



EMC TEST REPORT

Test sample description:

Product name:2V used in storage gel battery

Type/ Model:

JGFM100-2/JGFM200-2/JGFM300-2/JGFM400-2/JGFM500-2/JGFM600-2/JGFM800-2/JGFM1000-2/JGFM1500-2/JGFM2000-2/JGFM3000-2

Trade mark (if any) : N/A

Applicant:

Jiangsu Oliter Energy Technology Co.,Ltd
No.88 North outer ring Road Gaoyou Jiangsu,China

Manufacturer:

Jiangsu Oliter Energy Technology Co.,Ltd
No.88 North outer ring Road Gaoyou Jiangsu,China

Additional information (if necessary)

The equipment comply with the requirements according to the following standard(s)
EN61000-3-2:2006+A2:2009EN61000-3-3:2013

Test result:	PASS
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Date of issue : July 16, 2014

Test by : Jack
Jack



Approved by : Stephan Lv
Stephan Lv



Procedure deviation: NONE

Non-standard test method: NONE

Test result : PASS

General remarks :

This report shall not be reproduced except in full without the written approval of the testing laboratory

The test presented in this report relate only to the item(s) tested

“(See Annex#)” refers to an annex appended to the report

Throughout this report a comma is used as the decimal separator



Test Summary:

Conducted Emissions	EN 61000-3-2: 2006+ A2: 2009 EN 61000-3-3: 2013	P
Radiated Emission 30MHz to 1000MHz		P
Electrostatic discharge immunity test		P
Radiated, radio-frequency electromagnetic field electromagnetic field immunity test		P
Electrical fast transients/burst immunity test		P
Surge immunity test		P
Immunity to conducted disturbances, induced by radio-frequency fields		P
Power-frequency magnetic field immunity test		N/A
Voltage dips, short interruptions and voltage variations immunity tests		P

Possible test case verdicts

- _test item does the requirement ----- P
- _test case does not apply to the test item ----- N/A
- _test item does not meet the requirement ----- N

Note The EUT does not contain any component which is susceptible from the magnetic field.



Part 1: Emission of electromagnetic disturbance

1.1 Mains Terminal Continuous Disturbance voltage

Test Results: PASS

1.1.1 Mains Terminals Continuous Disturbance voltage, 150K Hz to 30M Hz

Frequency Range: 150K Hz to 30M Hz

Test date: "....."Ln{ '38.'4236

Class/severity: Class A

Detector: Peak for pre-scan (9kHz Resolution Bandwidth for 0.15-30MHz)
 Quasi-Peak if maximised peak within 10dB of Quasi-Peak limit

1.1.2 Limits

Frequency range (MHz)	Limits dB (µv)	
	Quasi-peak	Average
0.15 ~ 0.5	78	63
0.5 ~ 30	71	61

1.1.3 E.U.T. Operation

Operating Environment:

