

REPORT

Technical Report: (5109)085-0074 REVISION

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August 20, 2009





TEST REPORT

FUJI NOVEL BATTERIES
 300 CORPORATE DRIVE
 MAHWAH, NEW JERSEY 07430

LAB LOCATION: BUFFALO, NY
LAB NUMBER: (5109)085-0074 R

ATTN: RUSS BONGIORNO
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DATE IN: MARCH 26, 2009
MOD. LOG IN: N/A
DATE OUT: JUNE 29, 2009
REVISED DATE: AUGUST 20, 2009
WORKING DAYS: 67
PAGE: 2 OF 10

OVERALL RATING	
PASS	_____
FAIL	_____
DATA	_____ X _____

**TESTING FOR
 PRIMARY CELL BATTERIES**

Sample Description:	AAA DIGITAL ALKALINE BATTERIES								
Manufacturer:	NOT LISTED				P.O. No.:	LAL324			
Buyer:	NOT LISTED				Style:	NOT LISTED			
Country of Origin:	NOT LISTED ON TRF			Country of Destination:	NOT LISTED				
Color:	NOT LISTED				SKU Number:	NOT LISTED			
Re-test:	Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>	Charge Vendor:	Yes:	<input type="checkbox"/>	No:	<input checked="" type="checkbox"/>
Previous Report No.:	N/A								



EXECUTIVE SUMMARY:

The submitted samples were compared to **DURACELL**, **ENERGIZER**, and **PANASONIC** digital AAA batteries, and were subjected to 4 separate discharge profiles, per quote Q090003.

The results of this test are presented as **DATA** only.

The first discharge profile was a discharge of 600 mA for 10 seconds per minute, 1 hour per day. This is the ANSI standard test simulating battery performance powering a photoflash. For this discharge, the ANSI standard minimum service life for AAA Alkaline batteries is 170 pulses. The Fuji samples averaged 357 pulses and 600 mAh capacity. The Duracell samples averaged 307 pulses and 516 mAh capacity. The Energizer samples averaged 355 pulses and 516 mAh capacity. The Panasonic samples averaged 404 pulses and 675 mAh capacity.

The second discharge profile was a discharge of 100 mA for 1 hour per day. This is the ANSI standard test simulating battery performance in a digital audio player. For this discharge, the ANSI standard minimum service life for AAA Alkaline batteries is 7.5 hours. The Fuji samples averaged 10.03 hours of service life and 999 mAh capacity. The Duracell samples averaged 10.34 hours of service life and 1032 mAh capacity. The Energizer samples averaged 10.32 hours of service life and 1032 mAh capacity. The Panasonic samples averaged 10.46 hours of service life and 1040 mAh capacity.

The third discharge profile was a load of 24Ω for 15 seconds per minute, 8 hours per day. This is the ANSI standard test simulating battery performance in a remote control. For this discharge, the ANSI standard minimum service life for AAA Alkaline batteries is 14.5 hours. The Fuji samples averaged 22.44 hours of service life and 1161 mAh capacity. The Duracell samples averaged 22.52 hours of service life and 1159 mAh capacity. The Energizer samples averaged 22.11 hours of service life and 1124 mAh capacity. The Panasonic samples averaged 22.25 hours of service life and 1137 mAh capacity.

The fourth discharge profile was a load of 5.1Ω for 4 minutes per hour, 8 hours per day. This is the ANSI standard test simulating battery performance in portable lighting. For this discharge, the ANSI standard minimum service life for AAA Alkaline batteries is 2.20 hours. The Fuji samples averaged 4.08 hours of service life and 944 mAh capacity. The Duracell samples averaged 4.32 hours of service life and 956 mAh capacity. The Energizer samples averaged 4.16 hours of service life and 925 mAh capacity. The Panasonic samples averaged 4.12 hours of service life and 938 mAh capacity.



