**IEEE P802.15**

**Wireless Personal Area Networks**

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| Source | Ming-Tuo Zhou, Chin Sean Sum, Fumihide Kojima, Verotiana Rabarijaona, Alina Lu Liru, Keiichi Mizutani, Hiroshi Harada (NICT) | E-Mail: [mingtuo@nict.com.sg; sum@nict.go.jp; f-kojima@nict.go.jp; rverotiana@nict.go.jp; liru@nict.com.sg; mizk@nict.go.jp; harada@nict.go.jp] |
| Re: |  | |
| Abstract | [resolution to CID 48 of sponsor ballot with text descript for device annoucement] | |
| Purpose | [to describe function of device annoucement] | |
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**Resolution for CID 48 of sponsor ballot and Text for device announcement**

Ming-Tuo Zhou, Chin Sean Sum, Fumihide Kojima, Verotiana Rabarijaona, Alina Lu Liru, Keiichi Mizutani, Hiroshi Harada

NICT

***Astract:***

This document proposes resolution to CID 48 of 802.15.4m sponsor ballot closed at 07/09/2013. Text for device announcement is proposed as in peer-to-peer network, destination address of a device is needed for unicast communication.

***------------------------------------------------------------------***

**1) Remove contents of following sections:**

“4.5.2.4 Direct device-to-device data transfer”

“5.1.6.7 Direct device-to-device data transfer”

**2) Remove following editorial instruction and related contents:**

*Change first paragraph of 5.3.4 as indicated:*

**3) Remove rows of 0x23 and 0x24 in Table 5—MAC command frames**

**4) Remove section “5.3.16 Neighbor discovery command”**

**5) Remove section “5.3.17 Probe command”**

**6) Remove following editorial instruction and related contents:**

*Change the first sentence of 6.2.14 as indicated:*

**7) Remove following editorial instruction and related contents:**

*Change 6.2.14.1 as indicated:*

**8) Remove following editorial instruction and related contents:**

*Change the first sentence of 6.2.14.2 as indicated:*

**9) Remove following editorial instruction and related contents:**

*Change first 3 rows of Table 38 as indicated:*

**10) Remove section “**6.2.24 Primitives for neighbor discovery”

***Text proposal of Device Announcement:***

***Insert following text as the second paragraph of* 4.5.2.3 Peer-to-peer data transfers*:***

For effective peer-to-peer data transfer (unicast), MAC-layer destination address is needed at a source device. Device announcement as described in 5.1.6.7 can be used for exchanging 16-bit short or 64-bit extended addresses among devices within radio communication range.

***Insert following text at the end of 5.1.6:***

**5.1.6.7 Device announcement**

To facilitate data transfer effectively between two or more peer devices, a device announces its address and its neighbors’ addresses to its neighbor devices by broadcasting beacons with a DA IE (**5.2.4.36**).

A device shall broadcast a beacon frame with a DA IE upon receiving MLME-DA.request primitive (6.2.24.1) from the next higher layer. It may also broadcast beacons with a DA IE at other times. After transmitting a beacon with the DA IE requested by an MLME-DA.request, the device shall send an MLME-DA.confirm, as described in 6.2.24.2, to the next higher layer.

Upon receiving a beacon frame with a DA IE, a device shall indicate the address of the transmitting device and the addresses list in the DA IE to its next higher layer by using MLME-DA.indication primitive (6.2.24.3). A device may check whether or not its address is known at the transmitting device by tracking the received beacon frames with a DA IE. If not, the device may broadcast a beacon with a DA IE to announce its address at the appropriate time.

The message sequence chart for a beacon broadcast with a DA IE to announce the address of a device and its neighbors’ addresses is illustrated in Figure 22ca.



**Figure 22ca—Message sequence chart for broadcast beacon with EA IE upon receiving MLME-DA.request primitive.**

***Add following item in Table 3b—EBR IEs per enabled attribute:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute**  **Request**  **Identifier** | **PIB attribute** | **IE type** | **IEs to include** |
| 5 | *macDAenabled* | *Header* | Device Announcement (5.2.4.36) |

***Modify Table 4b—Element IDs, Header IEs as following:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Element ID** | **Content length** | **Name** | **Description** |
| … | … | … | … |
| TBD | Variable | DA | Defined in 5.2.4.36 |
| … | … | … | … |

***Add following text after 5.2.4.21:***

**5.2.4.36 Device Announcement IE**

The Device Announcement IE can be used for a device to announce its neighbors’ addresses if *macDAenabled* is TRUE. The Device Announcement IE shall be formatted as illustrated in Figure 48naf.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Bit: 0** | **1** | **2-5** | **6-15** | **Address list** |
| Address mode | Addresses Pending | Reserved | Number of addresses | variable |



**Figure 48naf Device announcement IE**

When Address Mode field is set to zero, each address included in Address List is a 16-bit short address. When Address Mode field is set to one, each address included in Address List is a 64-bit extended address. The Number of Addresses field is the number of neighbors addresses included in the Address List field of this DA IE.

