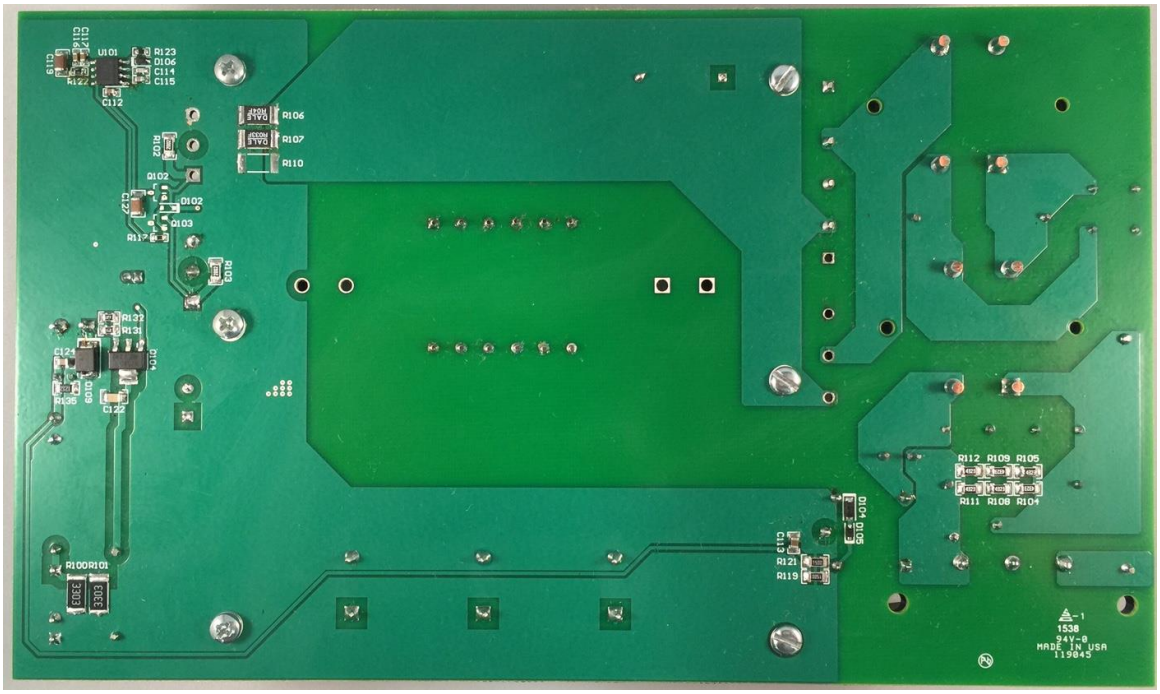
# 1 Photo

The photographs below show the top and bottom views of the PMP12074 Rev A board, which is built on PMP11062 Rev A PCB.

