

60802 Time Sync – External Clock Normative Requirements

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Version 1

Background

- Following discussion during 60802 Comment Resolution on 12th May 2023, it was agreed to cover in the Time Sync ad hoc group a question regarding normative requirements for Working Clock at Grandmaster when it is a “following machine”, matching a “leading machine”.

Relevant Normative Requirements

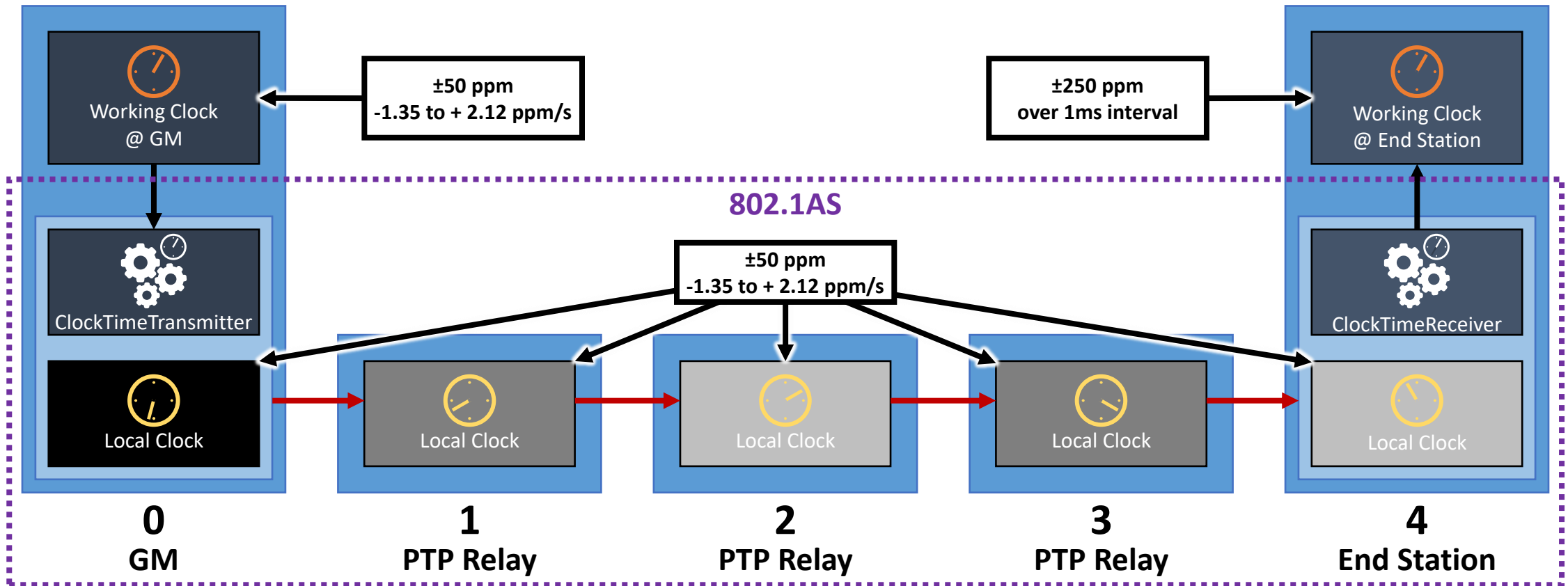
d1.4

Topic	Value
Maximum fractional frequency offset relative to the TAI frequency for LocalClock used for timeReceiver	-50 ppm to +50 ppm
Maximum fractional frequency offset relative to the TAI frequency for LocalClock used for Grandmaster	-25 ppm to +25 ppm
Maximum fractional frequency offset relative to the TAI frequency for ClockTarget	-50 ppm to +50 ppm
Maximum absolute value of rate of change of fractional frequency offset for LocalClock	$\leq 1,35$ ppm/s
Maximum absolute value of rate of change of fractional frequency offset for ClockTarget	≤ 3 ppm/s
Total range of frequency adjustment for ClockTarget used for Global Time	+/-1000 ppm over any observation interval of 1 ms (≤ 1 μ s over an interval of 1 ms)
Total range of frequency adjustment for ClockTarget used for Working Clock	+/-250 ppm over any observation interval of 1 ms (≤ 250 ns over an interval of 1 ms)

