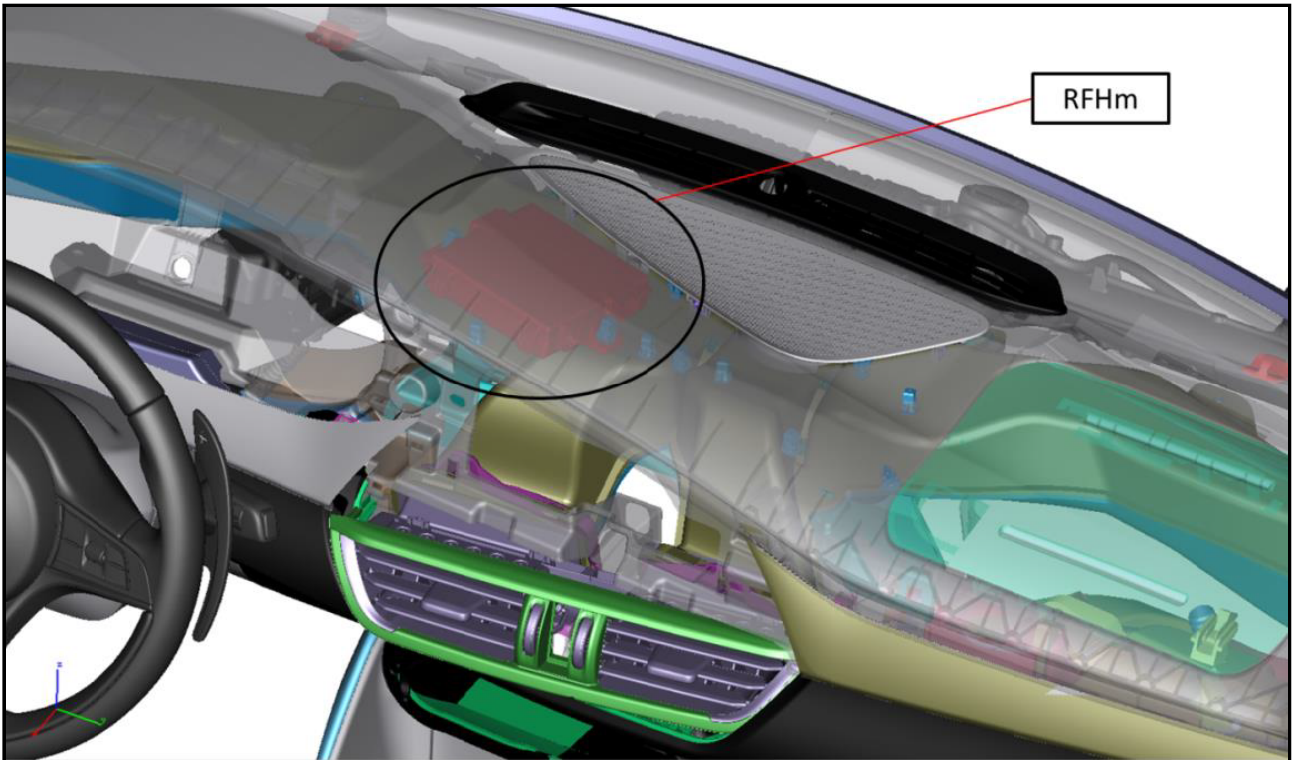**08 - Electrical/8E - Electronic Control Modules/MODULE, Radio Frequency (RF Hub)/Description and Operation**
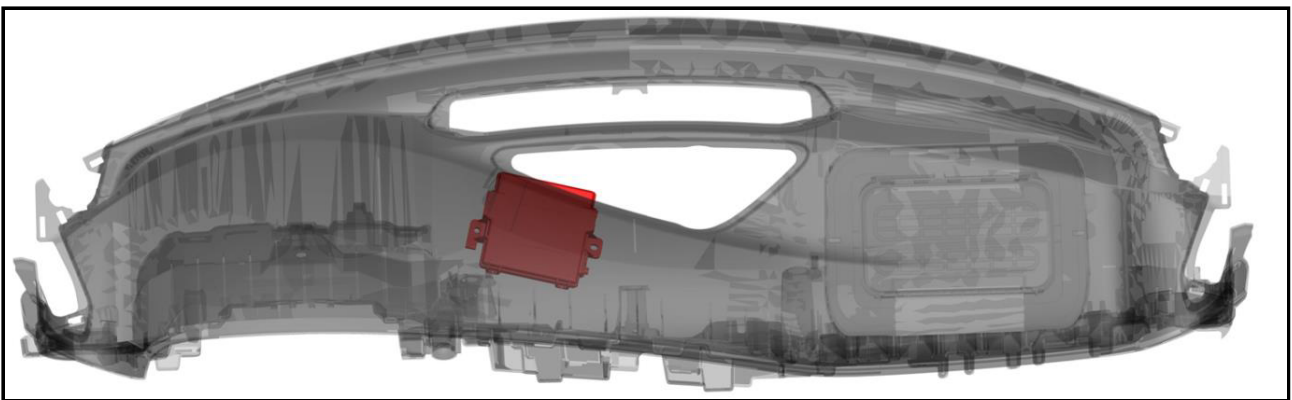
DESCRIPTION AND OPERATION

