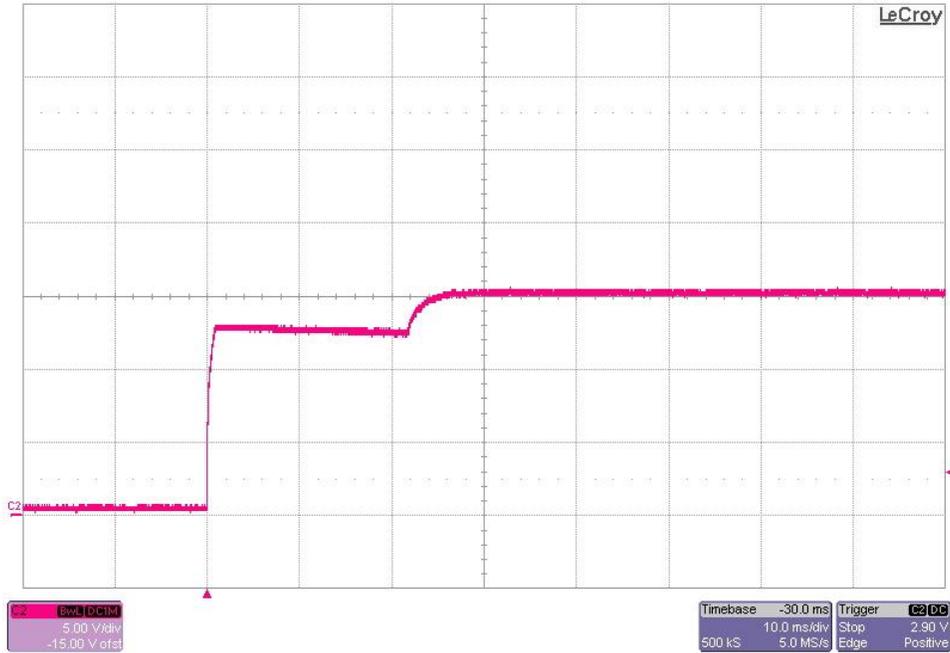


## 1 Startup

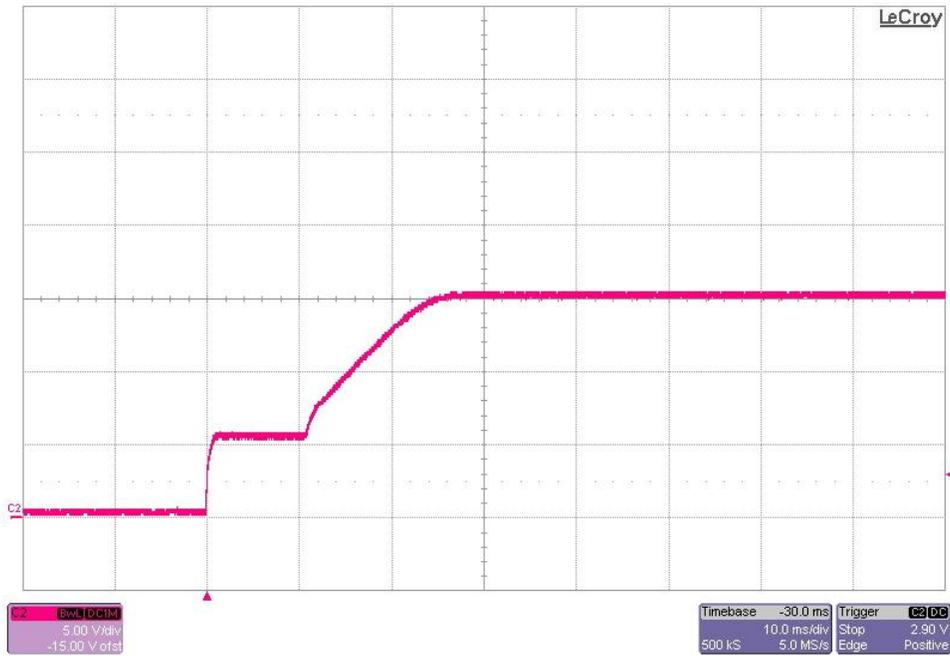
The photo below shows the 15V output voltage startup waveforms after the application of 12Vdc in. The output was unloaded. (5V/DIV, 10mS/DIV)



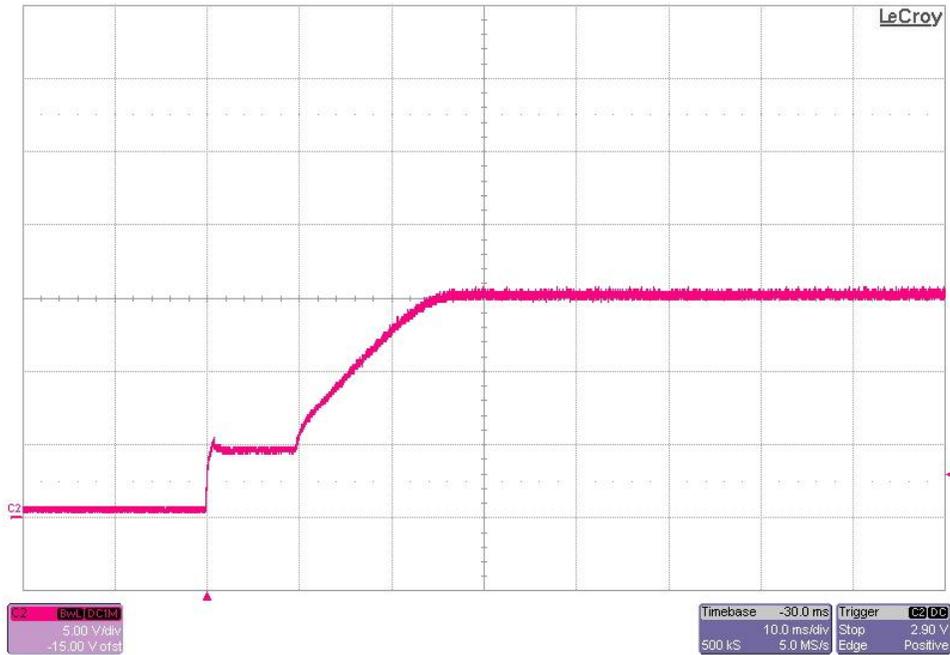
The photo below shows the 15V output voltage startup waveforms after the application of 12Vdc in. The output was loaded to 1.5A. (5V/DIV, 10mS/DIV)



The photo below shows the 15V output voltage startup waveforms after the application of 4.5Vdc in. The output was unloaded.

