RFID COMMUNITY CONNECT
May 19 - 20

How Embeddable RFID is Transforming Tire Traceability, Maintenance, and Circularity

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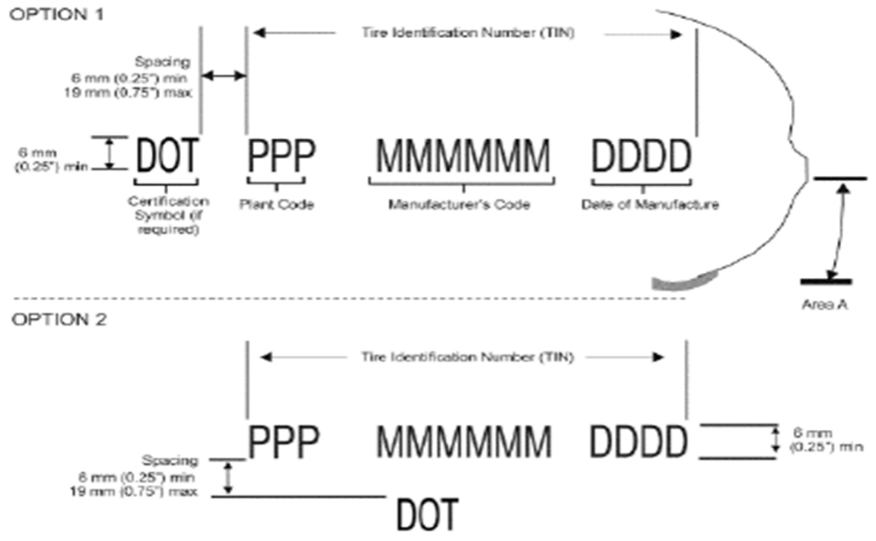
RFID Tyre Tagging History

When the market was approached about **RFID in tires**, there was just one need: **Traceability.**

- **1990s Recall**
  This infamous recall had many tyre companies prioritizing the accuracy of their lot traceability.
- **Change of standard**
  DOT tire identification numbers were the standard, but soon realized they were not the answer



Source: https://www.ecfr.gov/current/title-49/subtitle-B/chapter-V/part-574

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RFID Tyre Tagging in Racing

"While traceability and the need for **establishing a pedigree for tyres and tyre quality**, several of the first real-world applications of our embeddable tyre tags were in the racing world."

Managing Inventory

- In any given race weekend, hundreds or thousands of tyres are provided to teams to use (race, practice, etc)
- RFID enables verification that the same tyres issued to the team are returned after the race
- Altering the tyre by mechanical or chemical means is not permitted

Monitoring tyre choices

- Tracks which tyres are being used at any given time. Not only for the team but also for race control, the competitors, etc.
- For the spectators, tyre choices can be displayed on screens at the track or during the broadcast (experience enrichment)

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From TBR and OTR towards PCR

“Tagging retreadable tyres made sense from day one.”

TBR & OTR

- Commercial tyres are stripped of their worn-down treads. The tyre casing is then retreaded, allowing for continued use. An RFID chip embedded in the tyre casing enables automated tracking of how many times it has been retread
- RFID enables better tracking of tyres for large volume users such as commercial truck and bus fleets
- Allows for data gathered regarding tyre use to be assigned to a unique identifier

PCR

- Tyre distribution optimization
- OEM use

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RFID. An (im)proved identification alternative.

Over 20 years of development have gone into optimizing the RFID tag for the **demanding environment of** tyre vulcanization and **on-road use**

- Testing has concluded that the tag has **no detrimental effect on the tire**
- Importantly, the tag **outlives the tire's lifecycle,** allowing traceability into the recycling process
- As the RFID is integrated inside the tire, it is **a permanent and non-removable identifier,** unlike exterior solutions such as barcodes or serial numbers

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Benefits

RFID is the trusted data carrier to enable the EU's Digital Product Passport, offering proven lifecycle traceability for tyre recycling.

It empowers smarter, more durable tyre management across the ecosystem while optimizing manufacturing and logistics—unlocking efficiency, sustainability, and full circularity from production to end-of-life.

