

NoiseKen[®]

EMISSION MEASUREMENT SYSTEM FOR PCB

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EMC Precision Scan System >>>>>>>>

for Microsoft[®] Windows[®] XP

EPS-3000



NOISE LABORATORY CO., LTD.

EMC PRECISION SCAN

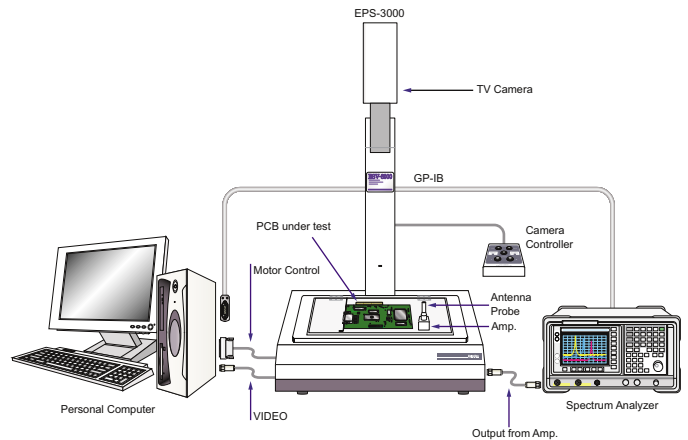
EMC Precision Scan System >>>>>>>>>>

for Microsoft Windows® XP

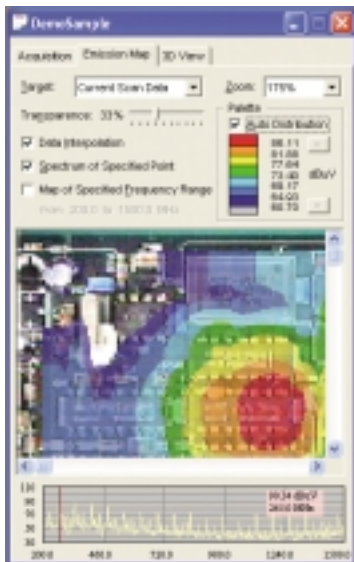
EPS-3000

Today, the digital devices are incorporated in every facet of our social system worldwide. As a result, the electromagnetic interference causes various troubles and accidents, has become a major social problem. As a matter of course, the regulations against emissions have become stricter than ever in the communication, homo-electronics, and automotive industries. Under such circumstances, obviously many engineers and personnels in charge of product development spend considerable time and effort in taking measures to reduce emissions. In order to help you solve these problems, NOISE LABORATORY has developed "EMC PRECISION SCAN SYSTEM", a completely new engineering tool to effectively incorporating solutions into equipment in question at the designing stage, offering near field measurements for printed circuit boards, and other electronic parts and wirings. This innovative "EMC PRECISION SCAN SYSTEM" cuts "Time" and "Labor" required to cope with emission problems by providing a number of outstanding features:

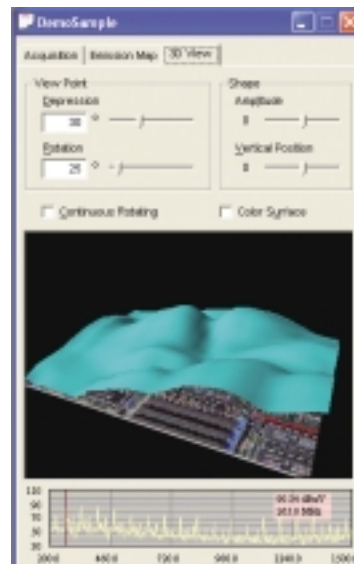
● SYSTEM CONFIGURATION



Measurement Frequency Range is 150kHz to 3GHz (Optionally available)
Zoom function and 3D Graphical Representation to localize and identify emission sources



4 various portraits are provided. (Wide, Standard, Zoom and Super Zoom.) Zoom capability, for example, realizes pin to pin distinction.

