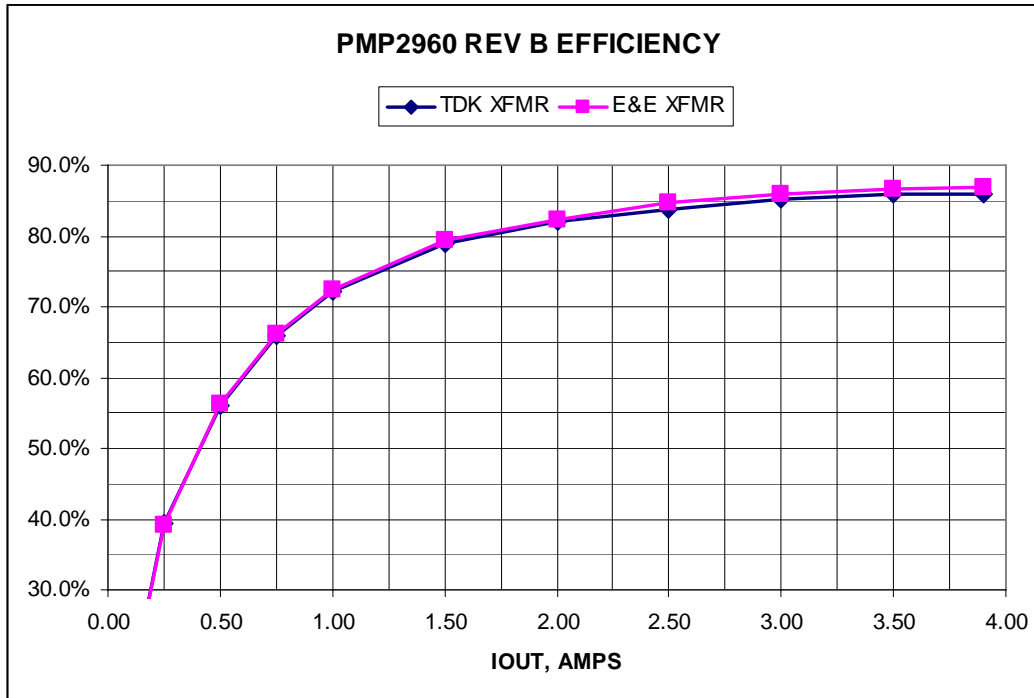


**Efficiency**

The efficiency of the isolated converter without the load converters is shown below with and input of 48V measured at D9-cathode/J5:

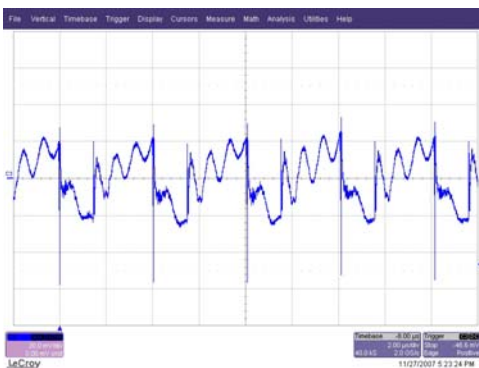


The end to end efficiency is: Outputs: 5.20V/15mA; 3.33V/2.00A; 2.49V/682mA; 1.80V/352mA; 1.20V/2.20A. Input: 48.0V/305mA Efficiency: 80.0%

**Ripple and Noise**

All ripple measurements taken with a 48V input and maximum loading

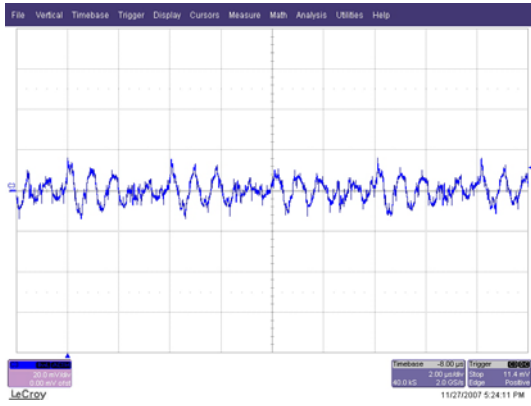
5.0V output voltage ripple:



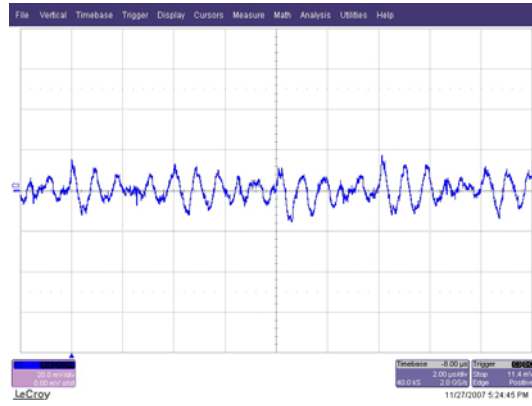
3.3V output voltage ripple:



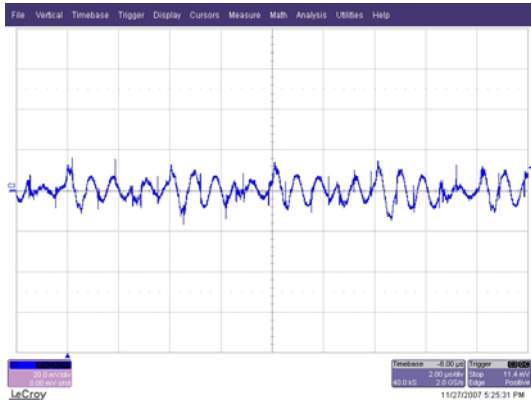
2.5V output voltage ripple:



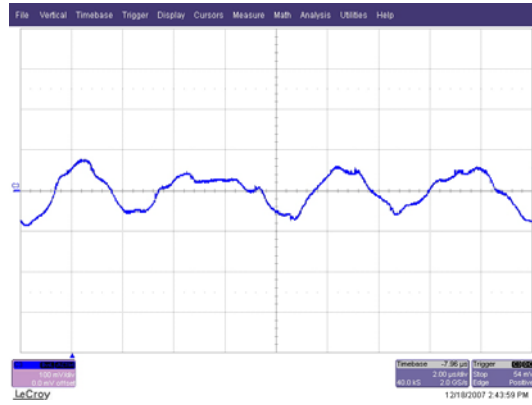
1.8V output voltage ripple:



1.2V output voltage ripple:

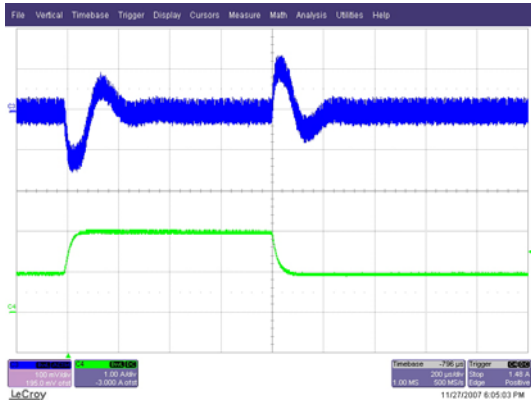


Input ripple at FB1/FB2:



### **Dynamic Loading**

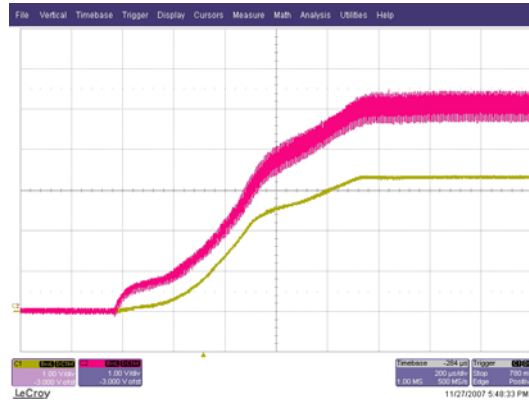
3.3V output voltage transient response with a load step from 50% to 100%:



**Turn On Response**

Output voltage turn-on response with a 48V input and max load(Green is 5V Red is 3.3V, Yellow is Vin):

Expanded view of 5V and 3.3V turn on (Red is 5V and Yellow is 3.3V):



Output voltage turn-on response with a 48V input and a max load of 3.3V, 2.5V, 1.8V, and 1.2V showing sequencing :



