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Title	**Clarifications on Cooperative Diversity Configuration message**
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Re:	This is in response to the call for comments
Abstract	Clarifications on Cooperative Diversity Configuration for RS (RS-CDC) message
Purpose	Review and adopt
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Clarifications on Cooperative Diversity Configuration message

Introduction

In the cooperative relaying scheme, RS_CDC is used to notify RS of the configuration for cooperative diversity. However, no acknowledgement mechanism is currently specified and the MR-BS does not know whether the RS has correctly received the message. This contribution clarifies the response mechanism for the Cooperative Diversity Configuration message.

Specification changes – REMEDY 1

[Change the following rows in Table 38 in section 6.3.2.3 as follows]

Table 38 – MAC Management messages

Type	Message name	Message description	connection
67	RS_CDC-REQ	RS cooperative diversity configuration request	Basic
XX	RS_CDC-RSP	RS cooperative diversity configuration response	Basic

[Change subclause 6.3.2.3.62 as follows]

6.3.2.3.62 Cooperative diversity configuration for RS request (RS-CDC-REQ) message

An RS-CDC-REQ is sent by a MR-BS to an RS to configure the cooperative diversity mode.

Table 109z—RS-CDC-REQ message format

Syntax	Size	Notes
RS-CDC-REQ_Message_Format() {		
Management Message Type=67	8 bits	
Antenna Assignment	4 bits	Bit#0: Antenna #0 Bit#1: Antenna #1 Bit#2: Antenna #2 Bit#3: Antenna #3
Reserved	4 bits	shall be set to zero
}		

An MR-BS shall generate RS-CDC-REQ message in the form shown in Table 109z. The parameters shall be effective in STC DL zones where STC is not “0b00” in the corresponding STC_DL_Zone_IE.

Antenna Assignment
Indicates which antenna the corresponding RS should play the role of. For example, if this field is a 0b1000, the relay station shall be playing the role of Antenna #0. As another example, in case the RS has two antennas and this field is 0b1100, two antennas of the RS shall take the roles of Antenna #0 and #1. Each antenna will transmit pilots based on the permutation number of antennas as indicated in STC_DL_Zone_IE and antanna assignment. The MR-BS shall indicate the effective number of antennas being used for cooperative relaying.

In a STC_DL Zone where STC is not 0b00, the RS shall take data from the BS and perform local STC encoding as specified by its antenna assignment(s) and STC Matrix in use as defined by STC_DL_Zone_IE, MIMO DL Basic IE, or MIMO DL Enhanced IE.

[Insert the following subclause into section 6.3.2.3]

6.3.2.3.xx Cooperative diversity configuration for RS response (RS-CDC-RSP) message

After successfully receiving the RS-CDC-REQ message, the RS shall transmit the RS-CDC-RSP message on its basic CID to the MR-BS to acknowledge that it received information about the cooperative diversity configuration.

Table XX RS-CDC-RSP message format

Syntax	Size	Note
RS-CDC-RSP_Message_Format() {		
Management Message Type (TBD)	8 bits	
}		

The RS-CDC-RSP shall contain the following TLVs:
HMAC/CMAC Tuple (see 11.1.2)
The HMAC/CMAC Tuple attribute contains a keyed message digest (to authenticate the sender).
The HMAC Tuple attribute shall be the final attribute in the RS-CDC-RSP message.

[Change the following paragraph in section 8.4.8.10 as follows]

In a STC DL Zone with STC not set to “0b00”, the RS shall perform STC encoding locally by using the STC Matrix as defined by STC_DL_Zone_IE (or MIMO DL Basic IE or MIMO DL Enhanced IE) for its assigned antenna number(s) as indicated in RS-CDC-REQ, and shall not forward an incorrectly decoded burst to its subordinate stations. Figure ~~ZZZ~~323a is an example of local STC encoding at the RS.

Specification changes – REMEDY 2

[Change the following rows in Table 38 in section 6.3.2.3 as follows]

Table 38 – MAC Management messages

Type	Message name	Message description	connection
67	RS_CDC-REQ	RS cooperative diversity configuration request	Basic

[Change subclause 6.3.2.3.62 as follows]

6.3.2.3.62 Cooperative diversity configuration for RS request (RS-CDC-REQ) message

An RS-CDC-REQ is sent by a MR-BS to an RS to configure the cooperative diversity mode. The RS shall use the generic ACK message as defined in 6.3.2.3.xx to acknowledge that it received information about the cooperative diversity configuration.

Table 109z—RS-CDC-REQ message format

Syntax	Size	Notes
RS-CDC-REQ_Message_Format() {		
Management Message Type=67	8 bits	
Transaction ID	16 bits	
Antenna Assignment	4 bits	Bit#0: Antenna #0 Bit#1: Antenna #1 Bit#2: Antenna #2 Bit#3: Antenna #3
Reserved	4 bits	shall be set to zero
}		

An MR-BS shall generate RS-CDC-REQ message in the form shown in Table 109z. The parameters shall be effective in STC DL zones where STC is not "0b00" in the corresponding STC_DL_Zone_IE.

Transaction ID
Unique identifier set by the sender for identifying this transaction.

Antenna Assignment
Indicates which antenna the corresponding RS should play the role of. For example, if this field is a 0b1000, the relay station shall be playing the role of Antenna #0. As another example, in case the RS has two antennas and this field is 0b1100, two antennas of the RS shall take the roles of Antenna #0 and #1. Each antenna will transmit pilots based on the permutation number of antennas as indicated in STC_DL_Zone_IE and antanna assignment. The MR-BS shall indicate the effective number of antennas being used for cooperative relaying.

In a STC_DL Zone where STC is not 0b00, the RS shall take data from the BS and perform local STC encoding as specified by its antenna assignment(s) and STC Matrix in use as defined by STC_DL_Zone_IE, MIMO DL Basic IE, or MIMO DL Enhanced IE.

[Change the following paragraph in section 8.4.8.10 as follows]

In a STC DL Zone with STC not set to "0b00", the RS shall perform STC encoding locally by using the STC

Matrix as defined by STC_DL_Zone_IE (or MIMO DL Basic IE or MIMO DL Enhanced IE) for its assigned antenna number(s) as indicated in RS-CDC-REQ, and shall not forward an incorrectly decoded burst to its subordinate stations. Figure ~~ZZZ~~323a is an example of local STC encoding at the RS.