PERFORMANCE REQUIREMENTS
TYPE LD-B1 BRANCHING AMPLIFIER
GENERAL EQUIPMENT REQUIREMENTS
RADIO SYSTEMS

1. GENERAL

1.01 This section covers the performance requirements which Type LD-B1 Branching Amplifiers shall meet before turnover to the Telephone Company. It is expected that the tests will be made by the Telephone Company.

1.02 ***Test Equipment:*** The requirements are based on the use of the following test equipment, or its equivalent:

1—*Voltmeter with a rated sensitivity of not less than 20,000 ohms per volt on d.c., and 1,000 ohms per volt on a.c., and accuracy within the following limits at the points listed:

VOLTS	ACCURACY, VOLTS
300.0 D-C	± 30.0
150.0 D-C	± 5.0
80.0 D-C	± 5.0
10.0 D-C	± 1.0
115.0 A-C	± 7.5
6.4 A-C	± 0.3

(Suggest Weston Analyzer, Model 772, Type 6 or Model 779, Type 1)

*Generator, Standard Signal—For operation on 115 volts, 40 to 60 cycles with standard accessories, plus one Type 774M Cable Jack,—also one flexible coaxial cable, W.E. Type 724, eight feet long with W.E. 337A Plug on one end and the above 774M Cable Jack on the other end—General Radio Company Type 805C—or

*Generator, Standard Signal—For operation on 115 volts, 50 or 60 cycles as required, plus one output pad to match at one end an Amphenol 83-1SPN (Navy #49195)coaxial plug and containing a 62-ohm ±5% non-inductive resistor—also one flexible coaxial cable W.E. Type 724, eight feet long—with W.E. 337A Plug on one end and Amphenol 83-1SPN Coaxial Plug on the other end—Measurements Corporation No. 65B—or

*Generator, Standard Signal—For operation on 115 volts, 50 or 60 cycles as required with accessories, plus one dummy antenna containing a 22-ohm non-inductive resistor, one dummy antenna containing a 62-ohm non-inductive resistor, one Type 187-58 Jack—also one flexible coaxial cable W.E. Type 724, eight feet long with W.E. 337A Plug on one end and the above Type 187-58 Jack on the other end—Federal Manufacturing and Engineering Corporation No. 605-CS or General Radio No. 605-B—or

*Generator, Signal Generator—For operation on 115 volts, 50 or 60 cycles as required. Equipped with Amphenol 83-1R Coaxial Connector, one dummy antenna Model 440-A containing a 43-ohm ±5% non-inductive resistor, one standard cable for high-voltage output, and one 30-ohm cable with output box containing a 30-ohm termination to fit Amphenol 83-1R Output Jack—also one flexible coaxial cable W.E. Type 724, eight feet long with W.E. 337A Plug on one end and Amphenol 83-1SPN Coaxial Plug on the other end—Ferris Instrument Company No. 22D.

1—*Radio Receiver capable of receiving signals in the 5-20-megacycle range with a 72-ohm unbalanced input. (LC-R1 or LD-R1 receivers are of this type and are available at locations where the LD-B1 Branching Amplifer is installed.)

Note: *It is recommended that these items be ordered suitable for tropical service (specified as "tropicalized") if equipment is to be used in such an environment. Tropical environment may be defined for this purpose as one in which the lowest mean monthly temperature is 64°F. or above and the mean daily relative humidity is 75% or above for a period of a month or more.

2. GENERAL

2.01 Vacuum tubes shall meet their standard requirements when measured in the tube test set available. A check should be made to insure that all the vacuum tubes are installed in their sockets and that the a-c power supply is connected.

3. PRELIMINARY TESTS

3.01 *General*

(1) Remove the amplifier mat and close safety switch D2 by suitable means for tests in Part 3.

WARNING: DANGEROUS VOLTAGES ARE EXPOSED. PROVIDE SUITABLE PROTECTION. HEATER TERMINALS OF TUBES V1-V6 ARE 80 VOLTS ABOVE GROUND; THEREFORE DO NOT ALLOW METER LEADS TO TOUCH GROUND.

3.02 *A-C Power Tests*

(1) Using the test analyzer, measure the a-c voltage across terminals 1 and 3 of transformer T2 (PWR). The voltage reading should be between 109 and 121 volts.

(2) Measure the voltage across terminals 4 and 6 of T2. The voltage reading should be between 5.8 and 7.0 volts.

3.03 *D-C Metering Tests*

(1) Measure the d-c voltages between the following junction points and ground. These shall fall within the following limits:

MEASURING POINTS	LIMITS, VOLTS
Junction of R32 and R37	302.0 ± 25.0
Junction of R32 and R34	150.0 ± 10.0
Junction of R34 and R35	80.0 ± 8.0
Junction of R35 and R36	10.0 ± 1.5

(2) Connect the d-c voltmeter to jacks J1 and J2. The meter shall read between 10.0 and 13.0 volts when the V T CURRENTS switch D1 is set to each of the six tube positions.

4. GAIN MEASUREMENTS

4.01 Plug a signal generator into the input jack connected to the amplifier and plug a radio receiver arranged for manual volume control into the jack connected to the first output. Set the input to the amplifier to 100 microvolts at the frequencies listed below and measure the branching amplifier gain by noting the input required to obtain the same receiver output with the signal generator plugged directly into the radio receiver and comparing this input with 100 microvolts. The receiver should be tuned for each gain measurement and it may be necessary to retune the input vernier each time in order to make up for the reactance in the connecting coaxial lines. The measured gains shall be within the following db gain or gain ratio limits:

FREQUENCY, MC	GAIN, DB	GAIN RATIO
20	4.0 to 9.5	1.6 to 3.0 times
15	1.5 to 9.5	1.2 to 3.0 times
10	-2.0 to 8.0	0.8 to 2.5 times
5	-8.0 to 4.5	0.4 to 1.7 times

4.02 Repeat the above test for the other five output connections. The measured gains shall meet the same requirements.