Table 3‑ : Variable-Length Supervisory Protocol Data Unit

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable-Length SPDU** | **SPDU Header (1 octet, fixed)** | | | **SPDU Data Field (0-15 octets)** |
|  | Format ID   (Bit 0) | SPDU Type Identifier  (Bits 1,2,3) | Length of SPDU Data Field (Bits 4,5,6,7) | (Contains 1 or more protocol objects, i.e., directives, reports) |
| Type 1 | ‘0’ | ‘000’ | Length in Octets | Mars Operations |
| Type 2 | ‘0’ | ‘001’ | " | Time Distribution PDU |
| Type 3 | ‘0’ | ‘010’ | " | Lunar Operations |
| Type 4 | ‘0’ | ‘011’ | " | Reserved for Vendor Use - TBD |
| Type 5 | ‘0’ | ‘100’ | " | Reserved for CCSDS Use |
| Type 6 | ‘0’ | ‘101’ | " | Reserved for CCSDS Use |
| Type 7 | ‘0’ | ‘110’ | " | Reserved for CCSDS Use |
| Type 8 | ‘0’ | ‘111’ | " | Reserved for CCSDS Use |
| NOTE – Directives and Reports can be multiplexed within the SPDU Data Field. | | | | |

B3 SPDU TYPE 3

B3.1 Overview

The SESSION\_ESTABLISHMENT\_WORKING\_CONTROL directive is the mechanism by which initial (hailing) as well as additional (working) Physical Layer and Coding & Synchronization parameters can be enabled or disabled. The Composite directive is defined as the new Type 3 Variable length SPDUs in Table 3-6 (p. 3-15) in CCSDS 211.0-B-6. SPDU Type Identifier is ‘010’. This directive is transferred across the Proximity link from the local transceiver to the remote transceiver.

B3.2 Session Establishment&Flow\_Control Directive

The Session\_Establishment&Flow\_Control sub-directive of 96 bits shall consist of 11 fields, positioned contiguously in the following sequence (described to most significant bit, Bit 0, to least significant bit 95):

1. Directive Type (3 bits); EQUALS 0
2. Link Direction (1 bit);
3. Hail Demand/Query (1 bit);
4. Query Response (1 bit);
5. Remote No More Data (1 bit);
6. Token (1 bit);
7. Duplex/Simplex Change (3 bits);
8. MODCOD Category (5 bits);
9. MODCOD Type (16 bits);
10. Symbol Rate (32 bits);
11. Carrier Frequency (32 bits);

NOTE – The structural components of the directive SESSION\_ESTABLISHMENT&Flow\_CONTROL SUB-Directive 0 are shown in figure B-TBD.

B3.3 Session Status Report Directive

The SESSION\_STATUS\_Report directive of 16 bits shall consist of 6 fields, positioned contiguously in the following sequence (described from most significant bit, Bit 0, to the least significant bit, Bit 15):

1. Directive Type (3 bits); EQUALS 1
2. Status Report Request (1 bit);
3. Time Tag Request/Time Sample Size (6 bits);
4. Link SNR/Decoded Frame Rate (8 bits);
5. Spares (14 bits);

\*\* I am sure there is more status to report than these fields – consider adding more to it \*\*

B3.4 COP-P control Directive

The COP-P Control directive of 16 bits shall consist of 5 fields, positioned contiguously in the following sequence (described from the most significant bit, Bit 0, to the least significant bit, Bit 15):

1. Directive Type (3 bits); EQUALS 2
2. PCID 0 PLCW Request (1 bit);
3. PCID 1 PLCW Request (1 bit);
4. Spare (3 bits);
5. Set V(R) Receiver Frame Sequence Number (8 bits).

B3.5 Report Source Spacecraft ID Directive

The Report Source Spacecraft ID directive of 32 bits shall consist of 3 fields, positioned contiguously in the following sequence (described from the most significant bit, Bit 0, to the least significant bit, Bit 31):

1. Directive Type (3 bits); EQUALS 3
2. Spares (13 bits);
3. Source Spacecraft ID (16 bits);

END