



Test Report: NGE45U12-P1J

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

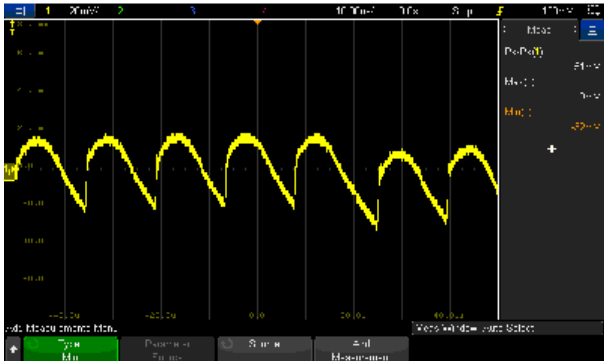
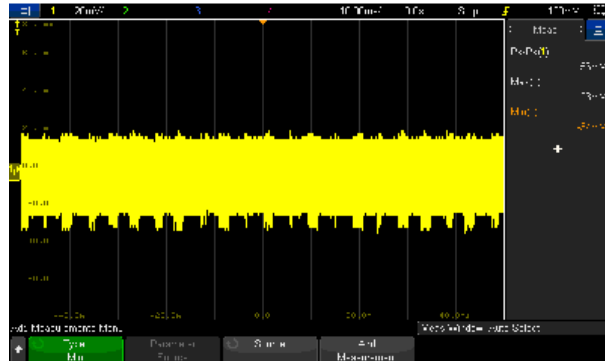
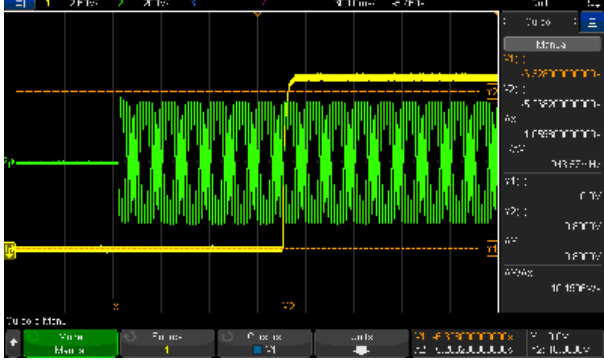
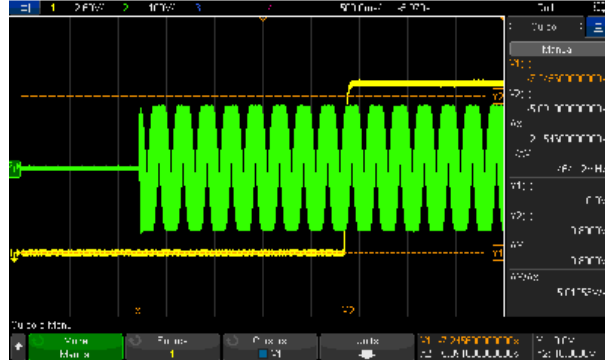
E.M.C. Test

