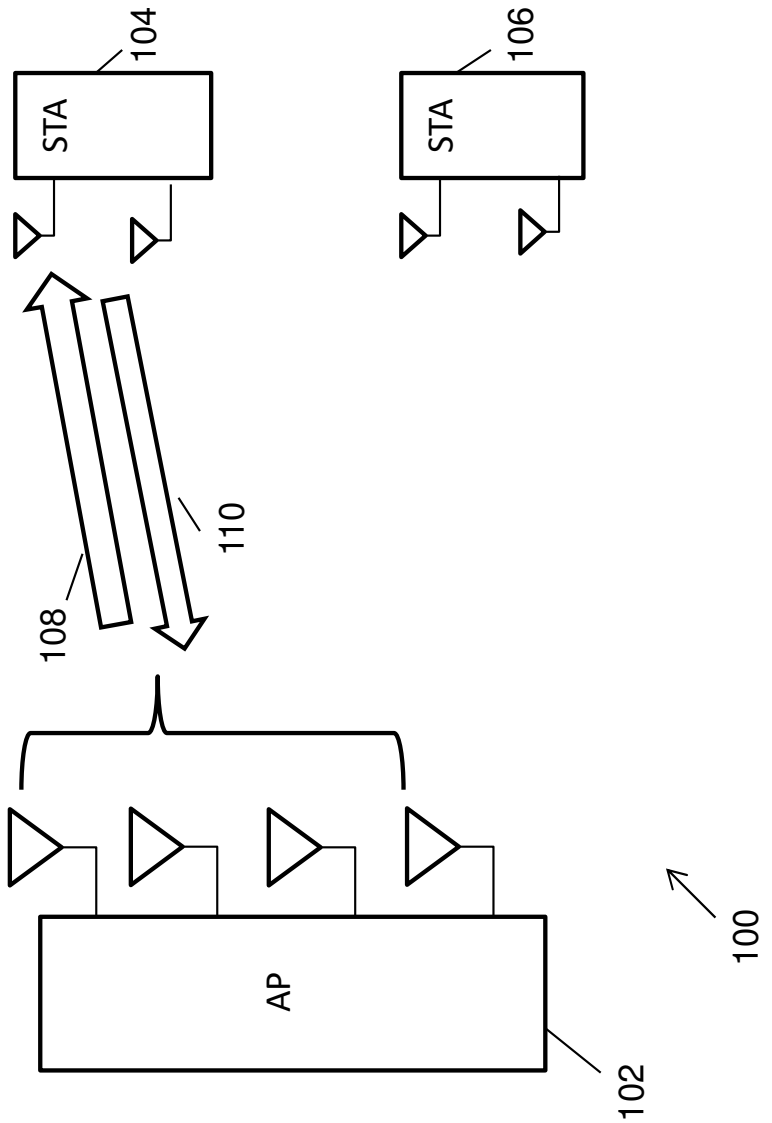


Figure 1

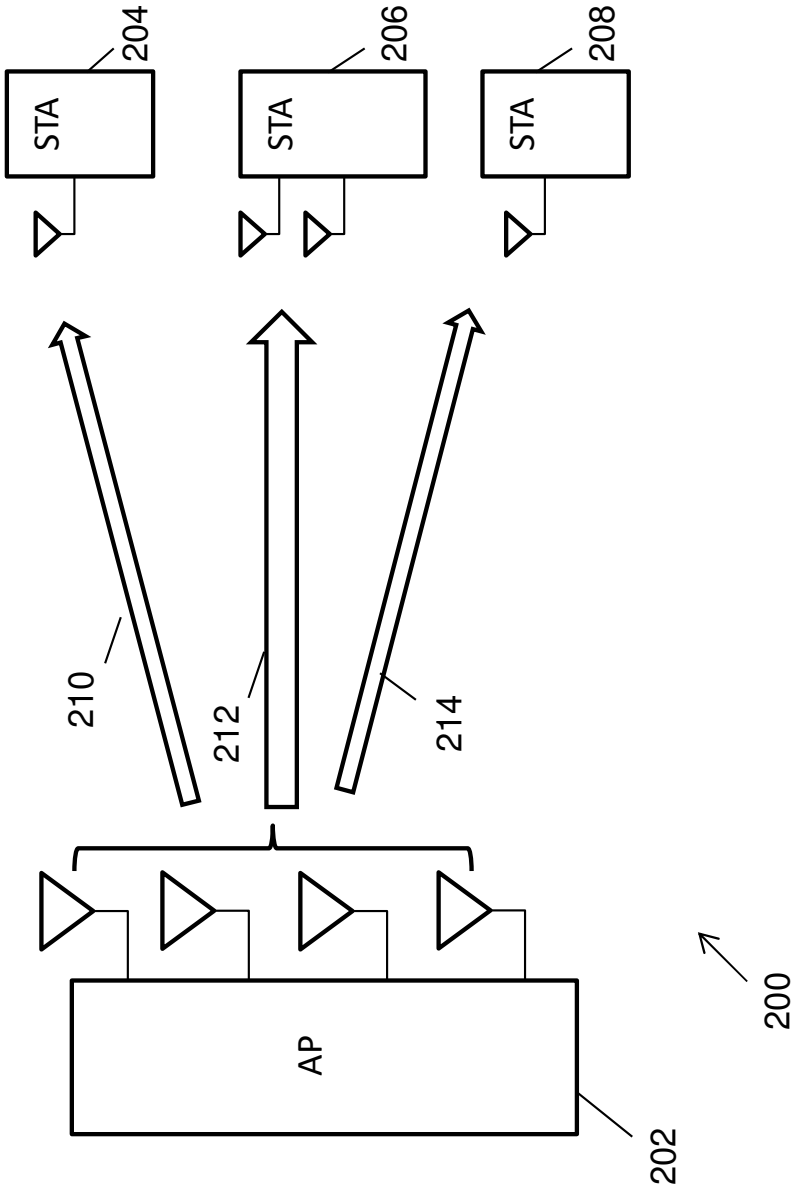


Figure 2

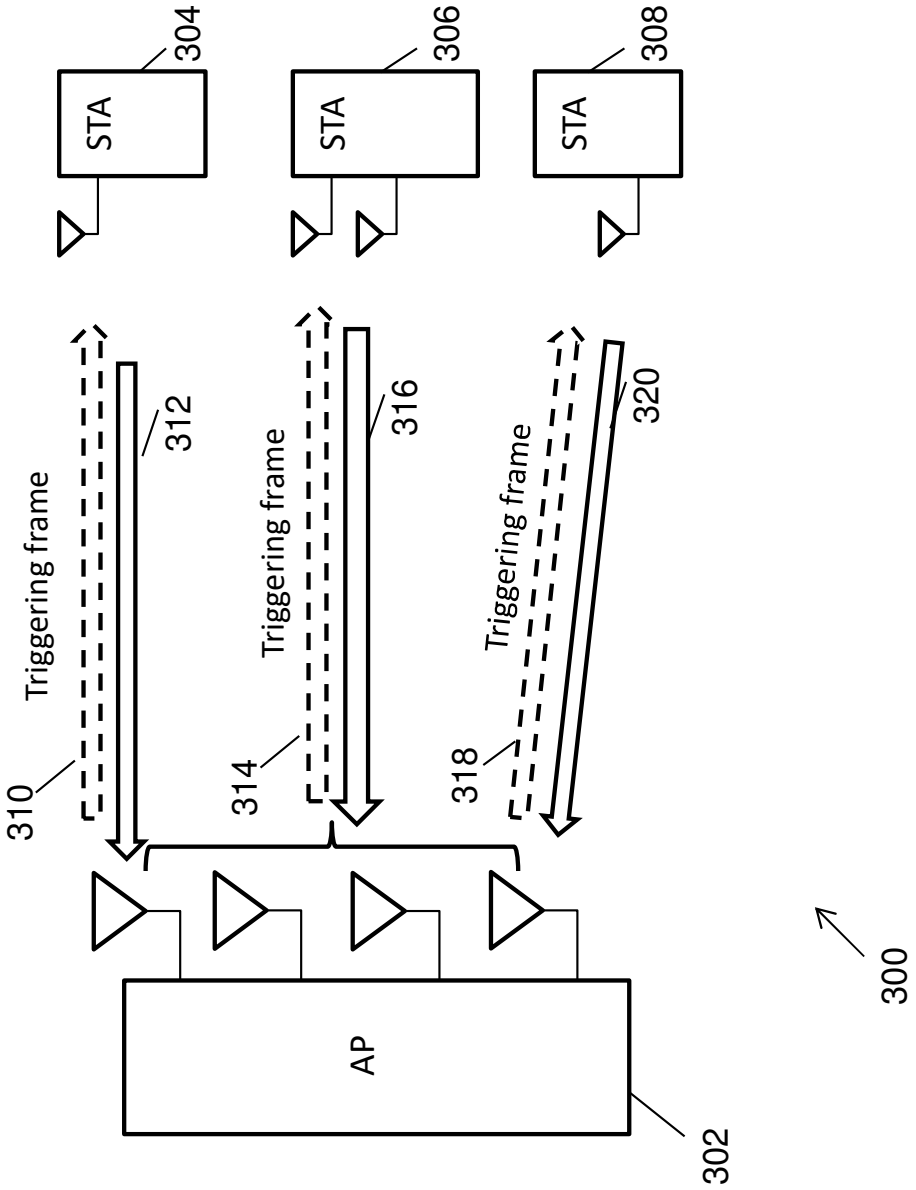

STA
304
STA
306
STA
308
Triggering frame
310
312
Triggering frame
314
316
Triggering frame
318
320
AP
302
300

Figure 3

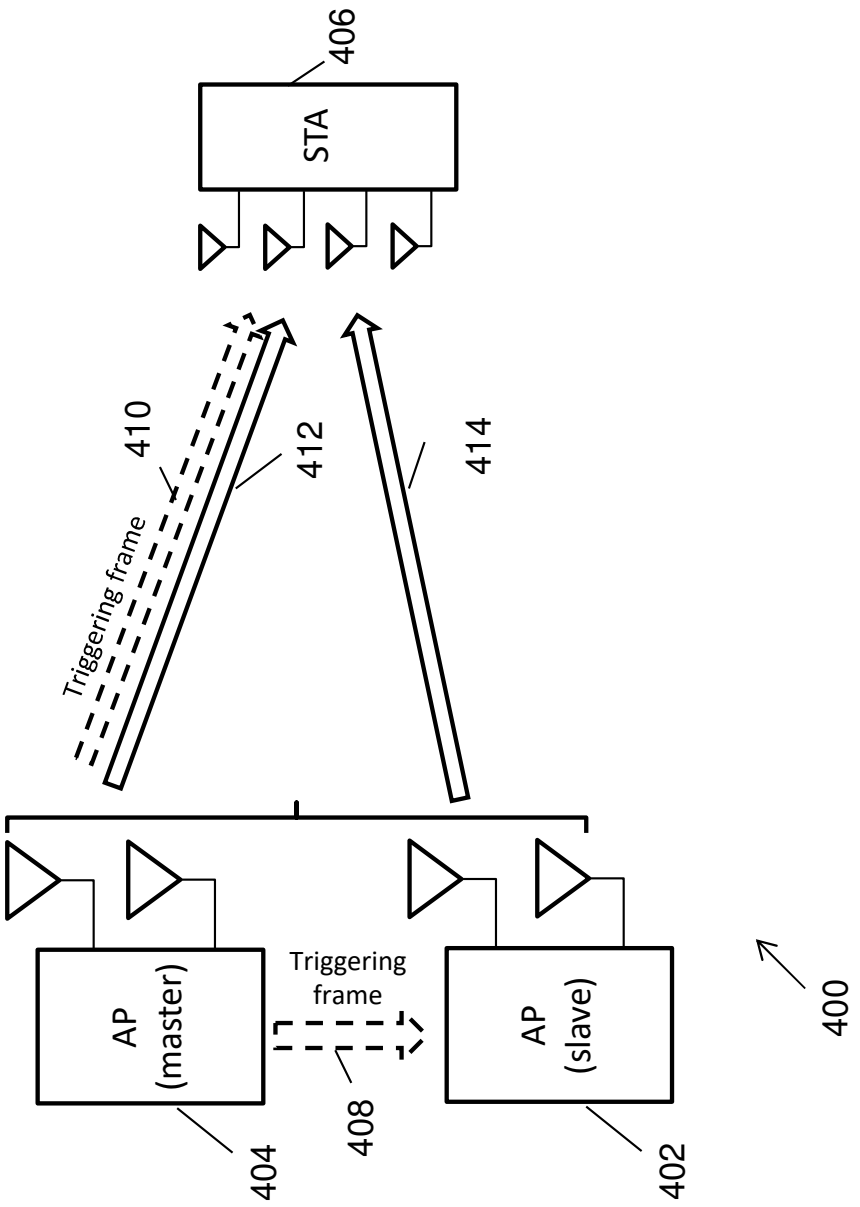

406
STA
410
412
414
Triggering frame
AP
(master)
Triggering
frame
AP
(slave)
400
404
408
402

Figure 4

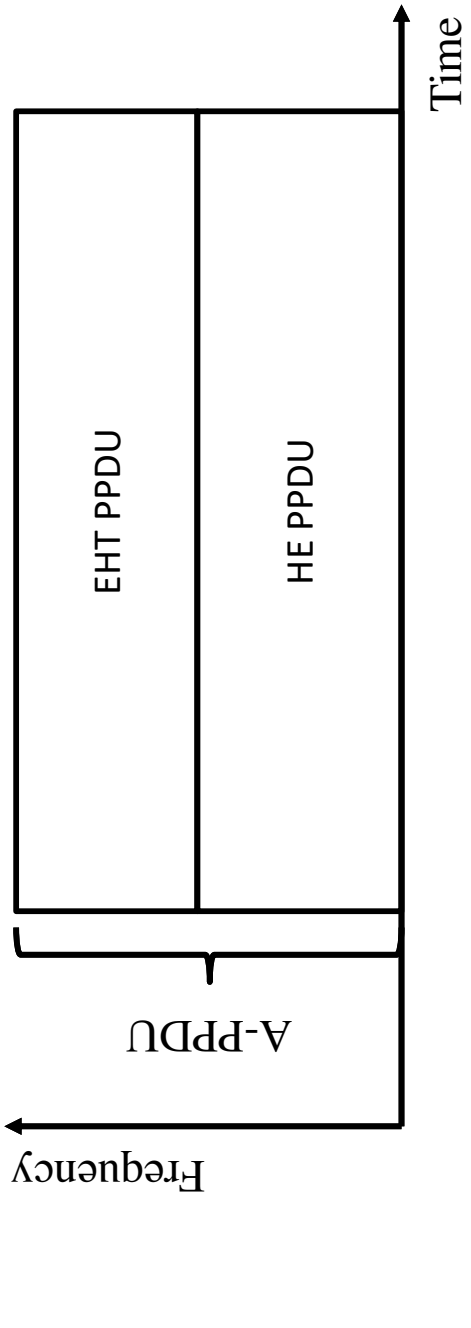


Figure 5

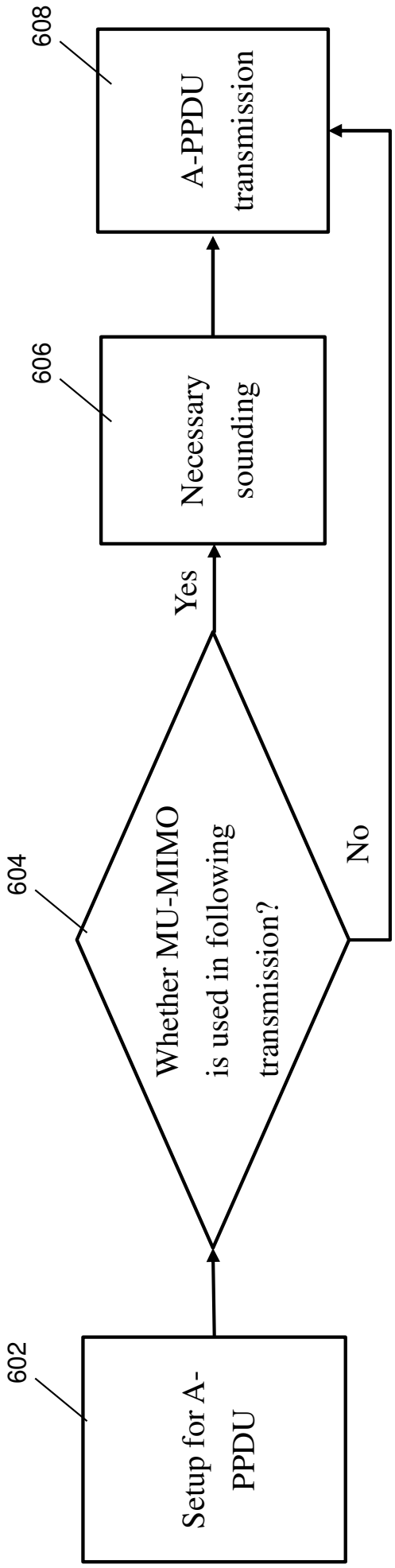

602
Setup for A-PPDU
604
Whether MU-MIMO is used in following transmission?
Yes
No
606
Necessary sounding
608
A-PPDU transmission
600

