

## Alcatel-Lucent Reduces Design Time by Eliminating File Translation Issues Between PCB and High-Frequency Design

*Gives Thumbs Up to AWR's Co-Design Tools After Rigorous Evaluation at Company's Platform Hardware Center*

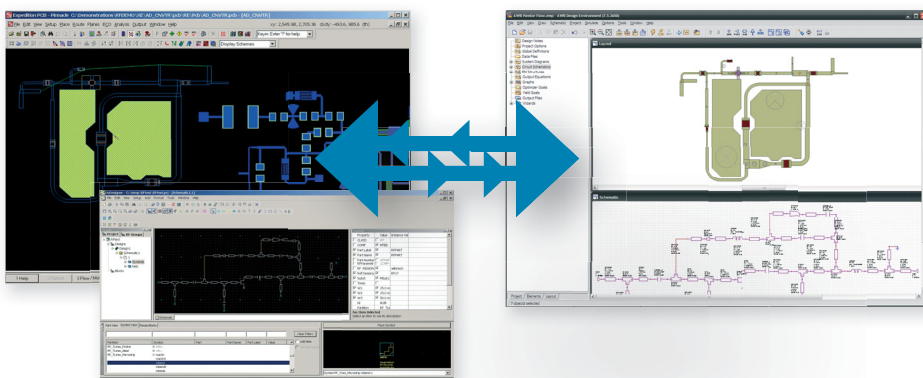
### CUSTOMER BACKGROUND

Alcatel-Lucent (Euronext Paris and NYSE: ALU) is the trusted partner of service providers, enterprises and governments worldwide, providing solutions that deliver voice, data and video communication services to end-users. A leader in fixed, mobile and converged broadband networking, IP technologies, applications and services, Alcatel-Lucent leverages the unrivalled technical and scientific expertise of Bell Labs, one of the largest innovation powerhouses in the communications industry. With operations in more than 130 countries and the most experienced global services organization in the industry, Alcatel-Lucent is a local partner with a global reach. Alcatel-Lucent achieved revenues of Euro 17.8 billion in 2007 and is incorporated in France, with executive offices located in Paris. For more information, visit Alcatel-Lucent on the Internet: <http://www.alcatel-lucent.com>

The Platform Hardware Center (PHC) at Alcatel-Lucent functions as a center-of-excellence for the entire company, and its design teams develop cutting-edge circuits and subsystems for use in Alcatel-Lucent's diverse systems.

### THE DESIGN CHALLENGE

The circuits created by the PHC must conform to the electrical and physical requirements for the systems of which they will be a part. Because these systems tend to evolve as they are developed, a great deal of flexibility is required, which has been hampered for many years because the PHC was forced to maintain two separate component libraries. When beginning an RF or microwave design, the footprint had to be synchronized and verified with both the Mentor Graphics printed circuit board (PCB) software tools and AWR's high-frequency design software.



*RF/microwave designs are accelerated with AWR and Mentor Graphics Expedition co-design. The real-time bidirectional link between the tools is the key factor in achieving a concurrent design flow.*

Alcatel-Lucent 

Application:  
RF PCB Design

AWR Software:

- Microwave Office®
- AWR Connected™ for Mentor Graphics Expedition



“The integrated flow between the Mentor and AWR tools has enabled us to significantly cut our design times. By concurrently designing the RF circuits in the context of the rest of the PCB, we can also reduce our design and manufacturing re-spins, which helps us meet aggressive time-to-market goals.”

Xavier Leblanc  
Hardware Tools Manager  
Alcatel-Lucent  
Platform Hardware Center  
[www.alcatel-lucent.com](http://www.alcatel-lucent.com)

