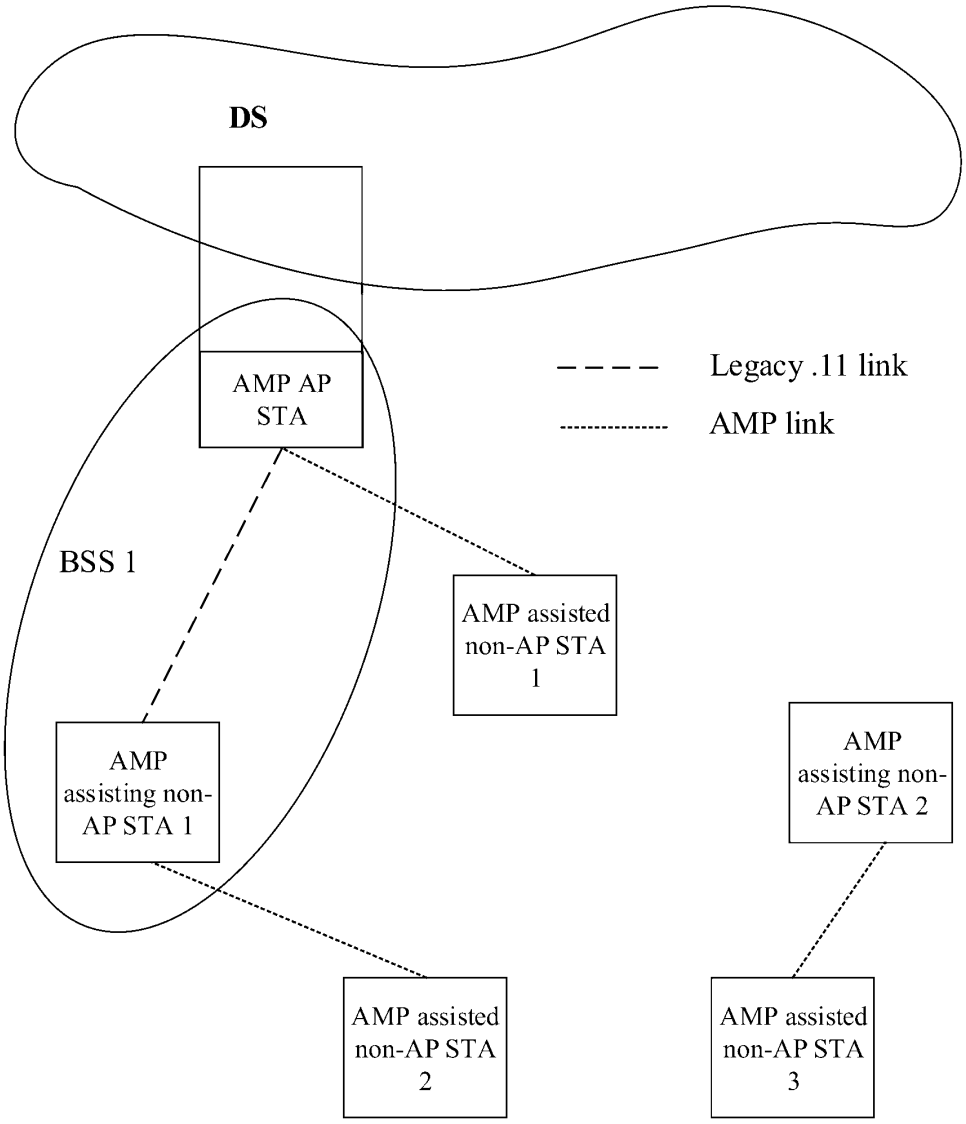

DS
AMP AP STA
Legacy .11 link
AMP link
BSS 1
AMP assisted non-AP STA 1
AMP assisting non-AP STA 1
AMP assisting non-AP STA 2
AMP assisted non-AP STA 2
AMP assisted non-AP STA 3

