



# S-Bahn Berlin:

## Tests of approval of the new suburban train set

The modernisation of the suburban wagon fleet in Berlin is a large-scale project. 382 new trains will provide more comfort, light and safety from 2021 on. In 2015, the S-Bahn-Berlin GmbH had placed the order to develop and design a new motor train set called "DB-type 483/484" to be supplied by the consortium of Siemens Mobility GmbH and Stadler Pankow GmbH. In this project, it was crucial to meet the very high technical requirements and scheduling needs as well as to provide know-how and a project management largely labelling "made in Germany". Yet there is also an Austrian contribution to this major project: PJM, specialist for railway systems, was in charge of the approval tests in the fields of fatigue strength, structural requirements of railway vehicle bodies and torsional vibrations of the wheelsets. Basically, a complex project like this requires a many years' experience in worldwide projects of an accredited testing facility. Due to its numerous projects in more than 30 countries, PJM was a reliable project partner.

Perfect project management was required in order to combine the very special tests comprising extensive measurements within quite a short period and

yet to achieve most reliable results. Due to many years' expertise in metrology and its analyses, the highly experienced PJM-team did perfectly cope with these challenging circumstances. Once more, the PJM team proved great flexibility: The tests were performed mainly at night.



*Austrian know-how for a significant project in Berlin: PJM, specialised in worldwide railway systems, was in charge of the tests of approval of the new vehicle type DB 483/484 of the suburban rail in Berlin.*



*Impressive dimensions: 400 measurement channels and 30 telemetry channels collected data of 2 terabytes. PJM has a many years' experience of analysing such complex data.*

### These figures show the complexity of this project

- Periods of test runs: 12 weeks
- Generated data from the test runs: 2 terabytes
- 30 telemetry channels and 400 measurement channels

### Great overall skills of the PJM-team



*„Currently, major projects in Berlin - such as the new airport - are public issues. Thus, a very experienced team with both technical expertise and professional appearance is the basis of a successful project“, says CEO Martin Joch. The new train sets will be in operation in January 2021.*

### Special project features



400 measurement channels which are clearly above the average amount of channels in other projects.

- The torsional vibrations were measured at 4 axles in order to detect which wheelset is stressed at a maximum level. The bending and torsion stresses were measured on 6 axles (in summary 30 telemetry channels).
- PJM had designed special accelerometers to protect them from high voltage of the current collector.
- PJM had applied new telemetry systems and had designed special mounting systems on the running axles.

### The project at a glance



Approval tests of the new suburban train types DB 484 in the fields of fatigue strength, structural requirements of railway vehicle bodies and torsional vibrations of the wheelsets.

Customer: Consortium of Siemens Mobility GmbH and Stadler Pankow GmbH



Project schedule: The overall project started at the end of 09/2019 and was finished at the beginning of 02/2020. From 11/2019 till 02/2020, the tests were performed within a 12-week-period. The test report was finished in May 2020.



The test runs were performed on the entire rail network. The equipment was installed in the district of Grünau.

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