



SCOTTISH & SOUTHERN ELECTRICITY
NETWORK (SSEN)

EMF ASSESSMENT STUDY FOR 400kV OHTL



SCOTTISH & SOUTHERN ELECTRICITY NETWORK (SSEN)

EMF ASSESSMENT STUDY FOR 400KV OHTL REPORT

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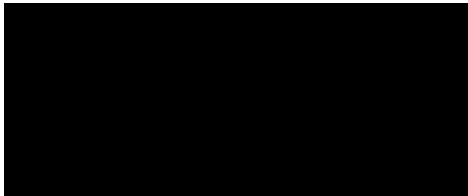
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SCOTTISH & SOUTHERN ELECTRICITY NETWORK (SSEN)

EMF ASSESSMENT STUDY FOR 400KV OHTL REPORT

WSP



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QUALITY CONTROL

Issue/revision	First issue	Second issue	Third issue
Remarks	Draft Report	Final Report	Final Report
Date	July 2024	August 2024	July 2025
Prepared by	██████████	██████████	██████████
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TERMINOLOGY

Term	Definition
ENA	Energy Network Association
EMF	Electro Magnetic Fields
ELF	Extremely Low Frequency
ICNIRP	International Commission on Non-Ionizing Radiation Protection
INIRC	International Non-Ionizing Radiation Committee
IARC	International Agency for Research on Cancer
NPS	National Policy Statement
OHTL	Overhead Transmission Line
SCENIHR	Scientific Committee on Emerging and Newly Identified Health Risks
SSEN	Scottish and Southern Electricity Network
WHO	World Health Organisation

1 BACKGROUND AND SCOPE OF WORK

WSP is assigned as the consultant to perform a 400kV Substation and 400kV OHL EMF Assessment Study Report for Scottish & Southern Electricity Networks (SSEN). The EMF Assessment Study is essential to ensure that personnel available in Substations or nearby to the OHTL are not exposed to a harmful level of Electromagnetic Field (EMF).

As per our proposal (70111023) to undertake the EMF studies, the following report is issued by WSP.

- **EMF assessment Study Report for 400kV OHTL of SSEN – Transmission**

This report covers the EMF assessment study for the 400kV OHTL of SSEN Transmission. The proposed tower cross-section diagram considered for the entire study is shown below.

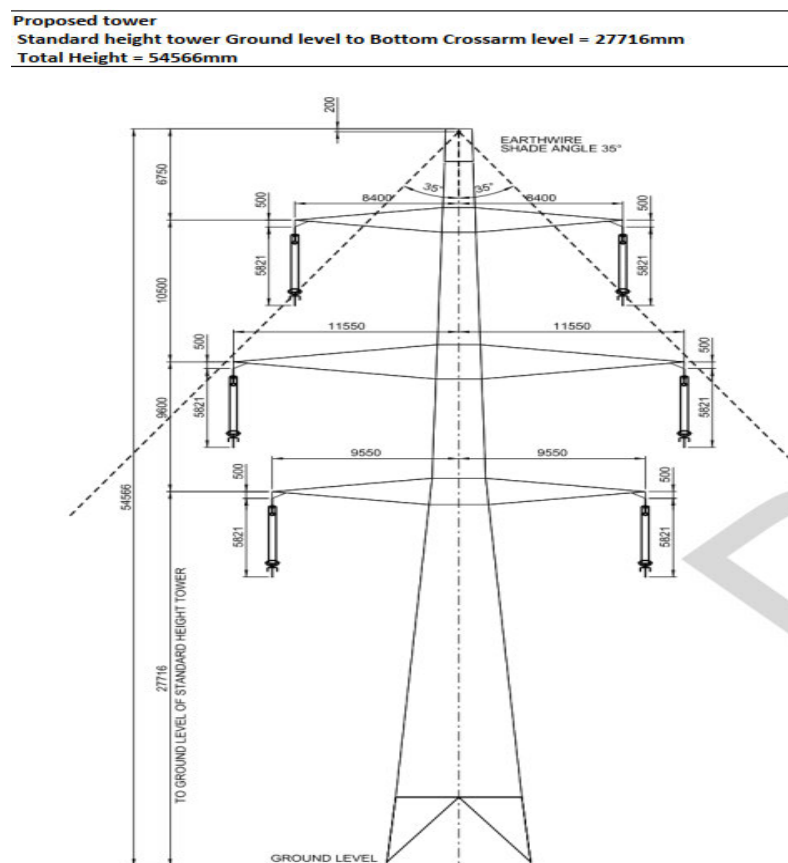


Figure 1- Proposed Suspension Tower AD & BD Diagram

2 INPUT DATA

The following are the input data received from SSEN for the undertaking the EMF studies.

Sl. No.	DESCRIPTION	VALUES	UNIT
A	Source Fault Level of 400kV OHTL		
	Phase Fault	45	kA
	Earth Fault	-	-
B	X/R Ratio of 400kV OHTL		
	Phase Fault	19.95	
	Earth Fault	6.7	
C	Length of the Overhead Transmission Line		
	Minimum	76	km
	Maximum	115	km
D	400kV Tension Insulator Details		
	Creepage Distance	10500	mm
	String Length	7.6	m
	Mechanical Strength	300	kN
	No. of Discs	22	-
	Disc Type	Glass	-
	Arc Horn Distance	2800	mm
E	400kV Suspension Insulator Details		
	Creepage Distance	4290	mm
	String Length	6	m
	Mechanical Strength	300	kN
	No. of Discs	24	-
	Disc Type	Glass	-
	Arc Horn Distance	2683	mm

F	400kV OHTL Conductors Details		
	Number of Conductor per phase	3	-
	Bundle Spacing	500	mm
	Maximum Continuous Current Rating of each circuit	5000	A
	Minimum Continuous Current Rating of each circuit	3370	A
	Soil Resistivity	100	ohm-m
	400kV Tower Footing Resistance	5	ohm
	400kV Transmission Line Minimum Ground Clearance	9	m

3 SIMULATION MODEL DEVELOPMENT

3.1 SIMULATION TOOL

CDEGS (Current Distribution, Electromagnetic Fields, Grounding and Soil Structure Analysis) tool was used to perform the EMF voltage assessment study for 400kV Overhead Transmission Line Tower.

CDEGS is a powerful set of integrated software tools designed to accurately analyse a variety of electromagnetic related problems encountered in all industries involving electric networks.

The use of CDEGS for EMF analysis is recognised within the industry as standard practice.

3.2 CONSIDERATIONS FOR THE STUDY

The following are the data considered as per the confirmation provided by SSEN

- 400kV Span Length is considered to be 350m.
- Ground Clearance of 400kV OHTL is considered as 9m.
- Optimum phasing is also included in the 400kV OHTL model.
- Maximum 400kV Overhead Transmission Line Length (i.e. 115km) is considered for the entire study.
- EMF observation points is extended up to 170m on cross section side of the tower.

3.3 MODEL DEVELOPMENT

The following are the models that have been developed in CDEGS simulation tool to carry out the required EMF assessment study. The insulator lengths provided within the inputs table in section 2 are approximate lengths and final lengths will be confirmed by SSEN during their detailed design. Slight variation in these lengths will have negligible impact on the EMF assessment as the conductor has been sagged to have a minimum clearance to ground of 9m and the EMF values are taken at this closest point to ground where fields are at their maximum.

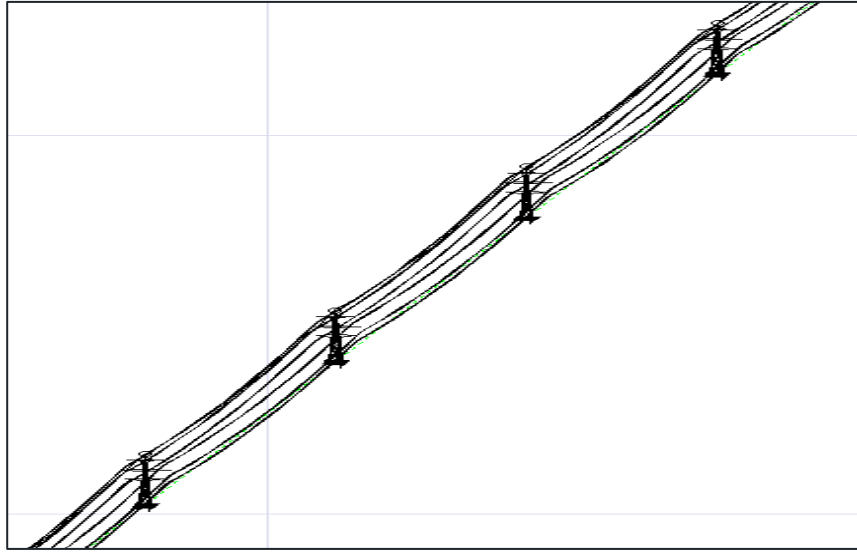


Figure 2 400kV OHTL Model

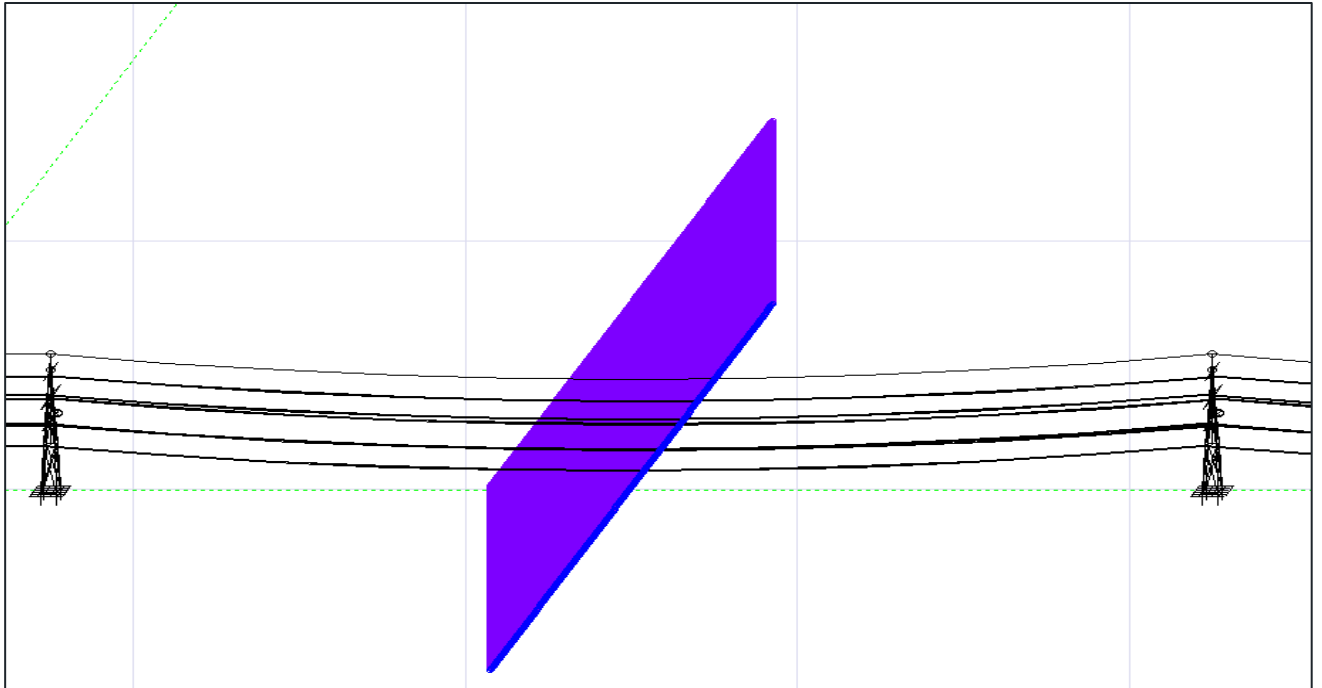


Figure 3 EMF Measuring points in YZ Plane in the mid of span

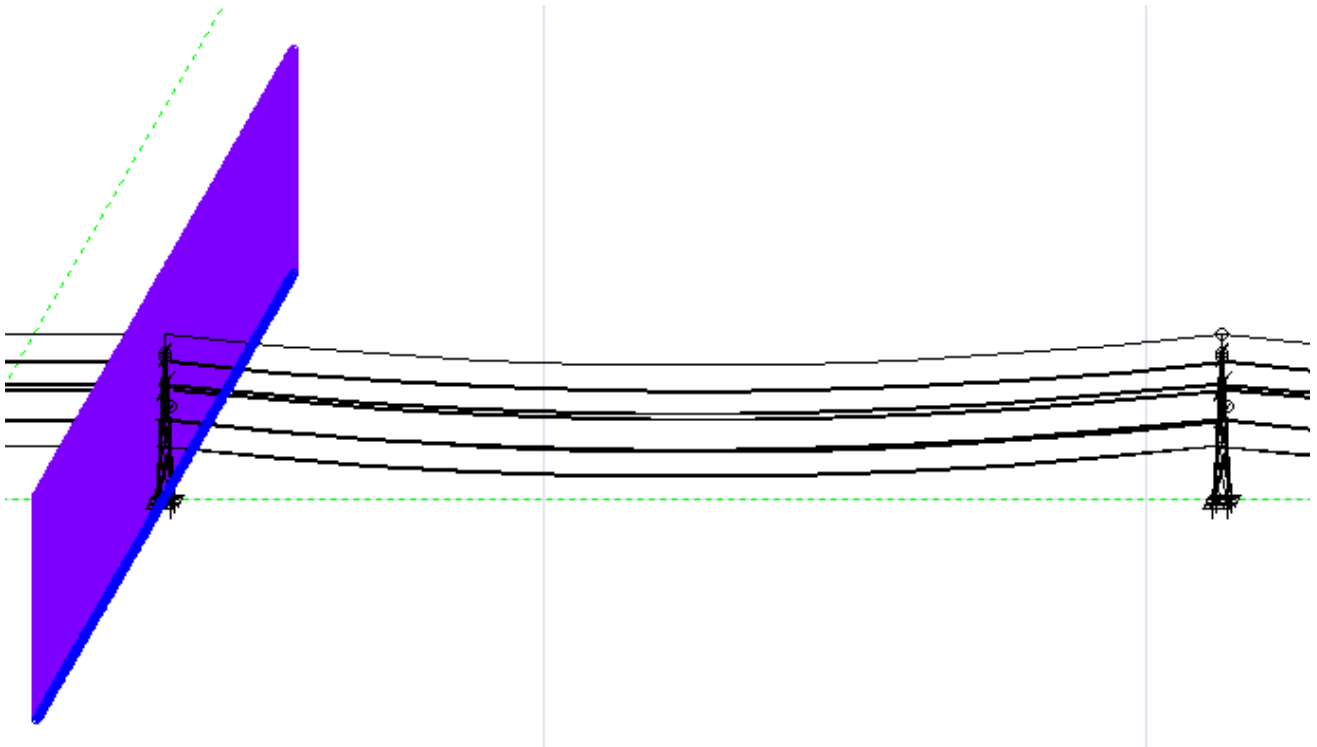


Figure 4 EMF Measuring points in YZ Plane in the mid of tower

4 STANDARD EXPOSURE LIMITS

4.1 PUBLIC EXPOSURE LIMITS

In March 2004, the UK adopted the 1998 guidelines published by ICNIRP. These guidelines (See [Table 1](#)) are designed to set conservative exposure levels for the general public to electric and magnetic fields, and they are endorsed by the UK's Health Protection Agency, the World Health Organisation and the UK Government.

It is the policy of the electricity industry to follow these independent guidelines. A Code of Practice CoP, published jointly in 2012 by industry and the Department for Energy and Climate Change (now part of the Department for Business, Energy and Industrial Strategy). This CoP sets out all the practical details needed to apply the exposure limits for transmission lines. All exposures in homes already comply with the ICNIRP guidelines. The electricity industry designs all new equipment to comply with the Government guidelines as set out in the Code of Practice. This includes measures such as adhering to statutory ground clearance requirements and ensuring optimum phasing of high voltage double-circuit overhead lines.

The CoP sets the maximum levels for long term public exposure as 360 μT for magnetic fields and 9 kV/m for electric fields. Long term exposure relates to places of residence or similar where people regularly spend extended periods of time. In other environments, where exposure can be deemed not to be for a significant period of time, the ICNIRP occupational guidelines, rather than the ICNIRP general public guidelines, shall be deemed to apply.

