

# Half Mode Substrate Integrated Waveguide Slot Antenna

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# Outline

- Half mode substrate integrated waveguide (HMSIW)
- Design of HMSIW slot antenna
- Simulated results

# HMSIW

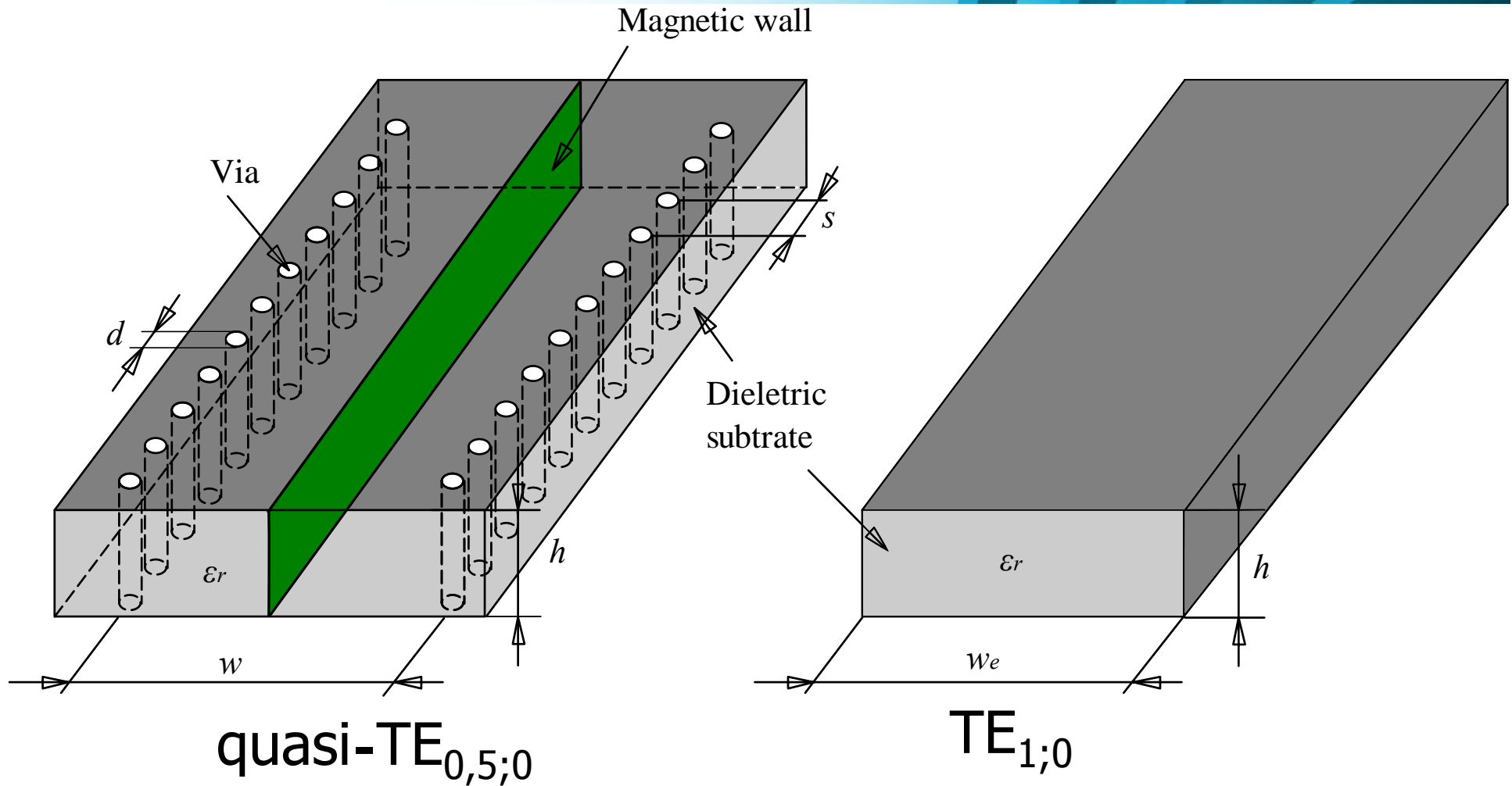


Fig. 1: Structure SIW (HMSIW) and conventional equivalent waveguide

