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Re Task Group 15 4g	17
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Abstract This document is a draft of an amendment for Clause 5, containing	20
the parts of the OEDM PHV	21
the parts of the OFDM FITT.	22
Dum and Daview	23
Pulpose Review	25
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Draft	54

5. General description

5.1 Introduction

Change the last paragraph of 5.1 as indicated:

In addition, <u>threetwo</u> optional PHYs are specified. A UWB PHY with optional <u>precision range finding</u>, <u>ranging is one option while</u> a <u>2450 MHz</u> CSS PHY, <u>and a scalable OFDM PHY</u> operating in the <u>2450 MHz</u> band is the second. <u>As a further addition, an optional OFDM PHY is specified</u>.

5.2 Components of the IEEE 802.15.4 WPAN

5.3 Network topologies

5.4 Architecture

- 5.4.1 Physical layer (PHY)
- Insert the following text to the end of the first dashed list in 5.4.1:
- Insert the following paragraph after the dashed list:

In addition to the unlicensed bands specified, the OFDM radio may also operate using TV white spaces.

- 5.4.1.1 Advantages of the UWB PHY for LR-WPAN
- 5.4.1.2 Advantages of the CSS (2450 MHz) PHY for LR-WPAN
- 5.4.1.3 UWB band coexistence
 - Insert the following subclause after 5.4.1.3:

5.4.1.3a Advantages of the OFDM PHY for LR-WPAN

The OFDM PHY uses a scalable FFT so that the OFDM Symbol Time and OFDM Frequency Subcarrier spacing can be maintained "constant" irrespective of the Bandwidth Option that is chosen. Bandwidth scaling from 1MHz down to less than 100KHz is achieved in this fashion by scaling the FFT options from 128 point FFT down to 8 point. Because of this, the OFDM Physical layer definition is "RF Band Agnostic". OFDM is a spectrally efficient modulation with RF robustness and performance and is adaptable to multiple regulatory considerations.

- 5.4.2 MAC sublayer
- - Insert the following text after the second paragraph:

5.5 Functional overview	12
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5.5.1 Superframe structure	5
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	, 8
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5.5.2 Data transfer model	10
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5.5.2.1 Data transfer to a coordinator	14
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	17
5.5.2.2 Data transfer from a coordinator	18
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	20
	21
5.5.2.3 Peer-to-peer data transfers	22
	23
Insert the following paragraph at the end of 5.5.2.3:	24
	25
5.5.3 Frame structure	26
	27
5.5.3.1 Beacon frame	20
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Insert the following figure (Figure 10a) after Figure 10:

Figure 10a shows the structure of the beacon frame and the OFDM PHY packet.



Figure 10a—Schematic view of the beacon frame and the OFDM PHY packet

5.5.3.2 Data frame

Insert the following figure (Figure 11a) after Figure 11:



1 2 3

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5.5.3.4 MAC command frame

Insert the following figure (Figure 13a) after Figure 13:

		Octets:	2 1	4 to 20	0, 5, 6, 10, or 14	1	n	2 or 4
MAC ublaver			Frame Sequence Control Number	Addressing Fields	Auxiliary Security Header	Command Type	Command Payload	FCS
Oct	ets: PHY dependent	12 or 5		MHR	+ (4 to 34)	MAC	Payload	MFR
PHY	Preamble Frame	of Frame				• •		
layer	Sequence Delimit	Reserved				ad		
			(see clause	e 6) + 7 + (4 t	o 34) + <i>n</i>	au		
Figu	ure 13d—Schen	natic view c	of the MAC co	ommand f	ame and	the OF	OM PHY pa	acket
Figure 1	3a shows the strue	cture of the M	IAC command	frame and t	he OFDM	PHY pac	ket.	
5.5.4 In	nproving proba	bility of suc	cessful deliv	very				
5.5.4.1	CSMA-CA mec	hanism						
5.5.4.2	ALOHA mecha	nism for the	e UWB device	9				
5.5.4.3	Frame acknow	ledgment						
5.5.4.4	Data verificatio	'n						
5.5.4.5	Enhanced robu	istness feat	ures for the	UWB PHY				
Insert th	he following new s	subclause aft	er 5.5.4.5:					
5.5.4.5a	a Enhanced rob	oustness fea	atures for the	OFDM PI	łY			
The OF This enh	DM PHY was sp nanced robustness	ecifically des is a result of	igned to provio several PHY fe	de enhance atures:	1 robustne	ss for LR	-WPAN ap	plications
— 1 ı	The use of a cycl ander harsh multig	ic prefix and oath condition	frequency dou	main equali	zation pro	vides ver	y robust pe	erformance
— / 1	A forward error c nultipath conditio	correction (FI	EC) system pro	ovides flexi	ble and ro	bust perf	formance u	nder harsh
—] I	The use of freque ratio conditions.	ncy domain s	spreading prov	ides robust	performar	ice even i	in low sign	al-to-noise
5.5.5 P	ower consumpt	tion conside	erations					

5.5.5 Power consumption considerations