VOLVO

SOFTWARE SECURITY REQUIREMENTS FOR U-NII DEVICES

Date: 4th April 2023

ATTN: FCC
ISED

Subject: Attestation Letter regarding UNII devices

FCC ID: LTQDHU1, IC: 3695A-DHU1, Software security questions and answers per KDB 594280 D02 v01r03:

General Description	
1	Describe how any software/firmware updates for elements than can affect the device's RF parameters will be obtained, downloaded, validated and installed. For software that is accessed through manufacturer's website or device's management system, describe the different levels of security as appropriate. **All software/firmware affecting RF can only be updated through a full image update. This can only be done over-the-air or via local Authorized Dealers and it is digitally signed and verified during installation and re-verified on each startup (Secure Boot). There is no downloadable software provided by the manufacturer that can modify critical radio parameters. All critical parameters are programmed in software and cannot be modified or overridden by third parties.**
2	Describe the RF parameters that are modified by any software/firmware without any hardware changes. Are these parameters in some way limited such that any other software/firmware changes will not allow the device to exceed the authorized RF characteristics? **Software can control Channel Selection and Maximum Power, being limited by chip configurations and country code. Maximum Power is never changed and channel selection coding is done automatically using cellular network.**
3	Describe in detail the authentication protocols that are in place to ensure that the source of the RF-related software/firmware is valid. Describe in detail how the RF-related software is protected against modification. **Software/Firmware can only be updated through an image update, this image is digitally signed (following Android Verified Boot and anchored to OTP root of trust).**
4	Describe in detail any encryption methods used to support the use of legitimate RF-related software/firmware. **Software/Firmware can only be updated through an image update, this image is digitally signed.**
5	For a device that can be configured as a master and client (with active or passive scanning), explain how the device ensures compliance for each mode? In particular if the device acts as master in some band of operation and client in another; how is compliance ensured in each band of operation? **The device ensures compliance by checking the configured parameters and operation values according to the regulatory domain and country code on each band.**

Volvo Car Corporation
SE-405 31 Göteborg
Sweden
www.volvocars.com

Telephone +46 72 970 7731
Ali.jalilivand@Volvocars.com

Registered Göteborg, Sweden
Registration No. 556074-3089

Third-Party Access Control	
1	Explain if any third parties have the capability to operate a U.S.-sold device on any other regulatory domain, frequencies, or in any manner that may allow the device to operate in violation of the device's authorization if activated in the U.S. **Third parties do not have the capability to operate in any manner that is violation of the certification in the U.S. since no configuration option that would allow violation exists, and software is protected from modification.**
2	Describe, if the device permits third-party software or firmware installation, what mechanisms are provided by the manufacturer to permit integration of such functions while ensuring that the RF parameters of the device cannot be operated outside its authorization for operation in the U.S. In the description include what controls and/or agreements are in place with providers of third-party functionality to ensure the devices' underlying RF parameters are unchanged and how the manufacturer verifies the functionality. **The device does not permit any installation of Third-party Firmware, all critical RF parameters are programmed in Software and cannot be modified or overridden by third parties software. Only "high level" applications can come from 3rd party and platform software (signed and verified) is ensuring they have no impact on compliance.**
3	For Certified Transmitter modular devices, describe how the module grantee ensures that host manufacturers fully comply with these software security requirements for U-NII devices. If the module is controlled through driver software loaded in the host, describe how the drivers are controlled and managed such that the modular transmitter RF parameters are not modified outside the grant of authorization. **This device does not have a module certification. Complete product was fully certified.**

Volvo Car Corporation
SE-405 31 Göteborg
Sweden
www.volvocars.com

Telephone +46 72 970 7731
Ali.jalilivand@Volvocars.com

Registered Göteborg, Sweden
Registration No. 556074-3089

VOLVO

USER CONFIGURATION GUIDE	
1	Describe the user configurations permitted through the UI. If different levels of access are permitted for professional installers, system integrators or end-users, describe the differences. **The User Interface only allows to turn on and off the WiFi and create a hotspot.**
	a) What parameters are viewable and configurable by different parties? **None.**
	b) What parameters are accessible or modifiable by the professional installer or system integrators? **Information about configuration, active channel, etc. , might be readable over diagnostic interfaces, but is not modifiable.**
	1) Are the parameters in some way limited, so that the installers will not enter parameters that exceed those authorized? **Writing of parameters is not accessible.**
	2) What controls exist that the user cannot operate the device outside its authorization in the U.S.? **Country code Selection is done automatically using cellular network ensuring that is always compliant according to the country where it is located.**
	c) What parameters are accessible or modifiable by the end-user? **None.**
	d) Is the country code factory set? Can it be changed in the UI? **Country code Selection is done automatically using cellular network. There is no UI selection possible.**
	1) If it can be changed, what controls exist to ensure that the device can only operate within its authorization in the U.S.? **There is no UI selection for RF Transmit Parameters.**
	e) What are the default parameters when the device is restarted? **Device stores last parameters and use them as default until getting cellular network for automatic Country code selection.**
2	Can the radio be configured in bridge or mesh mode? If yes, an attestation may be required. Further information is available in KDB Publication 905462 D02. **No, it cannot work in the bridge or the mesh mode.**
3	For a device that can be configured as a master and client (with active or passive scanning), if this is user configurable, describe what controls exist, within the UI, to ensure compliance for each mode. If the device acts as a master in some bands and client in others, how is this configured to ensure compliance? **Device can only work in 1 mode at each time.**
4	For a device that can be configured as different types of access points, such as point-to-point or point-to-multipoint, and use different types of antennas, describe what controls exist to ensure compliance with applicable limits and the proper antenna is used for each mode of operation. (See Section 15.407(a)) **Antennas are Built in with the device. There is no possibility of exchanging them.**

Signature:

Ali Jalilvand

Printed Name: Ali Jalilvand
Position: Product Owner
Company Name: Volvo Cars Corporation

Volvo Car Corporation
SE-405 31 Göteborg
Sweden
www.volvocars.com

Telephone +46 72 970 7731
Ali.jalilivand@Volvocars.com

Registered Göteborg, Sweden
Registration No. 556074-3089