Table 1 – Public Exposure Limits for Power Frequency EMFs

Sl. No.	Public Exposure Levels	Electric Fields	Magnetic Fields
1	<i>Reference level (external unperturbed field)</i>	<i>5kV/m</i>	<i>100 μT</i>
2	<i>Field corresponding to the basic restriction (external unperturbed field)</i>	<i>9kV/m</i>	<i>360 μT</i>

4.2 OCCUPATIONAL EXPOSURE LIMITS

Occupational exposure (see [Table 2](#)) is defined as any exposure experienced by an individual during work related activities. The limits for occupational exposure are stated in the Control of Electromagnetic Fields at Work Regulations 2016. These limits are enforceable and should not be exceeded.

Table 2– Occupational Exposure Limits for Power Frequency EMFs

Sl. No.	Occupational Exposure Levels	Electric Fields	Magnetic Fields
1	<i>Reference level (external unperturbed field)</i>	<i>10kV/m</i>	<i>1000 μT</i>
2	<i>Field corresponding to the basic restriction (external unperturbed field)</i>	<i>20kV/m</i>	<i>6000 μT</i>

5 CASE SCENARIO

Based on the measuring profile and OHTL loading conditions, the following are the cases considered as discussed with SSEN.

Case A considers the expected continuous operating current for the proposed OHTL.

Case B considers the maximum possible current for the OHTL based on the substation equipment ratings being capped at 5000A. It should however be noted that some substation plant is limited at 4000A so although this assessment has been carried out, it is presented to consider the worst case load conditions however case A is representative of the actual operational values.

5.1 CASE - A

With partial loading of the OHTL (i.e. 3375A), the magnitudes of Electric and Magnetic Fields are measured at the mid of span.

5.2 CASE - B

With full loading of the OHTL (i.e. 5000A), the magnitudes of Electric and Magnetic Fields are measured at the mid of span.

6 STUDY RESULTS

This section presents the simulation results of the EMF assessment study for the Partial and full loading of the 400kV OHTL Circuit and results are tabulated in the [Table 3](#) and [Table 4](#).

6.1 SIMULATED GRAPH FOR ELECTRIC FIELD

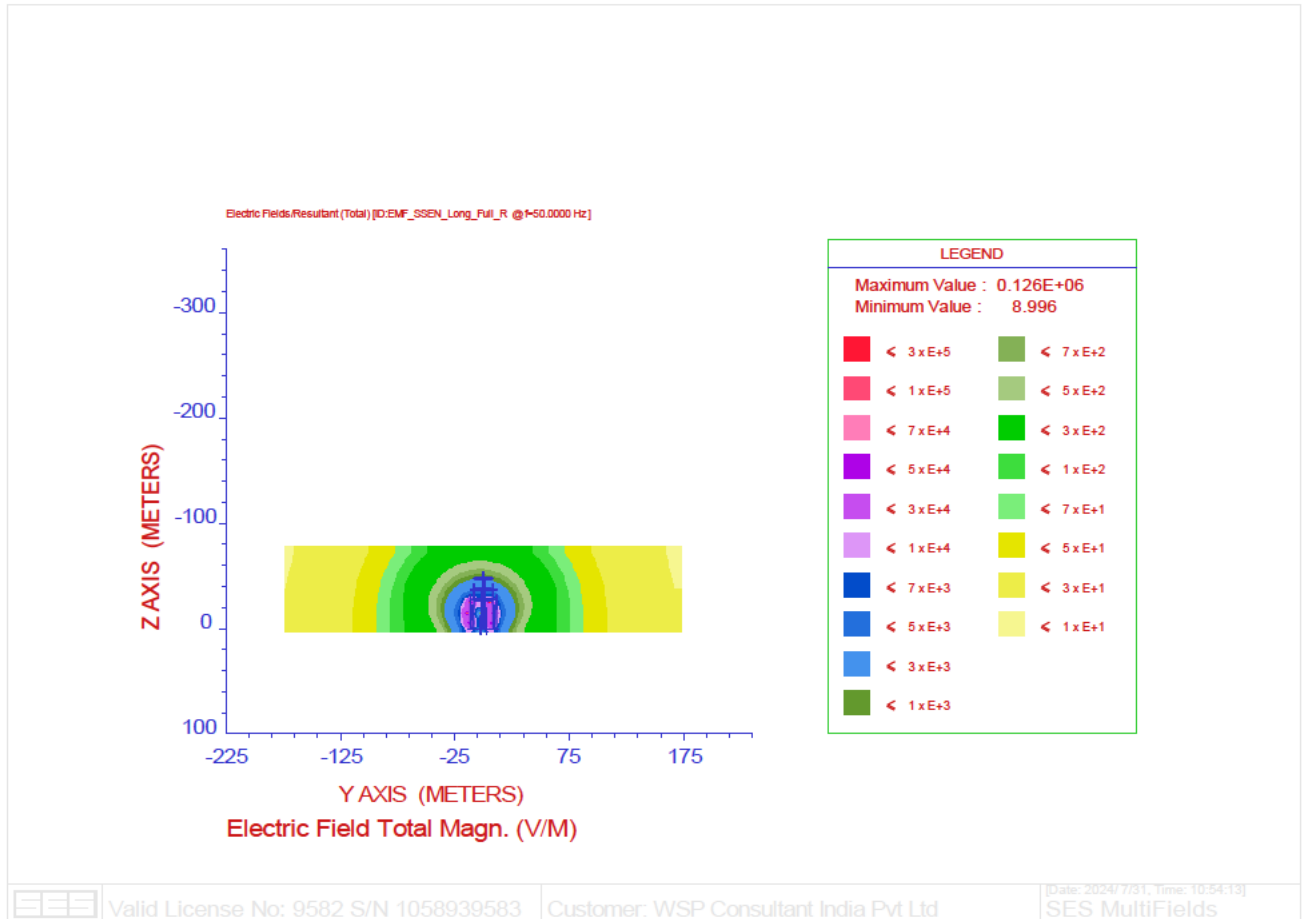


Figure 5 Electric Field Graph for Case A

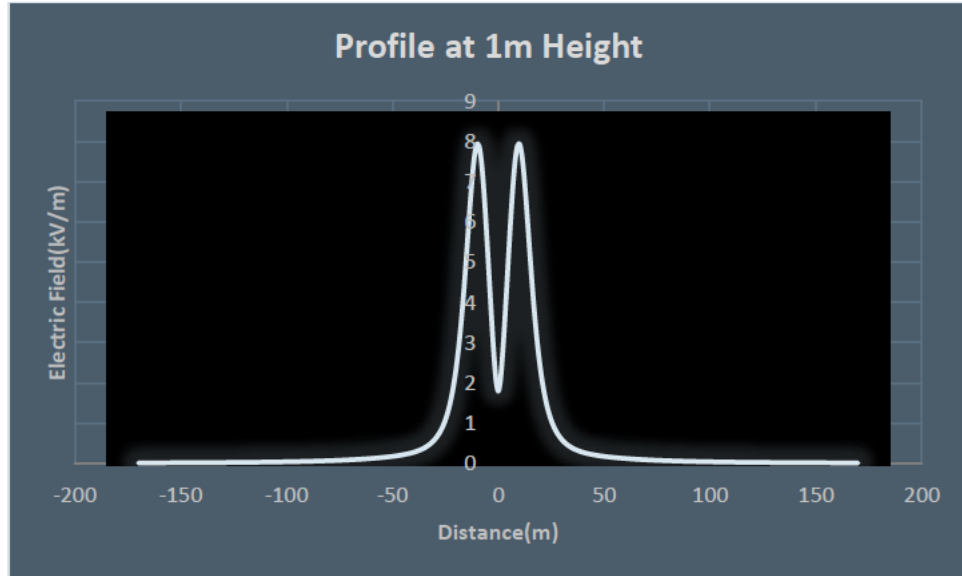


Figure 6 Electric Field Profile at 1m Height for Case A

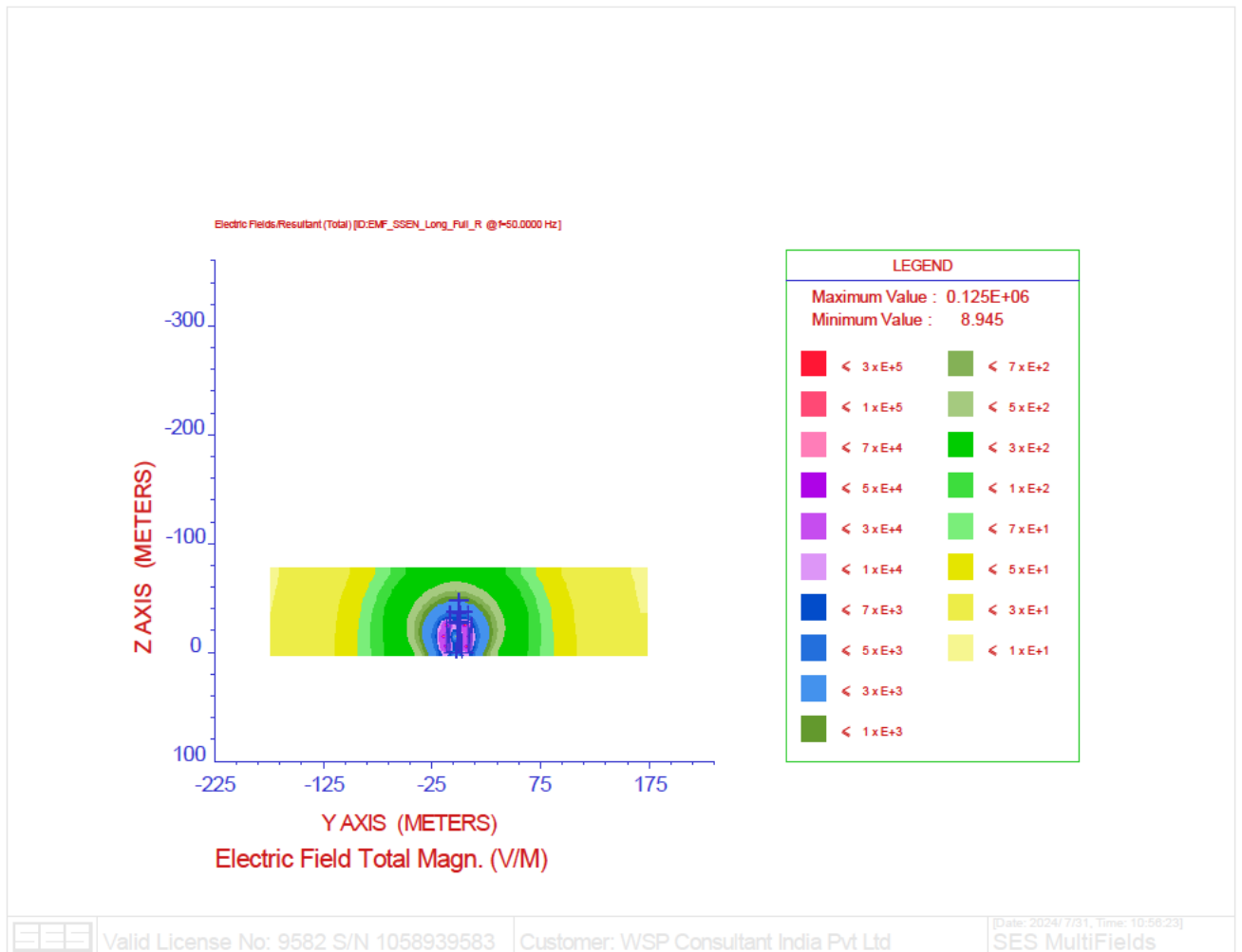


Figure 7 Electric Field Graph for Case B

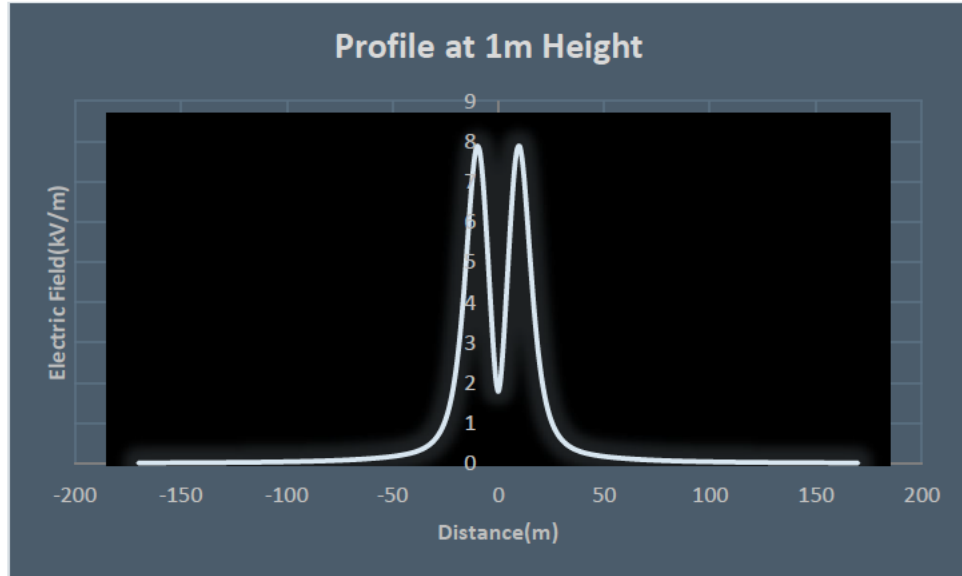


Figure 8 Electric Field Profile at 1m Height for Case B

6.2 TABULATED CASE RESULTS FOR ELECTRIC FIELD

Table 3 Electric Field result with change in OHTL loading and profile location

CASES	MAGNITUDE OF ELECTRIC FIELD FOR VARIOUS CASES					
	PROFILE LOCATION	400kV OHTL LOADING	SIMULATED VALUE AT 1m HEIGHT FROM GROUND		UK PUBLIC EXPOSURE LIMIT	SAFE/ UNSAFE
			±9 m from Centre (Lowest Conductor Below)	±170m from Centre		
	TOWER/MID OF SPAN	A	kV/m		kV/m	
A	MID OF SPAN	3375 A	7.936394	0.010479	9.0	SAFE
B	MID OF SPAN	5000 A	7.881355	0.01043		SAFE

