Project	IEEE 802.16 Broadband Wireless Access Working Group **<http://ieee802.org/16>**	
Title	RS Location Report for Neighbor Discovery	
Date Submitted	2006-01-08	
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Re:	IEEE 802.16j-06/034: "Call for Technical Proposals regarding IEEE Project P802.16j"	
Abstract	This contribution proposes procedures for RS location report for neighbor discovery	
Purpose	Text proposal for 802.16j Baseline Document	
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RS Location Report for Neighbor Discovery

Introduction

This contribution describes RS location report for neighbor discovery. In order to facilitate the incorporation of this proposal into IEEE 802.16j standard, specific changes to the baseline working document IEEE 802.16j-06/026r1 are listed below.

Text Proposal

6.3.26 Relay station neighborhood discovery

6.3.26.1 RS Location Report

In order to assist RS neighborhood discovery, MR-BS should send an RLY_LOC_REP-REQ message defined in Table xxx. RLY_LOC_REP-REQ message should include reference location and may include report repetition interval.

After RS receives the RLY_LOC_REP-REQ message, RS shall update its reference location if the message includes a valid reference location. Then, RS shall report the deviation from the reference location by transmitting an RLY_LOC_REP-RSP message to the serving MR-BS. If the RLY_LOC_REP-REQ message includes a nonzero Report Repetition Interval, RS shall periodically send an RLY_LOC_REP-RSP message to the serving MR-BS every time interval defined by Report Repetition Interval.

Upon receiving the RLY_LOC_REP-RSP message from an RS, the serving MR-BS may send an RLY_NBR-REP message to the RS, which contains the location information and CellID of neighbor RSs.

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

Table xxx – RLY_LOC_REP-REQ message format

Syntax	Size	Notes
RLY_LOC-REP_Message_Format() {	-	-
Management message type = xx	8 bits	-
TLV Encoded Information		
}		

Table xxx –RLY_LOC_REP-REQ message encodings

	Type (1 byte)	Length	Value (Variable-length)	PHY Scope
Report Repetition Internal	TBA	1	Repetition Internal for RLY_LOC_REP-RSP (unit: frame)	OFDMA
Reference Location	TBA	12	Byte 11:8 – Rx: X-axis reference position in WGS84	OFDMA

			(unit: meter) Byte 7:4 – Ry: Y-axis reference position in WGS84 (unit: meter) Byte 3:0 –Rz: Z-axis reference position in WGS84 (unit: meter)	

Table xxx – RLY_LOC_REP-RSP message format

Syntax	Size	Notes
RLY_LOC_REP-RSP_Message_Format() {	-	-
Management message type = xx	8 bits	-
Frame sequence number (FSN)	16 bits	Frame sequence number for estimated position
Px	16 bits	Estimated RS X-axis position deviation from the reference in WGS84 (unit: meter)
Py	16 bits	Estimated RS Y-axis position deviation from the reference in WGS84 (unit: meter)
Pz	16 bits	Estimated RS Z-axis position deviation from the reference in WGS84 (unit: meter)
TLV Encoded Information	variable	TLV specific
}	-	-

Table xxx –RLY_LOC_REP-RSP message encodings

	Type (1 byte)	Length	Value (Variable-length)	PHY Scope
Predicted Position Info	TBA	7	Bytes 6 – Frame number: offset between FSN for predicted position and FSN for estimated position Bytes 5:4 – PPx: Predicted RS X-axis position deviation from the reference in WGS84 (unit: meter) Bytes 3:2 – PPy: Predicted RS Y-axis position deviation from the reference in WGS84 (unit: meter) Bytes 1:0 – PPz: Predicted RS Z-axis position deviation from the reference in WGS84 (unit: meter)	OFDMA
Predicted Position deviation from Estimated position Info	TBA	4	Byte 3 – Frame number: offset to frame number of predicted position Byte 2 – PPx: Predicted RS X-axis position deviation from the estimated position in WGS84 (unit: meter) Byte 1 – PPy: Predicted RS Y-axis position deviation from the estimated position in WGS84 (unit: meter) Byte 0 – PPz: Predicted RS Z-axis position deviation from the estimated position in WGS84 (unit: meter)	OFDMA
Velocity (High Speed) Info	TBA	3	Byte 2 – Vx: RS velocity in WGS84 X-axis (unit: 0.5 meter/second)	OFDMA

