



Mobile-network-based location service

Best-in-class mobile network-based location service

- Position available in areas where GNSS signals are poor or absent
- Data delivered where you need it: to the cloud enterprise
- Globally available and backed by our warranty and support
- Embedded in u-blox 2G, 3G, LPWA and LTE Cat-1 modules
- Solution works independently of network operators

The challenges of stand-alone GNSS

Although it is a widespread and very effective technology, Global Navigation Satellite System (GNSS) positioning is not always possible, particularly in challenging signal environments such as urban canyons, indoors, parking garages, or when GNSS jamming signals are present.

On the other hand, network cells are widely available in urban and rural environments. For any given location with cellular network coverage (2G, 3G or 4G), a specific combination

of network cells will be visible. u-blox CellLocate® takes advantage of that visibility by allowing u-blox GSM/GPRS, HSPA/UMTS, and LTE cellular modules to report those surrounding cells at any specific location, together with previous observations from other IoT devices reporting the same visibility pattern. In this way, a mobile network-based location service provides position information even in areas where GNSS signals are poor or entirely absent.

CellLocate mobile network-based location service

CellLocate offers a best-in-class mobile network-based location service. Years of a strong historical track record include billions of location data packages provided to IoT devices all over the globe for several thousand active customers. This end-to-end solution is proven, scalable, and ready to virtually eliminate any "no position" scenario.

Data delivered where you need it, to the cloud enterprise

CellLocate includes the capability to report back location information to the IoT device for use locally by the host application. For the vast portion of constrained IoT device applications, location data is not needed locally on the device itself, but instead by a cloud service. Therein lies the power of CellLocate's location data delivery to the cloud enterprise. Positioning in the cloud extends the life of energy-constrained IoT applications and can be leveraged to reliably customize your enterprise solutions and extend market reach to a broad range of end-customers in regions all over the globe.

Assured service availability

CellLocate and all u-blox services are delivered by the Thingstream IoT service delivery platform. Thingstream is a cloud-based delivery platform and administration interface for enterprise IoT services. The Thingstream platform comprises IoT connectivity, location, security, enterprise-grade MQTT broker, visual programming, simple enterprise integration, and support.

We stand behind our services with the highest levels of availability and delivery quality by providing full warranty, support, and with premium service levels available and

tailored to suite your specific needs. The technology building blocks are developed in-house, where we have full ownership without the external dependencies that can be barriers to responsiveness.

Embedded in u-blox 2G, 3G, LPWA and LTE Cat-1 modules

CellLocate is fully integrated into u-blox GSM/GPRS, HSPA/UMTS, LTE-M, and LTE Cat 1 cellular modules and works in parallel to normal module functionality. The technology enables stand-alone location data based on surrounding mobile network information as well as hybrid technology that works in conjunction with GNSS. Through the single AT command interface, it is possible to define all the location settings for optimized performance.

Solution works independent of network operators

It is a clever strategy to take advantage of the location attributes available via mobile networks to overcome the challenges of poor or absent GNSS, but this should not create vulnerable dependencies on the network operators themselves. Cellular networks evolve continuously, with changes made by network operators during network maintenance, to add capacity, spectrum, and even evolutionary advancements to infrastructure. Despite this, CellLocate delivers best-in-class performance by leveraging location attributes belonging to both the serving cell network and the cells of other network operators, working equally well in both cases. This provides a robustness against network changes, as well as multiplicity in the number of cells observed.



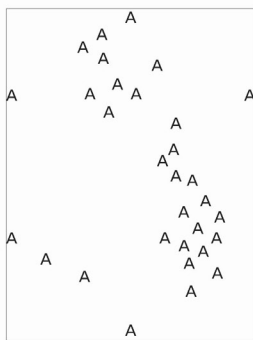
Features / details

Supported network technologies	GSM/GPRS UMTS/HSPA LTE-M and NB-IoT LTE Cat 1
GNSS aiding settings	Stand-alone AssistNow Online and Offline
Data size ¹	Uplink: 100 – 200 bytes Downlink (position only): 150 bytes Downlink (including GNSS aiding data): 1 – 3 kB

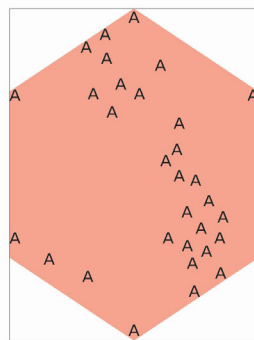
1: Data size depends on the number of visible cells and user selected GNSS aiding data

u-blox products supporting CellLocate

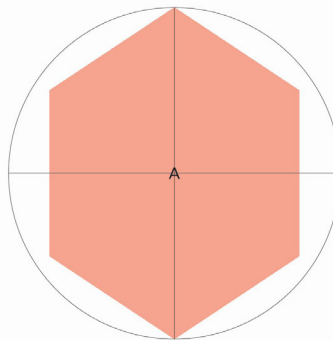
ALEX-R5 series LTE-M/NB-IoT cellular SiP modules
SARA-R5 series multi-band LTE-M/NB-IoT cellular modules
SARA-R4 series LTE-M/NB-IoT/EGPRS cellular modules
LARA-R2 series LTE Cat 1 cellular modules
TOBY-R2 series LTE Cat 1 cellular modules
SARA-U2 series UMTS/HSPA cellular modules
LISA-U2 series UMTS/HSPA cellular modules
SARA-G4 series GSM/GPRS cellular modules
SARA-G3 series GSM/GPRS cellular modules



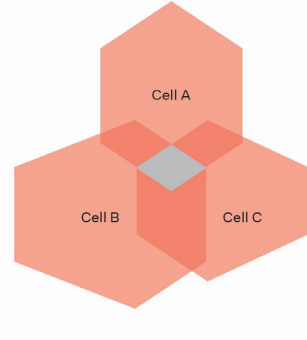
Historic observations of cell A are reported by several devices to CellLocate.



These define an area of cell visibility.



New device observes cell A, position is estimated from the previous observations.



Visibility of multiple cells provides even better coverage and accuracy.

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the [product data sheet](#).

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