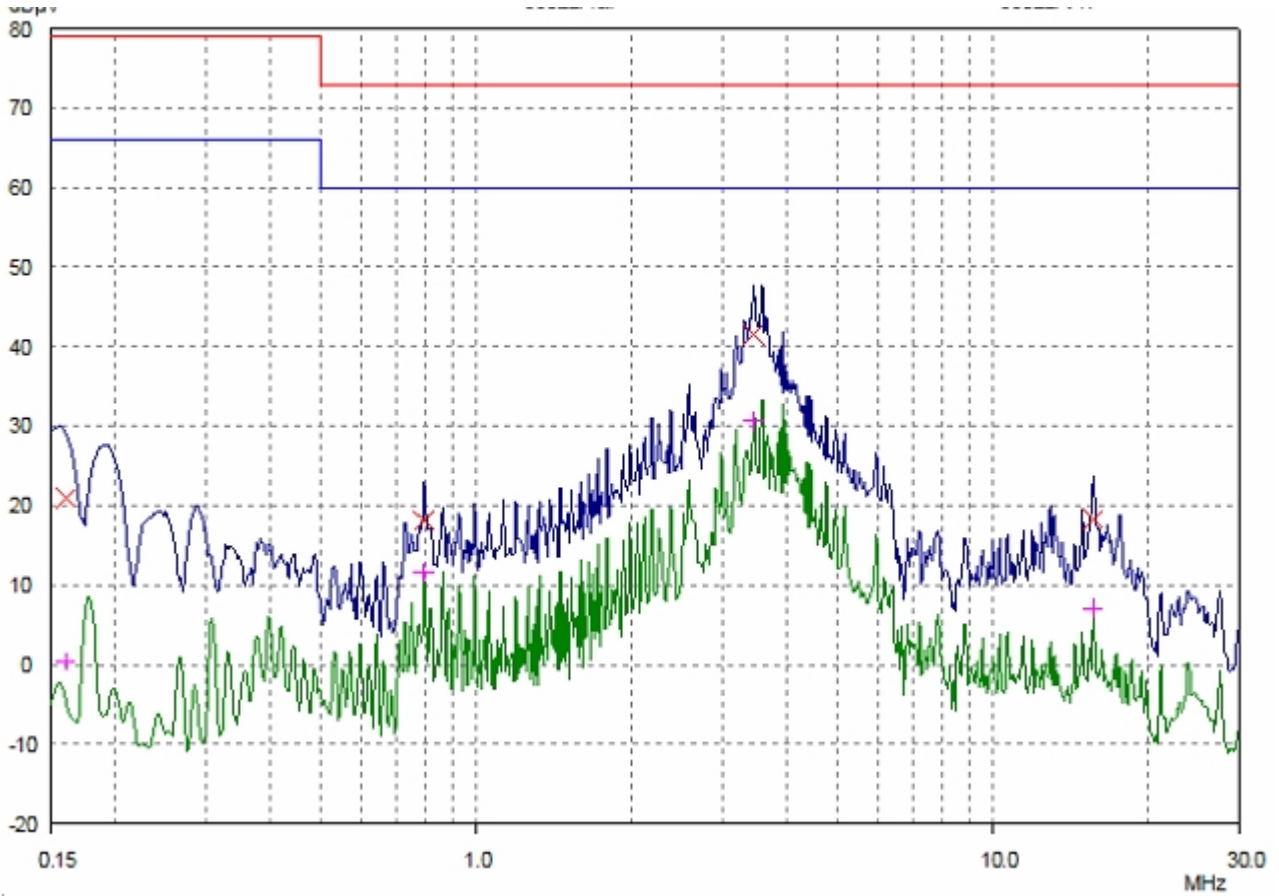
Temperature: 26°C, Humidity: 68%RH, Atmospheric Pressure: 1005MPa

