



BSI Standards Publication

Universal serial bus interfaces for data and power

Part 1-2: Common components — USB Power Delivery specification

National foreword

This British Standard is the UK implementation of EN IEC 62680-1-2:2025. It is identical to IEC 62680-1-2:2024. It supersedes [BS EN IEC 62680-1-2:2022](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio-visual equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Amendments/corrigenda issued since publication

Date	Text affected
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English Version

Universal serial bus interfaces for data and power - Part 1-2:
Common components - USB Power Delivery specification
(IEC 62680-1-2:2024)

Interfaces de bus universel en série pour les données et
l'alimentation électrique - Partie 1-2: Composants communs
- Spécification de l'alimentation électrique par port USB
(IEC 62680-1-2:2024)

Universelle Bus-Schnittstellen für Daten und Energie - Teil
1-2: Gemeinsame Komponenten - Festlegung für die
Energieübertragung über USB
(IEC 62680-1-2:2024)

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European foreword

The text of document 100/4138/CDV, future edition 7 of IEC 62680-1-2, prepared by TC 100/Technical Area 18 "Multimedia home systems and applications for end-user networks" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62680-1-2:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-01-31 level by publication of an identical national standard or by endorsement
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UNIVERSAL SERIAL BUS INTERFACES FOR DATA AND POWER –**Part 1-2: Common components – USB Power Delivery specification**

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The text of this standard was prepared by the USB Implementers Forum (USB-IF). The structure and editorial rules used in this publication reflect the practice of the organization which submitted it.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/4138/CDV	100/4176/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

A list of all parts in the IEC 62680 series, published under the general title *Universal serial bus interfaces for data and power*, can be found on the IEC website.

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Universal Serial Bus

Power Delivery Specification

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1.0	1.1	Including errata through 31-October-2012	31 October 2012
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3.1	1.1	Including errata through July 2021 This version incorporates the following ECNs: <ul style="list-style-type: none"> EPR Clarifications Define AMS starting point 	July 2021
3.1	1.2	Including errata through October 2021 This version incorporates the following ECNs: <ul style="list-style-type: none"> Clarify use of Retries Battery Capabilities FRS timing problem PPS power rule clarifications Peak current support for EPR AVS APDO 	October 2021
3.1	1.3	This version incorporates the following ECNs: <ul style="list-style-type: none"> Robust EPR Source Operation EPR Source Caps Editorial SRC PPS behavior in low current request Enter USB 	January 2022

3.1	1.4	Editorial changes This version incorporates the following ECNs: <ul style="list-style-type: none"> • Capabilities Mismatch Update • Chunking Timing Issue • OT Mitigation 	April 2022
3.1	1.5	Editorial changes This version incorporates the following ECNs: <ul style="list-style-type: none"> • Timer Description Corrections • Change Source_Info Requirements • AMS Update 	July 2022
3.1	1.6	Editorial changes This version incorporates the following ECNs: <ul style="list-style-type: none"> • USB4® V2 Updates • Data Reset Issues • Increase tSenderResponse • PPS Power Limit Bit Update • Support for Asymmetric Mode • Timer Description Corrections Revisited 	October 2022
3.1	1.7	Editorial Changes This version incorporates the following ECNs: <ul style="list-style-type: none"> • Data Reset Invalid Reject Handling • Source request • Source Transition • EPR Entry 	January 2023
3.1	1.8	Editorial Changes This version incorporates the following ECNs: <ul style="list-style-type: none"> • Slew rate exemption for Power Role Swap. • EUDO cable speed clarification. • Update to PPS Requirements. • Deprecate Interruptibility. • Section 7.3 restructure and update. 	April 2023

3.2	1.0	<p>Editorial Changes</p> <p>This version incorporates the following ECNs:</p> <ul style="list-style-type: none">• VDM use conditions• tTypeCSinkWaitCap• tFirstSourceCap clarification• Hard Reset clarification• Unrecognized Country Code• EPR Entry Process• SPR AVS Definition• EPR Power Rules Clarifications	October 2023.
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1. Introduction

