

Manufacturing Documentation
RFD21712 FCC ID XO6-DJ2MOD1 Installation

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Overview

This document is designed to control manufacturing of products that will carry the FCC ID: XO6-DJ2MOD1 and IC: 8558A-DJ2MOD1. It describes how specific device implementations must be designed and manufactured in order to ensure full compliance with the Limited Modular Approval for FCC ID: XO6-DJ2MOD1 and IC: 8558A-DJ2MOD1.

Hardware requirements

The following hardware requirements must be implemented by the design.

1. Radio must be implemented with a PCB Module implementing the Nordic Reference Design documented in Nordic Semiconductor document “nRF24L01pluss_REFERENCE_MODULES.pdf” Revision 1.0. This module may be obtained as part number RFD21712 from RF Digital Corporation. The design uses the Nordic Semiconductor nRF24L01+ radio transceiver with an on-board 16 MHz crystal oscillator and PCB strip antenna.
2. The radio module is soldered directly to the main, application PCB. The main, application PCB is defined as the PCB containing the micro-controller driving the radio module and implementing the dj2 protocol 2.4 GHz RF protocol.

Operational requirements

Firmware running in a micro-controller on the main, application PCB must implement the dj2 protocol 2.4 Ghz RF protocol as described in the chapter “Protocol Implementations”, section “2.4 GHz RF Wireless Protocol” in the specification “dj2_arch.doc”, p/n 21-0000. These operational requirements include configuration of nRF24L01+ transceiver and operating during transmission of data (bit rate, packet length, packet timing).

Validation requirements

The following validation activities of the device must be completed prior to release to manufacturing.

1. Firmware validation. Firmware operation related to the radio must be verified to properly implement the protocol as described in the chapter “Protocol Implementations”, section “2.4 GHz RF Wireless Protocol” in this specification.
2. Intentional emissions validation. Pre-production units must provide equal or better intentional emissions results as the device used to obtain the Limited Modular Approval when tested at a FCC accredited lab.

Labeling requirements

The following labeling requirements must be met.

- 1) Device Label. Must include the text “Contains FCC ID: XO6-DJ2MOD1” and “IC: 8558A-DJ2MOD1” along with the Company name and Model number. For devices larger than a cigarette packet (handheld device size), the label must also include the following text string.

“This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation”

Smaller devices may include the following text string.

“This device complies with Part 15 of the FCC Rules. See instruction manual.”

- 2) Device User Manual. Must include the following text.

“Federal Communications Commission Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or television technician for help.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.”

Manufacturing requirements

Manufacturing must ensure that the radio modules to be assembled in the device have the same PCB layout and component loading specified by the Nordic Semiconductor document

“nRF24L01pluss_REFERENCE_MODULES.pdf” Revision 1.0. This ensures that the devices will use the same radio module as was certified when the Limited Modular Approval was granted.