Test Results EV-105 board

Multi-phase,

IR35204 (Salem Controller)

10/26/2016

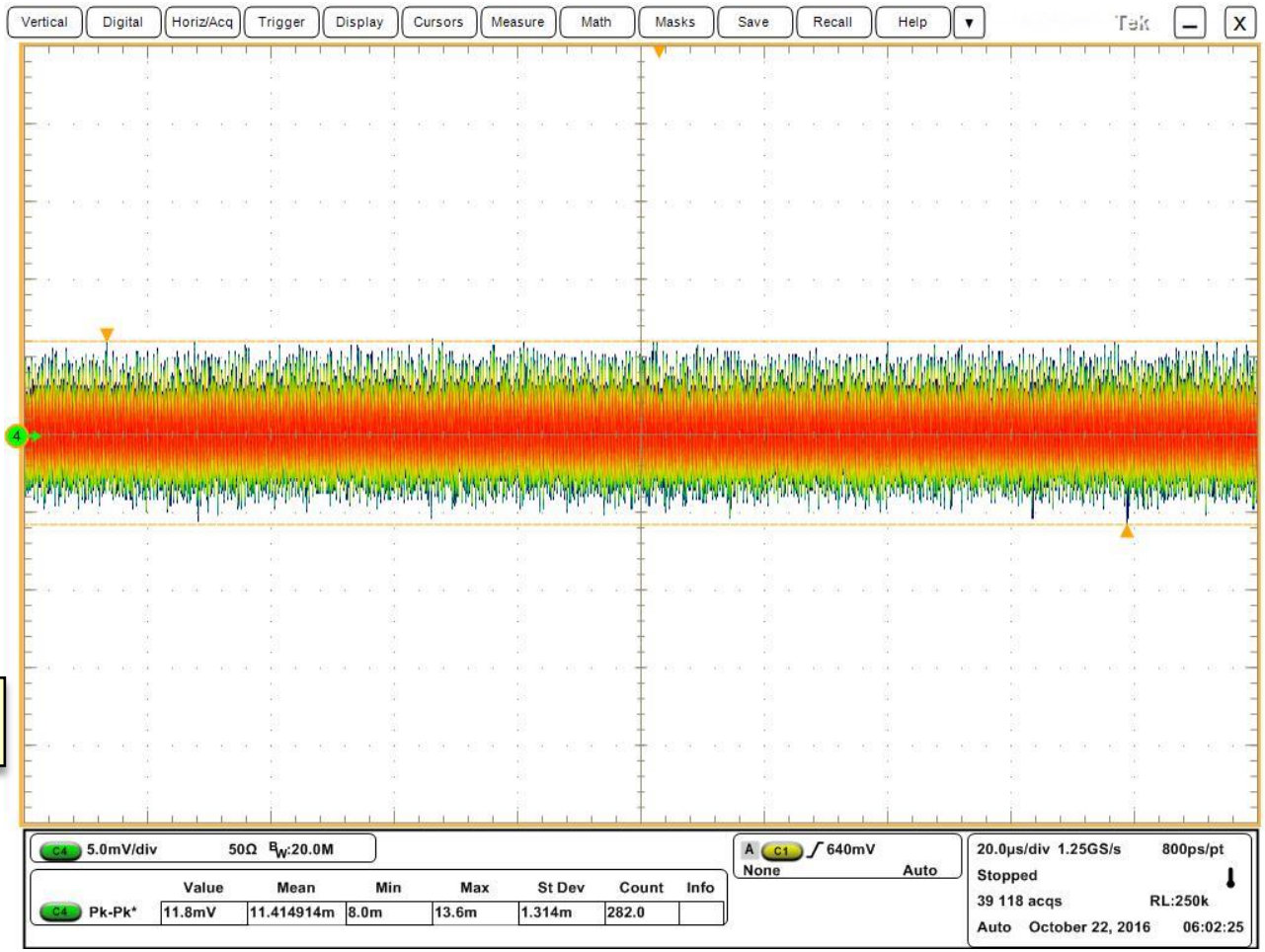
Specs

1) Test the board for 3-phase with IR3555 at 90A. 0.9V + / - 30mV TOL, 90A max.
   a. Take transient picture: Step load 60A to 90A worst case (assume 5V/us). 1% DC; 2% AC.
   b. DC accuracy
   c. AC accuracy.
2) Test the same board by turning off one of the IR3555 and test for 50A (So only 2 stages are ON, 2 @ IR3555). 0.9V + / - 30mV TOL, 50A max
   a. Take transient picture: Step load 25A to 50A (assume 5V/us) worst case.
   b. DC accuracy
   c. AC accuracy

