

CASE STUDY | TIRE TRACKING

The quality of a car tire is an essential safety aspect of any car or truck. An optimal grip on the road in all weather conditions, but also the correct mounting of all four (or more) wheels on the vehicle guarantees the safety of the driver and occupants. One of the reasons that many car tire manufacturers, in cooperation with the OEM automobile manufacturers, monitor the quality of their tires in the entire production cycle. RFID transponders are predestined for this purpose.



SMART CAR TIRES WITH RFID FOR GREATER SAFETY WHEN DRIVING

> INDUSTRY

Automotive OEM, tire suppliers, automotive after-sales market

About the Use Case | RFID delivers data:

- For automobile manufacturers (OEM)
- Tire manufacturers
- Aftersales Player

Key Benefits

- No incorrect mounting
- Increased driving safety
- Track&Trace tires over the life cycle

> KATHREIN PRODUCTS

- RAIN RFID readers ARU 2400
- RAIN RFID WRA 6060 antennas
- RAIN RFID SmartShelf antennas

> PARTNER BENEFITS

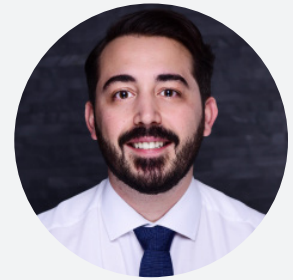
Growing need for automatic identification of tires over the entire life cycle and use of the obtained data for quality assurance purposes

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With this extremely well thought-out use case, the tire industry shows that consistent RFID use leads to benefits for every participant in the supply chain. From manufacturing to the end user, each tire can be transparently tracked without additional manual effort.”

Salih Kaplan, Kathrein Solutions GmbH



The “posted” tires for mounting

The variety of tire products is enormous. They differ in size, profile, type of use, hardness and quality of the raw materials, and many other properties. Monitoring of the various models is an essential element of quality assurance not only for tire manufacturers, but also for automobile manufacturers. Finally, the right tires for mounting on the new vehicle must be brought precisely to the intended vehicle during production. Whenever possible, incorrect mounting should be proactively detected automatically and thereby avoided. At the same time, incorrect routing of the items to be mounted and the time-consuming, expensive search for the correct materials must be prevented.

More than just Track & Trace

Of course, the primary benefit is the real-time monitoring of the tires by RFID transponders. However, OEMs and tire manufacturers now see even greater potential in the use of RFID as a data carrier.

Even if the transponder delivers valuable data during the production and subsequent mounting process, this benefits downstream value creation stages as well. Long after the vehicle has already “rolled” off the conveyor belt. The transponder data is also relevant for the delivery process to the end user, and for subsequent maintenance, warranty and recycling, i.e., also for dealers. In this way, the entire tire life cycle can be mapped and valuable data obtained over a longer period of time.

Always in motion - challenges in reading RFIDs

The position of the transponder in the tire changes when the wheel rotates during the mounting process. This can present a challenge for process of reading the RFID transponder, which is embedded in the rubber of the tire. However, if you take two to four RFID antennas attached at the correct angle and use them to read the transponder in any tire position while it is being mounted on the vehicle and rotating on the assembly line, all data can be captured securely in seconds.

Who benefits: OEM, Suppliers, Aftersales Market

Of course, the big OEMs have an interest in tracking all four tires per vehicle. In the new car market, RFID tire tracking is establishing itself as an additional method of quality assurance. But tracking is also helpful for controlling the logistics processes. In after-sales management, e.g., at spare parts or tire dealers, the transponder's RFID data can be read with an MDE device in order to uniquely identify the article. All processes, from development through tire production to recycling, should be traceable and transparent. Of course, the Track&Trace client primarily serves to promote driving safety and the high quality standards of the tire brand.

Make use of the new transparency together

Even if each of the players currently benefit individually from the data obtained, it is already evident that the highly networked market will utilize data in development partnerships through cooperation among the players involved. The data obtained by RFID-RAIN technology help to acquire an overview of the tire over its entire service life and thus enable its targeted improvement.

KATHREIN ARU 2400 with SMSH or WRA 6060

RFID reading points with the ARU 2400 reader in combination with the KATHREIN SmartShelf antenna unit or WRA 6060 antennas are well-suited to the automotive manufacturers' production lines. Using this setup, all transponders installed in the tires can be reliably read during the production process even if the tires are already mounted on the vehicle. These KATHREIN readers and antennas are specialized for high-performance detection at short distances, but can also detect transponders at long range, depending on the selected KATHREIN RFID components. This can be done very selectively, so that only those transponders are detected which are actually supposed to be read. In this way, high data or acquisition quality is ensured. The recorded tire data is delivered by the reader to the corresponding software systems and made visually accessible to employees directly on the production line.