Test Report: XDR-960-48

240W 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

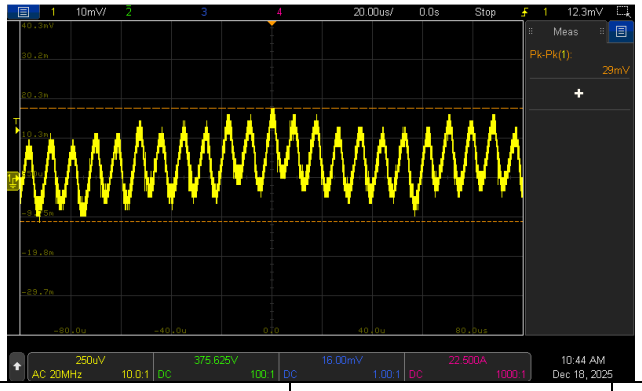
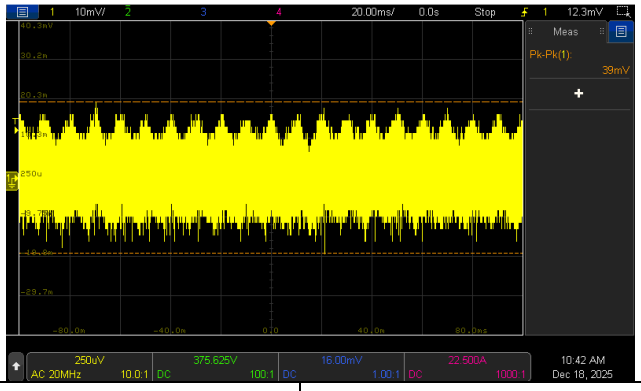
Safety Test
E.M.C. Test

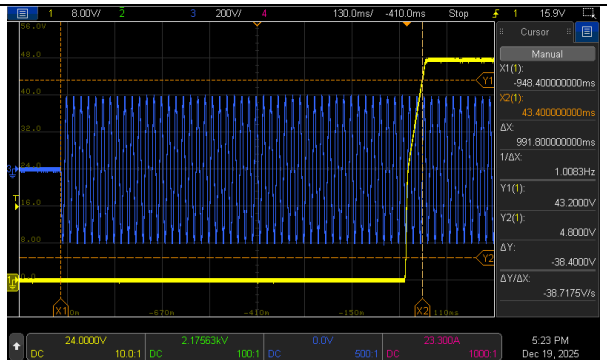
■ RELIABILITY TEST

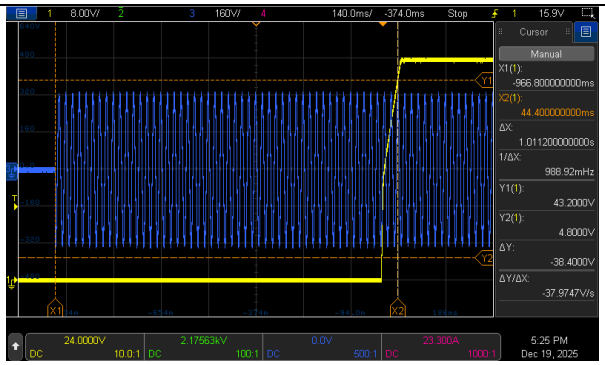
ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

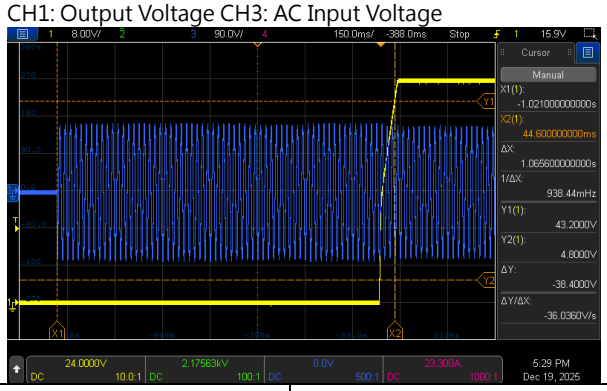
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 48V~55V	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：MIN LOAD Ta：25℃	46.36V~57.34V/277VAC 46.35V~57.34V/230VAC 46.35V~57.34V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1% ~ +1%	I/P: 85VAC~305VAC O/P:FULL~MIN. LOAD Ta:25℃	V1: -0.013% ~ 0.027%
3	LINE REGULATION	V1: -0.5% ~ +0.5%	I/P: 85VAC~ 305VAC O/P:FULL LOAD Ta:25℃	V1: -0.01% ~ 0%
4	LOAD REGULATION	V1: -1% ~ +1%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: -0.013% ~ 0.027%
5	OVER/UNDERSHOOT TEST	<±5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD/ PEAK LOAD Ta:25℃	0.56%
6	RIPPLE & NOISE (Max)	V1: 150mVp-p 225mVp-p/PEAK LOAD	I/P:230VAC O/P:FULL LOAD Ta:25℃	29mVp-p / high frequency 39mVp-p / low frequency
	high frequency :  low frequency : 			
7	SET UP TIME(Max)	230VAC/1500ms 115VAC/3000ms	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	277VAC/ 991.8ms 230VAC/ 1011.2ms 115VAC/ 1065.6ms
	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

