



Brainstorm

What are some of the most common mistakes engineers make when designing in batteries?

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Manufacturers of portable devices are faced with the challenge of designing in the right battery pack and choosing from the many available options.

What are some of the most common mistakes engineers make when designing in batteries?

By Chris Turner, Director of Battery Technology, Nexergy, Inc.

Among the most common mistakes that are made in the selection of batteries is not properly identifying the applicable regulatory requirements related to lithium ion battery safety and ignoring the impact those requirements have on the battery and host design in the early design stages. Environmental regulations have become rather well known, but battery-related safety standards are still new to many.

For the wireless industry, the CTIA Battery Certification Program has become even more of an issue. The program is based on the IEEE 1725, originally developed as a battery-safety standard for mobile phones. With wireless communication now being employed in a wide range of devices — from asset tracking to barcode scanners to medical devices — cellular-network providers such as AT&T and Verizon require this certification on many non-mobile phone devices using their networks. Most importantly, the program requires that a CTIA-certified battery cell be used in the battery pack to gain certification. This significantly limits the pool of potential battery cell sizes and suppliers that can be used.

Some standards are device-driven. According to the IT Equipment Safety Standard (IEC60950) or Medical Electrical Equipment Standard (IEC 60601-1), a device is required to get UL2054 on the battery pack (or the similar IEC 62133) as a prerequisite for approval. Other requirements are country-specific, such as Japan's PSE Denan Law, which went into effect November, 2008. Part of this law places requirements on lithium ion battery design and safety for products sold in Japan. Such regulatory requirements need to be identified as early as possible so that their impact on the battery or host design can be evaluated to avoid costly project delays or redesigns.

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