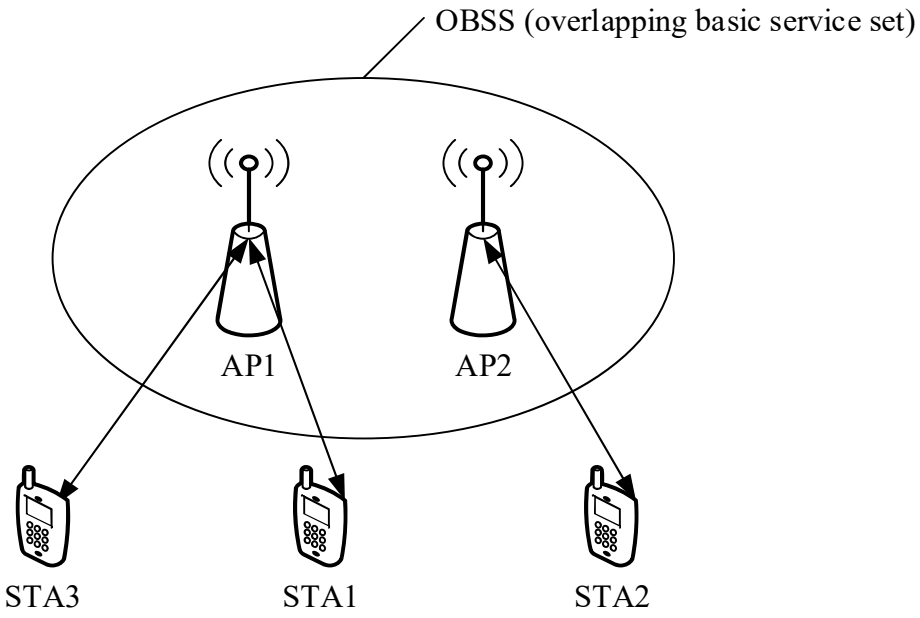


FIG. 1

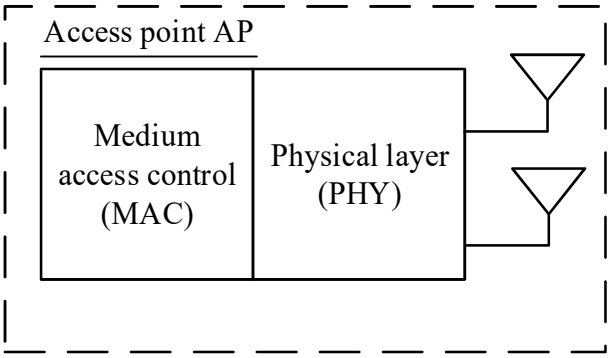


FIG. 2a

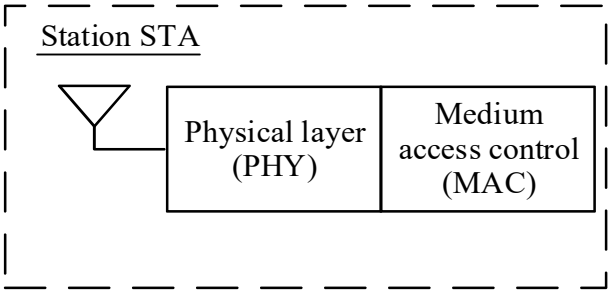


FIG. 2b

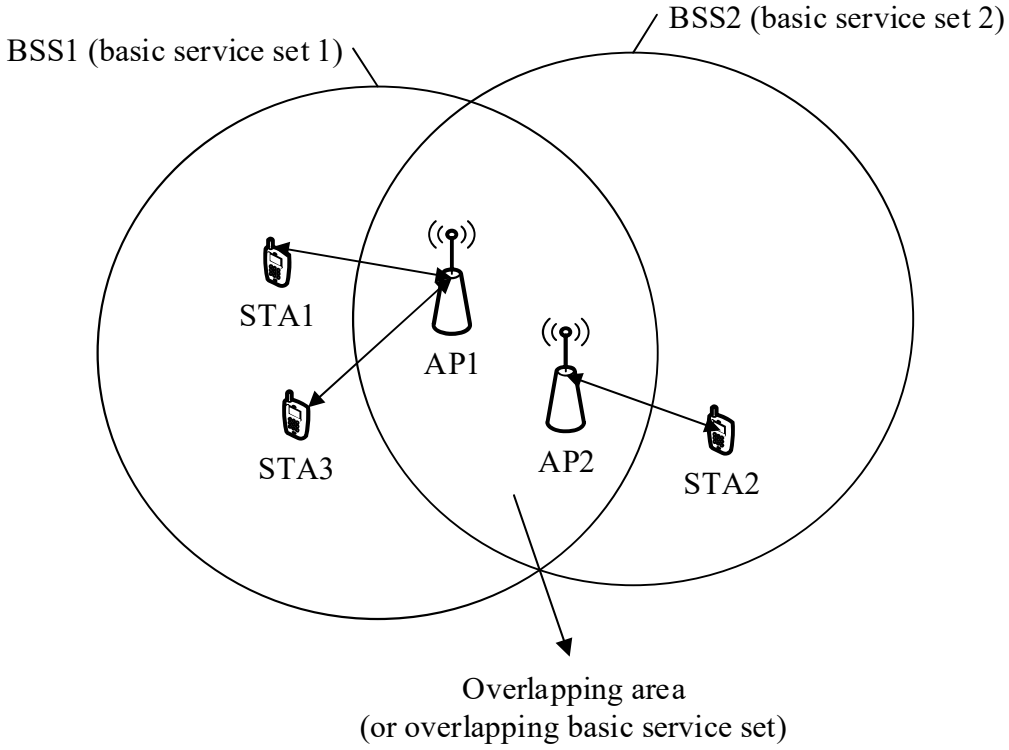

BSS1 (basic service set 1)
BSS2 (basic service set 2)
STA1
AP1
STA3
AP2
STA2
Overlapping area
(or overlapping basic service set)

FIG. 3a

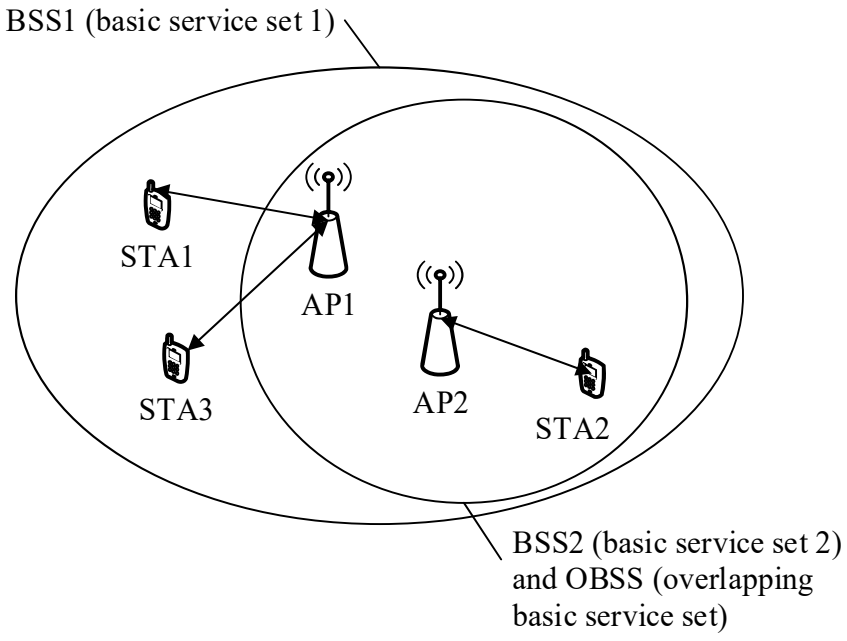

BSS1 (basic service set 1)
STA1
AP1
STA3
AP2
STA2
BSS2 (basic service set 2)
and OBSS (overlapping
basic service set)

