



Electromagnetic Design of  
flexIble SensOrs



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## Raport 2.

# Optimization tests of the calculation reduction algorithm "Fast frequency sweep" in simulator InventSim

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September 12, 2017



The „EDISON - Electromagnetic Design of flexIbleSensOrs”project, agreement no TEAM TECH/2016-1/6, is carried out within the TEAM-TECH programme of the Foundation for Polish Science co-financed by the European Union under the European Regional Development Fund.

Revision	Date	Author(s)	Description
1.0	12.09.2017	S. Dziedziewicz	created

## Introduction

Dla układów podkreślonych na czerwono wyniki błędów są duże. W kilku pozostałych przypadkach na krańcach charakterystyk też widać wzrost błędu miejscami do -50dB.

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# 1 Low-attenuation properties of corrugated rectangular waveguide

- <http://ieeexplore.ieee.org.ieee.han.bg.pg.edu.pl/document/4245205/> [1]

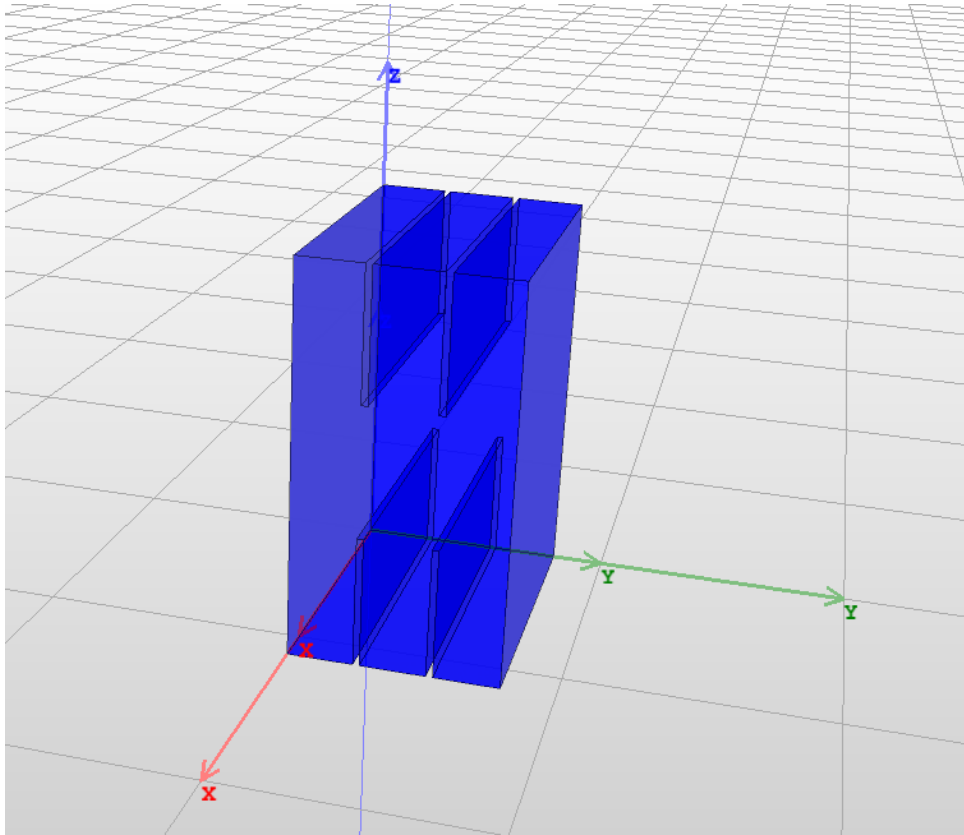


Figure 1: Screenshot of the structure drawn in InventSim

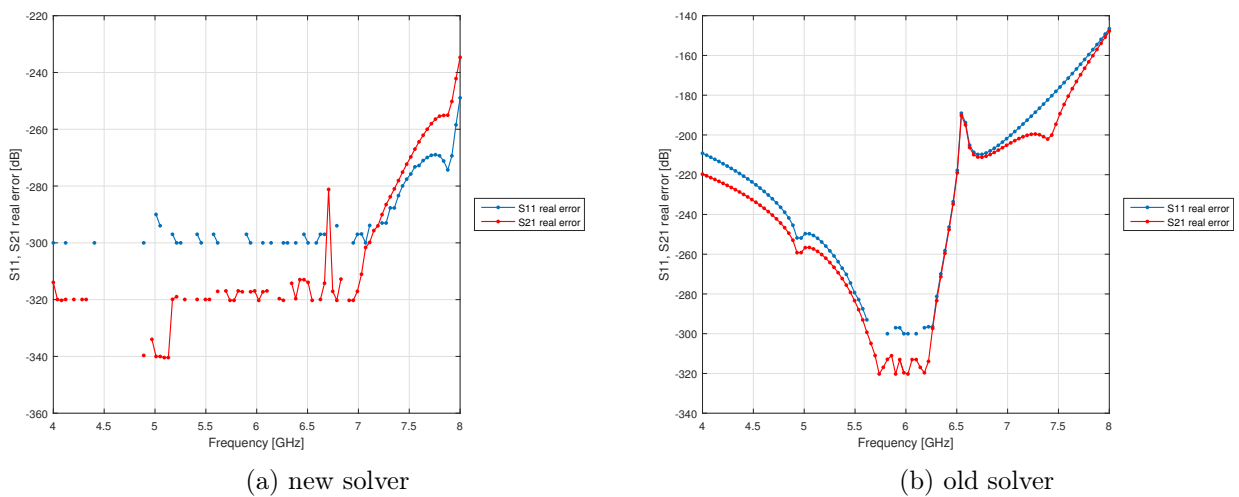


Figure 2: Error rate for bandwidth working

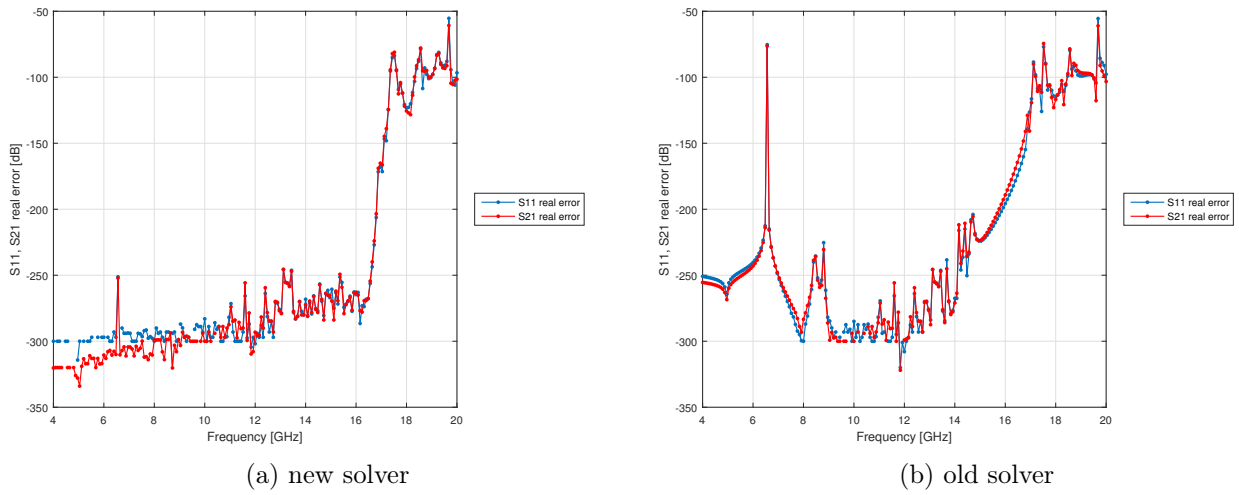


Figure 3: Error rate for wide band

## 2 A high stop-band suppression W-band waveguide E-plane filter for millimeter-wave applications

- <http://ieeexplore.ieee.org.ieee.han.bg.pg.edu.pl/document/7762447/> [2]

