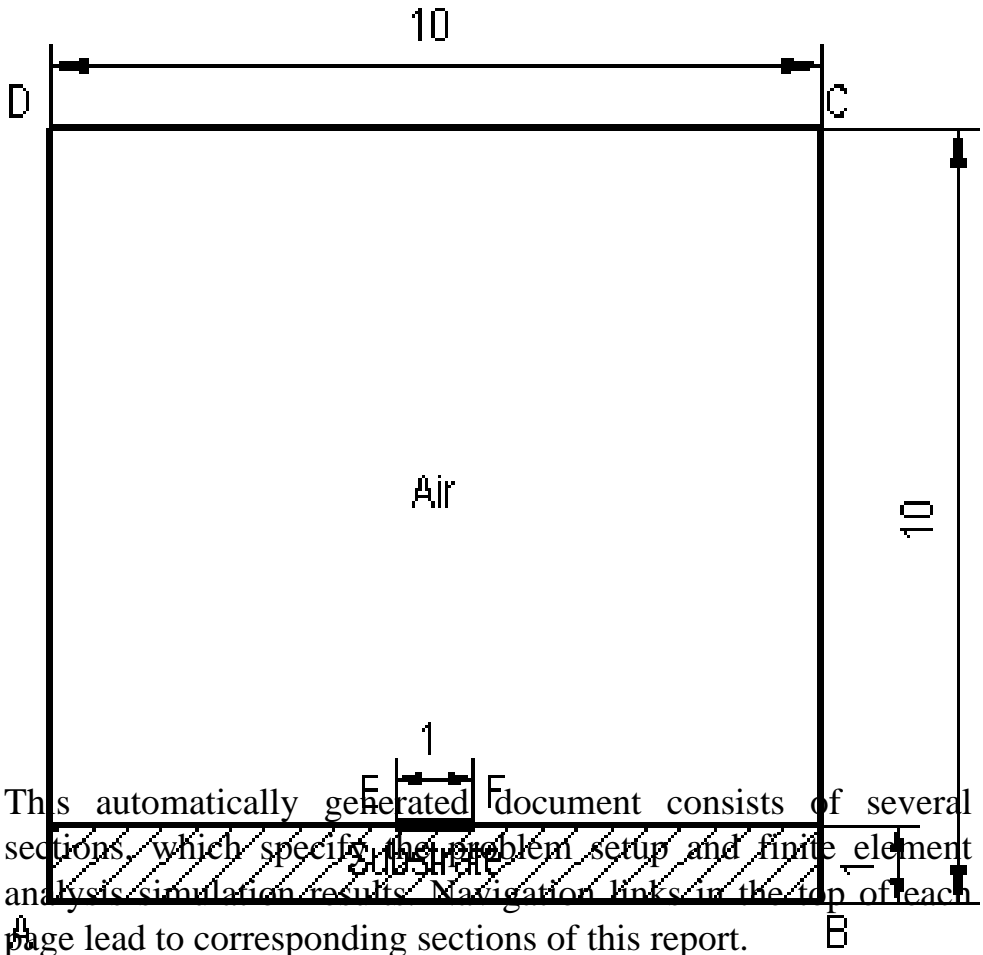


# QuickField simulation report

## Microstrip transmission line

Calculation of the capacitance of the transmission line



Problem description and QuickField simulation files:

<https://quickfield.com/advanced/elec1.htm>

# Problem info

Problem type: Electrostatics

Geometry model class: Plane-Parallel

Problem database file names:

- Problem: *Elec1\_1.pbm*
- Geometry: *Elec1.mod*
- Material Data: *Elec1\_1.des*
- Material Data 2 (library): *none*
- Electric circuit: *none*

Results taken from other problems:

- *none*

# Geometry model

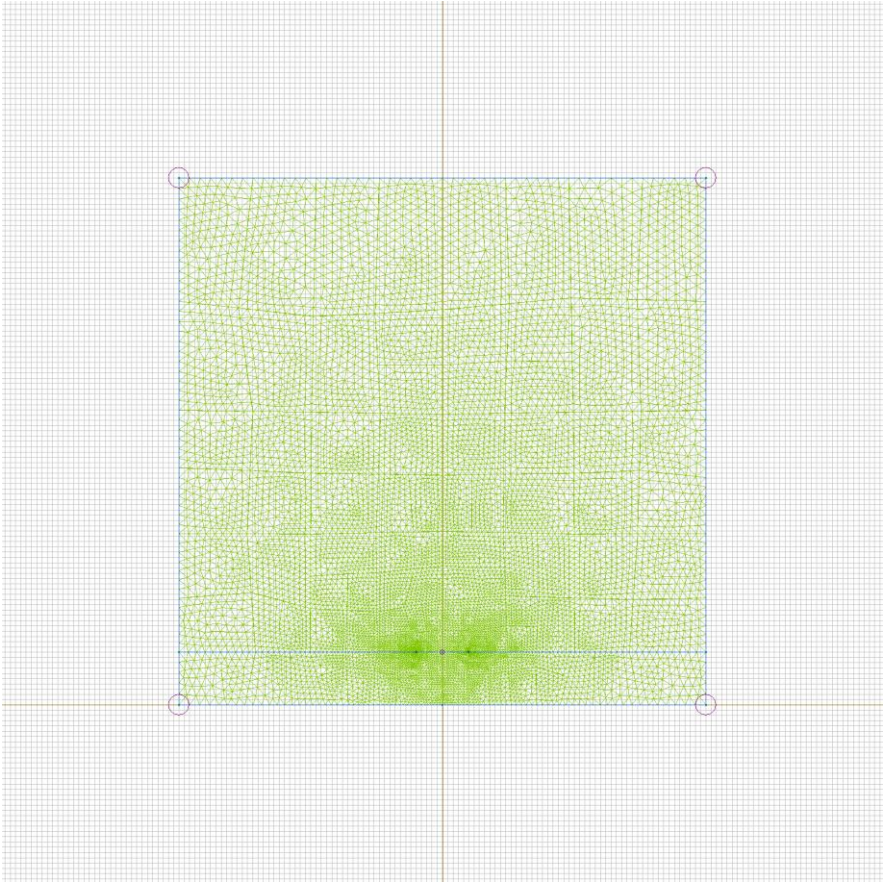


Table 1. Geometry model statistics

	With Label	Total
Blocks	2	2
Edges	2	11
Vertices	1	10

Number of nodes: -6312.

# 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](#)
- [Substrate](#)
- 

Edges:

- [Shield](#)
- [Strip](#)
- 

Vertices:

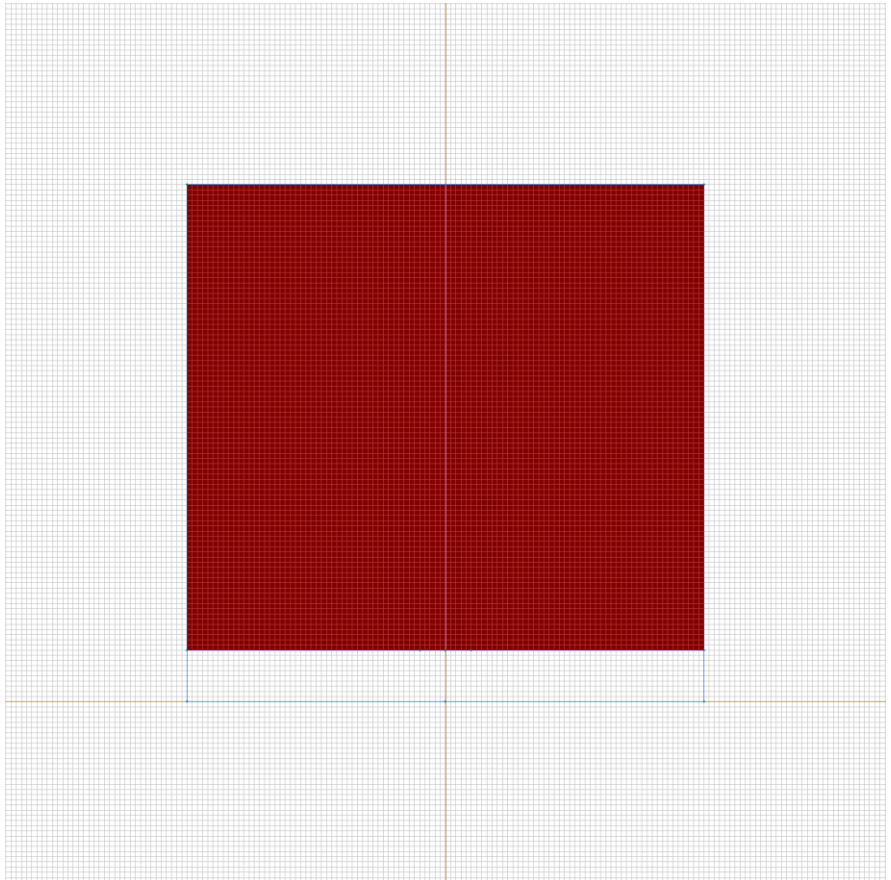
- [Charge](#)
- 

Detailed information about each label is listed below.