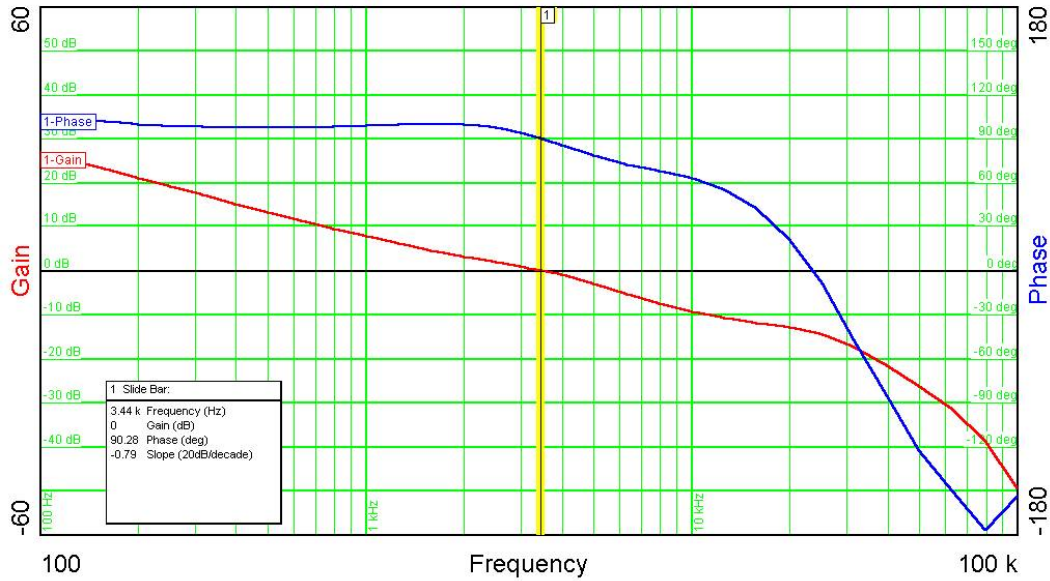
**Miscellaneous**

The 5V output varies from 5.07V to 5.71V, depending on 3.3V and 5V loading.

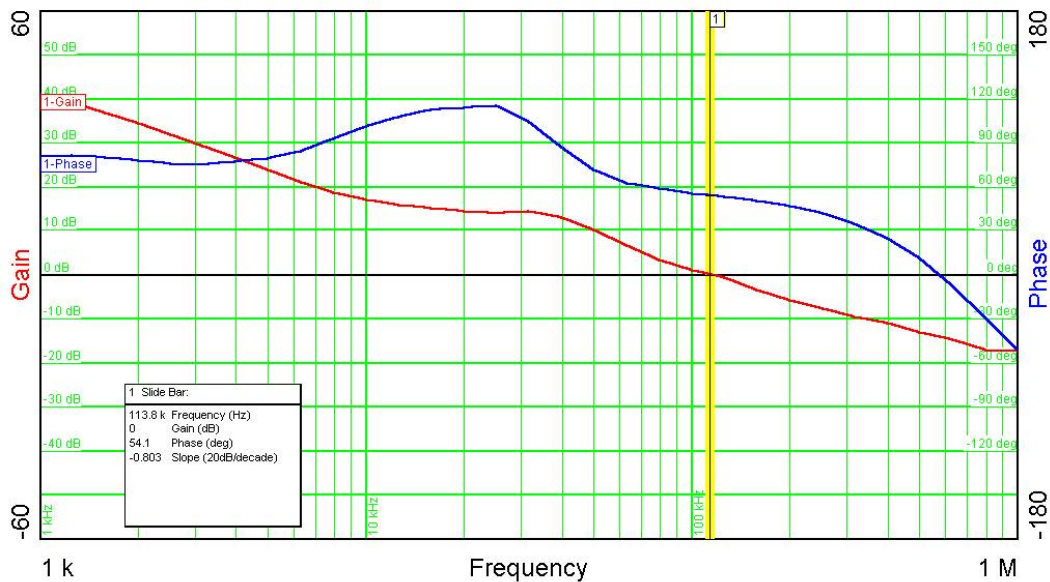
With a 48V input and 3.33V/3.8A load, the voltage across R6 was 42V.

