

**Product Name:** ZX200x-20 HDMI TPA-P TDR test breakout adapter board for [HDMI 2.0 compliance test](#)

**Product Description:** HDMI TPA-P TDR test breakout adapter board supporting Type A (STD) Type C (mini) and Type D (micro) TPA HDMI electrical test board tailored for signal jitter, eye diagram and full HDMI compliance **1.4a and 2.0 electrical test measurements** covering 720p, 1080p, 4K at 30frame per second, fps, **4K 60fps** operating at **5.94GHz** bandwidth. ZX200x-20 electrically exceeds stringent requirement of extended video format 4K at 60fps signal bandwidth. Requires minimum 12GHz scope ( 16GHz scope is suggested ) for proper single ended and differential signal measurement - clock jitter, skew, eye diagram rise/fall time and electrical test measurements.

ZX200x-20 is offered supporting HDMI Type A , C and D connectors. Please see ordering Information.

ZX200x-20 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. Cable replacement or longer 16" ( 40cm ) cable assemblies can be purchased, see "**Package Includes**". ZX200x-20 is characterized using the supplied 8" (20cm) long cable assemblies. Tektronic DPO71604C scope using P7313SMA differential probes requires -P ( SMA Plug cable assembly). Keysight ( Agilent ) DSA164A Infiniium scope using N2800A probes + differential probe leads N54444A N5399C software. Keysight, Tektronix and Lecroy test equipments are supported. An additional attenuation filter is required Lecroy test equipment, [ZX200LR3L-P/J](#).

Available EDID accessible signals via the supplied wire assemblies for interfacing with [ZX202HD](#) or similar.

Available, [ZX200L508-HD](#), Termination board per requirement of HDMI 2.0 standard.

**Application:** [Full HDMI 2.0 compliance & 1.4a compliance test](#) – full HDMI electrical test, Clock Jitter, eye diagram, single ended & differential ended signaling electrical measurement – [FULL certification electrical test](#)

**Supported resolutions:** Full HDMI 2.0 is supported at including the **4K at 60fps operating at 5.94GHz** bandwidth.

**Mates with :** HDMI type A, C and D Socket ( receptacle ) connector.  
SMA connectors mates with standard SMA cable assembly , please see ordering information  
Wire assembly mating with [ZX202HD](#) or any other 0.025" (0.63mm) SQ pin socket mating with post header length 0.23" ( 5.83mm )

