



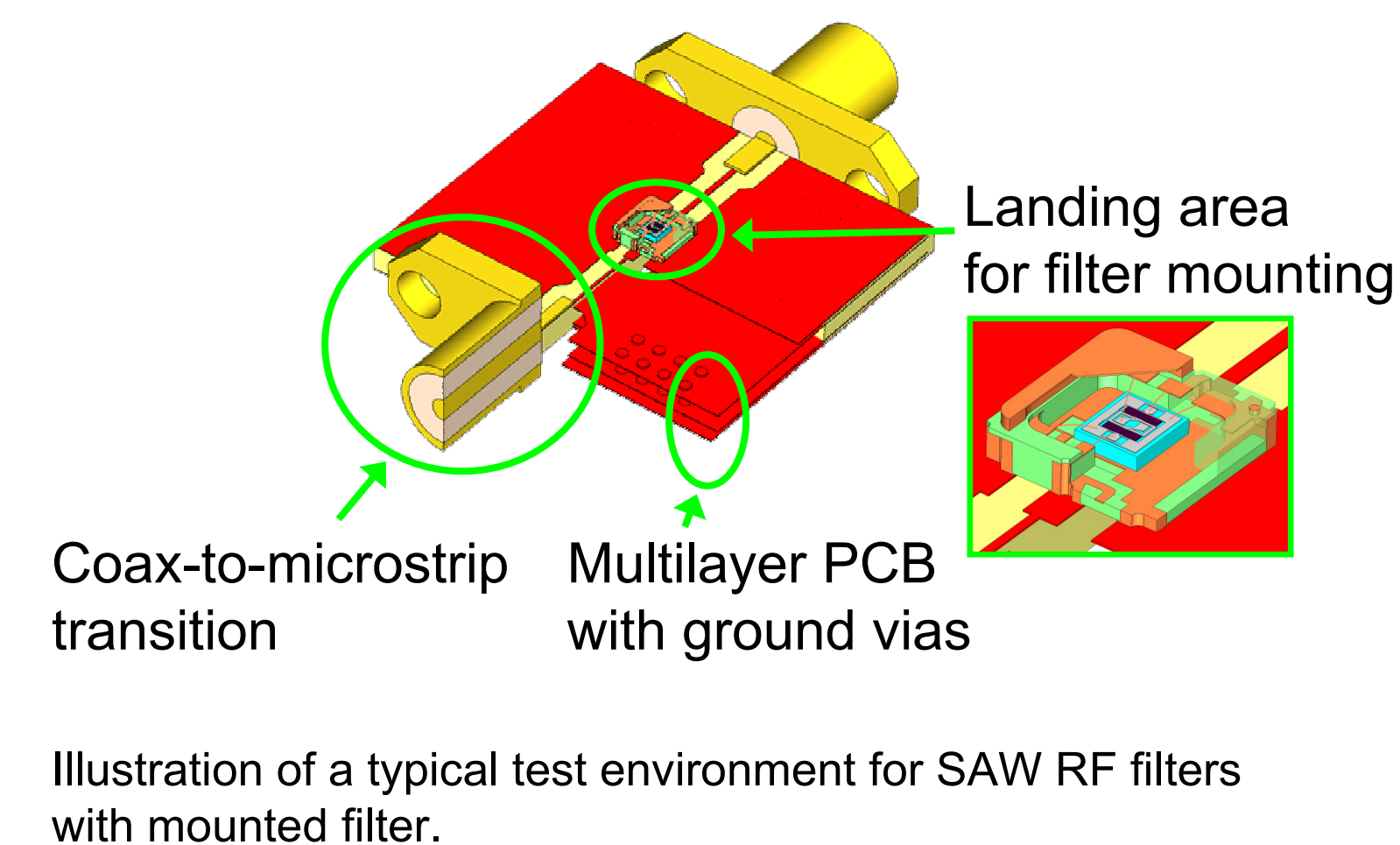
Proposal of a New Landing Area for SAW RF Filters in Wireless Applications Ensuring Precisely Predictable Filter Characteristics

