**DS25CP104A IBIS-AMI Model User Guide**

**Version: 1.1**

**Date: 21-01-2013**

**DS25cp104A AMI Model Parameters**

1. **RX Parameters**

* There is only one parameter named **EQ** which is used to specify the level of equalization.
* The parameter takes the values 0, 1, 2 and 3 in the increasing order of Equalization.

1. **Tx Parameters**

There are two parameters:

1. **PE**

* It specifies the Pre-emphasis level setting.
* It takes the values 0, 1, 2 and 3 in the increasing order of Pre-emphasis.

1. **Gain\_adjust**

* This parameter is used for Debug purposes and is fixed to the value of 2.4138.
* It **should not** be changed by the user.

**Note on how to choose Samples per UI simulation parameter:**

Samples per UI should be chosen such that, the sample time (UI / Samples per UI) should be less than 10e-12 for accurate results. Typical recommended values for different Bit Rates :

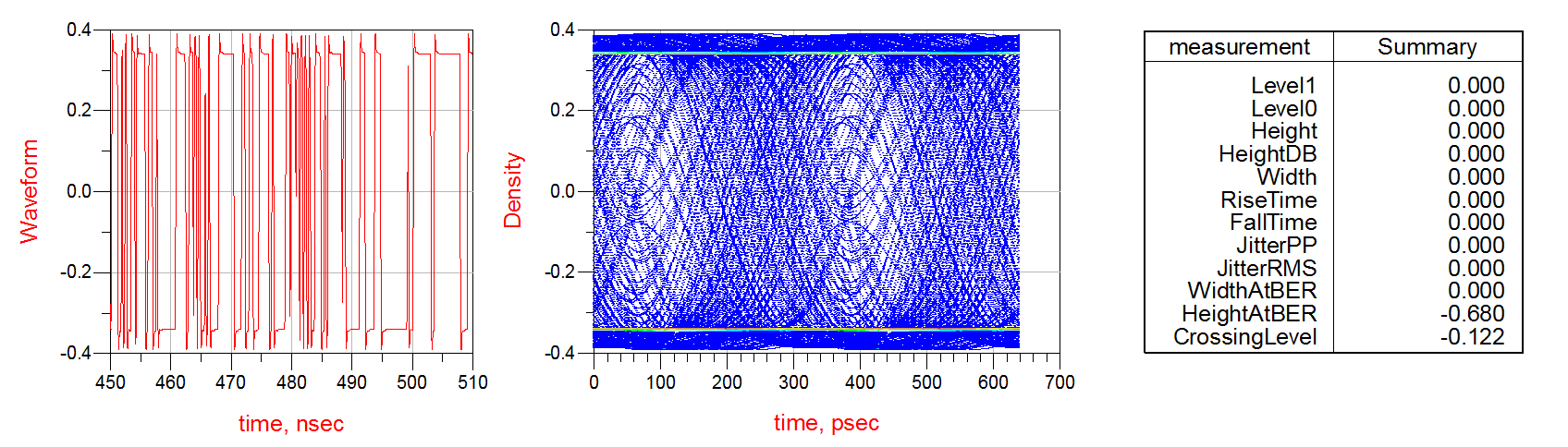
1. 1 Gbps – 128 Samples per UI or higher
2. 2.5 Gbps- 64 Samples per UI or higher
3. 3.125 Gbps- 64 Samples per UI or higher
4. 4 Gbps – 64 Samples per UI or higher
5. 8 Gbps – 32 Samples per UI or higher

**ADS Simulation results**

1. **EQ Performance setup**
2. Channels : Rx channel = 60’’ 5mil stripline, Tx channel = 0’’ stripline

