Test Report: ES-SU3K

3000VA On line UPS

■ DESIGN VERIFY TEST

Output Function Test
Input Function Test
Protection Function Test
Control Function Test
Component Stress Test

■ E.M.C. 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	V: -1% ~ +1%	I/P: Line mode bat mode O/P: 220VAC for Line mode 220VAC for bat mode 230VAC for Line mode 230VAC for bat mode 240VAC for Line mode 240VAC foe bat mode FULL~ MIN. LOAD Ta:25℃	output 230V: Line mode： No load: 229.9V Full load 229.7V Bat mode： No load: 230.1V Full load: 230.0V Output 220V: Line mode： No load: 219.7V Full load: 219.3V Bat mode： No load: 219.6V Full load: 219.1V Output 240V: Line mode： No load: 239.9V Full load: 238.9V Bat mode： No load: 240.1V Full load: 239.6V
2	FREQUEMCY (BAT MODE)	50Hz±0.1Hz for 50HZ 60Hz±0.1Hz for 60HZ	I/P: bat mode O/P: 230VAC 50HZ/60HZ for FULL LOAD Ta:25℃	50.0HZ @50Hz setting 60.0HZ @60Hz setting
3	FREQUENCY (ONLINE MODE SYNC RANGE FOR NORMAL OPERATION)	50Hz±4Hz for 50HZ 60Hz±4Hz for 60HZ	I/P: 230VAC 50±4HZ 240VAC 60±4HZ O/P: Min load Ta:25℃	50.0HZ@50Hz setting 60.0HZ@60Hz setting The output frequency is synchronized to the input line.
4	FREQUENCY (ON LINE MODE FOR FREQUENCY CONVERTER OPERATION)	50Hz±0.1Hz for 50HZ 60Hz±0.1Hz for 60HZ	I/P: 230VAC 46~54HZ 240VAC 56~64HZ O/P: 230VAC50HZ/60HZfor FULL LOAD Ta:25℃	50.0 Hz @50Hz setting 60.0 Hz @60Hz setting

5	THD	≤2% @ full linear load ≤5% @Non linear load	I/P: 230VAC 50HZ O/P: 230VAC 50HZ for FULL LOAD	Oline Mode: 0.683% @ full linear load 1.015 % @ Non linear load Bat Mode: 0.589% @ full linear load 0.842% @ Non linear load
6	LOAD CAPABILITY	105% <Load ≤ 125% transfer to bypass after 10 min (+/- 4s); 125% < Load ≤ 150% Warning, transfer to bypass mode after 60s (+/- 4s); 150% <Load immediately	I/P: 230VAC 50HZ O/P: Ta:25℃	601.22s @110.8% load 60.54s @135.1% load 0s @153.0% load
7	EFFICIENCY	94% online model 91% bat model	I/P: 230VAC 50HZ 240VAC 60HZ O/P: Full load Ta:25℃	online model: 94.6%@230VAC 50HZ 94.4%@240VAC 60HZ bat model: 92.6%@230VAC 50HZ 92.5%@240VAC 60HZ
8	TRANSFER TIME	0S online model 0S bat model	I/P: 230VAC 50HZ 240VAC 60HZ O/P: Full load Ta:25℃	ac to bat: 0ms@230VAC 50HZ 0ms@240VAC 60HZ bat to ac: 0ms@230VAC 50HZ 0ms@240VAC 60HZ

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE	110VAC~300VAC	I/P: TESTING O/P: FULL / 60% LOAD Ta:25℃	176V~300V/ FULL LOAD 110V~176V/ 60% LOAD
				TEST：PASS
2	INPUT FREQUENCY RANGE	46HZ ~54HZ@seting 50HZ 56HZ~64 HZ@seting 60HZ 40HZ~70HZ@seting 发电机 NO DAMAGE	I/P:110VAC ~300VAC O/P:FULL~MIN LOAD Ta:25℃	TEST：PASS
3	POWER FACTOR	≥0.99	I/P: 208VAV 220VAC 230 VAC 240VAC O/P:FULL LOAD Ta:25℃	0.995@208VAV 0.996@220VAC 0.996@230 VAC 0.998@240VAC

