

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	Clarification on MAC control messages and ASN.1 coding for multicast in IEEE 802.16.1a	
Date Submitted	2012-09-12	
Source(s)	Eunkyung Kim, Jaesun Cha, Anseok Lee, Wooram Shin, Kwangjae Lim ETRI	Voice: +82-42-860-5415 E-mail: ekkim@etri.re.kr
Re:	In response to Sponsor Ballot on P802.16.1a	
Abstract	Comments on MAC control message and ASN.1 coding for multicast in GRIDMAN Draft Standard	
Purpose	To discuss and adopt the proposed text in the draft amendment document on GRIDMAN	
Notice	<i>This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups.</i> It represents only the views of the participants listed in the "Source(s)" field above. It is offered as a basis for discussion. It is not binding on the contributor(s), who reserve(s) the right to add, amend or withdraw material contained herein.	
Copyright Policy	The contributor is familiar with the IEEE-SA Copyright Policy < http://standards.ieee.org/IPR/copyrightpolicy.html >.	
Patent Policy and Procedures	The contributor is familiar with the IEEE-SA Patent Policy and Procedures: < http://standards.ieee.org/guides/bylaws/sect6-7.html#6 > and < http://standards.ieee.org/guides/opman/sect6.html#6.3 >. Further information is located at < http://standards.ieee.org/board/pat/pat-material.html > and < http://standards.ieee.org/board/pat >.	

Clarification on MAC control messages and ASN.1 coding for multicast in IEEE 802.16.1a

Eunkyung Kim, Jaesun Cha, Anseok Lee, Wooram Shin, Kwangjae Lim
ETRI

1. Introduction

This document provides some comment on MAC control messages and ASN.1 encoding in P802.16.1a.

2. References

- [1] IEEE 802.16-12-0132-00, GRIDMAN System Requirement Document including SARM annex, January 2012.
- [2] IEEE P802.16nTM/D5, Air Interface for Broadband Wireless Access Systems - Draft Amendment: Higher Reliability Networks, June 2012.
- [3] IEEE P802.16.1aTM/D5, WirelessMAN-Advanced Air Interface for Broadband Access Systems - Draft Amendment: Higher Reliability Networks, June 2012.
- [4] IEEE P802.16TM-2012, IEEE Standard for Air Interface for Broadband Wireless Access Systems, August 2012.
- [5] IEEE P802.16.1TM-2012, IEEE Standard for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems, September 2012.

3. Proposed Text on the IEEE 802.16.1a Amendment Draft Standard

[-----Start of Text Proposal-----]

[Remedy1: change text in line#2 - line#17, page 105, P802.16.1a/D5 as follows:]

6.2.3.65.55 AAI-HR-DSC-CMD message

An HR-BS may use AAI-HR-DSC-CMD message to change a service flow (identified by a combination of MGID and FID) to all the HR-MSs with multicast command in the HR multicast group zone during the HR multicast group service.

When the AAI-HR-DSC-CMD message is used, it shall be encrypted with the current MTEK for confidentiality, and contain the MCMAC attribute for MCMAC verification which is computed from MCMAC_KEY.

Table 106ccc AAI-HR-DSC-CMD message field description

Field	Size (bits)	Value/Description	Condition
<u>Current HR Multicast Group ID</u>	<u>12</u>		
<u>Current FID</u>	<u>4</u>		
<u>New HR Multicast Group ID</u>	<u>12</u>		
<u>New FID</u>	<u>4</u>		
<u>MCMAC Digest</u>		<u>Message Digest Calculated using MCMAC Key by HR-BS</u>	

6.2.3.65.56 AAI-HR-DSD-CMD message

An HR-BS may use AAI-HR-DSD-CMD message to delete a service flow (identified by a combination of HR MGID and FID) to all the HR-MSs with multicast command in the HR multicast group zone during the HR multicast group service.

When the AAI-HR-DSD-CMD message is used, it shall be encrypted with the current MTEK for confidentiality, and contain the MCMAC attribute for MCMAC verification which is computed from MCMAC_KEY.

