

RESEARCH DEPARTMENT

TRANSMITTING AERIAL FOR THE BRECON V. H. F. SOUND STATION

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for Head of Research Department

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TRANSMITTING AERIAL FOR THE BRECON V.H.F. SOUND STATION

INTRODUCTION

The Brecon v.h.f. sound relay station came into operation on 20th December 1965. It provides a service to Brecon and its immediate environs and also to the village of Llanspyddid.

SUMMARY OF INSTALLATION

<u>Site:</u>	The site is 1.6 km (1 mile) north-west of Brecon, grid reference SO 030299, height 244 m (800 ft) a.o.d.		
<u>Support Structure:</u>	The support structure is a 14.6 m (48 ft) wooden pole. A separate 14.6 m (48 ft) wooden pole is used to support the receiving aerial.		
<u>General Arrangement:</u>	See Fig. 1.		
Carrier frequencies:	88.9 (Light), 91.1 (Third), 93.3 (Welsh Home) MHz.		
Aerial:	The aerial ¹ consists of two tiers each of two horizontal $\lambda/2$ dipoles mounted on bearings of 70° and 160° ETN, spaced 1.16 m (3 ft 9½ in.) from the wooden support pole axis and fed with equal co-phased currents. The inter-tier spacing is 0.5λ and the mean height 13.7 m (45 ft) a.g.l. There are independent main feeders to each tier.		
Power:	A 10W translator under-run with an output power of 8.7W is used for each programme.		
Templet and horizontal radiation pattern (h.r.p.):	See Fig. 2 and Note.		
Gain:	Mean intrinsic gain		0.2 dB
	<u>Deduct:</u> loss due to distribution feeders and possible misalignment		<u>0.2 dB</u>
	Mean net gain		0.0 dB
	<u>Deduct:</u> loss in main feeder (type UR67)	1.4 dB	
	network loss	<u>0.9 dB</u>	<u>2.3 dB</u>
	Mean effective gain		<u>- 2.3 dB</u>
<u>Programme Link:</u>	The programmes are obtained by direct reception of the transmissions from Wenvoe.		
<u>Note:</u>	The h.r.p. shown in Fig. 2 was determined from measurements on a small-scale model of the aerial.		

REFERENCE

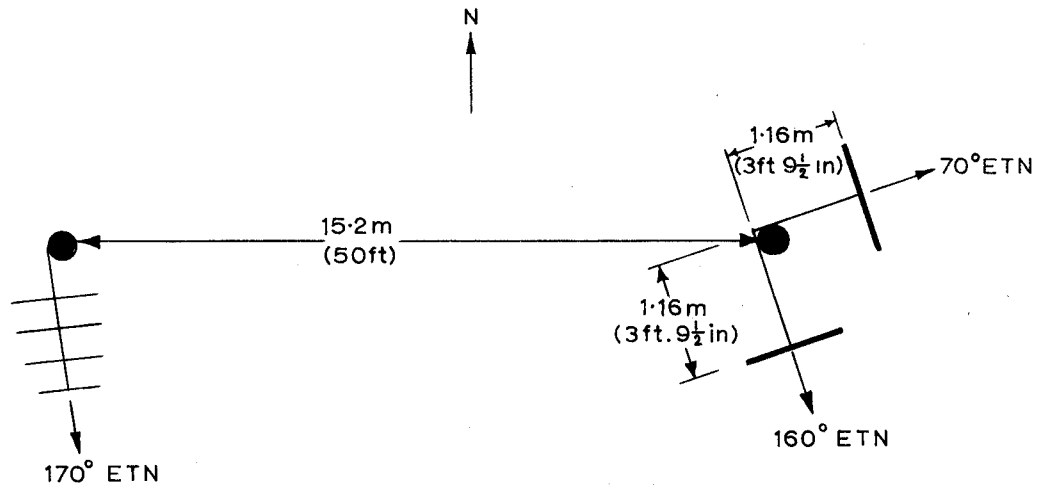
1. Detailed information on the construction and dimensions of the aeriels is given on the following drawings prepared by BBC Planning and Installation Department.

