

Real-time results

Antenna pattern measurement in seconds

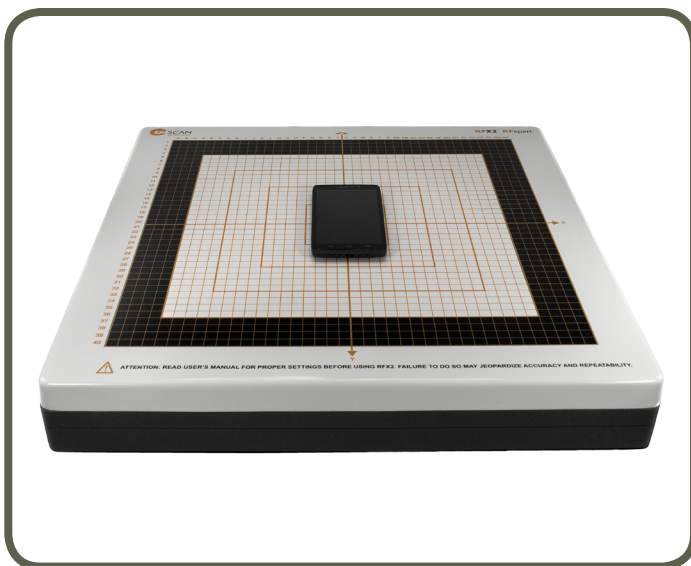
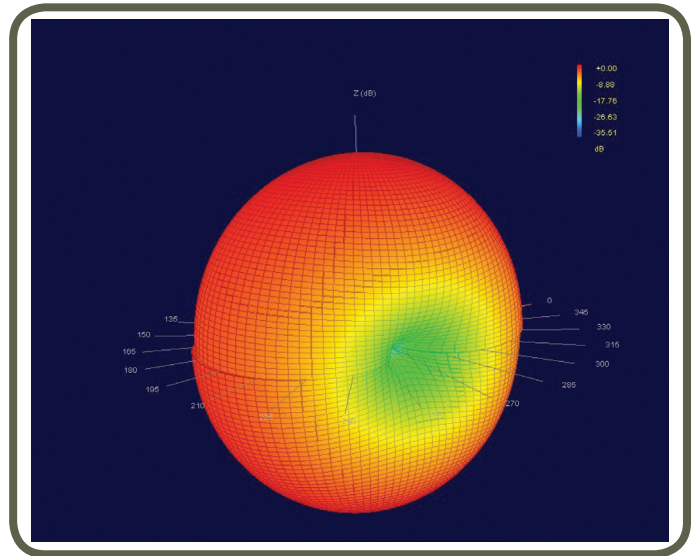
The RFX2 is a desktop scanner that characterizes antennas without the need for a chamber. RFX2 provides far-field patterns, bisections, EIRP and TRP in seconds. Novel near-field results, including amplitude, polarity and phase give insights into the root causes of antenna performance challenges and help troubleshoot far-field radiation patterns.

Large scan area allows designers to test antennas up to 32 cm * 32 cm (12.60" * 12.60") e.g. notebooks, laptops. RFX2 can also integrate with a network analyzer to measure gain, efficiency and S_{11} of an antenna, and with a base station emulator to test cell phones. Users can execute real-time analysis of their embedded antenna designs and test multiple design iterations, on the lab bench, in seconds at each stage of the design process. RFX2 also gives wireless engineers the freedom to do rapid prototyping and explore new designs, new materials and new forms. Wireless engineers and designers can test multiple design variations and optimize complex embedded antenna designs at their desktop in seconds without wasting time waiting in congested anechoic chamber lines. They can optimize positioning and effects from layout, monitor changes from packaging or layout changes or verify performance of final product in seconds and then go to the chambers for final certification requirements with their mind at ease, knowing that their design will achieve a first-time pass.

With the Circular Polarization (CP) option, the RFX2 calculates the right and left hand circularly polarized patterns and displays axial ratio patterns. RFX2 can be integrated into virtually any automated test bed and production line by using DLL programming. As a golden sample comparison tool with real-time results, the RFX2 is also ideal for sample lot testing and product verification for wireless service providers or for manufacturing support.

RFX2 allows design teams to **reduce testing time** by at least one order of magnitude. Users have also documented fifty percent reductions in design cycle times. RFX2 provides antenna designers and wireless engineers with an **easy-to-use, cost-effective, and proven tabletop solution**.

With its real-time capability, RFX2 is a perfect tool to improve the design process for manufacturers of cellular, GPS, WiFi, RFID, Bluetooth, LTE, MIMO, custom and medical devices.