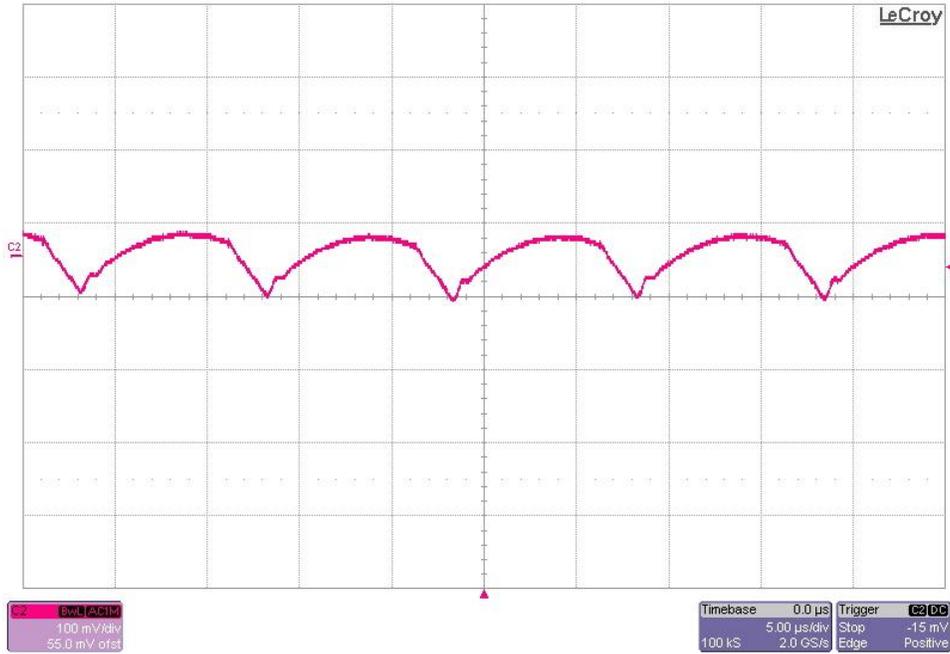


The photo below shows the 15V output voltage startup waveforms after the application of 4.5Vdc in. The output was loaded to 1.5A.

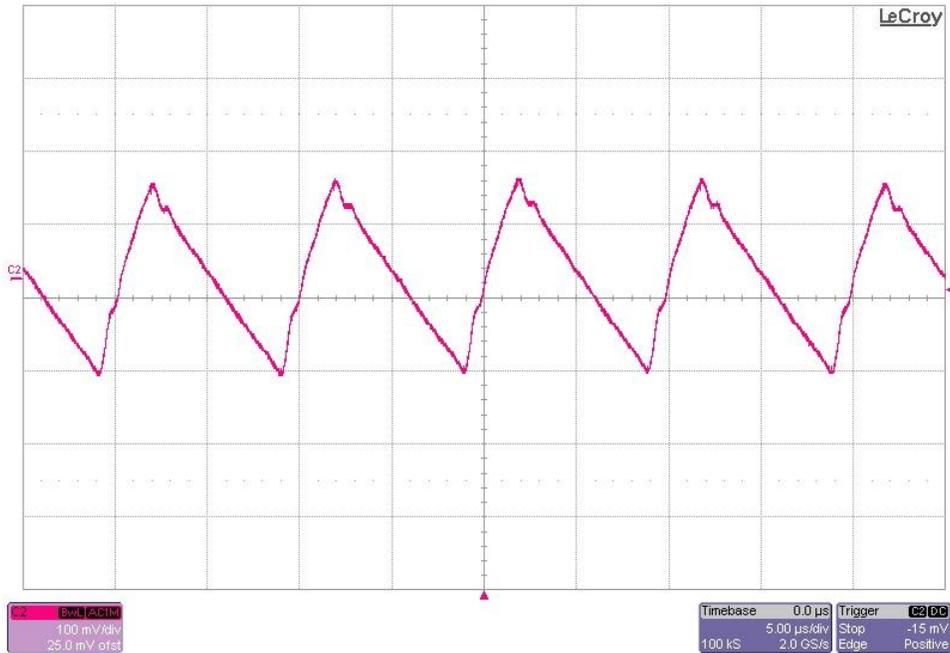


## 2 Output Ripple Voltage

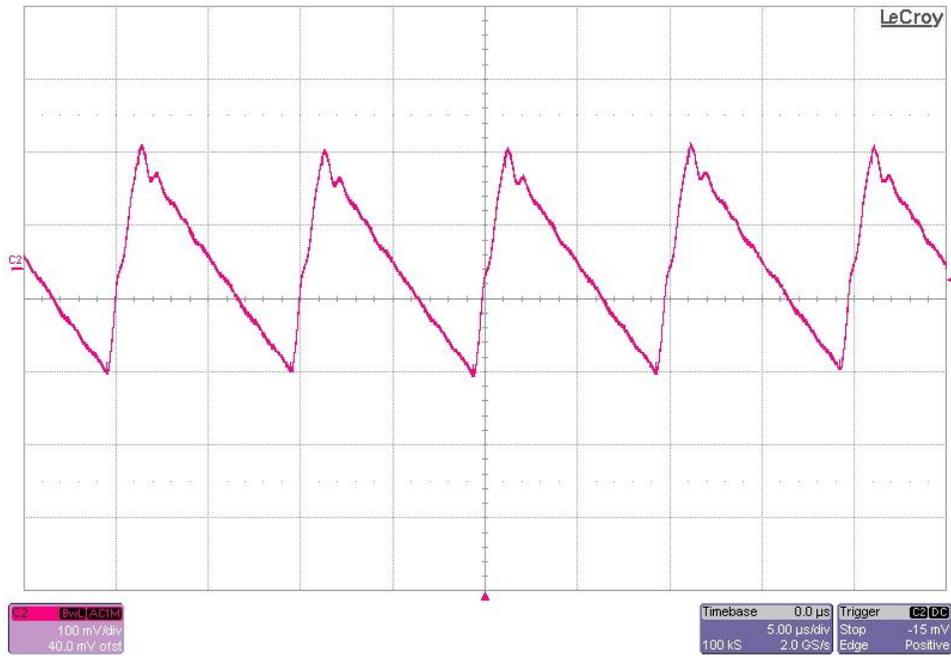
The 15V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 1.5A and the input voltage set to 12Vdc. (100mV/DIV, 5uS/DIV)



