

# RS Neighborhood Discovery and Measurement for IEEE 802.16j Multi-hop Relay Network

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Purpose:

Introduce the concept of RS grouping and propose the required text revision

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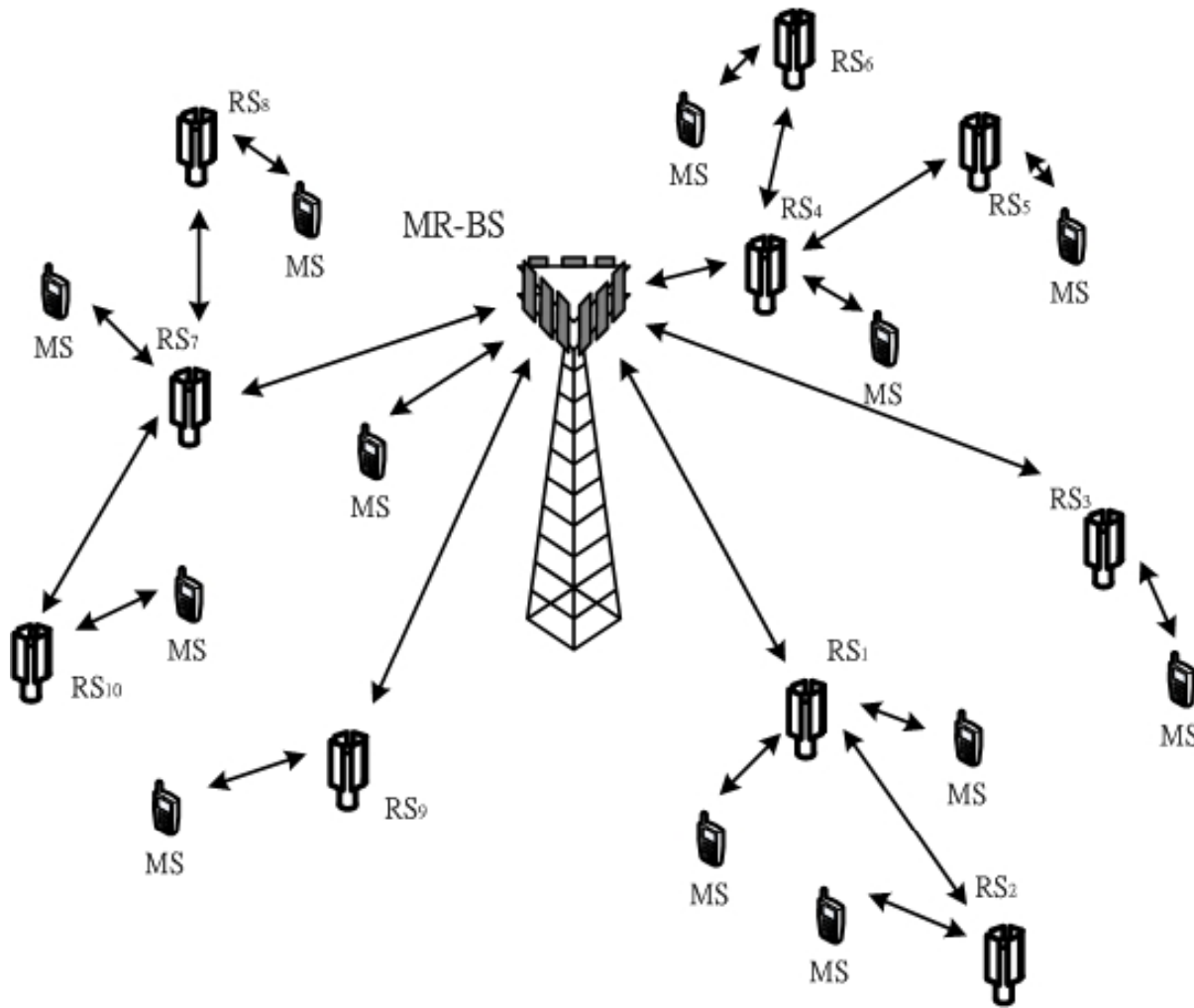
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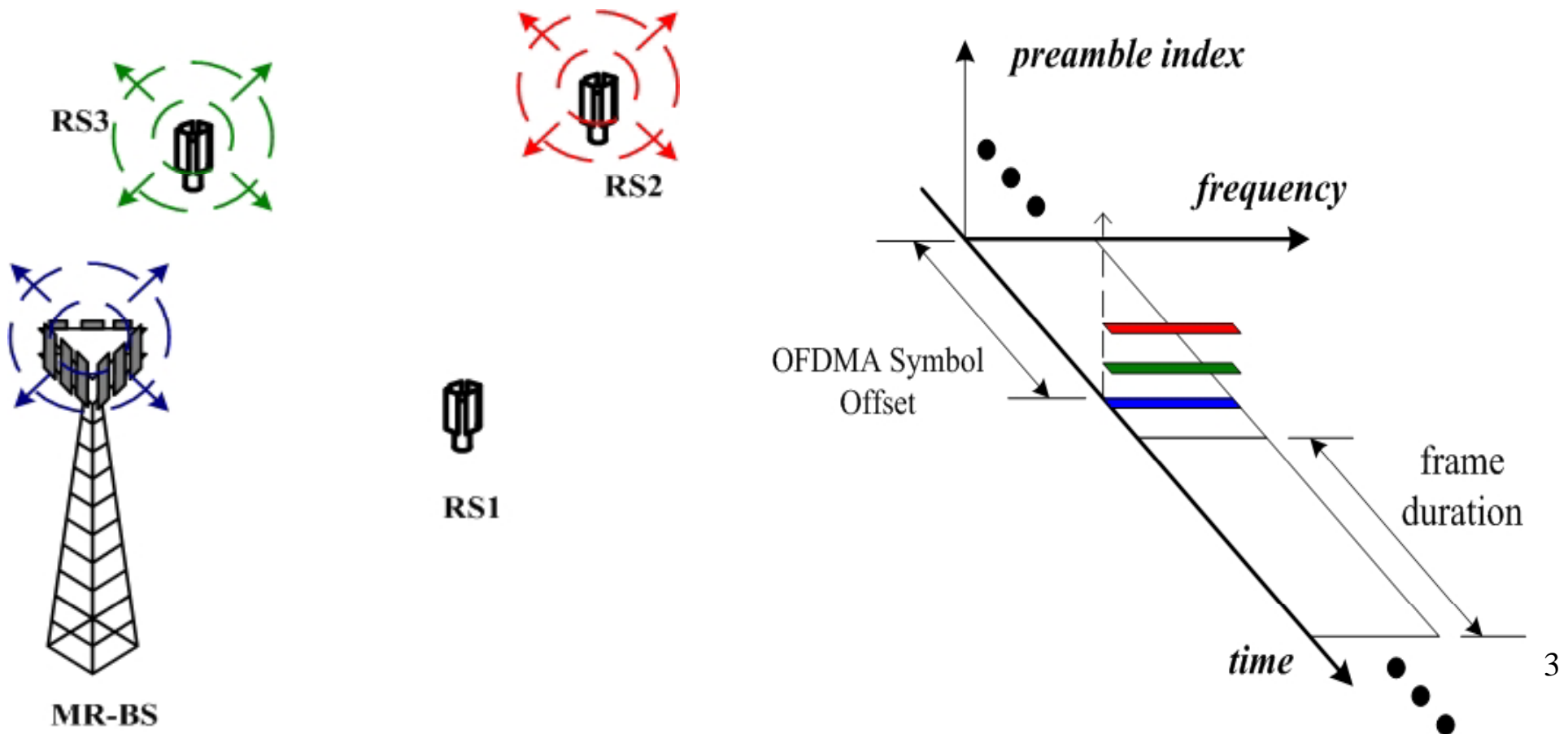
# Problem

