Test Report: RKP-6K1U-48

2000~6000W Front End Power System

■ 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	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	MAX. OUTPUT CURRENT	126A	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	126A	P
2	MAX. OUTPUT POWER	6048W	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	6048W	P

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	INPUT VOLTAGE RANGE	180VAC~264 VAC	I/P：TESTING O/P：FULL LOAD Ta：25℃	154V~264V	P
			I/P： LOW-LINE-3V= 177V HIGH-LINE+15%=300 V O/P：FULL/MIN LOAD ON： 30 Sec . OFF： 30 Sec 10MIN (AC POWER ON/OFF NO DAMAGE)	TEST： OK	
2	INPUT FREQUENCY RANGE	47HZ ~63 HZ NO DAMAGE	I/P：180VAC ~ 264 VAC O/P：FULL~MIN LOAD Ta：25℃	TEST： OK	P
3	INPUT CURRENT(Typ.) FOR EACH UNIT	230V/ 7 A (TYP) 115V/ 13 A (TYP)	I/P： 230 VAC I/P： 115 VAC O/P：FULL LOAD Ta：25℃	S.P.S1：9.637A/ 230VAC 15.663A/ 115VAC S.P.S2：9.634A/ 230VAC 15.639A/ 115VAC S.P.S3：9.687A/ 230VAC 15.772A/ 115VAC	P
4	LEAKAGE CURRENT	< 3.5 mA / 230 VAC	I/P： 264 VAC O/P：Min LOAD Ta：25℃	L-FG： 2 mA N-FG： 1.8 mA	P

CONTROL FUNCTION TEST

NO	TEST ITEM	SPECICATION	TEST CONDITION	RESULT	VERDICT
1	AUXILIARY POWER (AUX)	5V@0.3A(4.4~5.5V) 12V@0.8A(10.8~13.2V)	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	5.291V /0.3A 12.682V/0.8A	P
2	REMOTE ON/OFFCONTROL	Rc+ / Rc- ON/OFF&- S SHORTS POWER ON ON/OFF&- S OPEN POWER OFF	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	S.P.S1:SHORT POWER ON OK OPEN POWER OFF OK S.P.S2: SHORT POWER ON OK OPEN POWER OFF OK S.P.S3: SHORT POWER ON OK OPEN POWER OFF OK	P
3	REMOTE SENSE	S+ / S- >0.5V	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	➢ 0.5 V	P
4	DC OK SIGNAL DC NG SIGNAL	HIGH:VOUT≦75%Vout LOW:VOUT≧85%Vout	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	S.P.S1: HIGH : 5.294V LOW: 0V S.P.S2: HIGH : 5.287V LOW: 0V S.P.S3: HIGH : 5.288V LOW: 0V	P
5	AC OK SIGNAL AC FAIL SIGNAL	AC OK ≥ 87V AC FAIL ≤ 75V	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	AC ≥87V： 0 V AC ≤ 75V： 5.31 V	P
6	OUTPUT VOLTAGE TRIM	DC=0.5V Vo/p=100%±3% DC=1.5V Vo/p=90%±3% DC=3V Vo/p=100%±3% DC=4.5V Vo/p=110%±3%	I/P: 230 VAC O/P:FULL LOAD Ta:25℃	Vo = 98.3% Vo= 88.08% Vo= 98.58% Vo= 108.3%	P
7	OVER TEMP WARNING	LOW：SW SHORT 0V~0.5V HIGH：SW OPEN 4.5V~5.5V	I/P: 230 VAC O/P:FULL LOAD Ta:TEST	S.P.S1: HIGH : 5.316V LOW: 0V S.P.S2: HIGH : 5.314V LOW: 0V S.P.S3: HIGH : 5.313V LOW: 0V	P
8	FAN FAIL SIGNAL	FAN FAIL	I/P: 230 VAC O/P:FULL LOAD	S.P.S1:HIGH FAN FAIL: 5.299V LOW FAN NORMAL 0V S.P.S2: HIGH FAN FAIL: 5.294V LOW FAN NORMAL 0V S.P.S3: HIGH FAN FAIL:5.294V LOW FAN NORMAL 0V	P
9	CURRENT SHARING	RACK1-RACK2 –RACK3< 10%	I/P： 230 VAC O/P：FULL/50% LOAD Ta：25℃	O/P：100% RACK1 PIN W：6574 W RACK2 PIN W：6514 W RACK3 PIN W：6638 W O/P：50% RACK 1 PIN W：3307 W RACK 2 PIN W：3240 W RACK 3 PIN W：3255 W	p

