IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)
Title	**TG3 LB19 comment resolution**
Date Submitted	[11 September, 2002]
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Re:	[]
Abstract	[This document is a record of comment resolutions for LB19.]
Purpose	[To provide a record of the comment resolution for LB19.]
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1. Opening report

1.1 Status at opening in Monterrey

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Table 1—Ballot resolution as of opening of Monterrey meeting

Type	LB19
T (technical)	72
TR (Technical required)	326
T and TR	398
E (editorial)	153
Total	551

1.2 Process for comment resolution

   a)   Add topic category to comments
   b)   Identify hot button topics
   c)   Schedule resolution of hot button topics
   d)   Begin resolution by topic of comments
        1)   Write resolutions if possible
        2)   Table issues that need more work
        3)   Add to hot topics if necessary
   e)   Resolve hot button topics
   f)   Get all text written and posted
   g)   Hold BRC meeting if required

1.3 Editing process

   a)   Put editorial edits into draft (already started)
   b)   Send clauses to editors
   c)   Integrate results
   d)   Post interim revision of the draft for review.
   e)   Final edits
   f)   Post for letter ballot

2. Comment resolution in Monterey

2.1 Hot topic issues

Bit order

      Monday 7:00 pm - pending more information

Notifying DEVs of new CTA - Directed vs. in beacon (previously resolved by BRC as directed)

      Tuesday Morning, 8:00 am. - Resolved, waiting text.

Probe - possible error code?

      Tuesday 8:00 am after notifying DEVs - Resolved, waiting text

PNService IE - use probe instead of command? - Resolved

      Tuesday 8:00 am after probe

CTRB - fixed vs. variable length format?

      Tuesday 3:30 pm

Open/association MTS - Do we still need them?

      Tuesday 1:00 pm

Security modes - Do we have 2 or 3 modes?

ACL/PIB

      Wedneday 8:00 am

PM/SPS - SPS mandatory or optional?

      Wednesday 1:00 pm

2.2 Monday resolution

ACK

272 - Accept

274 - ACCEPT IN PRINCIPLE. On line 36, change "Dly-ACK request bit" with "Dly-ACK policy and the DlyACK request bit" , same change on line 48.

289 - Accept

233 - REJECT. The ACK serves the purpose of telling the transmit state machine if it was successful in getting the frame. The response is used to close the process at the DME level.

310 - ACCEPT IN PRINCIPLE. Add text: 'The source upon reception of the Imm-ACK shall send a MAC_ISOCH_DATA.confirm with the ResultCode set to DLY_ACK_FAILED to the FCSL. This implies acknowledgment of the data frame and additionally indicates that the dly-ACK policy has been refused by the destination.'

312 - Accept

270 - Accept

215 - Accept

526 - Proposed resolution, pending more text: "1) This is fixed by referencing both "Dly-ACK policy and Dly-ACK request bit" being set. 2) The FCSL is now notified in the MAC-ISOCH-DATA.confirm as indicated in CID 310. 3) Same resolution as 1). 4) Move the sentence "The destination DEV may change the max burst value in each Dly-ACK frame." to the end of the previous paragraph that ends "... max num (sp) frames, as provided in the Dly-ACK frame 7.3.2.2." (note spelling error). 5) Change "souce" to "source" 6) Add a sentence that says "The FCSL would then notify the DME that the Dly-ACK negotiation failed. The DME then knows that a modification of the channel time allocation might be required." 7) Some more text? Jay to write suggested new text to clarify, due Tuesday by 1:00 pm. 8) Jay to write suggested text, due Tuesday by 1:00 pm."

523 - Accept

195 - Accept in principle: ACCEPT IN PRINCIPLE. Add the text for clause 6 and clause 8 from Clause 2.2.7 of 02/273r17 to describe the use of the ASIE.

347 - Accept in principle: ACCEPT IN PRINCIPLE. Add the text for clause 6 and clause 8 from Clause 2.2.7 of 02/273r17 to describe the use of the ASIE.

331 - Accept in principle: ACCEPT IN PRINCIPLE. Add the text for clause 6 and clause 8 from Clause 2.2.7 of 02/273r17 to describe the use of the ASIE.

217 - Accept

318 - ACCEPT IN PRINCIPLE. Change to UnassocID and change the acronym list to be UnassocID - unassociated ID.

