



Test report issued under the responsibility of:  
EMITECH MONTPELLIER laboratory  
MRA US-EU Designation Number: FR0006  
Canadian CAB Identifier: FR0003

## RF EXPOSURE TEST REPORT

**KDB 447498 D01 V06**  
**RSS-102 - Issue 5, March 2015**

**Company** ..... : **STMICROELECTRONICS (Rousset) SAS**  
**Address**..... : 190 AVENUE CELESTIN COQ  
13106 ROUSSET  
FRANCE

**Test item description.** ..... : **NFC card reader evaluation board**  
**Trade Mark.** ..... : STMICROELECTRONICS  
**Manufacturer**..... : STMICROELECTRONICS  
**Model/Type reference**..... : STEVAL-25R200SA  
**FCC ID**..... : YCPR200AD1  
**IC.** ..... : 8976A-R200AD1  
**Ratings**..... : 5 VDC

**Testing Laboratory** ..... : **EMITECH MONTPELLIER laboratory**  
**Address**..... : 145 rue de Massacan  
34740 VENDARGUES  
FRANCE

**Report Reference No.**..... : **RE-EVE-24C933-2A**  
**Test procedure.** ..... : FCC IC Verification  
**Diffusion**..... : Mr DAUBOIS  
**Applicant's name.** ..... : STMICROELECTRONICS  
**Date of issue**..... : October 18, 2024  
**Total number of pages**..... : 11  
**Revision.** ..... : 0  
**Compiled by**..... : Olivier HEYER  
**Approved by (+ signature).** ..... : David MONTAULON (Lab Manager)

*Duplication of this test report is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.  
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of  
the whole manufactured products of the tested sample.*

**REPORT INDEX:**

|                                                  |           |
|--------------------------------------------------|-----------|
| <b>1. GENERAL INFORMATIONS .....</b>             | <b>3</b>  |
| <b>2. REFERENCE DOCUMENT(S) .....</b>            | <b>4</b>  |
| <b>3. EQUIPMENT TECHNICAL DESCRIPTION .....</b>  | <b>5</b>  |
| 3.1. TEST CONDITIONS .....                       | 5         |
| 3.2. EUT MARKING PLATE .....                     | 5         |
| 3.3. E.U.T. GENERAL VIEW .....                   | 6         |
| 3.4. EUT MECHANICAL AND ELECTRICAL DESIGN .....  | 8         |
| 3.5. EUT INPUT/OUTPUT PORTS .....                | 8         |
| 3.6. SUPPORTING EQUIPMENT USED DURING TEST ..... | 9         |
| 3.7. EUT RADIO SPECIFICATIONS .....              | 10        |
| <b>4. RF EXPOSURE .....</b>                      | <b>11</b> |

**REVISION HISTORY:**

| Revision | Date             | Modified pages | Modifications |
|----------|------------------|----------------|---------------|
| 0        | October 18, 2024 | /              | Creation      |

## 1. GENERAL INFORMATION

This document submits the results of Radio tests performed on the equipment **NFC demo board STEVAL-25R200A** (denominated hereafter E.U.T.: equipment under test) according to document(s) listed in §2 of this test report.

