



Test Report: XDR-480-12

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

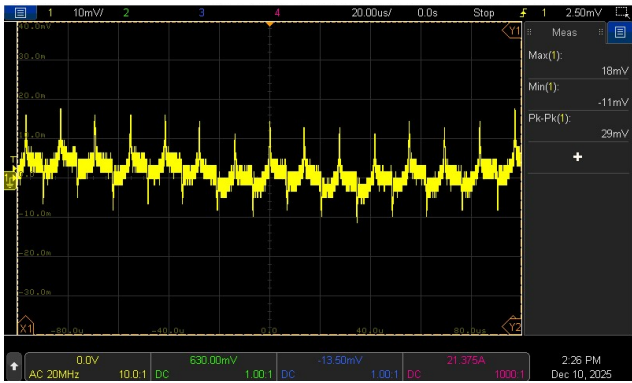
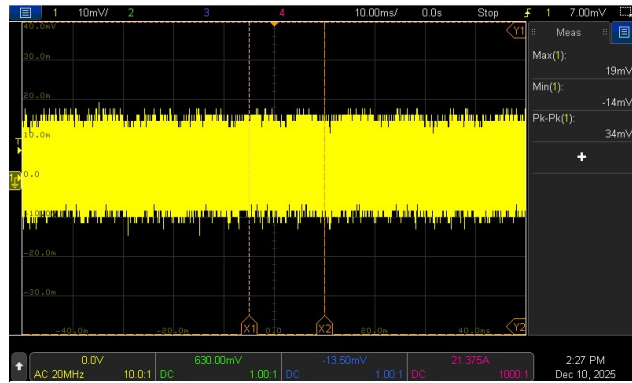
E.M.C. Test

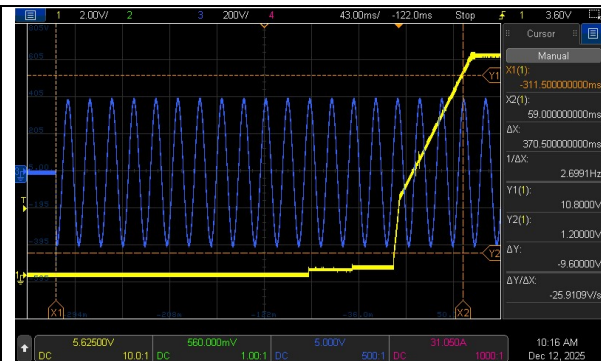
■ RELIABILITY TEST

ENVIRONMENT TEST

DESIGN VERIFY TEST

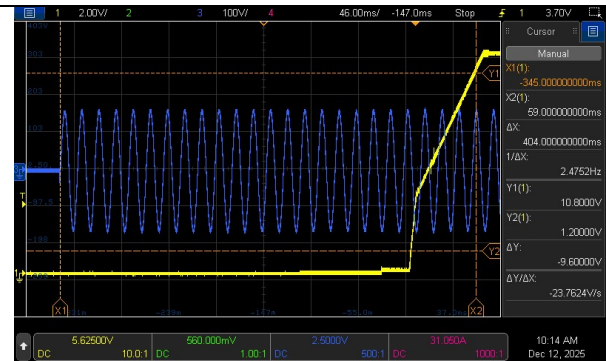
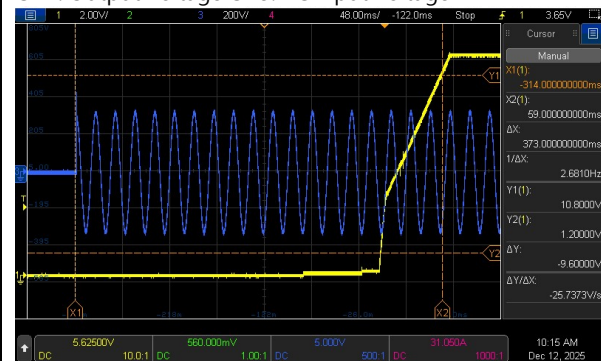
OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 12V~15V	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	11.61V~15.37V/277VAC 11.61V~15.37V/230VAC 11.61V~15.37V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1% ~ +1%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.275% ~ 0.283%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25°C	V1: -0.0617% ~ 0.0668%
4	LOAD REGULATION	V1: -1% ~ +1%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.275% ~ 0.283%
5	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD/ PEAK LOAD Ta:25°C	2.1%
6	RIPPLE & NOISE (Max)	V1: 100mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	29mVp-p / high frequency 34mVp-p / low frequency
high frequency :  low frequency : 				
7	SET UP TIME(Max)	277VAC/1500ms 230VAC/1500ms 115VAC/1500ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 370ms 230VAC/ 373ms 115VAC/ 404ms
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)