IR35204-V0P9 Core rail
3 Phase (IR3555)- 90A

Bode Plot

IR35204-V0P9 Core rail
3 Phase (IR3555)- 90A



Vout

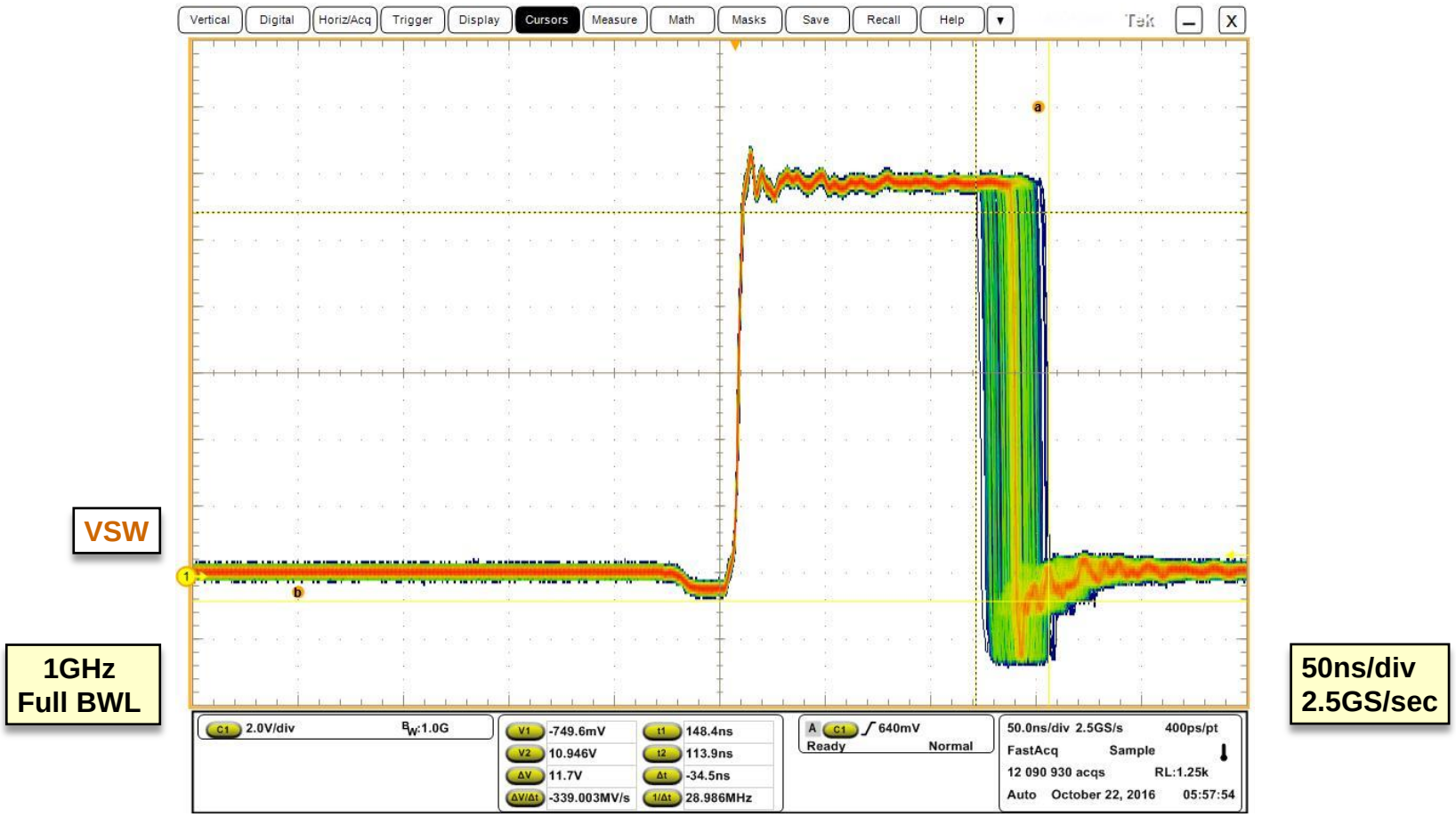
AC ripple
11.8mV Pk-pk

20MHz
BWL

20us/div
1.25GS/sec

