



Test Report: HRPG-1000N3-36

1000W Ultra-High Peak Power Supply

■ 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

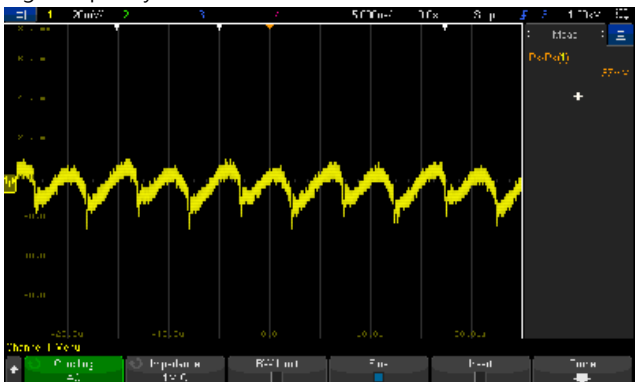
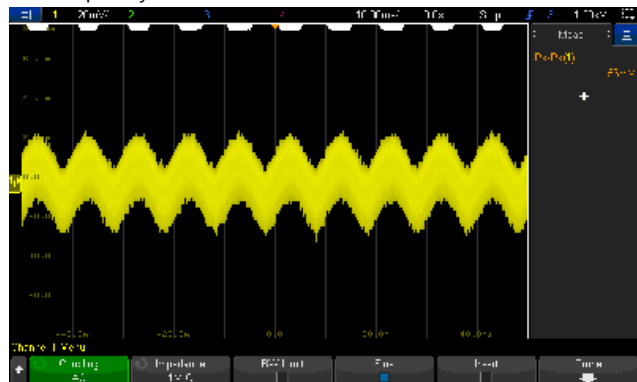
E.M.C. Test

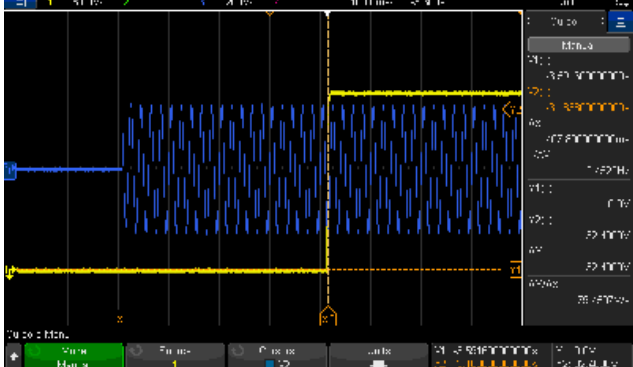
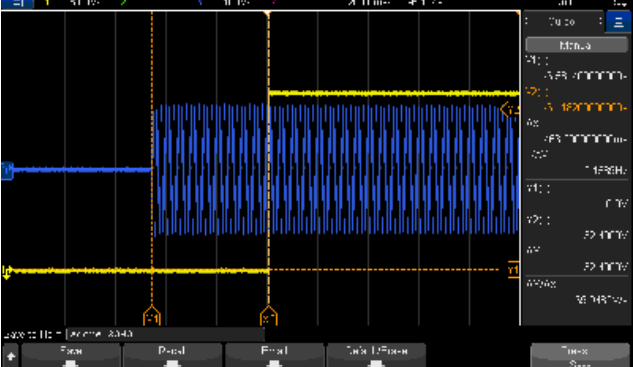
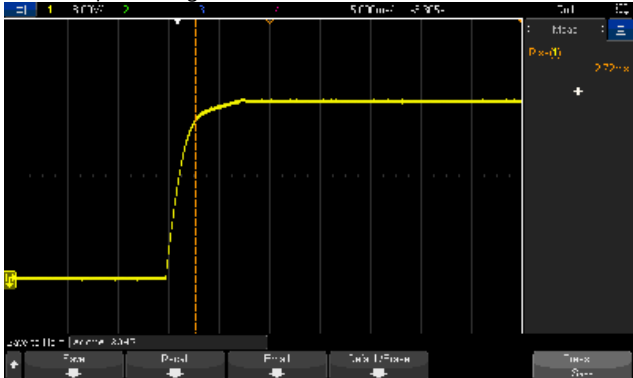
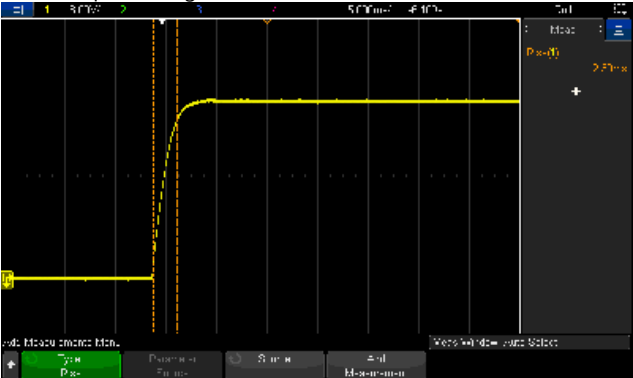
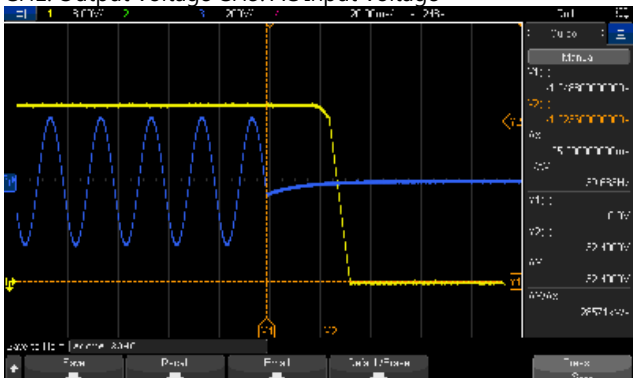
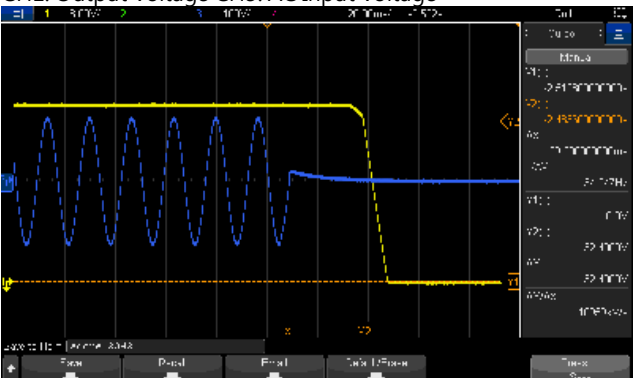
■ RELIABILITY TEST

