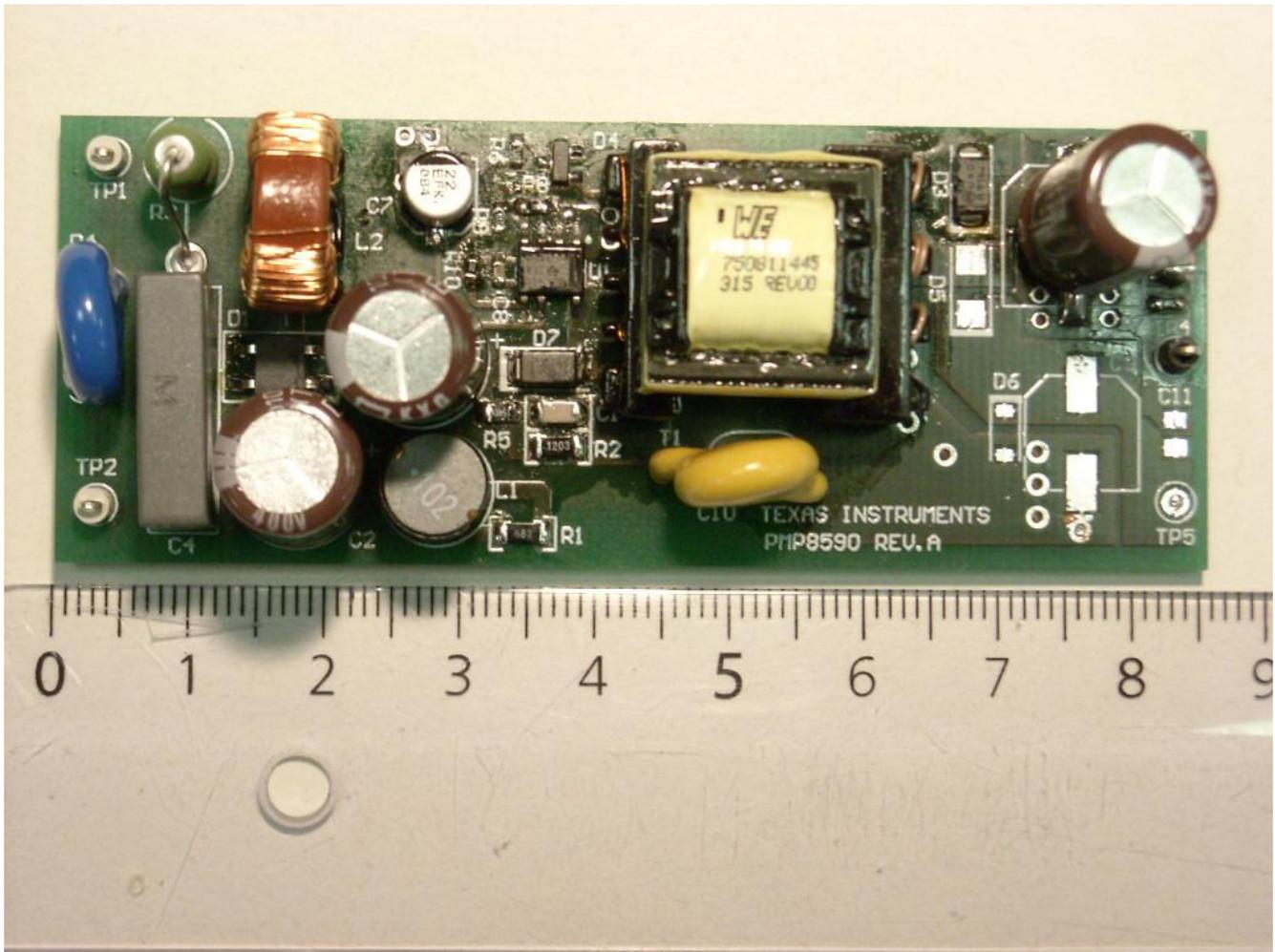


PICTURE OF THE BOARD:

