Test Report: XDR-75E-12

75W AC/DC Economical 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

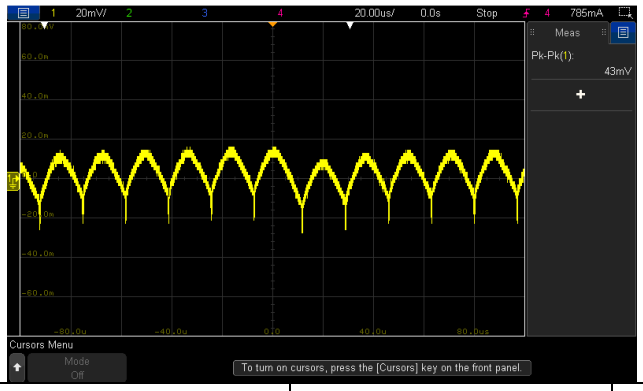
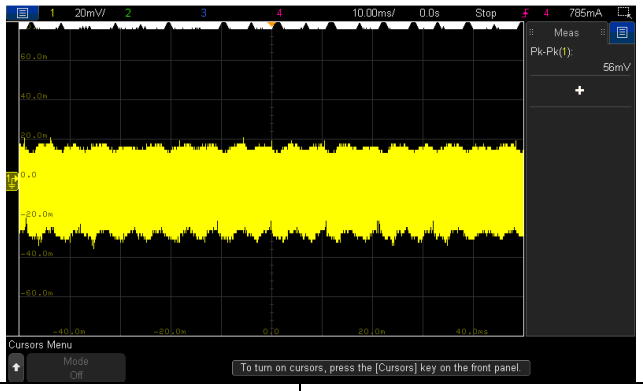
Safety Test
E.M.C. Test

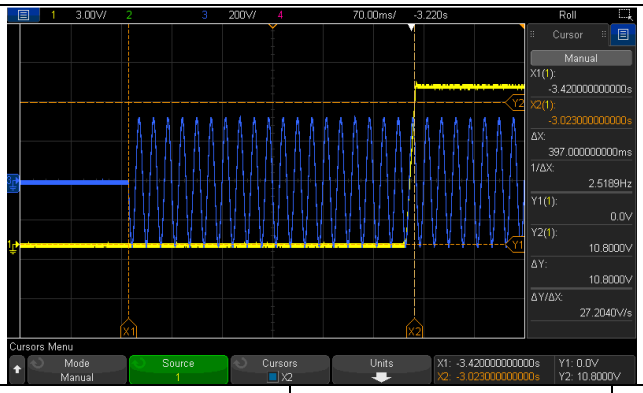
■ RELIABILITY TEST

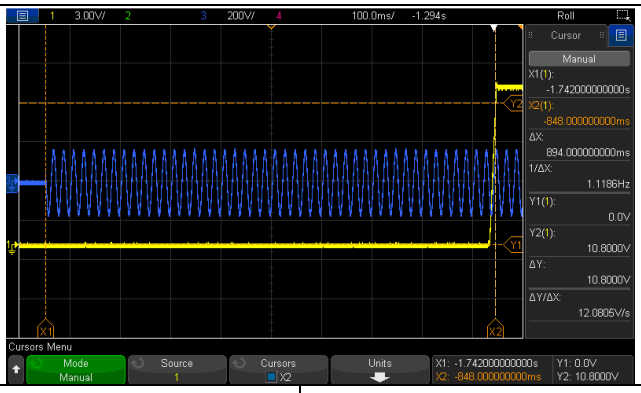
ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