Figure 6

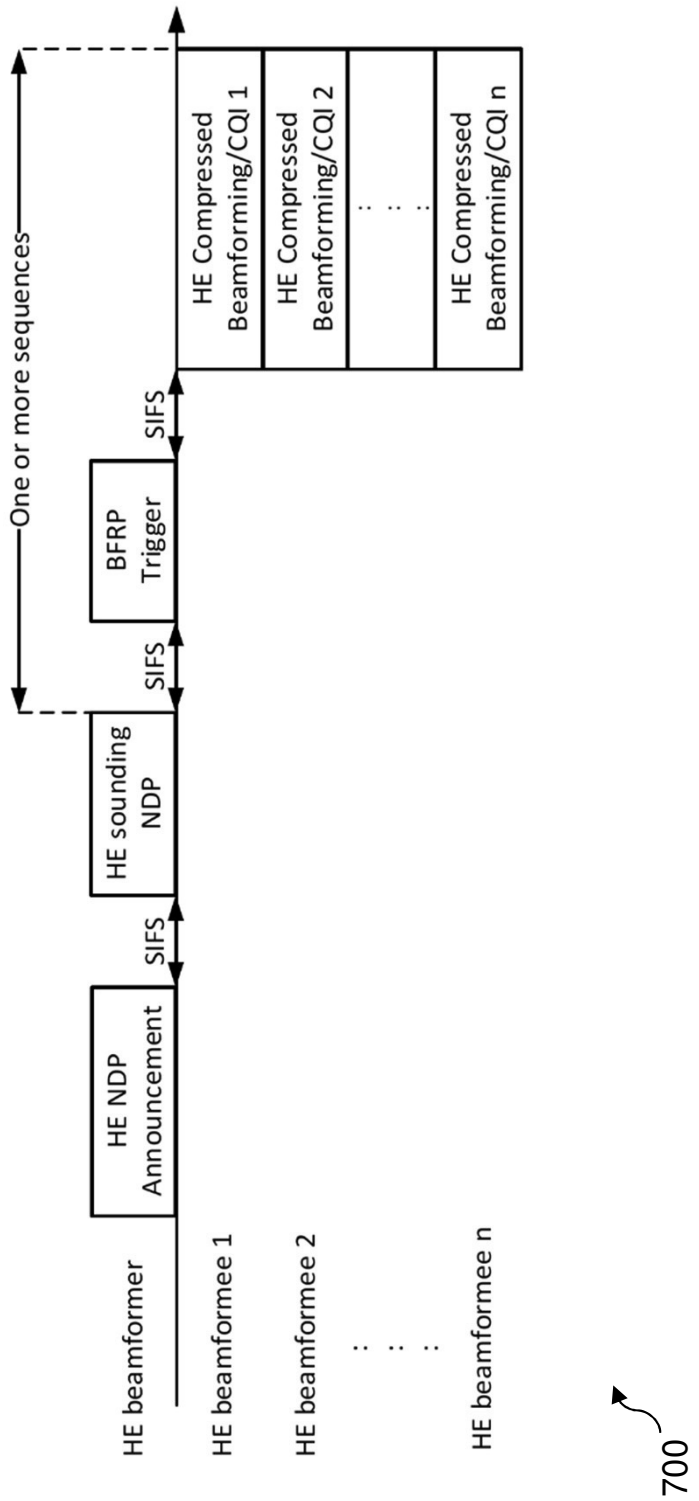

One or more sequences
HE NDP Announcement
SIFS
HE sounding NDP
SIFS
BFRP Trigger
SIFS
HE Compressed Beamforming/CQI 1
HE Compressed Beamforming/CQI 2
HE Compressed Beamforming/CQI n
HE beamformer
HE beamformee 1
HE beamformee 2
HE beamformee n
700

Figure 7

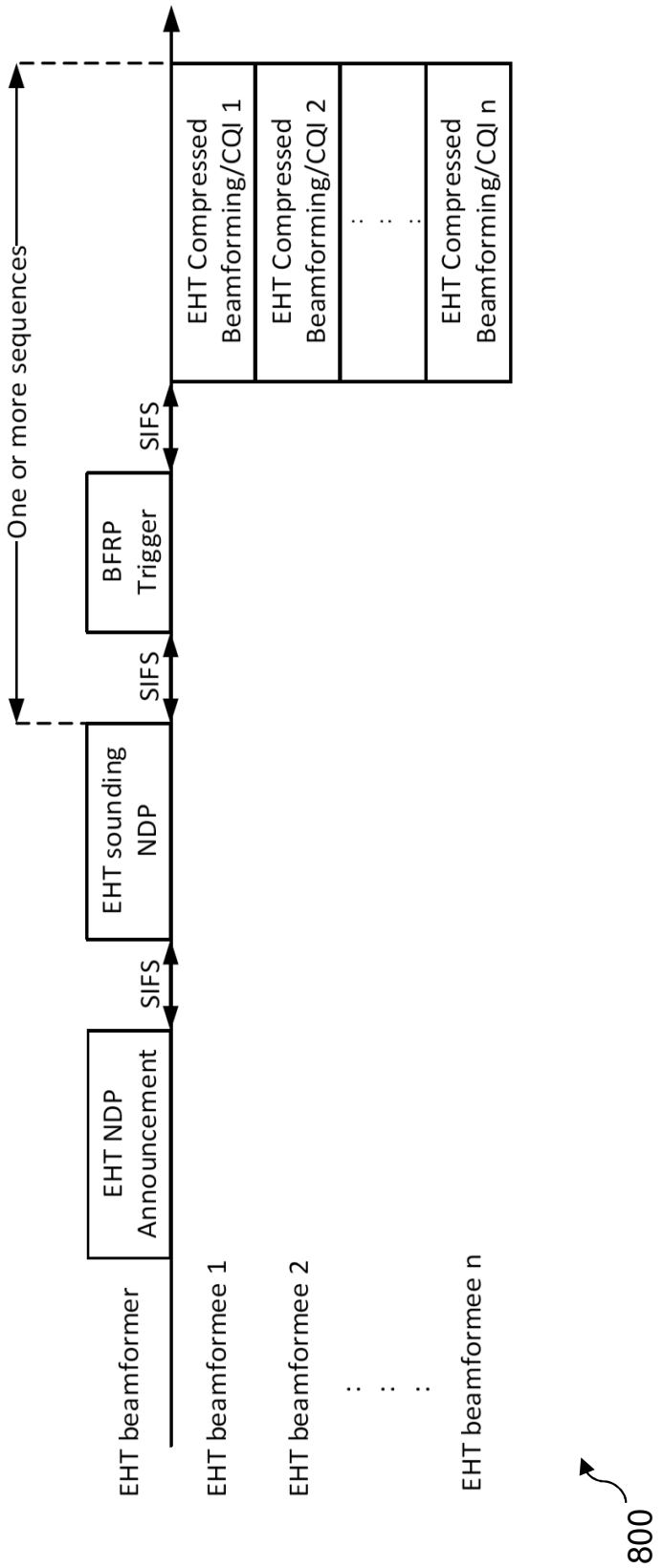

EHT beamformer
EHT beamformee 1
EHT beamformee 2
EHT beamformee n
EHT NDP Announcement
SIFS
EHT sounding NDP
SIFS
BFRP Trigger
SIFS
One or more sequences
EHT Compressed Beamforming/CQI 1
EHT Compressed Beamforming/CQI 2
EHT Compressed Beamforming/CQI n
800

Figure 8

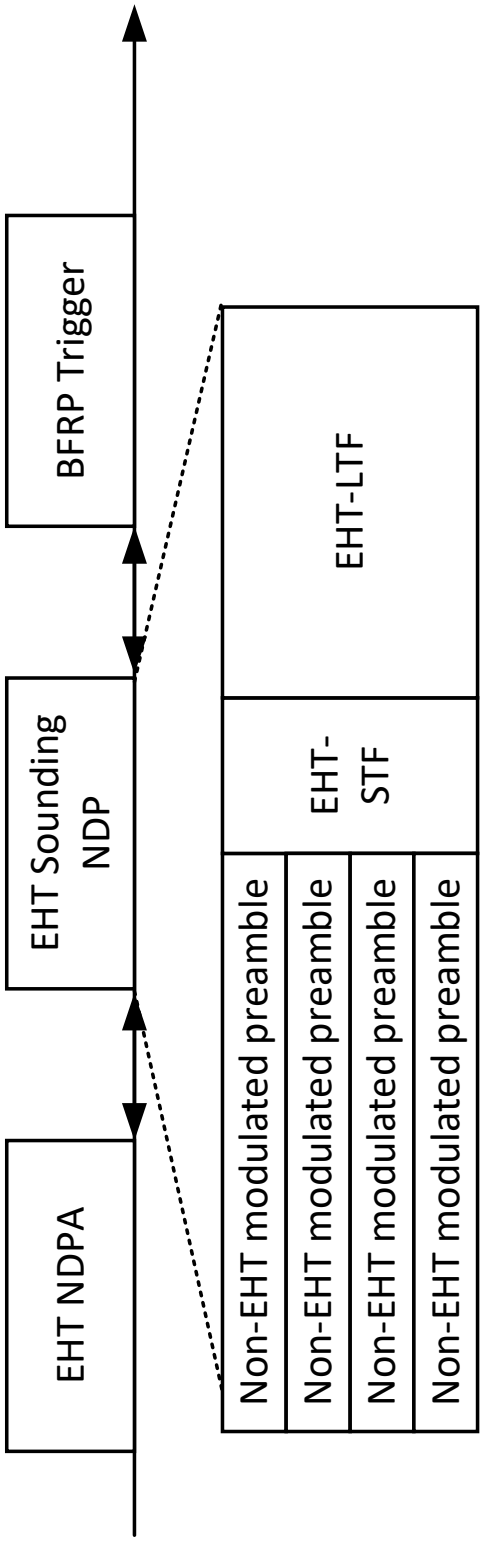

EHT NDPA
EHT Sounding NDP
BFRP Trigger
Non-EHT modulated preamble
Non-EHT modulated preamble
Non-EHT modulated preamble
Non-EHT modulated preamble
EHT-STF
EHT-LTF

Figure 9

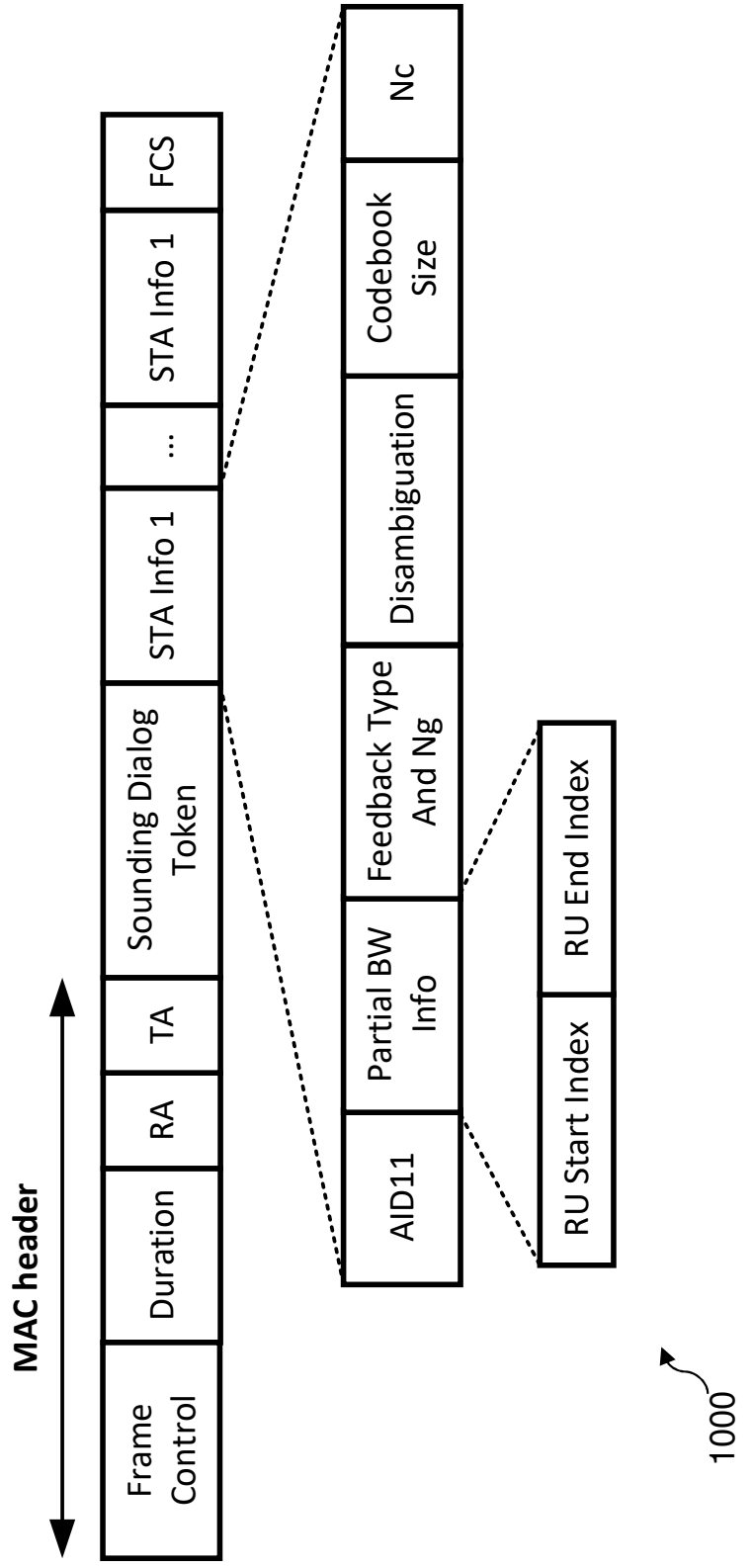

MAC header
Frame Control
Duration
RA
TA
Sounding Dialog Token
STA Info 1
...
STA Info 1
FCS
AID11
Partial BW Info
Feedback Type And Ng
Disambiguation
Codebook Size
Nc
RU Start Index
RU End Index
1000

Figure 10

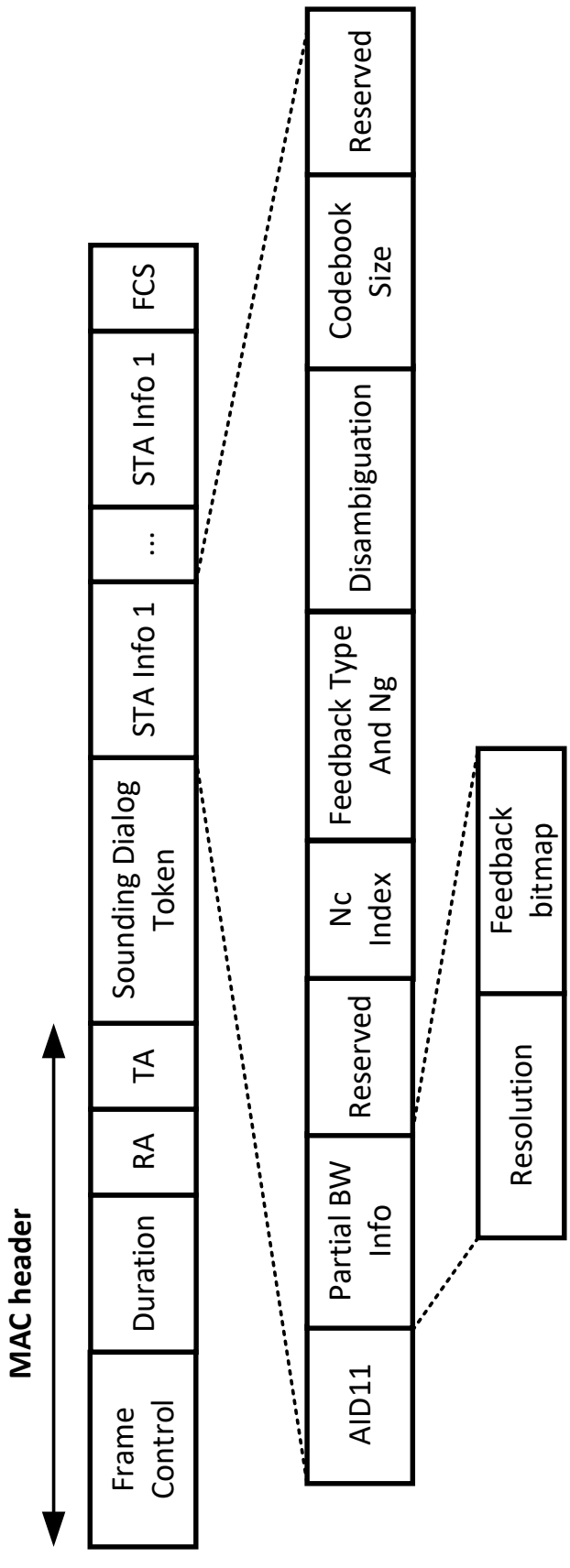

MAC header
Frame Control
Duration
RA
TA
Sounding Dialog Token
STA Info 1
...
STA Info 1
FCS
AID11
Partial BW Info
Reserved
Nc Index
Feedback Type And Ng
Disambiguation
Codebook Size
Reserved
Resolution
Feedback bitmap
1100