FIG. 3b

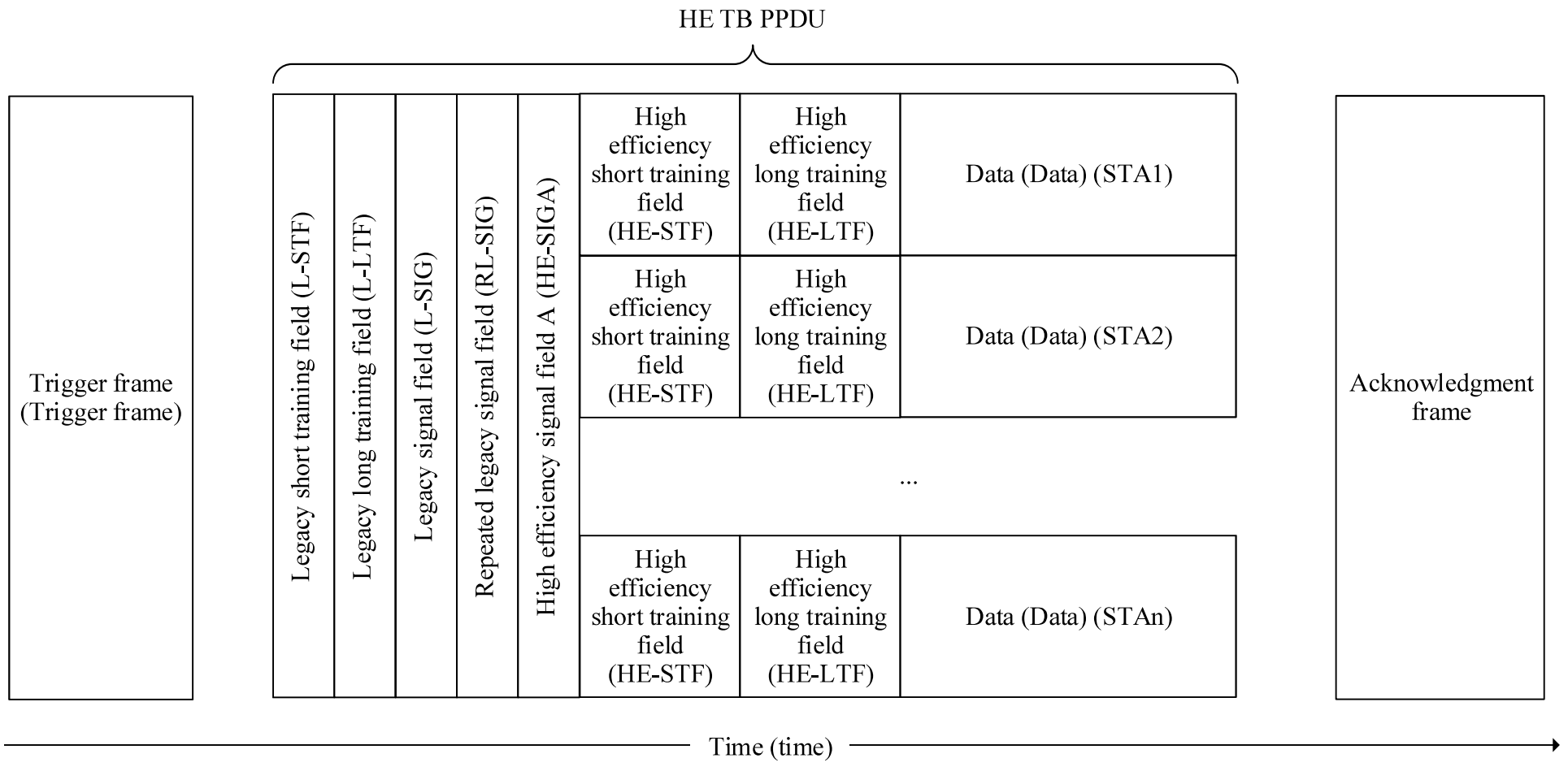

HE TB PPDU
Trigger frame
(Trigger frame)
Legacy short training field (L-STF)
Legacy long training field (L-LTF)
Legacy signal field (L-SIG)
Repeated legacy signal field (RL-SIG)
High efficiency signal field A (HE-SIGA)
High efficiency short training field (HE-STF)
High efficiency long training field (HE-LTF)
Data (Data) (STA1)
High efficiency short training field (HE-STF)
High efficiency long training field (HE-LTF)
Data (Data) (STA2)
...
High efficiency short training field (HE-STF)
High efficiency long training field (HE-LTF)
Data (Data) (STAn)
Acknowledgment frame
Time (time)

FIG. 4

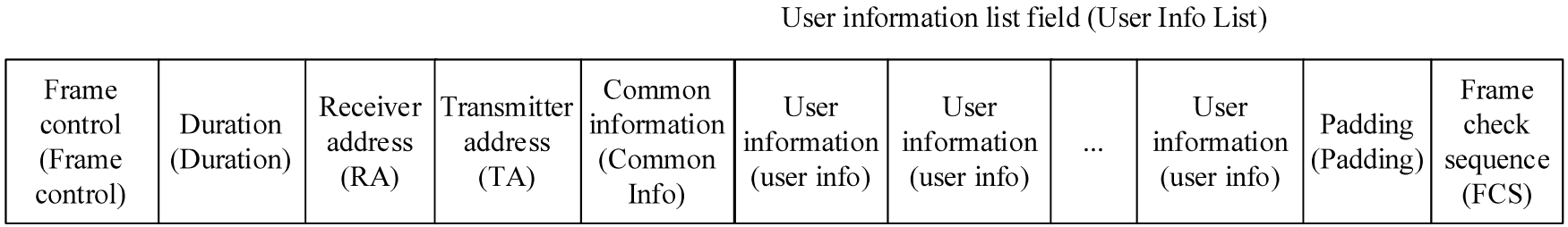

User information list field (User Info List)
Frame control (Frame control)
Duration (Duration)
Receiver address (RA)
Transmitter address (TA)
Common information (Common Info)
User information (user info)
User information (user info)
...
User information (user info)
Padding (Padding)
Frame check sequence (FCS)

FIG. 5a

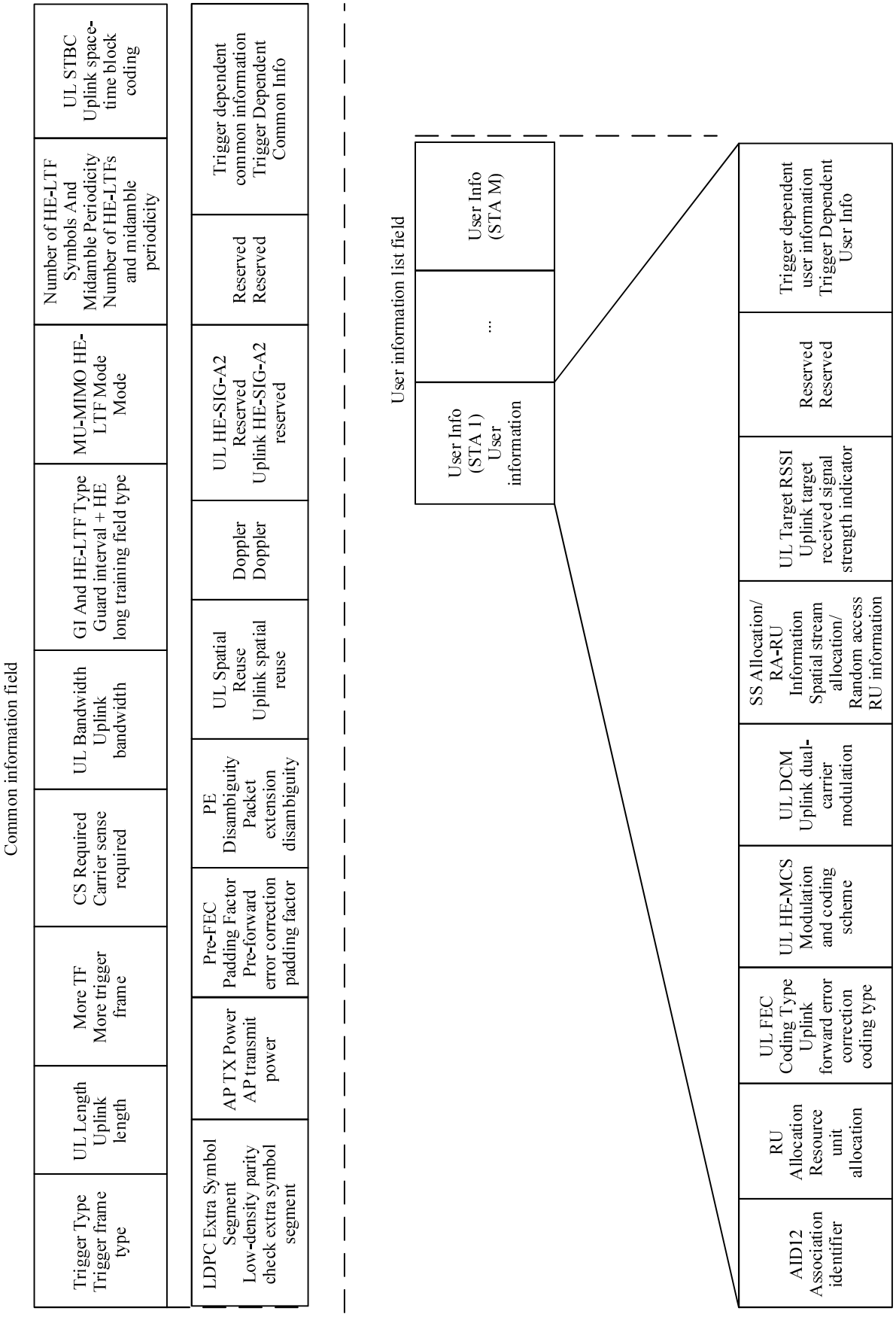

Common information field
Trigger Type
Trigger frame type
UL Length
Uplink length
More TF
More trigger frame
CS Required
Carrier sense required
UL Bandwidth
Uplink bandwidth
GI And HE-LTF Type
Guard interval + HE long training field type
MU-MIMO HE-LTF Mode
Mode
Number of HE-LTF Symbols And Midamble Periodicity
Number of HE-LTFs and midamble periodicity
UL STBC
Uplink space-time block coding
LDPC Extra Symbol Segment
Low-density parity check extra symbol segment
AP TX Power
AP transmit power
Pre-FEC Padding Factor
Pre-forward error correction padding factor
PE Disambiguity
Packet extension disambiguity
UL Spatial Reuse
Uplink spatial reuse
Doppler
Doppler
UL HE-SIG-A2 Reserved
Uplink HE-SIG-A2 reserved
Reserved
Reserved
Trigger dependent common information
Trigger Dependent Common Info
User information list field
User Info (STA 1)
User information
...
User Info (STA M)
AID12
Association identifier
RU Allocation
Resource unit allocation
UL FEC Coding Type
Uplink forward error correction coding type
UL HE-MCS
Modulation and coding scheme
UL DCM
Uplink dual-carrier modulation
SS Allocation/ RA-RU Information
Spatial stream allocation/ Random access RU information
UL Target RSSI
Uplink target received signal strength indicator
Reserved
Reserved
Trigger dependent user information
Trigger Dependent User Info

