



- [54] DUAL BAND MOBILE STATION
- [75] Inventors: Jeffrey A. Schlang, Raleigh; Ronald D. Boesch, Morrisville, both of N.C.
- [73] Assignee: Ericsson Inc., Research Triangle Park, N.C.
- [21] Appl. No.: 08/823,068
- [22] Filed: Mar. 24, 1997
- [51] Int. Cl.<sup>6</sup> H04B 1/40
- [52] U.S. Cl. 455/76; 455/552
- [58] Field of Search 455/76, 83, 84, 455/86, 188.1, 180.1, 552, 553, 550, 85

5,796,772 8/1998 Smith et al. .... 375/200

FOREIGN PATENT DOCUMENTS

- 0 800 283 A2 10/1997 European Pat. Off. .
- WO 89/07865 8/1989 WIPO .
- WO 98/00927 1/1998 WIPO .

Primary Examiner—Nguyen Vo  
 Assistant Examiner—Charles N. Appiah  
 Attorney, Agent, or Firm—Robert A. Samra

[57] ABSTRACT

A dual band mobile station including a main channel synthesizer and an offset synthesizer for generating the transmit frequency and the receive intermediate frequency (IF) required for operation in each of two different bands characterized by different transmit-receive channel offsets. According to the present invention, the main channel synthesizer does not have to change its frequency when the mobile station switches between transmission and reception in either of the two bands so long as a common IF is selected for both bands, which is equal to one or the other of the channel offsets. This IF selection also allows for a reduction in the tuning range of the main channel synthesizer.

[56] References Cited

U.S. PATENT DOCUMENTS

- 4,223,406 9/1980 Someno ..... 455/180.1
- 4,419,768 12/1983 Yamashita et al. .... 455/180.1
- 4,476,583 10/1984 Muterspaugh ..... 455/180.3
- 5,410,747 4/1995 Ohmagari et al. .... 455/118
- 5,465,409 11/1995 Borrás et al. .... 455/260
- 5,519,885 5/1996 Vaisanen ..... 455/76
- 5,732,330 3/1998 Anderson et al. .... 455/76

10 Claims, 5 Drawing Sheets

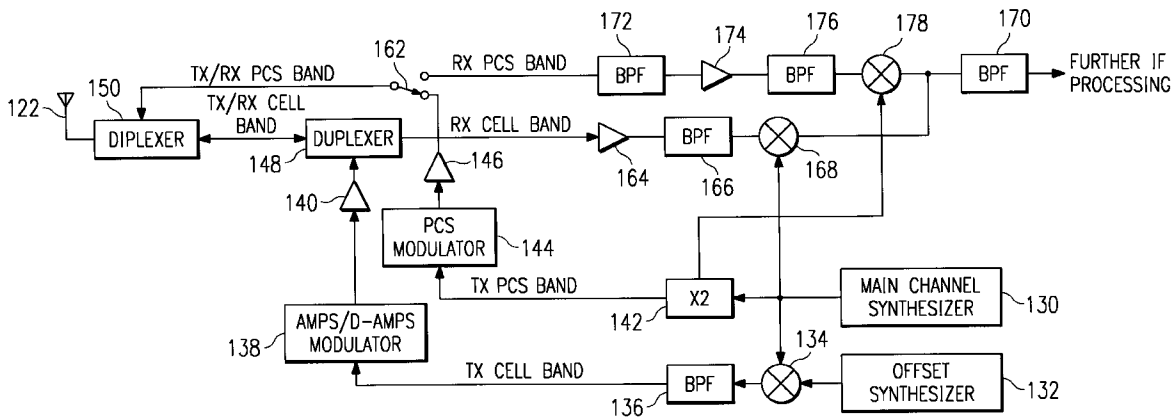


FIG. 1  
(PRIOR ART)