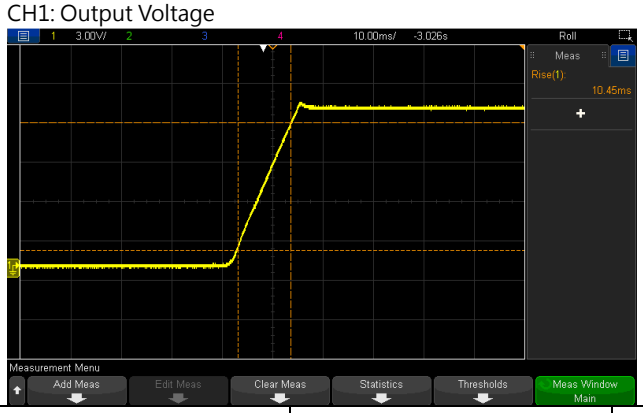
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 12 V~15 V	I/P： 230 VAC I/P： 115 VAC O/P：MIN LOAD Ta：25℃	11.31V~15.90V/230VAC 11.31V~15.90V /115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -2.0 %~ +2.0%	I/P: 85VAC~ 264VAC O/P:FULL~ MIN. LOAD Ta:25℃	V1: -0.23% ~ 0.23%
3	LINE REGULATION	V1: -0.5 %~ +0.5%	I/P: 85VAC~ 264VAC O/P:FULL LOAD Ta:25℃	V1: 0% ~ 0.0%
4	LOAD REGULATION	V1: -1.0 %~ +1.0%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25℃	V1: -0.23% ~ 0.23%
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD Ta:25℃	3.23%
6	RIPPLE & NOISE (Max)	V1: 100mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25℃	V1: 43mVp-p / high frequency 56mVp-p / low frequency
	high frequency： 		low frequency： 	
7	SET UP TIME(Max)	230VAC/1200ms 115VAC/2500ms	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 397ms 115VAC/ 894ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage		INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	