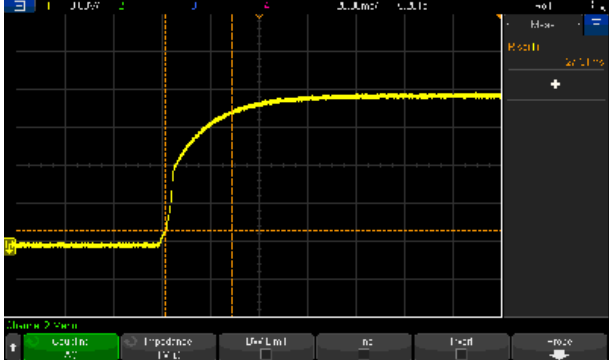
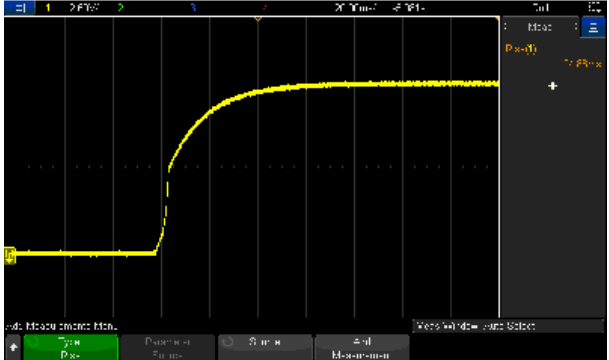
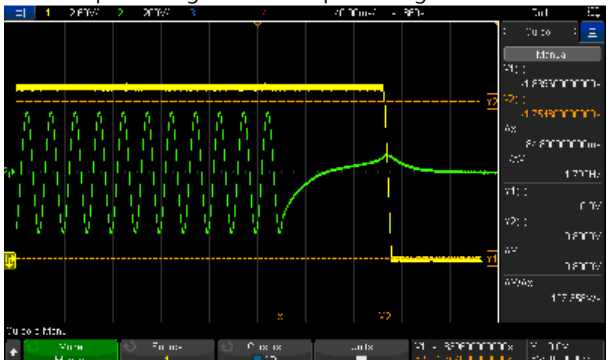
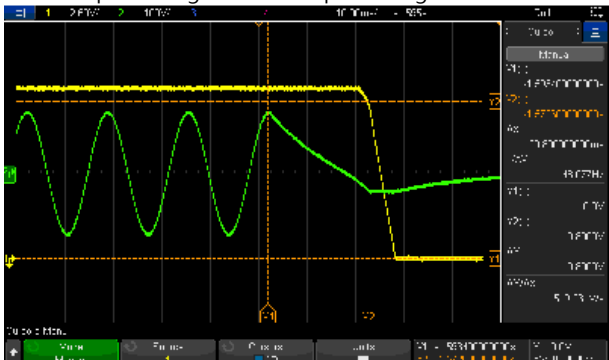
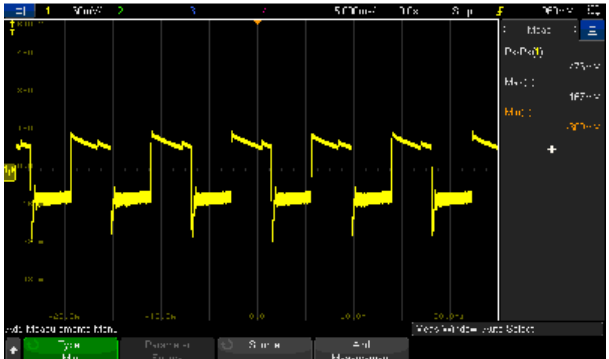
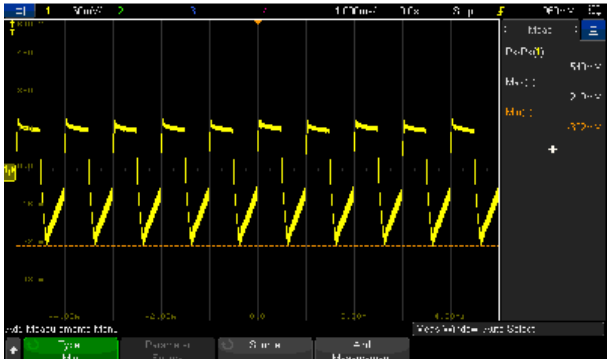
■ RELIABILITY TEST

ENVIRONMENT TEST

■ DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE TOLERANCE	V1: -3%~ +3%	I/P: 80VAC~264VAC O/P:FULL~MIN. LOAD Ta:25°C	V1: -0.756%~0.739%
2	LINE REGULATION	V1: -1%~ +1%	I/P: 80VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0%~0.313%
3	LOAD REGULATION	V1: -3%~ +3%	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.756%~0.739%
4	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	2.6%
5	RIPPLE & NOISE (Max)	V1: 120mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 51mVp-p / high frequency 56mVp-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/ 1059.8ms 115VAC/ 2154.6ms
INPUT=230VAC/50HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage				
INPUT=115VAC/60HZ @ FULL LOAD CH1: Output Voltage CH2: AC Input Voltage				

7	RISE TIME (Max)	230VAC/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 27.31ms 115VAC/ 24.88ms
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/ 84.8ms 115VAC/ 20.8ms
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: 1200mVp-p	I/P: 230VAC O/P: (1) FULL/0% LOAD 50%DUTY/ 120HZ (2) FULL/0% LOAD 50%DUTY / 1KHZ Ta:25°C	476mVp-p 540mVp-p
FULL /0% LOAD 50%DUTY / 120HZ  FULL /0% LOAD 50%DUTY / 1KHZ 				

