

USB-IF Certification Mandatory Test Matrix

<u>USB Peripherals</u>	Upstream							Function/Interface		
	Inrush	Back-voltage	LSSQ	FSSQ	HSSQ	Electrical Protocols	Receiver Sensitivity	Gold-tree Interoperability	Avg Current Draw	USBCV
Low-speed Peripheral	✓	✓	✓					✓	✓	✓
Full-speed Peripheral	✓	✓		✓				✓	✓	✓
High-speed Peripheral (uncertified silicon)	✓	✓		✓	✓	✓	✓	✓	✓	✓
High-speed Peripheral (certified silicon)	✓	✓		✓	✓	✓	✓	✓	✓	✓

<u>USB Hubs</u>	Upstream						Downstream					Function/Interface			
	Inrush	Back-voltage	FSSQ Upstream	HSSQ Upstream	Electrical Protocols	Receiver Sensitivity	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Drop	Drop	USBHTT	Gold-tree Interoperability	Avg Current Draw	USBCV
High-speed Hub	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Full-speed Hub (prohibited)															

<u>USB Compound Devices</u>	Upstream						Each Exposed Downstream Port					Function/Interface			
	Inrush	Back-voltage	FSSQ Upstream	HSSQ Upstream	Electrical Protocols	Receiver Sensitivity	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Drop	Drop	USBHTT	Gold-tree Interoperability	Avg Current Draw	USBCV
High-speed Hub	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Full-speed Hub	✓	✓	✓			✓	✓	✓		✓	✓		✓	✓	✓

<u>Systems (standard hosts)</u>	Each Exposed Downstream Port						
	Gold-tree Interoperability	Drop	Drop	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Electrical Protocols
High-speed host	✓	✓	✓	✓	✓	✓	✓
Full-speed host (prohibited)							

<u>USB Embedded Hosts</u>	Each Exposed Downstream Port						
	Gold-tree Interoperability	Drop	Drop	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Electrical Protocols
High-speed host	✓	✓	②	①	✓	✓	✓
Full-speed host	✓	✓	②	①	✓		
Low-speed host	✓	✓	②	✓			

<u>USB Dual Role Devices</u>	Peripheral											Host					
	Gold-tree Interoperability	Avg Current Draw	USBCV	Inrush	Back-voltage	LSSQ Upstream	FSSQ Upstream	HSSQ Upstream	Electrical Protocols	Receiver Sensitivity	TPP Interoperability	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Electrical Protocols	Drop	Drop
Low-speed peripheral/Low-speed host	✓	✓	✓	✓	✓	✓					✓	✓				✓	②
Full-speed peripheral/Low-speed host	✓	✓	✓	✓	✓		✓				✓	✓				✓	②
High-speed peripheral/Low-speed host	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓				✓	②
Low-speed peripheral/Full-speed host	✓	✓	✓	✓	✓	✓					✓	①	✓			✓	②
Full-speed peripheral/Full-speed host	✓	✓	✓	✓	✓		✓				✓	①	✓			✓	②
High-speed peripheral/Full-speed host	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	①	✓			✓	②
Low-speed peripheral/High-speed host	✓	✓	✓	✓	✓	✓					✓	①	✓	✓	✓	✓	②
Full-speed peripheral/High-speed host	✓	✓	✓	✓	✓		✓				✓	①	✓	✓	✓	✓	②
High-speed peripheral/High-speed host	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	①	✓	✓	✓	✓	②

<u>USB OTG</u>	Function/Interface		Peripheral							Host						Host and Peripheral		
	Gold-tree Interoperability	Avg Current Draw	USBCV	Inrush	Back-voltage	FSSQ Upstream	HSSQ Upstream	Electrical Protocols	Receiver Sensitivity	LSSQ Downstream	FSSQ Downstream	HSSQ Downstream	Electrical Protocols	Drop	TPP Interoperability	OET	FS OPT	HS OPT
Full-speed peripheral/Full-speed OTG host	✓	✓	✓	✓	✓	✓				①	✓			✓	✓	✓	✓	
High-speed peripheral/Full-speed OTG host	✓	✓	✓	✓	✓	✓	✓	✓	✓	①	✓	✓		✓	✓	✓	✓	✓
Full-speed peripheral/High-speed OTG host	✓	✓	✓	✓	✓	✓				①	✓		✓	✓	✓	✓	✓	✓
High-speed peripheral/High-speed OTG host	✓	✓	✓	✓	✓	✓	✓	✓	✓	①	✓	✓	✓	✓	✓	✓	✓	✓
Low-speed peripheral or Low-speed only host (prohibited)																		

① performed if supported

② performed if multiple downstream ports exist