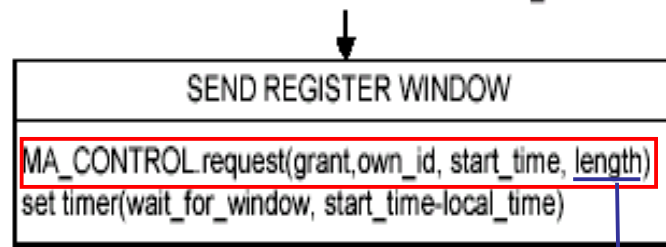


Current definition (1)

- The definition of *length* parameter in MA_CONTROL.request from Discovery Process to Gate Process at the TX side is not clear.
 - Description of D1.1 (P134 Figure 56-16)

MA_CONTROL.request(create_discovery_window, DA, start_time, discovery_length) and
Master == true and me == broadcast_ID



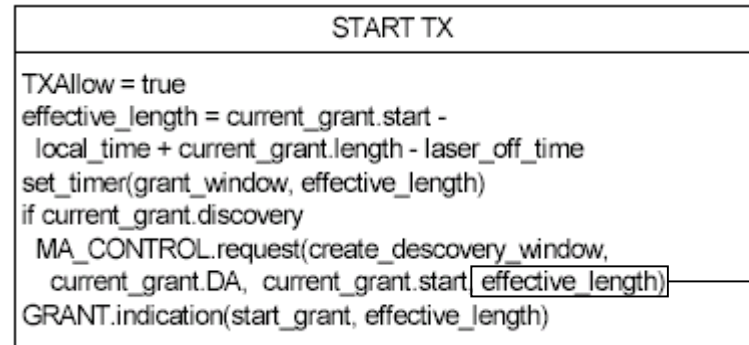
This parameter indicates the length of the allocated discovery window.
(P132 L34)

This parameter indicates the length of grant in the discovery GATE.

If this length is same as discovery_length, there is a problem shown in slide 4.

Current definition (2)

- The definition of effective_length of the discovery gate at the RX side
 - Description of D1.1 (P144 Figure 56-22)

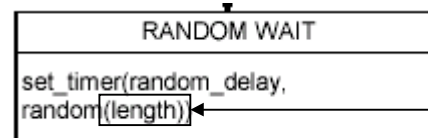


- ✓ The effective_length of discovery gate excludes only the IDLE_time and the laser_off_time from the assigned discovery grant.

- The definition of random delay
 - Description of D1.1 (P131 L24 and P135 Figure 56-17)

integer random(r)

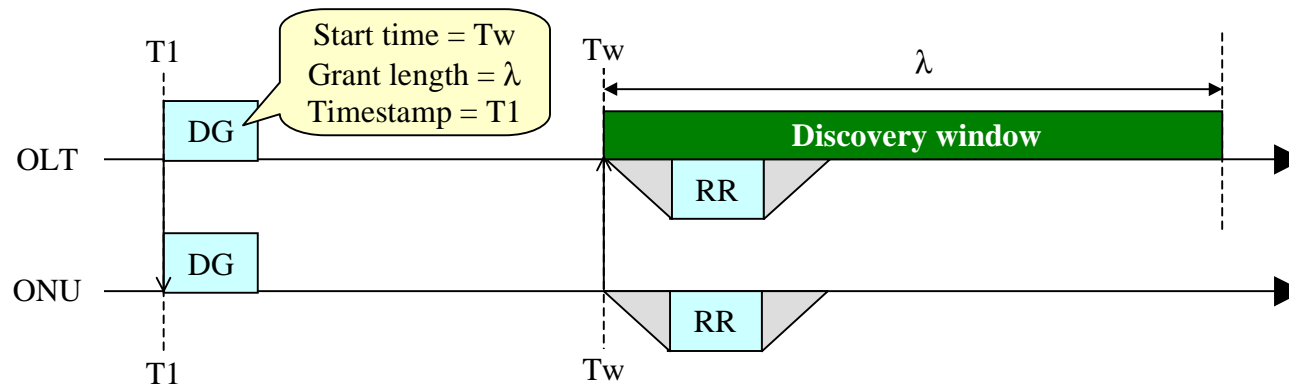
This function is used to compute a random integer number uniformly distributed between 0 and r . The randomly generated number is then returned by the function.



