

Proposal for IEEE 802.16m SDD Text on Bandwidth Request/Renewal Channel

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*<http://standards.ieee.org/faqs/affiliationFAQ.html>>

Re: "SDD Session 56 Cleanup, Call for PHY Details"; in response to the Call for Contributions and Comments on Project 802.16m System Description Document (SDD) 802.16m-08/033 for Session 57

Purpose: Adopt the proposal into the IEEE 802.16m System Description Document

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Scope

- This contribution proposes SDD text UL Bandwidth request/renewal channels for IEEE 802.16m
 - An overview of the concept and SDD text are contained in this contribution related only to BW request/renewal channel
 - Detailed description as previously submitted in contribution IEEE C802.16m-08/352r2

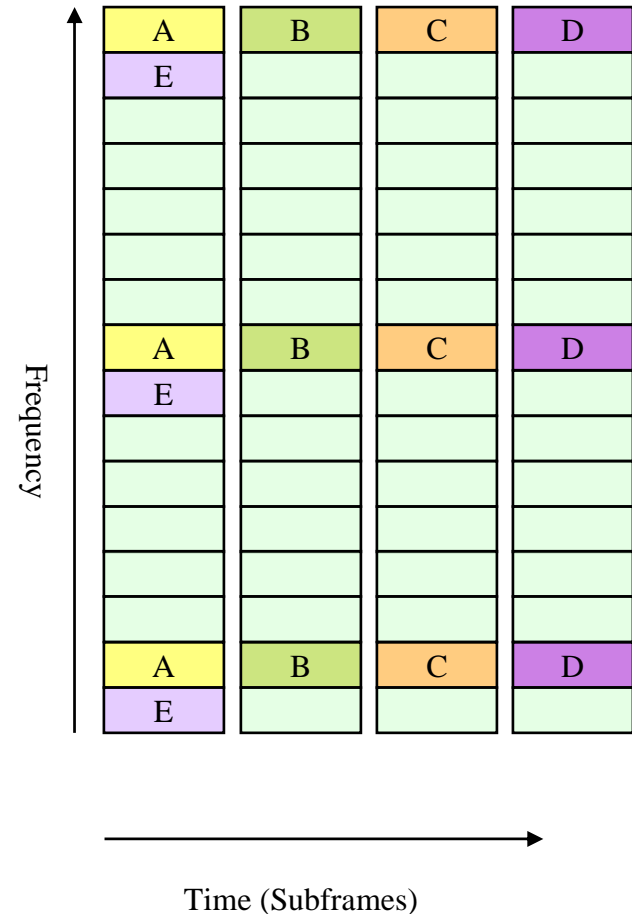
UL BW Request/renewal (1/2)

- The MS sends a BW request to obtain an uplink resource allocation. Two type of UL resource requests are defined:
 - **BW request/renewal indicator (purpose of this contribution)**
 - BW request message embedded in regularly allocated UL resources
- The mobile can choose the whether to use the **BW request/renewal indicator or send a bandwidth request over UL fast feedback channel** of the message
 - In some cases, if the mobile's assigned UL fast feedback control resources may occur infrequently
- For applications such as VoIP, a BW request/renewal can be useful for indicating the start of a talk spurt and the need for an allocation.
- It is sufficient to send UL BW request in manner that identifies the MS . It is therefore efficient to use MS-specific signaling ID (sequence(s) and location) assigned to MS for this service by the BS.
- The BS responds to the indication with an allocation of a preconfigured resource assignment, and continuation of an existing service, or a default allocation.
 - If needed for non-VoIP applications, the further configuration of the resource request can be specified in a MAC message embedded in the transmissions

UL BW request/renewal channel

(2/2)

- A designated resource is allocated for these BW renewal/requests
- The request region is N resources tiles (e.g. N =3)
- Multiple regions may be defined (A,B, C, etc)
- MS is assigned MS-specific signaling ID (sequence and location) assigned to MS for this service by the BS.



Bandwidth request indicator

11.9.2.5 Bandwidth Request Channel

Contention based or non-contention based random access is used to transmit a bandwidth request indicator on this control channel. To support different levels of QoS, the bandwidth request channel provides a mechanism for prioritized bandwidth requests. Inclusion of additional information in a bandwidth request indicator such as bandwidth request size, MS-ID, flow identifier, uplink transmit power report and CINR report is FFS.

