



## Annexe “C”

### Track radio systems:

#### a) Mobile radio network in the GSM-R system

Operator	Network presentation	MCC - MNC
Railways Infrastructure Administration, s.o.	GSM-R CZ	230-98

- a1.** The network radio links and data transferral between moving terminals (vehicular radio stations – cab radio, mobile phones, etc) and fixed participants (dispatcher workplaces, sender workplaces etc.) and connections with other networked electronic communications (railways telephone network, public fixed or mobile phone networks, etc.). The system works in the frequency band 900 MHz and stems from the standard GSM expanded, according to the UIC project, with other specifications for working on railways, as found in the EIRENE technical documentation.
- a2.** The system is interoperable as a part of the control and command subsystem, class A<sup>1</sup>).
- a3.** A list of the track sections covered by the signal of the GSM-R network:

Track number	Section
501	Kolín – Praha-Libeň
525/526	Praha-Libeň – Praha-Bubeneč
	Praha-Libeň – Praha Masarykovo n. – Praha-Holešovice-Stromovka
	Praha-Vysočany – Praha hl.n.
	Praha-Libeň – výh. Praha-Vítkov
527	Praha-Bubeneč – Děčín hl.n.
544	Děčín hl.n. – Dolní Žleb st.hr.
	Děčín východ – Prostřední Žleb

- a4.** Whilst GVD 2007-2008 was valid the GSM-R network was initiated in the track sections:

Track number	Section
320	Lanžhot st.hr. – Břeclav – Brno hl.n.
324	Brno hl.n. – Brno Maloměřice
326	Brno Maloměřice – Česká Třebová

<sup>1</sup> Decree No. 352/2004 Coll., on the operational and technical interoperability of the trans-European rail systems; Directive 2001/16/EC of the European Parliament and of the Council of 19 March on the interoperability of the trans-European conventional rail system, Appendix “Technical Specifications for Interoperability“, subsystem “Control and Command”.



501	Česká Třebová – Pardubice – Kolín
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Notification with the date it came into effect was published by the RIA in the Transport Bulletin.

- a5. Apart from the general conditions presented further, one condition for access to the transport route covered by the signal of the GSM-R network in the track sections highlighted in the table in paragraph a3. and a4. is being equipped with drive, operating or a special vehicular radio station able to fully cooperate with the GSM-R network and meeting the conditions in accordance with the EIRENE specifications.
- a6. The RIA must issue its approval for moving terminals (vehicular radio stations, mobile phones, etc.) used on a railway transport route owned by the Czech Republic.
- a7. A list of mobile terminals for which the RIA has given its approval for usage on a railway transport route owned by the Czech Republic and equipped with GSM-R:

Order No.	Type symbol	Manufacturer	Decision number
A – Vehicular radio station			
A1	EMS-DM	Kapsch TrafficCom AG, Wien, Österreich	
B – Mobile telephones			
B1	GPH TiGR 150R	SAGEM SA, Paris, France	
B2	OPH	SAGEM SA, Paris, France	
C – other equipment			
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The present state of equipment for which the RIA has given its approval is given on the RIA web pages [www.szdc.cz](http://www.szdc.cz), link to “Rádiové sítě”(Radio Networks).

- a8. The contractual conditions for providing services and using the GSM-R network, the method of ordering, issuing and verifying SIM cards as well as the business conditions and the operating rules for the network are given on the RIA web pages at [www.szdc.cz](http://www.szdc.cz), link to “Rádiové sítě”(Radio Networks).
- a9. A list of the foreign GSM-R network operators with whom roaming agreements have been signed as of the date of publishing this Statement:

Order No..	Operator	Network presentation	MCC - MNC
1.	Deutsche Bahn AG, DB-Netz, Germany	DB-Tel.M	262-10

The present state of the roaming partners is given on the RIA web pages [www.szdc.cz](http://www.szdc.cz), link to “Rádiové sítě”(Radio Networks).

**b) Track radio system – TRS**

- b1. The system ensures radio communications between the train dispatcher, the dispatcher the train driver and, if necessary, other workers operating the railway transport with the driver of the drive vehicle and the transfer of routine information (commands, reports).The system respects the basic functions stemming from the



pertinent provisions of recommendation UIC 751–3 and works in the frequency band 450 MHz.