When Addresses Pending field is set to one, it means that there are more neighbor addresses to be sent by following beacon frames with a DA IE. When Addresses Pending field is set to zero, it means that there is no more neighbor address to be announced at this moment.

***Insert following text in 6.2***

**6.2.24 Primitives for device announcement**

These primitives are used for device announcement.

**6.2.24.1 MLME-DA.request primitive**

The MLME-DA.request primitive prompts the device to announce its address to neighbor devices.

The semantics of this primitive are:

MLME-DA.request (

CoordAddrMode,

CoordPANId,

CoordAddress,

DaAddrMode,

DaAddrNum,

DaAddrList

)

The primitive parameters are defined in Table 44ze.

**Table 44ze—MLME-DA.request parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| CoordAddrMode | Enumeration | SHORT\_ADDRESS,  EXTENDED\_ADDRESS | The addressing mode of the coordinator to which this device is associated with. |
| CoordPANId | Integer | 0x0000 - 0xffff | The identifier of the PAN to which this device is associated with. |
| CoordAddress | Device address | As specified by the CoordAddrMode parameter | The address of the coordinator to which this device is associated with |
| DaAddrMode | Enumeration | SHORT\_ADDRESS,  EXTENDED\_ADDRESS | The addressing mode of the neighbors’ addresses to be transmitted |
| DaAddrNum | Integer | 0-2048 | The number of neighbors’ addresses to be transmitted |
| DaAddrList | Addresses list | As specified by the DaAddrMode parameter | The neighbors’ addresses list to be transmitted |

**6.2.24.2 MLME-DA.confirm primitive**

The MLME-DA.confirm primitive reports results of broadcasting the beacon frame with DA IE.

The semantics of this primitive are

MLME-DA.confirm (

Status

)

The primitive parameter is described in Table 44zf.

**Table 44zf—MLME-DA.confirm parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| Status | Enumeration | SUCCESS,  FAILURE | The results of broadcasting a beacon frame with DA IE. |

**6.2.24.3 MLME-DA.indication primitive**

The MLME-DA.indication primitive indicates reception of a beacon frame with a DA IE.

The semantics of this primitive are

MLME-DA.indication (

CoordAddrMode,

CoordPANId,

CoordAddress,

AddrMode,

Address,

DaAddrNum,

DaAddrMode,

DaAddrList

)

The primitive parameter is described in Table 44zh.

**Table 44zh—MLME-DA.confirm parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** |
| CoordAddrMode | Enumeration | SHORT\_ADDRESS,  EXTENDED\_ADDRESS | The addressing mode of the coordinator to which the beacon transmitting device is associated with. |
| CoordPANId | Integer | 0x0000 - 0xffff | The identifier of the PAN to which the beacon transmitting device is associated with. |
| CoordAddress | Device address | As specified by the CoordAddrMode parameter | The address of the coordinator to which the beacon transmitting device is associated with |
| AddrMode | Enumeration | SHORT\_ADDRESS,  EXTENDED\_ADDRESS | The addressing mode of the beacon transmitting device |
| Address | Device address | As specified by the AddrMode parameter | The address of the beacon transmitting device |
| DaAddrNum | Integer | 0-1024 | The number of addresses included in the Address List field of a DA IE |
| DaAddrMode | Enumeration | SHORT\_ADDRESS,  EXTENDED\_ADDRESS | The addressing mode of the addresses included in the Address List field of a DA IE, if DaAddrNum is not zero |
| DaAddrList | Device address | As specified by the DaAddrMode parameter | The addresses included in a DA IE, if DaAddrNum is not zero |

***Insert following row at the end of Table 52a—General MAC PIB attributes for functional organization***

**Table 52a—General MAC PIB attributes for functional organization**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Attribute** | **Type** | **Range** | **Description** | **Default** |
| *macDAenabled* | Boolean | TRUE or FALSE | If TRUE, the device is capable of functionality specific to Device Announcement | Implementation  specific |