The Radio Frequency Hub Module (RFHM) has the following features:

- Passive Entry (PE). This information is listed below.
- Keyless Go. (Refer to 08 - Electrical/Starting/KEYLESS GO/Description and Operation) .
- Tire Pressure Monitoring (TPM). (Refer to 22 - Tires and Wheels/Tire Pressure Monitoring/Description and Operation) .

The RFHM is located under the dashboard lining above the center display of the dashboard (shown in red in the black circle).
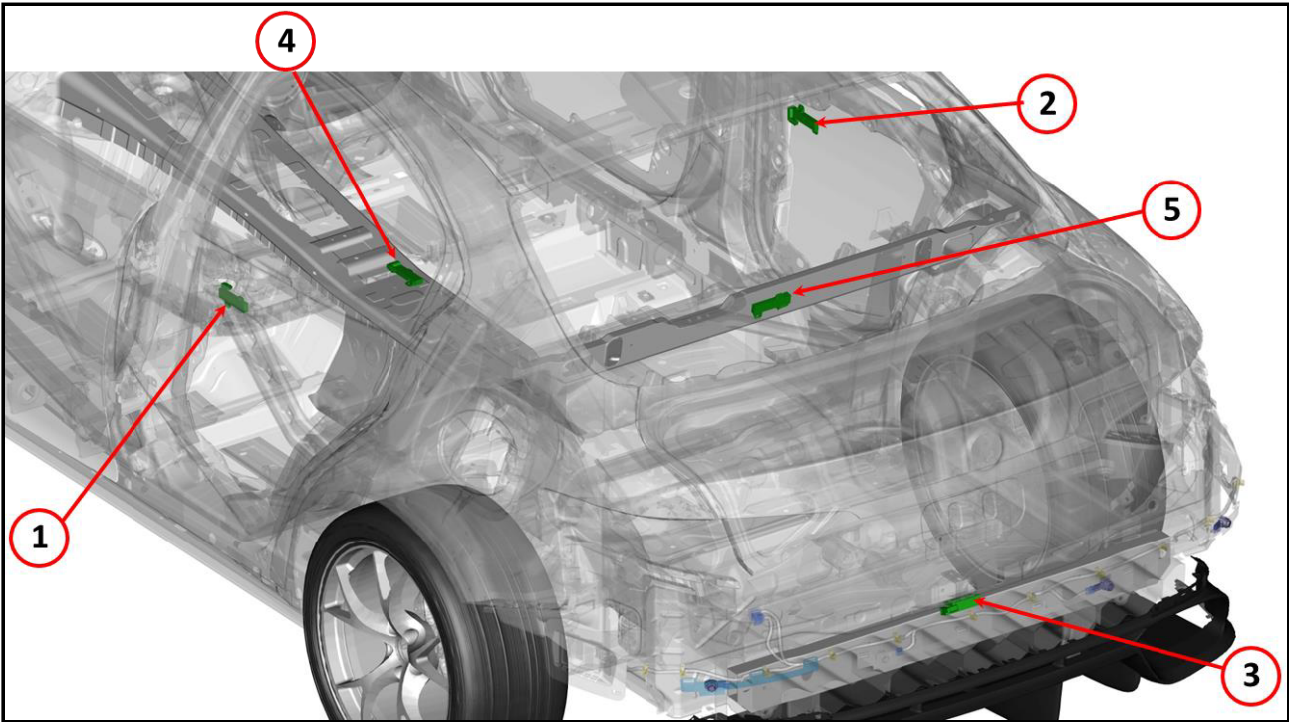

