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Title	CR on SDD Section 15.4: Relay with STID MAC header	
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Re:	Change request to Project 802.16m System Description Document (SDD) (IEEE 802.16m-08/003r7)	
Abstract	This contribution proposes a relaying scheme with STID MAC header.	
Purpose	To be discussed and adopted by TGM for use in the IEEE 802.16m SDD	
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Relay with STID MAC Header

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Introduction

This contribution addresses an issue on recognition of proper destination/source AMSs of relayed MAC PDUs. This contribution proposes to define and use STID MAC header for the recognition.

Background

In 802.16m, connections are identified by the combination of STID and FID. Generic MAC header includes only FID. STID is included in user specific control information in A:MAP.

A burst for relaying is constructed by concatenating MAC PDUs to be relayed. The MAC PDUs generally have different destination/source AMSs. Although an ABS or ARS receiving a relay burst has to recognize the proper destination/source AMS of each MAC PDU, MAC PDUs do not contain enough information for that (i.e. STID and FID).

Therefore a mechanism to carry STIDs of MAC PDUs in relay bursts is needed.

Relay with STID MAC header

We propose to define and use STID MAC header, which includes STID, for ABS and ARS to recognize proper destination/source AMSs of MAC PDUs in a relay burst. An STID MAC header which includes an STID for an AMS is placed right before MAC PDU(s) to/from the AMS.

STID MAC header may include the number of MAC PDUs for the AMS specified by the header as well. ABS and ARS can distinguish a STID MAC header from a Generic MAC header using the number information.

Figure 1 shows an example of STID MAC header.

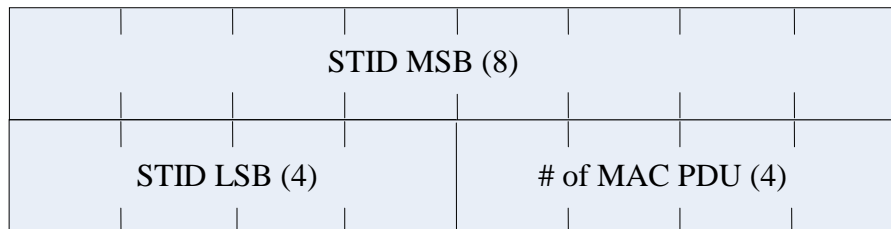


Figure 1 STID MAC header example

- STID: This field indicates the STID of the destination/source AMS of MAC PDU(s) following this STID MAC header.
- # of MAC PDU: This field indicates the number of MAC PDUs for which this STID MAC header is valid.

A relay burst also carries MAC PDU(s) to/from an ARS itself. Such MAC PDU(s) can be put together at the beginning of the burst. STID MAC header is not required for the MAC PDU(s) because the STID of the ARS is included in user specific control information in A:MAP. The receiver of the burst, however, needs to be able to detect the first STID MAC header in the burst. One possible way for the detection is to define a flow ID for this purpose and place a Generic MAC header which includes the flow ID right before the first STID MAC header. The flow ID can be assigned statically or dynamically, for example, by a negotiation during network entry procedure. The other possible way is to define a dedicated extended header for this purpose and insert the extended header into the MAC PDU right before the first STID MAC header.

Figure 3 shows a relay burst example transmitted from the ABS to the ARS in Figure 2. The example in Figure 3 uses a dedicated flow ID (0xF) for detection of the first STID MAC header. Figure 4 also shows a relay burst example. The example in Figure 4 uses a dedicated extended header for detection of the first STID MAC header. The dedicated extended header in Figure 4 uses example type value 0x1F.

Proposed Text

----- Start of Proposed Text-----

[Insert the following text into section 15.4 of the SDD]

A burst for relaying is generally composed of multiple MAC PDUs whose destination/source stations (AMSS and/or ARSS) are different. ABS and ARS use STID MAC header, which includes STID, to recognize the proper destination/source station of each MAC PDU. An STID MAC header which includes an STID of a station is placed right before MAC PDU(s) to/from the station. STID MAC header may also include the number of MAC PDU for the station specified by the header. The number information helps differentiation between a Generic MAC header and an STID MAC header. The presence of the first STID MAC header in a burst may be indicated by a Generic MAC header which includes a dedicated flow ID or a MAC PDU which has a dedicated extended header.

----- End of Proposed Text-----

References

- [1] IEEE C802.16m-08/003r7, "Project 802.16m System Description Document (SDD)".

