



Test Report: XDR-75E-36

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

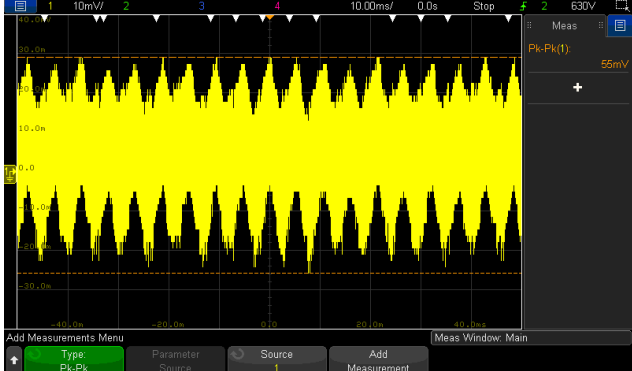
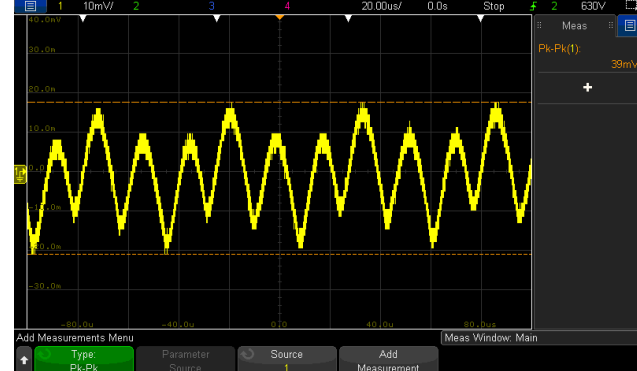
E.M.C. Test

■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

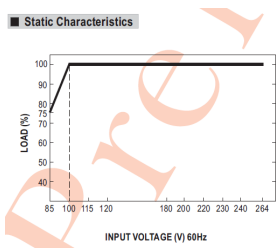
OUTPUT FUNCTION TEST

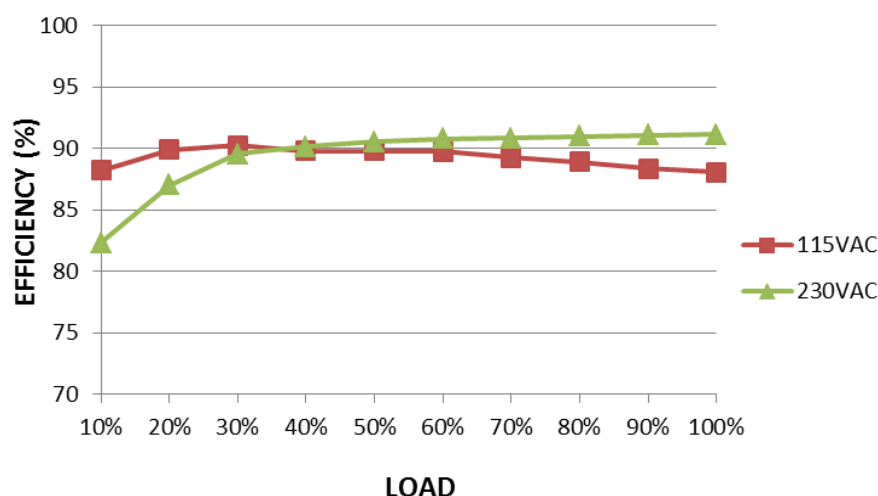
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 36V~ 42V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	35.316V~42.989V/230VAC 35.316V~42.989V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1.0 %~ +1.0%	I/P: 85VAC~ 264VAC O/P:FULL~ MIN. LOAD Ta:25°C	V1: -0.06% ~0.06 %
3	LINE REGULATION	V1: -0.5 %~ +0.5%	I/P: 85VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0% ~ 0%
4	LOAD REGULATION	V1: -1.0 %~ +1.0%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.06% ~0.06 %
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD / NO LOAD Ta:25°C	3.28%
6	RIPPLE & NOISE (Max)	V1: 120mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 39mVp-p / high frequency 55mVp-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°C	230VAC/453 ms 115VAC/ 934ms
	INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage		INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH3: AC Input Voltage	