FIG. 5b

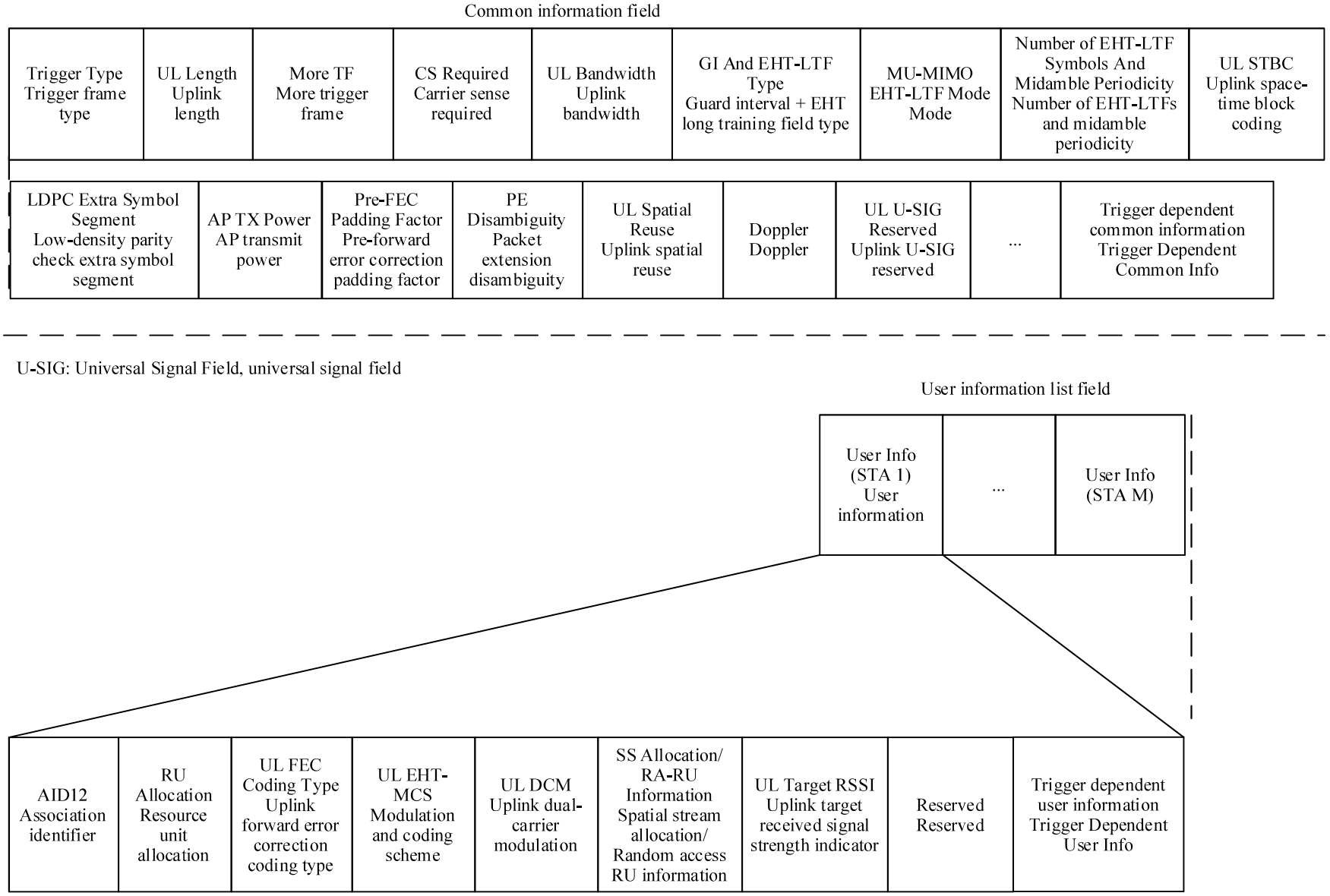

Common information field
Trigger Type
Trigger frame type
UL Length
Uplink length
More TF
More trigger frame
CS Required
Carrier sense required
UL Bandwidth
Uplink bandwidth
GI And EHT-LTF Type
Guard interval + EHT long training field type
MU-MIMO
EHT-LTF Mode
Mode
Number of EHT-LTF Symbols And Midamble Periodicity
Number of EHT-LTFs and midamble periodicity
UL STBC
Uplink space-time block coding
LDPC Extra Symbol Segment
Low-density parity check extra symbol segment
AP TX Power
AP transmit power
Pre-FEC Padding Factor
Pre-forward error correction padding factor
PE Disambiguity
Packet extension disambiguity
UL Spatial Reuse
Uplink spatial reuse
Doppler
Doppler
UL U-SIG Reserved
Uplink U-SIG reserved
...
Trigger dependent common information
Trigger Dependent Common Info
U-SIG: Universal Signal Field, universal signal field
User information list field
User Info (STA 1)
User information
...
User Info (STA M)
AID12
Association identifier
RU Allocation
Resource unit allocation
UL FEC Coding Type
Uplink forward error correction coding type
UL EHT-MCS
Modulation and coding scheme
UL DCM
Uplink dual-carrier modulation
SS Allocation/ RA-RU Information
Spatial stream allocation/ Random access RU information
UL Target RSSI
Uplink target received signal strength indicator
Reserved
Reserved
Trigger dependent user information
Trigger Dependent User Info

FIG. 6a

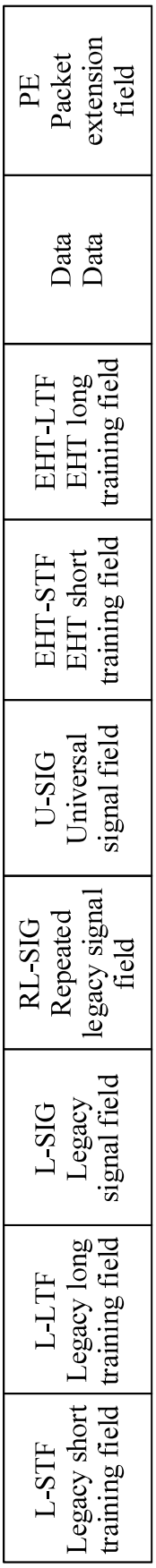

L-STF
Legacy short training field
L-LTF
Legacy long training field
L-SIG
Legacy signal field
RL-SIG
Repeated legacy signal field
U-SIG
Universal signal field
EHT-STF
EHT short training field
EHT-LTF
EHT long training field
Data
Data
PE
Packet extension field

