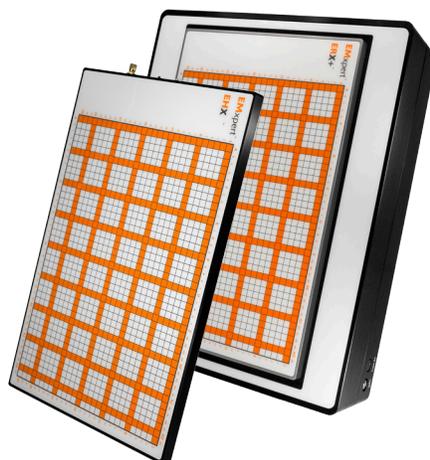


Real-Time Printed Circuit Board EMC Measurement

Keysight Technologies and EMSCAN

Diagnose PCB problems fast with real-time EMC measurements

Finding, characterizing and resolving electromagnetic compatibility (EMC) problems on printed circuit boards is a persistent design challenge for PCB engineers. Pre-compliance testing is essential to identify causes of electromagnetic interference (EMI) such as faulty component and traces. By undertaking EMC measurements on your PCBs as part of your pre-compliance testing regime you can maximize the probability of successful completion of full EMC compliance testing without additional redesign.



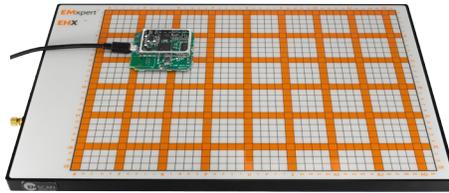
Identifying unintended radiators or RF leakage on high-speed, high-power, high-density complex printed circuit boards where space is at a premium is especially challenging. EMxpert from EMSCAN allows you to visualize the cause of electromagnetic interference on PCBs in real-time. The system comprises EMSCAN's patented scanner module, a compact adaptor, spectrum analyzer and a host computer running the EMxpert software. EMSCAN's patented bench top scanner of 1,218 H-field (magnetic) probes are spaced every 7.5 mm in an electronically switched array. The EHX provides an effective 3.75 mm resolution. The ERX provides high density board designers and IC manufacturers 8 levels of resolution (60 microns - 3.75 mm). The system can operate from 150 kHz to 8 GHz, enabled with optional software keys.

In use, the PCB under test is placed on the scanner to allow spectral and spatial scanning of the electromagnetic radiation emerging from the board. Spectral scanning will quickly identify suspect frequencies while spatial scanning will align these to the physical characteristics of the board. The EMxpert software provides powerful visualization and analysis tools that allows you to overlay the RF data onto the PCB. This facilitates the rapid identification of suspect components or traces in order to locate exactly the sources of radiation.

- Printed circuit board electromagnetic compatibility measurements
- Identify causes of electromagnetic interference in real-time
- Pre-compliance testing minimizes re-design and re-work
- Uses EMSCAN's patented scanner module and software with Keysight spectrum analyzers
- Spectral scanning identifies suspect frequencies
- Spatial scanning identifies source of interference
- Visualization software overlays data on physical PCB for rapid problem solving
- Reduces test time and number of design cycles

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EMxpert can be used with Keysight Technologies spectrum analyzers, including the N9912A FieldFox RF analyzer, PSA, PXA, MXA, MXE, CXA and EXA series spectrum analyzers. EMSCAN can develop drivers for any Keysight spectrum analyzers equipped with gated sweep, trigger port, USB or LAN and remote control.



The EMxpert system provides repeatable and reliable insights into why designs fail. You don't need to wait for chamber time to re-design and test by trial and error. You can rapidly diagnose even intermittent problems, which may otherwise go undetected when using handheld or automated single probes. The system addresses emission, immunity, filtering, EMI shielding, switch mode power supply and common mode testing needs.

The Far-Field option enables EMxpert users to predict the Open Area Test Site (OATS) or Semi Anechoic Chamber (SAC) radiated EMI levels of a printed circuit board. The application supports regulatory compliance limits Class A or Class B FCC, CISPR, Industry Canada, and user defined compliance limits, at 10m, 3m and 1m test distances.

With EMxpert the time to diagnose pre-compliance electromagnetic compatibility problems on your PCBs can be reduced dramatically. Test times can be reduced by at least one order of magnitude and the number of design cycles can be halved. EMxpert, when used with a Keysight Technologies spectrum analyzer, allows you to diagnose your PCB design problems rapidly and cost effectively, accelerating your time to market and reducing your EMC pre-compliance test costs.

System Components

Keysight Technologies

| | |
|----------|---------------------------|
| N9912A | FieldFox RF analyzer |
| PSA, PXA | Series spectrum analyzers |
| MXA, MXE | Series spectrum analyzers |
| CXA, EXA | Series spectrum analyzers |

Also supports other Keysight spectrum analyzers

EMSCAN

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| EHX | EMSCAN patented scanner module, software keys available for frequency coverage from 150 kHz to 8 GHz or 150 kHz to 4 GHz. |
| ERX | High resolution tester with built-in patented scanner, robotic arms and electronics for frequency coverage from 150 kHz to 8GHz. |

To learn how this solution can address your specific needs please contact

Keysight's solutions partner,
EMSCAN

www.keysight.com/find/emscan



Keysight & Solutions Partners
Extending our solutions to meet your needs

Keysight and its Solutions Partners work together to help customers meet their unique challenges, in design, manufacturing, installation or support. To learn more about the program, our partners and solutions go to

www.keysight.com/find/solutionspartner

EMSCAN Corporation is a world leading developer of fast magnetic near-field measurement tools.

www.emscan.com

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