Problem info

Problem type: AC Magnetics , frequency: 100000 Hz,
Geometry model class: Axisymmetric
Problem database file names:

- Problem: *litz.pbm*
- Geometry: *Litz_1x7.mod*
- Material Data: *Litz_data.dhe*
- Material Data 2 (library): *none*
- Electric circuit: *litz_circuit.qcr*

Results taken from other problems:

- *none*

Geometry model

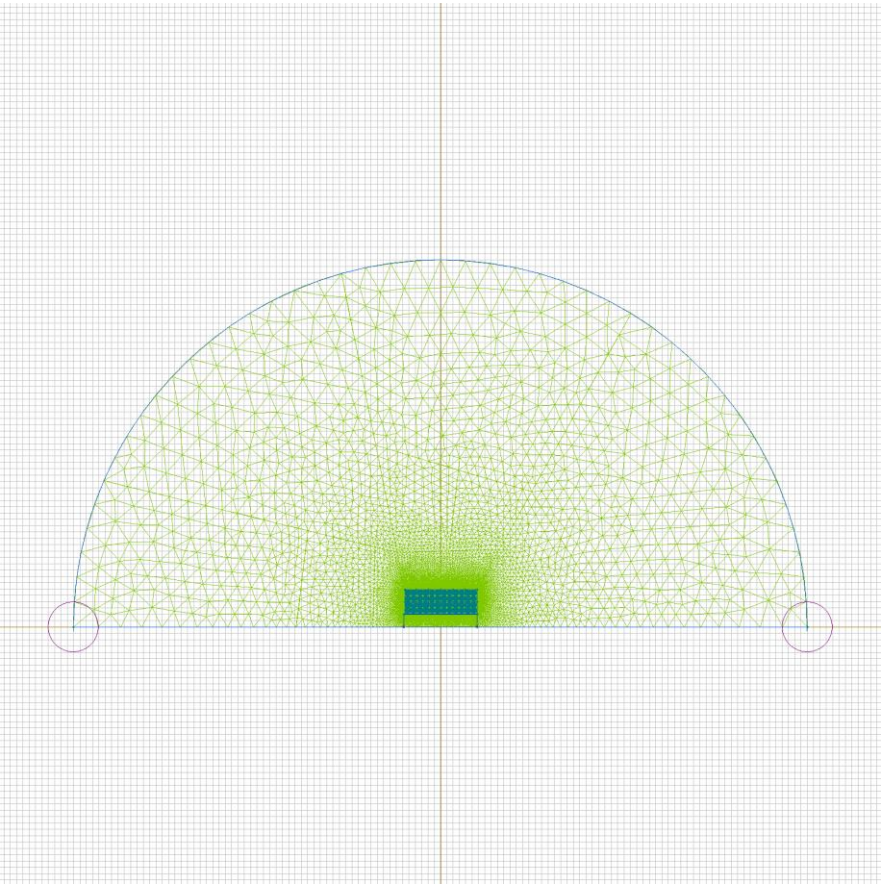


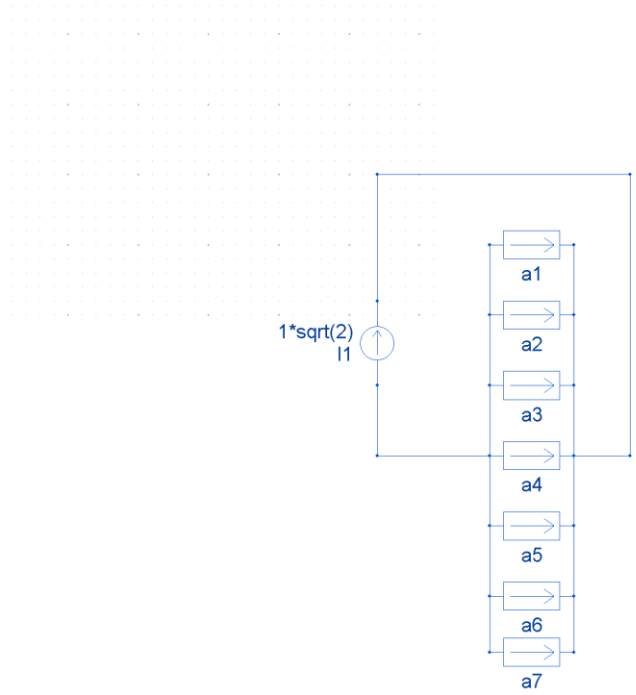
Table 1. Geometry model statistics

	With Label	Total
Blocks	10	350
Edges	2	711
Vertices	0	1035

Number of nodes: 157804.