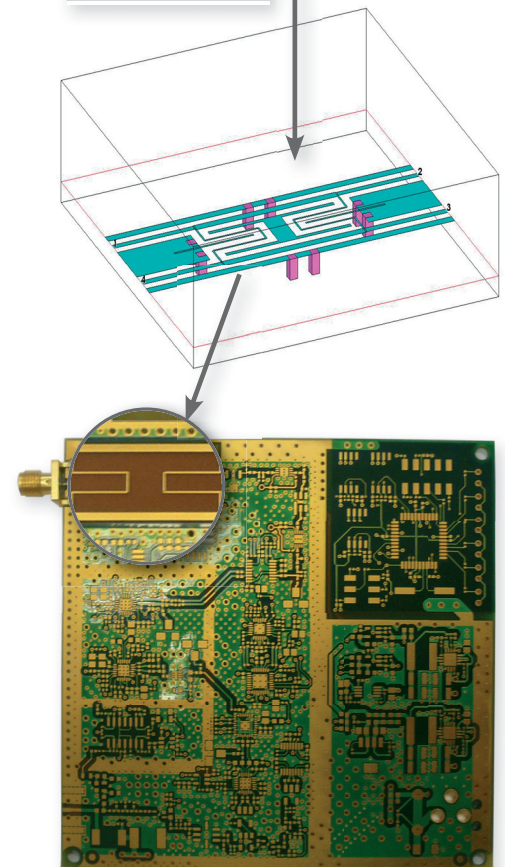
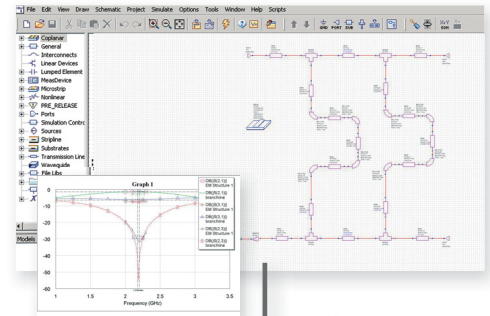
After the layout was complete, data was transferred via DXF (data exchange format) from AWR's Microwave Office software to Mentor Graphics Expedition. However, there was no way to perform bidirectional data transfer in order to import the microwave schematic or symbols to Mentor's DXDesigner, or to export circuit modifications performed in Expedition back to the Microwave Office platform. The increasing complexity of the team's design coupled with the sheer volume of its workload made this productivity roadblock unacceptable.

## THE SOLUTION

### What design problem did AWR's software help you to solve?

AWR Connected for Mentor Graphics Expedition, for which the PHC was a beta site, has helped the design team overcome its previous productivity roadblocks and has, in just a few months, yielded significant reductions in design time. With AWR Connected for Mentor Graphics Expedition, there is no library duplication, since the dynamically linked software utility automatically creates a complete AWR library file (symbols, part numbers, substrate definitions, footprints, padstacks, and layer process) directly from the Mentor tools and automatically updates the library file whenever there is a Mentor-invoked change. The software enables real-time, seamless bidirectional transfer of schematic and layout between the two tools, so that the schematic and layout can be sent from the Microwave Office environment to Mentor tools, modified, and sent back to Microwave Office.

In addition, Microwave Office circuit simulation and analysis can be driven from Mentor, and a Mentor PCB can be linked to many Microwave Office projects. This can be performed locally, throughout the PHC, or even throughout Alcatel-Lucent via the Internet. Perhaps fundamentally most important for the PHC design teams is the assurance that they will always have the correct footprints and library when performing an RF simulation. Now that AWR Connected for Mentor Graphics Expedition has been verified through rigorous testing, the PHC will further leverage its ability to link the formerly separate and redundant high-frequency simulation and PCB domains.



*The branchline (highlighted above) is designed in AWR's Microwave Office software and optimized for power regulation by determining isolation toward the output and insertion losses from the PA to detector.*

*Through the AWR Connected for Mentor Graphics solution, the branchline is easily integrated onto the small gap filler board that's designed within Mentor's Expedition tool. The end product is a DVB SH repeater for mobile TV.*



AWR, 1960 East Grand Avenue, Suite 430, El Segundo, CA 90245, USA  
Tel: +1 (310) 726-3000 Fax: +1 (310) 726-3005 [www.awrcorp.com](http://www.awrcorp.com)

Copyright © 2009 AWR Corporation. All rights reserved. AWR, the AWR logo, and Microwave Office are registered trademarks and AWR Connected for Mentor Graphics Expedition and Unified Data Model are trademarks of AWR Corporation. All others are property of their respective holders.