FIG. 1

AMP RFID Tag PHY, MAC Stack

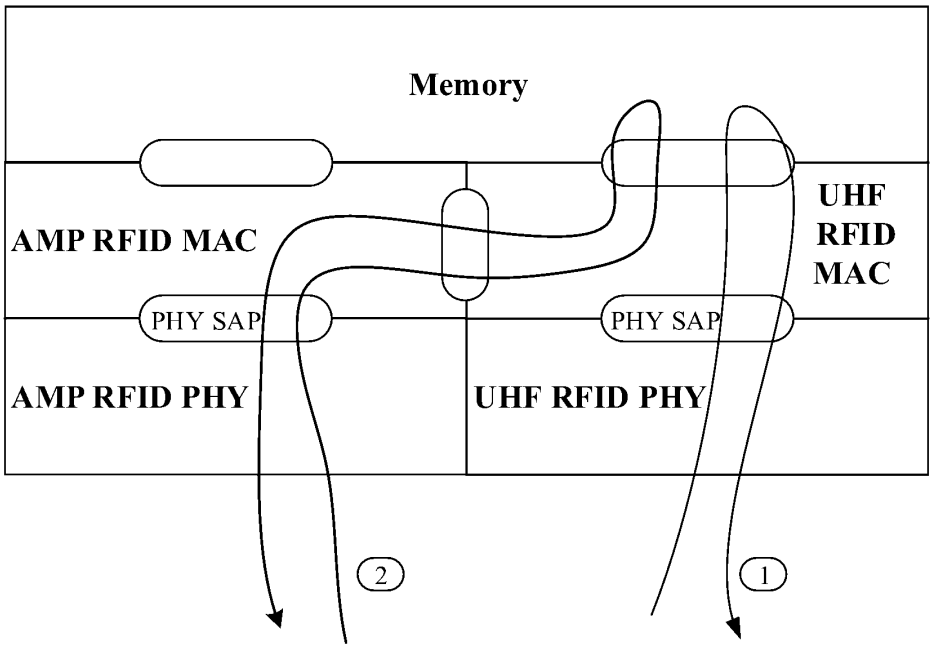
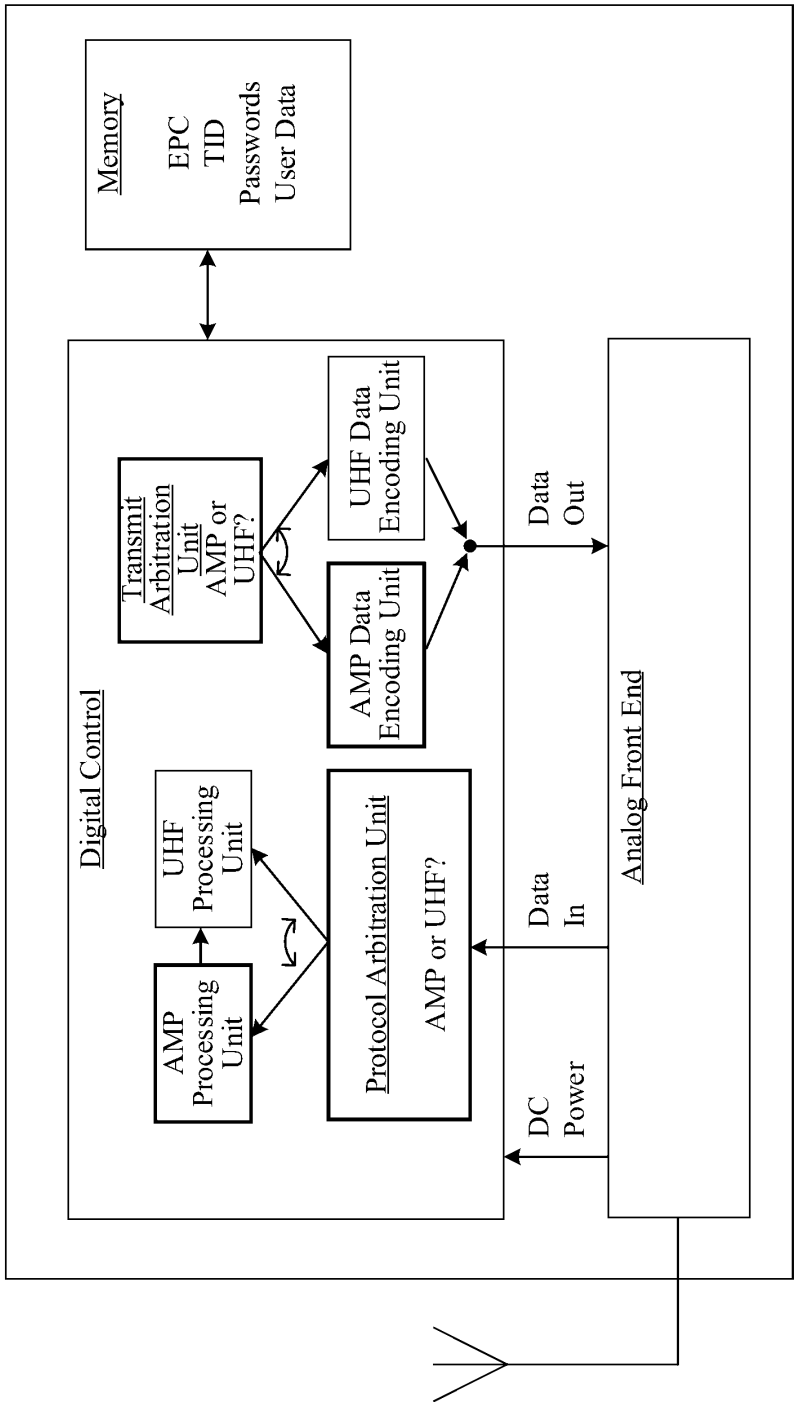


