Federal Communications Commission 2019-04-29
Oakland Mills Road
Columbia MD 21046
Model：D04012
FCC ID： 2AEBL- D04012

Subject: Software security requirements for U-NII device.
The information within this section of the Operational Description is to show compliance against the Software Security Requirements laid out within KDB 594280 D02 U-NII Device Security v01r03.

General Description	
1. Describe how any software/firmware update will be obtained, downloaded, and installed. Software that is accessed through manufacturer's website or device's management system, must describe the different levels of security.	The software/firmware update is bundled, as part of the device software update, and the user or installer cannot modify the content. The installation and/or update proceeds automatically once the user accepts to install/update the software/firmware.
2. Describe all the radio frequency parameters that are modified by any software/firmware without any hardware changes. Are these parameters in some way limited, such that, it will not exceed the authorized parameters?	The Software/Firmware in the device, controls the following RF parameters: 1. Transmitter Frequency 2. Transmitter Output Power 3. Receiver Frequency 4. Channel Bandwidth 5. RSSI calibration The Software/Firmware controls the RF parameters listed above so as to comply with the specific set of regulatory limits in accordance with the FCC grants issued for this device. The RF parameters are limited to comply with FCC rules and requirements during calibration of the device in the factory. Security keys (certification certificates) are in place to ensure that these parameters cannot be access by the User and/or a 3rd party.
3. Describe in detail the authentication protocols that are in place to ensure that the source of the software/firmware is legitimate. Describe in detail how the software is protected against modification.	All software images are digitally signed with public key cryptography. Images are signed by private key stored in securely merged server, and verified by public key stored in a device when they are flashed into the device.
4. Describe in detail the verification protocols in place to ensure that installed software/firmware is legitimate.	The same as General Description Q3
5. Describe in detail any encryption methods used to support the use of legitimate	Software/firmware is encrypted by DES3.

software/firmware.	
6. 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?	This device can only operate as a master limited to 2.4GHz band on channels 1-13 and 5GHz band on channels 36 40 44 48. This device can only be configured as a client in all bands where it operates using passive scanning techniques.
3 rd Party Access Control	
1. Explain if any third parties have the capability to operate a US sold device on any other regulatory domain, frequencies, or in any manner that is in violation of the certification.	3rd party does not have the capability
2. What prevents third parties from loading non-US versions of the software/firmware on the device? Describe in detail how the device is protected from "flashing" and the installation of third-party firmware such as DD-WRT.	3rd party cannot access SW/FW
3. For Certified Transmitter modular devices, describe how the module grantee ensures that hosts manufactures 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 parameters are not modified outside the grant of authorization.	Not applicable – this is not a modular device
SOFTWARE CONFIGURATION DESCRIPTION	
1. To whom is the UI accessible? (Professional installer, end user, other.)	N/A
a) What parameters are viewable to the professional installer/end-user?	N/A
b) What parameters are accessible or modifiable to the professional installer?	N/A
i) Are the parameters in some way limited, so that the installers will not enter parameters that exceed those authorized?	N/A
ii) What controls exist that the user cannot operate the device outside its authorization in the U.S.?	N/A
c) What configuration options are available to the end-user?	N/A
i) Are the parameters in some way limited, so that the installers will not enter parameters that exceed those authorized?	N/A
ii) What controls exist that the user cannot operate the device outside its authorization in the	N/A

U.S.?	
d) Is the country code factory set? Can it be changed in the UI?	N/A
i) If so, what controls exist to ensure that the device can only operatewithin its authorization in the U.S.?	N/A
e) What are the default parameters when the device is restarted?	N/A
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.	N/A
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?	N/A

Best Regards

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