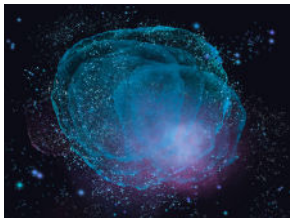


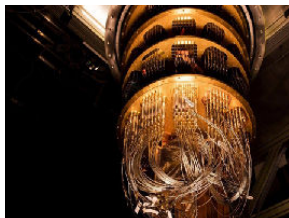
Connecting quantum, space communication systems

Radiocomm offers a comprehensive line of cryogenic cables and compact cable assemblies that can help meet the requirements for several applications including quantum computing, medical imaging, energy transmission, and scientific and research laboratories.

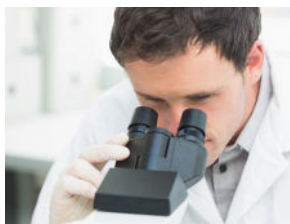
Application Cases



Particle Physics



Quantum Computing



Research Labs



Medical Imaging



Why Radiocomm?

- Excellent ultra-low temperature performance
- Customized cable assembly, interconnects & connector solutions
- Short lead time
- Cost effective solutions
- Customized cable stripping and bending machine

Cryogenic Cable Assemblies

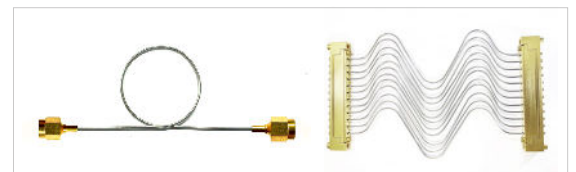


Figure 1: Radiocomm cryogenic cables are offered in aluminium alloy, cupronickel alloy, and niobium titanium alloy and can be customized into cable assemblies to fit specific engineering requirements.

RD-50-0.6AL **Rigid Aluminium Alloy** **Tube Cable**

Made of aluminum alloy material. Lightweight with good air tightness. Maintains excellent mechanical performance at low temperature.

Key Attributes

- Low density
- Non-magnetic
- Alloy phase stability at low temperature
- Less specific resistance in magnetic field
- Good air tightness
- Fast attenuation of induced radiation energy
- Cost effective solution

RD-50-0.6CN **Rigid Cupronickel Alloy** **Tube Cable**

Made of cupronickel alloy with higher performance properties. No low temperature brittleness.

Key Attributes

- No low temperature brittleness
- Good weldability
- Low resistivity
- Strong oxidation resistance
- Chemical resistance
- Non-magnetic
- High cost performance
- Good manufacturability

RD-50-0.6NT **Rigid Niob-Titan Alloy** **Tube Cable**

Made of niobium titanium alloy. Maintains excellent mechanical properties at ultra-low temperature. Superconducting properties.

Key Attributes

- Very low thermal conductivity
- Available in strong magnetic fields up to 11T (Tesla)
- NbTi (Nb: 50%) has low heat capacity, which is 3 at 4K × 10–4 W/cm
- Used in strong magnetic field environment

PERFORMANCE

Cryogenic Cable Systems

Rigid Cupronickel Alloy Tube Cable

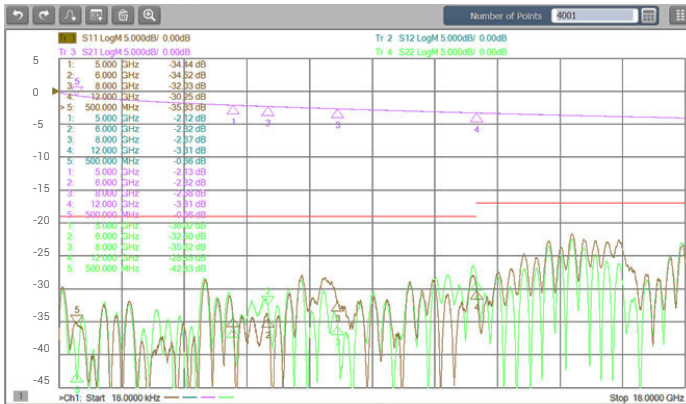


Figure 2: VNA Sweep test under 300K (26.85 °C)

