

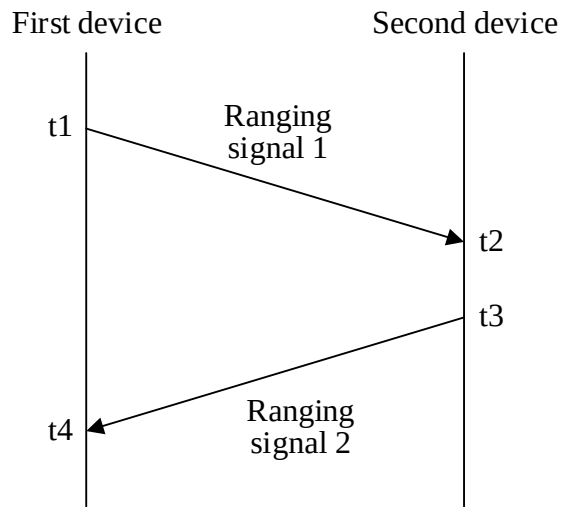


FIG. 1

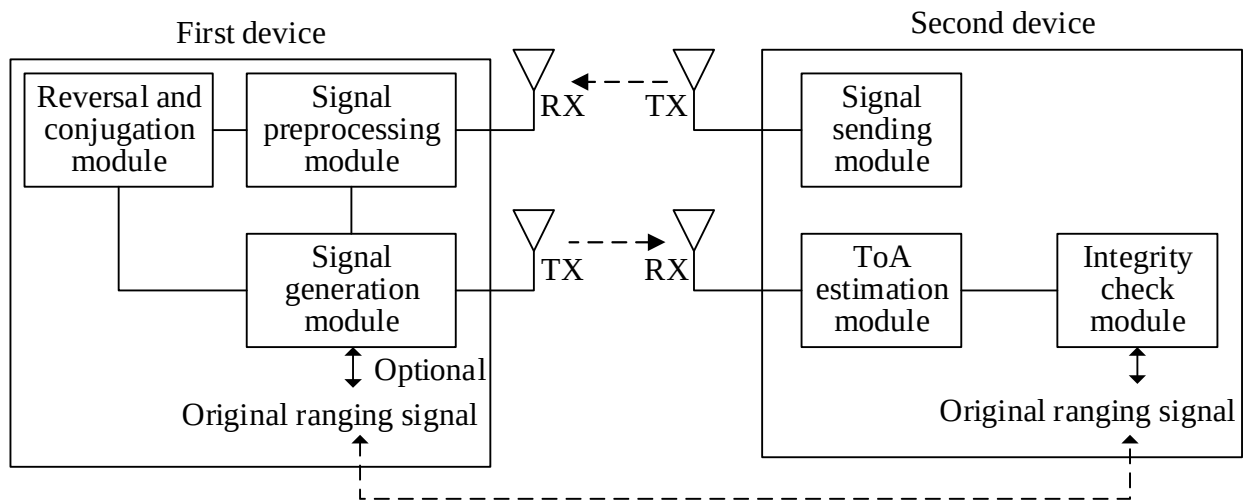


