



Test Report: ES-S1000

1800W Portable power supply

■ DESIGN VERIFY TEST

Output Function Test

Input Function Test

Protection Function Test

Control Function 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 for AC	230V@50HZ for CN 230V@50HZ for EU 120V@60HZ for US	I/P : NONE O/P : FULL LOAD Ta : 25°C	233.7V for CN 229.9for EU 120.3for US
2	FREQUENCE	230V@50HZ for CN 230V@50HZ for EU 120V@60HZ for US	I/P : NONE O/P : FULL LOAD Ta : 25°C	49.9Hz for CN 49.9for EU 59.9for US
2	AC OUTPUT REGULATION	-10% ~ +10%	I/P: BAT O/P:MIN~FULL LOAD Ta:25°C	-0.29% ~0.28% for CN -0.21% ~0.13%for EU -0.35% ~0.29% for US
3	TRANSFER TIME (UPS)	20ms	I/P: AC IN→BAT O/P:ND LOAD/FULL LOAD Ta:25°C	17 ms for CN 17ms for EU 16 ms for US
4	THD	≤3%	I/P: NONE O/P: FULL LOAD Ta:25°C	1.51%@50HZ for CN 1.33%@50HZ for EU 1.66%@60HZ for US
5	OUTPUT VOLTAGE for USB-C1	5V/3A 9V/3A 12V/3A 15V/3A 20V/5A	I/P: NONE O/P: FULL LOAD Ta:25°C	5.088V/3A 8.993V/3A 11.966V/3A 14.782V/3A 19.566V/5A
	OUTPUT VOLTAGE for USB-C2	5V/3A 9V/3A 12V/3A 15V/3A 20V/2.25A	I/P: NONE O/P: FULL LOAD Ta:25°C	5.037V/3A 9.086V/3A 12.089V/3A 15.086V/3A 20.094V/5A
6	RIPPLE & NOISE for USB-C1	200mVp-p	I/P: NONE O/P: FULL LOAD Ta:25°C	35 mVp-p /5V 40 mVp-p /9V 45 mVp-p /12V 50 mVp-p /15V 48 mVp-p /20V
	RIPPLE & NOISE for USB-C2	200mVp-p	I/P: NONE O/P: FULL LOAD Ta:25°C	43 mVp-p /5V 59 mVp-p /9V 63 mVp-p /12V 66 mVp-p /15V 50 mVp-p /20V
7	LOAD REGULATION for USB-C1	-5% ~ +5%	I/P: NONE O/P: MIN~FULL LOAD Ta:25°C	-0.94%~ +0.71%/5V -0.54%~ +0.29%/9V -0.44%~ +0.21%/12V -0.99%~ +0.82%/15V -1.21%~ +1.26%/20V

	LOAD REGULATION for USB-C2	-5% ~ +5%	I/P: NONE O/P: MIN~FULL LOAD Ta:25°C	-0.61%~ +0.88%/5V -0.34%~ +0.56%/9V -0.27%~ +0.42%/12V -0.21%~ +0.32%/15V -0.12%~ +0.14%/20V
8	OUTPUT VOLTAGE for USB-A	5V/3A 9V/2A 12V/1.5A	I/P: NONE O/P: FULL LOAD Ta:25°C	5.035/5V 9.013/9V 11.974/12V
9	RIPPLE & NOISE for USB-A	200mVp-p	I/P: NONE O/P: FULL LOAD Ta:25°C	63 mVp-p /5V 66 mVp-p /9V 76 mVp-p /12V
10	LOAD REGULATION for USB-A	-5% ~ +5%	I/P: NONE O/P: FULL LOAD / NO LOAD Ta:25°C	1.2%~ +3.2%/5V 0.4%~ +1.8%/9V 0.1%~ +0.3%/12V
11	OUTPUT VOLTAGE for DC5525	12V/10A	I/P: NONE O/P: Ta:25°C	12.585V
12	RIPPLE & NOISE for DC5525	300mVp-p	I/P: NONE O/P: Ta:25°C	43 mVp-p
13	LOAD REGULATION for DC5525	-20% ~ +20%	I/P: NONE O/P: FULL LOAD / NO LOAD Ta:25°C	-3.37%~ +3.27%
14	TOTLE POWER	1800W for CN&EU 1200W for US	I/P: NONE O/P:1800W for CN&EU O/P:1200W for US Ta:25°C	Test: OK
15	PEAK POWER	3600W/300ms for CN&EU 2400W/300 ms for US	I/P: NONE O/P: 3600W for CN&EU O/P: 2400W for CUS Ta:25°C	360ms for CN 380ms for EU 350ms for US