**b2.** The system is interoperable as a part of the command and control subsystem class B<sup>1</sup>).

**b3.** A list of the tracks equipped with the TRS system:

Track No.	Track section
301	Čadca – Bohumín; Petrovice u Karviné – Dětmárovice; Odb Koukolná – Odb Závada
302	Ostrava hl.n. – Valašské Meziříčí; Frýdlant nad Ostravicí – Ostravice
304	Valašské Meziříčí – Kojetín; Bylnice – Horní Lideč; Zborovice – Kroměříž
305	Bohumín – Přerov; Prosenice – Výh. Dluhonice
306	Suchdol nad Odrou – Budišov nad Budišovkou; Suchdol nad Odrou – Fulnek; Suchdol nad Odrou – Nový Jičín město
307	Ostrava-Svinov – Krnov
308	Horní Lideč – Hranice na Moravě
309	Přerov – Olomouc – Česká Třebová
310	Krnov – Olomouc hl.n.; Bruntál – Malá Morávka
311	Krnov – Mikulovice – Hanušovice – Olomouc; Bludov – Zábřeh na Moravě;
312	Zlaté Hory – Mikulovice
314	Lanškroun – Rudoltice v Čechách
315	Olomouc hl.n. – Nezamyslice; Přerov – Brno hl.n.; Holubice – Blažovice
316	Přerov – Břeclav
317	Vlářský průsmyk – Staré Město u Uherského Hradiště; Luhačovice – Újezdec u Luhačovic; Kunovice – Veselí nad Moravou
318	Veselí nad Moravou – Brno hl.n.; Moravský Písek – Bzenec; (Vrbovce) – Veselí nad Moravou – Rohatec
320	(Kúty) – Břeclav
322	Brno hl.n. – Okříšky– Jihlava
323	Střelice – Hrušovany nad Jevišovkou – Břeclav; Břeclav – Lednice
324	Brno hl.n. – Kutná Hora hl.n.
502	Kutná Hora hl.n. – Lysá nad Labem; Nymburk hl.n. – Poříčany
503	Ústí nad Labem západ – Ústí nad Labem-Střekov
504	Ústí nad Labem hl.n. – Řetenice – Most; Ústí nad Labem západ – Úpořiny – Bílina; Odb České Zlatníky – Obrnice; Most – Most nové n.; Třebošice – Most nové n.
505	Choceň – Týniště nad Orlicí – Velký Osek; Pardubice hl.n. – Jaroměř
506	Týniště nad Orlicí – Meziměstí; Václavice – Starkoč; Meziměstí – Otovice zastávka
508	Jaroměř – Turnov
509	Jaroměř – Trutnov hl.n.; Trutnov hl.n. – Svoboda nad Úpou
511	Hradec Králové hl.n. – Jičín – Turnov; Hněvčeves – Smířice
512	Hanušovice – Ústí nad Orlicí
513	Letohrad – Týniště nad Orlicí
515	Čáslav místní n. – Třemošnice
517	Prachovice – Přelouč
519	Benešov u Prahy – Praha hl.n.



521	Praha-Vršovice seř.n. – Praha-Radotín; Praha hl.n. – Praha-Smíchov – Beroun
524	Lysá nad Labem– Praha-Vysočany
525 / 526	Prague connecting tracks (Výh. Praha-Vítkov – Praha-Libeň; Praha-Vysočany – Praha hl.n. – Praha-Smíchov; Praha odstavné n. – Praha-Vršovice – Praha hl.n.; Praha-Hostivař – Praha-Libeň – Praha-Vysočany; Praha-Běchovice – Praha-Vršovice – Výh. Praha-Vyšehrad)
527	Výh Ústí nad Labem jih – Ústí nad Labem západ
531	Žatec západ – Obrnice; Žatec západ – Odb Velichov; Žatec – Chomutov
532	Čelákovice – Neratovice
533	Chomutov– Karlovy Vary – Cheb
535	Oldřichov u Duchcova – Louka u Litvínova – Most/Třebošice
537	Praha-Vysočany – Turnov
541	Nymburk hl.n. – Mladá Boleslav hl.n.
543	Cheb – Františkovy Lázně – Vojtanov; Tršnice – Františkovy Lázně
701	Veselí nad Lužnicí – Havlíčkův Brod
702	Tábor – Písek
703	Horní Cerekev – Tábor
704	České Budějovice – Benešov u Prahy
705	České Velenice – České Budějovice; České Velenice – Veselí nad Lužnicí
706	Dolní Dvořiště – České Budějovice
709	České Budějovice – Plzeň hl.n.
710	Janovice nad Úhlavou – Domažlice
711	Plzeň hl.n. – Klatovy – Železná Ruda
712	(Plzeň hl.n.) – Plzeň-Jižní předměstí – Furth im Wald; Nýřany – Heřmanova Huť
713	Beroun – Plzeň hl.n.
714	Rokycany – Nezvěstice; Chrást u Plzně – Radnice
715	Zdice – Protivín; Putim – Ražice
716	Rožmitál pod Třemšínem – Březnice; Březnice – Blatná – Strakonice; Nepomuk – Blatná
719	Plzeň hl.n. – Žatec západ
720	Plzeň hl.n. – Cheb
720	Plzeň hl.n. – Cheb

The present state of the channel groups used is marked on the individual tracks by signals “please switch to channel group” in accordance with article 1022 of regulation RIA (ČD) D1.

- b4.** A condition for access to a transport route equipped with the TRS system, apart from the general conditions presented further, is being equipped with a drive, operating or a special vehicular radio station able to fully cooperate with the TRS system. A condition for access to a transport route in relation to railway vehicles being equipped by radio station is recommending. Relevant radio stations, including its documentation of their fitting into the present vehicles, are subject to permit procedure as a railway vehicle change.
- b5.** The RIA must issue its approval for moving terminals (vehicular or portable radio stations) used on a railway transport route owned by the Czech Republic.



