**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **Modified text for Annex E in D2** | |
| Date Submitted | September, 15, 2010 | |
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| Re: |  | |
| Abstract | [resolution for T-CID 76 and 396] | |
| Purpose | [Description of what the author wants P802.15 to do with the information in the document.] | |
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T-CID 76:

Work in progress (assigned to Sridhar) …  
1) Change title of annex E from FCS field to CRC field (or something like that)  
2) Move lines 6 & 7 of annex E out of annex E to clause TBD  
3) Lines 9, 13 and 21 mention FCS - the acronym FCS should be replaced by CRC.  
4) suggestion to remove example in annex E - or at least verify that the example is correct and remove specific reference to MHR  
5) question on initialization ... suggestion that all zeros is not good - what does the text specify?  
6) remove annex E entirely and just reference CRC document  
7) Need to distinguish the 16-bit CRC annex from the pending 8-bit CRC annex

T-CID 396

This CID will be resolved as part of the resolution of T-CID 76 (which is currently work in progress)  
Remove the example CRC calculation given in annex E, lines 25 to 33. This example has not been verified.

T-CID 144 (already resolved but has relevant editing instructions)

The FCS field is 2 octets in length and is explained in annex E ~~contains a 16-bit ITU-T CRC. A schematic of the CRC processing is shown in Annex E~~.  
  
The full reference should be provided in annex E, which is ITU-T V.41. Also, add ITU-T V.41 to clause 2.

Annex E CRC field

The CRC field is 2 octets in length. The CRC shall be calculated using the following standard generator polynomial of degree 16 *[add reference to ITU-T V.41]*:



The CRC shall be calculated for transmission using the following algorithm:

-- The CRC field is given by the coefficients of the remainder polynomial, *R(x)*.



Here, binary polynomials are represented as bit strings, in highest polynomial degree first order.



1. Initialize the remainder register (*r*0 through *r*15) to all ones.

2. Shift the data into the divider in the order of transmission (LSB first).

3. After the last bit of the data field is shifted into the divider, the remainder register contains the CRC.

4. The CRC is appended to the data so that *r*0 is transmitted first.