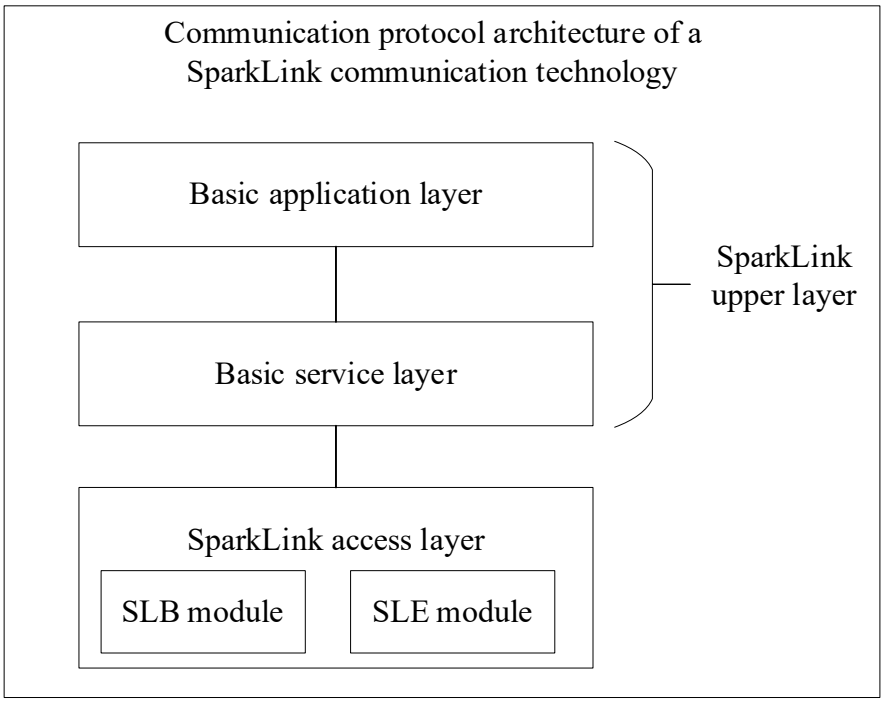

Communication protocol architecture of a SparkLink communication technology
Basic application layer
Basic service layer
SparkLink upper layer
SparkLink access layer
SLB module
SLE module

