



# Test Report: NGE45U05-P1J

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45W AC-DC Reliable Wall-mounted Interchangeable  
Type Green Adaptor

## ■ 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

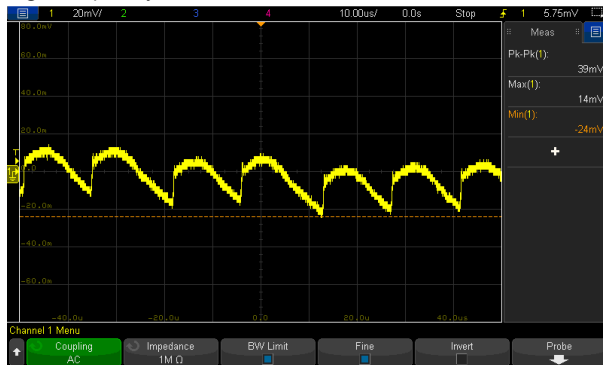
ENVIRONMENT TEST

DESIGN VERIFY TEST

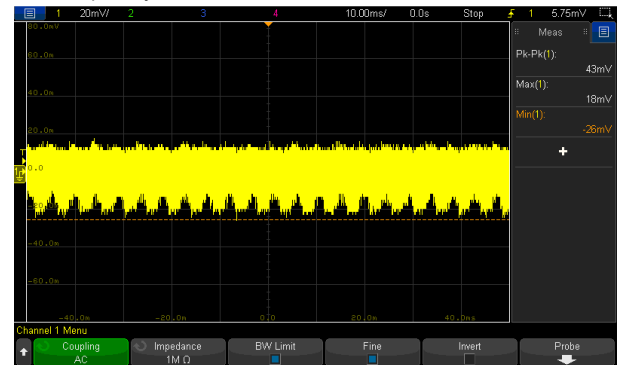
OUTPUT FUNCTION LOAD TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE TOLERANCE	V1: -5%~ +5%	I/P: 80VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -2.969%~2.7998%
2	LINE REGULATION	V1: -1%~ +1%	I/P: 80VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: -0.138 %~0%
3	LOAD REGULATION	V1: -5%~ +5%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -2.969%~2.7998%
4	OVER/UNDERSHOOT TEST	<±10%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.3%
5	RIPPLE & NOISE (Max)	V1: 100mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 39mVp-p / high frequency 43mVp-p / low frequency

high frequency :

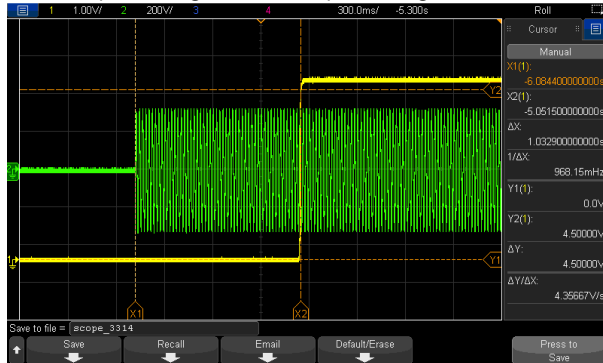


low frequency :

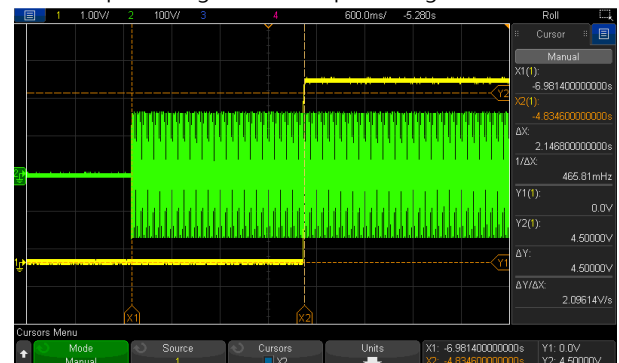


6	SET UP TIME(Max)	230VAC/1500ms 115VAC/3000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/1032.9ms 115VAC/2146.8ms
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INPUT=230VAC/50HZ @ FULL LOAD  
CH1: Output Voltage CH2: AC Input Voltage



