



Test Report: HRPG-1000-15

1000W Single Output with PFC Function

■ 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

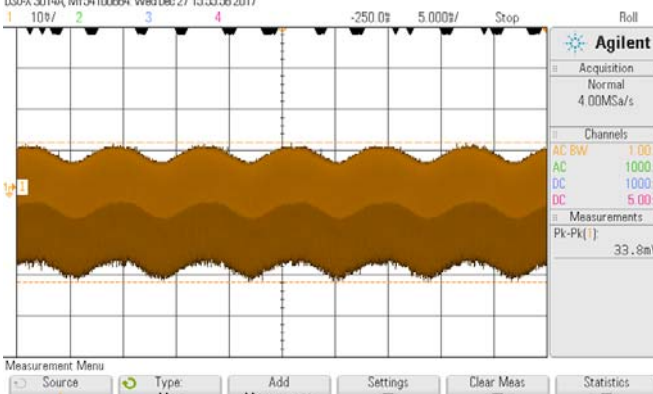
E.M.C. Test

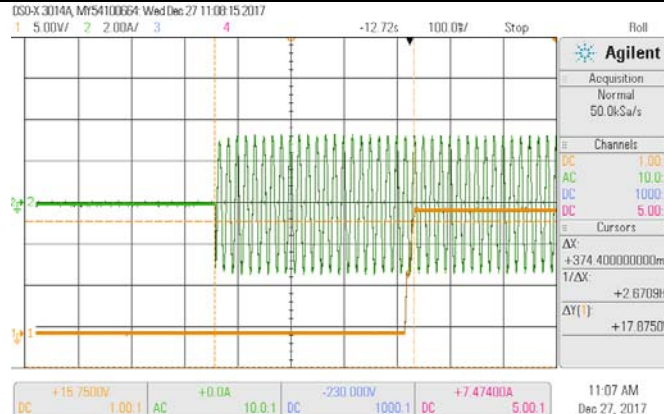
