6 Axis Electric and Magnetic Near-Field Scanning System

EM-ISight-SR
9kHz to 40GHz Electromagnetic Scanning System
Standard Reach Model

EM-ISight-SR

EM-ISight is a fully flexible EMI/EMC measurement system built on a Denso RC8 6 axis articulated robot platform designed to support multiple applications and industries including networking, automotive, integrated circuits, aviation, military, and consumer products. Used as compliance system for IEC-61967-1-6 or a pre-compliance / development tool, the abundance of features meet most requirements for research, design and analytical needs. Customizable features allow the end user to have complete control of the solution. The footprint of the system means that it can be introduced to most measurement environments with multiple frequency range, hardware and software options to choose from. The system can be housed in the optional isolation chamber, and has an assessed noise floor (sensitivity) of below -139 dBm* when used with high end spectrum analyzers.

EM-ISight is an affordable and easy to use system with great return on investment when using the Far Field Approximation (FFA) module. It is a true alternative to costly pre-compliance EMC chambers which have high maintenance costs and use significant floor space. Integration of high end Low Noise Amplifiers at the core of the transmission line yield low insertion loss and high unwanted field rejection of better than 25dBm. Easy setup for measurement profiles (less than 60 seconds) using the vision system and touch detection features allow complex topologies of a PCB to be taught in real time.

Integration of 6 axis robots allows for measurements in traditional Cartesian or advanced Horizontal plains. Users can utilize a measurement frequency span of 9 kHz to 6GHz / 20GHz / 40GHz using our proprietary single probe solution.

Applicable Standards

IEC-61967-1-6
VCCI/CISPR 22/FCC Pt 15/22 EN55022
CISPR 12/FCC Pt 18/EN55011/
EN60555/VDE0871
EN55024/EN6100-6-4/GR-1089-CORE
ITU-T/ETS300/
IEC-6100-3

Applications

Integrated Circuit/Printed Circuit Board
Wireless modules
De-Sense testing (receiver circuits)
Medical devices
Automotive and aviation
Electronic device emissions
Pre-Compliance testing (emissions/susceptibility)
Quality control/audit
Consumer products cell phone/computer devices
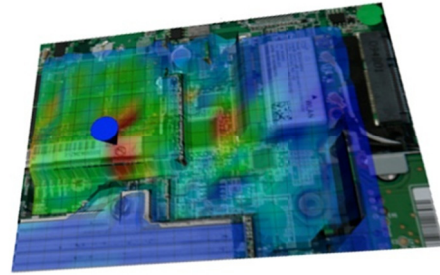
Supported Spectrum Analyzers

Tektronix
Keysight/Agilent
Anritsu
Rhode and Schwartz
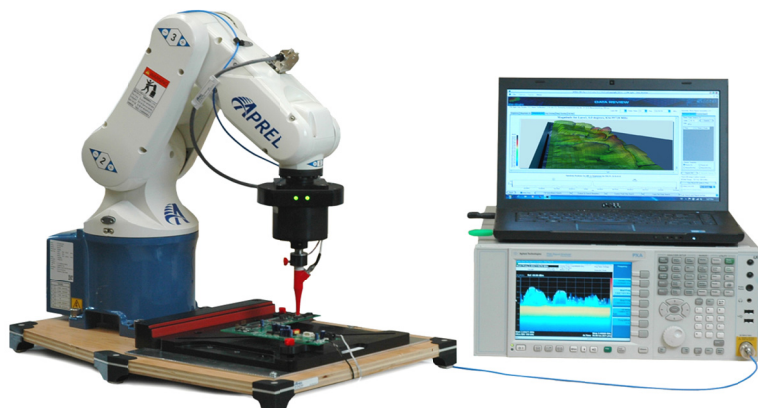
NOTE: Signal generator, spectrum analyzer is customer supplied.
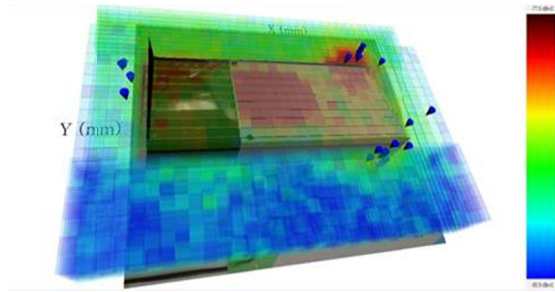
**FFA Tiled Volumes with
Hotspot Markers**

**4D Plot with Interpolated
Grid and 3D Hotspot Marker**

System Highlights

- Configurable for 9kHz to 6GHz/20GHz/40GHz
- Single probe solution from 9kHz to 40GHz
- X/Y/Z scan areas of 300mm (Cartesian)
- High resolution scan (>0.02mm)
- Coarse scan with dynamic peak search function
- Real-time topology analysis using vision and dynamic touch detection (Cartesian)
- Z height distance from 0.05mm up to 250mm (Cartesian)
- 4D Measurements of DUT by integrating X/Y/Z & Phi
- Field distribution presented in 2D, 3D or 4D plotting with quick snap image processing
- Source direction plots (vector)
- Customizable reports based on user requirements automatically exported to MS Word
- Delta plot measurement function (compare before/after measurements)
- Frequency distribution plots based on span and trace with added limit lines
- AVI export function for real-time visualization of field and frequency distribution
- Advanced measurement functions, single point analysis, quick check, free move and point delta
- Micro Strip Line 9kHz to 6GHz/20GHz/40GHz
- Quick scan setup using vision system