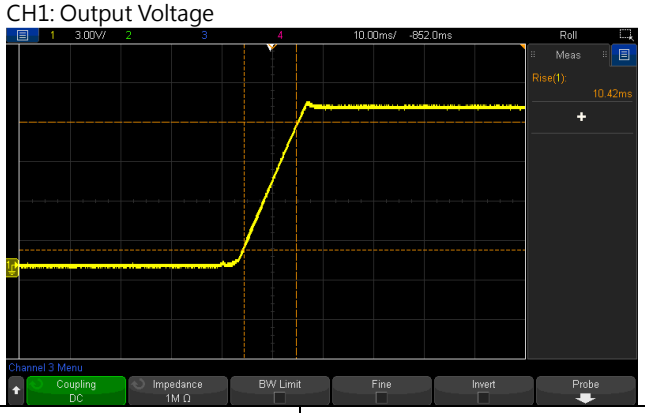


8	RISE TIME (Max)	230VAC/60ms 115VAC/60ms	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/ 10.45ms 115VAC/ 10.42ms

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

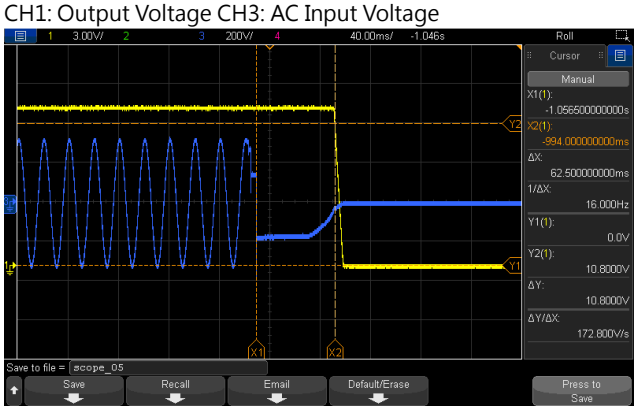


INPUT=115VAC/60HZ @ FULL LOAD
CH1: Output Voltage

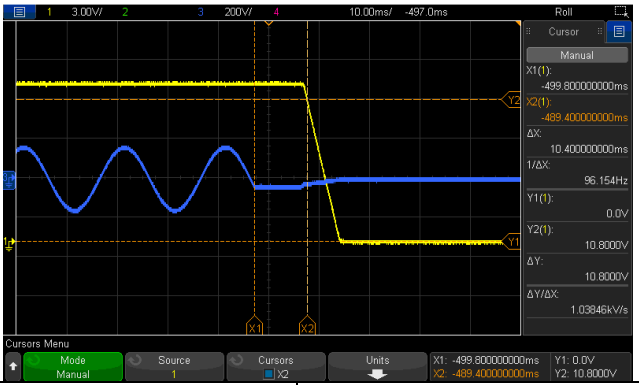


9	HOLD UP TIME (Typ.)	230VAC/ 16ms 115VAC/ 10ms	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	230VAC/62.5ms 115VAC/10.4ms