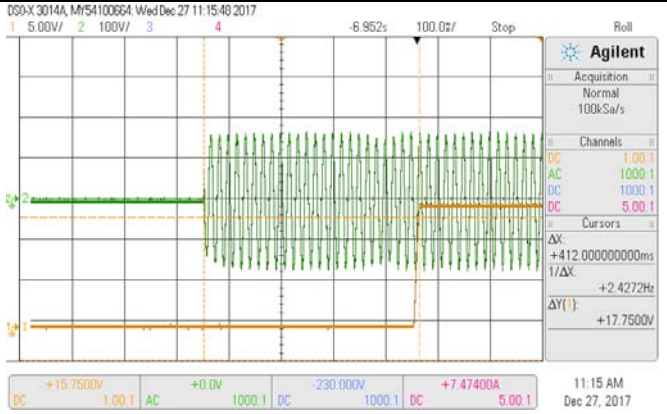
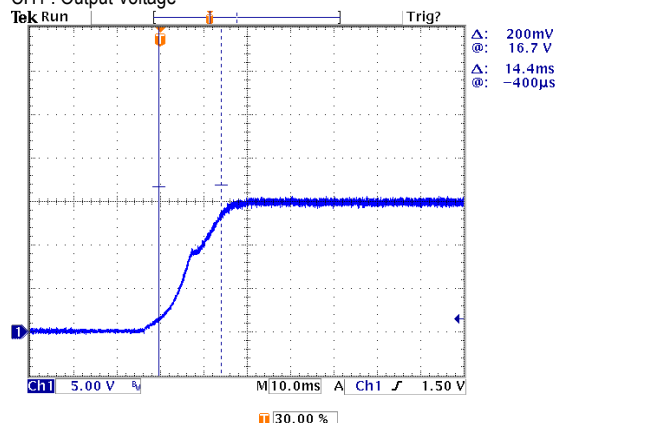
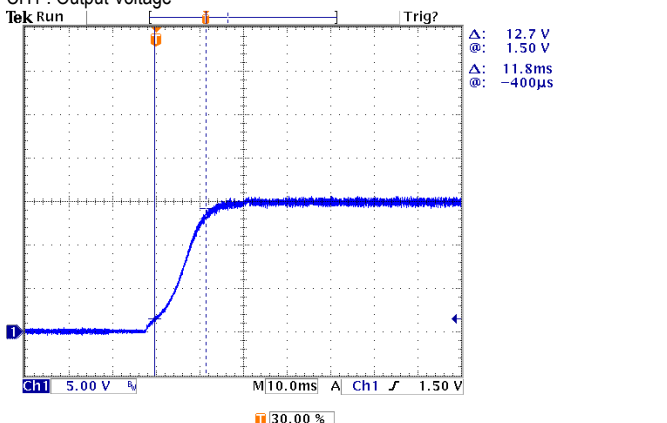
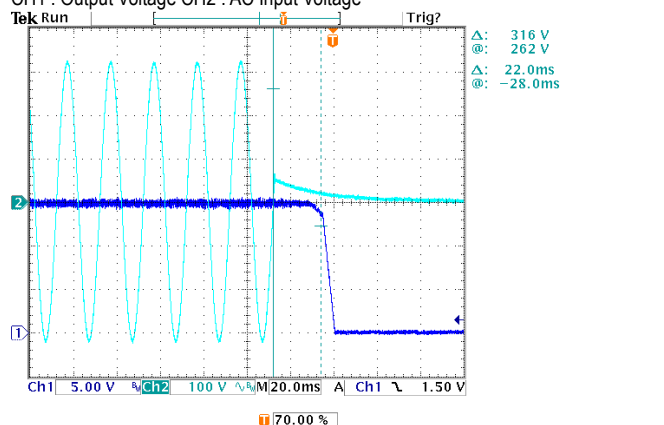
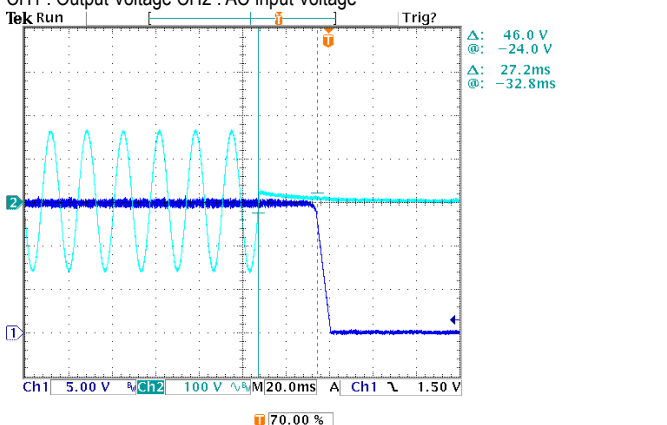
■ RELIABILITY TEST

