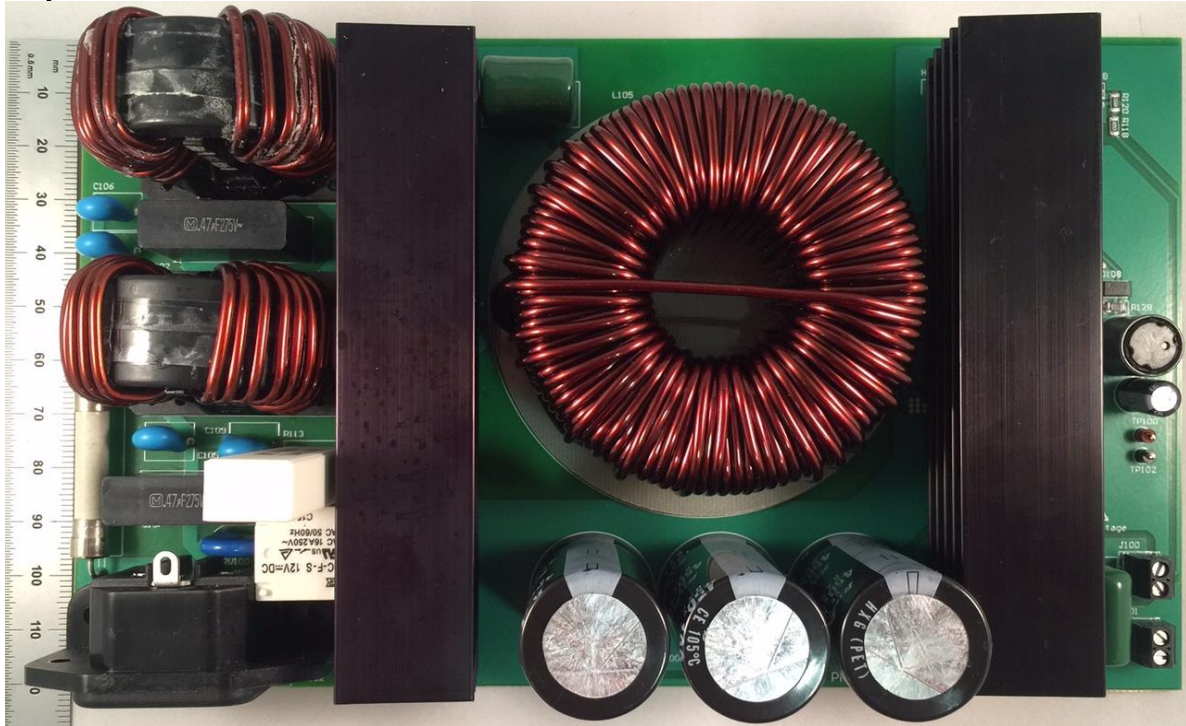


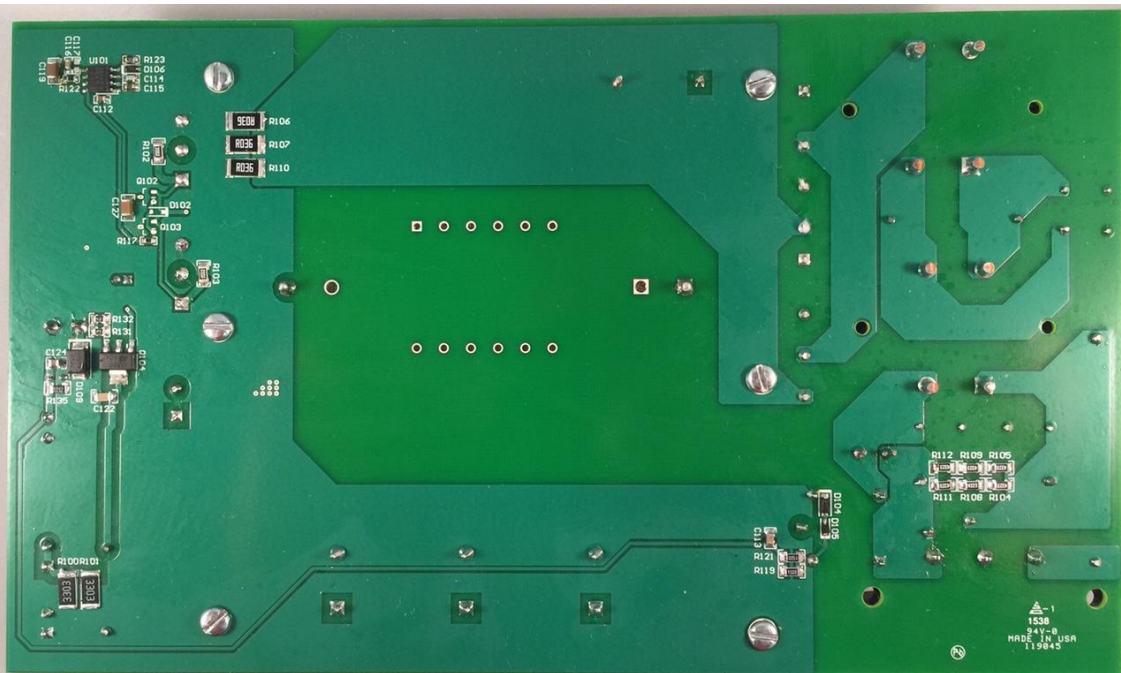
1 Photo

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

Top Side



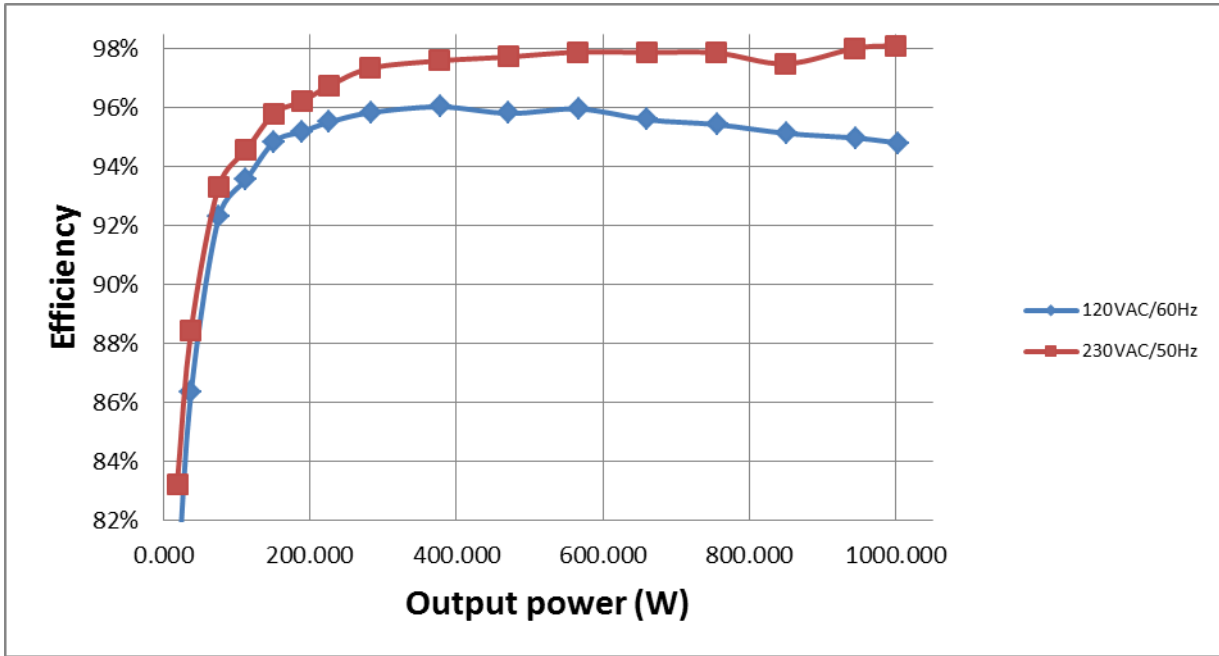
Bottom Side



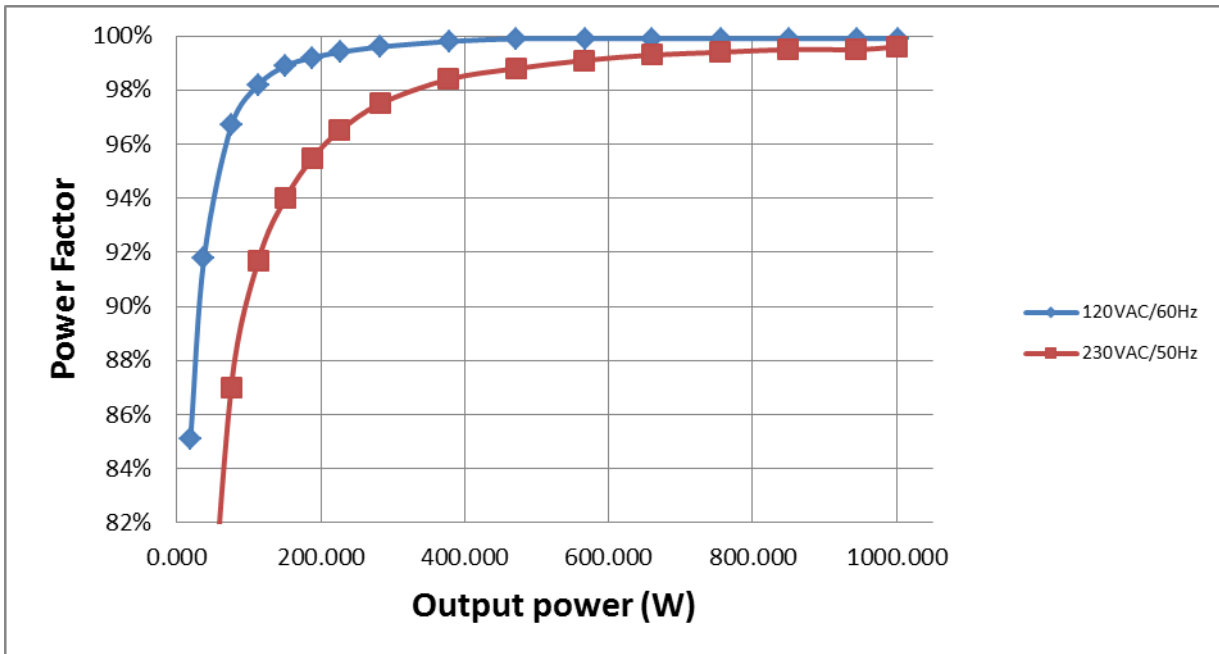
2 Efficiency and Power Factor

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

2.1 Efficiency with G154016LF (Megaflux core) on L105:



2.2 Power factor with G154016LF (Megaflux core) on L105:



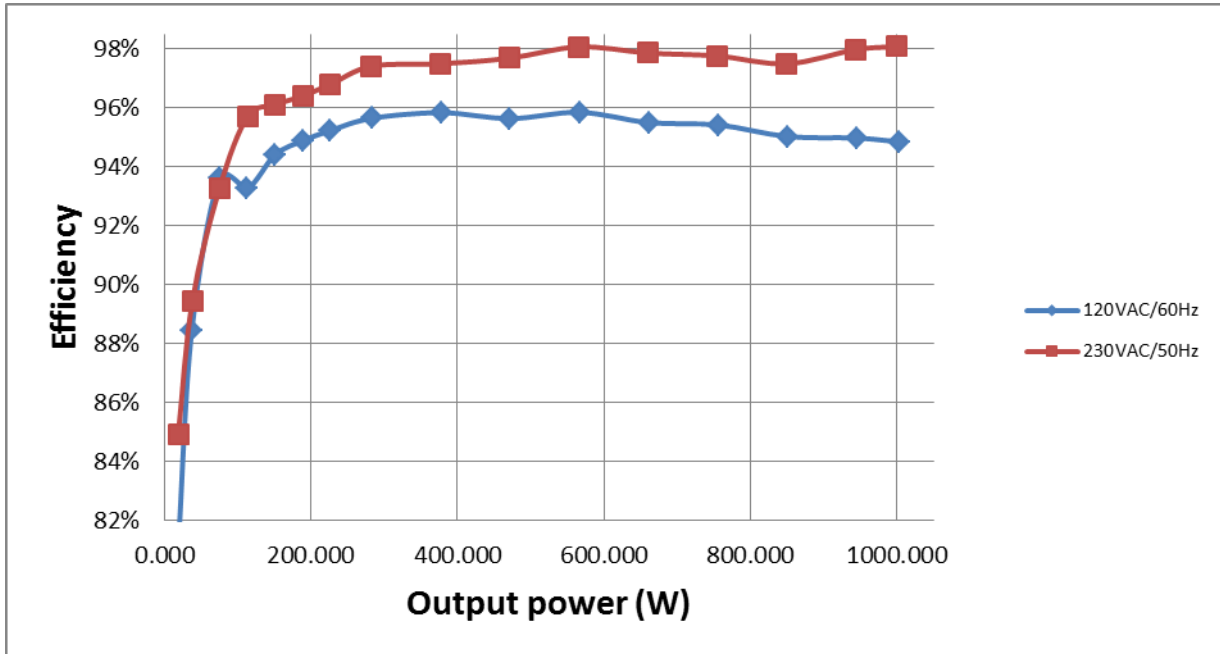
120V_{AC}/60Hz

Vin,rms(V)	Iin,rms(A)	Pin(W)	P.F.	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Eff. (%)
120.04	8.830	1058.00	0.999	378.1	2.653	1003.099	54.9007	94.81%
119.99	8.305	995.00	0.999	378	2.500	945.000	50.0000	94.97%
120.03	7.461	894.00	0.999	378	2.250	850.500	43.5000	95.13%
119.98	6.609	792.00	0.999	377.9	2.000	755.800	36.2000	95.43%
119.95	5.772	691.40	0.999	377.9	1.749	660.947	30.4529	95.60%
120.02	4.929	590.70	0.999	377.9	1.500	566.850	23.8500	95.96%
119.97	4.113	492.50	0.999	377.8	1.249	471.872	20.6278	95.81%
120.05	3.288	393.70	0.998	377.7	1.001	378.078	15.6223	96.03%
120	2.473	295.50	0.996	377.6	0.750	283.200	12.3000	95.84%
120.05	1.988	237.20	0.994	377.6	0.600	226.560	10.6400	95.51%
120.04	1.666	198.30	0.992	377.5	0.500	188.750	9.5500	95.18%
120.04	1.345	159.60	0.989	377.5	0.401	151.378	8.2225	94.85%
120.03	1.027	121.03	0.982	377.5	0.300	113.250	7.7800	93.57%
120.03	0.708	82.19	0.967	377.5	0.201	75.878	6.3125	92.32%
120.03	0.397	43.72	0.918	377.5	0.100	37.750	5.9700	86.34%
119.98	0.232	23.70	0.851	377.4	0.050	18.870	4.8300	79.62%

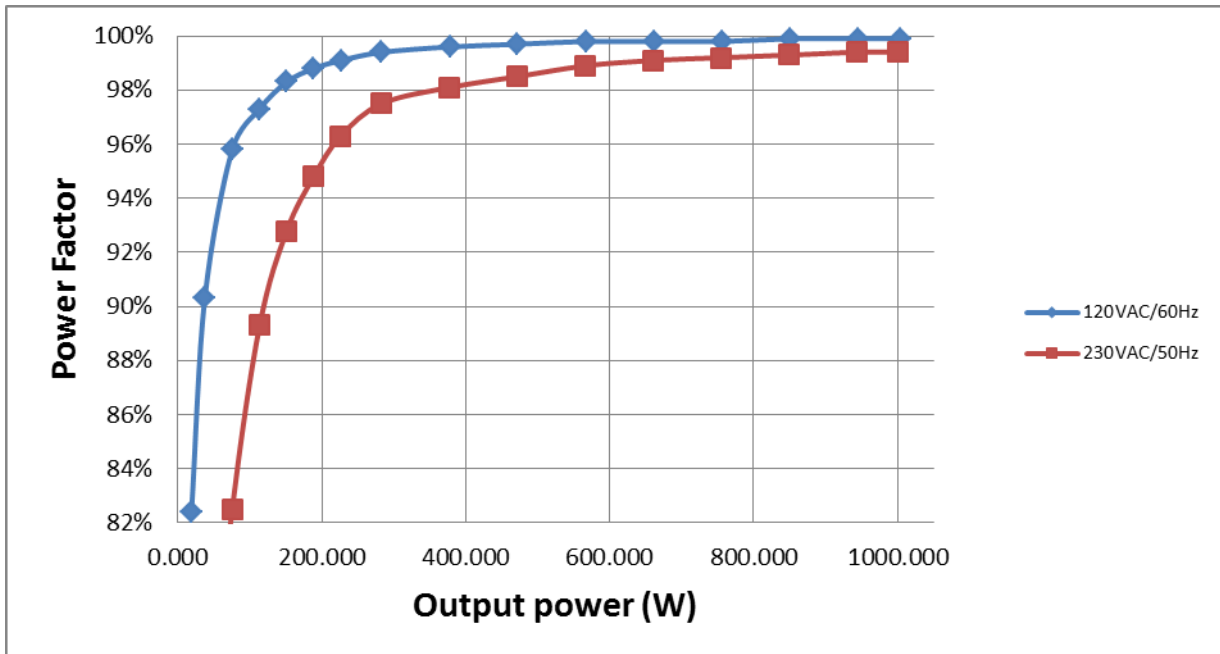
230V_{AC}/50Hz

Vin,rms(V)	Iin,rms(A)	Pin(W)	P.F.	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Eff. (%)
229.9	4.453	1019.00	0.996	377.4	2.649	999.733	19.2674	98.11%
230	4.206	963.00	0.995	377.4	2.501	943.877	19.1226	98.01%
230	3.808	871.00	0.995	377.4	2.250	849.150	21.8500	97.49%
