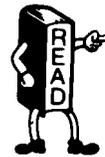


**“DMS-1*” DIGITAL MULTIPLEX SYSTEM
 SYSTEM PERFORMANCE TESTS**

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1. GENERAL

- 1.01 This section contains procedures for,
- (a) measuring the end-to-end performance of the DMS-1 system: Charts 1 and 2;
 - (b) measuring the idle-channel noise: Charts 3 and 4.



These are service-affecting test procedures.

- 1.02 The procedures are used during and after maintenance to verify the correct operation of the DMS-1 system.
- 1.03 The tests are made on a single line so that service is affected only on the line under test. However, take care not to interrupt service inadvertently on other lines while working on the line under test.
- 1.04 *Reason for Reissue:* to add new and revised information. Since this is a general revision, changes are not marked by margin arrows.

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2. REFERENCES

2.01 The following Northern Telecom Practices should be available for reference when required:

- 363-2011-213 DMS-1 Digital Multiplex System; System Lineup
- 363-2011-300 DMS-1 Digital Multiplex System; System Operation
- 363-2011-500 DMS-1 Digital Multiplex System; System Fault Locating.

3. TEST EQUIPMENT

3.01 The following test equipment is required for these test procedures:

- 1 Transmission Measuring Set (TMS); Hewlett-Packard HP3555B, or equivalent.
- 1 Signal Source; Hewlett-Packard HP236A, or equivalent.
- 2 Patch Cords; NEP3Q3A (6 foot), NEP3Q3B (10 foot), or NEP3Q3C (15 foot).
- 1 Terminating Plug; 900-ohm, 2-watt local manufacture, see Fig. 1.

4. END-TO-END PERFORMANCE TESTS

4.01 The test procedures in the following charts verify the correct operation of

- the channel assignment routine,
- the digital transmission between the CCT and the RCT from line circuit pack to line circuit pack,
- the off-hook detector in the RCT line circuit pack,
- the transmission circuits of the CCT and RCT line circuit packs
 - (a) at the test-tone level, and
 - (b) for idle-channel noise.

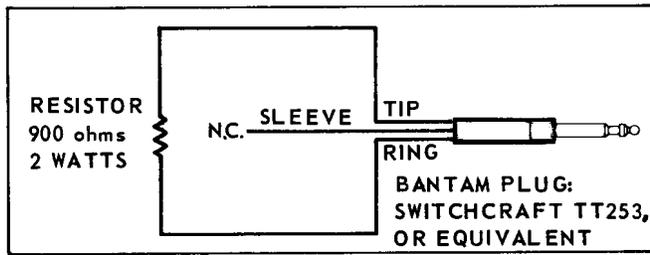


Fig. 1 — Terminating Plug, 900-Ohm, 2-Watt — Schematic Diagram

CHART 1
END-TO-END LEVEL TEST – CCT TO RCT

STEP	PROCEDURE
1	<p>At the CCT, connect the signal source to the EQPT jack on the jackfield for the line to be tested. (Fig. 2).</p> <p><i>Note:</i> If a jackfield is not installed, connect the signal source directly to the distribution frame, and remove the cross-connection to the switching equipment.</p>
2	<p>Set the controls on the signal source as follows:</p> <p>output impedance: 900 ohms balanced</p> <p>output level: 0±0.1 dBm</p> <p>frequency: 1004 Hz</p> <p><i>Note:</i> Frequency setting is approximate, but must not be exactly 1000 Hz; if frequency is too close to 1000 Hz beating with the 8000 Hz sampling frequency causes inaccurate readings.</p>
3	<p>At the RCT, connect the TMS to the EQPT jack on the jackfield for the line under test (Fig. 3).</p> <p><i>Note:</i> If a jackfield is not installed, connect the TMS to the distribution frame, and remove the cross-connection to the subscriber line.</p>
4	<p>Set the controls on the TMS as follows:</p> <p>level: 0 dBm</p> <p>input impedance: 900 ohms balanced, terminating</p> <p>function: HOLD</p> <p><i>Note:</i> The HOLD function of the TMS is used to simulate an off-hook condition at the RCT to obtain a channel assignment for the line under test. If the TMS being used does not have a HOLD feature, a channel must be assigned to the line under test by operating the ASSIGN button on the QPP425 SYSTEM TEST circuit pack at the CCT. See Section 363-2011-300 for operating instructions.</p>
5	<p>Read the level on the TMS.</p> <p><i>Requirement:</i> -2±0.9 dBm maximum at 20 to 25° C.</p> <p>If the requirement is not met, refer to Section 363-2011-500 Part 4 for locating and correcting the fault.</p>

