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Vaisanen et al.

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(54) **ANTENNA SHARING SWITCHING CIRCUITRY FOR MULTI-TRANSCEIVER MOBILE TERMINAL AND METHOD THEREFOR**

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(52) **U.S. Cl.** **455/73**; 455/82; 455/552
(58) **Field of Search** 455/552, 553, 455/101, 103, 73, 129, 277.1, 289, 550, 78, 133, 82, 182; 375/220, 219

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(57) **ABSTRACT**

Antenna switching circuitry in a multi-transceiver mobile terminal **10**, which features a first switching unit (SW1) which controllably couples a first transceiver port (P_1) to either a first antenna port (P_{A1}) or a second antenna port (P_{A2}); and a second switching unit (SW2) which controllably couples the second antenna port (P_{A2}) to either the first transceiver port (P_1), through the first switching unit (SW1), or to an input/output port ($P_{I/O}$) of a second transceiver **(12)**. According to this scheme, the second antenna port is coupled to the input/output port of the second transceiver **(12)** in a mode in which the second transceiver **(12)** is operational, the first transceiver port (P_1) being decoupled from the second antenna port at this time, wherein the first transceiver port is coupled to the first antenna port and the input/output port of the second transceiver **(12)** is decoupled from the second antenna port, when the first transceiver is in a transmit mode, and wherein the first transceiver port is coupled to either of the first and second antenna ports, when the first transceiver **(11)** is in a receiving mode and the input/output port of the second transceiver **(12)** is decoupled from the second antenna port.

