IEEE P802.11
Wireless LANs

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| Proposed resolution to CID 191, 207, 31, 58, 60, 258 and 301 in LB217 |
| Date: 2016-03-15 |
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 Abstract

This document proposes resolutions to 9 CIDs on TGaj D1.0: 191, 207, 31, 58, 60, 29, 258 301, and 66.

**Revision History**

R0: Initial version.

R1: Updated based on the discussions occurred in 11aj session.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Type | Comment | Proposed Change | Remark |
| 191 | 4.3.23 | 4 | 12 | T | The text given in this paragraph does not comply with the definition given in Cls. 3 as follows:"China directional multi-gigabit (CDMG) station (STA): A DMG STA that operates in CDMG and that transmits the Country element in DMG Beacon and Announce frames with the first two octets of the Country String field is 'CN'."The definition of CDMG STA needs to be correct, or the text in this paragraph needs to be revised or the definition needs to be deleted. | Delete the definition of CDMG STA in Cls. 3 |  |
| 207 | 3.2 | 2 | 18 | T | "China directional multi-gigabit (CDMG) station (STA): A DMG STA that operates in CDMG and that transmits the Country element in DMG Beacon and Announce frames with the first two octets of the Country String field is 'CN'."The definition is confusing. It contains "A DMG STA that operates in CDMG” but the definition of CDMG already restricts the operation to DMG, so this constraint is repeated which is not necessary. | Clean up the definition |  |

Proposed resolution: Revised**.**

Remove the definition of “CDMG STA” from clause 3.2. See the resolution to CID 31, 58, 60 below for the revised and detailed definition/description of “CDMG STA” in 4.3.19 (DMG STA).

**China directional multi-gigabit (CDMG):** Pertaining to operation in DMG and where the channel is con­tained within the Chinese 60 GHz frequency band.

NOTE—The Channel starting frequency and bandwidth of Chinese 60GHz frequency band is defined in Annex E.

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| CID | Clause | Page | Line | Type | Comment | Proposed Change | Remark |
| 31 | 4.3.23 | 4 | 9 | T | A CDMG STA is a DMG STA with extra features. Define it as such. | Move the description of CDMG STA to 4.3.19 and retitle as "DMG and CDMG STA". Change "A CDMG STA supports DMG features as described in 4.3.19" to "A CDMG STA is a DMG STA. In addition to DMG features a CDMG STA supports..." | Robert Stacey |
| 58 | 3.2 | 2 | 18 | G | "Operates in CDMG" - CDMG is a type of STA, not something than can be operated in. It is also self-referential. | Reword so it makes sense and without referring to itself. |  |
| 60 | General |  |  | G | It is not clear to me whether a CDMG is a refinement of DMG. Is it possible for a CDMG STA not to support all the DMG behaviour, in addition to the new behaviour?If the is not the case, then I expect that in many of the locations where .11ad inserted | Specify (in clause 4) whether a CDMG is a DMG STA. If it is not, review all occurrences of non-DMG and DMG in the baseline and determine where CDMG needs to be added. |  |

Proposed resolution: **Revised.**

A CDMG STA is a DMG STA with extra features. Delete the title of 4.3.23 (DMG STA). Move the content of 4.3.23 (CDMG STA) at the end of 4.3.19 (DMG STA) as follows:

“**4.3.19 DMG STA**

***Insert the following paragraphs at the end of 4.3.19***

~~4.3.23 CDMG STA~~

~~The IEEE 802.11 CDMG STA provides PHY and MAC features that can support a throughput of 1 Gb/s and greater, as measured at the MAC data service access point (SAP).~~ A CDMG STA is a DMG STA that supports CDMG operation on Chinese 60GHz frequency band when dot11CDMGOptionImplemented is true. In addition to DMG features, a CDMG STA supports CDMG features as identified in Clause 9 (MAC sublayer functional description), Clause 10 (MLME) and Clause 25 (China Directional Multi-Gigabit (CDMG) PHY specification). A CDMG STA supports transmission and reception of frames that are compliant with PHY specifications as defined in Clause 25 (China Directional Multi-Gigabit (CDMG) PHY specification). A CDMG STA is also a QoS STA. The basic channel access of a CDMG STA (see 9.36 (DMG channel access) and 9.41a (DBC mechanism for CDMG STAs)) allows it to operate in an Infrastructure BSS, in an IBSS, and in a PBSS.

Besides supporting DMG PHY features defined in Clause 21 (Directional multi-gigabit (DMG) PHY specification), a CDMG STA also supports the PHY signaling as described in 25.4 (CDMG control mode), 25.5 (CDMG OFDM mode), 25.6 (CDMG SC mode) and 25.7 (CDMG low-power SC mode). At a minimum, a CDMG STA supports the mandatory modulation and coding scheme (MCS) and PHY protocol data unit (PPDU) formats described in 25.4 (CDMG control mode) and 25.6 (CDMG SC mode).”