FIG. 2

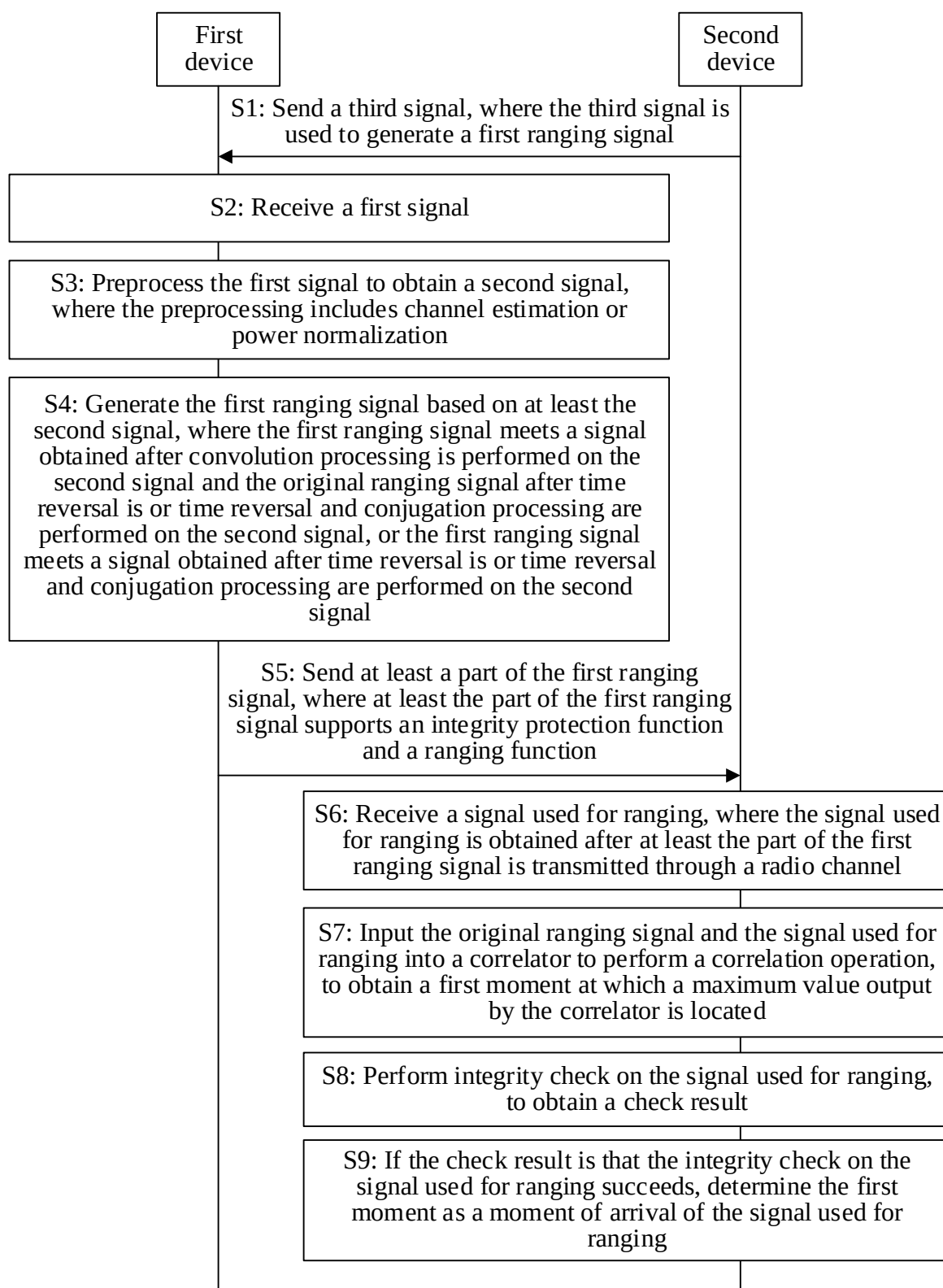


FIG. 3