42 Claims, 4 Drawing Sheets

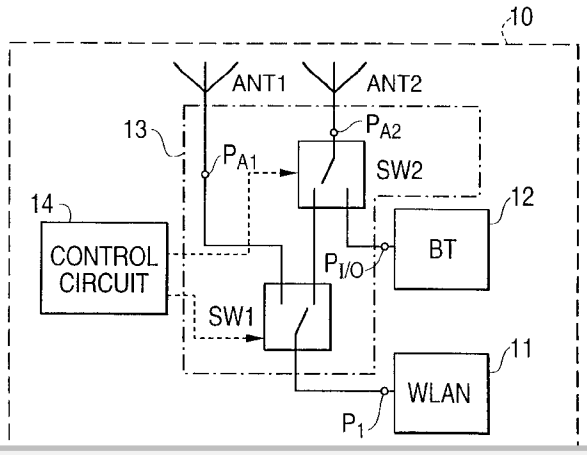


FIG. 1

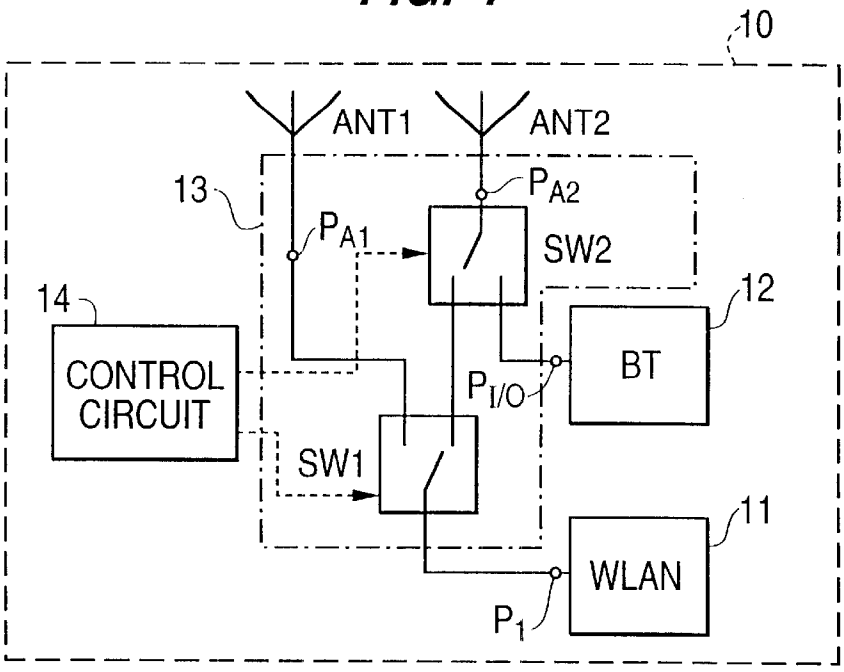


FIG. 2

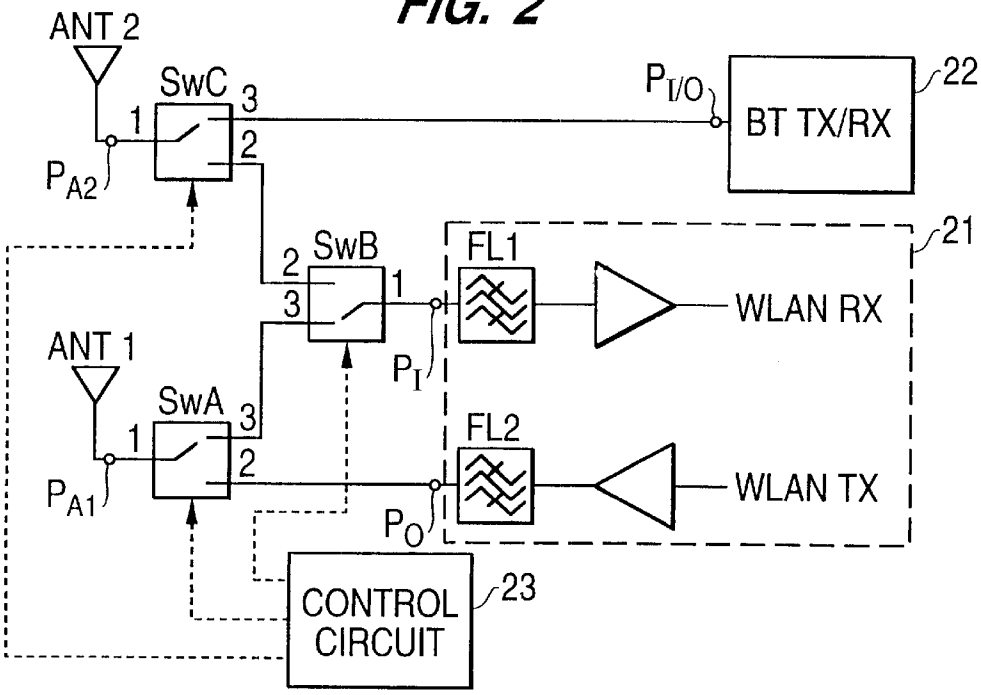


FIG. 3A

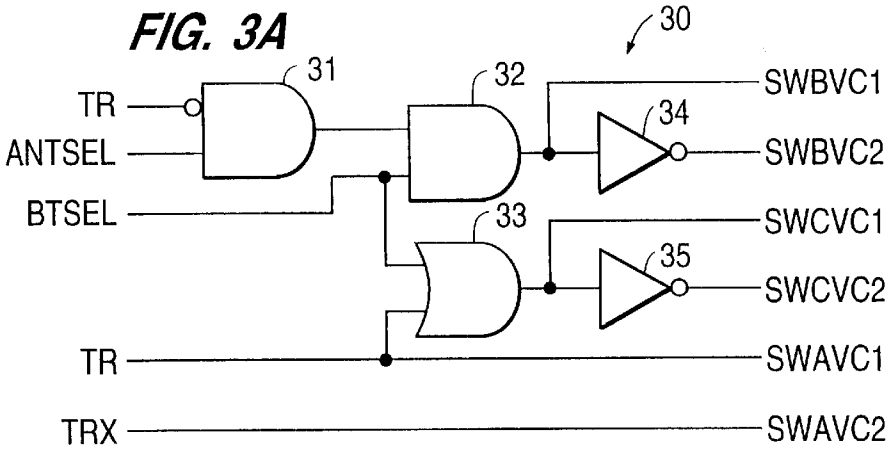


