

ANTENNA IMPEDANCE MATCHING SERVICES

Parry Technology offers antenna impedance matching or tuning services for the PCB of any of your IoT RF devices. Achieving best RF performance for the hardware involves, choice & proper design of antenna feedline layout, selection of Antenna, RF components, VNA measurements for the bare PCB; Antenna; final product with enclosure and tuning the value of the impedance matching components. Also, costly PCB revisions and delays can be avoided working with Parry Technology's team, starting from early stage of your RF design.

Impedance Matching Services

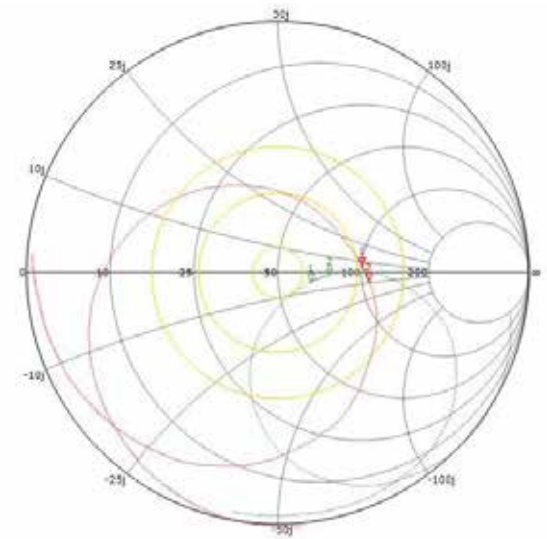
S11 measurement of Bare PCB RF Feedline up to 6GHz (Deliverables: Return loss, VSWR, Smith chart, Detailed test report and S11 files(.s1p)).

S11 Measurement of antenna up to 6GHz (Deliverables: Return loss, VSWR, Smith chart, Detailed test report and S11 file(.s1p)).

Matching network components value calculations and post component change S11 measurements and report.

What is Antenna impedance matching / Antenna Tuning

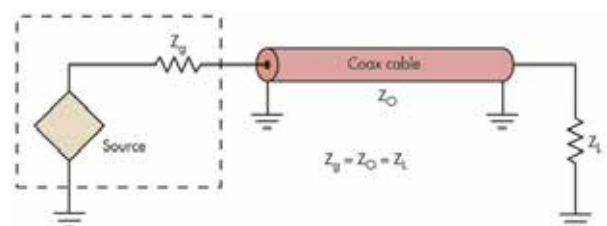
In general, impedance matching process ensures that the source and load impedances are matched, so that maximum power is delivered to the load. In case of RF applications, we have RF transceivers as source and antennas as load. The RF impedances of RF source and Load are typically designed for $Z = 50 + j0$ ohms and this needs to be measured and ensured that they are well matched. If there are variations, it needs to be compensated by RF impedance matching process.



Design Consulting Services

- Schematic design consulting, review
- Component selection, Component placement
- Choice of PCB stack up, Choice of RF feedline
- RF Layout consulting, review
- Selection for right antenna, RF connectors for specific application

Additional services Options:
RF power measurements, Antenna radiation pattern measurements

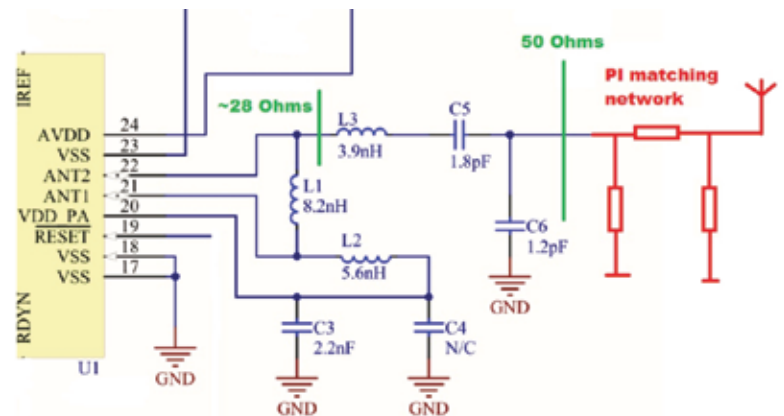


Points of impedance measurements:

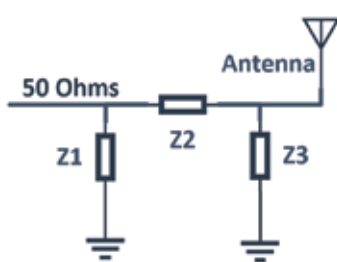
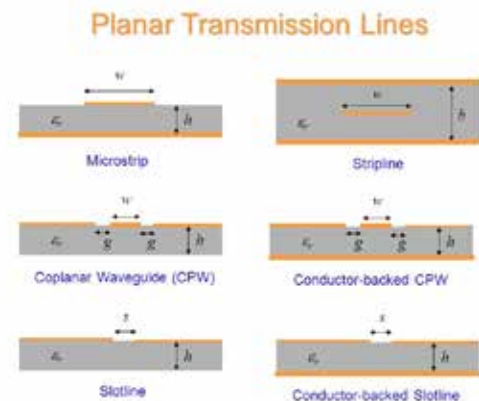
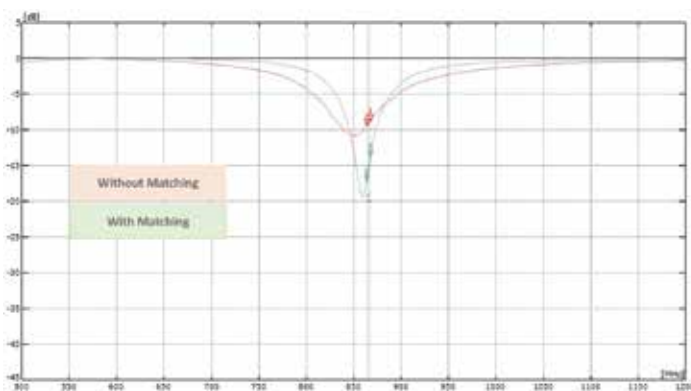
Here is brief explanation on various points of measurements that are part of impedance matching process.

1) Impedance of RF Transceiver. Most of the RF transceivers have their port impedance as $Z = 50 + j0$ ohms. In case if not, the manufacturer of the IC recommends, network of L, C components to be used at the RF port to achieve 50 Ohms. This need to be tested.

2) Antenna impedance. Impedance of antennas may not be perfect 50 Ohms and the resonant frequency of the antenna may not be exactly same as the frequency of interest. To correct these, antenna suppliers recommend the L, C matching circuit provision at the antenna feed point.



3) Transmission line impedance. The transmission line interconnecting the RF port of the transceiver and the antenna needs to be designed perfectly to meet $Z = 50 + j0$ ohms. This is possible only with careful PCB design and avoid any RF discontinuities.



Antenna impedance matching / Antenna Tuning with enclosure:

With VNA measurements and using smith charts, one can find the exact network of L, C components and their values for matching. In the whole process, the calibration of the VNA and proper RF cable usage and soldering are essential for reliable results.

About Parry Technology

- + Established in Bengaluru, invested by a Singapore company
- + Engineering/System integration services

- + Total Solutions: Products, platforms and, cloud solutions for end-to-end IoT deployments

- + E-store: Ready to use subsystem modules/ products for quick test, develop Internet of Things (IoT) applications