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

Submission Title: [**Comment resolution on sensitivity definition and frame length field**]

Date Submitted: []

Source: [Hiroshi Harada[1], Fumihide Kojima[1], Ryuhei Funada[1], Sum Chin Sean[1], Takaaki Hatauchi[2], Kazuyuki Yasukawa[2], Minoru Tanabe[3], Kentaro Sakamoto[4], Aiichiro Kashiwagi[5], Takahiro Banno[6], Hirohito Nishiyama[7]]

Company [[1]NICT, [2]Fuji Electric, [3]Panasonic, [4]Tokyo Gas, [5]Osaka Gas, [6]Toho Gas, [7]Mitsubishi Electric Corp.]

Address [[2]1, Fuji-machi, Hino-city, Tokyo 191-8502, Japan]

Voice:[[2]+81-42-585-6837]

FAX: [[2]+81-42-582-3692]

E-Mail:[yasukawa-kazuyuki@fujielectric.co.jp, f-kojima@nict.go.jp, harada@nict.go.jp]

Re: [In response to comment on TG4g FSK draft]

Abstract: [SFF comment resolutions]

Summary

This document provides resolution proposal from SFF on the technical comment below

- CID#4, 39, 326, 231, 315: PSDU length for sensitivity definition

- CID#7: Frame Length Field

CID#4, 39, 326, 231, 315: PSDU length for sensitivity definition

Comment (extract):

- "PSDU length of 1500 octets to validate receiver sensitivity for MRFSK is unnecessary."

Proposed Resolution:

- No change from 15.4-2006 (PSDU length = 20 octets)

Rationale:

- No standard defines its receiver sensitivity by maximum PSDU length
- Even though it is possible to send a frame with PSDU length of 1500 octets, many PHY frames only carries only small number of octets (e.g., beacon, acknowledgement, MAC command frames)

CID#7: Frame Length Field

Comment: Proposed text (from SFF) below is missing;
"In the case of the MRFSK PHY, the Frame Length field shall be formatted with the MSB to be transmitted first."
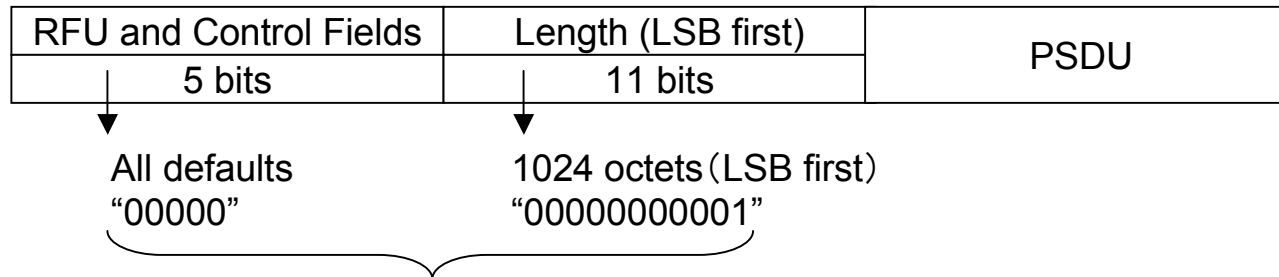
Proposed Resolution:

- add "In the case of the MRFSK PHY, the Frame Length field shall be formatted with the MSB to be transmitted first."
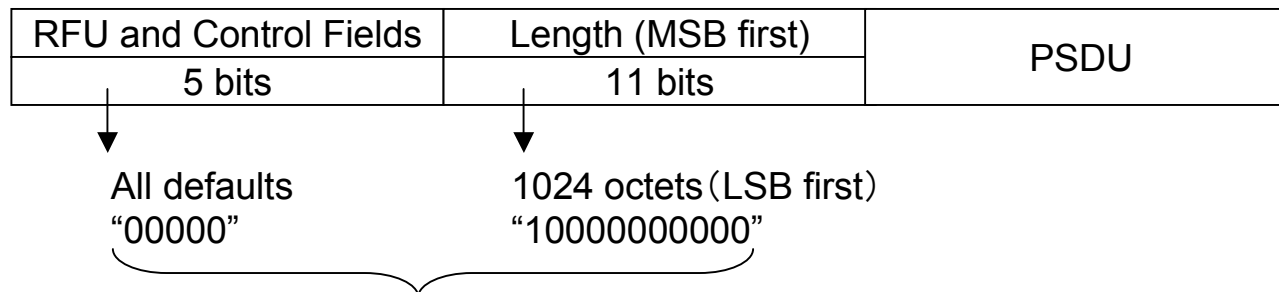
Rationale:

- Average number of consecutive zeros or ones are smaller (next slide)
- PHR will be formatted in octet-wise in practical implementation
  - 11 bit frame length field will be split into 2 octet fields
  - It seems reasonable 3 bits represents more significant bits (in the first octet) and 8 bits represents less significant bits (in the second octet)

Back-up: Frame Length Field

- Currently, PHR scrambling / <u>non-scrambling</u> is possible
- Should avoid transmitting / receiving continuous "0"s or "1"s, which could lead to bit error in FSK modem

RFU and Control Fields	Length (LSB first)	PSDU
5 bits	11 bits	

All defaults   1024 octets（LSB first）
"00000"   "00000000001"

15 bits of continuous "0"s -> should be avoided

RFU and Control Fields	Length (MSB first)	PSDU
5 bits	11 bits	

All defaults   1024 octets（LSB first）
"00000"   "10000000000"

10 bits of continuous "0"s
-> average # of consecutive zeros will be smaller
as we do not have PSDU length of 0, …, 4