Technical File

The Electric Vehicles (Smart Charge Points) Regulations 2021

Contents

This template is provided to assist sellers of relevant charge points that are subject to the Electric Vehicles (Smart Charge Points) Regulations 2021 ("the Regulations") in meeting the requirements of Regulation 13.

This requires the seller to have a technical file for any relevant charge point that they sell, and to supply a copy of the technical file to any purchaser on request. In the event of bulk purchases, a single technical file can be provided for all identical charge points. Separate technical files are required however if there are any differences in make, model, software version etc between charge points sold.

The seller is not mandated to use this template, but any alternative format must meet the requirements of the Regulations.

This document is the technical file for the following charge point:

Charge point make:	Charge Amps
Charge point model:	Aura 2x22KW 3P 32A OCPP - Fuuse (131294) and Aura 2x22KW 3P 32A 4G OCPP – Fuuse (131293)
Software version at point of sale:	TBD
Seller: *Person responsible for compliance with the Regulations*	Charge Amps AB
Manufacturer(s): *If different to seller*	-
Last update to technical file:	2022-11-07

Description of the smart charge point

This page outlines the general description of the charge point, including a description of its design manufacture, and operation.

(Note: all descriptions must be written in plain English, including written descriptions of any diagrams or drawings used or referred to)

Charge Amps Aura is designed in Sweden and meets the requirements of the IEC 61851-1 and IEC 62196-2 standards. The enclosure is made of recycled aluminium, and the product meets the requirements of enclosure rating IP 55, and Vandal resistance IK10 when properly installed.

Charge Amps Aura has advanced technology, a stylish design, and smart functions.
All in a compact and hassle-free charging station.
Charge Amps Aura is compatible with all rechargeable electric vehicles.
It comes with 2 x type 2 charging connectors, load balancing between connectors, and between charging stations.
The LED rings around each charging connector give clear indication of operating status,.
Charge Amps Aura can be connected to the internet via WiFi, LAN (using a data cable), or via a mobile data connection (4G).
There are no panels, switches or user interfaces on Charge Amps Aura so the charger must be connected to the internet, then set-up in a cloud based management platform (Charge Amps own platform or a 3rd party Charge Point Management Platform). Many installers choose to use the 3rd party option.
After set-up Charge Amps Aura can be managed via the Cloud platform, or via an App when connected to the internet. This includes start/stop charging sessions as well as setting and enabling schedules for charging sessions.
Schedules etc are stored on the charger so it maintains the smart charging functionality even if internet connectivity is disturbed.
Charging sessions can also be initiated using a suitable RFID card that is associated with the charger during the set-up process.
If the charger loses internet connectivity a charging session can be started/stopped using the RFID card.
User information is securely stored in the cloud based management platform: no personal data is stored on the RFID or in the charger.

Operating manual

Copy of operating manual as available at point of sale can be found *(cross as appropriate)*:		Attached to this document (hard copy)
		Attached to this document as a digital file (soft copy)
	X	Available online via hyperlink (soft copy)
Link if available online:	https://yg2140.n3cdn1.secureserver.net/wp-content/uploads/2022/05/Installationmanual_ChargeAmpsAura_en.pdf	
Version of file received at point of sale if available online:	Rev 01	

Technical solutions implemented to meet the requirements of the Regulations

This section provides descriptions in plain English of the solutions adopted to meet the requirements of the Regulations, including descriptions and explanations in plain English of any diagrams or drawings used.

Information provided here may be appended if appropriate, but any appendages should be listed here with clear indication of which specific requirement(s) they evidence.

Smart functionality

Requirement	Technical solution adopted to meet the requirement
Charge point is able to send and receive information via a communications network	Compliant: Charge Amps Aura Chargers can send and receive information via a communication network. Charge Amps Aura Chargers can connect to the internet via WiFI or LAN, or 4G Communication to the Management platform is done via OCPP 1.6J
Charge point is able to respond to signals or other information received by it by: • Increasing or decreasing the rate of electricity flowing through the charge point • Changing the time at which electricity flows through the charge point	Compliant: Charge Amps Aura Chargers can respond to signals or other information from the Management platform to increase or decrease the rate of electricity flowing through the charge point and change the schedule.
Charge point is capable of using this functionality to provide demand side response services, including response DSR services	Compliant: Charge Amps Aura Chargers can respond to signals or other information from the Management platform provided by demand side response services, including response DSR services.
Charge point has at least one user interface, incorporated in the charge point or otherwise made available to the owner	Compliant: There are no panels, switches or user interfaces on Charge Amps Aura so the charger must be connected to the internet, then set-up in a cloud based management platform (Charge Amps own platform or a 3rd party Charge Point Management Platform). After set-up Charge Amps Aura can be managed via the Cloud platform, or via an App when connected to the internet. This includes start/stop charging sessions as well as setting and enabling schedules for charging sessions.

