

# Wireless performance that holds beyond the reference design



## ST87M01 + Ignion Virtual Antenna® technology

Your next NB-IoT design will not look like the reference board. Your prototype on **STDES-ST87M01IGN** performs well in the lab.

Then you shrink the PCB, change the enclosure, move a connector – and RF performance changes.

For compact, battery powered NB-IoT and GNSS devices, you need a way to:

- Keep antenna efficiency and TRP within target when the board changes
- Reuse one antenna Bill of Materials across products and bands
- Avoid “RF surprises” late in the project or during certification

This is exactly what the first session in our **ST87M01** webinar series addressed.

### You need RF rules you can trust

With ST87M01 and Ignion Virtual Antenna® technology, you get:

- A proven NB-IoT + GNSS reference design you can start from
- Simple, repeatable layout rules for placement, ground, clearance and matching
- A practical checklist you can apply to your own PCB before you send it to the lab collaboration

**The  
result**

### If you apply what you learned in this session:

- You reduce the risk of RF regressions when you move off the reference design
- You save spins by catching layout issues before fabrication
- You arrive at S11, TRP and efficiency targets faster, with fewer surprises in certification

## How it works – in three steps:

### STEP 1

#### Start from a known good RF platform

Use STDES-ST87M01IGN as your baseline:

ST87M01-1301 module with TRIO and DUO mXTEND antennas, 50-ohm CPWG routing and validated matching networks for key NB-IoT bands and GNSS.

### STEP 2

#### Apply the layout and integration rule

Follow the design rules from the webinar:

- Large continuous ground with via stitching
- 50-ohm CPWG RF traces with no sharp corners or breaks
- Defined clearance and keep-out areas around each antenna, mirrored on the bottom layer
- Matching networks placed close to the antenna feed and tuned to your bands

### STEP 3

#### Use the checklist and measurements to validate

Before you commit:

- Confirm keep-out and ground quality on the real PCB and enclosure
- Measure at least S11 and TRP on a few samples and check board-to-board variation
- Verify that your chosen NB-IoT bands and certification targets are covered by the matching network solution

## What is next

In the next session of the NB-IoT webinar series, we move from RF to connectivity and lifecycle using ST87M01, EVKITST87M01-2 and Wireless Logic's Conexa Low Power SIM. We will cover the path from first data to a managed fleet, including power modes, KPIs and Remote SIM Provisioning.

You are already on the right RF foundation. Now you can build an NB-IoT product that stays reliable from the first board all the way to large scale deployment.

Join the upcoming session on April 2<sup>nd</sup>, to learn how to turn your ST87M01 design into a connected fleet with full lifecycle visibility.

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