

CAT1 Module for the OW CAT-M1 Meter

Technical Reference Guide

Effective Date: August, 2019

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Revision History

The following table describes the changes to this document for each revision of the CAT1 module:

Revision	Date	Description of Change
A	August, 2019	Initial Release

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Labeling

The following requirements will be applied to any products that use these modules:

The OW CAT-M1 meter or host label will include the following text for the CAT1 module:

- **Contains:**
- **FCC ID: SK9CAT1, IC: 864G-CAT1, Model: CAT1**
- **FCC ID: N7NHL7800M, IC: 2417C-HL78M, Model: HL7800-M**

The user's manual for any product that contains this modules will contain the following text. If the device is large enough, then this will also be placed on the label.

"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two 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."

Regulatory Compliance

The user's manual for any product that contains this module will contain the following text:

Module Compliance

FCC

This module has been tested and found to comply with the following requirements for Modular Approval.

- Part 15.247 - Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
- RSS-247 — Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

FCC Part 15, Class B

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 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/TV technician for help.

ISED RSS-Gen Notice

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

(1) This device may not cause interference; and (2) 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 licence. L'exploitation est autorisée aux deux conditions suivantes :

1) l'appareil ne doit pas produire de brouillage; 2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

ISED Canada ICES-003 Compliance

"CAN ICES-3 (B)/NMB-3(B)"

Additional testing, Part 15 Subpart B disclaimer

The Itron CAT1 modular transmitter is **only** FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuitry), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.



Changes or modifications to this device not expressly approved by Itron, Inc. could void the user's authority to operate the equipment.

RF Exposure (FCC/ISED)

The user's manual for any product that contains this module will contain the following text:

"This equipment complies with radiation exposure limits set forth as a mobile classification for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter."

In order to comply with FCC / ISED RF Exposure requirements, this device must be installed to provide at least 20 cm separation from the human body at all times.

"Afin de se conformer aux exigences d'exposition RF FCC / ISED, cet appareil doit être installé pour fournir au moins 20 cm de séparation du corps humain en tout temps."

(The CAT1 module has been evaluated within the OW CAT-M1 host for RF exposure compliance)

Miscellaneous

The user's manual for any product that contains this module will contain the following text:

Professional Installation

This module is intended for professional installation by the integrator. The OEM integrator is still responsible for the FCC/ISED compliance requirement of the end product, which integrates this module.

Limited Modular Procedures

The Itron CAT1 is approved as a module, and Itron as the module manufacturer is responsible for approving the host environment that the limited module is used with. The host for the Itron CAT1 module is the Itron OW CAT-M1 electricity meter. Itron has full control over the manufacture of the module as well as the OW CAT-M1 meter. As a module the fully operational CAT1 has been tested and has shown compliance within the host (OW CAT-M1).

Antennas

There are no external antenna types approved for use with the Itron CAT1 module installed in the OW CAT-M1. Below are the antennas associated with the CAT1 module.

- PCB embedded inverted F, -4.21 dBi max gain (900 MHz to 925 MHz)
- PCB embedded strip, 4.57 dBi max gain (2.4 GHz to 2.5 GHz)
- PCB mounted inverted F, 2.58 dBi max gain (746 MHz to 2.155 GHz)

For situations where the host manufacturer is responsible for an external connector, the integration instructions shall inform the installer that a unique antenna connector must be used on the Part 15 authorized transmitters used in the host product.

Modification and Repairs

To ensure FCC compliance and system performance, this device, antenna and/or coaxial assembly shall not be changed or modified without the express written approval of Itron. Any unauthorized modification will void the user's authority to operate the equipment. **WARNING!** This device contains no user serviceable parts. Attempts to repair this device by unauthorized personnel may subject the person to shock hazard if removal of protective covers is attempted. Unauthorized repair will void the warranty and/or maintenance contract with your company.

Operational Description

The Itron CAT1 is a communications module which utilizes a 900 MHz and a 2.4 GHz Wi-Fi transmitter plus a cellular modem. This module operates within a host unit which is part of a utility network system designed to communicate with other devices in this network such as electricity meters and routers. The module operates on AC voltage which is supplied by the host device.

Test Modes

Itron uses various test mode programs for test set up which operate separate from production firmware. Host integrators should contact Itron for assistance with test modes needed for module/host compliance test requirements.

Recycling Information

The product you have purchased contains circuit boards. At the end of the modules useful life, under various state and local laws, it may be illegal to dispose of certain components into the municipal waste system. Check with your local solid waste officials for details about recycling options or proper disposal.

