ALIEN TECHNOLOGY®

ALR-M702
User Guide

August 2019

ALR-M702-FCC

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FCC Compliance
This equipment has been tested and found to comply with the limits for Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with instruction manual, may cause harmful interference with radio communications. There is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference, 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 the receiver
- Connect the equipment to a different outlet than that to which the receiver is connected
- Consult the dealer or an experienced radio communications technician

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.

Any change or modification to this product voids the user’s authority to operate per FCC Part 15 Subpart A. Section 15.21 regulations.

Caution
To comply with RF exposure requirements, a minimum separation distance of 20 cm must be maintained between the user’s body and the device, including the antenna. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. Use only the antenna defined in the integration guide.

Industry Canada Compliance

ISED ID: 4370A-ALRM702

Avertissement: Tout changement ou toute modification non expressément approuvé par les reponsables de la conformité (Alien Technology, LLCC, 845 Embedded Way, San Jose, CA 95138, Tél: 1.408.782.3900) peut faire perdre a l'utilisatuer son droit d'utiliser l'equipement

CAN ICES-3(B) / NMB-3(B)
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B) / NMB-3(B)
L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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.

Caution
To comply with RF exposure requirements, a minimum separation distance of 18.28 cm must be maintained between the user's body and the device, including the antenna. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by RSS-102. Use only the antenna defined in the integration guide.

Mise en garde
Pour se conformer aux exigences en matière d'exposition aux radiofréquences, une distance minimale de 18.28 cm doit être respectée entre le corps de l'utilisateur et le périphérique, y compris l'antenne. Cet appareil est conçu et fabriqué pour ne pas dépasser les limites d'émission définies pour l'exposition au radiofréquence (RF) définie par RSS-102. Utilisez uniquement l'antenne définie dans le guide d'intégration.

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Alien Technology®

User Guide

ALR-M702-FCC RFID Module

Table of Contents

1 Introduction

This manual provides you with safety information, technical support information, and sources for additional product information for the ALR-M702-FCC RFID Module.

1.1 Audience

We assume that the readers of this guide have some previous knowledge of RFID, and other relevant technologies.

1.2 Type Conventions

Conventions:

- Regular text appears in a plain font.

1.3 Overview

This document focuses on controlling the ALR-M702-FCC RFID Module.

- The Alien ALR-M Demo Software is used to control the ALR-M modules
- The module supports an RS232 interface with a baud rate of 115,200, 8 bit data, 1 start and 1 stop bit