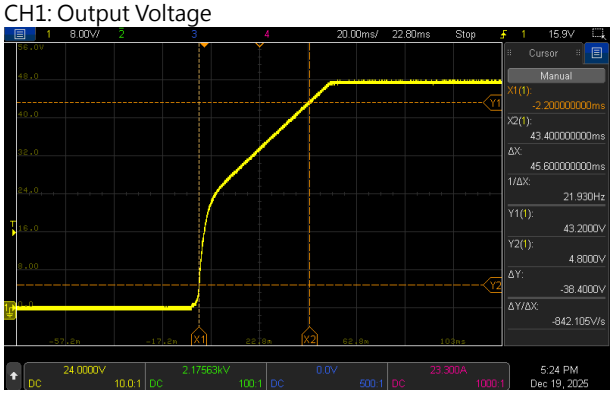
CH1: Output Voltage CH3: AC Input Voltage



8	RISE TIME (Max)	230VAC/150ms 115VAC/150ms	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	277VAC/45.6 ms 230VAC/ 46.8ms 115VAC/53 ms

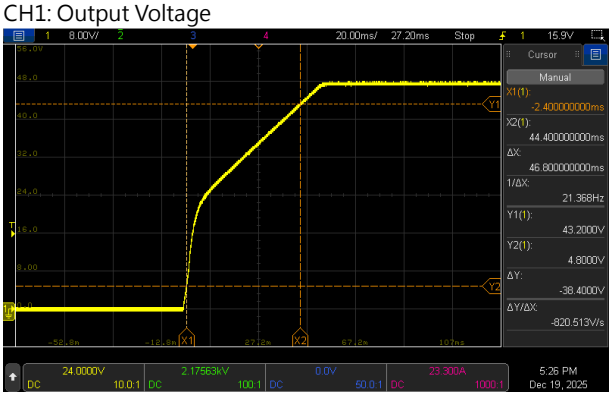
INPUT=277VAC/50HZ @ FULL LOAD