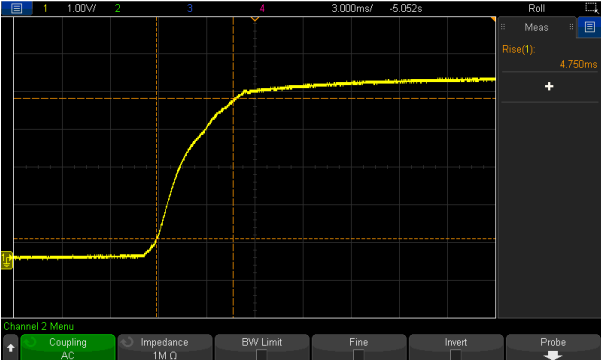
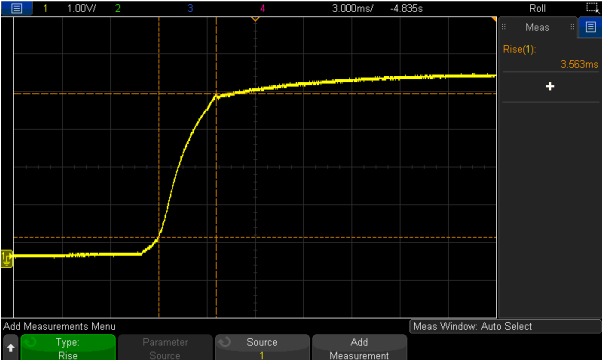
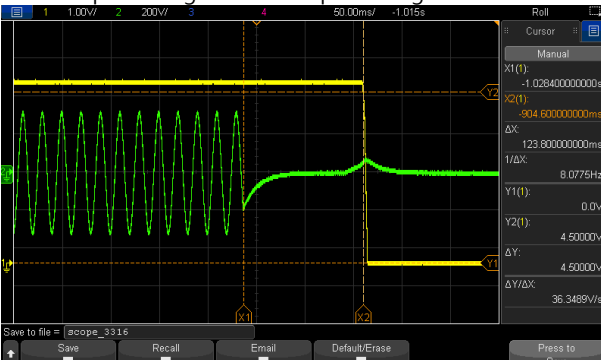
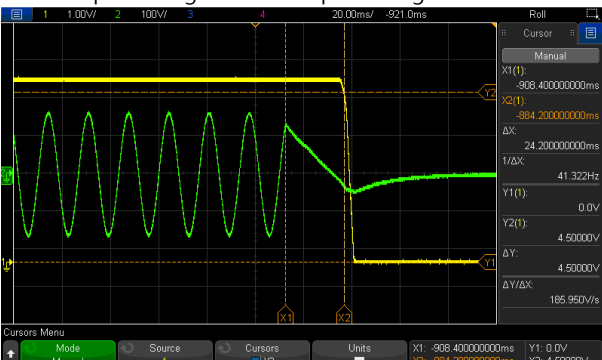
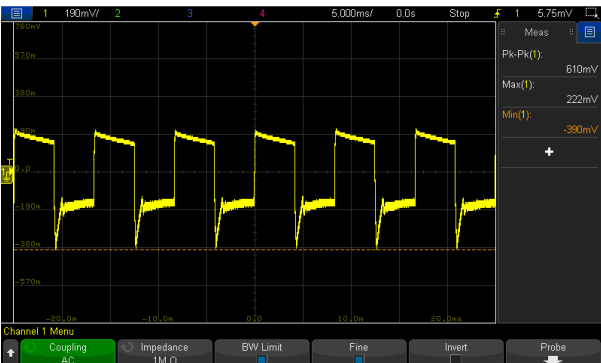
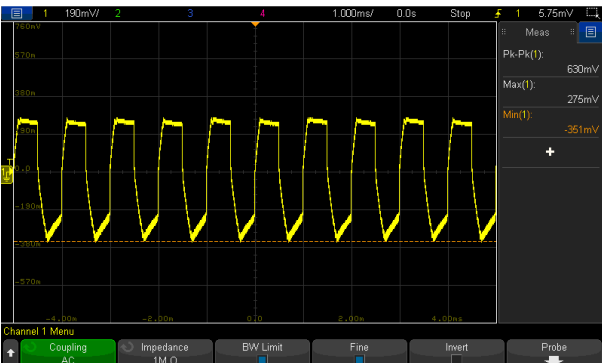
INPUT=115VAC/60HZ @ FULL LOAD  
CH1: Output Voltage CH2: AC Input Voltage