FIG. 2



AMP RFID Tag system architecture

FIG. 3

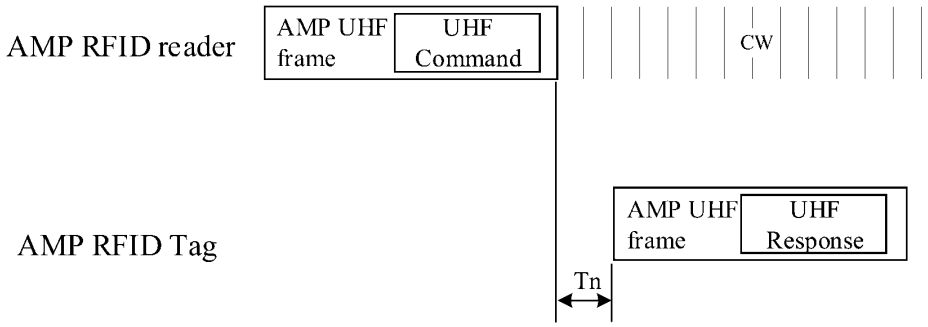


FIG. 4

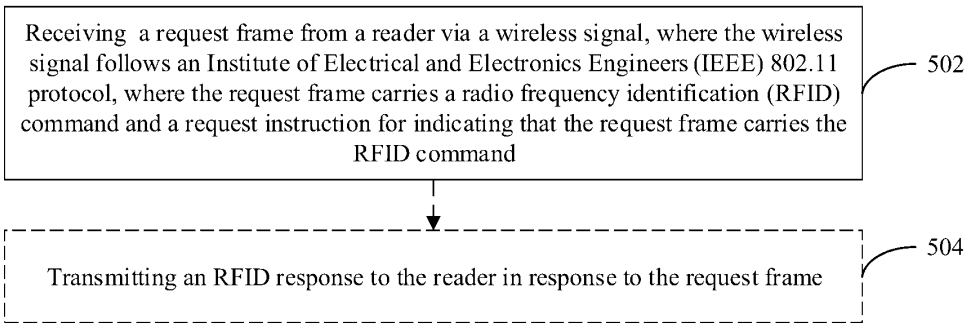


FIG. 5

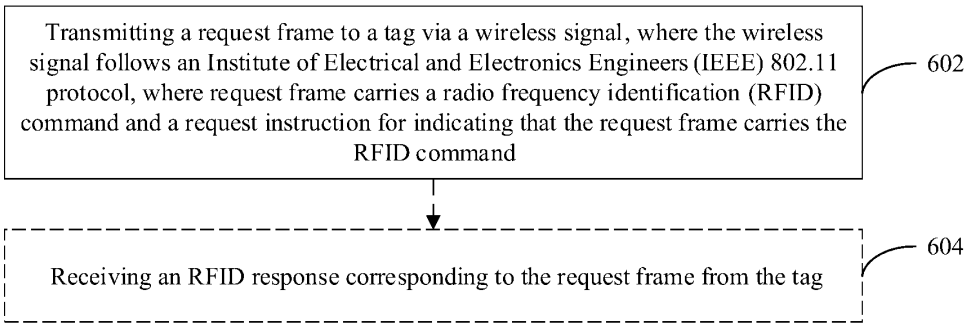


FIG. 6

Bits: 2	Variable	0 or 5 or 16
Frame Type	Type Dependent Content	CRC

AMP frame

FIG. 7A

Frame Type	Description
0	**AMP Data frames**
1 - 3	Reserved

Frame Type field

FIG. 7B

Bits: 2	Variable
Payload Type	**Payload**

Type Dependent Content field

FIG. 7C

PayloadType	Description
0	**AMP UHF frame**
1 - 3	Reserved

Payload Type field

FIG. 7D

Bits: 2	2	Variable	0 or 5 or 16
Frame Type = 0 **(AMP Data frame)**	Payload Type = 0 **(AMP UHF frame)**	Payload	CRC