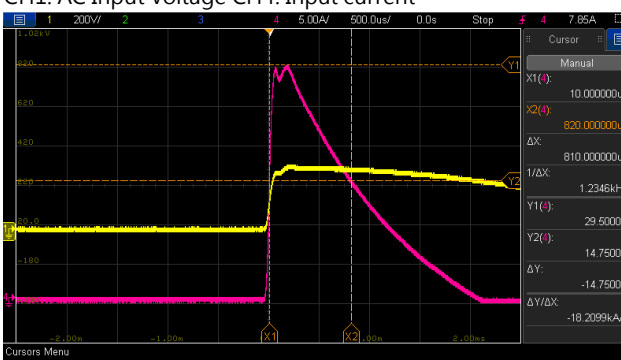
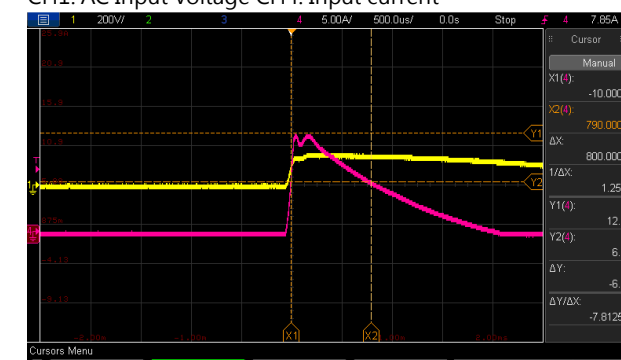
8	RISE TIME (Max) 230VAC/60ms 115VAC/60ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 28.45ms 115VAC/ 28.53ms	
	INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage 	INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage 		
9	HOLD UP TIME (Typ.) 230VAC/ 16ms 115VAC/ 10ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/63 ms 115VAC/ 12.8ms	
	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: 3600mVp-p	I/P: 230VAC O/P: (1) FULL/ MIN LOAD 50%DUTY / 120HZ (2) FULL/ MIN LOAD 50%DUTY / 1KHZ Ta:25°C	405mVp-p 273mVp-p	



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°C 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)	(1) 79.7V~264V/ FULL LOAD 65.1V~264V/ 75% LOAD (2) 90Vdc~370Vdc/FULL LOAD 88Vdc~370Vdc/75% LOAD (3) 92Vdc~370Vdc/FULL LOAD 88Vdc~370Vdc/75% LOAD TEST : ok
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:85VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	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°C	I =0.754A/ 230VAC I =1.283A/ 115VAC
4	LEAKAGE CURRENT	< 1mA / 240 VAC	I/P : 240 VAC/60HZ O/P : Min LOAD Ta : 25°C	0.644mA
5	NO LOAD CONSUMPTION	< 1W	I/P : 230VAC I/P : 115VAC O/P : NO LOAD Ta : 25°C	0.76W/ 230VAC 0.50W/ 115VAC
6	EFFICIENCY(Typ.)	91%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	91.1%
	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°C	I =29.5A/ 230VAC I =12.5A/ 115VAC T50= 810us/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°C	118.5%/ 264VAC 118.5%/ 230VAC 118.5%/ 100VAC PROTECTION TYPE : Constant current limiting without shutdown, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	43V~50V Protection type: Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 85VAC O/P:MIN LOAD Ta:25°C	47.3V/ 264VAC 47.3V/ 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 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°C	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°C	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	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°C	Q1 VDS: (1) 560V (2) 560V (3) 564V (4) 564V (5) 564V (6) 568V (7) 564V
2	Diode Peak Voltage	Q100 : Rated: 20A/ 200 V	AC ON/OFF I/P: High-Line +3V =267 V <u>Vo=Vomax</u> O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz	<u>Vo=Vomax</u> VDS: (1) 185V (2) 183V (3) 185V (4) 185V (5) 185V

			(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 <u>Vo=Vonormal</u> O/P: (1) Full Load Ta:25°C	(6) 185V (7) 183V (8) 183V <u>Vo=Vonormal</u> (1) 177V
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°C	(1)376 V (2) 376V (3) 380V (4) 376V
4	Control IC Voltage Test	PWM IC U1: Rated : 8V~ 26.5V IC U107 : Rated : 3V~30V	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°C	U1 (1) 16.6V (2) 16.6V (3) 16.6V (4) 16.6V (5) 10.7V U107 (1) 9.48V (2) 9.56V (3) 9.56V (4) 9.48V (5) 8.76V
5	Clamp Diode Peak Voltage	D5 : DISA0162AF 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°C	(1) 473V (2) 465V

■ 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°C	I/P - O/P: 4.02 mA I/P - F G : 3.00 mA O/P - F G : 2.77 mA O/P-DC OK: 0.007 mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P: 500 VDC>100MΩ O/P-FG: 500 VDC>100MΩ I/P - F G : 500 VDC >100MΩ	I/P-O/P: 600 VDC I/P - F G : 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P - O/P: 50 GΩ I/P - F G : 50 GΩ O/P - F G : 50 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	10 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 □ 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°C	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°C	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°C	■ 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°C	■ 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°C	■ 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

