

**(12) United States Patent
Dent**

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(54) **RADIO COMMUNICATIONS SYSTEM WITH ADAPTIVE POLARIZATION**

5,838,670 A 11/1998 Billstrom
6,222,503 B1 * 4/2001 Gietema et al. 343/890

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FOREIGN PATENT DOCUMENTS

(73) Assignee: **Ericsson, Inc.**, Research Triangle Park, NC (US)

EP 0210254 A2 11/1986
EP 0847209 A2 6/1998

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

* cited by examiner

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(51) **Int. Cl.⁷** **H04B 1/38**

(52) **U.S. Cl.** **455/562; 455/277.1**

(58) **Field of Search** 455/561, 277.1, 455/277.2, 278.1, 229.1, 273, 275, 450

(57) ABSTRACT

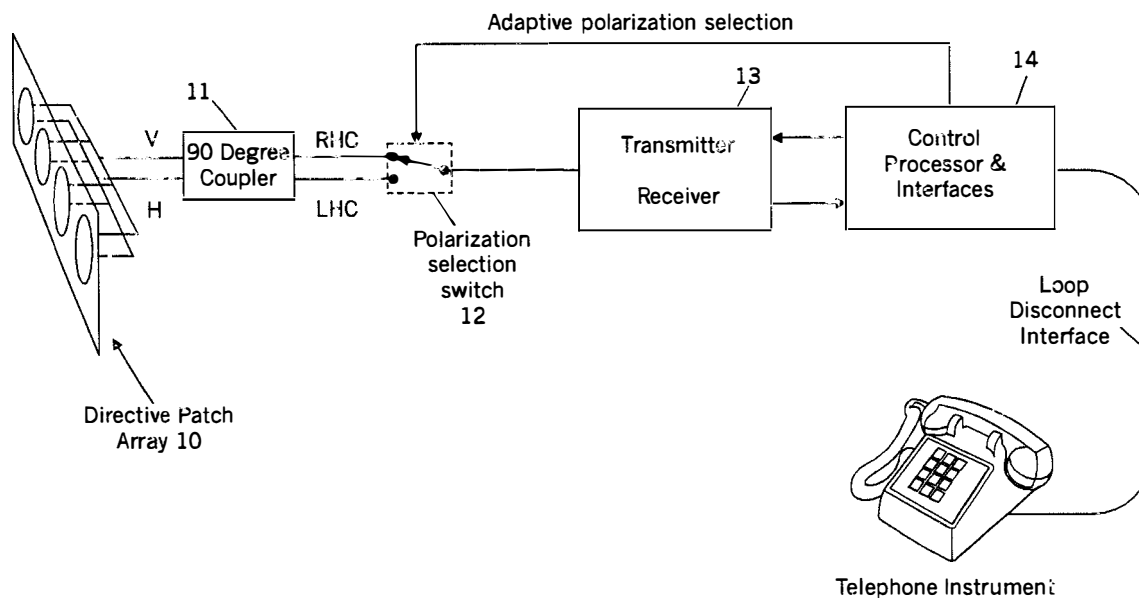
A radio base station having a plurality of directional sector antennas for providing communications with outstations lying at different azimuth angles to the base station is disclosed in which the antennas transmit signals using one or both of two orthogonal polarizations such as left hand or right hand circular antennas and polarization and which also measures interference levels on different frequency channels that are used for allocating an optimum channel and polarization for connecting a call. Each of the outstations comprise at least one antenna of selectable polarization.

(56) References Cited

U.S. PATENT DOCUMENTS

3,956,699 A * 5/1976 Leahy 325/15
5,491,837 A 2/1996 Haartsen
5,724,666 A 3/1998 Dent