			Byte 1 – Vy: RS velocity in WGS84 Y-axis (unit: 0.5 meter/second) Byte 0 – Vz: RS velocity in WGS84 Z-axis (unit: 0.5 meter/second)	
Velocity (Low Speed) Info	TBA	3	Byte 2 – Vx: RS velocity in WGS84 X-axis (unit: 0.1 meter/second) Byte 1 – Vy: RS velocity in WGS84 Y-axis (unit: 0.1 meter/second) Byte 0 – Vz: RS velocity in WGS84 Z-axis (unit: 0.1 meter/second)	OFDMA
Acceleration (High Dynamic) Info	TBA	3	Byte 2 – Ax: RS acceleration in WGS84 X-axis (unit: centimeter/second^2) Byte 1 – Ay: RS acceleration in WGS84 Y-axis (unit: centimeter/second^2) Byte 0 – Az: RS acceleration in WGS84 Z-axis (unit: centimeter/second^2)	OFDMA
Acceleration (Low Dynamic) Info	TBA	3	Byte 2 – Ax: RS acceleration in WGS84 X-axis (unit: millimeter/second^2) Byte 1 – Ay: RS acceleration in WGS84 Y-axis (unit: millimeter/second^2) Byte 0 – Az: RS acceleration in WGS84 Z-axis (unit: millimeter/second^2)	OFDMA

Table xxx – RLY_NBR-REP message format

Syntax	Size	Notes
RLY_NBR-REP_Message_Format() {	-	-
Management message type = xx	8 bits	-
Frame sequence number (FSN)	16 bits	Frame sequence number for estimated position
Nr. of neighbor RS	-	-
for (i=0; i< Nr. of neighbor RS; i++) {	-	-
RS Cell ID	8 bits	RS cell ID
Px	16 bits	Estimated RS X-axis position deviation from the reference in WGS84 (unit: meter)
Py	16 bits	Estimated RS Y-axis position deviation from the reference in WGS84 (unit: meter)
Pz	16 bits	Estimated RS Z-axis position deviation from the reference in WGS84 (unit: meter)
}	-	-
}	-	-

Table xxx: Relay location report (part 1)