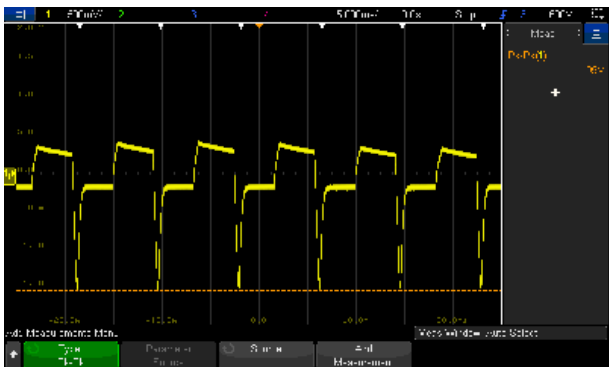
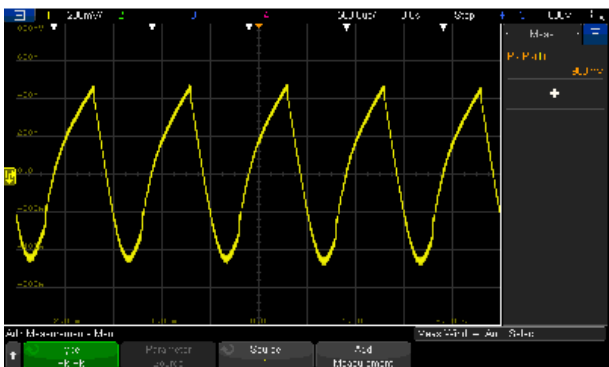
ENVIRONMENT TEST

