Decision method of relayed MS in MMR-enabled networking

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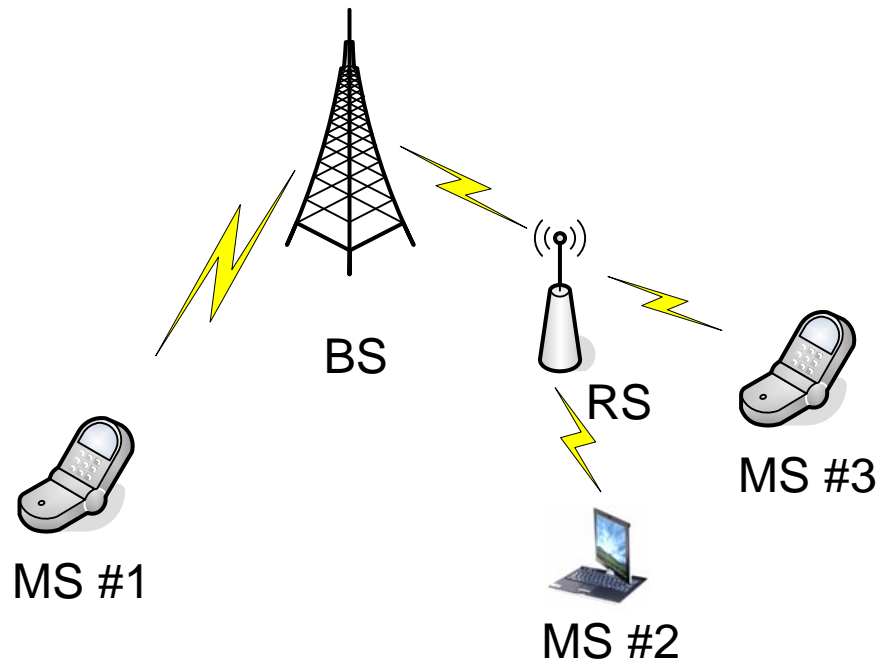
Purpose:

Information

Decision method of relayed MS in MMR-enabled networking

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Current discussed RS

❑ There is no indication to determine relayed MS

● Which MS communicates directly with BS or indirectly with BS via RS

BS

RS

MS #1

MS #2

MS #3

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Proposed scheme

❑ To determine relayed MS

- All relaying transmissions are indicated by the BS
- The conditions of determination relayed MS
  - ▶ **For enhanced throughput**
  - ▶ **and extended cell coverage by using RS**
  - ▶ **When UL signal quality of the MS is changed**
- BS uses UL signal qualities of the MS
  - ▶ **Directly: Between BS and MS**
  - ▶ **Indirectly: Between BS and MS via RS**
    - ■ RS detects UL signal quality of the MS
    - ■ and after reports it to the BS
- Determines whether the MS will be relayed or not
  - ▶ **BS compares UL signal qualities of two paths**
    - ■ Selected value of the two path values is better than the other and a certain value

② BS

①

RS

MS

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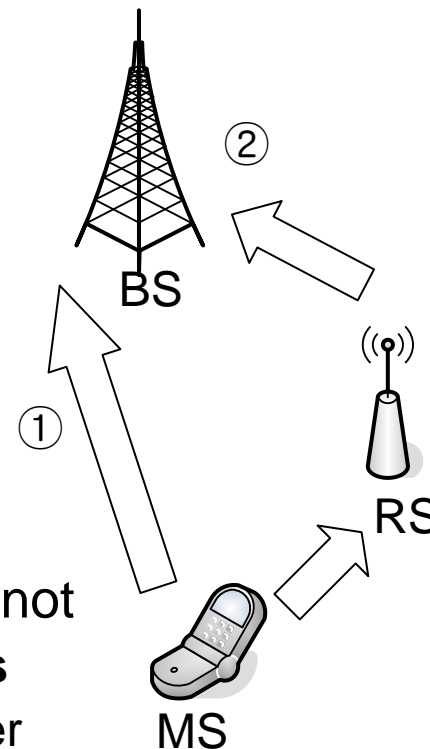
Reporting method

❑ The reporting method of MS UL signal quality

- Consider backward compatibility with 802.16 TGe PMP mode
  - ▸ **CQICH (Channel Quality Information Channel)**
  - ▸ **MAC management message**

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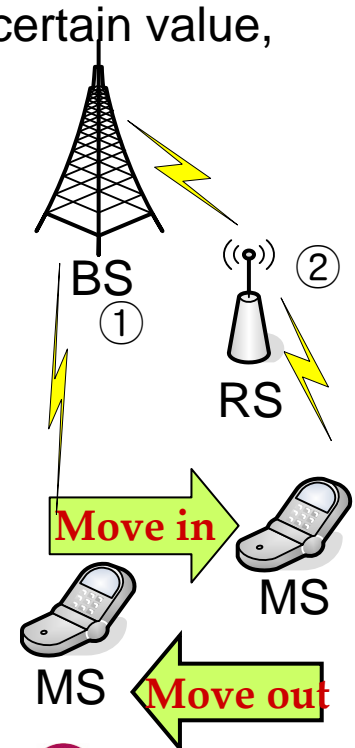
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For example(1/2)

❑ When BS tries to connect relaying transmission

- MS is located in BS coverage
- MS communicates directly with the BS,
  - ▸ **BS receives UL signal quality of MS, directly**
  - ▸ **When the MS moves in RS service region,**
    - ■ The values go from bad to worse and worse than a certain value, gradually.
  - ▸ **When BS wants to change modulation to provide higher throughput to the MS,**
- BS receives UL signal quality of the MS via RS
  - ▸ **RS detects UL signal quality of the MS and reports it to the BS**
  - ▸ **BS compares UL signal qualities of two paths**
    - ■ If indirect path UL signal quality is better than direct path UL signal quality of MS, BS tries to connect relaying transmission to the MS
- MS communicates with BS via RS, indirectly.

BS
①

((•)) ②

RS

Move in

MS

MS **Move out**

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For example(2/2)

❑ When BS tries to disconnect relaying transmission

- ● MS is located out of BS coverage
- ● MS communicates indirectly with BS via RS
  - ▸ **BS receives UL signal quality of MS, indirectly**
  - ▸ **When the MS moves out RS service region,**
    - ▪ The values go from bad to worse, gradually and worse than a certain value
  - ▸ **When BS wants to disconnect relaying transmission to the MS**
- ● BS requests UL signal quality to the MS, directly
  - ▸ **BS compares UL signal qualities of two paths**
    - ▪ If direct path UL signal quality is better than indirect path UL signal quality of the MS and a certain value,
  - ▸ **BS tries to disconnect relaying transmission to the MS**
- ● MS communicates with BS, directly.

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Summary

❑ To determine relayed MS

- The conditions of determination relayed MS
  - ▶ **For enhanced throughput**
  - ▶ **and cell coverage by using RS**
  - ▶ **When UL signal quality of MS is changed**

- BS uses UL signal qualities of MS
  - ▶ **Directly**
  - ▶ **Indirectly**

- BS compares UL signal quality of two paths

- BS decides whether the MS will be relayed or not

- The reporting method for UL signal quality of MS
  - ▶ **CQICH**
  - ▶ **MAC management message**

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