6.3 SIMULATED GRAPH FOR MAGNETIC FIELD

Figure 9 Magnetic Field Graph for Case A

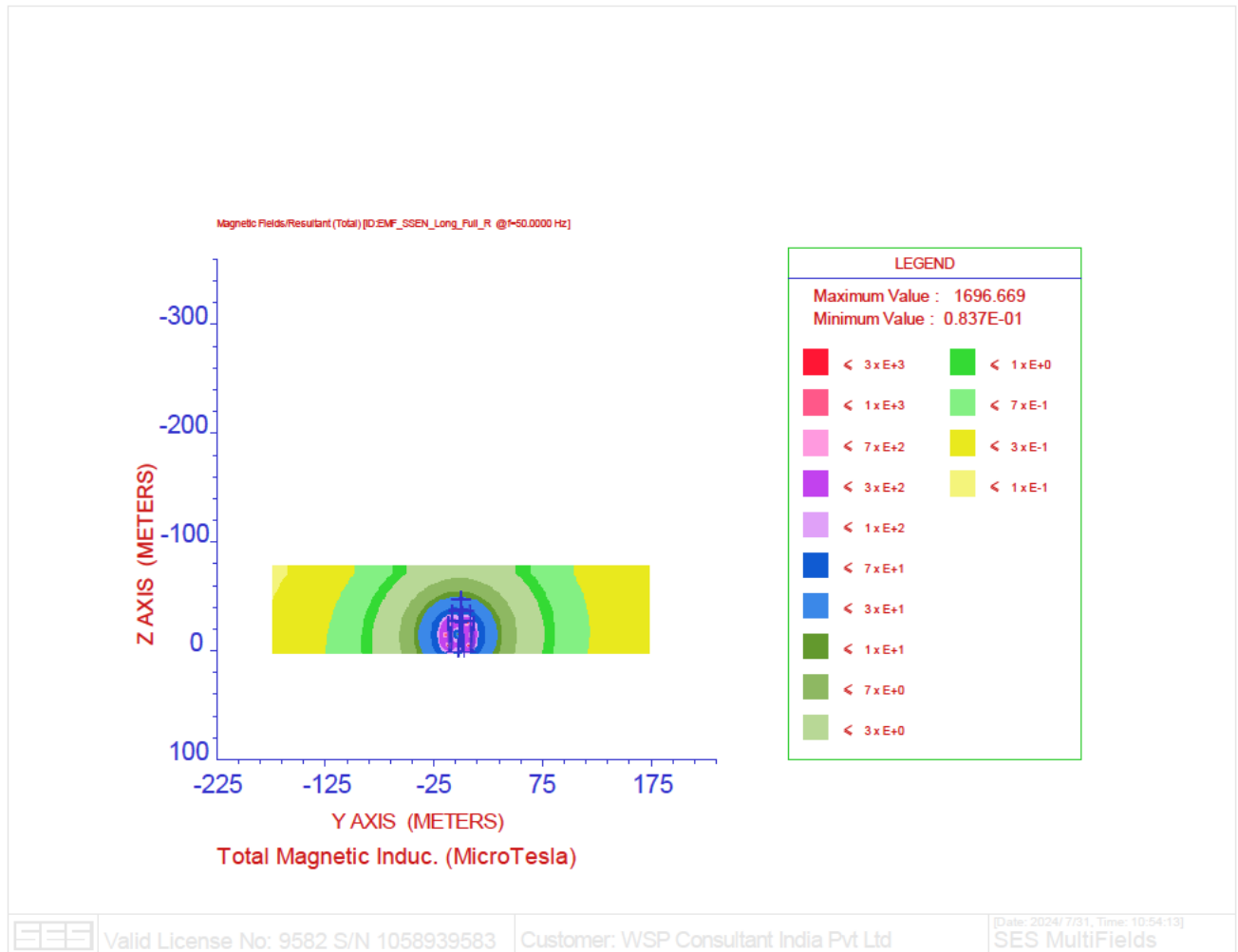


Figure 10 Magnetic Field Graph for Case A

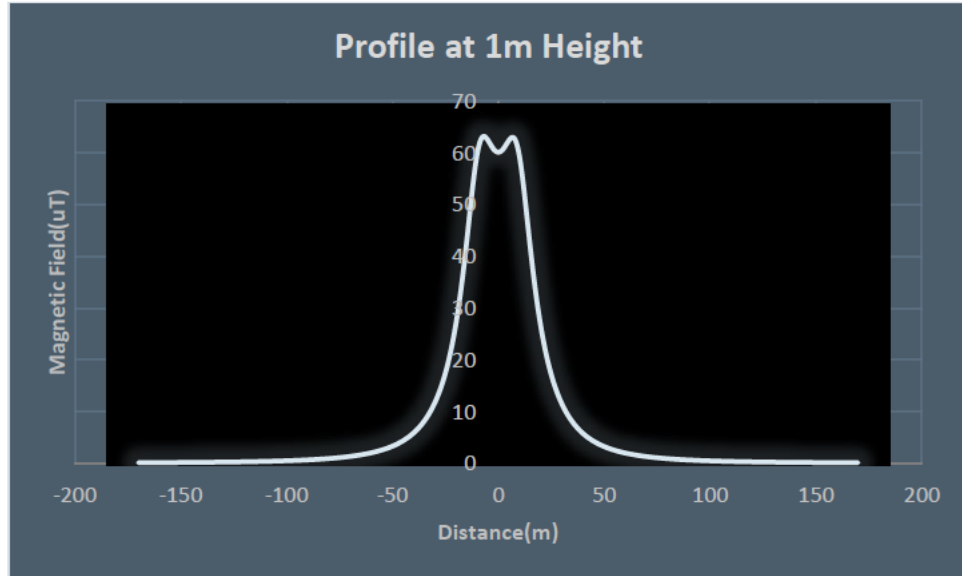


Figure 11 Magnetic Field Profile at 1m Height for Case A

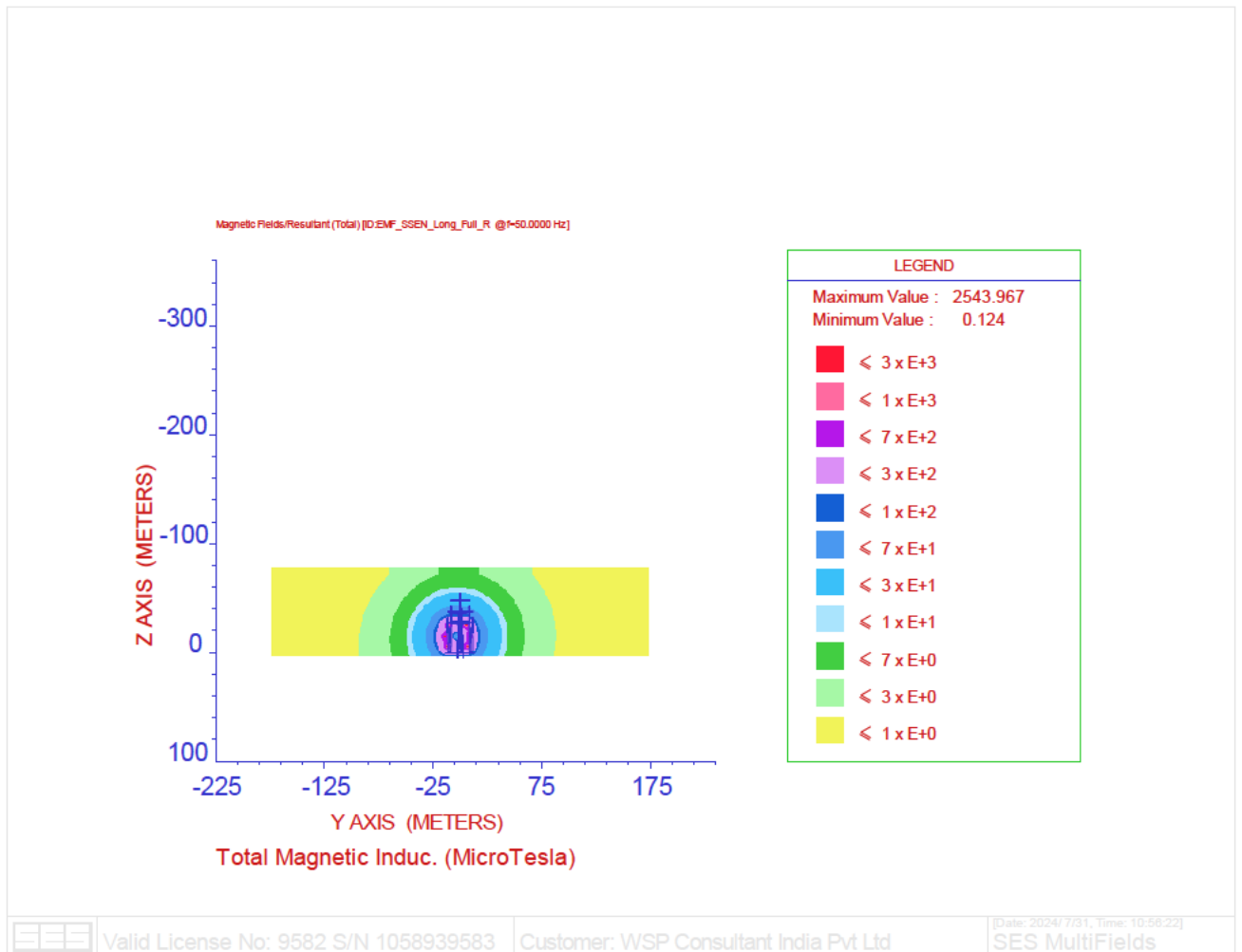


Figure 12 Magnetic Field Graph for Case B

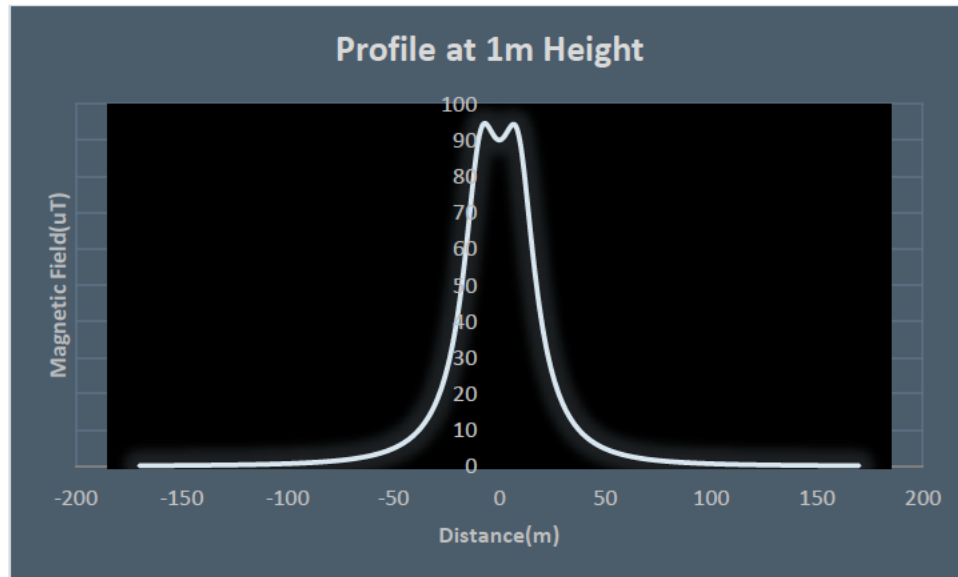


Figure 13 Magnetic Field Profile at 1m Height for Case B

6.4 TABULATED CASE RESULTS FOR MAGNETIC FIELD

Table 4 Magnetic Field result with change in OHTL loading and profile location

CASES	MAGNITUDE OF MAGNETIC FIELD FOR VARIOUS CASES					
	PROFILE LOCATION	400kV OHTL LOADING	SIMULATED VALUE AT 1m HEIGHT FROM GROUND		UK PUBLIC EXPOSURE LIMIT	SAFE/ UNSAFE
			± 9 m from Centre (Lowest Conductor Below)	± 170 m from Centre		
	TOWER/MID OF SPAN	A	Micro Tesla		Micro Tesla	
A	MID OF SPAN	3375 A	62.74127	0.123508	360	SAFE
B	MID OF SPAN	5000 A	92.30611	0.182544		SAFE

7 CONCLUSION

- In all the simulated test cases, the results have shown that the simulated values of Electric Field are well within the UK Exposure Limit.
- Similarly, the simulated value of the Magnetic Field is well within the UK Exposure Limit.

8 REFERENCES

- ICNIRP- Guidelines for Limiting Exposure to time varying Electric, Magnetic and EMF (Up to 300GHz)
- Electric and Magnetic Fields the facts – Produced by ENA - September 2017
- Working Group C4.208, "EMC within Power Plants and Substations," CIGRE2013
- IEEE Reference paper - Magnetic field calculations within substation environment for EMC studies
- National Policy Statement for Electricity Networks Infrastructure (EN-5)

EMF-OHL-002	Electric & Magnetic Field Study Report Spittal – Loch Buidhe - Beauly 400kV		Applies to	
			Distribution	Transmission ✓
Revision: 1.00	Classification: Public	Issue Date: July 25		

Appendix D PLS CADD Report for Cumulative Assessment

Optimal Phasing of Adjacent Circuits

PLS-CADD Version 20.01x64 14:23:43 02 July 2025
Scottish and Southern Energy
Project Name: 'C:\PSD\Combined_EMF_Check Temp\Combined_EMF_Check.don'
Line Title: 'Max Op'

3D EMF Calculation Notes:
1) Calculations based on the EPRI Red Book methods (3rd Edition, 2006 - 7.4 Calculation of Magnetic Fields and Appendices 7.1 Calculation of Field Ellipse Parameters and 7.6 Electric Field Calculations for 3D Geometry).
2) All wire positions are modeled at the specified weather case and wind direction. Heights above ground determined by the modeled ground TIN.
3) Only the effects of wires are being analysed. The effects of structures are not included unless enabled as noted below.
4) Ground return is being ignored for magnetic field calculations.

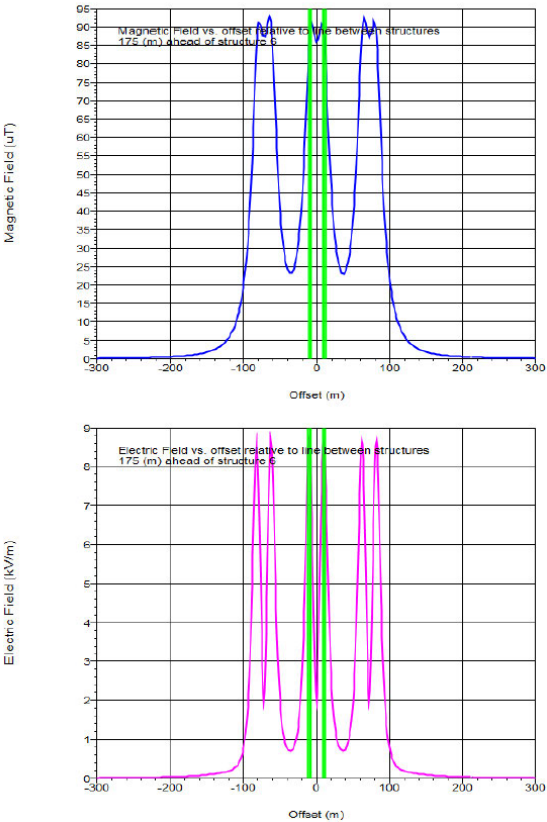
Header height above ground: 1.00 (m)
Maximum wire distance: 300.00 (m)
Maximum cable segment size: 3.00 (m)
Cross section offset +/-: 300.00 (m)
Result interval: 1.00 (m)
Electric field limit: 5.00 (kV/m)
Magnetic field limit: 260.00 (uT)
Space potential limit: 0.00 (kV)
Contour Map Spacing: 3 (m)
Analysing spans between these structures: 6 - 7

One or more sections have wind from both directions which is not supported. A wind direction of left is being used for those sections.

Section Data for 3D EMF Results:

Section Number	Section Note	Voltage (KV)	Current (Amps)	Filename	Description	Conductors Per Phase	Bundle Diameter (cm)	Cable Radius (cm)	Weather Case	Condition	Wind Dir.	Temperature (deg C)	WC Effective Radius (cm)
1	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
2	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
3	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
4	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
5	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
6	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
7	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
8	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
9	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
10	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
11	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
12	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
13	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
14	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
15	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
16	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
17	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700
18	400.0 5000.0	700mm AAC	AAAC	700mm ⁴ AAAC	- Araucaria (H)	3	57.735	1.863	Max Op	Creep FE Left	Left	90.000	16.700

Wire low point cross section results between structures 6 and 7



Electric & Magnetic Field Study Report

Spittal – Loch Buidhe - Beauly 400kV

Applies to

Distribution

Transmission



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10 EDF Point Results span from 6 to 7:

