

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [Comment resolution on the color function support]

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Re: [Response to the SB 1st recirculation for the IEEE 802.15.7 standard]

Abstract: [This document describes the comment resolution on the color function support.]

Purpose: [To resolve the SB 1st recirculation comments related to the color function support]

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Comment resolution on the color function support

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Purpose

- 16 comments classified into visual indication
- All comments classified into visual indication are assigned to Walewski.
- 12 comments relate to 5.1.12 and its subclause.
- *11 comments fully relates to 5.1.12 and its subclause.*
- Only 1 comment partially relates to 5.1.12.

11 comments related to 5.1.12 and its subclause.

5, 80, 81, 82, 83, 84,

85, 313, 314, 316, 317

Comment No.5

Com ment No.	Name	Page	Subcla use	Line	Comment	Proposed Change
5	Lim, Sang- Kyu	68	5.1.12. 3	7	"FER #1 <= FER <= FER #2"	Change "FER #1 <= FER <= FER #2" to ""FER #1 <= FER < FER #2" to avoid double use of "=" for the FER #2.

Table 6—Color table for channel quality indication

Color of CVD frame	Channel quality
Color "A"	current FER < FER #1
Color "B"	FER #1 ≤ FER ≤ FER #2
Color "C"	current FER ≥ FER #2

Comment No.5 (*cont.*)

Resolution

- Accept

Instruction to editor

- Change "**FER #1 <= FER <= FER #2**" in Table 6 on page 69 to "**FER #1 <= FER < FER #2**"

Comment No.80

Comment No.	Name	Page	Subclause	Line	Comment	Proposed Change
80	Walewski, Joachim	67	5.1.12.2	29	Sloppy grammar?	Replace "receives some data" with "receives data"

Comment No.80 (cont.)

5.1.12.2 CVD frame usage for acknowledgment indication

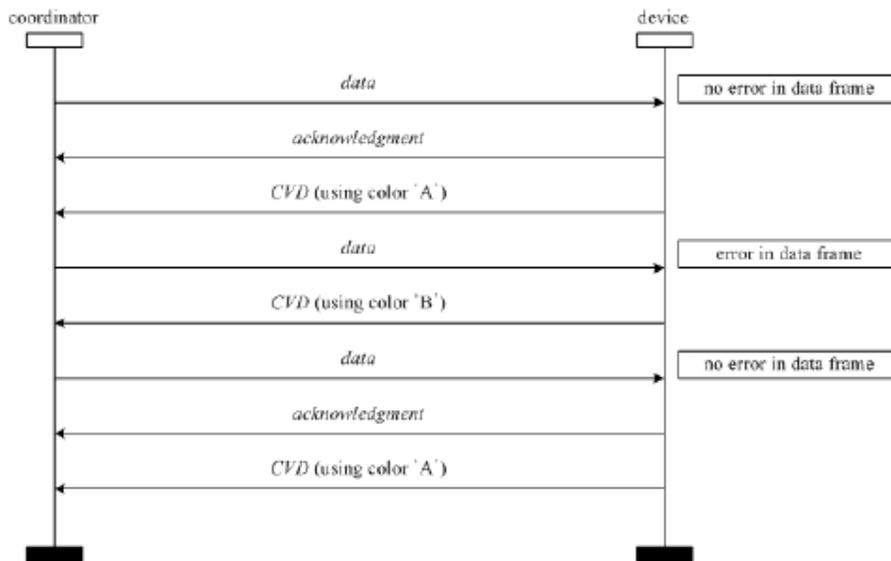
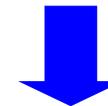


Figure 36—CVD frame usage for acknowledgment indication

Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not. According to Figure 36, the device sends the CVD frame after the ACK frame has been sent. The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors. The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame. The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

- Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not.



- Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not.

Comment No.80 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change “Figure 36 shows an example of how the user can infer whether a receiver successfully receives **some** data or not.” on line 29, page 67 to “ Figure 36 shows an example of how the user can infer whether a receiver successfully receives ~~**some**~~ data or not.”

