



Test Report: XDR-480-48

480W AC/DC High-End Ultra Slim Industrial DIN Rail
Power

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function Test

Component Stress Test

■ SAFETY & E.M.C. TEST

Safety Test

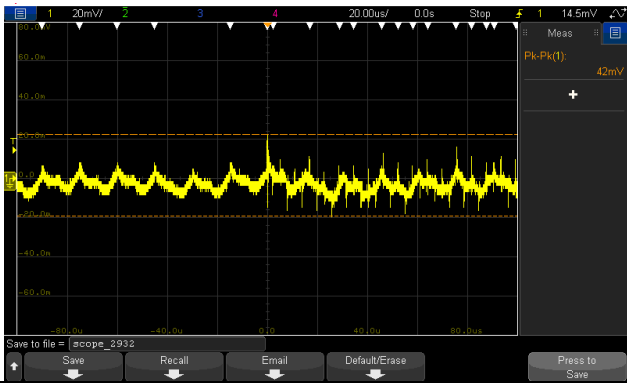
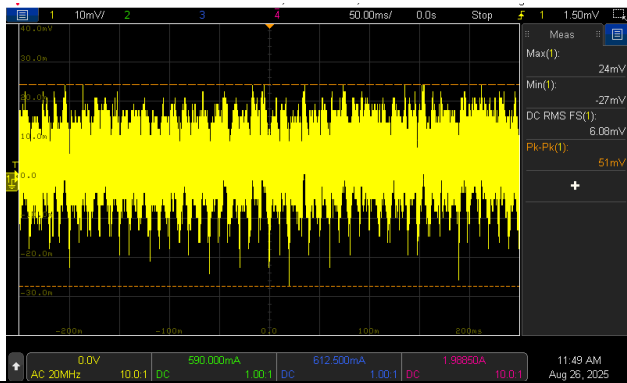
E.M.C. Test

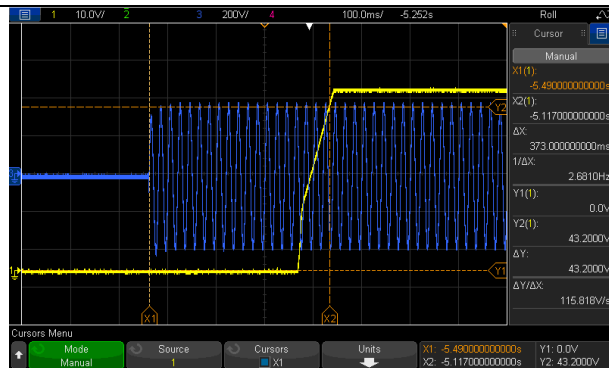
■ RELIABILITY TEST

ENVIRONMENT TEST

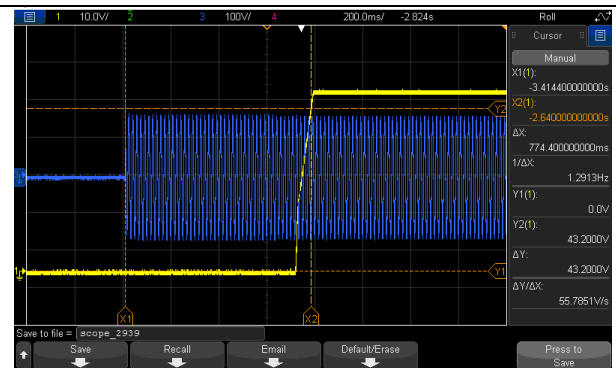
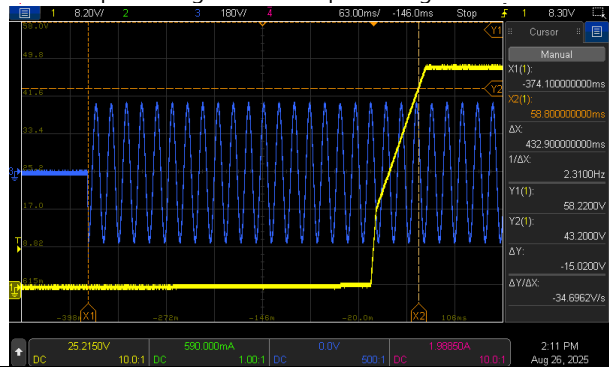
DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 48V~55V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	46.484V~57.46V/277VAC 46.485V~57.46V/230VAC 46.486V~57.46V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1% ~ +1%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.025% ~ 0.025%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0.025% ~ 0.025%
4	LOAD REGULATION	V1: -1% ~ +1%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.007% ~ 0%
5	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD/ PEAK LOAD Ta:25°C	0.4%
6	RIPPLE & NOISE (Max)	V1: 120mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	42mVp-p / high frequency 51mVp-p / low frequency
high frequency :  low frequency : 				
7	SET UP TIME(Max)	230VAC/1500ms 115VAC/3000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 373 ms 230VAC/ 432.9ms 115VAC/ 774.4ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	



INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage



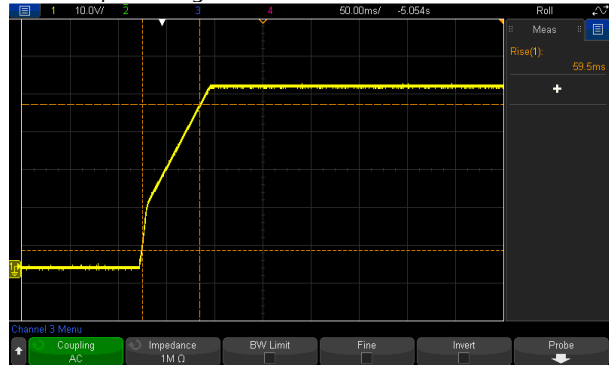
8 RISE TIME (Max)

230VAC/150ms
115VAC/150ms

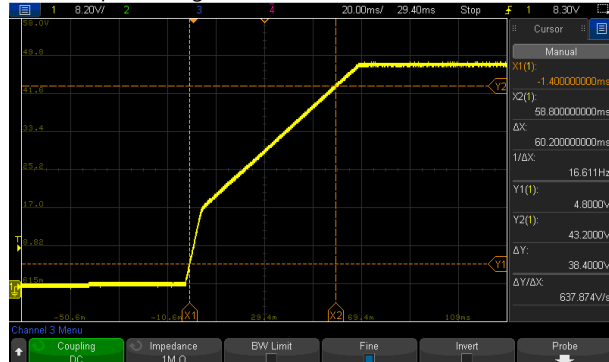
I/P : 230 VAC
I/P : 115 VAC
O/P : FULL LOAD
Ta : 25°C

277VAC/ 59.5ms
230VAC/ 60.2ms
115VAC/ 60.4ms

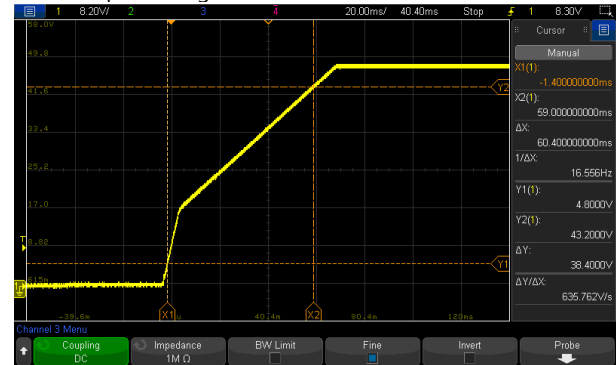
INPUT=277VAC/50HZ @ FULL LOAD
CH1: Output Voltage

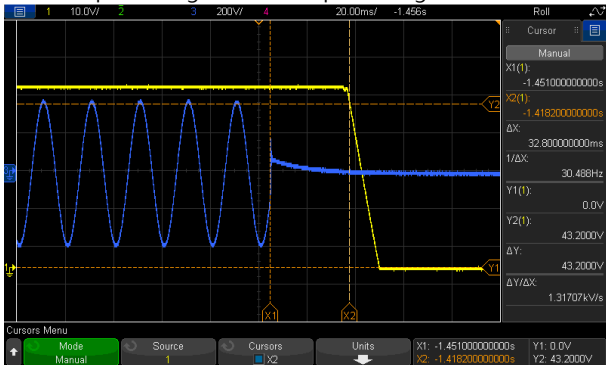
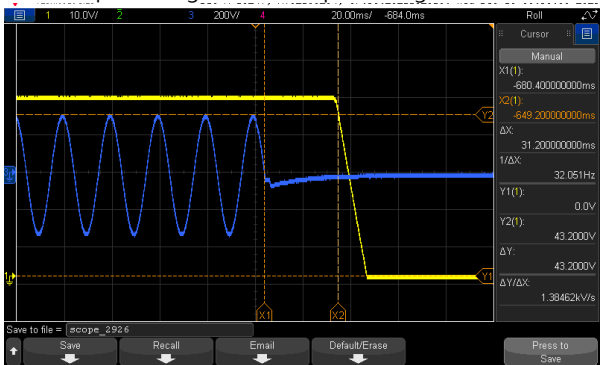
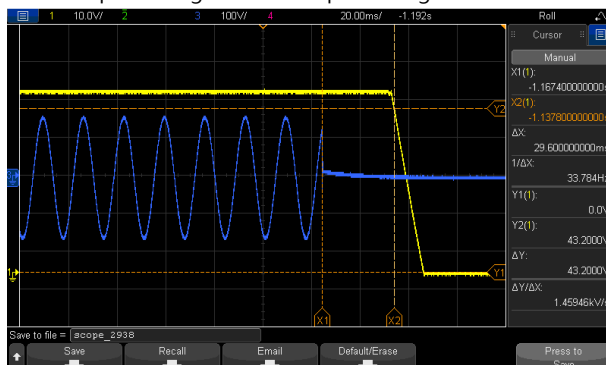
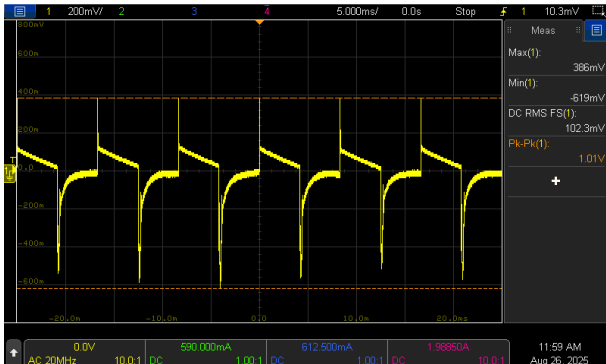
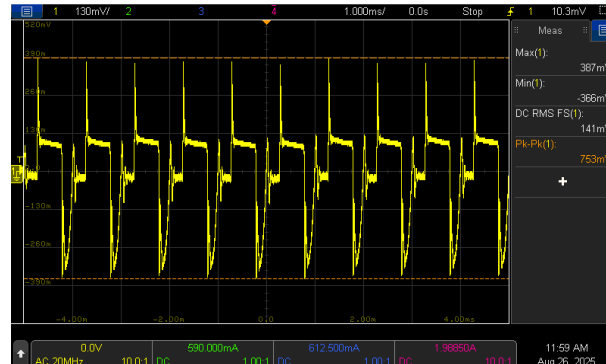


