



Effective Methodology for Correlating Measurement to Simulation for IBIS-AMI Models

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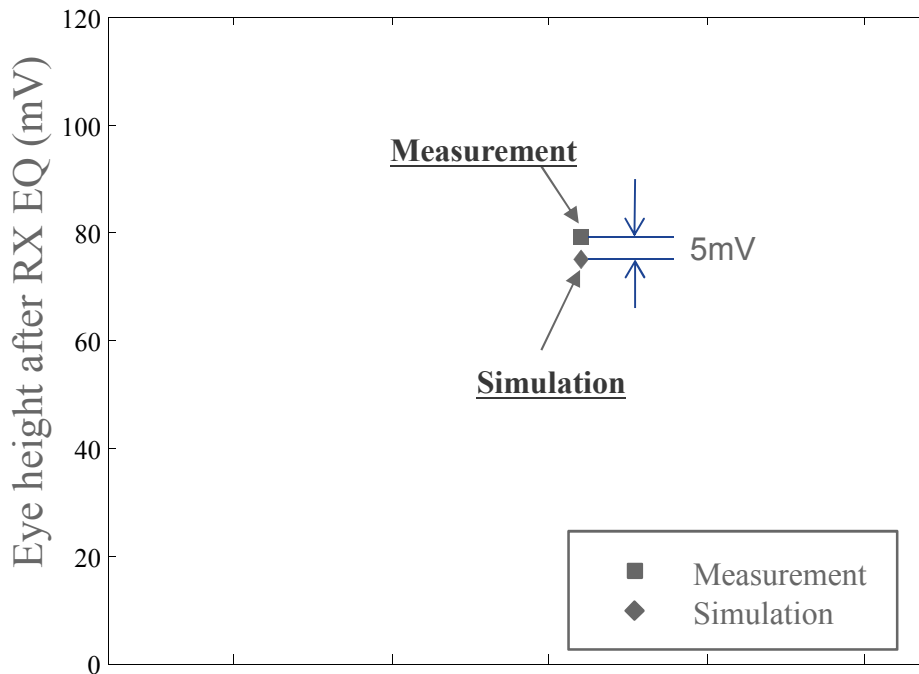
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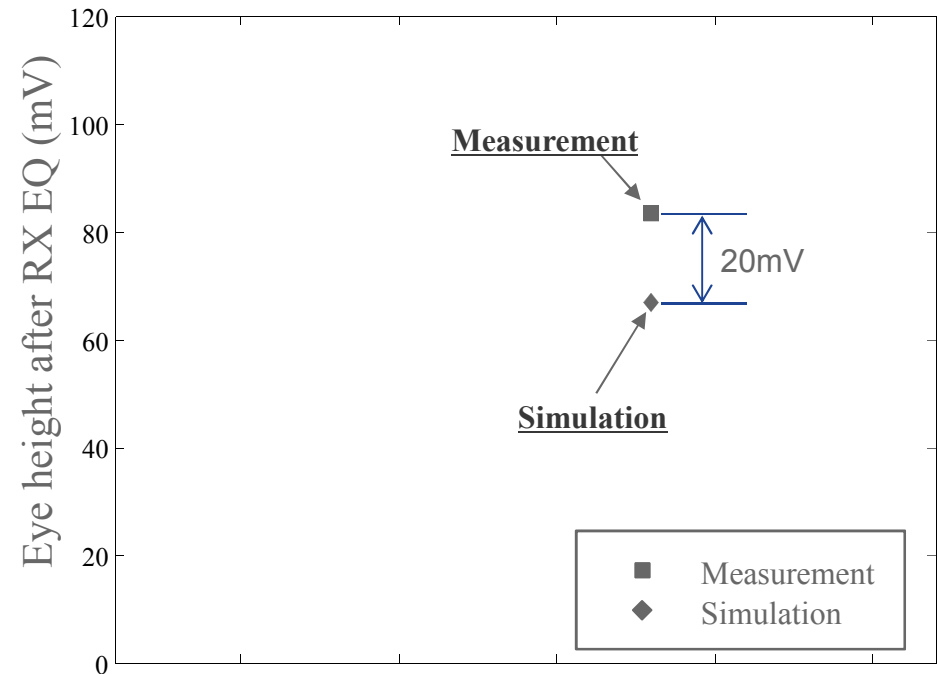
Comparison for Two Cases of Correlation

