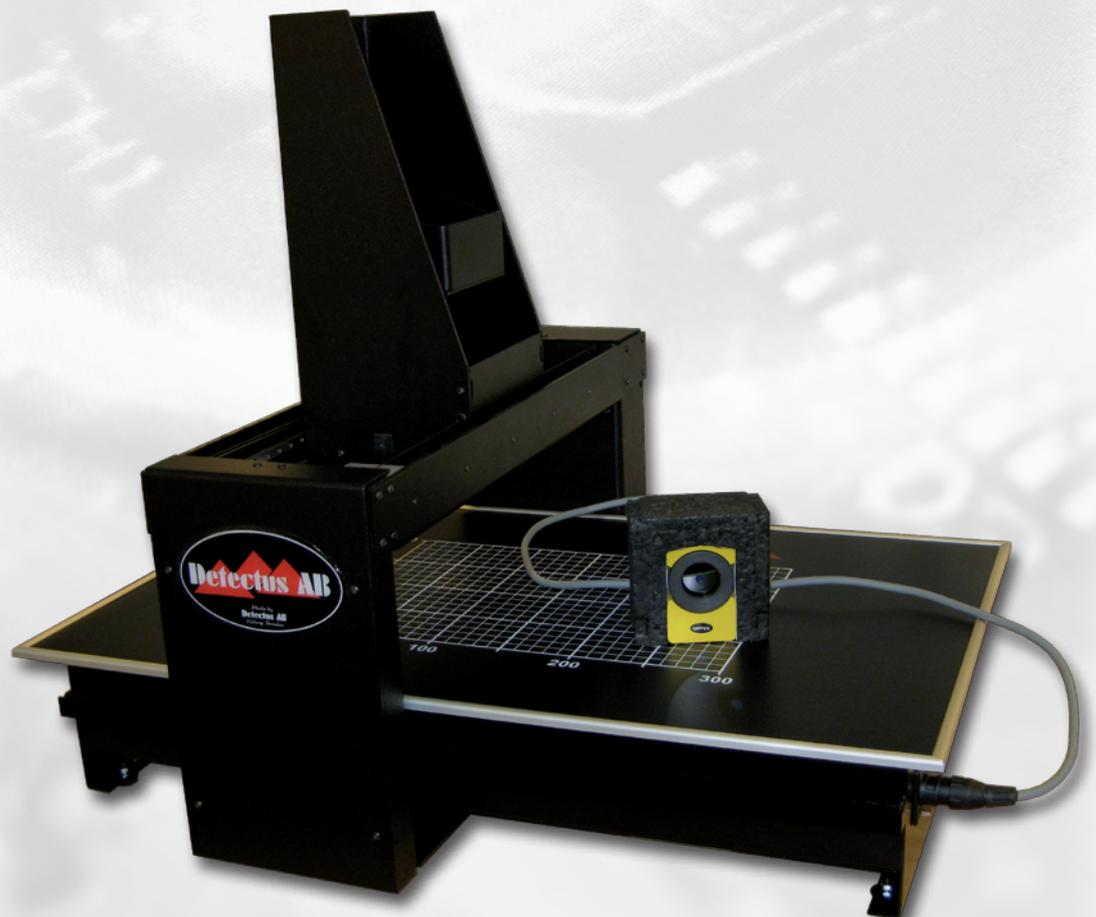




**Defectus AB**

# **EMC-Scanner Heat-Scanner RS-series**





# Detectus AB

## Seeing high frequencies!

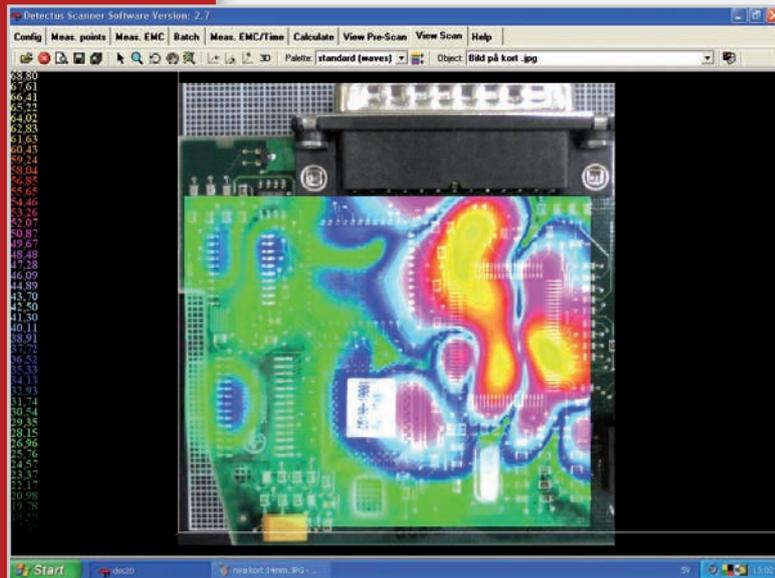
Now you can SEE high frequency electromagnetic fields.