Parameters: EQ=0, PE=0

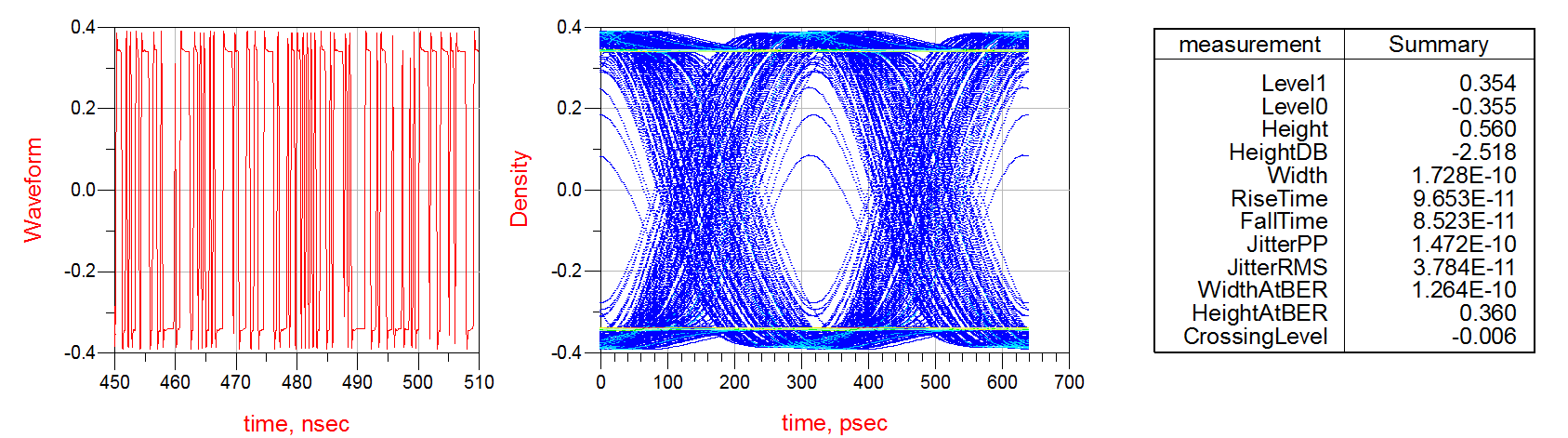
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 60’’ 5mil stripline, Tx channel = 0’’ stripline

Parameters: EQ=1, PE=0

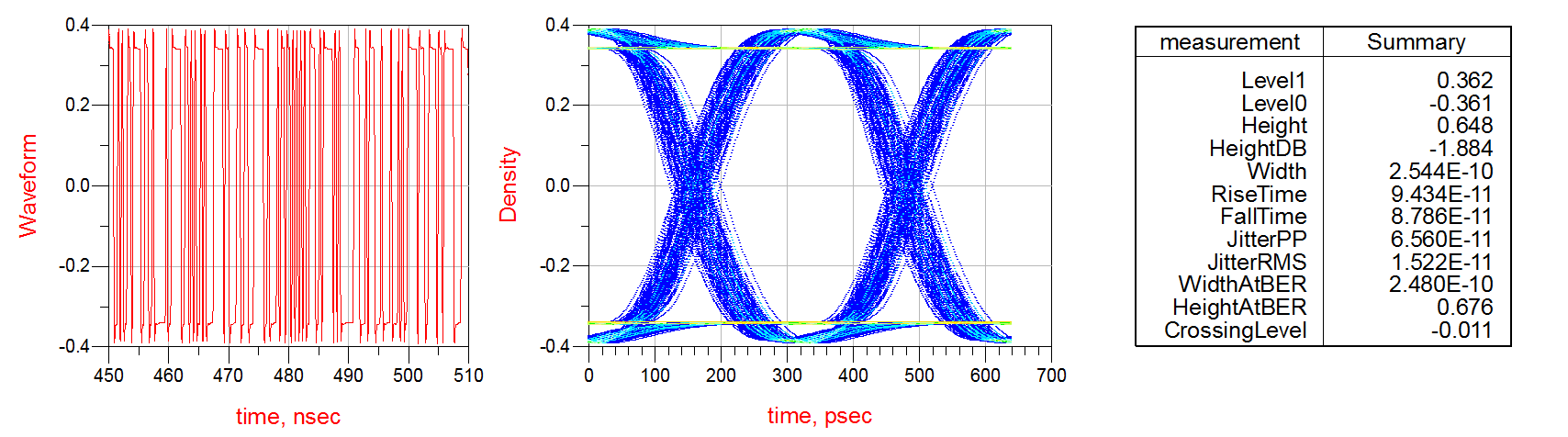
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 60’’ 5mil stripline, Tx channel = 0’’ stripline

