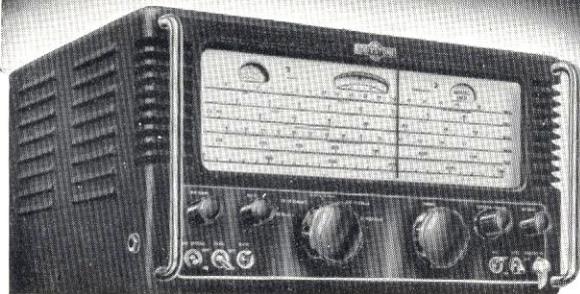


RADIO ENGINEERING OF SURPASSING EXCELLENCE



THE **EDDYSTONE** MODEL '680X' COMMUNICATION RECEIVER

30 Mc/s to 480 kc/s

A high grade instrument with wide frequency coverage for **PROFESSIONAL COMMUNICATIONS** requirements

The "680X" is a fifteen valve superheterodyne receiver embodying advanced technique. New features in the design add to the outstanding and reliable performance of which the receiver is capable. The appearance is impressive, whilst the construction and general workmanship is of the finest in the Industry.

SPECIAL FEATURES INCLUDE

- Continuous coverage from 30 Mc/s to 480 kc/s.
- Two Radio-Frequency stages.
- Two I.F. stages.
- Crystal Filter.
- Beat frequency Oscillator.
- Push-pull output stage.
- Variable Selectivity.
- "S" Meter.
- Noise Limiter.
- Standby switch.
- Stabilised H.T. voltage to Oscillator, etc.
- Provision for relay operation of transmitter.
- High signal-to-noise ratio and sensitivity.
- Highly attenuated Image response.
- Very effective A.G.C.
- Large accurately calibrated dial.
- Provision for twin feeder and single aerial.
- Adjustable dial illumination.
- Modern miniature all-glass valves.
- Flywheel loaded tuning—140 to 1 reduction ratio.
- Mechanical bandspread logging device.
- All controls separate and conveniently arranged.
- Robust construction.
- Finished for tropical service.



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EDDYSTONE WORKS · BIRMINGHAM · ENGLAND

CABLES: STRATNOID BIRMINGHAM

SPECIFICATION OF THE **EDDYSTONE**

FREQUENCY COVERAGE.

Band 1	...	30 Mc/s. to	12.3 Mc/s.
Band 2	...	12.5 Mc/s. to	5.3 Mc/s.
Band 3	...	5.7 Mc/s. to	2.5 Mc/s.
Band 4	...	2.5 Mc/s. to	1.11 Mc/s.
Band 5	...	1120 kc/s. to	480 kc/s.

CIRCUIT AND VALVE SEQUENCE.

Two Radio Frequency Stages	6BA6	Push Pull Output	6AM5/EL91
Frequency-changer	6BE6	Beat Freq. Osc.	6BA6
Separate Oscillator	6AM6/Z77	Noise Limiter	6AL5/D77
Two I. F. Stages	6BA6	Rectifier	5Z4G
Detector and A.G.C.	6AL5/D77	Voltage Stabiliser	VR150/30
Audio Amplifiers	6BR7(8D5)		

TUNING DRIVE AND SCALES.

The geared tuning mechanism is made to precision limits and has a reduction ratio of 140 to 1. This, in conjunction with the flywheel loading, results in smooth positive operation, free of backlash. The straight line tuning scales are clearly marked in frequency, the accuracy of calibration being within 0.5%. The vernier scale, which is read against the lowest scale on the main dial, confers an adequate degree of mechanical bandspread, available throughout the tuning range and permitting accurate re-setting.

SIGNAL FREQUENCY SECTIONS.

The coils, which are housed in a robust diecasting, have adjustable powdered-iron cores and air dielectric trimmers, giving high efficiency and enabling the four tuned circuits (per range) to be aligned to close limits. The separate oscillator valve is fed from a stabilised high tension supply and oscillator radiation from the aerial is below the limit specified by the G.P.O. for marine service. The input impedance is nominally 400 ohms.

