



CASE STUDY /

## Ansys + LAB-ID

“LAB-ID has been investing in numerical simulation solutions since 2012 with the aim of improving design and performance, optimizing times and costs, and responding more efficiently and effectively to customer needs. For this reason, we have chosen the Ansys HFSS solution, which is a benchmark in high-frequency electromagnetic field simulation.”

**Pasquale Dottorato**

R&D Manager / LAB-ID, Bologna, Italy

## RFID and IoT innovation is simpler and faster with Ansys HFSS

Over the years, the world of radio frequency identification (RFID) has changed rapidly, moving away from exclusively B2B applications toward consumers and the Internet of Things. This shift requires that the sensors involved become optimally integrated with the environment and devices. With intense price competition in the market, LAB-ID is focusing more on tailoring solutions to meet a customer's complex needs and maximizing quality. Ansys engineering simulation solutions have enabled the company to meet these needs while dramatically reducing design times and time to market.

### / Challenges

RFID technology must take into account a number of variables relating to the entire chip-antenna-reader system and the surrounding environment. Engineers must consider physical aspects — shape, materials and dimensions — as well as the electrical and electromagnetic properties linked to the frequencies that define power levels and usable channels specified by European standards.

Furthermore, every application sector — from fashion to food, logistics to IoT — requires specific solutions to adapt to dynamic and ever-evolving environments. To be competitive, LAB-ID had to accelerate innovation, switching from traditional processes based on physical prototyping to the broader design spaces available through virtual prototyping and simulation.

### / Technology Used

Ansys HFSS

### / Engineering Solution

LAB-ID used Ansys HFSS to meet their RFID engineering challenges in a variety of innovative situations:

- source simulation.
- implementation of chip models.
- electromagnetic simulations.
- electric simulations.
- environmental simulations.
- application simulations.
- optimization and dimensioning.

Simulation soon evolved to become a fundamental aspect of the company's design process. Combining the power of Ansys simulation software with the knowledge of experienced RFID engineers greatly increases the number of designs that can be evaluated, and ensures that the optimal solution will be achieved every time.



## / Benefits

Ansys HFSS has completely revolutionized the LAB-ID R&D department. Where previously one person was permanently devoted to performing physical prototyping, simulation has eliminated physical prototyping in favor of prototype verification tools such as network analyzers and spectrum or RFID-specific integrated detection analyzers like the Voyantic.

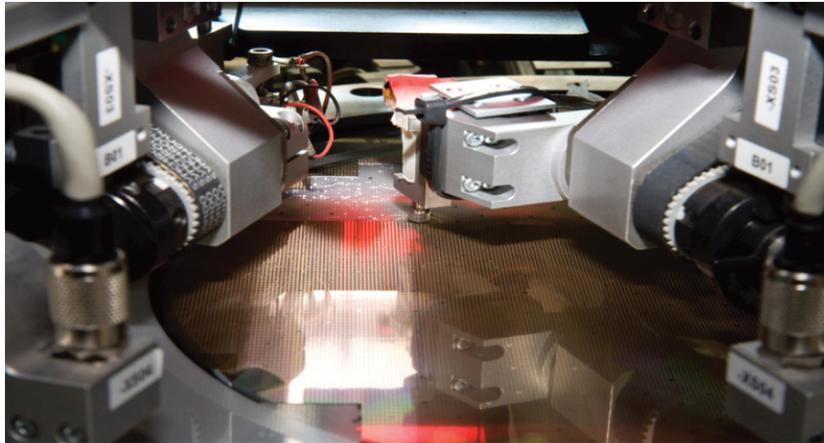
The path from ideation to creation is now extremely efficient, so the company can meet ongoing market demands more quickly. Most importantly, Ansys simulation solutions have enabled LAB-ID to establish a constructive and proactive partnership with its customers, offering cutting-edge solutions, anticipating potential demands and seizing new opportunities. In summary, simulation has resulted in:

- 50% reduction in production times.
- significant cost savings.
- redistribution of internal resources.
- faster response to market demands.

## / Company Description

LAB-ID is a leading manufacturer of RFID products and solutions.

Founded in 2002 and headquartered in Bologna, Italy, the company develops RFID systems based on two frequencies of reference: the UHF 860/960 MHz frequency used mainly in the logistics, fashion, pharmaceutical and food industries, and the HF 13.56 MHz (NFC) frequency used in ticketing, payment, security, identification and loyalty systems. In 2016, the company had a turnover of nearly 12 million euros (a 30% increase over the previous year). LAB ID has manufacturing capacity of 250M tags / year.



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