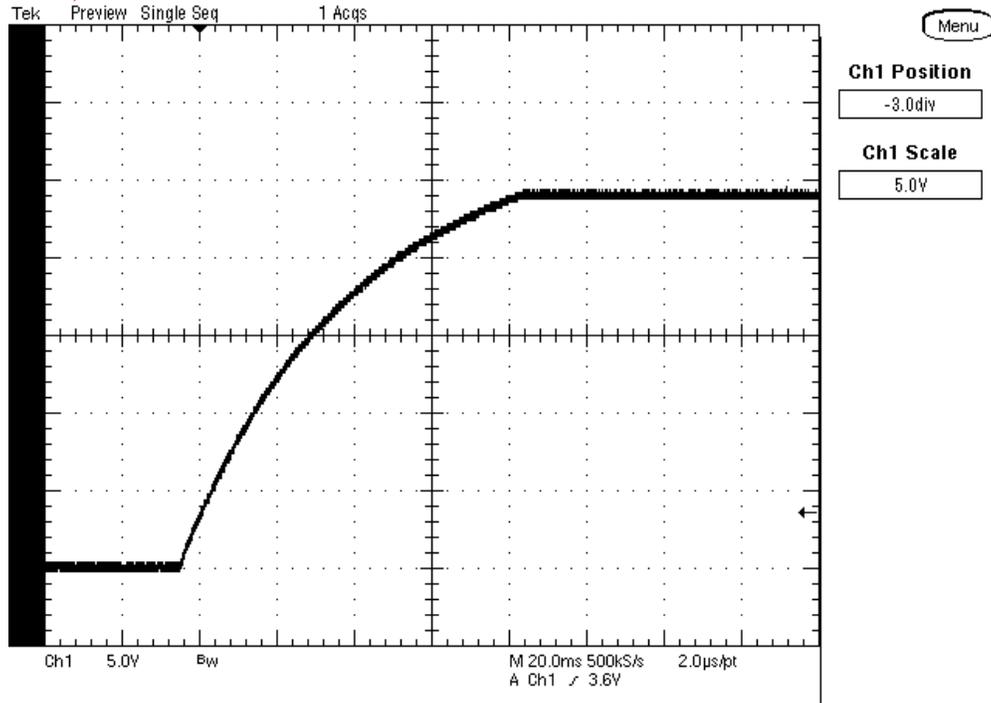


1. Startup

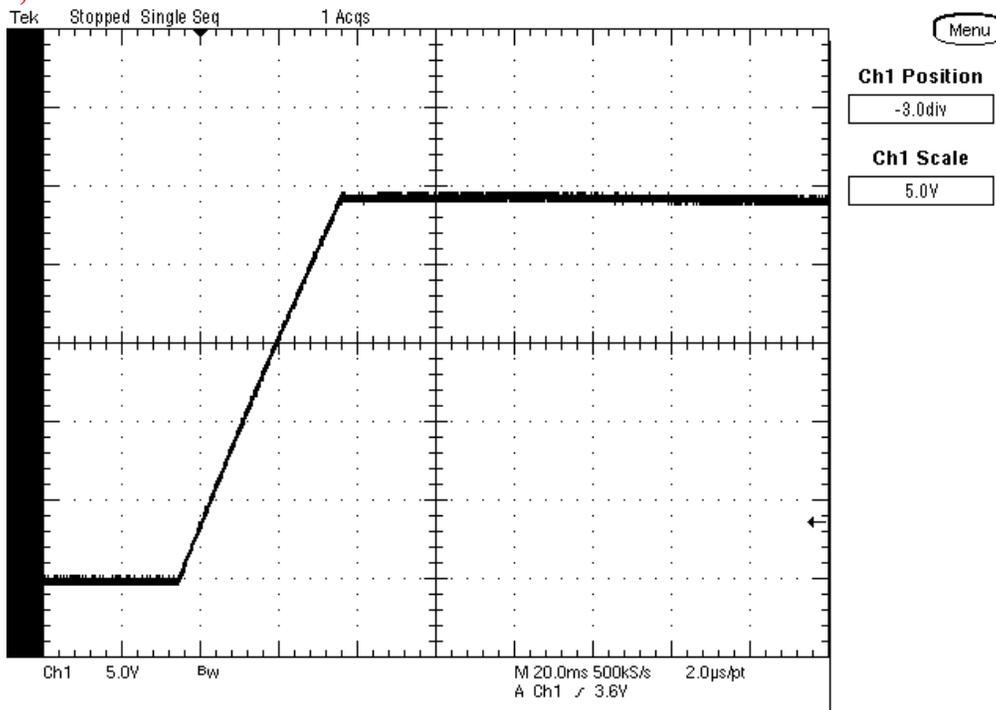
The output voltage behavior at startup is shown in the images below. The input voltage was set to 320Vdc. The output current was 250mA for the upper picture and 0 A for the bottom one.

