



Test Report: ES-S500

500W 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	229.4V for CN 230.2V for EU 118.6V for 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	49.91Hz for CN 49.92Hz for EU 59.94Hz for US
2	AC OUTPUT REGULATION	-10% ~ +10%	I/P: BAT O/P: MIN~FULL LOAD Ta:25°C	-0.33% ~ +0.16% for CN -0.42% ~ +0.23% for EU -0.68% ~ +0.92% for US
3	TRANSFER TIME (UPS)	20ms	I/P: AC IN→BAT O/P: ND LOAD/FULL LOAD Ta:25°C	18ms for CN 18ms for EU 17ms for US
4	THD	≤3%	I/P: NONE O/P: FULL LOAD Ta:25°C	1.39%@50HZ for CN 1.52%@50HZ for EU 1.18%@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	4.90V/3A 8.92V/3A 11.82V/3A 14.72V/3A 19.40V/5A
6	RIPPLE & NOISE for USB-C1	200mVp-p	I/P: NONE O/P: FULL LOAD Ta:25°C	39 mVp-p /5V 45 mVp-p /9V 43 mVp-p /12V 37 mVp-p /15V 55 mVp-p /20V
7	LOAD REGULATION for USB-C1	-5% ~ +5%	I/P: NONE O/P: MIN~FULL LOAD Ta:25°C	-3.61%~ +1.83%/5V -1.98%~ +1.87%/9V -1.51%~ +1.50%/12V -1.21%~ +1.17%/15V -1.49%~ +1.57%/20V
8	OUTPUT VOLTAGE for USB-A	5V/2.4A	I/P: NONE O/P: FULL LOAD Ta:25°C	4.895V
9	RIPPLE & NOISE for USB-A	200mVp-p	I/P: NONE O/P: FULL LOAD Ta:25°C	64 mVp-p
10	LOAD REGULATION for USB-A	-5% ~ +5%	I/P: NONE O/P: FULL LOAD / NO LOAD Ta:25°C	-1.89%~ +2.27%

11	OUTPUT VOLTAGE for DC5525	12V/10A	I/P: NONE O/P: Ta:25°C	12.97V
12	RIPPLE & NOISE for DC5525	300mVp-p	I/P: NONE O/P: Ta:25°C	30 mVp-p
13	LOAD REGULATION for DC5525	-20% ~ +20%	I/P: NONE O/P: FULL LOAD / NO LOAD Ta:25°C	-2.48%~ +2.27%
14	TOTLE POWER	500W	I/P: NONE O/P:1200W Ta:25°C	Test: OK
15	PEAK POWER	1000W/300ms	I/P: O/P: Ta:25°C	520ms

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	175~265VAC for CN 182V~267VAC for EU 85~133VAC for US
2	INPUT VOLTAGE RANGE For DC	11~30V	I/P: Testing O/P:NO LOAD Ta:25°C	10.9~33.5VDC
3	INPUT CURRENT AC (500W max) DC (200W max)	10A Max for 200AC 10A Max for 100AC 10A Max for DC	I/P : 200VAC/100VAC12VDC O/P : AC (500W) DC (200W) Ta : 25°C	I =2.46A/200VAC for CN I =2.35A/200VAC for EU I =4.33A/100VAC for US I =8.4A/12VDC

PROTECTION FUNCTION TEST

NO	TEST ITEM	SPECIFICATION	TEST CONDITION	RESULT
1	Input over voltage protection	>240VAC for CN&EU >120VAC for US >30VDC	I/P: Testing O/P: Battery Ta:25°C	265VAC for CN&EU 133 VAC for US 33.5VDC
2	Input under voltage protection	<200VAC for CN&EU <100VAC for US <11VDC	I/P: Testing O/P: Battery Ta:25°C	175VAC for CN&EU 85VAC for US 10.9VDC
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-S500EU HIGH AMBIENT BURN-IN : 2 HRS I/P : 230VAC O/P : FULL LOAD Ta=45℃ <table><tr><th>NO</th><th>Position</th><th>HIGH AMBIENT Ta=50℃</th></tr><tr><td>1</td><td>Tlcoil</td><td>63℃</td></tr><tr><td>2</td><td>Tlcore</td><td>61.7℃</td></tr><tr><td>3</td><td>L7</td><td>59.6℃</td></tr><tr><td>4</td><td>L2</td><td>76.5℃</td></tr><tr><td>5</td><td>U22</td><td>58.4℃</td></tr><tr><td>6</td><td>Q5</td><td>57.9℃</td></tr><tr><td>7</td><td>Q51</td><td>64.3℃</td></tr><tr><td>8</td><td>C168</td><td>55℃</td></tr><tr><td>9</td><td>C158</td><td>57℃</td></tr><tr><td>10</td><td>T10</td><td>75.8℃</td></tr><tr><td>11</td><td>S12</td><td>63.5℃</td></tr></table>			NO	Position	HIGH AMBIENT Ta=50℃	1	Tlcoil	63℃	2	Tlcore	61.7℃	3	L7	59.6℃	4	L2	76.5℃	5	U22	58.4℃	6	Q5	57.9℃	7	Q51	64.3℃	8	C168	55℃	9	C158	57℃	10	T10	75.8℃	11	S12	63.5℃
NO	Position	HIGH AMBIENT Ta=50℃																																						
1	Tlcoil	63℃																																						
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5	U22	58.4℃																																						
6	Q5	57.9℃																																						
7	Q51	64.3℃																																						
8	C168	55℃																																						
9	C158	57℃																																						
10	T10	75.8℃																																						
11	S12	63.5℃																																						
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℃	TEST : OK																																				
3	STORAGE TEMPERATURE TEST	-20~60℃	1. Thermal shock Temperature : -25℃~ +65℃ 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																																					

TEST RESULT	TESTER	REVIEW	APPROVAL
PASS	Jinkj		Chenhm

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