C.2 Power Generating Module Document Type C and Type D

Form C2-1 Power Generating Module Document for Type C and Type D Power Generating Modules **Compliance Statement** This document shall be completed by the **Generator**. Note: For phased installations reference to **PGM** in this form should be read as reference to **Generating Unit**s and the project phase noted.	
Power Generating Module (PGM) **PGM Name:** MegaPack 2XL Battery Energy Storage System, Model 1848844 **Compliance Contact** (name/tel/email)**:** Jelle Deruyter – Tesla Project Engineer Tel: CONFIDENTIAL Email: CONFIDENTIAL	**Distribution Network Operator (DNO)**: **DNO Name**: ENA Submission **Compliance Contact** (name/tel/email): NA

Key to Submission Stage

A – Application: Submission of the Standard Application Form.

For **Type C: IS – Initial Submission:** The programme of initial compliance document submission to be agreed between the **Generator** and the **DNO** as soon as possible after acceptance of a Connection Offer. The **Power Generating Module Document** shall be completed as agreed in accordance with paragraph 18.2.2 at least 28 days before the **Generator** synchronising the **Power Generating Module** for the first time.

E – Energisation: Documentation required prior to Energisation.

For **Type D: ION** – **Interim Operational Notification:** The programme of initial compliance document submission to be agreed between the **Generator** and the **DNO** as soon as possible after acceptance of a Connection Offer. The **Power Generating Module Document** shall be completed as agreed in accordance with paragraph 19.3.2 at least 28 days before the **Generator** synchronising the **Power Generating Module** for the first time.

FONS – Final Operational Notification Submission: The **Generator** shall submit post energisation verification test documents within 28 days of synchronising in accordance with paragraph 18.4.2 or 19.5.4 to obtain **Final Operational Notification** from the **DNO**.

Key to evidence requested

S - Indicates that **DNO** would expect to see the results of a Simulation study

P - **Generating Unit** design data

MI - **Manufacturer** Information, generic data or test results as appropriate

D - Copies of correspondence or other documents confirming that a requirement has been met

T - Indicates that **DNO** would expect to see results of, and/or witness, tests or monitoring which demonstrates compliance

TV - Indicates Type Test reports (if **Generator** pursues this compliance option)

Note that where multiple types of evidence are indicated in the "compliance" column in the **Power Generating Module Document**, this indicates that the evidence could be provided in a number of different formats, as determined by the **Generator** and/or **Manufacturer**.

Key to Compliance

Y = Yes (Compliant),

O = Outstanding (outstanding submission)

UR= Unresolved issue

N = No (Non-Compliant)

E = Exempt

Note that the second part of this form is split into two Parts: Part 1 is applicable to **Synchronous Power Generating Module**s and Part 2 is applicable to **Power Park Module**s.					
Issue	Date of Issue	Compliance Declaration Signatory Name	Compliance Declaration Signature	Issue Notes (completed by the **Generator**)	**DNO** review date and comment
Issue #	29/03/2023	Jelle Deruyter	I declare that the details provided in this issue of this **Power Generating Module Document** comply with the requirements of G99	ENA Engineering Recommendation G99 issue 1 Amendment 9	NA

Details of Power Generating Module	
Connection Voltage	480V (L-L)
Registered Capacity	Megapack 2XL, Model: 1848844-XX-Y: 1260 kVA/1512 kVA (4 hr.) and 2520 kVA/3024 kVA (2hr.)
Manufacturer / Reference	Tesla, Inc.
Technology Type	Grid Support Utility Interactive Inverter

Form C2-1 Part 2 - Compliance Requirements for Power Park Module				Response	
G99 Reference	**Compliance Requirement of the Power Generating Module**	**Submission Stage**	**Evidence Requested (and / or)**	**Compliance** **Y, O, UR, N,E**	**Generator's Statement** *(Provide document references with any additional comments)*
18.2.1, 18.2.3, 18.4.1	Confirmation that a completed Standard Application Form has been submitted to the **DNO**	A, IS, FONS	D	E	Not applicable for ENA submission
14.3	Site Responsibility Schedule	E	D	E	Not applicable for ENA submission
9.4.2	**Power Quality – Voltage fluctuations and Flicker**: The installation shall be designed in accordance with EREC P28	IS, ION	S	Y	For single inverter module data, please refer to test report, **DoC_UK_G99_Issue1_Amd 9_formA.2.3 – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 1 Limited applicability for ENA submission. Site level assessment required as results depend on grid impedances.
9.4.3	**Power Quality – Harmonics**: The installation shall be designed in accordance with EREC G5	IS, ION	S	Y	For single inverter module data, please refer to sec. 9.4.3 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 2 Limited applicability for ENA submission. Site level assessment required as results depend on grid impedances.