530 - ACCEPT. Change from "Before a DEV has completed the association process, all frames between the PNC and the DEV shall be exchanged either in the CAP of the superframe or in an association MTS." to be "Before a DEV has completed the association process, all frames sent to the PNC by the DEV shall be exchanged either in the CAP of the superframe or in an association MTS."

Add additional sentence at the end of the first paragraph "For association using MTS, the association response command is sent in an MTS with PNCID as source and UnassocID as destination."

34 - Accept

35 - Accept in principle: ACCEPT IN PRINCIPLE. Insert the PiconetServicesInquiry field (values: enumeration; REQUEST, NOREQUEST; Requests that the PNC sends the services information about the piconet as described in {xref AssociationRequest}) into the table. The capability field is still used.

133 - ACCEPT IN PRINCIPLE. Insert the PiconetServicesInquiry field (values: enumeration; REQUEST, NOREQUEST; Requests that the PNC sends the services information about the piconet as described in {xref AssociationRequest}) into the table. The capability field is still used.

149 - Accept.

411 - Accept

425 - Can we remove the application data ID? Ask M. Schrader. Table until response, AI for JPKG to contact him.

426 - Can we remove the DEVID? Ask M. Schrader. Table until response, AI for JPKG to contact him.

414 - ACCEPT IN PRINCIPLE. Delete the sentence "The PNC may use multiple beacons to broadcast successive DEV association IEs if too many DEVs are associating than will fit in a single beacon.." as it is confusing and does not add any new information. The PNC is able to choose when it sends any IE.

417 - ACCEPT IN PRINCIPLE. Delete the capability field, change the name of the Association status field to be "DEV characteristic". In the new DEV characteristic field, put in a 1 bit Association status field that is 0 for disassociated and 1 for associated, a 5 bit "Supported data rates" with an xref to where defined in 7.11 (or where this goes in the future) and 2 reserved bits. Check in other places where Association status field is defined to see if they need to be changed to match.

418 - ACCEPT IN PRINCIPLE. DEVs are not required to authenticate to other DEVs in a piconet. They are only required to authenticate with the PNC in a secure piconet. However, this status is not useful here, therefore it will be removed as valid value as indicated in the resolution of CID 417.

415 - ACCEPT IN PRINCIPLE. This is already required in 8.3.1, page 164, lines 50-51 where the PNC repeats it at least aMinBeaconInfo which has a value of 4.

419 - ACCEPT IN PRINCIPLE. Move DEV address to the first position in this IE and in the PNC info command's DEV record on page 139, figure 64.

33 - ACCEPT IN PRINCIPLE. Delete the three sentences. In 8.3.4 change the last sentence in the paragraph on page 167, line 1 to be 'Similarly, if the beacons from the PNC are not received by the DEV for longer than the ATP, the DEV shall consider itself disassociated from the piconet and may try to associate again. The DEV notifies the DME that the ATP expired using the MLME-ATP-EXPIRED.ind primitive.' Keep MLME-SYNCH.{request,confirm} as they are used for the association process. Delete figure119. Rename MLME-SYNCH-LOST as MLME-ATP-EXPIRED. Add text to 8.3.1 that indicates that the DEV needs to perform an MLME-SYNCH prior to starting the association process. {Ed. note: Generate the text}.

18 - Accept

37 - ACCEPT IN PRINCIPLE. Add a second MLME-ASSOCIATE.ind to the MSC after the second association request command. Add the OrigID to the MLME-ASSOCIATE.ind and put a definition in the table that says it is either the UnassocID or the DEVID that was just assigned by the PNC. Add DEVID=UnassocID to the first MLME-ASSOCIATE.ind and DEVID=0xzz to the second one.

439 - Accept.

53 - ACCEPT IN PRINCIPLE. Delete aDEVIDReuseTime. Change 'However, the reallocation of the same DEVID by PNC shall be at least aDEVIDReuseTime after the disassociation of the DEV that was allocated the same DEVID.' to be 'After the PNC sends a disassociation command to a DEV, the PNC shall not reuse the same DEVID of that DEV until at least two times the ATP duration for that DEV has passed.' Add to the ATP discussion in disasociation 'The PNC shall send a disassociation command to a DEV that sends a frame after its ATP has expired.'

437 - ACCEPT IN PRINCIPLE. Add that the units are in millisconds here and in 7.5.1.2.

43 - ACCEPT. Double check to make sure that all of the IEs that need to be there are in Table 39 (e.g. PSPS status and SPS status).

