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Eidson

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(54) POLARIZATION-ADAPTIVE ANTENNA TRANSMIT DIVERSITY SYSTEM

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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.

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(57) ABSTRACT

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(52) U.S. Cl. 455/561; 455/562; 455/101; 370/320; 342/361

A duplex polarization adaptive system is described. The system provides polarization diversity for base station antennas under both receive and transmitting conditions. Since the base station provides polarization diversity in both transmit and receive modes, no polarization diversity is needed in the handheld unit. Even though the handheld unit does not provide polarization diversity, a duplex communication system, that uses polarization diversity for both the uplink and the downlink is provided, because the base station provides polarization diversity for the uplink and the downlink paths. By installing the two-way diversity at the base station, the overall cost of implementing diversity is reduced because one base station can typically serve many handsets. The base station antenna determines the polarization state of signals received from a remote unit, such as a handheld unit, using a polarization diverse antenna system. The base station then transmits using the same polarization state. The system is compatible with time-division duplex systems.

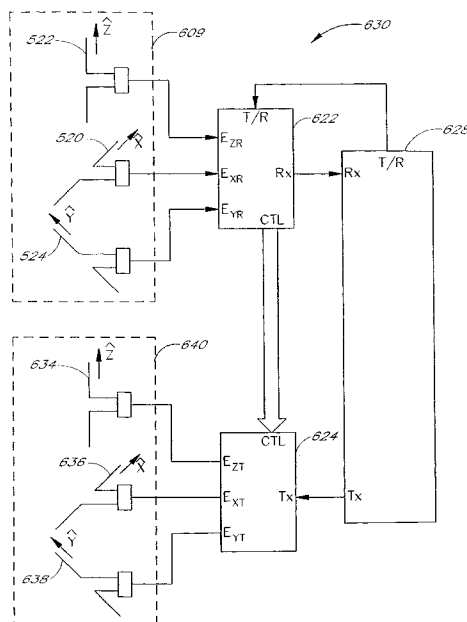
(58) Field of Search 455/561, 562, 455/63, 65, 67.6, 501, 504, 506, 101; 342/361; 343/853; 370/320, 379; 375/299

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35 Claims, 11 Drawing Sheets



