



Test Report For PMP9462

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Overview

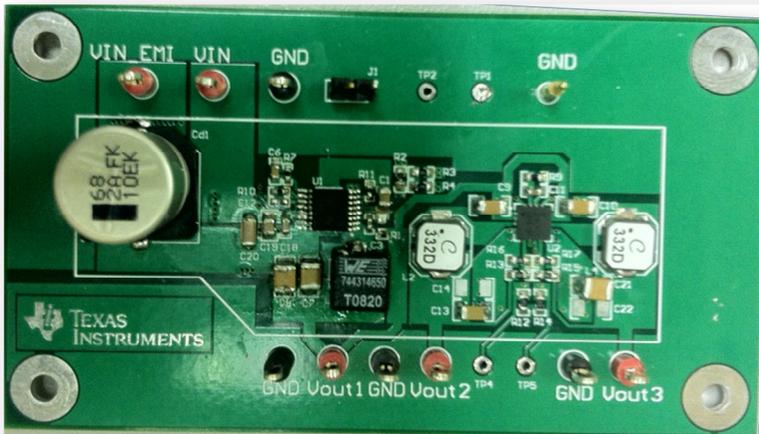
The PMP9462 is a single input step-down converter with three low-noise outputs. The module uses LM43603, a synchronous step-down DC-DC converter capable of driving up to 3A of load current from an input voltage ranging 3.5V to 36V. The 5V output from LM43603 enables the LM26420 which further steps down this voltage to produce 1.8V and 2.5V outputs, capable of driving 1A load current each. This power supply is suitable for applications that require multiple outputs from a single input DC voltage. It provides good regulation performance over an input voltage range of 7V to 36V.

Power Specification

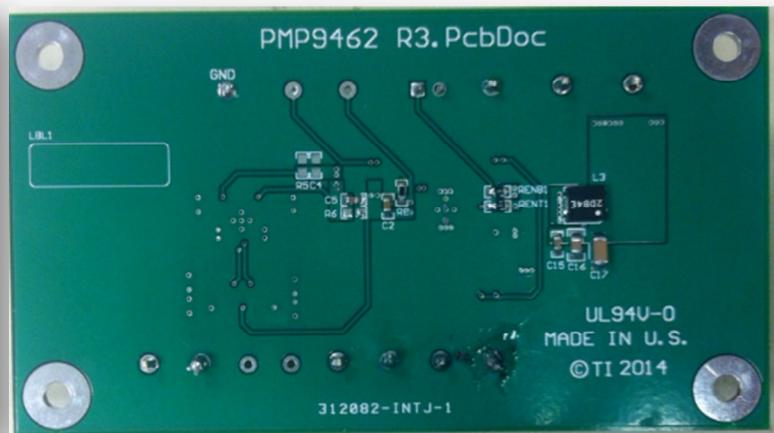
$$V_{IN}: 7V - 36V$$

$$\text{Nominal } V_{IN} = 24V$$

$$F_{SW} = 500 \text{ kHz}$$



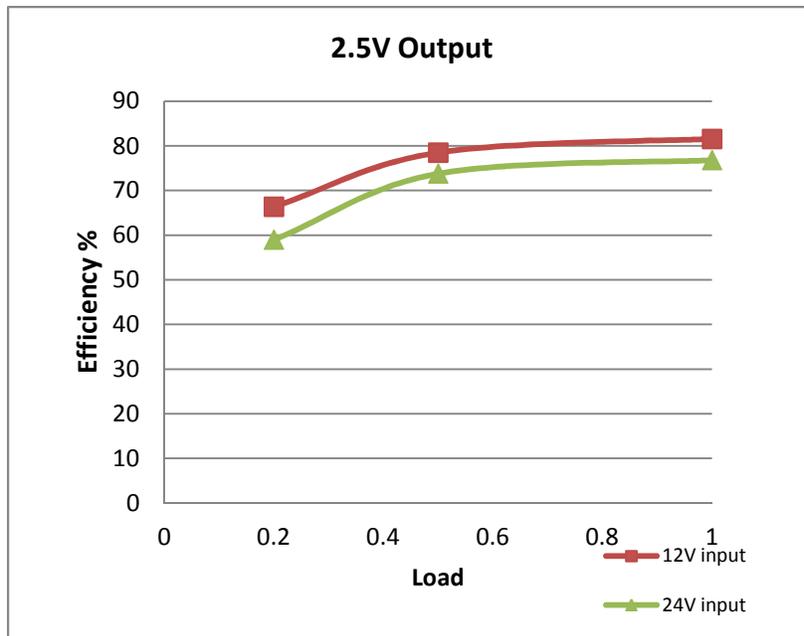
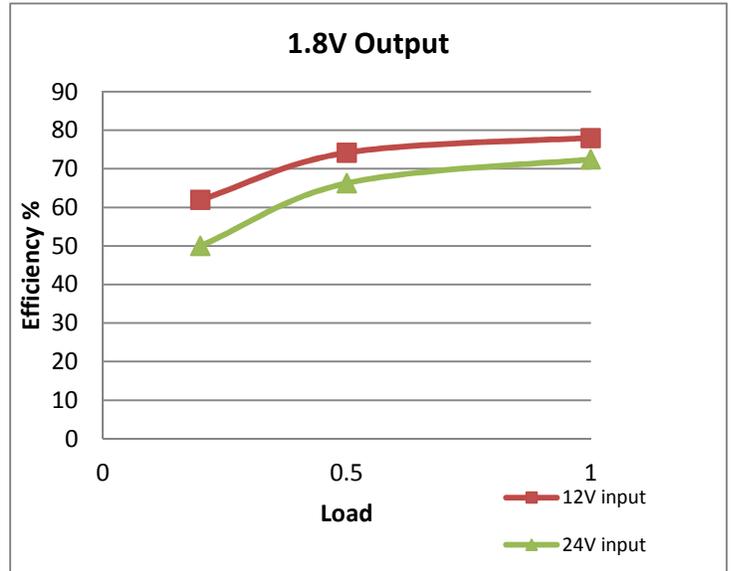
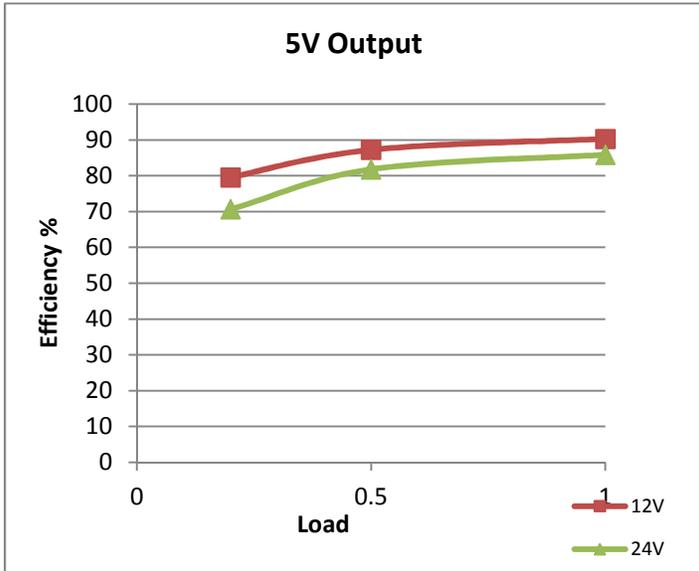
PMP9462 Board top Image



