IEEE P802.11  
Wireless LANs

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| MAC-PDT-CR for 37.11.5 | | | | |
| Date: 2025-06-25 | | | | |
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Abstract

This document contains comment resolutions for the following CIDs related to ELR.

* 1252, 3645, 1127.

Rev 0: Initial version of the document

Rev 1: Revised version that accounts for suggestions received from members.

Rev 2: Added some technical considerations and accounted for additional suggestions received from members.

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| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 1252 | Morteza Mehrnoush | 37 |  | Define the required procedures that the control frame could be sent in ELR PPDU format. | As in comment. Commentor will bring a contribution on this | Revised –  Agree in principle. Defined the required procedures for this case.  TGbn editor to make the changes shown in 11-25/0915r3 under all headings that include CID 1252. |
| 3645 | Alfred Asterjadhi | 37.3.1 | 67.45 | Need to also call out explicitly the rules for the case of ICF/ICR combinaitons. Also the ELR procedure for ack is not really TBD but rather the PPDU selection procedure is to be defined. Hence need to add the rules for ELR to PPDU selection procedure | As in comment. | Revised –  Agree in principle. Defined the required procedures for this case.  TGbn editor to make the changes shown in 11-25/0915r3 under all headings that include CID 3645. |
| 1127 | Dong Guk Lim | 38.3.8 | 116.20 | An ELR PPDU can be used as response frames such as ACK, BA, and etc, corresponding to the DL PPDU which is transmitted using an equal or larger than 80MHz. So, we need to define how the ELR PPDU is transmitted in the larger bandwidth than 20MHz when it is used as a response frame. | The Commenter will provide the resolution for this. | Revised –  Agree in principle. Defined the required procedures for this case.  TGbn editor to make the changes shown in 11-25/0915r3 under all headings that include CID 1127. |
| 1202 | Dong Guk Lim | 9.4.2.aa2.3 | 61.35 | The ELR PPDU was not included in the UHR PHY Capabilities Information field. It should be added in this field. | Define the ELR PPDU subfield in the UHR PHY Capabilities Information field | Revised –  Agree in principle. Added respective capabilities.  TGbn editor to make the changes shown in 11-25/0915r3 under all headings that include CID 1202. |

**Discussions:** *The proposed draft text mainly relies on behaviors that were defined in 11ax for HE ER SU PPDUs and in addition accounts for feedback from PHY members to have two separate capabilities (one in TX and one in RX) for the generation and the reception of ELR PPDUs. In addition, the STA can dynamically enable/disable the reception of ELR PPDUs in a similar fashion with what we did for HE ER SU PPDUs (except that the containers for such enablement/disablement are different from those of HE ER SU PPDUs and more in alignment with the protocols being defined for UHR.*

***TGbn editor: Insert the following definition:***

**enhanced long range (ELR) physical layer (PHY) protocol data unit (PPDU):** [ELR PPDU]A PPDU transmitted with ELR PPDU format. This PPDU carries a single PHY service data unit (PSDU).*[#1252, 3645, 1127]*

**37.4 UHR BSS operation**

***TGbn editor: Insert the following subclause:***

**37.4.2 Enhanced long range (ELR) operation***[#1252, 3645, 1127]*

A UHR STA shall not transmit an ELR PPDU to a peer UHR STA if any of the following conditions are true:

* Dot11EnhancedLongRangeTxActivated is equal to false,
* The ELR Tx Support field transmitted in its UHR Capabilities element is equal to to 0,
* The STA is an AP and is operating in either the 5 GHz band or 6 GHz band,
* The peer UHR STA has set the ELR Rx Support field to 1 in its UHR Capabilities element,
* The peer UHR STA has enabled the reception of ELR PPDUs, either by following the procedure defined in 37.Y(Procedure for operating mode and parameter updates) if the peer STA is an AP or by following the procedure defined in 37.X (Procedure for operating mode and parameter updates) if the peer STA is a non-AP STA,

Otherwise, the UHR STA may transmit an ELR PPDU to the peer STA subject to the requirements described below.

A UHR STA that intends to transmit an ELR PPDU shall ensure that:

– The TXVECTOR parameters STA\_ID, UPLINK\_FLAG, and TXOP\_DURATION are set as defined in 37.11.1 (Setting TXVECTOR parameters for a UHR PPDU),

– The TXVECTOR parameter BSS\_COLOR is set to the nonzero value of the BSS Color subfield of the most recently received HE Operation element exchanged within the BSS

* The TXVECTOR parameter MCS indicates either UHR-MCS0 or UHR-MCS1 unless the ELR PPDU carries a control response frame in which case the TXVECTOR parameter MCS indicates UHR-MCS0.
* The PPDU is transmitted in the primary 20 MHz of the BSS except when the ELR PPDU contains a Control frame that is sent in response to a PPDU that does not contain a triggering frame

– The frame(s) carried in the ELR PPDU shall be individually addressed to the peer STA.

