



**RESEARCH DEPARTMENT**

**The service areas of the  
Wenvoe television (Band I) and  
v.h.f. sound transmitters**

**TECHNOLOGICAL REPORT No. K-175**

**1964/43**

**THE BRITISH BROADCASTING CORPORATION  
ENGINEERING DIVISION**

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### SUBJECT

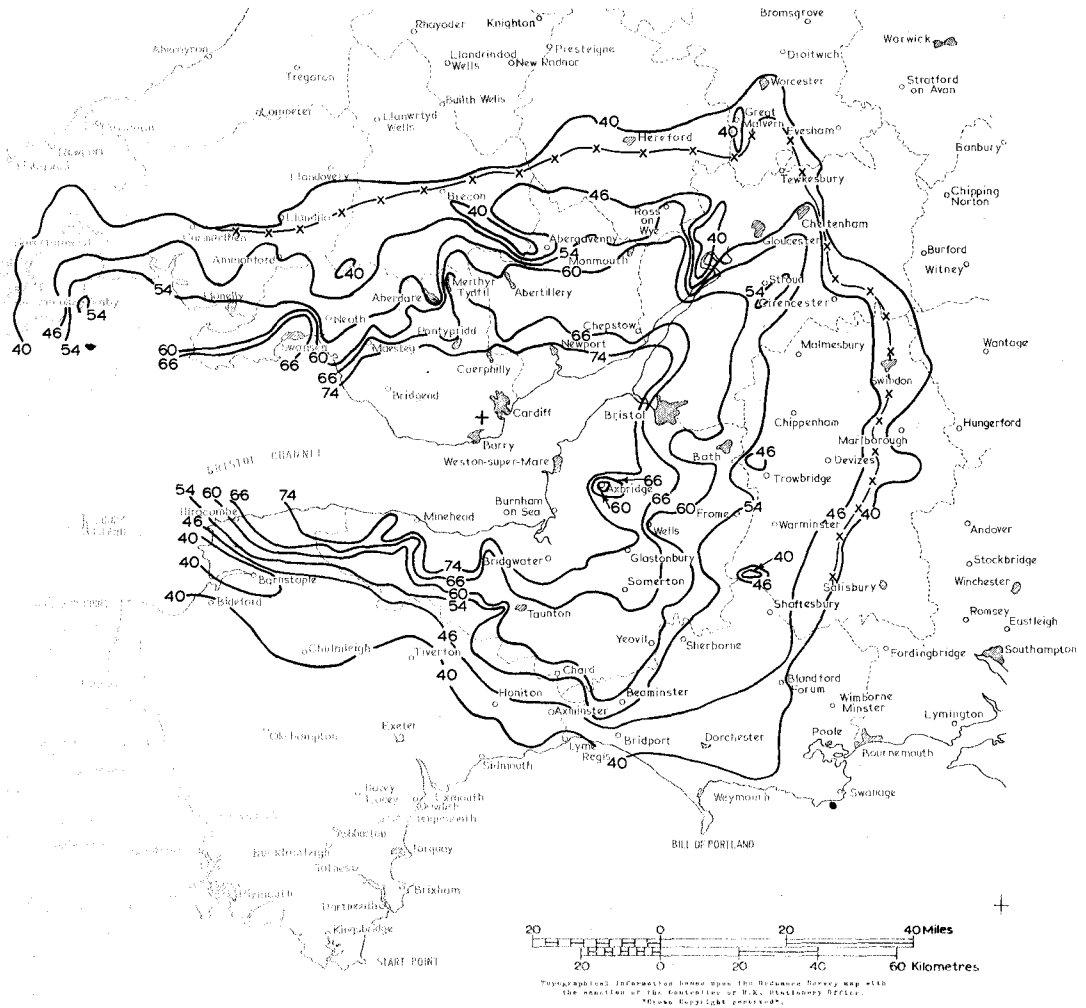
This report gives the results of a re-survey of the television (Band I) transmission and a survey of the v.h.f. sound transmission. The re-survey of the television transmission is more detailed than the original survey carried out in 1952.

### 1. SUMMARIZED DESCRIPTION OF TRANSMITTERS

Band	Television	V.H.F. Sound
	I	II
Channel	5	-
Frequencies	Vision: 66.75 Mc/s Sound: 63.25 Mc/s	Light: 89.95 Mc/s Third: 96.8 Mc/s Home (West): 92.125 Mc/s Home (Welsh): 94.3 Mc/s
Site Height (above mean sea level)	420 ft (128 m)	420 ft (128 m)
Aerial Height (above ground level)	735 ft (224 m)	647 ft (197 m)
Transmitter Power	50 kW (one 50 kW unit)	20 kW (2 x 10 kW)
Aerial	Two tiers of four dipoles	Eight tiers of four slots
E.R.P.	98 kW	113 kW
Polarization	Vertical	Horizontal
H.R.P.	Omnidirectional	Omnidirectional

### 2. SURVEY RESULTS

Maps T.592 and F.186 show the field strength contours for the television and v.h.f. sound transmissions respectively.