| TESTING PROCEDURE AND TESTING LOCATION:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                       |                                                       |                         |     |                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------|-------------------------|-----|---------------------|
| Testing Location .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       | EMITECH MONTPELLIER laboratory                        |                         |     |                     |
| Address. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                       | 145 rue de Massacan<br>34740 VENDARGUES<br>FRANCE     |                         |     |                     |
| Test procedure. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                       | FCC IC Verification                                   |                         |     |                     |
| Tested by .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       | Morgan PATEY                                          |                         |     |                     |
| Test supervisor .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       | None                                                  |                         |     |                     |
| Date of receipt of test item .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       | N/A                                                   |                         |     |                     |
| Date (s) of performance of tests .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                       | From May 30 <sup>th</sup> to 31 <sup>st</sup> of 2024 |                         |     |                     |
| APPLICANT'S GENERAL INFORMATION:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                       |                         |     |                     |
| Company name .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                       | STMICROELECTRONICS (Rousset) SAS                      |                         |     |                     |
| Company address. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                       | 190 AVENUE CELESTIN COQ<br>13106 ROUSSET<br>FRANCE    |                         |     |                     |
| Person(s) present during the tests. ....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                       | No representative for company attended the tests.     |                         |     |                     |
| Responsible .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                       | Mr DAUBOIS                                            |                         |     |                     |
| GENERAL REMARKS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                       |                                                       |                         |     |                     |
| <p><b>The information in <i>italics</i> is declared by the manufacturer and is under his responsibility</b></p> <p><b>The test results presented in this report relate only to the object tested.</b></p> <p><b>The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.</b></p> <p>"(see Enclosure #)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report the decimal separator is point.</p> |                       |                                                       |                         |     |                     |
| POSSIBLE TEST CASE VERDICTS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       |                                                       |                         |     |                     |
| Test case does not apply to the test object. :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       | N/A                                                   |                         |     |                     |
| Test case not performed.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       | N/P                                                   |                         |     |                     |
| Test object does meet the requirement.....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       | P (Pass)                                              |                         |     |                     |
| Test object does not meet the requirement. :                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                       | F (Fail)                                              |                         |     |                     |
| DEFINITIONS AND ABBREVIATIONS:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                       |                                                       |                         |     |                     |
| E.U.T.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Equipment Under Test  | AE                                                    | Ancillary Equipment     | Pk  | Peak detector       |
| RBW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Resolution BandWidth  | VBW                                                   | Video BandWidth         | QP  | Quasi-peak detector |
| OATS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Open Area Test Site   | FAR                                                   | Full Anechoic Room      | Av  | Average detector    |
| VP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Vertical Polarization | HP                                                    | Horizontal Polarization | RMS | Root Mean Square    |
| RF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Radio Frequency       | N.T.R                                                 | Nothing To Report       | N/C | Not Communicated    |

## 2. REFERENCE DOCUMENT(S)

### NORMATIVE REFERENCES:

The following referenced documents are necessary for the application of the present test report.

**FCC 47 CFR PART 15**

Code of federal regulations – Title 47 telecommunication  
Part 15- Radio frequency devices

**KDB 447498 D01 v06**

RF exposure procedures and equipment authorization policies for mobile and portable devices.

**RSS-102 - Issue 5, March 2018**

Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

**RR-EVE-24C933-4A**

Radio Test Report Emitech.

Although the product standard uses obsolete technical standards, the latest versions of standards achievable by the laboratory will be used for testing.

### INFORMATIVE REFERENCES:

The following referenced documents are not necessary for the application of the present test report but they assist the user with regard to a particular subject area.