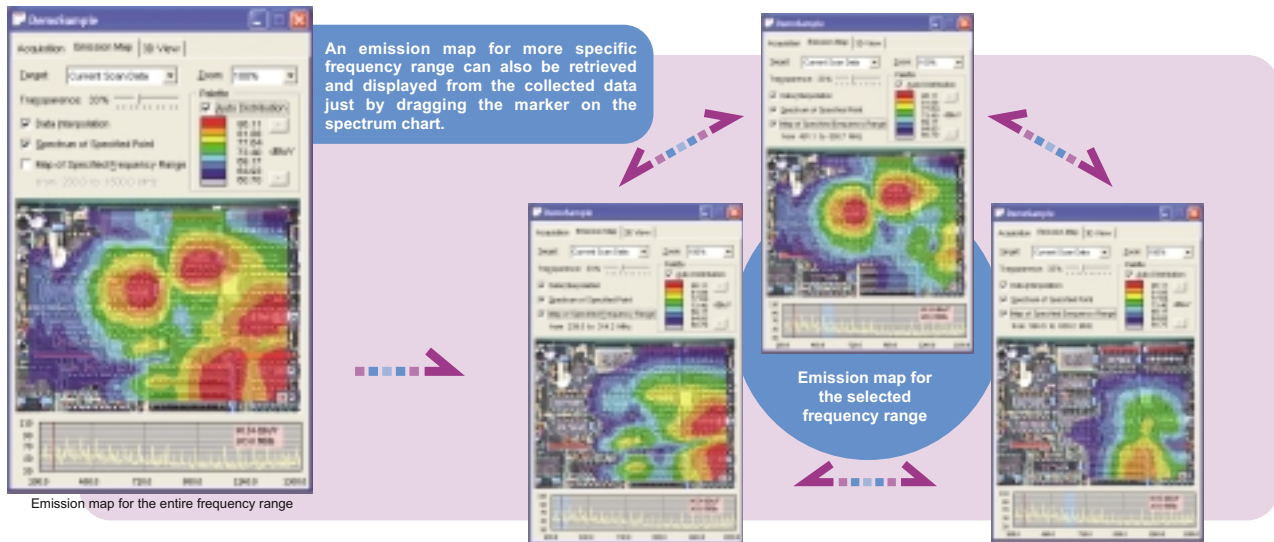


With the "3D View" function, a field intensity distribution is represented graphically. The higher the intensity, the higher the altitude. This 3D graphic rotates for easier identification.

COMPOSITE DISPLAY OF EMISSION MAP AND PCB PICTURE

Completed emission spectrum analysis (CESA) realizes that the frequency spectrum charts acquired for each position of the antenna probe are stored for the entire scanned area.

The system enables the user to identify the potential emission problem areas on the printed circuit board at a glance.

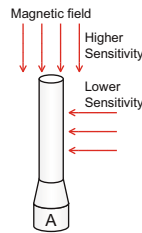


ELECTRIC FIELD PROBE AND MAGNETIC FIELD PROBE

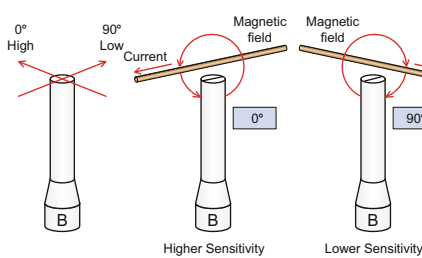
Selective use of either type is indispensable for near field measurements

- Magnetic field antenna probe (2 types) and Electric field antenna probe (1 type) are provided as standard accessories. The magnetic field probes have a different directivity.
- EPS-3000 is designed to mechanically scan with a single probe, allowing the user to freely set the scanning resolution
- An advantage over the antenna array type instrument is that there is no measurement error originating from antenna to antenna difference, which is inherent with the antenna array type

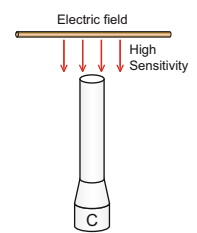
● Directivity of Probe A (for vertical magnetic field)



● Directivity of Probe B (for horizontal magnetic field)

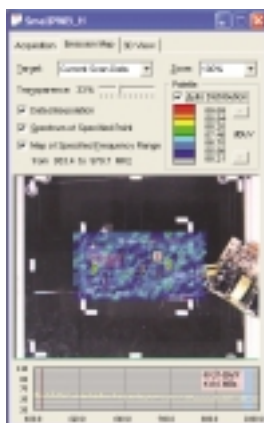


● Directivity of Probe C (for vertical electric field)



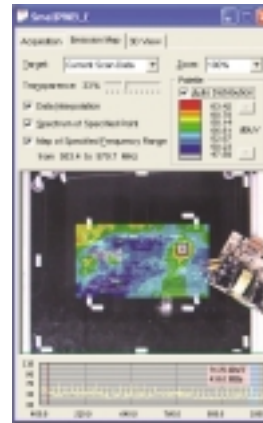
● Example of electric field measurement: the board under test is radiating high frequency electric fields.

