

Product Name: ZX230CR USB type C TPA-R TDR electrical test board breakout adapter for USB 3.1 electrical compliance

Product Description: USB Type C TPA-R TDR electrical test board breakout adapter supporting **USB Type C** connector receptacle. **ZX230CR** TPA USB type C electrical test board tailored for signal jitter, eye diagram and full USB 3.1 electrical compliance test. ZX230CP is designed supporting SuperSpeed Gen1 (2.5GHz) SuperSpeed Gen2 (5GHz) and future 20Gbps (**10GHz**) bandwidth, Nyquist frequencies (ILfitatNq), electrical performance.

Requires minimum 8GHz scope (12GHz-16GHz scope is suggested) for proper single ended and differential signal measurement - clock jitter, skew, eye diagram rise/fall time and electrical test measurements.

ZX230CR TPA-R TDR is offered with 8" (20cm) long semi-flexible cable assemblies with SMA Plug or Jack connectors interfacing directly to scope probe or other cable assemblies, Please see ordering Information. Cable replacement or longer 16" (40cm) cable assemblies can be purchased, see "**Package Includes**". ZX230CR TPA-R TDR USB electrical test board is characterized using the supplied 8" (20cm) long cable assemblies. Tektronix DPO71604C scope using P7313SMA differential probes requires -P (SMA Plug cable assembly). Keysight (Agilent) DSA164A Infiniium scope using N2800A probes + differential probe leads N5444A,

ZX230CR is shipped with cable assembly, ZXJS1173-230C, enabling full access to VBUS, GND, CC1, CC2, SBU1 and SBU2 signals. The cable assembly includes pin socket mating with any standard pin header (0.025" / 0.63mm SQ pin header).

Application: Full USB 3.1 electrical compliance test board – Electrical measurement of Clock Jitter, eye diagram, single ended & differential ended signaling.

Supported bandwidth: Supporting SuperSpeed Gen1 (2.5GHz) SuperSpeed Gen2 (5GHz) and future 20Gbps (10GHz) Nyquist frequencies, bandwidth.

Mates with : **USB Type C Plug** connector.
SMA connectors mates with standard SMA cable assembly , please see ordering information
Wire assembly mates with any 0.025" (0.63mm) SQ post header length 0.23" (5.83mm)

Test procedure: [ZXAN-USB-C Test Procedure](#) application note provides USB test procedure.

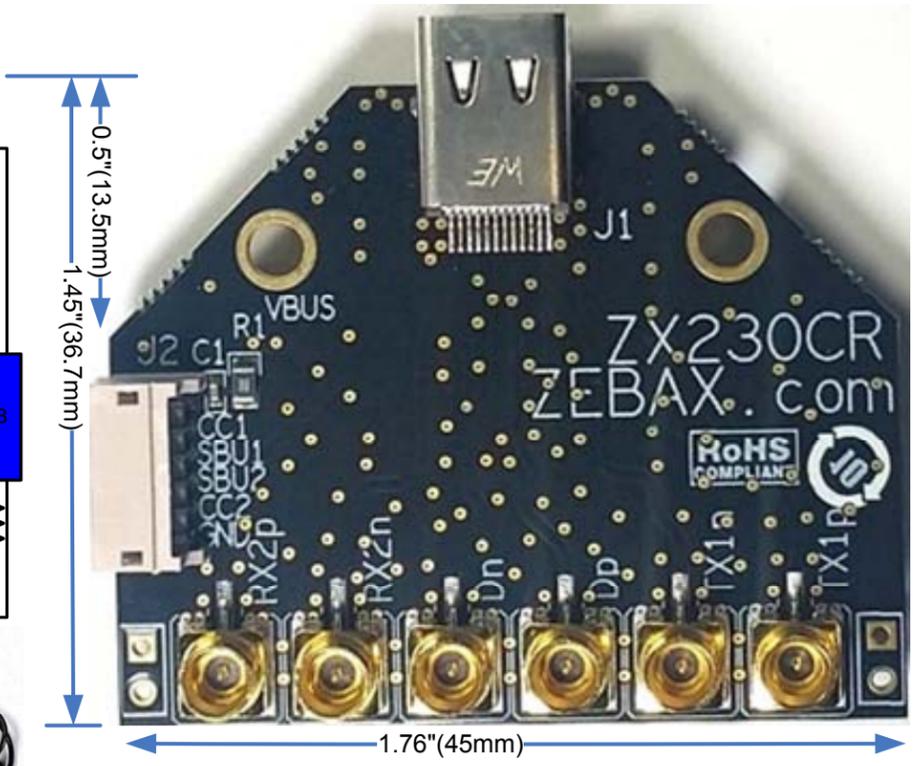
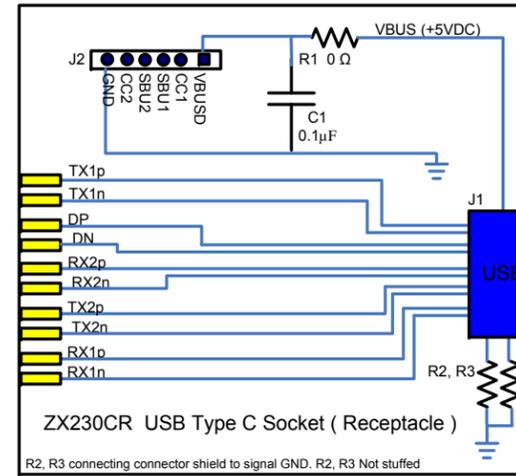
Test Record: coming soon