USB has evolved from a data interface capable of supplying limited power to a primary provider of power with a data interface. Today many devices charge or get their power from USB ports contained in laptops, cars, aircraft or even wall sockets. USB has become a ubiquitous power socket for many small devices such as cell phones, MP3 players and other hand-held devices. Users need USB to fulfil their requirements not only in terms of data but also to provide power to, or charge, their devices simply, often without the need to load a driver, in order to carry out “traditional” USB functions.

There are, however, still many devices which either require an additional power connection to the wall, or exceed the USB rated current in order to operate. Increasingly, international regulations require better energy management due to ecological and practical concerns relating to the availability of power. Regulations limit the amount of power available from the wall which has led to a pressing need to optimize power usage. The USB Power Delivery Specification has the potential to minimize waste as it becomes a standard for charging devices that are not satisfied by [\[USBBC 1.2\]](#).

Wider usage of wireless solutions is an attempt to remove data cabling but the need for “tethered” charging remains. In addition, industrial design requirements drive wired connectivity to do much more over the same connector.

USB Power Delivery is designed to enable the maximum functionality of USB by providing more flexible power delivery along with data over a single cable. Its aim is to operate with and build on the existing USB ecosystem; increasing power levels from existing USB standards, for example Battery Charging, enabling new higher power use cases such as USB powered Hard Disk Drives (HDDs) and printers.

With USB Power Delivery the power direction is no longer fixed. This enables the product with the power (Host or Peripheral) to provide the power. For example, a display with a supply from the wall can power, or charge, a laptop. Alternatively, USB power bricks or chargers are able to supply power to laptops and other battery powered devices through their, traditionally power providing, USB ports.

USB Power Delivery enables hubs to become the means to optimize power management across multiple peripherals by allowing each device to take only the power it requires, and to get more power when required for a given application. For example, battery powered devices can get increased charging current and then give it back temporarily when the user’s HDD requires spinning up. **Optionally** the hubs can communicate with the PC to enable even more intelligent and flexible management of power either automatically or with some level of user intervention.

USB Power Delivery allows Low Power cases such as headsets to negotiate for only the power they require. This provides a simple solution that enables USB devices to operate at their optimal power levels.

The Power Delivery Specification, in addition to providing mechanisms to negotiate power also can be used as a side-band channel for standard and vendor defined messaging. Power Delivery enables alternative modes of operation by providing the mechanisms to discover, enter and exit Alternate Modes. The specification also enables discovery of cable capabilities such as supported speeds and current levels.

1.1 Overview

This specification defines how USB Devices can negotiate for more current and/or higher or lower Voltages over the USB cable (using the USB Type-C® CC wire as the communications channel) than are defined in the [\[USB 2.0\]](#), [\[USB 3.2\]](#), [\[USB4\]](#), [\[USB Type-C 2.3\]](#) or [\[USBBC 1.2\]](#) specifications. It allows Devices with greater power requirements than can be met with today’s specification to get the power they require to operate from V_{BUS} and negotiate with external power sources (e.g., Wall Warts). In addition, it allows a Source and Sink to swap power roles such that a Device could supply power to the Host. For example, a display could supply power to a notebook to charge its battery.

The USB Power Delivery Specification is guided by the following principles:

- Works seamlessly with legacy USB Devices
- Compatible with existing spec-compliant USB cables
- Minimizes potential damage from non-compliant cables (e.g., ‘Y’ cables etc.)
- Optimized for low-cost implementations.

This specification defines mechanisms to discover, enter and exit Modes defined either by a standard or by a particular vendor. These Modes can be supported either by the Port Partner or by a cable connecting the two Port Partners.

The specification defines mechanisms to discover the capabilities of cables which can communicate using Power Delivery.

