6	0

-425	-129.54	0	4.8	1.3	0	0	0	15.9	14.7	0
-420	-128.02	0	4.8	1.3	0	0	0	15.9	14.7	0
-415	-126.49	0	4.9	1.4	0	0	0	16	14.8	0
-410	-124.97	0	5	1.5	0	0	0	16	14.8	0
-405	-123.44	0	5	1.5	0	0	0	16.1	14.9	0
-400	-121.92	0	5.1	1.6	0	0	0	16.1	14.9	0
-395	-120.4	0	5.1	1.6	0	0	0	16.2	15	0
-390	-118.87	0	5.2	1.7	0	0	0	16.2	15	0
-385	-117.35	0	5.3	1.8	0	0	0	16.3	15.1	0
-380	-115.82	0	5.3	1.8	0	0	0	16.3	15.2	0
-375	-114.3	0	5.4	1.9	0	0	0	16.4	15.2	0
-370	-112.78	0	5.5	2	0	0	0	16.5	15.3	0
-365	-111.25	0	5.5	2	0	0	0	16.5	15.3	0
-360	-109.73	0	5.6	2.1	0	0	0	16.6	15.4	0
-355	-108.2	0	5.7	2.2	0	0	0	16.6	15.4	0
-350	-106.68	0	5.7	2.2	0	0	0	16.7	15.5	0
-345	-105.16	0	5.8	2.3	0	0	0	16.8	15.6	0
-340	-103.63	0	5.9	2.4	0	0	0	16.8	15.6	0
-335	-102.11	0	5.9	2.4	0	0	0	16.9	15.7	0
-330	-100.58	0	6	2.5	0	0	0	16.9	15.8	0
-325	-99.06	0	6.1	2.6	0	0	0	17	15.8	0
-320	-97.54	0	6.2	2.7	0	0	0	17.1	15.9	0
-315	-96.01	0	6.2	2.7	0	0	0	17.1	16	0
-310	-94.49	0	6.3	2.8	0	0	0	17.2	16	0
-305	-92.96	0	6.4	2.9	0	0	0	17.3	16.1	0
-300	-91.44	0	6.5	3	0	0	0	17.4	16.2	0
-295	-89.92	0	6.6	3.1	0	0	0	17.4	16.2	0
-290	-88.39	0	6.6	3.1	0	0	0	17.5	16.3	0
-285	-86.87	0	6.7	3.2	0	0	0	17.6	16.4	0
-280	-85.34	0	6.8	3.3	0	0	0	17.6	16.5	0
-275	-83.82	0	6.9	3.4	0	0	0	17.7	16.5	0
-270	-82.3	0	7	3.5	0	0	0	17.8	16.6	0
-265	-80.77	0	7.1	3.6	0	0	0	17.9	16.7	0
-260	-79.25	0	7.2	3.7	0	0	0	18	16.8	0
-255	-77.72	0	7.3	3.8	0	0	0	18	16.9	0
-250	-76.2	0	7.4	3.9	0	0	0	18.1	16.9	0
-245	-74.68	0	7.5	4	0	0	0	18.2	17	0
-240	-73.15	0	7.6	4.1	0	0	0	18.3	17.1	0
-235	-71.63	0	7.7	4.2	0	0	0	18.4	17.2	0
-230	-70.1	0	7.8	4.3	0	0	0	18.5	17.3	0
-225	-68.58	0	7.9	4.4	0	0	0	18.6	17.4	0
-220	-67.06	0	8	4.5	0	0	0	18.7	17.5	0
-215	-65.53	0	8.1	4.6	0	0	0	18.8	17.6	0
-210	-64.01	0	8.2	4.7	0	0	0	18.9	17.7	0
-205	-62.48	0	8.3	4.8	0	0	0	19	17.8	0
-200	-60.96	0	8.4	4.9	0	0	0	19.1	17.9	0
-195	-59.44	0	8.6	5.1	0	0	0	19.2	18	0
-190	-57.91	0	8.7	5.2	0	0	0	19.3	18.1	0
-185	-56.39	0	8.8	5.3	0	0	0	19.4	18.2	0
-180	-54.86	0	9	5.5	0	0	0	19.5	18.3	0
-175	-53.34	0	9.1	5.6	0	0	0	19.6	18.5	0
-170	-51.82	0	9.2	5.7	0	0	0	19.8	18.6	0
-165	-50.29	0	9.4	5.9	0	0	0	19.9	18.7	0
-160	-48.77	0	9.5	6	0	0	0	20	18.8	0
-155	-47.24	0	9.7	6.2	0	0	0	20.2	19	0
-150	-45.72	0	9.8	6.3	0	0	0	20.3	19.1	0
-145	-44.2	0	10	6.5	0	0	0	20.4	19.2	0
-140	-42.67	0	10.2	6.7	0	0	0	20.6	19.4	0
-135	-41.15	0	10.3	6.8	0	0	0	20.7	19.5	0
-130	-39.62	0	10.5	7	0	0	0	20.9	19.7	0

-125	-38.1	0	10.7	7.2	0	0	0	21	19.9	0
-120	-36.58	0	10.9	7.4	0	0	0	21.2	20	0
-115	-35.05	0	11.1	7.6	0	0	0	21.4	20.2	0
-110	-33.53	0	11.3	7.8	0	0	0	21.6	20.4	0
-105	-32	0	11.5	8	0	0	0	21.8	20.6	0
-100	-30.48	0	11.7	8.2	0	0	0	22	20.8	0
-95	-28.96	0	12	8.5	0	0	0	22.2	21	0
-90	-27.43	0	12.2	8.7	0	0	0	22.4	21.2	0
-85	-25.91	0	12.5	9	0	0	0	22.6	21.4	0
-80	-24.38	0	12.7	9.2	0	0	0	22.8	21.7	0
-75	-22.86	0	13	9.5	0	0	0	23.1	21.9	0
-70	-21.34	0	13.3	9.8	0	0	0	23.4	22.2	0
-65	-19.81	0	13.6	10.1	0	0	0	23.6	22.5	0
-60	-18.29	0	14	10.5	0	0	0	23.9	22.7	0
-55	-16.76	0	14.3	10.8	0	0	0	24.2	23.1	0
-50	-15.24	0	14.7	11.2	0	0	0	24.6	23.4	0
-45	-13.72	0	15.1	11.6	0	0	0	24.9	23.8	0
-40	-12.19	0	15.5	12	0	0	0	25.3	24.1	0
-35	-10.67	0	16	12.5	0	0	0	25.7	24.5	0
-30	-9.14	0	16.5	13	0	0	0	26.1	25	0
-25	-7.62	0	17	13.5	0	0	0	26.6	25.4	0
-20	-6.1	0	17.5	14	0	0	0	27	25.8	0
-15	-4.57	0	18	14.5	0	0	0	27.5	26.3	0
-10	-3.05	0	18.5	15	0	0	0	27.9	26.7	0
-5	-1.52	0	18.9	15.4	0	0	0	28.2	27	0
0	0	0	19.1	15.6	0	0	0	28.4	27.2	0
5	1.52	0	19.2	15.7	0	0	0	28.5	27.3	0
10	3.05	0	19	15.5	0	0	0	28.3	27.1	0
15	4.57	0	18.6	15.1	0	0	0	28	26.8	0
20	6.1	0	18.2	14.7	0	0	0	27.5	26.4	0
25	7.62	0	17.6	14.1	0	0	0	27.1	25.9	0
30	9.14	0	17.1	13.6	0	0	0	26.6	25.4	0
35	10.67	0	16.5	13	0	0	0	26.2	25	0
40	12.19	0	16.1	12.6	0	0	0	25.7	24.5	0
45	13.72	0	15.6	12.1	0	0	0	25.3	24.1	0
50	15.24	0	15.2	11.7	0	0	0	24.9	23.8	0
55	16.76	0	14.7	11.2	0	0	0	24.6	23.4	0
60	18.29	0	14.4	10.9	0	0	0	24.2	23.1	0
65	19.81	0	14	10.5	0	0	0	23.9	22.7	0
70	21.34	0	13.7	10.2	0	0	0	23.6	22.5	0
75	22.86	0	13.3	9.8	0	0	0	23.4	22.2	0
80	24.38	0	13	9.5	0	0	0	23.1	21.9	0
85	25.91	0	12.8	9.3	0	0	0	22.8	21.7	0
90	27.43	0	12.5	9	0	0	0	22.6	21.4	0
95	28.96	0	12.2	8.7	0	0	0	22.4	21.2	0
100	30.48	0	12	8.5	0	0	0	22.2	21	0
105	32	0	11.7	8.2	0	0	0	22	20.8	0
110	33.53	0	11.5	8	0	0	0	21.8	20.6	0
115	35.05	0	11.3	7.8	0	0	0	21.6	20.4	0
120	36.58	0	11.1	7.6	0	0	0	21.4	20.2	0
125	38.1	0	10.9	7.4	0	0	0	21.2	20	0
130	39.62	0	10.7	7.2	0	0	0	21	19.9	0
135	41.15	0	10.5	7	0	0	0	20.9	19.7	0
140	42.67	0	10.3	6.8	0	0	0	20.7	19.5	0
145	44.2	0	10.2	6.7	0	0	0	20.6	19.4	0
150	45.72	0	10	6.5	0	0	0	20.4	19.2	0
155	47.24	0	9.8	6.3	0	0	0	20.3	19.1	0
160	48.77	0	9.7	6.2	0	0	0	20.2	19	0
165	50.29	0	9.5	6	0	0	0	20	18.8	0
170	51.82	0	9.4	5.9	0	0	0	19.9	18.7	0

