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van der Tuijn et al.

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(54) **BLUETOOTH COMMUNICATION UNITS, WIRELESS COMMUNICATION SYSTEMS, WIRELESS COMMUNICATION DEVICES, BLUETOOTH COMMUNICATIONS METHODS, AND WIRELESS COMMUNICATION METHODS**

6,275,500 B1 \* 8/2001 Callaway, Jr. et al. .... 370/449  
6,366,622 B1 \* 4/2002 Brown et al. .... 375/322  
6,393,012 B1 \* 5/2002 Pankaj ..... 370/342  
6,477,378 B1 \* 11/2002 Halminen ..... 455/450

FOREIGN PATENT DOCUMENTS

EP 0690650 1/1996  
WO 9929126 1/1994  
WO 9619887 6/1996  
WO 9941876 8/1999

OTHER PUBLICATIONS

Johansson, P.; et al., Communications, Jun. 1999., ICC '99 IEEE International Conference on, vol. 3, pp. 1414-1420.\*

\* cited by examiner

Primary Examiner—Chi Pham  
Assistant Examiner—Prenell Jones  
(74) Attorney, Agent, or Firm—Peter Zawilski

(75) Inventors: **Roland van der Tuijn**, Mougins (FR);  
**Michel Eftimakis**, Juan les Pins (FR);  
**Denis Audoly**, St. Laurent du Var (FR)

(73) Assignee: **Koninklijke Philips Electronics N.V.**,  
Eindhoven (NL)

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(22) Filed: **Oct. 19, 1999**

(51) Int. Cl.<sup>7</sup> ..... **H04L 12/43**

(52) U.S. Cl. .... **370/458**

(58) **Field of Search** ..... 370/449, 342-346,  
370/329, 310-315, 367, 389-395, 458-466,  
354, 493, 229, 412; 375/322, 133, 222,  
304; 455/519, 450-454, 62; 343/853, 824,  
893; 379/102.03, 102.01, 93.17, 93.01,  
93.28; 341/137; 345/89

