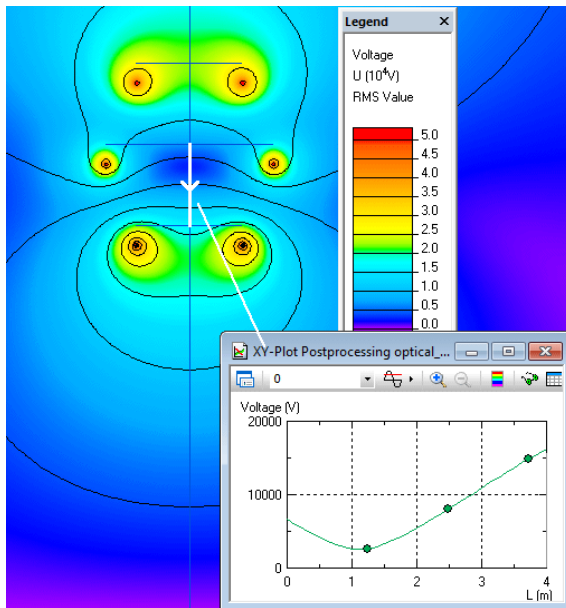


QuickField simulation report

Fiber-optic cable and electric transmission line

Calculation of the most favorable fiber-optic cable position on the transmission line tower



This automatically generated document consists of several sections, which specify the problem setup and finite element analysis simulation results. Navigation links in the top of each page lead to corresponding sections of this report.

Problem description and QuickField simulation files:

https://quickfield.com/advanced/optical_cable.htm

Problem info

Problem type: AC Conduction , frequency: 50 Hz,

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *optical_cable.pbm*
- Geometry: *Optical_cable_model.mod*
- Material Data: *Optical_cable_data.dec*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

Geometry model

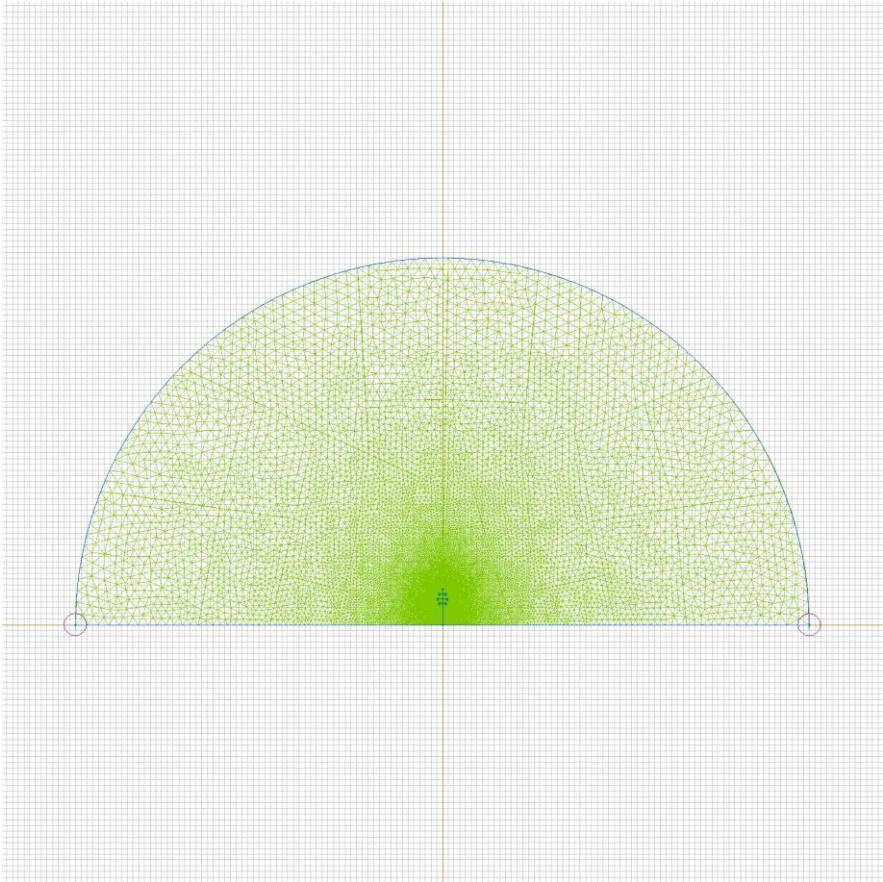


Table 1. Geometry model statistics

	With Label	Total
Blocks	1	1
Edges	2	13
Vertices	3	19

Number of nodes: 33870.

