Apollo terminal

EV Ultra Fast Charger Apollo Upgrade Manual

Smarter. Greener. Together.

Table of contents

1 Change logs

Change logs for this document:

Date	Document Version	Created	Approved	Changes
22.11.2024	00	PR	n/a	Initial version

Table 1. Change log

2 Important safety and grounding instructions

2.1 Safety and compliance

- Before installing / upgrading the EV Ultra Fast Charger, review this manual carefully and consult with a licensed contractor, licensed electrician and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.
- Do not put tools, material or body parts into the electric vehicle connector.
- Do not use the EV Ultra Fast Charger if the chassis, power cord or charging cable are frayed, have broken insulation, or any other signs of damaged.
- Do not install or use the Ultra Fast Charger if the enclosure is broken, cracked, open or has any other indications of damage.
- The EV Ultra Fast Charger and its components should be installed / upgraded only by a licensed contractor, and/or a licensed electrician in accordance with all applicable state, local and national electrical codes and standards.
- To maintain environmental control of device, EV Ultra Fast Charger should be powered up immediately after installation.
- Make sure that the materials used and the installation procedures follow local building codes and safety standards.
- The information provided in this manual in no way exempts the user of responsibility to follow all applicable codes or safety standards.
- The manufacturer is not responsible for physical injury, damage to property or equipment caused by the installation of this device.
- This document provides instructions for the EV Ultra Fast Charger and should not be used for any other product. Before installation or use of this product, you should review this manual carefully and consult with a licensed contractor, licensed electrician, or trained installation expert to make sure of compliance with local building codes and safety standards.

Warning! Danger of electrical shock or injury. Turn OFF power at the panel board or load centre before working inside the equipment or removing any component. Do not remove circuit protective devices or any other component until the power is turned OFF.

Caution! Before any installation or rework installation must be charger disconnected from AC grid and from energy storage.

2.2 Grounding instructions

An equipment grounding conductor or a grounded, metal, and permanent wiring system is required for the EV Ultra Fast Charger connection. This should be run with circuit conductors and connected to the equipment grounding bar or lead on the EV Ultra Fast Charger.

3 Before installation

3.1 Target system

This manual can be used with Delta EV Ultra Fast Charger 200kW (UFC 200kW) double sided version where Payment terminal and metering system were not installed.

Product code before rework: EVC 200kW nin1 XX-XX – XX-XX – XXXEX – XX**0**X

Product code after rework: EVC 200kW nin1 XX-XX – XX-XX – XXXEX – XX**A**X

where X can be replaced by any letter.

This manual is not applicable for other versions and configurations of UFC.

If there is no switch in the current configuration, it must be additionally installed (for example TSW101).

3.2 Safety requirements

Be sure to preview the standard operating procedures (SOP) and ensure local building and electrical codes are reviewed before installing the EV Ultra Fast Charger.

The EV Ultra Fast Charger should be installed / upgraded by a trained technician according to the instruction manual and local safety regulations.

Use appropriate protection when connecting to the main power distribution cable.

Single person is required to successfully upgrade kit installation.

3.3 Delivery content

No.	Part number	Name	Quantity
1	5630105839	KIT RETROFIT DUAL APOLLO [EVC200]	1 PCE
1.1	3902121300	SPLITTER 1130 ASM ASSY	1 PCS
1.2	3080598100	CABLE SIGNAL RJ45 RJ45 L2000 BLK	2 PCS
1.3	3732404600	CABLE ASSY DUAL APOLLO PAYTER [EVC200]	1 PCS
1.4	5042444300	PAYMENT TERMINAL APOLLO 4G W/MODEM & SIM	2 PCE
1.5	3486840700	PLATE FRONT PAY SGCC 400*430*0.75 PAINT	2 PCE
1.6	3488505300	PLATE COVER CARD READER AL 136*106.6*2	2 PCE

Table 2. Rework kit BOM (main packages marked in grey)

3.4 Recommended tools

The following tools and materials are recommended for the EV Ultra Fast Charger rework and are not included in the rework kit:

- Key for opening of EVC right / left doors.
- AKU Screwdriver.
- Screwdriver bit Torx T25.
- 7mm spanner.
- 18mm spanner.
- Side cutting pliers.
- 3M Adhesion Promoter AP111 or Primer 94 (if VHB tape applied at 10 °C and down to 5 °C).
- 3M Adhesive remover or equivalent.
- Isopropyl alcohol.
- Microfiber cloth.
- 0.25 – 0.5 mm fishing line.
- Utility knife blades.
- Technician tent.
- Heat gun.
- Bar clamp with rubber grips (2 pcs).

3.5 Estimated time

No.	Description	Number of people	Estimated time
1	Preparation of rework	1	20 min
2	Removal of display cover	1	40 min
3	Preparation of Apollo terminal	1	20 min
4	Installation of Apollo terminal	1	20 min
5	Installation of display cover	1	40 min
6	Installation of antenna splitter	1	40 min
7	Conection to Ethernet switch	1	20 min
8	Finishing rework	1	10 min
9	Commisioning and testing	1	30 min
		Total	4 hours

Table 3. Estimated time

3.6 Important safety instructions

- **Save these Instructions.**
- **The EV Ultra Fast Charger should be installed / upgraded only by a licensed contractor, and/or a licensed electrician in accordance with all applicable state, local and national electrical codes and standards.**
- **Before installing / upgrading the EV Ultra Fast Charger, review this manual carefully and consult with a licensed contractor, licensed electrician and trained installation expert to ensure compliance with local building practices, climate conditions, safety standards, and state and local codes.**

3.7 Terms, abbreviations, symbols

Abbreviation	Name
ECN	Engineering Change Notice
MID	Measuring Instruments Directive
EVC	Electric Vehicle Charger
EVCS	Electric Vehicle Charger Service
UFC	Ultra Fast Charger
ASP	Authorised Service Partner
CB	Circuit Breaker
RCD	Residual Current Device
AC	Alternating Current
DC	Direct Current
CCS	Combined Charging System charging plug
CHAdeMO	Charge de Move charging plug
AC Plug	Alternating current charging plug
AC Socket	Alternating current charging socket
PCB	Printed circuit board
PU	Power Unit
PUG	Power Unit Group
FM	Fiscal Module

Table 4. List of abbreviations

3.8 System Description

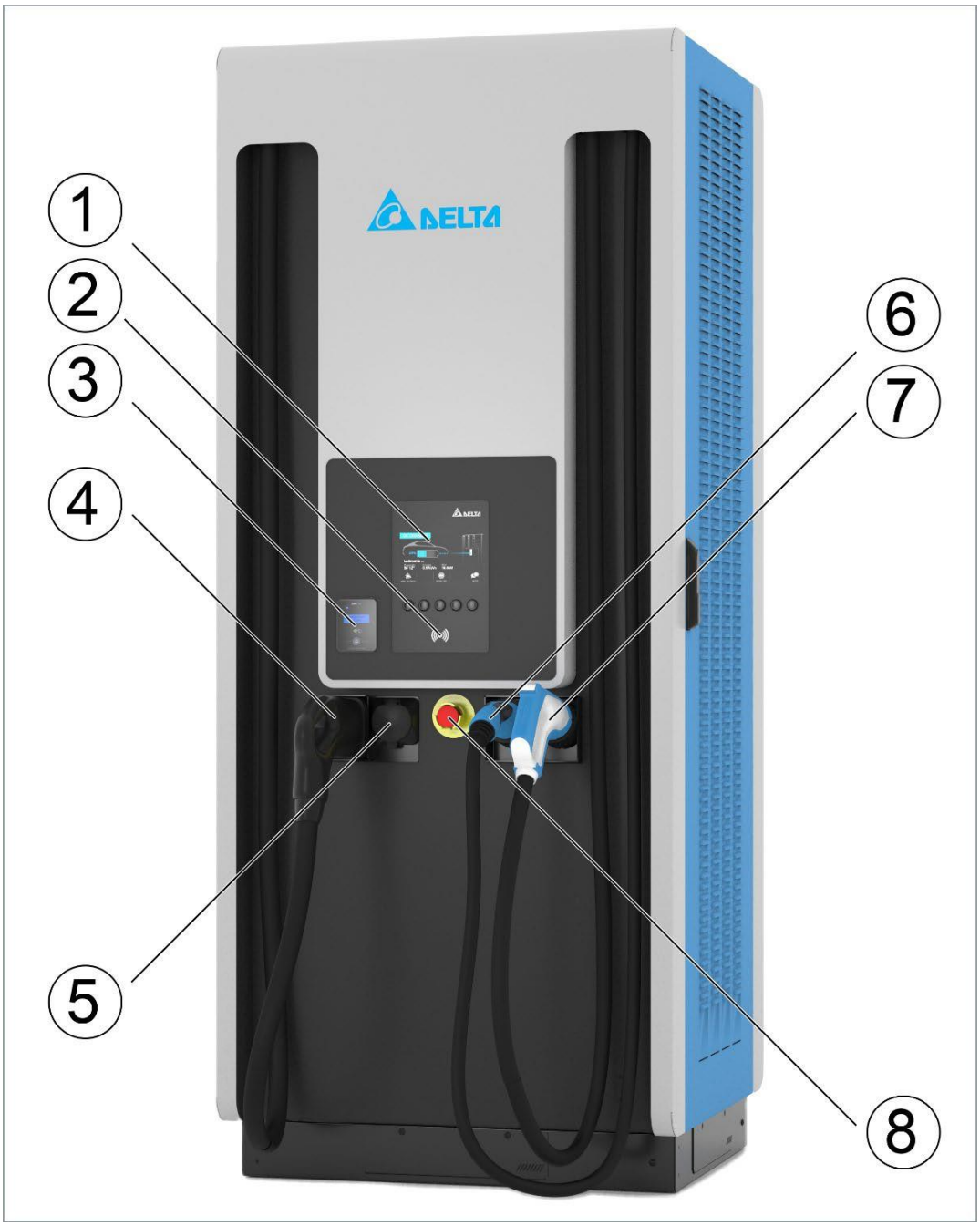

***Figure** 1. UFC 200 - arrangement with CCS, AC socket and plug, CHAdeMO*

Pos.	Name of interface	Pos.	Name of interface
1	Display with control buttons	5	AC charging socket up to 22 kW
2	RFID card reader	6	AC charging plug up to 22 kW
3	Credit card terminal (option)	7	DC fast charge CHAdeMO
4	DC fast charge CCS	8	Emergency Power OFF button (option)

Table 5. System description

4 Upgrade kit installation

4.1 Rework preparation

Step 1 Prepare rework kit according to Table 2.

Step 2 Prepare recommended tools and materials.

Step 3 Turn off the power supply of the charger and make sure it cannot be accidentally turned on.

Caution! Rework procedure requires opening of front panel and service side doors. During rain or snow technician tent must be used to prevent water ingress into the charger.

Caution! Rework procedure requires applying 3M adhesive tape. Ideal temperature for application is 21-38°C. If procedure must be made in temperatures down to 5°C it is recommended to preheat the technician tent and use 3M Adhesion Promoter AP111 or Primer 94. Application in temperature below 5°C is prohibited.

Step 4 Unscrew all 4 screws locking front panel.

