**BUFFER ISSUE RESOLUTION DOCUMENT (BIRD)**

**BIRD NUMBER:** 205

**ISSUE TITLE:** New AMI Reserved Parameter for Sampling Position in AMI\_Init Flow

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**DEFINITION OF THE ISSUE:**

In the AMI\_Init flow based on IBIS v7.0, the IBIS-AMI model delivers to the EDA tool an impulse response, but no information about any clock that might be recovered from the signal. To apply statistical analysis to this information, the EDA tool must combine the impulse response with the bit time, calculating either a pulse response or a step response and determining the time at which it expects the signal to be sampled at the data decision point. For the most accurate statistical analysis, the EDA tool should be using a time where the signal is sampled at the data decision time as determined by the receiver IBIS-AMI model.

This BIRD proposes a new AMI reserved parameter for sampling position in the AMI\_Init flow.

**SOLUTION REQUIREMENTS:**

The IBIS specification must meet these requirements:

Table 1: Solution Requirements

|  |  |
| --- | --- |
| Requirement | Notes |
| The definition of the sampling point must include a rigorous definition of how receiver sample times are assumed to be distributed around this time. | It would be best to specify this as the ideal sampling time. |

**SUMMARY OF PROPOSED CHANGES:**

Add new AMI Reserved Parameter Rx\_Decision\_Time

**PROPOSED CHANGES:**

*Parameter:* **Rx\_Decision\_Time**

*Required:* No, and illegal before AMI\_Version 7.1

*Direction:* Rx

*Descriptors:*

Usage:                   Out

Type:                     Float, UI

Format:                 Value

Default:                 <numerical\_literal>

Description:<string>

*Definition:* The AMI\_Init model outputs a time value in seconds or UI, which is the receiver decision time of the symbol that the threshold crossing started at with respect to time zero of the impulse response returned by the model. In the AMI\_Init flow, this time would represent the ideal sampling time. Entries are assumed to be in units of seconds when declared as Type Float.

*Usage Rules:* The EDA tool in the AMI\_Init flow uses this information in determining the cursor, precursor, and post cursor locations. Rx\_Decision\_Time takes precedence over Rx\_Clock\_Recovery\_Mean for statistical (Init) processing.

If omitted, the EDA tool when in the AMI\_Init flow will have to determine the receiver decision time on its own.

*Example:*

(Rx\_Decision\_Time (Usage Out) (Type Float) (Value 0.0)

(Description "The time value in seconds, which is the receiver decision

 time of the symbol that the threshold crossing started at

 with respect to time zero of the impulse response returned

 by the model."))

**BACKGROUND INFORMATION/HISTORY:**