P.I.D. 9071.2.3A Receiving Aerial Arrangement on Wooden Pole

P.I.D. 9071.2.2A Transmitting Aerial Arrangement on Wooden Pole

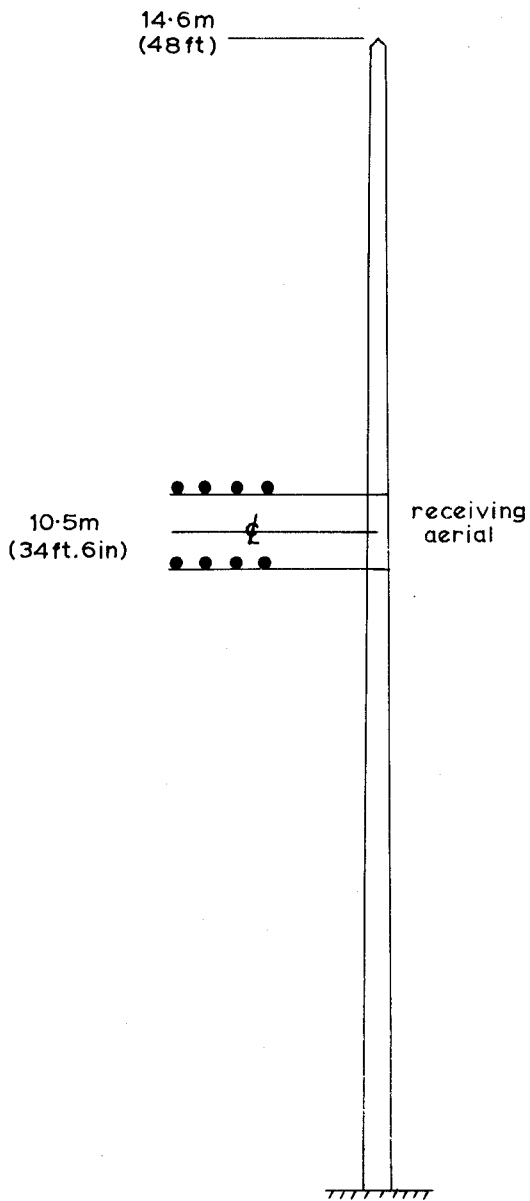
P.I.D. 8732.2.2J Band II Transmitting Dipole