FIG. 1

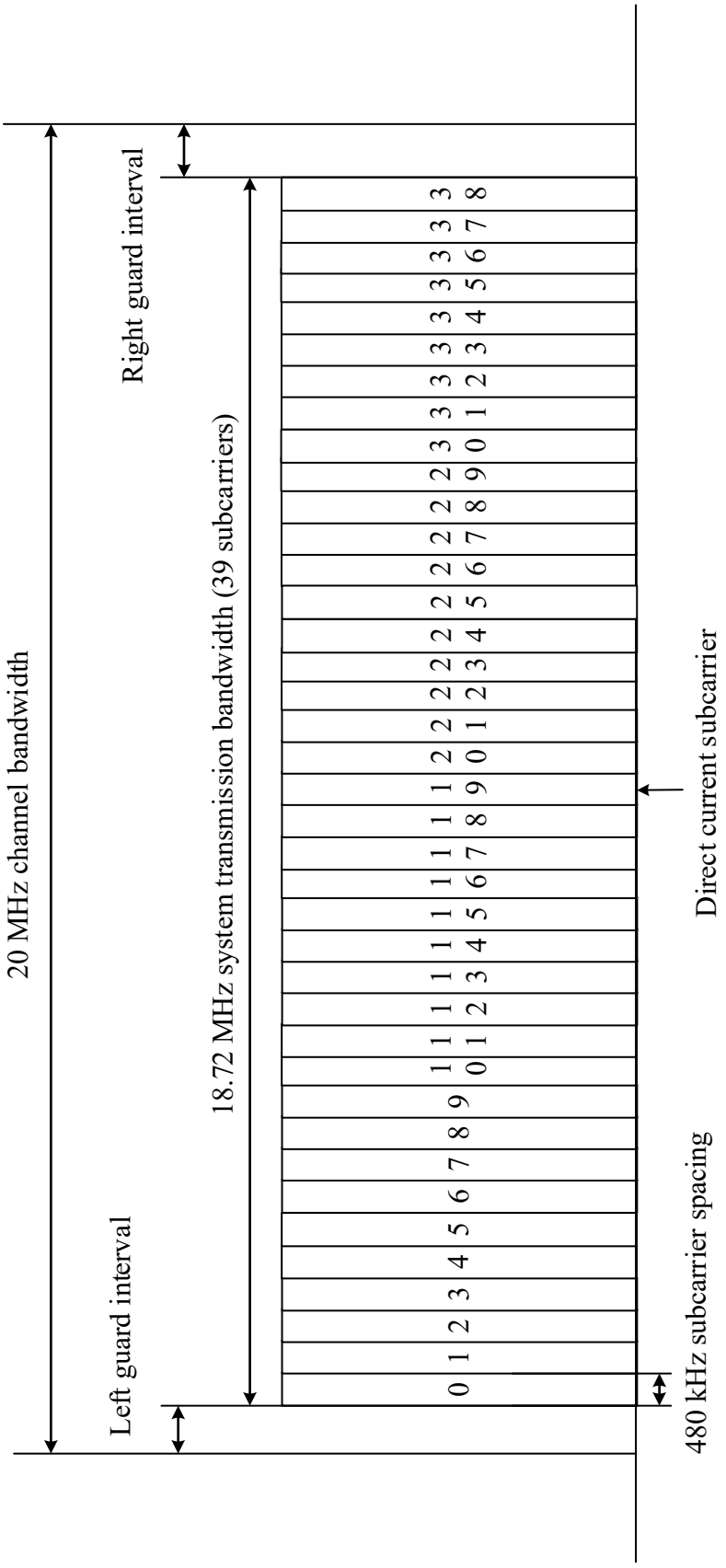

20 MHz channel bandwidth
Left guard interval
Right guard interval
18.72 MHz system transmission bandwidth (39 subcarriers)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38
Direct current subcarrier
480 kHz subcarrier spacing