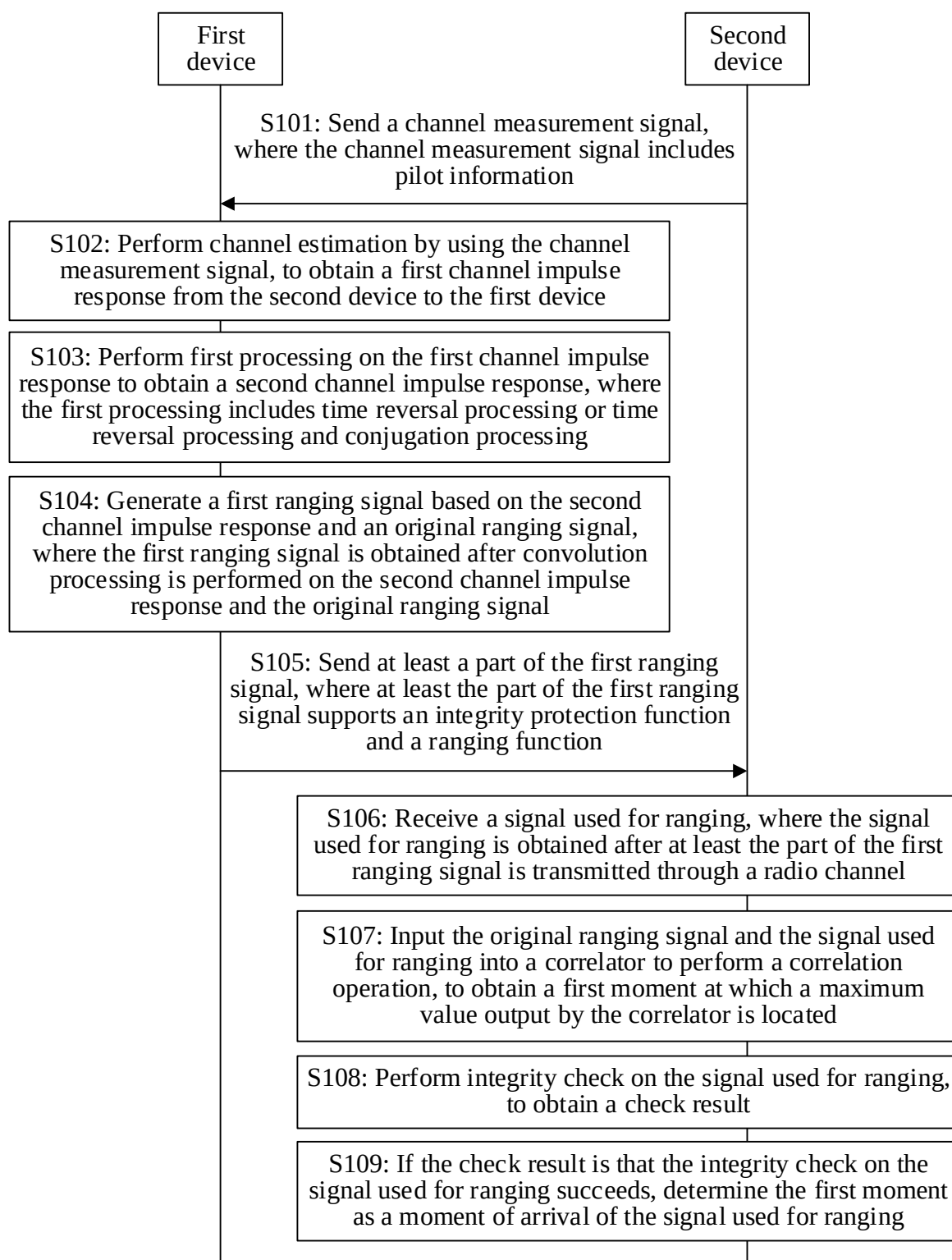
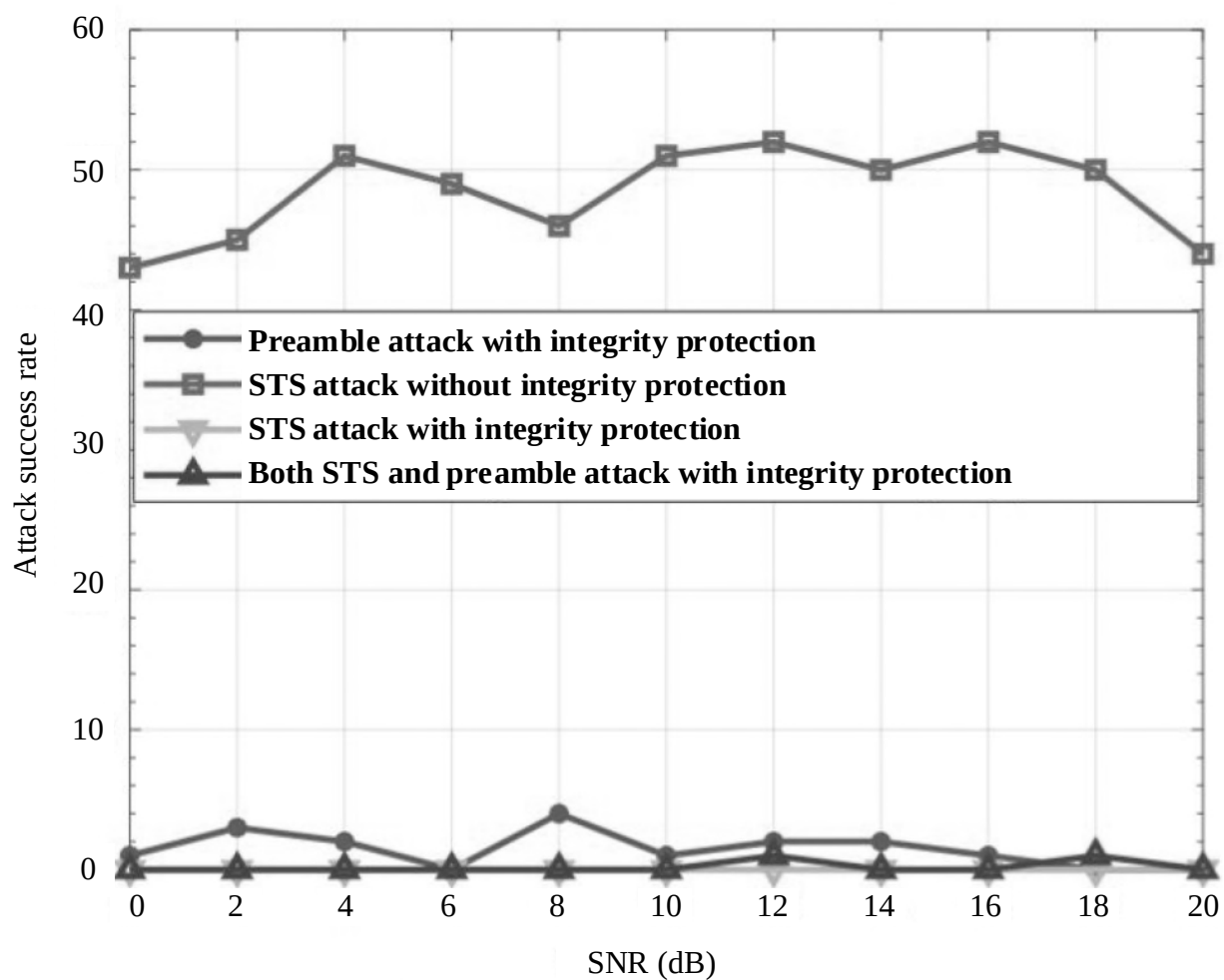