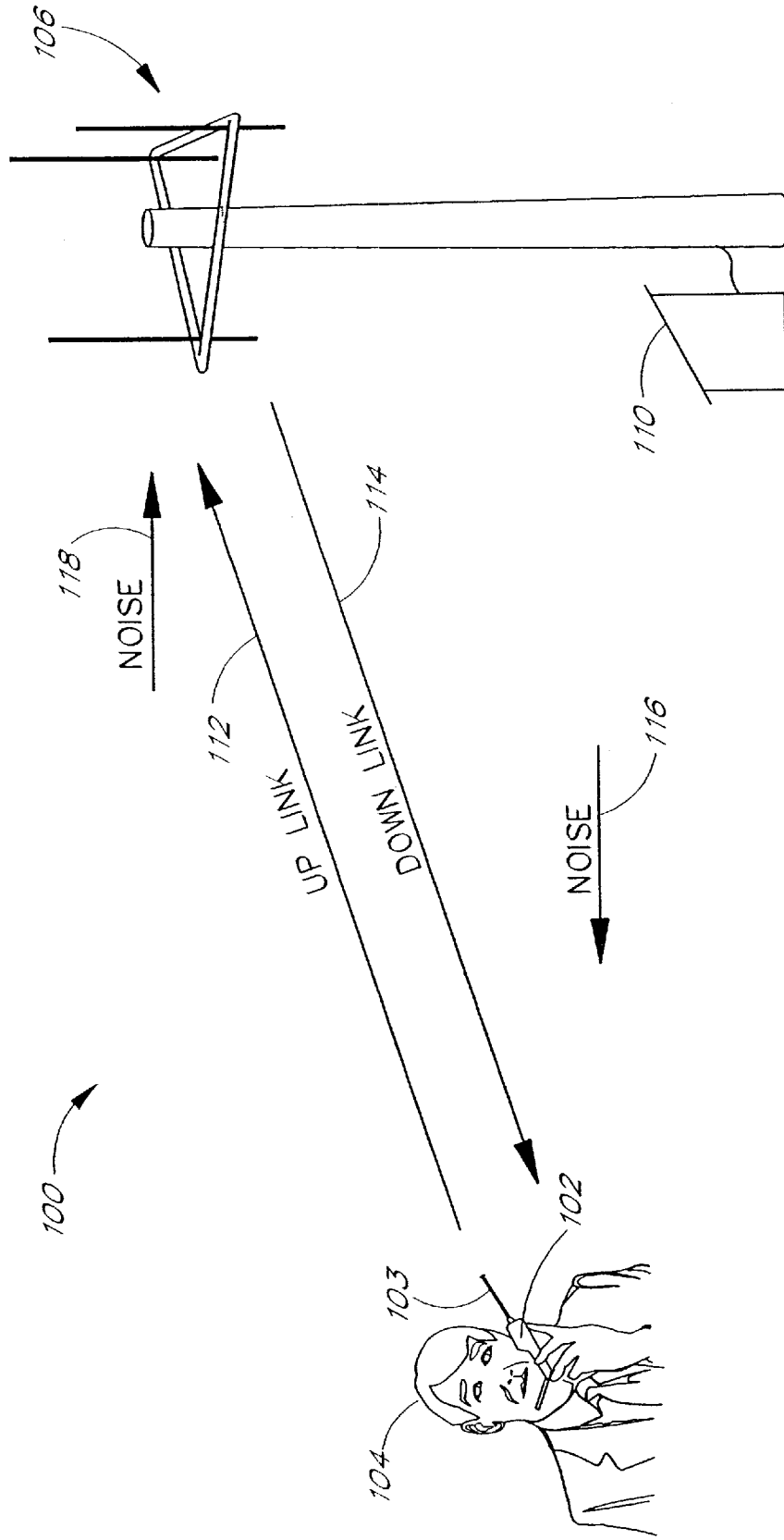


FIG. 1

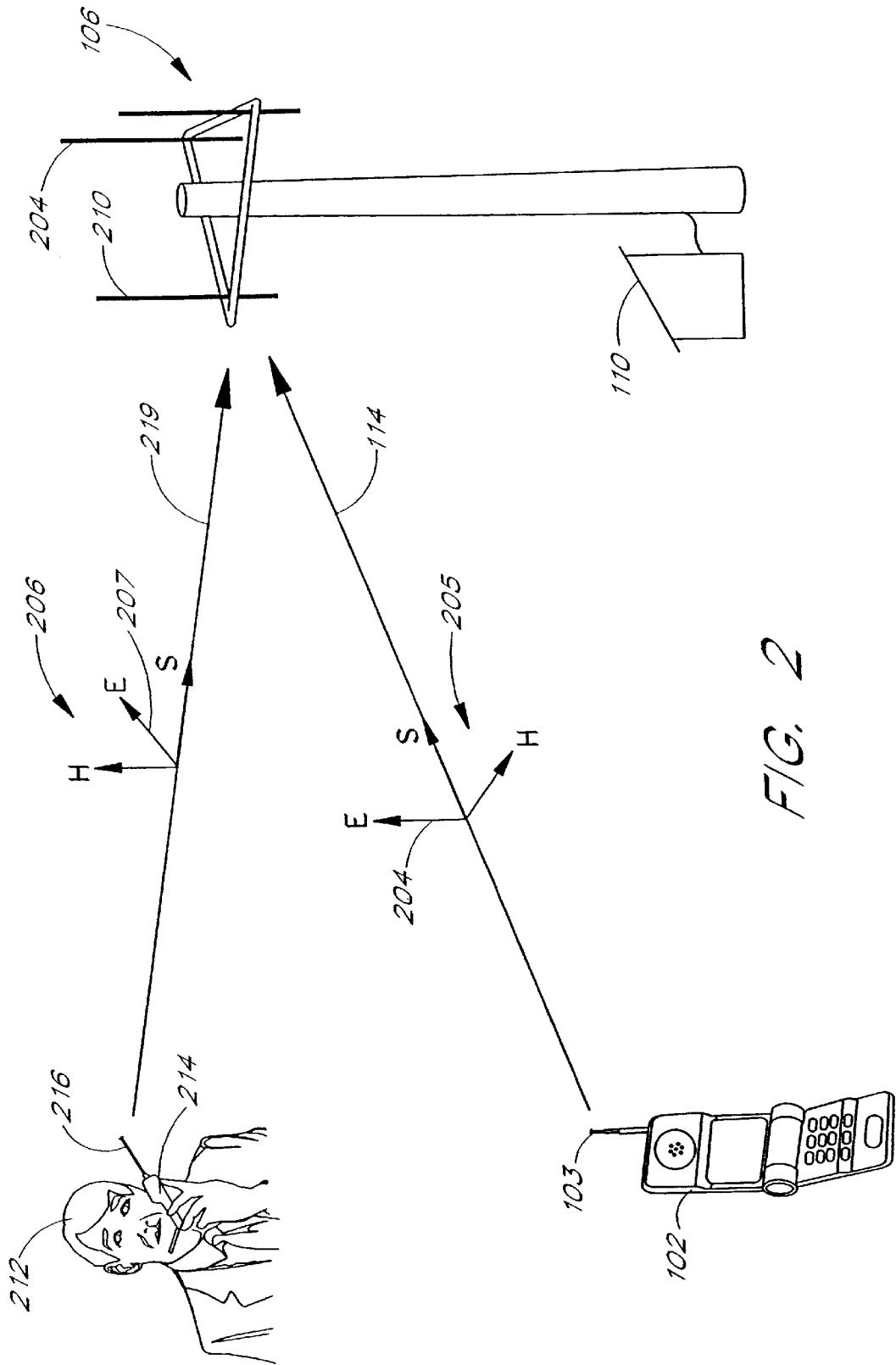


