



IEEE Standard for Air Interface for Broadband Wireless Access Systems

Amendment 1: Fixed and Mobile Wireless Access in Narrowband Channels

IEEE Computer Society

Developed by the
LAN/MAN Standards Committee

IEEE Std 802.16t™-2025
(Amendment to IEEE Std 802.16™-2017)

STANDARDS

IEEE Standard for Air Interface for Broadband Wireless Access Systems

Amendment 1: Fixed and Mobile Wireless Access in Narrowband Channels

Developed by
LAN/MAN Standards Committee
of the
IEEE Computer Society

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Abstract: The air interface, including the medium access control layer (MAC) and physical layer (PHY), of combined fixed and mobile point-to-multipoint broadband wireless access (BWA) systems providing multiple services is specified by this amendment. The MAC is structured to support multiple PHY specifications, including WirelessMAN-SC, WirelessMAN-OFDM, and WirelessMAN-OFDMA PHY specifications, each suited to a particular operational environment.

Keywords: amendment, broadband wireless access, BWA, cellular layer, fixed broadband wireless access, IEEE 802.16™, IEEE 802.16t™, IMT-2000, MAN, management information base, MIB, microwave, mobile broadband, mobile broadband wireless access, OFDM, OFDMA, radio, standard, WAS, wireless access systems, WirelessMAN®, wireless metropolitan area network

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Introduction

This introduction is not part of IEEE Std 802.16t-2025, IEEE Standard for Air Interface for Broadband Wireless Access Systems—Amendment 1: Fixed and Mobile Wireless Access in Narrowband Channels.

This standard IEEE Std 802.16-2017 specifies the air interface, including the medium access control layer (MAC) and physical layer (PHY), of combined fixed and mobile point-to-multipoint broadband wireless access (BWA) systems providing multiple services. The MAC is structured to support the WirelessMAN-SC, WirelessMAN-OFDM, and WirelessMAN-OFDMA PHY specifications, each suited to a particular operational environment. The standard enables rapid worldwide deployment of innovative, cost-effective, and interoperable multi-vendor broadband wireless access products, facilitates competition in broadband access by providing alternatives to wireline broadband access, encourages consistent worldwide spectrum allocation, and accelerates the commercialization of broadband wireless access systems.

IEEE Std 802.16t-2025 is an amendment to IEEE Std 802.16-2017.

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IEEE Standard for Air Interface for Broadband Wireless Access Systems

Amendment 1: Fixed and Mobile Wireless Access in Narrowband Channels

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Insert the following entries in alphabetical order

RFC 9147, The Datagram Transport Layer Security (DTLS) Protocol Version 1.3.

Delete the following from the list of reference:

IETF RFC 2104, HMAC: Keyed-Hashing for Message Authentication, Krawczyk, H., Bellare, M., and Canetti, R., Feb. 1997.

3 Definitions

Insert the following definitions in alphabetical order:

air interface resource (AIR): A two-dimensional entity with a frequency and a time range. Can be expressed in terms of slots.

air interface resource manager (AIRM): A central entity managing Air Interface Resources.

band: Frequency range that is partitioned into subchannels.

carrier sense multiple access with collision avoidance (CSMA/CA): The DPP mode of IEEE 802.16t™ operation uses Non-Persistent CSMA, which means that when a transmitting DPP SS has a frame to send and it senses a busy channel, it waits for a random period of time without sensing the channel in the interim and repeats the CSMA algorithm again. Other common variants of CSMA are 1-Persistent CSMA and P-Persistent CSMA.

control area: All base stations within this area are controlled by one AIRM.

CTS deferral: A period after clear to stand (CTS) reception during which a non-intended receiver will not access the channel.

direct peer-to-peer (DPP): A direct link between two SSs with no Base Station used nor required for operation.

DPP Association: One to one relationship between two DPP SSs established by successful pairing and mutual Authentication.

DPP channel: A continuous frequency range or an aggregation of multiple non-adjacent frequency ranges used for communication between DPP SSs.

DPP link: An association between two DPP SSs.

DPP PDU: A protocol data unit (PDU) used in DPP communication.

DPP SS: Each of the SSs of the same DPP link.

DPP sub-channel: A partition of DPP channel in the frequency domain.

DPP sub-channel group: An aggregation of one or more adjacent or non-adjacent DPP sub-channels. A DPP link operates over one subchannel group.

half duplex (HD): Communication in both directions is not done at the same time.

link adaptation (LA): A process by which a DPP SS is notified by its peer SS, what MCS it can use for transmission.

link adaptation (LA) hold timer: A timer that starts/restarts once a measurement report is received and resets once maximum duration time is reached which is configured in terms of seconds between 1 to 60 seconds.

maximum channel occupancy (MAX CO): A configuration parameter defining the maximum duration of the burst in terms of the number of slots.

maximum latency: A configurable parameter, which defines the time before an SDU expires.

maximum random backoff count (MAX RBC): A configuration parameter used to declare the transmission failure once the random backoff count exceeds the configured value.