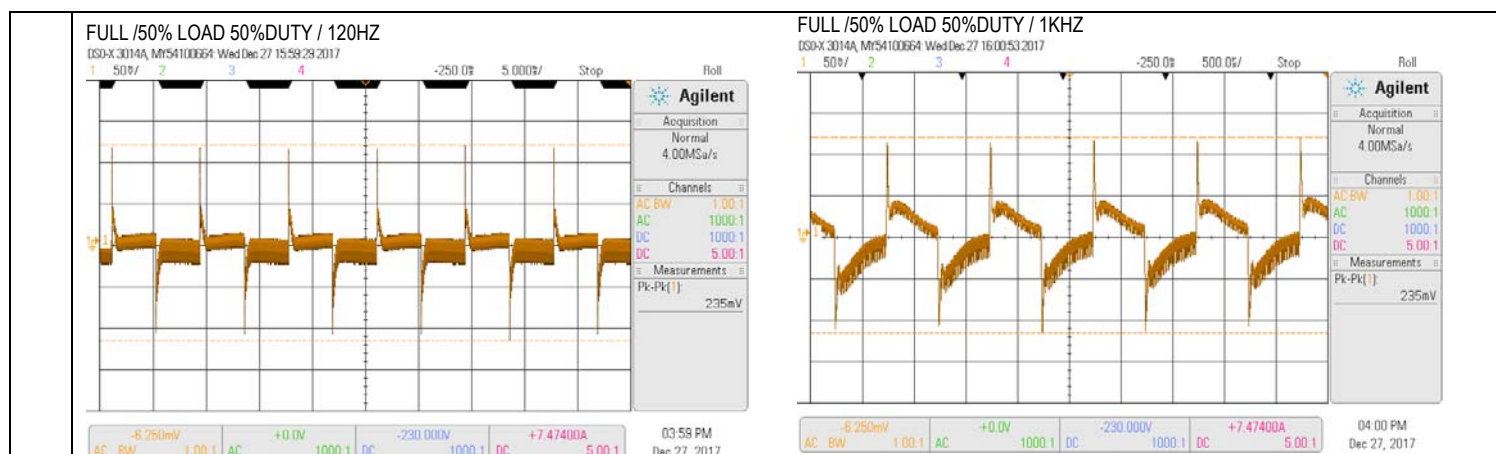
ENVIRONMENT TEST

DESIGN VERIFY TEST

OUTPUT FUNCTION TEST

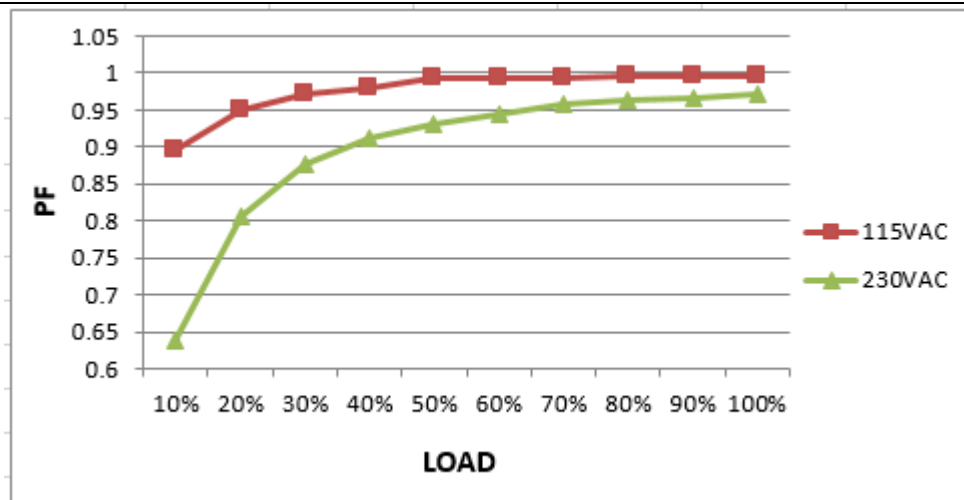
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 14V~ 17 V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	13.4V~17.59V/230VAC 13.4V~17.59V/115VAC
2	OUTPUT VOLTAGE(Max) TOLERANCE	V1: 1.5%~ -1.5 %	I/P: 200VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: 0.53 %~ -0.2 %
3	LINE REGULATION (Max)	V1: 0.5%~ -0.5 %	I/P: 200VAC~ 264VAC O/P:FULL LOAD Ta:25°C	V1: 0 %~ 0.19 %
4	LOAD REGULATION(Max)	V1: 1.5%~ -1.5 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: 0.13 %~ 0 %
5	OVER/UNDERSHOOT TEST	< ±5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	< ±5%
6	RIPPLE & NOISE(Max)	V1: 150mVp-p	I/P:230VAC O/P:FULL LOAD Ta:25°C	V1: 33.8 mVp-p
high frequency :  low frequency : 				
7	SET UP TIME(Max)	230VAC/1000ms 115VAC/2000ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 374.4 ms 115VAC/ 412 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage			INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage	

				
8	RISE TIME (Max)	230VAC/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 14.4 ms 115VAC/ 11.8 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage 		
9	HOLD UP TIME (Typ.)	230VAC/16ms 115VAC/16ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 22 ms 115VAC/ 27.2 ms
INPUT=230VAC/50HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 		INPUT=115VAC/60HZ @ FULL LOAD CH1 : Output Voltage CH2 : AC Input Voltage 		
10	DYNAMIC LOAD	V1: 1500 mVp-p	I/P: 230VAC O/P: (1)FULL /50% LOAD 50%DUTY / 120HZ (2)FULL /50% LOAD 50%DUTY / 1KHZ Ta:25°C	235mVp-p 235mVp-p



