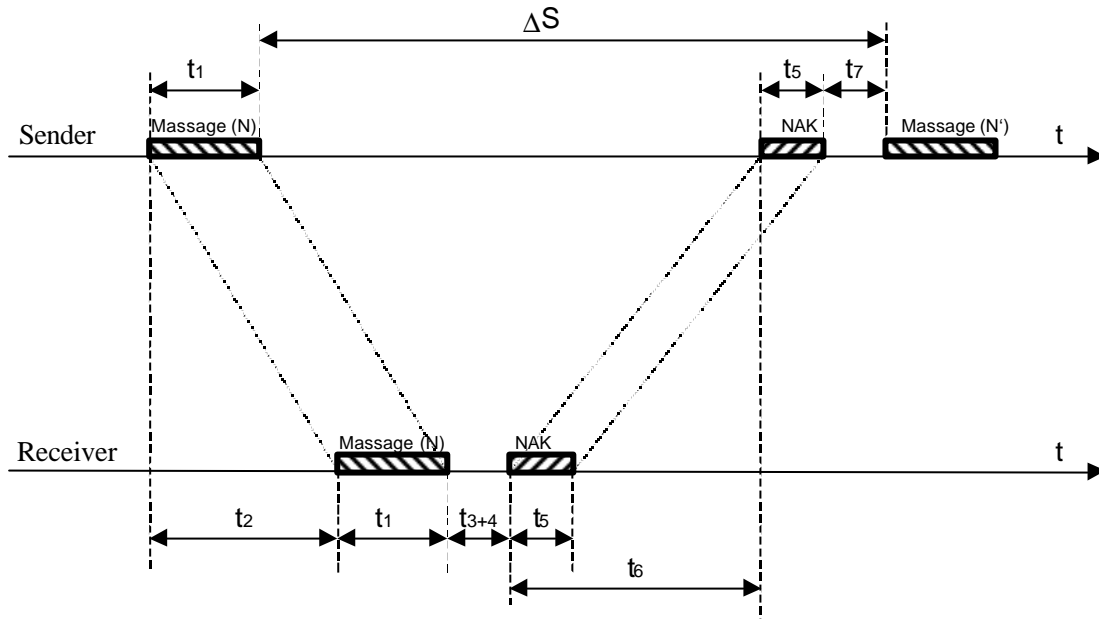


ARQ (automatic repeat request)



Obr. C-1 Important time slots in transmission.

t_1 – time of transmit the packet

t_2 – delay between the transceiver and receiver

t_{3+4} – processing and data evaluation

t_5 – time of transmit acknowledgement

t_6 - delay between the transceiver and receiver

t_7 – time for processing acknowledgement

t_p – sum of every system delay between individual retransmissions

$$t_p = t_2 + t_{3+4} + t_6 + t_7$$

t_1, t_5 – time, which we need for transmit information is not included in delay

ΔS – delay between retransmissions

$$\Delta S = t_p + t_1$$

M – general length of message (information bits)

n – length of transmit packet

m – length of information field in packet

r – header of packet – number of overhead bits

n_1 – length of acknowledgement (number of bits)

R_b – bit transfer rate [bit/s]

B_1 – number of packet, which we need for transmit message with length M

$$B_1 = \left\lceil \frac{M}{n-r} \right\rceil$$

B_2 – total number of packets transmit for time t_0 , if the transfer rate is R_b .

$$B_2 = \left\lceil \frac{t_0 \cdot R_b}{n} \right\rceil$$

h_b – bit throughput (ratio of transmit information bits toward every transmit bits)

$$h_b = \frac{D}{R_b} 100 \quad [\%]$$

P_b – bit error rate (BER)

q – packet error rate, for packet with length n

$$q = 1 - (1 - P_b)^n$$