## Top Side

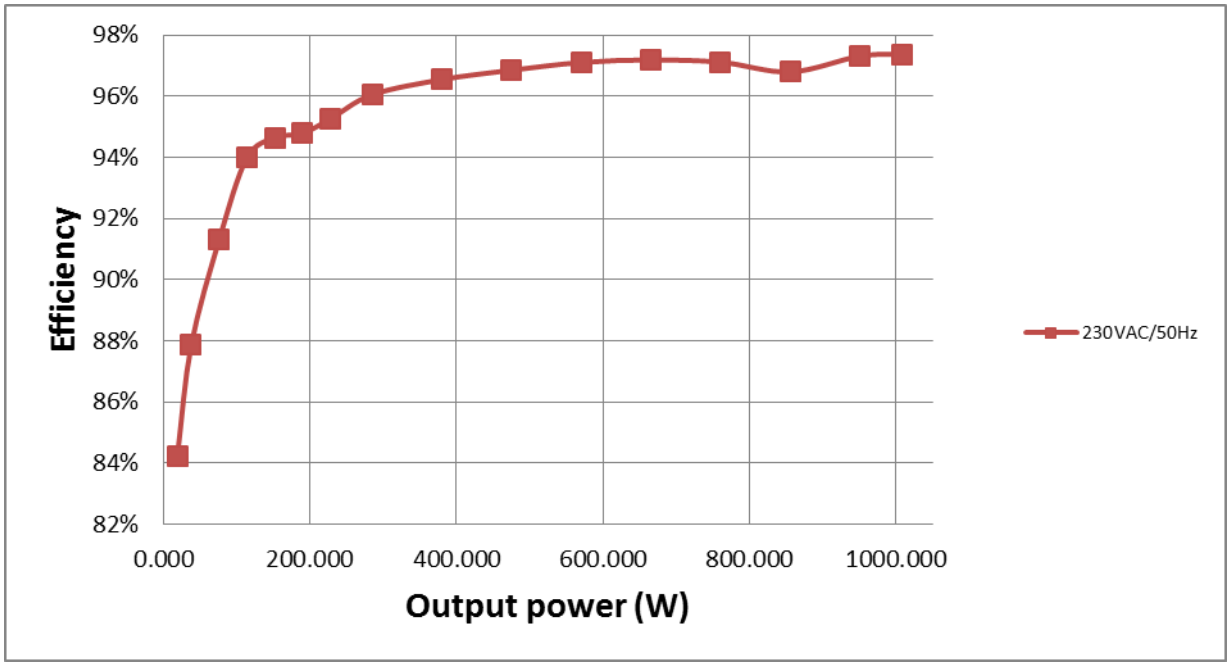
## Bottom Side



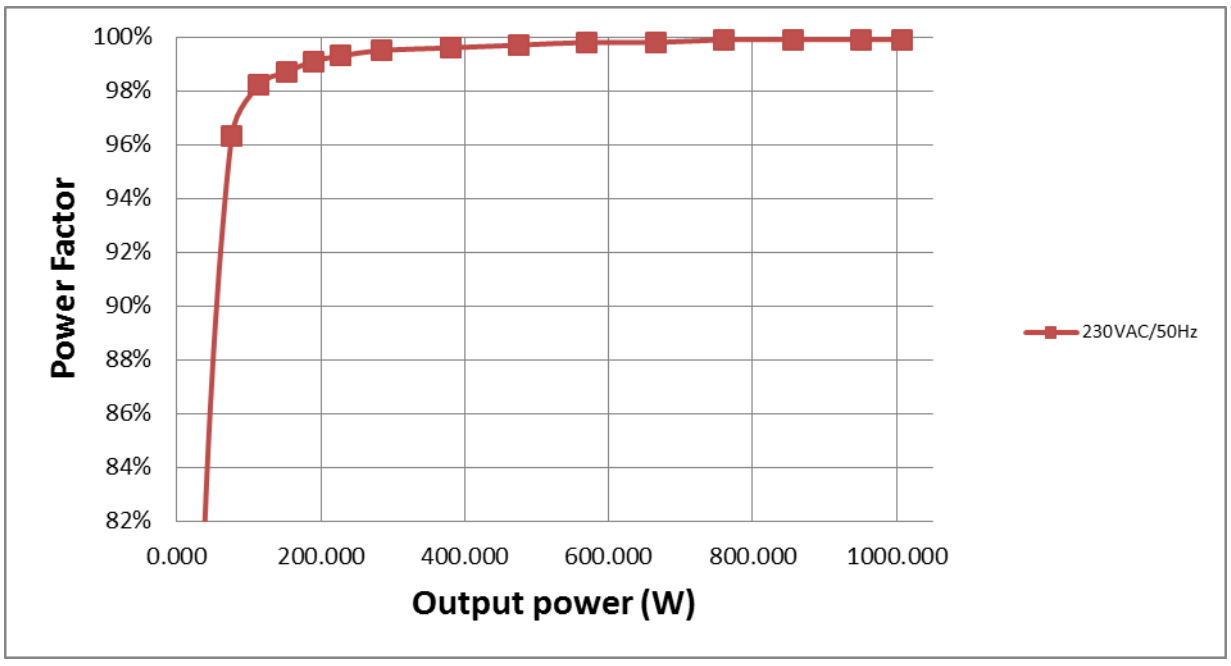
## 2 Efficiency and Power Factor

The efficiency curves of total supply are shown in the tables and graph below. Efficiency tests are performed with nature airflow.