EUT Operation: Test EUT is the in representative work according to standard

1.1.4 Test result(include test data and test curve):

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected

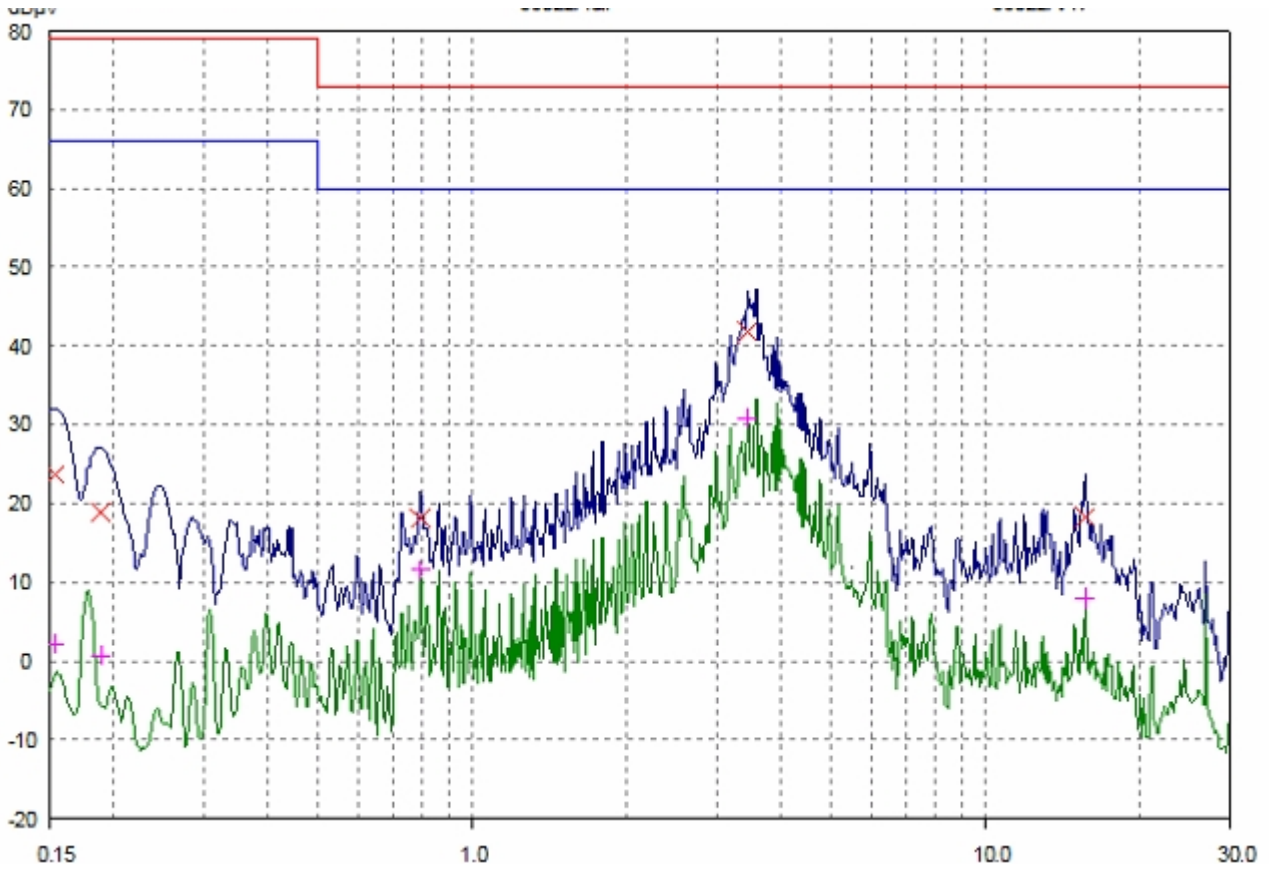
L line:



Frequency MHz	Receiver QP Level (dBuV)	Limit (dBuV)	Margin (dB)	Receiver AV Level (dBuV)	Limit (dBuV)	Margin (dB)
0.16	*	78.00	*	*	63.00	*
0.24	*	78.00	*	*	63.00	*
0.55	*	71.00	*	*	60.00	*
1.00	*	71.00	*	*	60.00	*
1.40	*	71.00	*	*	60.00	*
2.00	*	71.00	*	*	60.00	*
3.50	*	71.00	*	*	60.00	*
6.00	*	71.00	*	*	60.00	*
10.00	*	71.00	*	*	60.00	*
22.00	*	71.00	*	*	60.00	*
30.00	*	71.00	*	*	60.00	*

“*” means the emission level is 6dB lower than the relevant limit.

N line:



Frequency MHz	Receiver QP Level (dBuV)	Limit (dBuV)	Margin (dB)	Receiver AV Level (dBuV)	Limit (dBuV)	Margin (dB)
0.16	*	78.00	*	*	63.00	*
0.24	*	78.00	*	*	63.00	*
0.55	*	71.00	*	*	60.00	*
1.00	*	71.00	*	*	60.00	*
1.40	*	71.00	*	*	60.00	*
2.00	*	71.00	*	*	60.00	*
3.50	*	71.00	*	*	60.00	*
6.00	*	71.00	*	*	60.00	*
10.00	*	71.00	*	*	60.00	*
22.00	*	71.00	*	*	60.00	*
30.00	*	71.00	*	*	60.00	*

“*” means the emission level is 6dB lower than the relevant limit.