CH1: Output Voltage



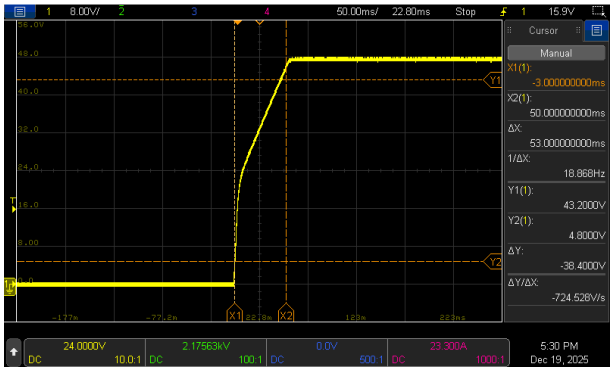
INPUT=115VAC/60HZ @ FULL LOAD

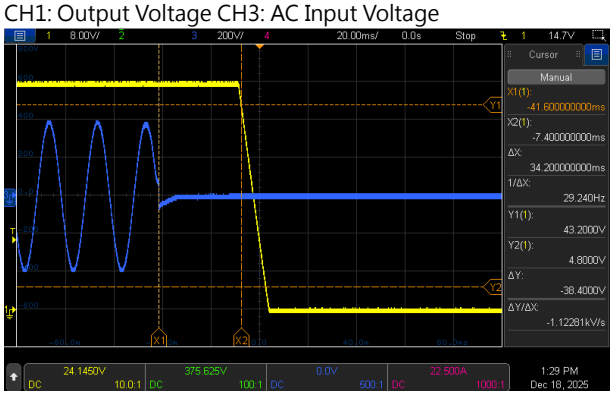
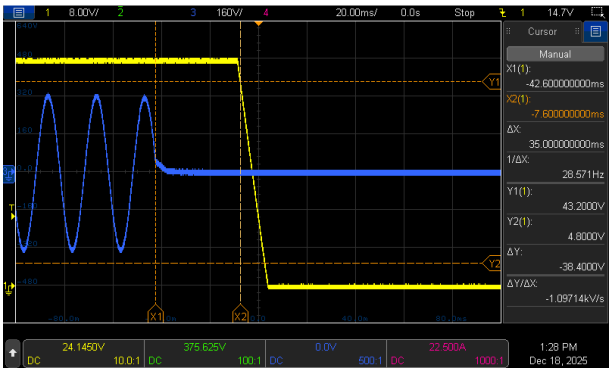
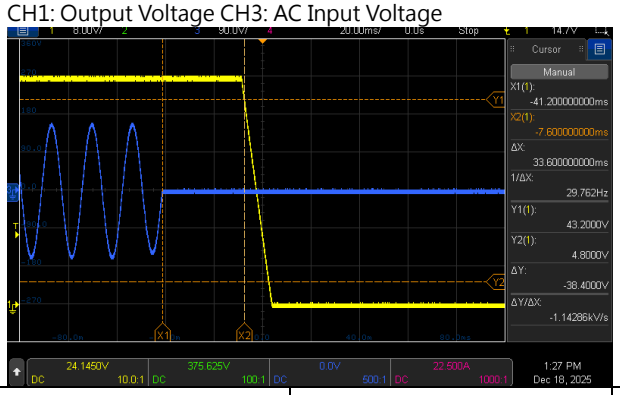
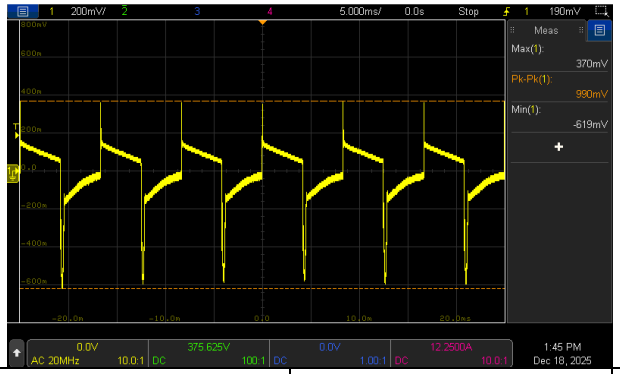
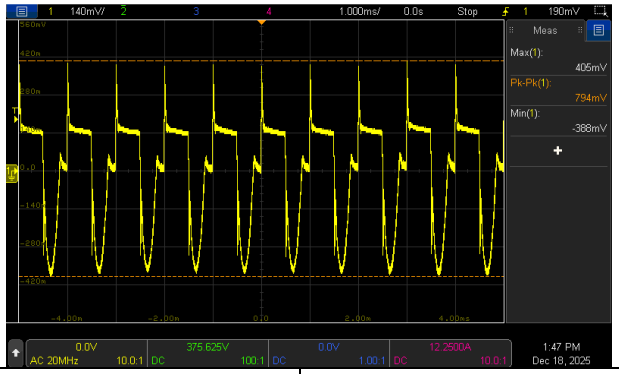
CH1: Output Voltage



