

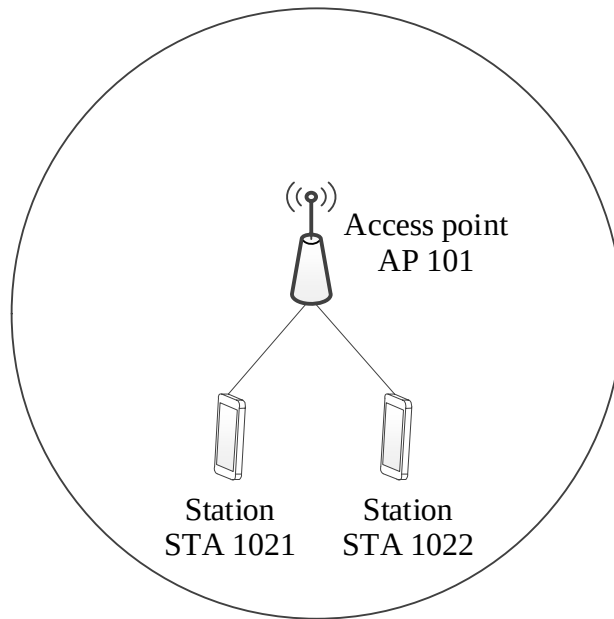


FIG. 1

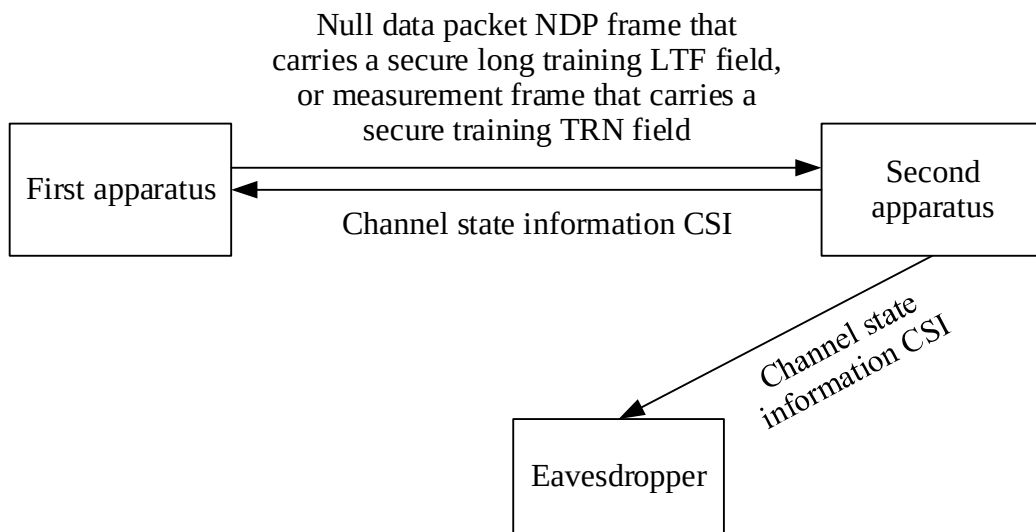


FIG. 2

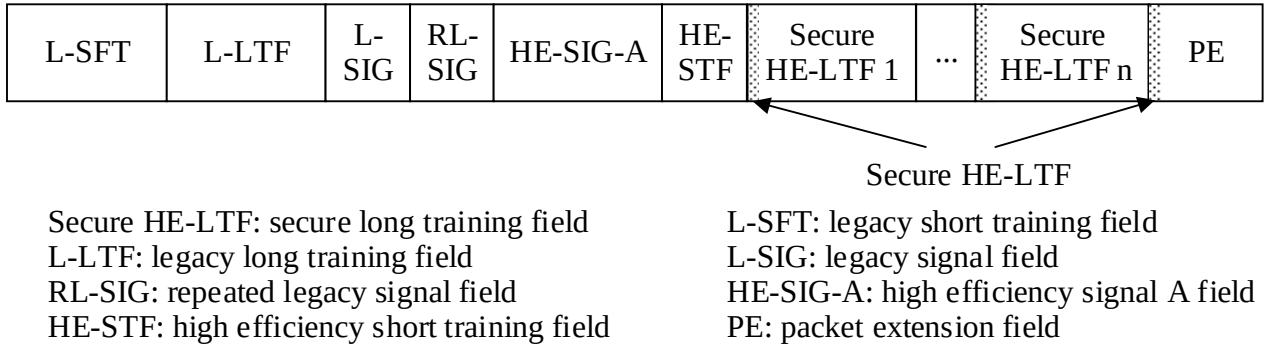
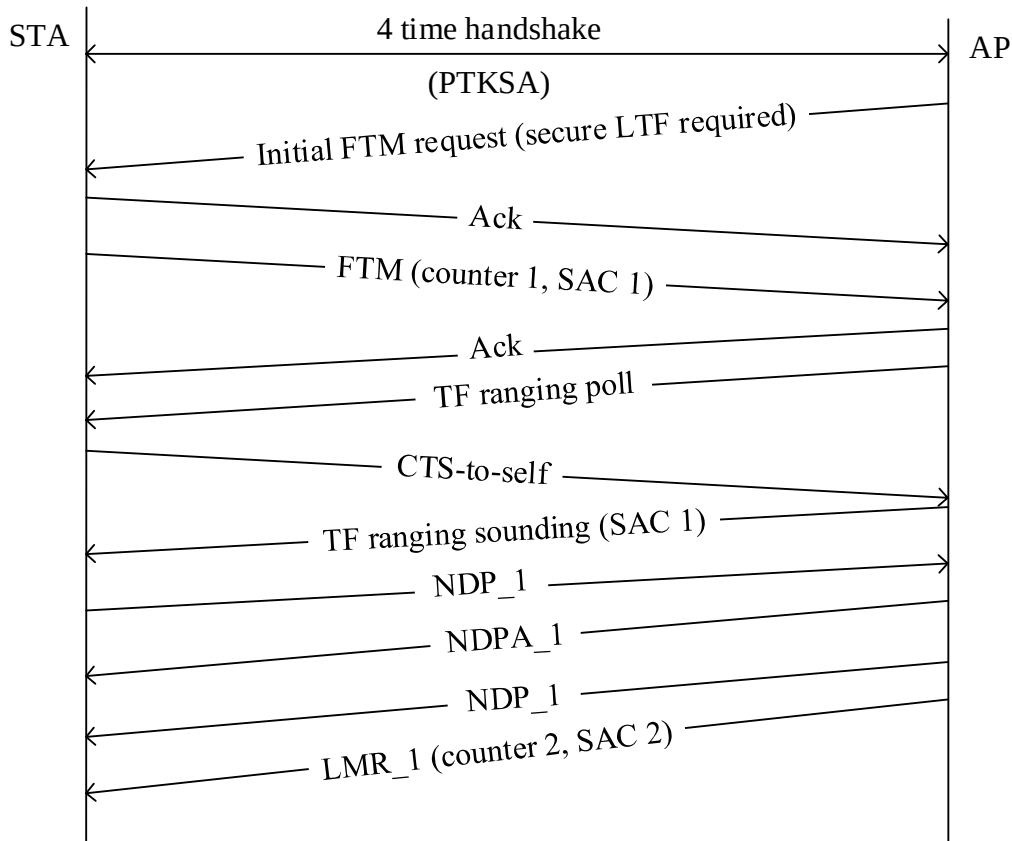


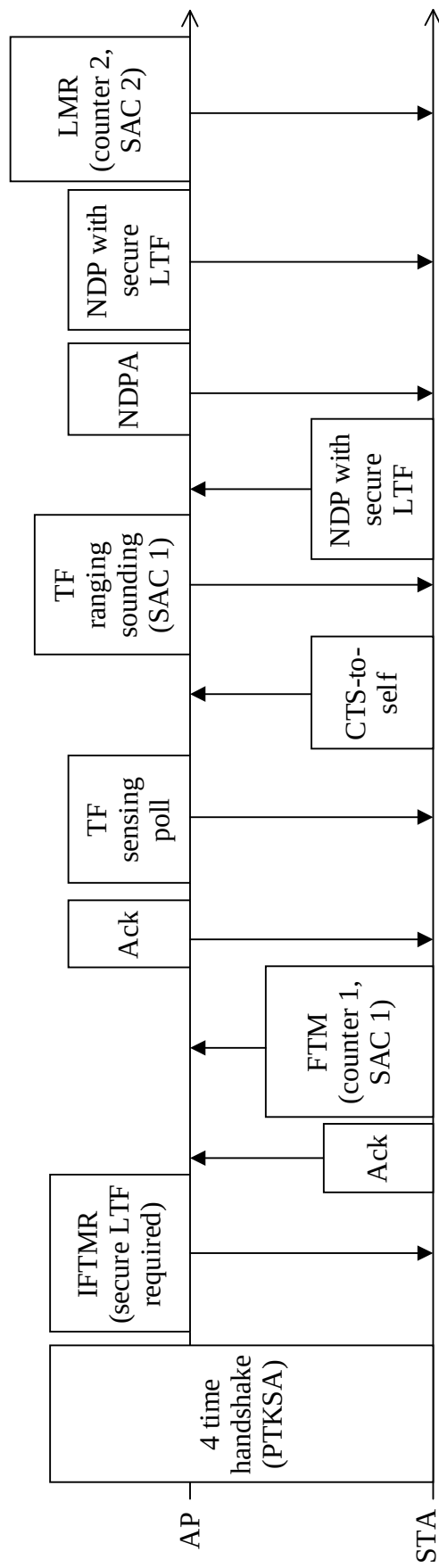
FIG. 3



4 time handshake: four-time handshake
 NDP: null data packet frame
 PTKSA: transient key security association
 LMR: location measurement report
 Ack: acknowledgement
 Initial FTM request: initial fine timing measurement frame request
 NDPA: null data packet announcement frame
 CTS-to-self: clear-to-send-to-self
 TF ranging sounding: ranging sounding frame

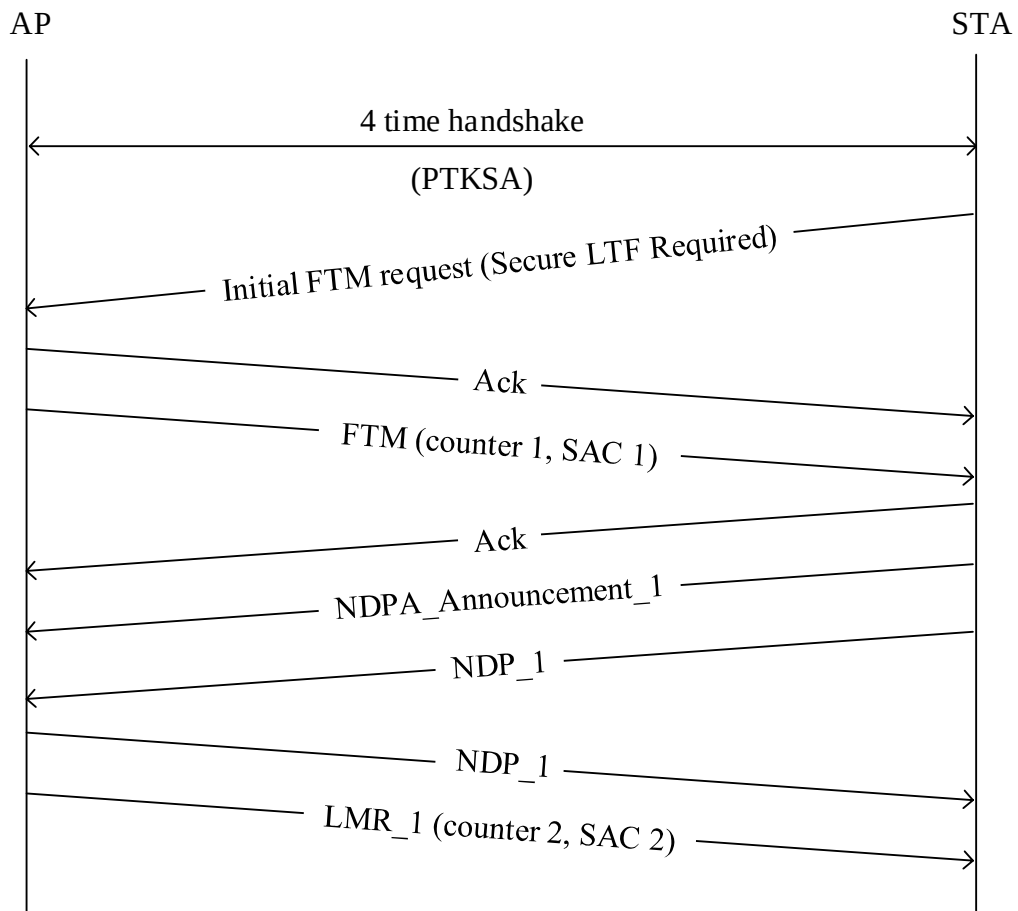
SAC: sequence authentication code
 FTM: fine timing measurement frame
 STA: station
 AP: access point
 Counter: counter
 TF ranging poll: ranging poll frame

FIG. 4(a)



4 time handshake: four-time handshake SAC: sequence authentication code PTKSA: transient key security association
FTM: fine timing measurement frame LMR: location measurement report Ack: acknowledgement
STA: station AP: access point ITTMR: initial fine timing measurement frame request
Secure LTF required: secure long training field request NDPA: null data packet announcement frame
Counter: counter CTS-to-self: clear-to-send-to-self
TF ranging sounding: TF ranging sounding frame TF sensing poll: TF sensing poll frame
NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 4(b)



4 time handshake: four-time handshake SAC: sequence authentication code
 NDP: null data packet frame
 PTKSA: transient key security association FTM: fine timing measurement frame
 LMR: location measurement report
 Ack: acknowledgement STA: station AP: access point
 Initial FTM request: initial fine timing measurement frame request
 Secure LTF required: secure long training field request
 NDPA: null data packet announcement frame Counter: counter

FIG. 5(a)

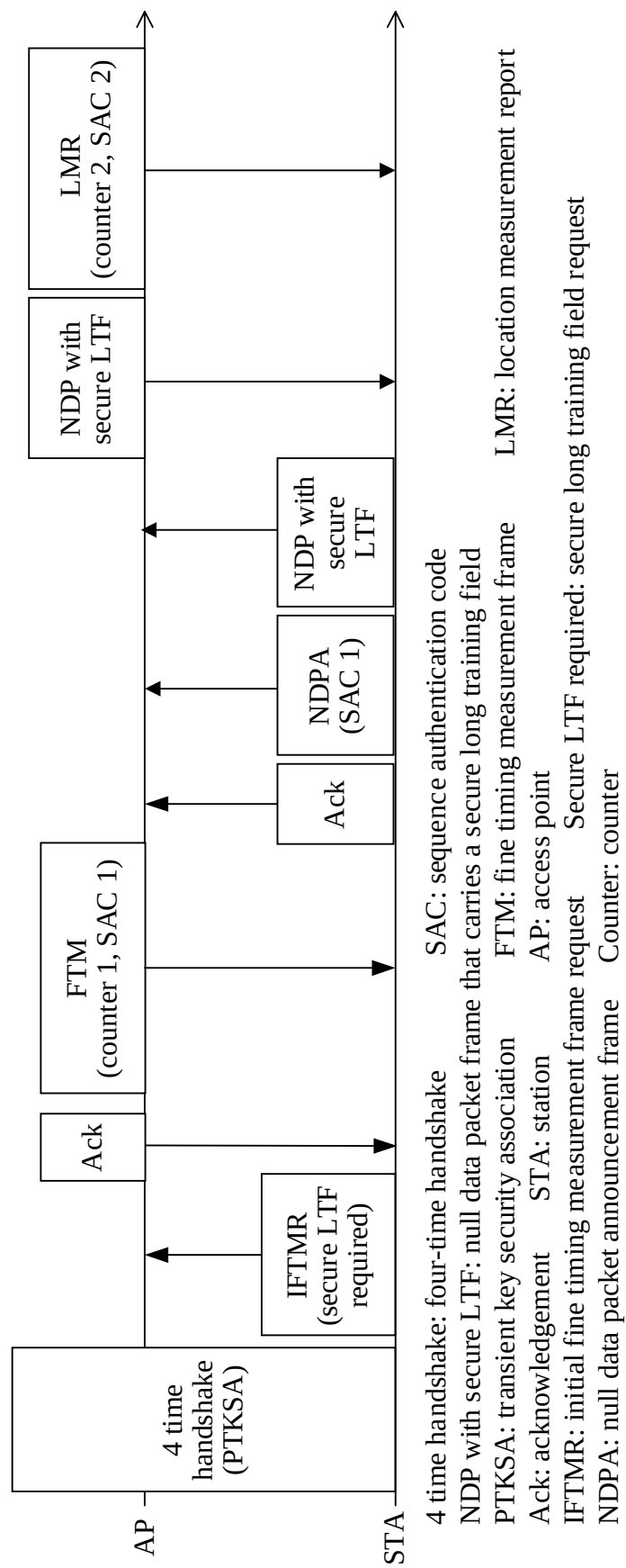


FIG. 5(b)

