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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **ASN.1 coding for TDC MAC control messages in IEEE 802.16.1a/D5**  |
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| Re: | In response to Sponsor Ballot on P802.16a |
| Abstract | This provides AWD text proposals for ASN.1 coding of TDC (talk-around direct communication) MAC control messages in IEEE 802.16.1a/D5 |
| Purpose | To discuss and adopt the proposed text in the draft amendment document on GRIDMAN |
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**ASN.1 coding for TDC MAC control messages in IEEE 802.16.1a/D5**

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# Introduction

This document provides the modification on ASN.1 coding of **TDC** (talk-around direct communication) **MAC control messages according to the IEEE 802.16.1a**/D5.

# References

[1] IEEE 802.16-12-0132-00, GRIDMAN System Requirement Document including SARM annex, January 2012.

[2] IEEE P802.16.1aTM/D5, WirelessMAN-Advanced Air Interface for Broadband Access Systems - Draft Amendment: Higher Reliability Networks, June 2012.

# Proposed Text for the 802.16.1a AWD

Note:

The text in **BLACK** color: the existing text in the 802.16.1a AWD

The text in **~~RED~~** color: the removal of existing 802.16.1a AWD

The text in **BLUE** color: the new text added to the 802.16.1a AWD

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

**[*Remedy 1: Adopt the following proposed modification from line #9, page #236 to line #42, page #236 in IEEE P802.16.1a/D5.*]**

-- HR talk-around direct communication

aaiDcLestReq AAI-DC-LEST-REQ,

aaiDcLestRsp AAI-DC-LEST-RSP,

aaiDcMesRep AAI-DC-MES-REP,

aaiDcRchgReq AAI-DC-RCHG-REQ,

aaiDcRchgRsp AAI-DC-RCHG-RSP,

aaiDcTknReq AAI-DC-TKN-REQ,

aaiDcTknRsp AAI-DC-TKN-RSP,

aaiDcTknHo AAI-DC-TKN-HO,

aaiDcLestCmd AAI-DC-LEST-CMD,

aaiDcLrelCmd AAI-DC-LREL-CMD,

aaiDcDsaCmd AAI-DC-DSA-CMD,

aaiDcDscCmd AAI-DC-DSC-CMD,

aaiDcDsdCmd AAI-DC-DSD-CMD,

aaiDcMesCmd AAI-DC-MES-CMD,

aaiDcRchgCmd AAI-DC-RCHG-CMD,

aaiDcTknAdv AAI-DC-TKN-ADV,

aaiDcRts AAI-DC-RTS,

aaiDcCts AAI-DC-CTS,

aaiDcCfgCmd AAI-DC-CFG-CMD,

aaiDcRelayAdv AAI-DC-RELAY-ADV,

aaiDcRelayReq AAI-DC-RELAY-REQ,

aaiDcRelayRsp AAI-DC-RELAY-RSP,

aaiDcFwdAdv AAI-DC-FWD-ADV,

aaiDcFwdJoin AAI-DC-FWD-JOIN,

**[*Remedy 2: Adopt the following proposed modification from line #27, page #252 to line #3, page #253 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication link establishment request

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-LEST-REQ ::= SEQUENCE {

 linkChangeCount INTEGER (0..15),

 flowEstablishmentRequestForTokenHandover INTEGER {

 requestToEstablishForTokenHandover (o),

 flowEstablishmentIsNotAllowed (1)

 } (0..15),

 linkList SEQUENCE (SIZE (0..1)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 },

 inorderDeliveryIndicator BIT STRING (SIZE(1)),

 sDUReorderingTimeout INTEGER(1..16) OPTIONAL,

 reserved INTEGER(0..3)

 },

 forwardingRequestIndicator ENUMERATED {

 notRequestForwardingToNetwork,

 requestForwardingToNetwork

 },

 targetDCGID BIT STRING (SIZE(24)),

…

}

**[*Remedy 3: Adopt the following proposed modification from line# 4, page #253 to line #30, page #253 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication link establishment response

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-LEST-RSP ::= SEQUENCE {

 linkChangeCount INTEGER (0..15),

 confirmationCode INTEGER {

 accept (0),

 rejectWithaRecommendedDCH (1),

 reject (2)

 } (0..15),

 flowEstablishmentConfirmForTokenHandover INTEGER {

 confirmFlowEstablismenthisForTokenHandover (o),

 flowEstablishmentIsNotAllowed (1)

 } (0..1),

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3) OPTIONAL,

 dCHNumber INTEGER (0..63) OPTIONAL,

 linkList SEQUENCE (SIZE (0..1)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 },

 },

...