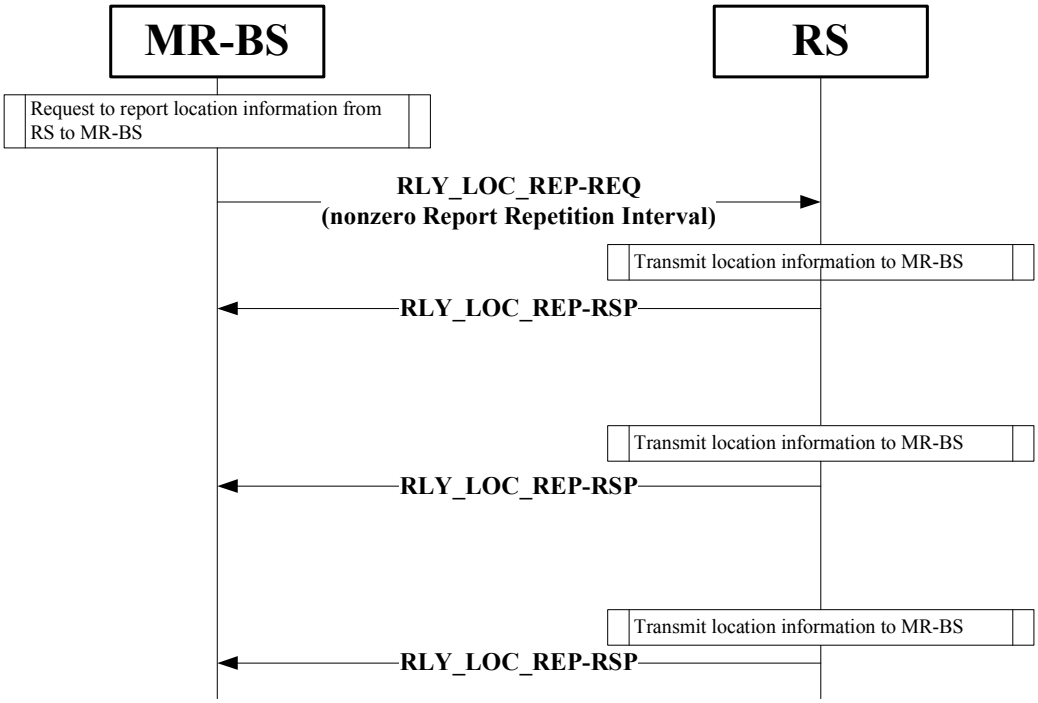
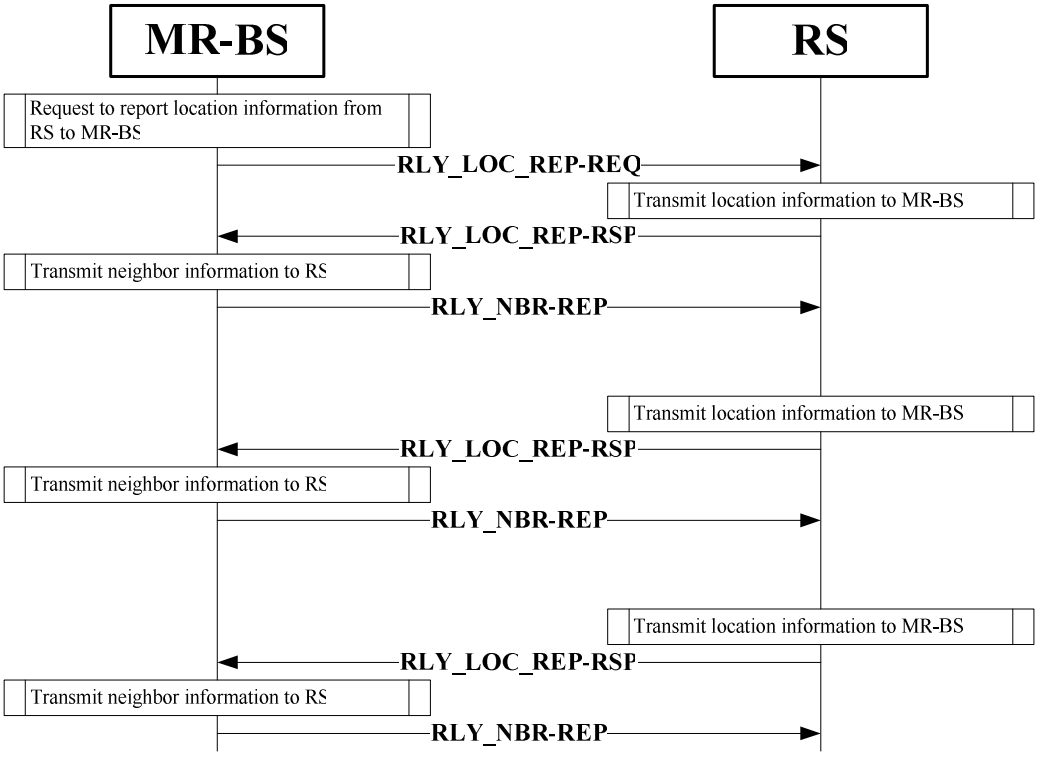


Table yyy: Relay location report (part 2)