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																																																
1	TEMPERATURE RISE TEST	MODEL : XDR-75E-36 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=27.1℃ 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=50.4℃ <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta=27.1℃</th><th>HIGH AMBIENT Ta=50.4℃</th></tr><tr><td>1</td><td>T1 初级</td><td>60.8℃</td><td>83.4℃</td></tr><tr><td>2</td><td>T1 磁芯</td><td>60.6℃</td><td>83.1℃</td></tr><tr><td>3</td><td>T1 次级</td><td>61.4℃</td><td>84.0℃</td></tr><tr><td>4</td><td>Q1</td><td>47.2℃</td><td>71.0℃</td></tr><tr><td>5</td><td>R50</td><td>49.4℃</td><td>72.4℃</td></tr><tr><td>6</td><td>C5</td><td>42.9℃</td><td>66.2℃</td></tr><tr><td>7</td><td>C34</td><td>49.8℃</td><td>73.7℃</td></tr><tr><td>8</td><td>C105</td><td>51.3℃</td><td>73.8℃</td></tr><tr><td>9</td><td>C108</td><td>46.1℃</td><td>69.5℃</td></tr><tr><td>10</td><td>C200</td><td>49.4℃</td><td>72.8℃</td></tr><tr><td>11</td><td>C115</td><td>40.8℃</td><td>64.2℃</td></tr><tr><td>12</td><td>LF100</td><td>41.8℃</td><td>65.2℃</td></tr><tr><td>13</td><td>RTH2</td><td>56.2℃</td><td>79.3℃</td></tr><tr><td>14</td><td>RY1</td><td>42.1℃</td><td>65.6℃</td></tr><tr><td>15</td><td>ZNR1</td><td>37.1℃</td><td>61.1℃</td></tr><tr><td>16</td><td>C1</td><td>37.8℃</td><td>62.3℃</td></tr><tr><td>17</td><td>LF1</td><td>44.2℃</td><td>68.5℃</td></tr><tr><td>18</td><td>R10</td><td>58.9℃</td><td>78.4℃</td></tr><tr><td>19</td><td>RTH1</td><td>76.3℃</td><td>90.8℃</td></tr><tr><td>20</td><td>BD1</td><td>50.2℃</td><td>73.2℃</td></tr><tr><td>21</td><td>U3</td><td>44.3℃</td><td>67.1℃</td></tr><tr><td>22</td><td>U107</td><td>46.1℃</td><td>68.9℃</td></tr><tr><td>23</td><td>Q200</td><td>59.6℃</td><td>82.0℃</td></tr><tr><td>24</td><td>Q100</td><td>64.3℃</td><td>86.1℃</td></tr><tr><td>25</td><td>D5</td><td>63.4℃</td><td>85.7℃</td></tr><tr><td>26</td><td>U1</td><td>43.6℃</td><td>66.8℃</td></tr><tr><td>27</td><td>Q2</td><td>51.2℃</td><td>74.9℃</td></tr></table>			NO	Position	ROOM AMBIENT Ta=27.1℃	HIGH AMBIENT Ta=50.4℃	1	T1 初级	60.8℃	83.4℃	2	T1 磁芯	60.6℃	83.1℃	3	T1 次级	61.4℃	84.0℃	4	Q1	47.2℃	71.0℃	5	R50	49.4℃	72.4℃	6	C5	42.9℃	66.2℃	7	C34	49.8℃	73.7℃	8	C105	51.3℃	73.8℃	9	C108	46.1℃	69.5℃	10	C200	49.4℃	72.8℃	11	C115	40.8℃	64.2℃	12	LF100	41.8℃	65.2℃	13	RTH2	56.2℃	79.3℃	14	RY1	42.1℃	65.6℃	15	ZNR1	37.1℃	61.1℃	16	C1	37.8℃	62.3℃	17	LF1	44.2℃	68.5℃	18	R10	58.9℃	78.4℃	19	RTH1	76.3℃	90.8℃	20	BD1	50.2℃	73.2℃	21	U3	44.3℃	67.1℃	22	U107	46.1℃	68.9℃	23	Q200	59.6℃	82.0℃	24	Q100	64.3℃	86.1℃	25	D5	63.4℃	85.7℃	26	U1	43.6℃	66.8℃	27	Q2	51.2℃	74.9℃
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 118%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°C/95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 50°C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	±0.03%/°C(0~50°C)	I/P : 230 VAC O/P : FULL LOAD	0.0081%/°C(0~50°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	-40~50°C	1. Thermal shock Temperature : -45°C~ +55°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 C105 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= 50 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 50 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 50 °C LIFE TIME		(1) 353089.4HRS (2) 65976.9HRS (3) 89750.6HRS (4) 124557.9HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 2425.7K hrs min. Telcordia SR-332 (Bellcore) ; 533.7K 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 : 30,000 hours		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangzd

2020.10.1 TAG-QA-009