# Qualcomm

# Qualcomm® 212S Modem

**A low-power modem solution offering 5G IoT-NTN connectivity for off-grid, stationary IoT devices that require sensing and monitoring.**

The Qualcomm® 212S is a cost-optimized solution designed with just the essentials for off-grid, stationary IoT applications that require 5G IoT-NTN communication. Ultra-low power consumption means devices can be operated remotely for years, while adhering to 3GPP Release 17 standards makes it easy to establish satellite connectivity. This solution seamlessly integrates with the Qualcomm Aware™ Platform for even more robust asset management and has been tested with a Qualcomm certified NTN antenna for accelerated integration and additional reliability in complex environments.

## Highlights

### Low power consumption

Take advantage of ultra-low power consumption, enabling multi-year operation of IoT devices in remote areas with the help of solar panels and super capacitors.

### Cost-effective design

Reduce costs by using 5G IoT-NTN solutions built specifically for off-grid, stationary devices.

### Easily established connectivity

Simplify IoT device setup with our easy-to-connect 5G IoT-NTN solution, which doesn't require devices to be oriented in a particular direction to establish and maintain connectivity.

### 3GPP Release 17 standard-based solution

Employ satellite connectivity solutions that work with any satellite network globally using the 3GPP Rel.17 5G IoT-NTN protocol.

### Compatibility with the Qualcomm® QCM4490 processor

Easily deliver low-power satellite connectivity to industrial handheld devices with messaging capabilities and payload delivery to customer end points or the Qualcomm Aware Cloud.
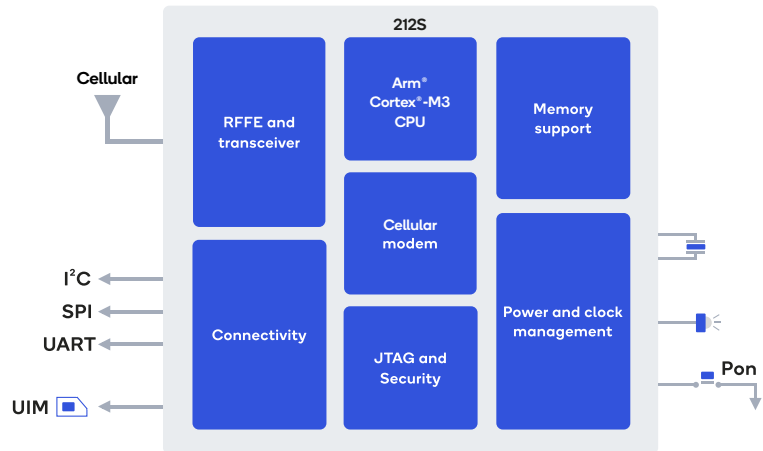
# Qualcomm 212S Target Applications

- Utility grid monitoring
- Early fire detection and reporting
- Stationary off-shore and on-shore mining equipment tracking
- Livestock, soil, and environmental management
- Satellite connectivity for industrial handhelds, smart ski helmets, etc.

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## Features

- Leverages Qualcomm Technologies' expertise in low-power connectivity solutions

- Ultra-low power consumption enables multi-year operation in remote areas with the help of solar panels and super capacitors

- Remote applications may include utility grid monitoring, early fire detection and reporting, stationary off-shore and on-shore mining equipment monitoring, and livestock, soil, and environmental management

- Offers everything required to establish satellite connection for stationary, off-grid devices

- No GNSS support needed for stand-alone deployments, eliminating additional BOM costs

- Satellite connectivity protocol based on 3GPP Release 17 standards (GEO/GSO only)

- Can be attached to any host (MCU) as a peripheral to provide satellite connectivity

- No need to orient devices in a particular way beyond line of sight to establish and maintain connectivity

- Works with any satellite network using the 3GPP Rel.17 5G IoT-NTN protocol globally

## Ordering Information

| Product | Qualcomm Part Numbers |
|---------|----------------------|
| QCX212S | QCX212S-0-CSP118 |

## Block Diagram



## Specifications

| | |
|---|---|
| **CPU** | Name: Arm® Cortex®-M3 CPU<br>Clock Speed: Up to 204 MHz |
| **Cellular Modem-RF** | Chipset: Qualcomm 212S Modem<br>Cellular Technology: Rel.17 NB-IoT over NTN |
| **Network Protocols** | Protocols: SSL, HTTPS, IPv4, IPv6, TLS, ping, TCP, UDP, OMA Lightweight M2M, CoAP, DTLS, MQTT |
| **RF** | LTE mid bands: B23, N255, N256 |
| **Battery Management** | Monitoring: Voltage |
| **Power Management** | Supply Voltage Range: 2.2 V to 4.5 V |
| **Security** | Features: Secure Boot |
| **Software Options** | Operating System: Free RTOS |
| **Interfaces** | Supported Interfaces: 2x SPI, 3x UART, 2x I²C, ADC<br>General Purpose I/Os: 26 |
| **Analog-To-Digital Converter (ADC)** | Number of Channels: 4 |
| **Serial Peripheral Interface (SPI)** | Number of Interfaces: 2 |
| **Operating Temperature Range** | Minimum Temperature: -40 °C<br>Maximum Temperature: 85 °C |
| **Contributing Chipsets** | Modem: Qualcomm 212S LTE IoT modem |

1. Rel.14 Cat-NB2    2. GEO/GSO only

**To learn more visit: qualcomm.com**

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