Comment No.81

Com ment No.	Name	Page	Subclau se	Line	Comment	Proposed Change
81	Wale wski, Joach im	67	5.1.12 .2	30	Uneven style.	Replace "According to Figure 36, the device sends the CVD frame after the ACK frame has been sent." with "According to THIS FIGURE, the device sends A CVD frame ..." (Capitals: my emphasize.)

Comment No.81 (cont.)

5.1.12.2 CVD frame usage for acknowledgment indication

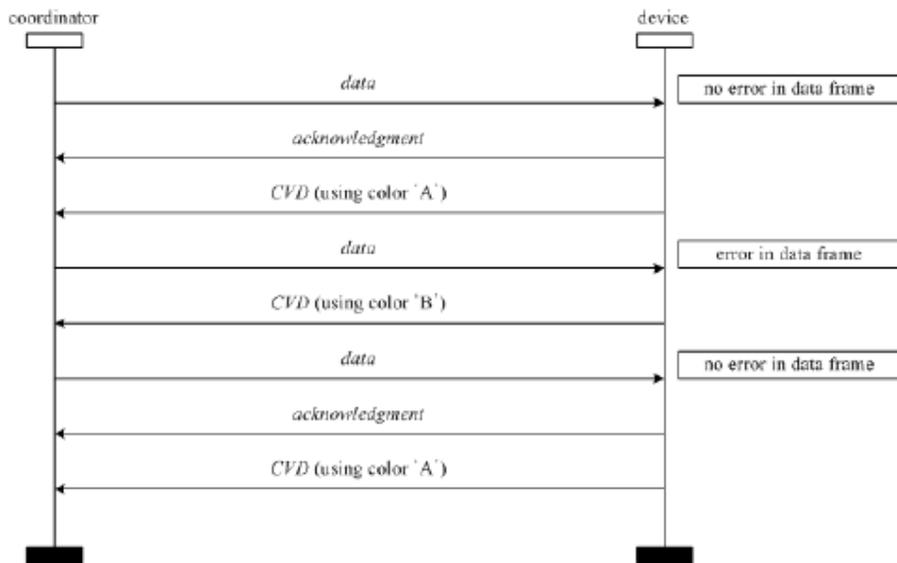


Figure 36—CVD frame usage for acknowledgment indication

Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not. According to Figure 36, the device sends the CVD frame after the ACK frame has been sent. The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors. The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame. The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

- According to Figure 36, the device sends the CVD frame after the ACK frame has been sent.



- According to this figure, the device sends a CVD frame after the ACK frame has been sent.

Comment No.81 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change “According to **Figure 36**, the device sends **the CVD** frame after the ACK frame has been sent.” on line 30, page 67 to “According to **this figure**, the device sends **a CVD** frame after the ACK frame has been sent.”

Comment No.82

Com ment No.	Name	Page	Subcla use	Line	Comment	Proposed Change
82	Wale wski, Joach im	67	5.1.12 .2	31	Sloppy grammar?	Replace "received data has some errors" with "received data has errors".

Comment No.82 (cont.)

5.1.12.2 CVD frame usage for acknowledgment indication

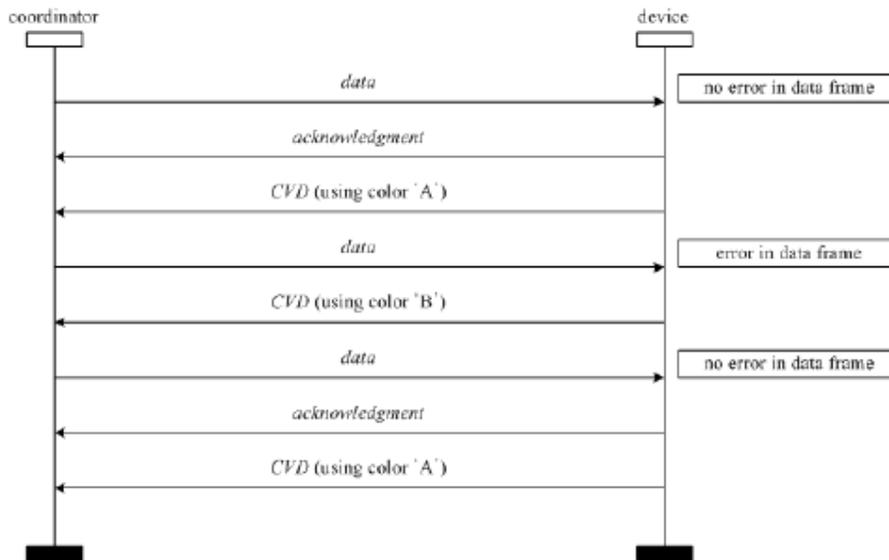
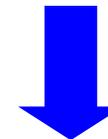