Measurement				B				H				EP				Space Potential			
K	W	L	U	Real Imaginary	Angle Magnitude	Polarization	Magnitude	Real Imaginary	Angle Magnitude	Polarization	Magnitude	Real Imaginary	Angle Magnitude	Polarization	Magnitude	Real Imaginary	Angle Magnitude		
(km)	(m)	(V)	(eV)	(eV)	(deg)	(mV)	(mV)	(eV)	(deg)	(mV)	(mV)	(eV)	(deg)	(mV)	(mV)	(eV)	(deg)		
373.0	515.0	1.3	0.002	0.044	51.7	0.284	7.5	0.047	0.000	0.007	45.1	0.007	0.2	-0.000	-0.001	85.1	0.007		
373.0	515.0	1.3	0.071	0.000	51.7	0.284	7.5	0.060	0.000	0.009	45.1	0.009	0.2	-0.000	-0.001	85.1	0.009		
376.0	515.0	1.3	0.072	0.091	51.8	0.118	6.9	0.093	0.000	0.009	47.1	0.009	0.2	-0.000	-0.001	87.1	0.009		
346.0	515.0	1.3	0.092	0.092	51.9	0.118	7.0	0.094	0.000	0.009	47.1	0.009	0.2	-0.000	-0.001	87.1	0.009		
346.0	515.0	1.3	0.073	0.093	51.9	0.118	7.0	0.095	0.000	0.009	47.1	0.009	0.2	-0.000	-0.001	87.1	0.009		
346.0	515.0	1.3	0.094	0.094	51.9	0.118	7.0	0.096	0.000	0.009	47.1	0.009	0.2	-0.000	-0.001	87.1	0.009		
346.0	515.0	1.3	0.075	0.095	51.8	0.121	7.5	0.097	0.001	0.010	46.8	0.010	0.2	-0.001	-0.001	86.8	0.010		
345.0	515.0	1.3	0.076	0.096	51.8	0.122	7.6	0.098	0.001	0.010	46.7	0.010	0.2	-0.001	-0.001	86.7	0.010		
341.0	515.0	1.3	0.077	0.098	51.8	0.104	7.9	0.099	0.001	0.010	46.6	0.010	0.2	-0.001	-0.010	86.6	0.010		
341.0	515.0	1.3	0.078	0.099	51.8	0.104	8.0	0.101	0.001	0.010	46.5	0.010	0.2	-0.001	-0.010	86.5	0.010		
341.0	515.0	1.3	0.079	0.101	51.8	0.108	8.3	0.102	0.001	0.010	46.1	0.010	0.2	-0.001	-0.010	86.1	0.010		
341.0	515.0	1.3	0.080	0.102	51.8	0.108	8.4	0.103	0.001	0.010	46.0	0.010	0.2	-0.001	-0.010	86.0	0.010		
339.0	515.0	1.3	0.081	0.103	51.8	0.108	8.5	0.104	0.001	0.010	45.8	0.010	0.2	-0.001	-0.010	85.8	0.010		
339.0	515.0	1.3	0.082	0.104	51.8	0.108	8.6	0.105	0.001	0.010	45.7	0.010	0.2	-0.001	-0.010	85.7	0.010		
337.0	515.0	1.3	0.083	0.106	51.8	0.124	8.8	0.107	0.001	0.011	45.3	0.011	0.2	-0.001	-0.011	85.3	0.011		
337.0	515.0	1.3	0.079	0.107	51.8	0.124	9.1	0.108	0.001	0.011	45.3	0.011	0.2	-0.001	-0.011	85.3	0.011		
335.0	515.0	1.3	0.085	0.108	51.8	0.127	9.2	0.110	0.001	0.011	45.1	0.011	0.2	-0.001	-0.011	85.1	0.011		
334.0	515.0	1.3	0.086	0.109	51.8	0.129	9.2	0.111	0.001	0.011	45.0	0.011	0.2	-0.001	-0.011	85.0	0.011		
334.0	515.0	1.3	0.087	0.110	51.8	0.142	9.5	0.112	0.001	0.011	44.9	0.011	0.2	-0.001	-0.011	84.9	0.011		
334.0	515.0	1.3	0.088	0.113	51.8	0.142	9.7	0.113	0.001	0.011	44.8	0.011	0.2	-0.001	-0.011	84.8	0.011		
330.0	515.0	1.3	0.090	0.114	51.8	0.146	9.8	0.114	0.001	0.011	44.5	0.011	0.2	-0.001	-0.011	84.5	0.011		
349.0	515.0	1.3	0.091	0.115	51.8	0.147	10.0	0.117	0.001	0.011	44.4	0.011	0.2	-0.001	-0.011	84.4	0.011		
349.0	515.0	1.3	0.092	0.117	51.8	0.147	10.1	0.118	0.001	0.011	44.2	0.011	0.2	-0.001	-0.011	84.2	0.011		
347.0	515.0	1.3	0.093	0.119	51.8	0.151	10.3	0.120	0.001	0.012	44.0	0.012	0.2	-0.001	-0.012	84.0	0.012		
347.0	515.0	1.3	0.094	0.120	51.8	0.151	10.4	0.122	0.001	0.012	43.9	0.012	0.2	-0.001	-0.012	83.9	0.012		
345.0	515.0	1.3	0.096	0.121	51.8	0.155	10.5	0.123	0.001	0.012	43.7	0.012	0.2	-0.001	-0.012	83.7	0.012		
345.0	515.0	1.3	0.097	0.122	51.8	0.155	10.6	0.124	0.001	0.012	43.6	0.012	0.2	-0.001	-0.012	83.6	0.012		
343.0	515.0	1.3	0.098	0.124	51.8	0.158	10.9	0.126	0.001	0.012	43.4	0.012	0.2	-0.001	-0.012	83.4	0.012		
343.0	515.0	1.3	0.099	0.126	51.7	0.160	11.1	0.128	0.001	0.012	43.3	0.012	0.2	-0.001	-0.012	83.3	0.012		
341.0	515.0	1.3	0.100	0.128	51.8	0.162	11.2	0.129	0.001	0.012	43.2	0.012	0.2	-0.001	-0.012	83.2	0.012		
340.0	515.0	1.3	0.102	0.129	51.7	0.164	11.4	0.131	0.002	0.013	42.9	0.013	0.2	-0.002	-0.013	82.9	0.013		
340.0	515.0	1.3	0.103	0.131	51.7	0.164	11.5	0.132	0.002	0.013	42.7	0.013	0.2	-0.002	-0.013	82.7	0.013		
338.0	515.0	1.3	0.104	0.132	51.7	0.169	11.7	0.134	0.002	0.013	42.6	0.013	0.2	-0.002	-0.013	82.6	0.013		
337.0	515.0	1.3	0.106	0.134	51.7	0.171	11.9	0.136	0.002	0.013	42.4	0.013	0.2	-0.002	-0.013	82.4	0.013		
337.0	515.0	1.3	0.107	0.136	51.7	0.171	12.0	0.137	0.002	0.013	42.3	0.013	0.2	-0.002	-0.013	82.3	0.013		
335.0	515.0	1.3	0.109	0.137	51.7	0.173	12.2	0.139	0.002	0.013	42.1	0.013	0.2	-0.002	-0.013	82.1	0.013		
335.0	515.0	1.3	0.110	0.139	51.7	0.173	12.3	0.141	0.002	0.013	41.9	0.013	0.2	-0.002	-0.013	81.9	0.013		
333.0	515.0	1.3	0.112	0.141	51.6	0.180	12.5	0.143	0.002	0.014	41.7	0.014	0.2	-0.002	-0.014	81.7	0.014		
333.0	515.0	1.3	0.113	0.143	51.6	0.180	12.6	0.144	0.002	0.014	41.6	0.014	0.2	-0.002	-0.014	81.6	0.014		
331.0	515.0	1.3	0.115	0.145	51.6	0.185	12.8	0.147	0.002	0.014	41.4	0.014	0.2	-0.002	-0.014	81.4	0.014		
330.0	515.0	1.3	0.116	0.147	51.6	0.187	13.1	0.149	0.002	0.014	41.2	0.014	0.2	-0.002	-0.014	81.2	0.014		
330.0	515.0	1.3	0.117	0.148	51.6	0.187	13.2	0.150	0.002	0.014	41.1	0.014	0.2	-0.002	-0.014	81.0	0.014		
318.0	515.0	1.3	0.118	0.150	51.6	0.193	13.4	0.153	0.002	0.014	40.8	0.015	0.2	-0.002	-0.014	80.8	0.014		
318.0	515.0	1.3	0.119	0.152	51.6	0.193	13.5	0.154	0.002	0.014	40.7	0.015	0.2	-0.002	-0.014	80.7	0.014		
316.0	515.0	1.3	0.123	0.155	51.5	0.197	13.7	0.157	0.002	0.015	40.4	0.015	0.2	-0.002	-0.015	80.4	0.015		
316.0	515.0	1.3	0.125	0.155	51.5	0.197	13.9	0.159	0.002	0.015	40.3	0.015	0.2	-0.002	-0.015	80.3	0.015		
314.0	515.0	1.3	0.125	0.155	51.5	0.197	14.0	0.160	0.002	0.015	40.1	0.015	0.2	-0.002	-0.015	80.1	0.015		
313.0	515.0	1.3	0.126	0.156	51.5	0.198	14.1	0.161	0.002	0.015	39.9	0.015	0.2	-0.002	-0.015	79.9	0.015		
313.0	515.0	1.3	0.127	0.157	51.5	0.198	14.2	0.162	0.002	0.015	39.8	0.015	0.2	-0.002	-0.015	79.8	0.015		
311.0	515.0	1.3	0.128	0.161	51.5	0.206	14.3	0.164	0.003	0.015	39.5	0.015	0.2	-0.003	-0.015	79.5	0.015		
311.0	515.0	1.3	0.129	0.163	51.5	0.206	14.4	0.165	0.003	0.015	39.4	0.015	0.2	-0.003	-0.015	79.4	0.015		
309.0	515.0	1.3	0.130	0.163	51.5	0.206	14.5	0.166	0.003	0.015	39.3	0.015	0.2	-0.003	-0.015	79.3	0.015		
309.0	515.0	1.3	0.131	0.164	51.5	0.206	14.6	0.167	0.003	0.015	39.2	0.015	0.2	-0.003	-0.015	79.2	0.015		
309.0	515.0	1.3	0.132	0.165	51.5	0.206	14.7	0.168	0.003	0.015	39.1	0.015	0.2	-0.003	-0.015	79.1	0.015		
307.0	515.0	1.3	0.134	0.167	51.5	0.208	14.9	0.170	0.003	0.015	38.9	0.015	0.2	-0.003	-0.015	78.9	0.015		
307.0	515.0	1.3	0.135	0.168	51.5	0.208	15.0	0.171	0.003	0.015	38.8	0.015	0.2	-0.003	-0.015	78.8	0.015		
305.0	515.0	1.3	0.136	0.168	51.5	0.208	15.1	0.172	0.003	0.015	38.7	0.015	0.2	-0.003	-0.015	78.7	0.015		
305.0	515.0	1.3	0.137	0.169	51.5	0.208	15.2	0.173	0.003	0.015	38.6	0.015	0.2	-0.003	-0.015	78.6	0.015		
304.0	515.0	1.3	0.138	0.169	51.5	0.208	15.3	0.174	0.003	0.015	38.5	0.015	0.2	-0.003	-0.015	78.5	0.015		
304.0	515.0	1.3	0.139	0.170	51.5	0.208	15.4	0.175	0.003	0.015	38.4	0.015	0.2	-0.003	-0.015	78.4	0.015		
304.0	515.0	1.3	0.140	0.171	51.5	0.208	15.5	0.176	0.003	0.015	38.3	0.015	0.2	-0.003	-0.015	78.3	0.015		
302.0	515.0	1.3	0.142	0.173	51.5	0.210	15.7	0.178	0.003	0.015	38.1	0.015	0.2	-0.003	-0.015	78.1	0.015		
302.0	515.0	1.3	0.143	0.174	51.5	0.210	15.8	0.179	0.003	0.015	38.0	0.015	0.2	-0.003	-0.015	78.0	0.015		
302.0	515.0	1.3	0.144	0.175	51.5	0.210	15.9	0.180	0.003	0.015	37.9	0.015	0.2	-0.003	-0.015	77.9	0.015		
302.0	515.0	1.3	0.145	0.176	51.5	0.210	16.0	0.181	0.003	0.015	37.8	0.015	0.2	-0.003	-0.015	77.8	0.015		
302.0	515.0	1.3	0.146	0.177	51.5	0.210	16.1	0.182	0.003	0.015	37.7	0.015	0.2	-0.003	-0.015	77.7	0.015		
302.0	515.0	1.3	0.147	0.178	51.5	0.210	16.2	0.183	0.003	0.015	37.6	0.015	0.2	-0.003	-0.015	77.6	0.015		
302.0	515.0	1.3	0.148	0.179	51.5	0.210	16.3	0.184	0.003	0.015	37.5	0.015	0.2	-0.003	-0.015	77.5	0.015		
302.0	515.0	1.3	0.149	0.180	51.5	0.210	16.4	0.185	0.003	0.015	37.4	0.015	0.2</						

EMF-OHL-002				Electric & Magnetic Field Study Report										Applies to	
				Spittal – Loch Buidhe - Beauly 400kV										Distribution	Transmission
Revision: 1.00				Classification: Public				Issue Date: July 25							✓

