

GRL-USB-PD Compliance Test Solution

DUT Information

Manufacturer : TI
Model : TPS659xx
Serial No. :

Test Information

Test Lab :
Test_Engineer : Test_Engineer
Remarks : Remarks
Date : 2023_11_23

Environment Information

Parameter	Value
GRL_USB_PD_Controller_Serial_No	GRL-C2-EPR-2022098
GRL_USB_PD_Software_Version	1.6.19.0
GRL_USB_PD_Firmware_Version	1.1.72
GRL USB-PD Ethernet Buffer Size	62K
GRL USB-PD Eload Firmware Version	1.5 / 1.5
GRL USB-PD PPS Firmware Version	4.0 / 4.0
Board Calibration	Calibration Success
RX mask Power selection	Neutral Power
Device_Type	DRP

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Parameter	Value
Cable Type	GRL_SPL_EPR_CABLE_1
Impedance (milli ohm)	12
PD_Merged CTS Version	v.Q4-2023
VIF_File_Name	TI_TPS659xx_1_0-1123-01.xml
Noise Pattern Generation:	Two-Tone Noise
Application mode	Informational
Disabled all Pop-up during test execution	False
Pop-up Timer	0

Power Delivery 3.1 Tests Information

Parameter	Value
Connect EPR Test Fixture	False
FR_Swap AUTO Box Connected	False

Device Info Capabilities

Parameter	Vendor Info File	Get Capabilities
Port_Label	1 1	
Connector_Type	Type-C®	
USB4_Supported	YES	
USB4_Router_Index	0	
USB_PD_Support	YES	
PD_Port_Type	DRP	
Type_C_State_Machine	DRP	
Port_Battery_Powered	NO	
BC_1_2_Support	None	
Captive_Cable	NO	
PD_Spec_Revision_Major	3	
PD_Spec_Revision_Minor	0	
PD_Spec_Version_Major	2	
PD_Spec_Version_Minor	0	
PD_Specification_Revision	Revision 3	
SOP_Capable	YES	
SOP_P_Capable	YES	
SOP_PP_Capable	YES	
SOP_P_Debug_Capable	NO	
SOP_PP_Debug_Capable	NO	
Manufacturer_Info_Supported_Port	NO	
Chunking_Implemented_SOP	YES	
Unchunked_Extended_Messages_Supported	YES	
Security_Msgs_Supported_SOP	NO	
Unconstrained_Power	YES	
Num_Fixed_Batteries	0	
Num_Swappable_Battery_Slots	0	
ID_Header_Connector_Type_SOP	USB Type-C Receptacle	
USB_Comms_Capable	YES	
DR_Swap_To_DFP_Supported	YES	

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Parameter	Vendor Info File	Get Capabilities
DR_Swap_To_UFP_Supported	YES	
VCONN_Swap_To_On_Supported	YES	
VCONN_Swap_To_Off_Supported	YES	
Responds_To_Discov_SOP_UFP	YES	
Responds_To_Discov_SOP_DFP	YES	
Attempts_Discov_SOP	YES	
Power_Interruption_Available	No Interruption Possible	
Data_Reset_Supported	YES	
Enter_USB_Supported	YES	
Type_C_Can_Act_As_Host	YES	
Type_C_Can_Act_As_Device	YES	
Type_C_Implements_Try_SRC	NO	
Type_C_Implements_Try_SNK	YES	
Type_C_Supports_Audio_Accessory	NO	
Type_C_Is_VCONN_Powered_Accessory	NO	
Type_C_Is_Debug_Target_SRC	NO	
Type_C_Is_Debug_Target_SNK	NO	
RP_Value	3A	
Type_C_Port_On_Hub	NO	
Type_C_Power_Source	Both	
Type_C_Sources_VCONN	YES	
Type_C_Is_Alt_Mode_Controller	YES	
Type_C_Is_Alt_Mode_Adapter	YES	
USB4_Lane_0_Adapter	1	
USB4_Max_Speed	Gen 3 (40Gb)	
USB4_DFP_Supported	YES	
USB4_UFP_Supported	YES	
USB4_USB3_Tunneling_Supported	YES	
USB4_DP_Tunneling_Supported	YES	
USB4_PCl_e_Tunneling_Supported	YES	
USB4_TBT3_Compatibility_Supported	YES	
USB4_CL1_State_Supported	YES	
USB4_CL2_State_Supported	YES	
USB4_Num_Retimers	0 retimers	

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Parameter	Vendor Info File	Get Capabilities
USB4_DP_Bit_Rate	HBR3	
USB4_Num_DP_Lanes	4 Lanes	
Product_Total_Source_Power_mW	111000	
Port_Source_Power_Type	Assured	
Host_Supports_USB_Data	YES	
Host_Speed	USB 3.2 Gen 2x2	
Host_Contains_Captive_Retimer	NO	
Host_Truncates_DP_For_tDHPResponse	NO	
Host_Is_Embedded	NO	
Host_Suspend_Supported	YES	
Is_DFP_On_Hub	NO	
Device_Supports_USB_Data	1	
Device_Speed	USB 3.2 Gen 2x2	
Device_Max_USB2_Speed	High Speed	
Device_Contains_Captive_Retimer	NO	
Device_Truncates_DP_For_tDHPResponse	NO	
EPR_Supported_As_Src	NO	
FR_Swap_Type_C_Current_Capability_As_Initial_Sink	FR_Swap not supported	
Master_Port	YES	
Has_Invariant_PDOs	YES	
Port_Managed_Guaranteed_Type	Guaranteed Capability	
EPR_Supported_As_Snk	NO	
Accepts_PR_Swap_As_Src	NO	
Accepts_PR_Swap_As_Snk	YES	
Requests_PR_Swap_As_Src	NO	
Requests_PR_Swap_As_Snk	YES	
FR_Swap_Supported_As_Initial_Sink	NO	
XID_SOP	0	
Data_Capable_As_USB_Host_SOP	YES	
Data_Capable_As_USB_Device_SOP	YES	
Product_Type_UFP_SOP	PDUSB Peripheral	
Product_Type_DFP_SOP	PDUSB Hub	
DFP_VDO_Port_Number	1	
Modal_Operation_Supported_SOP	YES	