Figure 36—CVD frame usage for acknowledgment indication

Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not. According to Figure 36, the device sends the CVD frame after the ACK frame has been sent. The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors. The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame. The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

- The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors.



- The CVD frame can indicate that the received data has ~~some~~ errors or is error-free, based on the choice of colors.

Comment No.82 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change "The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors." on line 31, page 67 to " The CVD frame can indicate that the received data has ~~some~~ errors or is error-free, based on the choice of colors."

Comment No.83

Com ment No.	Name	Page	Subcla use	Line	Comment	Proposed Change
83	Wale wski, Joach im	67	5.1.12 .2	32	How can the CVD frame use anything: "the color function for the ACK state indication is used by the CVD frame"	Change wording. Example: "the color of the CVD frame is set according to the ACK-state indication"

Comment No.83 (cont.)

5.1.12.2 CVD frame usage for acknowledgment indication

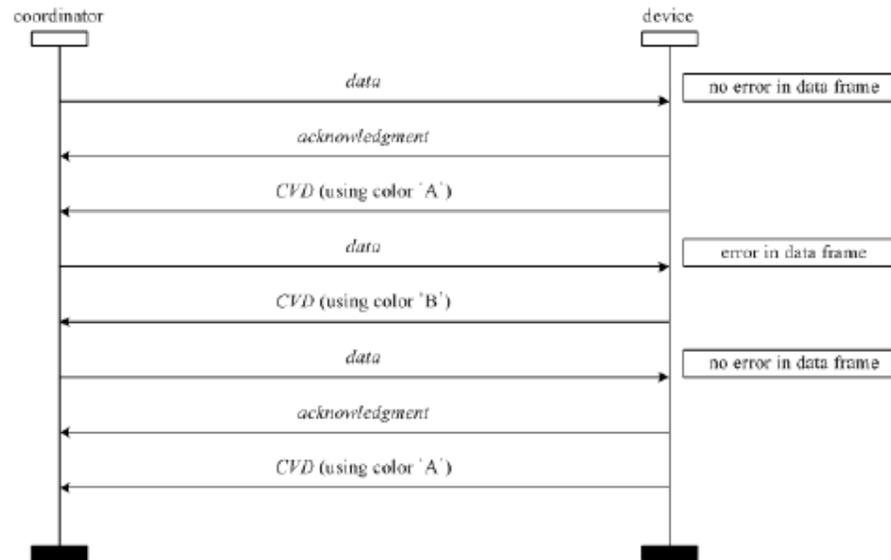


Figure 36—CVD frame usage for acknowledgment indication

Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not. According to Figure 36, the device sends the CVD frame after the ACK frame has been sent. The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors. The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame. The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

Comment No.83 (*cont.*)

- The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame.



Commentor's recommendation

- The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color of the CVD frame is set according to the ACK-state indication.



Our recommendation

- The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is achieved by the CVD frame.

Comment No.83 (*cont.*)

□ Resolution

- Principle

□ Instruction to editor

- Change "The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is **used** by the CVD frame." on line 33, page 67 to " The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is **achieved** by the CVD frame."

Comment No.84

Comment No.	Name	Page	Subclause	Line	Comment	Proposed Change
84	Walewski, Joachim	67	5.1.1 2.2	33	I simply do not comprehend the last sentence of this paragraph.	Rewrite sentence so that it makes sense. I offer to draft a resolution in concert with the authors of the paragraph.

Comment No.84 (cont.)