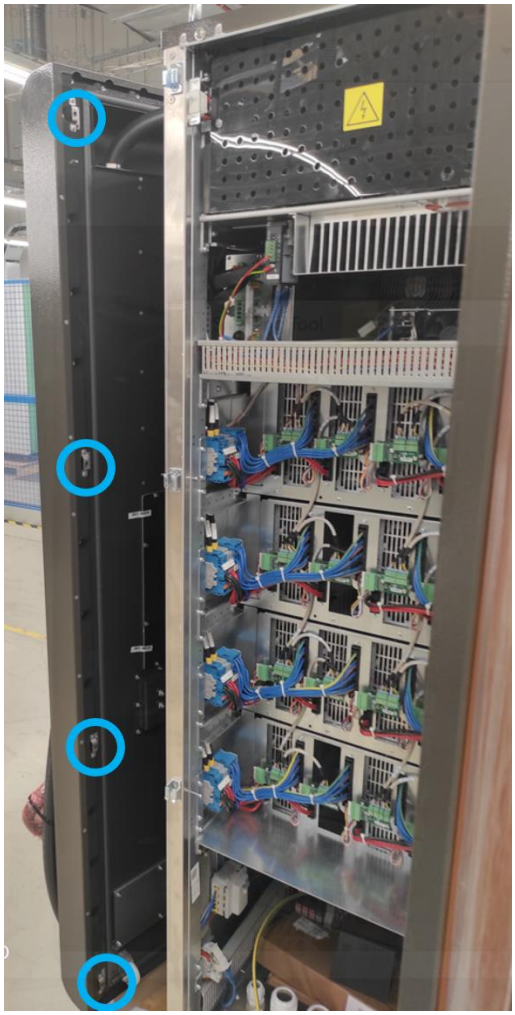

***Figure** 2. Front panel screws*

Step 5 Open charger front panel.

Step 6 Unscrew 11 screws holding display back cover.

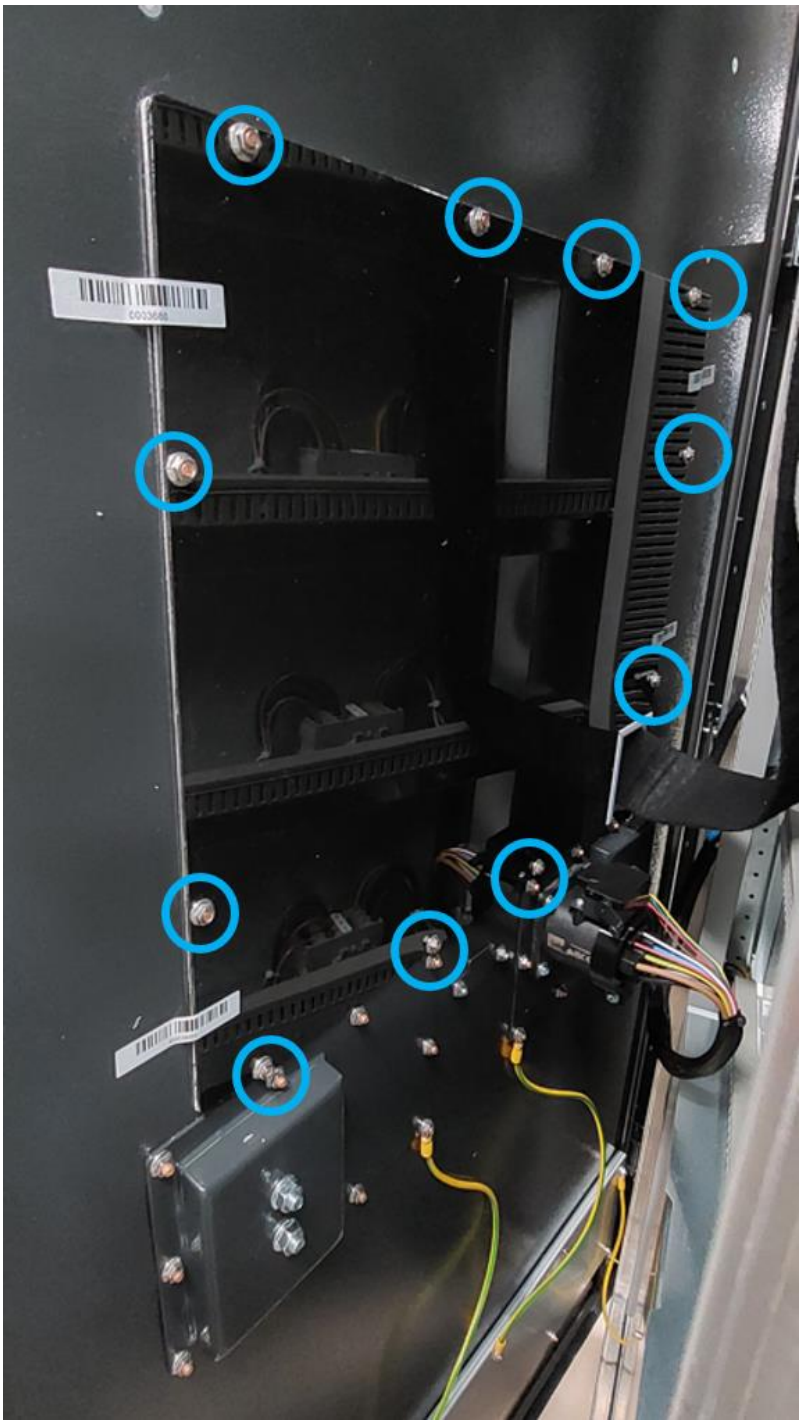

***Figure** 3. Display back cover*

Step 7 Remove display back cover.

Step 8 Take picture of display holder internal assembly for future reference.

Step 9 Remove terminal blinding plate from display holder.

***Figure** 4. Terminal blinding plate*

Step 10 Clean the remaining Sikaflex from display holder to provide smooth surface for payment terminal gasket.

***Figure** 5. Sikaflex sealing*

Step 11 Disconnect all external cabling from display button PCB.

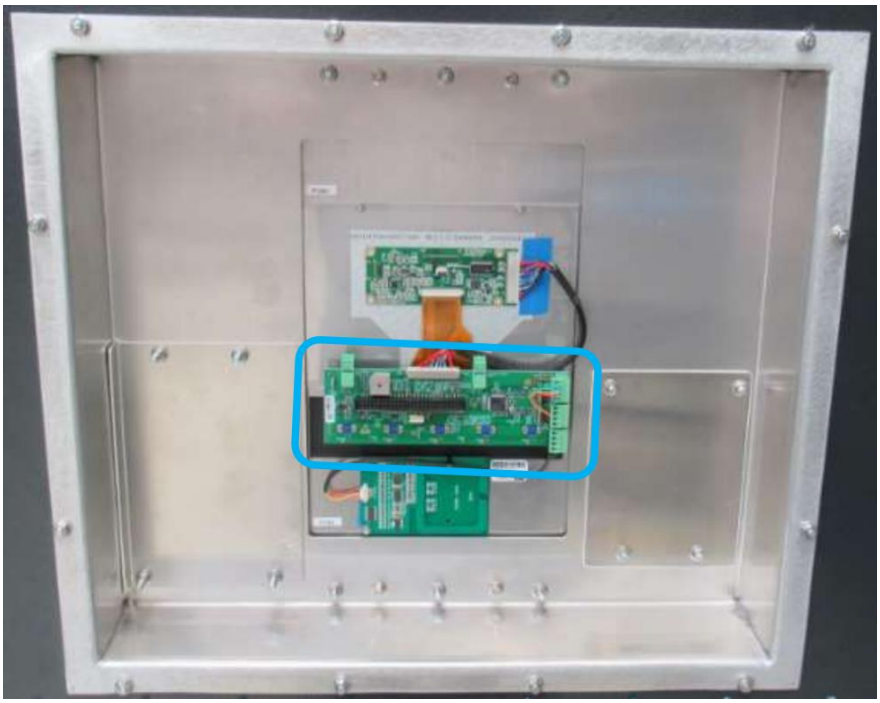

***Figure** 6. Display external display cabling*

Step 12 Unscrew 6x M5 nuts holding the display (HMI) and 4xM4nuts holding holder.

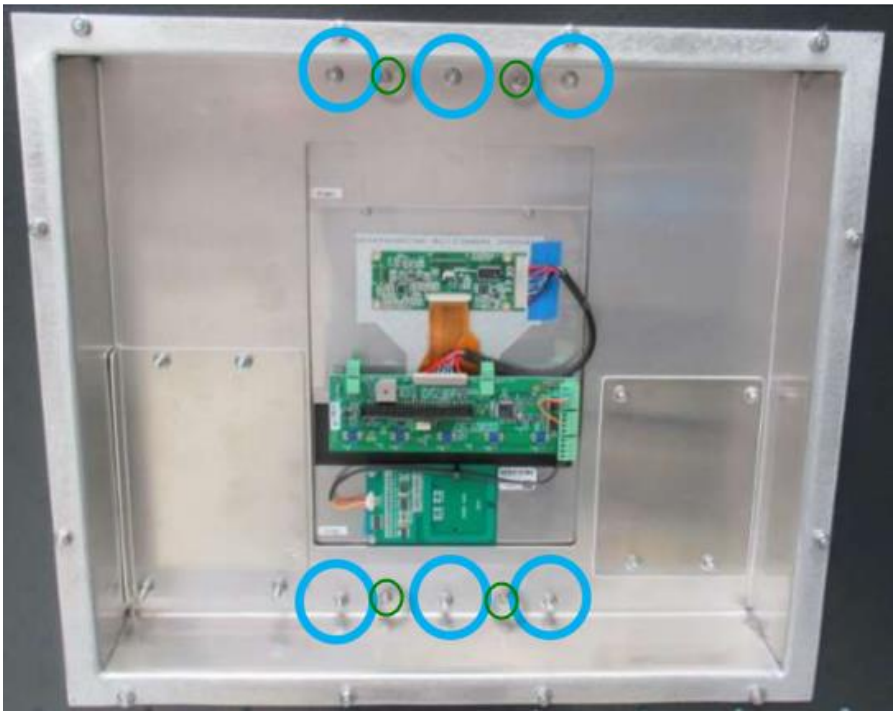

***Figure** 7. Display M5 nuts*

Step 13 Gently remove the display holder and display.

Step 14 Repeat steps 4-13 on the other side of the charger.

4.2 Removal of display cover

Caution! Special care must be taken not to damage paint of the cabinet during removal. Display cover can be damaged in the process.

Step 1 Pour the isopropyl alcohol from the edges of the front cover to soak adhesive tape.

