<table>
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<tr>
<th>Project</th>
<th>IEEE 802.16 Broadband Wireless Access Working Group <a href="http://ieee802.org/16">http://ieee802.org/16</a></th>
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<tr>
<td>Title</td>
<td>ASN.1 coding for handover messages in IEEE 802.16.1a</td>
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<tr>
<td>Date Submitted</td>
<td>2012-09-19</td>
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<td>Source(s)</td>
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</tbody>
</table>

Re: In response to Sponsor Ballot on P802.16.1a

Abstract
ASN.1 coding for handover messages in GRIDMAN Draft Standard

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.

Copyright Policy

Patent Policy and Procedures
ASN.1 coding for handover messages in IEEE 802.16.1a

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

1. Introduction

This document provides ASN.1 encoding for handover messages in P802.16.1a.

2. References


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

[Remedy: replace text in line#24 - line#33, page 245, P802.16.1a/D5 by following:]
targetPhyCarrierID PhyCarrierIndex OPTIONAL,
servingPhyCarrierID PhyCarrierIndex OPTIONAL
}

HandoverCancel ::= SEQUENCE {
sfhMismatch BOOLEAN,
akCount AKCount
}

-- +---------------------------------------------------------------------+
-- Handover Request
-- +---------------------------------------------------------------------+
maxNewABSIndices INTEGER ::= 256
maxNewABSFull INTEGER ::= 256
maxNewR1BSIndices INTEGER ::= 256
AAI-HO-REQ ::= SEQUENCE {
nbrAdvChangeCount NbrAdvChangeCount,
carrierPreassignmentIndicator BOOLEAN OPTIONAL,

-- start for HR-Network

-- 0: HR-MS is transmitting this message to request HO
-- 1: HR-MS is transmitting this message to request FBIS termination
fbisTerminationIndicator BOOLEAN OPTIONAL,
terminationReason ENUMERATED {
  backboneRecovery,
  noConnectionForFBIS,
  linkFailure
} OPTIONAL,

-- end for HR-Network
newABSIndexList NewABSIndexList OPTIONAL,
newABSFullList NewABSFullList OPTIONAL,
newR1BSIndexList NewR1BSIndexList OPTIONAL,
...

}

NewABSFullList ::= SEQUENCE (SIZE (1..maxNewABSFull)) OF NewABSFullInfo
NewR1BSIndexList ::= SEQUENCE (SIZE (1..maxNewR1BSIndices)) OF NewR1BSIndexInfo
NewABSIndexInfo ::= SEQUENCE {
nbrABSIndex INTEGER (0..255),
cinrMean CINRMean OPTIONAL,
rssiMean RSSIMean OPTIONAL,
physicalCarrierIndex PhyCarrierIndex OPTIONAL
}

NewABSFullInfo ::= SEQUENCE {
nbrABSID BSID,
cinrMean CINRMean OPTIONAL,
rssiMean RSSIMean OPTIONAL,
physicalCarrierIndex PhyCarrierIndex OPTIONAL
}

NewR1BSIndexInfo ::= SEQUENCE {
nbrAdvChangeCount NbrAdvChangeCount,
nbrR1BSIndex INTEGER (0..255),
cinrMean CINRMean OPTIONAL,
rssiMean RSSIMean OPTIONAL
}

CINRMean ::= INTEGER (0..255)
RSSIMean ::= INTEGER (0..255)
-- +++++++++++++++++++++++++++++++++++++++++++++++++++++++

-- Handover Command

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

AAI-HO-CMD ::= SEQUENCE {
  mode CHOICE {
    hoCmd HandoverCommand, -- 0b00
    zsCmd ZoneSwitchCommand, -- 0b01
    hoReject NULL RejectHOCommand, -- 0b10
    reserved HoCmdHrNetwok NULL HRHandoverCommend -- 0b11
  },
  ...,
}

HandoverCommand ::= SEQUENCE {
  hoReentryMode CHOICE {
    bbeHO NULL,
    ebbHO EBBHOInfo
  },
  disconnectTimeOffset INTEGER (0..255),
  resourceRetainTime INTEGER (0..255) OPTIONAL,
  targetBSList SEQUENCE (SIZE (0..maxNewABSIndices)) OF TargetBSInfo
}

EBBHOInfo ::= SEQUENCE {
  interleavingMode CHOICE {
    withInterleaving HoReentryInterleavingInfo,
    noInterleaving NULL
  },
  servingPhyCarrierID PhyCarrierIndex OPTIONAL
}

HoReentryInterleavingInfo ::= SEQUENCE {
  hoReentryInterleavingInterval INTEGER (1..256),
  hoReentryInterval INTEGER (1..256),
  hoReentryIteration INTEGER (1..8)
}