Figure 11

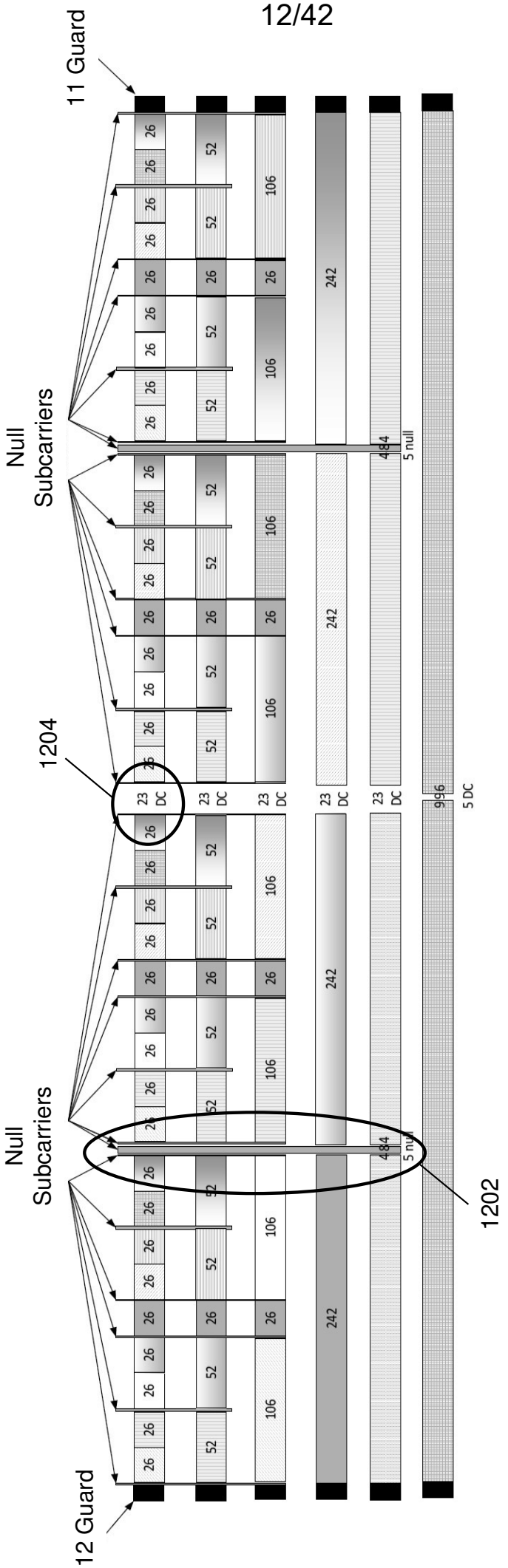

11 Guard
Null Subcarriers
1204
Null Subcarriers
12 Guard
1202
26
52
106
242
484
996
23 DC
5 null
5 DC

Figure 12

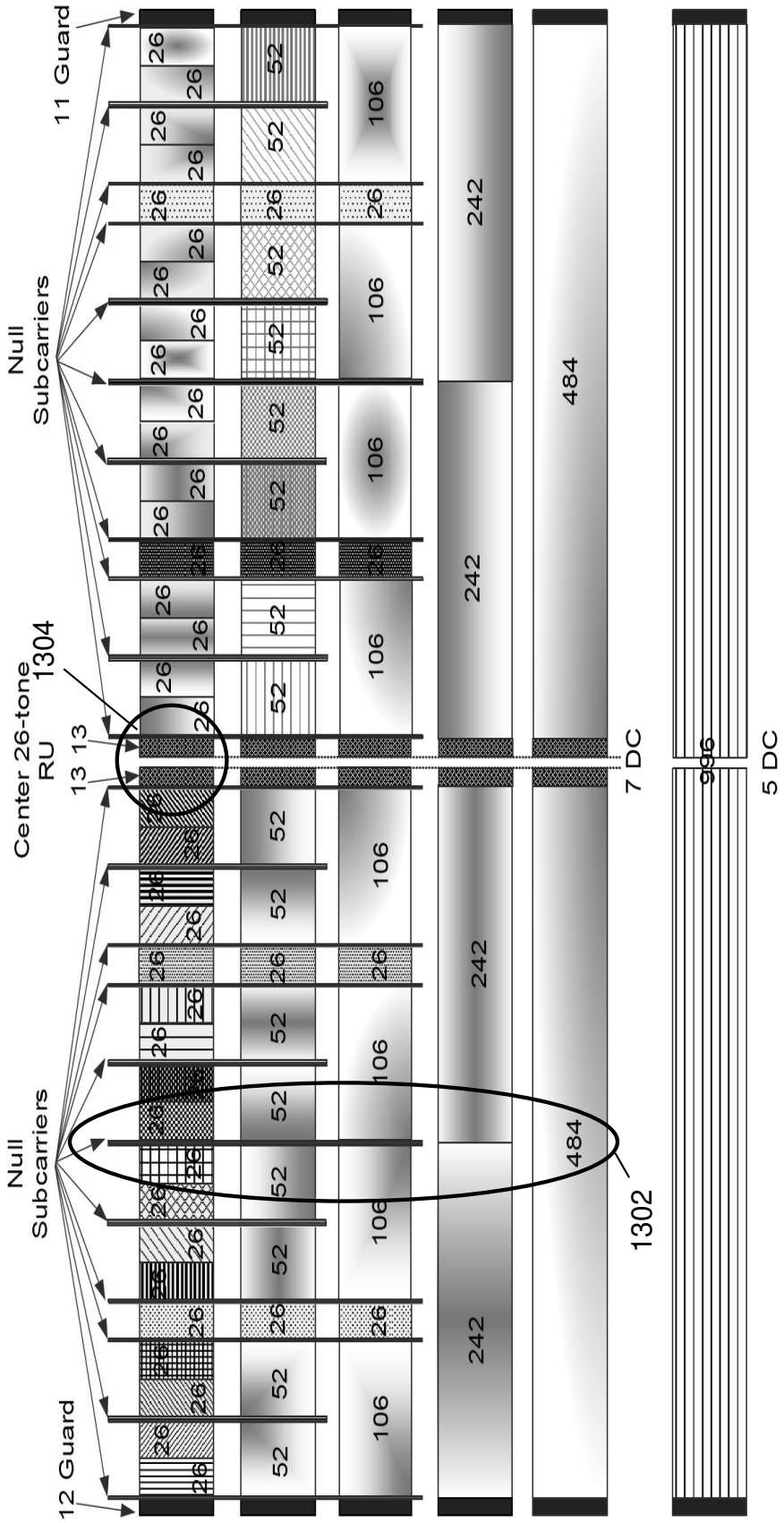

11 Guard
Null Subcarriers
Center 26-tone RU
1304
13 13
Null Subcarriers
12 Guard
1302
7 DC
5 DC
26
52
106
242
484
996

Figure 13

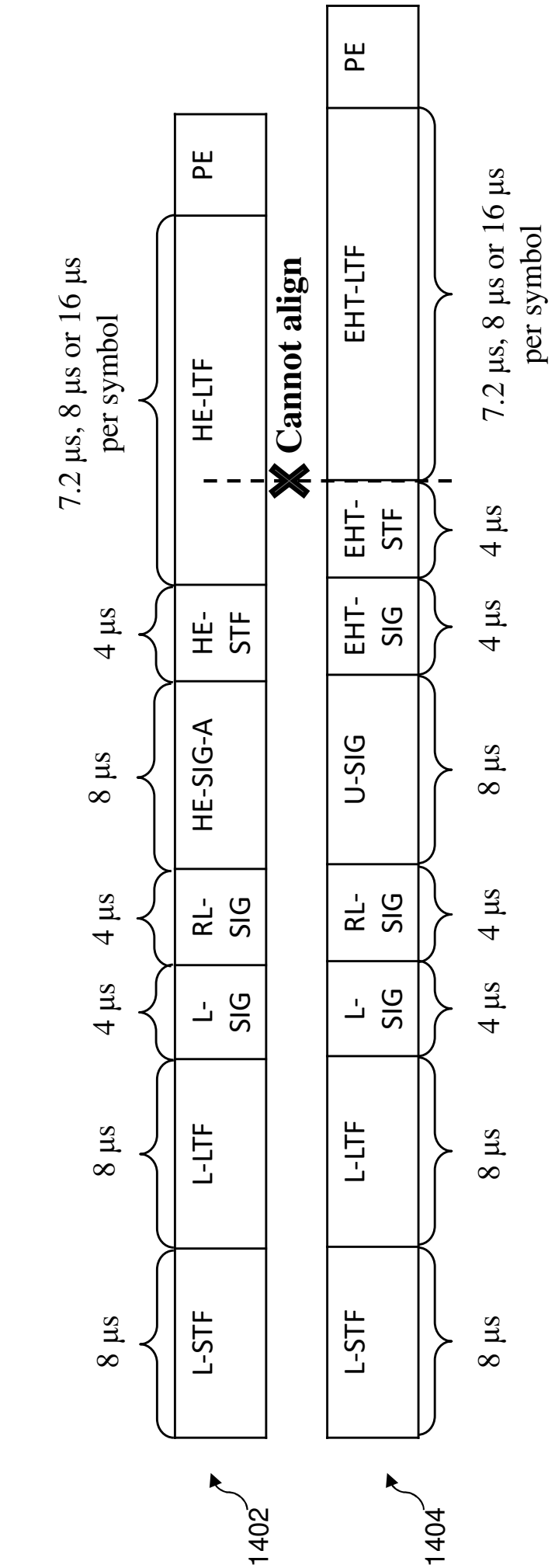

1402
1404
L-STF
L-LTF
L-SIG
RL-SIG
HE-SIG-A
HE-STF
HE-LTF
PE
U-SIG
EHT-SIG
EHT-STF
EHT-LTF
PE
8 µs
8 µs
4 µs
4 µs
8 µs
4 µs
7.2 µs, 8 µs or 16 µs per symbol
Cannot align
8 µs
8 µs
4 µs
4 µs
8 µs
4 µs
7.2 µs, 8 µs or 16 µs per symbol

Figure 14

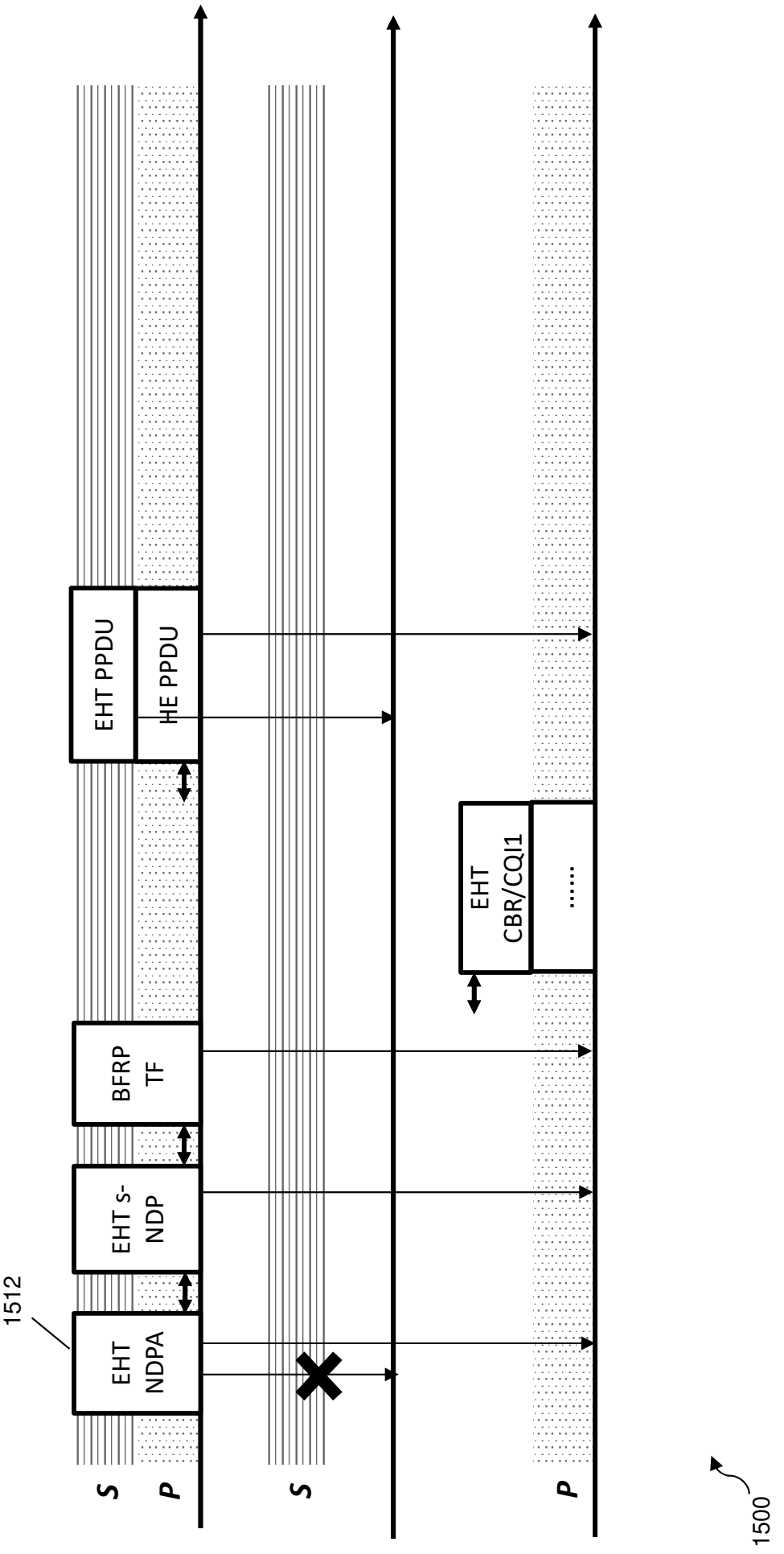

AP
1502
EHT
STAs
1506
EHT
STAs
1504
S
P
S
P
1512
EHT
NDPA
EHT s-
NDP
BFRP
TF
EHT
CBR/CQI1
.....
EHT PPDU
HE PPDU
1500

Figure 15

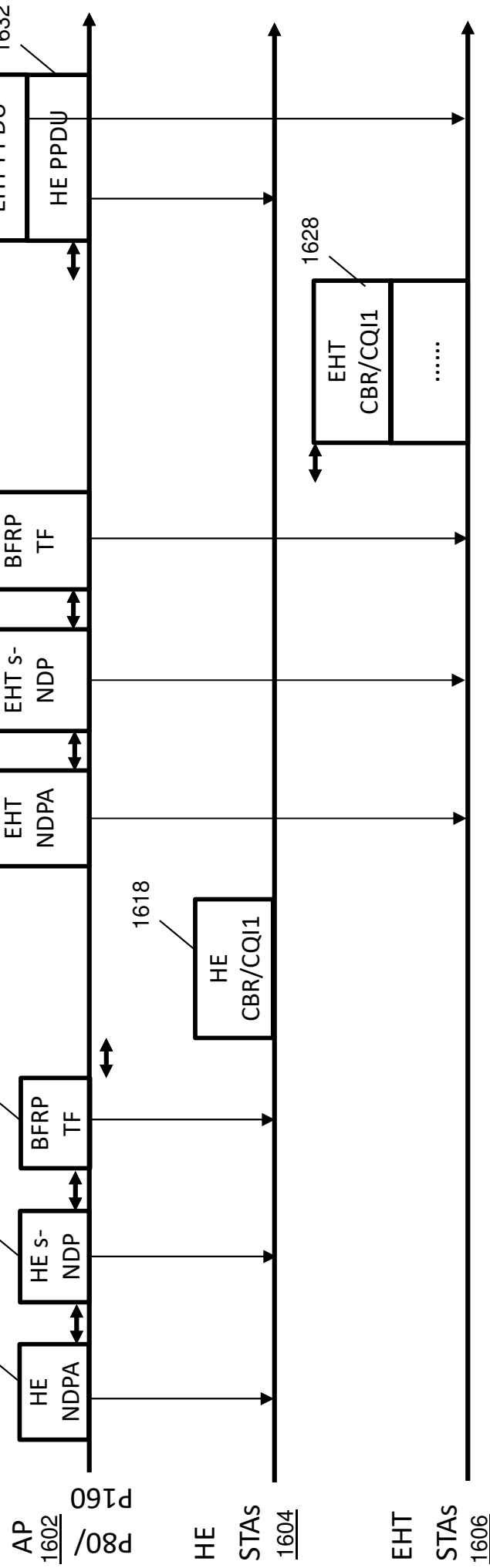

AP 1602
p80/p160
HE STAs 1604
EHT STAs 1606
1612
HE NDPA
1614
HE s-NDP
1616
BFRP TF
1618
HE CBR/CQI1
1622
EHT NDPA
1624
EHT s-NDP
1626
BFRP TF
1628
EHT CBR/CQI1
.....
1632
HE PPDU
1634
EHT PPDU
1600

Figure 16

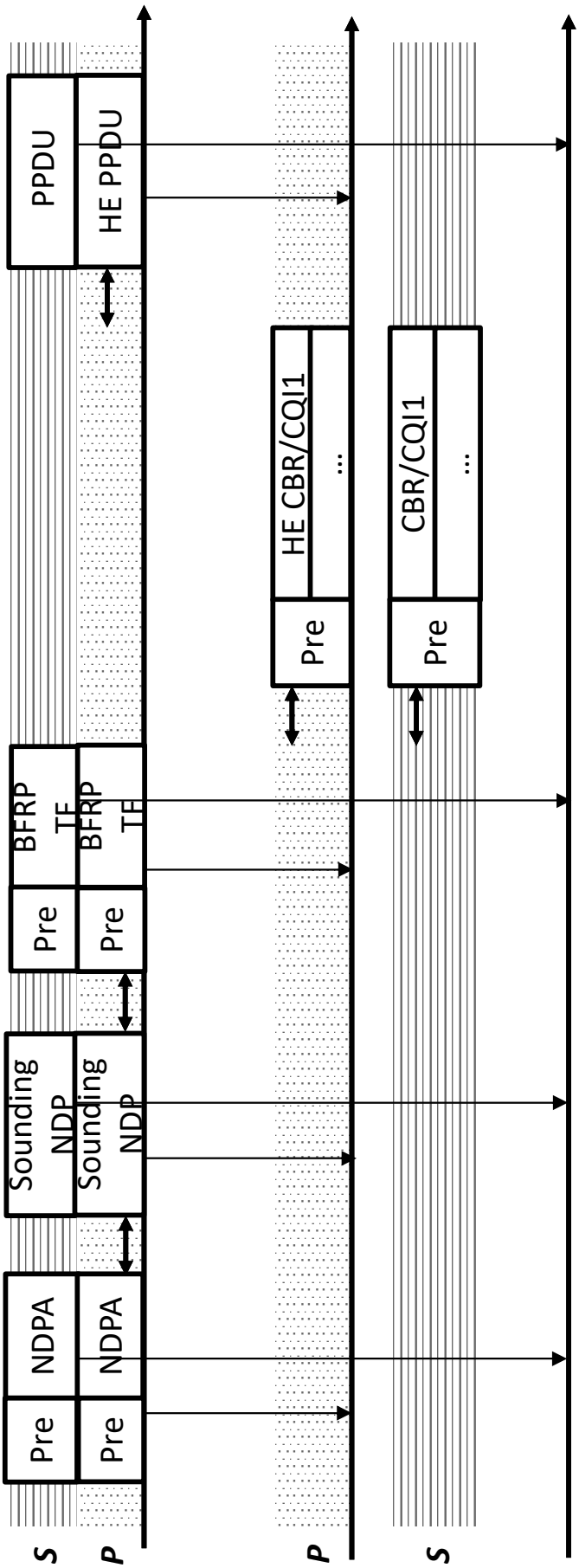

PPDU
HE PPDU
HE CBR/CQI1
...
CBR/CQI1
...
Pre
Pre
Pre
Pre
Pre
BFRP TF
BFRP TF
Sounding NDP
Sounding NDP
NDPA
NDPA
S
P
P
S
AP 1702
HE STAs 1704
EHT STAs 1706
1700