FIG. 2

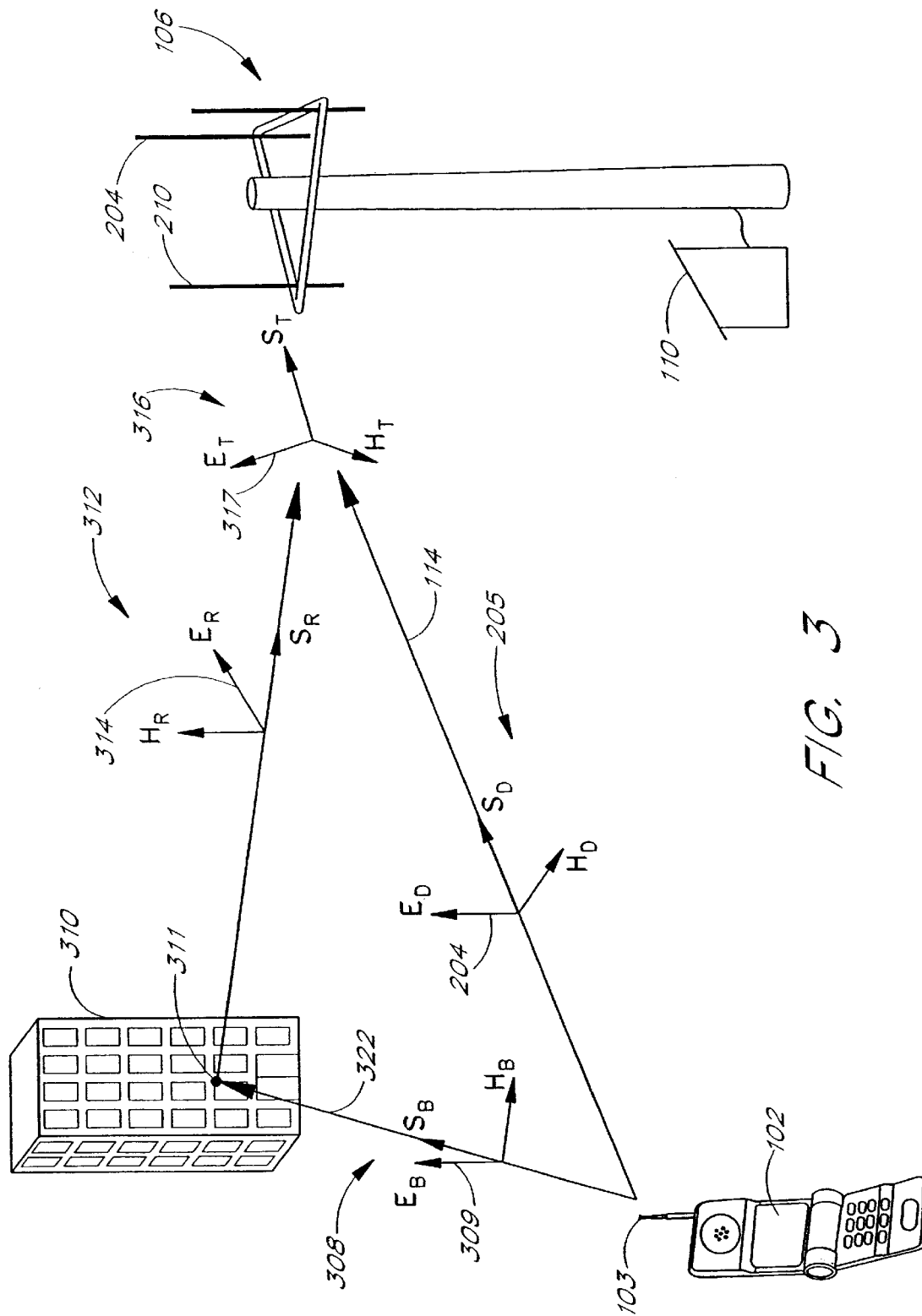


FIG. 3