The 15V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 1.5A and the input voltage set to 4.5Vdc. (100mV/DIV, 5uS/DIV)

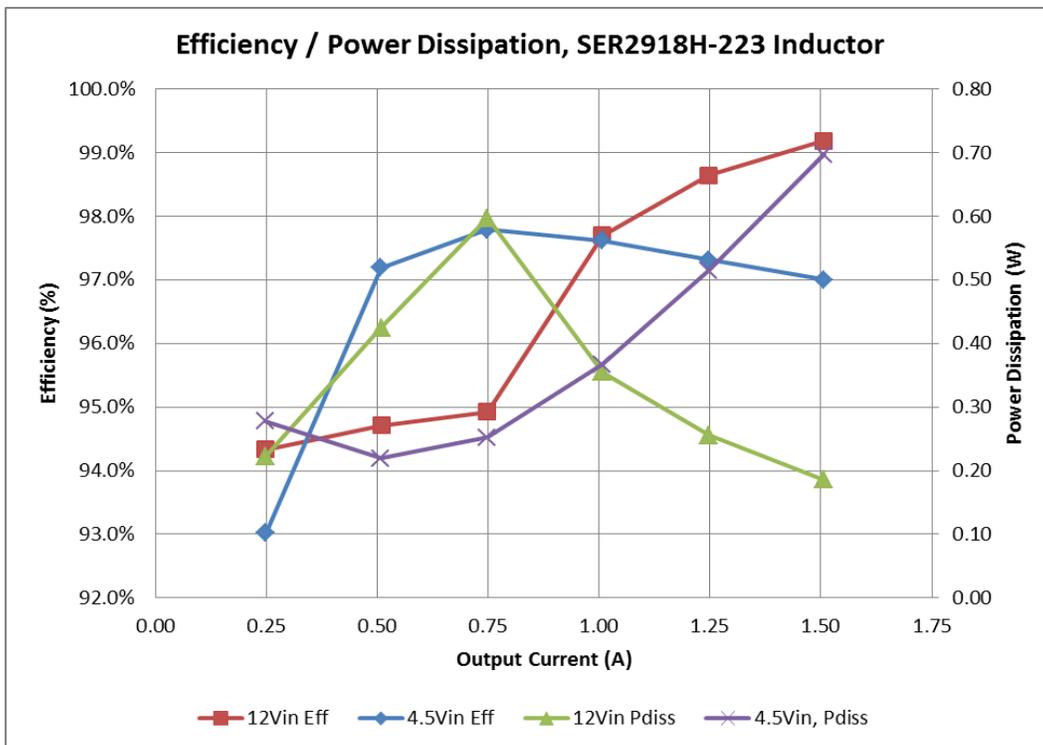
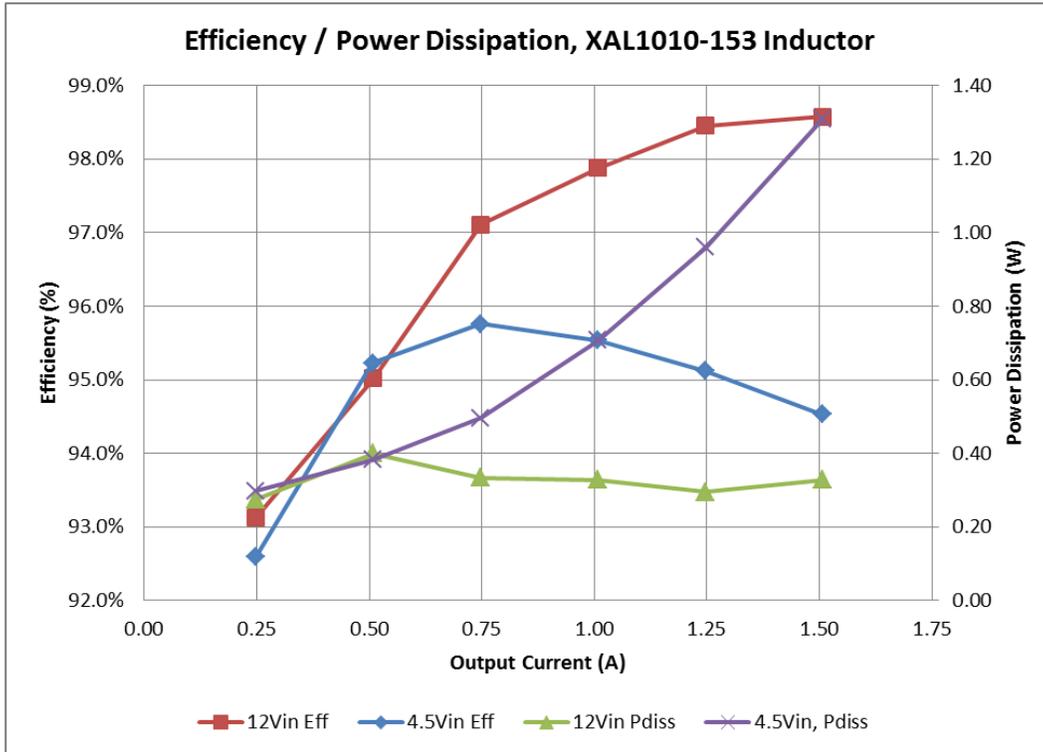


The 15V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 1.5A and the input voltage set to 3Vdc. (100mV/DIV, 5uS/DIV)



