INFORMATION CARRIED BY THE PLC
For FDD Transmission Mode

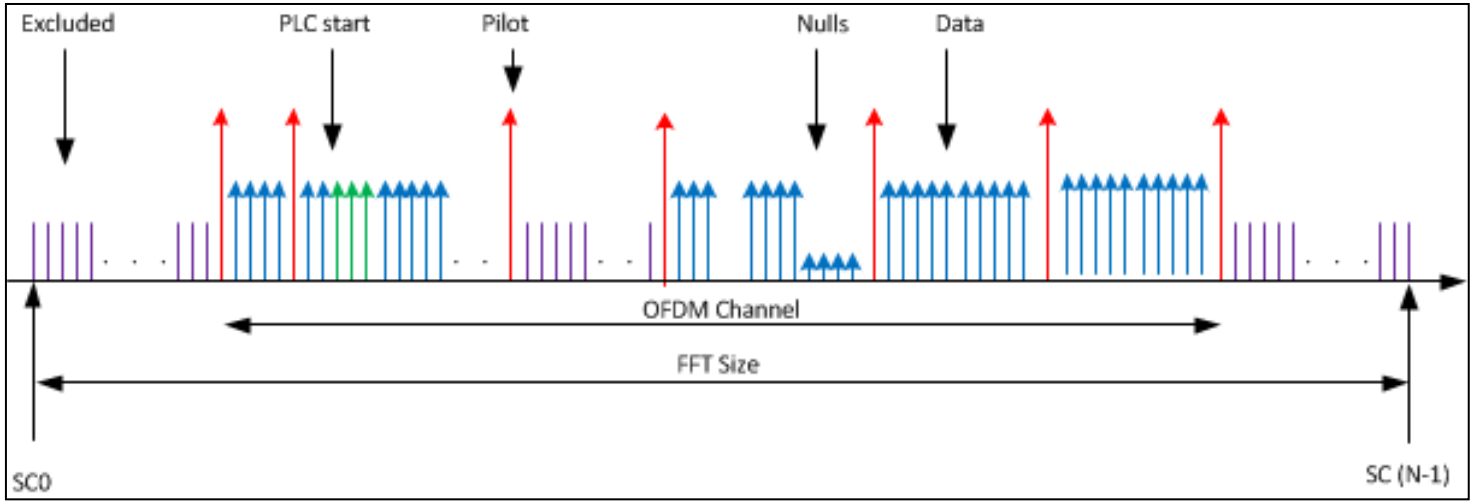
Avi Kliger, Broadcom

Information on the Downstream PLC

- Information carried by the PLC and is required by a new CNU receive the downstream OFDM channel
- 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 basic: 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
  - Number of symbols
  - Number of subcarriers (not including guard band)
  - Window size for ranging

- **Fine ranging characteristics (unicast)**
  - CNU identifier Upstream OFDM parameters
  - Preamble sequence
  - Number of subcarriers
  - Number of symbols
  - Number of subcarriers (not including guard band)
  - 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)
  - Upstream PLC location (start subcarrier 13 bits)

- **Subcarrier assignment**
  - Exclusion bands

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*

THANK YOU