- MR-network need to know the neighborhood of each RS
  - To facilitate the segment assignment, handover, interference management and etc.



# Fundamental Concept (1)

- MR-BS instruct
  1. one RS to scan the reference signal over the designated time
  2. Multiple RSs to transmit the reference signal over the same time



# Fundamental Concept (2)

- In stead of scanning the frame start preamble, the reason we need this kind of neighborhood discovery and measurement mechanism is:
  1. Not every RS transmit the preamble (e.g. transparent RS)
  2. For non-transparent RS, the position of RS preamble may not be fixed in each frame.
  3. Not every RS transmit its own preamble (e.g. grouped RS)

Therefore, some RSs may not be discovered if the new RS only scan the frame start preamble.

# Message Format (1)

Syntax	Size	Notes
RS_NBR-MEAS-REQ_Message_Format() {		
Management Message Type = TBD	8 bits	
NBR_MEAS_MODE	1 bit	0: Receive mode 1: Transmit mode
Measurement Duration	8 bits	Units are frames
Interleaving Interval	8 bits	Units are frames
Measurement Iteration	8 bits	Units are frames
Frame Number Offset	8 bits	In unit of frames
If (NBR_MEAS_MODE==0){		
N_NBR_LIST	8 bits	Number of neighboring stations in the neighbor list
Begin PHY Specific Section {		
For (i=0, i<N_NBR_LIST, i++){		
OFDMA Symbol Offset	8 bits	The location to scan the reference signal
Preamble Index	8 bits	Preamble index corresponds to position of the station in MR_NBR-INFO
}		
Report Request TLVs	Variable	TLV specific
}		
}		
else {		
OFDMA Symbol Offset	8 bits	The location of the reference signal to be transmitted
}		
}		

# Message Format (1)

Syntax	Size	Notes
RS_NBR- MEAS - REP_Message_Format() {		
Management Message Type = TBD	8 bits	
N_NBR_LIST	8 bits	Number of neighboring stations in the neighbor list
Begin PHY Specific Section {		
For (i=0, i<N_NBR_LIST, i++){		
Preamble Index	8 bits	Preamble index corresponds to position of the station in MR_NBR-INFO
Report Response TLVs	Variable	TLV specific
}		
}		
}		