Labelled objects: block "Air"

There are (1) objects with this label

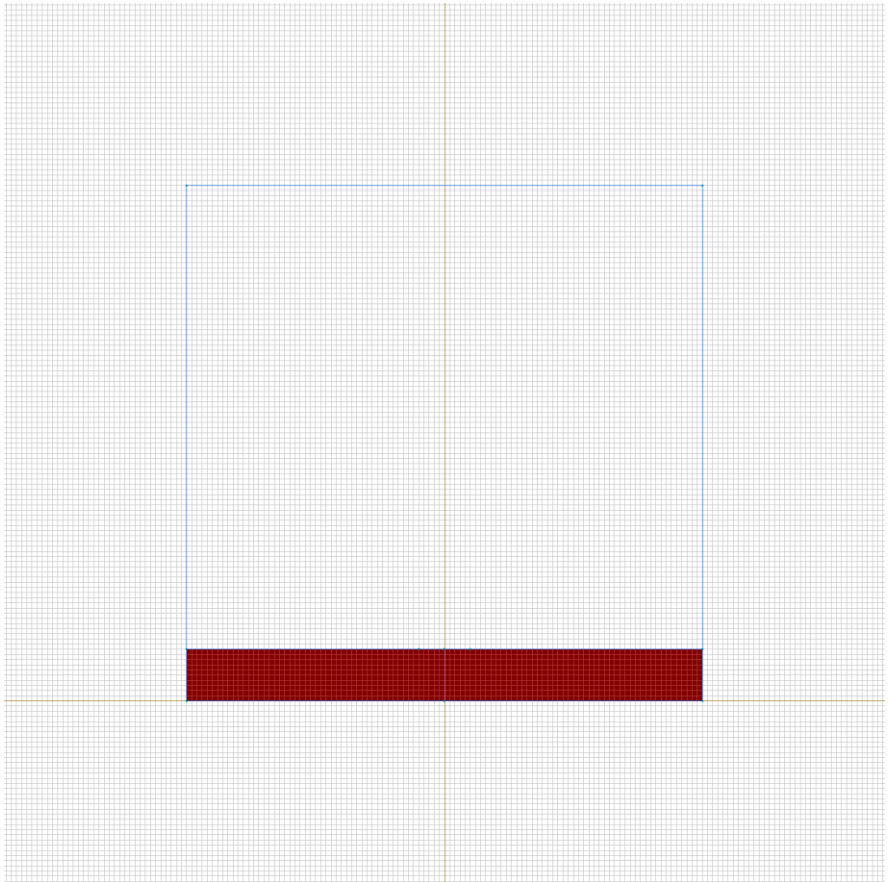
Relative electric permittivity  $\epsilon_{x=1}$ ,  $\epsilon_{y=1}$



Labelled objects: block "Substrate"

There are (1) objects with this label

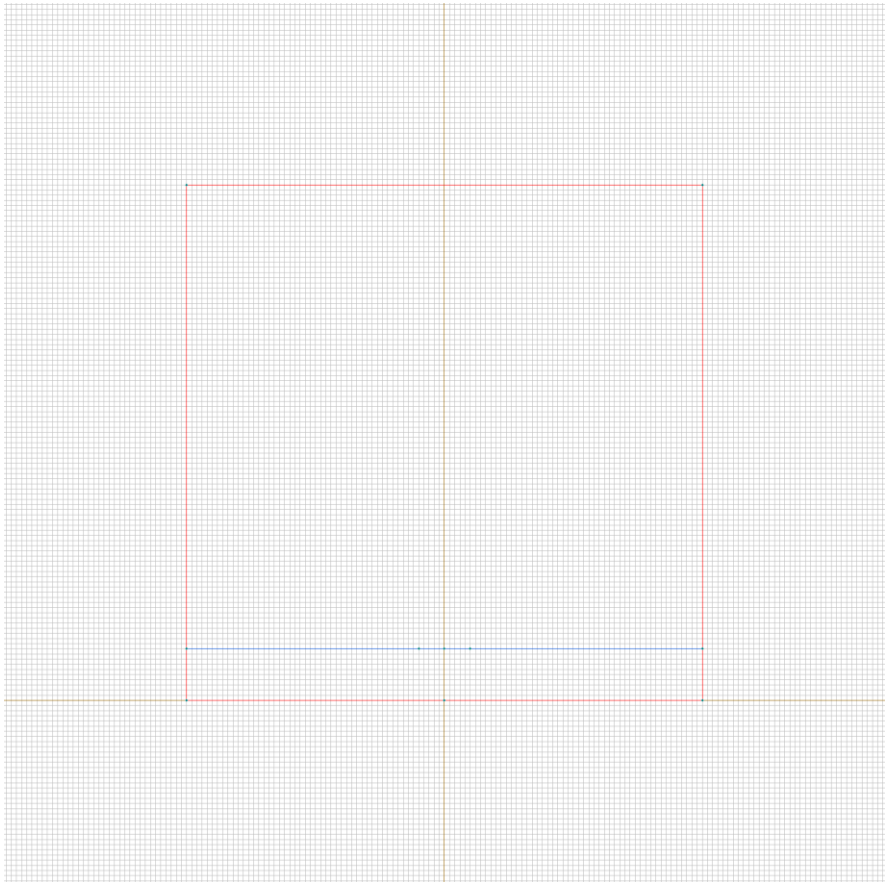
Relative electric permittivity  $\epsilon_{x=10}$ ,  $\epsilon_{y=10}$



