AUTORIDADE NACIONAL DE
SEGURANÇA FERROVIÁRIA

NATIONAL IMPLEMENTATION PLAN

PORTUGAL 2024

INSTITUTO DA MOBILIDADE E DOS TRANSPORTES, I.P.

AUTORIDADE NACIONAL DE SEGURANÇA FERROVIÁRIA

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AUTORIDADE NACIONAL DE SEGURANÇA FERROVIÁRIA

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1. GENERAL MIGRATION STRATEGY INTRODUCTION

The general strategy for the ERTMS deployment is based on the following:

- Updating signalling systems with ERTMS level 2 compliant interlockings and interoperable train detection systems;
- Implementation of ETCS level 2;
- Implementation on the rolling stock fleet of ERTMS with STM module for Class B train protection;
- Implementation of GSM-R on all network;
- Installation of Dual Mode Radios on the rolling stock fleet to simultaneously operate GSM-R and Class B radio communications, during a transitional period;
- The plan for withdrawal of GSM-R and FRMCS deployment is still under evaluation.

2. GENERAL CONTEXT DESCRIPTION OF THE CURRENT STATUS

2.1 CONTEXT DESCRIPTION OF THE CLASS A SYSTEMS, ATO AND TRAIN DETECTION PART

2.1.1 Current status of deployment for Class A systems, ATO and train detection part

- Current Status of deployment for Class A train protection system

Engineering projects under ongoing contracts: Linha da Beira Alta – From Pampilhosa to Vilar Formoso Linha de Évora – Évora – Elvas – Fronteira (South international corridor) Linha de Cascais – Lisboa – Cascais (Suburban Line)

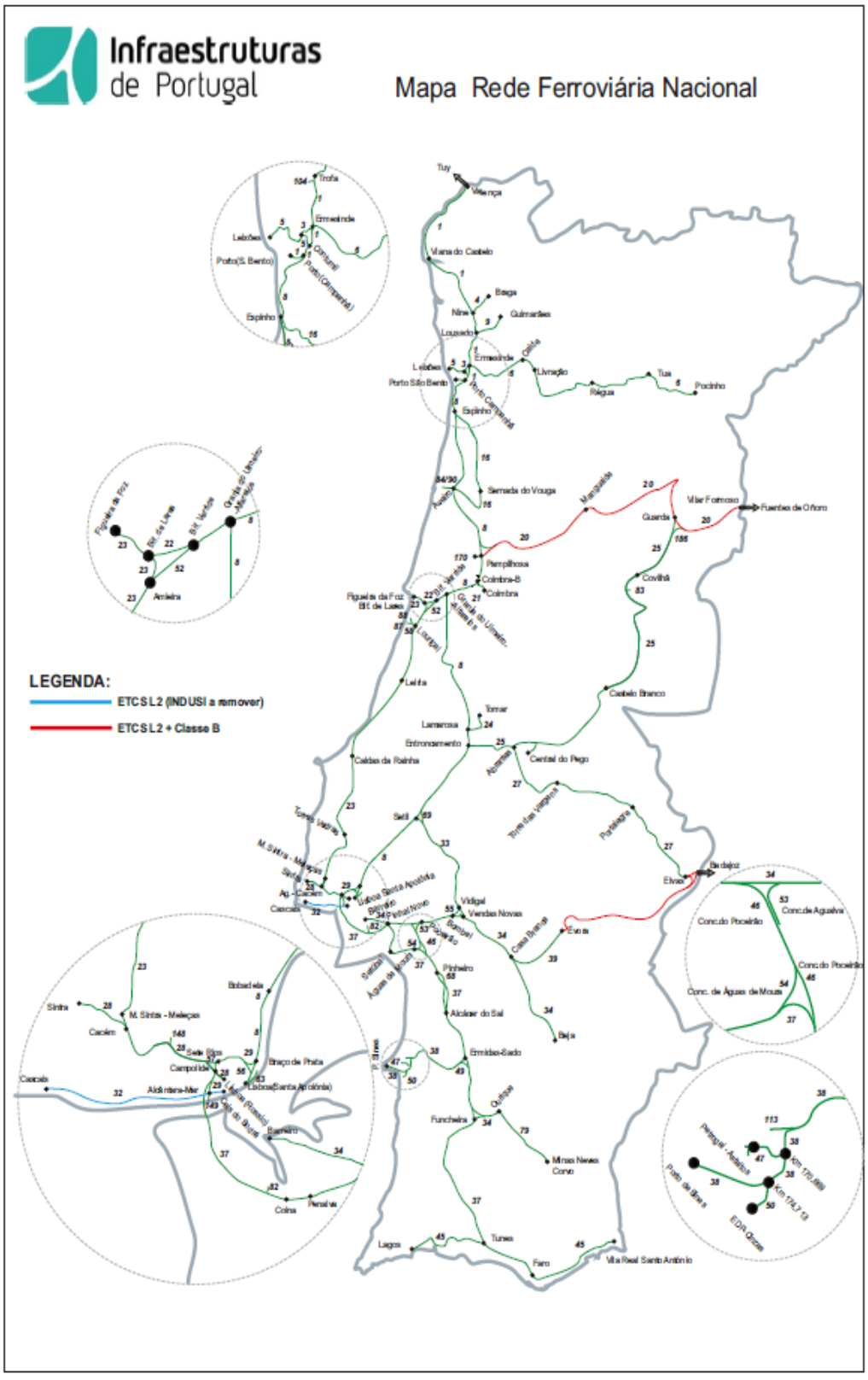

Figure 1 - Current status of ETCS deployment

Table 1 - Current status of ETCS deployment and ongoing contracts

ID	Line	Current status of deployment		Mandatory deadline of ETCS application	Additional information			Note
		Current status	Date when ETCS was/will be placed in service		Length [km]	Level(s)	Baseline and system version	
NID_ C 51	Linha da Beira Alta	Ongoing Contract	Jun 2025	N/A	201,851	2	B3R2	
NID_ C 52	Corredor Internacional Sul	Ongoing Contract	1Q 2025	N/A	88,485	2	B3R2	
NID_ C 53	Linha de Cascais	Ongoing Contract	4Q 2025	N/A	25,428	2	B3R2	

- Current status of deployment for ATO system

ATO deployment plan is under evaluation by the national railway sector: Railway undertakings and infrastructure manager.