230	3.375	771.30	0.994	377.4	2.000	754.800	16.5000	97.86%
230	2.956	674.80	0.993	377.4	1.750	660.450	14.3500	97.87%
230	2.538	578.30	0.991	377.4	1.500	566.100	12.2000	97.89%
230	2.123	482.60	0.988	377.3	1.250	471.625	10.9750	97.73%
229.9	1.709	386.60	0.984	377.3	1.000	377.300	9.3000	97.59%
230	1.297	290.70	0.975	377.3	0.750	282.975	7.7250	97.34%
230	1.054	234.00	0.965	377.3	0.600	226.380	7.6200	96.74%
230	0.895	196.47	0.955	377.3	0.501	189.027	7.4427	96.21%
230	0.729	157.53	0.940	377.3	0.400	150.920	6.6100	95.80%
230	0.567	119.66	0.917	377.2	0.300	113.160	6.5000	94.57%
230	0.404	80.84	0.870	377.2	0.200	75.440	5.4000	93.32%
230	0.255	42.66	0.727	377.3	0.100	37.730	4.9300	88.44%
230	0.176	22.66	0.560	377.3	0.050	18.865	3.7950	83.25%

2.3 Efficiency with G154016LF-ENG1 (Sendust core) on L105:



2.4 Power factor with G154016LF-ENG1 (Sendust core) on L105:



120V_{AC}/60Hz

Vin,rms(V)	Iin,rms(A)	Pin(W)	P.F.	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Eff. (%)
120.09	8.827	1058.00	0.999	378.1	2.654	1003.477	54.5226	94.85%
119.94	8.314	995.00	0.999	378	2.500	945.000	50.0000	94.97%
120.02	7.472	895.00	0.999	378	2.250	850.500	44.5000	95.03%
119.99	6.620	792.70	0.998	378	2.001	756.378	36.3220	95.42%
119.96	5.786	692.50	0.998	377.9	1.750	661.325	31.1750	95.50%
119.95	4.944	591.40	0.998	377.9	1.500	566.850	24.5500	95.85%
120.01	4.124	493.40	0.997	377.8	1.249	471.872	21.5278	95.64%
120	3.302	394.40	0.996	377.6	1.001	377.978	16.4224	95.84%
119.95	2.485	296.10	0.994	377.6	0.750	283.200	12.9000	95.64%
120.01	2.005	238.30	0.991	377.6	0.601	226.938	11.3624	95.23%
120.01	1.679	198.93	0.988	377.5	0.500	188.750	10.1800	94.88%
120	1.357	159.95	0.983	377.5	0.400	151.000	8.9500	94.40%
120	1.040	121.38	0.973	377.4	0.300	113.220	8.1600	93.28%
120.01	0.702	80.63	0.958	377.5	0.200	75.500	5.1300	93.64%
120.11	0.389	42.24	0.903	377.4	0.099	37.363	4.8774	88.45%
120.16	0.235	23.26	0.824	377.4	0.050	18.870	4.3900	81.13%