217.0	525.0	1.0	1.527	1.492	44.3	2.135	35.2	1.699	0.078	0.068	40.8	0.104	1.7	-0.078	-0.068	40.8	0.104
216.0	525.0	1.0	1.594	1.540	44.2	2.209	35.5	1.758	0.081	0.068	39.8	0.106	1.8	-0.081	-0.068	39.8	0.106
215.0	525.0	1.0	1.644	1.590	44.0	2.287	35.7	1.820	0.084	0.068	38.8	0.108	1.9	-0.084	-0.068	38.8	0.108
214.0	525.0	1.0	1.707	1.643	43.9	2.369	36.0	1.885	0.088	0.068	37.7	0.111	1.9	-0.088	-0.068	37.7	0.111
213.0	525.0	1.0	1.774	1.698	43.8	2.456	36.3	1.954	0.091	0.068	36.6	0.112	2.0	-0.091	-0.067	36.6	0.113
212.0	525.0	1.0	1.844	1.756	43.6	2.547	36.6	2.026	0.094	0.067	35.5	0.116	2.1	-0.094	-0.067	35.4	0.116
211.0	525.0	1.0	1.918	1.817	43.5	2.642	36.9	2.103	0.098	0.067	34.2	0.118	2.2	-0.098	-0.067	34.2	0.118
210.0	525.0	1.0	1.996	1.881	43.3	2.743	37.2	2.183	0.101	0.066	33.0	0.121	2.2	-0.101	-0.066	33.0	0.121
209.0	525.0	1.0	2.079	1.948	43.1	2.849	37.5	2.267	0.105	0.065	31.7	0.124	2.3	-0.105	-0.065	31.7	0.124
208.0	525.0	1.0	2.166	2.019	42.9	2.961	37.8	2.356	0.109	0.064	30.3	0.127	2.4	-0.109	-0.064	30.3	0.127
207.0	525.0	1.0	2.259	2.093	42.8	3.080	38.1	2.451	0.113	0.063	28.9	0.130	2.5	-0.113	-0.063	28.9	0.130
206.0	525.0	1.0	2.357	2.171	42.7	3.205	38.5	2.550	0.118	0.061	27.4	0.133	2.6	-0.118	-0.061	27.4	0.133
205.0	525.0	1.0	2.460	2.254	42.6	3.337	38.8	2.659	0.122	0.059	25.9	0.136	2.7	-0.122	-0.059	25.9	0.136
204.0	525.0	1.0	2.571	2.341	42.3	3.477	39.1	2.767	0.127	0.057	24.3	0.139	2.9	-0.127	-0.057	24.2	0.139
203.0	525.0	1.0	2.688	2.432	42.1	3.625	39.4	2.884	0.131	0.055	22.6	0.142	3.0	-0.131	-0.054	22.5	0.142
202.0	525.0	1.0	2.812	2.529	42.0	3.782	39.7	3.009	0.136	0.052	20.8	0.146	3.2	-0.136	-0.052	20.7	0.146
201.0	525.0	1.0	2.944	2.631	41.8	3.949	40.1	3.142	0.141	0.048	18.9	0.149	3.4	-0.141	-0.048	18.8	0.149
200.0	525.0	1.0	3.085	2.739	41.6	4.125	40.3	3.283	0.146	0.045	17.0	0.153	3.6	-0.146	-0.044	16.8	0.153
199.0	525.0	1.0	3.235	2.853	41.4	4.313	40.7	3.432	0.151	0.040	14.9	0.157	3.8	-0.151	-0.040	14.7	0.156
198.0	525.0	1.0	3.395	2.974	41.2	4.513	41.0	3.592	0.157	0.035	12.7	0.160	4.0	-0.156	-0.035	12.5	0.160
197.0	525.0	1.0	3.566	3.102	41.0	4.728	41.3	3.761	0.162	0.030	10.5	0.165	4.2	-0.162	-0.029	10.2	0.164
196.0	525.0	1.0	3.749	3.238	40.8	4.963	41.6	3.924	0.167	0.024	8.1	0.169	4.4	-0.167	-0.023	7.7	0.169
195.0	525.0	1.0	3.944	3.382	40.6	5.196	42.0	4.134	0.173	0.017	5.8	0.174	4.7	-0.173	-0.015	5.1	0.173
194.0	525.0	1.0	4.154	3.534	40.4	5.454	42.3	4.340	0.178	0.011	3.7	0.178	5.0	-0.178	-0.007	3.3	0.178
193.0	525.0	1.0	4.379	3.697	40.2	5.733	42.6	4.563	0.183	0.010	1.9	0.184	5.3	-0.183	0.002	-0.7	0.183
192.0	525.0	1.0	4.620	3.869	39.9	6.027	42.9	4.796	0.189	0.016	0.0	0.189	5.7	-0.189	0.012	-3.8	0.189
191.0	525.0	1.0	4.880	4.053	39.7	6.344	43.3	5.048	0.194	0.027	7.9	0.195	6.0	-0.193	0.024	-7.1	0.195
190.0	525.0	1.0	5.160	4.248	39.5	6.684	43.6	5.319	0.198	0.039	11.2	0.202	6.4	-0.198	0.037	-10.6	0.202
189.0	525.0	1.0	5.462	4.457	39.2	7.049	43.9	5.610	0.203	0.054	14.8	0.209	6.7	-0.202	0.052	-14.4	0.209
188.0	525.0	1.0	5.787	4.679	38.9	7.442	44.2	5.922	0.208	0.070	18.7	0.218	7.1	-0.208	0.068	-18.3	0.217
187.0	525.0	1.0	6.139	4.916	38.7	7.865	44.5	6.259	0.209	0.088	22.8	0.227	7.5	-0.209	0.086	-22.5	0.226
186.0	525.0	1.0	6.521	5.168	38.4	8.321	44.8	6.621	0.211	0.108	27.1	0.237	7.9	-0.211	0.107	-26.8	0.236
185.0	525.0	1.0	6.934	5.439	38.1	8.812	45.2	7.013	0.212	0.131	31.7	0.249	8.3	-0.211	0.139	-31.5	0.248
184.0	525.0	1.0	7.379	5.727	37.8	9.339	45.6	7.436	0.213	0.156	36.6	0.261	8.7	-0.213	0.164	-36.4	0.260
183.0	525.0	1.0	7.872	6.036	37.5	9.919	45.7	7.894	0.219	0.184	41.4	0.278	8.9	-0.208	0.182	-41.3	0.277
182.0	525.0	1.0	8.404	6.366	37.1	11.543	46.0	8.390	0.224	0.215	46.5	0.296	9.3	-0.208	0.213	-46.5	0.295
181.0	525.0	1.0	8.985	6.719	36.8	12.219	46.3	8.915	0.229	0.249	51.4	0.315	9.8	-0.195	0.248	-51.4	0.314
180.0	525.0	1.0	9.620	7.097	36.4	11.953	46.4	9.513	0.235	0.287	57.2	0.342	9.8	-0.193	0.286	-57.3	0.339
179.0	525.0	1.0	10.309	7.500	36.0	12.739	46.6	10.169	0.240	0.329	63.0	0.369	10.0	-0.187	0.327	-63.0	0.367
178.0	525.0	1.0	11.079	7.936	35.6	13.628	46.7	10.845	0.250	0.375	68.2	0.404	10.1	-0.148	0.373	-68.6	0.401
177.0	525.0	1.0	11.918	8.400	35.2	14.581	46.8	11.603	0.255	0.425	73.6	0.443	10.2	-0.116	0.423	-74.4	0.439
176.0	525.0	1.0	12.826	8.894	34.7	15.623	47.0	12.434	0.264	0.480	78.9	0.488	10.3	-0.084	0.485	-78.8	0.487
175.0	525.0	1.0	13.863	9.427	34.2	16.765	46.8	13.341	0.269	0.539	83.1	0.543	10.4	-0.036	0.537	-86.2	0.538
174.0	525.0	1.0	15.039	9.995	33.7	17.917	46.5	14.339	0.277	0.602	87.6	0.602	10.5	0.022	0.601	-87.9	0.602
173.0	525.0	1.0	16.240	10.601	33.1	19.194	46.5	15.434	0.282	0.675	91.9	0.675	10.6	0.094	0.670	-92.0	0.676
172.0	525.0	1.0	17.477	11.248	32.5	20.510	46.2	16.645	0.284	0.745	95.7	0.745	10.7	0.174	0.740	-95.7	0.745
171.0	525.0	1.0	18.749	11.937	31.9	21.882	45.7	17.970	0.287	0.823	99.2	0.820	10.8	0.296	0.820	-99.7	0.822
170.0	525.0	1.0	20.086	12.669	31.2	24.428	45.2	19.439	0.290	0.904	102.0	0.904	10.9	0.433	0.900	-102.0	0.904
169.0	525.0	1.0	21.484	13.446	30.4	27.147	44.5	21.044	0.293	0.987	103.8	0.987	11.0	0.583	0.983	-103.8	0.987
168.0	525.0	1.0	24.939	14.267	29.8	28.732	43.7	22.864	0.295	1.071	104.4	1.052	9.8	0.807	1.067	-104.4	1.052
167.0	525.0	1.0	27.329	15.133	29.1	30.439	42.9	24.796	0.297	1.155	104.7	1.135	9.8	1.057	1.135	-104.7	1.135
166.0	525.0	1.0	30.000	16.042	28.1	34.020	41.5	27.072	0.298	1.236	103.1	1.236	9.1	1.358	1.231	-103.1	1.236
165.0	525.0	1.0	32.986	16.993	27.3	37.105	40.2	29.528	0.298	1.317	101.4	1.317	8.4	1.721	1.306	-101.4	1.317
164.0	525.0	1.0	36.316	17.982	26.3	40.724	38.7	32.248	0.297	1.398	98.7	1.398	7.6	2.153	1.372	-98.7	1.398
163.0	525.0	1.0	40.020	19.005	25.4	44.304	37.0	35.256	0.297	1.432	94.8	1.432	7.4	2.662	1.426	-94.8	1.432
162.0	525.0	1.0	44.109	20.059	24.4	48.464	35.2	38.567	0.296	1.471	91.1	1.464	7.1	3.246	1.464	-91.1	1.464
161.0	525.0	1.0	48.614	21.136	23.5	53.010	33.2	42.184	0.294	1.506	86.0	1.506	6.0	3.930	1.482	-86.0	1.506
160.0	525.0	1.0	53.483	22.231	22.6	57.919	31.0	46.090	0.294	1.547	79.4	1.547	5.3	4.681	1.478	-79.4	1.547
159.0	525.0	1.0	58.658	23.337	21.7	63.130	28.8	50.327	0.292	1.593	71.4	1.593	4.7	5.507	1.471	-71.4	1.593
158.0	525.0	1.0	64.011	24.450	20.9	68.522	26.5	54.928	0.292	1.640	62.4	1.640	4.0	6.311	1.398	-62.4	1.640
157.0	525.0	1.0	69.543	25.583	20.0	74.203	24.0	59.903	0.292	1.689	52.3	1.689	3.3	7.095	1.295	-52.3	1.689
156.0	525.0	1.0	76.247	26.764	19.7	79.006	21.8	65.871	0.293	1.739	40.9	1.739	2.9	7.764	1.234	-40.9	1.739
155.0	525.0	1.0	83.119	27.984	19.4	83.527	19.4	71.949	0.293	1.793	28.4	1.793	2.4	8.323	1.113	-27.7	1.793
154.0	525.0	1.0	90.246	29.244	1												

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69.0	525.0	1.0	72.576	47.274	33.1	86.615	4.8	68.926	1.096	2.667	67.7	2.863	19.2	-0.760	-0.604	73.7	2.713
68.0	525.0	1.0	70.079	49.641	34.6	87.520	5.5	69.464	1.712	3.327	62.8	3.741	10.1	-1.525	-3.259	64.9	3.599
67.0	525.0	1.0	71.726	52.084	36.0	88.842	6.5	70.539	2.390	4.041	59.4	4.695	5.6	-2.261	-3.966	60.3	4.565
66.0	525.0	1.0	71.401	54.492	37.4	89.819	7.8	71.476	3.062	4.781	57.4	5.578	3.3	-2.961	-4.696	57.8	5.552
65.0	525.0	1.0	70.956	56.709	38.6	90.833	9.3	72.283	3.695	5.506	56.1	6.431	2.2	-3.607	-5.408	56.3	6.501
64.0	525.0	1.0	70.628	58.932	39.6	91.414	11.0	72.745	4.257	6.152	55.3	7.481	1.3	-4.275	-6.041	55.3	7.344
63.0	525.0	1.0	69.016	59.737	40.9	91.278	13.0	72.436	4.714	6.650	54.7	8.101	1.8	-4.635	-6.527	54.6	8.005
62.0	525.0	1.0	67.220	60.122	41.9	90.194	15.1	72.766	5.033	6.930	54.0	8.565	1.9	-4.957	-6.800	53.9	8.415
61.0	525.0	1.0	64.785	59.565	42.6	88.006	17.4	70.033	5.193	6.950	53.2	8.676	2.1	-5.122	-6.818	53.1	8.528
60.0	525.0	1.0	61.767	58.063	43.2	84.773	19.7	67.460	5.193	6.704	52.2	8.480	2.5	-5.129	-6.577	52.1	8.340
59.0	525.0	1.0	58.335	55.738	43.7	80.668	21.5	64.133	5.050	6.236	51.0	8.171	3.1	-4.650	-6.110	50.7	7.892
58.0	525.0	1.0	54.623	52.797	44.0	75.949	24.6	60.424	4.796	5.584	49.3	7.361	3.6	-4.750	-5.480	49.1	7.253
57.0	525.0	1.0	50.864	49.478	44.2	70.974	28.4	56.429	4.469	4.851	46.4	6.501	4.2	-4.423	-4.761	47.0	6.505
56.0	525.0	1.0	47.253	45.998	44.2	65.944	29.4	52.477	4.104	4.096	44.9	5.798	4.9	-4.075	-4.019	44.6	5.724
55.0	525.0	1.0	43.631	42.528	44.1	61.072	31.6	48.599	3.728	3.369	42.1	5.025	5.6	-3.708	-3.304	41.7	4.964
54.0	525.0	1.0	40.474	39.187	43.9	56.806	33.8	44.945	3.360	2.705	39.6	4.313	6.4	-3.243	-3.448	38.4	4.264
53.0	525.0	1.0	37.803	36.048	43.6	52.235	35.8	41.567	3.012	2.119	35.1	3.682	7.1	-2.998	-3.068	36.6	3.642
52.0	525.0	1.0	35.254	33.149	43.3	48.265	37.7	38.484	2.689	1.616	31.0	3.137	7.9	-2.478	-1.570	30.4	3.104
51.0	525.0	1.0	32.894	30.506	42.8	44.863	39.4	35.700	2.395	1.194	26.5	2.676	8.3	-2.386	-1.151	25.7	2.649
50.0	525.0	1.0	30.878	28.078	42.4	41.720	40.9	33.050	2.129	0.844	21.9	2.231	9.1	-2.121	-0.903	20.7	2.608
49.0	525.0	1.0	28.973	25.974	41.9	38.911	42.2	30.965	1.890	0.585	16.6	1.973	9.6	-1.884	-0.520	15.4	1.955
48.0	525.0	1.0	27.320	24.060	41.4	36.412	43.3	28.975	1.677	0.345	11.6	1.713	10.0	-1.672	-0.291	9.9	1.697
47.0	525.0	1.0	25.844	22.380	40.8	34.195	44.1	27.174	1.488	0.191	7.3	1.500	10.3	-1.484	-0.107	6.1	1.488
46.0	525.0	1.0	24.580	20.856	40.3	32.236	45.1	25.653	1.320	0.140	6.1	1.327	10.3	-1.316	0.040	-1.7	1.317
45.0	525.0	1.0	23.448	19.532	39.8	30.514	45.7	24.282	1.173	0.184	9.4	1.187	10.3	-1.146	0.156	6.6	1.259
44.0	525.0	1.0	22.448	18.373	39.3	29.058	46.2	23.084	1.040	0.267	14.4	1.073	10.2	-1.037	0.248	-13.4	1.066
43.0	525.0	1.0	21.584	17.364	38.8	27.702	46.8	22.044	0.924	0.332	19.8	0.981	10.0	-0.921	0.320	-19.2	0.975
42.0	525.0	1.0	20.844	16.493	38.4	26.582	46.9	21.132	0.821	0.386	25.2	0.907	9.8	-0.819	0.379	-24.8	0.902
41.0	525.0	1.0	20.221	15.749	37.9	25.630	47.1	20.396	0.730	0.431	30.6	0.848	9.6	-0.728	0.456	-30.3	0.844
40.0	525.0	1.0	19.711	15.121	37.5	24.843	47.2	19.769	0.649	0.469	35.9	0.801	9.3	-0.647	0.466	-35.7	0.797
39.0	525.0	1.0	19.310	14.601	37.1	24.208	47.3	19.264	0.577	0.502	41.0	0.764	9.1	-0.575	0.499	-41.0	0.762
38.0	525.0	1.0	19.015	14.181	36.7	23.722	47.4	18.877	0.512	0.533	46.1	0.738	8.9	-0.510	0.520	-46.1	0.735
37.0	525.0	1.0	18.827	13.857	36.4	23.372	47.5	18.603	0.452	0.560	51.2	0.719	8.7	-0.450	0.559	-51.2	0.717
36.0	525.0	1.0	18.745	13.602	36.0	23.171	47.5	18.439	0.397	0.588	55.9	0.709	8.6	-0.394	0.587	-55.9	0.705
35.0	525.0	1.0	18.679	13.410	35.7	23.010	47.6	18.385	0.345	0.617	60.8	0.707	8.4	-0.340	0.616	-60.8	0.702
34.0	525.0	1.0	18.604	13.399	35.3	23.171	47.6	18.439	0.294	0.648	65.6	0.711	8.5	-0.289	0.648	-65.6	0.710
33.0	525.0	1.0	18.524	13.404	34.9	23.010	47.6	18.439	0.244	0.682	70.4	0.724	8.7	-0.244	0.682	-70.4	0.722
32.0	525.0	1.0	18.518	13.483	34.6	23.722	47.6	18.877	0.192	0.719	75.0	0.744	8.7	-0.183	0.719	-75.0	0.742
31.0	525.0	1.0	20.007	13.634	34.3	24.211	47.6	19.267	0.140	0.760	79.6	0.773	8.8	-0.124	0.760	-79.6	0.770
30.0	525.0	1.0	20.854	13.854	34.0	24.844	47.6	19.714	0.096	0.806	83.4	0.806	8.9	-0.096	0.806	-83.4	0.806
29.0	525.0	1.0	21.391	14.143	33.5	25.643	47.4	20.406	0.081	0.856	84.6	0.860	9.2	-0.016	0.856	-84.6	0.856
28.0	525.0	1.0	22.684	14.406	32.9	26.530	47.2	21.335	0.011	0.911	86.1	0.911	9.4	0.000	0.911	-86.1	0.911
27.0	525.0	1.0	23.383	14.918	32.5	27.736	47.0	22.072	0.226	0.971	76.9	0.997	9.7	0.203	0.971	76.2	0.992
26.0	525.0	1.0	24.640	15.402	32.0	29.058	46.7	23.124	0.343	1.035	71.7	1.091	9.9	0.324	1.024	71.2	1.084
25.0	525.0	1.0	25.948	15.949	31.4	30.514	46.2	24.486	0.462	1.103	66.2	1.169	10.2	0.449	1.092	65.7	1.159
24.0	525.0	1.0	27.768	16.558	30.8	32.230	45.6	25.927	0.680	1.174	60.6	1.247	10.0	0.643	1.172	60.2	1.237
23.0	525.0	1.0	29.680	17.237	30.1	34.195	44.7	27.546	0.971	1.246	55.0	1.331	9.8	0.913	1.246	54.5	1.323
22.0	525.0	1.0	31.858	17.954	29.4	36.569	43.9	29.101	1.125	1.317	49.5	1.332	9.8	1.106	1.314	49.9	1.318
21.0	525.0	1.0	34.280	18.722	28.6	39.137	42.8	30.887	1.401	1.387	43.1	1.383	9.5	1.401	1.383	43.4	1.375
20.0	525.0	1.0	37.121	19.571	27.8	41.964	41.5	33.394	1.798	1.451	38.9	1.310	9.0	1.773	1.446	39.2	2.288
19.0	525.0	1.0	40.264	20.452	26.9	45.169	40.0	35.937	2.234	1.506	34.0	1.264	8.5	2.206	1.501	34.2	2.668
18.0	525.0	1.0	43.781	21.377	26.0	48.721	38.4	38.771	2.748	1.550	29.4	1.154	7.8	2.714	1.544	29.6	3.123
17.0	525.0	1.0	47.690	22.338	25.1	52.662	36.5	41.907	3.246	1.578	25.3	1.099	7.1	3.305	1.572	25.4	3.660
16.0	525.0	1.0	51.989	23.329	24.2	56.984	34.5	45.244	3.698	1.588	21.3	1.060	6.4	3.979	1.680	21.7	4.281
15.0	525.0	1.0	56.650	24.344	23.3	61.659	32.3	49.087	4.788	1.574	18.2	1.040	5.6	4.727	1.566	18.3	4.980
14.0	525.0	1.0	61.605	25.379	22.4	66.623	30.1	53.017	5.605	1.537	15.3	1.012	4.9	5.531	1.528	15.4	5.738
13.0	525.0	1.0	66.789	26.436	21.6	71.749	27.9	57.183	6.442	1.479	12.5	0.969	4.2	6.409	1.462	12.6	6.519
12.0	525.0	1.0	71.768	27.462	20.9	76.843	25.3	61.149	7.241	1.390	10.9	0.973	3.6	7.133	1.381	11.0	7.266
11.0	525.0	1.0	76.511	28.441	20.1	81.917	22.7	65.025	8.025	1.287	9.1	0.977	3.0	7.805	1.277	9.3	8.074
10.0	525.0	1.0	80.587	29.561	20.1	85.838	20.4	68.307	8.411	1.170	7.9	0.942	2.5	8.271	1.160	8.0	8.352
9.0	525.0	1.0	84.714	30.724	20.1	89.544	18.2	71.444	8.755	1.044	6.9	0.938	2.0	8.755	1.053	6.9	8.649
8.0	525.0	1.0	88.733	31.678	20.3	91.398	15.7	72.732	8.629	0.933	6.1	0.877	1.9	8.379	0.999	6.1	8.427
7.0	525.0	1.0	86.549	32.761	20.7	92.542	13.6	73.643	8.127	0.776	5.5	0.844	1.8	7.982	0.757	5.4	8.018
6.0	525.0	1.0	83.873	33.878	21.4	93.712	11.7	74.181	7.488	0.631	4.8	0.803	1.6	7.488	0.603		