**Test procedure:** [ZXAN-HDMI-2.0-Test-Procedure](#) application note provides HDMI test procedure.

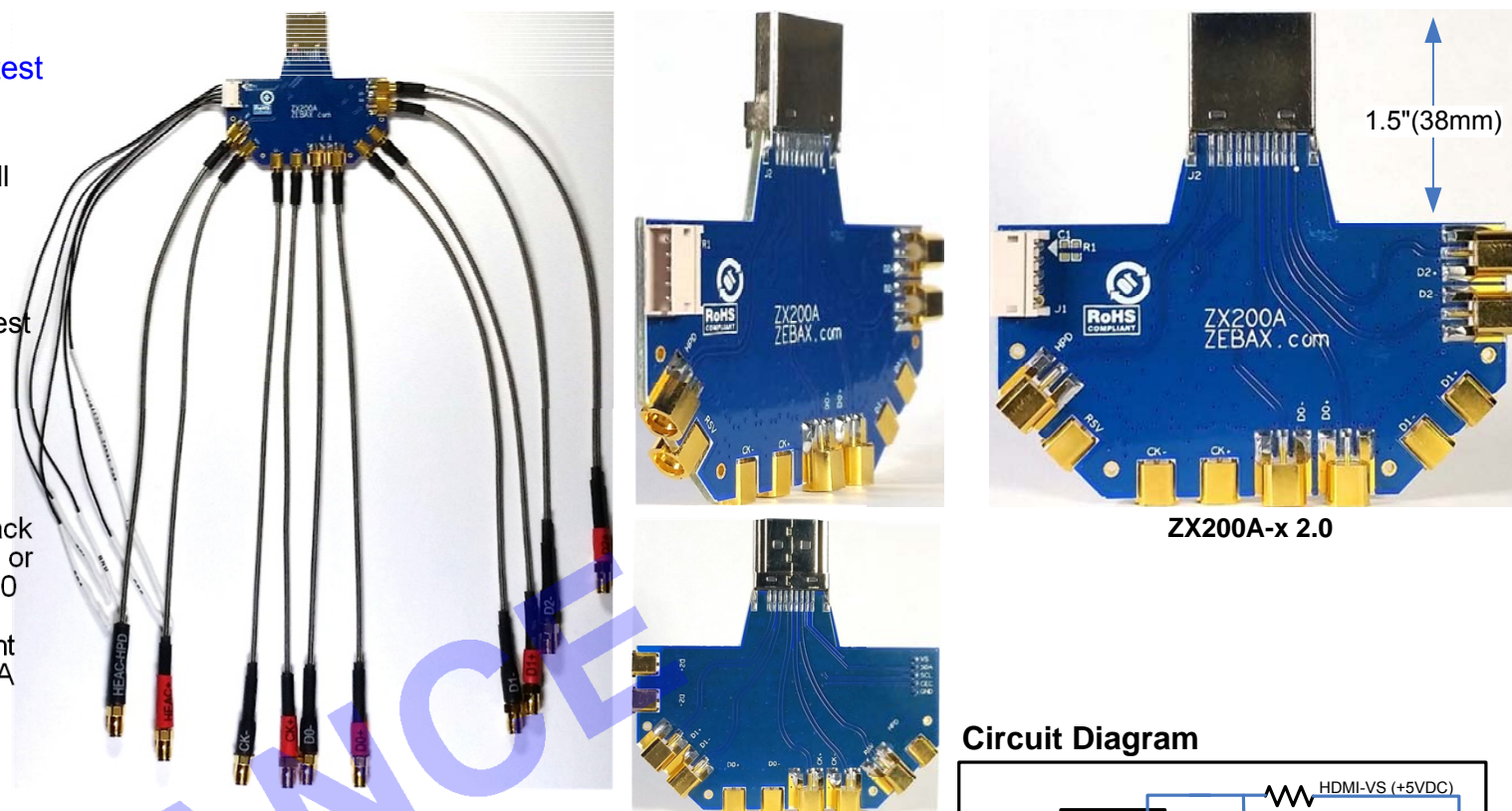
**Test Record:** Below are links to the existing test record for the ZX200A, ZX200C, ZX200D -20 TPA-P TDR Modules

- [ZX200AJ differential test](#)      [ZX200AJ Single Ended test](#)
- [ZX200CJ differential test](#)      [ZX200CJ Single Ended test](#)
- [ZX200DJ differential test](#)      [ZX200DJ Single Ended test](#)

