



CYIENT

**A LEADING MEDICAL DEVICE
MANUFACTURER LEVERAGES
CYIENT'S DESIGN-FOR-RELIABILITY
(DFR) EXPERTISE TO IMPROVE
ULTRASOUND TRANSDUCER
RELIABILITY**

The Client

The client is a leading medical device manufacturing company engaged in the production of ultrasound transducers, including transmitters, receivers, and transceivers.

The Need

Designing ultrasound transducers for reliability.

The transducers designed by the client were experiencing an uptick in their failure rate, leading to a sharp spike in the number of reported adverse events. Given the client's wide-spread operations, servicing these faulty transducers meant higher warranty costs for the client as it required considerable coordination between service technicians, logistics staff, and customer care resources. The lack of a standardized approach to design for reliability further complicated matters for the client, making it difficult to pinpoint the cause of failures.

The Transformation

Conducting failure analysis and implementing a Design-for-Reliability (DFR) process.

Cyient leveraged its deep design expertise in medical device engineering to conduct a thorough field failure analysis for the client's transducers using the Design Failure Mode and Effect Analysis (DFMEA) approach. This helped us gain a sound understanding of the client's design control and quality procedures and their limitations, leading us to isolate reliability issues related to design, manufacturing, and testing.

We then developed an actionable roadmap that involved prioritizing critical-to-quality (CTQ) field issues, features and processes for product sustenance and reliability improvements. Our team worked closely with the client's manufacturing unit to improve first pass yield by focusing on design robustness. Leveraging proven best practices and or sound industry knowledge, we also created a risk mitigation plan and reliability test plan to be fully prepared for any last-minute surprises.

The Outcome

Improved product reliability.

As a leader in medical device engineering, Cyient's solution not only improved product reliability but also helped the client implement sustainable practices for superior long-term outcomes. The key benefits included:

- **Improved ability to calculate product life**
Introduced Accelerated Life Testing (ALT) to predict or characterize product wear-out mechanism and ensure that wear-out occurs outside of the warranty period. Leveraging the ALT technique, the client's engineers can obtain a holistic picture of the reliability of their ultrasounds. ALT has also helped the client cut warranty costs and enabled early and accurate life prediction of newly designed transducers
- **Enhanced design robustness**
By developing standard operating procedures for design for reliability. This helped improve product reliability significantly, helping the client deliver better user experience

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, network and operations management services to global industry leaders. We leverage the power of digital technology and advanced analytics capabilities, along with domain knowledge and technical expertise, to solve complex business problems. As a Design, Build and Maintain partner, we take solution ownership across the value chain to help our clients focus on their core, innovate, and stay ahead of the curve.

Relationships lie at the heart of how we work. With nearly 14,000 employees in 21 countries, we partner with clients to operate as part of their extended team, in ways that best suit their organization's culture and requirements. Our industry focus spans aerospace and defense, medical, telecommunications, rail transportation, semiconductor, utilities, industrial, energy and natural resources.

For more information, please visit www.cyient.com

Contact Us

North America Headquarters

Cyient, Inc.
99 East River Drive
5th Floor
East Hartford CT 06108
USA
T: +1 860 528 5430
F: +1 860 528 5873

Europe, Middle East, and Africa Headquarters

Cyient Europe Ltd.
High Holborn House
52-54 High Holborn
London WC1V 6RL
UK
T: +44 20 7404 0640
F: +44 20 7404 0664

Asia Pacific Headquarters

Cyient Limited
Level 1, 350 Collins Street
Melbourne, Victoria, 3000
Australia
T: +61 3 8605 4815
F: +61 3 8601 1180

Global Headquarters

Cyient Limited
Plot No. 11
Software Units Layout
Infocity, Madhapur
Hyderabad - 500081
India
T: +91 40 6764 1000
F: +91 40 2311 0352