	Schedules etc are stored on the charger so it maintains the smart charging functionality even if internet connectivity is disturbed. Charging sessions can also be initiated using a suitable RFID card that is associated with the charger during the set-up process. If the charger loses internet connectivity a charging session can be started/stopped using the RFID card.

Electricity supplier interoperability

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that is will not cease to have smart functionality if the owner changes their electricity supplier	Compliant: Charge Amps Aura Chargers communicate via OCPP 1.6j to the Management Platform to control Smart Charging functions and is not locked or dependent on the choice of electricity supplier.

Loss of communications network access

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that, in the event it ceases to be connected to a communications network, it will remain capable of charging an electric vehicle	Compliant: When connected to the internet Charge Amps Aura Chargers are managed by the Management Platform. In the event it ceases to be connected to a communications network the charger will charge accordance to following: - Given the charger is offline and is configured to allow local offline authorization, when the RFID tag is presented to the charger, then the RFID tag shall be authorized locally and, if approved, allow charging. - Given the charger is configured with a local charging schedule, when the charger is temporary or permanently offline, then the charger shall follow its schedule locally.

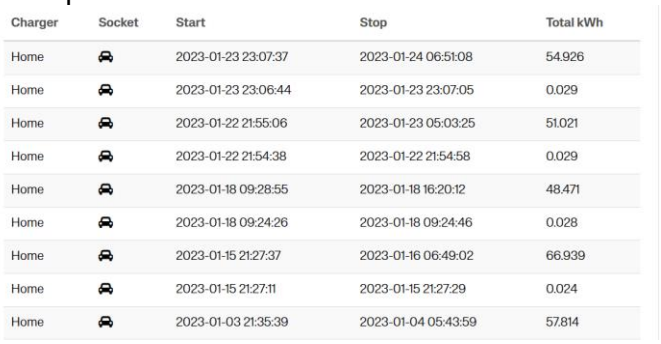
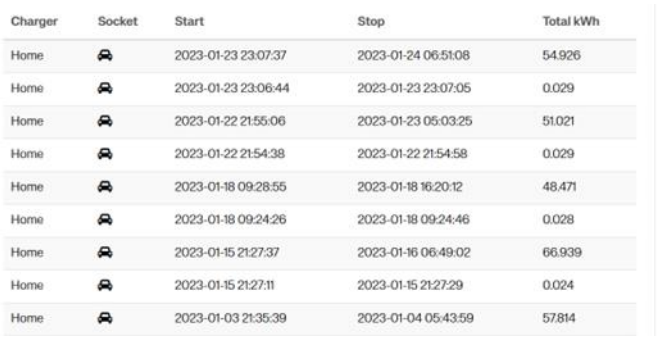
Safety

Requirement	Technical solution adopted to meet the requirement
Charge point is configured such that it will not allow a relevant person to carry out a specified operation where to do so would or may result in a risk to the health or safety of persons.	Charge Amps Aura is designed and manufactured to ensure physical safety of all users. It is CE marked to certify it complies with the relevant standards for EV charging equipment.

"Relevant persons" means the owner, or an end-user of the relevant charge point who is not the owner. "Specified operation" means: • Overriding the default mode of charging during the default charging hours • Overriding the provision of demand side response services • Overriding the random delay	In addition, we recommend that Charge Amps Chargers should only be installed by persons who are qualified to install such equipment, and have completed the Charge Amps Academy training. There are no buttons or switches on the Charge Amps Aura for physical interaction. Once the charger is connected to the vehicle, management of the charging session is via the user interface or App. The user interface enables users to initiate and stop charging, to schedule charging and to access information on charging sessions, there are no options to make changes that would result in a risk to the health and safety of any person.