Parameters: EQ=2, PE=0

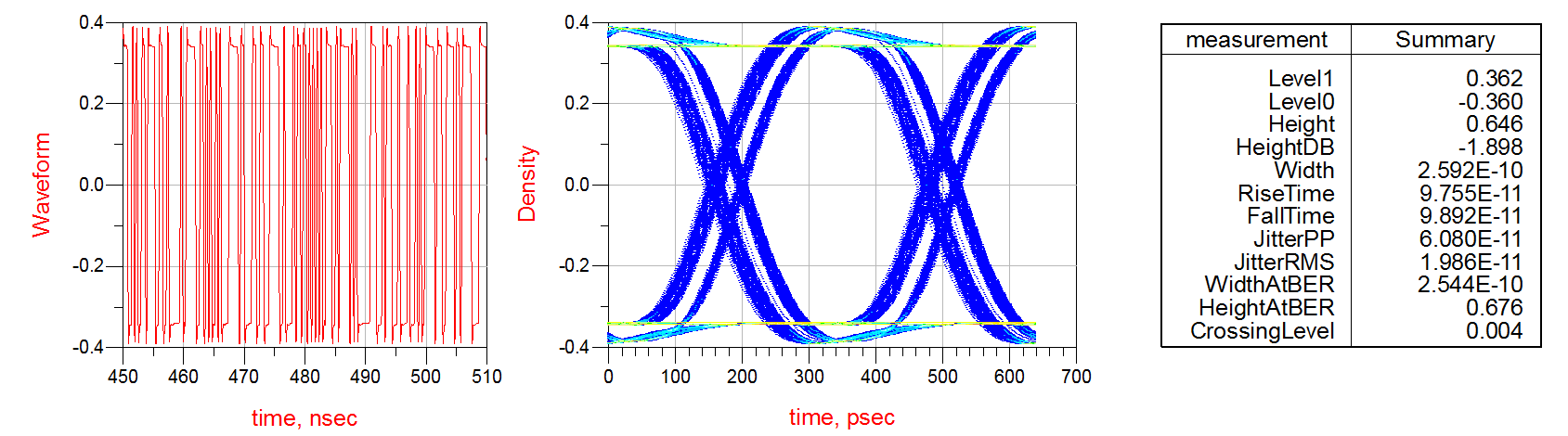
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 60’’ 5mil stripline, Tx channel = 0’’ stripline

Parameters: EQ=3, PE=0

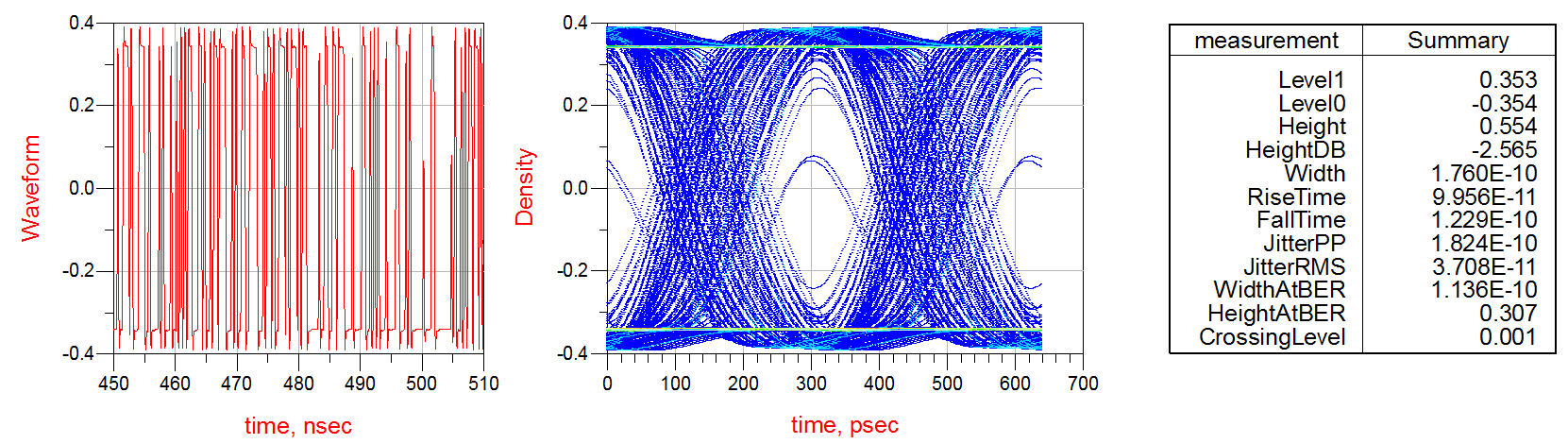
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = **40’’ 5mil stripline**, Tx channel = 0’’ stripline