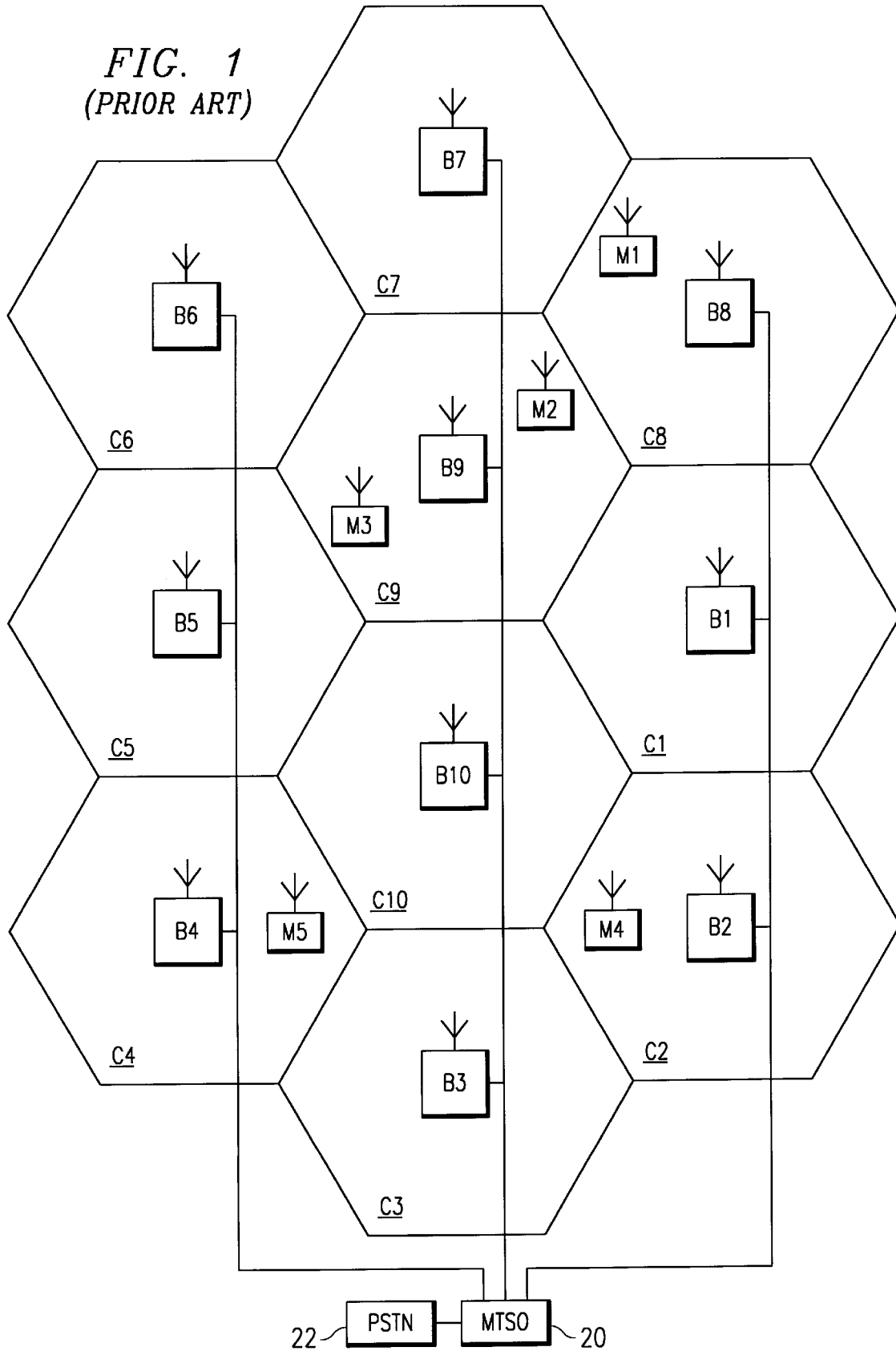


FIG. 2 (PRIOR ART)

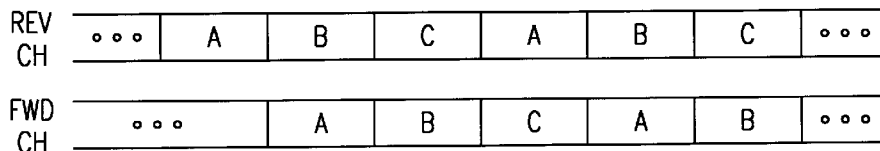


FIG. 3 (PRIOR ART)