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-77.0	535.0	1.0	1.7316	0.143	23.4	1.8779	34.0	1.488	0.090	0.020	19.5	0.090	0.020	19.4	0.090
-78.0	535.0	1.0	1.6664	0.734	23.2	1.811	33.7	1.441	0.090	0.024	14.6	0.090	0.024	14.6	0.090
-79.0	535.0	1.0	1.6012	0.602	23.0	1.752	33.4	1.395	0.090	0.020	13.6	0.090	0.020	13.6	0.090
-80.0	535.0	1.0	1.5689	0.480	22.8	1.701	33.2	1.353	0.087	0.020	13.0	0.090	0.020	13.0	0.090
-81.0	535.0	1.0	1.5277	0.375	22.4	1.649	32.9	1.312	0.084	0.019	12.2	0.084	0.019	12.2	0.084
-82.0	535.0	1.0	1.4779	0.431	22.6	1.603	32.6	1.273	0.084	0.017	11.4	0.084	0.017	11.4	0.084
-83.0	535.0	1.0	1.437	0.388	22.2	1.553	32.3	1.236	0.083	0.026	10.7	0.084	0.016	10.7	0.084
-84.0	535.0	1.0	1.3997	0.366	22.1	1.508	32.0	1.203	0.081	0.014	10.0	0.083	0.014	9.9	0.083
-85.0	535.0	1.0	1.3599	0.346	21.9	1.464	31.9	1.167	0.080	0.013	9.3	0.081	0.013	9.2	0.081
-86.0	535.0	1.0	1.3202	0.326	21.7	1.423	31.5	1.132	0.078	0.012	8.6	0.079	0.012	8.6	0.079
-87.0	535.0	1.0	1.2806	0.307	21.5	1.383	31.2	1.100	0.077	0.011	7.9	0.078	0.011	7.9	0.078
-88.0	535.0	1.0	1.2503	0.289	21.3	1.344	30.9	1.070	0.074	0.010	7.2	0.074	0.010	7.2	0.074
-89.0	535.0	1.0	1.2201	0.272	21.1	1.307	30.7	1.040	0.074	0.009	6.6	0.074	0.009	6.6	0.074
-90.0	535.0	1.0	1.1898	0.256	21.0	1.272	30.4	1.012	0.073	0.008	6.0	0.073	0.008	5.9	0.073
-91.0	535.0	1.0	1.1595	0.240	20.8	1.238	30.1	0.985	0.072	0.007	5.4	0.073	0.007	5.3	0.073
-92.0	535.0	1.0	1.1292	0.225	20.6	1.205	29.9	0.959	0.070	0.006	4.8	0.071	0.006	4.7	0.071
-93.0	535.0	1.0	1.1009	0.210	20.5	1.174	29.6	0.934	0.069	0.005	4.2	0.069	0.005	4.2	0.069
-94.0	535.0	1.0	1.0702	0.196	20.3	1.144	29.3	0.913	0.068	0.004	3.6	0.068	0.004	3.6	0.068
-95.0	535.0	1.0	1.0406	0.183	20.1	1.114	29.1	0.887	0.067	0.004	3.1	0.067	0.004	3.0	0.067
-96.0	535.0	1.0	1.0101	0.171	19.9	1.084	28.8	0.865	0.066	0.003	2.5	0.066	0.003	2.4	0.066
-97.0	535.0	1.0	0.9997	0.158	19.8	1.053	28.5	0.843	0.064	0.002	2.0	0.065	0.002	2.0	0.065
-98.0	535.0	1.0	0.9793	0.147	19.4	1.023	28.2	0.820	0.063	0.002	1.5	0.063	0.002	1.4	0.063
-99.0	535.0	1.0	0.9591	0.136	19.4	0.993	28.0	0.801	0.062	0.001	1.0	0.062	0.001	1.0	0.062
-100.0	535.0	1.0	0.9394	0.125	19.4	0.963	27.8	0.779	0.059	0.002	1.5	0.059	0.002	1.5	0.059
-101.0	535.0	1.0	0.9193	0.116	19.4	0.934	27.5	0.753	0.058	0.001	1.1	0.058	0.001	1.0	0.058
-102.0	535.0	1.0	0.8972	0.105	19.3	0.904	27.3	0.730	0.057	0.001	0.7	0.057	0.001	0.7	0.057
-103.0	535.0	1.0	0.882	0.105	19.1	0.882	27.7	0.718	0.056	0.001	0.5	0.056	0.001	0.5	0.056
-104.0	535.0	1.0	0.8693	0.094	18.9	0.861	27.4	0.701	0.055	0.001	0.5	0.055	0.001	0.5	0.055
-105.0	535.0	1.0	0.853	0.077	18.8	0.841	27.2	0.680	0.054	0.001	1.0	0.054	0.001	1.0	0.054
-106.0	535.0	1.0	0.7907	0.059	18.6	0.841	26.9	0.669	0.053	0.001	1.5	0.053	0.001	1.5	0.053
-107.0	535.0	1.0	0.7779	0.050	18.6	0.821	26.7	0.654	0.052	0.002	1.9	0.052	0.002	1.9	0.052
-108.0	535.0	1.0	0.7602	0.053	18.3	0.803	26.4	0.639	0.051	0.002	2.3	0.051	0.002	2.3	0.051
-109.0	535.0	1.0	0.7465	0.045	18.2	0.785	26.2	0.620	0.050	0.002	2.7	0.051	0.002	2.7	0.051
-110.0	535.0	1.0	0.730	0.036	18.0	0.768	25.9	0.605	0.050	0.003	3.1	0.050	0.003	3.1	0.050
-111.0	535.0	1.0	0.7151	0.031	17.7	0.751	25.7	0.590	0.049	0.003	3.5	0.049	0.003	3.5	0.049
-112.0	535.0	1.0	0.7030	0.024	17.7	0.733	25.5	0.580	0.048	0.003	4.0	0.048	0.003	4.0	0.048
-113.0	535.0	1.0	0.6864	0.017	17.4	0.714	25.2	0.567	0.047	0.004	4.4	0.047	0.004	4.3	0.047
-114.0	535.0	1.0	0.6702	0.011	17.4	0.704	25.0	0.550	0.046	0.004	4.7	0.046	0.004	4.7	0.046
-115.0	535.0	1.0	0.658	0.003	17.2	0.689	24.7	0.540	0.044	0.004	5.1	0.044	0.004	5.1	0.044
-116.0	535.0	1.0	0.645	0.001	17.2	0.675	24.4	0.530	0.043	0.005	5.9	0.044	0.005	5.9	0.044
-117.0	535.0	1.0	0.633	0.004	17.0	0.661	24.3	0.526	0.044	0.005	6.8	0.043	0.005	6.8	0.043
-118.0	535.0	1.0	0.623	0.006	16.8	0.648	24.0	0.510	0.043	0.005	7.0	0.043	0.005	7.0	0.043
-119.0	535.0	1.0	0.609	0.003	16.7	0.633	23.9	0.505	0.043	0.005	7.5	0.043	0.005	7.5	0.043
-120.0	535.0	1.0	0.595	0.006	16.6	0.619	23.5	0.490	0.042	0.005	7.6	0.042	0.005	7.6	0.042
-121.0	535.0	1.0	0.580	0.003	16.5	0.605	23.2	0.480	0.042	0.005	7.5	0.042	0.005	7.5	0.042
-122.0	535.0	1.0	0.574	0.009	16.5	0.598	23.1	0.476	0.041	0.005	7.7	0.041	0.005	7.7	0.041
-123.0	535.0	1.0	0.563	0.004	16.4	0.584	22.8	0.464	0.040	0.004	8.0	0.040	0.004	8.0	0.040
-124.0	535.0	1.0	0.5502	0.009	16.1	0.573	22.5	0.457	0.039	0.006	8.4	0.040	0.006	8.4	0.040
-125.0	535.0	1.0	0.5413	0.005	15.9	0.560	22.2	0.449	0.039	0.006	8.7	0.039	0.006	8.7	0.039
-126.0	535.0	1.0	0.530	0.001	15.8	0.543	21.9	0.440	0.038	0.006	9.0	0.038	0.006	9.0	0.038
-127.0	535.0	1.0	0.5203	0.007	15.7	0.523	21.7	0.435	0.037	0.006	9.3	0.037	0.006	9.3	0.037
-128.0	535.0	1.0	0.5113	0.003	14.5	0.513	21.7	0.424	0.037	0.006	9.7	0.037	0.006	9.7	0.037
-129.0	535.0	1.0	0.5034	0.009	15.4	0.503	21.5	0.415	0.034	0.006	10.0	0.037	0.006	10.0	0.037
-130.0	535.0	1.0	0.495	0.006	15.2	0.495	21.2	0.406	0.034	0.006	10.3	0.036	0.006	10.3	0.036
-131.0	535.0	1.0	0.487	0.002	15.2	0.504	21.0	0.401	0.033	0.007	10.6	0.036	0.007	10.6	0.036
-132.0	535.0	1.0	0.4778	0.008	15.0	0.495	20.8	0.396	0.033	0.007	10.9	0.035	0.007	10.9	0.035
-133.0	535.0	1.0	0.470	0.005	14.9	0.482	20.7	0.390	0.032	0.007	11.2	0.035	0.007	11.2	0.035
-134.0	535.0	1.0	0.4602	0.002	14.8	0.478	20.5	0.384	0.034	0.007	11.5	0.034	0.007	11.5	0.034
-135.0	535.0	1.0	0.4514	0.009	14.7	0.463	20.3	0.379	0.033	0.007	11.8	0.034	0.007	11.8	0.034
-136.0	535.0	1.0	0.4432	0.016	14.4	0.461	19.9	0.367	0.033	0.007	12.0	0.033	0.007	12.0	0.033
-137.0	535.0	1.0	0.4359	0.003	14.3	0.454	19.7	0.360	0.032	0.007	12.3	0.033	0.007	12.3	0.033
-138.0	535.0	1.0	0.428	0.010	14.3	0.443	19.5	0.354	0.032	0.007	12.6	0.032	0.007	12.6	0.032
-139.0	535.0	1.0	0.421	0.007	14.2	0.438	19.2	0.348	0.031	0.007	12.9	0.032	0.007	12.9	0.032
-140.0	535.0	1.0	0.418	0.005	14.1	0.431	19.0	0.343	0.031	0.007	13.2	0.031	0.007	13.2	0.031
-141.0	535.0	1.0	0.410	0.002	14.0	0.423	18.8	0.337	0.030	0.007	13.4	0.031	0.007	13.4	0.031
-142.0	535.0	1.0	0.4034	0.006	13.9	0.416	18.5	0.331	0.029	0.007	13.7	0.031	0.007	13.7	0.031
-143.0	535.0	1.0	0.399	0.007	13.7	0.410	18.4	0.326	0.029	0.007	13.9	0.030	0.007	13.9	0.030
-144.0	535.0	1.0	0.3902	0.005	13										

EMF-OHL-002	Electric & Magnetic Field Study Report Spittal – Loch Buidhe - Beauly 400kV		Applies to	
			Distribution	Transmission ✓
Revision: 1.00	Classification: Public	Issue Date: July 25		

Optimal Phasing of Adjacent Circuits

PIS-CADD Version 20.01x64 13:59:08 02 July 2025
Scottish and Southern Energy
Project Name: 'C:\PIS\Combined_EMF_Check Temp\Combined_EMF_Check.don'
Line Title: 'Max Op'

3D EMF Calculation Notes:
1) Calculations based on the EPRI Red Book methods (3rd Edition, 2005 - 7.4 Calculation of Magnetic Fields and Appendices 7.1 Calculation of Field Ellipse Parameters and 7.6 Electric Field Calculations for 3D Geometry).
2) All wire positions are modeled at the specified weather case and wind direction. Height above ground determined by the modeled ground TTN.
3) Only the effects of wires are being analyzed. The effects of structures are not included unless enabled as noted below.
4) Ground return is being ignored for magnetic field calculations.

Weather height above ground: 1.00 (m)
Maximum wire distance: 300.00 (m)
Maximum cable segment size: 1.00 (m)
Cross section offset +/-: 300.00 (m)
Result interval: 1.00 (m)
Electric field limit: 5.00 (kV/m)
Magnetic field limit: 380.00 (uT)
Space potential limit: 0.00 (kV)
Contour Map Spacing: 3 (m)
Analyzing spans between these structures: 6 - 7

One or more sections have wind from both directions which is not supported. A wind direction of left is being used for those sections.

