

[54] **METHOD FOR FREQUENCY DIVISION  
 DUPLEX COMMUNICATIONS**

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[52] **U.S. Cl.** ..... **370/330; 370/203; 370/281**

[58] **Field of Search** ..... **370/203, 206,**  
**370/329, 330, 337, 336, 343, 344, 321,**  
**280, 281; 375/267, 347, 299**

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[57] **ABSTRACT**

The high quality PCS communications are enabled in envi-  
 ronments where adjacent PCS service bands operate with  
 out-of-band harmonics that would otherwise interfere with  
 the system's operation. The highly bandwidth-efficient com-  
 munications method combines a form of time division  
 duplex (TDD), frequency division duplex (FDD), time divi-  
 sion multiple access (TDMA), orthogonal frequency divi-  
 sion multiplexing (OFDM), spatial diversity, and polariza-  
 tion diversity in various unique combinations. The method  
 provides excellent fade resistance. The method enables  
 changing a user's available bandwidth on demand by assign-  
 ing additional TDMA slots during the user's session.

**41 Claims, 15 Drawing Sheets**

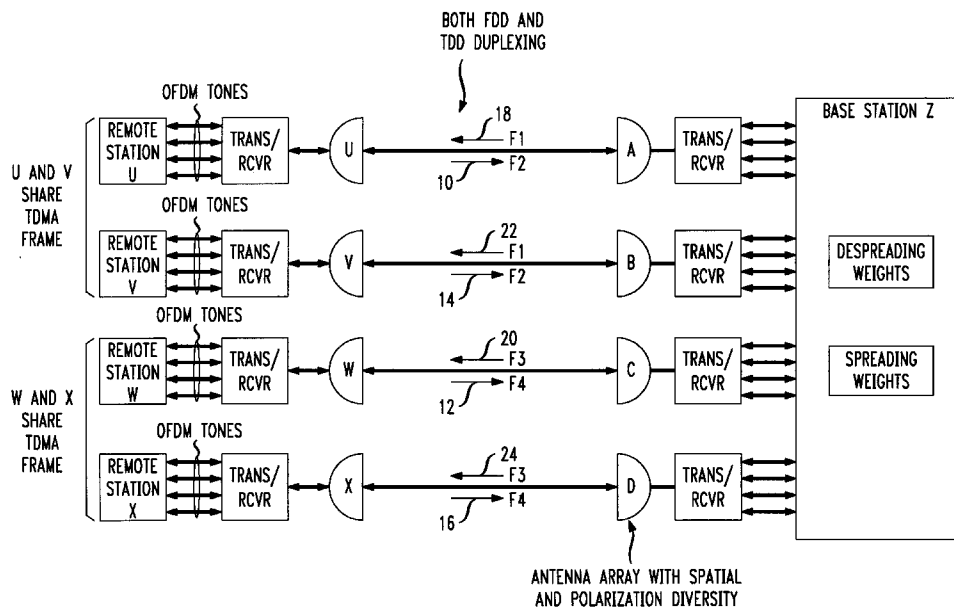


FIG. 1

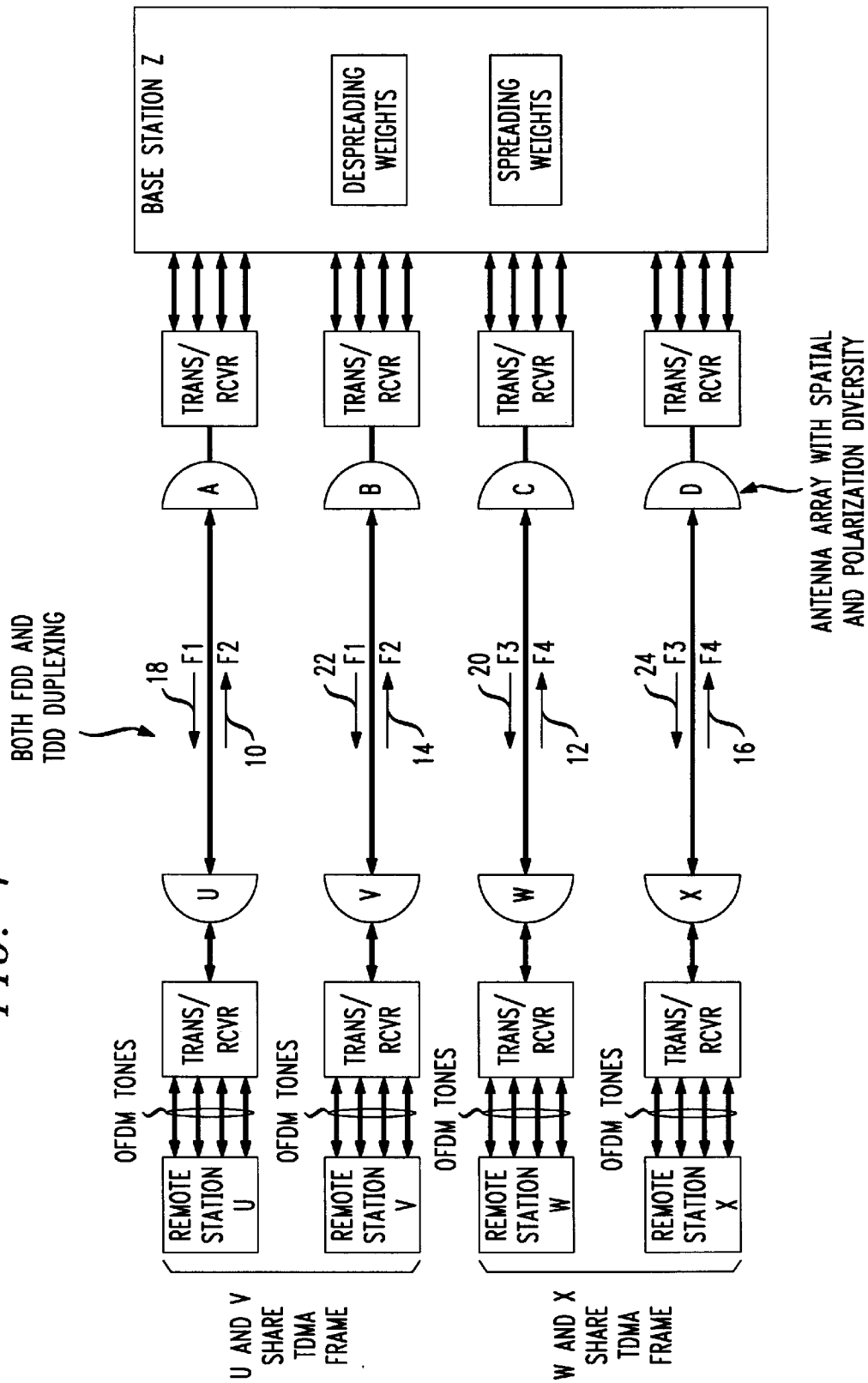


FIG. 1.1