1.4 System Requirements

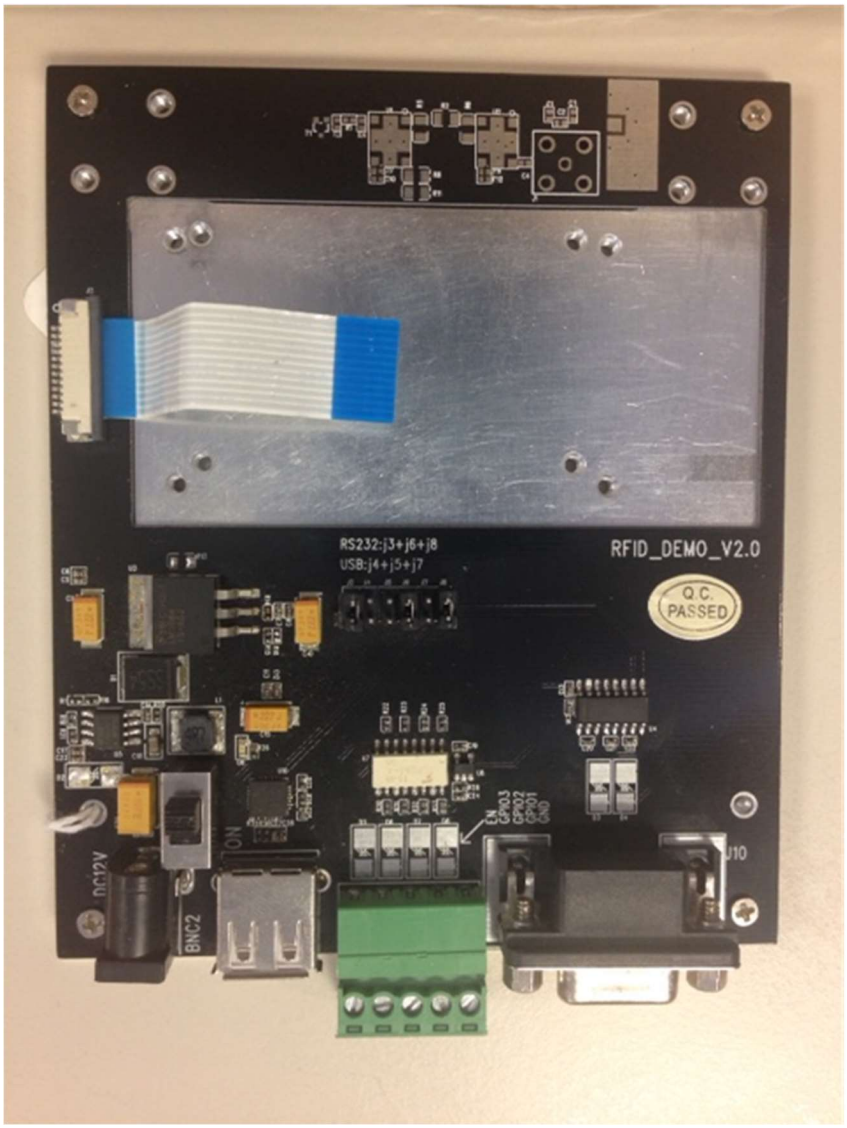
A Windows computer running Windows 7 or later with a serial interface is required. A USB-RS232 interface cable is included in the development kit.

1.5 Device Specification

ALR-M702-FCC Characteristics	
Dimensions	56x36x7.5 mm
Weight	<25 grams
RF Interface	MMCX-50KE
Power and Control	12 Pin ZIF Ribbon Cable Connector
Operating Temp.	-20℃ to +55℃
Storage Temp.	-25℃ to +70℃
Humidity	5%RH-95%RH（non-condensing）
RFID (UHF)	UHF 902-928MHz, EPC Class1 Gen2 / ISO18000-6C

2 Verifying the M702

Alien Technology provides a convenient development board, power supply and associated GUI to power and communicate with the ALR-M702-FCC.

