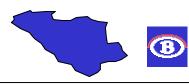
GSM-R Implementation - Belgium





UNION INTERNATIONALE DES CHEMINS DE FER

Railway company:	SNCB/NMBS
Contact:	Sébastien Legat 2 + 32 2 525 9645 + 32 2 525 9736 E-mail: sebastien.legat.754@b-rail.be
Approval authority:	to be agreed
<u>GSM-R strategy / action plan</u> : partnership: own resources:	in conjunction with SNCF & CFL
Network roll-out status:	 Preliminary radio planning: detailed plan for pilot lines, comprehensive radio planning for entire SNCB/NMBS network - contract awarded 2001 Dispatching Terminals: contract awarded September 2001; first prototype 2002 Status of main project: published in tenders bulletin (OJEC) April 2001; pre-selection of companies May 2001;request for proposals August 2001; contract to be awarded February 2002; project end: December 2006 Participation in SNCF request for proposal The rollout strategy envisages 80% of driving vehicles equipped with EIRENE mobile radio systems, with dual mode for Thalys. Analogue system to be switched off from 2005. Cooperation with SNCF regarding Thalys and Eurostar under discussion. Equipping of Thalys with dual mode planned for 3rd quarter of 2003.







Driving vehicles - total: already converted: to be converted:	
Route length: current: target:	• 3410 km • 3000 km
Interoperability discussions with neighbouring countries	open
<u>Applications:</u>	ETCS Level 1 ETCS Level 2 ETCS Level 3
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio,
Background (construction of complete new system or construction on existing system):	Analogue radio to be switched off on route-by-route basis from 2005





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UNION INTERNATIONALE DES CHEMINS DE FER INTERNATIONALER EISENBAHNVERBAND INTERNATIONAL UNION OF RAILWAYS

Railway company :	BS (Banestyrelsen)
Contact:	Peter Dowell \$\vertic{1}{2} + 45 8 234 5014 \$\vertic{1}{2} + 45 8 234 2322 E-mail : pld@bane.dk \$\vertic{1}{2}\$
Approval authority:	Railway Inspectorate
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	
Network roll-out status:	1999 Analogue radio functionality mapped onto GSM-R platform 2001 Implementation delayed - awaiting funding
Driving vehicles - total: already converted : still to be converted :	 approximately 600 + probability of 500 Copenhagen S- (suburban) trains nil approximately 600 + probability of 500 Copenhagen S-trains
Route length: actual:: target:	• 2000 km • 2000km
Interoperability discussions with neighbouring countries	Sweden and potentially Germany



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Applications:	Potentially ETCS
What analogue systems <i>l</i> applications are to be included?	Mainline Radio, local station radio (inc. shunting radio), and probably S- (suburban) train radio,
Background (construction of complete new system or construction on existing system):	New system; some re-use of e.g. mast positions







Railway company:	DB AG
Contact:	Klaus Konrad #+ 49 89 1308 3280 #+ 49 89 1308 1949 E-mail : klaus.konrad@bku.db.de
Approval authority:	EBA, EBC
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 Network: Arcor (Nortel) Terminals: NNG (Sagem, Hörmann Funkwerk Kölleda) Network leasing costs for terminals
Network roll-out status:	Analogue radio to be switched off on route-by-route basis from 2005.
Driving vehicles - total: already converted : still to be converted :	 11.500 26 to be decided







Route length: actual: target:	• 38127 km • 200 km • 24500 km (1st stage)
Interoperability discussions with neighbouring countries	In progress
Applications:	ETCS Level 1, ETCS Level 2, ETCS Level 3
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio, vehicle radio, tunnel radio, diagnostic radio



GSM-R implementation - Finland





Railway company :	RHK (Infrastructure) / VR Ltd (traffic operator)
Contact:	Esko Huovinen The second seco
Approval authority:	Finnish Rail Administration (Ratahallintokeskus - RHK)
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 Network: RHK; terminals: VR Ltd, VR-Track Ltd Service contract with network operator •
Network roll-out status:	 Initial network planning completed in 2000 Decision made in 2000 by Traffic Ministry to build new train radio system based on GSM-R standard Funding granted by parliament in 2001 for planning and ground work Roll-out to start 2002; system operational by the end of 2005 Tenders for network operation to be sent out by 09/01 RFQ under preparation for network equipments







Driving vehicles - total: already converted : still to be converted :	• 1000 • •
Route length: actual:: target:	• 5867 km • • 5800 km
Interoperability discussions with neighbouring countries	Russia, Sweden
Applications:	
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio
Background (Construction of complete new system or construction on existing system):	Replacement of existing system