- Current status of deployment for Class A radio system

The GSM-R System is implemented along the following lines: • Linha de Cascais • Linha do Algarve • Linha do Alentejo between V. Novas (exc) and Casa Branca • Linha de Évora between Casa Branca and Évora • Linha da Beira Baixa between Castelo Branco and Barracão/Sabugal Regarding FRMCS, no implementation was carried out.

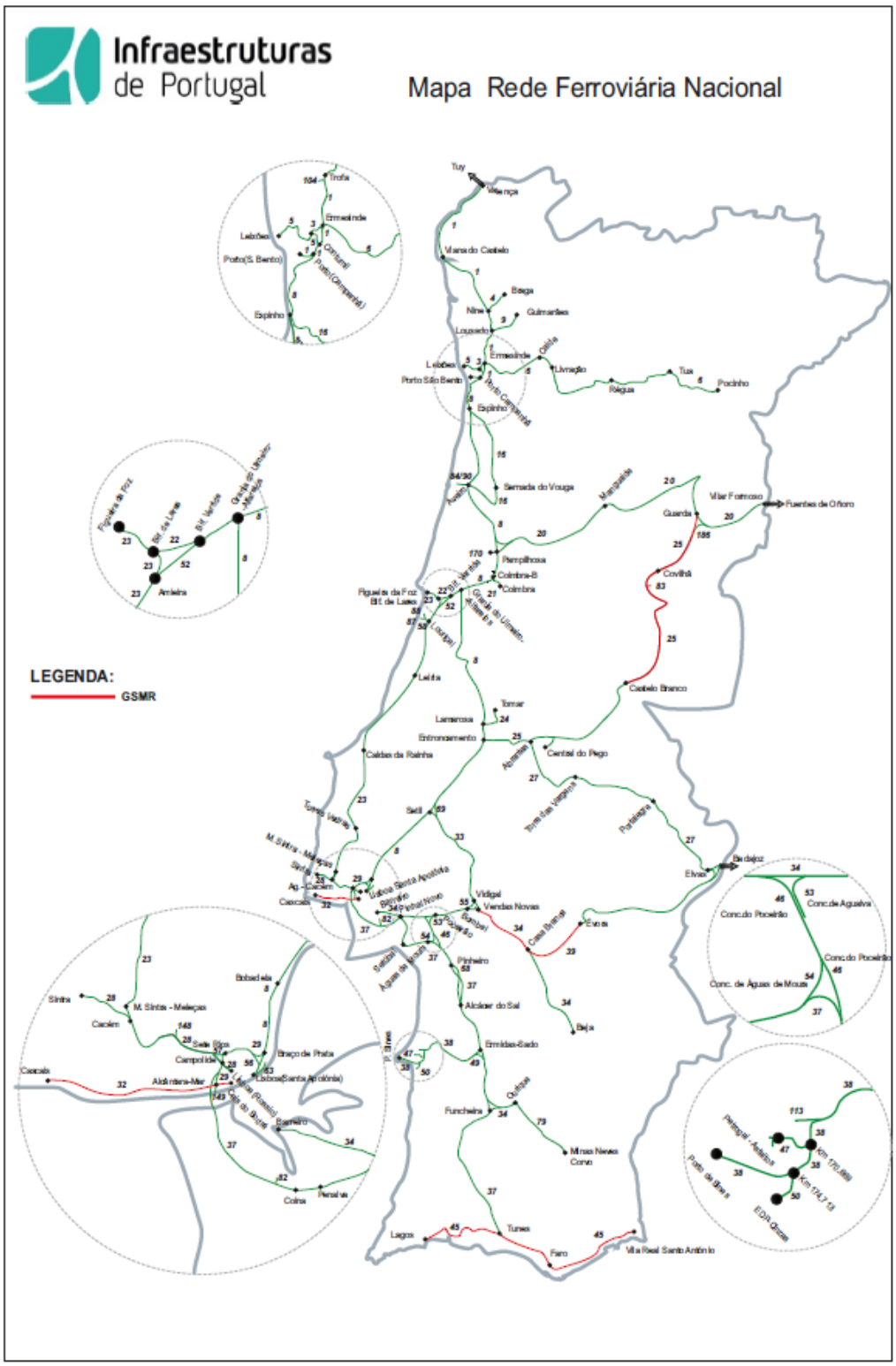

Figure 2 - Current status of GSM-R deployment

Table 2: Current status of GSM-R deployment

ID	Line	Current status of GSM-R deployment		Additional information			Note
		Current status	Date when GSM-R was placed in service	Length [km]	GSM-R voice/ GSM-R data	Baseline	
32 (IET50)	Cascais	GSM-R in service	September 2018	25,428	Voice	Baseline 1.0	
45 (IET50)	Algarve	GSM-R in service	June 2020	139,900	Voice	Baseline 1.0	
34 (IET50)	Alentejo (V. Novas – Casa Branca)	GSM-R in service	February 2021	33,568	Voice	Baseline 1.0	
39 (IET50)	Évora (Casa Branca - Évora	GSM-R in service	February 2021	26,049	Voice	Baseline 1.0	
25 (IET50)	Beira Baixa (C. Branco – Sabugal)	GSM-R in service	April 2024	112,949	Voice	Baseline 1.0	

- Current status of deployment for TSI compliant train detection system

In the last 10 years, there were major tenders for the renovation of around 600km of signalling in the national network. One of the major objectives of those processes was the installation of TSI compatible train detection systems.

