

Title: Relay Frame Structure – comments on 16mRelayFS-AHS - Alvarion

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Mariana Goldhamer Voice:+972 3 645 6241

mariana.goldhamer@alvarion.com

ALVARION

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Relay Frame Structure – comments on 16mRelayFS-AHS - Alvarion

Mariana Goldhamer

General comments

- The AHG Chairs did a great job by providing the **16mRelayFS-AHS** slides, including a a first text proposal
- The main target for defining a Relay Frame Structure should be the operational performance:
 - Spectral efficiency
 - Coverage
- The proposals in this presentation follow the performance target

Comment on Slide 6&7&8

- Multiplexing Legacy RS and 16m RS in DL
 - TDM is ok
- Multiplexing Legacy RS and 16m RS in UL
 - TDM or FDM is ok
- Multiplexing Access Link and Relay Link in Legacy Zone
 - Text ok

First comment on slide 9

- Multiplexing Access and Relay Links in 16m Zone
 - Usage of UL and DL only is misleading
 - The criteria should be Relay Tx and Relay Rx
 - Better spectral efficiency, flexibility and interference management can be obtained if the multiplexing of 16m Access and Relay operation is done in frequency domain (FDM)
 - The existing text does not reflect 2 hops Relay operation
 - The TDD split creates 6 different Zones in MAC Frame, to be mapped to 6..8 sub-frames (depending on channel width and FFT size), creating a problem of spectral efficiency, resolution of allocations and not leaving time for BS Zones

Multiplexing Access and Relay Link in 16m zone – SDD Text proposal - 1

The proposed text is according to principles in C802.16m-08/260; text is continued on the next two slides)

TDD operation

In the DL 16m zone, inserted in BS DL sub-frame, the traffic is FDM multiplexed in different Zones based on Relay Rx or Tx operation. An example of the BS DL operation and Rx operation of RS1 ((BS->MS, BS->RS1, MS->RS1, RS2->RS1) is given in the next figure.

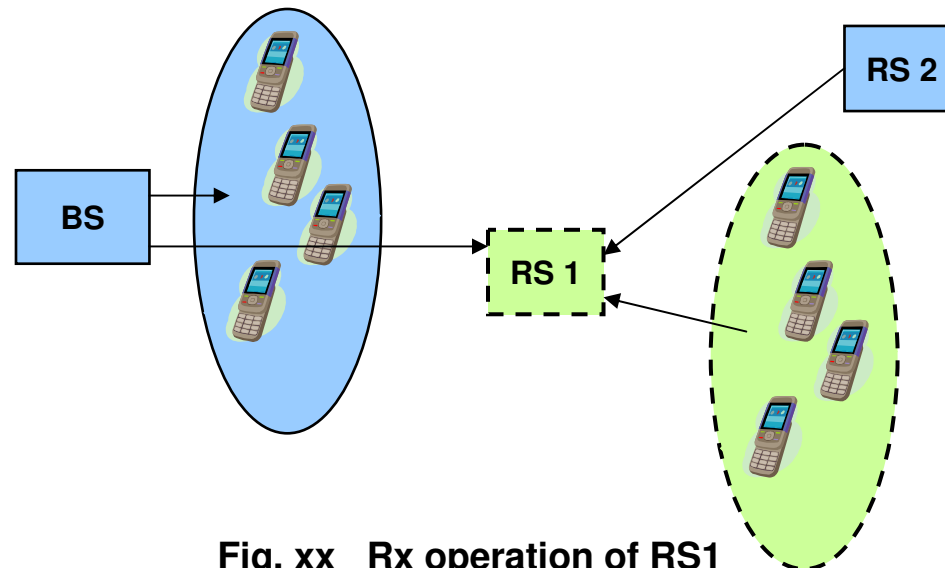


Fig. xx Rx operation of RS1

Multiplexing Access and Relay Link in 16m zone – SDD Text proposal - 2

In the UL 16m zone, inserted in BS UL sub-frame, the traffic is FDM multiplexed based on Relay Tx operation. An example of the BS UL operation and Tx operation of RS1 ((MS->BS, RS1->BS, RS1->MS, RS1->RS2) is given in the next figure.

