

# MPD

## MICROWAVE PRODUCT DIGEST

### Editorial Statement of Purpose

Microwave Product Digest serves RF and microwave design engineers, research and development engineers, applications engineers and engineering managers. These professionals, working in facilities that serve both the commercial and government markets, are involved with the design, development, application, and use of systems and subsystems, devices, and techniques involving frequencies from RF to light.

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### FROM THE EDITOR



**Karen Hoppe**  
Editor, MPD

### Title

## Next Generation SMART Cellular Application Connectivity: M2M Products and Services Facilitate Easy, Cost-Effective Integration

Smart, wireless, machine-to-machine (M2M) communication applications are becoming as creative and universal as those enjoyed by their mass-market cell phone cousins. From complex tracking applications using the newest in footprint compatible cellular hardware that allows users to monitor and control vehicle information to basic devices sending meter reading data to a central server, M2M products and services have gone through radical changes over the past decade.

Originally, North American cellular carriers paid little attention to emerging data-centric businesses moving across their expanding networks. Compared to the burgeoning voice services market, the data services sector appeared small and fragmented. It was challenging to gain support from carriers unless services were needed for thousands of devices. This resulted in MVNOs and other unlicensed aggregators becoming the data entry point for most M2M products.

As new SMART applications emerge and demand for M2M products and services grow, carrier interest in the data services market has increased. Carriers have taken up the SMART technology torch and are actively campaigning to cover newly emerging data areas. Competition to attract all levels of business has significantly reduced data rates and offers more flexibility in plan options. Services offered by leading edge MVNOs give greater insight into the use and functionality of devices.

The M2M hardware side tells a similar story. Telephone handset providers saw the emerging cellular module business as a small, niche market needing only casual support. As new cellular M2M markets evolved, so did hardware manufacturers. Many companies entered and left the market, some merged to find the right mix

of customers for their new SMART technology modules.

M2M hardware products also fell prey to market dynamics - coming and going with changing form factors. Companies that developed, using what they thought were solid technologies from stable suppliers, found themselves adrift in a world of ever-changing design choices. Engineers, managers and executives scrambled to interpret the developing market.

PTCRB, FCC and wireless carrier certifications added another dimension of difficulty to the arduous wireless design cycle. High testing costs and rigid rules governing cellular communications inhibited new products from entering the wireless market.

To a great extent, the market turmoil is now history. M2M product and service providers enjoy an increasingly stable and expanding market. Select module providers offer peace of mind with forward and backward compatible wireless module products that rival and exceed the functionality and quality of their cell phone relatives.

As we move into yet another decade, the M2M rules are again being rewritten. Plug-in, footprint compatible cellular modems complete with all required certifications allow design engineers to quickly and easily add all cellular technologies to their designs. Changing from GSM to CDMA to UMTS back to GSM significantly reduces time to market and cost in all new and existing design applications. Any worries about certification and design choices have been removed by savvy suppliers on the cutting edge of SMART technology solutions.

### IN MY OPINION



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