



IV RP EXPERIENCES

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Experiences form application of interoperability directive 2016/797

National Technical Rules revision

- process completed in 12/2020 for rolling stock – 12 requirements remain out of initial 53 for network compatibility
- process completed for fixed installations subsystems in 06/2021
- NTR for rolling stock:
<https://rdd.era.europa.eu/rdd/NTRLListPage.aspx>

Road-rail vehicles

- Three possibilities:
 - without authorisation if the vehicle will not participate in railway traffic (only on construction sites)
No requirements for the operator
 - with authorisation in national procedure (limited to cases outside the scope of interoperability directive) – only scope of examinations defined in national law, no specific requirements
National train drivers license „prawo kierowania” needed
 - procedure defined in regulation 545/2018, verification against national rules:
<https://rdd.era.europa.eu/rdd/NTRLListPage.aspx>
<https://www.gov.pl/web/infrastruktura/lista-wlasciwych-krajowych-specyfikacji-technicznych-i-dokumentow-normalizacyjnych-ktorych-zastosowanie-umozliwia-spelnienie-zasadniczych-wymagan-dotyczacych-interoperacyjnosci-systemu-kolei-dla-pojazdow-kolejowych> – **part C of the document**
„Lista właściwych krajowych specyfikacji technicznych”
Train drivers license needed

Regulation 545/2018

Article 13

Requirements capture

1. In accordance with the overall objective of managing and mitigating identified risks to an acceptable level, the applicant shall, before submitting an application, undertake a requirements capture process which shall ensure that all the necessary requirements covering the design of the vehicle for its life cycle have been:

- (a) identified properly;
- (b) assigned to functions or subsystems or are addressed through conditions for use or other restrictions; and
- (c) implemented and validated.

2. The requirements capture performed by the applicant shall in particular cover the following requirements:

- (a) essential requirements for subsystems referred to in Article 3 and specified in Annex III to Directive (EU) 2016/797;
- (b) technical compatibility of the subsystems within the vehicle;
- (c) safe integration of the subsystems within the vehicle; and
- (d) technical compatibility of the vehicle with the network in the area of use.

3. The risk management process set out in Annex I to Commission Implementing Regulation (EU) No 402/2013 (1) shall be used by the applicant as the methodology for requirements capture as regards the essential requirements 'safety' related to the vehicle and subsystems as well as safe integration between subsystems for aspects not covered by the TSIs and the national rules.

Regulation 545/2018

- every application until now without the requirements capture!
 - *„but i've done the risk assessment!“*
 - how to apply methodology from regulation 402/2013 to capture other requirements than those related to essential requirement „safety“?
 - scope?
 - regulation 402/2013: *„hazard means a condition that could lead to an accident“.*
 - role of AsBo when using 402/2013 for capturing requirements other than those related to essential requirement „safety“
 - Regulation 545/2018: *„If another methodology is used, the evidence required is that necessary to demonstrate that it provides the same level of assurance as the methodology set out in Annex I of Regulation (EU) No 402/2013.“*
- + 6.1, 6.2, 7.2 of Annex II of regulation 545/2018
- how to assess?