minimum inter burst gap: A minimum duration between consecutive transmission of a DPP SS in which it is not allowed to transmit.

nominal CINR: A configurable parameter in each DPP SS. It defines the nominal range (minimum and maximum) of CINR for each MCS for optimal demodulation by the DPP SS. The upper limit for each MCS coincides with the lower limit for the next higher MCS, except for the highest MCS, in which case the upper limit is infinity.

non-intended receiver: Any DPP SS other than the intended DPP SS receiver as identified by the destination MAC address in the burst.

operational state time limit: A configurable parameter that sets the time duration after which the SS will leave Operational state and return to the Association state if its peer DPP SS does not respond/transmit any burst. It is specified in terms of seconds.

paired DPP channel: Two distinct DPP channels are used, one for each direction.

paired DPP subchannel group: Two distinct subchannel groups are used, one for each direction.

random back-off duration: A duration in which a DPP SS avoids channel access following an access attempt in which the channel was busy. The back off is random so that if multiple DPP SSs are trying to access the channel at the same time, the probability of collision next time is minimized.

receive MCS: The MCS used by the DPP SS for reception.

relay wait time: A configurable parameter in each Relay Station that specifies the amount of time the relay-station is to wait for an acknowledgment before relaying a burst or PDU for which an acknowledgment was required but not received when the Relay Option value in the burst's Control Message is set to two.

repetition factor: The number of PHY layer repetition used for a given MCS.

robust MCS: The highest MCS that can reliably be decoded by the intended receiver. The value is chosen by the system installer. It is a fixed value, but is dependent on the system parameters (link margin, etc).

RSSI threshold: A configurable parameter in a DPP SS. The measured RSSI is compared with the configurable RSSI Threshold parameter for use by the CSMA mechanism to determine whether or not the channel is in use.

slot: The minimal duration usage within a subchannel.

transmit MCS: The MCS used by the DPP SS for transmission.

unpaired DPP channel: the same DPP channel is used for communication in both directions.

unpaired DPP sub-channel group: The same subchannel group is used for both directions of communication between two BS or SS.

4 Abbreviations and acronyms

Insert the following definitions in alphabetical order:

AIRM	air interface resource manager
CTS	clear to send
DTLS	Datagram Transport Layer Security
NB-UGS	Narrowband Unsolicited Grant Service
OTA	over the air
PKM	privacy key management
RTS	request to send
RX	receive, receiving, reception
SBC	subscriber basic capability
SPS	semi-persistent scheduler
TLS	transport layer security
TX	transmit, transmitting, transmission
TTL	time-to-live

6. MAC common part sublayer

6.3 Data/Control plane

6.3.2 MAC PDU formats

6.3.2.3 MAC management messages

6.3.2.3.9 Privacy key management (PKM) messages (PKM-REQ/PKM-RSP)

Change the last row in Table 6-69 as follows:

Table 6-69—PKM message codes

Code	PKM message Type	PKM message Type
44-255	~~Reserved~~ PKMv3 TLS Transfer Message	PKM-RSP
45-255	Reserved	=

Insert new 6.3.2.3.9.33 after 6.3.2.3.9.32 as follows:

6.3.2.3.9.33 PKMv3 TLS-transfer message

When an MS has a TLS payload received from a TLS method for transmission to the BS or when a BS has a TLS payload received from a TLS method for transmission to the MS, it encapsulates it in a PKMv3 TLS-Transfer message. In the case of reauthentication, the HMAC Digest and Key Sequence Number attributes shall be included.

Attributes are shown in Table 6-101a.

Table 6-101a—PKMv3 TLS-Transfer message attributes

Attribute	Content
TLS Payload	Contains the TLSv1.3 authentication data, not interpreted in the MAC
Key Sequence Number	AK sequence number
HMAC Digest	Message digest calculated using AK

Insert the following subclauses after 6.3.36:

6.3.37 NB-MAC sublayer

6.3.37.1 Overview

The modifications are designed to reduce overhead, improve frequency utilization, and reduce latency when operating in narrow channels. In addition, the MAC sublayer modifications are designed to support resource allocations by an AIRM.

6.3.37.2 Channel utilization improvement changes

6.3.37.2.1 Minimizing MAC and PHY layer overhead

The throughput of the MAC sublayer at a channel bandwidth greater than or equal to 1.25 MHz is relatively high compared to smaller channel bandwidths. At this channel bandwidth and greater, the MAC sublayer may sustain highly dynamic, on demand, bandwidth allocation schemes with little impact on end user throughput and latency. The MAC sublayer also supports smaller channel bandwidths down to 5 kHz, while maintaining the original MAC scheduling modes (BE, NRTPS, RTPS, ERTPS & NB-UGS). Notably, the DL & UL MAP messages are still transmitted in every frame along with the preamble and FCH which limits the minimal frame duration. The NB-MAC is designed to increase throughput or capacity (more subscriber stations) along with improvement in latency. As such, more drastic changes are needed, including the addition of new, less dynamic scheduling modes, the reduction in the volume of allocation messages and the decoupling of allocation messages from the frame.