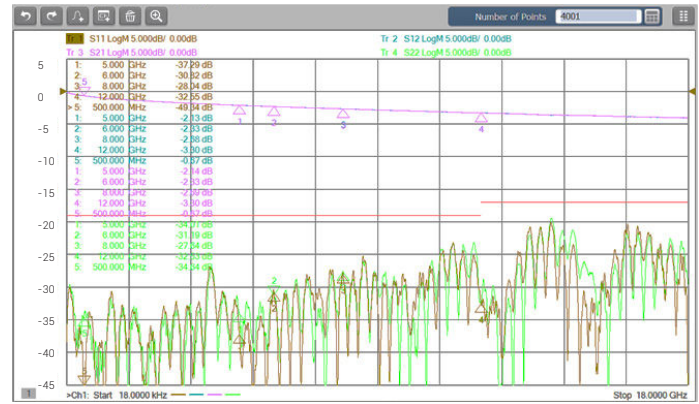


Figure 3: VNA Sweep test under 77K (-195.15 °C)

Rigid Niob-Titan Alloy Tube Cable

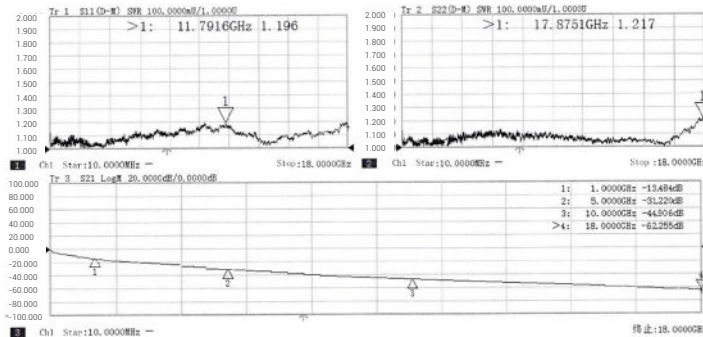


Figure 4: VNA Sweep test under 300K (26.85 °C)

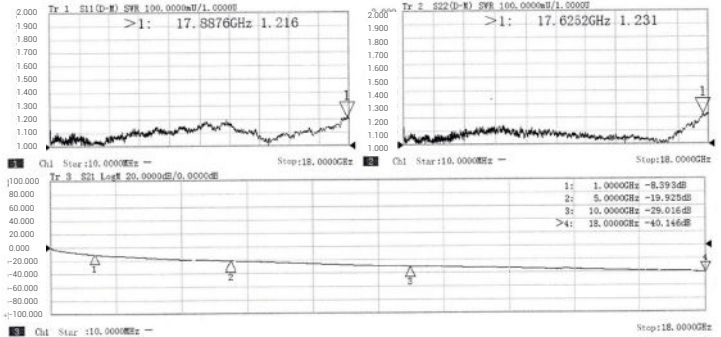


Figure 5: VNA Sweep test under 4K (-269 °C)

Application Use Case: Quantum Computer

Quasi 4k-flange
300K (26.85 °C)

40K (-233.15 °C)

4K (-269 °C)

<1K (-272.15 °C)

1-mK (-273.15 °C)



RD-50-0.6AL
Rigid Aluminium Alloy Tube Cable

RD-50-0.6CN
Rigid Cupronickel Alloy Tube Cable

RD-50-0.6NT
Rigid Niob-Titan Alloy Tube Cable

RD-50-0.6CN
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RD-50-0.6NT
Rigid Niob-Titan Alloy Tube Cable

RD-50-0.6NT
Rigid Niob-Titan Alloy Tube Cable



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