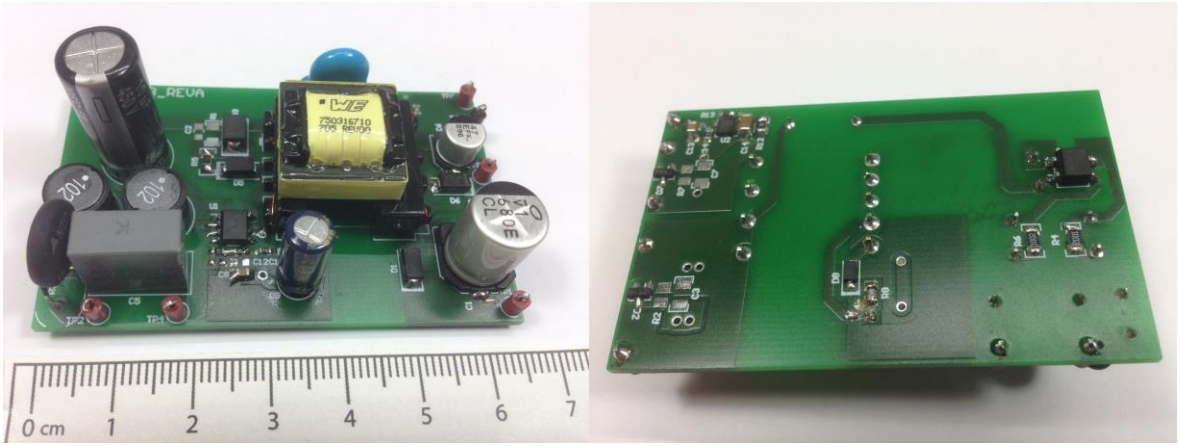
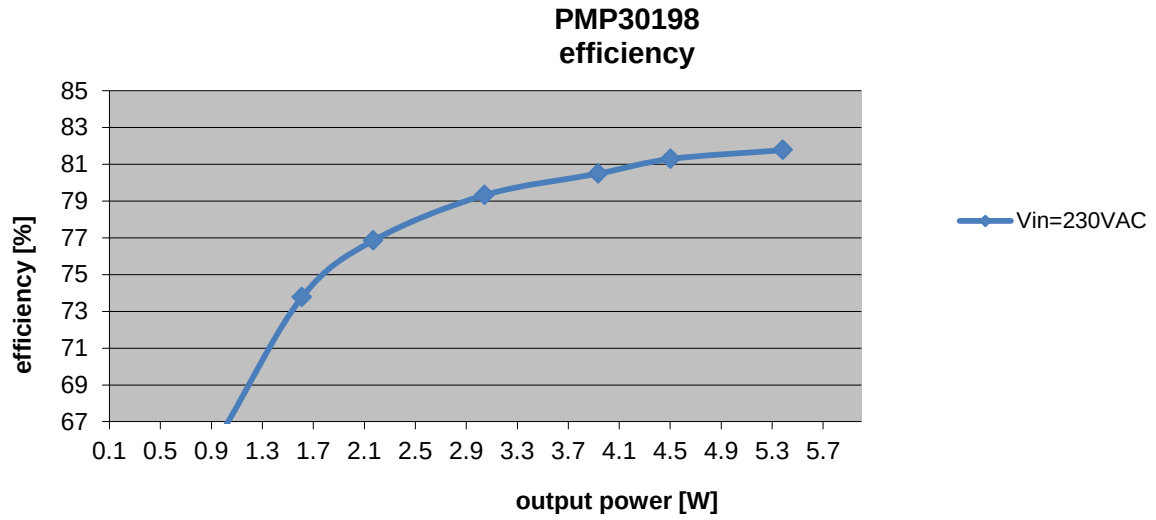
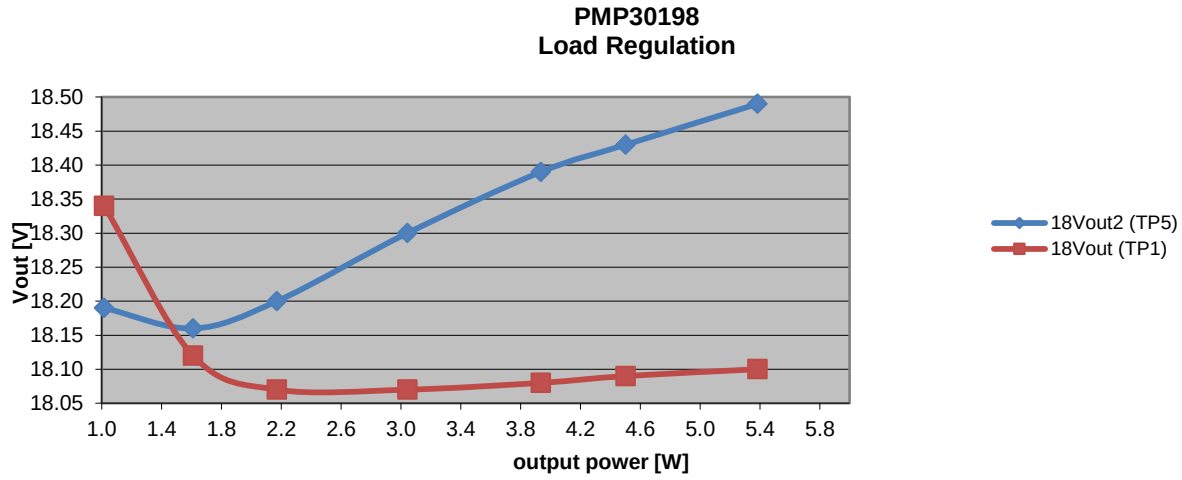


