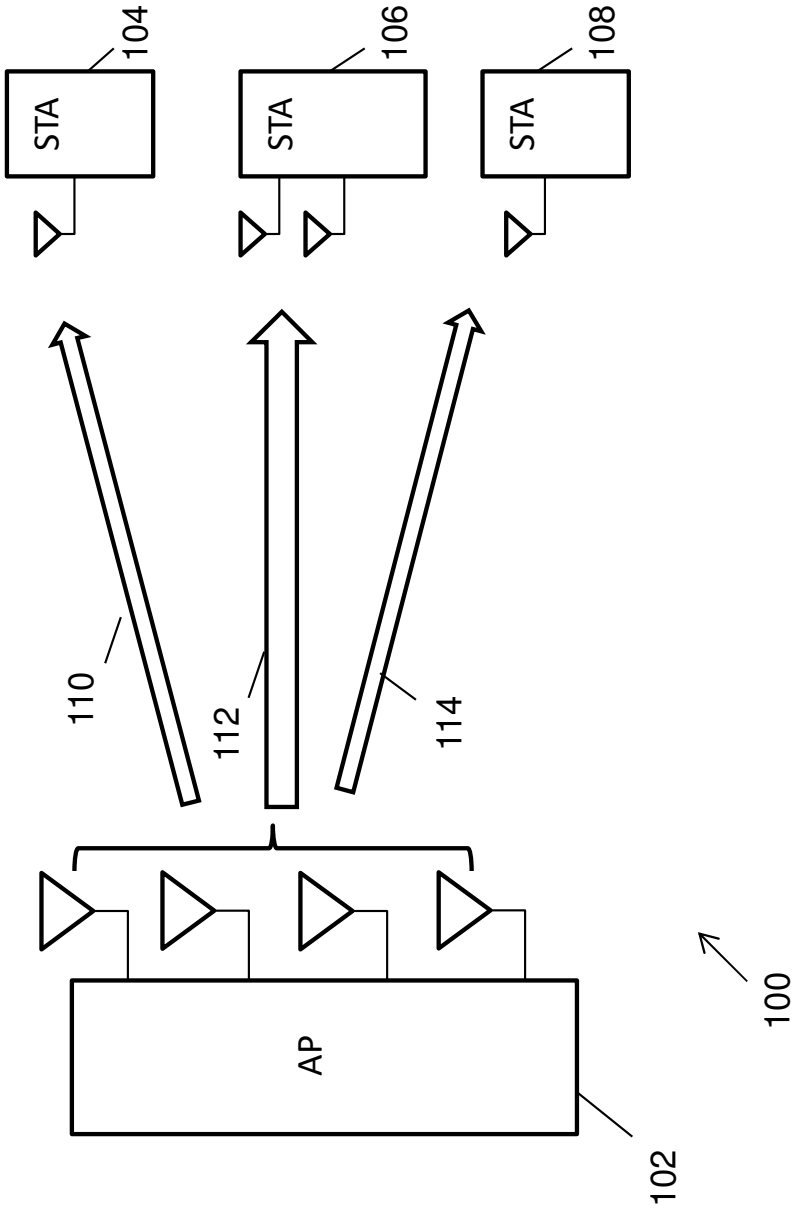


Figure 1

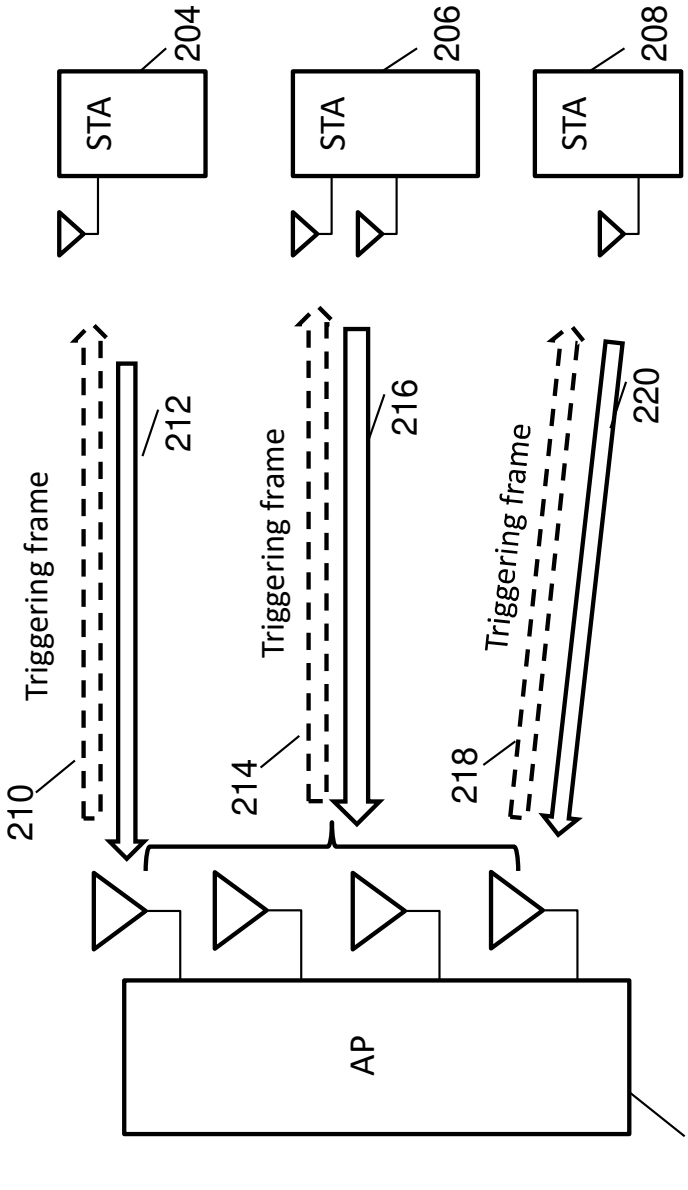

STA
204
STA
206
STA
208
Triggering frame
210
212
Triggering frame
214
216
Triggering frame
218
220
AP
202
200

Figure 2

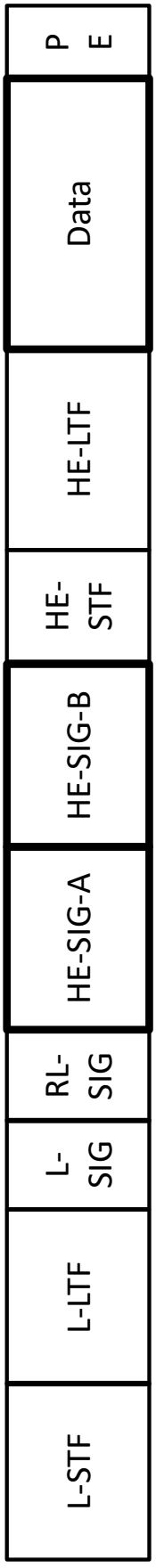


Figure 3A

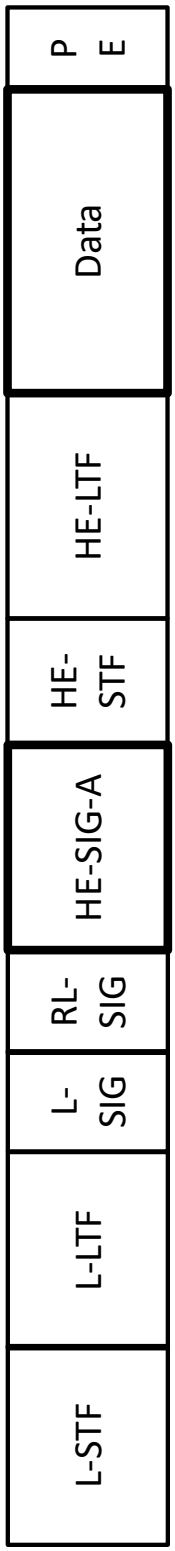


Figure 3B



Figure 4A

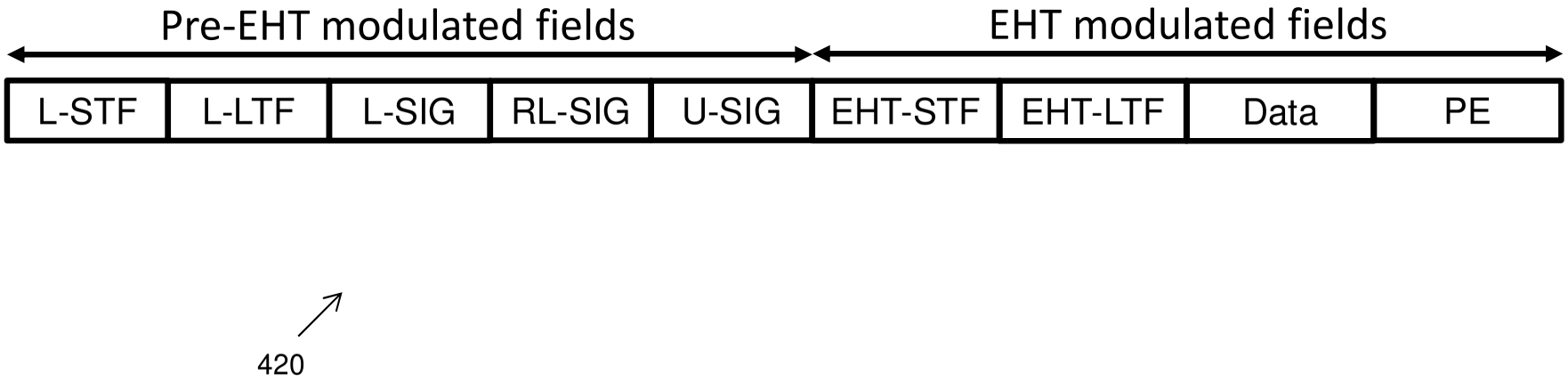


Figure 4B

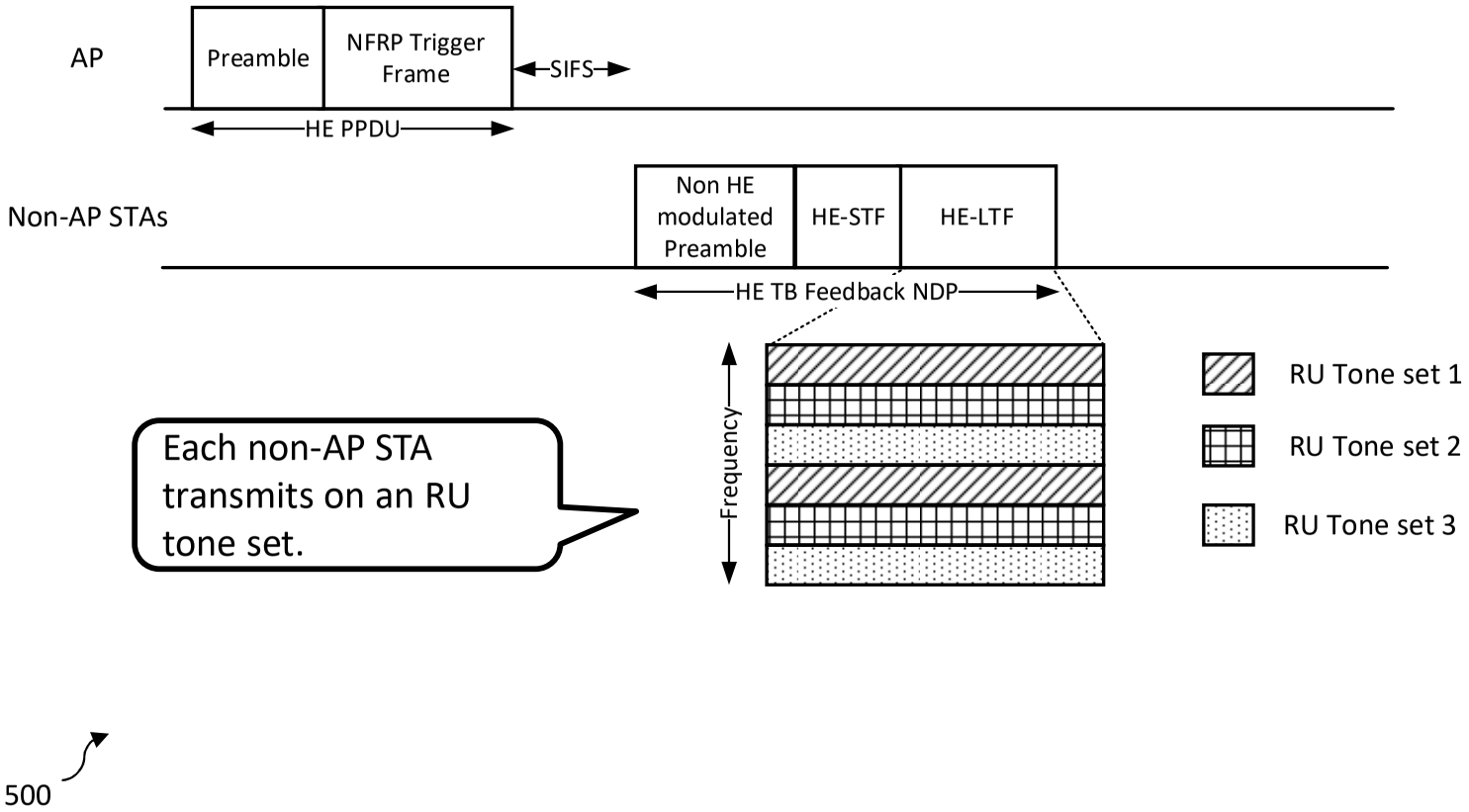

AP
Preamble
NFRP Trigger Frame
SIFS
HE PPDU
Non-AP STAs
Non HE modulated Preamble
HE-STF
HE-LTF
HE TB Feedback NDP
Each non-AP STA transmits on an RU tone set.
Frequency
RU Tone set 1
RU Tone set 2
RU Tone set 3
500

Figure 5

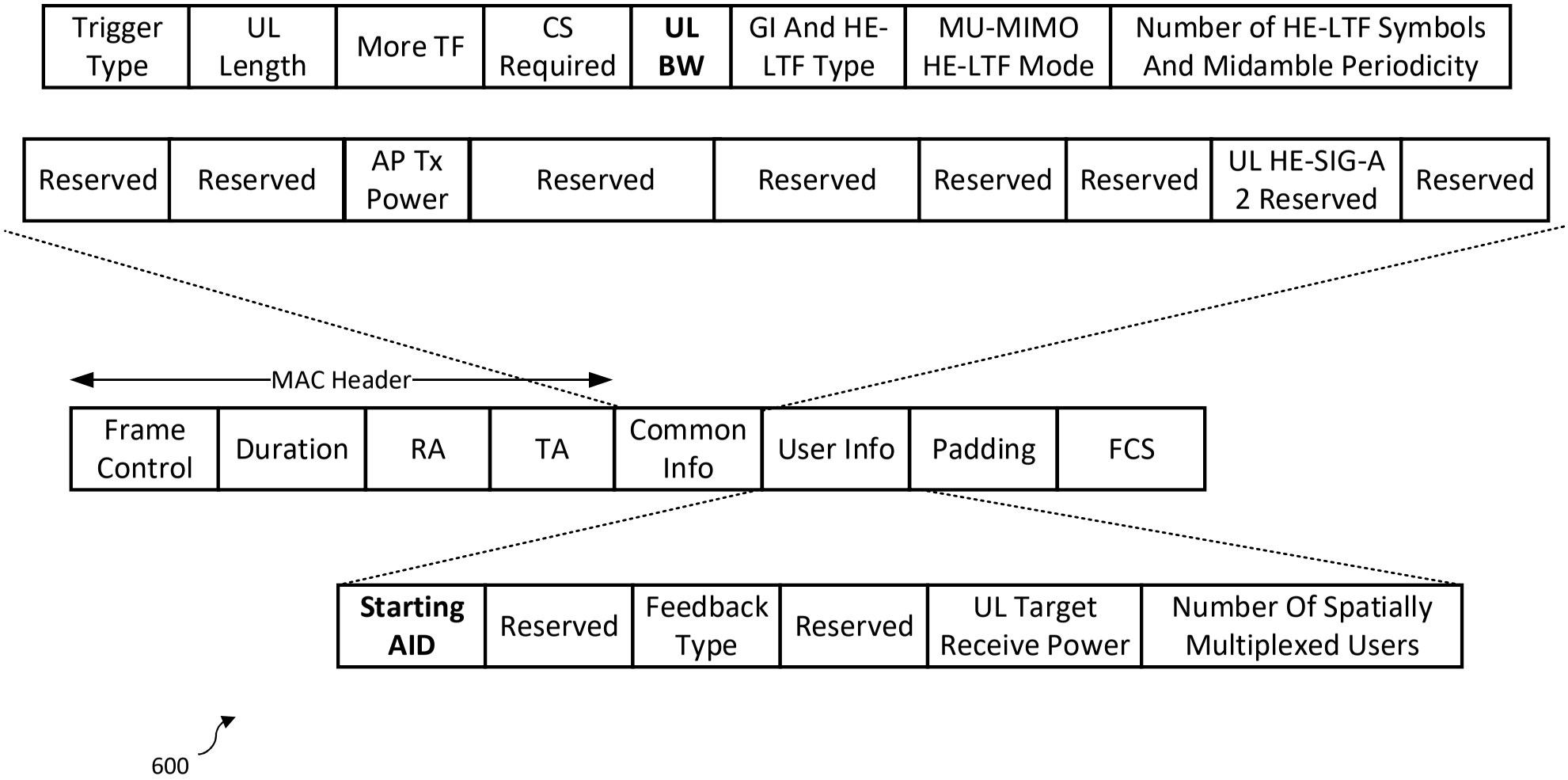

Trigger Type
UL Length
More TF
CS Required
UL BW
GI And HE-LTF Type
MU-MIMO HE-LTF Mode
Number of HE-LTF Symbols And Midamble Periodicity
Reserved
Reserved
AP Tx Power
Reserved
Reserved
Reserved
Reserved
UL HE-SIG-A 2 Reserved
Reserved
MAC Header
Frame Control
Duration
RA
TA
Common Info
User Info
Padding
FCS
Starting AID
Reserved
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
600

Figure 6

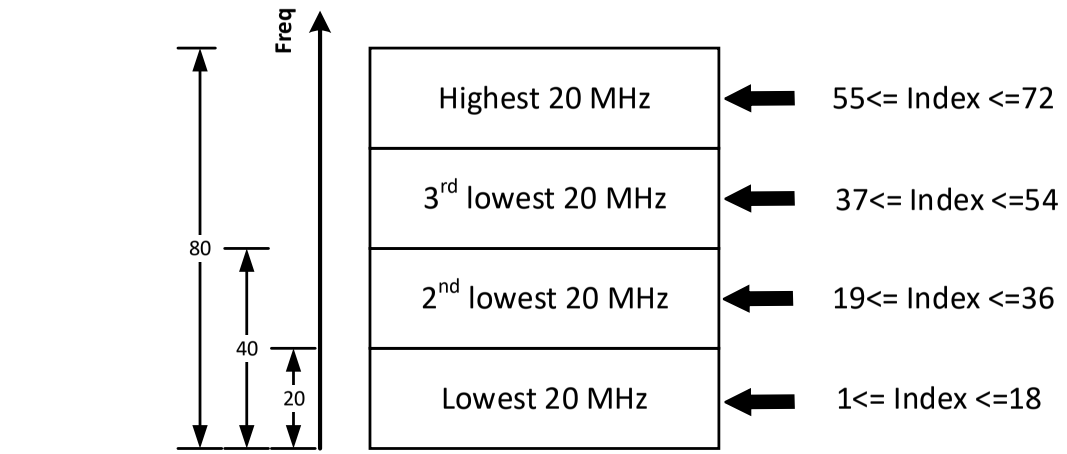

Freq
80
40
20
Highest 20 MHz
3rd lowest 20 MHz
2nd lowest 20 MHz
Lowest 20 MHz
55<= Index <=72
37<= Index <=54
19<= Index <=36
1<= Index <=18
HE TB Feedback NDP
700