DESIGN VERIFY TEST

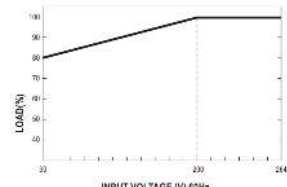
OUTPUT FUNCTION TEST

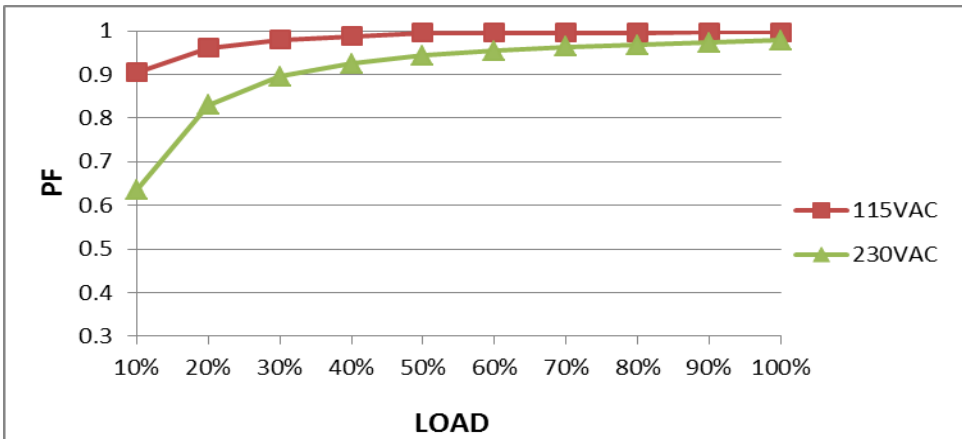
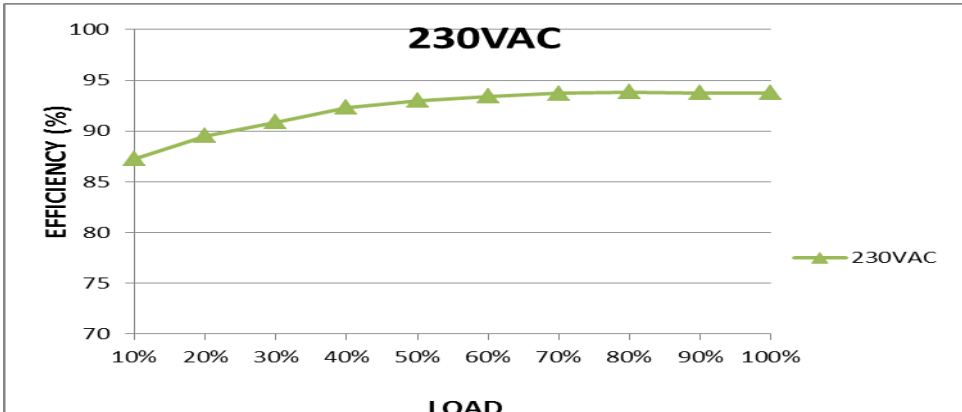
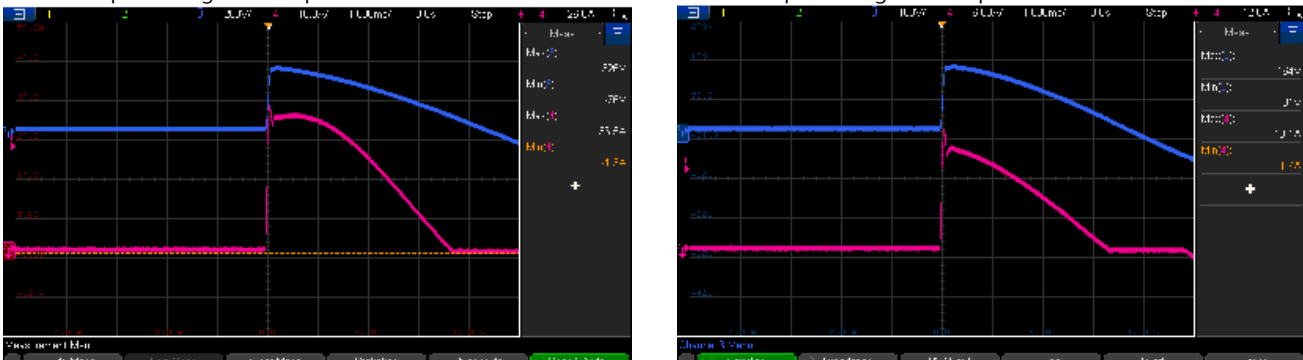
NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	OUTPUT VOLTAGE ADJUST RANGE	CH1: 32V~38V	I/P : 230 VAC I/P : 115 VAC O/P : MIN LOAD Ta : 25°C	30.101V~39.285V/230VAC 30.098V~39.283V/115VAC
2	OUTPUT VOLTAGE TOLERANCE	V1: -1.0%~1.0 %	I/P: 90VAC /264VAC O/P:FULL/ MIN. LOAD Ta:25°C	V1: -0.0167%~0.0916%
3	LINE REGULATION	V1: -0.5%~0.5 %	I/P: 90VAC~264VAC O/P:FULL LOAD Ta:25°C	V1: 0%~0.0056%
4	LOAD REGULATION	V1: -0.5%~0.5 %	I/P: 230VAC O/P:FULL ~MIN LOAD Ta:25°C	V1: -0.0167%~0.0916%
5	OVER/UNDERSHOOT TEST	<± 5%	I/P: 230VAC O/P:FULL LOAD Ta:25°C	1.6%
6	RIPPLE & NOISE (Max)	V1: 250mVp-p	I/P:230VAC O/P: FULL LOAD Ta:25°C	V1: 37mVp-p / high frequency 56mVp-p / low frequency
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/ 407.8ms 115VAC/ 463.2ms
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/50ms 115VAC/50ms	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	230VAC/ 2.72ms 115VAC/ 2.30ms
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/ 25.2ms 115VAC/ 29.2ms
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/0% LOAD 50%DUTY / 120HZ (2) FULL/0% LOAD 50%DUTY / 1KHZ Ta:25°C	1990mVp-p 960mVp-p