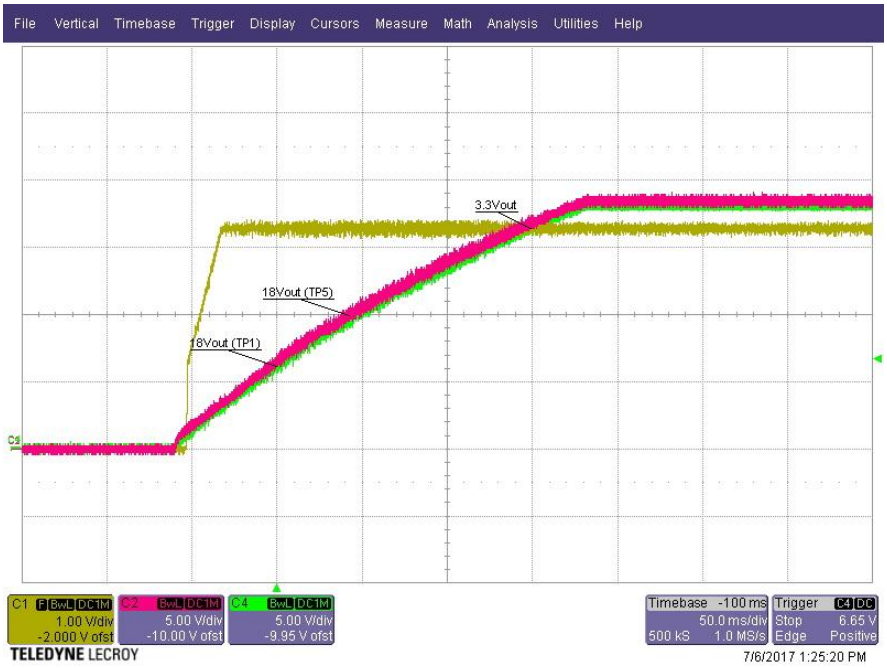
1 Efficiency and Load regulation



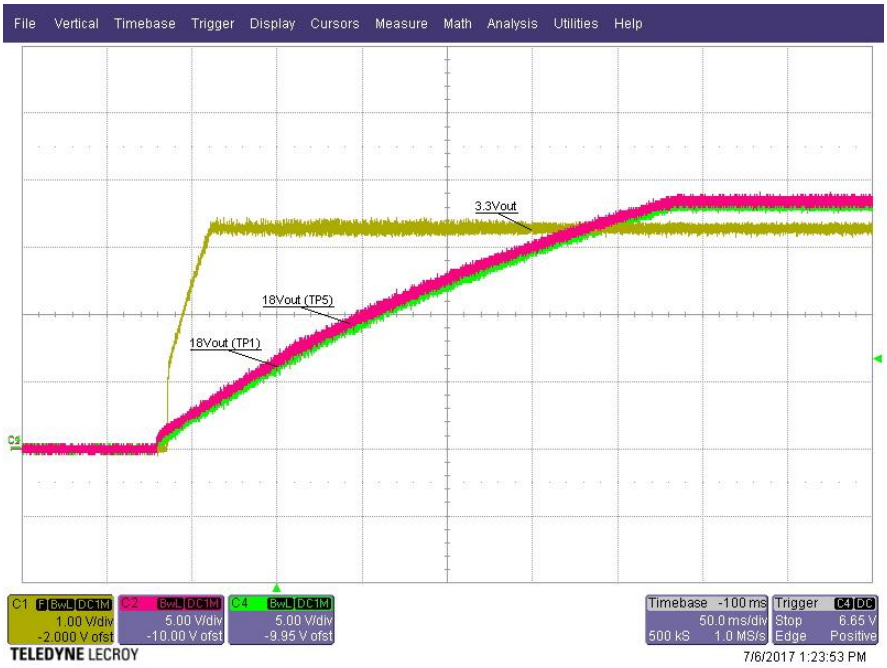


2 Startup

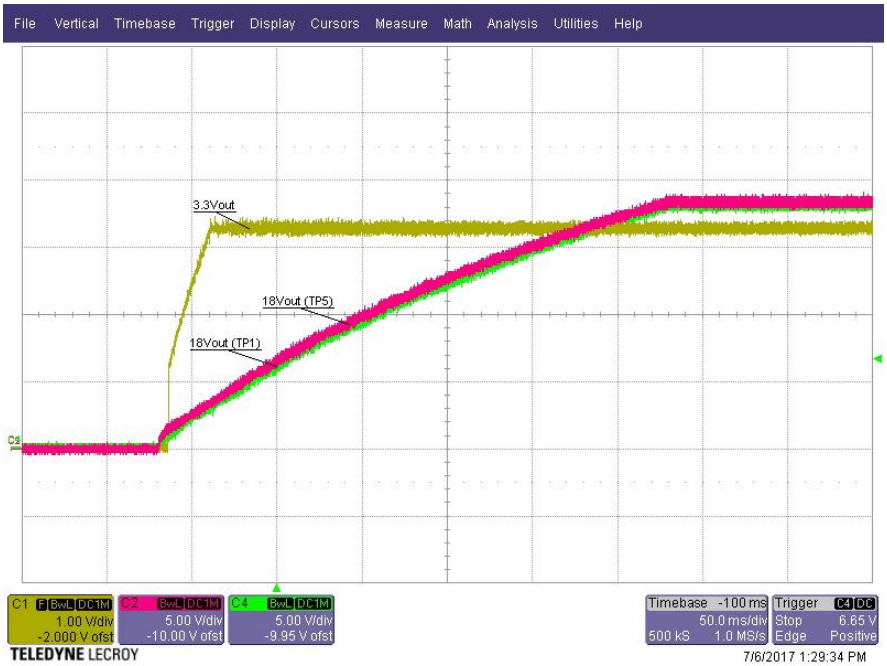
Input voltage = 108VAC
Load current = full load