Cross-border agreements

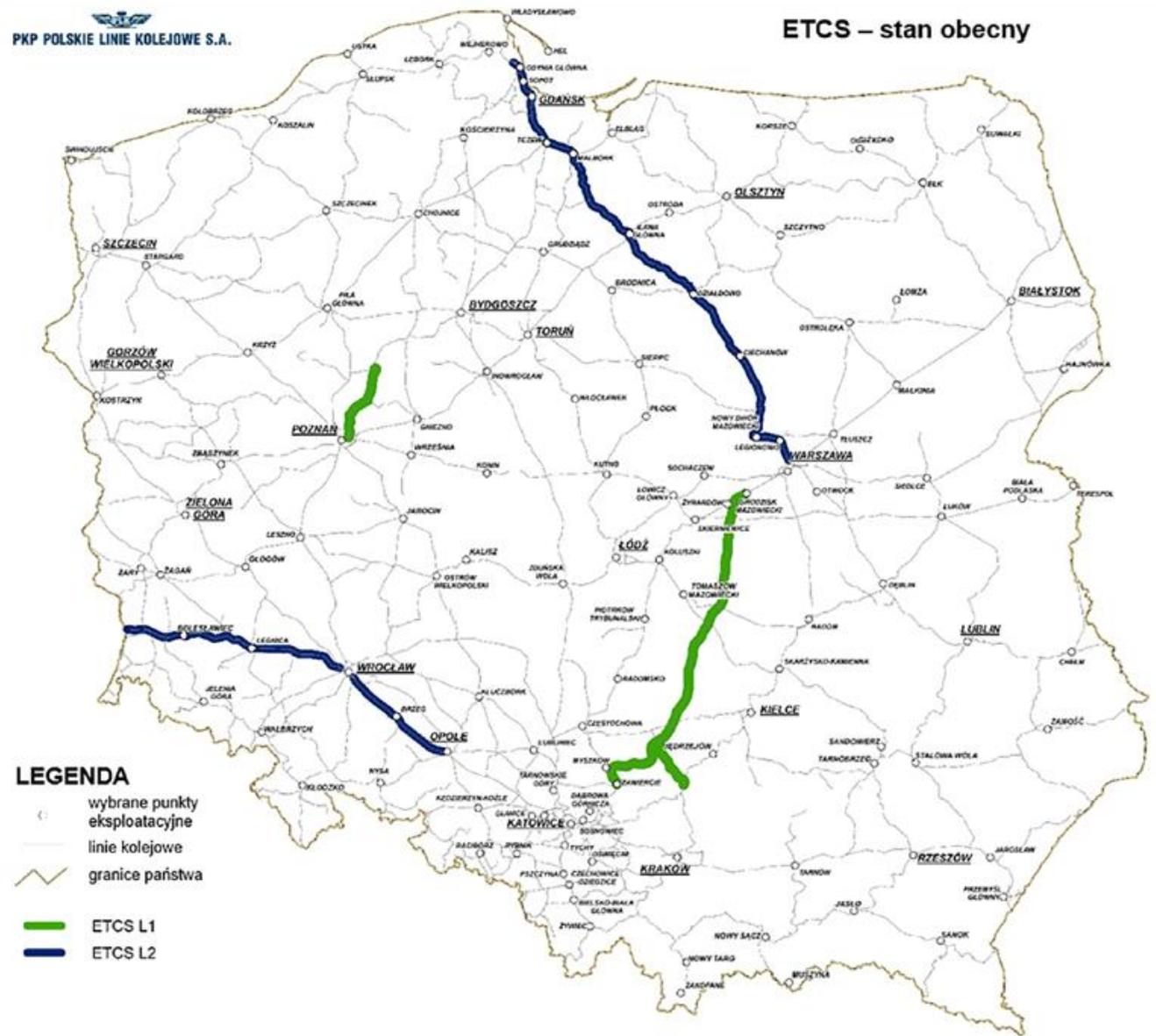
- NSA PL: route compatibility check done by the applicant without involving a Conformity Assessment Body
- NSA LT: route compatibility check done by the applicant without involving a Conformity Assessment Body
- NSA DE: network compatibility check done by the applicant involving a Conformity Assessment Body
- NSA CZ: discussion ongoing
- NSA SK: discussion ongoing

EVR

- NVR legal provisions in national law revoked on 28.07.2021
- EVR legal provision already in national law, but EVR not yet ready
- How to switch from NVR to EVR when applications are filed on daily basis

