

REM-EMIESS22N644ALL-02Av0

MPE test report

According to the standard:
CFR 47 FCC PART 15

Equipment under test:
RS430 READER

FCC ID: *NQY-30023*

Company:
ALLFLEX USA, Inc

Distribution: Mr LANGOUET

(Company: ALLFLEX USA, Inc)

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DESIGNATION OF PRODUCT: *RS430 READER*

Serial number (S/N): *C151 00142*

Reference / model (P/N): *30020*

Firmware version 1: *15.38 – Jul 21 2022*

Firmware version 2: *1-5-9*

MANUFACTURER: *ALLFLEX USA, Inc*

COMPANY SUBMITTING THE PRODUCT:

Company: *ALLFLEX USA, Inc*

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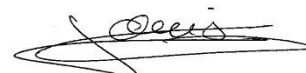
Responsible: *Mr LANGOUET*

DATES OF TEST: *From 12-Oct-22 to 20-Oct-22*

TESTING LOCATION: *EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE
FCC Accredited under US-EU MRA Designation Number: FR0009
Test Firm Registration Number: 873677*

TESTED BY: *S. LOUIS*

VISA:



WRITTEN BY: *S. LOUIS*

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REVISIONS HISTORY

Revision	Date	Modified pages	Modifications
0	25-Oct-22	/	Creation

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **RS430 Reader**, in accordance with normative reference.

The equipment under test integrates:

- a RFID radio part operational at 134.2kHz,
- NFC radio part operational at 13.56MHz,
- Bluetooth radio module already certified (FCC ID:X3ZBTMOD8 / IC: 8828A-MOD8)

All tests are performed on representative AC/DC Adapter referenced **FJ-SW20181201500**.

2. PRODUCT DESCRIPTION

Class: B
Utilization: Handheld control terminals

RFID Radio part:

Antenna type and gain: 0 dBi / integral antenna
Operating frequency: 134.2kHz
Number of channels: 1
Channel spacing: Not concerned
Modulation: ASK

NFC Radio part:

Antenna type and gain: 0 dBi / integral antenna
Operating frequency range: 13.56MHz
Number of channels: 1
Channel spacing: Not concerned
Modulation: ASK

Bluetooth Radio Part:

Operating frequency range: From 2402 MHz to 2480 MHz

Frequency tested: 2402 MHz (low channel)
2440 MHz (central channel)
2480 MHz (high channel)

Number of channels: 79

Channel spacing: 1MHz

Modulation: GFSK

Power source : 7.4Vdc Ni-MH batteries, Rechargeable
by AC/DC Adapter 100-240Vac to 12Vdc

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below. They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 (2022) Radio Frequency Devices

ANSI C63.10 2013
 Procedures for Compliance Testing of Unlicensed Wireless Devices.

447498 D04 Interim General RF Exposure Procedures and Equipment Authorization Policies for Mobile
and RF Exposure Guidance v01 Portable Devices

4. RF EXPOSURE**RFID Radio part:**

In accordance with KDB 447498 D04 Interim General RF Exposure Guidance v01.

1-mW Test Exemption according paragraph 2.1.2

Maximum measured power = 85.14 dB μ V/m = 0.000060239 mW at 134.2 kHz
with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 10$ m and $G_p = 1$

The equipment fulfils the requirements on 1-mW Test Exemption according §1.1307(b)(3)(i)(A).

The MPE ratio is then calculated for the simultaneous transmission.

$$\text{MPE ratio(RFID)} = \frac{0.000060239}{1} = 60.239 \times 10^{-6}$$

NFC Radio part:

In accordance with KDB 447498 D04 Interim General RF Exposure Guidance v01.

1-mW Test Exemption according paragraph 2.1.2

Maximum measured power = 61.55 dB μ V/m = 0.000003985 mW at 13,56 MHz
with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 10$ m and $G_p = 1$

The equipment fulfils the requirements on 1-mW Test Exemption according §1.1307(b)(3)(i)(A).

The MPE ratio is then calculated for the simultaneous transmission.

$$\text{MPE ratio(NFC)} = \frac{0.000003985}{1} = 3.985 \times 10^{-6}$$

Bluetooth Radio part:

In accordance with KDB 447498 D04 Interim General RF Exposure Guidance v01.

SAR-Based Exemption according paragraph 2.1.3

The test separation distance declared is 20 mm (with a minimum value of 5 mm).

According §1.1307, at frequency 2402 MHz for this distance, the ERP exemption threshold is **38.71 mW ERP**

According §2.1.1 of KDB 447498 D04 Interim General RF Exposure Guidance v01, this exemption threshold is based on a threshold for exposure for 1-g SAR (head and body). For a threshold corresponding to a 10-g extremity SAR exposure, it is necessary to apply a factor of 2.5 to the determined exemption threshold.

Therefore, **10-g extremity SAR threshold** resulting is $38.71 \text{ mW ERP} \times 2.5 = \mathbf{96.775 \text{ mW ERP}}$

According grant, the maximum conducted power of the module FCC ID: X3ZBTMOD8 is 11.54 dBm at frequency 2402 MHz

The antenna gain declared is 0.5 dBi.

Therefore maximum time averaged conducted power is **14.256 mW** and maximum ERP power is 9.749 mW at 2402 MHz

The maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold Pth (mW) at a distance greater than 20 mm between the user and the antenna.

The equipment fulfils the requirements on SAR-Based Exemption according §1.1307(b)(3)(i)(B) at a distance greater than 20 mm between the user and the antenna

The MPE ratio is then calculated for the simultaneous transmission.

$$\text{MPE ratio(BT)} = \frac{14.256}{96.775} = 0.147$$

Calculus for simultaneous transmission

$$\begin{aligned} \sum \text{ of MPE ratio} &= \text{MPE ratio(RFID)} + \text{MPE ratio(NFC)} + \text{MPE ratio(BT)} = 60.239 \times 10^{-6} + 3.985 \times 10^{-6} + 0.147 \\ &= 0.147 \leq 1.0 \end{aligned}$$

The product meets the requirement for Simultaneous transmission MPE test exclusion from §2.2 of KDB 447498

□□□ End of report □□□