

PHY Auto Precoder Selection

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Introduction

- In D2.0 Table 45-155c
 - Register 1.2311.3:2 is “Precoder requested”
 - Configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField.
- It may be more robust to let the PHY to choose the precoder on-the-fly based on channel and noise conditions.
- What need to be changed:
 - Clause 45
 - 1.2311.5=0 to let PHY choose precoder, 1.2311.5=1 to override with user selection
 - Report the actual precoder selection in register 1.2310 bit 4:3
 - Add descriptions for modified or newly added bits
 - Clause 149
 - During PAM2 training, ignore link partner capability bits until the link partner InfoField bit “loc_rcvr_status” is 1.
 - This allows the link partner receiver to observe the channel and noise condition before making the final decision.

Required Changes – Clause 45

- Page 36, line 39, Table 45-155b

1.2310.7:5	Reserved	Value always 0	RO
1.2310.4:3	Actual precoder requested	00 = no precoder requested 01 = 1-D precoder requested 10 = 1+D precoder requested 11 = 1-D ² precoder requested	RO

Required Changes – Clause 45 (cont.)

- Page 38, line 13, Table 45-155c

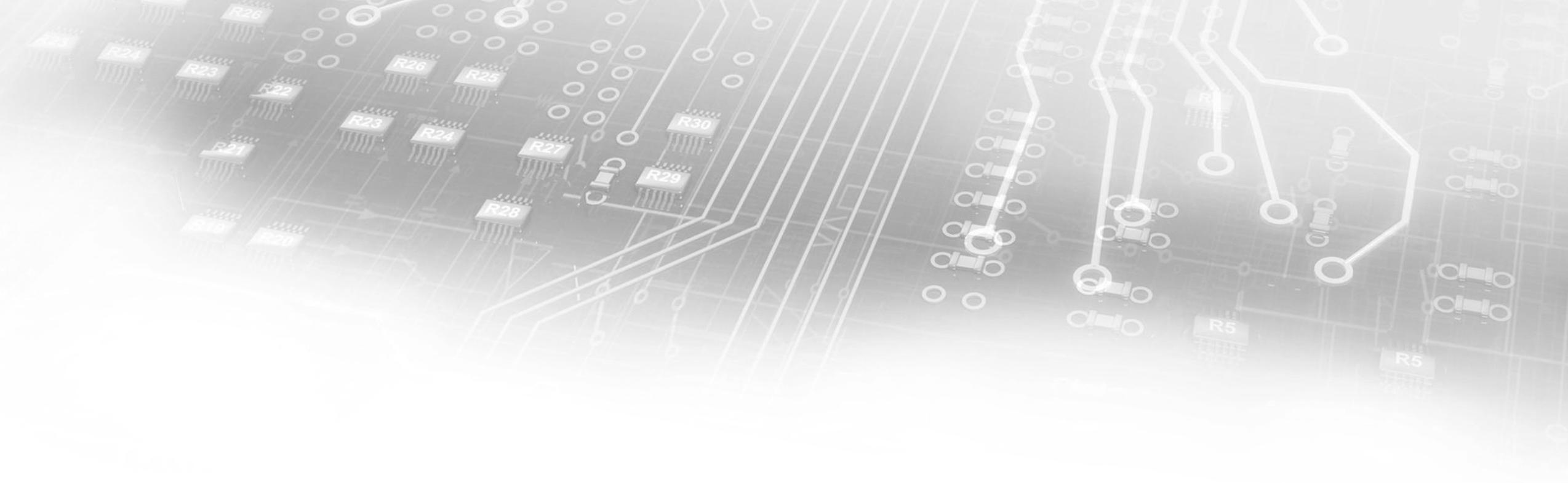
1.2311.10:6	Reserved	Value always 0	RO
1.2311.5	Precoder request override	0 = The PHY shall select the requested precoder and ignore bits 1.2311.3:2. 1 = The user configured 1.2311.3:2 shall be the requested precoder.	R/W

Required Changes – Clause 45 (cont.)

- Page 37, line 24, before 45.2.1.193.5, insert 45.2.1.193.4a as follows:
 - 45.2.1.193.4a Actual precoder selected (1.2310.4:3)
 - Bits 1.2310.4:3 contain the actual requested precoder setting by the PHY. The precoder requested is encoded as the value of precoder_type defined in 149.3.2.2.19, and communicated to the link partner via Infofields as specified in 149.4.2.4.4.
- Page 38, line 32, before 45.2.1.194.2, insert 45.2.1.194.1a as follows:
 - 45.2.1.194.1a Precoder request override (1.2311.5)
 - When set as a one, the PHY shall use 1.2311.3:2 as the requested precoder. When set as a zero, the PHY shall ignore bits 1.2311.3:2 and select the requested precoder.
- Page 38, line 40, 45.2.1.194.3, change the paragraph to:
 - 45.2.1.194.3 Precoder requested (1.2311.3:2)
 - When 1.2311.5 is 1, bits 1.2311.3:2 shall be the requested precoder setting by the PHY. When 1.2311.5 is 0, bits 1.2311.3:2 shall be ignored.

Required Changes – Clause 149

- Page 142, line 45, 149.4.2.4.5, add one more paragraph after line 45:
 - The capability bit values shall be considered as valid only when the `loc_rcvr_status` bit is 1.



THANK YOU
