

Railway infrastructure condition-monitoring questions

No.	Question	The state of play in Kosovo	The state of play in Macedonia	The state of play in Albania
1	Is your organization obliged (e.g. according to the valid Regulations and/or Rule-books) to perform regular and systematic railway infrastructure condition-monitoring (e.g. Track Geometry - TG)?	Yes, according to the regulations (rulebooks) in force we are obliged to do the monitoring of the railway infrastructure, including the track geometry parameters.	According the Rulebook for manner of maintenance, manner of keeping records and data use from the records of the trackway superstructure our organization is obligated to perform regular and systematic railway infrastructure condition-monitoring .	Pursuant to the Railway Technical Utilization Regulation and Railway Maintenance Regulation, the Infrastructure Manager is responsible for checking the state of the railway infrastructure.
2	How many times per year is the regular and systematic railway infrastructure condition-monitoring prescribed in your Regulations and/or Rule-books to be mandatory performed?	According to the regulations and Rulebooks in force the monitoring and control on our railway lines shall be performed three times a year.	According the Rulebook our organization is obligated to perform 1 (one) per year condition-monitoring using Track Recording Vehicles (TRV).	The railway line check is carried out by the line brigade every week, by the railway line technician every month, by the technical officer every three months and at the end of each year, by a team of specialists from the Railway Infrastructure and Safety Authority. This check is called regulation Periodic Control.
3	How many times in the past 10 years has your organization performed regular and systematic railway infrastructure condition-monitoring, e.g. using owned or rented Track Recording Vehicles (TRV) and what was the network coverage (i.e. which percentage of the	<p>Since we don't have a machine that does the detailed recording and measurement of all the necessary track parameters, in the last 10 (ten) years we have not done so. Also due to the lack of financial means we have not been able to rent such a machine from abroad.</p> <p>However, the monitoring and control is done by our infrastructure experts, through visual checks and detailed measurements through relevant</p>	Our organization performed railway infrastructure condition-monitoring using Track Recording Vehicles (TRV) 2 (two) times in the past 10 years (95 percentage of the entire network was inspected).	Once a year, all track.

	entire network was inspected)?	mechanical tools, including modern tamping machine type Plasser 08-16 which makes the adjustment and the measurement of the track geometry, as it is: cant, versine, Level versine left, level versine right, Twist, Alignment D1, Level of alignment D1 left, and level of alignment D1 right.		
4	When was the last time your organization performed the railway infrastructure condition-monitoring condition survey (e.g. track recording vehicle, i.e. measuring car) and what was the network coverage (i.e. which percentage of the entire network was inspected)?	The last detailed measurement was made in 2004 with the AMSLER measuring wagon borrowed from Belgrade, and the coverage of the network was 100 %. Otherwise measurements with Plasser 08-16 we do in regular bases.	2013 year with MER MEC Road Rail Recording Vehicle	Periodic inspection is carried out annually and is a visual inspection, where the condition of the elements of the railroad track, and of artworks, bridges and tunnels is visually checked.
5	Does your organization possess/own railway infrastructure condition-monitoring vehicles and systems (e.g. track recording vehicle – TRV)?	No we don't possess / have track Recording Vehicles, except tamping machine type Plasser 08-16 which is described in the answer no. 3 (three).	Our organization does not possess track recording vehicle (TRV).	No
6	If the answer to the above question is "Yes", does your TRV, or your measuring systems, include the possibility of measuring <i>in digital format</i> (necessary for condition-assessment and Maintenance & Renewal (M&R) planning)	The track parameters mentioned above are measured digitally by the Plasser 08-16 machine, while their printing is done in the form of diagrams.		

	any of the following parameters (Yes/No):			
6.1	Track Geometry (optical, i.e. laser-based)	No		
6.2	Track Geometry (mechanical, i.e. contact-based)	Yes for mentioned parameters: Cant, Versine, Level versine left, Level versine right, Twist, Alignment D1, Level of alignment D1 left, and Level of alignment D1 right.		
6.3	Rail Profile	No		
6.4	Rail Corrugation	No		
6.5	Rail surface defects (Vision System)	No		
6.6	Track surface defects (Vision System)	No		
6.7	Ground Penetrating Radar (GPR)	No		
6.8	Overhead-line (OHL) wire Geometry	No		
6.9	Overhead-line (OHL) wire Wear	No		