230V_{AC}/50Hz

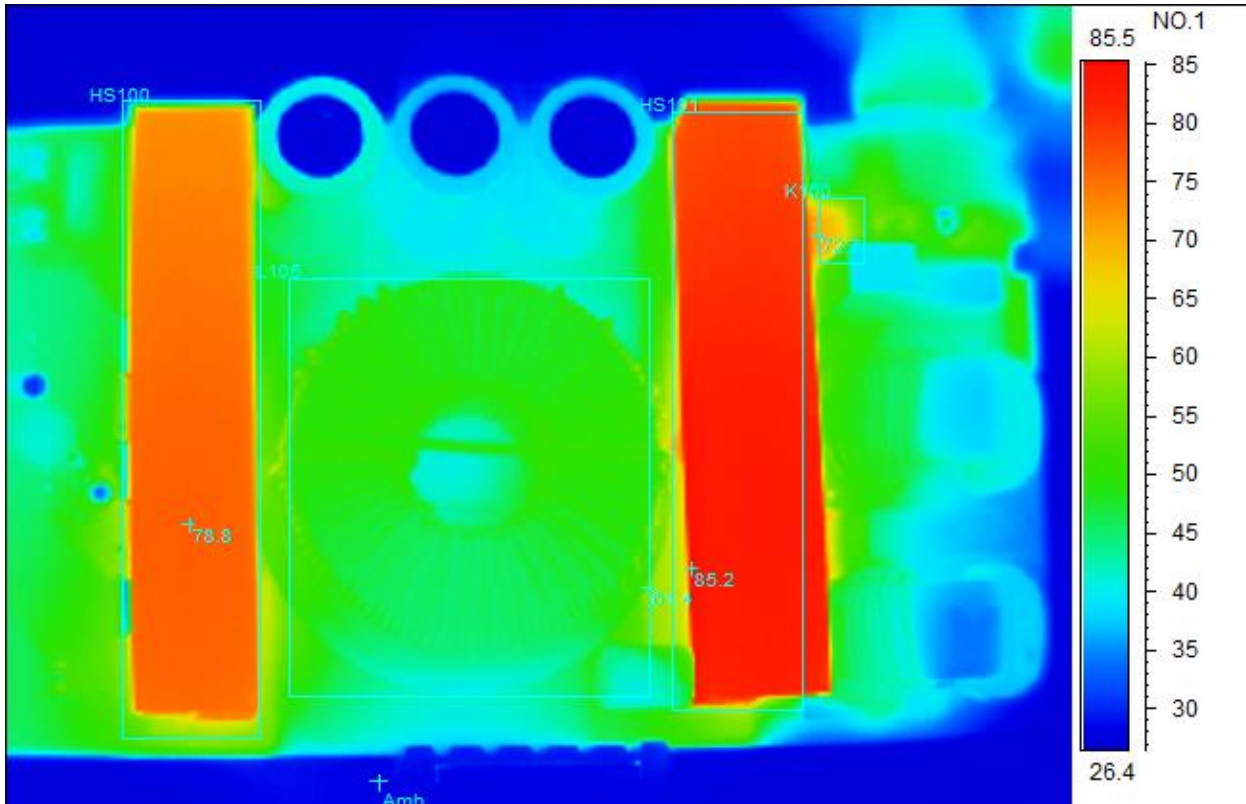
Vin,rms(V)	Iin,rms(A)	Pin(W)	P.F.	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Eff. (%)
229.9	4.462	1020.00	0.994	377.5	2.650	1000.375	19.6250	98.08%
230	4.214	963.00	0.994	377.4	2.500	943.500	19.5000	97.98%
230	3.816	871.00	0.993	377.4	2.250	849.150	21.8500	97.49%
230	3.384	772.10	0.992	377.4	2.000	754.800	17.3000	97.76%
230	2.962	674.90	0.991	377.4	1.750	660.450	14.4500	97.86%
230	2.538	577.10	0.989	377.3	1.500	565.950	11.1500	98.07%
230	2.130	482.80	0.985	377.3	1.250	471.625	11.1750	97.69%
230	1.716	387.00	0.981	377.3	1.000	377.300	9.7000	97.49%
230.1	1.295	290.50	0.975	377.3	0.750	282.975	7.5250	97.41%
230	1.055	233.50	0.963	377.3	0.599	226.003	7.4973	96.79%
230	0.897	195.64	0.948	377.2	0.500	188.600	7.0400	96.40%
230	0.737	157.42	0.928	377.3	0.401	151.297	6.1227	96.11%
230.1	0.577	118.66	0.893	377.3	0.301	113.567	5.0927	95.71%
230	0.426	80.87	0.825	377.2	0.200	75.440	5.4300	93.29%
230	0.254	42.60	0.729	377.2	0.101	38.097	4.5028	89.43%
230.1	0.172	22.21	0.560	377.2	0.050	18.860	3.3500	84.92%

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 25°C. The output was loaded with 378V/2.7A.

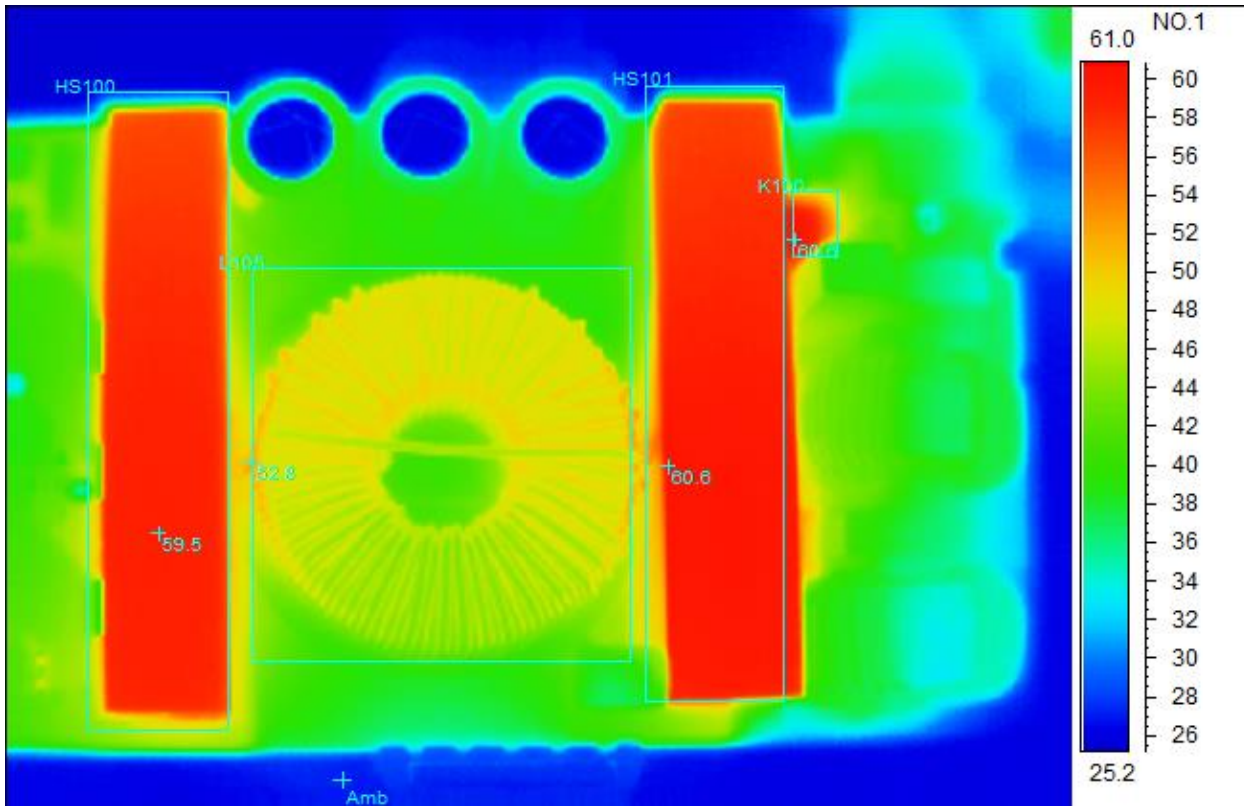
3.1 Thermal test with natural air flow and G154016LF (Megaflex core) on L105:

3.1.1 120V_{AC}/60Hz



Spot analysis	Value
Amb Temperature	28.1°C
Area analysis	Value
HS101Max	85.2°C
K100Max	72.7°C
L105Max	61.4°C
HS100Max	78.8°C

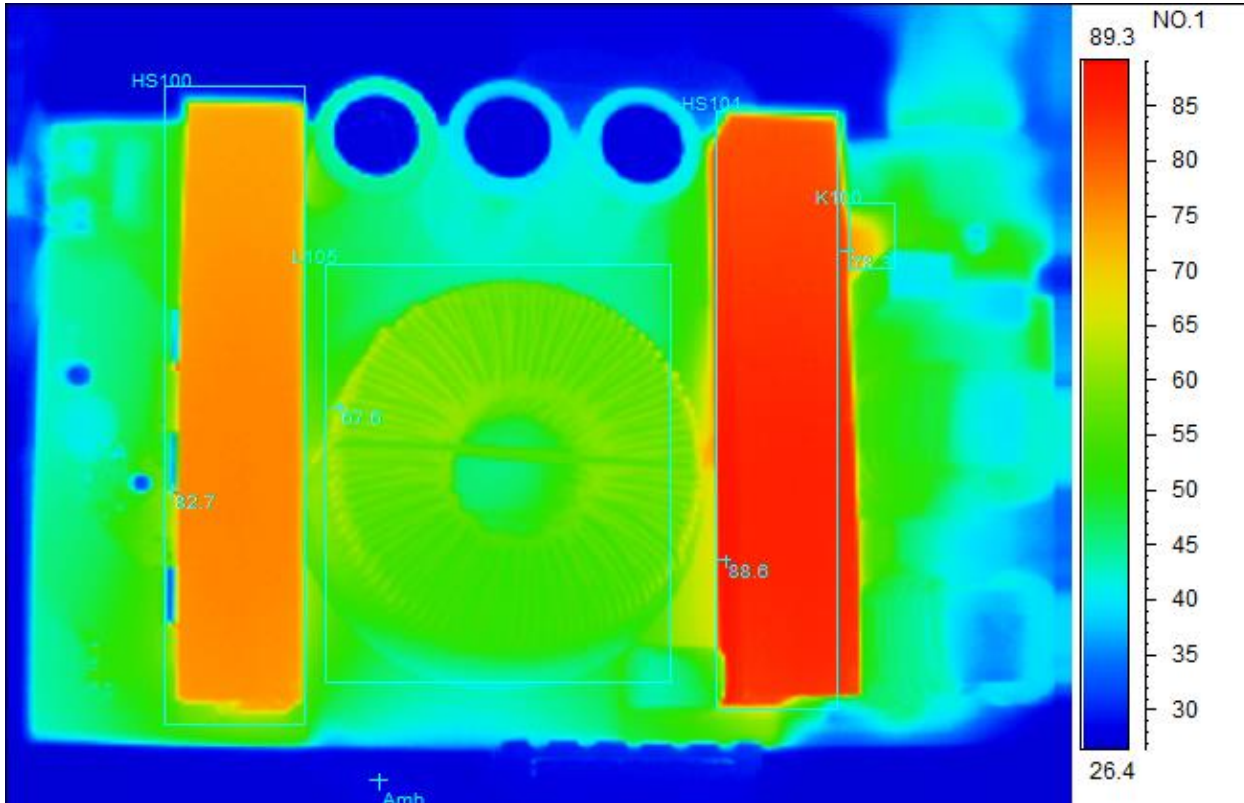
3.1.2 230V_{AC}/50Hz



Spot analysis	Value
Amb Temperature	27.3°C
Area analysis	Value
HS101Max	60.6°C
K100Max	60.6°C
L105Max	52.8°C
HS100Max	59.5°C

