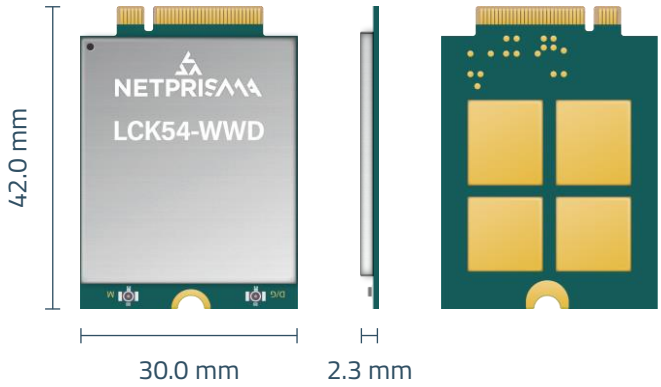
LCK54-WWD

LTE Cat 6
M.2 module



Product features

- LTE-A Cat 6 module in M.2 form factor
- DL 2 carrier aggregation and 64QAM supported
- Worldwide LTE-A and UMTS/ HSPA+ coverage
- Built-in eSIM (optional), DSSS (Dual SIM Single Standby)
- Low power mode
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

LCK54-WWD is an LTE Advanced category 6 module. Adopting 3GPP Release 12 technology, the module supports a theoretical peak data rate of 300 Mbps downlink and a theoretical peak data rate of 50 Mbps uplink.

LCK54-WWD is designed for the global market and covers nearly all of the mainstream carriers worldwide. The module is embedded with a multi-constellation and high-sensitivity GNSS (GPS, GLONASS, BDS, Galileo and QZSS) receiver for positioning. The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows, Linux, Android/optional built-in eSIM) extend the suitability of the module to a wide range of applications such as industrial routers, home gateways, set-top boxes, industrial and consumer laptops, industrial PDAs, rugged tablet PCs, and digital signage.

- 4G — Max. 300 Mbps (DL) Max. 50 Mbps (UL)
- 3G — Max. 40 Mbps (DL) Max. 5.76 Mbps (UL)
- M.2 form factor
- Abundant protocols embedded
- PCIe Gen2 interface
- Multi-constellation GNSS (optional)
- USB 2.0/ 3.0 interface
- Enhanced AT commands

Version: 1.0.0
Status: Preliminary

LCK54-WWD

Mechanical data

Region/operator	Global
Dimensions (mm)	30.0 × 42.0 × 2.3

Temperature range

Operating temperature	-25 °C to +75 °C
Extended temperature	-40 °C to +85 °C

Frequency bands

LTE	**LTE-FDD:** B1/ 2/ 3/ 4/ 5/ 7/ 8/ 12/ 13/ 14/ 17[1]/ 18/ 19/ 20/ 25/ 26/ 28/ 29[2]/ 30/ 32[2]/ 66/ 71 **LTE-TDD:** B34/ 38/ 39/ 40/ 41/ 42/ 43 **LAA:** B46[2] **CBRS:** B48
UTMS	**WCDMA:** B1/ 2/ 3/ 4/ 5/ 6/ 8/ 19
GNSS (optional)	GPS/ GLONASS/ BDS/ Galileo/ QZSS

Data transmission

LTE		Max. 300 Mbps (DL) / Max. 50 Mbps (UL)
UMTS	**DC-HSDPA**	Max. 40 Mbps (DL)
	HSUPA	Max. 5.76 Mbps (UL)
	WCDMA	Max. 384 kbps (DL) / Max. 384 kbps (UL)

Interfaces

(U)SIM (1.8/ 3.0 V)	× 2
USB 2.0/ 3.0	× 1
PCIe (optional)	× 1 (RC mode: PCIe Gen 2, for Wi-Fi, ethernet functions)
PCM*	× 1
Control and indication interfaces*	× 6 (Airplane mode control, GNSS control, wake-up control, RF status indication, dynamic power reduction and self-protection of QLN control.)
Cellular/ WLAN COEX interface*	× 1
Antenna tuner control interfaces*	× 2
Configuration pins	× 4
Antenna interfaces	× 2 (Main, Rx-diversity/ GNSS)

Enhanced features

MIMO: DL 2 × 2	●
(U)SIM card detection & hot-plug detect	●
Built-in eSIM	○
DSSS: Dual SIM, Single Standby	●
DFOTA: Delta Firmware Over-the-Air	●
Embedded GNSS	○

SMS

Point-to-point MO and MT	●
SMS cell broadcast	●
Text and PDU mode	●
3GPP	●
Windows OS SMS push feature	●

Software features

3GPP	3GPP E-UTRA Release 12
AT command	3GPP TS 27.007; Enhanced AT commands
Protocols	QMI/ MBIM/ NITZ/ HTTP/ HTTPS/ FTP/ LwM2M/ PING

Certifications

Carrier	**Europe:** Vodafone/ Deutsche Telekom/ Telefonica/ Swisscom **France:** Orange **America:** Verizon/ AT&T/ T-Mobile **Japan:** NTT DOCOMO/ KDDI/ SoftBank* **Australia:** Telstra **British:** British Telecom
Regulatory	**Global:** GCF **Europe:** CE **North America:** PTCRB **America:** FCC **Canada:** IC **Taiwan, China:** NCC **Japan:** JATE/ TELEC **Australia/New Zealand:** RCM
Others	WHQL

Electrical features

Supply voltage (V)	3.315–4.4, typ. 3.7
Transmitting power (USB mode)	LTE-FDD: Class 3 (23 dBm ±2 dB)
	LTE-TDD: Class 3 (23 dBm ±2 dB)
	WCDMA: Class 3 (23 dBm ±2 dB)
Power consumption (USB mode)	Power down: 0.07 mA
	Sleep: 3.47 mA
	Idle: 38 mA

1: B17 is supported through MFBI + B12.

2: LTE-FDD B29/ B32 and LTE-TDD B46 support Rx only and are only for secondary component carrier.

* : Under development/planning.

●: Supported; ○: Optional.