

Estimation of Initial Interference Matrix

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Source:

Wei-Peng Chen
Chenxi Zhu
Ching-Fong Su
Jonathan Agre

Voice: +1 408 530 4622

Fax:

E-mail: wei-peng.chen@us.fujitsu.com

Fujitsu Laboratories of America
1240 E. Arques Avenue, M/S 345,
Sunnyvale, CA 95051, USA

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Purpose:

For discussion and approval of inclusion of the proposed text into the P802.16j baseline document.

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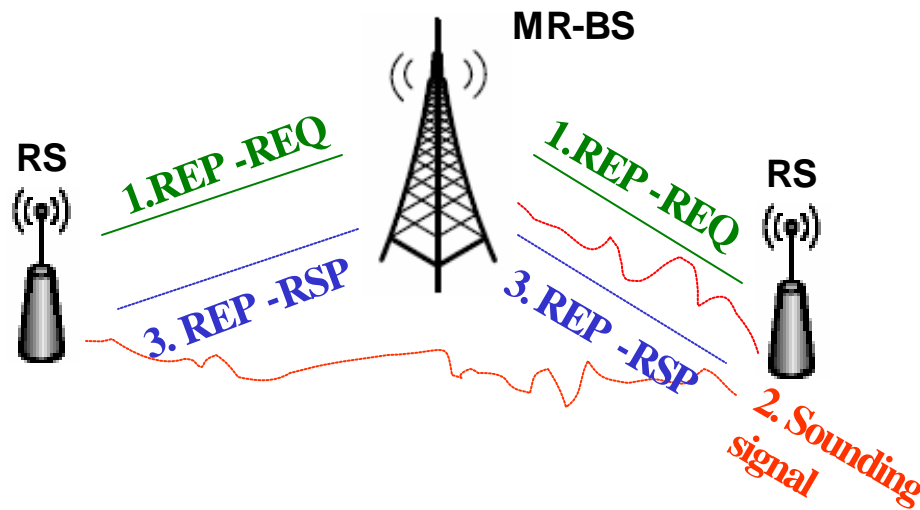
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Introduction

- Goal: Take advantage of resource reuse while mitigating interference
 - Resource reuse enhances system capacity, but causes potential interference
 - Resource reuse group could include combinations of access links and relay links
- Definition of “resource”: one region in time-frequency 2D domain

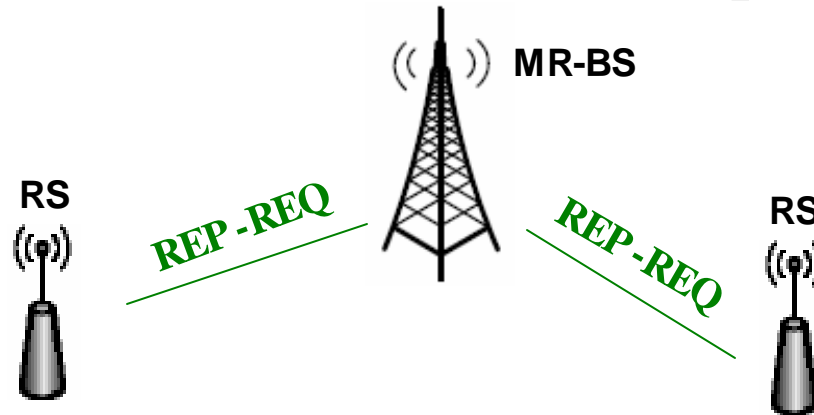
Interference Measurements between RSs

- Step 1: MR-BS sends REP-REQ to RSs
- Step 2: Each RS sends Sounding signal sequentially
- Step 3: RSs send REP-RSP to MR-BS



Step 1: MR-BS Sends REP-REQ to RSs

- MR-BS sends a REP-REQ message to all RSs inside the same MR-cell
- When an RS receives REP-REQ, it expects to hear the Sounding zone allocation IE in the subsequent frames

