

# **Ultra 640 input offset compensation and training pattern**

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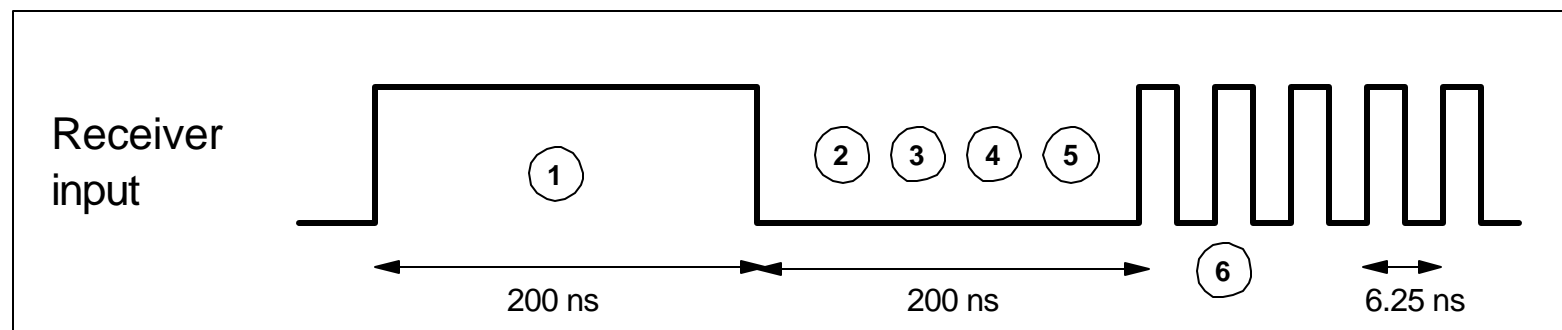
## Ultra 640 input offset compensation and training pattern

T10/02-038r0 and T10/02-079r1 proposals from Maxtor documented the timing margins improvement applying a DC offset compensation at the receiver input.

Using the existing training pattern we must perform the following operations in section A:

- 1/ 1st half period at low frequency: sampling of the differential amplitude (offset measurement)
- 2/ 2nd half period at low frequency: sampling of the differential amplitude (offset measurement)
- 3/ Offset calculation
- 4/ Offset cancellation
- 5/ LF amplitude measurement for the AAF peaking tuning
- 6/ HF amplitude measurement for the AAF peaking tuning

Problem => the time available to execute steps 2 to 5 is very limited...



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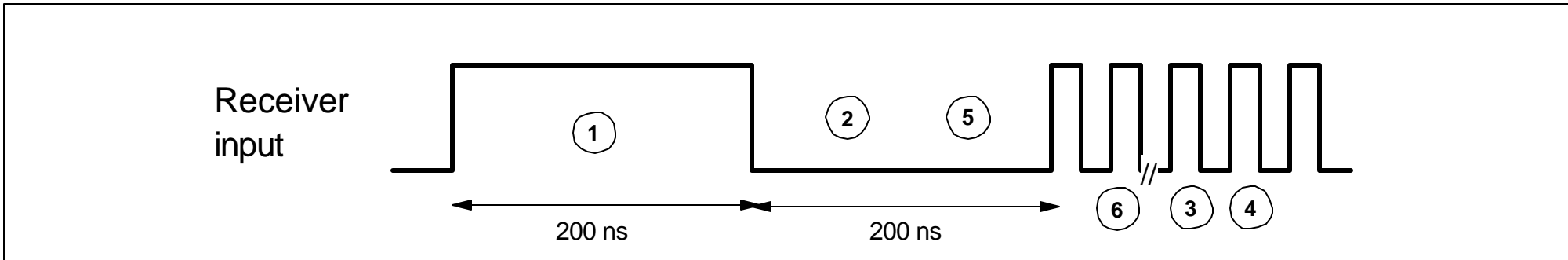
**In order to improve accuracy in the AAF adjustment phase, it is preferable to perform the DC input offset compensation BEFORE the LF and HF amplitude measurements.**

**One LF period is adequate to sample the DC input offset but is too short to allow its compensation with simple and low cost circuits before the LF and HF amplitude measurements.**

**PROPOSAL: add at least one LF period in section A to make possible the DC input offset compensation BEFORE the AAF tuning.**

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\*According to the T10/02-038r0 document, Maxtor proposed the following sequence:

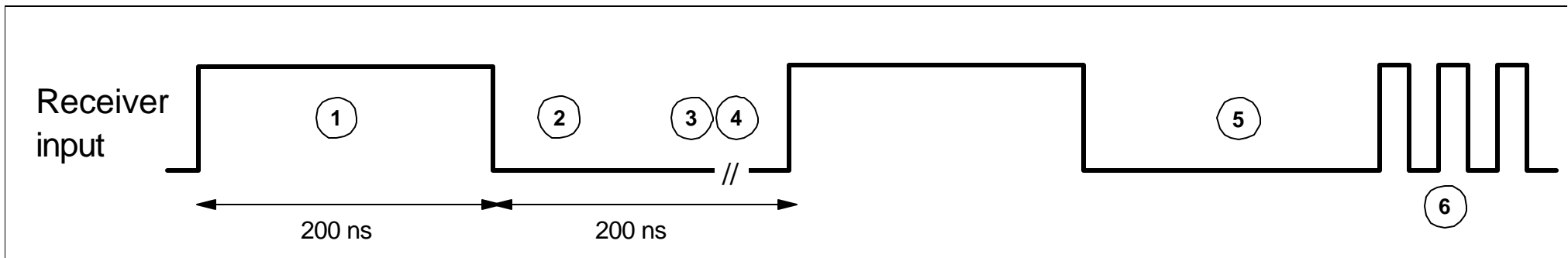


**Legend:**

- 1 = 1st half period at low frequency: sampling of the differential amplitude (offset measurement)
- 2 = 2nd half period at low frequency: sampling of the differential amplitude (offset measurement)
- 3 = Offset calculation
- 4 = Offset cancellation
- 5 = LF amplitude measurement for the AAF peaking tuning
- 6 = HF amplitude measurement for the AAF peaking tuning

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\*Our proposal is to adopt the following sequence (additional LF period(s) in A section) :



**Legend:**

- 1 = 1st half period at low frequency: sampling of the differential amplitude (offset measurement)**
- 2 = 2nd half period at low frequency: sampling of the differential amplitude (offset measurement)**
- 3 = Offset calculation**
- 4 = Offset cancellation**
- 5 = LF amplitude measurement for the AAF peaking tuning**
- 6 = HF amplitude measurement for the AAF peaking tuning**