

DC Fast Inspection Report

NO:

Product name	European standard charging pile
Product number	DT2005
Product number	DE0120B1GN7C00005e
Order Number	344
Operator	zhangnianbing
Reviewer	YP
Inspection Date and Time	2022-08-13 15:38:13

Serial Number	Name	Result
01	version number query	qualified
02	SN query	qualified
03	temperature test	qualified
04	Standby power consumption test	qualified
05	Alarm query (Port A)	qualified
06	Charge Current Sampling Calibration (Port A)	qualified
07	Sampling accuracy test during charging (Port A)	qualified
08	Power collection accuracy test (Port A)	qualified
09	Standby power consumption test (Port A)	qualified
10	Connection Confirmation Test (Port A)	qualified
11	Charge Readiness Test (Port A)	qualified
12	Charging stage test (Port A)	qualified
13	Normal charge end test (Port A)	qualified
14	Precharge function test (Port A)	qualified
15	Maximum output current test (Port A)	qualified
16	Efficiency Power Factor (Port A)	qualified
17	Output overvoltage protection test (Port A)	qualified
18	Vehicle Interface Disconnect Test (Port A)	qualified
19	Protective Earth Conductor Continuity Loss Test (Port A)	qualified
20	Switch S open test (Port A)	qualified
21	Insulation Failure Test (Port A)	qualified
22	Alarm query (Port B)	qualified
23	Standby state sampling accuracy test (Port B)	qualified
24	Charge current sampling calibration (Port B)	qualified
25	Sampling accuracy test during charging (Port B)	qualified
26	Power collection accuracy test (Port B)	qualified
27	Connection confirmation test (Port B)	qualified
28	Charge Readiness Test (Port B)	qualified
29	Charging stage test (Port B)	qualified
30	Normal charge end test (Port B)	qualified
31	Precharge function test (Port B)	qualified

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32	Maximum output current test (Port B)	qualified
33	Efficiency power factor (Port B)	qualified
34	Output overvoltage protection test (Port B)	qualified
35	Vehicle interface disconnection test (Port B)	qualified
36	Protective Earth Conductor Continuity Loss Test (Port B)	qualified
37	Switch S open test (Port B)	qualified
38	Insulation failure test (Port B)	qualified
39	Input overvoltage protection test	qualified
40	Input under voltage protection test	qualified
41	Power distribution function test	qualified

01. Version number query							
Test method or requirement		Query the software version number and query the hardware version number.					
Judgment criteria		Comply with relevant regulations.					
Test Record							
ccu1_sw_version	ccu2_sw_version	ecu_sw_version	tcu_sw_version	ccu1_hw_version	ccu2_hw_version	ecu_hw_version	tcu_hw_version
V0.95.30	V0.95.30	V0.95.30	V1.00.02	V3.0	V3.0	V2.0	V3.0
judgment result		qualified					

02. SN query								
Test method or requirement		Query the SN serial number.						
Judgment criteria		Comply with relevant regulations.						
Test Record		SN	DE0120B1GN7C00005E					
Judgment result		qualified						

03. Temperature test							
Test method or requirement		Query and collect the temperature value of each point of the charging pile.					
Judgment criteria		Comply with relevant regulations.					
Test Record							
Fan In temp(°C)		Fan Out temp(°C)		PCB temp(°C)		Humidity(%)	
angle(°C)							

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28.800001	28.300001	26.200001	61	0.521158
Judgment result	qualified			

04. Standby power consumption test								
Test method or requirement			Under the rated input voltage, the charger is not connected to the test system and is not operated by personnel, and only retains the status of its basic functions such as background communication and status indicator. The standby power consumption of the charger should not be greater than $N \times 50$ W. Note: N represents the number of vehicle interfaces.					
Judgment criteria			Comply with relevant regulations of standby power consumption test.					
Test Record								
Pile Number	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Total Input Power (Power Analyzer W)	Input Power Factor (Power Analyzer)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Output Power (Power Analyzer W)	Output voltage (multimeter V)
Port A	230.057	1.699	100.868	0.086	0.525	1.532	0.037	0.0011
Port B	230.057	1.699	100.868	0.086	0.269	1.526	-0.009	0.0019
Judgment result			qualified					