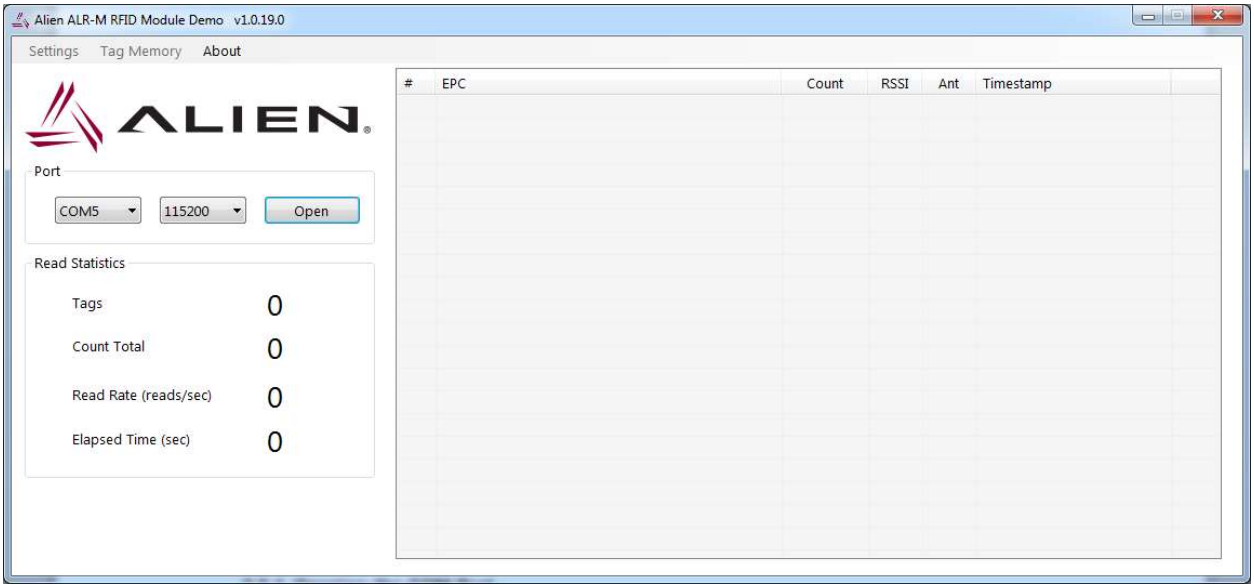


2.1 Preparing to test the Module

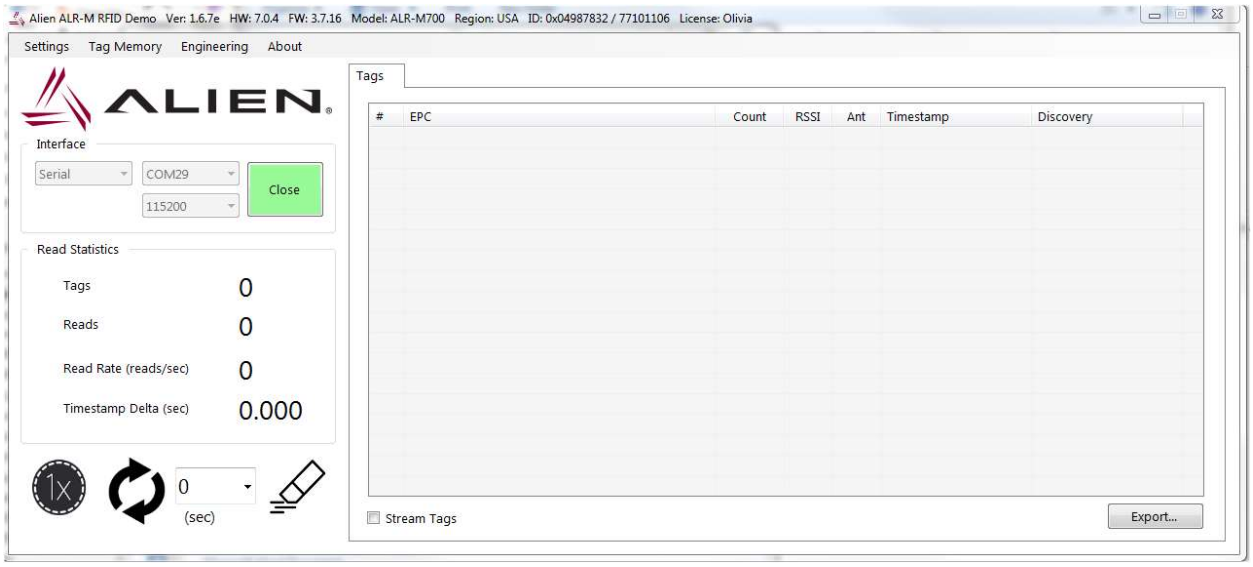
- Install the GUI on your PC or laptop
- Connect the module to the ribbon cable
- Connect an RF antenna. Please follow the safe standard RF exposure separation requirements of 20 cm
- Connect a RS232 cable between the Development Board and the PC or laptop
- Connect the DC supply DC plug to the development board DC socket
- Connect the DC supply to AC
- Switch the slide switch to the ON position. The Red LED should light, indicating the module is receiving power.

