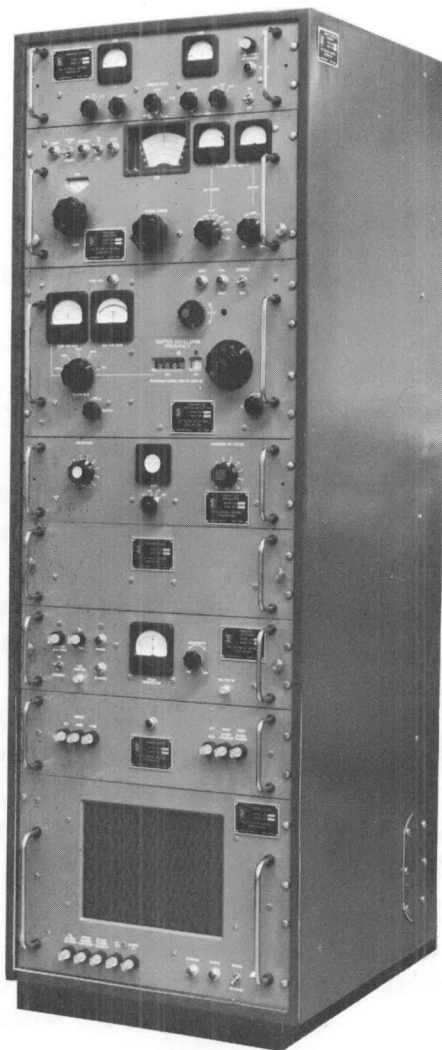




TECHNICAL BULLETIN NUMBER 2010

Single Sideband Generators
TMC Models SBG-1A
SBG-2
(AN/URA-30A)



TMC Models SBG, Single Sideband Generators, are synthesized general purpose exciter systems providing CW, AM, Compatible AM, SSB, ISB, FSK and FAX modes of operation on any one of 320,000 frequencies from 1.75 to 33.75 mcs.

Models SBG are useful replacements for master oscillators in almost any type of transmitter in use today and provide a precisely controlled output with a stability of at least 1 part in 10^8 per day, derived from a 1 mc source. A standby 1 mc standard provides a stability of 1 part in 10^6 per day. Models SBG may be directly connected to an external standard should higher stability operation be desired.

Single Sideband Generators

Upper and lower audio passband of 250-7500 cps is available with Model SBG-1 and 250-3300 cps in Model SBG-2. Both outputs are flat within ± 1.5 db.

For monitor of the internal standard, a phase detector comparison circuit, with direct meter indication, may be connected to a master or station standard without degrading either standard.

Models SBG may be supplied with shock suspension systems for shipboard applications, on special order.

The CPO-1A portion of Models SBG (See TB 2005) may be used independently as an ultra stable RF frequency source by bypassing the sideband exciter.

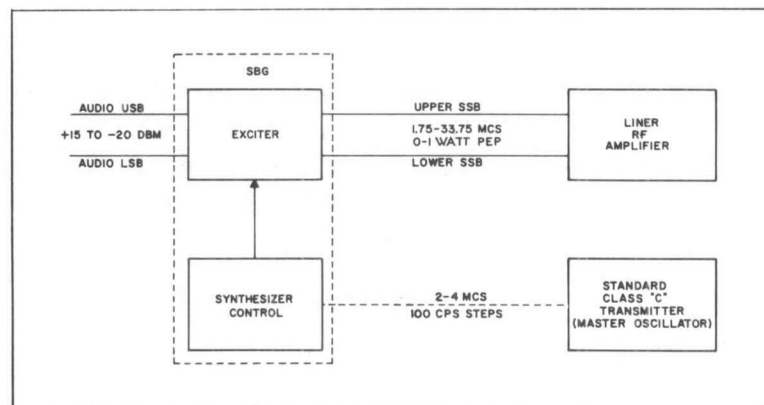
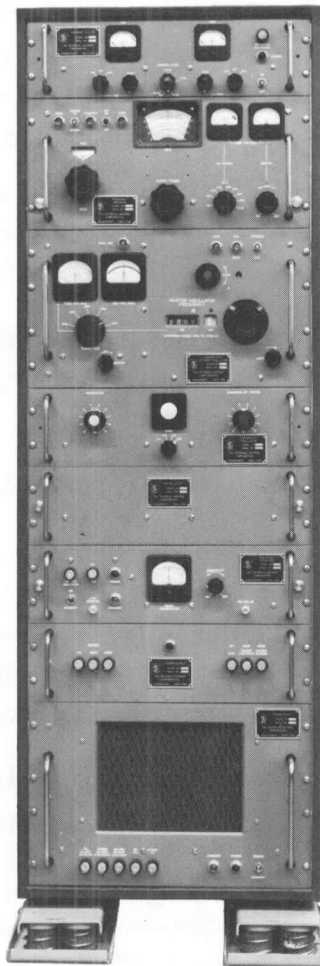
TECHNICAL SPECIFICATIONS

