

# Real-Time Cell Phone and Tablet Antenna Measurements

Keysight Technologies and EMSCAN

## Reduce your cell phone and tablet design time with real-time antenna measurements

The measurement of the far-field characteristics of a wireless device typically requires the use of time consuming and costly chambers. By using near-field measurements to calculate the far field characteristics of wireless device 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 wireless device operation. Mobile devices are becoming ever more complex with a single handset incorporating multiple technologies such as cellular, GPS, WiFi, Bluetooth®, 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 giving antenna engineers invaluable insights into the cause of any design problems and helping them to troubleshoot far-field radiation patterns.

RFXpert RFX and RFX2 are patented arrays of electronically switched probes that makes fast magnetic very-near-field measurements on an antenna 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.

The RFX2 with the specially designed bench top phantom head+hand and Keysight base station emulator allows designers to perform rapid pre-compliant OTA performance tests. The bench top test fixture can be used for 'talk mode' testing or as a device fixture for free space testing. This dedicated test fixture performs fast accurate measurements with excellent correlation to a full compliant OTA test system. 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.

- Real-time measurement of wireless device antenna performance
- Calculates far-field characteristics from near-field measurements
- RFXpert probe array for fast magnetic very-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 E5515C 8960 Series 10 wireless communications test set
- EMSCAN RFXpert software for analysis and visualization of results



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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 perform 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. 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 a Keysight Technologies E5515C 8960 Series 10 wireless communications test set. The 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 Keysight E5515C 8960 Series 10 wireless communications test set allows you to reduce wireless device antenna test times by at least one order of magnitude and minimize costly design cycles by 1 or 2 times, improving dramatically your design productivity.

### System Components

#### Keysight Technologies

E5515C	8960 series 10 wireless communications test set
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#### 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](http://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](http://www.keysight.com/find/solutionspartner)

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

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

For information on Keysight Technologies' products, applications and services, go to

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

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