No.	Question	The state of play in Serbia	The state of play in BIH	The state of play in MNE
1	Is your organization obliged (e.g. according to the valid Regulations and/or Rule-books) to perform regular and systematic railway infrastructure condition-monitoring (e.g. Track Geometry - TG)?	<p>Regular and systematic railway infrastructure condition monitoring is mandatory according to the Rulebook about technical condition and maintenance of railway substructure („Official Gazette of the Republic of Serbia“, No. 39/16 and 74/16),</p> <p>Regarding Overhead-line (OHL) regular and systematic condition monitoring is mandatory according to Rulebook for maintenance of energy subsystem („Official Gazette of the Republic of Serbia“, No. 106/15).</p>	<p>RS: Yes, according to Rulebook 314 on upper layer and Rulebook 315 on lower layer, IM performs regular monitoring of the railway infrastructure condition.</p> <p>Federation: Yes, The Rulebook No. 314 on the railway track superstructure maintenance, the Rulebook No. 315 on the railway track substructure maintenance 315</p>	<p>According the art 46 of the Railway law and internal acts, IM performs regular and systematic railway infrastructure condition-monitoring on the daily, weekly, monthly and yearly basis.</p>
2	How many times per year is the regular and systematic railway infrastructure condition-monitoring prescribed in your Regulations and/or Rule-books to be mandatory performed?	<p>Rulebook for maintenance of energy subsystem states that OHL wire geometry and OHL wire wear must be performed once per year.</p> <p>Rulebook about technical condition and maintenance of railway substructure define systematic railway infrastructure condition-monitoring for:</p> <ul style="list-style-type: none"> - main lines, two times a year (for the speeds ≥ 120 km/h, four times a year) - regional lines, two times a year - local lines, once a year - shunting lines, once a year. 	<p>Two times per year (spring and autumn) – both (RS and FED)</p>	<p>According the Rulebook IM is obligated to perform condition-monitoring two times per year, using Track Recording Vehicles (TRV).</p>
3	How many times in the past 10 years has your organization performed regular and systematic railway infrastructure condition-monitoring, e.g.	<p>Recording of railway infrastructure geometrical condition by company's own track recording vehicle is performed every year, in accordance with the provisions of the above Regulations.</p>	<p>RS: Two times per year for the whole network with own measuring car, except during the floods in 2014, when this job was performed by the Austrian railways.</p>	<p>In last 10 years IM performed infrastructure condition monitoring 4 times. The last one was in 2019. Before that, IM published many times (3-4 times per year) calls for companies that</p>

	<p>using owned or rented Track Recording Vehicles (TRV) and what was the network coverage (i.e. which percentage of the entire network was inspected)?</p>	<p>In the requested period recording was performed on 90% of railway infrastructure. In 2011, due to technical reasons, track recording was performed on 30% of infrastructure network.</p> <p>OHL condition monitoring was performed by company's measuring car regularly until 2015. for entire network. Since separation of railway company on IM and traffic operators (passenger and freight) in 2015. OHL condition monitoring was performed less regularly and covered about 30% of network yearly. 2019 OHL measuring covered about 90% of network.</p>	<p>FED: In addition to measuring all parameters of track geometry by a rented measuring vehicle, JP ŽFBiH (public company FBiH Railways) also owns and uses, on regular basis, track vehicles for measuring basic track geometry parameters, in particular for the ongoing maintenance tasks. Also, the condition of the overhead contact line on the electrified tracks is monitored using a device owned by the JP ŽFBiH</p>	<p>provide services with TRV, but there was not any interested company for this job.</p>
4	<p>When was the last time your organization performed the railway infrastructure condition-monitoring condition survey (e.g. track recording vehicle, i.e. measuring car) and what was the network coverage (i.e. which percentage of the entire network was inspected)?</p>	<p>The last survey performed by means of track recording vehicle EM 80L was performed in 2019 and it covered approximately 85% of the network because on the remaining 15% of lines works are being performed on improving the track technical quality (works are under way). Last OHL measuring was performed in 2019 and covered about 90% of network.</p>	<p>RS: "Railways of the Republic of Srpska" have their own electronic measuring car. The last railway infrastructure condition monitoring was in the period from 18.11.2019. to 28.11.2019. FED: JP ŽFBiH owns a track vehicle – a dynamic stabilizer which is used for measuring track geometry on a rolling basis. Such measurements were also carried out during 2019</p>	<p>In 2019 – 100% of all railway network in MNE.</p>
5	<p>Does your organization possess/own railway infrastructure condition-monitoring vehicles and systems (e.g. track recording vehicle – TRV)?</p>	<p>Infrastructure of Serbian Railways has track recording vehicles EM 80L and EM SAT 120 on its disposal for track condition monitoring and measuring car for OHL condition monitoring. Beside this, Infrastructure of Serbian Railways signed contract with Russian</p>	<p>RS: Railways of the Republic of Srpska" have own electronic measuring car „EM80L FED: JP ŽFBiH owns a track vehicle for measuring basic track geometry parameters</p>	<p>No. Only manually instrument AMBER type for measuring open track geometry and DIAMOND type for measuring crossovers</p>

		company „TBEMA“ for the acquisition of track recording vehicles. Value of the contract is 2,2 million euros provided from EBRD loan. Deadline for delivery is middle of 2020.		
6	If the answer to the above question is “Yes”, does your TRV, or your measuring systems, include the possibility of measuring <i>in digital format</i> (necessary for condition-assessment and Maintenance & Renewal (M&R) planning) any of the following parameters (Yes/No):		RS: The measuring car possessed by the “Railways of the Republic of Srpska” does not have the ability to measure in digital form. FED: Yes, JP ŽFBiH ŽFBiH owns a track vehicle – a dynamic stabilizer P&T“ DGS 62 N and a measuring device DIAMONDS Dynamic stabilizer P&T“ DGS 62 N measures the following: Track Alignment, Track Super elevation, Track Stability, and Track Twist Measuring device DIAMOND S measures, the following: Track Width, Track Alignment, Track Super elevation, Track Twist.	No
6.1	Track Geometry (optical, i.e. laser-based)	Yes	No	No
6.2	Track Geometry (mechanical, i.e. contact-based)	Yes	Yes	No
6.3	Rail Profile	Yes	No	No
6.4	Rail Corrugation	No	No	No

6.5	Rail surface defects (Vision System)	No	No	No
6.6	Track surface defects (Vision System)	No	No	No
6.7	Ground Penetrating Radar (GPR)	No	No	No
6.8	Overhead-line (OHL) wire Geometry	No	No	No
6.9	Overhead-line (OHL) wire Wear	No	No	No