Electric circuit

Coupled electric circuit



Circuit elements:

QuickField block 'a1'
QuickField block 'a2'
QuickField block 'a3'
QuickField block 'a4'
QuickField block 'a5'
QuickField block 'a6'

QuickField block 'a7'
Current source I1=1*sqrt(2) [A] 0 [deg]

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)

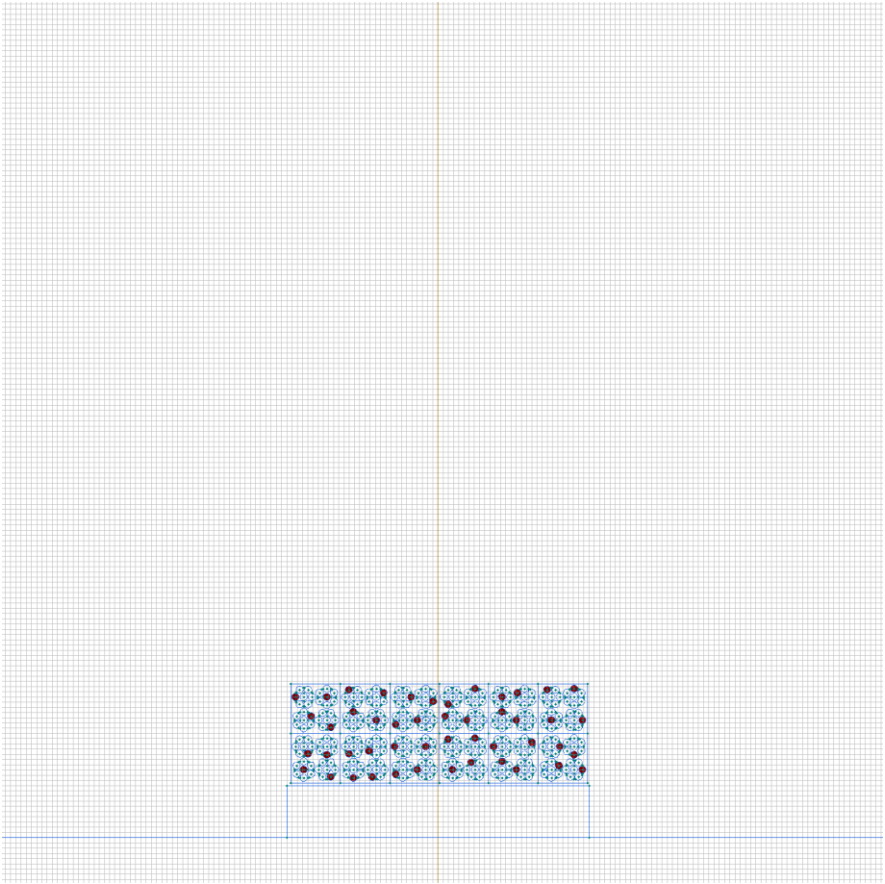
Blocks:	Edges:	Vertices:
• a7 • a2 • a6 • a5 • a4 • a3 • a1 • insulation • ferrite • air •	• coil perimeter • boundary •	

Detailed information about each label is listed below.

Labelled objects: block "a7"

There are (48) objects with this label

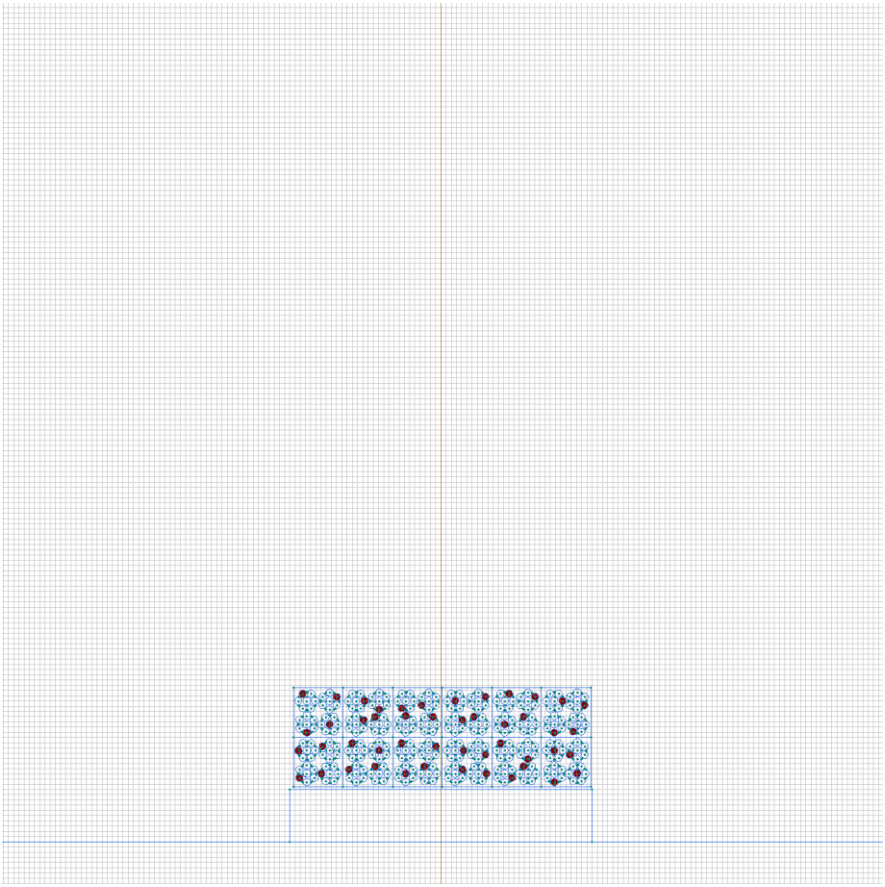
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a2"