13.5	**Reactive Power capability** Confirm compliance with Section 13.5 by carrying out simulation study in accordance with C.7.3 and by submission of a report	IS, ION	S	Y	For single inverter module data, please refer to sec. 13.5 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 3
13.4	**Voltage Control and Reactive Power Stability** Confirm compliance with Section 13.4 by carrying out simulation study in accordance with C.7.4 and by submission of a report	IS, ION	S	Y	For single inverter module data, please refer to sec. C.5.3 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 4
13.2	Confirm that the plant and apparatus is capable of continuing to operate in the frequency ranges specified in 13.2.1 and to withstand the rate of change of frequency specified in 13.2.2	IS	~~MI,~~ TV	Y	For single inverter module data, please refer to sec. C.13.2.1 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL**
13.2.4	**Limited Frequency Sensitive Mode – Over frequency and Frequency Sensitive Mode** Confirm the compliance with 13.2.4 by carrying out simulation study in accordance with C.7.6 and by submission of a report	IS, ION	S, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. C.13.2.4 and 13.2.6 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 5

13.2.5	**Limited Frequency Sensitive Mode – Under frequency** Confirm the compliance with 13.2.5 by carrying out simulation study in accordance with C.7.7 and by submission of a report	IS, ION	S, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. C.13.2.5 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 5
C.10	Confirm compliance with minimum frequency response requirements in Annex C.10 by testing in accordance with C.10.4.	IS, ION, FONS	~~MI,~~ TV, T	Y	For single inverter module data, please refer to sec. C.13.2.6 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level test results of frequency response times, please refer **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** – Attachment A – section C.9.5 (Frequency control tests)
13.1.3	Confirm the **Active Power** set point can be adjusted in accordance with instructions issued by the **DNO**	IS, ION	MI	Y	This is managed on site level in accordance with DNO requirements. Not Applicable for ENA application
9.1.7	Confirm that the **Power Generating Module** has been designed to comply with cyber security requirements, as detailed in 9.1.7	IS, ION	~~MI,~~ D	Y	The Tesla Energy Cybersecurity Program is modelled after the NISTIR 7628 framework, which itself is modelled after the following publications: - NIST 800-53, Revision 3, Recommended Security Controls for Federal Information Systems and Organizations, August 2009 - NERC CIP002, 003-009, Version 5 - Catalog of Control Systems Security: Recommendations for Standards Developers, Department of Homeland Security, March 2010 - ISA99 / IEC62443

					The Tesla Energy Cybersecurity Program is compliant to "Distributed Energy Resources – Cyber Security Connection Guidance" published by BEIS and ENA. The full compliance document available on request.
13.3 and 13.6	**Fault Ride Through and Fast Fault Current Injection** Confirm the compliance with 13.3 and 13.6 by carrying out simulation study in accordance with C.7.5 and by submission of a report	IS, ION	S	Y	For single inverter module data, please refer to sec. C.13.3 and 13.6 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level simulation results, please refer to **ENA PGMD Reference Documentation** – section 6
18.2.3 (e)	Confirm a detailed schedule of tests and test procedures have been provided	IS, ION	D	O	Not applicable for ENA submission
Section 10 and Form C2-2	**Interface Protection:** Over and under voltage protection Over and Under Frequency protection Loss of mains protection Other protection: Details of any special protection, eg Pole Slipping or islanding As an alternative to demonstrating protection compliance with Section 10 using **Manufacturers' Information** or type test reports, site tests can be undertaken at the time of commissioning the **Power Generating Module**	IS, ION, FONS	~~MI,~~ TV~~, T~~	Y	Site level requirement, not applicable for ENA submission. For single inverter module data, please refer to sec. 10.6.2, 10.6.3, 10.6.4, 10.6.5 and 10.6.6 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL**

C.7.8	**Model validation** Demonstration of the frequency control or governor/load controller/plant model, **Excitation System** and voltage controller by carrying out simulation studies in accordance with C.7.8	FONS	S~~, MI, TV,~~ T	Y	For reference site level test results, please refer to **ENA PGMD Reference Documentation** – section 11
C.5	**Voltage Control Test (pre 20%)** Confirm the performance requirements of a continuously acting voltage control system compliant with C.5 by testing in accordance with C.9.2	ION, FONS	T, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 9.4 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level test results, please refer to **ENA PGMD Reference Documentation** – section 7
C.5	**Voltage Control Test** Confirm the performance requirements of a continuously acting voltage control system compliant with C.5 by testing in accordance with C.9.4	FONS	T, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 9.4 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level test results, please refer to **ENA PGMD Reference Documentation** – section 9
13.5	**Reactive Capability Test** Confirm the **Reactive Power** capability of the **Power Park Module** meet the requirements of Section 13.5 by testing in accordance with C.9.3	FONS	T, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 13.5 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** For reference site level test results, please refer to **ENA PGMD Reference Documentation** – section 8
C.9.5	**Frequency Response Test** Confirm the **Generator** meets the requirements of 13.2 by testing in accordance with C.9.5	FONS	T, ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 13.2.4 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL**

					For reference site level test results, please refer to **ENA PGMD Reference Documentation** – section 10
10.3.3	**Automatic reconnection** Confirm by testing that the reconnection sequence starts after a minimum delay of 20 s for restoration of voltage and frequency in accordance with paragraph 10.3.3 and 10.3.4	FONS	~~T,~~ ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 10.3.3 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL** Note that this is a site level requirement and therefore not applicable for ENA submission.
13.7.2	Where rapid re-synchronisation is required, confirm capability to supply houseload operation, as per 13.7.2	FONS	~~T,~~ ~~MI,~~ TV	Y	For single inverter module data, please refer to sec. 13.7.2 of test report, **DoC_UK_G99_Issue1_Amd 9_Type Test Form (B, C &D) – MP2XL**
C.6	Confirm that the dynamic system monitoring, fault recording and power quality monitoring equipment is provided, installed and functioning in accordance with Annex C.6	ION, FONS	MI, ~~TV~~	Y	Site level requirement. Not applicable for ENA submission. E.g. Elspec G5 coupled with SEL 2488
C.3	Installation and Commissioning Form C3 completed with signed acceptance from the **DNO** representative	ION, FONS	D	O	Not applicable for ENA submission