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Parameter	Vendor Info File	Get Capabilities
USB_VID_SOP	2629	
PID_SOP	0D45	
bcdDevice_SOP	0714	
PD_Power_As_Source	96000	
USB_Suspend_May_Be_Cleared	YES	
Sends_Pings	NO	
Num_Src_PDOs	4 Src PDOs	
PD_OC_Protection	YES	
PD_OCP_Method	Both	
PD_Power_As_Sink	0	
No_USB_Suspend_May_Be_Set	YES	
GiveBack_May_Be_Set	NO	
Higher_Capability_Set	NO	
FR_Swap_Reqd_Type_C_Current_As_Initial_Source	FR_Swap not supported	
Num_Snk_PDOs	1 Snk PDO	
SVID_Fixed_SOP	YES	
Num_SVIDs_Min_SOP	2	
Num_SVIDs_Max_SOP	2	
Src_PDO_Supply_Type #1	Fixed	
Src_PDO_Peak_Current #1	100% IOC	
Src_PDO_Voltage #1	5000 mV	
Src_PDO_Max_Current #1	5000 mA	
Src_PD_OCP_OC_Debounce #1	1 msec	
Src_PD_OCP_OC_Threshold #1	5000 mA	
Src_PD_OCP_UV_Debounce #1	1 msec	
Src_PD_OCP_UV_Threshold_Type #1	Percentage	
Src_PD_OCP_UV_Threshold #1	20 %	
Src_PDO_Supply_Type #2	Fixed	
Src_PDO_Peak_Current #2	100% IOC	
Src_PDO_Voltage #2	9000 mV	
Src_PDO_Max_Current #2	5000 mA	
Src_PD_OCP_OC_Debounce #2	1 msec	
Src_PD_OCP_OC_Threshold #2	5000 mA	
Src_PD_OCP_UV_Debounce #2	1 msec	

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Parameter	Vendor Info File	Get Capabilities
Src_PD_OCP_UV_Threshold_Type #2	Percentage	
Src_PD_OCP_UV_Threshold #2	20 %	
Src_PDO_Supply_Type #3	Fixed	
Src_PDO_Peak_Current #3	100% IOC	
Src_PDO_Voltage #3	15000 mV	
Src_PDO_Max_Current #3	5000 mA	
Src_PD_OCP_OC_Debounce #3	1 msec	
Src_PD_OCP_OC_Threshold #3	5000 mA	
Src_PD_OCP_UV_Debounce #3	1 msec	
Src_PD_OCP_UV_Threshold_Type #3	Percentage	
Src_PD_OCP_UV_Threshold #3	20 %	
Src_PDO_Supply_Type #4	Fixed	
Src_PDO_Peak_Current #4	100% IOC	
Src_PDO_Voltage #4	20000 mV	
Src_PDO_Max_Current #4	4800 mA	
Src_PD_OCP_OC_Debounce #4	1 msec	
Src_PD_OCP_OC_Threshold #4	4800 mA	
Src_PD_OCP_UV_Debounce #4	1 msec	
Src_PD_OCP_UV_Threshold_Type #4	Percentage	
Src_PD_OCP_UV_Threshold #4	20 %	
Snk_PDO_Supply_Type #1	Fixed	
Snk_PDO_Voltage #1	5000 mV	
Snk_PDO_Op_Current #1	0 mA	
SVID_SOP	8087	
SVID_Modes_Fixed_SOP	YES	
SVID_Num_Modes_Min_SOP	1	
SVID_Num_Modes_Max_SOP	1	
SVID_Mode_Enter_SOP	YES	
SVID_Mode_Recog_Value_SOP	00000001	
SVID_SOP	FF01	
SVID_Modes_Fixed_SOP	YES	
SVID_Num_Modes_Min_SOP	1	
SVID_Num_Modes_Max_SOP	1	
SVID_Mode_Enter_SOP	YES	

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Parameter	Vendor Info File	Get Capabilities
SVID_Mode_Recog_Value_SOP	000C0045	

PD_Merged Result

SI No	Test ID	Test Name	Test Result
1	TEST.PD.PHY.ALL.1	TEST.PD.PHY.ALL.1 Transmit Bit Rate and the Drift	PASS
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		Rev3ChkdSnk	PASS
		fBitRateMeas - TEST.PD.PHY.ALL.1#1	PASS
		Bit Rate-1 >>Valid Protocol response for BIST Request	PASS
		Bit Rate-2 >>Valid BIST response pattern	PASS
		Bit Rate-3 >>Bit Rate is 301.641 Kbps. Test limit (270 ~ 330) Kbps	PASS
		pBitRateMeas - TEST.PD.PHY.ALL.1#2	PASS
		Bit Rate-4 >>Bit Rate is 0.003 %. Test limit: X < 0.25%	PASS
		tBISTContMode Limits validation - TEST.PD.PHY.ALL.1#3	PASS
		Bit Rate-5 >>BIST pattern duration 45.0501400 mS (Limit <= 60ms)	PASS
		--- 1/1 captures completed	
2	TEST.PD.PHY.ALL.2	TEST.PD.PHY.ALL.2 Transmitter Eye Diagram	PASS
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		Rev3ChkdSnk	PASS

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SI No	Test ID	Test Name	Test Result
		fBitRateMeas - TEST.PD.PHY.ALL.2#1	PASS
		Eye diagram-1 >>Valid Protocol response for BIST Request	PASS
		Eye diagram-2 >>Valid BIST response pattern	PASS
		Eye diagram-3 >>Eye diagram plot passed at Mid Crossing Level.	PASS
		pBitRateMeas - TEST.PD.PHY.ALL.2#2	PASS
		Eye diagram-4 >>BIST pattern duration 45.0371500 mS (Limit <= 60ms)	PASS
		BMC_PHY_TX_EYE_5 >>Rise time: Average value = 415.409674 nS Minimum value = 411.618131 nS Maximum value = 419.486216 nS Minimum Limit = 300 ns Fall time: Average value = 486.877219 nS Minimum value = 479.538709 nS Maximum value = 492.187171 nS Minimum Limit = 300 ns	PASS
		--- 1/1 captures completed	
3	TEST.PD.PROT.ALL3.8	TEST.PD.PROT.ALL3.8 Get Revision Response	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		Rev3ChkdSnk	FAIL
		Get_Revision response check - TEST.PD.PROT.ALL3.8#1 >>UUT responded with Not_Supported message for Tester's Get_Revision message	FAIL
		Revision message details check - TEST.PD.PROT.ALL3.8#2	PASS

