

Note to Editor: the original text below was copied from kramer\_3ca\_3a\_0918.pdf, any editorial changes made to that text will need to be duplicated. References are highlighted in yellow and should be replaced with live cross references.

### 144.3.5 Discovery process

Discovery is the process whereby newly connected or off-line ONUs are provided access to the PON. The process is driven by the OLT, which periodically makes available Discovery Windows during which off-line ONUs are given the opportunity to make themselves known to the OLT. The periodicity of these windows is unspecified.

The Discovery process begins with the announcement of the *SpValue* structure using the SYNC\_PATTERN MPCPDU exchange between the OLT and the ONU. Two or three separate SYNC\_PATTERN MPCPDUs are sent by the OLT, announcing the value of SP1, SP2, and optionally SP3 portions of the FEC unprotected area in the head of the upstream burst (see 144.3.4.7). Repeat counts for SP1, SP2, and optionally SP3 during the Discovery Window are announced within the DISCOVERY MPCPDU. Repeat counts for SP1, SP2, and optionally SP3 outside of the Discovery Window (normal granting operation) are announced within the REGISTER MPCPDU. Combined, this allows the OLT to effectively configure the Sync Pattern structure and optimize it for the specific OLT receiver implementation. If a SYNC\_PATTERN MPCPDU is sent prior to the completion of the registration of an ONU responding to a previous Discovery Window (see Figure 144-23) that registration will be aborted and the ONU must wait for a subsequent *SpValue* announcement and Discovery Window to register.

Upon completion of the *SpValue* announcement ~~the~~ OLT signifies that a discovery period is occurring by broadcasting a DISCOVERY MPCPDU, which includes the starting time and length of the Discovery Window, along with the *Discovery Information* field, as defined in Table 144-77.3.6.1. With the appropriate settings of individual flags contained in this 16 bit wide field, the OLT notifies all the ONUs about its upstream and downstream channel transmission capabilities. Note that the OLT may simultaneously support more than one data rate in the ~~given transmission~~downstream direction.

... (Note to Editor: several paragraphs have been omitted for brevity)

There may exist situations when the OLT requires that an ONU go through the discovery sequence again and reregister. Similarly, there may be situations where an ONU needs to inform the OLT of its desire to deregister. The ONU can then reregister by going through the discovery sequence. For the OLT, the REGISTER MPCPDU may indicate a value, Reregister or Deregister, that if either is specified forces the receiving ONU into reregistering. For the ONU, the REGISTER\_REQ MPCPDU contains the Deregister bit that signifies to the OLT that this ONU needs to be deregistered.

~~The Discovery process also includes announcement of the *SpValue* structure using the SYNC\_PATTERN MPCPDU exchange between the OLT and the ONU. Two or three separate SYNC\_PATTERN MPCPDUs are sent by the OLT, announcing the value of SP1, SP2, and optionally SP3 portions of the FEC unprotected area in the head of the upstream burst (see <TBD reference to clause 143>). Repeat counts for SP1, SP2, and optionally SP3 during the Discovery Window are announced within the DISCOVERY MPCPDU. Repeat counts for SP1, SP2, and optionally SP3 outside of the Discovery Window (normal granting operation) are announced within the REGISTER MPCPDU. Combined, this allows the OLT to effectively configure the Sync Pattern structure and optimize it for the specific OLT receiver implementation.~~