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

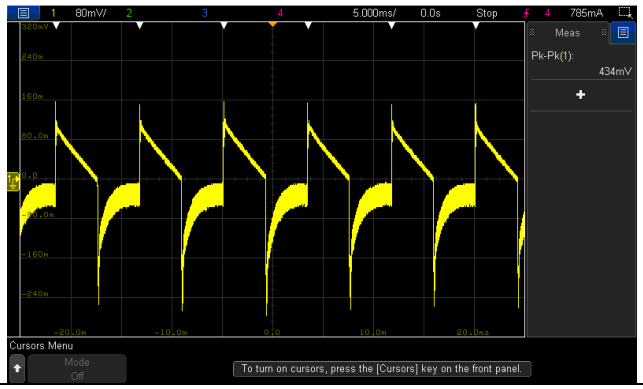


INPUT=115VAC/60HZ @ FULL LOAD
CH1: Output Voltage CH3: AC Input Voltage

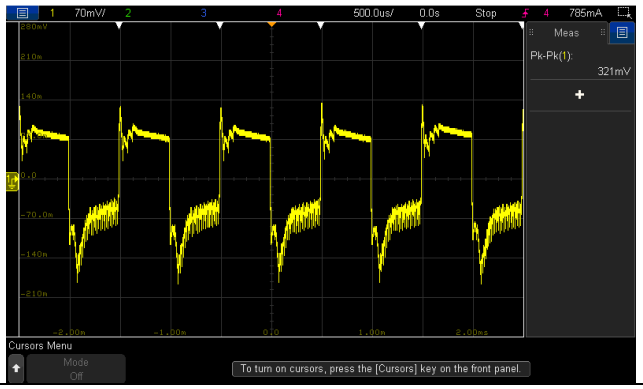


10	DYNAMIC LOAD	V1: 1200 mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25℃	434mVp-p 321mVp-p

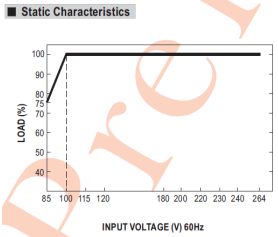
FULL / MIN LOAD 50%DUTY / 120HZ

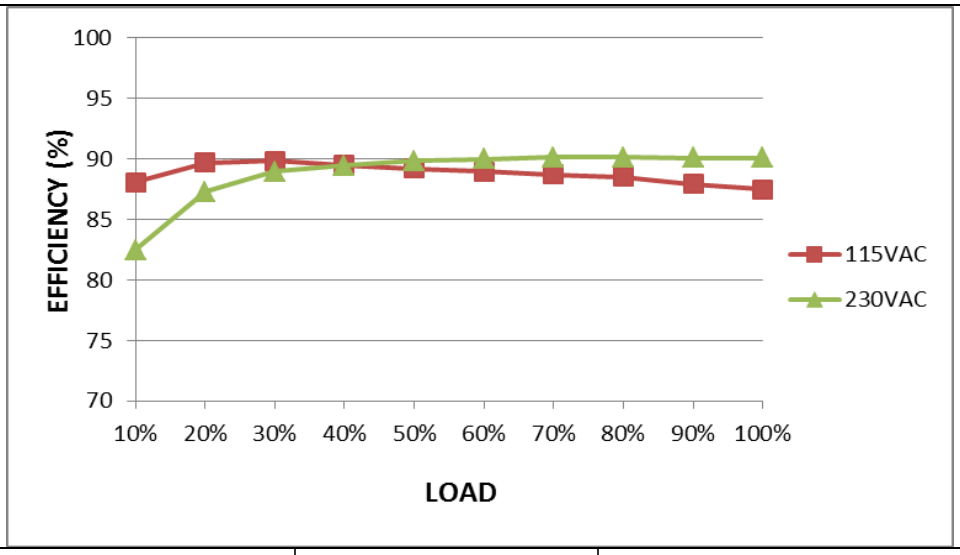


FULL / MIN LOAD 50%DUTY / 1KHZ



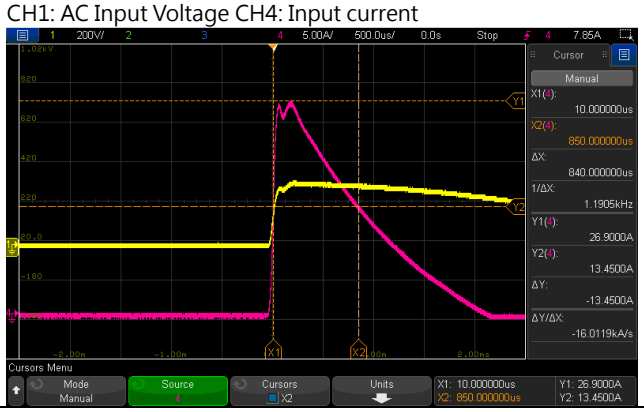
INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	85VAC~264VAC 120VDC~ 370VDC 	(1) I/P: TESTING O/P: FULL / 75% LOAD (2) I/P: DC TESTING (L: + N: -) O/P: FULL / 75% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 75% LOAD Ta:25℃	(1) 80V~264V/ FULL LOAD 80V~264V/ 75% LOAD (2) 90Vdc~370Vdc/FULL LOAD 89Vdc~370Vdc/75% LOAD (3) 89Vdc~370Vdc/FULL LOAD 87Vdc~370Vdc/75% LOAD
			I/P: HIGH-LINE+15%=300V O/P:FULL/MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN (POWER ON/OFF NO DAMAGE)	TEST：OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:85VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25℃	TEST：OK
3	INPUT CURRENT (Typ.)	230V/ 0.8A 115V/ 1.4A	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I =0.762A/ 230VAC I =1.289A/ 115VAC
4	LEAKAGE CURRENT	< 1mA / 240 VAC	I/P： 240 VAC/60HZ O/P：Min LOAD Ta：25℃	0.619mA
5	NO LOAD CONSUMPTION	< 0.7W	I/P：230VAC I/P：115VAC O/P：NO LOAD Ta：25℃	0.558W/ 230VAC 0.263W/ 115VAC
6	EFFICIENCY(Typ.)	89%	I/P:230 VAC O/P:FULL LOAD Ta:25℃	90.1 %
	EFFICIENCY vs LOAD			

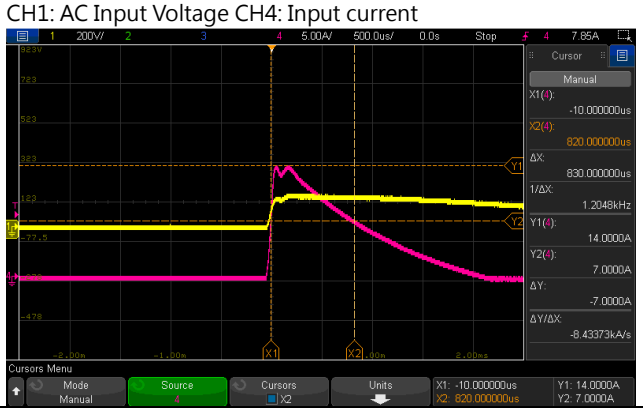


7	INRUSH CURRENT(Typ.)	230V/35A 115V/18A COLD START	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	I =26.9A/ 230VAC I =14.0A/ 115VAC T50=840 us/230V

