IEEE P802.11
Wireless LANs

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| Draft Spec Text for Section 33.1 (Introduction) |
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Abstract

This submission contains spec text for Sec. 33.1 (Introduction) to be incorporated in P802.11bd D0.1. The text reflects the related passed motions recorded in 11-19/0514r10.

Revisions:

* Rev 0: Initial version of the document.

*---------------------Below is the proposed clause 33.1 Introduction-----------------*

33. Next Generation V2X (NGV) PHY specification

33.1 Introduction

33.1.1 Introduction to the NGV PHY

Clause 33 (Next Generation Vehicle-to-Everything (NGV) PHY specification) specifies the PHY entity for an NGV
orthogonal frequency division multiplexing (OFDM) system. In addition to the requirements in Clause 33
(Next Generation V2X (NGV) PHY specification), an NGV STA shall be capable of transmitting and receiving
PPDUs that are compliant with the mandatory requirements of the following PHY specification:

* Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification)

The NGV PHY is mainly based on the VHT PHY defined in Clause 21 (Very High Throughput (VHT) PHY specification), which in turn is based on the HT PHY defined in Clause 19 (High Throughput (HT) PHY specification), which in turn is further based on the OFDM PHY defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification). The NGV PHY preamble structure, dual-carrier modulation (DCM), and mid-amble structure are based on the HE PHY defined in Clause 28 (High Efficiency (HE) PHY specification).

The NGV PHY provides support for both 10 MHz and 20 MHz contiguous channel widths. The NGV PHY data subcarrier frequency spacing is a half of VHT PHY and HT PHY subcarrier frequency spacing defined in Clause 21 (Very High Throughput (VHT) PHY specification) and Clause 19 (High Throughput (HT) PHY specification,
respectively.

The NGV PHY data subcarriers are modulated using binary phase shift keying (BPSK), BPSK dual-carrier
modulation (DCM), quadrature phase shift keying (QPSK), 16-quadrature amplitude modulation (16-QAM), 16-QAM DCM, 64-QAM, and 256-QAM. The NGV PHY preamble is encoded by convolution code and the NGV PHY data payload are encoded by LDPC.

The NGV PHY supports the regulatory requirements in xx.yy.zz (Regulatory requirements).

An NGV PHY shall support the following features:

* Round trip time (RTT) based ranging using 10 and 20 MHz bandwidth PPDUs
* TBD
* TBD

An NGV PHY shall support the following features:

* Transmission and reception of single user (SU) MIMO with 2 spatial streams
* TBD
* TBD

**33.1.2 Scope**The services provided to the MAC by the NGV PHY consist of the following protocol functions:

a) A function that maps the PSDU received from the MAC into a PPDU for transmission to one or more receiving STAs.
b) A function that defines the characteristics and method of transmitting and receiving data through a wireless medium between two or more STAs. Depending on the PPDU format, these STAs support a mixture of NGV and Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PHYs.

**28.1.3 NGV PHY functions**

 **28.1.3.1 General**The NGV PHY contains two functional entities: the PHY function, and the physical layer management function (i.e., the PLME). Both of these functions are described in detail in 33.3 (NGV PHY) and 33.4 (NGV PLME). The NGV PHY service is provided to the MAC through the PHY service primitives defined in Clause 8 (PHY service specification). The NGV PHY service interface is described in 33.2 (NGV PHY service interface).

**28.1.3.2 PHY management entity (PLME)**The PLME performs management of the local PHY functions in conjunction with the MLME.

**28.1.3.3 Service specification method**The models represented by figures and state diagrams are intended to be illustrations of the functions provided. It is important to distinguish between a model and a real implementation. The models are optimized for simplicity and clarity of presentation.

The service of a layer is the set of capabilities that it offers to a user in the next higher layer. Abstract services are specified here by describing the service primitives and parameters that characterize each service. This definition is independent of any particular implementation.