- ✓ The range of random_delay is 0 ~ effective_length of discovery gate.

Case study of Discovery (1)

- Distance = 0, Random delay = 0
 - ➔ Assumption: Grant length = λ (same as the length of discovery window)

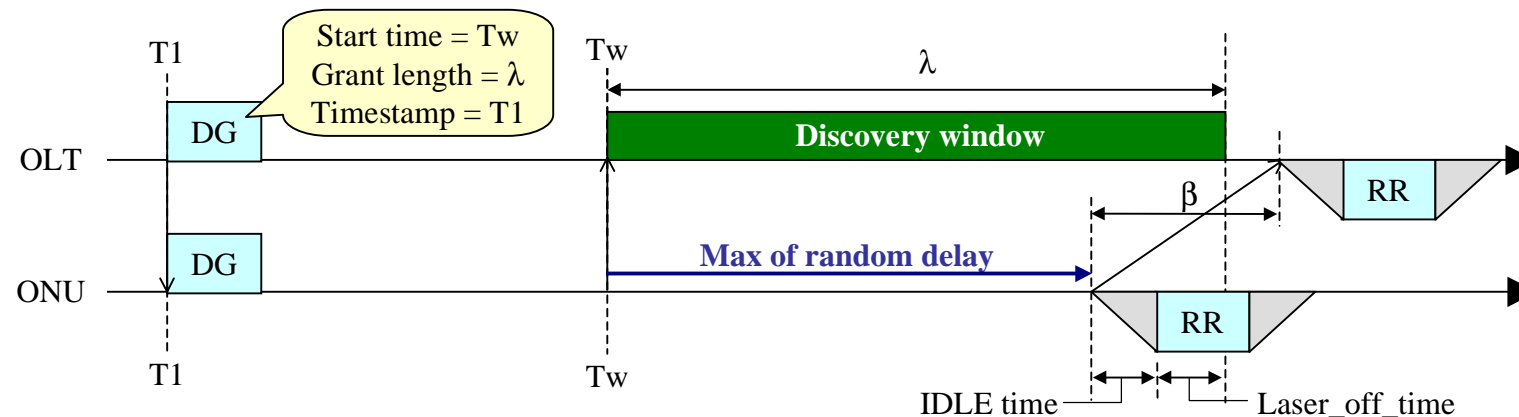


REGISTER_REQ can be received at the beginning of discovery window.

T_w : start time of Discovery window at the OLT
 λ : length of Discovery window

Case study of Discovery (2)

- Distance = $L(>0)$, Random delay = max
 - The maximum random delay is $\lambda - (\text{IDLE time} + \text{laser_off_time})$.
 - ➔ Refer to slide 5.
 - ➔ Assumption: Grant length = λ (same as the length of discovery window)



REGISTER_REQ cannot be received within the discovery window.

