



Alert Labs Inc. Sub 1GHz Radio Module

Model Number: ALRM001

User Manual

Overview

The Alert Labs Inc. ALRM001 module is based on the Murata CMWX1ZZABZ Sub G Module with the addition of a helical antenna printed on the carrier PCB. The Alert Labs ALRM001 module itself is identical to the Murata CMWX1ZZABZ, and as a result, has all the same electrical and mechanical details specified in the CMWX1ZZABZ datasheet. The Alert Labs ALRM001 is intended for use only in Alert Labs Inc. products. Users of Alert Labs products do not have access to the module firmware meaning that a user cannot inadvertently change the radio operation so as to invalidate regulatory approvals.

Label

The labelling area of the ALRM001 is on the top surface of the module can whose dimensions are 12.1 mm x 11.1 mm, as shown in Figure 1. It is not possible to print a label such that the regulatory rules for legibility, font size, and formatting the complete regulatory identifiers on one line are all simultaneously met. As a result, the Alert Labs module model number, FCC, and IC identifiers are included in this manual.



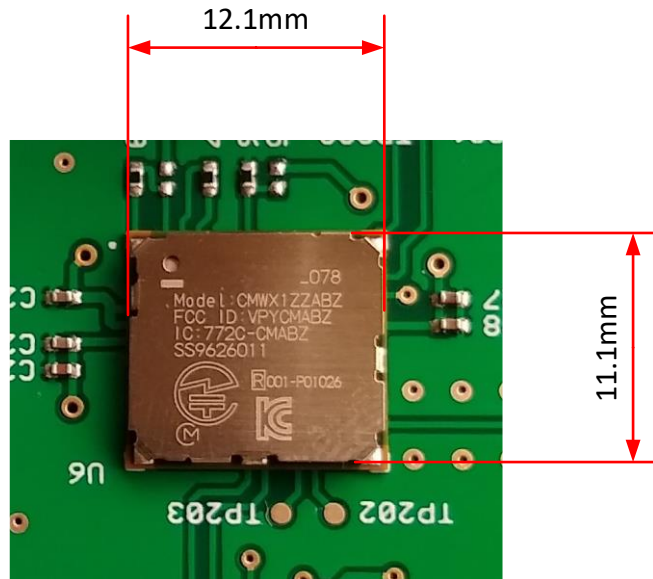


Figure 1: Potential labelling area

FCC and IC Identifiers

- Model Number: ALRM001
- FCC ID: 2AKXF-ALB080
- IC: 22365-ALB080

Module Integration

Integration of the Alert Labs ALRM001 module into an Alert Labs product will make the module inaccessible to a user. This will avoid confusion regarding the regulatory identifiers of the module. Alert Labs products made available for sale in Canada and the USA must themselves be labelled and must use the following text:

- Contains FCC ID: 2AKXF-ALB080, IC: 22365-ALB080

Further, the following regulatory warning statements must be included in a prominent location in the Alert Labs product literature. For example, in an insert in the product package or in the product user manual:

FCC COMPLIANCE NOTICE

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.

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Cet équipement a été testé et déclaré conforme aux limites pour les appareils numériques de classe B, selon la section 15 des règlements de la FCC. Ces limites sont destinées à assurer une protection raisonnable contre les interférences nuisibles dans une installation résidentielle. Cet équipement produit, utilise et peut émettre de l'énergie radio électrique et, s'il n'est pas installé et utilisé conformément aux présentes instructions, peut causer des interférences nuisibles aux communications radio. Il n'existe toutefois aucune garantie que de telles interférences ne se produiront pas dans une installation particulière. Si cet équipement produit des interférences nuisibles à la réception d'émissions de radio ou de télévision, ce qui peut être établi en mettant l'appareil sous, puis hors tension, il est recommandé à l'utilisateur d'essayer de corriger le problème en prenant l'une ou plusieurs des mesures suivantes:

- Réorienter ou déplacer l'antenne réceptrice.
- Augmenter la distance séparant l'équipement du récepteur.
- Brancher l'équipement sur un circuit électrique différent de celui du récepteur.
- Consulter le distributeur ou un technicien radio et télévision.

Cet appareil est conforme à la Section 15 des réglementations de la FCC. Son fonctionnement est soumis aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer de brouillage préjudiciable, et
- (2) Cet appareil doit accepter tout brouillage subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Tout changement ou modification n'ayant pas fait l'objet d'une autorisation expresse de la partie responsable de la conformité peut entraîner la perte du droit d'utilisation de cet équipement.





IC COMPLIANCE NOTICE

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, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

This Class B digital apparatus complies with Canadian ICES-003.

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.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

RF EXPOSURE COMPLIANCE: This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm during normal operation.

CONFORMITÉ AUX NORMES D'EXPOSITION AUX RF: Cet équipement doit être installé et utilisé à une distance minimale de 20 cm entre le radiateur et votre corps.

Antenna

The Alert Labs ALRM001 can use an antenna described in the Murata CMWX1ZZABZ and a PCB printed helical antenna. The PCB printed helical antenna has the dimensions specified in Texas Instruments Design Note DN038 (doc # SWRA416), page 3. The performance of this antenna in the 902 to 928MHz band is specified on page 18 of the design note. Notably:

- Peak Gain: 0.01dBi

RF Circuit

The RF connection from the ALRM001 to the antenna is shown in Figure 2. The helical antenna is not a 50 Ohm antenna so a matching network is required. Components L1, C1, and C2 will be populated, as required, with values that optimize the match to 50 Ohms. The matching will be done on an Alert Labs product basis and will remain the same for all instances of a product.



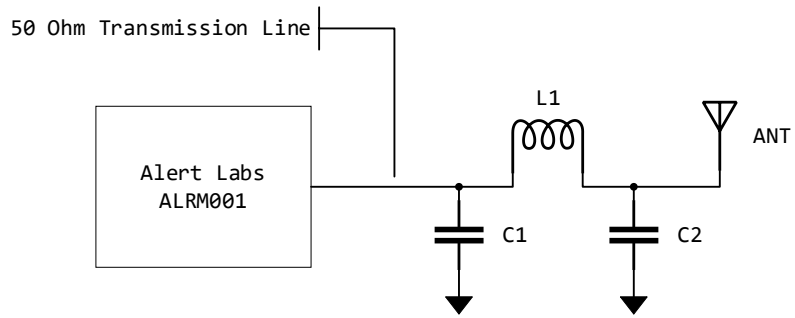


Figure 2: RF path to antenna