175	53.34	0	9.2	5.7	0	0	0	19.8	18.6	0
180	54.86	0	9.1	5.6	0	0	0	19.6	18.5	0
185	56.39	0	9	5.5	0	0	0	19.5	18.3	0
190	57.91	0	8.8	5.3	0	0	0	19.4	18.2	0
195	59.44	0	8.7	5.2	0	0	0	19.3	18.1	0
200	60.96	0	8.6	5.1	0	0	0	19.2	18	0
205	62.48	0	8.5	5	0	0	0	19.1	17.9	0
210	64.01	0	8.3	4.8	0	0	0	19	17.8	0
215	65.53	0	8.2	4.7	0	0	0	18.9	17.7	0
220	67.06	0	8.1	4.6	0	0	0	18.8	17.6	0
225	68.58	0	8	4.5	0	0	0	18.7	17.5	0
230	70.1	0	7.9	4.4	0	0	0	18.6	17.4	0
235	71.63	0	7.8	4.3	0	0	0	18.5	17.3	0
240	73.15	0	7.7	4.2	0	0	0	18.4	17.2	0
245	74.68	0	7.6	4.1	0	0	0	18.3	17.1	0
250	76.2	0	7.5	4	0	0	0	18.2	17	0
255	77.72	0	7.4	3.9	0	0	0	18.1	16.9	0
260	79.25	0	7.3	3.8	0	0	0	18	16.9	0
265	80.77	0	7.2	3.7	0	0	0	18	16.8	0
270	82.3	0	7.1	3.6	0	0	0	17.9	16.7	0
275	83.82	0	7	3.5	0	0	0	17.8	16.6	0
280	85.34	0	6.9	3.4	0	0	0	17.7	16.5	0
285	86.87	0	6.8	3.3	0	0	0	17.6	16.5	0
290	88.39	0	6.7	3.2	0	0	0	17.6	16.4	0
295	89.92	0	6.7	3.2	0	0	0	17.5	16.3	0
300	91.44	0	6.6	3.1	0	0	0	17.4	16.2	0
305	92.96	0	6.5	3	0	0	0	17.4	16.2	0
310	94.49	0	6.4	2.9	0	0	0	17.3	16.1	0
315	96.01	0	6.3	2.8	0	0	0	17.2	16	0
320	97.54	0	6.2	2.7	0	0	0	17.1	16	0
325	99.06	0	6.2	2.7	0	0	0	17.1	15.9	0
330	100.58	0	6.1	2.6	0	0	0	17	15.8	0
335	102.11	0	6	2.5	0	0	0	16.9	15.8	0
340	103.63	0	5.9	2.4	0	0	0	16.9	15.7	0
345	105.16	0	5.9	2.4	0	0	0	16.8	15.6	0
350	106.68	0	5.8	2.3	0	0	0	16.8	15.6	0
355	108.2	0	5.7	2.2	0	0	0	16.7	15.5	0
360	109.73	0	5.7	2.2	0	0	0	16.6	15.4	0
365	111.25	0	5.6	2.1	0	0	0	16.6	15.4	0
370	112.78	0	5.5	2	0	0	0	16.5	15.3	0
375	114.3	0	5.5	2	0	0	0	16.5	15.3	0
380	115.82	0	5.4	1.9	0	0	0	16.4	15.2	0
385	117.35	0	5.3	1.8	0	0	0	16.3	15.2	0
390	118.87	0	5.3	1.8	0	0	0	16.3	15.1	0
395	120.4	0	5.2	1.7	0	0	0	16.2	15	0
400	121.92	0	5.1	1.6	0	0	0	16.2	15	0
405	123.44	0	5.1	1.6	0	0	0	16.1	14.9	0
410	124.97	0	5	1.5	0	0	0	16.1	14.9	0
415	126.49	0	5	1.5	0	0	0	16	14.8	0
420	128.02	0	4.9	1.4	0	0	0	16	14.8	0
425	129.54	0	4.8	1.3	0	0	0	15.9	14.7	0
430	131.06	0	4.8	1.3	0	0	0	15.9	14.7	0
435	132.59	0	4.7	1.2	0	0	0	15.8	14.6	0
440	134.11	0	4.7	1.2	0	0	0	15.8	14.6	0
445	135.64	0	4.6	1.1	0	0	0	15.7	14.5	0
450	137.16	0	4.6	1.1	0	0	0	15.7	14.5	0
455	138.68	0	4.5	1	0	0	0	15.6	14.4	0
460	140.21	0	4.4	0.9	0	0	0	15.6	14.4	0
465	141.73	0	4.4	0.9	0	0	0	15.5	14.3	0
470	143.26	0	4.3	0.8	0	0	0	15.5	14.3	0

475	144.78	0	4.3	0.8	0	0	0	15.4	14.2	0
480	146.3	0	4.2	0.7	0	0	0	15.4	14.2	0
485	147.83	0	4.2	0.7	0	0	0	15.3	14.1	0
490	149.35	0	4.1	0.6	0	0	0	15.3	14.1	0
495	150.88	0	4.1	0.6	0	0	0	15.2	14.1	0
500	152.4	0	4	0.5	0	0	0	15.2	14	0

Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions If a prediction method does not apply, the appropriat output data column will be zeros.

RESULTS OF ENVIRO PROGRAM

STUDY FILE NAME: C:\USERS\JKOSTA1\DESKTOP\EMF\INVENE~1\ITSAA002.I01
DATE: ######## TIME: 8:28

Rev2 Ave ITS

****
* BUNDLE INFORMAT *
****

BNDL	CIR #	VOLTAGE ANGLE #	VOLTAGE #	CURRENT LOAD (kV)	# ANGLE (DEG)	COORDINA OF (AMPS)	X (DEG)	Y COND	(FT)	PHASE (FT)	
1	1	0	0	0	0	0	0	1	0	41	GND
2	1	115	0	369.4	0	369.4	0	1	6	35	A
3	1	115	240	369.4	120	369.4	240	1	-6	29	B
4	1	115	120	369.4	240	369.4	120	1	6	23	C
5	1	0	0	0	0	0	0	1	102.8	32	GND
6	1	0	0	0	0	0	0	1	122.3	32	GND
7	1	230	0	1000	0	1000	0	1	93	27	A
8	1	230	240	1000	120	1000	120	1	112.5	27	B
9	1	230	120	1000	240	1000	240	1	132	27	C

****
* MINIMUM GROUND CLEARANC = 23 FT. *
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****
* SUBCONDI INFORMAT - REGULAR BUNDLES *
****

BNDL #	DIAMETER (IN)	SPACING (IN)	DC RESIST. (OHMS/MI	AC RESIST. (OHMS/MI	AC REACT. (OHMS/MI
2	1.108	0	0.1152	0.117	0.399
3	1.108	0	0.1152	0.117	0.399
4	1.108	0	0.1152	0.117	0.399
7	1.302	0	0.0777	0.0805	0.382
8	1.302	0	0.0777	0.0805	0.382
9	1.302	0	0.0777	0.0805	0.382
1	0.435	0	4.61	4.74	1.28
5	0.435	0	4.61	4.74	1.28
6	0.435	0	4.61	4.74	1.28

****
*
* MAXIMUM SURFACE GRADIENT (kV/cm) *
*
****

BNDL #	Type	ACrms	PEAK(+)	PEAK(-)
2	AC	8.4	11.88	-11.88
3	AC	8.34	11.8	-11.8
4	AC	8.59	12.14	-12.14

7	AC	13.25	18.74	-18.74	
8	AC	14.23	20.12	-20.12	
9	AC	13.28	18.78	-18.78	
1	Ground	Wire	2.4	3.4	-3.4
5	Ground	Wire	4.75	6.72	-6.72
6	Ground	Wire	4.7	6.64	-6.64