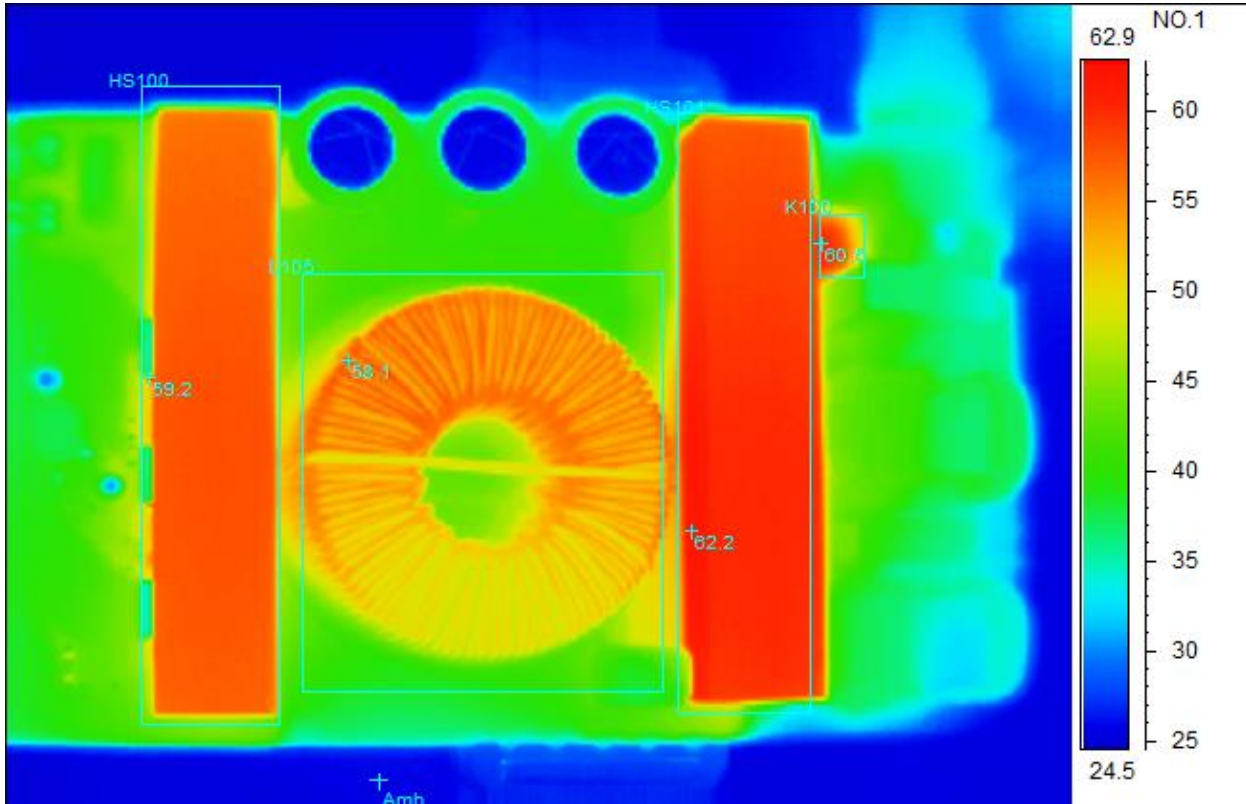
3.2 Thermal test with natural air flow and G154016LF-ENG1 (Sendust core) on L105:

3.2.1 120V_{AC}/60Hz



Spot analysis	Value
Amb Temperature	27.8°C
Area analysis	Value
HS101Max	88.6°C
K100Max	78.3°C
L105Max	67.6°C
HS100Max	82.7°C

3.2.2 230V_{AC}/50Hz



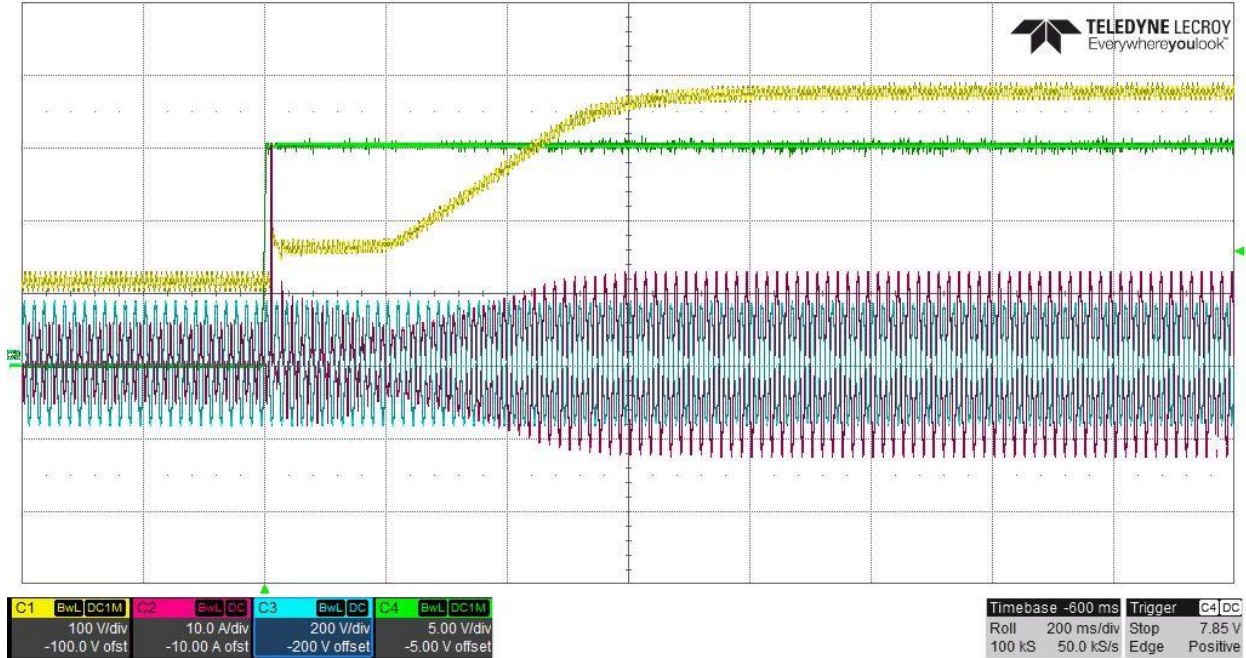
Spot analysis	Value
Amb Temperature	25.7°C
Area analysis	Value
HS101Max	62.2°C
K100Max	60.5°C
L105Max	58.1°C
HS100Max	59.2°C

4 Startup

The voltages at startup are shown in the images below. Startup tests are done with G154016LF (Megaflex core) on L105.

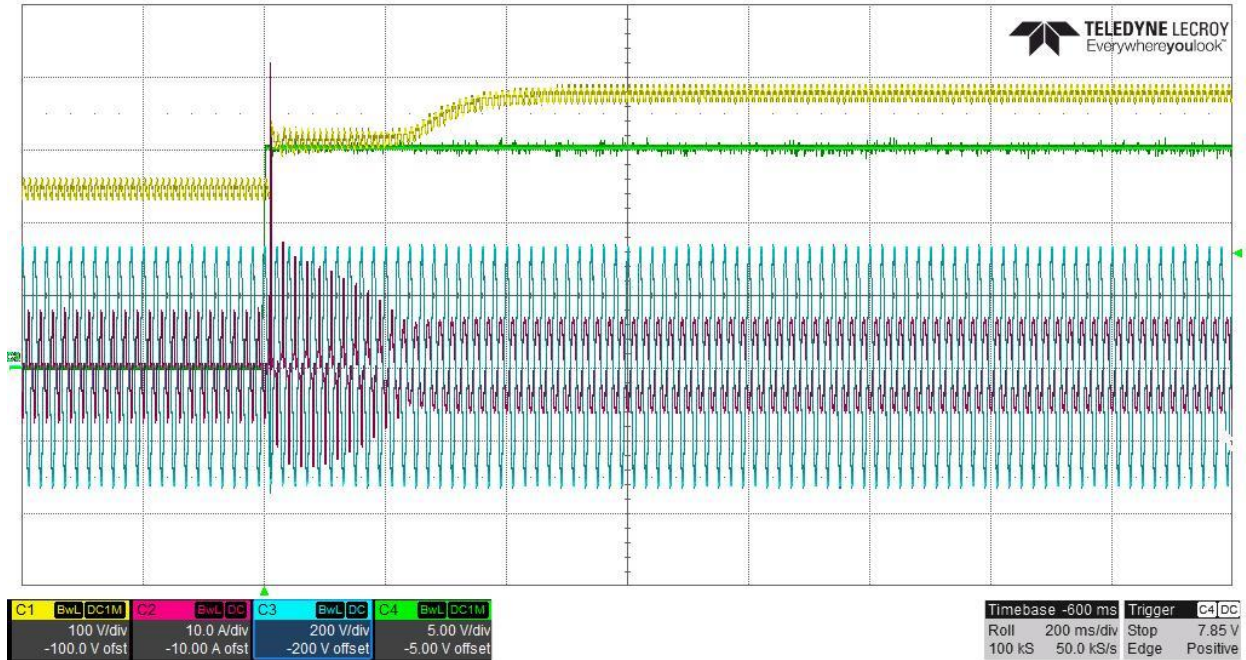
4.1 120V_{AC}/60Hz – 1000W full load on J100

