Wireless Power Systems: A Perspective On Standardization

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Recently, wireless power has seen resurgence in core technology innovation [1], as well as the introduction of early products. As a transmission technology that delivers power from a transmission source to an embedded receiver, wireless power creates an understandable desire to standardize this interface such that one can achieve interoperability between a variety of embedded receivers and transmitters.

Indeed, there are at least two efforts which may lead to one or more standards. The first effort, known as the Wireless Power Consortium (WPC), is a consortium of companies focused on standardizing a particular close-proximity, alignment-sensitive technology.

The second effort, led by the Consumer Electronics Association (CEA), has focused on building a more holistic view of the wireless power space based on the consumer use models in various situations. It’s likely that multiple standards will emerge from this activity.

Interestingly, the WPC and CEA have significant membership overlap. The central question for participants and observers of wireless power is how are these standards likely to mature?

As a technology with broad potential impact, today’s wireless power is in a similar state to the wireless data industry of 15 years ago. Wireless data at that time, experienced a similar call to standardize the communication interfaces to ensure

that interoperability was enforced between communicating devices.

In addition, there was an analogous range of base technologies offered to the market which varied on functionality, performance, and price. As the wireless data sector matured, a whole host of communication standards have emerged (GSM, CDMA WiFi, Zigbee, Bluetooth, etc.), in contrast to the expected single standard.

Each of these standards carved out an economically viable role based on the important factors of range, performance, and cost. Today, contemplating a single universal wireless data standard would be considered foolhardy; many now recognize the need and roles for these various standards, even as they imply that devices such as cell phones and laptops may have to support multiple technologies.

Success of a standard within the wireless power space will depend largely on the ability of the standardized technologies to deliver differentiated customer value at economically viable price points for the participants.

Paralleling the evolution in the wireless data space, it seems very improbable that one unifying standard will emerge for wireless power, but rather we are likely to see a proliferation of technology based on the various use-models which have different economic tradeoffs. For example, there may well be a place for close-proximity alignment-sensitive systems such as the one defined by the WPC. However, the success will be driven by delivering measurable value in the marketplace even in the presence of more advanced alignment in-sensitive systems.

At present, the CEA approach holds great deal of promise, because of a recognition that consumer use-models, technical capability, and price / performance trade-offs should be well-understood before pushing toward standardization. As predicted by standards in wireless data, one should expect a period of rapid experimentation followed by standardization within wireless power, once the economic value is well understood.

Links:
[1] http://www.pddnet.com/article-wireless-power-technology-generational-073009/