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****************************************
*          *
*          AC          ELECTRIC  FIELD      PROFILE    *
*          at                3.28 feet       above      ground     *
*          *
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LATERAL DISTANCE (feet)	MAXIMUM FIELD (meters)	MINOR/MAJOR ELLIPSE (kV/m)	SPACE AXES (ratio)	VERTICAL (kV/m)	HORIZONTAL (kV/m)	POTENTIAL (kV)
-500	-152.4	0.003	0.002	0.003	0	0.003
-495	-150.88	0.003	0.002	0.003	0	0.003
-490	-149.35	0.003	0.002	0.003	0	0.003
-485	-147.83	0.003	0.003	0.003	0	0.003
-480	-146.3	0.003	0.003	0.003	0	0.003
-475	-144.78	0.003	0.003	0.003	0	0.003
-470	-143.26	0.003	0.003	0.003	0	0.003
-465	-141.73	0.003	0.003	0.003	0	0.003
-460	-140.21	0.003	0.003	0.003	0	0.003
-455	-138.68	0.003	0.003	0.003	0	0.003
-450	-137.16	0.003	0.003	0.003	0	0.003
-445	-135.64	0.003	0.003	0.003	0	0.003
-440	-134.11	0.003	0.003	0.003	0	0.003
-435	-132.59	0.003	0.003	0.003	0	0.003
-430	-131.06	0.003	0.003	0.003	0	0.003
-425	-129.54	0.004	0.003	0.004	0	0.004
-420	-128.02	0.004	0.003	0.004	0	0.004
-415	-126.49	0.004	0.003	0.004	0	0.004
-410	-124.97	0.004	0.003	0.004	0	0.004
-405	-123.44	0.004	0.003	0.004	0	0.004
-400	-121.92	0.004	0.003	0.004	0	0.004
-395	-120.4	0.004	0.003	0.004	0	0.004
-390	-118.87	0.004	0.003	0.004	0	0.004
-385	-117.35	0.004	0.004	0.004	0	0.004
-380	-115.82	0.004	0.004	0.004	0	0.004
-375	-114.3	0.005	0.004	0.005	0	0.005
-370	-112.78	0.005	0.004	0.005	0	0.005
-365	-111.25	0.005	0.004	0.005	0	0.005
-360	-109.73	0.005	0.004	0.005	0	0.005
-355	-108.2	0.005	0.004	0.005	0	0.005
-350	-106.68	0.005	0.004	0.005	0	0.005
-345	-105.16	0.005	0.004	0.005	0	0.005
-340	-103.63	0.006	0.004	0.006	0	0.006
-335	-102.11	0.006	0.004	0.006	0	0.006
-330	-100.58	0.006	0.004	0.006	0	0.006
-325	-99.06	0.006	0.005	0.006	0	0.006
-320	-97.54	0.006	0.005	0.006	0	0.006
-315	-96.01	0.007	0.005	0.007	0	0.007
-310	-94.49	0.007	0.005	0.007	0	0.007
-305	-92.96	0.007	0.005	0.007	0	0.007
-300	-91.44	0.007	0.005	0.007	0	0.007
-295	-89.92	0.007	0.005	0.007	0	0.007

-290	-88.39	0.008	0.005	0.008	0	0.008
-285	-86.87	0.008	0.006	0.008	0	0.008
-280	-85.34	0.008	0.006	0.008	0	0.008
-275	-83.82	0.009	0.006	0.009	0	0.009
-270	-82.3	0.009	0.006	0.009	0	0.009
-265	-80.77	0.009	0.006	0.009	0	0.009
-260	-79.25	0.01	0.007	0.01	0	0.01
-255	-77.72	0.01	0.007	0.01	0	0.01
-250	-76.2	0.01	0.007	0.01	0	0.01
-245	-74.68	0.011	0.007	0.011	0	0.011
-240	-73.15	0.011	0.007	0.011	0	0.011
-235	-71.63	0.012	0.008	0.012	0	0.012
-230	-70.1	0.012	0.008	0.012	0	0.012
-225	-68.58	0.013	0.008	0.013	0	0.013
-220	-67.06	0.013	0.009	0.013	0	0.013
-215	-65.53	0.014	0.009	0.014	0	0.014
-210	-64.01	0.014	0.009	0.014	0	0.014
-205	-62.48	0.015	0.01	0.015	0	0.015
-200	-60.96	0.016	0.01	0.016	0.001	0.016
-195	-59.44	0.017	0.011	0.017	0.001	0.017
-190	-57.91	0.017	0.011	0.017	0.001	0.017
-185	-56.39	0.018	0.012	0.018	0.001	0.018
-180	-54.86	0.019	0.012	0.019	0.001	0.019
-175	-53.34	0.02	0.013	0.02	0.001	0.02
-170	-51.82	0.022	0.014	0.021	0.001	0.022
-165	-50.29	0.023	0.014	0.023	0.001	0.023
-160	-48.77	0.024	0.015	0.024	0.001	0.024
-155	-47.24	0.026	0.016	0.026	0.001	0.026
-150	-45.72	0.027	0.017	0.027	0.001	0.027
-145	-44.2	0.029	0.018	0.029	0.001	0.029
-140	-42.67	0.031	0.019	0.031	0.002	0.031
-135	-41.15	0.033	0.02	0.033	0.002	0.033
-130	-39.62	0.036	0.021	0.036	0.002	0.036
-125	-38.1	0.039	0.023	0.039	0.002	0.039
-120	-36.58	0.042	0.024	0.042	0.002	0.042
-115	-35.05	0.046	0.026	0.046	0.003	0.046
-110	-33.53	0.05	0.027	0.05	0.003	0.05
-105	-32	0.055	0.029	0.055	0.004	0.055
-100	-30.48	0.061	0.031	0.06	0.004	0.061
-95	-28.96	0.067	0.032	0.067	0.005	0.067
-90	-27.43	0.075	0.034	0.075	0.006	0.075
-85	-25.91	0.085	0.036	0.085	0.008	0.085
-80	-24.38	0.096	0.037	0.096	0.009	0.096
-75	-22.86	0.111	0.039	0.11	0.011	0.11
-70	-21.34	0.128	0.04	0.127	0.014	0.128
-65	-19.81	0.15	0.041	0.149	0.017	0.149
-60	-18.29	0.177	0.042	0.176	0.021	0.176
-55	-16.76	0.211	0.043	0.209	0.027	0.21
-50	-15.24	0.254	0.044	0.252	0.033	0.253
-45	-13.72	0.308	0.045	0.306	0.042	0.307
-40	-12.19	0.376	0.046	0.373	0.052	0.374
-35	-10.67	0.458	0.049	0.454	0.062	0.456
-30	-9.14	0.553	0.056	0.549	0.071	0.549
-25	-7.62	0.652	0.07	0.65	0.076	0.646
-20	-6.1	0.739	0.098	0.737	0.085	0.729
-15	-4.57	0.787	0.158	0.787	0.125	0.773
-10	-3.05	0.795	0.263	0.795	0.209	0.782
-5	-1.52	0.855	0.325	0.851	0.29	0.843
0	0	1.071	0.234	1.059	0.297	1.039
5	1.52	1.281	0.149	1.278	0.21	1.241

10	3.05	1.303	0.122	1.302	0.167	1.267
15	4.57	1.133	0.137	1.124	0.211	1.107
20	6.1	0.896	0.182	0.885	0.217	0.882
25	7.62	0.708	0.233	0.702	0.186	0.704
30	9.14	0.621	0.238	0.62	0.149	0.621
35	10.67	0.626	0.188	0.626	0.121	0.626
40	12.19	0.69	0.129	0.688	0.105	0.689
45	13.72	0.792	0.085	0.788	0.104	0.791
50	15.24	0.93	0.056	0.924	0.115	0.928
55	16.76	1.107	0.037	1.099	0.137	1.105
60	18.29	1.334	0.025	1.323	0.169	1.331
65	19.81	1.618	0.017	1.605	0.208	1.614
70	21.34	1.965	0.014	1.95	0.245	1.957
75	22.86	2.361	0.015	2.347	0.265	2.346
80	24.38	2.758	0.022	2.748	0.241	2.732
85	25.91	3.054	0.036	3.051	0.162	3.014
90	27.43	3.11	0.064	3.109	0.215	3.055
95	28.96	2.834	0.12	2.819	0.449	2.767
100	30.48	2.305	0.221	2.273	0.638	2.238
105	32	1.801	0.355	1.783	0.688	1.748
110	33.53	1.591	0.402	1.59	0.643	1.53
115	35.05	1.587	0.403	1.587	0.642	1.526
120	36.58	1.789	0.357	1.772	0.685	1.736
125	38.1	2.285	0.223	2.254	0.634	2.219
130	39.62	2.807	0.12	2.792	0.444	2.74
135	41.15	3.075	0.063	3.074	0.209	3.02
140	42.67	3.011	0.034	3.008	0.162	2.971
145	44.2	2.706	0.018	2.696	0.244	2.68
150	45.72	2.301	0.01	2.285	0.27	2.284
155	47.24	1.896	0.005	1.879	0.249	1.886
160	48.77	1.54	0.003	1.525	0.211	1.534
165	50.29	1.246	0.002	1.234	0.172	1.242
170	51.82	1.011	0.001	1.001	0.136	1.008
175	53.34	0.825	0.001	0.818	0.108	0.823
180	54.86	0.678	0.001	0.672	0.085	0.677
185	56.39	0.562	0.002	0.558	0.068	0.561
190	57.91	0.469	0.002	0.466	0.054	0.469
195	59.44	0.395	0.002	0.393	0.043	0.395
200	60.96	0.336	0.003	0.334	0.035	0.335
205	62.48	0.287	0.003	0.286	0.029	0.287
210	64.01	0.247	0.003	0.246	0.024	0.247
215	65.53	0.214	0.004	0.213	0.02	0.214
220	67.06	0.187	0.004	0.186	0.016	0.187
225	68.58	0.164	0.004	0.163	0.014	0.164
230	70.1	0.144	0.005	0.144	0.012	0.144
235	71.63	0.128	0.005	0.127	0.01	0.128
240	73.15	0.114	0.005	0.113	0.009	0.113
245	74.68	0.101	0.005	0.101	0.007	0.101
250	76.2	0.091	0.005	0.091	0.006	0.091
255	77.72	0.082	0.006	0.082	0.006	0.082
260	79.25	0.074	0.006	0.074	0.005	0.074
265	80.77	0.067	0.006	0.067	0.004	0.067
270	82.3	0.061	0.006	0.061	0.004	0.061
275	83.82	0.055	0.006	0.055	0.003	0.055
280	85.34	0.051	0.006	0.051	0.003	0.051
285	86.87	0.046	0.006	0.046	0.003	0.046
290	88.39	0.043	0.006	0.043	0.002	0.043
295	89.92	0.039	0.007	0.039	0.002	0.039
300	91.44	0.036	0.007	0.036	0.002	0.036
305	92.96	0.034	0.007	0.034	0.002	0.034

