Standards Working Group IEEE 802.15

Wireless Personal Area Networks™
Homepage at http://ieee802.org/15

Dr. Robert F. Heile
Chair, IEEE 802.15 Working Group on Wireless Personal Area Networks
11 Louis Road
Attleboro, MA 02703
Phone: 508-222-1393
Mobile: 781-929-4832
Fax: 508-222-0515
email: bheile@ieee.org
Pager: 800-759-8888 PIN 1109355

Monday, 26 March 2001

James P. K. Gilb
Mobilian Corporation
11031 Via Frontera, Suite C,
San Diego, CA 92127 USA

Subject: IEEE P802.15.1 Letter Ballot #8 Comment Resolution Disposition, as of 15Mar01

Dear Mr. Gilb,

Thank you for participating in the Letter Ballot #8 that was held from 9Feb01 to 11Mar01. As you learned this WG letter balloted motion passed with 46/4/1 (P802-15/D0.8.0):

- There were 74 Voting members. 51 submitted their vote.
- The return ratio is 51/74 = 69 % (50 % is required) and the abstention rate was less than 30% of those voting. The ballot is valid. 23 failed to vote.
- Motion passed with 46/4/1 or 92 %.

During the recent Session #11/Hilton Head the WG LB8 Ballot Review Committee (BRC) was able to review and respond to all 377 comments. The committee has dispostioned the LB8 comments as follows:

Comment Status/Response Status	WG	You	Notes
Accepted/Closed (AC):	183	74	Please review –01/117r8 to review the committees responses to your comments: LB8 Comment Resolution DB
Accepted/Open (AO):	135	26	
Accepted/Unsatisfied (AU):	8	2	
Rejected/Closed (RC):	51	37	Please see attached extracts from –01/117r8, which describe the committees reasoning for rejecting 37 of your comments.
	377	139	

In reviewing your comments we have decided to decline 37 Rejected/Closed (RC) of your 139 comments based on the attached commentary. Additional information on your comments has been provided:

- You submitted 139 comments – the distribution is: 59 “e”, 62 “E”, 0 “t”, and 18 “T”.
- In terms of your No vote you flagged 74 as part of your No Vote or “Y’s” the remaining 65 “N’s” are not part of your No vote.
- In terms of the 37 Rejected/Closed (RC) – the distribution is: 8 “e/N”, 18 “E/Y”, and 11 “T/Y”; or 29 “E or T” are binding.

The committee has taken the actions noted above to resolve the concerns raised in your comments on this standard. We trust that this action will allow you to consider withdrawing some of your objections i.e., changing some of the 29 “Y’s” to a “N” in your LB8 vote or change some of your objections to an abstention. Please provide us with your response so that we may properly report the disposition of your comment. If a response has not been received by 8Apr01 or ~10 days, we will assume that our actions have satisfied your comments and that your objection is withdrawn.

The IEEE 802.15 Working Group for WPANs™ appreciates your interest and we look forward to your participation in the re-circulation Letter Ballot tentatively scheduled for ~9 April 2001, or sooner. For further information on LB8 status please point your browser here: http://ieee802.org/15/pub/LB8/LB8.html

Thank you for your assistance in this matter.

Sincerely,

Bob Heile, Chair 802.15

cc: Ian Gifford, Chatschik Bisdikian, Tom Siep, Mike McInnis, WG File

Attached: LB8-Gilb-RC_15Mar01.pdf

IEEE COMPUTER SOCIETY
Washington
Los Alamitos
Brussels
Tokyo

IEEE COMPUTER SOCIETY OFFICES

Headquarters Office
1730 Massachusetts Avenue, N.W.
Washington, D.C. 20036- 1992
Phone: +1-202-371-0101
Conference Department Phone: +1-202-371-1013
Conference FAX: +1-202-728-0884
Membership Information: +1-202-371-0101

Publications Office
10662 Los Vaqueros Circle
Los Alamitos, CA 90720 -1264
Phone: +1-714-821-8380
FAX: +1-714-821-4010
Publications Orders: +1-800-272-6657

European Office
13, Avenue de l'Aquilon
B-1200 Brussels, Belgium
Phone: +32-2-770-2198
FAX: +32-2-770-8505