1.2 Radiated emission

Test result: PASS

1.2.1 Radiated emission limit from frequency range 30MHz – 1000MHz

Frequency Range: 30M Hz to 1000M Hz
Test date: "*****" Lun{ '38.'4236
Class/severity: Class A
Limit: 50.0 dB μ V/m between 30MHz & 230MHz
57.0 dB μ V/m between 230MHz & 1GHz
Detector: Peak for pre-scan (120kHz resolution bandwidth)
Quasi-Peak if maximized peak within 6dB of limit.

1.2.2 E.U.T. Operation

Operating Environment:
Temperature: 25°C, Humidity: 68%RH, Atmospheric Pressure: 1005MPa
EUT Operation: Test EUT is the in representative work according to standard

1.2.3 Test result (includes test data and test curve)

An initial pre-scan was performed in peak detection mode. Quasi-Peak was performed at the frequencies with maximized peak emission were detected

**1.3 Test Instruments**

Name	Model/Type	Manufacturer	Valid time of calibration	Used
Shielded Room	7.5×4.0×2.7(m)	LEINING SHIELD EQUIPMENT CO, LTD	2014.09.16	√
EMC chamber	10×10×10(m)	SCHAFFNER	2014.10.05	√
EMI Receiver	ESHS30	ROHDE&SCHWARZ	2014. 10.05	√
LISN	NNB41C	SCHAFFNER	2014. 10.05	√
Absorbing Clamp	AMZ41	SCHAFFNER	2014. 10.05	√
Full frequency antenna	CBL6112A	SCHAFFNER	2014. 10.05	√
Discontinuous Interference Analyzer	DIA1512D	SCHAFFNER	2014. 10.23	√
Tri-loop	HXYZ9170	SCHAFFNER	2014. 10.29	√
Therom-Hygrograph	ZJ1-2A	ROHDE&SCHWARZ	2014. 10.29	√



Part 2: Immunity to electromagnetic disturbance

Section 2: Immunity Test Results

2.1 Test procedure:

EN 61000-4-11: 2004

EN 61000-4-2: 2009

EN 61000-4-4: 2004

EN 61000-4-5: 2006

EN 61000-4-6: 2009

2.2 Test Results:

EN 61000-4-2: 2009	Criteria A	PASS
EN 61000-4-4: 2004	Criteria B	PASS
EN 61000-4-5: 2006	Criteria A	PASS
EN 61000-4-6: 2009	Criteria A	PASS
EN 61000-4-11: 2004	Criteria A	PASS

2.3 Test instruments:

Name	Model/Type	Manufacturer	Valid time of calibration	Used
Impulse Generator	NDG 2050	SCHAFFNER	2014.11.30	√
Pulse coupling network	CDN31	SCHAFFNER	2014.11.30	√
Fast transient/Burst Generator	NSG2050	SCHAFFNER	2014.09.17	√
RF Generator	NSG2070	SCHAFFNER	2014.09.24	√
Coupling and decoupling network	CDN M316	SCHAFFNER	2014.09.24	√
ESD Generator	NSG 438	SCHAFFNER	2014.09.07	√

2.4 Performance Criteria Description:

- A : The equipment shall continue to operate as intend. No degradation of performance or less of function is allowed below a performance level specified by the manufacturer
- B : After the test the equipment shall continue to operate as intend. No degradation of performance or less of unction is allowed after the application of the phenomena below a performance level specified by the manufacturer.
During the test, degradation of performance is allowed. However, no change of actual operation state or stored data is allowed
- C : Loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls by the user in accordance with the manufacturers instructions



2.6 Results of electrical Fast Transient(EFT)

Basic Standard : EN 61000-4-4
 Source voltage and frequency : AC240V/50Hz, single phase
 Polarity : Positive/Negative
 Impulse frequency : 5KHz
 Tr/Tn : 5/50ns
 Burst : 15ms/300ms
 Test level : 0.5 kV
 Test duration : 2 minute per Level & polarity
 Observation:

2.6.1 E.U.T. Operation:

Operating Environment:

Temperature: 26°C, Humidity: 68%RH, Atmospheric Pressure: 1008MPa

EUT Operation: Test EUT is the in representative work according to standard

2.6.2 Test Results

Lead under Test	Level (±kV)	Coupling Direct/Clamp	EUT operating mode	Observations (Performance Criterion)
Live	±0.5	Direct	POWER ON	Performance Criteria A
Neutral	±0.5	Direct	POWER ON	Performance Criteria A
Live, Neutral	±0.5	Direct	POWER ON	Performance Criteria A

