



research bridges railways tunnelling monitoring technology management international

Radio Mast Jungingen

The present structure (height = 49.5 m) is made of spun concrete and manufactured in three pieces. The radio mast is located in Ulm/Jungingen along the railway track Ulm-Stuttgart and was built in 1983. At two segments of the mast vertical cracks were detected and the static re-calculation showed insufficient concrete reinforcement.

As concerns regarding the stability of the radio mast came up, a dynamic investigation with BRIMOS® Structural Health Monitoring was performed in addition to the already carried out structural inspection and non-destructive testing. The evaluation of the load bearing capacity and operability under regular operational condition supports the decision process of the bridge owner in the course of cost planning for maintenance and possible rehabilitation measures.

Due to the fact that a reference measurement of the radio mast was not available a finite element model was developed. The calculated parameters served as expected values representing the undamaged condition. The comparison of the results from the numerical model with those of the measurements supports the assessment and evaluation of the structural condition.

The present investigation (measurement 2010) is to be understood as a reference measurement. Possible upcoming measurements are to be referred to this measurement - possible changes of the structure's operational integrity can be quantified with this approach.

- Client: ALPINE-ENERGIE Germany GmbH
- Location: Ulm-Jungingen, Germany
- Checking Period: 2010
- Services: Finite Element Simulation
Dynamic measurement
BRIMOS® - Assessment and Rating



BRIMOS® Services conducted:

- | | | | | |
|------------------------------|--|---|---|--|
| Lifecycle Management: | <input checked="" type="checkbox"/> Condition Assessment | <input type="checkbox"/> Condition Monitoring | <input type="checkbox"/> Rehabilitation Planning | <input type="checkbox"/> Quality Control |
| | <input type="checkbox"/> Lifetime Assessment | <input type="checkbox"/> Traffic Analysis | <input type="checkbox"/> Environmental Influences | <input type="checkbox"/> Risk Assessment |
| Special Measurements: | <input type="checkbox"/> Attendant Monitoring | <input type="checkbox"/> Noise and Vibrancy | <input type="checkbox"/> Deflection Measurements | <input type="checkbox"/> Seismics |