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



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

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

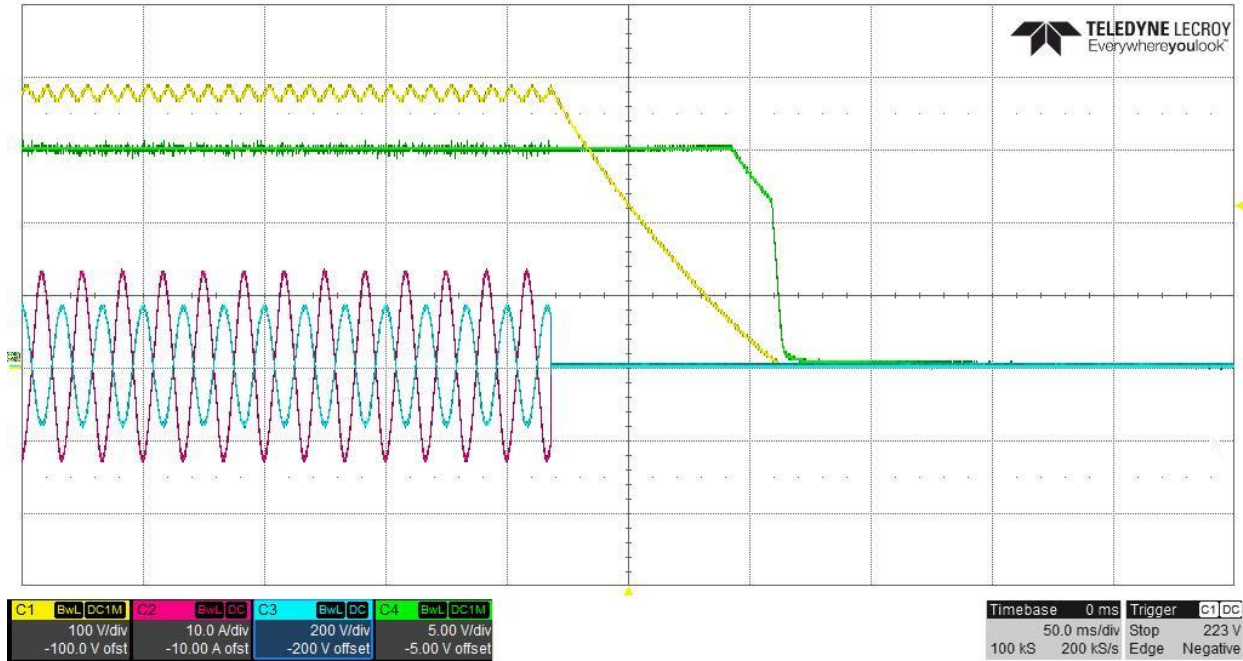


5 Turn-off

The voltages at turn-off are shown in the images below. Turn-off tests are done with G154016LF (Megaflex core) on L105.

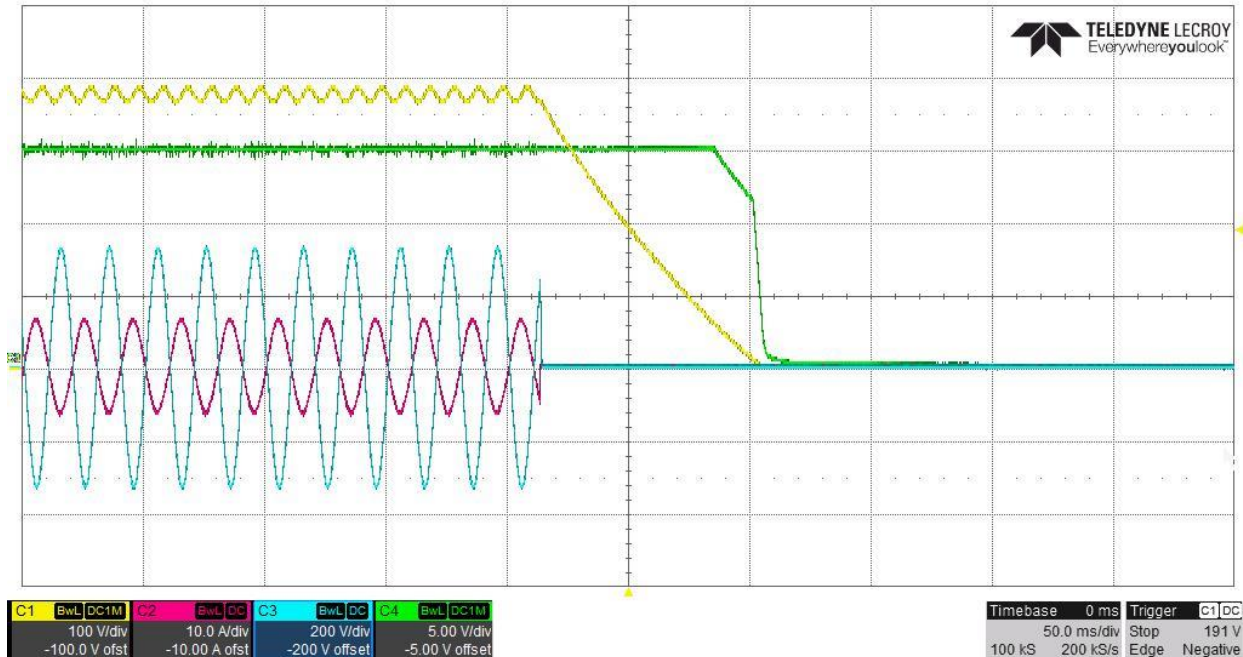
5.1 120V_{AC}/60Hz – 1000W full load on J100

