On behalf of

DOCUMENT TITLE
Getting LCT Devices Registered

Document History

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1	January 2025	First Version	Richard Parke	Fergal Egan, Dan Catanase

Contents

Tables

1 Introduction

This document has been prepared for LCT device manufacturers to explain the process for their submission of data and information, to be used by ESB Networks and the LCT Compliance Agency (Threepwood Consulting Ltd.), to validate manufacturers' LCT devices for inclusion on ESB Networks' LCT Register.

This document should be read in conjunction with the Overview Guide which explains what the LCT Register is, why it aids connection of LCT devices, and how it is used.

2 Scope

This document applies to LCT devices that manufacturers request be listed on the LCT Register and which align within the categories listed below i.e. equipment that is intended for connection to the Low Voltage (LV) electricity distribution system; values quoted in amperes (A) assume this.

Those devices that will be considered for inclusion on the LCT Register are as follows:

Device Type	Highest AC Current Rating Per Phase	Notes
Heat Pump	75A 1-phase (17.25kVA) 75A 3-phase (52kVA)	Inverter drive and/or soft starter. Air-source, Ground-source, or Exhaust-air source. Back-up/boost heater included where applicable.
AC EV Charger	75A 1-phase (17.25kVA) 75A 3-phase (52kVA)	Mode 1, 2, 3 chargers. Also known as 'Electric Vehicle Supply Equipment' (EVSE). NOTE: Electric Vehicles will not require listing on the LCT Register.
DC EV Charger	Circa 350/400kVA	Mode 4 charger. Also known as 'Electric Vehicle Supply Equipment' (EVSE). NOTE: Megawatt Charging Systems (MCS) are excluded from the LCT Register at this time.
Micro-Generation	25A 1-phase (5.75KVA) 16A 3-phase (11kVA)	Inverter connected generation device. Includes generation systems and systems with storage capability.
Mini-Generation	72A 1-phase (17kVA) 72A 3-phase (50kVA)	Inverter connected generation device. Includes generation systems and systems with storage capability.
Small-Scale Generation	289A 3-phase (200kVA)	Inverter connected generation device. Includes generation systems and systems with storage capability.
Export Limit Scheme (ELS)	As per Micro/Mini/Small Scale	Separate module to export inverter, or integrated within the export inverter.
Vehicle-to-Grid (V2G) EV Charger	As per Micro and Mini	Treated as Micro-Generation or Mini-Generation as appropriate.

Two LCT Registers exist:

- For inverter connected generation devices: solar PV generation, battery storage, other inverter connected generation, a list of registered devices is available.
- For inverter based demand devices: EV chargers and Heat Pumps, a list of registered devices is available. NOTE: EV chargers which will operate with vehicle-to-grid (V2G) capability are listed on the inverter connected generation LCT Register.

3 Data and Information Submission Requirements

Data and Information shall be submitted electronically by email to ESB Networks' LCT Compliance Agency.

The submitter shall use the relevant Microsoft Excel spreadsheet template with all details populated, along with supporting information attached to the email. The following spreadsheet templates are available from

https://www.esbnetworks.ie/who-we-are/innovation/low-carbon-technology-register , https://threepwoodconsulting.com/lct-assess/

- Template for LCT Demand devices
- Template for submission LCT Generation devices (includes export limit schemes)

The completed submission template and the relevant support information (see below) should be emailed to LCT@threepwoodconsulting.com .

Device Type	Supporting Information Required per device
Heat Pump	Declaration of Conformity
	EMC (Harmonics & Flicker) Test Report
	Datasheet
AC EV Charger	Declaration of Conformity (EN 61851-1)
	Datasheet
DC EV Charger	Declaration of Conformity (EN 61851-1, EN 61851-21-2)
	EMC (Harmonics & Flicker) Test Report
	Datasheet
V2G EV Charger	Declaration of Conformity
	EMC (Harmonics & Flicker) Test Report