Signalling renovation projects
(with installation of TSI compliant train detection systems)

Figure 3 - Current status of TSI compliant train detection deployment and ongoing contracts

Table 3: Current status of TSI compliant train detection deployment and ongoing contracts

ID	Line	Current status of TSI compliant train detection deployment		Additional information		Note
		Current status	Date when TSI compliant train detection was/will be placed in service	Length [km]	*[Other relevant aspects for TSI Compliant train detection deployments]*	
8 (IET50)	Linha do Norte	In service	September 2022	35,000		From Santarem to Entroncamento
8 (IET50)	Linha do Norte	In service	April 2022	33,000		From Ovar to Gaia
1 (IET50)	Linha do Minho	In service	April 2023	91,000		From Nine to Valença
23 (IET50)	Linha do Oeste	Ongoing contract	September 2024	25,000		From Louriçal to Figueira da Foz
2 (IET50)	Ramal de Alfarelos	Ongoing contract	September 2024	15,000		Alfarelos Branch
25 (IET50)	Linha da Beira Baixa	In service	May 2021	40,000		From Covilhã to Guarda
45 (IET50)	Linha Algarve	Ongoing contract	2025	40,000		From Faro to VRSA
45 (IET50)	Linha Algarve	Ongoing contract	June 2027	40,000		From Lagos to Tunes
1 (IET50)	Linha do Minho	Ongoing contract	December 2024	10,000		From Contumil to Ermesinde

33 (IET50)	Linha de V. Novas	Ongoing contract	December 2027	69,000		From Setil to Vendas Novas
38 (IET50)	Linha de Sines	Ongoing contract	December 2024	50,000		From Ermidas to Sines

2.1.2 Benefit for capacity, safety, reliability and performance aspects

The national deployment of TSI compliant Class A systems, ATO and train detection systems is in an early stage: ETCS implementation has not started, GSM-R (voice part) is only installed in some network sections and ATO is still under evaluation.
At this stage, methods, or indicators to measure potential benefits have not yet been developed.
Therefore, table 6 is not included in this plan.

2.1.3 Current mandatory onboard requirements

The current legal national reference to the CCS onboard requirements is described in the following documents:

- GR.IT.GER.009 – Compatibilidade do material circulante com a infraestrutura de via larga, point 7.8.2 and point 7.9.3;
- GR.IT.SIN.074 - Módulo de Transmissão Específica Nacional ATPN STM.

Table 4: Investment plan information

Year	Stakeholder	Action
2025-2026	CP	Foresee the start of operation of new 22 EMU/DMU equipped with ETCS onboard system
2024	CP	Contract award to supply new 117 EMU for urban and regional operation, equipped with ETCS onboard system
2025	CP	Tender for the supply of new High-Speed Trains for national and international operation, equipped with ETCS onboard system
2025	Medway	ETCS L2B3 + GSMR installation on 4700 fleet
2026- 2027	Medway	ETCS L2B3 installation on E6000 fleet
2024	Takargo/Captrain	GSMR installation on Euro 4000 fleet

Table 5: Current CCS on-board requirements

Geographical scope	Legal national reference to the CCS onboard requirements
Complete Network	• GR.IT.GER.009 – Compatibilidade do material circulante com a infraestrutura de via larga, point 7.8.2 and point 7.9.3; • GR.IT.SIN.074 - Módulo de Transmissão Específica Nacional ATPN STM.

2.1.4 Current status of deployment for on-board CCS subsystem

For GSM-R, the plan is to install on-board the rolling stock a Dual Mode Radio. The current status is as follows:

- CP: planned to install in 134 vehicles, all concluded;
- Takargo: planned to install in 14 vehicles, 11 concluded;
- Fertagus: plan to install in 18 vehicles, not yet concluded;
- Medway: plan to install in 25 vehicles, not yet concluded.

For ETCS, the plan is to install STM on-board the rolling stock. That system is currently under development and, at the moment, is not installed on any vehicle.

2.1.5 Information on the ESC/RSC Type linked with lines and activities for trackside/on-board integration

For Radio communication, two RSC types of checks are defined: Type 1 and Type 2.
The lines subject to Type 1 are:

- Cascais;
- Algarve;
- Alentejo (Vendas Novas – Casa Branca);
- Évora (Casa Branca – Évora);

The line subject to Type 2 is:

- Beira Baixa (Castelo Branco – Guarda).

For Data communication, the ESC checks are under development by the infrastructure manager.

2.1.6 Information on cross-border lines

There is no Class A system installed in cross-border lines.

2.1.7 Information on nodes

Specific planning for nodes is not yet available.

2.2 CONTEXT DESCRIPTION OF CLASS B SYSTEMS

2.2.1 Current status for Class B systems

- Current status for Class B train protection system

There are two class B train protection systems on operation in the national network: EBICAB 700 and INDUSI I60. Due to the delay in the deployment of ETCS on board, the EBICAB 700 system is maintained to avoid decreasing the level of safety on the network. It is forecasted the EBICAB 700 decommissioning during 2040 – 2050.