Case1 at BER1E-10



TX equalizer setting
[Combination of Main/Pre/Post cursor]

Case2 at BER1E-10

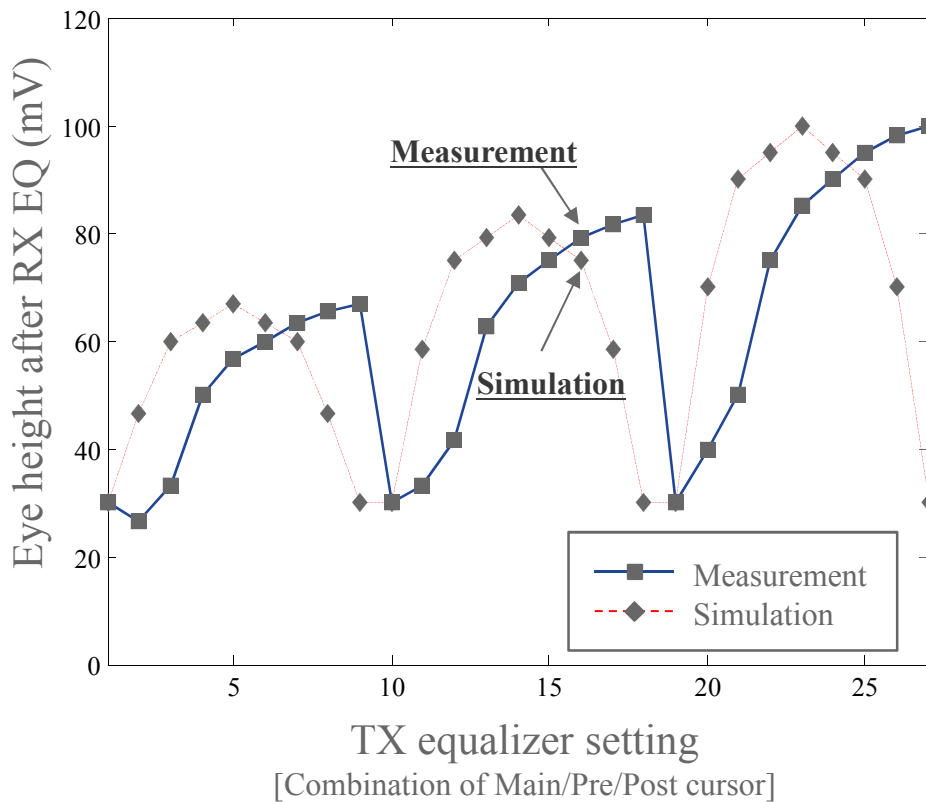


TX equalizer setting
[Combination of Main/Pre/Post cursor]

