

# INTERNATIONAL STANDARD



**Universal serial bus interfaces for data and power –  
Part 1-3: Common components – USB Type-C™ Cable and Connector  
Specification**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

ICS 33.120.20; 33.120.30; 35.200

ISBN 978-2-8322-4842-3

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### UNIVERSAL SERIAL BUS INTERFACES FOR DATA AND POWER –

### Part 1-3: Common components – USB Type-C™ Cable and Connector Specification

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This second edition cancels and replaces the first edition published in 2016 and constitutes a technical revision.

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 standard is based on the following documents:

CDV	Report on voting
100/2853/CDV	100/2958/RVC

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This standard is the USB-IF publication USB Type-C™ Cable and Connector Specification Revision 1.2 as of March 25, 2016.

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# Universal Serial Bus Type-C Cable and Connector Specification

Revision 1.2  
March 25, 2016

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## CONTENTS

Specification Work Group Chairs / Specification Editors.....	16
Specification Work Group Contributors .....	16
Pre-Release Draft Industry Reviewing Companies That Provided Feedback .....	18
Revision History.....	18
1 Introduction .....	19
1.1 Purpose .....	19
1.2 Scope .....	19
1.3 Related Documents.....	19
1.4 Conventions.....	20
1.4.1 Precedence .....	20
1.4.2 Keywords .....	20
1.4.3 Numbering.....	21
1.5 Terms and Abbreviations .....	21
2 Overview .....	23
2.1 Introduction.....	23
2.2 USB Type-C Receptacles, Plugs and Cables .....	25
2.3 Configuration Process.....	26
2.3.1 Source-to-Sink Attach/Detach Detection .....	26
2.3.2 Plug Orientation/Cable Twist Detection.....	27
2.3.3 Initial Power (Source-to-Sink) Detection and Establishing the Data (Host-to-Device) Relationship.....	27
2.3.4 USB Type-C VBUS Current Detection and Usage .....	28
2.3.5 USB PD Communication.....	28
2.3.6 Functional Extensions.....	28
2.4 VBUS .....	28
2.5 VCONN.....	29
2.6 Hubs.....	29
3 Mechanical .....	30
3.1 Overview .....	30
3.1.1 Compliant Connectors .....	30
3.1.2 Compliant Cable Assemblies .....	30
3.1.3 Compliant USB Type-C to Legacy Cable Assemblies .....	30
3.1.4 Compliant USB Type-C to Legacy Adapter Assemblies.....	31
3.2 USB Type-C Connector Mating Interfaces .....	31
3.2.1 Interface Definition .....	31
3.2.2 Reference Designs .....	50
3.2.3 Pin Assignments and Descriptions.....	57
3.3 Cable Construction and Wire Assignments.....	59
3.3.1 Cable Construction (Informative) .....	60
3.3.2 Wire Assignments.....	61
3.3.3 Wire Gauges and Cable Diameters (Informative) .....	62
3.4 Standard USB Type-C Cable Assemblies.....	64
3.4.1 USB Full-Featured Type-C Cable Assembly.....	64

