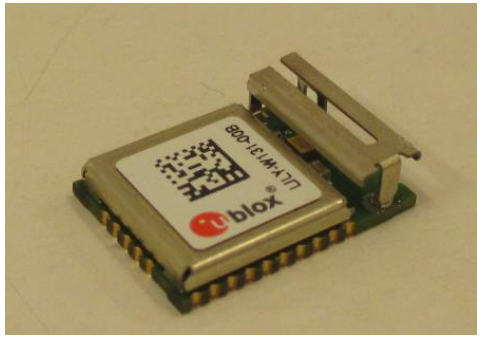
uBlox Lily



Antenna design rev D
Measurement on uBlox EVB-W13

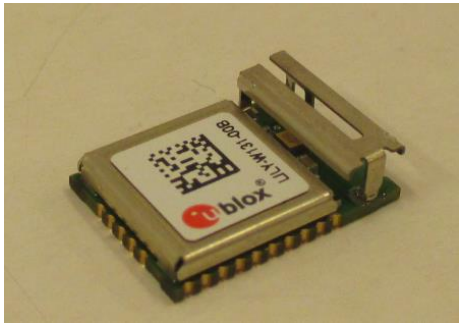
2015-11-16

Embedded – external – customized
Antenna solutions

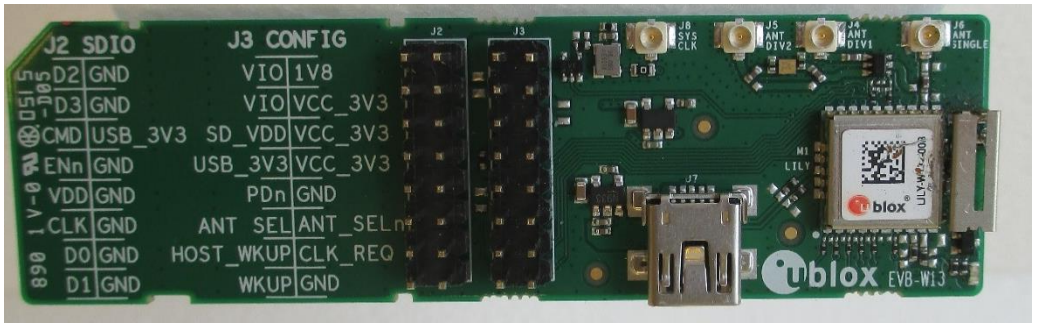
Introduction

The antenna has been redesigned to be more solid. Proant has tuned the new version(rev D) of the antenna on uBlox Lily-W131-00B with matching network when the module is soldered on uBlox EVB-W13 PCB.