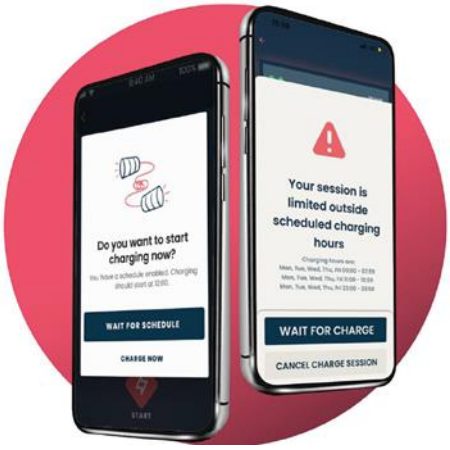
Measuring system

Requirement	Technical solution adopted to meet the requirement
On each occasion it is used, the charge point measures or calculates: • The electricity it has imported or exported (in watt-hours or kilowatt-hours) • The amount of time for which it is importing or exporting electricity	Compliant: Charge Amps Aura measures the voltage and current internally by a separate measuring circuit and current clamps in both directions (import/export). The internal processor measures the time to calculate kilowatt-hours. Aura makes the information available to the Management Platform. The accuracy has been tested by an external test house – see test report attached.
The charge point is configured such that the owner can view the information in reference to: • Any occasion on which it was used to import or export electricity within the past 12 Months. • Any month within the past 12 months • The entirety of the last 12-month period	Compliant The owner of the Charge Amps Aura Charger can view and download data on used electricity within the past 12 months on any occasion: Daily, Weekly, Monthly for the past 12 Months or for a specified period. This information is readily available via the User interface. Information on charging sessions can be viewed in the User interface, options are This Month, Last Month, This year and Last year. Users can also see detailed information on all charging sessions for the past 12 Months.

	Example:  Charger / Socket / Start / Stop / Total kWh Home / 2023-01-23 23:07:37 / 2023-01-24 06:51:08 / 54.926 Home / 2023-01-23 23:06:44 / 2023-01-23 23:07:05 / 0.029 Home / 2023-01-22 21:55:06 / 2023-01-23 05:03:25 / 51.021 Home / 2023-01-22 21:54:38 / 2023-01-22 21:54:58 / 0.029 Home / 2023-01-18 09:28:55 / 2023-01-18 16:20:12 / 48.471 Home / 2023-01-18 09:24:26 / 2023-01-18 09:24:46 / 0.028 Home / 2023-01-15 21:27:37 / 2023-01-16 06:49:02 / 66.939 Home / 2023-01-15 21:27:11 / 2023-01-15 21:27:29 / 0.024 Home / 2023-01-03 21:35:39 / 2023-01-04 05:43:59 / 57.814
The charge point is configured such that it can: • On each occasion it is used, measure or calculate every one second the electrical power it has imported or exported (in watts or kilowatts) • Provide this information via a communications network	Compliant: Charge Amps Aura Chargers calculate energy usage per second, in accordance with the OCPP standard measurement parameters This information is provided through the user interface, example below. Example:  Charger / Socket / Start / Stop / Total kWh Home / 2023-01-23 23:07:37 / 2023-01-24 06:51:08 / 54.926 Home / 2023-01-23 23:06:44 / 2023-01-23 23:07:05 / 0.029 Home / 2023-01-22 21:55:06 / 2023-01-23 05:03:25 / 51.021 Home / 2023-01-22 21:54:38 / 2023-01-22 21:54:58 / 0.029 Home / 2023-01-18 09:28:55 / 2023-01-18 16:20:12 / 48.471 Home / 2023-01-18 09:24:26 / 2023-01-18 09:24:46 / 0.028 Home / 2023-01-15 21:27:37 / 2023-01-16 06:49:02 / 66.939 Home / 2023-01-15 21:27:11 / 2023-01-15 21:27:29 / 0.024 Home / 2023-01-03 21:35:39 / 2023-01-04 05:43:59 / 57.814
The charge point is configured such that: • The figures measured or calculated are accurate to within 10% of the actual figure • Any inaccuracies are not systematic	Compliant: Accuracy of 1% verified by external test houses – certificates included in the supporting documents.

