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Title	**Allowing more than one stream with DL MIMO Mode 2 in NLRU subchannelization (Section 16.3.7.2.4)**
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Source(s)	Fred Vook, Anup Talukdar, Eugene Visotsky, Bill Hillery, Mark Cudak fred.vook@motorola.com Motorola Inc.
Re:	Category: P802.16m/D3 comments for LB30b Area: Section 16.3.7.2.4 (DL-MIMO)
Abstract	Table 827 currently limits MIMO Mode 2 (CL-SU-MIMO) to only one stream in NLRU subchannelization. This contribution presents simulation results that show gains from allowing MIMO Mode 2 to use both 1 and 2-streams in NLRUs.
Purpose	Discuss and adopt
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Allowing more than one stream with DL MIMO Mode 2 in NLRU subchannelization (Section 15.3.7.2.4)

Fred Vook, Anup Talukdar, Eugene Visotsky, Bill Hillery, Mark Cudak

Motorola

1. Introduction

In the DL MIMO section of the D3 draft, Table 835 forbids the use of more than one stream with MIMO Mode 2 transmission (CL-SU-MIMO) in mini-band LRUs (NLRUs). This restriction is unnecessary and inconsistent with the allowance of MIMO mode 4 (CL-MU-MIMO) in mini-band LRUs. Simulation results showing the benefits of rank 2 CL-SU-MIMO in reuse three scenarios was presented [1]. This contribution proposes removing the rate-one-only restriction from DL MIMO Mode 2 with NLRU in Table 835.

2. Proposed Text Changes

[Modify Table 835 on page 453 as follows:]

Table 835—Supported Permutation for each DL MIMO mode outside the OL region

	DLRU	NLRU	SLRU
MIMO mode 0	Yes	Yes	No
MIMO mode 1	Yes, with $M_t=2$	Yes, with $M_t \leq 4$	Yes
MIMO mode 2	No	Yes~~, with $M_t=1$~~	Yes
MIMO mode 3	No	No	Yes
MIMO mode 4	No	Yes	Yes
MIMO mode 5	No	No	No

[Modify Table 839 on page 457 as follows:]

Delete ($M_t=1$) in the row for MIMO Feedback Mode 4 (starts on line 39).

[Modify Table 902 on page 552 as follows:]

Table 902—Feedback formats for MIMO feedback mode 0, 1, 4, and 7

MFM	FBCH	Number of reports	Report Period	Feedback Fields	Size in bits	Description/Notes
0	PFBCH	2	Short	Wideband CQI and STC rate	N/A	Joint encoding of CQI and STC rate Encoding type 0
			Long	Wideband CQI and STC rate	N/A	Joint encoding of CQI and STC rate Encoding type 0 Long term FPI for FFR
1	PFBCH	2	Short	Wideband CQI and STC rate	N/A	Joint encoding of CQI and STC rate Encoding type 0
			Long	Wideband CQI and STC rate	N/A	Joint encoding of CQI and STC rate Encoding type 0. Long term FPI for FFR
4	PFBCH	2	Short	Wideband CQI and STC rate	N/A	~~STC rate = 1~~ Encoding type 0
			Long	Wideband PMI	N/A	PMI ~~for rank 1~~ Encoding type 2
7	PFBCH	2	Short	Wideband CQI	N/A	STC rate = 1 Encoding type 0
			Long	Wideband PMI	N/A	PMI for rank 1 Encoding type 2

[Modify Table 670 on page 36 (starting at line 7) as follows:]

```
}
If (MFM == 4 or 7){
Wideband STC rate                    1 to 2              Depending on MaxMt
Wideband CQI                          4
Wideband PMI                         3 to 6              Depending on Nt and CS
}
If (MFM == 7){
Wideband CQI                          4
Wideband PMI                         3 to 6              Depending on Nt and CS
}
If (MFM == 2){
```

3. References

[1]   IEEE C802.16m-09/2533r1