### 3. EQUIPMENT TECHNICAL DESCRIPTION

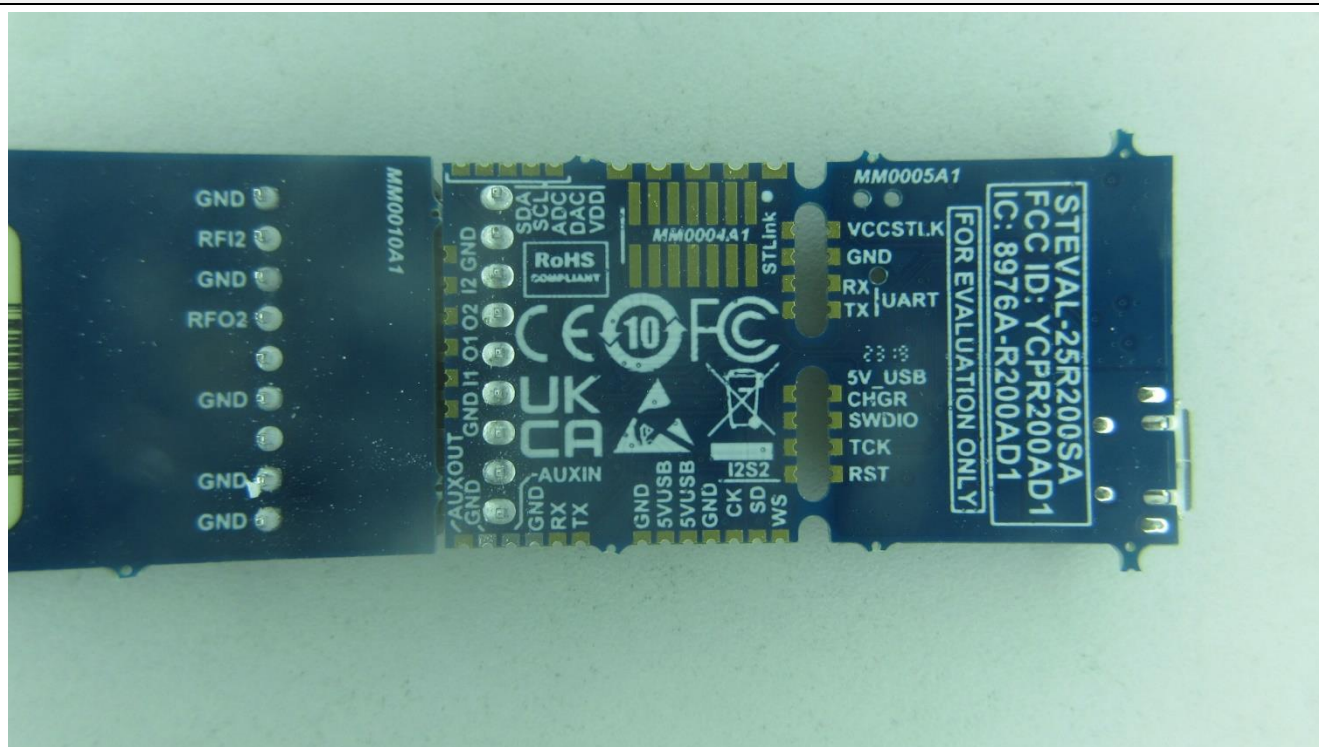
#### 3.1. Test Conditions

Test item description. .... : NFC card reader evaluation board  
Model/Type reference..... : STEVAL-25R200SA  
Trade Mark. .... : STMICROELECTRONICS  
Serial number (S/N)..... : Not communicated  
Part number (P/N). .... : Not communicated  
Software version..... : *Not communicated*  
Firmware version..... : *Not communicated*  
Type of sample..... : Pre-serial  
Function(s)..... : NFC demo board  
Manufacturer name. .... : STMICROELECTRONICS  
Address. .... : 776 RUE ALBERT CAQUOT  
SKY SOPHIA BAT B  
06410 BIOT  
FRANCE