Labelled objects

There are following labelled objects in the geometry model (Material Data file could contain more labels, but only those labels that assigned to geometric objects are listed)

Blocks:

- [air](#)
-

Edges:

- [tower](#)
- [U=0](#)
-

Vertices:

- [phase C](#)
- [phase B](#)
- [phase A](#)
-

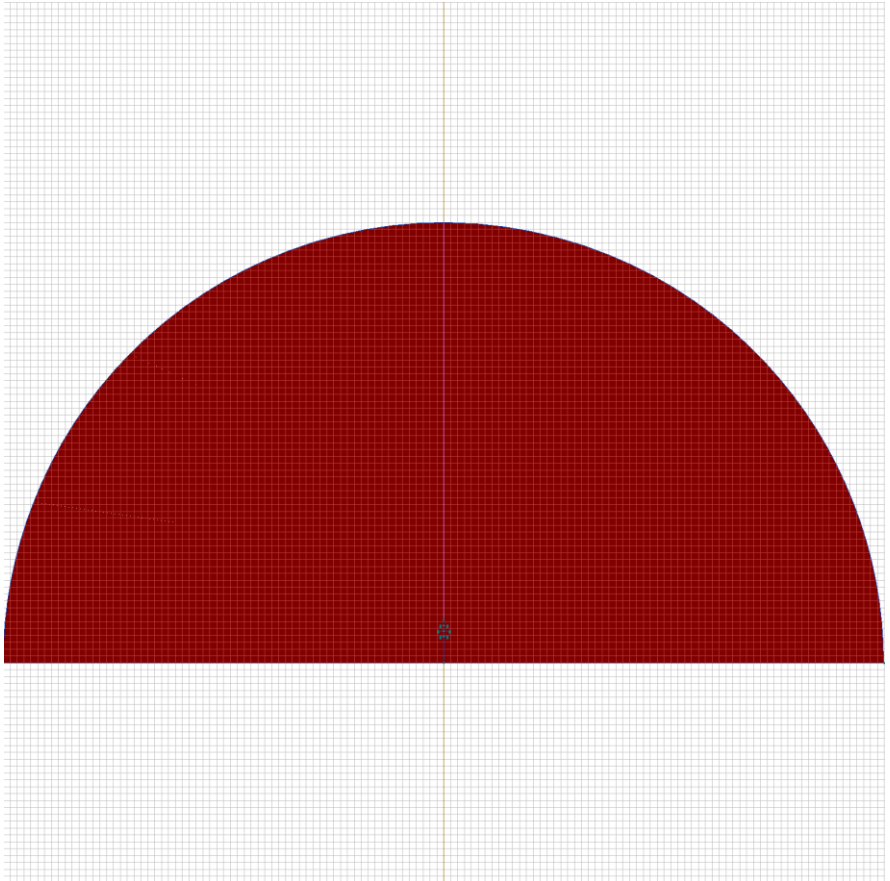
Detailed information about each label is listed below.

