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GSM-R System Implementation in the Czech Republic

Správa železniční dopravní cesty (SŽDC) equipped 482 km of lines with digital radio system GSM-R last year. In total, 1,660 kilometres of lines are already covered. During the following years, this system should be extended to the entire Trans-European transport network TEN and gradually also to other national and regional lines in the Czech Republic.

The Feasibility Study recommendation to implement GSM-R in the Czech Republic was adopted at the end of 2000. The priority task, arising from accepted international commitments, was the implementation of a pilot project GSM-R in the section Děčín – Praha – Kolín. The contract was signed in May 2004. It was started immediately afterwards and completed in June 2005. Testing operation was launched on 1 January, 2006.

An evaluation of the pilot implementation provided basic technical and economic data and parameters for subsequent construction and key conceptual decisions especially for the possibility of development and testing of individual national applications in the GSM-R system. This procedure allowed gradual adding of other constructions GSM-R on selected lines of the rail network of SŽDC already in the form of routine projects.

At the end of last year, 1,660 km of lines in the Czech Republic have been equipped with the GSM-R system. A total of 331 base stations (BTS) served for signal distribution. The GSM-R network has two traffic control centres placed in Prague and Přerov which are complemented within individual constructions so as to be able to ensure operation of the newly equipped lines and a mutual backup. Simultaneously with the construction of the railway line part, vehicles are being intensively equipped with the GSM-R on-board part.

GSM-R is currently being implemented in the section Ústí nad Orlicí – Lichkov which should be completed in September 2018. SŽDC has been preparing sections České Velenice – České Budějovice – Horní Dvořiště and Plzeň – České Budějovice for tenders. The completion of these constructions is expected to be at the turn of 2018 and 2019. Moreover, a preparatory documentation for the railway section Votice – České Budějovice has been processed. In this case, however, it will depend on a modernization of remaining parts of Corridor IV, meaning Sudoměřice u Tábora – Votice, Soběslav – Doubí and Dynín – Nemanice as the implementation of GSM-R will be possible after the completion of these constructions.

SŽDC's current goal is to complete coverage of tracks of the Trans-European transport network and consequently of all national railways to ensure interoperability. However, this is conditional on the

implementation of further investment plans, particularly on expanding transmission routes, including the laying of fiber optic cables. Particular attention will be paid to development of the GSM-R network in cross-border and border sections to ensure interoperable radio communications with the vehicles of foreign railway carriers coming into our territory.

Implemented Construction	Number BTS	Number km	Completed
Děčín state border – Praha – Č. Třebová – Břeclav state border (SR + A)	104	528	09/2009
Břeclav state border (SR + A) – Petrovice u Karviné state border	31	258	09/2010
Česká Třebová – Přerov, Opava východ – Jablunkov	40	230	06/2013
Děčín východ – Nymburk – Kolín	23	162	11/2013
Junction Praha	36	50	2016
Kolín – Havlíčkův Brod – Křižanov – Brno	43	202	2016
Benešov u Prahy – Votice	6	16	2016
Znojmo – Šatov state border	2	12	2016
Beroun – Plzeň – Cheb – Vojtanov state border	46	202	10/2016
TOTAL GSM-R CZ	331	1 660	31/12/2016

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