U.H.F Transmission Line and Auxiliary Equipment for Television Broadcasting

Internal Transmission Line

Internal u.h.f transmission line is available in three standard sizes, compatible with E.I.A requirements for 1⅝in., 3⅛in., and 6⅛in. Aluminium outer and copper inner is used and lengths up to 3·05m (10ft) can be supplied.

90° Angle Bend

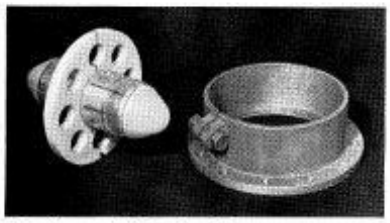
The bend consists of an aluminium outer and a matched inner, terminating in spring connectors. The bend is attached to the transmission line by bolts through a rotating flange.

Specification:

(E.I.A flange) 1⅝in.	3⅛in.	6⅛in.
Characteristic Impedance, Ω		
50	50	50
V.S.W.R, Maximum		
±1·01 : 1	±1·02 : 1	±1·02 : 1
Power Rating, kW Peak		
6·25	25	50
Frequency Range, MHz		
470–960	470–960	470–854
Ambient Temperature, °C.		
0–40	0–40	0–40

Clamp Flanges and Inner Connectors

Straight lengths of feeder are joined by clamps on the feeder outers having standard E.I.A flanges and double-ended spring plugs and insulators for the inners. The components are available for all three sizes of transmission line.



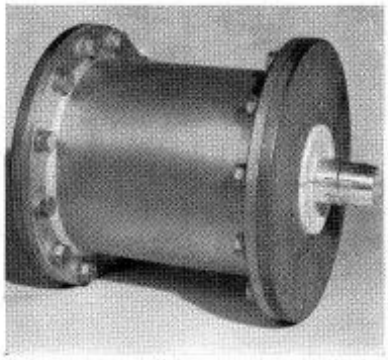
Double-ended Spring Plug

Harmonic Attenuator

The Harmonic Attenuator is usually part of the B 8144 Combining Unit System Assembly; it is placed in each of the vision and sound inputs to reduce transmission of the 2nd and 3rd harmonics of the carrier.

Specification:

Termination (E.I.A Flange) 1⅝in.	3⅛in.	6⅛in.
Characteristic Impedance, Ω		
50	50	50
Harmonic Attenuation (2nd and 3rd) dB		
30	30	30
V.S.W.R, Maximum		
1·03 : 1	1·06 : 1	1·1 : 1
Frequency Range, MHz		
470–960	470–960	470–854
Power Rating, kW Peak		
6·25	25	50
Ambient Temperature, °C		
0–40	0–40	0–40



3⅛-in. Harmonic Attenuator

Directional Couplers

A standard range of fittings is available for assembling r.f directional couplers into the transmission line. Coupler mounting rings are available for each of the three transmission line sizes, and each ring can be used to fit up to four directional couplers. From each directional coupler an r.f output is obtained and crystal detectors are available to provide a rectified output.

Coaxial Change-over Switches

These switches are 'cross-over' (transfer) type. In operation, the two coaxial inputs change over to the opposite outputs. Motorized versions of the 3⅛in. and 6⅛in. switches are available for remote control; manual over-ride is provided so that manual control can be used if the motor drive should fail. The switches are invaluable for switching a transmitter into a test load for setting-up or testing, aerial change-over and emergency feeder facilities.

Specifications:

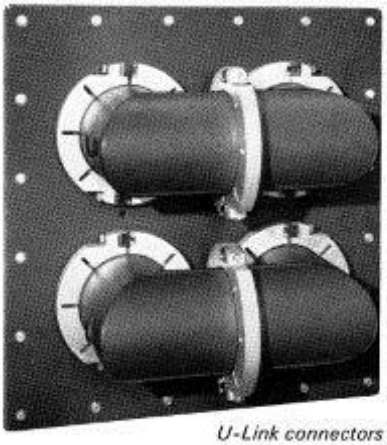
Termination (E.I.A Flange)		
1⅝in.	3⅛in.	6⅛in.
Characteristic Impedance, Ω		
50	50	50
V.S.W.R Maximum		
1·03:1	1·04:1	1·07:1
Crosstalk, not worse than dB		
−58	−60	−60
Power Rating, kW Peak		
6·25	25	50
Feeder Entries		
Side	Side	Side
Frequency range, MHz		
470–960	470–890	470–854
Ambient Temperature, °C		
0–40°C	0–40°C	0–40°C

Coaxial Change-over Links

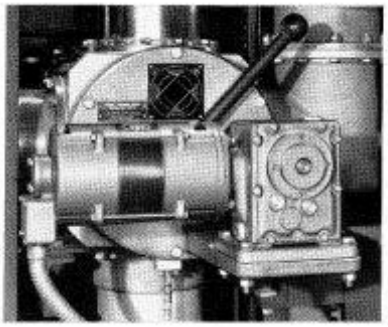
An alternative to the coaxial switch is the U-Link Panel. The Panel comprises four coaxial sockets mounted in square formation on an aluminium panel, and a U-link which can be plugged into pairs of sockets.
The U-link is held in position by quick-release clamps. 3⅛in. and 6⅛in. sizes are available.

Specifications:

Termination (E.I.A Flange)	
3⅛in.	6⅛in.
Characteristic Impedance, Ω	
50	50
V.S.W.R Maximum	1·05:1	1·05:1
Power Rating, kW Peak	
25	50
Frequency Range, MHz	
470–890	470–854
Ambient Temperature, °C	
0–40	0–40



U-Link connectors



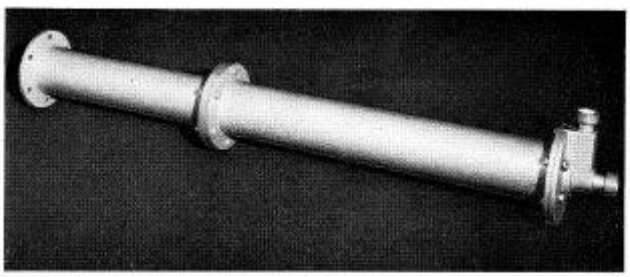
6⅛-in. Motorized U.H.F Changeover Switch

Liquid-Cooled U.H.F Test Load

Two versions of this test load are available, one for use with a water/glycol mixture, the other for water only. Accurate measurements of power may be made, using a flow meter and thermometers associated with the test load. Connection of the transmission line to the test load is by a 3⅛in. E.I.A flange.

Specification:

Power Dissipation	Up to 45kW (c.w)
Frequency Range	470–860MHz.
Characteristic Impedance	50Ω
V.S.W.R, Maximum	1·04:1
Operating Position	Vertical
Maximum Outlet Temperature of Coolant	50°C
Dimensions	Length: 96·5cm (38in.) water/glycol 160cm (63in.) water only Maximum diameter: 13·7cm (5·38in.)



40kW Liquid-cooled U.H.F Test Load