	FULL /0% LOAD 50%DUTY / 120HZ		FULL /0% LOAD 50%DUTY / 1KHZ	
				
11	TRANSIENT RECOVERY TIME	V1: 3600mVp-p <500us	I/P: 230VAC O/P:40% LOAD CHANGE 50%DUTY/120HZ 1.25A/us	790mVp-p 0us
12	PEAK LOAD	PEAK LOAD@5S	I/P: 264VAC I/P: 200VAC I/P: 100VAC O/P: PEAK LOAD	TEST : I/P: 264VAC OK I/P: 200VAC OK I/P: 100VAC OK

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	90VAC~264VAC (300VAC for 5 sec.) 127VDC~ 370VDC 	(1) I/P: TESTING O/P: FULL / 80% LOAD (2) I/P: DC TESTING (L: + N:-) O/P: FULL / 80% LOAD (3) I/P: DC TESTING (L: - N: +) O/P: FULL / 80% 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) 83.4V~264V/ FULL LOAD 83.2V~264V/ 80% LOAD (2) 117.6Vdc~370Vdc/FULL LOAD 117.6Vdc~370Vdc/80% LOAD (3) 117.6Vdc~370Vdc/FULL LOAD 117.6Vdc~370Vdc/80% LOAD TEST:OK
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P:90 VAC ~264 VAC O/P:FULL~MIN LOAD Ta:25°C	TEST: OK
3	INPUT CURRENT (Typ.)	230V/ 5 A 115V/ 8.5 A	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =4.7709A/ 230VAC I =8.2295A/ 115VAC
4	LEAKAGE CURRENT	< 1.2mA / 240 VAC	I/P : 240 VAC O/P : Min LOAD Ta : 25°C	0.814mA
5	NO LOAD CONSUMPTION	<0.85W@ RC OFF	I/P : 240VAC O/P : NO LOAD Ta : 25°C	0.6323W

6	POWER FACTOR (Typ.)	0.95/ 230VAC 0.99/115VAC	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	PF=0.9782/230VAC PF=0.9965/115VAC
	P.F vs LOAD 			
7	EFFICIENCY(Typ.)	93%	I/P:230 VAC O/P:FULL LOAD Ta:25°C	93.93 %
	EFFICIENCY vs LOAD 			
8	INRUSH CURRENT(Typ.)	230V/40A 115V/25A COLD START	I/P : 230 VAC I/P : 115 VAC O/P : FULL LOAD Ta : 25°C	I =36.5A/ 230VAC I =18.1A/ 115VAC T50= 2374us/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	Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover ; Output power >350% rated then shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 230VAC I/P: 200VAC O/P: TESTING Ta:25°C	>105%: 112.5%/ 264VAC 112.5%/ 230VAC 112.5%/200VAC >350% : 347.85%/ 264VAC 347.85%/ 230VAC 347.85%/200VAC PROTECTION TYPE : Output power >105% rated for more than 5 seconds then shut down o/p voltage, re-power on to recover ; Output power >350% rated then shut down o/p voltage, re-power on to recover
2	OVER VOLTAGE PROTECTION	39V~46V Protection type : Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 90VAC O/P: MIN LOAD Ta:25°C	42.70V/ 264VAC 42.70V/230VAC 42.70V/ 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 OK Protection type : Shut down o/p voltage, recovers automatically after temperature goes down
4	SHORT PROTECTION	SHORT EVERY OUTPUT 1 HOUR NO DAMAGE Shut down o/p voltage, re-power on to recover	I/P: 264VAC I/P: 90VAC O/P: FULL LOAD Ta:25°C	NO DAMAGE PROTECTION TYPE : Shut down o/p voltage, re-power on to recover