PMP9462 Board bottom Image

Efficiency

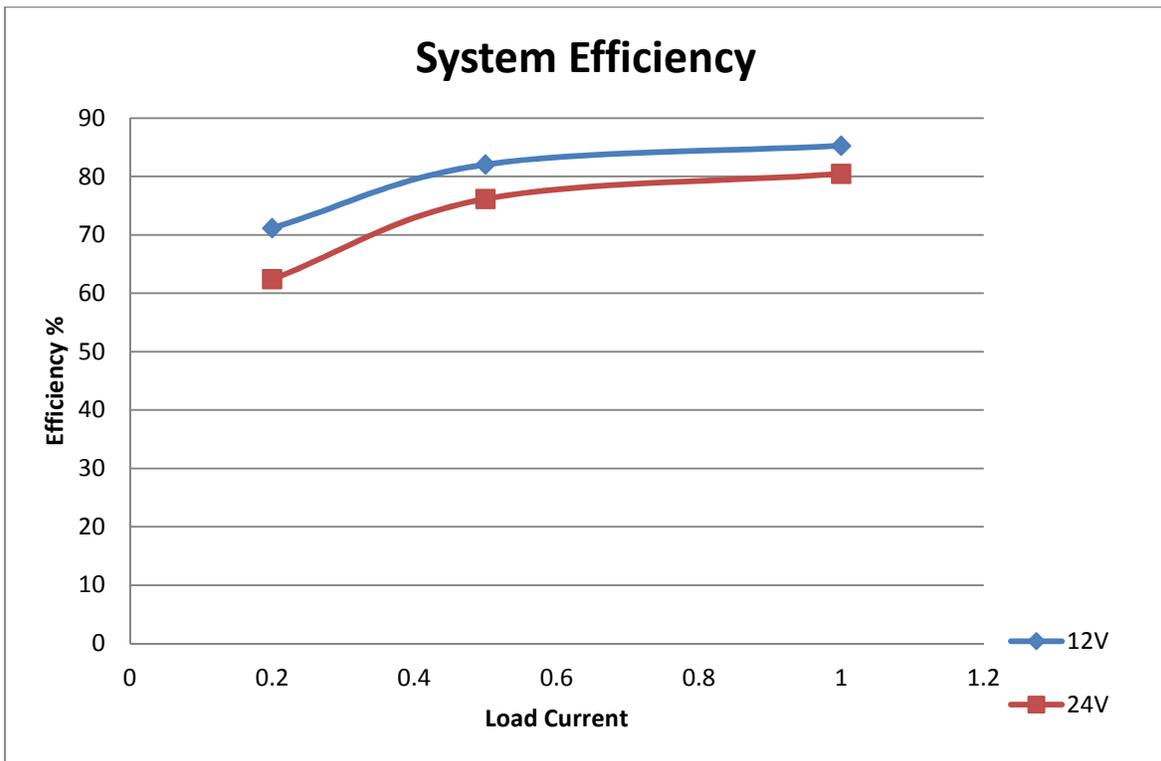
The efficiency is calculated for all three outputs with 12V & 24V input voltages and output load current incrementing from 200mA to 1A.



System Efficiency

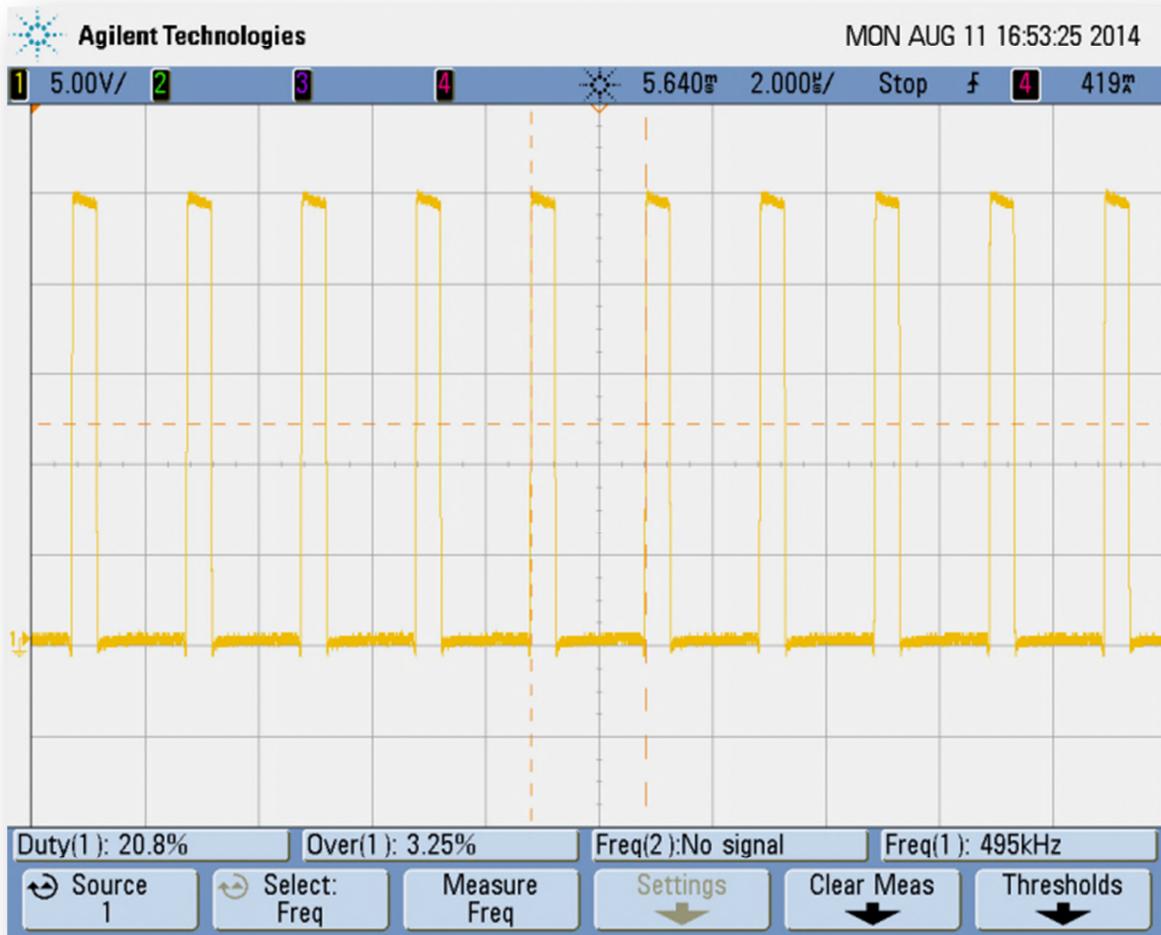
The efficiency is calculated by using the input and output powers of the board at 12V and 24V input voltages and under 1A load for all three outputs.

$$\text{System Efficiency} = \frac{P1_{out} + P2_{out} + P3_{out}}{P_{IN}} * 100$$