3.4.2	USB 2.0 Type-C Cable Assembly .....	65
3.4.3	USB Type-C Captive Cable Assemblies .....	66
3.5	Legacy Cable Assemblies .....	66
3.5.1	USB Type-C to <i>USB 3.1</i> Standard-A Cable Assembly .....	67
3.5.2	USB Type-C to <i>USB 2.0</i> Standard-A Cable Assembly .....	68
3.5.3	USB Type-C to <i>USB 3.1</i> Standard-B Cable Assembly .....	69
3.5.4	USB Type-C to <i>USB 2.0</i> Standard-B Cable Assembly .....	70
3.5.5	USB Type-C to <i>USB 2.0</i> Mini-B Cable Assembly .....	71
3.5.6	USB Type-C to <i>USB 3.1</i> Micro-B Cable Assembly .....	72
3.5.7	USB Type-C to <i>USB 2.0</i> Micro-B Cable Assembly .....	74
3.6	Legacy Adapter Assemblies .....	74
3.6.1	USB Type-C to <i>USB 3.1</i> Standard-A Receptacle Adapter Assembly .....	75
3.6.2	USB Type-C to <i>USB 2.0</i> Micro-B Receptacle Adapter Assembly .....	76
3.7	Electrical Characteristics .....	78
3.7.1	Raw Cable (Informative) .....	78
3.7.2	USB Type-C to Type-C Passive Cable Assemblies (Normative) .....	79
3.7.3	Mated Connector (Informative) .....	91
3.7.4	USB Type-C to Legacy Cable Assemblies (Normative) .....	95
3.7.5	USB Type-C to USB Legacy Adapter Assemblies (Normative) .....	99
3.7.6	Shielding Effectiveness Requirements (Normative) .....	101
3.7.7	DC Electrical Requirements (Normative) .....	103
3.8	Mechanical and Environmental Requirements (Normative) .....	105
3.8.1	Mechanical Requirements .....	105
3.8.2	Environmental Requirements .....	111
3.9	Docking Applications (Informative) .....	112
3.10	Implementation Notes and Design Guides .....	113
3.10.1	EMC Management (Informative) .....	113
3.10.2	Stacked and Side-by-Side Connector Physical Spacing (Informative) .....	115
3.10.3	Cable Mating Considerations (Informative) .....	116
4	Functional .....	117
4.1	Signal Summary .....	117
4.2	Signal Pin Descriptions .....	117
4.2.1	SuperSpeed USB Pins .....	117
4.2.2	USB 2.0 Pins .....	117
4.2.3	Auxiliary Signal Pins .....	118
4.2.4	Power and Ground Pins .....	118
4.2.5	Configuration Pins .....	118
4.3	Sideband Use (SBU) .....	118
4.4	Power and Ground .....	118
4.4.1	IR Drop .....	118
4.4.2	VBUS .....	119
4.4.3	VCONN .....	120
4.5	Configuration Channel (CC) .....	121
4.5.1	Architectural Overview .....	121
4.5.2	CC Functional and Behavioral Requirements .....	134



4.5.3	USB Port Interoperability Behavior .....	155
4.6	Power .....	165
4.6.1	Power Requirements during USB Suspend .....	166
4.6.2	VBUS Power Provided Over a USB Type-C Cable.....	167
4.7	USB Hubs .....	169
4.8	Chargers.....	170
4.8.1	DFP as a Power Source.....	170
4.8.2	Non-USB Charging Methods .....	172
4.8.3	Sinking Host .....	172
4.8.4	Sourcing Device .....	173
4.8.5	Charging a System with a Dead Battery.....	173
4.9	Electronically Marked Cables .....	173
4.10	VCONN-Powered Accessories .....	174
4.11	Parameter Values .....	175
4.11.1	Termination Parameters .....	175
4.11.2	Timing Parameters .....	177
4.11.3	Voltage Parameters.....	179
5	Functional Extensions .....	180
5.1	Alternate Modes.....	180
5.1.1	Alternate Mode Architecture .....	181
5.1.2	Alternate Mode Requirements.....	181
5.1.3	Parameter Values .....	185
5.1.4	Example Alternate Mode – USB DisplayPort™ Dock.....	185
5.2	Managed Active Cables .....	188
5.2.1	Requirements for Managed Active Cables that respond to SOP' and SOP" ..	188
5.2.2	Cable Message Structure .....	189
5.2.3	Modal Cable Management .....	190
A	Audio Adapter Accessory Mode .....	190
A.1.	Overview .....	190
A.2.	Detail.....	190
A.3.	Electrical Requirements .....	191
A.4.	Example Implementations.....	193
A.4.1.	Passive 3.5 mm to USB Type-C Adapter – Single Pole Detection Switch .....	193
A.4.2.	3.5 mm to USB Type-C Adapter Supporting 500 mA Charge-Through.....	193
B	Debug Accessory Mode .....	194
B.1.	Overview .....	194
B.2.	Functional.....	194
B.2.1.	Signal Summary .....	196
B.2.2.	Port Interoperability .....	196
B.2.3.	Debug Accessory Mode Entry .....	196
B.2.4.	Connection State Diagrams .....	197
B.2.5.	DTS Port Interoperability Behavior.....	206
B.2.6.	Orientation Detection.....	215
B.3.	Security/Privacy Requirements: .....	215
C	USB Type-C Digital Audio.....	216

