New Filter Design Flow

Computer Simulation Technology AG (CST) and Nuhertz Technologies, LLC® (Nuhertz) present a new integrated filter design flow at MTT-S IMS 2012.

Filter design is a challenging task in electrical engineering that can be greatly simplified by the use of filter synthesis tools such as FilterSolutions™ by Nuhertz. FilterSolutions provides instant, accurate filter designs in various media including Distributed Line, Lumped Element, Digital and Active filters. Users are presented initially with a set of solutions that meet the transfer functions of the filter circuit. The designer can then select the most appropriate function, taking the required design characteristics such as size, materials or layout limitations into consideration. The real-world calculation of parasitic responses can also be considered.

However, if a distributed filter design is considered, the analysis in FilterSolutions may not be sufficient to take 3-Dimensional elements and arbitrary coupling effects into account. The employment of a 3D electromagnetic field simulator is often required. CST and Nuhertz now provide a solution which enables users of FilterSolutions software to export their results directly into CST STUDIO SUITE®. Prior to exporting the Nuhertz filter design to CST STUDIO SUITE, the user is able to manipulate the pole and zero crossings of the filter. The design, including parameterization, is then transferred to CST DESIGN STUDIO™ where a block schematic representation is automatically produced as the basis of an automatically created 3D model. Using the new CST MICROWAVE STUDIO® Method of Moments based multilayer solver a fast and accurate 3D analysis of the filter can be performed. System assembly and modeling (SAM), introduced with CST STUDIO SUITE 2012, helps users to add other 3D elements, such as connectors and housings, to the filter design, and facilitates the management and overall optimization of the complete design.

“Filters are an essential part of many of our customers businesses”, commented Dr. Martin Timm, Director of Marketing, CST. “Through the implementation of this new design flow, we have enabled them to take advantage of the excellent expert knowledge and capabilities available in Nuhertz’ FilterSolutions and enhance them with the three dimensional elements that complete a real world design.” “ Nuhertz provides CST customers with the very best planar, lumped, and active integrated synthesis to maximize the value they get from their CST STUDIO SUITE”, added Jeff Kahler, President, Nuhertz.

A narrated video describing the design verification of a Ring Resonator filter, designed in FILTERSOLUTIONS, and then exported into CST STUDIO SUITE, is available on the Nuhertz Technologies homepage, and can be viewed at http://www.nuhertz.tv/videos/CST%20Studio%20Suite%20RingRes_controller.swf [1].

www.cst.com [2]

www.nuhertz.com [3]

Posted by Sara Cohen, Editorial Intern

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