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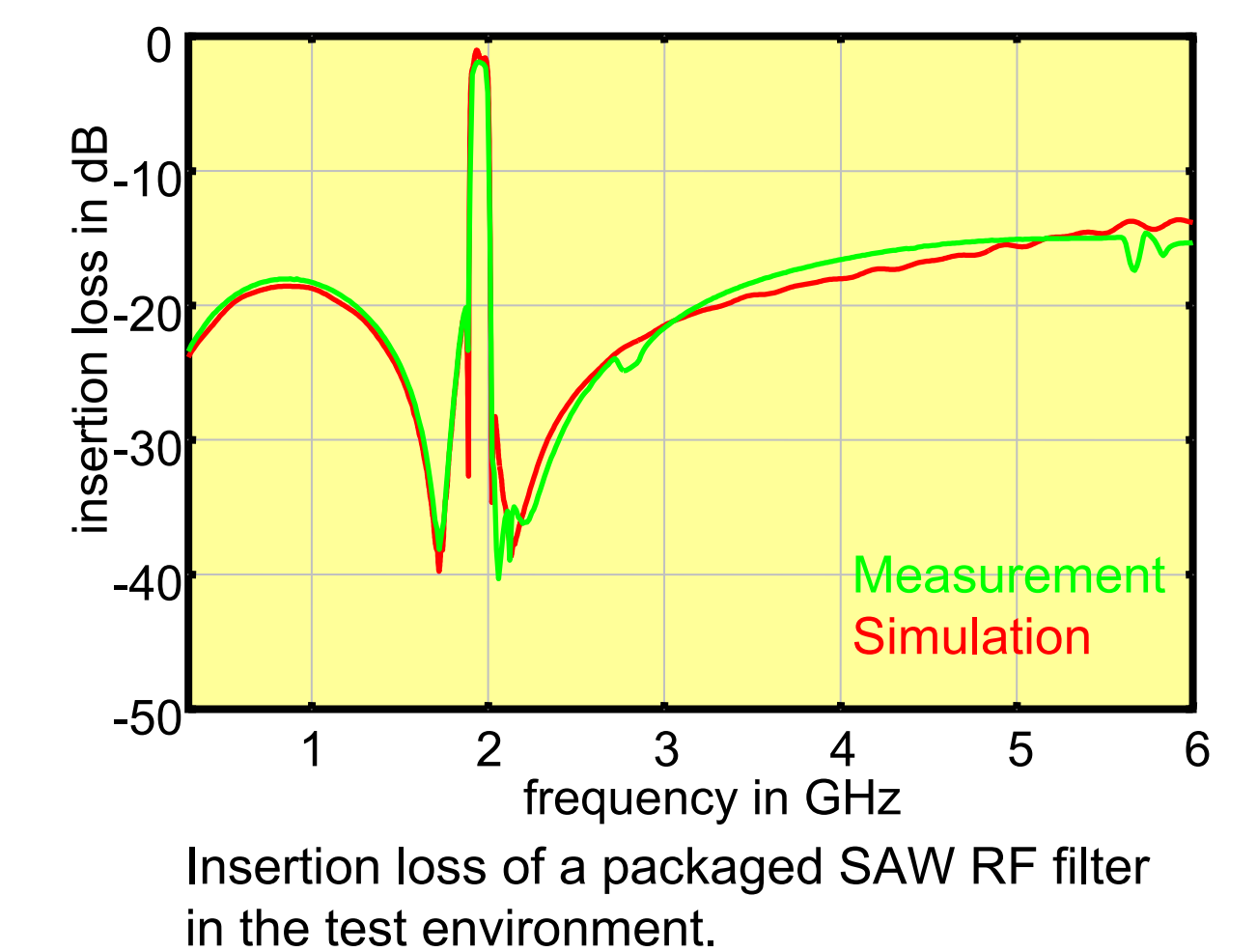
Motivation for an accurate SAW RF filter measurement

- Existing serious problems in the prediction of SAW RF filter performance in the application
- Development of up to 40 phones per company per year for the world market
- Exact prediction of SAW RF filter characteristics during development and in the application promoted by research results