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



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



PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~130% rated output power Protection type: Constant current limiting without shutdown, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P:TESTING Ta:25℃	122.7%/ 264VAC 122.7%/ 230VAC 122.7%/ 100VAC PROTECTION TYPE : Constant current limiting without shutdown, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	15V~ 18V Protection type: Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 85VAC O/P:MIN LOAD Ta:25℃	16.3V/ 264VAC 16.3V / 85VAC PROTECTION TYPE : Shut down o/p voltage, re-power on to recover

3	OVER TEMPERATURE PROTECTION	Protection type: Hiccup mode, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 85VAC O/P:FULL LOAD	O.T.P. Active OK Protection type : Hiccup mode, recovers automatically after fault condition is removed
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Constant current limiting, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 85VAC O/P: FULL LOAD Ta:25℃	NO DAMAGE PROTECTION TYPE : Constant current limiting, recovers automatically after fault condition is removed

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

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q1 : Rated : 10A/650V	AC ON/OFF I/P: High-Line +3V =267V 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 Ta:25℃	Q1 VDS: (1) 569V (2) 573V (3) 573V (4) 573V (5) 573V (6) 573V (7) 569V

2	Diode Peak Voltage	Q100 : Rated: 80V/64A	AC ON/OFF I/P: High-Line +3V =267 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 Vo=Vonormal O/P: (1) Full Load Ta:25℃	Vo=Vomax VDS: (1) 57.9V (2) 57.5V (3) 57.9V (4) 57.9V (5) 57.9V (6) 64.8V (7) 57.5V (8) 57.1V Vo=Vonormal (1) 54.7V
3	Input Capacitor Voltage	C5 Rated:120μ / 400V	I/P: High-Line +3V =267V O/P: (1)Full Load input on/off (2) Min load input on /Off (3) Full Load /Min load Change (4) Full load continue Ta:25℃	(1)376V (2) 376V (3) 376V (4) 372V
4	Control IC Voltage Test	PWM IC U1: Rated：8V~ 26.5V IC U107 : Rated：3V~30V IC U100 4V~13V	AC ON/OFF I/P: High-Line +3V =267 V O/P: (1) FULL LOAD (2) Output Short (3) O.L.P (4) O.V.P. (5) NO LOAD VRmin (LOW LINE) Ta:25℃	U1 U100 (1) 16.8V (1) 8.1V (2) 16.7V (2) 8.9V (3) 16.8V (3) 8.9V (4) 16.7V (4) 9.2V (5) 10.7V (5) 8.6V U107 (1) 9.8V (2) 9.8V (3) 9.8V (4) 9.7V (5) 9.2V
5	Clamp Diode Peak Voltage	D5 : Rated：620V/1A	AC ON/OFF I/P：High-Line +3V = 267 V O/P： (1) Dynamic Load 90%Duty/1KHz (2) Full load continue Ta：25℃	(1) 482V (2) 474V

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4 K VAC/min I/P-FG : 2 K VAC/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: 4.09 mA I/P-FG: 3.06 mA O/P-FG: 3.23 m A O/P-DC OK: 0.005 m A NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500 VDC>100MΩ O/P-FG: 500 VDC>100MΩ I/P-FG: 500 VDC >100MΩ	I/P-O/P: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25℃	I/P-O/P: 50 GΩ I/P-FG: 50 GΩ O/P-FG: 50 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25℃	7mΩ