## Visual noise detection

The patented EMC-Scanner measures the emission from components, cables, PCB's and products. The system consists of an X-Y-Z robot, a spectrum analyzer with near field probe, a GPIB card for commu-

The fact that there is no easy way to find the exact location of a radiating source is a problem for designers today.

Detectus AB has developed several measuring systems with which designers can measure the intensity and the location of a radiation source at a component level. The results of such a measurement can be shown as two or three dimensional coloured maps. The measurements can easily be repeated creating objective, comparative measurement results.



Scan measurement



EMC-Scanner model RS 321

nicating with the spectrum analyzer and a standard PC with custom software.

During measurement the near field probe is moved by the robot to predetermined measuring points above the test object.

## The background

There are high demands for electromagnetic compatibility (EMC) of electronic products. The demands are stated in different set of rules, for example: VCCI, ANSI, CISPR, FCC and VDE. These demands are specified for products or systems and not for components or elements.

## Ease of use

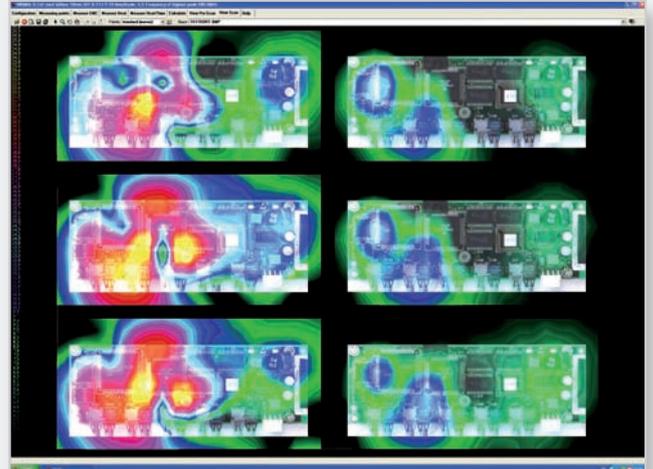
Earlier emission measurements had to be made by specialists. With the EMC-Scanner anyone can make a measurement and draw conclusions from the informative and easily interpreted reports. You do not even need to have access to a screened room to make the measurements. The software runs in Windows on a standard PC and is intuitive and user-friendly. Since the system is configurable for most modern spectrum analyzers, you can use your own and do not have to purchase a new one.



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## Objective comparative measurements

One of the most useful features of the EMC-Scanner system is that it enables you to make truly objective comparative measurements. To the right, you can see an example of comparative measurements. The six measurements show the same test object and the same frequency. The difference is the value of the de-coupling capacitor of one IC.



Six Scan measurements with different de-coupling

## MultiScan

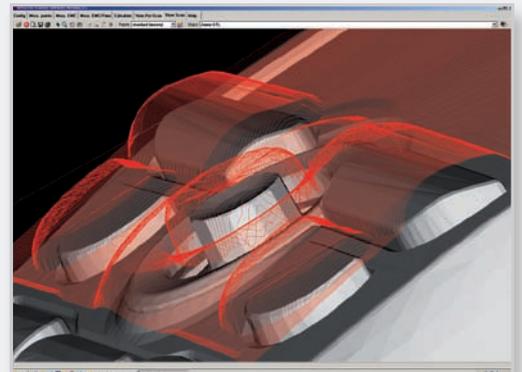
The MultiScan measurement enables you to generate field plots from any frequency within the measured wide band span. This powerful feature is a major improvement and it gives an enormous amount of information. Looking at the screen dump below, the main part of the screen shows the field plot of the frequency selected in the top left graph.