**Stability Analysis (Loop Gain)**

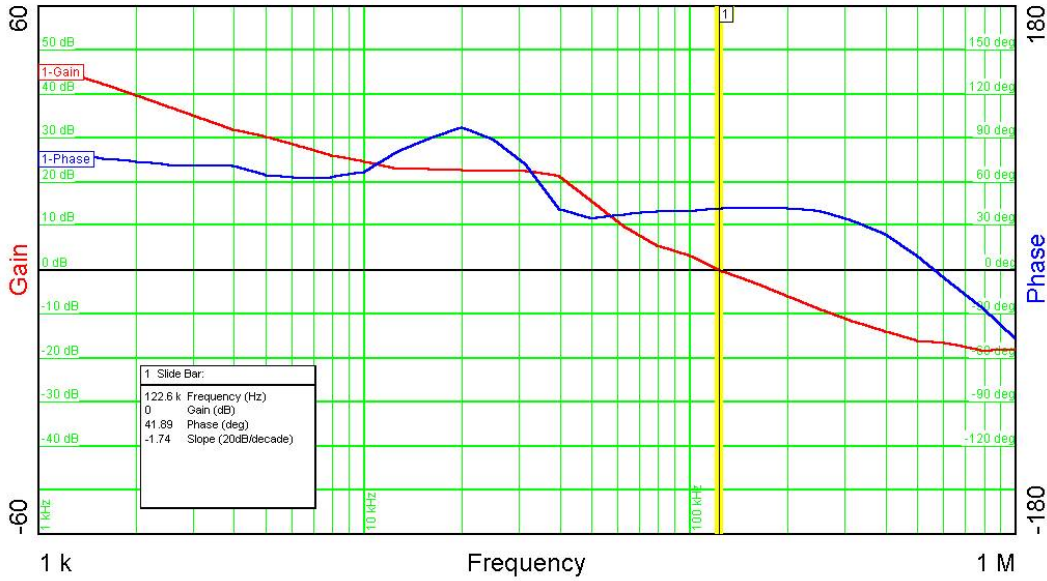
The figure below is the loop gain of the isolated converter with a 48V input and a 3.9A load. The bandwidth is 3.44 KHz, the phase margin is 90 degrees, and the gain margin is 13dB.



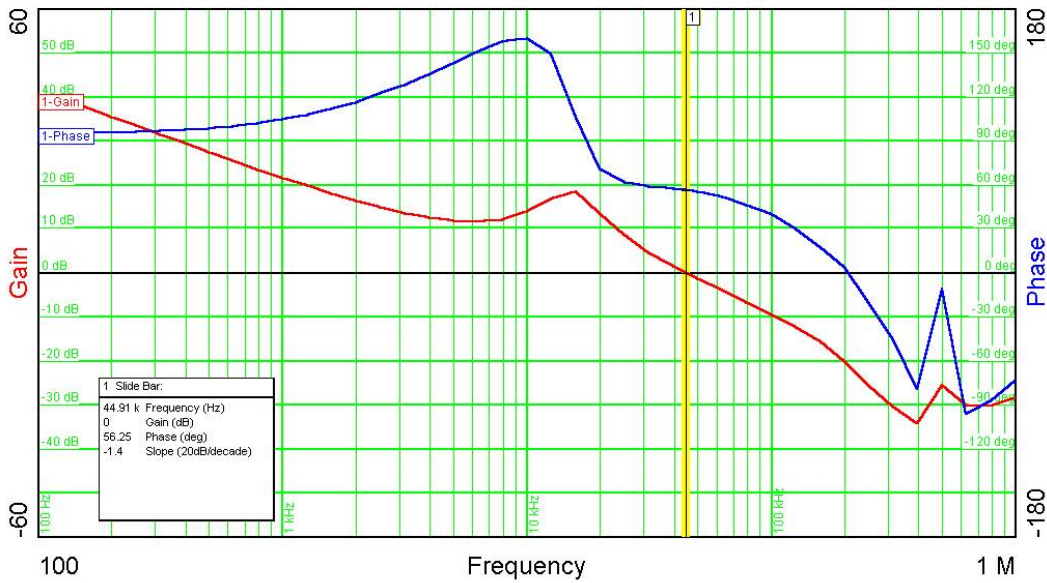
The figure below is the loop gain of the 2.5V converter with a 350mA load. The bandwidth is 113.8 KHz, the phase margin is 54 degrees, and the gain margin is 14dB. The 2.5V loop was measured with U6-4 (FB1) connected to TP7.



The figure below is the loop gain of the 1.8V converter with a 680mA load. The bandwidth is 122.6 KHz, the phase margin is 42 degrees, and the gain margin is 16dB.



The figure below is the loop gain of the 1.2V converter with a 2.2A load. The bandwidth is 44.9 KHz, the phase margin is 56 degrees, and the gain margin is 22dB.



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