### *2.1 Efficiency:*




### *2.2 Power factor:*

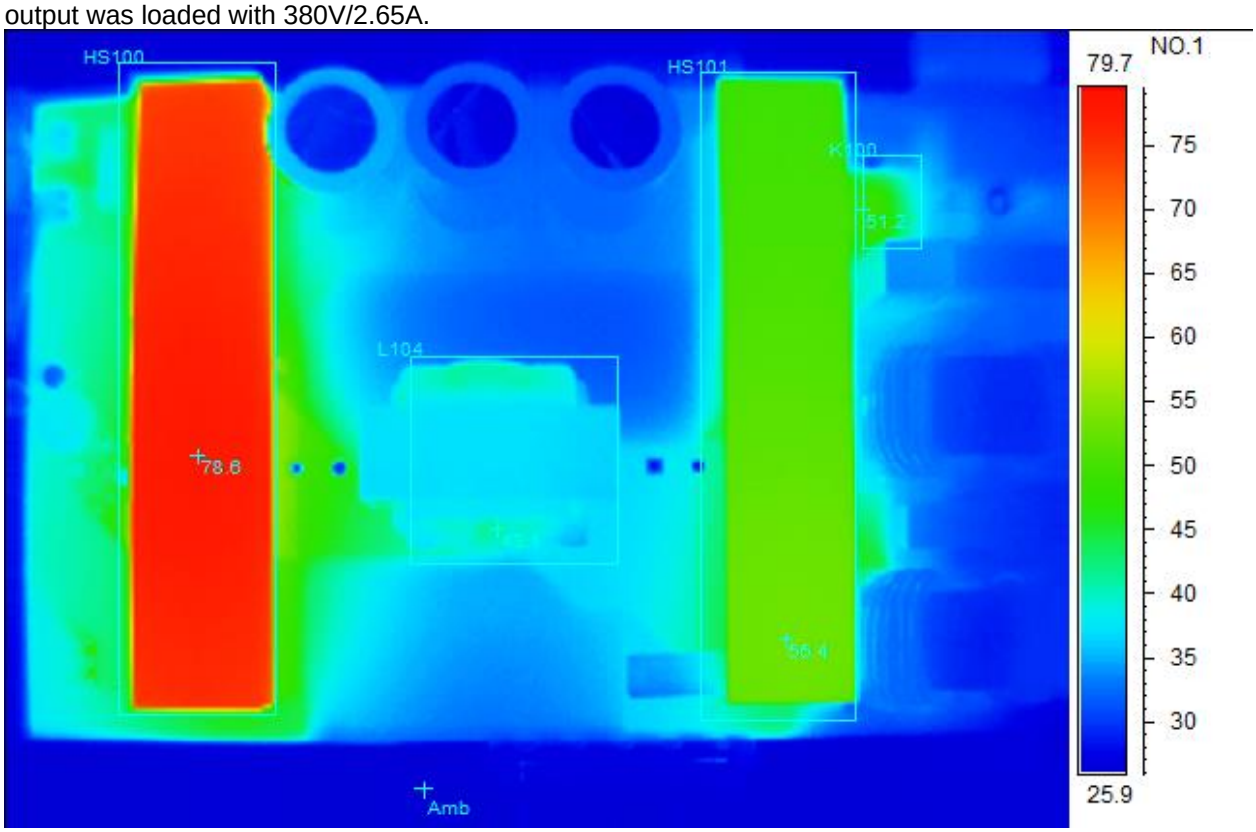


### 230$V_{AC}$/50Hz

| Vin,rms(V) | Iin,rms(A) | Pin(W) | P.F. | Vout(V) | Iout(A) | Pout(W) | Ploss(W) | Eff. (%) |
|---|---|---|---|---|---|---|---|---|
| 230 | 4.504 | 1035.00 | 0.999 | 380.3 | 2.650 | 1007.795 | 27.2050 | 97.37% |
| 230 | 4.254 | 977.00 | 0.999 | 380.3 | 2.500 | 950.750 | 26.2500 | 97.31% |
| 230 | 3.850 | 884.00 | 0.999 | 380.3 | 2.250 | 855.675 | 28.3250 | 96.80% |
| 230 | 3.410 | 783.20 | 0.999 | 380.3 | 2.000 | 760.600 | 22.6000 | 97.11% |
| 230 | 2.981 | 684.60 | 0.998 | 380.2 | 1.750 | 665.350 | 19.2500 | 97.19% |
| 230 | 2.559 | 587.30 | 0.998 | 380.2 | 1.500 | 570.300 | 17.0000 | 97.11% |
| 230 | 2.139 | 490.70 | 0.997 | 380.2 | 1.250 | 475.250 | 15.4500 | 96.85% |
| 230 | 1.718 | 393.70 | 0.996 | 380.1 | 1.000 | 380.100 | 13.6000 | 96.55% |
| 230 | 1.297 | 296.80 | 0.995 | 380.1 | 0.750 | 285.075 | 11.7250 | 96.05% |
| 230 | 1.048 | 239.40 | 0.993 | 380.1 | 0.600 | 228.060 | 11.3400 | 95.26% |
| 230 | 0.880 | 200.50 | 0.991 | 380.1 | 0.500 | 190.050 | 10.4500 | 94.79% |
| 230 | 0.708 | 160.64 | 0.987 | 380.1 | 0.400 | 152.040 | 8.6000 | 94.65% |
| 230 | 0.537 | 121.32 | 0.982 | 380.1 | 0.300 | 114.030 | 7.2900 | 93.99% |
| 230 | 0.376 | 83.27 | 0.963 | 380.1 | 0.200 | 76.020 | 7.2500 | 91.29% |
| 230 | 0.231 | 43.25 | 0.814 | 380 | 0.100 | 38.000 | 5.2500 | 87.86% |
| 230 | 0.173 | 22.57 | 0.568 | 380.1 | 0.050 | 19.005 | 3.5650 | 84.20% |

## 3 Thermal Images

The thermal images below show top views of the board. The board is placed horizontally during the test. The ambient temperature was 25ºC with natural airflow. 230$V_{AC}$/50Hz AC voltage is applied to input. The output was loaded with 380V/2.65A.



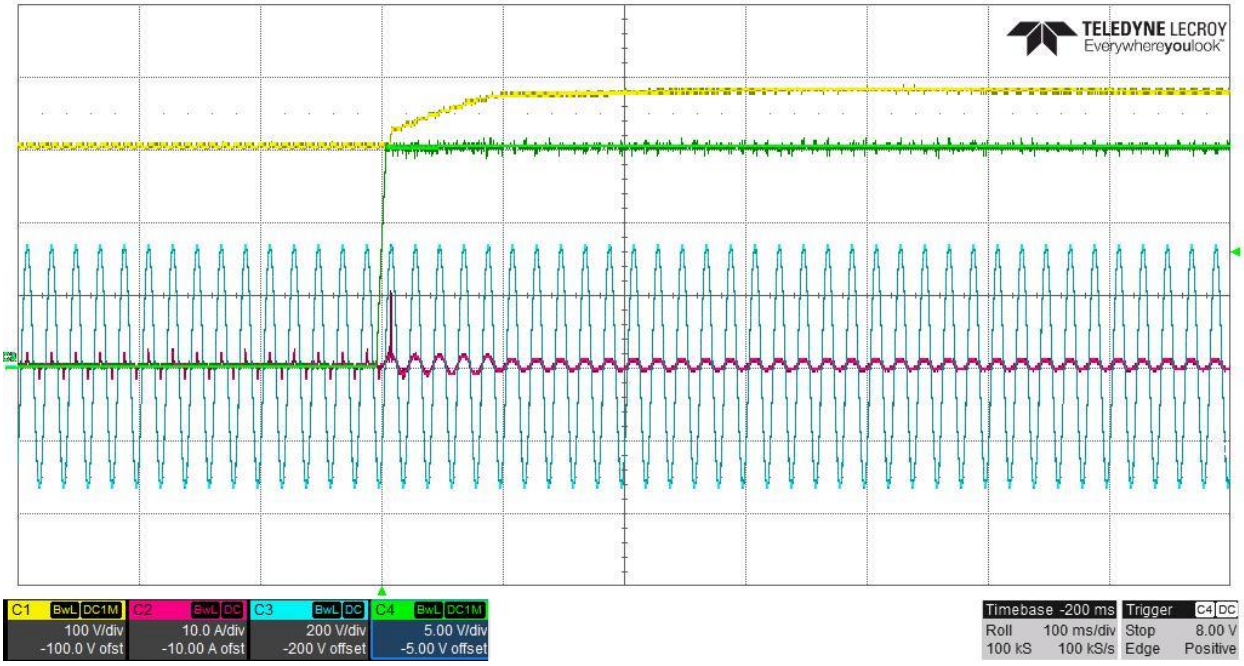

| Spot analysis | Value |
|---|---|
| Amb Temperature | 26.0°C |
| **Area analysis** | **Value** |
| K100Max | 51.2°C |
| HS101Max | 55.4°C |
| L104Max | 43.1°C |
| HS100Max | 78.6°C |

# 4 Startup

The voltages at startup are shown in the images below.

