RF Technology Course – *Steve Williams*

Content

a) Radio waves –
   a. Basic understanding
   b. Radiation

b) Measurements
   a. The dB – what is dB and how do we use it. (dB or not dB, that is the question)
   b. Engineering system gain or loss
   c. Bandwidth, modulation, Sensitivity, Selectivity, SINAD
   d. Return Loss, Insertion loss, Coupling factor and Directivity
   e. Distance to fault

c) Impedance – basic understanding

d) Co Axial cables
   a. Basics
   b. Types

e) Antennae
   a. Basics
   b. Radiation patterns
   c. Feed points
   d. Common whip antennae
   e. Using radiation patterns to your advantage
      i. Gain
      ii. Null out the unwanted
      iii. Improve F to B ratio
   f. Propagation
      1. Path loss -Basic calculation
      2. Field measurements – difference between Signal Strength and Field Strength
      3. System engineering

f) Filters
   a. Types
   b. Combining and splitting systems
      1. Star
      2. Hybrid
      3. Duplexers
      4. Resistive
      5. Wilkinson Combiner

g) Impedance matching with cable

h) Circulators

i) Interference and how to overcome
   a. In-band
   b. Out of band
   c. PIM and heterodyning

j) Smith Charts

k) S – Parameters

l) Amplification

m) Tuned circuits

n) Appendix:
   - Path Loss
   - Glossary of terms.