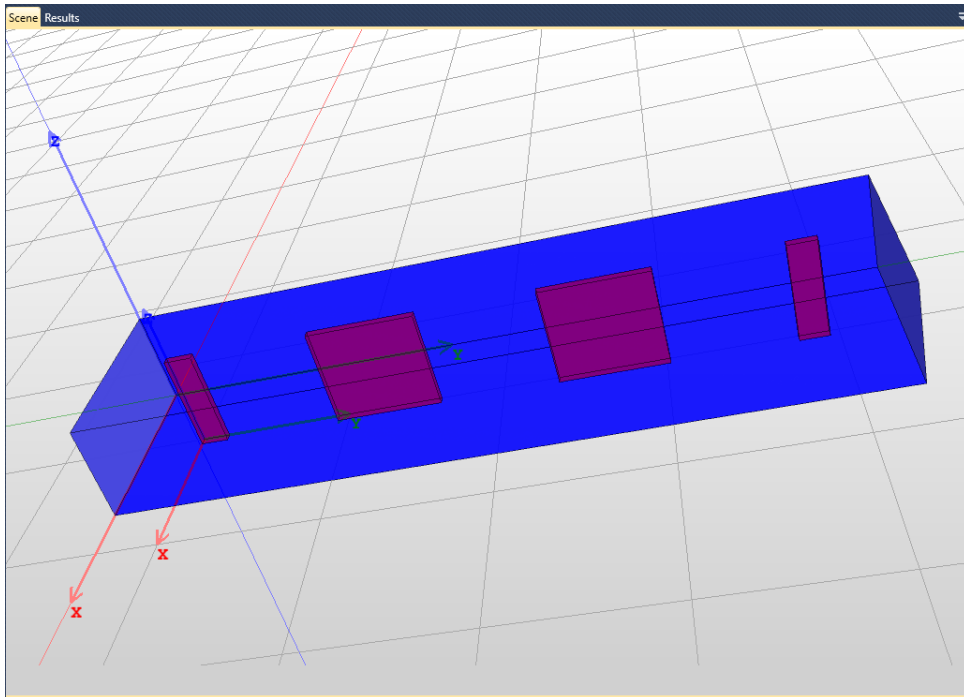
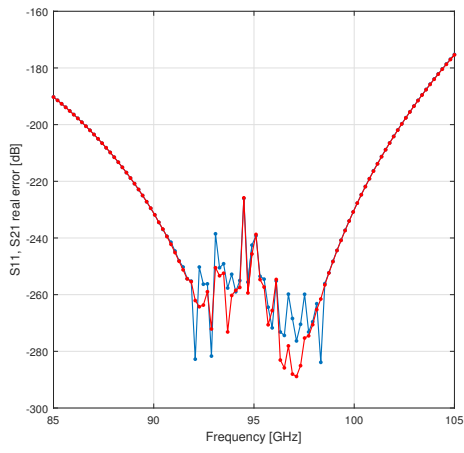
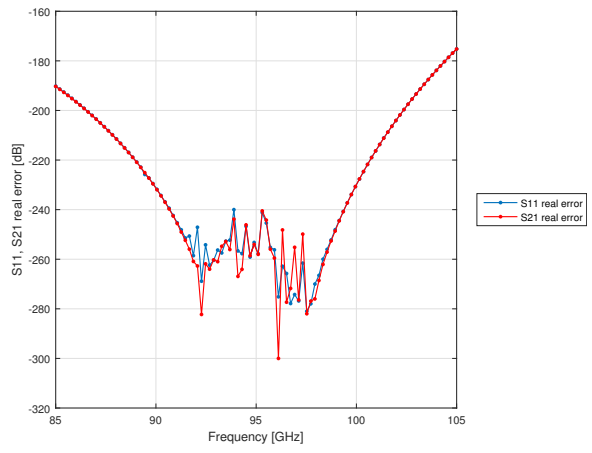