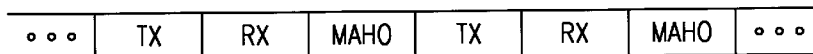
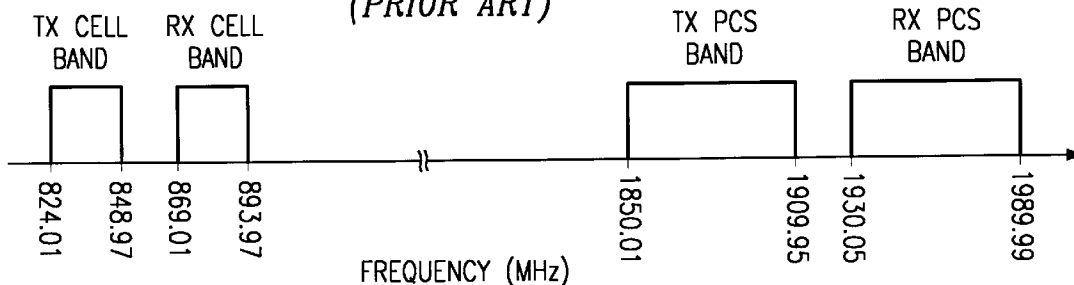


FIG. 4 (PRIOR ART)



CELL BAND	BANDWIDTH (MHz)	NUMBER OF CHANNELS	BOUNDARY CHANNELS	TRANSMITTER CENTER FREQUENCY (MHz)	
				MOBILE	BASE
(NOT USED)		1	(990)	(824.010)	(869.010)
A''	1	33	991	824.040	869.040
			1023	825.000	870.000
A	10	333	1	825.030	870.030
			333	834.990	879.990
B	10	333	334	835.020	880.020
			666	844.980	889.980
A'	1.5	50	667	845.010	890.010
			716	846.480	891.480
B'	2.5	83	717	846.510	891.510
			799	848.970	893.970

FIG. 5 (PRIOR ART)

PCS BAND	BANDWIDTH (MHz)	NUMBER OF CHANNELS	BOUNDARY CHANNELS	TRANSMITTER CENTER FREQUENCY (MHz)	
				MOBILE	BASE
NOT USED		1	1	1850.010	1930.050
A	15	497	2 498	1850.040 1864.920	1930.080 1944.960
A,D		1	499	1864.950	1944.990
A,D		1	500	1864.980	1945.020
A,D		1	501	1865.010	1945.050
D	5	164	502 665	1865.040 1869.930	1945.080 1949.970
D,B		1	666	1869.960	1950.000
D,B		1	667	1869.990	1950.030
B	15	498	668 1165	1870.020 1884.930	1950.060 1964.970
B,E		1	1166	1884.960	1965.000
B,E		1	1167	1884.990	1965.030
E	5	165	1168 1332	1885.020 1889.940	1965.060 1969.980
E,F		1	1333	1889.970	1970.010
E,F		1	1334	1890.000	1970.040
F	5	164	1335 1498	1890.030 1894.920	1970.070 1974.960
F,C		1	1499	1894.950	1974.990
F,C		1	1500	1894.980	1975.020
F,C		1	1501	1895.010	1975.050
C	15	497	1502 1998	1895.040 1909.920	1975.080 1989.960
NOT USED		1	1999	1909.950	1989.990

*FIG. 6*  
(PRIOR ART)

FIG. 7  
(PRIOR ART)