There are (48) objects with this label

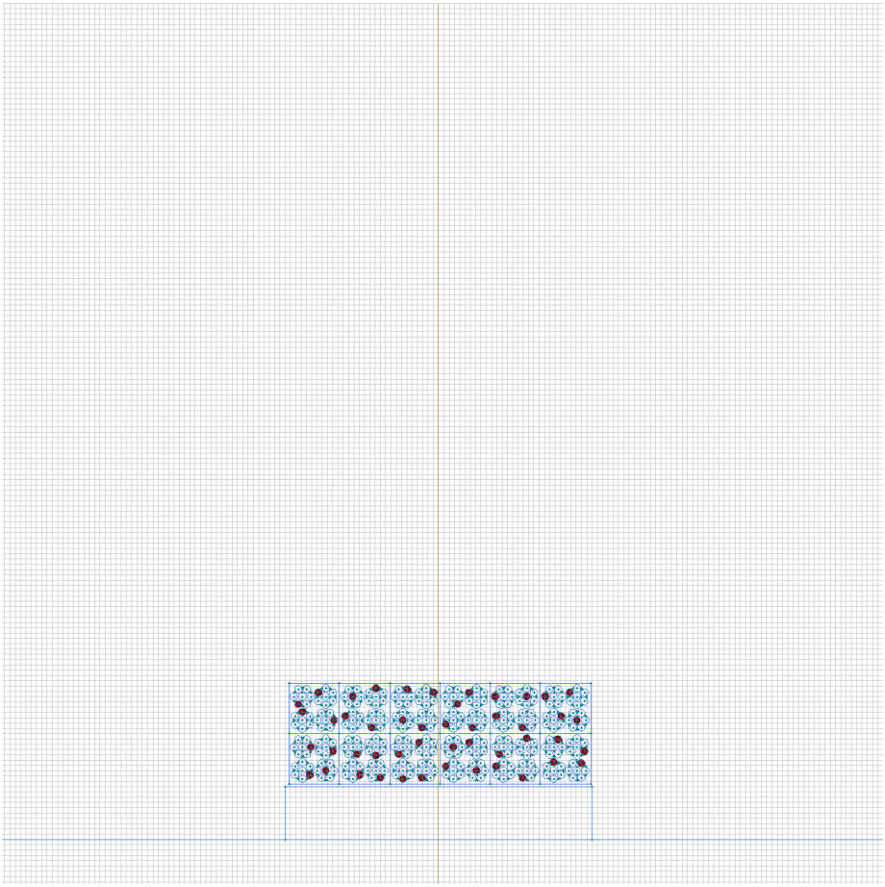
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a6"

There are (48) objects with this label

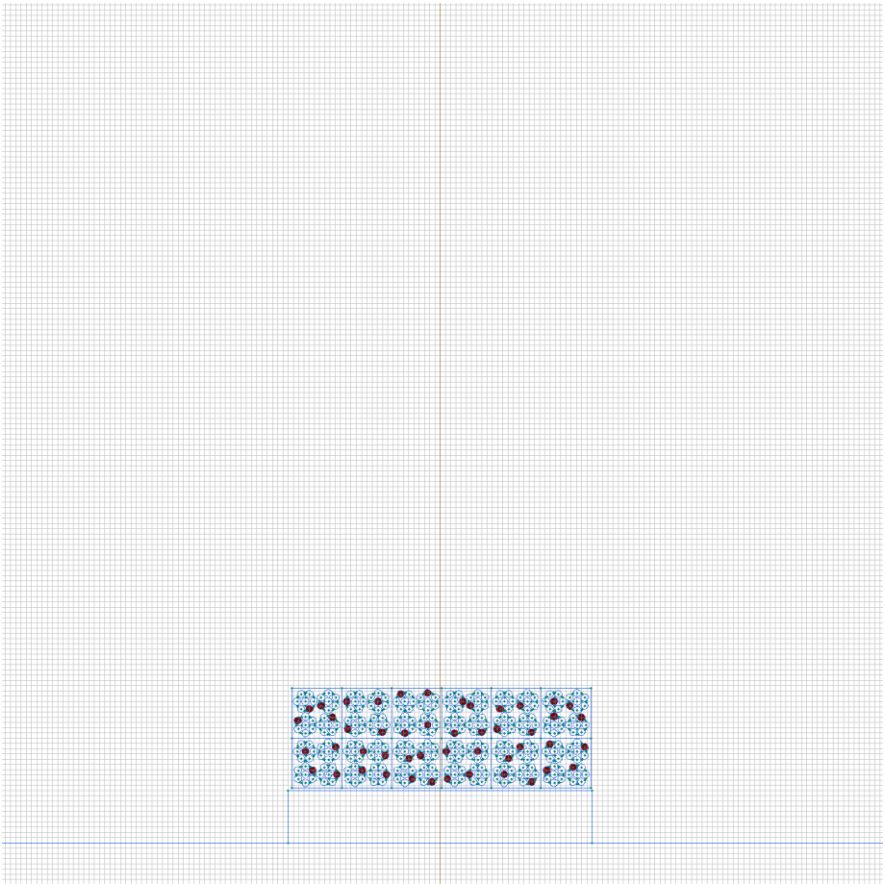
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a5"