38 - REJECT. Although in some cases it may help to have the CTAs last so that a DEV can shutdown early if it has not decoded a CTA assigned to that DEV within MaxProcessedCTAs. However, with the CTAs first, the DEVs have more time to react to the channel time allocations and the CTAs start in a known location.

405 - REJECT. Although in some cases it may help to have the CTAs last so that a DEV can shutdown early if it has not decoded a CTA assigned to that DEV within MaxProcessedCTAs. However, with the CTAs first, the DEVs have more time to react to the channel time allocations and the CTAs start in a known location.

413 - ACCEPT. Double check to make sure that all of the IEs that need to be there are in Table 39.

406 - ACCEPT IN PRINCIPLE. Change the figure 9 title to be 'Piconet synchronization parameters field format.' Change the sentence 'All beacons include the piconet synchronization parameter field.' to be 'All beacons include the piconet synchronization parameter field, as shown in the frame formats for the non-secure, {xref} and secure beacons, {xref}.'

94 - Accept.

192, 345 - Table, everyone to ask for help.

281 - Accept

467 - REJECT. The PNC DEV-Address is no longer used to distinguish the piconet, instead BSID identifies the piconet (with the PNID). However, many parts of the standard refer to the Parent PNC DEV-Address and these will be changed to refer to the Parent BSID.

433 - REJECT. The overlapping PNID element is only used to report PNIDs. The PNC is required to change its PNID if an overlapping piconet is found that uses the same one. However, the PNC is not required to change its BSID. The actual number of piconets using the PNID is not important, rather it is simply the existence of at least one piconet with that PNID that matters. Furthermore, this IE is sent even if only a frame and not the beacon is detected on another channel. In this case, the DEV doesn't know the BSID.

242 - ACCEPT IN PRINCIPLE. Change this sentence frag.: <from> "...remove the parent PNC DEV address element from ..." <to> "...remove the parent BSID IE from ..."

238 - ACCEPT IN PRINCIPLE. Change this sentence frag.: <from> "...remove the parent PNC DEV address element from ..." <to> "...remove the parent BSID IE from ..."

408 - ACCEPT IN PRINCIPLE. After the sentence ending "... the CAP of the current superframe." add "The CAP command bit applies to all commands except for the association request command, which is covered by the CAP association bit."

67 - Accept.

74 - ACCEPT IN PRINCIPLE. Add a new timing parameter called BIFS = SIFS + aCCADetectTime and use it instead of RIFS in the backoff procedure. Add BIFS - backoff interframe spacing to the acronyms clause. Modify clause 11 to match this new usage.

451 - 'When the DestID of this command is PNCID, the values in the command shall correspond to all frames exchanged by the DEV with other DEVs in the piconet. When the DestID of this command is a non-PNC DEVID, the values in the command shall correspond to the frames exchanged between the requesting DEV and the target DEV.'

2.3 Tuesday

Directed vs. beacon announcement of new CTA.

299, 301, 303, 305 - Use IEs in the beacon, for BC/MC and pseudo-static slots to ACTIVE DEVs they are in the system wake beacon plus 3 following. For power save DEVs, they are in the DEVs wake beacon plus 3 following wake beacons. Also, a DEV that wants this info but missed it, may request it from the PNC with with probe command? How do you indicate the stream index? Or do you get all of them. How do we add text to probe to request multiple IEs? Do we add a CTA information request and CTA information response (or use PNC handover information command).

PNService IE - use probe instead of command?

        Tuesday 8:00 am after probe

255 - REJECT. The information sent in the PN services command is likely much longer than an IE, thus it is easier to send it in a command. With a single command, the DEV knows when it has received all of the data, as opposed to an set of IEs.

283 - REJECT. The information sent in the PN services command is likely much longer than an IE, thus it is easier to send it in a command. With a single command, the DEV knows when it has received all of the data, as opposed to an set of IEs.

346 - REJECT. The information sent in the PN services command is likely much longer than an IE, thus it is easier to send it in a command. With a single command, the DEV knows when it has received all of the data, as opposed to an set of IEs.

Probe - possible error code?

        Tuesday 8:00 am after notifying DEVs

CID ?? - Which one do we need to say no? Suggest overall probe procedure, if you get an IE you are not able to respond to (i.e. it is listed as may respond or shall not respond), the DEV sends back the appropriate IE with the identifier and a zero length. Also need to work on the clause 8 table for different wording, you always respond, but sometimes you give a null IE. {Ed. note: Need to work on the words}.

