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Title	Unsolicited RNG-RSP in Transparent RS System	
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Re:	IEEE 802.16j-07/007r2: “Call for Technical Comments and Contributions regarding IEEE Project 802.16j”	
Abstract	This contribution proposes procedures for unsolicited RNG-RSP in transparent RS system	
Purpose	Text proposal for 802.16j Baseline Document	
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Unsolicited RNG-RSP in Transparent RS System

Introduction

This contribution describes MS unsolicited RNG-RSP in transparent RS system. In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r2 are listed below.

Text Proposal

6.3.10 Ranging

6.3.10.3 OFDMA based ranging

6.3.10.3.4 Relaying support for OFDMA based ranging

6.3.10.3.4.3 Unsolicited RNG-RSP in transparent RS systems

When the offsets of frequency, power, and timing for any other data transmission from the MS are beyond the tolerance defined in this specification, RSs shall transmit a RNG-REQ message with the RS basic CID containing the MS basic CID to the serving MR-BS through the relay path.

Upon receiving the RNG-REQ message from a subordinate RS, the MR-BS may send an unsolicited RNG-RSP message with this MS basic CID to the MS.

After RS received a bandwidth request CDMA ranging code resulting in continue status, it should transmit an RNG-REQ message with the RS basic CID containing the CDMA BR ranging code to the serving MR-BS through the relay path with adjustment information of frequency, power, and timing corrections. When RS receives multiple codes in the ranging subchannel of a frame, the RNG-REQ message sent by the RS to serving MR-BS may contain information of multiple received codes.

When the MR-BS receives a bandwidth request CDMA ranging code resulting in continue status, it shall wait for RNG-REQ with the same ranging code from its subordinate RSs for T48 timer. Once T48 timer expired, the MR-BS compares measured signal information at each station to decide the most appropriate path to communicate with the code originating MS, according to channel measurement information. When it needs to do adjustment for the code, the MR-BS shall broadcast an RNG-RSP with associated code attribute.

The message sequence charts (Table xxx and Table yyy) and flow charts (Figure xxx and Figure yyy) define the unsolicited RNG-RSP process that shall be followed by compliant RSs and MR-BSs.

Table xxx: Unsolicited RNG-RSP triggered by upstream traffic in non-transparent RS system

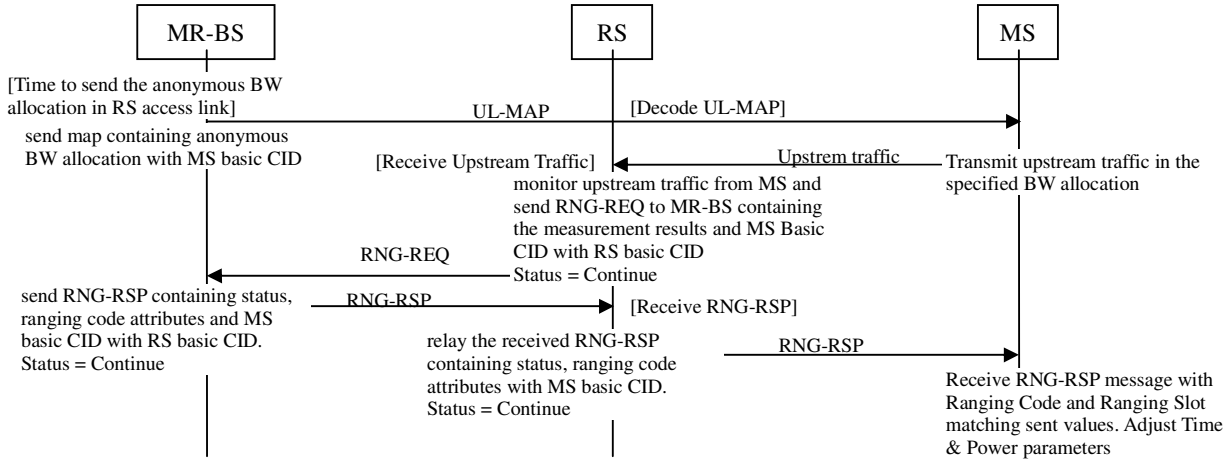
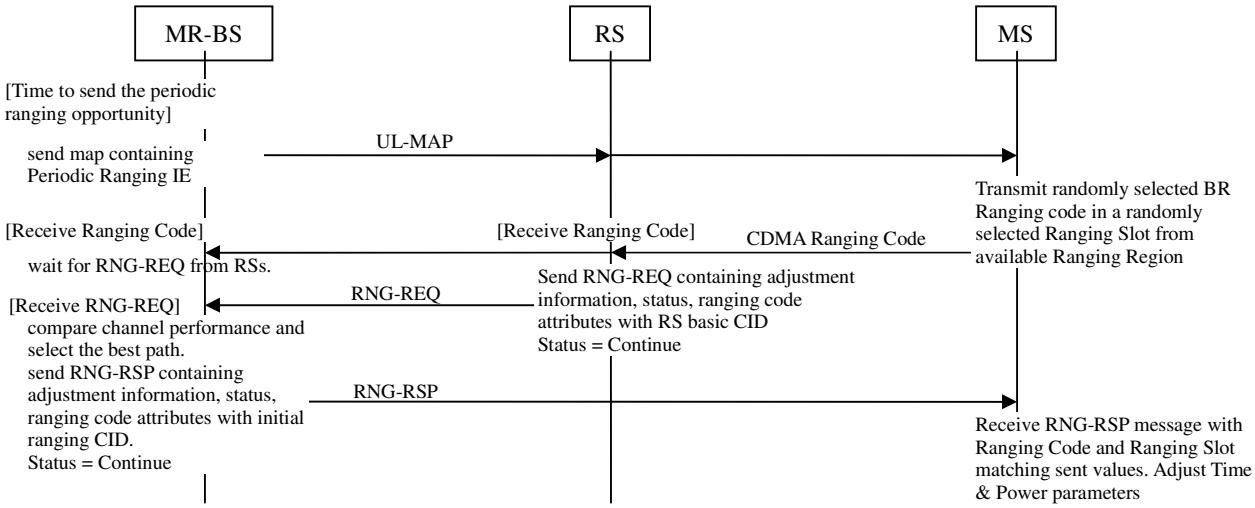