FIG. 6b

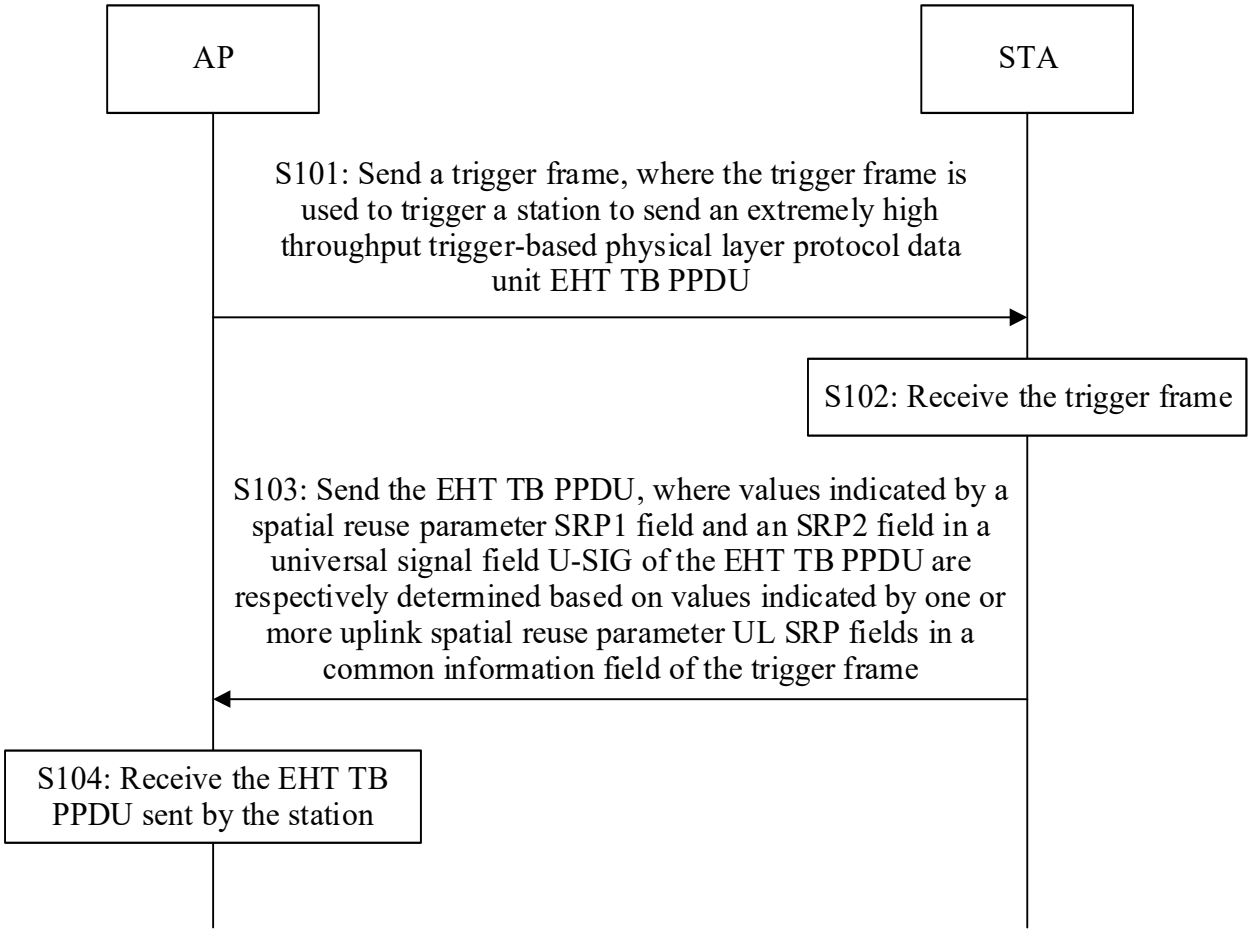

AP
STA
S101: Send a trigger frame, where the trigger frame is used to trigger a station to send an extremely high throughput trigger-based physical layer protocol data unit EHT TB PPDU
S102: Receive the trigger frame
S103: Send the EHT TB PPDU, where values indicated by a spatial reuse parameter SRP1 field and an SRP2 field in a universal signal field U-SIG of the EHT TB PPDU are respectively determined based on values indicated by one or more uplink spatial reuse parameter UL SRP fields in a common information field of the trigger frame
S104: Receive the EHT TB PPDU sent by the station

FIG. 7

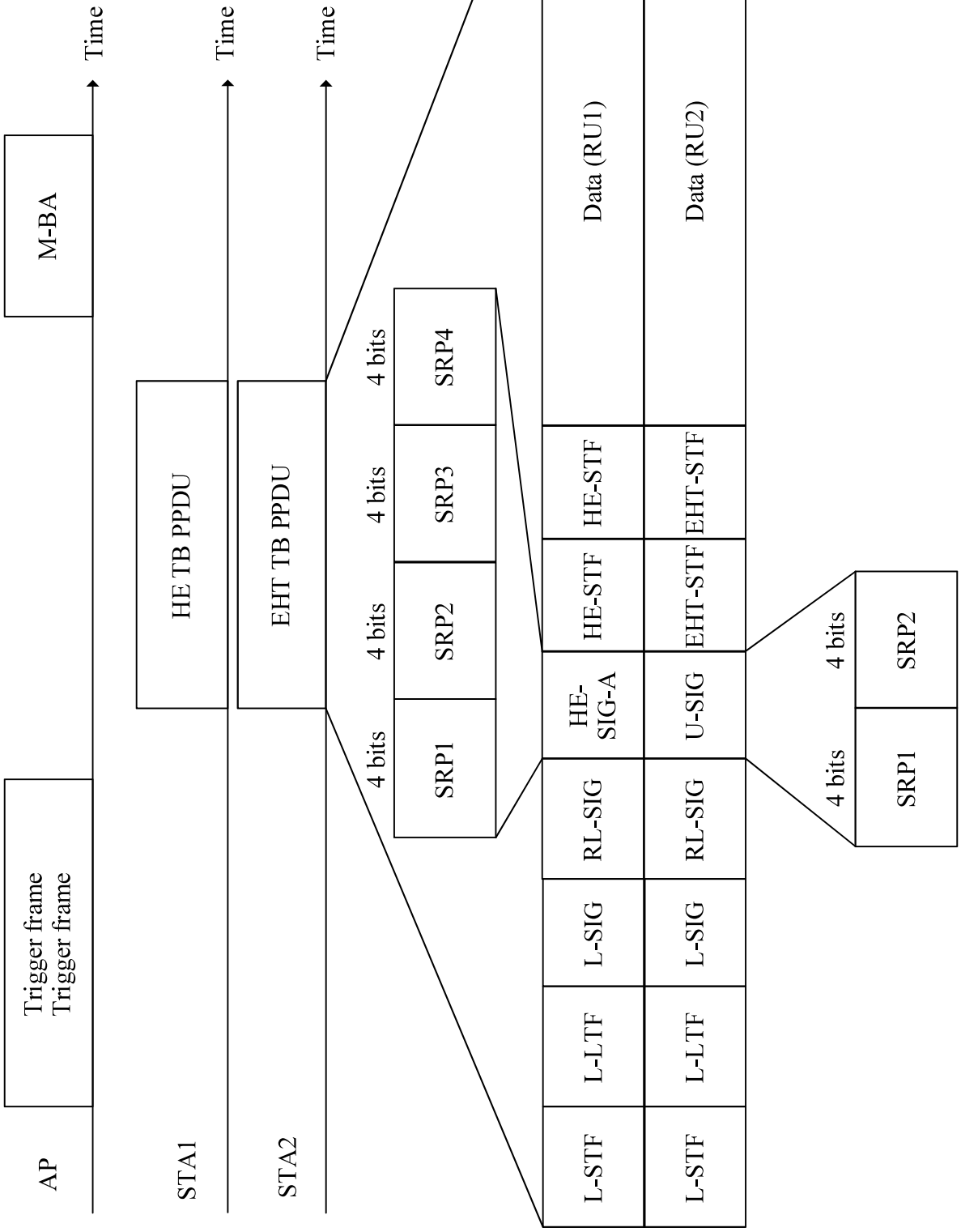

AP
STA1
STA2
Time
Time
Time
Trigger frame
Trigger frame
M-BA
HE TB PPDU
EHT TB PPDU
4 bits
4 bits
4 bits
4 bits
SRP1
SRP2
SRP3
SRP4
L-STF
L-LTF
L-SIG
RL-SIG
HE-SIG-A
HE-STF
Data (RU1)
PE
L-STF
L-LTF
L-SIG
RL-SIG
U-SIG
EHT-STF
Data (RU2)
PE
4 bits
4 bits
SRP1
SRP2