282 -Withdrawn

46 - Accept.

23 - ACCEPT IN PRINCIPLE. For the PNC received request from DEV, change the following to shall ignore: DEV association, PNC shutdown, Piconet parameter change, PNC handover, SPS status.

44 - ACCEPT IN PRINCIPLE. Add an MLME-PROBE.confirm to just before the first MLME-PROBE.ind sent to DEV-2. Change the probe primitve parameters to match the following (same definitions).

MLME_PROBE.request
(
TrgtId,
InfoElementMap,
InfoElementList,
ProbeTimeout
)

MLME_PROBE.indicate
                                        (
                                        OrigId
                                        InfoElementMap
)

MLME-PROBE.response   (
                                        OrigId,
                                        InfoElementMap,
                                        InfoElementList,
                                        ProbeTimeout
)

MLME-PROBE.confirm   (
                                        TrgtId,
                                        InfoElementList,
                                        ResultCode
)

52 - Replace Table 53 with the following.

503 - ACCEPT IN PRINCIPLE. Change the sentence to 'A DEV shall not report overlapping piconets if it determines that the beacons were received from a child or 802.15.3 neighbor piconet that is associated with the DEVs current piconet.'

306 - ACCEPT IN PRINCIPLE. Change the field to be the Parent BSID IE, length 8-34, change the text to be: The parent BSID IE is the address from a parent BSID IE, 7.4.3, found by the DEV in a beacon. If the DEV found only a frame and did not find a beacon, it shall include a zero length parent BSID IE. Change the length of the Piconet BSID IE to be 8-34.

45 - Accept.

452 - ACCEPT. Change the BSID IEs to include the MAC address of the PNC (or parent PNC). Rename the IEs to be the Piconet IE and Parent piconet IE. Rename throughout (after change from Parent DEV address IE to Parent BSID IE.) Change the lengths of the fields in this command to be 14-40.

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Table 2—Rules for sending to probe requests

Information element	Subclause	PNC allowed to request?	DEV allowed to request?	PNC sends?	DEV sends
Channel time allocation	7.4.1	Shall not request	Shall not request (no)	Shall not send	Shall not send
Piconet BSID	7.4.2	Shall not request	May request (yes)	Shall not send	Shall not send
Parent BSID	7.4.3	Shall not request	May request	Shall not send	Shall not send
DEV association	7.4.4	Shall not request	Shall not request	May send	Shall not send
PNC shutdown	7.4.5	Shall not request	Shall not request	May send	Shall not send
Piconet parameter change	7.4.6	Shall not request	Shall not request	May send	Shall not send
Application specific	7.4.7	May request	May request	May send	May send
Pending channel time map (PCTM)	7.4.8	Shall not request	May request	May send	Shall not send
PNC handover	7.4.9	Shall not request	Shall not request	May send	Shall not send
DEV address	7.4.10	May request	May request	May send	May send
Capability information	7.4.11	May request	May request	May send	May send
Transmit power parameters	7.4.12	May request	May request	May send	May send
SPS status	7.4.13	Shall not request	Shall not request	May send	Shall not send
PSPS status	7.4.14	Shall not request	May request	May send	Shall not send
Public-key object	7.4.15	May request	May request	May send	May send
Security suite OID	7.4.16	May request	May request	May send	May send
Overlapping PNID	7.4.17	May request	Shall not request	Shall not send	May send
Piconet services	7.4.18	May request	May request	May send	May send
Vendor specific or reserved	7.4	May request	May request	May send	May send

24 - ACCEPT IN PRINCIPLE. Add a table to 6.3.18 called remote piconet description, as shown in 02/392r2. In table 21, change PiconetDescription to be RemotePiconetDescription with cross references to the new table.

216 - ACCEPT IN PRINCIPLE. Add a table to 6.3.18 called remote piconet description, as shown in 02/392r2. In table 21, change PiconetDescription to be RemotePiconetDescription with cross references to the new table.