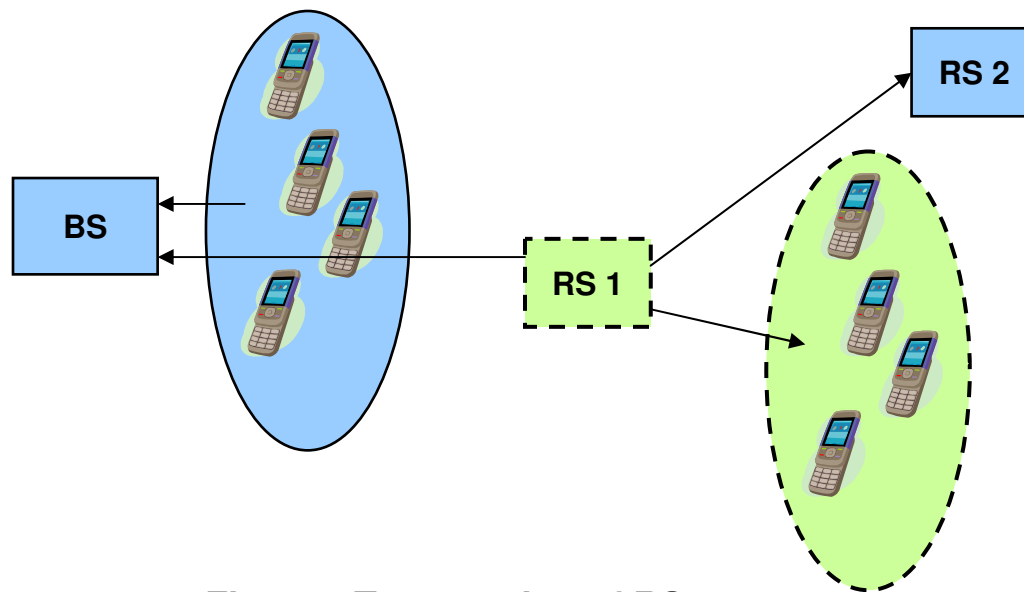


Fig. xy Tx operation of RS1

Multiplexing Access and Relay Link in 16m zone – SDD Text proposal - 3

The Frame structure is represented in the figure below.

