<h1 style="text-align:center">IEEE P802.15
Wireless Personal Area Networks</h1>

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)
Title	**Spectral mask for FSK**
Date Submitted	[September, 2010]
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Re:	[d1P802-15-4g_Draft_Standard.pdf]
Abstract	[This document describes changes to add an FSK mask to the draft.]
Purpose	[To resolve comments in LB51.]
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1. Suggested text for 802.15.4g

1.1 Comment resolution items for FSK/GFSK

1.1.1 Use FSK to mean both FSK and GFSK

This subclause resolves comments: 294, 298, 299, 300, 301, 302, 303, 306, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 379, 385, 396, 397, 398, 399, 400, 513, 514, 527, 528, 530, 531, 532, 533, 534, 536, 537, 538, 539, 540, 556, 560, 561, 562, 563, 564, 573, 574, 575, 576, 619, 620, 621, 622, 696, 701, 730, 733, 736, 739, 742.

Resolution: Accept in principle, change "GFSK" to be "FSK" throughout the document. Change "(G)FSK" to be "FSK" throughout the document, with the exceptions listed in 15-10-0331-05.

Begin changes for exceptions:

Exceptions: page 13, line 4; page 14, line 33; page 22, line 48; page 30, line 32; page 30, line 35; page 31, line 5; page 47, line 21, page 47, line 37. For those exceptions, the following changes are to be made:

Delete the footnotes, Page 13, line 4, page 14, line 33

Page 22, line 48, change the last dashed list item to two items:

— ModulationScheme indicates if it is FSK or GFSK
— FSK BT is used if the the ModulationScheme value is set to GFSK

page 47, line 21 - Change Range cell for ModulationScheme to be "FSK, GFSK, OFDM, OQPSK-DSSS, OQPSK-MDSS", Change Range cell for FSKModulationOrder to be "2-LEVEL, 4-LEVEL", change the Description cell to "The modulation order if the ModulationScheme is FSK or GFSK. Not valid for other values of ModulationScheme.".

Page 47, line 35 - Change the Description cell for FSKModulationIndex to "The modulation index if the ModulationScheme is FSK or GFSK. Not valid for other values of ModulationScheme.".

page 47, line 37 - Change FSKBT to have a Type of "Float", a Range of "0.3-1.0" and a Description of "The BT value if the ModulationScheme is GFSK. Not valid for other values of ModulationScheme.".

Note: The last rows of the Table 31a now look like those shown in Table 1:

Table 1—Elements of GenericPHYDescriptor

Name	Type	Range	Description
ModulationScheme	Enumeration	FSK, GFSK, OFDM, OQPSK-DSSS, OQPSK-MDSS	The modulation scheme of the Generic PHY entry. The remaining Generic PHY parameters are determined based on the modulation scheme.
FSKModulationOrder	Enumeration	2-LEVEL, 4-LEVEL	The modulation order if the Modulation-Scheme is FSK or GFSK. Not valid for other values of ModulationScheme.
FSKModulationIndex	Float	0.25-2.50	The modulation index if the Modulation-Scheme is FSK or GFSK. Not valid for other values of ModulationScheme..
FSKBT	Float	0.3-1.0	The BT value if the ModulationScheme is GFSK. Not valid for other values of Modula-tionScheme.

Replace subclause 6.12a.1 with the following:

The modulation for the MR-FSK PHY shall be FSK with the filtering required to meet the transmit spectral mask, as defined in 6.12a.4. If GFSK is used as the form of FSK, then the BT value shall be 0.5 for the frequency bands in Table 1a and Table 1b.

End changes for the exceptions.

1.1.2 Other FSK related comments

Comment 557 (E): Accept in principle: GFSK is defined in 802.15.4d, and so is a part of the base standard.

Comments 611, 612, 1197, 1198, 1208: Accept in principle: BT is now defined as 0.5 for GFSK and modulation, FSK or GFSK, is selected by the modulation type parameter.

1.2 Comments resolution for TX spectral mask

For comments: 332, 333, 334, 335, 336, 337, 360, 361, 362, 363, 364, 89, 390, 391, 392, 404, 405, 406, 1218, 1227, 1228, 1229, 1230, 1231, 1232.

Resolution: Accept in principle, add the new subclause below to the draft.

Changes begin here:

Add the following new subclauses to 6.12a.4.

6.12a.4.1 Transmit spectral mask

The transmit spectral content is defined as the ratio of the total transmitted out-of-channel power in a given frequency interval, compared to the total transmitted in-channel power in the same frequency interval.

In-channel and out-of-channel power shall be measured using a frequency interval equal to 1.5 R, where R is the symbol rate, expressed in units of Hertz.

Out-of-channel power shall be measured at the offset frequencies $M1 = 1.5R(1+h)$ and $M2 = 3R(1+h)$, where h is the modulation index for 2-level modulation and 3 * the modulation index for 4-level modulation. The transmit spectral content at M1 and M2 shall be less than -25dB and -35dB respectively.

The modulated signal shall use a PN data pattern.

The spectrum analyzer settings for this measurement shall be as follows: the resolution bandwidth is 1 kHz, the video bandwidth is 1 kHz or greater and the detector is RMS.

In addition, a SUN device shall also satisfy regulatory requirements applicable to the transmit spectral mask.

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