There are (48) objects with this label

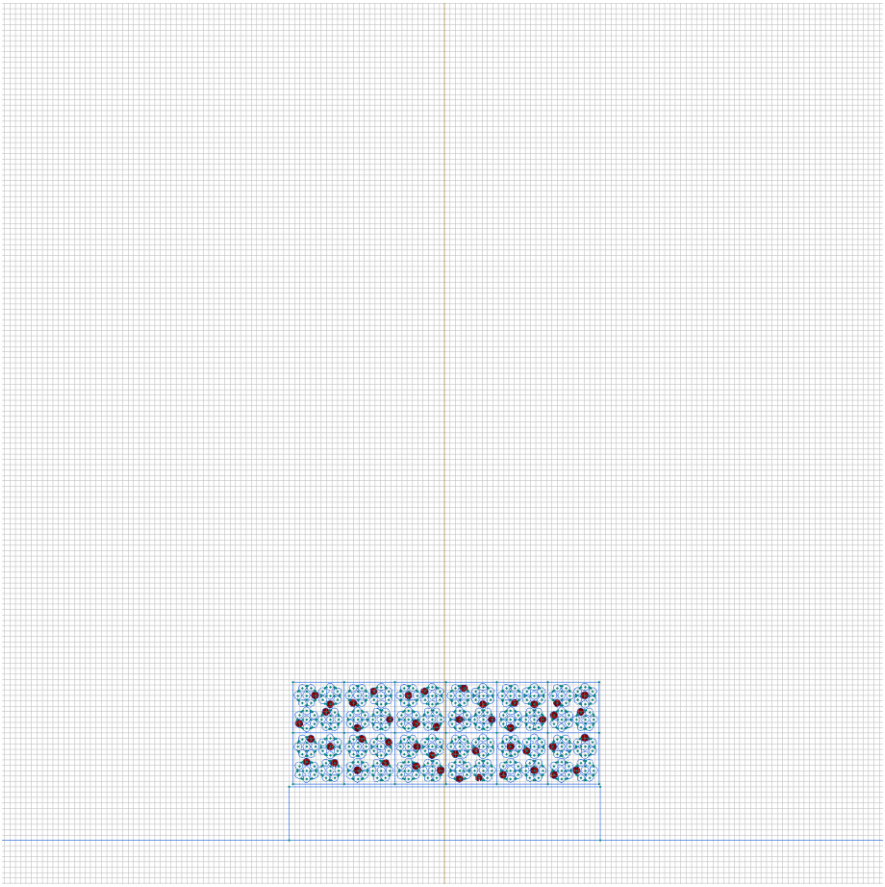
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a4"

There are (48) objects with this label

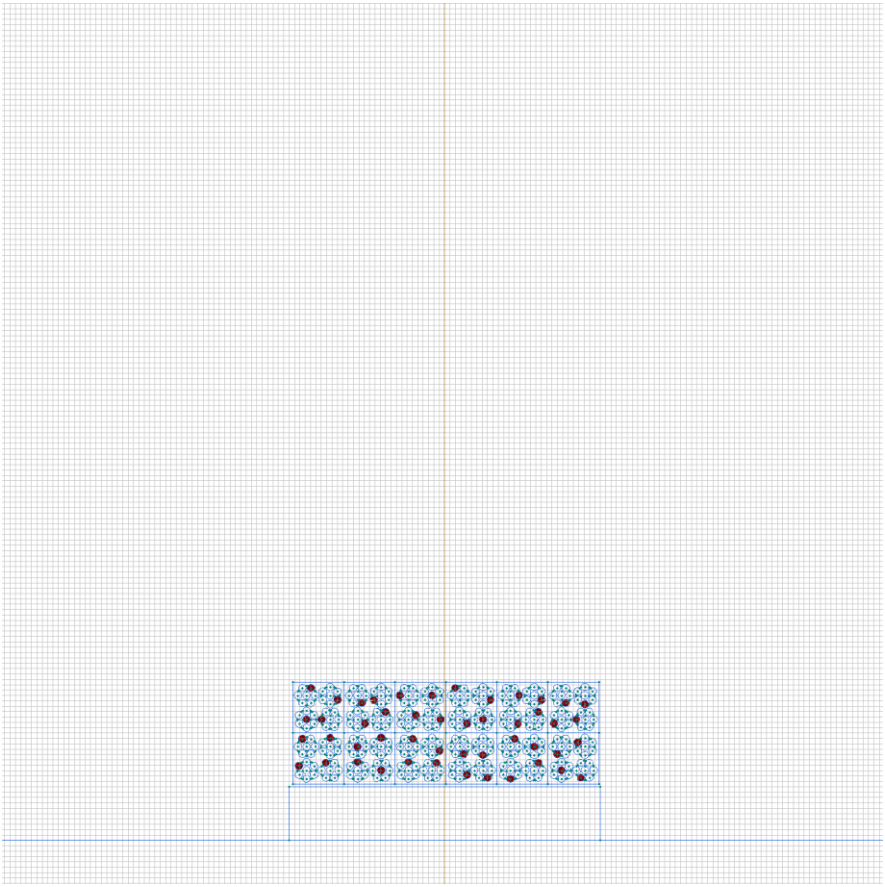
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a3"