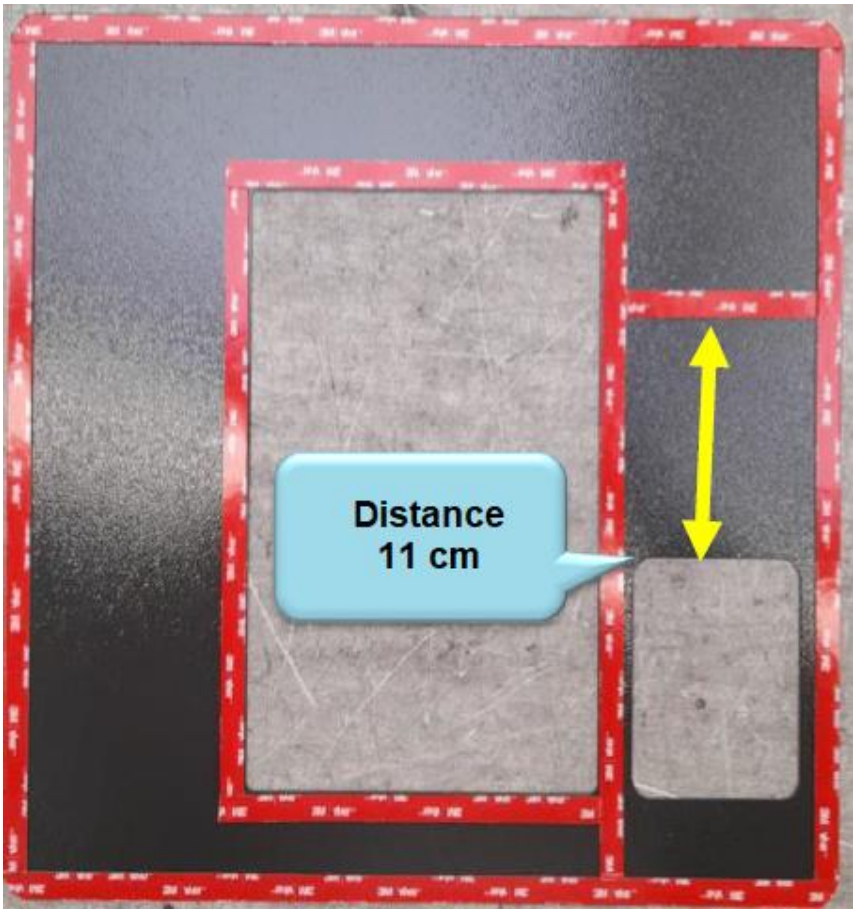

***Figure** 8: UFC 200 – arrangement of 3M adhesive on default version of display cover (view from the inside).*

Step 2 Carefully cut first layer of adhesive tape with fishing line or utility knife.

Step 3 Slowly bend panel to access to internal layers of tape.

Step 4 Repeat steps 1-3 until display cover is removed.

Step 5 Soak remaining adhesive with adhesive remover and wait 2-5 minutes.

Step 6 Clean the adhesive with microfiber cloth.

Step 7 Repeat steps 5-6 until all remaining adhesive is removed from the UFC cabinet.

Step 8 Repeat steps 1-7 on the other side of the charger.

4.3 Preparation of Apollo Terminal

Step 1 Prepare Apollo Terminal kit (5630105839 KIT RETROFIT DUAL APOLLO [EVC200]).

Step 2 From the back side unscrew 1 screw fixing cover “MODEM” and remove it.

***Figure** 9: Back side of Apollo terminal.*

Step 3 Unlock the card holder by sliding it down and open it.

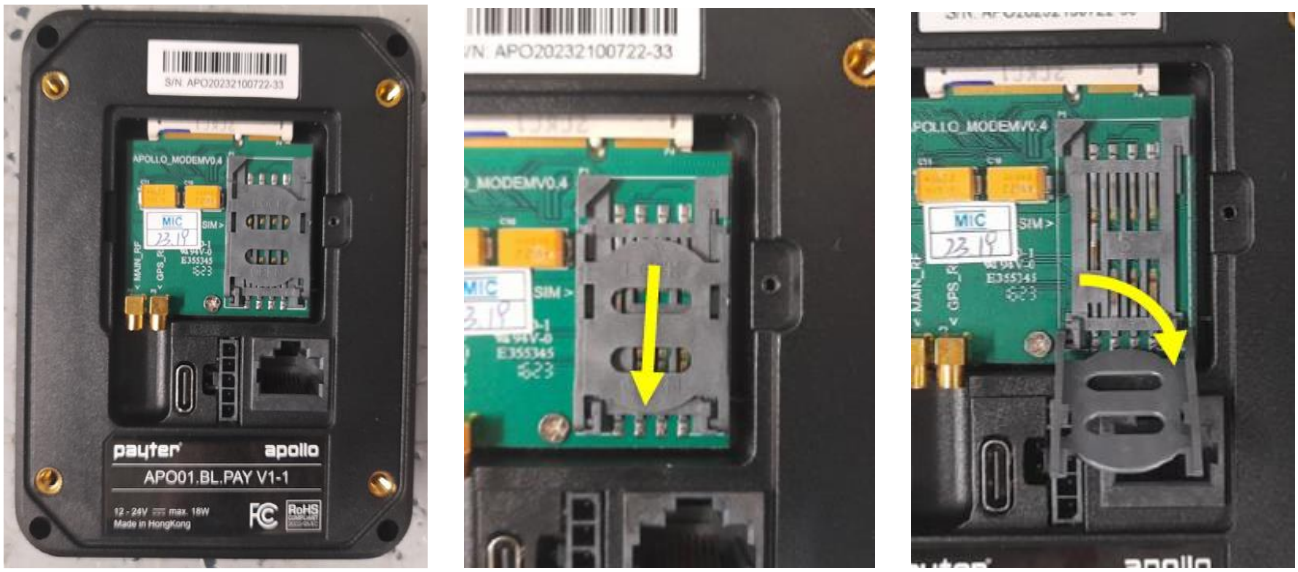

Figure *10: Opening card holder*

Step 4 Insert SIM card into SIM card slot.

***Figure** 11. Placing SIM card*

Step 5 Screw back “MODEM” cover.

***Figure** 12. Back side of Apollo terminal*

Step 6 Prepare second Apollo Terminal in the same way.

4.4 Installation of Apollo Terminal (new Hardware version)

Step 1 Check the serial number for date code.

Digits 1-2 indicate production year, digits 3-4 indicate production week.

⚠ **Caution! Chargers produced after date code 2129 should use instruction from this chapter. For older chargers please use steps from chapter** Error! Reference source not found.**.**

Step 2 Insert gasket into Apollo terminal.

Figure 13. *Installation of a payment terminal*

Step 3 Install holder 3488505300 by screwing 4xM4 screws in the order on picture below. Do not tighten screws so terminal has still option to move relatively to holder.

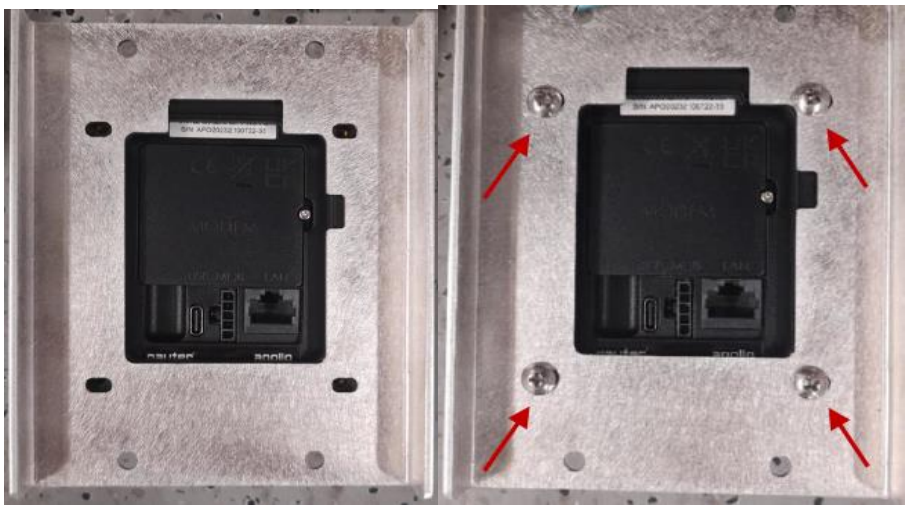

***Figure** 14. Installation of a holder*

Step 4 Install gasket on front doors.

***Figure** 15. Installation of a holder*

Step 5 Install Apollo Terminal on gasket and screw M5 screws in the order on picture below using 1.4Nm torque.

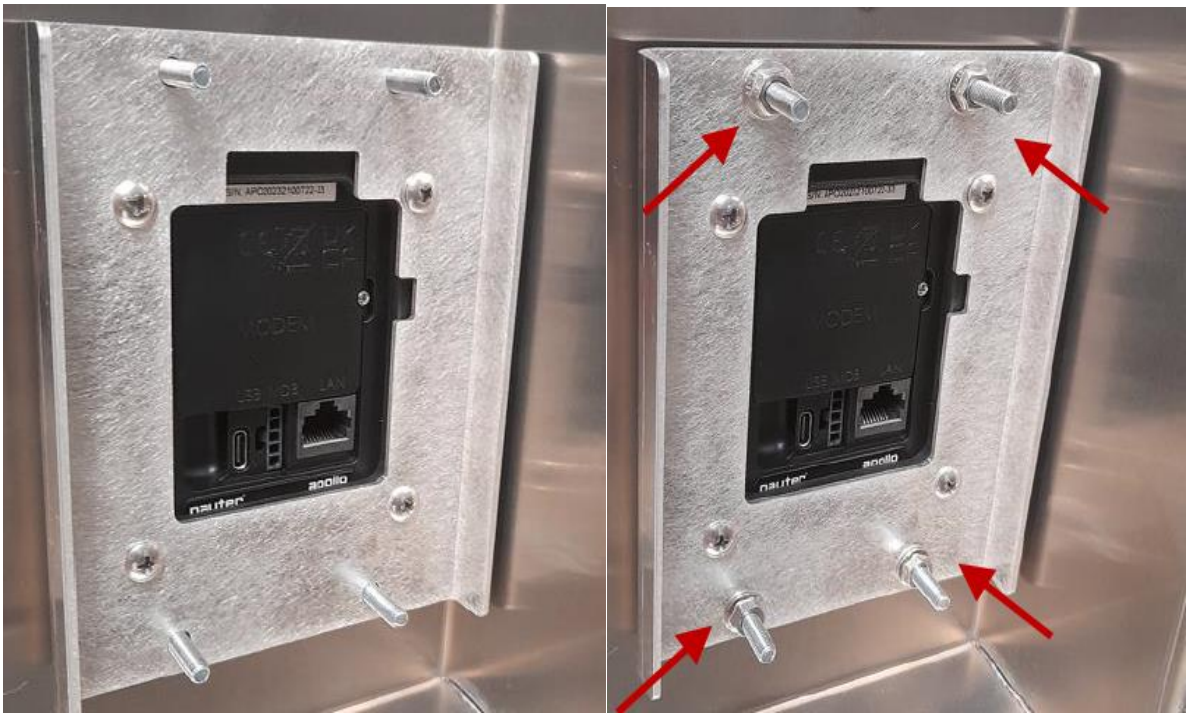

Figure 16. *Installation of a payment terminal*

Step 6 Tighten screw 4x M4 nuts using 1.4Nm of torque.