AMP UHF frame

FIG. 8A

Bits:7 or 12	Variable
Link Timing Parameters	UHF Command Or Response

Payload field

FIG. 8B

Bits: 1	6	0 or 5
TRcal_factor presence	RTcal	TRcal_factor

Link Timing Parameters field

FIG. 8C

Bits:4	1	2	1	2	2	1	4
Command	DR	M	TRext	Sel	Session	Target	Q

FIG. 9

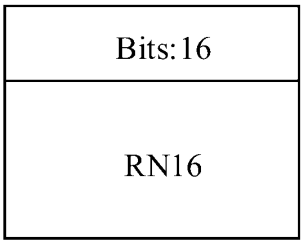


FIG. 10

AMP RFID Tag PHY, MAC Stack

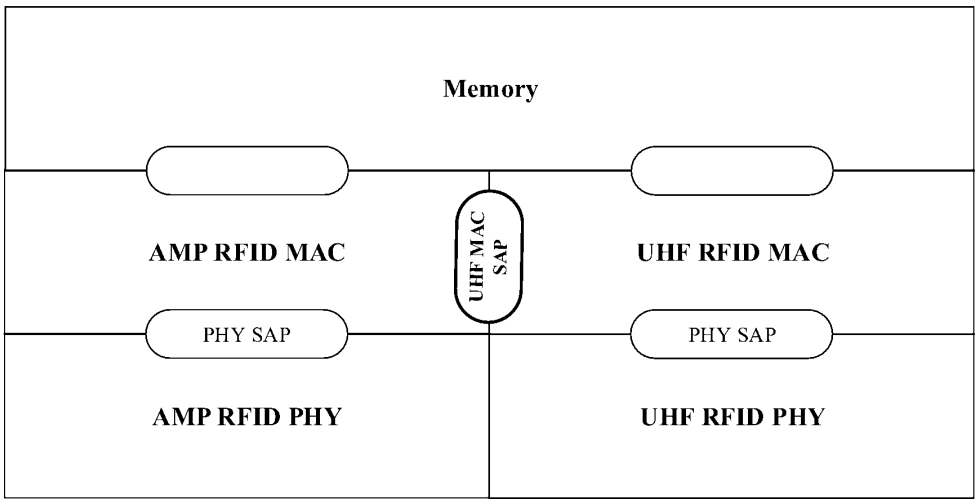


FIG. 11

Type 1 (No response)

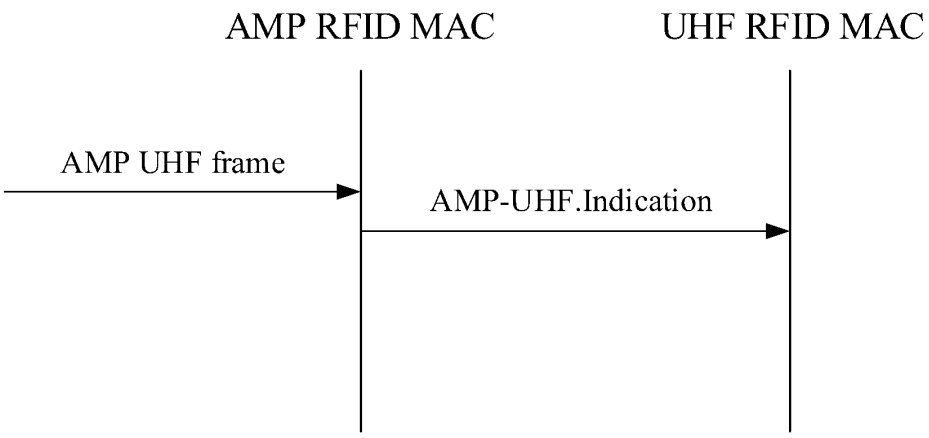


FIG. 12

Type 2 (With response)