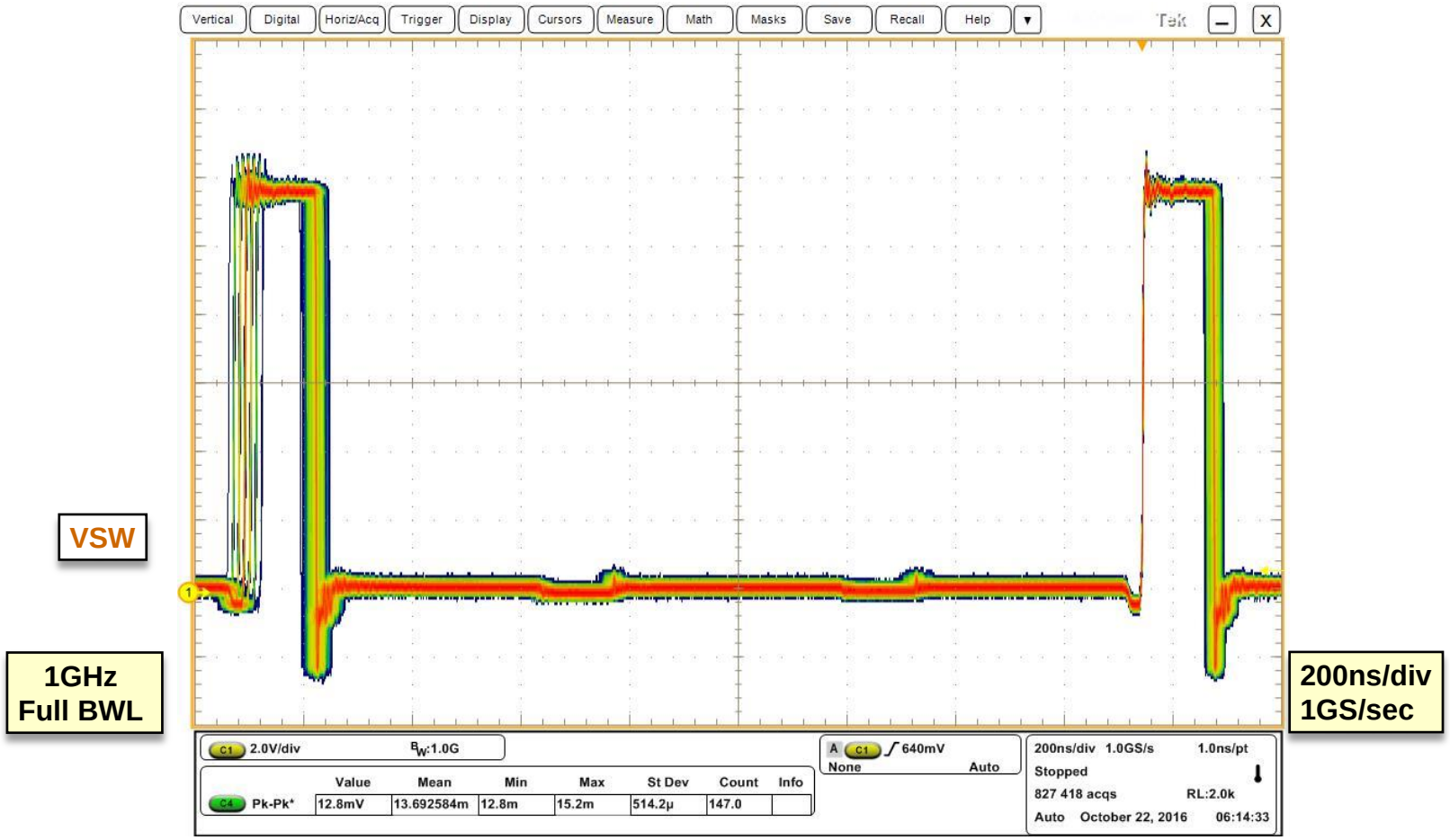
Output Voltage Ripple, 90A load

IR35204-V0P9 Core rail
3 Phase (IR3555)- 90A



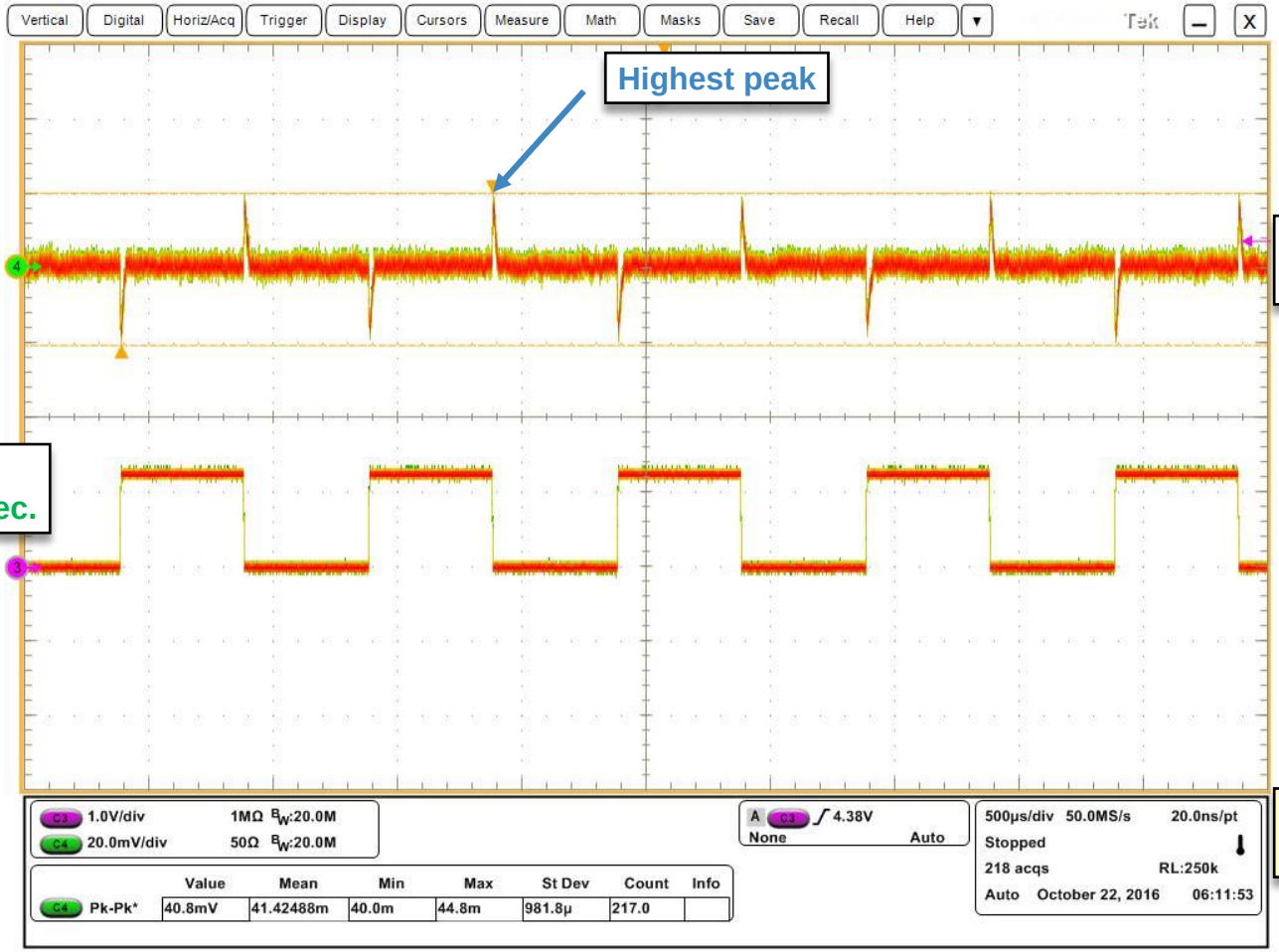
VSW node at 90A load with Persistence, Fsw: 600KHz