FIG. 4



Attack success rate: attack success rate

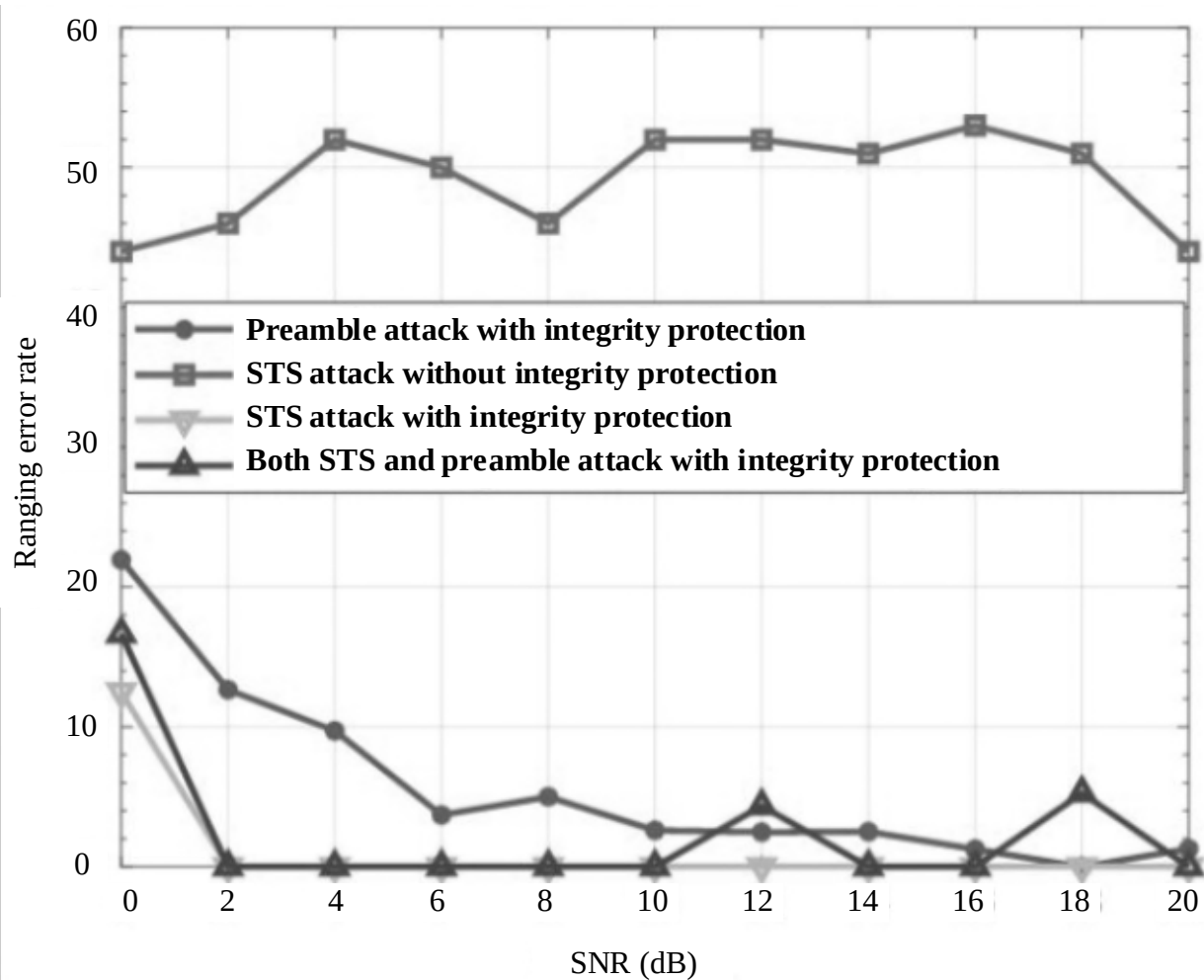
Preamble attack with integrity protection: preamble attack with integrity protection

STS attack without integrity protection: STS attack without integrity protection

STS attack with integrity protection: STS attack with integrity protection

Both STS and preamble attack with integrity protection: both STS and preamble attack with integrity protection

