

A Recommendation on PMP Mode Compatible Frame Structure

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Fang-Ching Ren, Chang-Lung Hsiao,

Yu-Ching Hsu, and Wern-Ho Sheen ,

CCL/TRI

Bldg. 11, 195 Sec. 4, Chung Hsing Rd. Chutung,

HsinChu, Taiwan 310, R.O.C.

Voice: 886-3-5914786

Fax: 886-3-5829733

E-mail: frank_ren@itri.org.tw

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None.

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This is a response to IEEE 802.16mmr-05/001 (call for contributions: IEEE 802.16's Study Group on Mobile Multi-hop Relay) to present a compatible frame structure.

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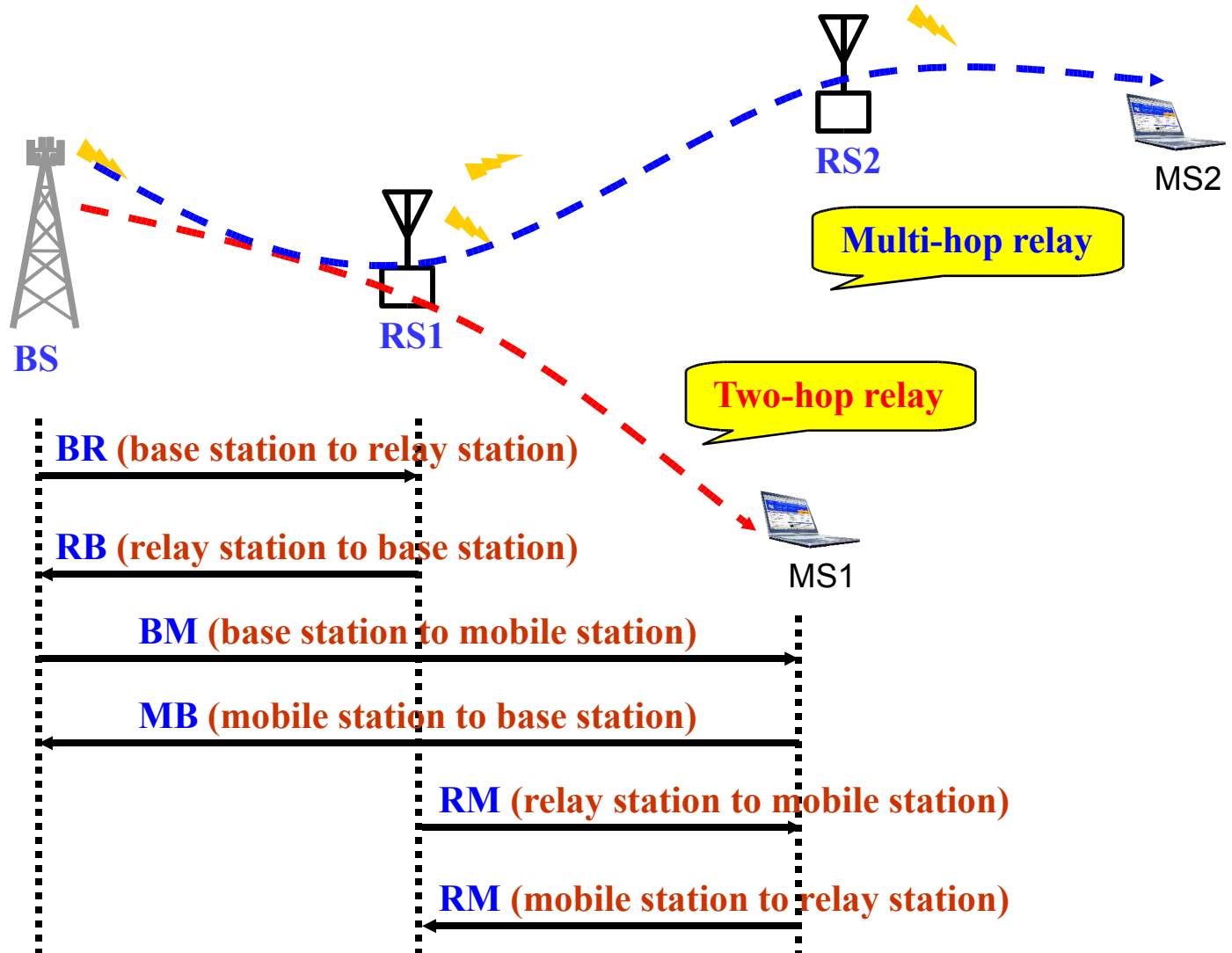
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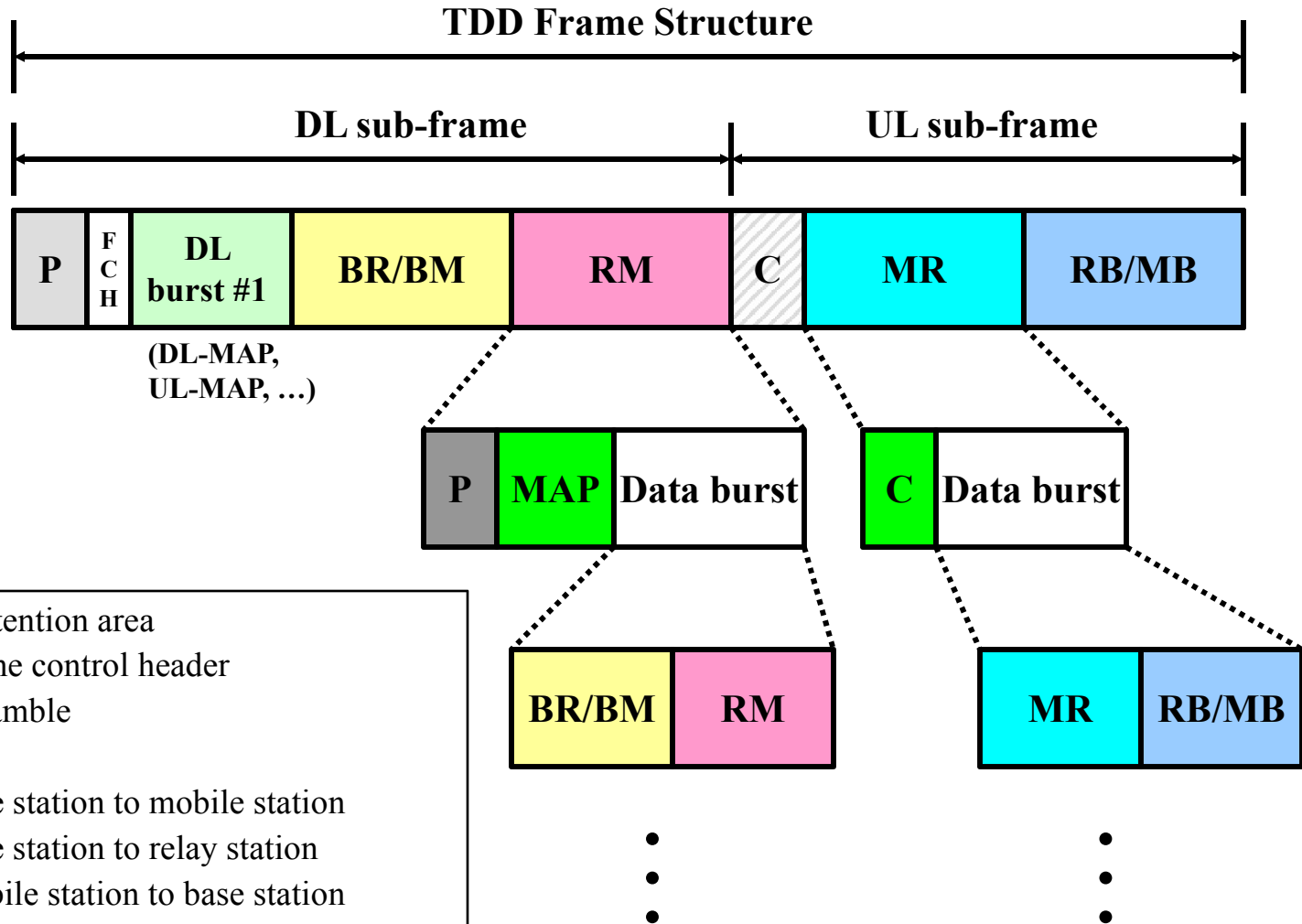
Purpose