Figure 7

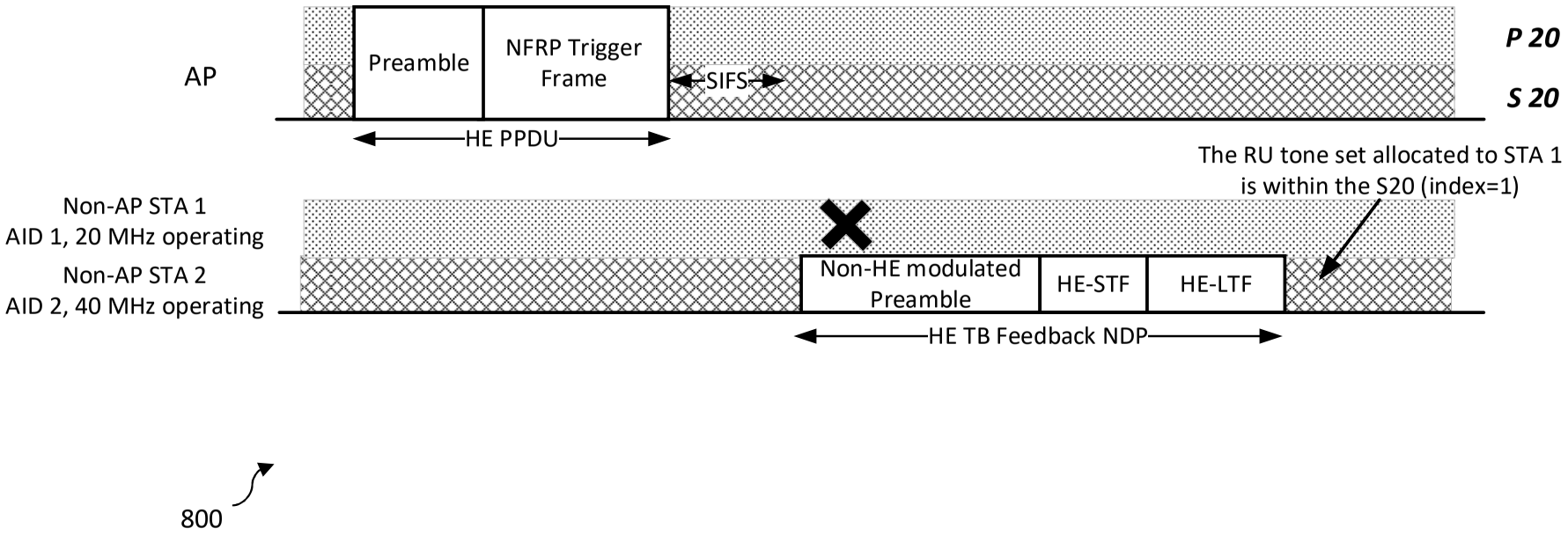

AP
Preamble
NFRP Trigger Frame
SIFS
P 20
S 20
HE PPDU
The RU tone set allocated to STA 1 is within the S20 (index=1)
Non-AP STA 1
AID 1, 20 MHz operating
Non-AP STA 2
AID 2, 40 MHz operating
Non-HE modulated Preamble
HE-STF
HE-LTF
HE TB Feedback NDP
800

Figure 8

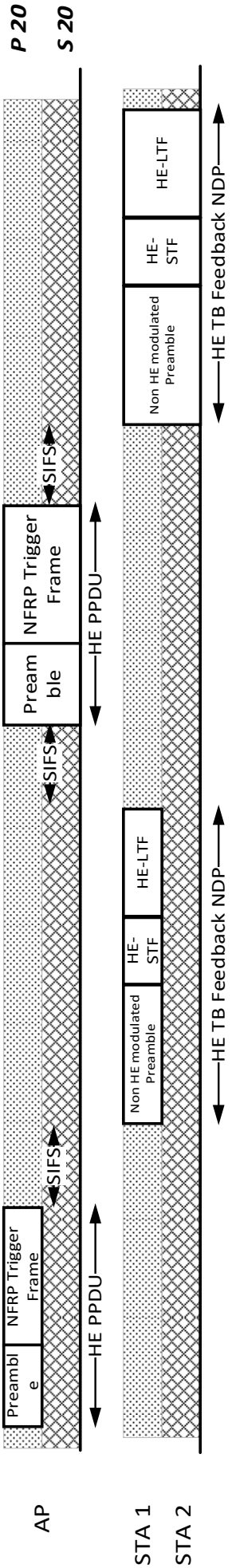

P 20
S 20
AP
STA 1
STA 2
Preambl e
NFRP Trigger Frame
HE PPDU
SIFS
Pream ble
NFRP Trigger Frame
HE PPDU
SIFS
Non HE modulated Preamble
HE-STF
HE-LTF
HE TB Feedback NDP
SIFS
Non HE modulated Preamble
HE-STF
HE-LTF
HE TB Feedback NDP
900

Figure 9

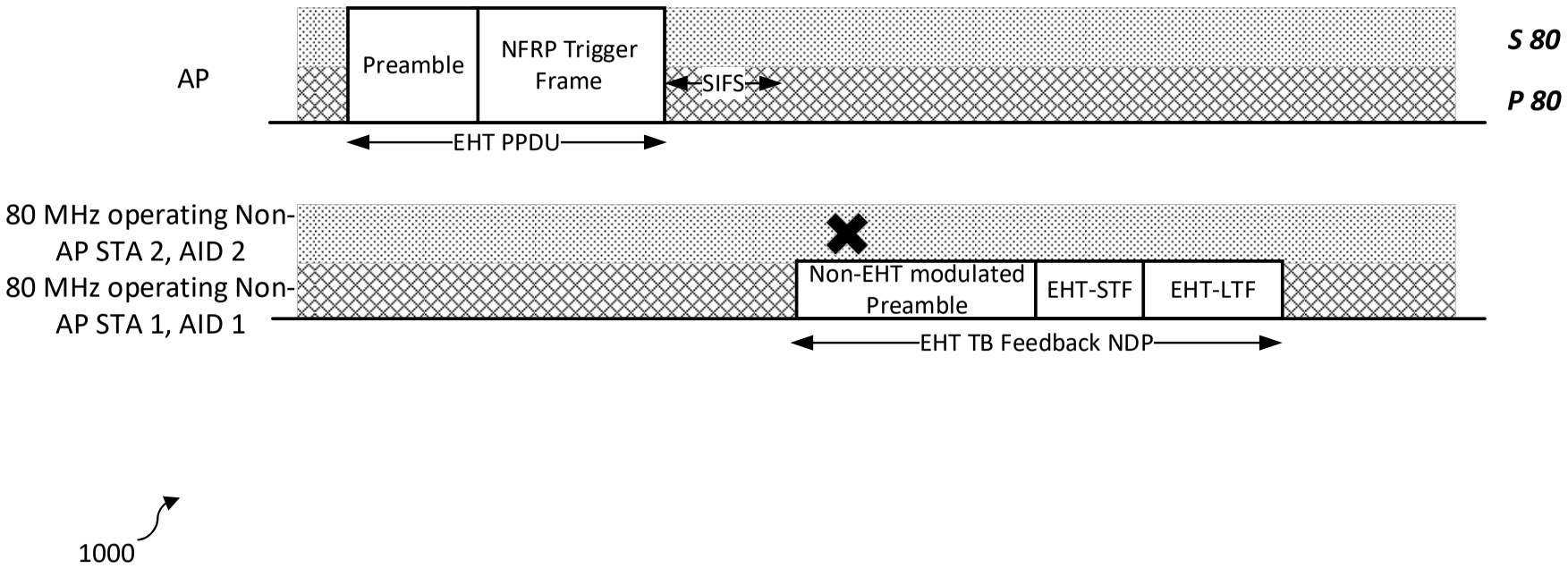

AP
Preamble
NFRP Trigger Frame
SIFS
S 80
P 80
EHT PPDU
80 MHz operating Non-AP STA 2, AID 2
80 MHz operating Non-AP STA 1, AID 1
Non-EHT modulated Preamble
EHT-STF
EHT-LTF
EHT TB Feedback NDP
1000

Figure 10

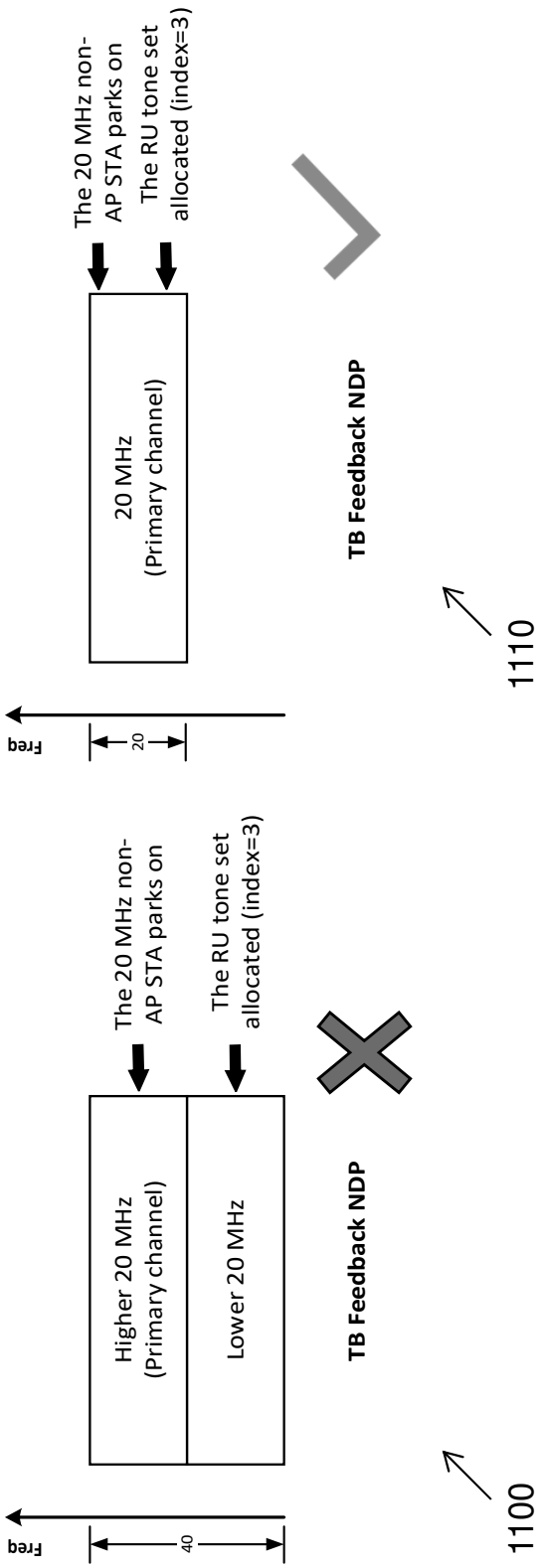

The 20 MHz non-AP STA parks on
The RU tone set allocated (index=3)
20 MHz (Primary channel)
TB Feedback NDP
1110
Freq
20
The 20 MHz non-AP STA parks on
The RU tone set allocated (index=3)
Higher 20 MHz (Primary channel)
Lower 20 MHz
TB Feedback NDP
1100
Freq
40

Figure 11

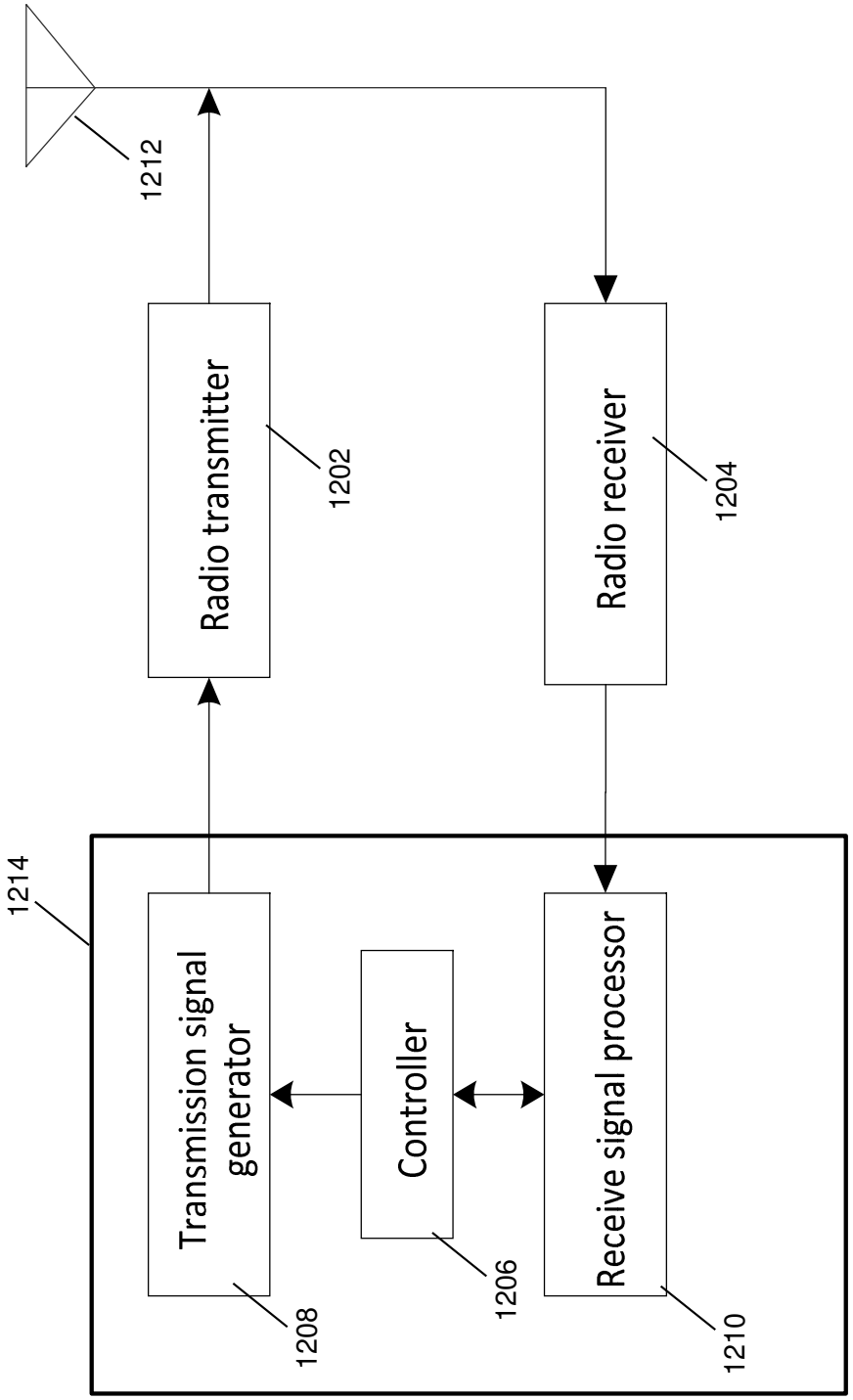

1212
Radio transmitter
1202
Radio receiver
1204
1214
Transmission signal generator
Controller
Receive signal processor
1208
1206
1210
1200

Figure 12

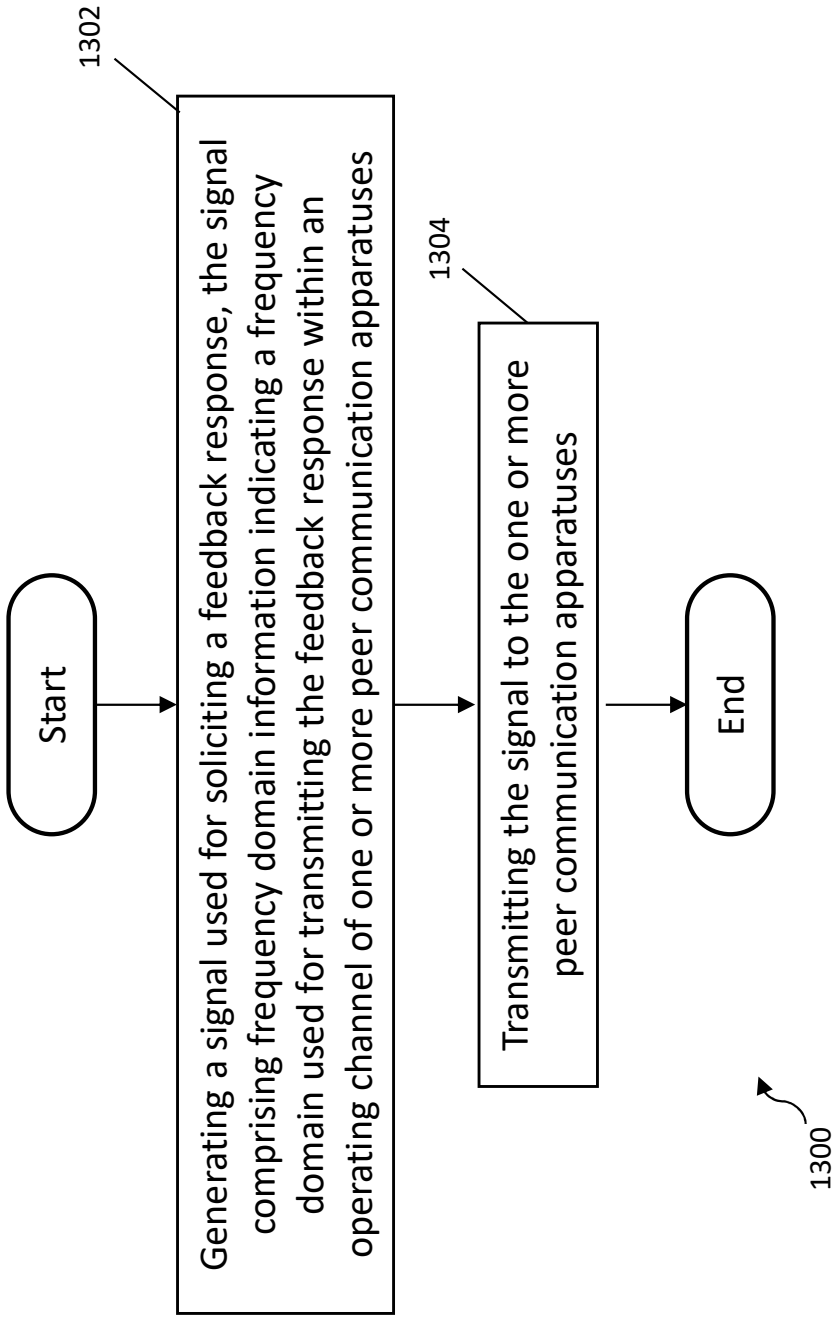

1302
Start
Generating a signal used for soliciting a feedback response, the signal comprising frequency domain information indicating a frequency domain used for transmitting the feedback response within an operating channel of one or more peer communication apparatuses
1304
Transmitting the signal to the one or more peer communication apparatuses
End
1300

