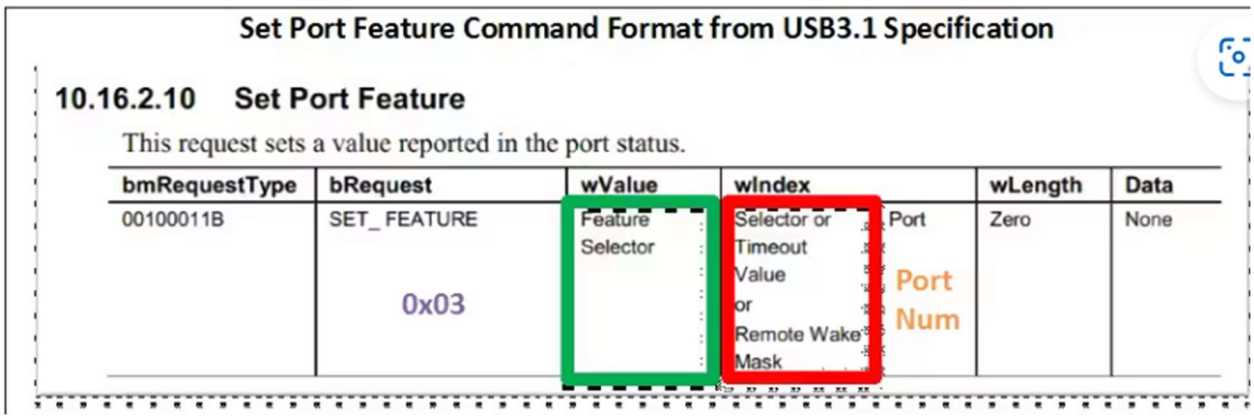
USB3.1 Hub Downstream TX Compliance in Linux

USB3.1 Downstream port TX Compliance entry works in a similar fashion to USB2.0 downstream port test mode entry; the hub must receive a specific test mode command issued from the USB host.

***SPECIAL NOTE: The "Set Port Feature: PORT_LINK_STATE = Compliance Mode" command must be issued to the hub while the port is in the disconnected state. The test fixture should not be connected to the downstream test port when the command is issued. The test fixture should only be connected to the downstream test port after confirming that the**

The **"Set Port Feature: PORT_LINK_STATE = Compliance Mode"** is a standard control transfer which is described in the USB3.1 specification. The Command format and required bRequest, wValue, and wIndex values are described through USB3.1 specification excerpts below.



Hub Class "Feature Selector" options for USB3.1 hubs.
PORT_LINK_STATE is the desired selection.

Table 10-9. Hub Class Feature Selectors

Feature Selector	Recipient	Value
C_HUB_LOCAL_POWER	Hub	0
C_HUB_OVER_CURRENT	Hub	1
PORT_CONNECTION	Port	0
PORT_OVER_CURRENT	Port	3
PORT_RESET	Port	4
PORT_LINK_STATE	Port	5
PORT_POWER	Port	8
C_PORT_CONNECTION	Port	16
C_PORT_OVER_CURRENT	Port	19
C_PORT_RESET	Port	20
RESERVED (used in USB 2.0 specification)	Port	21
PORT_U1_TIMEOUT	Port	23
PORT_U2_TIMEOUT	Port	24
C_PORT_LINK_STATE	Port	25
C_PORT_CONFIG_ERROR	Port	26
PORT_REMOTE_WAKE_MASK	Port	27
BH_PORT_RESET	Port	28
C_BH_PORT_RESET	Port	29
FORCE_LINKPM_ACCEPT	Port	30

PORT_LINK_STATE options for USB3.1 hubs.
Compliance Mode is the desired selection.

5-8 Port Link State (PORT_LINK_STATE): This field reflects the current state of the link attached to this port. A new state is not reflected until the link state transition to that state is complete.

Value	Meaning
0x00	Link is in the U0 State
0x01	Link is in the U1 State
0x02	Link is in the U2 State
0x03	Link is in the U3 State
0x04	Link is in the eSS.Disabled State
0x05	Link is in the Rx.Detect State
0x06	Link is in the eSS.Inactive State
0x07	Link is in the Polling State
0x08	Link is in the Recovery State
0x09	Link is in the Hot Reset State
0xA	Link is in the Compliance Mode State
0xB	Link is in the Loopback State
0xC-0xF	Reserved