



NovaLab Modular Approval List-Of-Issues for XMPNL72742

NovaLab Responses

(a) Single modular transmitters consist of a completely self-contained radiofrequency transmitter device that is typically incorporated into another product, host or device. Split modular transmitters consist of two components: a radio front end with antenna (or radio devices) and a transmitter control element (or specific hardware on which the software that controls the radio operation resides). All single or split modular transmitters are approved with an antenna. All of the following requirements apply, except as provided in paragraph (b) of this section.

NL: We are applying for a limited single modular certification for the NovaLab “Merlin-2” radio. We will supply a list of antennas that we want to certify with and samples of each.

(1) Single modular transmitters must meet the following requirements to obtain a modular transmitter approval.

(i) The radio elements of the modular transmitter must have their own shielding. The physical crystal and tuning capacitors may be located external to the shielded radio elements.

NL: The module is intended only for use by NovaLab within a complete product and will not be sold as a standalone module. The module PCB has been designed with an integrated shield ground plane to ensure that it does not have to rely upon external shielding. All testing was completed on the module without any additional shielding and found to be within the part 15 limits. A limited approval relaxing the requirement for a shield is requested, as control of the module integration to ensure compliance will be maintained. Since module control is maintained, the module will be integrated in a manner that does not expose the top side of the module to any potential sources to noise within the product.

(ii) 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.

NL: All I/O to the module are buffered from the radio. There is not direct way an input (or output) pin can modulate the radio or change its output. There is no direct connection from any I/O pin to the radio transmitter.

(iii) The modular transmitter must have its own power supply regulation.



Rev 4

NL: All power inputs are regulated by linear regulators. See the block diagram for more detail.

(iv) The modular transmitter must comply with the antenna and transmission system requirements of §§15.203, 15.204(b) 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). The “professional installation” provision of §15.203 is not applicable to modules but can apply to limited modular approvals under paragraph (b) of this section.

NL: The antenna connection for this module is a SMA connector internal to the required housing (see the shielding item above) and access is not allowed or easily accomplished. The module is not a standalone product and will always be sold as a system with either a “unique” external antenna connection or a permanently attached antenna. Refer to the manual for approved antennas. This limited module approval uses the “professional installation” provision of Section 15.203 as NovaLab products are professionally installed.

(v) The modular transmitter must be tested in a stand-alone configuration, *i.e.*, the module must not be inside another device during testing for compliance with part 15 requirements. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in §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 §15.27(a)). The length of these lines shall be the 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 and commercially available (see §15.31(i)).

NL: The module can only be powered by a battery and this configuration has been tested during certification testing. It does not have any provisions to be powered from the AC line directly or indirectly. Since the module will only be installed by NovaLabs, we will ensure that the module is only powered by a battery inside a host device

(vi) The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number.

NL: The module has the FCC identification number engraved on it. The FCC declaration appears in the product manual. Refer to the product manual for product labeling instructions. Also, the identification number will be included on a label that is affixed to the outside of the device that houses the module.



- (A) If using a permanently affixed label, the modular transmitter must be labeled with its own FCC identification number, and, if the FCC identification number 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.

NL: A label will be attached to the outside of the device that contains the module. This label will indicate that the device contains NovaLab Module with FCC ID XMPNL72742.

- (vii) The modular transmitter must comply with any specific rules or operating requirements that ordinarily apply to a complete 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.

NL: The module will comply with the requirements of FCC 15.247

- (viii) The modular transmitter must comply with any applicable RF exposure requirements in its final configuration.

NL: The module and device will comply with FCC 15.247 and 2.1091

Scott Keller

NovaLab, LLC