Figure 13

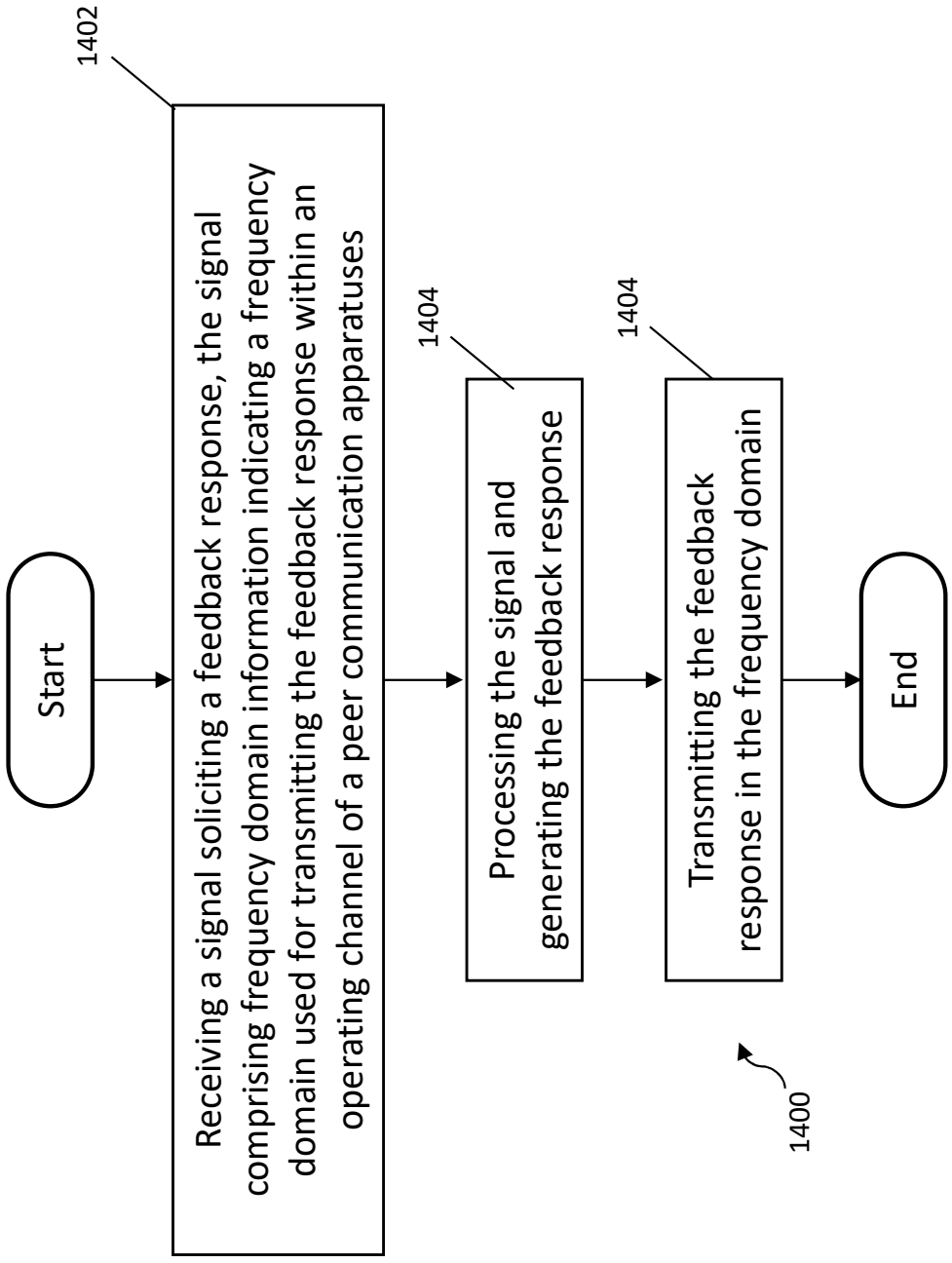

Start
Receiving a signal soliciting a feedback response, the signal comprising frequency domain information indicating a frequency domain used for transmitting the feedback response within an operating channel of a peer communication apparatuses
Processing the signal and generating the feedback response
Transmitting the feedback response in the frequency domain
End
1402
1404
1404
1400

Figure 14

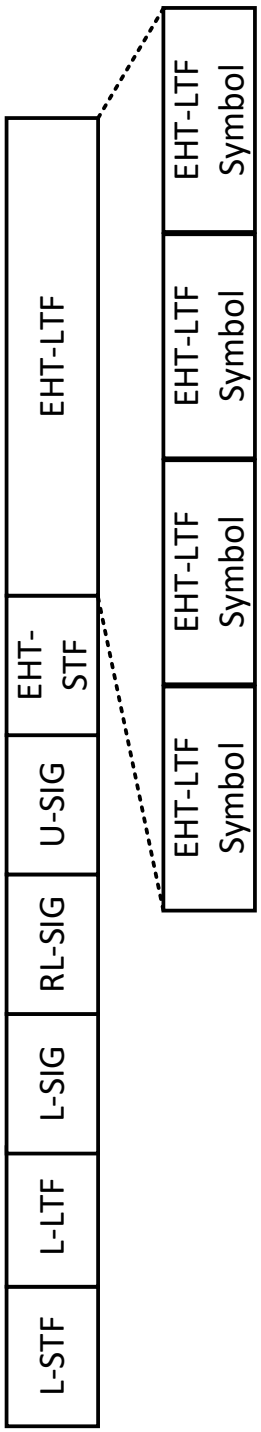

L-STF
L-LTF
L-SIG
RL-SIG
U-SIG
EHT-STF
EHT-LTF
EHT-LTF Symbol
EHT-LTF Symbol
EHT-LTF Symbol
EHT-LTF Symbol
1500

Figure 15

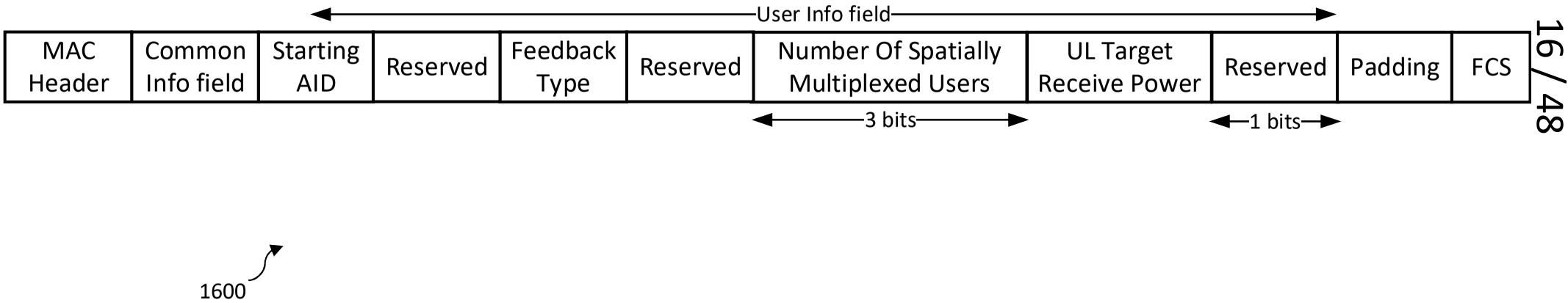

User Info field
MAC Header
Common Info field
Starting AID
Reserved
Feedback Type
Reserved
Number Of Spatially Multiplexed Users
UL Target Receive Power
Reserved
Padding
FCS
3 bits
1 bits
1600

Figure 16

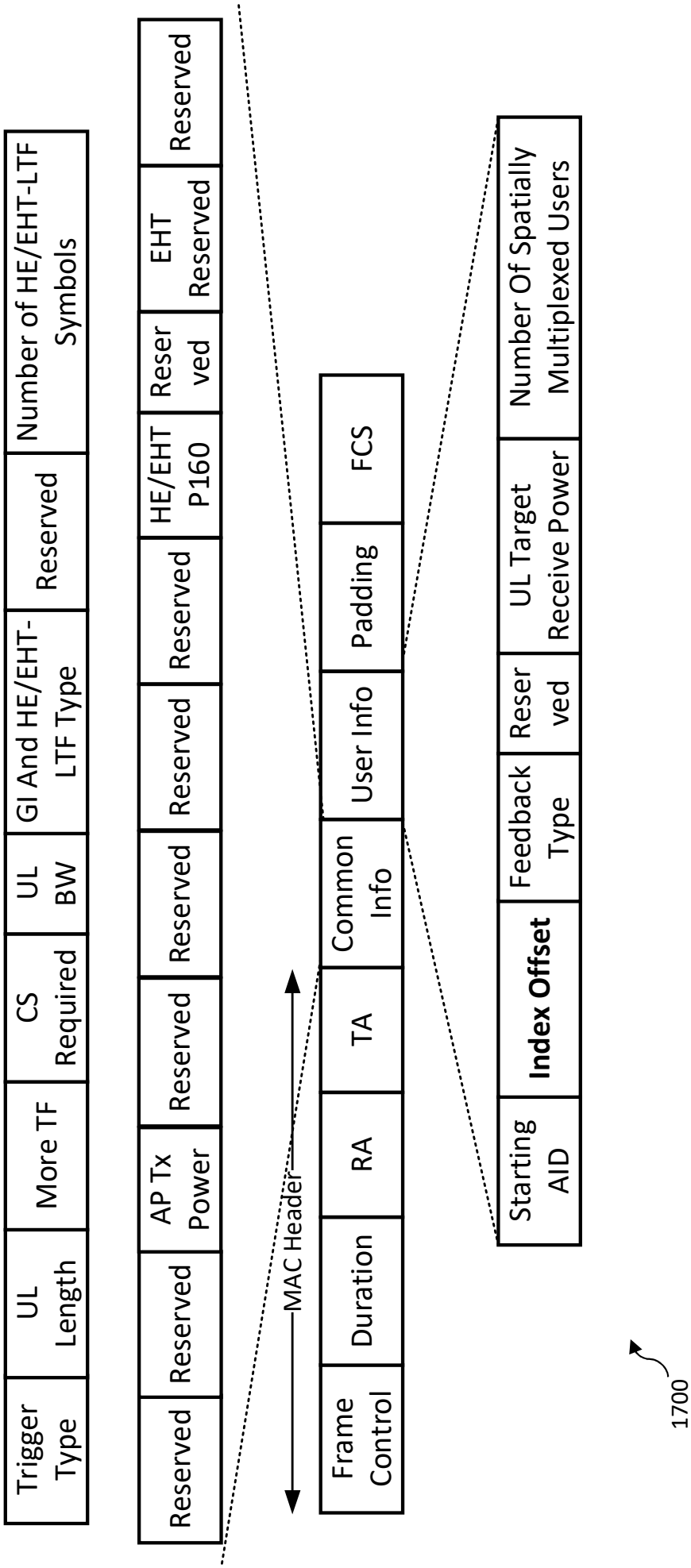

Frame Control
Duration
RA
TA
Common Info
User Info
Padding
FCS
MAC Header
Trigger Type
UL Length
More TF
CS Required
UL BW
GI And HE/EHT-LTF Type
Reserved
Number of HE/EHT-LTF Symbols
Reserved
Reserved
AP Tx Power
Reserved
Reserved
Reserved
HE/EHT P160
Reser ved
EHT Reserved
Reserved
Starting AID
Index Offset
Feedback Type
Reser ved
UL Target Receive Power
Number Of Spatially Multiplexed Users
1700

Figure 17

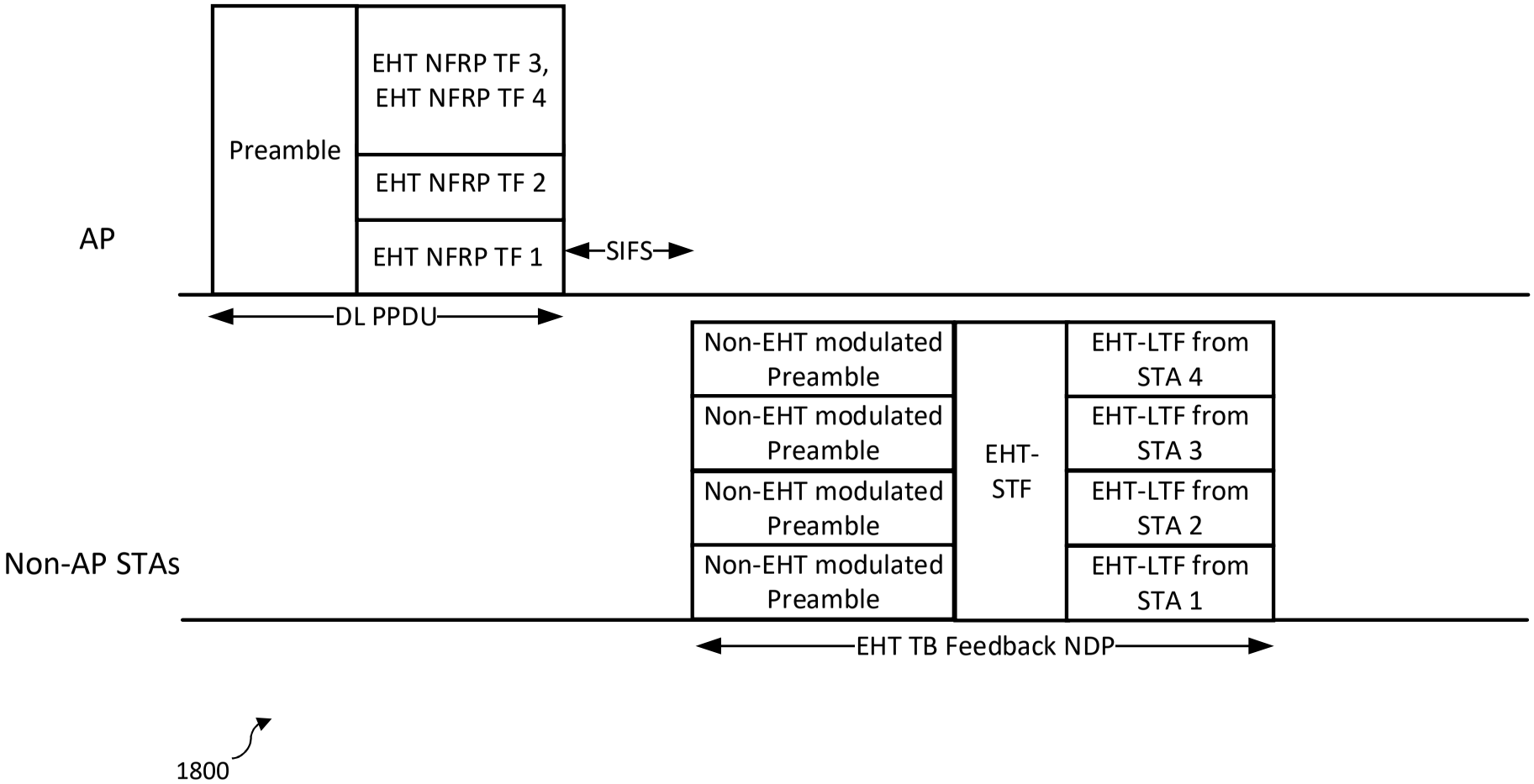

AP
Preamble
EHT NFRP TF 3,
EHT NFRP TF 4
EHT NFRP TF 2
EHT NFRP TF 1
SIFS
DL PPDU
Non-AP STAs
Non-EHT modulated Preamble
Non-EHT modulated Preamble
Non-EHT modulated Preamble
Non-EHT modulated Preamble
EHT-STF
EHT-LTF from STA 4
EHT-LTF from STA 3
EHT-LTF from STA 2
EHT-LTF from STA 1
EHT TB Feedback NDP
1800

Figure 18

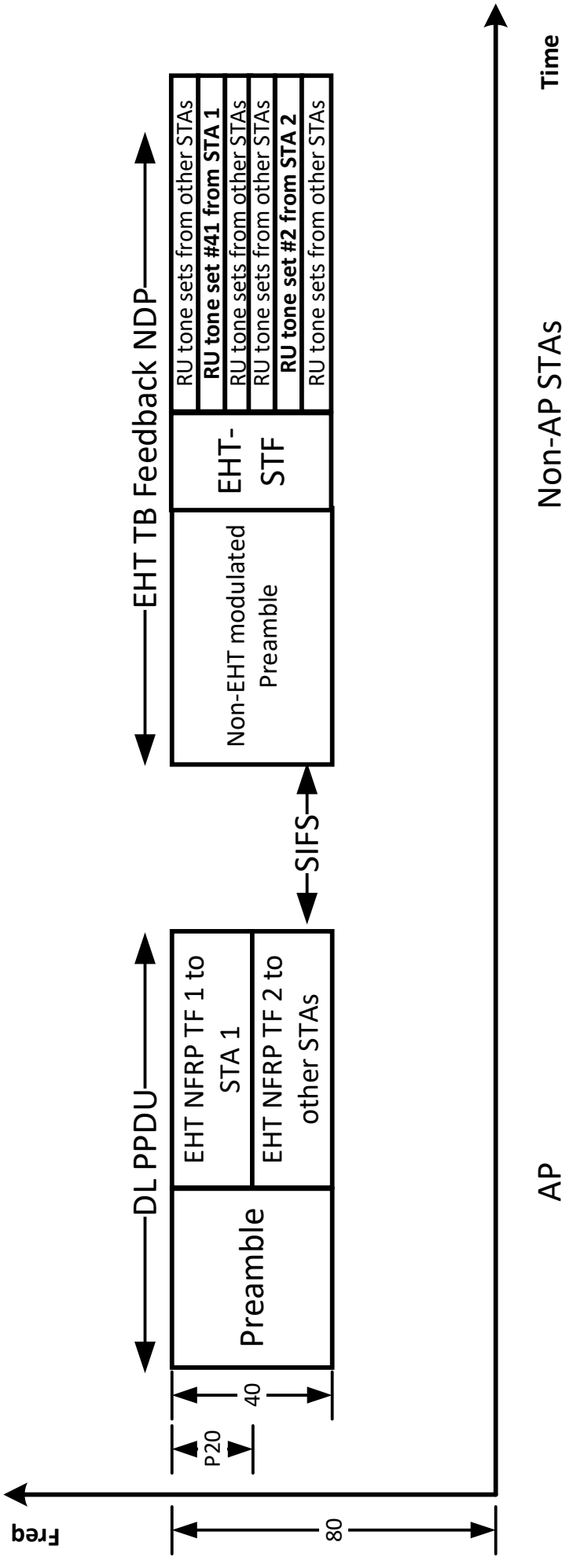

Time
Non-AP STAs
AP
1900
Freq
BSS
80
40
P20
DL PPDU
Preamble
EHT NFRP TF 1 to STA 1
EHT NFRP TF 2 to other STAs
SIFS
EHT TB Feedback NDP
Non-EHT modulated Preamble
EHT-STF
RU tone sets from other STAs
RU tone set #41 from STA 1
RU tone sets from other STAs
RU tone sets from other STAs
RU tone set #2 from STA 2
RU tone sets from other STAs