FIG. 8

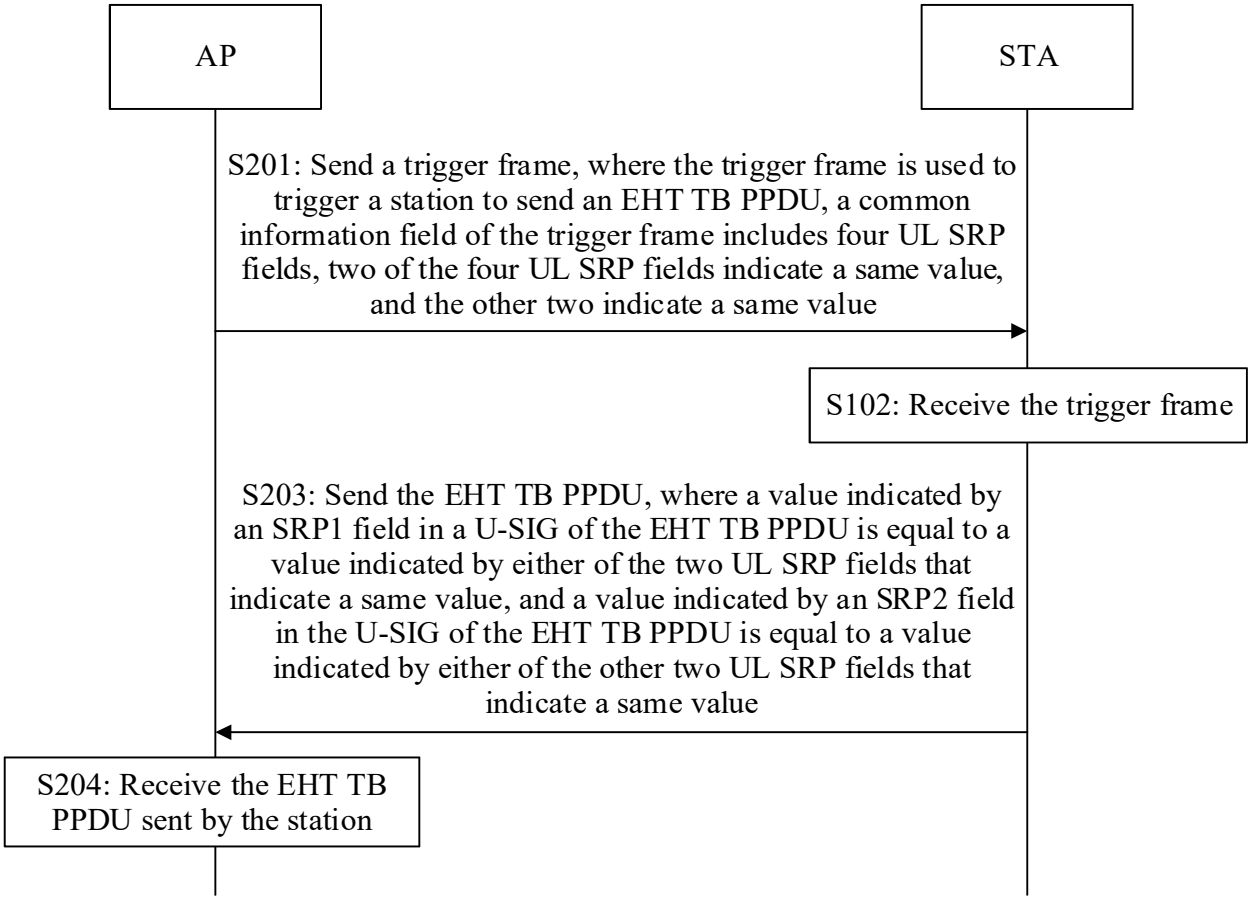

AP
STA
S201: Send a trigger frame, where the trigger frame is used to trigger a station to send an EHT TB PPDU, a common information field of the trigger frame includes four UL SRP fields, two of the four UL SRP fields indicate a same value, and the other two indicate a same value
S102: Receive the trigger frame
S203: Send the EHT TB PPDU, where a value indicated by an SRP1 field in a U-SIG of the EHT TB PPDU is equal to a value indicated by either of the two UL SRP fields that indicate a same value, and a value indicated by an SRP2 field in the U-SIG of the EHT TB PPDU is equal to a value indicated by either of the other two UL SRP fields that indicate a same value
S204: Receive the EHT TB PPDU sent by the station

