
# EEE parameters for 2.5/5GBASE-T

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# 10GBASE-T EEE History

- 802.3az Draft 3.0 in April 2010
- Vendor interoperability begins – 2012
- 10GBASE-T systems begin shipping with EEE - 2014

# EEE Baseline Proposal

- **Start with 10GBASE-T timings ( in clock cycles)**
- **Minimize changes to reduce interoperability issues**
  - **Maximize power savings with longer quiet periods**
- **Work in ad hoc to determine if changes are needed**
- **Timing in symbols:**

| Parameter | 10G | 5G | 2.5G |
|---|---|---|---|
| Sleep | 2304 | 2304 | 2304 |
| Refresh | 1024 | 1024 | 1024 |
| Quiet | 31744 | 31744 | 31744 |
| Wake | 2304 | 2304 | 2304 |
| Alert* | 1024 | 1024 | 1024 |

*-including silent period

# EEE Baseline Proposal

- **Timing in frames**
  - **2.5G/5G use 2x LDPC frames to compensate for half size frame**
  - **LPI and alert aligned to 2-frame boundary defined in PMA training**

| Parameter | 10G | 5G | 2.5G |
|---|---|---|---|
| Sleep | 9 | 18 | 18 |
| Refresh | 4 | 8 | 8 |
| Quiet | 124 | 248 | 248 |
| Wake | 9 | 18 | 18 |
| Alert* | 4 | 8 | 8 |

*-including silent period

# EEE Baseline Proposal

## Proposed Tables

Table 78–2—Summary of the key EEE parameters for supported PHYs or interfaces

| PHY or interface type | $T_s$ (us) | | Tq (us) | | Tr (us) | |
|---|---|---|---|---|---|---|
| | Min | Max | Min | Max | Min | Max |
| 2.5GBASE-T | 11.52 | 12.8 | 158.72 | 158.72 | 5.12 | 5.12 |
| 5GBASE-T | 5.76 | 6.4 | 79.36 | 79.36 | 2.56 | 2.56 |

Table 78–4—Summary of the LPI timing parameters for supported PHYs

| PHY type | Case | $T_{w\_sys\_tx}$ (min) (us) | $T_{w\_phy}$ (min) (us) | $T_{phy\_shrink\_tx}$ (max) (us) | $T_{phy\_shrink\_rx}$ (max) (us) | $T_{w\_sys\_rx}$ (min) (us) |
|---|---|---|---|---|---|---|
| 2.5GBASE-T | Case-1 | 29.44 | 29.44 | 17.92 | 0 | 11.52 |
| | Case-2 | 17.92 | 17.92 | 6.4 | 0 | 11.52 |
| 5GBASE-T | Case-1 | 14.72 | 14.72 | 8.96 | 0 | 5.76 |
| | Case-2 | 8.96 | 8.96 | 3.2 | 0 | 5.76 |