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[54] **MULTIPORT ANTENNA**

[75] Inventors: **Ronald H. Johnston**; **Edwin Tung**, both of Calgary, Canada

[73] Assignee: **Telecommunications Research Laboratories**, Edmonton, Canada

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[58] **Field of Search** 343/725, 726, 343/728, 729, 853, 835, 836, 837, 893; H01Q 21/00

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Primary Examiner—Hoanganh Le

Attorney, Agent, or Firm—Flynn, Thiel, Boutell & Tanis, P.C.

[57] **ABSTRACT**

A multiport beamforming antenna provides multidirectional beam patterns with minimum interference comprising multiple, as for example twelve, radiating elements mounted on a conducting ground plane. Multiple, for example six, reflecting surfaces, each having a shape of one quarter of a circle or an ellipse, are radially disposed about the center of a round ground plane conductor to give a hemispherical shape with multiple, for example six, equal sectors. Each sector of the multiport antenna contains two types of radiating elements mounted adjacent to the corner of the reflector. The first elemental antenna is responsive to energy having a first polarization, while the second elemental antenna is responsive to energy having a polarization orthogonal to the first polarization. With such an arrangement, all the radiating elements are located in close proximity without coupling signals to each other, and each element is capable of producing a directional radiation pattern in an independent manner. Consequently, the physical area required to install the antenna is minimized, and the antenna provides very good hemispherical coverage and for example may be placed anywhere on the ceiling of a room to provide coverage of the entire room.

27 Claims, 11 Drawing Sheets