

**(12) United States Patent  
Dent**

**(10) Patent No.: US 6,356,771 B1**  
**(45) Date of Patent: Mar. 12, 2002**

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

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

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(\* ) 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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(21) Appl. No.: **09/113,316**

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(51) **Int. Cl.<sup>7</sup>** ..... **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**

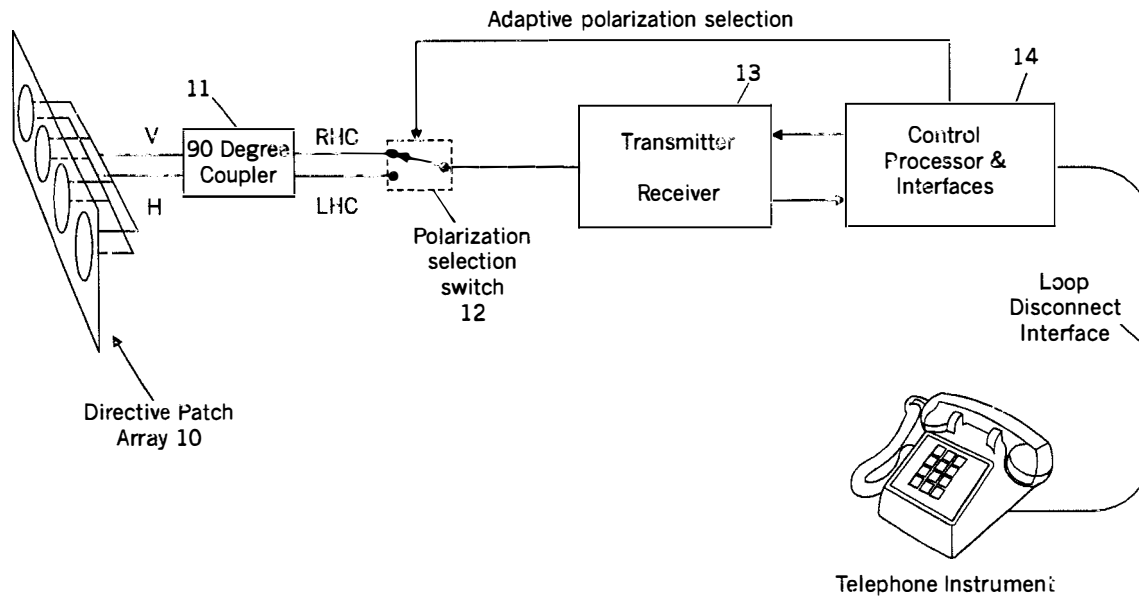
A radio base station having a plurality of directional sector antennas for providing communications with outstations lying at different azimuth angles to the base station is disclosed in which the antennas transmit signals using one or both of two orthogonal polarizations such as left hand or right hand 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.

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**2 Claims, 9 Drawing Sheets**