Information feedback method 100

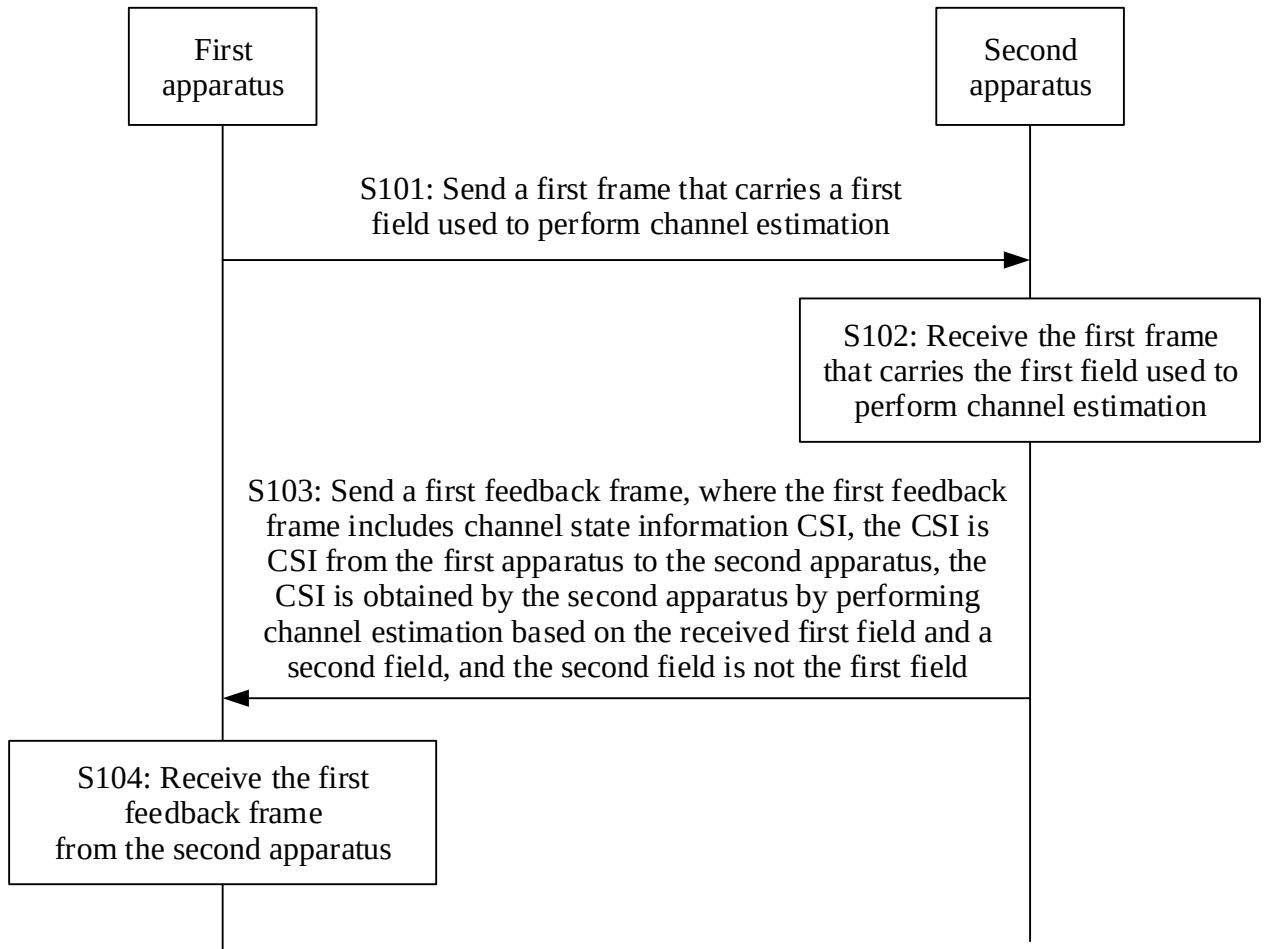


FIG. 6

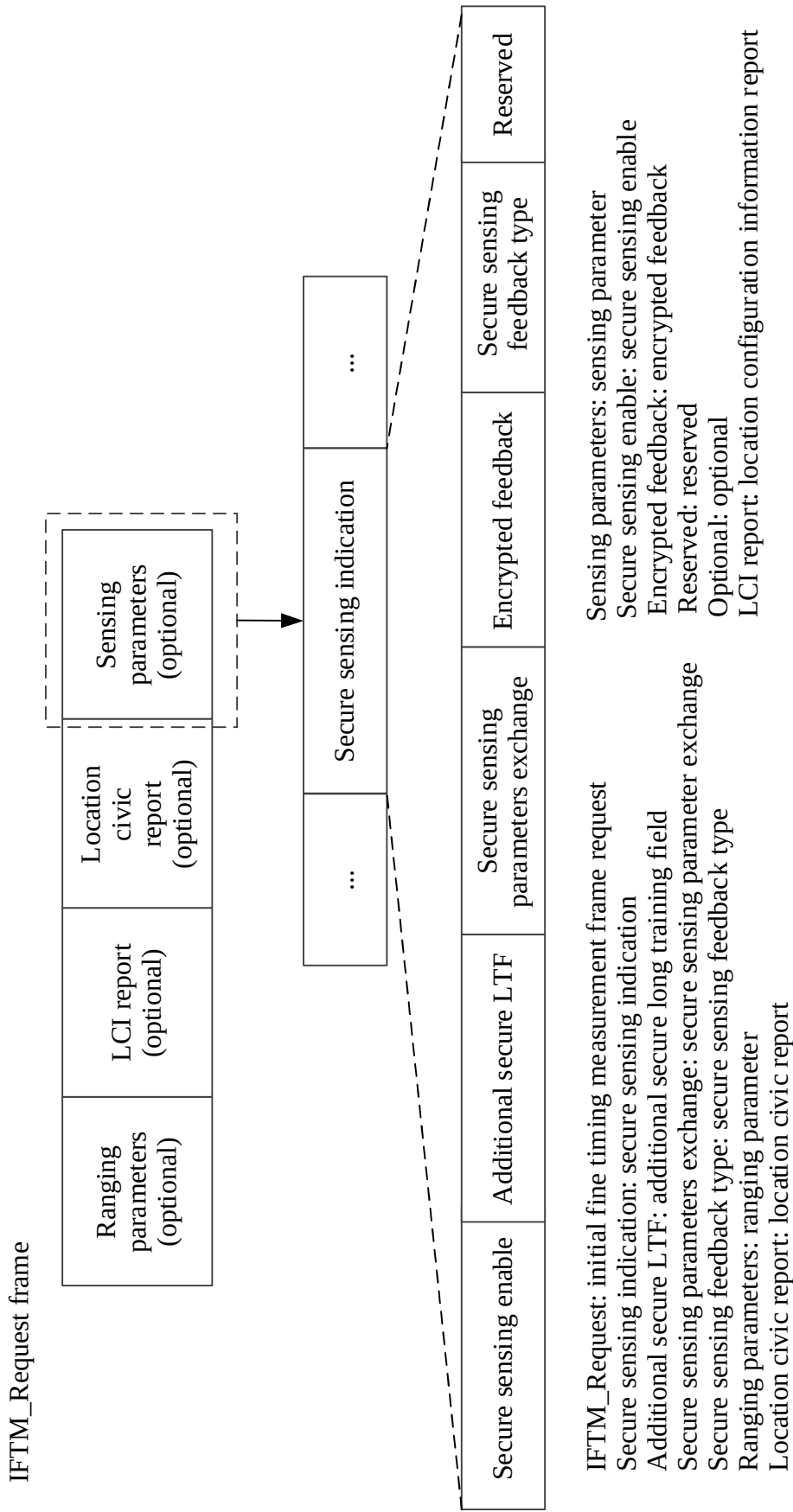
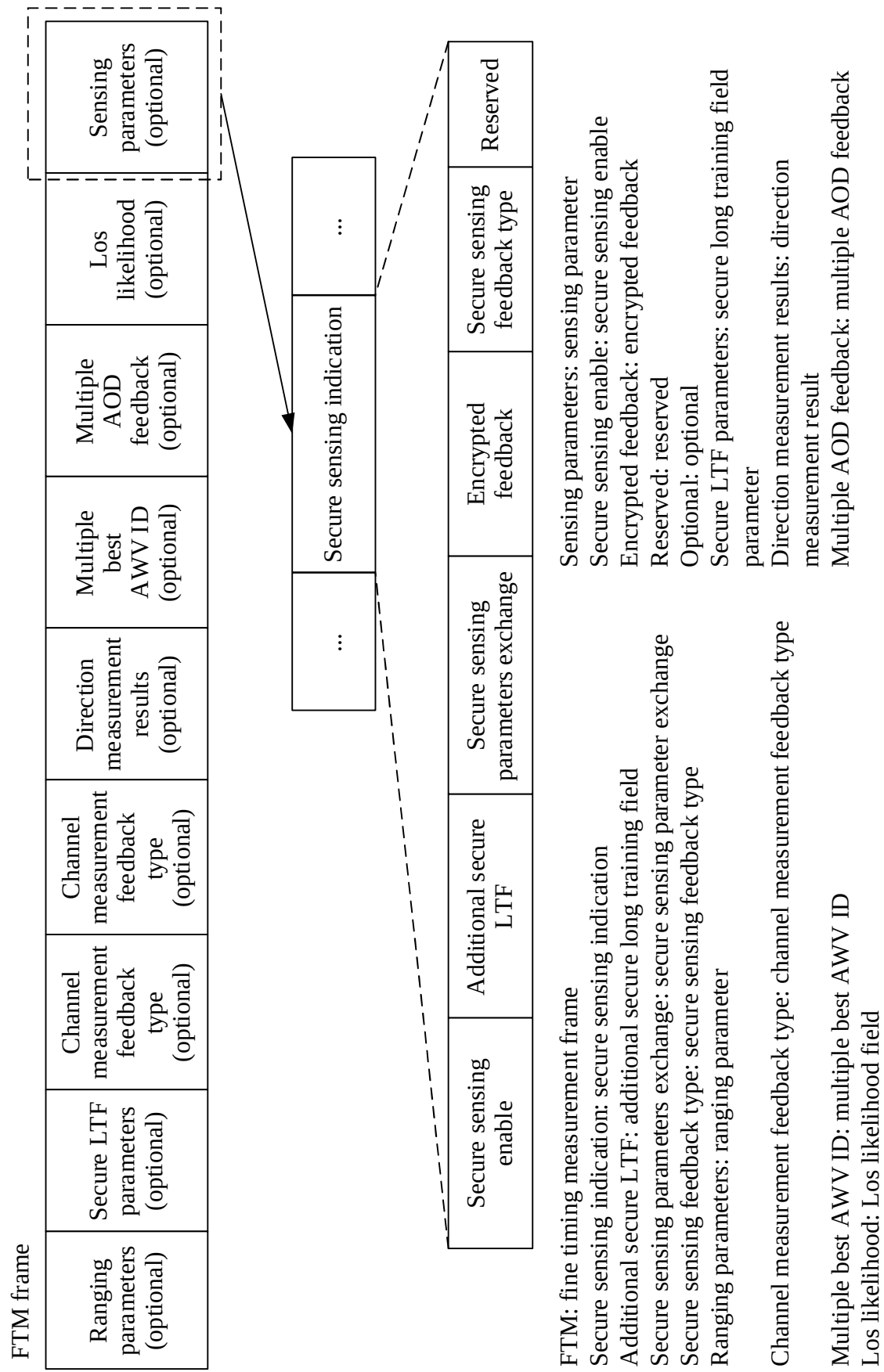


FIG. 7(a)

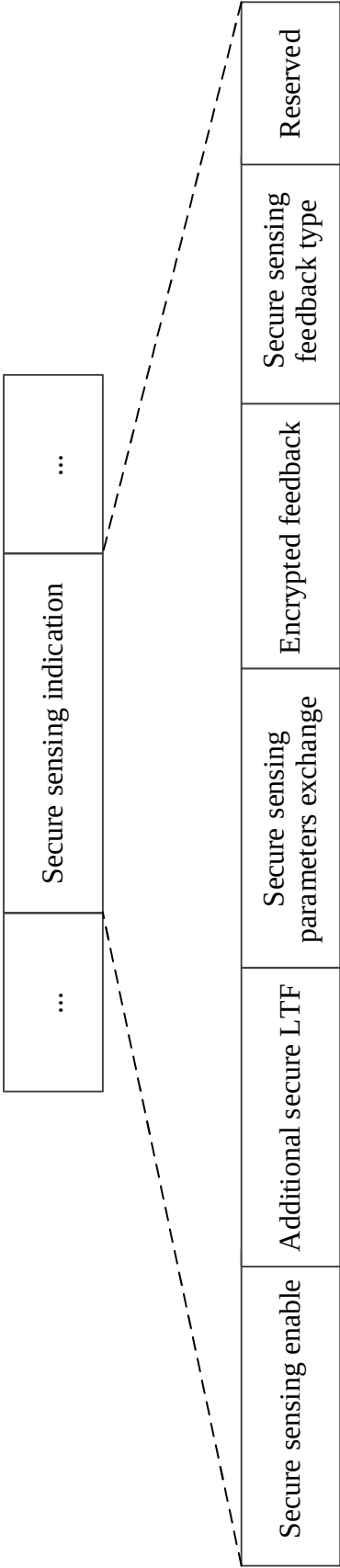


Public action field value	Description
4	Extended channel switch announcement
5	DSE measurement request
6	DSE measurement report
7	Measurement pilot
8	DSE power constraint
...	...
31	White space map announcement
32	Fine timing measurement request
33	Fine timing measurement
...	...
45	On-channel tunnel request
46-255	Reserved

46	Sensing request
47	Sensing response

Description: description Reserved: reserved
 DSE measurement request: dynamic station enable measurement request
 DSE measurement report: dynamic station enable measurement report
 Measurement pilot: measurement pilot DSE power constraint: dynamic station enable power constraint
 Public action field values: public action field value Fine timing measurement: fine timing measurement frame
 White space map announcement: white space map announcement On-channel tunnel request: on-channel tunnel request
 Fine timing measurement request: fine timing measurement request frame
 Sensing request: sensing request
 Sensing response: sensing response Extended channel switch announcement: extended channel switch announcement

FIG. 8(a)



Secure sensing indication: secure sensing indication
Additional secure LTF: additional secure long training field
Secure sensing parameters exchange: secure sensing parameter exchange
Secure sensing feedback type: secure sensing feedback type

Secure sensing enable: secure sensing enable
Encrypted feedback: encrypted feedback
Reserved: reserved

FIG. 8(b)

