

DISCHARGE PERFORMANCE, NOMINAL CAPACITY

PREPARED FOR:

BALTRADE sp. z o.o.
Attn: Michal Seredzinski
Ul. Kartuska 493
80-298 Gdansk
Michal@baltrade.pl

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PREPARED BY:

Linus Olausson
Project Engineer at Intertek Semko AB

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DISCHARGE PERFORMANCE, NOMINAL CAPACITY

ISSUING OFFICE:

Intertek Semko AB
Torshamnsgatan 43, Box 1103,
SE-164 22 Kista, Sweden
Telephone +46 8 750 00 00,
Fax +46 8 750 60 30
www.intertek.se
Registered in Sweden: No: SE556024059901
Registered office: As address

PROJECT LEADER:


Linus Olausson

APPROVED BY:


Johnny Jonsson

DISTRIBUTION:

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EXECUTIVE SUMMARY

Testing of rechargeable NiMH cells of size AA and AAA, according to IEC 61951-2 2017-03 ED 4 section 7.3.2 Discharge performance at 20 °C to determine capacity after five performed cycles.

Table 1 Discharge capacity (mAh) EverActive HR6 (AA) 2500 mAh

Sample nr:	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
ES18-132:1	2565	2562	2561	2561	2560
ES18-132:2	2582	2577	2574	2571	2569
ES18-132:3	2570	2569	2569	2569	2569
ES18-132:4	2576	2572	2571	2570	2569
ES18-132:9	2602	2606	2605	2601	2602
ES18-132:10	2595	2596	2594	2590	2590
ES18-132:11	2563	2562	2560	2555	2556
ES18-132:12	2532	2536	2537	2535	2537

Table 2 Discharge capacity (mAh) EverActive HR03 (AAA) 1000 mAh

Sample nr:	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
ES18-132:5	1044	1043	1044	1045	1045
ES18-132:6	1030	1030	1030	1031	1031
ES18-132:7	994	992	992	992	991
ES18-132:8	1026	1026	1027	1028	1029
ES18-132:13	1017	1021	1023	1024	1025
ES18-132:14	1016	1019	1020	1019	1020
ES18-132:15	999	1002	1004	1004	1005
ES18-132:16	995	998	999	999	1000

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References:

Proposal No. Qu-00885337-0

Test conditions: IEC 61951-2 2017-03 ED 4 / EN 61951-2



1 COMMISSION

The commission was conducted in accordance with our proposal No. Qu-00885337-0.

The object is discharge performance, nominal capacity testing.



2 TEST SAMPLES

Table 3 Test samples

Brand	Battery type/Rated capacity	Intertek ID number	MFG date/Batch	Date of arrival
EverActive	NiMH HR6 (AA) 2500 mAh	ES18-132:(1-4), (9-12)	Mar 2018/8130	2018-06-26
EverActive	NiMH HR03 (AAA) 1000 mAh	ES18-132:(5-8), (13-16)	Mar 2018/8130	2018-06-26

Test start HR6 (1-4), 28/6-18. Test end 3/7-18.

Test start HR03 (5-8), 28/6-18. Test end 3/7-18.

Test start HR6 (9-12), 11/6-18. Test end 16/7-18.

Test start HR03 (13-16), 11/6-18. Test end 16/7-18.



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3 TEST PROGRAM

The purpose is to check how the capacity corresponds to the rated capacity of the tested battery types. The test is according to IEC 61951-2, 7.3.2. A rest discharge is performed prior to cycling.

Phase	Load	End criteria	Cycles
Rest Discharge	C/5	1.0 V	1
Charge	C/10	16 h	5
Discharge	C/5	1.0 V	5



4 TEST CONDITIONS

Test conditions are according to IEC 61951-2

Intertek Semkos AB's computer controlled test equipment of type GSM G INV:31604 has been used for all cycling.

Room temperature: 21 ± 1 °C

Humidity: 45 – 65 %

For determine of time to cut-off voltage, the battery voltage is checked approximately every 30 ms, registered at every 10 minutes and $\Delta V = 5$ mV.

4.1 Uncertainty of voltage/current/temperature measurement

The uncertainty of voltage measurement is calculated to be ≤ 1 % based on calibrations.

The uncertainty of current measurement is calculated to be ≤ 1 % based on calibrations.

The uncertainty of Capacity is calculated to be ≤ 1 % based on calibrations.