05. Alarm query (Port A)								
Test method or requirement		Read the alarm information on the charging pile screen.						
Judgment criteria		Comply with relevant regulations.						
Test Record		charger status 1						
Judgment result		qualified						

06. Sampling accuracy test in standby state (Port A)										
Test method or requirement		In standby state, sampling input and output voltage, current and power sampling, including the CP/PP voltage of the PLC.								
Judgment criteria		Comply with relevant regulations.								
Test Record										
charging current(A)	cp duty(%)	cp frequen cy(Hz)	cp voltage(V)	imd resistanc e(KΩ)	inner voltag e(V)	neg temp(°C)	outer voltage(V)	pos temp(°C)	pp voltage(V)	Output Current (Power Analyzer A)
0.760000	100	0	12.14000	269	1.000	31.1000	0.500000	30.799	0.13000	1.537

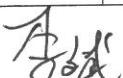
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			0		000	00		999	0	
judgment result	qualified									

07. Charging current sampling calibration (Port A)										
Test method or requirement			step=1, set the load current to 10A, send the calibration command, the current is 1000; step=2, set the load current to 50A, send the calibration command, the current is 5000; step=3, the current can be defaulted. step=4, read charging current. step=5, read charging current.							
Judgment criteria			Comply with relevant regulations.							
Test Record										
step	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	current	adc	b	k	charging current(A)	Charge Current Accurac y (%)
1	230.181	15.038	745.232	10.107	9.88664 1	733				
2	230.151	56.969	745.352	49.858	49.5834 05	1066				
3	230.156	56.971	745.349	49.860			-	7750.76 8769	11.9219 22	
4	230.098	112.697	745.472	99.631					99.29000 1	0.34
5	230.042	169.240	745.570	149.663					149.0000 00	0.44
Judgment result			qualified							

08. Sampling accuracy test during charging (Port A)											
Test method or requirement			In the charging state, the input and output voltage, current and power are sampled, including the CP/PP voltage of the PLC.								
Judgment criteria			Comply with relevant regulations.								
Test Record											
charging	charging current(A)	cp duty(%)	cp freque ncy(Hz)	cp voltage(V)	imd resistanc e(KΩ)	inner voltage(V)	neg temp(°C)	outer voltage(V)	pos temp(°C)	pp voltage(V)	Output Current (Power Analyzer A)

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no load	0.00000 0	4	1000	5.97000 0	2545	751.50 0000	35.500 000	753.299 988	34.2000 01	0.0300 00	1.843
load	30.2199 99	4	999	6.00000 0	1199	744.50 0000	33.900 002	744.799 988	33.4000 02	0.0600 00	30.016
judgment result		qualified									

09. Power collection accuracy test (Port A)									
Test method or requirement			It needs to be read once before starting the charging, once after the charging is finished, and the two times are subtracted to the power value during this charging process. The power accuracy should not exceed ±1%.						
Judgment criteria			Comply with relevant regulations.						
Test Record									
charging	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Electric energy (power analyzer wh)	Electricity (charging pile wh)	Electric energy difference (power analyzer wh)	Electric energy difference (charging pile wh)	Electric energy accuracy (%)
Before charging	230.118	7.979	752.526	1.847	-0.050	426900			
end of charging	229.980	180.561	745.535	159.478	9646.009	436700	9646.06	9800.00	1.60
judgment result			qualified						

10. Connection confirmation test (Port A)							
Test method or requirement		Check whether the charger can judge the connection state between the vehicle plug and the vehicle socket through the state change of the CP signal, and enter the corresponding state;					
Judgment criteria		Check the CP signal state change in the inserted state. The vehicle interface connection confirmation shall comply with the relevant regulations; during the vehicle interface connection process, the state change of the CP signal shall comply with the requirements of IEC61851-23;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Connection confirmation status
230.146	7.960	0	0	5.33	8.78	1002.08	connected

