TYPE N2 CARRIER TELEPHONE SYSTEMS
CHANNEL MODEM UNIT
TRANSMITTING AND RECEIVING CARRIER POWER TESTS

The carrier frequency for each channel is generated by a crystal-controlled oscillator in the transmitting circuit of each channel modem unit. Each channel transmits to the group transmitting unit its carrier frequency plus both sidebands. At the receiving end, the channel bandpass filter selects its carrier frequency and sidebands from the receiving group unit output. The received carrier power operates the channel regulator which serves to produce a relatively constant message level at the output of the demodulator.

The purposes of these tests are as follows:

(a) At the transmitting end, to check the carrier level at the output jacks of the modem unit to insure that the carrier oscillator and modulator are delivering the required carrier power.

(b) At the receiving end, to check the carrier level at the input to the channel regulator to insure that the level is within the operating range of the regulator.

These measurements may be made on an in-service basis.

When measuring on working systems, caution should be exercised to avoid causing hits on systems carrying SAGE or telegraph transmissions.

APPARATUS:

Hewlett-Packard Model 400-type Vacuum Tube Voltmeter (VTVM)
W2DW Cord

CHECK OF TRANSMITTING CARRIER POWER

STEP	PROCEDURE
1	Using the W2DW cord, connect the 400-type VTVM to the MO-MG jacks on the modem unit, and measure the modulator output. ***Caution: The VTVM ground terminal shall be connected to the MG jack.*** ***Requirement:*** −27.5 to −29.5 db. ***Note 1:*** If the measurement is less than the required level, the modem unit is in trouble and must be replaced. ***Note 2:*** If the measurement is greater than the required level, the trouble may be in the modem unit or in the connections from the modem unit to the line terminating unit.

CHECK OF RECEIVER CARRIER POWER	
STEP	**PROCEDURE**
1	Using the W2DW cord, connect the 400-type VTVM to the DI-DG jacks on the modem unit, and measure the carrier input level to the demodulator. ***Caution: The VTVM ground terminal shall be connected to the DG jack.*** ***Requirement 1:*** For each channel, this measurement shall be −3.0 db maximum and −22.0 db minimum. ***Requirement 2:*** For adjacent channels, the measured levels shall differ by not more than 5.0 db. ***Note:*** In trouble locating tests, if the above measurements exceed the limits of either requirement 1 or 2, the modem unit may be at fault. A comparison of the measurement for a particular channel with the corresponding measurement of individual carrier power at the output of the receiving group unit, as specified in Section 362-805-504, will determine if the modem unit is at fault. For a satisfactory modem unit, this measurement should be within the following limits: (X + 1) db ±2 db where X is the actual carrier power as determined by measurements as specified in Section 362-805-504. ***Example:*** If a channel as measured with a selective voltmeter is −16.5 db per Section 362-805-504, the actual carrier power X is −14.0 dbm. Then the VTVM reading shall be (−14.0 +1) = −13 db ±2 db.