Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**	
Title	**Modification of Sleep mode SDL**	
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Re:	This is a response to a Call for comments about IEEE802.16e-D3	
Abstract	The document contains suggestions on modification of Sleep mode SDL	
Purpose	The document is submitted for review by 802.16e Working Group members	
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Modification of Sleep mode SDL
Chulsik Yoon and Jaesun Cha
ETRI

1. Introduction
To appropriately reflect the sleep mode operation in the current IEEE P802.16e/D3 documents, some SDL diagrams should be changed. So, we propose the modified SDL diagrams.

2. Proposed changes to IEEE 802.16e-D3

[Change Figure 130d – Typical MSS Listening SDL diagram from:]

[to:]

```
                        ┌──────────────────┐
                        │   MSS Listening  │
                        └──────────────────┘
                                 │
                        ┌──────────────────┐
                        │     Receive      │
                        │  DL-MAP & UL-MAP │
                        └──────────────────┘
                                 │
                            ◇ PHY_Sync ◇  ──── No ────┐
                             ◇  OK?  ◇                 │
                                 │                      │
                                Yes             ┌──────────────┐
        ┌────────────────────────┼──────────┐   │  Action for  │
        │                        │           │   │   PHY_Sync   │
   ┌─────────┐          ┌─────────────┐  ┌─────────────────┐
   │ Receive │          │  Listening  │  │ Receive MOB_TRF-IND │
   │MOB_TRF-IND          │  Interval   │  │ with SLPID bitmap (or│
   │with SLPID bitmap    │  Expiration │  │ Num_positive_ind > 0)│
   │ size (Num_positive  └─────────────┘  └─────────────────┘
   │ _ind) = 0 │                                  │
                                          ◇ Positive Ind. ◇
                              No ──────── ◇    for      ◇ ── Yes
                                          ◇  the MSS?   ◇
                                 │
                        ◇ DCD/UCD Count ◇
            Yes ──────  ◇   Changed?    ◇
        ┌──────────────┐              No
        │ Wait for the │               │
        │   UCD/DCD    │
        └──────────────┘
        ┌──────────────┐
        │   Receive    │
        │ Corresponding│
        │   DCD/UCD    │
        └──────────────┘
                        ┌──────────────────┐     ┌──────────────────┐
                        │   MSS Sleep Mode │     │   MSS Normal     │
                        └──────────────────┘     │   Operation      │
                                                 └──────────────────┘
```
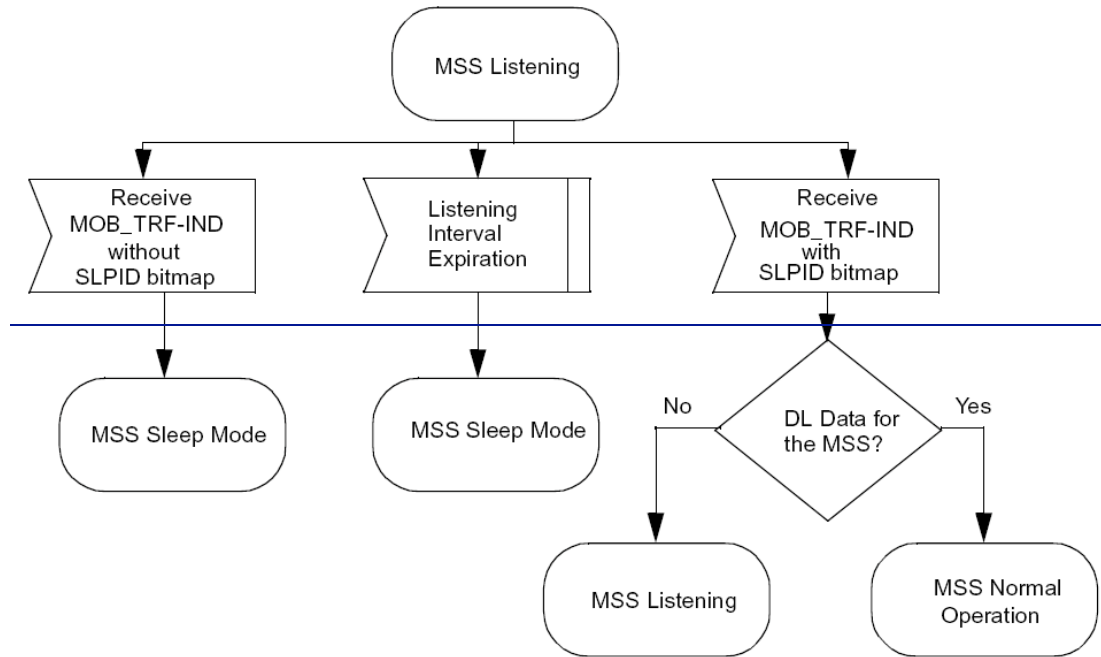
Figure 130d – Typical MSS Listening SDL diagram