#### General product information:

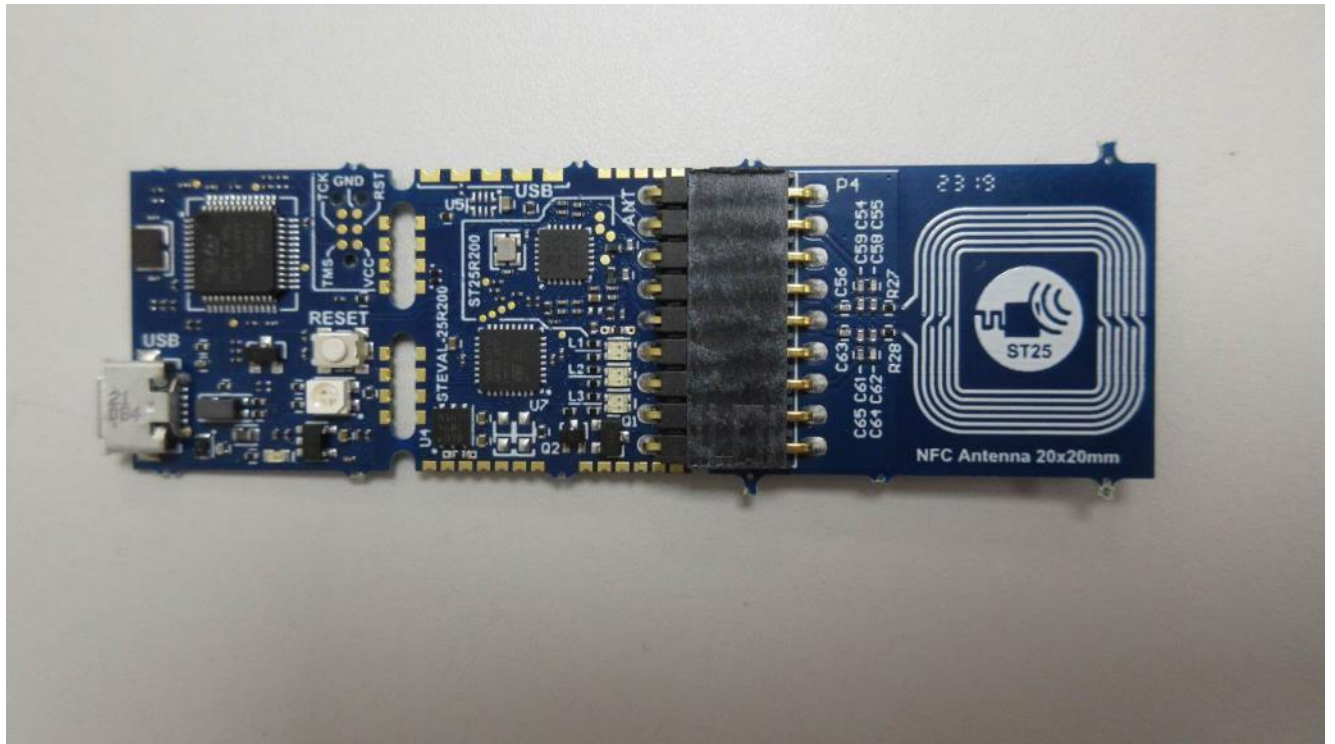
N/A

#### 3.2. EUT Marking plate

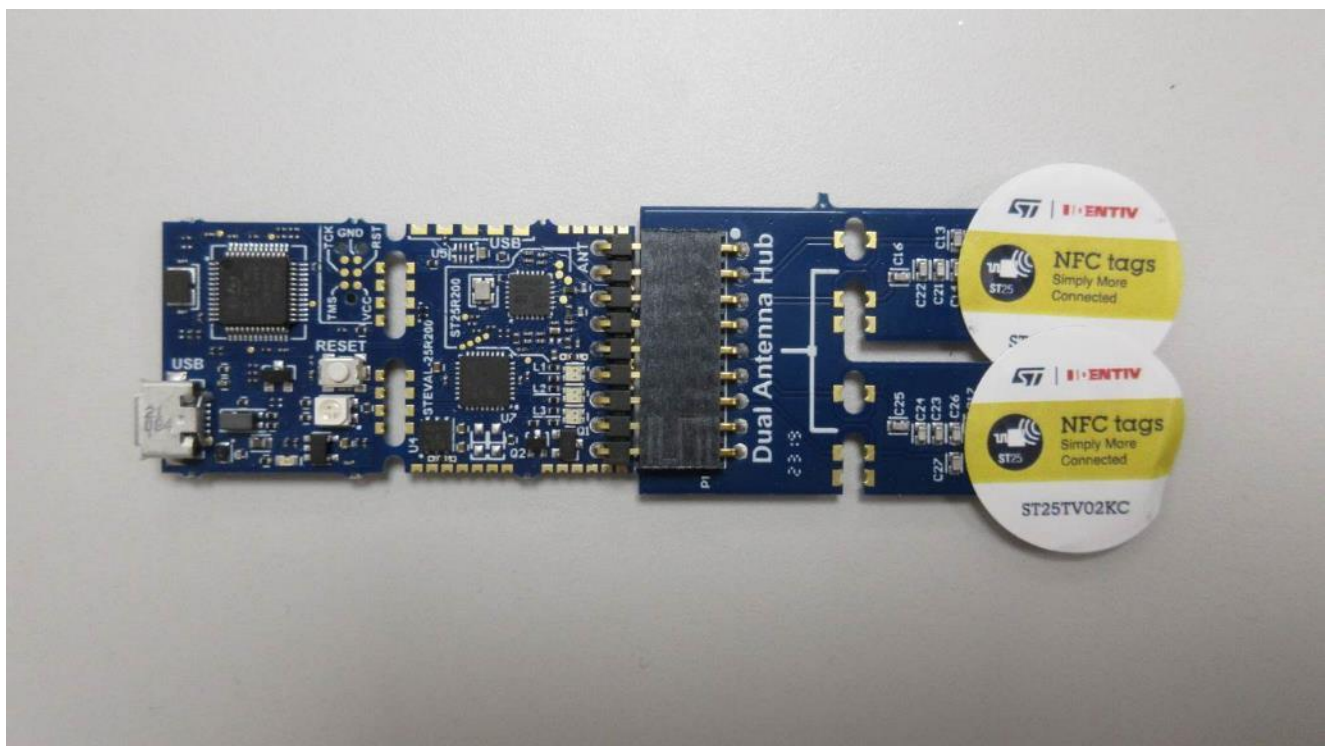