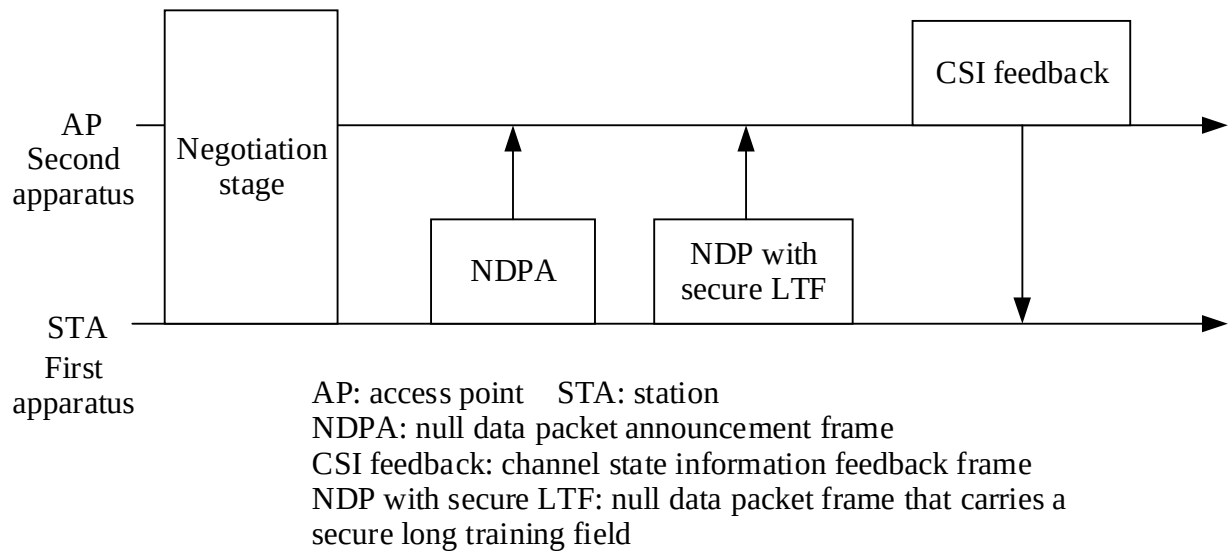


FIG. 9(a)

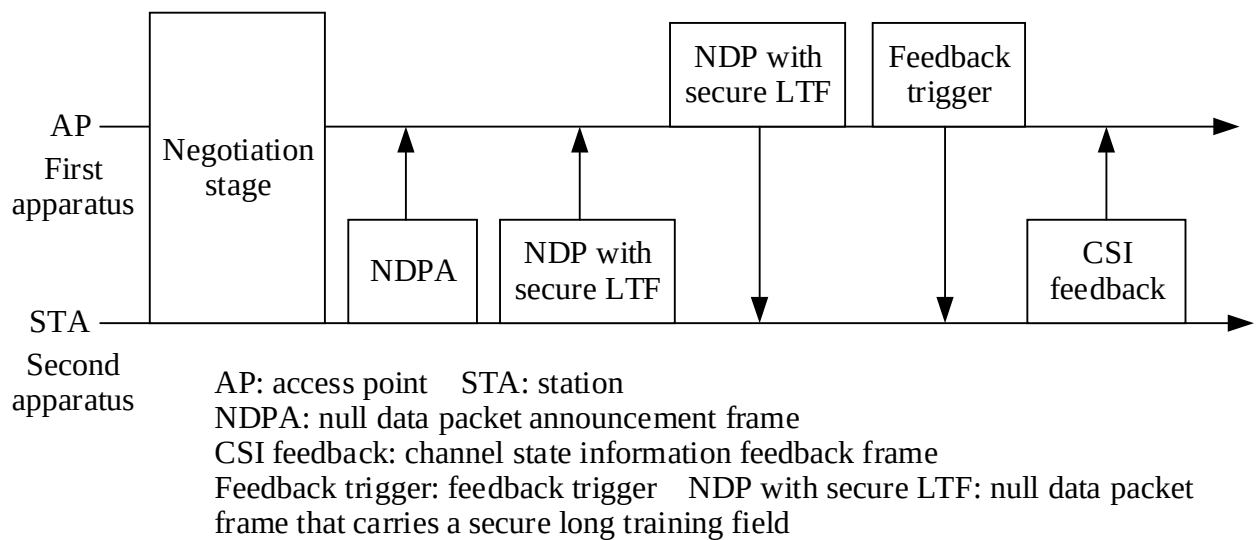


FIG. 9(b)

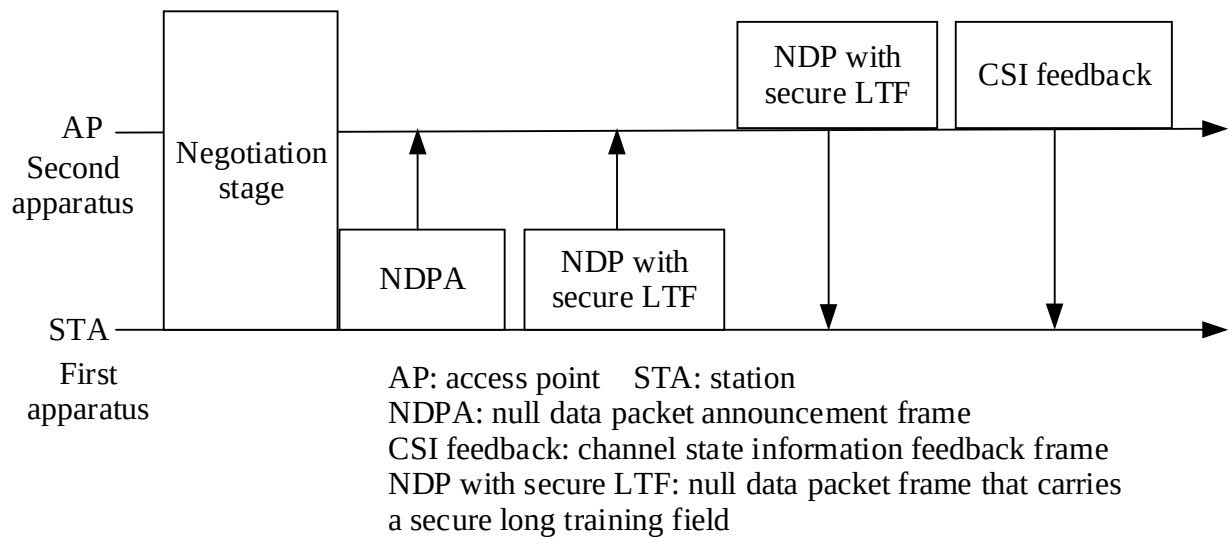
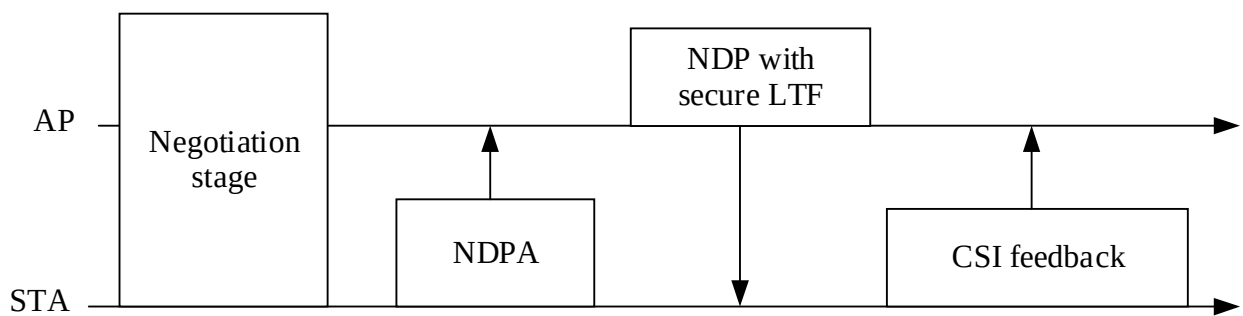


FIG. 9(c)



Second apparatus (STA that does not have a capability of generating a secure LTF field)

AP: access point STA: station
 NDPA: null data packet announcement frame
 CSI feedback: channel state information feedback frame
 NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 9(d)

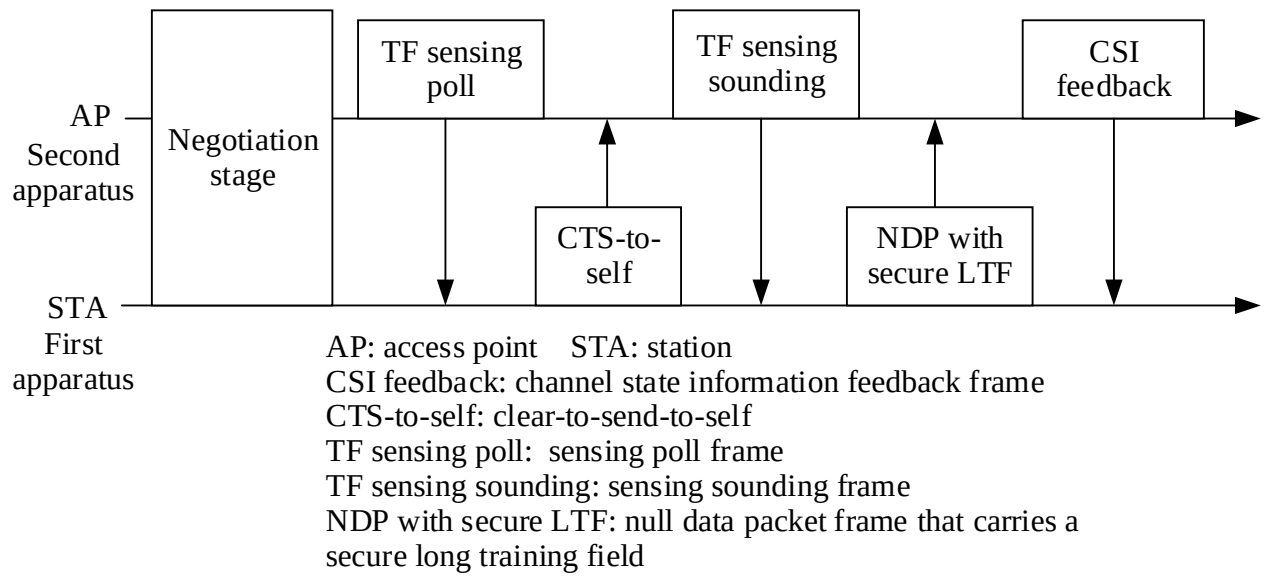


FIG. 9(e)

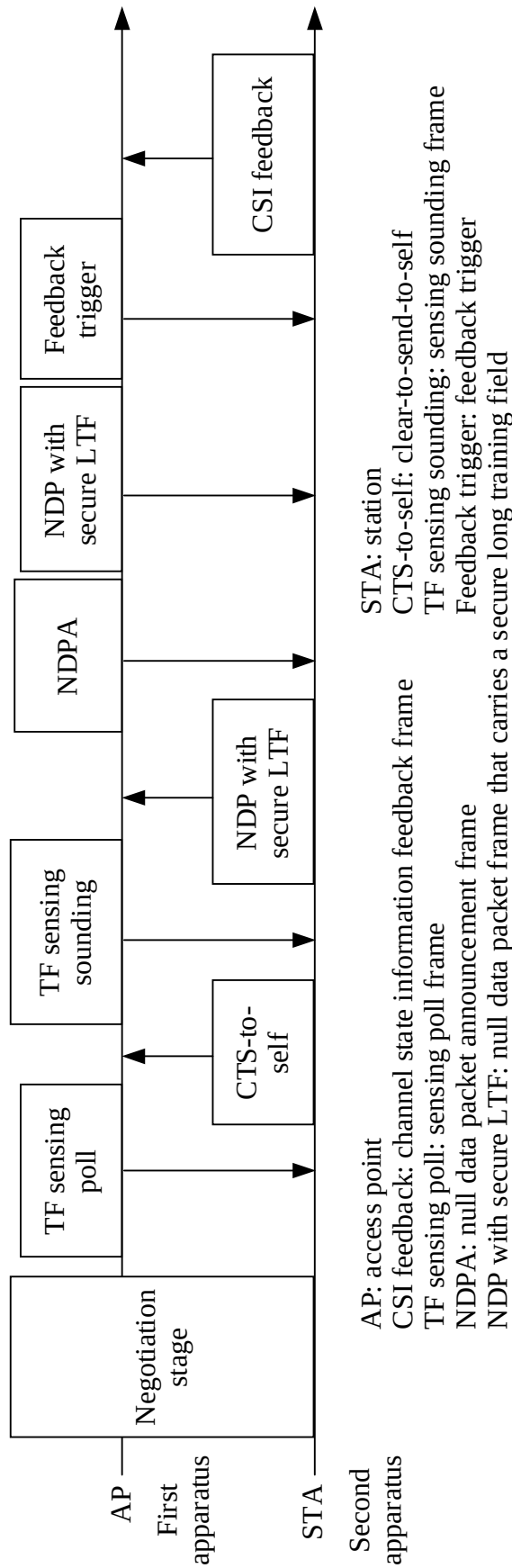


FIG. 9(f)

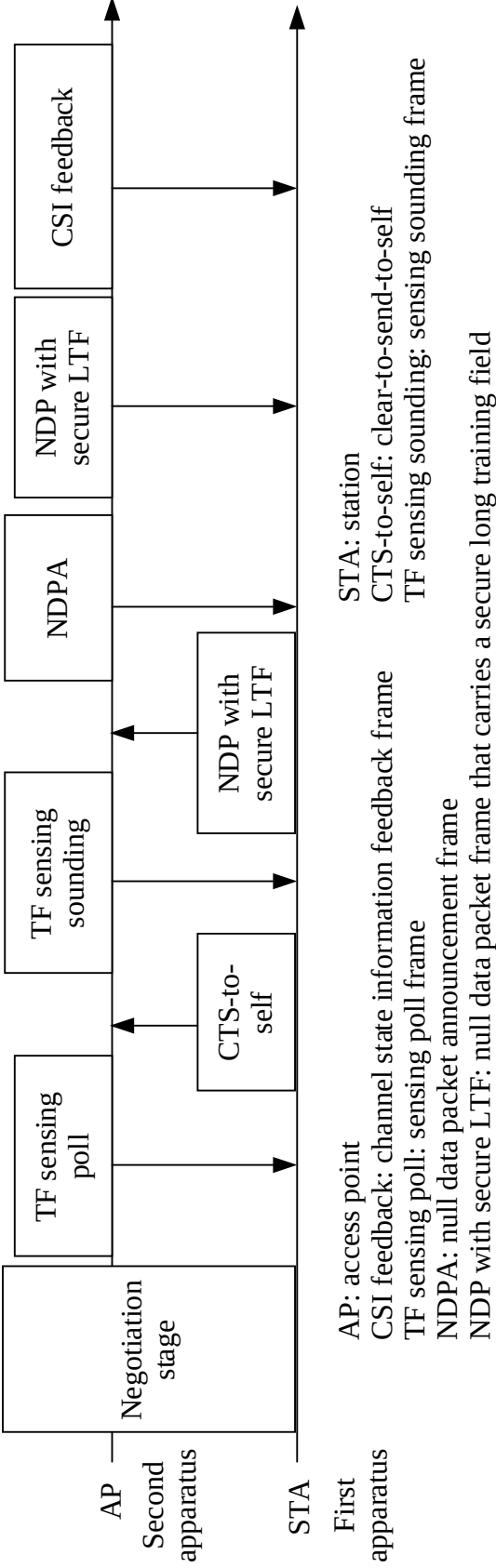


FIG. 9(g)

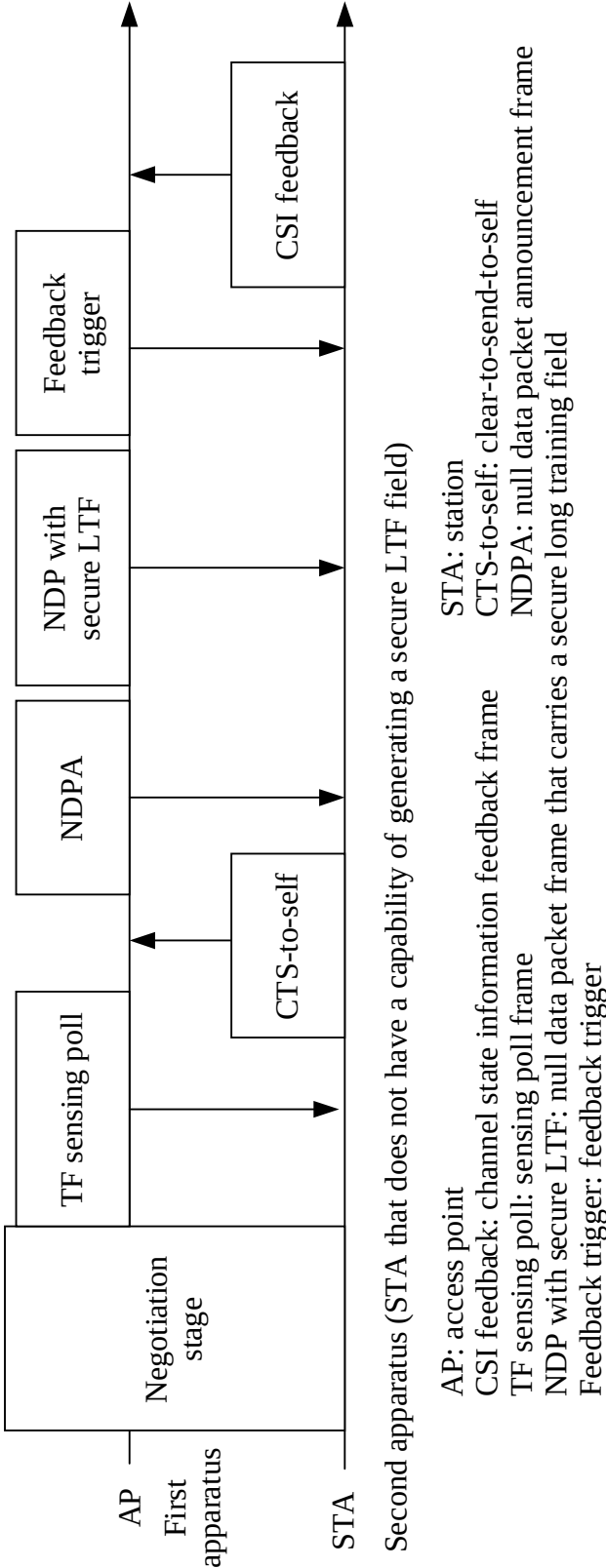


FIG. 9(h)