310	94.49	0.031	0.007	0.031	0.002	0.031
315	96.01	0.029	0.007	0.029	0.001	0.029
320	97.54	0.027	0.007	0.027	0.001	0.027
325	99.06	0.025	0.007	0.025	0.001	0.025
330	100.58	0.023	0.007	0.023	0.001	0.023
335	102.11	0.022	0.007	0.022	0.001	0.022
340	103.63	0.02	0.007	0.02	0.001	0.02
345	105.16	0.019	0.007	0.019	0.001	0.019
350	106.68	0.018	0.007	0.018	0.001	0.018
355	108.2	0.017	0.007	0.017	0.001	0.017
360	109.73	0.016	0.007	0.016	0.001	0.016
365	111.25	0.015	0.007	0.015	0.001	0.015
370	112.78	0.014	0.007	0.014	0.001	0.014
375	114.3	0.013	0.007	0.013	0	0.013
380	115.82	0.013	0.007	0.013	0	0.013
385	117.35	0.012	0.007	0.012	0	0.012
390	118.87	0.011	0.007	0.011	0	0.011
395	120.4	0.011	0.007	0.011	0	0.011
400	121.92	0.01	0.007	0.01	0	0.01
405	123.44	0.01	0.007	0.01	0	0.01
410	124.97	0.009	0.007	0.009	0	0.009
415	126.49	0.009	0.007	0.009	0	0.009
420	128.02	0.009	0.007	0.009	0	0.009
425	129.54	0.008	0.007	0.008	0	0.008
430	131.06	0.008	0.007	0.008	0	0.008
435	132.59	0.007	0.007	0.007	0	0.007
440	134.11	0.007	0.007	0.007	0	0.007
445	135.64	0.007	0.007	0.007	0	0.007
450	137.16	0.007	0.007	0.007	0	0.007
455	138.68	0.006	0.007	0.006	0	0.006
460	140.21	0.006	0.007	0.006	0	0.006
465	141.73	0.006	0.007	0.006	0	0.006
470	143.26	0.006	0.007	0.006	0	0.006
475	144.78	0.005	0.007	0.005	0	0.005
480	146.3	0.005	0.007	0.005	0	0.005
485	147.83	0.005	0.007	0.005	0	0.005
490	149.35	0.005	0.007	0.005	0	0.005
495	150.88	0.005	0.007	0.005	0	0.005
500	152.4	0.005	0.007	0.004	0	0.004

AC CURRENTS IN EACH BUNDLE:

----- BNDL #	AC CURRENTS (Amperes) ----- REAL	IMAGINAR	TOTAL	BUNDLE POSITION X-COORD	Y-COORD
2	369.35	0	369.35	6	35
3	-184.68	319.87	369.35	-6	29
4	-184.67	-319.87	369.35	6	23
7	1000	0	1000	93	27
8	-500	866.03	1000	112.5	27
9	-500	-866.03	1000	132	27
1	-0.52	-13.83	13.84	0	41
5	12.97	-19.86	23.72	102.75	32
6	5.28	21.15	21.79	122.25	32

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*          *
*          MAGNETIC FIELD      PROFILE    *
*          at                3.28 feet       above      ground     *
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<---------- LATERAL DISTANCE (feet)	AC MAGNETIC FIELD MAJOR AXIS (meters)	MINOR/ MAJOR (mG)	VERTICAL COMP (RATIO)	----------> HORIZONT COMP (mG)	RMS RESULTANT (mG)	(mG)
-500	-152.4	0.68	0.013	0.65	0.21	0.68
-495	-150.88	0.69	0.012	0.66	0.21	0.69
-490	-149.35	0.7	0.012	0.67	0.22	0.7
-485	-147.83	0.71	0.012	0.68	0.22	0.71
-480	-146.3	0.72	0.012	0.69	0.22	0.72
-475	-144.78	0.74	0.012	0.7	0.23	0.74
-470	-143.26	0.75	0.012	0.71	0.23	0.75
-465	-141.73	0.76	0.012	0.72	0.23	0.76
-460	-140.21	0.77	0.011	0.73	0.24	0.77
-455	-138.68	0.78	0.011	0.75	0.24	0.78
-450	-137.16	0.8	0.011	0.76	0.24	0.8
-445	-135.64	0.81	0.011	0.77	0.25	0.81
-440	-134.11	0.82	0.011	0.78	0.25	0.82
-435	-132.59	0.84	0.011	0.8	0.26	0.84
-430	-131.06	0.85	0.011	0.81	0.26	0.85
-425	-129.54	0.87	0.011	0.82	0.27	0.87
-420	-128.02	0.88	0.011	0.84	0.27	0.88
-415	-126.49	0.9	0.011	0.85	0.28	0.9
-410	-124.97	0.91	0.01	0.87	0.28	0.91
-405	-123.44	0.93	0.01	0.88	0.29	0.93
-400	-121.92	0.95	0.01	0.9	0.29	0.95
-395	-120.4	0.96	0.01	0.92	0.3	0.96
-390	-118.87	0.98	0.01	0.93	0.3	0.98
-385	-117.35	1	0.01	0.95	0.31	1
-380	-115.82	1.02	0.01	0.97	0.32	1.02
-375	-114.3	1.04	0.01	0.99	0.32	1.04
-370	-112.78	1.06	0.01	1	0.33	1.06
-365	-111.25	1.08	0.01	1.02	0.34	1.08
-360	-109.73	1.1	0.01	1.04	0.35	1.1
-355	-108.2	1.12	0.01	1.06	0.35	1.12
-350	-106.68	1.14	0.01	1.08	0.36	1.14
-345	-105.16	1.17	0.01	1.11	0.37	1.17
-340	-103.63	1.19	0.01	1.13	0.38	1.19
-335	-102.11	1.22	0.009	1.15	0.39	1.22
-330	-100.58	1.24	0.009	1.18	0.4	1.24
-325	-99.06	1.27	0.009	1.2	0.41	1.27
-320	-97.54	1.3	0.009	1.23	0.42	1.3
-315	-96.01	1.32	0.009	1.25	0.43	1.32
-310	-94.49	1.35	0.009	1.28	0.44	1.35
-305	-92.96	1.38	0.009	1.31	0.46	1.38
-300	-91.44	1.41	0.009	1.33	0.47	1.42
-295	-89.92	1.45	0.009	1.36	0.48	1.45
-290	-88.39	1.48	0.009	1.4	0.5	1.48
-285	-86.87	1.52	0.009	1.43	0.51	1.52
-280	-85.34	1.55	0.009	1.46	0.53	1.55
-275	-83.82	1.59	0.009	1.49	0.55	1.59
-270	-82.3	1.63	0.008	1.53	0.56	1.63

