GomSpace A/S
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NANOPOWER BPX 100WH

Qualification Certificate

Reference: 1067872
Revision: 1.0
Date: 2025-12-18

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Document Title:	NanoPower BPX 100Wh Qualification Certificate		
Reference:	1067872	**Document Class**	QTCT
Revision number:	1.0	**Date:**	2025-12-18

Release Table:

Action	Name	Function	Initials / Signature	Date
Prepared / Owned by:	Lars Vestergaard	PA Manager	LAV	2025-12-16
Verified / Reviewed by:	Tim Nielsen	Product Owner	TINI	2025-12-18
Approved by:	Poul Hove Kristensen	Commercial Product Manager	PHK	2025-12-18

Document Change Log (Not mandatory)

Revision	Date	Initials	Description
1.0	2025-12-17	LAV	Initial revision

References

Reference	Document title	Document number	Revision, Date
[RD-1]	GomSpace Qualification Program	1012670	Rev. 2.3, 2023-03-24
[RD-2]	gs-qtct-NanoPower BPX 3000mA Qualification Certificate	1047279	Rev. 1.0, 2022-12-12
[RD-3]			
[RD-4]			

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1. Qualification Tests

1.1 Purpose

This document describes the environmental qualification test, which is carried out on this specific product. In the following sections, the tests and the corresponding test results are summarized.

1.2 Product

Manufacturer Name: GomSpace
Product Name: NanoPower BPX 100Wh
Product Number: 113118

1.3 Scope

The NanoPower BPX 100Wh, with part number 113118, is introduced as a replacement for the NanoPower BPX 3000mAh, with part number 110365.
The main difference between the two products is the battery cell, which is changed from 3000mAh to 3500mAh. The cells have the same physical dimension and mass.

Because of the similarity between the two variants, the qualification status from 110365 is inherited on 113118. See the qualification certificate for 110365 [RD-2].
A full re-qualification is planned and expected to be finalized in Q2-2026

1.4 Vibration Tests

As described above, the qualification status for Random Vibration, Sinusoidal Vibration and Quasi Static Vibration is inherited from the NanoPower BPX 3000mAh. See [RD-2].

A vibration test is planned and will be finalized in Q2-2026.

1.5 Shock Tests

As described above, the qualification status for Mechanical Shock is inherited from the NanoPower BPX 3000mAh. See [RD-2].

A vibration test is planned and will be finalized in Q2-2026.

1.6 Thermal Vacuum Tests

As described above, the qualification status for Thermal Vacuum is inherited from the NanoPower BPX 3000mAh. See [RD-2].

A TVAC test is planned and will be finalized in Q2-2026.

1.7 Radiation TID Tests

As described above, the qualification status for Radiation TID test is inherited from the NanoPower BPX 3000mAh. See [RD-2].

A TID test campaign is planned and will be finalized in Q2-2026.

1.8 Thermal Stress Test

As described above, the qualification status for Thermal Stress is inherited from the NanoPower BPX 3000mAh. See [RD-2].

A Thermal Stress test is planned and will be finalized in Q2-2026.

1.9 Flight Heritage

The NanoPower BPX is at TRL 9 and have flight heritage since 2016.
Please note that the NanoPower BPX has been delivered in three variants, with the only difference being the battery cells. These are:

- 200239 NanoPower BPX, with flight heritage from 2016
- 110365 NanoPower BPX 3000 mAh, with flight heritage from 2022
- 113118 NanoPower BPX 100 Wh.

The new battery cell, LG Chem INR18650 MJ1, is tested by JPL in a comparison test of commercial 18650 cells, where the MJ1 cell outperformed the other cells in the test.
Published in “Performance of Commercial Li-Ion Cells for Future NASA Missions and Aerospace Applications” in Journal of The Electrochemical Society, 2021 168 040504