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SI No	Test ID	Test Name	Test Result
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 3.303s and Sourcecap time: 3.418s [PASS] Max = 250ms. Obtained time difference is 114.989ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#74	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.153ms Packet#76	PASS
		Rev3ChkdSrc	FAIL
		Get_Revision response check - TEST.PD.PROT.ALL3.8#1 >>UUT responded with Not_Supported message for Tester's Get_Revision message	FAIL
		Revision message details check - TEST.PD.PROT.ALL3.8#2	PASS
4	TEST.PD.PROT.PORT3.1	TEST.PD.PROT.PORT3.1 Get Battery Status Response	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#16	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#18	PASS
		Rev3ChkdSnk	FAIL
		Get_Sink_Cap_Ext response check - TEST.PD.PROT.PORT3.1#1 >>UUT respond Not_Supported to Get_Sink_Cap_Ext message	FAIL
		Get_Battery_Status response check - TEST.PD.PROT.PORT3.1#2 >>UUT respond Not_Supported PD Message.Packet#51 UUT respond Not_Supported PD Message.Packet#59 UUT respond Not_Supported PD Message.Packet#66 UUT respond Not_Supported PD Message.Packet#73 UUT respond Not_Supported PD Message.Packet#80 UUT respond Not_Supported PD Message.Packet#87 UUT respond Not_Supported PD Message.Packet#94 UUT respond Not_Supported PD Message.Packet#101	PASS

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SI No	Test ID	Test Name	Test Result
		<p>Not_Supported message check - TEST.PD.PROT.PORT3.1#3</p> <p>>>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p>	PASS
		COMMON.PROC.BU.1	PASS

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SI No	Test ID	Test Name	Test Result
		COMMON.PROC.BU.1 - REVISION 3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 5.677s and Sourcecap time: 5.794s [PASS] Max = 250ms. Obtained time difference is 116.655ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#135	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.152ms Packet#137	PASS
		Rev3ChkdSrc	PASS
		Get_SourceCap_Extended response check - TEST.PD.PROT.PORT3.1#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Get_Battery_Status response check - TEST.PD.PROT.PORT3.1#2 >>UUT respond Not_Supported PD Message.Packet#155 UUT respond Not_Supported PD Message.Packet#160 UUT respond Not_Supported PD Message.Packet#165 UUT respond Not_Supported PD Message.Packet#170 UUT respond Not_Supported PD Message.Packet#175 UUT respond Not_Supported PD Message.Packet#180 UUT respond Not_Supported PD Message.Packet#185 UUT respond Not_Supported PD Message.Packet#190	PASS

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SI No	Test ID	Test Name	Test Result
		<p>Not_Supported message check - TEST.PD.PROT.PORT3.1#3</p> <p>>>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p> <p>[PASS]The values of VIF fields Num_Fixed_Batteries(Expected) : 0, Fixed_Batteries(Obtained) : 0</p> <p>Num_Swappable_Battery_Slots(Expected) : 0, Hot_Swap_Batteries(Obtained) : 0</p>	PASS
5	TEST.PD.PROT.PORT3.2	TEST.PD.PROT.PORT3.2 Invalid Battery Status	FAIL

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SI No	Test ID	Test Name	Test Result
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		Rev3ChkdSnk	FAIL
		Get_Sink_Cap_Ext response check - TEST.PD.PROT.PORT3.2#1 >>UUT not respond to Get_Sink_Cap_Ext message.	FAIL
		Get_Battery_Status response check - TEST.PD.PROT.PORT3.2#2 >>UUT not respond to Get_Battery_Status message	FAIL
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 3.543s and Sourcecap time: 3.658s [PASS] Max = 250ms. Obtained time difference is 115.822ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#69	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.151ms Packet#71	PASS
		Rev3ChkdSrc	PASS
		Get_SourceCap_Extended response check - TEST.PD.PROT.PORT3.2#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Not_Supported message check - TEST.PD.PROT.PORT3.2#3 >>UUT respond Not_Supported to Get_Battery_Status message.The values of VIF fields Num_Fixed_Batteries and Num_Swappable_Battery_Slots are zero.	PASS
		Get_Battery_Status response check - TEST.PD.PROT.PORT3.2#2 >>UUT respond Not_Supported to Get_Battery_Status message	PASS
		--- PD mode test results doesn't have equal number of assertion	
6	TEST.PD.PROT.PORT3.3	TEST.PD.PROT.PORT3.3 Get Battery Cap Response	FAIL
		COMMON.PROC.BU.2	PASS

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SI No	Test ID	Test Name	Test Result
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3UnchkdSnk >>SourceCap Packet#121	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#123	PASS
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 10.694s and Sourcecap time: 10.809s [PASS] Max = 250ms. Obtained time difference is 114.989ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#240	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.145ms Packet#242	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3UnchkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 15.565s and Sourcecap time: 15.68s [PASS] Max = 250ms. Obtained time difference is 114.988ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#324	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.094ms Packet#326	PASS
		Rev3ChkdSnk	FAIL
		Get_Sink_Cap_Ext check - TEST.PD.PROT.PORT3.3#1 >>UUT respond Not_Supported to Get_Sink_Cap_Ext message	FAIL
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.3#2	PASS

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SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#0 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#1 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#2 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#3 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#4 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#5 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS

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SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#6 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#7 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Rev3UnchkdSnk	FAIL
		Get_Sink_Cap_Ext check - TEST.PD.PROT.PORT3.3#1 >>UUT respond Not_Supported to Get_Sink_Cap_Ext message	FAIL
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.3#2	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#0 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#1 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#2 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#3 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#4 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#5 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#6 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#7 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Rev3ChkdSrc	PASS
		Get_SourceCap_Extended check - TEST.PD.PROT.PORT3.3#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.3#2	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#0 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#1 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#2 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#3 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#4 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#5 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#6 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#7 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Rev3UnchkdSrc	PASS
		Get_SourceCap_Extended check - TEST.PD.PROT.PORT3.3#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.3#2	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#0 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#1 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#2 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#3 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#4 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#5 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Get_Battery_Cap check for Battery_Cap_Ref_#6 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
		Get_Battery_Cap check for Battery_Cap_Ref_#7 - TEST.PD.PROT.PORT3.3#2 >>UUT respond Not_Supported to Get_Battery_Cap message The values of VIF fields Num_Fixed_Batteries 0 and Num_Swappable_Battery_Slots is 0	PASS
7	TEST.PD.PROT.PORT3.4	TEST.PD.PROT.PORT3.4 Invalid Battery Capabilities Reference	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3UnchkdSnk >>SourceCap Packet#72	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#74	PASS
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 6.45s and Sourcecap time: 6.565s [PASS] Max = 250ms. Obtained time difference is 114.989ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#142	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.115ms Packet#144	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3UnchkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 9.268s and Sourcecap time: 9.383s [PASS] Max = 250ms. Obtained time difference is 114.989ms	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#191	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.127ms Packet#193	PASS
		Rev3ChkdSnk	FAIL
		Get_Sink_Cap_Ext check - TEST.PD.PROT.PORT3.4#1 >>UUT respond Not_Supported to Get_Sink_Cap_Ext message	FAIL
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.4#2 >>UUT respond Not_Supported message	PASS
		Rev3UnchkdSnk	FAIL
		Get_Sink_Cap_Ext check - TEST.PD.PROT.PORT3.4#1 >>UUT respond Not_Supported to Get_Sink_Cap_Ext message	FAIL
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.4#2 >>UUT respond Not_Supported message	PASS
		Rev3ChkdSrc	PASS
		Get_SourceCap_Extended check - TEST.PD.PROT.PORT3.4#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.4#2 >>UUT respond Not_Supported message	PASS
		Rev3UnchkdSrc	PASS
		Get_SourceCap_Extended check - TEST.PD.PROT.PORT3.4#1 >>UUT respond Not_Supported to Get_SourceCap_Extended message	PASS
		Get_Battery_Cap check - TEST.PD.PROT.PORT3.4#2 >>UUT respond Not_Supported message	PASS
8	TEST.PD.PROT.SRC.7	TEST.PD.PROT.SRC.7 DR_Swap	FAIL
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION 2 0 Rev2Src	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 0.709s and Sourcecap time: 0.824s [PASS] Max = 250ms. Obtained time difference is 114.155ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#28	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.15ms Packet#30	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 7.201s and Sourcecap time: 7.316s [PASS] Max = 250ms. Obtained time difference is 115.822ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#79	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.155ms Packet#81	PASS
		Rev2Src	FAIL
		DR_Swap Response Check - TEST.PD.PROT.SRC.7#1 >>UUT respond Accept to DR_Swap message and DR_Swap_To_UFP_Supported field is Yes	PASS
		DR_Swap Response Check - TEST.PD.PROT.SRC.7#2 >>UUT respond Reject to DR_Swap message and DR_Swap_To_DFP_Supported field is Yes	FAIL
		Rev3ChkdSrc	FAIL
		DR_Swap Response Check - TEST.PD.PROT.SRC.7#1 >>UUT respond Accept to DR_Swap message and DR_Swap_To_UFP_Supported field is Yes	PASS
		DR_Swap Response Check - TEST.PD.PROT.SRC.7#2 >>UUT respond Reject to DR_Swap message and DR_Swap_To_DFP_Supported field is Yes	FAIL
9	TEST.PD.PROT.SNK.10	TEST.PD.PROT.SNK.10 DR_Swap Request	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_2_0 Rev2Snk >>SourceCap Packet#14	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#16	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#48	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#50	PASS
		Rev2Snk	FAIL
		First DR_Swap response check - TEST.PD.PROT.SNK.10#1 >>DUT sent Reject for DR_swap message at protocol index 32,In VIF DR_Swap_To_DFP_Supported field updated as YES	FAIL
		Second DR_Swap response check - TEST.PD.PROT.SNK.10#2 >>First DR_Swap sequence is not successful	PASS
		Rev3ChkdSnk	FAIL
		First DR_Swap response check - TEST.PD.PROT.SNK.10#1 >>DUT sent Reject for DR_swap message at protocol index 72,In VIF DR_Swap_To_DFP_Supported field updated as YES	FAIL
		Second DR_Swap response check - TEST.PD.PROT.SNK.10#2 >>First DR_Swap sequence is not successful	PASS
10	TEST.PD.VDM.SNK.1	TEST.PD.VDM.SNK.1 Discovery Process and Enter Mode	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_2_0 Rev2Snk >>SourceCap Packet#14	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#16	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#77	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#79	PASS
		Rev2Snk	PASS
		Discover ID request Check - TEST.PD.VDM.SNK.1#1 >>DUT sent Responder_ACK for Discover ID at the protocol index 31	PASS
		Discover ID response Check - TEST.PD.VDM.SNK.1#2	PASS
		Number of VDOs >>Product Type is Peripheral and Number of Data Obj is 4	PASS
		Data_Capable_as_USB_Host_SOP >>VIF data : YES and DUT data : YES	PASS
		Data_Capable_as_USB_Device_SOP >>VIF data : YES and DUT data : YES	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Product_Type_UFP_SOP >>VIF data : Peripheral and DUT data : Peripheral	PASS
		Modal_Operation_Supported_SOP >>VIF data : YES and DUT data : YES	PASS
		Check B25..16 is set to zero >>B25...16 is set to zero	PASS
		Cert Sat VDO Check >>VIF data : 0 and DUT data : 0	PASS
		Product VDO Check >>VIF data : 3397 and DUT data : 3397 VIF data : 1812 and DUT data : 1812	PASS
		Discover SVID request Check - TEST.PD.VDM.SNK.1#3 >>DUT sent Responder_ACK for Discover SVID	PASS
		Discover SVID response Check - TEST.PD.VDM.SNK.1#4 >>Evaluate the number of SVIDs in Discover SVIDs ACK message and checks against VIF fields SVID<X>_SOP, Num_SVIDs_max_SOP: 2 and Num_SVIDs_min_SOP: 2, Number of SVIDs in the Ack message is :2	PASS
		Discover Mode for each SVID - TEST.PD.VDM.SNK.1#5	PASS
		Discover Mode Check >>UUT responded with Responder_ACK for the Discover Mode at protocol index 39 and Modal_Operation_Supported_SOP is set to YES	PASS
		Discover Mode Check >>UUT responded with Responder_ACK for the Discover Mode at protocol index 43 and Modal_Operation_Supported_SOP is set to YES	PASS
		Enter and Exit Mode for each Mode - TEST.PD.VDM.SNK.1#6	PASS
		Attention Request - TEST.PD.VDM.SNK.1#7 >>UUT did not respond to Attention message	PASS
		Rev3ChkdSnk	FAIL
		Discover ID request Check - TEST.PD.VDM.SNK.1#1 >>DUT sent Responder_ACK for Discover ID at the protocol index 101	PASS
		Discover ID response Check - TEST.PD.VDM.SNK.1#2	FAIL
		Number of VDOs >>VDM_PRODUCT_Type_UFP Peripheral and VDM_PRODUCT_Type_DFP Hub and the Number of Data Object is 5	FAIL