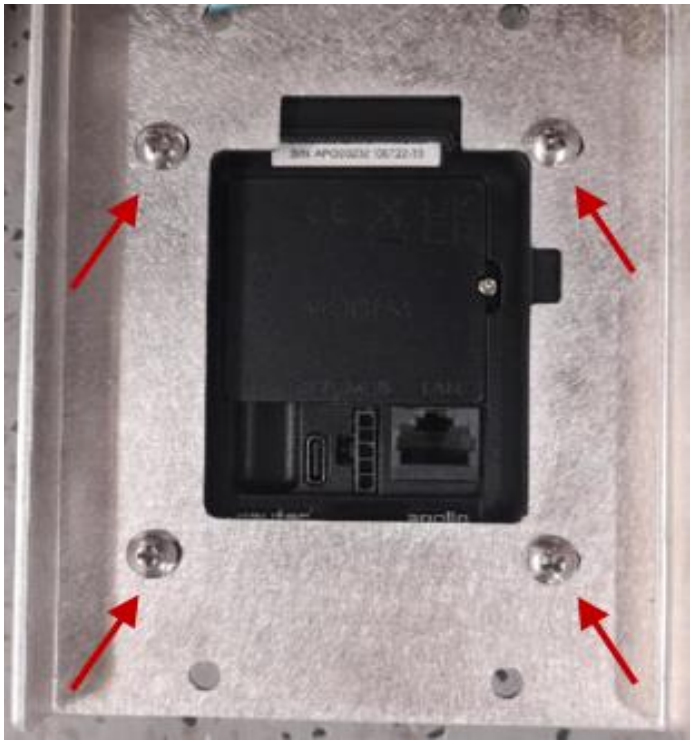

Figure 17. *Tighten crews of Apollo terminal*

Step 7 Instal display on self-clinching stud.

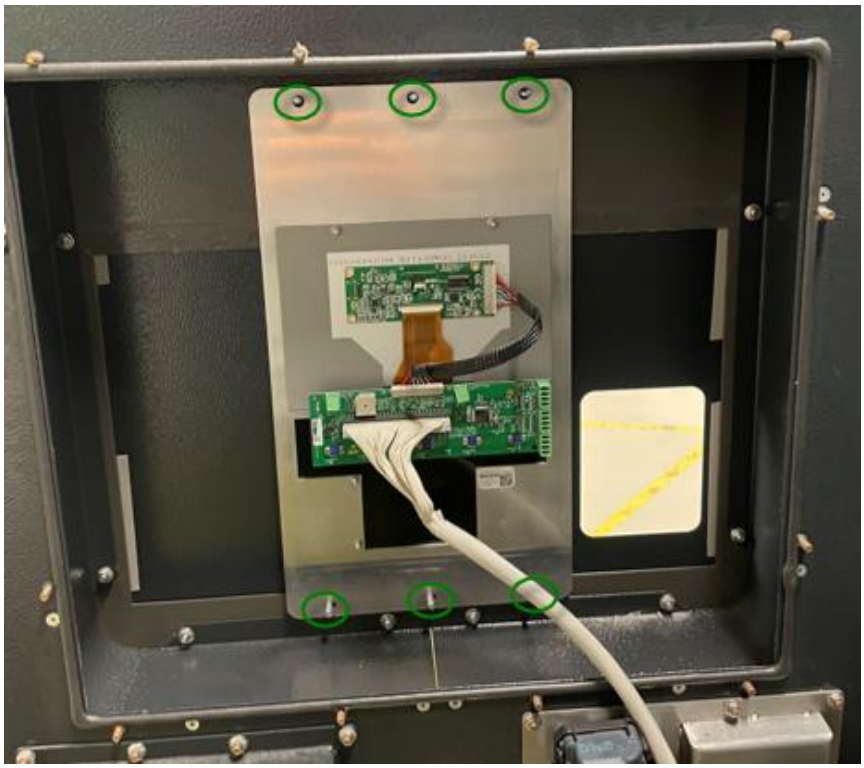

Figure 18. *Installation of a payment terminal*

Step 8 Screw 6x M5 nuts holding the display (HMI) and 4xM4 nuts holding holder.

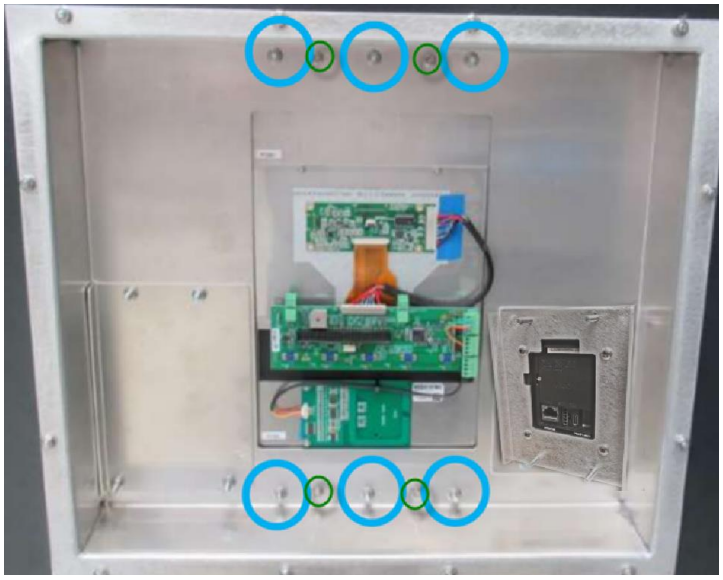

Figure 19. *Installation of a display holder*

Step 9 Stick front cover with double-sided adhesive tape in front part of the door as in the pictures.

Step 10 *Ensure that Apollo Terminal is securely locked in place and no gaps are visible between gasket and plate of display holder*

Step 11 Connect back all external cables to the button board PCB.

Step 12 Repeat all steps on the other side of the charger.

4.5 Installation of Apollo Terminal (old Hardware version)

Step 1 Check the serial number for date code.

Digits 1-2 indicate production year, digits 3-4 indicate production week.

Caution! Chargers produced before date code 2129 should use instruction from this chapter. For newer chargers please use steps from chapter 4.4.

Step 2 Insert gasket into Apollo terminal.

Figure 20. *Installation of a payment terminal*

Step 3 Install gasket on front doors.

***Figure** 21. Installation of a holder*

Step 4 Install holder 3488505300 by screwing M5 screws in the order on picture below

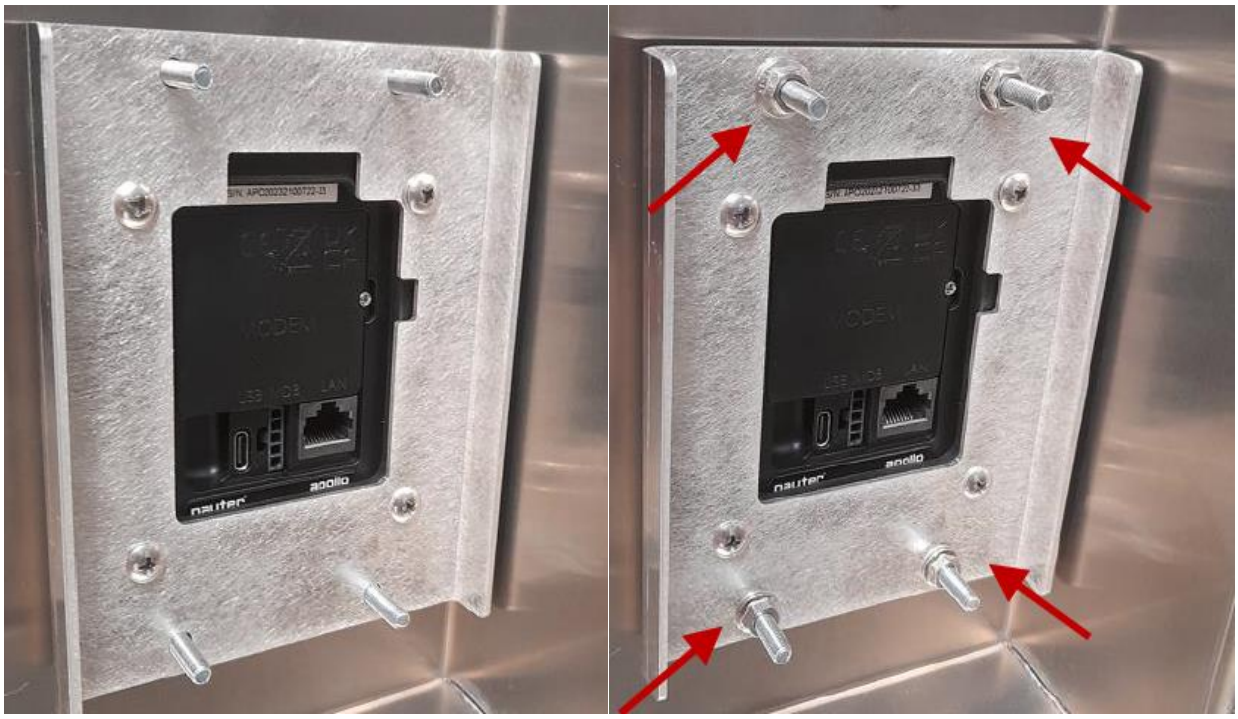

***Figure** 22. Installation of a holder*

Step 5 Place Apollo terminal with gasket on metal holder from outside of the charger.

Step 6 Install Apollo Terminal on gasket and screw M4 screws in the order on picture below using 1.4Nm torque.

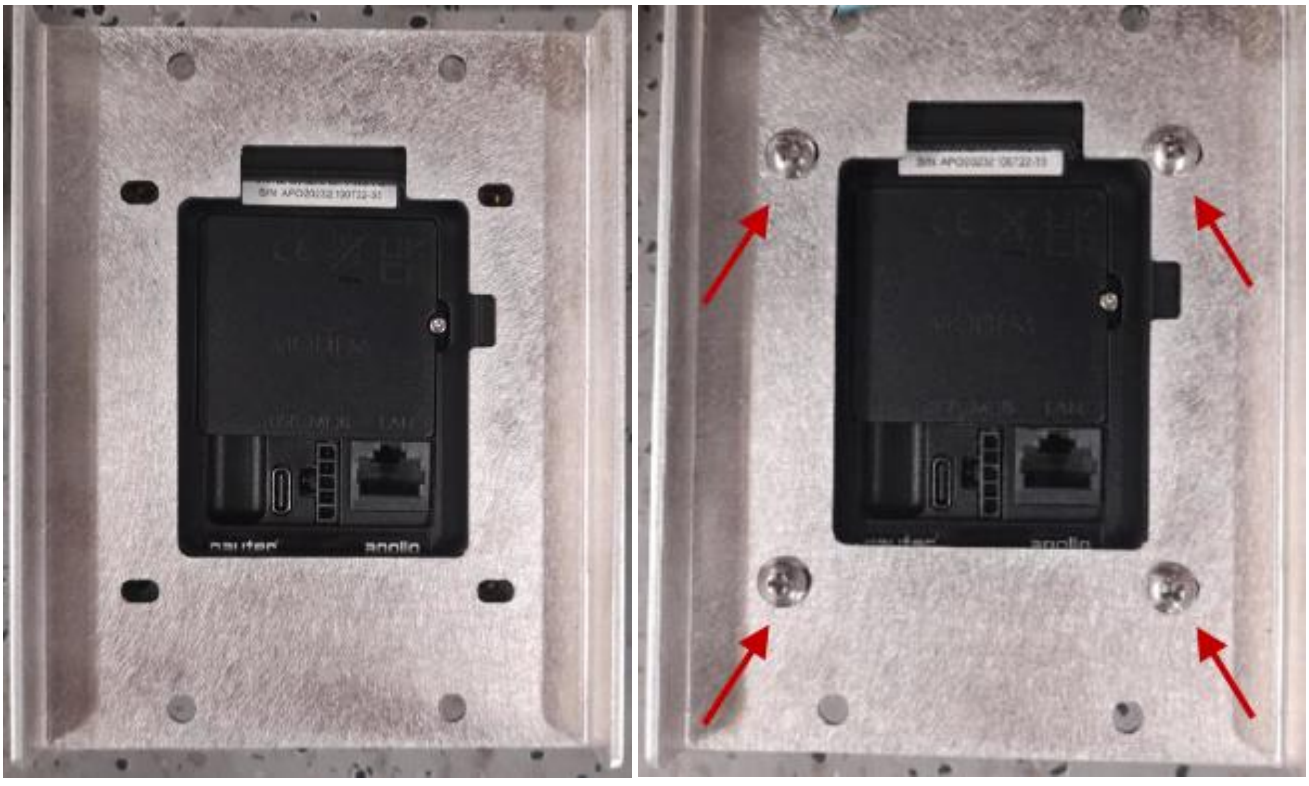

Figure 23. *Installation of a payment terminal*

Step 7 Instal display on Self-clinching stud.