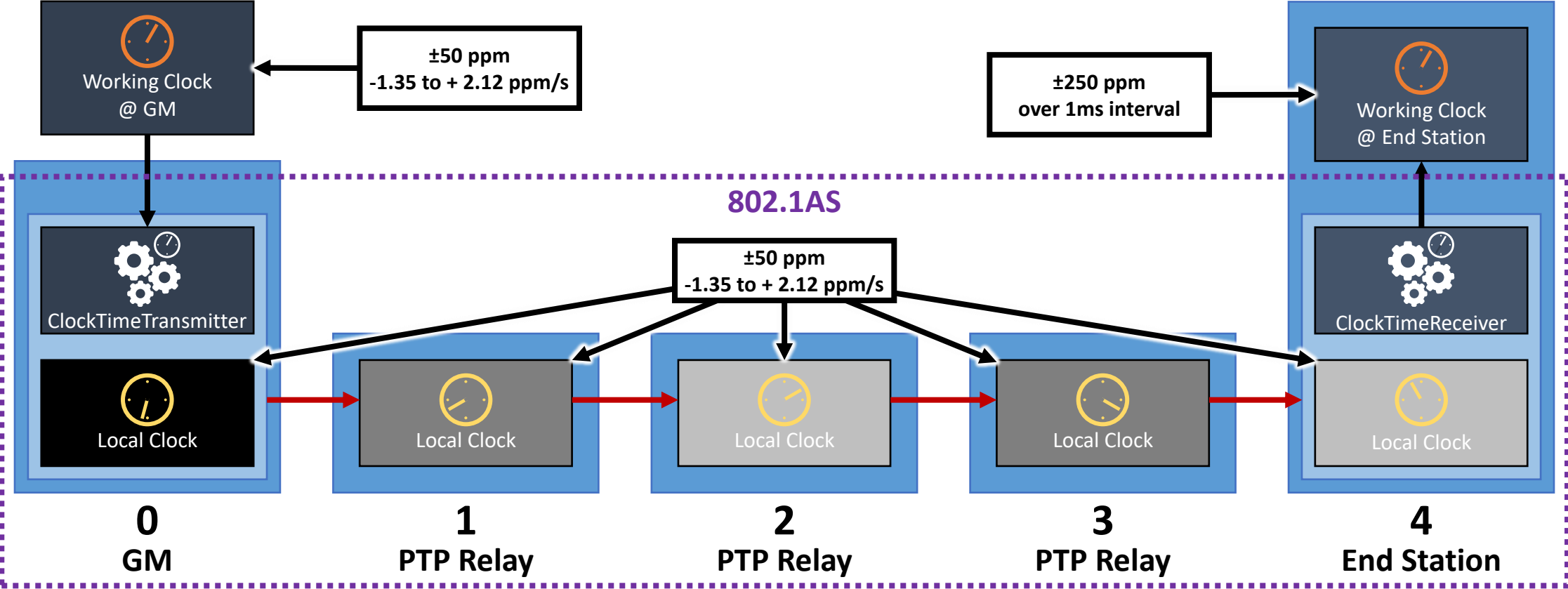
d2.0

Topic	Value
Local Clock, range of fractional frequency offset relative to the nominal frequency	-50 ppm to +50 ppm
Local Clock, range of rate of change of fractional frequency offset	-1,35 ppm/s to +2,12 ppm/s
Working Clock at Grandmaster PTP Instance (acting as ClockSource), range of fractional frequency offset relative to the nominal frequency	-50 ppm to +50 ppm
Working Clock at Grandmaster PTP Instance, range of rate of change of fractional frequency offset	-1,35 ppm/s to +2,12 ppm/s
Working Clock at PTP End Instance, maximum value of frequency adjustment	± 250 ppm over any observation interval of 1 ms
Global Time at Grandmaster PTP Instance (acting as ClockSource), range of fractional frequency offset relative to the nominal frequency	-200 ppm to +200 ppm
Global Time at Grandmaster PTP Instance, range of rate of change of fractional frequency offset	-10 ppm/s to +10 ppm/s
Global Time at PTP End Instance, maximum value of frequency adjustment	± 1000 ppm over any observation interval of 1 ms