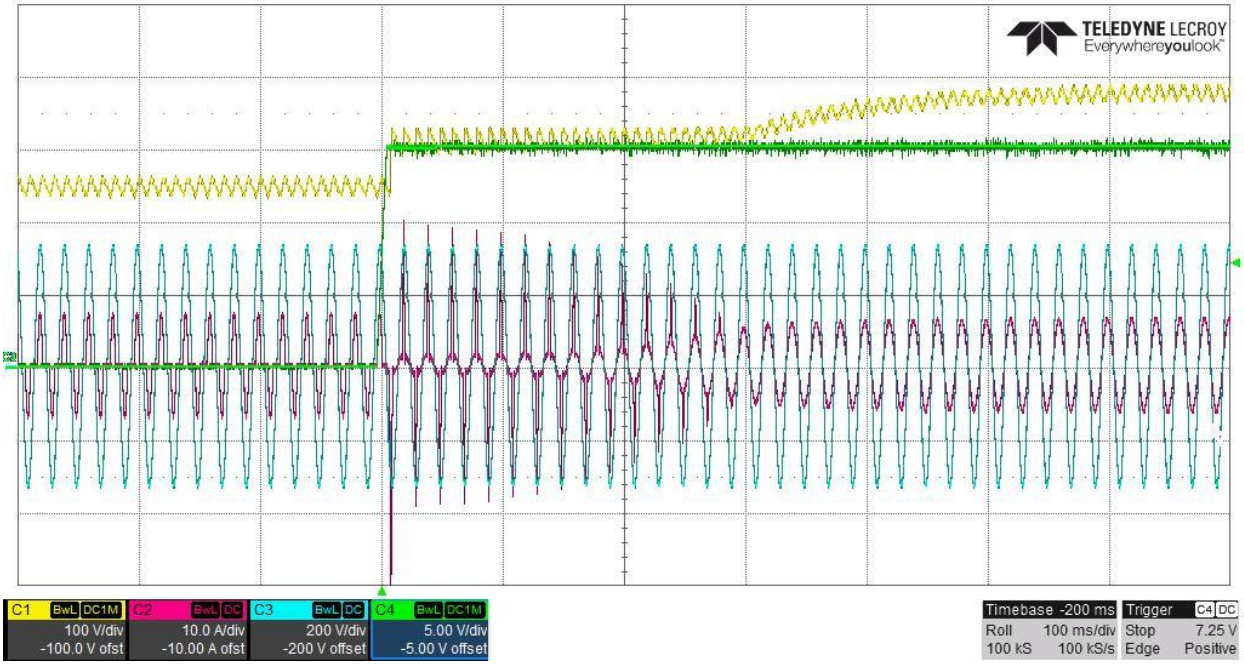
## 4.1 $230V_{AC}$/50Hz – 100W full load on J100

CH1: V(C104) CH2: Iin, CH3: Vin, and CH4: V(C123).




## 4.2 $230V_{AC}$/50Hz – 1000W full load on J100

CH1: V(C104) CH2: Iin, CH3: Vin, and CH4: V(C123).

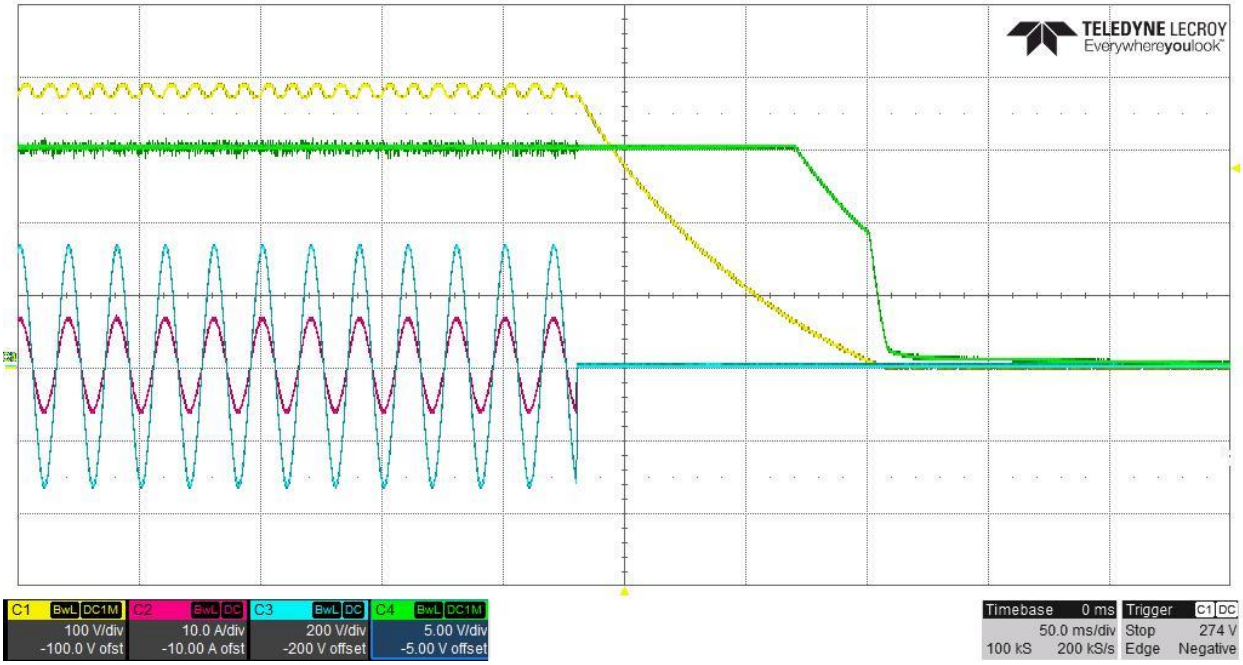


# 5 Turn-off

The voltages at turn-off are shown in the images below.