This specification adds a mechanism to swap the data roles such that the upstream facing Port becomes the downstream facing Port and vice versa. It also enables a swap of the end supplying VCONN to a powered cable.

To facilitate optimum charging, the specification defines two mechanisms a USB Charger can Advertise for the Device to use:

- 1) A list of fixed Voltages each with a maximum current. The Device selects a Voltage and current from the list. This is the traditional model used by Devices that use internal electronics to manage the charging of their battery including modifying the Voltage and current actually supplied to the battery. The side-effect of this model is that the charging circuitry generates heat that can be problematic for small form factor devices.
- 2) A list of programmable Voltage ranges each with a maximum current (PPS). The Device requests a Voltage (in 20mV increments in SPR PPS Mode and in 100mV increments in EPR AVS Mode) that is within the Advertised range and a maximum current. The USB Charger delivers the requested Voltage until the maximum current is reached at which time the USB charger reduces its output Voltage so as not to supply more than the requested maximum current. During the high current portion of the charge cycle, the USB Charger can be directly connected (through an appropriate safety device) to the battery. This model is used by Devices that want to minimize the thermal impact of their internal charging circuitry.

1.2 Purpose

The USB Power Delivery specification defines a power delivery system covering all elements of a USB system including Hosts, Devices, Hubs, Chargers and cable assemblies. This specification describes the architecture, protocols, power supply behavior, connectors and cabling necessary for managing power delivery over USB at up to 100W. This specification is intended to be fully compatible and extend the existing USB infrastructure. It is intended that this specification will allow system OEMs, power supply and peripheral developers adequate flexibility for product versatility and market differentiation without losing backwards compatibility.

USB Power Delivery is designed to operate independently of the existing USB bus defined mechanisms used to negotiate power which are:

- [\[USB 2.0\]](#), [\[USB 3.2\]](#) in band requests for high power interfaces.
- [\[USBBC 1.2\]](#) mechanisms for supplying higher power (not mandated by this specification).
- [\[USB Type-C 2.3\]](#) mechanisms for supplying higher power.

Initial operating conditions remain the USB Default Operation as defined in [\[USB 2.0\]](#), [\[USB 3.2\]](#), [\[USB Type-C 2.3\]](#) or [\[USBBC 1.2\]](#).

- The DFP sources **vSafe5V** over V_{BUS} .
- The UFP consumes power from V_{BUS} .

1.2.1 Scope

This specification is intended as an extension to the existing [\[USB 2.0\]](#), [\[USB 3.2\]](#), [\[USB Type-C 2.3\]](#) and [\[USBBC 1.2\]](#) specifications. It addresses only the elements required to implement USB Power Delivery. It is targeted at power supply vendors, manufacturers of [\[USB 2.0\]](#), [\[USB 3.2\]](#), [\[USB Type-C 2.3\]](#) and [\[USBBC 1.2\]](#) Platforms, Devices and cable assemblies.

Normative information is provided to allow interoperability of components designed to this specification.

Informative information, when provided, illustrates possible design implementation.

1.3 Section Overview

This specification contains the following sections:

Table 1.1 Section Overview

Section	Description
<i>Section 1 “Introduction”</i>	Introduction, conventions used in the document, list of terms and abbreviations, references, and details of parameter usage.
<i>Section 2 “Overview”</i>	Overview of the document including a description of the operation of PD and the architecture.
<i>Section 3 “USB Type-A and USB Type-B Cable Assemblies and Connectors”</i>	Mechanical and electrical characteristics of the cables and connectors used by PD. Section Deprecated . See [USBPD 2.0] for legacy PD connector specification.
<i>Section 4 “Electrical Requirements”</i>	Electrical requirements for Dead Battery operation and cable detection.
<i>Section 5 “Physical Layer”</i>	Details of the PD PHY Layer requirements
<i>Section 6 “Protocol Layer”</i>	Protocol Layer requirements including the Messages, timers, counters, and state operation.
<i>Section 7 “Power Supply”</i>	Power supply requirements for both Providers and Consumers.
<i>Section 8 “Device Policy”</i>	Device Policy Manager requirements. Policy Engine Message sequence diagrams and state diagrams
<i>Section 9 “States and Status Reporting”</i>	USBPD Device requirements including mapping of V_{BUS} to USB states. System Policy Manager requirements including descriptors, events, and requests.
<i>Section 10 “Power Rules”</i>	Rated Output Power definitions for PD.
<i>Appendix A “CRC calculation”</i>	Example CRC calculations.
<i>Appendix B “PD Message Sequence Examples”</i>	Scenarios illustrating Device Policy Manager operation.
<i>Appendix C “VDM Command Examples”</i>	Examples of Structured VDM usage.
<i>Appendix D “BMC Receiver Design Examples”</i>	BMC Receiver Design Examples.
<i>Appendix E “FRS System Level Example”</i>	FRS System Level Example.

1.4 Conventions

1.4.1 Precedence

If there is a conflict between text, figures, and tables, the precedence **Shall** be tables, figures, and then text.

In there is a conflict between a generic statement and a more specific statement, the more specific statement **Shall** apply.

1.4.2 Keywords

The following keywords differentiate between the levels of requirements and options.

1.4.2.1 Conditional Normative

Conditional Normative is a keyword used to indicate a feature that is mandatory when another related feature has been implemented. Designers are mandated to implement all such requirements, when the dependent features have been implemented, to ensure interoperability with other compliant Devices.

1.4.2.2 Deprecated

Deprecated is a keyword used to indicate a feature, supported in previous releases of the specification, which is no longer supported.

1.4.2.3 Discarded

Discard, **Discards** and **Discarded** are equivalent keywords indicating that a Packet when received **Shall** be thrown away by the PHY Layer and not passed to the Protocol Layer for processing. No **GoodCRC** Message **Shall** be sent in response to the Packet.

1.4.2.4 Ignored

Ignore, **Ignores** and **Ignored** are equivalent keywords indicating Messages or Message fields which, when received, **Shall** result in no special action by the receiver. An **Ignored** Message **Shall** only result in returning a **GoodCRC** Message to acknowledge Message receipt. A Message with an **Ignored** field **Shall** be processed normally except for any actions relating to the **Ignored** field.

1.4.2.5 Informative

Informative is a keyword indicating text with no specific requirements, provided only to improve understanding.

1.4.2.6 Invalid

Invalid is a keyword when used in relation to a Packet indicates that the Packet's usage or fields fall outside of the defined specification usage. When **Invalid** is used in relation to an Explicit Contract it indicates that a previously established Explicit Contract which can no longer be maintained by the Source. When **Invalid** is used in relation to individual K-codes or K-code sequences indicates that the received Signaling falls outside of the defined specification.

1.4.2.7 May

May is a keyword that indicates a choice with no implied preference.

1.4.2.8 May Not

May Not is a keyword that is the inverse of **May**. Indicates a choice to not implement a given feature with no implied preference.

1.4.2.9 N/A

N/A is a keyword that indicates that a field or value is not applicable and has no defined value and **Shall Not** be checked or used by the recipient.

1.4.2.10 Optional/Optionally/Optional Normative

Optional, **Optionally** and **Optional Normative** are equivalent keywords that describe features not mandated by this specification. However, if an **Optional** feature is implemented, the feature **Shall** be implemented as defined by this specification.

1.4.2.10.1 Reserved

Reserved is a keyword indicating **Reserved** bits, bytes, words, fields, and code values that are set-aside for future standardization. Their use and interpretation **May** be specified by future extensions to this specification and **Shall Not** be utilized or adapted by vendor implementation. A **Reserved** bit, byte, word, or field **Shall** be set to zero by the sender and **Shall** be **Ignored** by the receiver. **Reserved** field values **Shall Not** be sent by the sender and **Shall** be **Ignored** by the receiver.

