

RESEARCH DEPARTMENT

THE SERVICE AREA OF THE BLAEN-PLWYF TELEVISION TRANSMITTER

Report No. K-132

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A handwritten signature in cursive script, appearing to read 'A. B. Howe', written over a horizontal line.

(A. B. Howe)

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THE SERVICE AREA OF THE BLAEN-PLWYF TELEVISION TRANSMITTER

SUMMARY

The service area of the Blaen-plwyf television transmitter conforms well with that predicted from site test measurements. Most of the coastal area of Cardigan Bay is within the nominal service area ($100 \mu\text{V/m}$). Dolgelly, Harlech, Machynlleth, Lampeter and Cardigan are outside the service area.

1. INTRODUCTION

The Blaen-plwyf television transmitter is situated 4 miles (6.4 km) south of Aberystwyth. It is in the low power category (effective radiated power (e.r.p.) $0.5\text{--}1.6 \text{ kW}^*$) and it came into service on 29th April 1957.

2. GENERAL

The Blaen-plwyf television transmission is provided by a 0.5 kW transmitter driving a 4-tier unipole-V aerial mounted 416 ft (127 m) above ground level.

The site height is 565 ft (172 m) above mean sea level.

The vision transmitter operates on a frequency of 56.75 Mc/s (Channel 3) and the transmission is horizontally polarized. The mean e.r.p., from the horizontal radiation pattern of the aerial shown in Fig. 1, is 0.8 kW ; the maximum and minimum values are 1.6 kW and 0.5 kW respectively.