Figure 17

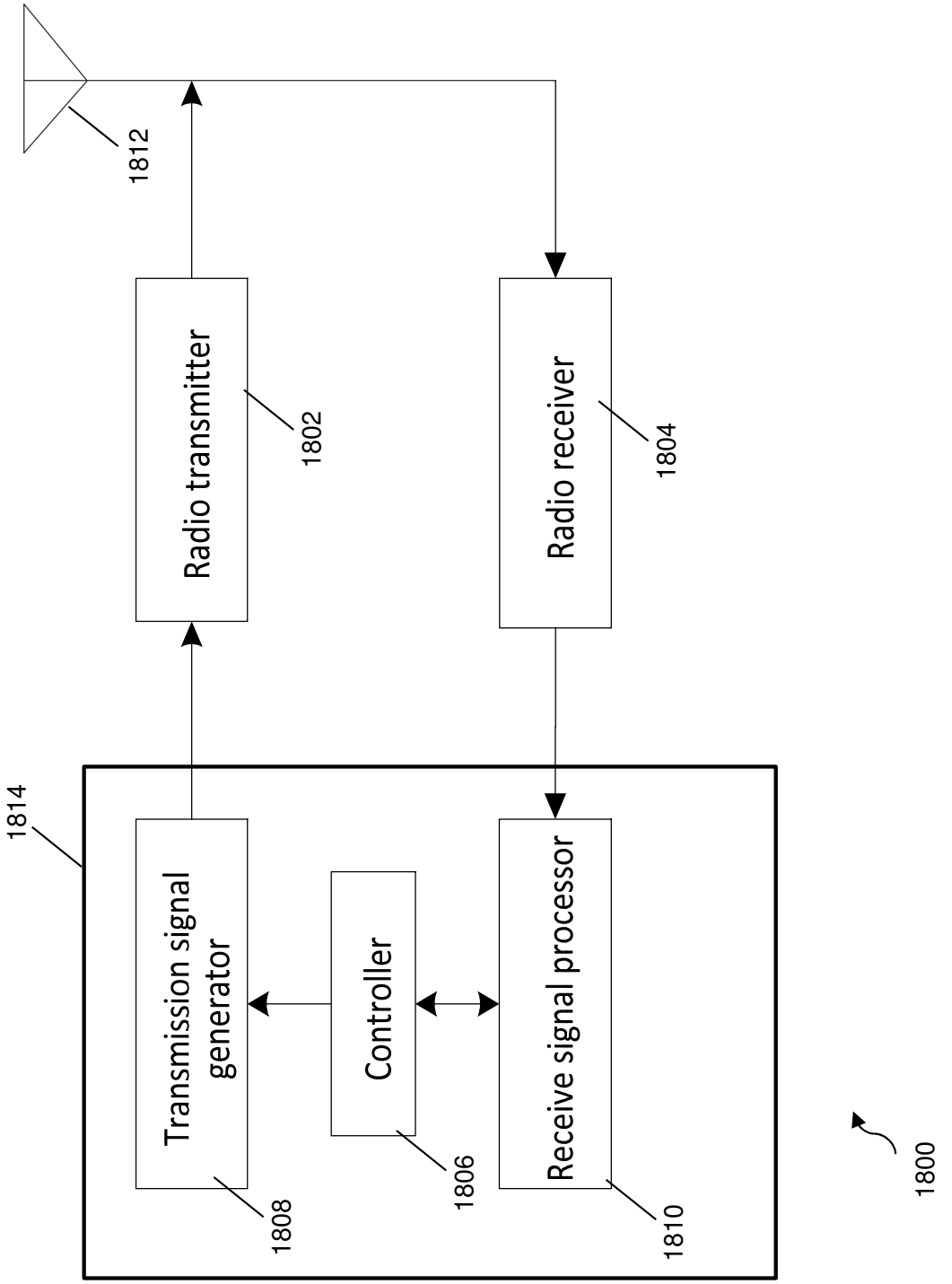

1812
Radio transmitter
1802
Radio receiver
1804
1814
Transmission signal generator
Controller
Receive signal processor
1808
1806
1810
1800

Figure 18

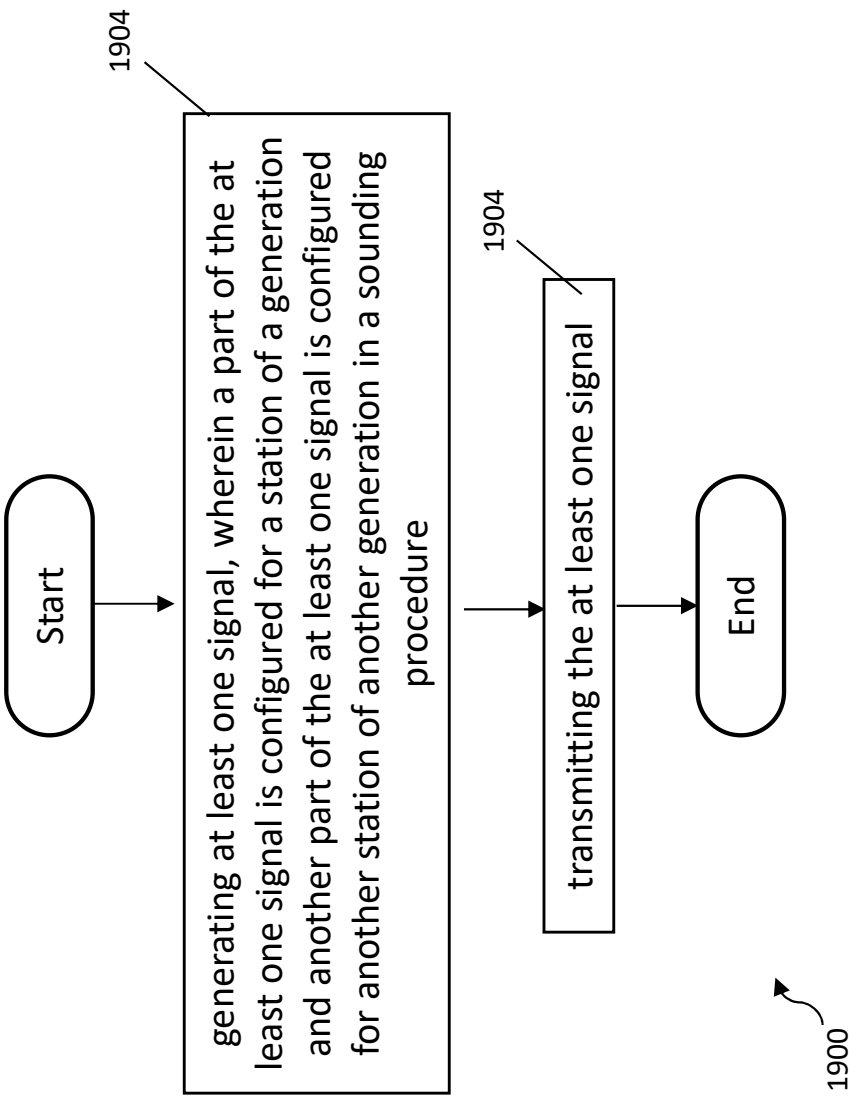

Start
1904
generating at least one signal, wherein a part of the at least one signal is configured for a station of a generation and another part of the at least one signal is configured for another station of another generation in a sounding procedure
1904
transmitting the at least one signal
End
1900

Figure 19

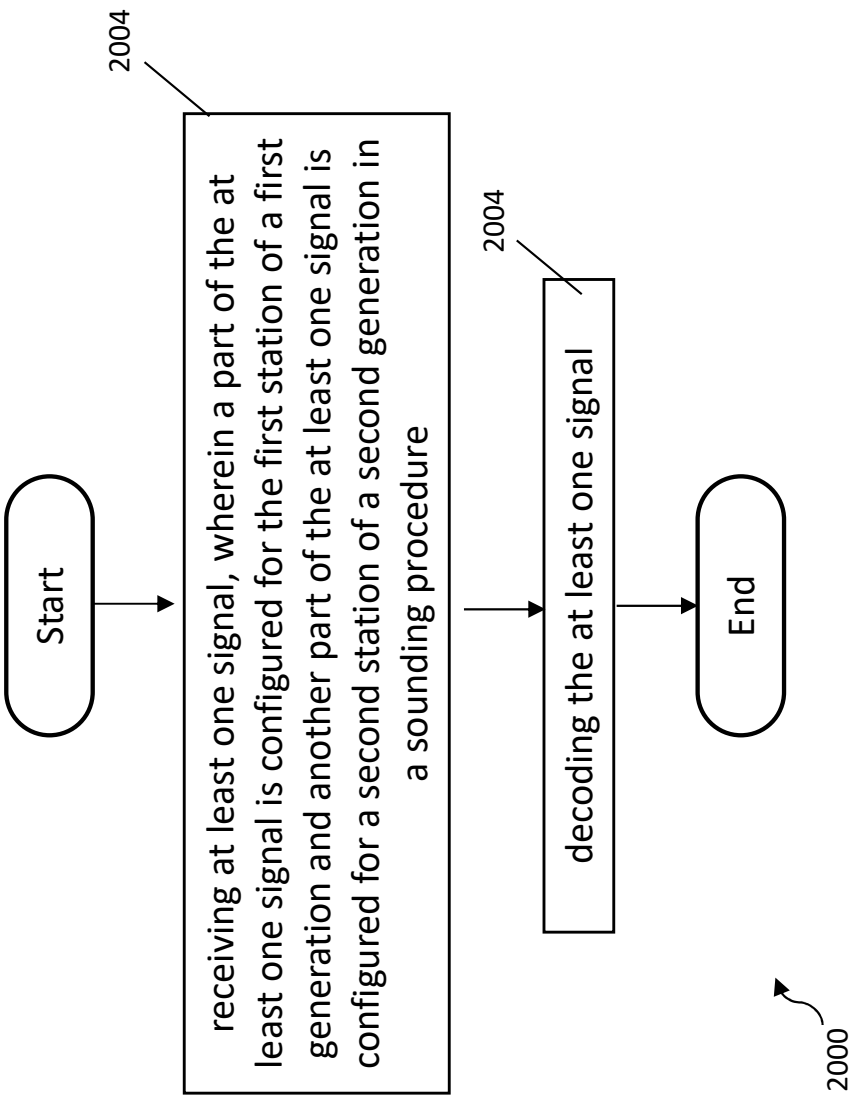

Start
2004
receiving at least one signal, wherein a part of the at least one signal is configured for the first station of a first generation and another part of the at least one signal is configured for a second station of a second generation in a sounding procedure
2004
decoding the at least one signal
End
2000

Figure 20

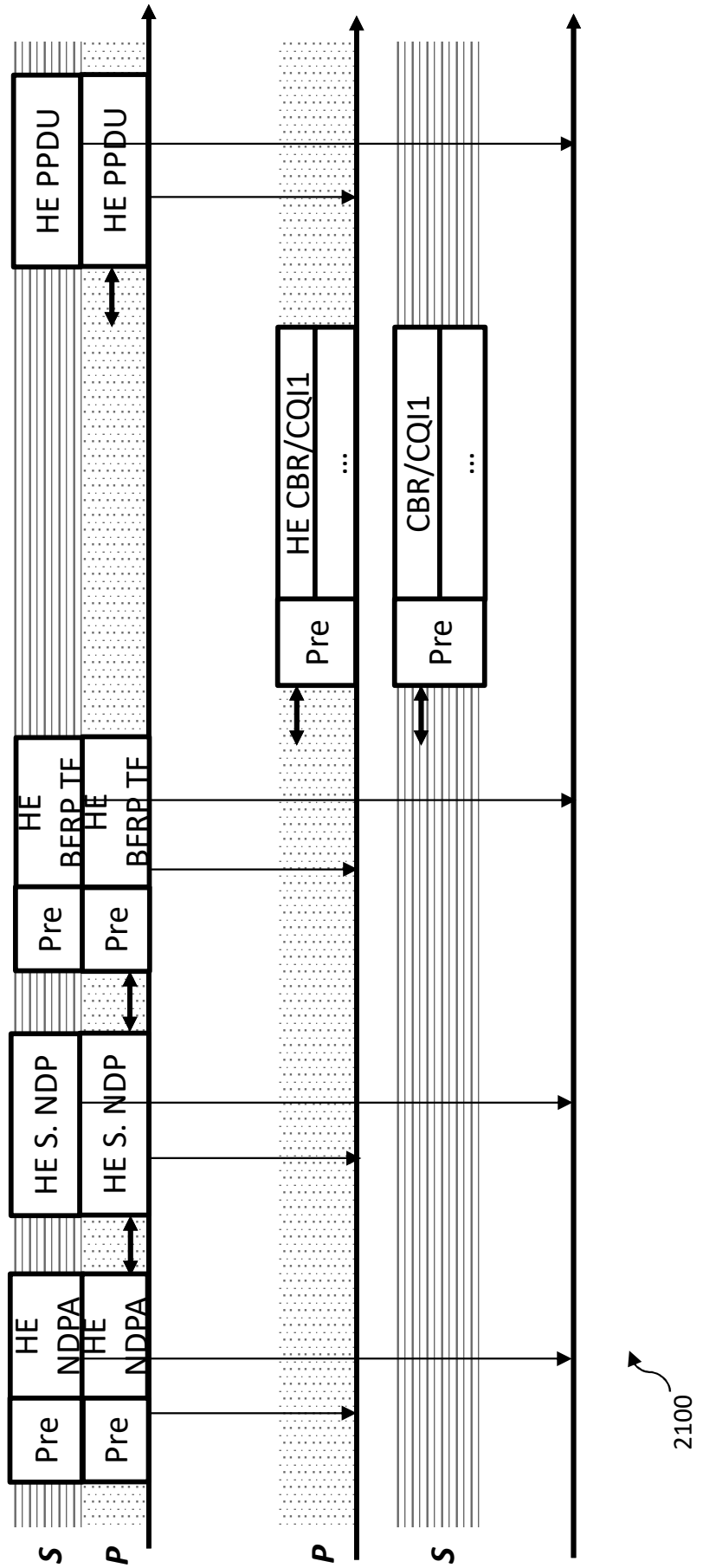

AP
2102
HE STAs
2104
EHT STAs
2106
S
P
P
S
Pre
HE NDPA
Pre
HE NDPA
HE S. NDP
HE S. NDP
Pre
HE BFRP TF
Pre
HE BFRP TF
Pre
HE CBR/CQI1
...
Pre
CBR/CQI1
...
HE PPDU
HE PPDU
2100

Figure 21

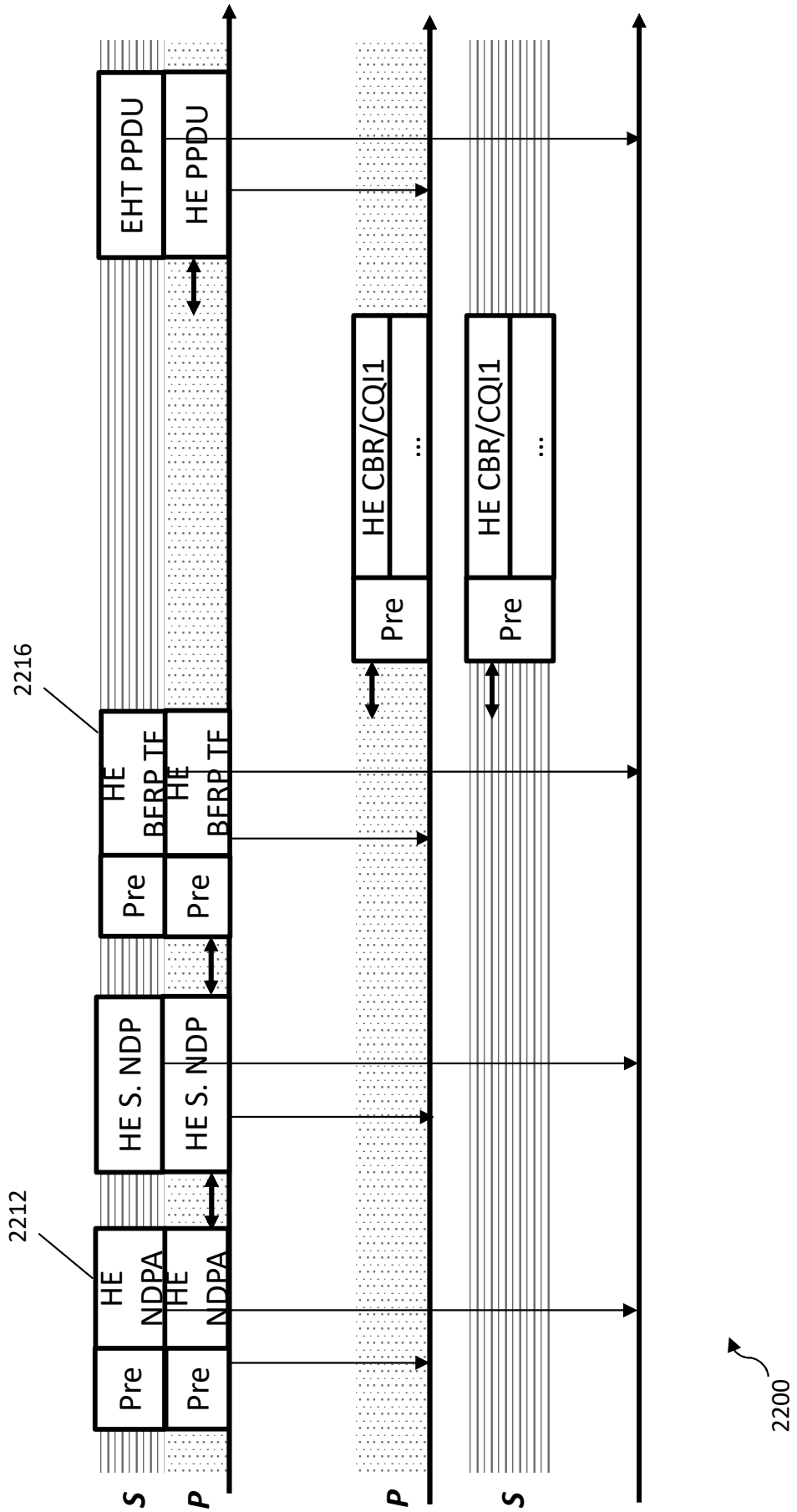

AP
2202
HE STAs
2204
EHT STAs
2206
S
P
P
S
Pre
HE NDPA
Pre
HE NDPA
2212
HE S. NDP
HE S. NDP
Pre
HE BFRP TF
Pre
HE BFRP TF
2216
Pre
HE CBR/CQI1
...
Pre
HE CBR/CQI1
...
EHT PPDU
HE PPDU
2200