2 Claims, 9 Drawing Sheets



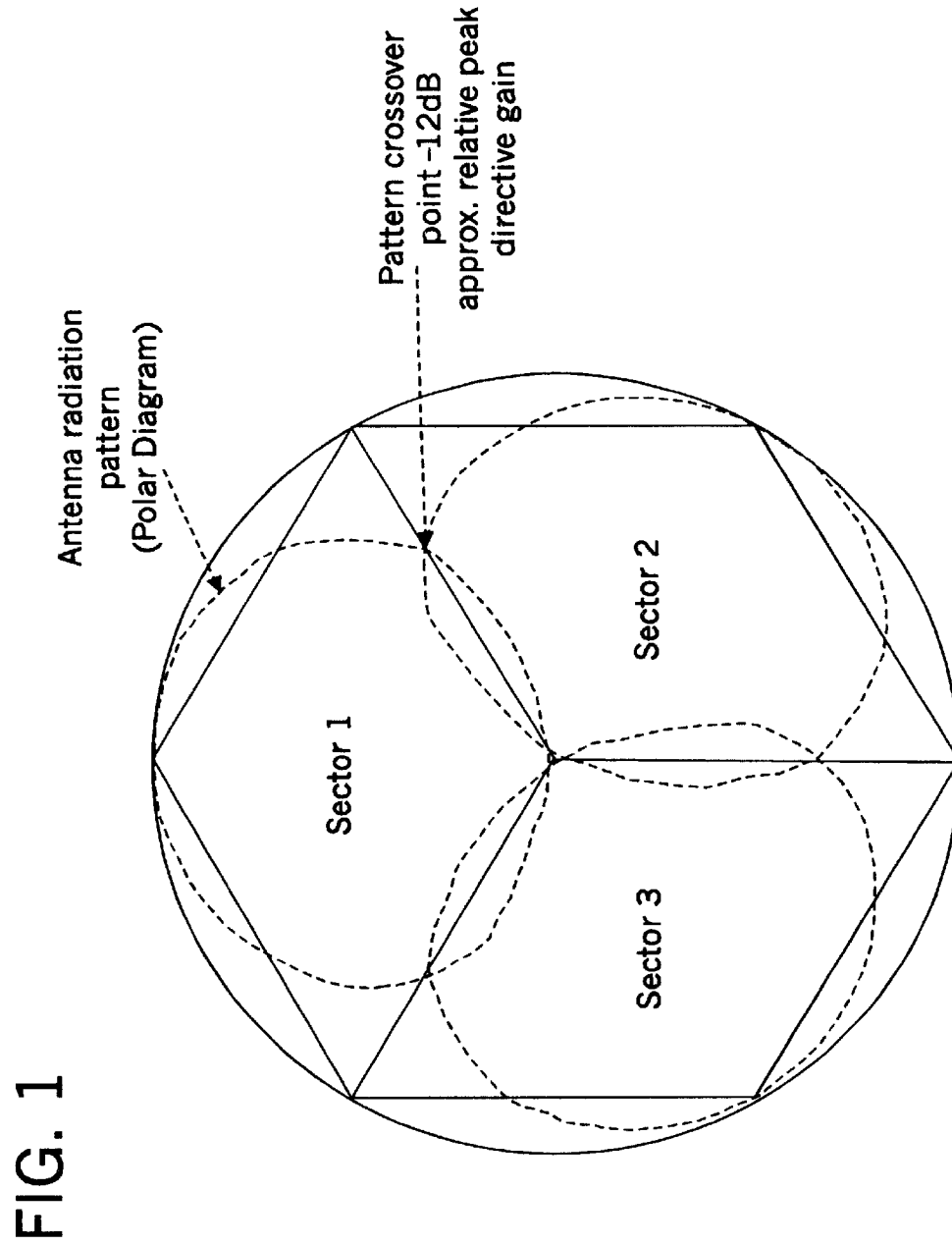


FIG. 2

