

ALIEN TECHNOLOGY®

ALR-M702-FCC OEM Integration 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

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

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.

Alien Technology®

User Integration Guide

ALR-M702-FCC Module



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Chapter 1

Introduction

1.1 About this Manual

This manual provides you with safety information, technical support information, and sources for additional product information.

Who should read this manual?

This manual is written for the person who is responsible for integrating the ALR-M702-FCC module into host equipment. This manual provides you with information about the features of the ALR-M702-FCC and how to integrate, configure, operate, and maintain it.

Before you operate your ALR-M702-FCC, please read through and become familiar with the contents of this manual.

Introduction

The ALR-M702-FCC is a limited certification module for use in Alien developed products. It is not for sale to outside companies and this manual is considered a confidential manufacturing document per KDB 996369 D03 OEM Manual v01. The module is a compact RFID EPC Gen 2 reader. Only the BRA-40U antenna may be used with this module.

1.2 Device Specifications

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°C to +55°C
RFID (UHF)	UHF 902-928MHz, EPC Class1 Gen2 / ISO18000-6C
Input Voltage/Current	3.3 VDC (min) @ 2.9 ADC (max) 5.5 VDC (max) @ 1.1 ADC (typ)
Frequency of Operation	902 – 928 MHz
FHSS Parameters	50 channels, 500 kHz spacing, 400 mS hop time
Approved Antennas	Alien version of BRA-40U
RF Output Power	0.975 watts
Control Line Voltage	0 – 3.3 VDC

Chapter 2

Integration Guide

2.1 General

The ALR-M702-FCC module is intended solely for use in Alien Technology RFID subsystems to be attached to handheld data terminals. It is an RFID reader module and operates in the 902 – 928 MHz unlicensed spectrum.

2.2 Applicable FCC Rules

Part 15.247

2.3 Operational Use Conditions

2.3.1 Antennas

The ALR-M702-FCC was verified with the Alien version of the BRA-40U antenna designed for handheld data terminal operation. Only this antenna may be used with the module. The module includes a unique connector (MMCX-50KE).

2.3.2 Input Voltage Range

3.3 – 5.5 VDC

2.3.3 Digital Signal Interface

0 – 3.3 VDC

2.4 Limited Module Procedures

The ALR-M702-FCC module meets all requirements for modular certification. However, it will only be used in Alien Technology products. This module is not intended for sale to 3rd parties and per KDB 996369 D03 OEM Manual v01.

2.5 Trace Antenna Design

Not Applicable

2.6 RF Exposure Considerations

To comply with RF exposure requirements, a minimum separation distance of 20cm 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 specified in the integration guide.

2.7 Antennas

The ALR-M702-FCC was verified with the Alien version of the BRA-40U antenna designed for handheld data terminal operation. Only this antenna may be used with the module.

2.8 Label and Compliance Information

2.8.1 Products Sold in the US

Products including the ALR-M702-FCC must include a physical or e-label stating “Contains FCC ID P65ALRM702” in accordance with “Guidelines for Labeling and User Information for RF Devices – KDB Publication 784748”.

2.8.2 Products Sold in Canada

Products including the ALR-M702-FCC must include a physical or e-label stating “Contains IC 4370A-ALRM702” in accordance with “Certification of Radio Apparatus RSS-102” paragraph 3.2.

2.9 Information on Test Modes and Additional Testing Requirements

2.9.1 The host manufacturer must perform Part 15 Subpart B testing of the integrated assembly

2.9.2 Where other transmitters are included, the manufacturer must perform colocation testing of the integrated.

2.9.3 Where integration cannot maintain the required 20 cm separation additional RF exposure evaluation will be required.

2.9.3 Alien Technology provides a development board and SW that can be used to control the module frequency and power.

2.9.4 Alien Technology creates specialized versions of engineering test software as required for specific hosts.

2.10 Part B Disclaimer

The ALR-M702-FCC FCC ID is only authorized by the FCC for the rules listed on the grant. The host manufacturer (Alien Technology) is responsible for compliance with any other FCC rules that apply to the host not covered by the modular certification.

Revision History

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