Figure 22

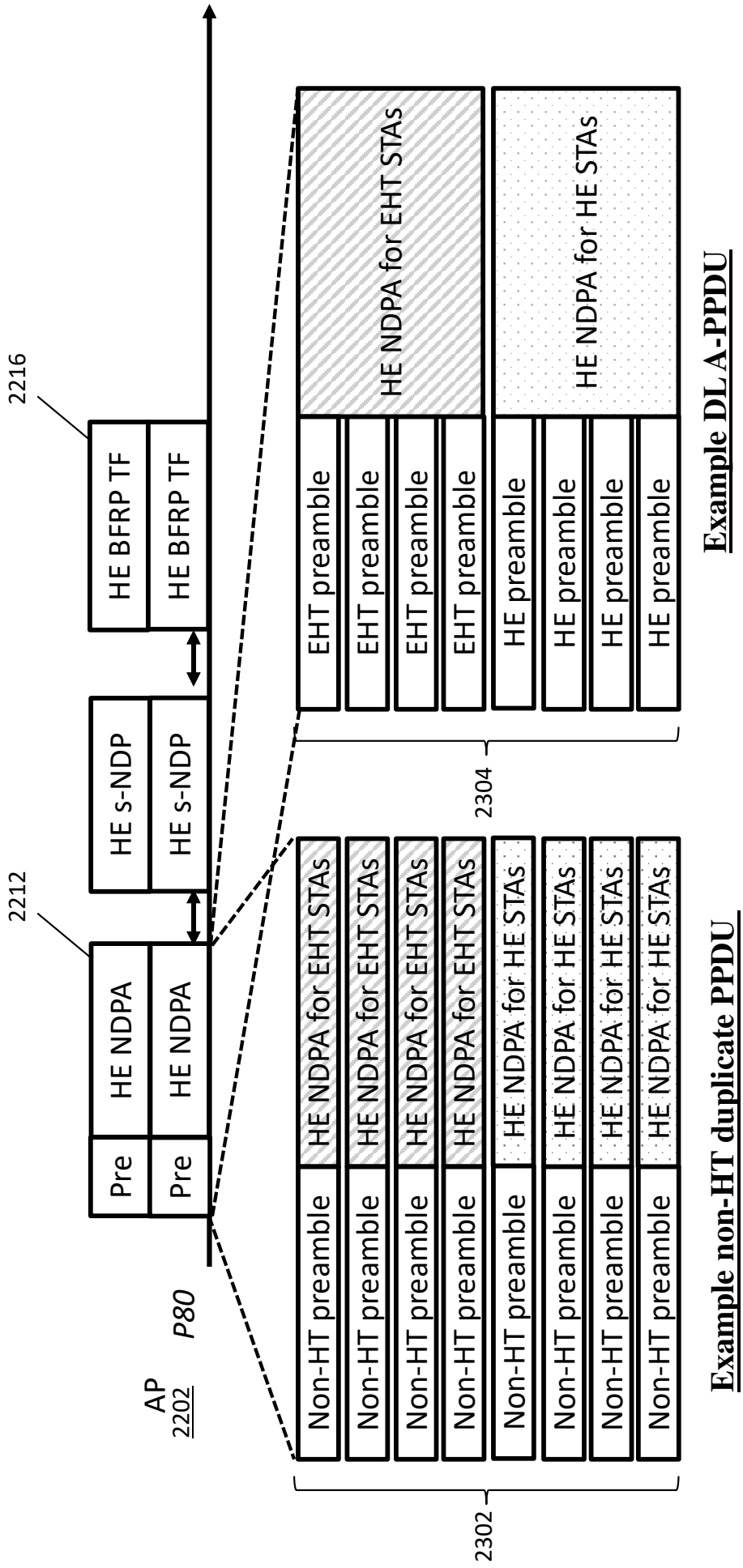

AP
2202
P80
2212
2216
Pre
HE NDPA
HE s-NDP
HE BFRP TF
Non-HT preamble
HE NDPA for EHT STAs
HE NDPA for HE STAs
EHT preamble
HE preamble
HE NDPA for EHT STAs
HE NDPA for HE STAs
2302
2304
Example non-HT duplicate PPDU
Example DL A-PPDU

Figure 23

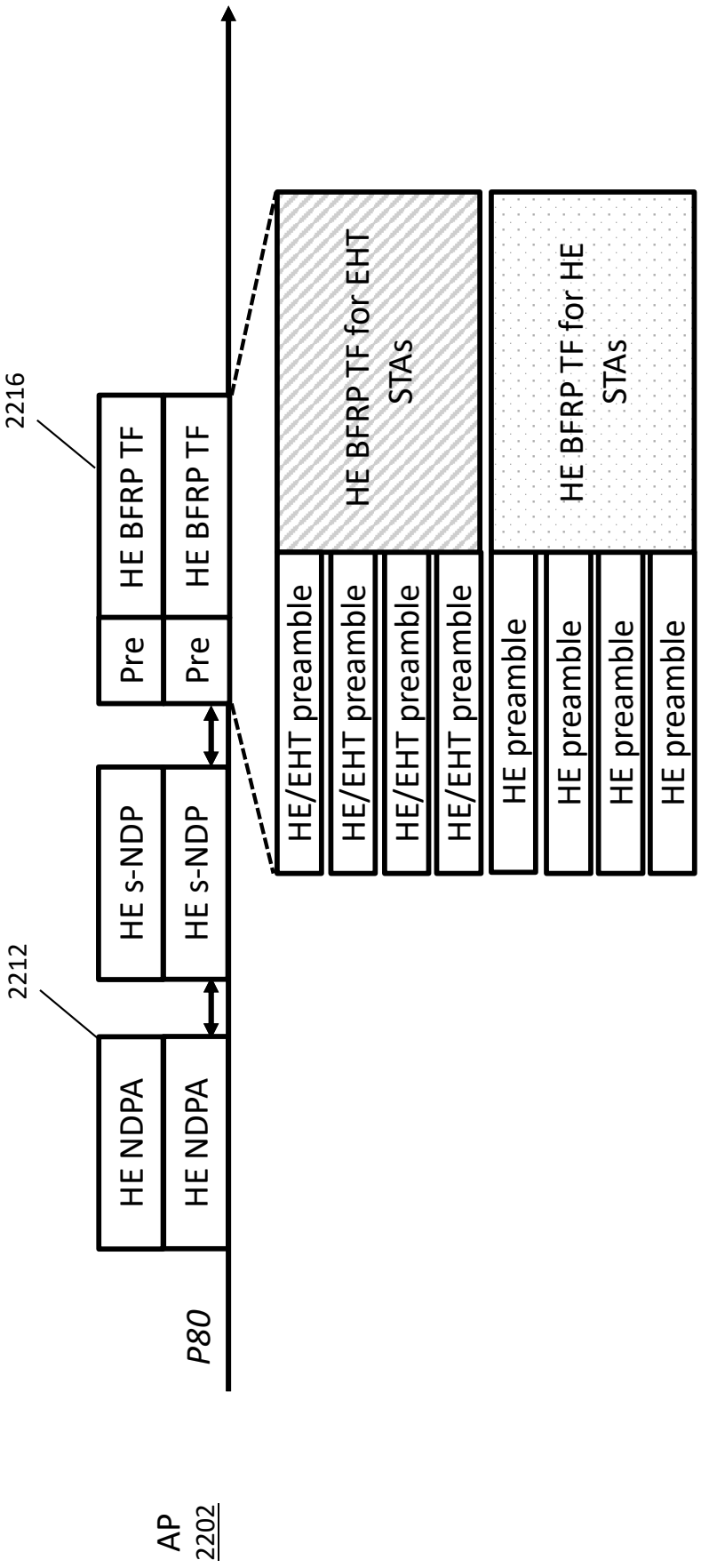

AP
2202
P80
2212
HE NDPA
HE NDPA
HE s-NDP
HE s-NDP
2216
Pre
Pre
HE BFRP TF
HE BFRP TF
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
HE BFRP TF for EHT STAs
HE preamble
HE preamble
HE preamble
HE preamble
HE BFRP TF for HE STAs

Figure 24

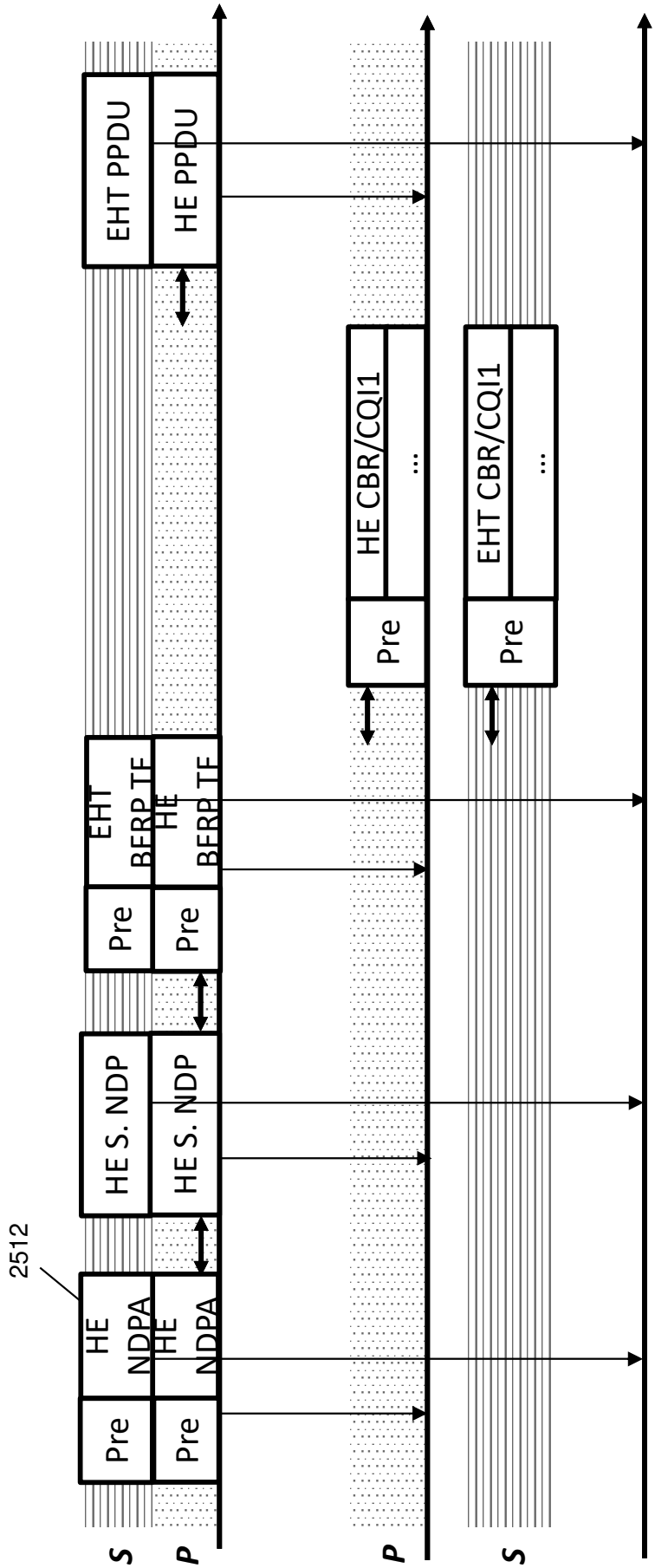

AP
2502
HE STAs
2504
EHT STAs
2506
S
P
P
S
Pre
HE NDPA
HE S. NDP
Pre
EHT BERP TF
HE BERP TF
Pre
HE CBR/CQI1
...
Pre
EHT CBR/CQI1
...
EHT PPDU
HE PPDU
2512
2500

Figure 25

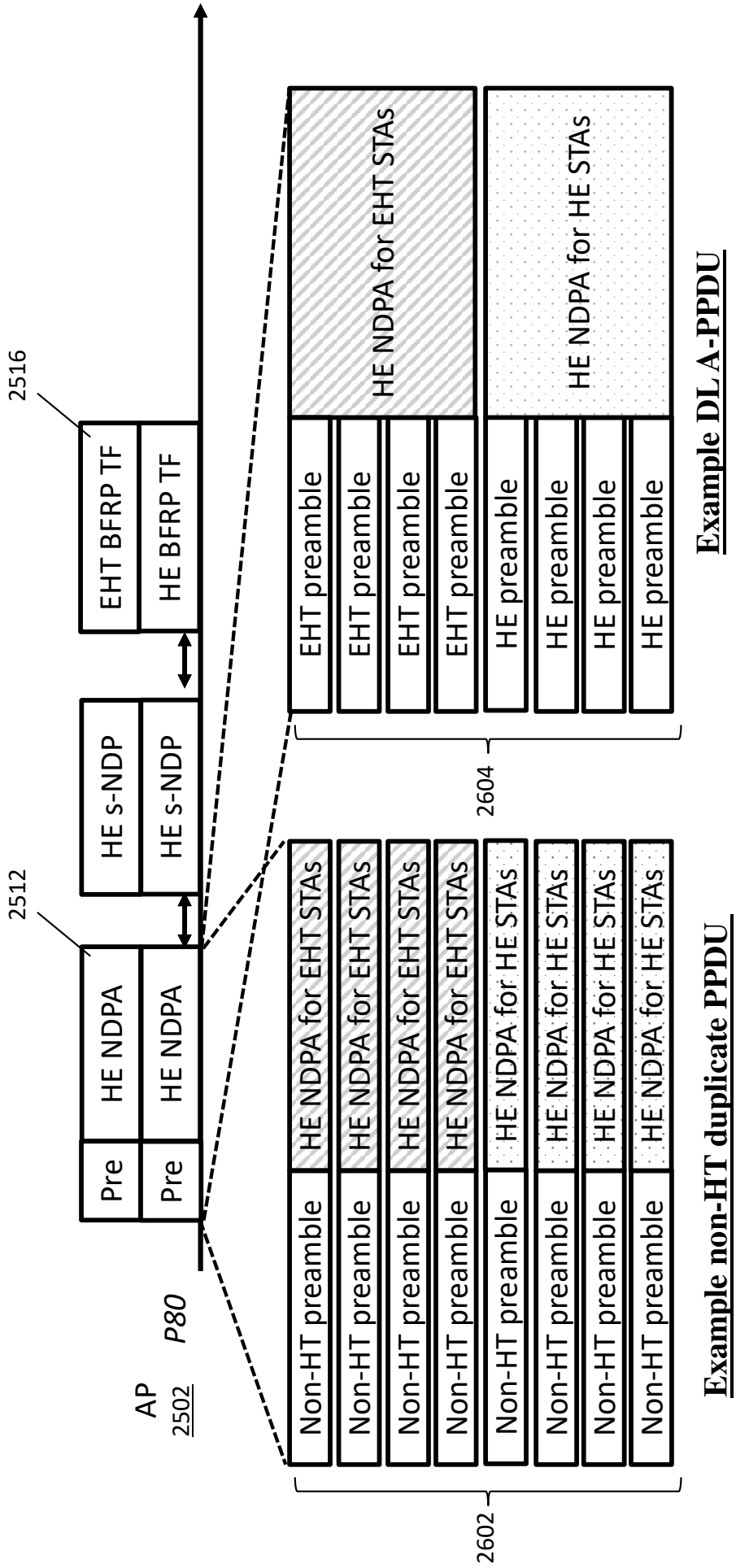

AP
2502
P80
2512
2516
Pre
HE NDPA
HE s-NDP
EHT BFRP TF
HE BFRP TF
Non-HT preamble
HE NDPA for EHT STAs
HE NDPA for HE STAs
EHT preamble
HE preamble
HE NDPA for EHT STAs
HE NDPA for HE STAs
2602
2604
Example non-HT duplicate PPDU
Example DL A-PPDU

Figure 26

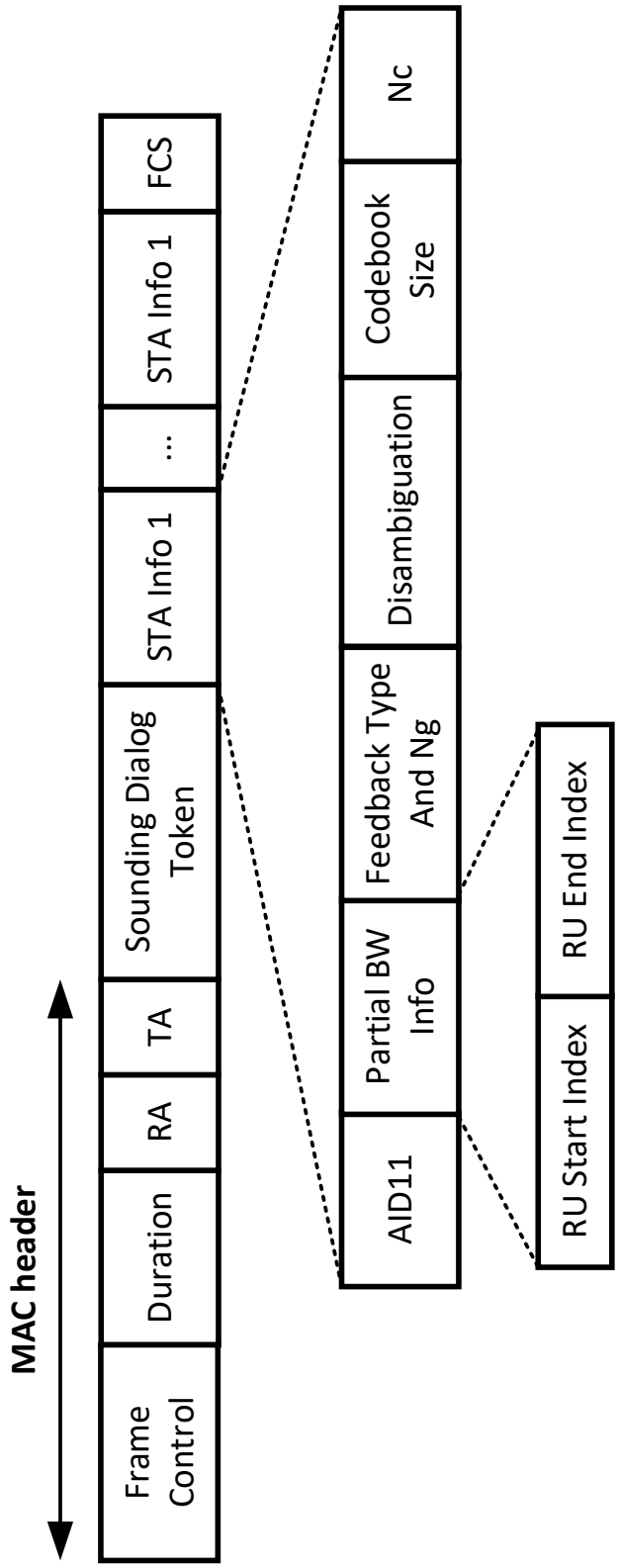

MAC header
Frame Control
Duration
RA
TA
Sounding Dialog Token
STA Info 1
...
STA Info 1
FCS
AID11
Partial BW Info
Feedback Type And Ng
Disambiguation
Codebook Size
Nc
RU Start Index
RU End Index
2512