INPUT=230VAC/50HZ @ FULL LOAD
CH1: Output Voltage

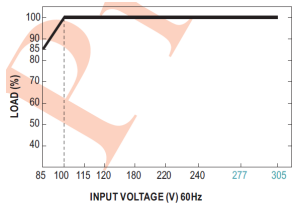


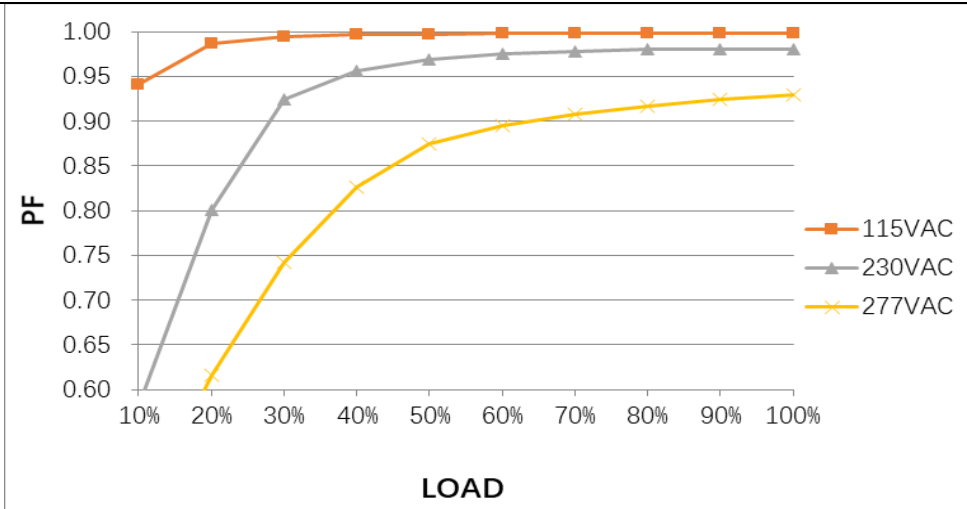
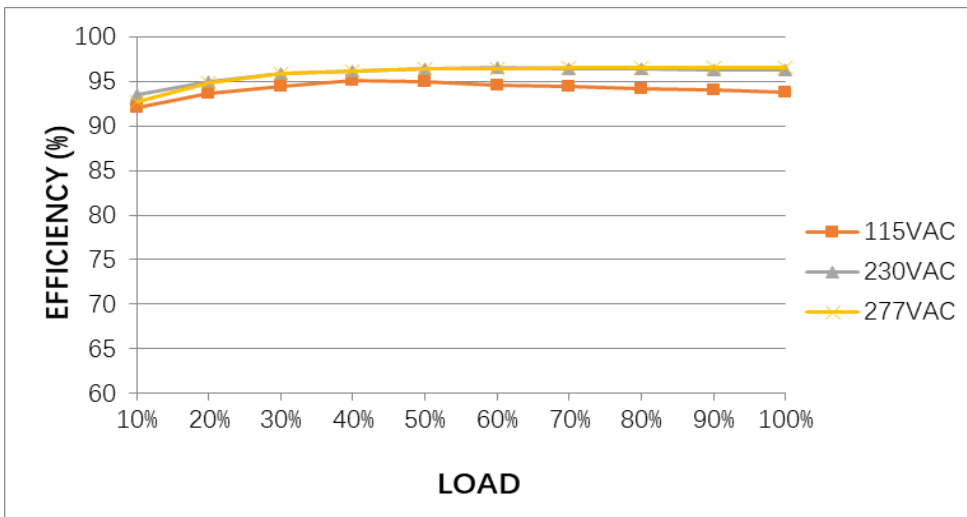
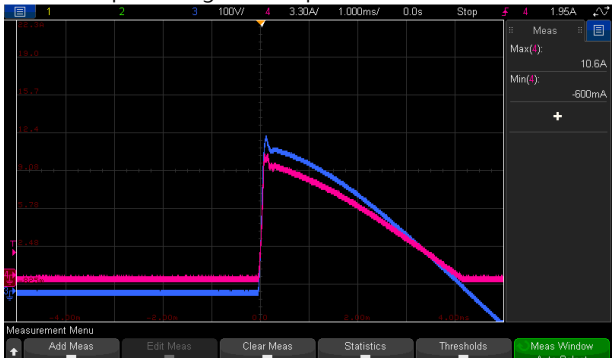
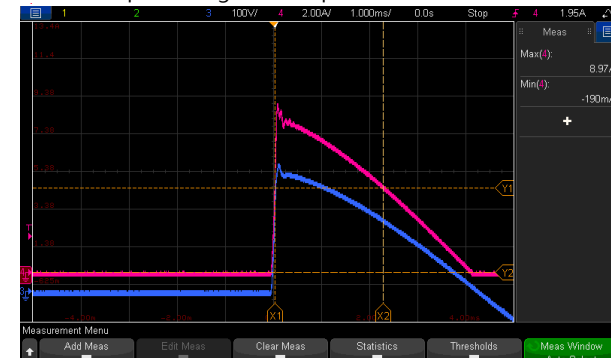
INPUT=115VAC/60HZ @ FULL LOAD
CH1: Output Voltage