Remark:

- A : The equipment shall continue to operate as intend. No degradation of performance or less of function is allowed below a performance level specified by the manufacturer
- B : After the test the equipment shall continue to operate as intend. No degradation of performance or less of unction is allowed after the application of the phenomena below a performance level specified by the manufacturer.
 During the test, degradation of performance is allowed. However, no change of actual operation state or stored data is allowed
- C : Loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls by the user in accordance with the manufacturers instructions



2.8 Conducted disturbance

Basic Standard :EN61000-4-6
 Frequency range : 0.15MHz~80MHz
 Field strength : 3V/rms
 Modulation : AM 80%, 1Khz Sine wave
 Frequency step : 1% of fundamental
 Dwell Time : 2 seconds
 Coupling Method : : CDN M316 3Line
 Observation:

2.8.1 E.U.T. Operation:

Operating Environment:
 Temperature: 26°C, Humidity: 68%RH, Atmospheric Pressure: 1008MPa
 EUT Operation: Test EUT is the in representative work according to standard

2.8.2 Test result:

Cabal Description	Frequency(MHz)	Observation
AC input	0.15~80	A

Results:

- A : The equipment shall continue to operate as intend. No degradation of performance or less of function is allowed below a performance level specified by the manufacturer
- B : After the test the equipment shall continue to operate as intend. No degradation of performance or less of unction is allowed after the application of the phenomena below a performance level specified by the manufacturer.
 During the test, degradation of performance is allowed. However, no change of actual operation state or stored data is allowed
- C : Loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls by the user in accordance with the manufacturers instructions



2.9 Radiated Immunity (80MHz to 1GHz)

Basic Standard	: EN61000-4-3
Frequency range	: 80MHz~1000MHz
Field strength	: 3V/rms
Modulation	: AM 80%, 1Khz Sine wave
Frequency step	: 1% of fundamental
Dwell Time	: 2 seconds
Coupling Method :	: CDN M316 3Line
Observation:	

2.9.1 E.U.T. Operation:

Operating Environment:

Temperature: 26°C, Humidity: 68%RH, Atmospheric Pressure: 1008MPa

EUT Operation: Test EUT is the in representative work according to standard

2.9.2 Test result:

Pass



Part 3: Specifications table

TYPE	VOLT AGE(V)	SPEED(R/MIN)	Other
550	6v	13000/1.3-7719	RS-550PH-7521NF
550	12v	13000/10.6-5939	RS-550PH-5939NF
540	6v	10000/0.9-6433	RS-540PH-6433NF
540	12v	10000/0.4-3876	RS-540PH-3876NF

TYPE	VOLT AGE(V)	SPEED(R/MIN)	Other
RS-380#	6V	4143-14000/min	RS380SP-6V-4143
RS-390#	6V	4730-16000/min	RS390SP-6V-4730
RS-390#	12V	3355-16000/min	RS390SP-12V-3355
RS-280	6V	2685-12000/min	RS280SC-6V-2685
RS-280	12V	17175-12000/min	RS280SC-12V-17175



Shanghai MICEZ Equipment Testing & Technical Co., LTD

EC Declaration of conformity

Council 2004/108/EC Electromagnetic compatibility

**Jiangsu Oliter Energy Technology Co.,ltd
No.88 North outer ring Road Gaoyou Jiangsu,China**

**Certify that the product described is in conformity with the Directive 2004/108/EC Electromagnetic
compatibility
as amended**

Product Name:2V used in storage gel battery

**No:JGFM100-2/JGFM200-2/JGFM300-2/JGFM400-2/JGFM500-2/JGFM600-2
JGFM800-2/JGFM1000-2/JGFM1500-2/JGFM2000-2/JGFM3000-2**

**The product has been assessed by the application of the following standards:
EN 61000-3-2: 2006+ A2: 2009 EN 61000-3-3: 2013**

Issue place and date

Company stamp and Signature of authorized personnel

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Alice.chen