IR35204-V0P9 Core rail
3 Phase (IR3555)- 90A



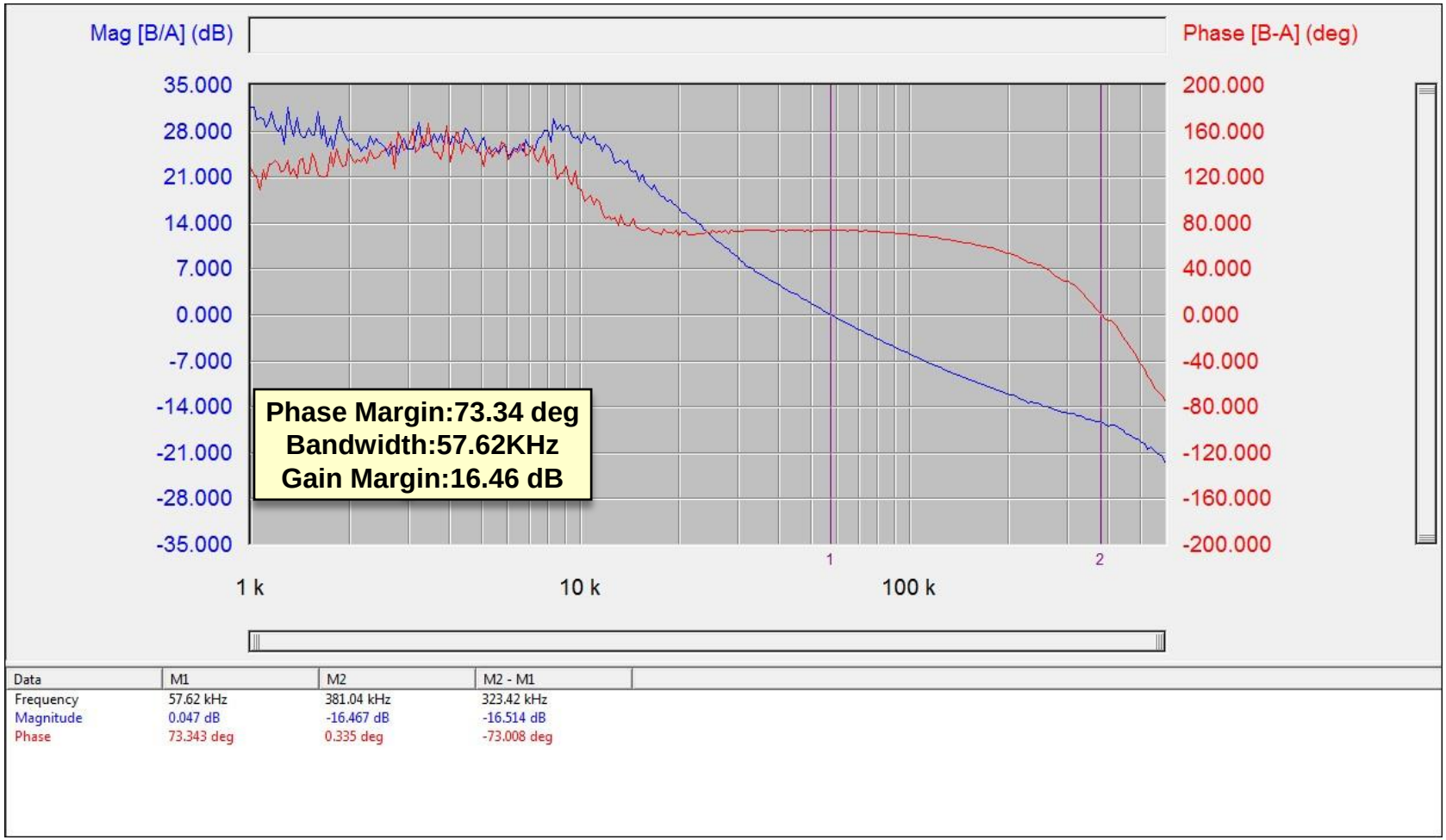
VSW node at 90A load

IR35204-V0P9 Core rail
3 Phase (IR3555)- 90A



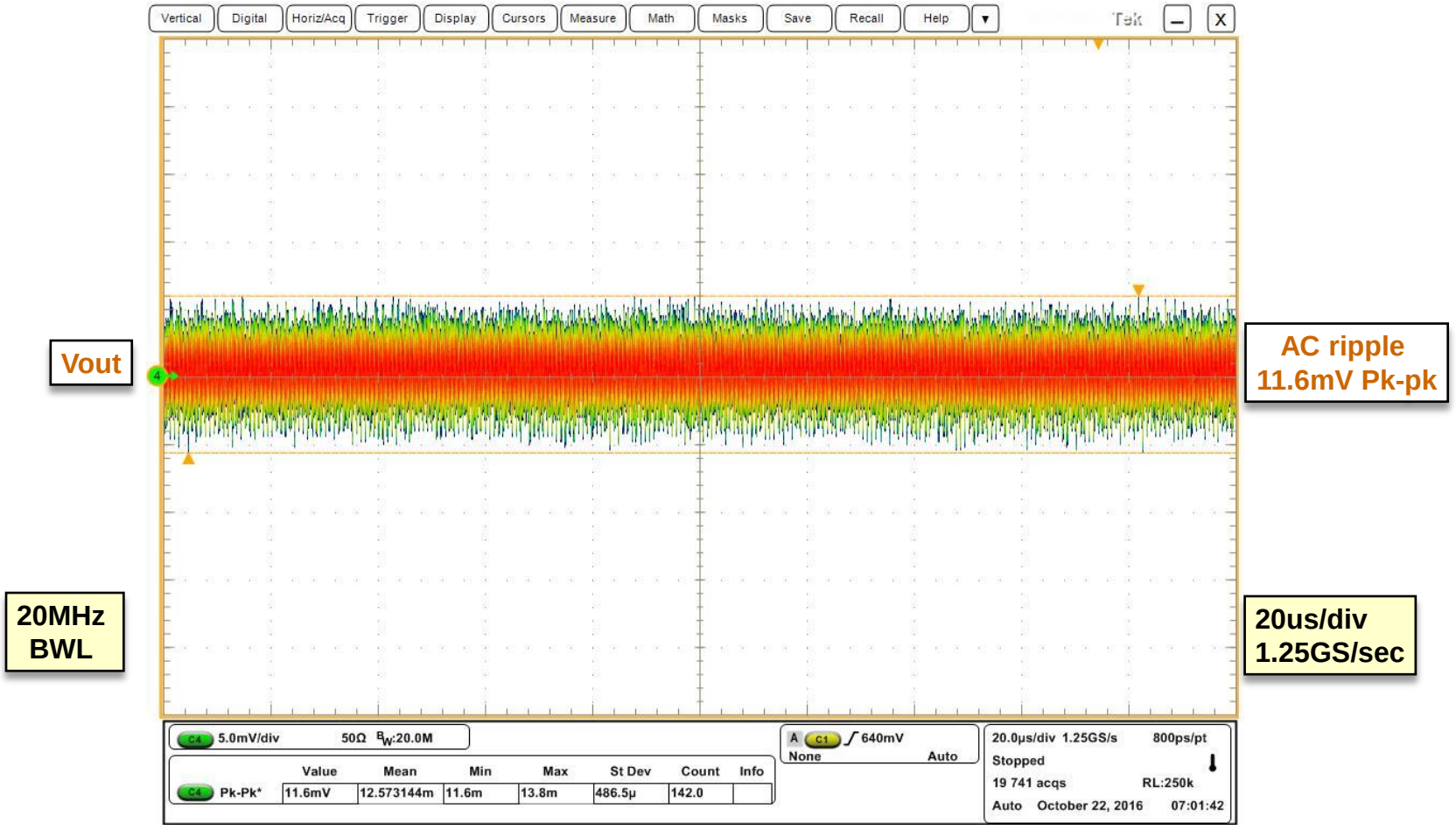