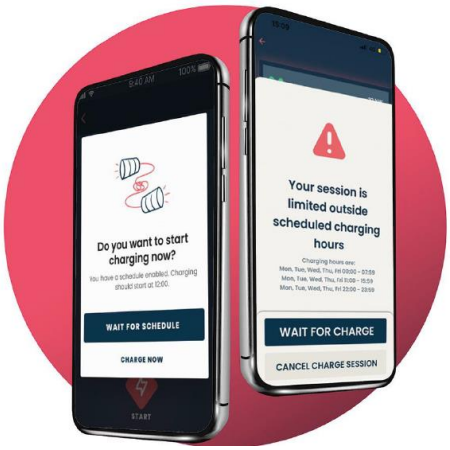
Off-peak charging

Requirement	Technical solution adopted to meet the requirement
The charge point: • Has pre-set default charging hours which are outside of peak hours • Offers the owner the opportunity to accept, remove, or change the default charging hours on first use • Offers the owner the ability to change, remove, or set default	Default schedules are pre-set in the User interface, with sessions avoiding Peak electricity demand. No Charging between 8am- 11am, and 4pm-10pm during weekdays. On first use, domestic users are prompted to accept, the pre-set schedules, reject the pre-set schedules or set their own schedules.

charging hours any time after first use unless the charge point is sold with a DSR agreement, configured to comply with the requirements of this agreement, and details of the agreement are included in the statement of compliance	In Workplace chargers only the administrator can accept, remove or override these default schedules. 
The charge point is configured: • To charge a vehicle during the default charging hours (if any), unless the owner overrides the default mode of charging during this time • Such that the owner can override the provision of demand side response services	Compliant: It is possible to override the default mode of charging during the default charging hours in the User interface. Provision if Demand Side Responses can also be overridden in the User interface if required.

Randomised delay

Requirement	Technical solution adopted to meet the requirement
The charge point is configured such that it must operate, at each relevant time, with a delay of random duration up to 600 seconds, determined to the nearest second each time	Compliant: The Charge Amps Aura management platform offers by default a delay of random duration up to 600 seconds. If required, users can override the randomised delay feature and instantly charge.
The charge point is configured such that the maximum duration of this delay can be remotely increased to up to 1800 seconds if required	Compliant: The maximum duration of the delay can be increased to up to 1800 seconds through a remote software update.
The charge point is configured such that the random delay will not operate where: • The owner or another relevant end-user has manually overridden it • An equivalent random delay has already been applied to the	Compliant: Users can override the randomization settings in the Management Platform or App by setting the charger to "Always on". Provision if Demand Side Responses can also be overridden in the User interface if required.

operation of the relevant charge point • The charge point is responding to a response DSR service	When a car is connected to the charger outside the scheduled charging hours, the app will show the status "Waiting for schedule". In this view there is a "Start" button that will start charging the car immediately, cancelling both the delay and overriding the schedule.  In addition, Charge Amps Aura can respond to a response DSR service communicated via OCPP

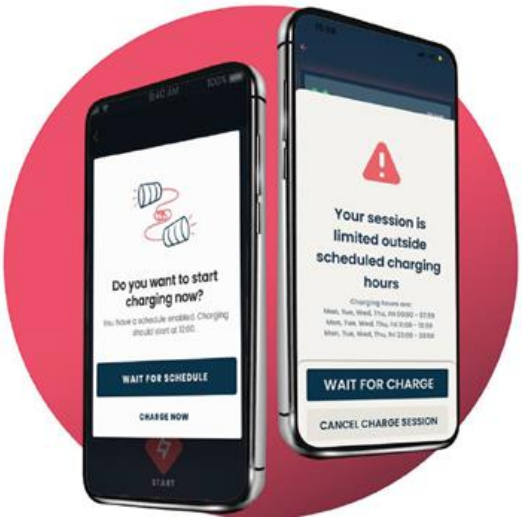
Security

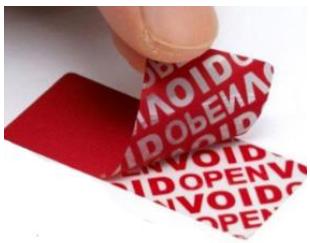
[Information in this section is only required from 30 December 2022. Before this date, completing this section is optional.]