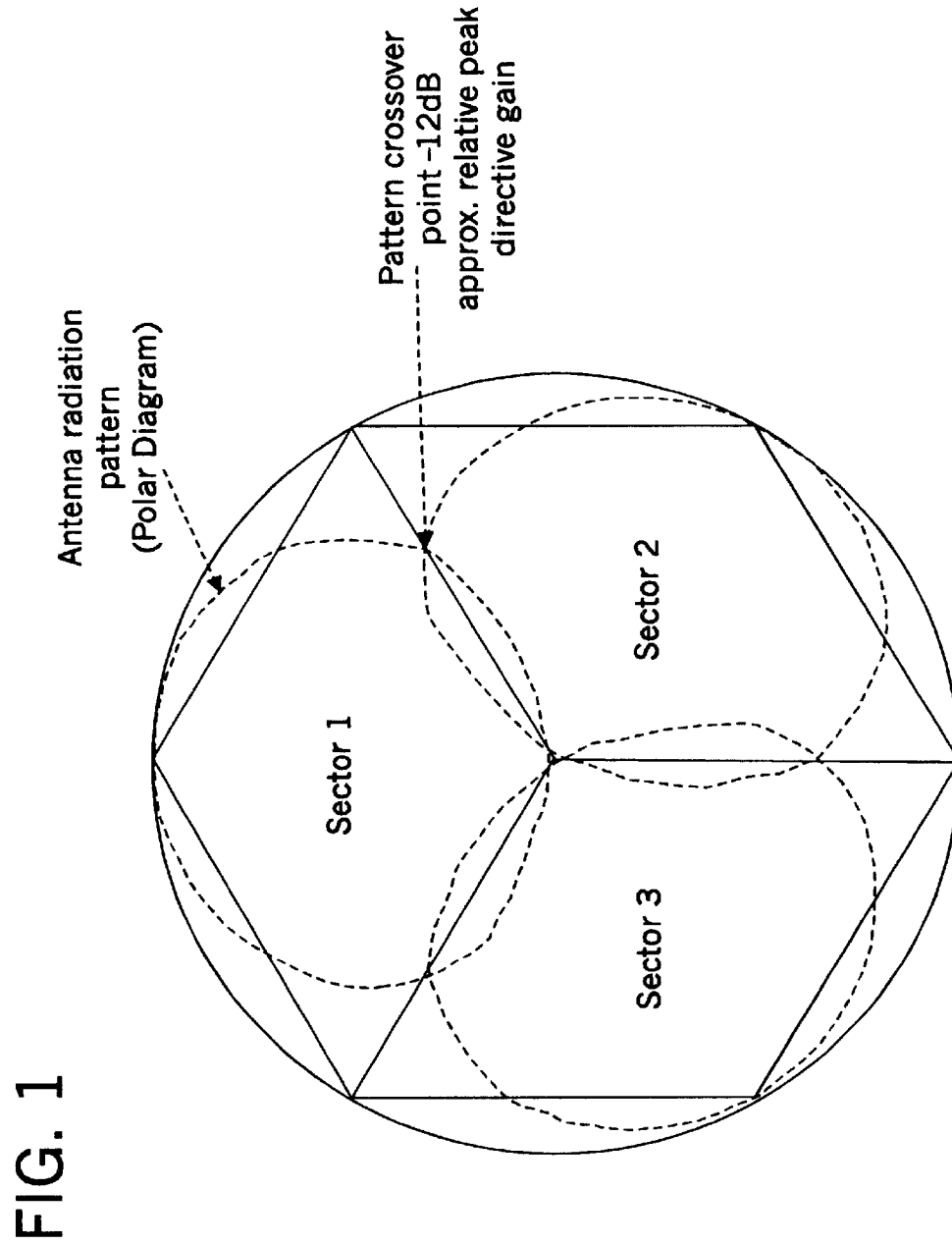


FIG. 2

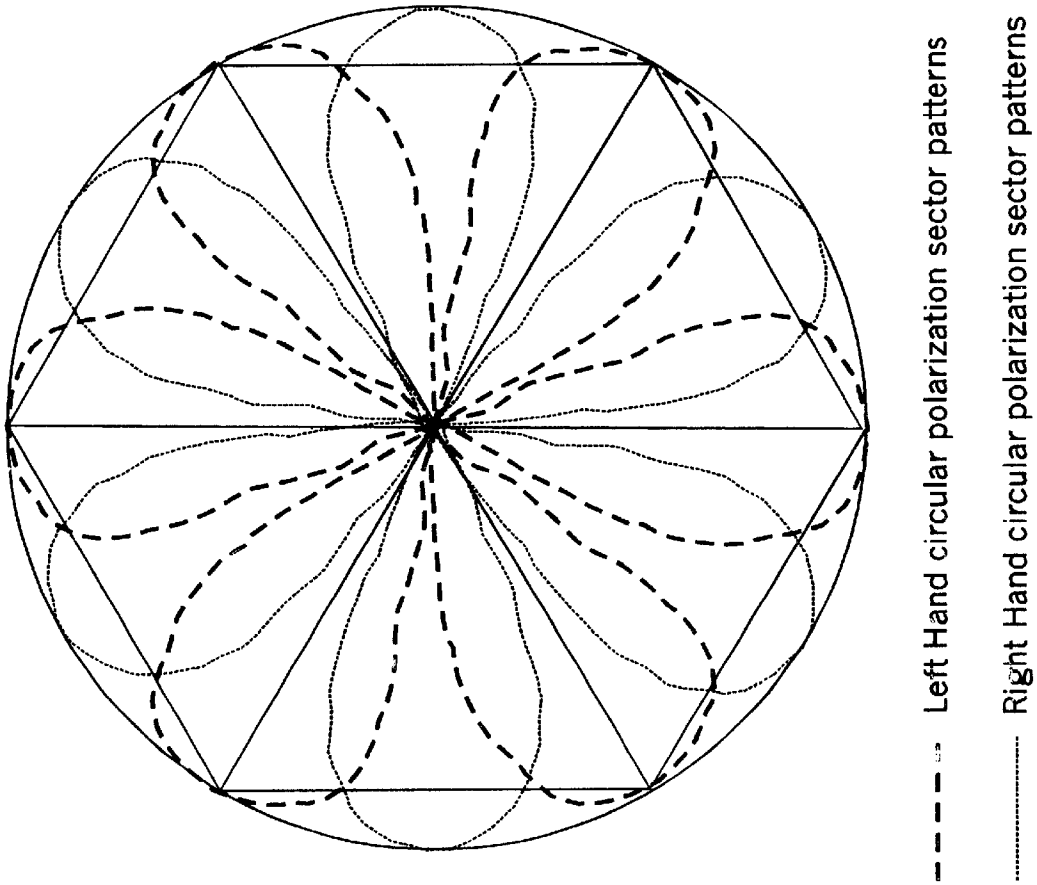
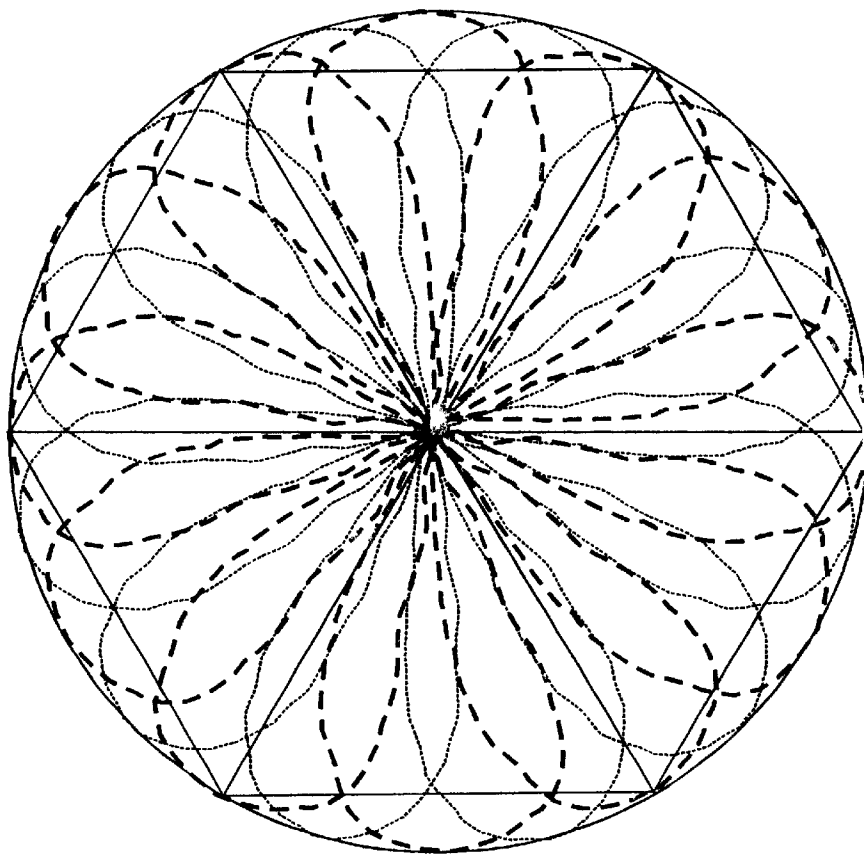