Input voltage = 230VAC
Load current = full load



Input voltage = 430VDC
Load current = full load

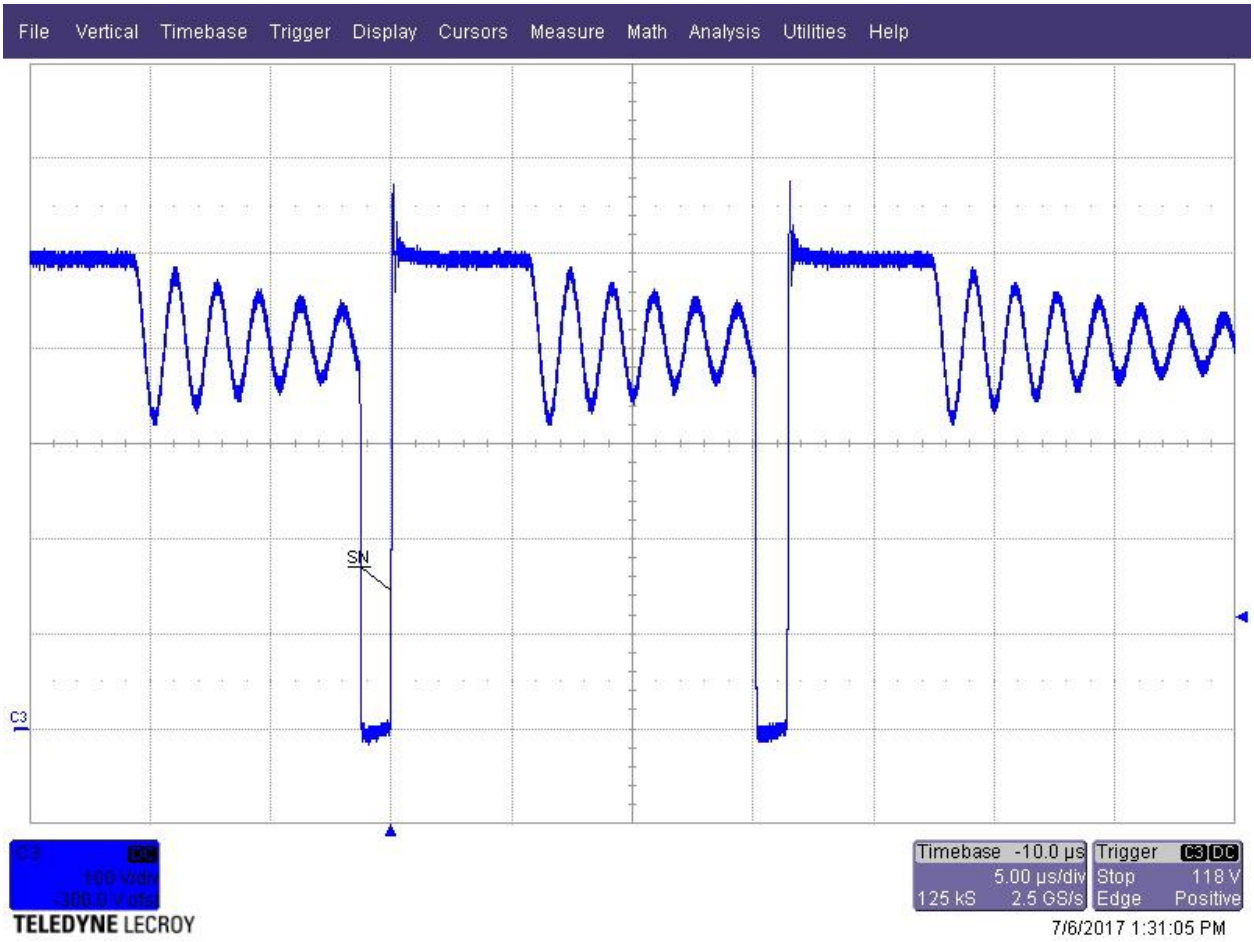


3 Shutdown