Parameters: EQ=0, PE=0

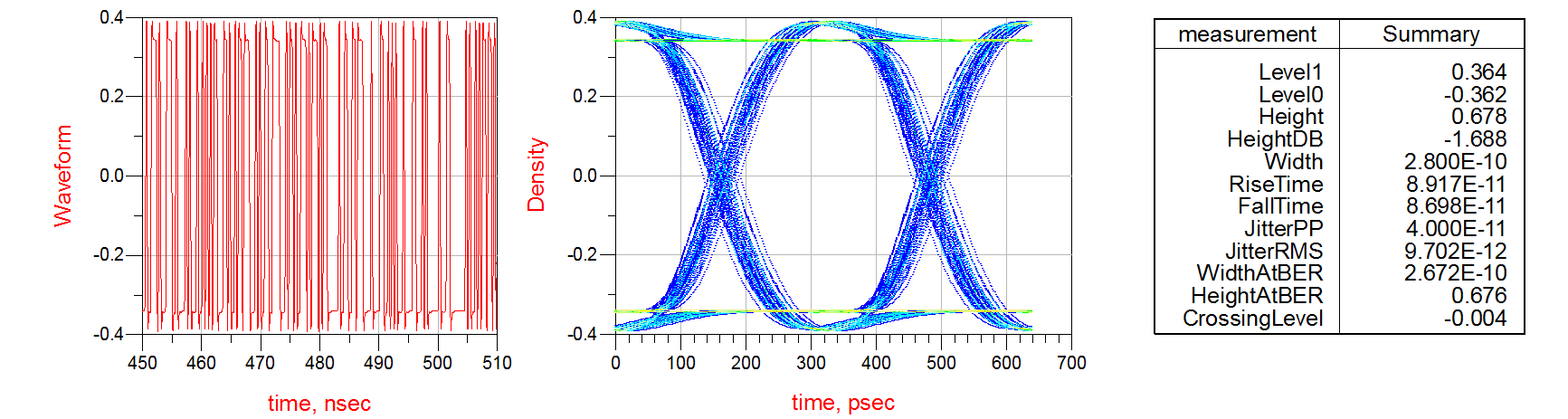
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = **40’’ 5mil stripline**, Tx channel = 0’’ stripline

Parameters: EQ=1, PE=0

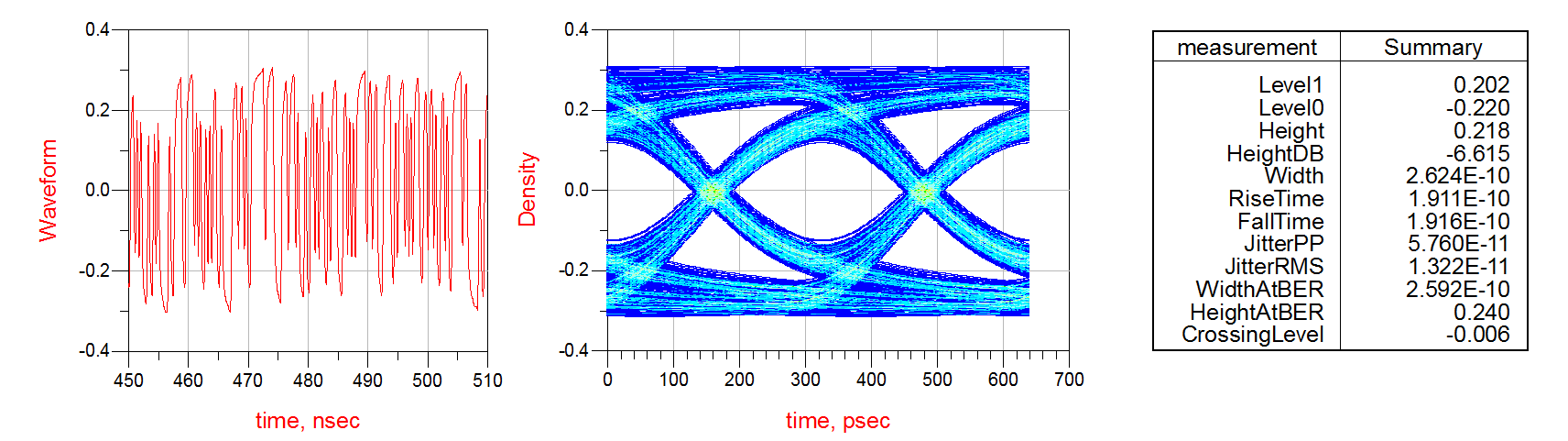
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. **PE Performance setup**
2. Channels : Rx channel = 0’’ stripline, Tx channel = 30’’ 5mil stripline