(56) **References Cited**

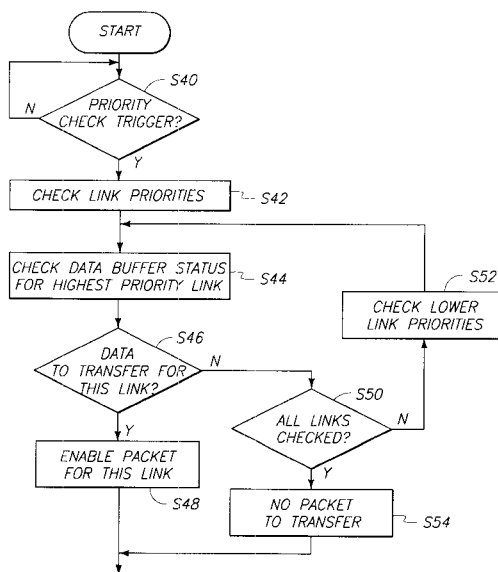
U.S. PATENT DOCUMENTS

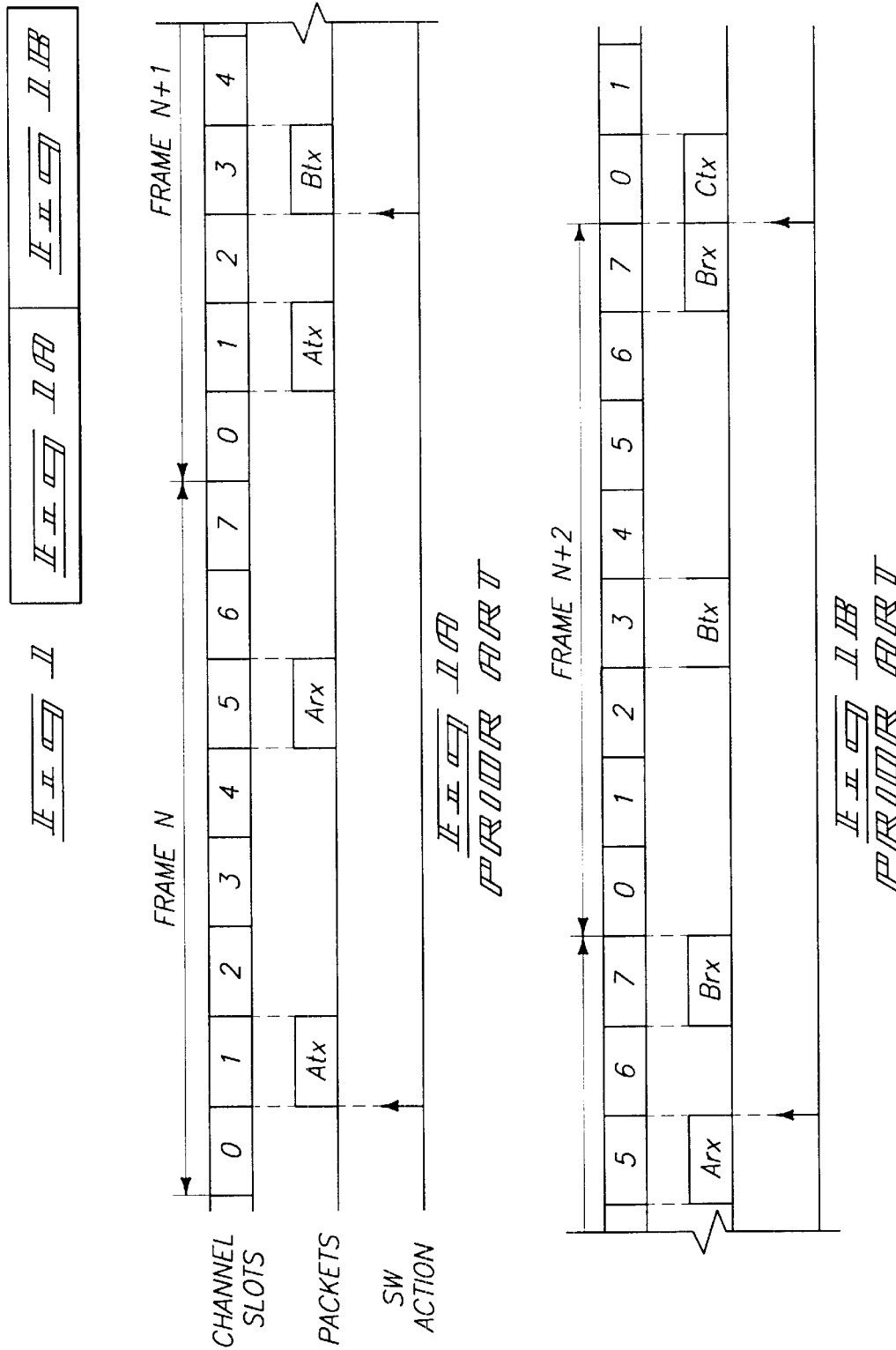
5,280,630 A 1/1994 Wang  
5,471,671 A 11/1995 Wang et al.  
5,530,912 A 6/1996 Agrawal et al.  
5,608,727 A 3/1997 Perreault et al.  
5,694,392 A 12/1997 Gaglione et al.  
6,097,703 A 8/2000 Larsen et al.