**Package includes:**

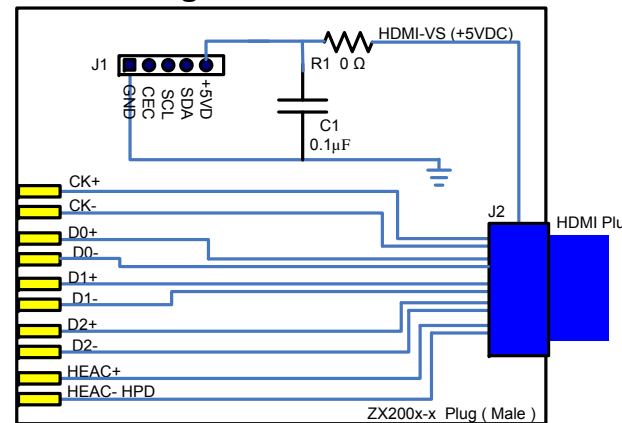
Item	Part number	Quantity	Description
1	ZX200x-20	1	HDMI TPA-P test module
2	<a href="#">ZX00010308-HD</a>	1	Complete set of HDMI 8" (20cm) long coax cable assemblies, SMA Jack. JACK (J)
	or <a href="#">ZX00020308-HD</a>	1	or SMA Plug – Please see ordering information.
3	<a href="#">ZXJS1173-05</a>	1	Wire assembly – HDMI to ZX202HD interface cable assemble
4	<a href="#">ZXJS1173-HD</a>	1	Wire assembly for HDMI EDID interface cable assembly, Note 1
5	<a href="#">ZX00WA12K</a>	1	Wire assembly with 1.2K $\Omega$ resistor, Note 2
6	<a href="#">ZX00SMAH-P/J</a>	1	Wire assembly SMA to 2 pin header, Note 3
7	<a href="#">ZX200LR3L-P/J</a>	0	Optional Filter for Lecroy test equipment, HF-HDMI-3.3V
8	<a href="#">ZX200L508-HD</a>	0	USB based HDMI Termination board
9	<a href="#">ZX000x0316-HD</a>	0	Complete 10 HDMI 16" (40cm)" long coax cable assemblies.
10	<a href="#">ZX202HD</a>	0	HDMI EDID emulation module
11	<a href="#">ZX00WT-09NM</a>	0	SMA Wrench Torque 5/16" (8mm)

**Notes:** 1- Supplied extension wire assembly enabling to interface with 3<sup>rd</sup> party modules.  
2, 3 - See Emulate HOTPLUG Detection on Page 2

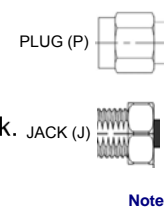


**S-Parameter, Insertion loss:**  
See Page 2

**Circuit Diagram**



**Ordering INFO:**  
Part Number  
ZX200X-X options  
J : SMA Jack ( Standard )  
P : SMA Plug connector  
  
A : HDMI Type A (Std)  
C : HDMI Type C (min)  
D : HDMI Type D (micro )



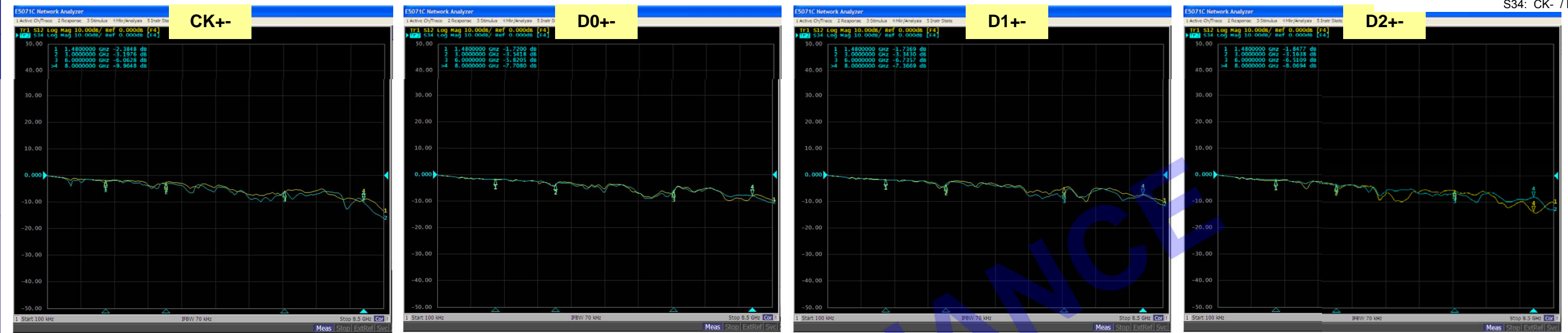
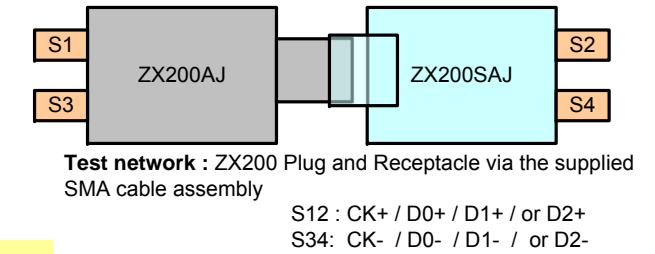
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SPECIFIED DIMENSIONS ARE INCHES (MM). ROHS COMPLIANT	<b>ASSEMBLY DRAWING</b>	
	ITEM: ZX200x-20	
<b>DESCRIPTION: HDMI TPA-P-TDR test breakout adapter board Type A TPA HDMI 2.0 1.4a 5.94GHz</b>		
CHECKED: M. MARINA	DRAWN: SLAVIK	REVISION: 1.0
		SHEET 1 OF 2

