**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | Suggested Text for Many-to-Many Peering to Resolve Comment CID-37-43 |
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| Re: | TG8 draft text for comment resolution for 802.15.8 |
| Abstract | This is the work in progress text of the MAC component for IEEE 802.15.8 group for PAC. |
| Purpose | This document provides the details of draft text to IEEE 802.15.8 |
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# [This is draft text to resolve comment submitted to TG8]

* + - 1. Many-to-many peering procedure

Many-to-many peering occurs among an initiator PD (I-PD) and a number of responder PDs (R-PDs). The many-to-many peering procedure follows subclause 6.5.3.4, discovery procedure for many-to-many group, where the I-PD obtained a list of candidate R-PDs for forming many-to-many group. The result of many-to-many peering is that a number of selected PDs including the I-PD and all R-PDs get peered forming a PAC group. As illustrated in Figure xxx, many-to-many peering procedure shall contain the following steps.

1. The I-PD’s higher layer triggers the many-to-many peering procedure by issuing the MLME-PEERING.request primitive to its MAC sublayer with the selected multicast group address and the list of targeted R-PDs selected from the list of qualified R-PDs obtained at the many-to-many discovery.
2. Upon reception of the MLME-PEERING.request primitive, the I-PD’s MAC sublayer broadcasts the Peering Request command frame with content of the PeeringType parameter set to many-to-many, multicast group address, and the list of targeted R-PDs and an empty list of accepted R-PDs.
3. Upon reception of Peering Request command frame, the MAC sublayer of a R-PD in the list of targeted R-PDs shall issue the MLME-PEERING.indication primitive to its next higher layer, indicating many-to-many peering request with the PeeringType parameter set to MANY2MANY, multicast group address, the list of targeted R-PDs and the list of accepted R-PDs.
4. Each R-PD’s next higher layer receiving the MLME-PEERING.indication primitive decides either to accept or reject the request to peer within *macPeeringResponseTimeout*. The next higher layer of the R-PD shall issue a MLME-PEERING.response primitive to the MAC sublayer.
5. Upon reception of the MLME-PEERING.response primitive, the R-PD’s MAC sublayer shall multicast the Peering Response command frame with the multicast group address.
6. The I-PD shall wait for either: the arrival of Peering Response command frames from all targeted R-PDs or *macPeeringResponseTimeout* is reached. Then, the I-PD updates the list of targeted R-PDs by removing the R-PDs responding with accept to the accepted R-PD list and discarding R-PDs responding with reject.
7. The I-PD broadcasts additional Peering Request command frame with updated list of targeted R-PDs and updated list of accepted R-PDs, repeats steps d) to g), until the updated targeted R-PDs list is empty, or reaching the *macMaxFrameRetries*.
8. The I-PD’s MAC sublayer shall issue the MLME-PEERING.confirm to its next higher layer with the list of updated accepted R-PDs.
9. The next higher layer of I-PD issues a final MLME-PEERING.request primitive to its MAC sublayer with an empty list of targeted R-PDs and the list of final accepted R-PDs.
10. Upon reception of the MLME-PEERING.request primitive, the I-PD’s MAC sublayer shall multicast a final Peering Request command frame.
11. Upon reception of the final Peering Request command frame, the MAC sublayer of a R-PD in the list of final accepted R-PDs shall issue the MLME-PEERING.indication primitive to its next higher layer, indicating a many-to-many group is formed with the list of final accepted R-PDs.
12. The next higher layer of the I-PD and final accepted R-PDs may communicate in many-to-many manner using the selected multicast group address.



Figure xxx —Many-to-many peering procedure chart