## *5.1 230$V_{AC}$/50Hz – 1000W full load on J100*

CH1: V(C104) CH2: Iin, CH3: Vin, and CH4: V(C123).

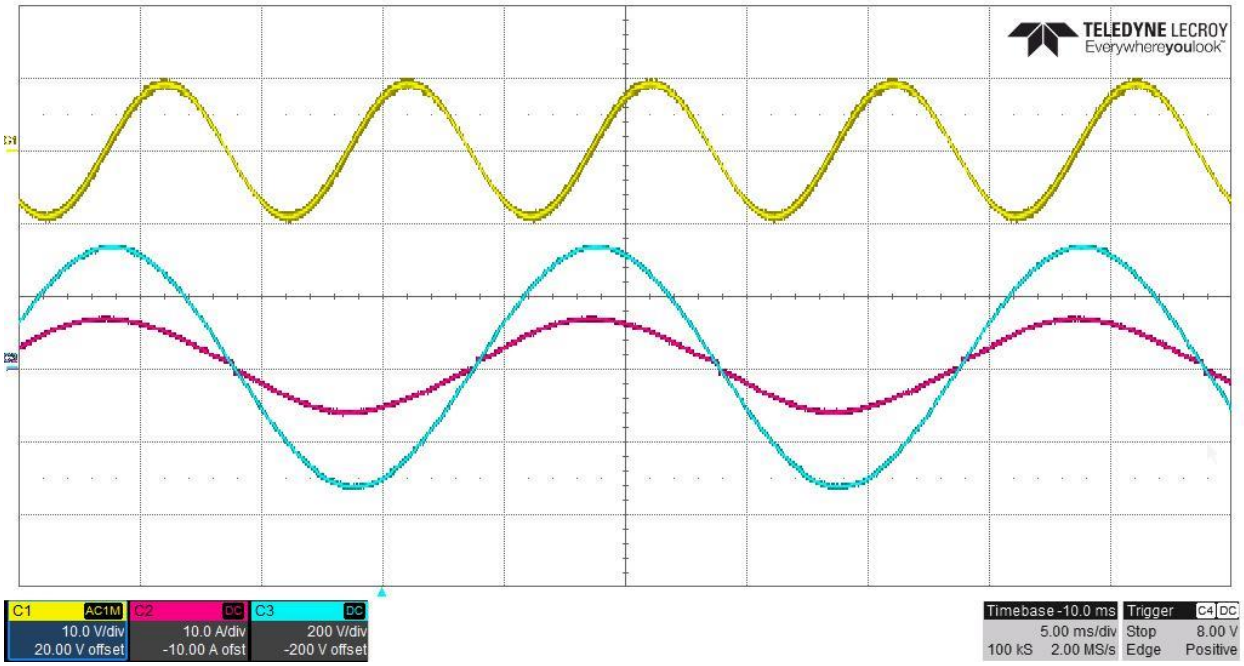


# 6 Output Ripple Voltage

The output ripple voltage (in AC level) during 1000W full load is shown in the plots below.

## *6.1 230$V_{AC}$/50Hz*

CH1: V(C104) CH2: Iin, and CH3: Vin.

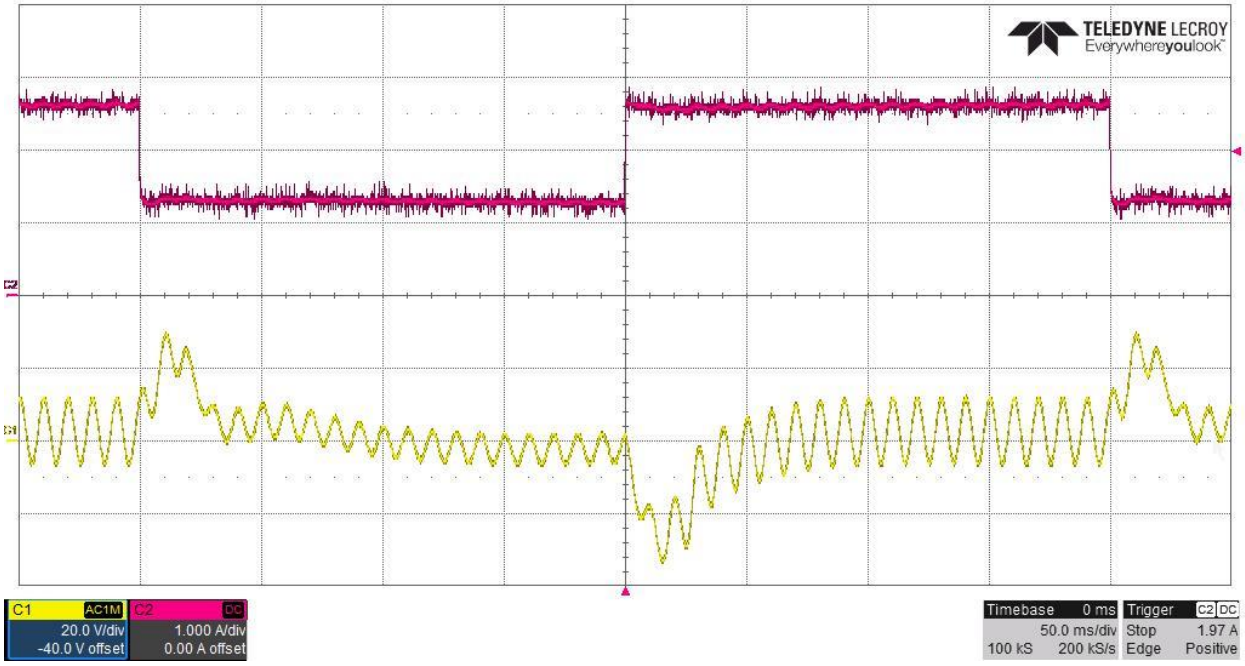


# 7 Transient Response

Transient responses are shown in the plots below.

