

Information Carried By the PLC

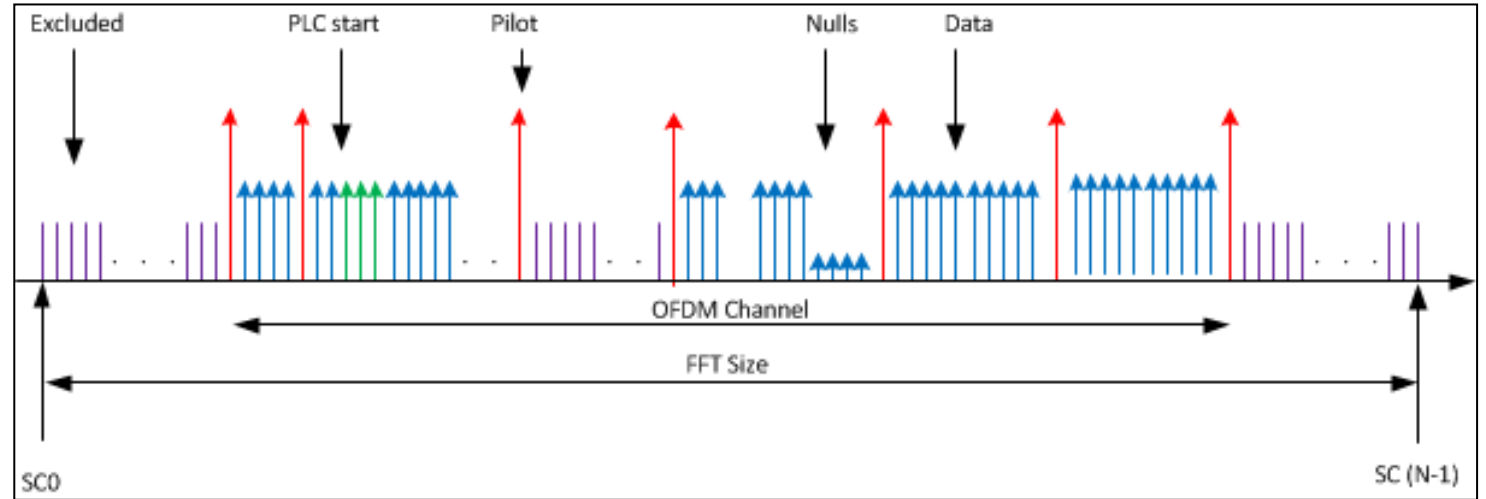
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Information on the Downstream PLC

- Information carried by the PLC and is required by a new CNU receive the downstream OFDM channel
- TDD Split/Indicator
- Downstream OFDM Channel Descriptor
 - Static: Information that is changed rarely by “one time” configuration: CP size, FFT size, exclusions etc ...
- Downstream OFDM Profile Descriptor
 - Dynamic: Information that may change in a more regular basis: bit loading
- Time stamp information
- Next LDPC codeword pointer

Downstream OFDM Channel Descriptor

- OFDM parameters
 - Number of OFDM channels
 - Per DS channel:
 - FFT size, CP size, Window size (each one Byte)
 - Center frequency (22 bits if in KHz?)
 - Downstream Interleaver depth (Byte)
 - PLC location (start subcarrier 13 bits) – or see below
- Subcarrier assignment
 - Data sub-carriers (may include Nulls)
 - Continuous Pilots
 - Exclusion bands
 - PHY Link Channel subcarrier
 - 8192 x 4 bits



Downstream OFDM Profile Descriptor

- Bit loading
 - 4-bits per sub-carrier describe constellation size (0 – for nulls or any other subcarrier that does not carry data)
 - Size of the bit loading table is 8192 x 4 bits

Initial Ranging Signal Description

- Information required for Initial and Fine Ranging signals transmission

- **Initial ranging characteristics**

- Upstream OFDM parameters
- Preamble sequence (256 bits)
- Number of symbols
- Number of subcarriers (not including guard band)
- Window size for initial ranging
- Start and number of RBs allocated for the initial ranging (1-4K, 256)

- **Fine ranging characteristics (unicast)**

- CNU identifier Upstream OFDM parameters
- Preamble sequence (256 bits)
- Number of symbols (1)
- Number of subcarriers (not including guard band) (1-256)
- Start and number of RBs allocated for the fine ranging (1-4K, 256)
- Transmission Power correction
- Transmission offset correction

- **Upstream OFDM parameters**

- FFT size, CP size, Window size (each one Byte)
- Center frequency (18 bits if in KHz?)
- OFDMA frame size (number of symbols)
- Resource block size (number of subcarriers)

- **Subcarrier assignment**

- Exclusion bands

FDD AND TDD SPECIFICS

- There are almost no differences in terms of which data has to be carried over the PLC for FDD and TDD. The only differences are:
 - FDD requires independent information for US and DS frequencies
 - TDD requires information for the US-DS spilt
- The small difference does not justify the definition of different data formats for FDD and TDD. Therefore, we suggest the same PLC data format for FDD and TDD:
 - When using FDD, the data field for the TDD spilt is set to zero
 - When using TDD, the data fields for the US and DS frequencies are filled with the same data.

Questions for considerations

- 1. Upstream PLC channel details for initial ranging - should it be carried over the PLC?*
- 2. Do we have a PLC per OFDM channel or a single PLC for all channels*
- 3. If a PLC per channel:*
 - are all the same carrying information on all channels*
 - Every PLC carry information for its own channel*
- 4. Do we want more than a single PLC per channel for backup?*



THANK YOU