Parameters: EQ=0, PE=0

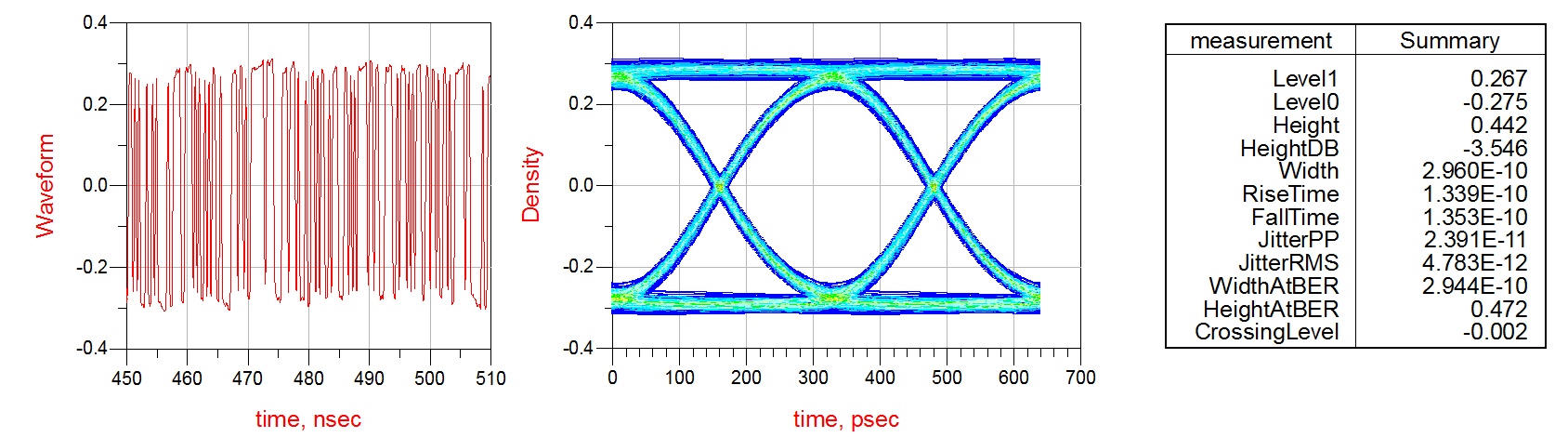
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 0’’ stripline, Tx channel = 30’’ 5mil stripline

Parameters: EQ=0, PE=1

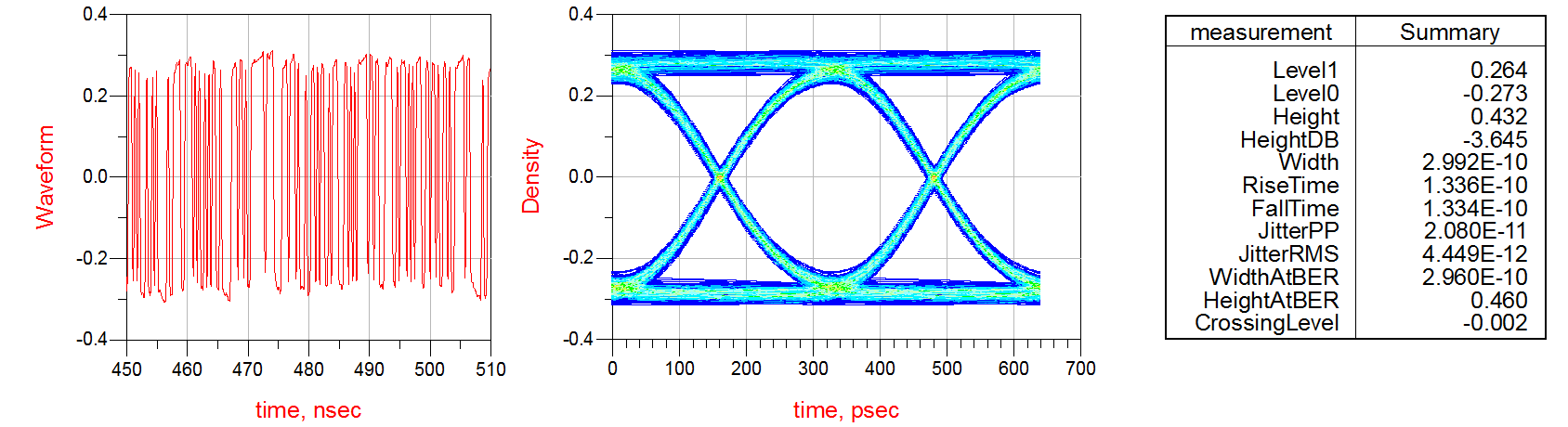
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 0’’ stripline, Tx channel = 30’’ 5mil stripline