Table yyy: Unsolicited RNG-RSP procedure triggered by CDMA BR ranging code in transparent RS systems



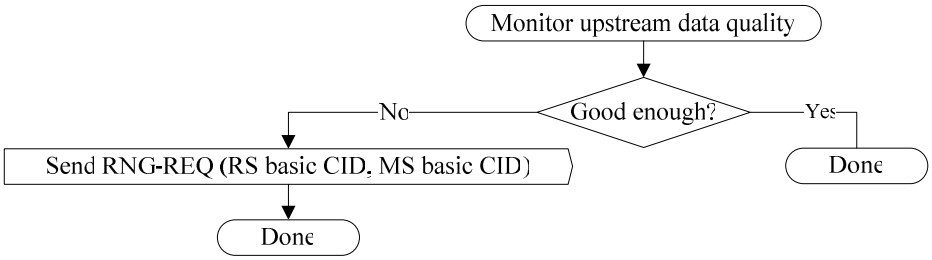


Figure xxx Unsolicited RNG-RSP in Transparent RS system – Transparent Access RS

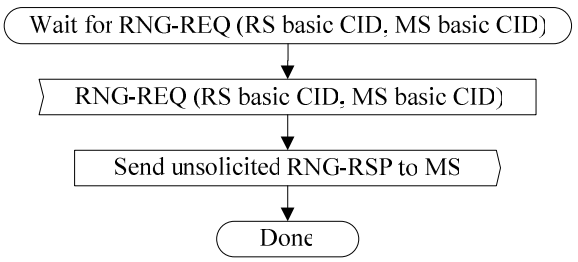


Figure yyy Unsolicited RNG-RSP in Transparent RS system– MR-BS

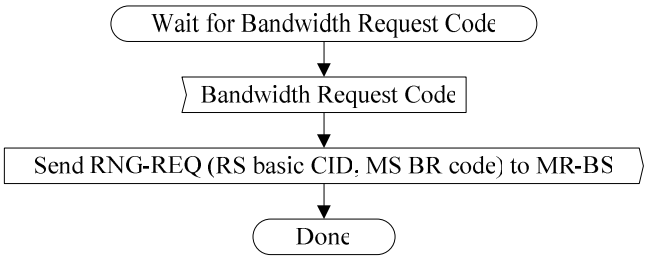


Figure xxx Unsolicited RNG-RSP triggered by CDMA BR ranging code in Transparent RS system – Transparent Access RS