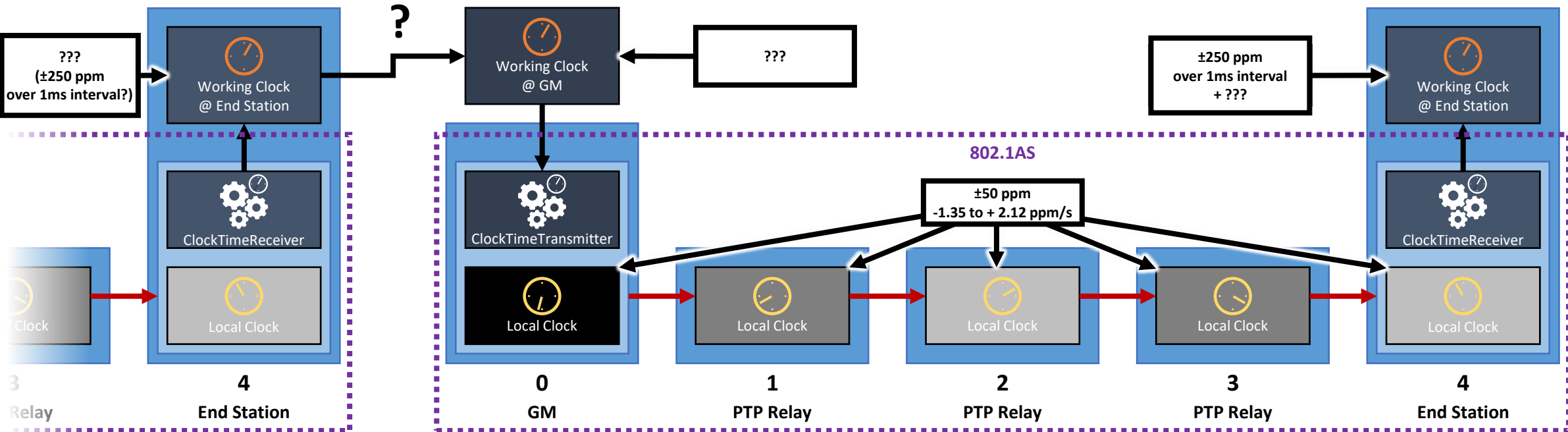
Internal Working Clock @ GM



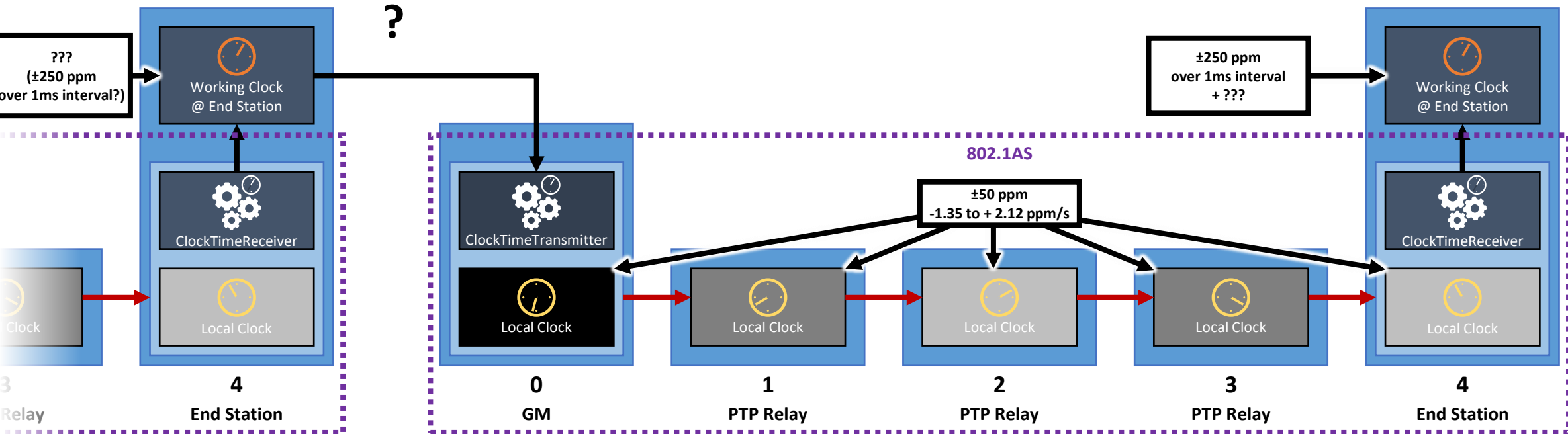
External Working Clock @ GM



External Working Clock @ GM



External Working Clock @ GM



Thank you!

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