# HMSIW

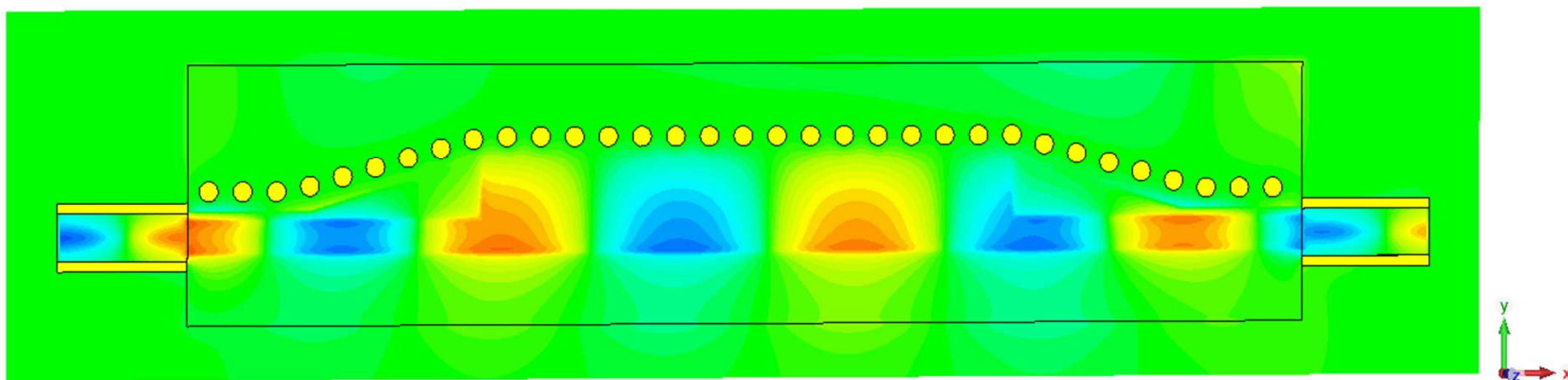


Fig. 2: Electric field distribution in HMSIW

# Design of HMSIW slot antenna

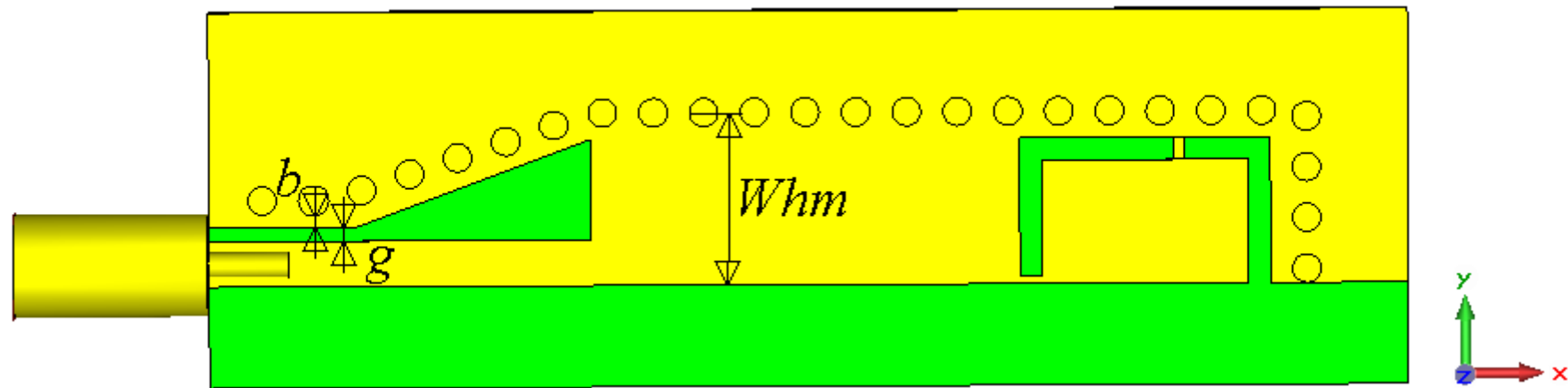


Fig. 3: Structure of HMSIW slot antenna

$$\frac{W_p}{2} + b + g < \frac{c}{2f_{\max} \sqrt{\epsilon_r}} \quad W_{hm} = \frac{c}{2f \sqrt{\epsilon_r}}$$