Labelled objects: block "air"

There are (1) objects with this label

Relative electric permittivity $\epsilon_{x=1}$, $\epsilon_{y=1}$

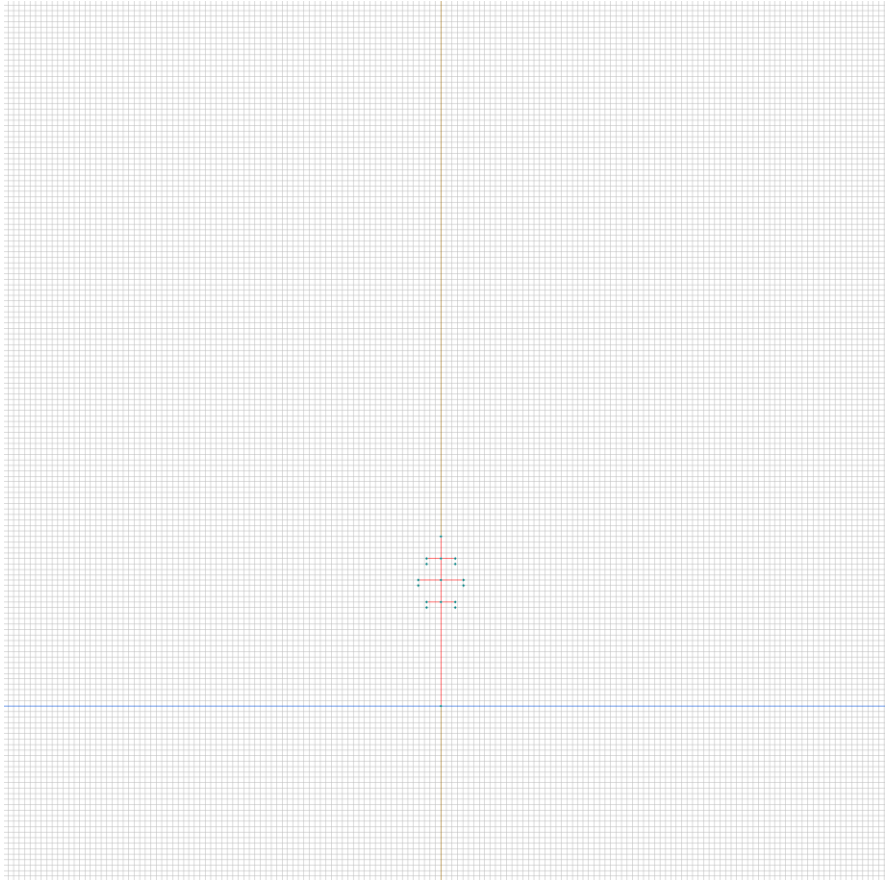
Electrical conductivity $\sigma_{x=0}$ [S/m], $\sigma_{y=0}$ [S/m]



Labelled objects: edge "tower"

There are (10) objects with this label

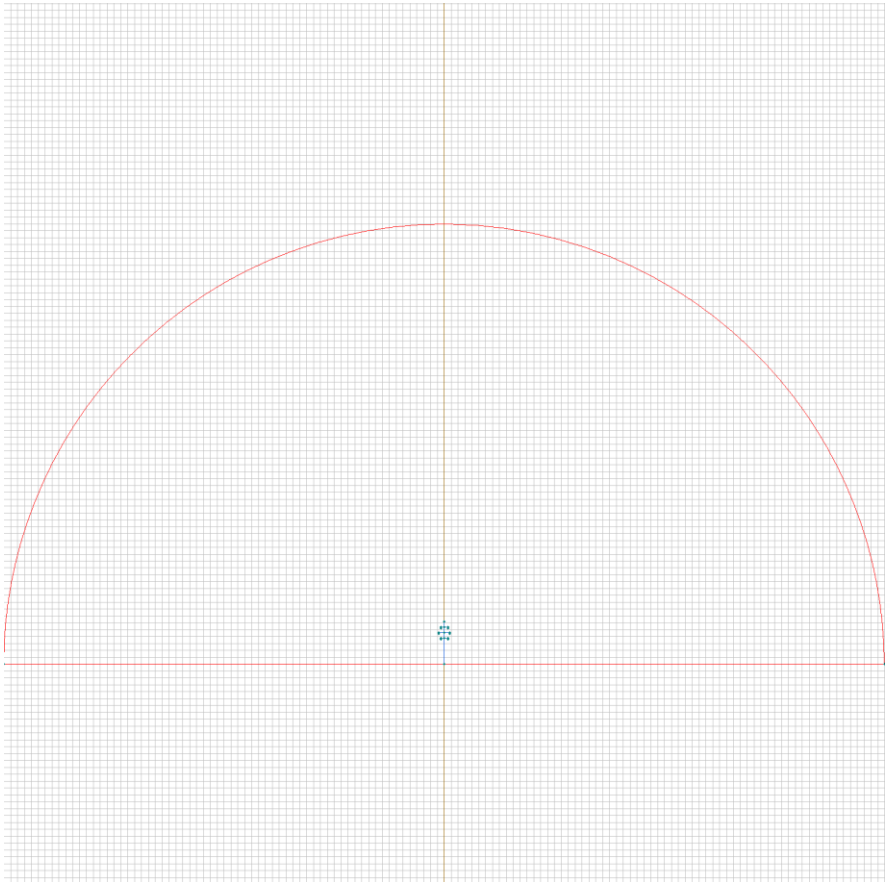
No material data (boundary conditions) are specified



