UN-R155 versus CRA: an in-depth assessment

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Glossary

CE (Marking): Conformité Européenne
CRA: Cyber Resilience Act
CSMS: Cyber Security Management System
EU: European Union
NIS2: Network Information Security v2
NLF: New Legislative Framework
GDPR: General Data Protection Regulation
MS: Member States
NRMMR: Non-Road Mobile Machinery Regulation
PAS (ISO): Publicly Available Specification
PLD: Product Liability Directive
RED DA: Radio Equipment Directive Delegated Act
SR: Standardisation Request
TR: Tractor Regulation (167/2013)

ACEA: European Automobile Manufacturers' Association
AEF: Agricultural (Industry) Electronics Foundation
CEMA: European agricultural machinery industry
CECE: Committee for European Construction Equipment
COM: EU Commission
CLEPA: European Association of Automotive Suppliers
CEN: European Committee for Standardization
CENELEC or CLC: European Committee for Electrotechnical Standardization
ETSI: European Telecommunications Standards Institute
ISO: International Organization for Standardization
NWIP: New Work Item Proposal
UNECE: United Nations Economic Commission for Europe
CEMA – the voice of the innovators & developers of Agricultural industry in Europe
CEMA in a few numbers

- 7,000 Manufacturers
- 11 National Members
- 450 different Types
- €40 billion
- 300,000 Jobs
- 11 Large International Companies & SMEs
Agricultural industry specificities
Agricultural industry specificities

Off-road industry:

- Non-road industry products primary function in the field
- On the road to go from off-road site to another at low speeds

On-road industry:

- On-road industry products primary function on the road (all roads)
Agricultural industry specificities

**Off-road industry:**

CEMA represents in EU:
- **7,000** manufacturers
- average: **21 employees per manufacturer**
- 150,000 direct employees

CECE represents in EU:
- **1,200** companies
- average: **250 employees per manufacturer**
- 300,000 direct employees

**On-road industry:**

ACEA represents in EU:
- Less than **50** Manufacturers
- average: **160,000 employees per manufacturer**
- 8.1 Million direct employees

CLEPA represents in EU:
- Approx. 20 major TIER1 Suppliers
- 5.7 Million direct employees
Agricultural industry specificities

Off-road industry:

Agricultural vehicle manufacturer:

- Many products models (different chassis, architecture, etc.)
- Many more variants (engine or function) for these models and Millions of option per variant
- High variability EU volumes of tractor models: 100 to >10.000
- High variability EU volumes of towed machinery models: 1 - > 1000

On-road industry:

Average automotive manufacturer:

- Low number of models/variants
- High EU volumes of one model with low variability, with some models easily > 150.000
Agricultural industry specificities

Off-road industry:

Diverse

80 %

20 %

High-end, popular models

20 %

80 %

Low-end, or niche models

volumes
Agricultural industry specificities

Off-road industry:

- Extensive machine collaboration in off-road application and thus large number of combination that needs to be tested

On-road industry:

- Rarely connected to the outside
Agricultural industry specificities

Off-road industry:

Com-bin-ED

- AEF (Agricultural Industry Electronics Foundation)
  - ISOBUS (ISO 11783 - 1Mbps)
    - Under dev. HSI (High Speed ISOBUS – 1Gbps)
  - TIM (Tractor Implement Management)
  - Platoonning

On-road industry:

Separated

- Rarely connected to the outside
CEMA position – most suitable solution for agricultural vehicles and what situations to avoid
CEMA position

The EU agricultural machinery industry:

1. Has chosen not to be included in the scope of the UN-R155,

2. Would prefer to be tight to industrial products,

3. Stands clear and unanimous behind the **CRA** as the best alternative to UN-R155.

**CRA**

For our industry

**UN-R155**

For the automotive industry
Situations to avoid:

1. Parallel application

2. Sequential application

3. Double-regulation

4. No regulation: solved as there is the CRA

5. Too early application: CRA application date should be mid 2027
Argumentation why the CRA is the most suitable solution
Argumentation

1. At least **equal stringency** with CRA/NIS2 versus UN-R155
2. **One single legislation** for all products
3. Point to point cybersecurity **full coverage by EU NLF legislation**
4. **Clear** framework due to NLF principles
5. **Lean** legislation concerning compliance
## Argumentation

One single legislation for all products

<table>
<thead>
<tr>
<th>Legislation:</th>
<th>UN R155</th>
<th>EU CRA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope:</td>
<td>UNECE Vehicle Categories</td>
<td>‘Product with digital elements’ made available on the market and that should be connected</td>
</tr>
<tr>
<td>Limitation:</td>
<td>Not a UNECE Vehicle Category, not in scope</td>
<td>No limitation – all in! A product with a software susceptible of being connected is automatically in scope</td>
</tr>
</tbody>
</table>

