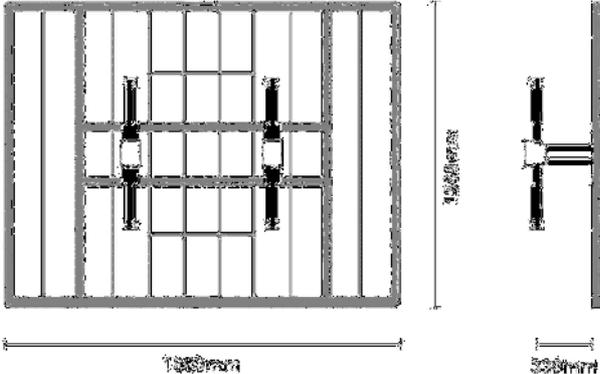


The linearly polarised ADC Band 3 Double Dipole DAB Antenna operates from 217 to 230 MHz. Developed as a versatile, robust and reliable vertically or horizontally polarised module it forms the basis of a range of standard and custom designed arrays whose radiation patterns may be tailored to specific requirements. The Double Dipole panel may be conveniently mounted on either new or existing structures. The horizontal plane pattern of the panel has been tailored for a four around arrangement, but can be configured differently for directional arrays.



Design

The radiating elements are 38.1mm (1 1/2") diameter hot dipped galvanized steel tube, are mounted a quarter wavelength in front of a galvanized steel screening frame. The welded construction gives a robust and efficient screen combined with low effective wind area. The main members provide a versatile means of fixing the panel to a variety of structures using standard clamps without the need for complex and expensive steelwork.



Weather protection of the dipole feed points is provided by GRP covers.

Approximate weight and aerodynamic areas

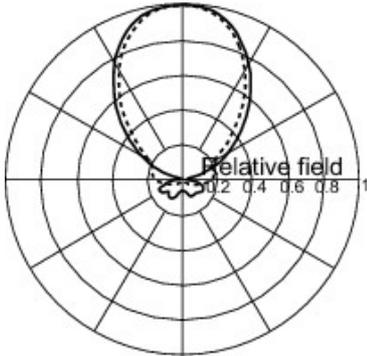
Weight	38 kg	84 lbs
Area (BS CP3)		
Front elevation	0.5m ²	5.4ft ²
Side elevation	0.4m ²	4.3ft ²

Typical Specifications		
Peak Power Rating (According to input connector)	7.16 DIN	2.47kW
	7/8 IEC (EIA)	3.65kW
Impedance	50 ohms	170 - 230MHz
VSWR	<1.1	
Reflection coefficient	<5%	
Return loss	>26dB.	
Peak Gain	8dB at 200MHz.	(Relative to halfwave dipole)

Horizontal Plane Patterns 200MHZ

Horizontally polarised dipole ———

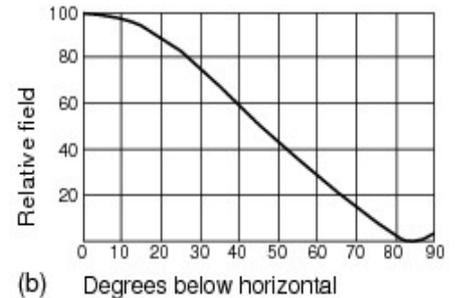
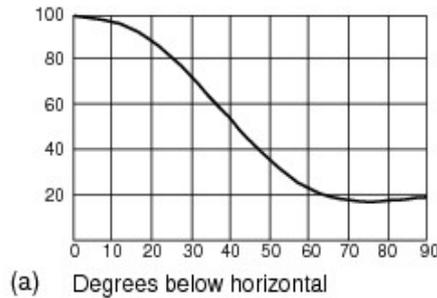
Vertically polarised dipole - - - - -



Vertical Plane Patterns 200MHZ

Horizontally polarised dipole (a)

Vertically polarised dipole (b)



ARRAY DATA

Radiation Patterns

Alan Dick Broadcast designs and manufactures a complete range of distribution feeder components to enable an almost unlimited variety of radiation patterns and array gains to be achieved.

Gain

Array gain is determined by the max/mean value of the horizontal radiation pattern and the number of tiers of panels employed.

Figures are given below for 2 to 6 tiers of Double Dipole panels. The gains of typical directional arrays may be determined by simply adding the HRP max/mean gains for the patterns opposite to the gains of omnidirectional arrays given in the following table. The table makes no allowance for null fill loss but includes typical distribution feeder loss.