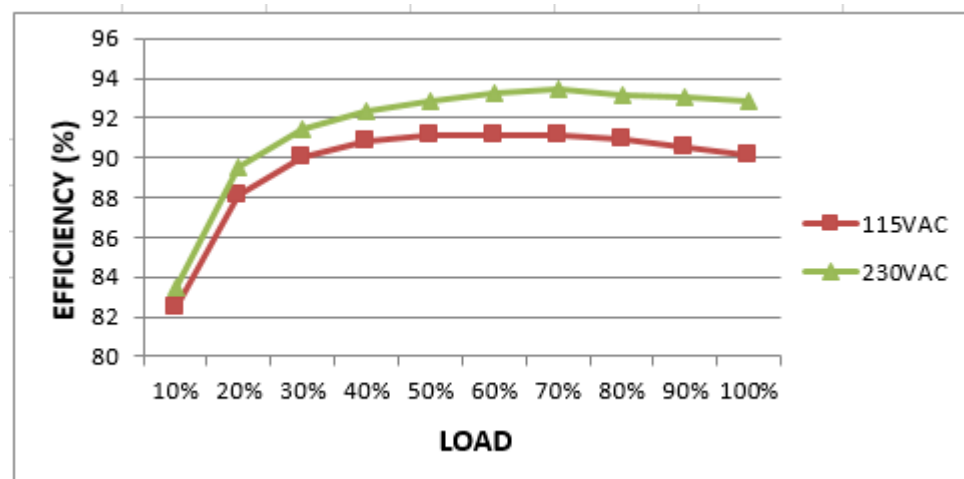
INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC	I/P: TESTING O/P: FULL LOAD Ta: 25°C	74V~264V
			I/P: LOW-LINE-3V=87 V HIGH-LINE+15%=300 V 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: 100 VAC ~264 VAC O/P: FULL~MIN LOAD Ta: 25°C	TEST:OK
3	INPUT CURRENT (Typ.)	230V/ 5A 115V/ 8.5A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I = 4.666A/ 230VAC I = 7.885A/ 115VAC
4	LEAKAGE CURRENT	< 1.2mA/240VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	L-FG : 0.3mA N-FG : 0.3mA
5	NO LOAD CONSUMPTION	< 0.75W	I/P : 115VAC I/P : 230VAC O/P : NO LOAD Ta : 25°C	< 0.4399 W < 0.6658 W
6	POWER FACTOR (Typ.)	0.95/ 230VAC 0.98/115VAC	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.967/230VAC PF=0.996/115VAC
	P.F vs LOAD			



7	EFFICIENCY(Typ.)	92%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	92.77%
---	------------------	-----	---	--------

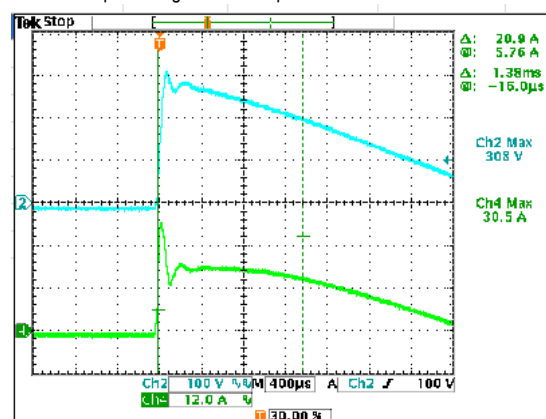
EFFICIENCY vs LOAD



8	INRUSH CURRENT(Typ.)	230V/40A 115V/20A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I=30.5A/ 230VAC I=17A/ 115VAC T50= 1380 us/230V
---	----------------------	------------------------------------	--	---

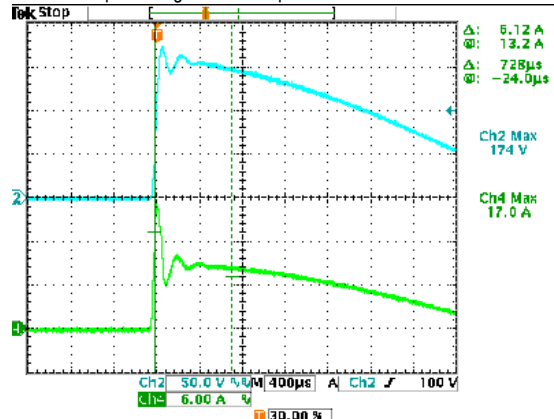
INPUT=230VAC/50HZ @ FULL LOAD

CH2 : AC Input Voltage CH4 : Input current



INPUT=115VAC/ 60HZ @ FULL LOAD

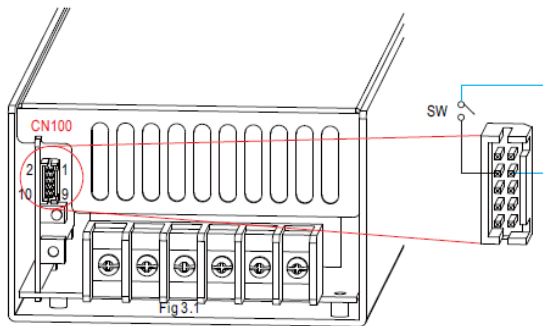
CH2 : AC Input Voltage CH4 : Input current

