

PRQS10 characteristics

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Introduction

[lyubomirsky_01_0915_smf](#) proposes that the P802.3bs 400GbE Task Force consider using PRQS sequences for testing.

This contribution contains the results of baseline wander and clock content analysis of the PRQS10 sequence.

Baseline wander

Previous NRZ contributions have used a “baseline wander” parameter

This was defined as:

Baseline Wander is the instantaneous offset (in %) in the signal generated by AC coupling at the bit rate / 10,000.

This analysis re-uses this definition unmodified, but it should be noted that for PAM4, the eye height is 1/3 that of NRZ so the effects of a given amount of baseline wander will be greater.

For NRZ contributions see:

P802.3ba [anslow_01_0108](#)

P802.3ba [anslow_06_1108](#)

P802.3bj [anslow_01a_0112](#)

PAM4 contribution:

P802.3bs [anslow_03_0714](#)

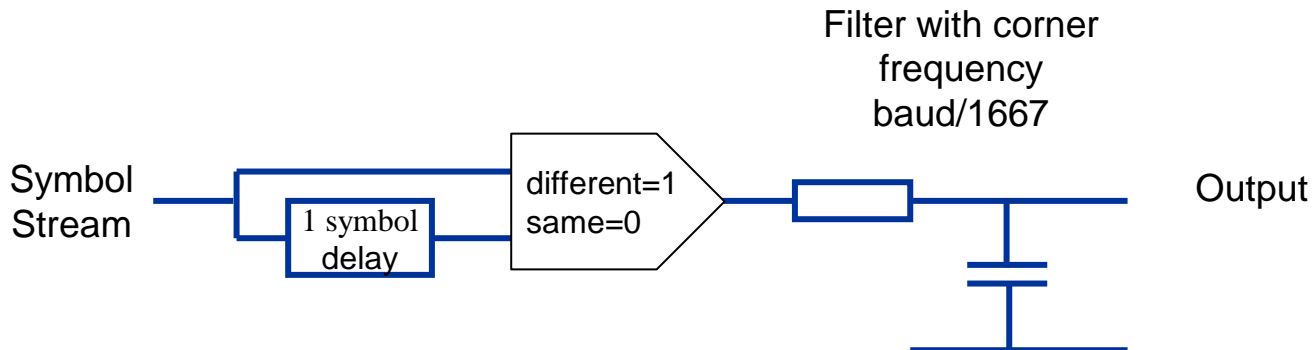
Clock content

Previous NRZ contributions have also used a “clock content” parameter

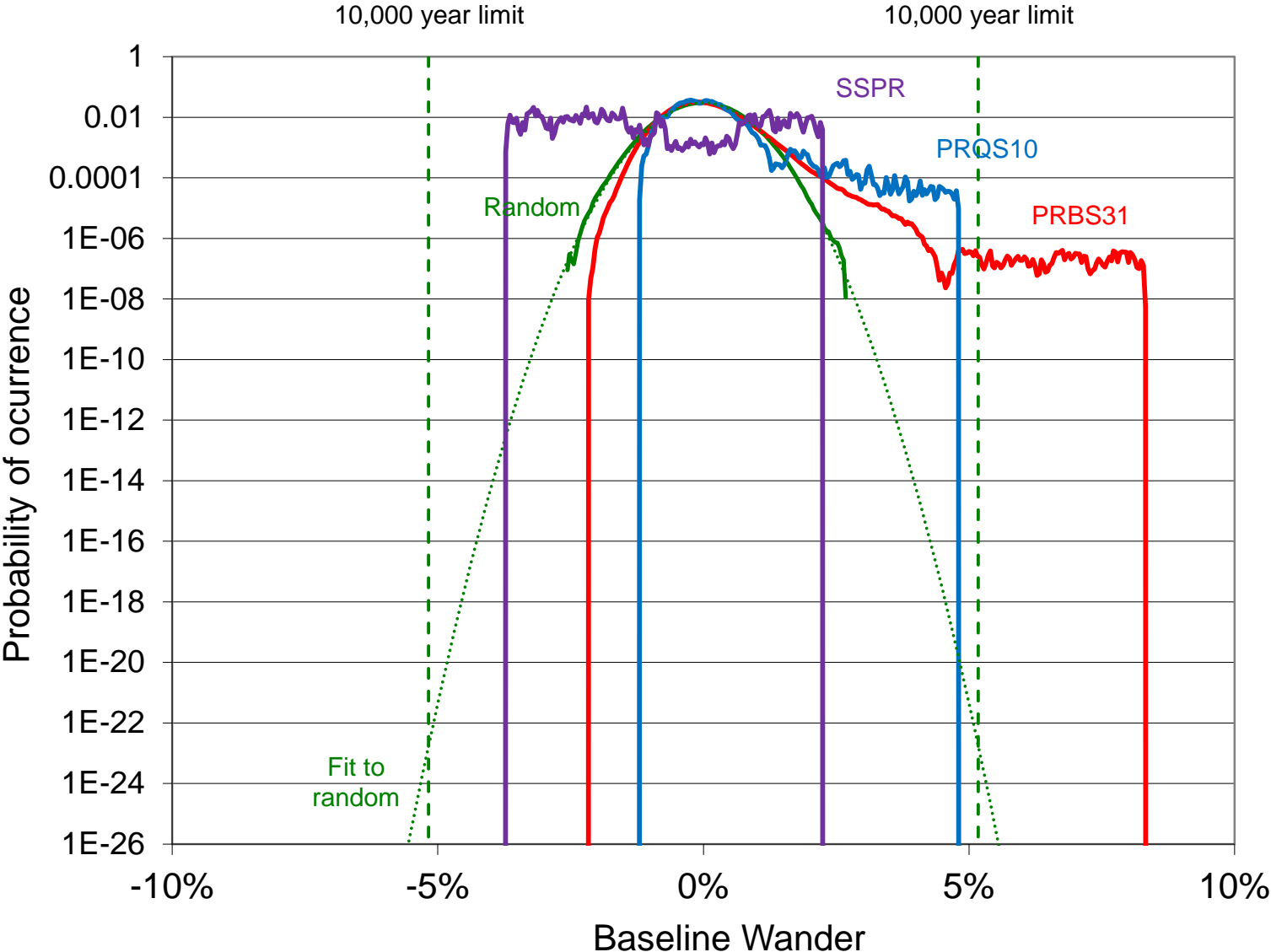
This was defined as:

