

IEEE P802.15 Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)	
Title	STP changes	
Date Submitted	[20 September, 2005]	
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Re:	[]	
Abstract	[This document contains the changes to implement the stream timeout period (STP) proposal and other changes to the draft for SB1.]	
Purpose	[To provide a record of the changes required to implement the stream timeout period (STP) proposal and other changes to the draft for SB1.]	
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Release	The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15.	

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1. Stream timeout period

This section includes the changes necessary for stream timeout period. In addition, some of the changes required for Next PNC are included as well.

4. Acronyms

STP - stream timeout period

6.5.1 MAC PIB characteristics group

Add the following entries to Table 34:

Table 1—MAC PIB implementation group parameters

Managed object	Octets	Definition	Access
MACPIB_AlwaysAwake	1 bit	As defined in 7.4.11	Read only
MACPIB_ListenToSource	1 bit	As defined in 7.4.11	Read only
MACPIB_ListenToMulticast	1 bit	As defined in 7.4.11	Read only
MACPIB_CTARelinquishCapable	1 bit	Indicates if the DEV is capable of using time relinquished in a CTA by another DEV. 0 - DEV does not support. 1 - DEV does support.	Read only
MACPIB_DlyACK Capable	1 bit	Indicates if the DEV is capable of using Dly-ACK as the source. 0 - DEV does not support. 1 - DEV does support.	Read only
MACPIB_ImpACKCapable	1 bit	Indicates if the DEV is capable of using implied ACK (Imp-ACK) as the source. 0 - DEV does not support. 1 - DEV does support.	Read only
MACPIB_STPCapable	1 bit	Indicates if the DEV is capable of using the stream timeout period (STP). 0 - DEV does not support 1 - DEV does support	Read only

7.4 Information elements

Change Table 48 as shown:.

Table 48—Information elements

Element ID hex value	Element	Subclause	Present in beacon
0x0F	Piconet Services	7.4.16	Non-beacon IE
0x10	<u>Group ID</u>	<u>7.4.18</u>	<u>Non-beacon IE</u>
0x11	<u>Stream Renew</u>	<u>7.4.19</u>	<u>Non-beacon IE</u>
0x12	<u>Next PNC</u>	<u>7.4.20</u>	<u>As needed</u>
0x13	<u>Piconet channel status</u>	<u>7.4.21</u>	<u>Non-beacon IE</u>
0x14-0x7F	Reserved		
0x80-0xFF	Vendor Specific	7.4.17	As needed

7.4.11 Capability

Change Figure 42 as shown:

bits: b23-b13	b14	b13	b12	b11	b10	b9	b8	b7-b5	b4-b0
Reserved	STP	CTA relinquish	Imp-ACK	Dly-ACK	Listen to Multicast	Listen to Source	Always AWAKE	Preferred fragment size	Supported data rates

Figure 42—DEV capabilities field format

Add the following paragraphs after the paragraph that begins “The Listen to Multicast bit shall be ...”

The CTA Relinquish bit shall be set to one if the DEV is capable of participating in the CTA relinquish procedure as defined in 8.4.3.8. Otherwise the bit shall be set to zero.

The Dly-ACK bit shall be set to one if the DEV is capable of performing the Dly-ACK procedure as defined in 8.8.3. Otherwise the bit shall be set to zero.

The Imp-ACK bit shall be set to one indicate that the DEV is capable of performing the Imp-ACK procedure as defined in 8.8.4. Otherwise the bit shall be set to zero.

The STP bit shall be set to one to indicate that the DEV is capable of renewing its streams within the stream timeout period, as defined in 8.3.4. Otherwise the bit shall be set to zero.

7.4.19 Stream Renew

The Stream Renew IE is used by a DEV to renew the STP for streams for which it is the source. The Stream Renew IE shall be formatted as illustrated in Figure 48b.

octets: 0-252	...	1	1	1	1
Stream index n	...	Stream Index 2	Stream Index 1	Length (=0 to 252)	Element ID

Figure 48b—Stream renew information element format

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The Stream Index fields contain the stream indices that the DEV wants to maintain.