500 - ACCEPT IN PRINCIPLE. Change "Any frame may beattempted at most aMaxRetransmissionLimit number of times before the transmitting DEV gives up on that frame and discards it. If a fragment of an MSDU fails retransmission up to the retry limit, the source DEV shall discard all MPDUs of that MSDU. However, a DEV might choose to attempt retransmission of an MPDU a fewer number of times as some data streams have a short life time." to be "A DEV determines the number of times a frame is retried before the DEV gives up on that frame and discards it. If the DEV gives up on a fragment of an MSDU, the DEV shall discard all MPDUs of that MSDU."

Table 3—Elements of RemotePiconetDescription

Name	Type	Valid Range	Description
BSID	As defined in Table 4	As defined in 7.4.2	The text string of a discovered piconet.
PNCDEVAddress	MAC address	Any valid individual MAC address	The MAC address of the PNC of the piconet that was found.
PNID	As defined in Table 4.	As defined in Table 4.	The PNID of a discovered piconet
PiconetType	Enumeration	PARENT, DEPENDENT	The type of a discovered piconet.
Parent BSID	As defined in 7.4.3.	As defined in 7.4.3.	The BSID of the parent piconet if a beacon of a dependent piconet was found.
ParentPNCDEVAddress	MAC address	Any valid individual MAC address.	The MAC address of the parent PNC of the piconet that was found.
ScannedFrameType	Enumeration	BEACON, NON-BEACON	Indicates what type of frame was found. {Ed. note: change table 5 as well}
ChannelIndex	Integer	0-255	A PHY dependent channel as defined in 7.5.6.4

Open/association MTS - Do we still need them?

       Tuesday 1:00 pm, CIDs 56, 349, 350, 351, 352, 353, 354, 355, 387, 513

Issues:

Con MTS: Do we need two multiple access methods? IP cost if any? Complexity from supporting both and in the specifying in the standard. Efficiency of contention? How much efficiency? For minimum CAP of say 160 us, average backoff is 16 (1/2 of 32) with 16 us slots or 320 us. That makes about a 1 out of 2 or 3 possibility of getting through. Lack of predictability of determinism of when an MTS is made available by the PNC. Any prior art? WMS says that there are plenty of examples of sloted aloha in the literature. KO: Hiperlan uses RACH (random access channel). Gubbi proposal used RACH anyway (Q slot for reQuest slot). For predictable responses, would sub-rate CAPs work as well?

Pro MTS: CAP needs to be long enough. If you want a minimum contention period, then slotted aloha takes up the least amount of time. Will new PHYs really be able to support a CAP?

Reschedule for Thursday 1:00 pm.

425 - Accept

426 - Accept

435 - ACCEPT IN PRINCIPLE. Change "PNC" to be "PNC or destination DEV"

488 - ACCEPT IN PRINCIPLE. Change the sentence 'If an Imm-ACK or del-ACK is expected for that frame, ... PHY rate as the transmitted frame.' to be 'If an Imm-ACK or Dly-ACK is expected for that frame, the DEV shall check whether there is enough time remaining in the time slot to accomodate the current frame, 2 SIFS periods and the Imm-ACK or Dly-ACK frame at the same PHY rate as the transmitted frame.'

22 - Options: New request replaces all old for both? Or add a single bit that says what to do?

483 - ACCEPT IN PRINCIPLE. 1. Add definitions for subrate and super-rate slots to Clause 3. 2. The TG is open for suggestions for new names for subrate and super-rate. To date, we have been unable to find better terminology. 3. Yes, the text indicates that psuedo-static CTAs are not allowed to happen once per many superframes, rather they are allocated every superframe.

484 - Accept.

400 - ACCEPT IN PRINCIPLE. Change 'of an isochronous stream that is currently employing the Dly-ACK mechanism.' to be 'of a stream that is currently employing the Dly-ACK mechanism. It is not valid for frames using the asynchronous stream index or the MTS index.'

166 - ACCEPT IN PRINCIPLE. Add to when generated in MLME-CREATE-STREAM.request: 'If a multi-cast or broadcast stream was opened with any other ACK-Policy than no-ACK, the MLME will not send a channel time request command to the PNC and shall be respond with MLME-CREATE-STREAM.confirm with ResultCode set to ILLEGAL_ACK_POLICY.'

182 - ACCEPT IN PRINCIPLE. Add text to When generated: 'If the dly-ACK policy was used, but the destination refused the use of dly-ACK, the ResultCode shall be set to DLY_ACK_FAILED. This indicates successful transmission of the corresponding data frame.'