Figure 19

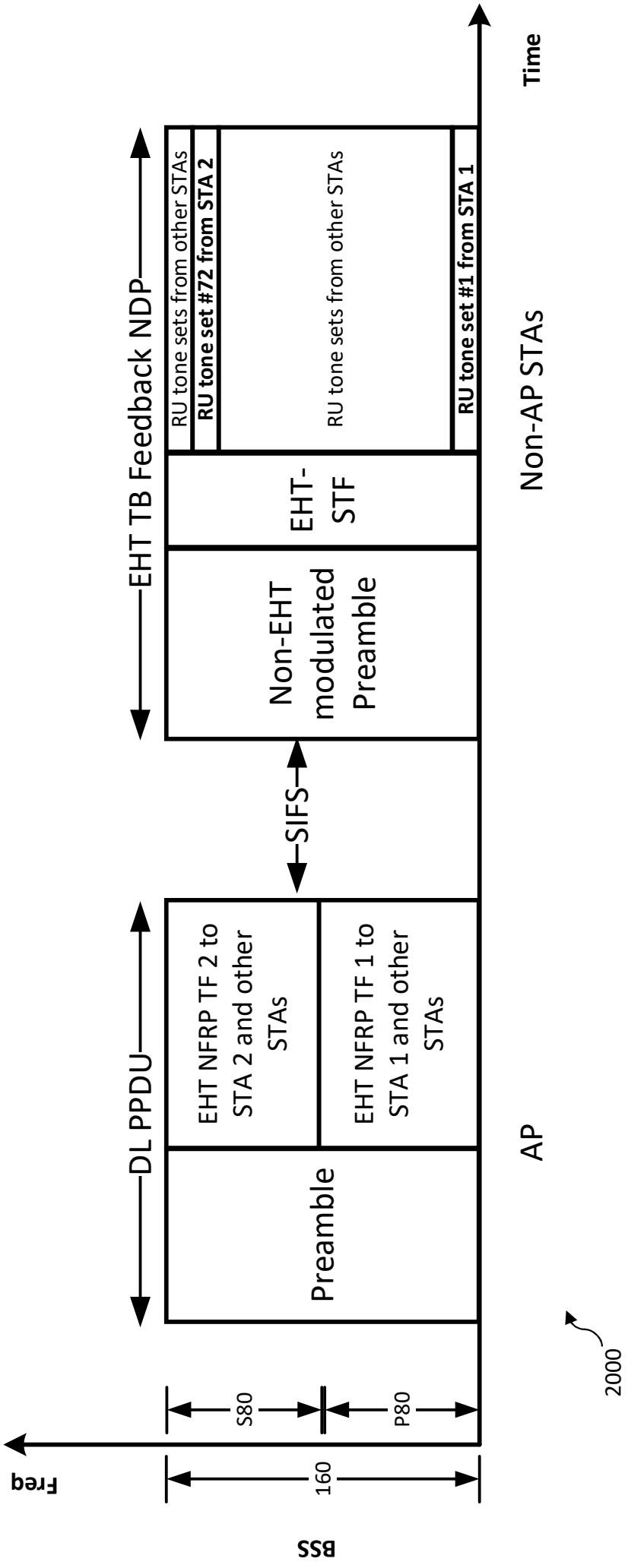

Time
Non-AP STAs
AP
EHT TB Feedback NDP
DL PPDU
SIFS
RU tone sets from other STAs
RU tone set #72 from STA 2
RU tone sets from other STAs
RU tone set #1 from STA 1
EHT-STF
Non-EHT modulated Preamble
EHT NFRP TF 2 to STA 2 and other STAs
EHT NFRP TF 1 to STA 1 and other STAs
Preamble
S80
P80
160
Freq
BSS
2000

Figure 20

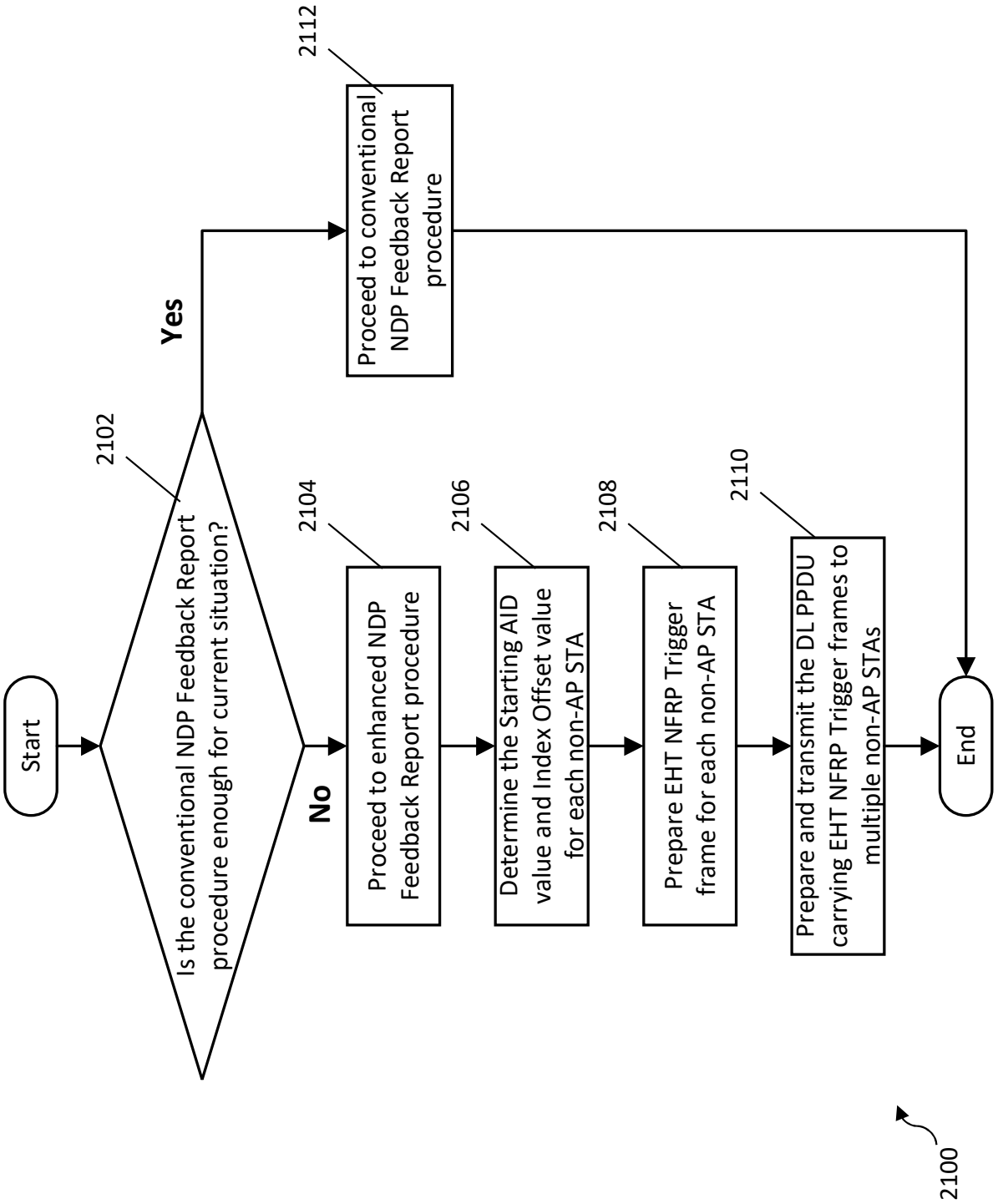

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
2102
Yes
No
Proceed to conventional NDP Feedback Report procedure
2112
Proceed to enhanced NDP Feedback Report procedure
2104
Determine the Starting AID value and Index Offset value for each non-AP STA
2106
Prepare EHT NFRP Trigger frame for each non-AP STA
2108
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
2110
End
2100

Figure 21

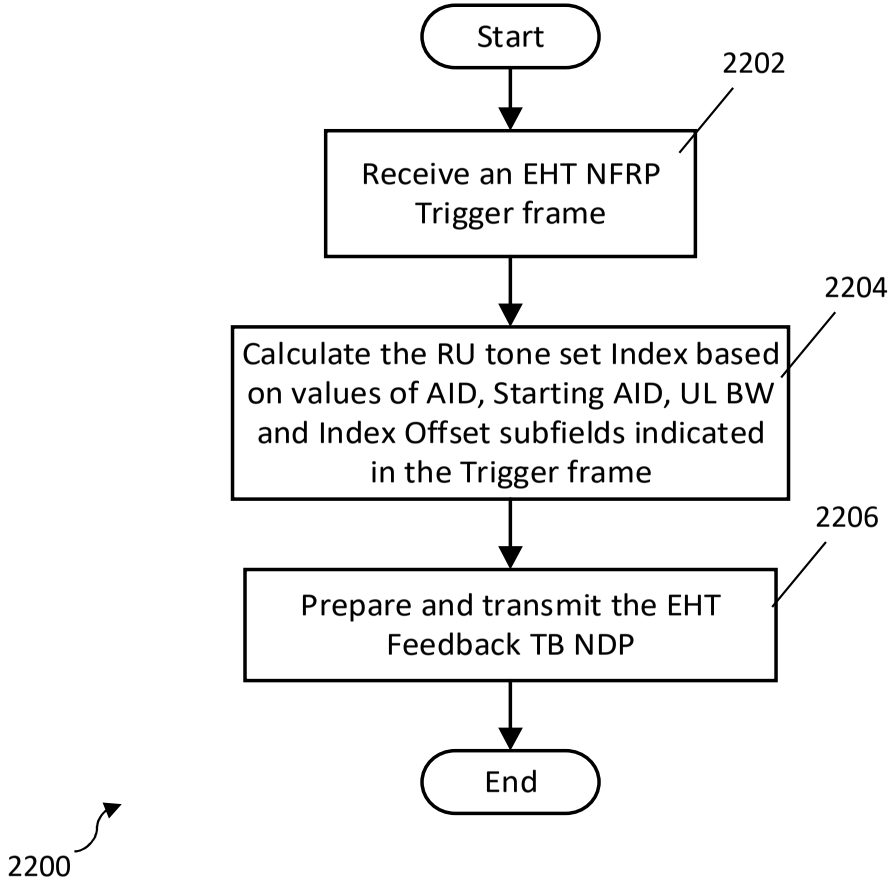

Start
2202
Receive an EHT NFRP Trigger frame
2204
Calculate the RU tone set Index based on values of AID, Starting AID, UL BW and Index Offset subfields indicated in the Trigger frame
2206
Prepare and transmit the EHT Feedback TB NDP
End
2200

Figure 22

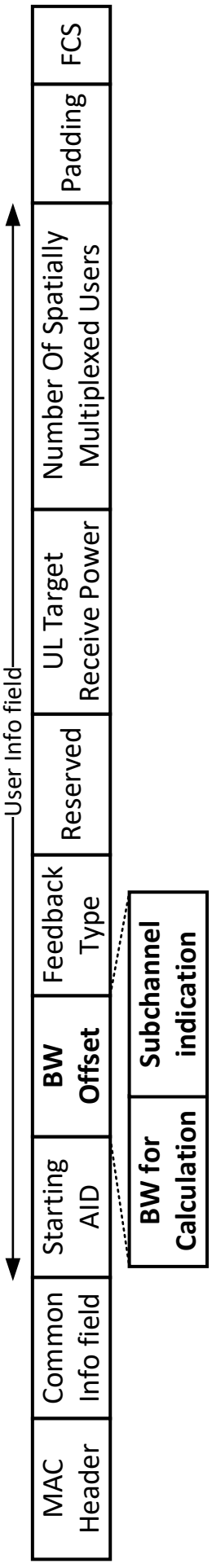

MAC Header
Common Info field
Starting AID
BW Offset
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
User Info field
BW for Calculation
Subchannel indication
2300

Figure 23

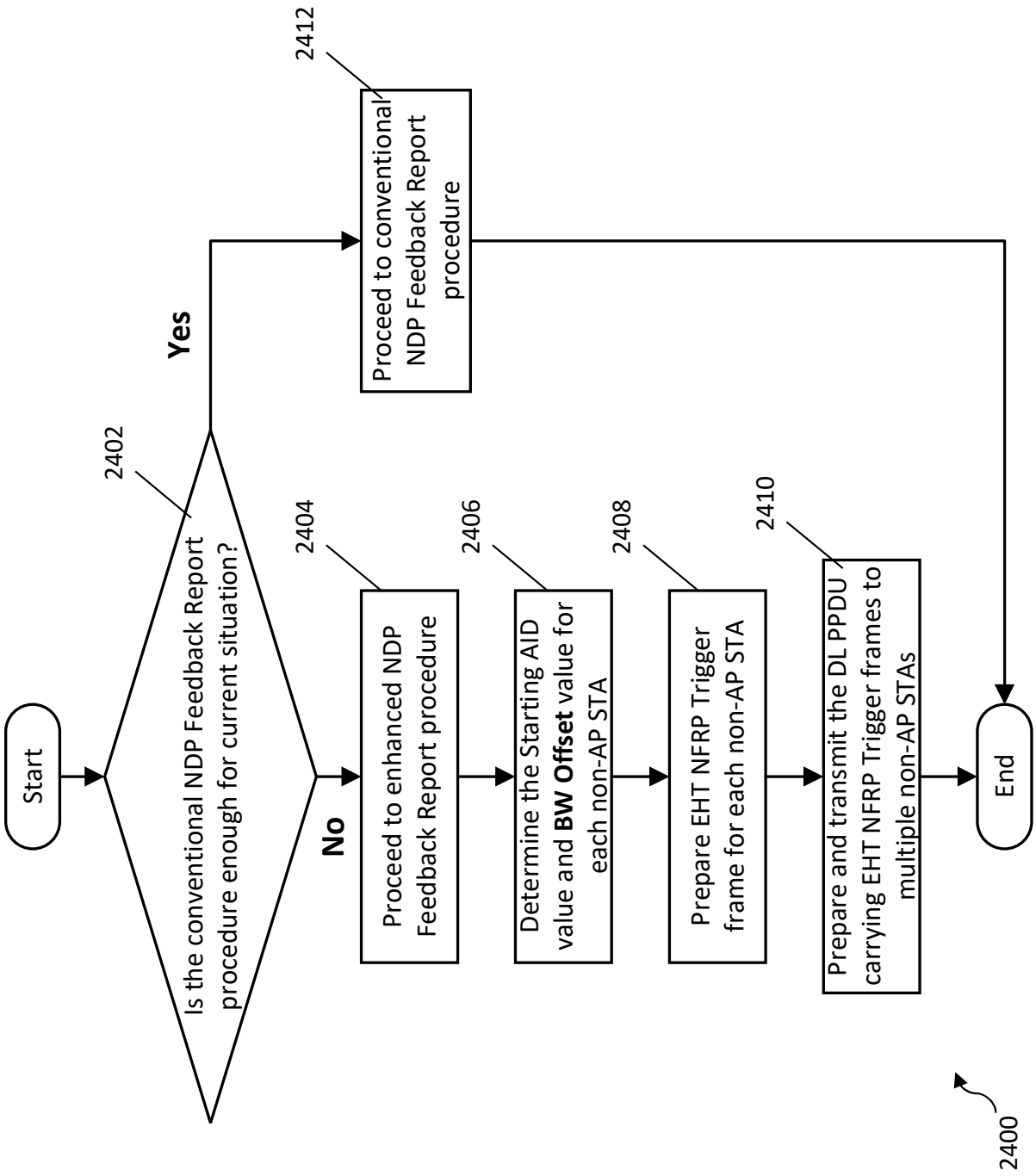

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
2402
Yes
No
Proceed to conventional NDP Feedback Report procedure
2412
Proceed to enhanced NDP Feedback Report procedure
2404
Determine the Starting AID value and **BW Offset** value for each non-AP STA
2406
Prepare EHT NFRP Trigger frame for each non-AP STA
2408
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
2410
End
2400

Figure 24

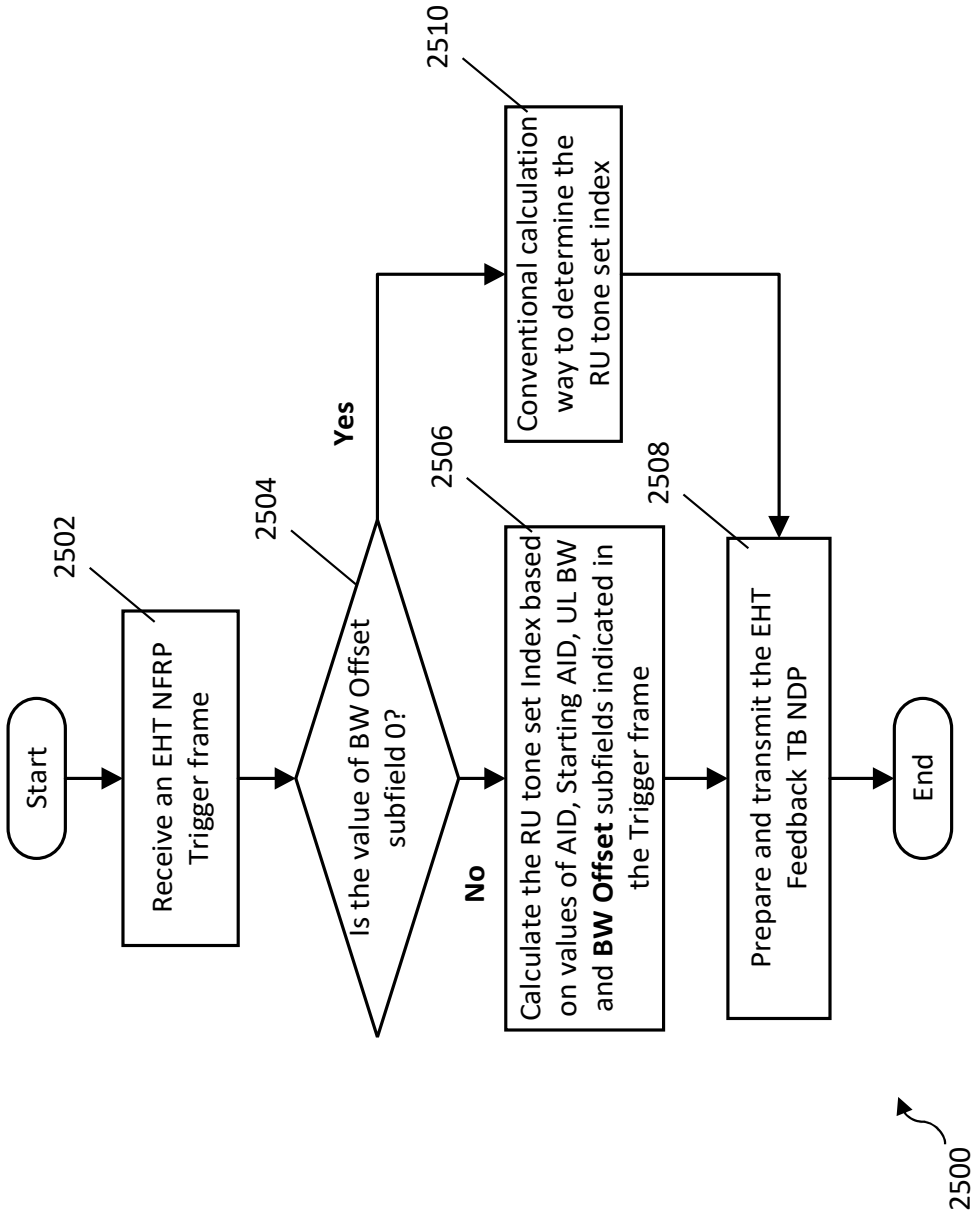

Start
Receive an EHT NFRP Trigger frame
2502
Is the value of BW Offset subfield 0?
2504
Yes
No
Conventional calculation way to determine the RU tone set index
2510
Calculate the RU tone set Index based on values of AID, Starting AID, UL BW and **BW Offset** subfields indicated in the Trigger frame
2506
Prepare and transmit the EHT Feedback TB NDP
2508
End
2500