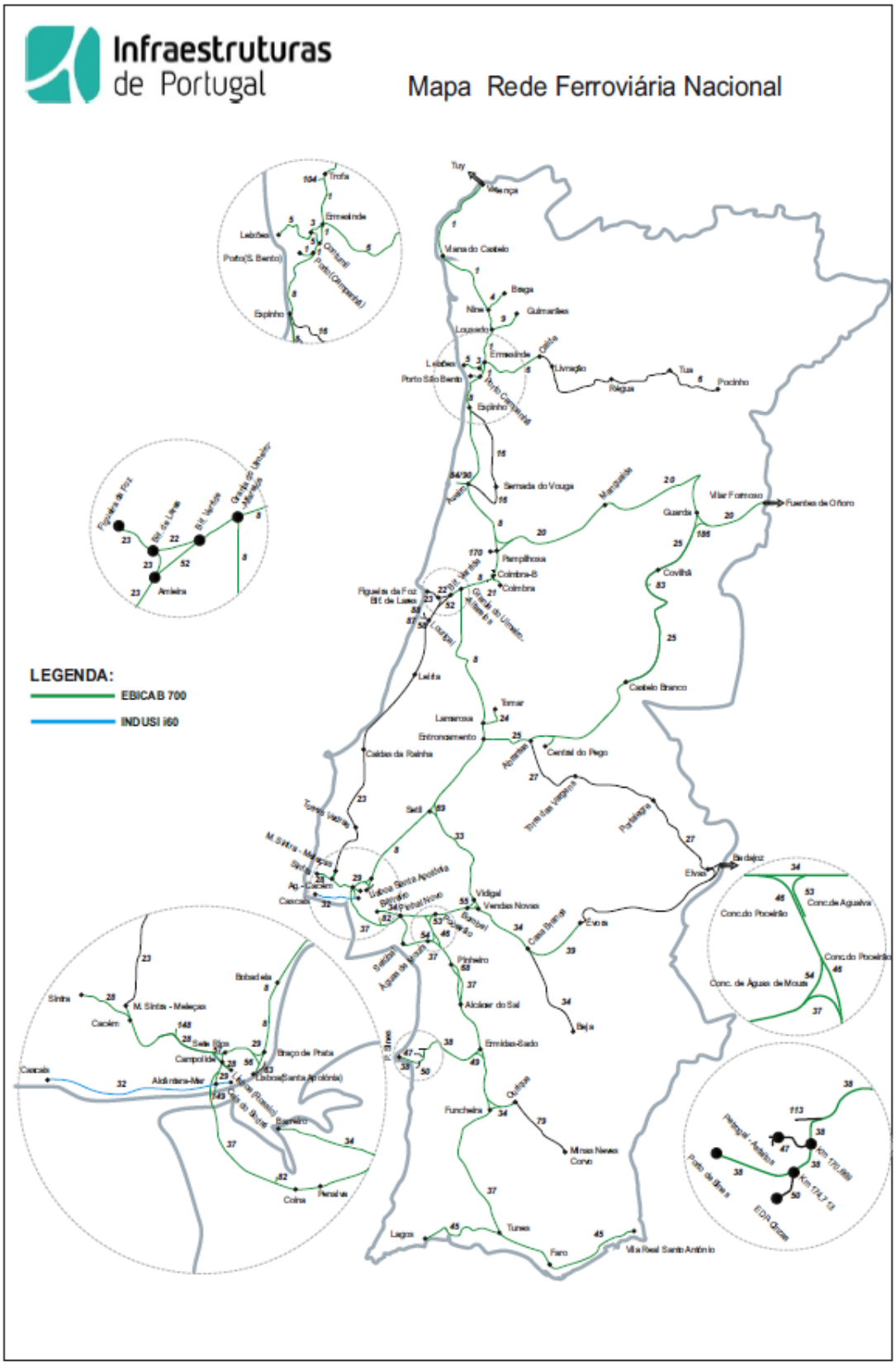

Figure 4 - Class B train protection system installed

Table 6: Class B train protection systems installed

ID	Line	Current status	Length [km]	Class B train protection system installed	Note
1	Linha do Minho	In Operation	131,500	Ebicab 700	From Porto São Bento to Valença
3	Concordância de São Gemil	In Operation	3,812	Ebicab 700	From Ermesinde to São Gemil
4	Ramal de Braga	In Operation	15,508	Ebicab 700	From Nine to Braga
5	Linha de Leixões	In Operation	18,852	Ebicab 700	From Contumil to Leixões
6	Linha do Douro	In Operation	37,645	Ebicab 700	From Ermesinde to Caíde
8	Linha do Norte	In Operation	336,079	Ebicab 700	Lisboa Santa Apolónia to Porto Campanhã
9	Linha de Guimarães	In Operation	30,514	Ebicab 700	From Lousado to Guimarães
20	Linha da Beira Alta	In Operation	201,851	Ebicab 700	From Pampilhosa to Vilar Formoso
21	Ramal da Lousã	In Operation	1,669	Ebicab 700	From Coimbra-B to Coimbra
22	Ramal de Alfarelos	In Operation	7,545	Ebicab 700	From Verride to Alfarelos
23	Linha do Oeste	In Operation	2,480	Ebicab 700	From Agualva – Cacém to Mira Sintra – Meleças
24	Ramal de Tomar	In Operation	14,809	Ebicab 700	From Lamarosa to Tomar
25	Linha da Beira Baixa	In Operation	193,811	Ebicab 700	From Entroncamento to Covilhã
28	Linha de Sintra	In Operation	27,508	Ebicab 700	From Lisboa Rossio to Sintra
29	Linha de Cintura	In Operation	10,316	Ebicab 700	From Alcântara Terra to Braço de Prata
32	Linha de Cascais	In Operation	25,450	Indusi I60	From Cais do Sodré to Cascais
33	Linha de Vendas Novas	In Operation	69,375	Ebicab 700	From Setil to Vendas Novas
34	Linha do Alentejo	In Operation	90,406	Ebicab 700	From Barreiro to Casa Branca
34	Linha do Alentejo	In Operation	11,330	Ebicab 700	From Ourique to Funcheira
37	Linha do Sul	In Operation	272,504	Ebicab 700	From Santana's bridge switch to Tunes

38	Linha de Sines	In Operation	50,688	Ebicab 700	From Ermidas-Sado to Porto de Sines
39	Linha de Évora	In Operation	26,049	Ebicab 700	From Casa Branca to Évora
45	Linha do Algarve	In Operation	139,900	Ebicab 700	From Lagos to Vila Real de Santo António
46	Concordância do Poceirão	In Operation	8,162	Ebicab 700	From Bifurcação do Poceirão to Bifurcação de Águas de Moura-Sul
48	Concordância da Funcheira	In Operation	2,374	Ebicab 700	From Bifurcação da Funcheira-Sul to Bifurcação da Funcheira -Alentejo
49	Concordância de Ermidas	In Operation	0,945	Ebicab 700	From Bifurcação de Ermidas-Sul to Bifurcação de Ermidas-Sines
53	Concordância de Agualva	In Operation	2,048	Ebicab 700	From Poceirão to Bifurcação de Agualva
54	Concordância de Águas de Moura	In Operation	3,684	Ebicab 700	From Águas de Moura to Bifurcação de Águas de Moura-Norte
55	Concordância de Bombel	In Operation	3,112	Ebicab 700	From Bombel to Vidigal
56	Concordância de Xabregas	In Operation	1,655	Ebicab 700	From Bifurcação de Chelas to bifurcação de Xabregas
57	Concordância de Sete Rios	In Operation	3,144	Ebicab 700	From Sete Rios to Benfica
68	Variante de Alcácer	In Operation	28,776	Ebicab 700	From Pinheiro to Grândola Norte
69	Concordância Norte do Setil	In Operation	0,987	Ebicab 700	From Bifurcação Norte do Setil to Bifurcação do Setil – Vendas Novas
82	Ramal da Siderurgia Nacional	In Operation	2,569	Ebicab 700	From coina to Siderurgia Nacional
90	Ramal do Porto de Aveiro	In Operation	8,750	Ebicab 700	From Plataforma de Cacia to Porto de Aveiro

- Current status for Class B radio system

The only class B radio system installed is called TTT CP-N whose economic life cycle is already over. The system is kept in operation on lines where GSM-R has not yet been implemented.