TargetBSInfo ::= SEQUENCE {
  targetBSID BSID,
  preambleIndex CHOICE {
    saPreambleIndex PreambleIndex,
    rPreambleIndex RPreambleIndex
  },
  centerFrequency CenterFreq OPTIONAL,
  actionTime INTEGER (0..255),
  seamlessHO BOOLEAN,
  cdmaRngFlag CHOICE {
    offsetInfo OffsetInfo,
    -- CDMA_RNG_FLAG=0: skip CDMA ranging
    dedicatedRngInfo DedicatedRngInfo
    -- CDMA_RNG_FLAG=1: perform CDMA ranging
  },
  reentryProcessOptimization BIT STRING (SIZE (5)),

rngInitDeadline  INTEGER (0..255),
preassignedSTID    STID OPTIONAL,
preassignedMAPMaskKey BIT STRING (SIZE (15)) OPTIONAL,
serviceLevelPrediction ServiceLevelPrediction,
targetPhyCarrierID PhyCarrierIndex OPTIONAL,
channelBandwidth   INTEGER (0..255) OPTIONAL,
cpLength          CPLength OPTIONAL,
preassignedCarrierList SEQUENCE (SIZE (0..maxPreassignedCarriers)) OF
  PreassignedCarrierInfo OPTIONAL,
preallocatedBasicCID CID OPTIONAL,
sfDeltaInfo        SEQUENCE {
  sfhSubpacket1 Opt:SfhSubpacket1 OPTIONAL,
sfhSubpacket2 Opt:SfhSubpacket2 OPTIONAL,
sfhSubpacket3 Opt:SfhSubpacket3 OPTIONAL,
} OPTIONAL,
dcdConfigurationChangeCount DcdConfigurationChangeCount OPTIONAL,
ucdConfigurationChangeCount UcdConfigurationChangeCount OPTIONAL,
dcdInfo            DcdInfo OPTIONAL,
ucdInfo            UcdInfo OPTIONAL,
}

OffsetInfo ::= SEQUENCE {
  offsetData INTEGER (0..127) OPTIONAL,
  offsetControl INTEGER (0..127) OPTIONAL
}

DedicatedRngInfo ::= SEQUENCE {
  dedicatedCDMARngCode INTEGER (0..31),
  iotFP INTEGER (0..3),
  offsetControl INTEGER (0..127),
  rngOptIndex INTEGER (0..1) OPTIONAL,
  rngOptSubframeIndex INTEGER (0..7) OPTIONAL
}

ServiceLevelPrediction ::= ENUMERATED {
  noServiceAvailable,
  partiallyServiceAvailable,
  allServiceAvailable,
  noServiceLevelPrediction
}

PreassignedCarrierInfo ::= SEQUENCE {
  carrierStatusIndication BOOLEAN,
  physicalCarrierIndex PhyCarrierIndex
}
DcdConfigurationChangeCount ::= INTEGER (0..255)
UcdConfigurationChangeCount ::= INTEGER (0..255)
DcdInfo ::= OCTET STRING (SIZE (0..1023))
UcdInfo ::= OCTET STRING (SIZE (0..1023))

ZoneSwitchCommand ::= SEQUENCE {
  hoReentryMode    BOOLEAN,
  resourceRetainTime INTEGER (0..255) OPTIONAL,
  faIndex          FAIIndex OPTIONAL,
  actionTime       INTEGER (0..255),
  preambleIndexLZone BIT STRING (SIZE (8)),
  preallocatedBasicCID CID OPTIONAL
}

RejectHOCommand ::= SEQUENCE {
  rejectHRNetwork    SEQUENCE {
    reqDuration       INTEGER (0..255),
    targetBSList      SEQUENCE (SIZE (1..16)) OF SEQUENCE {
      targetBSID      BSID,
      saPreambleIndex  PreambleIndex OPTIONAL,
      r1PreambleIndex  R1PreambleIndex OPTIONAL,
      centerFrequency  CenterFreq
    } OPTIONAL
  } OPTIONAL
}

HRHandoverCommand ::= SEQUENCE {
  extendHOMode   CHOICE {
    alternativePath   AlternativePath,
    fbisInitiation    FBISInitiation,
    fbisTermination   FBISTermination,
    hoCmdMSactionAsRs HOCmdMSActionAsRs
  },
  handoverCommandHandoverCommand
}

AlternativePath ::= SEQUENCE {
  role  BOOLEAN
  -- 0: stay as HR-MS
  -- 1: change to HR-RS
}

FBISInitiation ::= SEQUENCE {
  primaryServingABS  BOOLEAN,
  -- 0: the AMS shall set its primary serving ABS
  -- as S-ABS (Degraded HR-BS) after network reentry
  -- 1: the AMS shall set its primary serving ABS
  -- as T-ABS (Target HR-BS) after network reentry
  switchedAccessMode CHOICE {
    switchedAccessWindowSize INTEGER (0..255),
    maximumSwitchedAccessWindowSize INTEGER (0..255)
  },
  switchingAccessStartTimeOffset INTEGER (0..255)
}

FBISTermination ::= SEQUENCE {
  terminationReason ENUMERATED {
    backboneRecovery,
    noConnectionForFBIS,
    linkFailure
  }
HOCmdMActionAsRS ::= SEQUENCE {
  rsReconfigInd BOOLEAN
    -- 0: No change
    -- 1: change

}