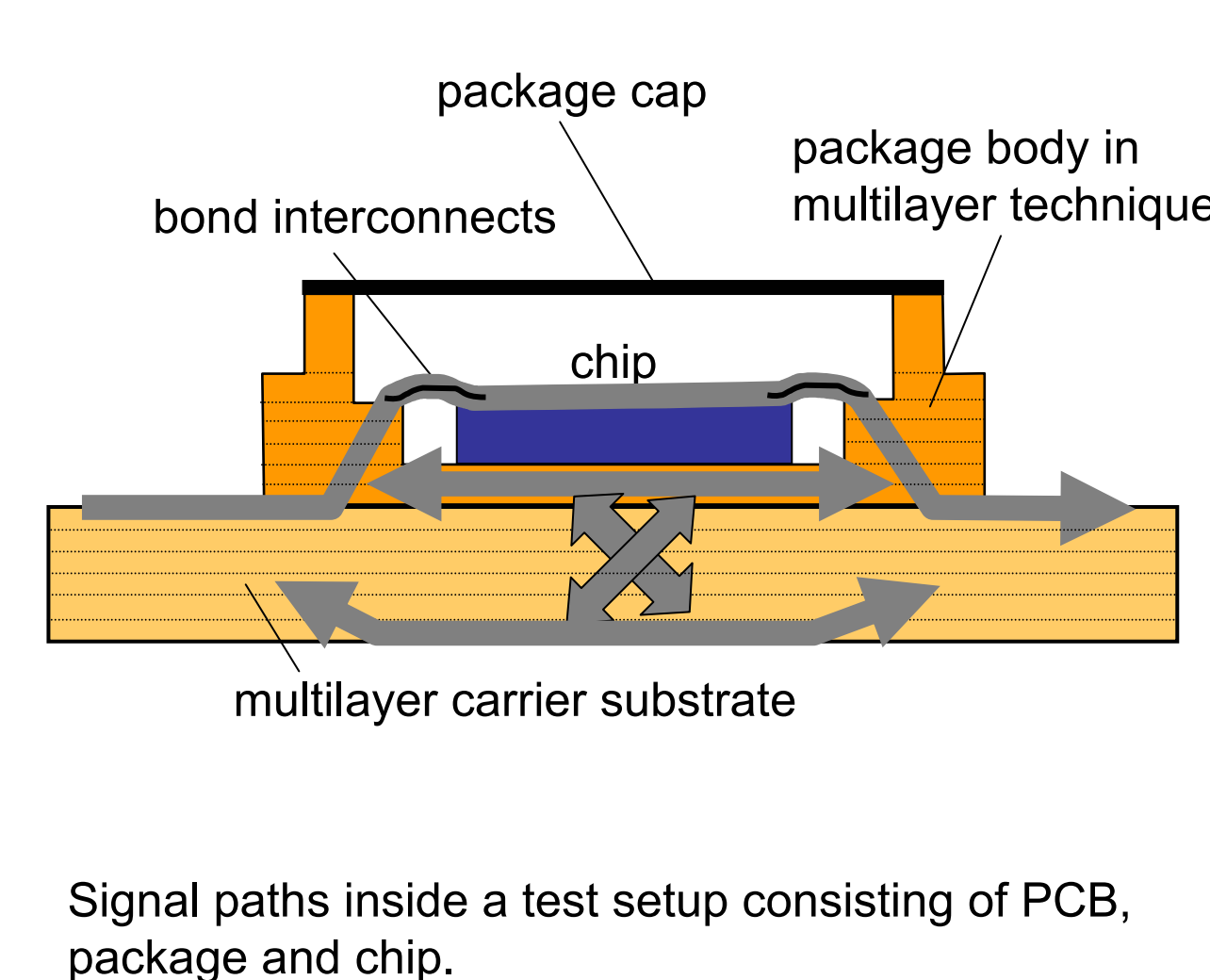