- b6.** A list of the mobile terminals that, at the time of issuing this statement, may be operated in the TRS networks in the Czech Republic:

Order No.	Type symbol	Manufacturer	Decision number
X – Vehicular radio stations			
X1	VS 47	T-CZ, a.s., Praha, CR	ZL 2/1994-SZ
Y – Portable radio stations			
Y1	70-265 (70-266)	MIDLAND Ltd., Theale, UK	ZL 16/1994-SZ
Y2	EPU 414	BENDIX/KING, Lawrence KA, USA	ZL 9/1994-SZ
Y3	TK 360 UIC, TK 378 UIC	KENWOOD Corp, Tokyo, Japan	ZL 05/1999-SZ
Z – Other equipment			
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The present state of the equipment which was approved by the RIA is given on the RIA web pages [www.szdc.cz](http://www.szdc.cz), link to “Rádiové sítě”(Radio Networks).

- b7.** The vehicular TRS radio station system can likewise be equipped for communications on the radio band 150 MHz (for operating radios in other track networks or in local networks).
- b8.** The TRS system can, if needs be, (for instance remote control of interlocking plant etc.) and temporarily (until a GSM-R network has been established) be constructed on other tracks not presented here – an announcement with the dates it becomes effective is published by the RIA in the Transport Bulletin at least 6 months beforehand

For controlling railway transport local radio systems are also operated:

### c) ASCOM System

- c1.** The system ensures radio communications between the dispatcher and the driver of the drive vehicle within reach of the base radio station located in the pertinent railway station and connecting the engine driver with other workers taking part in operating the rail transport. The system works in simplex in the frequency band 450 MHz.
- c2.** The system is not interoperable.
- c3.** The system is used on the following tracks:

Track number	Track section (D3)
508	Turnov – Liberec
547	Liberec – Hrádek nad Nisou; Liberec – Raspenava – Frýdlant v Čechách – Černousy; Raspenava – Bílý Potok pod Smrkem; Frýdlant v Čechách –



	Jindřichovice pod Smrkem
548	Železný Brod – Tanvald; Liberec – Tanvald; Tanvald – Harrachov; Smržovka – Josefův důl

The system is no longer being further developed.

- c4.** A condition for access to a transport route equipped with the ASCOM system in the 450 MHz band in the track sections given in paragraph c3, apart from the general conditions presented further, is being equipped with a drive, operating or a special vehicular radio station able to fully cooperate and communicate with this system.

**d) Simplex connection in the 150 MHz band**

- d1.** The simplex connection system in track and local radio networks in the 150 MHz band ensures radio links between the dispatcher, the driver of the drive vehicle within reach of the base radio station located in the pertinent railway station and connecting the engine driver with other workers taking part in operating the rail transport..
- d2.** The system is not interoperable.
- d3.** This system is used to control rail transport on the following tracks:

Track No.	Track section
501	Kolín – Pardubice – Česká Třebová
503	Děčín východ – Ústí nad Labem Střekov – Lysá nad Labem
545	Děčín hl.n. – Děčín východ

On the side of the railway infrastructure TESLA SELECTIC radio stations are used with a dual-tone selection in the broadcast train → dispatcher and vice versa.

The use of simplex connections in the 150 MHz band in the track section Kolín - Pardubice – Česká Třebová had come to an end within the introduction of GVD 2007-2008, when it was replaced by the GSM-R network – see “Track Radio Systems”, paragraph. a4. Notification with the date it came into effect was published by the RIA in the Transport Bulletin.

- d4.** For managing rail transport a similar system is used in the tracks:

Track No.	Track section (D3)
313	Chornice – Dzbel
314	Třebovice v Čechách – Chornice – Velké Opatovice
321	Šakvice – Hustopeče u Brna
507	Žďárec u Skutče – Svitavy
522	Rakovník – Jesenice – Blatno u Jesenice; Rakovník - Mladotice
530	Lužec – Vraňany – Straškov – Libochovice
534	Kadaň – Vilémov u Kadaně – Kaštice; Vilémov u Kadaně - Kadaňský Rohozec
536	Karlovy Vary – Karlovy Vary dol.n. – Bečov nad Teplou – Mariánské Lázně; Dalovice – Merklín; Karlovy Vary – Nová Role – Nejdek – Potůčky; Chodov – Nová Role
715	Zadní Třebaň - Lochovice



The railways infrastructure uses the TESLA SELECTIC radio station, the participant is selected by voice.

- d5.** A condition for access to a transport route equipped with the simplex system in the 150 MHz band in the track sections given in paragraph d3 and d4, apart from the general conditions presented further, is being equipped with a drive, operating or a special vehicular radio station able to fully cooperate and communicate with this system.
- d6.** With regards to the fact that these systems use a channel spacing (band width occupied by the broadcast) of 25 Hz, they could only be operated until 30.4.2008.
- d7.** In railway operation local radio networks in the band 150 MHz are still used for managing certain technological procedures (shunting, rolling stock foremen, etc.). This connection is mentioned in the interests of completeness and is not a part of the rail transport route and is used when needed by individual rail transport operators.