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**RESEARCH DEPARTMENT**

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# **The service areas of the Llandrindod Wells television and v.h.f. sound transmitters**

**TECHNOLOGICAL REPORT No. K-172**

1964/26

**THE BRITISH BROADCASTING CORPORATION  
ENGINEERING DIVISION**

RESEARCH DEPARTMENT

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TELEVISION AND V.H.F. SOUND TRANSMITTERS**

Technological Report No. K-172  
(1964/26)

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### SUBJECT

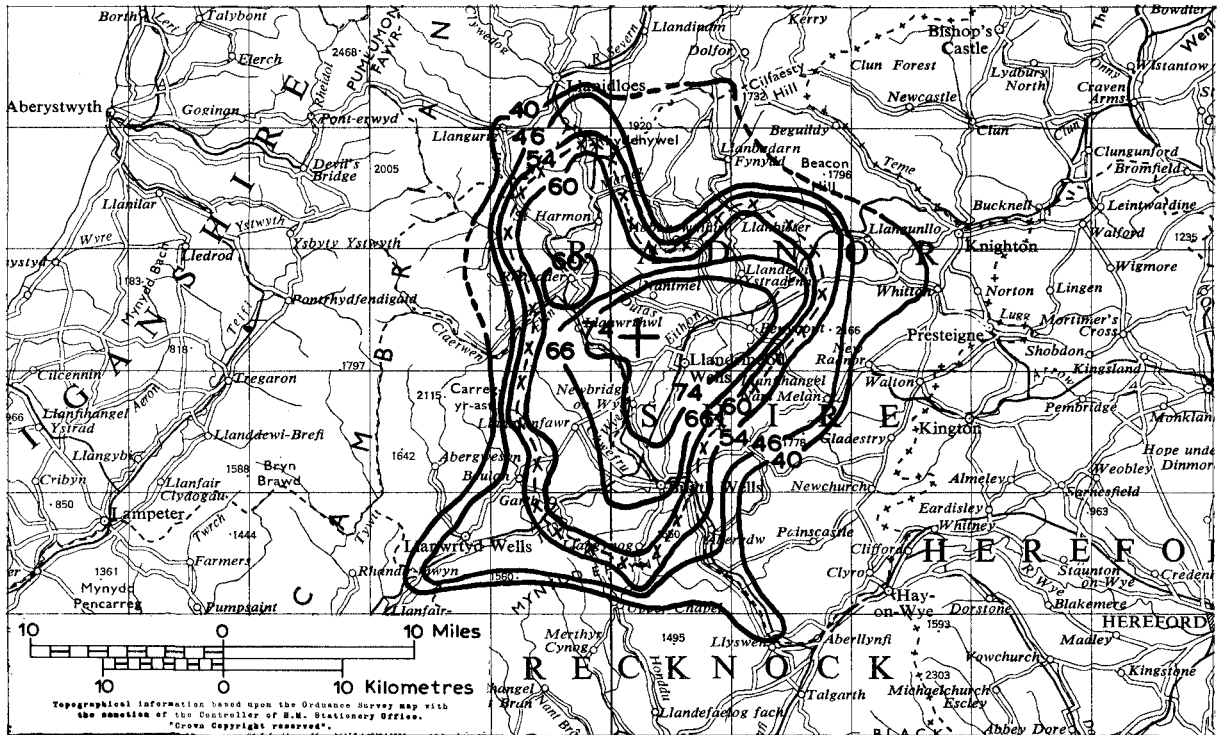
The results of a field strength survey of the Llandrindod Wells television and v.h.f. sound transmitters are given in this report.

