

Hearing Implants

sound out a new test system

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Challenge

Cochlear is a global leader in the design and manufacture of innovative, implantable hearing solutions. Their products consist of two main parts. The first is the implant device, an apparatus that includes an electrode array inserted into the cochlea (inner ear), bypassing damaged hair cells and stimulating the hearing nerve directly. The second part is worn externally and is made up of three devices: Speech Processor, Battery Pack and Transmit/Receive Coil.

In the process of developing a new range of external devices, a series of test systems was required to validate the product for its upcoming clinical trials. The timeline from building the prototype to conducting the trials was extremely short. As a result, Cochlear approached CPE Systems to develop a timely solution that would allow future expandability and support full scale manufacture for a minimum of 10 years.

Solution

Dedicated test systems were required for each of the three external devices. Some of the technological challenges included measuring signals in the micro Volt and Amp range, RF spectrum analysis, and the design of custom inductive coupling methods. Being a medical grade product, the test systems needed to adhere to the stringent requirements of the Food and Drug Administration.

CPE designed each test system to contain the Measurement Software, Measurement instruments and Test Fixture. These systems were critical in the test and verification of the devices used in the clinical trials. The trials were a success, and the product was released on schedule amid global fanfare. The same test systems were then utilised in the production environment for full scale manufacturing of the product, and subsequent test systems were manufactured to meet the growing demand for Cochlear implants.

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