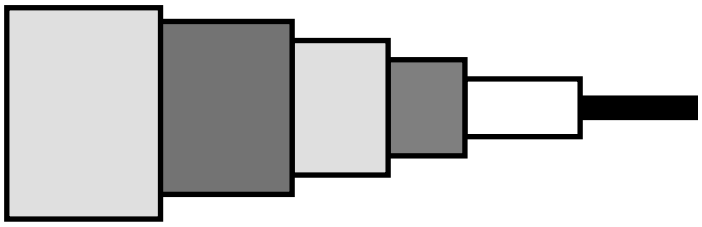
Times Microwave Systems

Quick Erecting Antenna Mast Hermetically Sealed Assemblies- "QEAM 810" SERIES

SCOPE

This Specification details the Electrical, Mechanical and Environmental Characteristics of Times Microwave Systems QEAM 810 (Quick Erecting Antenna Mast Cable) 0.810" (20.6 mm) Diameter Hermetically Sealed Coaxial Transmission Lines. This product is recommended for all applications where Long Term Stability of Electrical Performance and low Insertion Loss is of Prime Importance and long flex life is critical . Due to the unique processes used to manufacture these Cable Assemblies, the cable and connector sections are not available as separate items with the exception of the Replaceable Front Ends that are listed in the Connector Section of this Specification.

CABLE CHARACTERISTICS



F E D C B A

Cable Materials

A	Center Conductor:	Stranded Silver Plated Copper around a non metallic , high strength , core.
B	Dielectric:	Taped Polytetrafluoroethylene
C	First Shield:	Silver Plated Copper Strip
D	Interlayer:	Aluminium Backed Tape
E	Second Shield:	Silver Plated Copper Braid
F	Outer Jacket :	Polyurethane , Black

Cable Mechanical Characteristics

Diameter: .81" +/- .020" (20.6 +/- .5 mm)
Mass (nom) : 0.47 lbs/ft (700 g/m)
Minimum Bend Radius (Dynamic) : 16 inch (400 mm)
Minimum Bend Radius ; (Static) ; 4 inches (100 mm)

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CONNECTOR CHARACTERISTICS

All of the connectors used are of a precision stainless steel design which meet or exceed all interface requirements of MIL-C-39012 and are uniquely designed to provide maximum mechanical and environmental performance to 5 GHz unless otherwise noted.

Connector Materials

Center Contacts -	Gold Plated Beryllium Copper
Dielectrics -	PTFE (Polytetrafluoroethylene)
Bodies and Coupling Nuts -	Passivated Stainless Steel

Front End Connector Types thread onto a factory installed Universal Intermediate Section. This design approach provides for easy replacement of a connector in the case of damage or when the need arises to change to a different type of interface or angular configuration. For selections not indicated below contact the Factory for availability.

Common Connector Types

Connector Designator	Connector Type	Outline Drawing Number
RA	N Plug Front End	
RC	TNC Plug Front End	
RE	SMA Plug Front End	
RD	TNC Female Bulkhead Jack Front End	
RCX	TNC Plug Right Angle Front End	
RCY	TNC plug 45 Degree Front End	
RG	TK Male Plug Front End	

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ASSEMBLY CHARACTERISTICS

Electrical Characteristics

Tested Frequency Range	DC to 5 GHz
Characteristic Impedance	50 Ohms
VSWR	1.40:1 maximum ; add 0.05 per angle connector
Insertion Loss	See Chart on page 5 , add 0.1 dB per angle connector
Velocity of Propagation	76% Nominal
Maximum Operating Voltage	5000 Volts (1000 volts with SMA)
RF Leakage	-90 dB maximum per foot over Tested Frequency Range including connectors
Insertion Loss Stability	In accordance with MIL-T-81490
VSWR Stability	In accordance with MIL-T-81490

Mechanical Characteristics

Operating Temperature Range	-55 to + 85 degrees C
Chemical Resistance	In accordance with MIL-T-81490 and MIL-C-87104
Flexure	Greater than 100,000 cycles nominal
Salt Fog	In accordance with MIL-T-81490 and MIL-C-87104
Humidity	In accordance with MIL-T-81490 and MIL-C-87104
Abrasion Resistance	In accordance with MIL-T-81490 and MIL-C-87104 / .020" edge
Cable Connector Tensile Strength	75 Pounds minimum
Vapor Leakage	$1x10^{-5}$ cc/sec/ft of Helium maximum including connectors
Vibration	In accordance with MIL-T-81490
Shock	In accordance with MIL-T-81490

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ORDERING INFORMATION

A Complete Part Number is specified as follows:

QEAM 810/L/C1/C2

Where **L** = Length (in Inches or millimetres, see below)
C1 = Connector 1 Designator
C2 = Connector 2 Designator

Example 1 - a 60 inch long Cable Assembly with a Replaceable SMA male on one end and a Replaceable TNC male on the other end would have the Part Number **QEAM 810/in60/RE/RC**

Example 2 - a 430 millimetre long Cable Assembly with a Replaceable SMA male on one end and a Replaceable TNC male on the other end would have the Part Number **QEAM 810/mm430/RE/RC**

Marking

Cable Assemblies are marked in the center or on each end depending on Cable Assembly Length as follows:

Times Microwave Systems
MFG: 68999
QEAM 810/xxx/xx/xx

Length Tolerances

+/- .25" (6.35mm) for Cable Assemblies less than 5 ft (1524mm)
+/- .5" (12.7mm) for Cable Assemblies between 5 ft (1524mm) and 10 ft (3048mm)
+/- .5% for Cable Assemblies Greater than 10 ft (3084mm)

Testing

Each Cable Assembly is measured for Insertion Loss and VSWR over the Test Frequency Range.

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Cable Insertion Loss vs. Frequency

Frequency (MHz)	Insertion Loss @ 23 C (dB/100ft)	(dB/100 metres)
500	1.6	5.25
1000	2.3	7.54
2000	3.3	10.8
3000	4.1	13.45
4000	4.8	15.75
5000	5.5	17.88

Connector Losses need to be added to the above attenuation values.
Typical Losses are as follows per straight connector pair (2 connectors) ;-
Add 0.1 dB's per angle connector if required.

1GHz ; 0.155 dB's
2 GHz :0.165 dB's
4 GHz :0.185 dB's
5 GHz :0.205 dB's