About this Manual

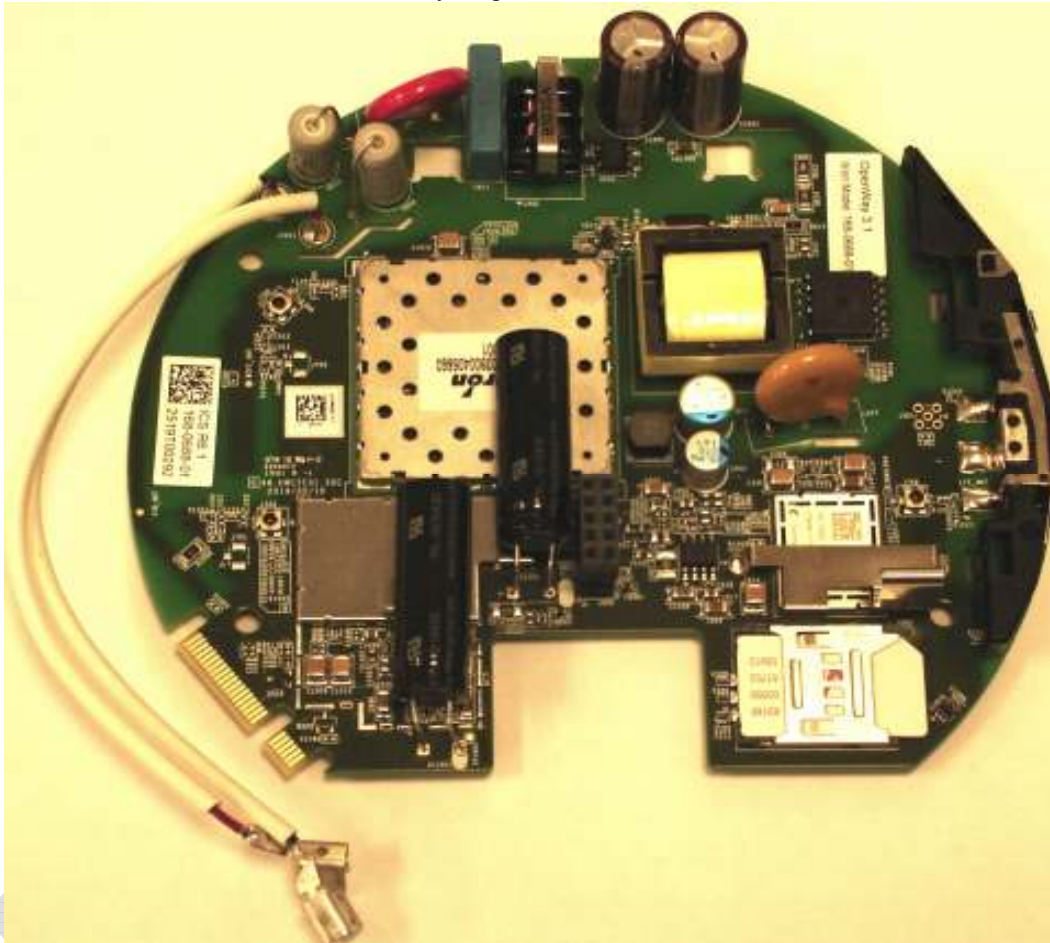
This technical reference guide describes the installation of the CAT1 module for the Itron OW CAT-M1 meter.

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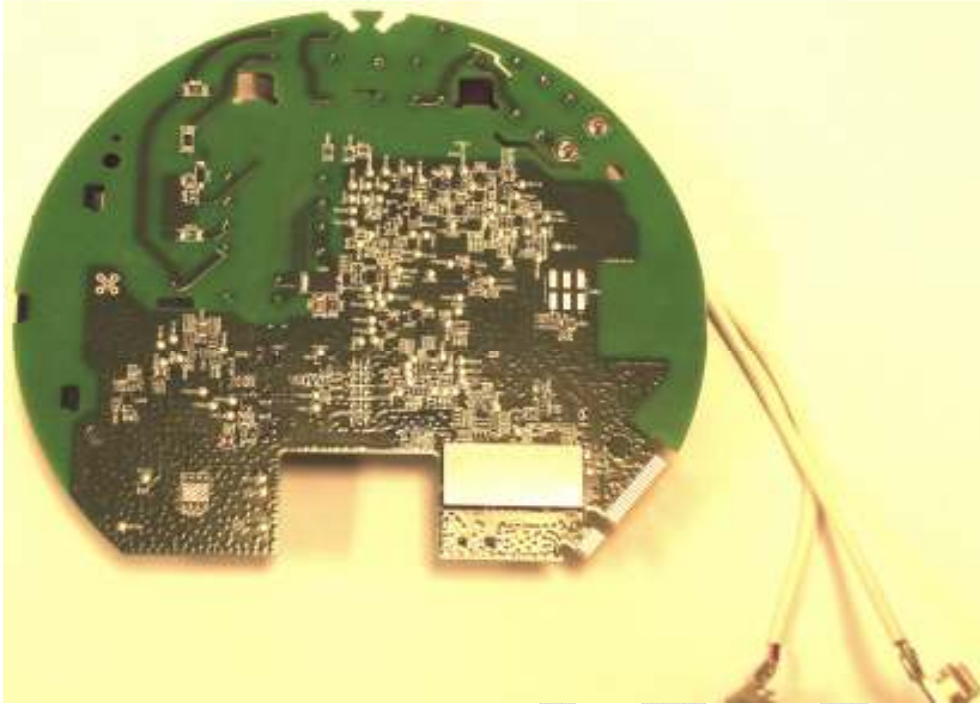
Installation

The CAT1 module will be installed in the Itron OW CAT-M1 electricity meter.

Install the CAT1 module on the host board assembly. Top view



Rear view of module



Meter Base (showing metrology)



CAT1 Communications Module

Meter Base with CAT1 module installed



Meter Base with CAT1 and register boards installed



CAT1 Communications Module

Complete Host Meter



CAT1 Communications Module