[Remedy2: change text in line#43 - line#61, page 236, P802.16.1a/D5 as follows:]

```

39  -- HR Multicast message
40  aaiHrMgInd          AAI-HR-MG-IND,
41  aaiHrMtInd          AAI-HR-MT-IND,
42  aaiHrDscCmd         AAI-HR-DSC-CMD,
43  aaiHrDsdCmd         AAI-HR-DSD-CMD,
44  ...
45  }
46
47
48  -- *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
49  -- Common type definitions
50  -- *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*
51  PhyCarrierIndex ::= INTEGER (0..62)
52  .....
53
54
55  -- Common type definitions for HR-Network
56  HRMulticastGroupZoneID ::= BIT STRING (SIZE (12))
57  HRMulticastGroupID ::= BIT STRING (SIZE (12))
58  HRMulticastIndicationCycle ::= BIT STRING (SIZE (8))
59

```

[Remedy3: change text in line#16, page 238 - line#8, page 239, P802.16.1a/D5 as follows:]

```

63
64  SuccessOfLocationUpdate ::= SEQUENCE {
65      paginggroupidupdate    BIT STRING (SIZE (32)) OPTIONAL,

```

```

1      pagingoffsetupdate          BIT STRING (SIZE (24)) OPTIONAL,
2      newPagingCycle                PgCycle                OPTIONAL,
3      newPagingGroupID              PGID                OPTIONAL,
4      newPagingOffset              PgOffset              OPTIONAL,
5      deregistrationID              DID                OPTIONAL,
6      newPagingControllerID          PCID                OPTIONAL,
7      embsZoneInfo                  SEQUENCE (SIZE (1..8)) OF EMBSZoneInfoItem OPTIONAL,
8      newMulticastGroupZoneId        HRMulticastGroupZoneID      OPTIONAL,
9      newMulticastIndicationCycle    HRMulticastIndicationCycle  OPTIONAL,
10     multicastInfo                  SEQUENCE (SIZE (1..16)) OF SEQUENCE {
11         currentMulticastGroupID      MulticastGroupID,
12         currentFID                    FID,
13         newMulticastGroupID           MulticastGroupID,
14         newFID                        FID
15     } OPTIONAL,
16     hrmulticastInfo                SEQUENCE (SIZE (1..15)) OF SEQUENCE {
17         currentHRMulticastGroupID    HRMulticastGroupID,
18         currentFID                  FID,
19         newHRMulticastGroupID        HRMulticastGroupID,
20         newFID                      FID
21     } OPTIONAL,
22     hrmulticastKeyUpdate          SEQUENCE (SIZE (1..16)) OF SEQUENCE {
23         currentHRMulticastGroupID    HRMulticastGroupID,
24         currentFID                  FID,
25         mcNonce                    MulticastNonce,
26         counterMtek                 CounterTEK,
27         meks                        EKS
28     } OPTIONAL,
29     smsMessage                      SMS
30 OPTIONAL
31 }
32
33 RngRspForHoReentryInfo ::= SEQUENCE {
34     newHRMulticastGroupZoneId        HRMulticastGroupZoneID      OPTIONAL,
35     newHRMulticastIndicationCycle    HRMulticastIndicationCycle  OPTIONAL,
36     multicastInfo                    SEQUENCE (SIZE (1..15)) OF SEQUENCE {
37         currentMulticastGroupID      MulticastGroupID,
38         currentFID                    FID,
39         newMulticastGroupID           MulticastGroupID,
40         newFID                        FID
41     } OPTIONAL,
42     hrmulticastInfo                SEQUENCE (SIZE (1..15)) OF SEQUENCE {
43         currentHRMulticastGroupID    HRMulticastGroupID,
44         currentFID                  FID,
45         newHRMulticastGroupID        HRMulticastGroupID,
46         newFID                      FID
47     } OPTIONAL,
48     hrmulticastKeyUpdate          SEQUENCE (SIZE (1..16)) OF SEQUENCE {
49         currentHRMulticastGroupID    HRMulticastGroupID,
50         currentFID                  FID,
51         mcNonce                    MulticastNonce,
52         counterMtek                 CounterTEK,
53         meks                        EKS
54     } OPTIONAL
55 }
56
57 [Remedy4: change text in line#41-56, page 243, P802.16.1a/D5 as follows:]
58
59 PKM-HRMulticastKeyRequest ::= SEQUENCE {
60     hrMulticastGroupID              HRMulticastGroupID,
61     fid                            FID,
62     cmacIndicator                  CMACI,
63     ...
64
65