Labelled objects: edge "U=0"

There are (3) objects with this label

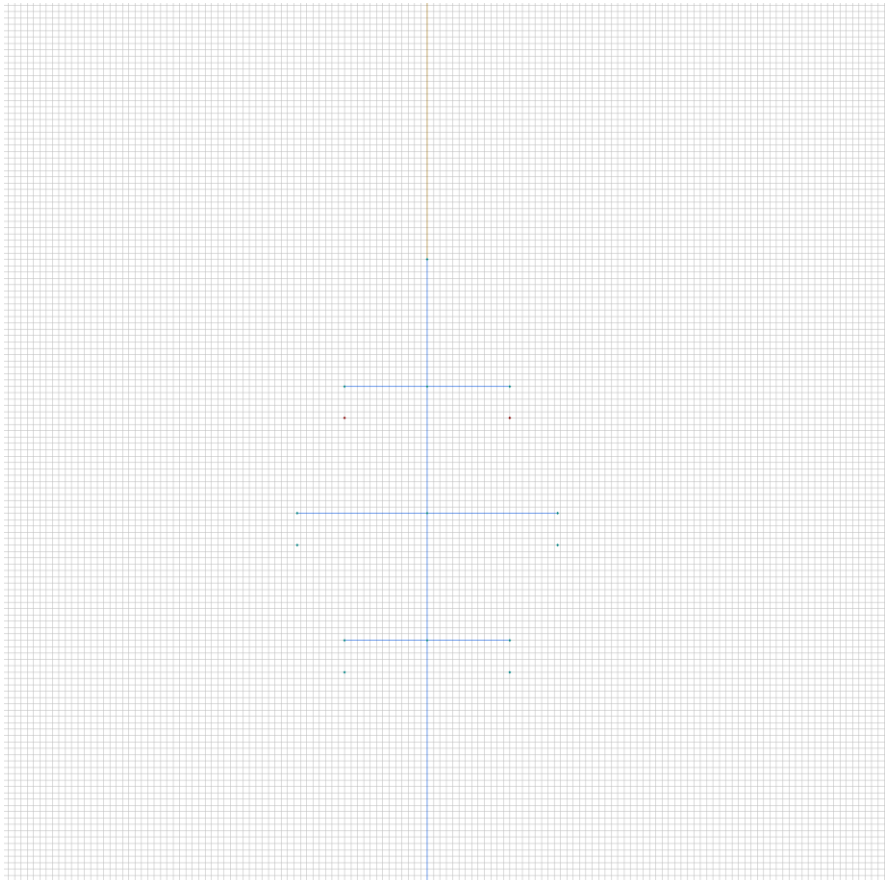
Voltage: U=0 [V], phase 0 [deg]



Labelled objects: vertex "phase C"