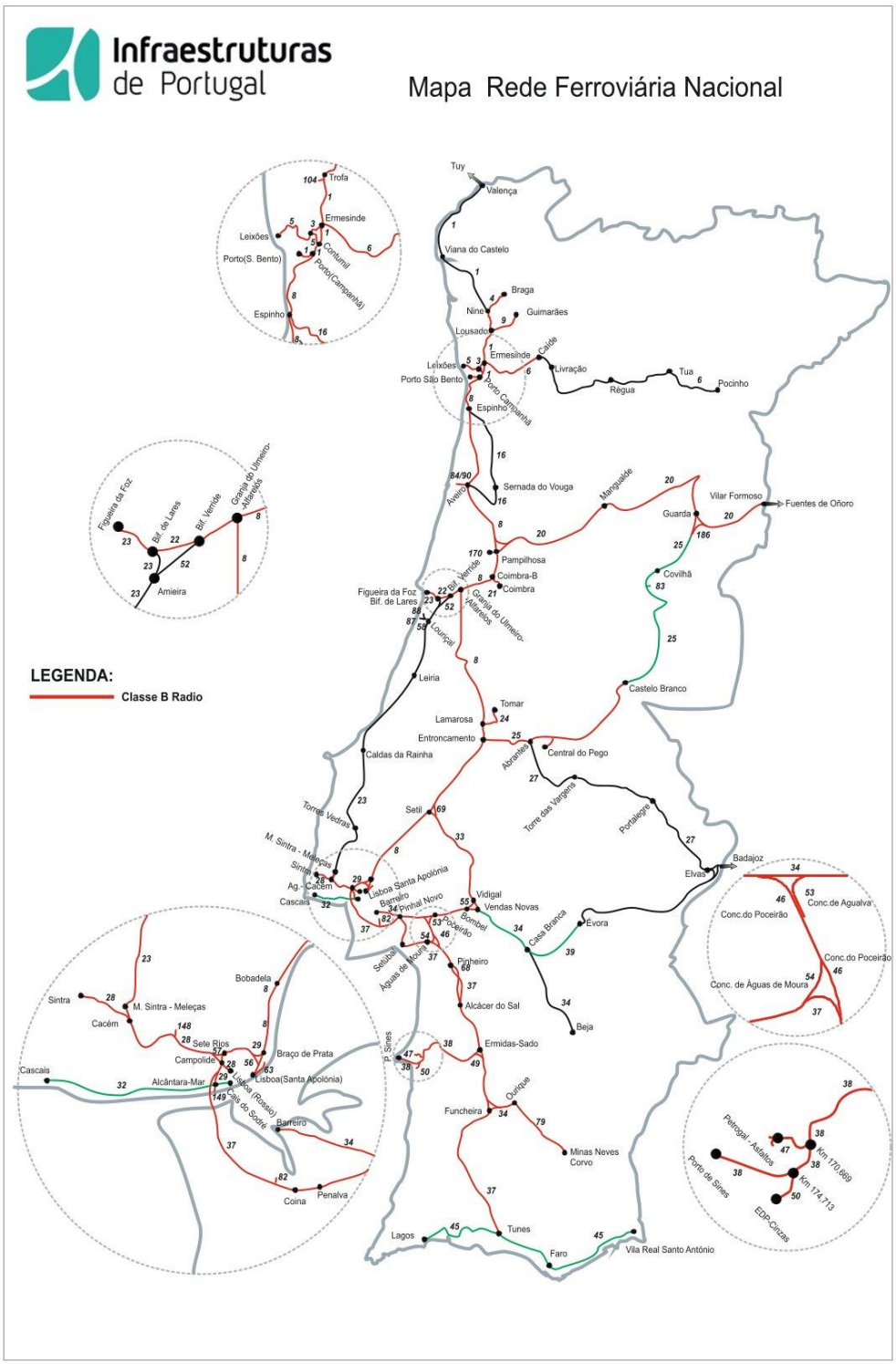

Figure 5 - Class B radio systems installed

Table 7: Class B radio systems installed

ID	Line	Current status	Length [km]	Class B radio system installed	Note
1 (IET50)	Minho	In Operation	41,131	TTT CP-N	
3 (IET50)	Concordância de São Gemil	In Operation	3,812	TTT CP-N	
4 (IET50)	Ramal de Braga	In Operation	15,508	TTT CP-N	
5 (IET50)	Leixões	In Operation	18,852	TTT CP-N	
6 (IET50)	Douro	In Operation	37,570	TTT CP-N	
8 (IET50)	Norte	In Operation	336,079	TTT CP-N	
9 (IET50)	Guimarães	In Operation	30,514	TTT CP-N	
20 (IET50)	Beira Alta	In Operation	201,851	TTT CP-N	
21 (IET50)	Ramal da Lousã	In Operation	1,669	TTT CP-N	
22 (IET50)	Ramal de Alfarelos	In Operation	14,680	TTT CP-N	
23 (IET50)	Oeste	In Operation	10,490	TTT CP-N	
24 (IET50)	Ramal de Tomar	In Operation	14,809	TTT CP-N	
25 (IET50)	Beira Baixa	In Operation	126,158	TTT CP-N	
28 (IET50)	Sintra	In Operation	27,508	TTT CP-N	
29 (IET50)	Cintura	In Operation	10,316	TTT CP-N	
33 (IET50)	V. Novas	In Operation	69,375	TTT CP-N	
34 (IET50)	Alentejo	In Operation	68,168	TTT CP-N	
37 (IET50)	Sul	In Operation	272,504	TTT CP-N	
38 (IET50)	Sines	In Operation	50,688	TTT CP-N	
46 (IET50)	Concordância do Poceirão	In Operation	8,162	TTT CP-N	
48 (IET50)	Concordância daFuncheira	In Operation	2,374	TTT CP-N	
49 (IET50)	Concordância de Ermidas	In Operation	0,945	TTT CP-N	
53 (IET50)	Concordância de Agualva	In Operation	2,048	TTT CP-N	