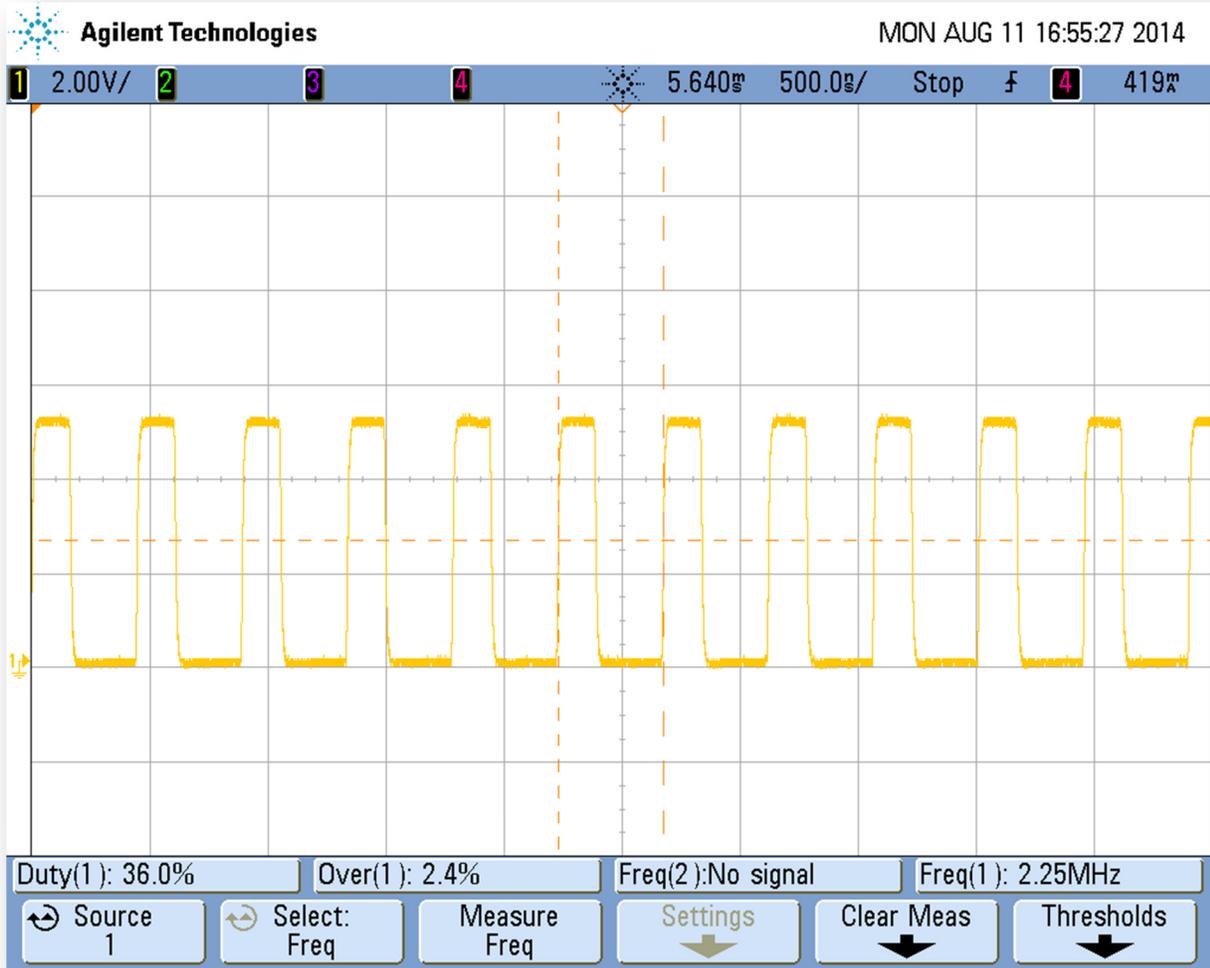
Switching Waveforms

Switching waveforms were captured at 24Vin for all three outputs with 1A load current on each (not simultaneously). The switching frequency for the first output is 500 kHz by default.



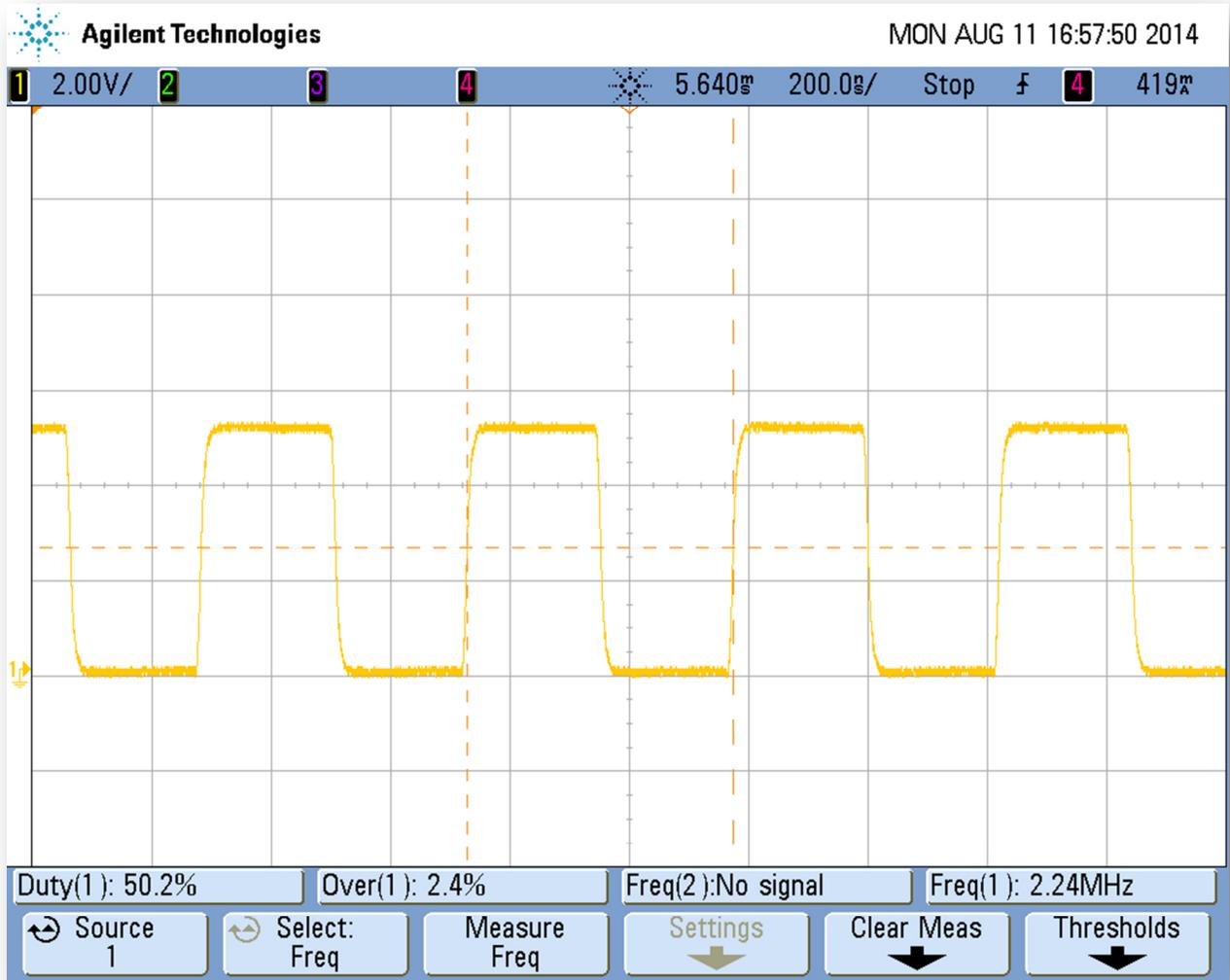
Switching Waveform for 5V output with 1A load current connected