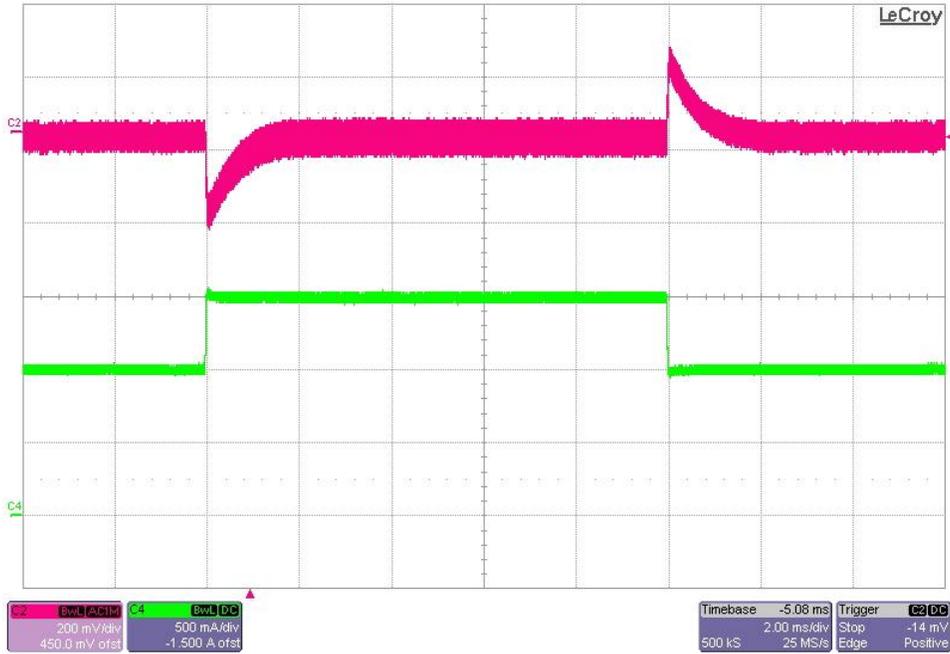
### 3 Efficiency

The converter efficiency is shown in the figure below for two different inductors.

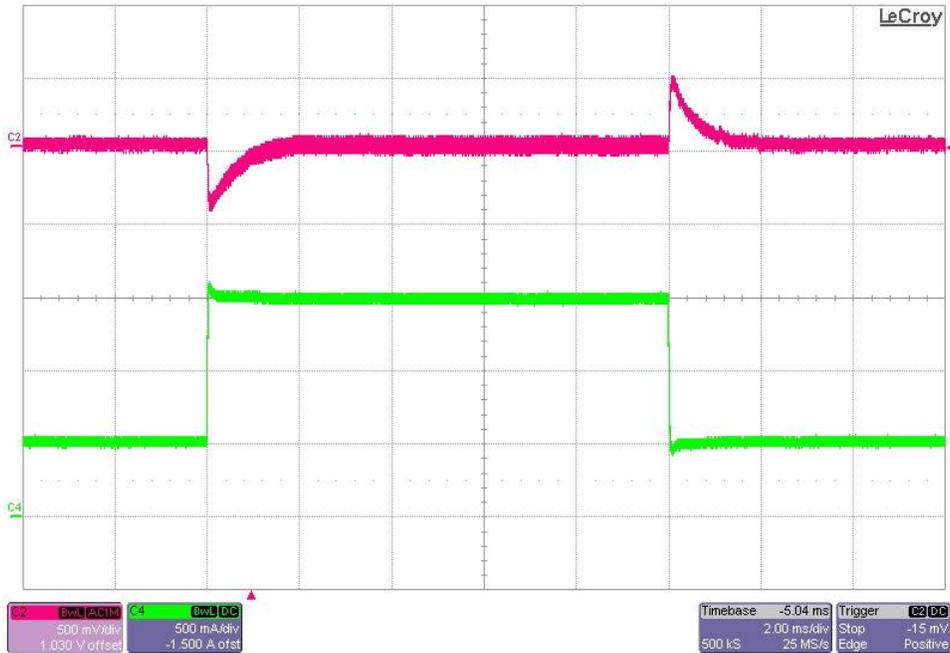


## 4 Load Transients

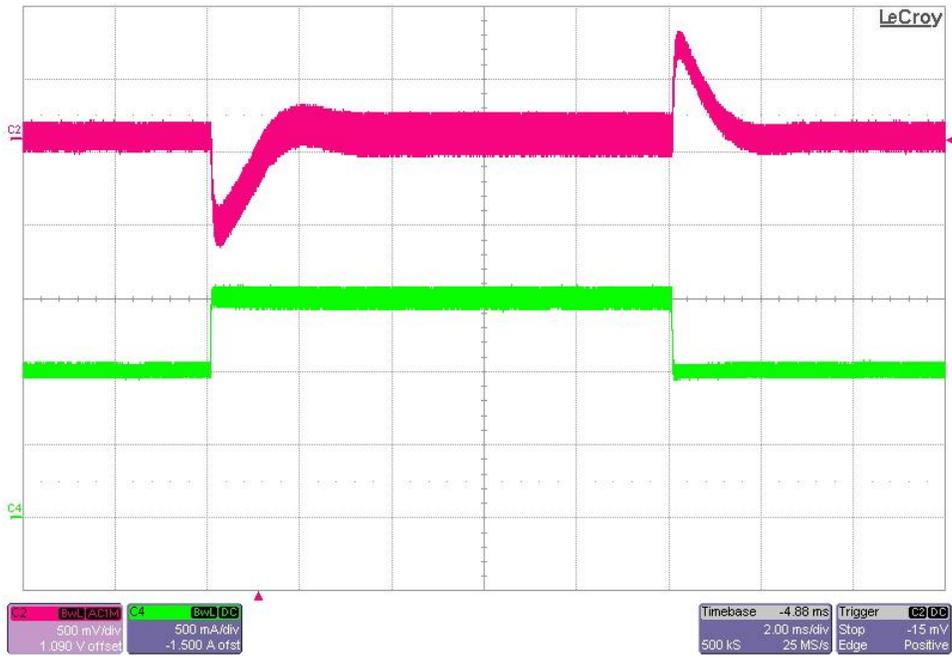
The photo below shows the 15V output voltage (AC coupled) when the load current is stepped from 1A to 1.5A.  $V_{in} = 12V_{dc}$  (200mV/DIV, 500mA/DIV, 2mS/DIV)