498- REJECT. The use of null CTAs allows DEVs that were listening to a BC or MC stream to know that it is no longer allocated. This can't be done with a directed frame. In addition, the standard is using directed frames to communicate with the source and IEs in the beacon to communicate with destinations. The TG discussed this issue at length in Vancouver, on conference calls, the ad-hoc meeting in Schaumburg and in Monterrey. Both methods, directed frames and null-CTAs were considered in the discussions and it was felt that null-CTAs would better serve the purposes of the standard.

168 - Accept.

449 - Accept.

48 - ACCEPT IN PRINCIPLE. Add the priority parameter with definition in the table as indicated in CID 160.

51 - ACCEPT IN PRINCIPLE. Change as indicated. Also, show the data frame as coming from the MAC/MLME to the other MAC/MLME as well as the ACK.

265 - ACCEPT IN PRINCIPLE. Correct the figure as indicated in CID 51.

50 - Accept. {Ed. note: we need to write some text for the error code in the MAC-ISOCH-DATA.confirm.}

156 - Accept.

160 - Accept.

307 - Accept.

485 - ACCEPT IN PRINCIPLE. Change "the PNC may overlap the allocations for the old and new psuedo-static GTSs" to "However note that the PNC may overlap the old and new locations of the same psuedo-static GTS within a superframe as it does not cause any issue of frame collisions. If PNC sees the usage of the new allocation by both the source of the destination of old allocation before the expiration of aMAxLost-Beacons number of suprefames, then the PNC may reuse the old allocation for another pair of DEVs" After

the end of sentence "... and begin using the new GTS." The second point is already handled in the draft with the requirment on page 171, line 6, "When the source of a pseudo-static GTS receives a beacon with the new CTA, it shall cease using the old GTS and begin using the new GTS."

256 - Accept.

2.4 Wednesday, 11 September, 2002

Security modes - Do we have 2 or 3 modes?

ACL/PIB

PNC handover of ACL information

 Wedneday 8:00 am

PM/SPS - SPS mandatory or optional?

 Wednesday 1:00 pm

92 - ACCEPT IN PRINCIPLE. Suggest a table that has security levels (i.e. claimed bits) and if the OID offers cryptographic authenticiation of public keys for each of the OIDs. Merge Mode 1 and Mode 2 services offered, pointing out that some OIDs use certificates, some don't. Throughout the draft, use only mode 0 or mode 1 or security off or security on. Change the SEC mode field in the beacon to be only one bit.

ACL

370 - Why can't a mode 0 PNC use the ACL? I thought this is how we got rid of mode 1. Maybe this is just an oversight.

384 - MAC PIB ACL group defined as an array whose contents are defined in Table 33. All of the entries are dynamic, but no clear mechanism to update these entries has been included in the draft. There are no limits on the minimum and maximum number of entries allowed in the ACL. The only use for this array in the MAC is for generation of the CCM nonce and obtaining the keys associated with a particular SECID for encoding or decoding payloads.

Table until Thursday at 1:00 pm, look for compromise text.

Handover - Dan Bailey from NTRU said that they have no patents or applications on this method. He does not personally know of any from other companies.

102, 91 - Suggest passing hashes of public keys. Add 160 bit (20 octets) with the associated DEV address and the OID (possibly length). Rene asked why not hand over the public keys instead of the hash? Dan said for length concerns (160 up to 1757 bits, 20-200 octets, currently. It could be up to 4 times 256 bytes for certificates). Table until Thursday at 1:00 pm, need specific text that describes how to do it.

520 - Accept.

49 - ACCEPT IN PRINCIPLE. Resolve as indicated in CID 166.

180 - Accept.

258 - Accept.

154 - Accept.

212 - Accept.

494 - ACCEPT IN PRINCIPLE. The sentence was to indicate that this was the initial allocation of the CTA, not to say that it would occur first in the superframe. Therefore, change 'The PNC shall issue the first GTS for the stream in the superframe indicated in the channel time allocation command.' to be 'The PNC shall issue the initial GTS for the stream in the superframe indicated in the CTA status IE.'

492 - REJECT. The goal here is that the PNC is allowed to update its CTAs without waiting for another process to complete, either partially or completely. This is the fastest way to get the channel time allocated. As soon as the DEV sees the CTA in the beacon, it is able to use the time.

160 - Accept.

162 - Accept.