Information feedback method 200

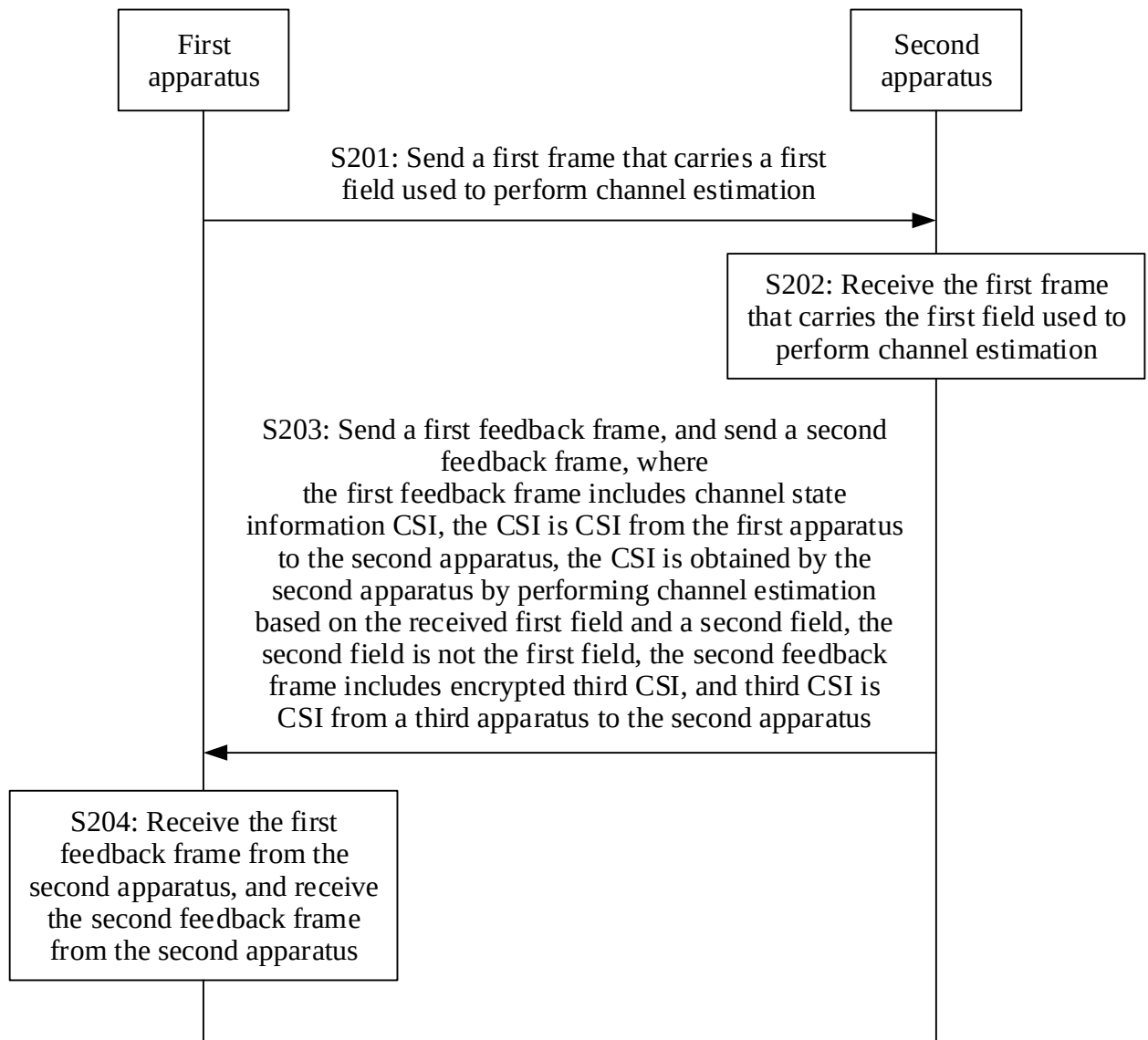


FIG. 10

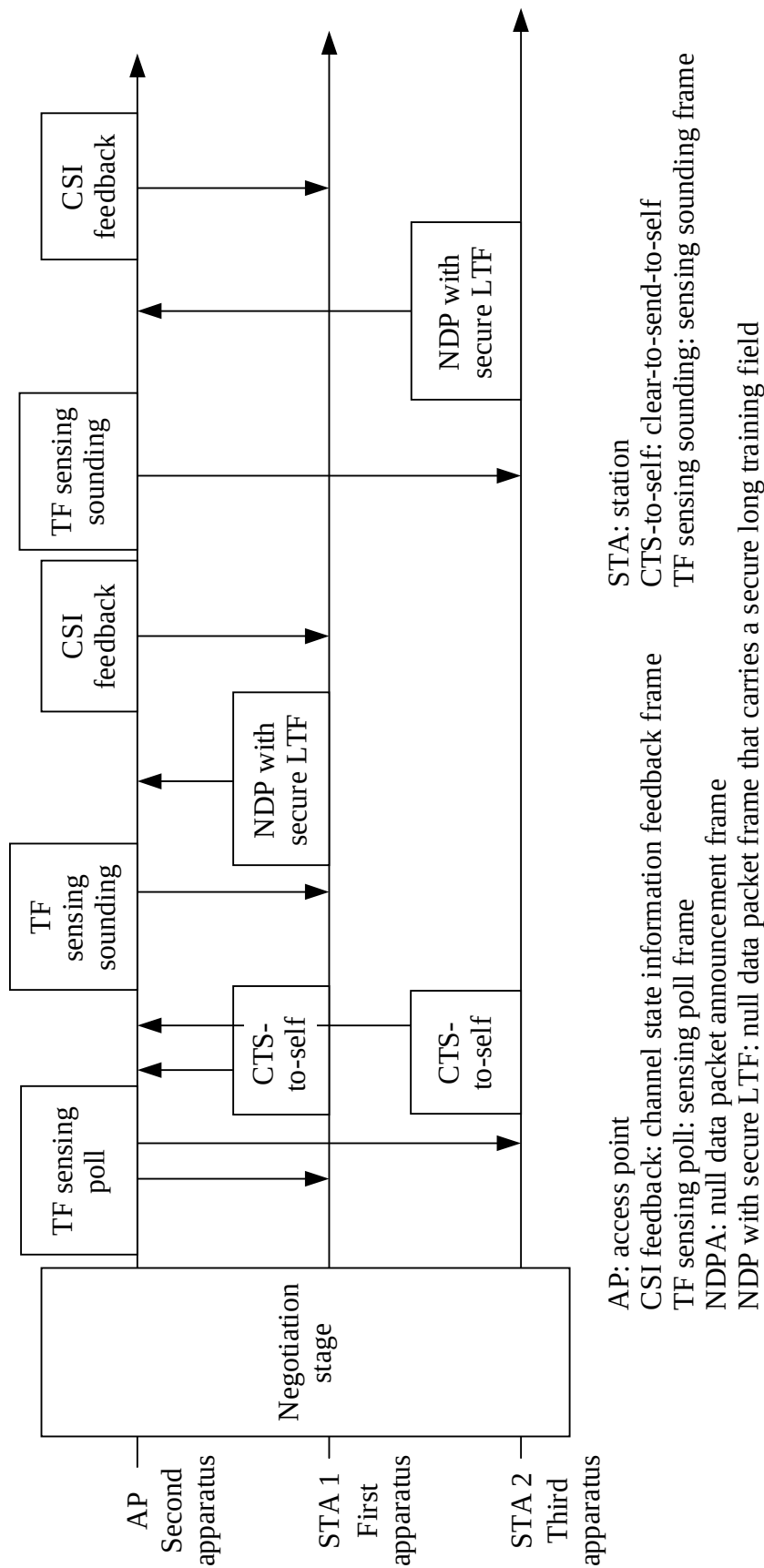


FIG. 11(a)

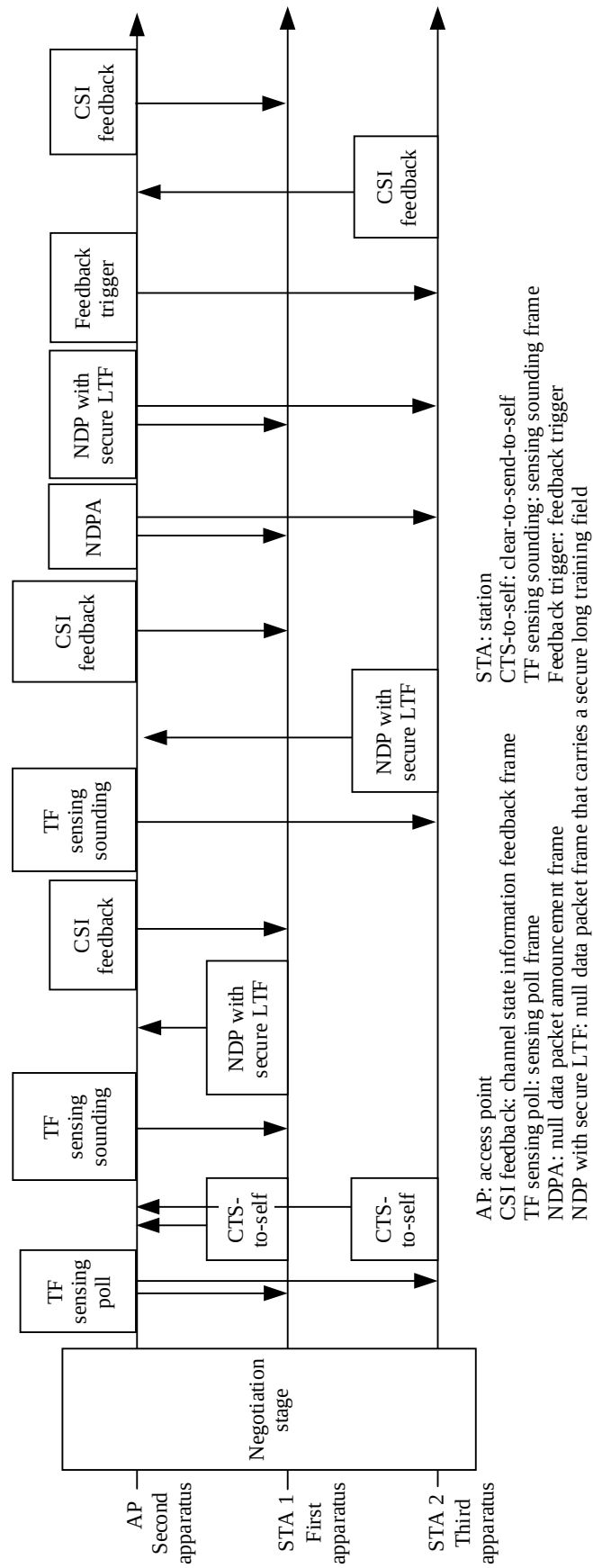


FIG. 11(b)

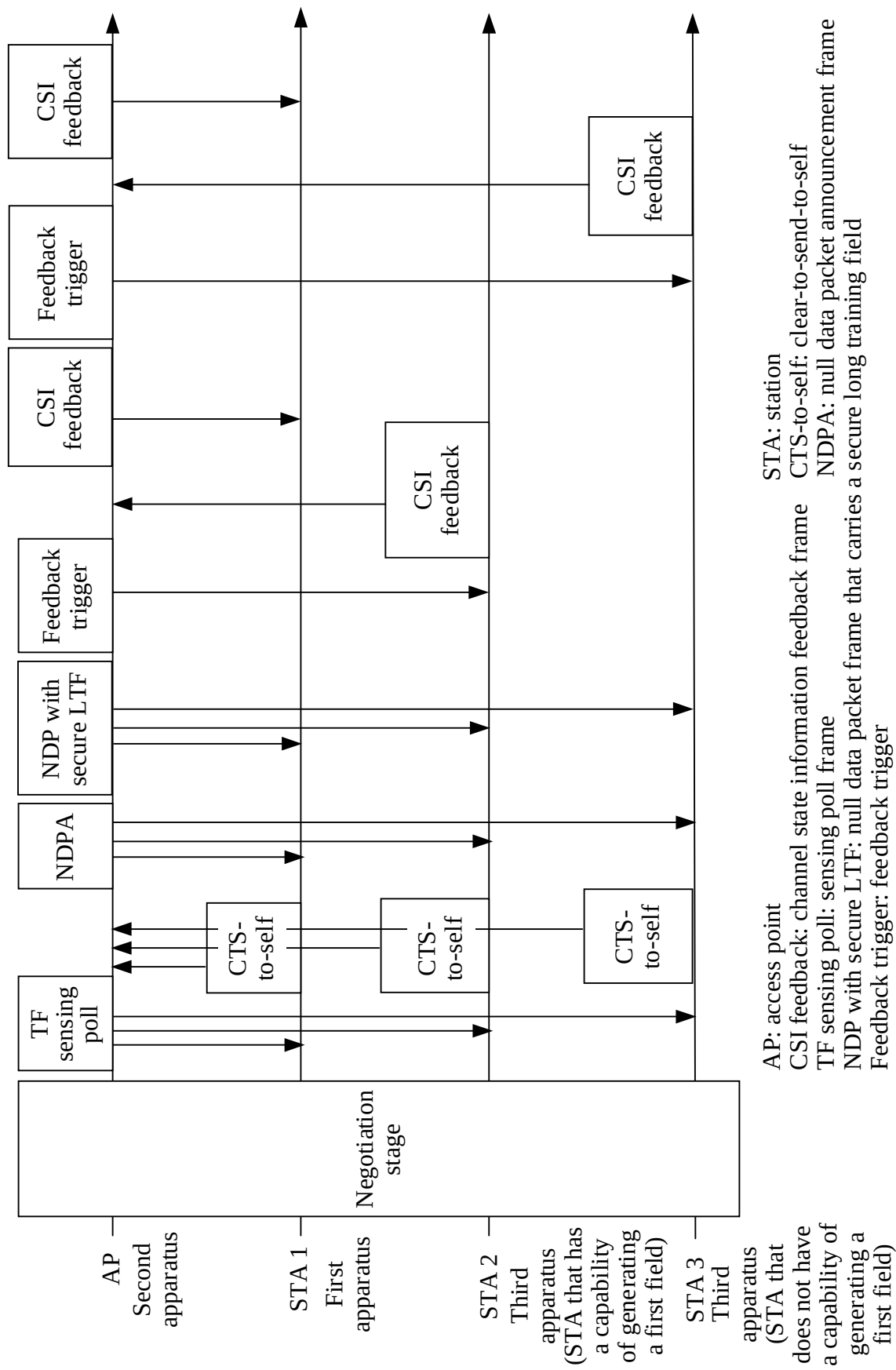


FIG. 11(c)