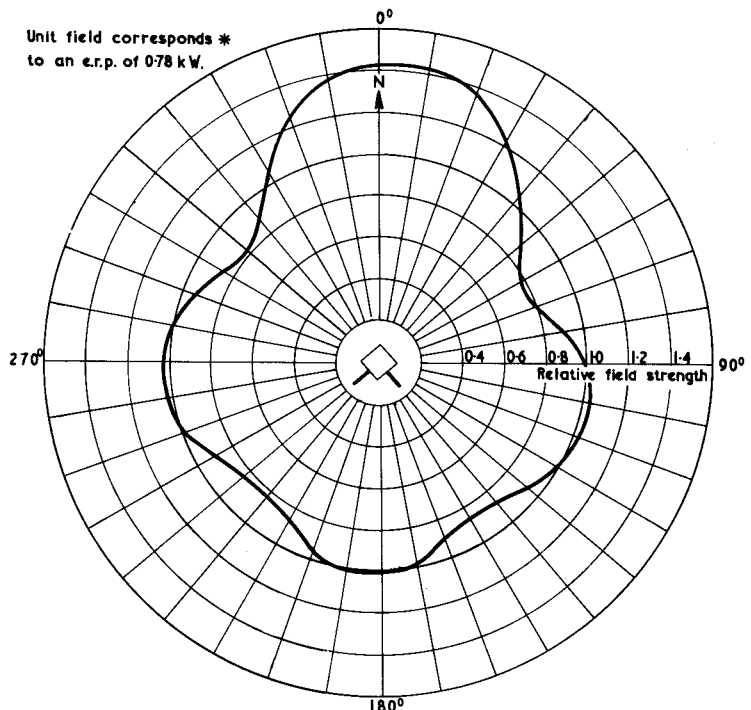


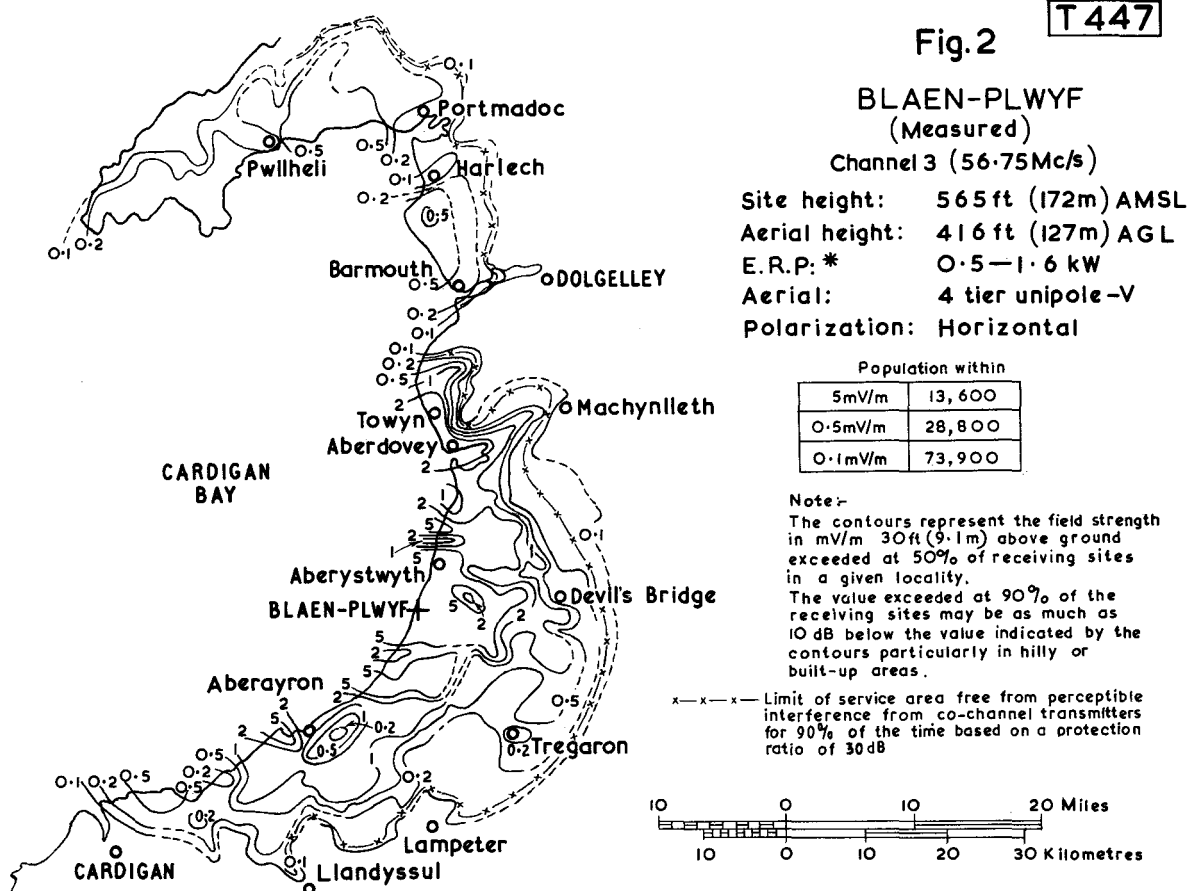
Fig. 1 - Horizontal radiation pattern of unipole-V aerial at Blaen-plwyf

*See Appendix

Field strength measurements of the sound transmission were made with a loop aerial mounted 12 ft 3 in. (3.7 m) above ground level and all values quoted in this report have been corrected to correspond to the peak-white value of the vision transmission for an aerial 30 ft (9.1 m) above ground level.

3. RESULTS

The results of the survey are presented as a field strength contour map in Fig. 2 (T.447) and in the Appendix, where the field strength exceeded at 10%, 50% and 90% of the locations is given for towns with populations exceeding 1000.



From the map it will be seen that the transmission provides a median field strength greater than 0.1 mV/m in most of the coastal towns around Cardigan Bay.

Inland the terrain is such that it is difficult to provide a service in the populated areas which, inevitably, lie in the valleys between spurs of the Cambrian Mountains. The relatively large towns of Lampeter, Machynlleth and Dolgelley lie beyond the 0.1 mV/m median contour of the transmitter.

*See Appendix

4. CONCLUSIONS

The service area of the Blaen-plwyf television transmitter is in very good agreement with that predicted from site test measurements. Large areas of central, north and south-west Wales are, nevertheless, beyond the range of this transmitter.

APPENDIX

*Field Strength in mV/m at 30 ft (9.1 m) AGL

Town	Field Strength exceeded at stated percentage locations			Town	Field Strength exceeded at stated percentage locations		
	10%	50%	90%		10%	50%	90%
Aberayron	5.5	1.0	0.55	Harlech	0.11	0.06	0.04
Aberdaron	0.9	0.25	0.08	Lampeter	0.1	0.07	0.05
Aberdovey	6.0	3.0	2.0	Llandyssul	0.09	0.05	<0.03
Aberporth	0.9	0.6	0.35	Llanybyther	0.13	0.11	0.06
Aberystwyth	28	10	0.45	Machynlleth	0.04	0.03	0.02
Barmouth	0.6	0.22	0.1	Newport	0.13	0.07	0.05
Cardigan	0.08	0.05	0.03	Penrhyndeudraeth	2.0	0.25	0.08
Criccieth	1.0	0.5	0.28	Portmadoc	0.3	0.16	0.08
Dolgelley	0.13	0.06	0.04	Pwllheli	0.3	0.17	0.11
Ffestiniog	1.3	0.08	0.03	Towyn	3.5	2.5	1.0
Fishguard	0.24	0.22	0.05	Trawsfynydd	0.15	0.09	0.05
Goodwick	0.7	0.14	0.08	Tregaron	0.3	0.15	0.07

*Since August 8th, 1958 the e.r.p. has been increased to 1.0-3.2 kW; therefore all figures quoted in this report should be increased by 3 dB.