Figure 25

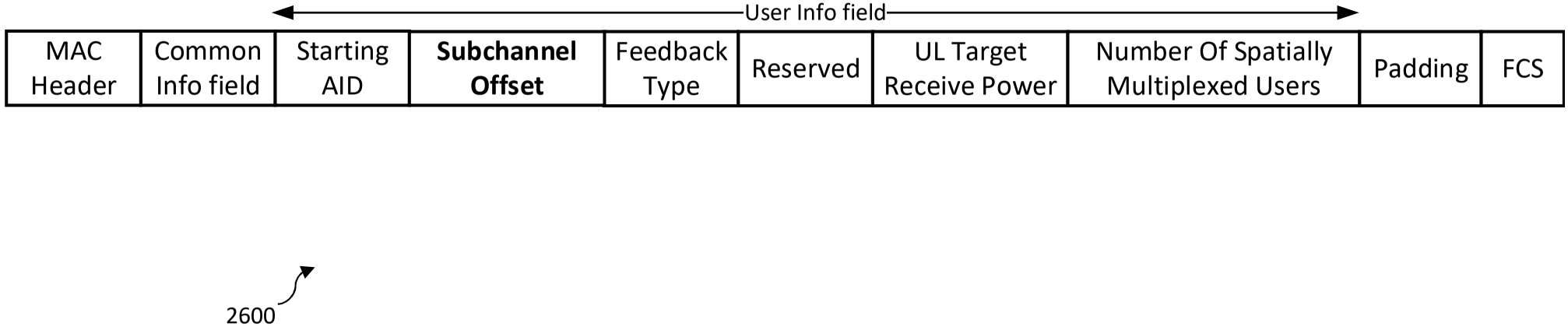

User Info field
MAC Header
Common Info field
Starting AID
Subchannel Offset
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
2600

Figure 26

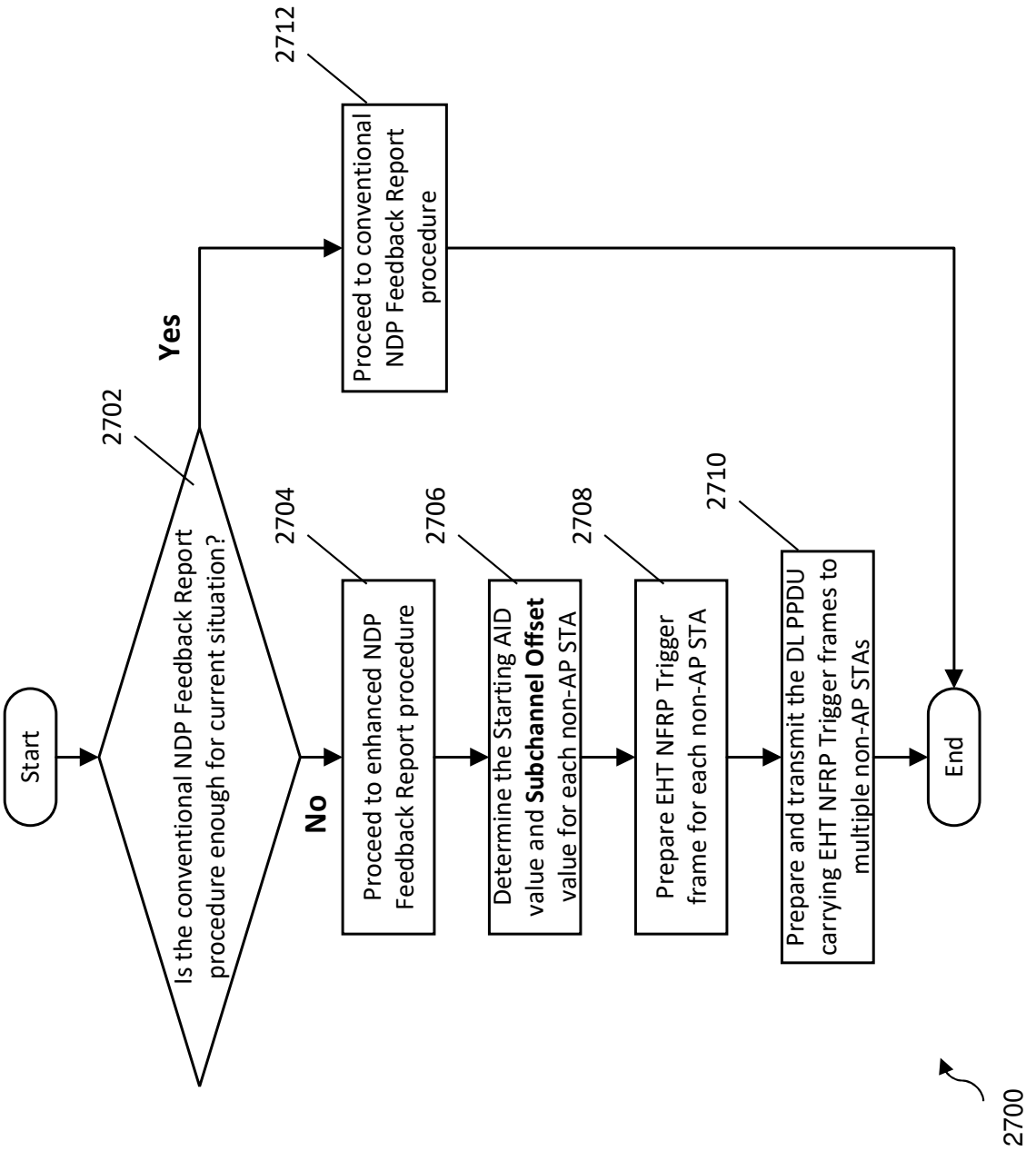

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
2702
Yes
No
Proceed to conventional NDP Feedback Report procedure
2712
Proceed to enhanced NDP Feedback Report procedure
2704
Determine the Starting AID value and **Subchannel Offset** value for each non-AP STA
2706
Prepare EHT NFRP Trigger frame for each non-AP STA
2708
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
2710
End
2700

Figure 27

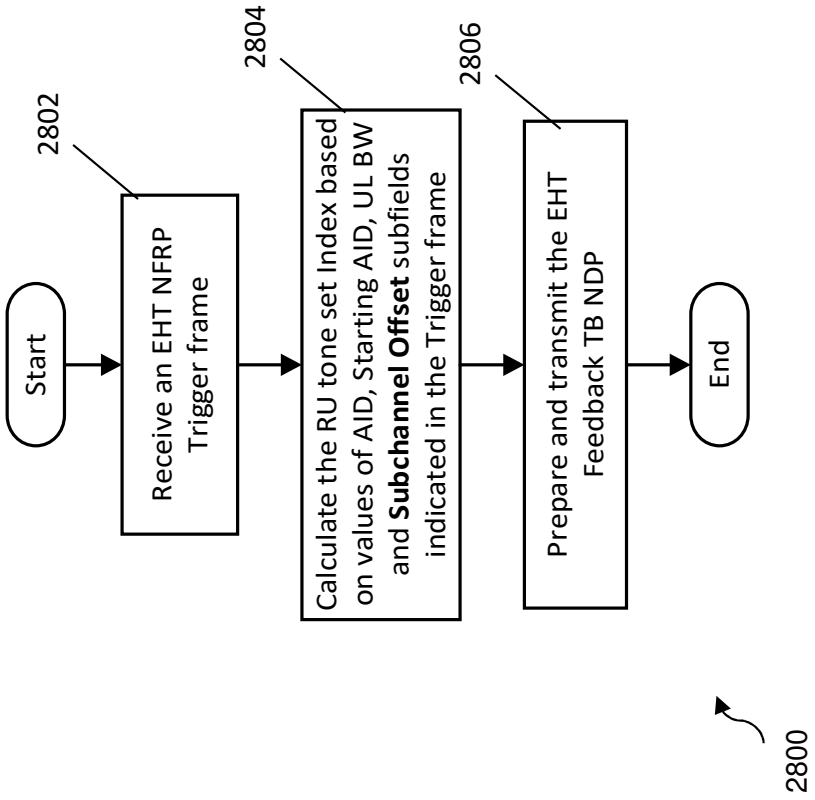

Start
2802
Receive an EHT NFRP Trigger frame
2804
Calculate the RU tone set Index based on values of AID, Starting AID, UL BW and **Subchannel Offset** subfields indicated in the Trigger frame
2806
Prepare and transmit the EHT Feedback TB NDP
End
2800

Figure 28

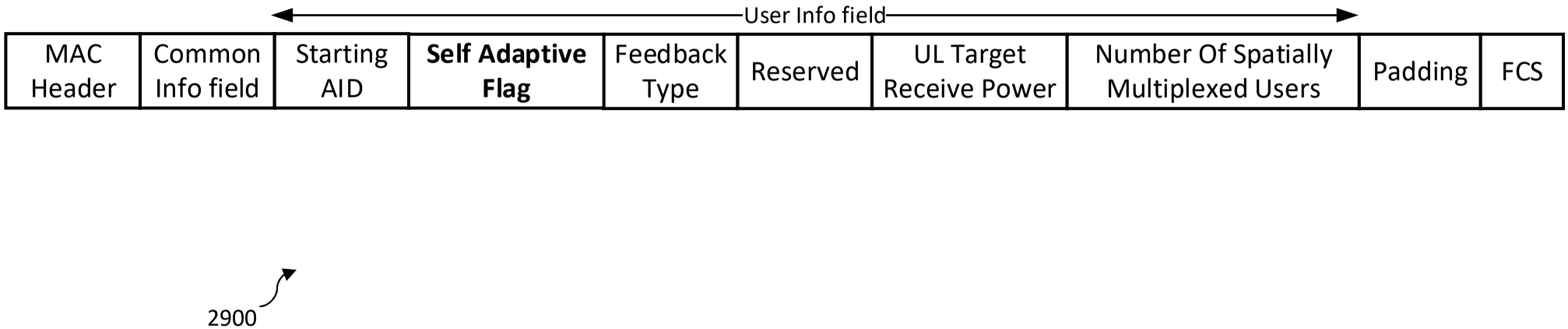

User Info field
MAC Header
Common Info field
Starting AID
Self Adaptive Flag
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
2900

Figure 29

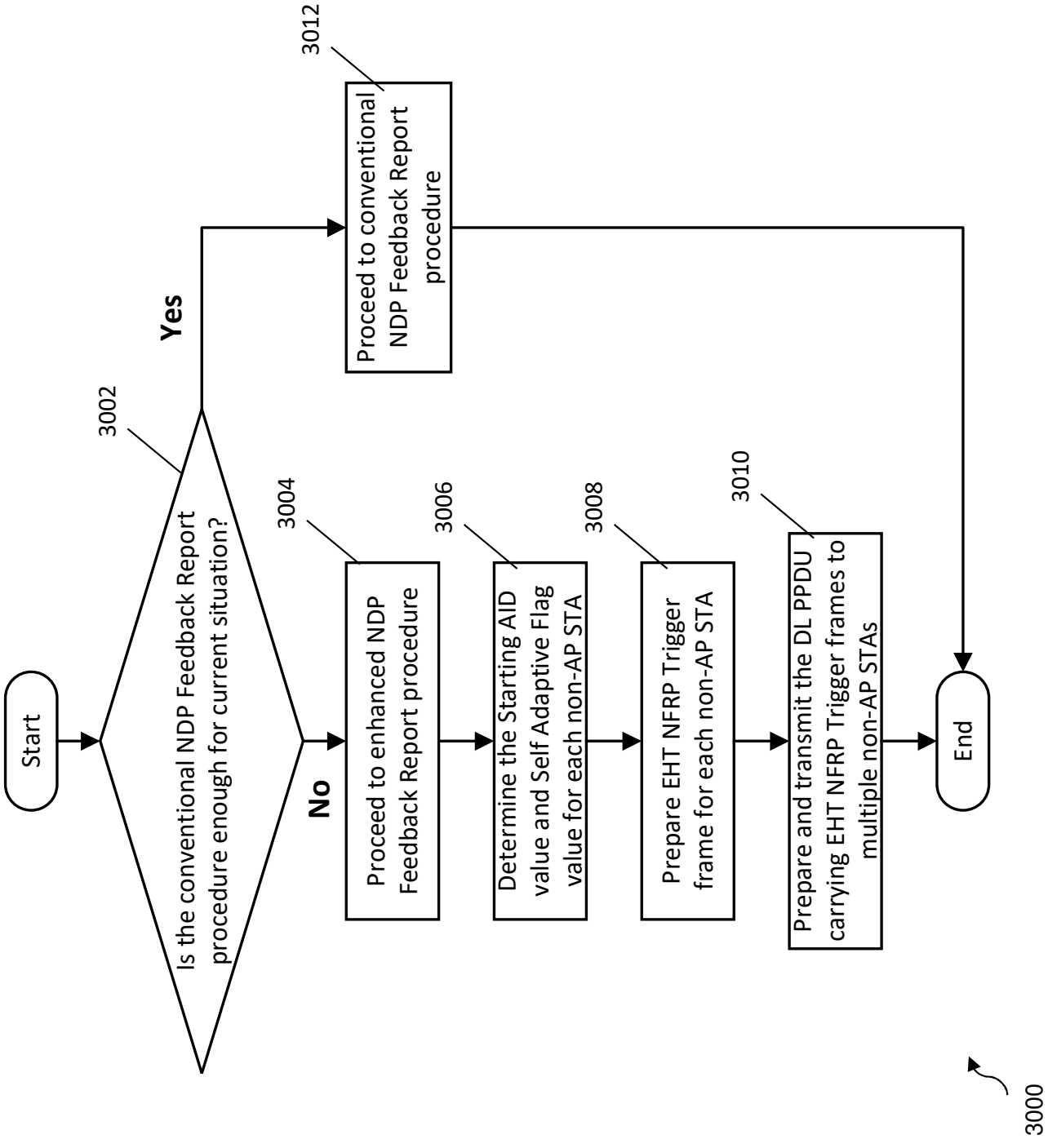

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
3002
Yes
No
Proceed to conventional NDP Feedback Report procedure
3012
Proceed to enhanced NDP Feedback Report procedure
3004
Determine the Starting AID value and Self Adaptive Flag value for each non-AP STA
3006
Prepare EHT NFRP Trigger frame for each non-AP STA
3008
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
3010
End
3000

Figure 30

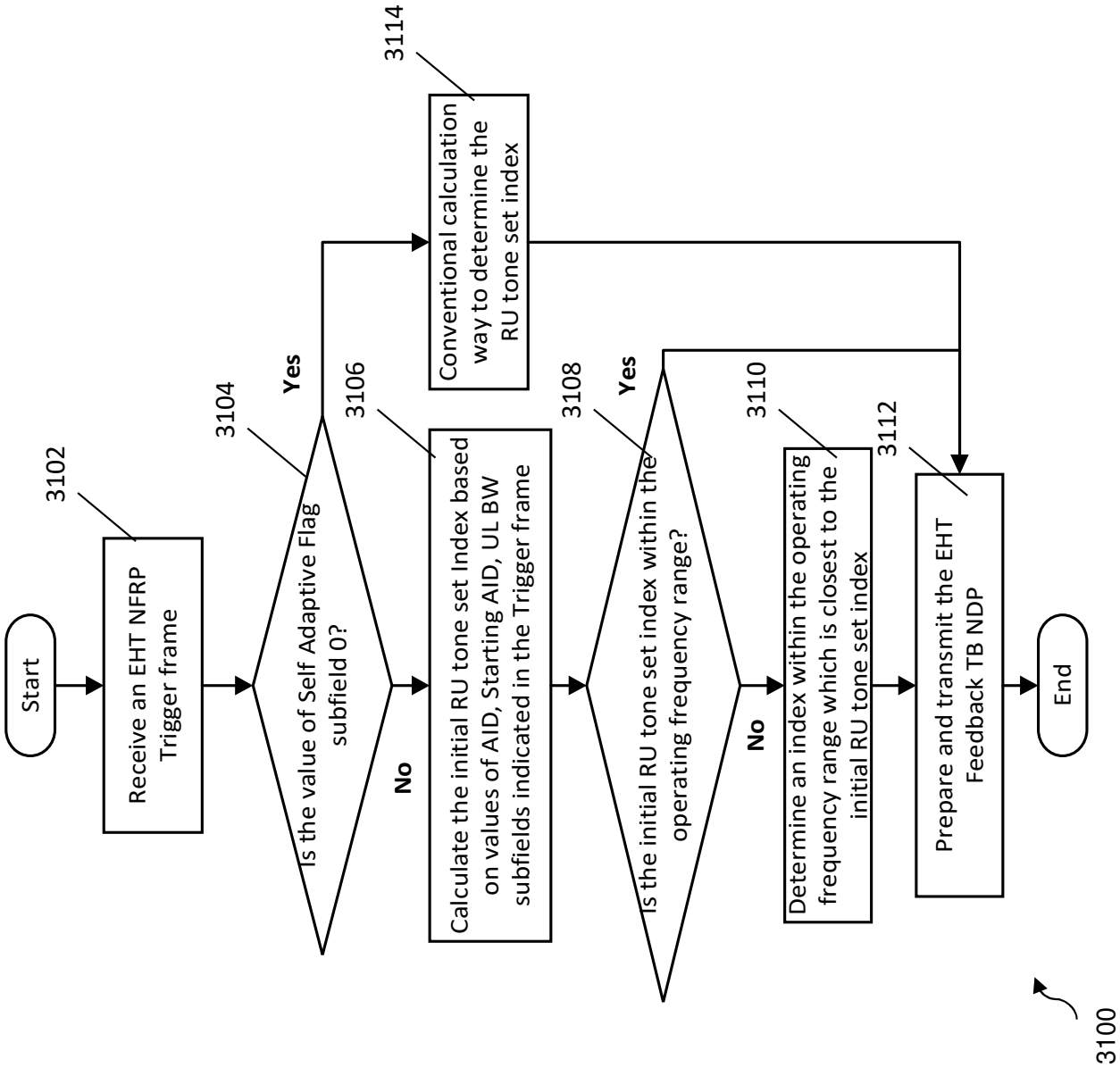
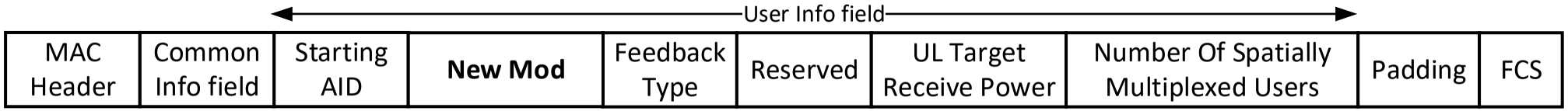

