

SI/PI/EMI/EMC/ESD 교육 (2월)

# CST MWS & CST PCBS를 이용한 SI/PI/EMI/EMC/ESD 해석실습

일시 : 2018년 2월 21일(수) ~ 22일(목)

장소 : 경기도 분당 "CST한국지사"

주최 : CST한국지사

## 교육 프로그램

시간	교육내용
제 1 일 (2018년 2월 21일, 수요일) - CST 한국지사 Application Engineer	
09:30~10:30	<ul style="list-style-type: none"><li>□ Introduction of CST products and Applications</li></ul>
10:30~12:00	<ul style="list-style-type: none"><li>□ Handling of CST PCB STUDIO® GUI</li><li>□ Fast and Efficient Verifying the Layout Design for PCB Structure Using CST BOARDCHECK™<ul style="list-style-type: none"><li>- Automatic Report and Display of Certain Violation</li></ul></li><li>• <b>General Workflow</b><ul style="list-style-type: none"><li>- Importing Various PCB Layout Format</li><li>- Define Stack-up, Net-Class (Single, Differential, Power, GND), Component (RLC and IBIS)</li></ul></li><li>• <b>SI Rule Check - Net Integrity, Via Integrity, Power Integrity</b></li><li>• <b>EMC Rule Check - Signal Reference, Wiring/Crosstalk Decoupling and Stitching Capacitor Placement</b></li></ul>
12:00~13:00	<ul style="list-style-type: none"><li>□ Lunch</li></ul>
13:00~14:30	<ul style="list-style-type: none"><li>□ Fast 2D Signal Integrity Analysis Using SI-TD and SI-FD Solver of CST PCB STUDIO®<ul style="list-style-type: none"><li>- Single-Ended, Differential Pair, SPICE Model and Net List Extraction</li></ul></li><li>• <b>SI-FD Analysis - S-Parameter, Cross-Talk</b></li><li>• <b>SI-TD Analysis - Transient/Timing Analysis, Signal Delay, EYE Diagram, Cross-Talk</b></li></ul>
14:30~16:00	<ul style="list-style-type: none"><li>□ Fast 2D Power Integrity Analysis using IR-drop and PI solver of CST PCB STUDIO®<ul style="list-style-type: none"><li>- Power Delivery Network (PDN) Extraction, DC Power Integrity, AC Power Integrity, Transient Power Integrity, Decoupling Capacitor Placement and Property</li></ul></li><li>• <b>IR-Drop Analysis - Voltage Drop at Specific Pin, Spatial Current Density and Voltage Drop Plot</b></li><li>• <b>HF PI Solver - Impedance Profile for Target Impedance Analysis, Spatial Impedance Plot</b></li></ul>
16:00~17:00	<ul style="list-style-type: none"><li>□ <b>Decoupling Capacitor Analysis</b><ul style="list-style-type: none"><li>- Decoupling Capacitor Optimization using De-cap Tool</li></ul></li><li>□ <b>Full 3D EMC/EMI Analysis using Transient Solver of CST MICROWAVE STUDIO®</b><ul style="list-style-type: none"><li>- Convert 2D PCB Layout to 3D Structure for EMI/C Analysis</li><li>- Evaluation of EMI/EMC for Common Mode Noise from Differential Signaling</li><li>- Common Mode Noise Filtering Using CM Filter</li><li>- 3D Field Distribution (Electric and Magnetic Field)</li><li>- Calculation of EMC Value at 3m and 10m</li></ul></li></ul>

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시간	교육내용
제 2 일 (2018 년 2 월 22 일, 목요일) - CST 한국지사 Application Engineer	
09:30~10:30	<ul style="list-style-type: none"><li>□ <b>PCB Import to 3D Model from 2D Data</b><ul style="list-style-type: none"><li>- EDA Import : Stack Up, Component and Parts Import, Customize Selection, Automatic Port Definition or Manual Ports Definition in 2D Layout Viewer, Automatic Mesh Settings for Hexahedral Mesh</li></ul></li></ul>
10:30~12:00	<ul style="list-style-type: none"><li>□ <b>Full 3D EMC Analysis</b><ul style="list-style-type: none"><li>• <b>Modeling, Simulation Setting</b></li><li>• <b>Result Overview</b><ul style="list-style-type: none"><li>- EMC Norm, Probe Results (E-Field, H-Field, RCS)</li></ul></li></ul></li></ul>
12:00~13:00	<ul style="list-style-type: none"><li>□ <b>Lunch</b></li></ul>
13:00~14:00	<ul style="list-style-type: none"><li>□ <b>Radiated Emission Simulation in CST DESIGN STUDIO™</b><ul style="list-style-type: none"><li>• <b>Modeling</b><ul style="list-style-type: none"><li>- Block Overview, Data Import(Touchstone, Spice, IBIS, etc.), Task Setting (S-Parameter, Transient, AC, Combine Results, Spectrum Line, Mixer, Amplifier)</li></ul></li><li>• <b>Result Overview</b><ul style="list-style-type: none"><li>- Port Signal, S-Parameter, Voltage and Current in Time and Frequency Domain, Field Results</li></ul></li><li>• <b>Post Processing</b><ul style="list-style-type: none"><li>- Radiated Spectrum</li></ul></li></ul></li></ul>
14:00~15:30	<ul style="list-style-type: none"><li>□ <b>Full 3D ESD Analysis with 3D ESD Gun Model &amp; 3D PCB Data</b><ul style="list-style-type: none"><li>• <b>Modeling, Simulation Setting</b><ul style="list-style-type: none"><li>- Import the ESD Gun Model</li><li>- Ideal Current and Voltage Source</li></ul></li><li>• <b>IEC 61000-4-2 Standard ESD Gun Model Simulation with Metallic Wall</b></li><li>• <b>Result Overview</b><ul style="list-style-type: none"><li>- Surface Current, E/H-Field Result</li></ul></li></ul></li></ul>
15:30~17:00	<ul style="list-style-type: none"><li>□ <b>Shielding Effectiveness Simulation</b><ul style="list-style-type: none"><li>• <b>Panel Shielding Effectiveness</b><ul style="list-style-type: none"><li>- Define Slot, Vent, Wire</li><li>- TLM Solver Setting</li><li>- Calculation of Shielding Effectiveness Using SAM (System Assembly and Modeling)</li></ul></li><li>• <b>Full 3D Shielding Effectiveness</b><ul style="list-style-type: none"><li>- Calculation of Shielding Effectiveness (Inside Stimulate, Outside Stimulate)</li></ul></li></ul></li></ul>

상기일정은 변경될 수 있습니다

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