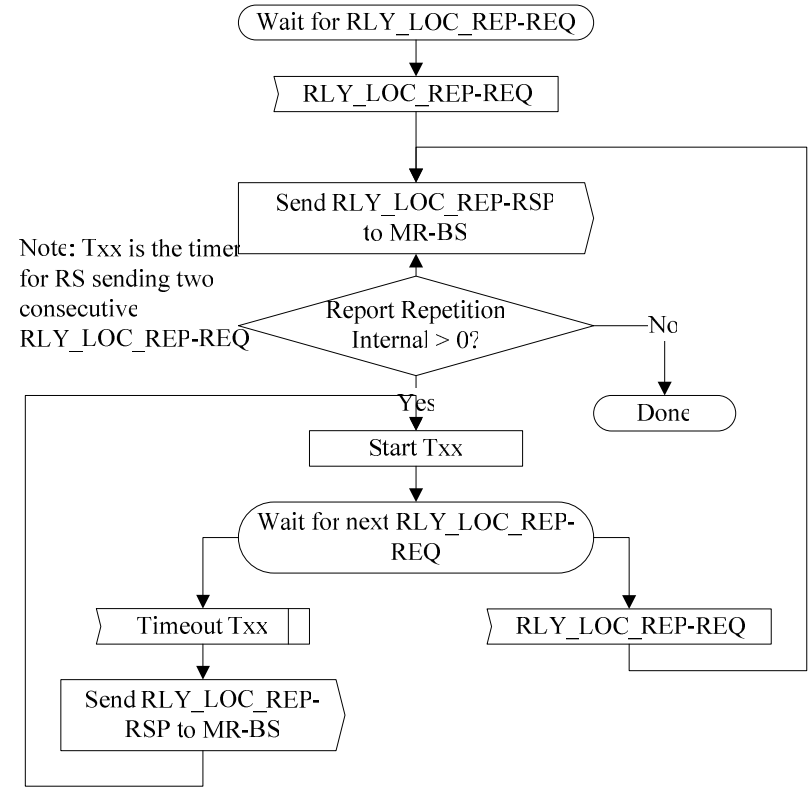


Figure xxx Relay location report- RS

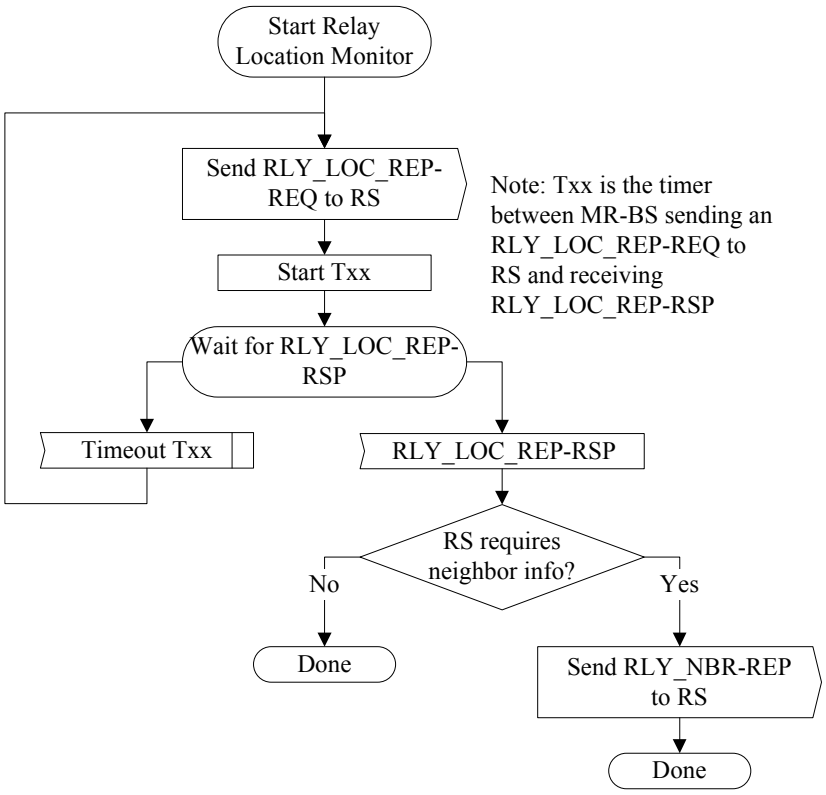


Figure yyy Relay location report – MR-BS