5.1.12.2 CVD frame usage for acknowledgment indication

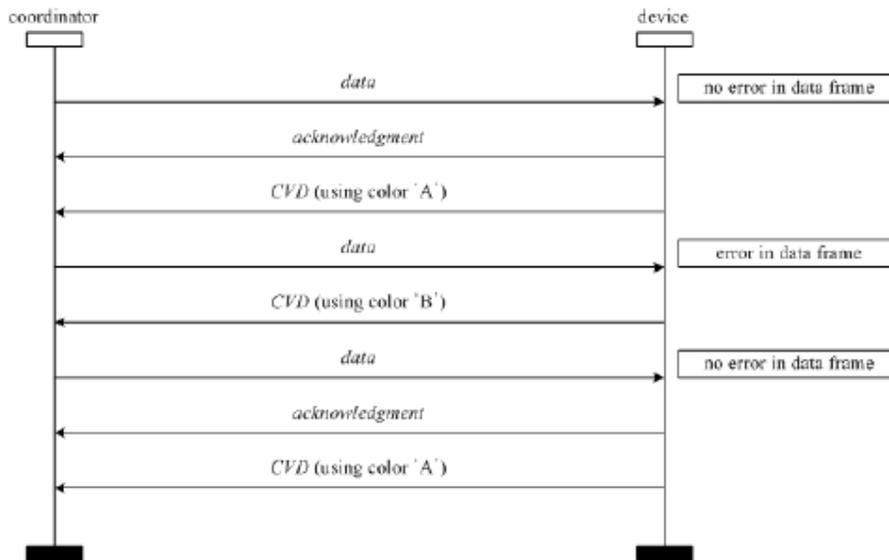


Figure 36—CVD frame usage for acknowledgment indication

Figure 36 shows an example of how the user can infer whether a receiver successfully receives some data or not. According to Figure 36, the device sends the CVD frame after the ACK frame has been sent. The CVD frame can indicate that the received data has some errors or is error-free, based on the choice of colors. The MAC PIB attribute, *macColorReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is sent and the color function for the ACK state indication is used by the CVD frame. The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

**Last sentence
in this paragraph**

- The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is used by the CVD frame.

Comment No.84 (*cont.*)

4 cases within the ACK state indication

- An ACK frame is sent to the other device, but a NACK frame is not sent to the other device in IEEE 802.15.7 draft.
 - So, we can say what an ACK frame is not sent means the NACK state
1. An ACK frame is sent and a CVD frame to show ACK state is sent.
 2. An ACK frame is sent but a CVD frame to show ACK state is **not sent**.
 3. An ACK frame is not sent and a CVD frame to show NACK state is **not sent**.
 4. An ACK frame is not sent but a CVD frame to show NACK state is sent.

Comment No.84 (*cont.*)

- We don't need the color assignment of the CVD frame for 2nd case or 3rd case because the CVD frame, itself, is not sent in these cases.
- *MacColorReceived* is used for the color assignment of the CVD frame for 1st case.
- *MacColorNotReceived* is used for the color assignment of the CVD frame for 4th case.
- The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is ~~used~~ **achieved** by the CVD frame.

Comment No.84 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change "The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is **used** by the CVD frame." on lines 34 to 36, page 67 to "The MAC PIB attribute, *macColorNotReceived* as shown in Table 59, is used for the color assignment of the CVD frame when the ACK frame is not sent but the color function for the non-ACK state indication is ~~used~~ **achieved** by the CVD frame."

Comment No.85

Com ment No.	Name	Page	Subcl ause	Line	Comment	Proposed Change
85	Wale wski, Joach im	68	5.1.1 2.4	42	Confusing indication of a qualifying sentence, while the sentence actually is not qualifying.	Replace "For example, in order to use ..." with "In order to use ..."

Comment No.85 (cont.)