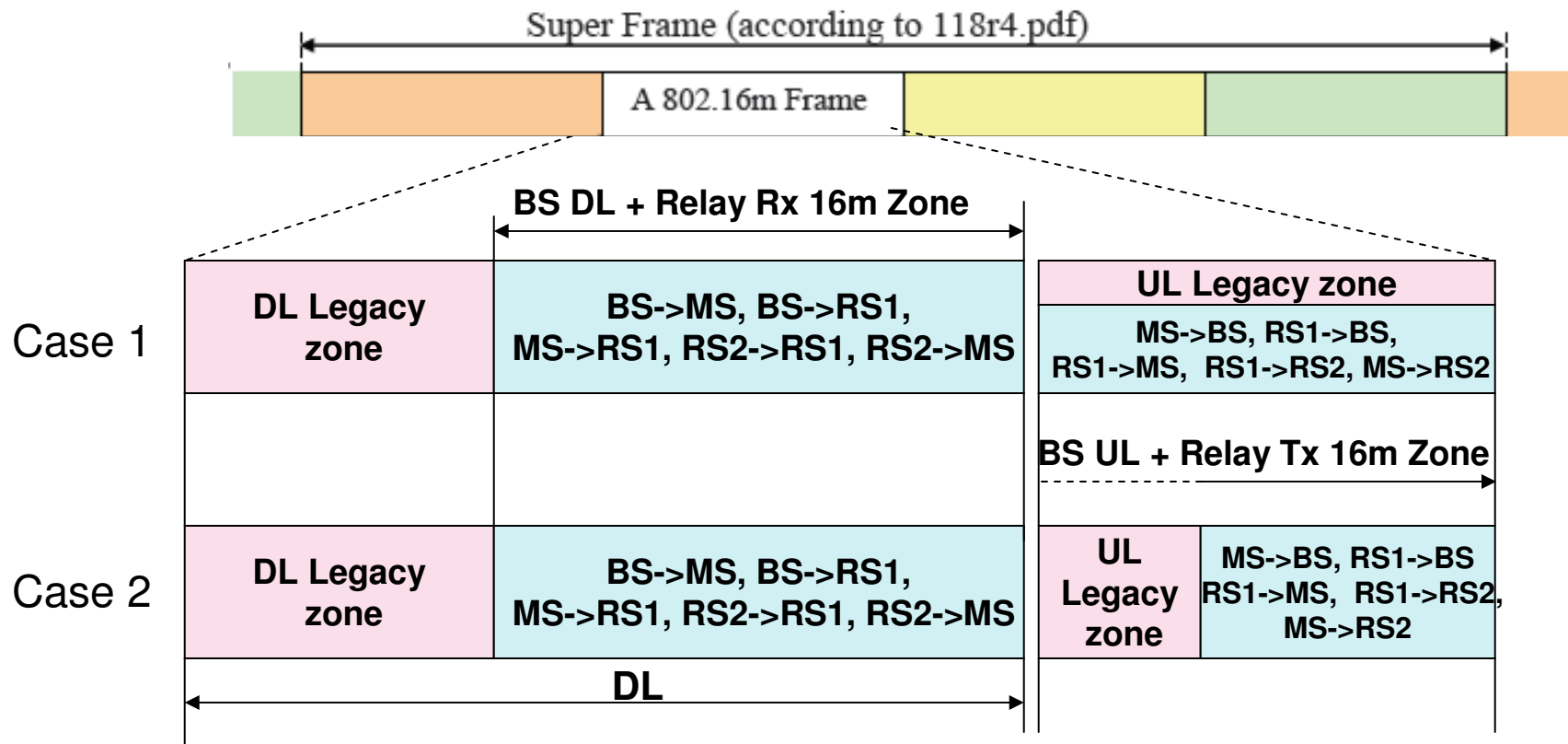


Fig. xa Frame Structure for TDD Relay

2nd Comment on Slide 9 – FDD 1

- No text was proposed in 16mRelayFS-AHS
- Alvarion's proposed text (according to principles in C802.16m-08/261):

FDD operation

In the FDD mode the BS DL operation takes place on f_1 and the BS UL operation takes place on f_2 . The legacy BS operation and the 16m BS operation are TDM multiplexed, while respecting the different frequencies used for the BS DL and UL operation.

The RS is the focal point for grouping the Tx and Rx traffic. The following figures show the traffic directions and the used frequencies for two hops, such that each RS will have either Rx or Tx activity.

– (see continuation on the next two slides)

2nd Comment on Slide 9 – FDD 2

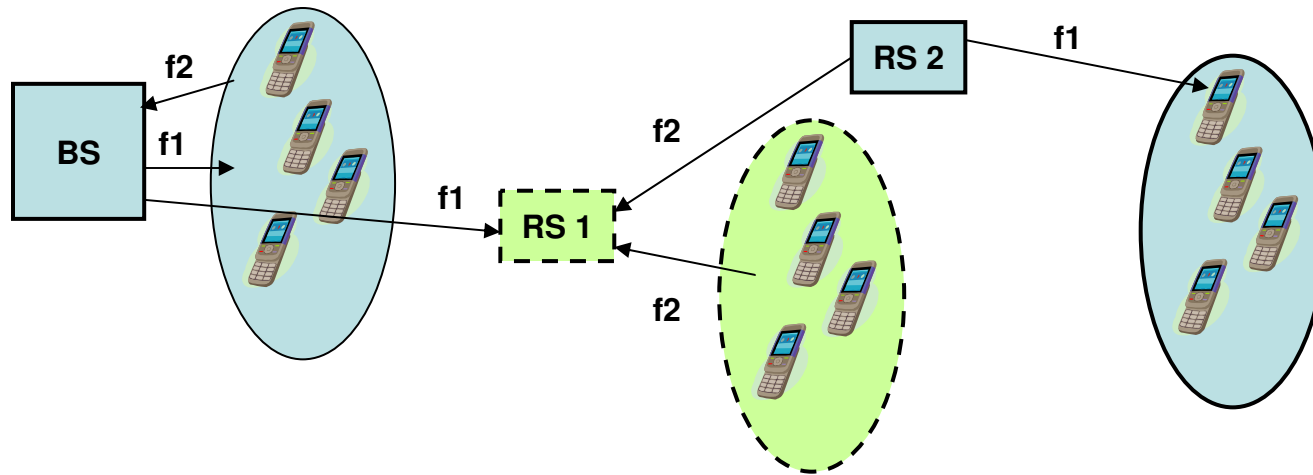


Fig. xz Relay operation in FDD mode (RS1-Rx, RS2-Tx)