Figure 27

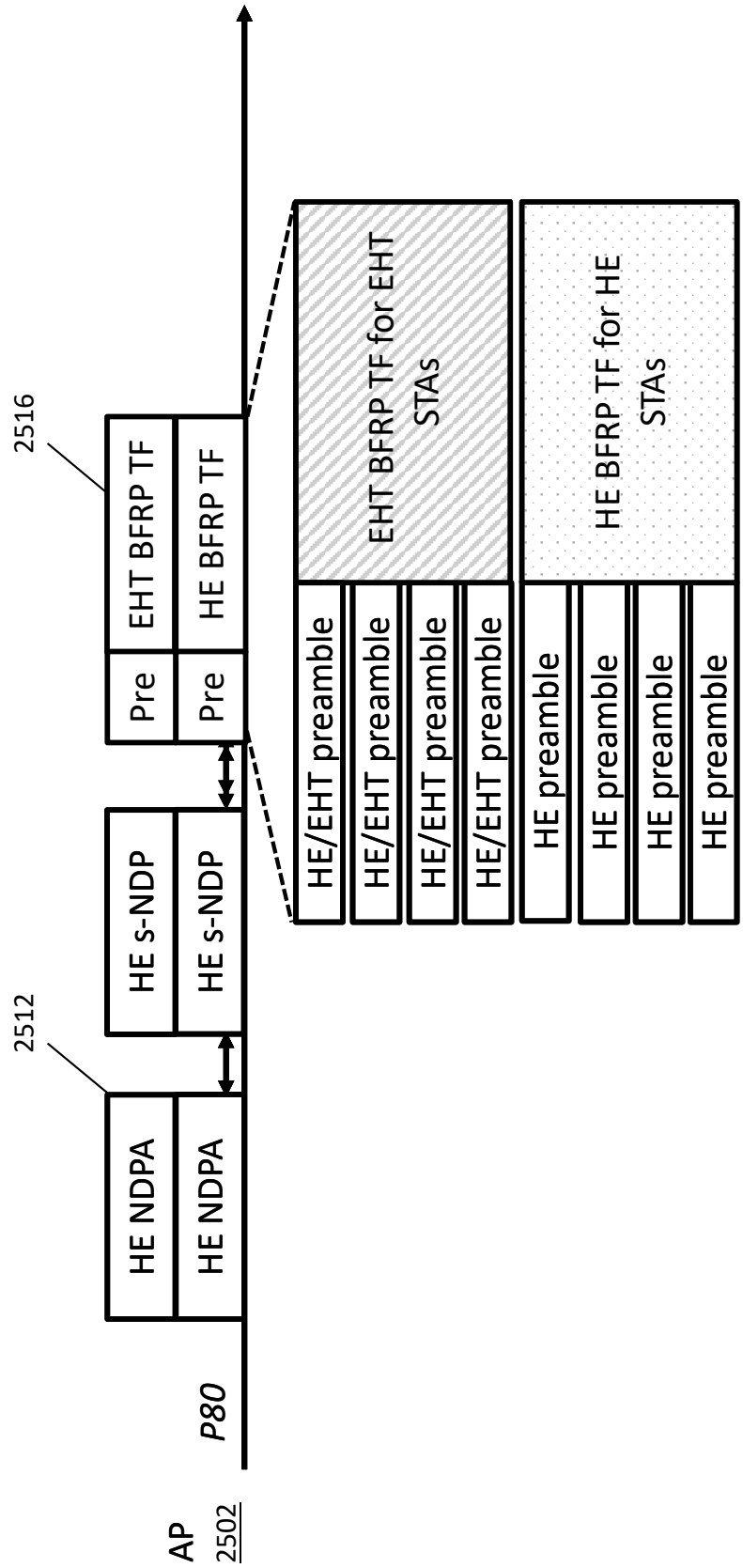

AP
2502
P80
HE NDPA
HE NDPA
2512
HE s-NDP
HE s-NDP
Pre
Pre
EHT BFRP TF
HE BFRP TF
2516
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
EHT BFRP TF for EHT STAs
HE preamble
HE preamble
HE preamble
HE preamble
HE BFRP TF for HE STAs

Figure 28

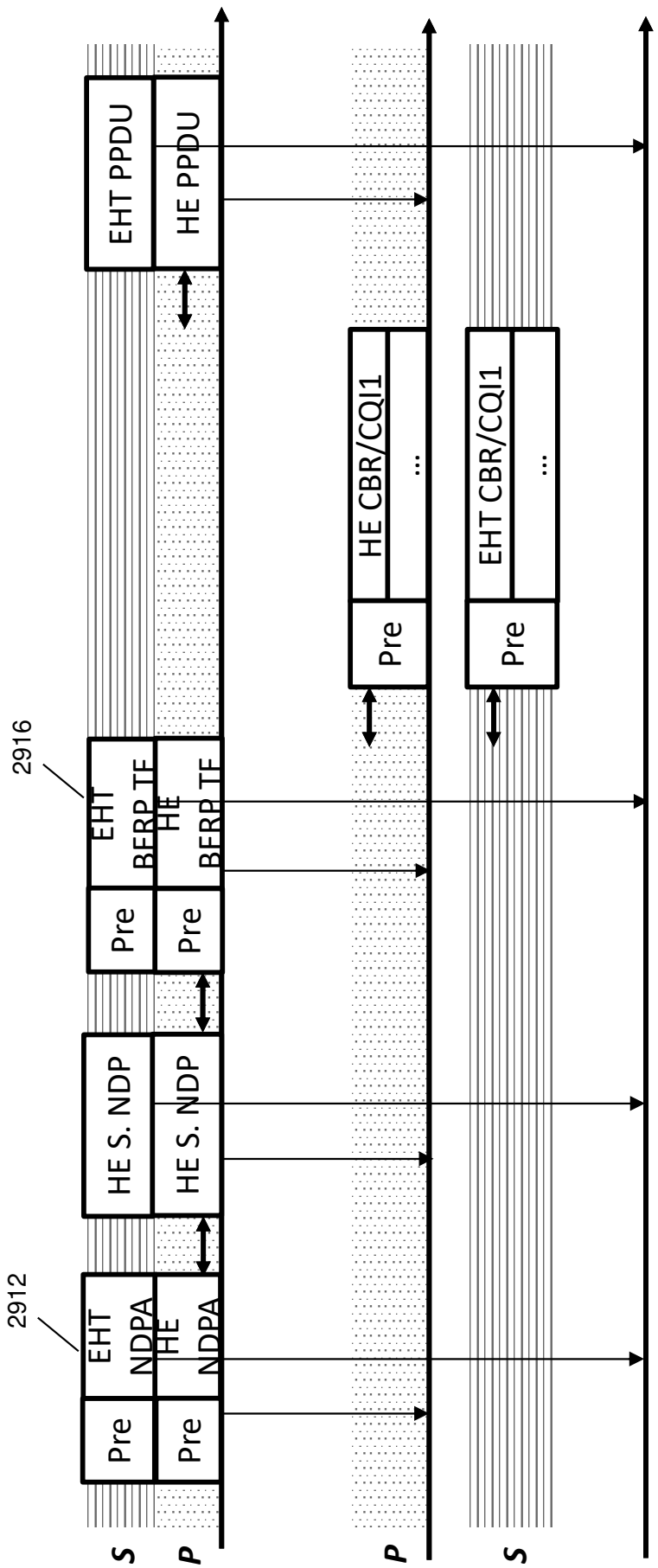

AP
2902
HE STAs
2904
EHT STAs
2906
S
P
P
S
Pre
Pre
HE NDPA
EHT NDPA
2912
HE S. NDP
HE S. NDP
Pre
Pre
HE BFRP TF
EHT BFRP TF
2916
Pre
HE CBR/CQI1
...
Pre
EHT CBR/CQI1
...
HE PPDU
EHT PPDU
2900

Figure 29

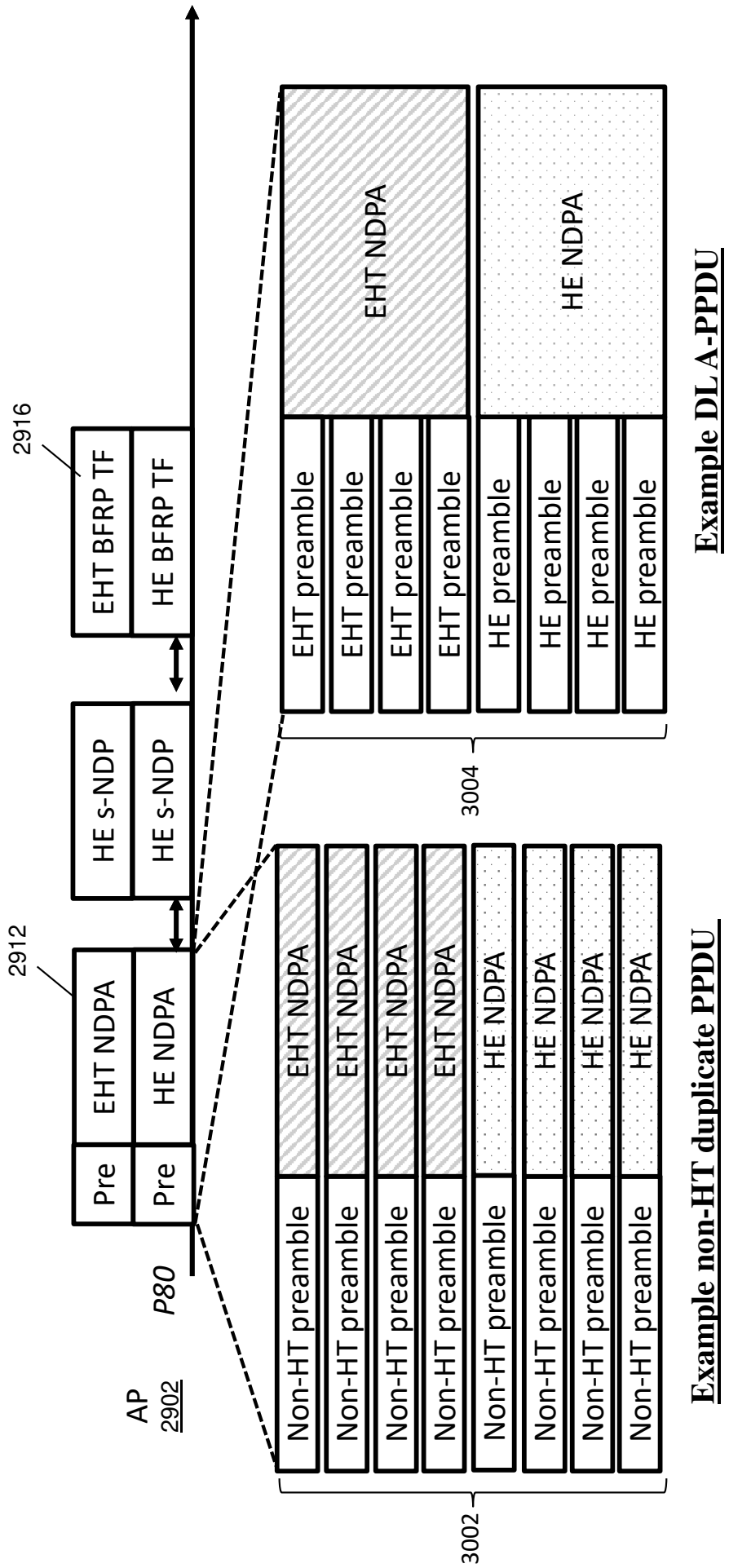

AP
2902
P80
2912
Pre
Pre
EHT NDPA
HE NDPA
HE s-NDP
HE s-NDP
2916
EHT BFRP TF
HE BFRP TF
Non-HT preamble
EHT NDPA
HE NDPA
EHT preamble
HE preamble
3002
3004
Example non-HT duplicate PPDU
Example DL A-PPDU

Figure 30

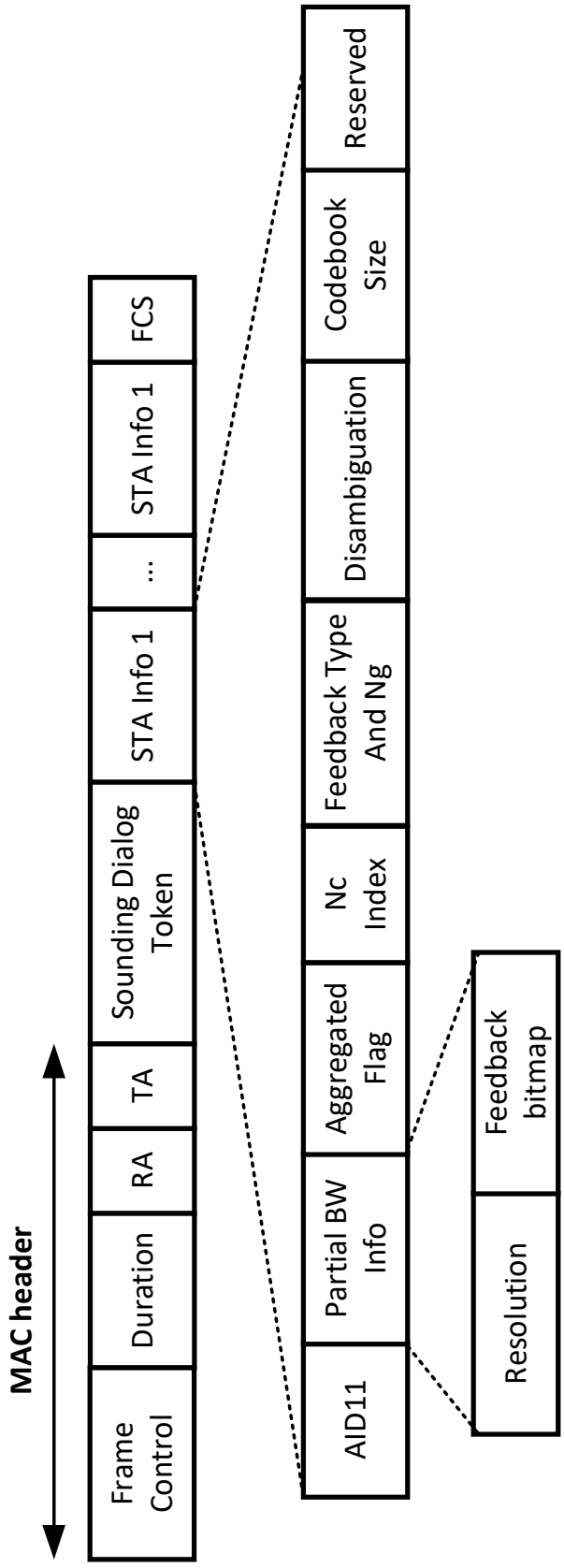

MAC header
Frame Control
Duration
RA
TA
Sounding Dialog Token
STA Info 1
...
STA Info 1
FCS
AID11
Partial BW Info
Aggregated Flag
Nc Index
Feedback Type And Ng
Disambiguation
Codebook Size
Reserved
Resolution
Feedback bitmap
2912

Figure 31

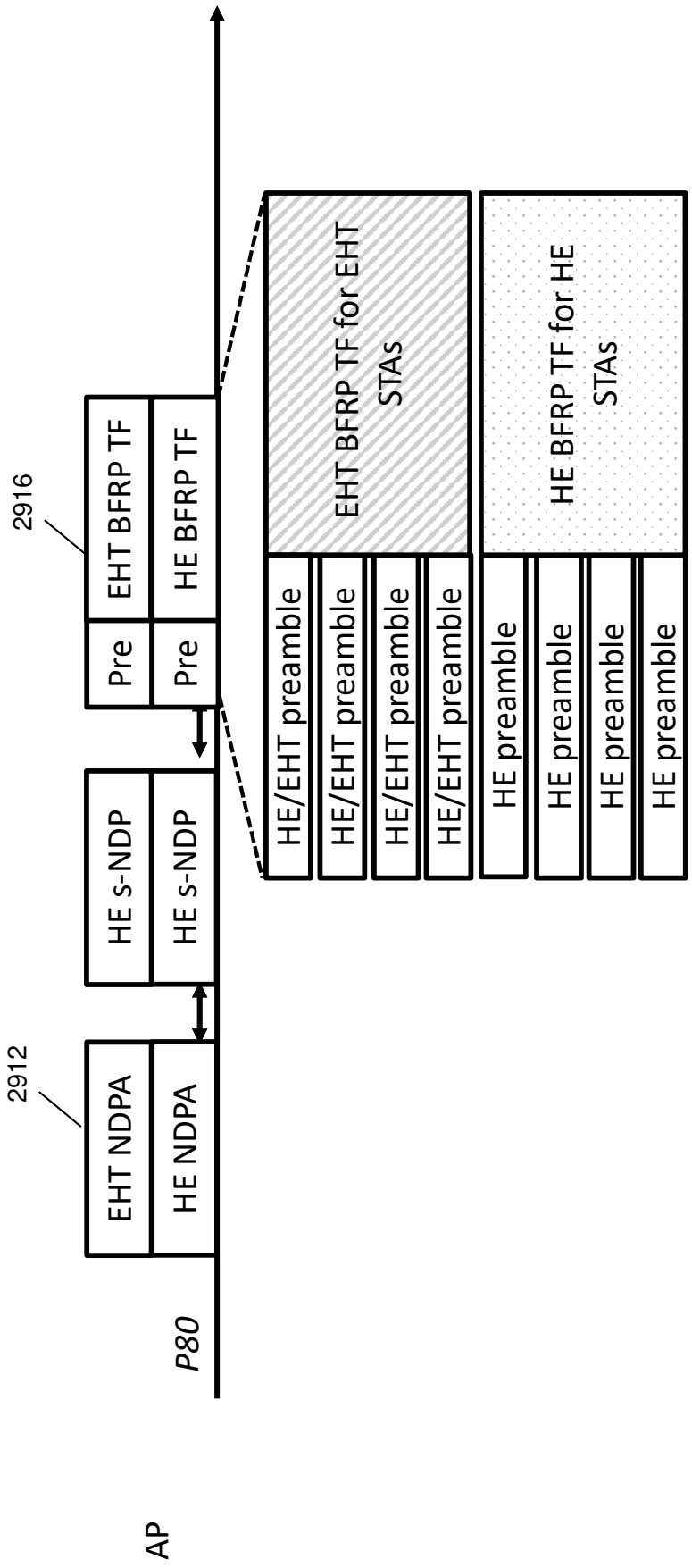

AP
P80
2912
EHT NDPA
HE NDPA
HE s-NDP
HE s-NDP
2916
EHT BFRP TF
HE BFRP TF
Pre
Pre
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
HE/EHT preamble
EHT BFRP TF for EHT STAs
HE preamble
HE preamble
HE preamble
HE preamble
HE BFRP TF for HE STAs

