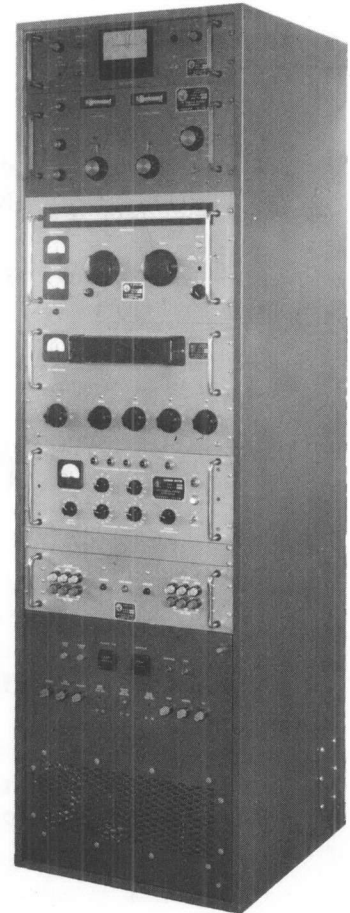




TECHNICAL BULLETIN NUMBER 2012

Single Sideband Generator TMC Model SBG(-)3

- 2 to 32 mc, up to 250 milliwatts PEP
- 1 part in 10^8 per day stability
- ISB, SSB, AM, AME, CW, FSK and FAX
- TechniMatic* operation optional
- Digital RF signal display
- 4 discrete 3 kc audio channels or wideband channels.



The new model SBG-3 sideband generator described in this bulletin has been created to incorporate the most recent developments in the fast moving sideband field, and will provide an improvement in the operation of most sideband transmitters.

This device simplifies sideband tuning by providing illuminated digital readout of R.F. frequency and clearly defined output tuning. In addition, four separate and discrete voice channels, each covering 250 to 3040 cps, may be used on a single transmitter with an optional wideband capability. Since tuning is accomplished in 100 cps steps over the range of 2 to 32 mcs, 300,000 R.F. frequencies are available in the range. A stability of one part in 10^8 is built into the unit, and exterior standards of even greater stability may be used.

In addition the SBG-3 may be "in station" or "distant remoted" by mechanical or "TechniMatic*" teletype standard control. The specifications detailed below indicate the capabilities of the SBG-3.

Single Sideband Generator

TECHNICAL SPECIFICATIONS, TMC MODEL SBG()-3

FREQUENCY RANGE:	2 to 32 mc in 100 cps increments.
MODES OF OPERATION:	ISB, SSB, AM, AM Equivalent and keyed carrier CW. FSK and FAX modes by external audio input.
POWER OUTPUT:	Continuously adjustable from 0 to 250 milliwatts PEP.
OUTPUT IMPEDANCE:	50 ohms unbalanced.
FREQUENCY STABILITY:	1 part in 10^8 per day for ambient temperature change of 15° C within the range of $0-50^{\circ}$ C. A frequency standard with higher stability is available. (See OPTIONS/ACCESSORIES)
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.
SIGNAL/DISTORTION RATIO:	Distortion products are at least 50 db below PEP from 2 to 32 mc when measured with standard 2 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 as a result of internal mixing are down at least 60 db at full PEP output.
HUM AND NOISE LEVEL:	Hum at least 50 db below full PEP. All other noise down at least 70 db.
CARRIER INSERTION:	Full suppression (at least -55 db), -20 db, -15 db, -5 db, full carrier (0 db).
SQUELCH AND VOX:	Special circuitry incorporated within the modulator shuts off the rf output of any one of the channels when there is no intelligence input to that channel. When there is no audio input to any of the channels, the transmitter is automatically placed in a stand-by status.
HARMONIC SUPPRESSION:	All harmonics are at least 45 db below full PEP output.

TMC Model SBG()-3

FILTER RESPONSE:	<ol style="list-style-type: none">1. Four multiplexed channels of ± 1.5 db from 250 to 3040 cps are provided as standard.2. A separate position within the exciter allows the insertion of other filters for symmetrical or side-band use.
AUDIO INPUT:	5 audio input connections 600 ohms balanced and centertapped.
MICROPHONE INPUT:	Front panel provisions for carbon or dynamic microphones are available.
AUDIO DYNAMIC RANGE:	Special audio input circuitry in each channel compensates for input level changes from +10 to -30 dbm by maintaining the residual audio to within ± 2 db.
CHANNEL PRIORITY:	Front Panel control, with selectable meter allows adjustment of the percentage of power allocated to the active channels.
ALDC:	Unit will accept ALDC input from associated linear amplifier between the voltage range of 0 to -14 vdc to maintain constant level drive, thus preventing overload to the associated linear amplifier.
METERING:	Front panel meters monitor audio input, intermediate frequency and rf output levels.
ENVIRONMENTAL CONDITIONS:	Designed to operate in any ambient temperature between 0° C and 50° C and any value of humidity up to 95%.
STORAGE CONDITIONS:	Equipment will not be materially affected under storage of -62° C to +75° C.
INSTALLATION DATA:	WEIGHT: Less cabinet, approximately 300 lbs. SIZE: 32¼"h × 19"w × 20¼"d.
PRIMARY POWER:	115/230 vac $\pm 10\%$ single phase 50/60 cps. Power consumption approximately 500 watts.
INSTRUCTION BOOK:	TMC IN 2012.
LOOSE ITEMS:	Mating RF connectors, fanning strips and two (2) instruction manuals are provided.
COMPONENTS AND CONSTRUCTION:	All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.

Single Sideband Generator

OPTIONS/ACCESSORIES:	(Priced separately).
FREQUENCY STANDARD:	Model CSS-2 available for stability of 1 part in 10^9 for a 24 hour period.
OPTIONAL FILTERS:	Wideband filters to meet standard communication requirements or filters for special communication requirements can be provided.

ORDERING INFORMATION:

MODEL NUMBER

OPERATION CAPABILITIES

SBGA-3	Provides 4 discrete audio channels, each channel 250-3040 cps with option of a fifth wideband channel. Manually tuned but capable of adaptation to TechniMatiC* tuning by field modification.
SBGB-3	Same as SBGA-3 but fitted with TechniMatiC* tuning for in-station control.
SBGE-3	Same as SBGA-3 but is fitted with memory unit timing device for complete TechniMatiC* remote control by means of teletypewriter messages.
SBGF-3	Same as SBGA-3 but it has a push-button control for 10 pre-set frequencies with manual tuning of the remaining frequencies.

* Trademark applied for

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