

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

**Submission Title:** [Proposal for MR-FSK 4-Level Preamble and SFD Values]

**Date Submitted:** [ 20 January, 2011]

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**Re:** [TG4g Letter Ballot 59 Comment Resolution]

**Abstract:** [This proposal provides the explicit specifications of the preamble and SFD values for filtered 4-FSK.]

**Purpose:** [Technical proposal. Presented to the 802.15.4g SUN Task Group for consideration.]

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# Proposal for Filtered 4-FSK Preamble and SFD Values

20<sup>th</sup> January 2011

*Khanh Tuan Le*

# Introduction

- The preamble and SFD values for 2-level filtered FSK are explicitly defined in the IEEE P802.15.4g/D2.
- The preamble and SFD for 4-level filtered FSK are specified but the values are not explicitly defined in the draft.
- To avoid ambiguity this proposal explicitly defines the preamble and SFD values for 4-level filtered FSK based on the definitions in the IEEE P802.15.4g/D2.
- Addressing the following comments:  
CID#543 and CID#544

# Proposal for Filtered 4-FSK Preamble (1)

- 6.3a.1.1 Preamble field (page 38)

*Proposed Change:*

From

“The Preamble field shall contain phyFSKPreambleRepetitions multiples of the 8-bit sequence “01010101.””

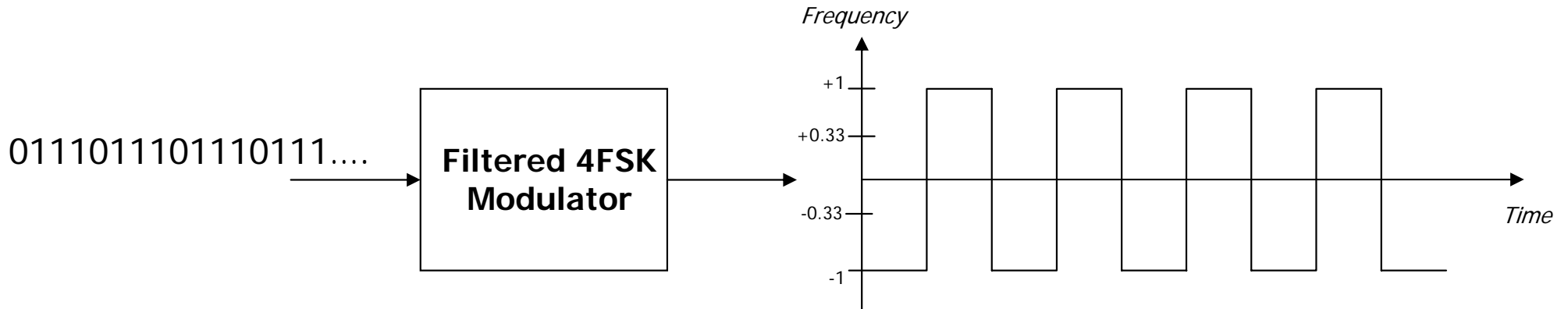
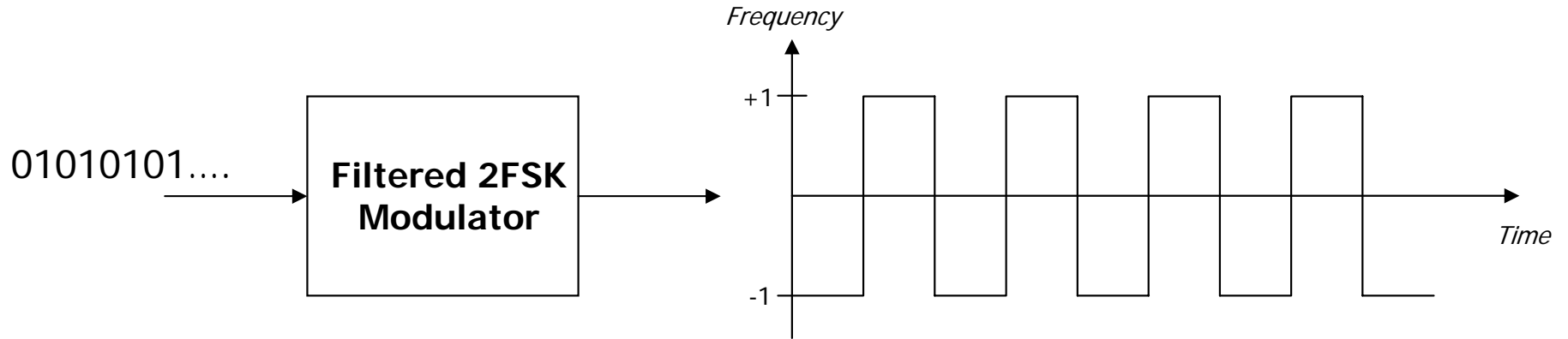
to

“The Preamble field shall contain phyFSKPreambleRepetitions multiples of the 8-bit sequence “01010101” for filtered 2-FSK.

The Preamble field shall contain phyFSKPreambleRepetitions multiples of the 16-bit sequence “0111011101110111” for filtered 4-FSK.”

- This 4-level preamble sequence is functionally the same as the 2-level preamble sequence, and both preamble sequences have eight symbols.

# Proposal for Filtered 4-FSK Preamble (2)



# Proposal for Filtered 4-FSK SFD Values (1)

- 6.3a.1.2 SFD (page 38)

*Proposed Change:*

*From*

“The SFD shall be a 2-octet sequence selected from the list of values shown in Table 29a.”

to

“The SFD for filtered 2-FSK shall be a 2-octet sequence selected from the list of values shown in Table 29a.

The SFD for filtered 4-FSK shall be a 4-octet sequence selected from the list of values shown in Table 29b.”

# Proposal for Filtered 4-FSK SFD Values (2)

- *Proposed Change (cont'd):*
  - Change “Table 29a—MR-FSK PHY SFD values for filtered 2-FSK”
  - Add “Table 29b—MR-FSK PHY SFD values for filtered 4-FSK”

**Table 29b—MR-FSK PHY SFD values for filtered 4-FSK**

	SFD value for coded (PHR+PSDU) (bits 0–31)	SFD value for uncoded (PHR+PSDU) (bits 0–31)
phySUNMRFSKSFD = 0	01 11 11 01 11 11 11 11 01 11 01 01 11 11 11 01	11 01 01 11 01 01 01 01 11 01 01 11 11 11 01
phySUNMRFSKSFD = 1	01 11 11 01 01 01 11 11 01 01 11 01 11 11 01 11	01 11 11 11 11 01 11 01 01 01 01 11 11 11 01

- Comment, not part of the proposal:  
*Please note that the 4-level SFD values in Table 29b are functionally equivalent to the 2-level SFD values in Table 29a and both have 16 symbols.*
- *Properties of the SFDs: DCNs 802.15-10-0157-01-4g and 15-10-0126-02-004g*

**Thank you.**