54 (IET50)	Concordância de Águas de Moura	In Operation	3,684	TTT CP-N	
55 (IET50)	Concordância de Bombel	In Operation	3,092	TTT CP-N	
56 (IET50)	Concordância de Xabregas	In Operation	1,655	TTT CP-N	
57 (IET50)	Concordância de Sete Rios	In Operation	3,144	TTT CP-N	
68 (IET50)	Variante de Alcácer	In Operation	28,776	TTT CP-N	
69 (IET50)	Concordância de Setil Norte	In Operation	0,987	TTT CP-N	
79 (IET50)	Ramal Neves Corvo	In Operation	32,217	TTT CP-N	
82 (IET50)	Ramal Siderurgia Nacional	In Operation	3,730	TTT CP-N	
90 (IET50)	Ramal Porto de Aveiro	In Operation	8,750	TTT CP-N	
186 (IET50)	Concordância das Beiras	In Operation	1,552	TTT CP-N	

2.2.2 Measures taken to ensure open market conditions

The STM module that is currently under development is an external STM that complies with the FFFIS specifications that will allow the operators to implement this STM independently from the ETCS supplier.
In addition, the interface between Class B and ETCS is a published national rule available on RDD.

3. TECHNICAL MIGRATION STRATEGY

3.1 TECHNICAL MIGRATION STRATEGY FOR ETCS PART

- Description of the solution to be implemented

Overlay of trackside ATP Class B system and ETCS – level 2, baseline 3, release 2.

- Deployment strategy for the implementation of ETCS

Due to the absence of ETCS on board deployment, the migration strategy is based on overlay at trackside: ETCS level 2 with EBICAB 700. It is foreseen that in the current contracts of acquisition, new rolling stock will be equipped with ETCS on board with STM EBICAB 700. A new product for a STM EBICAB 700 is under development.

- Planning for ETCS deployment and Class B decommissioning

The Class B decommissioning plan is applied to: - Cascais Line, with INDUSI I60, decommissioning during 2025 – 2035; - All network, with EBICAB 700, decommissioning during 2040 – 2050.

Table 8: Planning for ETCS deployment and Class B train protection decommissioning

ID	Line	Planning for ETCS deployment			Planning for Class B train protection decommissioning			Additional deployment information				Note
		Current status	Date when ETCS will be placed in service	Mandatory deadline of ETCS application	Dates when ETCS-only equipped vehicles are allowed to run	Dates when Class B operation is not allowed any more	Dates when Class B is taken out of service	Length [km]	Level(s)	Baseline and system version	Type of action	
34 (IET50)	Linha do Alentejo Barreiro – Casa Branca	Not yet under construction	2030	N/A			2040-2050	90,406	2	B3R2	New	
46 (IET50)	Concordância do Poceirão	Not yet under construction	2030	N/A			2040-2050	8,162	2	B3R2	New	
54 (IET50)	Concordância das Águas de Mouro	Not yet under construction	2030	N/A			2040-2050	3,684	2	B3R2	New	
39 (IET50)	Linha de Évora Casa	Not yet under construction	2030	N/A			2040-2050	36,279	2	B3R2	New	

	Branca – Évora											
29 (IET50)	Linha de Cintura	Not yet under construction	2030	N/A			2040-2050	10,316	2	B3R2	New	
37 (IET50)	Linha do Sul	Not yet under construction	2030	N/A			2040-2050	153,165	2	B3R2	New	
68 (IET50)	Variante Alcácer	Not yet under construction	2030	N/A			2040-2050	28,776	2	B3R2	New	
38 (IET50)	Linha de Sines	Not yet under construction	2030	N/A			2040-2050	50,688	2	B3R2	New	
8 (IET50)	Linha do Norte	Not yet under construction	2030	N/A			2040-2050	336,079	2	B3R2	New	
5 (IET50)	Linha de Leixões	Not yet under construction	2030	N/A			2040-2050	18,852	2	B3R2	New	
4 (IET50)	Ramal de Braga	Not yet under construction	2032	N/A			2040-2050	15,508	2	B3R2	New	
9 (IET50)	Ramal de Guimarães	Not yet under construction	2032	N/A			2040-2050	30,514	2	B3R2	New	

3 (IET50)	Concordância de São Gemil	Not yet under construction	2030	N/A			2040-2050	3,812	2	B3R2	New	
1 (IET50)	Minho (Porto São Bento – Nine)	Not yet under construction	2032	N/A			2040-2050	41,131	2	B3R2	New	
28 (IET50)	Linha de Sintra	Not yet under construction	2030	N/A			2040-2050	27,508	2	B3R2	New	
	Linha AV Lisboa-Porto	Not yet under construction	2030	N/A				72,000	2	B3R2	New	From Porto to Oiã
	Linha AV Lisboa-Porto	Not yet under construction	2030	N/A				71,000	2	B3R2	New	From Oiã to Soure
	Linha AV Lisboa-Porto	Not yet under construction	2032	N/A				117,000	2	B3R2	New	From Soure to Carregado
	Linha AV Lisboa-Porto	Not yet under construction	2033	N/A					2	B3R2	New	

3.2 TECHNICAL MIGRATION STRATEGY FOR RADIO PART

- Strategy for the introduction of GSM-R

As a migration strategy from the class B system to the GSM-R system, it is foreseen a parallel operation during a transitional period, in which the mobile equipment currently installed on board is being replaced by new GSM-R equipment.
The implementation policy based on Dual Mode onboard Radios is maintained as the GSM-R network is implemented in the national territory.

- Strategy for the introduction of the next generation communication system(s).

The strategy for migrating from the GSM-R system to FRMCS will be similar to the GSM-R implementation (a parallel operation during a transitional period).
At this moment, FRMCS introduction is only predicted for 2030-2035 which is the estimated date for GSM-R end of support by the main technology provider.
The start of FRMCS deployment depends on the conclusion of its specification's development process and its respective maturation and implementation at European level.

- Planning for GSM-R deployment and Class B radio system decommissioning

The Class B radio system will be decommissioned when the GSM-R is fully implemented in the national territory.