DL and UL bandwidth allocation messages are a significant contributor to overhead when reducing the channel bandwidth below 100kHz. For the NB-MAC, this overhead is reduced maintaining bandwidth allocation messages only for bursty applications. The transmission of the bandwidth allocation messages is configurable: every frame if need arises, less to save bandwidth. In addition, the introduction of new less dynamic scheduling modes, e.g., Semi-Persistent Service (SPS) scheduling mode further reduces overhead.

With NB-MAC, the MAC and PHY layer overhead is configurable, based on the application requirements. For example, the rate of preamble and the rate of all MAC messages (e.g., closed loop power control, link adaptation) is optimized depending on whether the subscriber stations are mobile or fixed and if mobile, depending on their mobility speed.

6.3.37.2.2 Support of low latency applications

In a non-congested network, the latency is determined by the frame duration and the scheduling mode. With NB-MAC, the frame duration is configurable, and minimized for low latency applications, subject to the length of time-sensitive SDUs. The per-frame MAC and PHY overhead is reduced by decoupling the preamble and the bandwidth allocation messages from the frame duration. Once decoupled, the MAC sublayer overhead does not depend on frame duration. The frame duration is now configured such that it may carry a full time sensitive SDU. Note that fragmentation may be used to transmit a SDU using frames shorter than the SDU length, but the latency shall then be determined by the number of frames required to carry the entire SDU.

Latency reduction is also supported by the use of an a priori bandwidth allocation scheme, i.e., narrowband unsolicited grant (NB-UGS), semi-persistent service (SPS) and bulk allocation service (BAS) scheduling modes. The BS scheduler in Stand Alone scheduling mode and the subscriber station scheduler shall use BAS allocations to serve new SDUs in the UL direction. The BS in secondary scheduling mode, shall also use BAS allocations in the DL direction to serve SDUs in the DL direction.

DL-MAP and UL-MAP messages are not used. Regular DL and UL traffic shall employ NB-UGS and SPS scheduling modes. In addition, optional BAS mode may be used to allocate bandwidth to the basic subscriber station service flow (SF) in the UL and DL directions, even before the low latency SDU is received. The BS/SS scheduler shall use BAS allocations to serve new SDUs in the DL/UL direction based on their priority. Ad hoc allocation messages shall be used for low latency bursty applications whenever bulk allocations are not available.

6.3.37.2.3 Allocation messages reduction

Reduction of allocation message overhead for low-rate regular traffic applications and for the use of bulk allocations requires more flexible bandwidth allocation messages compared to the DL-MAP and UL-MAP messages. New allocation messages shall have the ability to specify allocations of the future frames.

6.3.37.2.4 Support of AIRM by the BS MAC sublayer

The BS MAC sublayer may operate in either stand-alone scheduling mode MAC or secondary scheduling mode. While operating in secondary scheduler MAC mode, the BS shall support procedures required to send bandwidth requests and receive allocations from the AIRM. These procedures include:

- Send to the AIRM instantaneous, semi-persistent and bulk bandwidth requests.
- Bandwidth requests shall cover both uplink and downlink directions.
- An instantaneous bandwidth allocation shall cover the time to live (TTL) of the request. The SPS bandwidth request shall specify the periodicity, the size per allocation and the validity of the request.

The AIRM may also send unsolicited SPS and BAS allocations to the BSs. When the BS operates in secondary scheduling mode, the AIRM is responsible for the allocation of bandwidth in a way that avoids intra system interference. Separation between interfering sectors may be done in either frequency or time or both. A super-frame structure with a configurable number of frames shall be available to support flexible separation in time. The super frame structure shall be synchronized between the AIRM and all BSs within the control area.

6.3.37.3 Frame formats

6.3.37.3.1 Frame structure

A Frame may start with Preamble or Data burst depending on the allocations. Fixed duration data frames are necessary for time division duplexing purposes. A frame is subdivided into DL and UL subframes. The data in both DL and UL subframes is further subdivided into slots (8.6.6.1).

The frame duration is configurable. The default slot profile structure for DL and UL frames is shown in Figure 8-155. Considering a minimum of three slots in DL and three slots in UL for non-fragmentable connectivity maintenance messages, with default slot profile structure, CP factor 1/8, FFT Size 64, and coverage distance of 25 km, the minimum supported frame duration values for each NB subchannel bandwidth is given in Table 6-325.

Table 6-325—Minimum frame duration for each NB subchannel bandwidth

Δf , kHz	Frame Duration, ms	DL+UL slots Per Frame	Samples Per Frame
5	100	8	32000
6.25	62.5	6	25000
12.5	50	10	40000
25	20	8	32000
50	10	8	32000

Slots shall not be scheduled across frame boundaries. The DL/UL ratio may only be set within the limits of having non-zero integer number of slots in both the UL and DL frame. Bandwidth allocation shall employ allocation messages (ALLOC-MSG) instead of MAPs. The allocation messages are decoupled from frames

and are transmitted when needed. Figure 6-207a shows frame with Preambles, ALLOC-MSGs and data Bursts, Figure 6-207b shows ALLOC-MSGs and data Bursts, and Figure 6-207c shows frame with data Bursts only.