Applications

Integrated Circuits
Microprocessors
Cellular /Mobile Devices
Memory Devices (HDD/SSD)
High Speed Memory
Digital Devices
High-speed Either Net IC
High-speed connectors and IO interfaces
GB Ethernet
Optical Transceivers

Optional Accessories/Software

- Exy 1.5mm E-Field Antenna Probe
- Hz-Field Antenna Probe
- 10Hz to 1MHz low Frequency H-Field Probe
- Dual Stage Low Noise Amplifiers DC to 6/20/40 GHz
- FFA Far Field Approximation Software
- USA Ubiquitous Server Application
- Advanced device positioner
- 7 Axis Device Positioner
- 3 x 4 Meter EMC Shield Room
- Fixed Work Station 110cm x 35cm x 40cm

**Optional Isolation Chamber, can be
customized for multiple block filter
options including HDMI, USB 3.0 and
RJ45**

Vision System	Custom designed software for Vision Integration 10.7 MP CCD camera, Low distortion lens, real-time image capture, Permanent Robot mount +/-180 rotation, Lens and Robot Calibration in X/Y, Autofocus and Zoom Feature, control Brightness, Contrast and Saturation and export file to XML
Software	Windows 7, 8, 10 and MAC Boot Camp User friendly GUI that allows for easy setup and data retrieval Automatic antenna probe movement control Automatic system control or user definable parametric setup incorporating optional vision camera Visual display including storage and retrieval of measured results in full 3/4D Data tracking for project improvement/quality control Importation of previous measurement profiles to track design/quality improvements Vision system control for real-time DUT capture

Applications	Advanced measurement platform for smaller Device Under Test 300 x 300mm
	   o EMI noise emission analysis
	   o Shielding placement/optimization
	   o PCB board or IC design optimization/placement
	   o Antenna design optimization
	   o RF-Immunity/emitted radiation analysis of mobile handset LCD or LCD controllers
	   o Optional Susceptibility and ESD test modules
	Far Field Approximation (additional software required)

Typical Probe Measuring Unit		
	Antenna:	E or H-field with 0.02mm spatial resolution
	Typical frequency range:	Frequency sweep, in band discreet value from 10KHz to 40GHz
	Sensitivity:	Probe Dependent
	VSWR:	<1:2
	Input impedance:	50Ω Normalized
	Linearity:	<0.1dB
	LNA (standard):	100MHz to 40GHz, Gain 31dBm NF 4.0dB
	LNA (Optional)	30dB Preamplifier for EM Measurements from 10kHz to 6GHz
	Noise floor:	Measured with MSL @ 1GHz = -139dB with *preamplifier module Optional GPS Probe @ 1.6GHz = -151dBm*
	Measurement Uc:	0.05dBm @ 0.05mm Z and 0.1dBm @ 0.2mm X & Y
	Optional probes:	Rosenberger Micro-Coax rectangular and small loop and interface

Measuring Reach and Movement		
	NO. of axes: 6 (X, Y, Z and θ) Built on Denso RC8 Controller	
	Typical reach*:	
	Along X & Y axes:	300 x 300mm (Cartesian)
	Along Z axis:	300mm
	Rotation θ axis:	360°
	Resolution:	
	X and Y axes:	0.02mm
	Z axis:	0.02mm
	θ axis:	0.1°
	Alignment accuracy:	
	X and Y axes:	0.02mm
	Z axis:	0.02mm
	θ axis:	± 1°

DUT Orientation		
	Typical:	Horizontal Vertical Custom

System Control		
	Controller for overall control:	PC with Intel i5 or better processor and 8GB RAM
	Operating system:	Windows 7/8/10
	Motor controller:	Denso RC8
	Measuring interface:	GPIB/LAN/Serial port

General		
	Operating requirement:	
	Temperature:	0° C to +28°C
	humidity:	40% or less
	AC power input:	Single phase 230V, 50Hz/60Hz*
	Power consumption:	less than 15A @ 100V
	Weight:	25kg
	Dimension:	60cmx30cmx60cm

Additional Features SW	
	Multiple plots recorded in single report including layers, rotations and frequency distribution Automated peak search DUT teaching using Vison System along with XML data exportation Dynamic touch detection and vision control for 3D DUT teaching User defined plotting for multiple scan locations Limit exceed search function & User defined limit function Optional Far Field Approximation for EMC test equivalent sites of 3M and 10M Ubiquitous Server Application for custom development of test applications Automated data summary reporting AVI plotting over device or in 3/4D mode Multiple driver support for Anritsu, Agilent/Keysight, Rhode & Schwarz Spectrum Analyzers