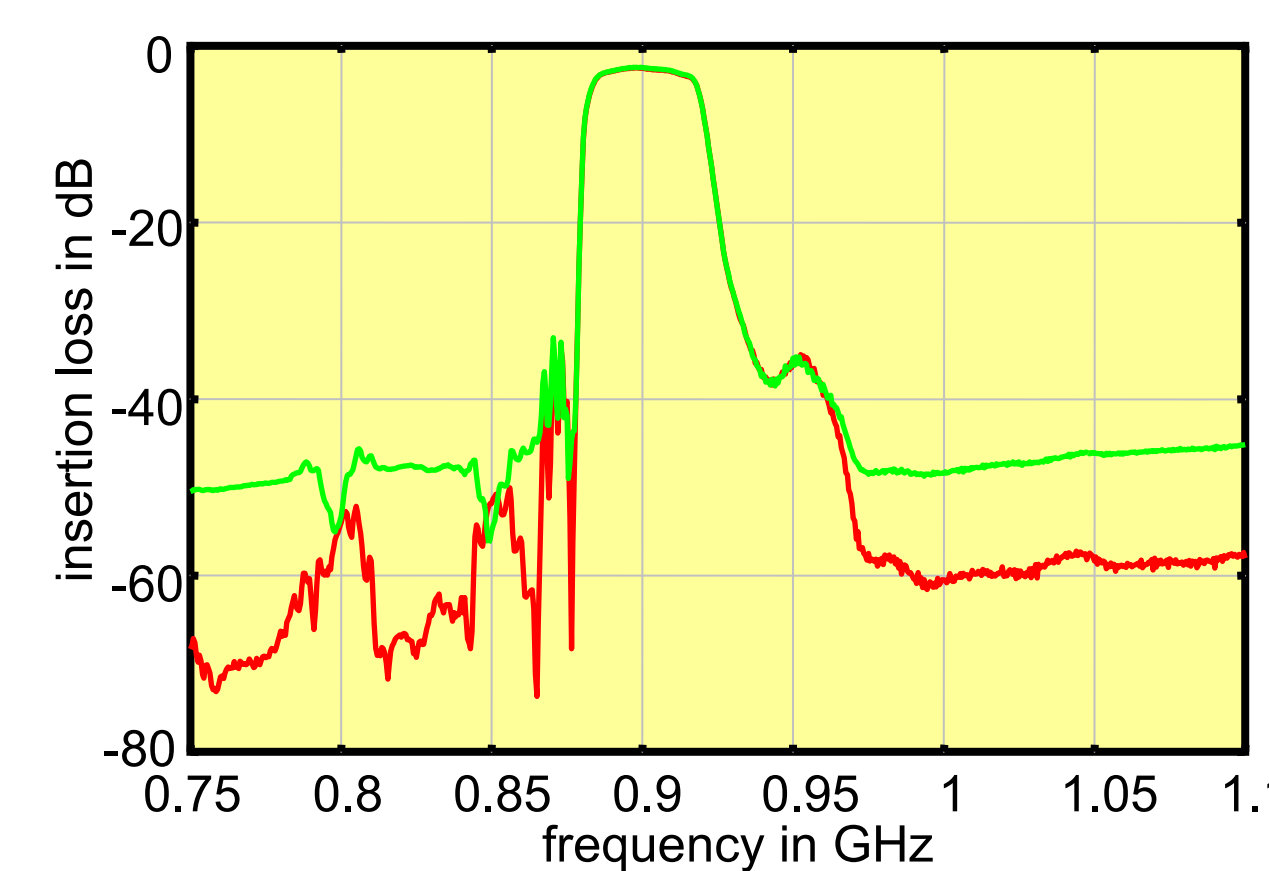