## *7.1 230$V_{AC}$/50Hz, load changes from 1.15A to 2.65A*

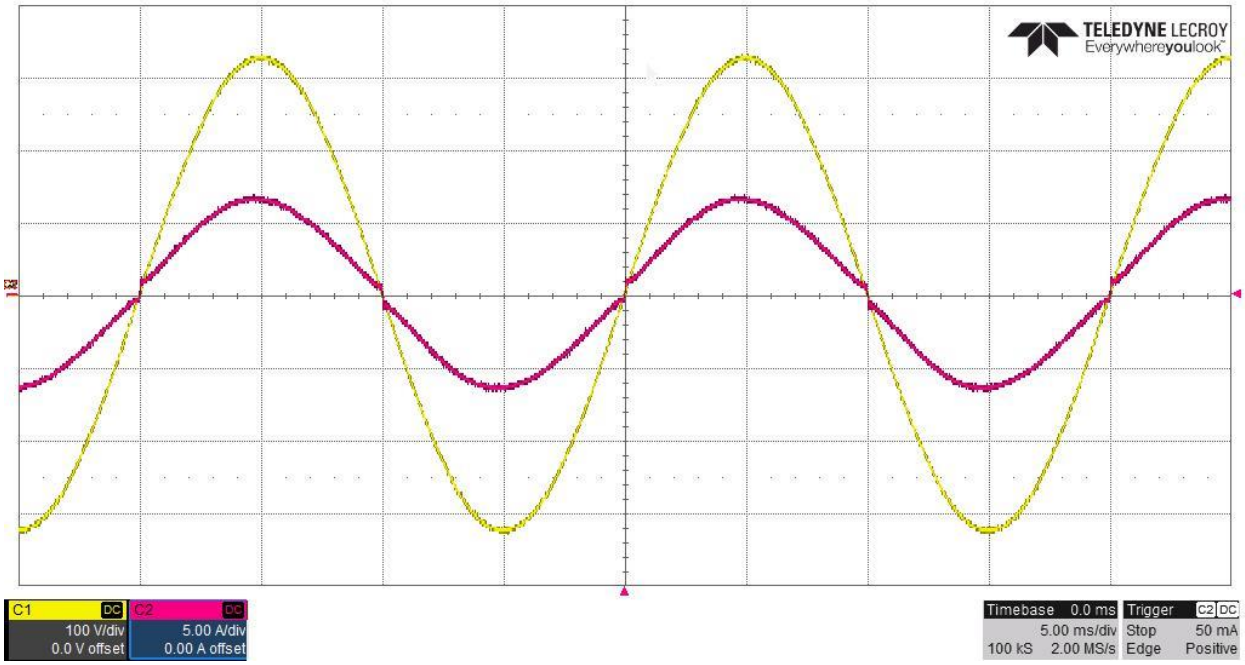
CH1: V(C102) and CH2: Iout.



# 8 Key Waveforms

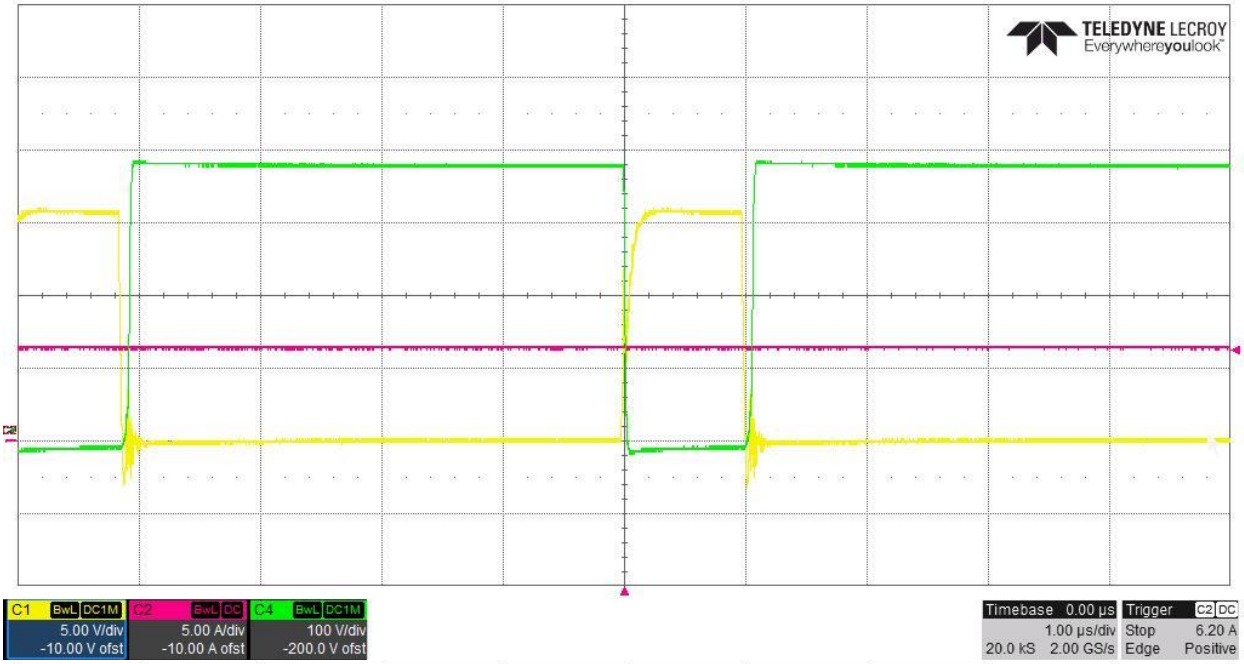
## *8.1 Input current and voltage waveforms*