Requirement	Technical solution adopted to meet the requirement
General principles The charge point is designed, manufactured, and configured to provide appropriate protection: • Against the risk of harm to, or disruption of the electricity system • Against the risk of harm to, or disruption of, the charge point • For the personal data of the owner and any other end-user of the relevant charge point	Charge Amps Aura is designed, manufactured, and configured to provide appropriate protection, they are manufactured from recycled aluminium and are IK 10 rated. There are no screens or buttons on the charger so all interaction is via the user interface in the cloud management platform or App. Internal access to Charge Amps Aura is via a key lock on the base of the charger.
Passwords The charge point is configured such that where passwords are used on it: • The password is unique to the charge point and not derived from, or based on, publicly available information, or is set by the owner • The password cannot be reset to a default password applying to both	Compliant: The User interface supports Security Profile 2 as set out in the OCA White Paper "Improved Security for OCPP 1.6J edition 3" is supported. Each password will in that case be set by the User Interface. In case a reset is needed, the User Interface will set a new password on the charge point. The credentials required for local access to the Charge Amps Aura is programmed into the charger as part of the manufacturing process of the charger.

the charge point and other charge points	They are unique for each charger and cannot be reset to a default password as there are no shared or default passwords available.
Software The charge point incorporates software which is able to be securely updated using adequate cryptographic measures to protect against cyber attack	Compliant: Charge Amps Aura user interface supports updating the firmware on the charge point via OCPP both in our Portal for administrators and in the app for end users. The firmware update file is encrypted with secret key and signed with manufacturer certificate. The encryption and signature is verified before upgrading.
Software The charge point is configured such that: • It checks for security updates available when first set up by the owner and periodically after • It verified the authenticity and integrity of each prospective software update by reference to both the data's origin and its contents and only applies the update if the authenticity and integrity of the software have been validated • By default, it provides notifications to the owner about prospective software updates • The owner can implement software updates without undue difficulty	Compliant: Charge Amps keep software on devices up to date at all times. We ensure software integrity through signed firmware updates. Users are notified of any updates and changes via the Charge Amps Aura user interface. The user will then be able to update the firmware directly through the User Interface with the click of a button. The firmware update file is encrypted with secret key and signed with manufacturer certificate. The encryption and signature is verified before upgrading.
Software The charge point is configured such that: • It verifies via secure boot mechanisms that its software has not been altered other than in accordance with a validated software update • If unauthorised change to software is detected, it notifies the owner and does not connect to a communications network other than for purposes of this notification	Compliant: Charge Amps Aura software is protected against unauthorized modification by physical means. The software is stored within the processor in the same component and the bus used for accessing the software is not available externally as in other solutions that would require secure boot. Charge Amps Aura does not use a separate Operating System – the management system is programmed directly on to the processor. The memory is also located on the microprocessor which ensures that no one can access or change the memory without destroying the microprocessor. Unauthorised changes cannot be made due to the architecture of the microprocessor. Changes to the software can only be made by Charge Amps using the encrypted file and secret key process mentioned above.

Sensitive security parameters The charge point is configured such that: • Security credentials stored on the charge point are protected using robust security measures • Software does not use hard-coded security credentials	Compliant: Security credentials stored on the charge point are protected using robust security measures The charge point has a secure and encrypted connection to the User interface. In addition to that, credentials e.g. PIN for local access and Authorization Key for remote access cannot be read by any external system. Charge Amps Aura does not contain hard-coded security credentials
Secure communication The charge point is configured such that communications it sends are encrypted	Compliant Communication between the Charge Amps Aura and the User Interface is based on OCPP via Websocket Secure (wss://) connections, which is an encrypted communication.
Data inputs The charge point is configured such that: • Data inputs are verified so that the type and format of the data is consistent with that expected for the function • If such data cannot be verified, it is discarded or ignored by the charge point in a relevant manner	Compliant: The charge point is configured such that: • Communication between the Charge Amps Aura and the User Interface is based on OCPP via Websocket Secure (wss://) connections, which is an encrypted communication. • The Open Charge Point Protocol (OCPP) is a communication standard for EV charging stations and network software platforms. Simply put, any EV charging station that is OCPP-compliant can be configured to run any similarly OCPP-compliant software as the type and format of data is standardised. • Any data inputs that are not OCPP compliant cannot be interpreted by the charger and so will be ignored. • User data inputs are via the App, most commonly by clicking on an icon or an image: eg in the example below where the user can easily understand the implication of choosing “Wait for Schedule” or “Charge Now” and the