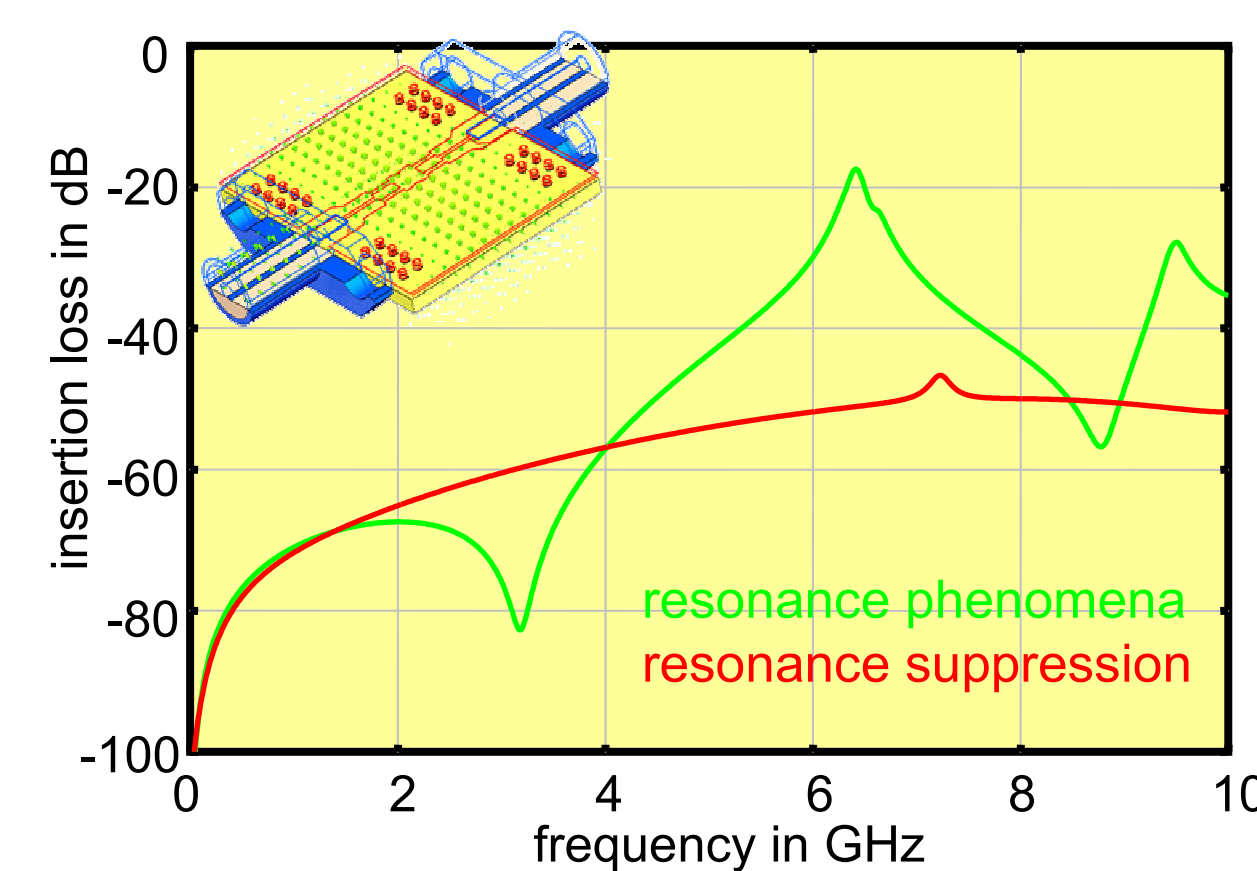
Approach

