Lab 10 Report

Hung-I Lin UIN:424009692

Background

There are a wide variety of solutions to measure electrical property for different frequency range, such as parallel plate(less then 3GHz), resonant cavity, transmission line, free space (less then 1THz). In this week, David demonstrates how to measure the electrical property of material. We measure the dielectric constant by using coaxial probe which can measure liquid material quickly and conveniently.

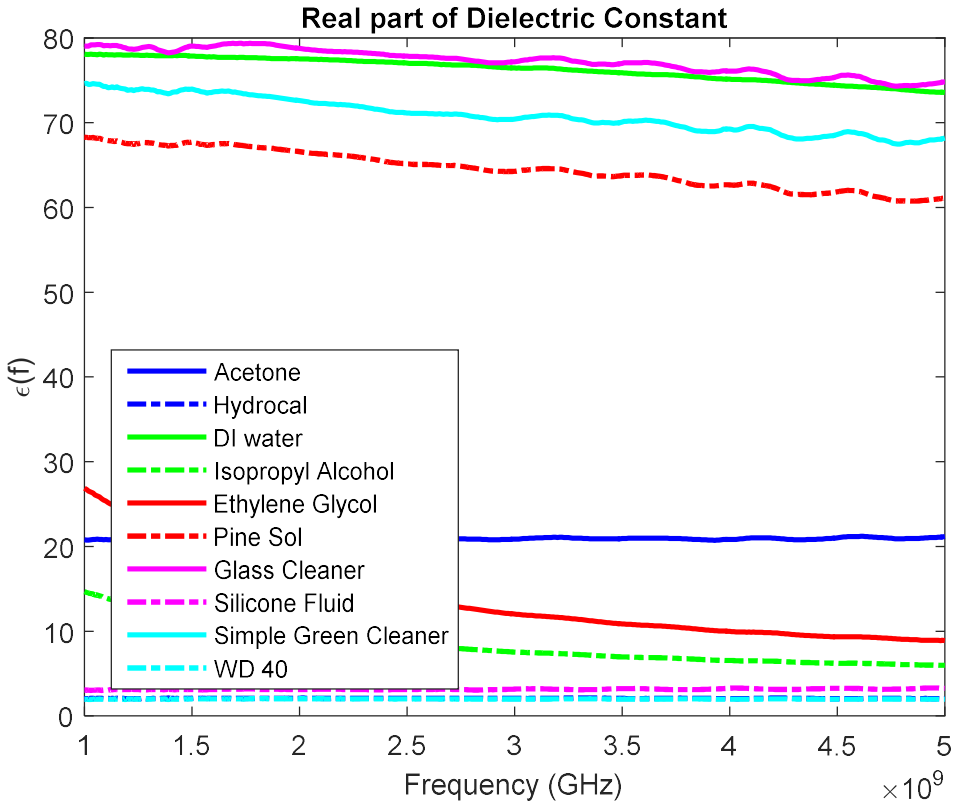
Design

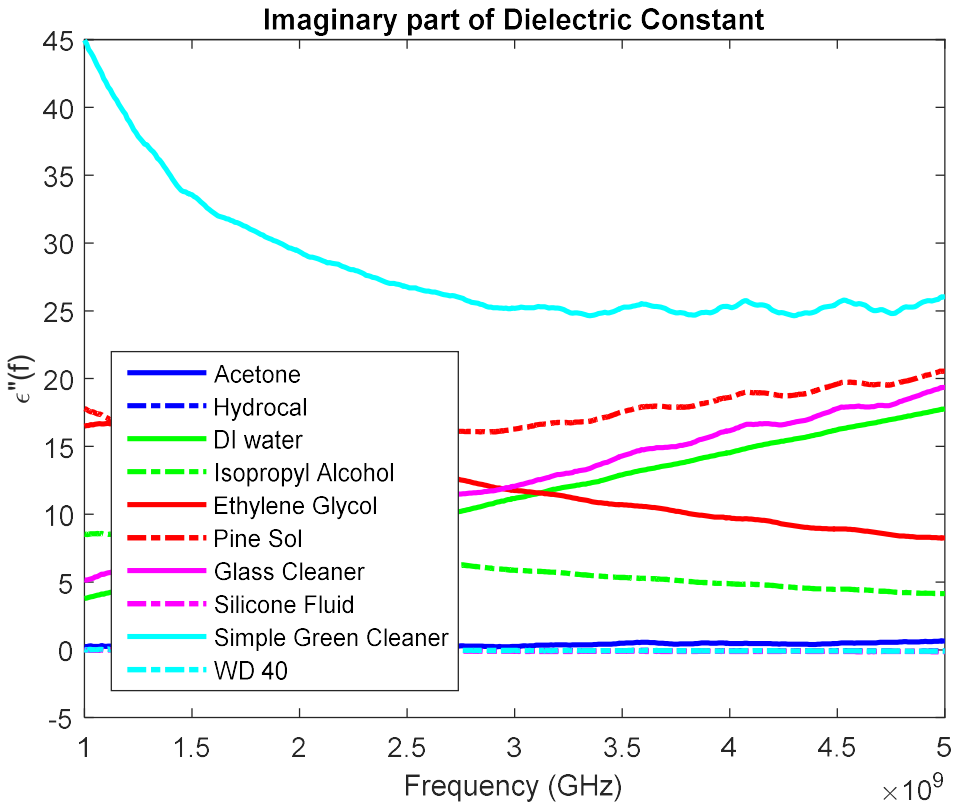
Procedure

The other end of this coaxial probe is connected to the VNA. Like the one port measurement to measure S parameter, we have to calibrate the error terms before our measuring dielectric constants. The boundary conditions for this calibration are almost the same, unless the load boundary should be replaced by water.

Results and Discussion

Hung-I Lin
424009692





Hung-I Lin
424009692

Conclusion

- The concepts of the calibration can be applied to different measurement.
- Compared with other measure method, coaxial probe is easy to measure liquid material.

Reflection

I think David can record the measure process as a video for the future use.
If we use glass cleaner to do calibration, the result should be still very close, I think.