

Share the Success – Aerospace Optics & Infrared Systems



Background: Customer Manufactures Geospatial Intelligence Systems = Optics and Infrared sensor systems for aircraft, drones and aerostats.

Application: Customer is experiencing problems with current round Cat 5e cables that are not providing reliable service in mission critical applications.

- 1) **Problem:** Signal transmission is distorted due to Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI)

Solution: While exceeding all electrical and signal requirements for the Cat 5e standard, Cicoil's version excels with physical and environmental attributes. Individually shielding each twisted pair with tinned copper braids help in suppressing EMI/RFI interference. In addition, isolating each individual pair from each other in the flat silicone encasement eliminates crosstalk as well.

- 2) **Problem:** Round PVC cable is tough to work with in tight spaces and is sticking to metal surfaces

Solution: Cicoil's proprietary silicone cable is more flexible than round PVC jacketed cables, which allows for a tighter bend radius, weight/space savings, greater current carrying capacity and longer flex life. To provide adhesion resistance, Cicoil added its SlideRite™ anti-friction coating option to the outer cable jacket.

- 3) **Problem:** Vibration is causing conductors to rub against each other and wear down

Solution: Cicoil's unique extrusion process allows 4 individually shielded 30 AWG pairs to be placed in a flat cable, precisely controlling the spacing of the pairs, the insulation thickness and the overall cable shape. Each element in Cicoil cables are completely surrounded by silicone, ensuring that they do not rub against each other and wear during operation. In addition, the cable will not delaminate or degrade due to extreme vibration, shock or mechanical stress.

- 4) **Problem:** Cable is performance is not consistent when exposed to cold and high temperatures

Solution: Unlike common Cat 5e cables, Cicoil's highly flexible Cat 5e flat silicone cables are rugged, flame retardant (UL 94V-0), free of contaminants and perform exceptionally well in extreme temperature conditions (-65°C to +260°C).

Cicoil's Halogen-free Silicone Jacket is UL Recognized, Class 1 Clean Room Rated, CE Conforming, RoHS & REACH Compliant and is manufactured in an automated, climate controlled environment. The silicone is "self-healing" from small punctures and cable jacket damage can easily be repaired in the field. In addition, the non-contaminating, silicone encapsulation is resistant to steam, salt water, alcohol, UV light, humidity, submersion in water, corrosion, fungus, flames (UL 94 V-0), sea ice, ozone, sunlight, weathering, acid rain and many chemicals.