Labelled objects: edge "Shield"

There are (7) objects with this label

Voltage  $U=0$  [V]

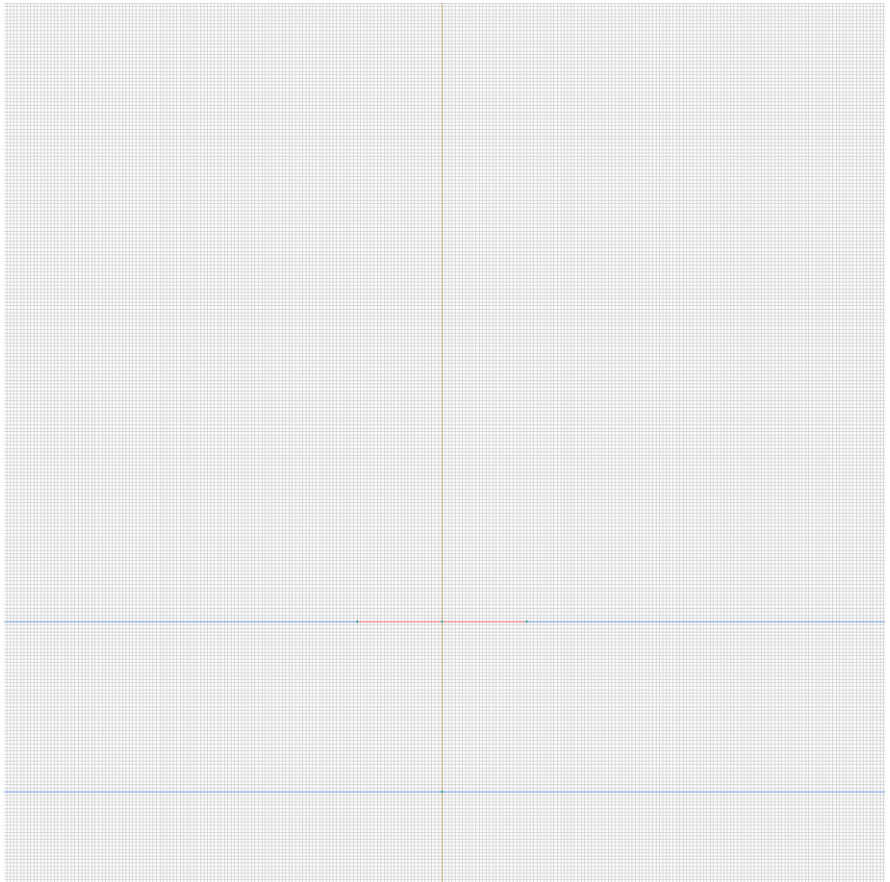




Labelled objects: edge "Strip"

