Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**ASN.1 coding for FTN messages in IEEE 802.16.1a**	
Date Submitted	**2012-11-15**	
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Re:	In response to Sponsor Ballot Recirculation #1 on P802.16.1a	
Abstract	ASN.1 coding for BS-controlled FTN messages in GRIDMAN Draft Standard	
Purpose	To discuss and adopt the proposed text in the draft amendment document on GRIDMAN	
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ASN.1 coding for FTN messages in IEEE 802.16.1a

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1. Introduction

This document provides ASN.1 encoding for BS-controlled FTN messages in P802.16.1a, including:

- AAI-FN-CONFIG-CMD

- AAI-FN-RNG-ACK

- AAI-FN-RNG-FLU

- AAI-MSPG-GRP

- AAI-MSPG-PG

2. References

[1] IEEE 802.16-12-0132-00, GRIDMAN System Requirement Document including SARM annex, January 2012.
[2] IEEE P802.16n^{TM}/D6, Air Interface for Broadband Wireless Access Systems - Draft Amendment: Higher Reliability Networks, October 2012.
[3] IEEE P802.16.1a^{TM}/D6, WirelessMAN-Advanced Air Interface for Broadband Access Systems - Draft Amendment: Higher Reliability Networks, October 2012.
[4] IEEE P802.16^{TM}-2012, IEEE Standard for Air Interface for Broadband Wireless Access Systems, August 2012.
[5] IEEE P802.16.1^{TM}-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: Add the following text in line#4, page 238, P802.16.1a/D6:]

```
    -- HR Power Control configuration
    aaiHrPcc              AAI-HR-PCC,
```

[Remedy2: Add the following text in line#46, page 238, P802.16.1a/D6:]

```
-- BS controlled HR-MS forwarding to network
    aaiFnConfigCmd        AAI-FN-CONFIG-CMD,
    aaiFnRngAck           AAI-FN-RNG-ACK,
    aaiFnRngFlu           AAI-FN-RNG-FLU,
```

```
1        aaiMspgGrp               AAI-MSPG-GRP,
2        aaiMspgPg                AAI-MSPG-PG,
3
4
```

[Remedy3: Add the following text in line#46, page 282, P802.16.1a/D6:]

```
7   -- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
8   -- HR Power Configuration message
9   -- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
10  AAI-HR-PCC ::= SEQUENCE {
11       iotC                          INTEGER (0..127),
12       offsetC                       INTEGER (0..63),
13       iotD                          INTEGER (0..127),
14       offsetD                       INTEGER (0..63)
15  }
16
17
```