INPUT FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	INPUT VOLTAGE RANGE For AC	200~240VAC for CN&EU 100~120VAC for US	I/P: Testing O/P: :NO LOAD Ta:25°C	185~245VAC for CN&EU 86~142VAC for US
2	INPUT VOLTAGE RANGE For DC	12~59V	I/P: Testing O/P:NO LOAD Ta:25°C	11.5~65VDC
3	INPUT CURRENT AC (1000W max) DC (800W max)	5A Max for 200AC 10A Max for 100AC 15A Max for DC	I/P : 200VAC/100VAC12VDC O/P : AC (1000W) DC (800W) Ta : 25°C	I =4.51A/ 200VAC I = 9.44A/ 100VAC I =13.6A/ 12VDC

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	Input over voltage protection	>240VAC for CN&EU >120VAC for US >59VDC	I/P: Testing O/P: Battery Ta:25°C	256VAC for CN&EU 142 VAC for US 70VDC
2	Input under voltage protection	<200VAC for CN&EU <100VAC for US <12VDC	I/P: Testing O/P: Battery Ta:25°C	170VAC for CN&EU 86VAC for US 10.6VDC
3	OVER LOAD PROTECTION FOR DC OUTPUT	PROTECTION TYPE: Hiccup mode, recovers automatically after fault condition is removed	I/P: Normal O/P: Testing Ta:25°C	Test: OK
	OVER LOAD PROTECTION FOR AC OUTPUT	PROTECTION TYPE: Shut down o/p voltage, re-power on to recover	I/P: Normal O/P: Testing Ta:25°C	Test: OK
4	SHORT PROTECTION FOR DC OUTPUT	PROTECTION TYPE: Hiccup mode, recovers automatically after fault condition is removed	I/P: Normal O/P: Full Load Ta:25°C	Test: OK
	SHORT PROTECTION FOR AC OUTPUT	PROTECTION TYPE: Shut down o/p voltage, re-power on to recover	I/P: Normal O/P: Full Load Ta:25°C	Test: OK
5	OVER/UNDER TEMPERATURE PROTECTION FOR DC OUTPUT	PROTECTION TYPE: Hiccup mode, recovers automatically after fault condition is removed	I/P: Normal O/P: Full Load Ta:25°C	Test: OK
	OVER/UNDER TEMPERATURE PROTECTION FOR AC OUTPUT	PROTECTION TYPE: Shut down o/p voltage, re-power on to recover	I/P: Normal O/P: Full Load Ta:25°C	Test: OK

CONTROL FUNCTION TEST

NO	TEST ITEM		SPECIFICATION	RESULT
1	Button Function	On-screen button	Tap on/Off to turn on/off the screen	Test: OK
		AC output button	Tap on/Off to turn on/off the AC output	Test: OK
		DC output button	Tap on/Off to turn on/off the DC output	Test: OK
2	Bluetooth Function	Mobile APP Control	Open the DC car port with the mobile APP	Test: OK
			Close the DC car port with the mobile APP	Test: OK
			Open the AC output with the mobile APP	Test: OK
			Close the AC output with the mobile APP	Test: OK

		Button action, corresponding action of mobile app	Press the button to open the DC car port, and the DC car port on the mobile APP will open accordingly	Test: OK
			Press the button to close the DC car port, and the DC car port on the mobile APP will close accordingly	Test: OK
			Press the button to open the AC port, and the AC port on the mobile APP will open accordingly	Test: OK
			Press the button to close the AC port, and the AC port on the mobile APP will close accordingly	Test: OK