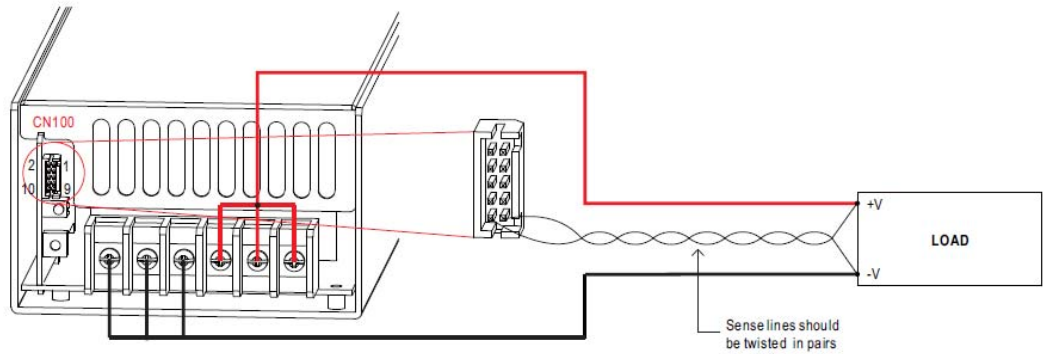
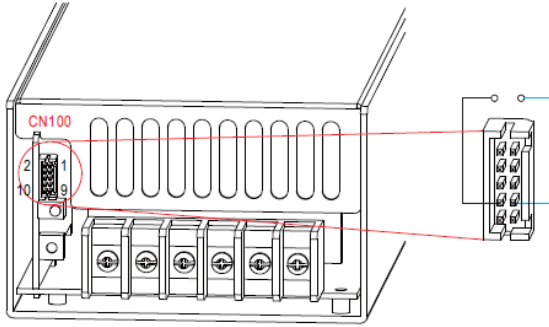


PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OVER LOAD PROTECTION	105%~ 135 % Protection type : Constant current limiting, recovers automatically after fault condition is removed	I/P: 264VAC I/P: 230VAC I/P: 115VAC O/P: TESTING Ta:25°C	118.68%/ 264VAC 118.56%/ 230VAC 118.53%/115VAC PROTECTION TYPE : Constant current limiting, recovers automatically after fault condition is removed
2	OVER VOLTAGE PROTECTION	18.2V~20.6V Protection type : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 90VAC O/P: MIN LOAD Ta:25°C	19.4V/ 264VAC 19.4V/ 230VAC 19.4V/ 90VAC 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: 264VAC I/P: 90VAC O/P: FULL LOAD	O.T.P. Active Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE	I/P: 264VAC I/P: 90VAC 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	CURRENT SHARING	< 10%	I/P : 230 VAC O/P : FULL/50% LOAD Ta : 25°C	O/P : 90% PSU1 : 58.2A PSU2 : 59 A PSU3 : 60.3A PSU4 : 60.5A O/P : 50% PSU1 : 32.3 A PSU2 : 32.4 A PSU3 : 34.4A PSU4 : 32.6A						
2	REMOTE ON/OFF CONTROL	The PSU can be turned ON/OFF by using the "Remote Control" function. <table><tr><td>Between RC+(pin3) and RC-(pin4)</td><td>Output Status</td></tr><tr><td>SW ON (Short)</td><td>ON</td></tr><tr><td>SW OFF (Open)</td><td>OFF</td></tr></table> I/P: 230 VAC O/P: FULL LOAD Ta:25°C TEST RESULT : OK	Between RC+(pin3) and RC-(pin4)	Output Status	SW ON (Short)	ON	SW OFF (Open)	OFF		
Between RC+(pin3) and RC-(pin4)	Output Status									
SW ON (Short)	ON									
SW OFF (Open)	OFF									
3	REMOTE SENSE	S+ / S- >0.5V								

		 I/P: 230 VAC O/P:FULL LOAD Ta:25°C TEST RESULT : > 0.5 V										
4	DC OK SIGNAL	The TTL signal out, PSU turn on = 3.3 ~ 5.6V ; PSU turn off = 0 ~ 1V DC-OK signal is a TTL level signal. High when PSU turns on. <table border="1"><thead><tr><th>Between DC-OK(pin7) and GND(pin6,8)</th><th>Output Status</th></tr></thead><tbody><tr><td>3.3 ~ 5.6V</td><td>ON</td></tr><tr><td>0 ~ 1V</td><td>OFF</td></tr></tbody></table>  I/P:230VAC O/P:FULL LOAD Ta:25°C TEST RESULT: PSU turn on =5.292V ; PSU turn off = 0V	Between DC-OK(pin7) and GND(pin6,8)	Output Status	3.3 ~ 5.6V	ON	0 ~ 1V	OFF				
Between DC-OK(pin7) and GND(pin6,8)	Output Status											
3.3 ~ 5.6V	ON											
0 ~ 1V	OFF											
5	5V STANDBY	5VSB : 5V@0.3A ; tolerance± 5%, ripple : 50mVp-p(max.)	I/P: 230 VAC O/P:FULL LOAD Ta:25°C TEST RESULT : 5V /0.3A Ripple : 9.8mVp-p									
6	FAN CONTROL	FAN ON/OFF BY BY NTC (RT50) OR LOAD	I/P: 230 VAC O/P:TESTING TEST RESULT : <table border="1"><thead><tr><th></th><th>TEMP.</th><th>LOAD</th></tr></thead><tbody><tr><td>FAN ON</td><td>50°C</td><td>>26.2%</td></tr><tr><td>FAN OFF</td><td>42°C</td><td><25.1%</td></tr></tbody></table>		TEMP.	LOAD	FAN ON	50°C	>26.2%	FAN OFF	42°C	<25.1%
	TEMP.	LOAD										
FAN ON	50°C	>26.2%										
FAN OFF	42°C	<25.1%										