169 - ACCEPT IN PRINCIPLE. The stream termination bit is implied by the MLME-TERMINATE-STREAM command and doesn't need to be passed. It is implied as well for the other MLME-XXX-STREAM commands. The priority parameter will be added as indicated in CID 160.

257 - ACCEPT IN PRINCIPLE. Modify the MSC in Figure 108 as follows: 1) Delete the Evaluate request symbol from the PNC MLME column. 2) Delete the Allocate resources symbol from the PNC MLME column. 3) Move the channel time response command to just below the Check resources symbol, since this is where the decision regarding the two error conditions is determined. Also move the ACK up in the diagram as well. 4) Move the MLME-CREATE-STREAM.cfm primitive to just below the starting point of the ACK to the channel time response command.

263 - ACCEPT IN PRINCIPLE. Add the MLME-TERMINATE-STREAM.request and the MLME-TER-MINATE-STREAM.confirm to the MSC. Also, delete the first condition symbol 'de-allocate stream'.

259 - ACCEPT IN PRINCIPLE. Delete figure 110.

134 - ACCEPT IN PRINCIPLE. Also add a definition to the table, StreamIndex, As defined in {xref}; As defined in {xref}; The stream index that was assigned in the channel time allocation process for the dependent piconet.

277 - Withdrawn, 11 September, 2002

221 - ACCEPT IN PRINCIPLE. Add to the figure '1 octet, Remaining DEVID', Also add the description 'The remaining DEVID indicates which dependent piconet is able to continue operation as described in {xref shutdown}. It shall be set to the PNCID if there are not dependent piconets in the current piconet.

541 - ACCEPT IN PRINCIPLE. Delete all parameters for the MLME-START-DEPENDENT.confirm except for the ResultCode.

141 - Accept, See also CID 541 and 136.

136 - ACCEPT. See also CID 541 and 141.

140 - Accept.

487 - ACCEPT IN PRINCIPLE. Delete the sentence 'However, the PNC shall not reduce the channel time allocation of a private GTS allocated for a child or neighbor network.'

317 - ACCEPT IN PRINCIPLE. (see 02/392r3 for formatting help) Page 199, lines 45 and 46 change 'The exceptions to this are when the parent is changing its PNID or BSID and that a child or neighbor PNC decides not to change channels, 8.11.1, with the parent PNC.' to 'The exceptions to this are:

— when the parent is changing its PNID or BSID
— A child or neighbor PNC decides not to change channels with the parent PNC and is shutting down, 8.11.1.'

page 202, line 44: Change '... piconet parameter change IE, 7.4.6 in ...' to be'... piconet parameter change IE, 7.4.6, with ChangeType set to CHANNEL, in ...'

page 203, at appropriate location, 'All DEVs shall not transmit on the new channel until a beacon has been correctly received on the new channel.'

page 202, line 51, Change 'from their current channel to the new channel immediately after the beacon when the change countdown field becomes zero.' to be 'from their current channel to the new channel before the first expected beacon on the new channel.'

472 - ACCEPT IN PRINCIPLE. On page 163, line 12 Change 'shall cease operations by the time of the last beacon sent by the parent PNC.' to be 'shall either cease operations, change channels or join another piconet as a dependent piconet by the time of the last beacon sent by the parent PNC.'

469 - ACCEPT IN PRINCIPLE. On page 162, line 53, change 'shall cease operations by the time of the last beacon' to be 'shall either cease operations, change channels or join another piconet as a dependent piconet by the time of the last beacon'

465 - ACCEPT IN PRINCIPLE. Add text at the end of line 2 that says, 'There is no restriction in this standard on the number of levels that may be created. However, there is a practical limitation to the number of dependent piconets and the levels that are able to be supported.'

464 - ACCEPT IN PRINCIPLE. Change 'a child of a child or child of a neighbor' to be 'It is also possible for another dependent piconet to be formed in a child or neighbor piconet'. Ed. Note: combine all stuff that is common to child and neighbor in an introductory subclause, if possible.

391 - REJECT. The standard allows the child PNC to allocate its channel time in any way that it wants. Therefore, a child PNC may allow the formation of both child and neighbor piconets. See also the resolution CID 464.

392 - ACCEPT IN PRINCIPLE. The standard already requires a DEV to be a member of a piconet in order to communicate with other DEVs in that piconet. Therefore, a member of a child piconet shall not communicate with members of the parent piconet, unless that DEV is a member of the parent piconet (which is allowed).

