

Artix UltraScale+

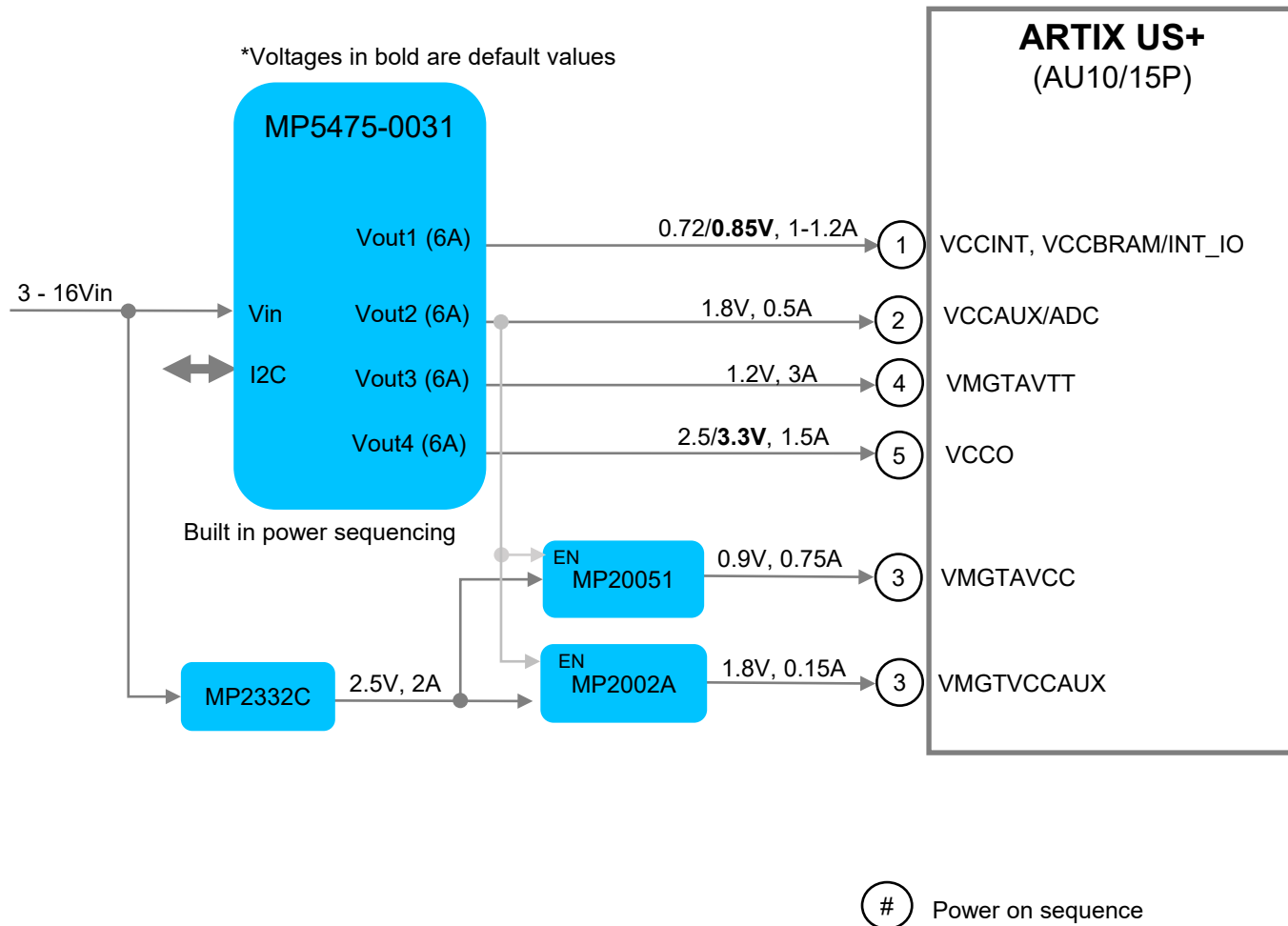
Test Report

Highest Power AU10/15P

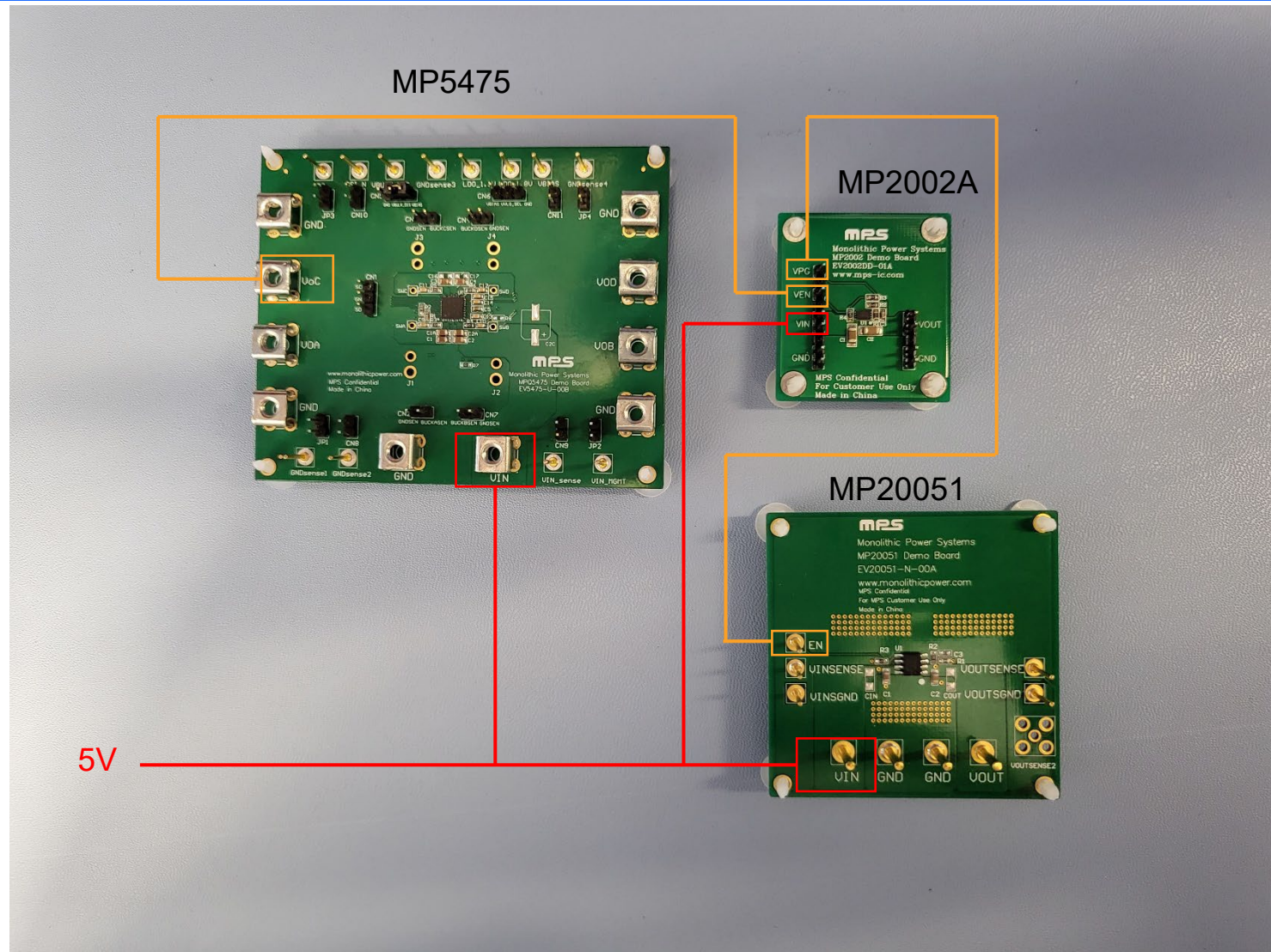
Updated
1/26/2024



AU10P/15P Highest Power (MP5475-0031)

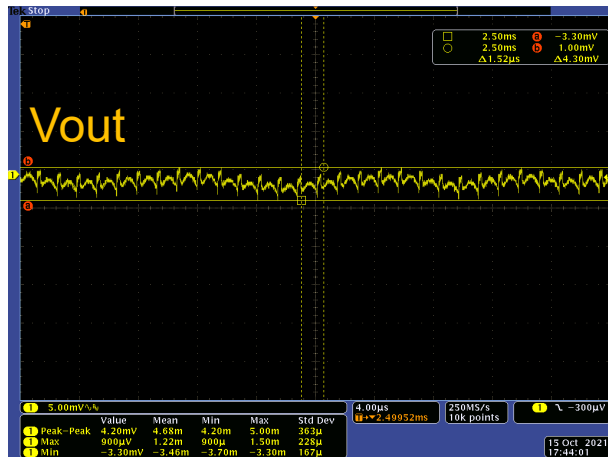


AU10P/AU15P (MP5475 PMIC) EVB Connection

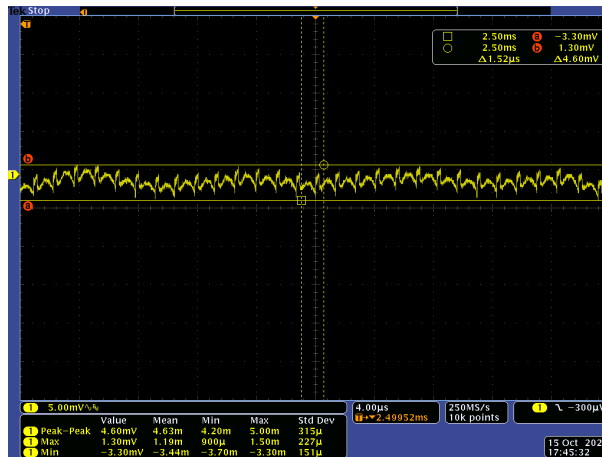


AU10P/AU15P VCCINT Ripple (MP5475 PMIC)

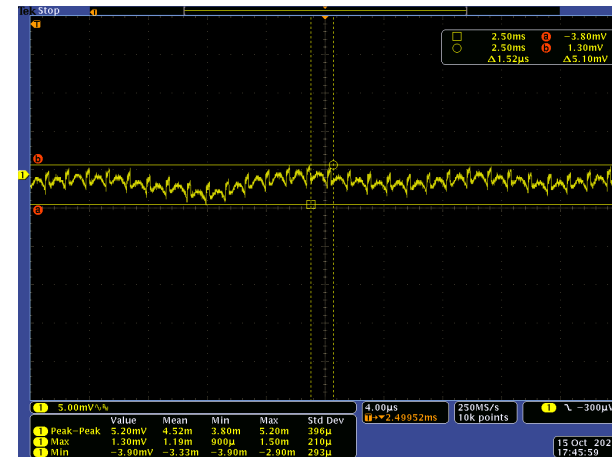
Standby



Half Load



Max Load



- ❑ 4.2 mV peak-peak ripple at Standby
- ❑ 4.6 mV peak-peak ripple at Half load
- ❑ 5.2 mV peak-peak ripple at Max load

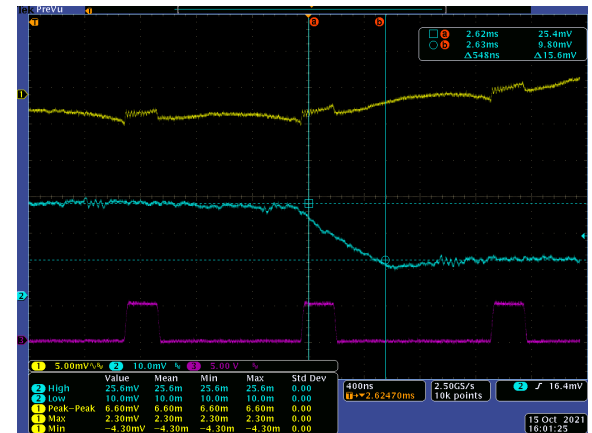
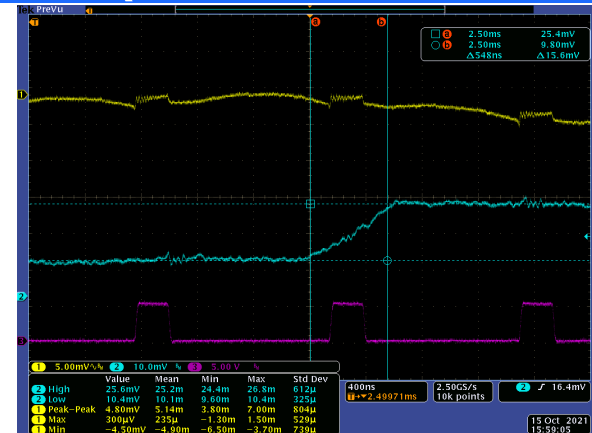
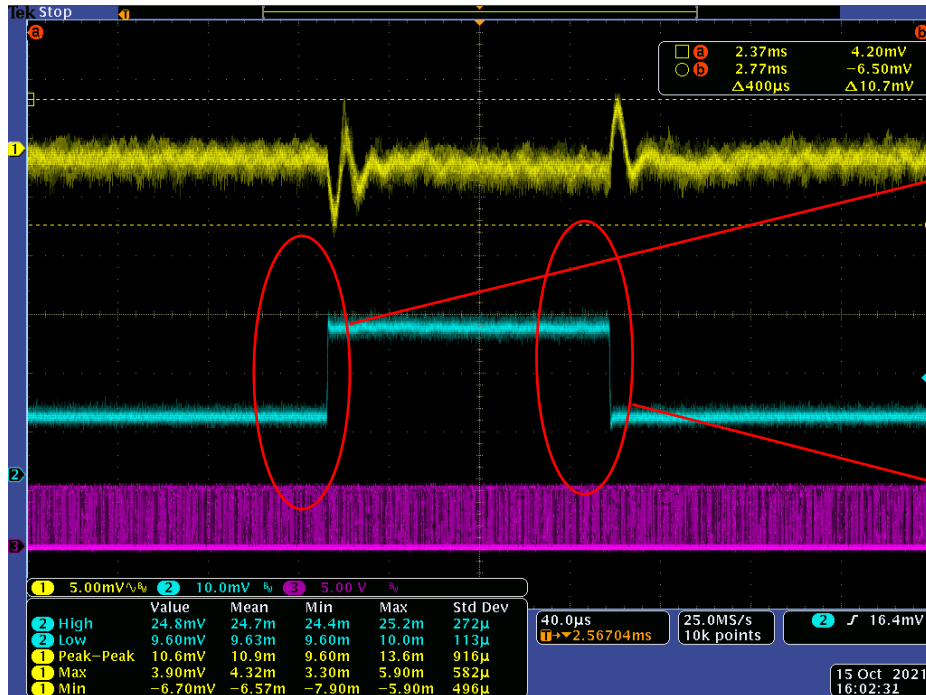
AU10P/AU15P VCCINT Transient (MP5475 PMIC)