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q911 Rated 600 V	I/P:High-Line +3V =303V AC ON/OFF VDS: O/P: (1)Full Load (2)Output Short (3)Dynamic Load Full Load/	VDS: (1)528V (2)480V (3)516V

			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℃	(4)516V (5)520V (6)520V (7)500V
2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated 600V	I/P:High-Line +3V =303V V AC ON/OFF 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℃	VDS: (1) 480V (2) 496V (3) 488V (4) 484V (5) 488V (6) 488V (7) 488V
3	P.F.C DIODE	D6 Rated 600 V	I/P:High-Line +3V =303V 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 Ta:25℃	(1) 387V (2) 396V (3) 387V (4) 379V
4	SR MOSFET Peak Voltage	Q506 Rated: 80 V Q508 Rated: 80 V	I/P:High-Line +3V =303V V AC ON/OFF 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) burst mode Ta:25℃	Q506: VDS: (1)46.4V (2)16.2V (3)45.7V (4)46.1V (5)46.5V (6)49.3V (7)49.3V (8)41.5V (9)42.1V Q508: VDS: (1)42.9V (2)12.35V (3)43.3V (4)43.3V (5)43.7V (6)45.3V (7)45.3V (8)39.7V (9)39.2V
5	Input Capacitor Voltage	C5 220μF / 400V	I/P:High-Line +3V =303VV 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)399V (2)398V (3)399V (4) 389V
6	Control IC Voltage Test	PWM IC U900 Rated Absolute Rating: Self-limited Operating Range: 8.85 V ~ 16 V	I/P:High-Line +3V =303V V AC ON/OFF O/P(1)FULL LOAD	PWM IC (1) 15V PFC IC (1) 20.8V

		PFC IC U1 Rated Absolute Rating: -0.3 V ~ 26 V Operating Range: 12.9 V ~ 25 V	(2) Output Short (3)O.L.P (4)O.V.P. (5)NO LOAD VR MIN .LOW LINE Ta:25°C	(2) 14.6V (3) 14.2V (4) 14V (5) 14.2V	(2) 21V (3) 19.8V (4) 20.4V (5) 21.4V
7	TOP SWITCHING STAND BY POWER	U971 Rated : 700 V	I/P:High-Line +3V =303V V AC ON/OFF O/P: (1)Full Load (2)Remote On/Off Ta:25°C	(1) 553V (2) 564V	

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	I/P-O/P: 3KVAC/min I/P-FG :2KVAC/min O/P-FG:0.5KVAC/min	I/P-O/P: 3.6 KVAC/min I/P-FG: 2.4 KVAC/min O/P-FG:0.6 KVAC/min Ta:25°C	I/P-O/P:5.07mA I/P-FG:4.84mA O/P-FG:2.84mA 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: 500 VDC I/P-FG: 500 VDC O/P-FG: 500 VDC Ta:25°C	I/P-O/P: 7.45GΩ I/P-FG: 8.12GΩ O/P-FG:11.4 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	13mΩ

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN61000-3-2 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	EN55032 /EN55011 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	Test by certified Lab
3	RADIATION	EN55032 /EN55011 CLASS B	I/P : 230 VAC (50HZ) O/P : FULL LOAD Ta : 25°C	Test by certified Lab
4	E.S.D	EN61000-4-2 MEDICAL AIR: 8KV / Contact: 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
5	E.F.T	EN61000-4-4 MEDICAL INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	IEC61000-4-5 MEDICAL INDUSTRY L-N : 2KV L,N-PE : 4KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
7	Test by certified Lab & Test Report Prepare			