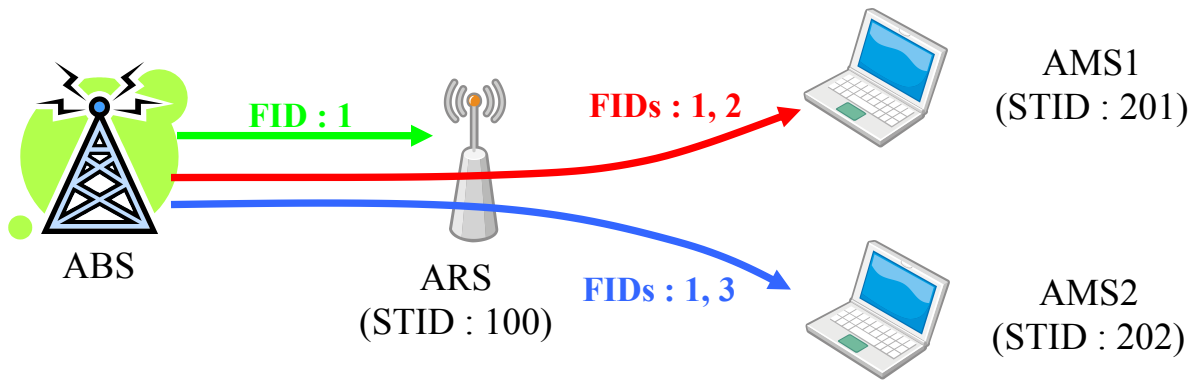


Figure 2 Network example

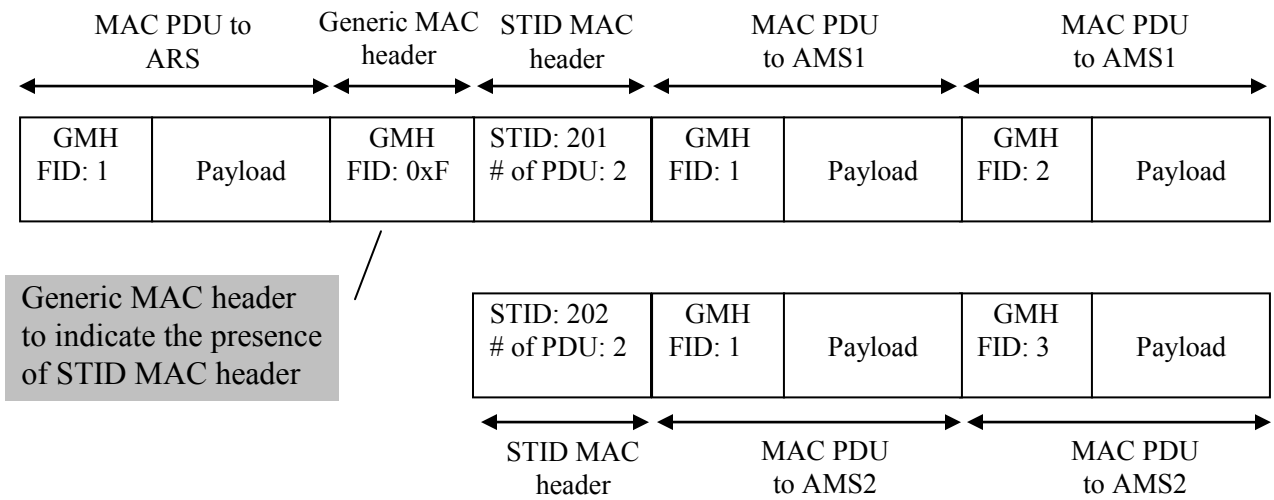


Figure 3 Relay burst example

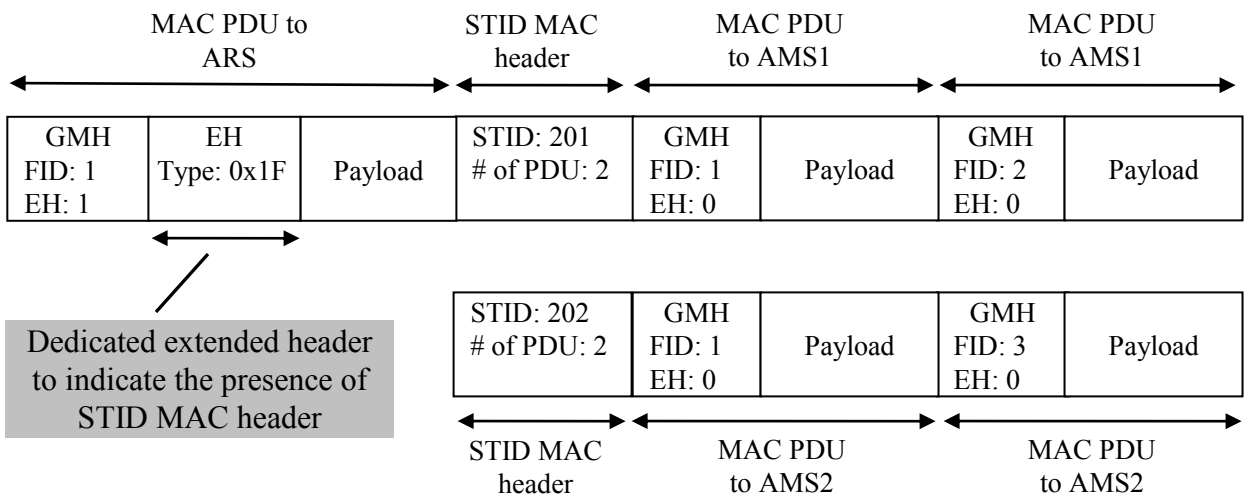


Figure 4 Relay burst example with a dedicated extended header