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judgment result	qualified
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11. Charge readiness test (Port A)							
Test method or requirement		Check whether the charging readiness of the charger is normal. Simulate the normal vehicle-side signal state to check whether the charging pile communicates normally and whether charging is allowed.					
Judgment criteria		When it is detected that the signal state of the vehicle end is normal, the charger should allow charging;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Whether to allow charging
230.156	7.945	752.3	0	4.94	5.74	1002.08	Yes
judgment result	qualified						

12. Charging stage test (Port A)									
Test method or requirement		During the charging process, check whether the charger can adjust the charging voltage and charging current in real time according to the battery charging demand parameters. a) During the charging process, use the vehicle BMS simulation software to send the message to check the charging status at this stage; b) During the charging process, carry out the output voltage control error test and output current control error test respectively according to the relevant regulations; c) Check the communication status at this stage;							
Judgment criteria		The charger adjusts the charging voltage and charging current in real time according to the battery charging demand parameters, and sends the charging status information; during the charging process, the output voltage control error and output current control error should meet the relevant regulations respectively; during the charging process, the charger should be able to Normal communication interaction; output voltage control error = (BMS demand voltage setting (V) - multimeter sampling voltage (V))/BMS demand voltage setting (V); output current control error = (BMS demand current setting (A) - power The current sampled by the analyzer (A))/BMS demand current setting (A);							
Test Record									
state	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output voltage (multimeter V)	Output Current (Power Analyzer A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage control error (%)	Output current control error (%)
Output voltage control	230.197	7.977	752.6982	1.851	4.74	5.74	1003.07	0.00	

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output current control	230.162	36.145	745.4164	29.978	4.94	5.74	1002.08		0.00
judgment result			qualified						

13. Normal charging end test (Port A)									
Test method or requirement		Check whether the charging end of the charger is normal when the charging end condition is met or the charging stop message is received. a) Actively abort the charging test: 1) During the normal charging process, the charging stop command is implemented to the charger. Check the charging status at this stage; 2) Check the communication status at this stage; b) Passive abort charging test: 1) During the normal charging process, use the vehicle BMS simulation software to send a message to check the charging status at this stage; 2) Check the communication status at this stage;							
Judgment criteria		In the normal charging process, the charging stop command is implemented to the charger, and the charger is controlled to stop charging; in the normal charging process, the charger receives the message sent by the vehicle BMS, and controls the charger to stop charging.							
Test Record									
state		Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
BMS actively aborts	charging	230.171	36.131	744.7	30.284	4.94	5.74	1002.08	745.4205
	end of charging	230.198	7.960	0	0	0	11.93	0	0.0134
The charging pile automatically stops	charging	230.172	35.314	744.7	30.448	4.84	5.74	1002.08	745.4171
	end of charging	230.195	7.947	0	0	0	8.84	0	0.0166
Judgment result				qualified					

14. Precharge function test (Port A)	
Test method or requirement	
Judgment criteria	
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Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.188	28.938	594.3	30.611	4.84	5.75	1003.07	595.2654
Judgment result		qualified					

15. Maximum output current test (Port A)								
Test method or requirement			Set the output current to the maximum allowable range, and measure whether the actual output current reaches the set output current value. Three voltage states confirm maximum output current capability: ①300V, 200A; ②600V, 200A; ③950V, 126A;					
Judgment criteria			Comply with the maximum current output by the test charging pile.					
Test Record								
State	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
①	230.046	181.186	595.530	199.456	4.94	5.73	1002.08	595.6231
②	230.080	144.651	595.461	159.504	4.84	5.74	1003.07	595.5241
③	230.052	180.390	745.546	159.512	4.94	5.71	1002.08	745.6887
Judgment result			qualified					

16. Efficiency power factor (Port A)								
Test method or requirement			Connect the charger to the test system, set two sets of output voltages and output currents, start charging, and measure the input active power and output power, efficiency, and input power factor of the charger during the charging process;					
Judgment criteria			Comply with the relevant regulations of efficiency power factor test.					
Test Record								