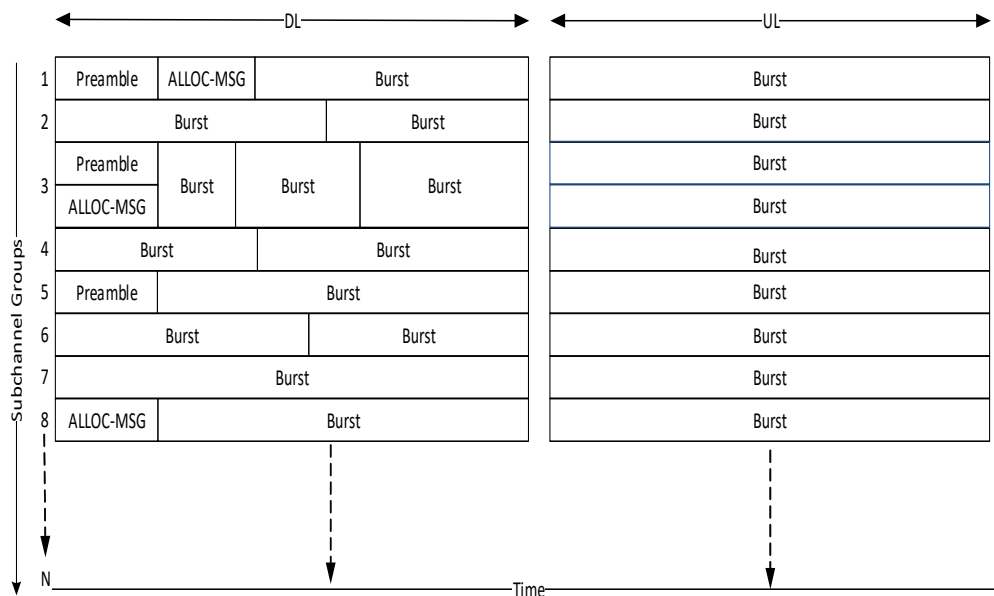


Figure 6-207a—Example frame with preamble, allocation message and data burst

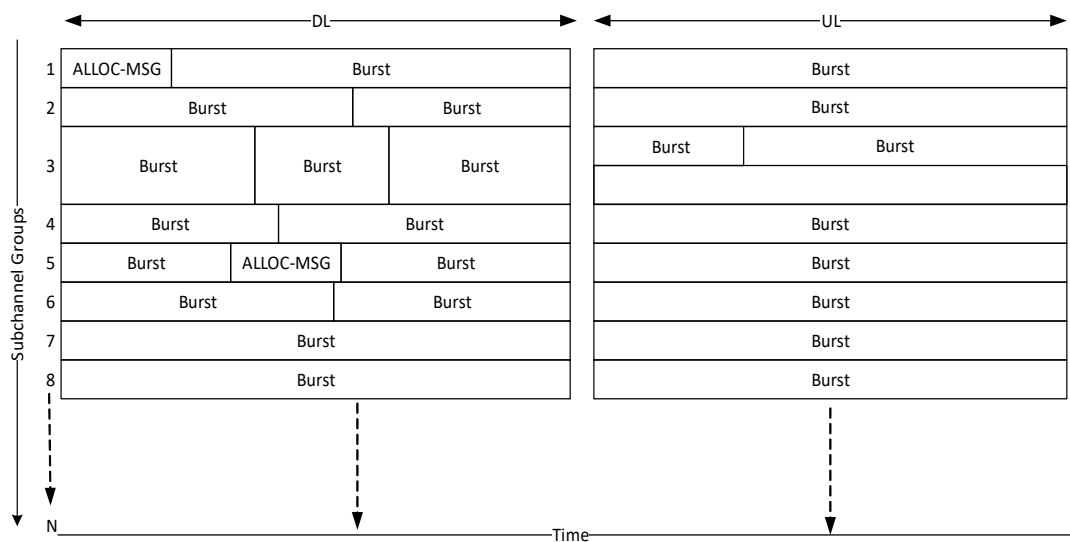


Figure 6-207b—Example frame with allocation message and data burst

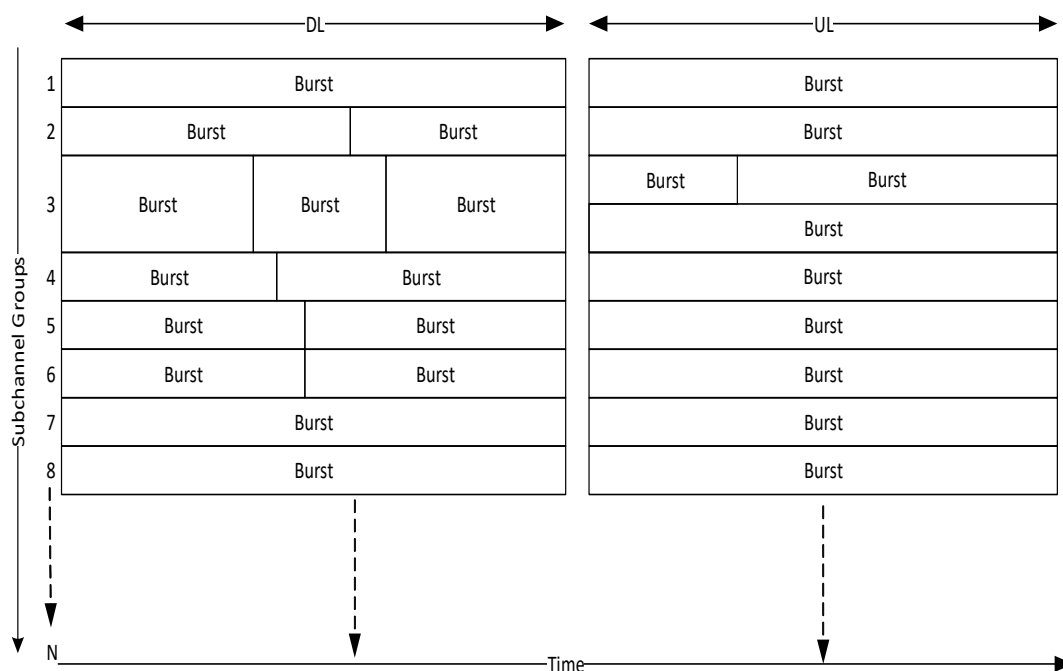


Figure 6-207c—Example frame with data bursts

6.3.37.4 Timelines

6.3.37.4.1 Super frame structure

Time is divided into super-frames which are divided into frames. The number of frames in a super-frame is configurable while the super frame length is always one second. Figure 6-207d is an example of a super-frame consisting of 10 frames where the duration of a frame is 100 ms.

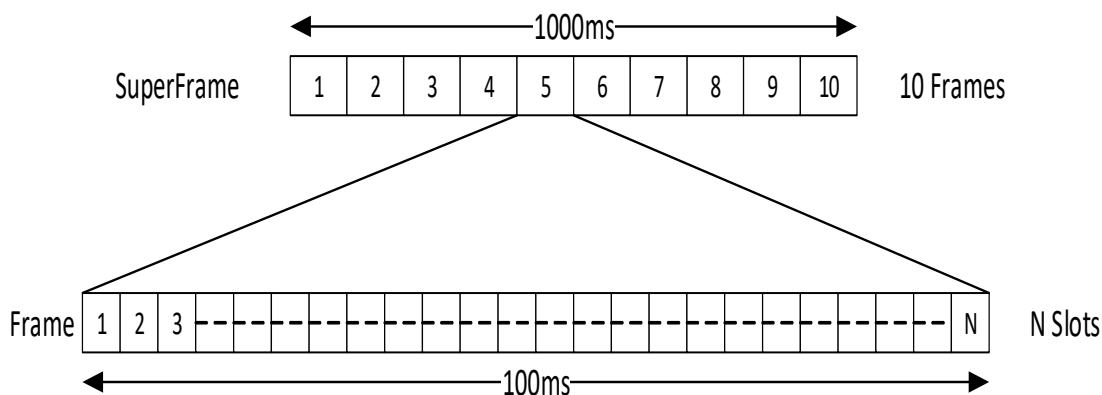


Figure 6-207d—Example super frame structure

6.3.37.4.2 Interval and period

These terms are applicable to SPS allocations that are characterized by fixed size allocations and fixed intervals between successive allocations. An interval is the time duration between two successive allocations. The interval is specified with an integer number of frames where the slot offset within the frame where the allocation starts is the same. There are fixed size allocations at every interval. Period is the time for which the allocations are valid. A period may be infinite or finite. The finite validity period may be indicated in the number of intervals for which it is valid, i.e., finite period may be defined as an integer multiple of an interval. For example, allocation with interval of two frames and validity period of 10 intervals, spans over 20 frames. The location of the allocation within the frame, i.e., the slot offset, is considered from the beginning of the frame.

6.3.37.4.3 Frame duration and super-frame duration

The longer the frame, the longer the latency. Support of low frame duration is needed to support low latency requirements. The frame duration for such an application shall be configured such that a complete PDU may be encapsulated in one frame. The objectives of the super-frame are:

- Provide an additional dimension of separation between sectors for the scheduler to avoid intra system interference.
- Extend the allocation window many frames into the future.

6.3.37.4.4 Synchronization

6.3.37.4.4.1 Between BS and subscriber stations

All subscriber stations are synchronized with the BS using preamble or GNSS. As required by this standard, the BS indicates the frame number in the allocation messages transmitted to subscriber stations. Subscriber stations use the frame number to synchronize with the frame number of the BS. The frame number is an unsigned 16-bit integer, and shall rollover to zero after 65535.