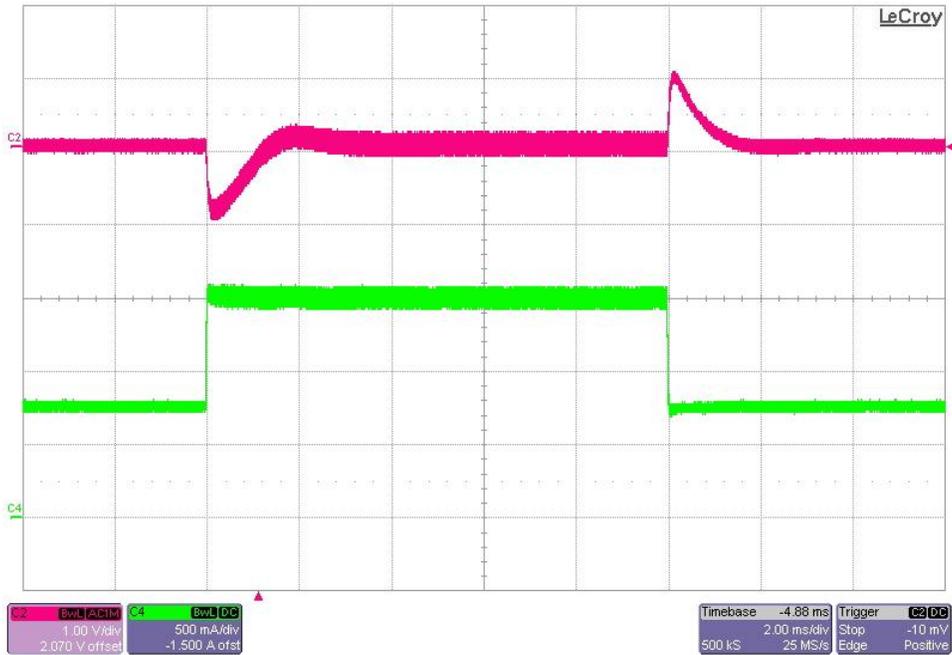
The photo below shows the 15V output voltage (AC coupled) when the load current is stepped from 0.5A to 1.5A.  $V_{in} = 12V_{dc}$  (500mV/DIV, 500mA/DIV, 2mS/DIV)



The photo below shows the 15V output voltage (AC coupled) when the load current is stepped from 1A to 1.5A.  $V_{in} = 4.5V_{dc}$  (500mV/DIV, 500mA/DIV, 2mS/DIV)

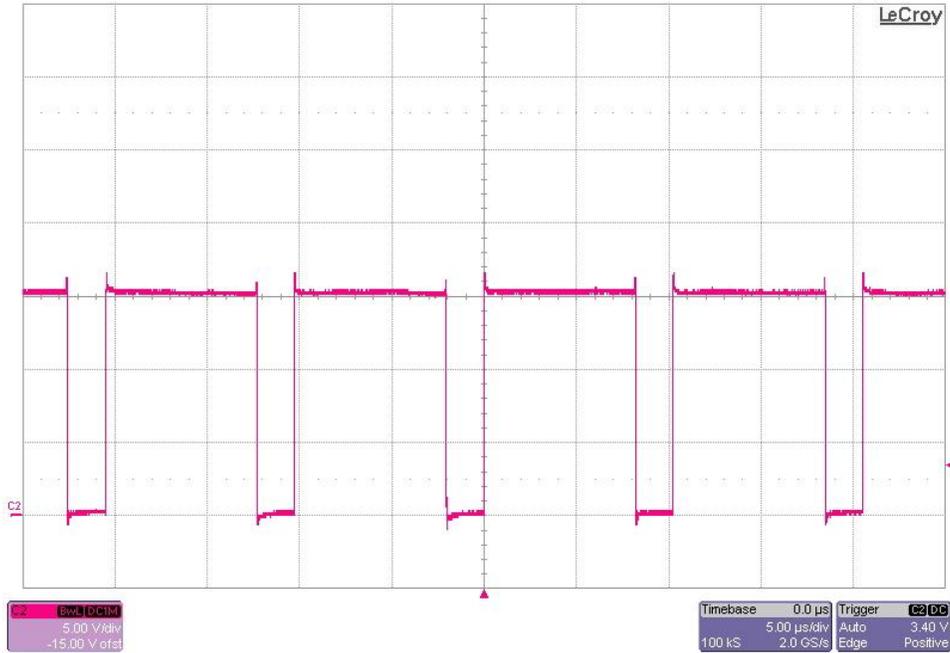


The photo below shows the 15V output voltage (AC coupled) when the load current is stepped from 0.75A to 1.5A.  $V_{in} = 4.5V_{dc}$  (1V/DIV, 500mA/DIV, 2mS/DIV)