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group	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Total Input Power (Power Analyzer W)	Input Power Factor (Power Analyzer)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Output Power (Power Analyzer W)	Efficiency (Power Analyzer %)	
1	230.042	180.403	124308.938	0.998	745.593	159.460	118875.250	95.630	
2	230.042	180.425	124324.227	0.998	745.599	159.467	118881.141	95.618	
Judgment result		qualified							

17. Output overvoltage protection test (Port A)								
Test method or requirement		Connect the charger to the test system. During the charging process, when the voltage of the input battery is adjusted to exceed the output overvoltage protection action value of the charging pile, check that the output overvoltage protection of the charger should be activated, cut off the output immediately, and issue an alarm prompt. The output overvoltage protection action value should not be lower than 115% of the rated output voltage.						
Judgment criteria		Comply with relevant regulations of output overvoltage protection test.						
Test Record								
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	
230.206	7.948	834.9	0	0	8.84	0	0.0124	
judgment result		qualified						

18. Vehicle interface disconnection test (Port A)								
Test method or requirement		During the charging process, check whether the charger can stop charging when the CP is disconnected. In the normal charging process, simulate the CP disconnection, and check the communication status and charging status at this stage.						
Judgment criteria		If this fault occurs during charging, the charger should send a stop charging message and stop charging;						
Test Record								
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	

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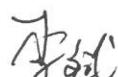
230.206	7.953	0	0	0	11.93	0	0.0105
Judgment result	qualified						

19. Continuity loss test of protective earth conductor (Port A)							
Test method or requirement		During charging, check whether the charger can stop charging if the electrical continuity of the protective earth conductor is lost. In the normal charging process, the electrical continuity of the protective grounding conductor of the simulated charger is lost (excluding the broken pin of PE in the vehicle interface), and check the charging status and the status of the vehicle interface at this stage.					
Judgment criteria		If this fault occurs during charging, the charger should stop charging;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.208	7.952	0	0	0	11.93	0	0.0446
Judgment result	qualified						

20. Switch S disconnection test (Port A)							
Test method or requirement		During the charging process, check whether the charger can stop charging when the switch S is turned off. During the normal charging process, the analog switch S is turned off to check the communication status and charging status at this stage.					
Judgment criteria		If this fault occurs during charging, the charger should stop charging;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.211	7.953	0	0	5.14	8.8	1003.07	0.0705
Judgment result	qualified						

21. Insulation failure test (Port A)							
Test method or requirement		Connect a 30kΩ resistor in series between DC- and GND, the charging pile is not allowed to charge.					
Judgment criteria		Charging piles are not allowed to charge.					
Test Record							

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Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	imd resistance(KΩ)
230.207	7.995	0	0	0	8.84	0	0.0007	-1
Judgment result	qualified							

22. Alarm query (Port B)	
Test method or requirement	Read the alarm information on the charging pile screen.
Judgment criteria	Comply with relevant regulations.
Test Record	charger status 1
Judgment result	qualified

23. Standby state sampling accuracy test (Port B)											
Test method or requirement		In standby state, sampling input and output voltage, current and power sampling, including the CP/PP voltage of the PLC.									
Judgment criteria		Comply with relevant regulations.									
Test Record											
charging current(A)	cp duty(%)	cp frequen cy(Hz)	cp voltage(V)	imd resistanc e(KΩ)	inner voltage(V)	neg temp(℃)	outer voltage(V)	pos temp(℃)	pp voltage(V)	Output Current (Power Analyzer A)	
0.000000	100	0	12.28000 0	271	- 0.400000	34.5000 00	- 1.100000	32.900 002	0.22000 0	1.543	
judgment result	qualified										

24. Charging current sampling calibration (Port B)											
Test method or requirement		step=1, set the load current to 10A, send the calibration command, the current is 1000; step=2, set the load current to 50A, send the calibration command, the current is 5000; step=3, the current can be defaulted. step=4, read charging current. step=5, read charging current.									
Judgment criteria		Comply with relevant regulations.									
Test Record											