6.3.37.4.4.2 Between AIRM and BSs in the control area

All BSs and AIRMS shall be synchronized using GNSS. The BSs shall synchronize the beginning of the frame with a 1 PPS pulse from a GNSS receiver. The number of frames per second shall be an integer number. AIRM starts the super-frame when it boots up. The super frame length shall be one second and its beginning is synchronized with the beginning of a frame. The index to a frame within the superframe is referred to as the Frame Offset. All new BSs shall use the synchronization (Sync) message information to synchronize with AIRM.

AIRM may send the Sync message indicating the start of the super-frame in any of the upcoming 1 PPS signals which aligns with start of super-frame. Sync message shall also carry the number of frames per super-frame information. Please refer to Figure 6-207e for super-frame synchronization using Sync message along with 1 PPS signal.

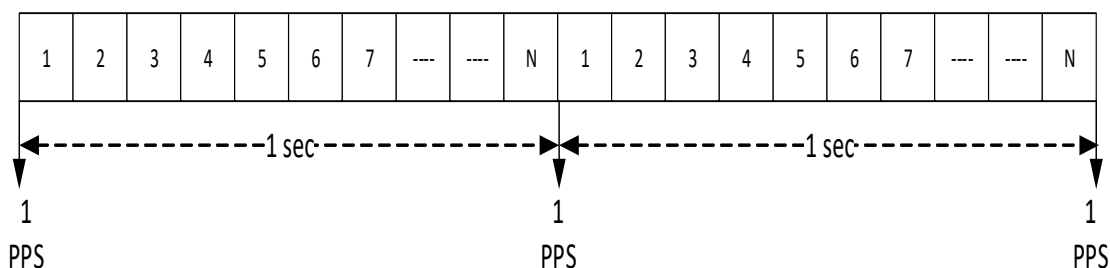


Figure 6-207e—Superframe synchronization

In case of secondary scheduler MAC mode, the BS shall request bandwidth for each SDU, but the BS may also send a request for multiple SDUs with the same attributes (same direction, same priority, etc.). The scheduler shall allocate resources to requests considering the respective service flow's priority and maximum latency. There may be an upper limit on the resource allocated per subscriber station. This is to avoid starvation of other waiting subscriber stations.

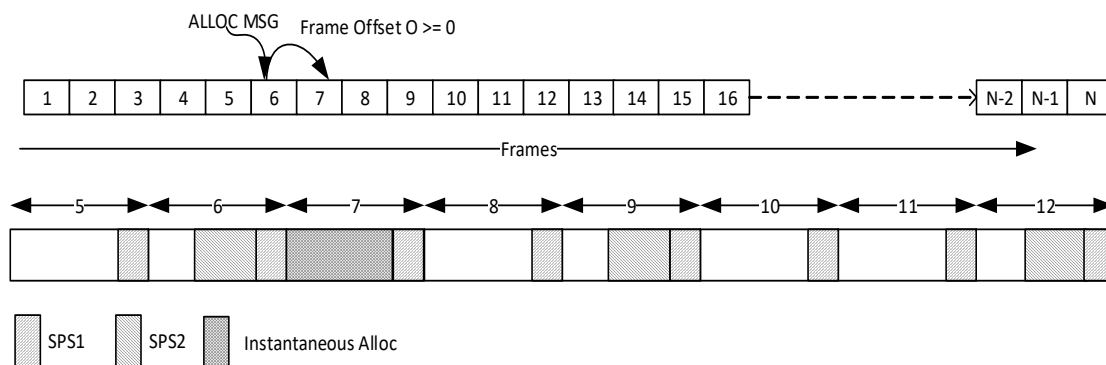


Figure 6-207f—Instantaneous allocation along with SPS

Figure 6-207f shows:

- Allocation message in frame 6 indicating instantaneous allocation in Frame 7 with an offset of one frame (Frame Offset $O = 1$).
- The allocations may be applied to DL or UL subframes.

6.3.37.4.5 Delivery of Allocation Message

In case of NB-UGS and SPS allocations where the allocations are repeated, the BS shall request acknowledgment of the allocation message from the subscriber station.

The following measures shall be taken to guarantee the delivery of an allocation message.

- The allocation message shall be transmitted in Robust MCS.

- Subscriber station shall acknowledge the reception of allocation message by sending ACK message (ALLOC-CTRL-MSG, see Table 6-326) with control code set to Acknowledge.
- In case of uplink allocations, BS shall start the allocation after sending the allocation message. BS shall monitor the allocation usage. The SS may start using the allocation after receiving allocation message.
- In case of downlink allocations, the BS shall start allocation only after receiving ACK message from the SS.
- BS shall resend the allocation message for uplink/downlink allocations if BS does not receive ACK within the timeout period. In case of uplink allocations, a transmission in the allocation shall be considered as an alternative to ACK by the BS.

The state sequence for uplink allocation message is shown in Figure 6-207g.