Step Load 0.35A → 0.9A → 0.35A, 10A/us

Vout

Io

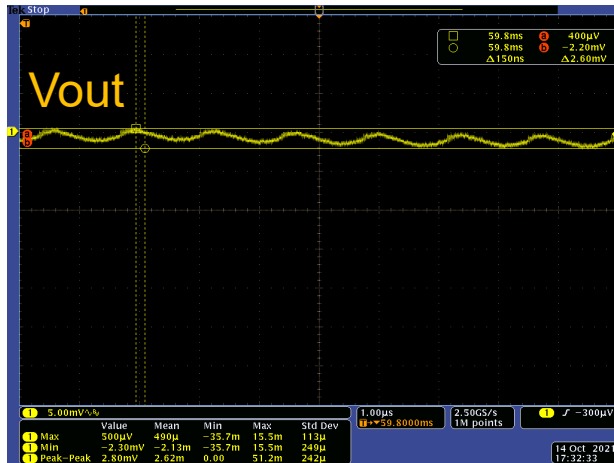
SW



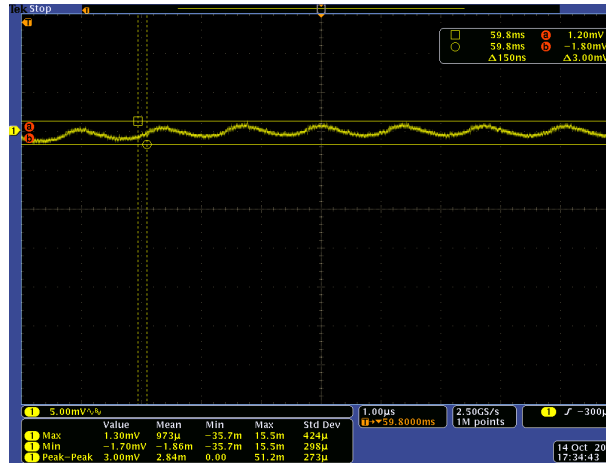
Vout ripple -0.79% (-6.7mV) to +0.46% (3.9mV) with load transient

AU10P/AU15P VMGAVTT Ripple (MP5475 PMIC)

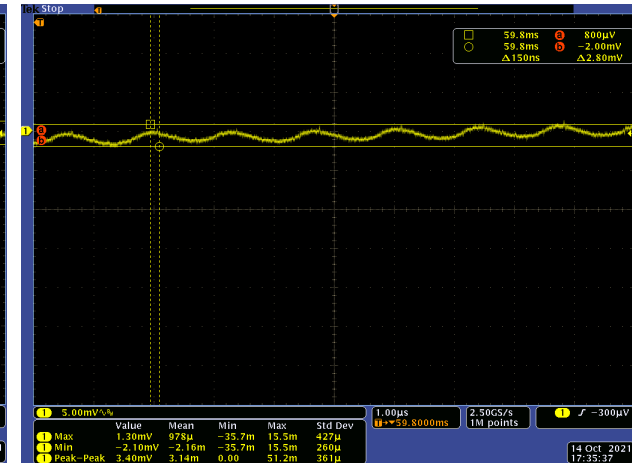
Standby



Half Load



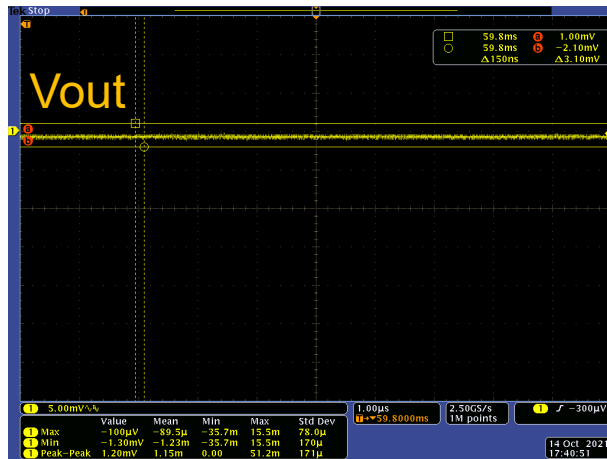
Max Load



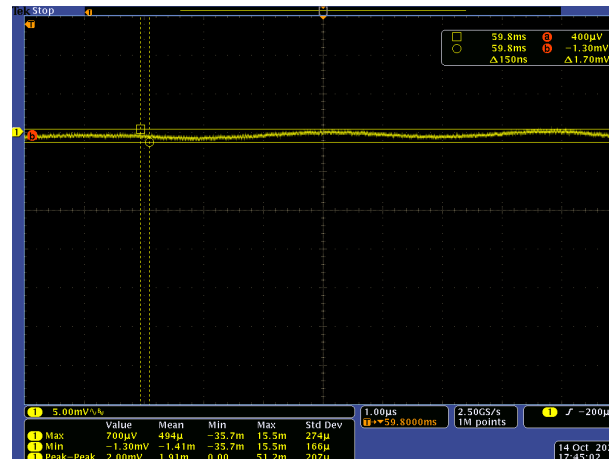
- ❑ 2.8 mV peak-peak ripple at Standby
- ❑ 3.0 mV peak-peak ripple at Half load
- ❑ 3.4 mV peak-peak ripple at Max load

AU10P/AU15P VMGTVCCAUX Ripple (MP2002A)

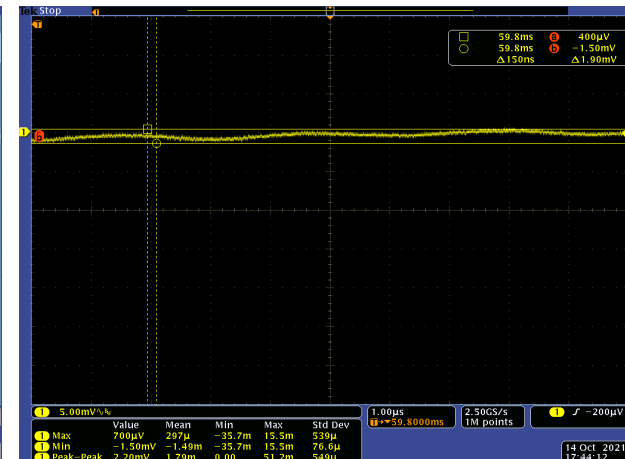
Standby



Half Load



Max Load



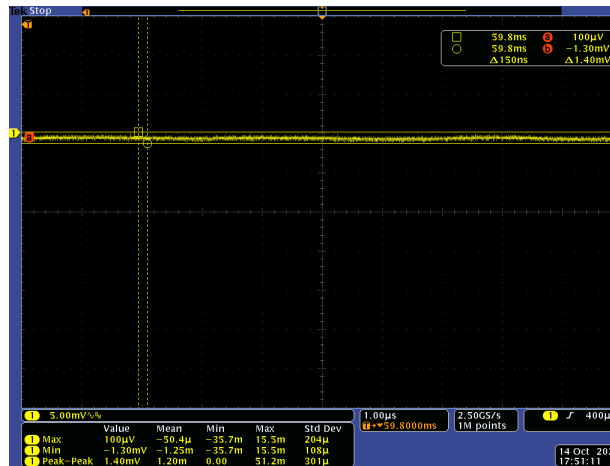
- ❑ 1.2 mV peak-peak ripple at Standby
- ❑ 2.0 mV peak-peak ripple at Half load
- ❑ 2.2 mV peak-peak ripple at Max load

AU10P/AU15P VMGTYAVCC Ripple (MP20051)

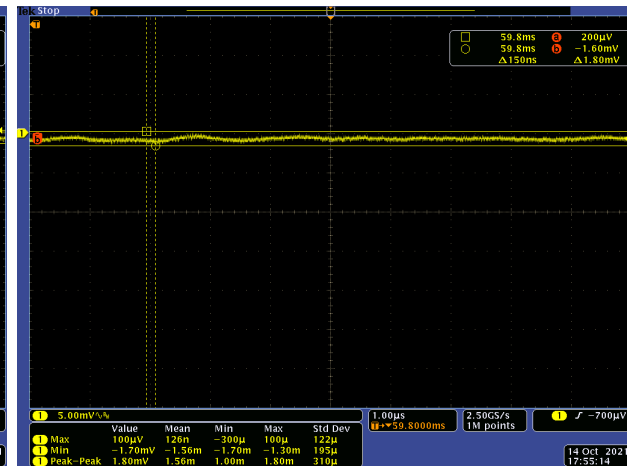
Standby



Half Load



Max Load

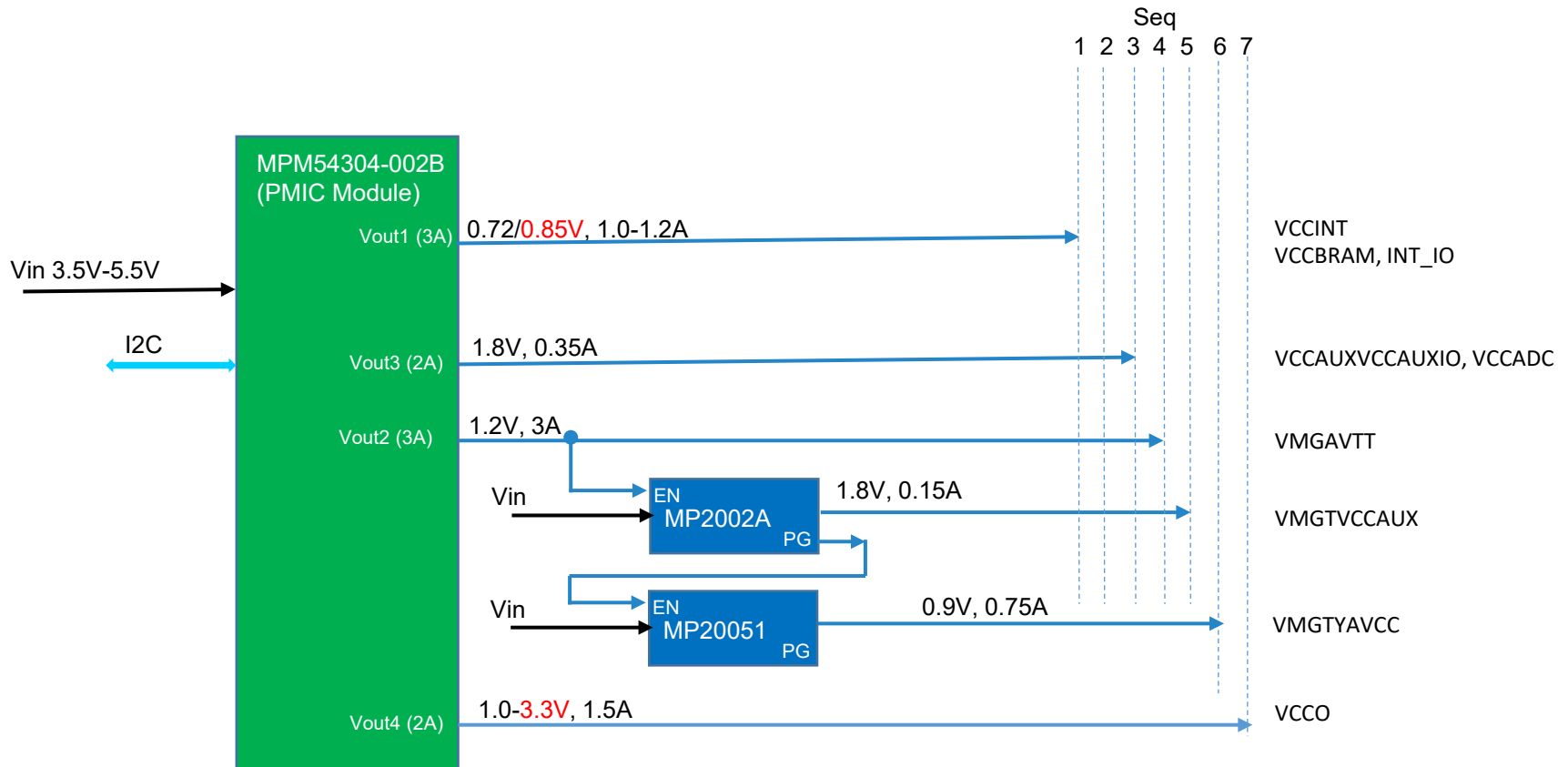


- ❑ 1.2 mV peak-peak ripple at Standby
- ❑ 1.4 mV peak-peak ripple at Half load
- ❑ 1.8 mV peak-peak ripple at Max load

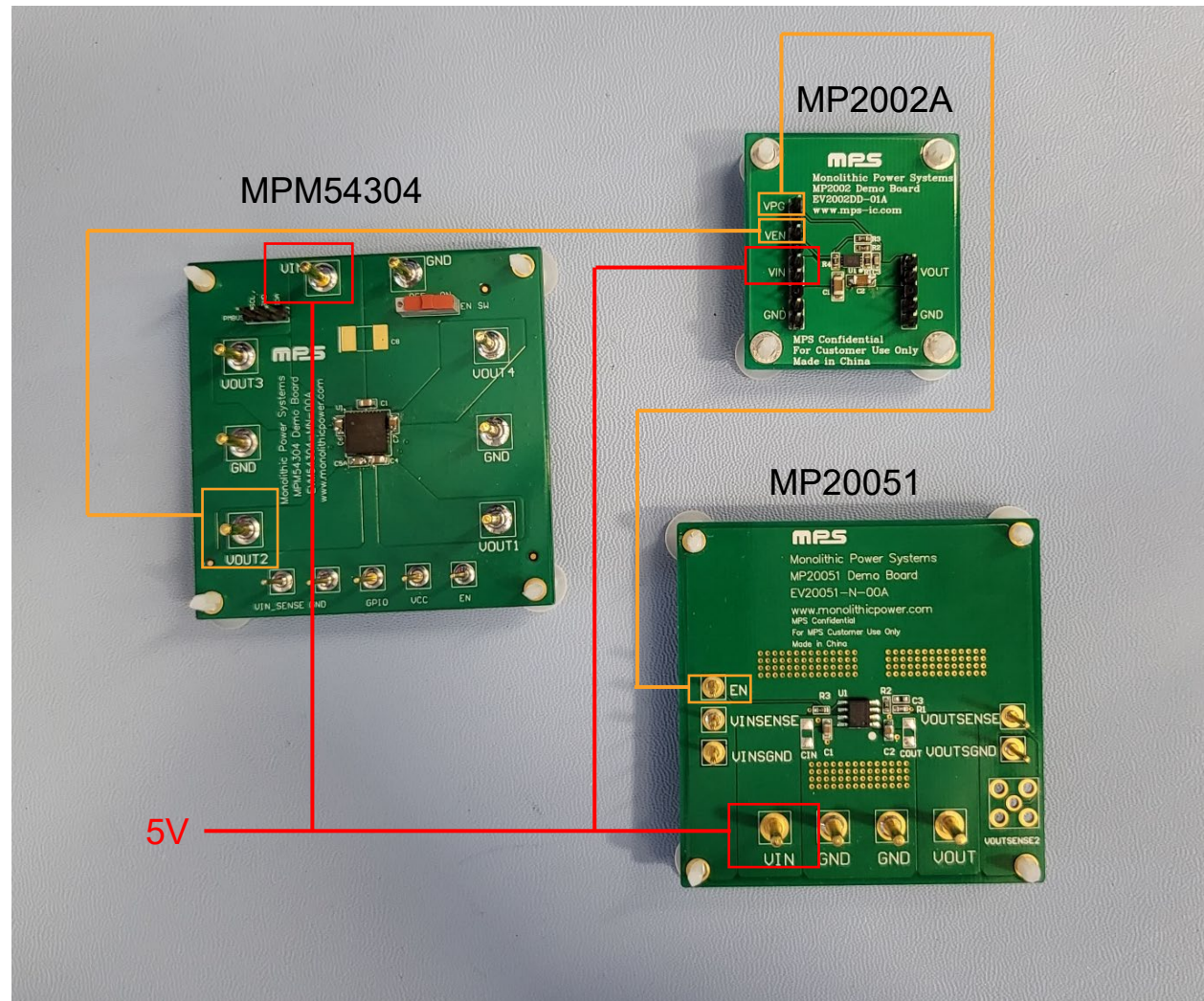
AU10P/AU15P (MP5475 PMIC)

	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MP5475-Buck1	0.85V	4.2mVpp	4.6mVpp	5.2mVpp	1 (0 ms)
MP5475-Buck2	1.8V	2.6mVpp	3.6mVpp	4.0mVpp	2 (+1.9mS)
MP5475-Buck3	1.2V	2.8mVpp	3.0mVpp	3.4mVpp	3 (+3.6mS)
MP2002A	1.8V	1.2mVpp	2.0mVpp	2.2mVpp	4 (+3.76mS)
MP20051	0.9V	1.2mVpp	1.4mVpp	1.8mVpp	5 (+4.1mS)
MP5475-Buck4	3.3V	4.4mVpp	4.6mVpp	4.8mVpp	6 (+5.6mS)