Transient Response, 60A to 86.5A step (5A/us)

IR35204-V0P9 Core rail
2 Phase (IR3555)- 50A



Bode Plot

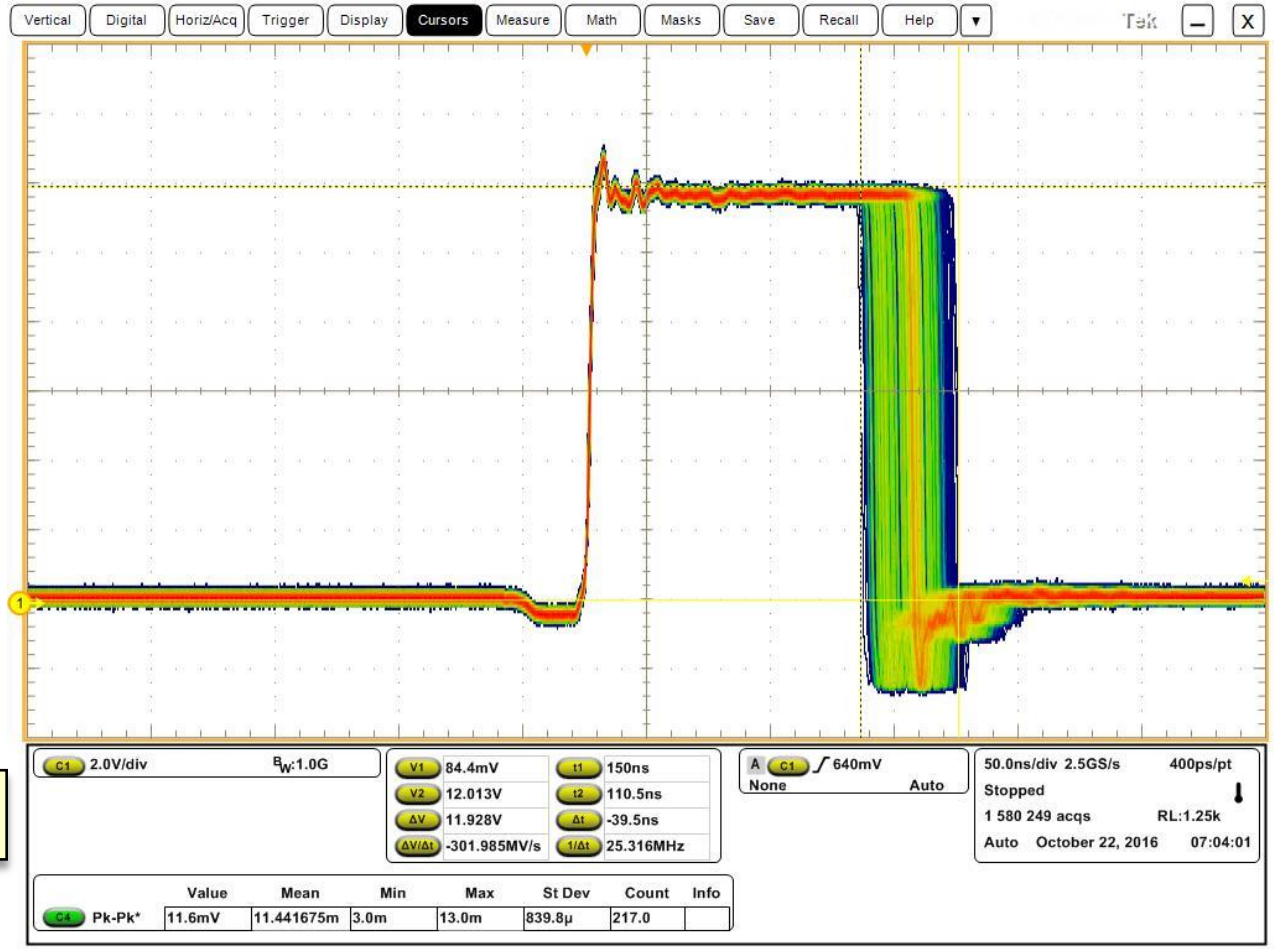
IR35204-V0P9 Core rail
2 Phase (IR3555)- 50A