Create a function which is a 1 for a transition and a 0 for no transition and then filter the resulting sequence with a corner frequency of baud/1667.

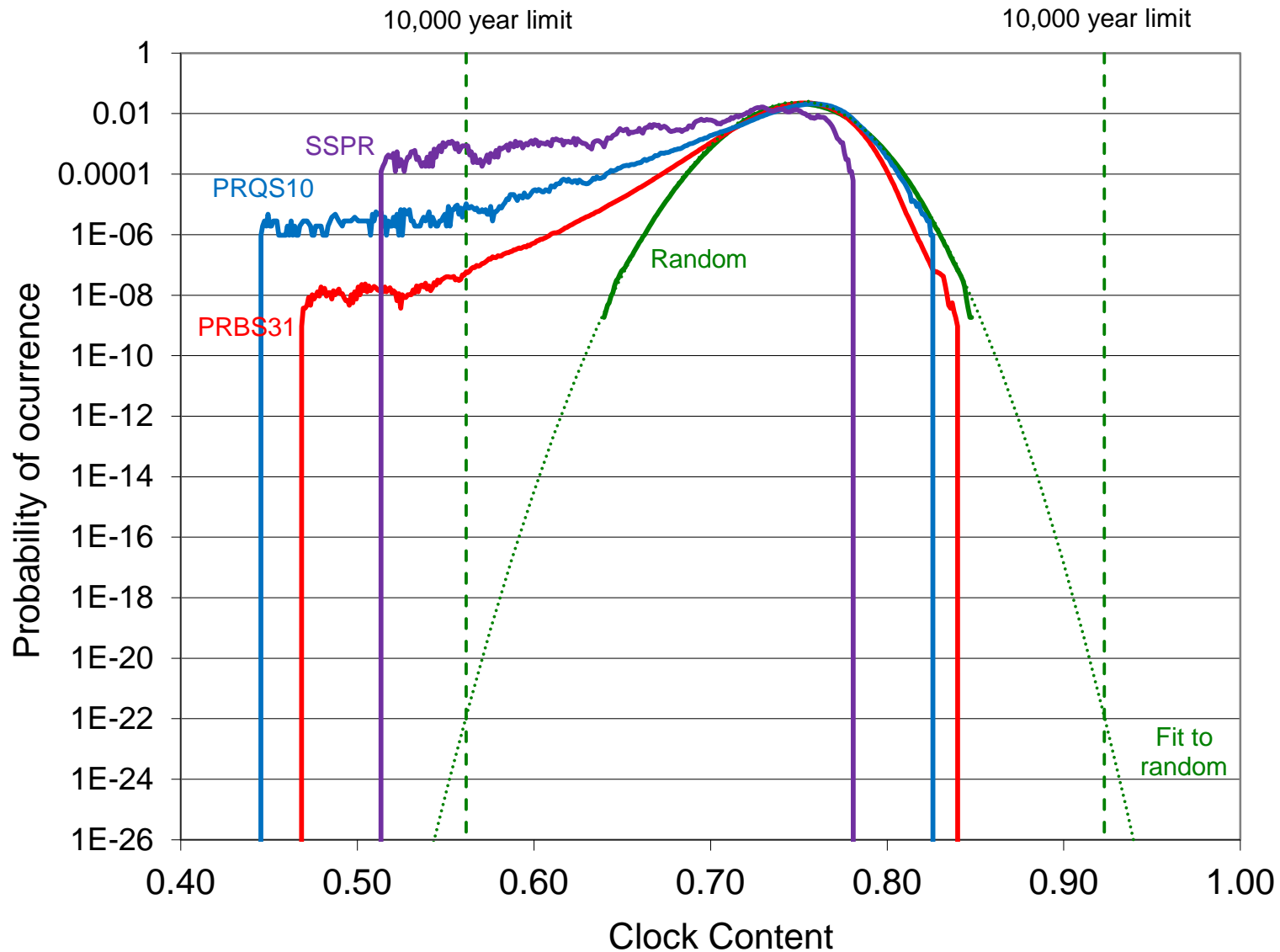
This analysis also re-uses this definition unmodified but defines a transition as the two adjacent PAM4 symbols being different from each other and taking no account of the magnitude of the difference.