Switching Waveform at inductor L2 for 1.8V output



Switching Waveform for 1.8V output with 1A load current connected

Switching Waveform at inductor L2 for 2.5V output



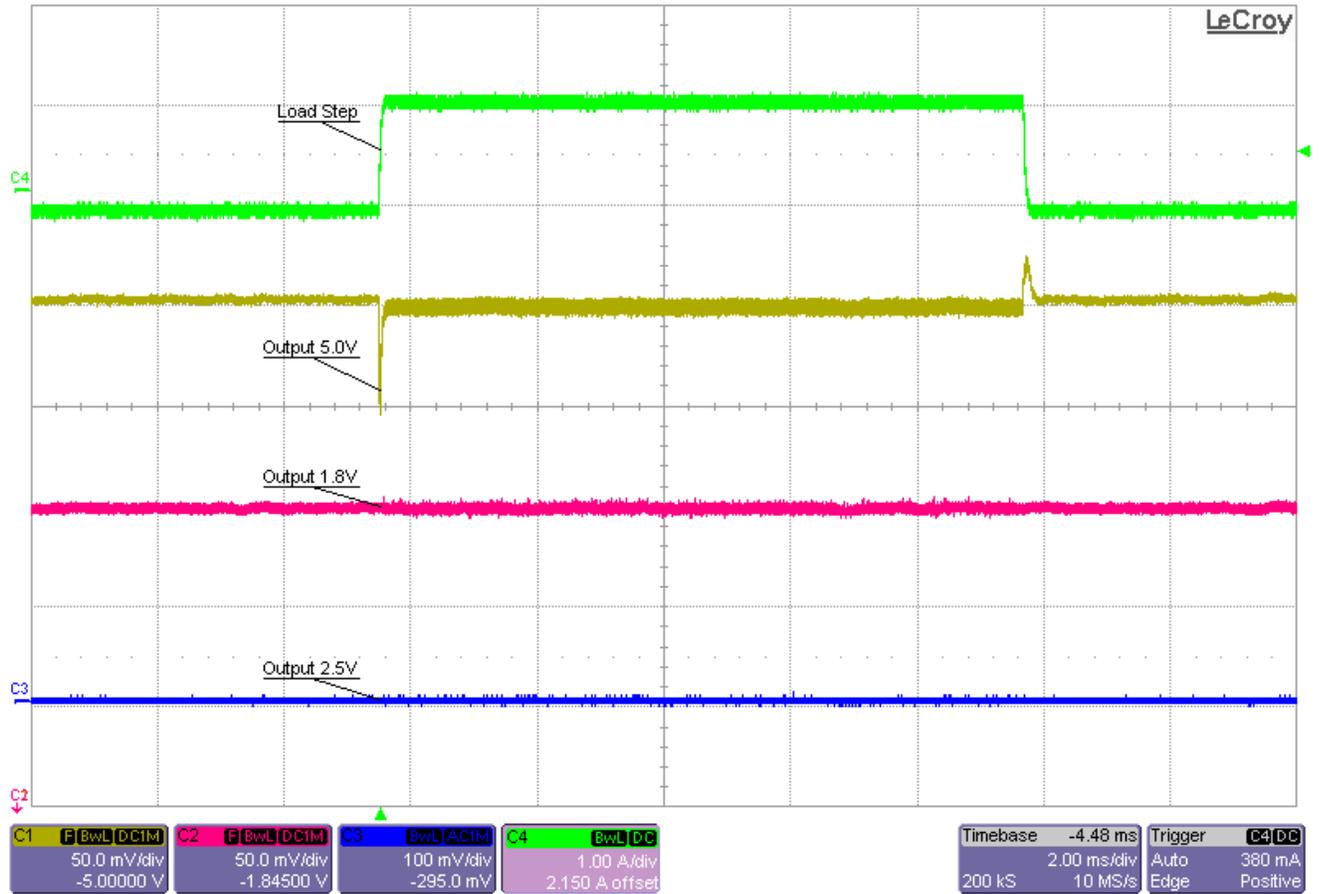
Switching Waveform for 2.5V output with 1A load current connected

Transient Response

+5V output Load Step

Test Conditions: $V_{in} = 24V$, 5V output with load from 0 to 1A, No load on other outputs.