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT			
1	REMOTE ON/OFF CONTROL	Power ON: short; Power OFF: open.	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: OK			
2	REMOTE SENSE	S+ / S- The remote sensing compensates voltage drop on the load wiring up to 0.5V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	TEST: OK			
3	DC-OK SIGNAL	The TTL signal out, PSU turn on = 3.3 ~ 5.6V ; PSU turn off = 0 ~ 1V	I/P: 230 VAC O/P:FULL LOAD Ta:25°C	PSU turn on = 4.7728V; PSU turn off = 0.1386V			
4	5V STANDBY	5VSB: 5V@0.3A; tolerance $\pm 5\%$, ripple:50mVp-p(max.)	I/P: 230 VAC O/P:TESTING Ta:25°C	TOLERANCE	RIPPLE		
				-0.6214%~ 0.441%	10mVp-p		
5	FAN ON/OFF CONTROL	Fan on/off by NTC(RT50) or 30% load min	I/P: 230 VAC O/P:TESTING		By NTC	LOAD (%)	
				FAN ON	OK	19.1	
6	CURRENT SHARING	Up to 4000W or (3+1) units.	I/P: 230 VAC O/P: (The rated current per unit) x (Number of unit) x 0.9 Ta:25°C	TEST: OK			

COMPONENT STRESS TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	
1	PWM Transistor (D to S) or (C to E) Peak Voltage	Q910 / Q911 Rated : 66A/ 600V	AC ON/OFF I/P: High-Line =300V 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. (8) Peak Load Ta:25°C	Q910 VDS: (1) 470V (2) 466V (3) 470V (4) 470V (5) 474V (6) 470V (7) 474V (8) 474V	Q911 VDS: (1) 470V (2) 466V (3) 466V (4) 466V (5) 466V (6) 466V (7) 474V (8) 470V

2	P.F.C Transistor (D to S) or (C to E) Peak Voltage	Q1 Rated : 73 A/ 600V	AC ON/OFF I/P: High-Line =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. (8) Peak Load Ta:25°C	Q1 VDS: (1) 483V (2) 466V (3) 483V (4) 483V (5) 483V (6) 483V (7) 479V (8) 483V
3	P.F.C DIODE	D6 Rated: 20 A/ 650 V	I/P: High-Line =300 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 (5) Peak Load Ta:25°C	(1) 414V (2) 410V (3) 414V (4) 414V (5) 410V
4	AUX MOS	U971 Rated: 1.8 A/700V	AC ON/OFF I/P: High-Line =300V 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. (8) Peak Load Ta:25°C	VDS: (1) 630V (2) 634V (3) 626V (4) 630V (5) 630V (6) 626V (7) 622V (8) 630V
5	Diode Peak Voltage	Q501/Q503/ Q505/Q507 Rated : 99A/ 120V	AC ON/OFF I/P: High-Line =300 V Vo=Vmax O/P: (1)Full Load (2)Output Short (3) Dynamic Load Full Load/ Min. Load 90%Duty/1KHz	Q501: Vo=Vmax Q503: Vo=Vmax VDS: VDS: (1) 102V (1) 102.0V (2) 113.3V (2) 104.4V (3) 102V (3) 102.0V (4) 101.2V (4) 102.0V

			(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 (10) Peak Load Vo=Vnormal O/P: (1) Full Load Ta:25°C	(5) 102.0V (6) 101.2V (7) 112.9V (8) 98.8V (9) 100.4V (10) 111.7V Vo=Vnormal (1) 100.4V Q505: Vo=Vmax VDS: (1) 100.9V (2) 109.0V (3) 100.1V (4) 100.1V (5) 100.1V (6) 100.9V (7) 112.0V (8) 97.7V (9) 99.3V (10) 111.2V Vo=Vnormal (1) 99.3V	(5) 102.0V (6) 102.0V (7) 113.2V (8) 98.8V (9) 100.4V (10) 112.4V Vo=Vnormal (1) 99.6V Q507: Vo=Vmax VDS: (1) 101.5V (2) 105.6V (3) 101.5V (4) 101.5V (5) 101.5V (6) 100.7V (7) 112.4V (8) 100.7V (9) 100.7V (10) 111.6V Vo=Vnormal (1) 99.9V
6	Input Capacitor Voltage	C5 Rated : 270 μ / 420V	I/P: High-Line =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 (5) Peak Load on/off (3200W) (6) Peak Load continue (3200W) Ta:25°C	(1) 390V (2) 406V (3) 398V (4) 390V (5) 406V (6) 410V	
7	Control IC Voltage Test	PFC IC U1 : Rated: 12V~25V PWM IC U900 : Rated: 8.9 V~15.5V AUX PWM IC U971 : Rated : 15V~ 32V	AC ON/OFF I/P: High-Line =300 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) 21.0V (2) 20.6V (3) 20.4V (4) 18.5V (5) 19.8V U900 (1) 14.30V (2) 14.30V (3) 14.30V (4) 14.30V (5) 14.10V	U971 (1) 21.4V (2) 24.2V (3) 21.4V (4) 20.8V (5) 19.8V

