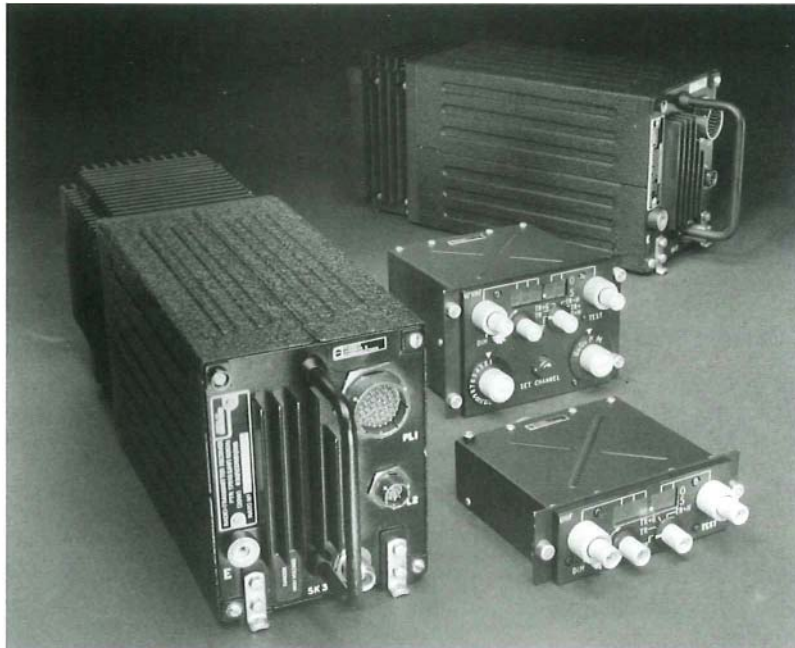


ESD1741

- *Frequency range 100 to 155.975 MHz*
- *2240 synthesised channels at 25kHz spacing*
- *Well-proven modern design techniques*
- *Comprehensive B.I.T.E.*
- *Optimum reliability and maintainability*
- *Low cost of ownership*
- *Ideal for retrofit applications*
- *Optional extras available*

The ESD1741 is a lightweight V.H.F. military airborne transceiver designed to provide high-reliability air-to-air and air-to-ground communications under severe electrical and environmental conditions. It is suitable for use in all types of helicopter and fixed-wing aircraft and is intended primarily for air traffic control use, but this role may be extended, with optional extras, to include homing and continuous a.m. reception on the international distress frequency of 121.5 MHz.

The ESD1741 operates over the frequency range 100 to 155.975 MHz and provides 2240 channels separated at 25 kHz intervals throughout the range. The channel spacing can be modified to 50 kHz should it be required to interface the ESD1741 with existing, older equipments having a lower frequency stability. The power output is 10W minimum, under all conditions of operation.

The equipment consists of two units, the transceiver and the control unit. Two alternative control units are available which either provide manual selection only of frequency or manual selection of frequency plus 30 preset channels. Both control units incorporate a built-in test equipment facility to check output power, modulation depth, and receiver sensitivity. A non-volatile store is used to provide the preset channel memory. Optional extra facilities include a guard receiver module which plugs into the main transceiver chassis and a homer which is in the form of an external unit.

The design philosophy has concentrated not only on achieving an adequate performance at an acceptable cost but on ensuring a balanced approach to reliability and maintainability and therefore to the overall cost of ownership. To this end, well-proven design techniques with low-stressed components, using modular construction and solid-state circuitry, have been employed.

The ESD1741 is one of a family of equipments which has considerable growth-potential and which already includes the ESD1751 10/20W UHF airborne transceiver. Details of this equipment are available on request..

The ESD1741 and ESD1751 are designed for dual V.H.F. and U.H.F. installations, the electrical interface and mechanical dimensions of each being identical. Control units are common for all applications. Furthermore, one control unit can be used to operate the two transceivers providing a combined V.H.F./U.H.F. installation.

A remote frequency and channel indicator is also available as an option.

Maximum commonality of modules and metal-work has been achieved in all these equipments: all non-common modules, power amplifier and receiver front end are contained in a detachable rear casting.

Power for the transmitter and control unit is taken from the aircraft +28V d.c. supply.

General

Frequency range

100 to 155.975 MHz in 25 kHz increments

Channel separation

25 kHz standard

50 kHz optional

No. of channels

2240 (with 25 kHz spacing)

Environmental

Generally to DEF STAN 07-55 and BS 3G100 part 2

Operating temperature

-25°C to +70°C (switches on at -55°C)

Power input (transmit)

28V d.c. at 3.5A

MTBF

800 hours - transceiver and controller

Size

Transceiver:

1/2 ATR short

Height: 160.2 mm

Width: 124.8mm

Length: 327.4mm

Manual controller (ESD1753N):

Width: 146.05mm

Height: 47.6mm

Depth: 108.25mm (excluding front panel controls and rear connector)

Manual/preset (ESD1744AA) controller:

Width: 146.05mm

Height: 94.9mm

Depth: 108.25mm (excluding front panel controls and connector)

Remote frequency and channel Indicator (ESD1756C):

Width: 92mm

Height: 25mm

Depth: 154.8mm (excluding rear connector)

Weight

Transceiver: 5kg (10W)

Manual controller: 0.7kg

Manual/preset controller: 1.4kg

Remote frequency &

Channel Indicator: 0.3kg.

Guard Rx. module: 0.3kg

Transmitter

Output power

10W/20W minimum into 50Ω

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Frequency accuracy

±5p.p.m. including ±2p.p.m. drift per year

Distortion

Not more than 5% at 80% mod.

Microphone input

250mV p.d. into 300Ω balanced, either VOGAD or Non VOGAD

Modulation control

VOGAD holds modulation depth within ±10% of preset level for ±20dB of signal input variation

Receiver (Main)

Sensitivity

An input of 4μV e.m.f. modulated 30% at 1kHz gives a signal-plus-noise to noise ratio of 10dB or better

Selectivity

Standard

25kHz 6dB 18kHz minimum

60dB 50kHz maximum

To Special Order:

50kHz 6dB 36kHz minimum

60dB 100kHz maximum

Spurious rejection

At least 80 dB down

Image

At least 65 dB down

Adjacent channel

At least 60 dB down

AGC

Not greater than 6 dB change in audio level of 4μV to 1V e.m.f. variation in r.f. signal level

Audio output

4V ±2 dB across 50W or greater (unbalanced) for 80% modulation

Audio response

±3dB, 300 Hz to 3500 Hz

Receiver (Guard)

Sensitivity

An input of 7μV e.m.f. modulated 30% at 1kHz gives a signal-plus-noise to noise ratio of 10dB or better

Audio output

As for main receiver, uses common output amplifier

ESD1741

Airborne VHF (AM) Radio

ESD Publication No. ESD/054.08.96

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