Ch.1: Output voltage (5V/div, 20ms/div, DC coupling, 20MHz BWL)

$I_{out} = 250mA$;

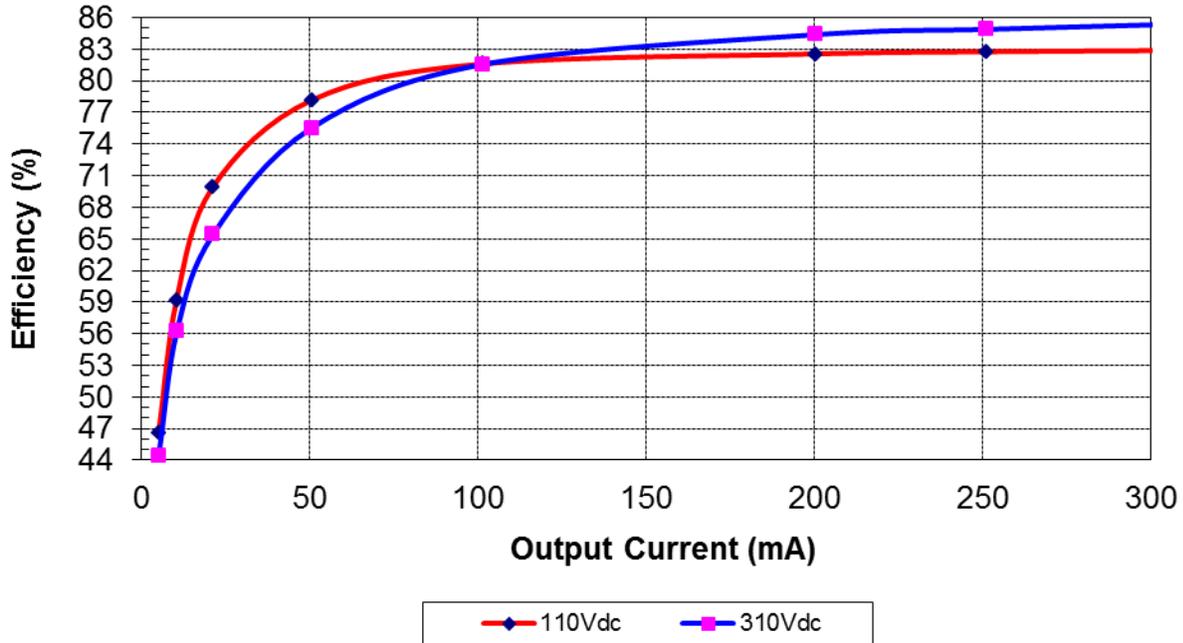


$I_{out} = 0A$;



1 Efficiency

The efficiency data are shown in the tables and graph below. A DC voltage source has been used in order to get the best accuracy at light load, set to 110Vdc and 310Vdc.

