



# TEKTELIC COMMUNICATIONS INC.

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## KONA LoRa IoT INDUSTRIAL SENSOR TUNING PROCEDURE

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## Document Revision

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# 1 Introduction

## 1.1 Scope

This document concerns the tuning procedure of the Kona LoRa IoT Industrial Sensor developed by TEKTELIC Communications Inc. The different parts of the Industrial Sensor has been shown in Table 1-1.

**Table 1-1: Kona Industrial Sensor Parts**

Part Number			Description
Level 1	Level 2	Level 3	
T0005500			Industrial Sensor Module, LoRa IoT, DN
	T0004729		Industrial Sensor Enclosure, LoRa IoT
	T0005499		Industrial Sensor PCBA, LoRa IoT, DN
		T0004696	Industrial Sensor PCB, LoRa IoT

## 2 Tune-up Matter

There is no tuning procedure implemented in the design. The actual output transmit power and frequency come from the Semtech LoRa transceiver SX1262. The LoRa transceiver receives the frequency and power setpoints directly from the microprocessor. The sensor is an open-loop system, and there is no amplification stage after the LoRa transceiver. Based on the SX1262 datasheet, +22 dBm is the absolute maximum power the chip is capable of handling [1]. It is also noteworthy that the module is only operated by a D-Cell LTC battery. It is also possible to power up the sensor externally by 10-26 VDC.

### 2.1 Corroborating Test Results

In the SW lineup used for the EMC testing in accordance to FCC and IC at the Electronics Test Centre, MPB Technologies Inc., the LoRa transceiver was set to transmit with its maximum power (i.e. 22 dBm). The test results showed the maximum conducted output power was 18.68 dBm (which, in the case of FCC and IC, means a large margin from the maximum allowed output power).

In another set of measurements performed locally at TEKTELIC for design verification and testing (DVT) over two samples of the Industrial Sensor, the maximum conducted Tx power over temperature (-40°C, 23°C, 85°C) was found to be 21 dBm.

### 3 References

- [1] "<https://www.semtech.com/uploads/documents/sx1272.pdf>," [Online]. Available: <https://www.semtech.com/>.