There are (48) objects with this label

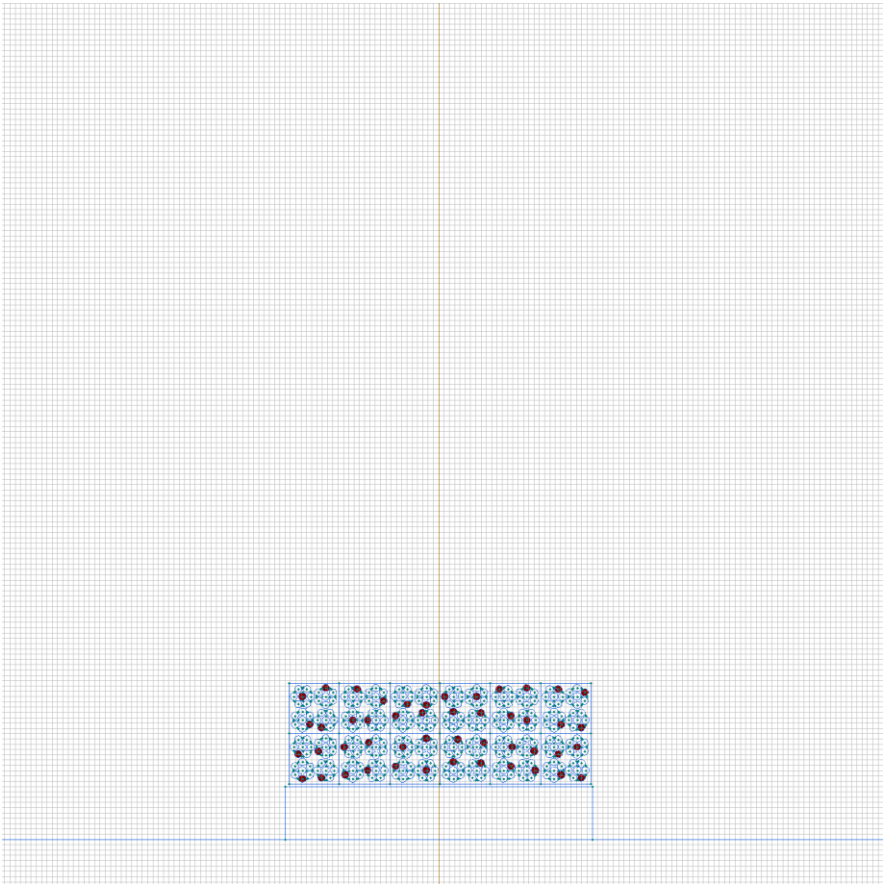
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "a1"

There are (48) objects with this label

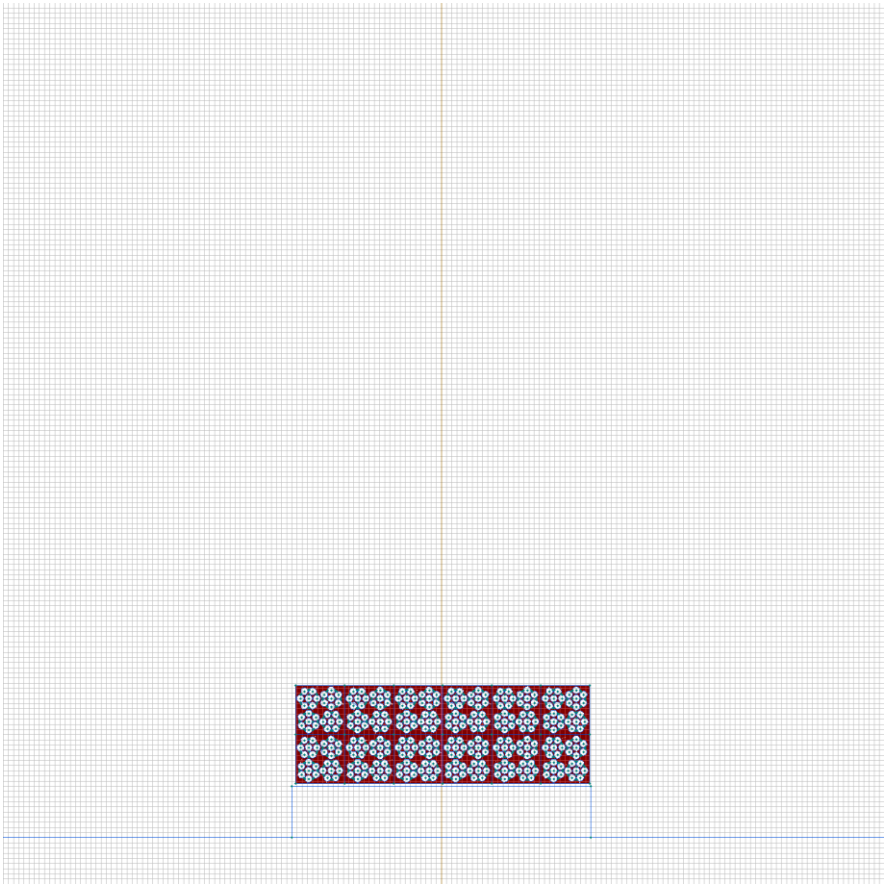
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=56000000 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in series



