Rethinking portable power specs for 'YouTube minutes'

BY FANNY MLINARSKY

In the age of mobility, the bright, tiny screens of cell phones serve as our multimedia windows on the networked world. Long-touted mobile applications are everywhere now—easy to buy online and easy to run.

New ATSC (Advanced Television Systems Committee)-capable LG Lotus phones, introduced last month at CTIA, play digital TV broadcasts from the air. Satellite navigation, Internet access, location-based services and even built-in projectors are at our fingertips.

"You can even make a phone call while e-mailing a photo or surfing the web over a Wi-Fi or 3G connection," states the AT&T Web site, as if the phone call has become a secondary feature.

A small device has assumed so central a role in our lives that we no longer leave home without it. Connectivity is steadily spreading, and there is no going back to voice-only once you've tried the live colors of multimedia. You call your spouse from a grocery store to beam over a photo of your purchase to make sure you are buying the right thing. Or, late at night at the airport, waiting for your delayed flight and too tired to work after a long day away, you settle in to watch YouTube on a sharp little screen. It's a wonderful, new, connected world. But suddenly a low battery indicator jars you back to the boredom of the cold, gray lounge and the uncomfortable seat, with no way of calling home to let your family know you're arriving late. Or worse, your car stalls on a desert road on the way to a convention in

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Vegas, and you reach for your phone, only to realize that you'd drained the battery while projecting slides for a customer earlier in the day.

Handset manufacturers have yet to specify "projector minutes" or "YouTube minutes." But yesterday's "talk time" and "standby time" specs are inadequate for today's multimedia world, and the industry knows it.

The truth is, our 10-year-old lithium-ion battery technology can only provide a few hours of life to modern applications. Manufacturers and carriers are trying to hide this inadequate performance behind obscure specifications based on usage profiles.

The emerging DG09 document from the GSM Association, "Battery Life Measurement Technique," defines battery life in terms of usage profiles for GSM, GPRS, W-CDMA and Wi-Fi. Those profiles specify statistical usage patterns for circuit calling, MMS, SMS, Internet access and e-mail. For example, an e-mail profile on a Motorola Q device defines periodic synchronization of Q to Microsoft Outlook. Depending on the frequency of the updates and whether just the headers or entire messages are loaded, battery life could range from 1.5 days with a 1,200-mA-hr pack down to less than a day with an 1,800-mA-hr pack, according to Jerry

Hallmark, director of energy system technologies at Motorola. But while profiles may be helpful to some, most of us want straightforward answers.

Such answers are available from tools like Agilent Technologies' Interactive Functional Test (IFT), which identifies power consumed by each application. So why not provide clear specs on common functions such as video time or Wi-Fi-based voice-over-IP time?

Hallmark believes we are reaching the end of the road in our ability to improve the capacity of Li-ion and will be looking at new chemistries for the future. He points out that new functions, such as ATSC receivers, are initially introduced as discrete devices, causing a big jump in power consumption. Over time, however, they are integrated into specialized ICs, and power consumption settles to acceptable levels.

An innovative approach is being pursued by Sigmatix, a company breaking ground on power-efficient implementation of a software-defined radio (SDR) that, according to Sigmatix CEO David Kelf, can pull all of this functionality together with an LTE stack to run on a host processor, eliminating specialized hardware.

Nonetheless, efficient electronics and low-power SDR techniques will not address all the issues. The trend for open application development for platforms such as the Android brings us software designed with little concern for battery life. And while carriers and manufacturers are introducing certification programs to police new applications, they are already losing control over the flood of new software in the wonderfully messy world of open platforms. Further, they are unlikely to regain control over "user experience" ever again, as open platforms continue to spread.

To make an impact on user experience, manufacturers must achieve a breakthrough in portable power technologies. But don't look for that to happen anytime soon. ∎

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