There are (2) objects with this label

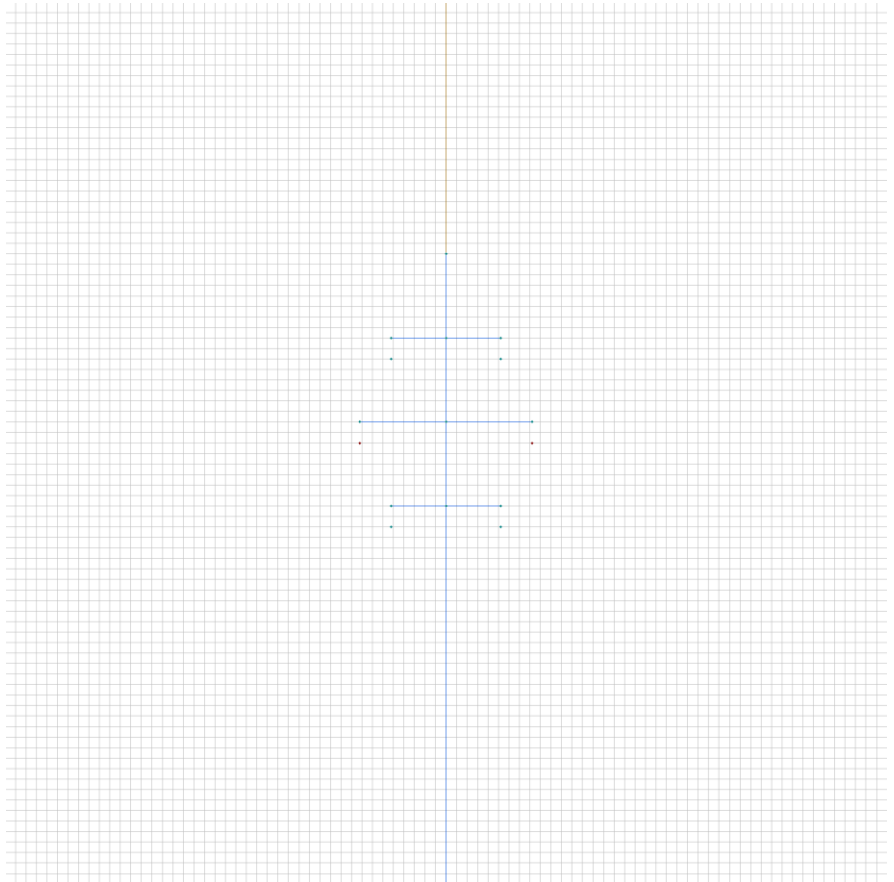
Voltage: $U=110000*\sqrt{2}/\sqrt{3}$ [V], phase 240 [deg]



Labelled objects: vertex "phase B"

There are (2) objects with this label

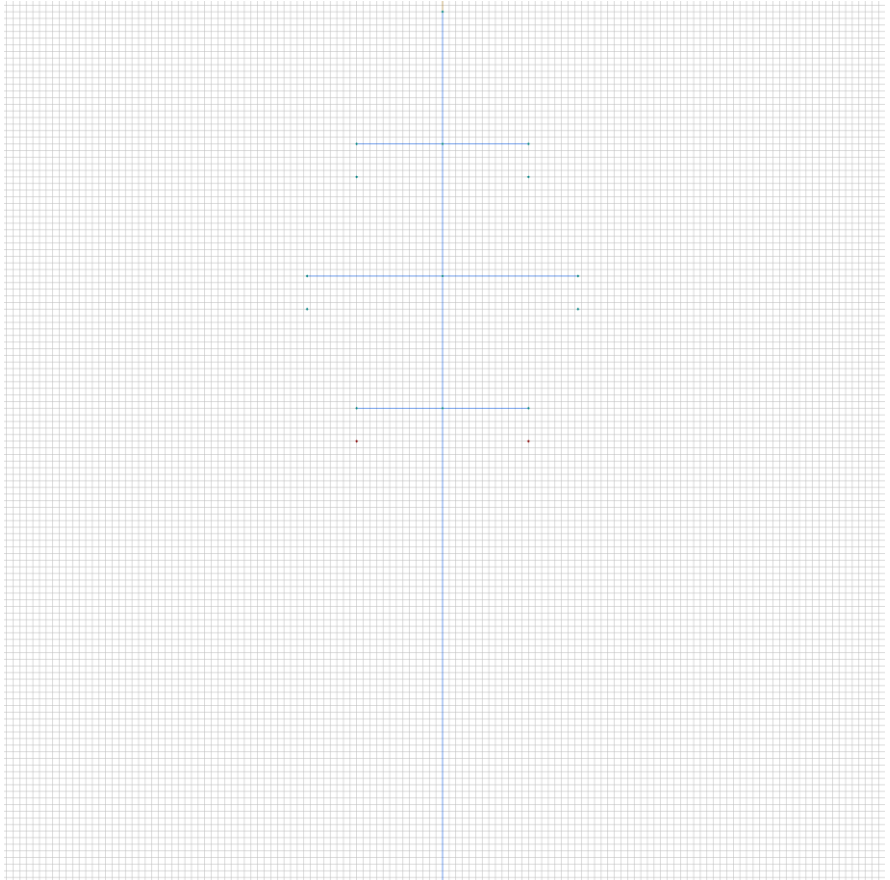
Voltage: $U=110000*\sqrt{2}/\sqrt{3}$ [V], phase 120 [deg]