-265	-80.77	1.67	0.008	1.57	0.58	1.67
-260	-79.25	1.71	0.008	1.6	0.6	1.71
-255	-77.72	1.76	0.008	1.64	0.62	1.76
-250	-76.2	1.8	0.008	1.68	0.64	1.8
-245	-74.68	1.85	0.008	1.73	0.67	1.85
-240	-73.15	1.9	0.008	1.77	0.69	1.9
-235	-71.63	1.95	0.008	1.82	0.72	1.95
-230	-70.1	2.01	0.008	1.86	0.75	2.01
-225	-68.58	2.06	0.007	1.91	0.78	2.06
-220	-67.06	2.12	0.007	1.96	0.81	2.12
-215	-65.53	2.18	0.007	2.02	0.84	2.18
-210	-64.01	2.25	0.007	2.07	0.87	2.25
-205	-62.48	2.32	0.007	2.13	0.91	2.32
-200	-60.96	2.39	0.007	2.19	0.95	2.39
-195	-59.44	2.46	0.006	2.25	1	2.46
-190	-57.91	2.54	0.006	2.32	1.04	2.54
-185	-56.39	2.62	0.006	2.38	1.09	2.62
-180	-54.86	2.71	0.006	2.45	1.15	2.71
-175	-53.34	2.8	0.006	2.53	1.2	2.8
-170	-51.82	2.89	0.005	2.6	1.26	2.89
-165	-50.29	2.99	0.005	2.68	1.33	2.99
-160	-48.77	3.1	0.005	2.76	1.4	3.1
-155	-47.24	3.21	0.005	2.85	1.48	3.21
-150	-45.72	3.33	0.004	2.94	1.57	3.33
-145	-44.2	3.46	0.004	3.03	1.66	3.46
-140	-42.67	3.59	0.004	3.13	1.76	3.59
-135	-41.15	3.74	0.003	3.23	1.87	3.74
-130	-39.62	3.89	0.003	3.34	2	3.89
-125	-38.1	4.05	0.003	3.45	2.13	4.05
-120	-36.58	4.23	0.002	3.56	2.28	4.23
-115	-35.05	4.42	0.002	3.68	2.45	4.42
-110	-33.53	4.62	0.002	3.8	2.63	4.62
-105	-32	4.84	0.001	3.93	2.84	4.84
-100	-30.48	5.09	0.001	4.05	3.08	5.09
-95	-28.96	5.35	0	4.18	3.34	5.35
-90	-27.43	5.65	0	4.31	3.65	5.65
-85	-25.91	5.97	0.001	4.44	4	5.97
-80	-24.38	6.35	0.002	4.56	4.41	6.35
-75	-22.86	6.77	0.003	4.68	4.89	6.77
-70	-21.34	7.26	0.005	4.78	5.47	7.26
-65	-19.81	7.84	0.007	4.85	6.16	7.84
-60	-18.29	8.54	0.01	4.88	7.01	8.54
-55	-16.76	9.4	0.015	4.83	8.07	9.4
-50	-15.24	10.48	0.021	4.65	9.4	10.48
-45	-13.72	11.87	0.03	4.25	11.09	11.87
-40	-12.19	13.67	0.043	3.48	13.24	13.69
-35	-10.67	16.05	0.061	2.18	15.93	16.08
-30	-9.14	19.16	0.085	1.76	19.15	19.23
-25	-7.62	23.2	0.116	5.8	22.63	23.36
-20	-6.1	28.24	0.159	12.97	25.49	28.6
-15	-4.57	34.11	0.216	23.24	26.04	34.9
-10	-3.05	40.17	0.296	35.19	22.73	41.89
-5	-1.52	45.22	0.407	44.71	19.62	48.83
0	0	47.79	0.559	46.88	28.31	54.76
5	1.52	46.82	0.76	42.84	40.27	58.8
10	3.05	43.33	0.971	42.24	43.16	60.39
15	4.57	47.43	0.768	46.66	37.44	59.82
20	6.1	49.53	0.614	49.53	30.43	58.13
25	7.62	50.44	0.501	49.52	27.04	56.42
30	9.14	51.26	0.414	48.24	27.39	55.47

35	10.67	52.7	0.344	47.03	29.88	55.72
40	12.19	55.19	0.287	46.49	33.69	57.41
45	13.72	59.04	0.241	46.74	38.77	60.73
50	15.24	64.51	0.206	47.66	45.47	65.87
55	16.76	71.92	0.181	48.88	54.34	73.09
60	18.29	81.66	0.164	49.79	66.1	82.75
65	19.81	94.2	0.156	49.35	81.57	95.34
70	21.34	110.06	0.155	45.94	101.46	111.38
75	22.86	129.59	0.163	37.75	125.75	131.3
80	24.38	152.57	0.179	28.71	152.32	155.01
85	25.91	177.57	0.205	46.61	175.18	181.28
90	27.43	201.43	0.243	94.52	184.48	207.28
95	28.96	220.11	0.292	151.02	172.58	229.33
100	30.48	230.9	0.353	197.71	144.49	244.88
105	32	234.25	0.417	223.93	119.39	253.77
110	33.53	233.46	0.461	232.32	110.16	257.11
115	35.05	232.39	0.46	231.77	108.33	255.83
120	36.58	231.14	0.413	222.7	113.76	250.07
125	38.1	226.02	0.345	196.53	136.18	239.1
130	39.62	213.76	0.279	150.21	163.33	221.9
135	41.15	193.95	0.222	93.7	175.21	198.69
140	42.67	169.31	0.177	44	166.22	171.95
145	44.2	143.8	0.142	20.93	143.72	145.24
150	45.72	120.43	0.114	30.06	117.43	121.22
155	47.24	100.53	0.093	38.6	93.3	100.96
160	48.77	84.22	0.076	41.74	73.42	84.46
165	50.29	71.04	0.062	41.48	57.85	71.18
170	51.82	60.45	0.051	39.47	45.88	60.53
175	53.34	51.89	0.043	36.72	36.72	51.94
180	54.86	44.93	0.036	33.76	29.69	44.96
185	56.39	39.22	0.03	30.85	24.25	39.24
190	57.91	34.5	0.025	28.12	20	34.51
195	59.44	30.56	0.021	25.63	16.65	30.57
200	60.96	27.24	0.018	23.38	13.98	27.24
205	62.48	24.42	0.015	21.37	11.82	24.42
210	64.01	22.01	0.013	19.57	10.08	22.01
215	65.53	19.93	0.011	17.96	8.64	19.93
220	67.06	18.13	0.009	16.53	7.46	18.13
225	68.58	16.56	0.008	15.24	6.47	16.56
230	70.1	15.18	0.007	14.1	5.65	15.18
235	71.63	13.97	0.006	13.06	4.95	13.97
240	73.15	12.89	0.005	12.14	4.36	12.89
245	74.68	11.94	0.004	11.3	3.85	11.94
250	76.2	11.08	0.004	10.54	3.42	11.08
255	77.72	10.31	0.004	9.85	3.04	10.31
260	79.25	9.62	0.003	9.23	2.72	9.62
265	80.77	9	0.003	8.66	2.43	9
270	82.3	8.43	0.003	8.14	2.18	8.43
275	83.82	7.91	0.003	7.67	1.97	7.91
280	85.34	7.44	0.003	7.23	1.78	7.44
285	86.87	7.01	0.003	6.83	1.61	7.01
290	88.39	6.62	0.003	6.46	1.46	6.62
295	89.92	6.26	0.003	6.12	1.32	6.26
300	91.44	5.93	0.003	5.8	1.2	5.93
305	92.96	5.62	0.004	5.51	1.1	5.62
310	94.49	5.34	0.004	5.24	1	5.34
315	96.01	5.07	0.004	4.99	0.91	5.07
320	97.54	4.83	0.004	4.75	0.84	4.83
325	99.06	4.6	0.005	4.54	0.77	4.6
330	100.58	4.39	0.005	4.33	0.7	4.39

335	102.11	4.19	0.006	4.14	0.65	4.19
340	103.63	4.01	0.006	3.96	0.59	4.01
345	105.16	3.83	0.006	3.79	0.55	3.83
350	106.68	3.67	0.007	3.64	0.5	3.67
355	108.2	3.52	0.007	3.49	0.46	3.52
360	109.73	3.38	0.008	3.35	0.43	3.38
365	111.25	3.24	0.008	3.22	0.4	3.24
370	112.78	3.12	0.009	3.1	0.37	3.12
375	114.3	3	0.009	2.98	0.34	3
380	115.82	2.89	0.01	2.87	0.31	2.89
385	117.35	2.78	0.011	2.77	0.29	2.78
390	118.87	2.68	0.011	2.67	0.27	2.68
395	120.4	2.58	0.012	2.57	0.25	2.58
400	121.92	2.49	0.012	2.48	0.23	2.49
405	123.44	2.41	0.013	2.4	0.21	2.41
410	124.97	2.33	0.014	2.32	0.2	2.33
415	126.49	2.25	0.014	2.24	0.18	2.25
420	128.02	2.18	0.015	2.17	0.17	2.18
425	129.54	2.11	0.016	2.1	0.16	2.11
430	131.06	2.04	0.016	2.04	0.15	2.04
435	132.59	1.98	0.017	1.97	0.13	1.98
440	134.11	1.92	0.018	1.91	0.12	1.92
445	135.64	1.86	0.018	1.86	0.12	1.86
450	137.16	1.8	0.019	1.8	0.11	1.81
455	138.68	1.75	0.02	1.75	0.1	1.75
460	140.21	1.7	0.021	1.7	0.09	1.7
465	141.73	1.65	0.021	1.65	0.09	1.65
470	143.26	1.61	0.022	1.61	0.08	1.61
475	144.78	1.56	0.023	1.56	0.07	1.56
480	146.3	1.52	0.024	1.52	0.07	1.52
485	147.83	1.48	0.024	1.48	0.07	1.48
490	149.35	1.44	0.025	1.44	0.06	1.44
495	150.88	1.4	0.026	1.4	0.06	1.4
500	152.4	1.37	0.027	1.37	0.05	1.37