Section Data for 3D EMF Results:

Section Number	Section Note	Section Voltage (kV)	Current (Amps)	File Name	Description	Conductors Per Phase	Bundle Diameter (cm)	Cable Weather Radius (cm)	Condition	Wind Dir.	Temp. (deg C)	WC Effective Radius (cm)
1		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
2		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
3		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
4		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
5		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
6		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
7		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
8		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
9		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
10		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
11		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
12		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
13		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
14		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
15		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
16		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
17		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700
18		400.0	5000.0	700mm aaac araugaria.wir 700mm ³ AAAC - Araugaria (R)		3	57.735	1.863	Max Op	Creep FE Left	90.000	16.700

Wire low point cross section results between structures 6 and 7

Magnetic Field vs. offset relative to line between structures 175 (m) ahead of structure 6

Electric Field vs. offset relative to line between structures 175 (m) ahead of structure 6

Electric & Magnetic Field Study Report

Spittal – Loch Buidhe - Beaully 400kV

Applies to

Distribution

Transmission

✓

Revision: 1.00

Classification: Public

Issue Date: July 25

3D BWF Point Results Span from 6 to 7:[illegible]

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217.0	525.0	1.0	1.105	1.284	49.3	1.694	43.4	1.348	0.062	0.058	43.3	0.085	2.2	-0.062	-0.058	43.3	0.085
216.0	525.0	1.0	1.154	1.330	49.1	1.761	43.6	1.401	0.064	0.058	42.1	0.087	2.2	-0.064	-0.058	42.1	0.086
215.0	525.0	1.0	1.205	1.378	48.8	1.830	43.8	1.457	0.067	0.058	40.8	0.091	2.3	-0.067	-0.058	40.8	0.088
214.0	525.0	1.0	1.259	1.428	48.6	1.904	44.0	1.515	0.070	0.058	39.5	0.091	2.4	-0.070	-0.058	39.5	0.090
213.0	525.0	1.0	1.317	1.481	48.4	1.982	44.2	1.577	0.073	0.057	38.1	0.093	2.5	-0.073	-0.057	38.1	0.093
212.0	525.0	1.0	1.378	1.537	48.1	2.064	44.4	1.642	0.076	0.057	36.7	0.095	2.5	-0.076	-0.057	36.6	0.095
211.0	525.0	1.0	1.442	1.595	47.9	2.151	44.6	1.711	0.079	0.056	35.2	0.097	2.6	-0.079	-0.056	35.2	0.097
210.0	525.0	1.0	1.511	1.657	47.6	2.242	44.8	1.784	0.083	0.055	33.6	0.099	2.7	-0.083	-0.055	33.6	0.099
209.0	525.0	1.0	1.583	1.722	47.4	2.339	45.0	1.861	0.086	0.054	32.1	0.102	2.8	-0.086	-0.054	32.0	0.102
208.0	525.0	1.0	1.660	1.790	47.2	2.442	45.2	1.943	0.090	0.053	30.4	0.104	3.0	-0.090	-0.053	30.4	0.104
207.0	525.0	1.0	1.742	1.863	46.9	2.550	45.3	2.031	0.094	0.051	28.7	0.107	3.1	-0.094	-0.051	28.7	0.107
206.0	525.0	1.0	1.829	1.939	46.7	2.665	45.5	2.121	0.098	0.050	26.9	0.110	3.2	-0.098	-0.050	26.9	0.110
205.0	525.0	1.0	1.921	2.019	46.5	2.787	45.7	2.214	0.103	0.048	25.0	0.113	3.3	-0.102	-0.048	25.0	0.113
204.0	525.0	1.0	2.020	2.104	46.2	2.917	45.9	2.321	0.108	0.045	23.1	0.116	3.5	-0.106	-0.045	23.0	0.115
203.0	525.0	1.0	2.125	2.194	45.9	3.054	46.1	2.431	0.113	0.043	21.1	0.119	3.6	-0.111	-0.043	21.0	0.118
202.0	525.0	1.0	2.237	2.289	45.7	3.201	46.3	2.547	0.115	0.040	19.0	0.122	3.8	-0.115	-0.040	18.9	0.122
201.0	525.0	1.0	2.357	2.390	45.4	3.357	46.5	2.671	0.120	0.036	16.8	0.125	4.0	-0.120	-0.036	16.7	0.125
200.0	525.0	1.0	2.485	2.497	45.1	3.523	46.7	2.803	0.125	0.032	14.5	0.129	4.2	-0.125	-0.032	14.3	0.129
199.0	525.0	1.0	2.622	2.610	44.9	3.699	46.9	2.944	0.130	0.028	12.2	0.133	4.4	-0.130	-0.027	11.9	0.133
198.0	525.0	1.0	2.769	2.730	44.6	3.888	47.1	3.094	0.135	0.023	9.7	0.137	4.6	-0.135	-0.023	9.3	0.136
197.0	525.0	1.0	2.926	2.858	44.3	4.090	47.3	3.255	0.140	0.018	7.2	0.141	4.8	-0.140	-0.016	6.6	0.141
196.0	525.0	1.0	3.095	2.993	44.0	4.305	47.5	3.426	0.145	0.012	4.8	0.145	5.1	-0.145	-0.010	3.8	0.145
195.0	525.0	1.0	3.276	3.138	43.8	4.536	47.7	3.606	0.150	0.008	2.2	0.150	5.2	-0.150	0.000	0.9	0.150
194.0	525.0	1.0	3.471	3.291	43.5	4.781	47.9	3.806	0.155	0.011	3.9	0.156	5.6	-0.155	0.006	-2.2	0.155
193.0	525.0	1.0	3.681	3.455	43.2	5.048	48.1	4.018	0.160	0.018	5.4	0.163	5.9	-0.160	0.015	5.0	0.163
192.0	525.0	1.0	3.907	3.629	42.9	5.332	48.3	4.243	0.165	0.028	9.6	0.168	6.1	-0.165	0.026	-8.9	0.167
191.0	525.0	1.0	4.151	3.815	42.6	5.638	48.5	4.487	0.170	0.039	13.0	0.175	6.4	-0.170	0.038	-12.5	0.174
190.0	525.0	1.0	4.416	4.013	42.3	5.967	48.7	4.758	0.175	0.052	16.7	0.182	6.7	-0.174	0.051	-16.2	0.182
189.0	525.0	1.0	4.701	4.225	41.9	6.321	48.9	5.030	0.179	0.067	20.6	0.191	7.0	-0.178	0.066	-20.2	0.190
188.0	525.0	1.0	5.011	4.451	41.6	6.702	49.1	5.334	0.182	0.083	24.6	0.200	7.3	-0.182	0.085	-24.3	0.199
187.0	525.0	1.0	5.347	4.693	41.3	7.114	49.3	5.661	0.185	0.102	28.8	0.211	7.6	-0.184	0.100	-28.6	0.210
186.0	525.0	1.0	5.712	4.952	40.9	7.560	49.4	6.016	0.187	0.122	32.2	0.223	7.9	-0.186	0.121	-33.0	0.222
185.0	525.0	1.0	6.109	5.229	40.6	8.042	49.6	6.399	0.187	0.145	37.7	0.237	8.1	-0.187	0.144	-37.6	0.236
184.0	525.0	1.0	6.543	5.526	40.2	8.564	49.8	6.815	0.186	0.170	42.4	0.252	8.4	-0.186	0.169	-42.3	0.251
183.0	525.0	1.0	7.015	5.844	39.8	9.131	49.9	7.268	0.185	0.199	47.1	0.267	8.5	-0.184	0.197	-47.1	0.266
182.0	525.0	1.0	7.532	6.185	39.4	9.746	50.0	7.756	0.179	0.229	52.0	0.291	8.8	-0.178	0.228	-52.0	0.289
181.0	525.0	1.0	8.096	6.551	38.9	10.409	50.0	8.277	0.170	0.264	56.9	0.317	9.0	-0.170	0.262	-57.1	0.312
180.0	525.0	1.0	8.719	6.944	38.5	11.146	50.0	8.840	0.160	0.302	62.0	0.341	9.1	-0.158	0.300	-62.2	0.339
179.0	525.0	1.0	9.401	7.365	38.1	11.942	50.3	9.503	0.145	0.343	67.1	0.373	9.2	-0.142	0.342	-67.4	0.370
178.0	525.0	1.0	10.152	7.816	37.6	12.812	50.2	10.211	0.121	0.389	72.1	0.409	9.3	-0.121	0.388	-72.1	0.406
177.0	525.0	1.0	10.981	8.300	37.1	13.765	50.0	10.954	0.101	0.439	77.1	0.451	9.4	-0.103	0.438	-77.0	0.447
176.0	525.0	1.0	11.896	8.826	36.6	14.800	50.0	11.734	0.084	0.494	82.0	0.497	9.4	-0.084	0.493	-82.0	0.495
175.0	525.0	1.0	12.909	9.376	36.0	15.955	49.9	12.697	0.054	0.553	84.5	0.556	9.6	-0.011	0.551	-88.9	0.552
174.0	525.0	1.0	14.029	9.972	35.4	17.240	49.7	13.707	0.077	0.617	82.9	0.627	9.7	0.047	0.615	-85.0	0.617
173.0	525.0	1.0	15.261	10.610	34.8	18.654	49.3	14.864	0.109	0.694	78.0	0.709	9.7	0.119	0.686	-80.1	0.694
172.0	525.0	1.0	16.671	11.293	34.2	20.135	48.9	16.023	0.225	0.759	73.5	0.792	9.8	0.209	0.757	-74.6	0.785
171.0	525.0	1.0	18.220	12.019	33.4	21.688	48.6	17.370	0.335	0.837	68.2	0.860	9.8	0.330	0.830	-68.6	0.853
170.0	525.0	1.0	19.951	12.793	32.7	23.700	47.6	18.860	0.472	0.917	62.8	1.032	9.8	0.457	0.914	-63.5	1.022
169.0	525.0	1.0	21.868	13.616	31.9	26.264	46.9	20.587	0.614	0.974	52.4	1.097	9.7	0.614	0.977	-57.9	1.074
168.0	525.0	1.0	24.053	14.486	31.1	28.079	45.8	22.344	0.847	1.084	50.0	1.376	9.5	0.830	1.081	-52.5	1.362
167.0	525.0	1.0	26.482	15.408	30.2	30.637	44.7	24.380	1.098	1.168	46.8	1.603	9.2	1.079	1.164	-47.2	1.587
166.0	525.0	1.0	29.204	16.372	29.3	33.480	43.3	26.443	1.402	1.249	41.7	1.877	8.9	1.380	1.244	-42.7	1.858
165.0	525.0	1.0	32.255	17.384	28.3	36.641	41.8	28.159	1.767	1.324	36.8	2.208	8.4	1.743	1.318	-37.1	2.185
164.0	525.0	1.0	35.647	18.438	27.3	40.111	40.3	30.201	2.161	1.401	32.0	2.584	7.7	2.142	1.401	-32.0	2.577
163.0	525.0	1.0	39.472	19.529	26.3	44.039	38.3	33.045	2.717	1.444	28.0	3.077	7.3	2.683	1.438	-28.2	3.044
162.0	525.0	1.0	43.843	20.653	25.3	48.339	36.3	36.859	3.315	1.482	24.1	3.632	6.7	3.274	1.475	-24.3	3.591
161.0	525.0	1.0	48.769	21.819	24.3	53.029	34.3	40.999	4.001	1.501	20.0	4.239	6.0	3.949	1.491	-20.7	4.222
160.0	525.0	1.0	53.386	22.972	23.3	58.119	31.9	46.249	4.760	1.497	17.5	4.990	5.3	4.499	1.489	-17.6	4.929
159.0	525.0	1.0	58.720	24.150	22.3	63.640	29.5	50.563	5.689	1.485	15.0	5.855	4.6	5.105	1.485	-15.0	5.822
158.0	525.0	1.0	64.362	25.370	21.5	69.170	27.0	58.044	6.419	1.416	12.4	6.573	4.0	6.328	1.408	-12.5	6.482
157.0	525.0	1.0	70.324	26.624	20.6	75.127	24.5	64.539	7.132	1.289	10.0	7.342	3.3	7.042	1.289	-10.0	7.246
156.0	525.0	1.0	75.721	27.705	20.0	80.208	22.0	68.827</									

EMF-OHL-202

Electric & Magnetic Field Study Report
Spittal – Loch Buidhe - Beauly 400kV

Applies to

Distribution

Transmission



Revision: 1.00

Classification: Public

Issue Date: July 25

70.0	535.0	1.0	81.761	42.170	27.3	91.996	4.6	73.208	2.784	0.728	14.6	2.878	19.2	2.630	-0.647	-13.8	2.708
69.0	535.0	1.0	83.332	40.581	26.0	92.687	5.4	74.558	3.708	0.430	6.6	3.733	10.1	3.577	-0.314	-5.0	3.591
68.0	535.0	1.0	84.024	39.106	24.7	93.466	6.5	74.401	4.690	0.263	3.2	4.632	5.6	4.454	-0.031	-0.4	4.554
67.0	535.0	1.0	86.366	37.724	23.6	94.246	7.9	74.998	5.655	0.312	3.2	5.663	3.3	5.533	0.207	2.1	5.537
66.0	535.0	1.0	87.426	36.413	22.6	94.706	9.6	75.565	6.596	0.480	4.0	6.612	2.2	6.469	0.409	3.6	6.462
65.0	535.0	1.0	87.828	35.150	21.8	94.601	11.5	75.981	7.434	0.612	4.7	7.459	1.8	7.286	0.583	4.6	7.311
64.0	535.0	1.0	87.292	33.917	21.2	93.649	13.8	74.524	8.089	0.755	5.3	8.124	1.7	7.944	0.736	5.3	7.978
63.0	535.0	1.0	85.398	32.696	20.9	91.639	16.2	72.016	8.487	0.889	6.0	8.533	1.9	8.337	0.875	6.0	8.362
62.0	535.0	1.0	82.658	31.474	20.0	88.447	18.8	70.384	8.579	1.016	6.8	8.638	2.1	8.429	1.006	6.8	8.489
61.0	535.0	1.0	78.257	30.242	21.1	86.177	21.7	66.956	8.207	1.136	7.3	9.434	2.5	9.217	1.126	7.8	9.294
60.0	535.0	1.0	73.537	28.996	21.5	75.047	24.6	62.904	7.864	1.201	9.0	7.963	2.9	7.738	1.241	9.1	7.837
59.0	535.0	1.0	67.928	27.733	22.2	73.371	27.7	58.387	7.172	1.349	10.7	7.298	3.5	7.063	1.340	10.7	7.189
58.0	535.0	1.0	63.266	26.456	23.1	67.472	30.8	53.493	6.385	1.429	12.7	6.524	4.1	6.373	1.420	12.8	6.434
57.0	535.0	1.0	56.244	25.169	24.1	61.619	34.1	49.035	5.520	1.486	15.1	5.716	4.9	5.443	1.477	15.2	5.639
56.0	535.0	1.0	50.627	23.865	25.2	56.004	37.3	44.957	4.594	1.517	17.4	4.873	5.6	4.630	1.506	18.1	4.873
55.0	535.0	1.0	45.432	22.599	26.4	50.742	40.7	40.379	3.925	1.526	21.2	4.211	6.4	3.872	1.518	21.4	4.159
54.0	535.0	1.0	40.629	21.331	27.7	45.889	44.0	36.612	3.298	1.517	25.3	3.594	7.1	3.190	1.505	25.3	3.527
53.0	535.0	1.0	36.267	20.087	29.0	41.458	47.5	32.991	2.630	1.479	29.3	3.037	8.2	2.592	1.473	29.6	2.981
52.0	535.0	1.0	32.334	18.874	30.3	37.440	51.0	29.794	2.109	1.430	34.2	2.548	9.1	2.076	1.425	34.5	2.518
51.0	535.0	1.0	28.805	17.700	31.6	33.858	54.7	26.904	1.666	1.371	39.4	2.158	9.9	1.637	1.366	39.3	2.132
50.0	535.0	1.0	25.444	16.570	32.9	30.532	58.6	24.297	1.295	1.304	45.2	1.837	10.7	1.269	1.300	45.7	1.816
49.0	535.0	1.0	22.818	15.493	34.2	27.580	62.8	21.847	0.980	1.232	51.4	1.547	11.4	0.950	1.229	52.0	1.559
48.0	535.0	1.0	20.290	14.467	35.5	24.919	67.4	19.630	0.728	1.158	57.8	1.368	12.0	0.703	1.156	58.7	1.353
47.0	535.0	1.0	17.816	13.501	36.8	22.450	72.3	17.463	0.517	1.084	64.5	1.204	12.6	0.492	1.084	65.6	1.190
46.0	535.0	1.0	16.005	12.596	38.2	20.387	77.8	16.208	0.346	1.015	71.2	1.072	12.3	0.318	1.014	72.6	1.062
45.0	535.0	1.0	14.195	11.756	39.6	18.431	82.8	14.667	0.211	0.948	77.4	0.972	12.0	0.176	0.948	79.5	0.964
44.0	535.0	1.0	12.379	10.985	41.1	16.700	84.9	13.290	0.117	0.887	82.5	0.895	11.4	0.060	0.887	84.1	0.889
43.0	535.0	1.0	11.143	10.284	42.7	15.163	80.5	12.087	0.093	0.833	83.6	0.837	10.4	-0.034	0.833	-87.7	0.833
42.0	535.0	1.0	9.878	9.655	44.4	13.614	71.5	10.994	0.132	0.783	80.4	0.794	9.0	-0.109	0.784	-82.1	0.791
41.0	535.0	1.0	8.783	9.115	46.1	12.658	60.5	10.073	0.180	0.741	76.3	0.763	7.9	-0.168	0.742	-77.3	0.761
40.0	535.0	1.0	7.866	8.656	47.8	11.697	48.5	9.308	0.242	0.706	72.6	0.740	6.4	-0.213	0.709	-73.2	0.740
39.0	535.0	1.0	7.143	8.290	49.3	10.942	35.9	8.708	0.252	0.679	69.6	0.725	4.9	-0.247	0.681	-70.1	0.725
38.0	535.0	1.0	6.635	8.021	50.4	10.409	22.9	8.203	0.274	0.660	67.4	0.715	3.3	-0.271	0.662	-67.8	0.715
37.0	535.0	1.0	6.286	7.854	51.0	9.854	8.6	7.854	0.287	0.646	65.7	0.707	1.8	-0.288	0.648	-65.9	0.707
36.0	535.0	1.0	6.351	7.794	50.8	10.054	38.6	7.794	0.292	0.644	65.6	0.707	0.8	-0.289	0.647	-65.9	0.708
35.0	535.0	1.0	6.588	7.840	49.4	10.840	16.9	8.149	0.288	0.648	66.1	0.709	1.8	-0.288	0.645	-66.1	0.709
34.0	535.0	1.0	7.056	7.993	48.6	10.662	29.8	8.485	0.275	0.660	67.4	0.715	3.3	-0.271	0.662	-67.7	0.715
33.0	535.0	1.0	7.729	8.259	46.2	10.509	40.2	9.259	0.248	0.695	64.5	0.729	1.2	-0.248	0.695	-64.5	0.729
32.0	535.0	1.0	8.582	8.602	45.1	12.151	53.9	9.670	0.222	0.706	72.5	0.740	6.4	-0.222	0.708	-73.1	0.740
31.0	535.0	1.0	9.596	9.047	43.3	13.189	64.5	10.495	0.181	0.741	76.2	0.762	7.8	-0.169	0.742	-77.1	0.761
30.0	535.0	1.0	10.782	9.578	41.7	14.452	73.1	11.462	0.134	0.782	80.7	0.783	11.1	-0.145	0.783	-82.0	0.784
29.0	535.0	1.0	12.079	10.190	40.2	15.803	78.5	12.275	0.093	0.833	83.5	0.836	10.4	-0.036	0.833	-87.5	0.832
28.0	535.0	1.0	13.279	10.876	38.2	17.166	86.8	13.058	0.116	0.888	82.5	0.894	11.4	0.057	0.886	86.3	0.881
27.0	535.0	1.0	15.192	11.634	37.4	19.135	76.6	15.227	0.209	0.948	77.6	0.970	12.0	0.173	0.947	79.6	0.963
26.0	535.0	1.0	17.516	12.467	35.9	20.733	64.5	17.093	0.149	1.014	71.2	1.031	12.1	0.149	1.014	73.1	1.021
25.0	535.0	1.0	19.046	13.349	35.0	23.257	68.2	18.507	0.514	1.084	64.6	1.200	12.3	0.489	1.083	65.7	1.188
24.0	535.0	1.0	21.304	14.298	33.9	25.657	64.1	20.417	0.725	1.157	57.9	1.366	12.0	0.700	1.155	58.8	1.350
23.0	535.0	1.0	23.820	15.306	32.7	28.133	57.3	22.321	0.981	1.231	51.4	1.574	11.5	0.996	1.228	52.1	1.552
22.0	535.0	1.0	26.625	16.368	31.6	31.254	56.7	24.871	1.291	1.303	45.3	1.834	10.8	1.264	1.299	45.8	1.812
21.0	535.0	1.0	29.764	17.480	30.4	34.603	49.3	27.369	1.643	1.370	39.3	2.143	9.9	1.633	1.365	39.3	2.121
20.0	535.0	1.0	33.241	18.636	29.3	38.108	49.9	30.326	2.105	1.429	34.2	2.544	9.1	2.072	1.424	34.5	2.514
19.0	535.0	1.0	37.116	19.836	28.2	41.816	49.9	33.648	2.658	1.477	29.4	3.015	8.2	2.568	1.471	29.6	2.977
18.0	535.0	1.0	41.405	21.059	27.0	46.453	43.5	36.966	3.231	1.510	25.0	3.566	7.3	3.186	1.503	25.3	3.523
17.0	535.0	1.0	46.115	22.311	25.8	51.229	40.4	40.767	3.921	1.524	21.2	4.207	6.4	3.868	1.516	21.4	4.155
16.0	535.0	1.0	51.394	23.578	24.4	56.393	37.2	44.976	4.690	1.516	17.9	4.907	5.6	4.650	1.507	18.0	4.895
15.0	535.0	1.0	56.678	24.853	23.7	61.845	34.2	49.248	5.516	1.484	15.1	5.712	4.9	5.439	1.475	15.2	5.635
14.0	535.0	1.0	62.141	26.127	22.7	67.595	30.2	53.700	6.341	1.427	12.2	6.519	4.2	6.210	1.427	12.4	6.459
13.0	535.0	1.0	68.014	27.395	21.9	73.334	28.1	58.349	7.168	1.347	10.6	7.294	3.5	7.058	1.338	10.7	7.184
12.0	535.0	1.0	73.415	28.651	21.1	78.807	25.1	62.713	7.840	1.248	9.0	7.955	2.9	7.733	1.239	9.1	7.833
11.0	535.0	1.0	79.211	29.884	20.9	83.730	23.3	66.630	8.333	1.130	7.9	8.439	2.5	8.215	1.125	7.8	8.289
10.0	535.0	1.0	85.983	31.126	20.8	87.786	15.5	69.858	8.573	1.013	6.7	8.633	2.1	8.424	1.002	6.8	8.483
9.0	535.0	1.0	93.191	32.351	20.2	93.351	9.9	75.225	8.481	0.885	6.0	8.731	1.9	8.518	0.885	6.0	8.639
8.0	535.0	1.0	101.286	33.580	21.3	99.990	14.5	73.680	8.083	0.751	5.3	8.818	1.				

