

Proposal for Constellation Re-arrangement in IR HARQ

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IEEE 802.16m-08/040, “Call for Comments and Contributions on Project 802.16m System Description Document (SDD)”,

TGm SDD: Other (for contributions in support of a comment)

Base Contribution:

None

Purpose:

To be discussed and adopted by TGm for use in 802.16m SDD

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Proposal for Constellation Re-arrangement in IR HARQ

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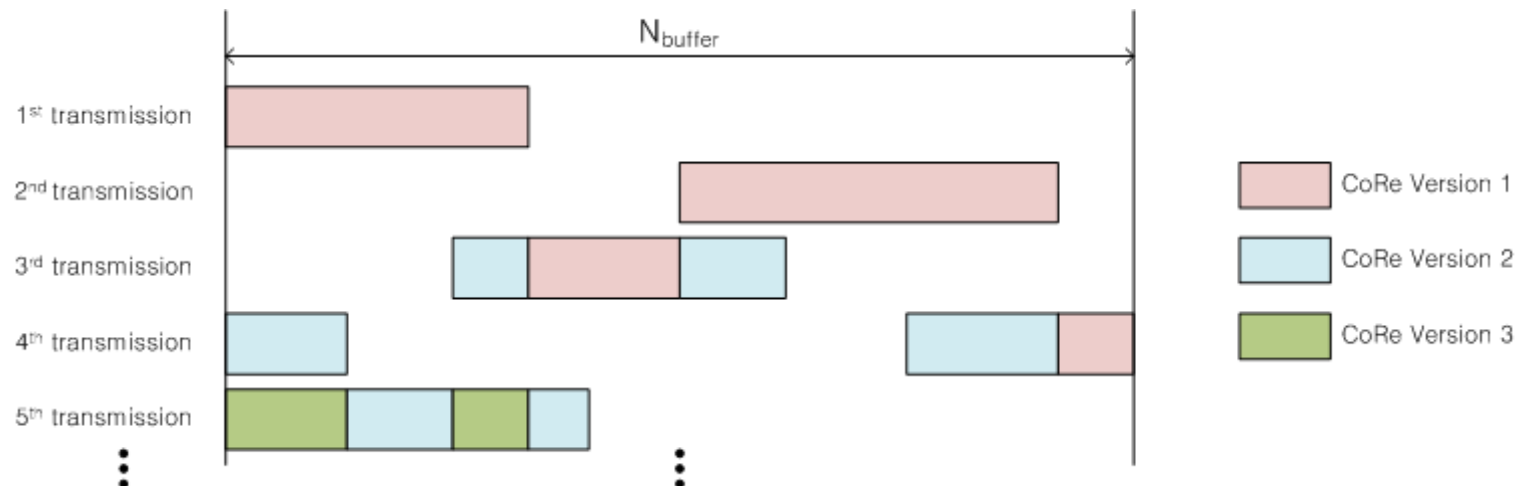
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About This Contribution

- Goal and scope of this contribution
 - Propose a constellation re-arrangement operation in IR HARQ for 802.16m
- Issue to be addressed in this contribution
 - Potential problem of current constellation re-arrangement scheme
 - New constellation re-arrangement operation

