SRS SafeRailSystem
The fastest rail borne system for railway ballast inspection

IDS: The leader in multi-frequency and multi-channel
Ground Penetrating Radar
www.georadar.idscorporation.com
SRS is an integrated radar array system specifically designed for the inspection of railway ballast quality and to aid with the restoration and maintenance process. SRS offers a non-destructive train mounted solution which can be operated at high speed (over 300km/h), doesn't require crews working on the track and doesn't entail line temporary closures. It provides a continuous inspection of ballast thickness, locates areas with insufficient bearing capacity, differentiates between clean and fouled ballast and detects sections with drainage problems.

**SRS Benefits**
- Improved track maintenance decision making.
- Increased rail network management profitability due to continuous monitoring.
- Cost reductions in track investigation procedures, maintenance and renewal operations.
- Easy interpretation of ballast status through the use of automatic tools.
- Minimized survey time due to high-speed GPR solution.

**SRS Features**
- **High speed:** The SRS ground penetrating radar for ballast inspection can reach more than 300 Km/h with 12cm scanning steps.
- **Dedicated post processing platform:** Dedicated post processing software will guide the user through the interpretation of the data and detection of subsurface layers in a semi-automatic way.
- **Video Camera and GPS:** The SRS solution can be integrated with a video camera, GPS and a Doppler radar encoder in order to provide the exact location of a scan and save time in post processing.

**SRS Configuration**
- Antenna
- Frame
- Data logger
- Doppler encoder
- SRS Radar control unit
- Calibration with core samples
- Asset

**SRS DPA Data Analyzer**
- Automatic tracking of ballast interfaces
- Automatic interpretation of ballast status
- Ballast stratigraphy map
- Map of ballast status

**SYSTEM SPECIFICATIONS**
- RECOMMENDED LAPTOP: Panasonic CF-19 Tough-Book
- MAX ACQUISITION SPEED (@ STD. SCAN INTERVAL): 280 kph @ 12cm scans/m.
- POWER CONSUMPTION: 35 W
- POSITIONING: Doppler radar and/or GPS
- NUMBER OF CONTROL UNIT: 2 synchronized DAD SRS PLUS
- SCAN RATE PER CHANNEL (@512 SAMPLES/SCAN): 700 scans/sec

**SOFTWARE SPECIFICATIONS**
- SRS DP: SRS-DPA Data Analyzer and Reporting
- SRS DP: Continuous mapping of ballast thickness
- Location of areas with insufficient bearing capacity (e.g. ballast pockets)
- Differentiation between clean and fouled ballast
- Detection of sections with drainage problems
- Automatic Algorithm for ballast condition assessment recognition
- SRS-DPA Data Analyzer and Reporting:
  - Layer stratification and interpretation view for each profile
  - Layer cross-section view
  - Report of layer statistical results for each profile can be output in a text file

**ANTENNA SPECIFICATIONS**
- ENVIRONMENTAL: IP65
- ANTENNA FOOTPRINT: 38x43 cm
- NUMBER OF HARDWARE CHANNELS: 3 or 4
- ANTENNA CENTER FREQUENCY: 400 MHz
- CERTIFICATION: EC, FCC, IC

Road-rail vehicle equipped with SRS

SRS configured with antennas beneath the train

Asset

Calibration with core samples

Automatic tracking of ballast interfaces

Automatic interpretation of ballast status

Layer
Moisture
Ballast fouling
Undulation of ballast bed basis

Ballast stratigraphy map

Map of ballast status

SRS DPA Data Analyzer and Reporting:

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