ERTMS

ERTMS – state of implementation

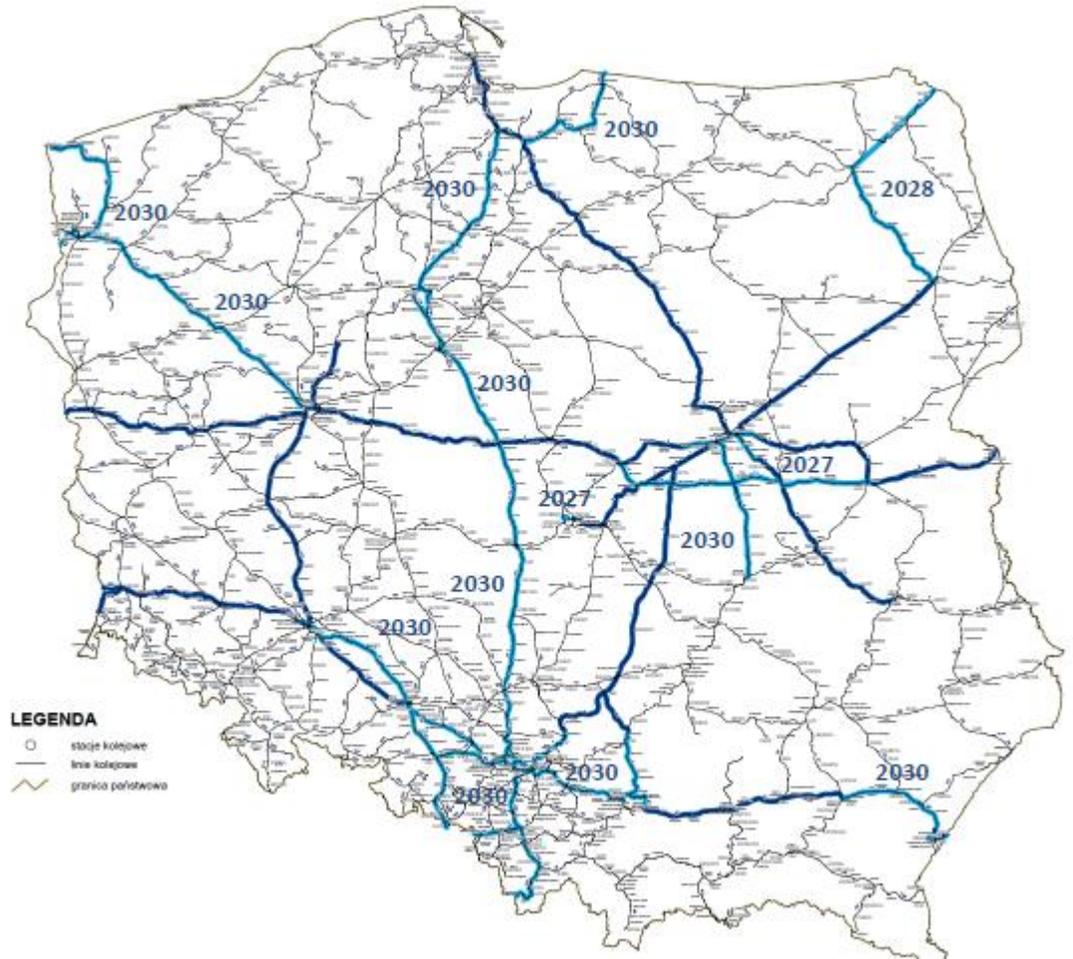
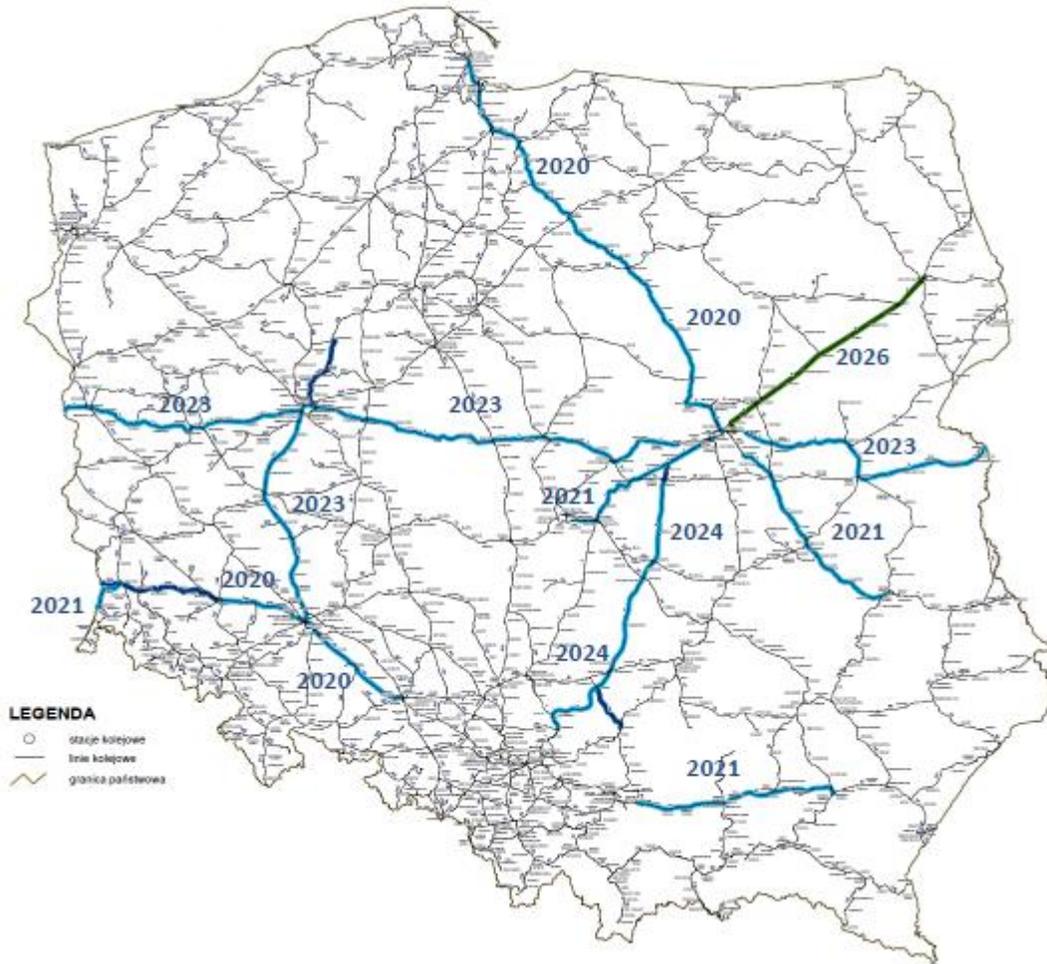