I.F., CRYSTAL AND B.F.O. SECTIONS.

The carefully designed intermediate frequency transformers are permeability tuned to 450 kc/s, the couplings between the coils being variable mechanically by a panel control to give a wide range of selectivity. A vacuum mounted crystal is used in the high effective filter. The B.F.O. is a separate unit, well screened, and provided with a panel pitch control.

OUTPUT AND POWER SECTIONS.

The undistorted output is 2 watts and the maximum about 4 watts, the audio frequency response being linear over a wide range. The output impedance is 2.5 ohms but a balanced 600 ohm output can be provided to order. A jack to take high resistance telephones is fitted. The power supply is well smoothed and regulated. The mains transformer has tappings for 110 and 200/240 volts, 40/60 cycles, the consumption being approximately 80 watts.



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'680X" COMMUNICATIONS RECEIVER

OTHER FEATURES.

At the top of the main scale is the signal strength meter, useful as a tuning indicator and for making comparative measurements of carrier levels. The noise limiter is most effective against car ignition and similar forms of interference. The stand-by switch has a long dolly and auxiliary contacts are brought out to the rear. Controls are provided for setting the "S" Meter zero and for adjustment of dial illumination. Pick-up terminals are fitted (impedance about 100,000 ohms).

PERFORMANCE FIGURES (see Graphs for full information).

- Sensitivity :** better than 5 microvolts on all ranges, for a 15db signal to noise ratio, and 50 milliwatts output.
- Selectivity :** bandwidth at points 6db down—minimum position of control 14 kc/s ; maximum position 2.4 kc/s. Two intermediate positions and optional crystal filter.
- Image Ratio :** greater than 42 db attenuation at 25 Mc/s, the figure becoming higher as frequency decreases.
- A.G.C.:** output level maintained within 9db for a 100db change of input signal.

GENERAL CONSTRUCTION.

The front panel and tuner unit are aluminium diecastings, the other units of brass or steel, and the cover of steel. The finish is a fine, durable polychromatic grey, applied not only externally but also to most of the interior parts. The cover has a lift-up lid, making the valves readily accessible. It can be easily and quickly removed by withdrawing four screws at the rear. The panel is fitted with chromium plated handles whilst internal protecting rails enable the chassis to be placed in any position without risk of damage. Components are of the highest quality, and the whole is finished for tropical service.

PHYSICAL DETAILS.

Width $16\frac{3}{4}$ inches : height $8\frac{3}{4}$ inches : depth (front to rear) $13\frac{3}{4}$ inches : Weight 47 lbs. (without packing). Receiver can be supplied for rack mounting to order, at a small additional cost.

Full instructions and a 12 months Guarantee accompany each receiver.

ACCESSORIES.

- Cat. No. 811 Diecast Speaker to match
Cat. No. 812 Mounting Blocks per pair

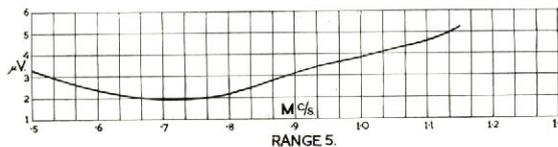
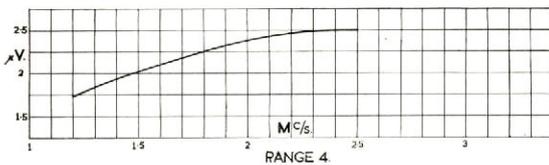
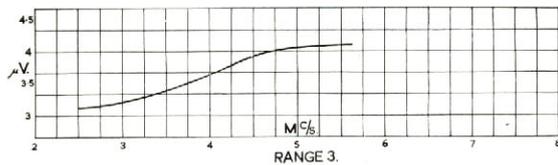
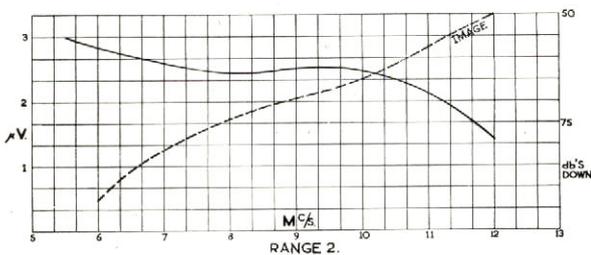
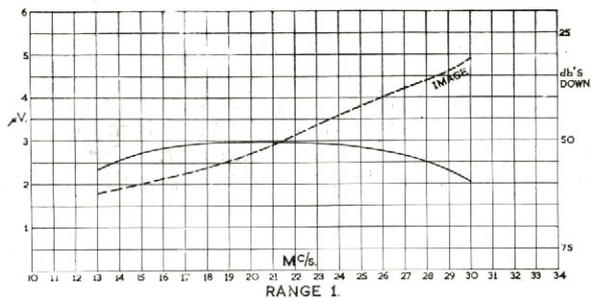