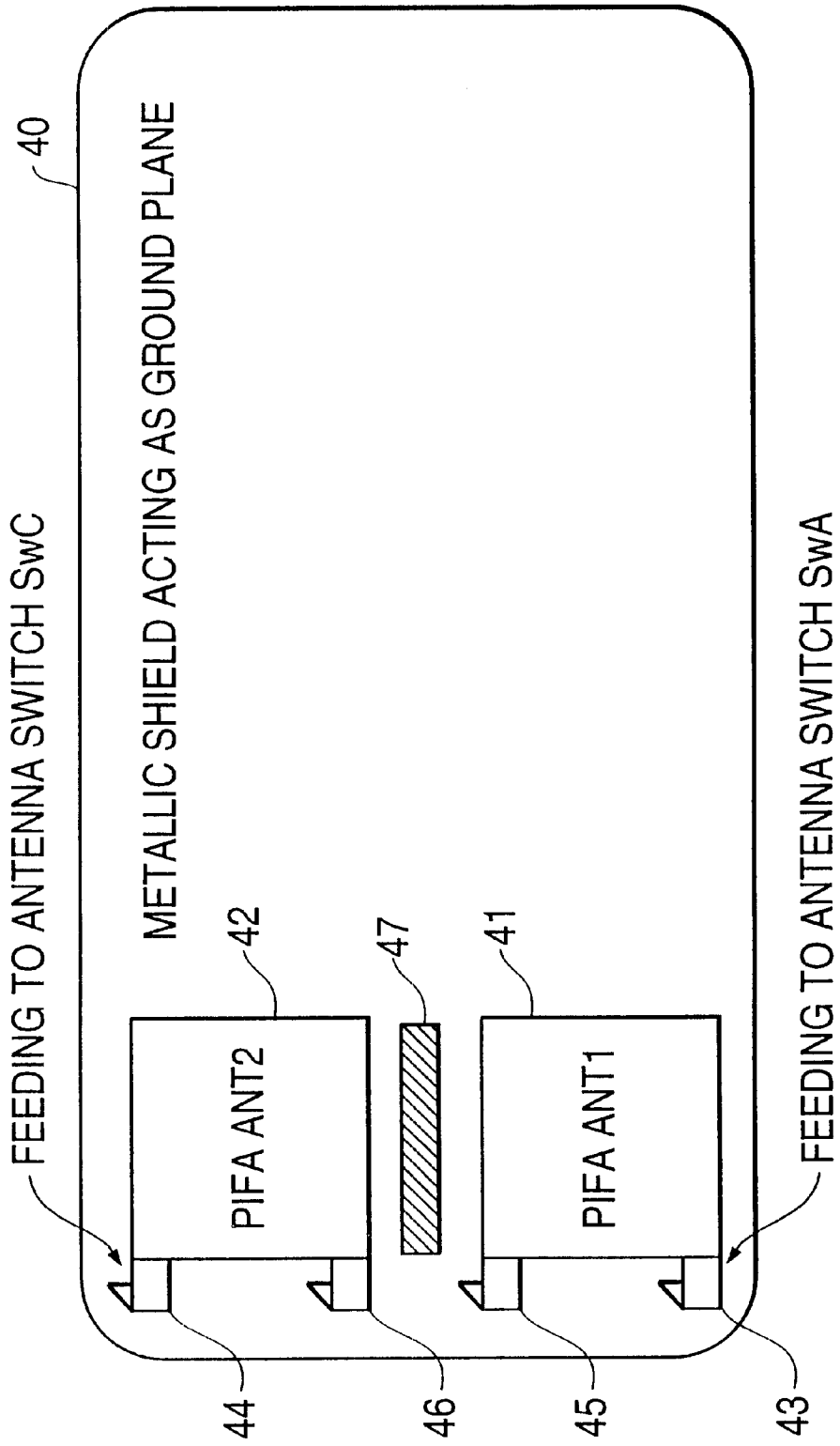
FIG. 3B

SIGNAL	FUNCTION
ANTSEL	SELECT ANT1 IF ANTSEL = 0 (ANTSEL OVERRIDDEN WHEN TR=1)
BTSEL	BLUETOOTH ACTIVE IF BTSEL = 0
TR	TRANSMITTER ACTIVE IF TR = 1
TRX	INVERSE OF TR