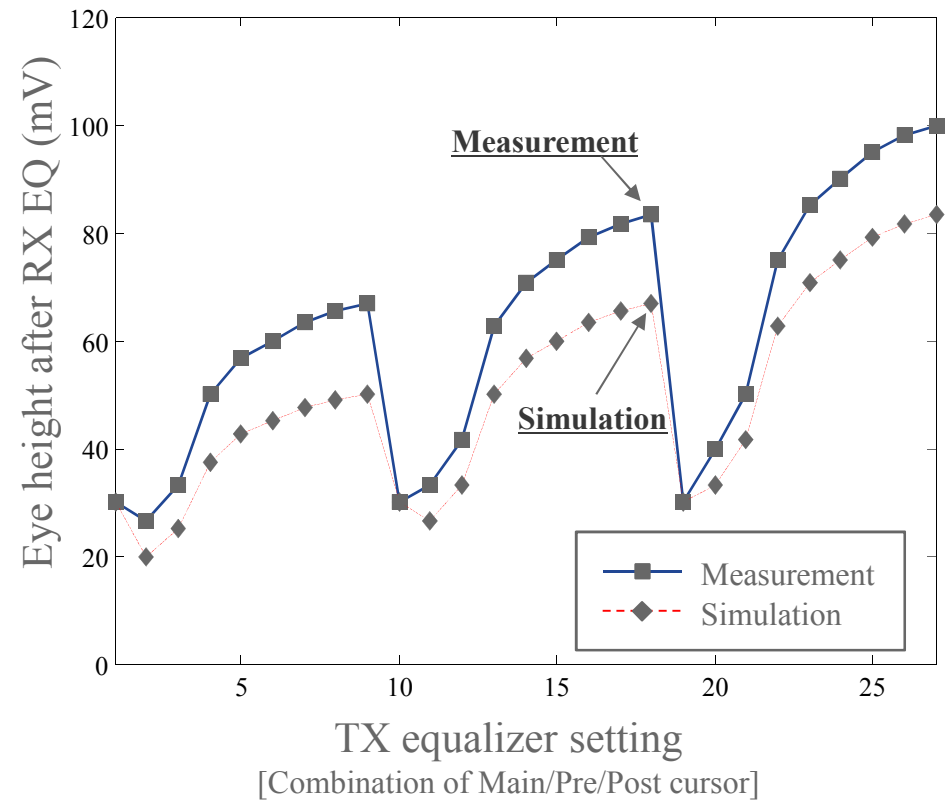
Comparison for Two Cases of Correlation

Only few cases correlation can not represent all equalizer behavior performance!!

