

Neurostimulators improve quality of life

Chronic-pain sufferers can benefit from the Eon Mini neurostimulator from the St Jude Medical Neuromodulation Division. The device is a rechargeable spinal-cord stimulator that treats chronic pain of the torso and limbs. The device gained US Food and Drug Administration and European CE (Conformité Européenne) mark approvals in April 2008 and received Australian Therapeutic Goods Administration approval in February 2009. An article in the April 1, 2009, issue of *Test & Measurement World* recounts the efforts of Eddie Abshire, senior test engineer at St Jude Medical Neuromodulation Division, in assisting in bringing the device to market. As a result of his work, *Test & Measurement World* readers voted him Test Engineer of the Year. “It’s ... important to make sure that these systems are safe and that the patients enjoy a good quality of life,” says Abshire.

Doctors typically implant the 18-cc Eon Mini neurostimulator above a patient’s buttock area; the device is small, and its maximum implant depth is 2.5 cm, so it is less obtrusive and more comfortable than larger devices. The device generates 0- to 25.5-mA current pulses having widths from 50 to 500 μ sec at frequencies of 2 to 1200 Hz. A physician determines the optimum current-pulse program; a portable controller lets the patient adjust the program to accommodate changing pain profiles throughout the day. A 16-contact header connects with St Jude Medical’s line of percutaneous and paddle leads.

Percutaneous leads—those that physicians can insert using a needle—deliver current pulses from the Eon Mini neurostimulator to appropriate points along the spinal cord, where the pulses interrupt pain signals as they travel to the brain. As an alternative to using the percutaneous leads, neurosurgeons can surgically implant paddle leads to provide improved directivity (images courtesy St Jude Medical).

