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Test Procedure for the NCP1615GEVB Evaluation Board

Table 1: Required Equipment

***Chroma 61604 AC Power Source**	***Voltech PM3000A Power Analyzer**	***Agilent 34401A Multimeter**
***Agilent 34401A Multimeter**	***Chroma 6314 Electronic Load with *Chroma 63108 High Voltage Module**	***Tektronix TDS5034B Oscilloscope with *Tektronix P5205 Differential Probes**

***Equivalent test equipment may be substituted.**

Test Procedure:

1. Make sure jumper J4 (PSM) is connected.
2. Connect the electronic load with high voltage module to the output labeled “400 V/ 300 mA”.
3. Connect one of the multimeters in series with the output and load and set it to measure current.
4. Connect the second multimeter to the output and set it to measure voltage.
5. Connect the oscilloscope with differential probes to the output and set it to measure output ripple and frequency.
6. Connect the ac power source and power analyzer to the terminals labeled “Input”. Set the current compliance limit to 3 A.
7. Set the ac power source to 85 Vac / 60 Hz.
8. Set the high voltage electronic load to 300 mA.
9. Turn the AC source on.
10. Wait 10 seconds, and then check the output voltage (**V_{OUT}**) using the corresponding multimeter. Verify it is within the limits of Table 2.
11. Measure power factor (**PF**) and input power (**P_{IN}**) using the power analyzer.
12. Measure the peak to peak voltage and frequency of the output ripple using the oscilloscope.
13. Measure **I_{OUT}** using the corresponding multimeter.
14. Calculate efficiency (**η**) using the equation: $\eta = \frac{I_{OUT} \cdot V_{OUT}}{P_{IN}} \cdot 100\%$
15. Repeat steps 9-13 with the ac source set to 115 Vac / 60 Hz, 230 Vac / 50 Hz, 265 Vac / 50 Hz. Verify the results are within the limits of Table 2.
16. Turn off the ac source.
17. Since high voltage will be present after the voltage is removed, wait for the dc voltmeter to show approximately 0 V before continuing.
18. Disconnect the ac source.
19. Disconnect the oscilloscope.
20. Disconnect the electronic load.
21. Disconnect both multimeters.
22. End of test.

Table 2: Desired Results

For 85 Vac / 60 Hz input,	**V_{OUT} = 400 ± 15 V**
	PF > 0.98
	Output Ripple Voltage < 20 V_{PP}
	Output Ripple Frequency = 120 Hz sine wave
	η > 92%
For 115 Vac / 60 Hz input,	**V_{OUT} = 400 ± 15 V**
	PF > 0.98
	Output Ripple Voltage < 20 V_{PP}
	Output Ripple Frequency = 120 Hz sine wave
	η > 94%
For 230 Vac / 50 Hz input,	**V_{OUT} = 400 ± 15 V**
	PF > 0.96
	Output Ripple Voltage < 20 V_{PP}
	Output Ripple Frequency = 100 Hz sine wave
	η > 95%
For 265 Vac / 50 Hz input,	**V_{OUT} = 400 ± 15 V**
	PF > 0.96
	Output Ripple Voltage < 20 V_{PP}
	Output Ripple Frequency = 100 Hz sine wave
	η > 95%

Figure 1: Test Setup