Labelled objects: block "insulation"

There are (12) objects with this label

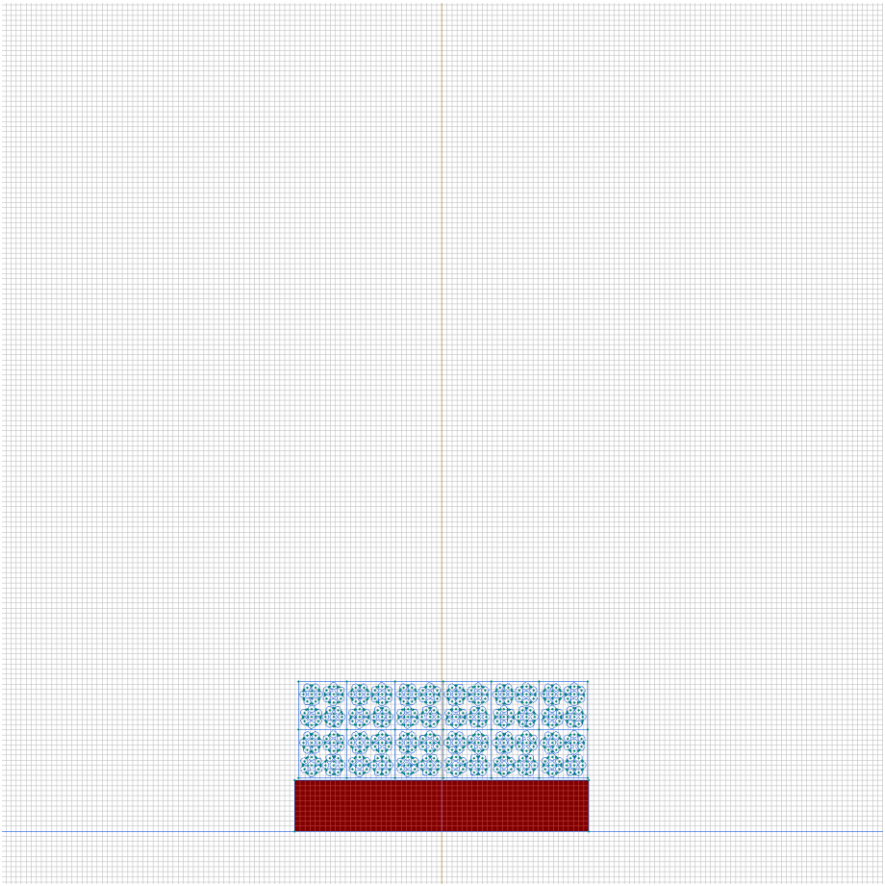
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=0 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in parallel



Labelled objects: block "ferrite"

There are (1) objects with this label

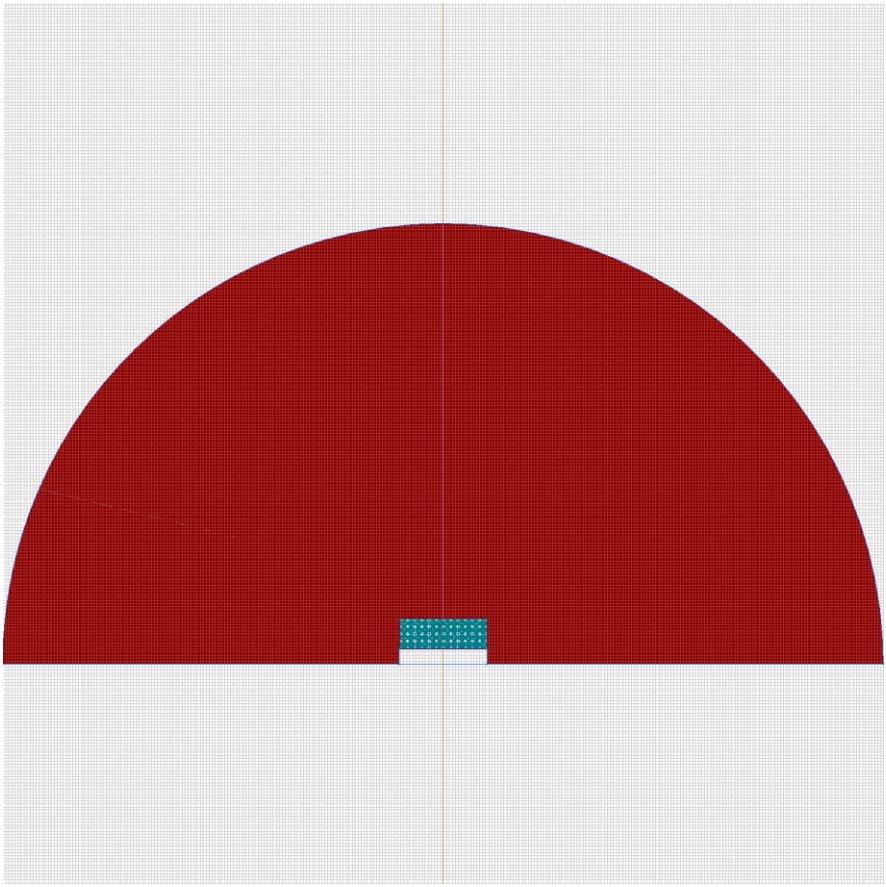
Relative magnetic permeability: mu_x=500, mu_y=500
Electric conductivity: sigma=0 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in parallel