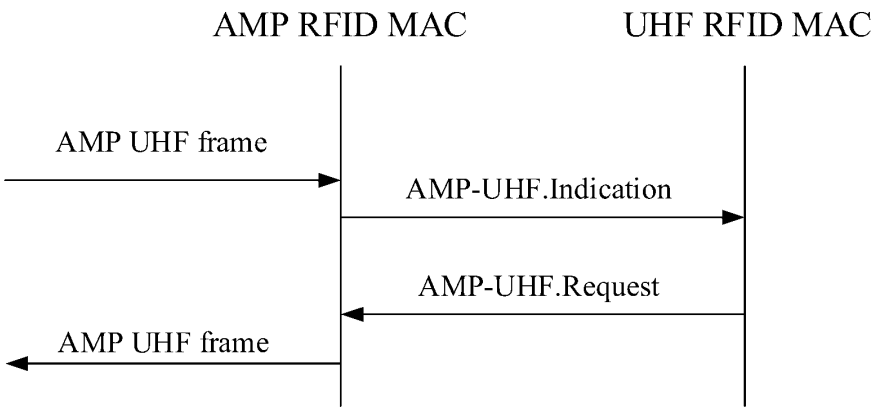


FIG. 13

Name	Type	Description
UHF Command	Octet string	UHF Commands as defined by GS1 except the CRC
Link Parameters	Integers	Parameters required to calculate the UHF link timings (RTcal, TRcal etc.).

FIG. 14

Name	Type	Description
UHF Response	Octet string	UHF Response as defined by GS1 except the CRC
Link Parameters	Integers	Parameters required to transmit the AMP UHF UL frame carrying the UHF Response (Data rate (DR), Modulation (M), TRext, Backscatter link frequency (BLF) etc.).

FIG. 15

AMP RFID Reader Reference Model

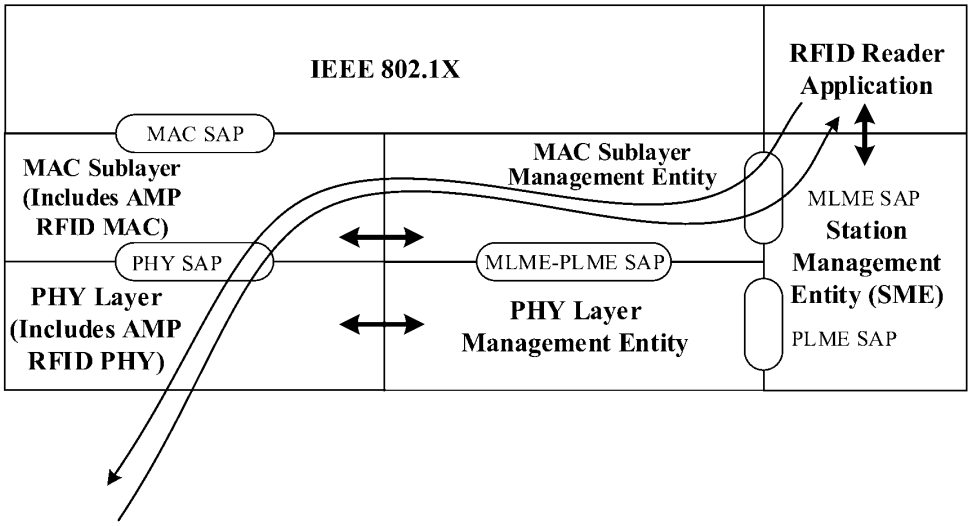


FIG. 16

Type 1 (No response)

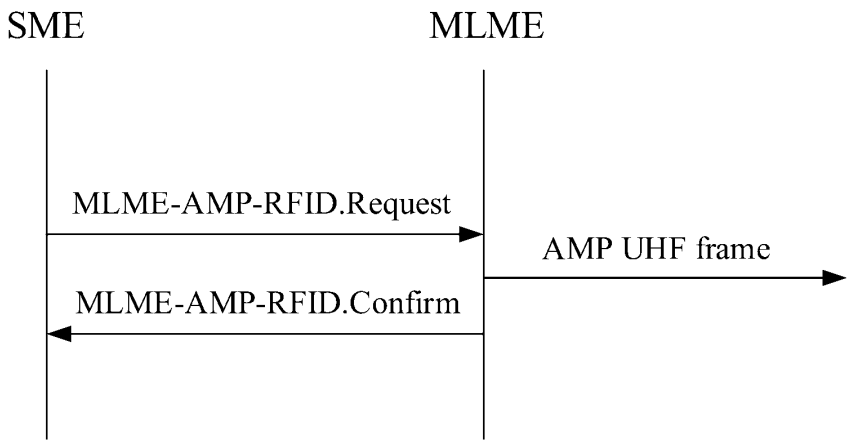


FIG. 17

Type 2 (With response)