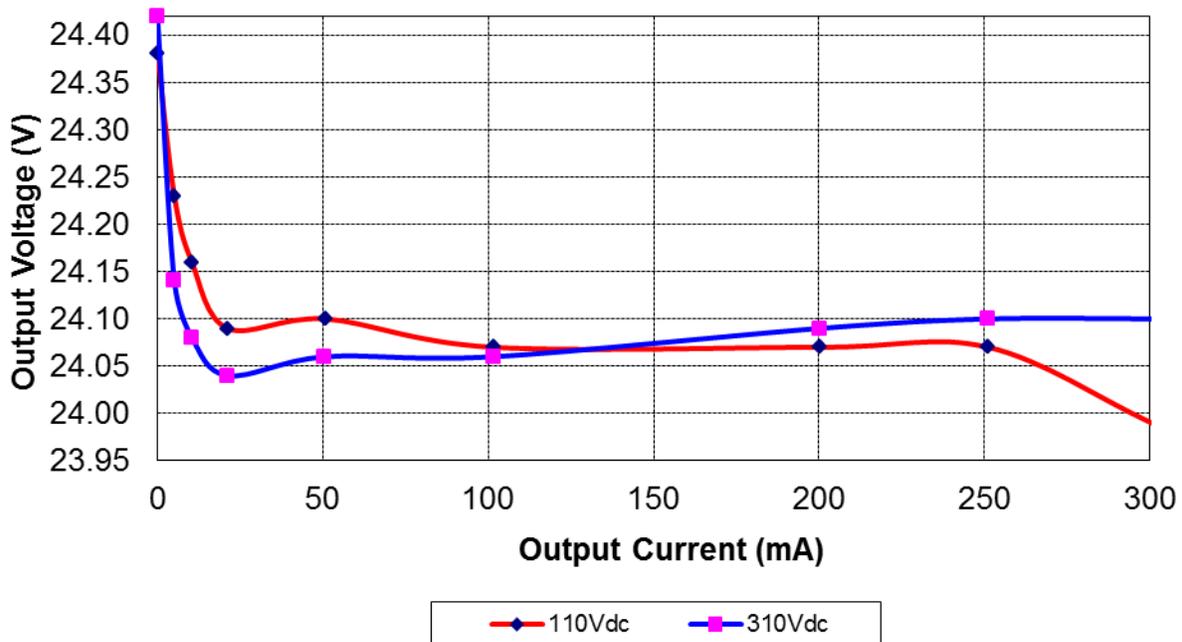


Iout (mA)	Vout (V)	Pout (W)	Iin (mA)	Vin (Vdc)	Pin (W)	Ploss (W)	Eff (%)
0	24.38	0	0.43	110.00	0.047	0.0473	0.00
5.1	24.23	0.124	2.411	110.00	0.265	0.1416	46.59
10.4	24.16	0.251	3.86	110.00	0.425	0.1733	59.18
21.2	24.09	0.511	6.64	110.00	0.730	0.2197	69.92
50.7	24.10	1.222	14.21	110.00	1.563	0.3412	78.17
101.5	24.07	2.443	27.22	110.00	2.994	0.5511	81.59
200.3	24.07	4.821	53.1	110.00	5.841	1.0198	82.54
251.1	24.07	6.044	66.4	110.00	7.304	1.2600	82.75
300.5	23.99	7.209	79.1	110.00	8.701	1.4920	82.85
301.1	22.27						
302.6	15.30						
302.6	12.25						
302.4	9.124						

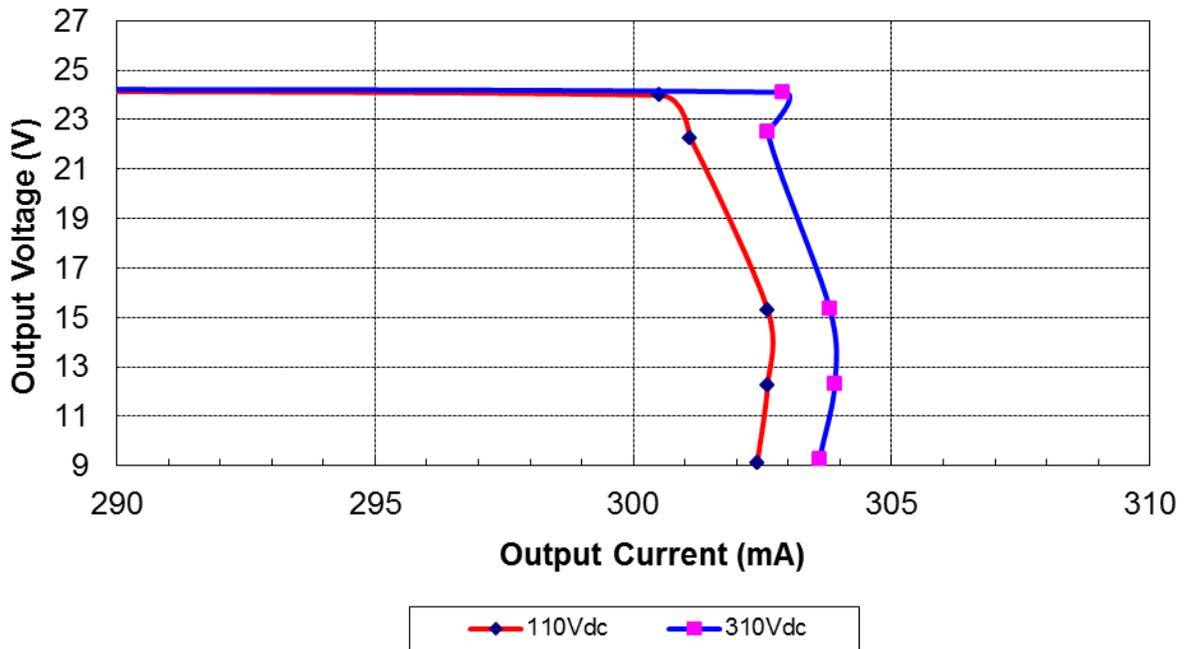
Iout (mA)	Vout (V)	Pout (W)	Iin (mA)	Vin (Vdc)	Pin (W)	Ploss (W)	Eff (%)
0	24.42	0	0.102	310.00	0.032	0.0316	0.00
5.1	24.14	0.123	0.895	310.00	0.277	0.1543	44.37
10.5	24.08	0.253	1.451	310.00	0.450	0.1970	56.21
21.3	24.04	0.512	2.525	310.00	0.783	0.2707	65.42
50.6	24.06	1.217	5.20	310.00	1.612	0.3946	75.52
101.5	24.06	2.442	9.66	310.00	2.995	0.5525	81.55
200.3	24.09	4.825	18.5	310.00	5.720	0.8943	84.36
251.2	24.10	6.054	23.0	310.00	7.133	1.0792	84.87
302.9	24.10	7.300	27.6	310.00	8.556	1.2561	85.32
302.6	22.49						
303.8	15.37						
303.9	12.30						
303.6	9.254						