Labelled objects: block "air"

There are (1) objects with this label

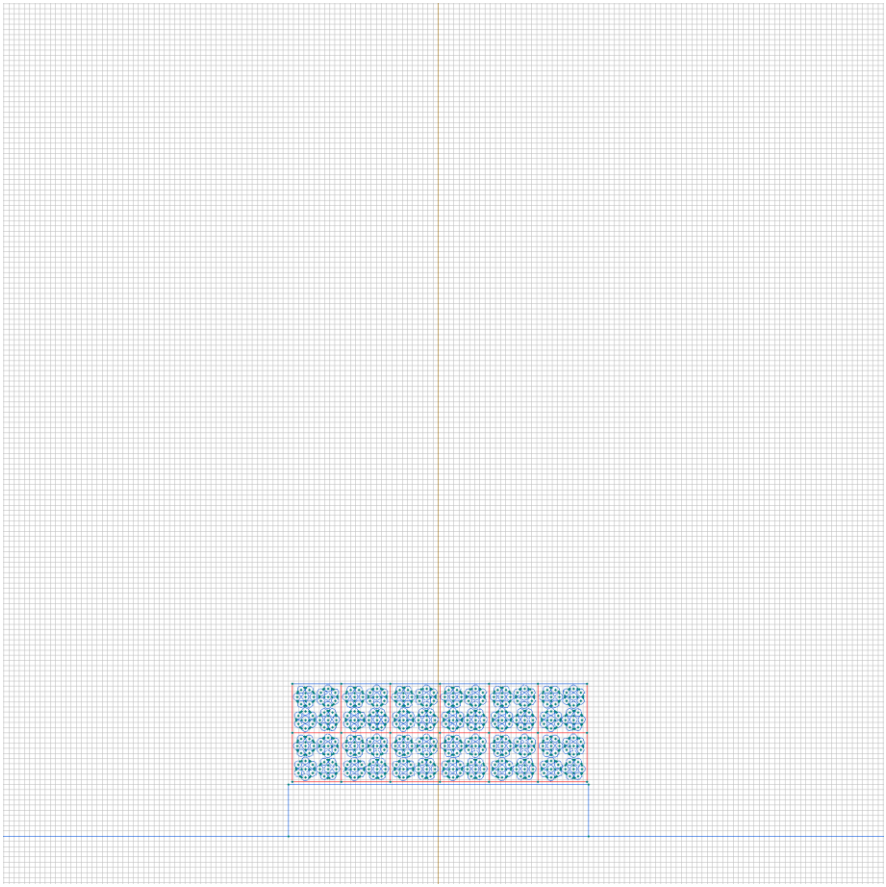
Relative magnetic permeability: mu_x=1, mu_y=1
Electric conductivity: sigma=0 [S/m]
Current density: j=0 [A/m2], phase 0 [deg]
Conductor's connection: in parallel



Labelled objects: edge "coil perimeter"

There are (26) objects with this label

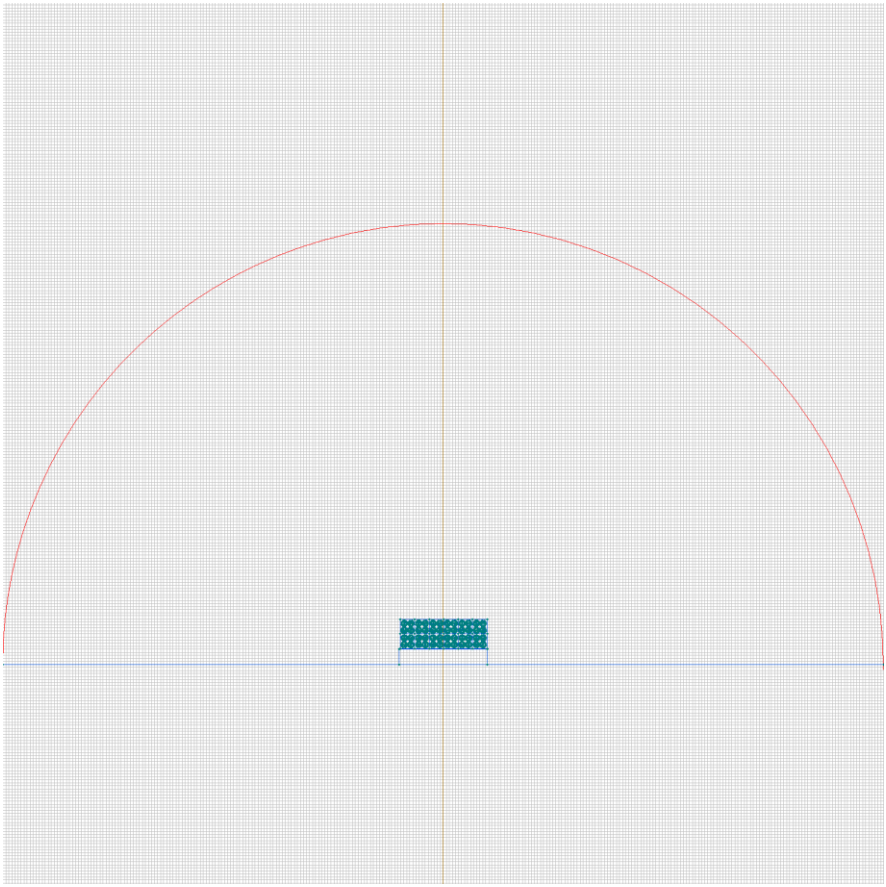
No material data (boundary conditions) are specified