FIG. 5a



Ranging error rate: ranging error rate

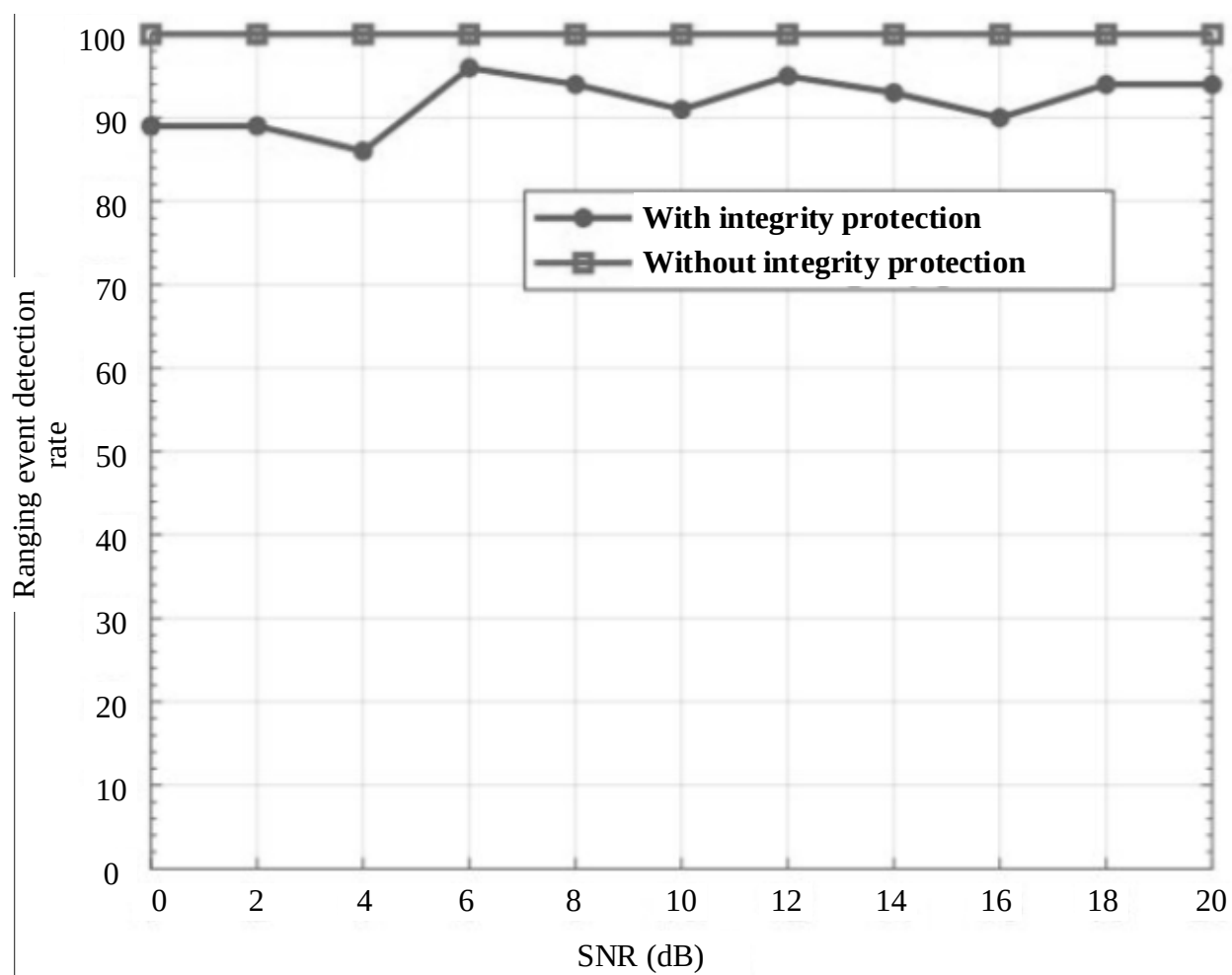
Preamble attack with integrity protection: preamble attack with integrity protection

STS attack without integrity protection: STS attack without integrity protection

STS attack with integrity protection: STS attack with integrity protection

Both STS and preamble attack with integrity protection: both STS and preamble attack with integrity protection

