**RE051-19-100037-2-A Ed. 1**

This report cancels and replaces the test report N° RE051-19-100037-2-A Edition 0.

# MPE test report

**According to the standard:**

CFR 47 FCC PART 15

**Equipment under test:**

**Wireless seismic acquisition unit**
**DFU**

**FCC ID: KQ9-0801A**

**Company:**

**SERCEL Inc**

**Distribution:** Mr TIJOU **(Company:** SERCEL NANTES)

**Number of pages: 5**

| Ed. | Date | Modified Page(s) | Technical Verification and Quality Approval<br>Name and Function | Visa |
|---|---|---|---|---|
| 1 | 04-Mar-22 | See vertical lines | M. DUMESNIL, Radio Technical Manager | |

*Duplication of this document 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.*

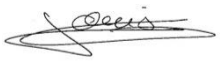
| | |
|---|---|
| ***DESIGNATION OF PRODUCT:*** | ***Wireless seismic acquisition unit*** |
| ***Serial number (S/N):*** | Sample 1: 1182155 (Radiated tests) |
| ***Reference / model (P/N):*** | DFU |
| ***Software version:*** | 301.6.1 |
| ***MANUFACTURER:*** | SERCEL Inc |

***COMPANY CERTIFYING THE PRODUCT:***

| | |
|---|---|
| ***Company:*** | SERCEL Inc |
| ***Address:*** | 17200 Park Row<br>TEXAS 77084<br>UNITED STATES |
| ***Responsible:*** | Mr PARRISH |

***COMPANY SUBMITTING THE PRODUCT:***

| | |
|---|---|
| ***Company:*** | SERCEL NANTES |
| ***Address:*** | 16, RUE DU BEL AIR<br>BP 30439<br>44470 CARQUEFOU<br>FRANCE |
| ***Responsible:*** | Mr TIJOU |

| | |
|---|---|
| ***DATES OF TEST:*** | From 17-Mar-20 to 25-Mar-20 |
| ***TESTING LOCATION:*** | EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE<br>FCC Accredited under US-EU MRA Designation Number: FR0009<br>Test Firm Registration Number: 873677 |
| ***TESTED BY:*** | S. LOUIS |
| ***VISA:*** |  |
| ***WRITTEN BY:*** | S. LOUIS |

# CONTENTS

*TITLE* *PAGE*

*1. INTRODUCTION ..... 4*
*2. PRODUCT DESCRIPTION ..... 4*
*3. NORMATIVE REFERENCE ..... 5*
*4. RF EXPOSURE ..... 5*

## 1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **Wireless seismic acquisition unit, DFU**, in accordance with normative reference.

The equipment under test integrates:

- SRD Multifrequencies proprietary transceiver operational in the band (2400MHz – 2483.5MHz). Two different modulations are used (GFSK and LoRa).
- GNSS module operational in the band 1559MHz – 1610MHz

This report refers only of proprietary transceiver radio part.

## 2. PRODUCT DESCRIPTION

| | |
|---|---|
| Class: | A |
| Utilization: | Industrial |
| Antenna type and gain: | 2 dBi / integral antenna |
| Operating frequency range: | From 2400 MHz to 2483.5 MHz |
| Center frequency: | 2439.5 MHz |
| Channel spacing: | 1MHz |
| Modulation: | GFSK and LoRa |
| Power source: | 3.6Vdc by internal Li-ion Batteries Pack |
| Operational temperature range: | -40 to +85 °C |
| Power soft adjusted to | 9dBm |

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 (2020) | Radio Frequency Devices |
| ANSI C63.10 | 2013<br>Procedures for ComplianceTesting of Unlicensed Wireless Devices. |
| 447498 D01 General RF Exposure Guidance v06 | RF Exposure procedures and equipment authorization policies for mobile and portable equipment |

## 4. RF EXPOSURE

**MPE**

GFSK :

Maximum measured power = 108.2 dBµV/m = 0.01982 W at 2439.5 MHz
with $P = (E \times d)^2 / (30 \times Gp)$ *with d = 3 m and Gp = 1*

LoRa :

Maximum measured power = 108.1 dBµV/m = 0.01937 W at 2439.5 MHz
with $P = (E \times d)^2 / (30 \times Gp)$ *with d = 3 m and Gp = 1*

In accordance with KDB 447498 D01 General RF Exposure Guidance v06:

***PSD=*** $EIRP/(4*\pi*R^{2})$

⇨ $19.82/(4*\pi*(20\ cm)^2)$= ***0.39 x $10^{-2}$ mW/cm² (limit = 1 mW/cm²)***

**The equipment fulfils the requirements on power density for general population/uncontrolled exposure and therefore fulfils the requirements of 47 CFR §1.1310.**