}

**[*Remedy 4: Adopt the following proposed modification from line# 58, page #261 to line #27, page #261 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication relay request

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-RELAY-REQ ::= SEQUENCE {

 linkChangeCount INTEGER (0..15),

 flowList SEQUENCE (SIZE (0..1)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 },

 inorderDeliveryIndicator BIT STRING (SIZE(1)),

 sDUReorderingTimeout INTEGER(1..16) OPTIONAL,

 reserved INTEGER(0..15)

 },

 targetDCTIDorDCGID BIT STRING(SIZE(24)),

 flowEstablishmentReqForTokenHandover INTEGER {

 requestToEstablishForTokenHandover (o),

 flowEstablishmentIsNotAllowed (1)

 } (0..15),

...

}

**[*Remedy 5: Adopt the following proposed modification from line# 29, page #262 to line #54, page #262 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication relay response

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-RELAY-RSP ::= SEQUENCE {

 linkChangeCount INTEGER (0..15),

 confirmationCode INTEGER {

 accept (0),

 rejectWithaRecommendedDCH (1),

 waitNextResponseMessage (2)

 } (0..15),

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3) OPTIONAL,

 dCHNumber INTEGER (0..63) OPTIONAL,

 flowEstablishmentConfirmForTokenHandover INTEGER {

 confirmFlowEstablismenthisForTokenHandover (o),

 flowEstablishmentIsNotAllowed (1)

 } (0..1),

 linkList SEQUENCE (SIZE (0..1)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 },

 },

...

}

**[*Remedy 6: Adopt the following proposed modification from line# 21, page #255 to line #38, page #255 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication token request

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-TKN-REQ ::= SEQUENCE {

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15),

 linkList SEQUENCE (SIZE (0..1)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 },

 },

...

}

**[*Remedy 7: Adopt the following proposed modification from line# 58, page #258 to line #21, page #259 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication resource change command

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-RCHG-CMD ::= SEQUENCE {

 listOfDCHsChanged SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 oldDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 oldDCHNumber INTEGER (0..15),

 newDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 newDCHNumber INTEGER (0..15)

 },

 listOfDCHsReleased SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15)

 },

...

}

**[*Remedy 8: Adopt the following proposed modification from line# 4, page #253 to line #48, page #253 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication resource change request

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-RCHG-REQ ::= SEQUENCE {

 listOfDCHsForCINRReport SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 oldDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 oldDCHNumber INTEGER (0..15),

 newDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 newDCHNumber INTEGER (0..15)

 } OPTIONAL,

 listOfRecommendedDCHs SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..63),

 noiseAndInterferenceLevelMean INTEGER (0..255),

 noiseAndInterferenceLevelVariance INTEGER (0..15)

 } OPTIONAL,

 listOfDCHsReleased SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15)

 },

...

}

**[*Remedy 9: Adopt the following proposed modification from line# 50, page #254 to line #20, page #255 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication resource change response

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-RCHG-RSP ::= SEQUENCE {

 confirmationCode INTEGER {

 acceptWithNewDCHsMapping (0),

 reject (1)

 } (0..15),

 listOfNewDCHs SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 oldDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 oldDCHNumber INTEGER (0..15),

 newDirectModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 newDCHNumber INTEGER (0..15)

 } OPTIONAL,

 listOfDCHsReleased SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15)

 },

...

}

**[*Remedy 10: Insert the following texts after line #55, page #262 in IEEE P802.16.1a/D5.*]**

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication forward advertisement

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-FWD-ADV ::= SEQUENCE {

 forwardingDCTID BIT STRING (SIZE(24)),

 listOfCandidateDCGID SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 candidateDCGID BIT STRING (SIZE(24))

 },

 listOfOnGoingDCGID SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 onGoingDCGID BIT STRING (SIZE(24))

 },

 forwardingUnicastStatus INTEGER {

 available (0),

 unavailable (1)

 },

 messageChangeCount INTEGER (0..15),

...

}

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

-- Direct communication forward joining

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-

AAI-DC-FWD-JOIN ::= SEQUENCE {

 listOfDCGID SEQUENCE (SIZE (0..36)) OF SEQUENCE {

 dCGID BIT STRING (SIZE(24))

 },

...

}

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