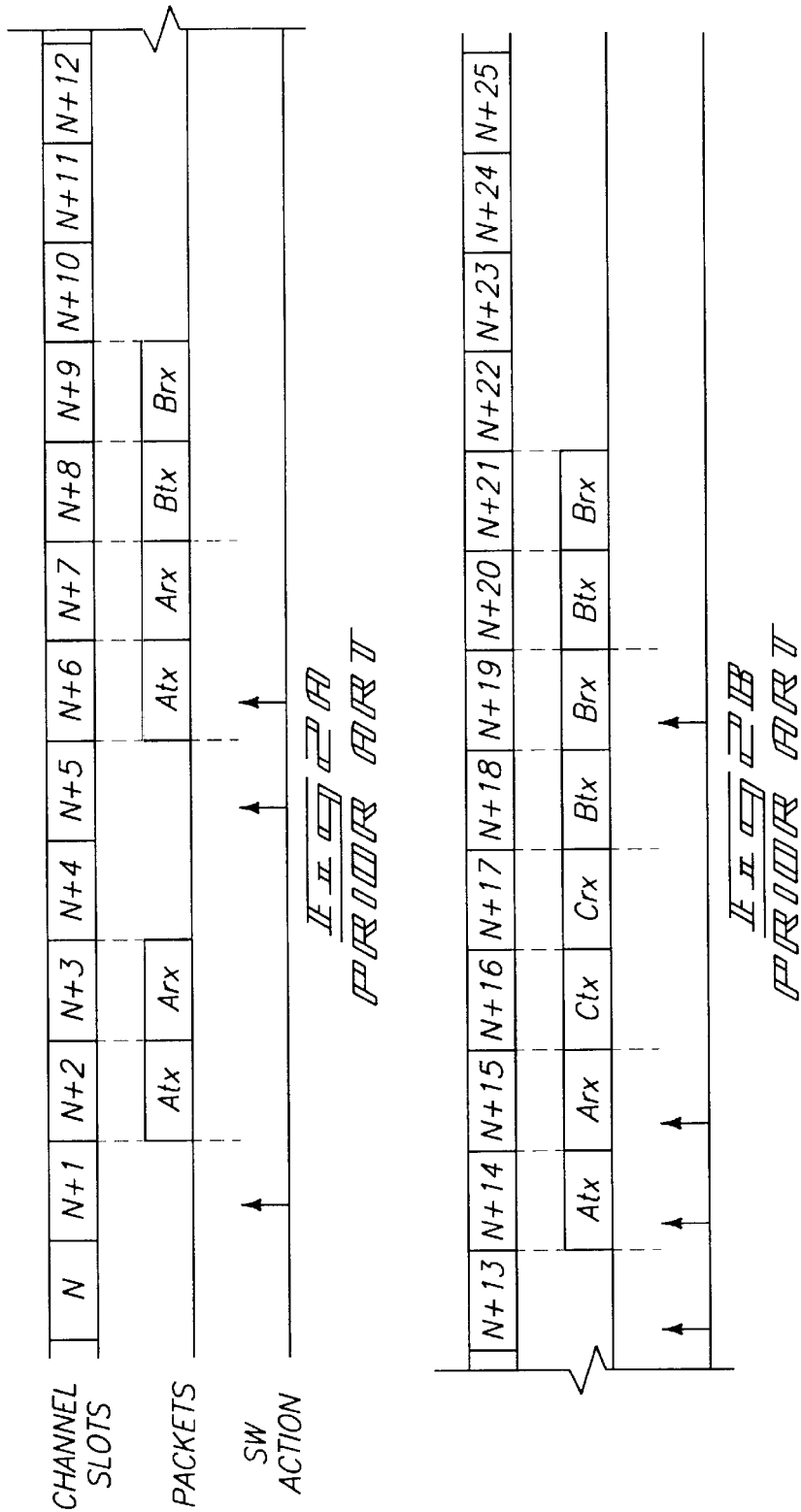
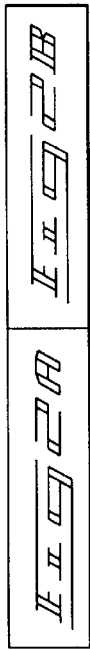
(57) **ABSTRACT**

