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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/D3**  |
| Date Submitted | **2012-07-09** |
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| Re: | “IEEE 802.16-12-400-00-Gdoc,” in response to Letter Ballot Recirc #38b on P802.16.1a/D3 |
| Abstract | This provides AWD text proposals for ASN.1 coding of TDC (talk-around direct communication) MAC control messages in IEEE 802.16.1a/D3 |
| Purpose | To discuss and adopt the proposed text in the draft amendment document on GRIDMAN |
| Notice | *This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups*. 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. |
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**ASN.1 coding for TDC MAC control messages in IEEE 802.16.1a/D3**

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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**/D3.

# References

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

[2] IEEE P802.16.1aTM/D3, 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---------------------------------------------------]

**[*Remedy1: Adopt the following proposed modification from page#227, line#4 in IEEE P802.16.1a/D3.*]**

-- HR 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,

aaiDcRchgCmd AAI-DC-RCHG-CMD,

~~aaiDcMchgCmd AAI-DC-MCHG-CMD,~~

aaiDcCfgCmd AAI-DC-CFG-CMD,

aaiDcRelayAdv AAI-DC-RELAY-ADV,

aaiDcRelayReq AAI-DC-RELAY-REQ,

aaiDcRelayRsp AAI-DC-RELAY-RSP,

-- HR Multicast message

AaiHrMgInd AAI-HR-MG-IND,

AaiHrMtInd AAI-HR-MT-IND,

...

}

-- \*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-

-- Common type definitions

-- \*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-

...

-- \*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-

-- MAC control messages for HR-Networks

-- \*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-\*-

**[*Remedy2: Adopt the following proposed modification from line# 45, page#243 to line#42, page #252 in IEEE P802.16.1a/D3.*]**

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

-- Direct communication link establishment request

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

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

 linkChangeCount 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

 },

 inorderDeliveryIndicator BIT STRING (SIZE(1)),

 sDUReorderingTimeout INTEGER(1..16) OPTIONAL,

 reserved INTEGER(0..3)

 },

...

}

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

-- Direct communication link establishment response

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

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

 linkChangeCount INTEGER (0..15),

 confirmationCode INTEGER {

 accept (0),

 rejectWithaRecommendedDCH (1),

 reject (2)

 } (0..15),

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3) OPTIONAL,

 dCHNumber INTEGER (0..63) OPTIONAL,

...

}

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

-- Direct communication measurement report

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

AAI-DC-MES-REP ::= SEQUENCE {

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

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..63),

 dCHCINRMean INTEGER (0..255)

 } OPTIONAL,

 listOfDCHsForNIReport 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,

...

}

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

-- 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,

...

}

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

-- 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,

...

}

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

-- Direct communication token request

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

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

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15),

...

}

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

-- Direct communication token response

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

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

 confirmationCode INTEGER {

 accept (0),

 reject (1)

 } (0..15),

...

}

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

-- Direct communication token handover

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

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

 dCTID BIT STRING (SIZE(24)),

 dCFrameNumber INTEGER (0..15),

...

}

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

-- Direct communication link establishment command

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

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

 linkChangeCount 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

 },

 inorderDeliveryIndicator BIT STRING (SIZE(1)),

 sDUReorderingTimeout INTEGER(1..16) OPTIONAL,

 reserved INTEGER(0..3)

 },

...

}

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

-- Direct communication link release command

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

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

 linkReleaseCommandCode INTEGER {

 linkReleaseCommand (0)

 } (0..255),

...

}

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

-- Direct communication dynamic service addition command

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

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

 fIDChangeCount INTEGER (0..15),

 flowList SEQUENCE (SIZE (0..12)) 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,

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

 resourceId INTEGER (0..15),

 maxNumberofHarqReTx INTEGER (0..3),

 reserved INTEGER (0..3)

 },

...

}

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

-- Direct communication dynamic service change command

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

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

 fIDChangeCount INTEGER (0..15),

 flowList SEQUENCE (SIZE (0..12)) OF SEQUENCE {

 fID FID,

 trafficPriority INTEGER (0..7),

 cSSpecificationParameters INTEGER {

 g729a (16),

 amr (17)

 } (0..255),

 mACHeaderType ENUMERATED {

 agmh,

 spmh

 }

 },

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

 resourceId INTEGER (0..15),

 maxNumberofHarqReTx INTEGER (0..3),

 reserved INTEGER (0..3)

 },

...