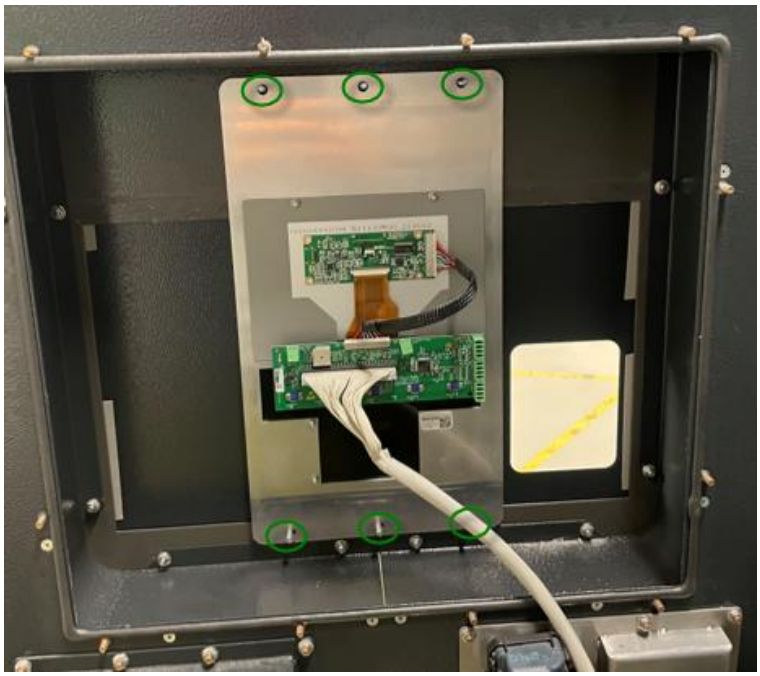

Figure 24. *Installation of a payment terminal*

Step 8 Screw 6x M5 nuts holding the display (HMI) and 4xM4 nuts holding holder.

Figure 25. *Installation of a display holder*

Step 9 Stick front cover with double-sided adhesive tape in front part of the door as in the pictures.

Step 10 *Ensure that Apollo Terminal is securely locked in place and no gaps are visible between gasket and plate of display holder*

Step 11 Connect back all external cables to the button board PCB.

Step 12 Repeat all steps on the other side of the charger.

4.6 Installation of new display cover

Caution! Rework procedure requires applying 3M adhesive tape. Ideal temperature for application is 21-38°C. If procedure must be made in temperatures down to 5°C it is recommended to preheat the technician tent and use 3M Adhesion Promoter AP111 or Primer 94. Application in temperature below 5°C is prohibited.

Step 1 Prepare new display covers (3486840700 PLATE FRONT PAY SGCC 400*430*0.75 PAINT).

Step 2 Prepare and clean surface of the back side of the display cover.

Step 3 Attach 3M VHB tape according to **Figure** 9.

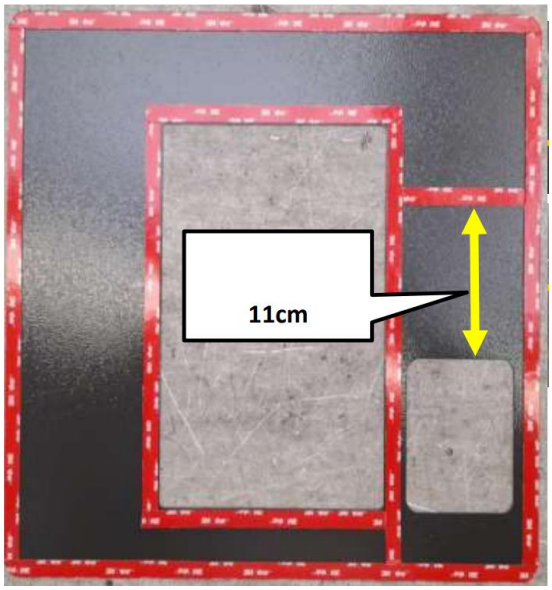

Figure 26*: Display cover in Apollo version with adhesive tape marked.*

Step 4 Carefully attach the display cover to the UFC cabinet.

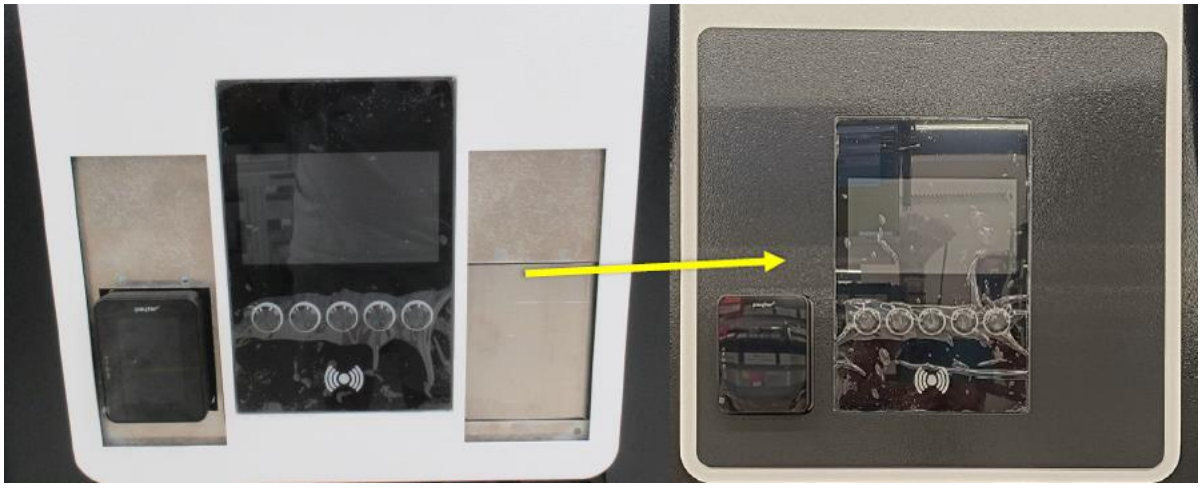

Figure 27*: Apollo terminal display cover installed.*

Step 5 Repeat steps 1-4 on the other side of the charger.

4.7 Installation of antenna signal splitter

Step 1 Prepare signal splitter 3902121300 SPLITTER 1130 ASSY.

Step 2 Consult circuit diagram to complete rework.

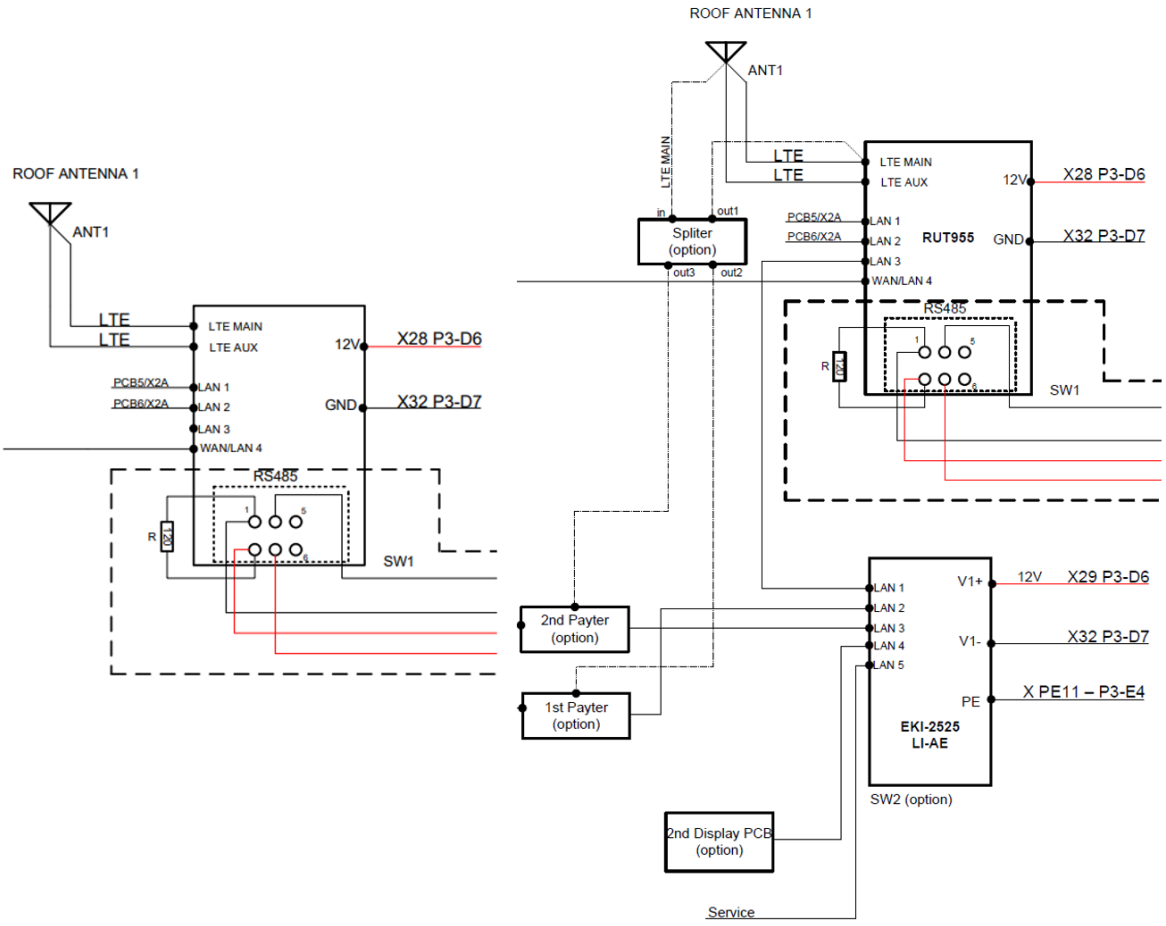

Figure 28. *Circuit diagram (left – before rework, right after rework).*

Step 3 Screw it in using 2x M5 screws.

