

RIS Hi-BrigHT

The only dedicated radar solution for
bridge deck surveying



Early detection of damage to bridge decks with the RIS Hi-BrigHT array system

RIS Hi-BrigHT is a 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

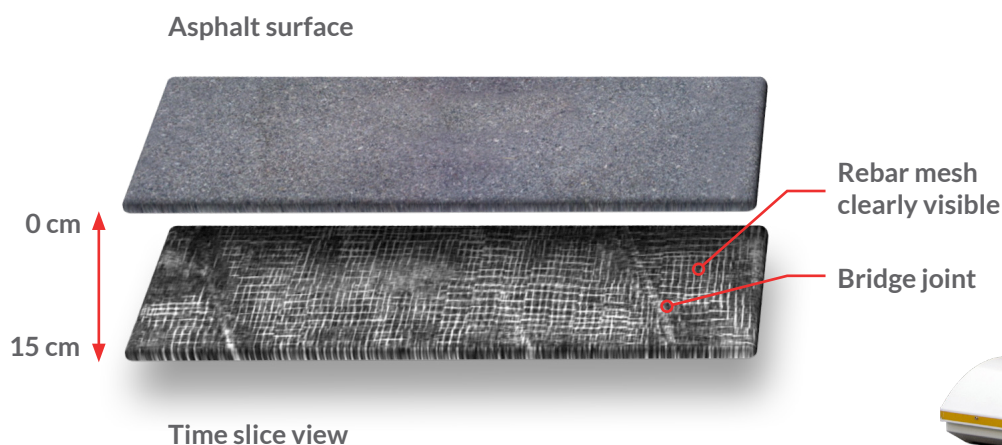
- **Unique and complete bridge deck evaluation**, able to assess the bridge deck condition without the use of any other devices.
- **Easy interpretation** of data using software specifically designed for bridge analysis.
- **Reduction in blocked traffic** due to a ten times reduction in survey time.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

RIS HI-BRIGHT FEATURES

- **Massive antenna array:** Two rows of eight double polarized 2 GHz 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.



RIS Hi-BrigHT: pavement surveying



Time slice view extracted from a 3D subsurface model



RIS Hi-BrigHT hardware

GRED HD BRIDGE

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

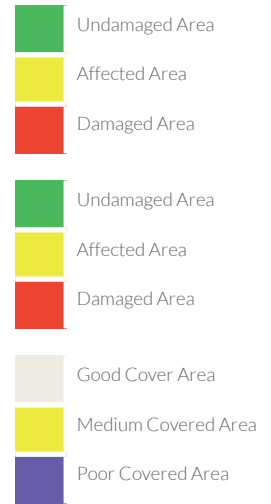
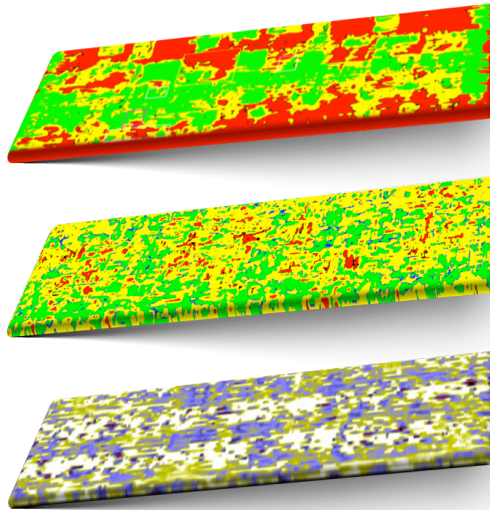
is the amplitude of the detected rebars and it is expressed in Volts

Moisture Map

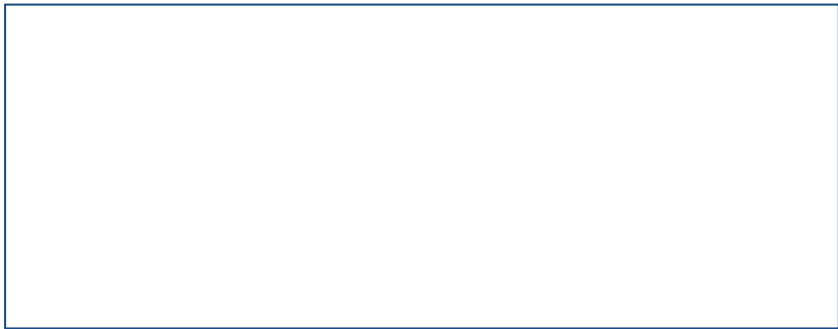
represents an estimate of the propagation velocity calculated at the rebars interface.

Concrete cover thickness map

identifies the boundary between the asphalt and concrete layers and represents the thickness of the concrete.



SYSTEM SPECIFICATIONS		SOFTWARE SPECIFICATIONS	
OVERALL WEIGHT (PC NOT INCLUDED)	35 kg (77 lbs)	ONE VISION ACQUISITION SOFTWARE	<ul style="list-style-type: none"> Automatic calibration for an easy and quick start-up Real-time visualization of radar tomography (time slices) On site marking via software of targets Connection with NMEA positioning device Export to IDS GeoRadar GeoMap, dxf, shp and kml formats Multilanguage support Metric and Imperial units
RECOMMENDED LAPTOP	Panasonic CF-20 Tough-Book (or equivalent)		
MAX. ACQUISITION SPEED (@ STD. SCAN INTERVAL)	6.3 km/h (4 mph)		
POWER CONSUMPTION	53 W		
POSITIONING	Survey wheel and/or GPS- Total station		
NUMBER OF CONTROL UNITS	2 DAD MCH FW		
SCAN RATE PER CHANNEL: (@512 SAMPLES/SCAN)	175 per channel (1400 per DAD, 8 channels)		
SCAN INTERVAL	100 scans/m		
POWER SUPPLY:	SLA Battery 12 VDC 24 AH	GRED HD BRIDGE	<ul style="list-style-type: none"> Tomographic map view (C-Scan) including radar scan fusion 3D data visualization Advanced targeting using radar-scan and tomographic view CAD, GIS exportation of GPR data and target Radar-scan viewer, filter and advanced filtering macros, multiple radar scan viewer Layer picking for automatic analysis of sub-layers GPS and map track viewer including X, Y and Z axis and digital map importation Automatic rebar detection Damaged area detection Automatic generation of digital maps (eg moisture, asphalt thickness, rebar status maps) 3D tomographic view of rebar meshes
ANTENNA SPECIFICATIONS			
ENVIRONMENTAL	IP65		
ANTENNA FOOTPRINT	91 x 42 cm		
NUMBER OF CHANNELS	16		
ANTENNAS CENTRAL FREQUENCIES	2 GHz		
ANTENNA POLARIZATION	Horizontal (HH) and Vertical (VV)		
ANTENNA SPACING	10 cm		
CERTIFICATION	EC, FCC, IC		



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