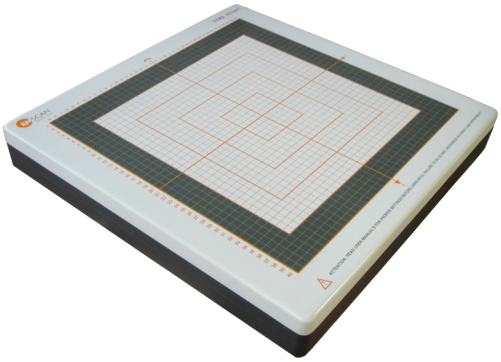
Real-Time Measurement of Antenna Characteristics

Keysight Technologies and EMSCAN

Reduce your design time with fast magnetic near-field measurements of antenna characteristics



The efficient assessment of antenna characteristics is critical to your design process. Far-field measurement of antenna characteristics such as pattern and radiated power typically requires the use of time consuming and costly anechoic chambers. By using real-time nearfield measurements to calculate the far-field antenna characteristics you can reduce the time required to make your antenna measurements. Real-time near-field measurement of your antenna characteristics can help you to minimize your product design time, contain your project costs and accelerate your time to market.

Antenna performance is critical in wireless applications such as cellular, GPS, WiFi, RFID, Bluetooth®, LTE and MIMO. The use of physically small devices with multiple antennas and co-located components means that achieving the correct levels of performance is becoming ever more complex. The RFxpert from EMSCAN can calculate far-field antenna characteristics from near-field measurements in less than a second. The unique near-field data available from RFxpert allows your antenna engineers to gain valuable insights into the root cause of any design problems.

RFxpert is a patented array of automatically switched probes to make fast magnetic near-field measurements of antenna characteristics from 300 MHz to 6 GHz. Single frequency antenna scans can be completed in less than a second, while an antenna can be characterized across its entire operating range in less than a minute. The RFX can measure antennas up to 16 cm x 10 cm and the RFX2 32 cm x 32 cm, in real-time. In addition, with the RFX2 you can characterize arbitrarily larger antennas up to 116 cm x 232 cm in minutes. This gives you the ability to execute real-time analysis of your antenna designs and test multiple design iterations, at your lab bench

- Real-time near-field measurement of antenna characteristics
- Calculates far-field characteristics from near-field measurements
- RFxpert probe array for fast magnetic near-field measurements
- Patented array of 384 or 1,600 electronically switched probes
- Near-field measurements from 300 MHz to 6 GHz
- Used with Keysight power meters, network analyzers or base station emulators
- EMSCAN RFxpert software for analysis and visualization

KEYSIGHT TECHNOLOGIES

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The RFxpert probe array can be used with Keysight Technologies network analyzers, in order to make gain, efficiency and S_{11} measurements, and base station emulators, to test cellular antennas. Typical Keysight instruments include the E5071C ENA network analyzer, the N9912A FieldFox RF analyzer and the E5515C 8960 wireless communications test set.

The RFxpert connects to a standard personal computer via USB and comes with proprietary software for the analysis and visualization of test results. RFxpert allows MIMO antenna engineers and wireless designers to make sub-second antenna correlation measurements, both pattern and envelope correlations.

The system can be integrated into virtually any automated test bed and production line by using DLL programming. Golden sample comparison tools with real-time results is ideal for sample lot testing and product verification for wireless service providers or for manufacturing support.

EMSCAN's RFxpert when used with Keysight instrumentation can reduce the time to measure your antenna characteristics by at least one order of magnitude and minimize costly design cycles by a factor of 1 or 2, improving dramatically your design productivity.

System Components

Keysight Technologies

FieldFox	RF analyzer
ENA	Network analyzers
PNA	Network analyzers
E5515C	8960 series 10 wireless communciations test set

Also supports other Keysight network analyzers

EMSCAN

RFxpert RFX	RF scanner with built-in signal processor for frequency coverage from 300 MHz to 6 GHz or 300 MHz to 3 GHz
RFxpert RFX2	Large RF scanner with built-in signal processor for frequency coverage from 300 MHz to 6 GHz or 300 MHz to 3 GHz

To learn how this solution can address your specific needs please contact Keysight's solutions partner, EMSCAN
www.keysight.com/find/emscan

EMSCAN real-time results

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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