**TECHNICAL SPECIFICATION**

**RADAR ACQUISITION UNIT**
- DAD SRS PLUS, with interleaved multiplexing 1800 scans/sec

**NUMBER OF COLLECTED PROFILES**
- Up to 4

**ANTENNA FREQUENCY**
- Typical configuration: 400 MHz
- Different frequency upon request

**POSITIONING**
- Doppler Radar
- GPS (optional)

**COLLECTION SPEED**
- > 190 Km/h (4 profiles simultaneously)

**MAXIMUM SCAN LENGTH**
- Unlimited collected profile length, no need to stop the train

**POWER SUPPLY**
- 10-15 Volts

**VIDEO CAMERA**
- Synchronized radar and video data

**ENVIRONMENTAL**
- 1PS5

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**SOFTWARE SPECIFICATION**

**Radar Processing Software**
- SRS DPA including:
  - SRS DP (Data Processor)
  - SRS DA (Data Analyzer and Reporting)

- Elimination of disturbances due to the sleepers
- Automatic data processing according to a predefined micro
- Management of GPS data and video frames
- Automatic detection of layer interfaces
- Automatic calibration of radar propagation velocity with core data
- Insertion of assets along the track (e.g. switches, crossings, etc)
- Assist the operator in evaluating track characteristics:
  - Ballast fouling
  - Ballast bed moisture
  - Moisture distribution within the ballast
  - Evenness of track bed basis

**Output Data**
- Immediate visualization of ballast characteristics along the track:
  - Stratigraphy
  - Ballast fouling levels
  - Ballast moisture levels
  - Undulation levels
  - Position of assets
  - Core samples
  - Video data

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**SafeRailSystem (SRS)**

The fastest train borne system for railway ballast inspection

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**-FASTEST ACQUISITION SPEED**
**-FASTEST PROCESSING WITH AUTOMATIC DATA INTERPRETATION**

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**Railway experience**
The SafeRailSystem is an integrated product based on more than 10 years experience in railway ballast surveying.

More than 30,000 Km of railway track surveyed by this system worldwide.

Brought to you by:

Stanley

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e-mail: georadar@idis.corporation.com
web: www.georadar.corporation.com

IDS: The leader in multi-frequency and multi-channel Ground Penetrating Radar
**Benefits**
- Easy interpretation of ballast status through automatic tools
- Improved track maintenance decision making
- Reduces current costs for track investigation procedures, maintenance and renewal operations
- Continuous monitoring increases rail network management profitability
- Improved work specifications leads to less reworking.

**Application**
High speed radar system for the inspection of ballast quality:
- Continuous mapping of ballast thickness
- Locates areas with insufficient bearing capacity (e.g. ballast pockets)
- Differentiates between clean and fouled ballast
- Detects sections with drainage problems.

**What is SRS**
SafeRailSystem is an integrated solution allowing the user to autonomously inspect railway ballast for renewal and maintenance. SafeRailSystem includes:
- A radar system composed of:
  - A 3 or 4 antenna array
  - High speed radar control unit
  - Data logger and visualization system
  - Doppler radar position-encoder
  - Video camera synchronized to radar data
- A dedicated post-processing software module for the easy and efficient interpretation of SRS data
- A customer training and support program to introduce the user to the autonomous and efficient operation of SRS.

**System Features**
- 3 or 4 simultaneous profiles covering the whole track
- Only scans between the sleepers to provide best data quality
- Accurate positioning through doppler encoder and SRS interface
- Integrated radar and video data.

**Processing Features**
- Automatic detection of layer interfaces
- Automatic calibration of radar data and core samples
- Automatic and operator assisted evaluation of ballast status:
  - Fouling
  - Moisture distribution
  - Eveness of track bed basis.

![SRS Integrated radar and video data](image)