

October 20, 2023

The following information is being provided per the requirements of Part 15.212 and KDB 996369 D01 regarding full modular approval of a Part 15 device.

Company: Laird Connectivity  
 Model Name: Sera NX040  
 FCC ID: SQG-SERANX040

8 Basic Requirements – FCC Part 15.212(a)(1)		
For Items Marked “NO(*)”, the Limited Module Description Must be Filled Out on the Following Pages		
Modular Approval Requirement	Requirement Met	
<p>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 FCC 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. The physical crystal and tuning capacitors may be located external to the shielded radio elements. 15.212(a)(1)(i)</p> <p><b>Details: The module has an integral RF shield to isolate it from the surrounding environment. Please refer to EUT photos.</b></p>	<input checked="" type="checkbox"/> - YES	<input type="checkbox"/> - NO(*)
<p>2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with FCC requirements under conditions of excessive data rates or over-modulation. 15.212(a)(1)(ii)</p> <p><b>Details: All inputs are processed as data by the on board microprocessor. There is no direct access or control of the transmit modulation.</b></p>	<input checked="" type="checkbox"/> - YES	<input type="checkbox"/> - NO(*)
<p>3. The modular transmitter must have its own power supply regulation on the module. This is intended to ensure that the module will comply with FCC requirements regardless of the design of the power supplying circuitry in the device into which the module is installed. 15.212(a)(1)(iii)</p> <p><b>Details: The module utilizes nRF52833 and SR040 components which contain on-chip voltage regulators.</b></p>	<input checked="" type="checkbox"/> - YES	<input type="checkbox"/> - NO(*)
<p>4. The modular transmitter must comply with the antenna and transmission system requirements of §§ 15.203, 15.204(b), 15.204(c), 15.212(a), and 2.929(b). 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). The “professional installation” provision of § 15.203 is not applicable to modules but can apply to limited modular approvals under paragraph 15.212(b). 15.212(a)(1)(iv)</p> <p><b>Details: The module uses IPEX MHF4L connectors which are in accordance with Part 15.203</b></p>	<input checked="" type="checkbox"/> - YES	<input type="checkbox"/> - NO(*)
<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</p>	<input checked="" type="checkbox"/> - YES	<input type="checkbox"/> - NO(*)

<p>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)). 15.212(a)(1)(v)</p>		
<p><b>Details: The module was tested in a stand-alone configuration and found to be compliant with Part 15 regulations. Please refer to Test Setup photo</b></p>		
<p>6. The modular transmitter must be labeled with its own FCC ID number, or use an electron display (see KDB Publication 784748).</p> <p>If using a permanently affixed label with its own FCC ID number, 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." 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>If the modular transmitter uses an electronic display of the FCC identification number, the information must be readily accessible and visible on the modular transmitter or on the device in which it is installed. If the module is installed inside another device, then the outside of the device into which the module is installed must display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains FCC certified transmitter module(s)." Any similar wording that expresses the same meaning may be used. The user manual must include instructions on how to access the electronic display. A copy of these instructions must be included in the application for equipment authorization. 15.212(a)(1)(vi)</p>	<p><input checked="" type="checkbox"/> - YES</p>	<p><input type="checkbox"/> - NO(*)</p>
<p><b>Details: The module is labeled with its own FCC ID number affixed to each unit at manufacture. Information is clearly presented in the module's regulatory information guide about labeling requirements for the final assembly.</b></p>		
<p>7. The modular transmitter must comply with all specific rule or operating requirements applicable to the transmitter, including all the conditions provided in the integration instructions by the grantee. 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. 15.212(a)(1)(vii)</p>	<p><input checked="" type="checkbox"/> - YES</p>	<p><input type="checkbox"/> - NO(*)</p>
<p><b>Details: The module is compliant with all applicable FCC rules. Details and instructions for maintaining compliance are given in the module's Datasheet and Regulatory Information Guide.</b></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</p>	<p><input checked="" type="checkbox"/> - YES</p>	<p><input type="checkbox"/> - NO(*)</p>

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. 15.212(a)(1)(viii)

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**Details: The module complies with this requirement. Please refer to the RF exposure report.**

**Limited Module Description – When Applicable**

\* If a module does NOT meet one or more of the above 8 requirements, the applicant may request Limited Modular Approval (LMA). This Limited Modular Approval (LMA) is applied with the understanding that the applicant will demonstrate and will retain control over the final installation of the device, such that compliance of the end product is always assured. The operating condition(s) for the LMA; the module is only approved for use when installed in devices produced by grantee. A description regarding how control of the end product, into which the module will be installed, will be maintained by the applicant/manufacturer, such that full compliance of the end product is always ensured should be provided here.

**Details: Not applicable**

**Software Considerations – KDB 594280 / KDB 442812 (One of the following 2 items must be applied)**

Requirement	Requirement Met	
<p>1. For <u>non-Software Defined Radio</u> transmitter modules where software is used to ensure compliance of the device, technical description must be provided about how such control is implemented to ensure prevention of third-party modification; see KDB Publication 594280.</p> <p><b>Details: The firmware of the device can not be modified or adjusted by the end user as described in a separate cover letter filed with this application.</b></p>	<input checked="" type="checkbox"/> - Provided in Separate Cover Letter	<input checked="" type="checkbox"/> - N/A
<p>2. For <u>Software Defined Radio (SDR)</u> devices, transmitter module applications must provide a software security description; see KDB Publication 442812.</p> <p><b>Details: Not applicable</b></p>	<input type="checkbox"/> - Provided in Separate Cover Letter	<input checked="" type="checkbox"/> - N/A

Split Modular Requirements		
Requirement	Provided in Manual	
1. For split modular transmitters, specific descriptions for secure communications between front-end and control sections, including authentication and restrictions on third-party modifications; also, instructions to third-party integrators on how control is maintained.	<input type="checkbox"/> - Provided in Separate Cover Letter	<input checked="" type="checkbox"/> - N/A
<b><i>Details: Not applicable</i></b>		



stating "Contains FCC ID: " with their finished product	
8. Information on test modes and additional testing requirements. KDB 996369 D03, Section 2.9	
a. Test modes that should be taken into consideration by host integrators including clarifications necessary for stand-alone and simultaneous configurations. b. Provide information on how to configure test modes for evaluation	
9. Additional testing, Part 15 Subpart B disclaimer. KDB 996369 D03, Section 2.10	

Sincerely,



By:

(Signature/Title)

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(Print name)