FIG. 2

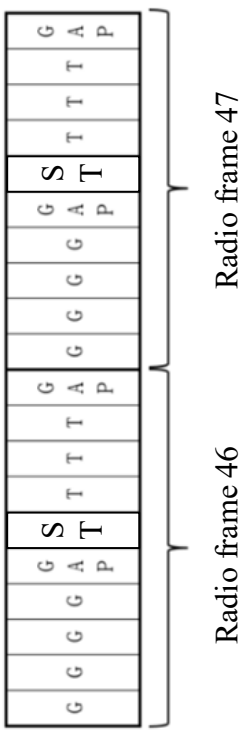


FIG. 3

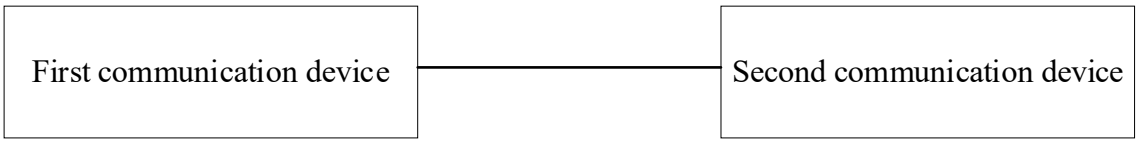

First communication device
Second communication device

FIG. 4

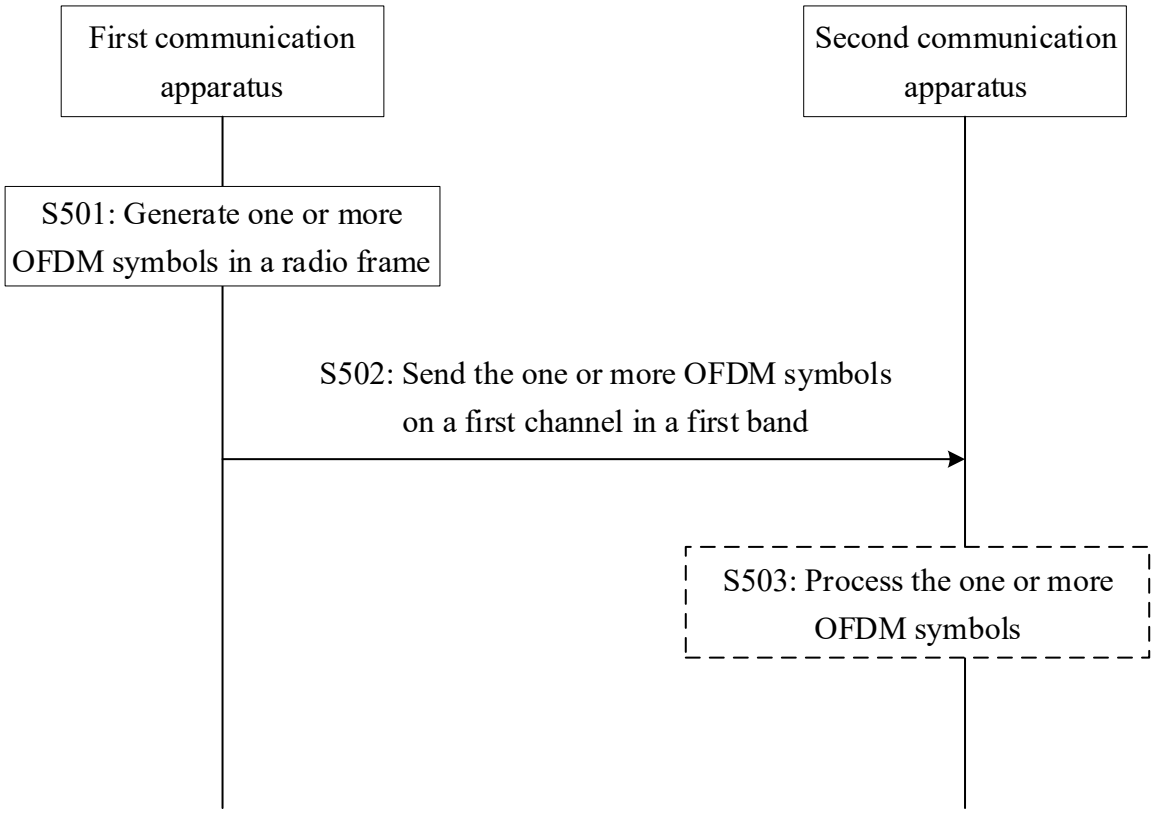

First communication apparatus
Second communication apparatus
S501: Generate one or more OFDM symbols in a radio frame
S502: Send the one or more OFDM symbols on a first channel in a first band
S503: Process the one or more OFDM symbols