1.4.2.11 Shall/Normative

Shall and **Normative** are equivalent keywords indicating a mandatory requirement. Designers are mandated to implement all such requirements to ensure interoperability with other compliant Devices.

1.4.2.12 Shall Not

Shall Not is a keyword that is the inverse of **Shall** indicating non-compliant operation.

1.4.2.13 Should

Should is a keyword indicating flexibility of choice with a preferred alternative; equivalent to the phrase “it is recommended that...”.

1.4.2.14 Should Not

Should Not is a keyword is the inverse of **Should**; equivalent to the phrase “it is recommended that implementations do not...”.

1.4.2.15 Valid

Valid is a keyword that is the inverse of **Invalid** indicating either a Packet or Signaling that fall within the defined specification or an Explicit Contract that can be maintained by the Source.

1.4.3 Numbering

Numbers that are immediately followed by a lowercase “b” (e.g., 01b) are binary values. Numbers that are immediately followed by an uppercase “B” are byte values. Numbers that are immediately followed by a lowercase “h” (e.g., 3Ah) or are preceded by “0x” (e.g., 0xFF00) are hexadecimal values. Numbers not immediately followed by either a “b”, “B”, or “h” are decimal values.

1.5 Related Documents

Document references listed below are inclusive of all approved and published ECNs and Errata:

Table 1.2 Document References

Bookmark Reference	Title	Revision and date
[DPTC2.1]	DisplayPort™ Alt Mode on USB Type-C® Standard www.vesa.org .	Version 2.1 2022-11
[IEC 60950-1]	IEC 60950-1:2005 Information technology equipment – Safety – Part 1: General requirements: Amendment 1:2009, Amendment 2:2013. www.iec.ch .	2005, 2009, 2013
[IEC 60958-1]	IEC 60958-1:2021 Digital Audio Interface Part:1 General. www.iec.ch .	2021-09-10
[IEC 62368-1]	IEC 62368-1:2018 Audio/Video, information, and communication technology equipment – Part 1: Safety requirements. www.iec.ch .	2018-10-04
[IEC 62368-3]	IEC 62368-3:2017 Audio/video, information, and communication technology equipment - Part 3: Safety aspects for DC power transfer through communication cables and ports www.iec.ch .	2017-12-07
[IEC 63002]	IEC 63002:2021 Interoperability specifications and communication method for external power supplies used with computing and consumer electronics devices www.iec.ch .	2021-05-27
[ISO 3166]	ISO 3166 international Standard for country codes and codes for their subdivisions. http://www.iso.org/iso/home/standards/country_codes.htm .	
[TBT3]	see [USB4] Chapter 13 for Thunderbolt™ 3 device operation.	
[UCSI]	USB Type-C® Connector System Software Interface (UCSI) Specification https://www.usb.org/documents .	2023-06-23
[USB 2.0]	Universal Serial Bus 2.0 Specification, , https://www.usb.org/documents .	Revision 2.0
[USB 3.2]	Universal Serial Bus 3.2 Specification https://www.usb.org/documents .	Revision 1.1 June 2022
[USB Type-C 2.3]	Universal Serial Bus Type-C® Cable and Connector Specification, https://www.usb.org/documents .	Release 2.3 October 2023
[USB4]	Universal Serial Bus 4 Specification (USB4®), https://www.usb.org/documents .	Version 2.0 October 2022
[USBBC 1.2]	Universal Serial Bus Battery Charging Specification plus Errata (referred to in this document as the Battery Charging specification). https://www.usb.org/documents .	Revision 1.2
[USBPD 2.0]	Universal Serial Bus Power Delivery Specification, https://www.usb.org/documents .	Revision 2 Version 1.2 March 25, 2016
[USBPDCompliance]	USB Power Delivery Compliance Test Specification, https://www.usb.org/documents .	Revision Q2, 2023 OR April 2023