The uncertainty of temperature is calculated to be ≤ 1 °C based on calibrations.



5 TEST RESULTS

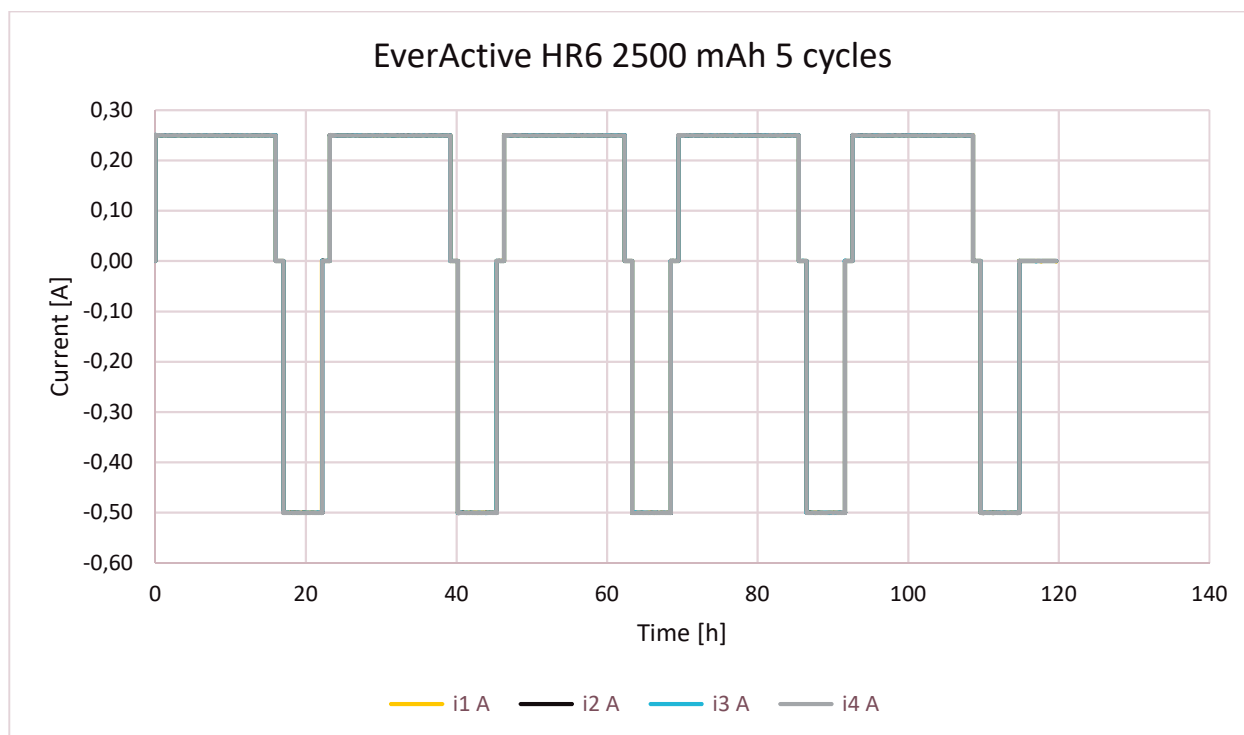
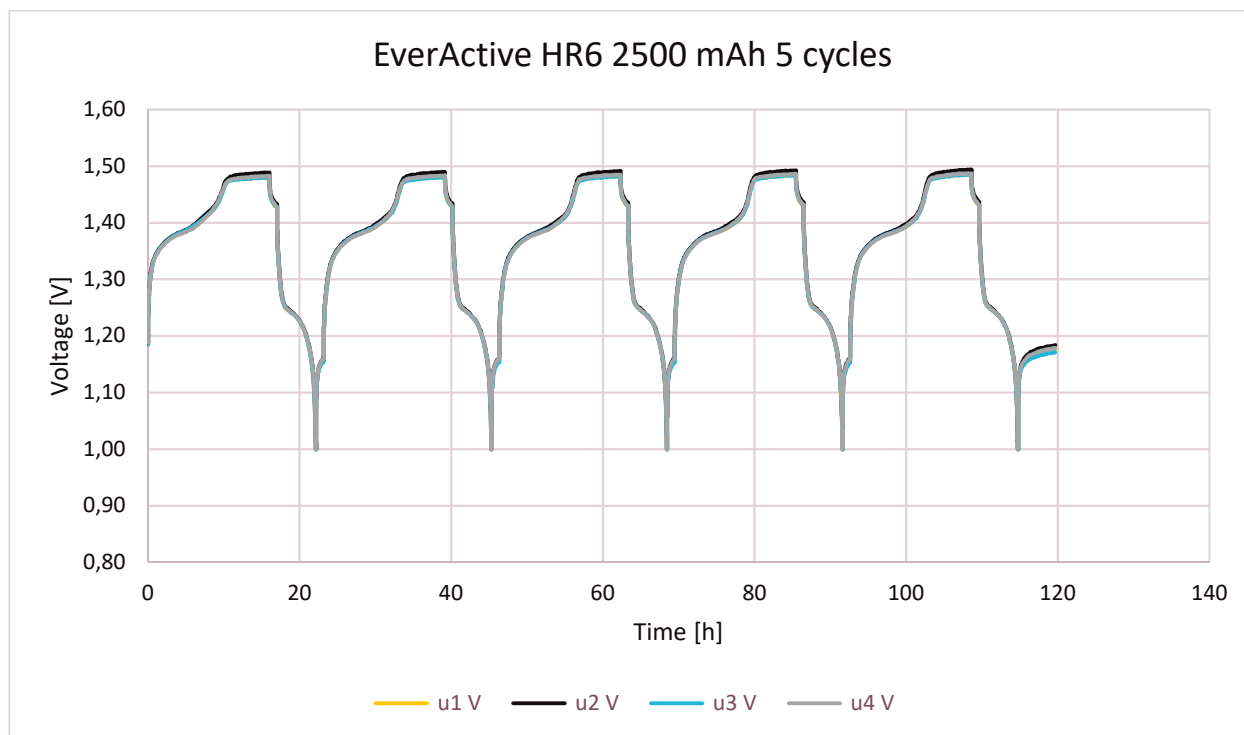
Table 3 Discharge capacity (mAh) EverActive HR6 (AA) 2500 mAh