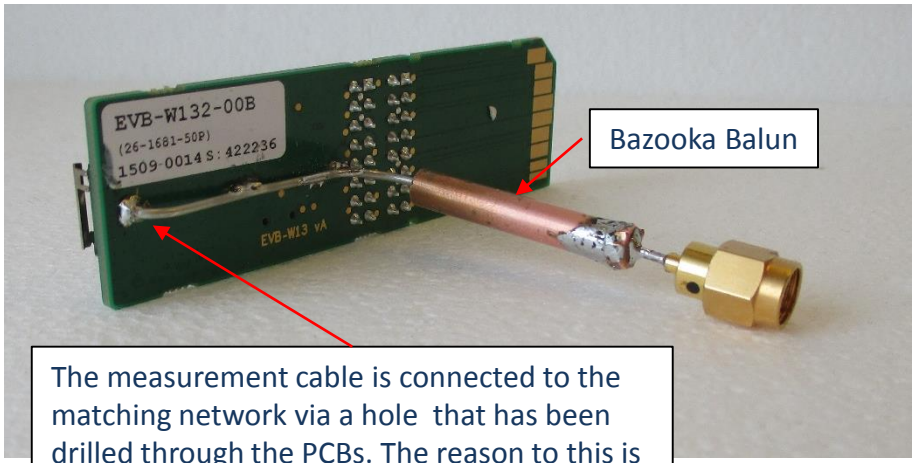
Mockup pictures



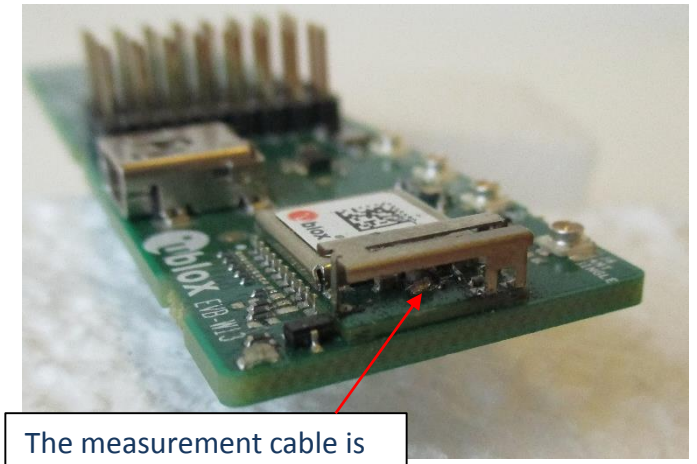
uBlox Lily-W131-00B



uBlox Lily-W131-00B mounted on uBlox EVB-W13 PCB

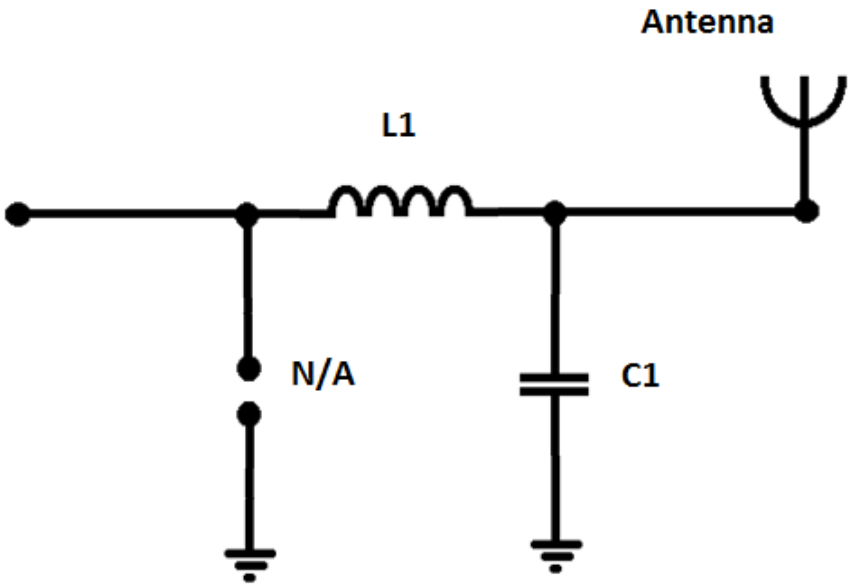


The measurement cable is connected to the matching network via a hole that has been drilled through the PCBs. The reason to this is to minimize influence of the cable during measurements.



The measurement cable is soldered to the matching network underneath the antenna.

