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**Krzymien et al.**

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(54) **SPREAD SPECTRUM TIME-DIVISION  
 MULTIPLE ACCESS COMMUNICATION  
 SCHEME**

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 370/350; 370/442

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(57) **ABSTRACT**

A new DTX-MAC protocol is proposed for a cellular radio  
 telecommunications system with many users. Several users  
 are allowed to transmit packets within a time-slotted frame  
 structure. Direct sequence spread spectrum technique is used  
 to spread the packets, and all packets within the frame are  
 spread using the same spreading sequence. The packets  
 overlap, but each packet begins within a distinct slot of the  
 frame. Each slot, or mini-slot, since it is much shorter than  
 the packet, is dedicated to one of the mobile terminal users.  
 Collisions between packets are prevented by appropriate  
 selection of the duration of the mini-slot. Packets may be  
 ARMs, user data, or both. A packet beginning within a  
 mini-slot is assumed to be from the mobile terminal to which  
 that mini-slot is dedicated

**20 Claims, 17 Drawing Sheets**