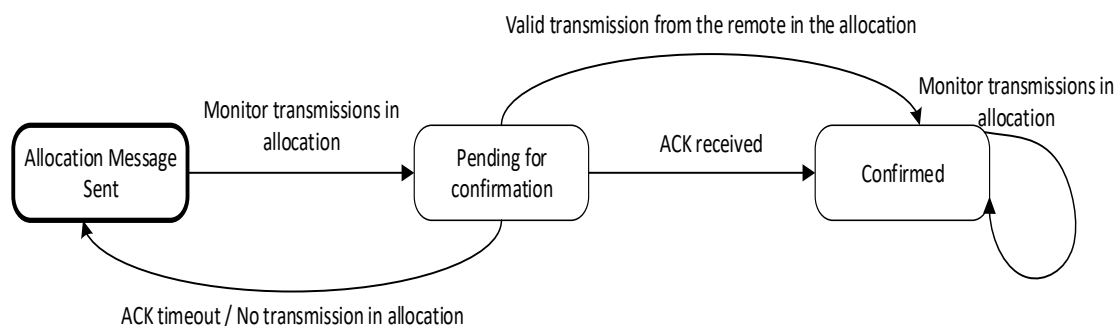


Figure 6-207g—Uplink NB-UGS/SPS allocation state machine, BS side

The state sequence for downlink allocation message is shown in Figure 6-207h.

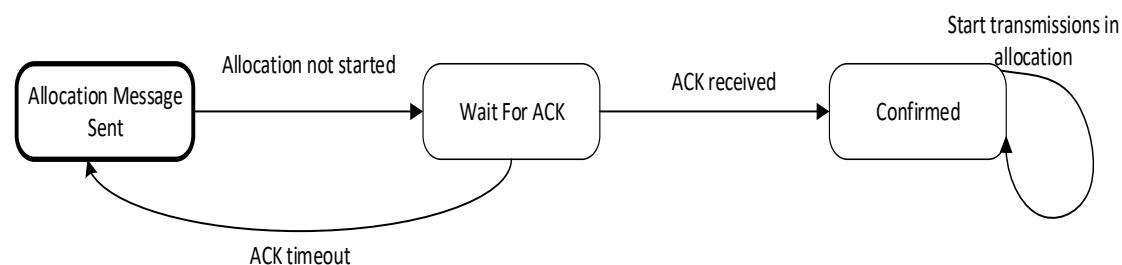


Figure 6-207h—Downlink NB-UGS/SPS allocation state machine, BS side

6.3.37.4.6 BS Scheduler

The BS scheduler shall schedule future frames as follows:

- Instantaneous allocations within a time spanning one super-frame.
- NB-UGS/SPS occurring across superframes within the validity period.
- Bulk allocations within an interval that spans one superframe may be one-time or repetitive with validity period.

The scheduler maintains information of scheduled allocations. When scheduling a request, the scheduler must use this information to determine the resource availability in the future frames and accordingly allocate the resources.

The scheduler performs scheduling on a “subchannel group” basis. A subchannel group is described in detail in 8.6.1. The allocations are communicated to the subscriber stations by allocation messages (ALLOC-MSG). Allocation messages are sent over each subchannel group for allocations to subscriber stations present in that subchannel group.

In case of secondary scheduler MAC mode, the BS shall request aggregate request in slots considering SDUs waiting in the transmission queue in downlink and aggregate request received from subscriber stations in uplink. The BS scheduler may request a consolidated request combining the aggregate requests with the same attributes (same direction, same priority, etc.). The BS scheduler determines the available resources on any subchannel group based on the downlink and uplink allocations granted by the AIRM for that subchannel group. In this mode, the BS shall have mixed operations, scheduling the already granted slots as primary and requesting more resources from the AIRM if congested as secondary.

In case of standalone MAC mode, the BS scheduler calculates the resource available on any subchannel group based on the number of subchannels in the group.

6.3.37.5 Allocation messages

6.3.37.5.1 Overview

Allocation messages shall be transmitted when needed on Robust MCS (configured minimum DIUC). Depending on the traffic needs, an allocation message may have DL allocations only, UL allocations only or both DL and UL allocations. Resource allocations shall be of three types, instantaneous, semi persistent and bulk. An allocation message shall indicate the future frame number, slot offset within the frame where the allocations starts and the number of slots within the allocations.

6.3.37.5.2 Allocation message (ALLOC-MSG) format

Allocation messages define bulk instantaneous and semi-persistent allocations in DL and UL. Allocation messages may have DL allocations only, UL allocations only or both DL and UL allocations. An Allocation message is divided into two parts, header and allocation information. The header is of six bytes and shall be transmitted on downlink Robust MCS of the BS.

The allocation information length is in bytes, and it shall be transmitted on the downlink Robust MCS or on the lowest common downlink DIUC/UIUC code of the subscriber stations being allocated in the message. If the allocation information has uplink ranging allocation then it shall be transmitted on the downlink Robust MCS (to be decoded by all subscriber stations) and if the allocation information had uplink/downlink data allocations then it shall be transmitted on the lowest common downlink DIUC/UIUC code of the subscriber stations being allocated in the message (to be decoded by concerned subscriber stations). Table 6-326 describes the Allocation Message format.