FIG. 9

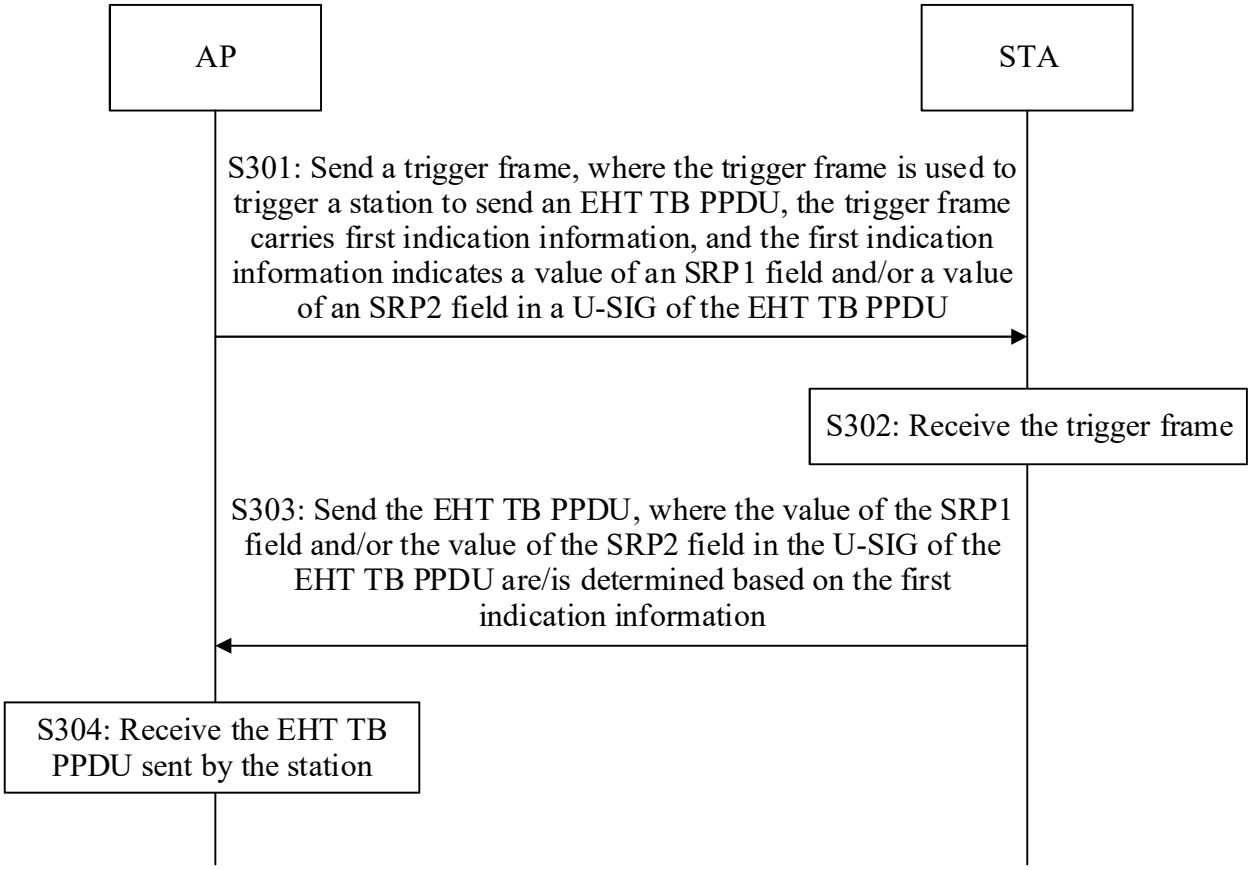


FIG. 10

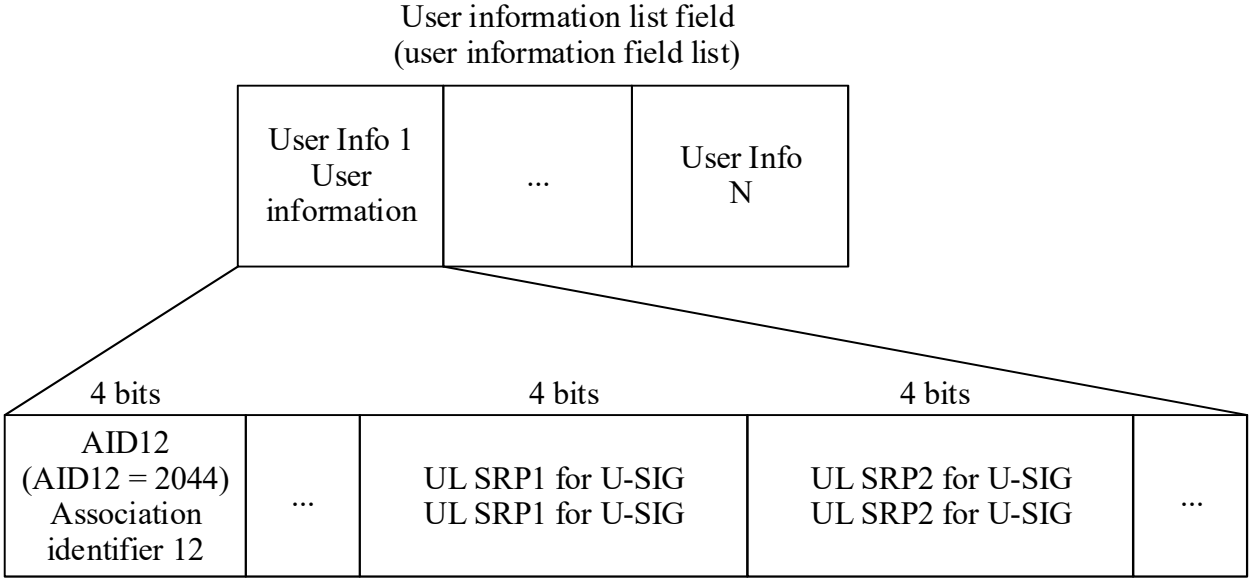


FIG. 11a

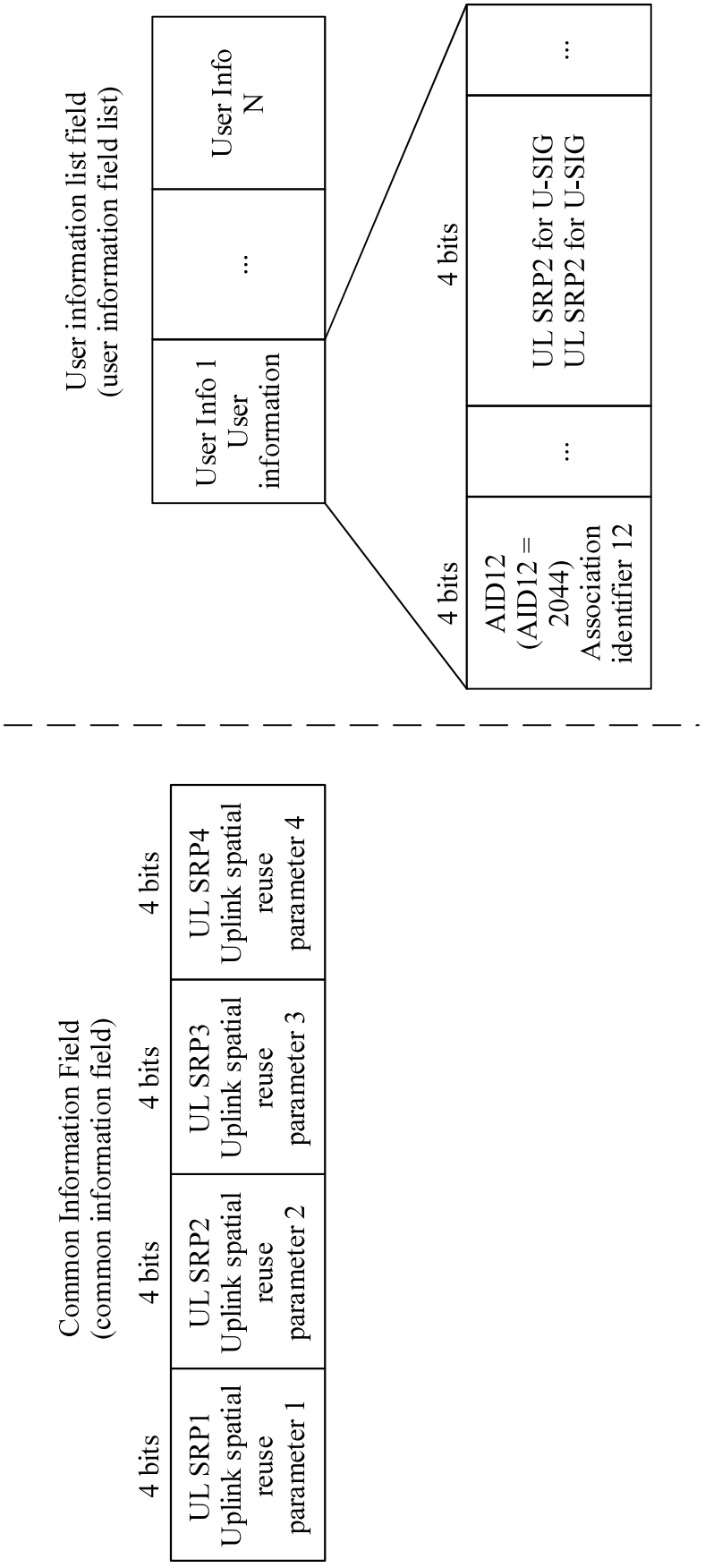

Common Information Field
(common information field)
4 bits
UL SRP1
Uplink spatial reuse parameter 1
4 bits
UL SRP2
Uplink spatial reuse parameter 2
4 bits
UL SRP3
Uplink spatial reuse parameter 3
4 bits
UL SRP4
Uplink spatial reuse parameter 4
User information list field
(user information field list)
User Info 1
User information
...
User Info N
4 bits
AID12
(AID12 = 2044)
Association identifier 12
4 bits
...
4 bits
UL SRP2 for U-SIG
UL SRP2 for U-SIG
...

FIG. 11b

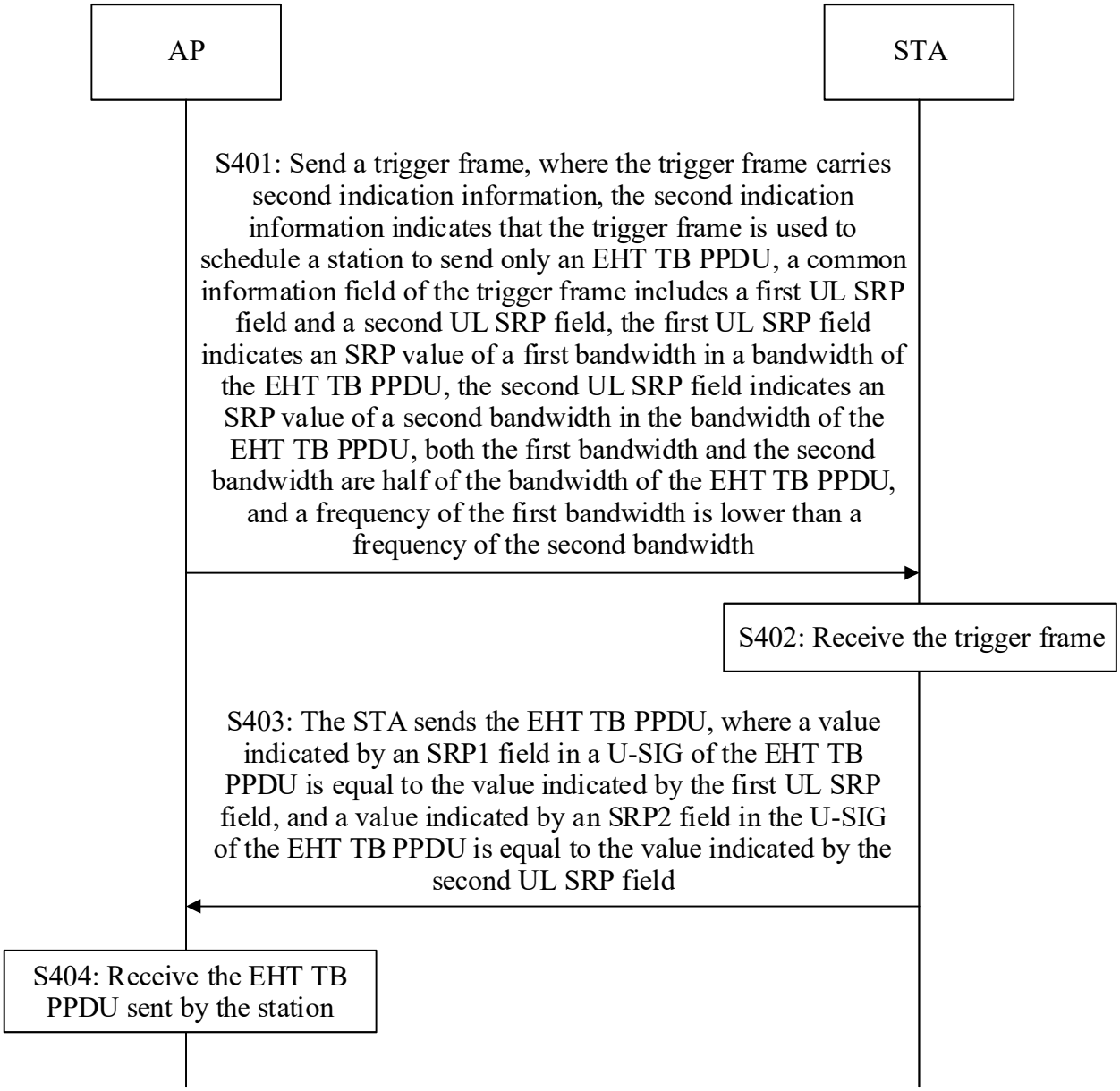

AP
STA
S401: Send a trigger frame, where the trigger frame carries second indication information, the second indication information indicates that the trigger frame is used to schedule a station to send only an EHT TB PPDU, a common information field of the trigger frame includes a first UL SRP field and a second UL SRP field, the first UL SRP field indicates an SRP value of a first bandwidth in a bandwidth of the EHT TB PPDU, the second UL SRP field indicates an SRP value of a second bandwidth in the bandwidth of the EHT TB PPDU, both the first bandwidth and the second bandwidth are half of the bandwidth of the EHT TB PPDU, and a frequency of the first bandwidth is lower than a frequency of the second bandwidth
S402: Receive the trigger frame
S403: The STA sends the EHT TB PPDU, where a value indicated by an SRP1 field in a U-SIG of the EHT TB PPDU is equal to the value indicated by the first UL SRP field, and a value indicated by an SRP2 field in the U-SIG of the EHT TB PPDU is equal to the value indicated by the second UL SRP field
S404: Receive the EHT TB PPDU sent by the station