- **To propose a frame structure that is compatible to the TDD mode with no relaying**
 - ❖ **BS/RS and RS/MS use the same frequency, i.e., homogeneous relaying.**
 - ❖ **From the BS viewpoint, an RS behaves the same as an SS. The transmission/reception burst is controlled by the BS.**
 - ❖ **From the MS viewpoint, an RS just performs coverage extension and is transparent to MSs.**

Scenario

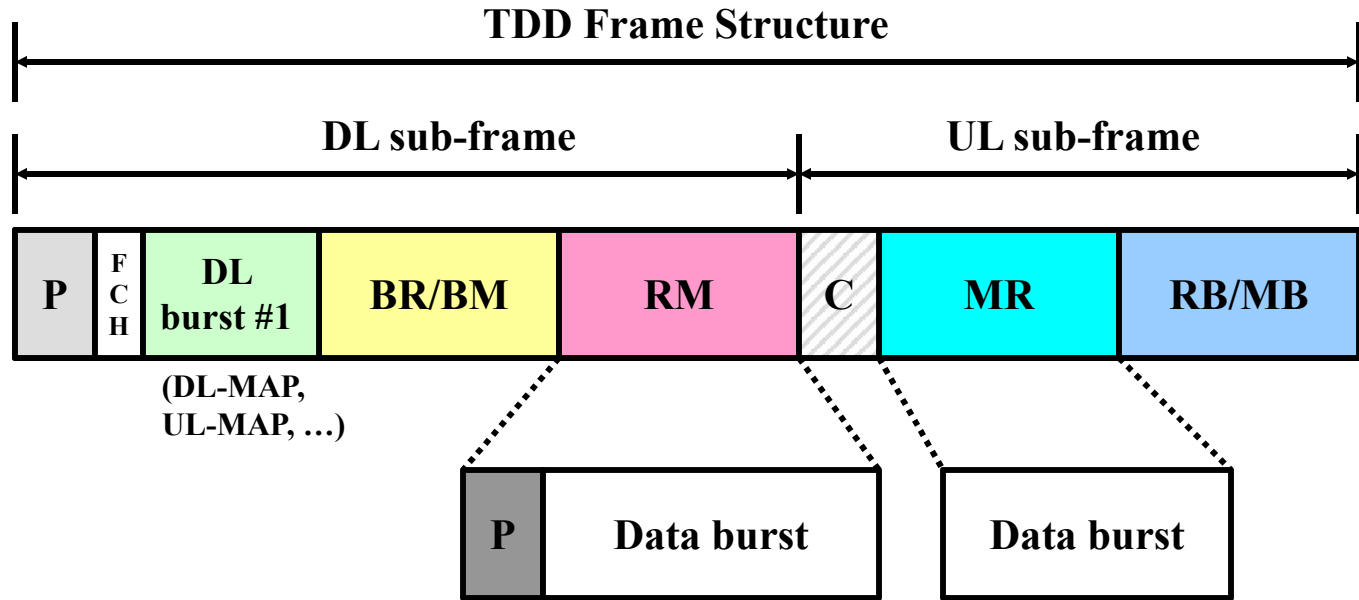


Frame Structure for Multi-hop Relay



C	contention area
FCH	frame control header
P	preamble
BM	base station to mobile station
BR	base station to relay station
MB	mobile station to base station
MR	mobile station to relay station
RB	relay station to base station
RM	relay station to mobile station

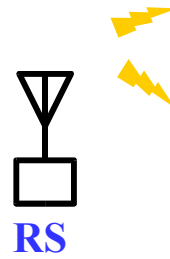
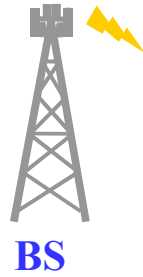
Simplified Frame Structure for Two-hop



C	contention area
FCH	frame control header
P	preamble
BM	base station to mobile station
BR	base station to relay station
MB	mobile station to base station
MR	mobile station to relay station
RB	relay station to base station
RM	relay station to mobile station

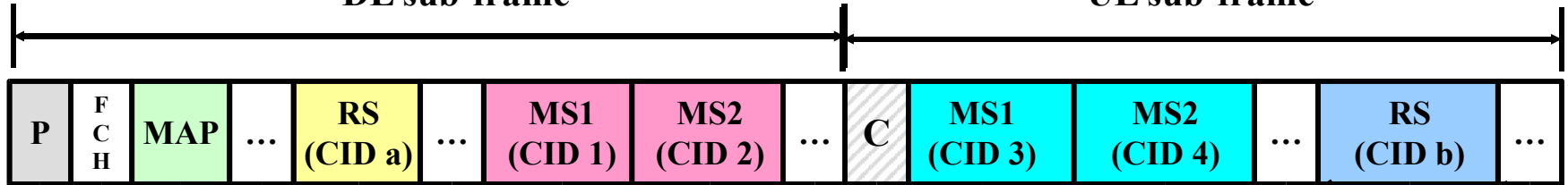
- ❑ If there is no need to provide MAP at RS, the frequency domain can be further partitioned for BS/MS and RS/MS at the same time.
- ❑ Otherwise, the coexistence of BS/MS and RS/MS at the same time will reduce the flexibility to enable multihop relay capability

Example of Two Hop Relaying



DL sub-frame

UL sub-frame



Relay Station DL PDU



Relay Station UL PDU

RSE relay service element

Relay Service Element (RSE)

- RSE is the control PDU for an RS to know the following info
 - ❖ The downlink relaying service CIDs and their DL burst profiles of the MSs served by the RS.
 - ❖ The uplink relaying service CIDs and their UL burst profiles of the MSs served by the RS.
 - ❖ For last page example, RES consists of
 - Burst profile for CID 1
 - Burst profile for CID 2
 - Burst profile for CID 3
 - Burst profile for CID 4