

User & Integration Manual
LifeFitness NFC Card Reader
1.1

13.56 MHz Multi Standard – NFC Reader/Writer Module

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1. Short description

Power supply

Via host flat-band cable connection 5V (+- 5%)

Operating temperature: 0°C to 60°C

Storage temperature: 0°C to 60°C

Supported 13,56MHz RF standards

- ISO/IEC 14443 – ASK modulation
- ISO/IEC 15693 – ASK modulation (support depends on used RF frontend derivative)

Host communication (via I2C)

Antenna connection: embedded PCB antenna

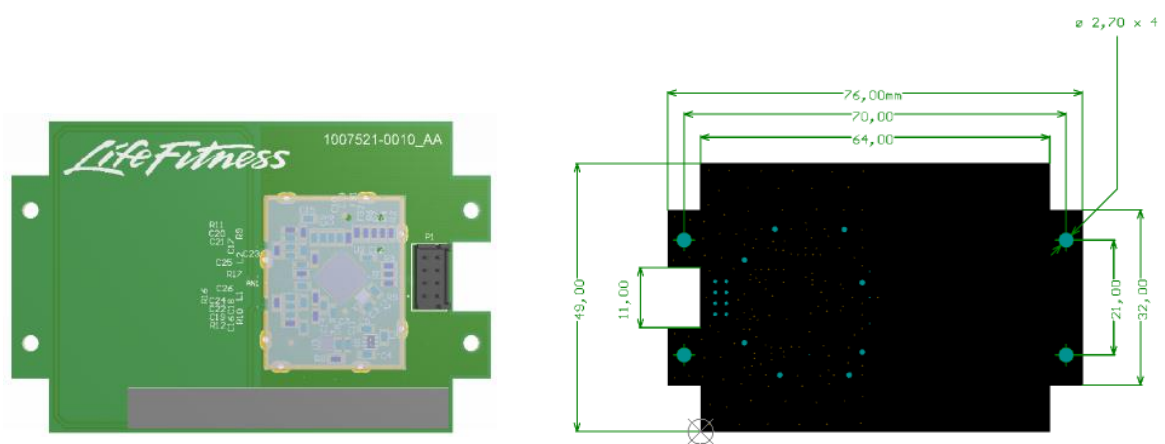
Short functional description:

- After power-up of the module the NCI NFC controller chip is ready to receive commands via its I2C application controller (host) interface and performs the related NFC tag interactions according to the implemented NFC Forum NCI specification
- The 13,56Mhz RF field is switched on depending on the commands received.

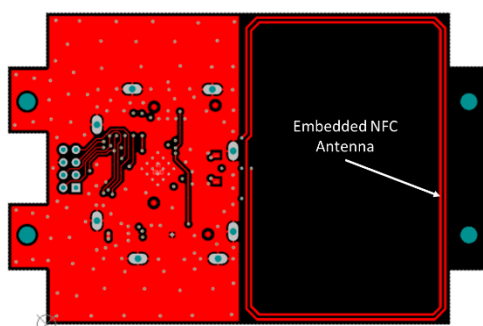
2. Module installation

2.1 Physical dimensions

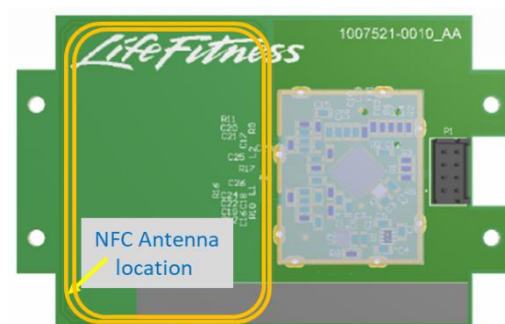
- Outer dimensions 76mm (2,99 inch) x 49 (1,93 inch)
- Mounting holes (4 x 2,7mm/0,106 inch).
- Mount the module properly into the end device.
- Mounting holes on the connector side are connected to system ground – it is recommended to connect at least one mounting hole to the end-device's system ground.
- Attach connection cable to connector P1 (8 Pin header) to the end device's application host



2.2 NFC Antenna location on PCB



Module back side



Module top side

3. FCC and RSS compliance statements

FCC COMPLIANCE STATEMENT

NOTE:

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.

Caution!

The Federal Communications Commission (FCC) warns the users that changes or modifications to the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC §15.105 (b):

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 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.

RSS COMPLIANCE STATEMENT

RSS COMPLIANCE STATEMENT

This device complies with Industry Canada’s license-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’utilisateur de l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi)

4. FCC and IC information label location

The required FCC ID and IC identifiers are located on the module on the top side of the module as shown in below image.



5. End device labeling instructions

FCC notes for host devices. The end device must be labeled with:

Contains FCC ID: LM6-LFNFCCR1

Contains IC: 23315-LFNFCCR1

Labelling Requirements

In addition following statement shall be placed on the device:

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.

Where the product is so small or for such use that it is not practicable to place the statement on it, the statement can be placed in a prominent location in the instruction manual.

Information to the user

- For Class A devices the manual of the host shall include the following statement:

NOTE: This equipment has been tested and found to comply with the limits for a 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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. 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.

- For Class B devices the manual of the host shall include the following statement:

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 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.

Modification of equipment

The instruction manual of the host shall include the following statement: Changes or modifications made to this equipment not expressly approved by the party responsible for compliance may void the FCC authorization to operate this equipment.

Special accessories

Where special accessories such as shielded cables and/or special connectors are required to comply with the emission limits, the instruction manual shall include appropriate instructions on the first page of the text describing the installation of the device.

Final Compliance of end product

The integrator is responsible for the final compliance of the end product including this certified transmitter module. CFR 47 §15.101 give guidance in terms of applicable equipment authorization procedures of different end-products. Typically, compliance to subpart 15 B (§15.107 and 15.109) Class A or B including evaluation of the subpart 15 C compliance (field strength of fundamental and out-of-band emissions) of the transmitter parameters apply.

Simultaneous transmission

When the host product supports simultaneous-transmission operations the host manufacturer needs to check if there are additional RF exposure filing requirements due to the simultaneous transmissions. When additional application filing for RF exposure compliance demonstration is not required (e. g. if the LIFE FITNESS NFC CARD READER module in combination with all simultaneously operating transmitters complies with the RF exposure simultaneous transmission SAR test exclusion requirements), the host manufacturer may do his own evaluation without any filing, using reasonable engineering judgment and testing for confirming compliance with out-of-band, restricted band, and spurious emission requirements in the simultaneous-transmission operating modes. If additional filing is required please contact the person at Life Fitness Inc. responsible for certification of the LIFE FITNESS NFC CARD READER module.

6. Revision history

Version	Remarks	Date	
V1.0	Initial released version	10 th November 2017	DI Michael Ganzera