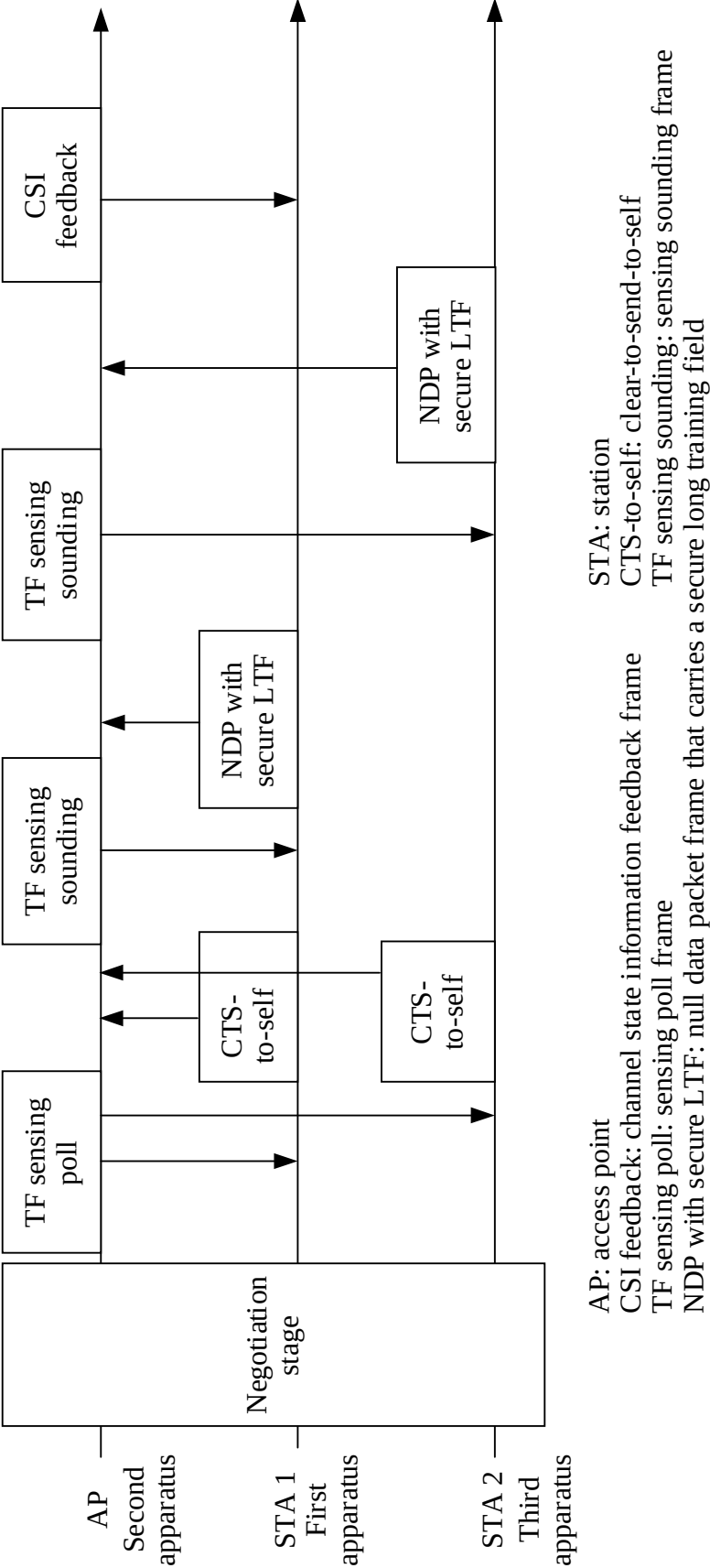


FIG. 11(d)

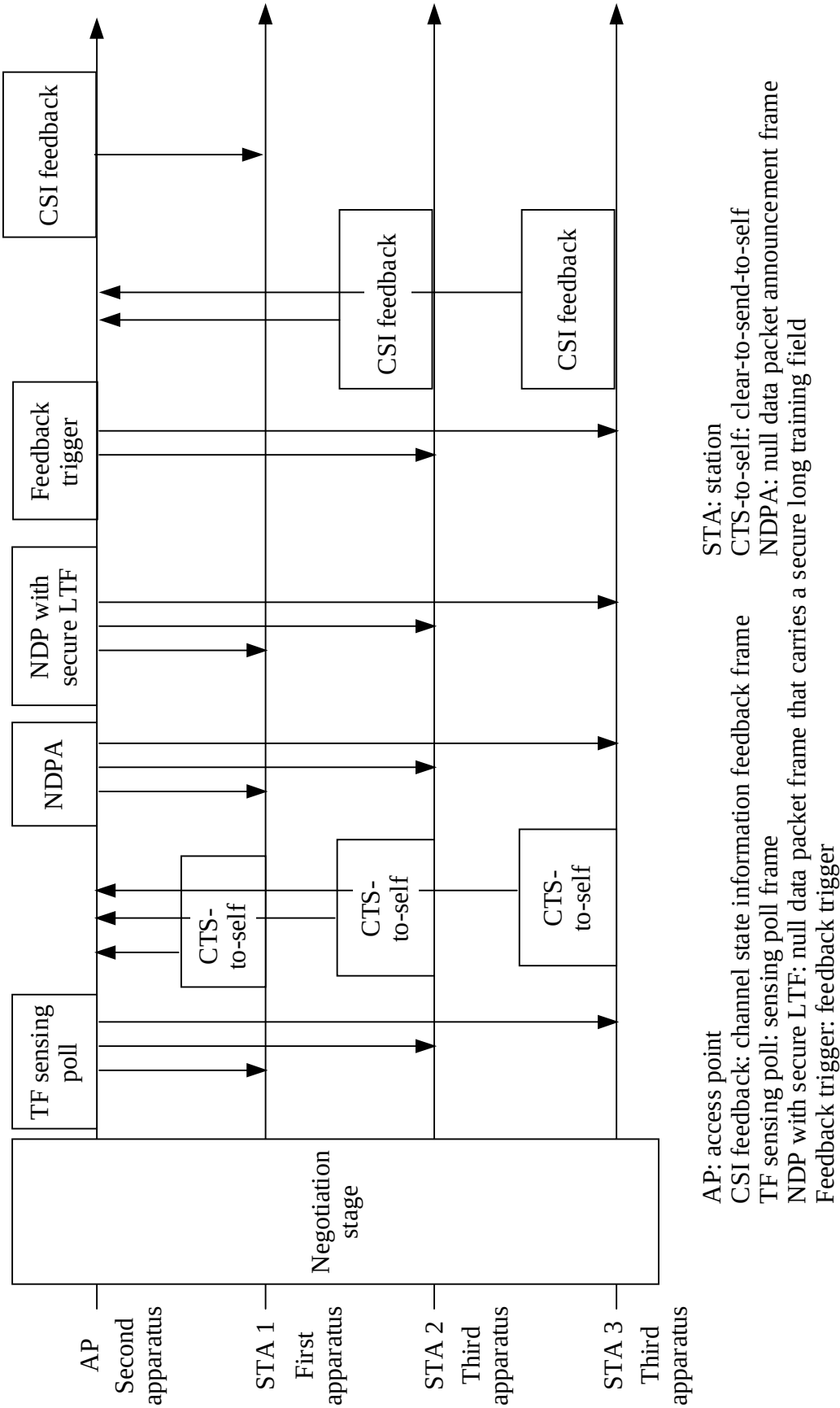


FIG. 11(e)

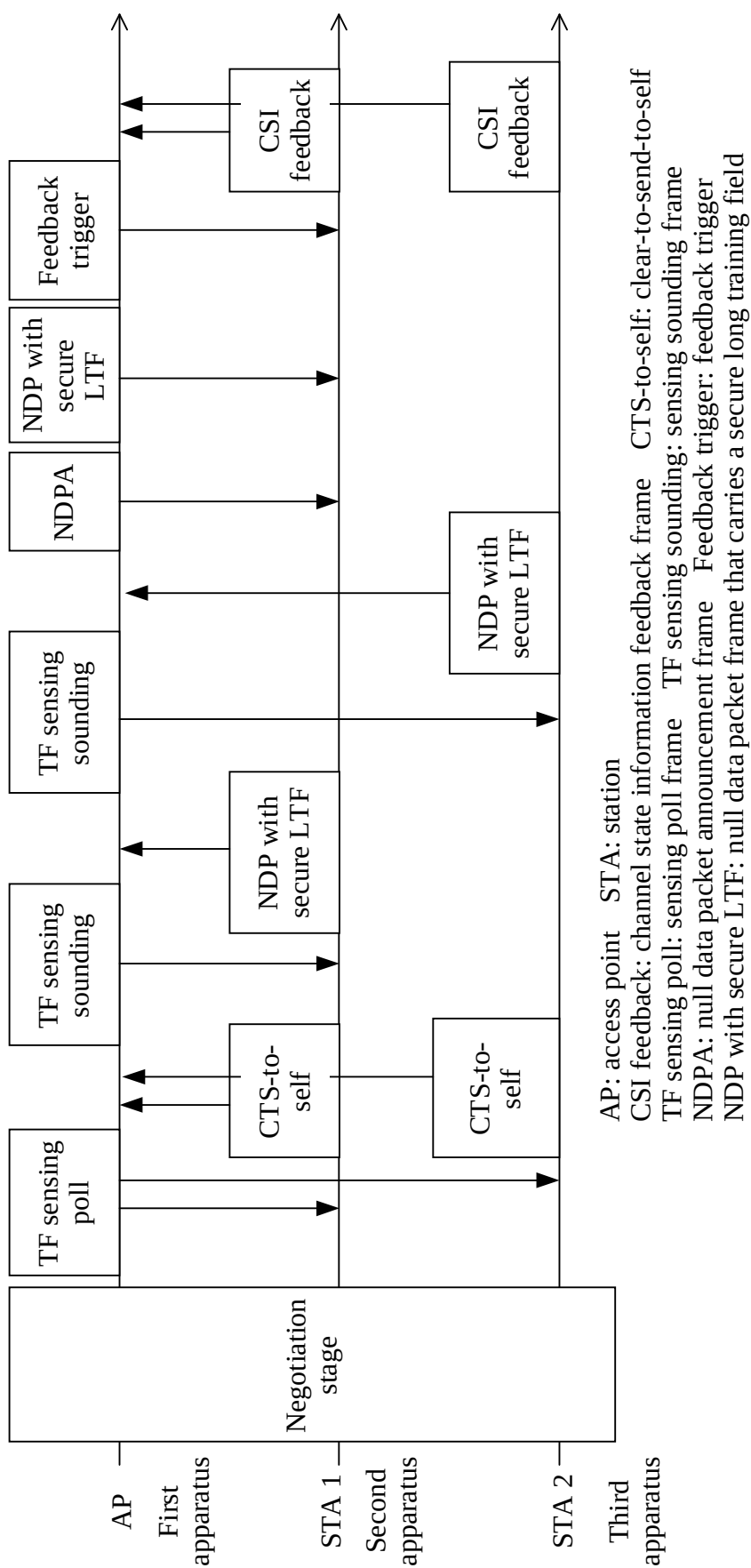


FIG. 12(a)

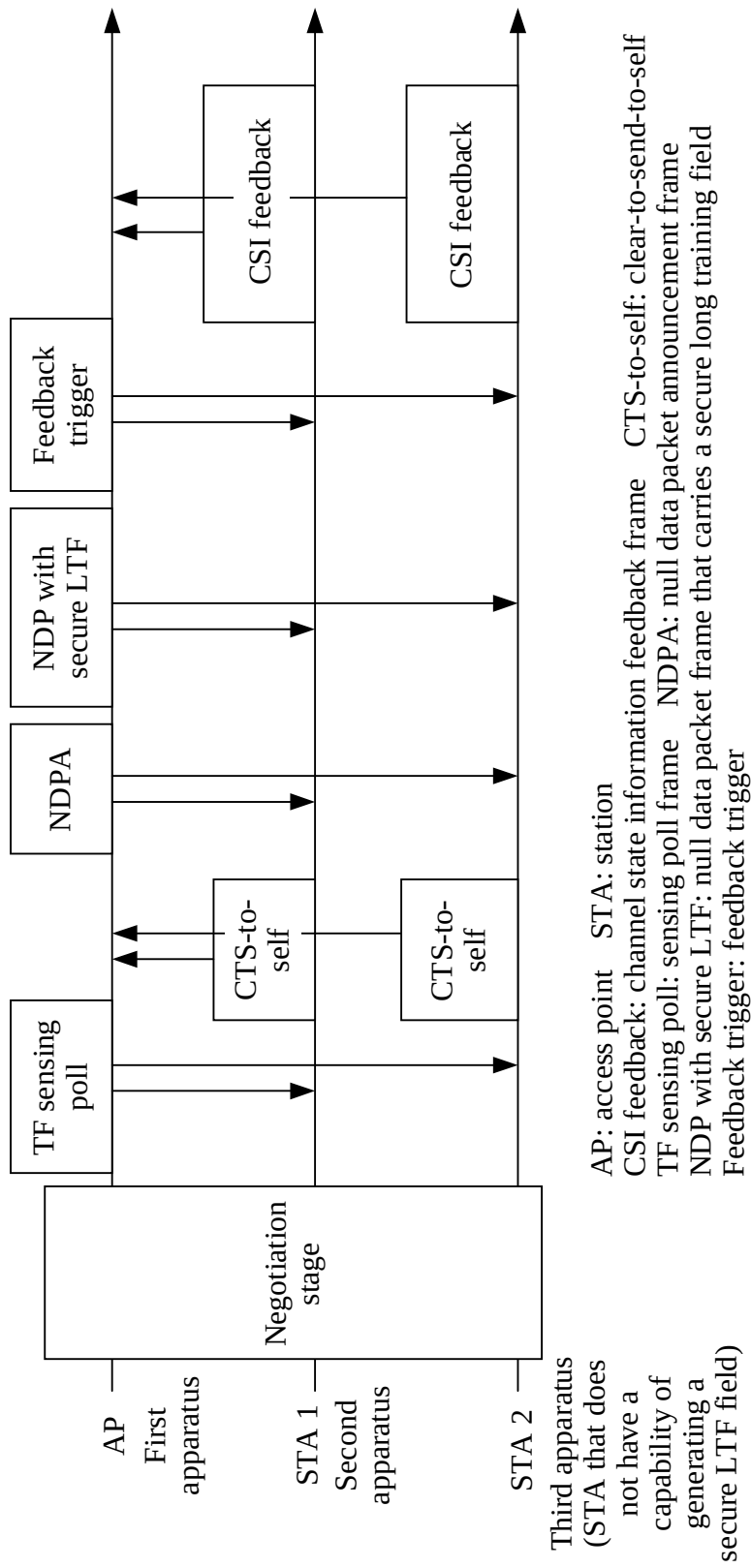


FIG. 12(b)

HT action field value	Meaning	Time priority
0	Notify channel width	No
1	SM power save	No
2	PSMP	Yes
3	Reserved	-
4	CSI	Yes
5	Noncompressed beamforming	Yes
6	Compressed beamforming	Yes
7	ASEL indices feedback	Yes
8-255	Reserved	-

Order	Information
1	Category
2	HT action
3	MIMO control
4	CSI report
5	Encryption CSI report

Encryption of the CSI

Reserved

HT action field value: high throughput action field value Meaning: meaning
Time priority: time priority Notify channel width: notify channel width
SM power save: spatial multiplexing power save PSMP: power save multiple poll
CSI: channel state information Reserved: reserved
Noncompressed beamforming: noncompressed beamforming Compressed beamforming: compressed beamforming
ASEL indices feedback: antenna selection index feedback Order: order
Information: information Category: category
HT action: high throughput action MIMO control: Multi-input multi-output control
CSI report: channel state information report Encryption CSI report: encryption channel state information report
Encryption of the CSI: encryption of channel state information

FIG. 13(a)