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| CID | Clause | Page | Line | Type | Comment | Proposed Change | Remark |
| 29 | 8.4.2.1 | 42 | 46 | T | P802.11aj is requesting large number of new Element IDs for the old style (no-extension) elements. We do not have that many available Element IDs remaining.. Number of these elements need to either use the Element ID Extension or be merged together. | Consider using Element ID Extension for all the new elements or other means of conserving legacy Element IDs of which there are only couple remaining. |  |
| 258 | 8.4.2.1 | 42 | 43 | T | Assignment of Element Ids in Table 8-74:Give for all elements an Element ID Extension, i.e. for all entries in the table, replace <ANA> in the Element ID column with "255" and replace "N/A" in the Element ID Extension column with "<ANA>" | per comment |  |
| 301 | 8.4.2 |  |  | E | Tgaj requires more <ANA> Element ID numbers than are left. The entire Clause 8.4.2 needs to be rewritten to use the Element ID Extension Scheme | per comment |  |

Proposed resolution: **Revised.**

Do as noted in the comments. Rewrite 8.4.2 (Elements) in 11aj according to the Element ID Extension scheme as follows:

|  |
| --- |
| Table 8-74 Element IDs  |
| **Element** | **Element ID** | **Element ID Extension** | **Extensible** | **Fragmentable** |
| ... | ... | ... | ... |  |
| CDMG Capabilities (see ) | 255 | <ANA> | Yes | No |
| Dynamic Bandwidth Control (see ) | 255 | <ANA> | Yes | No |
| CDMG Extended Schedule (see ) | 255 | <ANA> | Yes | Yes |
| SSW Report (see ) | 255 | <ANA> | Yes | Yes |
| Cluster Probe (see ) | 255 | <ANA> | Yes | No |
| Extended Cluster Report (see ) | 255 | <ANA> | Yes | No |
| Cluster Switch Announcement (see ) | 255 | <ANA> | Yes | No |
| Enhanced Beam Tracking (see ) | 255 | <ANA> | Yes | No |
| SPSH Report (see ) | 255 | <ANA> | Yes | Yes |
| Clustering Interference Assessment (see ) | 255 | <ANA> | Yes | No |
| QMG Capabilities (see ) | 255 | <ANA> | Yes | No |
| QMG Operation (see ) | 255 | <ANA> | Yes | No |
| Operating Mode Notification (see ) | 255 | <ANA> | Yes | No |
| QMG Link Margin (see ) | 255 | <ANA> | Yes | No |
| QMG Link Adaptation Acknowledgment (see ) | 255 | <ANA> | Yes | No |

Insert Element ID Extension subfield into the format of the elements defined in 8.4.2.172 through 8.4.2.186. See the revised CDMG Capabilities element format as an example:

**Figure 8-581a (CDMG Capabilities element format)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | STA Address | AID~~1~~ | CDMG STA Capability Information | CDMG AP or PCP Capability Information |
| Octets: | 1 | 1 | 1 | 6 | 1 | 4 | 1 |
|  | * CDMG Capabilities element format
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|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Type | Comment | Proposed Change | Remark |
| 66 | 8.3.3.5 | 27 | 17 | E | The 802.11 ANA does not administer the order of information items in management frame bodies. | Remove <ANA> flags from tables 8-21 and following. Replace with your best guess at the correct value. |  |

Proposed resolution: **Revised.**

Do as noted in the proposed change based on current order defined in 11REVmc ah/ai/aq/ak as follows:

* Management frames
* Association Request frame format

Insert the following new rows into Table 8-29 before the last row:

|  |
| --- |
| * Association Request frame body
 |
| **Order** | **Information** | **Notes** |
| 40~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 41~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |

* Association Response frame format

Insert the following new rows into Table 8-30 before the last row:

|  |
| --- |
| * Association Response frame body
 |
| Order | Information | Notes |
| 50~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 51~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |
| 52~~<ANA>~~ | QMG Operation | The QMG Operation element is present when the dot11QMGOptionImplemented is true; otherwise, it is not present. |

* Reassociation Request frame format

Insert the new rows into Table 8-31 before the last row:

|  |
| --- |
| * Reassociation Request frame body
 |
| Order | Information | Notes |
| 45~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 46~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |

* Reassociation Response frame format

Insert the following new rows into Table 8-32 before the last row:

|  |
| --- |
| * Reassociation Response frame body
 |
| Order | Information | Notes |
| 54~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 55~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |
| 56~~<ANA>~~ | QMG Operation | The QMG Operation element is present when the dot11QMGOptionImplemented is true; otherwise, it is not present. |

* Probe Request frame format

Insert the following new rows into Table 8-33 before the last row:

|  |
| --- |
| * Probe Request frame body
 |
| Order | Information | Notes |
| 30~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 31~~<ANA>~~ | Cluster Probe | The Cluster Probe element is optionally present if dot11ClusteringActivated is true. |
| 32~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |

* Probe Response frame format

Insert the following new rows into Table 8-34 before the last row:

|  |
| --- |
| * Probe Response frame body
 |
| **Order** | **Information** | **Notes** |
| 80~~<ANA>~~ | CDMG Capabilities | The CDMG Capabilities element is present if dot11CDMGOptionImplemented is true. |
| 81~~<ANA>~~ | Extended Cluster Report | The Extended Cluster Report element is optionally present if dot11ClusteringActivated is true. |
| 82~~<ANA>~~ | QMG Capabilities | The QMG Capabilities element is present when the dot11QMGOptionImplemented is true. |
| 83~~<ANA>~~ | QMG Operation | The QMG Operation element is present when the dot11QMGOptionImplemented is true; otherwise, it is not present. |