Input voltage = 230VAC
Load current = full load

4 Switch Node

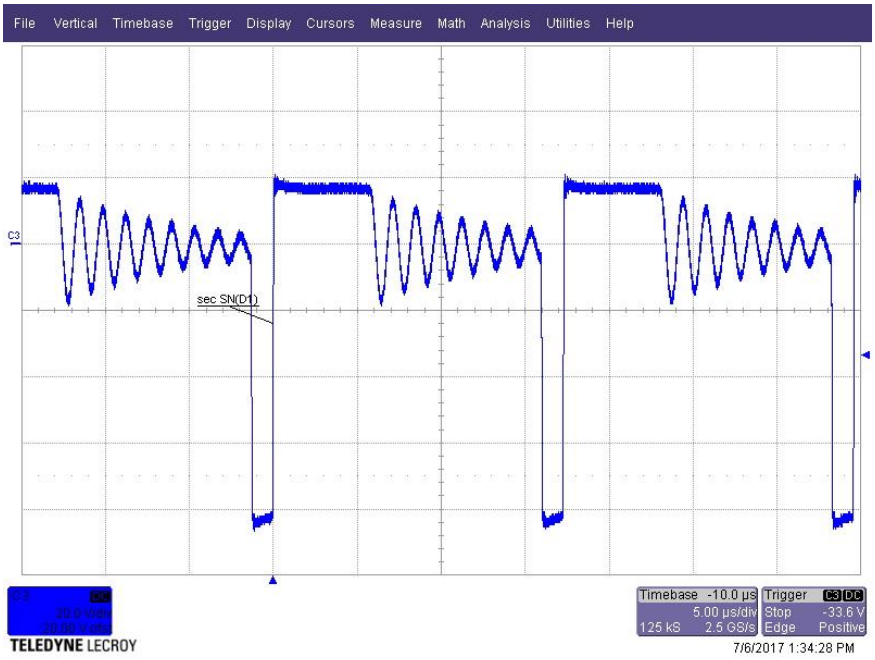
Input voltage = 430VDC
Load current = full load



