

CEL: Comprehensive Total Radiated Power Testing

Rugged Industrial-grade Connected Power Tool



www.cel.com

ISSUE & OPPORTUNITY

Needed to confirm reliable wireless performance in non-RF friendly product

CHALLENGES

- EMI concerns
- Limited space
- Detuning the antenna
- LCD, Battery, Motor

SOLUTION

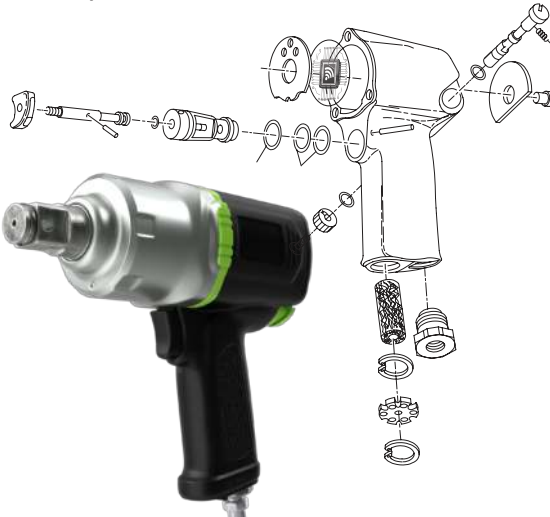
- **CMP9611:** Integrated dual-band omnidirectional antenna
- **NXP RT1060:** Supports RTOS, pre-tested driver with CMP9611



NXP
Gold Partner

COMPREHENSIVE TRP TESTING

To support customer, CEL went beyond standard testing by performing a three-step evaluation:



- 1. Radio Board Only:** Tested the radio module in isolation to establish a baseline performance at both 2.4GHz and 5GHz
- 2. Radio Board + Display Board:** Added the display board to assess how additional hardware affected wireless performance.
- 3. Complete Tool:** Tested the fully assembled power tool to identify any performance changes in the final product.

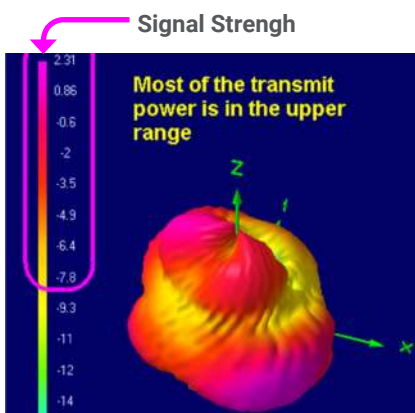
KEY BENEFITS

- ✓ Identified potential issues & areas for design improvements
- ✓ Enhanced system performance
- ✓ Established confidence in providing reliable network connectivity

This detailed approach allowed CEL to pinpoint potential issues, ensure optimal performance, and deliver a complete picture of the product's wireless capabilities.

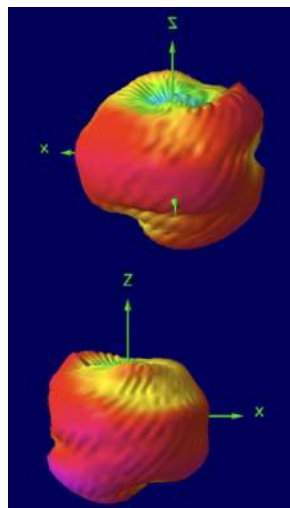
3D PLOTS

- Generate 3D plot and comprehensive report from test data
- Plot is indexed for device performance
- Color coded for visual inspection & comparison

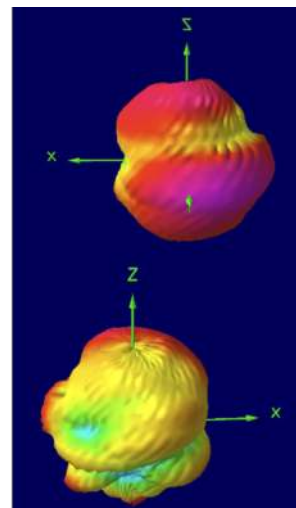


Uniform pattern, no dead zones

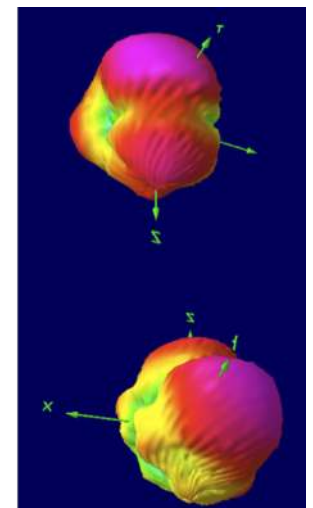
Radio Board Only



Radio Board+Display Board



Complete Power Tool



CH 1 – 2412 MHz