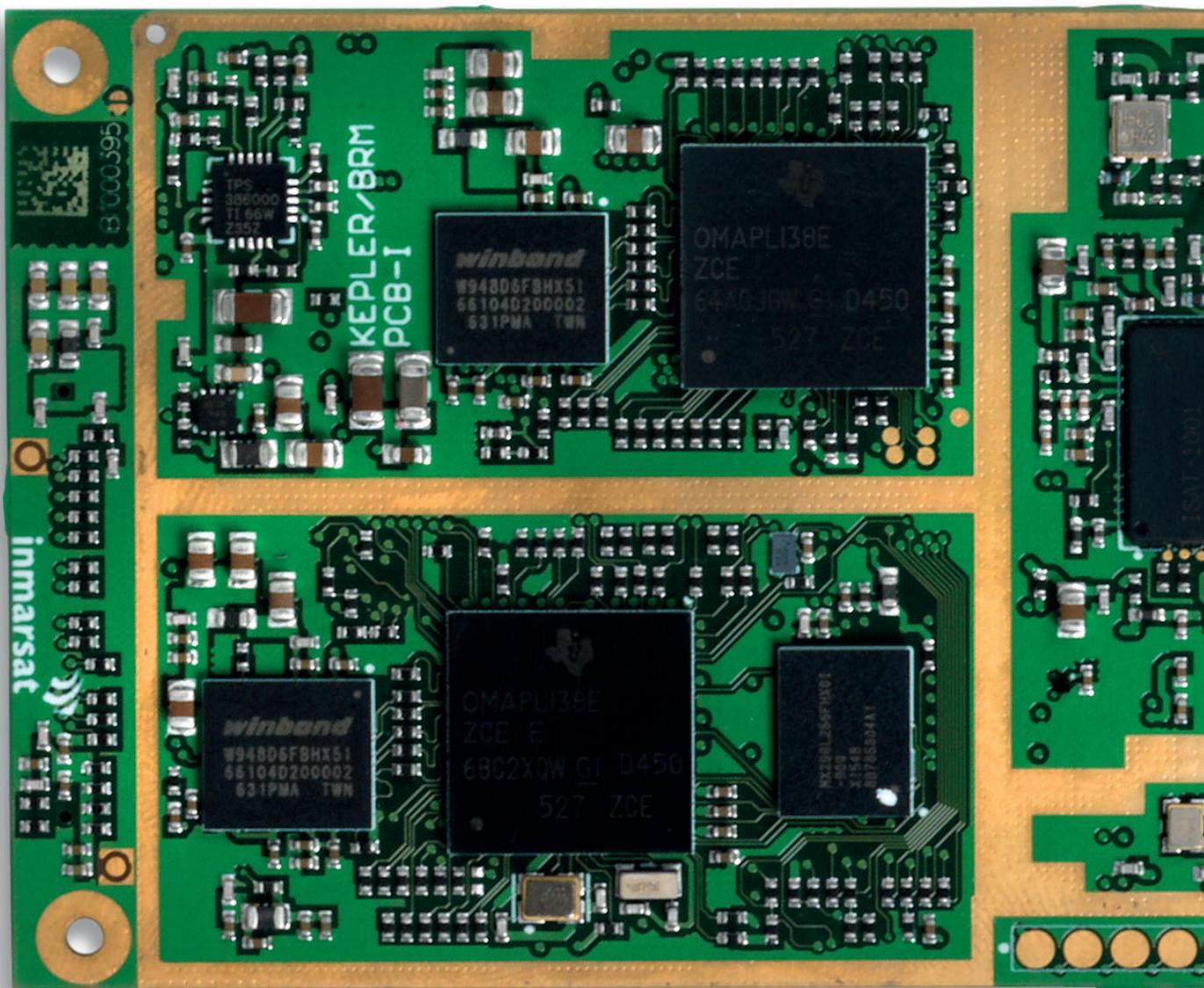# BGAN Radio Module (BRM)

Launched in 2005, Inmarsat's Broadband Global Area Network (BGAN) is an L-BAND geostationary satellite-based broadband network. Terminals provide data rates up to 512Kbps, for access to on-demand IP broadband data, with streaming of up to 650Kbps, SMS, and voice capabilities.

About the BRM
Connectivity. Made easy.

Inmarsat's BGAN Radio Module (BRM) is a credit card-sized core module board housing a full-duplex BGAN modem which enables Inmarsat Value Added Manufacturer (VAM) partners to integrate BGAN connectivity into their User Terminals. The BRM can be used with various Front End Module (FEM) and antenna configurations, and includes a RESTful command interface accessed via Ethernet.