2.2 Inventory Test

Upon launching the Alien ALR-M Demo Software (double click on ALRMdemoV1.6.7e.exe), the following screen is displayed:



The window displays communication Port, Tag List and the Read Statistics information. Select the correct COM port and Open communication. The Engineering tab of the GUI will only appear when a module specific license is present in the GUI folder.



The GUI allows testing single inventory (1x) or timed testing. For timed testing type the number of seconds and into the window and hit the arrow. The test will run until the timer counts down to 0. Tags read by the Module will appear in the Right-hand window.

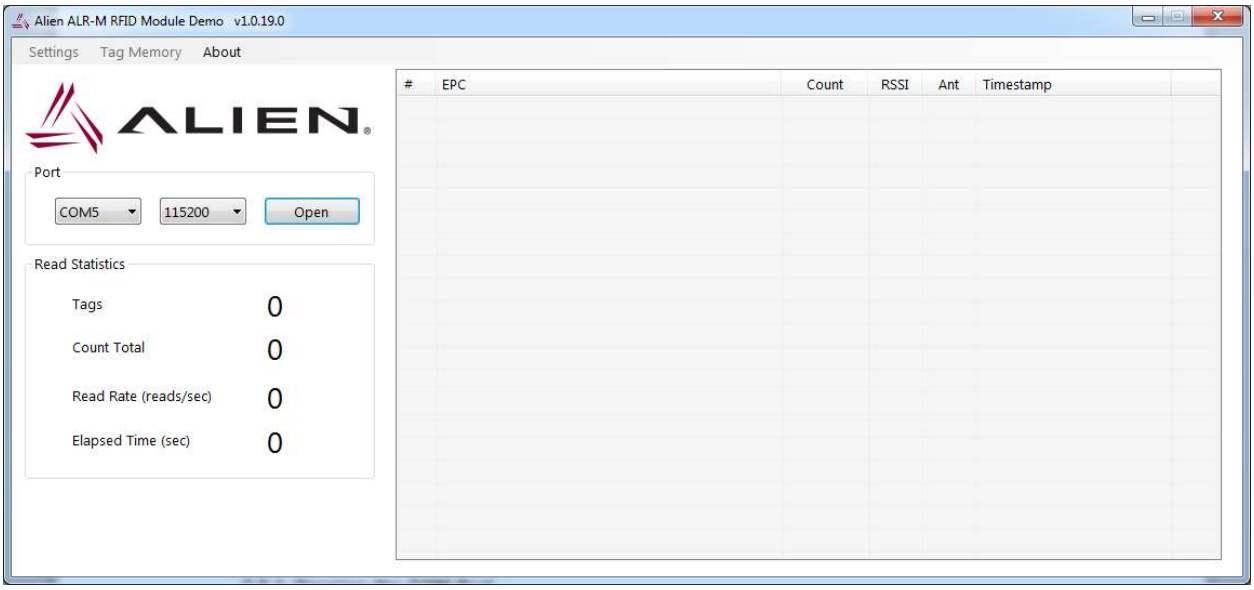
3 Engineering Test Mode

The Engineering test mode allows the user to switch the module between hopping and fixed frequency operation to support certification testing.

