

# Recommendation Using Dedicated Subframe Control Channel in IEEE 802.16m

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Venue:

TGm Call for comments on SDD, IEEE 802.16m-08/005, in the area of “Downlink Control Structures”

Purpose:

Adoption of recommendations into the 802.16m System Description Document.

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# DL Control Channel Design Considerations

- DL control channel functions
  - ➔ Delivers important PHY and MAC control information
  - ➔ Requires more reliable transmission than data traffic, and should not rely on re-transmissions (HARQ)
- DL control channel design should focus on
  - ➔ Overhead
  - ➔ Performance
  - ➔ Complexity
  - ➔ Flexibility
  - ➔ Scalability

# DL Control Channel Design Options: Common / Dedicated

## ➔ Broadcast common control channel

- ➔ Jointly coded

- ➔ Broadcast control channel requires robust coding/modulation

  - ➔ Limited by worst user

  - ➔ Large overhead

- ➔ Current 802.16e DL control channels

  - ➔ DCD/UCD, DL/UL MAP, FCH, Preamble

  - ➔ DL cell radius is limited by the DL control channel

- ➔ 802.16m design should minimize control channel overhead, and improve coverage and reliability

  - ➔ **Broadcast common control is not suitable for subframe control channel**

    - » Every 6 OFDM symbols

## ➔ Per user dedicated control channel

- ➔ Separately coded

- ➔ Control Mini Tiles (CMT) distributed over the whole bandwidth for frequency diversity

- ➔ Per user power control

- ➔ Per user control channel enables beamforming for control channel

  - ➔ Increase in overall coverage and capacity

  - ➔ Reduced control channel overhead

- ➔ **Subframe control channel should be based on per-user dedicated control**

  - ➔ See contribution C80216m-08\_181 for detailed design

## Proposed Text to 16m SDD

***Insert the following text in Chapter 11 (Physical layer)***

- **11.x Downlink subframe control channel**

The downlink subframe control channel containing user specific information is carried over one or multiple of downlink control channels. Each downlink subframe control channel is dedicated to one user, or one group of users.