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 □ FAIL
2	CONDUCTION	BS EN/EN55032 (CISPR32) / CNS15936 CLASS B	I/P : 230 VAC (50HZ)/115 VAC (60HZ) O/P:FULL/50% LOAD/10% LOAD Ta : 25℃	PASS Test by certified Lab
3	RADIATION	BS EN/EN55032 (CISPR32) / CNS15936 CLASS B	I/P : 230 VAC (50HZ)/115 VAC (60HZ) O/P:FULL/50% LOAD/10% LOAD Ta : 25℃	PASS Test by certified Lab
4	E.S.D	BS EN/EN61000-4-2 AIR : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25℃	■ CRITERIA A □ CRITERIA B
5	E.F.T	BS EN/EN61000-4-4 INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25℃	■ CRITERIA A □ CRITERIA B
6	SURGE	BS EN/EN61000-4-5 2KV/Line-Line 4KV/Line-Line-Chassis	I/P : 230 VAC/50HZ O/P : MIN/FULL LOAD D Ta : 25℃	■ CRITERIA A □ CRITERIA B
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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：XDR-75E-12
1. ROOM AMBIENT　BURN-IN：2 HRS
I/P：230VAC　O/P：FULL LOAD　Ta=24.3℃
2. HIGH AMBIENT　BURN-IN：2 HRS
I/P：230VAC　O/P：FULL LOAD　Ta=50.0℃</td></tr>
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NO	Position	ROOM AMBIENT Ta=24.3℃	HIGH AMBIENT Ta=50.0℃
1	C1	35.3℃	61.1℃
2	ZNR1	34.9℃	60.5℃
3	LF2	41.0℃	66.0℃
4	R10	56.0℃	76.3℃
5	RTH1	82.2℃	95.4℃
6	Q100	57.5℃	83.0℃
7	D200	53.1℃	77.1℃
8	D5	79.2℃	98.4℃
9	Q200	53.0℃	76.5℃
10	D30	63.5℃	86.7℃
11	BD1	50.0℃	73.5℃
12	C5	41.9℃	65.7℃
13	Q1	45.3℃	70.6℃
14	R50	49.7℃	72.9℃
15	C200	49.9℃	73.8℃
16	T1coil	67.9℃	92.1℃
17	T1core	55.9℃	78.1℃
18	C106	58.0℃	82.2℃
19	C108	52.6℃	77.2℃
20	LF100	45.5℃	70.3℃
21	RTH2	60.3℃	84.4℃
22	C115	43.2℃	67.9℃
23	J110	56.3℃	78.7℃
24	RY1	41.5℃	66.2℃
25	U3	43.2℃	67.1℃
26	U107	47.6℃	71.6℃
27	U1	43.3℃	67.4℃
28	Q2	52.8℃	77.7℃
29	D133	44.8℃	69.2℃

2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P： 230 VAC O/P：122%LOAD Ta：25℃	TEST：OK
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P： 264VAC/100VAC O/P：100 %LOAD@-30 ℃ 50%LOAD@-40 ℃	TEST：OK
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50℃/95 %R.H NO DAMAGE	I/P： 272 VAC O/P：FULL LOAD Ta= 50℃ HUMIDITY= 95 %R.H	TEST：OK
5	TEMPERATURE COEFFICIENT	±0.03%/℃(0~50℃)	I/P： 230 VAC O/P：FULL LOAD	0.0049%/℃(0~50℃)
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	-40~50℃	1. Thermal shock Temperature： -45℃~ +55℃ 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 C106 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= 50 ℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta= 50 ℃ LIFE TIME (4) I/P： 230VAC O/P：50% LOAD Ta= 50 ℃ LIFE TIME		(1) 251020HRS (2) 49236.6HRS (3) 97037.7HRS (4) 188447.8HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 2425.7K hrs min. Telcordia SR-332 (Bellcore) ; 533.7K hrs min. MIL-HDBK-217F (25℃)		
11	Ongoing Reliability Test	I/P：230VAC O/P：FULL LOAD TA=50℃ Demonstration Mean Time Between Failure : 30,000 hours		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangzd

2020.10.1 TAG-QA-009