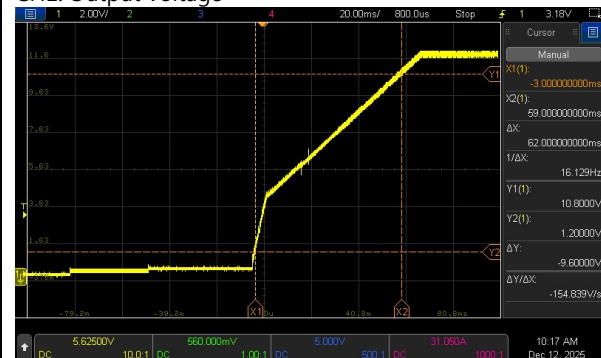
277VAC/150ms
230VAC/150ms
115VAC/150ms

I/P : 277 VAC
I/P : 230 VAC
I/P : 115 VAC
O/P : FULL LOAD
Ta : 25°C

277VAC/ 62ms
230VAC/ 63.2ms
115VAC/ 62ms

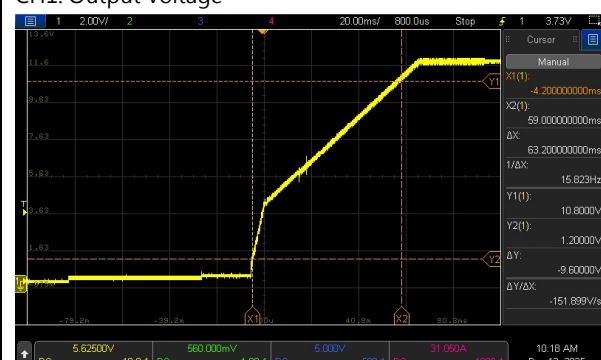
INPUT=277VAC/50HZ @ FULL LOAD

CH1: Output Voltage



INPUT=230VAC/50HZ @ FULL LOAD

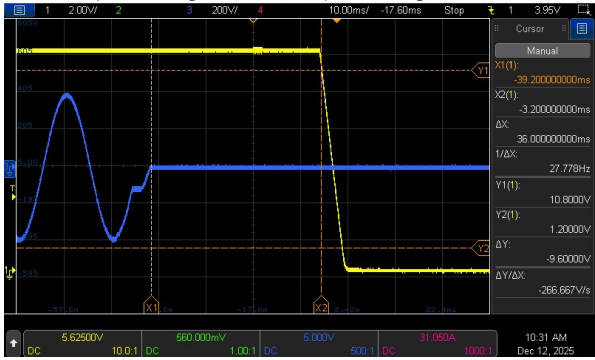
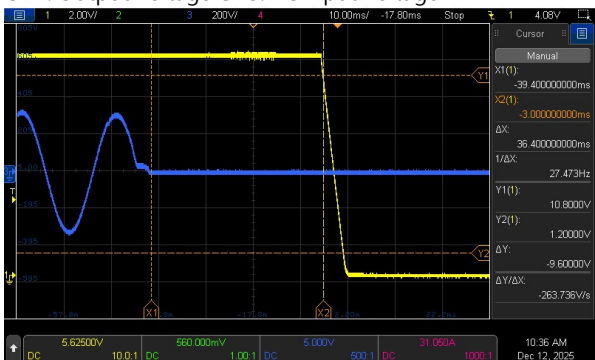
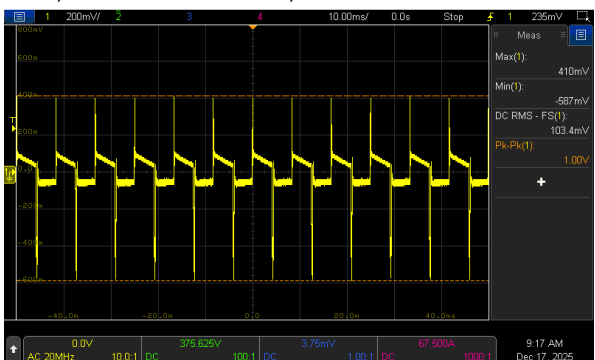
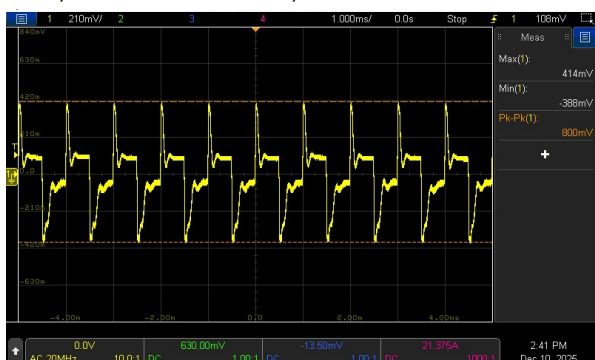
CH1: Output Voltage