FIG. 5b



Ranging error detection rate: ranging error detection rate

With integrity protection: with integrity protection

Without integrity protection: without integrity protection

FIG. 5c

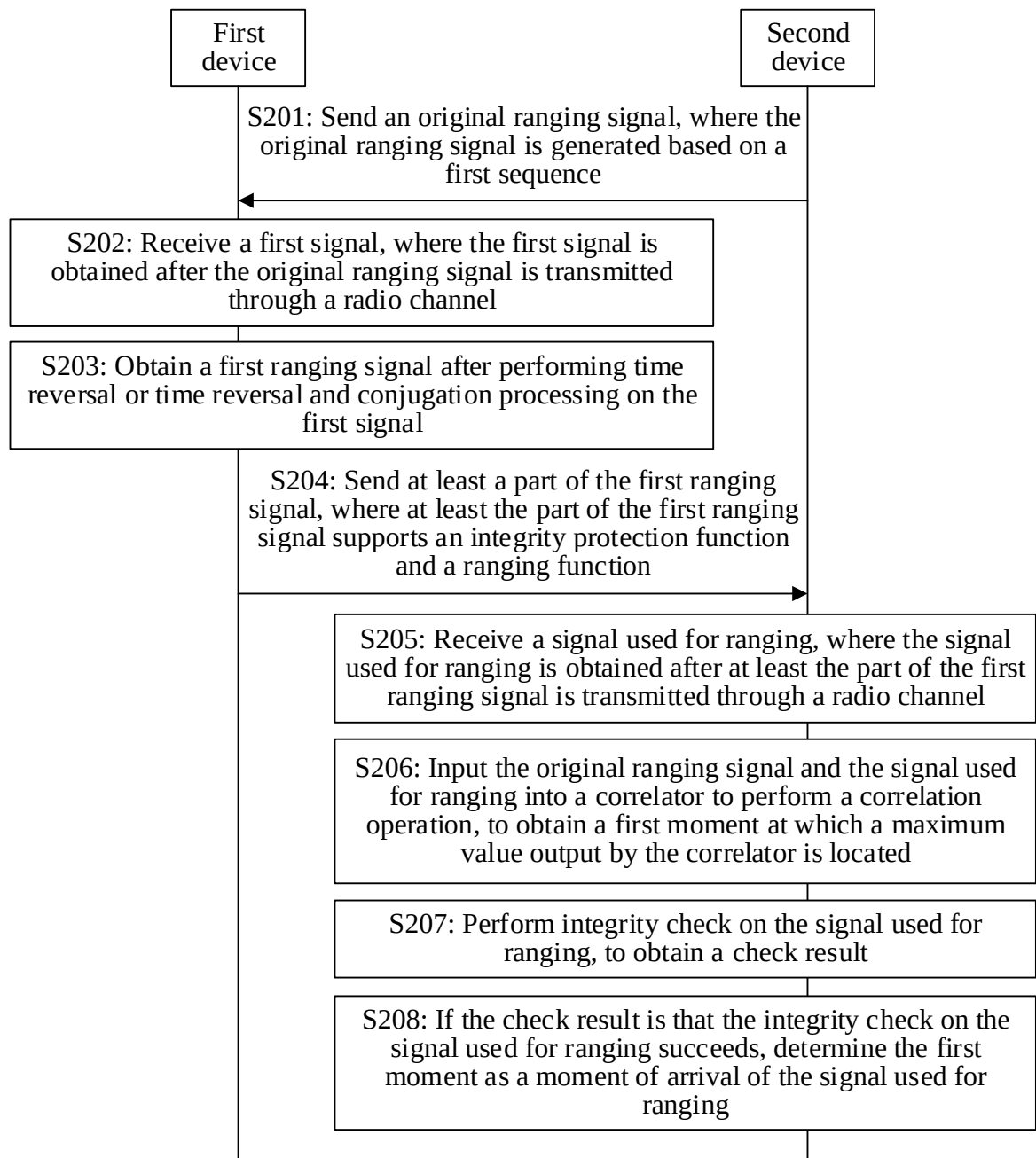


FIG. 6

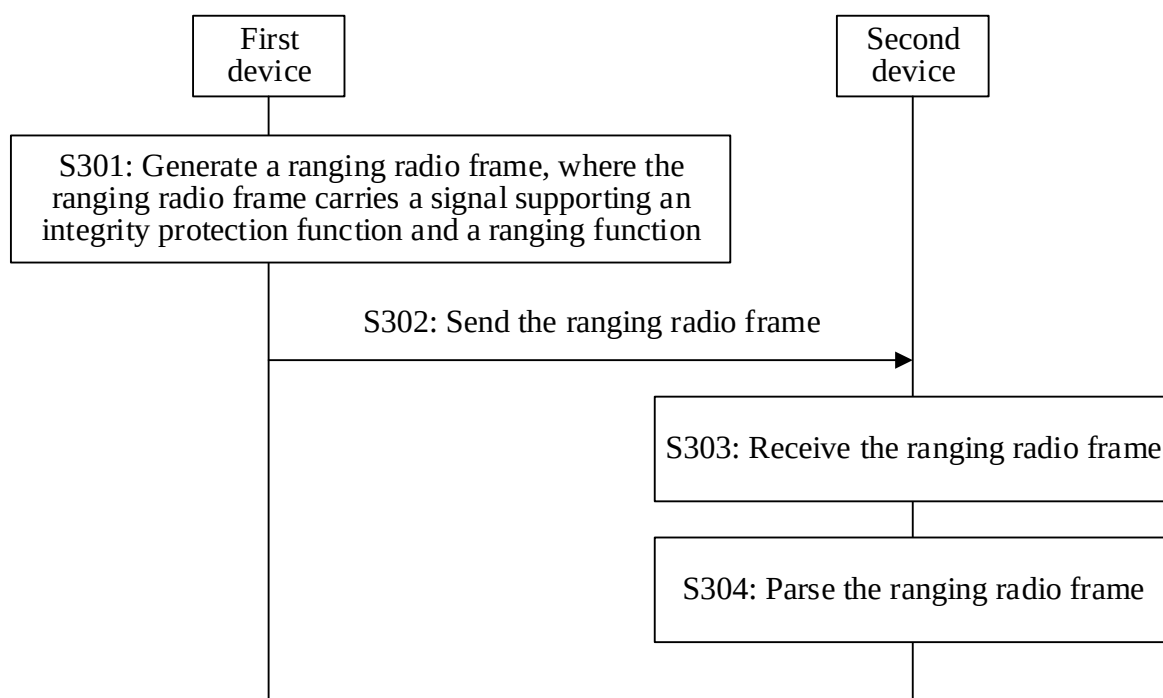


FIG. 7

|                         |                                    |                                                                                      |                                 |                                          |
|-------------------------|------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|------------------------------------------|
| SYNC<br>Synchronization | SFD<br>Start-of-frame<br>delimiter | STS+<br>Signal supporting an integrity protection function<br>and a ranging function | PHR<br>Physical layer<br>header | PHY payload<br>Physical layer<br>payload |
|-------------------------|------------------------------------|--------------------------------------------------------------------------------------|---------------------------------|------------------------------------------|

8a

|                         |                                    |                                 |                                          |                                                                                      |
|-------------------------|------------------------------------|---------------------------------|------------------------------------------|--------------------------------------------------------------------------------------|
| SYNC<br>Synchronization | SFD<br>Start-of-frame<br>delimiter | PHR<br>Physical layer<br>header | PHY payload<br>Physical layer<br>payload | STS+<br>Signal supporting an integrity protection function<br>and a ranging function |
|-------------------------|------------------------------------|---------------------------------|------------------------------------------|--------------------------------------------------------------------------------------|

8b

|                         |                                    |                                                                                      |
|-------------------------|------------------------------------|--------------------------------------------------------------------------------------|
| SYNC<br>Synchronization | SFD<br>Start-of-frame<br>delimiter | STS+<br>Signal supporting an integrity protection function<br>and a ranging function |
|-------------------------|------------------------------------|--------------------------------------------------------------------------------------|