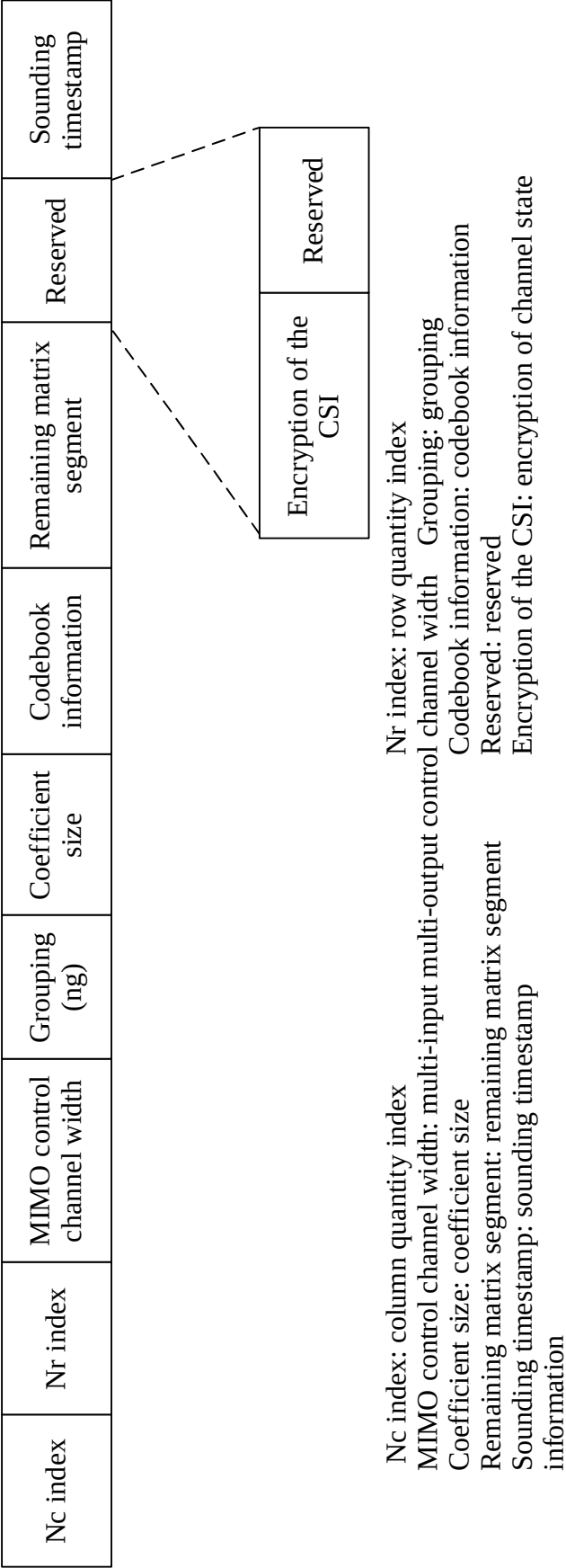
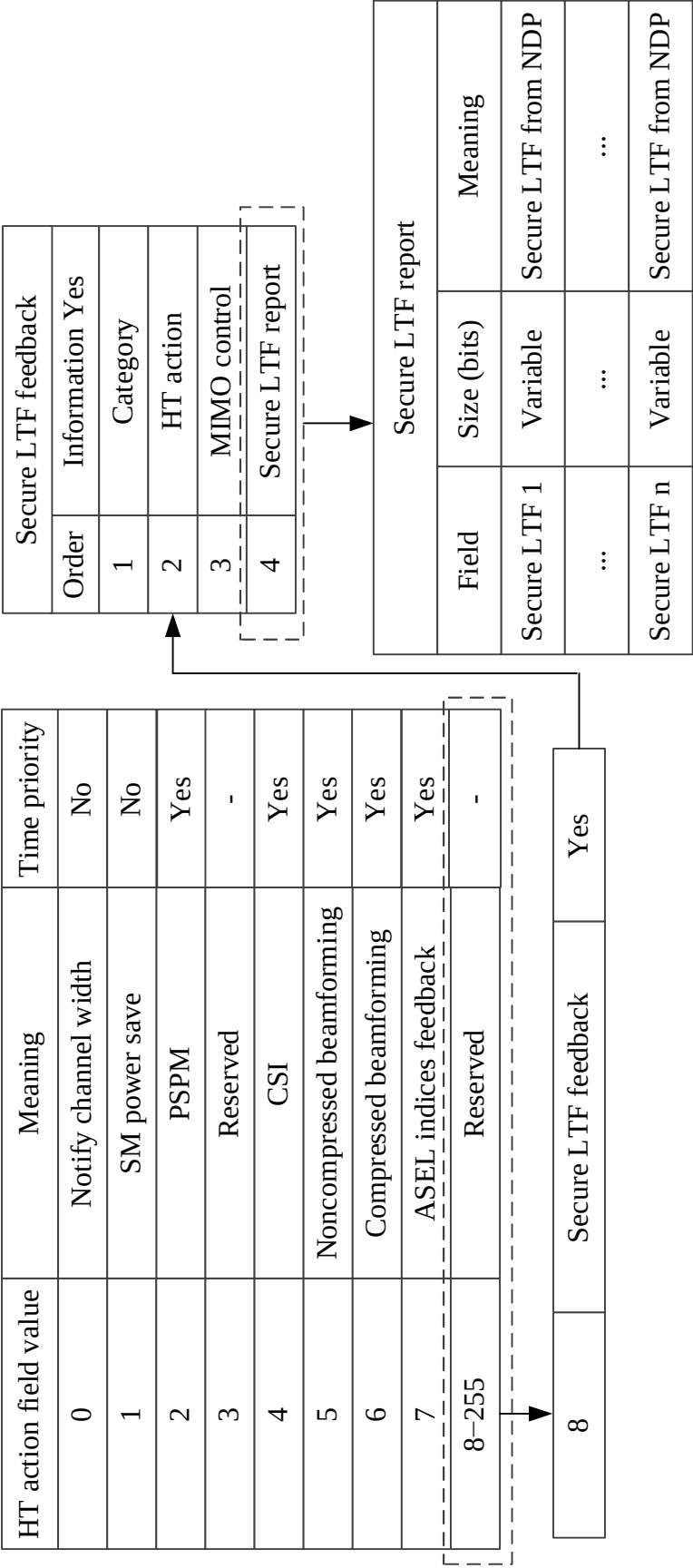


FIG. 13(b)



HT action field value: high throughput action field value
Time priority: time priority
SM power save: spatial multiplexing power save
CSI: channel state information
Noncompressed beamforming: noncompressed beamforming
ASEL indices feedback: antenna selection index feedback
Information: information
HT action: high throughput action
Secure LTF feedback: secure long training field feedback
Field: field
Size: size
Secure LTF from NDP: secure long training field from a null data packet frame

Meaning: meaning
Notify channel width: notify channel width
PSPM: power save multiple poll
Reserved: reserved
Compressed beamforming: compressed beamforming
Order: order
Category: category
MIMO control: multi-input multi-output control
Secure LTF report: secure long training field report
Secure LTF: secure LTF field
Variable: variable

FIG. 13(c)

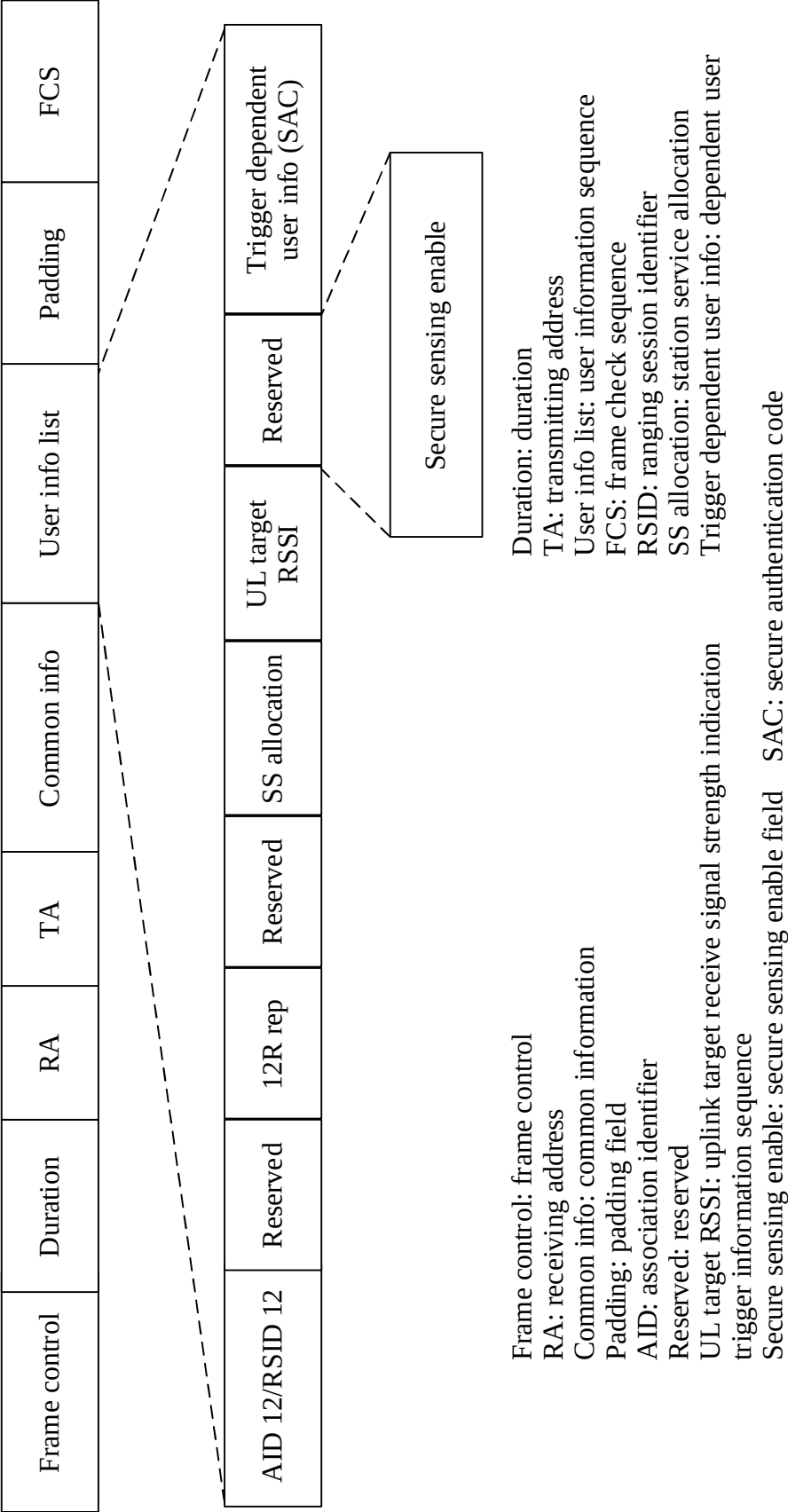


FIG. 14(a)

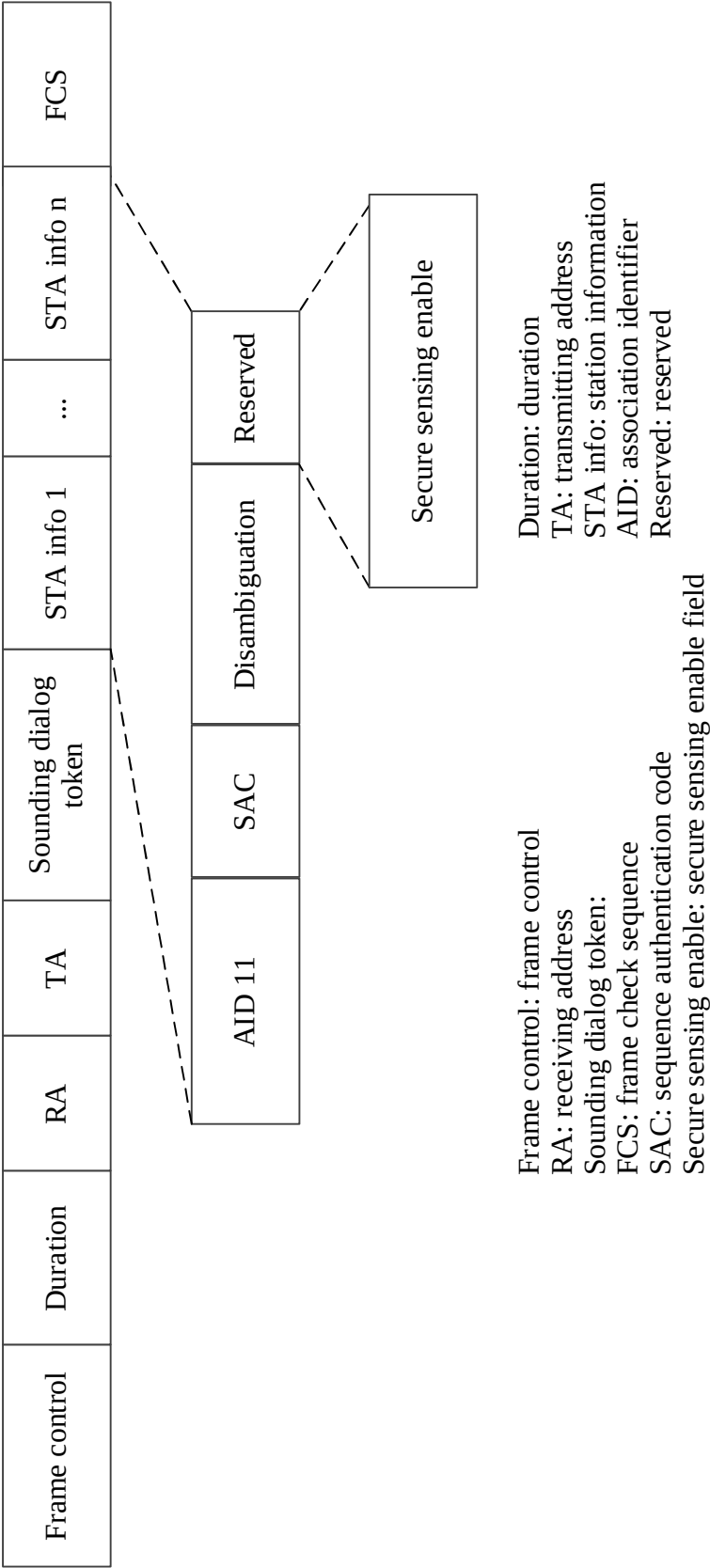


FIG. 14(b)