- Development of simulation method
- Characterization of parasitic effects in the system
- Design of modularly-combinable, optimized parts of test PCBs
- Design of a new landing area for application PCBs with identical electromagnetic properties

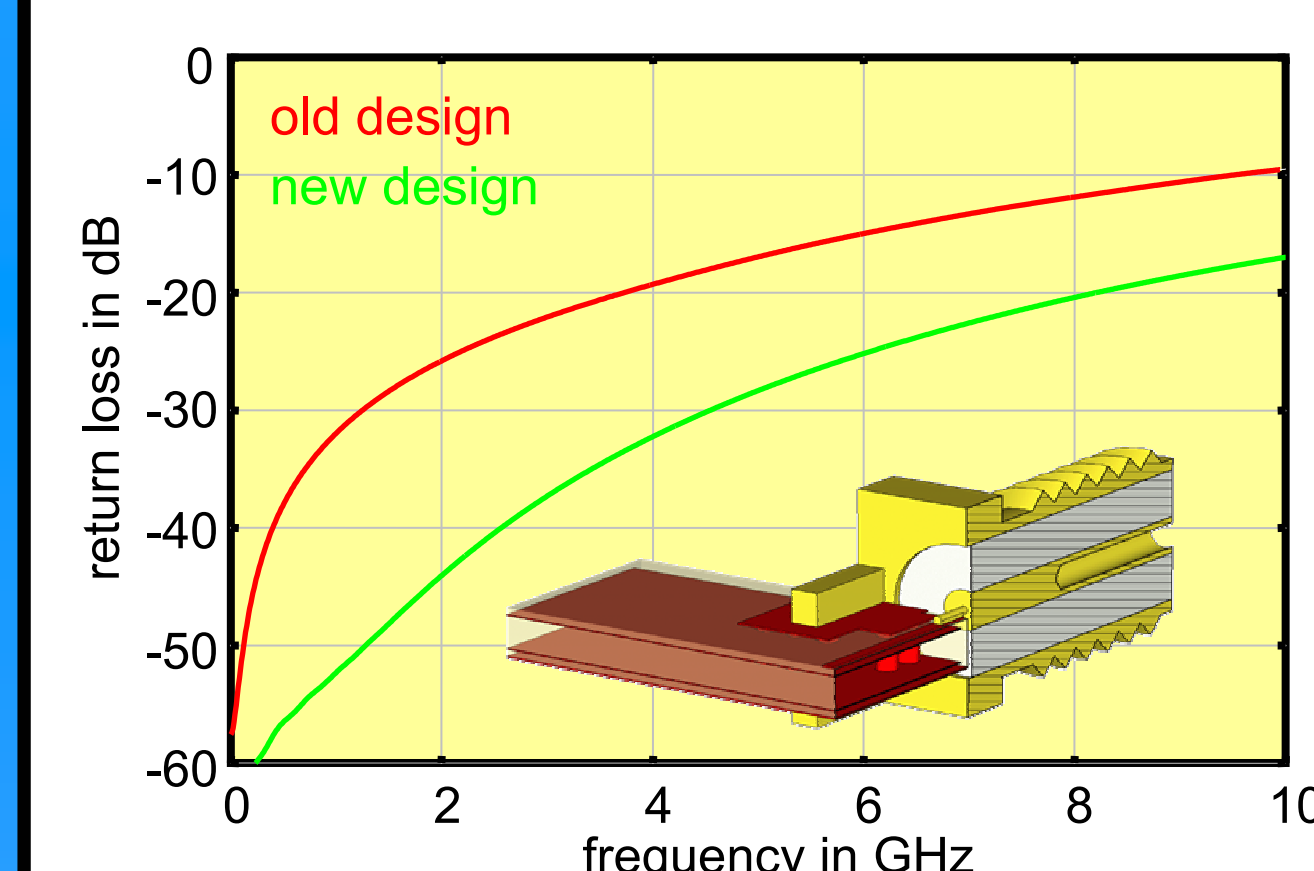


Parasitic effects in test environment

- Discontinuities in the signal paths
- Crosstalk in PCB and package
- Parasitic inductance in the ground path