An overhead view of the RFHM location in the IP.
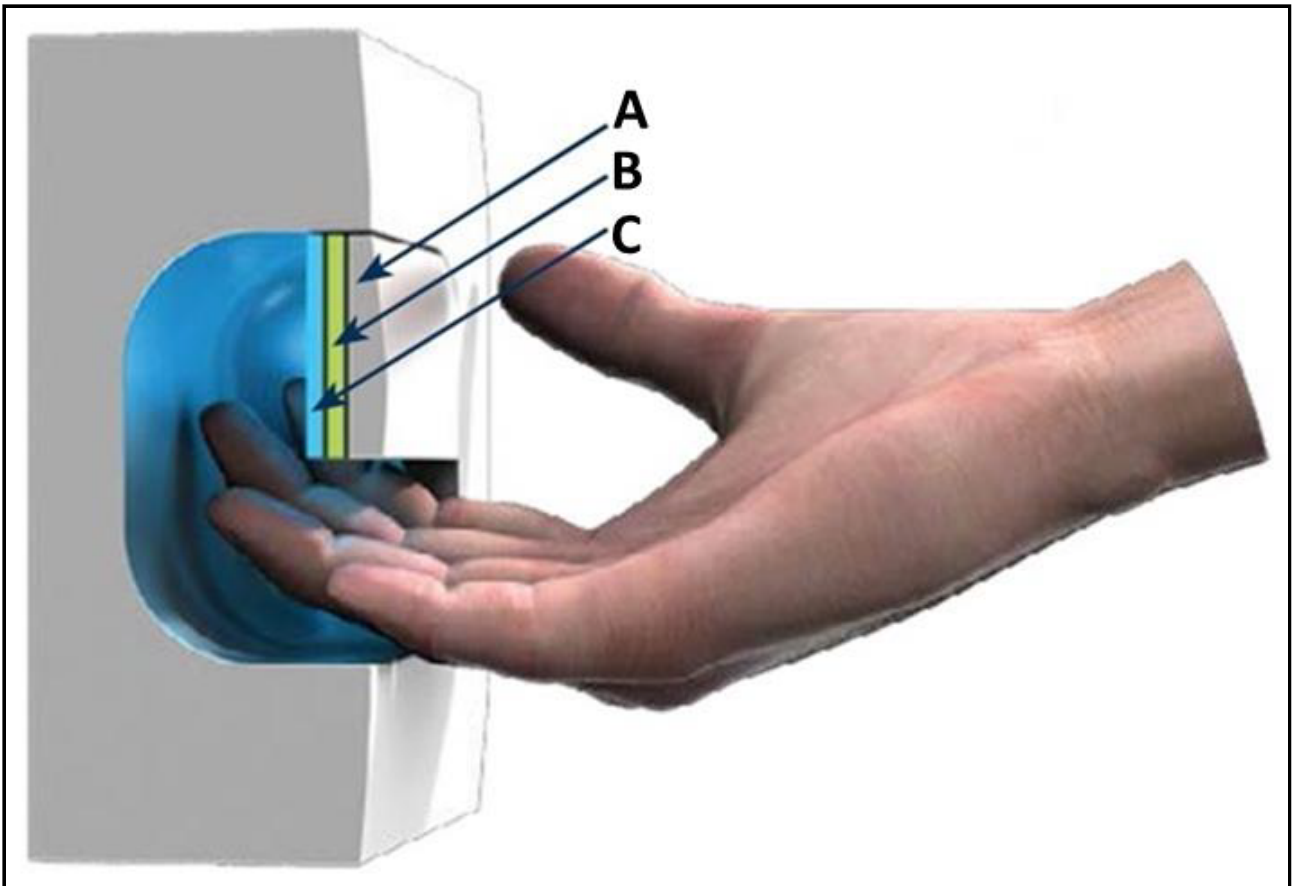
Passive Entry (PE) Function

The PE function allows the user to lock and unlock the doors simply by interacting with the front door handle. The doors are unlocked or locked if the RFHM detects the presence of a valid Fobik near the vehicle (e.g. in the user's pocket).

The RFHM module can recognize the Fobik because all of the vehicles Fobiks are stored within the RFHM.

