



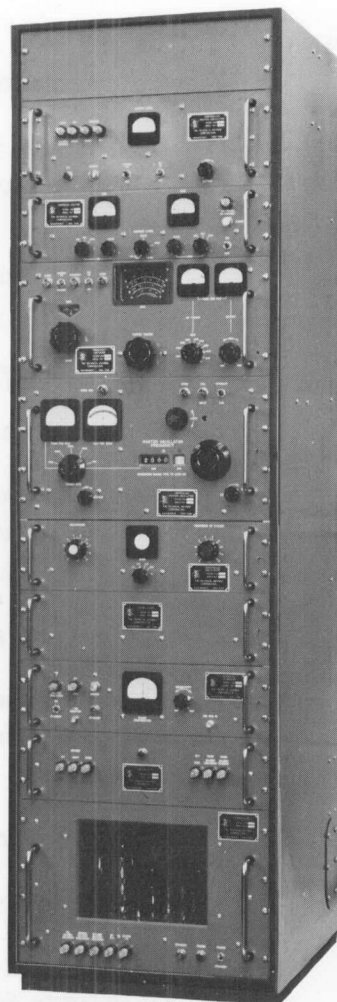
TECHNICAL BULLETIN NUMBER 2013

Low Frequency Sideband Exciter

TMC Model SBG-1L

TMC Model SBG-1M

(AN/URA-41)



TMC Model SBG-1L (AN/URA-41) and Model SBG-1M are synthesized oscillator/exciter units that provide highly stable 100 cycle incremental tuning in the VLF/LF/HF portions of the frequency spectrum. Both units feature frequency stability and resettable accuracy of 1 part in 10^8 for 24 hours.

These units are used to replace the master oscillator of conventional transmitters for CW operation, or to provide SSB, ISB, Compatible AM and CW modes of operation when applied to a linear amplifier. Tone FSK or FAX is possible by means of a keyer such as TMC Model TIS-3.

A phase detector comparison circuit with direct meter indication allows the built-in standard to be compared to and corrected to a master station standard without degrading either standard.

Low Frequency Sideband Exciter

TECHNICAL SPECIFICATIONS

FREQUENCY RANGE:	SBG-1M 10-50 kc in 100 cps steps and 1.75 to 33.75 mcs in 100 cps steps.
	SBG-1L 50-500 kc in 100 cps steps and 1.75 to 33.75 mcs in 100 cps steps.
OPERATING MODES:	SSB, ISB, AM equivalent and CW (FSK and FAX with external tone keyers).
OUTPUT POWER:	SBG-1M 10 to 50 kc continuously adjustable from 0 to 5 watts PEP.
	SBG-1L 50 to 500 kc continuously adjustable from 0 to 5 watts PEP.
	BOTH 1.75 to 33.75 mcs continuously adjustable from 0 to 1 watt PEP.
OUTPUT IMPEDANCE:	50 ohms nominal.
FREQUENCY STABILITY:	1 part in 10^8 per day for ambient temperature change of 15° C within the range of 0 to 50° 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:	45 db down from 2 tone PEP output.
UNWANTED SIDEBAND REJECTION:	500 cps single tone at least 60 db down from full output.
SPURIOUS SIGNALS:	All spurious 60 cps removed from carrier are down better than 60 db.
NOISE LEVEL:	70 db below PEP.
CARRIER INSERTION:	-55 db to 0 db.
HARMONIC SUPPRESSION:	2nd harmonic at least 50 db below PEP output. All others at least 60 db below output.
AUDIO RESPONSE:	Flat within ± 1.5 db, 250 to 7500 cps, crystal lattice filters, both upper and lower channels. 250 to 3300 cps response flat within ± 1.5 db is also available.

TMC Models SBG-1L and SBG-1M

AUDIO INPUT:	Two independent 600 ohm channels, balanced or unbalanced, -20 db level for full RF output. An unbalanced input can also be applied.
HUM LEVEL:	-55 db below full Pep output.
ALDC:	Models SBG 1L IM 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 monitor all critical circuits.
TEMPERATURE & HUMIDITY:	0-50° C., up to 95% humidity.
ALTITUDE:	10,000 feet.
COOLING:	Filtered forced air.
CW KEYING INFORMATION:	Rear panel connections for CW keying.
INSTALLATION DATA: (Size & Weight)	Provided in standard 72" relay rack. All units of the SBG-1L and SBG-1M require only 66½" of standard 19" panel space. Approximately 550 lbs.
PRIMARY POWER:	115/230 volts, 50/60 cps, single phase, approximately 900 watts.
SHIPPING WEIGHT AND SIZE:	Approximately 1100 lbs., 55 cu. ft.
SIZE OF LARGEST CONTAINER:	Sub level 75" × 24¼" × 31⅛".
NOMENCLATURE:	SBG-1L AN/URA-41.
LOOSE ITEMS:	All matching coaxial fittings and two instruction books provided.
COMPONENTS AND CONSTRUCTION:	All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.

TMC Models SBG-1L and SBG-1M

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