Figure 29. *Location of signal splitter*

Step 4 Disconnect antenna cable from Teltonika RUT955 LTE MAIN connector and reroute it according to **Figure** 30 and **Figure** 31.

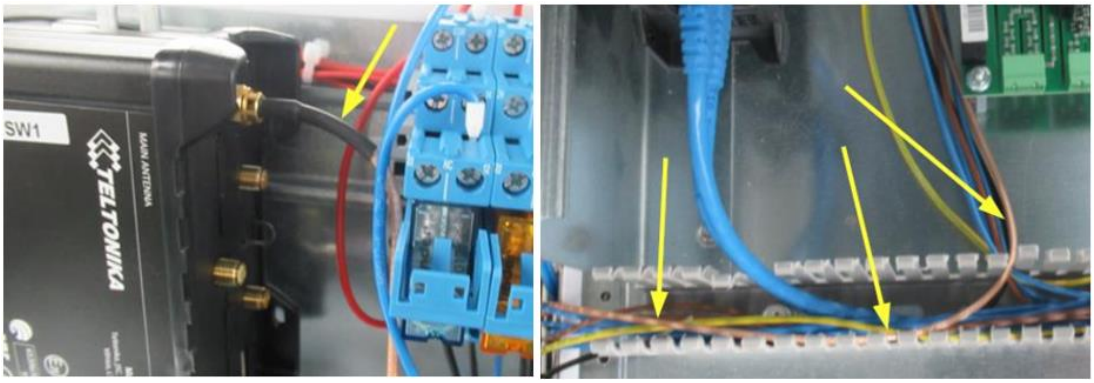

Figure 30. *Antenna cable routing*

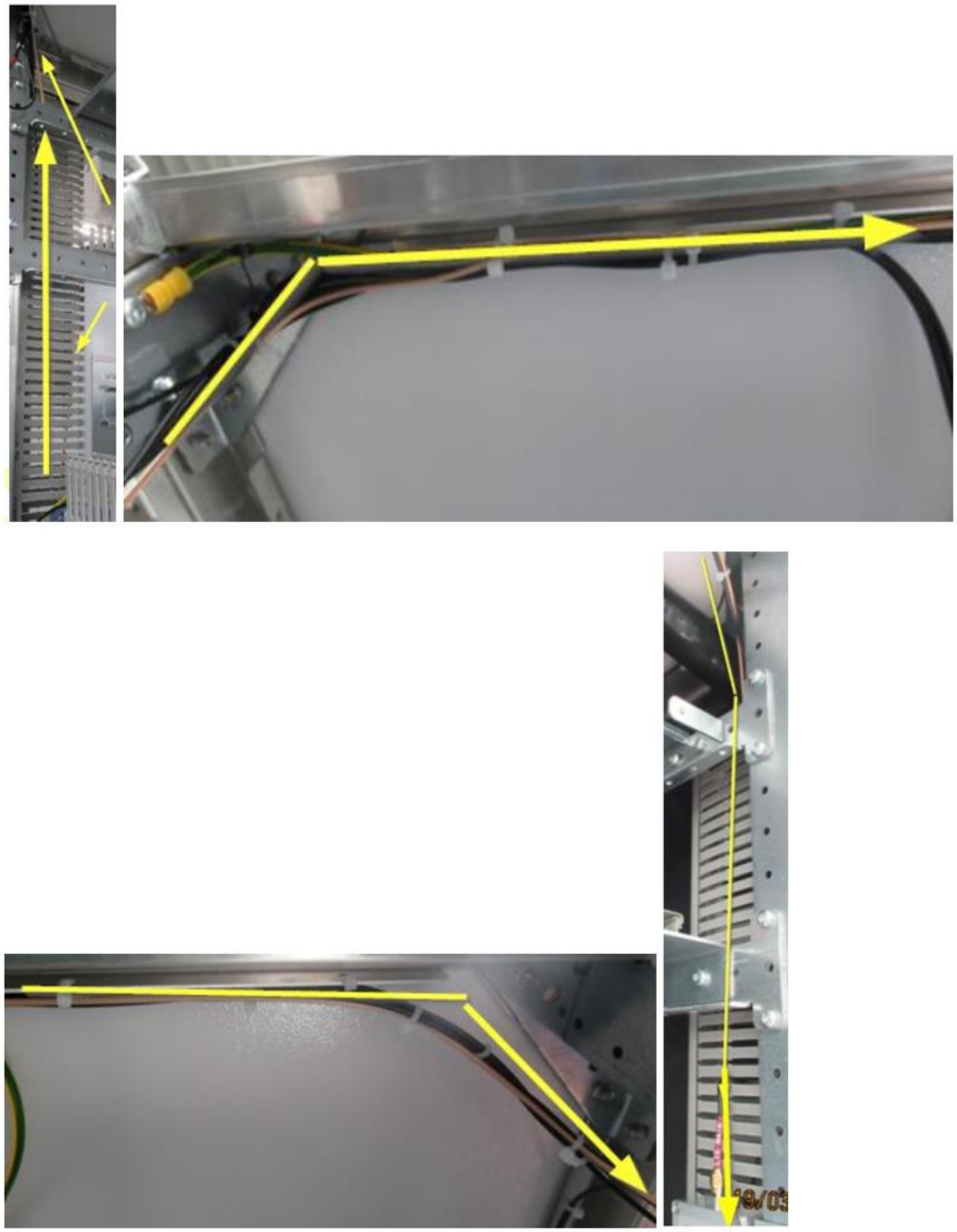

Figure 31 *New routing of antenna cable (left to right)*

Step 5 Connect antenna cable to splitter IN (top connector S) using 0,6Nm of torque.

Figure 32. *Splitter connection*

Step 6 Prepare antenna cable for front Apollo terminal 3732404600 CABLE ASSY DUAL APOLLO PAYTER [EVC200].

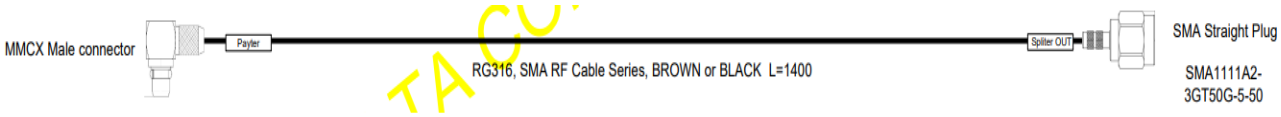

***Figure** 33. New antenna cable to front Apollo terminal*

Step 7 Connect to signal splitter OUT2 – middle connector (using 0,6Nm of torque).

Step 8 Route it in the system according to Figure 34.

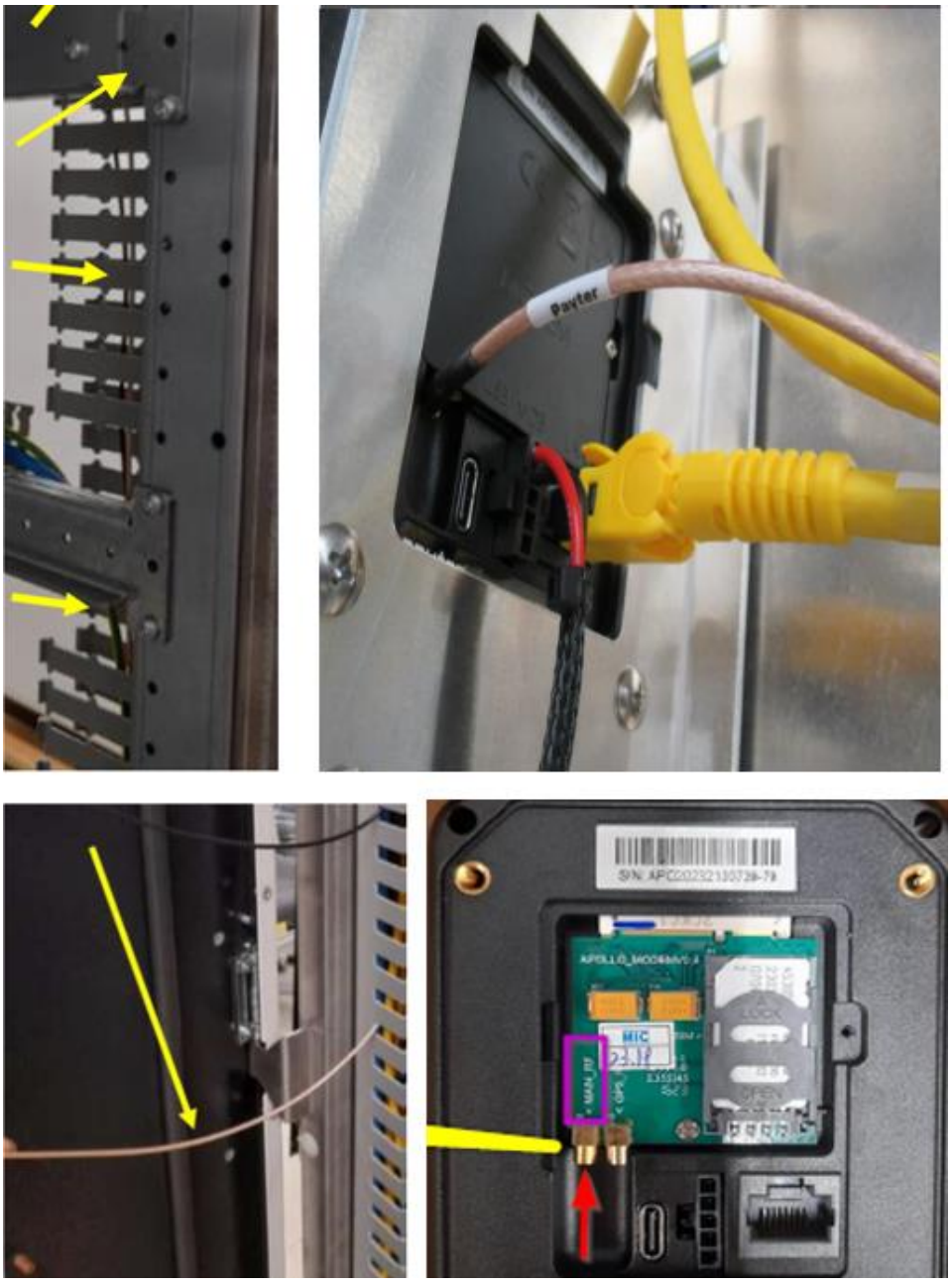

Figure 34. *New routing of antenna cable to front Apollo terminal*

Step 9 Connect second end of the cable to Apollo terminal. If there are two connectors, connect cable to left one.

Step 10 Prepare antenna cable for rear Apollo terminal 3732404600 CABLE ASSY DUAL APOLLO PAYTER [EVC200].

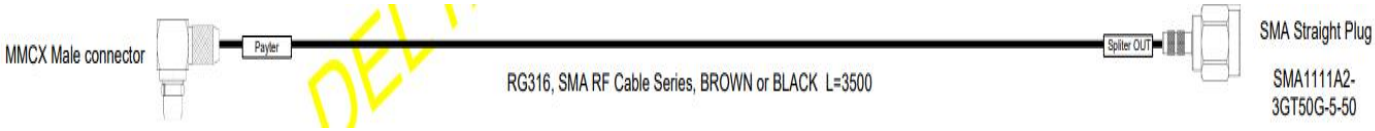

Figure 35. New antenna cable to rear Apollo terminal

Step 11 Connect to rear Apolo terminal.