Device Type	Supporting Information Required per device
	Datasheet
	EN 50549-1 Type Test Certificate
	EN 50549-1 Type Test Report OR G98 Form A / G99 Form A2-3
	Interface Settings Compliance Form v1
Micro-Generation	EN 50549-1 Type Test Certificate
	EN 50549-1 Type Test Report OR G98 Form A / G99 Form A2-3
	Interface Settings Compliance Form v1
Mini-Generation	EN 50549-1 Type Test Certificate
	EN 50549-1 Type Test Report OR G99 Form A2-3
	Interface Settings Compliance Form v1
Small-Scale Generation	EN 50549-1 Type Test Certificate
	EN 50549-1 Type Test Report OR G99 Form A2-3
	Interface Settings Compliance Form v1
Export Limit Scheme (ELS)	NC7-03-R1 Form
NOTE 1: Electricity Storage devices (e.g. battery) shall be submitted as per Micro/Mini/Small Scale Generation as appropriate.	

Section 5 of this document outlines the process of submitting data and provides guidance on the information required in the template.

4 LCT Register Numbering

LCT Devices on the LCT Register will be assigned a register number as follows:

00-000-0000

The first 2 digits (00) represent technology type and device type.

11 – Heat Pump

12 – DC EV Charger

13 – AC EV Charger

21 – Micro Generation (including battery storage inverter unit)

22 – Mini Generation (including battery storage inverter unit)

23 – Small-scale Generation (including battery storage inverter unit)

24 – V2G EV Charger

31 – Export Limit Scheme

The second 3 Digits (000) represents a specific manufacturer. Each manufacturer has a unique number.

001 – Manufacturer 1

002 – Manufacturer 2

The final 4 digits (0000) represents a specific product for the manufacturer (this allows 9999 products per manufacturer for any particular technology type). These will be sequential for each device type as demonstrated below

11-002-0001 (Heat Pump product 1 for Manufacturer 2)

11-002-0002 (Heat Pump product 2 for Manufacturer 2)

12-002-0001 (DC EV Charger product 1 for Manufacturer 2)

12-003-0001 (DC EV Charger product 1 for Manufacturer 3)

21-002-0001 (Micro-Gen product 1 for Manufacturer 2)

21-002-0002 (Micro-Gen product 2 for Manufacturer 2)

22-002-0001 (Mini-Gen product 1 for Manufacturer 2)

If a technical change is required to a product this should be submitted as a new device for re-assessment and the manufacturer should confirm the superseded product (this will be indicated by an ‘effective until date’ on the LCT Register. For example, 11-002-0002 becomes 11-002-0003.

5 Submission Processes and Template Guides

The process of registering is relatively straightforward and involves the following typical steps

1. Manufacturer populates data (into the Template) for the device and collates the supporting information and emails to LCT@Threepwoodconsulting.com
2. The LCT Compliance Agency, Threepwood, review the data and supporting information. If there are any gaps or issues with the data and information, Threepwood will liaise with the Manufacturer to address these.
3. Having reviewed and validated the information, the LCT Compliance Agency will add the LCT device to the LCT Register.

Once the LCT device details and supporting documentation have been submitted to the LCT Compliance Agency the registration timescales are approximately 2-4 weeks. If there are gaps or issues with the information submitted, these timescales may be longer.

Tables 1-5 below describe the data that is required in each cell of the LCT registration templates.

Table 1 - Heat Pump Submission Template Guide

Heat Pump		
Attribute Name	**Description**	**Values Present**
LCT Register Reference Number (allocated by LCT Compliance Agency)	First 2 digits 11 – Technology Type. First digit determines if demand or generation or bi-directional. Second digit determines device type. Second 3 Digits 000 - Manufacturer ID. Each manufacturer has a unique number (this remains the same if they do Generation and Demand). Final 4 digits 0000 - Manufacturer Product Number. e.g. 11-045-0045	Numeric and hyphen
Date Submitted (DD/MM/YYYY)	Date published on the LCT Register.	DD/MM/YYYY
Manufacturer	Manufacturer of heat pump equipment.	Alphanumeric
Model	Manufacturer's model name for the equipment (can be considered the Family/Series name or equivalent to the Model Reference).	Alphanumeric
Model Reference	Manufacturer's reference code used to describe specific variants of a Model.	Alphanumeric
Product Code	Manufacturer's product code for the heat pump.	Alphanumeric
Function	Heating/Cooling function of system; enables different declaration for heating only arrangement versus heating and cooling arrangement for connection design purposes.	Text Options include: • Heating only • Cooling only • Heating & Cooling
Heat Pump Type	Type of heat pump in terms of the source of heat energy.	Text Options include: • Air Source • Ground Source • Water Source