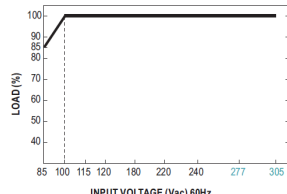
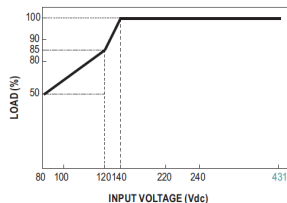
INPUT=115VAC/60HZ @ FULL LOAD

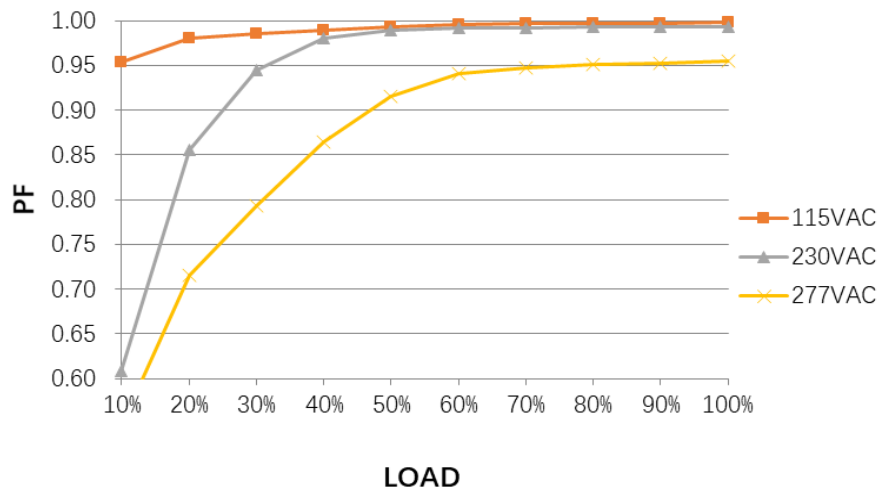
CH1: Output Voltage



9	HOLD UP TIME (Typ.)	277VAC/ 15ms 230VAC/ 15ms 115VAC/ 15ms	I/P : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	277VAC/ 36ms 230VAC/ 36.4ms 115VAC/ 38ms
INPUT=277VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage				
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage				
10	DYNAMIC LOAD	V1: 1200mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	1000mVp-p 800mVp-p
FULL / MIN LOAD 50%DUTY / 120HZ				
FULL / MIN LOAD 50%DUTY / 1KHZ				
11	TRANSIENT RECOVERY TIME	V1: 1200mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	380mVp-p