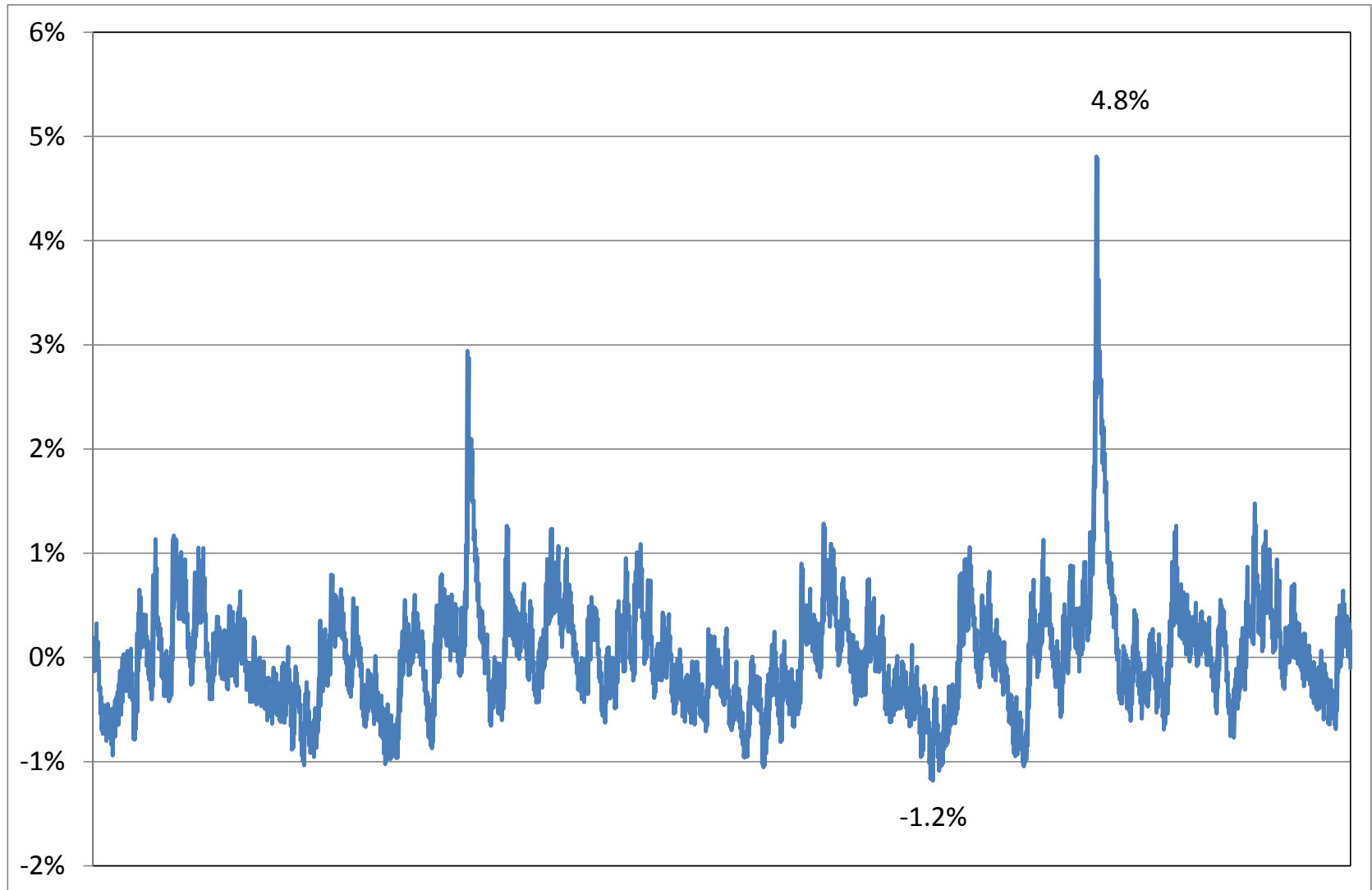
Baseline wander PDF Gray coded PAM4



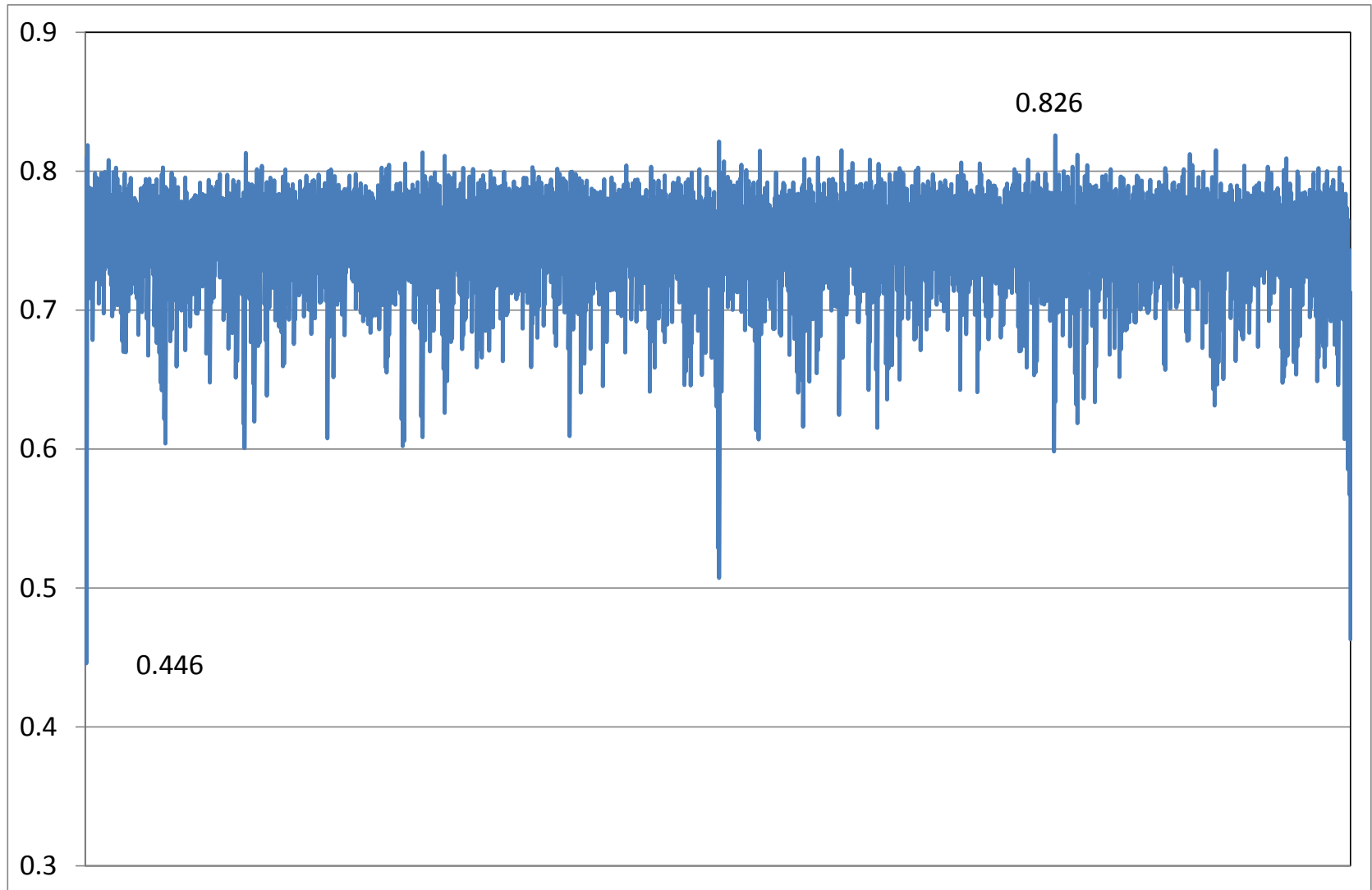
Clock content PDF Gray coded PAM4



Baseline wander vs. time Gray coded PAM4



Clock content vs. time Gray coded PAM4



Thanks!