■ SAFETY & E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	WITHSTAND VOLTAGE	I/P-O/P： 3 KVAC/min I/P-FG： 1.5 KVAC/min O/P-FG： 0.7 KVDC/min	I/P-O/P： 3.6 KVAC/min I/P-FG： 1.8 KVAC/min O/P-FG： 0.84 KVDC/min Ta：25℃	I/P-O/P： 33.59 mA I/P-FG： 25.64 mA O/P-FG： 0.002 mA NO DAMAGE	P
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℃/70%RH	I/P-O/P： 9.39 GΩ I/P-FG： 11.6 GΩ O/P-FG： 9.48 GΩ NO DAMAGE	P
3	GROUNDING CONTINUITY	FG(PE) TO CHASSIS OR TRACE < 100 mΩ	40 A / 2min Ta：25℃ / 70%RH	10 mΩ	P

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT	VERDICT
1	HARMONIC	EN61000-3-2 CLASS A CLASS D	I/P: 220/230/240 VAC/50HZ O/P:100%75%50%25% LOAD Ta:25℃	PASS	P
2	CONDUCTION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL/50% LOAD Ta:25℃	PASS Test by certified Lab	P
3	RADIATION	EN55022 CLASS B	I/P: 230 VAC (50HZ) O/P:FULL LOAD Ta:25℃	PASS Test by certified Lab	P
4	E.S.D	EN61000-4-2 INDUSTRY AIR:8KV / Contact:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
5	E.F.T	EN61000-4-4 INDUSTRY INPUT: 2KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
6	SURGE	IEC61000-4-5 INDUSTRY L-N :2KV L,N-PE:4KV	I/P: 230 VAC/50HZ O/P:FULL LOAD Ta:25℃	CRITERIA A	P
7	Test by certified Lab & Test Report Prepare				

■ RELIABILITY TEST

ENVIRONMENT TEST

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th><th>VERDICT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL： RKP-6K1U-48
1. HIGH AMBIENT BURN-IN：5 HRS
I/P： 230VAC O/P： FULL LOAD Ta= 38.2 ℃