## FIGURES

Figure 2-1 USB Type-C Receptacle Interface (Front View).....	24
Figure 2-2 USB Full-Featured Type-C Plug Interface (Front View) .....	25
Figure 3-1 USB Type-C Receptacle Interface Dimensions.....	33
Figure 3-2 Reference Design USB Type-C Plug External EMC Spring Contact Zones .....	37
Figure 3-3 USB Full-Featured Type-C Plug Interface Dimensions .....	38
Figure 3-4 Reference Footprint for a USB Type-C Vertical Mount Receptacle (Informative) .....	41
Figure 3-5 Reference Footprint for a USB Type-C Dual-Row SMT Right Angle Receptacle (Informative) .....	42
Figure 3-6 Reference Footprint for a USB Type-C Hybrid Right-Angle Receptacle (Informative) .....	43
Figure 3-7 Reference Footprint for a USB Type-C Mid-Mount Dual-Row SMT Receptacle (Informative) .....	44
Figure 3-8 Reference Footprint for a USB Type-C Mid-Mount Hybrid Receptacle (Informative) .....	45
Figure 3-9 <i>USB 2.0</i> Type-C Plug Interface Dimensions .....	47
Figure 3-10 USB Type-C Plug EMC Shielding Spring Tip Requirements .....	50
Figure 3-11 Reference Design of Receptacle Mid-Plate .....	50
Figure 3-12 Reference Design of the Retention Latch .....	51
Figure 3-13 Illustration of the Latch Soldered to the Paddle Card Ground .....	51
Figure 3-14 Reference Design of the USB Full-Featured Type-C Plug Internal EMC Spring .....	53
Figure 3-15 Reference Design of the <i>USB 2.0</i> Type-C Plug Internal EMC Spring .....	54
Figure 3-16 Reference Design of Internal EMC Pad .....	55
Figure 3-17 Reference Design of a USB Type-C Receptacle with External EMC Springs .....	56
Figure 3-18 Reference Design for a USB Full-Featured Type-C Plug Paddle Card .....	57
Figure 3-19 Illustration of a USB Full-Featured Type-C Cable Cross Section, a Coaxial Wire Example with VCONN .....	60
Figure 3-20 Illustration of a USB Full-Featured Type-C Cable Cross Section, a Coaxial Wire Example without VCONN .....	60
Figure 3-21 USB Full-Featured Type-C Standard Cable Assembly .....	64
Figure 3-22 USB Type-C to USB 3.1 Standard-A Cable Assembly .....	67
Figure 3-23 USB Type-C to <i>USB 2.0</i> Standard-A Cable Assembly .....	68
Figure 3-24 USB Type-C to <i>USB 3.1</i> Standard-B Cable Assembly .....	69
Figure 3-25 USB Type-C to <i>USB 2.0</i> Standard-B Cable Assembly .....	70
Figure 3-26 USB Type-C to <i>USB 2.0</i> Mini-B Cable Assembly .....	71
Figure 3-27 USB Type-C to <i>USB 3.1</i> Micro-B Cable Assembly .....	72
Figure 3-28 USB Type-C to <i>USB 2.0</i> Micro-B Cable Assembly .....	74
Figure 3-29 USB Type-C to <i>USB 3.1</i> Standard-A Receptacle Adapter Assembly .....	75
Figure 3-30 USB Type-C to <i>USB 2.0</i> Micro-B Receptacle Adapter Assembly.....	76