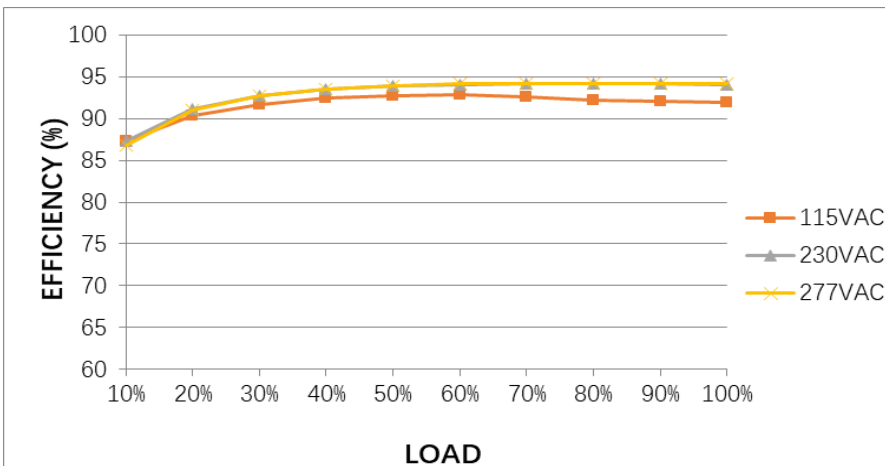
INPUT FUNCTION TEST

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/ 50% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 85% LOAD/ 50% LOAD Ta:25°C	(1) 77.5V~305V/ FULL LOAD 77.5V~305V/ 85% LOAD (2) 75Vdc~431Vdc/FULL LOAD 75Vdc~431Vdc/85% LOAD 75Vdc~431Vdc/50% LOAD (3) 75Vdc~431Vdc/FULL LOAD 75Vdc~431Vdc/85% LOAD 75Vdc~431Vdc/50% LOAD												
			I/P: HIGH-LINE+10V=315V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST : OK												
		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 : 277 VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =1.523A/ 277VAC I =1.714A/ 230VAC I =3.431A/ 115VAC												
4	LEAKAGE CURRENT	< 1mA@240Vac < 1.5mA@277Vac	I/P : 240VAC/60HZ I/P : 277VAC/60HZ O/P : Min LOAD Ta : 25°C	0.498mA@240Vac 0.581mA@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>0.547W</td><td>1.99W</td></tr><tr><td>230VAC</td><td>0.673W</td><td>2.05W</td></tr><tr><td>277VAC</td><td>0.731W</td><td>2.07W</td></tr></table>		Remote Power OFF	Remote Power ON	115VAC	0.547W	1.99W	230VAC	0.673W	2.05W	277VAC	0.731W	2.07W
	Remote Power OFF	Remote Power ON														
115VAC	0.547W	1.99W														
230VAC	0.673W	2.05W														
277VAC	0.731W	2.07W														
6	POWER FACTOR (Typ.)	0.9/277VAC 0.95/ 230VAC 0.98/115VAC	I/P : 277VAC I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.905/277VAC PF=0.97/230VAC PF=0.997/115VAC												
	P.F vs LOAD															



7	EFFICIENCY(Typ.)	94%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	94.72%
---	------------------	-----	---	--------

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 =10.96A / 277VAC I =9.05A / 230VAC I =4.57A / 115VAC T50=2290us/230V
---	----------------------	---	---	---

INPUT=277VAC/50HZ @ FULL LOAD

CH1: AC Input Voltage CH4: Input current

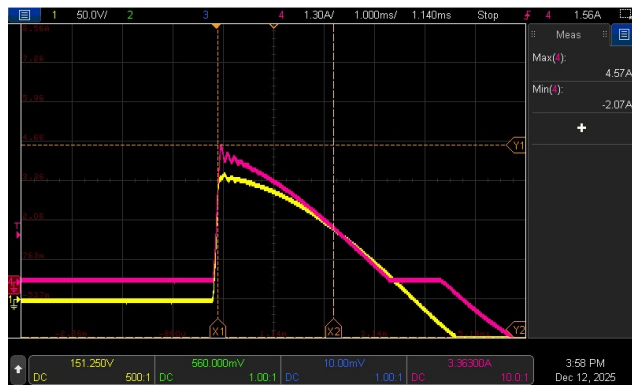


INPUT=230VAC/50HZ @ FULL LOAD

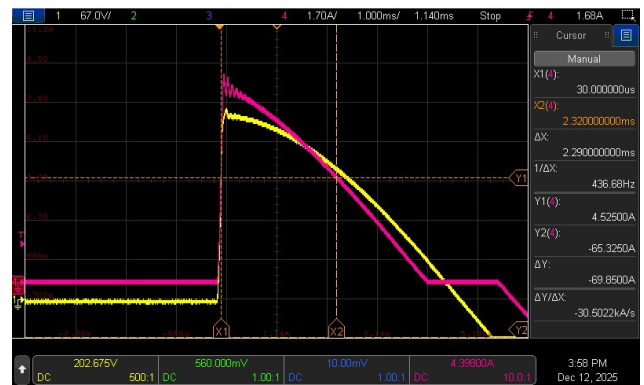
CH1: AC Input Voltage CH4: Input current