AU10P/AU15P (MPM54304 PMIC Module)

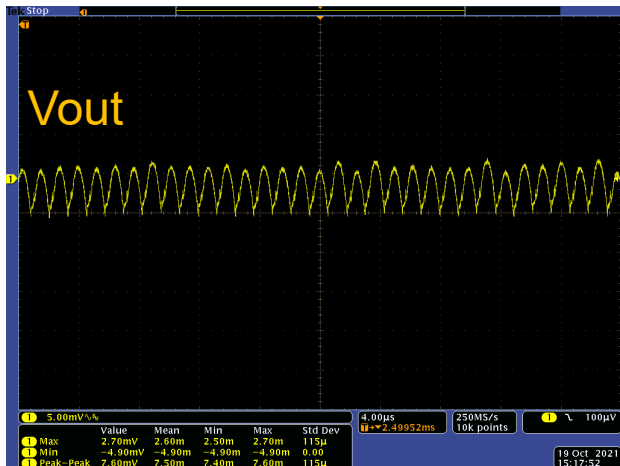


AU10P/AU15P (MPM54304 PMIC Module) EVB Connection

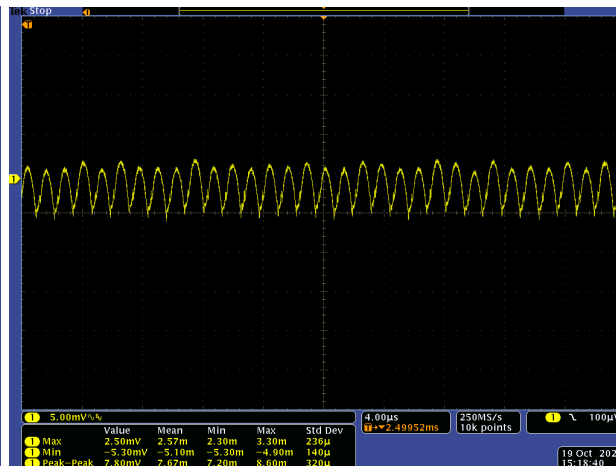


AU10P/AU15P VCCINT Ripple (MPM54304 PMIC Module)

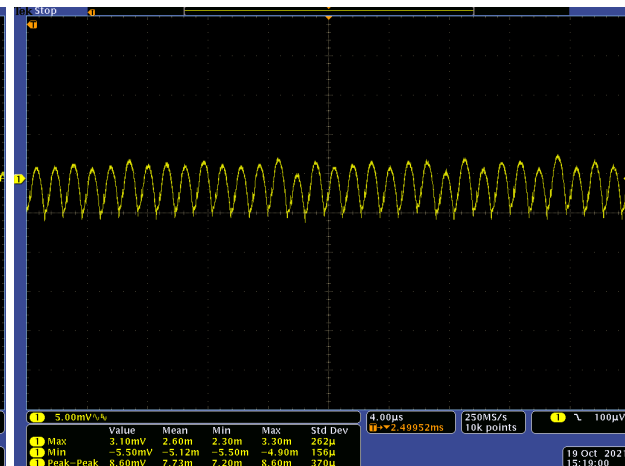
Standby



Half Load



Max Load



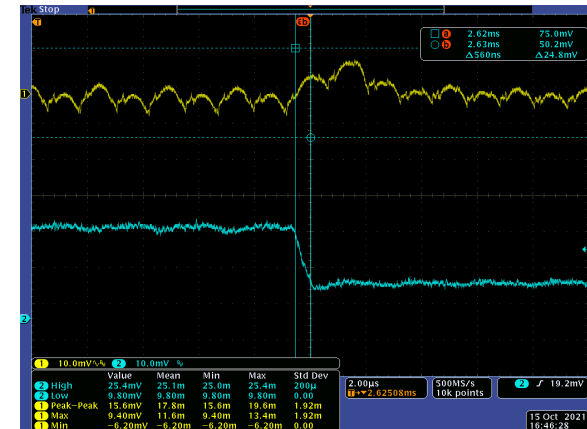
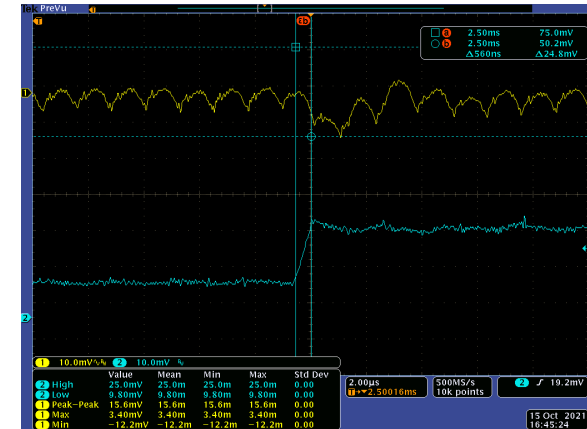
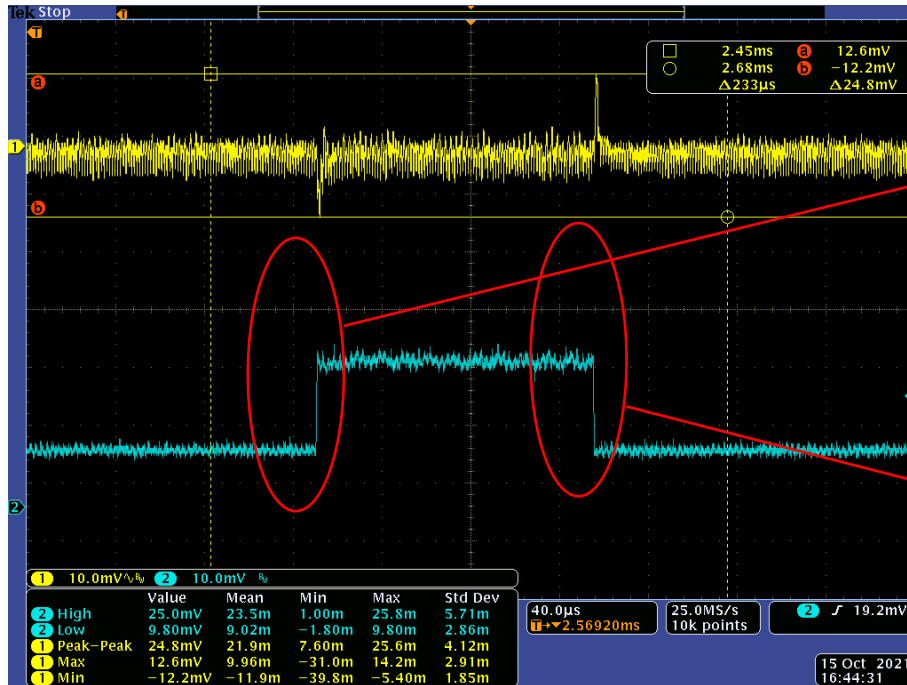
- ❑ 7.6 mV peak-peak ripple at Standby
- ❑ 7.8 mV peak-peak ripple at Half load
- ❑ 8.6 mV peak-peak ripple at Max load

AU10P/AU15P VCCINT Transient (MPM54304 Module)

Step Load 0.35A → 0.9A → 0.35A, 10A/us

Vout

Io



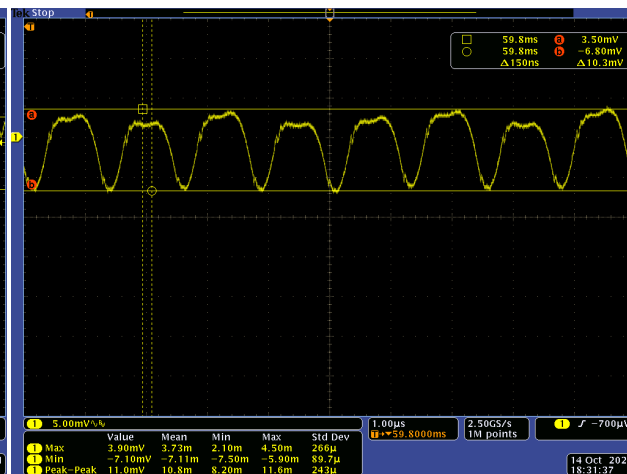
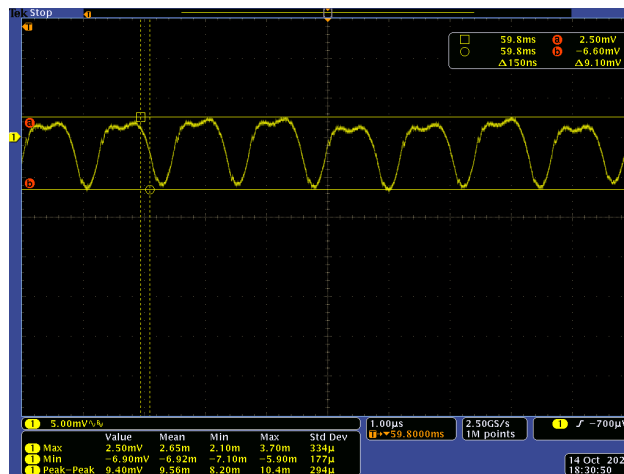
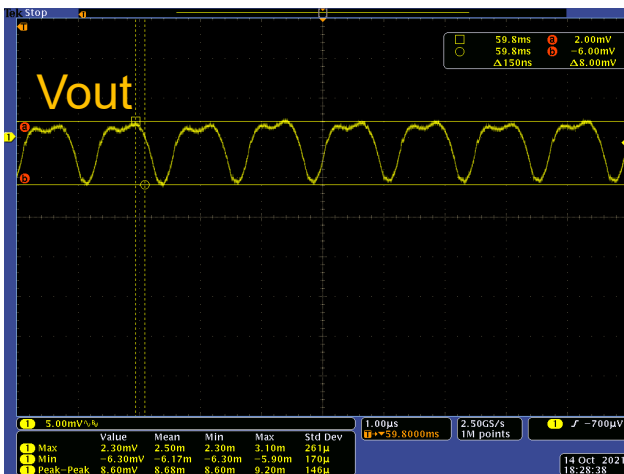
□ Vout ripple -1.4% (-12.2mV) to +1.5% (12.6mV) with load transient

AU10P/AU15P VMGAVTT Ripple (MPM54304 Module)

Standby

Half Load

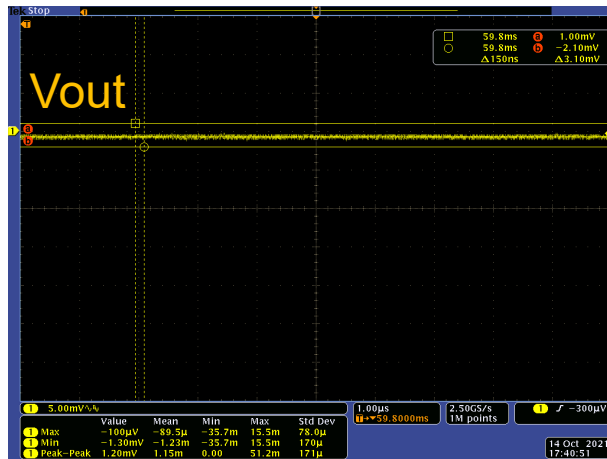
Max Load



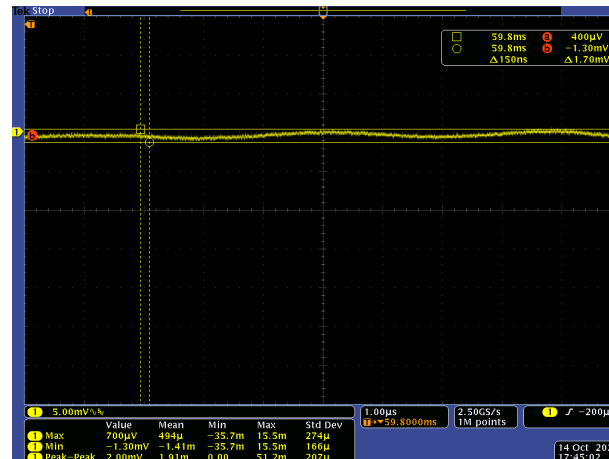
- 8.6 mV peak-peak ripple at Standby
- 9.4 mV peak-peak ripple at Half load
- 11.0 mV peak-peak ripple at Max load

AU10P/AU15P VMGTVCCAUX Ripple (MP2002A)

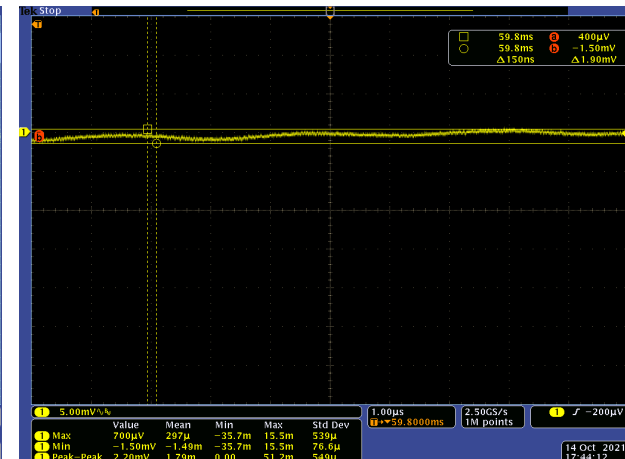
Standby



Half Load



Max Load



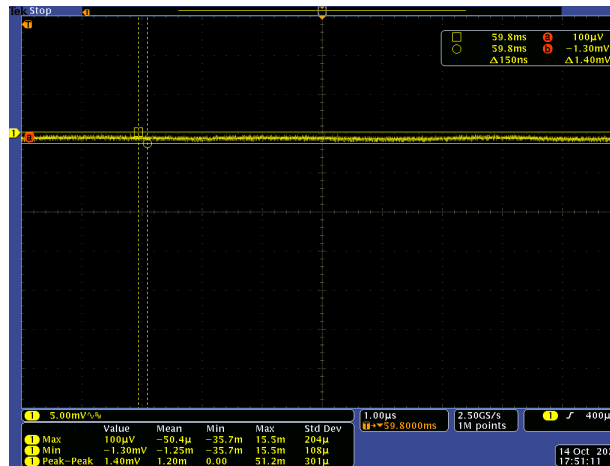
- ❑ 1.2 mV peak-peak ripple at Standby
- ❑ 2.0 mV peak-peak ripple at Half load
- ❑ 2.2 mV peak-peak ripple at Max load

AU10P/AU15P VMGTYAVCC Ripple (MP20051)

