**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **DSSS block interleaver text revision** | |
| Date Submitted | [15 Mar, 2012] | |
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| Re: | [This is the proposed update to the DCN 89-02, section 19.1.2.4.x Interleaver] | |
| Abstract | [Revised text, with corrections and examples that now match the table/figures] | |
| Purpose | [If approved, pass along to technical editor to revise draft] | |
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**19.1.2.4.1 256 symbol fragment size**

If the input sequence into the interleaver is represented by

[*S*0 *S*1 *S*255]

Then the output sequence of the interleaver can be described as

[*S*0 *SN* *S*255]

The value N for the Mth output is determined as the bit-reversal of the value M.

Representing the value M as a binary representation

*M* = [*m*7 *m*6 *m*0]

where mi are the binary digits, then

*N* = [*m*0 *m*1 *m*7]

where M is incremented sequentially from 0 to 255.

For example, if M = 1 = 00000001b, then N = 10000000b = 128.

The sequence of N is shown in Table 74.

**19.1.2.4.2 384 symbol fragment size**

If the input sequence into the interleaver is represented by

[*S*0 *S*1 *S*383]

Then the output sequence of the interleaver can be described as

[*S*0 *SN* *S*383]

The value N for the Mth output is determined as the bit-reversal of the value M.

Representing the value M as a binary representation

*M* = [*m*8 *m*7 *m*0]

where mi are the binary digits, then

*N* = [*m*0 *m*1 *m*8]

where M is incremented sequentially from 0 to 511 and M' are the ordered set of M whose corresponding N is less than 384 (this is the pruning process).

For example:

When M = 1 = 000000001b, then N = 100000000b = 256.

When M = 2 = 000000010b, then N = 010000000b = 128.

When M = 3 = 000000001b, then N = 110000000b = 384, and since it is not less than 384, it would not be included in the ordered set M', that is to say it is ‘pruned’ from the result.

When M = 4 = 000000100b, then N = 001000000b = 64

The sequence of N is shown in Table 75.

**19.1.2.4.3 512 symbol fragment size**

If the input sequence into the interleaver is represented by

[*S*0 *S*1 *S*511]

Then the output sequence of the interleaver can be described as

[*S*0 *SN* *S*511]

The value N for the Mth output is determined as the bit-reversal of the value M.

Representing the value M as a binary representation

*M* = [*m*8 *m*7 *m*0]

where mi are the binary digits, then

*N* = [*m*0 *m*1 *m*8]

where M is incremented sequentially from 0 to 511.

For example, if M = 1 = 000000001b, then N = 100000000b = 256.

The sequence of N is shown in Table 76.