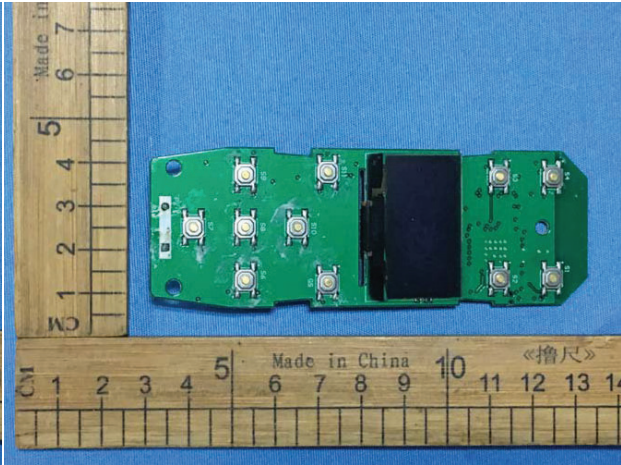


Internal Photo 3



Internal Photo 4

Part II: Dielectric Constants of Materials

1. Enclosure

Assume the antenna, balun, and matching circuit are all well designed. The RF performance meets the requirements without the plastic casing, but the performance may get worse when inserting the circuit into the plastic casing. The major reason for this situation is that the antenna does not have sufficient clearance from the plastic casing. The plastic structure near the antenna causes that the resonant frequency shifts to a lower frequency about 100Mhz to 200Mhz in general [1]. As the result, the antenna's Voltage Standing Wave Ratio (VSWR) may get worse especially when the antenna does not have enough bandwidth.

I use two strategies to solve above problems. The first strategy is measuring the Dielectric Constants of Plastic, PCB, etc. The measured Dielectric Constants are used to model the product more accurately for the finite element method (FEM) and the method of moments (MoM) analysis. As the result, the more accurate resonant frequency can be calculated. The second strategy is