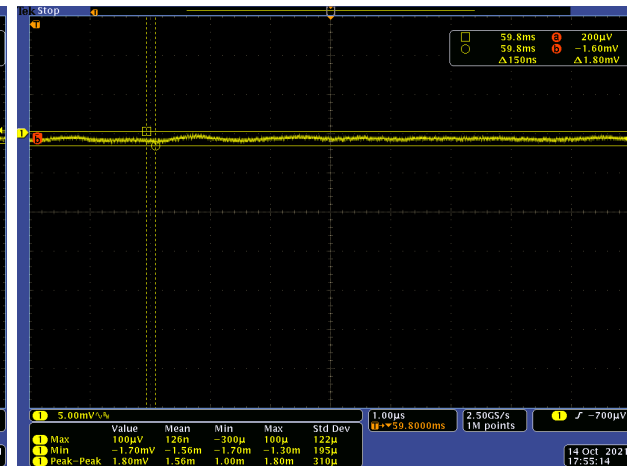
Standby



Half Load



Max Load

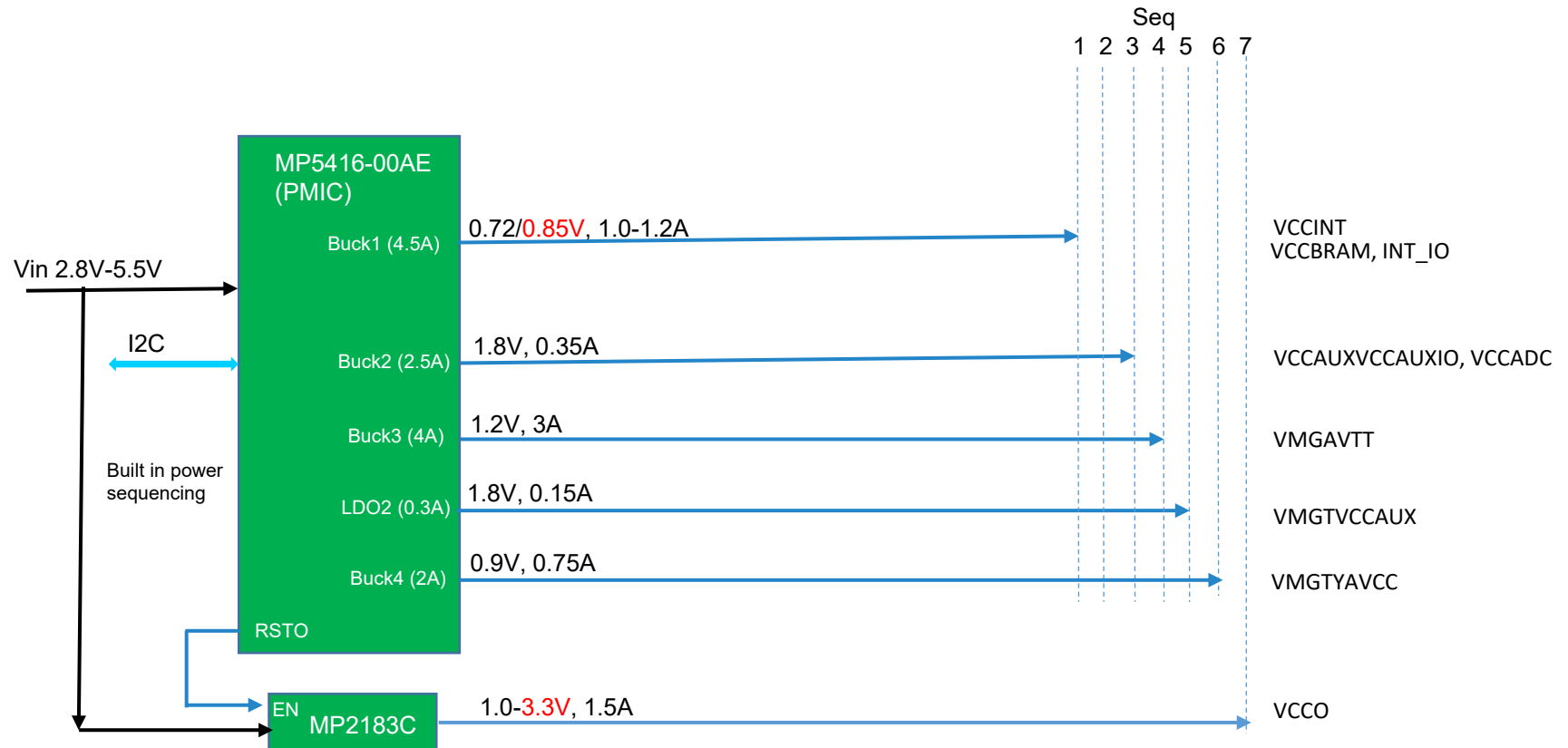


- ❑ 1.2 mV peak-peak ripple at Standby
- ❑ 1.4 mV peak-peak ripple at Half load
- ❑ 1.8 mV peak-peak ripple at Max load

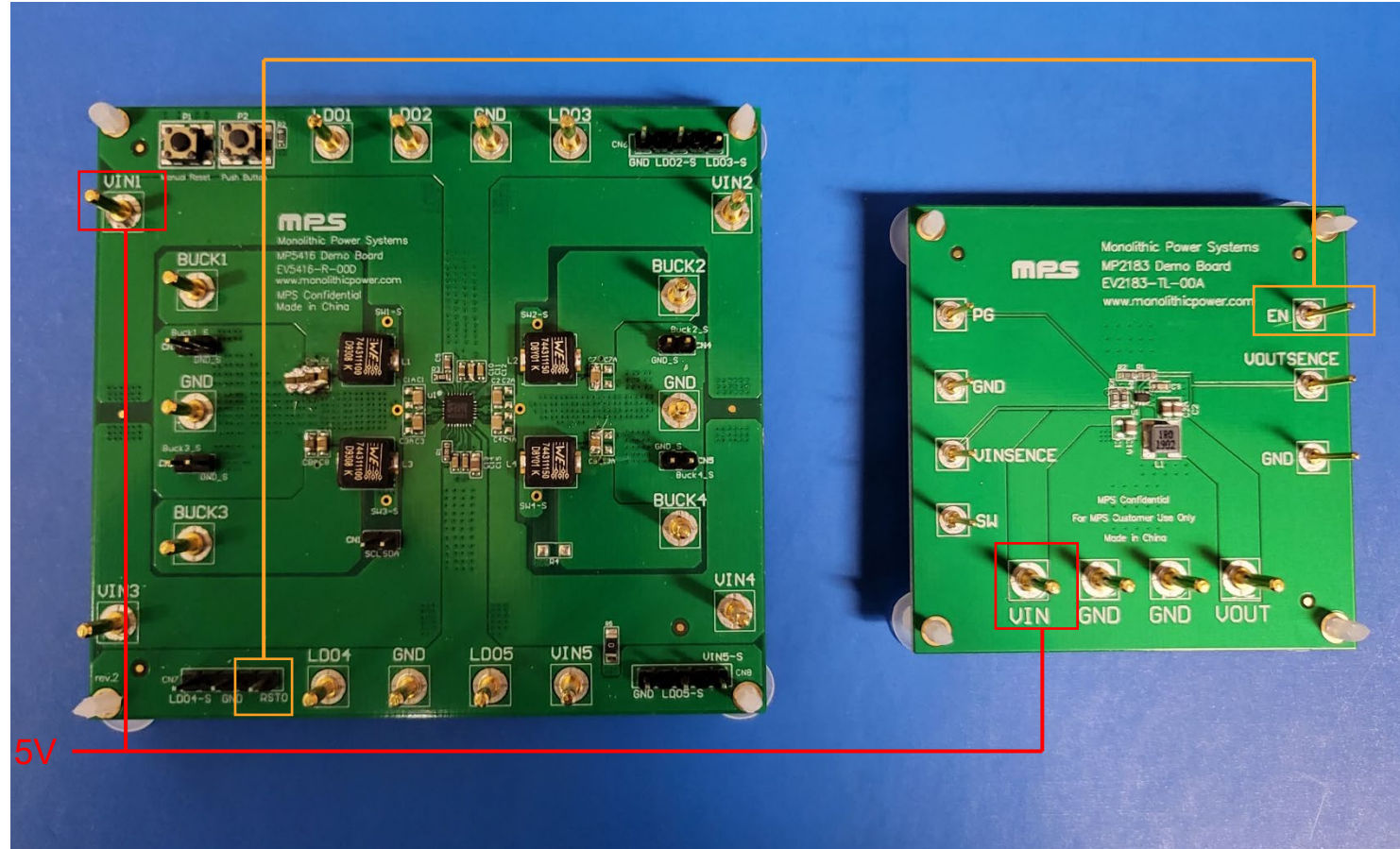
AU10P/AU15P (MPM54304 PMIC Module)

	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MPM54304-Buck1	0.85V	7.6mVpp	7.8mVpp	8.6mVpp	1 (0 ms)
MPM54304-Buck3	1.8V	12.6mVpp	13mVpp	14mVpp	2 (1mS)
MP54304-Buck2	1.2V	8.6mVpp	9.4mVpp	11.0mVpp	3 (2mS)
MP2002A	1.8V	1.2mVpp	2.0mVpp	2.2mVpp	4 (2.16mS)
MP20051	0.9V	1.2mVpp	1.4mVpp	1.8mVpp	5 (2.5mS)
MPM54304-Buck4	3.3V	19.2mVpp	19.2mVpp	19.8mVpp	6 (3.2mS)

AU10P/AU15P/AU20P/AU25P (MP5416 PMIC)

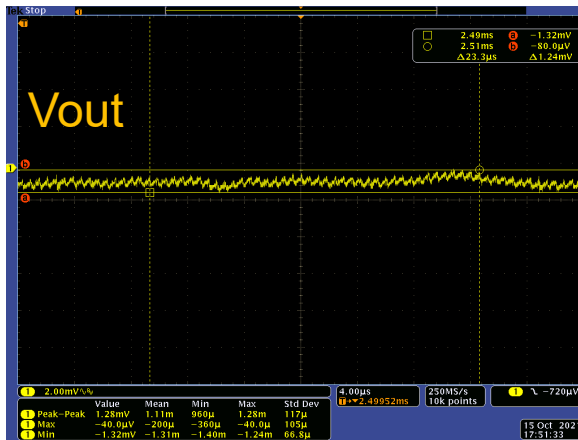


AU10P/AU15P/AU20P/AU25P (MP5416 PMIC) EVB Connection

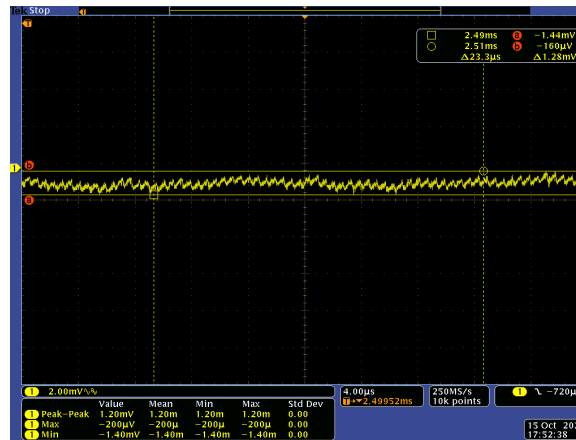


AU10P/AU15P/AU20P/AU25P VCCINT Ripple (MP5416 PMIC)

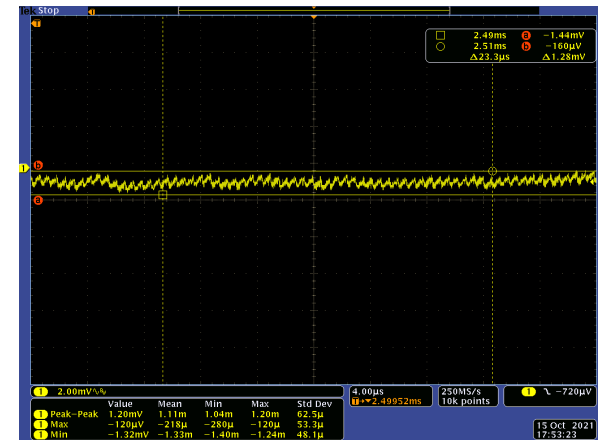
Standby



Half Load



Max Load



- ❑ 1.2 mV peak-peak ripple at Standby
- ❑ 1.2 mV peak-peak ripple at Half load
- ❑ 1.2 mV peak-peak ripple at Max load

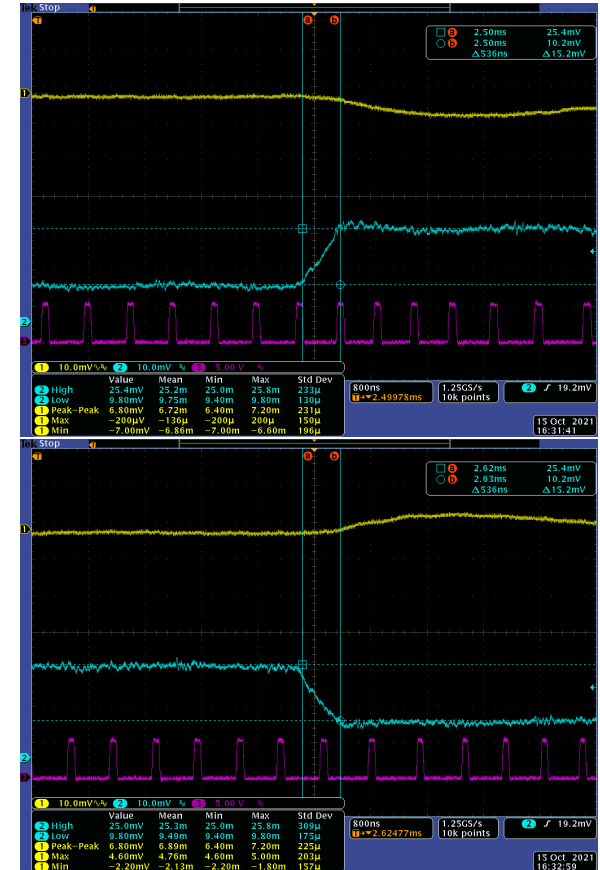
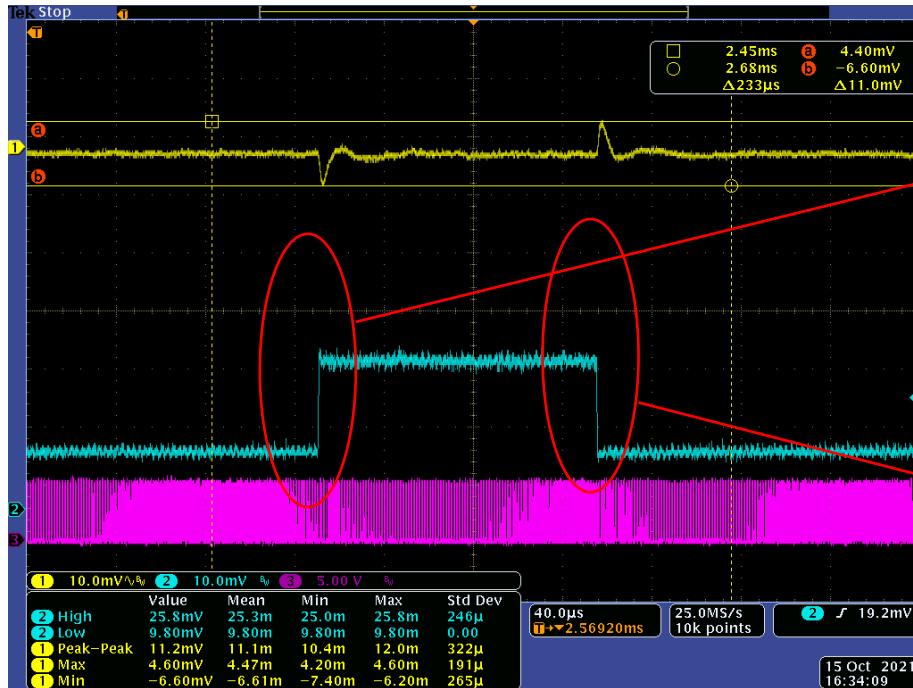
AU10P/AU15P/AU20P/AU25P VCCINT Transient (MP5416 PMIC)