Package includes:

Item	Part number	Quantity	Description
1	ZX230CR	1	USB Type C TPA-R test module
2	ZX00010308R-US	1	Complete set (10pc) of USB 8" (20cm) long coax cable assemblies, SMA Jack.
	or ZX00020308R-US	1	or SMA Plug – Please see ordering information.
3	ZXJS1173-230C	1	Wire assembly for accessing J2 signals, Note 1
4	ZX00WT-09NM	0	SMA Wrench Torque 5/16" (8mm)

Notes: 1- Supplied extension wire assembly enables to interface test equipment or 3rd party modules.

Circuit Diagram



**S-Parameter, Insertion loss:
See Page 2**

Ordering INFO:
Part Number
ZX230CR-X options
J : SMA Jack (Standard)
P : SMA Plug connector

Note
ALL ZEBAX products are RoHS compliant and Lead Free unless otherwise indicated.

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SPECIFIED DIMENSIONS ARE INCHES (MM). ROHS COMPLIANT

ASSEMBLY DRAWING
ITEM: ZX230CR

DESCRIPTION: USB 3.1 Type C Receptacle TPA-R electrical test board breakout adapter Gen1 Gen2 10GHz

CHECKED: M. MARINA
DRAWN: SLAVIK
REVISION: 1.0
SHEET 1 OF 2

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S-Parameter, Insertion loss: The following insertion loss measurements were obtained using Agilent NA with the following test case:

- 1- ZX230CP mating with ZX230CR at USB type C connector.
- 2- NT interfacing with the supplied SMA 8" cable assembly.

Signal Pairs	Insertion Loss at USB Gen1 Gne2 Nyquist frequencies (dB)				
	0.626GHz	1.25GHz	2.5GHz	5.0GHz (Gen2)	7.5Hz
RX1-P/N	-0.70	-0.88	-2.52	-4.63	-5.61
RX2-P/N	-0.60	-1.25	-1.17	-4.23	-3.70
TX1-P/N	-0.80	-1.25	-1.20	-4.19	-4.34
TX2-P/N	-1.10	-0.87	-2.63	-4.33	-5.85
DP/DN	-1.30	-1.44	-4.03	-6.65	-4.20

All values are dB

S-Parameter files: ZX230CX-CR-CP – It is .7z file. It consists of 5 .s4p files.

Pinouts: USB Type C Socket (receptacle), and J2 signal assignments listed below

USB Type C Socket (Receptacle)

Labeled Coax	Connector		Labeled Coax
	Top	Bottom	
J2.6 GND	A1	B12	J2.6 GND
TX1p	A2	B11	RX1p
TX1n	A3	B10	RX1n
J2.6 VBUS	A4	B9	J2.6 VBUS
J2.2 CC1	A5	B8	J2.4 SBU2
DP	A6	B7	DN
DN	A7	B6	DP
J2.3 SBU1	A8	B5	J2.5 CC2
J2.6 VBUS	A9	B4	J2.6 VBUS
RX2n	A10	B3	TX2n
RX2p	A11	B2	TX2p
J2.6 GND	A12	B1	J2.6 GND

J2.x signals are accessible on J2 connector

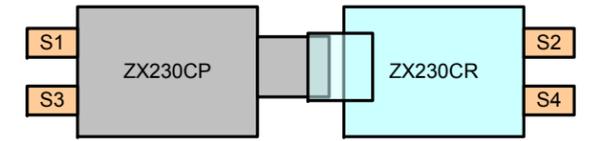
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J2	
Pin	Function
1	VBUS
2	CC1
3	SBU1
4	SBU2
5	CC2
6	GND

Complete set of USB 8" (20cm) long coax cable assemblies, SMA type Jack is shown – Part Number ZX00010308R-US
Note: SMA end part of the cables are shown



Test network : ZX230CP/CR Plug and Receptacle via the supplied SMA cable assembly

S12 : TX1+ / TX2+ / RX1+ / RX2+ / DP
S34: TX1- / TX2- / RX1- / RX2- / D2



SMA Cable Assembly is semi-flexible coax cable with Max. bends of 35mm. Please do not over exert beyond the cable's tolerance.

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