# Reless PERFORMANCE MATTERS

Tri plus grupa d.o.o. #2544 Alloy Leak Sensor Antenna Matching and Efficiency Measurements 01/02/2023 Matti Lahdenperä

### **SUMMARY 1**

- Tested device: Alloy Leak Sensor
- Tested antennas:
  - 915MHz LoRa stamped metal antenna
- Antenna matching circuit was tuned for Sensor attached. After matching S11 and Efficiency were measured in free space with Sensor attached
- Efficiency on 915MHz LoRa band is between -3.3dB -4.3dB
- Gain on 915MHz LoRa band is between -0.24dBi -0.54dBi
  - Peak gain -0.24dBi @ 914MHz



#### **SUMMARY 2**



Device	Alloy Leak Sensor	
Efficiency	-3.34.3	dB
Frequency	902 - 928	MHz
Gain (Max/Typical)	-0.24 / -0.36	dBi

### **S11 AND EFFICIENCY MEASUREMENT SETUPS**

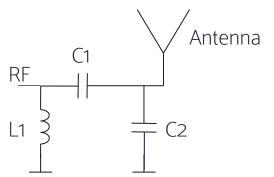




### 915MHz LoRa MATCHING CIRCUIT WITH SENSOR

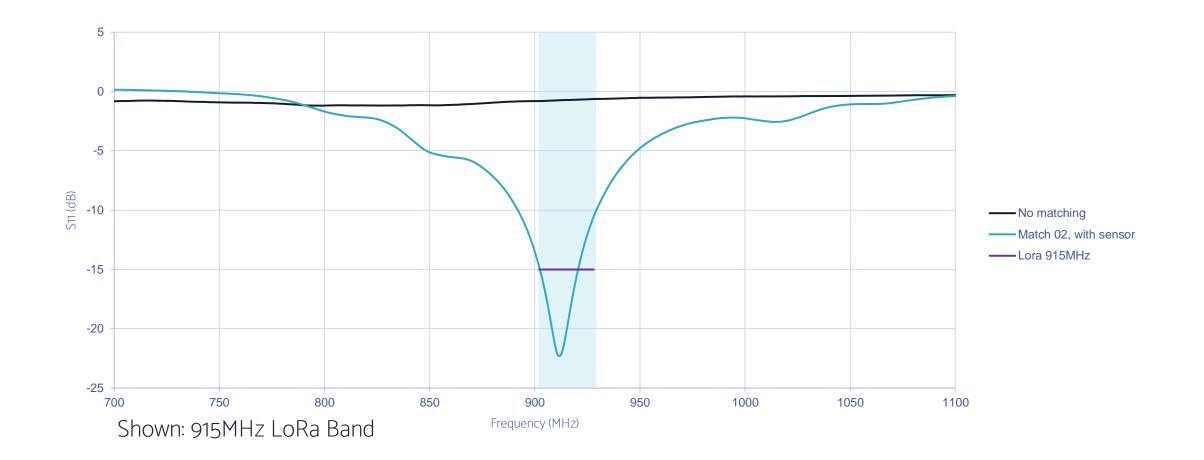
- Using measurements and simulation we tuned LoRa antenna for 915MHz band with Sensor
- New matching components are as follow:

Component	Value	Murata part number
L1	13nH	LQW15AN13NG00
C1	3.5pF	GJM1555C1H3R3WB01
C2	2.2pF	GJM1555C1H2R2WB01