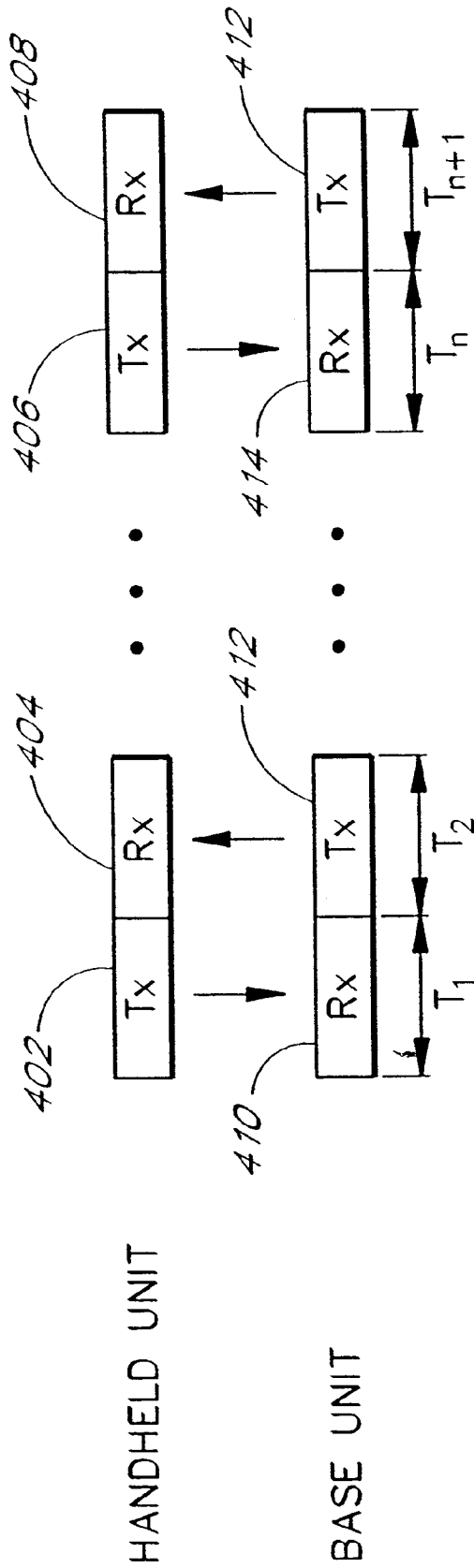


FIG. 4

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