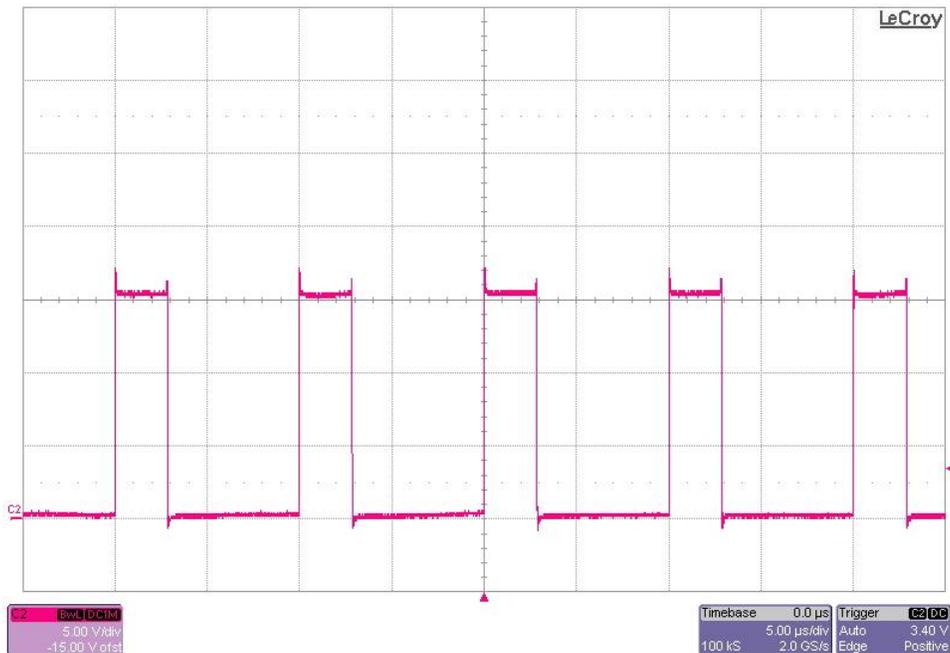


## 5 Switching Waveforms

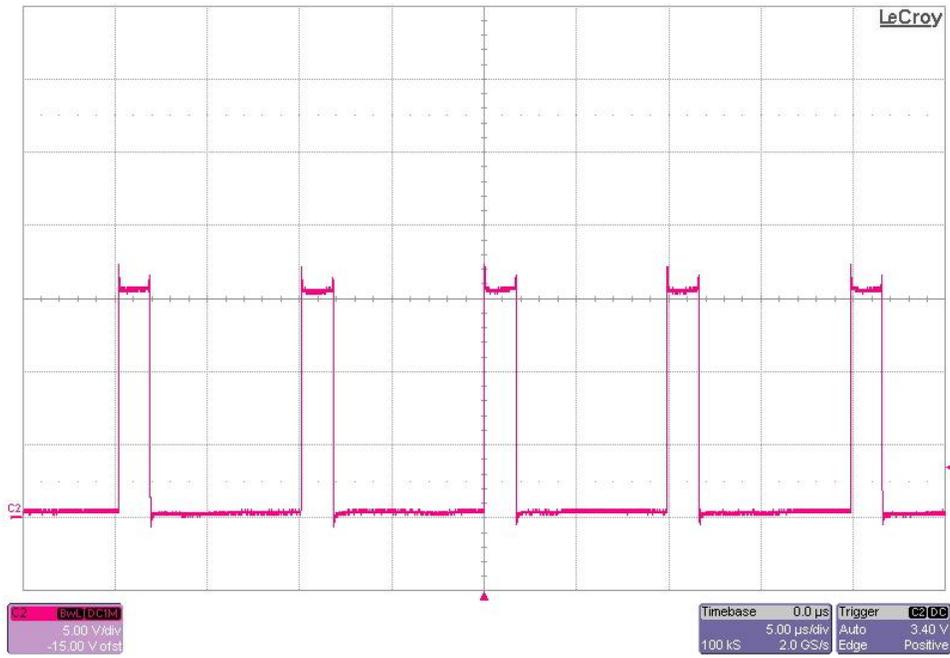
The photo below is the switch-node waveform. The input voltage is 12V and the output is loaded to 1.5A. (5V/DIV, 5uS/DIV)



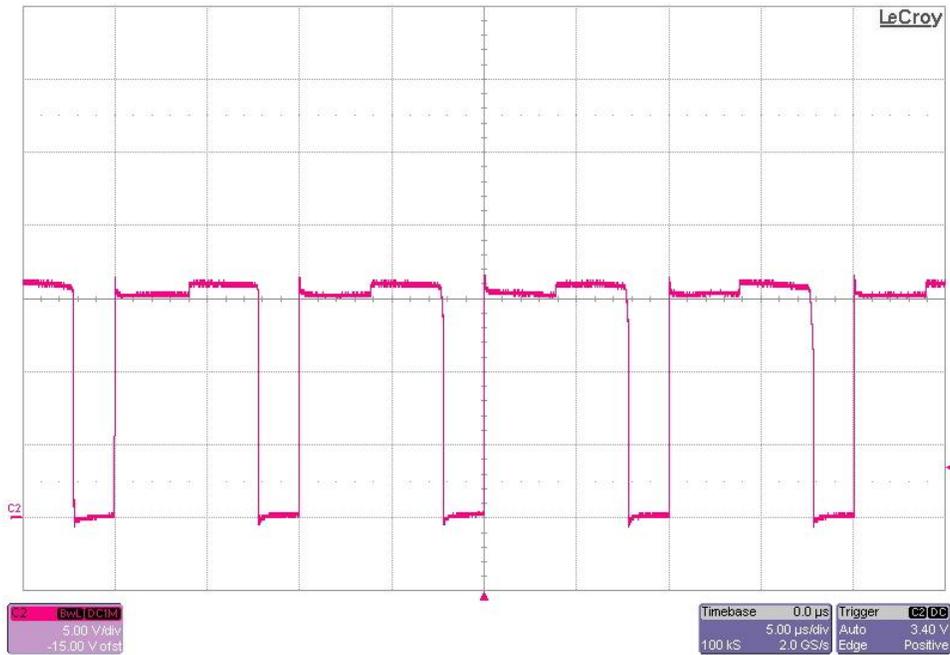
The photo below is the switch-node waveform. The input voltage is 4.5V and the output is loaded to 1.5A. (5V/DIV, 5uS/DIV)



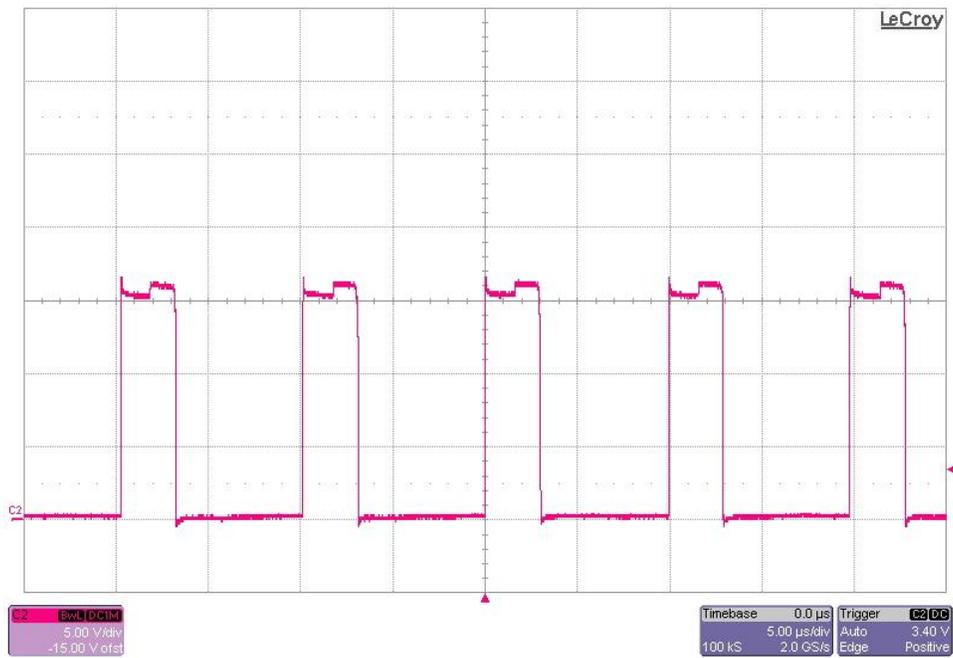
The photo below is the switch-node waveform. The input voltage is 3V and the output is loaded to 1.5A. (5V/DIV, 5uS/DIV)