FIG. 12

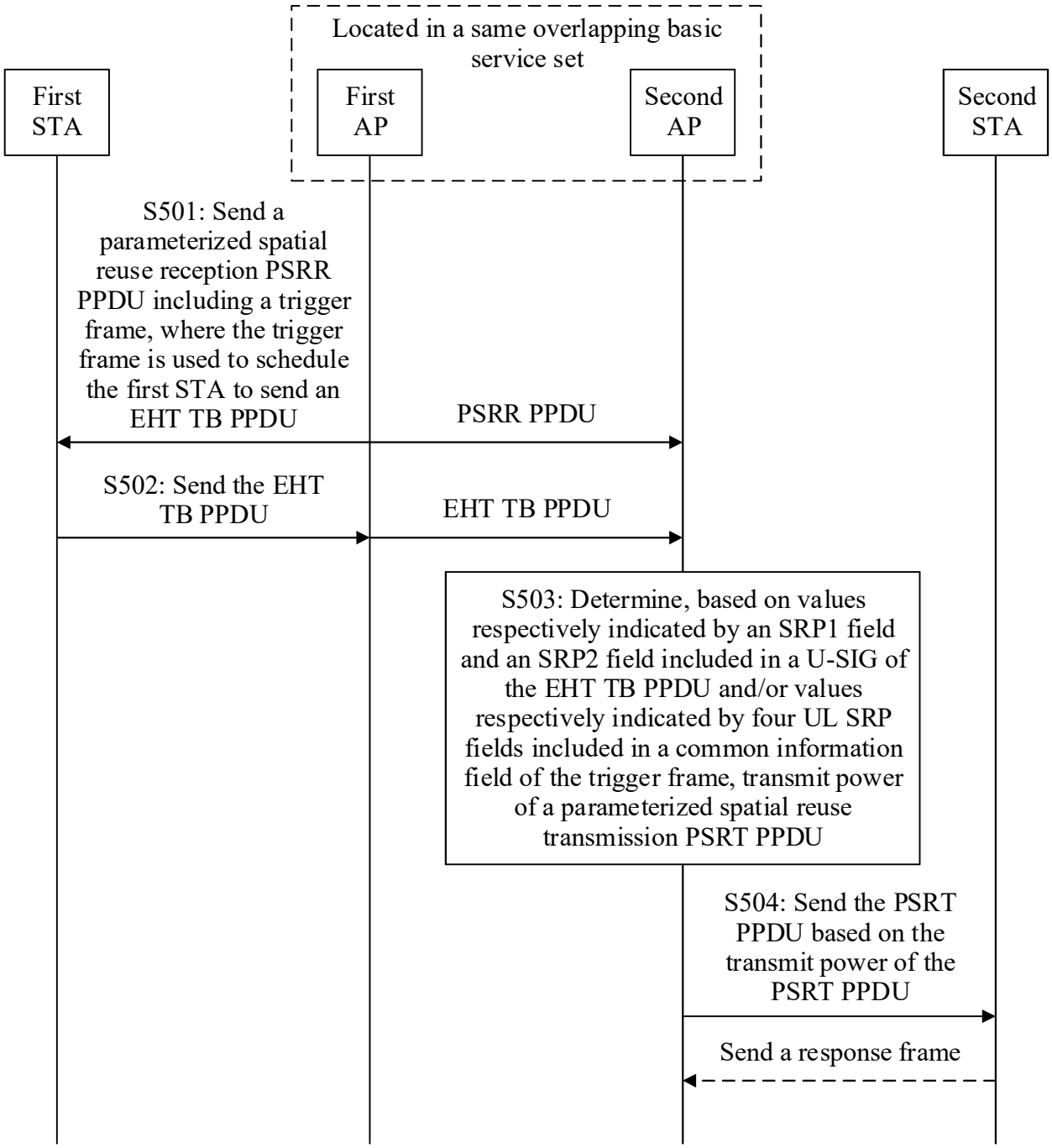
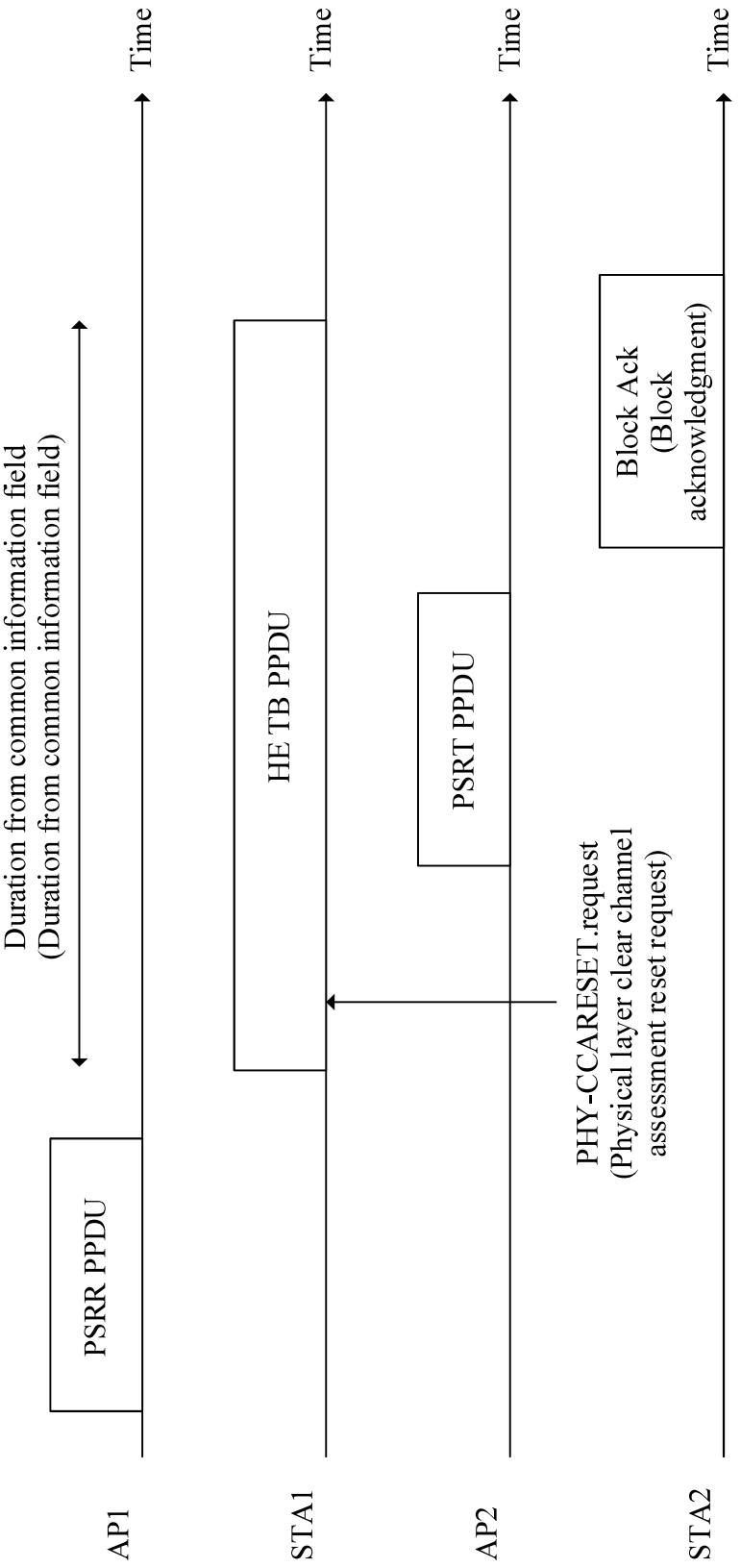

Located in a same overlapping basic service set
First STA
First AP
Second AP
Second STA
S501: Send a parameterized spatial reuse reception PSRR PPDU including a trigger frame, where the trigger frame is used to schedule the first STA to send an EHT TB PPDU
PSRR PPDU
S502: Send the EHT TB PPDU
EHT TB PPDU
S503: Determine, based on values respectively indicated by an SRP1 field and an SRP2 field included in a U-SIG of the EHT TB PPDU and/or values respectively indicated by four UL SRP fields included in a common information field of the trigger frame, transmit power of a parameterized spatial reuse transmission PSRT PPDU
S504: Send the PSRT PPDU based on the transmit power of the PSRT PPDU
Send a response frame

FIG. 13



PSRR PPDU: parameterized spatial reuse reception physical layer protocol data unit
PSRT PPDU: parameterized spatial reuse transmission physical layer protocol data unit
HE TB PPDU: high efficiency trigger-based physical layer protocol data unit