Magnetic field probe may not detect electric component of the fields. In the near field, the field produced is mostly a function of the properties of the source. It is important, therefore, that the user can selectively choose the magnetic or the electric probe.



① The magnetic field probe measurement

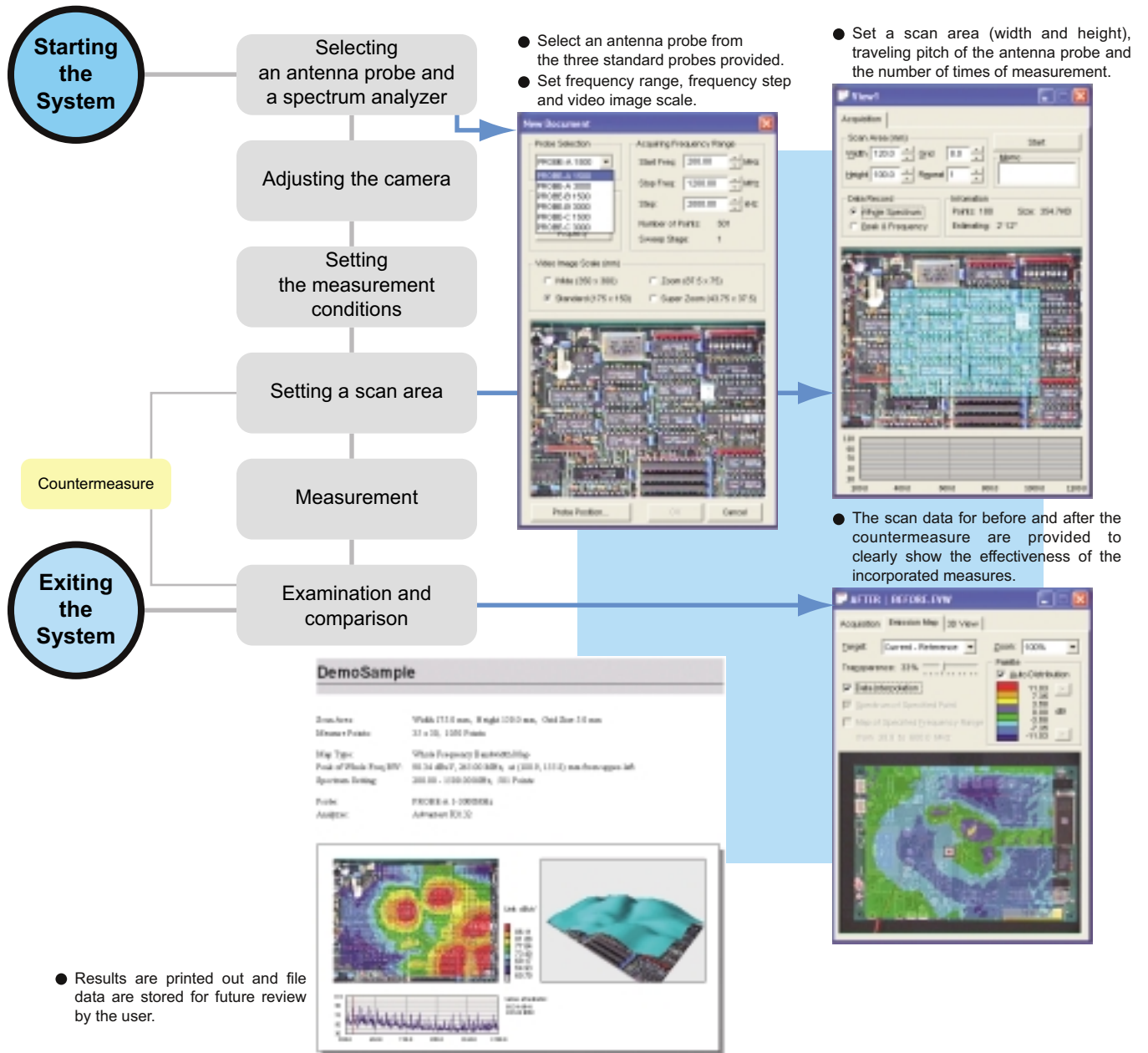
The magnetic field probes cannot sometimes detect the relatively high levels of radiation from an LSI itself, requiring countermeasures.