Asian/Pacific Office
Watanabe Bldg.
1-4-2 Minami-Aoyama
Minato-ku,
Tokyo 107-0062, JAPAN
Phone: +81-3-3408-3118
FAX: +81-3-3408-3553

Voters Sequence Number e.g., 1, 2, etc.	Comment Sequence Number e.g., 1, 2, etc.	CommenterName:	Clause:	Page:	Line:	CommentType:	Part of NC Vote(Y/N)	Comment:	SuggestedRemedy:	COMMENT STATUS X/received D/dispatched for consideration A/accepted R/rejected	RESPONSE STATUS O/open W/written C/closed U/unstatisfied Z/withdrawn	Notes
7	2	Gilb, James	1.1	1	24-25	e	N	The phrase "To define PHY …" is not a complete sentence.	Make a complete sentence, perhaps adding "This scope of this standard is to define PHY …"	R	C	Paragraph 1.1 is the PAR scope.
15	9	Gilb, James	3	7	7	e	N	Extra wording, "(ACL link)"	Delete "(ACL link)"	R	C	The ACL link is the only link that supports isochronous user channel
17	11	Gilb, James	3	7	39	e	N	Extra wording, "(State Variable)"	Delete "(State Variable)"	R	C	This definition is for the Page State. Used to distinguish from page definition.
20	12	Gilb, James	3	8	13	e	N	Extra wording "(RFCOMM server)"	Delete "(RFCOMM server)"	R	C	RFCOMM server is the "another application"
83	51	Gilb, James	8.6	68	51-52	e	N	Semicolon in sentence "... by the ACL link; however, they can ..." should be a comma	Change semicolon to comma	R	C	Semicolon is correct in this sentence.
88	137	Gilb, James	8.9.1	76	16	e	N	"behaviour" it the English spelling, the proper American spelling is "behavior".	Change spelling as indicated	R	C	IEEE creates international standards. It is in our dictionary
107	97	Gilb, James	8.10.6.2	85	50	e	N	"beginnings" should be "beginning" since there is only one interval considered	Change as indicated	R	C	There are two items: "beginnings" is appropriate
108	100	Gilb, James	8.10.6.3	86	33	e	N	"With the CLKE of the slave's ..." should be "With the CLKE estimate of the slave's ..."	Change as indicated	R	C	CLKE means Clock Estimate: this would have resulted in a duplication of the term
47	186	Gilb, James	7.2	30	43	E	Y	The standard refers to Bluetooth rather than 802.15.1. While these are said to be synonymous in the introduction, the IEEE designation should be used throughout unless something is specifically Bluetooth and **not** 802.15.1	Change "Bluetooth" to 802.15.1 at this location and throughout the standard except where the reference is to Bluetooth and not 802.15.1.	R	C	Clauses 1 and 6 set forth the disclaimer about the nomenclature. We have determined that it is best to leave the term "Bluetooth" intact in the Normative sections so that one-to-one correspondence can be more easily maintained.
58	187	Gilb, James	7.4	34	28	E	Y	The paragraph beginning with "To measure ..." describes MAC, not PHY functionality and does not belong in this section. In addition, a loopback facility is not required for BER measurments in general, it is simply that BSIG has chosen this method.	Delete the paragraph	R	C	We have determined that it is best to leave the structure of the Bluetooth-derived intact in the Normative sections so that one-to-one correspondence can be more easily maintained. We agree it would have been best to have this text elsewhere in the document, but lacking an appropriate target location, we cannot do so. We do not believe that the presence this paragraph inhibits proper interpretation of the Standard.
62	189	Gilb, James	8.1	41	32ff	E	Y	The section refers to Bluetooth systems when it should refer to 802.15.1 systems	Change Bluetooth to 802.15.1 throughout the clause except where Bluetooth specific items are being referred to.	R	C	Clauses 1 and 6 set forth the disclaimer about the nomenclature. We have determined that it is best to leave the term "Bluetooth" intact in the Normative sections so that one-to-one correspondence can be more easily maintained.
67	222	Gilb, James	8.2.2	43	31	E	Y	The sentence beginning with "If a packet occupies ..." repeats information from earlier in the paragraph.	Delete the sentence	R	C	Current paragraph makes sense the way it is and does not prevent the implementor of a system from creating interoperable devices.
89	227	Gilb, James	8.9.2	76	23	E	Y	"Each RX and TX transmission is at a different hop frequency." does not clearly describe what is happening. A master TX and slave RX are at the same hop. For a given 802.15.1 device, it RX and TX are at a different hop frequency. In any event, this sentence and the sentence that follows are another repetition (not even the first) of this information.	Delete this sentence and the next one as they are repetitious, not clear and not relevant to the discussion in 8.9.2.	R	C	This paragraph talks about a single Bluetooth transceiver, thus RX and TX are implicitily on the same device.