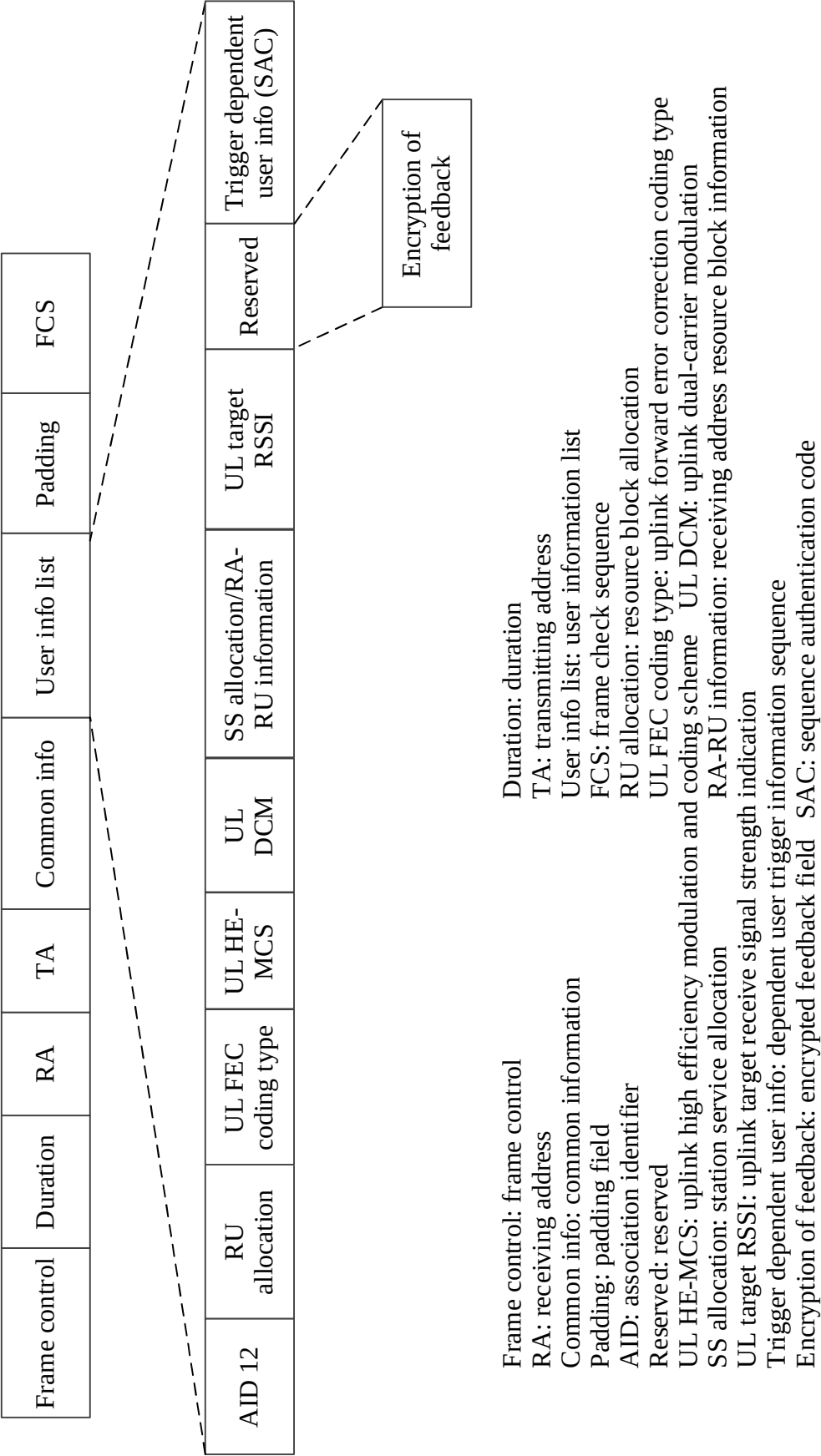


FIG. 15

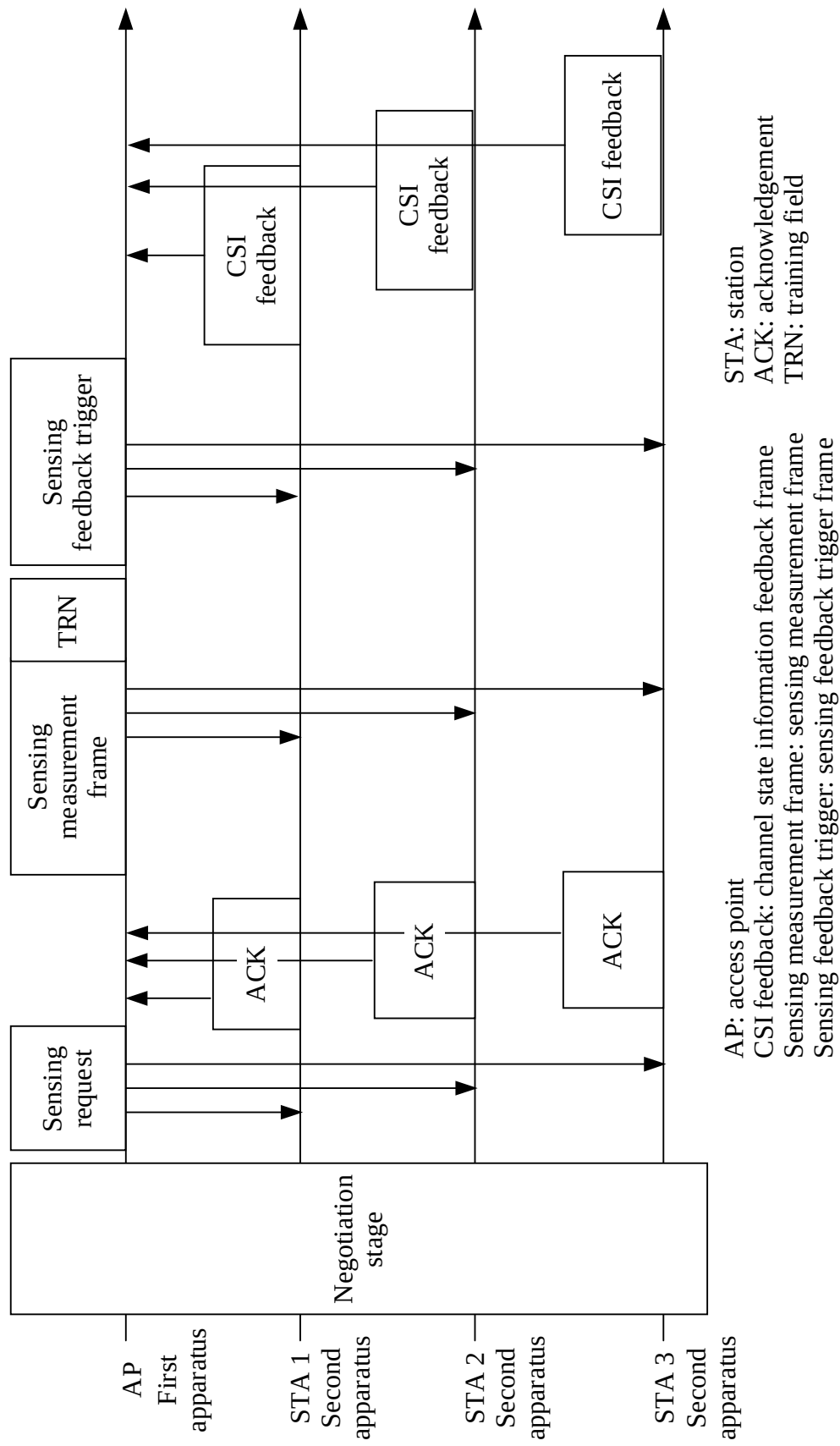
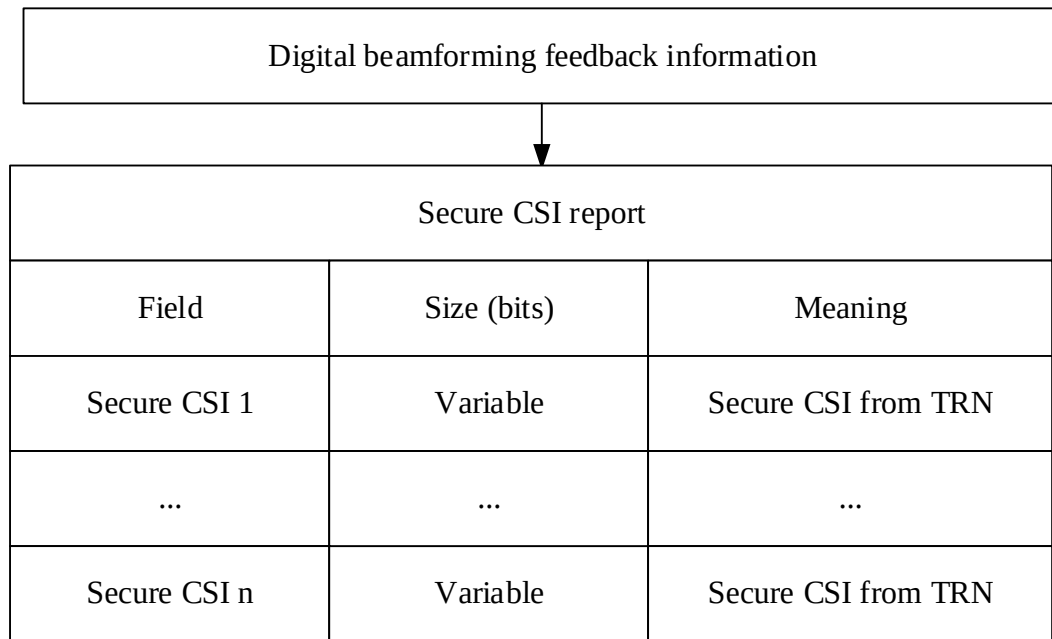


FIG. 16



Secure CSI report: secure channel state information report

Field: field

Secure LTF from TRN: secure long training field from a training field

Meaning: meaning

Digital beamforming feedback information: digital beamforming feedback information

Variable: variable

Secure CSI: secure channel state information

Size: size

FIG. 17(a)

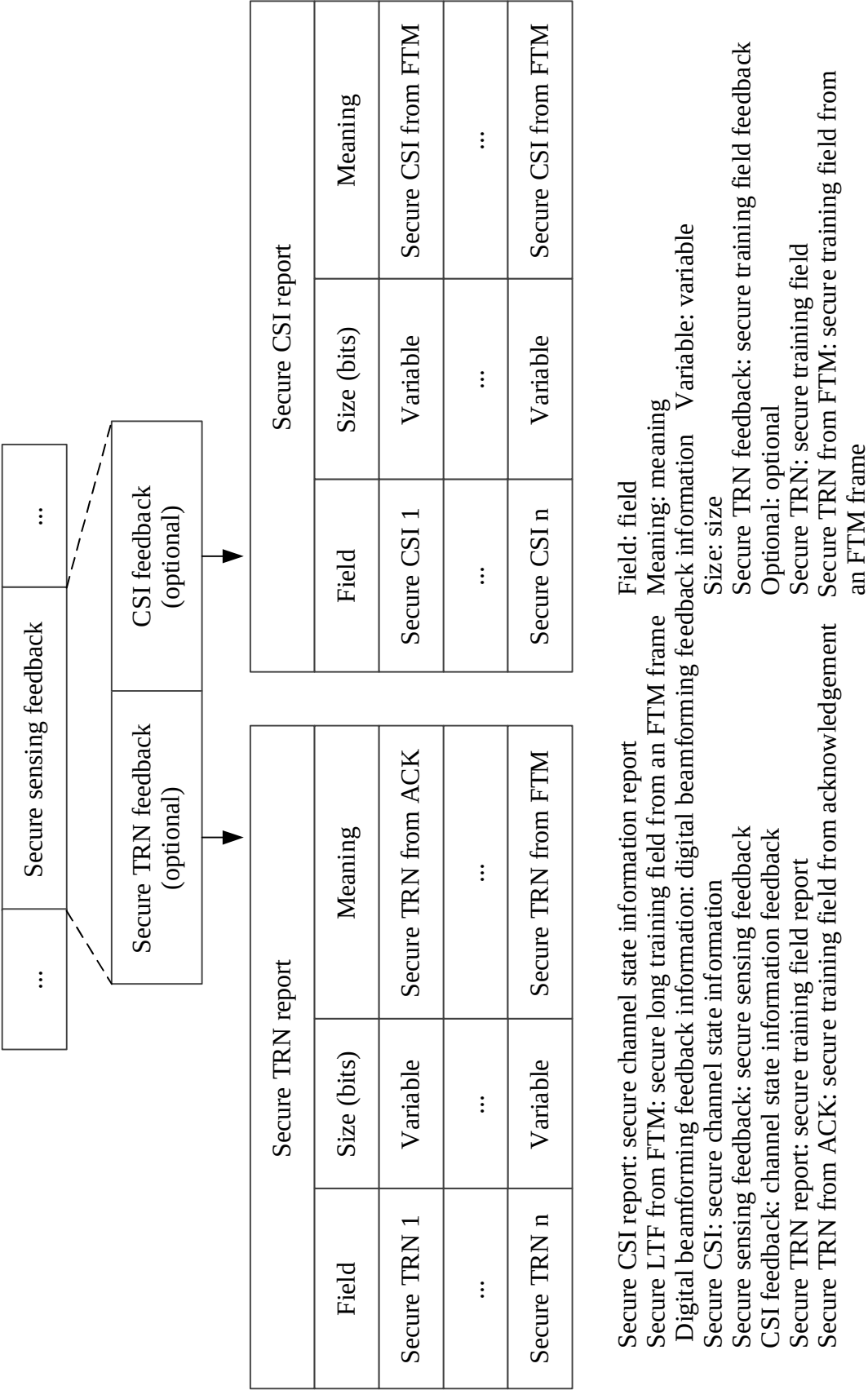


FIG. 17(b)

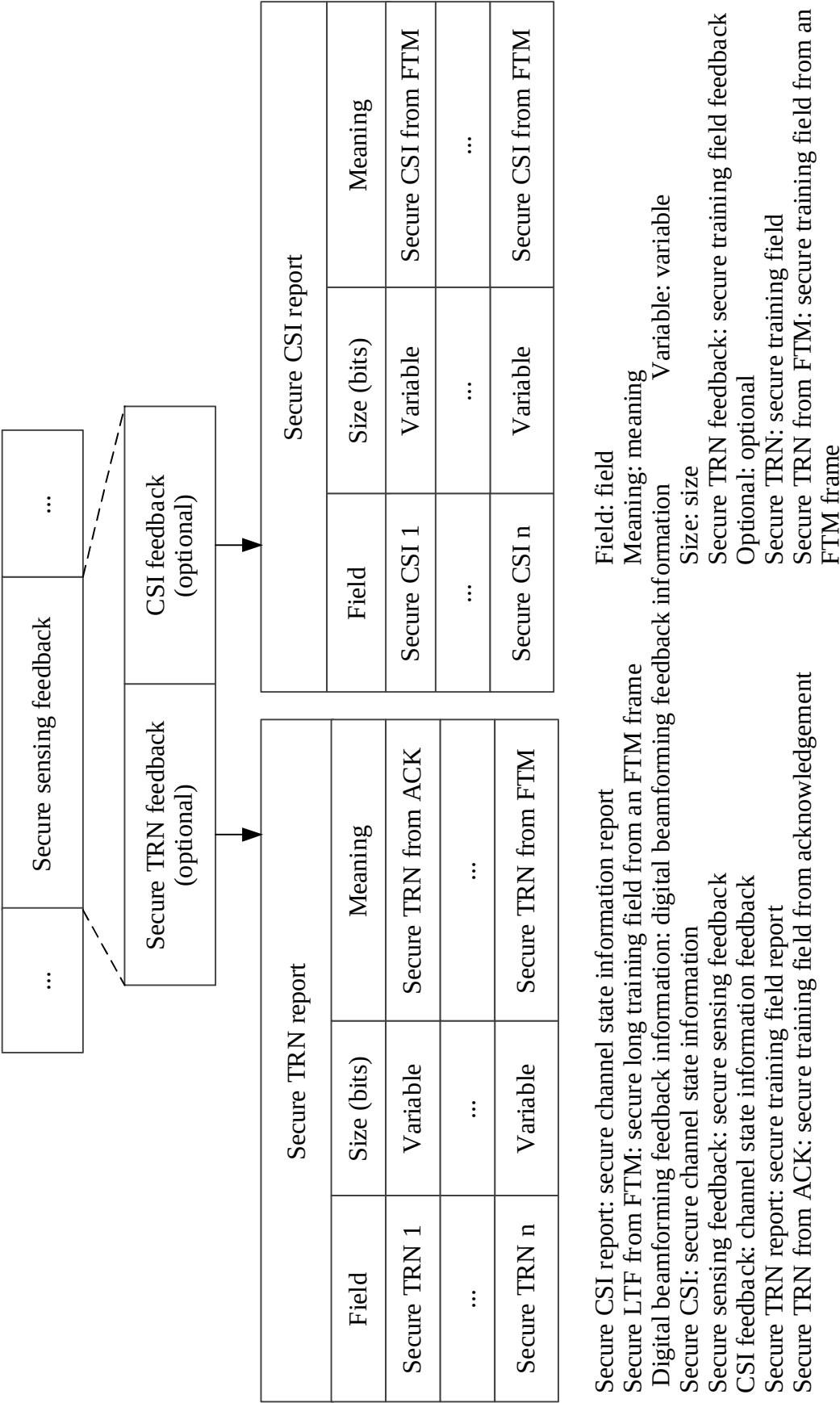
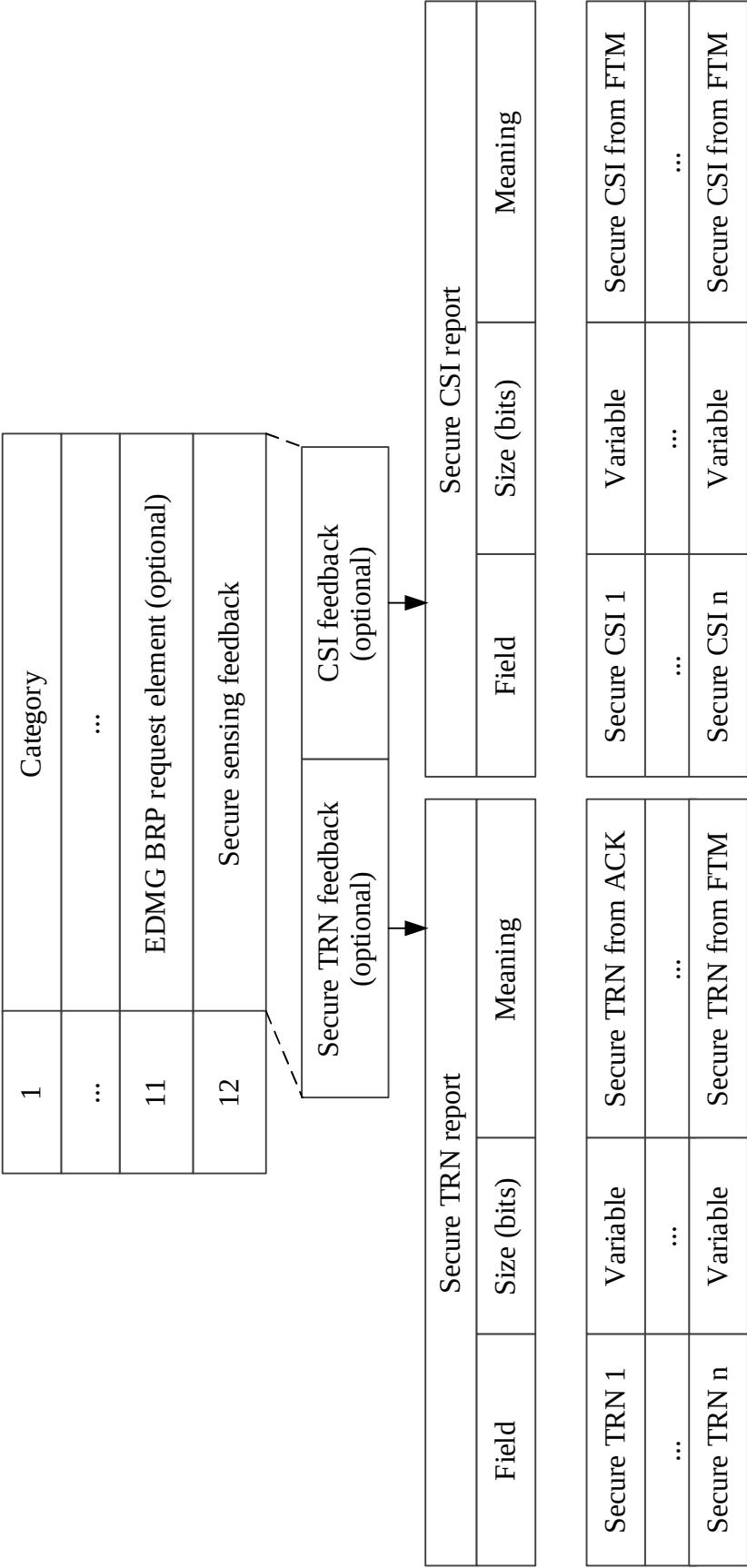
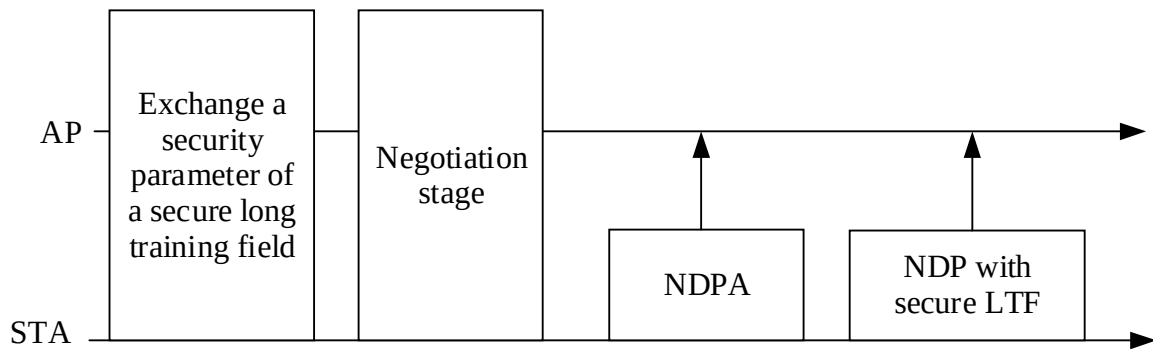