There are (2) objects with this label

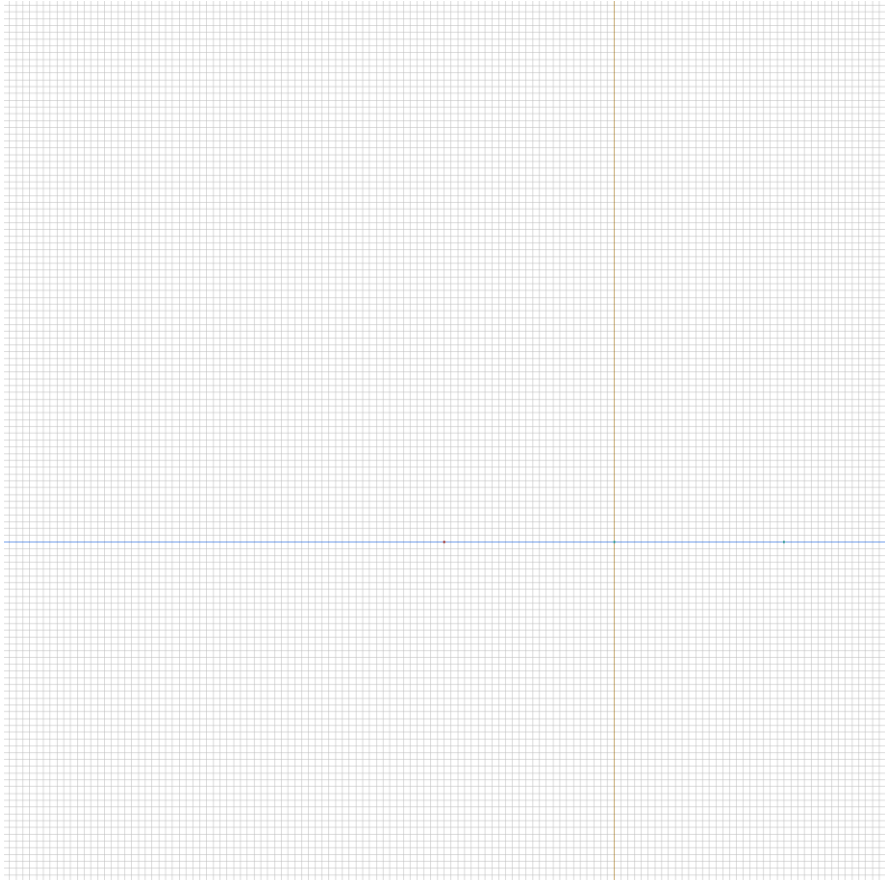
Voltage  $U=1$  [V]



Labelled objects: vertex "Charge"

There are (1) objects with this label

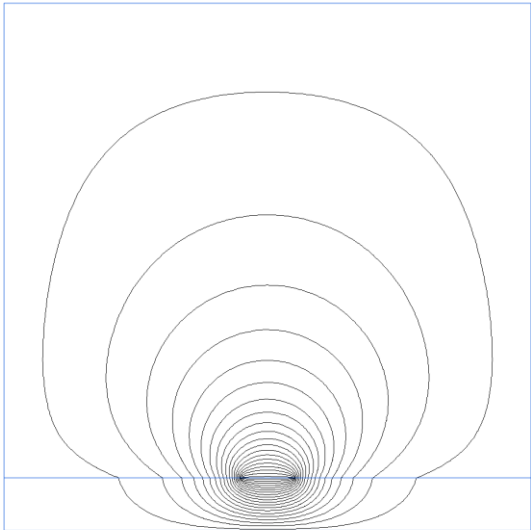
Electric charge  $q=1$  [C/m]





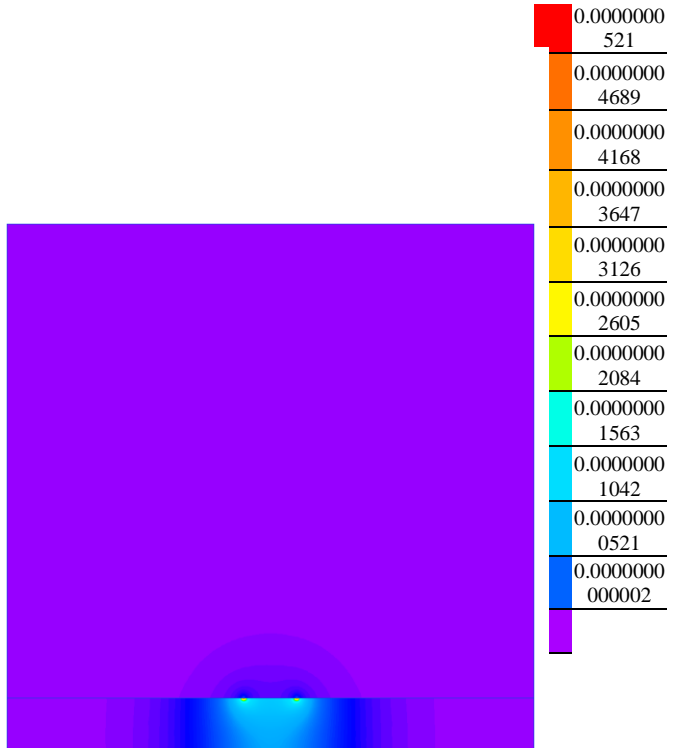
# Results

Field lines



# Results

Color map of Electric induction  $|D|$  [C/m<sup>2</sup>]



# Nonlinear dependencies

No non-linear dependencies are used in this problem data