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**********************************
*          *
*          AUDIBLE   NOISE      *
*          GENERATE ACOUSTIC POWER    *
*          (dB      above      1uW/m)  *
*          *
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L5 BNDL	L50 #	Type	Summer	Fair	RAIN	RAIN
2	AC	******	-90.96	******		
3	AC	******	-91.55	******		
4	AC	******	-89.27	******		
7	AC	-81.08	-58.94	-70.37		
8	AC	-75.55	-55.49	-65.57		
9	AC	-80.88	-58.81	-70.19		
1	Ground	Wire	******	******	******	
5	Ground	Wire	******	******	******	
6	Ground	Wire	******	******	******	

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*********************************************
*          *
*          AUDIBLE   NOISE      *
*          *
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*          Microphor is                5 feet      above     ground    *
*          Altitude            0 ft      *
*          *
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<------ LATERAL DISTANCE (feet)	BPA FAIR WEATHER (meters)	METHOD L5 RAIN dB(A)	-------> L50 RAIN dB(A)	<- AVERAGE Ldn dB(A)	CRIEPI L5 FAIR dB(A)	--> L5 RAIN dB(A)	EdF L5 RAIN dB(A)	ENEL L5 RAIN dB(A)	IREQ RAIN dB(A)	dB(A)
-500	-152.4	3.4	31.9	28.4	0	0	0	33	33.9	0
-495	-150.88	3.4	31.9	28.4	0	0	0	33.1	34	0
-490	-149.35	3.4	31.9	28.4	0	0	0	33.1	34	0
-485	-147.83	3.5	32	28.5	0	0	0	33.1	34.1	0
-480	-146.3	3.5	32	28.5	0	0	0	33.2	34.1	0
-475	-144.78	3.6	32.1	28.6	0	0	0	33.2	34.1	0
-470	-143.26	3.6	32.1	28.6	0	0	0	33.2	34.2	0
-465	-141.73	3.6	32.1	28.6	0	0	0	33.3	34.2	0
-460	-140.21	3.7	32.2	28.7	0	0	0	33.3	34.2	0
-455	-138.68	3.7	32.2	28.7	0	0	0	33.4	34.3	0
-450	-137.16	3.8	32.3	28.8	0	0	0	33.4	34.3	0
-445	-135.64	3.8	32.3	28.8	0	0	0	33.4	34.4	0
-440	-134.11	3.9	32.4	28.9	0	0	0	33.5	34.4	0
-435	-132.59	3.9	32.4	28.9	0	0	0	33.5	34.4	0
-430	-131.06	4	32.5	29	0	0	0	33.5	34.5	0
-425	-129.54	4	32.5	29	0	0	0	33.6	34.5	0
-420	-128.02	4	32.5	29	0	0	0	33.6	34.6	0
-415	-126.49	4.1	32.6	29.1	0	0	0	33.7	34.6	0
-410	-124.97	4.1	32.6	29.1	0	0	0	33.7	34.6	0
-405	-123.44	4.2	32.7	29.2	0	0	0	33.8	34.7	0
-400	-121.92	4.2	32.7	29.2	0	0	0	33.8	34.7	0
-395	-120.4	4.3	32.8	29.3	0	0	0	33.8	34.8	0
-390	-118.87	4.3	32.8	29.3	0	0	0	33.9	34.8	0
-385	-117.35	4.4	32.9	29.4	0	0	0	33.9	34.9	0
-380	-115.82	4.4	32.9	29.4	0	0	0	34	34.9	0
-375	-114.3	4.5	33	29.5	0	0	0	34	34.9	0
-370	-112.78	4.5	33	29.5	0	0	0	34.1	35	0
-365	-111.25	4.6	33.1	29.6	0	0	0	34.1	35	0
-360	-109.73	4.6	33.1	29.6	0	0	0	34.2	35.1	0
-355	-108.2	4.7	33.2	29.7	0	0	0	34.2	35.1	0
-350	-106.68	4.7	33.2	29.7	0	0	0	34.2	35.2	0
-345	-105.16	4.8	33.3	29.8	0	0	0	34.3	35.2	0
-340	-103.63	4.9	33.4	29.9	0	0	0	34.3	35.3	0
-335	-102.11	4.9	33.4	29.9	0	0	0	34.4	35.3	0
-330	-100.58	5	33.5	30	0	0	0	34.4	35.4	0
-325	-99.06	5	33.5	30	0	0	0	34.5	35.4	0
-320	-97.54	5.1	33.6	30.1	0	0	0	34.5	35.5	0
-315	-96.01	5.1	33.6	30.1	0	0	0	34.6	35.5	0
-310	-94.49	5.2	33.7	30.2	0	0	0	34.6	35.6	0
-305	-92.96	5.3	33.8	30.3	0	0	0	34.7	35.6	0
-300	-91.44	5.3	33.8	30.3	0	0	0	34.7	35.7	0
-295	-89.92	5.4	33.9	30.4	0	0	0	34.8	35.7	0
-290	-88.39	5.4	33.9	30.4	0	0	0	34.9	35.8	0
-285	-86.87	5.5	34	30.5	0	0	0	34.9	35.8	0
-280	-85.34	5.6	34.1	30.6	0	0	0	35	35.9	0
-275	-83.82	5.6	34.1	30.6	0	0	0	35	35.9	0
-270	-82.3	5.7	34.2	30.7	0	0	0	35.1	36	0
-265	-80.77	5.8	34.3	30.8	0	0	0	35.1	36.1	0
-260	-79.25	5.8	34.3	30.8	0	0	0	35.2	36.1	0

-255	-77.72	5.9	34.4	30.9	0	0	0	35.2	36.2	0
-250	-76.2	6	34.5	31	0	0	0	35.3	36.2	0
-245	-74.68	6	34.5	31	0	0	0	35.4	36.3	0
-240	-73.15	6.1	34.6	31.1	0	0	0	35.4	36.4	0
-235	-71.63	6.2	34.7	31.2	0	0	0	35.5	36.4	0
-230	-70.1	6.2	34.7	31.2	0	0	0	35.6	36.5	0
-225	-68.58	6.3	34.8	31.3	0	0	0	35.6	36.5	0
-220	-67.06	6.4	34.9	31.4	0	0	0	35.7	36.6	0
-215	-65.53	6.5	35	31.5	0	0	0	35.8	36.7	0
-210	-64.01	6.5	35	31.5	0	0	0	35.8	36.7	0
-205	-62.48	6.6	35.1	31.6	0	0	0	35.9	36.8	0
-200	-60.96	6.7	35.2	31.7	0	0	0	36	36.9	0
-195	-59.44	6.8	35.3	31.8	0	0	0	36	36.9	0
-190	-57.91	6.8	35.3	31.8	0	0	0	36.1	37	0
-185	-56.39	6.9	35.4	31.9	0	0	0	36.2	37.1	0
-180	-54.86	7	35.5	32	0	0	0	36.2	37.2	0
-175	-53.34	7.1	35.6	32.1	0	0	0	36.3	37.2	0
-170	-51.82	7.2	35.7	32.2	0	0	0	36.4	37.3	0
-165	-50.29	7.3	35.8	32.3	0	0	0	36.5	37.4	0
-160	-48.77	7.4	35.9	32.4	0	0	0	36.6	37.5	0
-155	-47.24	7.5	36	32.5	0	0	0	36.6	37.6	0
-150	-45.72	7.6	36.1	32.6	0	0	0	36.7	37.6	0
-145	-44.2	7.6	36.1	32.6	0	0	0	36.8	37.7	0
-140	-42.67	7.7	36.2	32.7	0	0	0	36.9	37.8	0
-135	-41.15	7.8	36.3	32.8	0	0	0	37	37.9	0
-130	-39.62	7.9	36.4	32.9	0	0	0	37.1	38	0
-125	-38.1	8	36.5	33	0	0	0	37.2	38.1	0
-120	-36.58	8.2	36.7	33.2	0	0	0	37.3	38.2	0
-115	-35.05	8.3	36.8	33.3	0	0	0	37.4	38.3	0
-110	-33.53	8.4	36.9	33.4	0	0	0	37.5	38.4	0
-105	-32	8.5	37	33.5	0	0	0	37.6	38.5	0
-100	-30.48	8.6	37.1	33.6	0	0	0	37.7	38.6	0
-95	-28.96	8.7	37.2	33.7	0	0	0	37.8	38.7	0
-90	-27.43	8.8	37.3	33.8	0	0	0	37.9	38.8	0
-85	-25.91	9	37.5	34	0	0	0	38	38.9	0
-80	-24.38	9.1	37.6	34.1	0	0	0	38.1	39	0
-75	-22.86	9.2	37.7	34.2	0	0	0	38.2	39.1	0
-70	-21.34	9.3	37.8	34.3	0	0	0	38.3	39.2	0
-65	-19.81	9.5	38	34.5	0	0	0	38.5	39.4	0
-60	-18.29	9.6	38.1	34.6	0	0	0	38.6	39.5	0
-55	-16.76	9.8	38.3	34.8	0	0	0	38.7	39.6	0
-50	-15.24	9.9	38.4	34.9	0	0	0	38.9	39.8	0
-45	-13.72	10.1	38.6	35.1	0	0	0	39	39.9	0
-40	-12.19	10.2	38.7	35.2	0	0	0	39.2	40	0
-35	-10.67	10.4	38.9	35.4	0	0	0	39.3	40.2	0
-30	-9.14	10.6	39.1	35.6	0	0	0	39.5	40.4	0
-25	-7.62	10.8	39.3	35.8	0	0	0	39.6	40.5	0
-20	-6.1	10.9	39.4	35.9	0	0	0	39.8	40.7	0
-15	-4.57	11.1	39.6	36.1	0	0	0	40	40.9	0
-10	-3.05	11.3	39.8	36.3	0	0	0	40.2	41	0
-5	-1.52	11.5	40	36.5	0	0	0	40.4	41.2	0
0	0	11.7	40.2	36.7	0	0	0	40.6	41.4	0
5	1.52	12	40.5	37	0	0	0	40.7	41.6	0
10	3.05	12.2	40.7	37.2	0	0	0	40.9	41.8	0
15	4.57	12.4	40.9	37.4	0	0	0	41.1	42	0
20	6.1	12.7	41.2	37.7	0	0	0	41.3	42.2	0
25	7.62	13	41.5	38	0	0	0	41.5	42.4	0
30	9.14	13.2	41.7	38.2	0	0	0	41.7	42.6	0
35	10.67	13.5	42	38.5	0	0	0	42	42.9	0
40	12.19	13.8	42.3	38.8	0	0	0	42.3	43.2	0