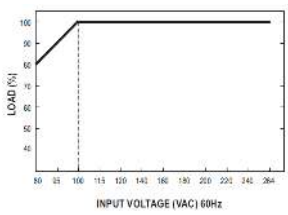


45W AC-DC Reliable Wall-mounted Interchangeable Type Green Adaptor

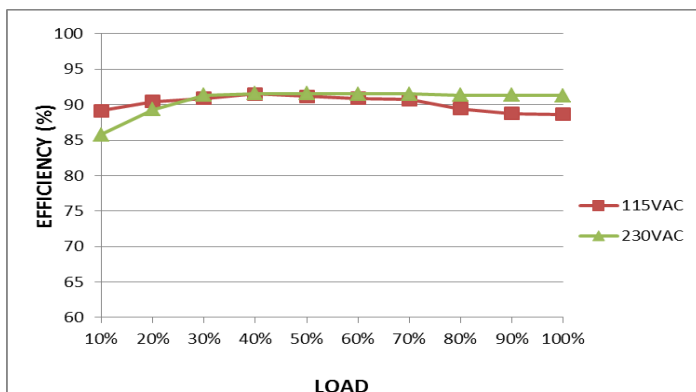
NGE45 series

10	TRANSIENT RECOVERY TIME	V1: 1200mVp-p < 500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	191 mVp-p 0us
----	-------------------------	--------------------------	--	------------------

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) 71.2V~264V/ FULL LOAD 71.2V~264V/ 80% LOAD (2) 108.31Vdc~370Vdc/FULL LOAD 108.28Vdc~370Vdc/80% LOAD (3) 108.31Vdc~370Vdc/FULL LOAD 108.28Vdc~370Vdc/80% LOAD TEST: OK
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 =0.498A/ 230VAC I =0.821A/ 115VAC
4	LEAKAGE CURRENT	Touch current 100uA/ 264V for 60601	I/P : 264 VAC O/P : Min LOAD Ta : 25°C	70.44uA
5	NO LOAD CONSUMPTION	< 0.075W	I/P : 240VAC O/P : NO LOAD Ta : 25°C	0.055W
6	EFFICIENCY(Typ.)	88%	I/P:230VAC O/P:FULL LOAD Ta:25°C	91.22%

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 =62.3A/ 230VAC I =25.9A/ 115VAC T50= 350us/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	126.75%/ 264VAC 130.20%/ 230VAC 129.35%/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	15.47V 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) 560V (2) 528V (3) 556V (4) 552V



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

NGE45 series

			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) 556V (6) 540V (7) 524V
2	Diode Peak Voltage	Q100 Rated: 65A/100V	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	Q100: VDS: (1) 62.9V (2) 60.2V (3) 64.3V (4) 64.3V (5) 63.9V (6) 61.4V (7) 61.0V (8) 65.5V
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) 387V (3) 379V (4) 379V
4	Control IC Voltage Test	PWM IC U3 Rated: 8V~ 26.5V O/P IC U101 Rated: 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) NO LOAD VRmin (LOW LINE) Ta:25°C	U3 U101 (1) 16.6V (1) 9.4V (2) 16.6V (2) 9.1V (3) 16.6V (3) 9.1V (4) 16.6V (4) 9.1V
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) 513V (2) 504V