$F_{SW} = 500kHz$

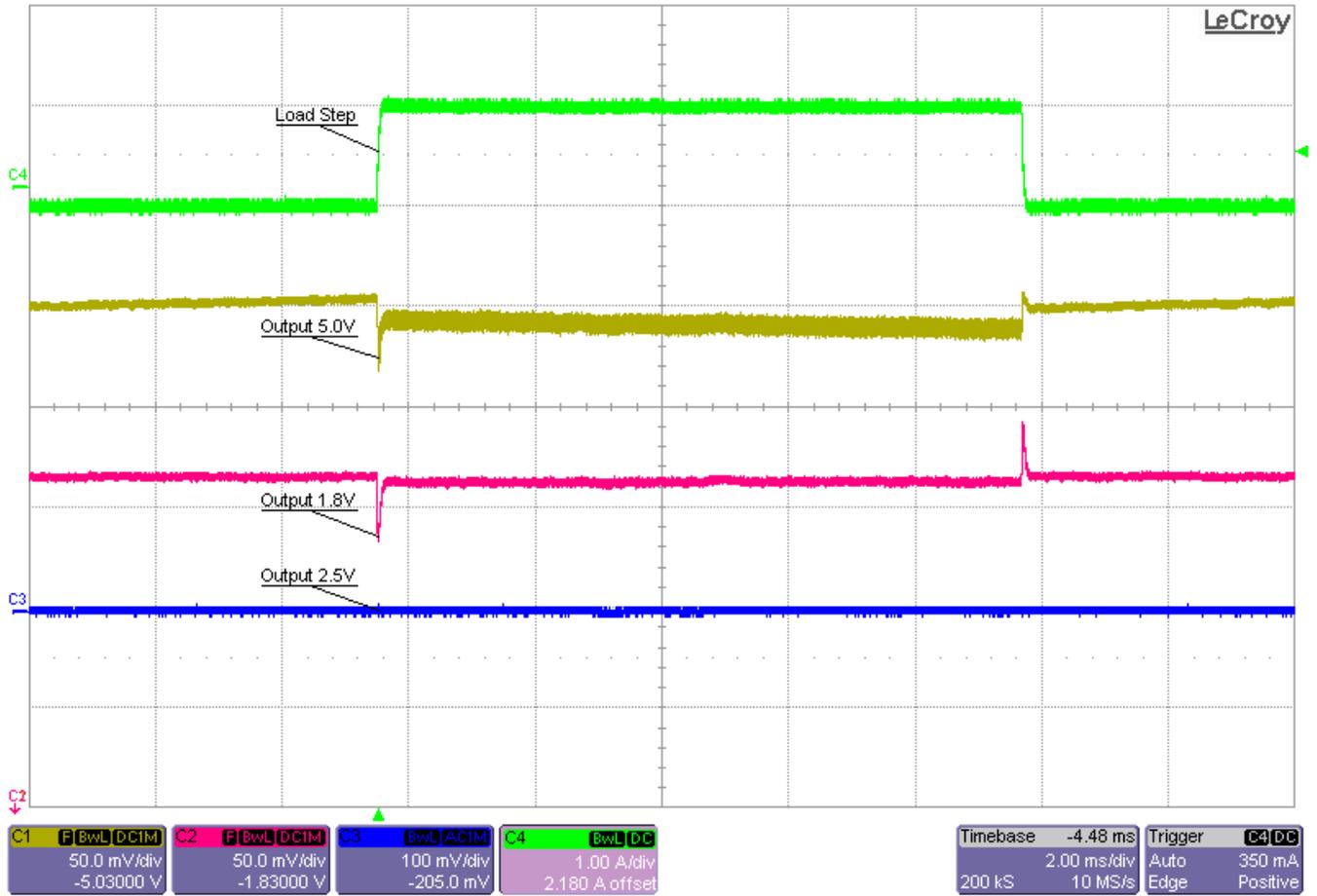


Transient Response

+1.8V output Load Step

Test Conditions: $V_{in} = 24V$, 1.8V output with load from 0 to 1A, No load on other outputs.

$F_{SW} = 500kHz$

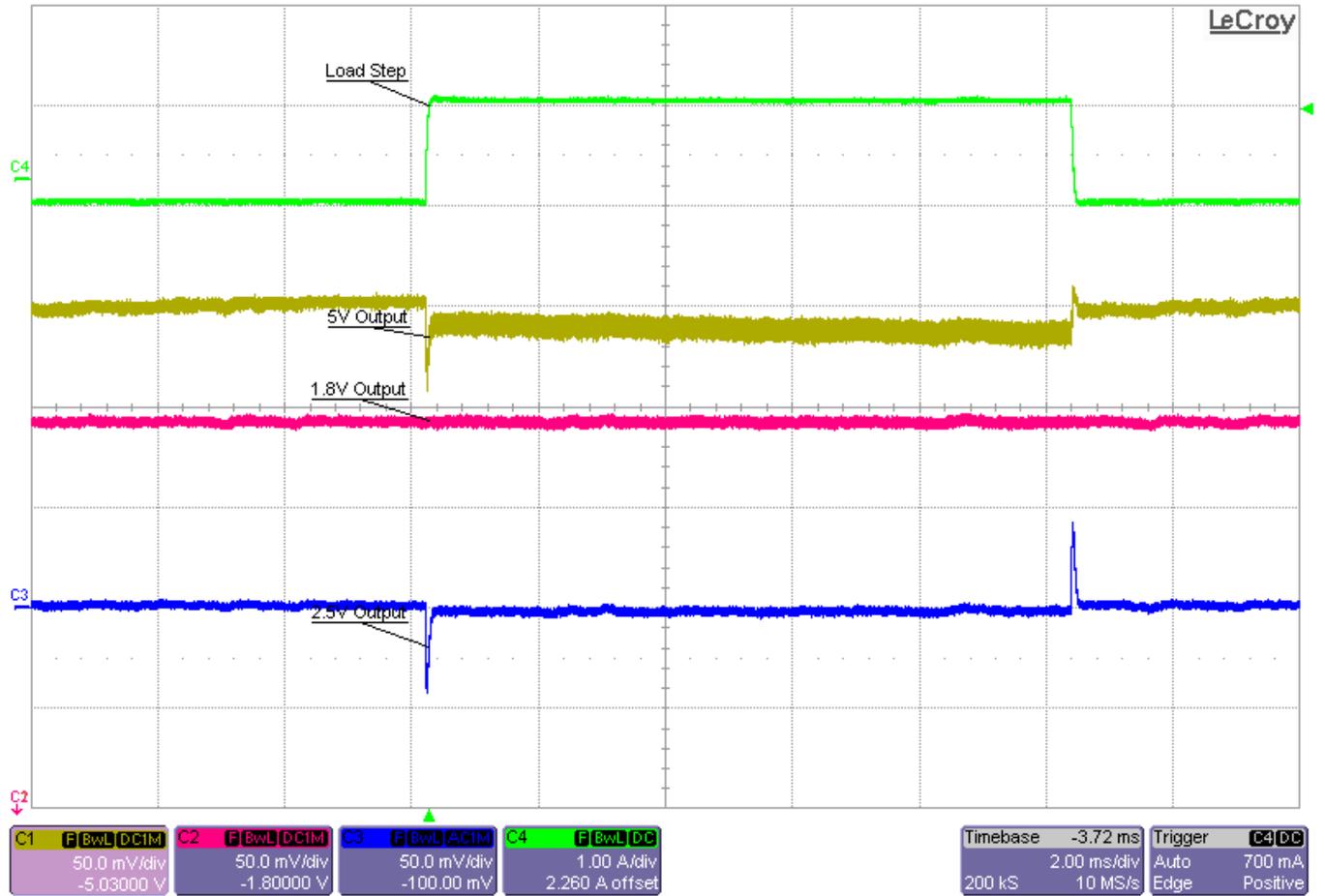


Transient Response

+2.5V output Load Step

Test Conditions: $V_{in} = 24V$, 2.5V output with load from 0 to 1A, No load on other outputs.