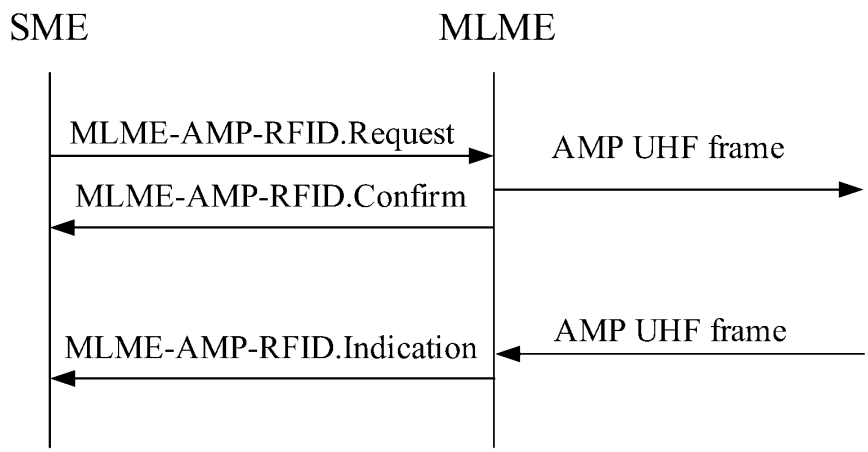


FIG. 18

Name	Type	Description
UHF Command	Octet string	UHF Commands as defined by GS1 except the CRC
Link Parameters	Integers	Parameters required to calculate the UHF link timings (RTcal, TRcal etc.).
CW Duration	Integer	The duration of the Continuous Wave (CW) to be transmitted following AMP UHF frame.

FIG. 19

Name	Type	Description
UHF Response	Octet string	UHF Response as defined by GS1 except the CRC

FIG. 20A

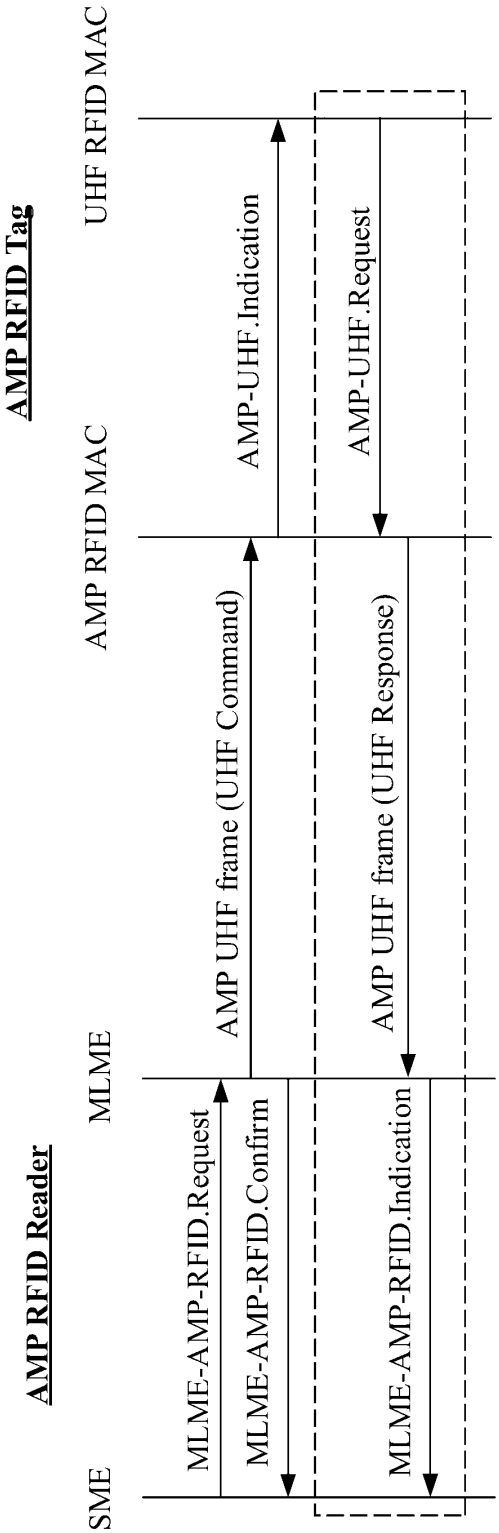

AMP RFID Reader
AMP RFID Tag
SME
MLME
AMP RFID MAC
UHF RFID MAC
MLME-AMP-RFID.Request
MLME-AMP-RFID.Confirm
AMP UHF frame (UHF Command)
AMP-UHF.Indication
AMP UHF frame (UHF Response)
AMP-UHF.Request
MLME-AMP-RFID.Indication