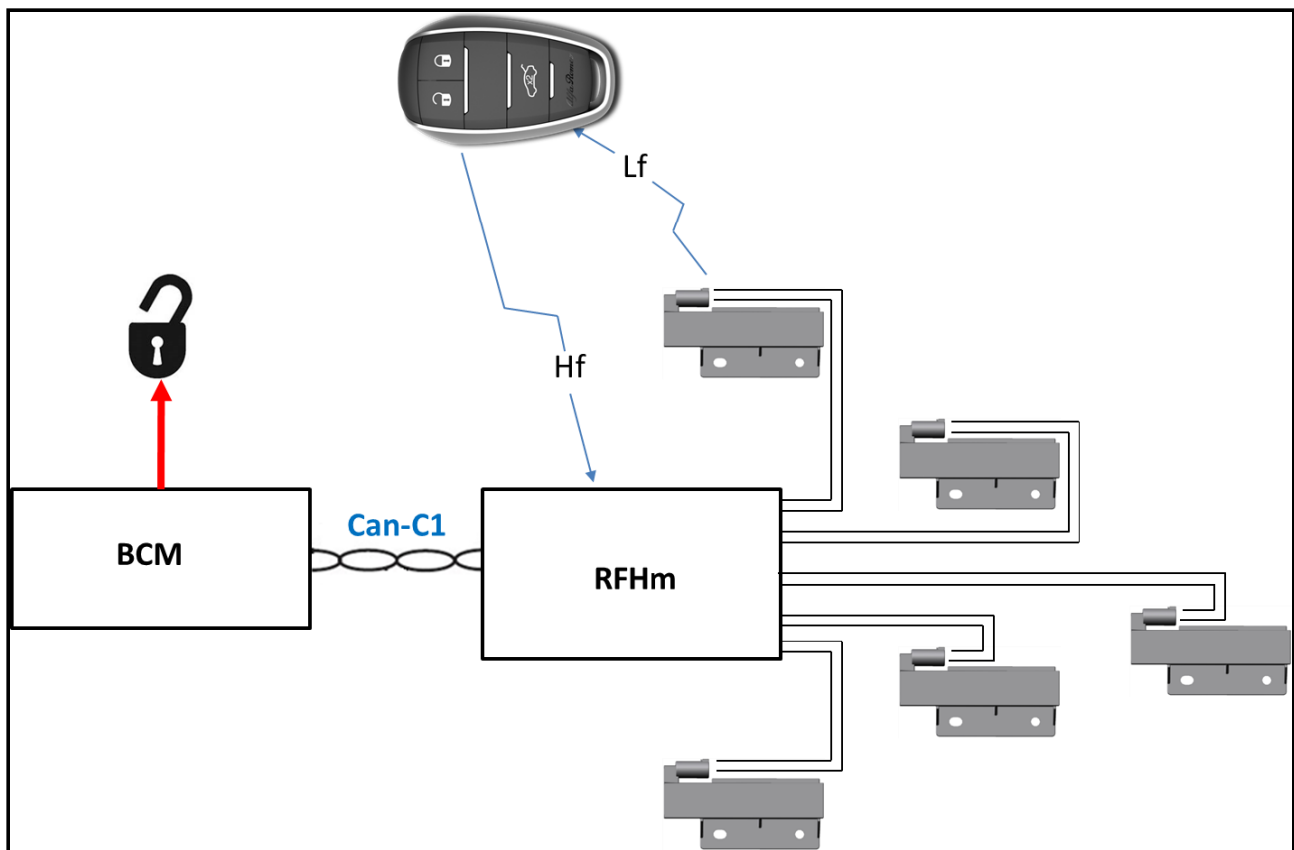| PE Antenna Locations	
1 – Antenna on the rear door left side	4 – Antenna on center floor console
2 – Antenna on the rear door right side	5 – Antenna on rear crossmember (trunk area)
3 – Antenna on crossmember behind the rear fascia	

The antennas are connected to the RFHM module and are provided with a two-pin connector.