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step	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	current	adc	b	k	charging current(A)	Charge Current Accuracy (%)
1	230.198	15.116	745.283	10.172	9.91205 2	749				
2	230.172	57.013	745.411	49.919	49.6760 90	1073				
3	230.172	57.013	745.407	49.918			- 8200.43 2099	12.2716 05		
4	230.117	112.783	745.526	99.774					99.86000 1	0.09
5	230.064	169.303	745.647	149.832					152.7500 00	1.95
judgment result			qualified							

25. Sampling accuracy test during charging (Port B)											
Test method or requirement			In the charging state, the input and output voltage, current and power are sampled, including the CP/PP voltage of the PLC.								
Judgment criteria			Comply with relevant regulations.								
Test Record											
charging current (A)	charging current (A)	cp duty(%)	cp frequency(Hz)	cp voltage(V)	imd resistance(KΩ)	inner voltage(V)	neg temp(°C)	outer voltage(V)	pos temp(°C)	pp voltage (V)	Output Current (Power Analyzer A)
no load	0.0000 00	4	999	6.020000	2545	753.0999 76	36.7999 99	752.400 024	36.000 000	0.0300 00	1.701
load	30.280 001	4	1000	6.020000	1195	745.2000 12	37.7999 99	744.400 024	35.200 001	0.0600 00	30.076
judgment result			qualified								

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26. Power collection accuracy test (Port B)									
Test method or requirement			It needs to be read once before starting the charging, once after the charging is finished, and the two times are subtracted to the power value during this charging process. The power accuracy should not exceed ±1%.						
Judgment criteria			Comply with relevant regulations.						
Test Record									
charging	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Electric energy (power analyzer wh)	Electricity (charging pile wh)	Electric energy difference (power analyzer wh)	Electric energy difference (charging pile wh)	Electric energy accuracy (%)
Before charging	230.221	8.040	753.828	1.714	0.005	419300			
end of charging	230.061	180.548	745.694	159.596	9709.577	429000	9709.57	9700.00	0.10
judgment result			qualified						

27. Connection confirmation test (Port B)							
Test method or requirement		Check whether the charger can judge the connection state between the vehicle plug and the vehicle socket through the state change of the CP signal, and enter the corresponding state;					
Judgment criteria		Check the CP signal state change in the inserted state. The vehicle interface connection confirmation shall comply with the relevant regulations; during the vehicle interface connection process, the state change of the CP signal shall comply with the requirements of IEC61851-23;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Connection confirmation status
230.221	8.024	0	0	5.24	8.84	1003.07	connected
judgment result		qualified					

28. Charge readiness test (Port B)	
Test Record	
Test method or requirement	Check whether the charging readiness of the charger is normal. Simulate the normal vehicle-side signal state to check whether the charging pile communicates normally and whether charging is allowed.
Judgment criteria	When it is detected that the signal state of the vehicle end is normal, the charger should allow charging;

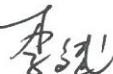
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Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Whether to allow charging
230.237	8.008	750.1	0	4.94	5.74	1002.08	Yes
Judgment result		qualified					

29. Charging stage test (Port B)									
Test method or requirement		During the charging process, check whether the charger can adjust the charging voltage and charging current in real time according to the battery charging demand parameters. a) During the charging process, use the vehicle BMS simulation software to send the message to check the charging status at this stage; b) During the charging process, carry out the output voltage control error test and output current control error test respectively according to the relevant regulations; c) Check the communication status at this stage;							
Judgment criteria		The charger adjusts the charging voltage and charging current in real time according to the battery charging demand parameters, and sends the charging status information; during the charging process, the output voltage control error and output current control error should meet the relevant regulations respectively; during the charging process, the charger should be able to Normal communication interaction; output voltage control error = $(\text{BMS demand voltage setting (V)} - \text{multimeter sampling voltage (V)})/\text{BMS demand voltage setting (V)}$; output current control error = $(\text{BMS demand current setting (A)} - \text{power The current sampled by the analyzer (A)})/\text{BMS demand current setting (A)}$;							
Test Record									
state	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output voltage (multimeter V)	Output Current (Power Analyzer A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage control error (%)	Output current control error (%)
Output voltage control	230.235	8.004	751.5583	1.710	4.84	5.76	1003.07	0.00	
output current control	230.210	35.339	745.428	30.058	4.94	5.74	1002.08		0.00
Judgment result			qualified						