FIG. 5

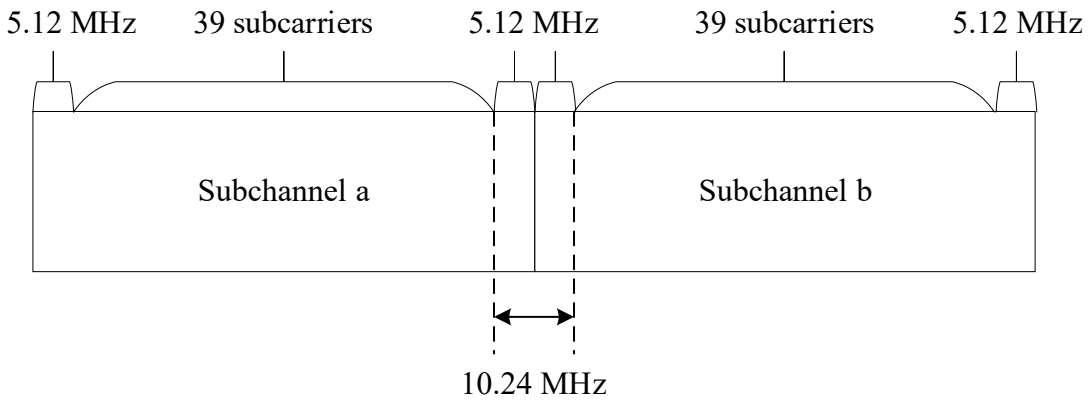

5.12 MHz
39 subcarriers
5.12 MHz
39 subcarriers
5.12 MHz
Subchannel a
Subchannel b
10.24 MHz

FIG. 6

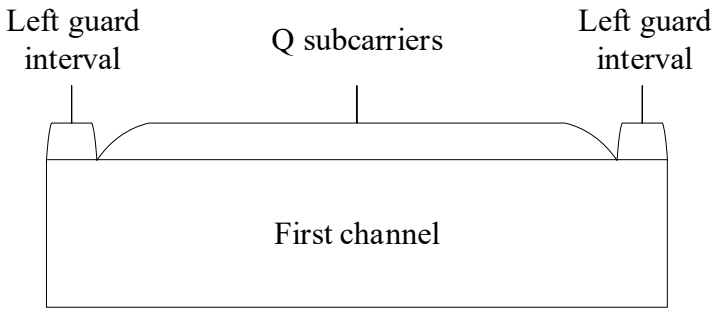

Left guard interval
Q subcarriers
Left guard interval
First channel

FIG. 7

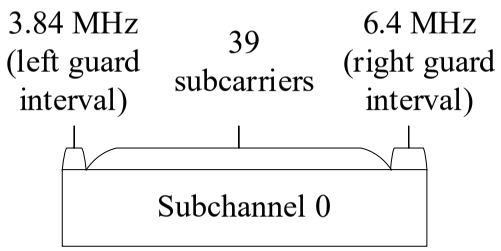


FIG. 8A

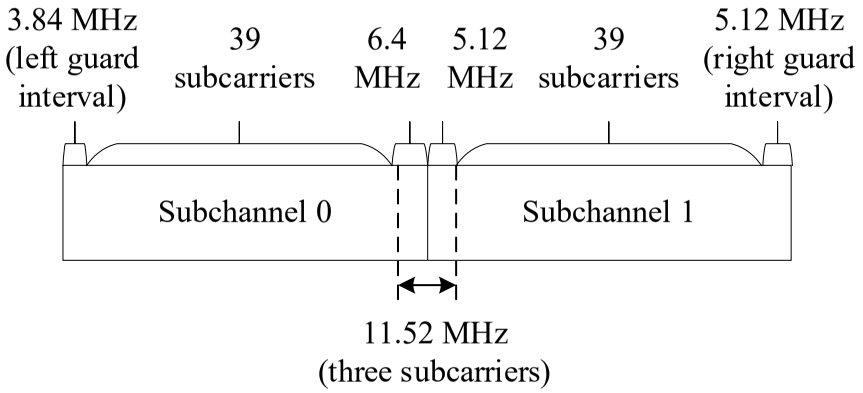


FIG. 8B

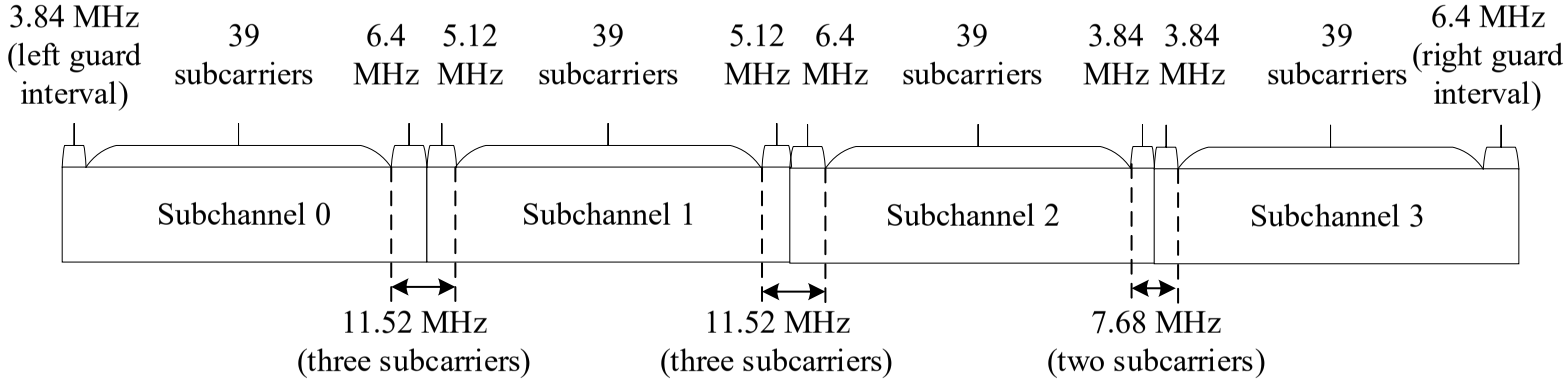


FIG. 8C

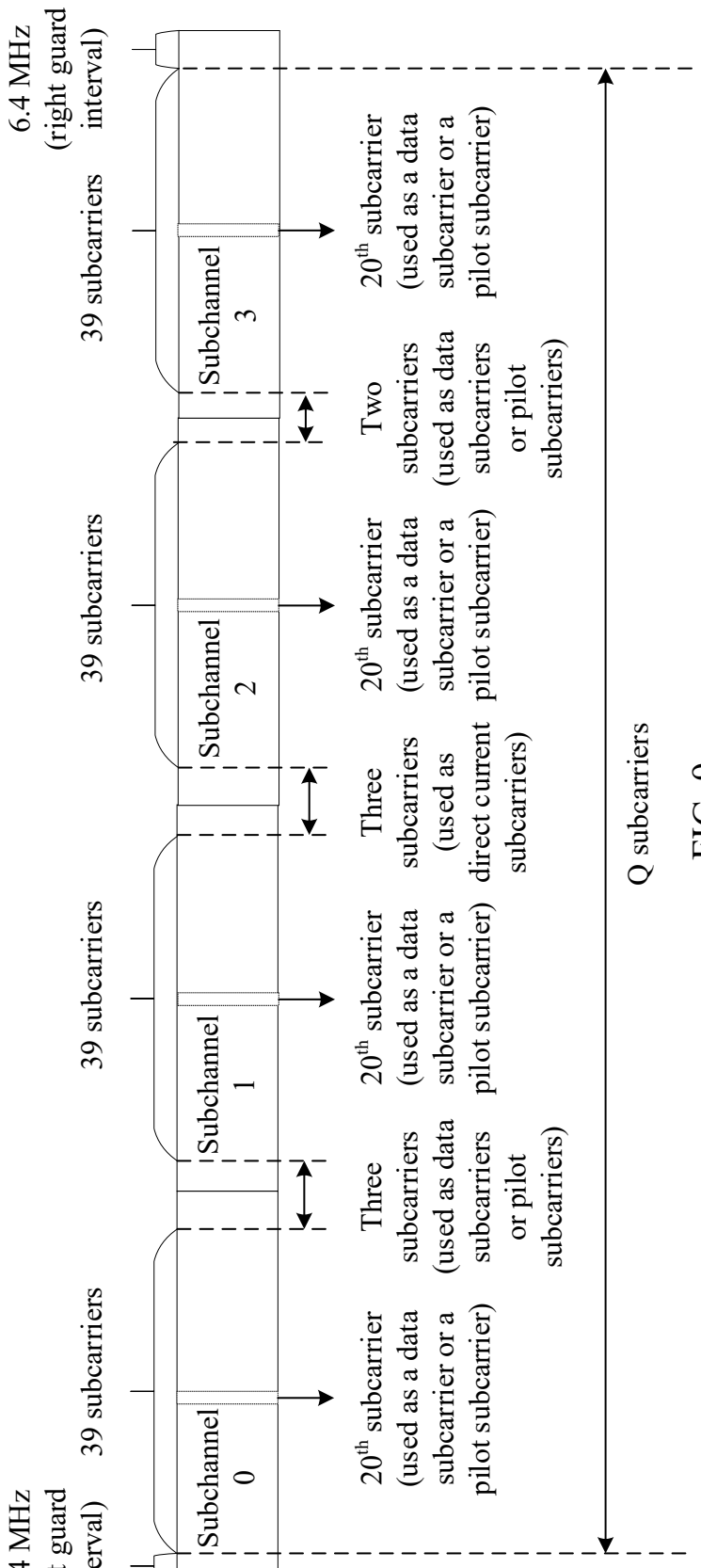

3.84 MHz
(left guard
interval)
39 subcarriers
Subchannel
0
20th subcarrier
(used as a data
subcarrier or a
pilot subcarrier)
Three
subcarriers
(used as data
subcarriers
or pilot
subcarriers)
39 subcarriers
Subchannel
1
20th subcarrier
(used as a data
subcarrier or a
pilot subcarrier)
Three
subcarriers
(used as
direct current
subcarriers)
39 subcarriers
Subchannel
2
20th subcarrier
(used as a data
subcarrier or a
pilot subcarrier)
Two
subcarriers
(used as data
subcarriers
or pilot
subcarriers)
39 subcarriers
Subchannel
3
20th subcarrier
(used as a data
subcarrier or a
pilot subcarrier)
6.4 MHz
(right guard
interval)
Q subcarriers