5.1.12.4 CVD frame usage for file-transfer status indication

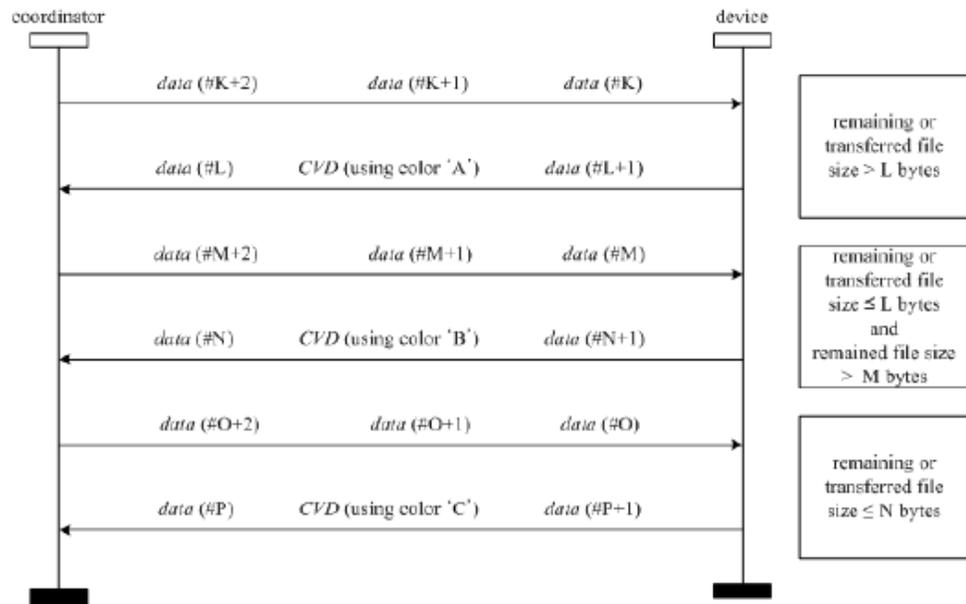


Figure 37—Example of MSC for CVD frame usage for file-transfer status indication

- For example, in order to use this indication the device needs to know the total file size to be transmitted.
- ↓
- In order to use this indication the device needs to know the total file size to be transmitted.

Figure 37 shows an example of how the user can infer the remaining or transferred file size through the color of the CVD frame. As shown in the example of Figure 37, the coordinator transfers files to the device. Different stages of the file transfer process can be represented with different choices of colors. For example, in order to use this indication the device needs to know the total file size to be transmitted. The remaining file size can be obtained by subtracting the transferred file size from the total file size. The MAC PIB attribute, *macCFAppColor* as shown in Table 59, is used for the color assignment of the CVD frame when the CVD frame is sent to indicate the application-dependent information, such as the file-transfer status.

Comment No.85 (*cont.*)

Resolution

- Accept

Instruction to editor

- Change " **For example, in order to use this indication** the device needs to know the total file size to be transmitted." on line 42 in page 68 to "**In order to use this indication**, the device needs to know the total file size to be transmitted."

Comment No.313

Com ment No.	Name	Page	Subcla use	Line	Comment	Proposed Change
313	Wale wski, Joach im	66	5.1.12 .1	11	This sentence reads rather awkwardly.	Replace "using a chosen color." with "and indicates this to the user with a chosen color."

Comment No.313 (cont.)

For example, the device sends an association request to the coordinator (see Figure 35) using a chosen color.
 This information about the color choice is communicated using the MLME-ASSOCIATE.request primitive as in 6.3.1.1.