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**Product Name:** ZX200x-20 HDMI TPA-P TDR test breakout adapter board for **HDMI 2.0 compliance test**, Cont's

**S-Parameter, Insertion loss:** ZX200x-20 exhibits unprecedented low insertion loss. The following data is obtained from actual ZX200A-J module using network analyzer. The S-Parameter is obtained using ZX200A-J and ZX200SA-J combination of Plug and Socket ( Receptacle ) module interface for Type A HDMI test. Similar measurement conducted for type C and D modules.



**S-Parameter files:** Please download the S-Parameter files, .s4p files for CK, D0, D1, and D2 networks from here :

Type A: [ZX200AP-AR-S-Parameter](#) Type C: [ZX200CP-CR-S-Parameter](#) Type D: [ZX200DP-DR-S-Parameter](#)

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

**Pinouts:** HDMI Plug, J1 ( EDID ) signal assignments listed below

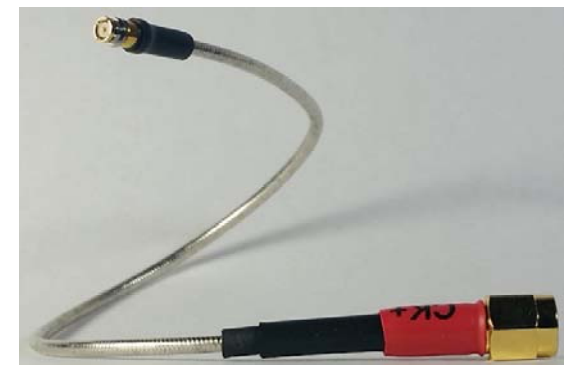
Pin	HDMI Connector type		
	Type A	Type C (mini)	Type D (micro)
1	TXD2P	GND	HOTPLUG/ HEAC-
2	GND	TXD2P	RSV / HEAC+
3	TXD2N	TXD2N	TXD2P
4	TXD1P	GND	GND
5	GND	TXD1P	TXD2N
6	TXD1N	TXD1N	TXD1P
7	TXD0P	GND	GND
8	GND	TXD0P	TXD1N
9	TXD0N	TXD0N	TXD0P
10	TXCP	GND	GND
11	GND	TXCP	TXD0N
12	TXCN	TXCN	TXCP
13	CEC	GND	GND
14	RSV / HEAC+	CEC	TXCN
15	DDC_SCL	DDC_SCL	CEC
16	DDC_SDA	DDC_SDA	GND
17	GND	RSV / HEAC+	DDC_SCL
18	+5V	+5V	DDC_SDA
19	HOTPLUG / HEAC-	HOTPLUG / HEAC-	+5V

J1	
Pin	Function
1	+5VDC
2	DDC_SDA
3	DDC_SCL
4	CEC
5	GND

**Emulating HotPlug detection**

TO emulate HOTPLUG detection, use the supplied cable assemblies as listed below:

- 1) Connect ZX00SMAH-P/J to HEAC-HPD
- 2) Connect GND wire of ZXJS1173-HD to GND pin header of ZX00SMAH-P/J
- 3) Install the ZX00WA12K wire assembly between +5VDC of ZXJS1173-HD and pin header of ZX00SMAH-P/J



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