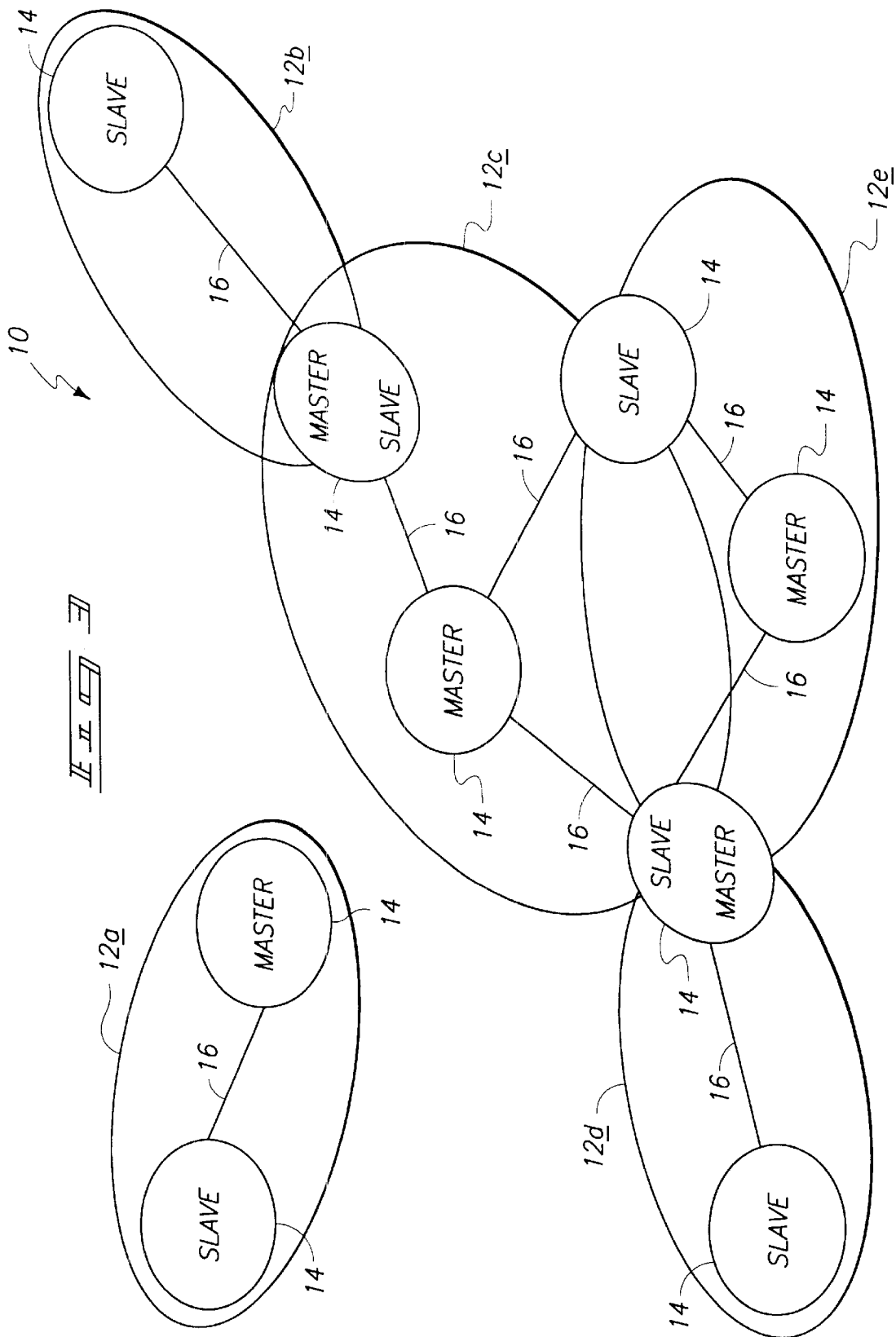
Bluetooth communication units, wireless communication systems, wireless communication devices, Bluetooth communication methods, and wireless communication methods are provided. One aspect of the invention provides a Bluetooth communication unit including communication circuitry configured to communicate wireless signals using a plurality of communication links of a piconet according to a Bluetooth communication protocol; and processing circuitry coupled with the communication circuitry and configured to at least one of provide data into packets to be communicated in slots using the communication links and retrieve data from packets communicated in slots using the communication links, the processing circuitry being further configured to analyze the communication links of the piconet and to prioritize an order of communication of the packets responsive to the analysis.