30. Normal charging end test (Port B)									
Test method or requirement		Check whether the charging end of the charger is normal when the charging end condition is met or the charging stop message is received. a) Actively abort the charging test: 1) During the normal charging process, the charging stop command is implemented to the charger. Check the							

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		charging status at this stage; 2) Check the communication status at this stage; b) Passive abort charging test: 1) During the normal charging process, use the vehicle BMS simulation software to send a message to check the charging status at this stage; 2) Check the communication status at this stage;							
Judgment criteria		In the normal charging process, the charging stop command is implemented to the charger, and the charger is controlled to stop charging; in the normal charging process, the charger receives the message sent by the vehicle BMS, and controls the charger to stop charging.							
Test Record									
state		Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
BMS actively aborts	charging	230.213	35.343	743.8	30.52	4.84	5.75	1003.07	745.4397
	end of charging	230.238	7.989	0	0	0	11.99	0	0.0152
The charging pile automatically stops	charging	230.206	35.351	744.1	30.847	4.94	5.76	1002.08	745.4537
	end of charging	230.233	8.020	0	0	0	8.86	0	0.0183
Judgment result				qualified					

31. Precharge function test (Port B)								
Test method or requirement		Connect the charger to the test system, and collect the output voltage of the prototype from startup to pre-charging.						
Judgment criteria		Comply with the relevant requirements of the precharge function test.						
Test Record								
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	
230.215	29.009	593.9	30.52	4.84	5.75	1003.07	595.286	
judgment result		qualified						

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32. Maximum output current test (Port B)

Test method or requirement		Set the output current to the maximum allowable range, and measure whether the actual output current reaches the set output current value. Three voltage states confirm the maximum output current capability (add 2 voltage detections): ①300V, 200A; ②600V, 200A; ③950V, 126A;						
Judgment criteria		Comply with the maximum current output by the test charging pile.						
Test Record								
state	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
①	230.070	181.282	595.627	199.555	4.94	5.75	1002.08	595.706
②	230.116	144.699	595.549	159.597	4.84	5.75	1003.07	595.5975
③	230.070	180.451	745.649	159.581	4.84	5.75	1003.07	745.7596
judgment result		qualified						

33. Efficiency power factor (Port B)

Test method or requirement		Connect the charger to the test system, set two sets of output voltages and output currents, start charging, and measure the input active power and output power, efficiency, and input power factor of the charger during the charging process;						
Judgment criteria		Comply with the relevant regulations of efficiency power factor test.						
Test Record								
group	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Total Input Power (Power Analyzer W)	Input Power Factor (Power Analyzer)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Output Power (Power Analyzer W)	Efficiency (Power Analyzer %)
1	230.074	180.490	124381.594	0.998	745.681	159.593	118994.320	95.668
2	230.080	180.496	124389.078	0.998	745.685	159.589	118992.195	95.666
Judgment result		qualified						

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34. Output overvoltage protection test (Port B)							
Test method or requirement		Connect the charger to the test system. During the charging process, when the voltage of the input battery is adjusted to exceed the output overvoltage protection action value of the charging pile, check that the output overvoltage protection of the charger should be activated, cut off the output immediately, and issue an alarm prompt. The output overvoltage protection action value should not be lower than 115% of the rated output voltage.					
Judgment criteria		Comply with relevant regulations of output overvoltage protection test.					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.246	8.007	834.6	0	0	8.86	0	0.0284
Judgement result		qualified					

35. Vehicle interface disconnection test (Port B)							
Test method or requirement		During the charging process, check whether the charger can stop charging when the CP is disconnected. In the normal charging process, simulate the CP disconnection, and check the communication status and charging status at this stage.					
Judgment criteria		If this fault occurs during charging, the charger should send a stop charging message and stop charging;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.241	8.005	0	0	0	11.99	0	0.0111
Judgment result		qualified					