<u>No. of tiers</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>
Mean Gain, dB	4.2	5.9	6.9	8.5
Aperture, m	2.8	4.3	5.8	8.8

Horizontal Radiation Patterns

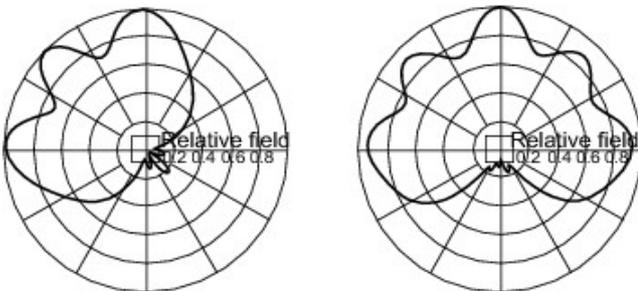
A selection of radiation patterns is shown on the following page, for simple arrangements of panels. An almost unlimited variety of alternative patterns may be developed on a custom basis to provide optimum coverage in any particular case. In addition to the control offered by varying the power division between faces of the array and the relative phase of the current to each face, the geometry of the panel positions relative to one another, may also be varied. The Double Dipole Panel thus provides a flexible design capability giving economical customised options.

Vertical Radiation Patterns

A selection of vertical radiation patterns is shown on the following page. Typical values of beam tilt and null fill are also indicated for each pattern but alternative values may readily be provided. The branch feeder system offers excellent broad band pattern stability.

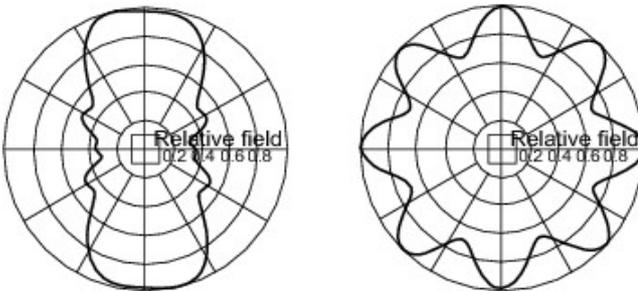
Horizontal Plane Radiation Patterns

Plotted for horizontally polarised panels mounted on a 1500mm face square structure.



a) Max/Mean Gain 4.4dB.

b) Max/Mean Gain 3.0dB.



c) Max/Mean Gain 3.1dB.

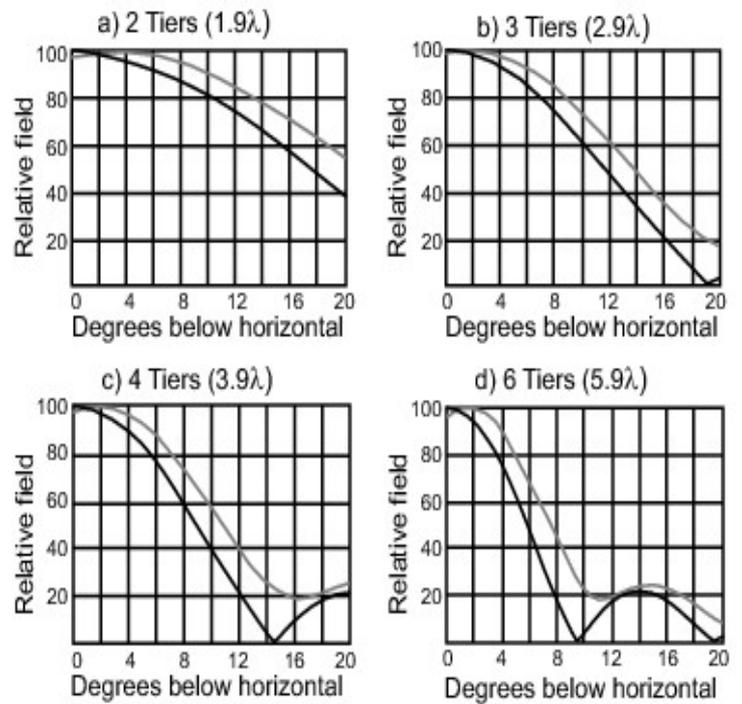
b) Max/Mean Gain 1.4dB.

Vertical Plane Radiation Patterns

Patterns apply to both horizontally and vertically polarised arrays.

Patterns without Null Fill or Beam Tilt _____

Patterns with typical Null Fill and Beam Tilt _____



	(a)	(b)	(c)	(d)
Beam Tilt, degrees	3.0	2.0	2.0	1.5
Null Fill Loss, dB.	.05	0.4	0.4	0.4

Multi Channel Operation

The capability of multi channel operation is provided by the bandwidth stability of the panel coupled with appropriate branch feeder components and design. These components are all manufactured by Alan Dick Broadcast which thereby retains overall control of the performance of the end product.