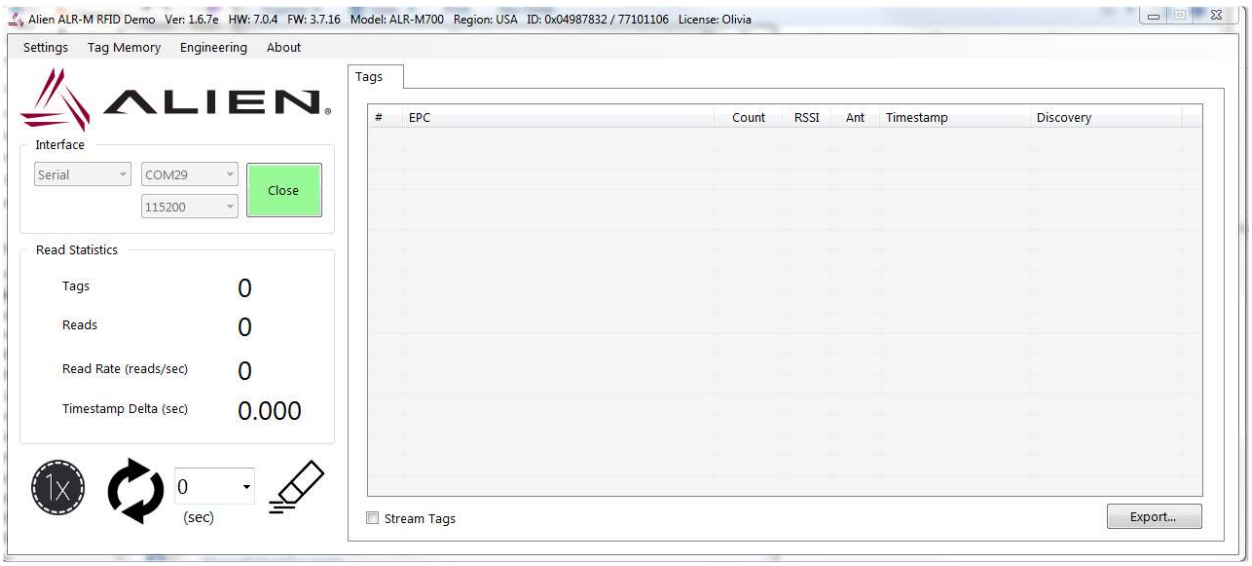
To operate in the Engineering mode the User must have a license provided by Alien tied to the specific module serial number.

3.1 Inventory - Fixed Frequency

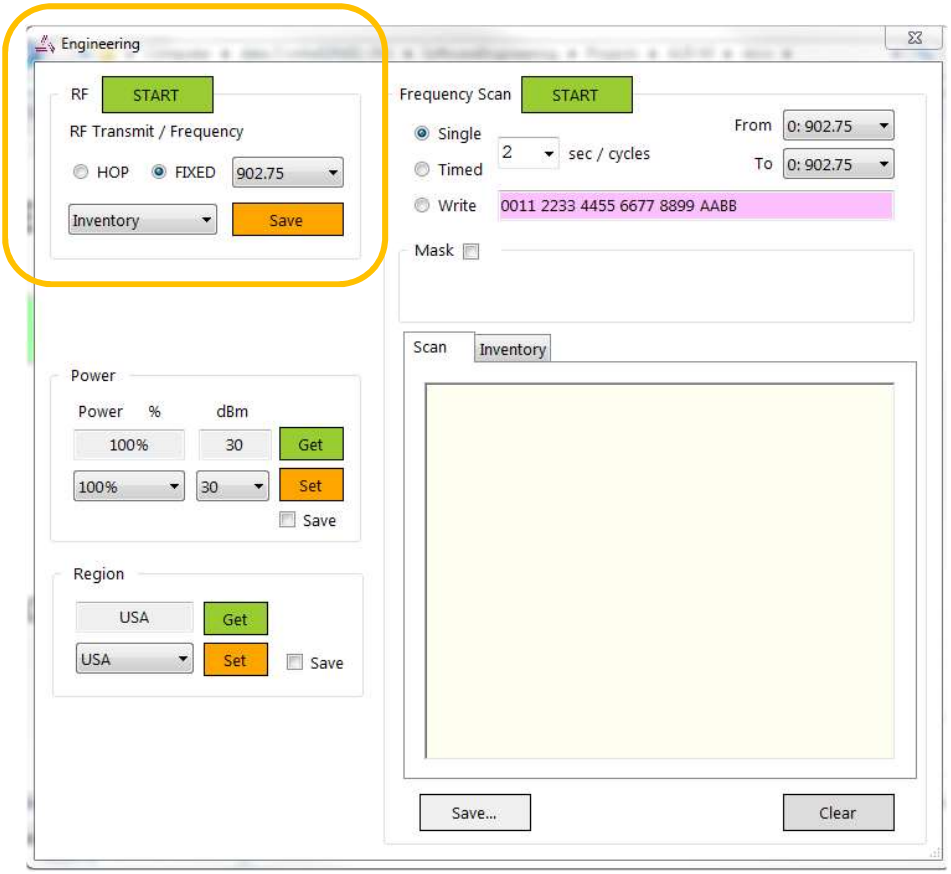
Upon launching the Alien ALR-M Demo Software (double click on ALRMdemoV1.6.7e.exe), the following screen is displayed:



The window displays communication Port, Tag List and the Read Statistics information. Select the correct COM port and Open communication.



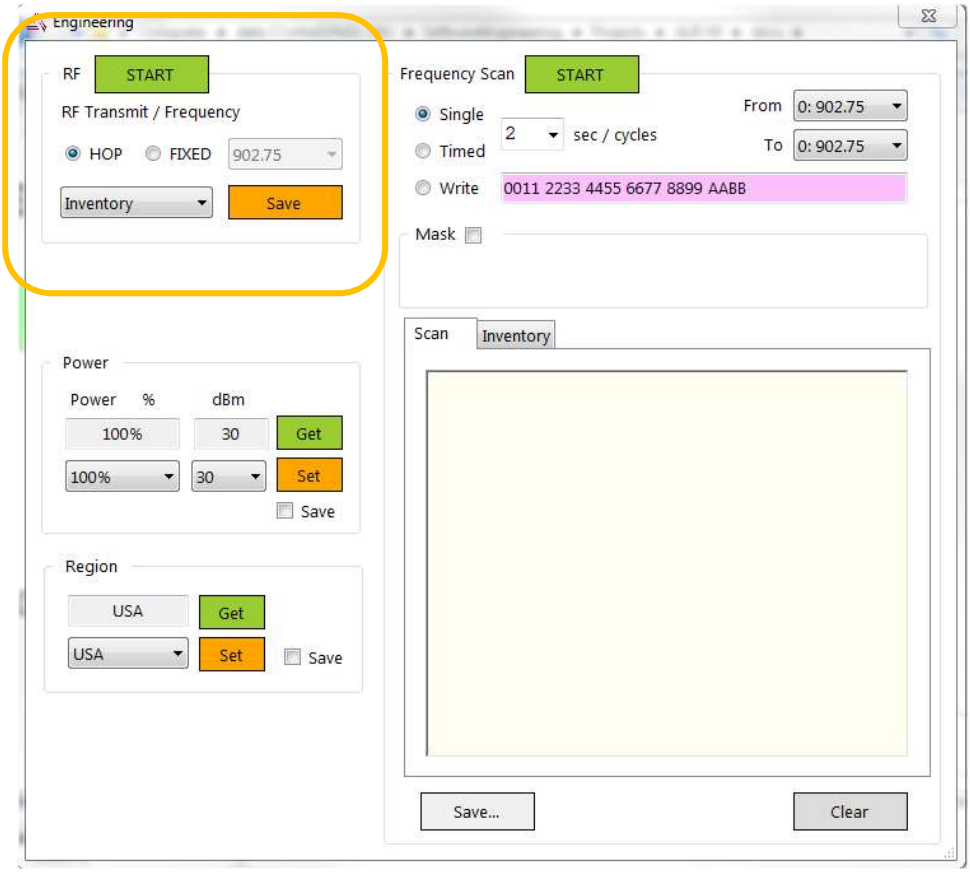
Double click on Engineering.