■ RELIABILITY TEST

ENVIRONMENT TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT																																																																																																																																																				
1	TEMPERATURE RISE TEST	MODEL : HRPG-1000-15 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 25 °C 2. HIGH AMBIENT BURN-IN : 1.5 HRS I/P : 230VAC O/P : FULL LOAD Ta= 50 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 25 °C</th><th>HIGH AMBIENT Ta= 50 °C</th></tr><tr><td>1</td><td>BD1</td><td>51.9°C</td><td>76.6°C</td></tr><tr><td>2</td><td>R6</td><td>52.8°C</td><td>77.5°C</td></tr><tr><td>3</td><td>Q1</td><td>43.7°C</td><td>69.2°C</td></tr><tr><td>4</td><td>U1</td><td>42.5°C</td><td>68.1°C</td></tr><tr><td>5</td><td>D5</td><td>41.3°C</td><td>66.8°C</td></tr><tr><td>6</td><td>D6</td><td>60.3°C</td><td>87.1°C</td></tr><tr><td>7</td><td>C6</td><td>37.6°C</td><td>62.8°C</td></tr><tr><td>8</td><td>D981</td><td>42.1°C</td><td>67.5°C</td></tr><tr><td>9</td><td>RY1</td><td>40.2°C</td><td>66.0°C</td></tr><tr><td>10</td><td>RG2</td><td>43.3°C</td><td>69.9°C</td></tr><tr><td>11</td><td>D431</td><td>49.0°C</td><td>74.4°C</td></tr><tr><td>12</td><td>C406</td><td>27.6°C</td><td>53.4°C</td></tr><tr><td>13</td><td>TSW4</td><td>35.4°C</td><td>61.1°C</td></tr><tr><td>14</td><td>L1</td><td>51.5°C</td><td>67.0°C</td></tr><tr><td>15</td><td>T951</td><td>39.8°C</td><td>63.9°C</td></tr><tr><td>16</td><td>C2</td><td>35.3°C</td><td>60.4°C</td></tr><tr><td>17</td><td>LF3</td><td>38.6°C</td><td>64.1°C</td></tr><tr><td>18</td><td>T1-1</td><td>50.4°C</td><td>75.9°C</td></tr><tr><td>19</td><td>T1-2</td><td>46.9°C</td><td>72.6°C</td></tr><tr><td>20</td><td>T2-1</td><td>61.1°C</td><td>87.7°C</td></tr><tr><td>21</td><td>T2-2</td><td>55.4°C</td><td>81.4°C</td></tr><tr><td>22</td><td>L900</td><td>44.7°C</td><td>69.8°C</td></tr><tr><td>23</td><td>Q910</td><td>61.4°C</td><td>91.1°C</td></tr><tr><td>24</td><td>C933</td><td>37.7°C</td><td>63.0°C</td></tr><tr><td>25</td><td>Q911</td><td>57.0°C</td><td>85.5°C</td></tr><tr><td>26</td><td>U900</td><td>32.3°C</td><td>57.9°C</td></tr><tr><td>27</td><td>C906</td><td>27.7°C</td><td>52.9°C</td></tr><tr><td>28</td><td>C106</td><td>40.5°C</td><td>66.6°C</td></tr><tr><td>29</td><td>C109</td><td>35.6°C</td><td>61.4°C</td></tr><tr><td>30</td><td>U501</td><td>57.6°C</td><td>83.7°C</td></tr><tr><td>31</td><td>Q502</td><td>63.6°C</td><td>90.7°C</td></tr><tr><td>32</td><td>Q504</td><td>52.2°C</td><td>78.5°C</td></tr><tr><td>33</td><td>U504</td><td>46.6°C</td><td>73.1°C</td></tr><tr><td>34</td><td>Q506</td><td>66.5°C</td><td>93.6°C</td></tr><tr><td>35</td><td>Q508</td><td>65.2°C</td><td>92.7°C</td></tr><tr><td>36</td><td>TSW3</td><td>32.1°C</td><td>57.9°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 50 °C	1	BD1	51.9°C	76.6°C	2	R6	52.8°C	77.5°C	3	Q1	43.7°C	69.2°C	4	U1	42.5°C	68.1°C	5	D5	41.3°C	66.8°C	6	D6	60.3°C	87.1°C	7	C6	37.6°C	62.8°C	8	D981	42.1°C	67.5°C	9	RY1	40.2°C	66.0°C	10	RG2	43.3°C	69.9°C	11	D431	49.0°C	74.4°C	12	C406	27.6°C	53.4°C	13	TSW4	35.4°C	61.1°C	14	L1	51.5°C	67.0°C	15	T951	39.8°C	63.9°C	16	C2	35.3°C	60.4°C	17	LF3	38.6°C	64.1°C	18	T1-1	50.4°C	75.9°C	19	T1-2	46.9°C	72.6°C	20	T2-1	61.1°C	87.7°C	21	T2-2	55.4°C	81.4°C	22	L900	44.7°C	69.8°C	23	Q910	61.4°C	91.1°C	24	C933	37.7°C	63.0°C	25	Q911	57.0°C	85.5°C	26	U900	32.3°C	57.9°C	27	C906	27.7°C	52.9°C	28	C106	40.5°C	66.6°C	29	C109	35.6°C	61.4°C	30	U501	57.6°C	83.7°C	31	Q502	63.6°C	90.7°C	32	Q504	52.2°C	78.5°C	33	U504	46.6°C	73.1°C	34	Q506	66.5°C	93.6°C	35	Q508	65.2°C	92.7°C	36	TSW3	32.1°C	57.9°C
NO	Position	ROOM AMBIENT Ta= 25 °C	HIGH AMBIENT Ta= 50 °C																																																																																																																																																					
1	BD1	51.9°C	76.6°C																																																																																																																																																					
2	R6	52.8°C	77.5°C																																																																																																																																																					
3	Q1	43.7°C	69.2°C																																																																																																																																																					
4	U1	42.5°C	68.1°C																																																																																																																																																					
5	D5	41.3°C	66.8°C																																																																																																																																																					
6	D6	60.3°C	87.1°C																																																																																																																																																					
7	C6	37.6°C	62.8°C																																																																																																																																																					
8	D981	42.1°C	67.5°C																																																																																																																																																					
9	RY1	40.2°C	66.0°C																																																																																																																																																					
10	RG2	43.3°C	69.9°C																																																																																																																																																					