# Results

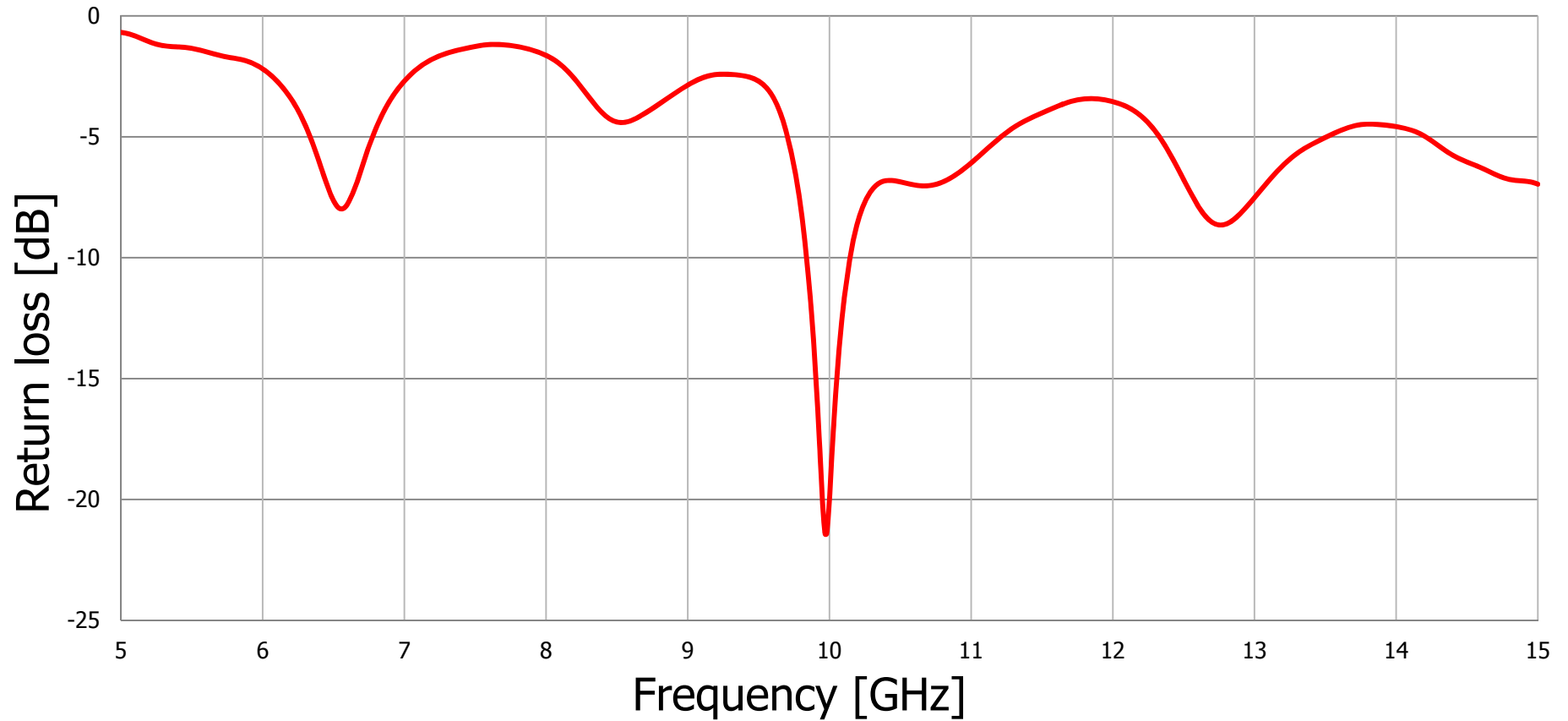


Fig. 4: Simulated  $|S_{11}|$

$BW=3,0\%$

# Results

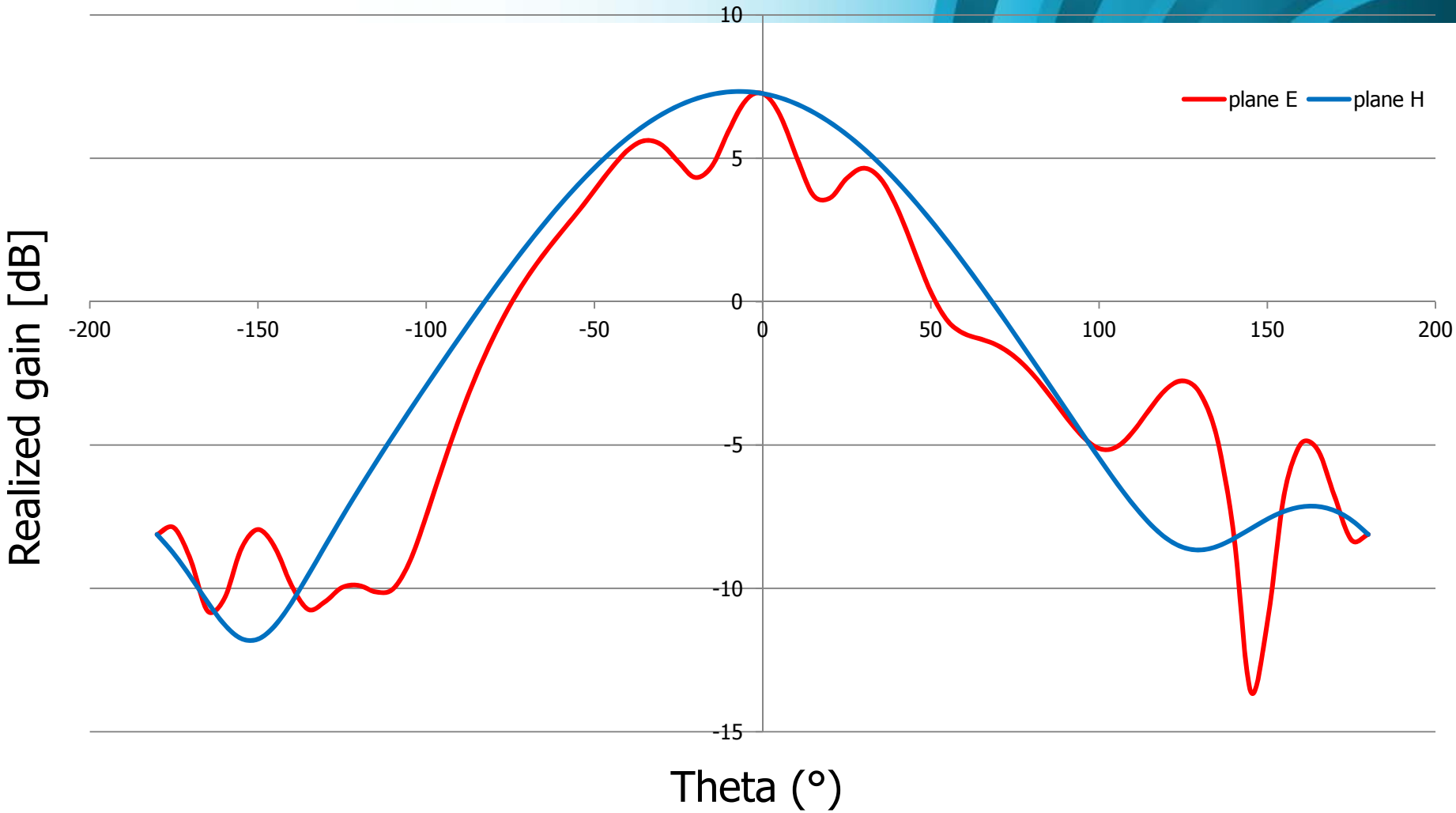