[Appropriately Change the Figure 130g from:]

```
                         ┌─────────────────┐
                         │ BS-SS Sleep Mode │
                         └─────────────────┘
                                  │
          ┌───────────────────────┼───────────────────────┐
          ▼                       ▼                       ▼
   ╱─────────────╲        ╱─────────────────╲       ╱─────────────╲
   │ BW Request or │      │ SS Sleep Interval │     │   DL Data    │
   │   UL Data     │      │   Expiration      │     │  for User    │
   ╲─────────────╱        ╲─────────────────╱       ╲─────────────╱
          │                       │                       │
          ▼                       │                       ▼
   ┌─────────────┐                │                ┌─────────────┐
   │ Allocate BW per│             ▼                │   Buffer     │
   │ normal operation│       ◇─────────◇           └─────────────┘
   └─────────────┘    Yes  ╱   Data     ╲  No             │
          │         ◄──────│ Buffered for │──────►        │
          ▼                ╲    SS?      ╱                 ▼
   ╭─────────────╮          ◇─────────◇           ╭─────────────╮
   │   BS-SS      │              │                │ BS-SS Sleep Mode│
   │ Normal Operation│           │                ╰─────────────╯
   ╰─────────────╯               │                       │
                                 ▼                       ▼
                         ┌─────────────┐          ┌─────────────┐
                         │ Set Indication for│     │ Sleep Interval│
                         │  MOB_TRF-IND   │        │   Update *   │
                         └─────────────┘          └─────────────┘
                                 │                       │
                                 ▼                       ▼
                         ╭─────────────╮          ╭─────────────╮