Matching Network



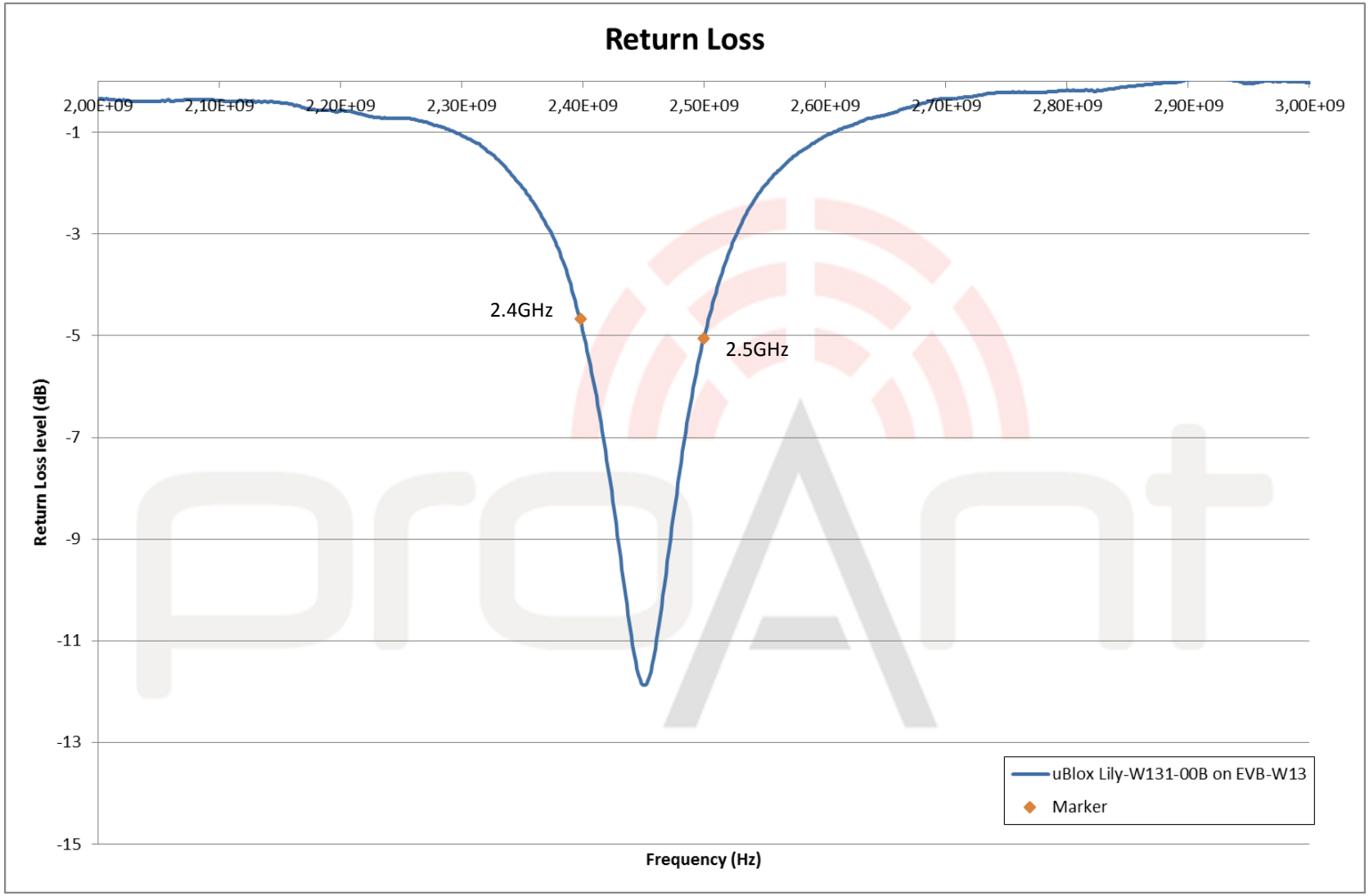
L1= 7.5nH (Coilcraft 0201DS-7N5XJL)

C1 = 1.5pF (Murata GRM0335C1H1R5CA01)

The picture shows the matching network that has been implemented.

The matching network is optimized for 2.4-2.5GHz when uBlox Lily-W131-00B is mounted on EVB-W13 PCB.