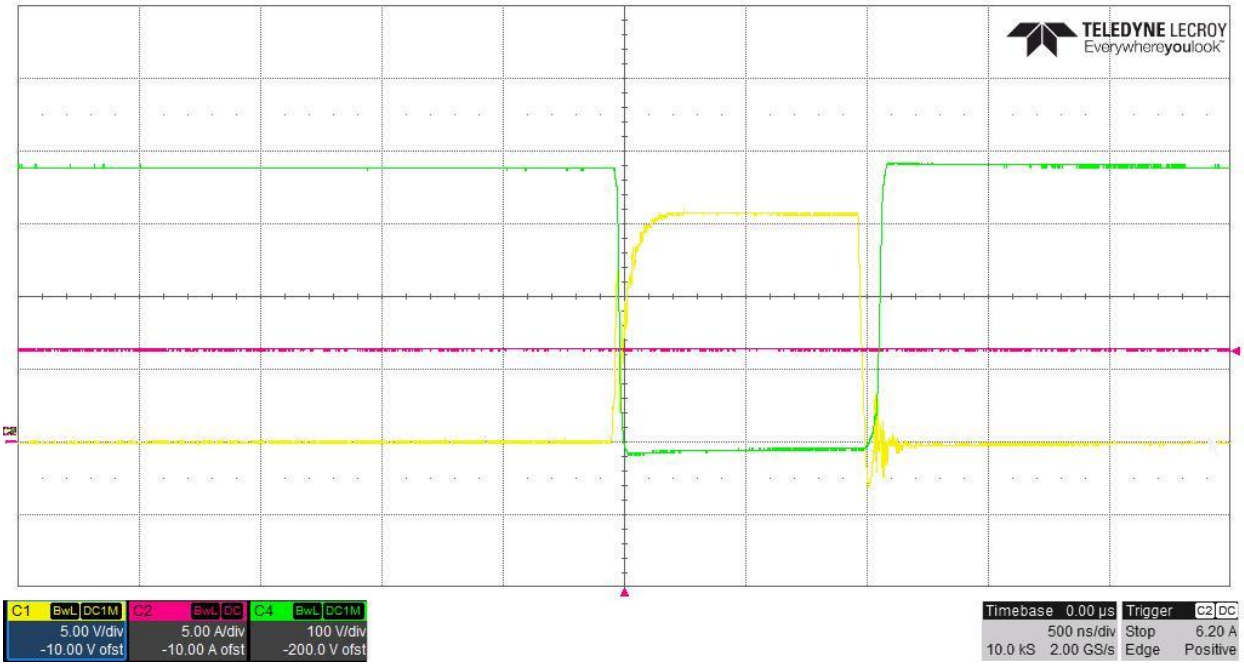
8.1.1 230$V_{AC}$/50Hz, 1000W.



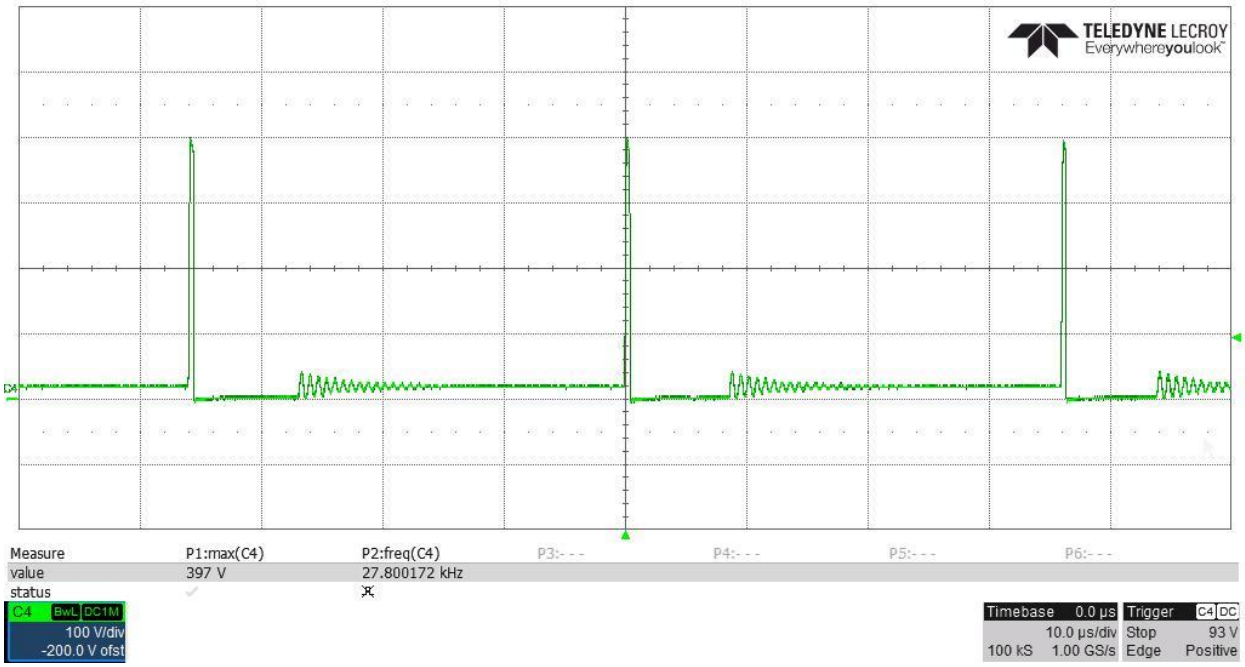
### *8.2 Q100 @ 1000W output from J100 and 230$V_{AC}$/50Hz.*

CH1: $V_{GS}$, CH2: Iin, and CH4: $V_{DS}$.