Step Load 0.35A $\rightarrow$ 0.9A $\rightarrow$ 0.35A, 10A/us

Vout

Io

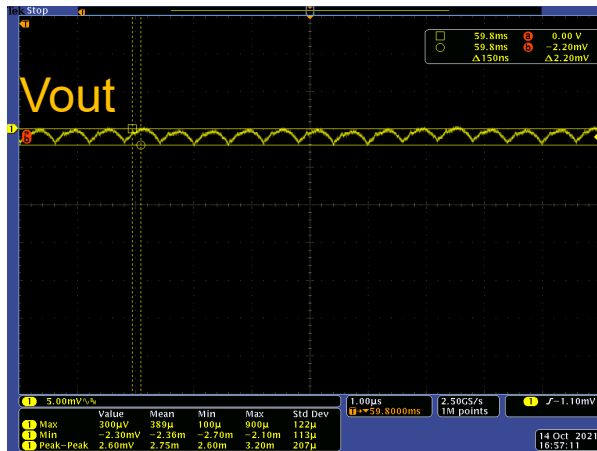
SW



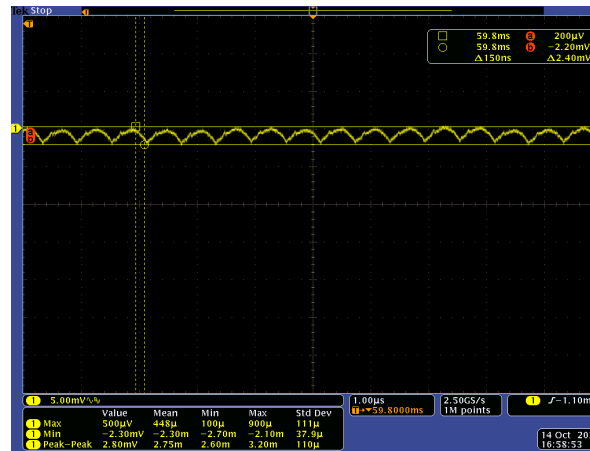
Vout ripple -0.78% (-6.6mV) to +0.5% (4.6mV) with load transient

AU10P/AU15P/AU20P/AU25P VMGAVTT Ripple (MP5416 PMIC)

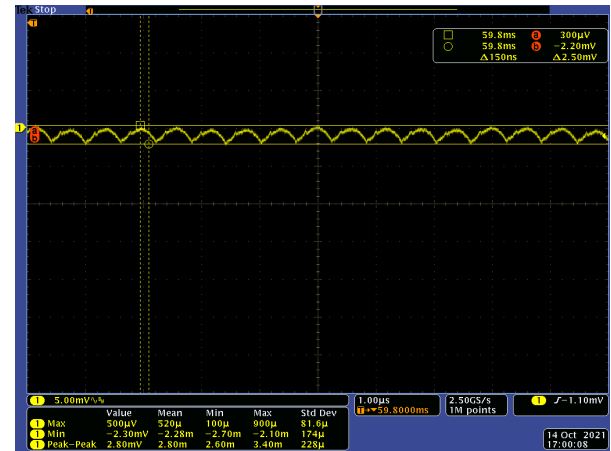
Standby



Half Load



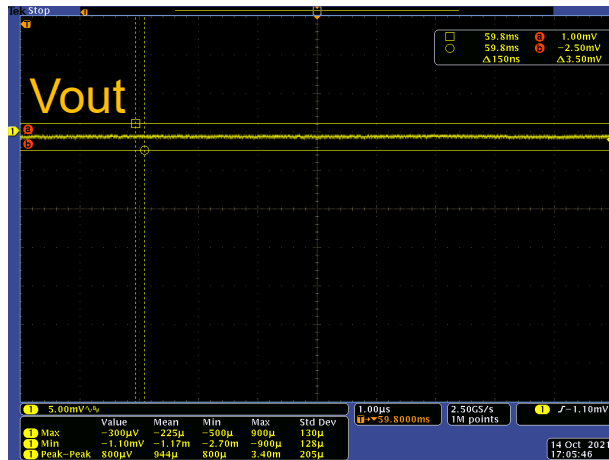
Max Load



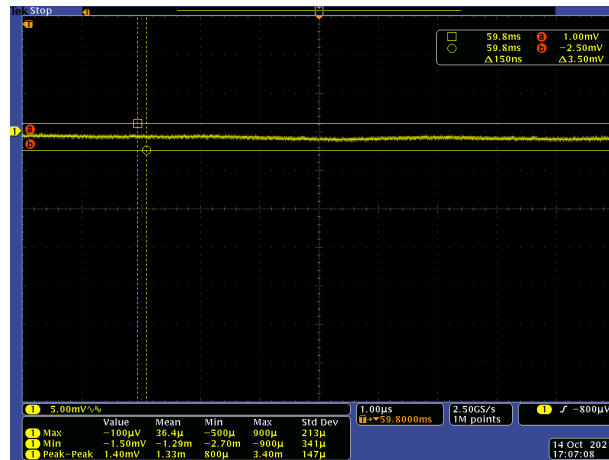
- ❑ 2.6 mV peak-peak ripple at Standby
- ❑ 2.8 mV peak-peak ripple at Half load
- ❑ 2.8 mV peak-peak ripple at Max load

AU10P/AU15P/AU20P/AU25P VMGTVCCAUX Ripple (MP5416 PMIC)

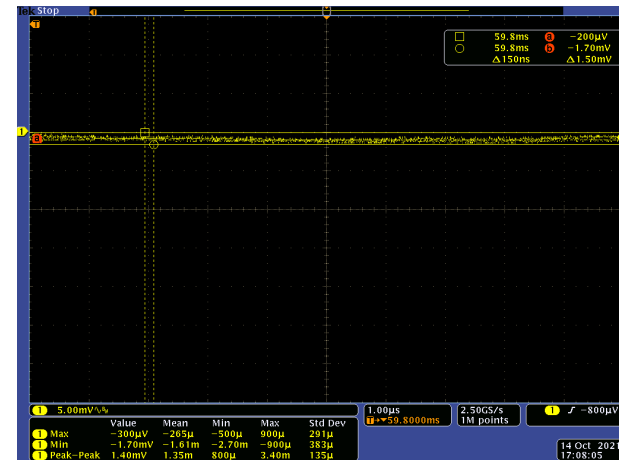
Standby



Half Load



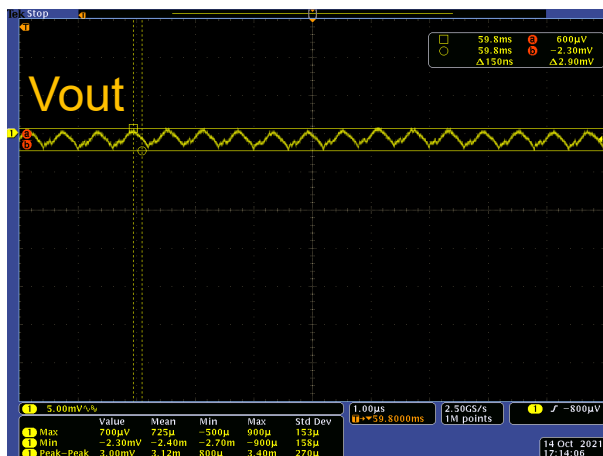
Max Load



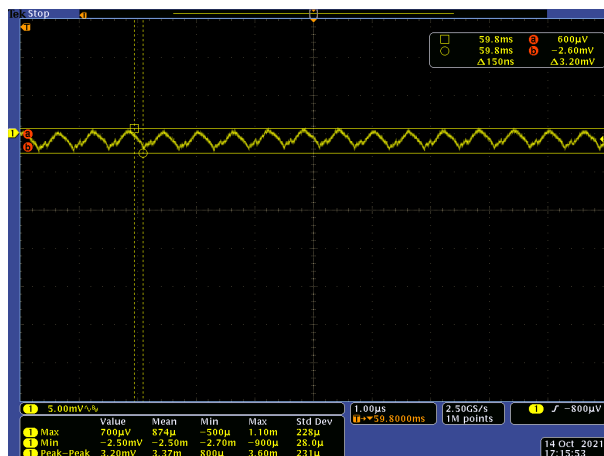
- ❑ 0.8 mV peak-peak ripple at Standby
- ❑ 1.4 mV peak-peak ripple at Half load
- ❑ 1.4 mV peak-peak ripple at Max load

AU10P/AU15P/AU20P/AU25P VMGTYAVCC Ripple (MP5416 PMIC)

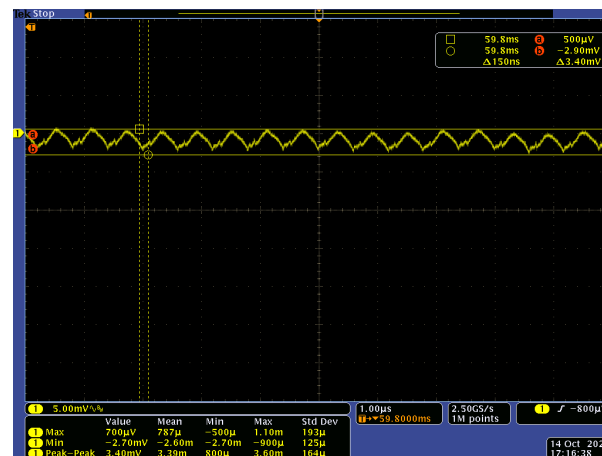
Standby



Half Load



Max Load



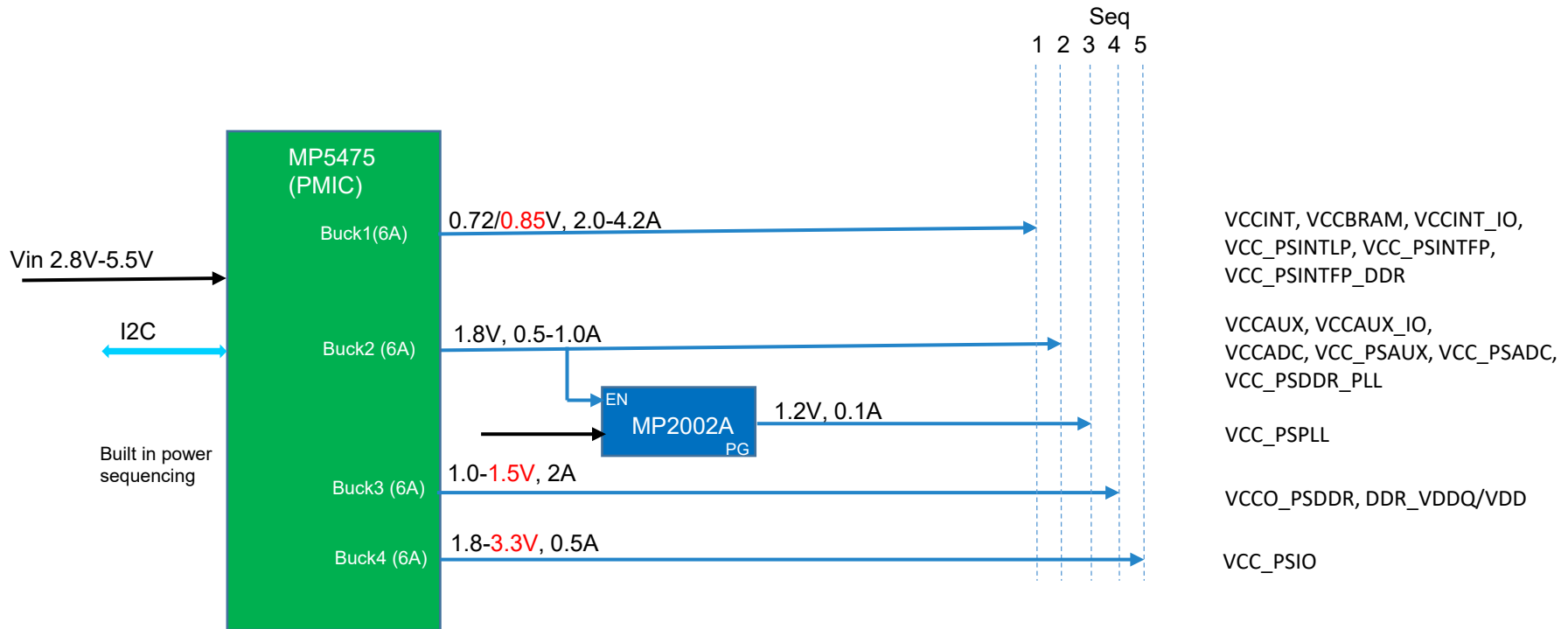
- ❑ 3.0 mV peak-peak ripple at Standby
- ❑ 3.2 mV peak-peak ripple at Half load
- ❑ 3.4 mV peak-peak ripple at Max load

AU10P/AU15P/AU20P/AU25P (MP5416)

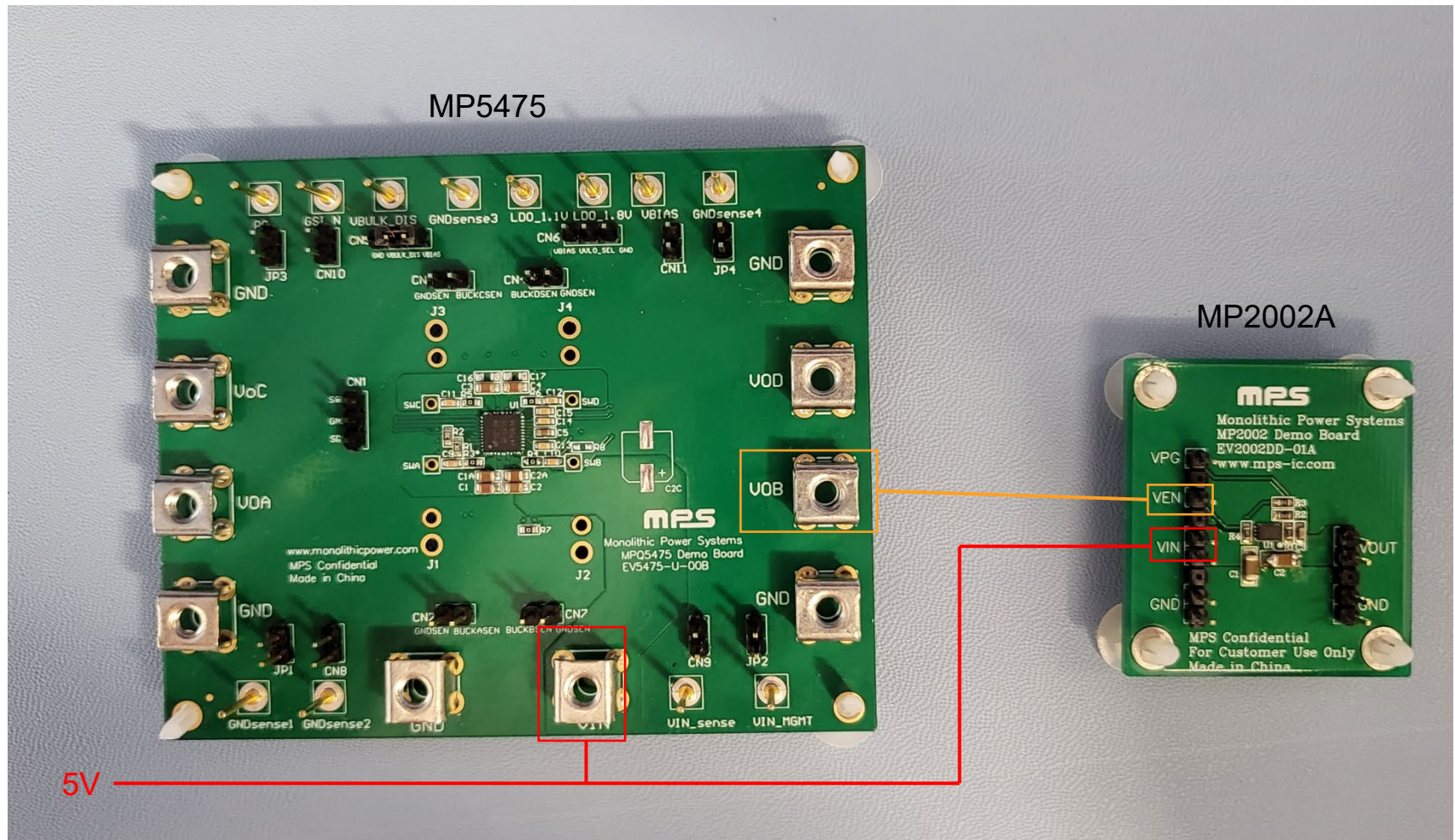
	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MP5416-Buck1	0.85V	1.2mVpp	1.2mVpp	1.2mVpp	1 (0 ms)
MP5416-Buck2	1.8V	3.2mVpp	3.24mVpp	3.56mVpp	2 (2.0mS)
MP5416-Buck3	1.2V	2.6mVpp	2.8mVpp	2.8mVpp	3 (4.0mS)
MP5416-LDO2	1.8V	0.8mVpp	1.4mVpp	1.44mVpp	4 (6.0mS)
MP5416-Buck4	0.9V	3mVpp	3.2mVpp	3.44mVpp	5 (8.0mS)
MP2183C	3.3V	6mVpp	6.4mVpp	6.8mVpp	6 (120mS)