Heat Pump		
Attribute Name	**Description**	**Values Present**
Technology Type*	The drive technology type of the heat pump.	Text Options include: • Soft Starter (1-phase controlled) • Soft Starter (2-phase controlled) • Soft Starter (3-phase controlled) • VFD (Full-wave rectifier) • VFD (Six-pulse) • VFD (Twelve-pulse) • VFD (Active Front End) • DOL
Software Version*	Software version of the heat pump.	Alphanumeric
Hardware Version*	Hardware version of the heat pump.	Alphanumeric
Communication function present? (Yes / No)*	Are communication functions present for the heat pump?	Text Options include: • Yes • No
Communication Protocol*	If yes to the above, state the communication protocol and leave blank if communication protocol for remote monitoring / control of equipment is not present. Examples of communication protocol include: Modbus, IEC 61850, IEC 60870-5-104, IEC 60870-5-101 or, DNP 3.0.	Alphanumeric
Power consumption monitoring?*	Does the AC EV Chargers have power consumption monitoring as according to the Measurement Instruments Directive (MID) 2014/32/EU?	Text Options include: • Yes • No
Phases	AC port phase inputs: single-phase, split phase or three-phase.	Options include: • 1 • Split • 3
Voltage (V)	AC input rated voltage.	Options include:

Heat Pump		
Attribute Name	**Description**	**Values Present**
		• 230 • 400
Total Heat Pump System Maximum Demand (A)	AC continuous input current rating of the entire heat pump system i.e. heat pump and accessory (s).	Numeric 0-500
Total Heat Pump System Maximum Demand (kVA)	AC input rating of the entire heat pump system i.e. heat pump and accessory (s). • For single phase: Maximum AC current x 230 • For three phase: Maximum AC current x 400 x √3	Numeric 0-346
Heat Pump Module	Whole System' refers to: • a simple heat pump unit with no additional heating elements; • a heat pump with an onboard direct electric resistance heater (DERH) that can provide additional heating when required. Both the heat pump and DERH are tested together as a whole system. Heat Pump refers to a split system where the heat pump and accessory have been tested separately. The manufacturer must declare the accessory in the first/second accessory cells.	Text Options include: • Whole System • Heat Pump
Heat Pump Module Reference	Manufacturer's reference code used to describe the Module.	Alphanumeric
Module Input Rated Current (A)	AC continuous input current rating of the heat pump.	Numeric 0-500
Module Input Rated Power (kVA)	AC input rating of the heat pump.	Numeric 0-346

Heat Pump		
Attribute Name	**Description**	**Values Present**
First Accessory Module	Description of heat pump system to allow individual statements if system is modular	Text Options include: • Back-up heater (on-board) • Back-up heater (external) • Supplementary (boost) heater (on-board) • Supplementary (boost) heater (external) • Water (immersion) heater (on-board) • Water (immersion) heater (external) • Controller
First Accessory Module Reference	Manufacturer's reference code used to describe the Module	Alphanumeric
First Accessory Module Input Rated Current (A)	AC continuous input current rating of the accessory.	Number 0-500
First Accessory Module Input Rated Power (kVA)	AC input rating of the accessory.	Number 0-346
Second Accessory Module	Description of heat pump system to allow individual statements if system is modular	Text Options include: • Back-up heater (on-board) • Back-up heater (external) • Supplementary (boost) heater (on-board) • Supplementary (boost) heater (external) • Water (immersion) heater (on-board) • Water (immersion) heater (external) • Controller
Second Accessory Module Reference	Manufacturer's reference code used to describe the Module.	Alphanumeric