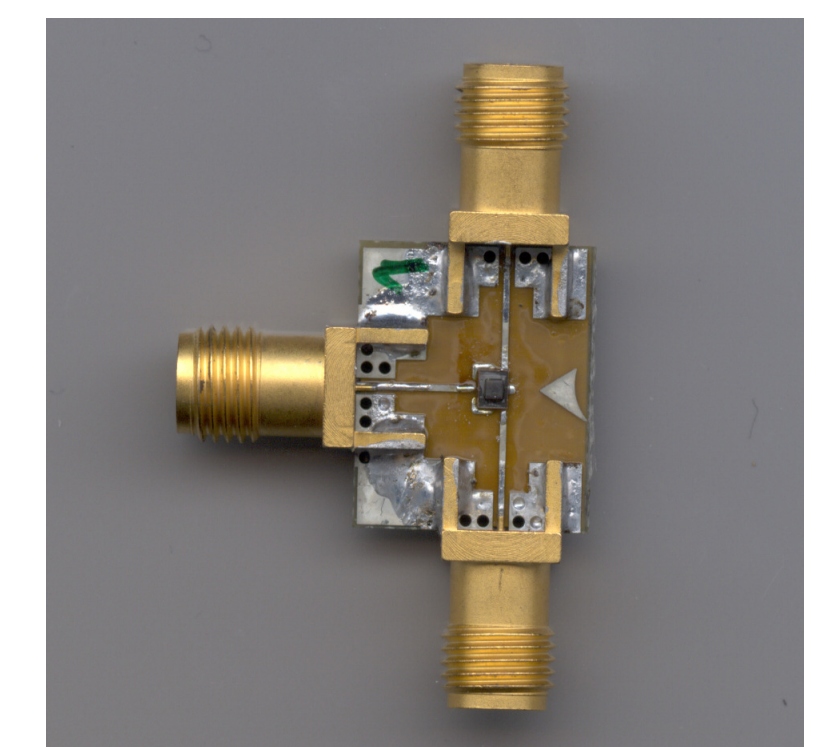
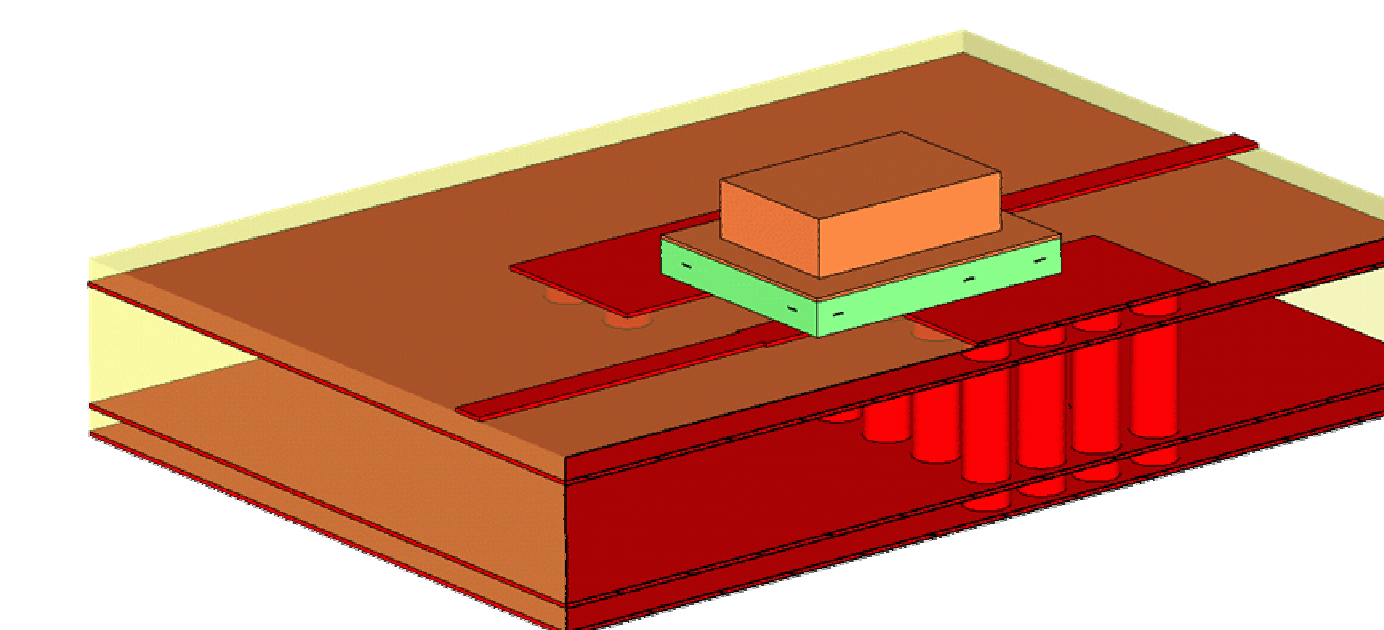


Optimization of parts of test PCBs



Optimization Goals

- Minimal reflections
 - Reduced stripline and transition discontinuities
 - Reduced parasitic inductance in ground path
- Minimal feed-through or cross-talk
- Minimal losses