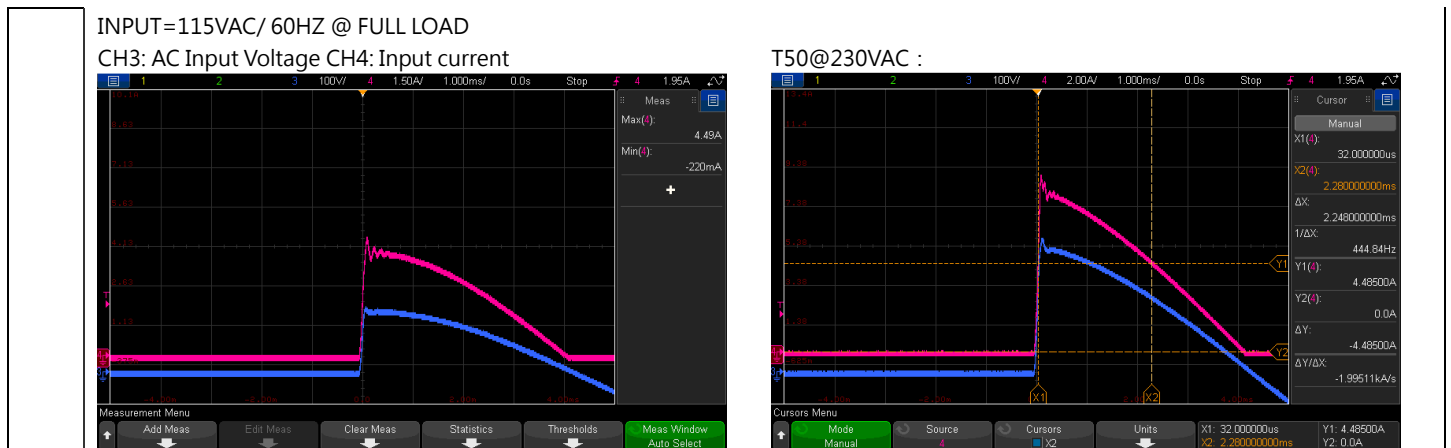


9	HOLD UP TIME (Typ.)	230VAC/ 15ms 115VAC/ 15ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 32.8ms 230VAC/ 31.2ms 115VAC/ 29.6ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage  INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage 				
10	DYNAMIC LOAD	V1: 4800mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	1010mVp-p 753mVp-p
FULL / MIN LOAD 50%DUTY / 120HZ  FULL / MIN LOAD 50%DUTY / 1KHZ 				
11	TRANSIENT RECOVERY TIME	V1: 4800mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	383mVp-p