Output Voltage Ripple, 50A load

IR35204-V0P9 Core rail
2 Phase (IR3555)- 50A

VSW

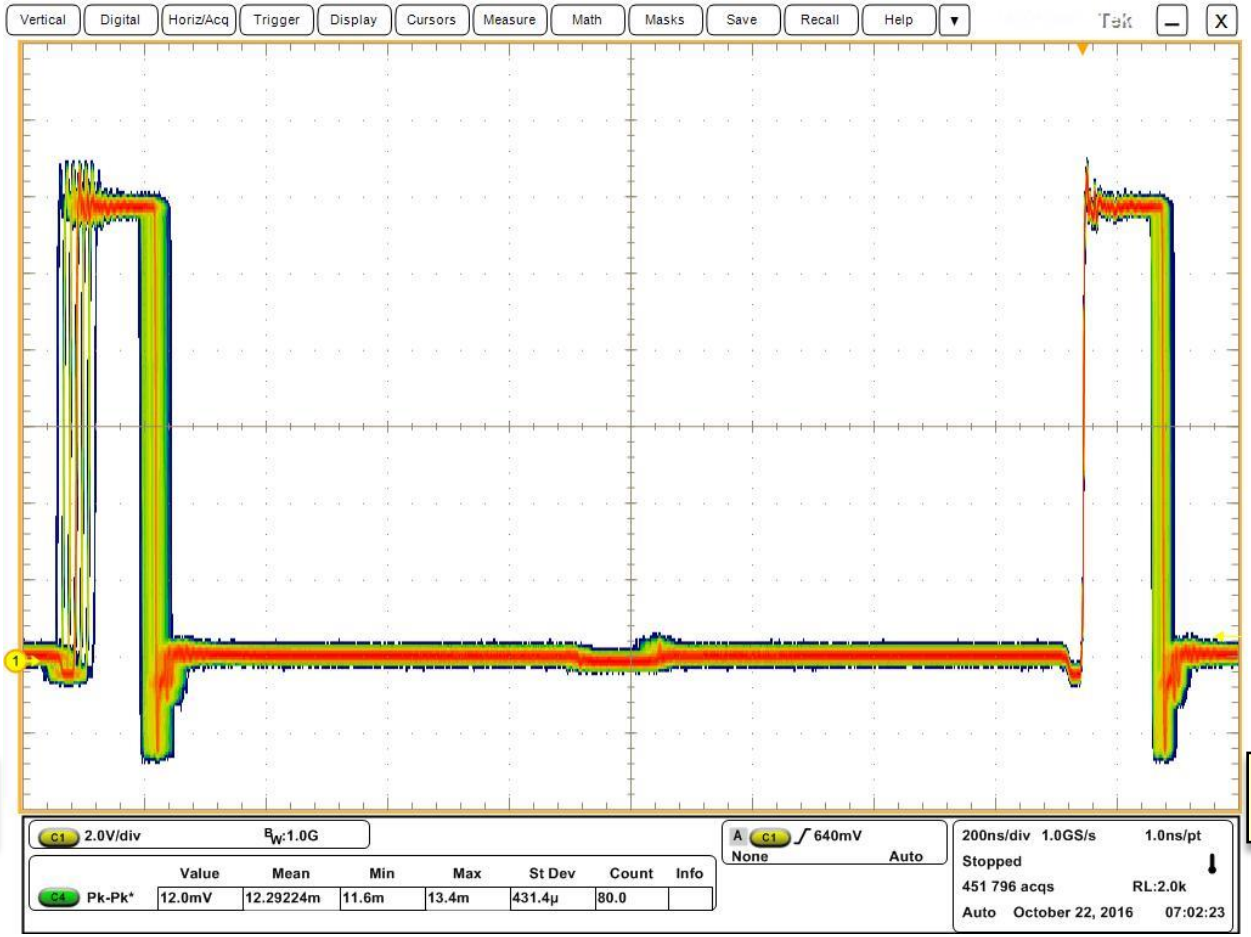


1GHz
Full BWL

50ns/div
2.5GS/sec

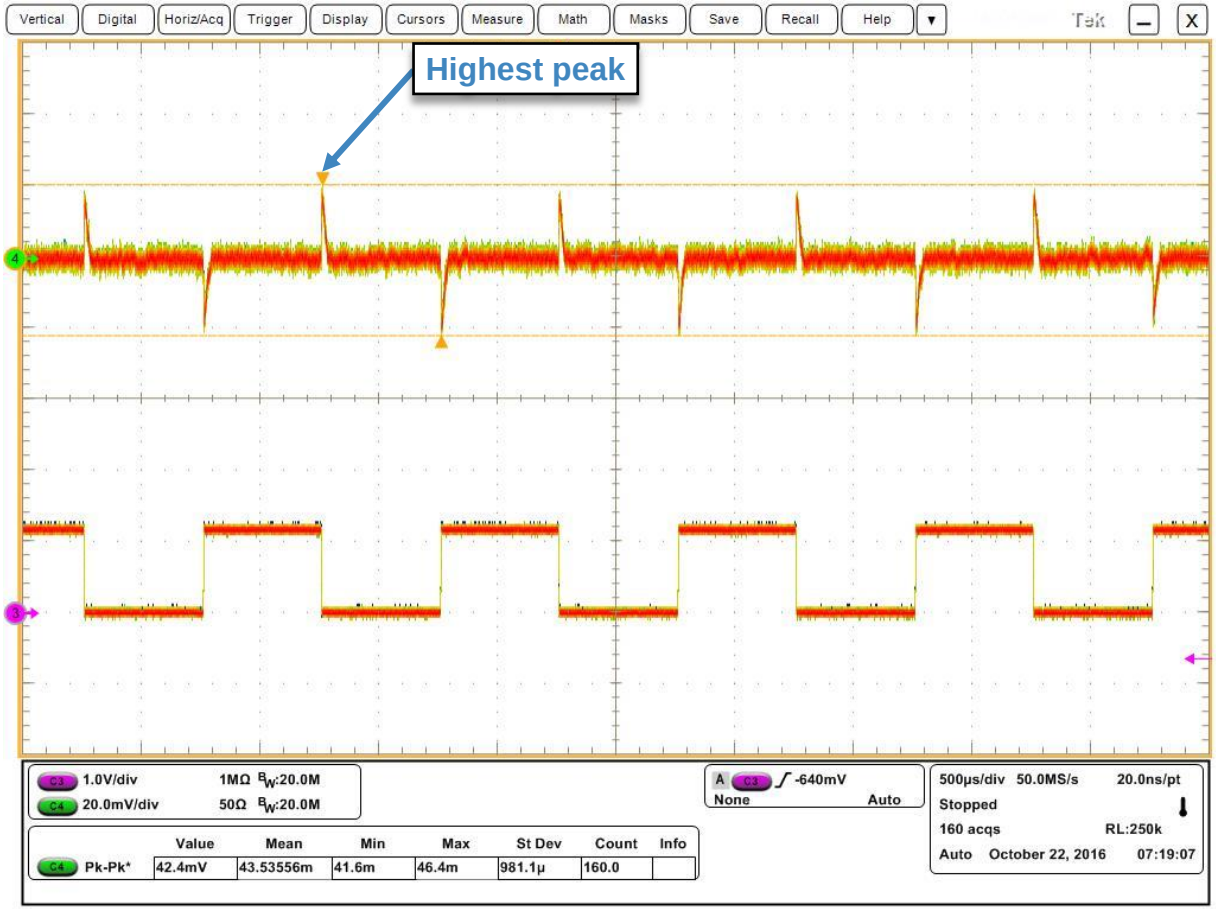
VSW node at 50A load

IR35204-V0P9 Core rail
2 Phase (IR3555)- 50A



VSW node at 50A load

IR35204-V0P9 Core rail
2 Phase (IR3555)- 50A

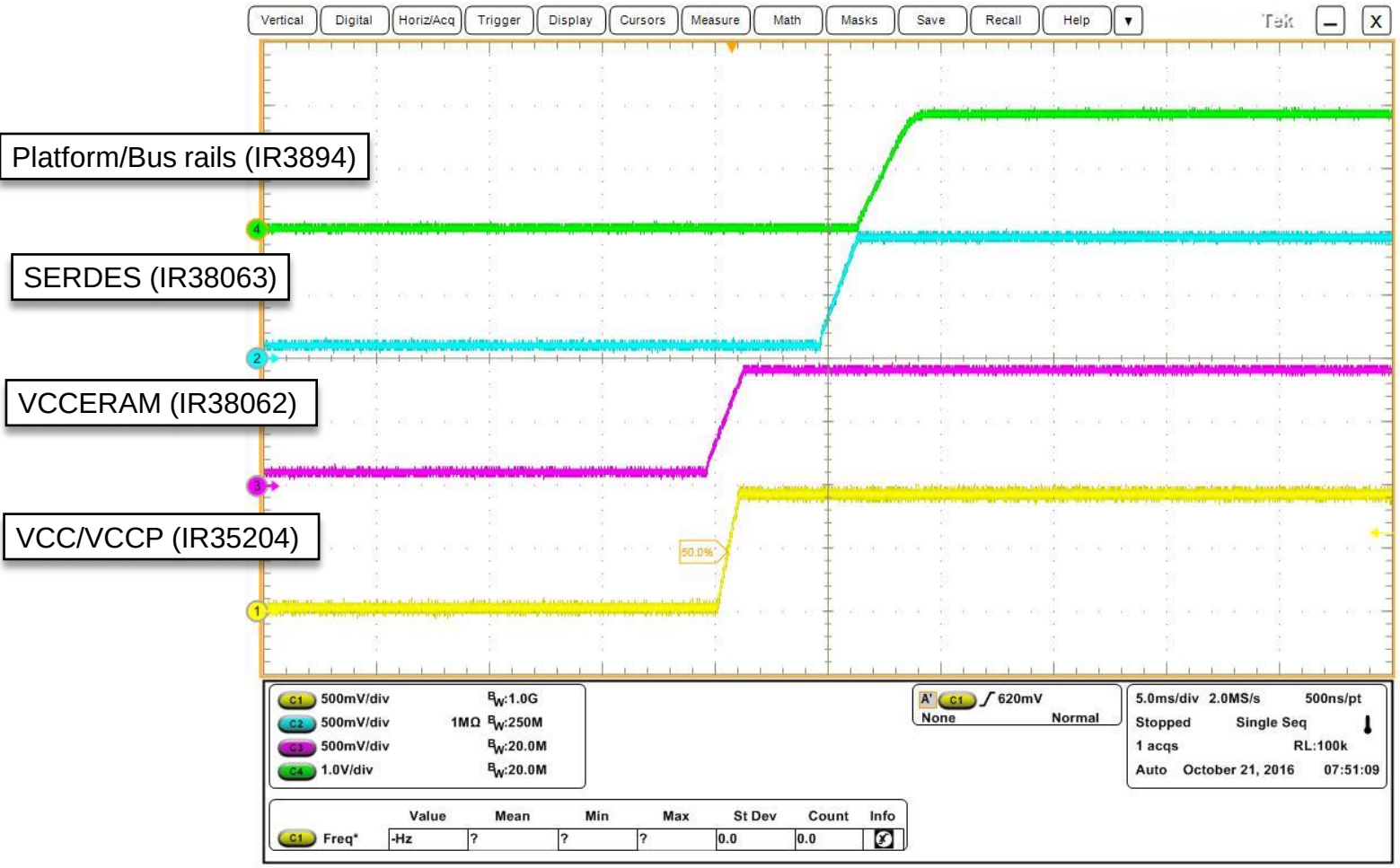