Figure 4: Screenshot of the structure drawn in InventSim

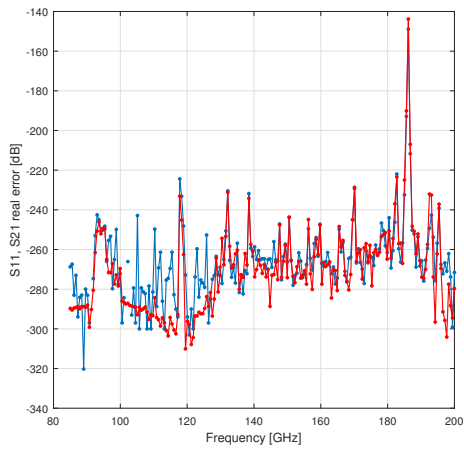


(a) new solver

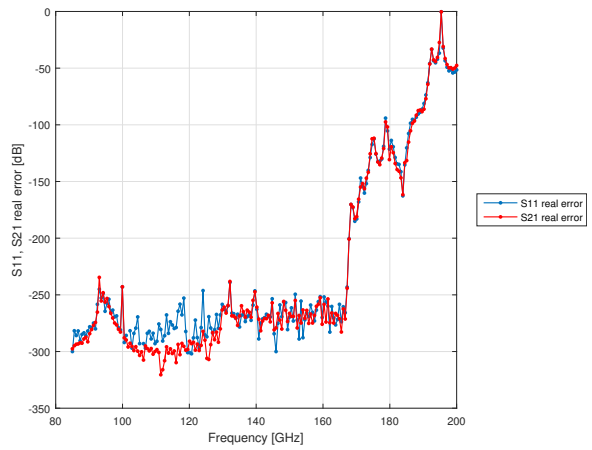


(b) old solver

Figure 5: Error rate for bandwidth working



(a) new solver



(b) old solver

Figure 6: Error rate for wide band

### 3 Dielectric loaded waveguide filter design

- <http://ieeexplore.ieee.org.ieee.han.bg.pg.edu.pl/document/7803158/> [3]

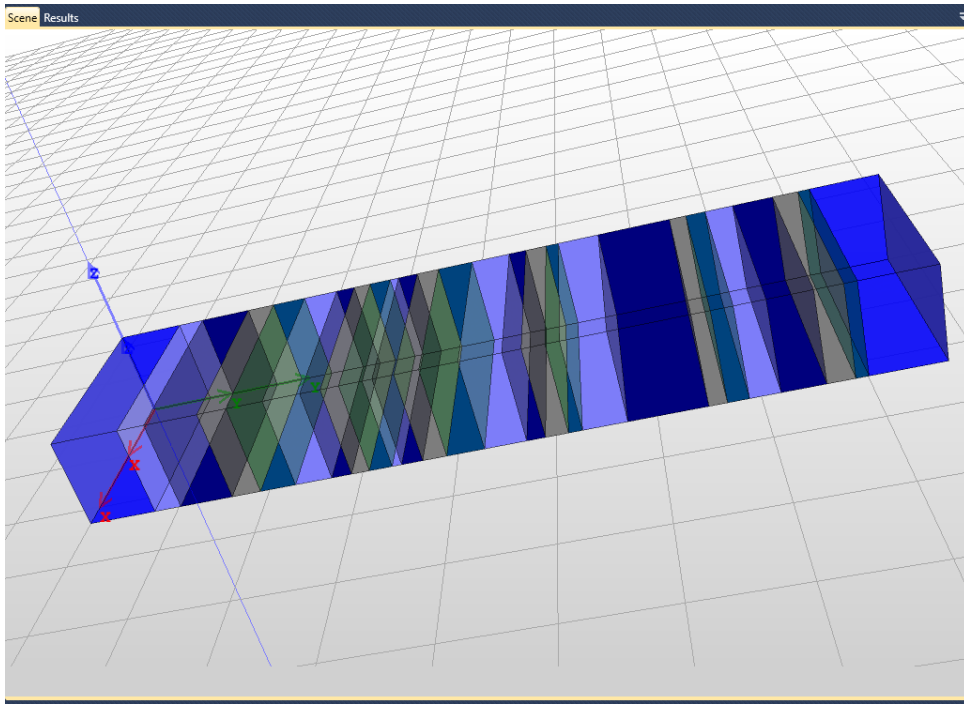
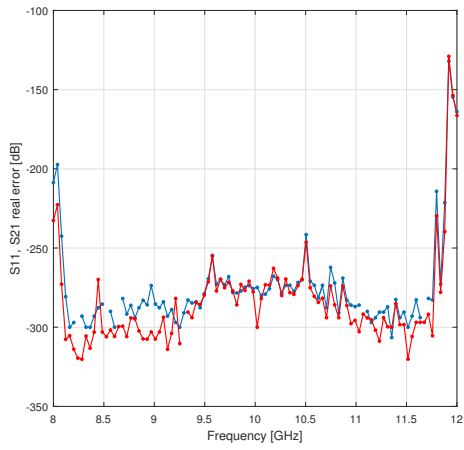
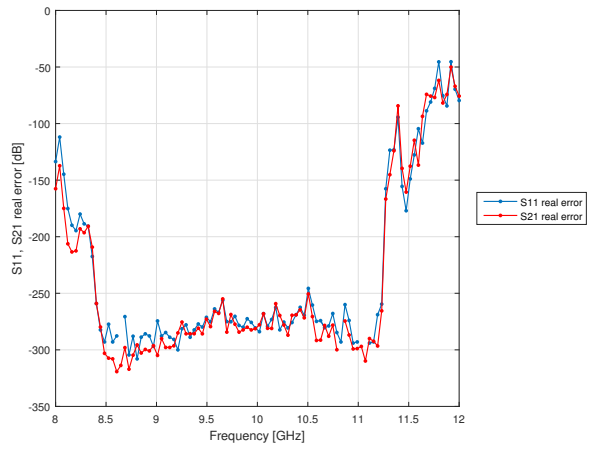