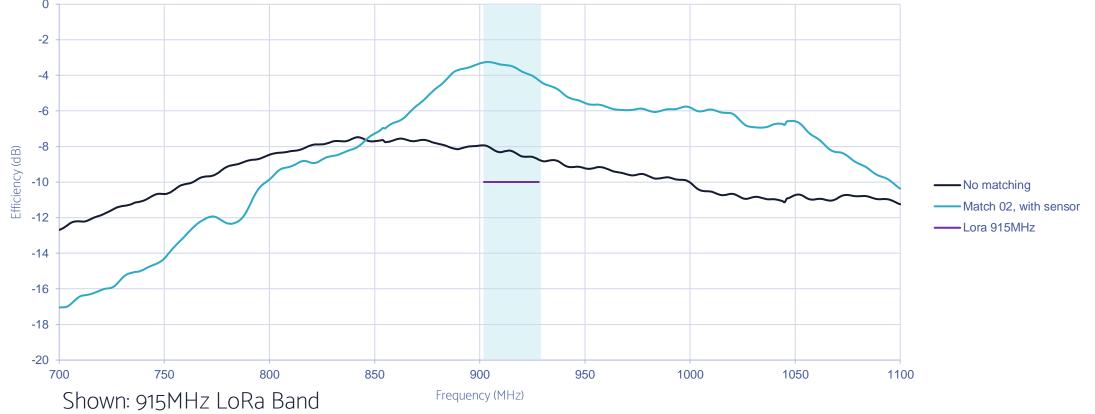


### 915MHz LoRa MEASURED S11



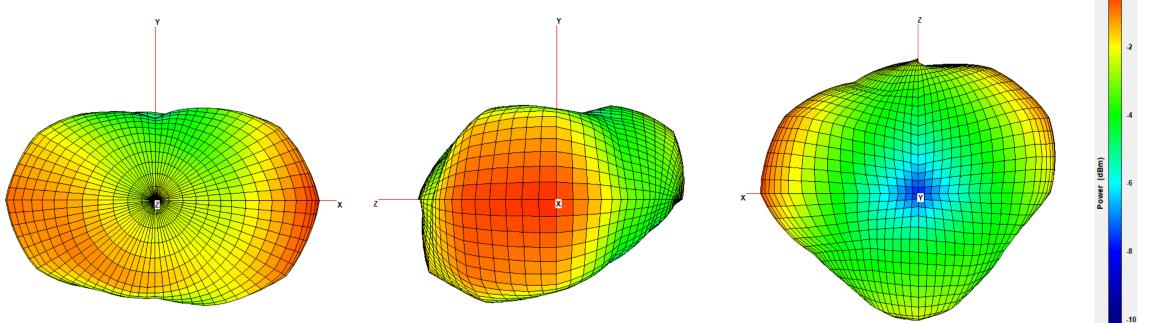


### 915MHz LoRa MEASURED EFFICIENCY





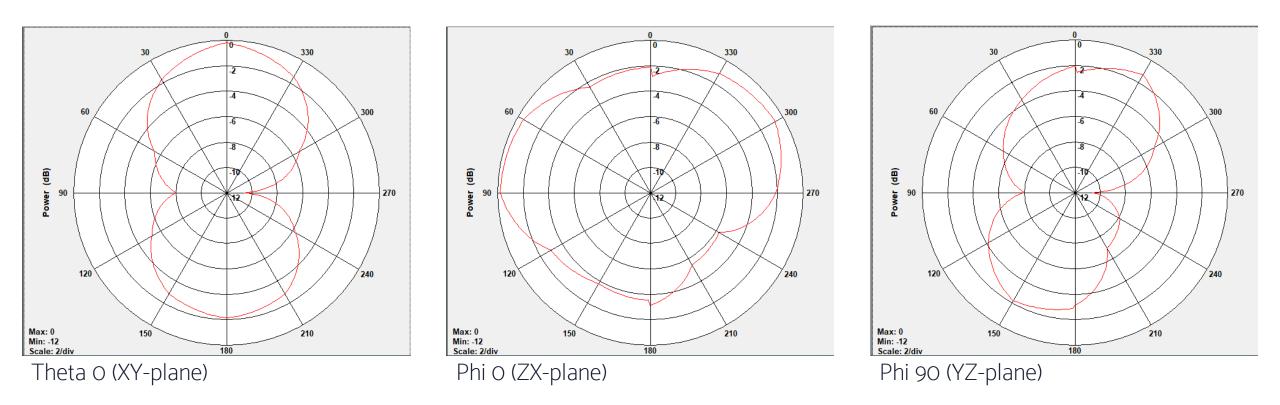
### ANTENNA 3D PATTERNS, 915MHz





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#### ANTENNA 2D PATTERNS, 915MHz



## LS01天线 客户料号: 027-LS01ZW00-0001 供货编码: SYF023