[USBPDFirmwareUpdate 1.0]	Universal Serial Bus Power Delivery Firmware Update Specification, https://www.usb.org/documents .	Revision 1.0, September 15, 2016
[USBTypeCAuthentication 1.0]	Universal Serial Bus Type-C® Authentication Specification, https://www.usb.org/documents .	Revision 1.0, March 25, 2016
[USBTypeCBridge 1.1]	Universal Serial Bus Type-C® Bridge Specification, https://www.usb.org/documents .	Revision 1.1 September 2017

1.6 Terms and Abbreviations

This section defines terms used throughout this document. For additional terms that pertain to the Universal Serial Bus, see Chapter 2, “Terms and Abbreviations,” in [\[USB 2.0\]](#), [\[USB 3.2\]](#), [\[USB Type-C 2.3\]](#) and [\[USBBC 1.2\]](#).

Table 1.3 Terms and Abbreviations

Term	Description
<i>Active Cable</i>	A cable with a USB Type-C Plug on each end that incorporates data bus signal conditioning circuits. The cable supports the Structured VDM Discover Identity Command to expose its characteristics in addition to other Structured VDM Commands (Electronically Marked Cable see [USB Type-C 2.3]).
<i>Active Mode</i>	A Mode which has been entered and not exited.
<i>Adjustable Voltage Supply (AVS)</i>	A power supply whose output Voltage can be adjusted to an operating Voltage within its Advertised range. These capabilities are exposed by the Adjustable Voltage Supply (AVS) APDO (see Section 6.4.1.2.5, “Augmented Power Data Object (APDO)”). Note unlike the SPR PPS, the SPR AVS and EPR AVS do not support current limit.
<i>Advertised</i>	An offer made by a Source in the Capabilities/EPR Capabilities message (e.g., an APDO or PDO).
<i>Alternate Mode</i>	As defined in [USB Type-C 2.3] . Equivalent to Mode in the PD Specification.
<i>Alternate Mode Adapter (AMA)</i>	A PDUSB Device which supports Alternate Modes as defined in [USB Type-C 2.3] . Note that since an AMA is a PDUSB Device it has a single UFP that is only addressable by SOP Packets.
<i>Alternate Mode Controller (AMC)</i>	A DFP that supports connection to AMAs as defined in [USB Type-C 2.3] . A DFP that is an AMC can also be a PDUSB Host.
<i>Assured Capacity Charger</i>	As defined in [USB Type-C 2.3] . This maps to a charger with a Guaranteed Capacity Port.
<i>Atomic Message Sequence (AMS)</i>	A fixed sequence of Messages as defined in Section 8.3.2, “Atomic Message Sequence Diagrams” typically starting and ending in one of the following states: PE_SRC_Ready , PE_SNK_Ready or PE_CBL_Ready . An AMS is Non-interruptible.
<i>Attach</i>	Mechanical joining of the Port Pair by a cable.
<i>Attached</i>	USB Power Delivery ports which are mechanically joined with USB cable.
<i>Attachment</i>	See Attach.
<i>Augmented Power Data Object (APDO)</i>	Data Object used to expose a Source Port’s power capabilities or a Sink’s power requirements as part of a Source_Capabilities/EPR Source Capabilities or Sink_Capabilities/EPR Source Capabilities Message respectively. An SPR Programmable Power Supply Data Object, SPR Adjustable Voltage Supply Data Object and EPR Adjustable Voltage Supply Data Object are defined.
<i>Battery</i>	A power storage device residing behind a Port that can either be a Source or Sink of power.
<i>Battery Slot</i>	A physical location where a Hot Swappable Battery can be installed. A Battery Slot might or might not have a Hot Swappable Battery present in a Battery Slot at any given time.
<i>Battery Supply</i>	A power supply that directly applies the output of a Battery to V_{BUS} . This is exposed by the Battery Supply PDO (see Section 6.4.1.2.4, “Battery Supply Power Data Object”).
<i>Binary Frequency Shift Keying (BFSK)</i>	A Signaling Scheme now Deprecated in this specification. BFSK used a pair of discrete frequencies to transmit binary (0s and 1s) information over V_{BUS} . See [USBPD 2.0] for further details.
<i>Biphase Mark Coding (BMC)</i>	Modification of Manchester coding where each zero has one transition and a one has two transitions (see [IEC 60958-1]).
<i>BIST</i>	Built-In Self-Test – Power Delivery testing mechanism for the PHY Layer.

