



Reliability Laboratory

TEST REPORT

Report No.: HEN0001/2009

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Date: November 5, 2009

TAIWAN YUASA BATTERY CO., LTD.
NO. 11, LANE 227, FUYING RD.,
HSINCHUANG CITY, TAIPEI HSIEN

The following merchandise was submitted and identified by the vendor as:

Product Description: BATTERY
Style/ Item No.: REC22-12/ No.1, No.2
Manufacturer/Vendor: Taiwan Yuasa Battery Co., Ltd.
Country of Origin: Taiwan
Quantity: Total 2 sets
Testing Period: Nov. 3, 2009 to Nov. 4, 2009

We have tested the submitted sample(s) as requested and the following results were obtained:

Test Required : (According to client's test specification, please see attached sheets in detail.)

1. Vibration Test
2. Altitude Test
3. High Temperature Test

Test Results : -PLEASE SEE ATTACHED SHEETS-

Terence Hsieh
Manager - Operation

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1. Vibration Test:

Test Equipment:

Name	Brand	Model	Serial No.
Vibration Tester	King Design	EM-800F2K-50N120	RU104080389
Controller	Dactron	COMET 200	10539718
Control Accelerometer	PCB	353B34	121614

Lab Environmental Conditions:Ambient Temperature : $25 \pm 3^{\circ}\text{C}$ Relative humidity : $55 \pm 20\% \text{RH}$ Test Method/ Specification:Sample condition: Non-OperatingWave form: SinusoidalFrequency: 10 ~ 55 HzAmplitude (D_{p-p}): 1.6 mmSweep rate: 45 minutes/ sweepDirection: X, Y, Z axes (As shown in photo 3 ~ 8)Duration: 95 minutes/ axis

Note: The battery must be rigidly clamped to the platform of a vibration machine, and a simple harmonic motion having an amplitude of 0.8 mm (0.03 inches), with a 1.6 mm (0.063 inches) maximum total excursion must be applied. The frequency must be varied at the rate of 1 Hz/min between the limits of 10 Hz to 55 Hz. The entire range of frequencies and return must be traversed in 95 ± 5 minutes for each mounting position (direction of vibrator) of the battery. The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for equal time periods.

- Examine the appearance of specimen(s) by visual check (without leakage of battery fluid from the battery) after this test.



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Specimen:

Style/Item No.: REC22-12 / No.1, No.2

Quantity: Total 2 sets

Test Result:

Check Item Style/Item No.	Appearance check (Visual check)
REC22-12 / No.1	No visible damage (without leakage of battery fluid from the battery.)
REC22-12 / No.2	No visible damage (without leakage of battery fluid from the battery.)

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2. Altitude Test:Test Equipment:

Name	Brand	Model	Serial No.
Vacuum-Temperature Cabinet	YEONG SHIN	DOBL-45	YSCB940280E

Lab Environmental Conditions:Ambient temperature: 25±3°CRelative humidity: 55±20%RHTest Method/ Specification:Sample Condition: Non-OperatingAtmospheric Pressure: 88 kPaTemperature: 24°CDuration: 6 hours

Note: Following the vibration test, the battery must be stored for six hours at 24°C ± 4°C (75°F ± 7°F) while subjected to pressure differential of at least 88 kPa (13 psig). The battery must be tested in three mutually perpendicular positions (to include testing with fill openings and vents, if any, in an inverted position) for at least six hours in each position.

- Examine the appearance of specimen(s) by visual check (without leakage of battery fluid from the battery) after this test.



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Specimen:

Style/Item No.: REC22-12 / No.1, No.2

Quantity: Total 2 sets

Test Result:

Check Item Style/Item No.	Appearance check (Visual check)
REC22-12 / No.1	No visible damage (without leakage of battery fluid from the battery.)
REC22-12 / No.2	No visible damage (without leakage of battery fluid from the battery.)

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3. High Temperature Test:Test Equipment:

Name	Brand	Model	Serial No.
Programmable Temperature & Humidity Chamber	KSON	THS-D6S-150-LN2	3308

Lab Environmental Conditions:Ambient temperature: 25±3°CRelative humidity: 55±20%RHTest Method/ Specification:Sample Condition: Non-OperatingTemperature: 55°CDuration: 4 Hours

- Examine the appearance of specimen(s) by visual check (without leakage of battery fluid from the battery) after this test.



