IEEE P802.11
Wireless LANs

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| MAC-PDT-CR for 37.11.5 |
| Date: 2025-04-10 |
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Abstract

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

* 1252, 3645, 1127.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **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 11-25/0915r0 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 11-25/0915r0 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 11-25/0915r0 under all headings that include CID 1127. |

***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 with dot11EnhancedLongRangeImplemented equal to true may transmit an ELR PPDU to an UHR AP if the UHR AP has set the ELR Support field to 1 in the most recently transmitted UHR Capabilities element and the AP has enabled reception of ELR PPDUs.

A UHR STA with dot11EnhancedLongRangeImplemented equal to true may transmit an ELR PPDU to another UHR peer STA if the peer STA has set the ELR Support field to 1 in the most recently transmitted UHR Capabilities element and the peer STA has enabled reception of ELR PPDUs.

A UHR STA shall not transmit an ELR PPDU to a peer STA if the UHR Capabilities element received from that STA has the ELR Support field equal to 0.

A UHR STA shall not transmit an ELR PPDU to a peer non-AP STA if the peer non-AP STA has disabled the reception of ELR PPDUs.

A UHR STA shall not transmit an ELR PPDU to an UHR AP if the AP has disabled the reception of ELR PPDUs.

A UHR non-AP STA that supports the reception of ELR PPDUs and that intends to enable the reception of ELR PPDUs shall follow the procedure defined in 37.X (Procedure for operating mode and parameter updates).

A UHR STA that transmits an ELR PPDU shall use a rate that is either ELR MCS-0 or ELR MCS-1 unless the ELR PPDU carries a control response frame in which case the rate shall be ELR MCS-0.

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

– The PPDU is transmitted in the primary 20 MHz of the BSS,

– The STA\_ID, UPLINK\_FLAG, and TXOP\_DURATION are set as defined in 26.11 for HE ER SU PPDUs,

– The BSS\_COLOR is set to the value of the BSS Color subfield of the most recently received HE Operation element exchanged within the BSS (i.e., BSS\_COLOR of 0 is disallowed for ELR PPDUs (i.e., only the active BSS color can be used))

– The frame(s) carried in the ELR PPDU shall be individually addressed to the peer STA and the frame may be a control frame if the control frame is not solicited by another frame or if the control frame is not a trigger frame.

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 as a 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, unless other conditions apply.
* A Control frame sent by an UHR STA as a 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 apply.
* A control response frame may be sent in an ELR PPDU if the channel bandwidth of the PPDU containing the frame that elicited the response is greater than 20 MHz, the PPDU does not contain a triggering frame, and the most recent non-TB PPDU sent by the non-AP STA to the recipient of the control frame is an ELR PPDU.

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 that 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.

NOTE 2—A STA does not transmit a Control frame in an ELR PPDU to a receiving STA unless the receiving STA indicates that ELR PPDU reception is enabled.*[#1252, 3645, 1127]*

**C.3 MIB Detail**

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

Dot11StationConfigEntry ::= SEQUENCE

{

dot11StationIDMacAddress,

…

dot11EnhancedLongRangeImplemented TruthValue,*[#1252, 3645, 1127]*

}

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

dot11EnhancedLongRangeImplemented OBJECT-TYPE*[#1252, 3645, 1127]*

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

*"This is a capability variable.*

*Its value is determined by device capabilities.*

*This attribute, when true, indicates the ability of the STA to support enhanced long range. If the attribute is false, the STA does not support enhanced long range."*

::= { dot11StationConfigEntry <ANA> }

* UHR Capabilities element
* General

A STA declares that it is a UHR STA by transmitting the UHR Capabilities element.

The UHR Capabilities element contains a number of fields that are used to advertise the UHR capabilities of a UHR STA. The UHR Capabilities element is defined in Figure9-aa4 (UHR Capabilities element format).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Element ID | Length | Element ID Extension | UHR MAC Capabilities Information | UHR PHY Capabilities Information |
| Octets: | 1 | 1 | 1 | TBD | TBD |
| * UHR Capabilities element format
 |

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

The UHR MAC Capabilities Information, UHR PHY Capabilities Information are defined in the subclauses below.

* UHR MAC Capabilities Information field

The format of the UHR MAC Capabilities Information field is defined in Figure9-aa5 (UHR MAC Capabilities Information field format). [TBD]

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 | B1 | B2 | B4 | B5 |  BY  | B7 Bx |
|  | DPS Support | DPS Assisting Support | Multi-Link Power Management | NPCA Supported | BSR Enhancement Support | ELR Support*[#1252, 3645, 1127]* | Reserved |
| Bits: | 1 | 1 | 1 | 1 | 1 | 1 | 2 |
| * UHR MAC Capabilities Information field format
 |

The subfields of the EHT MAC Capabilities Information field are defined in Table9-130a (Subfields of the UHR MAC Capabilities Information field).

|  |
| --- |
| * Subfields of the UHR MAC Capabilities Information field (continued)
 |
| Subfield | Definition | Encoding |
| DPS Support | Indicates whether or not DPS is supported | Set to 1 if dot11DynamicPowerSaveSupport is true (see 37.9.1 (Dynamic power save (DPS) operation)).Set to 0 otherwise. |
| DPS Assisting Support | Indicates whether or not the transmission of an ICF for DPS is supported | Set to 1 if dot11DynamicPowerSaveAssistingSupport is true (see 37.9.1 (Dynamic power save (DPS) operation)).Set to 0 otherwise. |
| Multi-Link Power Management Support | Indicates whether or not the multi-link power management is supported | For an AP MLD Set to 1 if the AP MLD supports the reception of frames with the multi-link power management signal. Set to 0 otherwise.For a non-AP MLD Set to 1 if the non-AP MLD supports the transmission of frame with multi-link power management signal. Set to 0 otherwise. |
| NPCA Supported | Indicates whether NPCA operation is supported | Set to 1 to indicate that NPCA operation is supported.Set to 0 to indicate that NPCA operation is not supported. |
| BSR Enhancement Support | For an AP, indicates support for receiving a frame with a BSR Enhancement field. For a non-AP STA, indicates support for transmitting a frame with a BSR Enhancement field. | Set to 1 if supported.Set to 0 otherwise. |
| ELR Support | Indicates whether enhanced long range (ELR) is supported. | Set to 1 to indicate that ELR is supported.Set to 0 to indicate that ELR is not supported.*[#1252, 3645, 1127]* |