45W AC-DC Reliable Wall-mounted  
Interchangeable Type Green Adaptor

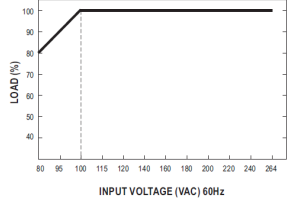
NGE45 series

7	RISE TIME (Max)	230VAC/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 4.750ms 115VAC/ 3.563ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage 		
8	HOLD UP TIME (Typ.)	230VAC/30ms 115VAC/10ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/123.8ms 115VAC/24.2ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage 		
9	DYNAMIC LOAD	V1: 1000mVp-p	I/P: 230VAC O/P: (1) FULL/0% LOAD 50%DUTY/ 120HZ (2) FULL/0% LOAD 50%DUTY / 1KHZ Ta:25°C	610mVp-p 630mVp-p
FULL /0% LOAD 50%DUTY / 120HZ 		FULL /0% LOAD 50%DUTY / 1KHZ 		

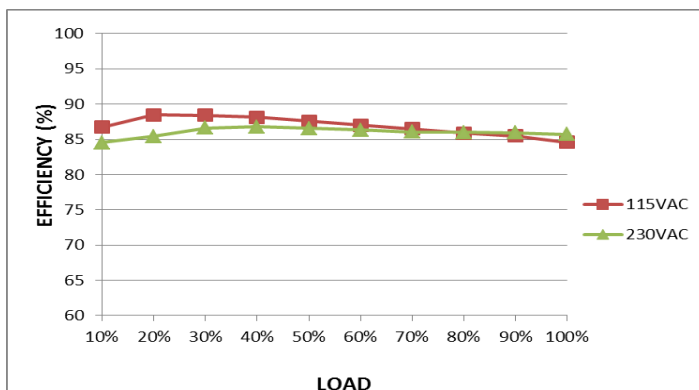


10	TRANSIENT RECOVERY TIME	V1: 1000mVp-p < 500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	250mVp-p 0us
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### INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	80VAC~264VAC 113VDC~ 370VDC 	(1) I/P: TESTING O/P: FULL LOAD/ 80% LOAD (2) I/P: DC TESTING (L: + N:-) O/P: FULL LOAD/ 80% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL LOAD/ 80% LOAD Ta:25°C  I/P: HIGH-LINE+15%=300V O/P:FULL LOAD /MIN LOAD (PLEASE CHECK DERATING CURVE) ON: 30 Sec OFF: 30 Sec 10MIN ( POWER ON/OFF NO DAMAGE )	(1) 71.3V~264V/ FULL LOAD 70.9V~264V/ 80% LOAD (2) 99.56Vdc~370Vdc/FULL LOAD 99.52Vdc~370Vdc/80% LOAD (3) 99.56Vdc~370Vdc/FULL LOAD 99.48Vdc~370Vdc/80% LOAD
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:80 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 0.6A 115V/ 1A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =0.351A/ 230VAC I =0.577A/ 115VAC
4	LEAKAGE CURRENT	Touch current 100uA/ 264V for 60601	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	69.72uA
5	NO LOAD CONSUMPTION	< 0.075W	I/P : 240VAC O/P : NO LOAD Ta : 25°C	0.045W
6	EFFICIENCY(Typ.)	84%	I/P:230VAC O/P:FULL LOAD Ta:25°C	85.69%/230VAC

EFFICIENCY vs LOAD





7	INRUSH CURRENT(Typ.)	230V/70A 115V/35A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =51.0A/ 230VAC I =27.5A/ 115VAC T50= 342us/230V
INPUT=230VAC/50HZ @ FULL LOAD CH2: AC Input Voltage CH4: Input current		INPUT=115VAC/ 60HZ @ FULL LOAD CH2: AC Input Voltage CH4: Input current		

### PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	110%~150% rated output power Protection type: Hiccup mode, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 230VAC I/P: 100VAC O/P: TESTING Ta:25°C	127.52%/ 264VAC 128.68%/ 230VAC 132.18%/100VAC PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	110%~140% rated output voltage Protection type: Clamp by zener diode	I/P: AC OFF O/P: MIN LOAD Ta:25°C	6.52V PROTECTION TYPE : Clamp by zener diode.
3	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Protection type: Hiccup mode, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 80VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Hiccup mode, recovers automatically after fault condition is removed.

### COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor ( D to S) or (C to E) Peak Voltage	Q1 Rated: 10.6A / 650V	AC ON/OFF I/P: High-Line +3V =267V VDS: O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/	Q1 VDS: (1) 543V (2) 523V (3) 548V (4) 543V



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			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	(5) 543V (6) 539V (7) 519V
2	Diode Peak Voltage	Q101 Rated: 80A/60V	AC ON/OFF I/P: High-Line +3V =267 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 Ta:25°C	Q101: VDS: (1) 30.4V (2) 36.4V (3) 29.6V (4) 30.0V (5) 30.0V (6) 30.0V (7) 28.8V (8) 32.8V
3	Input Capacitor Voltage	C5 Rated: 82μ /400 V	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) 388V (2) 380V (3) 378V (4) 378V
4	Control IC Voltage Test	PWM IC U3 Rated: 8V~ 26.5V  O/P IC U101 Rated: 4V~ 8.5V	AC ON/OFF I/P: High-Line +3V =267 V O/P:(1) FULL LOAD (2) Output Short (3) O.L.P (4) NO LOAD VRmin (LOW LINE) Ta:25°C	U3                      U101 (1) 16.6V              (1) 8.16V (2) 16.6V              (2) 8.16V (3) 16.6V              (3) 8.16V (4) 16.6V              (4) 4.593V
5	Clamp Diode Peak Voltage	D5 Rated : 600V/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) 503V (2) 503V



## ■ SAFETY& E.M.C. TEST

### SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 4KVAC/min	I/P-O/P: 4.4 KVAC/min Ta:25°C	I/P-O/P: 1.59mA NO DAMAGE
2	ISOLATION RESISTANCE	I/P-O/P:500VDC>100MΩ	I/P-O/P: 600 VDC Ta:25°C	I/P-O/P: 50GΩ NO DAMAGE