■ SAFETY& E.M.C. TEST

SAFETY TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	WITHSTAND VOLTAGE	Primary circuit to Enclosure: 4KVDC Primary circuit to secondary circuit: 4KVDC	Primary circuit to Enclosure: 4KVDC Primary circuit to secondary circuit: 4KVDC Ta:25°C	Primary circuit to Enclosure: OK Primary circuit to secondary circuit: OK NO DAMAGE
2	Test by certified Lab & Test Report Prepare Any contradictions of the test results, please refer to the latest SAFETY test report			

E.M.C TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	HARMONIC	EN301 489-1 V2.2.3:2019, IEC61000-3-2:2014 CLASS A	I/P:230VAC/50HZ I/P:110VAC/60HZ (for US) I/P:59VDC O/P:FULL LOAD Ta:25°C	PASS
2	CONDUCTION	EN55032:2015+A11+A1, EN301 489-1 V2.2.3:2019 CLASS A	I/P : 230 VAC (50HZ) I/P:110VAC/60HZ (for US) I/P:59VDC O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab
3	RADIATION	N55032:2015+A11+A1, EN301 489-1 V2.2.3:2019 CLASS A	I/P : 230 VAC (50HZ) I/P:110VAC/60HZ (for US) I/P:59VDC O/P : FULL LOAD Ta : 25°C	PASS Test by certified Lab

4	E.S.D	EN 301 489-1 V2.2.3:2019 ,EN 61000-4-2:2009 AIR : 8KV / Contact : 4KV	I/P : 230 VAC/50HZ I/P:110VAC/60HZ (for US) I/P:59VDC O/P : FULL LOAD Ta : 25°C	■CRITERIA B
5	E.F.T	EN 301 489-1 V2.2.3:2019, EN 61000-4-4: 2012 INPUT : 1KV	I/P : 230 VAC/50HZ I/P:110VAC/60HZ (for US) I/P:59VDC O/P : FULL LOAD Ta : 25°C	■CRITERIA B
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 : ES-S1000EU HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=50°C <table><thead><tr><th>NO</th><th>Position</th><th>HIGH AMBIENT Ta=50°C</th></tr></thead><tbody><tr><td>1</td><td>Tlcoil</td><td>80.4°C</td></tr><tr><td>2</td><td>Tlcore</td><td>74°C</td></tr><tr><td>3</td><td>L7</td><td>85.1°C</td></tr><tr><td>4</td><td>L5</td><td>94.3°C</td></tr><tr><td>5</td><td>U17</td><td>77.8°C</td></tr><tr><td>6</td><td>Q5</td><td>75°C</td></tr><tr><td>7</td><td>Q18</td><td>76.8°C</td></tr><tr><td>8</td><td>C166</td><td>77.3°C</td></tr><tr><td>9</td><td>C160</td><td>78.8°C</td></tr><tr><td>10</td><td>T10</td><td>75.8°C</td></tr><tr><td>11</td><td>S11</td><td>77.5°C</td></tr></tbody></table>			NO	Position	HIGH AMBIENT Ta=50°C	1	Tlcoil	80.4°C	2	Tlcore	74°C	3	L7	85.1°C	4	L5	94.3°C	5	U17	77.8°C	6	Q5	75°C	7	Q18	76.8°C	8	C166	77.3°C	9	C160	78.8°C	10	T10	75.8°C	11	S11	77.5°C
NO	Position	HIGH AMBIENT Ta=50°C																																						
1	Tlcoil	80.4°C																																						
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6	Q5	75°C																																						
7	Q18	76.8°C																																						
8	C166	77.3°C																																						
9	C160	78.8°C																																						
10	T10	75.8°C																																						
11	S11	77.5°C																																						
2	LOW TEMPERATURE TURN ON TEST	TURN ON AFTER 2 HOUR	I/P : 230 VAC (50HZ) I/P:110VAC/60HZ (for US) I/P:59VDC O/P : 100%LOAD Ta= -10°C	TEST : OK																																				



1800W Portable power supply

ES-S1000 series

3	STORAGE TEMPERATURE TEST	-20~60°C	1. Thermal shock Temperature : -25°C~ +65°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
TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Jinkj		Chenhm

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