FIG. 3C

VC1	VC2	CONNECTIONS
0	0	PORTS 1, 2 AND 3 ISOLATED
0	1	PORT 1-PORT 3, PORT 2 ISOLATED
1	0	PORT 1-PORT2, PORT 3 ISOLATED
1	1	PORTS 1, 2 AND 3 ISOLATED

FIG. 4



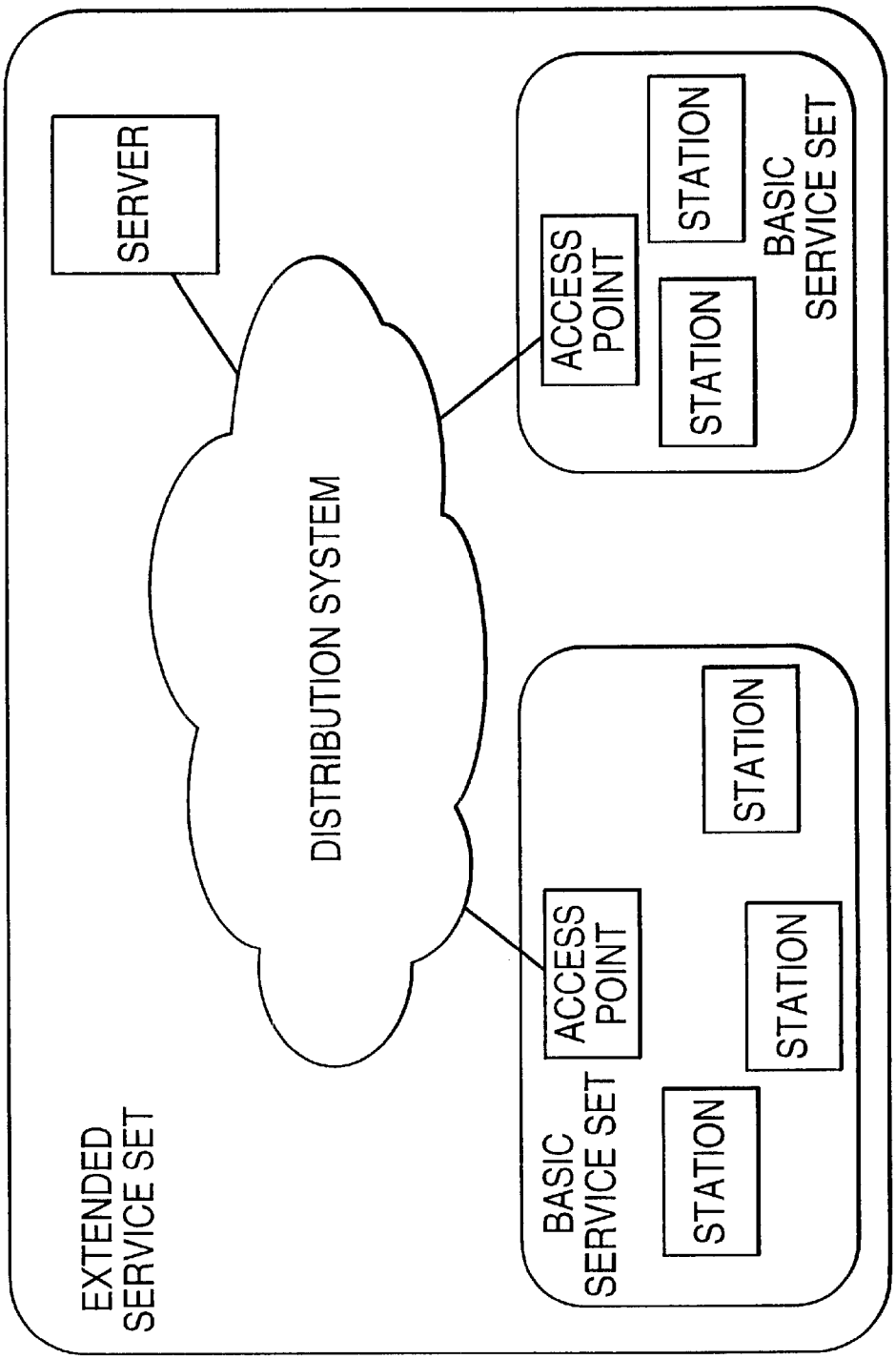


FIG. 5

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