Parameters: EQ=0, PE=2

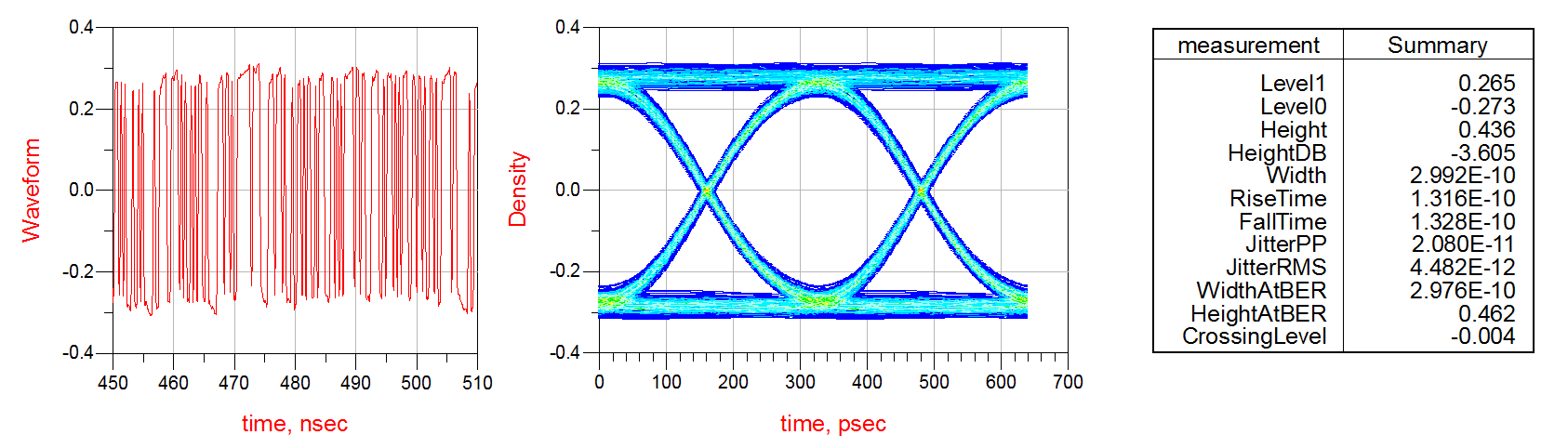
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 0’’ stripline, Tx channel = 30’’ 5mil stripline

Parameters: EQ=0, PE=3

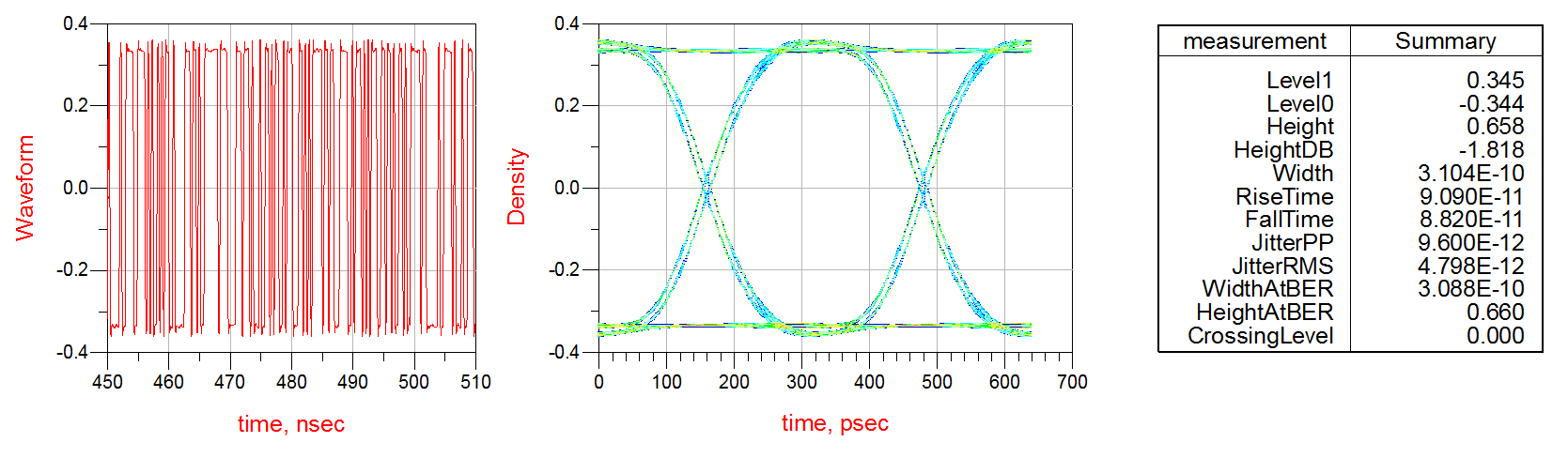
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 0’’ stripline, Tx channel = **3’’ 5mil stripline**