GSM-R implementation - France



RESEAU FERRE DE FRANCE



Railway company:	RFF (infrastructure) and SNCF (infrastructure and terminals)	
Contact :	RFF : Jean CELLMER ☎+ 33 1 46 96 31 10 續 + 33 1 46 96 90 81 E-mail: jean.cellmer@rff.fr	SNCF : Xavier BAUMGARD ☎+ 33 1 53 42 29 21 ⓓ + 33 1 53 42 76 24 E-mail: xavier.baumgard@sncf.fr
Approval authority :	Ministry of Transportation ; Certifer	
<u>GSM-R strategy / action plan</u> : Partnership : Own resources :		
Network roll-out status :	 widespread operation from 2004 Switch-off of analogue system to GSM-R also to be introduced or (TGV-Est). 	une 2001, contract to be let mid-2002, 4 o be discussed with adjoining countries n new high-speed line to eastern France ted on the former MORANE Trial line.
Driving vehicles - total : already converted : still to be converted :	 0 5000 units (target including motor 	r driven units with 2 radios)





Route length: actual: target:	• 31724 km • • 24500 km (staged plan)
Interoperability discussions with neighbouring countries	
Applications:	ETCS Level 2, ETCS Level 3, Regional ETCS (SER)
What analogue systems /applications are to be included?	Train Radio - in particular emergency call and driver safety device (VACMA), Shunting radio, Maintenance radio
Background (Construction of complete new system or construction on existing system):	Replacement of existing systems and expansion on other lines.



Railway company :	EUROTUNNEL
Contact:	Laurent Deblonde ☎+ 33 3 21 00 41 89 ⓓ + 33 3 21 00 60 07 E-mail: laurent.deblonde@eurotunnel.com
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	Tenders invited June 2001
Driving vehicles - total: already converted : still to be converted :	
Route length: actual: target:	• 58 km • • 58 km



Interoperability discussions with neighbouring countries	Belgium, France, UK
Network roll-out status:	In conjunction with Railtrack and SNCF
Applications:	
What analogue systems /Applications are to be included?	Train Radio, Maintenance radio,
Background (Construction of complete new system or construction on existing system):	replacement of existing system





Railway company:	Railtrack
Contact:	Paul Jenkins The second secon
Approval authority:	Railtrack
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 Implementation of national network by 2006 Nortel & Siemens for network train operators responsible for terminals
Network roll-out status	 Aim is complete GSM-R network, and integration of West Coast Main Line and Channel Tunnel Rail Link into it. Project manager appointed. Phase 1 contract for cell and frequency planning awarded to Siemens and IN definition contract to Nortel. When phase 1 complete and costs assessed authorisation will be given for implementation phase. No date yet fixed for switching off of analogue system, but expected to be 2008.



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Driving vehicles - total: already converted : still to be converted :	
Route length: actual:: target:	• 16856 km • 1000 km • 16840 km
Interoperability discussions with neighbouring countries	
Applications:	Train Radio, Shunting radio, Maintenance radio, vehicle radio,
Background (Construction of complete new system or construction on existing system):	







Railway company:	RFI (Rete Ferroviaria Italiana S.p.A.)
Contact:	Luigi Debertol #+ 39 02 6371 7692 + 39 02 6371 6643 E-mail: I.debertol@fs-tlc.it
Approval authority:	RFI
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 7500 km of the conventional railway network to be equipped with GSM-R by 2005, plus the new High Speed lines. Agreements with public operators for coverage by their networks on secondary lines and back-up on the main lines (roaming agreements) Train operators responsible for on-board terminals
Network roll-out status:	 Offers invited February 2001 for equipping 7500 km with GSM-R Contract to be awarded by the end of 2001 Aim: GSM-R operating on 100 km of route on a trial site (MORANE/ERTMS trial site on Prato-Florence-Arezzo-Rigutino line) Operation through roaming on public GSM networks during 2002 Own radio coverage starting from 2003
Driving vehicles - total: already converted : still to be converted :	Responsibility of train operators

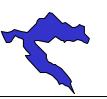






Route length: actual: target:	 16 041 km 100 km trial site + 200 km High Speed line Rome-Naples 7500 km (further stages possible)
Interoperability discussions with neighbouring countries	Not yet started
Applications:	Train radio Shunting radio Maintenance radio Vehicle radio Wide area radio
What analogue systems /applications are to be included?	All existing analogue systems will be replaced
Background (Construction of complete new system or construction on existing system):	complete new system







Railway company:	HŽ
Contact:	Ratko Kamenar 2 + 385 1 378 3102 1 + 385 1 378 2805 E-mail: ratko.kamenar@zg.tel.hr
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	
Network roll-out status:	
Interoperability discussions with neighbouring countries	
Driving vehicles - total: already converted : still to be converted :	
Route length: actual: target:	• 2.726 km •
What analogue systems /applications are to be included?	
Background (Construction of complete new system or construction on existing system):	Replacement of existing system