4	THDI	⩽5%	I/P: 208VAV 220VAC 230 VAC 240VAC O/P:FULL LOAD Ta:25℃	4%@208VAV 3%@220VAC 3%@230 VAC 3%@240VAC

■ E.M.C. TEST

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	BS EN/EN61000-3-12 CLASS A	I/P:230VAC/50HZ O/P:FULL LOAD Ta:25℃	PASS
2	CONDUCTION	BS EN/IEC 62040-32 CLASS B	I/P： 230 VAC (50HZ) O/P：FULL/50% LOAD Ta：25℃	PASS Test by certified Lab
3	RADIATION	BS EN/IEC 62040-32 CLASS B	I/P： 230 VAC (50HZ) O/P：FULL LOAD Ta：25℃	PASS Test by certified Lab
4	E.S.D	BS EN/EN61000-4-2 INDUSTRY AIR：4KV / Contact：4KV	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
5	E.F.T	BS EN/EN61000-4-4 INDUSTRY INPUT： 1KV	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	CRITERIA A
6	SURGE	BS EN/EN61000-4-5 INDUSTRY Line-Line ：1KV Line-Line-Chassis：2KV	I/P： 230 VAC/50HZ O/P：FULL LOAD Ta：25℃	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

<table>
<tr><th>NO</th><th>TEST ITEM</th><th>SPECIFICATION</th><th>TEST CONDITION</th><th>RESULT</th></tr>
<tr><td>1</td><td>TEMPERATURE RISE TEST</td><td colspan="3">MODEL：ES-SU3K
1.HIGH AMBIENT BURN-IN： 2 HRS
I/P： 198VAC/50HZ O/P： FULL LOAD Ta= 40℃
2.HIGH AMBIENT BURN-IN： 2 HRS
I/P： 254.4VAC/50HZ O/P： FULL LOAD Ta= 40℃
<table>
<tr><th>NO</th><th>Position</th><th>198VAC/50HZ</th><th>254.4VAC/50HZ</th></tr>
<tr><td>1</td><td>C12</td><td>63.7℃</td><td>56.6℃</td></tr>
<tr><td>2</td><td>L1</td><td>95.5℃</td><td>78.8℃</td></tr>
<tr><td>3</td><td>C11</td><td>62.1℃</td><td>55.4℃</td></tr>
<tr><td>4</td><td>RY3</td><td>82.0℃</td><td>72.9℃</td></tr>
<tr><td>5</td><td>CT1</td><td>52.5℃</td><td>46.2℃</td></tr>
<tr><td>6</td><td>TX2</td><td>50.4℃</td><td>47.2℃</td></tr>
<tr><td>7</td><td>TX1</td><td>53.4℃</td><td>51.0℃</td></tr>
<tr><td>8</td><td>L7</td><td>112.8℃</td><td>89.8℃</td></tr>
<tr><td>9</td><td>RY2</td><td>69.1℃</td><td>62.4℃</td></tr>
<tr><td>10</td><td>L8</td><td>73.9℃</td><td>72.6℃</td></tr>
<tr><td>11</td><td>L6</td><td>105.2℃</td><td>103.8℃</td></tr>
<tr><td>12</td><td>L4</td><td>44.8℃</td><td>42.7℃</td></tr>
<tr><td>13</td><td>U8</td><td>53.1℃</td><td>51.2℃</td></tr>
<tr><td>14</td><td>C23</td><td>56.4℃</td><td>52.7℃</td></tr>
<tr><td>15</td><td>U2</td><td>68.7℃</td><td>63.9℃</td></tr>
</table></td></tr>
<tr><td>2</td><td>LOW TEMPERATURE
TURN ON TEST</td><td>TURN ON AFTER 2 HOUR</td><td>I/P： 264VAC/100VAC
O/P： 100% LOAD
Ta= 0 ℃</td><td>TEST：OK</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 40℃/95 %R.H
NO DAMAGE</td><td>I/P： 300VAC
O/P：FULL LOAD
Ta= 40 ℃
HUMIDITY= 95 %R.H</td><td>TEST：OK</td></tr>
</table>

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	YANGX	JINKJ	CHENHM

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