45	13.72	14.2	42.7	39.2	0	0	0	42.5	43.5	0
50	15.24	14.5	43	39.5	0	0	0	42.8	43.8	0
55	16.76	14.9	43.4	39.9	0	0	0	43.2	44.1	0
60	18.29	15.3	43.8	40.3	0	0	0	43.5	44.5	0
65	19.81	15.8	44.3	40.8	0	0	0	43.9	44.8	0
70	21.34	16.2	44.7	41.2	0	0	0	44.3	45.2	0
75	22.86	16.7	45.2	41.7	0	0	0	44.7	45.7	0
80	24.38	17.2	45.7	42.2	0	0	0	45.2	46.1	0
85	25.91	17.7	46.2	42.7	0	0	0	45.6	46.5	0
90	27.43	18.2	46.7	43.2	0	0	0	45.9	46.9	0
95	28.96	18.5	47	43.5	0	0	0	46.3	47.2	0
100	30.48	18.8	47.3	43.8	0	0	0	46.5	47.5	0
105	32	19.1	47.6	44.1	0	0	0	46.7	47.6	0
110	33.53	19.2	47.7	44.2	0	0	0	46.8	47.7	0
115	35.05	19.2	47.7	44.2	0	0	0	46.8	47.7	0
120	36.58	19.1	47.6	44.1	0	0	0	46.7	47.6	0
125	38.1	18.9	47.4	43.9	0	0	0	46.5	47.5	0
130	39.62	18.5	47	43.5	0	0	0	46.3	47.2	0
135	41.15	18.2	46.7	43.2	0	0	0	46	46.9	0
140	42.67	17.7	46.2	42.7	0	0	0	45.6	46.5	0
145	44.2	17.3	45.8	42.3	0	0	0	45.2	46.1	0
150	45.72	16.8	45.3	41.8	0	0	0	44.7	45.7	0
155	47.24	16.3	44.8	41.3	0	0	0	44.3	45.3	0
160	48.77	15.8	44.3	40.8	0	0	0	43.9	44.8	0
165	50.29	15.4	43.9	40.4	0	0	0	43.5	44.5	0
170	51.82	14.9	43.4	39.9	0	0	0	43.1	44.1	0
175	53.34	14.6	43.1	39.6	0	0	0	42.8	43.8	0
180	54.86	14.2	42.7	39.2	0	0	0	42.5	43.4	0
185	56.39	13.9	42.4	38.9	0	0	0	42.2	43.1	0
190	57.91	13.5	42	38.5	0	0	0	41.9	42.9	0
195	59.44	13.2	41.7	38.2	0	0	0	41.7	42.6	0
200	60.96	13	41.5	38	0	0	0	41.4	42.3	0
205	62.48	12.7	41.2	37.7	0	0	0	41.2	42.1	0
210	64.01	12.4	40.9	37.4	0	0	0	40.9	41.9	0
215	65.53	12.2	40.7	37.2	0	0	0	40.7	41.7	0
220	67.06	11.9	40.4	36.9	0	0	0	40.5	41.5	0
225	68.58	11.7	40.2	36.7	0	0	0	40.3	41.3	0
230	70.1	11.5	40	36.5	0	0	0	40.1	41.1	0
235	71.63	11.3	39.8	36.3	0	0	0	40	40.9	0
240	73.15	11.1	39.6	36.1	0	0	0	39.8	40.7	0
245	74.68	10.9	39.4	35.9	0	0	0	39.6	40.6	0
250	76.2	10.7	39.2	35.7	0	0	0	39.5	40.4	0
255	77.72	10.6	39.1	35.6	0	0	0	39.3	40.3	0
260	79.25	10.4	38.9	35.4	0	0	0	39.2	40.1	0
265	80.77	10.2	38.7	35.2	0	0	0	39	40	0
270	82.3	10.1	38.6	35.1	0	0	0	38.9	39.8	0
275	83.82	9.9	38.4	34.9	0	0	0	38.7	39.7	0
280	85.34	9.8	38.3	34.8	0	0	0	38.6	39.6	0
285	86.87	9.6	38.1	34.6	0	0	0	38.5	39.4	0
290	88.39	9.5	38	34.5	0	0	0	38.4	39.3	0
295	89.92	9.3	37.8	34.3	0	0	0	38.2	39.2	0
300	91.44	9.2	37.7	34.2	0	0	0	38.1	39.1	0
305	92.96	9.1	37.6	34.1	0	0	0	38	39	0
310	94.49	9	37.5	34	0	0	0	37.9	38.8	0
315	96.01	8.8	37.3	33.8	0	0	0	37.8	38.7	0
320	97.54	8.7	37.2	33.7	0	0	0	37.7	38.6	0
325	99.06	8.6	37.1	33.6	0	0	0	37.6	38.5	0
330	100.58	8.5	37	33.5	0	0	0	37.5	38.4	0
335	102.11	8.4	36.9	33.4	0	0	0	37.4	38.3	0
340	103.63	8.3	36.8	33.3	0	0	0	37.3	38.2	0

345	105.16	8.1	36.6	33.1	0	0	0	37.2	38.1	0
350	106.68	8	36.5	33	0	0	0	37.1	38	0
355	108.2	7.9	36.4	32.9	0	0	0	37	38	0
360	109.73	7.8	36.3	32.8	0	0	0	36.9	37.9	0
365	111.25	7.7	36.2	32.7	0	0	0	36.8	37.8	0
370	112.78	7.6	36.1	32.6	0	0	0	36.8	37.7	0
375	114.3	7.5	36	32.5	0	0	0	36.7	37.6	0
380	115.82	7.5	36	32.5	0	0	0	36.6	37.5	0
385	117.35	7.4	35.9	32.4	0	0	0	36.5	37.4	0
390	118.87	7.3	35.8	32.3	0	0	0	36.4	37.4	0
395	120.4	7.2	35.7	32.2	0	0	0	36.4	37.3	0
400	121.92	7.1	35.6	32.1	0	0	0	36.3	37.2	0
405	123.44	7	35.5	32	0	0	0	36.2	37.1	0
410	124.97	6.9	35.4	31.9	0	0	0	36.1	37.1	0
415	126.49	6.8	35.3	31.8	0	0	0	36.1	37	0
420	128.02	6.8	35.3	31.8	0	0	0	36	36.9	0
425	129.54	6.7	35.2	31.7	0	0	0	35.9	36.9	0
430	131.06	6.6	35.1	31.6	0	0	0	35.8	36.8	0
435	132.59	6.5	35	31.5	0	0	0	35.8	36.7	0
440	134.11	6.5	35	31.5	0	0	0	35.7	36.7	0
445	135.64	6.4	34.9	31.4	0	0	0	35.6	36.6	0
450	137.16	6.3	34.8	31.3	0	0	0	35.6	36.5	0
455	138.68	6.2	34.7	31.2	0	0	0	35.5	36.5	0
460	140.21	6.2	34.7	31.2	0	0	0	35.5	36.4	0
465	141.73	6.1	34.6	31.1	0	0	0	35.4	36.3	0
470	143.26	6	34.5	31	0	0	0	35.3	36.3	0
475	144.78	6	34.5	31	0	0	0	35.3	36.2	0
480	146.3	5.9	34.4	30.9	0	0	0	35.2	36.2	0
485	147.83	5.8	34.3	30.8	0	0	0	35.2	36.1	0
490	149.35	5.8	34.3	30.8	0	0	0	35.1	36	0
495	150.88	5.7	34.2	30.7	0	0	0	35	36	0
500	152.4	5.6	34.1	30.6	0	0	0	35	35.9	0

Audible noise prediction methods do not apply to all line geometries, voltages, or weather conditions If a prediction method does not apply, the appropriat output data column will be zeros.