```

```

1  }
2  PKM-HRMulticastKeyReply ::= SEQUENCE {
3      hrMulticastGroupID                HRMulticastGroupID,
4      fid                                FID,
5      mcNonce                            MulticastNonce,
6      counterMtek                        CounterTEK,
7      meks                                EKS,
8      cmacIndicator                     CMACI,
9      ...
10 }
11 }

```

[Remedy5: change text in line#46, page244 - line#19, page 245, P802.16.1a/D5 as follows:]

```

16 -- +-----+
17 -- Privacy Key Management Request
18 -- +-----+
19 AAI-PKM-REQ ::= SEQUENCE {
20     pkmid                PKMID,
21     pkmMessage           CHOICE {
22         reauthRequest    PKM-ReauthRequest,
23         eapTransfer       PKM-EAPTransfer,
24         keyAgreementMsg2 PKM-KeyAgreementMsg2,
25         tekRequest        PKM-TEKRequest,
26         tekInvalid        PKM-TEKInvalid,
27         peerKeyAgreementMsg2 Peer-KeyAgreementMsg2,
28         multicastKeyRequest  PKM-HRMulticastKeyRequest,
29         ...
30     },
31     ...
32 }
33 }
34 }
35 -- +-----+
36 -- Privacy Key Management Response
37 -- +-----+
38 AAI-PKM-RSP ::= SEQUENCE {
39     pkmid                PKMID,
40     pkmMessage           CHOICE {
41         eapTransfer       PKM-EAPTransfer,
42         keyAgreementMsg1 P KM-KeyAgreementMsg1,
43         keyAgreementMsg3 PKM-KeyAgreementMsg3,
44         tekReply          PKM-TEKReply,
45         tekInvalid        PKM-TEKInvalid,
46         peerKeyAgreementMsg1 Peer-KeyAgreementMsg1,
47         peerKeyAgreementMsg3 Peer-KeyAgreementMsg3,
48         multicastKeyReply    PKM-HRMulticastKeyReply,
49         ...
50     },
51     ...
52 }
53 }
54 }

```

[Remedy6: change text in line#11-line#29, page246, P802.16.1a/D5 as follows:]

```

58 NeighborABSInfo ::= SEQUENCE {
59     bsID                BSID,
60     macVersion          MacProtocolVersion,
61     cpLength           CPLength,
62     hrMultimodeIndication HRMultimodeIndication OPTIONAL,
63     neighborHRMulticastGroupZoneId HRMulticastGroupZoneIDOPTIONAL,
64     neighborHRMulticastIndicationCycle HRMulticastIndicationCycleOPTIONAL,
65     neighborHRMulticastInfo SEQUENCE (SIZE (1..16)) OF SEQUENCE {

```

```

1         currentHRMulticastGroupID          HRMulticastGroupID,
2         currentFID                          FID,
3         neighborHRMulticastGroupID         HRMulticastGroupID,
4         neighborFID                         FID
5     } OPTIONAL,
6
7     carrierInfoList          SEQUENCE (SIZE (1..maxCarriers)) OF CarrierInfo,
8     nbrSpecificTrigger      Triggers          OPTIONAL
9 }

```

[Remedy7: change text in line#12-line#23, page263, P802.16.1a/D5 as follows:]

```

12 FullMgInd ::= SEQUENCE {
13     hrmulticastGroupID          HRMulticastGroupID,
14     actionCode                  BIT STRING {
15         networkEntryOrExitSleep (0),
16         performRanging           (1),
17         receiveMulticast         (2)
18     } (SIZE(3)),
19     offsetOfMulticastTraffic    INTEGER (0..16) OPTIONAL, -- if performRanging bit is set to 1
20     ...
21 }
22 }

```

[Remedy8: Add the following text in line#60, page263, P802.16.1a/D5]

```

26 -- +---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
27 -- HR_DSC_CMD Message
28 -- +---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
29
30 AAI-HR-DSC-CMD ::= SEQUENCE {
31     currentHRMulticastGroupID          HRMulticastGroupID,
32     currentFid                          FID,
33     newHRMulticastGroupID              HRMulticastGroupID,
34     newFid                              FID,
35     ...
36 }
37
38 -- +---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
39 -- HR_DSD_CMD Message
40 -- +---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
41
42 AAI-HR-DSD-CMD ::= SEQUENCE {
43     currentFid                          FID,
44     ...
45 }
46
47 END

```

[-----End of Text Proposal-----]