5 Secondary Switch Node

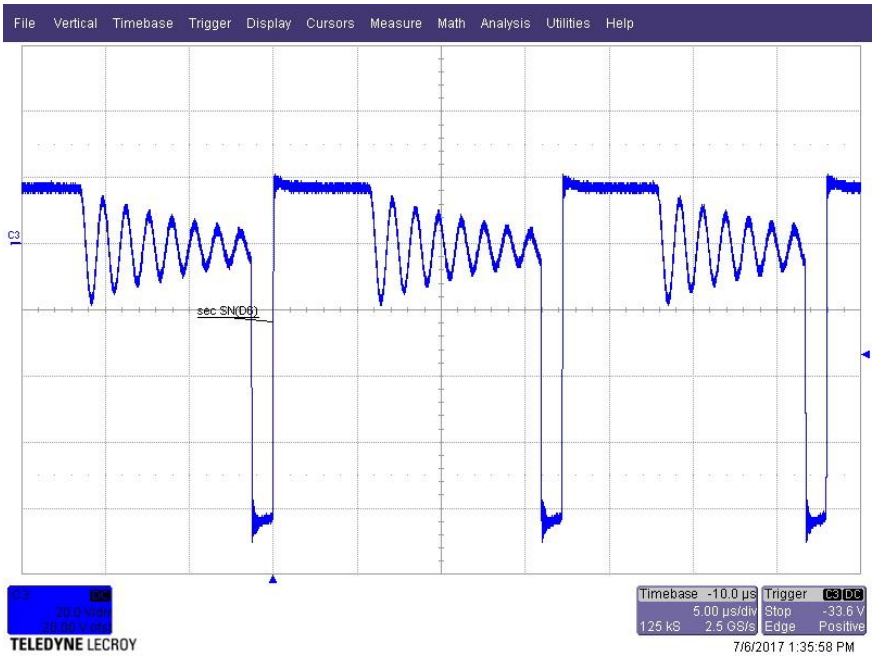
5.1 Diode D1

Input voltage = 430VDC
Load current = full load



5.2 Diode D6

Input voltage = 430VDC
Load current = full load

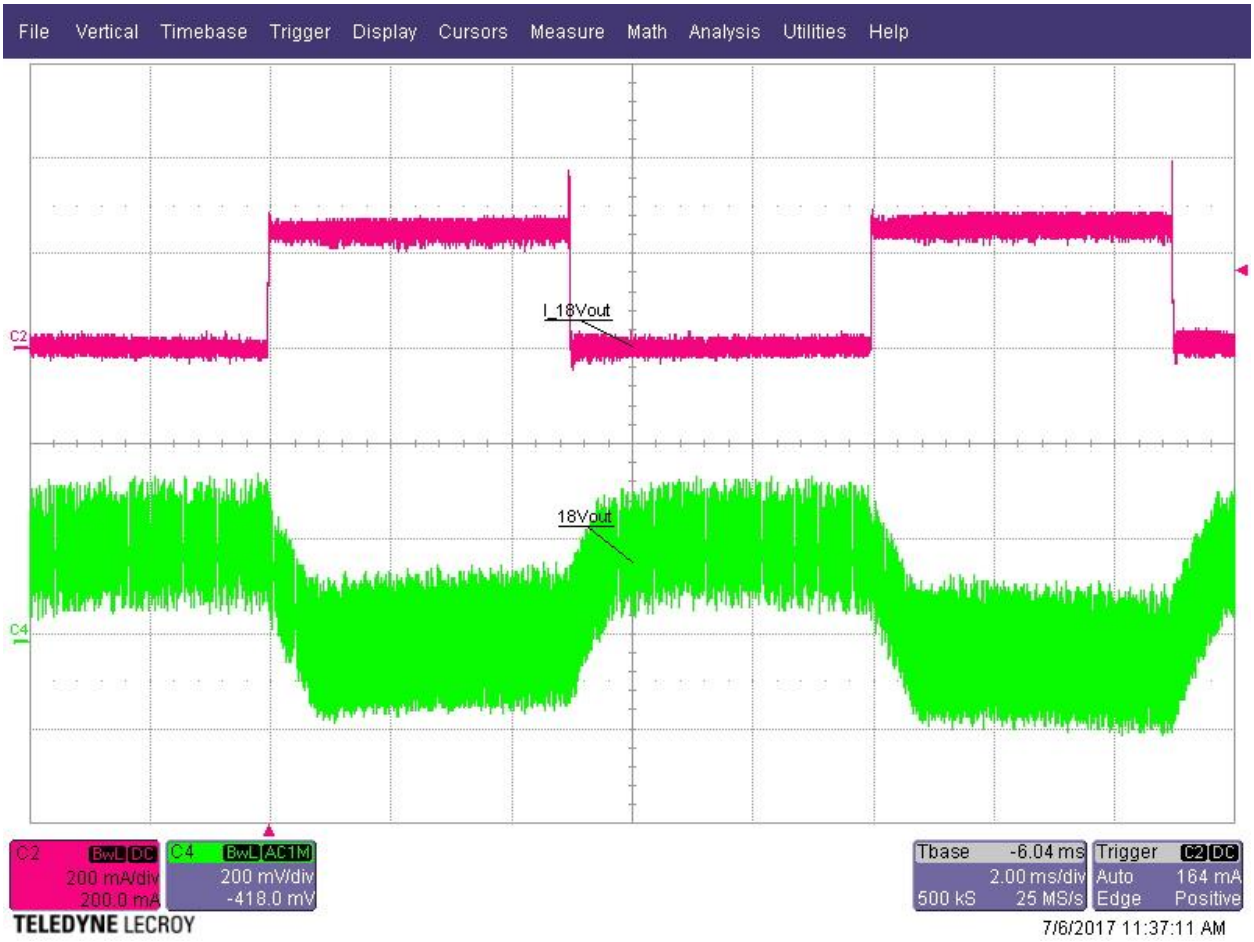


6 Output Ripple 18Vout (TP1)

Input voltage = 230VAC
Load current = full load

7 Load step 18Vout (TP1)

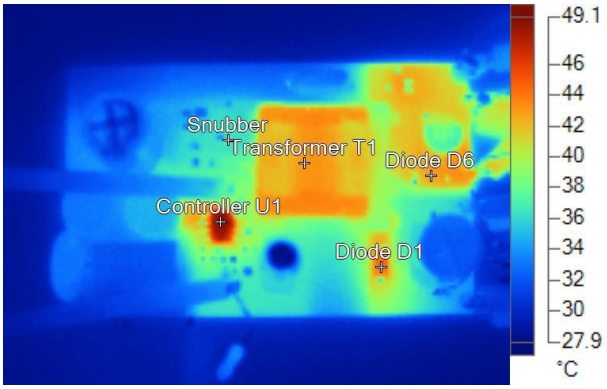
Input voltage = 230VAC
Load current = 0A – 0.25A



8 Thermal Analysis

The images below show the infrared images taken from the FlexCam after 15min at full load output power.

