IEEE P802.11bb
Wireless LANs

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| Proposed text for introduction subclause for LC PHY |
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**Abstract**

This document contains the proposed text input for the subclause to introduce the LC PHY for the TGbb draft D0.5.

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32.3.2 LC PHY modes

The LC PHY can be operated in three principal modes, referred to as LC Common mode, LC HE mode and 3 LC Optimized mode.

The LC Common mode (CM) is transmitted in the wavelength range between 800 and 1000 nm in single input single-output (SISO) operation. In the LC Common mode, data subcarriers are modulated using BPSK, QPSK, 16-QAM, or 64-QAM. Forward error correction (FEC) is based on convolutional coding with code rate of ½, 2/3, or 3/4. The LC Common mode provides support for 20 MHz bandwidth only.

The LC High Throught (HT) mode is transmitted in the wavelength range between 800 and 1000 nm. In the LC HT mode, data subcarriers are modulated using BPSK, QPSK, 16-QAM, and 64-QAM. FEC coding (convolutional coding) is used with a coding rate of 1/2, 2/3, 3/4, or 5/6. LDPC codes are added as an optional feature. The LC HT mode provides support for 20 MHz and 40 MHz contiguous channel widths.

The LC Very High Throught (VHT) mode is transmitted in the wavelength range between 800 and 1000 nm. In the LC VHT mode, data subcarriers are modulated using BPSK, QPSK, 16-QAM, 64-QAM, and 256-QAM. FEC coding (convolutional or LDPC coding) is used with coding rates of 1/2, 2/3, 3/4, and 5/6. The LC VHT mode PHY provides support for 20 MHz, 40 MHz, 80 MHz, and 160 MHz contiguous channel widths and support for 80+80 MHz noncontiguous channel width.

The LC High Efficiency (HE) mode is transmitted in the wavelength range between 800 and 1000 nm. In the LC HE mode, data subcarriers are modulated using BPSK, BPSK DCM, QPSK, QPSK DCM, 16-QAM, 16- QAM DCM, 64-QAM, 256-QAM and 1024-QAM. Forward error correction (FEC) coding (convolutional or LDPC coding) is used with coding rates of 1/2, 2/3, 3/4 and 5/6. The LC HE mode provides support for 20 MHz and 40 MHz, 80 MHz and 160 MHz contiguous channel widths, 80+80 MHz non contiguous channel width.

The LC Optimized (LCO) mode is transmitted between 380 nm and 1000 nm. In the LC optimized mode, 15 data subcarriers are modulated using 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 bits per symbol and forward error 16 correction (FEC) coding is used based on LDPC with code rates of 1/2, 2/3, 5/6, 16/18 and 20/21. The LC 17 optimized mode provides support for 50 MHz, 100 MHz and 200 MHz contiguous channel width. The LC 18 optimized mode supports adaptive bitloading and distributed MIMO natively.

32.3.2.1 Channel numbering

32.3.2.1.1 Channelization for LC CM PHY mode

The LC CM PHY shall operate at a center frequency of 26 MHz. The CM bandwidth shall be 20 MHz.

32.3.2.1.2 Channelization for the other PHY modes

Channel center frequencies are defined at every integer multiple of 5 MHz above the channel starting frequency. The relationship between center frequency and channel number is given in Equation (1)

Channel center frequency = Channel starting frequency + 5 x nch (MHz) (1)

where nch = 1,…, 61 and Channel starting frequency = 21 MHz.

32.3.2.2 Regulatory Requirements

This subclause should be the same as 32.3.3.4.3 (Regulatory Requirements).