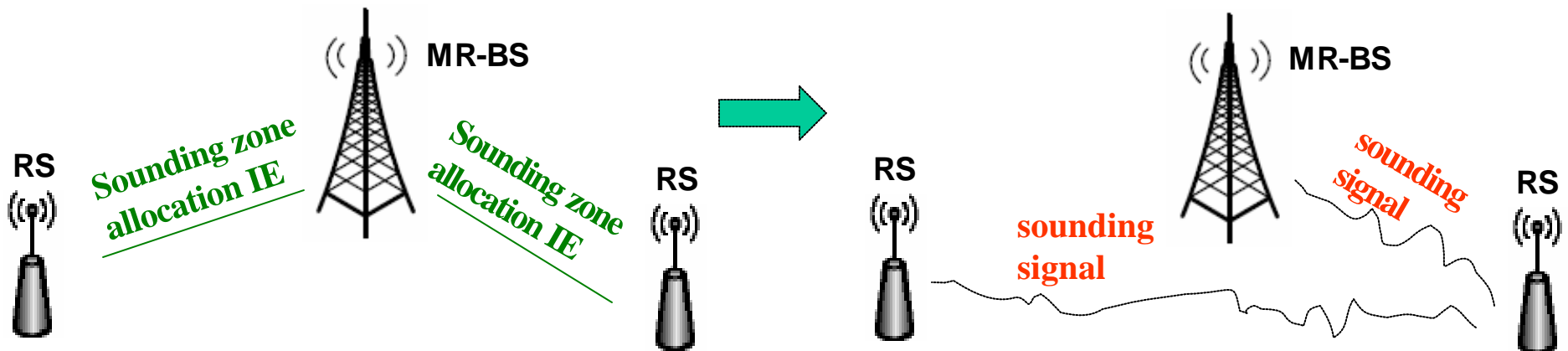


REP-REQ RS sounding TLVs

| Name | Type | Len | Value |
|--|-------|--------------|---|
| RS sounding # | 1.9.1 | 1 | RSs #, N_{RS} , participating in RS sounding measurement |
| RS CID | 1.9.2 | $N_{RS} * 2$ | RS(1) ... RS(N_{RS}) basic CID |
| Report period | 1.9.3 | 1 | RS sends REP-RSP after the number of frames since receiving the REP-REQ |
| RS sounding zone-specific RSSI request | 1.10 | 1 | Bit #1: RS reports RSSI on either all or partial subcarriers Bits #1-4: in multiples of 1/16 (range is [1/16,16/16]) |

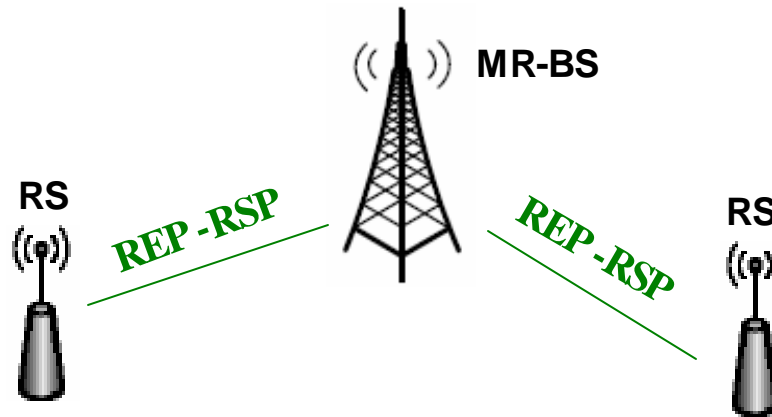
Step 2: RSs Send RS Sounding Signal

- MR-BS allocates a Sounding zone allocation IE (an exclusive transmission period) for an RS to send an RS sounding signal
- If the last bit (RS Sounding zone) in the Sounding zone allocation IE is enabled, one RS (indicated by its basic CID) transmits a sounding signal. All other RSs listen to the signal.
- MR-BS uses UL_Sounding_Command_IE to instruct RS how to compose RS sounding signal



Step 3: RSs send REP-RSP to MR-BS

- RSs send measurement results in REP-RSP to MR-BS after the report period (indicated in REP-REQ)
- Measurements include CINR (default) and RSSI (optional)



| Name | Type | Len | Value |
|-------------------------|------|----------|---|
| RS Sounding CINR Report | 2.6 | N_{RS} | CINR for each RS |
| RS Sounding RSSI Report | 2.7 | N_{RS} | RSSI ranging from -40 dBm (encoded 0x53) to -123 dBm (encoded 0x00) |