<i>BIST Data Object (BDO)</i>	Data Object used by BIST Messages.
<i>BIST Mode</i>	A BIST receiver or transmitter test mode enabled by a BIST Message.
<i>Cable Discovered</i>	USB Power Delivery ports that have exchanged a Message and a GoodCRC Message response with a Cable Plug or a VPD using the USB Power Delivery protocol so that both the Port and the Cable Plug know that each is PD Capable.
<i>Cable Plug</i>	Term used to describe a PD Capable element in a multi-Drop system addressed by SOP'/'SOP'' Packets. Logically the Cable Plug is associated with a USB Type-C plug at one end of the cable. In a practical implementation, the electronics might reside anywhere in the cable.
<i>Cable Reset</i>	This is initiated by Cable Reset Signaling from the DFP. It restores the Cable Plugs to their default, power up condition and resets the PD communications engine in the cable to its default state. It does not reset the Port Partners but does restore VCONN to its Attachment state.
<i>Charge Through</i>	A mechanism for a VCONN-powered USB Device (VPD) to pass power and CC communication from one Port to the other without any interference or re-regulation.
<i>Charge Through Port</i>	The USB Type-C® receptacle on a USB Device that is designed to allow a Source to be connected through the USB Device to charge a system to which it is Attached. Most common use is to allow a single Port Host to support a USB device while being charged.
<i>Chunk</i>	A MaxExtendedMsgChunkLen (26 byte) or less portion of a Data Block. Data Blocks can be sent either as a single Message or as a series of Chunks.
<i>Chunking</i>	The process of breaking up a Data Block larger than MaxExtendedMsgLegacyLen (26-bytes) into two or more Chunks.
<i>Cold Socket</i>	A Port that does not apply vSafe5V on V _{BUS} until a Sink is Attached.
<i>Command</i>	Request and response pair defined as part of a Structured Vendor Defined Message (see Section 6.4.4.2, "Structured VDM")
<i>Configuration Channel (CC)</i>	Single wire used by the BMC PHY Layer Signaling Scheme (see [USB Type-C 2.3]).
<i>Connected</i>	USB Power Delivery ports that have exchanged a Message and a GoodCRC Message response using the USB Power Delivery protocol so that both Port Partners know that each is PD Capable.
<i>Constant Voltage (CV)</i>	A mode in which the SPR PPS Source output Voltage remains constant as the load changes.
<i>Consumer</i>	The capability of a PD Port (typically a Device's UFP) to sink power from the power conductor (e.g., V _{BUS}). This corresponds to a USB Type-C Port with R _d asserted on its CC Wire.
<i>Consumer/Provider</i>	A Consumer with the additional capability to function as a Provider. This corresponds to a Dual-Role Port with R _d asserted on its CC Wire.
<i>Continuous BIST Mode</i>	The BIST Mode where the Port or Cable Plug being tested sends a continuous stream of test data.
<i>Contract</i>	An agreement on both power level and direction is reached between a Port Pair. A Contract could be explicitly negotiated between the Port Pair or could be an Implicit power level defined by the current state. While operating in Power Delivery mode there will always be either an Explicit or Implicit Contract in place. The Contract can only be altered in the case of a (re-)negotiation, Power Role Swap, Data Role Swap, FR Swap, Hard Reset, or failure of the Source.
<i>Control Message</i>	A Control Message is defined as a message with the Number of Data Objects field in the Message Header is set to zero. The Control Message consists only of a Message Header and a CRC.