■ SAFETY& E.M.C. TEST

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: 4.55 mA I/P-FG: 4.03 mA O/P-FG: 2.626 mA 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: 600 VDC I/P-FG: 600 VDC O/P-FG: 600 VDC Ta:25°C	I/P-O/P: 50 GΩ I/P-FG: 28 GΩ O/P-FG: 50 GΩ NO DAMAGE
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40A / 2min Ta:25°C	10mΩ

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) CLASS B	I/P : 230 VAC (50HZ) O/P : FULL/50% LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	BS EN/ EN55032 (CISPR32) CLASS B	I/P : 230 VAC (50HZ) O/P : FULL 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
5	E.F.T	BS EN/ EN61000-4-4 INDUSTRY INPUT : 2KV	I/P : 230 VAC/50HZ O/P : FULL LOAD Ta : 25°C	CRITERIA A
6	SURGE	BS EN/ EN61000-4-5 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 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 : HRP-1000N3-24 1. ROOM AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 26.8 °C 2. HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta= 60.9 °C <table><tr><th>NO</th><th>Position</th><th>ROOM AMBIENT Ta= 26.8 °C</th><th>HIGH AMBIENT Ta= 60.9 °C</th></tr><tr><td>1</td><td>RTH3</td><td>42.8°C</td><td>76.9°C</td></tr><tr><td>2</td><td>LF2</td><td>42.2°C</td><td>77°C</td></tr><tr><td>3</td><td>C1</td><td>34°C</td><td>69.2°C</td></tr><tr><td>4</td><td>ZNR1</td><td>31°C</td><td>65.8°C</td></tr><tr><td>5</td><td>LF1</td><td>40.4°C</td><td>76°C</td></tr><tr><td>6</td><td>L900</td><td>54°C</td><td>87.7°C</td></tr><tr><td>7</td><td>Q910</td><td>55°C</td><td>91.8°C</td></tr><tr><td>8</td><td>Q911</td><td>50.5°C</td><td>86.6°C</td></tr><tr><td>9</td><td>C950</td><td>37.2°C</td><td>72°C</td></tr><tr><td>10</td><td>C11</td><td>41.5°C</td><td>75.7°C</td></tr><tr><td>11</td><td>BD1</td><td>47.7°C</td><td>81°C</td></tr><tr><td>12</td><td>Q1</td><td>38.9°C</td><td>73.3°C</td></tr><tr><td>13</td><td>Q2</td><td>37.3°C</td><td>71.6°C</td></tr><tr><td>14</td><td>TSW4</td><td>33.9°C</td><td>68.3°C</td></tr><tr><td>15</td><td>L1</td><td>54°C</td><td>86.8°C</td></tr><tr><td>16</td><td>C6</td><td>37.3°C</td><td>70.9°C</td></tr><tr><td>17</td><td>T2coil</td><td>66.7°C</td><td>99.2°C</td></tr><tr><td>18</td><td>T2core</td><td>53.1°C</td><td>85.1°C</td></tr><tr><td>19</td><td>D935</td><td>34.7°C</td><td>64.7°C</td></tr><tr><td>20</td><td>T1coil</td><td>66°C</td><td>99.9°C</td></tr><tr><td>21</td><td>T1core</td><td>52.4°C</td><td>84.3°C</td></tr><tr><td>22</td><td>D6</td><td>43.1°C</td><td>77.6°C</td></tr><tr><td>23</td><td>Q508</td><td>43.1°C</td><td>76.8°C</td></tr><tr><td>24</td><td>Q505</td><td>45.8°C</td><td>80.7°C</td></tr><tr><td>25</td><td>RT50</td><td>42.4°C</td><td>78°C</td></tr><tr><td>26</td><td>Q504</td><td>45.9°C</td><td>70.5°C</td></tr><tr><td>27</td><td>Q502</td><td>44.9°C</td><td>79.2°C</td></tr><tr><td>28</td><td>TSW3</td><td>36.7°C</td><td>71.8°C</td></tr><tr><td>29</td><td>U502</td><td>44.8°C</td><td>79.6°C</td></tr></table>			NO	Position	ROOM AMBIENT Ta= 26.8 °C	HIGH AMBIENT Ta= 60.9 °C	1	RTH3	42.8°C	76.9°C	2	LF2	42.2°C	77°C	3	C1	34°C	69.2°C	4	ZNR1	31°C	65.8°C	5	LF1	40.4°C	76°C	6	L900	54°C	87.7°C	7	Q910	55°C	91.8°C	8	Q911	50.5°C	86.6°C	9	C950	37.2°C	72°C	10	C11	41.5°C	75.7°C	11	BD1	47.7°C	81°C	12	Q1	38.9°C	73.3°C	13	Q2	37.3°C	71.6°C	14	TSW4	33.9°C	68.3°C	15	L1	54°C	86.8°C	16	C6	37.3°C	70.9°C	17	T2coil	66.7°C	99.2°C	18	T2core	53.1°C	85.1°C	19	D935	34.7°C	64.7°C	20	T1coil	66°C	99.9°C	21	T1core	52.4°C	84.3°C	22	D6	43.1°C	77.6°C	23	Q508	43.1°C	76.8°C	24	Q505	45.8°C	80.7°C	25	RT50	42.4°C	78°C	26	Q504	45.9°C	70.5°C	27	Q502	44.9°C	79.2°C	28	TSW3	36.7°C	71.8°C	29	U502	44.8°C	79.6°C
NO	Position	ROOM AMBIENT Ta= 26.8 °C	HIGH AMBIENT Ta= 60.9 °C																																																																																																																									
1	RTH3	42.8°C	76.9°C																																																																																																																									