FIG. 20B

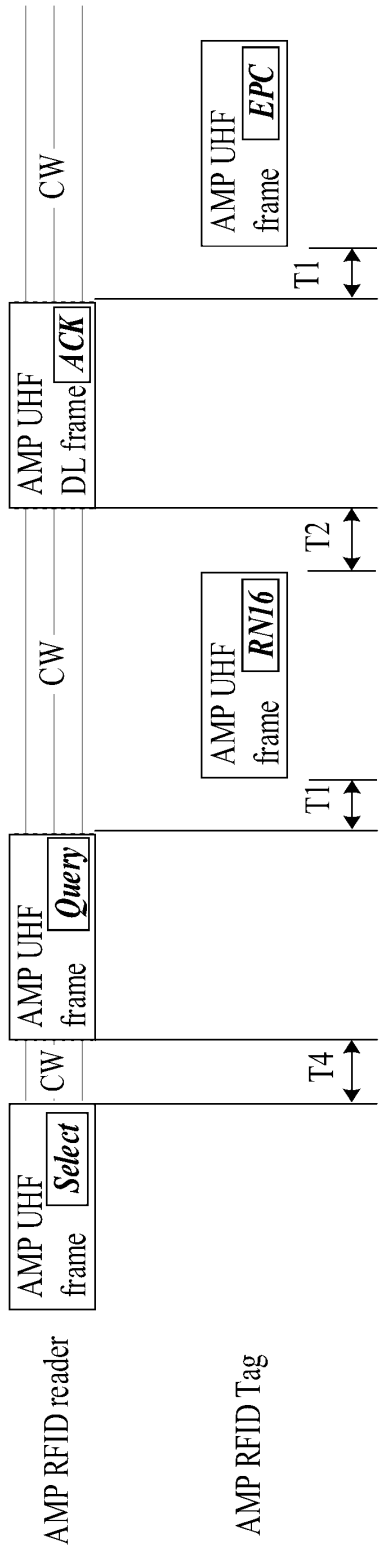

AMP RFID reader
AMP RFID Tag
AMP UHF frame Select
CW
T4
AMP UHF frame Query
CW
T1
AMP UHF frame RN16
T2
AMP UHF DL frame ACK
CW
T1
AMP UHF frame EPC

FIG. 21

Bits:3	Variable	0 or 5 or 16
Frame Type	Type Dependent Content	CRC

AMP frame

FIG. 22A

Frame Type	**Description**
0	AMP Data frame
1	**AMP UHF frame**
1 - 7	Reserved

Frame Type field

FIG. 22B

Bits: 3	Variable	0 or 5 or 16
Frame Type = 1 (**AMP UHF frame**)	Type Dependent Content	CRC