7.5 MAC command types

7.5.4 Information request commands

7.5.4.5 Probe request

Change Table 51 as shown:

Table 51—Rules for requesting IEs in a Probe Request command

Information element	Subclause	PNC allowed to request?	DEV allowed to request?
CTA status	7.4.10	Shall not request	Shall not request <u>May request</u>
<u>Group ID</u>	<u>7.4.18</u>	<u>Shall not request</u>	<u>May request</u>
<u>Stream renew</u>	<u>7.4.19</u>	<u>Shall not request</u>	<u>Shall not request</u>
<u>Next PNC IE</u>	<u>7.4.20</u>	<u>Shall not request</u>	<u>Shall not request</u>
<u>Piconet channel status</u>	<u>7.4.21</u>	<u>May request</u>	<u>May request</u>

7.5.4.6 Probe response

Change Table 52 as shown:

Table 52—Rules for responding to requests in Probe commands

Information element	Subclause	DEV receives request from DEV	DEV receives request from PNC	PNC receives request from DEV
CTA status	7.4.10	Shall ignore	Shall ignore	Shall ignore <u>respond</u>
<u>Group ID</u>	<u>7.4.18</u>	<u>Shall ignore</u>	<u>Shall ignore</u>	<u>Shall respond</u>
<u>Stream renew</u>	<u>7.4.19</u>	<u>Shall ignore</u>	<u>Shall ignore</u>	<u>Shall ignore</u>
<u>Next PNC IE</u>	<u>7.4.20</u>	<u>Shall ignore</u>	<u>Shall ignore</u>	<u>Shall ignore</u>
<u>Piconet channel status</u>	<u>7.4.21</u>	<u>May respond</u>	<u>May respond</u>	<u>May respond</u>

7.5.5 Information announcement commands

7.5.5.2 Announce

Change Table 53 as illustrated:

Table 53—Rules for sending IEs in an Announce command

Information element	Subclause	PNC allowed to send?	DEV allowed to send?
<u>Group ID</u>	<u>7.4.18</u>	<u>May send</u>	<u>Shall not send</u>
<u>Stream renew</u>	<u>7.4.19</u>	<u>Shall not send</u>	<u>May send</u>
<u>Next PNC IE</u>	<u>7.4.20</u>	<u>May send</u>	<u>Shall not send</u>
<u>Piconet channel status</u>	<u>7.4.21</u>	<u>Shall not send</u>	<u>May send</u>

7.5.6.2 Channel time response

Change the enumerated list in the seventh paragraph as shown:

- 13→ PNC handover in progress
- 14→ STP expired
- ~~13-255~~~~15-254~~→ Reserved
- 255→ Other failure

8.3.4 Disassociation

After the third paragraph, add the following paragraphs:

If the DEV is STP capable, as indicated by the STP bit in its Capability IE, and is the originator of any allocated streams, it shall send an Announce command that includes the Stream Renew IE to reset the STP of all its streams. This command will also reset the ATP of the DEV.

If the DEV supports reporting the Piconet Channel Status, as defined in 8.2.3b, it should include the Piconet Channel Status IE in an Announce command sent to the PNC that is used to reset the ATP.

After the sixth paragraph, add the following paragraph:

If the DEV is disassociated, the PNC shall terminate all of the streams allocated to the disassociated DEV with its DEVID as either the SrcID or DestID. The PNC follows the process described in 8.5.1.3 except that it does not send any of the commands that would have had the disassociated DEV as the destination.

8.5.1.1 Isochronous stream creation

After the fourteenth paragraph that begins “If the target DEV is in DSPPS mode ...” add the following paragraph:

An STP capable DEV shall renew its allocated streams at least once every ATP by sending an Announce command with the Stream Renew IE to the PNC containing the stream index of every stream that the originator wants to keep. Streams that have been modified within the current ATP may be omitted from the Stream Renew IE sent during the same ATP.

8.5.1.2 Isochronous stream modification

After the eighth paragraph that begin “If the Channel Time Request command ...” add the following paragraph:

If the DEV is STP capable, a request to modify a stream will reset the STP of that stream.

8.5.1.3 Isochronous stream termination

After the fourth paragraph that begins “In the case where the PNC ...” add the following paragraph:

If the originator of a stream is STP capable, the PNC may terminate any stream that has not been renewed within the ATP of the originator of the stream. If the PNC terminates the stream, it shall use the stream termination procedure described in this subclause for the PNC terminating a stream with the Reason Code in the Channel Time Response command set to “STP expired.”

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