Figure 3-31	Illustration of Test Points for a Mated Cable Assembly .....	79
Figure 3-32	Recommended Differential Insertion Loss Requirement .....	79
Figure 3-33	Recommended Differential Return Loss Requirement .....	80
Figure 3-34	Recommended Differential Crosstalk Requirement.....	80
Figure 3-35	Recommended Differential Near-End and Far-End Crosstalk Requirement between USB D+/D- Pair and USB SuperSpeed Pair.....	81
Figure 3-36	Illustration of Insertion Loss Fit at Nyquist Frequency .....	82
Figure 3-37	Input Pulse Spectrum.....	83
Figure 3-38	IMR Limit as Function of ILfitatNq .....	83
Figure 3-39	IRL Limit as Function of ILfitatNq .....	85
Figure 3-40	Differential-to-Common-Mode Conversion Requirement .....	85
Figure 3-41	Requirement for Differential Coupling between CC and D+/D- .....	87
Figure 3-42	Requirement for Single-Ended Coupling between CC and D- in USB 2.0 Type-C Cables.....	87
Figure 3-43	Requirement for Single-Ended Coupling between CC and D- in USB Full- Featured Type-C Cables.....	88
Figure 3-44	Requirement for Differential Coupling between VBUS and D+/D- .....	88
Figure 3-45	Requirement for Single-Ended Coupling between SBU_A and SBU_B .....	89
Figure 3-46	Requirement for Single-Ended Coupling between SBU_A/SBU_B and CC .....	89
Figure 3-47	Requirement for Coupling between SBU_A and differential D+/D-, and SBU_B and differential D+/D-.....	90
Figure 3-48	Illustration of USB Type-C Mated Connector .....	91
Figure 3-49	Recommended Impedance Limits of a USB Type-C Mated Connector .....	92
Figure 3-50	Recommended Ground Void Dimensions for USB Type-C Receptacle.....	93
Figure 3-51	Recommended Differential Near-End and Far-End Crosstalk Limits between D+/D- Pair and SuperSpeed Pairs .....	95
Figure 3-52	Recommended Limits for Differential-to-Common-Mode Conversion .....	95
Figure 3-53	IMR Limit as Function of ILfitatNq for USB Type-C to Legacy Cable Assembly.....	98
Figure 3-54	IRL Limit as Function of ILfitatNq for USB Type-C to Legacy Cable Assembly...	98
Figure 3-55	Cable Assembly Shielding Effectiveness Testing .....	102
Figure 3-56	Shielding Effectiveness Pass/Fail Criteria .....	102
Figure 3-57	LLCR Measurement Diagram .....	103
Figure 3-58	Temperature Measurement Point .....	104
Figure 3-59	Example Current Rating Test Fixture Trace Configuration.....	105
Figure 3-60	Example of 4-Axis Continuity Test Fixture .....	107
Figure 3-61	Example Wrenching Strength Test Fixture for Plugs without Overmold.....	109
Figure 3-62	Reference Wrenching Strength Continuity Test Fixture .....	110
Figure 3-63	Example of Wrenching Strength Test Mechanical Failure Point .....	110
Figure 3-64	Wrenching Strength Test with Cable in Fixture.....	111
Figure 3-65	USB Type-C Cable Receptacle Flange Example .....	113
Figure 3-66	EMC Guidelines for Side Latch and Mid-plate .....	114

Figure 3-67 EMC Finger Connections to Plug Shell.....	114
Figure 3-68 EMC Pad Connections to Receptacle Shell .....	115
Figure 3-69 Examples of Connector Apertures .....	115
Figure 3-70 Recommended Minimum Spacing between Connectors.....	116
Figure 3-71 Recommended Minimum Plug Overmold Clearance .....	116
Figure 3-72 Cable Plug Overmold and an Angled Surface.....	116
Figure 4-1 Cable IR Drop.....	119
Figure 4-2 Cable IR Drop for powered cables .....	119
Figure 4-3 Logical Model for Data Bus Routing across USB Type-C-based Ports.....	122
Figure 4-4 Logical Model for USB Type-C-based Ports for the Direct Connect Device.....	123
Figure 4-5 Pull-Up/Pull-Down CC Model .....	125
Figure 4-6 Current Source/Pull-Down CC Model .....	125
Figure 4-7 Source Functional Model for CC1 and CC2.....	128
Figure 4-8 Source Functional Model Supporting USB PD PR_Swap.....	129
Figure 4-9 Sink Functional Model for CC1 and CC2.....	129
Figure 4-10 UFP Functional Model Supporting USB PD PR_Swap and VCONN_Swap .....	130
Figure 4-11 DRP Functional Model for CC1 and CC2.....	131
Figure 4-12 Connection State Diagram: Source .....	135
Figure 4-13 Connection State Diagram: Sink.....	136
Figure 4-14 Connection State Diagram: Sink with Accessory Support .....	137
Figure 4-15 Connection State Diagram: DRP.....	138
Figure 4-16 Connection State Diagram: DRP with Accessory and Try.SRC Support.....	139
Figure 4-17 Connection State Diagram: DRP with Accessory and Try.SNK Support.....	140
Figure 4-18 Sink Power Sub-States .....	151
Figure 4-19 Source to Sink Functional Model.....	155
Figure 4-20 Source to DRP Functional Model .....	156
Figure 4-21 DRP to Sink Functional Model.....	156
Figure 4-22 DRP to DRP Functional Model – CASE 1 .....	158
Figure 4-23 DRP to DRP Functional Model – CASE 2 & 3.....	159
Figure 4-24 Source to Source Functional Model.....	161
Figure 4-25 Sink to Sink Functional Model .....	162
Figure 4-26 Source to Legacy Device Port Functional Model .....	162
Figure 4-27 Legacy Host Port to Sink Functional Model .....	163
Figure 4-28 DRP to Legacy Device Port Functional Model .....	164
Figure 4-29 Legacy Host Port to DRP Functional Model.....	164
Figure 4-30 Sink Monitoring for Current in Pull-Up/Pull-Down CC Model.....	168
Figure 4-31 Sink Monitoring for Current in Current Source/Pull-Down CC Model.....	168
Figure 4-32 USB PD over CC Pins.....	169
Figure 4-33 USB PD BMC Signaling over CC.....	169