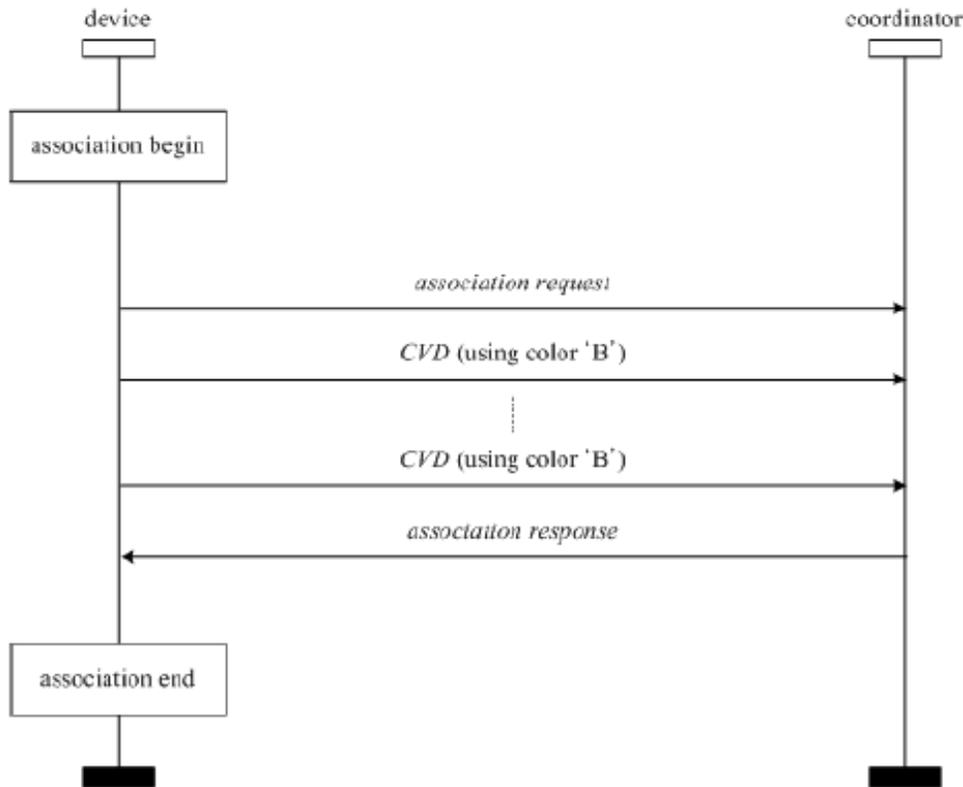
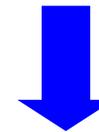


Figure 35—Example of CVD frame usage MSC for association

- For example, the device sends an association request to the coordinator (see Figure 35) using a chosen color.



- For example, the device sends an association request to the coordinator (see Figure 35) and indicates this to the user with a chosen color.

Comment No.313 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change "For example, the device sends an association request to the coordinator (see Figure 35) **using a chosen color.**" on line 11 in page 66 to "For example, the device sends an association request to the coordinator (see Figure 35) **and indicates this to the user with a chosen color.**"

Comment No.314

Com ment No.	Name	Page	Subcla use	Line	Comment	Proposed Change
314	Wale wski, Joach im	66	5.1.1 2.1	42	This Figure caption reads rather awkwardly.	Replace "Example of CVD frame usage MSC for association! with "MSC for association when color- function-support is invoked."

Comment No.314 (cont.)

For example, the device sends an association request to the coordinator (see Figure 35) using a chosen color. This information about the color choice is communicated using the MLME-ASSOCIATE.request primitive as in 6.3.1.1.