FIG. 3

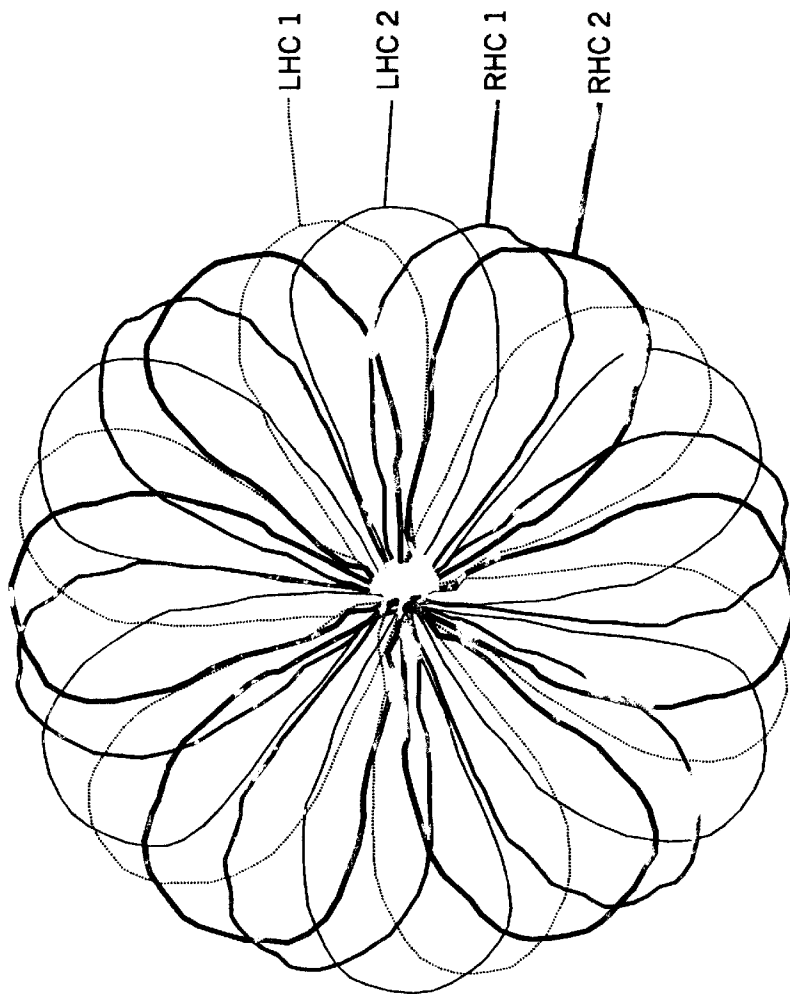


- - - - - 12 Sectors using channel group 1

..... 12 Sectors using channel group 2

FIG. 4

..... 12 Sectors using channel group 1 and LHC polarization (LHC 1)  
—— 12 Sectors using channel group 2 and LHC polarization (LHC 2)



—— 12 Sectors using channel group 1 and RHC polarization (RHC 1 )  
—— 12 Sectors using channel group 2 and RHC polarization (RHC 2 )

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