2 Output Voltage Regulation

The output voltage variation as function of load and input voltage is shown below:



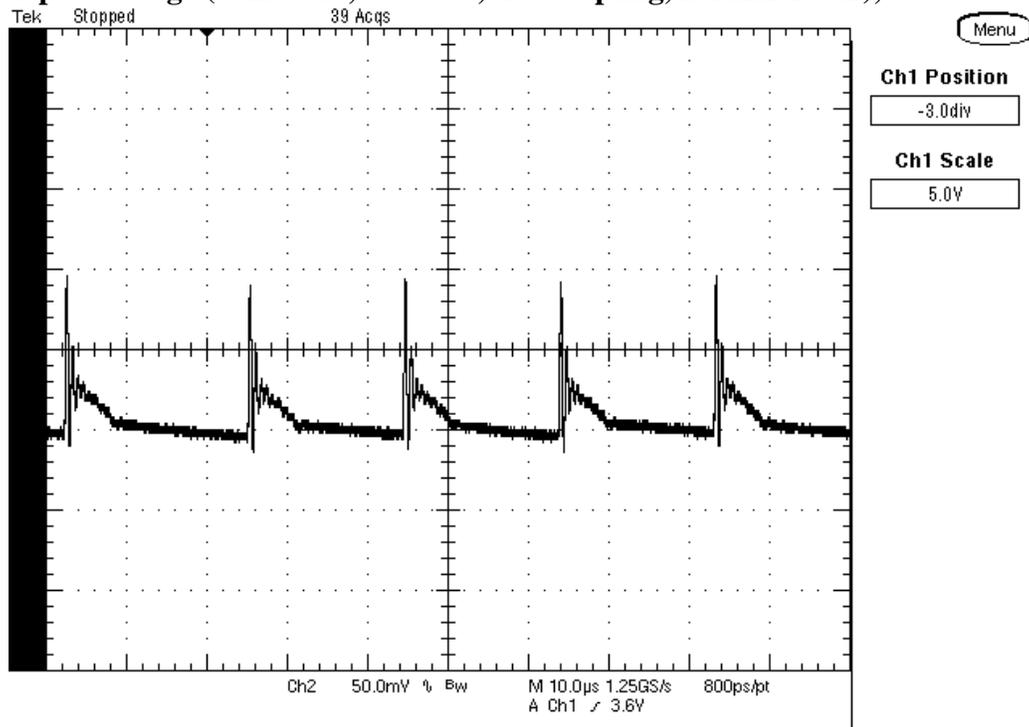
The converter has been loaded with higher current than nominal load in order to measure the current limit curve, for each input DC voltage:



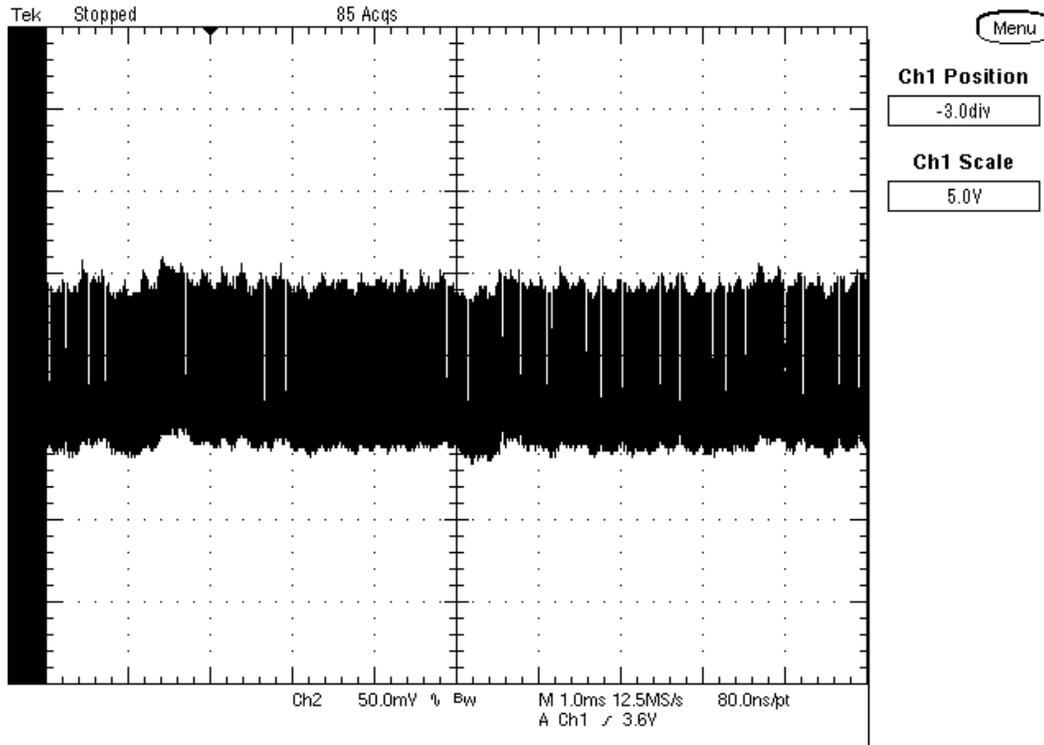
3 Output Ripple Voltage

The output ripple voltage is shown in the plots below. The input was set to 320Vdc and the output fully loaded (first two pictures) and loaded with 30mA (last one).

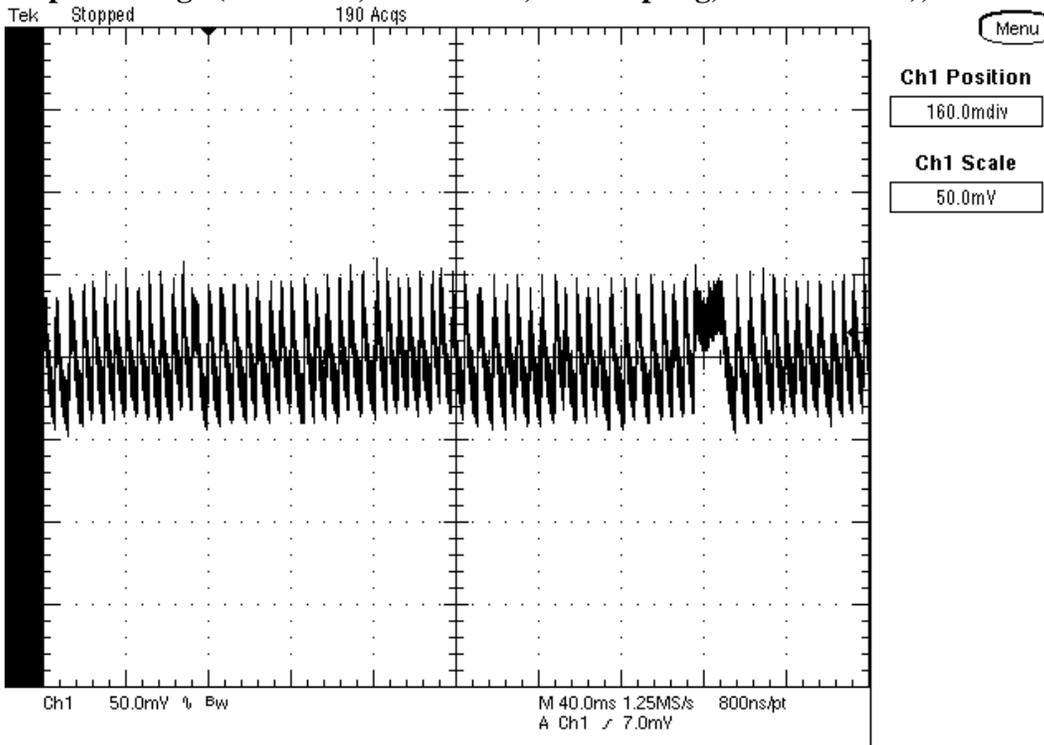
Ch.2: Output Voltage (50mV/div, 10us/div, AC coupling, 20MHz BWL), Iout = 250mA



Same conditions like above but with larger time base (**1msec/div**):