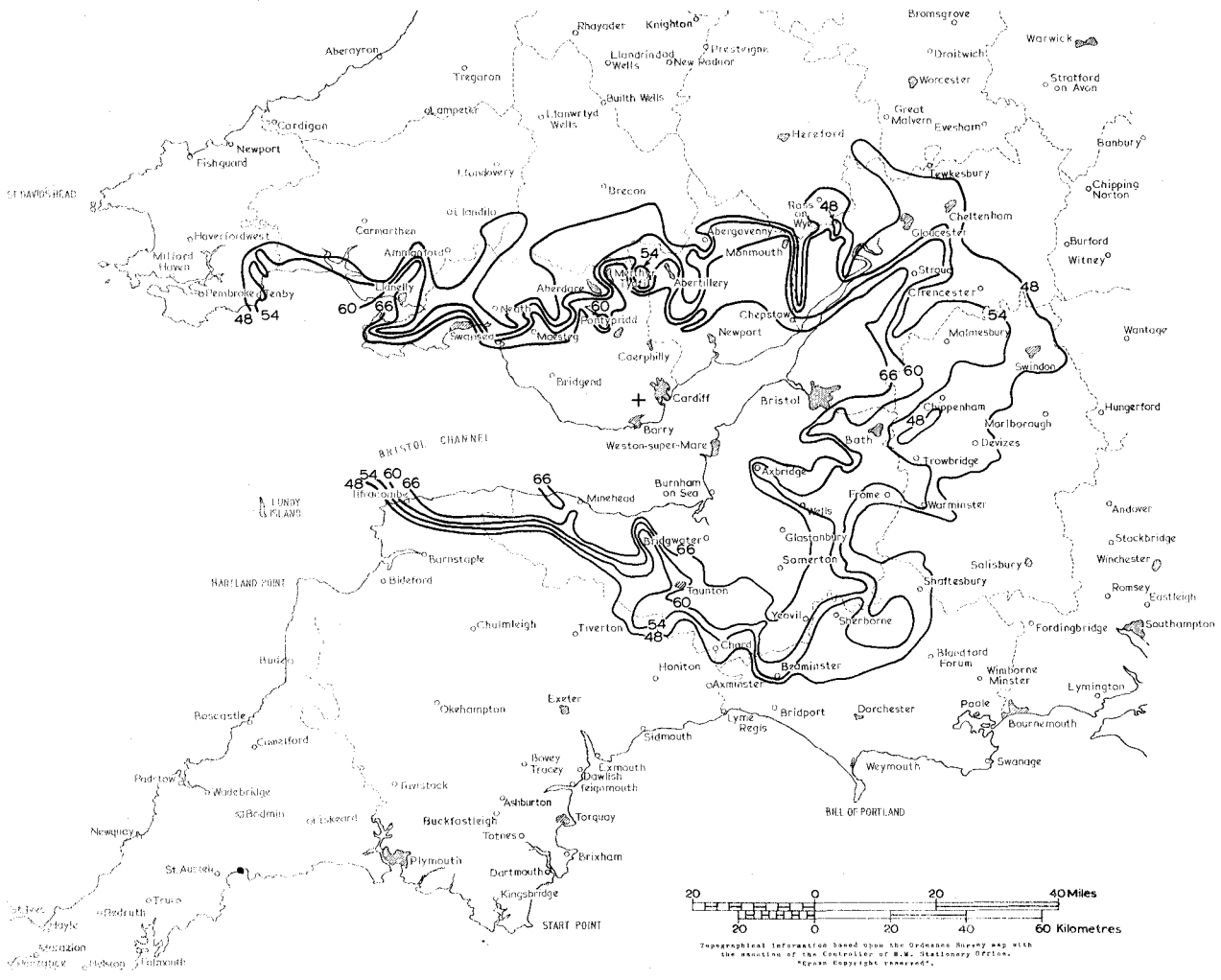
Map. T.592 - WENVOE

Band I Channel 5 (66.75 Mc/s) (Measured)

SITE HEIGHT:	420 ft (128 m) a.m.s.l.	AERIAL:	TWO TIERS OF FOUR
AERIAL HEIGHT:	735 ft (224 m) a.g.l.		DIPOLAS (PHASE
E.R.P.:	98 kW		ROTATION)
POLARIZATION:	Vertical	H.R.P.:	OMNIDIRECTIONAL

NOTES:

- The contours represent the field strength in decibels (dB) relative to  $1 \mu\text{V/m}$  at 30 ft (9.1m) above ground exceeded at 50% of receiving sites in a given locality. The value exceeded at 90% of receiving sites may be as much as 10 dB below the value indicated by the contours, particularly in hilly and built-up areas.
- x—x—x Limit of service area free from perceptible co-channel interference from all U.K. co-channel transmitters for 90% of the time based on a protection ratio of 45dB with a reduction of 10 dB for cross polarization and 10 dB for frequency offsets, allowance being made for receiving aerial directivity.