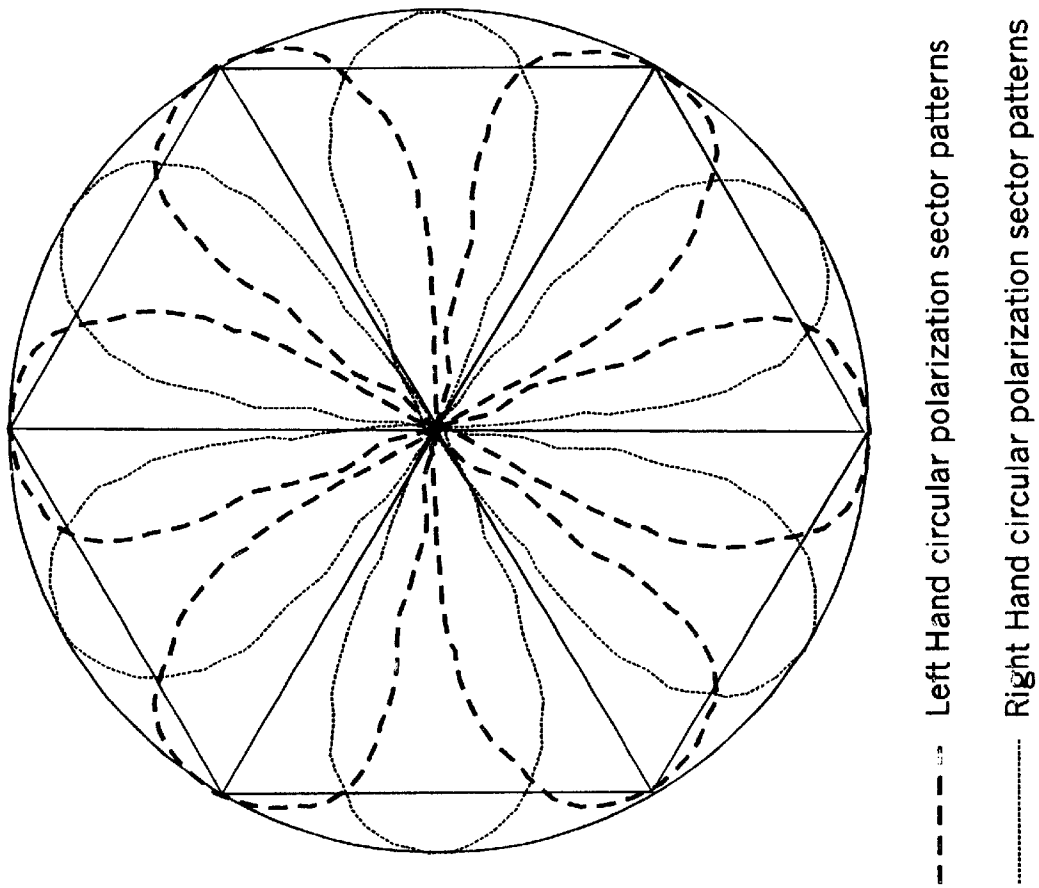
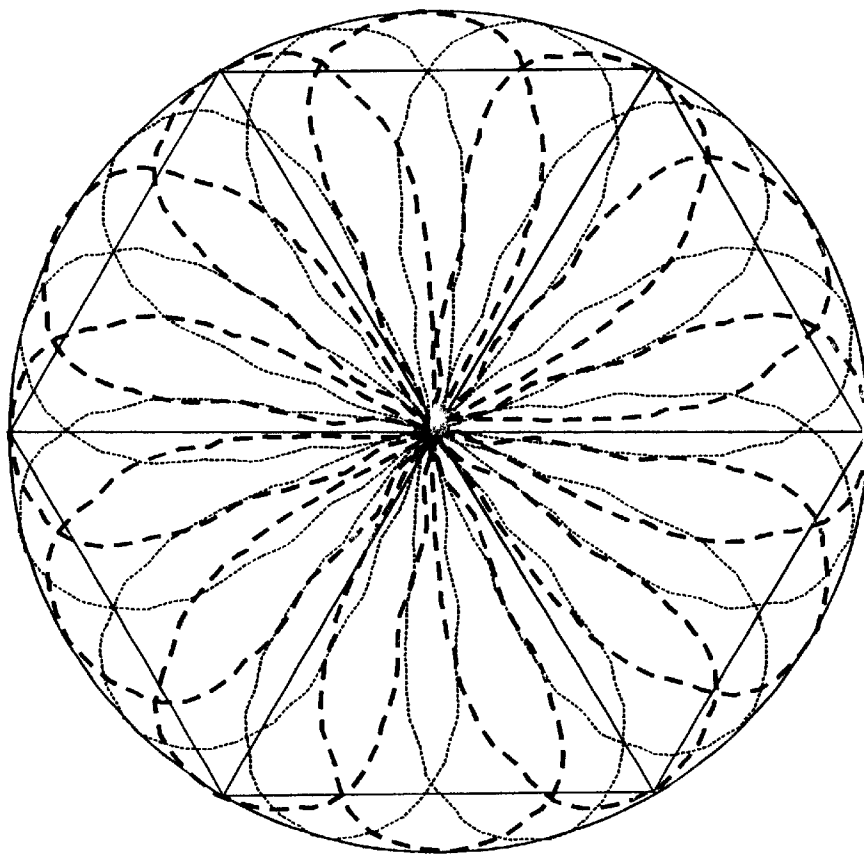