CHART 2
END-TO-END LEVEL TEST – RCT TO CCT

STEP	PROCEDURE
1	<p>At the RCT, connect the signal source to the EQPT jack on the jackfield for the line to be tested (Fig. 2).</p> <p><i>Note:</i> If a jackfield is not installed, connect the signal source to the distribution frame, and remove the cross-connections to the subscriber line.</p>
2	<p>Set the controls on the signal source as follows:</p> <p>output impedance: 900 ohm balanced</p> <p>output level: 0±0.1 dBm</p> <p>function: HOLD</p> <p>frequency: 1004 Hz</p> <p><i>Note 1:</i> Frequency setting (1004 Hz) is approximate, but must not be exactly 1000 Hz; if frequency is too close to 1000 Hz, beating with the 8000 Hz sampling frequency causes inaccurate readings.</p> <p><i>Note 2:</i> If the signal source does not have a HOLD feature, a channel must be assigned to the line under test by operating the ASSIGN button on the QPP425 SYSTEM TEST circuit pack at the CCT. See Section 363-2011-300 for operating instructions.</p>
3	<p>At the CCT, connect the TMS to the EQPT jack on the jackfield for the line under test (Fig. 3).</p> <p><i>Note:</i> If a jackfield is not installed, connect the TMS to the distribution frame, and remove the cross-connection to the switching equipment.</p>
4	<p>Set the controls on the TMS as follows:</p> <p>level: 0 dBm</p> <p>input impedance: 900 ohms balanced, terminating</p> <p>response: DAMP</p>
5	<p>Read the level on the TMS.</p> <p><i>Requirement:</i> -2±0.9 dBm maximum at 20 to 25° C.</p> <p>If the requirement is not met, refer to Section 363-2011-500 Part 4 for locating and correcting the fault.</p>

**CHART 3
IDLE-CHANNEL NOISE TEST – CCT TO RCT**

STEP	PROCEDURE
1	With the test equipment connected as shown in Fig. 2 and 3 perform Steps 1 through 5 of Chart 1.
2	Disconnect the signal source, and terminate the line under test by plugging a 900-ohm terminating plug, Fig. 1, into the EQPT jack for the line under test on the jackfield (or at the distribution frame if the jackfield is not installed).
3	Set the controls on the TMS as follows: level: 20 dBrn noise weighting: C- message input impedance: 900 ohms balanced, terminating function: HOLD
4	Read the level on the TMS. (If necessary adjust the level switch of the TMS for an on-scale reading.) <i>Requirement:</i> ≤ 20 dBrnC. If the requirement is not met, refer to Section 363-2011-500 Part 4 for locating and correcting the fault.

**CHART 4
IDLE CHANNEL NOISE TEST – RCT TO CCT**

STEP	PROCEDURE
1	With the test equipment connected as shown in Fig. 2 and 3, perform Steps 1 through 5 of Chart 2.
2	Perform Steps 2 through 4 of Chart 3.

5. OPTIONAL APPARATUS TESTS

5.01 Performance tests of the optional apparatus are service affecting. These tests must be performed at a low-activity period.

5.02 To verify the correct operation of the optional common circuit packs, perform appropriate tests as described in Chart 3 of Section 363-2011-213.

6. DIGITAL LINE TESTS

6.01 Performance tests of the digital line (except in-service monitoring of line violation rate) are service affecting. These tests must be performed at a low activity period.

6.02 To verify the correct operation of the LD-1 or other DS1 lines, perform the appropriate tests as described in Section 363-2011-212.