FIG. 23A

Variable
UHF Command

FIG. 23B

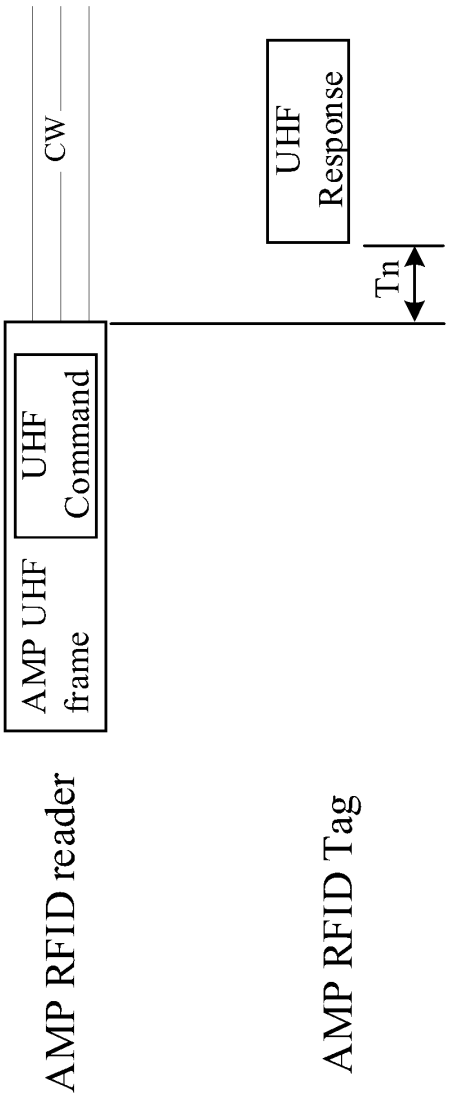

AMP RFID reader
AMP RFID Tag
AMP UHF frame
UHF Command
CW
Tn
UHF Response

FIG. 24

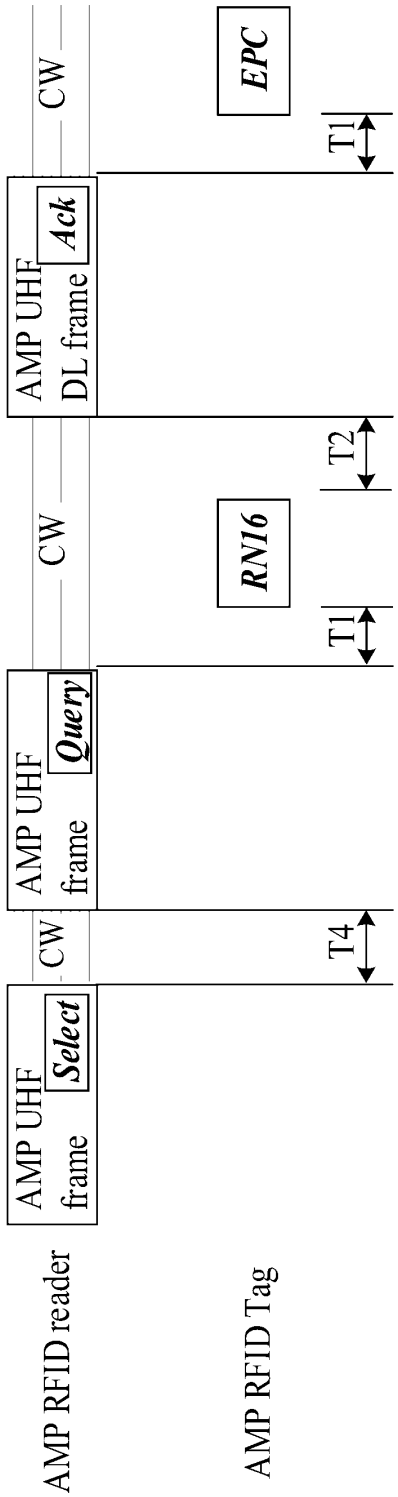

AMP RFID reader
AMP RFID Tag
AMP UHF frame
Select
CW
T4
AMP UHF frame
Query
CW
T1
RN16
CW
T2
AMP UHF DL frame
Ack
CW
T1
EPC

FIG. 25

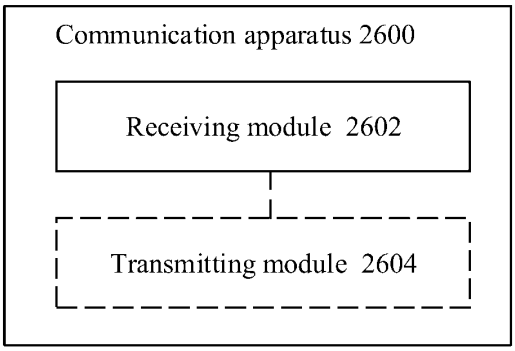


FIG. 26

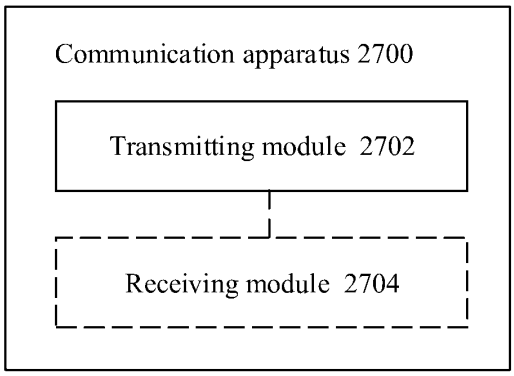


FIG. 27

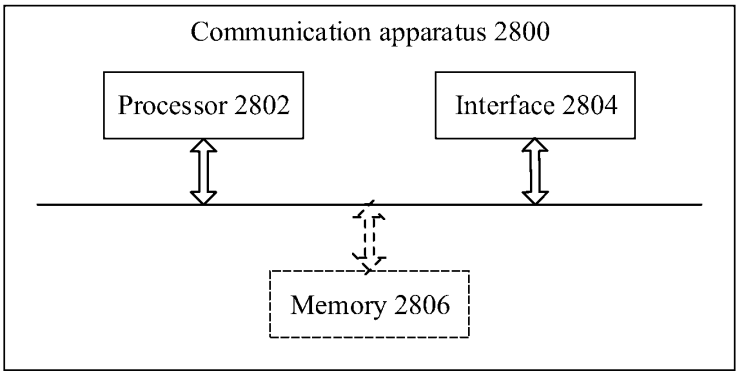


FIG. 28