FREQUENCY RANGE:	1.75 to 33.75 mcs in 100 cps incremental steps.
MODES OF OPERATION:	CW, AM, Compatible AM, ISB, SSB. (FSK and FAX with appropriate external tone keyers.)
OUTPUT POWER:	Continuously adjustable from 0 to 1 watt PEP.
OUTPUT IMPEDANCE:	70 ohms nominal.
FREQUENCY STABILITY:	1 part in 10^8 per day for ambient temperature change of 15° C within the range of $0-50^\circ$ C.
FREQUENCY CONTROL:	All frequency determining elements referenced to a built-in 1 mc source.
TUNING:	All tuning and bandswitching controls are on the front panel. (No plug-in components or mechanical adjustments.)
SIGNAL/DISTORTION RATIO:	Distortion products are at least 50 db below either tone of a two tone test.
UNWANTED SIDEBAND REJECTION:	A signal at 500 cps is at least 60 db down from full PEP in the unwanted sideband.
SPURIOUS SIGNALS:	Spurious signals greater than 60 cps removed from the carrier are at least 60 db below full PEP output.
NOISE LEVEL:	Noise level is at least 70 db down from either tone of a two tone test.
CARRIER INSERTION:	-55 db to full output.
HARMONIC SUPPRESSION:	2nd harmonics are at least 50 db below full PEP output. All others are at least 65 db below full PEP output.

TMC Models SBG-1A & SBG-2

AUDIO RESPONSE:	SBG-1A Flat within ± 1.5 db, 250-7500 cps, crystal lattice filters, both upper and lower sidebands.
	SBG-2 Flat within ± 1.5 db, 250-3300 cps, crystal lattice filters, both upper and lower sidebands.
	NOTE: Crystal lattice filters to meet other bandpass requirements, such as CCIR etc., available on special order.
AUDIO INPUT:	Two independent 600 ohm channels balanced or unbalanced, -20 db input will provide full RF output.
HUM LEVEL:	At least 50 db. below full PEP output.
ALDC:	Model SBG will accept 0 to approximately -8 volts DC from the ALDC circuit of its associated linear amplifier to improve linearity, limit distortion, and deliver a relatively constant output level during high modulation peaks or load changes.
METERING:	Front panel meters provide indications of the operation of all critical circuits.
ENVIRONMENTAL CONDITIONS:	Designed to operate in any ambient temperature between 0° C and 50° C, and any value of humidity up to 95%.
COOLING:	Filtered forced air.
CW KEYING INFORMATION:	Connections on rear panel available for CW keying.
INSTALLATION DATA: (Size & Weight)	Provided in standard 62" relay rack. All units of the SBG-2 require only $57\frac{3}{4}$ " of standard 19" panel space. Approximately 550 lbs.
PRIMARY POWER:	115/230 v, 50/60 cps, single phase, approximately 900 watts.
SHIPPING WEIGHT & CUBE: (Level "A" Pack)	1123 lbs., 67.4 cu. ft.
NOMENCLATURE:	SBG-1A AN/URA-30A
LOOSE ITEMS:	Mating coaxial fittings and instruction books.
INSTRUCTION BOOKS:	Two (2) TMC IN-258 provided.
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.

Single Sideband Generators



FUNCTIONAL BLOCK DIAGRAM MODEL SBG

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