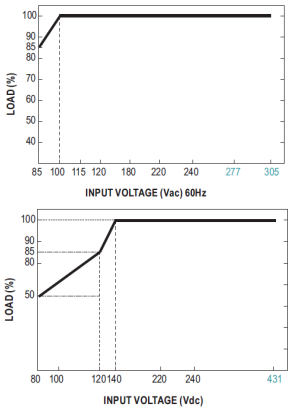
INPUT=230VAC/50HZ @ FULL LOAD

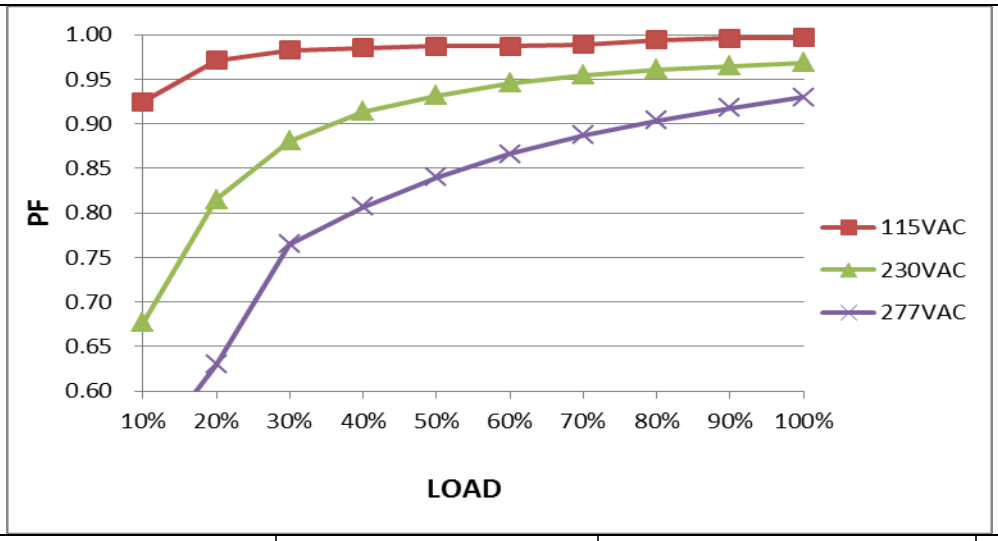
CH1: Output Voltage



<table>
<tr><td>9</td><td>HOLD UP TIME (Typ.)</td><td>230VAC/15ms
115VAC/15ms</td><td>I/P： 277 VAC
I/P： 230 VAC
I/P： 115 VAC
O/P：FULL LOAD
Ta：25℃</td><td>277VAC/ 34.2ms
230VAC/ 35ms
115VAC/ 33.6ms</td></tr>
<tr><td></td><td colspan="4">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
  </td></tr>
<tr><td>10</td><td>DYNAMIC LOAD</td><td>V1: 4800mVp-p</td><td>I/P: 230VAC
O/P:
(1) FULL/ MIN LOAD 50%DUTY / 120HZ
(2) FULL/ MIN LOAD 50%DUTY / 1KHZ
Ta:25℃</td><td>990mVp-p
794mVp-p</td></tr>
<tr><td></td><td colspan="4">FULL / MIN LOAD 50%DUTY / 120HZ
 
FULL / MIN LOAD 50%DUTY / 1KHZ
  </td></tr>
<tr><td>11</td><td>TRANSIENT RECOVERY TIME</td><td>V1: 4800mVp-p
<500us</td><td>I/P: 230VAC
O/P:40% LOAD CHANGE
50%DUTY/120HZ 1.25A/us</td><td>399mVp-p</td></tr>
</table>