For agricultural machinery and vehicles:
- Type Approved Category U for NRMM not defined yet.
- Application of EU Type Approval Category C and T4.1, T4.2, R&S is optional.
- Currently and in the future, certain machine types will remain nationally homologated for the road (CRA applies).
# Argumentation

One single legislation for all products *(on the road)*

<table>
<thead>
<tr>
<th>Year</th>
<th>Legislation</th>
<th>National approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>EU TR 2003/37/EU</td>
<td>National approvals</td>
</tr>
<tr>
<td>2016</td>
<td>EU TR 2003/37/EU</td>
<td>National approvals</td>
</tr>
<tr>
<td>2026</td>
<td>EU TR 167/2013</td>
<td>National approvals</td>
</tr>
<tr>
<td>2027</td>
<td>EU NRMM Draft</td>
<td>Slow transition from national to EU</td>
</tr>
</tbody>
</table>

*In yellow: published and EU enforced*
**Argumentation**

One single legislation for all products (*in the field*)

<table>
<thead>
<tr>
<th>2009</th>
<th>2016</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU TR 2003/37/EU</td>
<td>EU TR 167/2013</td>
<td>National approvals</td>
</tr>
</tbody>
</table>

EU MD* 2006/42/EC

In yellow: published and EU enforced

*: Machinery Directive, to be replaced by the Machinery Regulation, that will cover ‘Cybersafety’
# Argumentation

One single legislation for all products **(on the road and in the field)**

<table>
<thead>
<tr>
<th>Category</th>
<th>T1, T2, T3, T4.3</th>
<th>T1, T2, T3, T4.3</th>
<th>R, S</th>
<th>R, S</th>
<th>T4.1, T4.3, C</th>
<th>T4.a, T4.2, C</th>
<th>NRMM</th>
<th>NRMM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use environment</strong></td>
<td>In field</td>
<td>On road</td>
<td>In field</td>
<td>On road</td>
<td>In field</td>
<td>On road</td>
<td>In field</td>
<td>On road</td>
</tr>
<tr>
<td>167/2013</td>
<td>CRA or R155</td>
<td>CRA or R155</td>
<td>X</td>
<td>CRA or R155</td>
<td>CRA or R155</td>
<td>CRA or R155</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Machinery Regulation</td>
<td>X</td>
<td>X</td>
<td>CRA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CRA</td>
<td>X</td>
</tr>
<tr>
<td>NRMM road circulation Regulation</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>CRA</td>
</tr>
<tr>
<td>National type approval legislation</td>
<td>X</td>
<td>X</td>
<td>CRA</td>
<td>CRA</td>
<td>CRA</td>
<td>CRA</td>
<td>X</td>
<td>?</td>
</tr>
</tbody>
</table>

EU implementation of UN-R155 will inevitably lead to the use of parallel and/or double legislation and the creation of grey zones.
Argumentation

CRA tight application date

Steps for the CRA to be applicable:

(Est.) publication of the harmonized standard: beginning 2026

(Est.) CRA date of application: mid 2027

Steps to include category ‘U’ in UN R155:

Adopt the new category at the UNECE level

Wait for the NRMMR to be applicable and include the technical requirements (separated act)

UN R155 update scope and requirements

ISO 21434 update for specificities of category U

It might take more than 3 years...
Argumentation

Point to point full cybersecurity coverage (see table in CEMA PP doc)

CRA definition of ‘product with digital elements’ (agreed text):

*any software or hardware product including its remote data processing solutions, and software or hardware components to be placed on the market separately*  

NIS2 covers entities
Argumentation

Clear framework for the conformity assessment

CRA follows the NLF principles of essential requirements, presumption of conformity, CE marking and harmonised standard providing legal certainty

CRA is risk based on cybersecurity goals (Future proof requirements)

With the product liability directive: liability of manufacturer is engaged with 3rd party or not

UN R155 is risk based on the list of threats

A guide is available between the ISO 21434 and the UN R155, but not legally binding
The New Legislative Framework (also known as the “NLF”), is a package of legislation first adopted in 2008 that consists of:

• Regulation (EC) 765/2008, which sets out the requirements for accreditation and the market surveillance of products;

• Decision 768/2008, which sets out a common framework of requirements for selling products under a number of key regimes (essentially, a template for legislation for many CE marked products); and, finally,

