**GORE® Spaceflight Microwave/RF Assemblies**
ESCC 3408-Qualified Type 8S for Traditional Space Applications

# ESCC 3408-QUALIFIED SOLUTION FOR MISSION-CRITICAL SYSTEMS



Microwave/RF cable assemblies must endure the most demanding spaceflight conditions such as harsh launches and landings, temperature extremes, and high levels of radiation that can significantly impact their crucial ability to transmit signals.

Gore brings uniqueness to the industry by utilizing our extensive knowledge and unparalleled expertise in manipulating fluoropolymers to be used in applications above the Earth, above the equator, or in deep space. We manufacture our products with this extraordinary fluoropolymer along with specialized connector termination processes that meet strict industry specifications and have been proven in critical systems now and over time.

## Proven Ruggedness and Signal Reliability

GORE® Spaceflight Microwave/RF Assemblies, Type 8S is qualified to ESCC 3408/002 specifications and on the ESA Qualified Parts List (QPL). Our coaxial cable assembly is proven to transmit uninterrupted signals with low loss and excellent phase stability at frequencies ranging from DC to 22 GHz for the duration of the mission (Table 1).

With approved materials, Type 8S is precisely engineered to maintain electrical and mechanical integrity in the harshest environments. The unique jacket material wrapped around our cable assembly is radiation tolerant at 700 MRad, reducing the risk of system damage or failure. Our cable assembly can also tolerate exposure to extreme thermal cycles over time, shock, and vibration.

In addition, Type 8S has a small diameter of 2.2 mm (0.085 in). The low mass and high flexibility of our cable assembly make routing and installation much easier in high-density applications, such as inside-the-box and box-to-box systems.

## Program Heritage

For decades, we have provided reliable solutions in hundreds of global spaceflight programs with a 100% failure-free flight record. We work closely with the ESA (European Space Agency) to deliver valued reliability from an ESA-qualified and ISO 9001:2000-certified manufacturing facility.

Our products have been used in many ESA missions — including Aeolus, Biomass, Envisat, ERS, IXV, MetOp, Meteosat, MSG, MTG, Sentinel, and more.

## Benefits

- Proven coaxial cable qualified to ESCC 3408/002 and on the ESA Qualified Parts List (QPL)
- Easier installation and reduced mass for inside-the-box and box-to-box applications
- Superior radiation protection due to specialized, high-performance materials
- Eliminate EMI with outstanding shielding effectiveness up to 22 GHz
- Valued reliability delivered from ESA-qualified, ISO9001:2000-certified manufacturing facility
- Decades of 100% failure-free flight record in hundreds of global spaceflight programs

*Together, improving life*

**Table 1: Cable Assembly Properties**

## Electrical

| Property | Value |
|---|---|
| Maximum Frequency (GHz) | 22 |
| Standard Impedance (Ohms) | 50 ± 1 |
| Insertion Loss dB/m (ft)<br>1 GHz<br>18 GHz | <br>0.63 (0.19)<br>2.83 (0.89) |

## Mechanical / Environmental

| Property | Value |
|---|---|
| Jacket Material | Tefzel® ETFE |
| Braided Shield | Silver-Plated Copper |
| Conductor<br>Outer<br>Center | <br>Helically Wrapped Foil/Silver-Plated Copper<br>Solid / Silver-Plated Copper |
| Dielectric Material | Gore ePTFE |
| Overall Diameter mm (in) | 2.2 (0.085) |
| Mass g/m (g/ft) | 13.1 (4.0) |
| Minimum Bend Radius mm (in)<br>Single<br>Multiple | <br>6.4 (0.25)<br>12.7 (0.50) |
| Radiation Resistance (MRad) | 700 |
| Operating Temperature Range (ºC)<br>Standard<br>Qualified | <br>-55 to +150<br>-110 to +150 |

**Table 24: Connector Variants**

| Type | Code | Form | Maximum Frequency (GHz) |
|---|---|---|---|
| SMA | S01 | Straight Pin | 22 |
| | S71 | 90° Box Pin | 22 |
| | ZF8 | 90° Swept Pin | 22 |
| | Y04 | 90° Clip Pin | 22 |
| | S02 | Straight Socket | 22 |
| | R42 | Bulkhead Socket | 22 |

## Ordering Information

GORE® Spaceflight Microwave/RF Assemblies, ESCC 3408-Qualified Type 8S is available with connector variants engineered to complement assembly performance, minimizing loss and reflection (Table 2).

For more information or to discuss your specific application needs, please contact a Gore representative at **http://escies.org/GOREUK**.

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