8c

FIG. 8

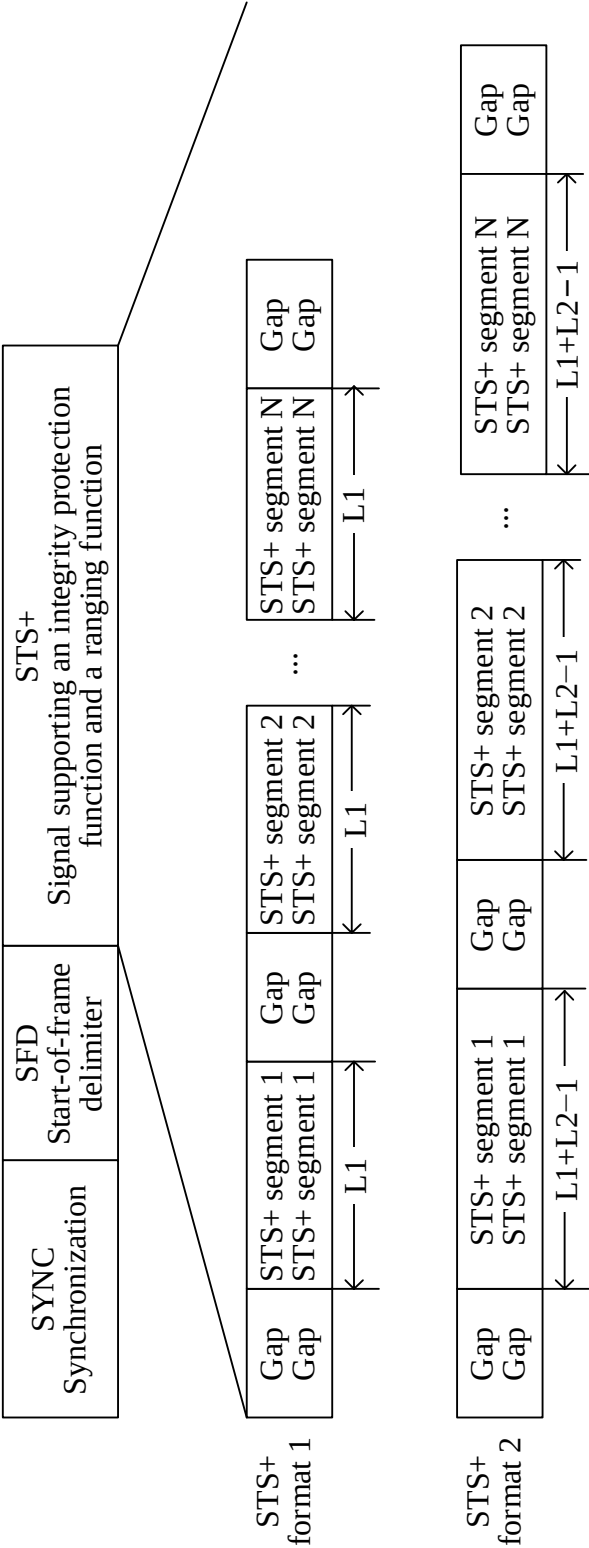


FIG. 9

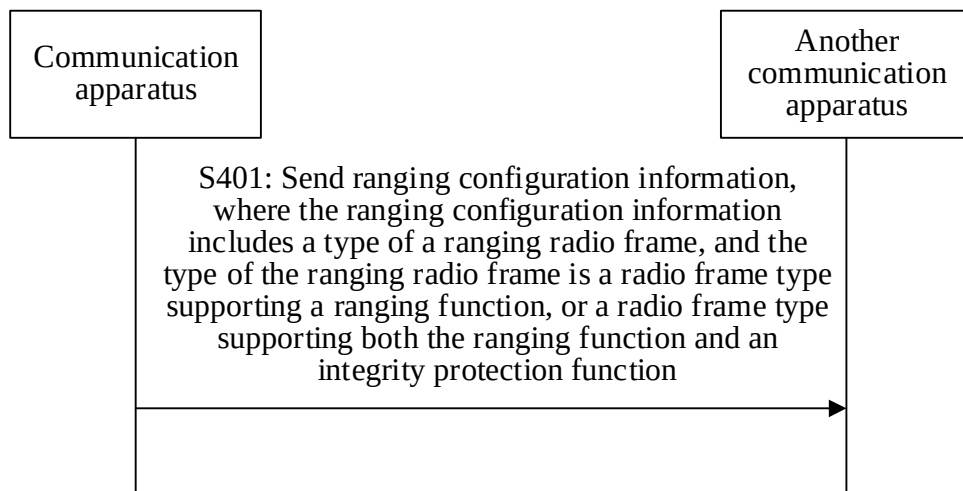


FIG. 10

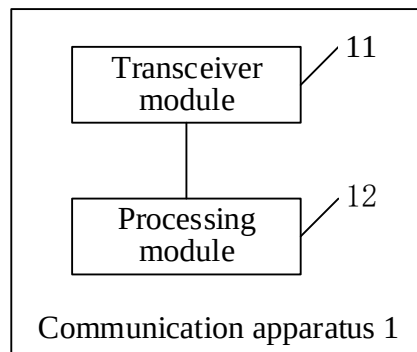


FIG. 11

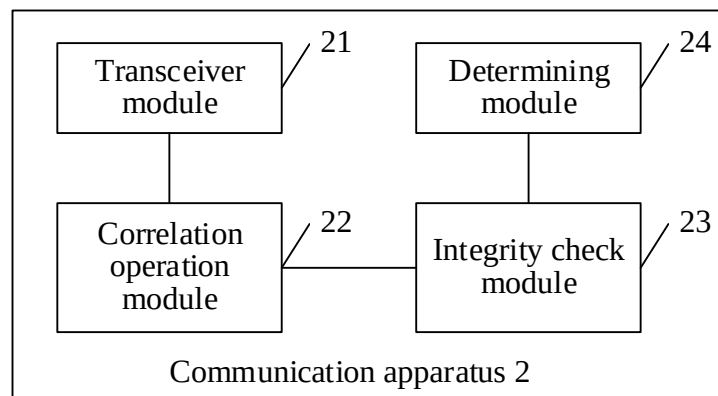


FIG. 12

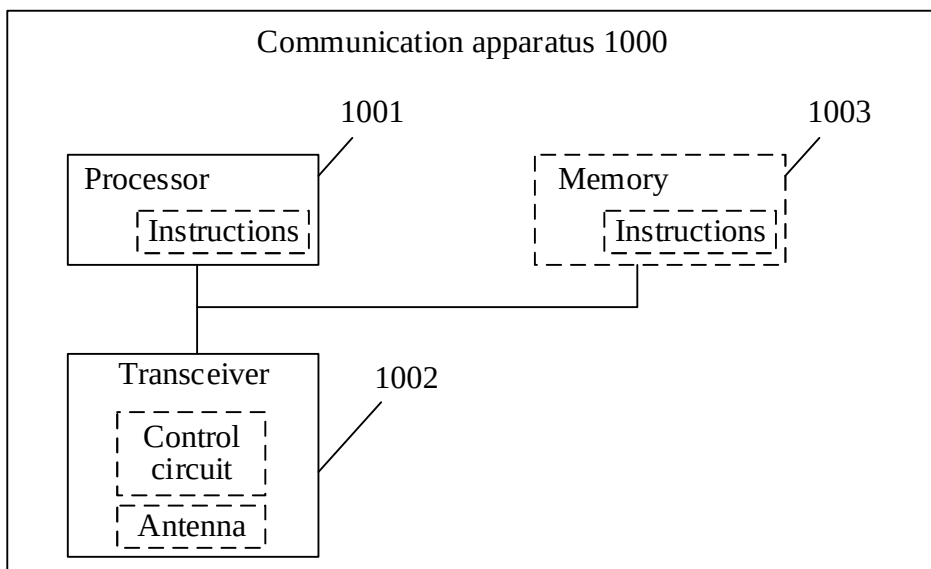


FIG. 13