

## Design Notes & Market Reports

### DESIGN NOTES

#### Applied Wave Research ([awrcorp.com](http://awrcorp.com)):

##### Analog Office Configure

This project will help new users to Analog Office configure the software for some settings that they will be more familiar with. These include the schematic and layout colors, the hotkeys, schematic wires behavior, units, and layout face defaults. This project will also discuss a method to generate a library of elements defined by the user.

##### Analog Office Extends HSPICE Transient Simulations to RF

Microwave Office, the Applied Wave Research (AWR) product for RF, microwave and millimeter-wave design, offers harmonic balance simulations to obtain steady state waveforms for port voltages and currents in microwave circuits. Design of many types of circuits such as oscillators, frequency dividers, and digital circuits with memory requires the ability to perform transient simulations. AWR's Analog Office (AO) offers this capability for RF and microwave circuits through integration with HSPICE 2003 from Synopsys...

##### BJT Amp Complete

This example is a part of AO Getting Started Guide.

##### BJT Amp OpPnt

This project shows the preliminary design of a differential amplifier, in order to demonstrate the DC operating point annotation and measurement in MWOOffice and Analog Office.

##### CustomSpirals

It is easy to create your own custom spiral inductors within the AWR environment. The following simple steps show how to create the spiral element, characterise it and then use it in your project.

##### HierarchyResExample

The unified database used in the AWRDE contains much more connectivity information than other IC design tools normally would. In order to make the most of the advanced features of Analog Office, hierarchical connection in layout needs to be considered a little differently.

##### Agilent Technologies: ([agilent.com/find/powerofx](http://agilent.com/find/powerofx))

Agilent Technologies has made available a new Application Note on Testing DigRF Interfaces. The new

“Solutions for Testing DigRF Interfaces” 5990-9501EN, offers insight into how to quickly and efficiently characterize digital wireless devices. It is part of a series of Agilent Power of X application notes created to provide insight into solving tough measurement problems in a unique way for both the design and manufacturing environments. To request copies of the free application notes go to [www.agilent.com/find/powerofx](http://www.agilent.com/find/powerofx).

### MARKET REPORTS

#### Test Equipment Market in Russia and the CIS

Russia and the CIS countries are emerging markets offering long-term potential for general purpose test equipment vendors. Government and private investments in infrastructure development and services are poised to generate new opportunities for test equipment vendors.

New analysis from Frost & Sullivan (<http://www.testandmeasurement.frost.com>), General Purpose Test Equipment Markets in Russia and CIS Countries, finds that the markets earned revenue of \$194.8 million in 2010 and estimates this to reach \$247.3 million in 2015. The research service covers the following products: oscilloscopes, signal generators, spectrum analysers, multimeters, network analysers, logic analysers, power meters, arbitrary waveform generators and electronic counters.

“Investments in infrastructure are rising with constant upgrades and efforts at modernisation,” notes Frost & Sullivan Industry Manager Sujan Sami. “The increase in public-private partnerships (PPP) is set to boost infrastructure development, leading to greater demand for suitable test equipment.”

The education as well as the aerospace and defence (A&D) sectors are major revenue-generating streams in Russia and the CIS countries. The A&D end-user sector was not as badly affected by the economic downturn as other sectors. This, in addition to the growth in the educational sector, is driving demand for oscilloscopes and other general purpose test equipment.

A large territory and customer base also bodes well for market prospects. “Russia is the largest country in the world and is also the 9th largest country in terms of population,” explains Sami. “This implies a huge consumer base for electronic products that will attract electronic OEMs and create potential for general purpose test equipment vendors.”

At the same time, growth in several industrial sectors is poised to augment demand for general purpose test equipment in the near future. In addition, with the economy recovering from the recession, the pent-up demand

## Design Notes & Market Reports

for general purpose test equipment is set to hit the market, resulting in heightened demand levels.

However, the lack of private capital expenditure threatens to restrain market growth. Poorer economies such as Tajikistan, Armenia, Uzbekistan, Kyrgyzstan and Moldova are mostly dependent on state expenditure for growth. This restricts the adoption of newer technologies, hindering market expansion.

With government policies playing a critical role in the development of countries in the CIS region and in Russia, companies also need to keep a close track of evolving government regulations.

"Focusing on total solutions, rather than just selling test instruments, is the key to achieving market success," concludes Sami. "Moreover, to compete more effectively against regional vendors, companies will need to forge alliances with local channel partners."

If you are interested in more information on this study, please send an email with your contact details to Anna Zanchi, Corporate Communications, at [anna.zanchi@frost.com](mailto:anna.zanchi@frost.com).

### "Wireless Decade" for Latin America

Currently, the Latin American region is characterized by the coexistence of 2G, 3G and 4G wireless standards. The lack of standardization has restrained vendors in terms of product development and customer base expansion. However, the future looks bright as regulatory bodies begin playing an important role in aligning with international standards.

New analysis from Frost & Sullivan estimates the markets to expand from \$ 158.5 million in 2010 to \$342.0 million in 2017, growing at a compound annual growth rate (CAGR) of 11.6 percent during the forecast period.

"A key factor driving demand for wireless test equipment is the continuous development of wireless communication standards from 2 and 2.5G to 3G, 3.5G, HSPA and 4G," notes Frost & Sullivan Research Analyst Mariano Kimbara. "There are several 4G trials and deployments slated to begin by the end of 2011 and the beginning of 2012 which are expected to generate growth for this market."

The evolution from 2G to 3G wireless standards has contributed significantly to the uptake of wireless test and equipment in the Latin American region. Operators in Latin America are in the initial phase of 3G HSPA deployments and very few are introducing HSPA+. The new HSPA technologies allow increased data transmission in the region without the need for massive investment.

Imminent LTE deployments also augur well for market prospects.

"The major reason for deploying LTE in the region is the promise of reduced operating costs and savings in terms of frequency spectrums over the long term," explains Kimbara. "As a result, operators are favoring the implementation of LTE, instead of blindly following the parameters of developed markets such as those in North America and Europe."

A key challenge is the lack of emphasis on quality, which has had a ripple effect on investment levels. Latin American operators are cost conscious, exhibiting an 'essentials only' attitude towards test equipment. Consequently, vendors are experiencing difficulties in penetrating the market with high-end sophisticated testing tools.

"Regulatory bodies have not been very proactive in auditing network quality," elaborates Kimbara.

"They have shirked from applying penalties in cases where operators have failed to meet the contractually agreed performance in terms of efficiency and quality."

However, things are changing. The explosion of wireless data usage brought about by smartphones has put immense strain on networks in the Latin American region in terms of quality. Regulatory bodies are starting to push for higher quality standards in some countries.

"The rising number of smartphones and tablets sales, combined with high mobile penetration rates, has intensified the need to deploy HSPA+ in large cities," concludes Kimbara. "This will highlight the need for more robust and reliable wireless test and equipment."