INPUT=115VAC/ 60HZ @ FULL LOAD
CH1: AC Input Voltage CH4: Input current

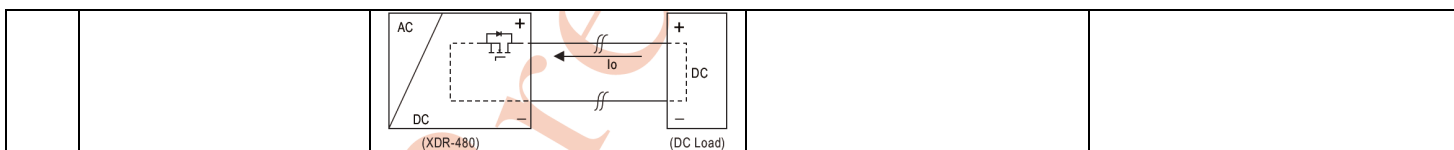


T50@230VAC :

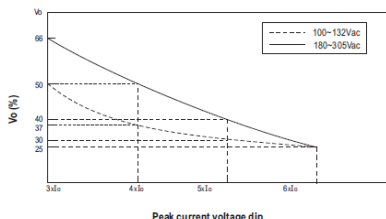
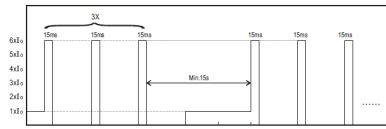


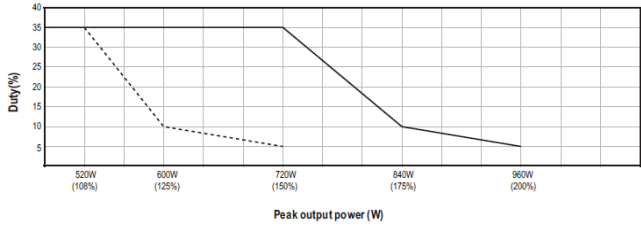
PROTECTION FUNCTION TEST

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 Vo=30%~100% ; Hiccup mode when Vo<30% rated voltage	I/P: 305VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	124.7%/305VAC 124.7%/230VAC 124.7%/100VAC Protection type: 105%~200% rated output power for more than 5 sec then constant current limiting at rate current without shutdown when Vo=30%~100% ; Hiccup mode when Vo<30% rated voltage
2	OVER VOLTAGE PROTECTION	16V~19V 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	17.6V/ 305VAC 17.6V/ 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	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 Vo<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 Vo<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 CAPABLITY	<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>111</td></tr><tr><td>4xIo</td><td>82</td></tr><tr><td>5xIo</td><td>51</td></tr><tr><td>6xIo</td><td>25.6</td></tr></tbody></table> 100VAC : <table><thead><tr><th>Load</th><th>Iout_Time(ms)</th></tr></thead><tbody><tr><td>3xIo</td><td>111</td></tr><tr><td>4xIo</td><td>80</td></tr><tr><td>5xIo</td><td>50.8</td></tr><tr><td>6xIo</td><td>25.8</td></tr></tbody></table>	Load	Iout_Time(ms)	3xIo	111	4xIo	82	5xIo	51	6xIo	25.6	Load	Iout_Time(ms)	3xIo	111	4xIo	80	5xIo	50.8	6xIo	25.8
Load	100~132Vac Vo (%)	180~305Vac Vo (%)	Time																																									
3xIo	50	66	100ms																																									
4xIo	37	50	70ms																																									
5xIo	30	40	40ms																																									
6xIo	25	25	15ms																																									
Load	Iout_Time(ms)																																											
3xIo	111																																											
4xIo	82																																											
5xIo	51																																											
6xIo	25.6																																											
Load	Iout_Time(ms)																																											
3xIo	111																																											
4xIo	80																																											
5xIo	50.8																																											
6xIo	25.8																																											
4	PULSE CURRENT CAPABLITY		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) (230Vac: >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) (230Vac: >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>																				
Description	Output of alarm																																											
Restore Factory Settings	Green : 3 Blink/Pause 																																											
DC OK	Green 																																											
DC Fail	Red 																																											
Overload (115Vac: >150% rated current) (230Vac: >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 																																											
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 Q6 VDS: VDS: (1) 502V (1) 483V (2) 552V (2) 502V (3) 498V (3) 483V (4) 494V (4) 483V (5) 494V (5) 483V (6) 510V (6) 479V (7) 548V (7) 490V (8) 517V (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	VDS: (1) 487V (2) 498V (3) 498V (4) 471V (5) 471V (6) 479V (7) 479V (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) 441V (3) 452V (4) 445V (5) 445V
4	Diode Peak Voltage	Q100/Q103: Rated: 60V/192A	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	Q101: <u>VO=Vomax</u> VDS: (1) 40.1V (2) 36.1V (3) 40.4V (4) 40.4V (5) 39.8V (6) 40.4V (7) 38.1V (8) 33V (9) 40.1V <u>VO=Vonormal</u> (1) 35.1V Q103: <u>VO=Vomax</u> VDS: (1) 40.1V (2) 37.3V (3) 40.1V (4) 40.1V (5) 40.1V (6) 40.6V (7) 37.8V (8) 33.6V (9) 40.9V <u>VO=Vonormal</u> (1) 34.5V
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) 442V (2) 441V (3) 439V (4) 439V (5) 449V (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) 13.96V (2) 14.19V (3) 14.03V (4) 13.96V (5) 13.96V U2 (1) 6.47V (2) 6.48V (3) 6.48V (4) 6.54V (5) 6.40V U101 (1) 15.30V (2) 15.39V (3) 15.39V U9 (1) 3.307V (2) 3.307V (3) 3.307V

		MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V		(4) 15.39V (5) 15.21V	(4) 3.307V (5) 3.307V
		MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V		U404 (1) 5.57V (2) 5.57V (3) 5.61V (4) 5.61V (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: 3.12mA I/P-FG: 2.53mA O/P-FG: 3.04mA O/P-DC OK: 0.008mA 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	3mΩ

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-480-12 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=25.1°C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta=60.2°C																																																																																										
		<table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=25.1°C</th><th>HIGH AMBIENT Ta=60.2°C</th></tr><tr><td>1</td><td>ZNR1</td><td>46.8°C</td><td>83.6°C</td></tr><tr><td>2</td><td>C1</td><td>48.7°C</td><td>85.2°C</td></tr><tr><td>3</td><td>U9</td><td>53.8°C</td><td>89.9°C</td></tr><tr><td>4</td><td>LF2</td><td>53.7°C</td><td>90.0°C</td></tr><tr><td>5</td><td>BD1</td><td>55.8°C</td><td>91.3°C</td></tr><tr><td>6</td><td>LF100</td><td>72.9°C</td><td>110.2°C</td></tr><tr><td>7</td><td>RY100</td><td>66.0°C</td><td>102.0°C</td></tr><tr><td>8</td><td>C108</td><td>69.4°C</td><td>105.7°C</td></tr><tr><td>9</td><td>C109</td><td>64.7°C</td><td>101.0°C</td></tr><tr><td>10</td><td>C10</td><td>51.7°C</td><td>88.3°C</td></tr><tr><td>11</td><td>R21</td><td>46.5°C</td><td>83.8°C</td></tr><tr><td>12</td><td>L2</td><td>50.0°C</td><td>87.2°C</td></tr><tr><td>13</td><td>RTH3</td><td>57.2°C</td><td>93.0°C</td></tr><tr><td>14</td><td>C7</td><td>55.5°C</td><td>91.6°C</td></tr><tr><td>15</td><td>C5</td><td>52.2°C</td><td>87.5°C</td></tr><tr><td>16</td><td>L1</td><td>54.8°C</td><td>90.7°C</td></tr><tr><td>17</td><td>U11</td><td>58.1°C</td><td>94.0°C</td></tr><tr><td>18</td><td>U5</td><td>44.3°C</td><td>81.8°C</td></tr><tr><td>19</td><td>C42</td><td>59.8°C</td><td>96.2°C</td></tr><tr><td>20</td><td>T1coil</td><td>73.5°C</td><td>109.9°C</td></tr><tr><td>21</td><td>T1core</td><td>72.5°C</td><td>109.0°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta=25.1°C	HIGH AMBIENT Ta=60.2°C	1	ZNR1	46.8°C	83.6°C	2	C1	48.7°C	85.2°C	3	U9	53.8°C	89.9°C	4	LF2	53.7°C	90.0°C	5	BD1	55.8°C	91.3°C	6	LF100	72.9°C	110.2°C	7	RY100	66.0°C	102.0°C	8	C108	69.4°C	105.7°C	9	C109	64.7°C	101.0°C	10	C10	51.7°C	88.3°C	11	R21	46.5°C	83.8°C	12	L2	50.0°C	87.2°C	13	RTH3	57.2°C	93.0°C	14	C7	55.5°C	91.6°C	15	C5	52.2°C	87.5°C	16	L1	54.8°C	90.7°C	17	U11	58.1°C	94.0°C	18	U5	44.3°C	81.8°C	19	C42	59.8°C	96.2°C	20	T1coil	73.5°C	109.9°C	21	T1core	72.5°C	109.0°C
NO	Position	ROOM AMBIENT Ta=25.1°C	HIGH AMBIENT Ta=60.2°C																																																																																									
1	ZNR1	46.8°C	83.6°C																																																																																									
2	C1	48.7°C	85.2°C																																																																																									
3	U9	53.8°C	89.9°C																																																																																									
4	LF2	53.7°C	90.0°C																																																																																									