Figure 4-34 USB Type-C Cable's Output as a Function of Load for Non-PD-based USB Type-C Charging .....	171
Figure 4-35 0 – 3 A USB PD-based Charger USB Type-C Cable's Output as a Function of Load .....	171
Figure 4-36 3 – 5 A USB PD-based Charger USB Type-C Cable's Output as a Function of Load .....	172
Figure 4-37 Electronically Marked Cable with VCONN connected through the cable .....	174
Figure 4-38 Electronically Marked Cable with SOP' at both ends .....	174
Figure 4-39 DRP Timing .....	178
Figure 5-1 Pins Available for Reconfiguration over the Full-Featured Cable .....	182
Figure 5-2 Pins Available for Reconfiguration for Direct Connect Applications .....	182
Figure 5-3 Alternate Mode Implementation using a USB Type-C to USB Type-C Cable .....	183
Figure 5-4 Alternate Mode Implementation using a USB Type-C to Alternate Mode Cable or Device .....	184
Figure 5-5 USB DisplayPort Dock Example .....	186
Figure 5-6 Managed Active Cable Plug SOP' and SOP" Assignment .....	188
Figure 5-7 Managed Active Cable .....	189
Figure A-1 Example Passive 3.5 mm to USB Type-C Adapter .....	193
Figure A-2 Example 3.5 mm to USB Type-C Adapter Supporting 500 mA Charge-Through .....	194
Figure B-1 USB Type-C Debug Accessory Layered Behavior .....	195
Figure B-2 DTS Plug Interface .....	196
Figure B-3 Connection State Diagram: DTS Source .....	197
Figure B-4 Connection State Diagram: DTS Sink .....	198
Figure B-5 Connection State Diagram: DTS DRP .....	199
Figure B-6 TS Sink Power Sub-States .....	204

## TABLES

Table 2-1 Summary of power supply options .....	29
Table 3-1 USB Type-C Standard Cable Assemblies .....	30
Table 3-2 USB Type-C Legacy Cable Assemblies .....	31
Table 3-3 USB Type-C Legacy Adapter Assemblies .....	31
Table 3-4 USB Type-C Receptacle Interface Pin Assignments .....	58
Table 3-5 USB Type-C Receptacle Interface Pin Assignments for USB 2.0-only Support .....	59
Table 3-6 USB Type-C Standard Cable Wire Assignments .....	61
Table 3-7 USB Type-C Cable Wire Assignments for Legacy Cables/Adapters .....	62
Table 3-8 Reference Wire Gauges for standard USB Type-C Cable Assemblies .....	63
Table 3-9 Reference Wire Gauges for USB Type-C to Legacy Cable Assemblies .....	63
Table 3-10 USB Full-Featured Type-C Standard Cable Assembly Wiring .....	65
Table 3-11 USB 2.0 Type-C Standard Cable Assembly Wiring .....	66
Table 3-12 USB Type-C to USB 3.1 Standard-A Cable Assembly Wiring .....	67
Table 3-13 USB Type-C to USB 2.0 Standard-A Cable Assembly Wiring .....	68