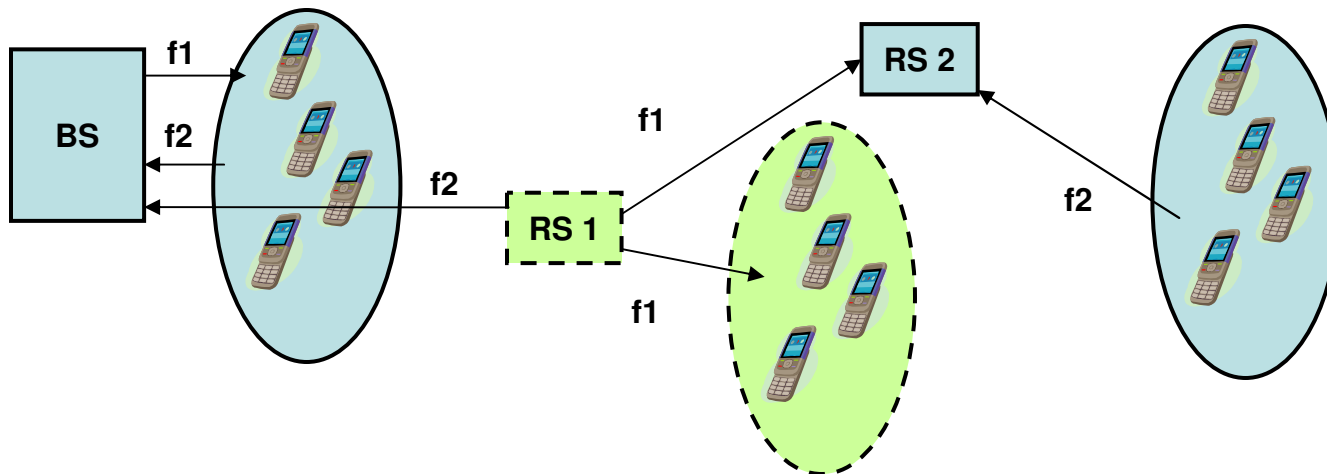


Fig. xt Relay operation in FDD mode (RS1-Tx, RS2-Rx)

2nd Comment on Slide 9 – FDD 3

The FDD FS is presented in the following figure. The full duplex access BS operation is shown with parenthesis. The RS is operating on two frequencies in simplex mode. In each Rx or Tx interval of the RS the traffic is FDM multiplexed.

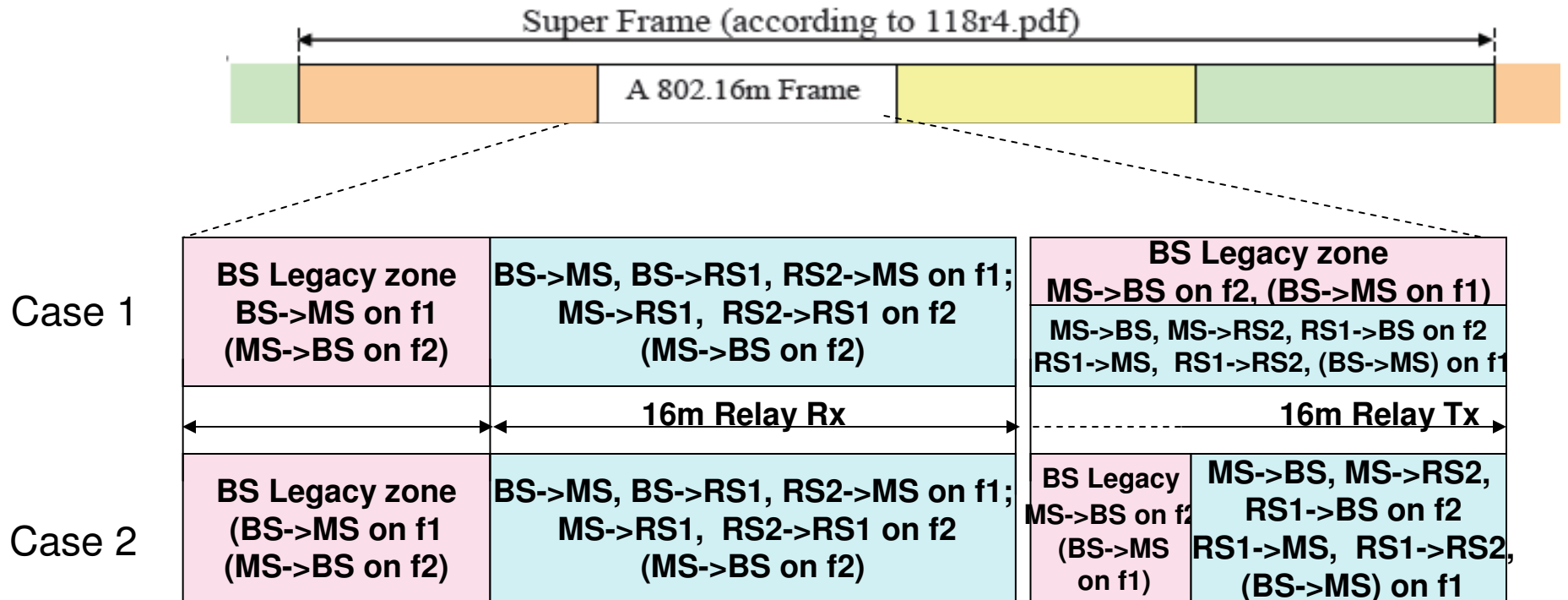


Fig. xb Frame Structure for FDD Relay

Perspective of 16m/16j RSs – Slide 10

- **Delete all the text**
 - Why to add requirements for the 16m Relay operation in the Legacy Zone?
 - Not required by SRD
 - Not clear what means “time aligned”
 - Not clear if adding requirements on operation of the 16e MS during the 16m Relay zone we will not stuck the development of the 16m Relay operation
 - The last proposal is the worse mix of limitations