Qualcomm® 9205S Modem

A comprehensive modem solution that connects devices between different networks to provide coverage for terrestrial and non-terrestrial IoT applications.

The Qualcomm® 9205S allows devices to easily and seamlessly connect between cellular and satellite networks, making it ideal for IoT applications that require hybrid mobility solutions. We've followed 3GPP Release 17 standards for ubiquitous global 5G coverage that gives devices the freedom to move to and from almost anywhere, unlocking IoT use cases and improving asset tracking visibility. Additionally, options to integrate the Qualcomm Aware™ Platform and/or use a Qualcomm certified NTN antenna provide even more insight and reliability across complex environments.

Highlights

Seamless, ubiquitous connectivity

Connect IoT devices with seamless coverage between cellular and satellite networks around the globe.

Proven, trusted platform

Accelerate device development by using a satellite connectivity solution built on a proven, trusted platform.

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.

Compatible with Qualcomm certified NTN antennas

Accelerate integration and increase reliability of satellite connections in complex environments, including indoors.
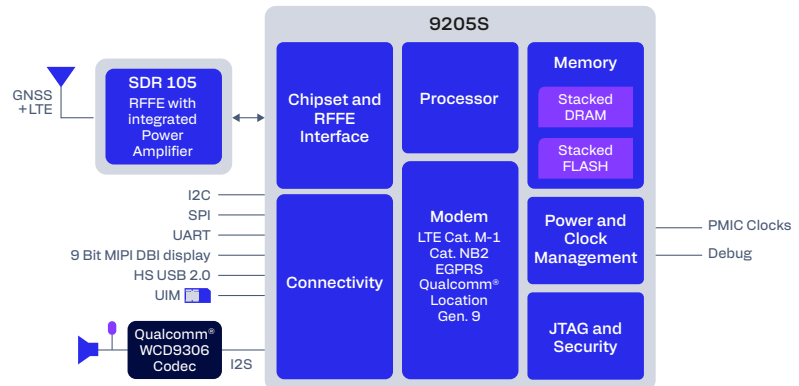
- Seamless shipping container tracking through connectivity between land and waters
- Freight, railway cargo, and fleet management
- Agricultural and farming equipment management
- Mining equipment management
- Real-time monitoring of exotic and farm animal tags

Qualcomm

9205S

Features

- Leverages best-in-class Qualcomm connectivity solutions for seamless coverage between cellular and satellite networks using just one modem
- Satellite connectivity protocol based on 3GPP Release 17 standards (GEO/GSO only) allows for ubiquitous coverage
- Integrated GNSS to provide location for 5G IoT-NTN connectivity
- Low-power wide area (CAT-M/NB-IoT) support with 2G for terrestrial network connectivity and seamless mobility
- Ideally suited for hybrid use case applications that require mobility between terrestrial and satellite networks including asset tracking and real-time monitoring
- Built on the trusted Qualcomm 9205 platform used reliably across a range of IoT applications
- Uses virtually the same physical dimensions as the Qualcomm 9205 for straightforward equipment replacements
- Small 60mm x 60mm reference card provides flexibility to design form factors to address a variety of IoT applications
- Highly capable applications processor and peripheral support to enable different hub type use cases
- 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 GEO/GSO satellite network using the 3GPP Rel.17 5G IoT-NTN protocol globally

Ordering Information

Product	Qualcomm Part Numbers
MDM9205S	MDM9205S-0
PME9205	PME9205-0
SDR105	SDR105-0

To learn more visit: qualcomm.com

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Block Diagram

Specifications

CPU	Clock Speed: Up to 800 MHz Clock Speed (range): < 1 GHz
Cellular Modem-RF	Peak Download Speed: Up to 127 kbps[1], Up to 588 kbps[2] Peak Upload Speed: Up to 1119 kbps[2], Up to 158.5 kbps[1] Cellular Technology: Rel.14 LTE Cat-NB2, Rel.12 EGPRS MSC12, Rel.14 LTE Cat-M1, Rel.17 NB-IoT over NTN[3] Calling Services: LTE Cat-M1 VoLTE over IMS, GSM CS voice
Location	Satellite Systems: GLONASS, Galileo, Beidou, GPS
Network Protocols	Protocols: SSL, IPv4, IPv6, ping, PPP, DTSL, TCP, HTTP, FTP, UDP, OMA Lightweight M2M, CoAP, MQTT
RF	LTE low bands: B85, B5, B8, B18, B19, B12, B13, B17, B14, B27, B28, B26, B20, B71, B31, B72, B73 LTE mid bands: B25, B66, B4, B3, B2, B1, B23, N256, N255 EGPRS bands: B3, B2, B8, B5
Battery Management	Monitoring: Thermal
Power Management	Supply Voltage Range: 2.4 V to 4.8 V
Security	Features: Secure Boot, Qualcomm® Trusted Execution Environment (TEE), Hardware-based Crypto Engine, Secure file system, Secure debug
Software Options	Operating System: ThreadX OS SDKs: LTE IoT SDK
Interfaces	Supported Interfaces: PWM, USB 2.0, SPI5, ADC, HS-UART, GPIO
Universal Serial Bus (USB)	Specification Version: USB 2.0
Operating Temperature Range	Minimum Temperature: -40 °C Maximum Temperature: 85 °C
Contributing Chipsets	Baseband: Qualcomm 9205S Radio Transceiver and Front-End: SDR105[4] Audio Codec: WCD9306[5] Power Management IC (PMIC): PME9205 Battery Charger: SMB231[5]

1. Rel.14 Cat-NB2 2. Rel.14 Cat-M1 3. GEO/GSO only 4. Master only 5. Optional

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