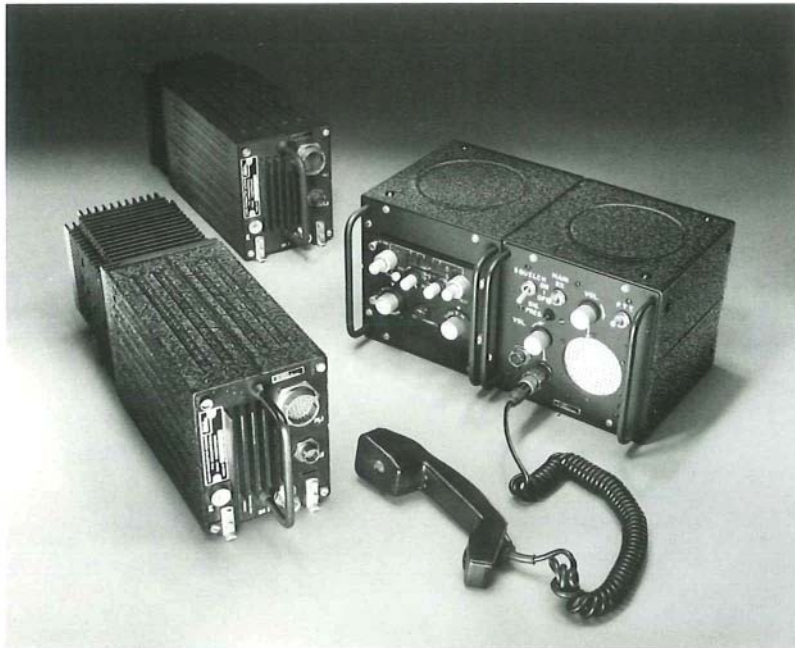


ESD1751

- *Frequency range 225 to 399.975 MHz*
- *7000 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 ESD1751 is a lightweight U.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 tactical communications use, but this role may be extended, with optional extras, to include homing and continuous a.m. reception on the international distress frequency of 243 MHz.

The ESD1751 operates over the frequency range 225 to 399.975 MHz and provides 7000 channels separated at 25 kHz intervals throughout the range. The channel spacing is normally 50 kHz but an option is available which offers a 25/76 kHz switchable channel selectivity. The power output is 10W or 20W 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 selections 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.

If a wide-band secure speech facility is required, this can be achieved by the addition of interface equipment.

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 ESD1751 is one of a family of equipments which has considerable growth-potential. A version offering an E.C.C.M. capability is available and is described in product information sheet ESD1741.

The ESD1751 and ESD1741 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

225 to 399.975 MHz in 25 kHz increments

Channel separation

50 kHz standard; 25/76 kHz optional

No. of channels

7000 (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/7.0A (nominal)

MTBF

800 hours - transceiver and controller

Size

Transceiver:

10 watt version: ½ ATR Short:

Length: 327.4mm
Width: 124.8mm
Height: 160.25mm
(length excludes handle)

20 watt version: ½ ATR medium:

Length: 388.6mm
Width: 124.8mm
Height: 160.25mm
(length excludes handle)

Manual controller (ESD1753N):

146.05mm wide x 47.6mm high x 108.25mm depth
(depth excludes front panel controls and rear connector)

Manual/preset (ESD1754AC) controller:

146.05mm wide x 94.9mm high x 108.25mm depth
(depth excludes front panel controls and rear connector)

Remote frequency and channel indicator (ESD1756C):

92mm wide x 25mm high x 154.8mm depth (depth excludes rear connector).

Weight

Transceiver: 5.9kg (10W)
7.0 kg (20W)

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 50W

Frequency accuracy

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

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Distortion

Not more than 5% at 80% mod.

Microphone Input

250mV p.d. into 300W balanced, either VOGAD or non VOGAD

Modulation control

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

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

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:

50kHz	6dB	38kHz	minimum
	60dB	100kHz	maximum

Option: 25/76kHz

Normal	6dB	18kHz	minimum
	60dB	50kHz	maximum

Wideband	6dB	76kHz	minimum
	60dB	150kHz	maximum

Spurious rejection

In band at least 80 dB.

Image rejection

At least 60 dB.

Adjacent channel rejection

At least 60 dB.

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 50Ω or greater (unbalanced) for 80% modulation

Audio response

±3dB, 300 Hz to 3500 Hz

ESD1751

UHF/VHF Airborne Transmitter-Receiver

ESD Publication No. ESD/057.08.96

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