Parameters: EQ=0, PE=0

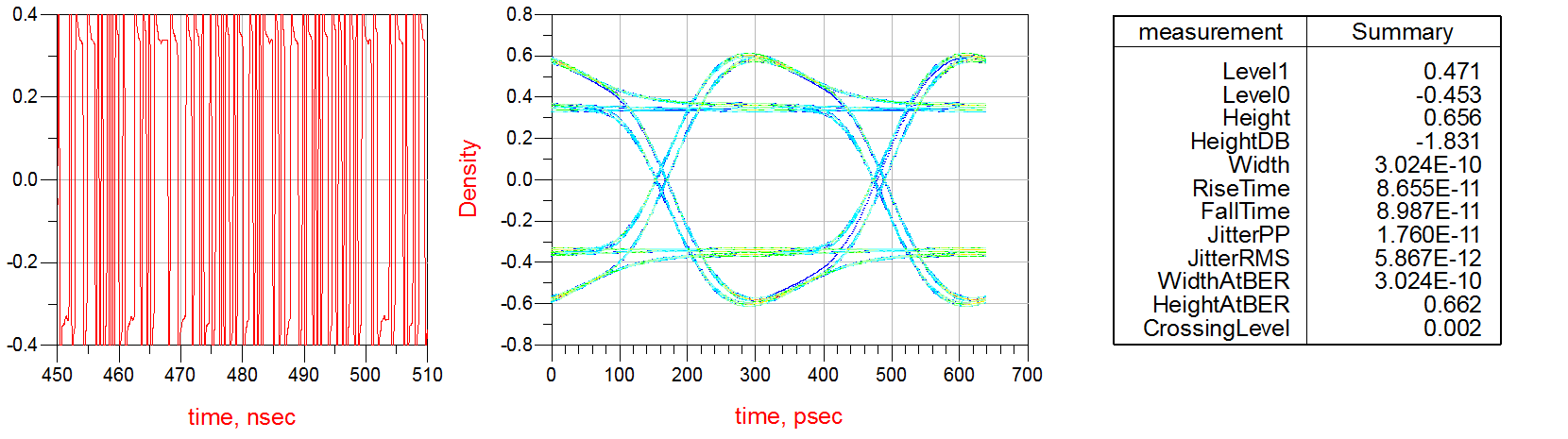
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. Channels : Rx channel = 0’’ stripline, Tx channel = **3’’ 5mil stripline**