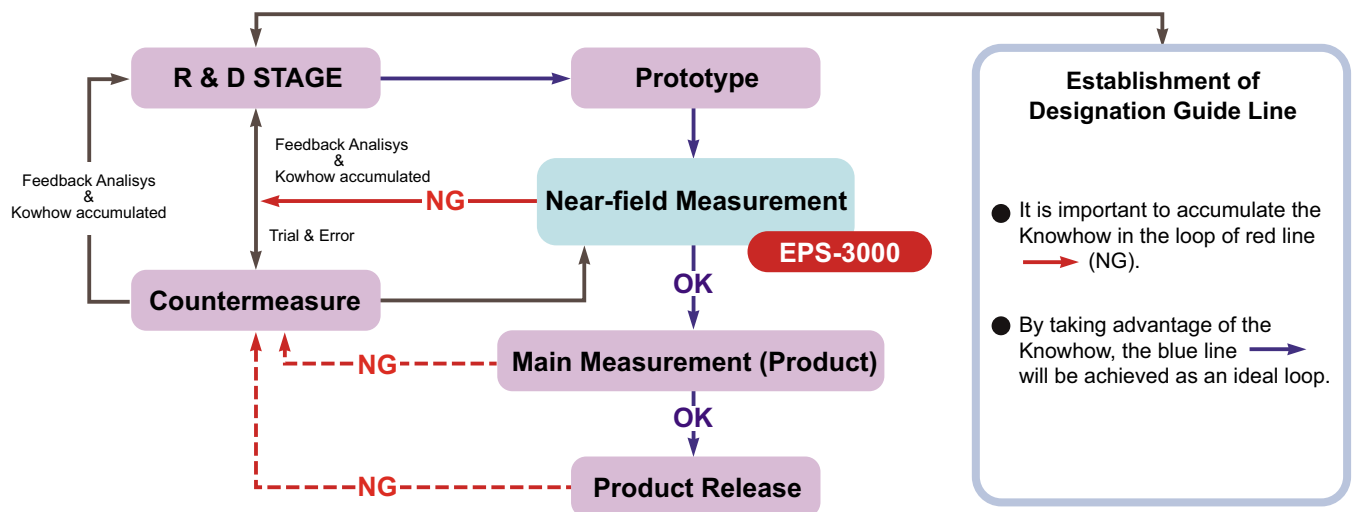
② The electric field probe measurement

An LSI may be located at the strongest intensity source. Incorporating proper measures into the surroundings of this LSI will reduce radiation

MEASUREMENT PROCEDURE & MEASUREMENT EXAMPLE



Purpose & Orientation of the Emission Measurement



● MAIN UNIT/CONTROLLER

Parameters	Specifications
Scanning method	Scanning of micro-electromagnetic field probe by XY stage
Analysis of detection signal	Analysis using spectrum analyzer
Frequency response	30MHz~1.5GHz (Option: ~3GHz)
Low frequency response	150kHz~100MHz (Option)
Control method	Control by personal computer GP-IB interface, Pulse Motor Control, Image Control
Scanning Area	300 (Length) x 350 (Width) mm maximum
Scanning Resolution	1.0mm x 1.0mm (depending on an antenna probe)
Minimum Scanning Step	1.0mm or more/0.1mm step (Minimum travel step of antenna probe)
Operating Power Supply	AC95~120/210~250V 50/60Hz 150VA
Operating temperature & humidity	15~35°C, 25~75%RH (No condensation shall occur.)
Dimensions (WxHxDmm)	601 x 980 x 662 (Main Unit)
Weight	Approx. 37kg (Main Unit)

● PERSONAL COMPUTER (REQUIRED SPECIFICATIONS)

Parameters	Specifications
Compatible machine	IBM PC-AT compatible machine running the Windows® XP Recommended CPU: Pentium® II 233MHz or higher Main memory: 128MB or more HDD: 100MB or more (depending on scanning data quantity) Display mode: SVGA or XGA
Operating System	Microsoft® Windows® XP
Software	DirectX® 2.0 or later version required for 3D display
Expansion Slot	PCI Bus 3 slots
Expansion board	GP-IB Board (Using IRQ) Pulse Motor Control Board (Not using IRQ) Video Board (Using IRQ) ● The display board of the PC must be operating with Direct Draw overlay.

● MEASURING FUNCTION

Measurement Unit	Level: dBm, dB μ V (Switchable) Frequency: MHz (Linear scale)
Compatible spectrum analyzer	Agilent Technologies: HP8591E/ESA-L1500A/E440X etc. ADVANTEST: R3131/R3132/R3261C etc. Anritsu: MS2601B/MS2651A,B etc.

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● Pentium® is a registered trademark of Intel Corporation.

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