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Data_Capable_as_USB_Host_SOP >>VIF data : YES and DUT data : YES	PASS
		Data_Capable_as_USB_Device_SOP >>VIF data : YES and DUT data : YES	PASS
		Product_Type_UFP_SOP >>VIF data : Peripheral and DUT data : Peripheral	PASS
		Modal_Operation_Supported_SOP >>VIF data : YES and DUT data : YES	PASS
		Product_Type_DFP_SOP >>VIF data : Hub and DUT data : Hub	PASS
		ID_Header_Connector_Type >>VIF data : USB_Type_C_Receptacle and DUT data : USB_Type_C_Receptacle	PASS
		Check B20..16 is set to zero >>B20...16 is set to zero	PASS
		Cert Sat VDO Check >>VIF data : 0 and DUT data : 0	PASS
		Product VDO Check >>VIF data : 3397 and DUT data : 3397 VIF data : 1812 and DUT data : 1812	PASS
		Discover SVID request Check - TEST.PD.VDM.SNK.1#3 >>DUT sent Responder_ACK for Discover SVID	PASS
		Discover SVID response Check - TEST.PD.VDM.SNK.1#4 >>Evaluate the number of SVIDs in Discover SVIDs ACK message and checks against VIF fields SVID<X>_SOP, Num_SVIDs_max_SOP: 2 and Num_SVIDs_min_SOP: 2, Number of SVIDs in the Ack message is :2	PASS
		Discover Mode for each SVID - TEST.PD.VDM.SNK.1#5	PASS
		Discover Mode Check >>UUT responded with Responder_ACK for the Discover Mode at protocol index 112 and Modal_Operation_Supported_SOP is set to YES	PASS
		Discover Mode Check >>UUT responded with Responder_ACK for the Discover Mode at protocol index 117 and Modal_Operation_Supported_SOP is set to YES	PASS
		Enter and Exit Mode for each Mode - TEST.PD.VDM.SNK.1#6	PASS

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SI No	Test ID	Test Name	Test Result
		Attention Request - TEST.PD.VDM.SNK.1#7 >>UUT did not respond to Attention message	PASS
11	TEST.PD.USB4.DRST.2	TEST.PD.USB4.DRST.2 –Data_Reset command response of UFP UUT, Invalid Sequence	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#71	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#73	PASS
		Rev3ChkdSnk	PASS
		Data_Reset command response check - TEST.PD.USB4.DRST.2#1 >>UUT respond Accept to Data_Reset command at protocol index 39	PASS
		Error recovery check - TEST.PD.USB4.DRST.2#3 >>UUT did error recovery at 11.6529 mS after receiving the Get_Sink_Cap	PASS
		Rev3ChkdSnk	FAIL
		Data_Reset command response check - TEST.PD.USB4.DRST.2#2 >>UUT respond Accept to Data_Reset command at protocol index 95	PASS
		Error recovery check - TEST.PD.USB4.DRST.2#4 >>UUT failed to do error recovery	FAIL
12	TEST.PD.USB4.DRST.5	TEST.PD.USB4.DRST.5 –Data_Reset command response of DFP UUT Sourcing Vconn	FAIL
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 0.688s and Sourcecap time: 0.804s [PASS] Max = 250ms. Obtained time difference is 115.822ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#28	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.152ms Packet#30	PASS
		Rev3ChkdSrc	FAIL
		Data_Reset command response check - TEST.PD.USB4.DRST.5#1 >>UUT respond Accept to Data_Reset command at protocol index 47	PASS
		Accept VCONN voltage check - TEST.PD.USB4.DRST.5#2 >>VCONN voltage at PORTA_CC2_VOLTAGE is 0.0102973236153327v	PASS
		VCONN Reapplied check - TEST.PD.USB4.DRST.5#3 >>UUT keeps the Vconn below vRaReconnect upto 9.99900000000009 mS	FAIL
		Vconn voltage rise check - TEST.PD.USB4.DRST.5#4 >>VCONN voltage at PORTA_CC2_VOLTAGE is 3.53562902416713v	FAIL
		Vconn voltage rise time check - TEST.PD.USB4.DRST.5#5 >>VCONN voltage at PORTA_CC2_VOLTAGE is 5.24345846734929v Vconn voltage is reaching to valid range in 0.833249999999897 mS	PASS
		Data_Reset_Complete command check - TEST.PD.USB4.DRST.5#6 >>UUT not initiated any other message between Accept and Data_Reset_Complete	PASS
		Data_Reset_Complete VBUS voltage check - TEST.PD.USB4.DRST.5#7 >>VBUS is not changed and it is in valid range throughout the Data_Reset process. Obtained voltage is 4.98259446687854V	PASS
		Data_Reset_Complete command response time check - TEST.PD.USB4.DRST.5#8 >>Data_Reset_Complete message received in 0.22783416 S at protocol index 49	PASS
		Data_Reset_Complete command error recovery check - TEST.PD.USB4.DRST.5#9	PASS
		Device discovery process check - TEST.PD.USB4.DRST.5#10 >>UUT initiated VendorDefined command at protocol index 52	PASS
		Cable discovery process check - TEST.PD.USB4.DRST.5#11 >>UUT failed to respond VendorDefined command	FAIL
13	TEST.PD.USB4.DRST.6	TEST.PD.USB4.DRST.6 –Data_Reset command response of DFP UUT, UFP Sourcing Vconn	FAIL