ERTMS – state of implementation

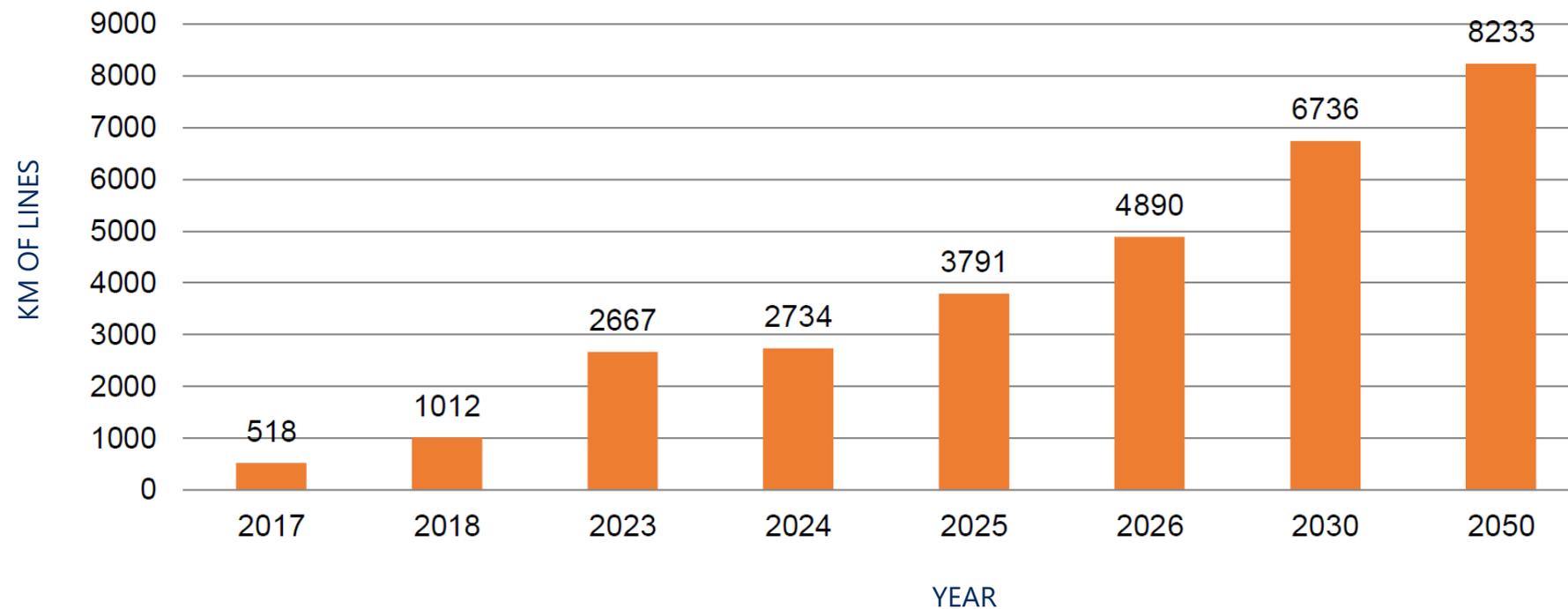
Tab. 47 Projekty, które zgodnie z KPW TSI Sterowanie powinny zostać wdrożone do 2023 r.