### 1. SUMMARIZED DESCRIPTION OF TRANSMITTERS

|                                       | Television  | V.H.F. Sound  |
|---------------------------------------|---|---|
| Band                                  | I   | II  |
| Channel                               | 1   | -   |
| Frequencies                           | Vision: 45.016875 Mc/s<br>Sound: 41.516875 Mc/s   | Light: 89.1 Mc/s<br>Third: 91.3 Mc/s<br>Home: 93.5 Mc/s |
| Site Height<br>(above mean sea level) | 1420 ft (433 m)                                   | 1420 ft (433 m)   |
| Aerial Height<br>(above ground level) | 247 ft (75 m)                                     | 212 ft (64.5 m)   |
| Transmitter Power                     | 0.88 kW (two 0.5 kW units<br>underrun at 0.44 kW) | 1 kW (one unit)   |
| Aerial                                | Two-tier superturnstile                           | Two-tier superturnstile                                 |
| E.R.P.                                | 1.3 kW  | 1.38 kW   |
| Polarization                          | Horizontal  | Horizontal  |
| H.R.P.                                | Omnidirectional                                   | Omnidirectional   |

### 2. SURVEY RESULTS

Maps T.564 and F.167 show the field strength contours for the television and v.h.f. sound transmitters respectively. The values of measured field strength for both services exceeded at 10%, 50% and 90% of the locations in towns and villages are given in the appendix.



Map T-564 - LLANDRINDOD WELLS

Band I Channel 1 (45 Mc/s) (Measured)

SITE HEIGHT: 1420 ft (433 m) a.m.s.l. AERIAL: TWO-TIER SUPERTURNSTILE

AERIAL HEIGHT: 247 ft (75 m) a.g.l.

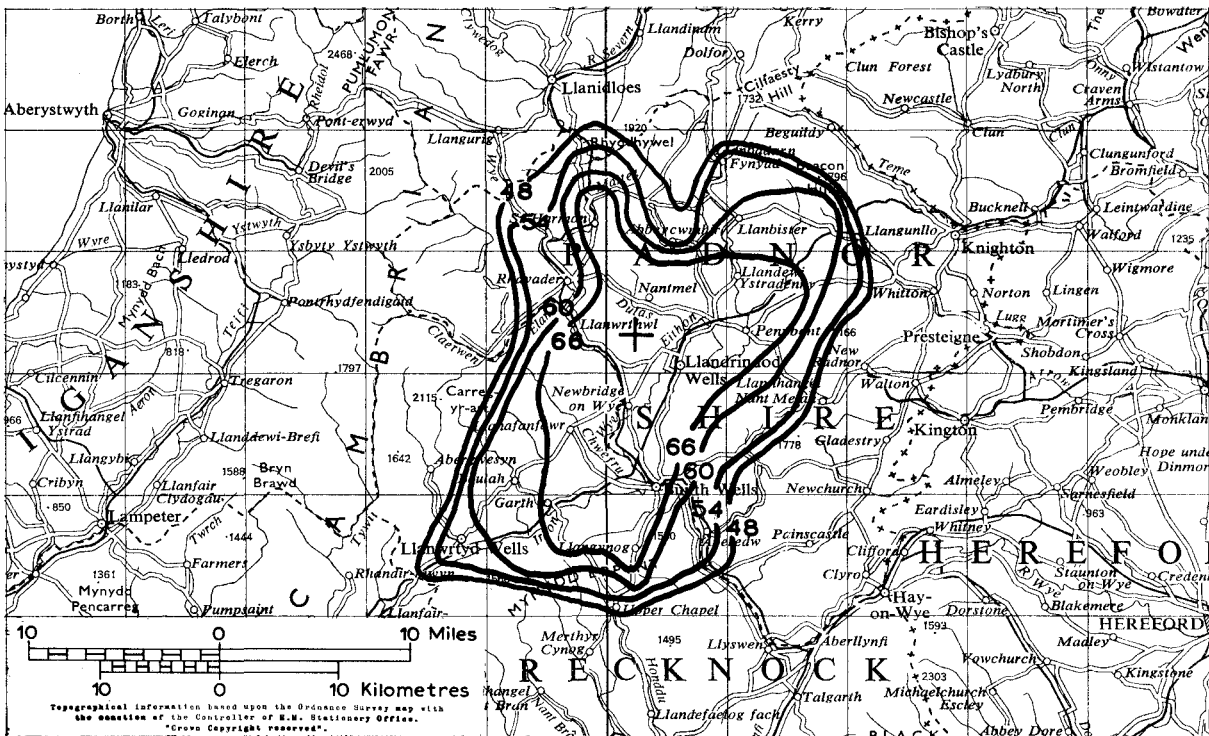
E.R.P.: 1.3 kW

POLARIZATION: HORIZONTAL

H.R.P.: OMNIDIRECTIONAL

NOTES:

1. The contours represent the field strength in decibels (dB) relative to  $1 \mu\text{V/m}$  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.
2. ~~\*\*\*~~ 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 45 dB with a reduction of 10 dB for cross polarization and 10 dB for frequency off-sets, allowance being made for receiving aerial directivity.



