

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)

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Ed.	Date	Modified Page(s)	Technical Verification and Quality Approval	
			Name and Function	Visa
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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:

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Responsible: Mr PARRISH

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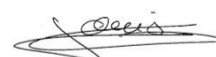
Responsible: Mr TIJOU

DATES OF TEST: From 17-Mar-20 to 25-Mar-20

TESTING LOCATION: EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE
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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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 Procedures for Compliance Testing 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 dB μ V/m = 0.01982 W at 2439.5 MHz
with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 3 \text{ m}$ and $G_p = 1$

LoRa :

Maximum measured power = 108.1 dB μ V/m = 0.01937 W at 2439.5 MHz
with $P = (E \times d)^2 / (30 \times G_p)$ with $d = 3 \text{ m}$ and $G_p = 1$

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

$$PSD = EIRP / (4 \times \pi \times R^2)$$

$$\Rightarrow 19.82 / (4 \times \pi \times (20 \text{ cm})^2) = 0.39 \times 10^{-2} \text{ mW/cm}^2 \text{ (limit = 1 mW/cm}^2\text{)}$$

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