The photo below is the switch-node waveform. The input voltage is 12V and the output is loaded to 0.63A. The converter operates in CCM above this current level. (5V/DIV, 5uS/DIV)



The photo below is the switch-node waveform. The input voltage is 4.5V and the output is loaded to 0.27A. The converter operates in CCM above this current level. (5V/DIV, 5uS/DIV)



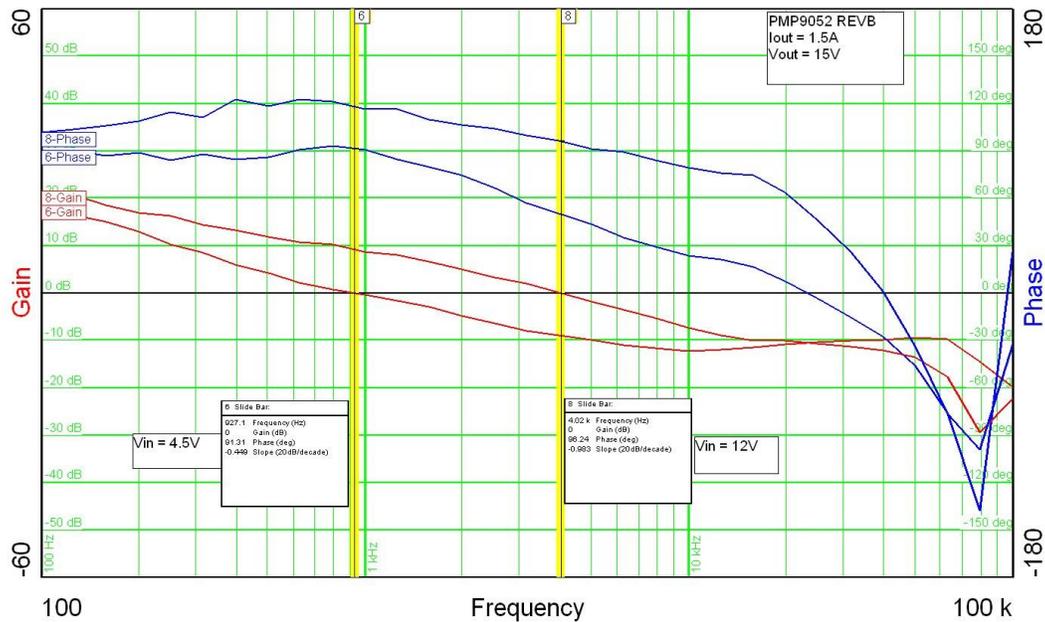
## 6 Loop Gain

The plot below shows the loop gain with the input voltage at 4.5V and 12V and the output loaded to 1.5A.

Loop Gain (Vin = 4.5V)  
Loop Gain (Vin = 12V)

BW: 927Hz  
BW: 4.02KHz

PM: 91 degrees  
PM: 96 degrees

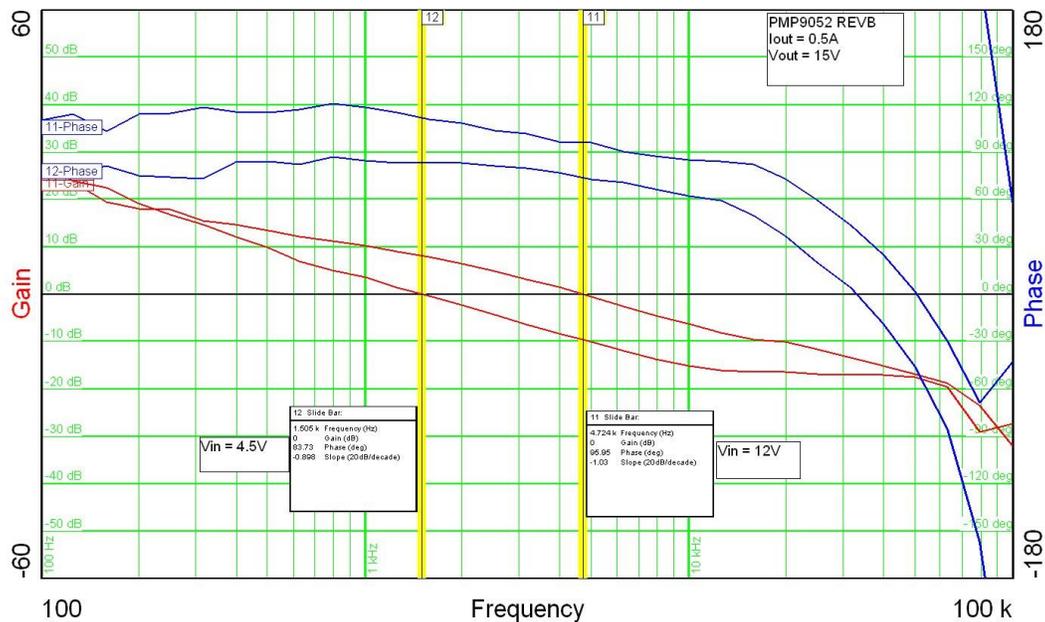


The plot below shows the loop gain with the input voltage at 4.5V and 12V and the output loaded to 0.5A.