Map F.186 - WENVOE

Band II (Measured)

(Light 89.95 Mc/s; Third 96.8 Mc/s; Home (Welsh) 94.3 Mc/s; Home (West) 92.125 Mc/s)

SITE HEIGHT:	420 ft (128 m) a.m.s.l.	AERIAL:	EIGHT TIERS OF FOUR
AERIAL HEIGHT:	647 ft (197 m) a.g.l.	SLOTS (SPLIT AERIAL	
E.R.P.:	113 kW	SYSTEM)	
POLARIZATION:	Horizontal	H.R.P.:	OMNIDIRECTIONAL

NOTE:

The contours represent the field strength in decibels (dB) relative to 1 μV/m at 30 ft (9.1 m) above ground exceeded at 50% of receiving sites in a given locality. The value exceeded at 90% of receiving sites may be as much as 10 dB below the value indicated by the contours, particularly in hilly and built-up areas.

In the interests of economy of effort only the field strength values exceeded at 50% of the locations in towns have been extracted from the charts, but the 10% and 90% values for any particular town(s) can be made available on request at short notice. The 50% location values are given in the Appendix (Table 1 Wales; Table 2 England).

### 3. COMMENTS ON SERVICES

The Weenvoe Band I television service is almost entirely free from United Kingdom co-channel interference. It is also largely free from interference radiated by Continental stations propagated via the troposphere, and, because it radiates on the highest Band I channel ( $f = 66.75$  Mc/s), interference from distant Continental transmitters propagated by the Sporadic E layer is rarely troublesome. The effective limit of the service area, therefore, corresponds to a field strength of about 40 dB( $\mu$ V/m). The map T.592 shows that, while a very good television service is provided on both sides of the Bristol Channel, the mountainous terrain severely restricts the service in Wales. Nevertheless, the highly populated South Wales area is, on the whole, provided with a good television service.

The v.h.f. sound service (map F.186) is also, on the whole, very good, but because the nominal limit of the service corresponds to a field strength of 48 dB( $\mu$ V/m) the overall service area is substantially less than for the Band I television service.

## APPENDIX

TABLE 1

## WALES

Town	Median Field Strength (dB( $\mu$ V/m))		Town	Median Field Strength (dB( $\mu$ V/m))	
	Television (Band I)	V.H.F. Sound		Television (Band I)	V.H.F. Sound
Abergavenny	43	47	Haverfordwest	39	-
Abercarn	65	58	Hay-on-Wye	36	-
Abercynion	76	70	Hirwaun	55	48
Aberdare	52	50	Kidwelly	46	41
Abertillery	67	61	Laugharne	48	42
Ammanford	44	36	Llandilo	40	32
Bargoed	71	74	Llandovery	27	<31
Barry	100	>100	Llanelly	56	54
Beaufort	58	59	Llangadock	43	42
Blaina	67	63	Maesteg	72	64
Brecon	53	51	Manorbier	44	44
Bridgend	83	85	Merthyr Tydfil	69	69
Briton Ferry	45	-	Monmouth	62	62
Brynamman	41	42	Mountain Ash	67	62
Bryn-mawr	68	67	Mumbles	78	83
Builth Wells	33	-	Nantyglo	70	68
Burry Port	62	63	Narberth	41	35
Bwlch	52	52	Neath	47	44
Caerleon	74	75	Newbridge	55	55
Caerphilly	81	77	Newport	80	81
Cardiff	101	102	New Tredegar	61	49
Carmarthen	40	29	Pembroke	41	-
Chepstow	61	63	Pentre	68	-
Cilfynydd	70	77	Pontardawe	45	42
Clydach (near Swansea)	54	51	Pontardulais	45	39
Cowbridge	84	74	Pontllanfraith	73	72
Crickhowell	52	45	Pontlottyn	51	45
Cross Hands	52	50	Pontyberem	41	32
Cross Keys	71	69	Pontypool	51	51
Cwmbran	71	71	Pontypool Road	69	-
Cwmbran Newtown	84	91	Pontypridd	72	70
Ebbw Vale	58	59	Porthcawl	78	80
Glyn-Neath	55	63	Port Talbot	55	48