line number	section	ETCS level	length	planned date of authorisation
91	Podtęże – Rzeszów	2	140 km	2022
278	Węglińiec – Zgorzelec	2	26 km	2023
274	Zgorzelec – Zgorzelec (GP)	2	1 km	2023
7	Warszawa Wschodnia – Lublin	2	171 km	2022
2	Warszawa – Terespol	2	188 km	2023
3	Warszawa – Kunowice	2	450 km	2023
271	Wrocław – Poznań	2	160 km	2023
6, 449	Warszawa – Białystok	2	172 km	2026
8	Warszawa Okęcie – Radom	2	90 km	2024
351	Poznań Główny – Szczecin Dąbie	2	195 km	no data
352	Swarzędz – Poznań Starołęka	2	13 km	no data

ERTMS – National Implementation Plan



ERTMS – National Implementation Plan



ERTMS – state of implementation onboard

Currently ETCS fitted rolling stock in Poland as of 31.12.2020:

	ETCS level 1	ETCS level 2
passenger diesel locomotives	0	0
passenger electric locomotives	0	30
diesel multiple units	23	5
electric multiple units	61	228
freight diesel locomotives	91	0
freight electric locomotives	67	88

Planned investment :

Passenger	390 (+180 Next Generation EU funds)
Freight	100

ERTMS – challenges: compatibility tests



ESC/RSC Technical Document
TD/011REC1028
V11.0

- 20/11/2020 – ESC/RSC tests published for PKP Polskie Linie Kolejowe S.A.
- 12/07/2021 – update of ESC/RSC test for PKP Polskie Linie Kolejowe S.A.
- 6 types of ESC tests
- 1 type of RSC
- lack of procedure and clear obligations in TSI – transitional period introduced:
 - 1/07/2021 – compatibility demonstration mandatory in vehicle authorisation
 - 1/07/2022 – compatibility demonstration in route compatibility check mandatory

ERTMS – challenges: current compatibility issue

- line fitted with trackside compliant with 2.3.0d
- onboard of one of suppliers compliant with 2.3.0d or 3.4.0.
- handover failed when speed lower than 80km/h
- cause: simultaneous receipt of packet 131 and 42
- Baseline Compatibility Analysis: only the first packet 131 has to be separate from 42
- onboard supplier: packet 131 and 42 always have to be separate

ERTMS – challenges: GSM-R migration

- networkwide GSM-R implementation ongoing
- 15 200 km of lines out of 19 000 covered with GSM-R in 2023
- main issue: radio emergency call
 - Radiostop PKP: broadcasted to all vehicles in 2km range, automatically and immediately stops all traction vehicles in range
 - REC: ~3 second delay, requires train drivers reaction, TSI OPE – speed reduced to On-Sight mode
- other issues:
 - rest of network – possible use of commercial operators telecommunications network?
 - how to switch from analogue to GSM-R
 - FRMCS



ERTMS – challenges: class B obsolescence

- SHP (class B) – only checks train drivers awareness in higher risk points of lines
- more than 100 of SPAD per year in Poland
- ETCS only on 8233 km of lines in 2050 – only half of network
- possibility of ETCS Limited Supervision implementation on rest of network analyzed
- costs are the main issue:
 - experiences: fitting of one signal in 2012 cost ~30 000 €
 - searching for low cost configuration that would bring safety improvement



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