It enables VAMs to fast-track and reduce costs for development of all classes of BGAN User Terminals; streamlines the Type Approval process; uses a single, standardised integrated chipset (RFIC); and can be integrated into a variety of IoT; land mobile; maritime and aero solutions.

Inmarsat's Type Approval Process validates compliance against international rules it is governed to follow for RF interference and BGAN services. Due to the BRM being partially approved the process is expected to be lighter than a full development and will get quicker / cheaper as FEM / antenna components are re-used.

Development tools
Blueprint - bringing down the barriers

The Blueprint is a complete Ethernet to antenna BGAN user terminal reference design, based on Inmarsat's BRM. It meets the latest requirements for ATC/LTE resilience, making it significantly easier for new and existing partners in the Inmarsat ecosystem to bring land, maritime and aeronautical terminals to market.

- **Simple application:** No RF design required. Get started with a developer kit.
- **Low-cost:** Cost optimised hardware design and cost-effective user terminal development.
- **Low-risk:** The BRM Blueprint has been fully tested and proven capable of meeting Inmarsat's Type Approval requirements.
- **Rapid time to market:** Cut development time from 2 years to 2 months.
- **Customisable:** Easily adapted for remote/active antenna designs
- **For all markets:** Land, maritime and aeronautical applications.
- **Fast track:** Fast transition through the Type Approval process.
- **Future proof:** Carrier aggregation ready. Supports I6 constellation.

BGAN services supported on the BRM

- IP Background Data Connectivity (data rates at up to 512Kbps)
- Streaming Data (up to 650Kbps)
- Voice (Inmarsat VoIP service)
- SMS
- Remote Management

Examples of products and services supported

IsatHub (Land)
- Portable terminal which is a personal communications device
- BRM integration is expected to enable smaller, lower-cost, more efficient terminal variants
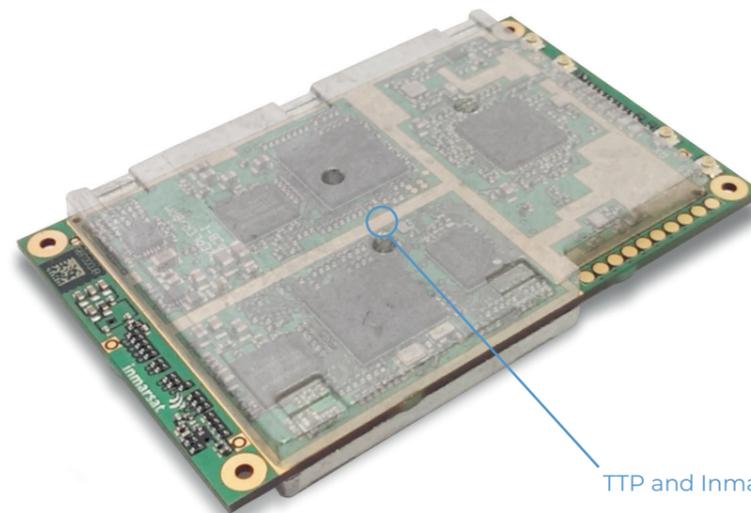
BGAN IoT (Fixed or Mobile use)
- BGAN terminals designed specifically for IoT, including free firmware upgrades
- BRM integration expected to enable smaller, lower-cost fixed and mobile BGAN IoT terminals, and enable VAMs with no experience of Inmarsat or BGAN to build integrated BGAN solutions tailored to the IoT market

Media (Land)
- Integration of BGAN into a video encoder solution

FleetBroadband (Maritime)
- Smaller, lighter terminals for small vessels
- Integration of BGAN into bridge, crew or passenger solutions

Specifications

Dimensions (mm)	86 x 54 x 10.1
Weight (g)	135
Environmental	
Temperature (°C)	Min: -40; Max: +75
Cooling and Enclosure	Diecast EMI shielding cans designed to enable heat transfer from the module into the terminal enclosure
Power	
Input nominal voltage (VDC)	5.5
Usage Specifications	Avg. Standby Current: <200 mW
	Avg. Network Idle: <0.56W
	Operational: <4W
Interfaces	
4 x U.FL Connectors	BGAN RX; TX; RF Detector formHPA power control and GNSS (GPS, Beidou and GLONASS) receiver input
	I/O interface connector
	5.5v Power
	4x GPIO
	External NMEA navigation UART input
	10/100baseT Ethernet
	12C FEM and antenna interface
Performance	
Background and Streaming IP	Background IP up to 512kbps, streaming up to 650kbps

TTP and Inmarsat working together.

Talk to BRMworks to see how the BRM and Blueprint can benefit your terminal development, get started with a developer kit or develop a programme that best suits your needs.

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A TTP service

TTP and Inmarsat working together.