FIG. 14

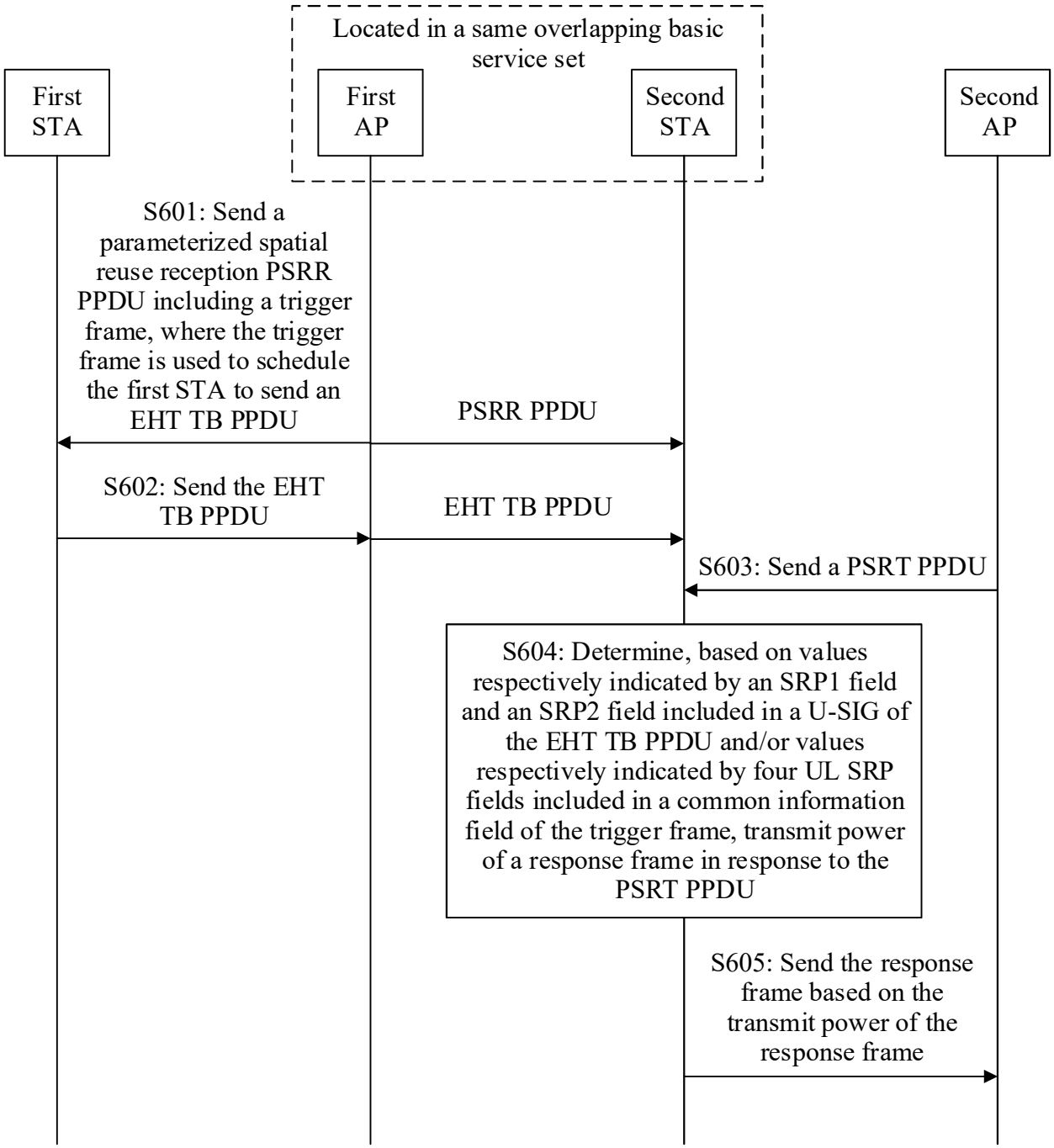

Located in a same overlapping basic service set
First STA
First AP
Second STA
Second AP
S601: Send a parameterized spatial reuse reception PSRR PPDU including a trigger frame, where the trigger frame is used to schedule the first STA to send an EHT TB PPDU
PSRR PPDU
S602: Send the EHT TB PPDU
EHT TB PPDU
S603: Send a PSRT PPDU
S604: Determine, based on values respectively indicated by an SRP1 field and an SRP2 field included in a U-SIG of the EHT TB PPDU and/or values respectively indicated by four UL SRP fields included in a common information field of the trigger frame, transmit power of a response frame in response to the PSRT PPDU
S605: Send the response frame based on the transmit power of the response frame

FIG. 15

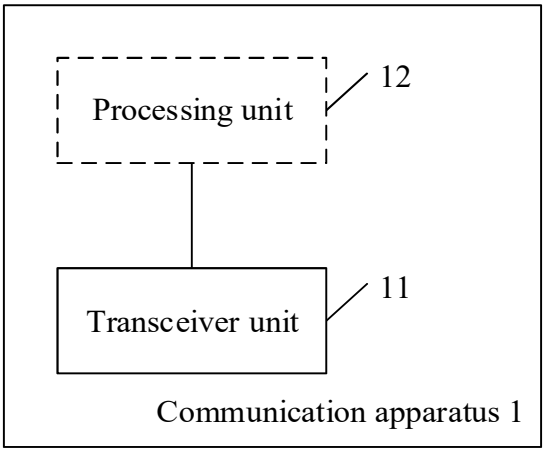

Processing unit
12
Transceiver unit
11
Communication apparatus 1

FIG. 16

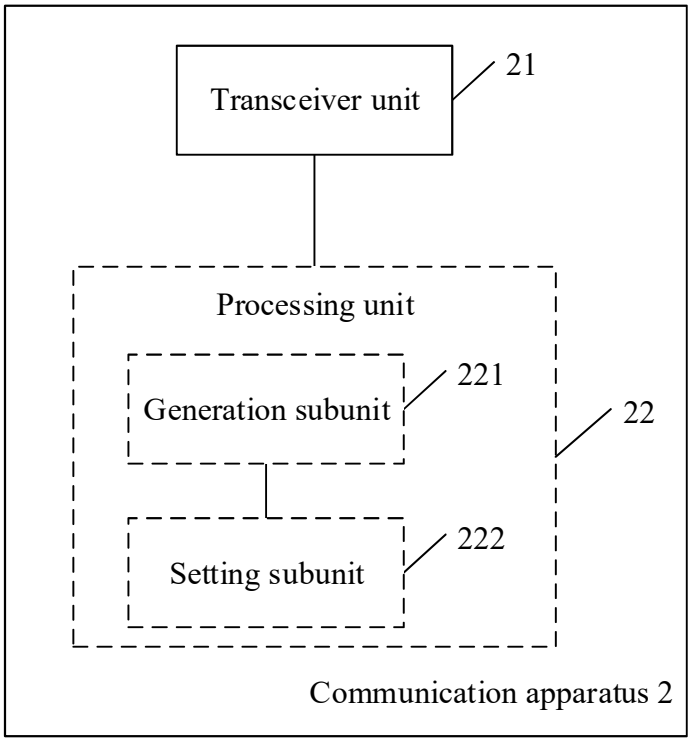

Transceiver unit
21
Processing unit
Generation subunit
221
22
Setting subunit
222
Communication apparatus 2

FIG. 17

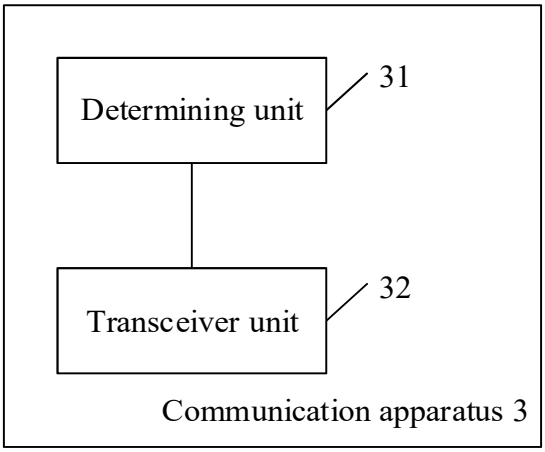

Determining unit
31
Transceiver unit
32
Communication apparatus 3

FIG. 18

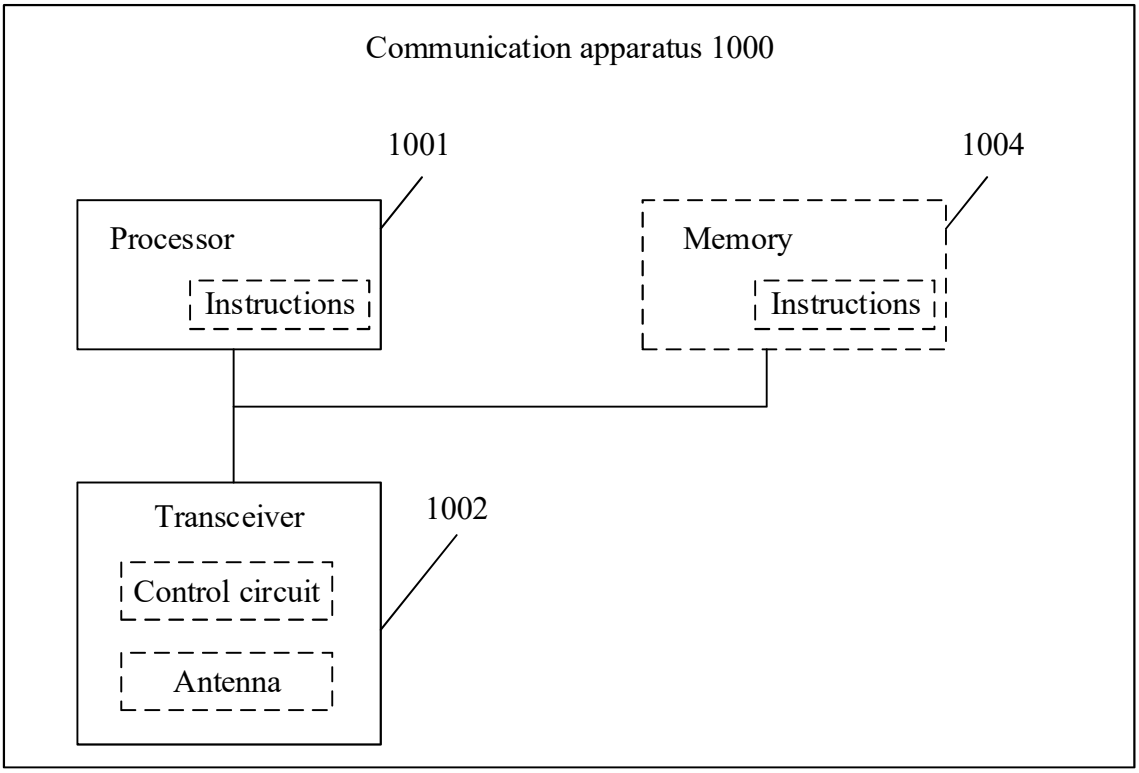

Communication apparatus 1000
1001
Processor
Instructions
1004
Memory
Instructions
Transceiver
1002
Control circuit
Antenna

FIG. 19