Start
Receive an EHT NFRP Trigger frame
3102
Is the value of Self Adaptive Flag subfield 0?
3104
Yes
No
Conventional calculation way to determine the RU tone set index
3114
Calculate the initial RU tone set Index based on values of AID, Starting AID, UL BW subfields indicated in the Trigger frame
3106
Is the initial RU tone set index within the operating frequency range?
3108
Yes
No
Determine an index within the operating frequency range which is closest to the initial RU tone set index
3110
Prepare and transmit the EHT Feedback TB NDP
3112
End
3100

Figure 31



3200

Figure 32

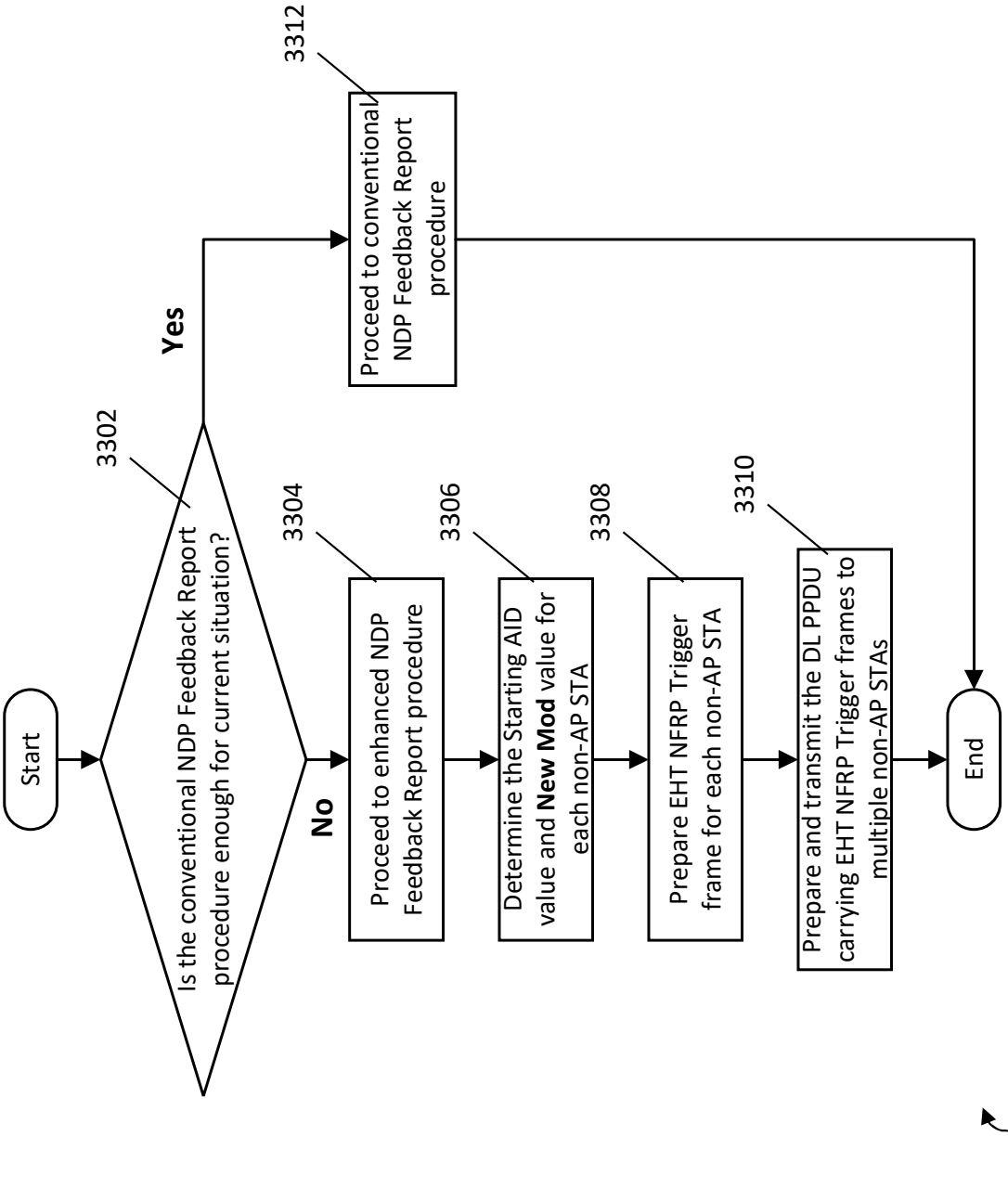

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
3302
Yes
No
Proceed to conventional NDP Feedback Report procedure
3312
Proceed to enhanced NDP Feedback Report procedure
3304
Determine the Starting AID value and New Mod value for each non-AP STA
3306
Prepare EHT NFRP Trigger frame for each non-AP STA
3308
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
3310
End
3300

Figure 33

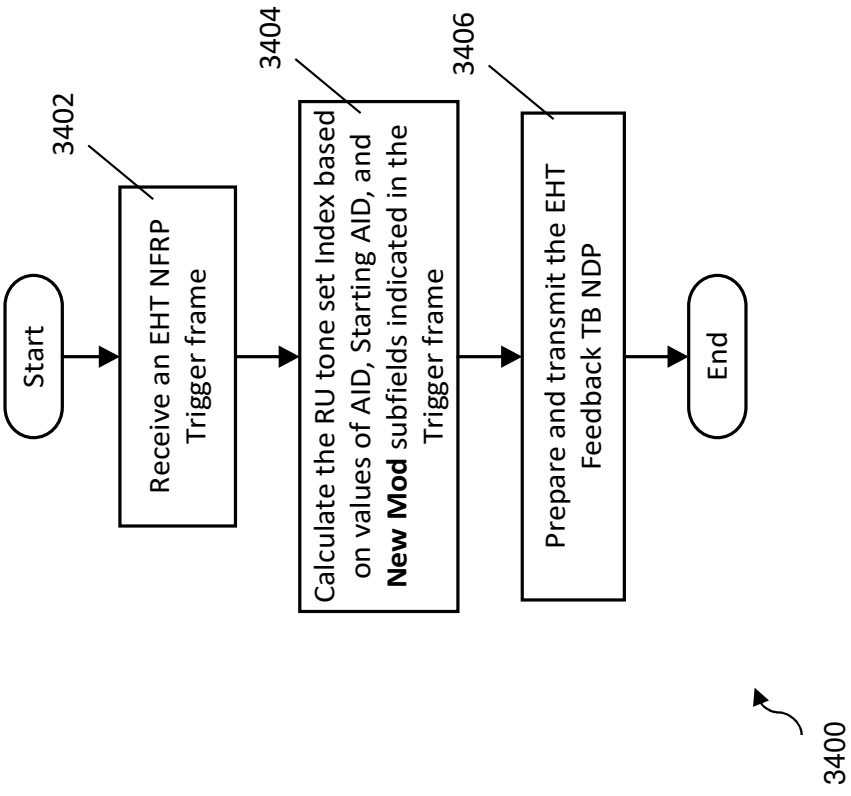

Start
3402
Receive an EHT NFRP Trigger frame
3404
Calculate the RU tone set Index based on values of AID, Starting AID, and **New Mod** subfields indicated in the Trigger frame
3406
Prepare and transmit the EHT Feedback TB NDP
End
3400

Figure 34

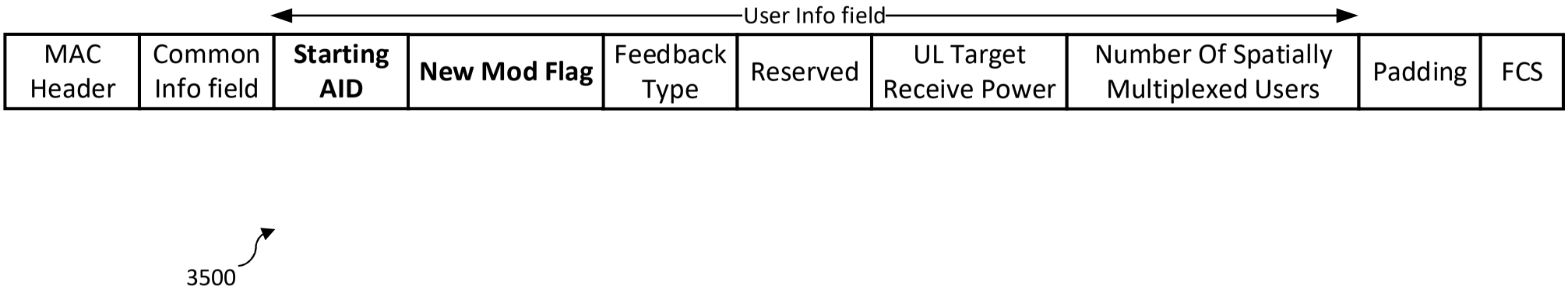

User Info field
MAC Header
Common Info field
Starting AID
New Mod Flag
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
3500

Figure 35

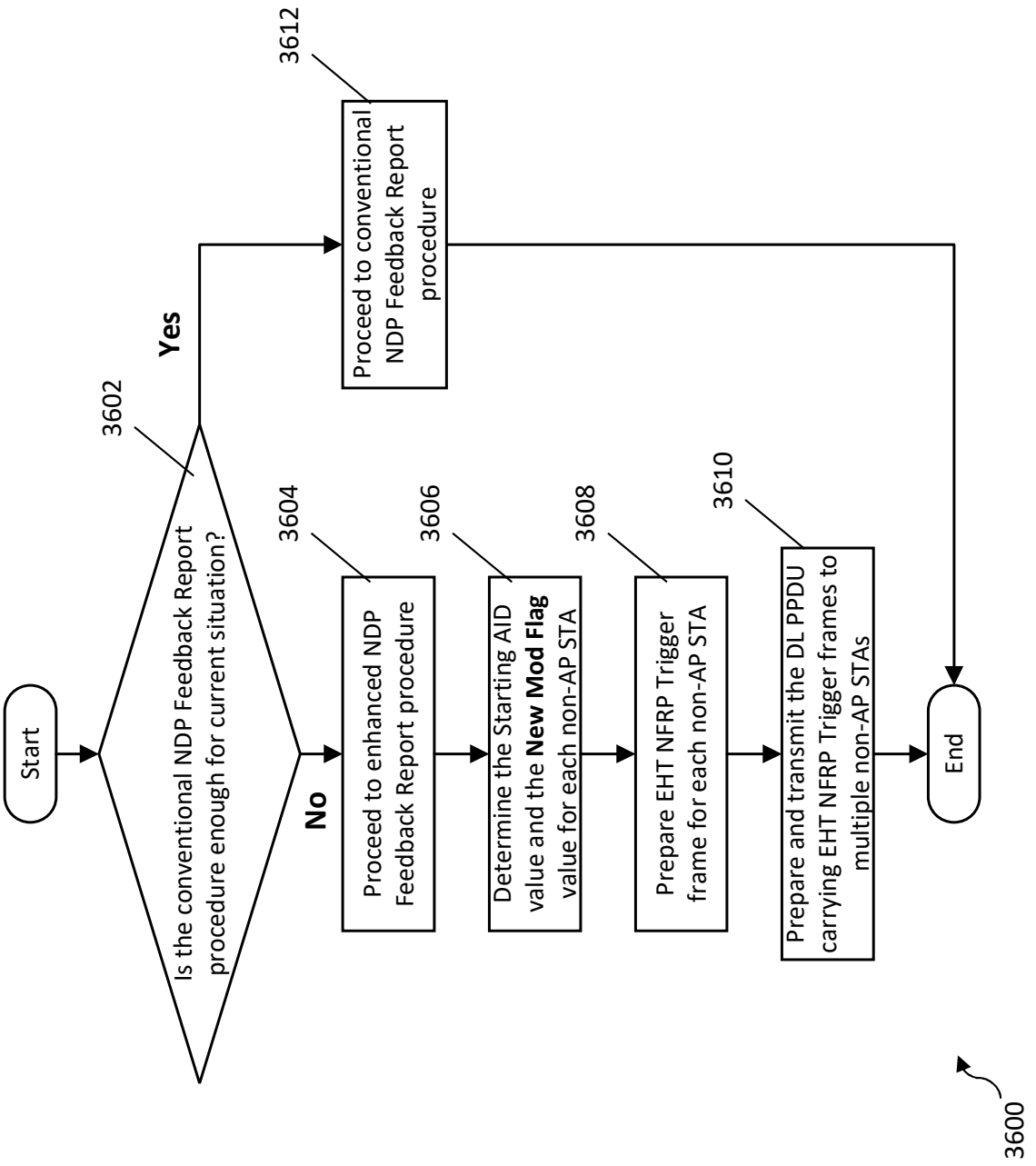

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
3602
Yes
No
Proceed to conventional NDP Feedback Report procedure
3612
Proceed to enhanced NDP Feedback Report procedure
3604
Determine the Starting AID value and the **New Mod Flag** value for each non-AP STA
3606
Prepare EHT NFRP Trigger frame for each non-AP STA
3608
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
3610
End
3600

Figure 36

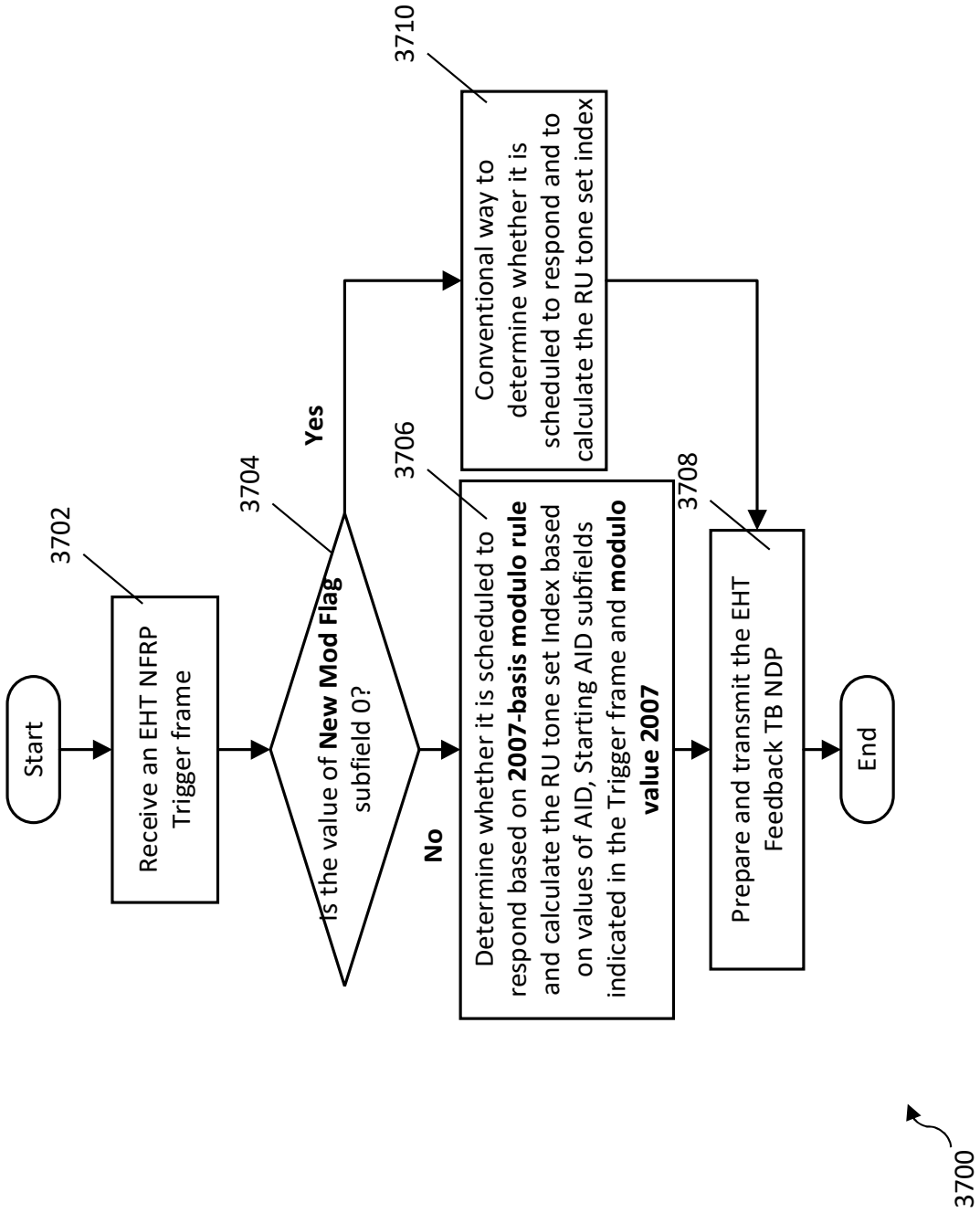

Start
Receive an EHT NFRP Trigger frame
3702
Is the value of **New Mod Flag** subfield 0?
3704
Yes
No
Conventional way to determine whether it is scheduled to respond and to calculate the RU tone set index
3710
Determine whether it is scheduled to respond based on **2007-basis modulo rule** and calculate the RU tone set Index based on values of AID, Starting AID subfields indicated in the Trigger frame and **modulo value 2007**
3706
Prepare and transmit the EHT Feedback TB NDP
3708
End
3700