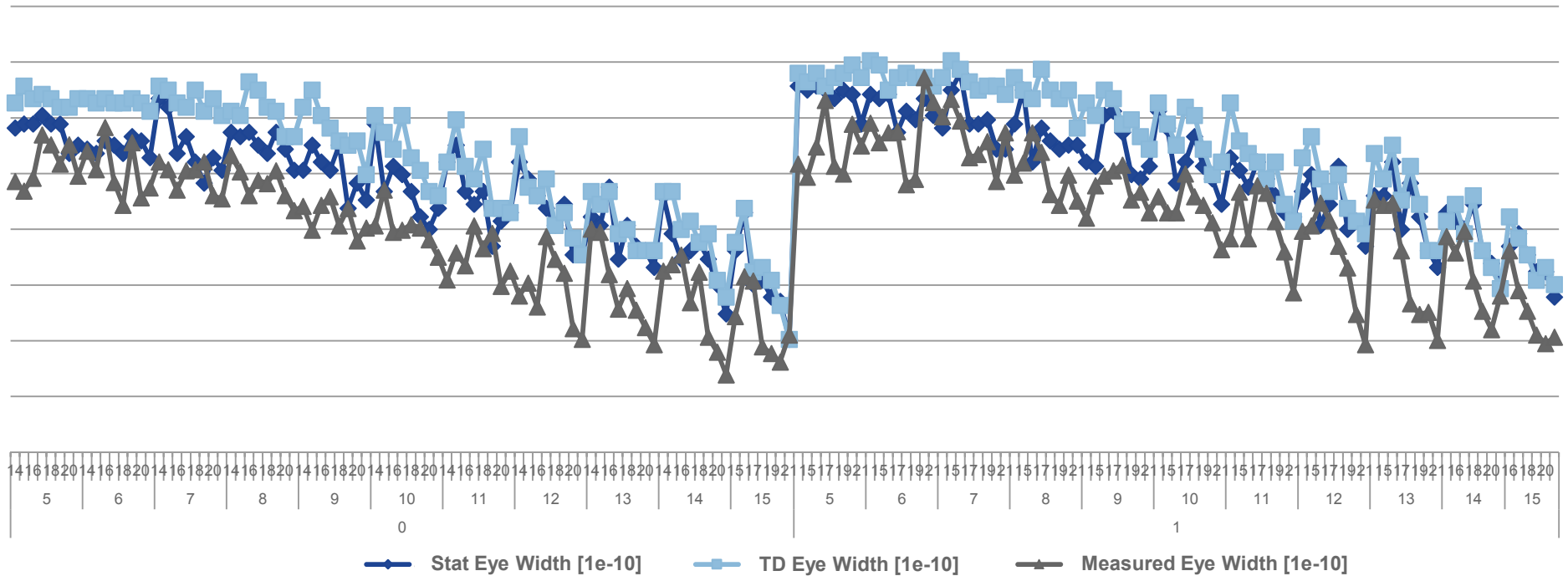
Case1 at BER1E-10



Case2 at BER1E-10



Proposed Trend Correlation

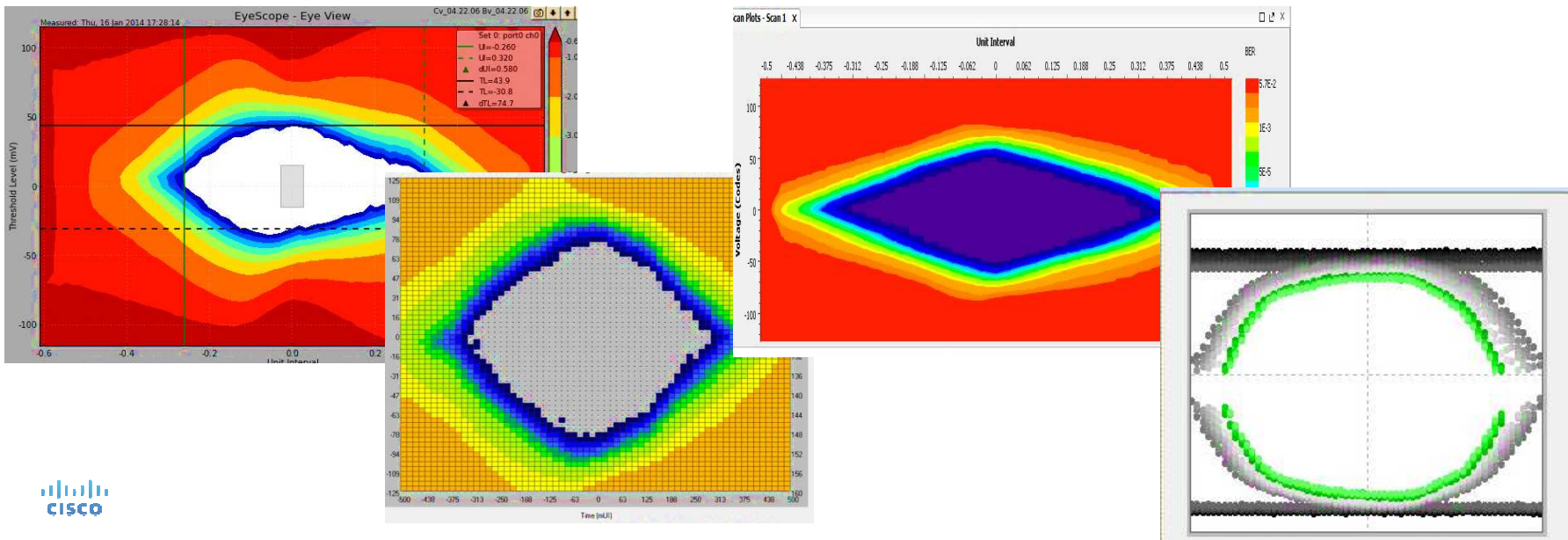


- The trend correlation is
- How to vary eye opening trend after RX equalizer by TX equalizer setting.
- the plot should be acquired by a large number of TX equalizer combination
- the same optimized setting for simulation and measurement will be obtained.

Requirements to do better correlation

Internal Eye-diagram Scope

- It is difficult to measure the signal after RX equalizer.
- The latest scope has the ability of equalizer, but it is for generic function and not exactly same with ASIC's equalizer
- The internal eye diagram should be required