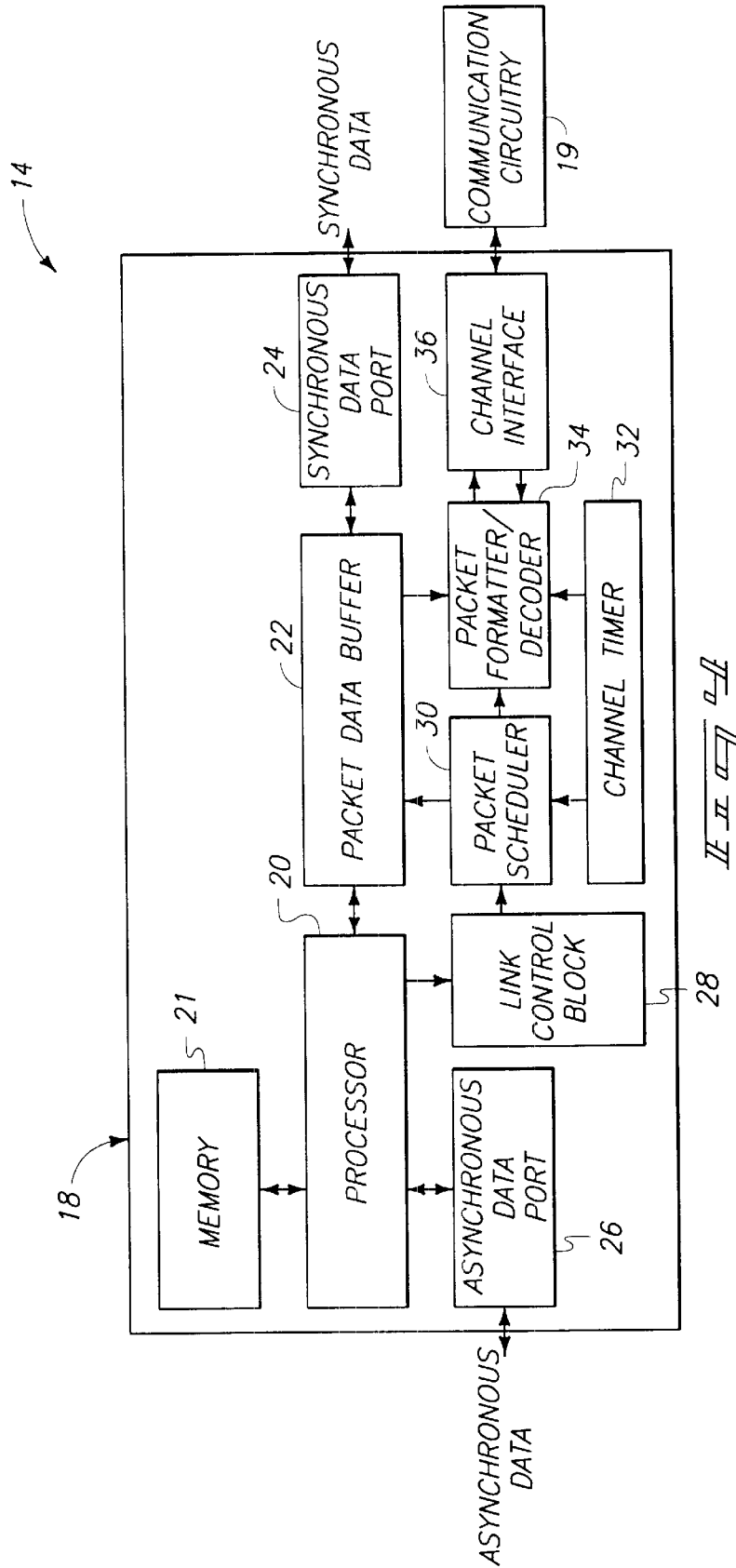
**5 Claims, 8 Drawing Sheets**











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