Sample nr:	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
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Table 4 Discharge capacity (mAh) EverActive HR03 (AAA) 1000 mAh

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ES18-132:7	994	992	992	992	991
ES18-132:8	1026	1026	1027	1028	1029
ES18-132:13	1017	1021	1023	1024	1025
ES18-132:14	1016	1019	1020	1019	1020
ES18-132:15	999	1002	1004	1004	1005
ES18-132:16	995	998	999	999	1000

Figure one and two includes test results for sample 1-4 (HR6). Figure Three and four includes test result for sample 5-8 (HR03).



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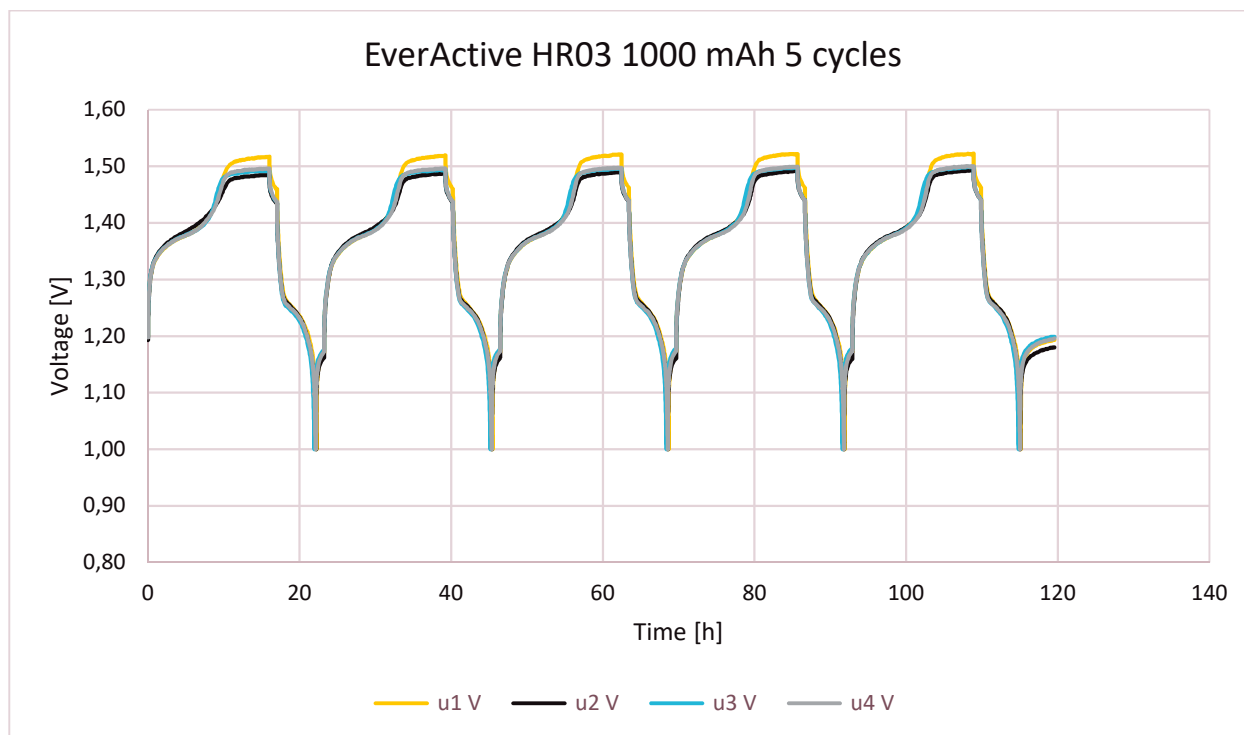