$F_{SW} = 500kHz$

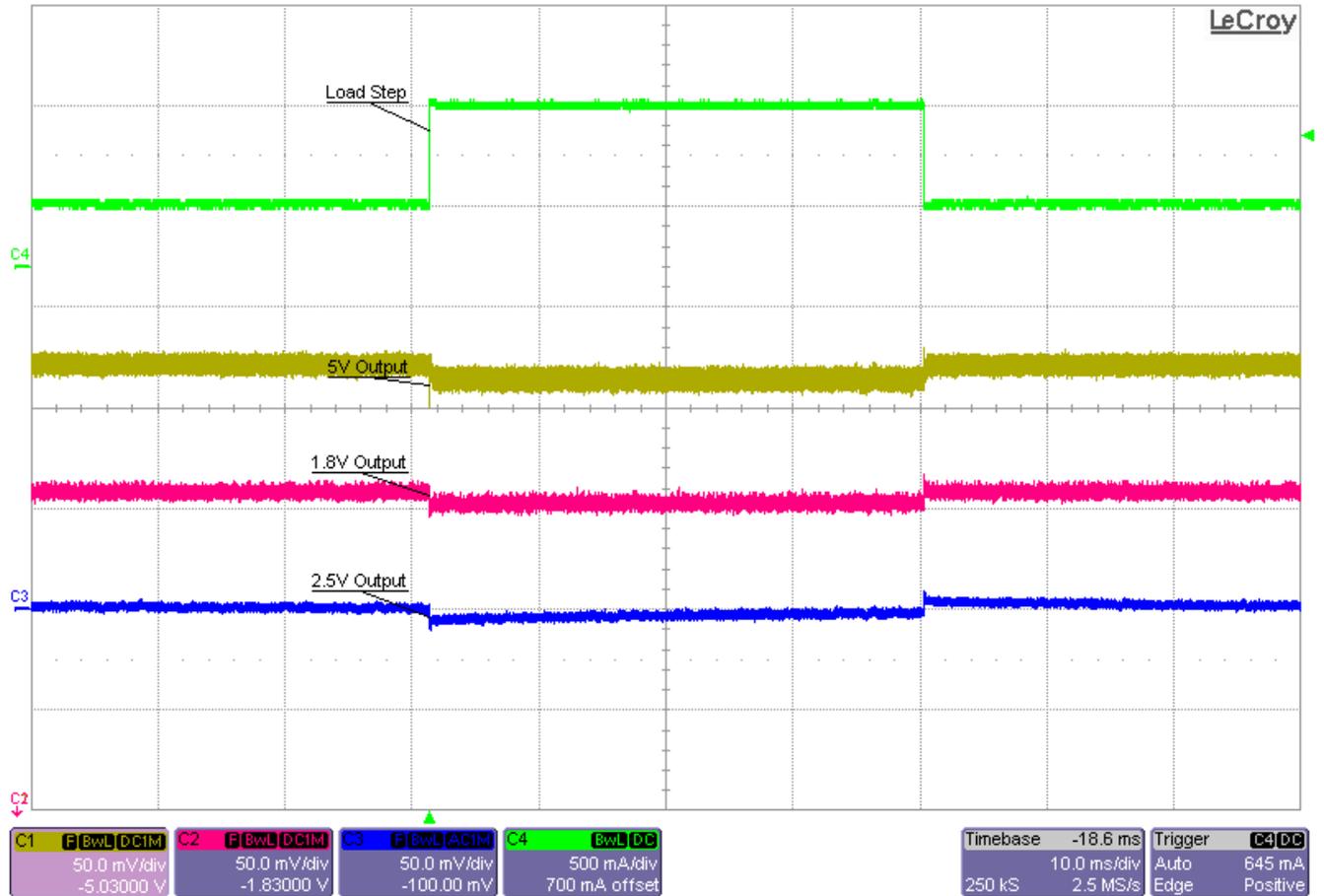


Transient Response

+5V output Load Step

Test Conditions: $V_{in} = 24V$, 5V output with load from 500mA to 1A, No load on other outputs.