<table>
<tr><th>NO</th><th>Position</th><th>PART NUMBER</th><th>HIGH AMBIENT
Ta= 38.2℃</th></tr>
<tr><td>1</td><td>LF2</td><td>TR807</td><td>51.8℃</td></tr>
<tr><td>2</td><td>BD2</td><td>30A/800V SILICON US30KB80R</td><td>64.8℃</td></tr>
<tr><td>3</td><td>L2</td><td>TR931</td><td>46.1℃</td></tr>
<tr><td>4</td><td>T601</td><td>TR624</td><td>41.5℃</td></tr>
<tr><td>5</td><td>L1</td><td>TR931</td><td>45.8℃</td></tr>
<tr><td>6</td><td>T600</td><td>TR624</td><td>38.3℃</td></tr>
<tr><td>7</td><td>Q603</td><td>STP30N65M5 22A/650V TO220</td><td>50.3℃</td></tr>
<tr><td>8</td><td>D610</td><td>STPSC806D 8A/600V TO220</td><td>52.4℃</td></tr>
<tr><td>9</td><td>Q601</td><td>STP30N65M5 22A/650V TO220</td><td>44.3℃</td></tr>
<tr><td>10</td><td>C5</td><td>330u/400V 105℃ 30*30 VXH</td><td>49.5℃</td></tr>
<tr><td>11</td><td>Q901</td><td>FCP22N60N 22A/600V TO220</td><td>61.1℃</td></tr>
<tr><td>12</td><td>Q902</td><td>FCP22N60N 22A/600V TO220</td><td>67.7℃</td></tr>
<tr><td>13</td><td>U1</td><td>TOP256EN</td><td>49.6℃</td></tr>
<tr><td>14</td><td>C73</td><td>47u/25V L5Kh 5*11 KY</td><td>49.1℃</td></tr>
<tr><td>15</td><td>C75</td><td>470u/25V UL7Kh 8*20 KY</td><td>47.9℃</td></tr>
<tr><td>16</td><td>RG300</td><td>L7805CV 1.0A/5V TO220</td><td>51.6℃</td></tr>
<tr><td>17</td><td>C320</td><td>470u/25V UL7Kh 8*20 KY</td><td>51.5℃</td></tr>
<tr><td>18</td><td>C301</td><td>1500u/16V UL10Kh 10*20 ZLH</td><td>50.9℃</td></tr>
<tr><td>19</td><td>C325</td><td>100u/25V L5Kh 6.3*11 KY</td><td>51.1℃</td></tr>
<tr><td>20</td><td>L100</td><td>TF2099</td><td>66.3℃</td></tr>
<tr><td>21</td><td>C110</td><td>470u/63V L10Kh 12.5*30 KY</td><td>54.9℃</td></tr>
<tr><td>22</td><td>C113</td><td>470u/63V L10Kh 12.5*30 KY</td><td>54.1℃</td></tr>
<tr><td>23</td><td>C551</td><td>1000u/16V UL10Kh 10*16 ZLH</td><td>41.2℃</td></tr>
<tr><td>24</td><td>T1</td><td>TF2095</td><td>61.2℃</td></tr>
<tr><td>25</td><td>T2</td><td>TF2096</td><td>69.6℃</td></tr>
<tr><td>26</td><td>Q100</td><td>IRFB4227PbF 65A/200V</td><td>47.6℃</td></tr>
<tr><td>27</td><td>Q104</td><td>IRFB4227PbF 65A/200V</td><td>56.7℃</td></tr>
<tr><td>28</td><td>D110</td><td>YA868C15RSC 30A/150V</td><td>59.9℃</td></tr>
<tr><td>29</td><td>TSW80</td><td>ST-22W-R0 70℃ 100mm</td><td>49.1℃</td></tr>
<tr><td>30</td><td>TSW81</td><td>ST-22W-R0 85℃ 55mm</td><td>53.2℃</td></tr>
<tr><td>31</td><td>U2</td><td>PWM UCC28220D</td><td>51.7℃</td></tr>
</table></td><td>P</td></tr>
<tr><td>2</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 264VAC/180VAC
O/P： 100 % LOAD
Ta= -40 ℃/-25℃</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>3</td><td>HIGH HUMIDITY
HIGH TEMPERATURE
HIGH VOLTAGE
TURN ON TEST</td><td>AFTER 12 HOURS
IN CHAMBER ON
CONTROL 50 ℃
NO DAMAGE</td><td>I/P： 272 VAC
O/P：FULL LOAD
Ta= 50 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td><td>P</td></tr>
<tr><td>4</td><td>TEMPERATURE
COEFFICIENT</td><td>± 0.03 %/℃ (0~50℃)</td><td>I/P： 230 VAC
O/P：FULL LOAD</td><td>± 0.008 %/℃ (0~50℃)</td><td>P</td></tr>
</table>

5	STORAGE TEMPERATURE TEST	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：5 CYCLE 5. Input/Output condition： STATIC	OK	P
6	THERMAL SHOCK TEST	1. Thermal shock Temperature： -35℃~ +55℃ 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： 230VAC/Full Load AC ON/OFF TEST turn on 58sec；turn off 2sec	OK	P
7	VIBRATION TEST	1 Carton & 1 Set (1) Waveform： Sine Wave (2) Frequency：10~500Hz (3) Sweep Time：12min/sweep cycle (4) Acceleration：2G (5) Test Time：60min in each axis (X.Y.Z) (6) Ta：25℃	TEST：OK	P
8	CAPACITOR LIFE CYCLE	RCP-2000-48 SUPPOSE C110 IS THE MOST CRITICAL COMPONENT (1) I/P： 230VAC O/P：FULL LOAD Ta= 25 ℃ LIFE TIME (2) I/P： 230VAC O/P：FULL LOAD Ta= 50 ℃ LIFE TIME (3) I/P： 230VAC O/P：75% LOAD Ta= 50 ℃ LIFE TIME (4) I/P： 230VAC O/P：50% LOAD Ta= 50 ℃ LIFE TIME	(1) 1013149 HRS (2) 154865 HRS (3) 253317 HRS (4) 309610HRS	P

DATE	SAMPLE	TEST RESULT	TESTER	APPROVAL
2010/12/16	RD SAMPLE	PASS	SANFORD SU	VINCENT TSENG

■ 12.10.30 A50-F031