

# Real-Time Near-Field Cell Phone Antenna Measurements

Agilent Technologies and EMSCAN

## Reduce your cell phone design time with real-time near-field measurements of antenna performance

The measurement of the far-field characteristics of a cell phone typically requires the use of time consuming and costly chambers. By using near-field measurements to calculate the far field characteristics of cell phone antennas, testing can take place in real-time giving immediate feedback on antenna performance and reducing your overall design time.

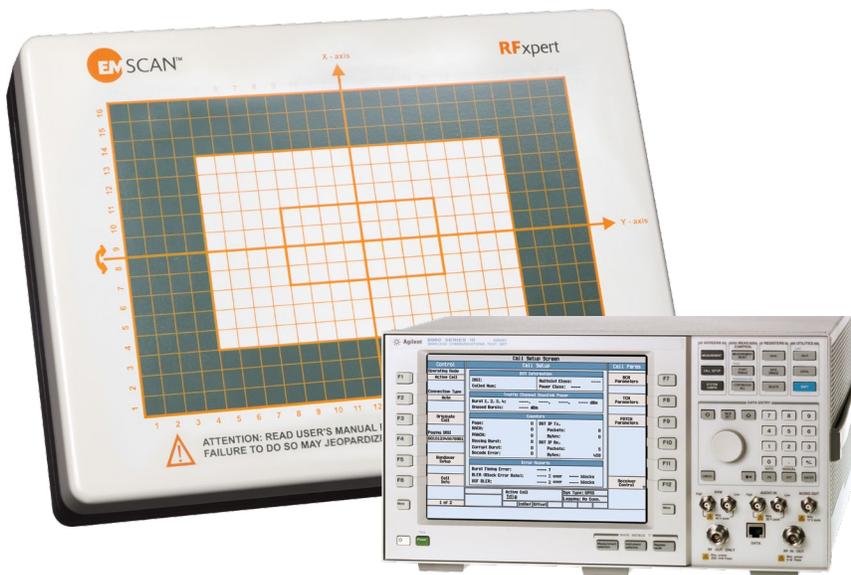
Antenna performance is critical for correct cell phone operation. Mobile devices are becoming ever

more complex with a single handset incorporating multiple technologies such as cellular, WiFi, *Bluetooth*<sup>®</sup>, LTE and MIMO. In this environment efficient antenna measurements are essential in order to minimize your overall product design time, contain your project costs and accelerate your time-to-market.

With RFXpert from EMSCAN, far-field antenna characteristics can be calculated from near-field measurements in less than a second.

EMSCAN provides the fastest solution available for testing total radiated power and gives your antenna engineers invaluable insights into the cause of any design problems and to help troubleshoot far-field radiation patterns.

- *Real-time near-field measurement of cell phone antenna performance*
- *Calculates far-field antenna characteristics from near-field measurements*
- *RFXpert probe array for fast magnetic very-near-field measurements*
- *Patented array of 384 electronically switched probes*
- *Near-field measurements from 300 MHz to 6 GHz*
- *Used with Agilent E5515C 8960 Series 10 wireless communications test set*
- *EMSCAN RFXpert software for analysis and visualization of test results*



# Real-Time Near-Field Cell Phone Antenna Measurements

RFxpert is a patented array of electronically switched probes that makes fast magnetic very-near-field measurements on an antenna. The array comprises a high density network of 384 probes that can operate from 300 MHz to 6 GHz. A single frequency scan can be completed in less than a second and a cellular phone can be characterized across its entire operating range in less than a minute. This gives you the ability to execute real-time analysis of your embedded antenna designs and test multiple design iterations, at your lab bench, with maximum efficiency.

Small changes to the overall system which impact antenna performance can be checked cost-effectively at each stage of your design process. The RFxpert gives wireless engineers the freedom to do rapid prototyping and explore new designs, new materials and new forms. Cellular phone manufacturers can integrate the RFxpert into virtually any automated test bed and production line by using DLL programming tools. A special version of the RFxpert is available for over-the-air (OTA) production testing with phantom hand and head options also available. As a

golden sample comparison tool with real-time results the RFxpert is ideal for sample lot testing and product verification for wireless service providers or for manufacturing support. Wireless service providers can use the system to verify the phone performance of their suppliers in record time.

When testing cellular handsets the RFxpert is used with an Agilent Technologies E5515C 8960 Series 10 wireless communications test set. EMSCAN's RFxpert software application communicates directly with the base station emulator in order to make power, gain, and efficiency measurements. The RFxpert is connected to a standard personal computer via USB and comes with proprietary software for the analysis and visualization of test results.

EMSCAN's RFxpert when used with an Agilent E5515C 8960 Series 10 wireless communications test set allows your designers to reduce cell phone antenna test times by at least one order of magnitude and minimize costly design cycles by 1 or 2 times, improving dramatically their design productivity.

## System Components

### Agilent Technologies

**E5515C** 8960 Series 10 wireless communications test set

### EMSCAN

**RFxpert** Very fast antenna pattern measurement system

To learn how this solution can address your specific needs please contact Agilent's solutions partner, EMSCAN Corporation.

[www.agilent.com/find/emscan](http://www.agilent.com/find/emscan)



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

[www.emscan.com](http://www.emscan.com)

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