Figure 7: Screenshot of the structure drawn in InventSim

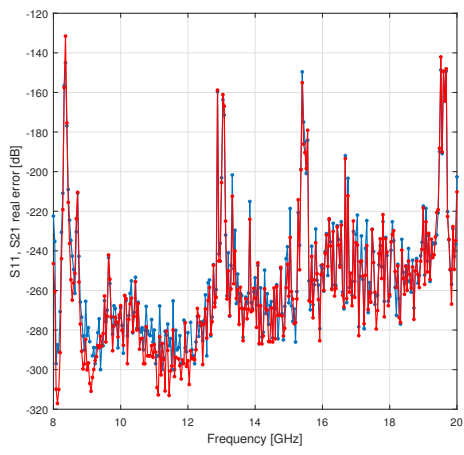


(a) new solver

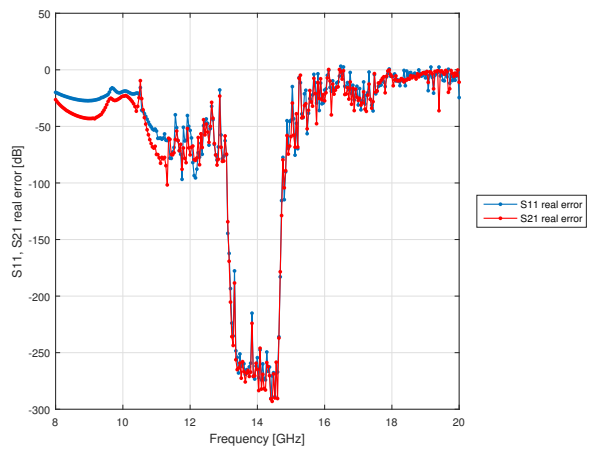


(b) old solver

Figure 8: Error rate for bandwidth working



(a) new solver



(b) old solver

Figure 9: Error rate for wide band

#### 4 54 2real 2cplx artykul

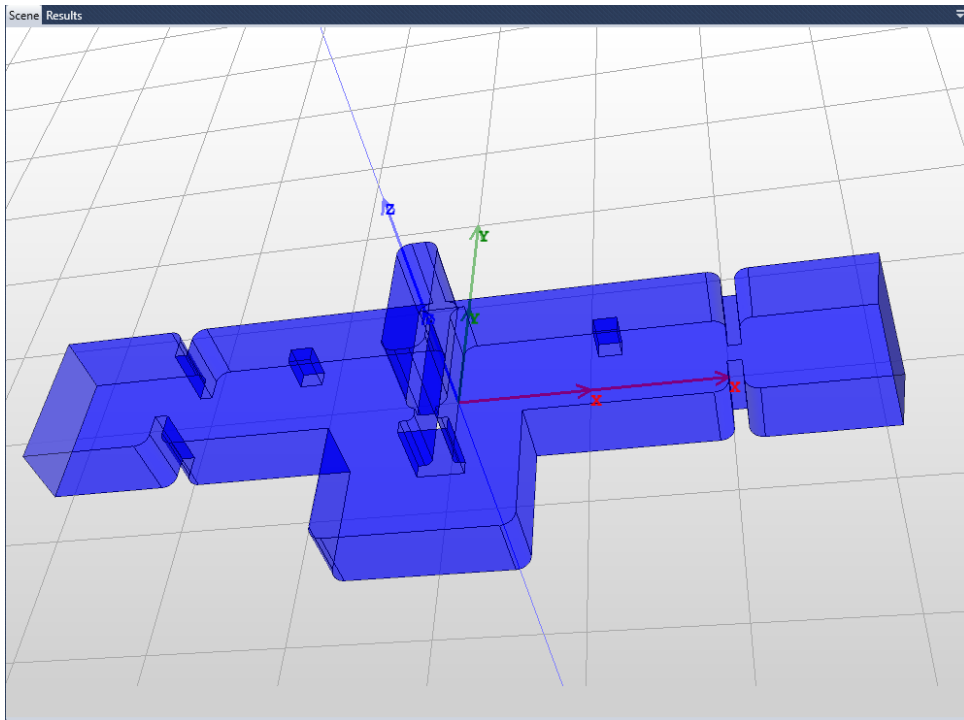