### 3.3.E.U.T. General view

With Main antenna

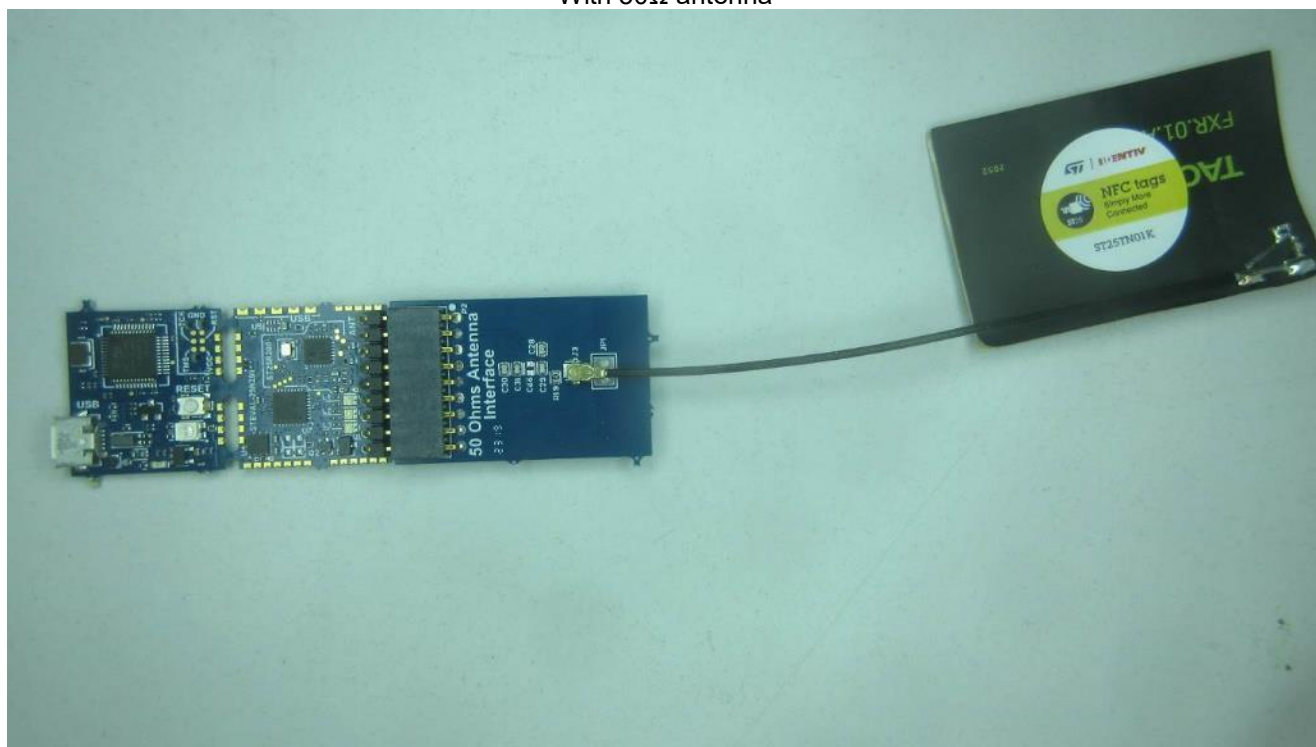


With Dual antenna

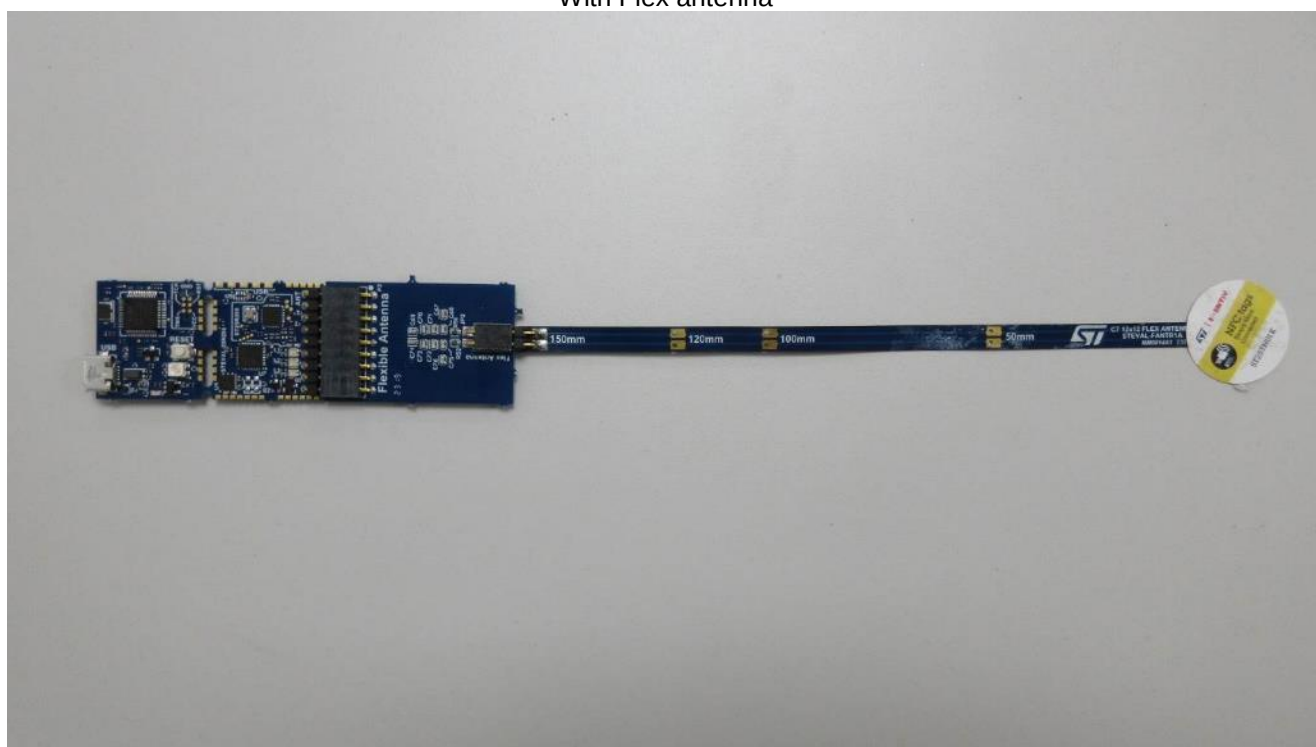




With 50Ω antenna



With Flex antenna



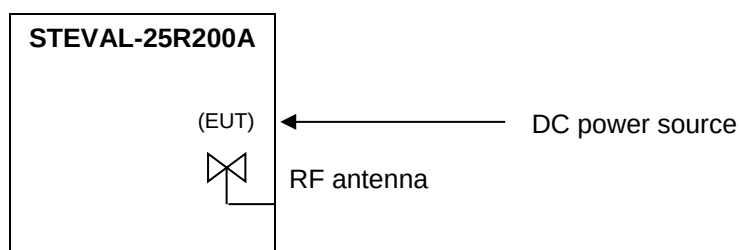
### 3.4. EUT Mechanical and Electrical Design

