

User Manual RFID Modul 2144100082

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Change tracking:

Revision	Reason for change	Autor	Date
-1	Initial version	Ingo Grosshans	December 8, 2022
-2	Corrected FRN, Canadian representative's Company No. and added grantee code. Added "not for sale" statement and watermark. Removed chapters 2, 3 and 4 as they are part of the installation instructions.	Ingo Grosshans	February 09, 2023
-3	Added information about powering host and chapter 2,3 and 4	Ingo Grosshans	March 13, 2023
-4	Added PMN and chapter 2.6 and 2.7	Ingo Grosshans	March 24, 2023

CONFIDENTIAL

1 User Manual

Product Name	NA					
Model Name (Model No.)(HVIN)	RFID Modul 2144100082					
Brand Name (Trade Name)	NA					
Marketing Name (PMN)	RFID Modul 2144100082					
Family Model No. (if have)	NA					
EUT Highest operation frequency (MHz)	27,12					
HW Version (Radio)	C1					
SW Version (Radio)	NA					
FCC ID No.	2ATTE-2144100082					
FRN (FCC Registration Number)	0028586337					
Grantee code	2ATTE					
IC No. (Canada IC ID)	25412-2144100082					
Canadian representative's Company No.	3874A					
Extreme Voltage (V)	High V	3,465	Normal V	3.3	Low V	3.135
Operation Temperature	Low	+10 °C		High	+60 °C	

The RFID Modul 2144100082 consists of one printed circuit board (PCB), with a size of 25.5 mm x 25.5 mm:

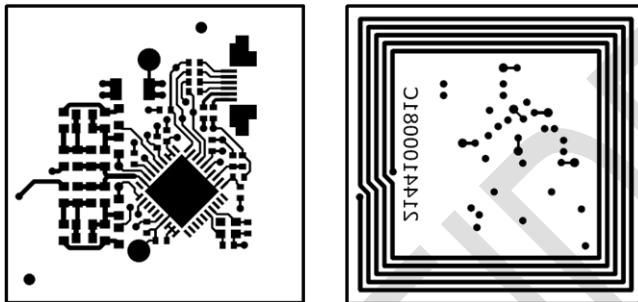


Figure 1: RFID module 2144100082 top and bottom view

It is mainly used in dental image plate scanners (host) and supplied by 3,3V DC \pm 5%. The hosts are DC-powered. A plug-in power supply generates the DC from AC power source.

The module is transmitting at 13,56 MHz. An I2C bus is used as data interface to the host.



Figure 2: Example host XPS07.2D1

The module is for use in Duerr Dental SE products, only. The module is not for sale and the installation instructions are internal confidential documents. When integrating the module into the host, it must be ensured that the host has a suitable 3.3V voltage regulator that complies with the above requirements.

2 OEM Integration Guide

The purpose of this document is to serve as a guide to other Dürr Dental SE product developers to integrate the RFID Modul 2144100082 into hosts. Since this module is only to be used in Dürr Dental SE products, the OEM referenced will be Dürr Dental SE.

2.1 Limited module procedures

OEM manufacturer must ensure that no changes are made to the module and acknowledges that any modifications may invalidate regulatory approvals or may necessitate notifications to the relevant regulatory authorities.

This module is connected to a platform with power regulator by using FFC (flexible flat cable) /FPC (flexible printed circuit) connector. OEM manufacturers have to consult the module manufacturer when integrating the module in any platform which will change the limiting conditions. Module manufacturer will review detailed test data or platform designs prior to giving the host manufacturer approval.

2.2 RF shielding

Care should be taken integrating the module in host to prevent crosstalk from modules RF circuitry to the host. Therefore, it is recommended that unshielded cables and circuits be routed at an appropriate distance from the module. Furthermore, the connection cable of the module should not be longer than 30 cm.

2.3 Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

2.4 Test Modes

This device uses various test mode programs for test set up which operate separate from production firmware. Host integrators should contact the grantee for assistance with test modes needed for module/host compliance test requirements.

2.5 Manual information to the end user

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as shown in User manual.

2.6 Note EMI considerations (KDB 996369 D03 2.11)

Note that a host manufacture is recommended to use the Knowledge Database (KDB) 996369 D04 Module Integration Guide recommending as "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

For standalone mode, reference the guidance in D04 Module Integration Guide and for simultaneous mode; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.

2.7 How to make changes

Only Grantees are permitted to make permissive changes. This module designed for mounting inside of the end product by us professionally.

3 Regulatory information/warning

The user's manual for any product that contains this module shall contain the following regulatory compliance statements.

3.1 FCC/IC ID

The user manual of the device incorporating this module must include the FCC/IC ID:

Contains FCC ID: 2ATTE-2144100082

Contains IC: 25412-2144100082

3.2 Module Compliance FCC

This module has been tested and found to comply with the following requirements for Modular Approval.

- Part 15.225 - Operation within the band 13.110-14.010 MHz.
- Part 2.1046 – Measurements required: RF power output

3.3 Antennas

This radio transmitter has been approved by the FCC and ISED to operate with the antenna types listed below with the maximum permissible gain 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.

Antennes

Cet émetteur radio a été approuvé par la FCC et ISED pour fonctionner avec les types d'antennes répertoriés ci-dessous avec le gain maximal autorisé indiqué. Les types d'antennes non inclus dans cette liste, ayant un gain supérieur au gain maximum indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil.

Radio	Antenna Type	Freq. (MHz)
NFC	Loop	13.56

3.4 FCC note / ISED Statement

The FCC note and ISED statement must be transferred to the user manual of the host device.

3.4.1 FCC 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.

3.4.2 ISED Statement

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.

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:

- (1) Cet appareil ne doit pas causer d'interférences
- (2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un fonctionnement indésirable de l'appareil

3.5 RF exposure

As for the RF Radiation Exposure Statement, the following FCC/IC statement shall be added to the user manual of the host device.

3.5.1 RF exposure statement (FCC)

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

3.5.2 RF exposure statement (ISED)

Caution: Exposure to Radio Frequency Radiation

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Attention: exposition au rayonnement radiofréquence

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
2. Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes.

4 Labelling

4.1 IC and FCC ID

Required End Product Labeling

Any device incorporating this module must include an external, visible, permanent marking or label which states: "Contains FCC ID: 2ATTE-2144100082" and "Contains IC: 25412-2144100082".

Obligation d'étiquetage du produit final:

Tout dispositif intégrant ce module doit comporter un externe, visible, marquage permanent ou une étiquette qui dit: "Contient IC :25412-2144100082".

4.2 Module labelling

The RFID module does not have permanent marking or label, which states the FCC/ IC ID. Therefore, the FCC/IC ID is placed in the host user manual and host packaging instead of being affixed on the equipment.

4.3 Statement according to FCC part 15.19

The host device must be labeled with the 15.19 statement:

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

4.4 Statement according to FCC part 15.21

The host device must be labeled with the 15.21 statement:

Any changes or modifications to this equipment not expressly approved by the manufacturer may cause, harmful interference and void the FCC authorization to operate this equipment.

4.5 ISED RSS-GEN section 4.3

Labeling according to RSS-GEN section 4.3. The host device must be labeled with:

- Host Marketing Name (HMN)
- ISED certification number (IC), as shown in paragraph 4.1