Estimation of Initial Interference Matrix

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IEEE C802.16j-06/148 and URL <http://ieee802.org/16/… C80216j-06_148.pdf>.

Purpose:

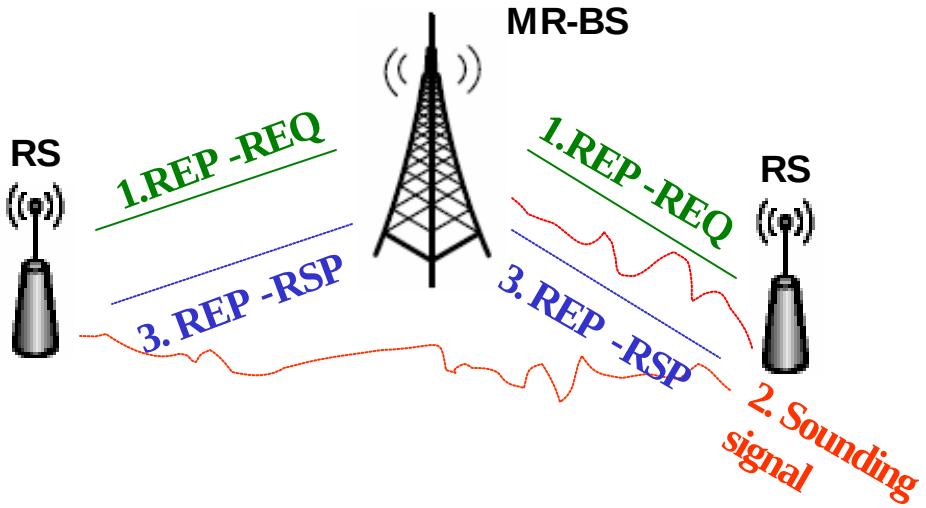
For discussion and approval of inclusion of the proposed text into the P802.16j baseline document.

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

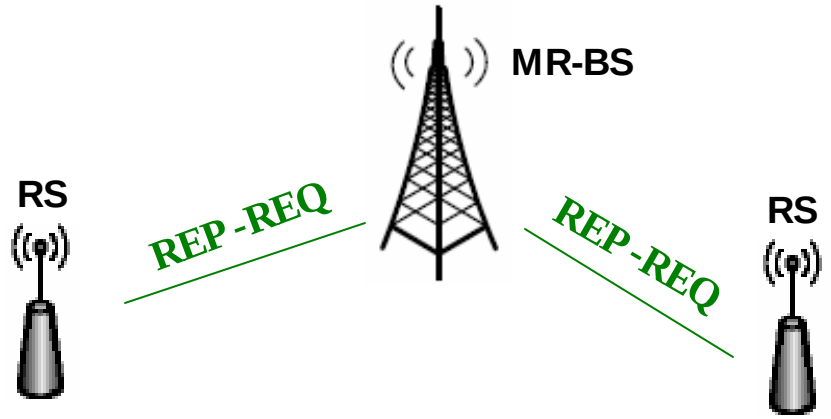
Interference Measurements between RSs

- 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

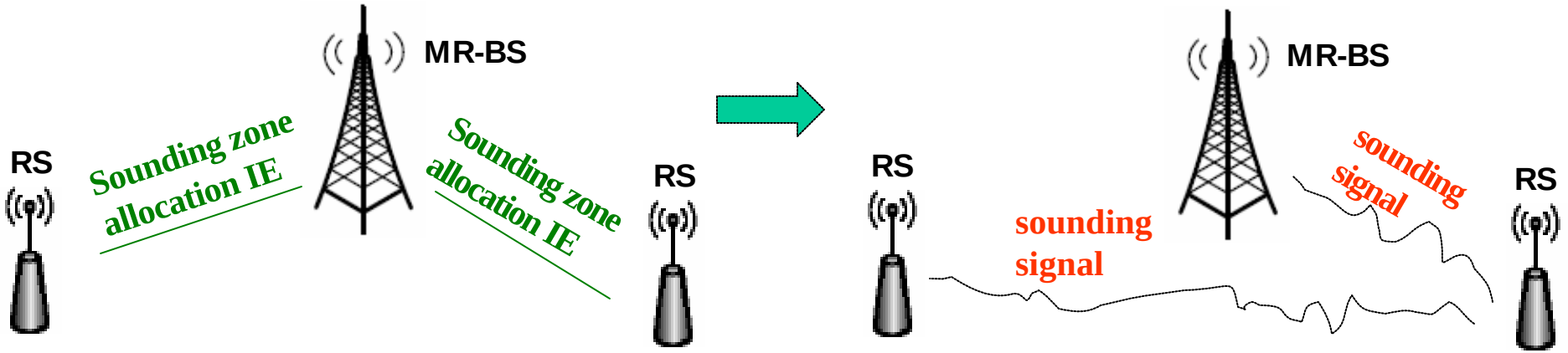


REP-REQ RS sounding TLVs

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])

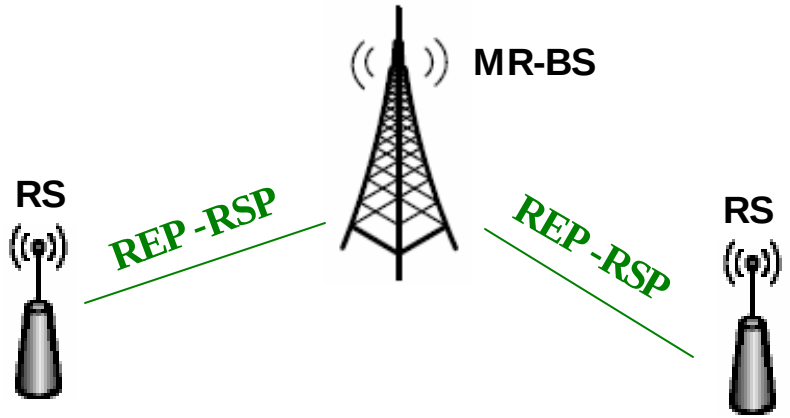
Step 2: RSs Send RS Sounding Signal

- 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)