Town	Median Field Strength (dB( $\mu$ V/m))		Town	Median Field Strength (dB( $\mu$ V/m))	
	Television (Band I)	V.H.F. Sound		Television (Band I)	V.H.F. Sound
Raglan	63	65	Treharris	69	70
Rhymney	63	62	Treherbert	67	63
Risca	68	65	Treorky	72	67
St. Clears	43	34	Tyntetown	64	-
Saundersfoot	57	54	Usk	62	62
Sennybridge	44	39	Whitland	38	38
Swansea	67	67	Williamstown	74	-
Tenby	51	52	Ystalyfera	39	33
Tonypandy	-	69	Ystradgynlais	36	34
Tonyrefail	85	84	Ystrad Rhondda	68	63
Tredegar	55	58			

TABLE 2

## ENGLAND

Town	Median Field Strength (dB( $\mu$ V/m))		Town	Median Field Strength (dB( $\mu$ V/m))	
	Television (Band I)	V.H.F. Sound		Television (Band I)	V.H.F. Sound
Axbridge	59	49	Dunster	77	80
Axminster	41	39	Dursley	61	71
Bampton	41	40	Evesham	38	40
Barnstaple	37	38	Exeter	33	36
Bath	58	59	Exford	48	38
Beaminster	55	58	Fairford	43	46
Bideford	38	43	Fremington	43	46
Bishops Lydeard	60	61	Frome	52	51
Blandford Forum	43	42	Gillingham	50	49
Braunton	<30	36	Glastonbury	74	75
Bridgwater	74	75	Gloucester	45	49
Bridport	44	41	Great Malvern	42	45
Bristol	65	67	Great Torrington	37	-
Broadway	41	46	Hatherleigh	29	-
Burnham on Sea	79	84	Hereford	40	43
Calne	46	48	Highbridge	79	81
Cannington	73	76	Highworth	50	54
Castle Cary	70	72	Holsworthy	36	37
Chard	56	52	Honiton	45	38
Cheddar	71	65	Ilfracombe	60	65
Cheltenham	46	51	Ilminster	61	61
Cherhill	54	59	Instow	30	-
Chippenham	47	48	Keynsham	58	59
Chipping Campden	28	36	Langport	65	69
Chipping Sodbury	68	75	Lechlade	42	46
Cinderford	62	68	Ledbury	54	58
Cirencester	46	53	Lyme Regis	34	36
Clevedon	83	89	Lynton	86	90
Coleford	63	72	Malmesbury	50	56
Combe Martin	43	38	Malvern Link	34	36
Crediton	35	34	Malvern Wells	35	40
Crewkerne	68	67			
Cullompton	39	45			
Devizes	58	62			
Dorchester	46	47			
Dulverton	48	41			

Town	Median Field Strength (dB( $\mu$ V/m))		Town	Median Field Strength (dB( $\mu$ V/m))	
	Television (Band I)	V.H.F. Sound		Television (Band I)	V.H.F. Sound
Marlborough	38	41	South Zeal	45	45
Melksham	54	58	Stonehouse	62	67
Mere	38	38	Stow on the Wold	41	44
Midsomer Norton	56	55	Stratton	45	49
Milverton	49	50	Stratton St. Margaret	41	48
Minehead	78	82	Street	73	74
Mitcheldean	38	41	Stroud	57	64
			Swindon	44	51
Nailsworth	46	49			
Newent	37	39	Taunton	64	58
Nether Stowey	76	78	Tetbury	54	56
Northam	44	44	Tewkesbury	43	47
Northleach	34	38	Tiverton	39	37
North Petherton	76	71	Trowbridge	50	50
Norton Fitzwarren	51	52			
			Upton on Severn	41	43
Okehampton	41	40			
Ottery St. Mary	39	45	Wareham	39	41
			Warminster	55	55
Painswick	58	63	Watchet	85	92
Peasedown St. John	67	68	Wellington	58	59
Pershore	39	43	Wells	59	57
Pewsey	41	43	Westbury	53	54
Pinhoe	44	45	Weston-super-Mare	79	82
Porlock	70	64	Westward Ho	46	48
			Weymouth	36	38
Radstock	65	67	Wickwar	66	72
Ross-on-Wye	55	60	Williton	79	85
			Wincanton	54	54
Salisbury	30	36	Wiveliscombe	55	54
Seaton	31	36	Wool	44	46
Shaftesbury	62	62	Wootton Bassett	53	58
Shepton Mallet	57	55	Wotton-under-Edge	62	67
Sherborne	52	51	Worcester	42	46
Sidmouth	31	<36	Wroughton	46	52
Somerton	68	69			
South Molton	45	40	Yeovil	61	62

SMB