Table 3-14 USB Type-C to <i>USB 3.1</i> Standard-B Cable Assembly Wiring.....	69
Table 3-15 USB Type-C to <i>USB 2.0</i> Standard-B Cable Assembly Wiring.....	70
Table 3-16 USB Type-C to <i>USB 2.0</i> Mini-B Cable Assembly Wiring .....	71
Table 3-17 USB Type-C to <i>USB 3.1</i> Micro-B Cable Assembly Wiring .....	73
Table 3-18 USB Type-C to <i>USB 2.0</i> Micro-B Cable Assembly Wiring .....	74
Table 3-19 USB Type-C to <i>USB 3.1</i> Standard-A Receptacle Adapter Assembly Wiring .....	76
Table 3-20 USB Type-C to <i>USB 2.0</i> Micro-B Receptacle Adapter Assembly Wiring.....	77
Table 3-21 Differential Insertion Loss Examples for USB SuperSpeed with Twisted Pair Construction .....	78
Table 3-22 Differential Insertion Loss Examples for USB SuperSpeed with Coaxial Construction .....	79
Table 3-23 Electrical Requirements for CC and SBU wires .....	86
Table 3-24 Coupling Matrix for Low Speed Signals .....	86
Table 3-25 USB D+/D- Signal Integrity Requirements for USB Type-C to USB Type-C Passive Cable Assemblies.....	91
Table 3-26 USB Type-C Mated Connector Recommended Signal Integrity Characteristics (Informative).....	93
Table 3-27 USB D+/D- Signal Integrity Requirements for USB Type-C to Legacy USB Cable Assemblies .....	96
Table 3-28 Design Targets for USB Type-C to <i>USB 3.1</i> Gen 2 Legacy Cable Assemblies (Informative).....	97
Table 3-29 USB Type-C to <i>USB 3.1</i> Gen 2 Legacy Cable Assembly Signal Integrity Requirements (Normative).....	97
Table 3-30 USB D+/D- Signal Integrity Requirements for USB Type-C to Legacy USB Adapter Assemblies (Normative).....	99
Table 3-31 Design Targets for USB Type-C to <i>USB 3.1</i> Standard-A Adapter Assemblies (Informative).....	100
Table 3-32 USB Type-C to <i>USB 3.1</i> Standard-A Receptacle Adapter Assembly Signal Integrity Requirements (Normative).....	101
Table 3-33 Current Rating Test PCB.....	105
Table 3-34 Force and Moment Requirements.....	108
Table 3-35 Environmental Test Conditions.....	111
Table 3-36 Reference Materials .....	112
Table 4-1 USB Type-C List of Signals .....	117
Table 4-2 VBUS Source Characteristics .....	120
Table 4-3 USB Type-C Source Port's VCONN Requirements Summary .....	120
Table 4-4 VCONN Source Characteristics.....	121
Table 4-5 VCONN Sink Characteristics.....	121
Table 4-6 USB Type-C-based Port Interoperability.....	124
Table 4-7 Source Perspective .....	126
Table 4-8 Source (Host) and Sink (Device) Behaviors by State.....	127
Table 4-9 USB PD Swapping Port Behavior Summary .....	132
Table 4-10 Power Role Behavioral Model Summary.....	133



Table 4-11	Source Port CC Pin State.....	141
Table 4-12	Sink Port CC Pin State.....	141
Table 4-13	Mandatory and Optional States.....	154
Table 4-14	Precedence of power source usage.....	166
Table 4-15	Source CC Termination (Rp) Requirements.....	175
Table 4-16	Sink CC Termination (Rd) Requirements.....	176
Table 4-17	Powered Cable Termination Requirements.....	176
Table 4-18	Sink CC Termination Requirements.....	176
Table 4-19	SBU Termination Requirements.....	176
Table 4-20	VBUS and VCONN Timing Parameters.....	177
Table 4-21	DRP Timing Parameters.....	178
Table 4-22	CC Timing.....	179
Table 4-23	CC Voltages on Source Side – Default USB.....	179
Table 4-24	CC Voltages on Source Side – 1.5 A @ 5 V.....	179
Table 4-25	CC Voltages on Source Side – 3.0 A @ 5 V.....	180
Table 4-26	Voltage on Sink CC Pins (Default USB Type-C Current only).....	180
Table 4-27	Voltage on Sink CC pins (Multiple Source Current Advertisements).....	180
Table 5-1	USB Safe State Electrical Requirements.....	184
Table 5-2	USB Billboard Device Class Availability Following Alternate Mode Entry Failure.....	185
Table 5-3	Alternate Mode Signal Noise Ingression Requirements.....	185
Table 5-4	SOP' and SOP" Timing.....	189
Table A-1	USB Type-C Analog Audio Pin Assignments.....	191
Table A-2	USB Type-C Analog Audio Pin Electrical Parameter Ratings.....	192
Table B-1	DTS to TS Port Interoperability.....	196
Table B-2	Rp/Rp Charging Current Values for a DTS Source.....	204
Table B-3	Mandatory and Optional States.....	206