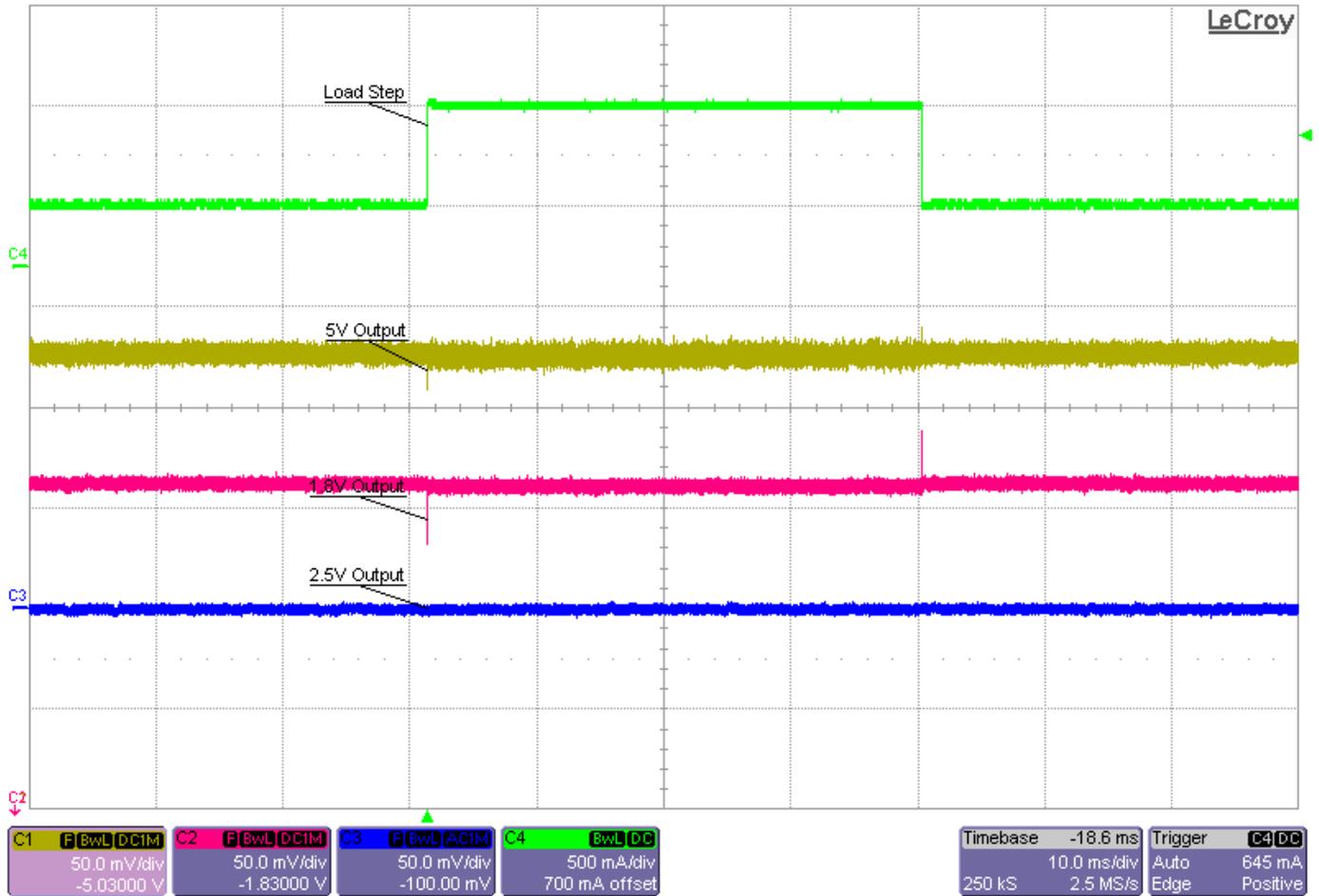
$F_{SW} = 500kHz$



Transient Response

+1.8V output Load Step

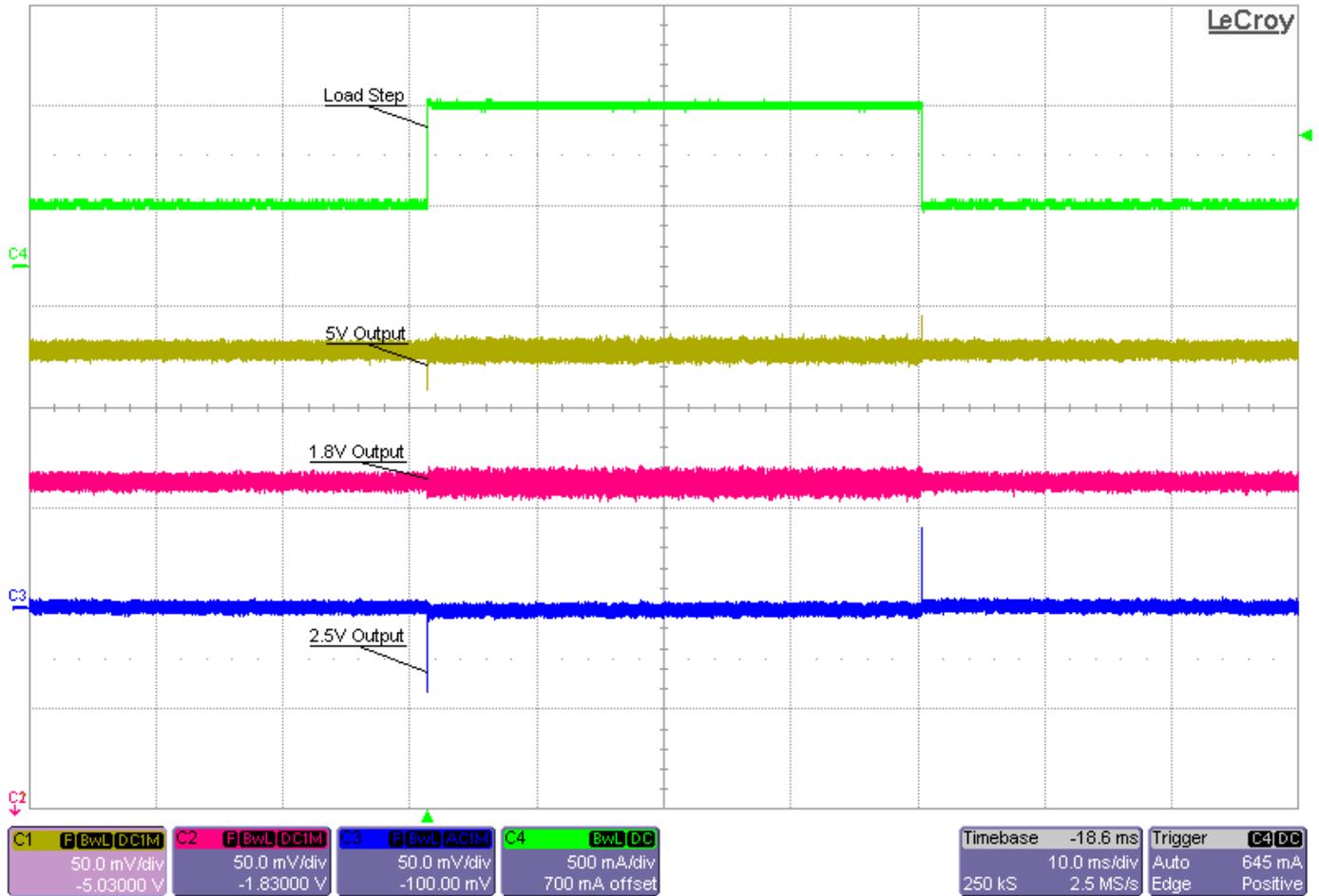
Test Conditions: $V_{in} = 24V$, 1.8V output with load from 500mA to 1A, No load on other outputs. $F_{SW} = 500kHz$



Transient Response

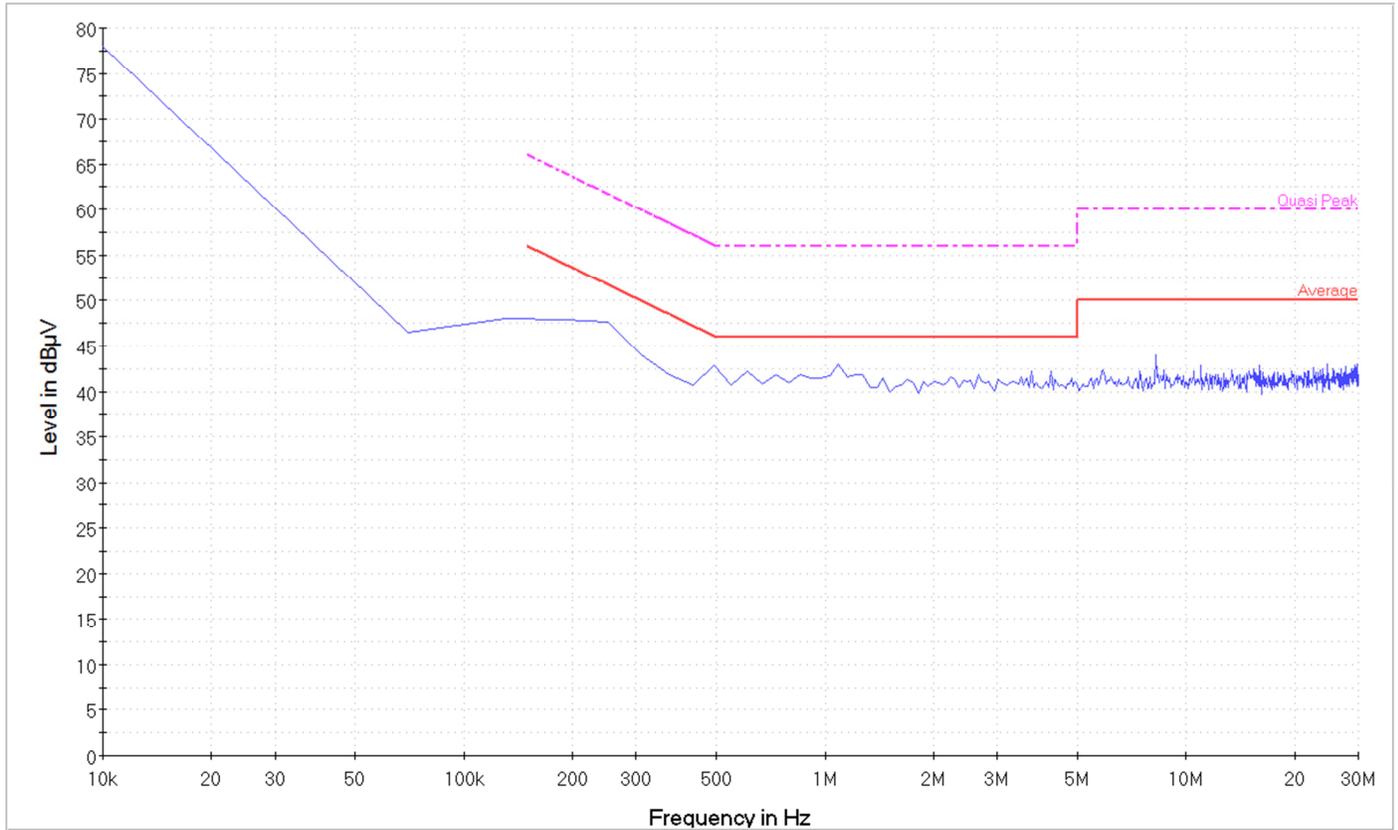
+2.5V output Load Step

Test Conditions: $V_{in} = 24V$, 2.5 V output with load from 500mA to 1A, No load on other outputs. $F_{SW} = 500kHz$