MultiScan measurement

The top left graph shows the accumulated trace (a max hold spectra of all measuring points).

The top right graph shows the wide band spectra from a user selectable spot on the field plot.



3D measuring point on STL surface model

## Import 3D surface models

Now you can import 3D surface models in STL file format and create measuring points that follow the surface at a fixed distance. 3D surface models can easily be aligned to the measurement using the 3-point alignment feature.



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## Useful for ...

### - Design

Using the EMC-Scanner during the early stages of design enables you to detect potential emission problems before they become integrated into the product and expensive to correct.

If a product has failed a test at a test house, normally you only know which frequency failed. You don't get to know the location of the source.

The EMC-Scanner can help you find the source and repeated measurements while redesigning your product helps you lower the emission levels.

### - Q&A tool

The EMC-Scanner can help you maintain a high quality in the production line. You can make measurements on samples from the production line and easily compare them with a reference. That way you can make sure that, for example, a change of supplier for a component doesn't affect the emission spectra in a negative way.

## How we do it.

The system contains:

- a Scanner<sup>1</sup> table that moves in 3 axes,
- a spectrum analyzer<sup>2</sup>,
- a near field probe<sup>2</sup> and
- a standard PC with
- a custom software<sup>1</sup>

Basically we scan a grid of points above a test object with a near-field probe.

We store frequency and amplitude from each measuring position and then we generate a colour map showing the electromagnetic fields emitted from the test object.

Thus helping designers to find the emission sources and enabling them to more easily improve designs.

## Why the EMC-Scanner

- You can **save time and money** by reducing your need for expensive and time consuming full scale measurements
- You can **see the emission** at components level.
- You can make **comparative measurements** to document the effect of a change in design. (Useful when there is a need to archive design changes.)
- Early in the design phase you can **detect potential emission problems**.
- You can maintain a **high quality** in the production line by measuring samples and comparing them to a reference.
- You do not have to know what frequencies you are looking for thanks to the Pre-Scan and MultiScan functions.
- You can use your own instruments.
- You can **easily document** (ISO 900x) the emission spectra of your products in both design and production phase.
- You can subtract one measurement from another to remove ambient noise or to be able to see the difference between two products more clearly.

( 1:provided by Defectus, 2:optionally provided by Defectus.)



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EMC-Scanner RS 644



EMC-Scanner RS 642



EMC-Scanner RS 321

<b>Technical data</b>			
Accuracy:	+/- 0.3 mm		
Min step size:	1 mm		
Speed:	5000 mm/min		
Line voltage:	115 or 230V, 50 or 60 Hz		
Control:	RS-232 or USB to RS232 adapter		
Software:	Requires Win 9x, 2000, XP or Vista		
Modell:	<b>RS 321</b>	<b>RS 642</b>	<b>RS 644</b>
Measurable volume (mm):	300x200x100	600x400x200	600x400x400
Movement XYZ-axes (mm):	300x200x100	600x400x200	600x400x200
Size:	620x400x550	920x600x750	920x600x950
Weight:	23 kg	36 kg	37 kg

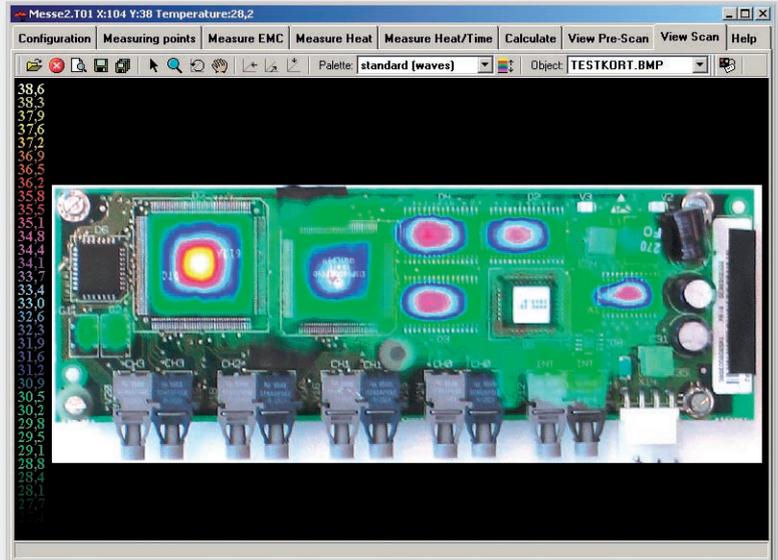


# Detectus AB

## High Resolution Heat Scanner

Why should you, as a designer, be without the ability to measure the temperature of your products? Is this due to cost or inaccessibility? In that case, the solution is the heat scanner from Detectus AB. Heat scanner is a high-resolution measuring system for anyone wishing to measure temperature accurately and inexpensively. The measurements are presented graphically as either two or three-dimensional images.

