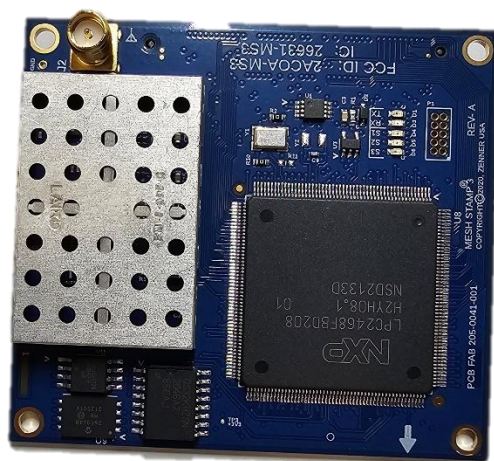




Integration Guide

Mesh Stamp 3



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Rev A



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FCC/IC Compliance

FCC ID: 2ACOA-MS3

IC ID: 26631-MS3

Note: This equipment has been tested and found to comply with the limits for a 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, uses 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 this 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 to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- This device may not cause interference; and
- This device must accept any interference, including interference that may cause undesired operation of the device."

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de license. L'exploitation est autorisée aux deux conditions suivantes:

- l'appareil ne doit pas produire de brouillage, et
- l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Attention: les changements ou modifications non expressément approuvés par le fabricant peuvent annuler le droit de l'utilisateur à utiliser l'équipement.

To comply with FCC RF exposure requirements, the device and the antenna for this device must be installed to ensure a minimum separation distance of 20 cm or more from a person's body. Other operating configurations should be avoided.

Pour se conformer aux exigences d'exposition RF FCC/IC, l'antenne utilisée pour cette radio doit être correctement installée et entretenue. Elle doit respecter une distance minimum de 20 cm de l'utilisateur et ne doit pas être installée à proximité ou utilisée conjointement avec tout autre antenne ou émetteur. N'utilisez pas votre radio si vous ne respectez pas la distance spécifiée.



List of Applicable FCC Rules

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.

There is an RF shield covering the complete radio section of the Mesh Stamp® 3.

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. No modulation / data inputs are provided.

The Mesh Stamp® 3 processor directly interfaces with the radio section. The processor controls the data rate and FSK frequency deviation ensuring excessive data rates or over-modulation cannot occur.

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.

The Mesh Stamp® is powered by an input DC voltage of 3.6V to 7.0V. Linear regulators provide 3.3V to the processor section and radio chip. A linear regulator supplies 3.5V to the radio power amplifier.

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, RF Section Shield Reverse Polarity SMA Antenna Connector including the cable). Any antenna used with the module must be approved with the module, either at the time of initial authorization or through a Class II permissive change. The "professional installation" provision of Section 15.203 may not be applied to modules.

A unique antenna coupler, a reverse polarity SMA connector, is attached to the Mesh Stamp® 3. Compliance testing was performed with a 8.0 dBi gain vertical antenna.

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)).

The Mesh Stamp® 3 was tested for compliance plugged into a mother board which provided power and a computer USB connection. The USB connection provided a method to communicate with the Mesh Stamp® 3 to instruct it to transmit on specific frequencies for compliance testing. The mother board is typical of ones which will be used for products incorporating the Mesh Stamp® 3. The mother board was not housed in an enclosure.

6. The modular transmitter must be labeled with its own FCC ID number, and, if the FCC 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.

The Mesh Stamp® has a silkscreened label containing the FCC ID number on its top side. A separate document showing the location of the FCC ID on the MS3 is included with the application. In addition, products manufactured by Zenner USA incorporating the Mesh Stamp® 3 contain an external label referring to the enclosed module.

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.

15.231 is not applicable to the Mesh Stamp® 3.

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.

Specific instructions for RF exposure are addressed in the user's guide provided for the end products containing the Mesh Stamp® 3.

Specific Operational Use Conditions

The Mesh Stamp® 3 is designed to work specifically in Zenner USA host devices only. The user guide defines specific installation instructions for the host device.

Antenna

The antenna installation requirements are defined in the user guide.

Label and Compliance Information

Labeling guidelines for Host devices are included in the FCC filing.

Limited Module Procedures

The Mesh Stamp® 3 is designed to work specifically in Zenner USA host devices only. As the Mesh Stamp® 3 is intended to only be integrated into Zenner USA host devices, no additional test procedures or test modes are provided. Any changes shall be requested through Zenner USA.

Host, Host Labeling and Host User Manual Requirements

Each host must have a permanently affixed label with the following information:

Contains

FCC ID: 2ACOA-MS3

IC: 26631-MS3

The FCC ID and IC ID must always be accessible when using the product. The placement of the FCC ID and IC ID must be a physical label on the product, unless an e-label is used. Physical FCC ID and IC ID labels must be located on the surface of the product, or within a user-accessible non-detachable compartment (such as the battery compartment). The label shall be permanently affixed, permitting the device to be positively identified. The font needs to be readily legible, consistent with the dimensions of the equipment and its label area.



This modular transmitter meets the requirement of FCC §15.247, §15.207, §15.209, ISSED RSS-247, RSS-Gen and ICES-003. Compliance is based on an antenna gain of 8dBi. To ensure host compliance, the host antenna gain must not exceed 8dBi.

This modular transmitter meets the requirements §2.1091 and RSS-102 and is approved for mobile and fix applications. To comply with FCC and ISSED RF exposure requirements, the host device and its antenna must be installed to ensure a minimum separation distance of 20 cm or more from a person's body.

The host or end-user User's Manual must contain for following:

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