EMF-OHL-002		Electric & Magnetic Field Study Report										Applies to	
		Spittal – Loch Buidhe - Beauly 400kV										Distribution	Transmission
Revision: 1.00		Classification: Public					Issue Date: July 25					✓	

-77.0	525.0	1.0	1.134	0.593	24.0	1.460	42.4	1.167	0.976	0.016	12.1	0.078	1.9	0.075	0.016	12.0	0.078
-76.0	525.0	1.0	1.126	0.598	23.8	1.405	42.4	1.121	0.975	0.014	10.1	0.076	1.9	0.072	0.014	10.0	0.076
-75.0	525.0	1.0	1.145	0.545	25.6	1.255	42.2	1.149	0.973	0.013	9.9	0.074	1.8	0.073	0.013	9.8	0.074
-74.0	525.0	1.0	1.104	0.523	25.5	1.332	41.3	1.044	0.972	0.011	6.9	0.073	1.9	0.072	0.011	6.9	0.073
-73.0	525.0	1.0	1.144	0.502	25.3	1.287	41.7	1.105	0.977	0.011	7.9	0.071	1.7	0.071	0.011	7.9	0.071
-72.0	525.0	1.0	1.102	0.492	22.3	1.225	41.5	0.975	0.969	0.009	7.0	0.070	1.7	0.069	0.009	6.9	0.070
-71.0	525.0	1.0	1.050	0.443	23.0	1.184	41.7	0.942	0.968	0.007	6.0	0.069	1.6	0.068	0.007	6.0	0.068
-70.0	525.0	1.0	1.055	0.415	22.8	1.145	41.3	0.912	0.967	0.005	5.1	0.067	1.6	0.067	0.005	5.0	0.067
-69.0	525.0	1.0	1.022	0.417	22.7	1.108	40.9	0.885	0.966	0.005	4.2	0.066	1.6	0.066	0.005	4.1	0.066
-68.0	525.0	1.0	0.950	0.412	22.8	1.070	40.7	0.824	0.964	0.004	3.8	0.065	1.6	0.065	0.004	3.7	0.065
-67.0	525.0	1.0	0.960	0.395	22.4	1.038	40.4	0.814	0.963	0.003	2.6	0.063	1.3	0.063	0.003	2.4	0.063
-66.0	525.0	1.0	0.921	0.393	22.2	1.000	40.2	0.806	0.962	0.002	1.9	0.062	1.4	0.062	0.002	1.8	0.062
-65.0	525.0	1.0	0.920	0.388	22.1	0.974	39.8	0.811	0.961	0.001	1.1	0.061	1.4	0.061	0.001	1.0	0.061
-64.0	525.0	1.0	0.870	0.352	21.9	0.944	39.0	0.752	0.960	0.001	0.9	0.060	1.4	0.060	0.001	0.8	0.060
-63.0	525.0	1.0	0.850	0.340	21.8	0.915	39.1	0.855	0.959	0.001	1.1	0.059	1.3	0.059	0.001	1.0	0.059
-62.0	525.0	1.0	0.824	0.338	21.7	0.888	39.3	0.797	0.958	0.001	1.7	0.058	1.3	0.058	0.001	1.6	0.058
-61.0	525.0	1.0	0.802	0.318	21.5	0.862	39.5	0.857	0.957	0.002	2.4	0.057	1.3	0.057	0.002	2.3	0.057
-60.0	525.0	1.0	0.770	0.305	21.4	0.837	39.8	0.844	0.956	0.003	3.1	0.056	1.3	0.056	0.003	3.0	0.056
-59.0	525.0	1.0	0.757	0.294	21.2	0.811	39.8	0.841	0.954	0.004	3.8	0.055	1.2	0.054	0.004	3.8	0.055
-58.0	525.0	1.0	0.746	0.284	21.1	0.788	39.4	0.818	0.953	0.003	4.5	0.054	1.2	0.053	0.003	4.4	0.054
-57.0	525.0	1.0	0.736	0.274	21.0	0.767	39.2	0.810	0.952	0.003	5.2	0.053	1.2	0.052	0.003	5.1	0.053
-56.0	525.0	1.0	0.697	0.265	20.8	0.745	37.5	0.805	0.951	0.005	6.8	0.052	1.2	0.051	0.005	6.7	0.052
-55.0	525.0	1.0	0.678	0.258	20.7	0.723	37.1	0.811	0.951	0.006	6.0	0.051	1.1	0.051	0.006	5.9	0.051
-54.0	525.0	1.0	0.648	0.248	20.5	0.690	36.4	0.816	0.948	0.006	8.4	0.048	1.1	0.048	0.006	8.3	0.048
-53.0	525.0	1.0	0.628	0.243	20.3	0.673	36.4	0.847	0.947	0.003	6.4	0.048	1.1	0.048	0.003	6.4	0.048
-52.0	525.0	1.0	0.611	0.235	20.3	0.654	36.4	0.844	0.946	0.004	7.0	0.047	1.1	0.046	0.004	7.0	0.047
-51.0	525.0	1.0	0.580	0.228	20.2	0.638	36.0	0.848	0.946	0.006	7.8	0.046	1.1	0.046	0.006	7.7	0.046
-50.0	525.0	1.0	0.579	0.219	20.1	0.619	37.7	0.843	0.956	0.006	8.2	0.045	1.0	0.045	0.006	8.2	0.045
-49.0	525.0	1.0	0.564	0.212	20.0	0.603	37.2	0.846	0.944	0.007	8.8	0.044	1.0	0.044	0.007	8.8	0.044
-48.0	525.0	1.0	0.550	0.205	20.0	0.587	37.3	0.847	0.943	0.007	9.4	0.044	1.0	0.043	0.007	9.4	0.044
-47.0	525.0	1.0	0.536	0.199	20.0	0.572	37.2	0.845	0.942	0.007	9.9	0.043	1.0	0.043	0.007	9.9	0.043
-46.0	525.0	1.0	0.522	0.193	20.0	0.557	36.8	0.843	0.942	0.008	10.5	0.042	1.0	0.042	0.008	10.5	0.042
-45.0	525.0	1.0	0.509	0.187	20.1	0.543	36.4	0.843	0.943	0.009	11.0	0.042	0.9	0.041	0.009	11.0	0.042
-44.0	525.0	1.0	0.497	0.181	20.0	0.529	36.4	0.843	0.943	0.009	11.5	0.041	0.9	0.041	0.009	11.5	0.041
-43.0	525.0	1.0	0.485	0.176	19.9	0.516	36.2	0.840	0.939	0.009	12.1	0.040	0.9	0.039	0.009	12.1	0.040
-42.0	525.0	1.0	0.473	0.171	19.9	0.503	36.2	0.839	0.939	0.010	12.6	0.040	0.9	0.039	0.010	12.6	0.040
-41.0	525.0	1.0	0.462	0.166	19.7	0.490	36.7	0.839	0.939	0.009	13.1	0.039	0.9	0.039	0.009	13.1	0.039
-40.0	525.0	1.0	0.451	0.161	19.5	0.477	36.7	0.837	0.939	0.009	13.6	0.038	0.9	0.038	0.009	13.6	0.038
-39.0	525.0	1.0	0.440	0.156	19.5	0.467	36.7	0.837	0.939	0.009	14.1	0.038	0.9	0.037	0.009	14.1	0.038
-38.0	525.0	1.0	0.430	0.152	19.5	0.456	36.0	0.833	0.938	0.009	14.5	0.037	0.9	0.036	0.009	14.5	0.037
-37.0	525.0	1.0	0.420	0.147	19.4	0.445	36.4	0.835	0.935	0.010	15.0	0.037	0.9	0.036	0.010	15.0	0.037
-36.0	525.0	1.0	0.410	0.143	19.3	0.434	34.8	0.846	0.935	0.010	15.5	0.036	0.8	0.035	0.010	15.5	0.036
-35.0	525.0	1.0	0.400	0.140	19.2	0.424	35.0	0.844	0.934	0.010	16.0	0.036	0.8	0.035	0.010	16.0	0.036
-34.0	525.0	1.0	0.390	0.138	19.1	0.414	34.1	0.838	0.934	0.010	16.4	0.035	0.8	0.034	0.010	16.4	0.035
-33.0	525.0	1.0	0.380	0.135	19.0	0.404	34.0	0.838	0.933	0.010	16.9	0.035	0.8	0.034	0.010	16.9	0.035
-32.0	525.0	1.0	0.370	0.132	18.9	0.395	33.8	0.840	0.932	0.010	17.2	0.034	0.7	0.033	0.010	17.2	0.034
-31.0	525.0	1.0	0.360	0.130	18.8	0.387	33.4	0.840	0.932	0.010	17.7	0.034	0.7	0.033	0.010	17.7	0.034
-30.0	525.0	1.0	0.350	0.128	18.8	0.378	33.2	0.838	0.931	0.010	18.1	0.033	0.7	0.032	0.010	18.1	0.033
-29.0	525.0	1.0	0.340	0.126	18.7	0.370	33.0	0.838	0.931	0.010	18.5	0.033	0.7	0.031	0.010	18.5	0.033
-28.0	525.0	1.0	0.330	0.124	18.6	0.362	32.8	0.837	0.930	0.010	18.9	0.032	0.7	0.031	0.010	18.9	0.032
-27.0	525.0	1.0	0.320	0.122	18.5	0.354	30.4	0.837	0.930	0.010	19.3	0.032	0.7	0.030	0.010	19.3	0.032
-26.0	525.0	1.0	0.310	0.120	18.4	0.346	30.2	0.829	0.929	0.011	19.7	0.031	0.7	0.029	0.011	19.7	0.031
-25.0	525.0	1.0	0.300	0.118	18.3	0.338	30.2	0.829	0.929	0.011	20.1	0.031	0.7	0.029	0.011	20.1	0.031
-24.0	525.0	1.0	0.290	0.116	18.2	0.330	30.1	0.829	0.929	0.011	20.4	0.030	0.7	0.029	0.011	20.4	0.030
-23.0	525.0	1.0	0.280	0.114	18.1	0.322	30.0	0.829	0.929	0.011	20.8	0.030	0.7	0.029	0.011	20.8	0.030
-22.0	525.0	1.0	0.270	0.112	18.0	0.314	30.0	0.829	0.929	0.011	21.2	0.030	0.6	0.028	0.011	21.2	0.030
-21.0	525.0	1.0	0.260	0.110	17.9	0.307	29.8	0.829	0.929	0.011	21.6	0.030	0.6	0.028	0.011	21.6	0.030
-20.0	525.0	1.0	0.250	0.108	17.8	0.300	30.0	0.829	0.929	0.011	22.0	0.030	0.6	0.028	0.011	22.0	0.030
-19.0	525.0	1.0	0.240	0.106	17.7	0.292	30.0	0.829	0.929	0.011	22.4	0.030	0.6	0.028	0.011	22.4	0.030
-18.0	525.0	1.0	0.230	0.104	17.6	0.284	29.9	0.829	0.929	0.011	22.8	0.030	0.6	0.028	0.011	22.8	0.030
-17.0	525.0	1.0	0.220	0.102	17.5	0.276	29.8	0.829	0.929	0.011	23.2	0.030	0.6	0.028	0.011	23.2	0.030
-16.0	525.0	1.0	0.210	0.100	17.4	0.268	29										

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Appendix E Arcadis Complex EMF Assessment Report