Transient Response, 25A to 50A step (5A/us)

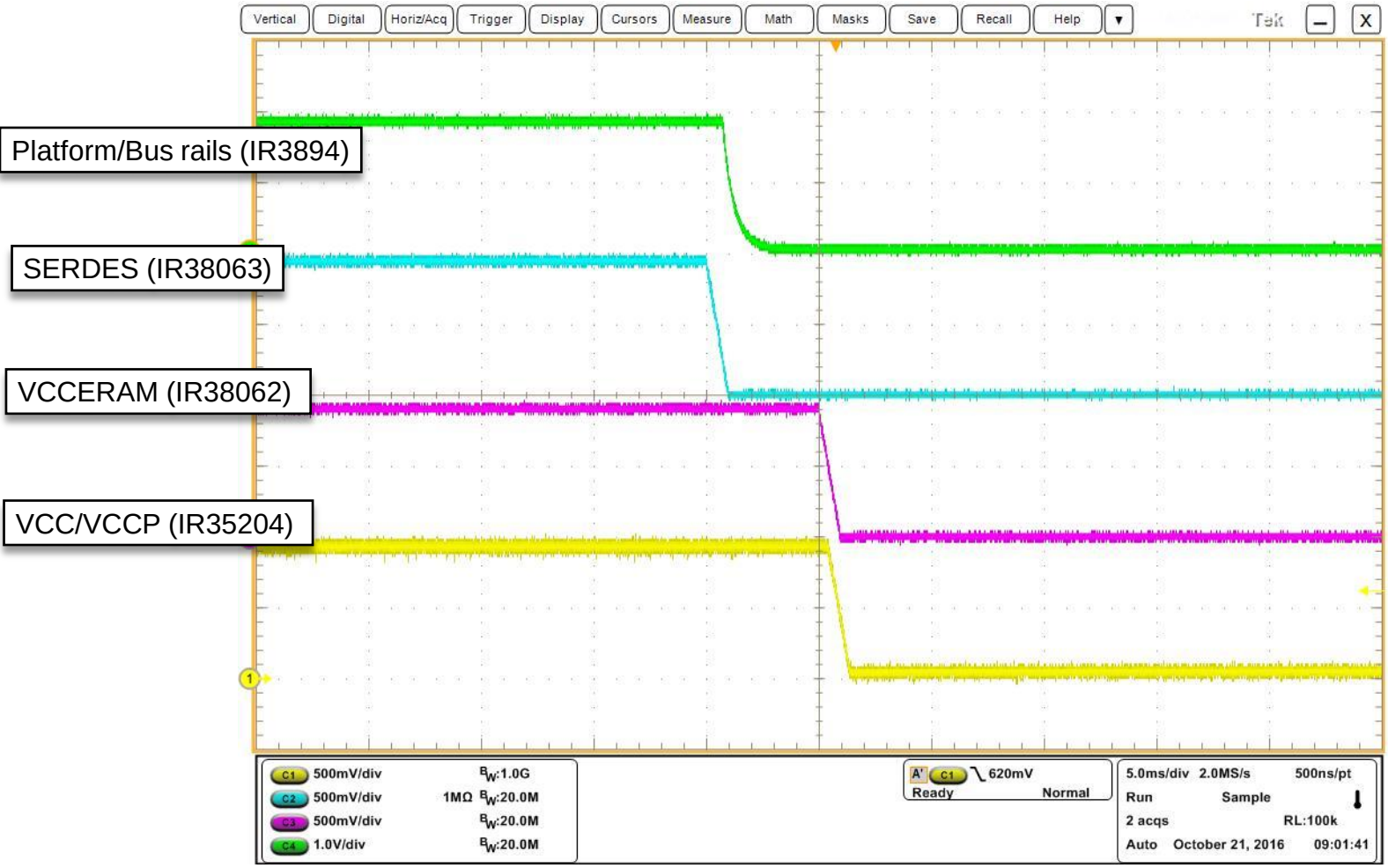
Specs

- Scope shot of all rails relative to each other if you can: IR35204 out, IR38062, IR38063, IR3894. Show the sequencing from enable.
  - Set the ENa for IR35204, IR38062 and IR38063 off the same enable On/Off. Trigger IR35204 and IR38062 to go on first, followed by IR38063 (SERDES rail), then last the IR3894. If you have to, add 0ms on IR38062 ton delay; and 2-3ms on IR38063 ton delay. Then send the PGood from IR38063 to ENb of the input of IR3894 ---- the sequence ON should look like 1) VCC/VCCP (IR35204) and VCCERAM (IR38062) together; 2) SERDES (IR38063); then 3) Platform/Bus rails (IR3894).
  - Then for sequence off the reverse order.

Sequence ON



Sequence OFF



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