Figure 32

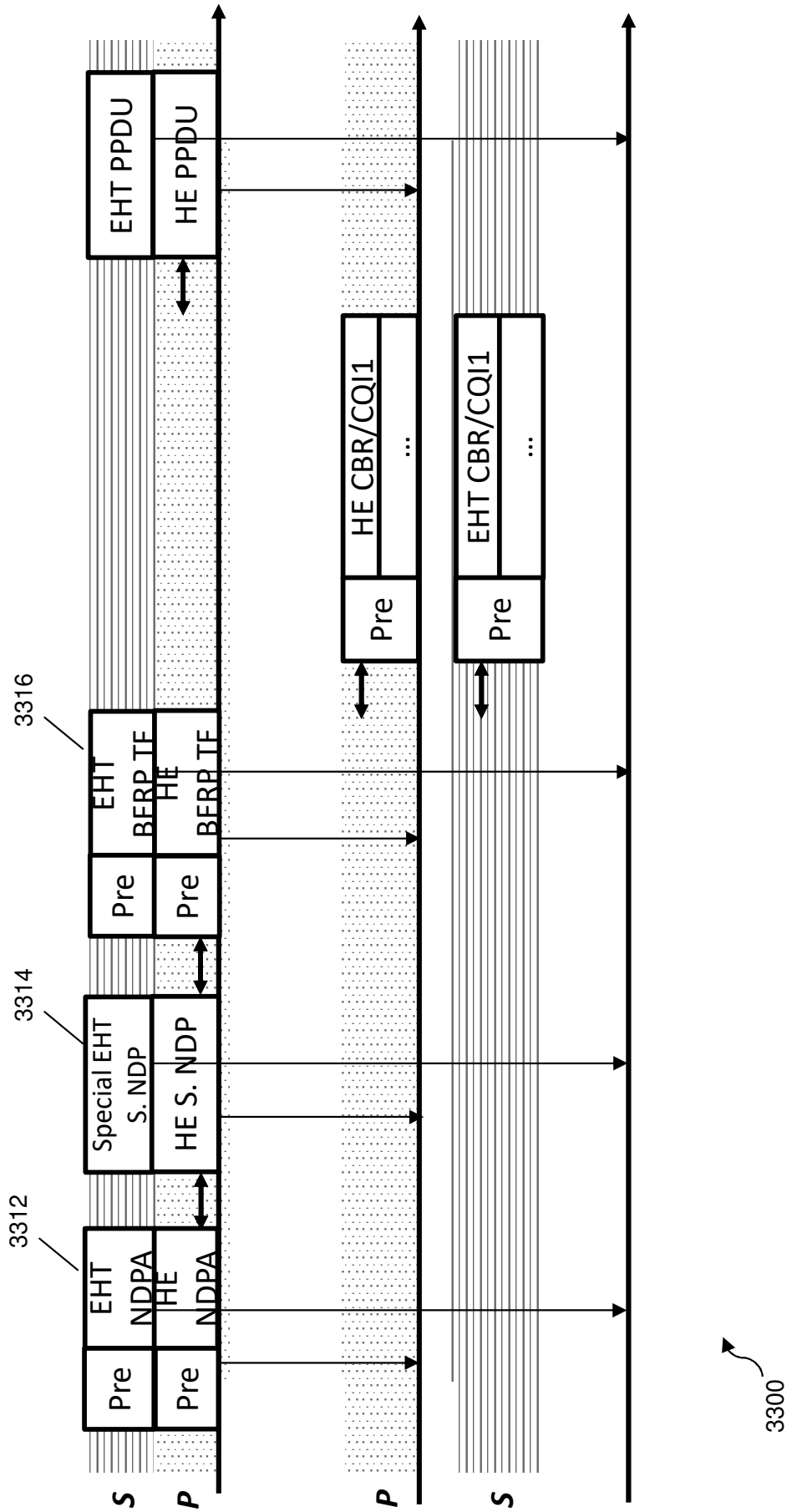
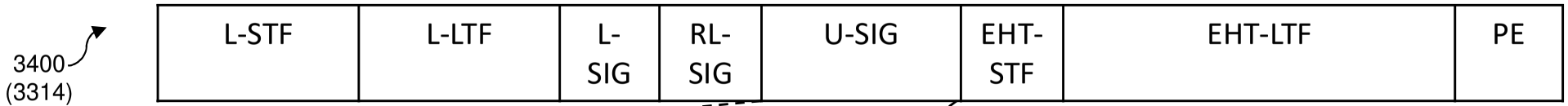

AP
3302
HE STAs
3304
EHT STAs
3306
S
P
P
S
3312
3314
3316
Pre
EHT NDPA
HE NDPA
Special EHT S. NDP
HE S. NDP
Pre
EHT BFRP TF
HE BFRP TF
Pre
HE CBR/CQI1
...
Pre
EHT CBR/CQI1
...
EHT PPDU
HE PPDU
3300

Figure 33



Field	Subfield
U-SIG	PHY Version Identifier
	BW
	UL/DL
	BSS Color
	TXOP
	Disregard
	Validate
	PPDU Type and Compression Mode
	Spatial Reuse + Beamformed
	Punctured Channel Information
	GI+LTF Size
	NSS
	Number of EHT-LTF Symbols
	CRC+Tail

Figure 34

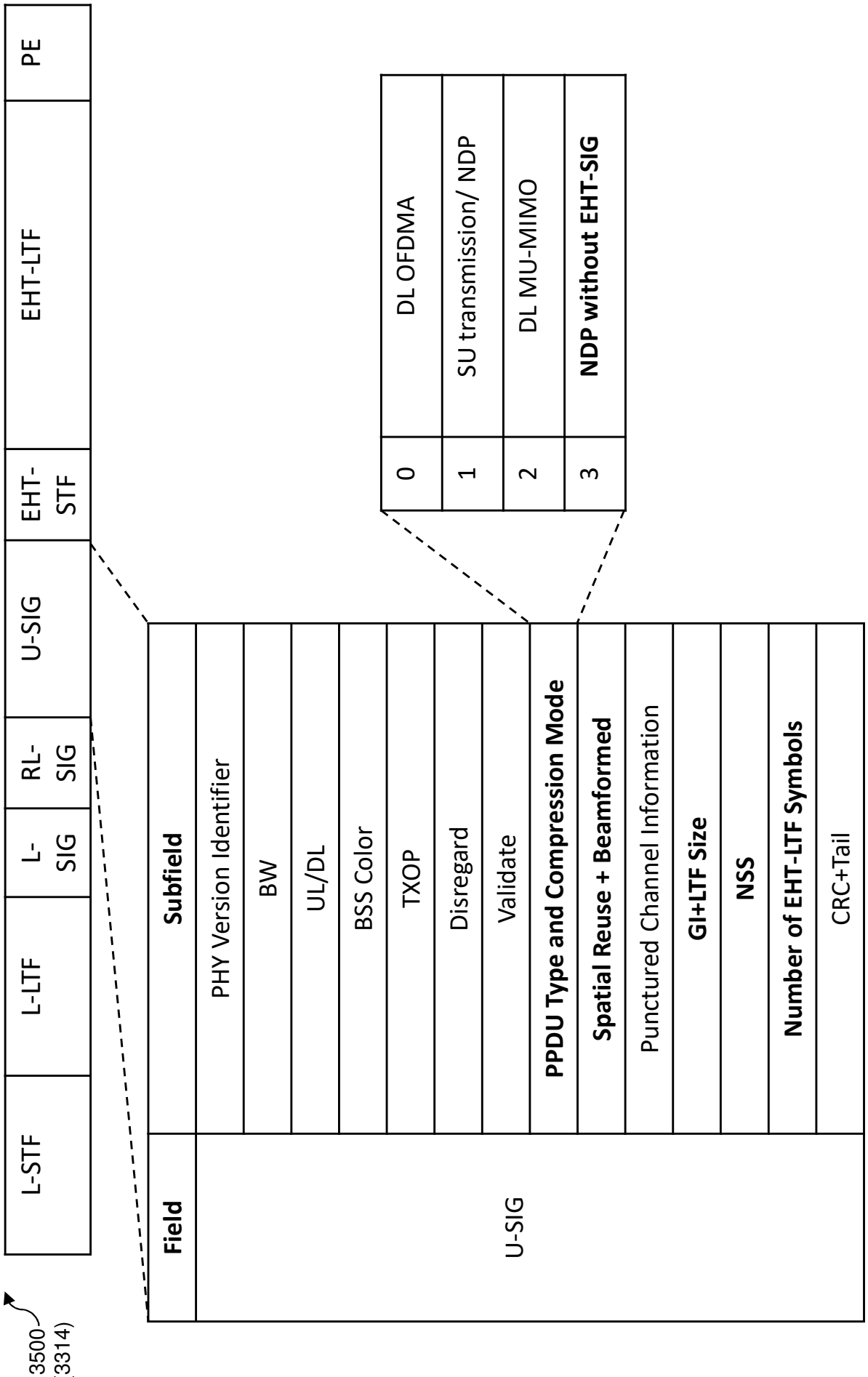

3500
(3314)
L-STF
L-LTF
L-SIG
RL-SIG
U-SIG
EHT-STF
EHT-LTF
PE
Field
Subfield
U-SIG
PHY Version Identifier
BW
UL/DL
BSS Color
TXOP
Disregard
Validate
PPDU Type and Compression Mode
Spatial Reuse + Beamformed
Punctured Channel Information
GI+LTF Size
NSS
Number of EHT-LTF Symbols
CRC+Tail
0
DL OFDMA
1
SU transmission/ NDP
2
DL MU-MIMO
3
NDP without EHT-SIG

Figure 35

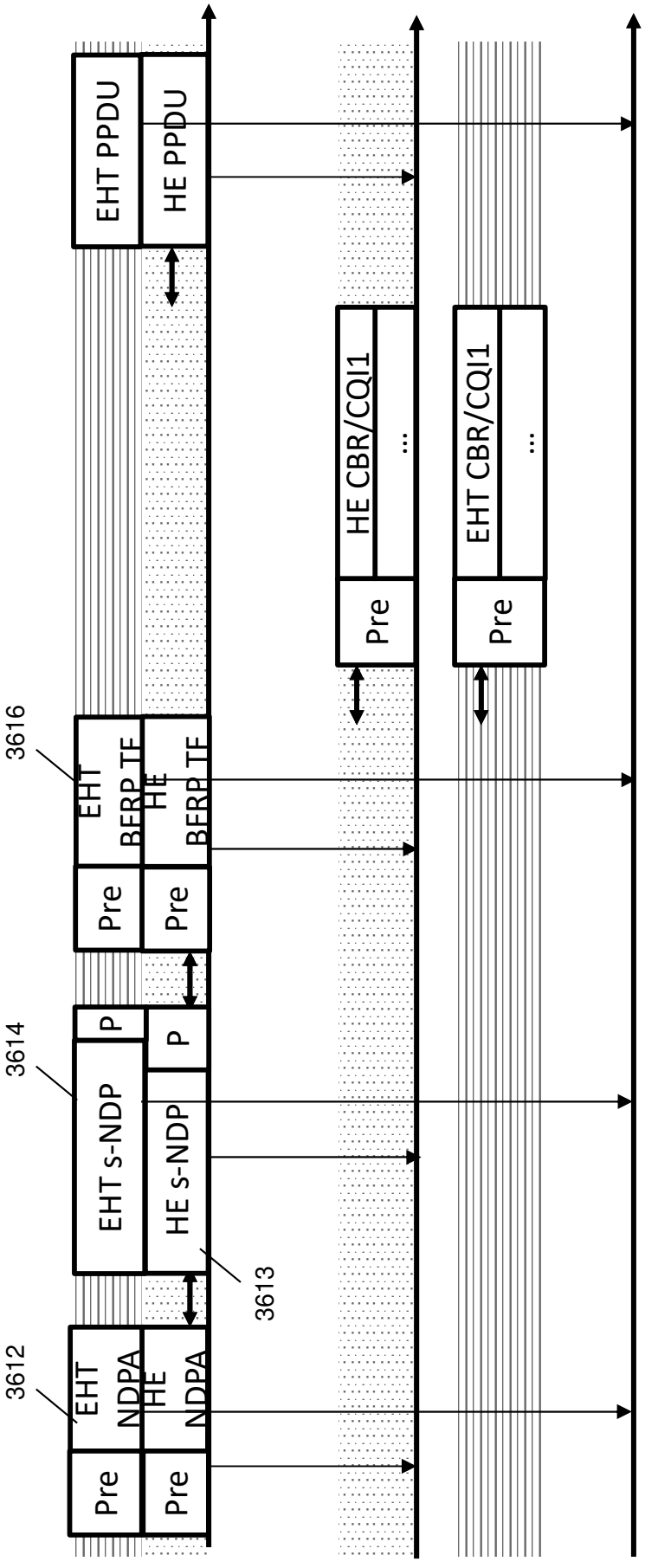

EHT PPDU
HE PPDU
HE CBR/CQI1
...
Pre
EHT CBR/CQI1
...
Pre
3616
EHT BFRP TF
HE BFRP TF
Pre
Pre
3614
P
P
EHT s-NDP
HE s-NDP
3613
3612
EHT NDPA
HE NDPA
Pre
Pre
3600
S
P
P
S
AP 3602
HE STAs 3604
EHT STAs 3606

Figure 36

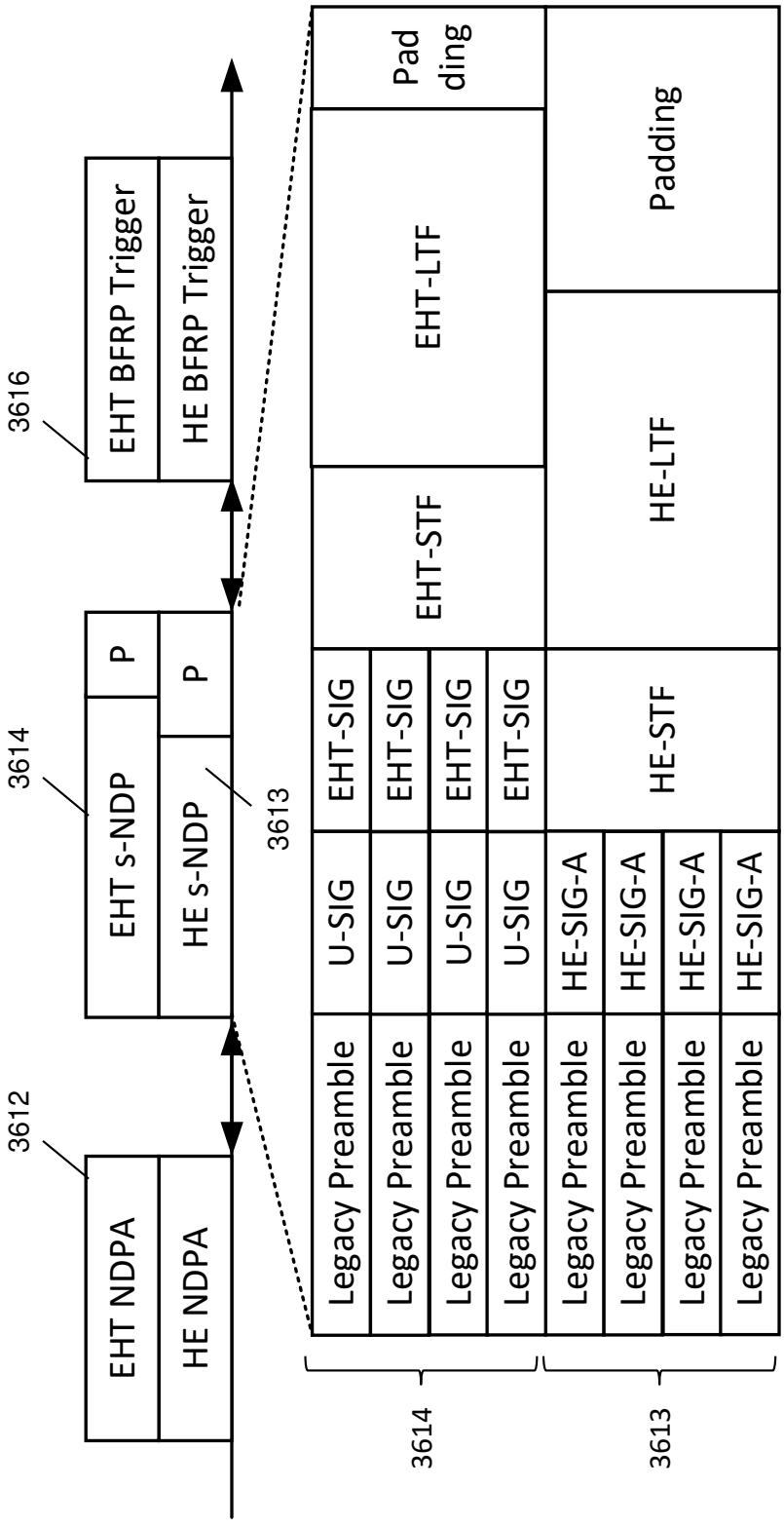

3612
EHT NDPA
HE NDPA
3614
EHT s-NDP
HE s-NDP
P
P
3613
3616
EHT BFRP Trigger
HE BFRP Trigger
Legacy Preamble
U-SIG
EHT-SIG
EHT-STF
EHT-LTF
Pad ding
HE-SIG-A
HE-STF
HE-LTF
Padding
3614
3613