<i>Current Limit (CL)</i>	A current limiting feature of an SPR PPS Source. When a Sink operating in SPR PPS mode attempts to draw more current from the Source than the requested Current Limit value, the Source reduces its output Voltage so the current it supplies remains at or below the requested value. Note current limit is not supported by SPR and EPR AVS Sources.
<i>Data Block</i>	An Extended Message payload data unit. The size of each type of Data Block is specified as a series of bytes up to MaxExtendedMsgLen bytes in length. This is distinct from a Data Object used by a Data Message which is always a 32-bit object.
<i>Data Message</i>	A Data Message consists of a Message Header followed by one or more Data Objects. Data Messages are easily identifiable because the Number of Data Objects field in the Message Header is always a non-zero value.
<i>Data Object</i>	A Data Message payload data unit. This 32-bit object contains information specific to different types of Data Message. For example Power, Request, BIST, and Vendor Data Objects are defined.
<i>Data Role Swap</i>	Process of exchanging the DFP (Host) and UFP (Device) roles between Port Partners.
<i>Dead Battery</i>	A device has a Dead Battery when the Battery in a device is unable to power its functions.
<i>Default Contract</i>	An agreement on current at 5V is reached between a Port Pair based on USB Type-C Current ([USB Type-C 2.3]).
<i>Detach</i>	Mechanical unjoining of the Port Pair by removal of the cable.
<i>Detached</i>	USB Power Delivery ports which are no longer mechanically joined with USB cable.
<i>Device</i>	When lower cased (device), it refers to any USB product, either USB Device or USB Host. When in upper case refers to a USB Device (Peripheral or Hub).
<i>Device Policy Manager (DPM)</i>	Module running in a Source or Sink that applies Local Policy to each Port in the Device via the Policy Engine.
<i>Differential Non-Linearity (DNL)</i>	The difference between an ideal LSB step, and the real observable LSB step when the Power Source is operating in either PPS or AVS mode. A DNL of 0 indicates that the step is ideal. If DNL is positive the step is larger than the ideal LSB, and if it is negative then the step is smaller than ideal.
<i>Discovery Process</i>	Command sequence using Structured Vendor Defined Messages resulting in identification of the Port Partner and Cable Plug, and their supported SVIDs and Modes.
<i>Downstream Facing Port (DFP)</i>	Indicates the Port's position in the USB topology which typically corresponds to a USB Host Root Port or Hub Downstream Port as defined in [USB Type-C 2.3] . At connection, the Port defaults to operation as the Source and as a USB Host (when USB Communication is supported).
<i>Dual-Role Data (DRD)</i>	Capability of operating as either a DFP or UFP.
<i>Dual-Role Data Port</i>	A Port Capable of operating as DRD.
<i>Dual-Role Power (DRP)</i>	Capability of operating as either a Source or Sink.
<i>Dual-Role Power Device</i>	A product containing one or more Dual-Role Power Ports that can operate as either a Source or a Sink.
<i>Dual-Role Power Port</i>	A Port capable of operating as a DRP.
<i>End of Packet (EOP)</i>	K-code marker used to delineate the end of a packet.
<i>Enter Mode Process</i>	Command sequence of Structured Vendor Defined Messages resulting in the Port Partners entering a Mode.
<i>EPR AVS</i>	A power supply operating in EPR Mode whose output Voltage can be adjusted to an operating Voltage within its advertised range. Unlike SPR PPS it does not support current limit. The AVS capabilities are exposed by the Adjustable Voltage Supply APDO (see Section 6.4.1.2.5, "Augmented Power Data Object (APDO)").