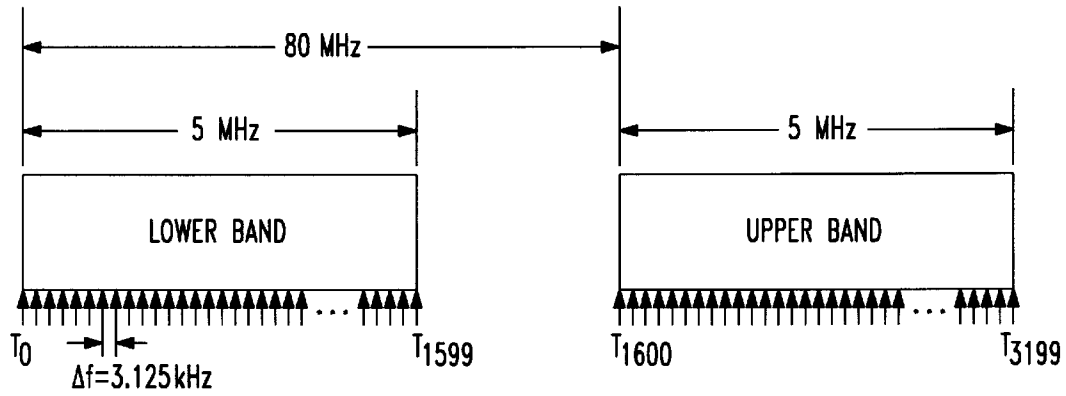


FIG. 1.2

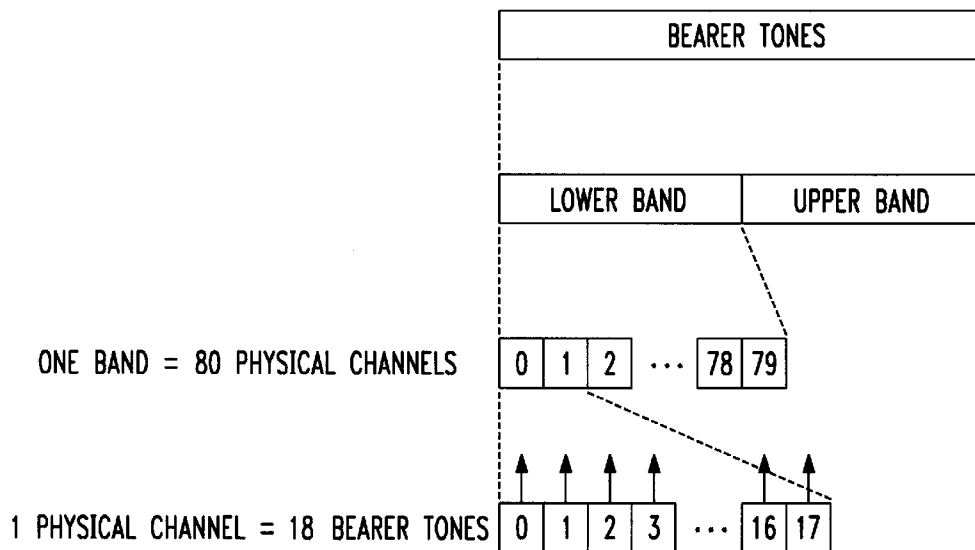


FIG. 1.3

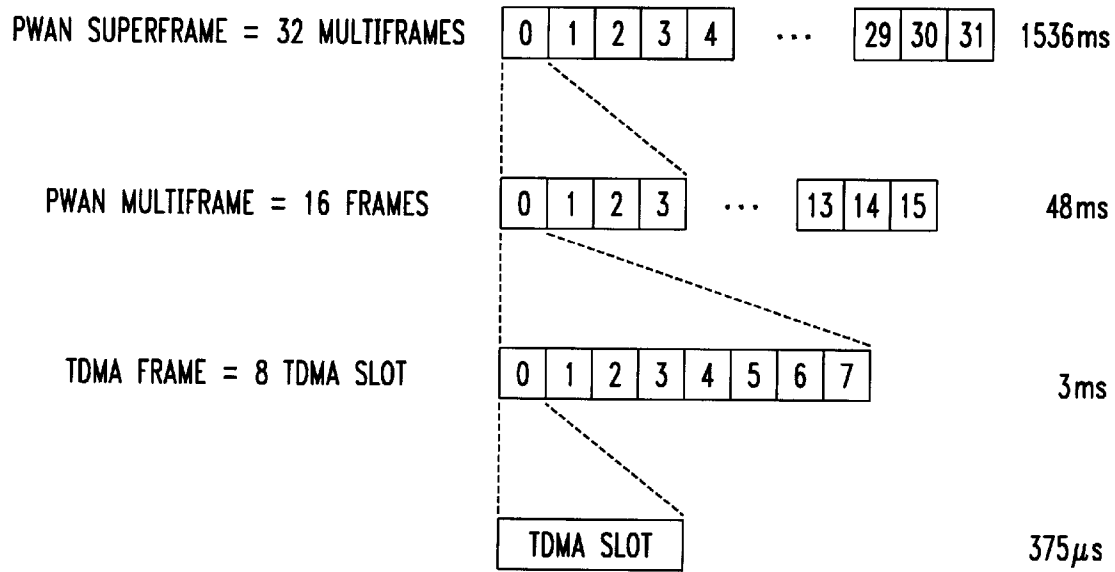


FIG. 1.4

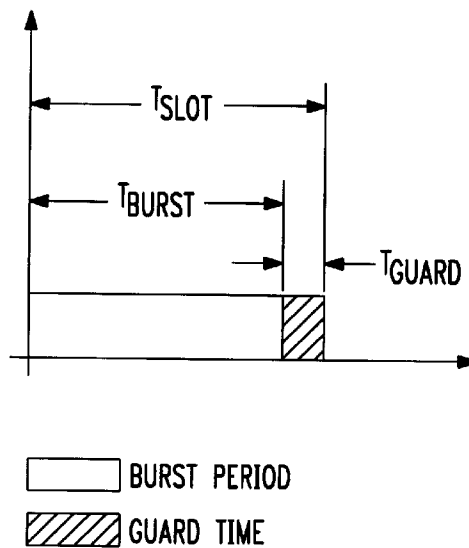
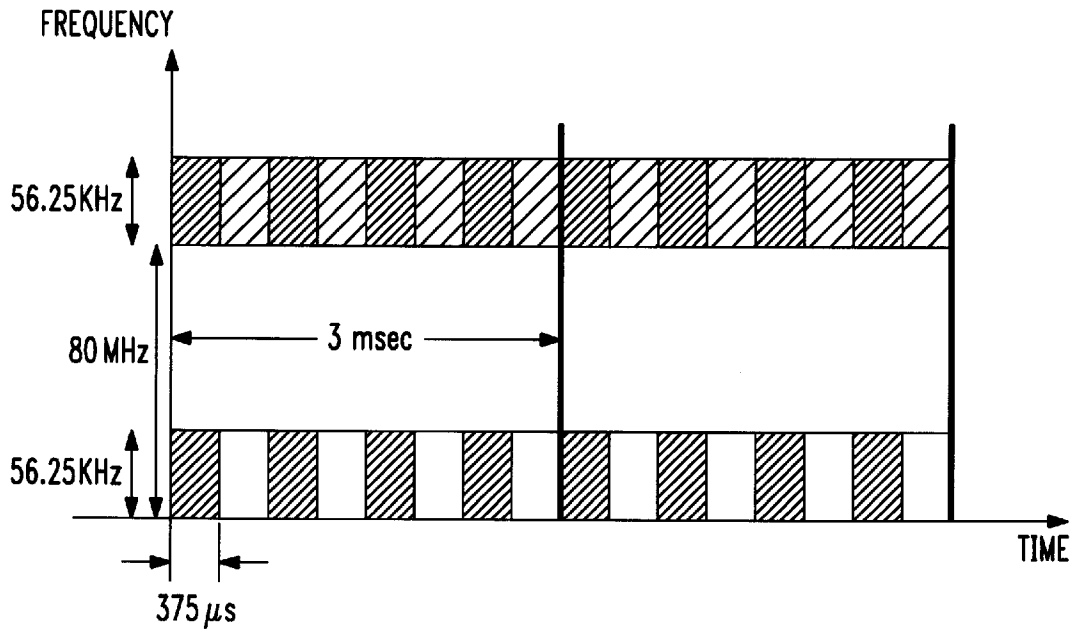






FIG. 1.5



 RU1 Rx  
BASE Tx TO RU1

 RU1 Tx  
BASE Rx TO RU1

 RU2 Rx  
BASE Tx TO RU2

 RU2 Tx  
BASE Rx TO RU2

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