Table 9: Planning for GSM-R deployment and Class B radio part decommissioning

ID	Line	Planning for GSM-R deployment			Planning for Class B radio decommissioning		Additional information					Note
		Current status	Realization	Date when GSM-R is placed in service	Dates when Class B operation is not allowed any more	Dates when Class B is taken out of service	Length [km]	GSM-R voice/ GSM-R data	Baseline	Circuit switching/ Packet switching	Type of action	
1 (IET50)	Minho (Nine – Valença)	Under Construction	2023	2025	N/A	N/A	92,446	Voice	Baseline 1.0	Circuit Switching	New	
1 (IET50)	Minho (Porto São Bento – Nine)	Not yet under construction	2028	2030	*	*	41,621	Voice and data	Baseline 1.0	Circuit Switching	New	
4 (IET50)	Ramal de Braga	Not yet under construction	2028	2030	*	*	15,508	Voice and data	Baseline 1.0	Circuit Switching	New	
9 (IET50)	Ramal de Guimarães	Not yet under construction	2028	2030	*	*	30,514	Voice and data	Baseline 1.0	Circuit Switching	New	
5 (IET50)	Leixões	Not yet under construction	2028	2030	*	*	18,852	Voice and data	Baseline 1.0	Circuit Switching	New	

31 (IET50)	Concordância de São Gemil	Not yet under construction	2028	2030	*	*	3,896	Voice and data	Baseline 1.0	Circuit Switching	New	
6 (IET50)	Douro (Ermesinde – Caíde)	Not yet under construction	2028	2031	*	*	37,570	Voice	Baseline 1.0	Circuit Switching	New	
6 (IET50)	Douro (Caíde – Marco – Régua)	Under Construction	2025	2028	N/A	N/A	57,297	Voice	Baseline 1.0	Circuit Switching	New	
6 (IET50)	Douro (Régua – Pocinho)	Not yet under construction	2028	2032	*	*	68,225	Voice	Baseline 1.0	Circuit Switching	New	
8 (IET50)	Norte	Not yet under construction	2026	2029	*	*	336,079	Voice and data	Baseline 1.0	Circuit Switching	New	
24 (IET50)	Ramal Tomar	Not yet under construction	2026	2029	*	*	14,809	Voice	Baseline 1.0	Circuit Switching	New	
22 (IET50)	Ramal de Alfarelos	Not yet under construction	2026	2029	*	*	14,680	Voice	Baseline 1.0	Circuit Switching	New	
90 (IET50)	Ramal de Aveiro	Not yet under construction	2026	2029	*	*	11,695	Voice	Baseline 1.0	Circuit Switching	New	

NID_C 51	Beira Alta	Under Construction	2024	2025	*	*	201,851	Voice and data	Baseline 1.0	Circuit Switching	New	
186 (IET50)	Conc. Beiras	Under Construction	2023	2025	*	*	1,552	Voice and data	Baseline 1.0	Circuit Switching	New	
23 (IET50)	Oeste (Meleças – T. Vedras – C. Rainha)	Under Construction	2024	2026	N/A	N/A	84,691	Voice	Baseline 1.0	Circuit Switching	New	
23 (IET50)	Oeste (C. Rainha – F. Foz)	Not yet under construction	2027	2030	N/A	N/A	110,174	Voice	Baseline 1.0	Circuit Switching	New	
58 (IET50)	Ramal Louriçal	Not yet under construction	2027	2030	N/A	N/A	5,510	Voice	Baseline 1.0	Circuit Switching	New	
25 (IET50)	Beira Baixa (Entrocamento – Belver)	Under Construction	2023	2025	*	*	55,573	Voice	Baseline 1.0	Circuit Switching	New	
25 (IET50)	Beira Baixa (Belver – C. Branco)	Under Construction	2025	2026	*	*	66,247	Voice	Baseline 1.0	Circuit Switching	New	
28 (IET50)	Sintra	Not yet under construction	2028	2030	*	*	27,508	Voice and data	Baseline 1.0	Circuit Switching	New	

29 (IET50)	Cintura	Not yet under construction	2028	2030	*	*	11,291	Voice and data	Baseline 1.0	Circuit Switching	New	
NID_C 53	Cascais	Under Construction	2024	2025	N/A	N/A	25,450	Voice and data	Baseline 1.0	Circuit Switching	Upgrade	
33 (IET50)	V. Novas	Under Construction	2025	2026	*	*	69,375	Voice	Baseline 1.0	Circuit Switching	New	
34 (IET50)	Alentejo (Barreiro – P. Novo – Poceirão)	Not yet under construction	2028	2030	*	*	30,407	Voice and data	Baseline 1.0	Circuit Switching	New	
34 (IET50)	Alentejo (V. Novas – Casa Branca)	Not yet under construction	2028	2030	*	*	26,431	Voice and data	Baseline 1.0	Circuit Switching	New	
34 (IET50)	Alentejo (Poceirão – V. Novas)	Not yet under construction	2024	2026	*	*	33,568	Voice and data	Baseline 1.0	Circuit Switching	Upgrade	
46 (IET50)	Conc. Poceirão	Not yet under construction	2024	2026	*	*	8,162	Voice and data	Baseline 1.0	Circuit Switching	New	
54 (IET50)	Conc. Águas Moura	Not yet under construction	2024	2026	*	*	3,684	Voice and data	Baseline 1.0	Circuit Switching	New	
34 (IET50)	Alentejo (Casa Branca – Beja)	Not yet under construction	2028	2031	N/A	N/A	60,531	Voice	Baseline 1.0	Circuit Switching	New	

34 (IET50)	Alentejo (Ourique – Bif Funcheira)	Not yet under construction	2032	2033	*	*	7,926	Voice	Baseline 1.0	Circuit Switching	New	
48 (IET50)	Conc. Funcheira	Not yet under construction	2032	2033	*	*	2,374	Voice	Baseline 1.0	Circuit Switching	New	
79 (IET50)	Ramal Neves Corvo	Not yet under construction	2032	2033	*	*	31,217	Voice	Baseline 1.0	Circuit Switching	New	
37 (IET50)	Sul (Grândola – Ermidas)	Under Construction	2023	2027	*	*	27,647	Voice and data	Baseline 1.0	Circuit Switching	New	
37 (IET50)	Sul (Campolide A – Grandola não incl. Variante Alcácer)	Not yet under construction	2028	2030	*	*	102,336	Voice and data	Baseline 1.0	Circuit Switching	New	
68 (IET50)	Variante Alcácer	Not yet under construction	2028	2030	*	*	29,740	Voice and data	Baseline 1.0	Circuit Switching	New	
37 (IET50)	Sul (Ermidas – Tunes)	Not yet under construction	2028	2030	*	*	119,339	Voice	Baseline 1.0	Circuit Switching	New	
38 (IET50)	Sines	Under Construction	2023	2027	*	*	50,688	Voice and data	Baseline 1.0	Circuit Switching	New	