Heat Pump		
Attribute Name	**Description**	**Values Present**
Second Accessory Module Input Rated Current (A)	AC continuous input current rating of the accessory.	Numeric 0-500
Second Accessory Module Input Rated Power (kVA)	AC input rating of the accessory.	Numeric 0-346
Declaration of Conformity: Document Number*	Document or certificate number of the EU/CE Declaration of Conformity document.	Alphanumeric
EMC Test Report/Documentation: Document Number*	Document or certificate number of the EMC test report document.	Alphanumeric
EMC Test Report/Documentation: Date (DD/MM/YYYY)*	EMC Report date of issue.	DD/MM/YYYY

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Table 2 - AC EV Charger Submission Template Guide

AC EV Charger		
Attribute Name	**Description**	**Values Present**
LCT Register Reference Number (allocated by LCT Compliance Agency)	First 2 digits 13 – Technology Type. First digit determines if demand or generation or bi-directional. Second digit determines device type. Second 3 Digits 000 - Manufacturer ID. Each manufacturer has a unique number (this remains the same if they do Generation and Demand). Final 4 digits 0000 - Manufacturer Product Number. e.g. 13-104-0022	Numeric and hyphen
Date Submitted (DD/MM/YYYY)	Date published on the LCT Register.	DD/MM/YYYY
Manufacturer	Manufacturer of AC EV Charger.	Alphanumeric
Model	Manufacturer's model name for the equipment (can be considered the Family/Series name or equivalent to the Model Reference).	Alphanumeric
Model Reference	Manufacturer's reference code used to describe specific variants of a Model.	Alphanumeric
Product Code	Manufacturer's product code for the AC EV Charger.	Alphanumeric
Phases	AC port phase inputs: single-phase or three-phase.	Options include: • 1 • 3
Voltage (V)	AC input rated voltage.	Options include: • 230 • 400
Maximum current (A) per phase	AC continuous input rating of the AC EV Charger.	Numeric 0-64
Software Version*	Software version of the AC EV Charger.	Alphanumeric
Hardware Version*	Hardware version of the AC EV Charger.	Alphanumeric
Communication function present? (Yes / No)*	Are communication functions present for the AC EV Charger?	Text options include: • Yes • No

AC EV Charger		
Attribute Name	**Description**	**Values Present**
Communication Protocol*	If yes to the above, state the communication protocol and leave blank if communication protocol for remote monitoring of equipment is not present. Examples of communication protocol include: Modbus, SunSpec Modbus, IEEE 2030.5, IEC 61850, IEC 60870-5-104, IEC 60870-5-101 or, DNP 3.0.	Alphanumeric
Power consumption monitoring?*	Does the AC EV Charger. have power consumption monitoring as according to the Measurement Instruments Directive (MID) 2014/32/EU?	Text Options include: • Yes • No
Applicable Test Standards Cited*	The applicable standards stated in the Declaration of Conformity.	Text Options include: • EN 61851-1

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Table 3 - DC EV Charger Submission Template Guide

DC EV Charger		
Attribute Name	**Description**	**Values Present**
LCT Register Reference Number (allocated by LCT Compliance Agency)	First 2 digits 12 – Technology Type. First digit determines if demand or generation or bi-directional. Second digit determines device type. Second 3 Digits 000 - Manufacturer ID. Each manufacturer has a unique number (this remains the same if they do Generation and Demand). Final 4 digits 0000 - Manufacturer Product Number. e.g. 12-076-0066	Numeric and hyphen
Date Submitted (DD/MM/YYYY)	Date published on the LCT Register.	DD/MM/YYYY
Manufacturer	Manufacturer of DC EV Charger equipment.	Alphanumeric
Model	Manufacturer's model name for the equipment (can be considered the Family/Series name or equivalent to the Model Reference).	Alphanumeric
Model Reference	Manufacturer's reference code used to describe specific variants of a Model.	Alphanumeric
Product Code	Manufacturer's product code for the DC EV Charger.	Alphanumeric
EV Charger Type	Type of the DC EV Charger i.e. does it have facility for DC output only or is there also AC output as well.	Text options include: • DC Only • DC and AC
Phases	AC port phase inputs: single-phase or three-phase.	Options include: • 1 • 3
Voltage (V)	AC input rated voltage.	Options include: • 230

