IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| AMP PHY Introduction | | | | |
| Date: 2025-07-28 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Nelson Costa | HaiLa Technologies |  |  | nelson@haila.io |
| Amichai Sanderovich | Wiliot |  |  |  |

Abstract

This document contains Proposed Draft Text (PDT) for the AMP PHY Introduction of the proposed 11bp (AMP, Ambient Power) amendment to the 802.11 standard.

Revision information

The following is a summary of the important changes that occurred within each revision of this document:

|  |  |
| --- | --- |
| **Revision** | **Major changes** |
| 0 | Initial revision |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Introduction

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbp Draft. The abstract, revision information, introduction, explanation of the proposed changes and references sections are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbp Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

## Explanation of the proposed changes:

The proposed changes to the 802.11 TGbp draft within this document are based on the following motions adopted by the TGbp task group:

### Relevant passing motions [1]:

* There are no related motions.

Text to be adopted begins here:

***TGbp editor: Please add the following subclauses to AMP PHY Clause 40, as part of the 802.11bp draft D0.1:***

# 40. Ambient Power (AMP) PHY specification

## 40.1 Introduction to the AMP PHY

This clause specifies the PHY entity for an Ambient Powered (AMP) system operating in the 2.4 GHz and sub-1 GHz bands.

For each operating band, the AMP PHY is described separately in the downlink and uplink directions. Here, the downlink direction generally refers to communications from an AMP AP to a non-AP AMP STA or an AMP-enabled non-AP STA using AMP downlink (DL) PPDUs. The uplink direction generally refers to communications in the opposite direction using AMP uplink (UL) PPDUs.

The AMP PHY describes different modulation techniques in the uplink and downlink.

* On-Off Keyed (OOK) communication in the downlink, with Manchester encoded OOK used in the data field.
* Backscatter communications in the uplink using OOK modulation and Manchester encoding in the data field.
* Polled-only active transmit communications in the uplink using OOK modulation and Manchester encoding in the data field.

OOK modulation is based on a carrier waveform. In the 2.4 GHz band, AMP defines a wideband waveform. In the sub-1 GHz band, AMP defines a continuous wave (CW) waveform.

For backward compatibility with legacy receivers, the preamble of the AMP DL PPDU includes a non-AMP portion.

## 40.3 AMP PHY (2.4GHz)

### 40.3.1 Introduction

This subclause describes the AMP PHY in the 2.4 GHz band. It describes the uplink and downlink PPDU formats. As part of the description of the transmitter, this subclause defines the wideband carrier used for OOK modulation. It outlines the AMP preamble, including the non-AMP portion used for backward compatibility. It describes the modulation and coding scheme used for the data portions of the uplink and downlink PPDUs.

## 40.4 AMP PHY (Sub-1 GHz)

### 40.4.1 Introduction

This subclause describes the AMP PHY in the sub-1 GHz bands. It describes the uplink and downlink PPDU formats. As part of the description of the transmitter, this subclause defines the wideband carrier used for OOK modulation. It outlines the AMP preamble, including the non-AMP portion used for backward compatibility. It describes the modulation and coding scheme used for the data portions of the uplink and downlink PPDUs.

Text to be adopted ends here.

**References:**

1. [11-24/1613r10](https://mentor.ieee.org/802.11/dcn/24/11-24-1613-10-00bp-specification-framework-for-tgbp.docx): 11-24-1613-10-00bp-specification-framework-for-tgbp, Yinan Qi (OPPO)