

# 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

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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

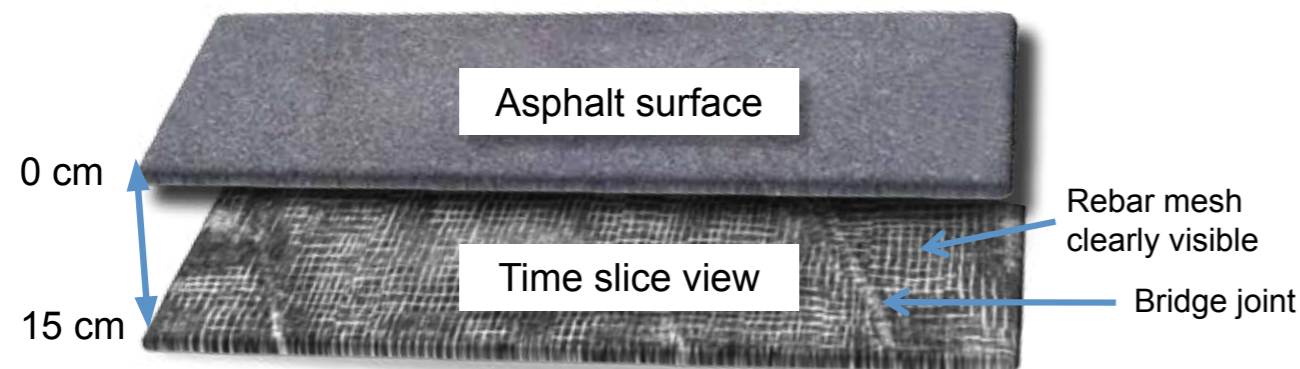
- **Massive antenna array:** Two rows of eight double polarized 2GHz antennas provide highly detailed 3D underground tomography.
- **Dual polarization:** Dual polarization increases depth of penetration and quality of the imaging.
- **Fast data collection:** RIS Hi-BrigHT is 1 meter wide and can scan 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.



RIS Hi-BrigHT: pavement surveying



RIS Hi-BrigHT hardware

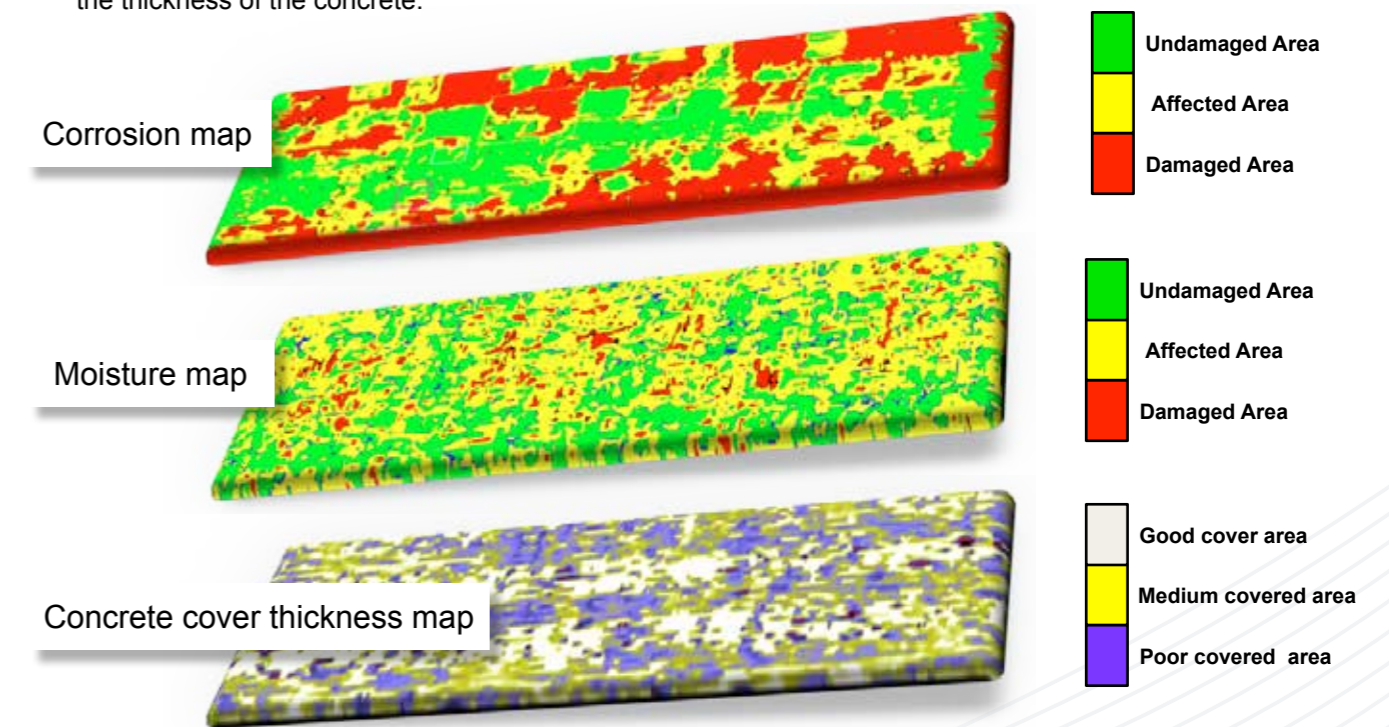


Time slice view extracted from a 3D subsurface model

## GREED 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.



Gred HD Bridge: Automatic generated maps

SYSTEM SPECIFICATIONS	
OVERALL WEIGHT (PC NOT INCLUDED)	35 kg (77 lbs)
RECOMMENDED LAPTOP	Panasonic CF-19 Tough-Book
MAX. ACQUISITION SPEED (@ STD. SCAN INTERVAL)	6.3 kph ( 4 mph)
POWER CONSUMPTION	53 W
POSITIONING	Survey wheel and/or GPS- Total station
NUMBER OF CONTROL UNIT	2 DAD MCH FW
SCAN RATE PER CHANNEL: (@512 SAMPLES/SCAN)	Survey wheel + optional GPS - Total station
SCAN INTERVAL	100 scans/m
POWER SUPPLY	SLA Battery 12 VDC 24AH
ANTENNA SPECIFICATIONS	
ENVIRONMENTAL	IP65
ANTENNA FOOTPRINT	91x42 cm
NUMBER OF CHANNELS	16
ANTENNA CENTER FREQUENCY	2 GHz
ANTENNA POLARIZATION	Horizontal (HH) and Vertical (VV)
ANTENNA SPACING	10cm
CERTIFICATION	EC, FCC, IC

SOFTWARE SPECIFICATIONS	
GREED HD BRIDGE	• Tomographic map view (C-Scan) including radar scan fusion
	• 3D data visualization
	• Advanced targeting using radarscan and tomographic view
	• CAD, GIS exportation of GPR data and target
	• Radarscan 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
	• Video handling (option)
	• Automatic rebar detection
	• Damaged area detection
	• Automatic generation of digital maps (eg moisture, asphalt thickness, rebar status maps)
	• 3D tomographic view of rebar meshes