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Use Cases

SMART MANUFACTURING

"RFID enables us to fulfil mandatory **safety checks** during the wheel mounting process."

European Car Manufacturer

COUNTERFITTING

"In addition to the user safety aspect, counterfeit tyres […] can also cause damage to the environment […] do not comply with protection standards."

EUIPO Report

ANTI-THEFT

"You would **be surprised** about what people do with rental cars, including changing tires."

Manager, Global Car Rental company

AFTER SALES SUPPORT

"RFID tire tagging will transform our service operations. It saves us time and eliminates errors. We will be able to track every tire from cradle to grave, **support warranty claims** faster, and ensure no tire is missed during recalls."

Service Manager

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GDSO Global Footprint

Global Data Service Organisation
for Tyres and Automotive Components (GDSO)
is an International Non-Profit Association
Established in Belgium in January 2022

- Standardizing data related to tyres;
- Defining on-line solutions to access and exchange data;
- Open to all tyre manufacturers and tyre data stakeholders;
- Promoting the use of the solutions to external stakeholders;
- Representing GDSO Members to external bodies/organisations.

2026 MEMBERSHIPS

13 MEMBERS

Bridgestone, Continental, Giti, Goodyear, Hankook driving emotion, Kumho Tire, Michelin, Nexen Tire we got you, Pirelli, Prometeon, Sumitomo Rubber Industries, Toyo Tires, Yokohama

7 ASSOCIATES:

ETRTO European Tyre & Rim Technical Organisation, JATMA, KOTMA Korea Tire Manufacturers Association, Tire and Rubber Association of Canada, Tyres Europe, U.S. Tire Manufacturers Association

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A clear why

- Enables cradle-to-grave traceability to **comply with EU regulations** (Digital Product Passport)
- **Optimizes tyre manufacturing** and logistics, **reducing costs**
- **Enables** the **tyre ecosystem** for better tyre tracking/automation
- Improves road **safety**

- **Reduces waste, improves recyclability** 🌱

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RAIN Alliance Tyre Workgroup

Source: https://therainalliance.org/tyres-workgroup/

TECHNICAL	Inspire and facilitate the implementation of compelling solutions using RAIN technology. Identify, develop, and publish materials that leverage the collective experience of workgroup members to the advantage of existing and new RAIN technology users.
SUSTAINABILITY	Identify, develop, and publish materials that relate to the issues surrounding sustainability and the use of RAIN RFID.
MARKETING	Identify areas to increase RAIN's marketing and create and finalize projects to enable this.
TYRES	Develop, and publish materials related to the use of RAIN RFID in tyres.
APPLICATION IDENTITY	Investigate issues related to the use of data standards using RAIN RFID tags. Collect and publish information related to future enhancements of the technology.
SMART ROAD TRANSPORT	Replacing the original EU Road Charging WG. This workgroup will take on a broader responsibility than just the EU and will be a regular (no charge) workgroup.

RAIN TYRE WORKGROUP CHARTER

Tyre Workgroup

This charter provides for the continuance of the **Tyre Workgroup** (the Workgroup) and describes the mission, scope, vision, values, and projects for the Workgroup's activities and products.

MISSION

The mission of the Workgroup is to create education material with regards to the implementation of RAIN RFID tags in the tyre industry, and to promote the use of RAIN RFID as the key enabler for tracing tyres beyond the automotive industry.

VISION

The primary Workgroup's vision is to educate tyre manufacturers and suppliers about the best use of the technology while the technology is deployed.

In its application domain, the Workgroup's vision aligns with the 4 key pillars of the RAIN Alliance strategic plan:

- Grow adoption by facilitating the use of relevant standards and by promoting the technology applications
- Elevate brand awareness through communication
- Optimize ease of use and deployment through education materials
- Drive sustainability by addressing application scenarios such as embedded RAIN tags used along a full product life cycle

Tires Workgroup Monthly Meetings are first Wednesday of each month at 15h Central European Time / 9 a.m. US Eastern Time

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