RBST Transmit Packet Format:

BM[7..0]

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| Begin Message flag (0x55) | /\* (Potential) Start of Message \*/

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Header [5 bytes]:

Byte 0 & 1 =>

Flags1[15..0]

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| PktTyp[15:14] | seq[13..10] | Payload len[9..0] (w/o final CRC & EM) | /\* PktTyp: 0 = Data, 1 = Cntl, 3 & 4 are reserved, 3-bit seq #, Data Pkt Payload length (0..1023) \*/

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Byte 2 =>

Flags[7..0]

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| r [7] | res[6..4] | eseq[3..0] | /\* r: initial-send reset flag, res: 3 reserved bits (0x2), eSeq: Next expected incoming packet seq # \*/

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Byte 3 & 4 =>

Header 16-bit CRC

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| Header CRC | /\* Seed = 0xffff, XOR with bytes 0..2 \*/

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Payload [payload-len bytes]

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| Payload-len data bytes … |

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Final 16-bit CRC

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| Final CRC | /\* Seed = 0xffff, XOR with header and payload bytes (w/o BM or final crc) \*/

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EM[7..0]

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| End Message flag (0xAA) | /\* (Potential) End of Message \*/

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**Packet Type Details, seq and eseq field, and packet flow control:**

Data packets have a payload length of from 1 to 1024 bytes (encoded 0..1023)

A received Cntl packet with zero (0) payload length acts as a standalone Ack, and assists in advancing the remote end-points confirmed transmit packet seq #. Cntl packets with non-zero payload lengths are reserved (TBD). When the sender receives either a valid cntl Ack, or an opposite direction data packet, the eSeq value will advance the sender's outgoing seq window (by at most 4). All original data and control packets transmitted from an end-point must be successfully acknowledged (via either a received data packet or cntl Ack packet). Otherwise the original packet sender will timeout (PKT-ACK-TIMEOUT) and resend the unacknowledged packet again after a packet timeout period (or until deciding the connection is dead).

When the receiver handler is awaiting another packet, it checks any incoming byte for BM. If not a BM, the byte is discarded (and the UNRECOGNIZED\_BM diagnostic counter is incremented). If it is a BM, the PKT\_HDR\_RCV\_IN\_PROGRESS timer is started, and five (5) additional bytes are awaited. If the five bytes aren't received and the PKT\_HDR\_RCV\_IN\_PROGRESS timer expires,

Packet receive states:

AWAITING\_PKT\_BM

PKT\_HDR\_RCV\_IN\_PROGRESS

PKT\_HDR\_PROSPECT\_RCVD\_VERIFY\_IN\_PROGRESS

PKT\_HDR\_PROSPECT\_REJECTED\_RESYNC

PKT\_HDR\_VERIFIED\_INTERPRET\_PKT\_TYPE

AWAITING\_PKT\_DATA\_PAYLOAD\_FINAL\_CRC\_EM\_IN\_PROGRESS

AWAITING\_PKT\_CNTL\_ACK\_FINAL\_CRC\_EM\_IN\_PROGRESS

PKT\_FINAL\_CRC\_EM\_REJECTED\_RESYNC

PKT\_RCV\_VERIFIED

Message inter-byte timeout: Configurable from 100 ms to 2000 ms