FIG. 17(c)



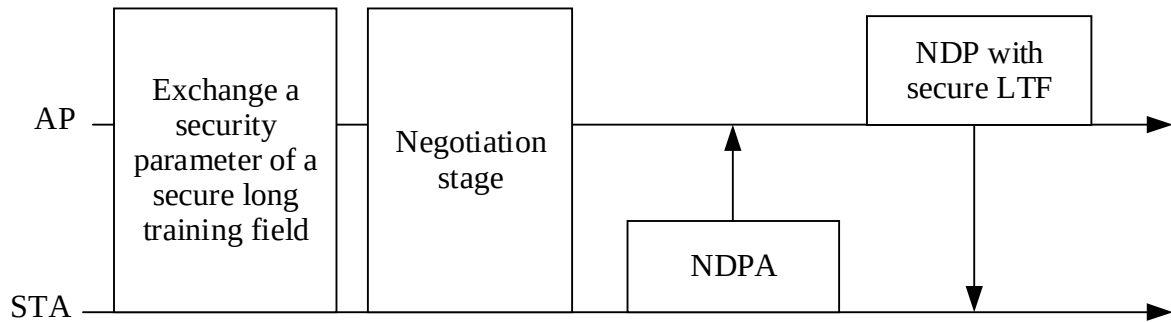
Category: category EDMG BRP request element: enhanced directional multi-gigabit beam refinement protocol element
Secure CSI report: secure channel state information report Field: field
Secure LTF from FTM: secure long training field from an FTM frame Meaning: meaning
Digital beamforming feedback information: digital beamforming feedback information Variable: variable
Secure CSI: secure channel state information Size: size
Secure sensing feedback: secure sensing feedback Secure TRN feedback: secure training field feedback
CSI feedback: channel state information feedback Optional: optional
Secure TRN report: secure training field report Secure TRN: secure training field
Secure TRN from ACK: secure training field from acknowledgement Secure TRN from FTM: secure training field from an FTM frame

FIG. 17(d)



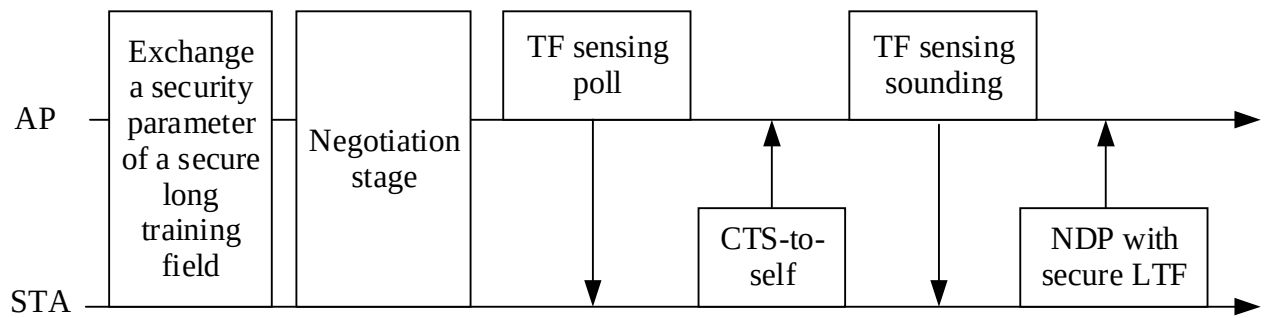
AP: access point
 NDPA: null data packet announcement frame
 STA: station
 NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 18(a)



AP: access point
 NDPA: null data packet announcement frame
 STA: station
 NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 18(b)



AP: access point

STA: station

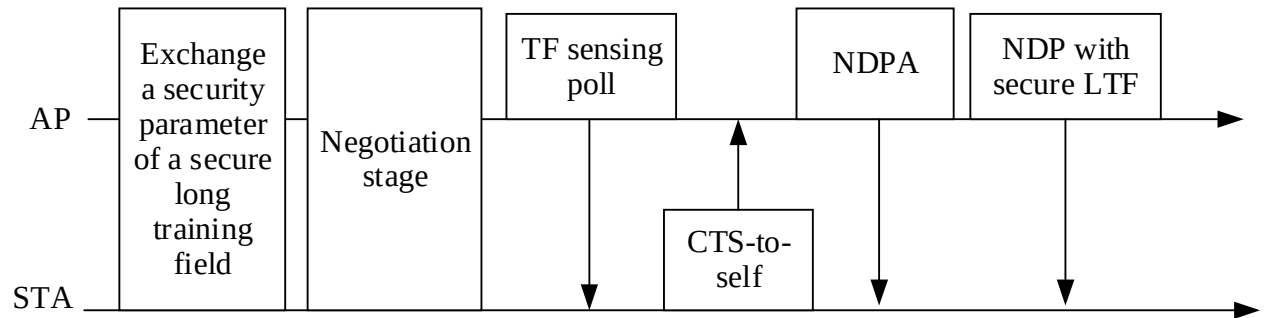
CTS-to-self: clear-to-send-to-self

TF sensing sounding: sensing sounding frame

TF sensing poll: sensing poll frame

NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 18(c)



AP: access point

STA: station

CTS-to-self: clear-to-send-to-self

TF sensing sounding: sensing sounding frame

TF sensing poll: sensing poll frame

NDPA: null data packet announcement frame

NDP with secure LTF: null data packet frame that carries a secure long training field

FIG. 18(d)

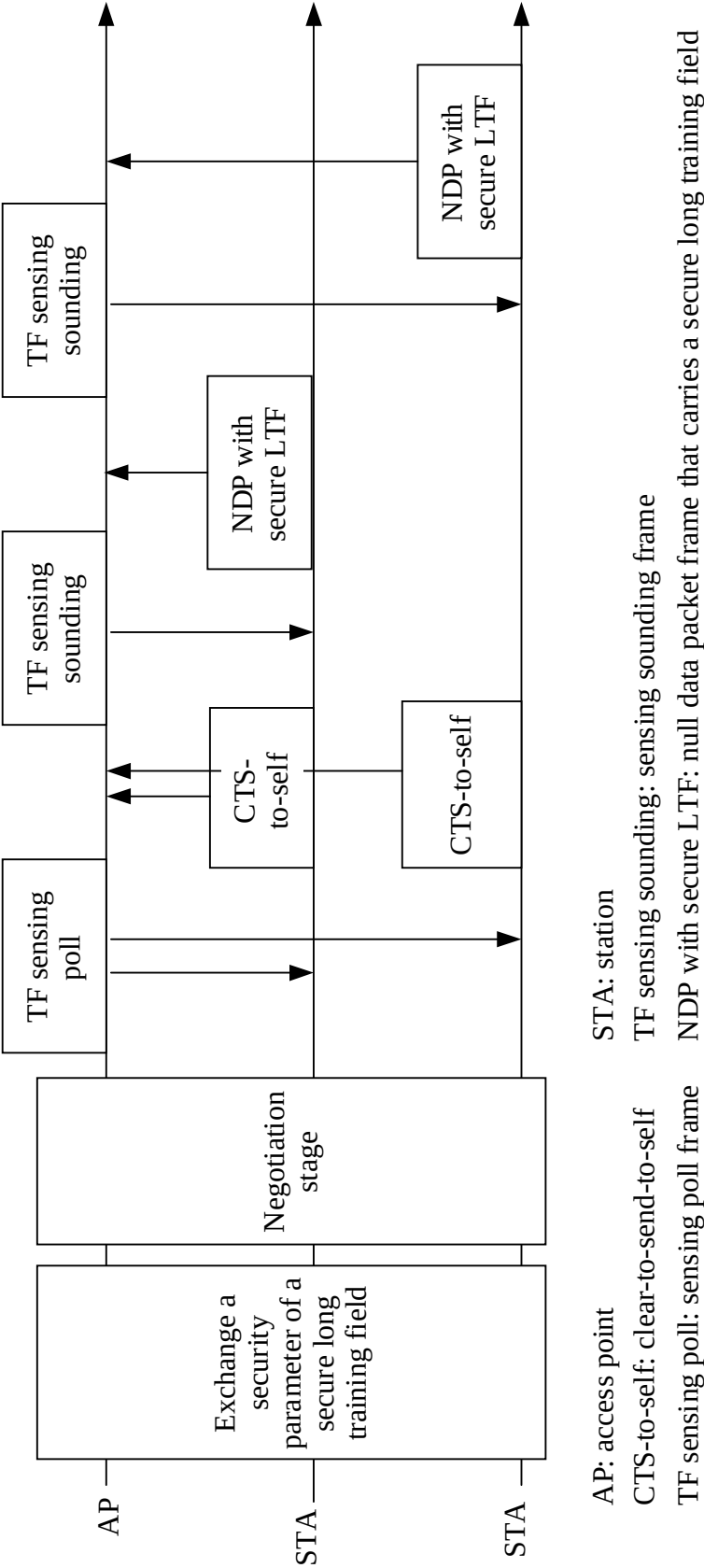


FIG. 18(e)

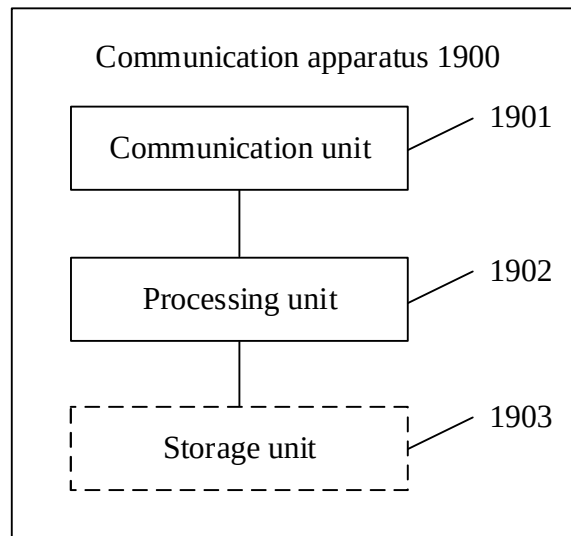


FIG. 19

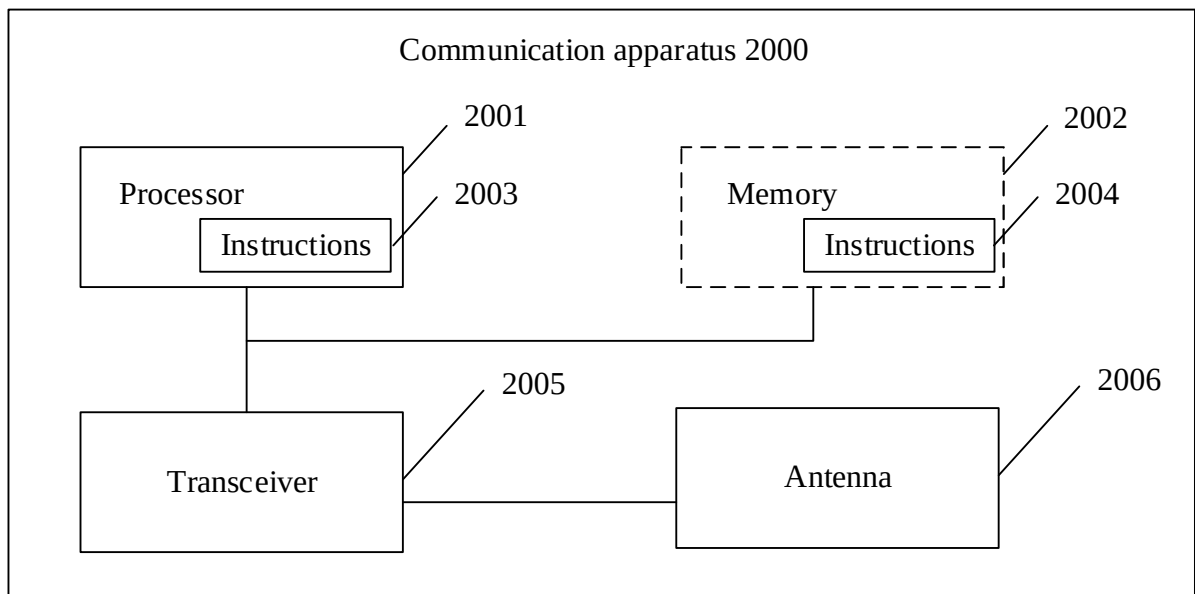


FIG. 20