201.1.4 Operation of MultiG+100M/100M+MultiGBASE-T1/V1

(comment **401** (&**402**) adds):

(Editor to add an intro paragraph before the following. With references to new Figure 201-1, https://www.ieee802.org/3/dm/public/0126/PHY_S%20PHY_D.pdf. Something like: "A MultiG+100M/100M+MultiGBASE-T1/V1 PHY is either a PHY_S device which transmits at a multi-gigabit bit rate and receives at a 100 Mb/s bit rate, or a PHY_D device which transmits at a100 Mb/s bit rate and receives at a multi-gigabit bit rate, shown in *(new)* Figure 201-1. *(old)*Figure 201-1 shows a block diagram of the PHY_S device and Figure 201-2 shows a block diagram of PHY_D device.")

The PHY_S device includes the high-speed transmit function and low-speed receive function required for asymmetric operation over the link segment. The top-level arrangement of the PCS, PMA, synchronization, monitoring, and clock-recovery blocks is shown in Figure 201-1. While the block diagram illustrates data, status, and control flow among these elements, the detailed functional definitions are provided in the remainder of Clause 201.

The PHY_D device includes the low-speed transmit function and high-speed receive function required for asymmetric operation over the link segment. The top-level arrangement of the PCS, PMA, synchronization, monitoring, and clock-recovery blocks is shown in Figure 201-2. While the block diagram illustrates data, status, and control flow among these elements, the detailed functional definitions are provided in the remainder of Clause 201.

(then, comment **182** adds – this needs amending to drop /V1 in the first sentence, change shown in strikeout):

Auto-Negotiation (Clause 98) may optionally be used by MultiG+100M/100M+MultiGBASE-T1~~/V1~~ devices to detect the abilities (modes of operation) supported by the device at the other end of a link segment, determine common abilities, and configure for normal operation. Auto-Negotiation is performed upon link startup through the use of half-duplex differential Manchester encoding. The implementation of the Auto-Negotiation function is optional.

(then, proposed solution to comment **183**)

A MultiG+100M/100M+MultiGBASE-T1/V1 PHY can operate as LEADER or FOLLOWER, per runtime configuration. A LEADER PHY uses a local clock to determine the timing of transmitter operations. A FOLLOWER PHY recovers the clock from the received signal and uses it to determine the timing of transmitter operations. The LEADER-FOLLOWER

relationship is established by forced configuration in the Link Synchronization process (see 201.7.3), or by auto-negotiation if it is implemented and enabled.

NOTE—Annex K describes that the optional alternative terminology "leader" "follower" was formerly known as “master” and “slave”.

(Editor to make sure the reference is to what was 201.7.3 in D0.a.)

Add 201.10.1 to the draft:

201.10.1 Support for Auto-Negotiation

MultiG+100M/100M+MultiGBASE-T1 PHYs optionally provide support for Auto-Negotiation. If Auto-Negotiation is implemented, it shall meet the requirements of Clause 98.

MultiG+100M/100M+MultiGBASE-V1 PHYs do not support Auto-Negotiation.

Auto-Negotiation, when implemented and enabled, is performed as part of the initial set-up of the link and allows the PHYs at each end to advertise their capabilities (speed, PHY type, half or full duplex) and to automatically select the operating mode for communication on the link. Auto-Negotiation signaling is used for the following primary purposes for MultiG+100M/100M+MultiGBASE-T1:

a) To negotiate which PHY types, including speed and direction, can be supported,

b) To determine the LEADER-FOLLOWER relationship between the PHYs at each end of the link.