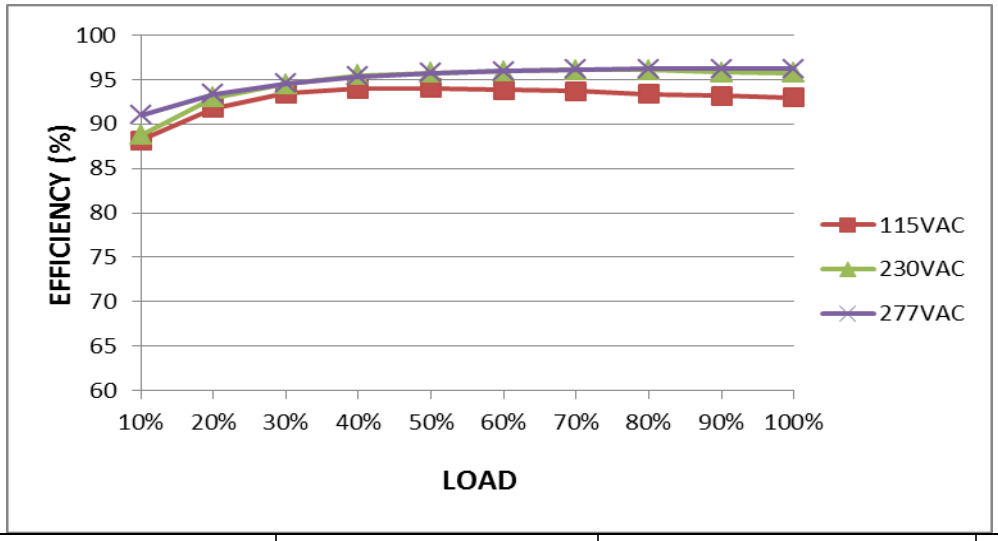
INPUT FUNCTION TEST

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℃	(1) 81.8V~305V/ FULL LOAD 80.6V~305V/ 85% LOAD (2) 78.6Vdc~431Vdc/FULL LOAD 78.6Vdc~431Vdc/85% LOAD 78.6Vdc~431Vdc/50% LOAD (3) 78.6Vdc~431Vdc/FULL LOAD 78.6Vdc~431Vdc/85% LOAD 78.6Vdc~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℃	TEST：OK
3	INPUT CURRENT (Typ.)	277V/ 4A 230V/ 5A 115V/ 9.5A	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I =3.85A/ 277VAC I =4.505A/ 230VAC I =9.24A/ 115VAC
4	LEAKAGE CURRENT	＜3.5mA@240Vac ＜4.5mA@277Vac	I/P：240VAC/60HZ I/P：277VAC/60HZ O/P：Min LOAD Ta：25℃	1.419mA@240Vac 1.659mA@277Vac
5	NO LOAD CONSUMPTION	Remote Power OFF: 1.5W@115Vac & 230Vac &277 Vac Remote Power ON: 6.7W@115Vac 4.5W@277 Vac & 230Vac	I/P：115VAC I/P：230VAC I/P：277VAC O/P：NO LOAD Ta：25℃	TEST： Remote Power OFF / Remote Power ON 115VAC 0.685W 5.593W 230VAC 1.057W 3.121W 277VAC 1.204W 3.040W
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℃	PF=0.9385/277VAC PF=0.9709/230VAC PF=0.9974/115VAC
	P.F vs LOAD			



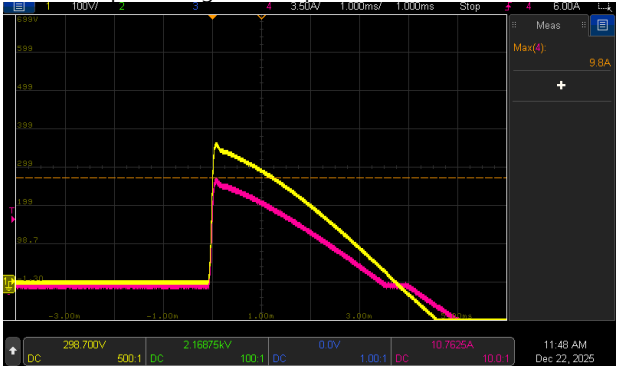
7	EFFICIENCY(Typ.)	96%	I/P:230 VAC O/P:FULL LOAD Ta:25℃	96.5%

EFFICIENCY vs LOAD

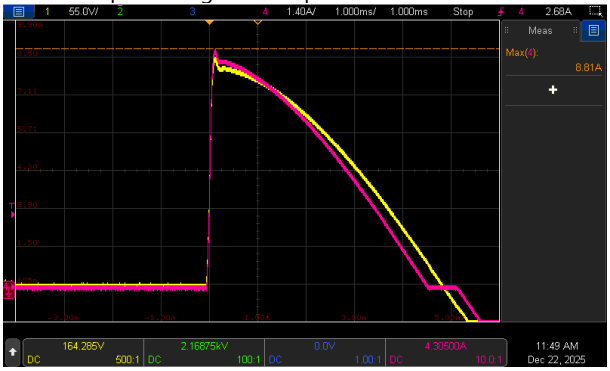


8	INRUSH CURRENT(Typ.)	277V/15A 230V/10A 115V/23A COLD START	I/P： 277 VAC I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I =9.8A / 277VAC I =8.81A / 230VAC I =4.27A / 115VAC T50=2786.6us/230V

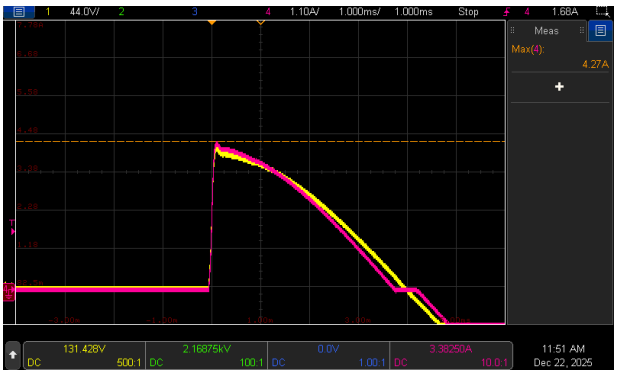
INPUT=277VAC/50HZ @ FULL LOAD
CH1: AC Input Voltage CH4: Input current



