1U 51-0286 Debug Waveform Capture

Acumentrics Corporation

Sep 26, 2011

Test Conditions & Setup:

- PCB Level EUT: 51-0206 Unit#1 (with 51-0284, 51-0289, 51-0290)
- System Level EUT: NA
- Latest PCB Modification: Aug 22, 2011
- Vac_input: 90-250Vac
- Vacout= 120Vac Nules specified otherwise
- System set-up:
- Loading Condition:
    - As specified
- Ambient= 25C

Test Equipments:

- Tektronix DPO 4034, Scope (BW=350MHz unless specified otherwise) w/P6139A probes
- Differential Voltage Probe: TEK P5205
- Current Monitoring Instrument:
  Tektronix TCPA400 base with TCP404XL Probe
  Tektronix TCP0030 probe
- AC Source: California Instrument 3000iL and Variac
- DC Source: Agilent N5772A
- Load: 3000W resistive load bank
  Chroma 63804 AC/DC Electronic Load

Objective:

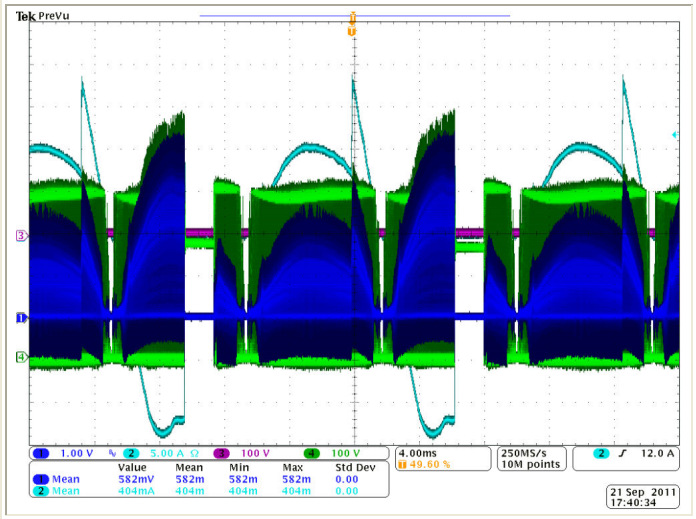
The purpose is to record the critical operational waveforms and data during the process of debug and troubleshooting.

Summary:

Section I: AC/DC Front-End 51-0286-01 Unit#1 @25C

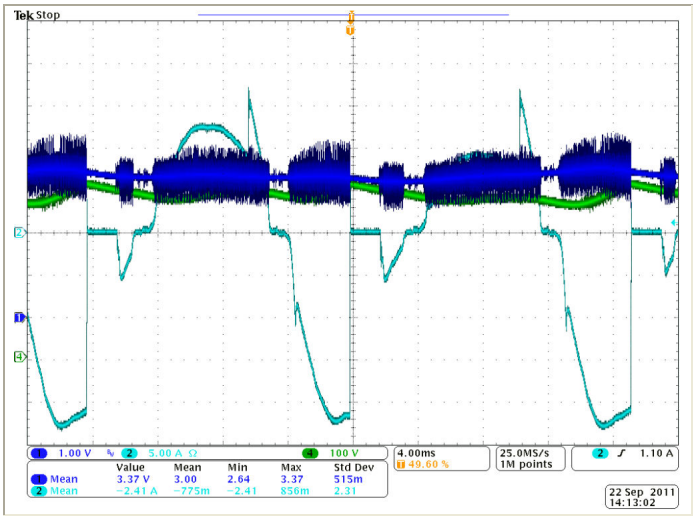
Unit #1 51-0286 w/T201 Gapped 5mil

Sep 21, 2011



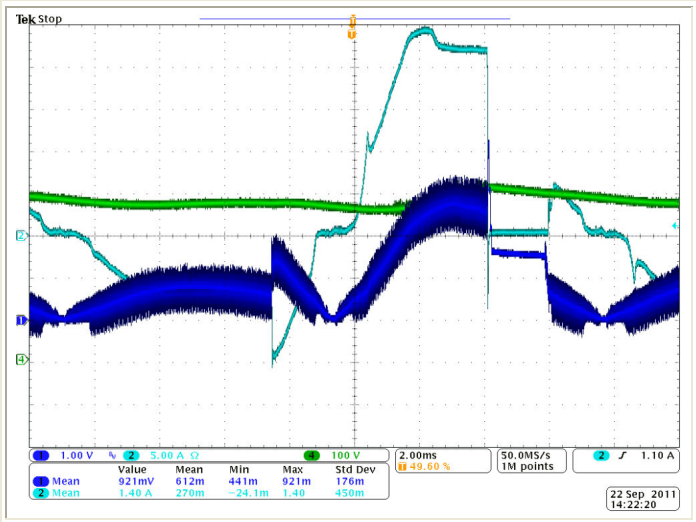
CH1: V_C202 (CT Xfmr #1) CH2: Iac_input (5A/Div) CH3: NA CH4: V-Q102D-S (MOS#1) PFC_out: 1170W CC	**Result:**
	AC Source: Variac
Vac = decrease from 120V	Tek0098