The front door handles are equipped with an internal proximity capacitance sensor which detects the proximity of the user's hand.
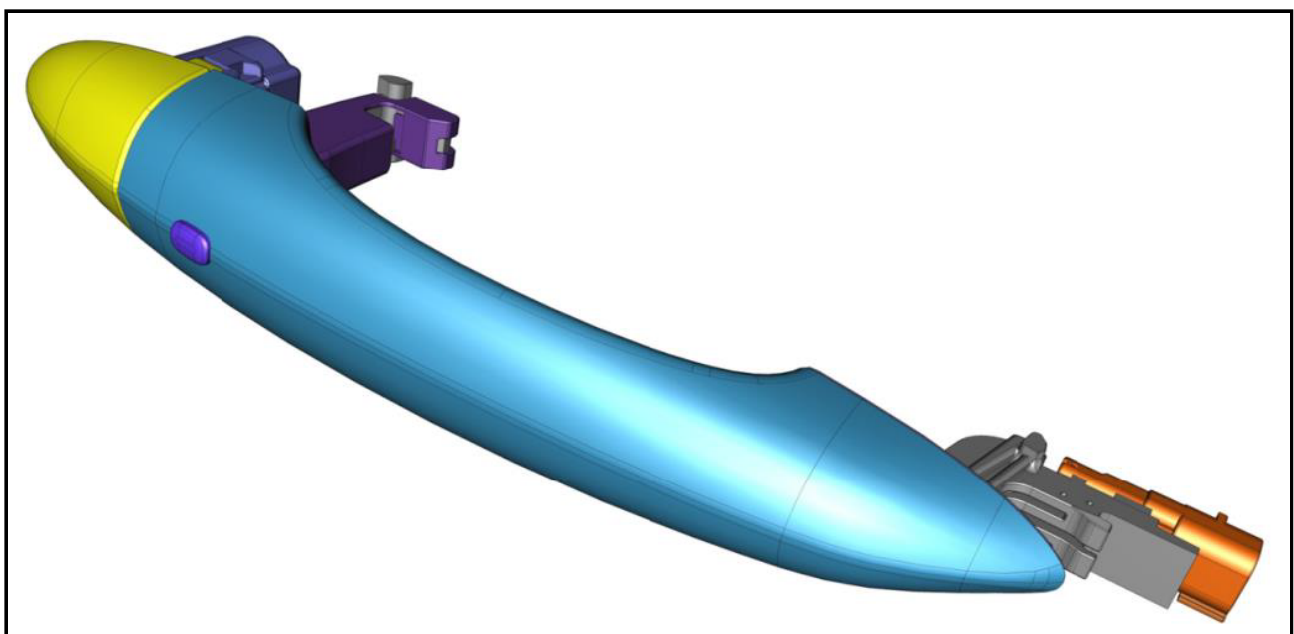
The sensor generates an electric voltage whenever the user's fingers are detected in the proximity. The sensor is connected to the RFHM module.

If the RFHM module receives the electric signals from the capacitance sensor, the RFHM activates the antennas to detect the presence of a valid Fobik in the proximity.

The RFHM module used Low Frequency (LF) radio signals that queries the Fobik transponder which replies with a High-Frequency (HiFi) radio signal. If the RFHM validates that a "valid FoBik: is in proximity, the RFHM module will request that the BCM (via Controller Area Network (CAN)-C data bus network) to unlock the doors.

If the Fobik battery charge level is too low such that the Fobik cannot be identified by the RFHM, there is an emergency procedure that permits the vehicle to be started correctly. The procedure is to move the Fobik close to the antenna located in the central counsel. Move the Fobik near the antenna, simply open the compartment located in the armrest. There is a recess in the center counsel in the shape of the Fobik at the bottom of the compartment. To allow the aerial to pick up the Fobik transponder, the Fobik must be placed in the recess while pressing the Start/Stop Engine button.

A tactile button is present on the front door handles which allows the user to request centralized locking of all doors. By pressing the button, the RFHM modules sends the request to lock the doors to the BCM. The door closing request will be sent by RFHM only if the presence of a Fobik is detected in the vicinity after having pressed the tactile button.

If there are unlocked doors and the lock doors request is sent by the tactile button on the handle, the doors will all be locked. If the valid Fobik is inside the passenger compartment when the last door is locked, the doors will be unlocked.

The handles are provided with courtesy lighting that will illuminate the inside of the handle and the area below where the handle is attached to the door.