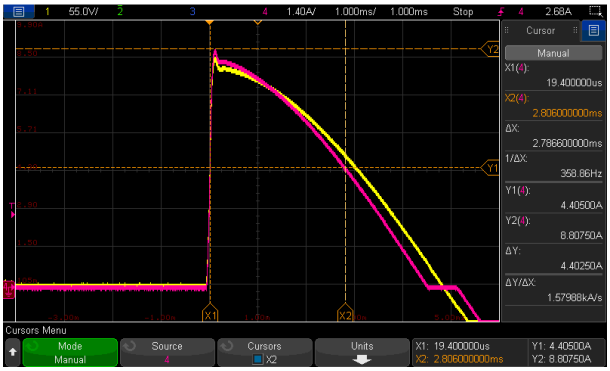
INPUT=230VAC/50HZ @ FULL LOAD
CH1: AC Input Voltage CH4: Input current



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

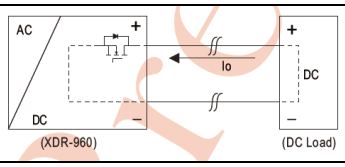


T50@230VAC :

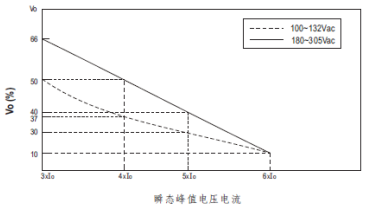
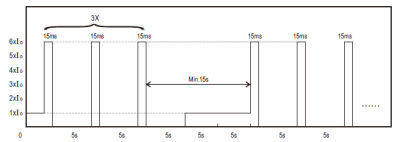
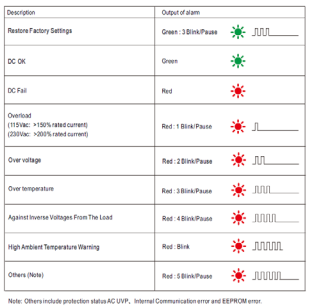


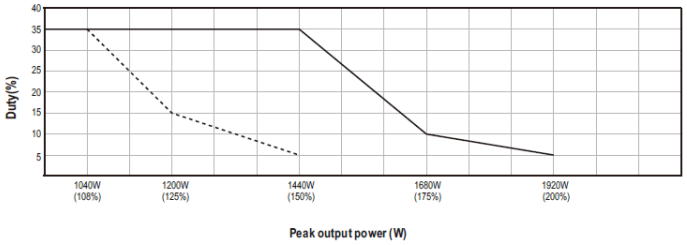
PROTECTION FUNCTION TEST

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℃	130%/305VAC 130%/230VAC 130%/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	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℃	59.8V/ 305VAC 60.2V/ 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 :OK 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 : OK 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℃	TEST : OK

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℃	TEST: OK
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℃	TEST: OK
3	PULSE CURRENT CAPABLILTY	 负载 / 100~132Vac Vo(%) / 180~305Vac Vo(%) / 时间 (Max.) 3xIo / 50 / 66 / 100ms 4xIo / 37 / 50 / 70ms 5xIo / 30 / 40 / 40ms 6xIo / 10 / 10 / 15ms	I/P: 180VAC I/P: 100VAC O/P: TESTING Ta:25℃	**180VAC :** Load / Iout_Time(ms) 3xIo / 115.2 4xIo / 83.4 5xIo / 52.6 6xIo / 27.8 **100VAC :** Load / Iout_Time(ms) 3xIo / 114 4xIo / 83.2 5xIo / 52.8 6xIo / 28.2
4	PULSE CURRENT CAPABLILTY		I/P:230VAC O/P:TESTING Ta:25℃	TEST : OK
5	LED Status Indictors	**LED :** 	I/P:230VA0C O/P:FULL LOAD Ta:25℃	TEST : OK

6	PARALLEL	Up to 3840W (3+1), please refer to Function Manual for more details	I/P: TESTING O/P: TESTING LOAD Ta:25℃	TEST : OK
7	PEAK Power	I/P: 100/200VAC O/P:  ------100VAC ——200VAC		TEST : OK