Labelled objects: edge "boundary"

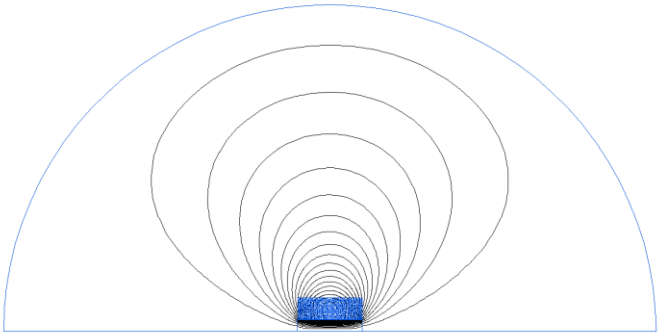
There are (1) objects with this label

Magnetic potential: A=0 [Wb/m], phase 0 [deg]



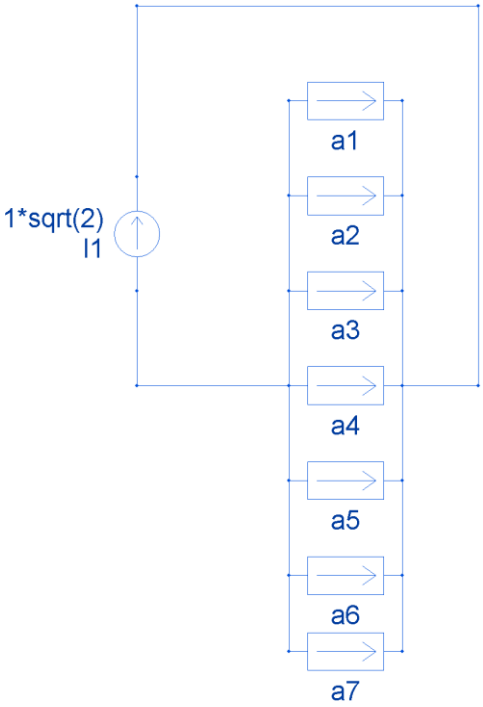
Results

Field lines



Results

Electric circuit currents



Circuit elements:

a1. I=0.4194 [A], phase=-132.53 [deg]

a2. I=0.28721 [A], phase=-150.4 [deg]

a3. I=0.19626 [A], phase=173.04 [deg]

a4. I=0.25494 [A], phase=123.59 [deg]

a5. I=0.2266 [A], phase=128.91 [deg]

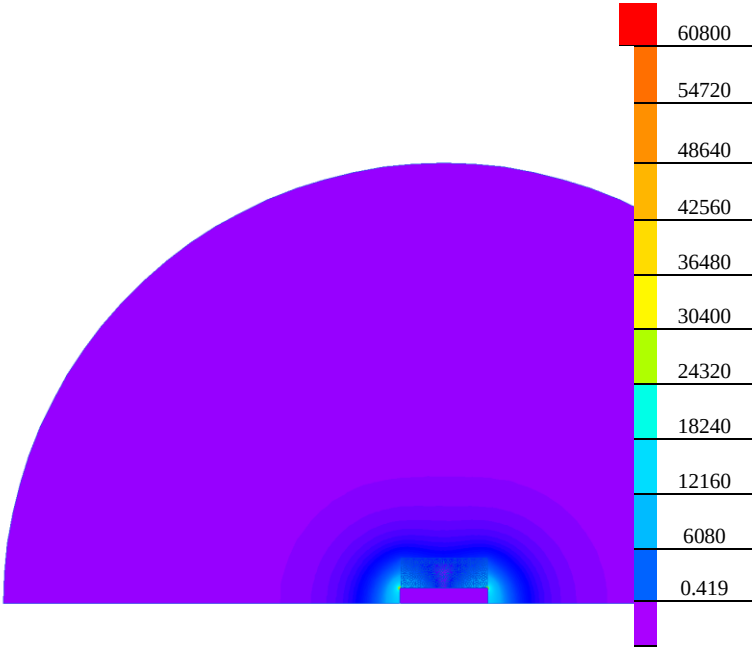
a6. I=0.20337 [A], phase=149.06 [deg]

a7. I=0.23768 [A], phase=-163.86 [deg]

I1. I=1.4142 [A], phase=0 [deg]

Results

Color map of Strength |H| [A/m]



Nonlinear dependencies

No non-linear dependencies are used in this problem data