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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>** | |
| Title | Discussion on usage for DCS and ACS | |
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| Re: | IEEE 802.16-07/010：IEEE 802.16 Working Group Letter Ballot Recirc #24a: Announcement (2007-02-01) | |
| Abstract | AI result according to the group resolution in meeting #48. | |
| Purpose | To consolidate the 16h draft. | |
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# Discussion on usage for DCS and ACS

Wu Xuyong

## Overview

We have some discussion in meeting 48 about the definition for different level of interference and their threshold, according to comment 2142L by Kenneth Stanwood:
Page 103, Line 40, Subclause 15.4.1, Document P802.16h-D2
Comment: ACS overlaps significantly with DCS. We need to differentiate it or eliminate it.
Suggested Remedy: Differentiate ACS from DCS or delete section 15.4.1.
Group Decision: Accept-Modified
Group Resolution: AI taken by Xuyong to provide text about the clarification within the adhoc for channel selection chaired by Paul Piggin.

***Here I provide some head line for the concept using table expression, the detail text changes will be made in revisions.***

## Clarification

### Difference between DCS and ACS

| | **DCS (Dynamic Channel Selection)** | **ACS (Adaptive Channel Selection)** |
|---|---|---|
| **Entity of the process (select channel for who)** | **Your Own System** | **Your Neighborhood (Community)** |
| **Verb** | ***Dynamic*** is indicating that system will change your **own** channel when necessary. | ***Adaptive*** is indicating that to adapt the **neighborhood** channel distribution according to the new requirement. |
| **Intersystem procedure** | **No** | **Yes** |
| **Execution in procedure** | **Earlier** | **Later** |
| **Mandatory Preference** | **Yes** | **Conditional** |
| **Hypostasis** | **By passive sensing only, to search for a best channel for yourself in current environment** | **By reorganizing the resource distribution in neighborhood, to make out a room for your own. May after the failure of DCS.** |

**Condition for Execution and the result in cases:**

| Logic | Incremental Condition | Operation | DCS | ACS | Exclusive Channel Occupation |
|---|---|---|---|---|---|
| If | DCS feather not supported in this system | No | —— | —— | —— |
| Else if | DCS find a vacant channel | Yes | Yes | —— | Yes |
| Else if | ACS feature not supported in this system | No | Yes | No | No |
| Else if | Can not find candidate neighbor and channel | No | Yes | Yes | No |
| Else if | All the candidate neighbor do not support ACS | No | Yes | Yes | No |
| Else if | All the candidate neighbor failed during reallocation | Yes | Yes | Yes | No |
| Else | The new vacant channel was made using ACS | Yes | Yes | Yes | Yes |

*** All the yellow blocks indicate a failure within ACS procedure execution.**

*** All the green blocks indicate a success in an exclusive channel allocation for the system.**

***Reference*:**

**[1]** *IEEE 802.16-06/068r5: comment database of IEEE 802.16 LB24 (2007-04-12)*

**[2]** *IEEE P802.16h/D2a: (Temporary Editor's Draft) D2a for P802.16h (2007-03-28)*

**[3]** *IEEE 802.16-07/010： IEEE 802.16 Working Group Letter Ballot Recirc #24a: Announcement (2007-02-01)*

**[4]** *IEEE 802.16-2004: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems (2004-10-01)*

**[5]** *IEEE 802.16e-2005: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Amendment 2: Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands and Corrigendum 1 (2006-02-28)*

**[6]** *IEEE C802.16-07/020r1: Action Items from Session #48 (Mariana Goldhamer; 2007-03-11)*

***Proposed Changes accordingly:***

***TBD***