EnOcean Equipment Profiles

REVISION HISTORY

Ver.	Editor	Change	Date
2.6.8	NM	Last xml edition of the EEP-Specification	Dec 31, 2017

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A5-3F: Universal

RORG	A5	4BS Telegram
FUNC	3F	Universal
TYPE	00	Radio Link Test (BI-DIR)

Submitter: PROBARE

Units supporting the EEP Radio Link Test shall offer a functionality that allows for radio link testing between them (Position A to Position B, point-to-point only). Testing shall be possible without the need for prior teach-in and as an option it shall cover two way communications.

Further, testing shall be backward compatible to existing EnOcean installations that support at least 1BS (RORG=0xD5) and 4BS (RORG=0xA5) EnOcean messages.

The main area of RLT application are in-field testing of radio links between portable test equipment placed at different locations as well as between portable test equipment and fixed installation, e.g. an EnOcean Gateway.

Functional description of RLT:

When two units perform radio link testing one unit needs to act in a mode called RLT Master and the other unit needs to act in a mode called RLT Slave. On a RLT enabled unit one or both modes may be supported. The mode(s) supported shall require explicitly activation at run time.
After activation a RLT Master listens for RLT_Query messages. On reception of at least one RLT_Query message a RLT Master responds with an RLT_Response message. Following that it starts transmission of RLT_MasterTest messages within a maximum time frame of 250ms and awaits the response from the RLT Slave for each RLT_MasterTest message sent. A radio link test communication consists of a minimum of 16 and a maximum of 256 RLT_MasterTest messages. Timing distance between individual RLT_MasterTest messages shall not exceed 250ms. When the radio link test communication is completed the RLT Master gets deactivated automatically.
After activation a RLT Slave periodically transmits RLT_Query messages (1 message / 2s). It stops transmission of RLT_Query messages as soon as it has received at least one RLT_Response message. It then waits for RLT_MasterTest messages from the same EnOcean ID and replies to them within a maximum delay of 100ms thru RLT_SlaveTest messages. If it does not receive RLT_MasterTest messages from the same EnOcean ID for a time period of 5s, the RLT Slave restarts periodic transmission of RLT_Query messages. The RLT Slave requires explicit deactivation.

RLT_Query Message

This Message is a "4BS Teach-In Query" message with FUNC, Type and Manufacturer ID set properly. For details please refer to the description of the 4BS teach-in process.

RLT_Response Message

This Message is a "4BS Teach-In Response" message with FUNC, Type and Manufacturer ID set properly. For details please refer to the description of the 4BS teach-in process. As a RLT Master does accept teach-in of a RLT Slave only for the time period required by a single RLT communication it shall indicate the EEP to be supported but the EnOcean ID of the RLT Slave not to be stored permanently.

RLT_MasterTest_4BS

This is the 4BS message sent by the RLT Master during a radio link test communication
DIRECTION- 1

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	28	DB3.7...DB0.4	Not Used (= 0)					
28	1	DB0.3	LRN Bit	LRNB	LRN Bit	Enum: 0: Teach-in telegram 1: Data telegram		
29	2	DB0.2...DB0.1	MSG_ID	MSGID	Message ID	Enum: 2:		
31	1	DB0.0	MSG-Source	MSGS	Message Source	Enum: 0: RLT-Master		

RLT_SlaveTest_4BS

This is the 4BS message sent by the RLT Slave in reply to an RLT_MasterTest_4BS message.
DIRECTION- 2

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	2	DB3.7...DB3.6	Sub-Telegram Counter	STCNT	related to RLT_MasterTest_4BS message received Repeater level 2	Enum: 0: not supported 1: 1 sub telegram 2: 2 sub telegram 3: ≥ 3 sub telegram		
2	6	DB3.5...DB3.0	RSSI Level in dBm	RSLV	related to RLT_MasterTest_4BS message received Repeater level 1	Enum: 0x00: not supported 0x01: ≥-31 dBm 0x02: -32 dBm 0x3F: ≤-93 dBm		
8	8	DB2.7...DB2.0	Sub-Telegram Counter/RSSI Level in dBm	RSLV	Related to RLT_MasterTest_4BS message received Repeater level 1 (for details see DB3)	Enum: : See prev		
16	8	DB1.7...DB1.0	Sub-Telegram Counter/RSSI Level in dBm	RSLV	Related to RLT_MasterTest_4BS message received direct link	Enum: : See prev		

24	4	DB0.7...DB0.4	RSSI Level in dBm	RSLV	Non-EnOcean signal detection since last RLT_MasterTest message RSSI Level with 6dB quantization steps	Enum: 0x00: not supported 0x01: ≥ -31 dBm 0x02: -32...-37 dBm 0x03: -38...-43 dBm 0x04: -44...-49 dBm 0x05: -50...-55 dBm 0x06: -56...-61 dBm 0x07: -62...-67 dBm 0x08: -68...-73 dBm 0x09: -74...-79 dBm 0x0A: -80...-85 dBm 0x0B: ≤ -92 dBm
28	1	DB0.3	LRN Bit	LRNB	LRN Bit	Enum: 0: Teach-in telegram 1: Data telegram
29	2	DB0.2...DB0.1	MSG_ID	MSGID		Enum: 2:
31	1	DB0.0	MSG-Source	MSGS		Enum: 1: RLT-Slave

RLT_MasterTest_1BS

This is the 1BS message sent by the RLT Master during a radio link test communication.

REMARK: The column 'Bitrange' is automatically generated from the telegram type and the offset. The column Bitrange shows currently DB_3 instead of DB_0. This isn't a bug in the XML, only a weakness of the formatting. AT THIS POINT, DB_0 WOULD BE CORRECT.

DIRECTION- 1

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	4	DB3.7...DB3.4	RLT MSG-Counter MSB	MC-MSB	Round-trip, covering all RLT_x_1BS messages 4 bit MSB	Enum: :		
4	1	DB3.3	LRN Bit	LRNB	LRN Bit	Enum: 0: Teach-in telegram 1: Data telegram		
5	2	DB3.2...DB3.1	RLT MSG-Counter LSB	MC-LSB	Round-trip, covering all RLT_x_1BS messages 2 bit LSB	Enum: :		
7	1	DB3.0	MSG-Source	MSGS	Message Source	Enum: 0: RLT Master		

RLT_SlaveTest_1BS

This is the 1BS message sent by the RLT Slave in reply to an RLT_MasterTest_1BS message.

REMARK: The column 'Bitrange' is automatically generated from the telegram type and the offset. The column Bitrange shows currently DB_3 instead of DB_0. This isn't a bug in the XML, only a weakness of the formatting. AT THIS POINT, DB_0 WOULD BE CORRECT.

DIRECTION- 2

Offset	Size	Bitrange	Data	ShortCut	Description	Valid Range	Scale	Unit
0	4	DB3.7...DB3.4	RLT MSG-Counter MSB	MC-MSB	Round-trip, covering all RLT_x_1BS messages 4 bit MSB	Enum: :		
4	1	DB3.3	LRN Bit	LRNB	LRN Bit	Enum: 0: Teach-in telegram 1: Data telegram		
5	2	DB3.2...DB3.1	RLT MSG-Counter LSB	MC-LSB	Round-trip, covering all RLT_x_1BS messages 2 bit LSB	Enum: :		
7	1	DB3.0	MSG-Source	MSGS	Message Source	Enum: 1: RLT-Slave		