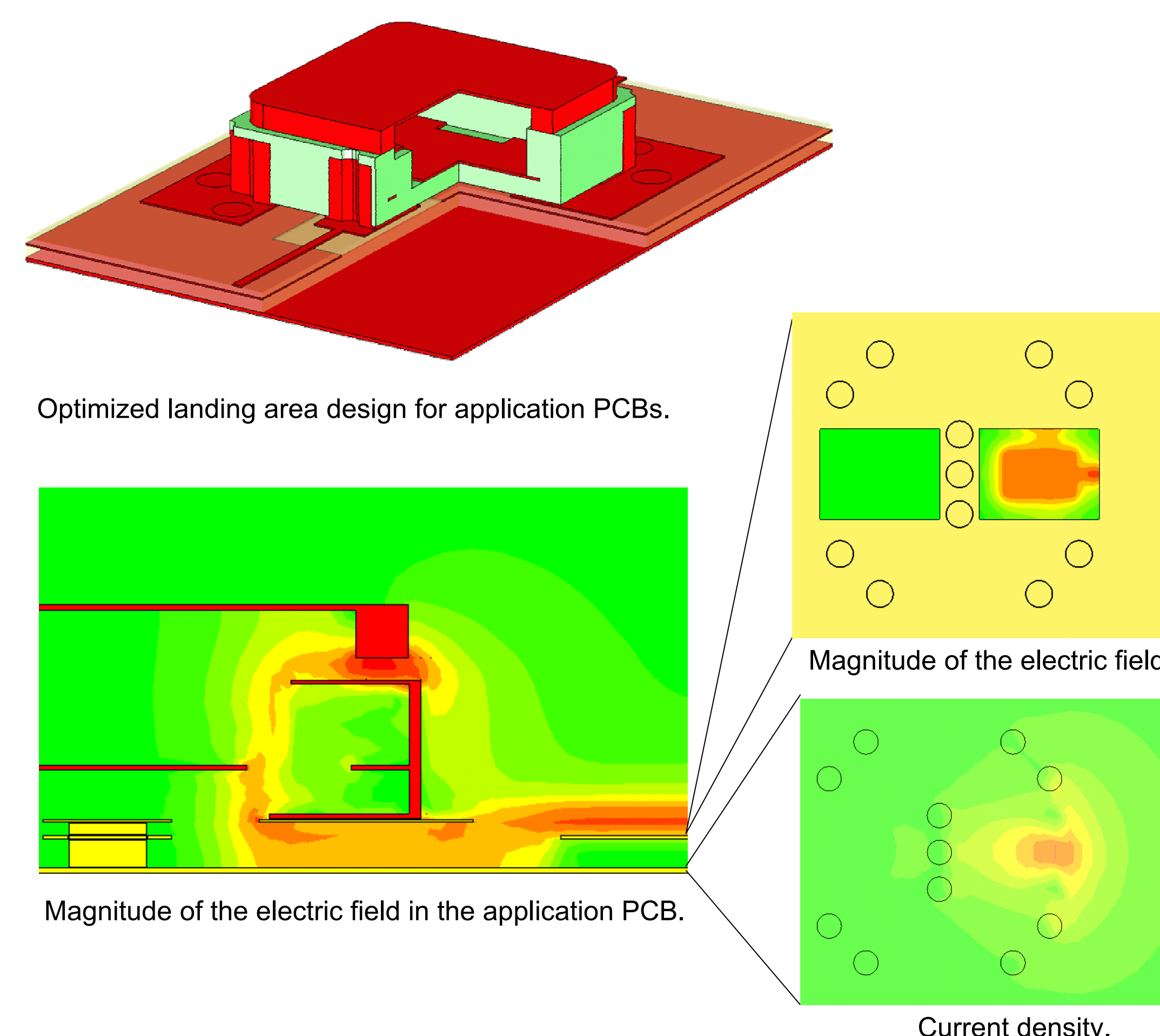


New landing area design for the application

Very thin top dielectric layer and second dielectric layer force modified design of the landing area for SAW RF filters in the application.

Significant changes ensure equivalent electrical characteristic in the application as in test environment:

- Reduced line width for 50 Ω microstrip line
- Cut-out areas in the top ground layer below soldering pads
- Carefully positioned, sufficiently numbered ground vias



Summary

- A new concept for measurement environments for SAW RF filter testing has been shown.
- An optimized landing area design for the application has been developed showing identical electrical properties as the test environment.
- That optimized landing area design allows to yield same performance of the component as specified on the test environment.