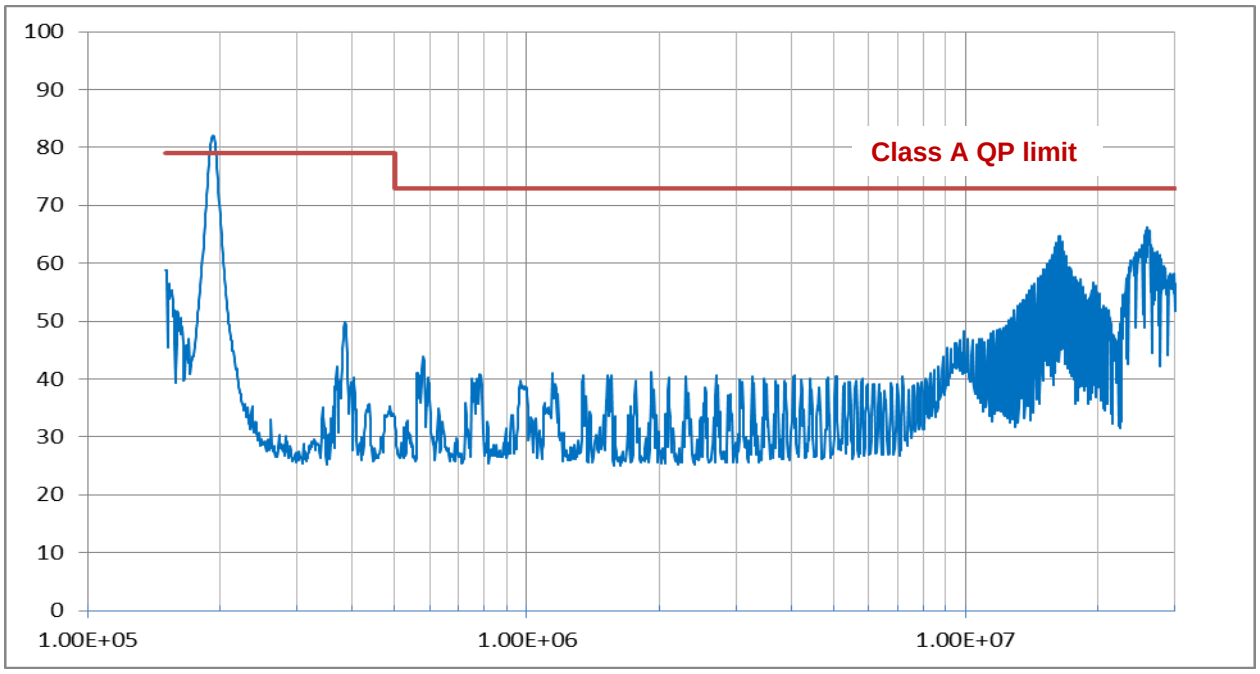
### *8.3 D109 @ 1000W output from J100.*



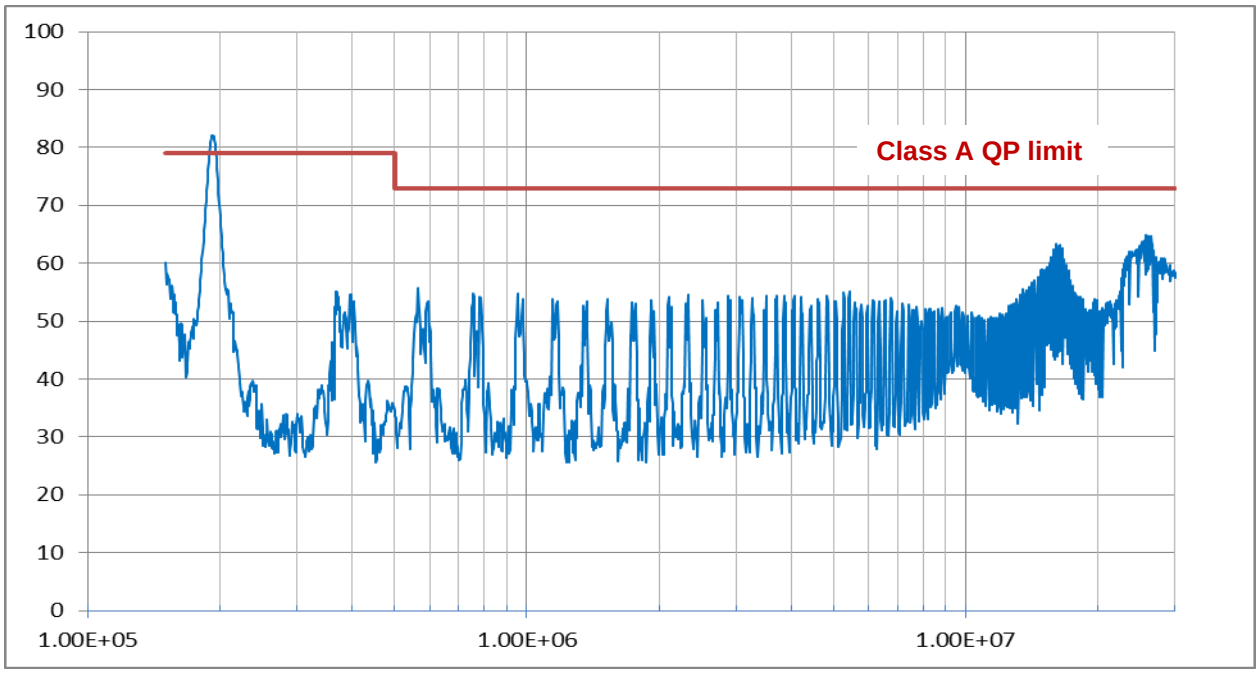
# 9 Conducted EMI:

The following curves show the **peak scan** results with **maximum hold** on PMP12074Rev A board. The board is loaded with 145Ω resistor.

## *9.1 230$V_{AC}$/50Hz, $I_{in}$=4.33A: Line*




## *9.2 230$V_{AC}$/50Hz, $I_{in}$=4.33A: Neutral*



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