Power supply. .... : 5 VDC  
Power supply range..... : 5 VDC  
Power type..... : USB  
Power (W)..... : Not communicated  
Nominal current (A). .... : Not communicated  
Dimensions (L x W x H) (m). .... : Not communicated  
Weight (kg). .... : Not communicated  
Temperature range (°C). .... : +10 to +40  
Ground bounding strap..... : No

#### Comments:

N/A

### 3.5. EUT Input/Output ports



| PORT | NAME            | TYPE | LENGTH | CABLE TYPE | COMMENTS |
|------|-----------------|------|--------|------------|----------|
| 0    | Main frame      | N/E  | N/A    | N/A        | PCB      |
| 1    | DC power source | USB  | <3m    | +/-        | 5VDC     |
| 2    | RF antenna      | RF   | N/A    | N/A        | PCB      |

AC/DC : AC/DC Converter port      AC..... : Alternative current port      DC..... : Direct current port  
I/O ..... : Input or Output port      TP ..... : Telecommunication port      RF ..... : Radio frequency port  
N/E ..... : Non Electrical port



### 3.6. Supporting Equipment Used During Test

Sample subject to the tests was tested with following equipment.

| PRODUCT TYPE          | MANUFACTURER                      | MODEL                 | N°EMITECH / COMMENTS                                               |
|-----------------------|-----------------------------------|-----------------------|--------------------------------------------------------------------|
| NFC TAG<br>Power Bank | STMICROELECTRONICS<br>Xindao B.V. | ST25TV02KC<br>P324.25 | Used for NFC communications.<br>Provide the 5Vdc to the demo board |

#### NFC TAG (AE)



#### POWER BANK (AE)



### 3.7. EUT Radio Specifications

| a) GENERAL INFORMATIONS                    |                                 |
|--------------------------------------------|---------------------------------|
| According to manufacturer's declarations : |                                 |
| EUT type.....                              | <i>Transceiver</i>              |
| Technology .....                           | <i>RFID</i>                     |
| Environmental profile.....                 | <i>Data transmissions</i>       |
| Temperature range.....                     | <i>+10°C to +40°C</i>           |
| Antenna type .....                         | <i>PCB</i>                      |
| Antenna Gain.....                          | <i>Not communicated</i>         |
| <b>Comments:</b>                           |                                 |
| <i>N/A</i>                                 |                                 |
| b) TRANSMITTER PARAMETERS (Tx)             |                                 |
| Frequency bands.....                       | <i>13.553 MHz to 13.567 MHz</i> |
| RF Power.....                              | <i>Not communicated</i>         |
| Number of channels / Separation.....       | <i>1</i>                        |
| Modulation type .....                      | <i>AM</i>                       |
| Duty cycle .....                           | <i>100%</i>                     |
| Tested frequency.....                      | <i>13.56 MHz</i>                |
| c) RECEIVER PARAMETERS (Rx)                |                                 |
| Frequency bands.....                       | <i>13.553 MHz to 13.567 MHz</i> |

#### 4. RF EXPOSURE

Maximum Radiated magnetic field = 0.36 dB $\mu$ A/m (1.04  $\mu$ A/m ) at 13.56 MHz (see Radio test report referenced in §2)

From ANSI C63.10 Annexe G.2 :  $EIRP = (E \times d)^2/30 = (377H \times d)^2/30$

where

E = electric field strength in V/m

H = magnetic field strength in A/m

D = measurement distance in m

Then equivalent EIRP =  $0.51 \times 10^{-3}$  mW

##### For USA

In accordance with KDB 447498 D01 Appendix C, as EIRP is lower than 459 mW at 13.56 MHz, SAR exemption for FCC can be considered for a distance  $\leq 5$ mm.

Then it is therefore not necessary to carry out measurements to assess human exposure to radiofrequencies.

##### For Canada

In accordance with RSS-102, Issue 5, Section 2.5.1., as EIRP is lower than 71 mW at 13.56 MHz, SAR exemption for ISED can be considered for a distance  $\leq 5$ mm.

Then it is therefore not necessary to carry out measurements to assess human exposure to radiofrequencies.

●●● End of test report ●●●