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



5.2 230V_{AC}/50Hz – 1000W full load on J100

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

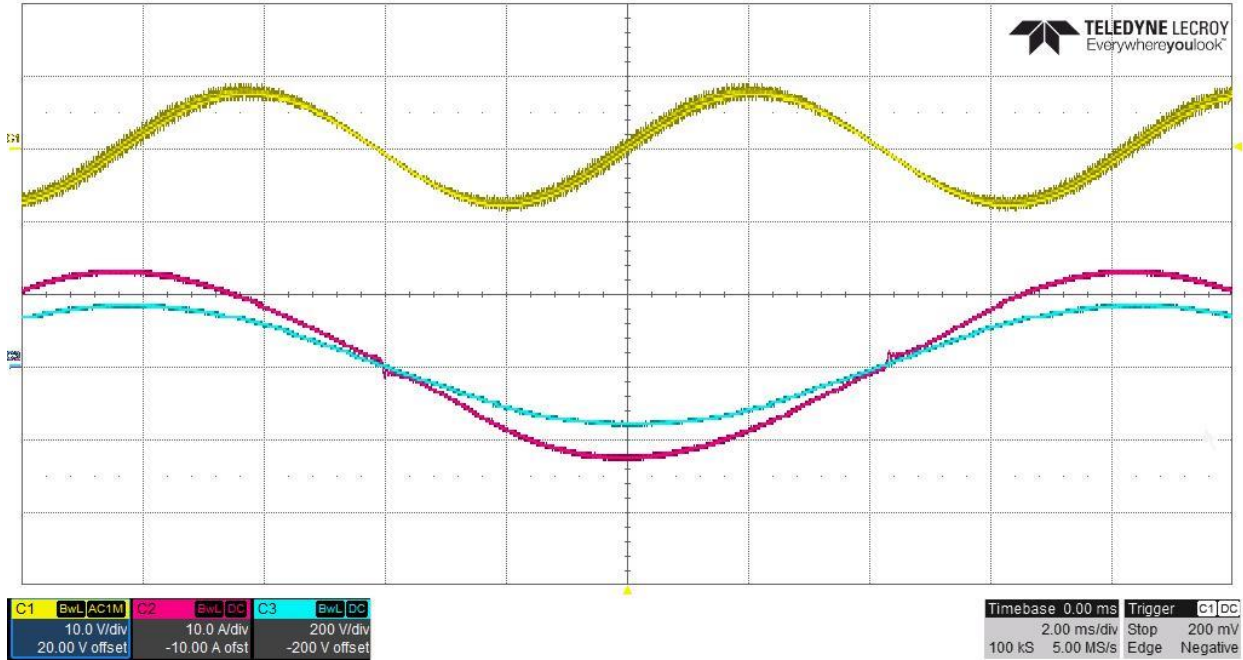


6 Output Ripple Voltage

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

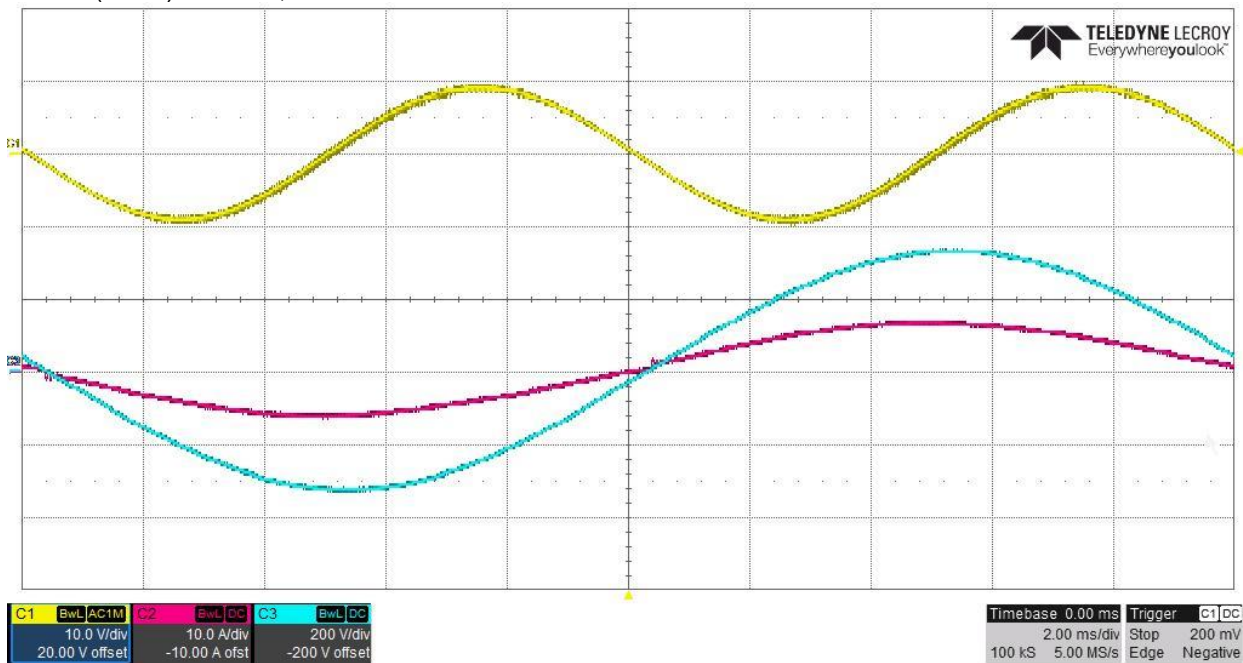
6.1 120V_{AC}/60Hz

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



6.2 230V_{AC}/50Hz

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

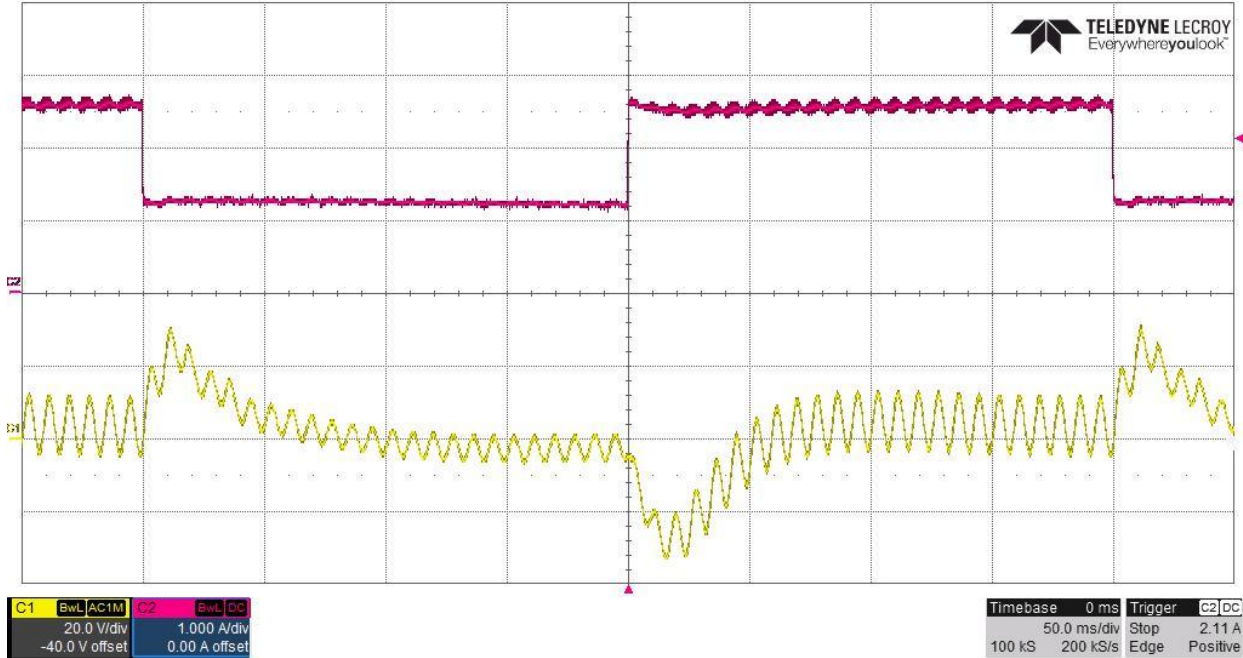


7 Transient Response

Transient responses are shown in the plots below. G154016LF (Megaflux core) is applied to L105.

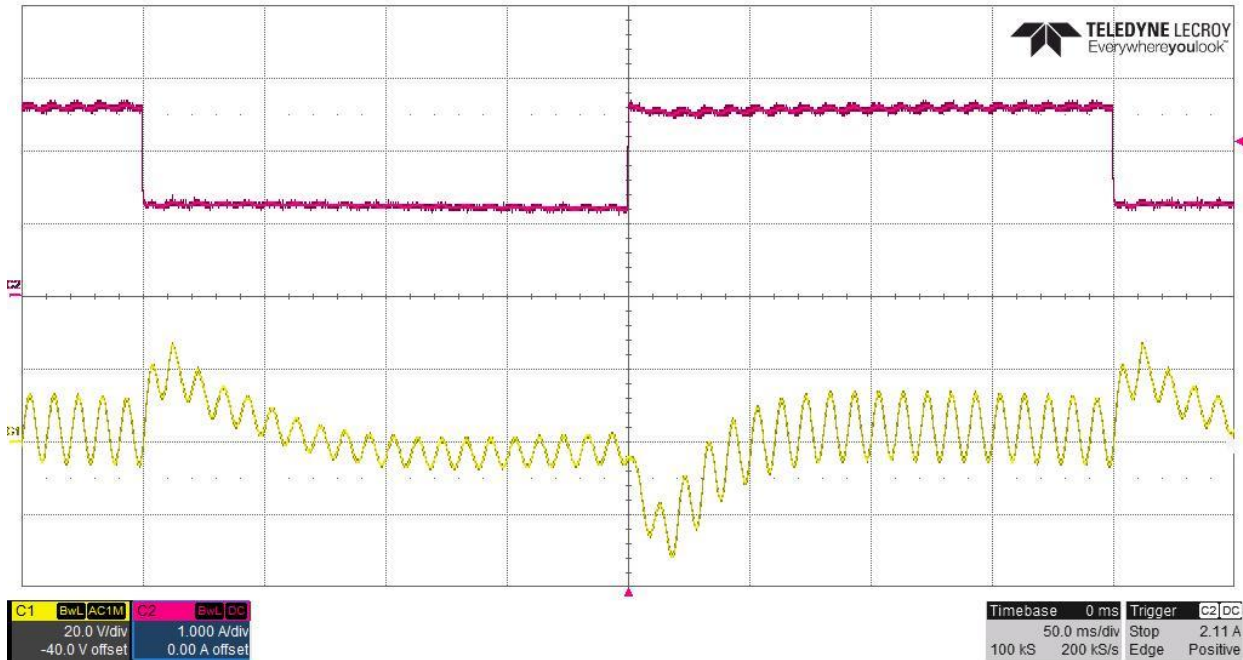
7.1 120V_{AC}/60Hz, load changes from 1.15A to 2.65A

CH1: V(C104) and CH2: Iout.



7.2 230V_{AC}/50Hz, load changes from 1.15A to 2.65A

CH1: V(C102) and CH2: Iout.

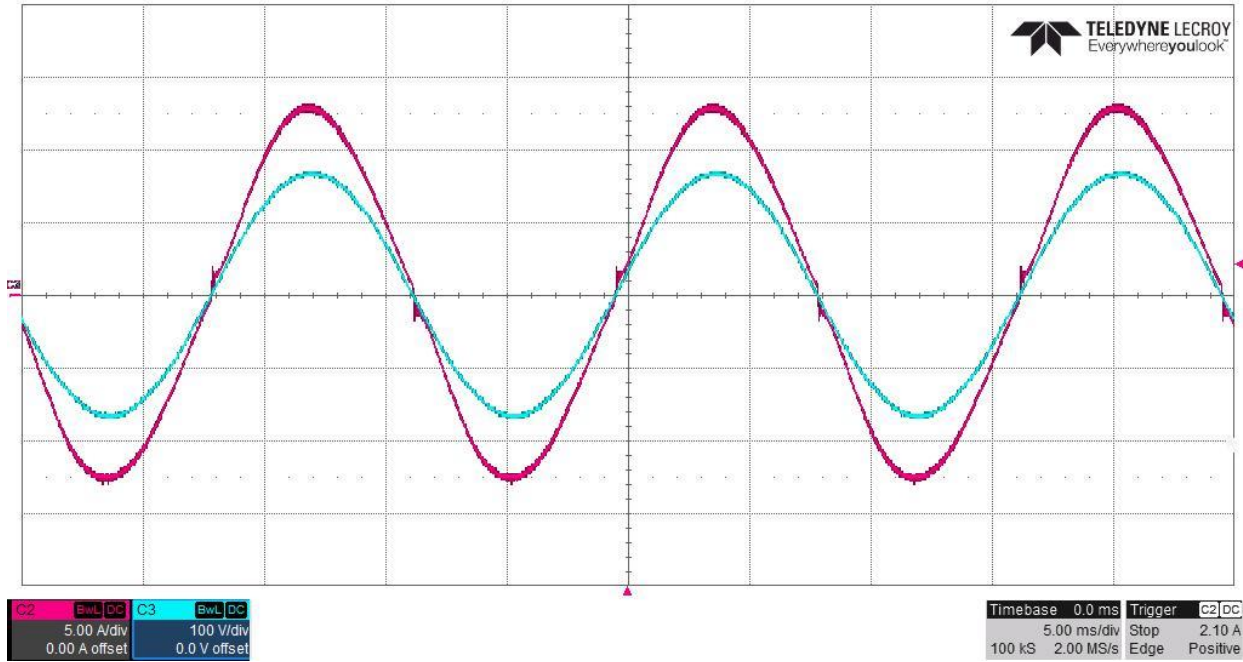


8 Key Waveforms

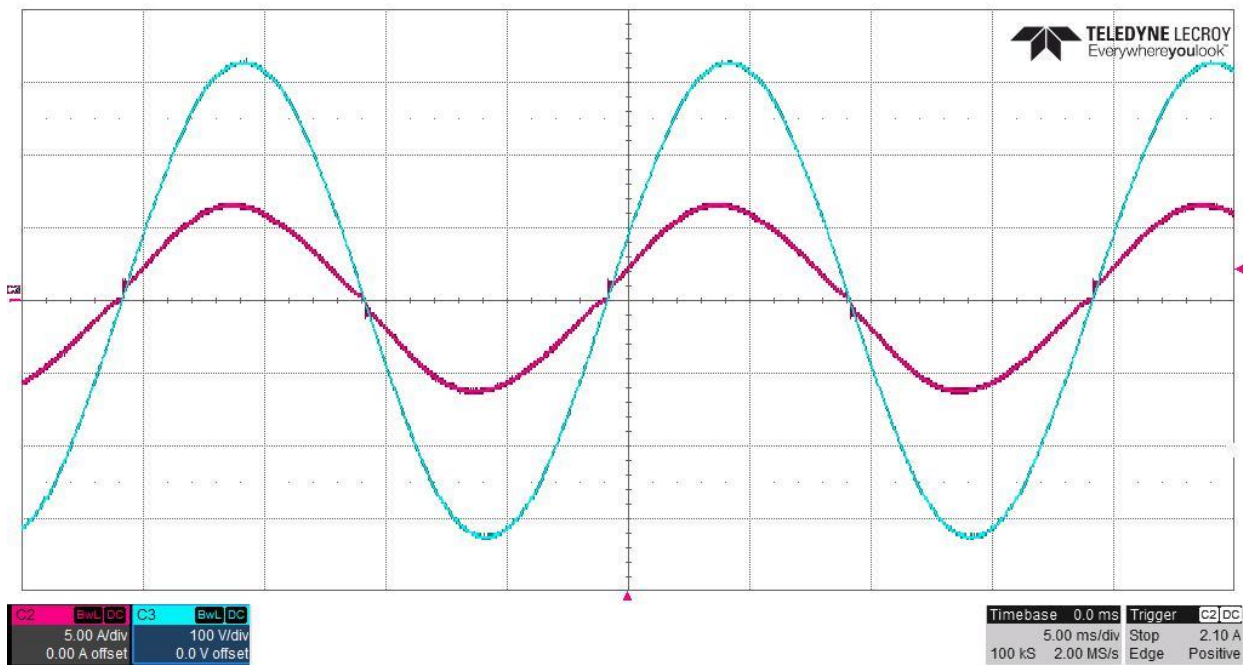
Key waveforms are measured with G154016LF (Megaflux core) on L105.