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Specimen:

Style/Item No.: REC22-12 / No.1, No.2

Quantity: Total 2 sets

Test Result:

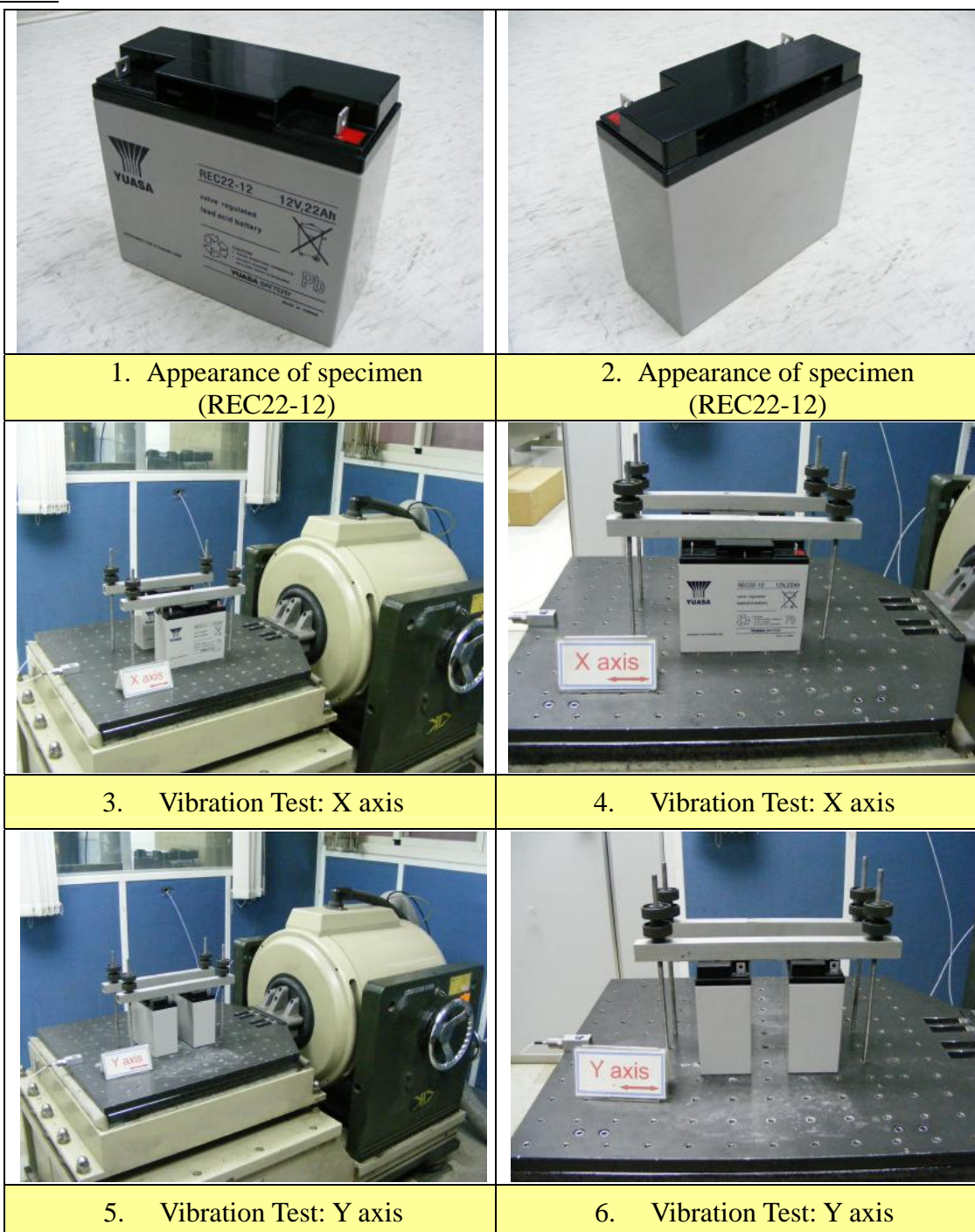
Check Item Style/Item No.	Appearance check (Visual check)
REC22-12 / No.1	No visible damage (without leakage of battery fluid from the battery.)
REC22-12 / No.2	No visible damage (without leakage of battery fluid from the battery.)

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Test Photos:



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Test Photos--Continued:



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