RIS Hi-Bright

The only dedicated radar solution for bridge deck surveying

Brought to you by:

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RIS Hi-BrigHT

RIS Hi-BrigHT is an unique ground penetrating radar (GPR) solution specialized for the early detection of deterioration in concrete bridge decks. Due to its innovative design and sophisticated software tool, RIS Hi-BrigHT revolutionizes GPR bridge inspection, allowing:

- Measurement of pavement, concrete slab and asphalt thickness.
- Location of reinforcement cover depth and thickness.
- Automatic detection of rebars.
- Detection of areas affected by corrosion.
- Location of deck slab and protective concrete damage.
- Delamination detection.

RIS Hi-BrigHT Benefits

- Unique and complete bridge deck evaluation able to assess the bridge deck condition without the use of any other devices;
- Easy interpretation of data using software specifically designed for bridge analysis;
- Reduction in blocked traffic due to a ten times reduction in survey time;
- More accurate planning and reduced bridge restoration costs;

RIS Hi-BrigHT Features

- Massive antenna array: Two rows of eight double polarized 2GHz antennas provide highly detailed 3D underground tomography.
- Dual polarization: Dual polarization increases depth of penetration and quality of the imaging.
- Fast data collection: RIS Hi-BrigHT is 1 meter wide and can scan a bridge with passes in a single direction. The time needed to inspect a bridge is reduced by 16 times compared to a single antenna ground penetrating radar.
- Automatic generated moisture maps: The post processing software is able to automatically generate a map of the bridge deck’s general moisture zone.

GRED HD bridge

The Gred HD Bridge is specifically designed to deliver quick and effective bridge deck assessment tools. The software is able to automatically detect buried rebars, the depth of the asphalt and the concrete slab thickness. It is also possible to export three different types of status map based on proprietary algorithms. The maps are:

- **Corrosion Map** is the amplitude of the detected rebars and it is expressed in Volts,
- **Moisture Map** represents an estimate of the propagation velocity calculated at the rebars interface
- **Concrete Cover Thickness Map** identifies the boundary between the asphalt and concrete layers and represents the thickness of the concrete.

### System Specifications

<table>
<thead>
<tr>
<th>Spec</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall weight (PC not included)</td>
<td>35 kg (77 lbs)</td>
</tr>
<tr>
<td>Recommended laptop</td>
<td>Panasonic CF-19 Tough-Book</td>
</tr>
<tr>
<td>Max. acquisition speed (@STD. SCAN INTERVAL)</td>
<td>6.3 kph (4 mph)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>53 W</td>
</tr>
<tr>
<td>Positioning</td>
<td>Survey wheel and/or GPS - Total station</td>
</tr>
<tr>
<td>Number of control unit</td>
<td>2 DAD MCH FW</td>
</tr>
<tr>
<td>Scan rate per channel (@512 samples/SCAN)</td>
<td>Survey wheel + optional GPS - Total station</td>
</tr>
<tr>
<td>Scan interval</td>
<td>100 scans/m</td>
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<tr>
<td>Power supply</td>
<td>SLA Battery 12 VDC 24AH</td>
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</tbody>
</table>

### Antenna Specifications

<table>
<thead>
<tr>
<th>Spec</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>IP65</td>
</tr>
<tr>
<td>Antenna footprint</td>
<td>91x42 cm</td>
</tr>
<tr>
<td>Number of channels</td>
<td>16</td>
</tr>
<tr>
<td>Antenna center frequency</td>
<td>2 GHz</td>
</tr>
<tr>
<td>Antenna polarization</td>
<td>Horizontal (HH) and Vertical (VV)</td>
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<tr>
<td>Antenna spacing</td>
<td>10cm</td>
</tr>
<tr>
<td>Certification</td>
<td>EC, FCC, IC</td>
</tr>
</tbody>
</table>

### Software Specifications

- **GRED HD BRIDGE**
  - 3D tomographic view of rebar meshes
  - Corrosion map
  - Moisture map
  - Concrete cover thickness map

Time slice view extracted from a 3D subsurface model

- Corrosion map
- Moisture map
- Concrete cover thickness map

**Unaffected Area**

**Affected Area**

**Damaged Area**

**Good covered area**

**Medium covered area**

**Poor covered area**