Step 12 Route it in the system according to 36 and **figure** 37.

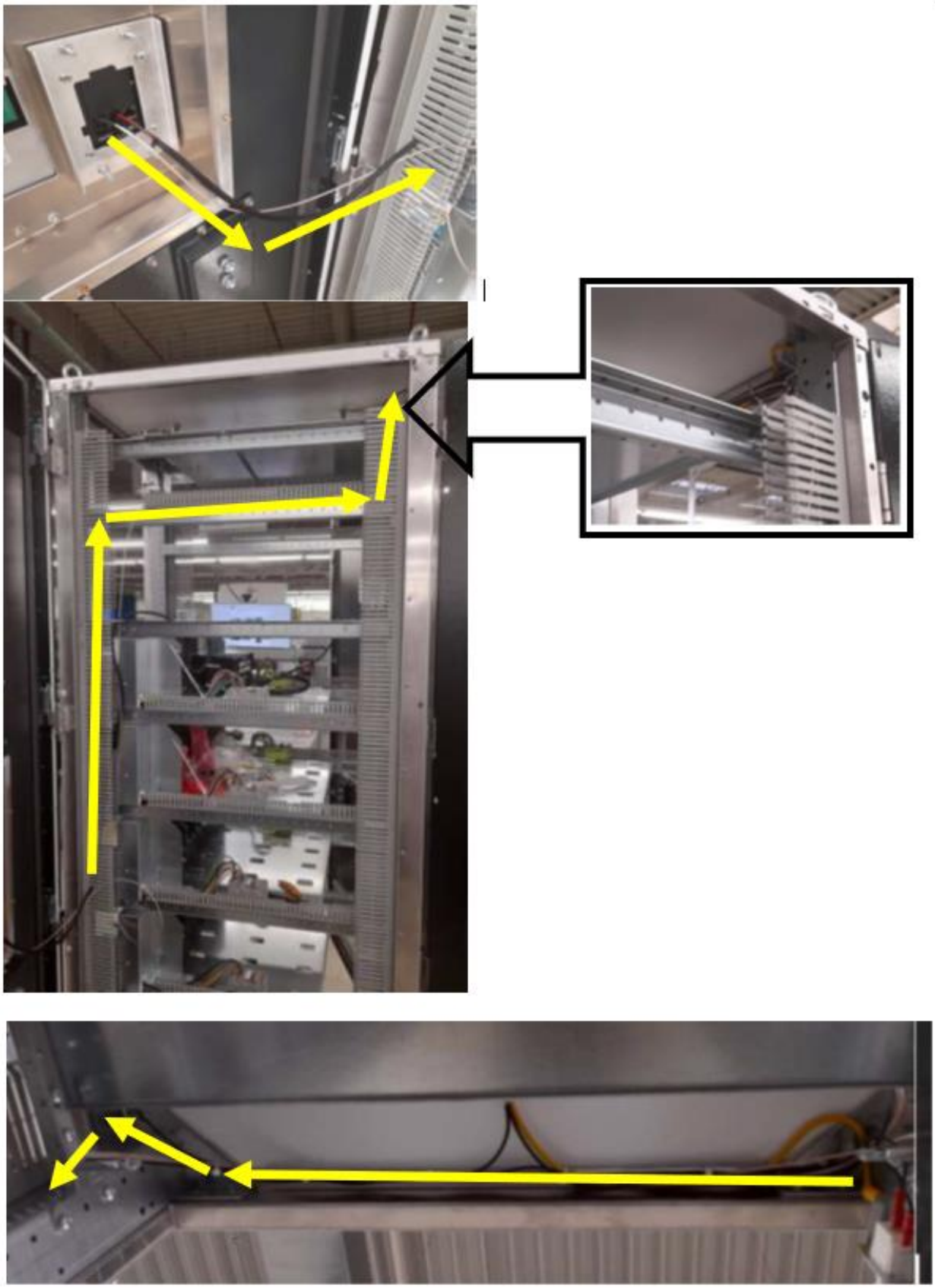

Figure 36. *Rear Apollo antenna cable routing*

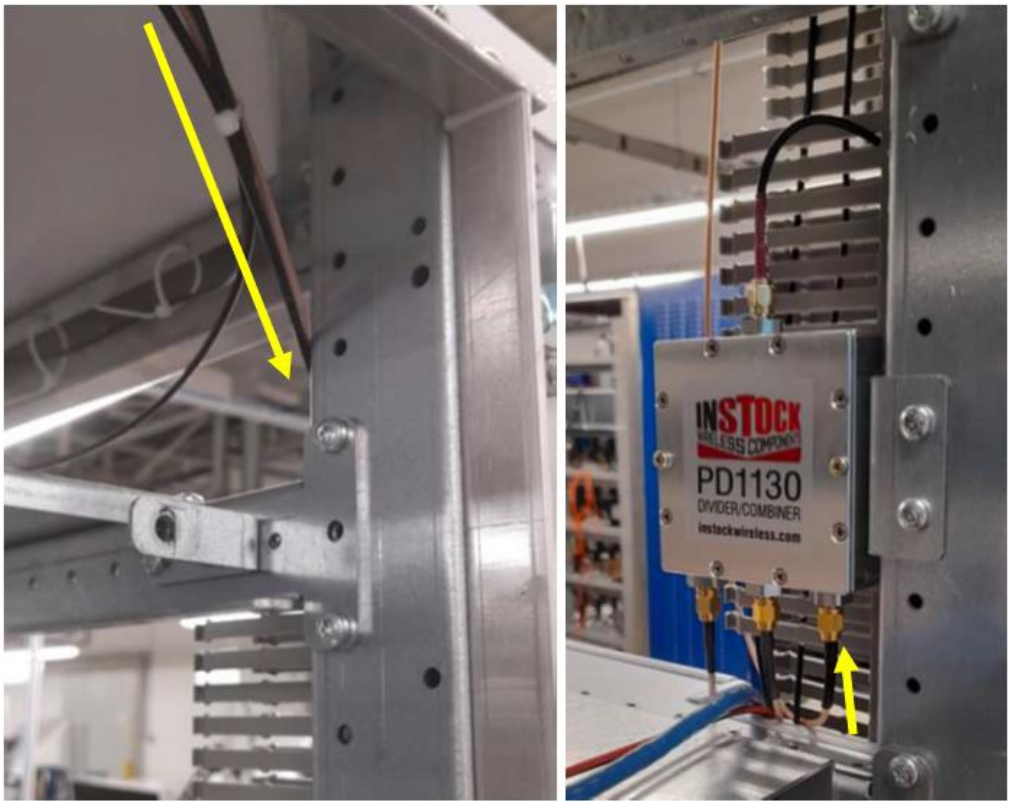

Figure 37. Rear Apollo antenna cable routing

Step 13 Prepare new antenna cable for Teltonika 3732404600 CABLE ASSY DUAL APOLLO PAYTER [EVC200].

Figure 38. New antenna cable to Teltonika

Step 14 Connect to signal splitter (bottom left connector) using 0,6Nm of torque.

Step 15 Connect another end of the cable to Teltonika LTE MAIN connector using 0,6Nm of torque.

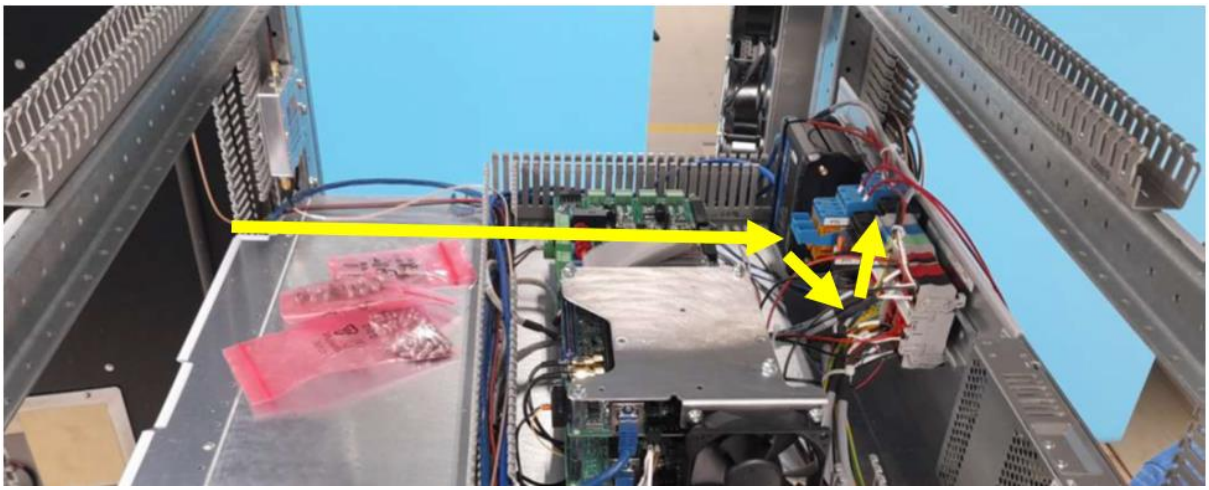

Figure 39. *Teltonika antenna cable routing*

Step 16 Prepare 12V power supply cable for Apollo Terminal 3732404600 CABLE ASSY DUAL APOLLO PAYTER [EVC200].

Step 17 Connect connector to front Apollo Terminal according to **Figure** 40.

Figure 40. *New routing of antenna cable to Apollo terminal*

Step 18 Route 24V cable to X DC26 and X DC27 terminals according to **Figure** 41.

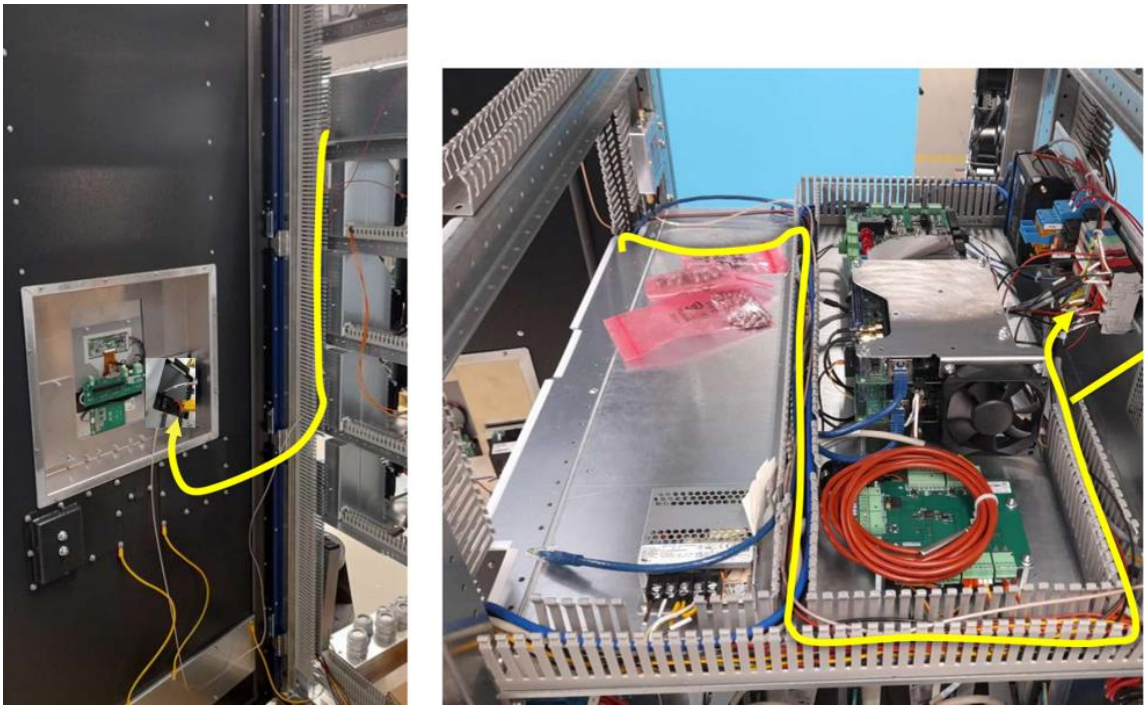

Figure 41. *Routing of power supply cable to Apollo terminal*

Step 19 Use X DC31 and X DC35 to connect power supply for rear Apollo terminal. Use the same route as for antenna cable (Step 7 in Connection to Ethernet switch).