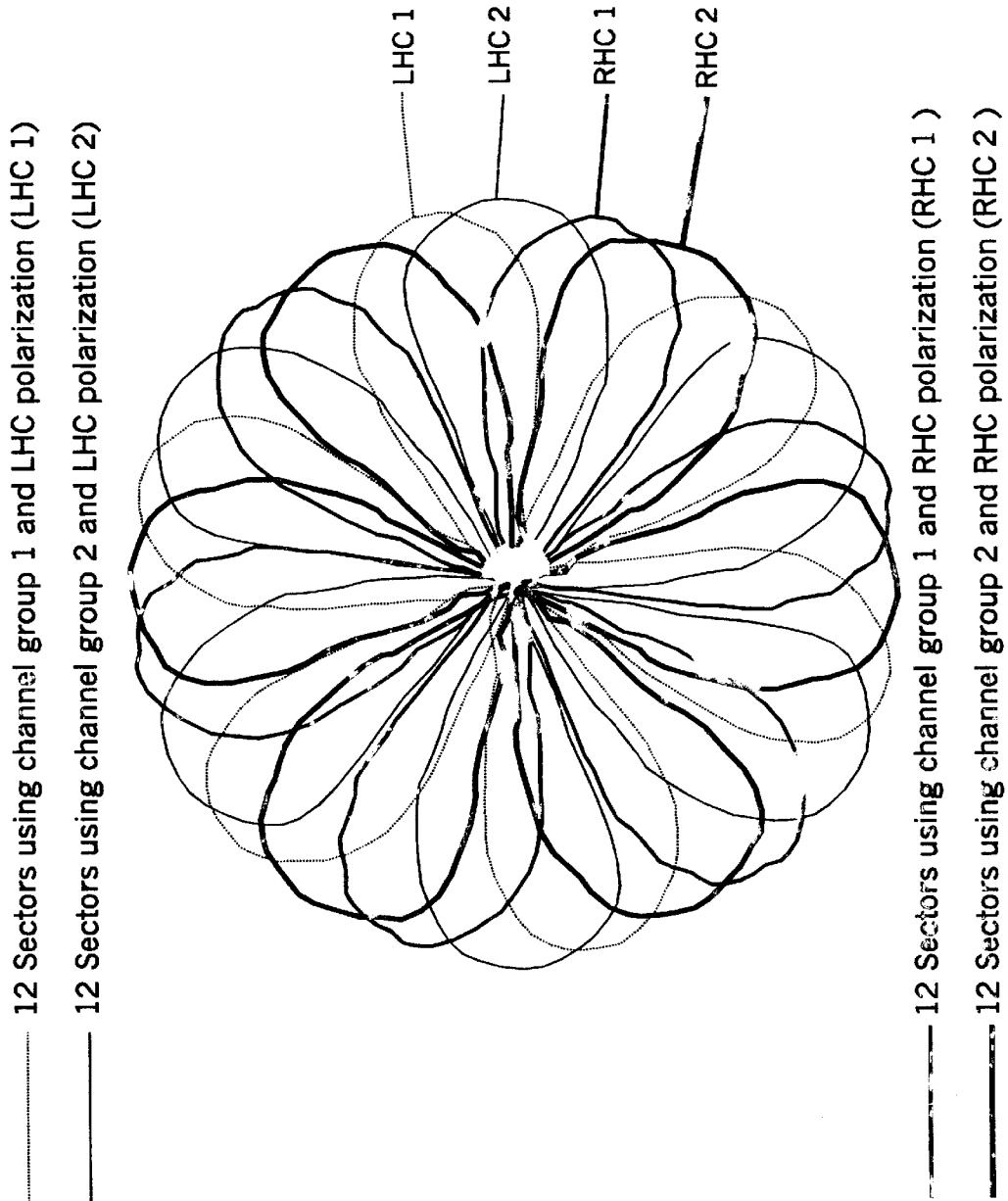
FIG. 3



- - - - - 12 Sectors using channel group 1

..... 12 Sectors using channel group 2

FIG. 4



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