2 GSM-R implementation - Luxembourg





Railway company:	CFL
Contact	via France and Belgium
Approval authority:	Ø
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	
Network roll-out status:	
Interoperability discussions with neighbouring countries	planned with Belgium, France & Germany
Driving vehicles - total: already converted : still to be converted :	
Route length: actual: target:	• 274 km
What analogue systems /applications are to be included?	
Background (Construction of complete new system or construction on existing system):	





Railway company:	NS/Railinfrabeheer
Contact:	Chiel Spaans 2 + 31 30 235 81 93 1 + 31 30 235 89 11 E-mail: m.spaans@railinfrabeheer.nl
Approval authority:	Railway Inspectorate
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 Service contract Siemens (Mobirail) yes (complete 5-year contract)
Network roll-out status:	 Central pilot line operational National roll-out to has commenced, with completion due September 2002 Switch-off of analogue system expected to commence 2004, as for DB.

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GSM-R implementation - Netherlands







Route length: actual: target:	• 2.808 km • • 2.000 km
Interoperability discussions with neighbouring countries	
Applications:	
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio,
Background (Construction of complete new system or construction on existing system):	
Driving vehicles - total: already converted : still to be converted :	



GSM-R implementation - Norway





Railway company :	JBV (Jernbaneverket)
Contact:	Jan.C.Johannessen 2 + 47 22 45 51 83 1 + 47 22 45 54 99 E-mail: jan.c.johannessen@jbv.no
Approval authority:	Railway Inspectorate
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	• to be decided •
Network roll-out status:	 Implementation to start 2002 and be completed 2005. Cooperation with BV planned on Narvik route
Driving vehicles - total: already converted : still to be converted :	







Route length: actual::	• 4.006 km
target:	complete network
Interoperability discussions with neighbouring countries	Denmark, Finland & Sweden,
Applications:	
What analogue systems /applications are to be included?	Train radio, Shunting radio, Maintenance radio
Background (Construction of complete new system Construction on existing system):	complete new system



GSM-R implementation - Austria





	INTERNATIONAL UNION OF RAILWAYS
Railway company:	ÖBB
Contact:	Herbert Müller @+ 43 1 5800 32310 =+ 43 1 5800 25261 E-mail: herbert.mueller@tk.oebb.at
Approval authority:	ÖBB
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	• to be decided
Network roll-out status:	 Still to be decided; dependent on funding preparatory work in progress for network rollout 2002-2007
Driving vehicles - total: already converted : still to be converted :	• to be decided • •





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Route length: actual:: target:	• 5.643 km • • 3500 km initially (all main lines)	
Interoperability discussions with neighbouring countries	Discussions regarding border areas planned	
Applications:		
What analogue systems /applications are to be included?	Train Radio, Shunting radio,	
Background (Construction of complete new system Construction on existing system):	Replacement of existing system	

GSM-R implementation - Poland





UNION INTERNATIONALE DES CHEMINS DE FER INTERNATIONALER EISENBAHNVERBAND INTERNATIONAL UNION OF RAILWAYS

Railway company:	РКР
Contact:	
Approval authority:	
<u>GSM-R_strategy / action plan</u> : Partnership: Own resources:	
Network roll-out status:	Feasibility study carried out
Driving vehicles - total: already converted : still to be converted :	







Route length: actual:: target:	
Interoperability discussions with neighbouring countries	
Applications:	
What analogue systems /Applications are to be included?	
Background (Construction of complete new system or construction on existing system):	Replacement of existing system

GSM-R implementation - Portugal





UNION INTERNATIONALE DES CHEMINS DE FER INTERNATIONALER EISENBAHNVERBAND INTERNATIONAL UNION OF RAILWAYS

Railway company:	REFER
Contact:	Antonio Felizardo The second
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	• • •
Network roll-out status:	planning deferred
Driving vehicles - total: already converted : still to be converted :	







Route length: actual: target:	• 2.795 km •
Interoperability discussions with neighbouring countries	
Applications:	
What analogue systems /applications are to be included?	
Background (Construction of complete new system or construction on existing system):	new system



GSM-R implementation - Sweden





Railway company:	Banverket (BV)
Contact:	Anders Malmberg The second se
Approval authority:	Railway Inspectorate
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 Sagem (terminals) Siemens (Network) yes (network & terminals)
Network roll-out status:	 350 BTS's already in service. Final test acceptance of terminals almost complete. Banverket's experiences similar to those of Nortel, who are undertaking testing in Germany: interoperability of the two systems possible. It should be noted, with regard to the Far North line, that the frequencies of a broadcasting & research station inTromsø will be used which are very similar to those of GSM-R.
Driving vehicles - total: already converted : still to be converted :	 to be decided approximately 100 converted with temporary solution to be decided