ZynqUS+

ZU1/2/3 Minimum Rails (MP5475 PMIC)

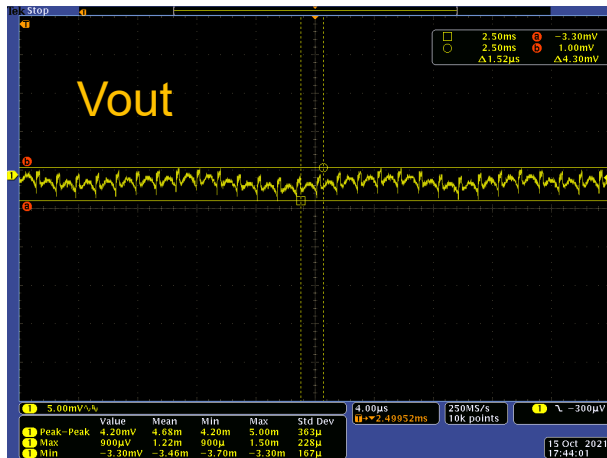


ZU1/2/3 Minimum Rails (MP5475 PMIC) EVB Connection

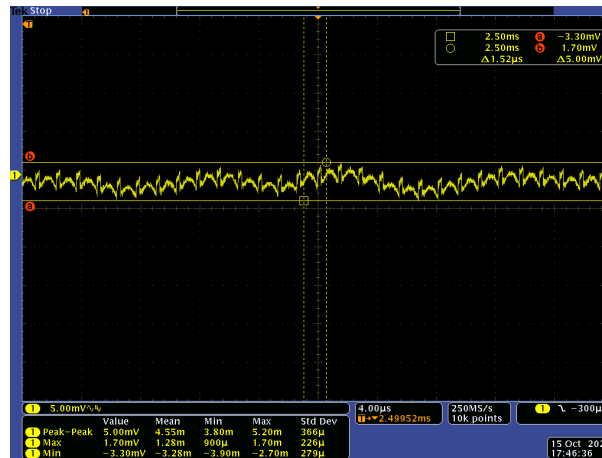


ZU1/2/3 Minimum Rails VCCINT Ripple (MP5475 PMIC)

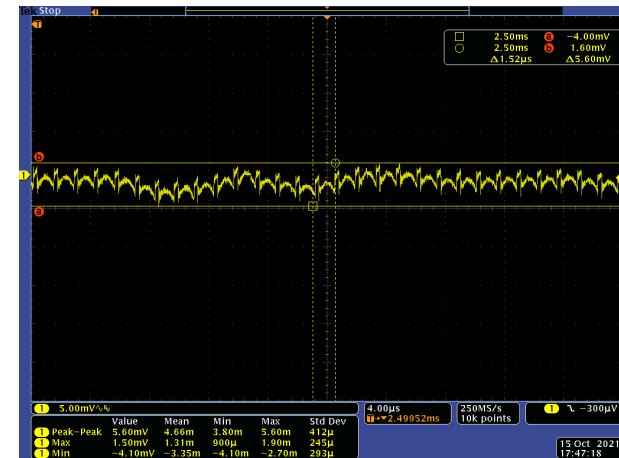
Standby



Half Load



Max Load



- ❑ 4.2 mV peak-peak ripple at Standby
- ❑ 5.0 mV peak-peak ripple at Half load
- ❑ 5.6 mV peak-peak ripple at Max load

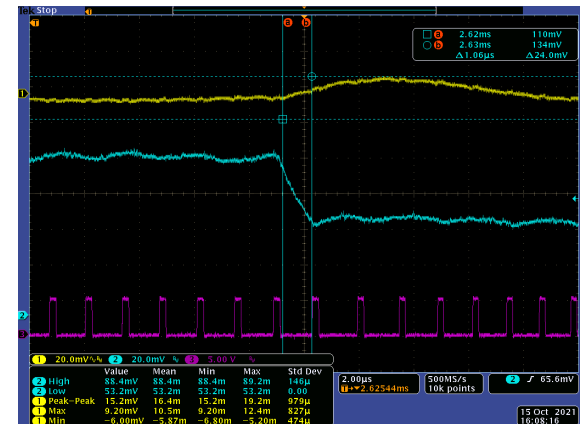
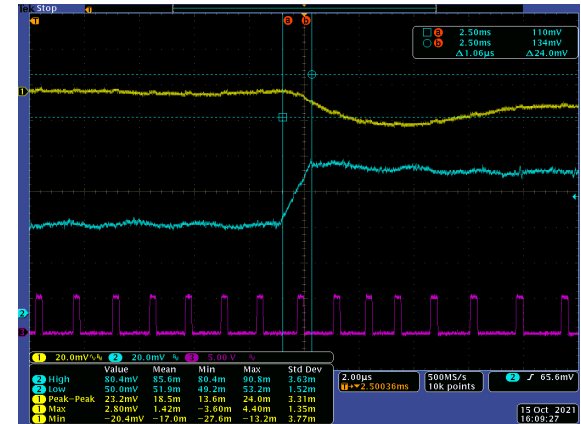
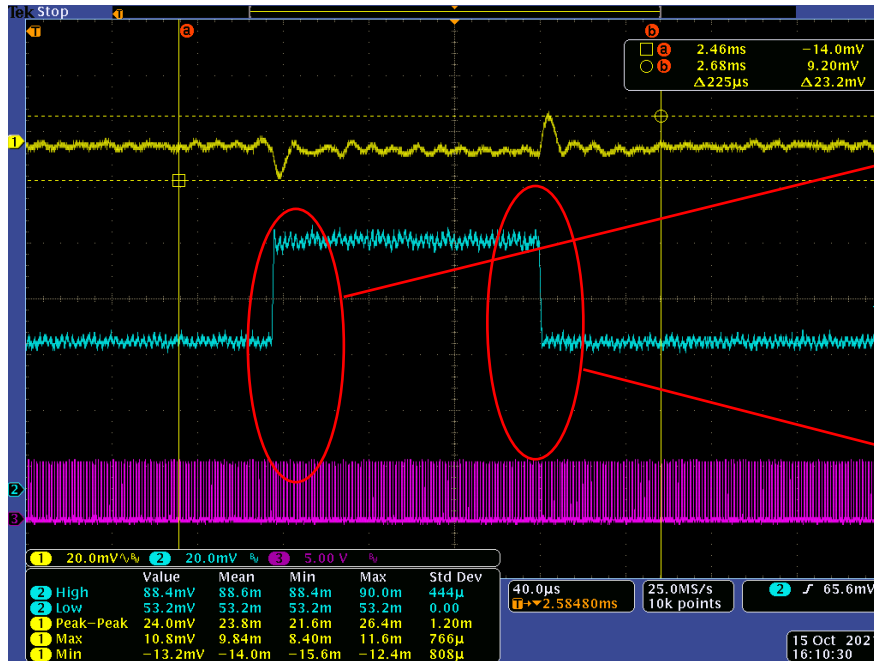
ZU1/2/3 Minimum Rails VCCINT Transient (MP5475 PMIC)

Step Load 2.1A → 3.15A → 2.1A, 10A/us

Vout

Io

SW

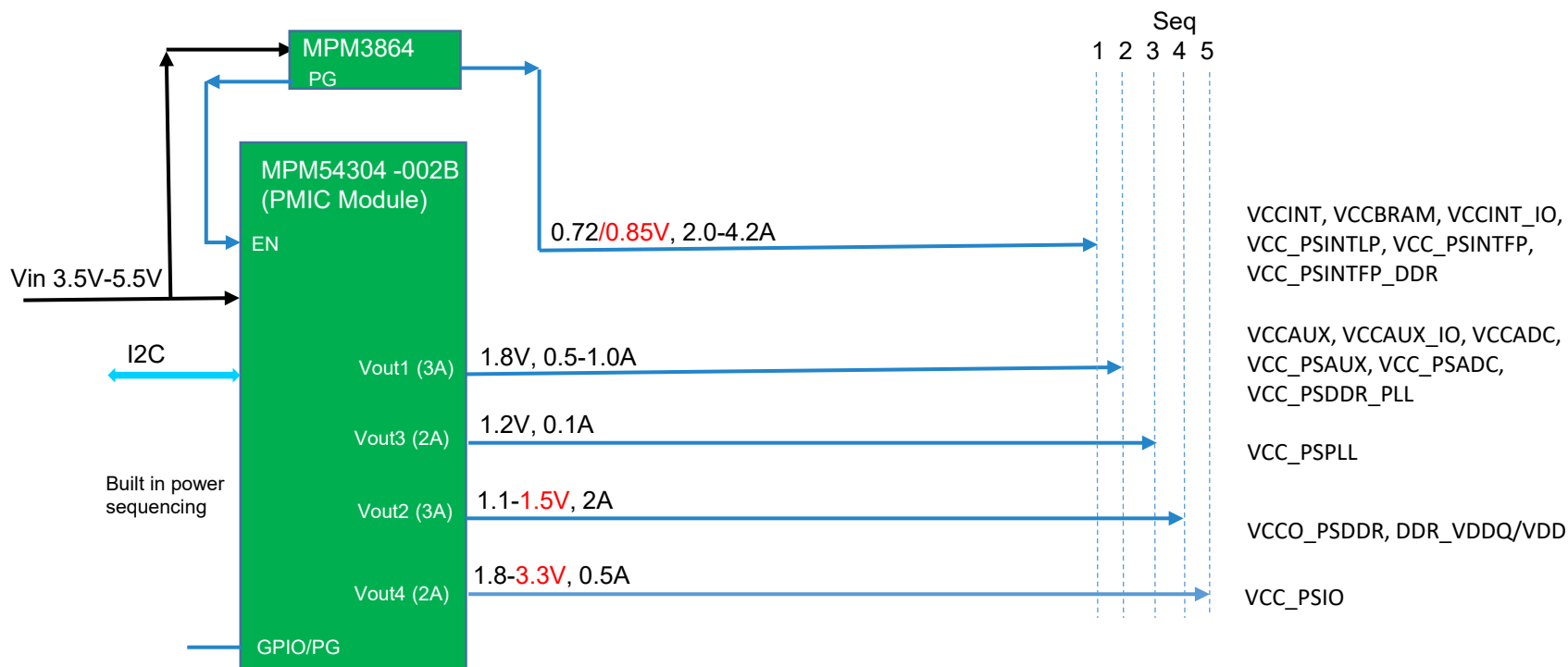


Vout ripple -1.6% (-13.2mV) to +1.3% (10.8mV) with load transient

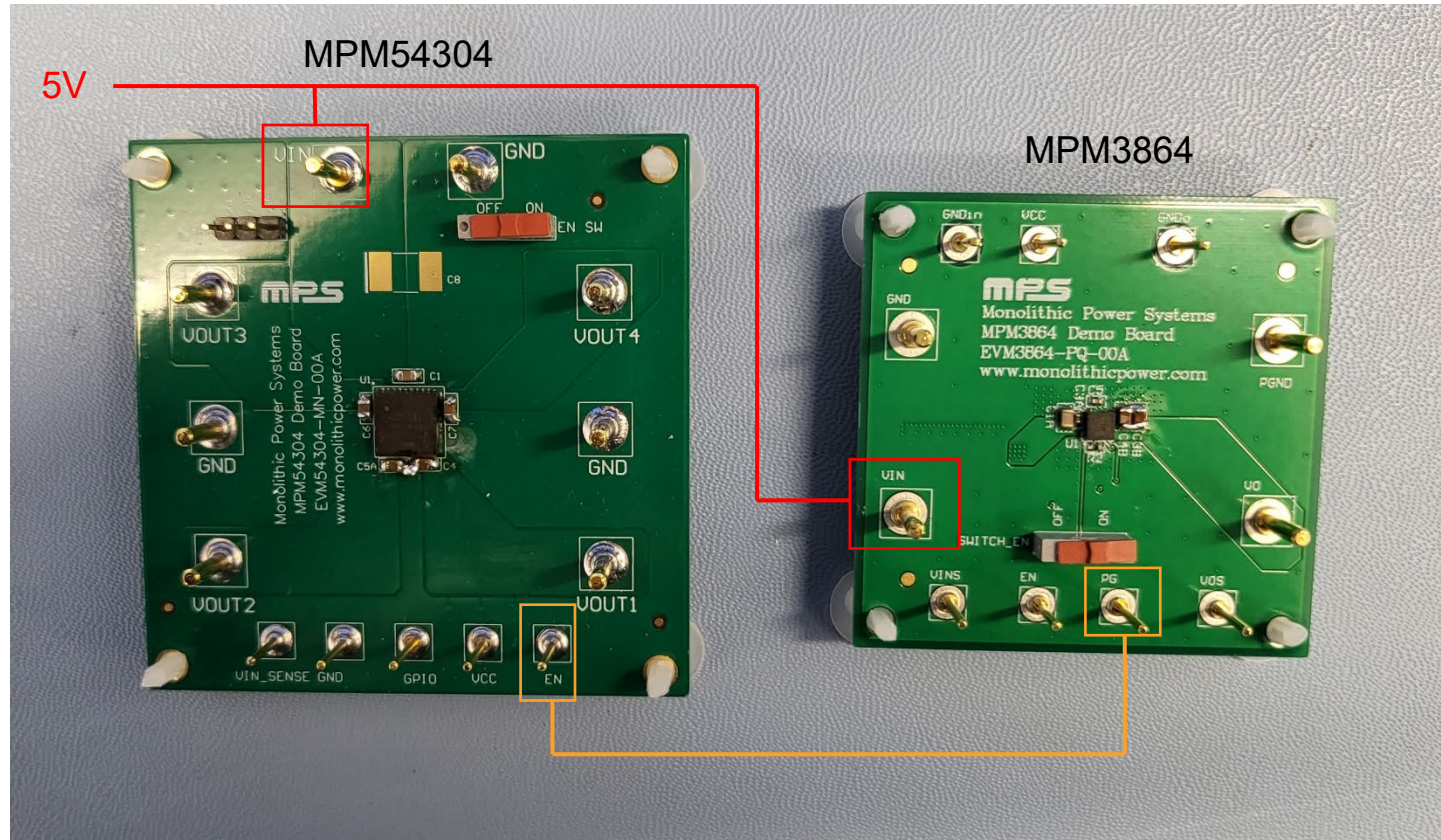
AU10P/AU15P/AU20P/AU25P (MP5475 PMIC)

	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MP5475-Buck1	0.85V	4.2mVpp	5.0mVpp	5.6mVpp	1 (0 ms)
MP5475-Buck2	1.8V	2.6mVpp	3.4mVpp	3.6mVpp	2 (1.9mS)
MP5475-Buck3	1.5V	2.8mVpp	3.2mVpp	3.4mVpp	3 (3.6mS)
MP2002A	1.2V	1.2mVpp	2.0mVpp	2.0mVpp	4 (3.76mS)
MP5475-Buck4	3.3V	4.4mVpp	5.6mVpp	6.0mVpp	6 (5.6mS)