Select a frequency, select FIXED, select Inventory. **Click on Save**. Click on Start to start transmission

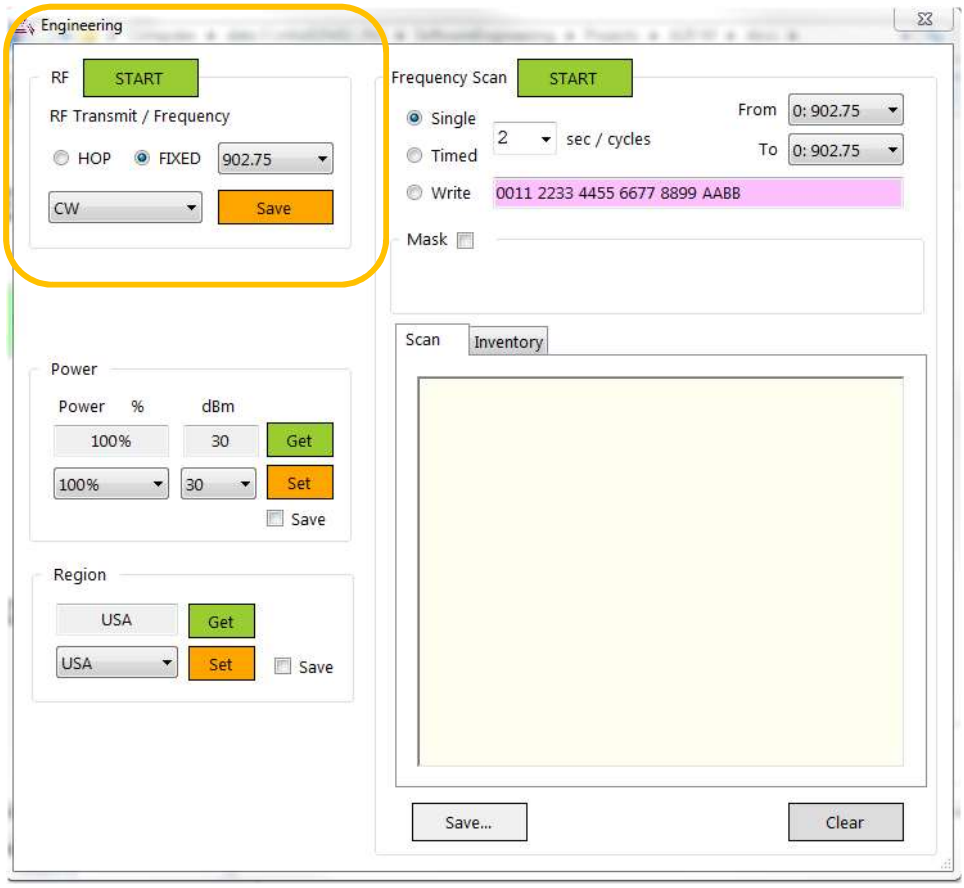
3.2 Inventory – Frequency Hopping

Follow the same steps as in 3.1 but this time select HOP in the Engineering menu.