Table 6-326—Allocation message format

Syntax	Size (bit)	Notes
Allocation_Message() {	---	---
Header Burst 1 {		6-byte header
Header Type	1	1: Allocation message header 0: GMAC header This field is used to distinguish between GMAC header and Allocation message
BS EIRP	7	Signed integer from -64 to 64 (in dBm)
Frame Number	16	The frame number is the absolute frame number used by subscriber stations for frame number synchronization
FEC Code	4	FEC Code of Allocation Information Burst (covers the Allocation Message after Header Burst 1 to the end, including HCS2)
Allocation Information length	8	Total length of Allocation Information burst including HCS2 (in bytes)
Reserved	4	
HCS1	8	CRC for Header Burst 1
}		
Allocation Information Burst 2 {	---	
while (Allocation Information Burst 2 remains) {		
Allocation_IE	variable	Refer to Table 6-330 Allocation IE format. DL Allocation IEs are listed first followed by UL Allocation IEs
}		
HCS2	8	CRC for Allocation Information Burst 2
}		
}		

6.3.37.5.2.1 Allocation_IE

6.3.37.5.2.1.1 DIUC

A 4-bit DIUC shall be used to define the data burst and other IEs. Table 6-327 shows the DIUC values.

Table 6-327—DIUC values

DIUC value	Usage
0 - 6	Refer to Table 6-328
7	Extended-2 DIUC IE
8	Extended DIUC
9 - 15	<i>Reserved</i>

Table 6-328— DIUC/UIUC Burst Profiles

Different Burst Profiles	DIUC/UIUC
QPSK 1/2	0
QPSK 3/4	1
16 QAM 1/2	2
16 QAM 3/4	3
64 QAM 3/4	4
64 QAM 5/6	5
256 QAM 7/8	6

6.3.37.5.2.1.2 UIUC

A 4-bit UIUC shall be used to define the data burst and other IEs. Table 6-329 shows the UIUC values.

Table 6-329—UIUC values

UIUC value	Usage
0 - 6	Refer to Table 6-328
7	Subchannel Group Relocation IE
8	Power Control IE
9	CDMA BR/PR
10	Extended UIUC 2 IE
11	CDMA Initial ranging/Handover ranging

Table 6-329—UIUC values (continued)

UIUC value	Usage
12	PAPR reduction allocation, safety zone, Sounding Zone
13	CDMA Allocation IE
14	Extended UIUC
15	<i>Reserved</i>

6.3.37.5.3 Allocation control message (ALLOC-CTRL-MSG) format

Refer to Table 6-331.

Table 6-330—Allocation IE format

Syntax	Size (bit)	Notes
Allocation_IE () {	---	---
Direction	1	0: Downlink 1: Uplink
DIUC/UIUC	4	FEC code for DIUC or UIUC, based on Direction
Repetition	3	Values 0 to 7. Repetition factor is 2 ^{value} .
CID	8	Basic CID
If(DIUC/UIUC == 0/1/2/3/4/5/6) {		
{		
Allocation Type	1	0: Instantaneous/Bulk 1: SPS
Frame Offset	3	Start frame offset (used for UL Allocations and SPS for DL-UL)
if((Allocation Type == Instantaneous/Bulk) {		
Allocation Bitmap	8	Indicates the presence/absence of allocation within the frames of the super frame. One bit is assigned to each frame in the super frame. 1: present 0: absent.
for each (active frame) {		Active frames are the sum of allocated frames within the super frame (sum of all ones in the allocation bitmap)
Slot Offset	10	Slot offset within the frame
Slots	10	Allotted slots
}		

Table 6-330—Allocation IE format (continued)

Syntax	Size (bit)	Notes
}		
else if (Allocation Type == SPS) {		
Slot Offset	10	Slot offset within the frame
Slots	10	Allotted slots
Interval	4	Number of frames in the interval. Ranges from 1 to 15 frames
}		
} else {		DIUC/UIUC is not set to MCS , other allocation IEs
If (Direction==0) {		Downlink
If(DIUC == 7) {		
Extended-2 DIUC dependent IE }	variable	Refer to 8.4.5.3.2
else if (DIUC == 8) {		
Extended DIUC dependent IE }	variable	Refer to 8.4.5.3.2.1
} else {		
if (UIUC == 7) {		Refer to Table 6-337
SubchannelGroup Relocation IE }		
else if (UIUC == 8) {		
Power Correction}	8	In a step of 0.25 dB
else if (UIUC == 9)		BR/periodic ranging over one symbol
else if (UIUC == 10) {		
Extended UIUC 2 dependent IE }	variable	Refer to 8.4.5.4.34.2
else if (UIUC == 11)		Initial ranging/Handover Ranging over two symbols
else if (UIUC == 12) {		
PAPR_Reduction_and_Safety_Zone__IE }	8	
else if (UIUC == 13) {		
CDMA_Allocation_IE() }	20	
else if (UIUC == 14) {		
Extended UIUC-dependent IE }	variable	Refer to 8.4.5.4.34.1
}		
}		
}		