■ 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:1.529mA 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 : NGE45U09-P1J 1. ROOM AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta= 30.5 °C 2. HIGH AMBIENT BURN-IN : 2HRS I/P : 230VAC O/P : FULL LOAD Ta= 48.0 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 30.5°C</th><th>HIGH AMBIENT Ta= 48.0°C</th></tr><tr><td>1</td><td>R42</td><td>60.6°C</td><td>78.8°C</td></tr><tr><td>2</td><td>Q100</td><td>61.7°C</td><td>81.1°C</td></tr><tr><td>3</td><td>D42</td><td>59.7°C</td><td>78.4°C</td></tr><tr><td>4</td><td>U4</td><td>53.5°C</td><td>72.0°C</td></tr><tr><td>5</td><td>Q1</td><td>67.9°C</td><td>84.3°C</td></tr><tr><td>6</td><td>U3</td><td>57.9°C</td><td>76.6°C</td></tr><tr><td>7</td><td>U2</td><td>56.7°C</td><td>75.6°C</td></tr><tr><td>8</td><td>C105</td><td>56.1°C</td><td>75.5°C</td></tr><tr><td>9</td><td>C106</td><td>59.4°C</td><td>78.8°C</td></tr><tr><td>10</td><td>C40</td><td>53.3°C</td><td>71.9°C</td></tr><tr><td>11</td><td>C8</td><td>65.8°C</td><td>83.9°C</td></tr><tr><td>12</td><td>R5</td><td>68.7°C</td><td>86.5°C</td></tr><tr><td>13</td><td>D5</td><td>77.5°C</td><td>94.8°C</td></tr><tr><td>14</td><td>R40</td><td>59.8°C</td><td>78.5°C</td></tr><tr><td>15</td><td>C5</td><td>59.2°C</td><td>77.9°C</td></tr><tr><td>16</td><td>BD1</td><td>60.3°C</td><td>79.4°C</td></tr><tr><td>17</td><td>LF2</td><td>57.9°C</td><td>76.7°C</td></tr><tr><td>18</td><td>RTH1</td><td>60.5°C</td><td>79.5°C</td></tr><tr><td>19</td><td>C1</td><td>52.6°C</td><td>70.9°C</td></tr><tr><td>20</td><td>ZNR1</td><td>51.9°C</td><td>70.2°C</td></tr><tr><td>21</td><td>LF1</td><td>50.0°C</td><td>68.1°C</td></tr><tr><td>22</td><td>U101</td><td>66.6°C</td><td>85.6°C</td></tr><tr><td>23</td><td>C101</td><td>68.0°C</td><td>86.7°C</td></tr><tr><td>24</td><td>R101</td><td>71.9°C</td><td>89.9°C</td></tr><tr><td>25</td><td>T1 coil</td><td>65.5°C</td><td>83.8°C</td></tr><tr><td>26</td><td>T1 core</td><td>65.1°C</td><td>83.5°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 30.5°C	HIGH AMBIENT Ta= 48.0°C	1	R42	60.6°C	78.8°C	2	Q100	61.7°C	81.1°C	3	D42	59.7°C	78.4°C	4	U4	53.5°C	72.0°C	5	Q1	67.9°C	84.3°C	6	U3	57.9°C	76.6°C	7	U2	56.7°C	75.6°C	8	C105	56.1°C	75.5°C	9	C106	59.4°C	78.8°C	10	C40	53.3°C	71.9°C	11	C8	65.8°C	83.9°C	12	R5	68.7°C	86.5°C	13	D5	77.5°C	94.8°C	14	R40	59.8°C	78.5°C	15	C5	59.2°C	77.9°C	16	BD1	60.3°C	79.4°C	17	LF2	57.9°C	76.7°C	18	RTH1	60.5°C	79.5°C	19	C1	52.6°C	70.9°C	20	ZNR1	51.9°C	70.2°C	21	LF1	50.0°C	68.1°C	22	U101	66.6°C	85.6°C	23	C101	68.0°C	86.7°C	24	R101	71.9°C	89.9°C	25	T1 coil	65.5°C	83.8°C	26	T1 core	65.1°C	83.5°C
NO	Position	ROOM AMBIENT Ta= 30.5°C	HIGH AMBIENT Ta= 48.0°C																																																																																																													
1	R42	60.6°C	78.8°C																																																																																																													
2	Q100	61.7°C	81.1°C																																																																																																													
3	D42	59.7°C	78.4°C																																																																																																													
4	U4	53.5°C	72.0°C																																																																																																													
5	Q1	67.9°C	84.3°C																																																																																																													
6	U3	57.9°C	76.6°C																																																																																																													
7	U2	56.7°C	75.6°C																																																																																																													
8	C105	56.1°C	75.5°C																																																																																																													
9	C106	59.4°C	78.8°C																																																																																																													
10	C40	53.3°C	71.9°C																																																																																																													
11	C8	65.8°C	83.9°C																																																																																																													
12	R5	68.7°C	86.5°C																																																																																																													
13	D5	77.5°C	94.8°C																																																																																																													
14	R40	59.8°C	78.5°C																																																																																																													
15	C5	59.2°C	77.9°C																																																																																																													
16	BD1	60.3°C	79.4°C																																																																																																													
17	LF2	57.9°C	76.7°C																																																																																																													
18	RTH1	60.5°C	79.5°C																																																																																																													
19	C1	52.6°C	70.9°C																																																																																																													
20	ZNR1	51.9°C	70.2°C																																																																																																													
21	LF1	50.0°C	68.1°C																																																																																																													
22	U101	66.6°C	85.6°C																																																																																																													
23	C101	68.0°C	86.7°C																																																																																																													
24	R101	71.9°C	89.9°C																																																																																																													
25	T1 coil	65.5°C	83.8°C																																																																																																													
26	T1 core	65.1°C	83.5°C																																																																																																													
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 126.16% 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																																																																																																												



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

NGE45 series

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	± 0.013 %/°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) 1794610 HRS (2) 144202 HRS (3) 345915 HRS (4) 722720 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