DC EV Charger		
Attribute Name	**Description**	**Values Present**
		• 400
Total EV Charger Maximum Demand (A)	AC continuous input rating of the DC EV Charger.	Numeric 0-500
Total EV Charger Maximum Demand (kVA)	AC input rating of the DC EV Charger.	Numeric 0-346
Technology Type*	The converter technology type of the DC EV Charger.	Text options include: • Six-pulse • Twelve-pulse • Active Front End
Software Version*	Software version of the DC EV Charger.	Alphanumeric
Hardware Version*	Hardware version of the DC EV Charger.	Alphanumeric
Communication function present? (Yes / No)*	Are communication functions present for the DC EV Charger?	Text options include: • Yes • No
Communication Protocol*	If yes to the above, state the communication protocol and leave blank if communication protocol for remote monitoring of equipment is not present. Examples of communication protocol include: Modbus, SunSpec Modbus, IEEE 2030.5, IEC 61850, IEC 60870-5-104, IEC 60870-5-101 or, DNP 3.0.	Alphanumeric
Power consumption monitoring?*	Does the DC EV Charger have power consumption monitoring as according to the Measurement Instruments Directive (MID) 2014/32/EU?	Text options include: • Yes • No
Declaration of Conformity: Document Number*	Document or certificate number of the EU/CE Declaration of Conformity document.	Alphanumeric

DC EV Charger		
Attribute Name	**Description**	**Values Present**
EMC Test Report/Documentation: Document Number*	Document or certificate number of the EMC test report document.	Alphanumeric
EMC Test Report/Documentation: Date (DD/MM/YYYY)*	EMC Report date of issue.	DD/MM/YYYY

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Table 4 - Inverter connected Generation Submission Template Guide

Inverter connected Generation		
Attribute Name	**Description**	**Values present**
LCT Register Reference Number (allocated by LCT Compliance Agency)	First 2 digits 00 – Technology Type. First digit determines if demand or generation or bi-directional. • 21 – Micro generation • 22 – Mini generation • 23 – Small-scale generation • 24 – Vehicle to Grid (V2G) • 31 – ELS Second digit determines device type. Second 3 Digits 000 - Manufacturer ID. Each manufacturer has a unique number (this remains the same if they do Generation and Demand). Final 4 digits 0000 - Manufacturer Product Number.	Numeric and hyphen
Date Submitted (DD/MM/YYYY)	Date published on the LCT Register.	DD/MM/YYYY
Manufacturer	Manufacturer of generation or ELS equipment.	Alphanumeric
Model	Manufacturer's model name for the equipment (can be considered the Family/Series name or equivalent to the Model Reference)	Alphanumeric
Model Reference	Manufacturer's reference code used to describe specific variants of a Model	Alphanumeric
Device Type	Type of generation scheme.	Text options include: • Micro-generator • Mini-generator • Small-scale generator • AC-connected batteries • Vehicle to Grid (V2G) Charging Device

Inverter connected Generation		
Attribute Name	**Description**	**Values present**
Phases	AC/grid port phase: single-phase or three-phase.	Options include: • 1 • 3
Rated Output AC Current (A)	Maximum AC current (grid side).	Numeric 0-900
Rated Output Apparent Power (kVA)	Max. apparent output power of the entire system. For single phase: Maximum AC current x 230 For three phase: Maximum AC current x 400 x √3	Numeric 0-200
Software Version	Software version of the equipment.	Alphanumeric
Hardware Version	Hardware version of the equipment.	Alphanumeric
Communication function present? (Yes / No)*	Are communications functions present?	Text options include: • Yes • No
Communication Protocol*	If yes to the above, state the communication protocol and leave blank if communication protocol for remote monitoring of equipment is not present. Examples of communication protocol include: Modbus, SunSpec Modbus, IEEE 2030.5, IEC 61850, IEC 60870-5-104, IEC 60870-5-101 or, DNP 3.0.	Alphanumeric
Export Limit Function? (Yes / No)*	For small-scale and mini generation schemes, does the module have ELS functionality?	Text options include: • Yes • No
Export Limit Scheme Reference*	Corresponding ELS Register Reference Number.	Alphanumeric