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		COMMON.PROC.BU.1	PASS
		COMMON.PROC.BU.1 - REVISION_3_0 Rev3ChkdSrc	PASS
		First source capability timer - COMMON.PROC.BU.1#1 >>Vbus up time: 0.687s and Sourcecap time: 0.803s [PASS] Max = 250ms. Obtained time difference is 115.822ms	PASS
		DUT responded with accept message - COMMON.PROC.BU.1#2 >>Packet#28	PASS
		tSrcTransReq timer check - COMMON.PROC.BU.1#3 >>[PASS] Max = 325ms. Obtained time difference is 36.149ms Packet#30	PASS
		Rev3ChkdSrc	FAIL
		VCONN_Swap command response check - TEST.PD.USB4.DRST.6#1 >>DUT sent Accept message for VCONN_Swap message at protocol index 47 Tester sent PS_RDY message upon Accept message at protocol index 49	PASS
		Data_Reset command response check - TEST.PD.USB4.DRST.6#2 >>UUT respond Accept to Data_Reset command at protocol index 54	PASS
		VCONN Reapplied check - TEST.PD.USB4.DRST.6#3 >>PS_RDY message initiated after 0.12786438s from Accept GoodCRC recieved at protocol index 56 VconnReapplied voltage at PORTA_CC2_VOLTAGE is 0.181070640121483v VconnReapplied measured from time 3.97785873 to 3.98785873	PASS
		VCONN voltage rise check - TEST.PD.USB4.DRST.6#4 >>VCONN voltage at PORTA_CC2_VOLTAGE is 5.24314556345717v Vconn voltage measured at 3.99869198 S	PASS
		Vconn voltage rise time check - TEST.PD.USB4.DRST.6#5 >>Vconn voltage is reaching to valid range in 0.833250000000341 mS	PASS
		Data_Reset_Complete command check - TEST.PD.USB4.DRST.6#6 >>UUT not initiated any other message between Accept and Data_Reset_Complete	PASS
		Data_Reset_Complete VBUS voltage check - TEST.PD.USB4.DRST.6#7 >>VBUS is not changed and it is in valid range throughout the Data_Reset process. Obtained voltage is 4.98172346334444V	PASS

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SI No	Test ID	Test Name	Test Result
		Data_Reset_Complete command response time check - TEST.PD.USB4.DRST.6#8 >>Data_Reset_Complete message received in 0.22727555 S at protocol index 58	PASS
		Device discovery process check - TEST.PD.USB4.DRST.6#9 >>UUT initiated VendorDefined command at protocol index 61	PASS
		Cable discovery process check - TEST.PD.USB4.DRST.6#10 >>UUT failed to respond VendorDefined command	FAIL
14	TEST.PD.USB4.EUSB.4	TEST.PD.USB4.EUSB.4 – DR_Swap after Entering USB4 Mode entry	FAIL
		COMMON.PROC.BU.2	PASS
		COMMON.PROC.BU.2 - REVISION_3_0 Rev3ChkdSnk >>SourceCap Packet#15	PASS
		UUT should respond with request - - COMMON.PROC.BU.2#1 >>Request Packet#17	PASS
		Rev3ChkdSnk	FAIL
		DR_Swap PD Message response check - TEST.PD.USB4.EUSB.4#1	NA
		Tester Enter_USB PD Message response check - TEST.PD.USB4.EUSB.4#3 >>UUT respond Accept for Enter_USB PD Message	PASS
		DR_Swap PD Message response check - TEST.PD.USB4.EUSB.4#4 >>UUT respond Reject to DR_Swap PD Message	FAIL
		SOP1 Enter_USB PD Message response check - TEST.PD.USB4.EUSB.4#5	FAIL
		SOP2 Enter_USB PD Message response check - TEST.PD.USB4.EUSB.4#6	FAIL
		SOP Enter_USB PD Message parameters of EUDO check - TEST.PD.USB4.EUSB.4#7	FAIL
		SOP Enter_USB PD Message response expiry time check - TEST.PD.USB4.EUSB.4#8	FAIL
		DR_Swap PD Message response check - TEST.PD.USB4.EUSB.4#9	FAIL
		Tester Enter_USB PD Message response check - TEST.PD.USB4.EUSB.4#10	FAIL
15	2.1	Common Checks	FAIL
		Common_Check_PD_1_Check_Preamble - COMMON.CHECK.PD.1	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		Check Preamble sequence and count - COMMON.CHECK.PD.1#1	PASS
		Common_Check_PD_2_Check_Message_Header - COMMON.CHECK.PD.2	PASS
		Check message header fields - COMMON.CHECK.PD.2#1	PASS
		Common_Check_PD_3_Check_GoodCRC - COMMON.CHECK.PD.3	FAIL
		>> TEST.PD.PROT.PORT3.2: DUT Didn't send GoodCRC. Packet#41, 44,	
		Check goodCRC response time - COMMON.CHECK.PD.3#1	PASS
		Check goodCRC message header fields - COMMON.CHECK.PD.3#2	PASS
		Common_Check_PD_4_Check_Atomic_Message_Sequence - COMMON.CHECK.PD.4	FAIL
		Check Atomic message sequence - COMMON.CHECK.PD.4#1	FAIL
		>>TEST.PD.PROT.PORT3.2: DUT response is missing. Packet#41, 44,	
		Common_Check_PD_5_Check_Unexpected_Messages_And_Signals - COMMON.CHECK.PD.5	PASS
		Unexpected Soft reset - COMMON.CHECK.PD.5#1	PASS
		Unexpected Hard Reset or a cable reset - COMMON.CHECK.PD.5#2	PASS
		Unexpected GotoMin - COMMON.CHECK.PD.5#3	PASS
		Unexpected messages - COMMON.CHECK.PD.5#4	PASS
		Common_Check_PD_6_Control_Message - COMMON.CHECK.PD.6	PASS
		Number of data objects in header should be zero - COMMON.CHECK.PD.6#1	PASS
		Common_Check_PD_7_Source_Capability_Message - COMMON.CHECK.PD.7	PASS
		Check Source Capability message - COMMON.CHECK.PD.7#1	PASS
		Check Source Capability message - COMMON.CHECK.PD.7#2	PASS
		Check Data Objects field - COMMON.CHECK.PD.7#3	PASS
		Check First PDO - COMMON.CHECK.PD.7#4	PASS
		Check Fixed PDO - COMMON.CHECK.PD.7#5	PASS
		Check PPS Validation - COMMON.CHECK.PD.7#6	PASS
		Check Power Rules - COMMON.CHECK.PD.7#7	PASS
		Check PDO Consistency - COMMON.CHECK.PD.7#8	PASS
		Check PDO Sequence - COMMON.CHECK.PD.7#9	PASS
		Check Fixed PDO Voltage - COMMON.CHECK.PD.7#10	PASS
		Check Variable PDO Voltage - COMMON.CHECK.PD.7#11	PASS
		Check Battery PDO Voltage - COMMON.CHECK.PD.7#12	PASS