RFX2 Features

| | |
|---|---|
| Capability | <p>2D and 3D near-field patterns (amplitude, phase and polarization)</p> <p>Far-field patterns and bi-sections (cartesian and polar)</p> <p>EIRP and TRP</p> <p>Graph S_{11}</p> <p>Calculate gain and efficiency</p> <p>Automatic comparisons with user defined Golden Sample (sample lot testing and production line testing)</p> <p>Separately purchased options</p> <p>Circular Polarization: Right (RHCP) and left hand circularly polarized patterns (LHCP) and Axial Ratio (AR) (Part #: 3000-0303)</p> <p>Base Station Emulator programmable control (Part #: 3000-0300)</p> <p>Phantom Head+Hand Test Kit as per CTIA Test Plan for Mobile Station Over the Air Performance (Part #: 3000-0306)</p> <p>Basic MCP Jig to test large antennas up to L 2.32 m x W 2.32 m (L 91.34" x W 91.34") (Part #: 3000-0820)</p> |
| Scan time | in seconds |
| Supported base station emulators | List at https://www.emscan.com/products/antenna-testing/rfx2/ If your BSE is not listed, please contact EMSCAN for custom driver |
| Supported network analyzers | List at https://www.emscan.com/products/antenna-testing/rfx2/ If your VNA is not listed, please contact EMSCAN for custom driver |
| Supported operating systems | Windows 10®, Windows 8.1®, Windows 8®, Windows 7®, Windows Vista® |

RFX2 Scanner Specifications

| Broadband frequency coverage | <p>300 MHz to 6 GHz</p> <p>Base configuration 300 MHz to 6 GHz (3-year warranty Part #: 3000-0607, 5-year warranty Part #: 3000-0606)</p> <p>Option 300 MHz to 2.75 GHz (3-year warranty Part #: 3000-0605, 5-year warranty Part #: 3000-0604)</p> <p>Upgrade option 2.75 GHz to 6 GHz (Part #: 3000-0121; 3000-0605 pre-requisite)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---|---------------------------|--------------------------|-----------|--------------------------|--------------------------|-----------|--------------------------|--|--|----------|-----------|---|----------|-----------|---|----------|-----------|---|------|------|-----|------|------|-----|------|------|-----|
| Antenna array | 1,600 (40 x 40) H-field probes | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement sensitivity | 0 dBm source power for a reasonably efficient antenna | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Measurement accuracy | <table border="1"> <thead> <tr> <th colspan="3">Band 1: 300 MHz - 1GHz</th> <th colspan="3">Band 2: 1 GHz - 3 GHz</th> <th colspan="3">Band 3: 3 GHz - 6 GHz</th> </tr> <tr> <th>σ</th> <th>2σ</th> <th>N</th> <th>σ</th> <th>2σ</th> <th>N</th> <th>σ</th> <th>2σ</th> <th>N</th> </tr> </thead> <tbody> <tr> <td>1.54</td> <td>3.08</td> <td>195</td> <td>0.81</td> <td>1.62</td> <td>517</td> <td>0.94</td> <td>1.88</td> <td>247</td> </tr> </tbody> </table> | Band 1: 300 MHz - 1GHz | | | Band 2: 1 GHz - 3 GHz | | | Band 3: 3 GHz - 6 GHz | | | σ | 2σ | N | σ | 2σ | N | σ | 2σ | N | 1.54 | 3.08 | 195 | 0.81 | 1.62 | 517 | 0.94 | 1.88 | 247 |
| Band 1: 300 MHz - 1GHz | | | Band 2: 1 GHz - 3 GHz | | | Band 3: 3 GHz - 6 GHz | | | | | | | | | | | | | | | | | | | | | | |
| σ | 2σ | N | σ | 2σ | N | σ | 2σ | N | | | | | | | | | | | | | | | | | | | | |
| 1.54 | 3.08 | 195 | 0.81 | 1.62 | 517 | 0.94 | 1.88 | 247 | | | | | | | | | | | | | | | | | | | | |
| Measurement repeatability | +/- 0.2 dB | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Far-field resolution | 1.8° for theta and 3.6° for phi | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum radiator size | RFX2 L 32 cm x W 32 cm (L 12.60" x W 12.60") RFX2 with MCP Option: L 2.32 m x W 2.32 m (L 91.34" x W 91.34") | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resolution Bandwidth | Resolution Bandwidth = IF Bandwidth of 60MHz | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Probe to probe uniformity | Calibrated before shipment Firmware correction factors adjust for frequency dependant probe responses with < +/- 0.5 dB accuracy | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Probe to probe isolation | > 20 dB | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum radiated power | +33 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating temperature | From -5 °C to +35 °C (continuous fixed frequency scan at 2440 MHz) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Modulation formats | GSM / CDMA / WCDMA / WiFi / WiMAX / LTE Bluetooth / RFID / GPS / Custom antenna | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Scanner connections | PC: USB Power: 12 VDC, 3.4 A | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dimensions | L 49.2 cm x W 49.2 cm x H 7.1 cm (L 19.37" x W 19.37" x H 2.80") | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight | 9.5 kg / 20.94 lb (including cables and adaptor) | | | | | | | | | | | | | | | | | | | | | | | | | | | |



#1, 1715-27 Avenue NE
Calgary, AB T2E 7E1
Canada

Tel: +1-403-291 0313
Fax: +1-403-250 8786

www.emscan.com