Parameters: EQ=0, PE=1

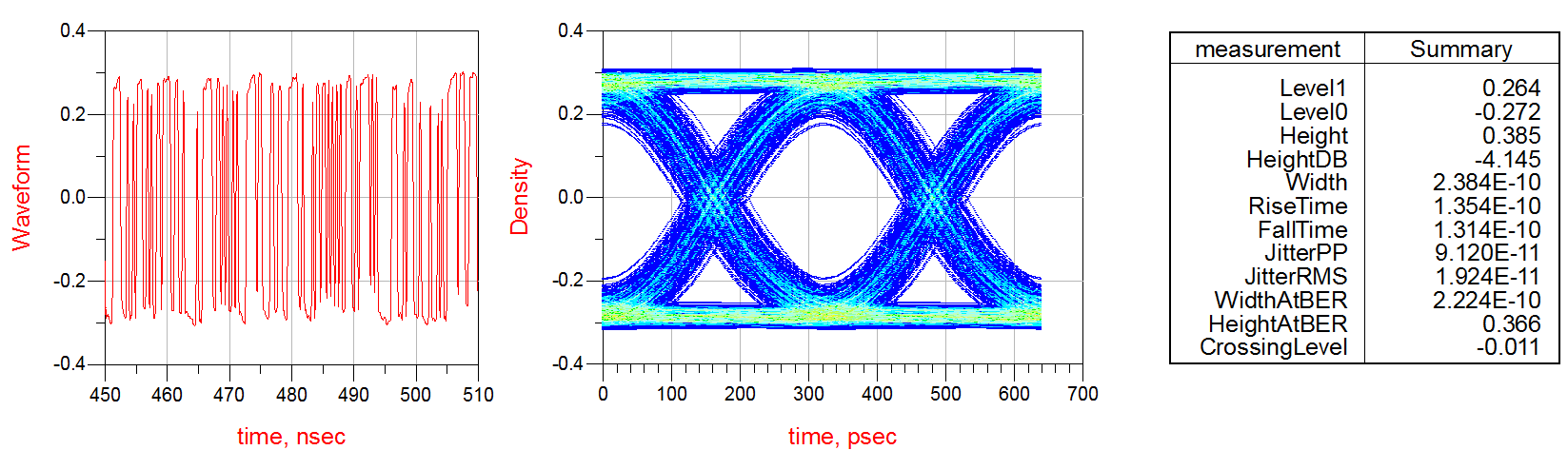
Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



1. **Setup with lossy channels on Both sides**
2. Channels : Rx channel = 60’’ 5mil stripline, Tx channel = 30’’ 5mil stripline

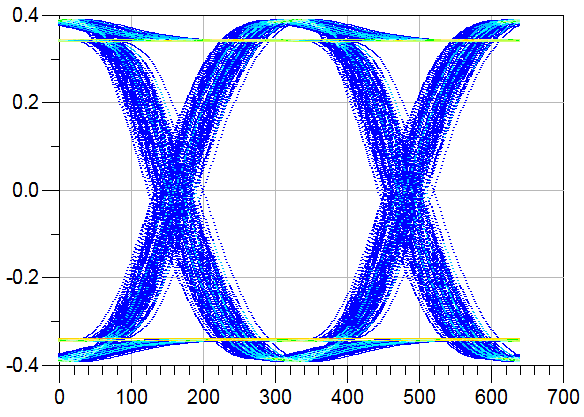
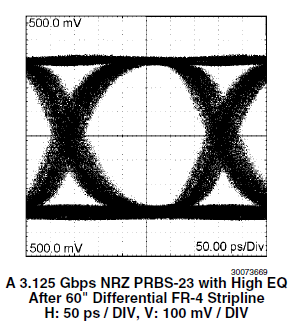
Parameters: EQ=2, PE=2

Input Source: BitRate=3.125 Gbps PRBS-23, Vp-p = 1V, DE = 0dB



**Comparisons with actual Measurements**

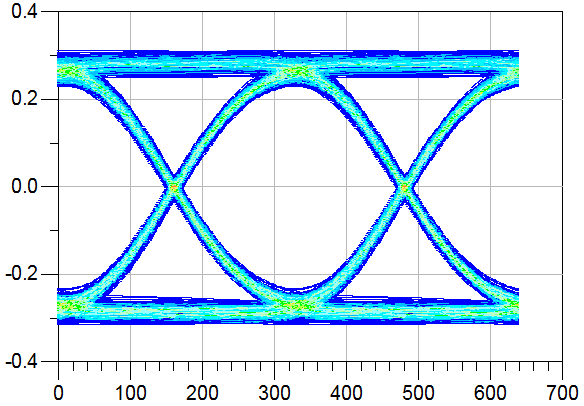
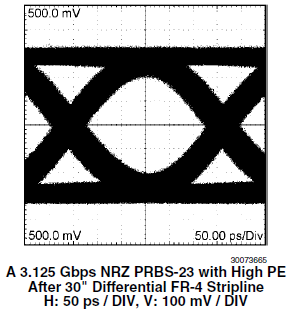
**1)**

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A 3.125 Gbps PRBS-23 source with EQ=2

After 60”” Differential Strip line

**2)**

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A 3.125 Gbps PRBS-23 source with PE=2

After 30”” Differential Strip line