Figure 3

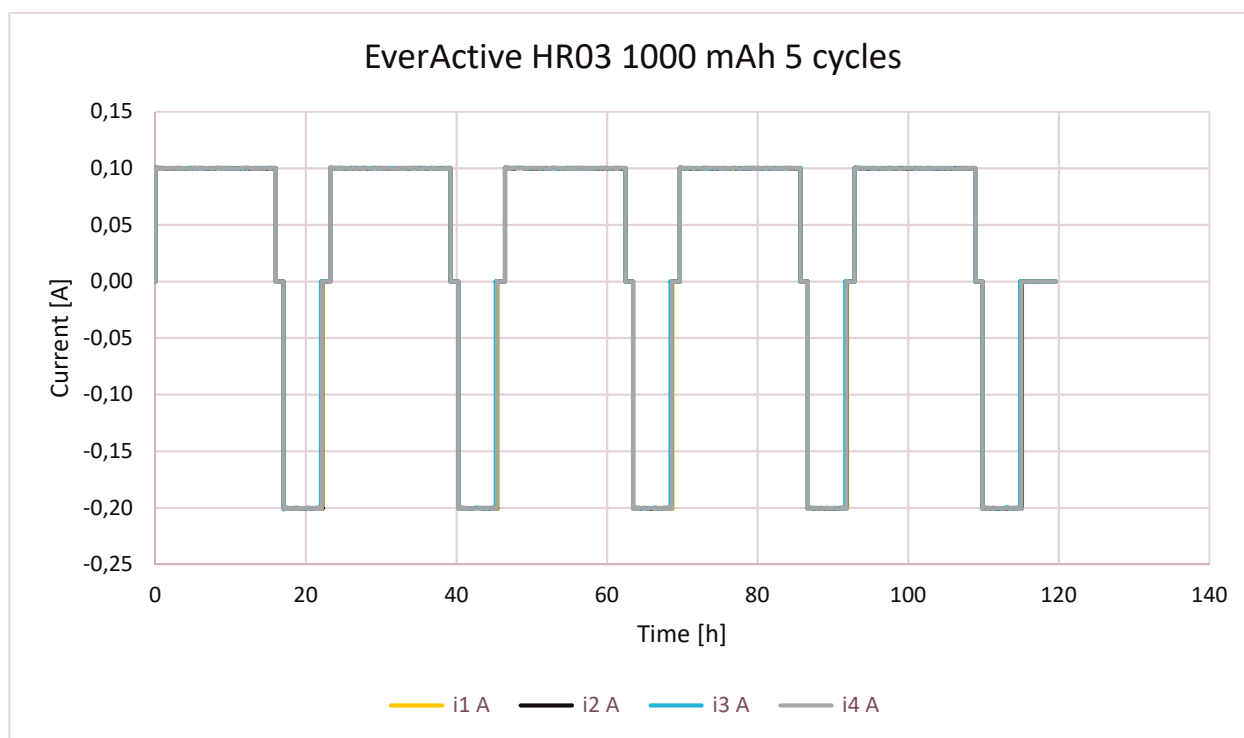


Figure 4

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