Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Superframe resolution]
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Source: [Zhou LAN(1), Chang-Woo Pyo, Fumihide Kojima, Shuzo Kato]
Company [National Institute of Information and Communications Technology (NICT)]
Address[1][3-4 Hikari-no-oka, Yokosuka-shi, Kanagawa 239-0847, Japan]
Voice[1]:[] , FAX[1]: []
E-Mail[1]:[lan@nict.go.jp]
Re: [In response to TG3c comments (IEEE P802.15-08-0020-05-003c)]
Abstract: [Comment resolutions]

Purpose: [To be considered in TG3C baseline document.]

Comment #6

-Superframe resolution-

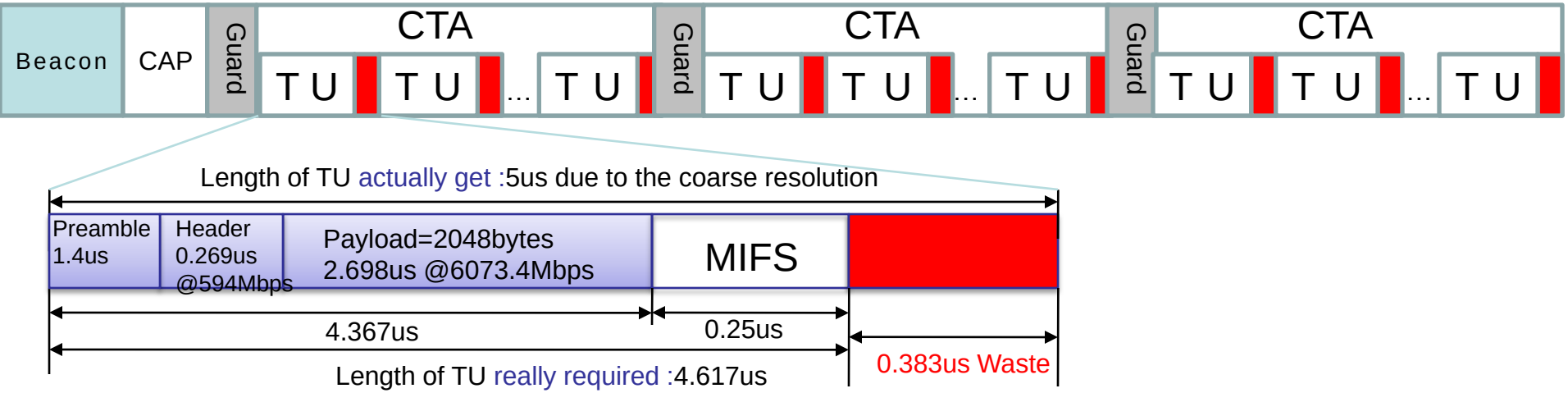
- Comment
  - Does the resolution of the superframe timing need to be less than 1*us*?”
- Answer
  - No, There is no need to change super frame resolution.

comment #x

- Comment
  - It is suggested to increase TU resolution from 1us to 160ns, frame size resolution from 1 octet to 2 octets
- Answer
  - To improve throughput of short frame transmission, A high resolution TU is suggested
  - Assuming 2Kbytes data transmission at 6Gbps, up to 10% throughput improvement can be achieved by increasing resolution from 1us to approximate 160ns (32*8 symbols) with negligible overhead in beacon

Throughput improvement by high resolution TU

- Assuming 2Kbytes data frame transmission at 6Gbps, 14% throughput improvement can be achieved if TU resolution is changed to 160*ns* (10% time of per frame transmission is wasted due to coarse TU resolution (1*us*))



This is to illustrate TU calculation method defined in section 8.4.3.7 of 802.15.3.
Not to illustrate the frame transmission in which frames can be put back to back with MIFS or SIFS in between

Overhead in beacon to support high resolution TU

- Overhead for increased resolution is negligible
  - Less than 1% superframe time is paid (Only need to extend 10.9 % beacon length to support up to 256 DEVs)