

## LTE Modem Module

The CSG300 series LTE modem module is a high-performance Cat-6 LTE Advanced (LTE-A) modem that provides download speeds up to 300 Mbps and upload speeds up to 50 Mbps. The LTE modem supports multiple carriers, and it has been certified by major global carriers. The appliance has two externally accessible SIM card slots, one for each embedded LTE-A modem. If the appliance is configured with two LTE-A modems, each SIM card controls one LTE radio. The appliance also has one USB slot that can be connected to an LTE dongle. With two internal modems and one USB-attached modem, you can deploy up to three simultaneous LTE WAN connections.

The LTE firmware-driven modem module provides the following capabilities:

- Externally accessible SIM cards that support dual-LTE modems.
- Connects to most global carriers' network depending on the SIM card inserted. For example, if the SIM card inserted is from Carrier A, the modem autodetects the SIM card and connects to Carrier A's network.
- Global navigation satellite system (GNSS) receiver enables tracking and location-based services.
- Stores up to three firmware versions, thereby allowing the modem to switch to other networks.
- Firmware can be upgraded over the air.
- Secure boot provides secure connectivity by preventing unauthorized code on target devices.

The LTE modem connections are metered connections, and the Versa software implementation ensures that the LTE service is charged only when needed. Policies and scenarios that determine the use of LTE interfaces are set by network operators and implemented by Versa Operating System™ (VOS™) devices accordingly.

Table 1 lists the supported LTE specifications.

**Table 1: LTE Specifications**

| Specification                 | APAC Modem                                    | Americas and EMEA Modem                           |
|-------------------------------|---|---|
| Peak download/upload rate     | 300/50 Mbps                                   | 300/50 Mbps                                       |
| Frequency bands 4G LTE        | 1, 3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, 41 | 1 through 5, 7, 8, 12, 13, 20, 25, 26, 29, 30, 41 |
| Frequency bands 3G WCDMA      | 1, 5, 6, 8, 9, 19                             | 1, 2, 3, 4, 5, 8                                  |
| Supported carrier aggregation | 1 + (8, 18, 19, 21), 3 + (5, 7, 19, 28),      | 1 + 8, 2 + (2, 5, 12, 13, 29), 3 + (7,            |

| Specification      | APAC Modem   | Americas and EMEA Modem   |
|--------------------|--|---|
|                    | 7 + (5, 7, 28), 19 + 21, 38 + 38, 39 + 39, 40 + 40, 41 + 41  | 20), 4 + (4, 5, 12, 13, 29), 7 + (7, 20), 12 +30, 5 + 30, 41 + 41         |
| Approvals          | CE, GCF, JRF/JPA, KC, NCC                                    | CE, FCC, GCF, IC, NCC, PTCRB  |
| Certified Carriers | KDDI, NTT Docomo, Softbank, Telstra                          | Anatel, AT&T, Bell, Rogers, Sprint, Telus, Verizon, Vodafone, US Cellular |
| Location Solution  | Standalone, Xtra, SUPL 1.0 and 2.0, GLONASS, Galileo, BeiDou | Standalone, Xtra, SUPL 1.0 and 2.0, GLONASS, Galileo, BeiDou              |

You can order CSG300 series appliances with an optional LTE modem module. The LTE modem modules have either one SIM slot or two SIM slots. For modules with one SIM slot, you insert the SIM card into the SIM1 slot, which is on the back of the appliance. For modules with two SIM slots, you insert a SIM card into each of the two SIM slots, which are labeled SIM1 and SIM2.

Note: If the appliance has two SIM card slots, use SIM slot 1 and vni-0/100 port for bootstrapping when you upgrade the software to a later version.

If the appliance is powered off when you insert the SIM card or cards, the LTE functionality is activated when you boot the appliance. If you insert the SIM card or cards into the LTE modem module when the appliance is powered on and operational, you must reboot the appliance to restart the LTE modem and LTE functionality. To do this, you must power off the appliance, unplug the power cable, plug the power cable back in, and press the power button. Simply powering the appliance on and off does not restart the LTE modem. Also, pressing the reset button on the appliance or rebooting the appliance from Versa Director does not restart the LTE modem.