2	LF2	42.2°C	77°C																																																																																																																									
3	C1	34°C	69.2°C																																																																																																																									
4	ZNR1	31°C	65.8°C																																																																																																																									
5	LF1	40.4°C	76°C																																																																																																																									
6	L900	54°C	87.7°C																																																																																																																									
7	Q910	55°C	91.8°C																																																																																																																									
8	Q911	50.5°C	86.6°C																																																																																																																									
9	C950	37.2°C	72°C																																																																																																																									
10	C11	41.5°C	75.7°C																																																																																																																									
11	BD1	47.7°C	81°C																																																																																																																									
12	Q1	38.9°C	73.3°C																																																																																																																									
13	Q2	37.3°C	71.6°C																																																																																																																									
14	TSW4	33.9°C	68.3°C																																																																																																																									
15	L1	54°C	86.8°C																																																																																																																									
16	C6	37.3°C	70.9°C																																																																																																																									
17	T2coil	66.7°C	99.2°C																																																																																																																									
18	T2core	53.1°C	85.1°C																																																																																																																									
19	D935	34.7°C	64.7°C																																																																																																																									
20	T1coil	66°C	99.9°C																																																																																																																									
21	T1core	52.4°C	84.3°C																																																																																																																									
22	D6	43.1°C	77.6°C																																																																																																																									
23	Q508	43.1°C	76.8°C																																																																																																																									
24	Q505	45.8°C	80.7°C																																																																																																																									
25	RT50	42.4°C	78°C																																																																																																																									
26	Q504	45.9°C	70.5°C																																																																																																																									
27	Q502	44.9°C	79.2°C																																																																																																																									
28	TSW3	36.7°C	71.8°C																																																																																																																									
29	U502	44.8°C	79.6°C																																																																																																																									