INPUT FUNCTION TEST

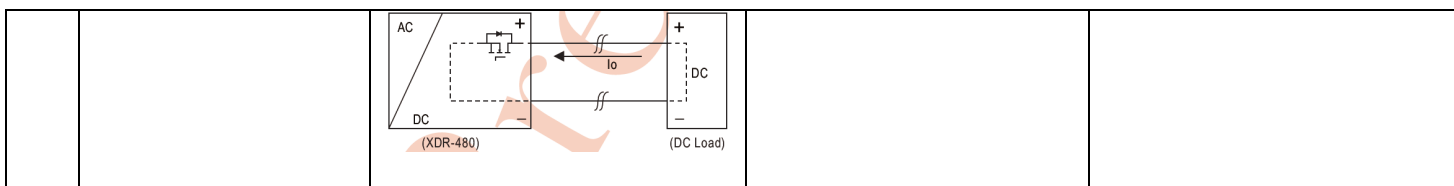
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT												
1	INPUT VOLTAGE RANGE	85VAC~305VAC 80VDC~ 431VDC 	(1) I/P: TESTING O/P: FULL / 85% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 85% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 85% LOAD Ta:25°C	(1) 78.2V~305V/ FULL LOAD 78.0V~305V/ 85% LOAD (2) 75.2Vdc~431Vdc/FULL LOAD 75.0Vdc~431Vdc/85% LOAD (3) 74.8Vdc~431Vdc/FULL LOAD 74.6Vdc~431Vdc/85% LOAD												
		Derating 50% Load @80VDC	I/P: 80VDC O/P: 50% Load	TEST : OK												
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P: 85VAC~ 305VAC O/P:FULL~MIN LOAD Ta:25°C	TEST : OK												
3	INPUT CURRENT (Typ.)	277V/ 2.5A 230V/ 3A 115V/ 6A	I/P : 230 VAC I/P : 115 VAC I/P : 277VAC O/P : FULL LOAD Ta : 25°C	I =1.9489A/ 277VAC I =2.2211A/ 230VAC I =4.5136A/ 115VAC												
4	LEAKAGE CURRENT	< 1mA@240Vac < 1.5mA@277Vac	I/P : 240VAC/60HZ I/P : 277VAC/60HZ O/P : Min LOAD Ta : 25°C	0.459mA@240Vac 0.529mA@277Vac												
5	NO LOAD CONSUMPTION	Remote Power OFF: 1W@115Vac & 230Vac & 277Vac Remote Power ON: 3W@115Vac & 230Vac & 277Vac	I/P : 115VAC I/P : 230VAC I/P : 277VAC O/P : NO LOAD Ta : 25°C	TEST: <table><tr><td></td><td>Remote Power OFF</td><td>Remote Power ON</td></tr><tr><td>115VAC</td><td>0.622W</td><td>2.402W</td></tr><tr><td>230VAC</td><td>0.731W</td><td>2.409W</td></tr><tr><td>277VAC</td><td>0.808W</td><td>2.405W</td></tr></table>		Remote Power OFF	Remote Power ON	115VAC	0.622W	2.402W	230VAC	0.731W	2.409W	277VAC	0.808W	2.405W
	Remote Power OFF	Remote Power ON														
115VAC	0.622W	2.402W														
230VAC	0.731W	2.409W														
277VAC	0.808W	2.405W														
6	POWER FACTOR (Typ.)	0.90/ 277VAC 0.95/ 230VAC 0.98/115VAC	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.9253/277VAC PF=0.9797/230VAC PF=0.9978/115VAC												
	P.F vs LOAD															

				
7	EFFICIENCY(Typ.)	96%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	96.02%
	EFFICIENCY vs LOAD			
				
8	INRUSH CURRENT(Typ.)	277V/15A 230V/10A 115V/6A COLD START	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =10.6/ 277VAC I =8.97A/ 230VAC I =4.49A/ 115VAC T50=2248us/230V
	INPUT=277VAC/50HZ @ FULL LOAD CH3: AC Input Voltage CH4: Input current			
				
	INPUT=230VAC/50HZ @ FULL LOAD CH3: AC Input Voltage CH4: Input current			
				

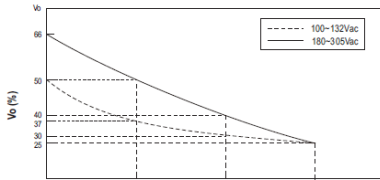
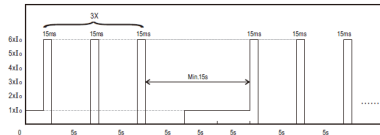


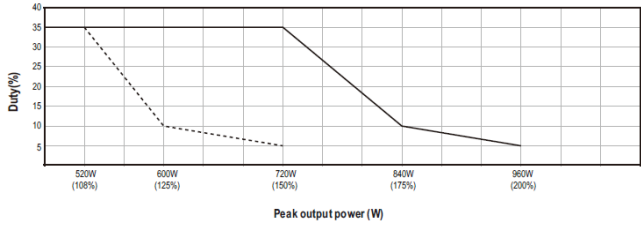
PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	Protection type: 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when $V_o=30\%\sim 100\%$; Hiccup mode when $V_o<30\%$ rated voltage	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	125.8%/305VAC 125.8%/230VAC 126.0%/100VAC Protection type: 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when $V_o=30\%\sim 100\%$; Hiccup mode when $V_o<30\%$ rated voltage
2	OVER VOLTAGE PROTECTION	57V~66V Protection type: Shut down o/p voltage, re-power on to recover	I/P: 305VAC I/P: 85VAC O/P: MIN LOAD Ta:25°C	60.8V/305VAC 60.8V/ 85VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover
3	OVER TEMPERATURE PROTECTION	Protection type: Shut down o/p voltage, recovers automatically after temperature goes down	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Hiccup mode when $V_o<30\%$ rated voltage , recovers automatically after fault condition is removed	I/P: 305VAC I/P: 85VAC O/P: FULL LOAD	NO DAMAGE PROTECTION TYPE : Hiccup mode when $V_o<30\%$ rated voltage , recovers automatically after fault condition is removed
5	Protection against Inverse Voltages from the Load	Prevent PSU damage from Back Electro magnetic Force during deceleration of motor or inductive load	I/P: 230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>



CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																								
1	DC OK CONTACT RATINGS	30VDC/1A , 30VAC/0.5A RESISTIVE LOAD	I/P:230VAC O/P:FULL LOAD Ta:25°C	TEST: <u>OK</u>																																								
2	REMOTE CONTROL	Power ON: Pin9 and Pin10 Short or keep 4~5Vdc Power OFF: Pin9 and Pin10 Open or keep < 0.5Vdc	I/P:230VAC O/P:FULL LOAD Ta:25°C	TEST: <u>OK</u>																																								
3	PULSE CURRENT CAPABILTY	 <table><thead><tr><th>Load</th><th>100~132Vac Vo (%)</th><th>180~305Vac Vo (%)</th><th>Time</th></tr></thead><tbody><tr><td>3xIo</td><td>50</td><td>66</td><td>100ms</td></tr><tr><td>4xIo</td><td>37</td><td>50</td><td>70ms</td></tr><tr><td>5xIo</td><td>30</td><td>40</td><td>40ms</td></tr><tr><td>6xIo</td><td>25</td><td>25</td><td>15ms</td></tr></tbody></table>	Load	100~132Vac Vo (%)	180~305Vac Vo (%)	Time	3xIo	50	66	100ms	4xIo	37	50	70ms	5xIo	30	40	40ms	6xIo	25	25	15ms	I/P: 180VAC I/P: 100VAC O/P: TESTING Ta:25°C	180VAC : <table><thead><tr><th>Load</th><th>Iout_Time(ms)</th></tr></thead><tbody><tr><td>3xIo</td><td>113.2</td></tr><tr><td>4xIo</td><td>112.8</td></tr><tr><td>5xIo</td><td>56.4</td></tr><tr><td>6xIo</td><td>26.5</td></tr></tbody></table> 100VAC : <table><thead><tr><th>Load</th><th>Iout_Time(ms)</th></tr></thead><tbody><tr><td>3xIo</td><td>112</td></tr><tr><td>4xIo</td><td>85.6</td></tr><tr><td>5xIo</td><td>59.4</td></tr><tr><td>6xIo</td><td>26.9</td></tr></tbody></table>	Load	Iout_Time(ms)	3xIo	113.2	4xIo	112.8	5xIo	56.4	6xIo	26.5	Load	Iout_Time(ms)	3xIo	112	4xIo	85.6	5xIo	59.4	6xIo	26.9
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4	PULSE CURRENT CAPABILTY		I/P:230VAC O/P: TESTING Ta:25°C	TEST : <u>OK</u>																																								
5	LED Status Indictors	LED : <table><thead><tr><th>Description</th><th>Output of alarm</th></tr></thead><tbody><tr><td>Restore Factory Settings</td><td>Green : 3 Blink/Pause </td></tr><tr><td>DC OK</td><td>Green </td></tr><tr><td>DC Fail</td><td>Red </td></tr><tr><td>Overload (115Vac: ~150% rated current) (220Vac: ~200% rated current)</td><td>Red : 1 Blink/Pause </td></tr><tr><td>Over voltage</td><td>Red : 2 Blink/Pause </td></tr><tr><td>Over temperature</td><td>Red : 3 Blink/Pause </td></tr><tr><td>Against Inverse Voltages From The Load</td><td>Red : 4 Blink/Pause </td></tr><tr><td>High Ambient Temperature Warning</td><td>Red : Blink </td></tr><tr><td>Others (Note)</td><td>Red : 5 Blink/Pause </td></tr></tbody></table> Note: Others include protection status AC UVP, Internal Communication error and EEPROM error.	Description	Output of alarm	Restore Factory Settings	Green : 3 Blink/Pause 	DC OK	Green 	DC Fail	Red 	Overload (115Vac: ~150% rated current) (220Vac: ~200% rated current)	Red : 1 Blink/Pause 	Over voltage	Red : 2 Blink/Pause 	Over temperature	Red : 3 Blink/Pause 	Against Inverse Voltages From The Load	Red : 4 Blink/Pause 	High Ambient Temperature Warning	Red : Blink 	Others (Note)	Red : 5 Blink/Pause 	I/P:230VA0C O/P: TESTING Ta:25°C	TEST : <u>OK</u>																				
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6	PARALLEL	Up to 1920W(3+1), please refer to Function Manual for more details	I/P: TESTING O/P: TESTING LOAD Ta:25°C	TEST : <u>OK</u>
7	PEAK Power	I/P: 100/200VAC O/P:  -----100VAC ————200VAC		TEST : <u>OK</u>