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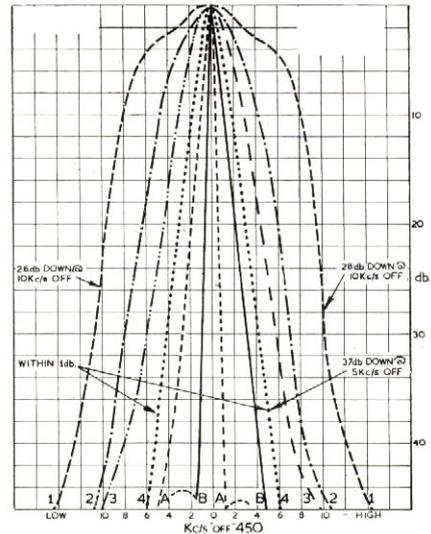
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PERFORMANCE CURVES

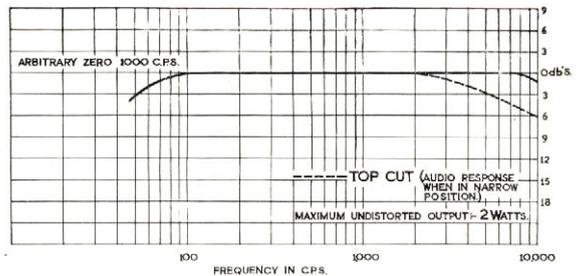
(Taken on an average "680X" Receiver)



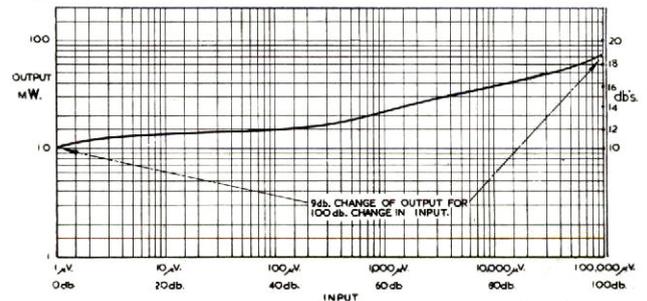
Above are sensitivity curves for an average "680X" Receiver. They are based on a 15 db signal-to-noise ratio and an audio output of 50 milliwatts.



Selectivity curves for the "680X" Receiver.
 (1) ——— minimum position.
 (2) - - - - - first intermediate position.
 (3) - . - . - second intermediate position.
 (4) maximum selectivity.
 (A) - - - - - maximum selectivity, with crystal filter in, and phased to reject signal on one side.
 (B) ——— as "A," but with crystal phased on other side.



Response curve of the Audio Amplifier stages of the "680X" Receiver. When the selectivity switch is at maximum, an additional top cut is introduced, the effect being indicated above by the dotted line curve. The figure of 2 watts represents distortionless output, over a wide range of frequencies. Considerably more output power is actually available, without appreciable distortion.



A.G.C. Characteristic of the "680X" Receiver (taken at 9 Mc/s)

EDDYSTONE "Puts Perfection into Performance"