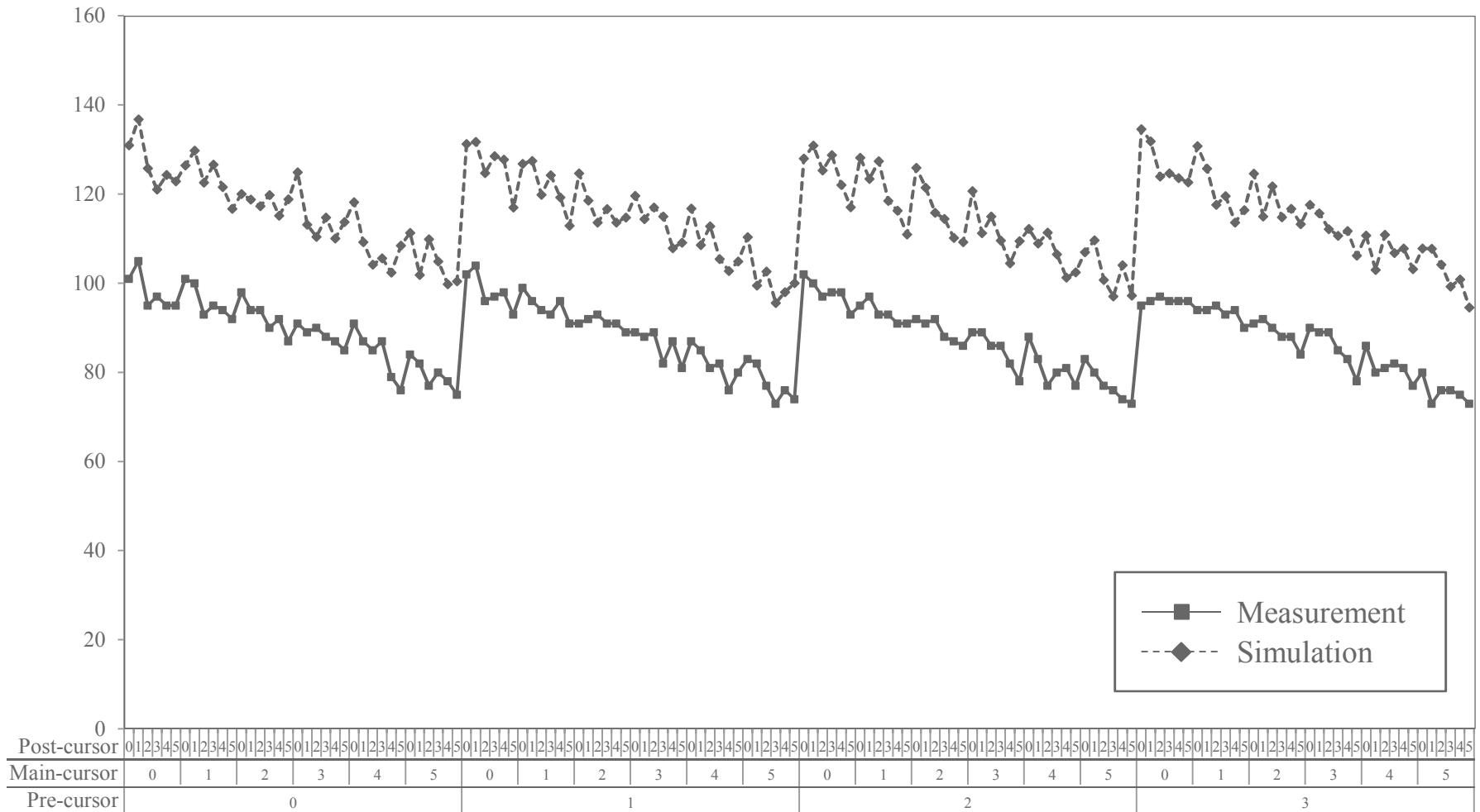
Script for TX Parameter Sweep

- The internal eye diagrams should be measured with many combination of TX equalizer setting.
- It is very time consuming work if there is no TX parameter sweep script which measures
- Eye height and width for each TX equalizer setting need to be measured automatically.

