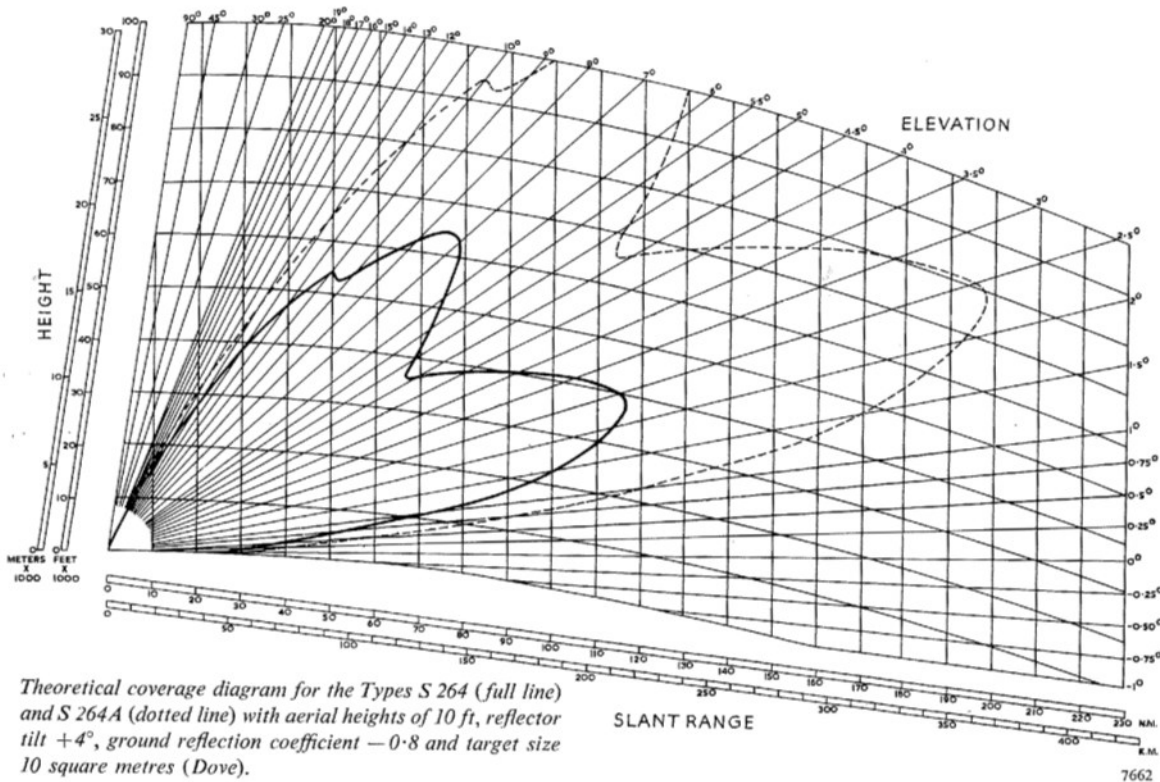




## 50 cm Airfield Control Radar Types S 264 and S 264A



Theoretical coverage diagram for the Types S 264 (full line) and S 264A (dotted line) with aerial heights of 10 ft, reflector tilt  $+4^\circ$ , ground reflection coefficient  $-0.8$  and target size 10 square metres (Dove).

THESE multi-purpose surveillance radar sets are developed from the well known and well proved Marconi Radar Type S 232, offering similar facilities, with improved performance.

Type S 264A is essentially the same equipment as Type S 264, but incorporates a Power Amplifier Type SR 100 which increases the transmitter peak power from 50 kW to approximately 500 kW, thereby increasing its performance and maximum range by approximately 77%. This power amplifier is also suitable for use with Type S 232 and S 232/1 installations.

### FEATURES

- Completely crystal-controlled.
- Particularly efficient moving target indicator (MTI) system of permanent echo suppression.
- Absence of all weather effects due to employment of 50 cm wavelength. No additional circuits or polarisers are necessary.
- Fully efficient immediately upon switching on — even after long periods of inactivity.

Maintenance facilities particularly emphasised in the design.

Suitable for use in all types of climatic conditions.

### EQUIPMENT

The equipment can be divided into two main sections, the apparatus situated at the aerial head and that in the operations building. The former comprises the aerial assembly, mounted on the roof of a concrete building containing the transmitter, power amplifier, the receiver and feeder system, rotating joint and TR switch, as well as the aerial turning gear and associated equipment.

An aerial reflector fed by a slotted linear waveguide feed is employed, to which the coaxial feeder is connected. The whole aerial assembly can be tilted vertically.

Type S 264 employs a simple two-speed aerial drive system providing rotation at 5 or 10 r.p.m. This system, which incurs less capital cost, is normally suitable for civil aviation purposes.

The operations building, which may be the control tower, houses the display equipment and ancillary apparatus. The radar signals from the aerial head, both cancelled and uncanceled, are passed to a radar distribution unit where locally-generated calibration marks are added, and the composite video signals are then fed to the display units which can select either cancelled or uncanceled channels as required. The Type SD 701 or SD 1000 series of displays, described on pages 535-540, can be used according to the facilities required. Up to eight can be operated from one aerial head. The displays may be separated from the aerial head up to a distance of 400 yards (370 metres). By the use of additional amplifiers, this distance can be increased to 5000 yards. Further increase of distance can be achieved using the Radar Link Equipment (see page 547).

The aerial head equipment is entirely controlled from the display site, including aerial starting and speed control.

### DATA SUMMARY

**Radio frequency:** 535-610 Mc/s crystal-controlled (operative on any one of eleven spot frequencies).

**Peak power output:**

S 264: 50-60 kW; S 264A, 500 kW.

**Pulse recurrence frequency:**

S 264: 525-775 p.p.s.; S 264A: 260-385 p.p.s.

**Pulse length:** 2 or 4  $\mu$ s.

**Receiver noise factor:** Better than 9 dB.

**Permanent echo suppression (static):** At least 46 dB at maximum range of equipment.

**Sub clutter visibility:**

30 dB at 5 r.p.m. and 770 p.p.s.

**Aerial system:**

Horizontal beam width: less than  $2\frac{1}{4}^\circ$  at 3 dB points.

Polarisation: Horizontal.

Side lobes: 24 dB down.

Back-to-front ratio: better than 4 dB.

Rotation: 10 and 5 r.p.m.

**Displays:** SD 1000 series (see page 537).

SD 701 (see page 535).

**Power supplies:**

Aerial turning gear: 400 V  $\pm 6\%$ , 3 phase 45-65 c/s.

Radar equipment: 230 V ( $\pm 6\%$ ) single phase 50 c/s ( $\pm 5\%$ ) AC.

**Power consumption:** 20 kVA.

Dimensions:	Height	Width	Depth
<i>Transmitter</i>	5 ft 4 in. (162 cm)	2 ft 6 in. (77 cm)	2 ft 6 in. (77 cm)
<i>Power Amplifier</i>	6 ft 0 $\frac{1}{2}$ in. (184 cm)	5 ft 6 in. (168 cm)	2 ft 7 $\frac{1}{2}$ in. (80 cm)
<i>Receiver</i>	6 ft 3 in. (191 cm)	2 ft 6 in. (77 cm)	2 ft (61 cm)
<i>Distribution unit</i>	7 ft (214 cm)	23 $\frac{1}{2}$ in. (60 cm)	21 in. (53 cm)

*Aerial system:* Length of Reflector: 55 ft (17 m)

Height of Reflector: 12 ft (3.6 m)

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