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: 90A/650V	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℃	Q5 VDS: (1) 564V (2) 564V (3) 560V (4) 564V (5) 568V (6) 568V (7) 564V (8) 568V	Q6 VDS: (1) 584V (2) 576V (3) 576V (4) 580V (5) 580V (6) 580V (7) 580V (8) 580V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1/Q2 : Rated: 68A/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℃	Q1 VDS: (1) 511V (2) 457V (3) 508V (4) 504V (5) 460V (6) 477V (7) 504V (8) 487V	Q2 VDS: (1) 484V (2) 460V (3) 487V (4) 487V (5) 481V (6) 470V (7) 477V (8) 481V

3	P.F.C DIODE	D8/D9 : 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℃	D8 (1) 511`V (2) 484V (3) 514V (4) 514V (5) 511V	D9 (1) 487V (2) 477V (3) 487V (4) 487V (5) 487V
4	Diode Peak Voltage	Q101 / Q104 : Rated: 74A/200V	AC ON/OFF I/P: High-Line +3V =308 V VO=Vomax 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 VO=Vonormal O/P: (1) Full Load Ta:25℃	Q101: VO=Vomax VDS: (1) 129.5V (2) 129.1V (3) 129.1V (4) 129.1V (5) 129.1V (6) 130.9V (7) 127.4V (8) 124.7V (9) 130.9V VO=Vonormal (1) 119.8V	Q104: VO=Vomax VDS: (1) 129.1V (2) 129.1V (3) 128.2V (4) 128.2V (5) 128.2V (6) 132.7V (7) 126.5V (8) 122.9V (9) 131.8V VO=Vonormal (1) 119.4V
5	AUX Transistor (D to S) or (C to E) Peak Voltage	U2 : Rated: 725V/654mA	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℃	VDS: (1) 547V (2) 551V (3) 543V (4) 559V (5) 547V (6) 555V (7) 543V (8) 559V	
6	AUX Clamp Diode Peak Voltage	D 19: Rated：1A/ 650V	AC ON/OFF I/P：High-Line +3V = 308V O/P： (1) Dynamic Load	(1) 573V (2) 513V	

			90%Duty/1KHz (2) Full load continue Ta:25℃		
7	AUX Diode Peak Voltage	D200： Rated： 1A/600V D22： Rated：3A/200V	AC ON/OFF I/P: High-Line +3V =308 V 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 Ta:25℃	D200: (1) 118.9V (2) 120.6V (3) 118.9V (4) 118V (5) 120.6V (6) 119.7V (7) 119.7V (8) 118V (9) 119.7V	D22: (1) 142V (2) 143.9V (3) 143.9V (4) 142V (5) 142.9V (6) 143.9V (7) 142.9V (8) 139.1V (9) 142.9V
8	Input Capacitor Voltage	C5： Rated: 220μ /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℃	(1) 446V (2)454 V (3) 446V (4) 446V (5) 456V (6) 446V	
10	Control IC Voltage Test	PWM IC U1： Rated：12.5V~ 27.9V PFC IC U5： Rated：11.6V~ 21V O/P IC U101： Rated：4.75V~38V IC U205： Rated：3.3V~36V IC U401：SGM8210-2 Rated：3.3V~24V IC U404： Rated：3.3V~24V 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℃	U1 (1) 14.6V (2) 14.5V (3) 14.5V (4) 14.4V (5) 14.4V U5 (1) 15.1V (2) 15.1V (3) 15.1V (4) 15V (5) 14.9V U101 (1) 11.7V (2) 12.2V (3) 11.6V (4) 11.5V (5) 11.5V	U404 (1) 5.16V (2) 5.24V (3) 5.04V (4) 5.04V (5) 5.04V U2 (1) 6.69V (2) 6.73V (3) 6.69V (4) 6.53V (5) 6.53V U9 (1) 3.33V (2) 3.32V (3) 3.33V (4) 3.32V (5) 3.32V

		MCU IC U9 : Rated : 2V~3.6V Level: 3.2835~3.3165V MCU IC U306: Rated : 2.4V~ 3.6V Level: 3.2835~3.3165V		U205 (1) 11.5V (2) 11.5V (3) 11.5V (4) 11.5V (5) 11.5V	U306 (1) 3.33V (2) 3.33V (3) 3.33V (4) 3.33V (5) 3.33V

■ 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℃	I/P-O/P: 7.24mA I/P-FG: 8.23mA O/P-FG: 5.5mA O/P-DC OK: 0.006mA 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℃	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℃	9mΩ

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℃	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℃	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℃	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℃	CRITERIA A
5	E.F.T	BS EN/EN 61000-4-4 INPUT : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD	CRITERIA A