8.1 Input current and voltage waveforms

8.1.1 120V_{AC}/60Hz, 1000W.

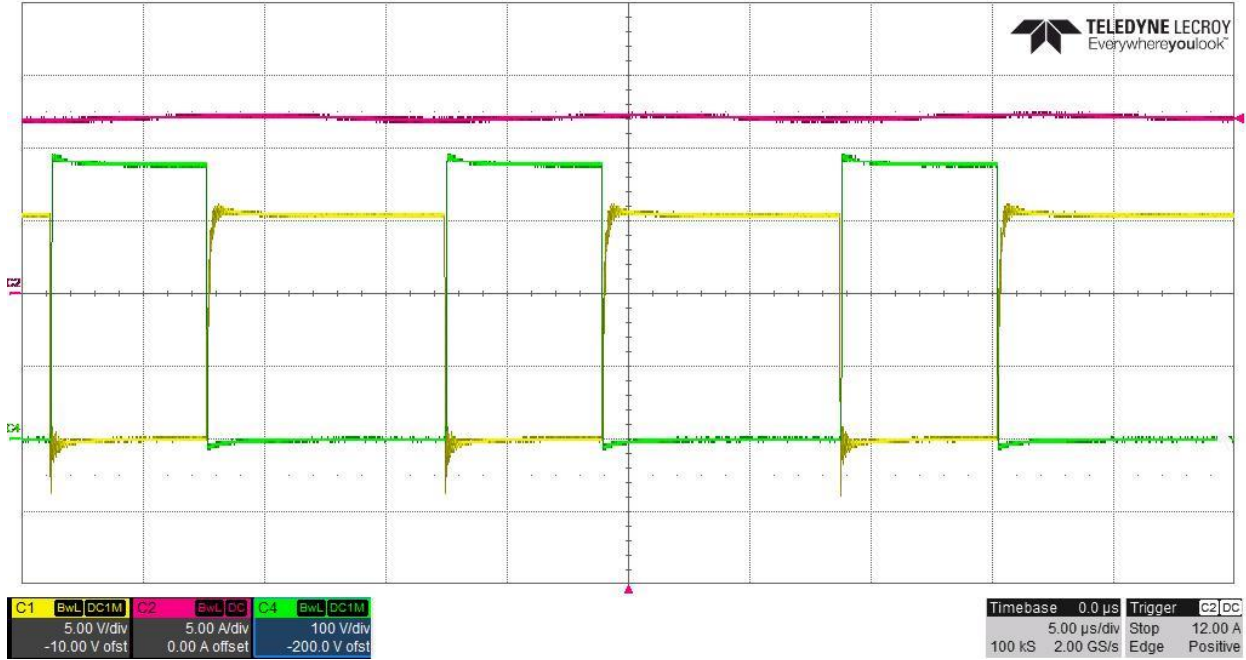


8.1.2 230V_{AC}/50Hz, 1000W.



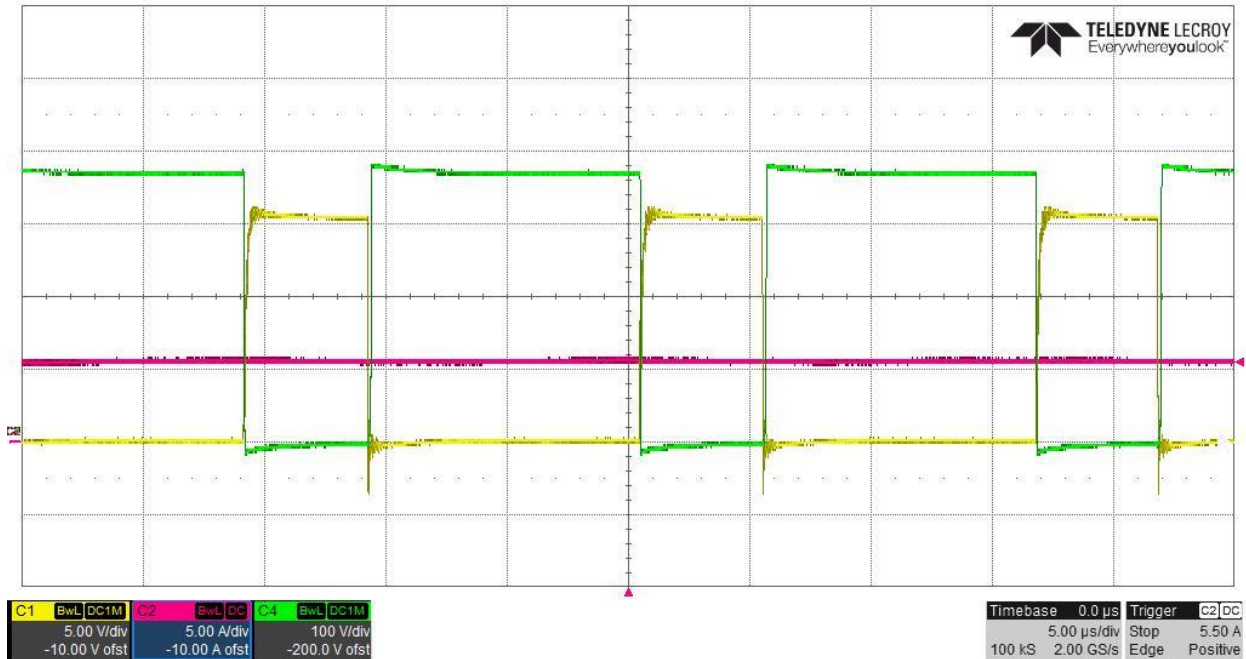
8.2 Q100 @ 1000W output from J100 and 120V_{AC}/60Hz.