                         │   BS-SS      │          │ BS-SS Sleep Mode│
                         │ Normal Operation│        ╰─────────────╯
                         ╰─────────────╯
```
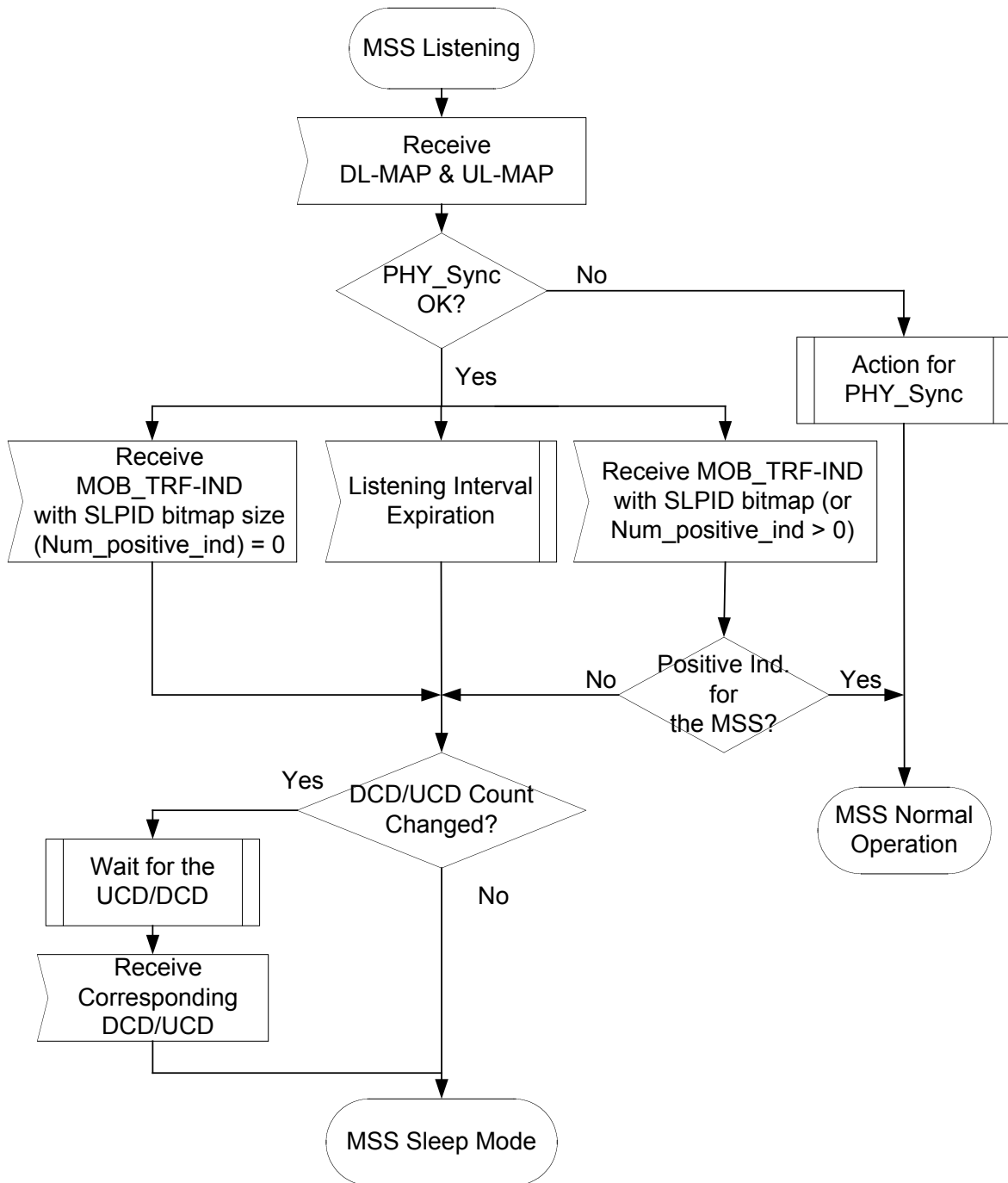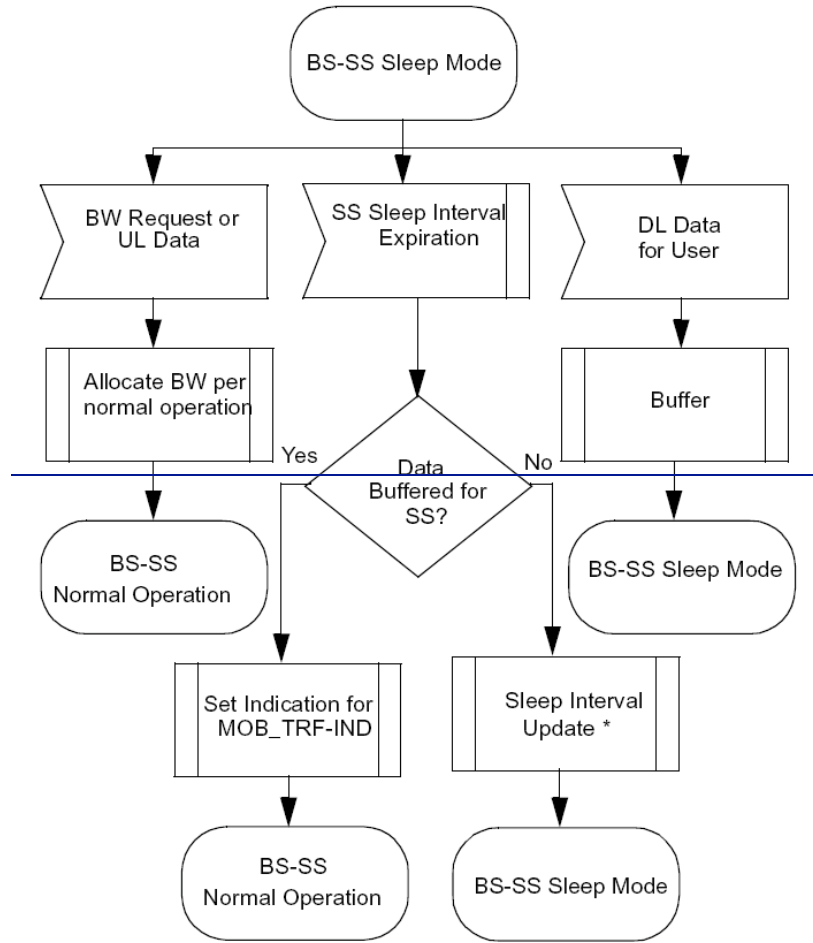
[to:]

```
                              ┌──────────────────┐
                              │ BS-SS Sleep Mode │
                              └──────────────────┘
```
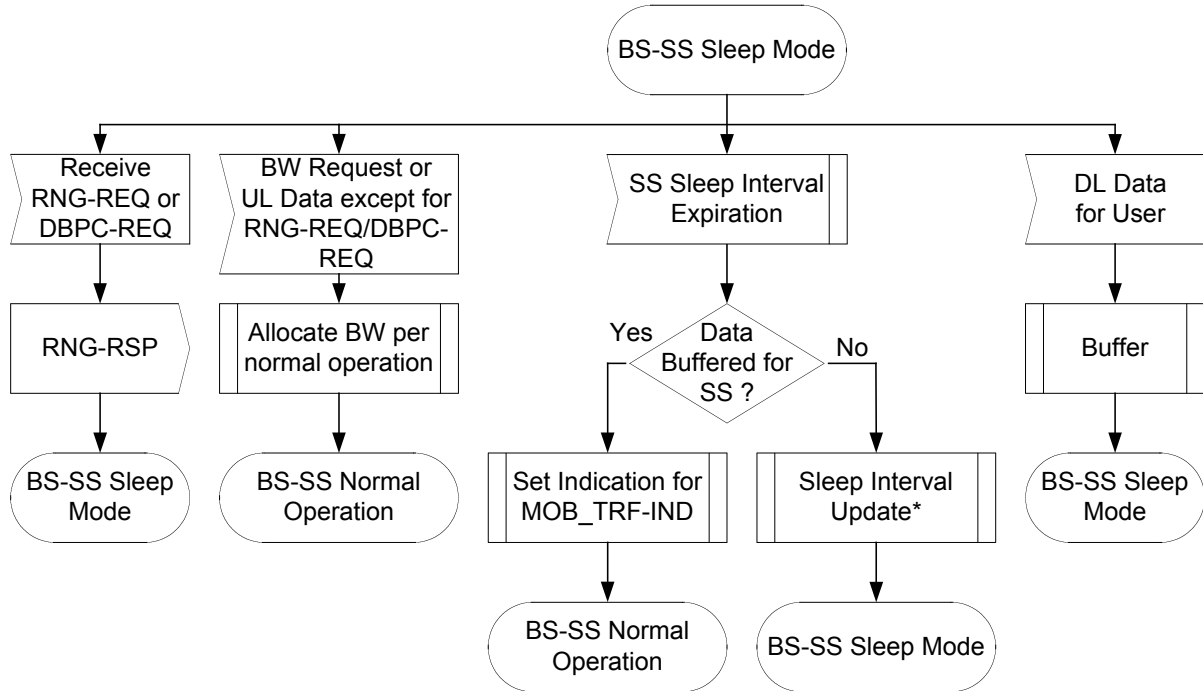
Figure 130g – BS-MSS Sleep Mode SDL Diagram

BS-SS Sleep Mode

- Receive RNG-REQ or DBPC-REQ → RNG-RSP → BS-SS Sleep Mode
- BW Request or UL Data except for RNG-REQ/DBPC-REQ → Allocate BW per normal operation → BS-SS Normal Operation
- SS Sleep Interval Expiration → Data Buffered for SS ?
  - Yes → Set Indication for MOB_TRF-IND → BS-SS Normal Operation
  - No → Sleep Interval Update* → BS-SS Sleep Mode
- DL Data for User → Buffer → BS-SS Sleep Mode