ZU1/2/3 Minimum Rails (MPM54304 PMIC Module)

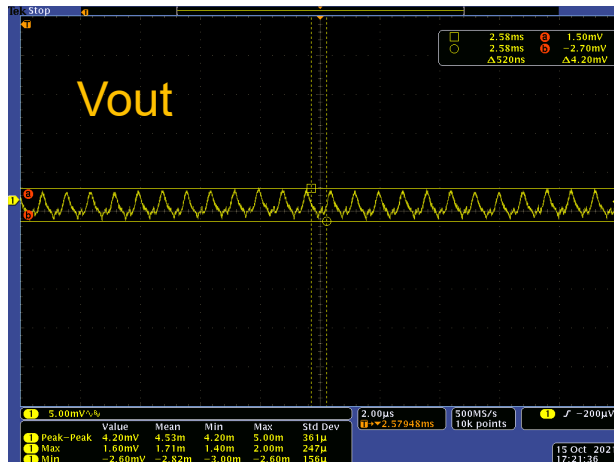


ZU1/2/3 Minimum Rails (MP54304 PMIC Module) EVB Connection

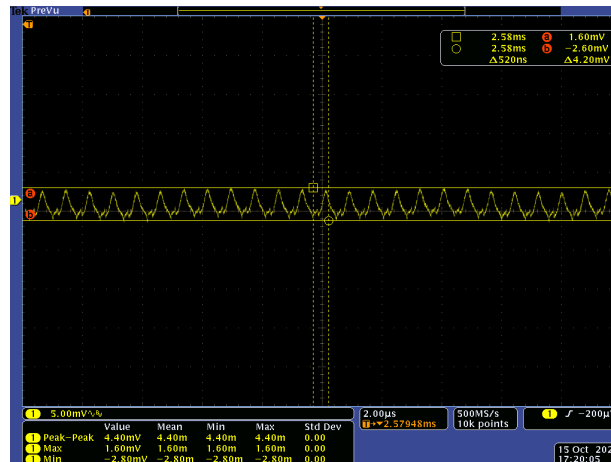


ZU1/2/3 Minimum Rails VCCINT Ripple (MPM3864 Module)

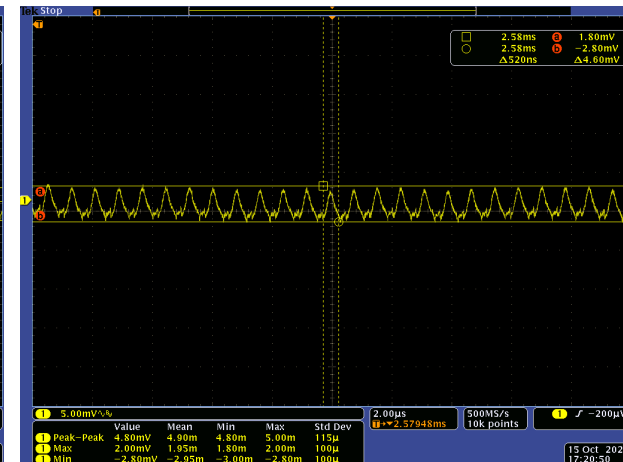
Standby



Half Load



Max Load



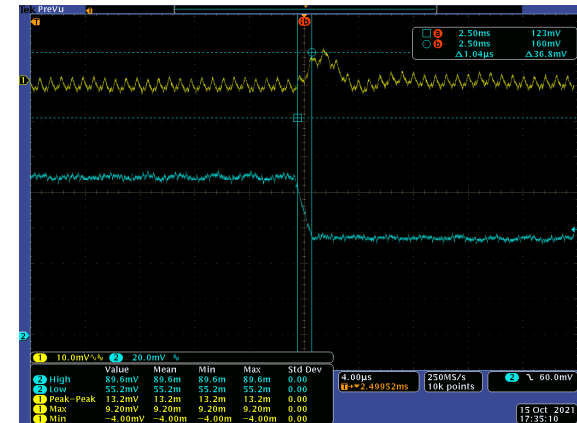
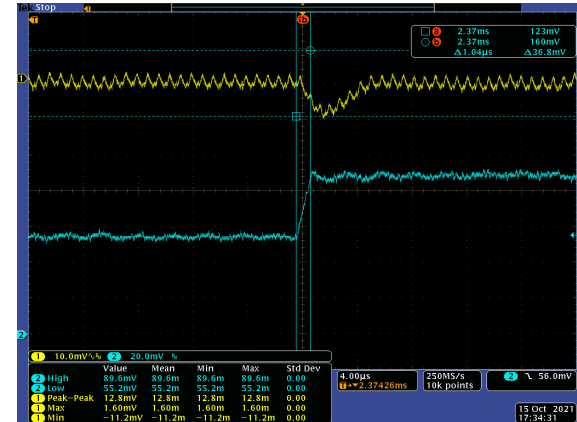
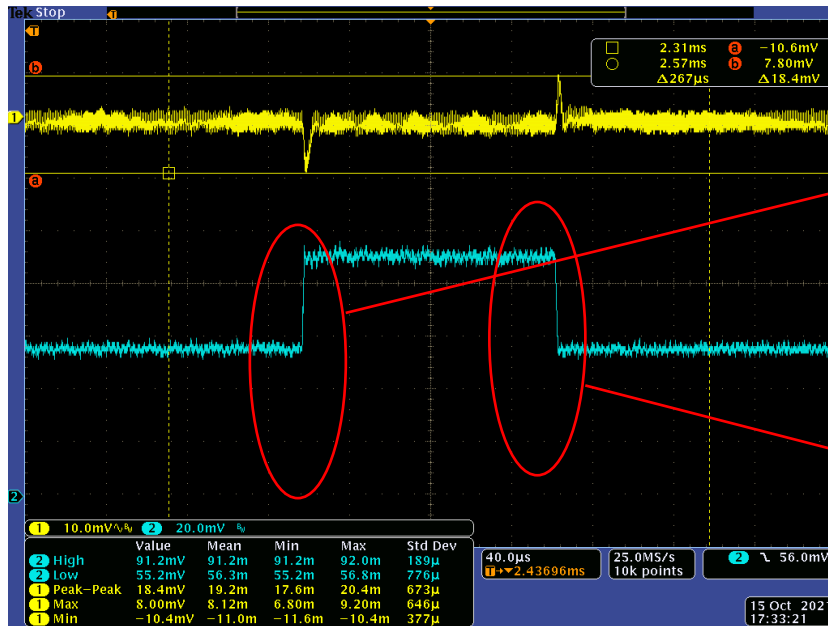
- ❑ 4.2 mV peak-peak ripple at Standby
- ❑ 4.4 mV peak-peak ripple at Half load
- ❑ 4.8 mV peak-peak ripple at Max load

ZU1/2/3 Minimum Rails VCCINT Transient (MPM3864 Module)

Step Load 2.1A → 3.15A → 2.1A, 10A/us

Vout

Io

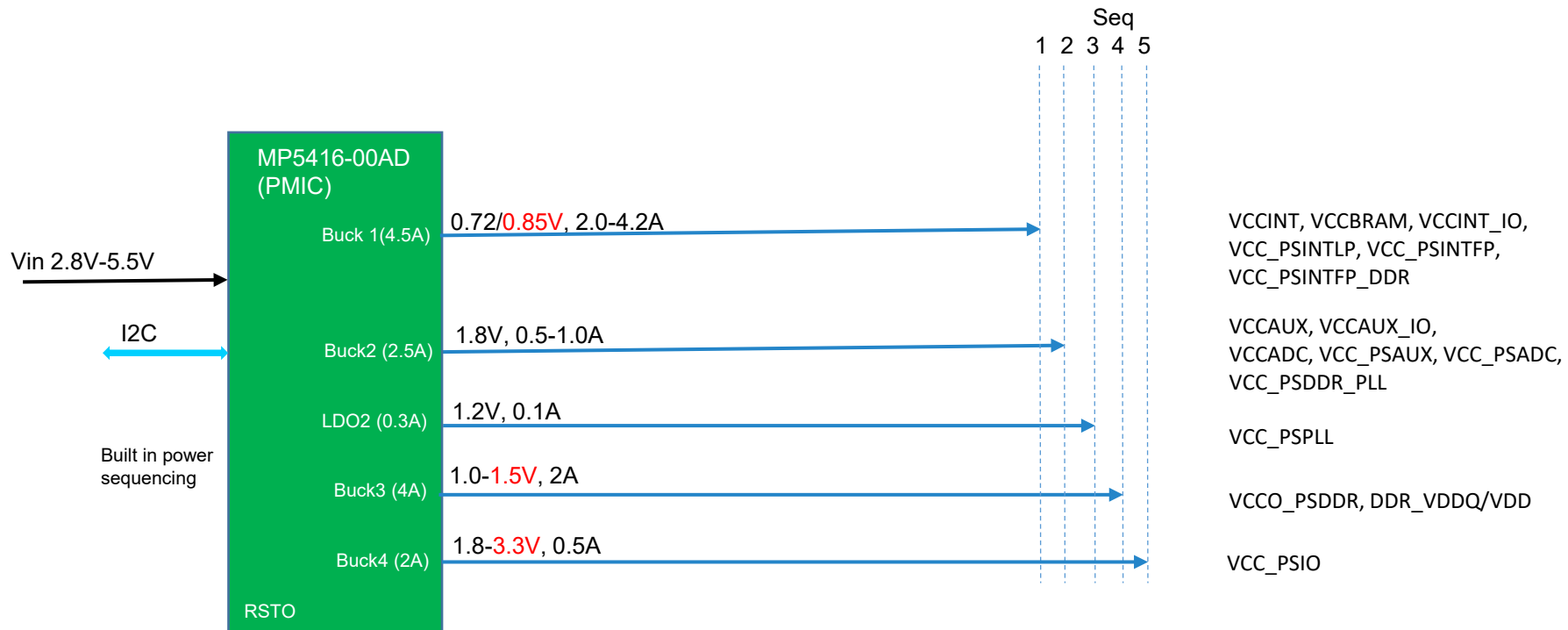


Vout ripple -1.2% (-10.4mV) to +0.9% (8.0mV) with load transient

AU10P/AU15P/AU20P/AU25P (MPM54304 PMIC Module)

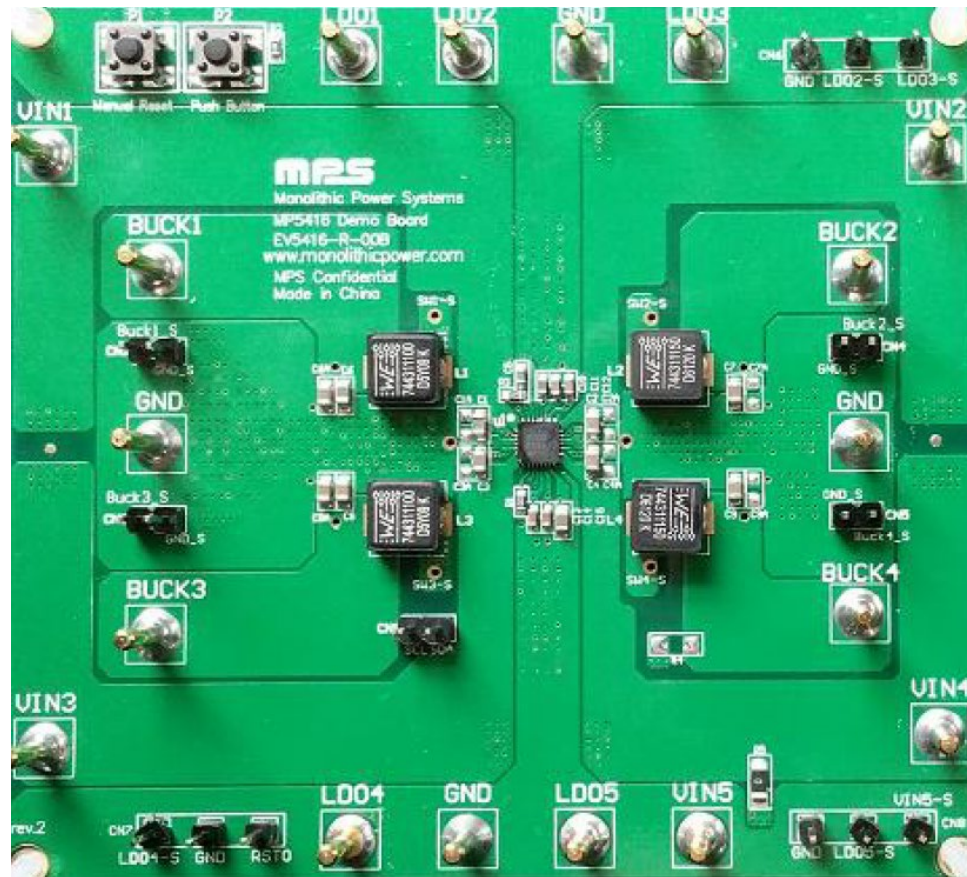
	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MPM3864	0.85V	4.2mVpp	4.4mVpp	4.8mVpp	1 (0ms)
MPM54304-Buck1	1.8V	15.2mVpp	15.2mVpp	23mVpp	2 (1ms)
MPM54304-Buck3	1.2V	9.6mVpp	10mVpp	10mVpp	3 (2mS)
MPM54304-Buck2	1.5V	10.8mVpp	11.6mVpp	12mVpp	4 (3mS)
MPM54304-Buck4	3.3V	20mVpp	21mVpp	21.6mVpp	5 (4mS)

ZU1/2/3 Minimum Rails (MP5416 PMIC)



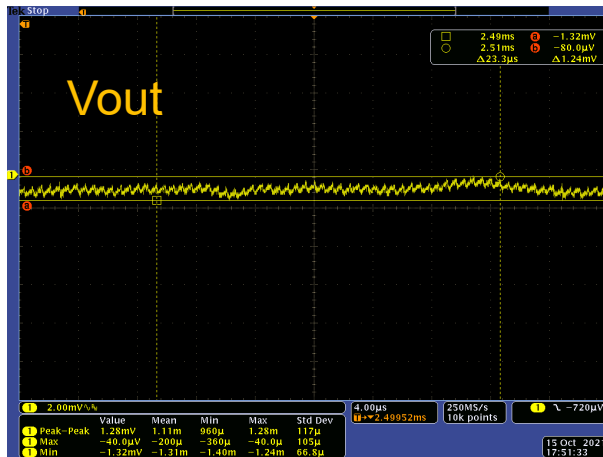
ZU1/2/3 Minimum Rails (MP5416 PMIC) EVB Connection

MP5416

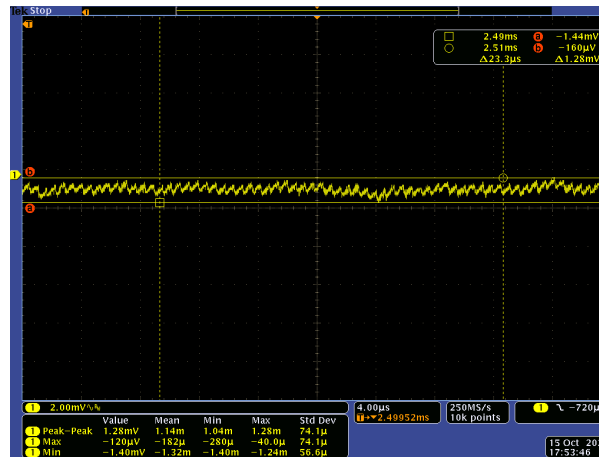


ZU1/2/3 Minimum Rails VCCINT Ripple (MP5416 PMIC)

