



## USER MANUAL

### GMMC Pocket NFC Reader/Writer

#### 13.56 MHz Multi Standard USB NFC Reader/Writer

Manual version 1.2

#### Introduction

The Pocket NFC reader/ writer is USB connected and powered and operates at 13.56 MHz. The Pocket NFC reader offers different tag related functionality and USB communication modes.

If the tag is out of communication distance or if the communication is disturbed by harsh environmental noise, the implemented automatic tag detection reestablishes the reader-tag communication link

Independent from the analog RF circuitry, responsible for RF performance and communication, three different digital USB host interface configurations are available.

- USB VCOM (Virtual COM port) via CDC (communications device class)
- USB CCID (chip card interface device) is a USB protocol that allows a smartcard to be connected to a computer via a card reader.
- USB KBD (Keyboard) as part of the USB HID (human interface device class) specification for computer peripherals. It specifies a device class (a type of computer hardware) for human interface devices such as keyboards, mice, game controllers...

### Basic Reader behavior

Once the reader device is connected and USB power is available the device boots up and switches the RF field on and starts automatic tag polling. The three board status LEDs (red/green/blue) are used to indicate different states, depending on the integrated firmware's function e.g. Power, RF polling, communication...

### Hardware Key features<sup>1)</sup>

- 13.56MHz Multi Standard NFC Reader Writer
  - ISO/IEC 14443 incl. MIFARE products using Crypto 1
  - ISO/IEC 15693
  - ISO/IEC 18000-3 mode 3
  - Full NFC Forum tag type
  - P2P active and passive, target, and initiator
  - Card emulation ISO14443 type A
- USB Stick form factor
- USB power
- USB digital communication modes
  - USB VCOM (CDC class)
  - USB KBD (Keyboard, HID class)
  - USB CCID (Chip Card Interface Device)
- Automatic tag discovery and communication link reconnection

*Note: Feature implementation (read only, read/write) depending on device firmware. RF parameters and analog circuitry behavior are not affected by the chosen USB host interface mode or functional firmware and are given by the analog RF circuitry.*

## Regulatory Statements

### Labelling requirements

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.

### Information to the user

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 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.

### Intended Use

The device is intended to be used directly plugged into e.g. a PC, Laptop, USB bus extender, router or the likes.

If the device is used with a USB extension cable, it is the responsibility of the user to select a cable that preserves compliance with the regulations applied. When connecting a USB extension cable, it is recommended to use one with a ferrite close to the device.

### Modification of equipment

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.

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

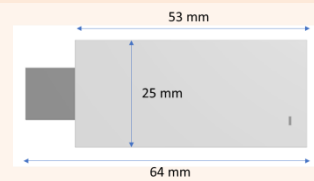
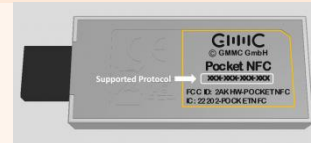
### Indication

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.

## Electrical and physical parameters

|                                  |   |
|----------------------------------|---|
| Power supply                     | USB bus powered 5.00 [V] (+0.25–0.60 V)   |
| Host Interface                   | USB A connector   |
| Card polling                     | After power up RF field is turned. A Tag discovery loop is started until communication between reader and tag is established. |
| Optical interface                | 3 LEDs red, green, blue for status indication   |
| Operating temperature            | -10°C – +65°C   |
| Approvals                        | FCC ID: 2AKHW-POCKETNFC<br>IC: 22202-POCKETNFC<br>CE<br>label location: at bottom of device                                   |
| Supply Current                   | < 80 mA (60 mA typ.)  |
| Physical Dimensions<br>L x W x H | 64 x 25 x 8.5 [mm]  |



Note: MIFARE, MIFARE Classic, MIFARE DESFire, MIFARE Plus and NTAG are registered trademarks of NXP B.V.