EXHIBIT BB
OTHER INFORMATION

OAR 345-021-0010(1)(bb)

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BB.1 INFORMATION REQUESTED IN PROJECT ORDER

OAR 345-021-0010(1)(bb) *Any other information that the Department requests in the project order or in a notification regarding expedited review.*

Response: The Department approved the Boardman Solar Energy Facility (Facility) for expedited review as a small-capacity facility in a letter dated August 26, 2016. The approval letter did not request any other information that should be included and addressed in Exhibit BB. Per OAR 345-015-300(3) regarding requests for expedited review, the Department will issue a project order for the Facility following submission of the preliminary Application for Site Certificate. Boardman Solar Energy LLC (Applicant) will provide other information as requested in the project order.

EXHIBIT CC
ADDITIONAL STATUTES, RULES, AND ORDINANCES

OAR 345-021-0010(1)(cc)

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CC.1 OVERVIEW

Response: Exhibit CC identifies "all state statutes and administrative rules and local government ordinances containing standards or criteria" that the proposed Boardman Solar Facility (Facility) must meet for the Energy Facility Siting Council to issue a site certificate, other than statutes, rules, and ordinances identified in Exhibit E.

CC.2 ADDITIONAL STATUTES, RULES, AND ORDINANCES

OAR 345-021-0010(1)(cc) *Identification, by legal citation, of all state statutes and administrative rules and local government ordinances containing standards or criteria that the proposed facility must meet for the Council to issue a site certificate, other than statutes, rules and ordinances identified in Exhibit E, and identification of the agencies administering those statutes, administrative rules and ordinances. The applicant shall identify all statutes, administrative rules and ordinances that the applicant knows to be applicable to the proposed facility, whether or not identified in the project order. To the extent not addressed by other materials in the application, the applicant shall include a discussion of how the proposed facility meets the requirements of the applicable statutes, administrative rules and ordinances.*

Response: Table CC-1 identifies by relevant administering agency and legal citation the state statutes and administrative rules and local government ordinances referenced in other Exhibits, with the exception of those presented in Exhibit E. The identified statutes, rules, and ordinances contain standards or criteria that the proposed Facility must meet for the Council to issue a site certificate.

Table CC-1. State Statutes, Rules, and Ordinances Referenced in Other Exhibits

Administering Agency	Agency Address	Legal Citation	Relevant Exhibit
Oregon Department of Agriculture	Oregon Department of Agriculture 635 Capitol Street, N.E. Salem, OR 97301-2532 (503) 986-4550	Plant Conservation Biology Program—ORS 564; OAR Chapter 603, Division 73	**Exhibit Q** discusses plant species in the Facility analysis area that are threatened or endangered.
Oregon Parks and Recreation Department—Archaeological	State Historic Preservation Office 725 Summer St. NE, Suite C Salem, OR 97301 (503) 986-0671	Native American Graves and Protected Objects—ORS 97.740-97.760 Archaeological Objects and Sites—ORS 358.905-358.961	**Exhibit S** provides information about historic, cultural, and archaeological resources in the Facility analysis area.
Oregon Department of Environmental Quality—Water Quality	Oregon Department of Environmental Quality 475 NE Bellevue Dr., Suite 110 Bend, OR 97701 (541) 388-6146	Water Quality—ORS 468 and 468B; OAR Chapter 340, Divisions 41, 45, 52, and 55	**Exhibit O** discusses water requirements, sources, permits, transfers, and mitigation measures**.**
Oregon Department of Environmental Quality—Noise	Oregon Department of Environmental Quality 811 SW 6th Avenue Portland, OR 97204-1390 (503) 229-5696	Noise Control Regulations—ORS 467; OAR Chapter 340, Division 35	**Exhibit X** provides an analysis of noise impacts from the Facility and compliance with required thresholds.
Oregon Department of Environmental Quality—Hazardous Waste Management	Oregon Department of Environmental Quality 811 SW 6th Avenue Portland, OR 97204-1390 (503) 229-5696	Hazardous Waste Management—ORS 465 and 466; OAR Chapter 340, Divisions 100-113	**Exhibit G** describes proposed measures for managing hazardous waste generated by the Facility.

Table CC-1. State Statutes, Rules, and Ordinances Referenced in Other Exhibits

Administering Agency	Agency Address	Legal Citation	Relevant Exhibit
Oregon Department of Environmental Quality—Solid Waste	Oregon Department of Environmental Quality 811 SW 6th Avenue Portland, OR 97204-1390 (503) 229-5696	Solid Waste—RS 459; OAR Chapter 340, Division 93	**Exhibit V** describes proposed measures for managing solid waste generated by the Facility.
Oregon Department of Fish and Wildlife—Habitat Conservation Division	Oregon Department of Fish and Wildlife 3406 Cherry Avenue N.E. Salem, OR 97303-4924 (503) 947-6000	Habitat Conservation—ORS 496; OAR Chapter 635, Divisions 100 and 415	**Exhibits J**, **P**, **and Q** address Facility impacts on wetlands, fish and wildlife habitat, and threatened or endangered species, respectively. Proposed mitigation measures are described.
Oregon Biodiversity Information Center (formerly the Oregon Natural Heritage Information Center)	Oregon Biodiversity Information Center Oregon State University Institute for Natural Resources University Center Building, Suite 335 527 SW Hall Street Portland, OR 97201 503-725-9950	Threatened or Endangered Plants—ORS 564.105; OAR 603, Division 73 and 345-022-0070	**Exhibit Q** addresses Facility impacts on threatened or endangered plant species. Proposed mitigation measures are described.
Oregon Department of Geology and Mineral Industries	Oregon Department of Geology and Mineral Industries 800 NE Oregon Street, Suite 965 Portland, OR 97232 (971) 673-1555	Department of Geology and Mineral Industries Administrative Rules—OAR Chapter 632	**Exhibits H and I** address geologic and soil stability and soil conditions, respectively.
Oregon Office of State Fire Marshal—Emergency Planning and Community Right-to-Know Act (EPCRA)	Oregon Office of State Fire Marshal 4760 Portland Rd NE Salem, OR 97305-1760 (503) 378-3473	Radiation Sources; Hazardous Substances—ORS 453; OAR Chapter 837, Divisions 85 and 95	**Exhibit G** describes proposed measures for managing hazardous waste generated by the Facility.
Oregon Water Resources Department—Water Rights Division	Department of Water Resources Commerce Building 158 12th NE Salem, OR 97301-4172 (503) 378-8455	Appropriation of Water Generally—ORS Chapter 537 Distribution of Water; Watermasters; Change in Use; Transfer or Forfeiture of Water Rights—ORS Chapter 540 Water Resources Administrative Rules—OAR Chapter 690	**Exhibit O** discusses water requirements, sources, permits, transfers, and mitigation measures**.**
Oregon Department of State Lands—Land Ownership	Oregon Department of State Lands 775 Summer Street NE, Suite 100 Salem, OR 97301-1279 (503) 378-3805	Department of State Lands—OAR Chapter 141	**Exhibit F** provides information related to the land ownership notification requirements for this ASC.

Table CC-1. State Statutes, Rules, and Ordinances Referenced in Other Exhibits

Administering Agency	Agency Address	Legal Citation	Relevant Exhibit
Department of Land Conservation and Development	Department of Land Conservation and Development 635 Capitol Street NE, Suite 150 Salem, OR 97301-2540 (503) 373-0050	Comprehensive Land Use Planning Coordination—ORS Chapter 197, ORS 215.274 Oregon Department of Land Conservation and Development Administrative Rules—OAR Chapter 660	**Exhibit K** addresses Facility adherence to Oregon state and local land conservation and development laws and requirements.

EXHIBIT DD
OTHER SPECIFIC STANDARDS

OAR 345-021-0010(1)(dd)

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OAR 345-021-0010(1)(dd) *If the proposed facility is a facility for which the Council has adopted specific standards, information about the facility providing evidence to support findings by the Council as required by the following rules:*

DD.1 WIND ENERGY FACILITIES

OAR 345-021-0010(1)(dd)(A) *For wind energy facilities, OAR 345-024-0010 and 0015.*

Response: Boardman Solar Energy LLC (Applicant) is not proposing to build a wind energy facility. Therefore, OAR 345-021-0010(1)(dd)(A) does not apply.

DD.2 GAS FACILITIES

OAR 345-021-0010(1)(dd)(B) *For surface facilities related to underground gas storage reservoirs, OAR 345-024-0030, including information required by OAR 345-021-0020.*

Response: The proposed Boardman Solar Energy Facility (Facility) does not include underground gas storage reservoirs. Therefore, OAR 345-021-0010(1)(dd)(B) does not apply.

DD.3 TRANSMISSION LINES UNDER COUNCIL JURISDICTION

OAR 345-021-0010(1)(dd)(C) *For any transmission line under Council jurisdiction, OAR 345-024-0090.*

Response: The Facility does not include a transmission line that meets the definition of an energy facility under Energy Facility Siting Council jurisdiction. However, the proposed 115-kilovolt transmission line is a related or supporting facility. Exhibit AA contains information regarding compliance with OAR 345-024-0090 for this related or supporting facility.