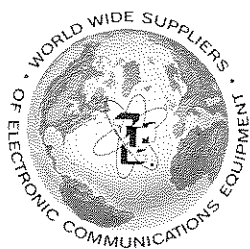


LF/MF Communications Receiver  
TMC Model VLRB-1



- 30 to 600 kcs continuously tuned
- Synthesized or unsynthesized
- Completely solid state
- RF, IF and audio outputs
- 0.3 microvolt for 15 db  $\frac{S + N}{N}$
- Electronically switched battery supply available

Frequencies at the lower portion of the RF spectrum (below 600 kcs) have become increasingly important in today's era of atomic weapons. These frequencies appear to be least affected by atomic detonation and are therefore very important for communication purposes. These frequencies also provide very reliable communications during periods of high sunspot activity.

To fulfill communication requirements in the VLF and LF/MF frequency ranges, The Technical Materiel Corporation has developed two continuously tuned and optimized solid state receivers, Model VLRB-1 for 30 to 600 kc coverage and Model VLRC-1 (described in Bulletin 3017) for 10 to 40 kc coverage. Each of these receivers occupies only 7" of standard rack space and provides reception capabilities of AM, AME, CW, FSK and FAX signals. Reception of some of these modes, particularly in the VLF range, will depend upon the capability of the transmission system. IF and RF outputs are available to facilitate the use of ancillary devices for ISB and SSB reception and for use with frequency standard comparison systems.

## LF/MF Communications Receiver

A synthesizer that is locked to a 1 mc frequency standard of 1 part in  $10^9$  per day is available as an option at extra cost. The synthesizer provides one cycle tuning from 30 to 100 kc and 10 cycle tuning steps from 100 to 600 kcs. One inch illuminated NIXIE lights display the frequency to which the receiver is tuned.

### TECHNICAL SPECIFICATIONS, TMC MODEL VLRB-1

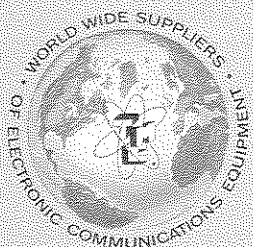
FREQUENCY RANGE:	30 to 600 kcs continuously in tuning ranges of 30 to 55, 55 to 100, 100 to 180, 180 to 330, and 330 to 600 kcs.
MODES OF RECEPTION:	AM, AME, CW, FSK and FAX over the entire frequency range of 30 to 600 kcs.
FREQUENCY STABILITY:	0.01% of the operating frequency after warm-up.
INPUT IMPEDANCE:	50 ohms nominal.
SENSITIVITY:	With a bandwidth of 500 cycles, a 0.3 microvolt signal at the antenna terminals will produce a 15 db signal to noise ratio at the output of the audio amplifier.
TUNING:	Continuous tuned with magnetic cores to give stable smooth tuning.
RF BANDWIDTH:	The RF bandwidth is a minimum of 3 kc on the lower band at 30 kc. On other bands starting at 55 kc, at least 8 kc bandwidth.
BANDPASS:	0.1, 0.5, 2, 4, and 8 kc at 3 db points, selectable from the front panel.
IF NOISE SILENCER:	A highly effective IF type noise silencer is included to remove impulse noise.
IF OUTPUT:	.001 volt across 50 ohms
IMAGE RATIO: (in accordance with CCIR specifications)	HFO image is at least 80 db down when referenced to 0.3 microvolt input signal.
AGC CHARACTERISTICS:	With a 100 db variation in the input signal, the output remains constant within + 3 db.
AUDIO DISTORTION:	On standard two tone test audio distortion will be at least 40 db down.
AUDIO OUTPUT:	<ol style="list-style-type: none"><li>0 dbm output into a 600 ohm balanced center tapped line.</li><li>4 ohm output to drive a speaker, <math>\frac{1}{2}</math> watt average power output.</li><li>Headphone monitor.</li></ol>

## TMC Model VLRB-1

HUM LEVEL:	Power Supply hum at least 50 db below full audio output.
ENVIRONMENTAL CONDITIONS:	Designed to operate in any ambient temperature of 0° C to 50° C, and any value of humidity up to 90%.
INSTALLATION DATA:	The unit is approximately 7" high × 19" wide × 16" deep, and weighs approximately 15 lbs.
POWER SUPPLY:	115/230v, 47-400 cycle, single phase primary power, approximately 15 watts.
COMPONENTS AND CONSTRUCTION:	All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.
OPTIONS/ACCESSORIES:	(All priced separately)  Synthesizer, TMC Model LFSB-1, with Frequency Standard, TMC Model CSS-2, for 1 part in 10 <sup>9</sup> stability per day. An electronically switched battery supply is available for operation of the receiver by itself or to provide power to the receiver, synthesizer and frequency standard in the event of main power failure. Model BPSA-1 will furnish power to the unit for at least 6 hours.

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