

Modular Approval Requirements

Modular Approval is being requested for this device. There are eight requirements that the device must meet for full modular approval. The following paragraphs detail these requirements and the manner in which the device meets them.

The module meets all of the technical specifications applicable to the frequency band of operation.

The module has its own RF shielding.

The top (component side) is fully enclosed by a tin plated shield which is soldered to the rf ground plane continuously on all 4 sides.

The bottom (solder side) is a fully poured copper ground layer. No traces are on this layer. There are vias between the ground layer and shield at least every 0.020"

All modulation and data input(s) are buffered.

U1 contains isolators for each digital interface pin. The isolators are separately powered and are tolerant of being driven above the VDD of the device. The clock domain of this circuit is also independent. RESET is protected by a capacitor (C2) so that the device always powers into an idle state.

The module has its own power supply regulation and local reference oscillator.

The module contains its own power supply regulation and the rf reference oscillator is contained within the module. Power supply regulation is provided via six internal, separately decoupled LDOs inside U1. The module does not need to be powered by a regulated power source. The voltage range is 2.7 to 3.6Vdc. U1 also contains a complete VCO driven by an internal reference oscillator. The reference oscillator uses X1, a 12MHz reference crystal completely contain on the module.

The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c). The certification submission contains a detailed description of the configuration of all antennas that will be used with the module.

The module connects to its antenna via a micro-coax connector. This connector must be internally connected to the antenna without the possibility of user access.

The antenna is a 2dBi folded dipole. Inpaq Antenna part# DAMA00BM11500209 was provided for testing.

The antenna connector is not user accessible. Only folded dipole antennas

with 2dBi gain or less can be used with this module.

For Industry Canada, the module meets certification labeling requirements. Host devices that contain separately certified modules do not need to be re-certified, provided that they meet the following conditions:

- The host device, as a stand alone unit without any separately certified modules, complies with all applicable Radio Standards Specifications.
- The host device and all the separately certified modules it contains jointly meet the safety requirements of RSS-102, if applicable.
- The host device complies with the certification labeling requirements of each of the modules it contains.

The module is appropriately labeled with a permanently adhered white label on the solder side of the module. (refer to the label and label location drawings contained within this application).

For the FCC, 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.

Test data contained in this application is for the device tested as a standalone battery powered device. Radiated spurious emissions data demonstrating compliance with the requirements of Part 15 of the FCC rules for intentional radiators has been provided. No AC conducted tests were performed as this module will only be used in battery operated devices. The module was mounted on the back of a plastic device (with no metal) with the antenna mounted in a typical orientation to best represent the arrangement of the module in a typical device.

For the FCC, 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.”

The module is appropriately labeled. The label is mounted on the solder side of the module. Information to the integrator of this system regarding the labeling requirements for the host system is contained in the instructions provided with the module (XITXO User Guide).

The modular transmitter must comply with any applicable RF exposure requirements.

This module meets the requirements for a mobile device that may be used at separation distances of more than 20cm from the human body. It may be used in handheld controllers that provide a separation distance of at least 5cm between the antenna and the body (excluding hands/wrists). Refer to the MPE calculation.