Route length: actual:: target:	• 10216 km • 3500 km • 7500 km
Interoperability discussions with neighbouring countries	Denmark, Finland & Norway
Applications:	
What analogue systems / applications are to be included?	Train Radio, Maintenance radio, vehicle radio
Background (Construction of complete new system or construction on existing system):	new system



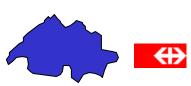


Railway company:	SBB/CFF/FFS
Contact:	André Schweizer @+ 41 51 220 27 13 =+ 41 51 220 30 35 E-mail: andre.schweizer@sbb.ch
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	• • Siemens for ETCS • yes
Network roll- out status:	 initially ETCS only; plans for voice applications from 2003 upgrade of pilot line for voice communication in 2001
Driving vehicles - total: already converted : still to be converted :	 1500 67 1433 (call for tender in 2001 to convert another 500 units in 2002-2004)





Route length: actual:: target:	 3200 km 40 km complete network including private railways (5200 km)
Interoperability discussions with neighbouring countries	discussions regarding border areas planned first contacts with DB/Arcor established
Applications:	
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio, electronic ticketing diagnosis, telematics and remote control of train route setting and switch control
Background (Construction of complete new system Construction on existing system):	Replacement of existing system





Route length: actual:: target:	 2.910 km 100 km complete network (2.910 km)
Interoperability discussions with neighbouring countries	discussions regarding border areas planned
Applications:	
What analogue systems <i>l</i> applications are to be included?	Train Radio, Shunting radio, Maintenance radio,
Background (Construction of complete new system Construction on existing system):	Replacement of existing system

GSM-R implementation - Spain





UNION INTERNATIONALE DES CHEMINS DE FER INTERNATIONALER EISENBAHNVERBAND INTERNATIONAL UNION OF RAILWAYS

Railway company:	RENFE
Contact:	Faustino Hermida The second s
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	Initially fitting of new high speed lines followed by other routes in due course
Network roll-out status:	• From 2002
Driving vehicles - total: already converted : still to be converted :	

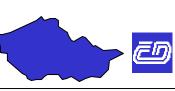






Route length: actual: target:	 12303 km ca. 6000 km of high speed lines by 2007
Interoperability discussions with neighbouring countries	
Applications:	ETCS Level 2
What analogue systems <i>l</i> applications are to be included?	Train Radio, Maintenance radio,
Background (Construction of complete new system or construction on existing system):	Complete new system







Railway company:	CD
Contact:	Zdenek Kaufmann 2 + 420 2 514 32514 + 420 2 514 33449 E-mail : Kaufmannz@gr.pha.cdrail.cz
Approval authority:	Cesky telekomunikacni urad (state authority - radio network) Drazni urad (Railway authority - mobile installation) CD infrastructure division (fixed installation)
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	 all state lines to be covered by GSM-R to be chosen in a running tender by October, 2001 to be decided
Network roll-out status:	 GSM-R feasibility study concluded and accepted. Technical project to start at the end of 2001. 200 km pilot line planned by 2002/2003 from Decin (German border) to Kolin (central Bohemia) on European Corridor IV.
Driving vehicles - total: already converted : still to be converted :	- actual requirement 2400 - 0 - to be decided







Route length: actual: target:	 9365 km (state lines 6093 km) to be decided
Interoperability discussions with neighbouring countries	Discussions regarding border areas and loco equipment planned with DB, PKP,OBB,SŽD
Applications:	Future ETCS level 2 Loco and vehicle diagnostics Railway-specific applications
What analogue systems /applications are to be included?	Train Radio, Shunting radio, Maintenance radio, Local radio networks on stations
Background (Construction of complete new system or construction on existing system):	construction on existing radio network future replacement of national analogue radio system

GSM-R implementation - Hungary





UNION INTERNATIONALE DES CHEMINS DE FER INTERNATIONALER EISENBAHNVERBAND INTERNATIONAL UNION OF RAILWAYS

Railway company:	MÁV Rt
Contact:	Amália Karádi Therefore A a start of the st
Approval authority:	
<u>GSM-R strategy / action plan</u> : Partnership: Own resources:	
Network roll-out status:	Initially only ETCS Level 1
Driving vehicles - total: already converted : still to be converted :	





Route length: actual: target:	 7769 km 30 km to be decided
Interoperability discussions with neighbouring countries	
Applications:	
What analogue systems /Applications are to be included?	
Background (Construction of complete new system or construction on existing system):	replacement of existing system