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**United States Patent**

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*Michelle K. Lee*

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(12) **United States Patent**  
**Aubin et al.**

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- (54) **PORTABLE SPHERICAL NEAR-FIELD ANTENNA MEASUREMENT SYSTEM**
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**G01R 29/10** (2006.01)  
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See application file for complete search history.

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(57) **ABSTRACT**

A portable near-field measurement system for mapping radio frequency characteristics spherically about a test object is presented. The system includes an anechoic chamber, a rotatable annular platter, a rotatable platter, a stationary platform, and frequency converters. The chamber is an enclosure with an absorber material fastened to the interior thereof. The annular platter is disposed horizontally within the chamber and fastened to an azimuth positioner that rotates the annular platter about an azimuth rotation axis. The rotatable platter is disposed vertically within the chamber and rotatable about an elevation rotation axis via an elevation positioner. Azimuth and elevation axes intersect perpendicularly. A gantry arm with probe is fastened to and extends from the rotatable platter. A vertical arm is fastened between the annular platter and elevation positioner. Platters have front and back surfaces. A stationary platform is centered within the annular platter and attachable to a test column. Front surfaces are oriented toward the test column and covered with an absorber material. At least one frequency converter is fastened to the back surface of the rotatable platter and communicable with the probe. At least one other frequency converter is fastened to the stationary platform and communicable with a target.

**23 Claims, 14 Drawing Sheets**

