# ST87M01 WITH VIRTUAL ANTENNA® COMBO

## For superior, turnkey NB-IoT & GNSS connectivity



**Enhance your market IoT designs with the ST87M01 NB-IoT & GNSS module and Ignion's Virtual Antenna® technology**

STMicroelectronics and Ignion have joined forces to deliver an unparalleled NB-IoT and GNSS solution for IoT and asset tracking applications. Combining the ultracompact, low-power ST87M01 NB-IoT & GNSS module with Ignion's advanced **Virtual Antenna® technology**, designers can create robust, efficient, and effective IoT applications.

### KEY BENEFITS

- Seamless integration of ST87M01 NB-IoT & GNSS module and **Ignion's Virtual Antenna®**
- ST87M01 module features:
  - Ultracompact (10.6 x 12.8 mm)
  - LTE Category NB2 (Release 15)
  - Industrial grade: (-40 to +85 °C)
  - Up to 23 dBm output power
  - Power saving modes <1.8 µA
  - Optional GNSS
  - Optional ST4SIM eSIM
- Ignion **Virtual Antenna® allows** 10x smaller antenna solutions
- Enhanced performances with optimized board connectivity
- Reduced development time

### KEY APPLICATIONS

- Smart metering
- Asset tracking and smart logistics
- Smart agriculture and environmental monitoring
- Smart lighting, smart parking, and smart city
- Condition monitoring and predictive maintenance
- Livestock and pet monitoring
- Alarms and remote healthcare

STMicroelectronics and Ignion are collaborating to provide a compact, **high performance, and easy-to-implement** solution for customers who are considering using chip antennas in their NB-IoT (and optionally GNSS) enabled devices.

The **ST87M01** module is an ultralow power, certified NB-IoT and GNSS module series, featuring multiband data transmission and geolocation, with full ecosystem support. The ultracompact module form factor (51-pin, in 10.6 x 12.8 mm LGA package) is a key feature of the ST87M01 in size-critical IoT applications. The ST87M01 is also able to provide long range coverage, while ensuring low power operation modes, including OTA firmware upgrade capability, and integrated internet protocols. Every ST87M01 module is fully tested and traced according to stringent ST reliability and quality practices to ensure industrial grade qualification and reliability for long-term field use and for customers needing more than 15-years product longevity.

**Ignion's Virtual Antenna® technology** delivers full performance in a 10x smaller footprint, supporting all communication standards from 400 to 10,600 MHz, offering plug & play integration with global connectivity and superior antenna performance with a nonresonant radiator and tunable matching network, optimizing RF design for maximum efficiency.

## Why combine Ignion's Virtual Antenna® solution with ST87M01?

**Comprehensive coverage**
Ignion's chip antennas like the **TRIO** mXTEND™ support a wide frequency range from **700 to 8000 MHz**, allowing seamless connectivity across multiple communication standards, making them ideal for the ST87M01 module, which supports the NB-IoT and GNSS protocols.

**Accelerated design process**
Ignion's antenna integration design platform, OXION™, provides design simulations on custom board layouts based on the ST87M01 module to reduce design time and costs. This allows engineers to optimize the antenna setup without needing specialized RF expertise, and helps accelerate time to market

**Cost-effective and scalable**
Ignion's off-the-shelf chip antennas provide a lower-cost alternative to external antennas, while allowing simplified pick-and-place production techniques, which also enhances reliability.
Leveraging on the synergy between the ST87M01 turnkey connectivity module and Ignion's cutting-edge **Virtual Antenna® technology**, developers can deliver innovative, high-performance IoT solutions while minimizing design complexity and costs.

## ST87M01 building blocks and Ignion's Virtual antenna
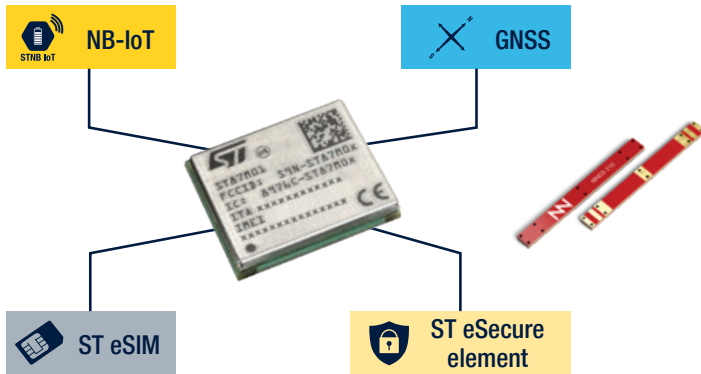


## ST87M01 board designed with Ignion's solutions
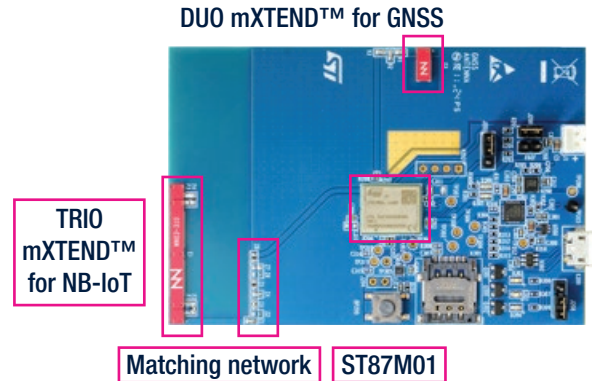


## ST87M01 product table

| Order code | Description | Note |
|---|---|---|
| ST87M01-1000 | NB-IoT only module | Product baseline |
| ST87M01-11xx | NB-IoT & GNSS module | Product baseline + GNSS option |
| EVKITST87M01-1 | Hardware development kit | Complete development kit |

Note: refer to the product datasheet for complete descriptions and product options