Wideband U.H.F Television Aerial Type B8241

The B8241 u.h.f wideband aerial is available in nine standard omnidirectional versions for single or multi-channel working having apertures of wavelengths giving a range of gains from 18 to 52 times. A maximum power handling capacity of over 100kW is available at the aerial input for single channel operation.

Features

Accepts up to 4 channels simultaneously with v.s.w.r of 1·05 per channel.

Maximum e.r.p for single channel over 4MW.

Gains from 18 to 52 times.

Maximum power handling capacity over 100kW.

Horizontal Radiation Pattern circular within ±2·5dB.

Vertical Radiation Pattern smooth and lobefree.

Three versions cover u.h.f band.

Each version available in 32λ, 24λ and 16λ aperture editions.

Split feed system provides emergency facility.

Access for maintenance within fibreglass cylinder.

Special horizontal radiation patterns to order.

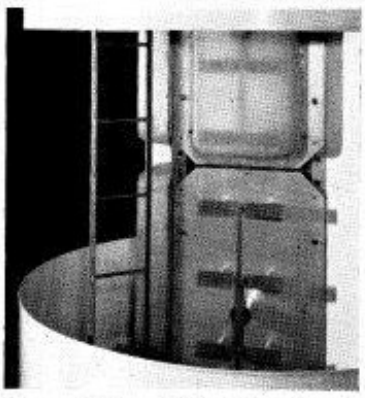
Optional monitoring system for individual panels.

Description

These aerials in their standard versions consists of an assembly of 2-wavelength panels mounted four per tier on a square supporting structure. Each panel is protected by a fibreglass cover and the whole structure is surrounded by a fibreglass cylinder which allows access for maintenance.

A feature of the design is the smooth vertical radiation pattern, which minimizes colour distortion effects at the receiver due to deflection of the aerial supporting mast by high winds. It also greatly reduces the possibility of the viewer experiencing annoying changes of colour when switching between channels when the aerial is radiating a number of transmissions.

The whole aerial structure can be mounted 'cantilever' fashion on the top of a mast or tower. For special applications the basic panels can also be used for mounting on the sides of existing structures.



Demonstration unit illustrating internal arrangement of Type B8241 U.H.F aerial

Data summary

Frequency ranges:
470–580MHz.
480–720MHz.
695–860MHz.

Gain:

32 Wavelength edition
52 times—highest channel
38 times—middle channel
36 times—lowest channel

24 wavelength edition
35 times—highest channel
26 times—middle channel
24 times—lowest channel

16 wavelength edition
26 times—highest channel
19 times—middle channel
18 times—lowest channel

Horizontal radiation pattern:
Omnidirectional better than ±2·5dB (Special patterns to order).

Height:

	32λ		24λ		16λ		Diam. of cylinder	
	m	ft	m	ft	m	ft	m	ft in
470–580MHz	18·3	(60)	13·7	(45)	9·15	(30)	1·9	(6 3)
580–720MHz	14·6	(48)	11	(36)	7·3	(24)	1·7	(5 7)
695–860MHz	11·9	(39)	9·15	(30)	6·1	(20)	1·6	(5 2)

Vertical radiation pattern: Smooth and lobe free within upper and lower cosecant curve limits.

$\frac{1}{2A}$ cosec. $(\theta - \theta_\beta)$ and

$\frac{5}{4A}$ cosec. $(\theta - \theta_\beta)$

Where A = aperture in wavelengths
θ_β = beam tilt

Beam tilt:
32 wavelength—0·9°.
24 wavelength—1·3°.
16 wavelength—1·8°.

Input impedance: 50Ω with v.s.w.r better than 1·08 over each range of frequencies.

Type feed: Split feed with equal powers. E.I.A input flanges.

Polarization: Horizontal.

Windage: Suitable for 188 k.p.h (117 m.p.h) wind velocity with 1·27cm (½in.) of radical ice. Deflection not greater than 0·375° for 65 k.p.h (40 m.p.h) wind.

Weight of Dipole Panel: 8·15g (18lb)

Dimensions of Dipole Panel (excluding projection of coaxial fitting at rear):

Length	91·5cm	(36in.)
Width	58cm	(20in.)
Depth	17·8cm	(7in.)

Full details are given in TD B8241