



Date: January 31st, 2018

Subject: Limited Modular Approval

FCC ID: LDKC11111696

Product Description: 802.11 dual band radio module

The above referenced FCC ID is requested to be certified as a Limited Modular Approval (LMA) as it is designed only for use with Cisco developed products. The module was developed as a daughter board for Cisco Access Points and IoT devices. It will not be offered for sale to the general public or marketed to 3<sup>rd</sup> party vendors.

The radio module was tested inside the host device and will be tested for spurious emissions per Part 15.109 and Part 15.209 in all Cisco devices it is installed in.

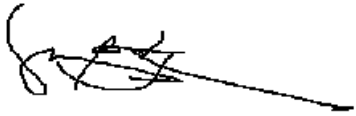
The device meets the basic radio module requirements as specified in 47 CFR Part 15.212 as follows:

<b>Modular Requirements DA 00-1407</b>		
<b>Requirement</b>	<b>Requirement Met?</b>	<b>Explanation</b>
1. The modular transmitter must have its own RF shielding. This is intended to ensure that the module does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with Part 15 limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed. Such coupling may result in non-compliant operation.	Y	Yes. The modular transmitter has its own RF shielding
2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with Part 15 requirements under conditions of excessive data rates or over-modulation.	Y	The modular transmitter must have buffered modulation
3. The modular transmitter must have its own power supply regulation. This is intended to ensure that the module will comply with Part 15 requirements regardless of the design of the power supplying circuitry in the device into which the module is installed.	Y	The module uses +12V supply from the host and regulates all of the Wifi related voltages down from that +12V.
4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c). The antenna must either be permanently attached or employ a "unique" antenna coupler (at all connections between the module and the antenna, including the cable). Any antenna used with the module must be approved with the	Y	The antenna is internal and permanently attached.

<p>module, either at the time of initial authorization or through a Class II permissive change.</p> <p>The "professional installation" provision of Section 15.203 may not be applied to modules.</p>		
<p>5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing. This is intended to demonstrate that the module is capable of complying with Part 15 emission limits regardless of the device into which it is eventually installed. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in Section 15.207. AC or DC power lines and data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see Section 15.27(a)). The length of these lines shall be length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified or commercially available (see Section 15.31(i)).</p>	<p>N</p>	<p>Radiated scans were performed in a typical host chassis. The module is a daughter card designed by Cisco and will only be incorporated into Cisco platforms. The Wi-Fi Module will not be sold to third party vendors.</p>
<p>6. The modular transmitter must be labeled with its own FCC ID number, and, if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains Transmitter Module FCC ID: XYZMODEL1" or "Contains FCC ID: XYZMODEL1."</p> <p>Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.</p>	<p>Y</p>	<p>The FCC ID label of the Wi-Fi module will be placed on the radio module.</p>
<p>7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements. A copy of these instructions must be included in the application for equipment authorization. For example, there are very strict operational and timing requirements that must be met before a transmitter is authorized for operation under Section 15.231. For instance, data transmission is prohibited, except for operation under Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured.</p>	<p>Y</p>	<p>No specific instructions are required.</p>

<p>8. The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules in Sections 2.1091, 2.1093 and specific Sections of Part 15, including 15.319(i), 15.407(f), 15.253(f) and 15.255(g), require that Unlicensed PCS, UNII and millimeter wave devices perform routine environmental evaluation for RF Exposure to demonstrate compliance. In addition, spread spectrum transmitters operating under Section 15.247 are required to address RF Exposure compliance in accordance with Section 15.247(b)(4). Modular transmitters approved under other Sections of Part 15, when necessary, may also need to address certain RF Exposure concerns, typically by providing specific installation and operating instructions for users, installers and other interested parties to ensure compliance.</p>	Y	The modular transmitter complies with all applicable RF Exposure requirements. Please refer to MPE report.
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Best Regards,



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