• Regulation (EU) 2019/1020 on market surveillance and the compliance of products

Argumentation

Clear framework for the conformity assessment

NLF Goal:

Establish within the EU the overarching framework for:

• Product (CE) marking,
• Market surveillance (set rules + EU harmonization),
• Conformity assessment
  • Incl. “presumption of conformity” to a harmonized standard or a common specification,
• And accreditation of Conformance Assessment Bodies at the EU level
Argumentation

Clear framework for the conformity assessment

“A” NLF legislation:

- Covers a wide range of products,
- Lays down “essential” req. for the design and construction,
- Describes obligations of manufacturers, importers, and distributors
- Defines conformity assessment procedures at the placement on the market
  - with “presumption of conformity” principle
- Requires the marking of conform products
Argumentation
Clear framework for the conformity assessment

Get higher presumption of conformity to the CRA when:

1. EU standard, with harmonized status for the CRA, is fulfilled
2. A common specification is available for the CRA
Argumentation

Clear framework for the conformity assessment
Cybersecurity Standard in progress:

- ISO/TC23/SC19/AHG2 created to map ISO 21434 to CRA
- ISO NWIP 24882 started (Agricultural Machinery & Tractors — Cybersecurity Engineering)
  - Under ISO/TC23/SC19/WG8 for Off-road industry
  - To be harmonized to the CRA
  - Plan to provide compatibility to supplier already compliant under UN-R155 (see further)
- In the process of creating a Joint Work Group (ISO/TC127, ISO/TC23/SC13)
- Technical requirements are easy to update if they are in a standard
Argumentation
Clear framework for the conformity assessment

ISO
Harmonized to the CRA
(Agricultural Machinery & Tractors — Cybersecurity Engineering)

EU CRA

2026
2027
Argumentation
Lean legislation concerning compliance

The CRA offers different compliance pathways from self-certification to 3rd party certification on class I and II equipment - all types of conformity assessments are available.

Simplified supplier oversight:
• Each component placed on the market is considered as a ‘product with digital elements’ → Manufacturer of the final product verifies the presence of CE marking and is responsible for the integration (shared responsibility – SME friendly)
Reported CRA limitations are covered
CRA limitations?

Reporting obligation

**Where is the support period definition in the UN-R155?**

**CRA:** Harmonisation of the support period definition with various criteria

Agreed text: is not limited to 5 years but linked to expected useful lifetime…!
CRA limitations?
Missing of explicit Management System in the CRA

CRA has the product-oriented part of the CSMS (see Art. 10.2, 10.3, 10.5, 10.6, 10.7, 10.8, 10.9, 10.12 and Art. 11.1, 11.4, 11.7 and Art. 20, Art. 22, Art. 23, Art. 24 as well as Annex I, V, VI): it already implies the use of a management system.

NIS2 is the complementary part of the CRA for the CSMS
CRA limitations?
Broad cybersecurity goal coverage

- Cybersecurity in products, network infrastructure and remote data processing solutions
- Vulnerability handling of products and remote data processing solutions
- Cybersecurity of entities
- Vulnerability handling of entities
- Protection of personal data / privacy
- Protection against fraud (RED DA)
- Support interoperability

CRA
NIS2
GDPR 2016/679
Data Act 2023/2854
AI Act (agreed)

Interplay is covered
Guidelines are in preparation
CRA limitations?
Compatibility with UN R155

Automotive industry suppliers are in scope of the CRA if the final product, in which the component will be included, is not in scope of the UN R155.

Efforts from industry are ongoing, to provide compatibility to suppliers using UN-R155 via the hEN NWIP ISO 24882.
CRA limitations?

Integration of CRA requirements into EU vehicle type-approval

With the off-road industry currently in scope of the CRA this means:

- no reference is necessary in the type approval legislation.
- There is no issue related to the co-existence of the EU type approval legislation and NLF legislation (Type Examination) and any possible overlap could be clarified. For example: for Cat R and S, for certain on-road requirements, are considered sufficiently covered by the MD and that is indicated in the technical requirements (delegated acts).
CRA limitations?

Global alignment

• On **technical requirements** the ISO standard in draft would be the basis for global alignment as drafted by and for the global agricultural machinery industry.

• On **compliance**: focus lies on **lean procedures**. Main remaining point is for OEMS to be embedded in a reporting structure to alert authorities on incidents.

• Any engagement towards **global alignment** should be based on the CRA or more general an **industry sector approach**. Are all UNECE contracting parties aware of the initiatives in their countries?
Any questions?
Thank you!

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