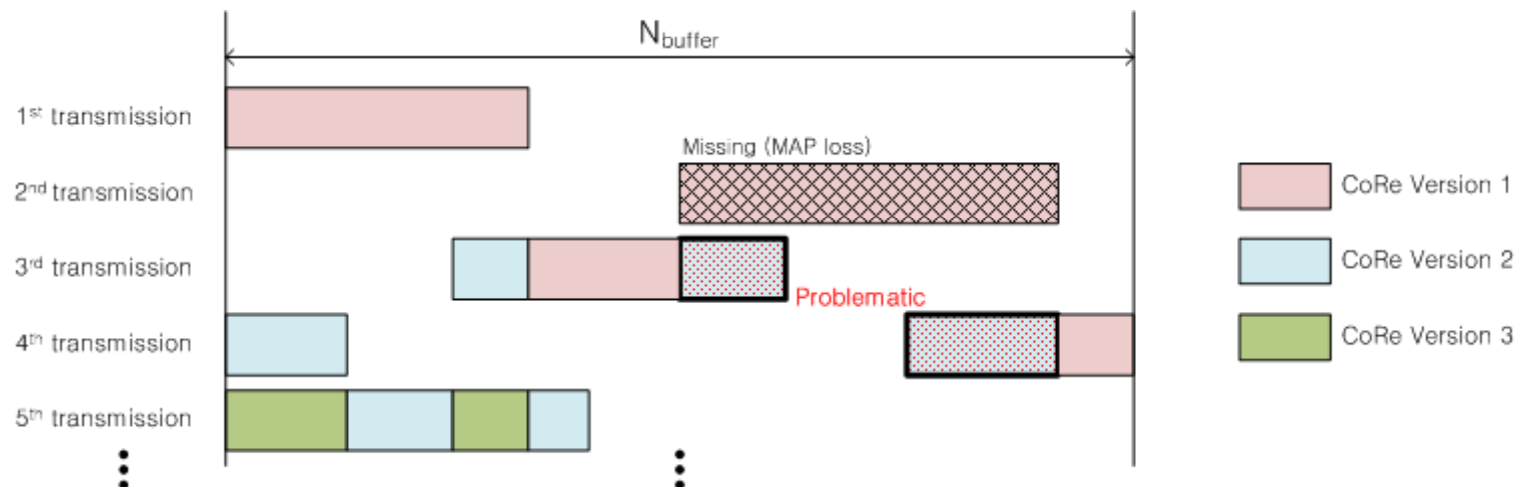
Current HARQ & CoRe operation

- Incremental redundancy (IR) is a mandatory Hybrid-ARQ (HARQ) operation for 802.16m
 - Chase Combining(CC) is a special case of IR HARQ
- Constellation re-arrangement (Co-Re) is supported in 802.16m. For each transmitted bit, the CoRe-version is selected by the transmission number of this bit. The specific selection mechanism is FFS.



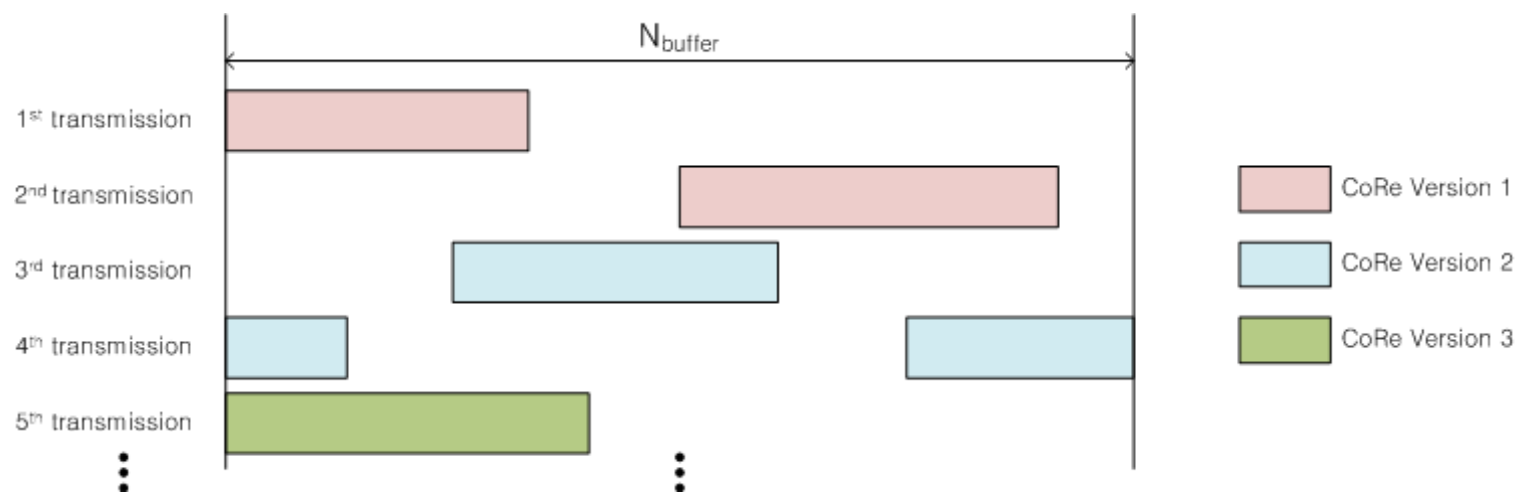
Problem of Current Co-Re Operation

- Current Co-Re operation has a problem in case of IR-HARQ and adaptive HARQ.
 - If the MAP is missing, the MS can't know the CoRe-version for each transmitted bit.
 - In IR and adaptive HARQ operation, this problem is critical.
 - For each transmitted bit, the CoRe-version may be indicated, but the overhead is large.



Proposed Co-Re Operation

- In the proposed scheme, the CoRe-version is determined by the transmission number of subpacket, not by the transmission number of bit.
 - Robust Co-Re operation in case of MAP loss
 - No additional overhead for CoRe operation



Text Proposal to 802.16m SDD

Modify Chapter 11.13.2.2 in IEEE 802.16m-08/003r5 as follows;

11.13.2.2 Constellation re-arrangement

Constellation re-arrangement (Co-Re) is supported in 802.16m. ~~For each transmitted bit,~~ The CoRe-version is selected by the transmission number of ~~this bit~~ subpacket. The specific selection mechanism is FFS.