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q5/Q6 : Rated: 45A/ 600V	AC ON/OFF I/P: High-Line +3V =308V VDS: O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8) Peak Load Ta:25°C	Q5 VDS: (1) 525V (2) 545V (3) 529V (4) 537V (5) 525V (6) 525V (7) 529V (8) 521V Q6 VDS: (1) 495V (2) 511V (3) 495V (4) 495V (5) 499V (6) 495V (7) 495V (8) 487V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1/Q2 : Rated: 31A/ 600V	AC ON/OFF I/P: High-Line +3V =308V VDS: O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8) Peak Load Ta:25°C	Q1/Q2 VDS: (1) 475V (2) 491V (3) 487V (4) 467V (5) 471V (6) 499V (7) 491V (8) 471V

3	P.F.C DIODE	D1 : Rated: 10A/650V	I/P: High-Line +3V =308 V AC ON/OFF O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (4) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (5) Peak Load Ta:25°C	(1) 456V (2) 452V (3) 448V (4) 456V (5) 460V
4	Diode Peak Voltage	Q100/Q103: Rated: 150V/60A	AC ON/OFF I/P: High-Line +3V =308 V <u>VO=Vomax</u> O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz (4) Dynamic Load Full Load/ Min. Load 90%Duty/3KHz (5) Dynamic Load Full Load/ Min. Load 90%Duty/5KHz (6) Dynamic Load 100% Load/ Min. Load 50%Duty/120Hz (7)0%→400% Load. (8).NO LOAD (9) Peak Load <u>VO=Vonormal</u> O/P: (1) Full Load Ta:25°C	Q100: <u>VO=Vomax</u> VDS: (1) 127V (2) 125V (3) 128V (4) 131V (5) 129V (6) 128V (7) 123V (8) 126V (9) 128V <u>VO=Vonormal</u> (1) 113.8V Q103: <u>VO=Vomax</u> VDS: (1) 126V (2) 126V (3) 130V (4) 130V (5) 129V (6) 129V (7) 127V (8) 124V (9) 132V <u>VO=Vonormal</u> (1) 115V
5	Input Capacitor Voltage	C5 : Rated: 150μ /450V	I/P: High-Line +3V =308V O/P: (1)Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change (4) Full load continue (5) Peak Load on/off (6) Peak Load continue Ta:25°C	(1) 438V (2) 434V (3) 438V (4) 438V (5) 438V (6) 443V
6	Control IC Voltage Test	PFC/PWM IC U1 : Rated : 12.5V~ 27.9V O/P IC U101: Rated: 4.75V~38V IC U404 : Rated : 3V~36V AUX IC U2 : Rated : 5.65V~6.8V	AC ON/OFF I/P: High-Line +3V =308V O/P: (1) Full Load (2) Output Short (3) O.L.P (4) O.V.P. (5) No Load VR min (Low Line) Ta:25°C	U1 (1) 13.8V (2) 13.9V (3) 13.7V (4) 13.6V (5) 13.6V U101 (1) 15.4V (2) 15.9V (3) 15.5V U2 (1) 6.46V (2) 6.48V (3) 6.48V (4) 6.54 V (5) 6.40V U9 (1) 3.307V (2) 3.307V (3) 3.307V

		MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V		(4) 14.4V (5) 15.3V	(4) 3.307V (5) 3.307V
		MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V		U404 (1) 5.97V (2) 5.61V (3) 5.61V (4) 5.53V (5) 5.61V	U306 (1) 3.303V (2) 3.303V (3) 3.303V (4) 3.303V (5) 3.303V

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 KVAC/min I/P-FG : 2 KVAC/min O/P-FG:1.5 KVAC/min O/P-DC OK: 0.5 KVAC/min	I/P-O/P: 4.4 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG: 1.8 KVAC/min O/P-DC OK: 0.6 KVAC/min Ta:25°C	I/P-O/P: 2.99 mA I/P-FG: 2.37mA O/P-FG: 3.22mA O/P-DC OK: 0.007mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ I/P-FG: 500VDC>100MΩ O/P-FG:500VDC>100MΩ	I/P-O/P: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: 50GΩ I/P-FG: 50GΩ O/P-FG: 50GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100mΩ	40A /2min Ta:25°C	14 mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	BS EN/EN55032 (CISPR32) BS EN/EN61204-3 CNS15936 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032 (CISPR32) BS EN/EN61204-3 CNS15936 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
4	E.S.D	BS EN/EN 61000-4-2 AIR : 15KV / Contact : 8KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A