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SI No	Test ID	Test Name	Test Result
		Common_Check_PD_8_Request_Message - COMMON.CHECK.PD.8	PASS
		Request messages fields check - COMMON.CHECK.PD.8#1	PASS
		Common_Check_PD_9_Structured_VDM - COMMON.CHECK.PD.9	FAIL
		Structured VDM header field check - COMMON.CHECK.PD.9#1 >>TEST.PD.PROT.ALL3.8: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#61, TEST.PD.PROT.PORT3.1: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#122, TEST.PD.PROT.PORT3.2: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#56, TEST.PD.PROT.PORT3.3: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#227, 311, TEST.PD.PROT.PORT3.4: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#129, 178, TEST.PD.PROT.SRC.7: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#15, 66, 88, TEST.PD.VDM.SNK.1: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#101, 107, 112, 117, 122, 127, 132, 137, TEST.PD.USB4.DRST.5: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#15, 37, 52, TEST.PD.USB4.DRST.6: CommandVersion [b[12:11]] Obt:0 and Exp: 1. Packet#15, 37, 61,	FAIL
		Common_Check_PD_10_Extended_Message_Header - COMMON.CHECK.PD.10	PASS
		Check Extended Message Header - COMMON.CHECK.PD.10#1	PASS
		Common_Check_PD_11_Source_Capability_Extended_Message - COMMON.CHECK.PD.11	PASS
		Source capabilities extended message fields check - COMMON.CHECK.PD.11#1	PASS
		Common_Check_PD_12_Check_Sink_Capabilities - COMMON.CHECK.PD.12	PASS
		Sink capabilities fields check - COMMON.CHECK.PD.12#1	PASS
		Common_Check_PD_13_Check_Correct_Use_of_Rp - COMMON.CHECK.PD.13	PASS

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SI No	Test ID	Test Name	Test Result
		Rp Level Validation - COMMON.CHECK.PD.13#1	PASS
		Common_Check_PD_14_Check_Hard_Reset - COMMON.CHECK.PD.14	PASS
		Check_Hard_Reset basic timing - COMMON.CHECK.PD.14#1	PASS
		Common_Check_PD_15_Check_Sink_Capabilities_Extended_Message - COMMON.CHECK.PD.15	PASS
		Sink capabilities extended message fields check - COMMON.CHECK.PD.15#1	PASS
		COMMON_CHECK_PD3_1_Check_EPR_Request_Message - COMMON.CHECK.PD3.1	PASS
		EPR_Request messages fields check - COMMON.CHECK.PD3.1#1	PASS
		COMMON_CHECK_PD3_2_Check_EPR_Mode_Message - COMMON.CHECK.PD3.2	PASS
		EPR_Mode messages fields check - COMMON.CHECK.PD3.2#1	PASS
		COMMON_CHECK_PD3_3_Check_EPR_Source_Capabilities_Message - COMMON.CHECK.PD3.3	PASS
		VIF field EPR_Supported_As_Src check - COMMON.CHECK.PD3.3#1	PASS
		First Fixed PDO consistency check - COMMON.CHECK.PD3.3#2	PASS
		Fixed PDO check - COMMON.CHECK.PD3.3#3	PASS
		Programmable Power Supply APDO check - COMMON.CHECK.PD3.3#4	PASS
		EPR PDOs power rules check - COMMON.CHECK.PD3.3#5	PASS
		EPR PDOs consistency check - COMMON.CHECK.PD3.3#6	PASS
		SPR PDOs check - COMMON.CHECK.PD3.3#7	PASS
		COMMON_CHECK_PD3_4_Check_EPR_Sink_Capabilities_Message - COMMON.CHECK.PD3.4	PASS
		EPR_Sink_Capabilities fields check - COMMON.CHECK.PD3.4#1	PASS
16	2.2	Common Procedures	PASS
		COMMON_PROC_PD_2_UUT_Sent_Get_Source_Cap - COMMON.PROC.PD.2	PASS
		Validate Get source capabilities message initiated by DUT - COMMON.PROC.PD.2#1	PASS
		DUT's Request message validation - COMMON.PROC.PD.2#2	PASS
		COMMON_PROC_PD_3_UUT_Sent_Get_Sink_Cap - COMMON.PROC.PD.3	PASS
		Validate Get sink cap message initiated by DUT - COMMON.PROC.PD.3#1	PASS