Figure 37

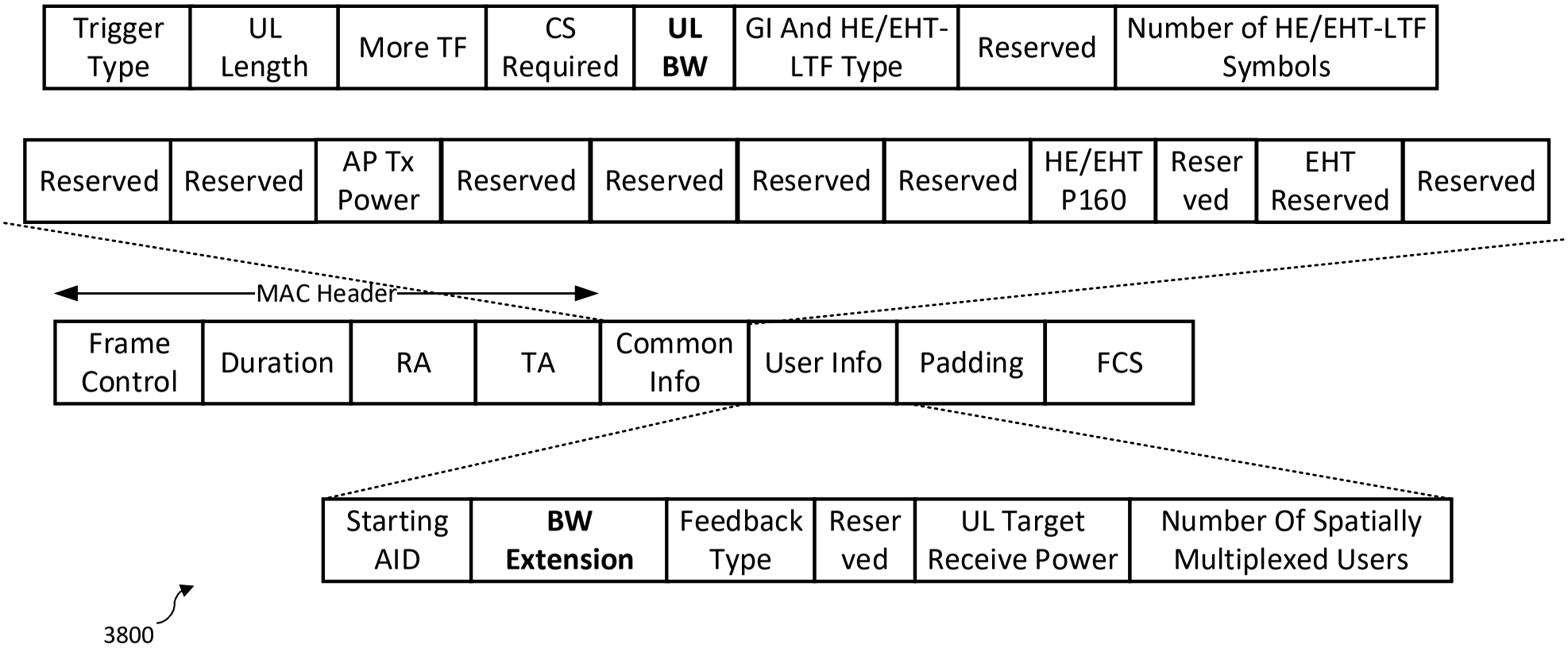

Trigger Type
UL Length
More TF
CS Required
UL BW
GI And HE/EHT-LTF Type
Reserved
Number of HE/EHT-LTF Symbols
Reserved
Reserved
AP Tx Power
Reserved
Reserved
Reserved
Reserved
HE/EHT P160
Reserved
EHT Reserved
Reserved
MAC Header
Frame Control
Duration
RA
TA
Common Info
User Info
Padding
FCS
Starting AID
BW Extension
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
3800

Figure 38

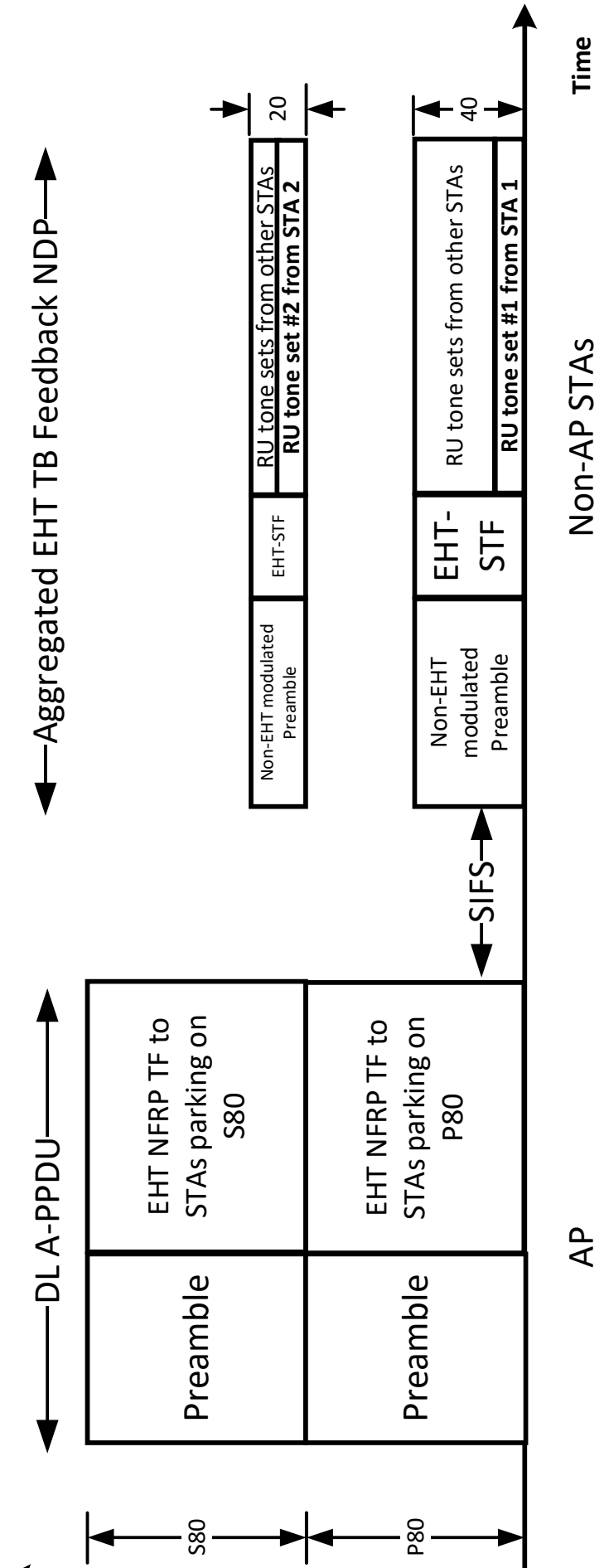

Freq
BSS
160
S80
P80
DL A-PPDU
Preamble
EHT NFRP TF to STAs parking on S80
Preamble
EHT NFRP TF to STAs parking on P80
AP
SIFS
Non-EHT modulated Preamble
EHT-STF
RU tone sets from other STAs
RU tone set #1 from STA 1
Non-AP STAs
Aggregated EHT TB Feedback NDP
Non-EHT modulated Preamble
EHT-STF
RU tone sets from other STAs
RU tone set #2 from STA 2
20
40
Time
3900

Figure 39

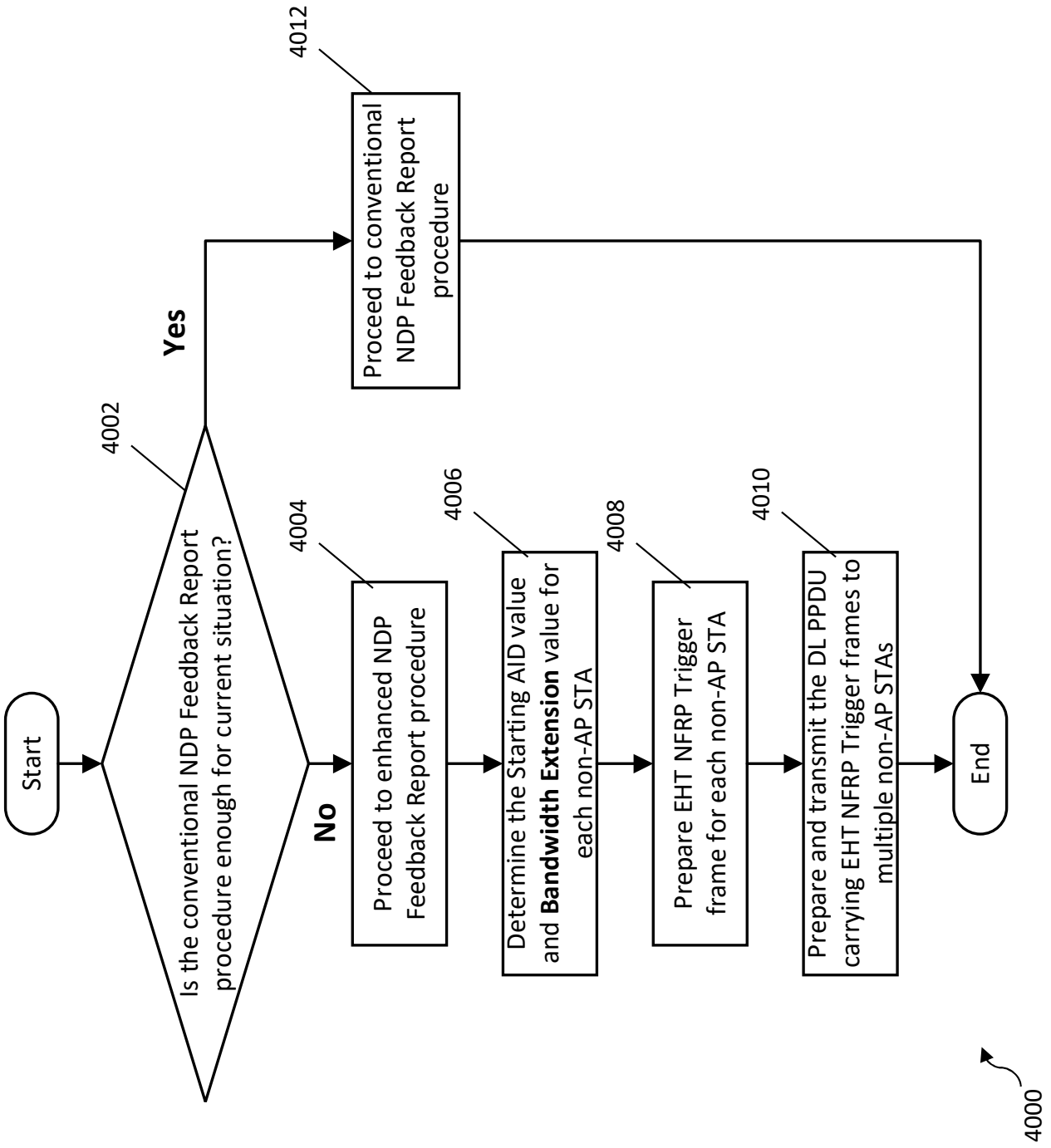

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
4002
Yes
No
Proceed to conventional NDP Feedback Report procedure
4012
Proceed to enhanced NDP Feedback Report procedure
4004
Determine the Starting AID value and **Bandwidth Extension** value for each non-AP STA
4006
Prepare EHT NFRP Trigger frame for each non-AP STA
4008
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
4010
End
4000

Figure 40

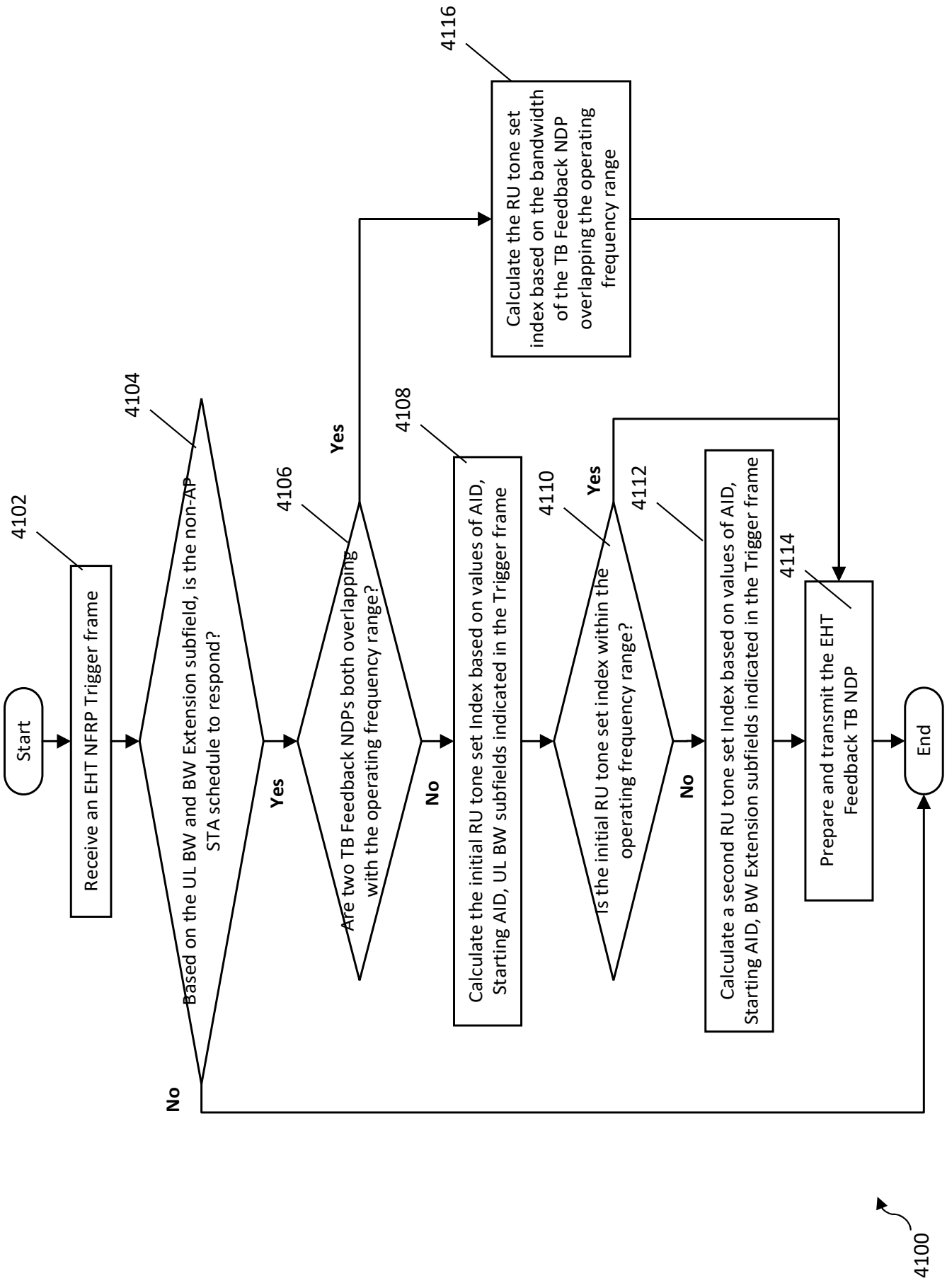

Start
Receive an EHT NFRP Trigger frame
4102
Based on the UL BW and BW Extension subfield, is the non-AP STA schedule to respond?
4104
Yes
No
Are two TB Feedback NDPs both overlapping with the operating frequency range?
4106
Yes
No
Calculate the RU tone set index based on the bandwidth of the TB Feedback NDP overlapping the operating frequency range
4116
Calculate the initial RU tone set Index based on values of AID, Starting AID, UL BW subfields indicated in the Trigger frame
4108
Is the initial RU tone set index within the operating frequency range?
4110
Yes
No
Calculate a second RU tone set Index based on values of AID, Starting AID, BW Extension subfields indicated in the Trigger frame
4112
Prepare and transmit the EHT Feedback TB NDP
4114
End
4100

Figure 41

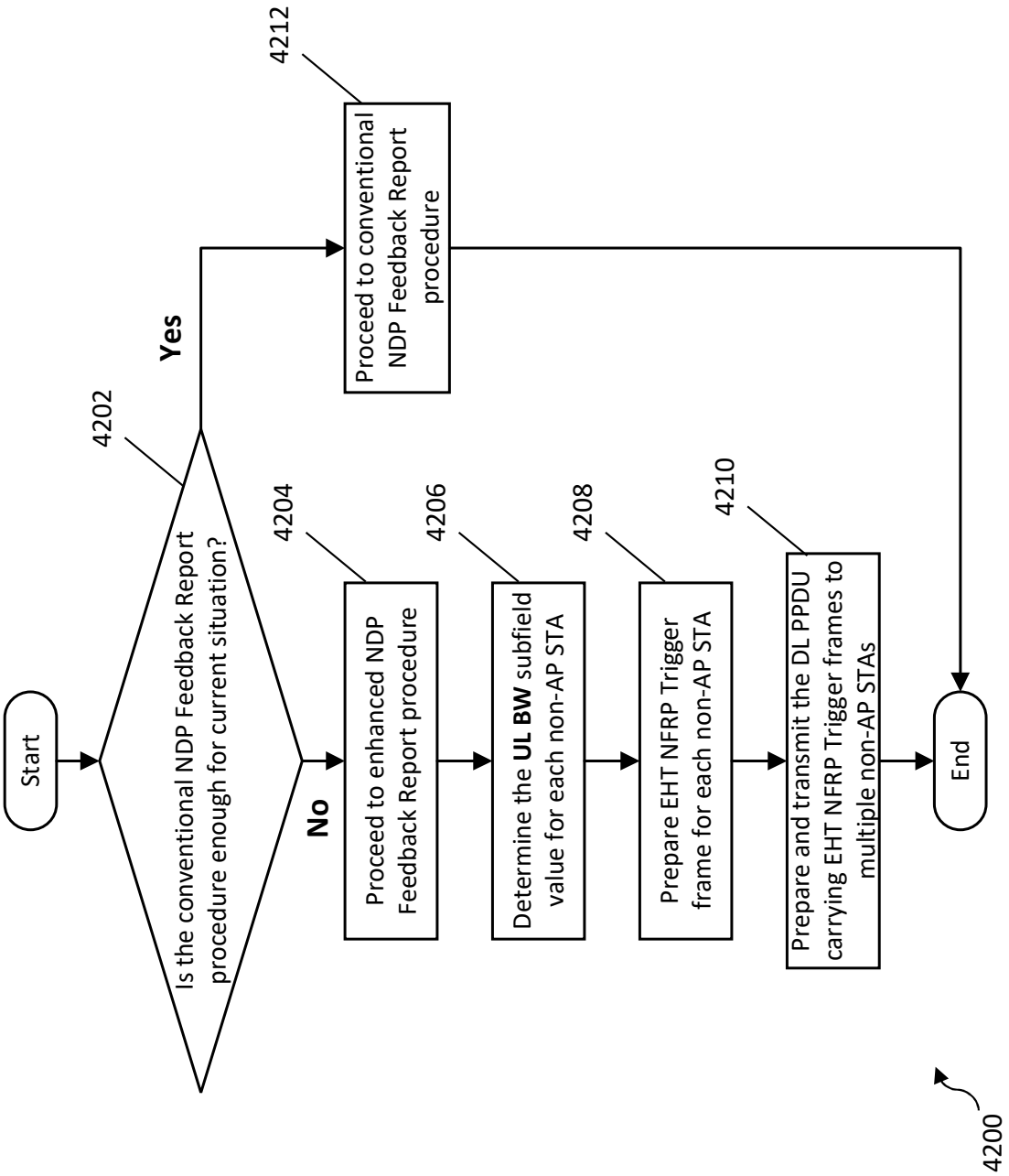

Start
Is the conventional NDP Feedback Report procedure enough for current situation?
4202
Yes
No
Proceed to conventional NDP Feedback Report procedure
4212
Proceed to enhanced NDP Feedback Report procedure
4204
Determine the **UL BW** subfield value for each non-AP STA
4206
Prepare EHT NFRP Trigger frame for each non-AP STA
4208
Prepare and transmit the DL PPDU carrying EHT NFRP Trigger frames to multiple non-AP STAs
4210
End
4200