The random access bandwidth request procedure is described in Figure 35. A 5-step regular procedure (step 1 to 5) or an optional quick access procedure (step 1,4 and 5) may be supported concurrently. Step 2 and 3 are used only in 5-step regular procedure. In step 1, MS sends a bandwidth request indicator that may indicate information such as MS addressing and/or request size (FFS) and/or uplink transmit power report (FFS), and the BS may allocate uplink grant based on certain policy. The 5-step regular procedure is used independently or as fallback mode for quick access procedure. The MS may piggyback additional BW-REQ information along with user data during uplink transmission (step 5).

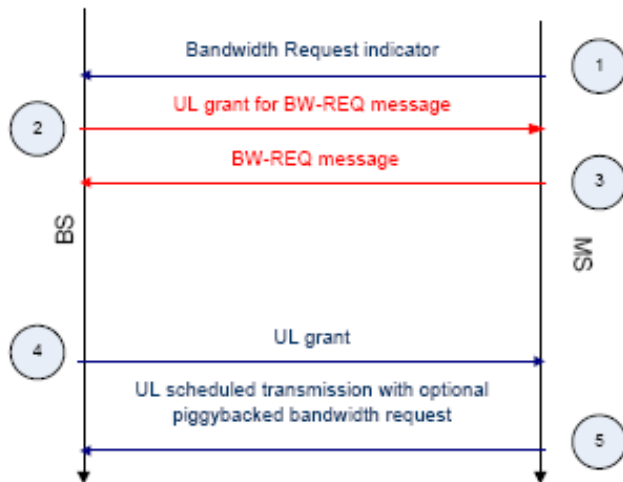


Figure 35 Bandwidth Request Procedure

- Current SDD text supports quick access procedure where BW indicator is sent, followed by UL grant
- SDD text does not define message parameters or response from BS

Proposed SDD text

11.9.2.5 Bandwidth Request Channel

Contention based or non-contention based random access is used to transmit a bandwidth request indicator on this control channel. To support different levels of QoS, the bandwidth request channel provides a mechanism for prioritized bandwidth requests. *[sentence relocated]*

The mobile can choose the whether to use the bandwidth request/renewal indicator over designated resources or send a bandwidth request over UL fast feedback channel.

An MS is assigned a unique bandwidth request/renewal indicator ID so that the MS may be identified upon reception of the request. In order to limit the overhead of this channel, the bandwidth request/renewal indicator does not carry other information. Upon reception of the request, the BS sends a UL grant according to a predefined service configuration (such as VoIP) or default allocation if none has been defined.

A bandwidth request can also be sent over the UL fast feedback channel. The bandwidth request can be sent in place of another UL feedback field such as CQI. The message type field of the UL fast feedback channel can indicate that a bandwidth request is being sent instead of a different feedback. Inclusion of additional information in a bandwidth request indicator such as bandwidth request size, MS-ID, flow identifier, uplink transmit power report and CINR report is FFS.

The random access bandwidth request procedure is described in Figure 35. A 5-step regular procedure (step 1 to 5) or an optional quick access procedure (step 1,4 and 5) may be supported concurrently. Step 2 and 3 are used only in 5-step regular procedure. In step 1, MS sends a bandwidth request indicator that may indicate information such as MS addressing and/or request size (FFS) and/or uplink transmit power report (FFS), and the BS may allocate uplink grant based on certain policy. The 5-step regular procedure is used independently or as fallback mode for quick access procedure. The MS may piggyback additional BW-REQ information along with user data during uplink transmission (step 5).

Proposed SDD text

11.9.2.5.1 Multiplexing with other control channels and data channels

The bandwidth request **indicator** channel starts at a configurable location with the configuration defined in a DL broadcast control message. The bandwidth request **indicator** channel is FDM with other UL control and data channels.

A bandwidth request can also be sent over the UL fast feedback channel. The bandwidth request is multiplexed with other fast feedback information, and is sent in place of another UL feedback field. The message type field of the UL fast feedback channel indicates the content of the feedback, and can indicate that a bandwidth request is being sent instead of a different feedback.

Proposed SDD text

11.9.2.5.2 PHY structure

[Insert content of slide 4]

The PHY structure of the bandwidth request when sent as part of the UL fast feedback channel is defined in section 11.9.2.1.2