600 mA, 10 seconds per minute, 1 hour per day	Sample	Service life (pulses)	Average	Capacity (mAh)	Average
			Service life (pulses)		Capacity (mAh)
	ANSI minimum	170	170	N/A	N/A
	Fuji 1	413	357	691	600
	Fuji 2	249	357	418	600
	Fuji 3	409	357	690	600
	Duracell 1	405	307	681	516
	Duracell 2	222	307	374	516
	Duracell 3	293	307	493	516
	Energizer 1	356	355	585	591
	Energizer 2	356	355	592	591
	Energizer 3	354	355	595	591
	Panasonic 1	399	404	659	675
	Panasonic 2	415	404	697	675
	Panasonic 3	397	404	669	675

100 mA, 1 hour per day	Sample	Service life (hours)	Average	Capacity (mAh)	Average
			Service life (hours)		Capacity (mAh)
	ANSI minimum	7.5	7.5	N/A	N/A
	Fuji 1	9.94		980	
	Fuji 2	10.19	10.03	1020	999
	Fuji 3	9.96		996	
	Duracell 1	10.42		1041	
	Duracell 2	9.99	10.34	997	1032
	Duracell 3	10.60		1059	
	Energizer 1	10.25		1024	
	Energizer 2	10.42	10.32	1042	1032
	Energizer 3	10.30		1030	
	Panasonic 1	10.50		1050	
	Panasonic 2	10.49	10.46	1030	1040
	Panasonic 3	10.38		1039	



Note: Data from Energizer sample 3 for the 24Ω load test became corrupted. This report has therefore been issued with only two Energizer samples for that test.

24Ω load, 15 seconds per minute, 8 hours per day	Sample	Service life (hours)	Average Service life (hours)	Capacity (mAh)	Average Capacity (mAh)
	ANSI minimum	14.5	14.5	N/A	N/A
	Fuji 1	22.25	22.44	1150	1161
	Fuji 2	22.74		1186	
	Fuji 3	22.33		1148	
	Duracell 1	22.74	22.52	1173	1159
	Duracell 2	22.47		1169	
	Duracell 3	22.34		1136	
	Energizer 1	21.85	22.11	1108	1124
	Energizer 2	22.37		1141	
	Panasonic 1	22.19	22.25	1133	1137
	Panasonic 2	22.33		1144	
	Panasonic 3	22.23		1133	

5.1Ω load, 4 minutes per hour, 8 hours per day	Sample	Service life (hours)	Average Service life (hours)	Capacity (mAh)	Average Capacity (mAh)
	ANSI minimum	2.20	2.20	N/A	N/A
	Fuji 1	4.06	4.08	938	944
	Fuji 2	4.07		941	
	Fuji 3	4.11		953	
	Duracell 1	4.25	4.32	929	956
	Duracell 2	4.51		986	
	Duracell 3	4.20		953	
	Energizer 1	4.18	4.16	923	925
	Energizer 2	4.24		934	
	Energizer 3	4.06		918	
	Panasonic 1	4.11	4.12	934	938
	Panasonic 2	4.13		943	
	Panasonic 3	4.12		937	



NOTE: The report has been revised with results for the three discharge profiles.

For general inquiries, please contact Bureau Veritas at (716) 505-3300.

Bureau Veritas
Consumer Products Services, Inc.

A handwritten signature in black ink, appearing to read 'J. Fields'.