5	BD1	55.8°C	91.3°C																																																																																									
6	LF100	72.9°C	110.2°C																																																																																									
7	RY100	66.0°C	102.0°C																																																																																									
8	C108	69.4°C	105.7°C																																																																																									
9	C109	64.7°C	101.0°C																																																																																									
10	C10	51.7°C	88.3°C																																																																																									
11	R21	46.5°C	83.8°C																																																																																									
12	L2	50.0°C	87.2°C																																																																																									
13	RTH3	57.2°C	93.0°C																																																																																									
14	C7	55.5°C	91.6°C																																																																																									
15	C5	52.2°C	87.5°C																																																																																									
16	L1	54.8°C	90.7°C																																																																																									
17	U11	58.1°C	94.0°C																																																																																									
18	U5	44.3°C	81.8°C																																																																																									
19	C42	59.8°C	96.2°C																																																																																									
20	T1coil	73.5°C	109.9°C																																																																																									
21	T1core	72.5°C	109.0°C																																																																																									

		NO	Position	ROOM AMBIENT Ta=25.1°C	HIGH AMBIENT Ta=60.2°C
		22	C42	59.8°C	96.2°C
		23	T1coil	73.5°C	109.9°C
		24	T1core	72.5°C	109.0°C
		25	C105	63.9°C	100.3°C
		26	C107	66.7°C	102.9°C
		27	Q112	66.5°C	102.9°C
		28	T2	54.5°C	91.0°C
		29	C202	60.7°C	97.4°C
		30	U101	79.3°C	113.7°C
		31	Q103	70.1°C	106.8°C
		32	Q101	68.9°C	105.5°C
		33	R100	65.0°C	101.3°C
		34	J100	69.3°C	105.7°C
		35	U4	56.8°C	92.4°C
		36	U2	60.0°C	95.9°C
		37	RTH5	63.4°C	99.2°C
		38	D2	52.4°C	88.4°C
		39	C6	49.1°C	85.1°C
		40	U306	61.0°C	98.2°C
		41	U400	58.1°C	95.4°C
		42	RG6	65.2°C	101.1°C
		43	Q201	60.1°C	96.7°C
		44	U1	63.7°C	99.4°C
		45	U8	60.0°C	95.7°C
		46	D200	64.8°C	100.3°C
		47	R7	57.7°C	93.7°C
		48	Q2	57.2°C	93.0°C
		49	D1	58.1°C	94.2°C
		50	Q1	56.9°C	92.7°C
		51	Q5	59.4°C	95.8°C
		52	Q6	58.6°C	94.9°C
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)		I/P : 230 VAC O/P : 126%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 C107 IS THE MOST CRITICAL COMPONENT (1) I/P : 230VAC O/P : FULL LOAD Ta= 25°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) 353692.8 HRS (2) 29371.7 HRS (3) 75816.6 HRS (4) 164241.2 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	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Hanxr	Liutt	Wangzd

2020.10.1 TAG-QA-009