11	D431	49.0°C	74.4°C																																																																																																																																																					
12	C406	27.6°C	53.4°C																																																																																																																																																					
13	TSW4	35.4°C	61.1°C																																																																																																																																																					
14	L1	51.5°C	67.0°C																																																																																																																																																					
15	T951	39.8°C	63.9°C																																																																																																																																																					
16	C2	35.3°C	60.4°C																																																																																																																																																					
17	LF3	38.6°C	64.1°C																																																																																																																																																					
18	T1-1	50.4°C	75.9°C																																																																																																																																																					
19	T1-2	46.9°C	72.6°C																																																																																																																																																					
20	T2-1	61.1°C	87.7°C																																																																																																																																																					
21	T2-2	55.4°C	81.4°C																																																																																																																																																					
22	L900	44.7°C	69.8°C																																																																																																																																																					
23	Q910	61.4°C	91.1°C																																																																																																																																																					
24	C933	37.7°C	63.0°C																																																																																																																																																					
25	Q911	57.0°C	85.5°C																																																																																																																																																					
26	U900	32.3°C	57.9°C																																																																																																																																																					
27	C906	27.7°C	52.9°C																																																																																																																																																					
28	C106	40.5°C	66.6°C																																																																																																																																																					
29	C109	35.6°C	61.4°C																																																																																																																																																					
30	U501	57.6°C	83.7°C																																																																																																																																																					
31	Q502	63.6°C	90.7°C																																																																																																																																																					
32	Q504	52.2°C	78.5°C																																																																																																																																																					
33	U504	46.6°C	73.1°C																																																																																																																																																					
34	Q506	66.5°C	93.6°C																																																																																																																																																					
35	Q508	65.2°C	92.7°C																																																																																																																																																					
36	TSW3	32.1°C	57.9°C																																																																																																																																																					
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 127 % LOAD Ta : 25°C	TEST : OK																																																																																																																																																				

3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230VAC/90VAC O/P : 100% /80% LOAD Ta= -45°C	TEST : OK
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 50 °C HUMIDITY= 90 %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	± 0.009 %/°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, 5G 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 : 6G (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) 1485023HRS (2) 128548HRS (3) 198531HRS (4) 262922HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 286.6K hrs min. Telcordia SR-332 (Bellcore) ; 105.8K hrs min. MIL-HDBK-217F (25°C)		
11	DMTBF/Accelerated Life Test	Demonstration Mean Time Between Failure (Expected Life): Above 50,000 hours @ TA 50°C		

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	DANIEL GAO	SANFORD SU	VINCENT TSENG

12.10.30 A50-F031