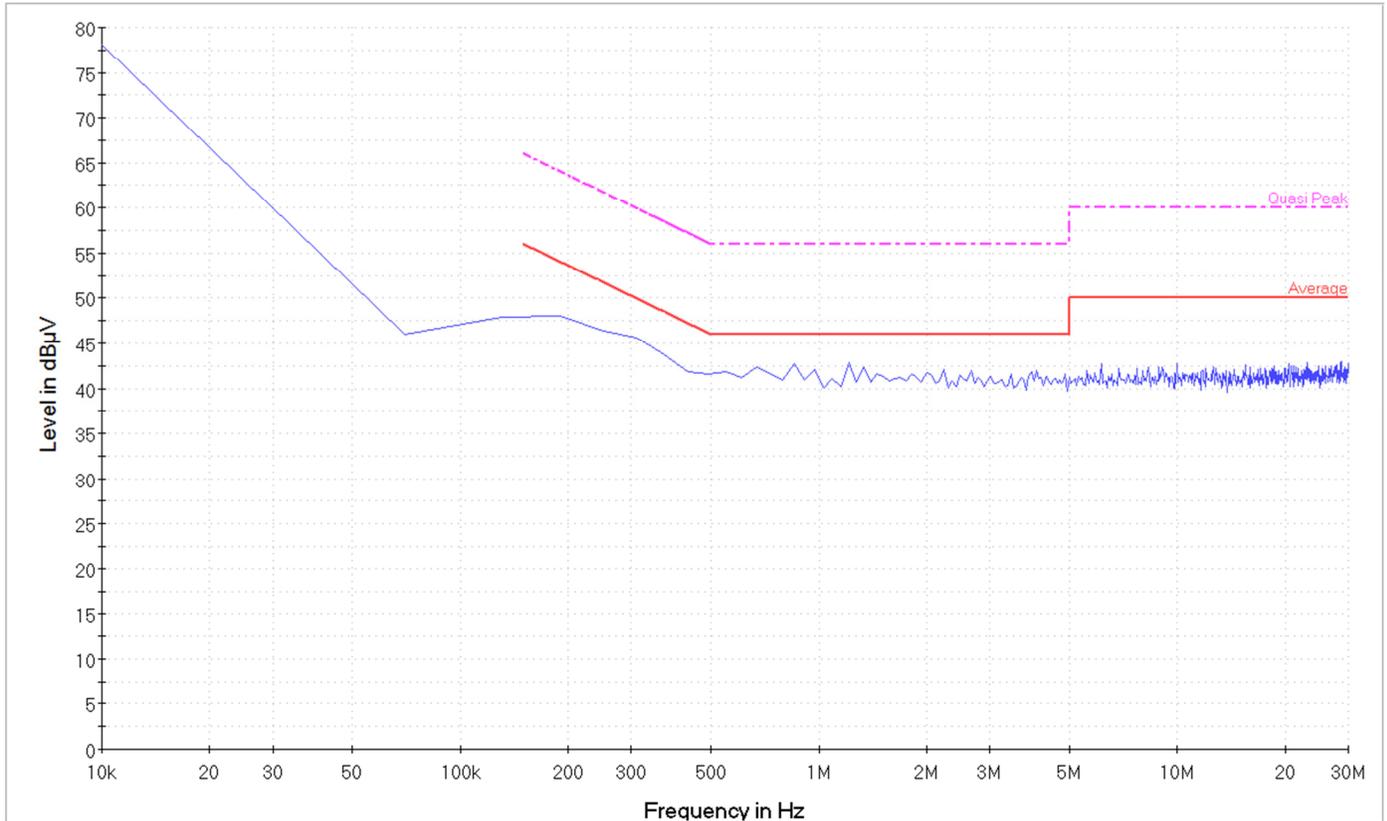
EMI Test CISPR22

12Vin, 5V Vout, 500 kHz switching frequency, under 1A constant load



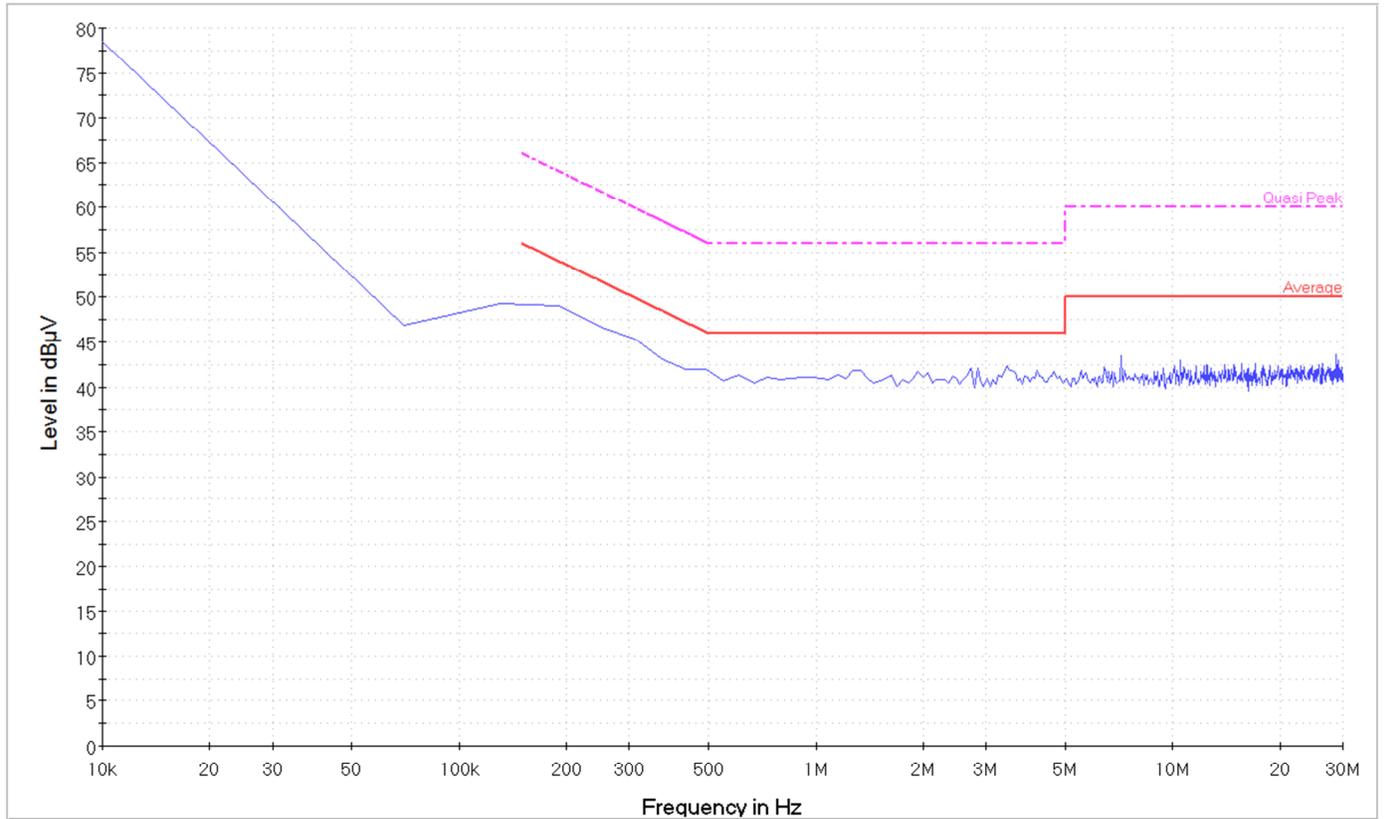
EMI Test CISPR22

12Vin, 1.8V Vout, 500 kHz switching frequency, under 1A constant load



EMI Test CISPR22

12Vin, 2.5V Vout, 500 kHz switching frequency, under 1A constant load



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