458 - ACCEPT IN PRINCIPLE. The primitive has had the StreamIndex added which indicates the CTA to be used as well as the DEVID. The DEVID indicates if the dependent piconet is a child or neighbor. At this point in the process, the only difference between the two piconets is the DEVID used in the CTA. Within its own piconet, there is no difference between a child or neighbor.

521 - ACCEPT IN PRINCIPLE. Change to "A piconet which allocates guaranteed time slots for another piconet (child or neighbor types) operating in the same channel".

Suggested text for CID 475:

'8.2.6.4 Parent PNC termination of a dependent piconet

If the parent PNC wishes to stop the child piconet, it shall terminate the stream allocated to the child piconet using the isochronous stream termination procedure, 8.5.1.3. If the parent PNC wishes to stop the neighbor piconet, it shall send a disassociate request, 8.3.4, to the neighbor PNC. In either case, the dependnet PNC shall then immediately initiate its shutdown procedure, 8.2.6. The parent PNC shall listen for the dependent PNC shutdown beacon sequence to determine when the dependent piconet CTA should be removed. The parent PNC may set a maximum time for the completion of the child shutdown sequence, after which the CTA will be removed regardless of the completion of the child shutdown procedure. In the case of a child piconet, this timeout is set in the MLME while for a neighbor piconet, this time is set via the MLME-DIS-ASSOCIATE. request primitive, 6.3.6.1. If the dependent PNC is a neighbor that is not 802.15.3 compliant, the parent PNC shall provide the same time as it allows for its own shutdown sequence, for the neighbor PNC to stop its piconet before removing its private CTA. If the dependent PNC receives a shutdown beacon from its parent, it shall immediately initiate its shutdown sequence, 8.2.6.'

Suggested text for Beacon information announcement.

8.1.1 Beacon Information Announcement

The PNC sends several IEs in its beacons to inform the piconet about constant or temporary conditions. Some are sent in every beacon. In some cases these are only sent if certain features are in use, such as power save or a dependent piconet. Other IEs are only sent as an announcement of a changed condition in the pico-net. These IEs could be for the benefit of all DEVs or for a particular DEV. All IEs that are not put sent in every beacon are called announcements and shall be sent for {xref aMinBeaconInfoRepeat} beacons.

Table 4—Repeated beacon announcements

Element	Clause	Announced in	Intended for	Clause
DEV association	7.4.4	aMinBeaconIn-foRepeat	All DEVs	8.3.1, 8.3.4
PNC shutdown	7.4.5	aMinBeaconIn-forRepeat	All DEVs	8.2.6
Piconet parameter change	7.4.6	a MinBeacon-InfoRepeat	All DEVs	8.10, 8.11.1, 8.11.2
Application specific	7.4.7	As needed	As appropriate	
Pending channel time map (PCTM)	7.4.8	As needed	All DEVs	
PNC handover	7.4.9	aMinBeaconIn-foRepeat	All DEVs	8.2.3
SPS status	7.4.13	As needed	All DEVs	8.13.2
PSPS status	7.4.14	As needed	All DEVs	8.13.1
CTA status IE	{xref 7.4.x}	aMinBeaconIn-foRepeat	Depends on DestID	8.5.1.1, 8.5.1.2

If the intended recipient of the IE is all DEVs, the following rules apply:

— The IEs shall be sent in aMinBeaconInfoRepeat subsequent beacons.
— If any DEV is in PSPS or SPS mode, the first IE announcement shall be made in a system wake bea-con.

If the intended recipient of the IE is one individual DEV, the following rules apply:

— If the DEV is in Active mode, the IEs shall be sent in aMinBeaconInfoRepeat subsequent beacons.
— If the DEV is in PSPS mode, the first IE announcement shall be made in a system wake beacon.
— If the DEV is in SPS mode, the IEs shall be sent in aMinBeaconInfoRepeat subsequent SPS set wake beacons.

In the case of the CTA status IE, this is considered to be intended for all DEVs if the TrgtId of a CTRB for a stream is BcstId or McstId. Otherwise it is considered to be for an individual DEV.

3. Status at closing in Monterrey

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Table 5—Ballot resolution as of close of Monterrey meeting

Type	LB19	Unresolved as of 13 September, 2002
T (technical)	55	?
TR (Technical required)	325	?
T and TR	380	?
E (editorial)	133	?
Total	513	?

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