Figure 42

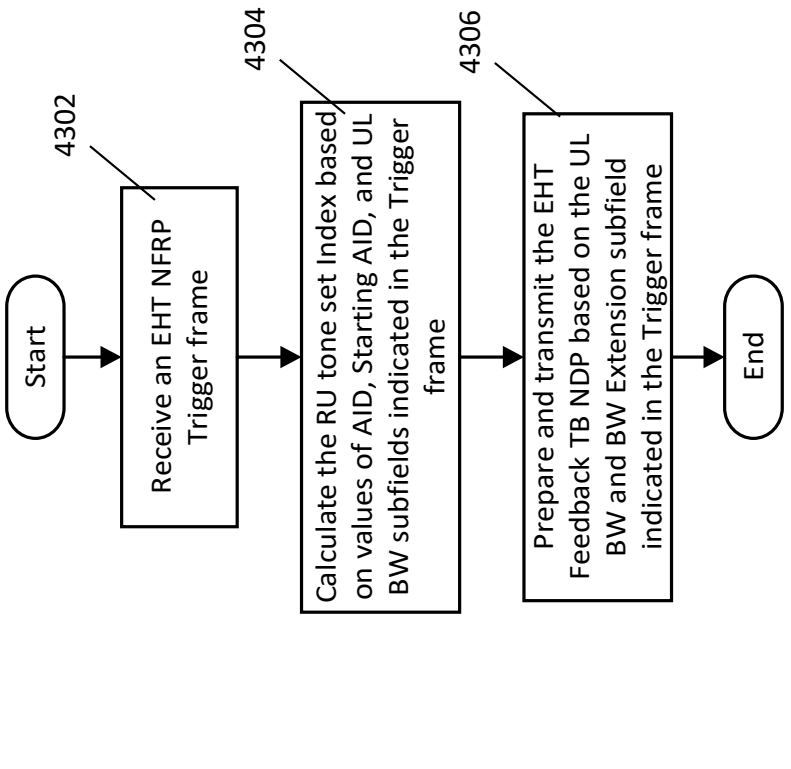

Start
4302
Receive an EHT NFRP Trigger frame
4304
Calculate the RU tone set Index based on values of AID, Starting AID, and UL BW subfields indicated in the Trigger frame
4306
Prepare and transmit the EHT Feedback TB NDP based on the UL BW and BW Extension subfield indicated in the Trigger frame
End
4300

Figure 43

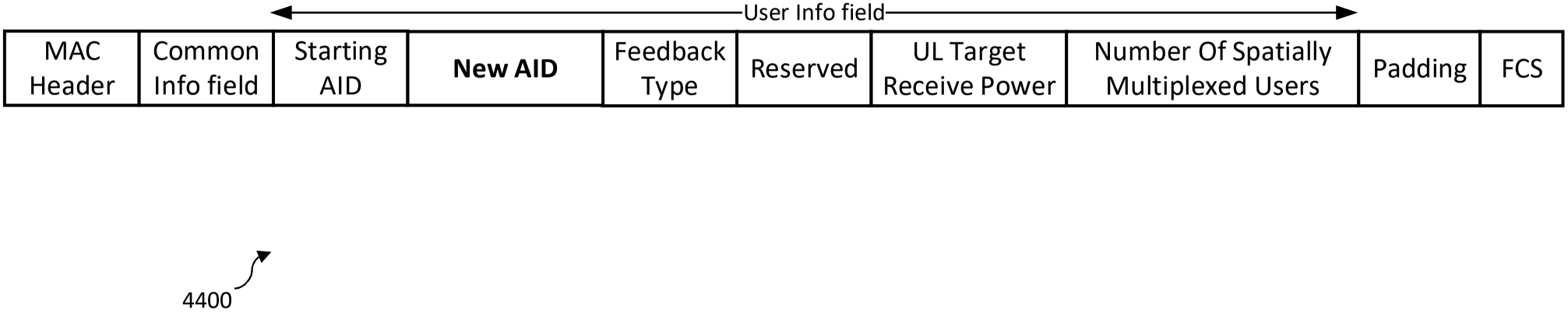

User Info field
MAC Header
Common Info field
Starting AID
New AID
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
4400

Figure 44

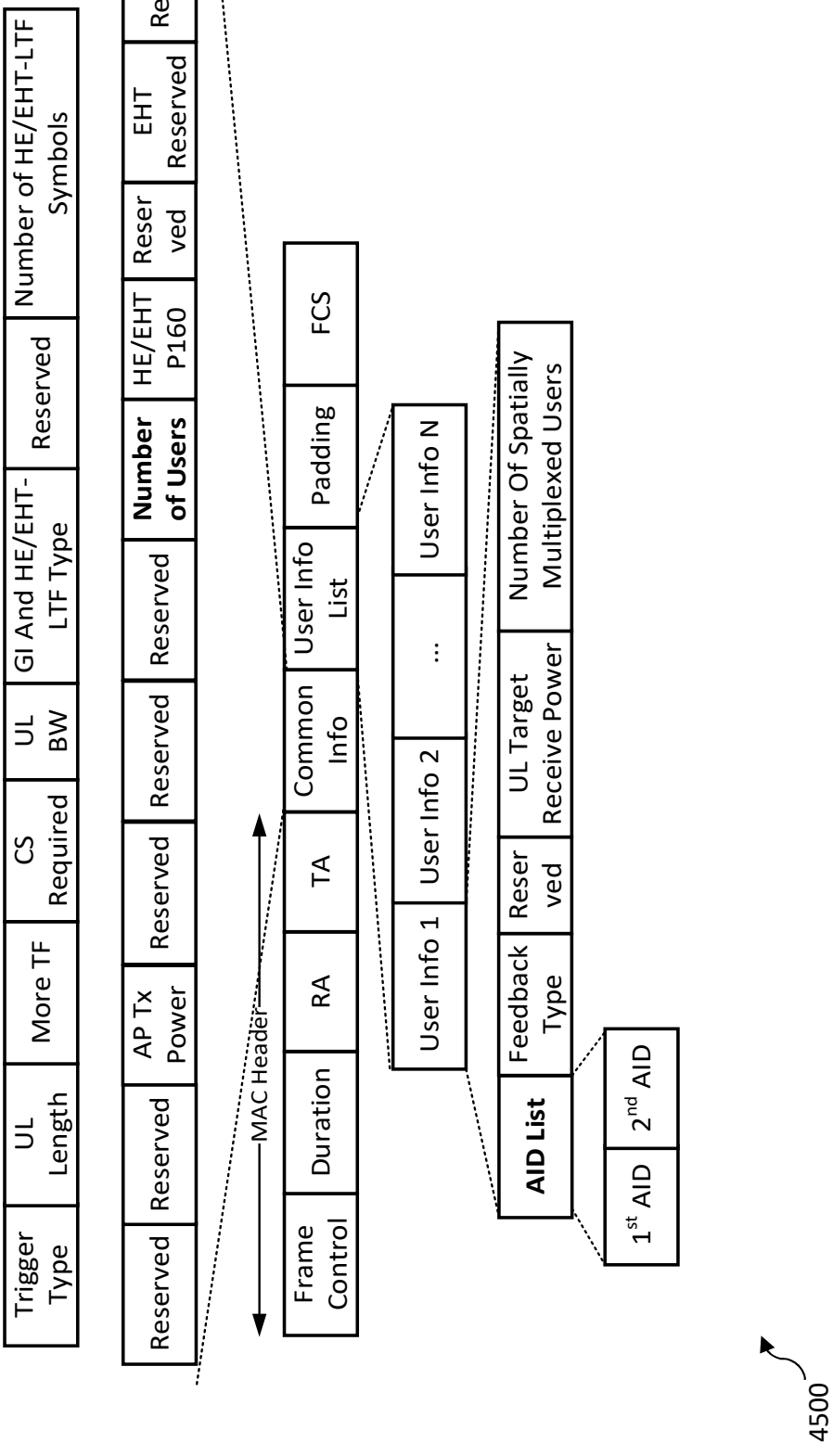

Trigger Type
UL Length
More TF
CS Required
UL BW
GI And HE/EHT-LTF Type
Reserved
Number of HE/EHT-LTF Symbols
Reserved
Reserved
AP Tx Power
Reserved
Reserved
Reserved
Number of Users
HE/EHT P160
Reser ved
EHT Reserved
Reserved
MAC Header
Frame Control
Duration
RA
TA
Common Info
User Info List
Padding
FCS
User Info 1
User Info 2
...
User Info N
AID List
Feedback Type
Reser ved
UL Target Receive Power
Number Of Spatially Multiplexed Users
1st AID
2nd AID
4500

Figure 45

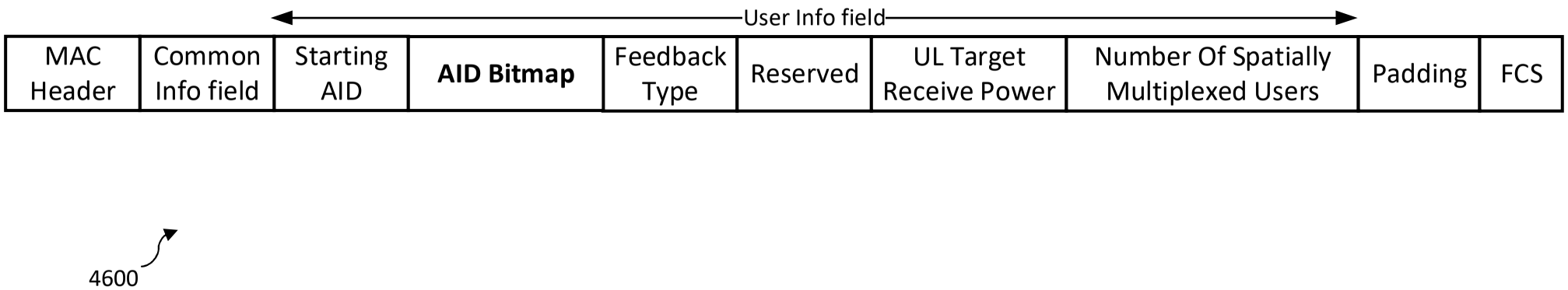

User Info field
MAC Header
Common Info field
Starting AID
AID Bitmap
Feedback Type
Reserved
UL Target Receive Power
Number Of Spatially Multiplexed Users
Padding
FCS
4600

Figure 46

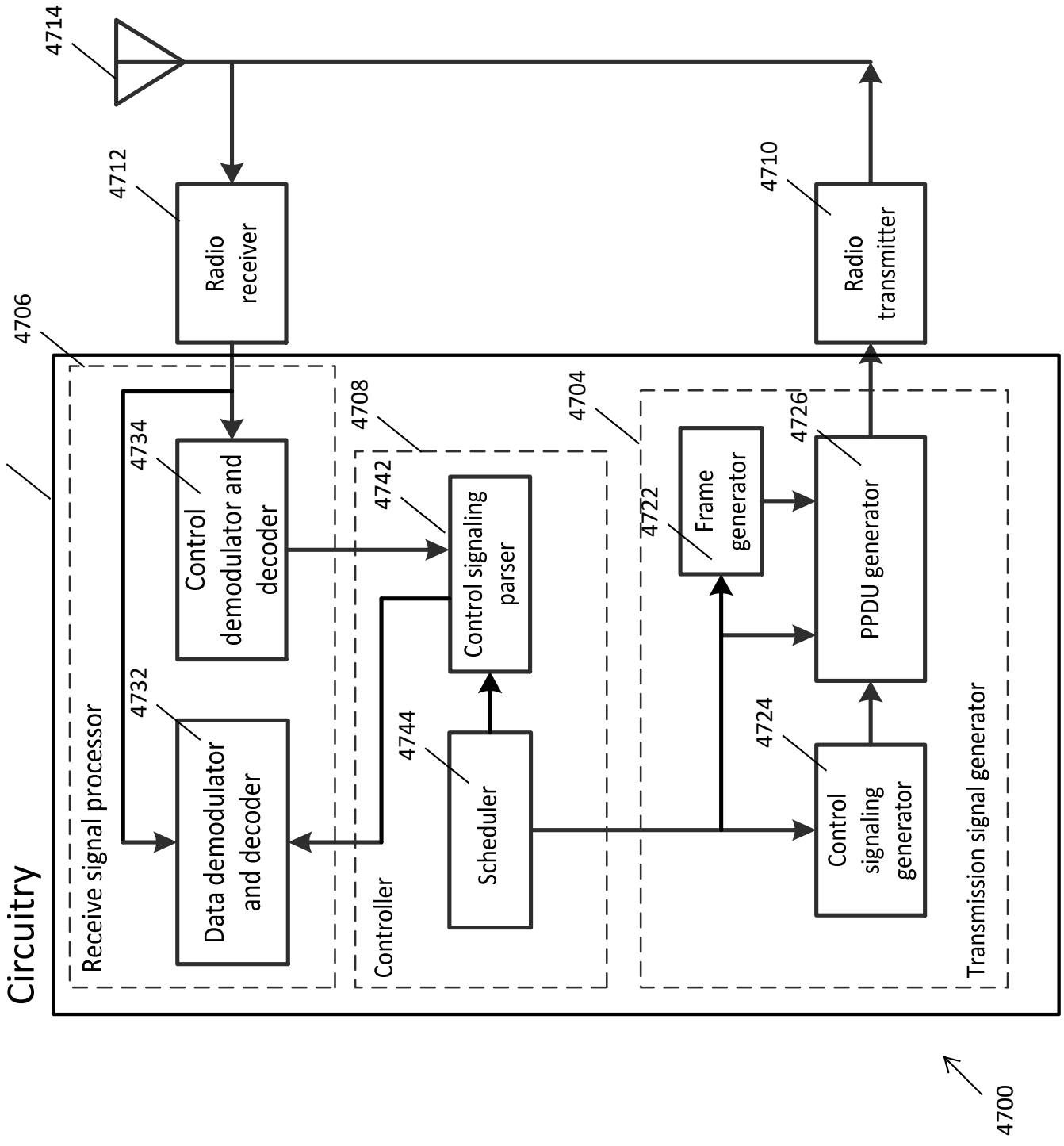

4700
Circuitry
4702
Receive signal processor
4706
4732
Data demodulator and decoder
4734
Control demodulator and decoder
4712
Radio receiver
4714
Controller
4708
4744
Scheduler
4742
Control signaling parser
Transmission signal generator
4704
4722
Frame generator
4724
Control signaling generator
4726
PPDU generator
4710
Radio transmitter

Figure 47

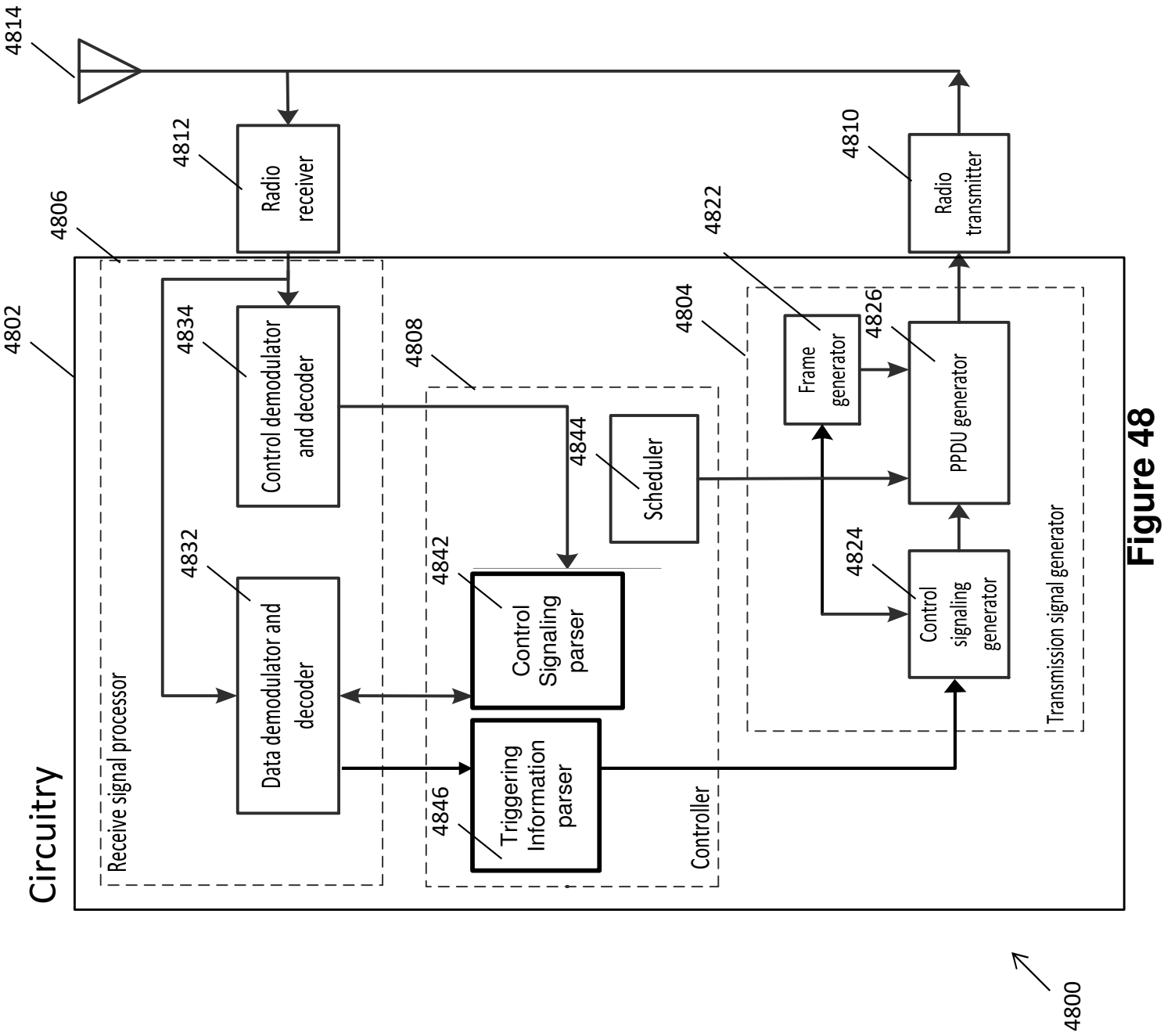

4814
4812
Radio receiver
4806
4810
Radio transmitter
4822
4802
4834
Control demodulator and decoder
4808
4804
4826
Frame generator
PPDU generator
4844
Scheduler
4832
4842
Control Signaling parser
4824
Control signaling generator
Data demodulator and decoder
Triggering Information parser
4846
Circuitry
Receive signal processor
Controller
Transmission signal generator
4800

Figure 48