# Terawave Communications

## Frame Formats

*Lighting The First Mile™*

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# Keep it Simple

- ✓ Fixed Frame Format – no Type,Length,Value (TLV)
  - Simple to decode in hardware
  - All messages are identical in nature
- ✓ No optional/vendor specific message fields
  - Makes interoperability difficult
  - All field must be defined before we have a standard
- ✓ Use MAC Address of ONU for PHY ID
  - No OAM Messaging in preamble (to make room for 6 bytes)
  - No Registration procedure to define for assigning PHY IDs

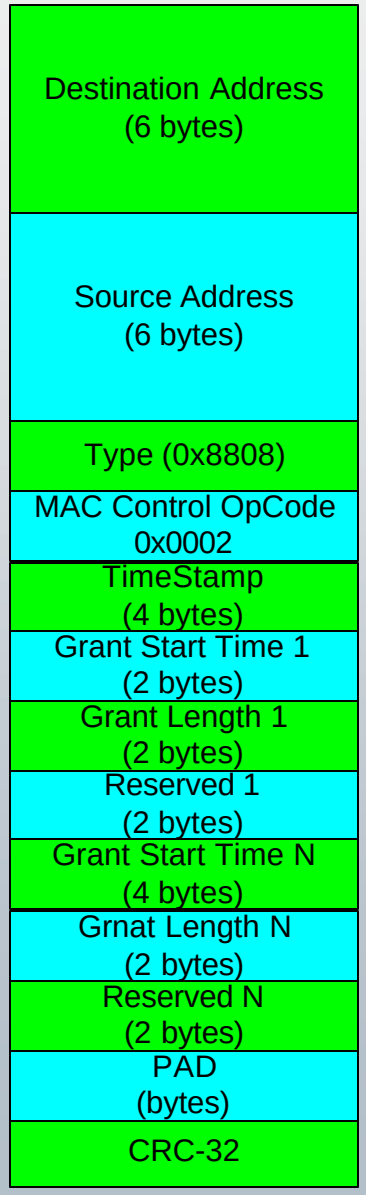
# GATE Message

1. Destination Address

   MAC address of the ONT or

   Multicast for Initial Registration.
2. Source Address

   MAC Address of the OLT
3. Mac Control Ether Type - 0x8808
4. New Mac Control Code - 0x0002
5. Time Stamp - in byte time
6. Grant Start Time - adjusted for ranging at OLT
7. Grant Length - in bytes
8. Reserved – for future use

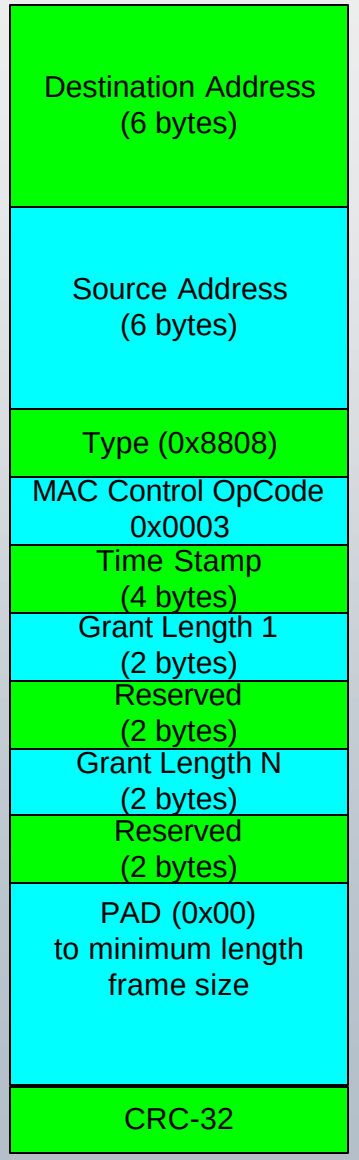


# Request Message

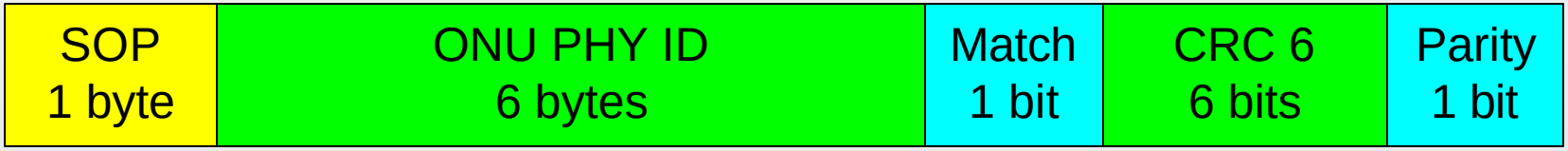
1. Destination Address

   MAC address of the OLT.
2. Source Address

   MAC address of the ONT.
3. Mac Control Ether Type - 0x8808
4. New MAC Control Code - 0x0003
5. Time Stamp – in byte time
6. Grant Length – in bytes
7. Reserved – for future use



## Preamble Message




- ✓ ONU PHY ID
  - learned at registration from ONU's MAC Address
  - maps to service interface at MAC Control
  - may be multicast
- ✓ Match bit
  - ONU drops on PHY ID equal to ONU's MAC Address (Shared emulation);
  - ONU drops on PHY ID not equal to ONU's MAC Address (P2P emulation)
- ✓ CRC 6 – X6+X+1 provides coverage over ONU PHY ID and Match bit
- ✓ Parity – provides even parity. This allows for correction and multibit error detection with the CRC6