P.I.D. 8732.2.5H Band II Receiving Yagi

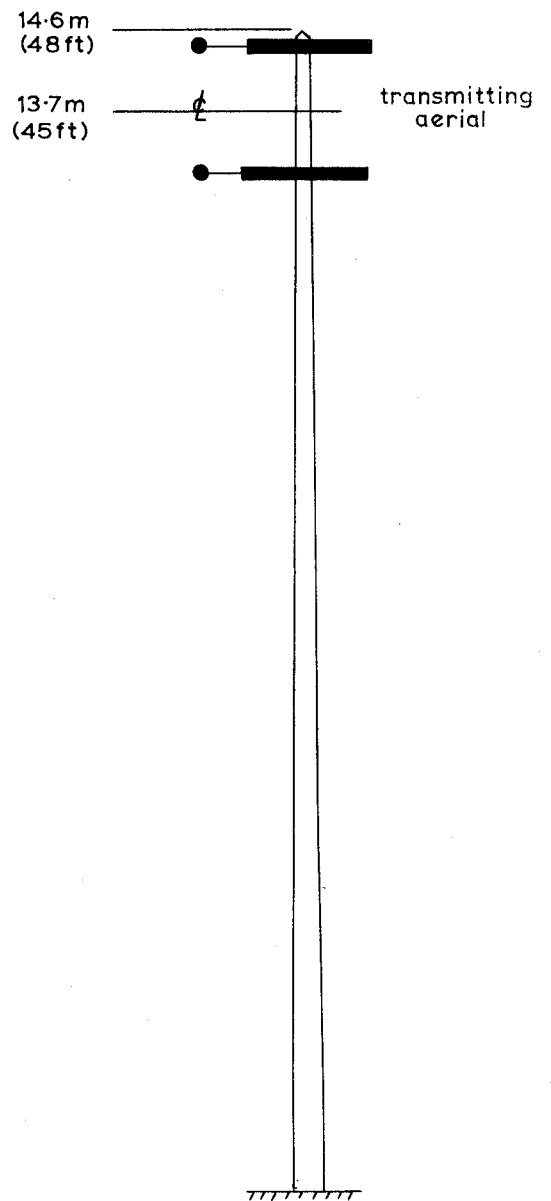


Plan of receiving aerial

Plan of transmitting aerial



Elevation: receiving aerial pole



Elevation: transmitting aerial pole

Fig.1. General arrangement of aerials on wooden support poles

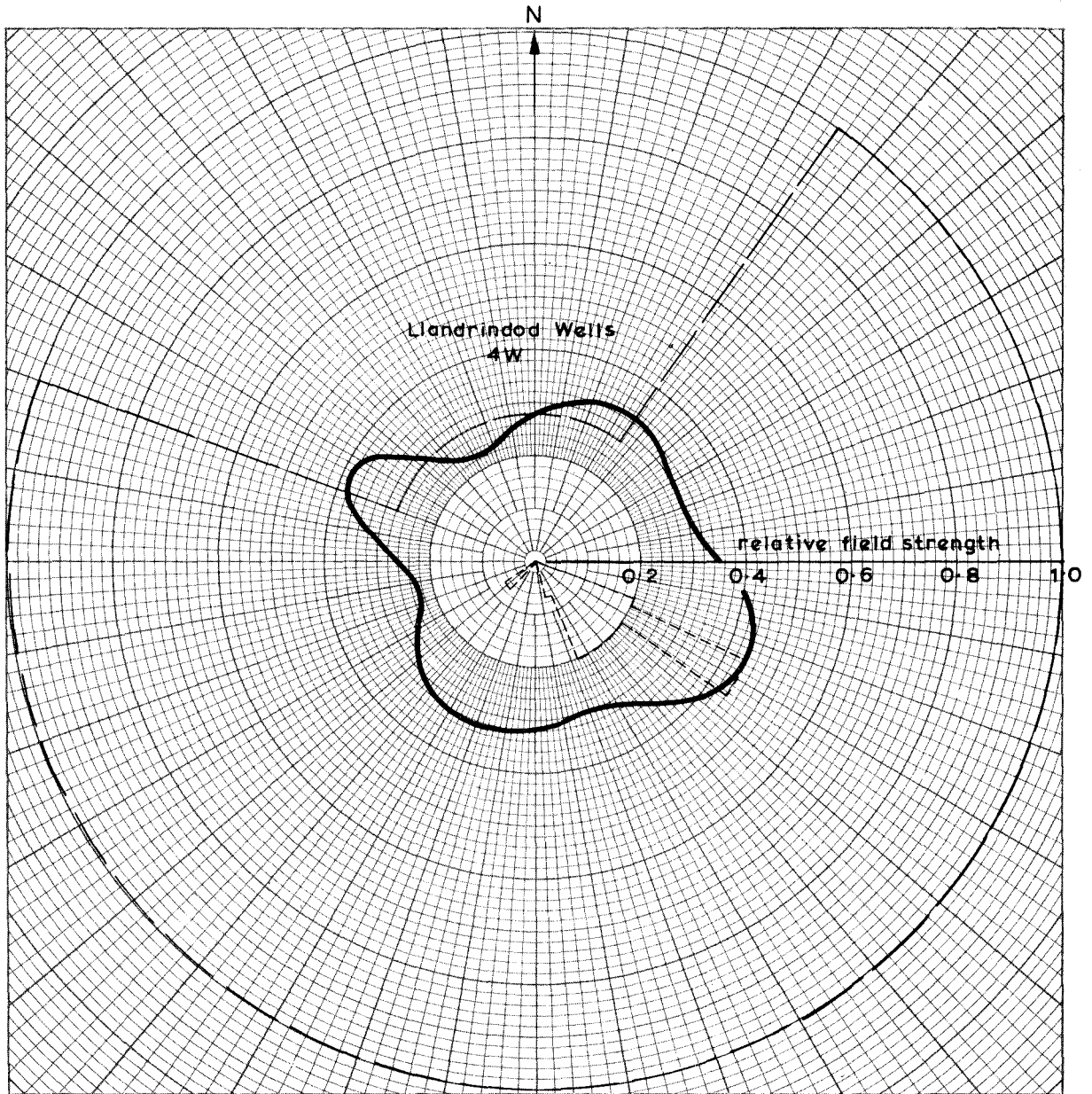


Fig. 2. Templet and horizontal radiation pattern.

HORIZONTAL POLARIZATION

88.9 (Light), 91.1 (Third), 93.3 (Welsh Home), MHz.

Mean effective gain: -2.3dB

Transmitter power: 8.7W

Mean E.R.P.: 5.1W

—— ——— Maximum permissible E.R.P.

----- Minimum desirable E.R.P.

Unit field corresponds to an E.R.P. of 50W