4.8 Connection to Ethernet switch

Step 1 Connect switch “SW2” LAN port 2 to front Apollo terminal according to Figure 42 and Figure 43.

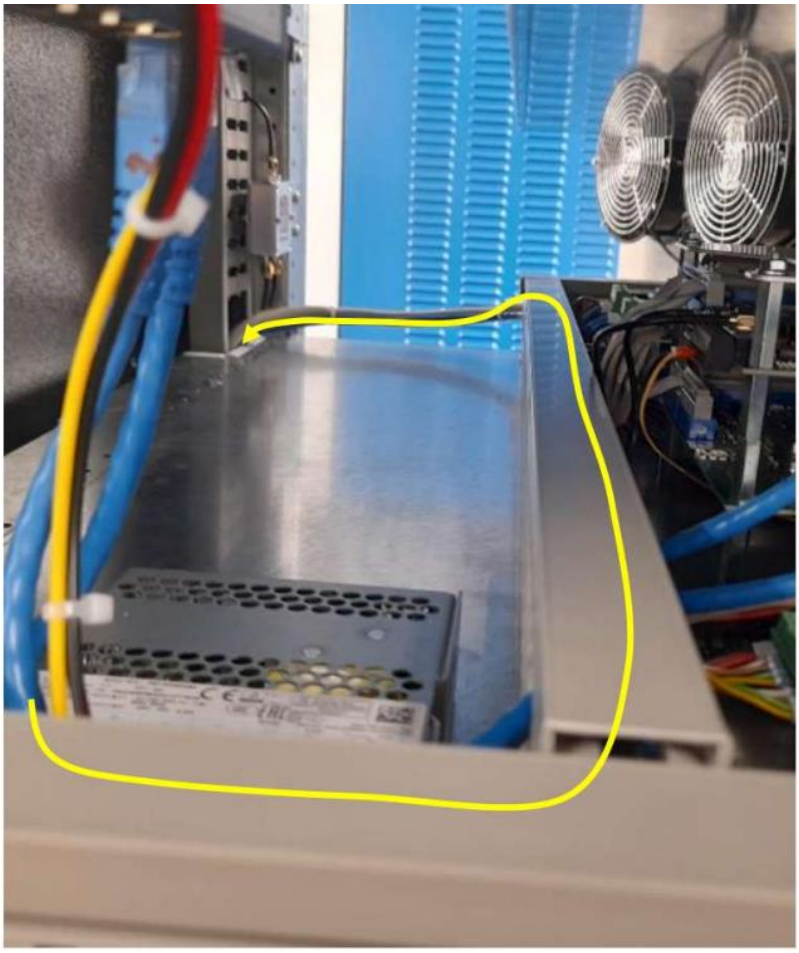

Figure 42. *Front Apollo Ethernet cable routing*

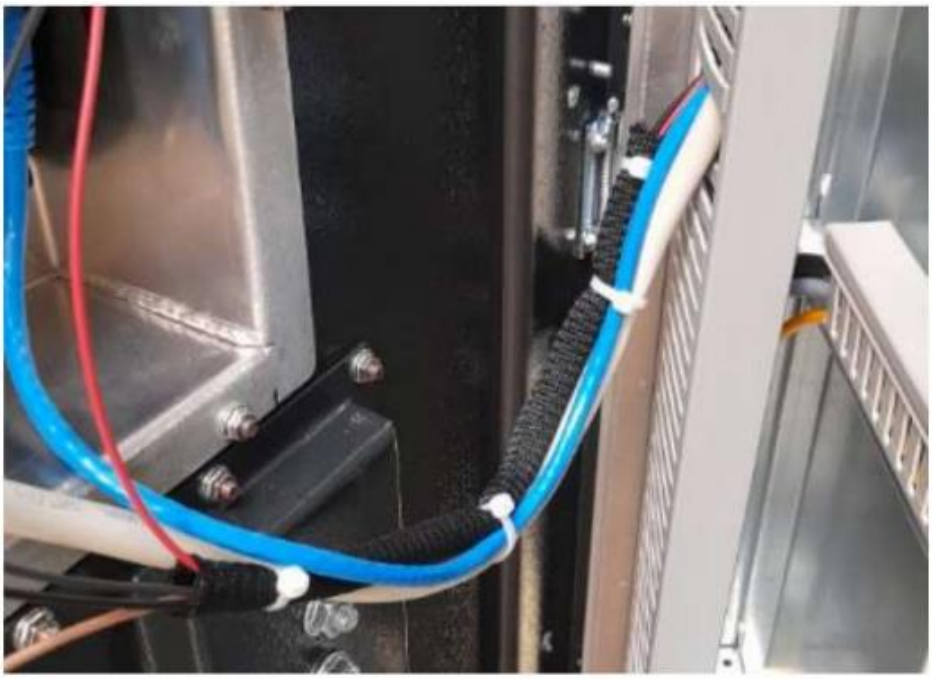

Figure 43. *Front Apollo Ethernet cable routing*

Step 2 Connect switch “SW2” LAN port 3 to rear Apollo terminal.

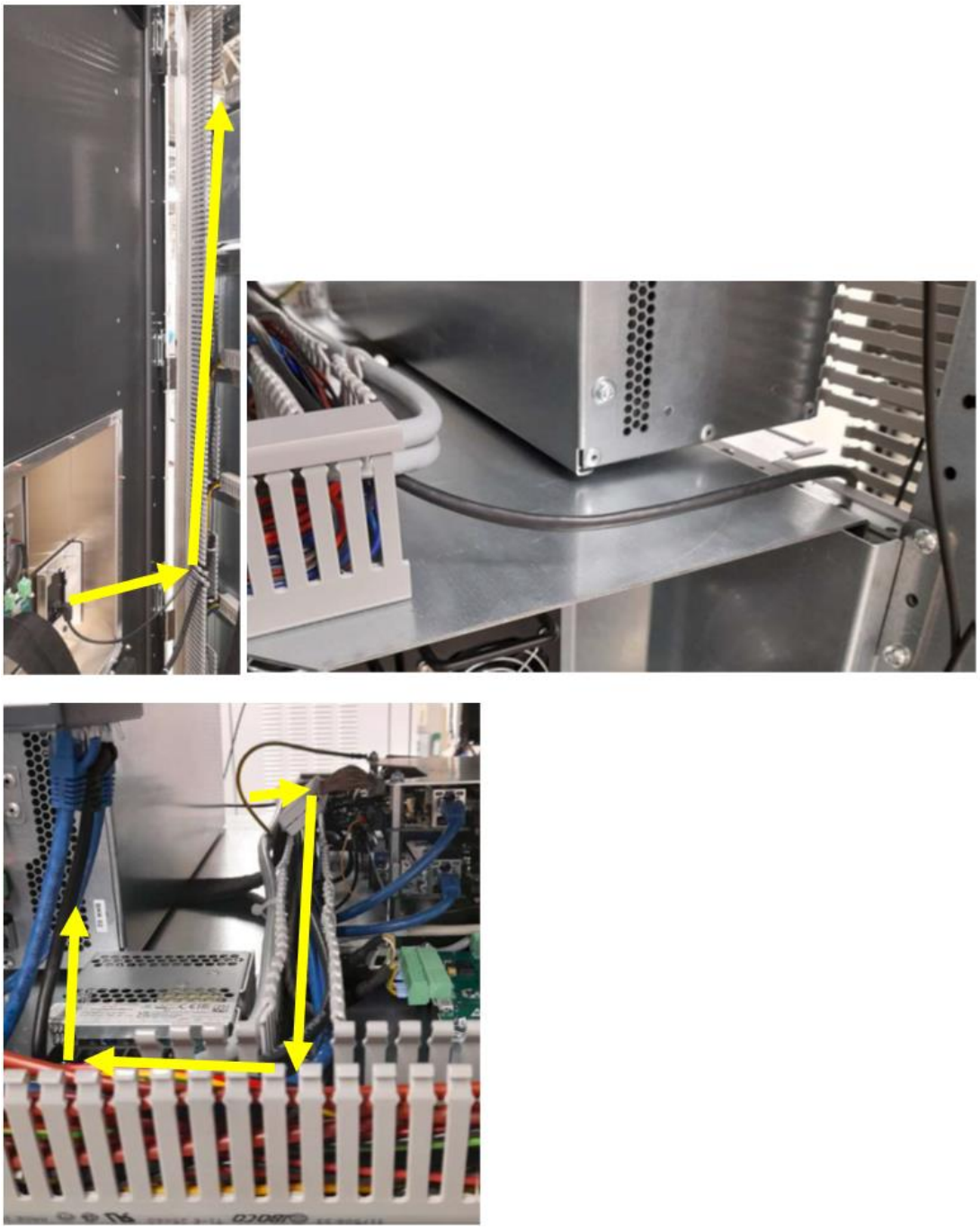

Figure 44. *Rear Apollo Ethernet cable routing*

Step 3 Check if all connections are done according to circuit diagram (**Figure**).

4.9 Finishing rework

Step 1 Check charger for any loose or not connected cabling in area of operation.

Step 2 Screw display back cover with M5 nuts using 1.4Nm of torque.

Figure 45. *Screwed display*

Step 3 Close front panel and secure with bar clamps.

Step 4 Screw all 4 screws locking it front panel.

Step 5 Power up the charger.

Step 6 Close right and left EVC doors using key.

Step 7 Clean the site.

⚠ **Caution! Dispose of the waste in appropriate containers, according to local regulations**.

4.10 Commissioning and testing

For commissioning and testing of payment terminal please contact Delta Service.

About Delta

Delta, founded in 1971, is a global leader in power and thermal management solutions. Our mission is “To provide innovative, clean and energy-efficient solutions for a better tomorrow,” and our businesses encompass Power Electronics, Energy Management, and Smart Green Life. Delta has sales offices, manufacturing facilities and R&D centers worldwide. In 2014, was ranked at the highest A-level of the Climate Performance Leadership Index of the Carbon Disclosure Project (CDP). Since 2011, Delta is part of the Dow Jones Sustainability Indices (DJSI) World Index.