}

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

-- Direct communication dynamic service delete command

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

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

 fIDChangeCount INTEGER (0..15),

 flowList SEQUENCE (SIZE (0..12)) OF SEQUENCE {

 fID FID

 },

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

 resourceId INTEGER (0..15),

 maxNumberofHarqReTx INTEGER (0..3),

 reserved INTEGER (0..3)

 },

...

}

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

-- Direct communication measurement command

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

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

 reportMode INTEGER {

 eventTriggered (0),

 onetime (1),

 periodic (2)

 } (0..3),

 reportMetric BIT STRING {

 dCHCINRMean (0),

 dCHNIMeanandVariance (1)

} (SIZE (2)),

 reportPeriod INTEGER (0..255),

 reportTriggerAveragingParameter INTEGER {

 one (0),

 half (1),

 quarter (2),

 one-8th (3),

 one-16th (4),

 one-32th (5),

 one-64th (6),

 one-128th (7)

 } (0..15),

 reportTriggerCINRThreshold INTEGER (0..255),

...

}

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

-- 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)

 },

...

}

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

-- Direct communication token advertisement

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

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

 directModeZoneType INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..15),

 pTTTokenStatus INTEGER {

 available (0),

 unabailable (1)

 } (0..3),

 destinationDCGID BIT STRING(SIZE(24)),

...

}

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

-- Direct communication request to send

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

AAI-DC-RTS ::= SEQUENCE {

 sourceDCTID BIT STRING(SIZE(24)),

 destinationDCTIDorGCGID BIT STRING(SIZE(24)),

 maxIndexofBurstSize INTEGER (0..255),

 rangingPeriod INTEGER (0..15),

 rangingOffset INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

 maxNumberofHARQRetx INTEGER (0..3),

 destinationAddressType ENUMERATED {

 dctid,

 dcgid

 },

 piggybackMessageIndicator ENUMERATED {

 nopiggyback,

 maccontrolmessage

 },

 transmitPower INTEGER (0..63),

 reserved INTEGER (0..63),

 macControlMessage CHOICE {

 aaiDcLestReq AAI-DC-LEST-REQ,

 aaiDcMesRep AAI-DC-MES-REP,

 aaiDcRchgReq AAI-DC-RCHG-REQ,

 aaiDcLestCmd AAI-DC-LEST-CMD,

 aaiDcRelayReq AAI-DC-RELAY-REQ

 } OPTIONAL,

...

}

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

-- Direct communication clear to send

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

AAI-DC-CTS ::= SEQUENCE {

 sourceDCTID BIT STRING(SIZE(24)),

 destinationDCTIDorGCGID BIT STRING(SIZE(24)),

 recommendedIndexofBurstSize INTEGER (0..255),

 rangingPeriod INTEGER (0..15),

 rangingOffset INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

 maxNumberofHARQRetx INTEGER (0..3),

 destinationAddressType ENUMERATED {

 dctid,

 dcgid

 },

 piggybackMessageIndicator ENUMERATED {

 nopiggyback,

 maccontrolmessage

 },

 transmitPower INTEGER (0..63),

 reserved INTEGER (0..63),

 macControlMessage CHOICE {

 aaiDcLestReq AAI-DC-LEST-RSP,

 aaiDcRchgReq AAI-DC-RCHG-RSP,

 aaiDcRelayReq AAI-DC-RELAY-RSP

 } OPTIONAL,

...

}

~~-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-~~

~~-- Direct communication MCS change command~~

~~-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-~~

~~AAI-DC-MCHG-CMD ::= SEQUENCE {~~

 ~~maxIndexofBurstSize INTEGER (0..255),~~

~~...~~

~~}~~

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

-- Direct communication configruation command

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

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

 recommendedIndexofBurstSize INTEGER (0..255),

 rangingPeriod INTEGER (0..15),

 rangingOffset INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

 cQIPeriod INTEGER (0..15),

...

}

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

-- Direct communication relay advertisement

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

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

 relayDCTID BIT STRING(SIZE(24)),

 relayStatus ENUMERATED {

 available,

 relayingPackets

 },

 relayTrafficPriority INTEGER (0..7),

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

 directModeZoneTypeForReservation INTEGER {

 cdmz (0),

 cdmze (1),

 csdmz (2)

 } (0..3),

 dCHNumber INTEGER (0..63)

 },

...

}

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

-- 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)),

...

}

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

-- 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,

...

}

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

-- Multicast Messages

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

...............

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