5	E.F.T	BS EN/EN 61000-4-4 INPUT : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS E /EN 61000-4-5 L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare Any contradictions of the test results, please refer to the latest EMC test report			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																												
1	TEMPERATURE RISE TEST	MODEL : XDR-480-48 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=23.3°C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=60.1°C																																																																																														
		<table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=23.3°C</th><th>HIGH AMBIENT Ta=60.1°C</th></tr><tr><td>1</td><td>Q2</td><td>56.1°C</td><td>90.6°C</td></tr><tr><td>2</td><td>Q1</td><td>52.0°C</td><td>89.0°C</td></tr><tr><td>3</td><td>D1</td><td>56.3°C</td><td>93.3°C</td></tr><tr><td>4</td><td>R6</td><td>52.8°C</td><td>91.6°C</td></tr><tr><td>5</td><td>Q5</td><td>53.5°C</td><td>93.0°C</td></tr><tr><td>6</td><td>L2</td><td>47.0°C</td><td>85.5°C</td></tr><tr><td>7</td><td>RTH3</td><td>52.2°C</td><td>89.8°C</td></tr><tr><td>8</td><td>L1</td><td>51.9°C</td><td>89.4°C</td></tr><tr><td>9</td><td>C5</td><td>49.0°C</td><td>85.7°C</td></tr><tr><td>10</td><td>T2</td><td>47.5°C</td><td>86.5°C</td></tr><tr><td>11</td><td>Q103</td><td>55.1°C</td><td>94.1°C</td></tr><tr><td>12</td><td>Q100</td><td>53.1°C</td><td>91.9°C</td></tr><tr><td>13</td><td>RTH5</td><td>51.5°C</td><td>89.1°C</td></tr><tr><td>14</td><td>U2</td><td>50.1°C</td><td>88.2°C</td></tr><tr><td>15</td><td>U101</td><td>52.4°C</td><td>91.0°C</td></tr><tr><td>16</td><td>U1</td><td>57.0°C</td><td>96.2°C</td></tr><tr><td>17</td><td>U8</td><td>55.6°C</td><td>93.5°C</td></tr><tr><td>18</td><td>T1coil</td><td>74.8°C</td><td>114.0°C</td></tr><tr><td>19</td><td>T1core</td><td>50.0°C</td><td>102.3°C</td></tr><tr><td>20</td><td>LF2</td><td>50.0°C</td><td>87.6°C</td></tr><tr><td>21</td><td>U9</td><td>49.1°C</td><td>87.1°C</td></tr><tr><td>22</td><td>BD1</td><td>54.2°C</td><td>91.1°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=23.3°C	HIGH AMBIENT Ta=60.1°C	1	Q2	56.1°C	90.6°C	2	Q1	52.0°C	89.0°C	3	D1	56.3°C	93.3°C	4	R6	52.8°C	91.6°C	5	Q5	53.5°C	93.0°C	6	L2	47.0°C	85.5°C	7	RTH3	52.2°C	89.8°C	8	L1	51.9°C	89.4°C	9	C5	49.0°C	85.7°C	10	T2	47.5°C	86.5°C	11	Q103	55.1°C	94.1°C	12	Q100	53.1°C	91.9°C	13	RTH5	51.5°C	89.1°C	14	U2	50.1°C	88.2°C	15	U101	52.4°C	91.0°C	16	U1	57.0°C	96.2°C	17	U8	55.6°C	93.5°C	18	T1coil	74.8°C	114.0°C	19	T1core	50.0°C	102.3°C	20	LF2	50.0°C	87.6°C	21	U9	49.1°C	87.1°C	22	BD1	54.2°C	91.1°C
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30	U4	49.9°C	87.5°C																																					
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 123%LOAD Ta : 25°C	TEST : OK																																				
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 305VAC/100VAC O/P : 80%/100 %LOAD Ta= -45°C/-35°C	TEST : OK																																				
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60°C/95 %R.H NO DAMAGE	I/P : 315VAC O/P : FULL LOAD Ta= 60°C HUMIDITY= 95 %R.H	TEST : OK																																				
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C(0~60°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.006%/°C(0~60°C)																																				
6	STORAGE TEMPERATURE TEST	-40~85°C	1. Thermal shock Temperature : -45°C~ +90°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 10 CYCLE 5. Input/Output condition : STATIC																																					
7	THERMAL SHOCK TEST	-30~60°C	1. Thermal shock Temperature : -35°C~ +65°C 2. Temperature change rate : 25°C / MIN 3. Dwell time low and high temperature : 30 MIN/EACH 4. Total test cycle : 16 CYCLE 5. Input/Output condition : 15cycle:230V/ FULL LOAD AC ON 3sec/AC OFF 1sec TEST 1cycle:230V/ FULL LOAD Burn In Test																																					
8	VIBRATION TEST	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	1 Carton & 1 Set (1) Waveform : Sine Wave (2) Frequency : 10~500Hz (3) Sweep Time : 10min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C																																					
9	CAPACITOR LIFE CYCLE	SUPPOSE C109 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 60°C LIFE TIME (2) I/P : 230VAC O/P : FULL LOAD Ta= 60°C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 60°C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 60°C LIFE TIME		(1) 1636230 HRS (2) 112685 HRS (3) 178025 HRS (4) 237845 HRS																																				
10	MTBF	Conducted by Parts Stress Analysis Prediction 1139.7K hrs min. Telcordia SR-332 (Bellcore) ; 154.5K hrs min. MIL-HDBK-217F (25°C)																																						



11	Ongoing Reliability Test	I/P : 230VAC O/P : FULL LOAD TA=50°C Demonstration Mean Time Between Failure : 50,000 hours
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TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Hanxr	Liutt	Wangzd

2020.10.1 TAG-QA-009