	function that will enable. 
Ease of use The charge point is configured to minimise the inputs required from the owner in connection with its set-up and operation	Compliant: We recommend that Charge Amps Chargers should only be installed by persons who are qualified to install such equipment, and have completed the Charge Amps Academy training. During the installation process the installer will ensure that the off peak charging schedules and randomised delay are set on the charger. Users just need to ensure the vehicle is connected to the charger. There are no buttons or switches on the Charge Amps Aura for physical interaction. Once the charger is connected to the vehicle, any additional management of the charging session is via the user interface or App.
Ease of use The charge point is configured such that any personal data can be deleted from it by the owner without undue difficulty	Compliant: All personal data stored on the user interface can be deleted by contacting Charge Amps Technical Support support. This includes WiFi codes , charge session history, RFID saved on the chargers Alternatively users can log-in to the local user management interface and delete all personal data by clicking on the reset button – this resets the charger and deletes all personal information.
Protection against attack The charge point is designed and manufactured to provide an adequate level of protection against physical damage to the charge point	Compliant: Charge Amps Aura is designed, manufactured, and configured to provide appropriate protection, they are manufactured from recycled aluminium and are IK 10 rated. There are no screens or buttons on the charger so all interaction is via the user interface in the cloud management platform or App.

	Internal access to Charge Amps Aura is via a key lock on the base of the charger.
Protection against attack The charge point incorporates a tamper-protection boundary to protect the internal components of the charge point	Compliant: Charge Amps Aura has an IK rated Aluminium casing comprising a rear enclosure and front cover. The front cover can only be removed by opening a key lock, located on the base of the charger, close to the Charging sockets.. Tamper Evident labels, similar to the below image will be applied to the lock of the Charge Amps Aura on completion of installation, they can also be applied to the joint between the front cover and rear enclosure if necessary. Any attempt to open the charger via the lock will be evident to the user as the label will be damaged or removed. When the label is removed, a 'VOID' pattern appears on both the charger and the label, preventing reuse. Any attempt to prise open the charger will be evident to users as it will cause damage to the front panel and/or rear enclosure. 
Protection against attack The charge point is designed and manufactured to provide an adequate level of protection to its user interfaces and against use or attempted use of the charge point other than through the user interface	Compliant There are no screens or buttons on Charge Amps Aura Chargers as all user interaction is via the cloud based Management platform, or via a pre-authorised RFID card if the charger is offline.
Protection against attack The charge point is configured such that: • If there is an attempt to breach the tamper-protection boundary, the owner is notified • Its software runs with only the minimum level of access privileges required to deliver functionality • Any logical or network interfaces that are not required for the normal	Compliant: The Tamper evident labels are visible to the owner – on the underside of the charger close to charging sockets. The user instructions state that in the event of a tamper incident the charger should be powered-off, and can not be used until it has been checked by a qualified installer or maintenance provider to ensure there is no danger of harm to the user. If there is evidence of an attempt to breach the tamper-protection boundary, the owner must:

operation of the charge point or otherwise comply with the Regulations are disabled • Software services are not available to the owner unless necessary for the relevant charge point to operate • Any hardware interfaces that are used for the purposes of testing or development, but not otherwise during the operation of the charge point are not exposed	• Power-off the Charge Amps Aura charger. • Log the breach of the Tamper Protection Boundary in the Charge Amps Aura User Interface. • Notify the installer or maintenance provider to check the charger and rework /replace if necessary. • Upon completion of the checks and any remedial work, the installer or maintenance provider will re-apply a tamper evident label.
Security log The charge point incorporates a security log – an electronic record which includes attempts (whether or not successful) to: • Breach the tamper-protection boundary • Tamper with the relevant charge point • Gain unauthorised access to the charge point These entries must record the time and date the event occurred (by reference to Coordinated Universal Time).	Compliant: The owner is responsible for adding attempts to breach the Tamper Protection Boundary to the log on the Charge Amps Aura User Interface. During the installation process users will be informed of and trained in the operation of the log function in the Charge Amps Aura User Interface. Where users will record the time and date the event occurred.

Test reports

The Regulations do not set a requirement to test charge points, however if tests have been performed which are deemed relevant to evidencing compliance with the Regulations, these should be included in this document.

This page documents the outcome of any tests. Resulting test reports, certifications, or other evidence should be attached to this file.

Name of test	Date of test	Outcome	Certificate attached to file?	Notes (e.g., did test occur via third party?)

Supporting documents to be attached:

1. IK10 Statement
2. MID test report (Accuracy of reporting)

Prøvningsrapport AURA r01.pdf

Statement IK AURA 2022-12-27.pdf