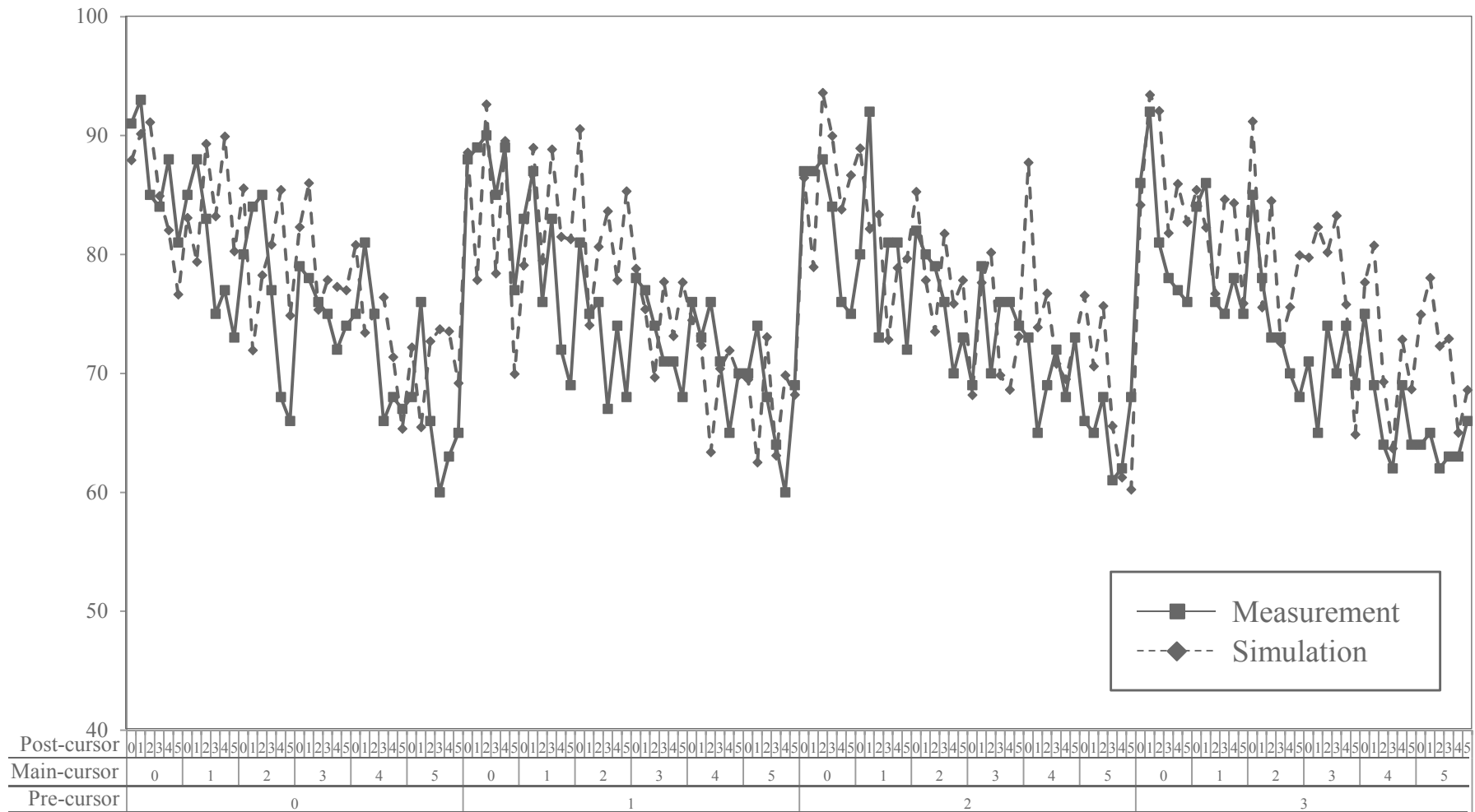
tx cmain	tx cpost	tx cpre1	Progress	v margin	h margin	h offset
14	9	0	Done	72.283	0.547	-0.0385
14	9	1	Done	83.202	0.66	0.013
14	9	2	Done	100.306	0.689	0.048
14	9	3	Done	102.784	0.696	0.0515
14	10	0	Done	68.368	0.523	-0.0445
14	10	1	Done	78.972	0.598	-0.049
14	10	2	Done	99.256	0.689	0.0125
14	10	3	Done	112.458	0.692	0.019
14	11	0	Done	85.122	0.612	0.02
14	11	1	Done	107.87	0.626	0.044
14	11	2	Done	97.978	0.633	-0.0375
14	11	3	Done	105.221	0.635	-0.0375