### 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)/EN55011, FCC Part15 , CNS15936, GB/T 9254.1-2021 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS
3	RADIATION	BS EN/EN55032(CISPR32)/EN55011, FCC Part15 , CNS15936, GB/T 9254.1-2021 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	PASS
4	E.S.D	BS EN/EN61000-4-2 Level 3, 15KV air; Level 2, 8KV contact	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 : 1KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS EN/EN 61000-4-5 Level 3, 1KV/L-N	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 : NGE45U05-P1J 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.7 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 46.6 °C																																																																																																																		
				<table border="1"> <thead> <tr> <th>NO</th> <th>Position</th> <th>ROOM AMBIENT Ta= 26.7°C</th> <th>HIGH AMBIENT Ta= 46.6°C</th> </tr> </thead> <tbody> <tr><td>1</td><td>R42</td><td>56.8°C</td><td>75.1°C</td></tr> <tr><td>2</td><td>Q1</td><td>67.0°C</td><td>85.4°C</td></tr> <tr><td>3</td><td>D42</td><td>57.9°C</td><td>75.6°C</td></tr> <tr><td>4</td><td>U4</td><td>48.9°C</td><td>67.2°C</td></tr> <tr><td>5</td><td>U2</td><td>53.5°C</td><td>71.7°C</td></tr> <tr><td>6</td><td>Q101</td><td>61.7°C</td><td>80.1°C</td></tr> <tr><td>7</td><td>U3</td><td>55.5°C</td><td>73.6°C</td></tr> <tr><td>8</td><td>C105</td><td>55.9°C</td><td>74.1°C</td></tr> <tr><td>9</td><td>C106</td><td>59.8°C</td><td>78.1°C</td></tr> <tr><td>10</td><td>R40</td><td>58.3°C</td><td>76.1°C</td></tr> <tr><td>11</td><td>C5</td><td>52.8°C</td><td>71.1°C</td></tr> <tr><td>12</td><td>C40</td><td>52.2°C</td><td>70.5°C</td></tr> <tr><td>13</td><td>C1</td><td>50.5°C</td><td>68.8°C</td></tr> <tr><td>14</td><td>LF2</td><td>48.6°C</td><td>66.6°C</td></tr> <tr><td>15</td><td>ZNR1</td><td>46.7°C</td><td>65.2°C</td></tr> <tr><td>16</td><td>LF1</td><td>46.7°C</td><td>65.1°C</td></tr> <tr><td>17</td><td>BD1</td><td>56.9°C</td><td>71.7°C</td></tr> <tr><td>18</td><td>RTH1</td><td>57.4°C</td><td>72.5°C</td></tr> <tr><td>19</td><td>D5</td><td>70.8°C</td><td>89.1°C</td></tr> <tr><td>20</td><td>C8</td><td>62.2°C</td><td>80.0°C</td></tr> <tr><td>21</td><td>R5</td><td>64.6°C</td><td>82.2°C</td></tr> <tr><td>22</td><td>C101</td><td>68.1°C</td><td>86.4°C</td></tr> <tr><td>23</td><td>R101</td><td>71.1°C</td><td>89.1°C</td></tr> <tr><td>24</td><td>T1 coil</td><td>60.9°C</td><td>78.5°C</td></tr> <tr><td>25</td><td>T1 core</td><td>61.0°C</td><td>78.5°C</td></tr> <tr><td>26</td><td>U101</td><td>66.1°C</td><td>84.5°C</td></tr> <tr><td>27</td><td>CASE</td><td>44.5°C</td><td>63.7°C</td></tr> </tbody> </table>	NO	Position	ROOM AMBIENT Ta= 26.7°C	HIGH AMBIENT Ta= 46.6°C	1	R42	56.8°C	75.1°C	2	Q1	67.0°C	85.4°C	3	D42	57.9°C	75.6°C	4	U4	48.9°C	67.2°C	5	U2	53.5°C	71.7°C	6	Q101	61.7°C	80.1°C	7	U3	55.5°C	73.6°C	8	C105	55.9°C	74.1°C	9	C106	59.8°C	78.1°C	10	R40	58.3°C	76.1°C	11	C5	52.8°C	71.1°C	12	C40	52.2°C	70.5°C	13	C1	50.5°C	68.8°C	14	LF2	48.6°C	66.6°C	15	ZNR1	46.7°C	65.2°C	16	LF1	46.7°C	65.1°C	17	BD1	56.9°C	71.7°C	18	RTH1	57.4°C	72.5°C	19	D5	70.8°C	89.1°C	20	C8	62.2°C	80.0°C	21	R5	64.6°C	82.2°C	22	C101	68.1°C	86.4°C	23	R101	71.1°C	89.1°C	24	T1 coil	60.9°C	78.5°C	25	T1 core	61.0°C	78.5°C	26	U101	66.1°C	84.5°C	27	CASE	44.5°C	63.7°C
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2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR ( MIN )	I/P : 230 VAC O/P : 127.18% LOAD Ta : 25°C	TEST : OK																																																																																																																
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/100VAC O/P : 100%LOAD Ta= -35°C	TEST : OK																																																																																																																





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4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 45 °C/95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 45 °C HUMIDITY= 95 %R.H	TEST : OK
5	TEMPERATURE COEFFICIENT	± 0.03 %/°C(0~45°C)	I/P : 230 VAC O/P : FULL LOAD	± 0.012 %/°C(0~45°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	-30~45°C	1. Thermal shock Temperature : -35°C~ +50°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 : 12min/sweep cycle (4) Acceleration : 3G (5) Test Time : 180min in each axis (X.Y.Z) (6) Ta : 25°C	
9	CAPACITOR LIFE CYCLE	SUPPOSE C106 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= 45 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 45 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 45 °C LIFE TIME	(1) 4426189 HRS (2) 532145 HRS (3) 1137706 HRS (4) 2636513 HRS	
10	MTBF	Conducted by Parts Stress Analysis Prediction 749.9 Khrs min. MIL-HDBK-217F (25°C) 6361.6 Khrs min. Telcordia TR/SR-332(Bellcore) (25°C)		
11	Ongoing Reliability Test	I/P : 230VAC O/P : 100% LOAD TA=50°C Demonstration Mean Time Between Failure : 30,000 hours		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangdz

2020.10.1 TAG-QA-009