39 (IET50)	Évora (Casa Branca – Évora)	Under Construction	2024	2025	N/A	N/A	26,164	Voice and data	Baseline 1.0	Circuit Switching	Upgrade	
39 (IET50)	Évora (Évora – Bif. Elvas)	Under Construction	2023	2025	N/A	N/A		Voice and data	Baseline 1.0	Circuit Switching	New	
27 (IET50)	Leste (Abrantes – Elvas exc.)	Not yet under construction	2030	2033	N/A	N/A	129,977	Voice	Baseline 1.0	Circuit Switching	New	
27 (IET50)	Leste (Elvas – Fronteira)	Under Construction	2023	2025	N/A	N/A	10,715	Voice and data	Baseline 1.0	Circuit Switching	New	

To be defined but not expected before 2030.

- Planning for FRMCS deployment and GSM-R decommissioning

For the time being there are no plans to deploy FRMCS or to withdraw GSM-R.

3.3 TECHNICAL MIGRATION STRATEGY FOR ATO PART

- Deployment strategy for ATO

ATO deployment plan is under evaluation by the national railway sector: Railway undertakings and infrastructure manager.

- Planning for ATO deployment

ATO deployment plan is under evaluation by the national railway sector: Railway undertakings and infrastructure manager.

3.4 TECHNICAL MIGRATION STRATEGY FOR TRAIN DETECTION PART

- Deployment strategy for TSI compliant train detection system

In all new projects in the core network, it is mandatory to install TSI compatible detection systems, with the objective of having, by 2030, the renewal of all detection systems completed. TSI compatible train detection systems will be deployed with new signalling project.

- Planning for TSI compliant train detection system deployment

One of the major objectives of GI, Infraestruturas de Portugal (IP), is to have new train detection systems compatible with TSI at the end of 2030, with the new signalling systems.

Signalling Projects to be concluded at end of 2030

Infraestruturas de Portugal

- Lote F – **Régua-Pocinho, Caldas da Rainha Louriçal, Casa Branca Beja e Ramal da Neves Corvo;**
- Poceirão– Bombele Poceirão– Águas de Moura;
- Alfarelos – Marujal e Verride– Bif. Lares;
- Oriente – Azambuja;
- New Interlockings
- New line Porto – Lisboa;

Table 10: Planning for TSI compliant train detection deployment

ID	Line	Planning for TSI compliant train detection deployment		Additional information			Note
		Current status	Date when TSI compliant train detection is placed in service	Length [km]	Type of action	*[Other relevant aspects for TSI Compliant train detection deployments]*	
6 (IET50)	Linha do Douro	Not yet under construction	2030	100	new		From Régua to Pocinho
23 (IET50)	Linha do Oeste	Not yet under construction	2030	90	new		From Caldas to Louriçal
34 (IET50)	Linha do Alentejo	Not yet under construction	2030	90	new		From Casa Branca to Beja
79 (IET50)	Ramal Neves Corvo	Not yet under construction	2030	30	new		
34 (IET50)	Linha do Alentejo	Not yet under construction	2030	25	renew		From Bombel to Águas de Moura
22 (IET50)	Ramal de Alfarelos	Not yet under construction	2030	5	new		From Verride to Marujal
8 (IET50)	Linha do Norte	Not yet under construction	2027	60	renew		From Oriente to Azambuja
	Nova Linha Porto - Lisboa	Not yet under construction	2032	330	new		From Lisboa to Porto – High Speed

3.5 MIGRATION STRATEGY OF SPECIFIC CASES

There are no specific cases in CCS TSI 2023 for Portugal.

3.6 TECHNICAL MIGRATION STRATEGY FOR ON-BOARD CCS SUBSYSTEMS

The migration strategy for on board CCS subsystems is based on the implementation of:

- A Specific Transmission Module (STM) that will act as an interface between Class B and Class A train protection systems;
- A Dual Mode Radio that will ensure the communications either with Class B or Class A communication systems.

4. TRACK SIDE AND ON-BOARD FINANCIAL INFORMATION

The activity plan will be financially supported by:

- National budget;
- European fund's programs:
  - Recovery and Resilience Plan;
  - Sustentável 2030 - Programa Ação Climática e Sustentabilidade.

The incumbent RU is planning an application for the CEF (Connecting Europe Facility) to finance the installation of the ETCS system in the CPA4000 fleet, consisting of 9 units.

5. PLANNING

In each section, the correspondent table from chapter 3 (Migration Strategy) will be specified to provide the necessary date information.

5.1 PLANNING FOR TRAIN PROTECTION PART

5.1.1 Dates when ETCS is placed in service

See Table 8.

5.1.2 Decommissioning of Class B train protection systems

See Table 8.

5.1.3 Information on cross-border lines

There are ongoing meetings at technical level between IP and ADIF but so far there are no formal agreements for each border section.

5.1.4 Information on nodes

Specific planning for nodes is not yet available.

5.2 PLANNING FOR RADIO PART

5.2.1 Dates when GSM-R is placed in service

See Table 9.

5.2.2 Decommissioning of Class B radio systems

See Table 9

5.2.3 Dates when FRMCS is placed in service

For the time being there are no plans to deploy FRMCS or to withdraw GSM-R.

5.2.4 Decommissioning of GSM-R

For the time being there are no plans to deploy FRMCS or to withdraw GSM-R.

5.2.5 Information on cross-border lines

The cross-border links are still under development/construction.

GSM-R roaming agreements are still under development and, at the moment, no planned date is defined.

5.2.6 Information on nodes

Specific planning for nodes is not yet available.

5.3 PLANNING FOR ATO PART

ATO deployment plan is under evaluation by the national railway sector.

5.3.1 Information on cross-border lines

See 5.3.

5.3.2 Information on nodes

See 5.3.

5.4 PLANNING FOR TRAIN DETECTION PART

TSI compatible train detection systems will be deployed with new signalling projects.
See Table 10.

6. NEW MANDATORY ON-BOARD REQUIREMENTS

New mandatory requirements are not foreseen for the moment.

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