

# Why Cables Need Periodic Replacement

The life of a coaxial cable depends on many factors. Some of those factors are ultra-violet exposure, migration, high humidity, age, corrosion, power/heat, and voltage. Here are some important guidelines to remember when you start considering the replacement of your coaxial cable run(s).

1. **Ultra-Violet** exposure breaks down the plasticizers of the jacket over time. As a guideline: Type IIa (2a) non-contaminating PVC jackets can last twice as long as type Ia (1a) PVC jacket.
2. **Migration & Corrosion** affects the attenuation stability over time by contamination of the dielectric due to jacket plasticizers, and moisture penetration through the jacket.
3. **Power** electrical losses result from the generation of heat in the center conductor; braid shield, and the dielectric. The power handling capability of a cable is related to its ability to effectively dissipate this heat. Please be aware that a solid or semi-solid polyethylene dielectric dissipates heat better than a foam polyethylene dielectric, since most of the heat is generated in the center conductor. On balance, the power handling capability of a coaxial cable is inversely proportional to its attenuation, and to its size. This is why RG213/U handles higher power more efficiently than for example RG58/U. Another factor is the thermal conductive (or heat transfer) properties of the cable, especially within the dielectric. In other words, high ambient temperature, and high altitude could reduce the power rating by impeding the heat transfer out of the cable. High VSWR also reduces the power ratings due to localized **HOT SPOTS** at poor connector terminations and/or other improper usage.
4. **Operating Voltage is represented by two separate voltage ratings.**
  - a. **Corona** is a related ionization phenomenon that causes noise generation, which leads to long term dielectric damage, and eventual breakdown of the cable. Note: High wattage amplifiers can cause premature dielectric deterioration and larger Corona affects.
  - b. **Dielectric Withstanding Voltage** a voltage level that abruptly breaks down the dielectric. To ensure the dielectric integrity of the cables and assemblies, they are HI-POT™ tested during manufacturing and in our cable assembly department.

In summation, coaxial cable can perform to it's maximum designed efficiency an average of seven years to ten years, provided the connectors are appropriately terminated and the cable is installed correctly. So if your **signal is fading** or you're getting erratic VSWR readings, or are unable to get the maximum performance from your transceiver, then its time to consider changing your coaxial cable or cable assemblies.