[Remedy4: Add the following text in line#30, page 296, P802.16.1a/D6:]

```
20  -- *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
21  -- BS-Controlled FTN Messages
22  -- *-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-*-
23
24  -- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
25  -- AAI-FN-CONFIG-CMD Message
26  -- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
27
28  FdmUlPuseZone::= SEQUENCE {
29       subframeOffsetRch             INTEGER (0..3),
30       startRpCodInfoRch             INTEGER (0..15),
31       numRpCodesForCoverageExtRng   INTEGER (0..3)
32  }
33
34  NoFdmUlPuscZone::= SEQUENCE {
35       subframeOffsetRch             INTEGER (0..3),
36       startRpCodInfoRch             INTEGER (0..15),
37       txTimeOffsetSRch              INTEGER (0..7)
38  }
39
40  PostAccessParamPreAssign ::= SEQUENCE {
41       postIdCell                    INTEGER (0..1023),
42       numberOfSuperframeNCI         INTEGER (0..3),
43       startRpCodInfoSRch            INTEGER (0..15),
44       numberOfRNGOpportunity        INTEGER (0..3),
45       subframeOffsetRch             INTEGER (0..3)
46  }
47
48  -- BS controlled HR-MS forwarding to network
49  AAI-FN-CONFIG-CMD ::= SEQUENCE {
50       superframeNumActionLSB4       INTEGER (0..15),
51       idCell                        INTEGER (0..1023),
52       numberOfPreambleOnlySuperframe INTEGER (0..15),
53       numberOfSuperframesWithNCI    INTEGER (0..3),
54       subframeIndexNCI              INTEGER (0..7),
55       lruStartingIndexNCI           INTEGER (0..63),
56       frameContainingRngOpportunity ENUMERATED {
57                   second,
58                   fourth
59       },
60       numberOfRngOpportunity        INTEGER (0..3),
61       supportFdmUlPUSCZone          CHOICE {
62            supportFdmUlPuscZone          FdmUlPuseZone,
63            noSupportFdmUlPuscZone        NoFdmUlPuscZone
64       },
65
```

```
        hrMsPreambleTimingAdvance           INTEGER (0..2047)          OPTIONAL,
        hrMsEirp                            INTEGER (0..31),
        hrMstoHrMsFbRrcIndex                INTEGER (0..2047)          OPTIONAL,
        hrMrtoHrMsRepRrcIndex               INTEGER (0..2047)          OPTIONAL,
        threshold2PhaseDiscovery            INTEGER (0..7)             OPTIONAL,
        postAccessParmPreAssign             PostAccessParamPreAssign   OPTIONAL,
        ...
}

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
-- AAI-FN-RNG-ACK Message
-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
RNGStatusSuccessContinue::= SEQUENCE {
        adjustParamIndication               BIT STRING {
                offsetAdjustInd                 (0),
                powerLevelAdjustInd             (1),
                freqOffsetAdjustInd             (2)
        },
        timingOffsetAdjust                  INTEGER (0..32767)         OPTIONAL,
        powerLevelAdjust                    INTEGER (0..15)            OPTIONAL,
        freqOffsetAdjust                    INTEGER (0..511)           OPTIONAL

}


AAI-FN-RNG-ACK ::= SEQUENCE {
        rcvCodes                            SEQUENCE (SIZE(0..15)) OF SEQUENCE {
                rngPreambleCodeIndex                INTEGER (0..3),
                rngStatus                           ENUMERATED {
                        success,
                        continue,
                        abort,
                        secondPhase
                },
                rngStatusSuccessContinue    RNGStatusSuccessContinue   OPTIONAL
        },
        ...
}

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
-- AAI-FN-RNG-FLU Message
-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
AAI-FN-RNG-FLU ::= SEQUENCE {
        numRngCodes                         SEQUENCE (SIZE(0..15)) OF SEQUENCE {
                rngCodeIndex                        INTEGER (0..3),
                frameIndex                          INTEGER (0..15),
                subframeOffsetOfRcvRngPreamble      INTEGER (0..3)
        },
        ...
}

-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
-- AAI-MSPG-GRP Message
-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
AAI-MSPG-GRP ::= SEQUENCE {
        purpose                             BOOLEAN,-- 0: remove, 1: add
        pagerGroupID                        INTEGER (0..255)
}


-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
-- AAI-MSPG-PG Message
-- +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-
```

```
MsPgSupportFdmUlPusc ::= SEQUENCE {
        subframeOffsetRch                       INTEGER (0..3),
        startRpCodInfoRch                       INTEGER (0..15),
        numRpCodAlloc                           INTEGER (0..63)

}


MsPgSupportAAI::= SEQUENCE {
        piPid                                   INTEGER (0..4095),
        startRpCodInfoRch                       INTEGER (0..15),
        numRpCodAlloc                           INTEGER (0..63)
}



AAI-MSPG-PG ::= SEQUENCE {
        pagerGroupID            INTEGER (0..255),
        mspgPgupportFdmUlPusc   SEQUENCE (SIZE (0..63)) OF MsPgSupportFdmUlPusc      OPTIONAL,
        mspgPgupportAAI         SEQUENCE (SIZE (0..63)) OF MsPgSupportAAI            OPTIONAL

}
```

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