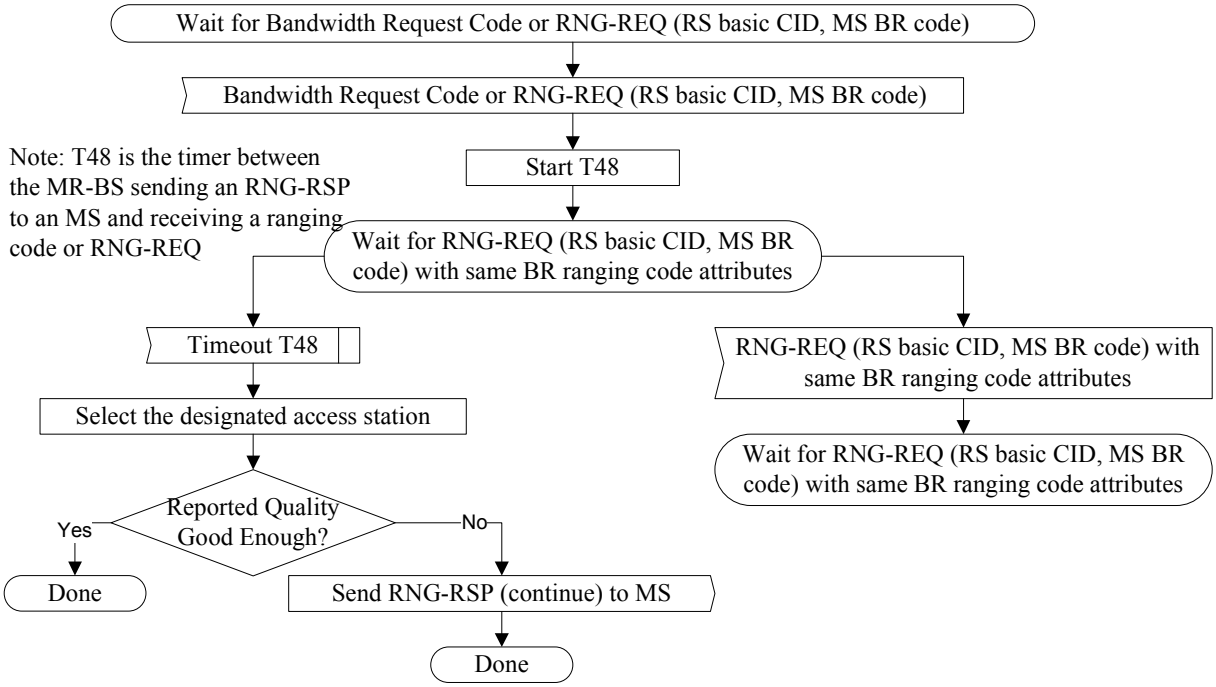


Figure yyy Unsolicited RNG-RSP triggered by CDMA BR ranging code in Transparent RS system– MR-BS

Insert the following rows into Table 364 at 11.5 RNG-REQ TLV:

Table 364—RNG-REQ message encodings

System	Name	Time reference	Minimum value	Default value	Maximum value
MR-BS	T48	Wait for RNG-REQ from the subordinate RS	tbd	tbd	

Insert the following rows into Table 364 at 11.5 RNG-REQ TLV:

Table 364—RNG-REQ message encodings

Name	Type (1 byte)	Length	Value (variable-length)	PHY Scope
Received Ranging Codes	TBA	Variable	Received Ranging Codes is a compound TLV value that indicates received code information.	OFDMA
Timing Adjust	TBA.1	4	Tx timing offset adjustment (signed 32-bit).	OFDMA

			The amount of time required to adjust SS transmission so the bursts will arrive at the expected time instance at the BS. Units are PHY specific (see 10.3).	
Power Level Adjust	TBA.2	1	Tx Power offset adjustment (signed 8-bit, 0.25 dB units). Specifies the relative change in transmission power level that the SS is to make in order that transmissions arrive at the BS at the desired power. When subchannelization is employed, the subscriber shall interpret the power offset adjustment as a required change to the transmitted power density.	OFDMA
Offset Frequency Adjust	TBA.3	4	Tx frequency offset adjustment (signed 32-bit, Hz units). Specifies the relative change in transmission frequency that the SS is to make in order to better match the BS. (This is fine-frequency adjustment within a channel, not reassignment to a different channel.)	OFDMA
Ranging Status	TBA.4	1	Used to indicate whether uplink messages are received within acceptable limits by BS. 1 = continue, 2 = abort, 3 = success	OFDMA
Ranging code attributes	TBA.5	4	Bits 31:22 – Used to indicate the OFDM time symbol reference that was used to transmit the ranging code. Bits 21:16 – Used to indicate the OFDMA subchannel reference that was used to transmit the ranging code. Bits 15:8 – Used to indicate the ranging code index that was sent by the SS. Bits 7:0 – The 8 least significant bits of the frame number of the OFDMA frame where the SS sent the ranging code.	OFDMA
Channel Measurement Information	TBA.6	TBA	TBD	
MS Basic CID	TBA.7	2	MS Basic CID	OFDMA