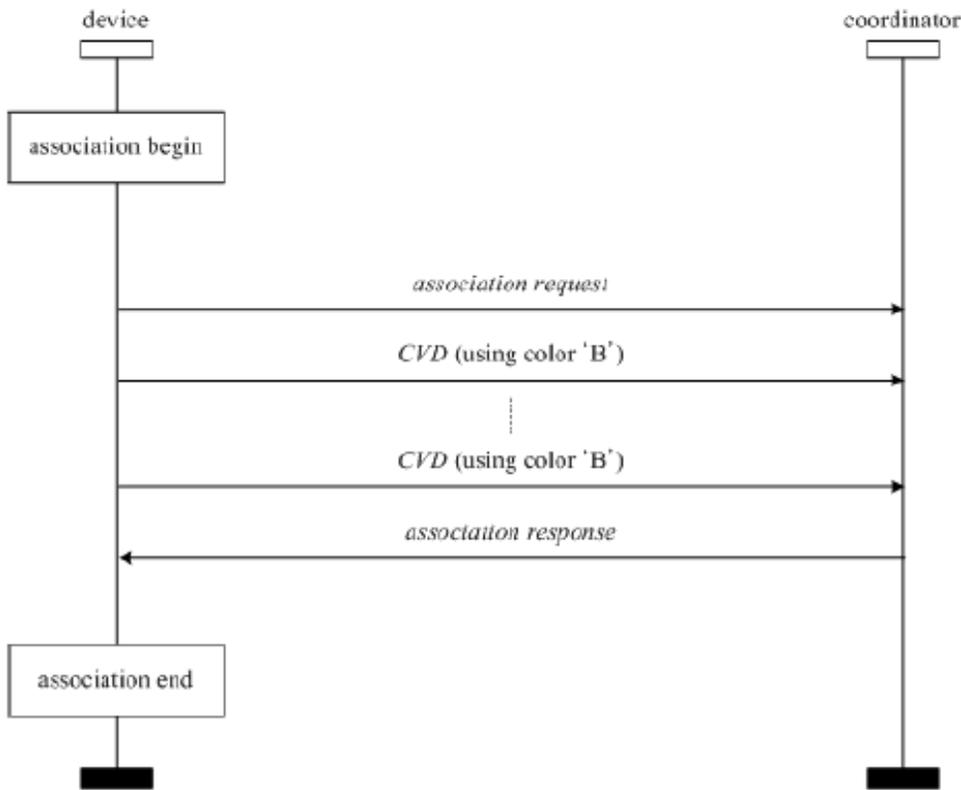


Figure 35—Example of CVD frame usage MSC for association

- Figure 35—Example of CVD frame usage MSC for association
↓ Commentor's recommendation
- Figure 35—MSC for association when color-function-support is invoked
↓ Our recommendation
- Figure 35—MSC when color function for association indication is invoked

Comment No.314 (*cont.*)

□ Resolution

- Principle

□ Instruction to editor

- Change “Figure 35—Example of CVD frame usage MSC for association” on line 42, page 66 to “Figure 35—**MSC when color function for association indication is invoked**”

Comment No.316

Com ment No.	Name	Page	Subclau se	Line	Comment	Proposed Change
316	Wale wski, Joach im	67	5.1.12 .3	42	This sentence reads rather awkwardly.	Delete "in order to choose the color of the CVD frame." (superfluous information!)

5.1.12.3 CVD frame usage for channel quality indication

Table 6 describes how the user can infer the quality of the data transmission or the communication quality through the CVD frame. The communication quality may be obtained by various metrics. For example, FER statistics can be averaged over multiple frames ~~in order to choose the color of the CVD frame~~. The *ppdu-LinkQuality* of 9.3.3 (PD-DATA.indication) can also be used for this purpose. This information can help provide misalignment indication to the user. Different colors can be used to indicate different states of misalignment. For example, green, blue, and red CVD frames can be used to visualize low, middle, and high data rates respectively. The choice of the colors and the data rate range is left to the implementer and is out of scope of the standard.

Comment No.316 (*cont.*)

□ Resolution

- Accept

□ Instruction to editor

- Change “For example, FER statistics can be averaged over multiple frames **in order to choose the color of the CVD frame.**” on line 42, page 67 to “For example, FER statistics can be averaged over multiple frames ~~in order to choose the color of the CVD frame.~~”

Comment No.317

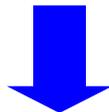
Comment No.	Name	Page	Subclause	Line	Comment	Proposed Change
317	Walewski, Joachim	67	5.1.12.3	45	Non-intuitive color choice and order	Replace "green, blue, and red" with "red, yellow, and green"

Comment No.317 (*cont.*)

5.1.12.3 CVD frame usage for channel quality indication

Table 6 describes how the user can infer the quality of the data transmission or the communication quality through the CVD frame. The communication quality may be obtained by various metrics. For example, FER statistics can be averaged over multiple frames in order to choose the color of the CVD frame. The *ppdu-LinkQuality* of 9.3.3 (PD-DATA.indication) can also be used for this purpose. This information can help provide misalignment indication to the user. Different colors can be used to indicate different states of misalignment. For example, green, blue, and red CVD frames can be used to visualize low, middle, and high data rates respectively. The choice of the colors and the data rate range is left to the implementer and is out of scope of the standard.

- For example, green, blue, and red CVD frames can be used to visualize low, middle, and high data rates respectively.



- For example, red, yellow, and green CVD frames can be used to visualize low, middle, and high data rates respectively.

Comment No.317 (*cont.*)

Resolution:

- Accept

Instruction to editor

- Change "For example, green, blue, and red CVD frames can be used to visualize low, middle, and high data rates respectively." on line 45, page 67 to "For example, red, yellow, and green CVD frames can be used to visualize low, middle, and high data rates respectively."