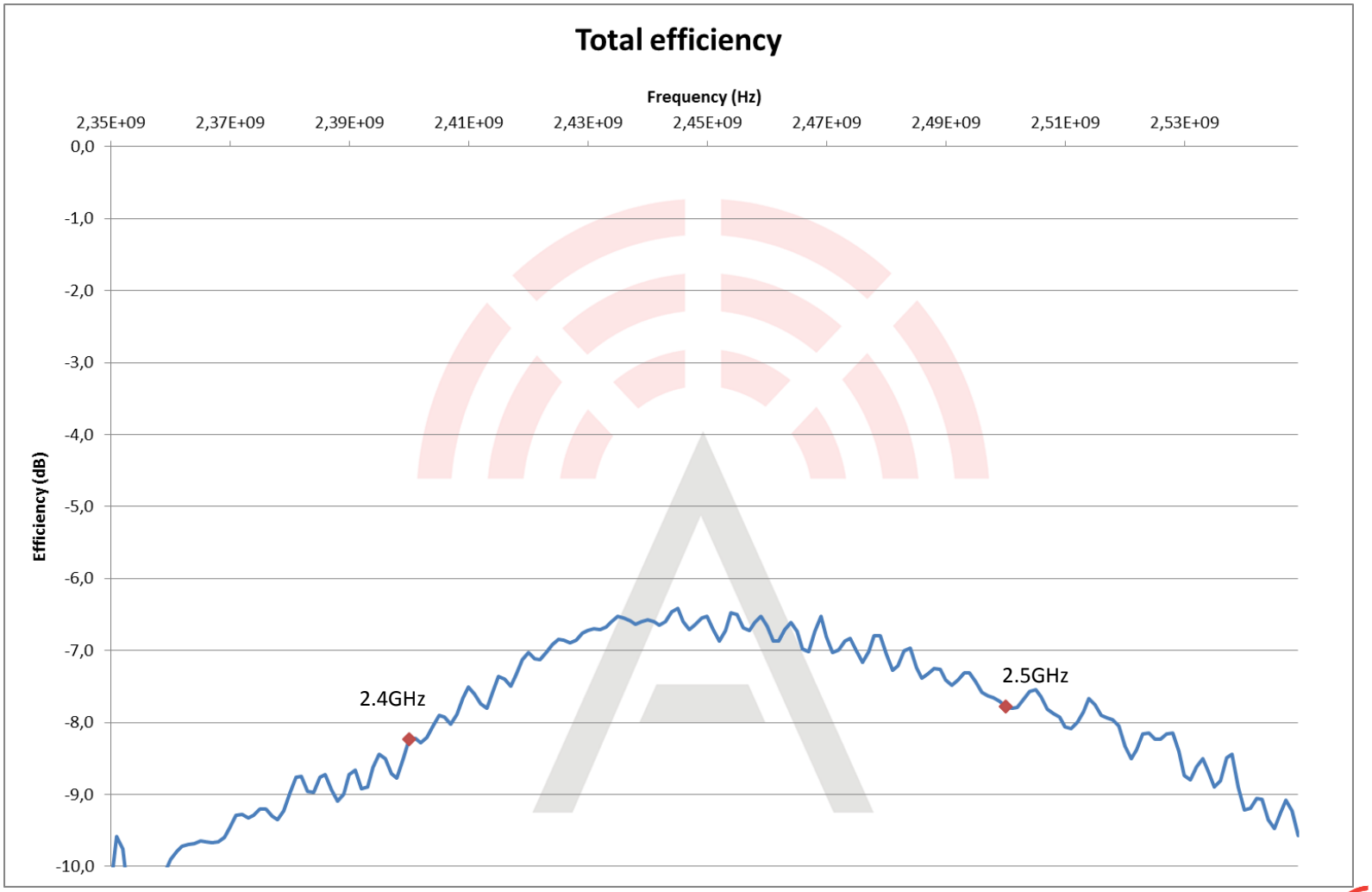
Impedance



The chart shows impedance measurement for the uBlox Lily-W131-00B on EVB-W13.

Total efficiency

Lily-W132-00B on EVBW13



The chart shows total efficiency measurement for the uBlox Lily-W131-00B on EVB-W13.

Maximum Gain

Lily-W132-00B on EVBW13

The chart shows maximum gain for the uBlox Lily-W131-00B on EVB-W13 PCB.

Summary

	Return Loss	Total efficiency	Maximum gain
Antenna rev A	< -4.9dB	> -8.6dB	> -3.7dBi
Antenna rev D	< -4.7dB	> -8.2dB	> -3.1dBi

The chart shows measurement results for previous and new version of the antenna mounted on the uBlox Lily-W131-00B on EVB-W13.

A new matching network is needed to tune the antenna to desired frequency band.

Measurements shows that the antenna has similar performance as previous version.