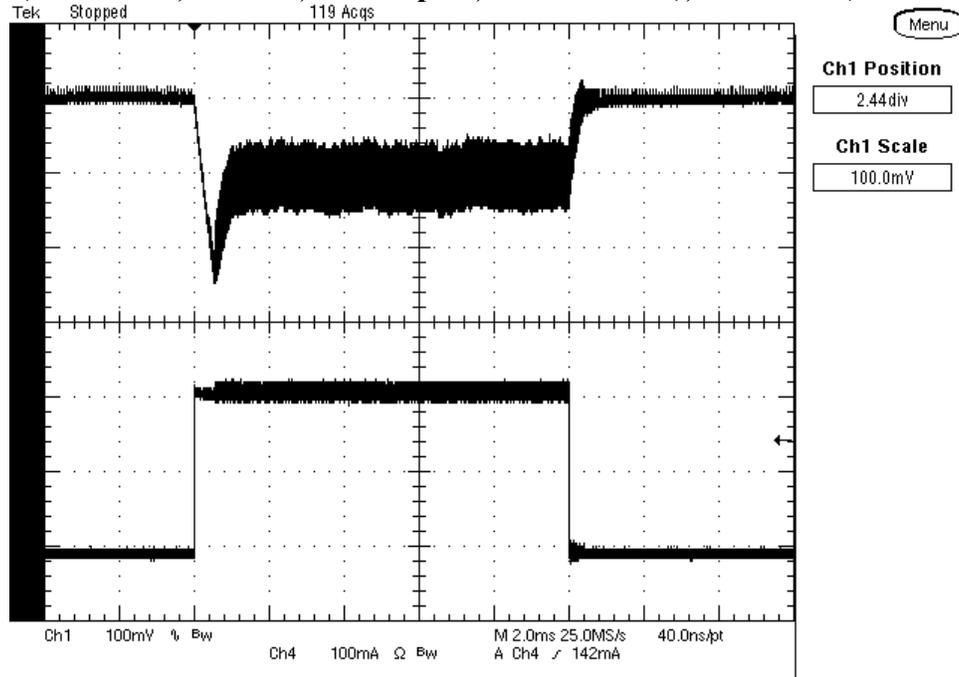
Ch.2: Output Voltage (50mV/div, 40msec/div, AC coupling, 20MHz BWL), Iout = 30mA



4 Transient Response

The image below shows the transient response on the output voltage when the load has been switched between 0 and 200mA, at 320Vdc.

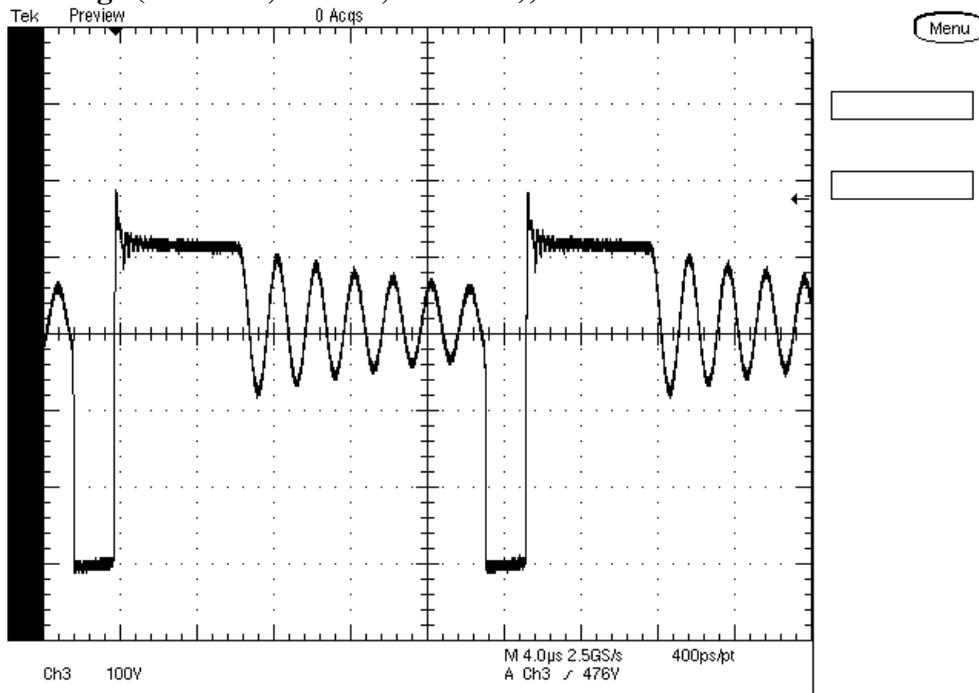
Ch1: Vout (100mV/div, 2ms/div, AC coupled, 20MHz BWL), Ch4: Iout (100mA/div)



5 Switching Node Waveform

The image below shows the peak voltage on pin 8 of UCC28910 with a 320Vdc and full load.

