

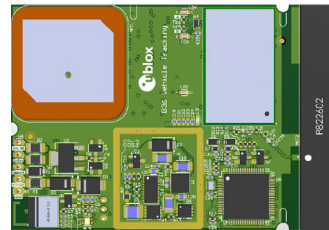
## Product summary

# B36 vehicle tracking blueprint

## Vehicle tracking board with u-blox cellular, positioning, and short range modules

### Highlights

- Small size, so it can easily be placed out of view in a vehicle
- Designed for worldwide LTE and/or 2G coverage
- Reference for combined integration of u-blox cellular, positioning, and short range modules
- Addresses the RF and hardware challenges related to the integration of on-board antennas
- Fulfills AT&T requirements for small IoT devices
- The blueprint uses all "off the shelf" components



70 × 50 mm

### Product description

The B36 blueprint is a solution that integrates u-blox technologies (cellular, positioning and short range) in a single board with PCB-mount antennas. The B36 board represents a tested and optimized design for vehicle tracking, in a small form factor.

All variants include the short range module ANNA-B112, which supports Bluetooth® 5 low energy.

All variants support concurrent reception of GPS, GLONASS, BeiDou, QZSS, SBAS and Galileo systems. Two variants also support untethered dead reckoning.

There are two cellular options, both designed to operate globally. The G450-1 and G450-2 variants are 2G-only quad band GSM/GPRS devices. The R412-1 and R412-2 variants provide LTE Cat M1/NB1 and eGPRS technologies.

Blueprint B36 is designed to meet the RF requirements imposed by the main North American and European certification schemes. To verify the performance, parameters like Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS) have been tested in a fully anechoic chamber.

### Product challenge

Blueprint B36 is an integrated device with coexisting GNSS, cellular and Bluetooth Low Energy technologies. The coexistence of GNSS and cellular is not to be neglected, and can be challenging if not considered from the beginning. In the scope of the B36, schematic and layout have been optimized to obtain the best performance and be compliant with North America and European certification.

### Data package includes

|                  |                                                                   |
|------------------|-------------------------------------------------------------------|
| Application note | Describes the features and performance of the B36 blueprint board |
| Schematics       | Complete circuit schematics                                       |
| Gerber files     | Contains Gerber data                                              |
| Demo firmware    | Necessary firmware and its source code                            |

### Design details

|                  |                                                            |
|------------------|------------------------------------------------------------|
| Power supply     | Typical 12 V or 24 V extended to 9 V to 36 V               |
| Battery          | Li-Po battery connector with built-in charger is available |
| JTAG connector   | Used to program the micro-controller                       |
| Many test points | For independent evaluation of each key function            |

### Product variants

All variants have the same application board and software.

|            |                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------|
| B36-G450-1 | Featuring cellular module SARA-G450, short range module ANNA-B112, and positioning module EVA-M8Q |
| B36-G450-2 | Featuring cellular module SARA-G450, short range module ANNA-B112, and positioning module EVA-M8E |
| B36-R412-1 | Featuring cellular module SARA-R412, short range module ANNA-B112, and positioning module EVA-M8Q |
| B36-R412-2 | Featuring cellular module SARA-R412, short range module ANNA-B112, and positioning module EVA-M8E |

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