Voters Sequence Number e.g., 1, 2, etc.	Comment Sequence Number e.g., 1, 2, etc.	CommenterName:	Clause:	Page:	Line:	CommentType:	Part of NO vote(Y/N)	Comment:	SuggestedRemedy:	COMMENT STATUS X/received D/dispatched for consideration A/accepted R/rejected	RESPONSE STATUS O/open W/written C/closed U/unstatisfied Z/withdrawn	Notes
90	228	Gilb, James	8.9.2	77	21-23	E	Y	The sentence "In figure 9.1 through 9.6 ... page response sequence frequencies" is in the wrong place (i.e. it discusses page hopping rather than connection) and refers to the wrong figure numbers.	Delete the sentence, it really confuses the discussion.	R	C	
94	229	Gilb, James	8.9.4	78	28-34	E	Y	Since the return from hold, park wake-up and sniff wake-up use the same search window, they should be described in the same section. The repeat of some (but not all) of the information in this subclause is confusing and incomplete in its description. (The capitalization in the title is wrong too and there is a space missing between sniff and modes in the first sentence, but the whole thing should be deleted anyway).	Delete 8.9.4 and add to 8.9.3 that the discussion applies to park and sniff modes wake-up.	R	C	The functions are defined seperatly to maintain focus of description. This discussion is appropriate within its context. Capital letter changes made.
96	231	Gilb, James	8.9.6	79	29	E	Y	The lost text from page 77 has found a home (see comment 90). There is no description of the differences between f(k) and f'(k) in this paragraph.	Move the sentence describing f(k) and f'(k), with corrected figure references, to this paragraph, possibly after the sentence ending "... the slave received." on line 29	R	C	The useage of these terms are defined earlier in the clause (see 8.9.2)
97	232	Gilb, James	8.9.6	79	34-40	E	Y	There are two hopping sequences used in the page/page response scenario, but the text in the paragraph only uses the term "hop frequency" without distinguising which sequence is used.	For each reference of "hop frequency" change it to to indicate if it is the "page hop freqeuncy" or "page response hop frequency" as appropriate.	R	C	Terms f(k) and f'(k) are clearly defined and implicitly indicate the hopping sequence in use.
99	234	Gilb, James	8.9.7	81	5-38	E	Y	This subclause repeats information that has been mentioned many times before in the standard and adds absolutely no new information.	Delete the subclause, possibly moving the figure to an earlier subclause where this description first appears.	R	C	Repetition of this subclause is intentional as is stated in the first sentence.
101	205	Gilb, James	8.10.3	82	50-54	E	Y	The clock accuracy requirement is repeated here instead of referencing one of the two other locations where it is defined (of course the definitions are different, so you can pick which ever one you want). Likewise the LPO accuracy is referenced here, but should be specified where the symbol accuracy is defined.	Change the listing of a +/- ppm number to a cross reference where the clock accuracy is defined.	R	C	Previous timing accuracy references refer to protocol interchanges. This referece is a suggestion about the hardware clock. These concepts are related, but not interchangable. The reference is therefor inappropriate.
102	206	Gilb, James	8.10.5	84	44	E	Y	The sentence refers to the "LPO" accuracy rather than providing a cross-reference to where the accuracy is defined.	Change "... running at the accuracy of the LPO (or better)." to "...running, potentially at a reduced accuracy as defined in ???."	R	C	
103	207	Gilb, James	8.10.6.1	85	11-13	E	Y	This paragraph is an unneccessary repeat of earlier information.	Delete paragraph as it does not add any usefule information to the discussion.	R	C	This paragraph is in the introductory part of the clause. Information is repeated advisedly.
110	211	Gilb, James	8.10.6.3	86	42-43	E	Y	Change the sentence "... the receiver ... for ID packet." to "... the receiver that issued the page ... for the ID packet."	Change as indicated	R	C	There is no ambiguity in this sentence.
111	212	Gilb, James	8.10.6.3	86	47	E	Y	The sentence "The synthesizer hop ..." is redundant, having been adequately adressed elsewhere.	Delete the sentence.	R	C	This information is provided for the convenience of the reader to improve readability.
112	213	Gilb, James	8.10.6.3	87	Table 13	E	Y	This table repeats some of the information from table 12.	Delete the column Npage from Table 12 and reference Table 12 here and Table 13 in the description for Table 12	R	C	These tables are different. Both are necessary.

