

## HDMI Test board

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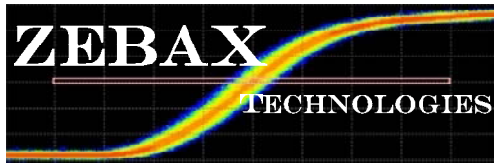
Comparison test case study using HDMI test board:

**Agilent-N1080A vs. Zebax ZX200 HDMI test board**

Test Case : **4K x 2K 30 HZ PRN**  
HDMI Clock Frequency: **2.96GHz**

The followings are comparison test results using ZX200 vs. Agilent N1080A

ZX200 full test record  
Agilent-N1080A full test



# HDMI Test board

## Summary of Results

### Zebax ZX200

Margin Thresholds	
Warning	< 2 %
Critical	< 0 %

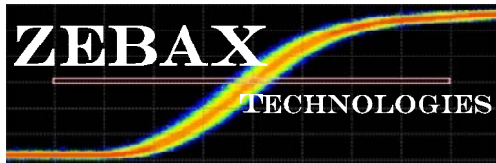
## Summary of Results

### Agilent N1080A

Margin Thresholds	
Warning	< 2 %
Critical	< 0 %

Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	7-9: Clock Jitter	164mTbit	34.4 %	VALUE <= 250mTbit
✓	0	1	7-10: D0 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D0 - Data Jitter	205m	31.7 %	<=0.3Tbit
✓	0	1	7-10: D1 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D1 - Data Jitter	207m	31.0 %	<=0.3Tbit
✓	0	1	7-10: D2 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D2 - Data Jitter	193m	35.7 %	<=0.3Tbit
✓	0	1	7-4: Clock Rise Time	167.830ps	123.8 %	VALUE >= 75.000ps
✓	0	1	7-4: Clock Fall Time	178.160ps	137.5 %	VALUE >= 75.000ps
✓	0	1	7-4: D0 - Rise Time	93.570ps	24.8 %	VALUE >= 75.000ps
✓	0	1	7-4: D0 - Fall Time	91.620ps	22.2 %	VALUE >= 75.000ps
✓	0	1	7-4: D1 - Rise Time	94.190ps	25.6 %	VALUE >= 75.000ps
✓	0	1	7-4: D1 - Fall Time	89.400ps	19.2 %	VALUE >= 75.000ps
✓	0	1	7-4: D2 - Rise Time	92.230ps	23.0 %	VALUE >= 75.000ps
✓	0	1	7-4: D2 - Fall Time	94.290ps	25.7 %	VALUE >= 75.000ps
✓	0	1	7-8: Clock Duty Cycle(Minimum)	49.440	23.6 %	>=40%
✓	0	1	7-8: Clock Duty Cycle(Maximum)	50.370	16.1 %	<=60%
✓	0	1	7-6: Inter-Pair Skew - D0/D1	600µTpixel	49.8 %	-200mTpixel <= VALUE <= 200mTpixel
✓	0	1	7-6: Inter-Pair Skew - D0/D2	500µTpixel	49.8 %	-200mTpixel <= VALUE <= 200mTpixel
✓	0	1	7-6: Inter-Pair Skew - D1/D2	100µTpixel	50.0 %	-200mTpixel <= VALUE <= 200mTpixel

Pass	# Failed	# Trials	Test Name	Actual Value	Margin	Spec Range
✓	0	1	7-9: Clock Jitter	181mTbit	27.6 %	VALUE <= 250mTbit
✓	0	1	7-10: D0 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D0 - Data Jitter	202m	32.7 %	<=0.3Tbit
✓	0	1	7-10: D1 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D1 - Data Jitter	200m	33.3 %	<=0.3Tbit
✓	0	1	7-10: D2 - Mask Test	0.000	50.0 %	No Mask Failures
✓	0	1	7-10: D2 - Data Jitter	189m	37.0 %	<=0.3Tbit
✓	0	1	7-4: Clock Rise Time	203.250ps	171.0 %	VALUE >= 75.000ps
✓	0	1	7-4: Clock Fall Time	186.530ps	148.7 %	VALUE >= 75.000ps
✓	0	1	7-4: D0 - Rise Time	94.840ps	26.5 %	VALUE >= 75.000ps
✓	0	1	7-4: D0 - Fall Time	93.580ps	24.8 %	VALUE >= 75.000ps
✓	0	1	7-4: D1 - Rise Time	92.690ps	23.6 %	VALUE >= 75.000ps
✓	0	1	7-4: D1 - Fall Time	90.320ps	20.4 %	VALUE >= 75.000ps
✓	0	1	7-4: D2 - Rise Time	99.130ps	32.2 %	VALUE >= 75.000ps
✓	0	1	7-4: D2 - Fall Time	93.070ps	24.1 %	VALUE >= 75.000ps
✓	0	1	7-8: Clock Duty Cycle(Minimum)	49.420	23.6 %	>=40%
✓	0	1	7-8: Clock Duty Cycle(Maximum)	50.350	16.1 %	<=60%
✓	0	1	7-6: Inter-Pair Skew - D0/D1	4mTpixel	49.0 %	-200mTpixel <= VALUE <= 200mTpixel
✓	0	1	7-6: Inter-Pair Skew - D0/D2	4mTpixel	49.0 %	-200mTpixel <= VALUE <= 200mTpixel
✓	0	1	7-6: Inter-Pair Skew - D1/D2	2mTpixel	49.5 %	-200mTpixel <= VALUE <= 200mTpixel



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### Comparison test case study:

The comparison table lists the signal measured on both ZX200 vs. Agilent HDMI test board.

#### Conclusion:

ZX200 exhibits improved signal measurements from 6.8% at clock jitter to 47% at clock rise time

Test Name	ZX200	Agilent	Zebax Improvements %
Clock Jitter	34.4	27.6	6.8
D0 Mask test	50	50	0
D0 Data Jitter	31.7	32.7	-1
D1 Mask test	50	50	0
D1 Data Jitter	31	33.3	-2.3
D2 Mask test	50	50	0
D2 Data Jitter	35.7	37	-1.3
Clock Rise Time	123.8	171	47.2
Clock Fall Time	137.5	148.7	11.2
D0 Rise Time	24.8	26.5	1.7
D0 Fall Time	22.2	24.8	2.6
D1 Rise Time	25.6	23.6	-2
D1 Fall Time	19.2	20.4	1.2
D2 Rise Time	23	32.2	9.2
D2 Fall Time	25.7	24.1	-1.6
Clock Duty Cycle (min)	23.6	23.6	0
Clock Duyt Cycle(max)	16.1	16.1	0
Interpair Skew-D0/D1	49.8	49	0.8
Interpair Skew-D0/D2	49.8	49	0.8
Interpair skew-D1/D2	50	49.5	0.5