Fig. 5: Simulated radiation patterns in planes *E* and *H*

# Results

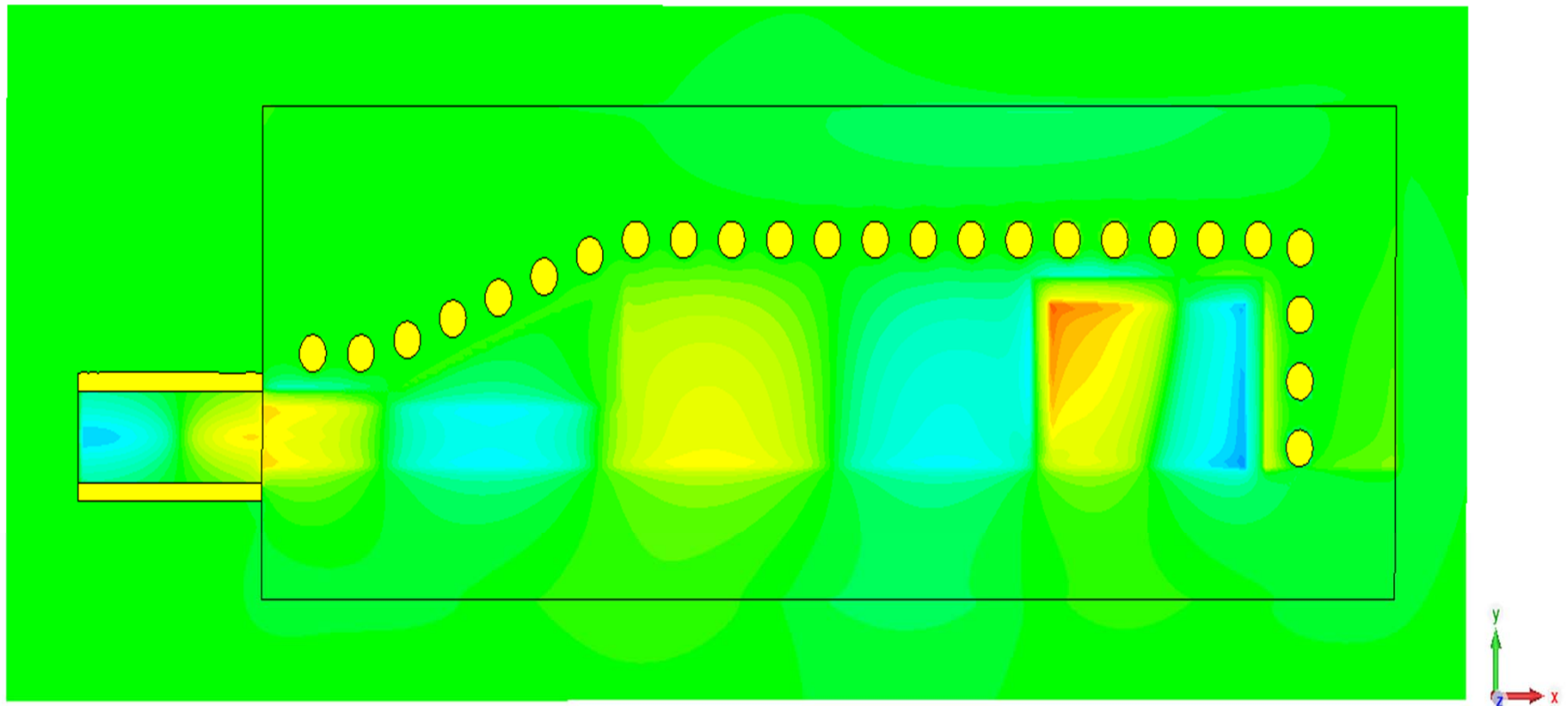


Fig. 5: Electric field distribution in the structure



# Conclusion

- Design of slot antenna
- Simulation results
- Future work: slot antenna with PIN diodes, antenna array

Thank you for your attention!



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