

Quectel RM500U-EA

M.2 5G NR module | Integration, antenna planning and diagnostics

01 / Prepare the host

Use a host designed for this cellular M.2 module, with the correct slot wiring, mounting and thermal arrangement. Check USB/PCIe operating mode and the firmware-specific driver. Match the RM500U-EA regional bands to the operator before installation.

02 / Plan power and RF

Quectel specifies a 3.3-4.4 V module supply, typically 3.7 V. Use the host manufacturer's supply and transient-current requirements. Plan all four cellular RF paths with model-matched micro-coax connectors and suitable antennas. Disconnect power before connecting or changing internal parts.

03 / Install and connect

Fit and secure the module, connect the planned RF leads and install the SIM in the host's associated SIM position. Start the host and confirm that the modem appears on the expected USB or PCIe interface. Set the operator APN and SIM PIN where required.

04 / Confirm the connection

Confirm SIM status, network registration, active radio mode and IP connectivity. Record the firmware version, serving bands, RSRP, RSRQ and SINR where available. Compare antenna positions using the same location, operator and test conditions.

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05 / Diagnose methodically

Start with power and host detection, then SIM/APN, registration, RF quality and routing/DNS. Change one variable at a time. Record the issue time and modem status before restarting. Share the module model, firmware and host configuration with support.

06 / Understand performance

Manufacturer theoretical limits are 2.6 Gbit/s down / 650 Mbit/s up in NSA, 2 Gbit/s down / 1 Gbit/s up in SA, and 600 / 150 Mbit/s in LTE. Real throughput depends on the operator, spectrum, RF conditions, firmware and host path. Use these figures to compare radio capability, then measure your installation.

07 / Maintain the installation

Use firmware supplied for the exact ordering code and revision. Keep the original version details and recovery procedure before an update. Inspect RF connectors and cable strain, maintain cooling, and record stable settings so the installation can be reproduced.

Technical reference

Dimensions: 52 x 30 x 3.75 mm; approximate module weight 9.2 g. Manufacturer references checked: Quectel RM500U series specification V1.4 and Quectel product brochure V8.5 (2026). This is practical store guidance; use the manufacturer hardware-design and firmware documentation for the exact delivered revision.