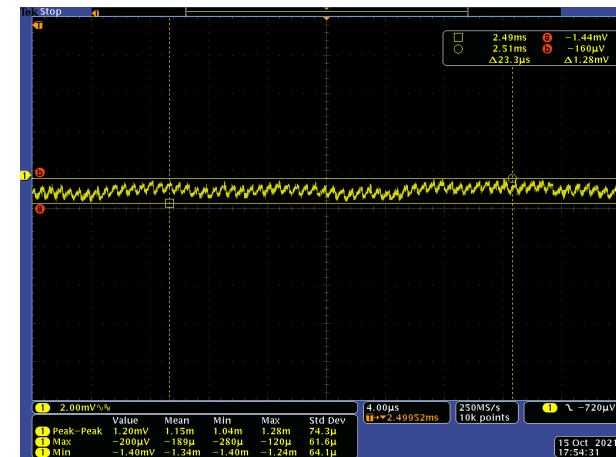
Standby



Half Load



Max Load



- ❑ 1.28 mV peak-peak ripple at Standby
- ❑ 1.28 mV peak-peak ripple at Half load
- ❑ 4.8 mV peak-peak ripple at Max load

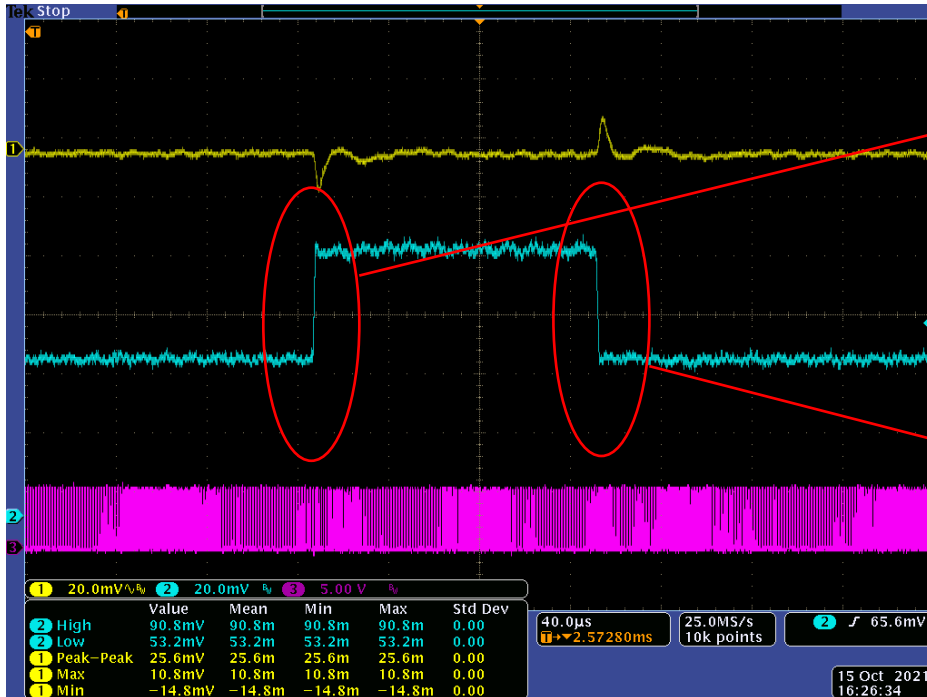
ZU1/2/3 Minimum Rails VCCINT Transient (MP5416 PMIC)

Step Load 2.1A → 3.15A → 2.1A, 10A/us

Vout

Io

SW



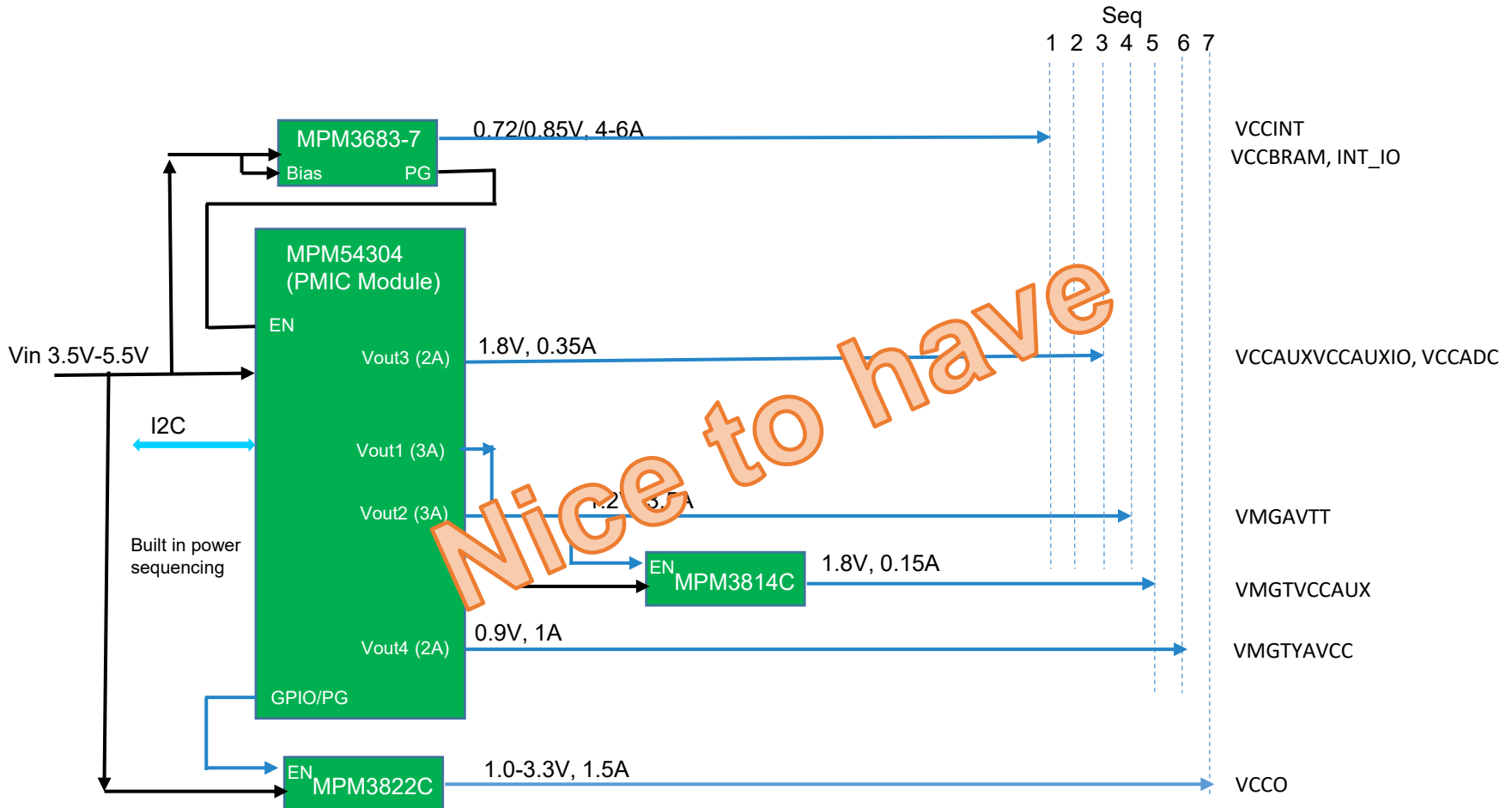
Vout ripple -1.7% (-14.8mV) to +1.3% (10.8mV) with load transient

ZU1/2/3 Minimum Rails (MP5416 PMIC)

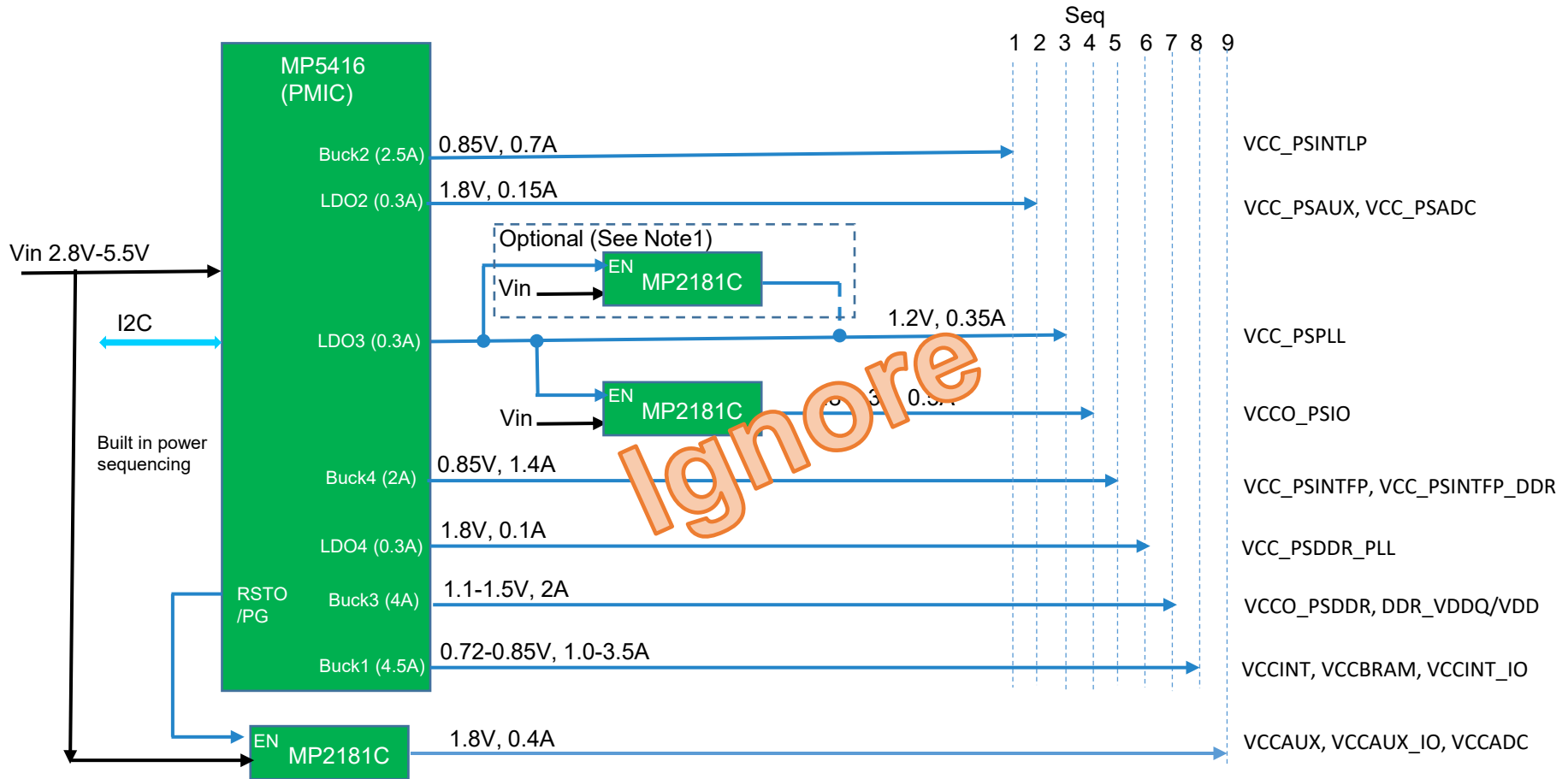
	Vo	Ripple No load	Ripple Half load	Ripple Full load	Pwr ON Seq
MP5416-Buck1	0.85V	1.28mVpp	1.28mVpp	1.28mVpp	1 (0 ms)
MP5416-Buck2	1.8V	3.2mVpp	3.52mVpp	3.4mVpp	2 (2mS)
MP5416-LDO2	1.2V	0.8mVpp	1.0mVpp	1.2mVpp	3 (4mS)
MP5416-Buck3	1.5V	2.6mVpp	2.68mVpp	2.76mVpp	4 (6mS)
MP5416-Buck4	3.3V	5.4mVpp	5.28mVpp	5.6mVpp	5 (8mS)

Ignore

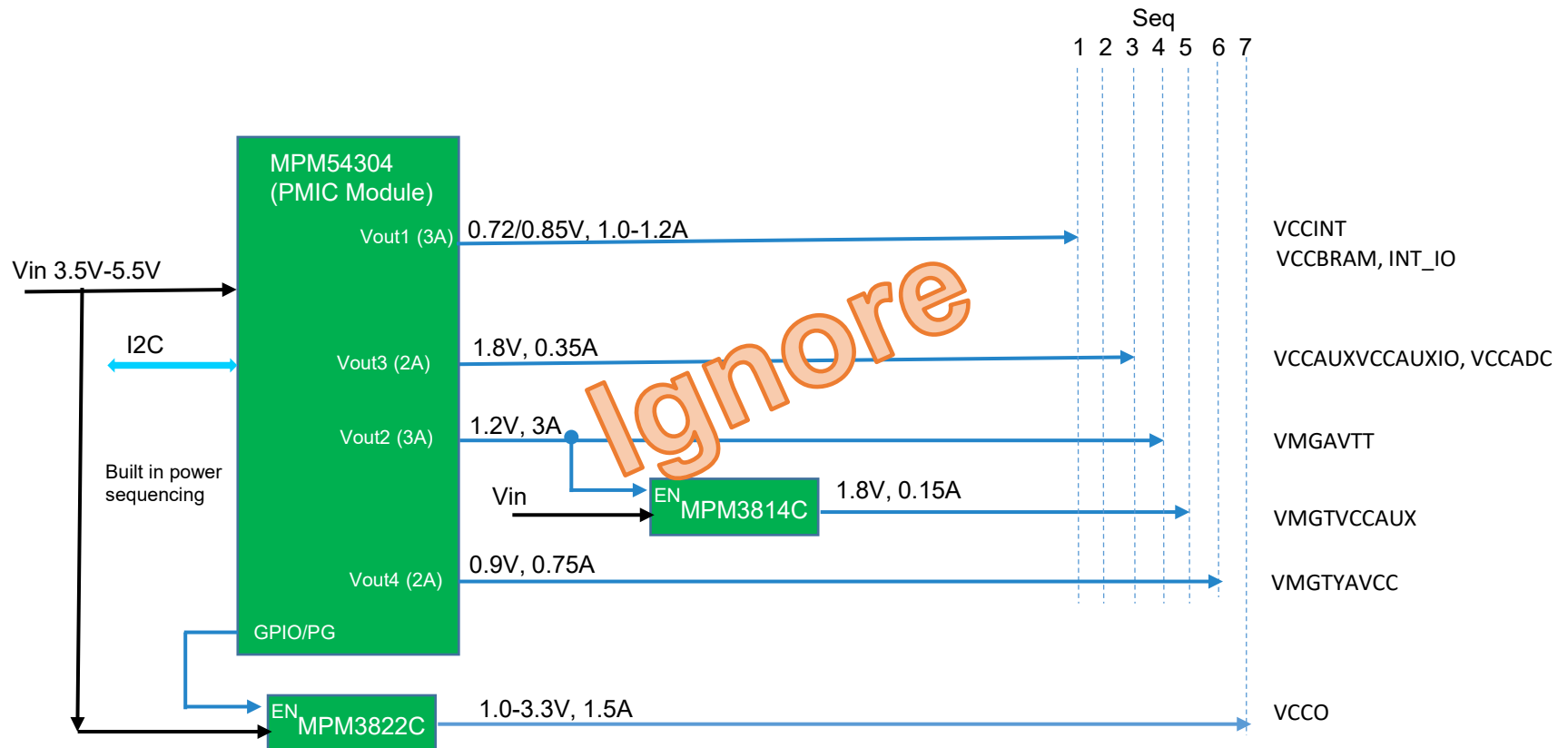
AU20P/AU25P (Modules)



ZU1/2/3 Full Pwr Mgmt (Lowest Cost)



AU10P/AU15P (Modules2)



ZU1/2/3 Full Pwr Mgmt (Smallest Size)