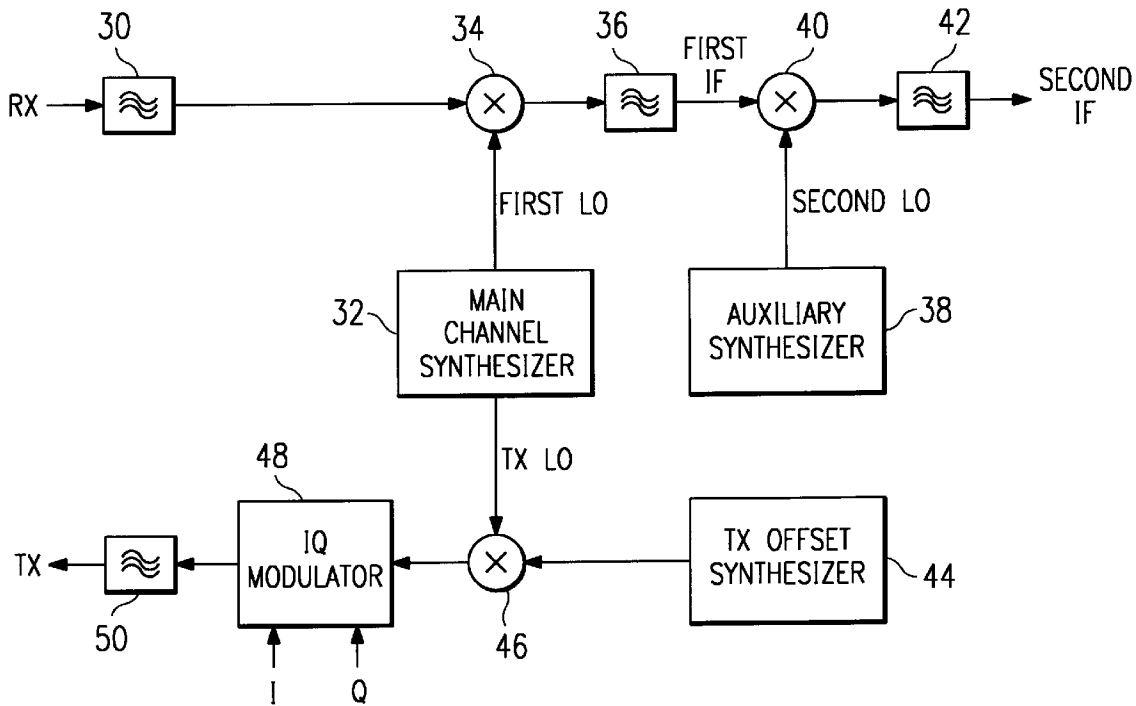
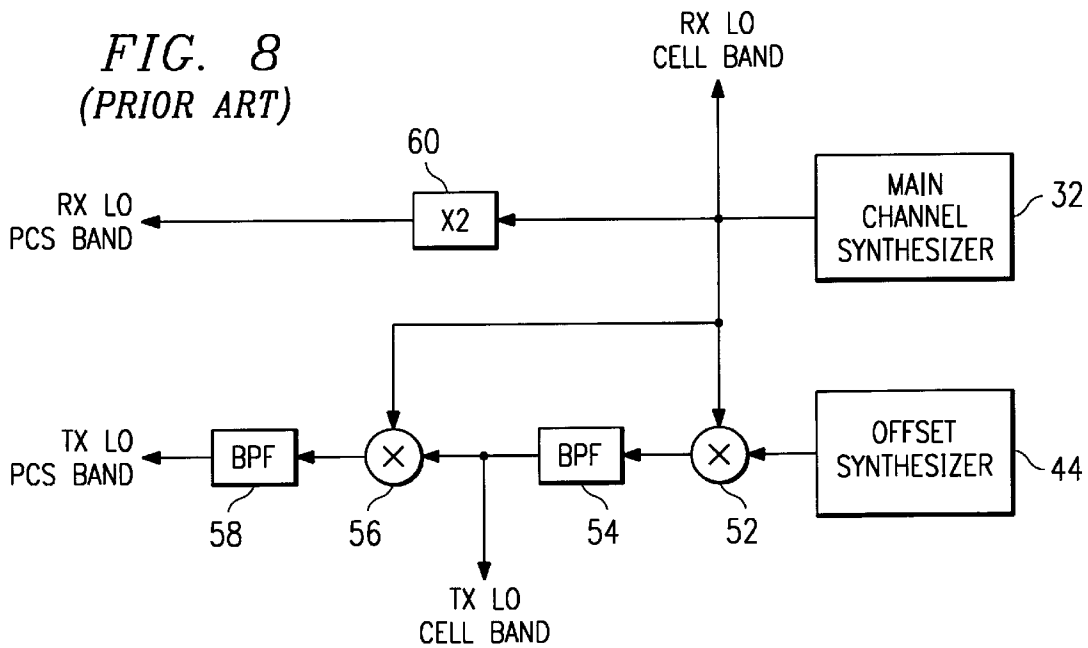


FIG. 8  
(PRIOR ART)



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.