EM Simulation for ICs
## Faraday Dynamics EDA Solutions

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Introduction

UltraEM®, the 3D Full-wave EM Simulation software from Faraday Dynamics, Ltd., is designed to analyze the electromagnetic field effects of RF/microwave IC and high-speed digital IC layouts. It can be seamlessly integrated with the industry's leading analog chip design environments to provide high-precision electromagnetic analysis services for designers. This reference case demonstrates the simulation task of a 5G bandpass filter design using a gallium arsenide process, that operates at a frequency range from 3.3GHz to 4.2GHz, a center frequency of 3.8GHz, and a maximum passband attenuation of -2dB.

Design Methodology

The 5G bandpass filter adopts gallium arsenide process, that operates at a frequency range from 3.3GH to 4.2GHz, a center frequency of 3.8GHz.
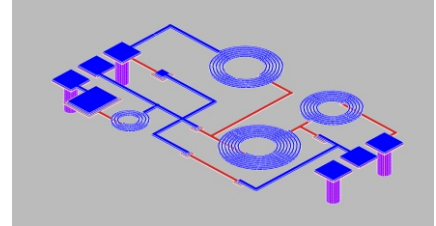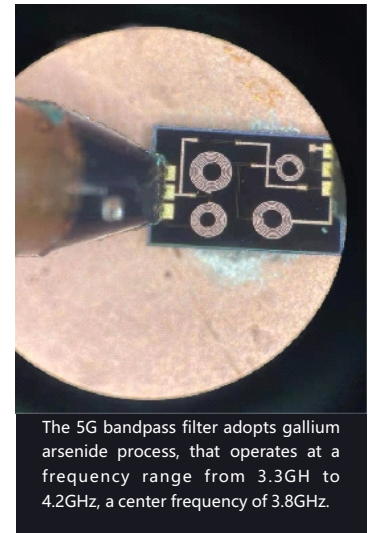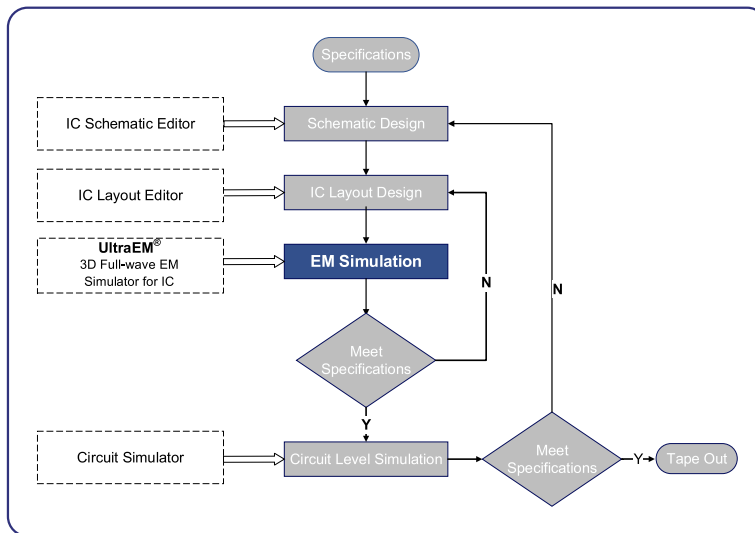
Simulation Results
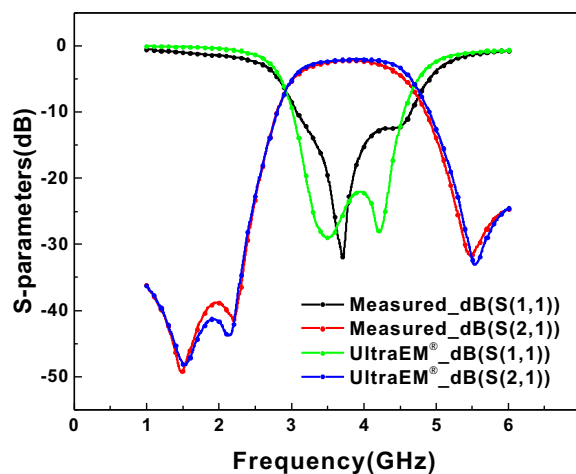
The simulation results and the measured EDA results are compared in the above figure. It shows that the attenuation of the filter within the operating frequency band of 3.3-4.2GHz is not more than -2dB, the coupling between ports is less than -10dB, and the frequency offset is less than 0.1GHz.