		<table><tr><td>30</td><td>U503</td><td>46.9℃</td><td>81.4℃</td></tr><tr><td>31</td><td>C108</td><td>34.7℃</td><td>69.2℃</td></tr><tr><td>32</td><td>C107</td><td>36.6℃</td><td>71.5℃</td></tr><tr><td>33</td><td>J101</td><td>36.1℃</td><td>70.8℃</td></tr><tr><td>34</td><td>R6</td><td>45.7℃</td><td>79.6℃</td></tr><tr><td>35</td><td>U1</td><td>40.2℃</td><td>71.7℃</td></tr><tr><td>36</td><td>Q914</td><td>42.4℃</td><td>77.1℃</td></tr><tr><td>37</td><td>D240</td><td>37.7℃</td><td>70.5℃</td></tr><tr><td>38</td><td>U971</td><td>48.2℃</td><td>81.6℃</td></tr><tr><td>39</td><td>T951</td><td>48.4℃</td><td>82.2℃</td></tr><tr><td>40</td><td>RG2</td><td>43.5℃</td><td>78.6℃</td></tr><tr><td>41</td><td>U900</td><td>32.4℃</td><td>67.5℃</td></tr><tr><td>42</td><td>U903</td><td>28.3℃</td><td>63℃</td></tr><tr><td>43</td><td>R977</td><td>64.1℃</td><td>97.5℃</td></tr><tr><td>44</td><td>U202</td><td>27.8℃</td><td>62.4℃</td></tr><tr><td>45</td><td>D431</td><td>51.9℃</td><td>84.5℃</td></tr><tr><td>46</td><td>C115</td><td>29.2℃</td><td>63.8℃</td></tr><tr><td>47</td><td>C113</td><td>29.6℃</td><td>64.3℃</td></tr><tr><td>48</td><td>C112</td><td>31.2℃</td><td>65.9℃</td></tr><tr><td>49</td><td>R504</td><td>44.7℃</td><td>78.3℃</td></tr></table>				30	U503	46.9℃	81.4℃	31	C108	34.7℃	69.2℃	32	C107	36.6℃	71.5℃	33	J101	36.1℃	70.8℃	34	R6	45.7℃	79.6℃	35	U1	40.2℃	71.7℃	36	Q914	42.4℃	77.1℃	37	D240	37.7℃	70.5℃	38	U971	48.2℃	81.6℃	39	T951	48.4℃	82.2℃	40	RG2	43.5℃	78.6℃	41	U900	32.4℃	67.5℃	42	U903	28.3℃	63℃	43	R977	64.1℃	97.5℃	44	U202	27.8℃	62.4℃	45	D431	51.9℃	84.5℃	46	C115	29.2℃	63.8℃	47	C113	29.6℃	64.3℃	48	C112	31.2℃	65.9℃	49	R504	44.7℃	78.3℃
30	U503	46.9℃	81.4℃																																																																																		
31	C108	34.7℃	69.2℃																																																																																		
32	C107	36.6℃	71.5℃																																																																																		
33	J101	36.1℃	70.8℃																																																																																		
34	R6	45.7℃	79.6℃																																																																																		
35	U1	40.2℃	71.7℃																																																																																		
36	Q914	42.4℃	77.1℃																																																																																		
37	D240	37.7℃	70.5℃																																																																																		
38	U971	48.2℃	81.6℃																																																																																		
39	T951	48.4℃	82.2℃																																																																																		
40	RG2	43.5℃	78.6℃																																																																																		
41	U900	32.4℃	67.5℃																																																																																		
42	U903	28.3℃	63℃																																																																																		
43	R977	64.1℃	97.5℃																																																																																		
44	U202	27.8℃	62.4℃																																																																																		
45	D431	51.9℃	84.5℃																																																																																		
46	C115	29.2℃	63.8℃																																																																																		
47	C113	29.6℃	64.3℃																																																																																		
48	C112	31.2℃	65.9℃																																																																																		
49	R504	44.7℃	78.3℃																																																																																		
2	OVER LOAD BURN-IN TEST	NO DAMAGE 1 HOUR (MIN)	I/P : 230 VAC O/P : 108%LOAD Ta : 25℃	TEST : OK																																																																																	
3	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 264VAC/200VAC O/P : 100 %LOAD Ta= -45℃	TEST : OK																																																																																	
4	HIGH HUMIDITY HIGH TEMPERATURE HIGH VOLTAGE TURN ON TEST	AFTER 12 HOURS IN CHAMBER ON CONTROL 60 °C/95 %R.H NO DAMAGE	I/P : 272 VAC O/P : FULL LOAD Ta= 59.4 °C HUMIDITY= 95 %R.H	TEST : OK																																																																																	
5	TEMPERATURE COEFFICIENT	± 0.03%/°C(0~50℃)	I/P : 230 VAC O/P : FULL LOAD	0.02%/°C(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	-40~60℃	1. Thermal shock Temperature : -45℃~ +65℃ 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, 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 C107 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= 60 °C LIFE TIME (3) I/P : 230VAC O/P : 75% LOAD Ta= 60 °C LIFE TIME (4) I/P : 230VAC O/P : 50% LOAD Ta= 60 °C LIFE TIME	(1) 1575336.8HRS (2) 131730.4HRS (3) 187927.8HRS (4) 228149.2HRS
10	MTBF	Conducted by Parts Stress Analysis Prediction 989.2K hrs min. Telcordia SR-332 (Bellcore) ; 130.6K 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 : 50,000 hours	

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Yuwei	Liutt	Wangdz

2020.10.1 TAG-QA-009