Figure 37

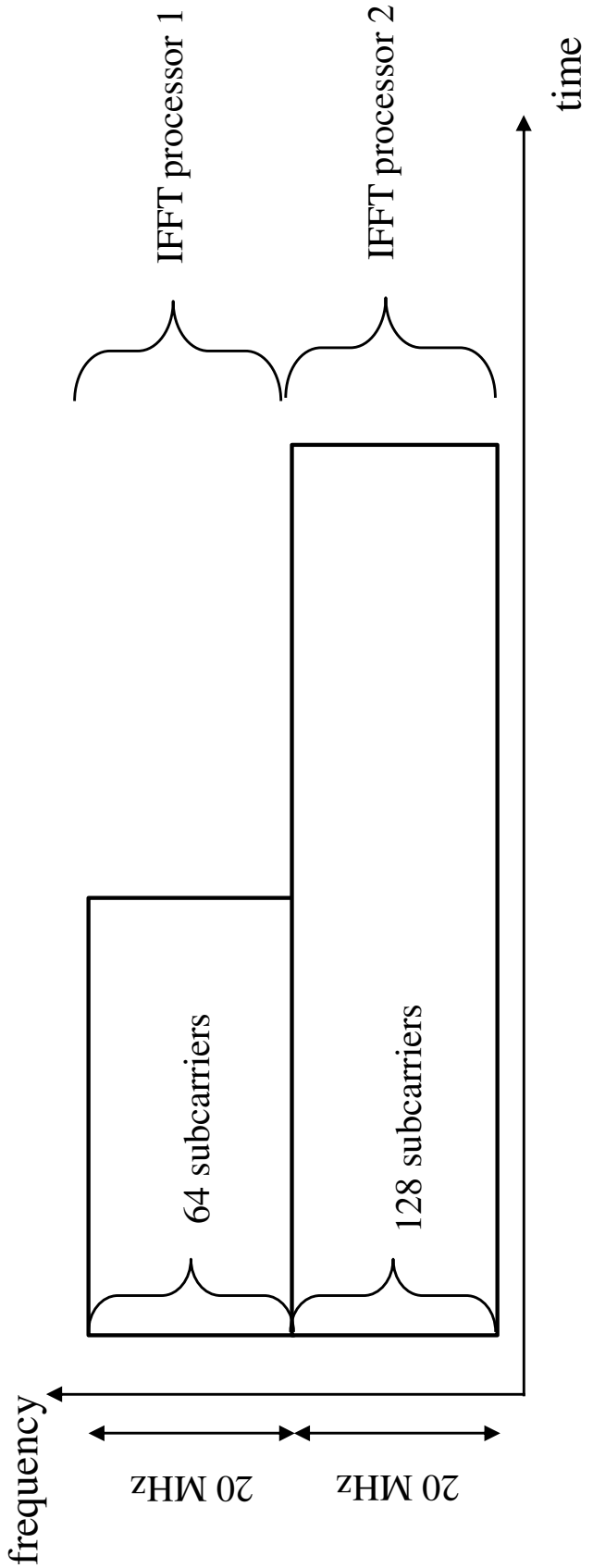

IFFT processor 1
IFFT processor 2
time
64 subcarriers
128 subcarriers
frequency
20 MHz
20 MHz
3800

Figure 38

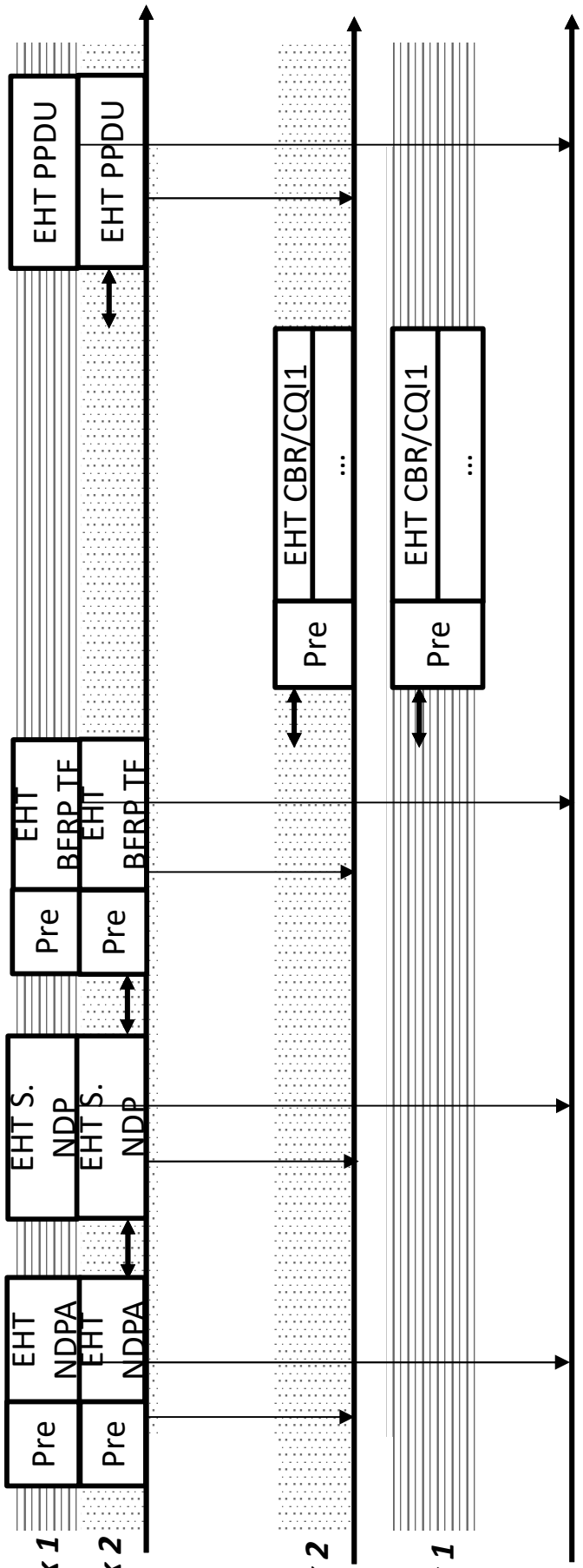

Pre
EHT NDPA
EHT S. NDP
Pre
EHT BFRP TF
EHT PPDU
Pre
EHT CBR/CQI1
...
Pre
EHT CBR/CQI1
...
Link 1
Link 2
Link 2
Link 1
AP 3902
EHT STAs 3904
EHT STAs 3906
3900

Figure 39

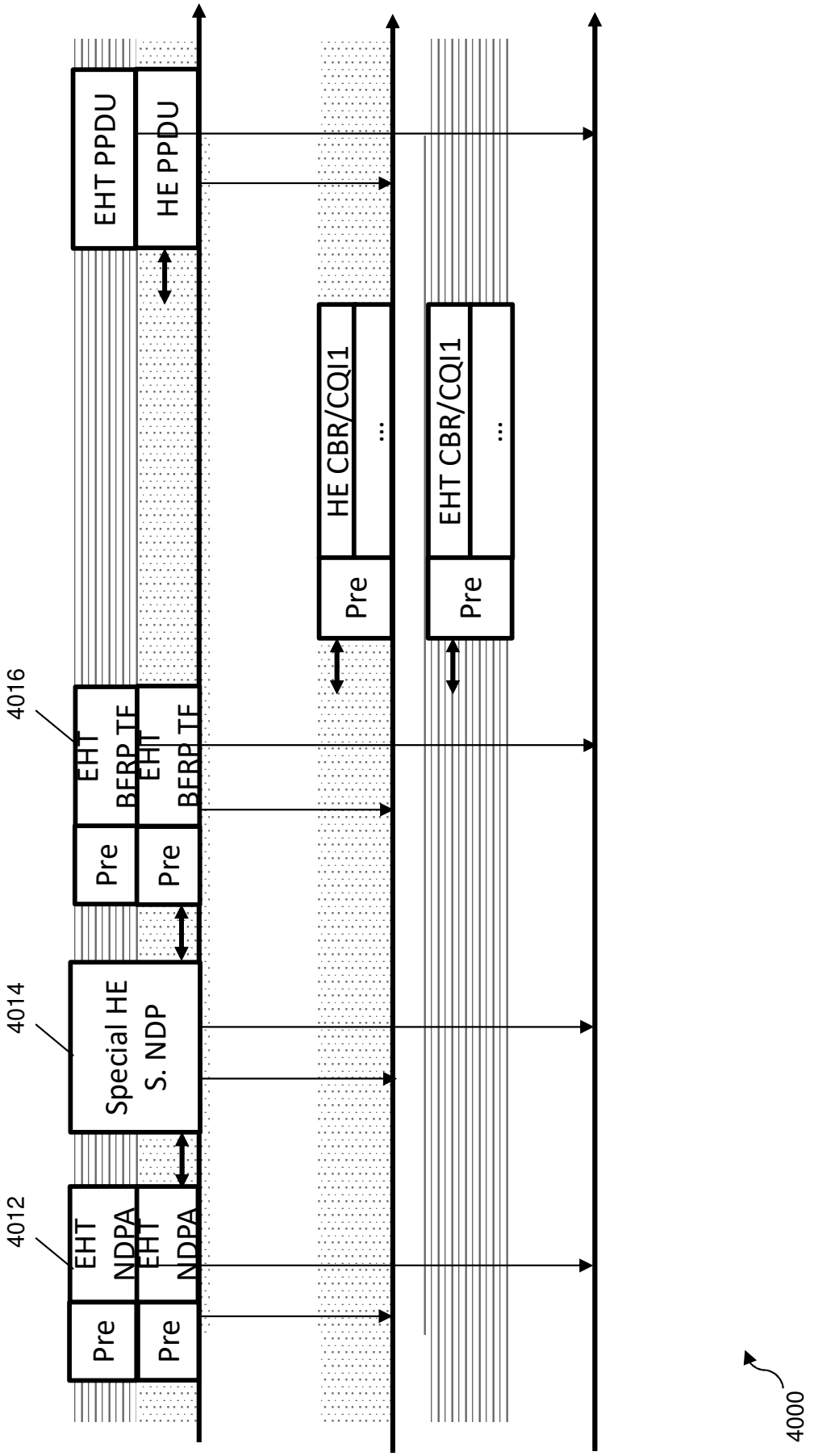

AP
4002
S
P
HE STAs
4004
P
EHT STAs
4006
S
Pre
EHT NDPA
Pre
EHT NDPA
4012
Special HE S. NDP
4014
Pre
EHT BFRP TF
Pre
EHT BFRP TF
4016
Pre
HE CBR/CQI1
...
Pre
EHT CBR/CQI1
...
EHT PPDU
HE PPDU
4000

Figure 40

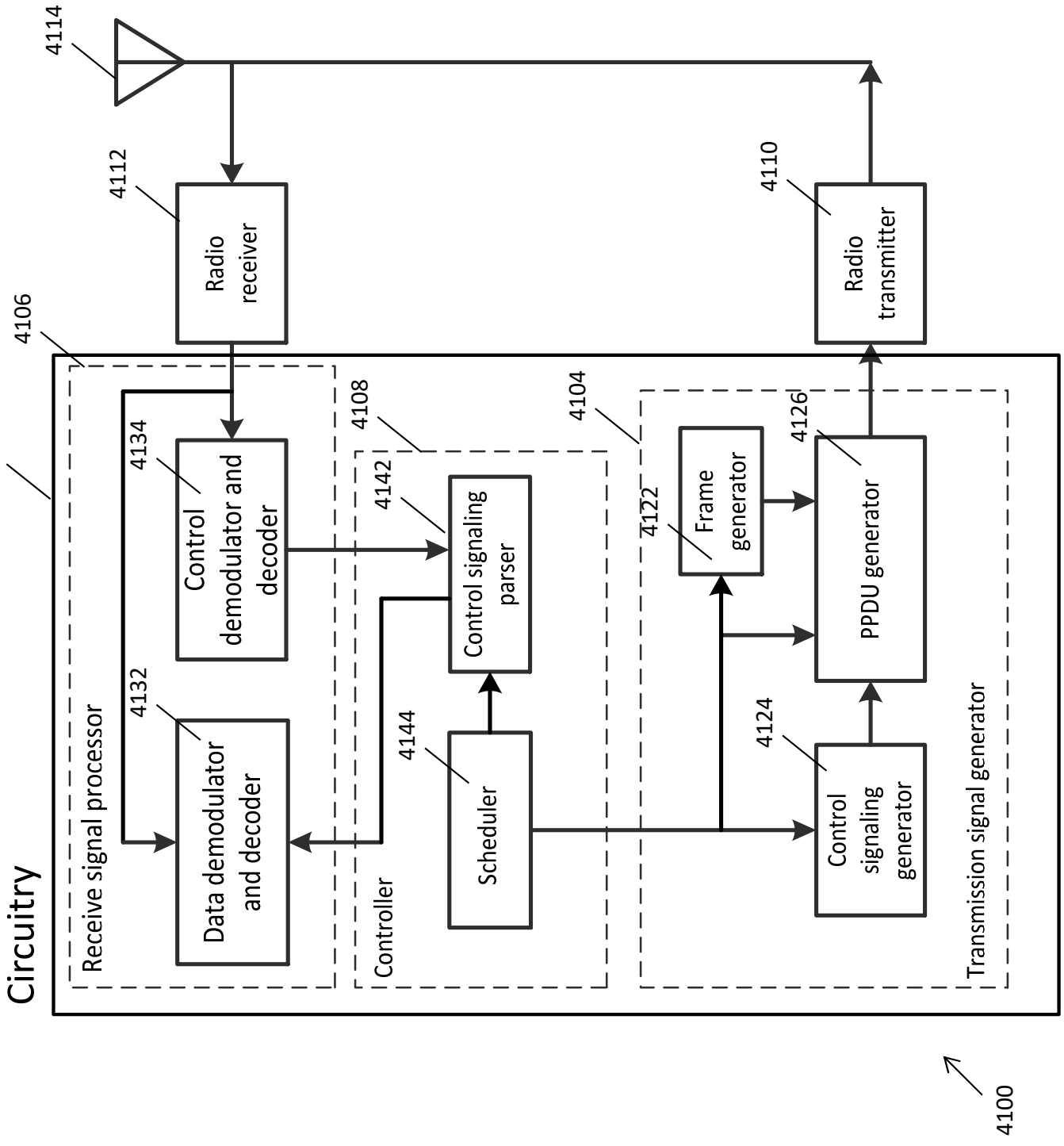

4114
4112
Radio receiver
4110
Radio transmitter
4106
4102
Circuitry
Receive signal processor
4134
Control demodulator and decoder
4132
Data demodulator and decoder
4108
Controller
4142
Control signaling parser
4144
Scheduler
4104
Transmission signal generator
4122
Frame generator
4126
PPDU generator
4124
Control signaling generator
4100

Figure 41

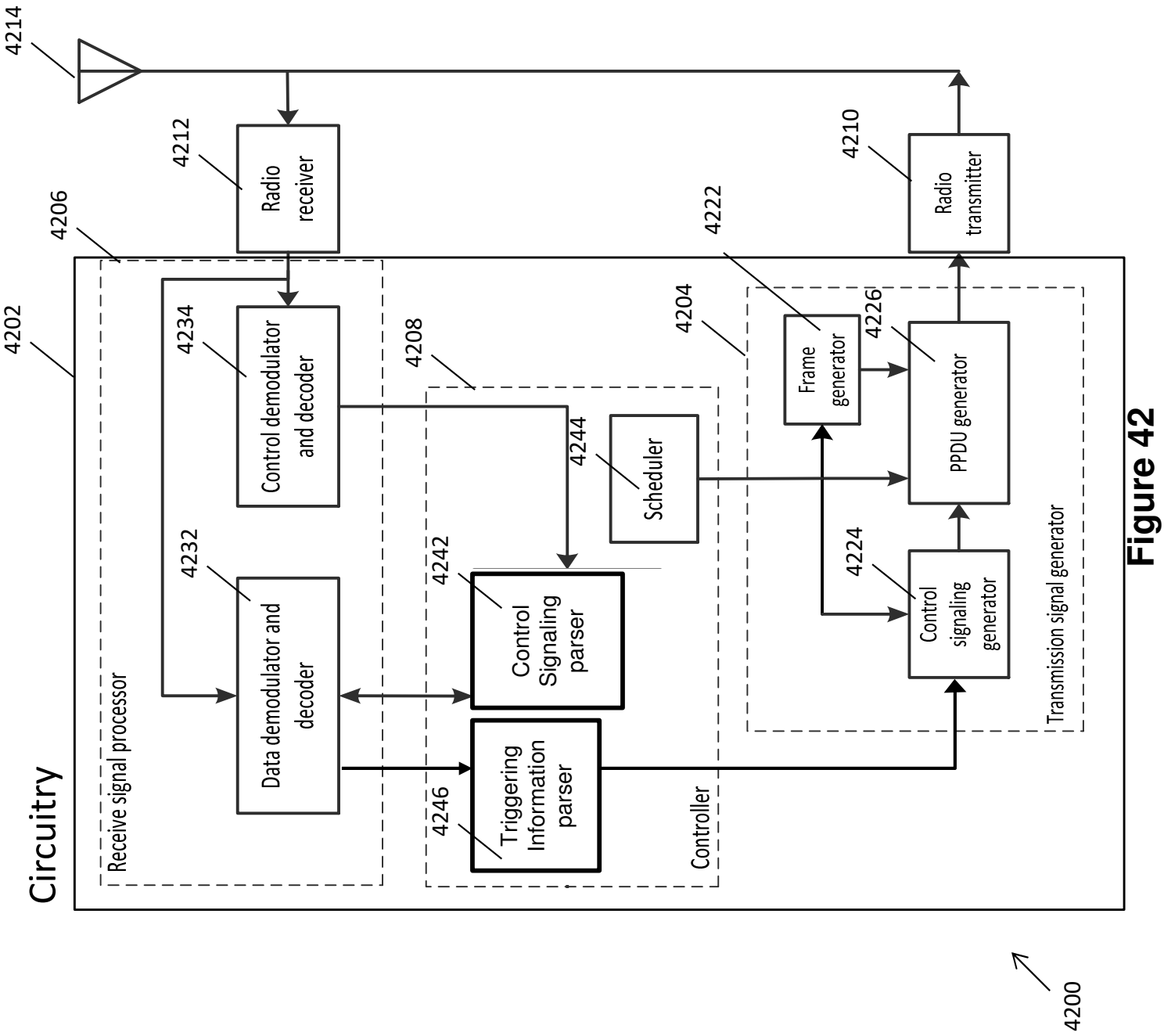

4214
4212
Radio receiver
4206
4202
4234
Control demodulator and decoder
4232
Data demodulator and decoder
Receive signal processor
4208
4244
Scheduler
4242
Control Signaling parser
4246
Triggering Information parser
Controller
4222
4204
Frame generator
4226
PPDU generator
4224
Control signaling generator
Transmission signal generator
4210
Radio transmitter
Circuitry
4200

Figure 42