IEEE P802.11  
Wireless LANs

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| Draft examples of a proposed notation for frame exchange sequence sequences in Annex G of 802.11-2020 | | | | |
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Abstract

This submission provides a draft example of a proposed Appendix G that describes frame exchange sequences in a format that is suggested as a replacement for ENBF notation. Below is the suggested new draft text for discussion:

This Annex contains normative, high-level descriptions of frame exchange sequences, with references to Clauses where more details are explained. This Annex does not provide details regarding the purpose of frame exchange transmissions, or the use cases or scenarios that govern these transmissions. Refer to the relevant Clauses for the detailed frame exchange rules that govern these sequences.

The following tables are overview descriptions of the frame exchange sequences that are allowed by this standard. In the tables, the following are the elements of the syntax:

**Initiating STA**  a STA that transmits the initial frame in a frame exchange sequence

**Responding STA** a STA that receives the initial frame in a frame exchange sequence

**{ a }** a is repeated zero or one time.

**[ a ]** a is repeated one or more times.

**n{ a }** a is repeated n times. For example, 3{a} is equal to “a a a”.

**n+{ a }** a is repeated n or more times. For example, 3+{a} requires 3 or more “a”.

**a|b|c|...** selection between mutually exclusive alternatives, a, b, c ....

**< >** order of frames not relevant. For example, <a b> is either “a b” or “b a”.

**(+ a )** field a is included in the frame, or subfield a included in the field.

***Attributes.***The name of attributes are shown in *italic*. An attribute is introduced by the ‘+’ character.

— A direction arrow indicates the order in which frames are transmitted on a given line. ---> indicates the frame to the left of the arrow is transmitted first, and the frame to the right of the arrow is transmitted second. <--- indicates the frame to the right of the arrow is transmitted first, and the frame to the left of the arrow is transmitted second. In some circumstances, there is no frame transmitted second on a given line. For those circumstances, the second frame is omitted.

***[EDITORIAL NOTE: At this point, Table G-1 is included by reference]***

**G.2 General Frame Exchange Sequences**

**G.2.1 MPDU and A-MPDU Frame Exchange Sequences**

The MPDU and A-MPDU Frame Exchange Sequences are templates for all frame exchange sequences where:  
a) the initiating STA transmits an MPDU or A-MPDU, such as a Data frame, or  
b) the initiating STA transmits a PS-Poll frame

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**G.2.2 MMPDU Frame Exchange Sequences**

The MMPDU Frame Exchange Sequences are templates for all frame exchange sequences where the initiating STA transmits an MMPDU, such as a Beacon frame.

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**G.2.3 Contention-Free Data Frame Exchange Sequences**



**G.2.4 Block Ack Frame Exchange Sequences**



**G.2.5 MU acknowledgement procedure**



**G.3 Specific Frame Exchange Sequences**

The Specific Frame Exchange sequences included in this clause are intended to describe the details of MPDUs and A-MPDUs that appear in the frame exchange sequence templates of Clause G.2.

**G.3.1 AKM Operations Frame Exchange Sequences**







**G.3.2 Spectrum management or radio measurement Frame Exchange Sequences**



**G.3.3 TDLS direct-link**



**G.3.4 TDLS peer U-APSD (TPU)**



**G.3.5 TDLS channel switching**



**G.3.6 Event request**



**G.3.7 Diagnostic request**



**G.3.8 Location configuration request**



**G.3.9 Location track notification**



**G.3.10 Fine Timing measurement (FTM)**



**G.3.11 BSS transition management**



**G.3.12 FMS setup**



**G.3.13 Collocated interference request**



**G.3.14 TFS setup**



**G.3.15 WNM sleep mode request**



**G.3.16 TIM broadcast setup**



**G.3.17 QoS traffic capability update**



**G.3.18 Channel Usage request**



**G.3.19 DMS or GCR procedures**



**G.3.20 DMS or GCR procedure**



**G.3.21 SCS procedure**



**G.3.22 On-channel Tunneling operation**



**G.3.23 MU acknowledgement procedure**



**G.3.24 Reverse direction (RD)**



**G.3.25 Link adaptation**



**G.3.26 HT transmit beamforming**



**G.3.27 CMMG transmit beamforming**



**G.3.28 Antenna selection**



**G.3.29 NDP sounding**



**G.3.30 NDP sounding for CMMG**



**G.3.31 VHT**



**G.3.32 Preassociation Delivery Frame Exchange Sequences**



**G.3.33 GLK-GCR Frame Exchange Sequences**

The GLK-GCR includes the GCR frame exchanges, except   
a) for DMS Request and DMS Response frame exchange  
b) for ADDBA Request/Response frame exchange  
c) Unsolicited DMS Response frame for "GCR Advertise"



**G.3.33 GLK-GCR Frame Exchange Sequences**