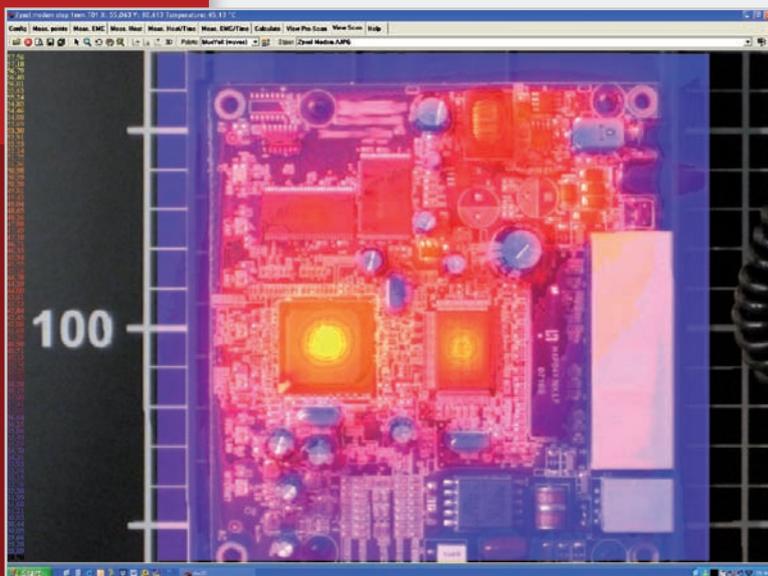
**The Heat-Scanner feature is included in the EMC-Scanner product!**



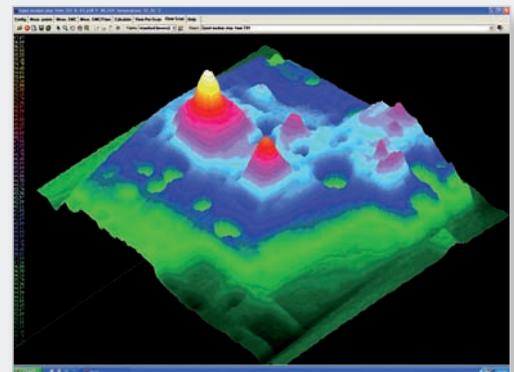
*Heat measurement*

## Precision

The system's 16 bits digital resolution, the software's optimization method as well as the ability to adjust offset and emission factors result in high-resolution measurements. The system gives you the possibility to localize small heat sources such as surface-mounted components.



*Heat measurement*



*Heat measurement*



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## Why Heat Scanner?

- You can increase your product's life-time by optimizing design with respect to heat.
- You can see the heat distribution at component level.
- You can detect heat problems early in the design stage through continual measurements.
- You can make comparative measurements quickly and easily.
- You increase quality by comparing products under production through measurement of a properly functioning master.
- You can measure and document the temperature over a period of time.
- You can subtract one measurement from another to remove ambient noise or to be able to see the difference between two products more clearly.



*EMC-Scanner RS 321 showing detached heat probe*

<b>Technical data</b>	
Scanner:	See EMC-Scanner
Temperature range:	0 - 150 °C
Resolution:	+/- 0.3 °C
Measuring spot:	6 mm. diameter at a distance of 200 mm.
Response time:	500 ms
Emission ratio:	0,1 - 1,2
Spectral response:	8 - 14 µm



# Defectus AB

## Company Profile

Defectus AB is a Swedish company that develops, manufactures and sells EMC test systems directly and through distributors worldwide. Defectus AB was founded in 1994 and has since then been dedicated to providing market leading EMC scanning technology to the electronics industry in general and the cell phone industry in particular.

The main products of Defectus are the patented EMC-Scanners which are developed and manufactured in the factory in Malung, Sweden. Development is done in close contact with our customers which allows for flexible and easy-to-use products.

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