Inverter connected Generation		
Attribute Name	**Description**	**Values present**
Small-scale generator G10/EGIP Relay Protection (Yes / No/ N/A)*	Independent interface protection for small scale generation schemes.	Text options include: • Yes • No • N/A
G99&G98/GB, G99&G98/NI, Both*	ENA Connect Direct Type Test status.	Text options include: • G99&G98/GB/ • G99&G98/NI • Both • N/A
Standard Version*	ENA G99 or G98 (NI/GB) standard versions e.g., G99 Issue 1-4 (16 Jun 2019).	Alphanumeric
ENA Connect Direct (TTR) System Reference*	System reference for devices compliant on the ENA Connect Direct (TTR) platform.	Alphanumeric
ENA Connect Direct (TTR) Publish Date (DD/MM/YYYY)*	Date published on the ENA Connect Direct (TTR) platform.	Alphanumeric
Type Test Report Or Certificate Filename Document Number*	Name of electronic file for the manufacturer's test report or certificate which underpins the standards compliance statement on the EU/CE Declaration of Conformity document.	Alphanumeric
Date Issued (DD/MM/YYYY)*	Type test report or type test certificate date of issue.	Alphanumeric
Tested according to*	Type test standard or methodology used to carry out the type test e.g., EN 50549-10 or ENA EREC G99	Alphanumeric

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Table 5 - ELS Submission Template Guide

ELS		
Attribute Name	**Description**	**Values present**
LCT Register Reference Number (allocated by LCT Compliance Agency)	First 2 digits 00 – Technology Type. First digit determines if demand or generation or bi-directional. • 21 – Micro generation • 22 – Mini generation • 23 – Small-scale generation • 24 – Vehicle to Grid (V2G) • 31 – ELS Second digit determines device type. Second 3 Digits 000 - Manufacturer ID. Each manufacturer has a unique number (this remains the same if they do Generation and Demand). Final 4 digits 0000 - Manufacturer Product Number.	Numeric and hyphen
Date Submitted (DD/MM/YYYY)	Date published on the LCT Register	Alphanumeric
Manufacturer	Manufacturer of generation or ELS equipment.	Alphanumeric
Model	Manufacturer's model name for the equipment (can be considered the Family/Series name or equivalent to the Model Reference)	Alphanumeric
Model Reference	Manufacturers reference code used to describe specific variants of a Model.	Alphanumeric
ELS Topology*	ELS design topologies. Classis 'Module' Switching type consists of modules which communicate and 'switch' load on/off to ensure that the power exported from a generator can be limited. Converter Control type uses dynamic control within the converter to manage the active/reactive power flow to/from the generation source.	Text options include: • Classic 'Module' Switching • Converter Control

ELS		
Attribute Name	**Description**	**Values present**
Export Limiting Relay ? (Yes / No)*	An ELR (Export Limiting Relay) is necessary if the ELS cannot meet the conditions as stated in 'Conditions Governing the Connection and Operation of Export Limiting Schemes at LV and MV'. The ELR acts as an ultimate back up device to limit the reverse power and independently operates from the generator.	Text options include: • Yes • No
Software Version	Software version of the equipment.	Alphanumeric
Hardware Version	Hardware version of the equipment.	Alphanumeric
Communication function present? (Yes / No)*	Are communications functions present?	Alphanumeric
Communication Protocol*	Communication Protocol for remote monitoring of equipment e.g., Modbus, SunSpec Modbus, IEEE 2030.5, IEC 61850, IEC 60870-5-104, IEC 60870-5-101 or, DNP 3.0.	Alphanumeric
G100/GB, G100/NI, Both, N/A*	ENA Connect Direct Type Test status.	Text options include: • Yes • No
G100 Standard*	ENA G100 (NI/GB) standard versions e.g., G100 Issue 2 2022.	Alphanumeric
ENA Connect Direct (TTR) System Reference*	System reference for devices compliant on the ENA Connect Direct (TTR) platform.	Alphanumeric
ENA Connect Direct (TTR) Publish Date (DD/MM/YYYY)*	Date published on the ENA Connect Direct (TTR) platform.	Alphanumeric
NC7-03-R1 File Name*	ESBN manufacturer's ELS product declaration.	Filename

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