Voters Sequence Number e.g., 1, 2, etc.	Comment Sequence Number e.g., 1, 2, etc.	CommenterName:	Clause:	Page:	Line:	CommentType:	Part of NO vote(Y/N)	Comment:	SuggestedRemedy:	COMMENT STATUS X/received D/dispatched for consideration A/accepted R/rejected	RESPONSE STATUS O/open W/written C/closed U/unstatisfied Z/withdrawn	Notes
113	214	Gilb, James	8.10.6.4	88	45	E	Y	The usage of page_scan here is not consistent with page scan and **page scan** elsewhere in this clause.	The best would be to use PAGE_SCAN throughout the clause (likewise for INQUIRY_SCAN and other states), otherwise page_scan without bold formatting should be used.	R	C	Term page_response does not refer to a state or sub-state.
115	216	Gilb, James	8.10.6.4.1	90	24-52	E	Y	This is the best definition of the page response state. Very little new information is given in 8.9.6 and the presentation in two different sections is confusing.	Delete section 8.9.6 and its accompanying figures (which are redundant), merge any missing ideas into section 8.10.6.4.1. Delete the sentence that begins "More details about the ..." on line 35.	R	C	8.9.6 Is a general description; it must preceed the subsequent usage explaination. The two sections, although related, they do not describe the same thing. One describes the use of the FHS packet, the other describes the behavior in that particular sub-state.
2	356	Gilb, James	Introduction	iii	23-28	T	Y	The paragraph indicates that conformance to the standard is determined only by the Bluetooth qualifcation group rather than the standard itself. Products that conform to this open standard are those which meet the requirements contained in this document, not in other closed documents determined by closed entities. Furthermore, the wording of this section allows the BT SIG to change the conformance requirements without the review of the IEEE.	Remove the paragraph or change it so that conformance is determined by the standard, rather than by a closed organization and closed document.	R	C	IEEE 802 standards do not include conformance testing, therefore this comment does not apply. The paragraph sighted is not normative.
48	315	Gilb, James	7.3	32	13-14	T	Y	This paragraph states that all page and inquiry transmission should be done at less than +4 dBm TX power. However, this negates the ability of a piconet to operate at a class 1 power level since page and inquiry are required to set up all connections. If the master scales back his power for these critical link operations, then the effective range of the piconet will be reduced to be as if the master was only Power class 2 or 3.	Either delete the Power class 1 or state that Power class 1 devices shall use the Pmax in inquiry or page.	R	C	The word, should, indicates that this paragraph contains informative text, therefore it is not binding on other sections of the specification.
50	324	Gilb, James	7.3.1	32	20	T	Y	The symbol timing accuracy is specified, but it's measurement is not. How is it measured? Is it +/- 20 ppm of ideal zero crossings of a 0101 sequence? Is it measured at the peaks? is it +/- 20 ppm of the 1 Mbaud rate? Note that the definition of timing later in the standard (section 8.9) specifies that the +/- 20 ppm is relative to 625 us rather than the symbol rate of 1 us. This is almost 3 orders of magnitude difference in the meaning of the timing accuracy.	Provide a defined method to measure the accuracy of the symbol timing and insure that it matches with the definition in section 8.9.	R	C	The comment and the suggested remedy are not consistent. The symbol timing accuracy & the slot timing accuracy are well defined but unrelated. The standard does not recommend measurement methods.
52	325	Gilb, James	7.3.2.1	33	29	T	Y	The -20 dBc requirement is for frequency offsets greater than +/- 550 kHz	Change "+/- 550 kHz" to "> +/- 550 kHz"	R	C	The preceding text specifiles a 100 KHz band around the stated frequency offset.