FIG. 9

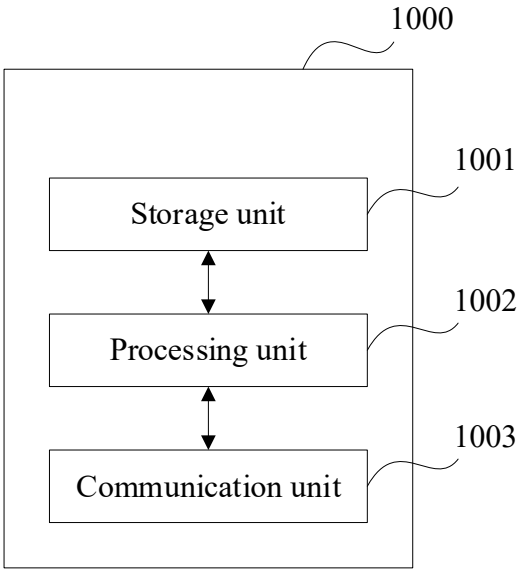

1000
1001
Storage unit
1002
Processing unit
1003
Communication unit

FIG. 10

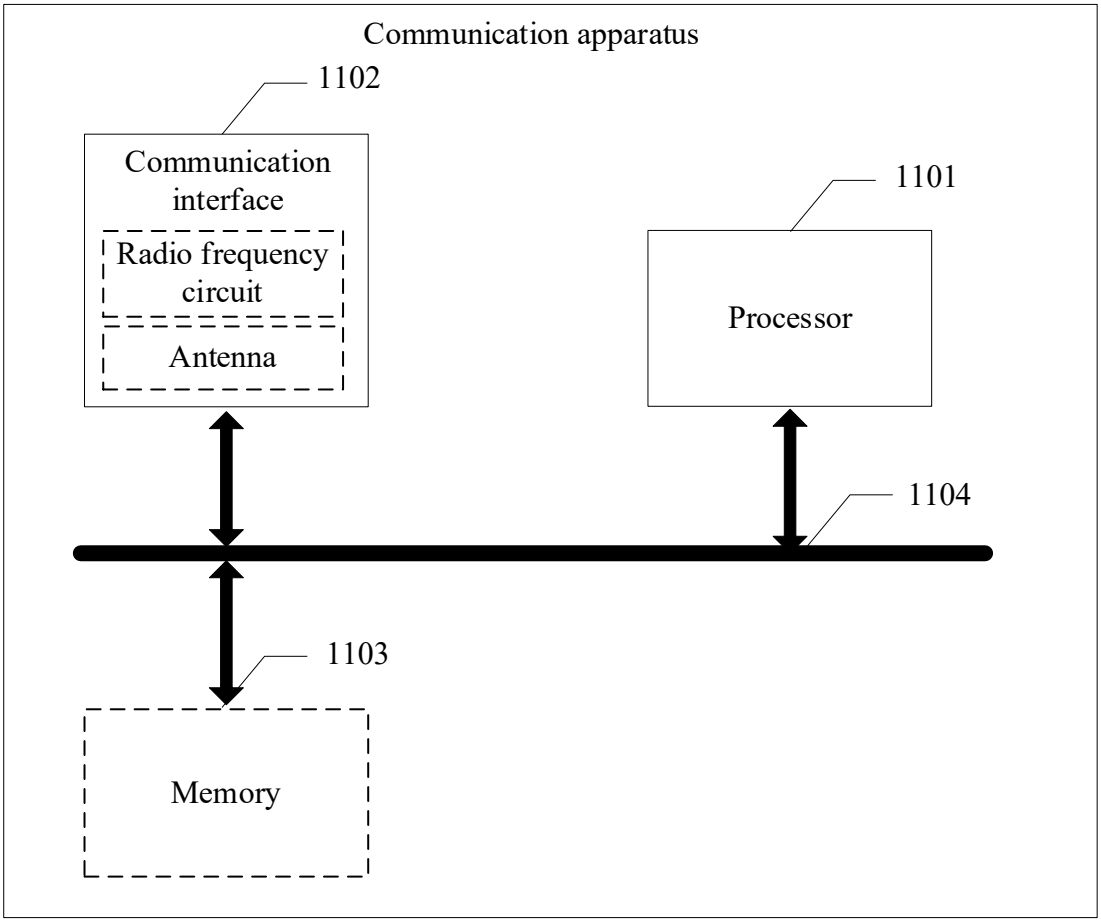

Communication apparatus
1102
Communication interface
Radio frequency circuit
Antenna
1101
Processor
1104
1103
Memory

FIG. 11