Charging complaints - Initial analysis

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Version	1
Design group	54.10 Battery, voltage supply, voltage converter
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Reason for change	
Reason for block	

Complaint:

- Charging inoperative
- Charging abortion
- Fault messages (flash codes) on charging cable box (ICCU or Intelligent Charging Control Unit)
- Fault messages (flash codes) on charging socket on vehicle
- Question/problems associated with charging process

Cause:

In principle, faults during the charging process and charging abortions can have different reasons. These include:

- Infrastructure
- Charging cable with box (ICCU)
- Charging socket
- On-board charger (OBL)
- HV battery or vehicle control (internal)

For an exact fault analysis and fault rectification please note the points raised in the Remedy chapter with attachments in the TIPS document.

In each instance, it is essential that the customer complaint and the basic conditions are asked about at the customer's (in particular, which charging mode/charging cable/charger was used) and the customer's charging infrastructure should also be examined.

Remedy:

A) A flash code with red LED on the charging cable box (ICCU) is shown

After inserting the charging cable a self-test is run first. If, after this, one of the two upper LEDs (AC LED and/or CCIC-LED) lights up in red or if they flash on and off, a malfunction is present.

=> Please use Attachments A1+A2 in this TIPS document to help with interpretation of the possible reasons for the charging fault and die flash codes.

=> Rectify the fault in accordance with the details given in "Remedy/recommended actions" in the attachment.

B) A flash code on the vehicle's charging socket is displayed.

The charging socket on the vehicle always indicates each operating condition (Charging, vehicle unlocked, fault etc.) through two LEDs.

=> Please use Attachments B1+B2 in this TIPS document to interpret the reason for the LED display (Note B1 is a non-USA socket, USA does not have indicator lamps or a lock)

=> If a fault is found, rectify it in accordance with the details given in "Possible remedies/recommended actions" in the attachment.

C) Fault without flash code or remedies under A+B would not serve any purpose

- Read out quick test, actual values and control unit event log data (from on-board charger + HV battery)
- Please answer the following questions as accurately as possible
- Then create a TIPS case with the above mentioned information

1. Exact description of the complaint? _____

2. When did the problem first occur? Time: _ _ _ _ _

3. Is the problem reproducible? YES/ NO

3.1 Under which conditions does the problem occur?

Outside temperature _____ °C/°F

Service life _____ Hours / days

Weather _____ Wet/dry

Other _____

4. If the vehicle is charging, has the charging period changed in any way compared with an earlier period?

Exact description of change compared with earlier period:

Before fault occurred: _____ Charging time in hours for SOC (=State of Charge = Charge level) from ____% to ____ %

Current: _____ Charging time in hours for SOC (=State of Charge = Charge level) from ____% to ____ %

5. At which SOC was charging started when the fault occurred? _____%

6. Does the charging process always terminate after a specific period of time? No / yes, after a charging time of :_____ min/h

7. Does the charging process always terminate at a specific SOC? No / yes, when the following SOC is reached: ____ %

8. Describe the charging infrastructure used and the specific charge levels

	Charging	Not charging	Internet-Connection Present?	Manufacturer	
Wallbox:	___	___	___	___	
Domestic plug socket (with FI):	___	___	___		Mains fuse with 12/16/32 A
Domestic plug socket (without FI):	___	___	___		Mains fuse with 12/16/32 A
Public charging (with Plug&Charge):	___	___	___	___	

Public charging (without Plug&Charge): ___ ___ ___ ___

Mode of payment for public charging: RFID / Phone / SMS / Credit card / Other: _____

9. Which charging cable or which load mode is used?

Manufacturer:_____ Charging cable designation/part number:_____

Mode 2 (in USA: "Level 1") _____

Mode 3 (3.3 kW: in USA "Level 2") _____

Mode 3 (22 kW) _____

10. What happens when charging is performed with another charging cable?

Same fault profile_____ (Yes/no)

Different fault profile, accurate description:_____

11. Do other vehicles in the charging infrastructure exhibit identical charging problem,s? Yes / no

Description:_____

12a. What does the indicator lamp at top left on the vehicle charging socket do in a fault case?

(It describes the status "charging cable inserted"; see also Attachments B1/B2) (Note B1 is a non-USA socket, USA- does not have indicator lamps or a lock)

White_____ Stays off _____

Comment:_____

12b. What does the indicator lamp at top right on the vehicle charging socket do in a fault case?

(it describes the "Charging status"; see also Attachments B1/B2) (Note B1 is a non-USA socket, USA does not have indicator lamps or a lock)

Green flashing____ Green____ Orange____ Orange flashing____ Red (fast flashing)_____

Comment:_____

13. Which flash code is shown on the charging cable box (ICCU) (see also Attachments A1+A2)

14. In which loader program does the problem occur?

"Charging now"____ Departure time "w/o AC on" ____ Departure time with "AC on"____

15a. Which charging current is configured for the vehicle?

Charging current for vehicle: 8A___ 12A___ 13A____ Max____

15b. Which charging current is configured on the charging cable? (2 LEDs oder 4 LEDs)

16. Do you have valid access to the Vehicle Homepage? Yes / no

Comment:_____

17. Do you have access to the vehicle through the Vehicle Homepage when it is not connected to charging equipment? Yes / no

Comment:_____

18. Do you have access to the vehicle through the Vehicle Homepage when it is connected to charging equipment? Yes / no

Comment:_____

19. Visual inspection/ assessment of charging cable?

Assessment:_____

_____

20. More complaints / information?

Descripti-
on:_____

_____

Attachments	
File	Designation
ENGLISH_A1_Description of the indicator lights and functionality of the ICCU.pdf	ENGLISH_A1_Description of the indicator lights and functionality of the ICCU
ENGLISH_A2_Table to interpret the flash-signals of the ICCU.pdf	ENGLISH_A2_Table for interpretation of ICCU flash-signals
ENGLISH_B1_Description of the charging socket LEDs.pdf	ENGLISH_B1_Description of charging socket LEDs
ENGLISH_B2_Flowchart to interpret the flash-signals of the charging socket.pdf	ENGLISH_B2_Flow chart for interpretation of charging socket flash-signals

Symptoms
Overall vehicle / Power supply / Battery/On-board electrical system / Battery function / Battery cannot be charged
Power generation / Engine management / Electric drive / Nonfunctional

Validity		
Vehicle	Engine	Transmission
451.390	*	*
451.490	*	*