**Note: All Engineering Change Notice's (ECN) and Errata documents as of December 06, 2016 that pertain to this core specification follow the last page of the specification starting on page 217.**

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Aces	Joinsoon Electronics Mfg. Co. Ltd.	Parade Technology
Allion Labs, Inc.	JST Mfg. Co., Ltd.	Pericom
BizLink International Corp.	Korea Electric Terminal	Qualcomm
Corning Optical Communications LLC	Marvell Semiconductor	Semtech Corporation
Cypress Semiconductor	Motorola Mobility LLC	Shenzhen Deren Electronic Co., Ltd.
Etron Technology Inc.	NEC	Silicon Image
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Industrial Technology Research Institute (ITRI)	PalCONN/PalNova (Palpilot International Corp.)	Sony Corporation
		Sumitomo Electric Industries
		Toshiba Corporation

### Revision History

Revision	Date	Description
1.0	August 11, 2014	Initial Release
1.1	April 3, 2015	Reprint release including incorporation of all approved ECNs as of the revision date plus editorial clean-up.
1.2	March 25, 2016	Reprint release including incorporation of all approved ECNs as of the revision date plus editorial clean-up.

## 1 Introduction

With the continued success of the USB interface, there exists a need to adapt USB technology to serve newer computing platforms and devices as they trend toward smaller, thinner and lighter form-factors. Many of these newer platforms and devices are reaching a point where existing USB receptacles and plugs are inhibiting innovation, especially given the relatively large size and internal volume constraints of the Standard-A and Standard-B versions of USB connectors. Additionally, as platform usage models have evolved, usability and robustness requirements have advanced and the existing set of USB connectors were not originally designed for some of these newer requirements. This specification is to establish a new USB connector ecosystem that addresses the evolving needs of platforms and devices while retaining all of the functional benefits of USB that form the basis for this most popular of computing device interconnects.

### 1.1 Purpose

This specification defines the USB Type-C™ receptacles, plug and cables.

The USB Type-C Cable and Connector Specification is guided by the following principles:

- Enable new and exciting host and device form-factors where size, industrial design and style are important parameters
- Work seamlessly with existing USB host and device silicon solutions
- Enhance ease of use for connecting USB devices with a focus on minimizing user confusion for plug and cable orientation

The USB Type-C Cable and Connector Specification defines a new receptacle, plug, cable and detection mechanisms that are compatible with existing USB interface electrical and functional specifications. This specification covers the following aspects that are needed to produce and use this new USB cable/connector solution in newer platforms and devices, and that interoperate with existing platforms and devices:

- USB Type-C receptacles, including electro-mechanical definition and performance requirements
- USB Type-C plugs and cable assemblies, including electro-mechanical definition and performance requirements
- USB Type-C to legacy cable assemblies and adapters
- USB Type-C-based device detection and interface configuration, including support for legacy connections
- USB Power Delivery optimized for the USB Type-C connector

The USB Type-C Cable and Connector Specification defines a standardized mechanism that supports Alternate Modes, such as repurposing the connector for docking-specific applications.

### 1.2 Scope

This specification is intended as a supplement to the existing *USB 2.0*, *USB 3.1* and *USB Power Delivery* specifications. It addresses only the elements required to implement and support the USB Type-C receptacles, plugs and cables.

Normative information is provided to allow interoperability of components designed to this specification. Informative information, when provided, may illustrate possible design implementations.