Loop Gain (Vin = 4.5V)  
Loop Gain (Vin = 12V)

BW: 1.51KHz  
BW: 4.72KHz

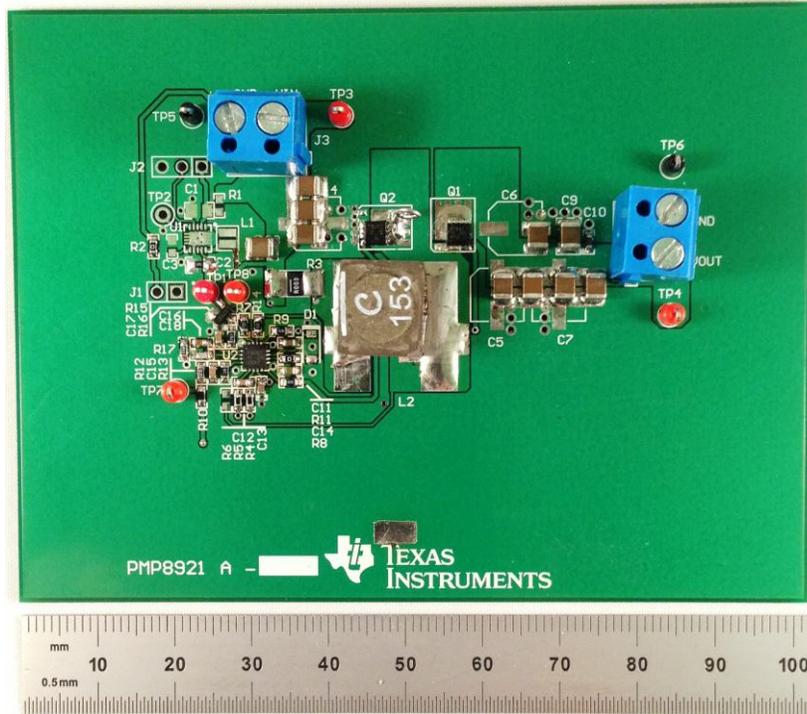
PM: 84 degrees  
PM: 96 degrees



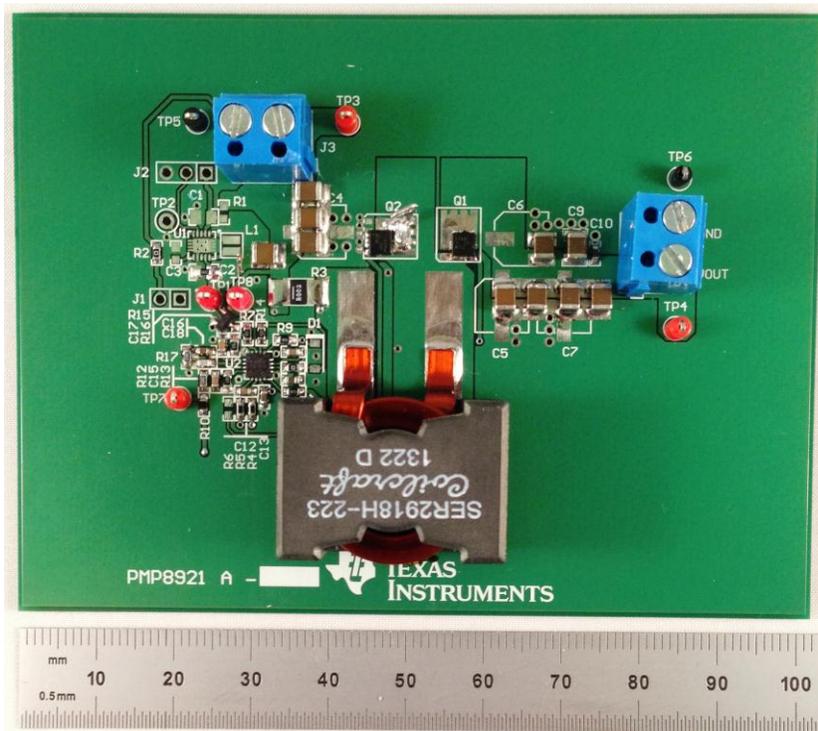
## 7 Photo

The photo below shows the PMP9052 REVB assembly built on the PMP8921 REVA PWB (with mods).

...with XAL1010-153 inductor



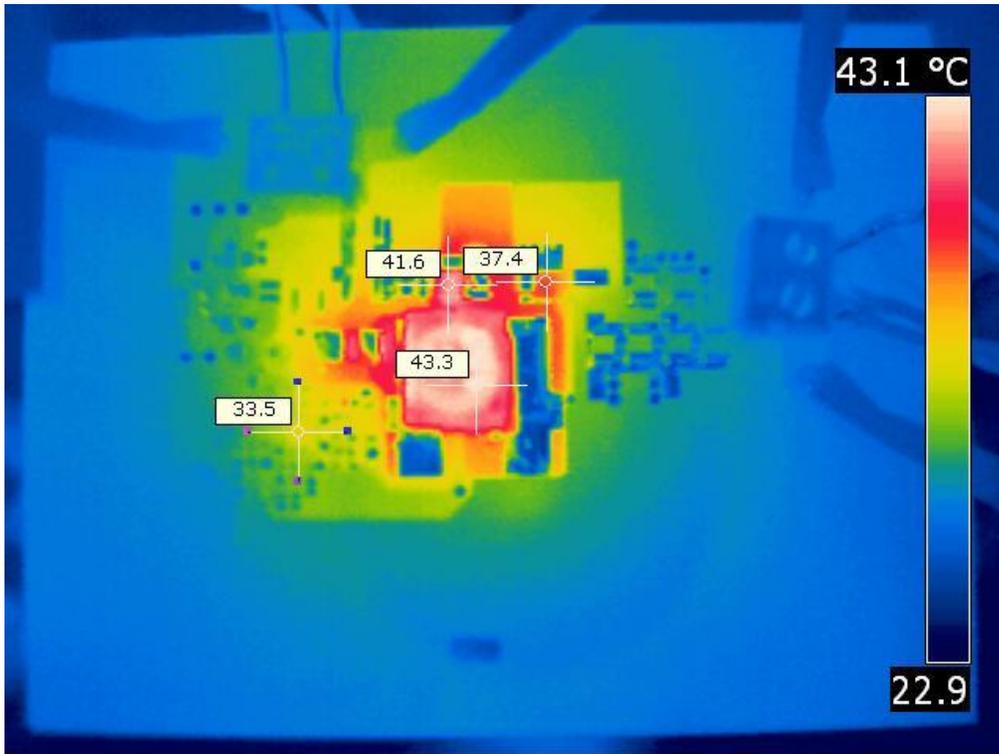
...with SER2918H-223 inductor



## 8 Thermal Image

A thermal image is shown below when operating at 4.5V<sub>in</sub> and 1.5A output, no air flow.

...with XAL1010-153 inductor



...with SER2918H-223 inductor



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