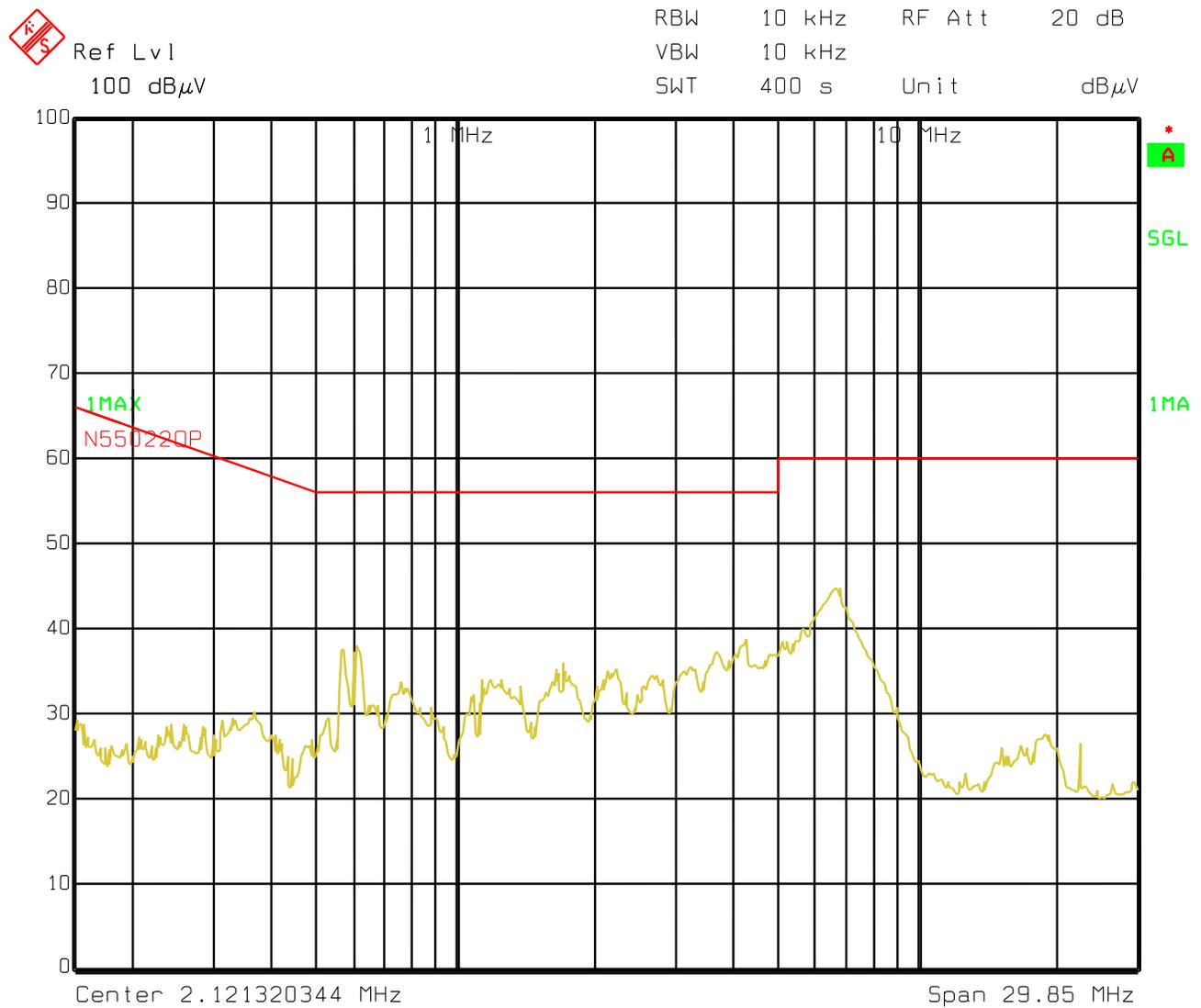
Ch3: pin 8 voltage (100V/div, 4us/div, No BWL), full load.



6 EMI measurement

The graph below shows the EMI measurement of the converter connected to an isolation transformer plus a Hameg HM6050-2 LISN. The supply voltage was 230Vac.

The converter has been loaded with a 100 Ohm power resistor. Both converter and resistor have been placed 20cm over the ground plane. The output ground terminal has been connected to the ground of the LISN (worst case condition) and the worst measurement between line and neutral has been reported.



Date: 12.JUL.2013 9:01:05

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