Input voltage = 230VAC
Load current = full load
Ambient temperature = 25°C
No heatsink, no airflow

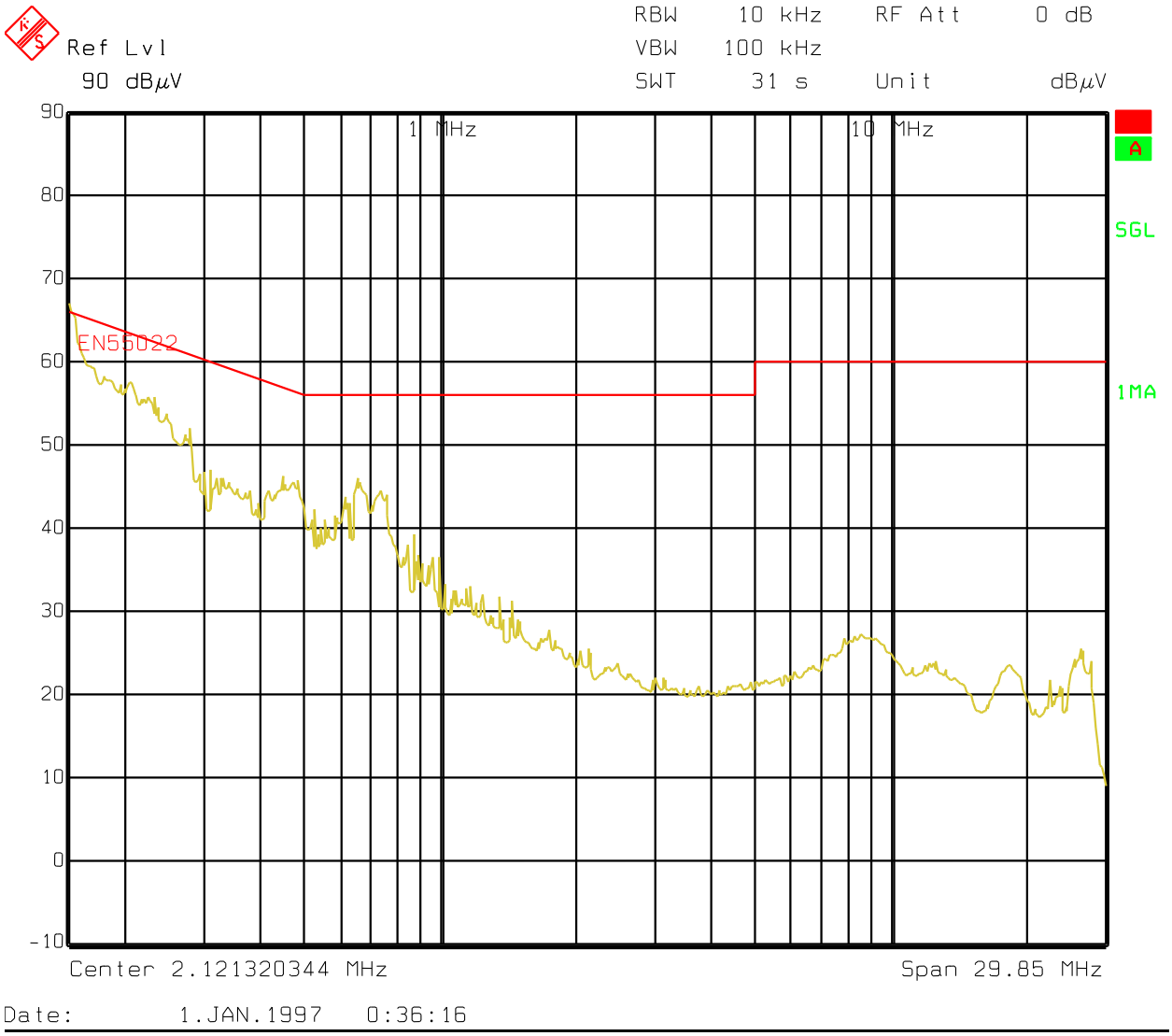


Name	Temperature	
Transformer T1	43.1°C	
Controller U1	49.1°C	
Diode D6	43.0°C	
Diode D1	44.4°C	
Snubber	36.9°C	