Voters Sequence Number e.g., 1, 2, etc.	Comment Sequence Number e.g., 1, 2, etc.	CommenterName:	Clause:	Page:	Line:	CommentType:	Part of NO vote(Y/N)	Comment:	SuggestedRemedy:	COMMENT STATUS X/received D/dispatched for consideration A/accepted R/rejected	RESPONSE STATUS O/open W/written C/closed U/unstatisfied Z/withdrawn	Notes
57	326	Gilb, James	7.3.3	34	21	T	Y	The maximum drift rate is not well defined. In an FSK system, the frequency is, by definition, always changing. The center frequency can only be inferred by observing a number of symbols and cannot be calculated instantaneously.	Provide a well defined method to measure the maximum drift rate or remove the requirement from the standard.	R	C	This clause does not attempt to set test specifications
68	332	Gilb, James	8.3.1	44	35	T	Y	The paragraph states that the ACL link is a point-to-multipoint link, it is not, rather it is a point-to-point link. Only broadcast packets are point-multipoint and are, by definition, not links.	Change the sentence from "... is a point-to-multipoint link between the master and all the slaves ..." to "... is a point-to-point link between the master and one of the slaves ..."	R	C	The statement is true in the general sense. Point to point ACL links are specified in the next sentence.
91	335	Gilb, James	8.9.2	77	30-31	T	Y	The sentence "If a trigger event ..." is true only for the Master. A slave needs to hear the packet header, but may ignore the rest of the packet if it is not addressed to it. In the case of the Master RX, the packet should be addressed to the Master (if it isn't, there is a fault in the slave) and so it can be presumed that it should listen to the entire packet.	Change the sentence to indicate that it applies to the Master's RX and that the slave (as specified elsewhere) can go to sleep if it does not see either the broadcast address or its address in the packet header.	R	C	Comment confuses CAC with AM_ADDR.
92	334	Gilb, James	8.8.2	77	38-39	T	Y	The variable N is used in the sentence, but not defined. (i.e. N is an even positive integer). This paragraph (like much of 8.9.2) repeats information found in 8.9.1 without adding any new information.	Either delete the paragraph because it adds no new information (preferred) or define N in same way it was been defined (at least twice) before when this same concept was explained.	R	C	The use of N is consistent trougout this sub-clause. May have mis-understood the slave RX burst" which is the same slot as Master TX
106	328	Gilb, James	8.10.6.2	85	47-48	T	Y	The scan windows should be required, not recommened. As it is, Bluetooth is very slow in responding to new devices, allowing devices to use smaller scan windows would make it much worse. Furthermore, it has not been shown that a smaller scan window will still allow devices to find each other. (The first page trains had a lock up condition that only came out under review. Shorter scan windows have not been analyzed).	Change recommended to required.	R	C	The text should remain as is. The choice of the page scan window size is up to the implementation, and is not appropriate to be included in the standard. The existing text makes a recommendation, which the implementer may or may not use. The end result affects the performance of the implementation, not the interoperability.
117	329	Gilb, James	8.10.6.4.1	90	43	T	Y	Is CLKN restarted when the slave is listening for the FHS packet.	This needs to be clarified with text at the end of the paragraph ending on line 43.	R	C	CLKN is the native clock and is not frozen. The values in CLKN16-12 are frozen so that they are fixed when calculating the hop frequencies.
120	330	Gilb, James	8.10.6.4.2	91	27	T	Y	Here it seems that CLKN is restarted, but it is not clear when.	Clarify when CLKN is restarted, what is state is and synchronize with explanation in section 8.10.6.4.1 (see comment 118)	R	C	CLKN is the native clock and is not stopped.