Figure 1: AC Input Current Instability



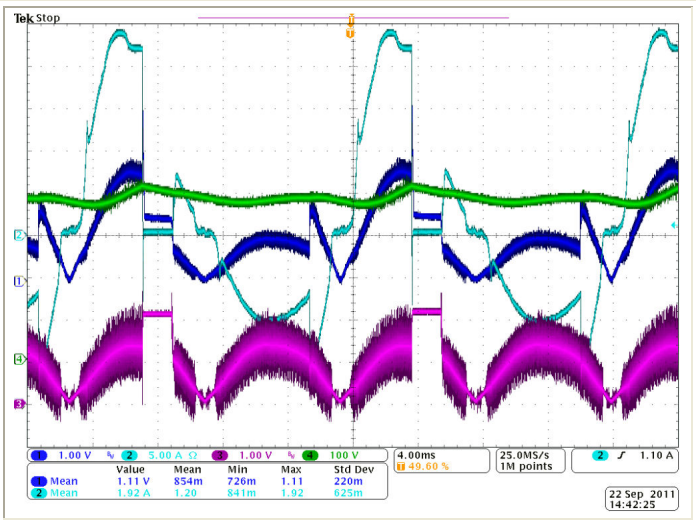
CH1: V_C221 (VEAO) CH2: Iac_input (5A/Div) CH3: NA CH4: V_+400VDC PFC_out: 1170W CC	**Result:**
	AC Source: Variac
Vac = decrease from 120V	Tek0099

Figure 2: AC Input Current Instability



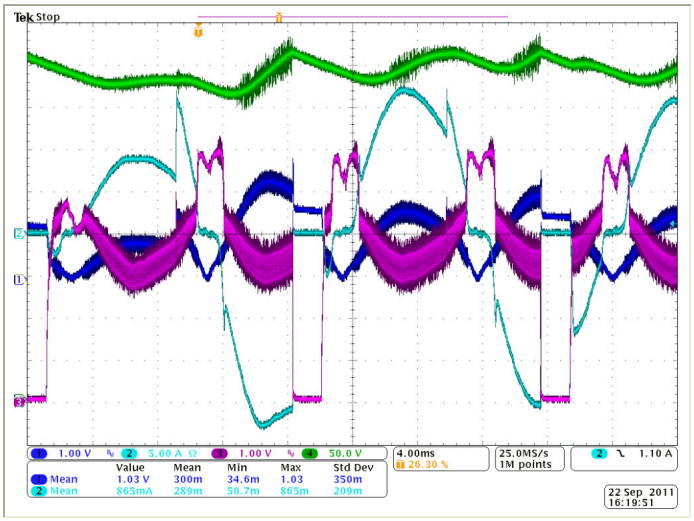
CH1: V_R251 (VIMO) CH2: Iac_input (5A/Div) CH3: NA CH4: V_+400VDC PFC_out: 1170W CC	**Result:**
	AC Source: Variac
Vac = decrease from 120V	Tek0100

Figure 3: AC Input Current Instability



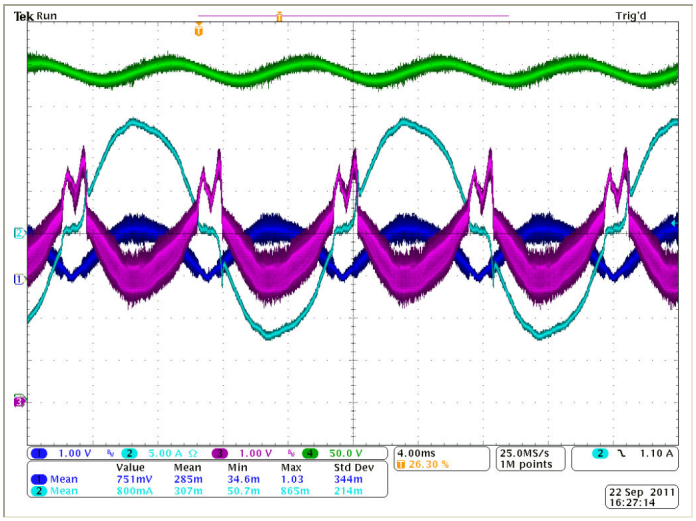
CH1: V_R251 (VIMO) CH2: Iac_input (5A/Div) CH3: V_vinac CH4: V_+400VDC PFC_out: 1170W CC	**Result:**
	AC Source: Variac
Vac = decrease from 120V	Tek0101