Evaluation by Measurement

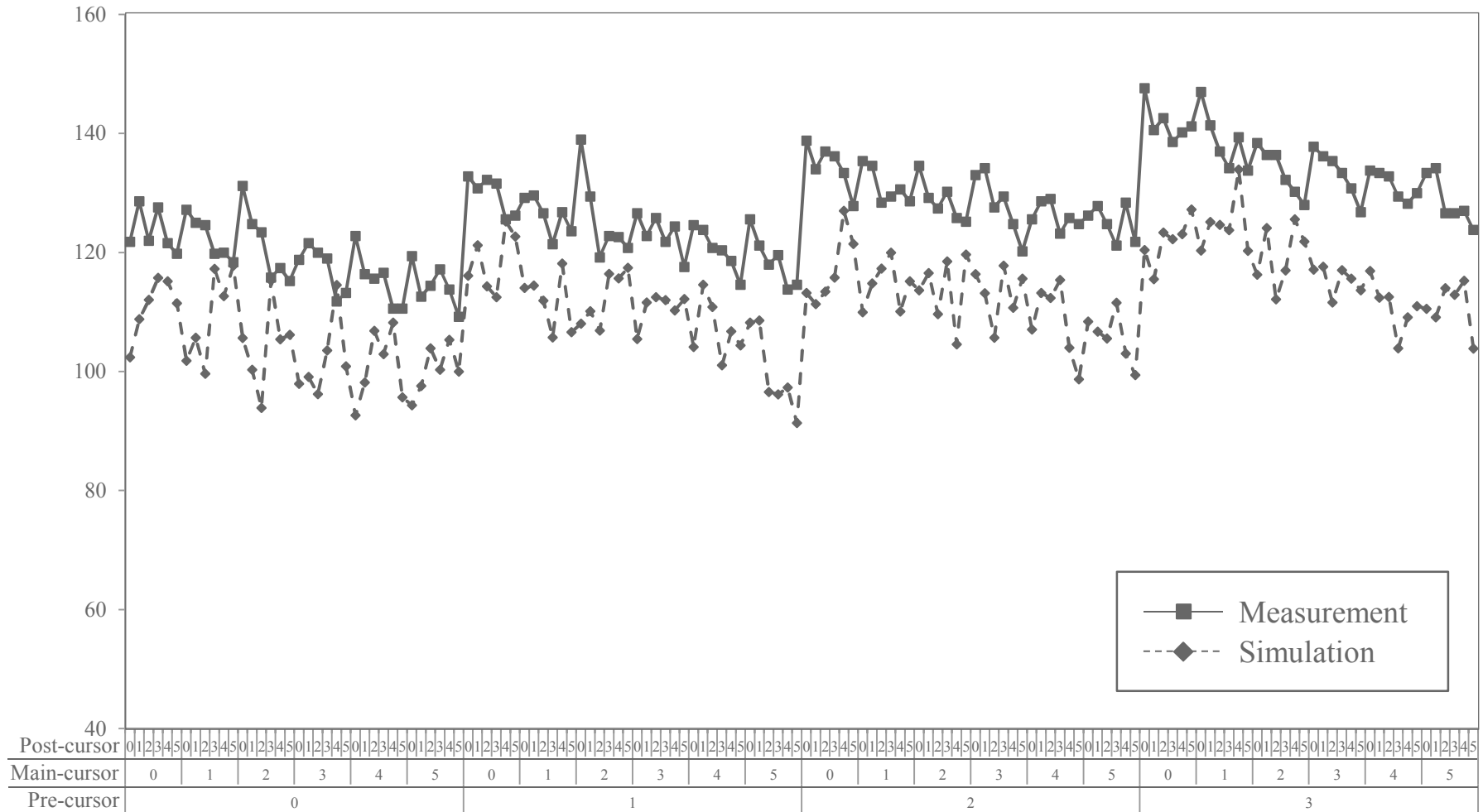
10G Correlation Result



15G Correlation Result



28G Correlation Result



Summary

- Proposed the trend correlation methodology for IBIS-AMI model correlation instead of the absolute value correlation.
- The proposed methodology should be basic correlation step to find an optimum TX and RX equalizer setting by simulation correctly.
- Proposed methodology can be used for debugging tool of model quality.



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TOMORROW starts here.