36. Protective earth conductor continuity loss test (Port B)							
Test method or requirement		During charging, check whether the charger can stop charging if the electrical continuity of the protective earth conductor is lost. In the normal charging process, the electrical continuity of the protective grounding conductor of the simulated charger is lost (excluding the broken pin of PE in the vehicle interface), and check the charging status and the status of the vehicle interface at this stage.					
Judgment criteria		If this fault occurs during charging, the charger should stop charging;					
Test Record							

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Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	
230.248	7.998	0	0	0	11.99	0	0.0676	
judgment result		qualified						

37. Switch S disconnection test (Port B)							
Test method or requirement		During the charging process, check whether the charger can stop charging when the switch S is turned off. During the normal charging process, the analog switch S is turned off to check the communication status and charging status at this stage.					
Judgment criteria		If this fault occurs during charging, the charger should stop charging;					
Test Record							
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
230.250	8.025	0	0	5.33	8.87	1002.08	0.063
Judgment result		qualified					

38. Insulation failure test (Port B)								
Test method or requirement		Connect a 30kΩ resistor in series between DC- and GND, the charging pile is not allowed to charge.						
Judgment criteria		Charging piles are not allowed to charge.						
Test Record								
Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	imrd resistance (KΩ)
230.255	8.028	0	0	0	8.87	0	0.0013	-1
Judgment result		qualified						

39. Input overvoltage protection test								
Test method or requirement		Connect the charger to the test system and set it to run at rated load. When the adjustment of the input power voltage exceeds the input overvoltage protection action value, check that the input overvoltage						

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		protection of the charger should be activated, immediately cut off the DC output, and issue an alarm prompt. The input overvoltage protection action value should not be lower than 115% of the rated input voltage.						
Judgment criteria		Comply with relevant regulations of input overvoltage protection test.						
Test Record								
Port number	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)
Port A	270.274	9.127	0	0	0	8.84	0	0.009
Port B	270.274	9.127	0	0	0	8.86	0	0.015
Judgment result		qualified						

40. Input undervoltage protection test									
Test method or requirement		Connect the charger to the test system and set it to run at rated load. When adjusting the input power voltage lower than the input under-voltage protection action value, check that the input under-voltage protection of the charger should be activated, and issue an alarm prompt. The input undervoltage protection action value should not be higher than 85% of the rated input voltage.							
Judgment criteria		Comply with relevant regulations of input undervoltage protection test.							
Test Record									
Port number	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Charging voltage (V)	Charging current (A)	CP duty cycle (%)	CP voltage (V)	CP frequency (Hz)	Output voltage (multimeter V)	
Port A	190.212	6.924	0	0	0	8.84	0	0.0099	
Port B	190.212	6.924	0	0	0	8.87	0	0.017	
Judgment result		qualified							

41. Power distribution function test	
Test method or requirement	
step1. Start the charging of the Port A, the power requirement is 80kw; step2. Start the Port B charging, the power requirement is 60kw; step3. The charging power of the Port AB is 60kw respectively.	
Judgment criteria	
Comply with the relevant regulations of power distribution function test.	
Test Record	

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step	Input Total Voltage (Power Analyzer V)	Total Input Current (Power Analyzer A)	Total Input Power (Power Analyzer W)	Input Power Factor (Power Analyzer)	Output Voltage (Power Analyzer V)	Output Current (Power Analyzer A)	Output Power (Power Analyzer W)	Output voltage (multimete r V)
step1 (Port A)	230.171	112.764	77499.492	0.995	745.501	99.711	74304.977	745.6185
step2 (Port B)	230.110	180.258	124240.602	0.998	745,522	79,824	59489.207	745.6369
step3(Port A)	230.103	180,265	124242.336	0.998	745,440	79,789	59441.133	745,581
step3(Port B)	230.103	180,255	124235.406	0.998	745,593	79,826	59496.559	745.6554
Judgment Result			Pass					

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