			Ta：25℃	
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℃	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-960-48 1. ROOM AMBIENT BURN-IN： 2HRS I/P： 230VAC O/P： FULL LOAD Ta=23.3℃ 2. HIGH AMBIENT BURN-IN： 2HRS I/P： 230VAC O/P： FULL LOAD Ta=60.8℃		

NO	Position	ROOM AMBIENT Ta=27.9℃	HIGH AMBIENT Ta=60.8℃
1	L5	52.7℃	88.1℃
3	LF3	57.9℃	91.8℃
4	C2	49.9℃	84.8℃
5	ZNR1	51.2℃	86.2℃
6	BD1	58.2℃	91.2℃
7	BD2	56.4℃	89.0℃
8	C103	52.9℃	87.8℃
9	Q110	58.7℃	94.3℃
10	LF100	56.3℃	91.6℃
11	LF1	51.9℃	86.3℃
12	C1	51.4℃	86.5℃
13	U303	56.8℃	91.1℃
14	U304	57.3℃	91.5℃
15	T1coil	78.0℃	116.9℃
16	T1core	69.9℃	109.3℃
17	C109	56.7℃	91.9℃
18	C107	57.5℃	93.6℃
19	C53	52.9℃	87.9℃
20	C202	54.3℃	88.9℃
21	L7	64.4℃	99.6℃
22	T2	52.9℃	88.3℃
23	C52	53.7℃	89.4℃
24	Q6	56.2℃	91.2℃
25	U7	53.8℃	88.5℃
26	Q5	58.3℃	93.4℃
27	U1	54.8℃	90.8℃
28	C922	49.1℃	82.7℃
29	Q2	61.0℃	95.8℃
30	Q1	61.6℃	96.6℃

NO	Position	ROOM AMBIENT Ta=27.9℃	HIGH AMBIENT Ta=60.8℃
31	T3	60.1℃	95.4℃
32	L2	66.5℃	102.4℃
33	RTH3	61.8℃	97.6℃
34	C5	50.6℃	86.3℃
35	C6	52.4℃	88.0℃
36	C11	57.3℃	92.6℃
37	R25	55.7℃	90.8℃
38	Q105	63.7℃	100.3℃
39	Q102	62.7℃	99.2℃
40	Q101	63.1℃	99.8℃
41	U101	62.3℃	98.4℃
42	J103	59.3℃	95.0℃
43	U2	70.5℃	106.8℃
44	U306	57.7℃	92.2℃
45	U400	57.3℃	91.9℃
46	D8	69.6℃	104.2℃
47	U11	61.8℃	96.6℃
48	U5	58.0℃	92.2℃
49	D29	57.0℃	91.3℃
50	D10	63.0℃	97.5℃
51	RTH5	59.8℃	95.8℃
52	U307	56.4℃	90.8℃
53	U9	55.4℃	89.8℃
54	D17	55.0℃	91.5℃

2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P： 230 VAC O/P：128%LOAD Ta：25℃	TEST：OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P： 305VAC/100VAC O/P： 80%/100 %LOAD Ta= -45℃/-35℃	TEST：OK
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60℃/95 %R.H NO DAMAGE	I/P： 315VAC O/P：FULL LOAD Ta= 60℃ HUMIDITY= 95 %R.H	TEST：OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/℃(0~60℃)	I/P： 230 VAC O/P：FULL LOAD	± 0.006%/℃(0~60℃)
6	STORAGE TEMPERATURE TEST	-40~85℃	1. Thermal shock Temperature： -45℃~ +90℃ 2. Temperature change rate ：25℃ / 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℃	1. Thermal shock Temperature： -35℃~ +65℃ 2. Temperature change rate ：25℃ / 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℃
9	CAPACITOR LIFE CYCLE	SUPPOSE C109 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Ta= 25℃ LIFE TIME (2) I/P： 230VAC O/P：FULL LOAD Ta= 60℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta= 60℃ LIFE TIME (4) I/P： 230VAC O/P：50% LOAD Ta= 60℃ LIFE TIME	 (1) 713196 HRS (2) 90498 HRS (3) 82558 HRS (4) 124378 HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 819.6K hrs min. Telcordia SR-332 (Bellcore) ; 113.3K hrs min. MIL-HDBK-217F (25℃)	
11	Ongoing Reliability Test	I/P：230VAC O/P：FULL LOAD TA=50℃ Demonstration Mean Time Between Failure : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Hanxr	Liutt	Wangzd

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