NOTE–The value 0 for the TXVECTOR parameter BSS\_COLOR is disallowed for ELR PPDUs (i.e., only the active BSS color can be used). This applies to all transmitted ELR PPDUs, including those that are transmitted prior to association.

A UHR STA that responds to an ELR PPDU shall use CBW20 for the PPDU that carries the response frame.

An UHR STA shall send Control frames following the rules defined in 10.6.6 (Rate selection for Control frames) with the following exceptions:

* A Control frame sent by an UHR STA in response to an ELR PPDU that does not contain a triggering frame should be carried in an ELR PPDU unless the most recent non-TB PPDU sent by the UHR STA to the recipient of the Control frame, after association, was not an ELR PPDU. In this case the Control frame should be carried in a non-HT PPDU.
* A Control frame sent by an UHR STA in response to an UHR PPDU or a non-HT PPDU that does not contain a triggering frame should be carried in a non-HT PPDU, unless the most recent non-TB PPDU sent by the UHR STA to the recipient of the Control frame, after association, was an ELR PPDU. In this case the Control frame should be carried in an ELR PPDU, unless other conditions, which may be out of scope of the standard, apply.
  + The channel bandwidth of the PPDU that elicited the response frame may be greater than 20 MHz only if the UHR STA that sent the Control frame is a non-AP STA
  + If the Control frame carried in the ELR PPDU is sent in response to a PPDU that is sent in the NPCA primary channel then the ELR PPDU should be sent in the NPCA primary channel; otherwise, the ELR PPDU shall be sent in the primary 20 MHz of the BSS.
* A Control frame may be carried in an ELR PPDU if the Control frame is not solicited by another frame and is not a Trigger frame.

NOTE 1—A change in the format of the PPDU containing the control response frame (between non-HT and ELR PPDU) occurs in subsequent TXOPs. A STA, which solicits a control response frame from a responding STA, is expected to account for the PPDU format of the control response frame to calculate the expected duration of the TXOP. The responding STA determines that the most recent PPDU sent to the soliciting STA is received if it receives an immediate acknowledgment by the soliciting STA in response to the PPDU. If a non-AP STA has switched to the ELR PPDU format for the control response frames then the associated AP can choose to allocate appropriate RU sizes (to close the power imbalance gap for the solicited TB PPDUs in a similar way as for ELR PPDUs) within subsequent Trigger frames addressed to the non-AP STA.*[#1252, 3645, 1127]*

**C.3 MIB Detail**

***TGbn editor: Insert the following in the dot11StationConfigEntry:***

Dot11StationConfigEntry ::= SEQUENCE

{

dot11StationIDMacAddress,

…

dot11EnhancedLongRangeTxActivated TruthValue,*[#1252, 3645, 1127]*

}

***TGbn editor: Insert the following in the dot11StationConfig TABLE:***

dot11EnhancedLongRangeTxActivated OBJECT-TYPE*[#1252, 3645, 1127]*

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

*"*This is a control variable.

It is written by an external management entity.

Changes take effect as soon as practical in the implementation.

This attribute, when true, indicates that the ability of the STA to transmit ELR PPDUs is enabled. If the attribute is false, the STA does not transmit ELR PPDUs*."*

::= { dot11StationConfigEntry <ANA> }

* UHR Capabilities element
* UHR PHY Capabilities Information field

The format of the UHR PHY Capabilities Information field is defined in Figure9-aa7 (UHR PHY Capabilities Information field format).

***TGbn editor: Insert the following two entries to the figure below:***

|  |  |  |  |
| --- | --- | --- | --- |
|  | B*(last assigned)* | B (lastassigned+1) | B(lastassigned+2) |
|  | … | ELR Rx Support*[#1252, 3645, 1127, 1202]* | ELR Tx Support*[#1252, 3645, 1127, 1202]* |
| Figure 9-aa7 UHR PHY Capabilities Information field format | | | | |

***TGbn editor: Insert the following two rows to the table below:***

|  |  |  |
| --- | --- | --- |
| * Subfields of the UHR PHY Capabilities Information field (continued) | | |
| Subfield | Definition | Encoding |
| … | … |  |
| ELR Rx Support | Indicates whether reception of enhanced long range (ELR) PPDUs is supported. | Set to 1 to indicate that reception of ELR PPDUs is supported.  Set to 0 otherwise.*[#1252, 3645, 1127]* |
| ELR Tx Support | Indicates whether transmission of ELR PPDUs is supported. | Set to 1 to indicate that transmission of ELR PPDUs is supported.  Set to 0 otherwise.*[#1252, 3645, 1127]* |