Labelled objects: vertex "phase A"

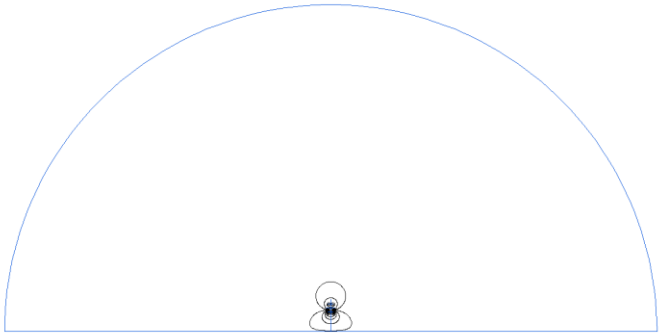
There are (2) objects with this label

Voltage: $U=110000*\sqrt{2}/\sqrt{3}$ [V], phase 0 [deg]



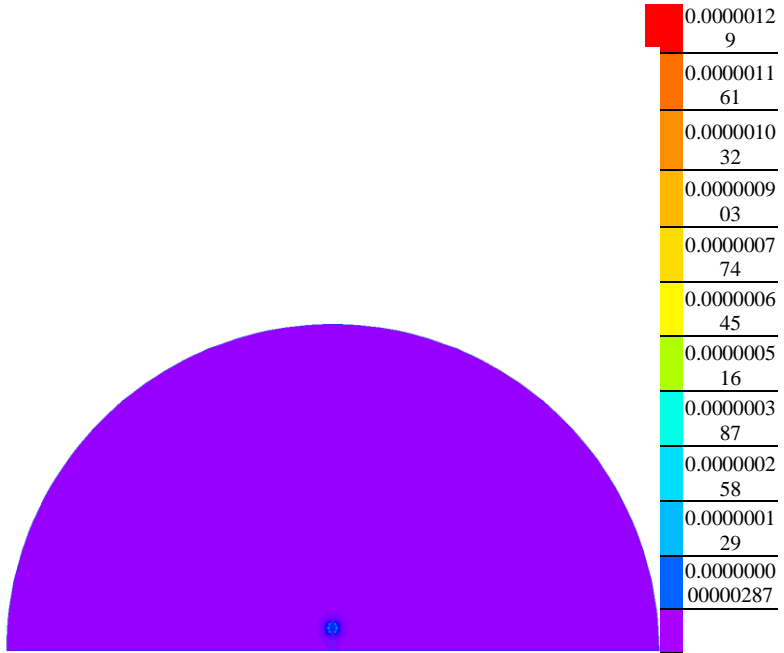
Results

Field lines



Results

Color map of Electric induction $|D|$ [C/m²]



Nonlinear dependencies

No non-linear dependencies are used in this problem data