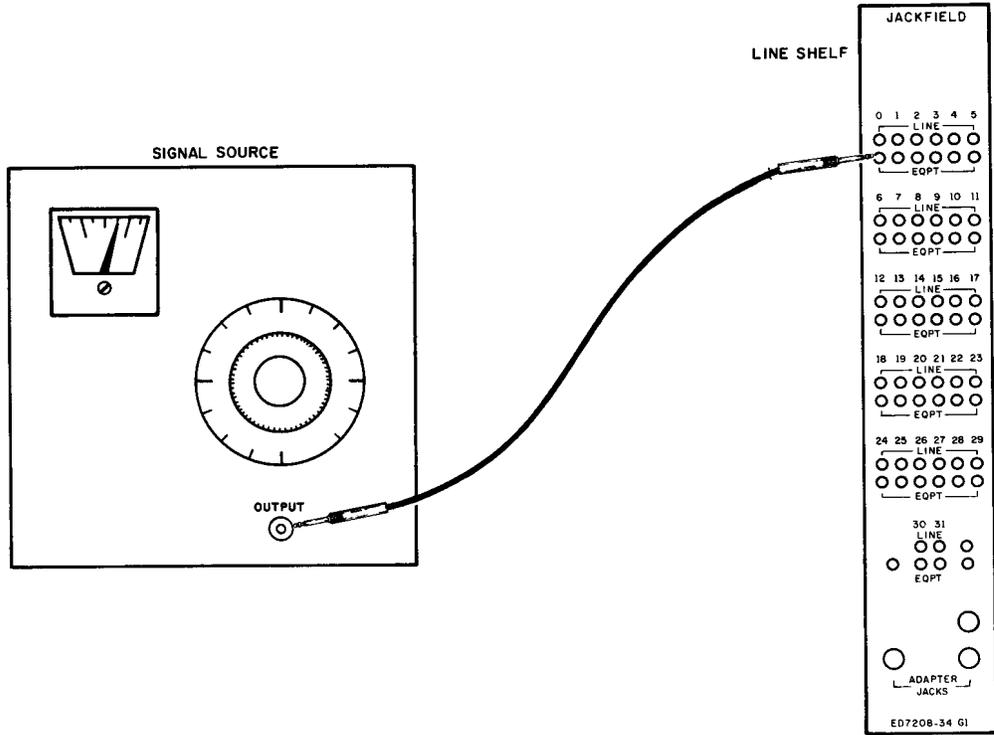


Fig. 2 — Signal Source Test Connections

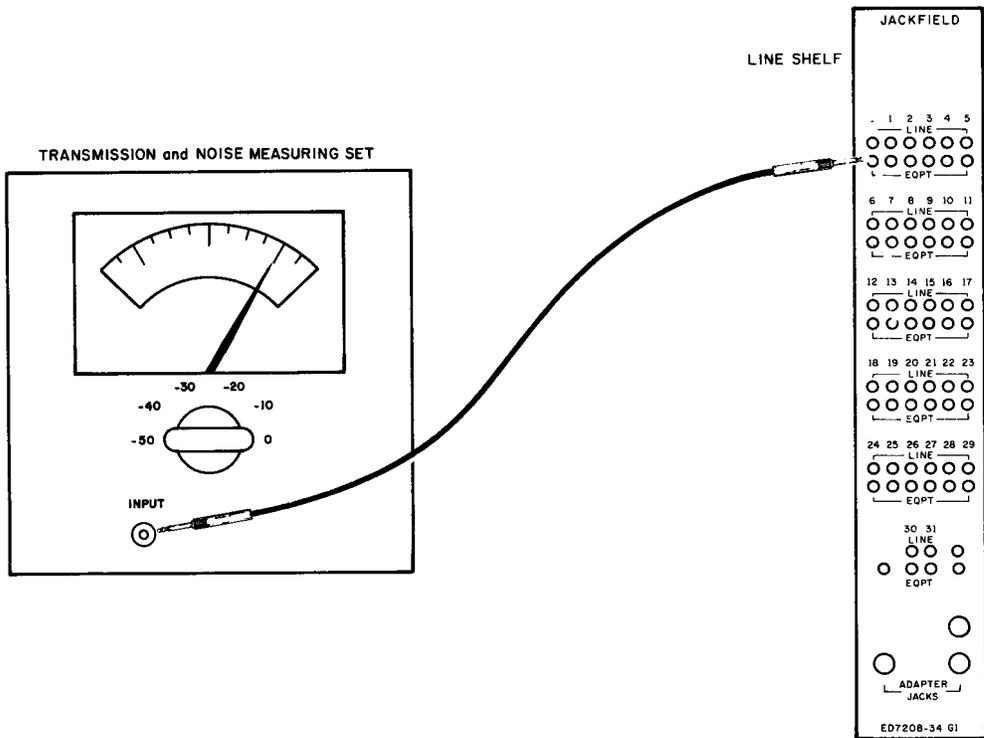


Fig. 3 — TMS Test Connection