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

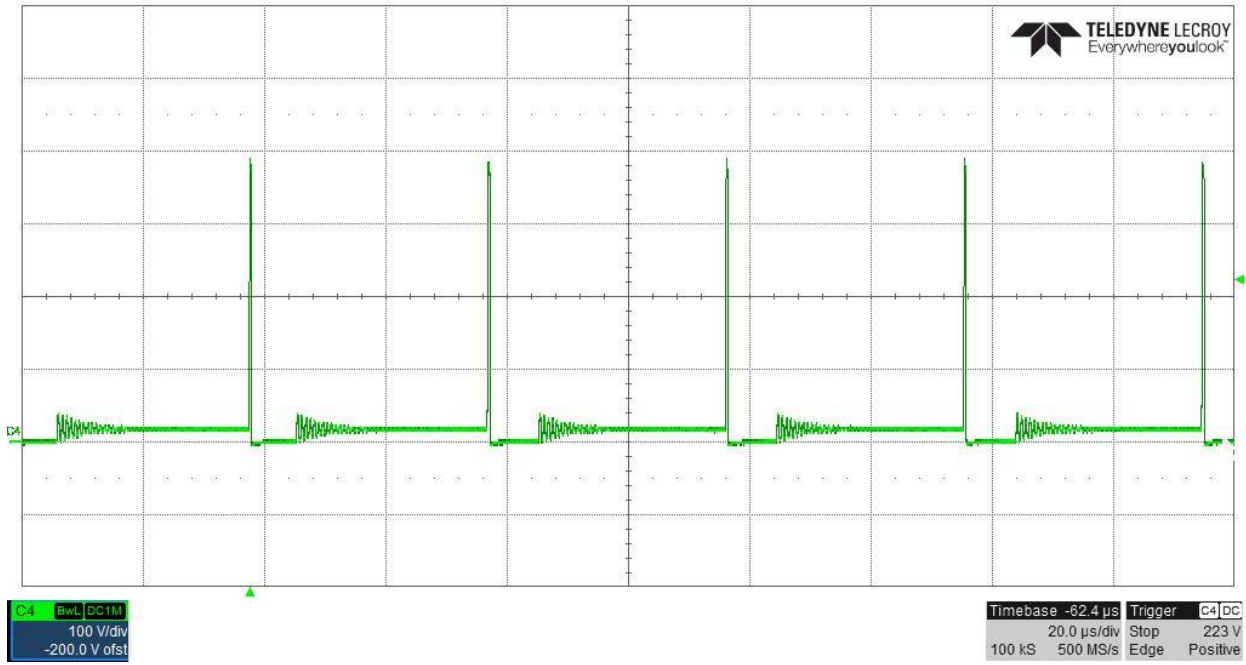


8.3 Q100 @ 1000W output from J100 and 230V_{AC}/50Hz.

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



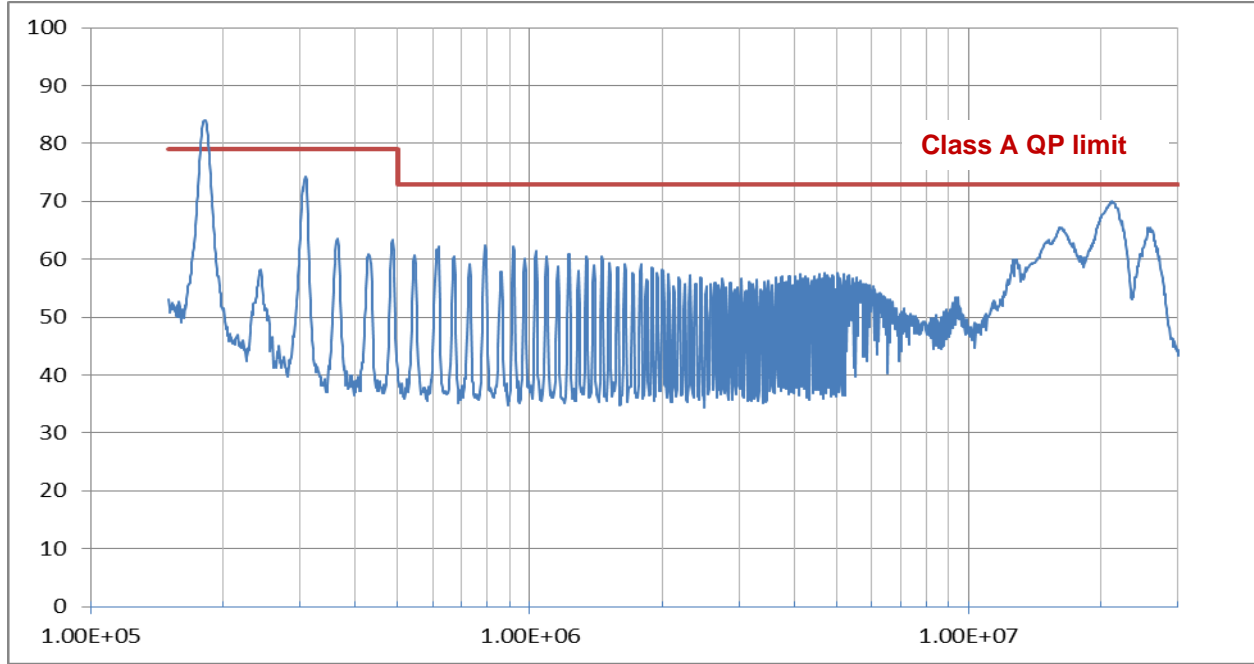
8.4 D109 @ 1000W output from J100.



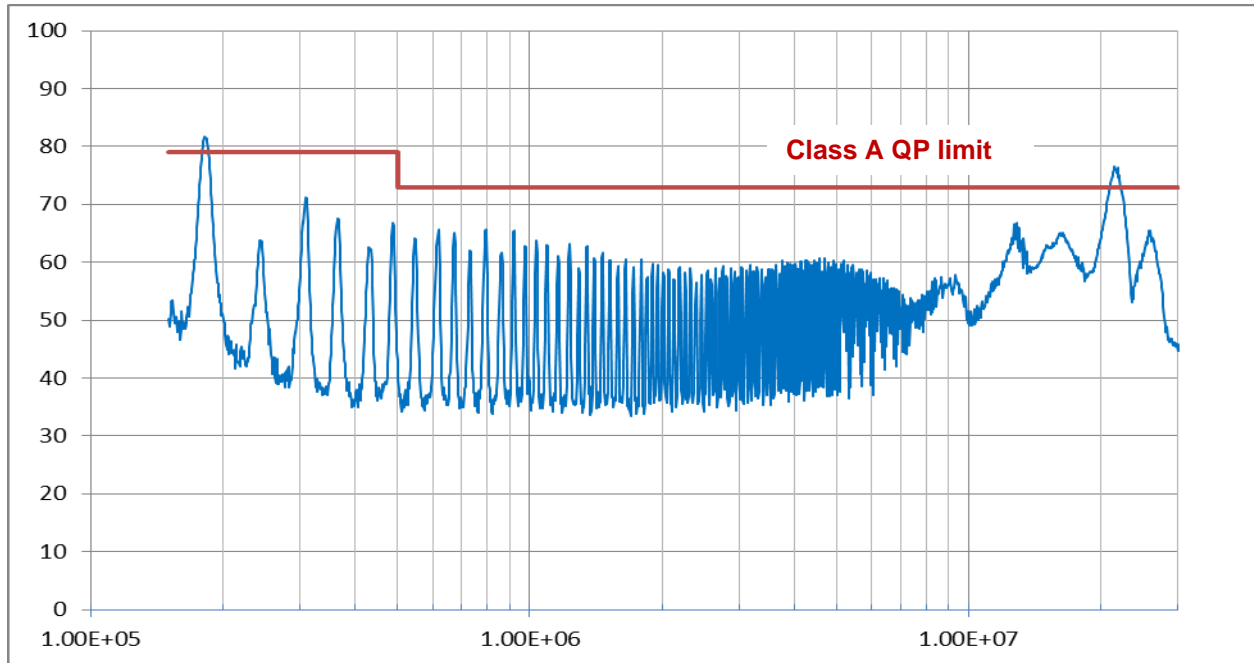
9 Conducted EMI:

The following curves show the **peak scan** results with **maximum hold** on PMP11062Rev A board. The board is loaded with 145Ω resistor.

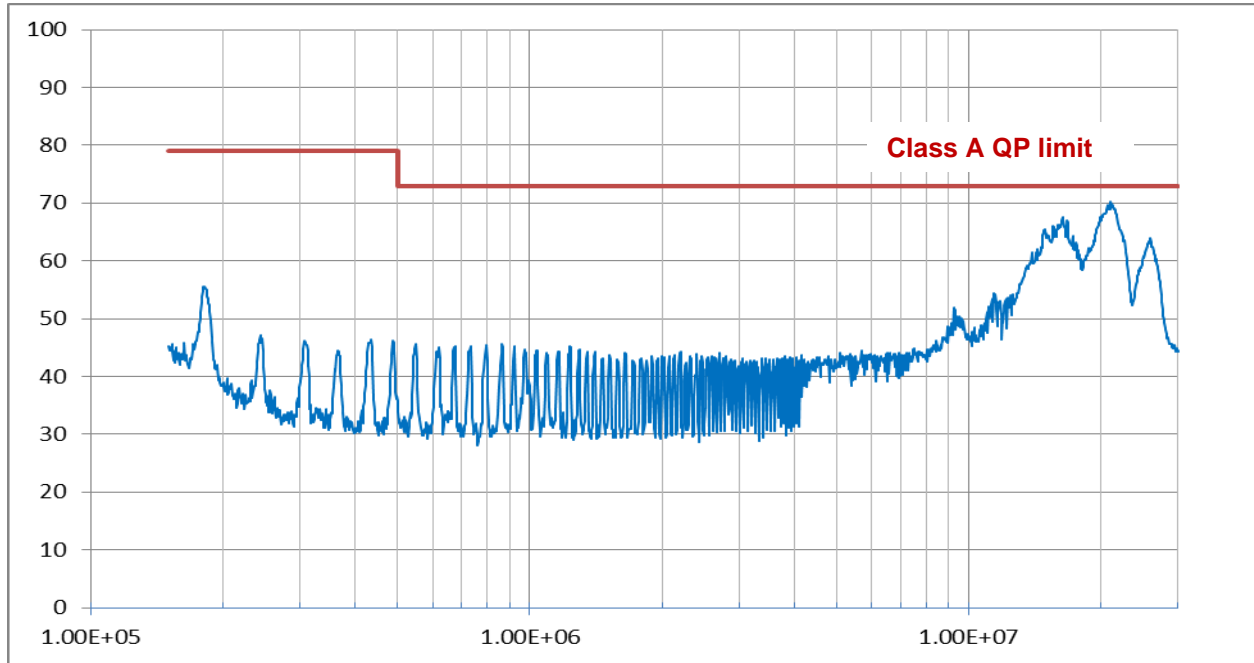
9.1 120V_{AC}/60Hz, I_{in}=8.37A with G154016LF (Megaflux core) on L105: Line



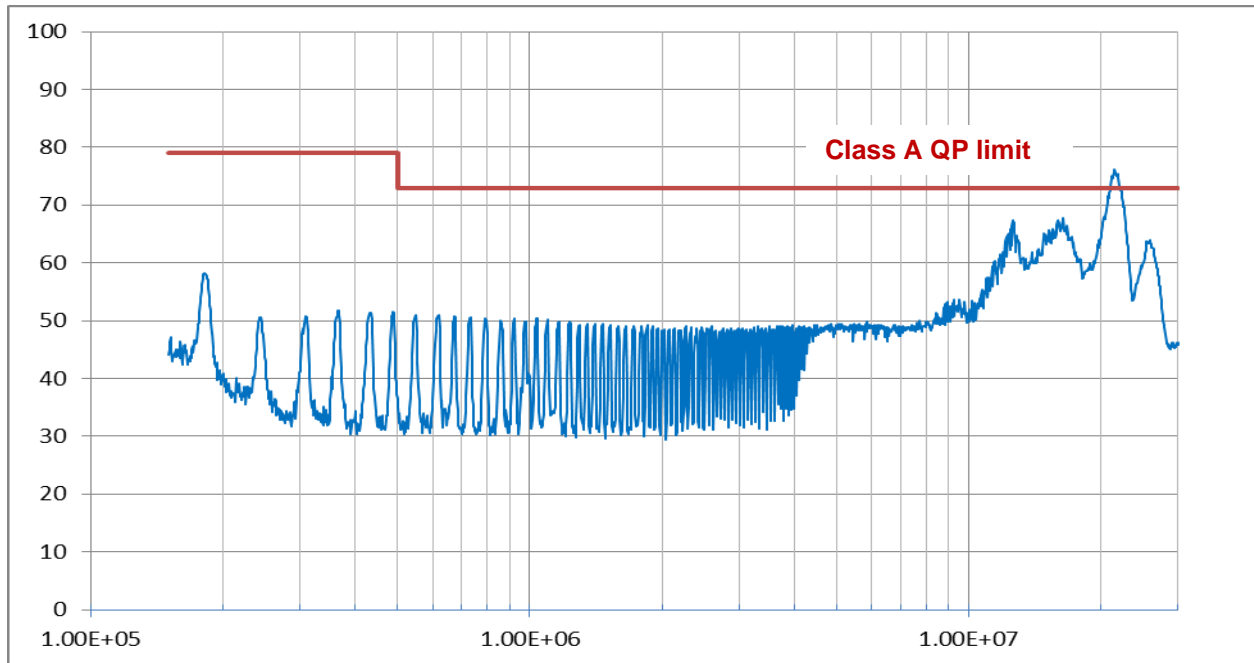
9.2 120V_{AC}/60Hz, I_{in}=8.37A with G154016LF (Megaflux core) on L105: Neutral



9.3 230V_{AC}/50Hz, I_{in}=4.27A with G154016LF (Megaflux core) on L105: Line



9.4 230V_{AC}/50Hz, I_{in}=4.27A with G154016LF (Megaflux core) on L105: Neutral



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