

## LTE Cat M1/NB1 Modem (Type 1SC)

# Ultra-small cellular modem

## Smallest, highly integrated cellular modem

Modem features low and mid bands, low current consumption (eDRX and PSM), and long battery life (10+ years), which is ideally suited for small, battery operated IoT devices and applications.



### Features

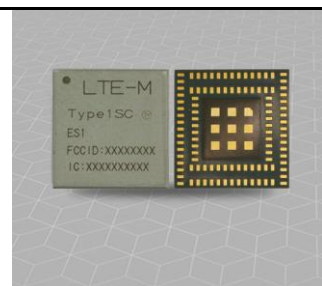
- LTE Cat M1 - 23 dBm
- NB-IoT (NB1) Rel. 13 (Rel. 14 – SW Upgrade)
- GNSS
- VoLTE
- Dimension: 11.1 x 11.4 x 1.4 mm (typ), 1.5 mm (max)
- Package: LGA
- Antenna configurations: external
- 3GPP eDRX and PSM modes
- Power Consumption: enables up to 10 year battery life
  - Hibernation current: 3 uA
  - eDRX current: <25 uA @ 8 hyperframes
  - PSM current: dormant window configurable
- Modem features global coverage in low and mid bands, low current consumption (eDRX and PSM), and long battery life (10 + years), which is ideally suited for small, battery operated IoT devices and applications
- Operating temperature range: -40 °C to 85 °C
- OTA firmware upgrade
- Global Carrier Certifications: GCF and PTCRB

### Applications & Benefits

- Smallest/Highly integrated LTE Cat M1/NB1 modem available in the market (~21% less square area than nearest competitor)
  - Ideally suited for miniaturized battery operated devices, such as wearables and tracking applications
  - Low current consumption that can provide up to a 10 year battery
  - eSIM included in certification
- Multi-band (low and mid-band) support that covers approximately the globe
- Dual mode (LTE Cat M1/NB-IoT)
- Provides options within a single modem that allows end customers flexibility of switching between modes globally, especially for those carriers planning to support both modes

### Specification

<b>Part Number</b>	<b>LBAD0XX1SC</b>
<b>Connectivity</b>	3GPP Release 13/Optimized for LTE Class 3 output power (+23 dBm)
<b>Universal LTE (LB &amp; MB)</b>	Low-band: B5/B8/B12/B13/B14/B17/B18/B19/B20/B26/B28 Mid-band: B1/B2/B3/B4/B25
<b>GNSS</b>	GPS and Glonass
<b>Voltage Input</b>	3.3V
<b>Antenna</b>	Off board multi-band antenna
<b>Dimensions</b>	11.1 mm x 11.4 mm x 1.4mm
<b>Operating Temp</b>	-40° to 85° C



## LTE Cat M1/NB1 End Device (Type 1SE)

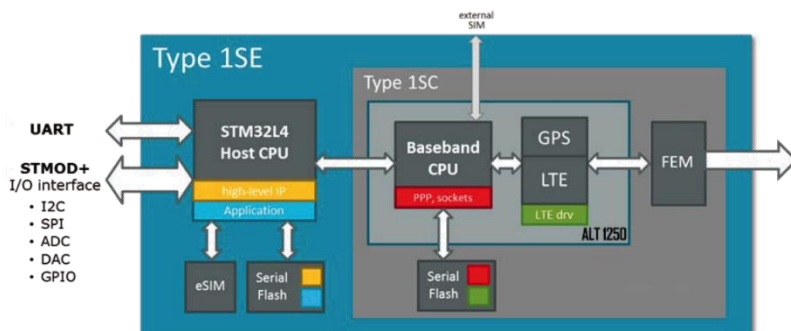
# Ultra-small cellular end device

## Smallest, highly integrated cellular end device

*Certified End Device with antenna connection for ease of integration with several different types of applications.*

### Features

- LTE Cat M1 - 23 dBm
- NB-IoT (NB1) Rel. 13 (Rel. 14 - SW Upgrade)
- STM32L462RE/Cortex M4 w/512KB Flash and 160 KB SRAM
- 1MB on-board Serial Flash
- GNSS
- VoLTE
- Dimension: 15.4 x 18.0 x 2.5mm (max)
- Package: LGA
- SIM card: internal eSIM (WLCSP)
- Antenna configurations: U.FL antenna connection
- 3GPP eDRX and PSM modes
- Power Consumption: enables up to 10 year battery life
  - Hibernation current: 3 uA
  - eDRX current: <35 uA@ 8 hyperframes
  - PSM current: dormant window configurable
- Operating temperature range: -40 °C to 85 °C
- OTA firmware upgrade
- Global Certifications: GCF and PTCRB



### Applications & Benefits

- Certified as a host device for ease of integration with several different types of applications
  - Quicker time to market (no additional carrier or regulatory certification)
  - Less development time and costs for developer/device manufacturer in need of LTE Cat M1/NB-IoT connectivity
  - eSIM included in certification
- Build/Develop applications with the use of ST's vast set of software modules
- Availability of ST's Community and Development Forums
- Secure boot architecture and a robust hardware-based security framework

In Partnership with



### Specification

Part Number	LBAD0ZZ1SE
Connectivity	3GPP Release 13/Optimized for LTE Class 3 output power (+23 dBm)
Universal LTE (LB & MB)	Low-band: B5/B8/B12/B13/B14/B17/B18/B19/B20/B26/B28 Mid-band: B1/B2/B3/B4/B25
GNSS	GPS and Glonass
Voltage Input	3.3V
Antenna	Off board multi-band antenna
Dimensions	15.4 mm x 18.0 mm x 2.5mm(max)
Peripheral I/F	ADC, GPIOs, I2C, I2S, JTAG, PWM, SPI, UART
Operating Temp	-40° to 85° C