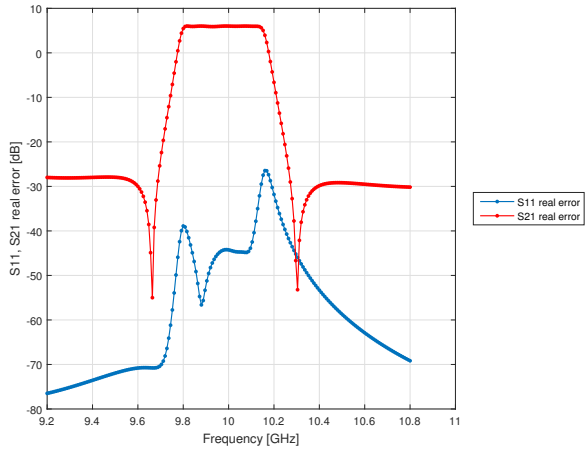
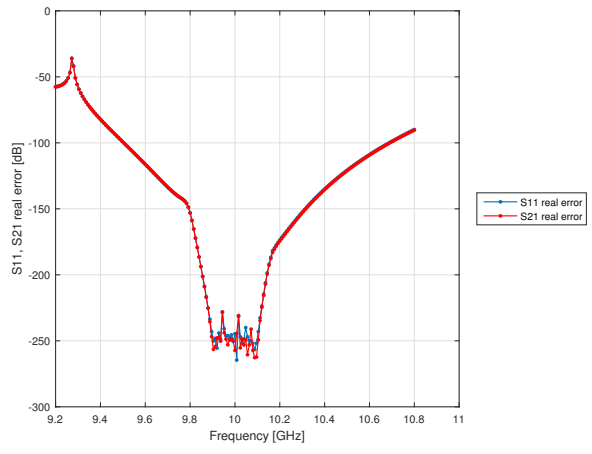


Figure 10: Screenshot of the structure drawn in InventorSim

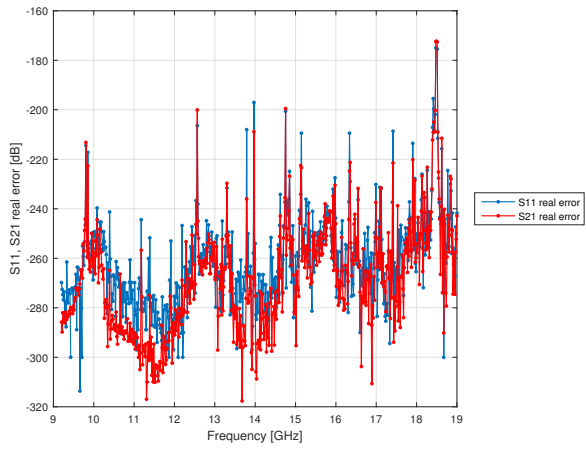


(a) new solver - too big error

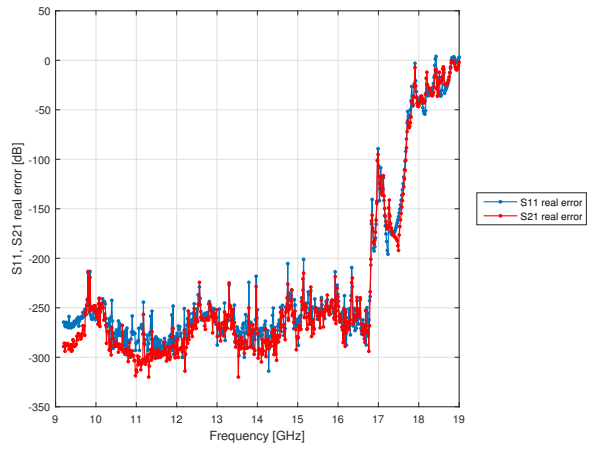


(b) old solver

Figure 11: Error rate for bandwidth working



(a) new solver



(b) old solver

Figure 12: Error rate for wide band