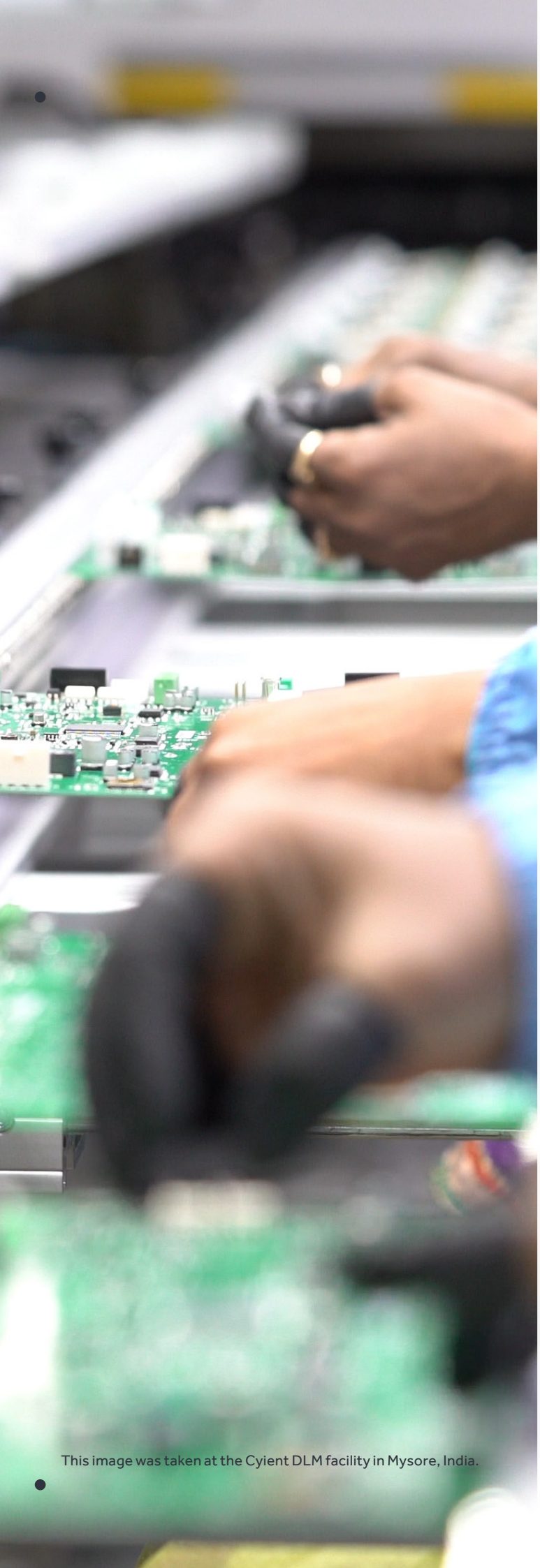
CYIENT

CYIENT TRANSMIT AND RECEIVE MODULE FOR RADAR SYSTEMS

Low-cost X-Band TRM for airborne, ground, and naval radar applications



This image was taken at the Cyient DLM facility in Mysore, India.

Overview

Transmit/Receive Modules (TRM) are the building blocks for AESA (Active Electronically Scanned Array) radars.

TRMs are required for a large number of X- Band AESA radar applications in the aerospace and defense industry. However, they also account for a significant portion of radar development cost. Conventional TRM manufacturing uses chip and wire-bond assembly that requires specialized machines and highly-skilled workforce leading to higher manufacturing costs.

WE ARE ABOUT TO CHANGE THAT FOR YOU.

Cyient X-Band Single-Channel Transmit and Receive Module

The X-Band single-channel Transmit and Receive Module by Cyient is designed using hybrid PCB technology and off-the-shelf SMD components. The modular architecture uses a COTS approach and can automate production processes for radar OEMs. The Cyient X-Band Transmit and Receive Module also uses non-ITAR components to enable OEMs to exercise offset obligations.

Here's what our Transmit and Receive Module can do for you:

- Amplify RF for transmission
- Amplify RF for reception
- Adjust phase and amplify RF signals, both in transmit and receive modes
- Interface with radar electronics to steer beam and control power
- Provide transmit and receive isolation

The Cyient Edge: What Makes Us Unique?

While the market for ITAR-free capability, especially in ISR, is large, there are limited options for OEMs for radar componentry. The Cyient Transmit and Receive Module solution delivers cutting-edge capability at a lower cost. The module is also lightweight and can be used on almost all radar systems in X-Band. As an added advantage, Cyient can provide tailored solutions such as quad-TRM and tile-array architecture, based on client requirements.

The Cyient Transmit and Receive Module is produced at our state-of-the-art electronics manufacturing facility—Cyient DLM. The design enables cost-competitive automated production.

Key Product Differentiators

Advanced technology: GaN-based TRM that increases module efficiency and reflow SMT PCB assembly line which, in turn, enables high volume at low costs.

Simplified qualification process: Pre-screened products (COTS) used, which simplifies the qualification process as compared to the rigorous process for conventional solutions.

High on reliability: The use of COTS components and standard reflow assembly increases the reliability and performance over existing solutions.

Reduced size and weight: Designed without the need for traditional connectors, the Cyient TRM uses hybrid PCB technology that brings down the product weight by more than 20%+ when compared to conventional TRMs.

Adapted to array requirements: The TRM is designed so that it can fit in the inter-element spacing requirement and is less than half-wavelength.

Smarter integration: Major components are integrated into a single module as a “brick”.

Cyient Transmit and Receive Module Specifications

- Power 5 W class (GaN)
- 3.5 dB noise figure
- 6-bit phase control
- 5-bit amplitude control
- Digital control
- Connector-less design
- Weight ~ 20 grams
- Highly efficient, integrated, and reliable

This is an actual image of the product.

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, networks, 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 over 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

AND_BR_TRM_OV_0618