- 1 – lamp to illuminate the area inside
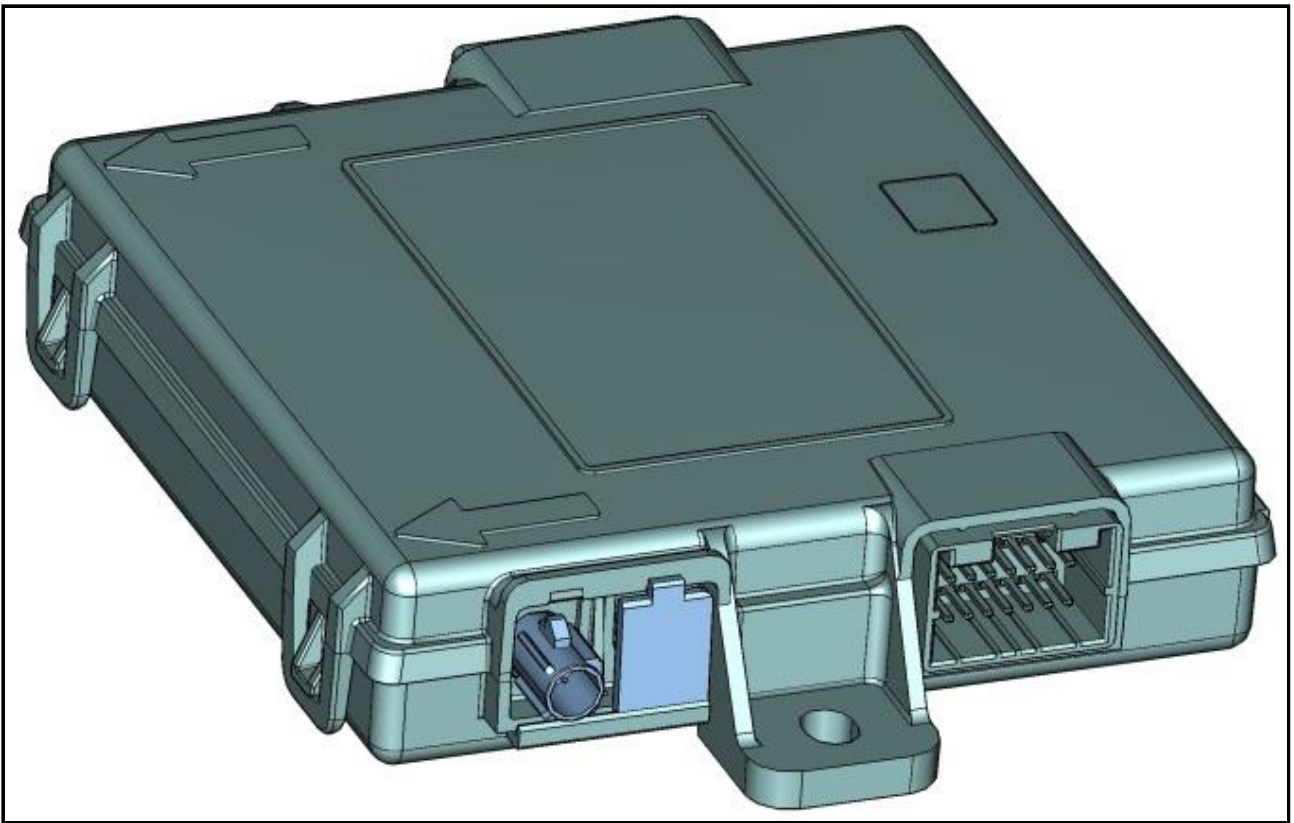- 2 – lamp to illuminate the area below.

The lighting is enabled in the following cases:

- The door locking state changes from the "door locked" to "door unlocked".
- When the door is opened (only if the lighting was initially off).
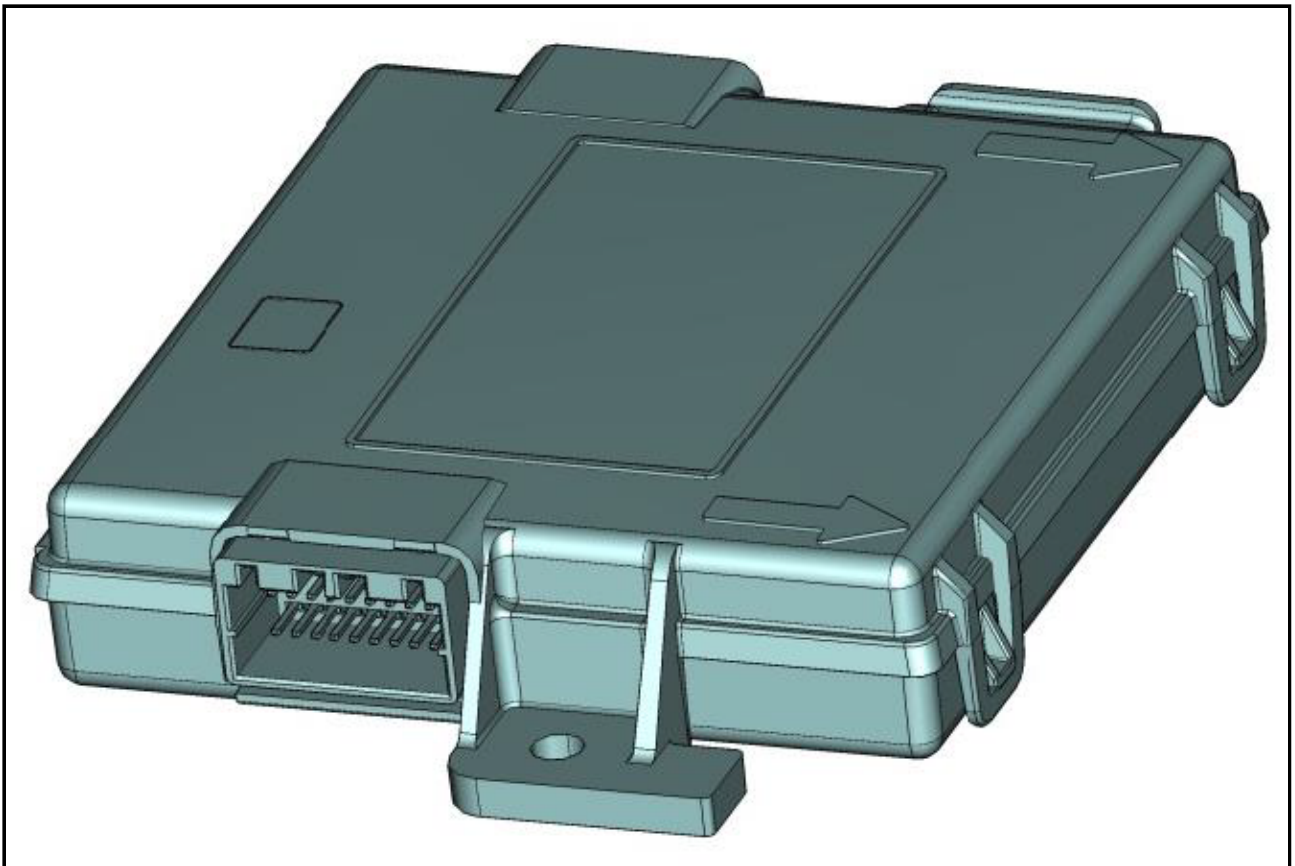- At KEY OFF.

The lights are turned off in the following cases:

- – The doors go from the "door unlocked" to the "door locked" state
- – When about three minutes have passed since a "door unlock" command, without performing a KEY ON or a "door lock" request.
- – At KEY ON.

The lighting within the handles are LED. They are enabled and disabled by the BCM.

1	+15 for BCM
2	Parking lever position signal
3	Brake pedal status signal
4	Signal 2 (positive) from the ESS On/Off swich
5	N/A
6	RFHM ground (from body)
8	+30 power supply for RFHM
9	Signal 1 (positive) from the ESS On/Off swich
10	LIN for Hands Free
11	CAN-C (-) (Low)
12	CAN-CH (+) (High)
13	Backlight control for the ESS On/Off switch
14	N/A
15	N/A
16	N/A

1	Antenna signal (rear bumper)
2	Antenna signal (center floor console)
3	Antenna signal (trunk)
4	Antenna signal (rear right door)
5	Antenna signal (rear left door)
6	Left front handle signal
7	Right front handle signal
8	N/A
9	N/A
10	Trunk switch signal
11	Ground for rear fascia antenna
12	Ground for the center floor console antenna
13	Ground for trunk antenna
14	Ground for the right rear door antenna
15	Ground for the left rear door antenna
16	Left front handle ground
17	Right front handle ground