Figure 4: AC Input Current Instability



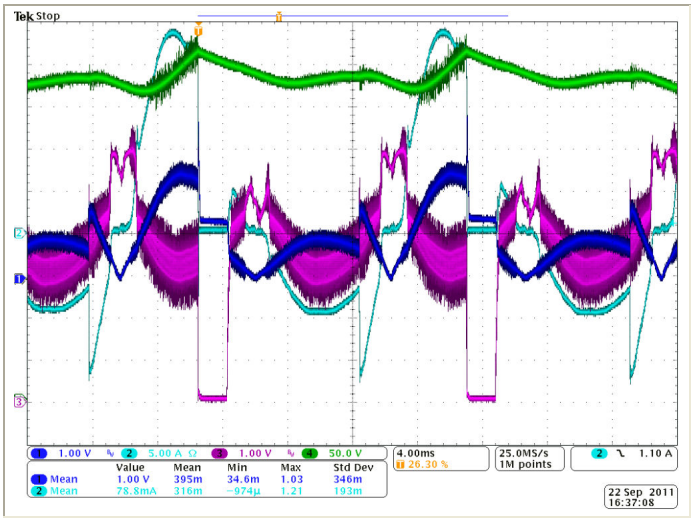
CH1: V_R251 (VIMO) CH2: Iac_input (5A/Div) CH3: V_C229 (VCAOA) CH4: V_+400VDC PFC_out: 1170W CC **Vac = decrease from 120V**	**Result:** AC Source: Variac Tek0102

Figure 5: AC Input Current Instability



CH1: V_R251 (VIMO) CH2: Iac_input (5A/Div) CH3: V_C229 (VCAOB) CH4: V_+400VDC PFC_out: 1170W CC **Vac = 135V**	**Result:** AC Source: Variac Tek0103

Figure 6: AC Input Current Under Normal Operation

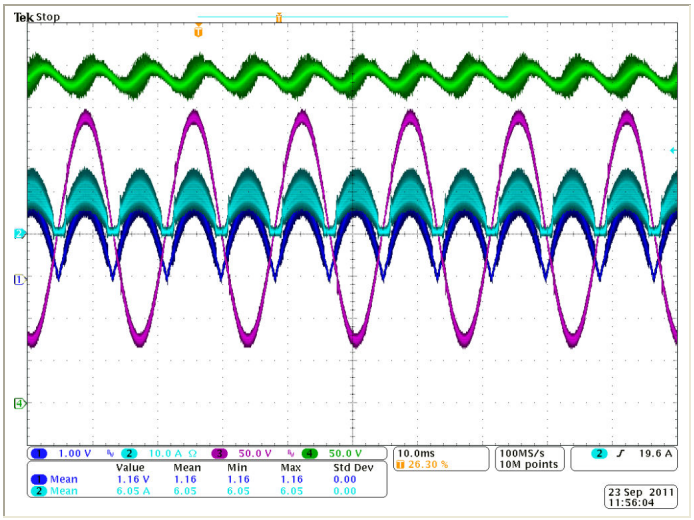


CH1: V_R251 (VIMO) CH2: Iac_input (5A/Div) CH3: V_C226 (VCAOB) CH4: V_+400VDC PFC_out: 1170W CC **Vac = decrease from 120V**	**Result:** AC Source: Variac Tek0104

Figure 7: AC Input Current Instability

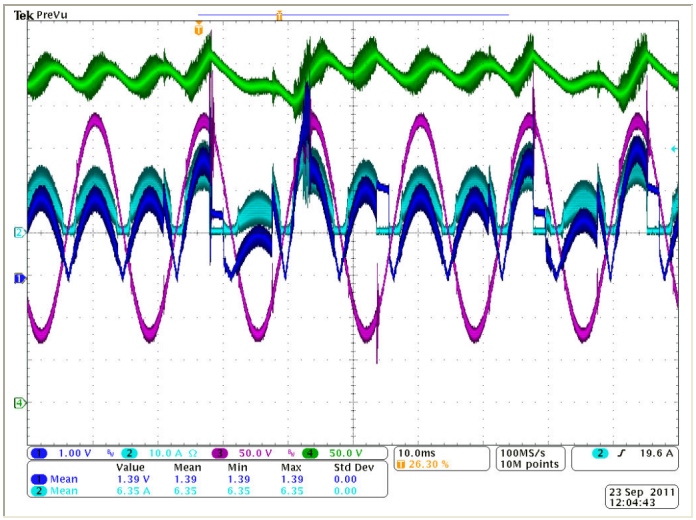
CH1: Vac_input CH2: Iac_input (5A/Div) CH3: Vac_out CH4: Iac_out Pac_out: 1000W **Vac = 180V**	**Result:** Tek0172

Figure 8: 1000W Load Steady State Input Waveforms



CH1: V_R251 (VIMO) CH2: I_L1 (5A/Div) CH3: Vac Input CH4: V_+400VDC PFC_out: 1170W CC **Vac = 95V**	**Result:** AC Source: California Instrument 3001i Tek0105

Figure 9: AC Input Current Under Normal Operation



CH1: V_R251 (VIMO) CH2: I_L1 (5A/Div) CH3: Vac Input CH4: V_+400VDC PFC_out: 1170W CC **Vac = decrease from 95V**	**Result:** AC Source: California Instrument 3001i Tek0105

Figure 10: AC Input current

CH1: Vac_input CH2: Iac_input (5A/Div) CH3: Vac_out CH4: Iac_out Pac_out: 0W **Vac = 250V**	**Result:** Tek0176

Figure 11: No Load Steady State Input Waveforms

CH1: Vac_input CH2: Iac_input (5A/Div) CH3: Vac_out CH4: Iac_out Pac_out: 1000W **Vac = 250V**	**Result:** Tek0175

Figure 12: 1000W Load Steady State Input Waveforms