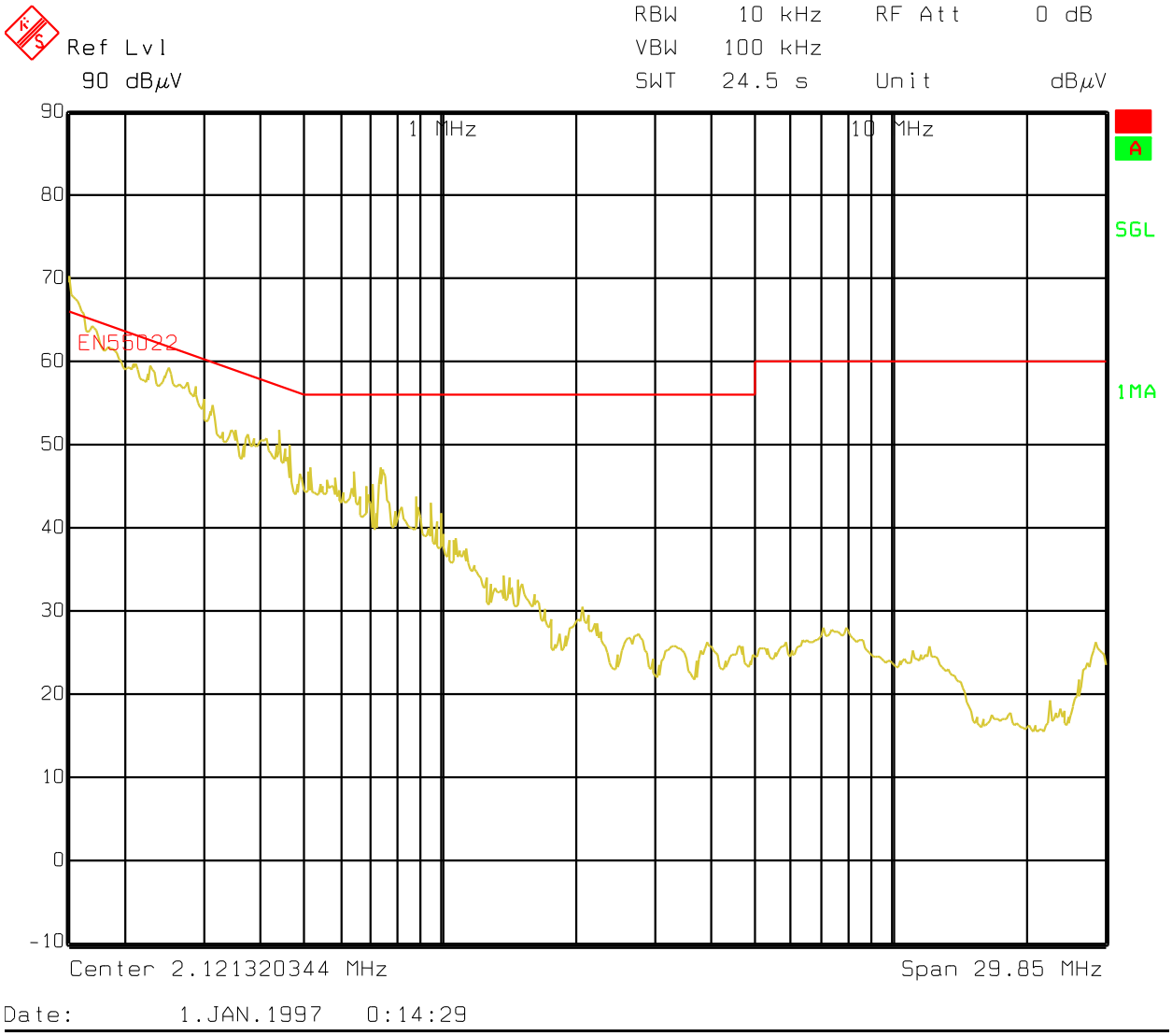
9 EMI Measurement

The graph below shows the conducted emission EMI noise and the EN55022 Class-B Quasi-Peak limits (measurement from the worst case line). The measurement is not certified. The board was connected to a LISN and an isolation transformer; the load was a power resistor. The receiver was set to Quasi-peak detector, 10 KHz bandwidth. The negative terminal of the 18Voutput (TP3) has been connected to the ground of the LISN.

Input voltage = 110VAC
Load current = full load



Input voltage = 230VAC
Load current = full load



IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale (https:www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2021, Texas Instruments Incorporated