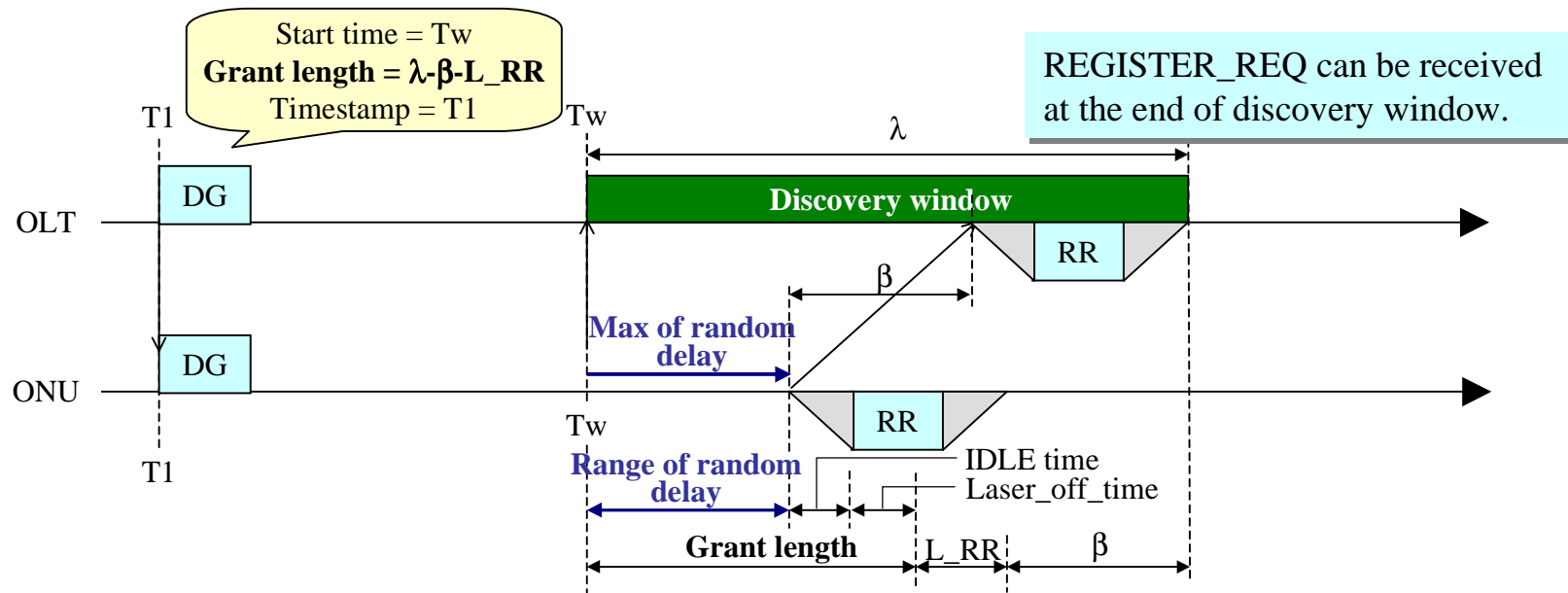
Tw : start time of Discovery window at the OLT
 λ : length of Discovery window
 β : round trip propagation delay

Proposal (to 56.3.4.1)

- Though the specification of grant length may be out of scope of 802.3ah, it is useful to clarify the relationship between the Grant length in the Discovery gate and the Discovery window.
 - On the OLT side, not only the length of allocated discovery window but also the length of discovery gate should be indicated by the client.
 - Two types of MA_CONTROL.request (create_discovery_window) should be specified. One is for OLT, another is for ONU.
 - MA_CONTROL.request (create_discovery_window) primitive for the OLT should have additional parameter *grant_length* which indicates the length of the discovery gate in *time_quanta*. This parameter is mapped into *length* parameter in MA_CONTROL.request primitive in SEND REGISTER WINDOW state.
 - The client calculates the length of the discovery gate. The value is equal to or less than “ $\lambda - \beta - L_{RR}$ ” in *time_quanta*. λ indicates the length of the discovery window, β indicates the round trip propagation delay of the farthest ONU, and L_{RR} indicates the length of REGISTER_REQ including IPG and preamble (i.e. 84 octets), respectively. (See next slide.)
 - Besides MA_CONTROL.request (create_discovery_window), MA_CONTROL.request primitive in SEND REGISTER WINDOW state should be defined.

Proposal

- The Grant length in the Discovery gate should be equal to or less than $\lambda - \beta - L_RR$.
 - λ : The length of Discovery window
 - β : The round trip propagation delay
 - L_RR : The length of REGISTER_REQ including IPG and preamble



T_w : start time of Discovery window at the OLT

λ : length of Discovery window

β : round trip propagation delay

L_RR : length of REGISTER_REQ (including IPG and preamble)