



frequency. This method works for simple antenna design such as Inverted-F antenna (IFA), although cutting the antenna usually causes the bandwidth and the VSWR get worse. For the more complex design, such as patch antenna and antenna array, we almost have no chance to tune the antenna by cutting them.

Part IV: The Solution for Antenna Design

Before starting the antenna design, the dielectric constants of the materials need to be studied. The proper dielectric constant test method and the dielectric constant control method should be already kept in mind. After we totally understanding the dielectric constants, we may start to design the antenna using the measured dielectric constants. For the better performance, the design process may totally count on the finite element method (FEM) and the method of moments (MoM) analysis without the real-world tuning.

For the RF Remote Control Remoter, I designed the IFA antenna shown in the Internal Photo 3. When the antenna was installed in the enclosure, this antenna still had 330Mhz bandwidth @VSWR \leq 2 and the VSWR = 1.0701 @2.45Ghz. Compared to TI DN007, the bandwidth had been improved by 18%. This antenna also had more higher frequency bandwidth for against the affecting of human hand.