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SI No	Test ID	Test Name	Test Result
		COMMON_PROC_PD_4_UUT_Sent_Ping - COMMON.PROC.PD.4	PASS
		Ping message initiated by DUT - COMMON.PROC.PD.4#1	PASS
		COMMON_PROC_PD_5_UUT_Sent_PR_Swap - COMMON.PROC.PD.5	PASS
		PR_Swap valid condition check - COMMON.PROC.PD.5#1	PASS
		PR_Swap init and VIF field value comparison - COMMON.PROC.PD.5#2	PASS
		PR_Swap init and VIF field value comparison - COMMON.PROC.PD.5#3	PASS
		COMMON_PROC_PD_6_UUT_Sent_VCONN_Swap - COMMON.PROC.PD.6	PASS
		Vconn_Swap valid condition check - Tester Vconn Source - COMMON.PROC.PD.6#1	PASS
		Vconn_Swap init and VIF field value comparison - COMMON.PROC.PD.6#2	PASS
		tVCONNSourceOn Timer Validation - COMMON.PROC.PD.6#3	PASS
		Vconn_Swap valid condition check - DUT Vconn Source - COMMON.PROC.PD.6#4	PASS
		COMMON_PROC_PD_7_UUT_Sent_Discover_Identity_Request - COMMON.PROC.PD.7	PASS
		Validate Discover ID request message initiated by DUT - COMMON.PROC.PD.7#1	PASS
		Structured VDM Message Header check - COMMON.PROC.PD.7#2	PASS
		Tester's VDM response check - COMMON.PROC.PD.7#3	PASS
		COMMON_PROC_PD_8_UUT_Sent_Discover_SVIDs_Request - COMMON.PROC.PD.8	PASS
		Validate Discover ID request message initiated by DUT - COMMON.PROC.PD.8#1	PASS
		Structured VDM Message Header check - COMMON.PROC.PD.8#2	PASS
		Tester's VDM response check - COMMON.PROC.PD.8#3	PASS
		COMMON_PROC_PD_9_UUT_Sent_Attention - COMMON.PROC.PD.9	PASS
		Validate attention request message initiated by DUT - COMMON.PROC.PD.9#1	PASS
		Structured VDM message header check - COMMON.PROC.PD.9#2	PASS
		COMMON_PROC_PD_10_UUT_Sent_Request - COMMON.PROC.PD.10	PASS
		Validate request message initiated by DUT - COMMON.PROC.PD.10#1	PASS

GRL-USB-PD Compliance Test Solution

SI No	Test ID	Test Name	Test Result
		COMMON_PROC_PD_11_UUT_Sent_Source_Capabilities - COMMON.PROC.PD.11	PASS
		Validate Source capabilities message initiated by DUT - COMMON.PROC.PD.11#1	PASS
		DUT should respond with Accept - COMMON.PROC.PD.11#2	PASS
		DUT should send PS_RDY - COMMON.PROC.PD.11#3	PASS
		Wait Message - COMMON.PROC.PD.11#4	PASS
		COMMON_PROC_PD_12_UUT_Sent_DR_Swap - COMMON.PROC.PD.12	PASS
		Validate DR_Swap message initiated by DUT - COMMON.PROC.PD.12#1	PASS
		COMMON_PROC_PD_17_Tester_Sent_Vconn_swap_message - COMMON.PROC.PD.17	PASS
		VCONN present check - COMMON.PROC.PD.17#1	PASS
		PS_RDY is missing - COMMON.PROC.PD.17#2	PASS
		VCONN present check - COMMON.PROC.PD.17#3	PASS
		tVONNSourceOff timer check - COMMON.PROC.PD.17#4	PASS
		COMMON_PROC_PD3_1_Sink_Start_an_AMS - COMMON.PROC.PD3.1	PASS
		Sink Start AMS - COMMON.PROC.PD3.1#1	PASS
		COMMON_PROC_PD3_2_UUT_Sent_EPR_Source_Cap_message - COMMON.PROC.PD3.2	PASS
		Validate EPR Source capabilities message initiated by DUT - COMMON.PROC.PD3.2#1	PASS
		DUT should respond with Accept - COMMON.PROC.PD3.2#2	PASS
		DUT should send PS_RDY - COMMON.PROC.PD3.2#3	PASS
		COMMON_PROC_PD3_3_UUT_Sent_EPR_Get_Source_Cap - COMMON.PROC.PD3.3	PASS
		Validate EPR Get Source Capabilities message initiated by DUT - COMMON.PROC.PD3.3#1	PASS
		DUT's EPR Request message validation - COMMON.PROC.PD3.3#2	PASS
		COMMON_PROC_PD3_4_UUT_Sent_EPR_Request - COMMON.PROC.PD3.4	PASS
		Validate EPR Request message initiated by DUT - COMMON.PROC.PD.3.4#1	PASS

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SI No	Test ID	Test Name	Test Result
		COMMON_PROC_PD3_5_Tester_Sent_EPR_Mode_Enter - COMMON.PROC.PD3.5	PASS
		Validate EPR Enter Ack initiated by DUT - COMMON.PROC.PD3.5#1	PASS
		VIF Field Captive Cable is set to No and UUT is not a Vconn source - COMMON.PROC.PD3.5#2	PASS
		UUT sends a Vconn_Swap message - COMMON.PROC.PD3.5#3	PASS
		UUT does not send a SOP1 Discover Identity message - COMMON.PROC.PD3.5#4	PASS
		UUT sends a SOP1 Discover Identity message - COMMON.PROC.PD3.5#5	PASS
		EPR Mode Enter Succeeded message check - COMMON.PROC.PD3.5#6	PASS
		EPR Source Cap message - COMMON.PROC.PD3.5#7	PASS
		UUT establishes EPR contract - COMMON.PROC.PD3.5#8	PASS
		COMMON_PROC_PD3_6_UUT_Sent_EPR_Mode_Enter - COMMON.PROC.PD3.6	PASS
		Validate EPR_Mode_Enter initiated by DUT - COMMON.PROC.PD3.6#1	PASS
		Validate EPR_Mode_Enter response - COMMON.PROC.PD3.6#2	PASS
		Tester sends a Vconn_Swap message - COMMON.PROC.PD3.6#3	PASS
		Validate EPR_Mode_Enter failed message - COMMON.PROC.PD3.6#4	PASS
		Validate SOP' Discover_Id and EPR Mode Enter Succeeded message - COMMON.PROC.PD3.6#5	PASS
		EPR_Source_Cap message - COMMON.PROC.PD3.6#6	PASS
		UUT establishes EPR contract - COMMON.PROC.PD3.6#7	PASS
		COMMON_PROC_PD3_7_Tester_Sends_EPR_KeepAlive_Message - COMMON.PROC.PD3.7	PASS
		Validate EPR_KeepAlive response message initiated by DUT - COMMON.PROC.PD3.7#1	PASS

BMC Eye Diagram