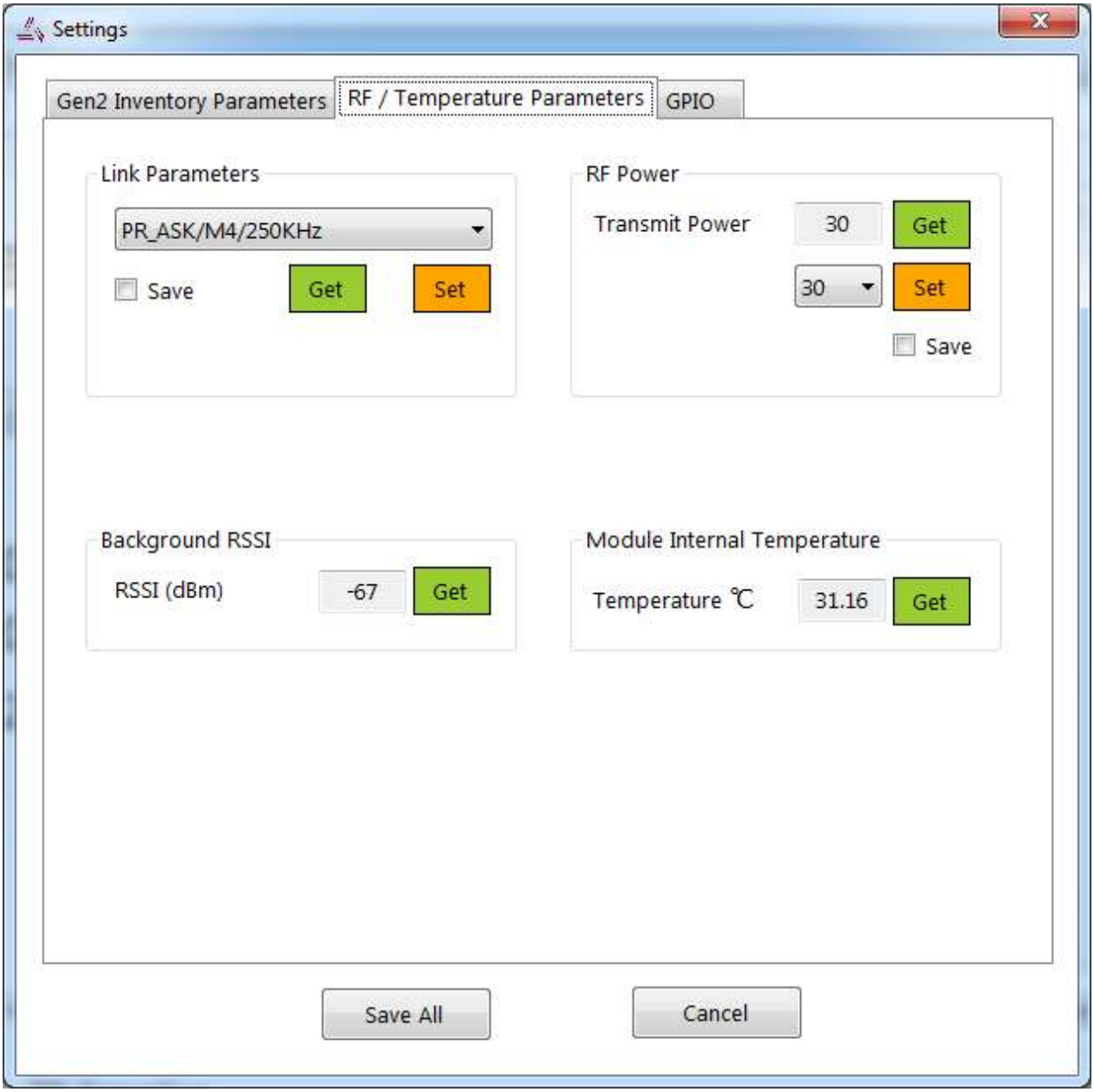
3.3 CW – Fixed Frequency and Frequency Hopping

Follow the same steps as in 3.1 this time select CW and transmission frequency preference. **Click on Save**. Click on Start to start transmission.



3.4 RF Power

Selecting the RF/Temperature tab in the Settings dialog from the Main Menu brings up the following screen:



Here you can control the RF power output among other settings.

Transmit Power parameter controls the module output power in 1dB steps. Click “set” to set the transmit power and then “get” to read back the setting. Check the “*Save*” check box to store the RF Transmit Power setting in nonvolatile memory in order to restore the saved value automatically on the module power-up.

4 Technical Support

Alien Technology, LLC
845 Embedded Way
San Jose, CA. 95138

Tel: 1.408.782.3900

5 Revision History

ECO #	Revision	Date:	Originator:	Description of Change:
TBD	A	8/8/19	J. Hattick	Initial release