Map F.167 - LLANDRINDOD WELLS

Band II (Measured)

(Light: 89.1 Mc/s; Third: 91.3 Mc/s; Home: 93.5 Mc/s)

SITE HEIGHT: 1420 ft (433 m) a.m.s.l.

AERIAL: TWO-TIER SUPERTURNSTILE

AERIAL HEIGHT: 212 ft (64.5 m) a.g.l.

E.R.P.: 1.38 kW

POLARIZATION: HORIZONTAL

H.R.P.: OMNIDIRECTIONAL

NOTES:

The contours represent the field strength in decibels (dB) relative to  $1 \mu\text{V}/\text{m}$  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.

### 3. COMMENTS ON SERVICES

The Llandrindod Wells television and v.h.f. sound transmissions provide very good services to Llandrindod Wells, Builth Wells and Rhayader. With reference to the television service, the calculated level of field strength free from co-channel interference is high (56 dB( $\mu$ V/m)), but because of the mountainous terrain the protected field strength will be substantially less in many areas and viewers will get a satisfactory service.



## APPENDIX

| Town              | Field Strength (dB( $\mu$ V/m))<br>for Stated Percentage Locations |     |     |              |     |     |
|-------------------|--|-----|-----|--------------|-----|-----|
|                   | Television   |     |     | V.H.F. Sound |     |     |
|                   | 10%  | 50% | 90% | 10%          | 50% | 90% |
| Abbey Cwmhir      | 51   | 46  | 43  | 54           | 50  | 43  |
| Beulah            | 55   | 51  | 46  | 63           | 60  | 52  |
| Bronllys          | 39   | 36  | 33  | 49           | 44  | 41  |
| Builth Wells      | 76   | 71  | 68  | 81           | 74  | 67  |
| Caersws           | 42   | 37  | 34  | 43           | 37  | 33  |
| Cilmery           | 72   | 70  | 68  | 89           | 84  | 79  |
| Eardisley         | 35   | 33  | 31  | 39           | 35  | 32  |
| Elan Village      | 46   | 43  | 41  | 53           | 46  | 41  |
| Erwood            | 48   | 44  | 40  | 49           | 46  | 37  |
| Evenjobb          | 51   | 47  | 36  | 52           | 47  | 35  |
| Garth             | 64   | 61  | 56  | 75           | 70  | 63  |
| Glasbury          | 40   | 35  | 31  | 45           | 41  | 36  |
| Hay-on-Wye        | 41   | 36  | 32  | 43           | 36  | 33  |
| Knighton          | 37   | 30  | 26  | 44           | 35  | 31  |
| Llanbister        | 71   | 64  | 55  | 68           | 63  | 54  |
| Llandovery        | 47   | 41  | 26  | 44           | 40  | 36  |
| Llandrindod Wells | 105  | 88  | 85  | 102          | 94  | 81  |
| Llangunllo        | 45   | 39  | 34  | 44           | 39  | 34  |
| Llangurig         | 49   | 44  | 40  | 53           | 47  | 42  |
| Llanidloes        | 41   | 36  | 32  | 48           | 42  | 36  |
| Llanspyddid       | 34   | 31  | 29  | 40           | 36  | 32  |
| Llanwrtyd Wells   | 55   | 48  | 45  | 62           | 54  | 43  |
| Newtown           | 32   | 27  | 26  | 38           | 31  | 28  |
| Rhayader          | 67   | 59  | 55  | 73           | 59  | 54  |
| Sennybridge       | 42   | 37  | 34  | 42           | 37  | 31  |
| Talgarth          | 48   | 43  | 37  | 57           | 52  | 47  |
| Whitton           | 37   | 35  | 31  | 42           | 33  | 30  |
| Winforton         | 37   | 34  | 30  | 40           | 36  | 34  |