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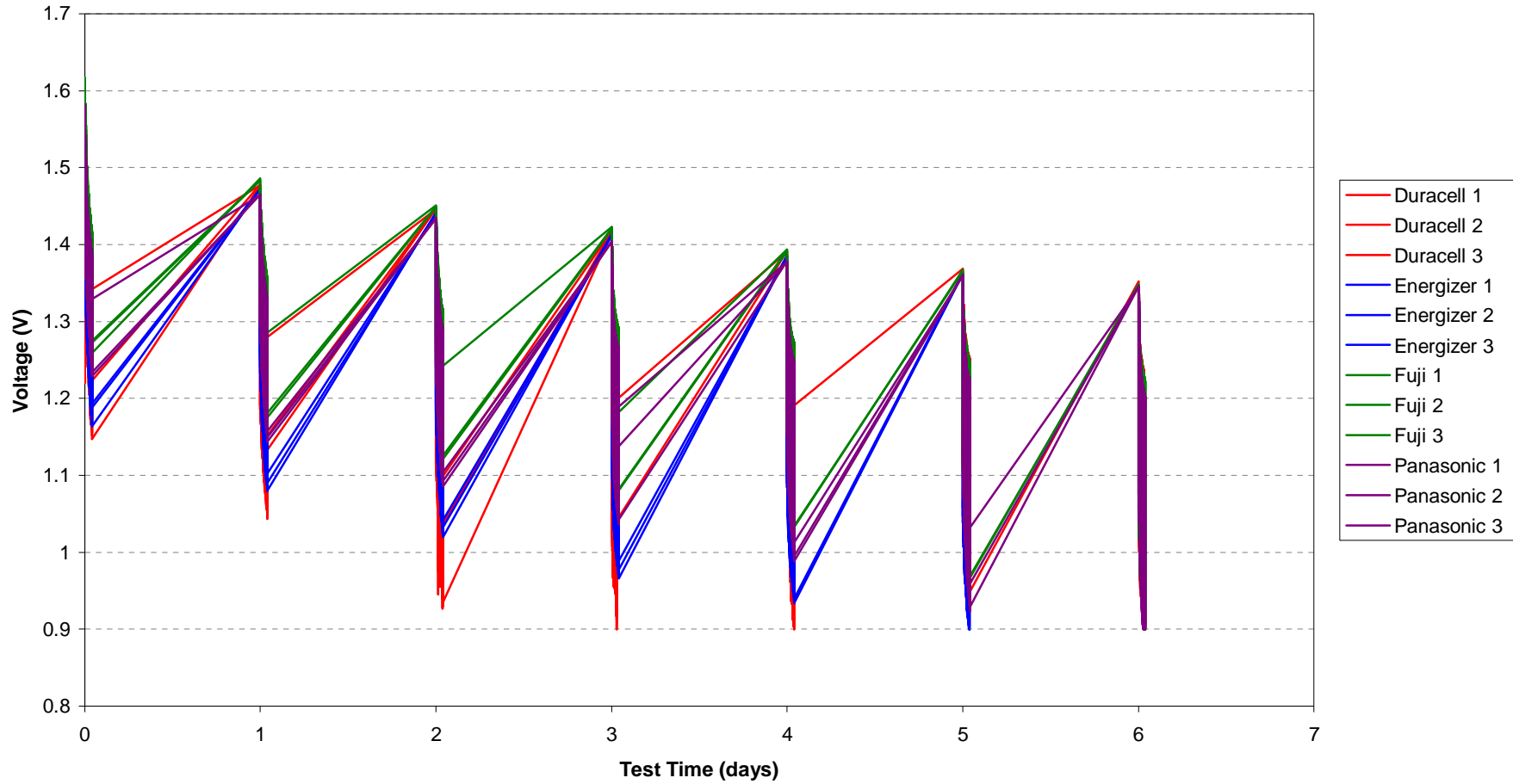
/jln



BV Lab Number:
Technician Name:
Test Date:
Reviewed By/Date:

(5109)085-0074 R
GM
June 18, 2009
DC June 26, 2009
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Digital AAA batteries, Photoflash simulation: Voltage (V) vs. Test Time (days)





BV Lab Number: (5109)085-0074 R
Technician Name: GM
Test Date: June 18, 2009
Reviewed By/Date: DC June 26, 2009

AAA Digital batteries, 5.1Ω load, 4 minutes per hour, 8 hours per day: Voltage (V) vs. Test Time (days)

